

# MILITARY COMMUNICATIONS-ELECTRONICS BOARD

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# MCEB



## STANDARD SPECTRUM RESOURCE FORMAT (SSRF)

Version 1.2.4b [DRAFT]  
With Changes as of 01 May 2009

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# **Foreword**

Purpose: The purpose of this document is to define the Concept of Operations (CONOPS) and data elements for the exchange of spectrum management related data, including but not limited to Locations, Equipment and Antenna parameters, Spectrum Supportability Requests and the associated Host Nation Replies, Allotments, temporary or permanent frequency Proposals and Assignments, Interference Reports, Joint Restricted Frequency Lists (JRFL), Joint Communications Electronics Operating Instructions (JCEOI), and Hazards of Electromagnetic Radiations to Ordnance (HERO).

Authority: This document is issued under the authority of DOD Directive 5100.35, Military Communications-Electronics Board (MCEB) with changes thereto.

Amendments and Review: This document will be reviewed by the Spectrum Operations Permanent Working Group of the Frequency Panel annually and amendments will be issued by the Military Secretary, MCEB, when appropriate. All changes to this document will be coordinated with the National Telecommunications and Information Administration (NTIA) and the North Atlantic Treaty Organization (NATO) to ensure that this standard is aligned as close as possible with NTIA's Office of Spectrum Managements Data Dictionary (OSMDD) and NATO's Spectrum Management Allied Data Exchange Format - eXtensible Markup Language (SMADEF-XML).

Releasability: Unlimited. This document is approved for public release.

FOR THE CHAIRMAN:

JOHN DZIMINOWICZ  
CAPT, USN  
MCEB Military Secretary

Distribution:  
See Master Distribution List



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## I. Concept of Operations

# Volume I *Concept of Operations*

### 1. General

Purpose  
Organization of this document  
Configuration Control  
Spectrum Management Basics

### 2. Core SM Tasks

Introduction  
Reference Data  
Codes  
Define Locations  
Spectrum Supportability Process  
Define Transmitters/Receivers  
Define Antennas  
Request / Provide Frequency Allotments / Assignments  
Report Interference

### 3. Tactical SM Tasks

Introduction  
Force Elements  
CEOI  
BSM Plan  
JRFL  
JSIR

### 4. Spectrum Analysis

Tasks  
(under development)

Introduction  
Satellite Notification

### 5. Environmental Tasks

(under development)

Introduction

### 6. Document Handling

Introduction  
Document Distribution  
Document Structure  
Core versus National Elements  
Dataset Management  
Distribution from a central server  
Handling Attachments  
Document Validation  
Summary

## 1. General

The ultimate goal of spectrum management is to provide military access to the electromagnetic spectrum to meet training and operational requirements. A key aspect of achieving this goal is to have a data repository and standardized exchange procedures capable of supporting all aspects of these operations.

The business processes, interactions, and state diagrams are expressed using the Unified Modeling Language (UML) notation, version 2.1.2. A short introduction to this notation is presented at [Annex C](#). The formal definition of UML is maintained by the Object Management Group (OMG) at <<http://www.omg.org/spec/UML/>>.

### 1.1 Purpose

Standard Spectrum Resource Format (SSRF) is a format for exchanging data related to spectrum management within the Department of Defense (DOD). SSRF-compliant systems will be able to exchange electromagnetic spectrum data with the National Telecommunications and Information Administration ([NTIA](#)), the North Atlantic Treaty Organization ([NATO](#)), and with Combined Communications-Electronics Board ([CCEB](#)) nations. SSRF enables the development of tools to more efficiently manage a finite resource that is in increasing demand by the warfighter and is key to DOD's [Net-Centric Data Strategy](#). SSRF may be used within and between organizations, between differing systems that require access to spectrum management data and, potentially, with sophisticated network-enabled emitters.

SSRF is part of an effort to develop an international data standard that facilitates the sharing of accurate spectrum management information in regards to (but not limited to) frequency assignment and spectrum supportability information. SSRF will achieve this by using NATO's Spectrum Management Allied Data Exchange Format-eXtensible Markup Language ([SMADEF-XML](#)) data standard as its foundation.

Spectrum Management data exchanges using SMADEF-XML based formats such as SSRF will facilitate accurate, consistent, and rapid access to authoritative information on spectrum dependent devices as well as on geographical locations, force structures, and environmental conditions as they relate to management of the electromagnetic spectrum. SSRF formatted data offers an accurate and complete functional view of spectrum management activities and is designed to operate in a shared data environment. SSRF will enable DOD to share spectrum information that is dynamic, exchangeable through the use of common element and attribute definitions, and meet the DOD's Net-Centric goals.

#### 1.1.1 Introduction

SSRF is the DOD approved format for exchanging information related to the spectrum management process. SSRF is based on NATO's SMADEF-XML. NTIA's Office of Spectrum Management Data Dictionary (OSMDD) will be compatible with SSRF and NATO's SMADEF-XML. These standards specify a common format for each data element and the structured XML messages to be used when exchanging spectrum management information.

This document defines the Concept of Operations (CONOPS) and data elements for the exchange of spectrum management related data, including but not limited to geographical locations, equipment parameters, Spectrum Supportability Requests and the associated Host Nation Declarations, Allotments, temporary or permanent Frequency Proposals and Assignments, Interference Reports, Joint Restricted Frequency Lists (JRFL), Joint Communications-Electronics Operation Instructions (JCEOI), Force Elements, Platforms, and Hazards of Electromagnetic Radiations to Ordnance (HERO).

The CONOPS includes the purpose of SSRF, the business needs that SSRF satisfies, the basic concepts behind SSRF, and finally its characteristics and behavior from the user point of view. It

may also serve as a tutorial for new spectrum managers and provide introductory information for developers of spectrum management systems. The examples in [Annex E](#) may also help spectrum managers and system developers gain a clearer understanding of what typical SSRF documents might contain.

### 1.1.2 Legacy Standards

DOD, other Federal Agencies, and US allies have each developed or adopted different standards for the exchange of spectrum-related information. Different users within the same organization may have also developed different formats to fulfill different objectives (such as assignment / spectrum supportability functions). This approach resulted in several different and non-interoperable data exchange standards:

- **SFAF:** The Standard Frequency Action Format (SFAF) is a line-oriented text format used by DOD, and by U.S. allies and coalition partners who use SPECTRUM XXI.
- **GMF Card:** The Government Master File (GMF) Card is a line-oriented text format used by NTIA for frequency assignment data.
- **14 point format:** 14 Point is a line-oriented text message format used to exchange frequency assignment data in Partnership for Peace (PFP) Nations and some NATO Nations.
- **SMADEF:** The original line-oriented non-XML format used by NATO for both frequency assignment and spectrum supportability data.
- **DD Form 1494:** Paper form used for spectrum supportability by the U.S., both internally and with many allies.
- **SCS Files:** Spectrum Certification System files, the electronic equivalent of DD Form 1494, have been used within DOD and with NTIA to exchange spectrum supportability data.
- **Forms 33, 34, and 35:** Paper forms used by NTIA to collect, process, and distribute spectrum supportability data.
- **EL-CID Files:** Equipment Location - Certification Information Database files are ZIP archives of XML data and binary attachments used by NTIA and federal agencies to exchange Spectrum Supportability data. EL-CID files were the first step toward an XML format for supportability data. This format is not readily convertible to SSRF.

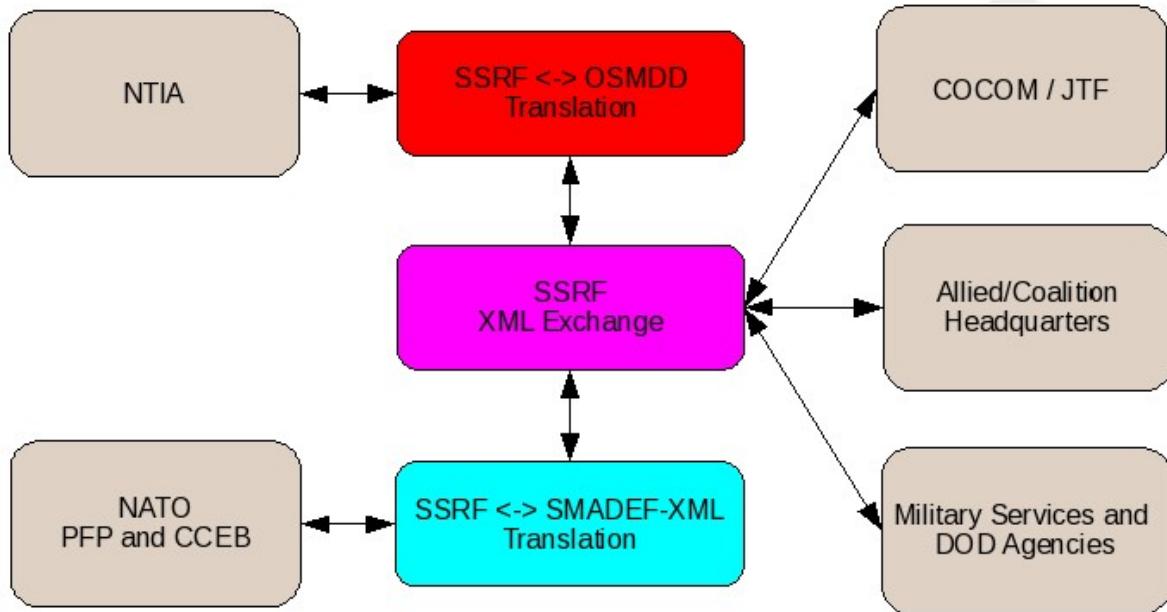
Although there are tools to translate between some of these standards there are enough differences between them that round trip translation is not possible without data loss, mistranslation, or human intervention.

### 1.1.3 SSRF, SMADEF-XML, and OSMDD

The NATO Frequency Management Subcommittee (FMSC) chartered a working group to develop SMADEF-XML as the key to interoperability between spectrum management organizations in all NATO Nations, NATO Commands and other Nations (such as PFP Nations). The approach followed in the development of SMADEF-XML was to create a standard which could satisfy all the needs of the spectrum managers, at the national and international levels, and at all levels of the hierarchy from Ministry of Defense (MoD) and NATO HQ down to the Force Elements. The result is a harmonized multi-purpose interface which can support all the spectrum management business processes: frequency assignment, spectrum supportability, JRFL dissemination, interference reports, etc, as well as providing a common way to capture and manipulate frequency management information to improve these processes.

In order to ensure support for Warfighter requirements and interoperability with NTIA, DOD maintains SSRF as a separate entity, based on SMADEF-XML. For similar reasons, NTIA maintains Office of Spectrum Management Data Dictionary (OSMDD) as its own implementation of the standard. Exchanges of SSRF formatted data with SMADEF-XML and OSMDD users is a simple

matter of automated translation using XML Stylesheet Language Translation (XSLT). The three standards differ primarily in name, and are essentially identical from a technical point of view. This allows efficient data exchange as shown in Figure 1.1.1.



**Figure 1.1.1: SSRF Interfaces**

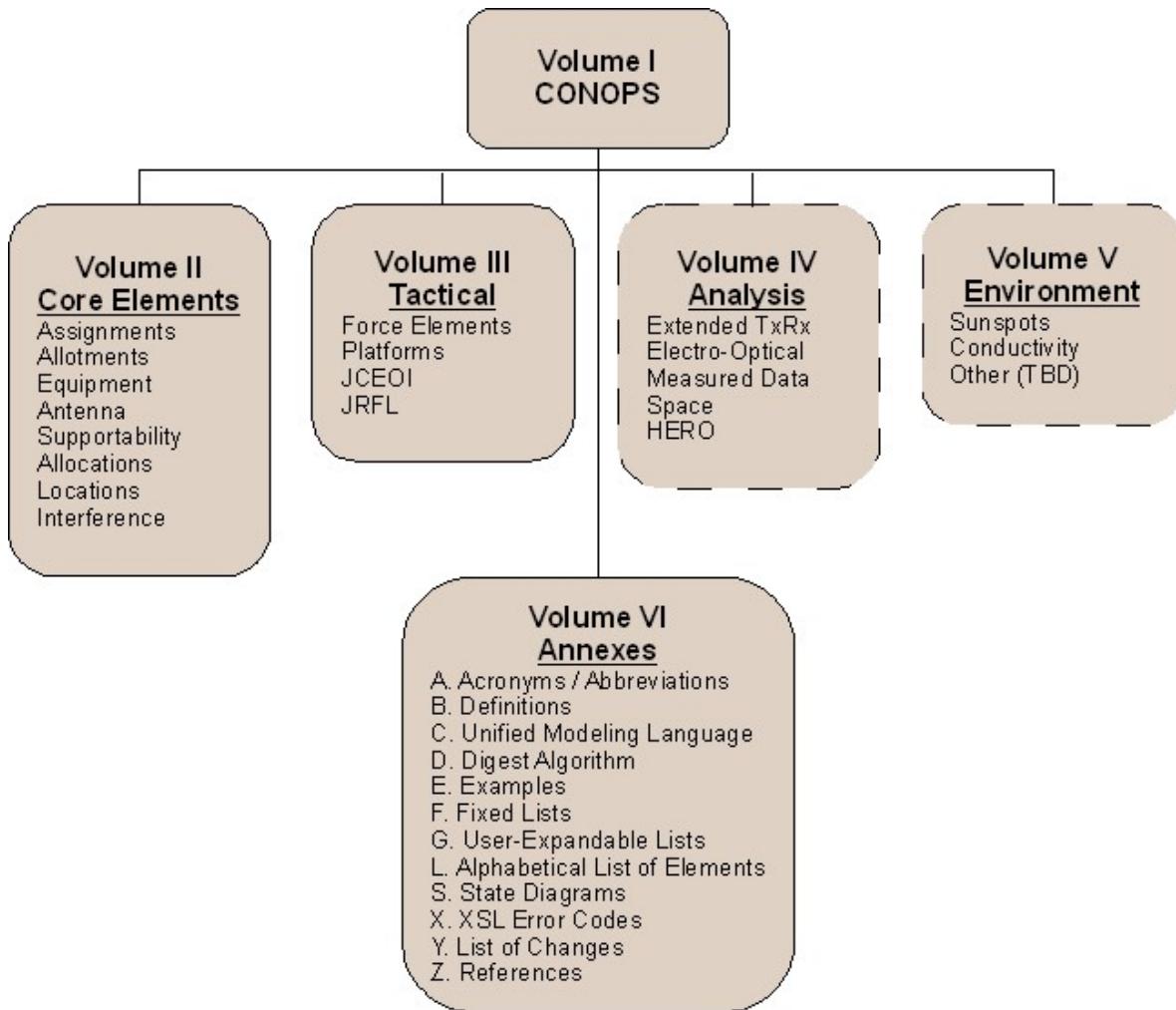
In order to coordinate the use of the spectrum it is necessary to pass significant amounts of data between commands, agencies, and allies. The data elements defined in this document provide a common set of parameters to be used by spectrum managers and those organizations responsible for the development of software supporting spectrum managers. The data elements defined in this document are used to exchange spectrum related data throughout the spectrum management business functional area.

This standard describes legacy business processes while enabling the implementation of more integrated and streamlined processes in future systems. It defines a basic way to distribute XML documents, which is applicable both to disconnected / heterogeneous environments and integrated systems.

## 1.2 Organization of this document

This document has been divided into six volumes for ease of reference. Volume I (CONOPS) is loosely based on the SMADEF-XML CONOPS with substantial customization for DOD. Volumes II-VI comprise the Data Dictionary portion of the standard and are essentially the same as the SMADEF-XML documentation. The spelling of element and attribute names is that of the UK English used by SMADEF-XML in order to simplify translations between SSRF and SMADEF-XML. The most significant difference is the use of the name SSRF and its associated DOD-controlled XML namespace. Also, some features planned for later versions of SMADEF-XML may be implemented in the current version of SSRF (see [Annex Y](#)) in order to better support DoD users.

Note that only the Core Elements (described in [Volume II](#)) are required to be supported by all SMADEF-XML based data exchange standards like SSRF. The data elements described in Volumes III-V may not be fully supported by some tools designed to use SMADEF-XML or OSMDD natively. Figure 1.2.1 illustrates the overall structure and the contents of each volume.



**Figure 1.2.1: MCEB Pub 8 Document Structure**

### Terminology

The key words MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, RECOMMENDED, NOT RECOMMENDED, MAY, and OPTIONAL, when EMPHASIZED, are to be interpreted as described in Internet Engineering Task Force (IETF) [RFC 2119](#).

Acronyms/Abbreviations and Definitions may be found in [Annex A](#) and [Annex B](#), respectively.

### 1.3 Configuration Control

SSRF configuration control is managed by the Spectrum Operations Permanent Working Group ([SO PWG](#)) of the MCEB Frequency Panel (FP). Proposed changes to SSRF will be vetted by the SO PWG, in coordination with other FP Working Groups and with NTIA as appropriate, for submission to the SMADEF CCB for incorporation into SMADEF-XML. The SO PWG will track and report on these SMADEF-XML change proposals to the FP. These coordinated change proposals will normally be incorporated into SMADEF-XML then adopted by SSRF and OSMDD. The FP will consider the progress and disposition of US submitted change proposals to SMADEF-XML when

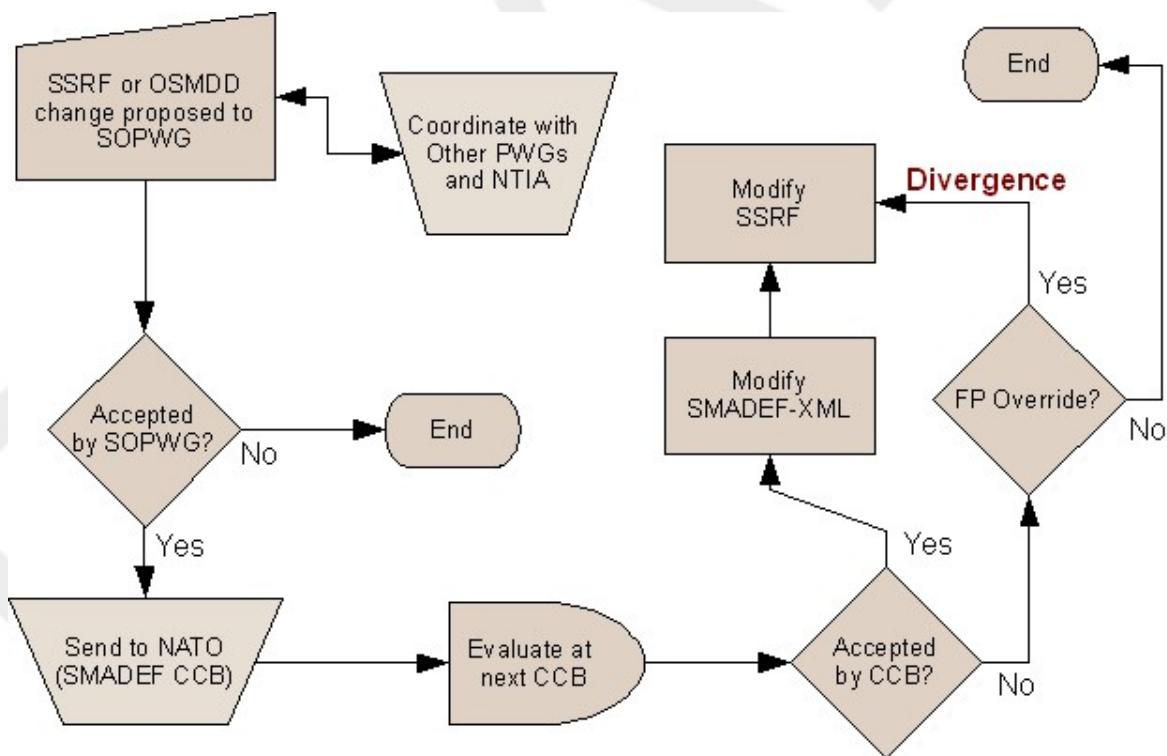
recommending change proposals for SSRF to the MCEB, and may recommend unilateral changes to SSRF should that become necessary.

Synchronization of changes between SMADEF-XML, OSMDD, and SSRF is critical to maintaining effective data exchange with allies, coalition partners, and US national regulatory authorities. Additionally, change management will be critical to ensuring that tools which access the SSRF specification through a centralized registry are able to maintain interoperability between each other and with web services which are based on the registry.

Proposals for changes to SMADEF-XML submitted to NATO by other nations will be evaluated by the SO PWG. The SO PWG will coordinate the evaluation of the change proposal with other FP groups and NTIA as appropriate. The SO PWG's coordinated recommendation will be provided to the Joint Staff for consideration when formulating the US position on proposed changes to SMADEF-XML.

Proposals for changes to OSMDD submitted to NTIA by other federal agencies will be reported to the SO PWG by the MILDEPs for evaluation. The SO PWG will coordinate the evaluation of the change proposal with other FP groups as appropriate. The SO PWG will submit the proposed change, through the US representative to the SMADEF CCB for consideration. The SO PWG's coordinated recommendation will be considered by the MILDEPs when formulating their positions on proposed changes to OSMDD.

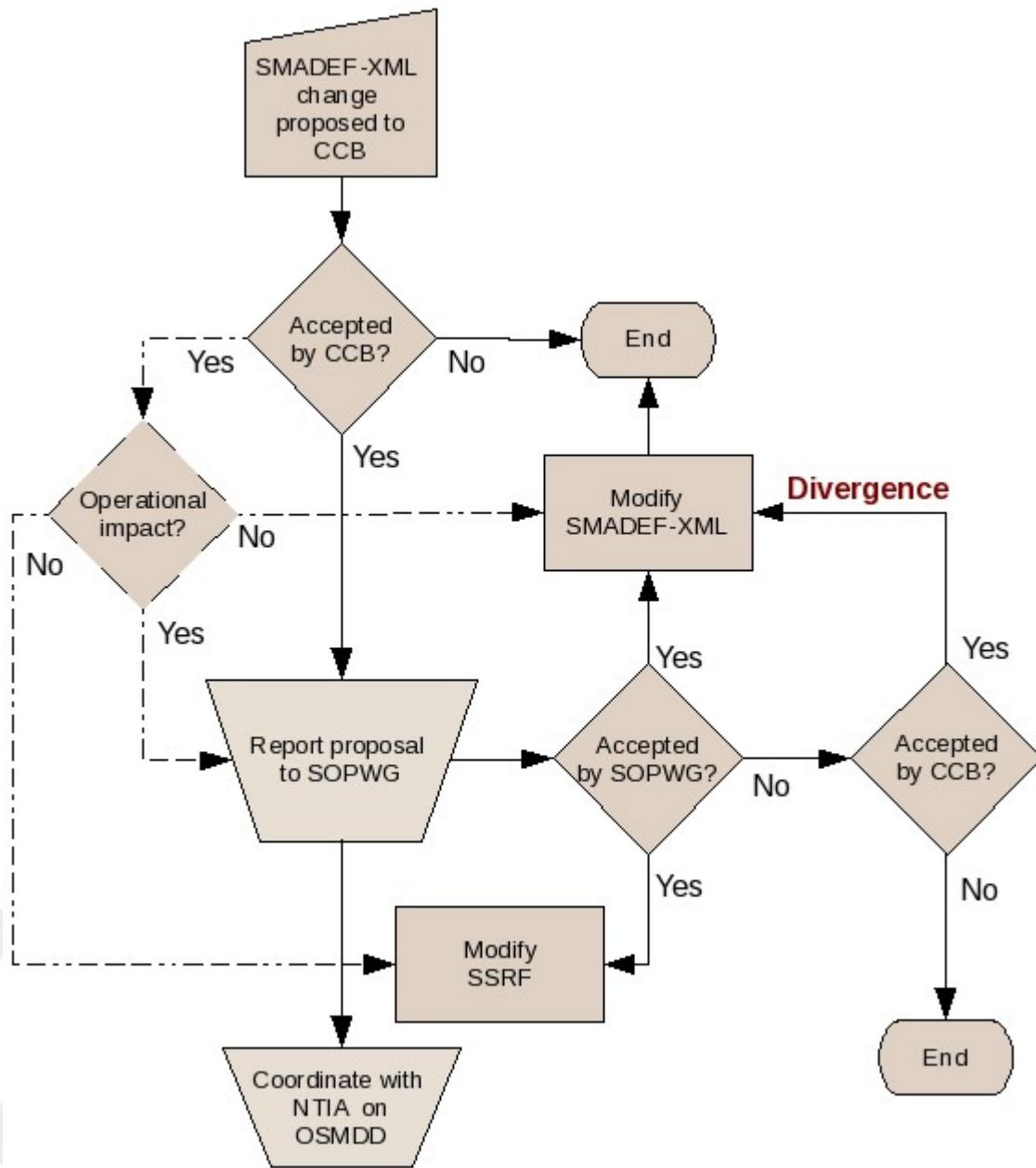
Figure 1.3.1 illustrates the process for coordinating changes with SSRF, SMADEF-XML, and OSMDD starting with a proposal from within DOD to modify SSRF.



**Figure 1.3.1: XML Standard change initiated by DoD**

Figure 1.3.2 illustrates the process for coordinating changes with SSRF, SMADEF-XML, and OSMDD starting with a proposal from within NATO to modify SMADEF-XML. Due to the technical nature of the data dictionary, the U.S. representatives to the SMADEF CCB will generally make an assessment as to whether a given change merits out of cycle evaluation by the SO PWG or should

be reported during the next regular review of the document.



**Figure 1.3.2: XML Standard change initiated by NATO**

These coordination processes may be routinely accomplished in an informal manner and the lead for certain categories of data may be delegated to other Permanent Working Groups but the SO PWG retains overall responsibility for this standard and for monitoring or conducting the coordination required to ensure interoperability in accordance with the SO PWG Terms of Reference.

The current version of this document is available to Common Access Card (CAC) holders from the

SO PWG Knowledge Collaboration Center (KCC) on Defense Knowledge Online (DKO):

<https://www.us.army.mil/suite/kc/8908979>

Details of SMADEF-XML and OSMDD configuration control are available from NATO and NTIA, respectively.

## 1.4 Spectrum Management Basics

### 1.4.1 Spectrum Management Objective

The objective of spectrum management within DOD is to "enable electronic systems to perform their functions in the intended environment without causing or suffering unacceptable interference" [[DoDD 4650.1](#)].

Key desirable features of systems that support the spectrum management process include:

- Interoperability between all joint, national, coalition, and single service tools;
- Access to an authoritative data repository of spectrum-related information at tactical, JTF, COCOM, Service/Agency, and national levels;
- Supports ITU and national radio regulations.

The diagram in Figure 1.4.1 shows the interactions between two automated systems using SSRF.

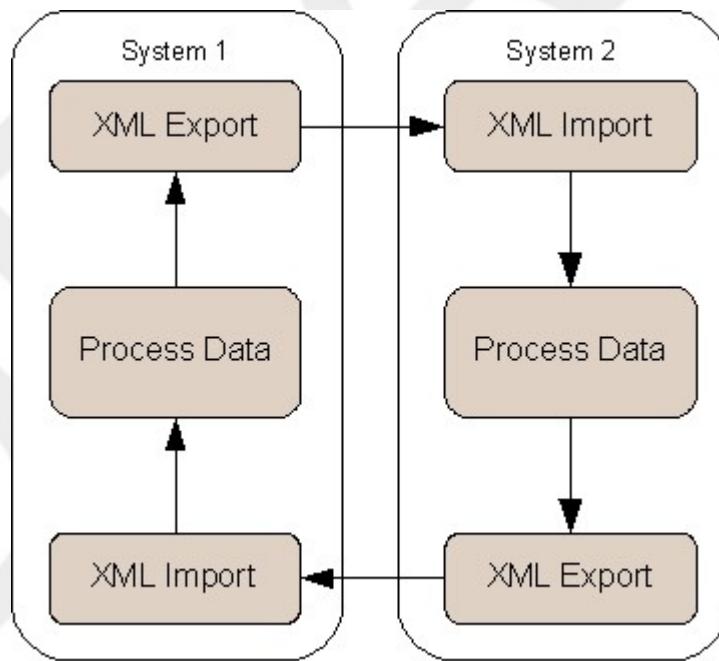


Figure 1.4.1: Exchange between two SSRF-based tools

### 1.4.2 Spectrum Management Actors

Spectrum management actors are all the entities (organizations or personnel) involved in the processes related to spectrum management (see [Annex C](#) for explanations of [UML](#) terms like "Actors").

There are three basic elements of spectrum management:

- International and National Spectrum Allocation
- Spectrum Supportability
- Frequency Assignments / Allotments

All nations participate in the International and National Spectrum Allocation and Frequency Assignment activities. Some nations participate in the Spectrum Supportability process. The relationship between these three elements is shown in Figure 1.4.2 and is discussed in the following paragraphs. The organizational context for the conduct of these activities is defined in Figure 1.4.3. The hierachal relationship between positions within the organization is dependent upon the scenario.

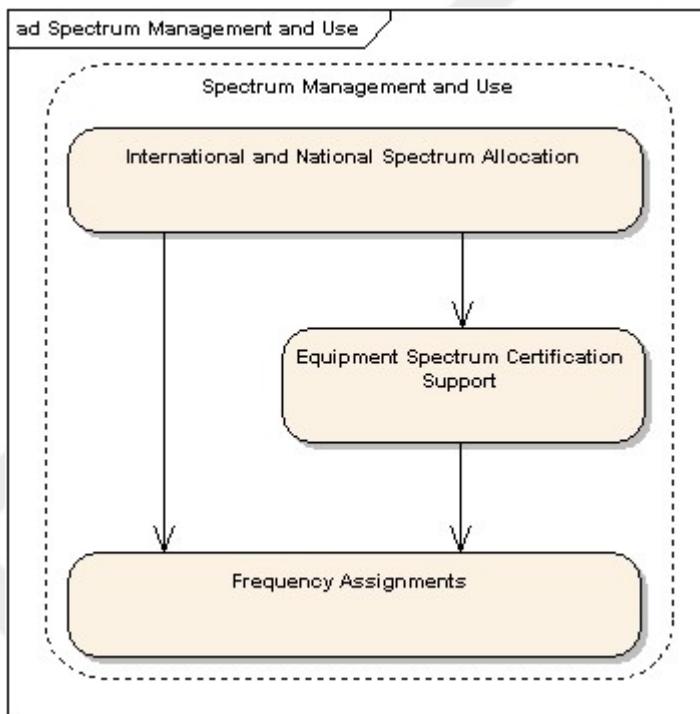


Figure 1.4.2: Spectrum Management and Use

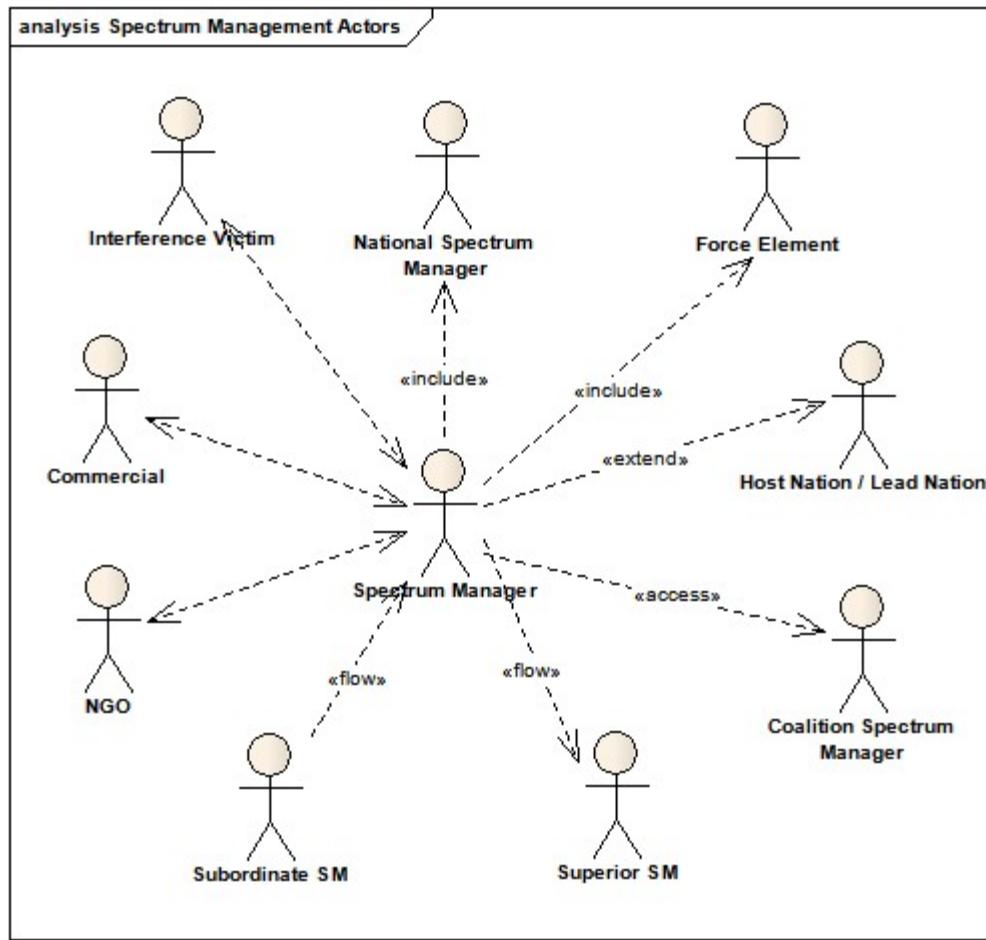


Figure 1.4.3: Spectrum Management Actors

#### 1.4.3 International and National Spectrum Allocation.

Spectrum use starts with the allocation of portions of the spectrum to various uses or services. At the world-wide level the uses and services are based upon dividing the world into the three International Telecommunication Union (ITU) regions. Spectrum allocation at the international level is documented in the ITU Radio Regulations, Volumes 1 (Articles) and 2 (Appendices). Within each ITU region each nation exercises sovereign use of the spectrum and may issue its own spectrum allocation directives, recorded in the national Table of Allocations (TOA). Each nation has its own procedures as to how the spectrum will be managed. Guest military forces in any nation normally request Spectrum Supportability through the host nation Defense organization. The procedures vary from nation to nation. Some nations make frequency assignments based upon ITU and National regulations. Other Nations with treaties or special alliances where military forces frequently train or operate together use the Spectrum Supportability process as an additional tool for spectrum management.

The business process for handling TOA's is described in [paragraph 2.2](#).

#### 1.4.4 Spectrum Supportability

Through the [Spectrum Supportability](#) process a nation (called the host nation) instructs its military forces or those of a guest nation, whether or not the host nation will provide spectrum support (frequency assignments) for an equipment. The host nation will also inform the guest nation if there

are any applicable limitations, use restrictions, or special coordination procedures. During this process the host nation reviews the technical characteristics of the equipment prior to granting permission to bring the equipment into the host nation. Technical characteristics such as frequency band, power, bandwidth, type of signal, type of platform upon which the equipment is to be used, type of antenna, antenna directivity and gain, etc. are reviewed. The main feature of the Spectrum Supportability process is that the guest nation may receive a supportability commitment from the host nation prior to spending money for the procurement of new equipment.

The Spectrum Supportability process is required by DoDD 4650.1 within the U.S. and is also required by NATO members nations and most major U.S. allies. Other nations do not use the Spectrum Supportability process and will only address the issue of providing spectrum support for equipment during the frequency assignment process.

The business process for handling Spectrum Supportability is described in paragraph 2.5.

*NOTE: NATO FMSC is investigating a [new process](#) where Supportability could also be granted on a Signal Description rather than to an individual equipment.*

#### **1.4.5 Frequency Assignment / Allotment**

A frequency assignment is a license to operate equipment at a location within the constraints and limitations imposed by the assignment authority. A frequency allotment is the entry of a designated frequency(ies) into an agreed plan, adopted by competent authority, for use by one or more organizations in specified geographical areas under specified conditions.

Frequency assignments and allotments are granted by host nations or commands. When commands make frequency assignments/allotments they should do so within the limits of the authority granted by the host nation or by their own national authority. In order to protect certain frequency assignments it is necessary to coordinate with other nations and in certain instances register them with the ITU or appropriate level of authority. Most noticeable is the use of satellite communications systems, communications systems that use frequencies that travel great distances, or will be used at locations near international borders.

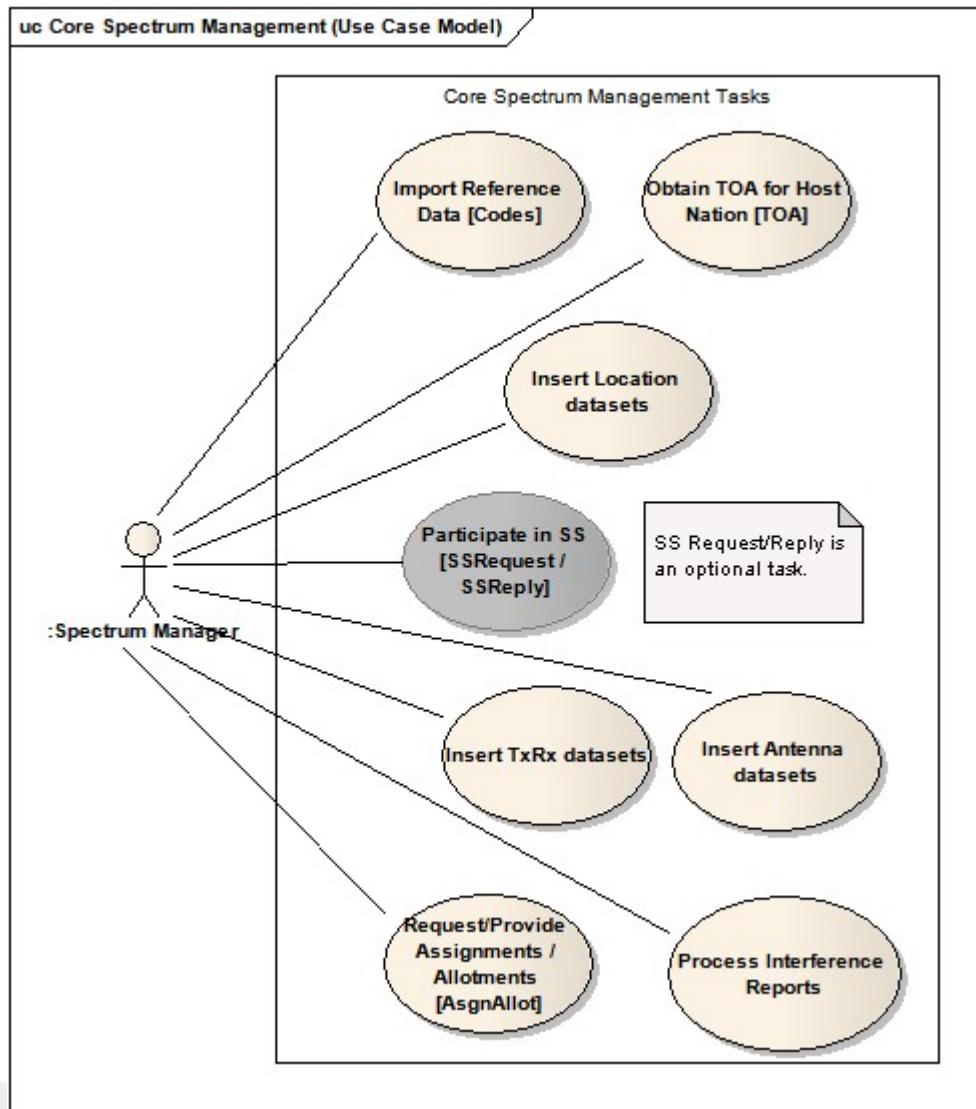
The business process for handling assignments and allotments is described in [paragraph 2.8](#).

## **2. Core SM Tasks**

### **2.1 Introduction**

The data elements used for core spectrum management tasks are defined in [Volume II](#). See related definitions in [Annex B](#).

These general requirements are broken down into several operational tasks which must be performed to accomplish spectrum management. In order to conduct core spectrum management a common set of data is required: tables of allocations, locations, force elements, equipment, and antennas. The general sequence of core spectrum management operational tasks to ensure effective spectrum usage is shown in Figure 2.1.1 and individual tasks are described in detail in subsequent paragraphs.



**Figure 2.1.1: Core Spectrum Management Operational Tasks**

Example SSRF XML documents demonstrating the use of this standard in are provided in [Annex E](#).

## 2.2 Reference Data

Reference Data elements are defined in [Volume II, section 3](#).

### 2.2.1 Overview

Reference data consists of several types of background information which are used in the various stages of the normal frequency management process:

- **TOA:** Definition of a Table of Allocation (see paragraph 2.2.3)
- **Application:** Definitions of systems used in various frequency bands (used in TOA)

- **Codes:** Definition of code entries within code list categories which have been designated as "user expandable" (see Annex G)
- **ChnlPlan:** Description of the various channel plans used in TOA
- **CoordStd :** Description of the various coordination standards used in national and international coordination (used in TOA)
- **CurveStd:** Description of the various curve standards used in coordination (used in TOA)
- **Note:** Description of the footnotes used in TOA and Asgn
- **Users:** Definitions of users using the various frequency bands (used in TOA)

This reference data must be loaded into the data repository before any other data.

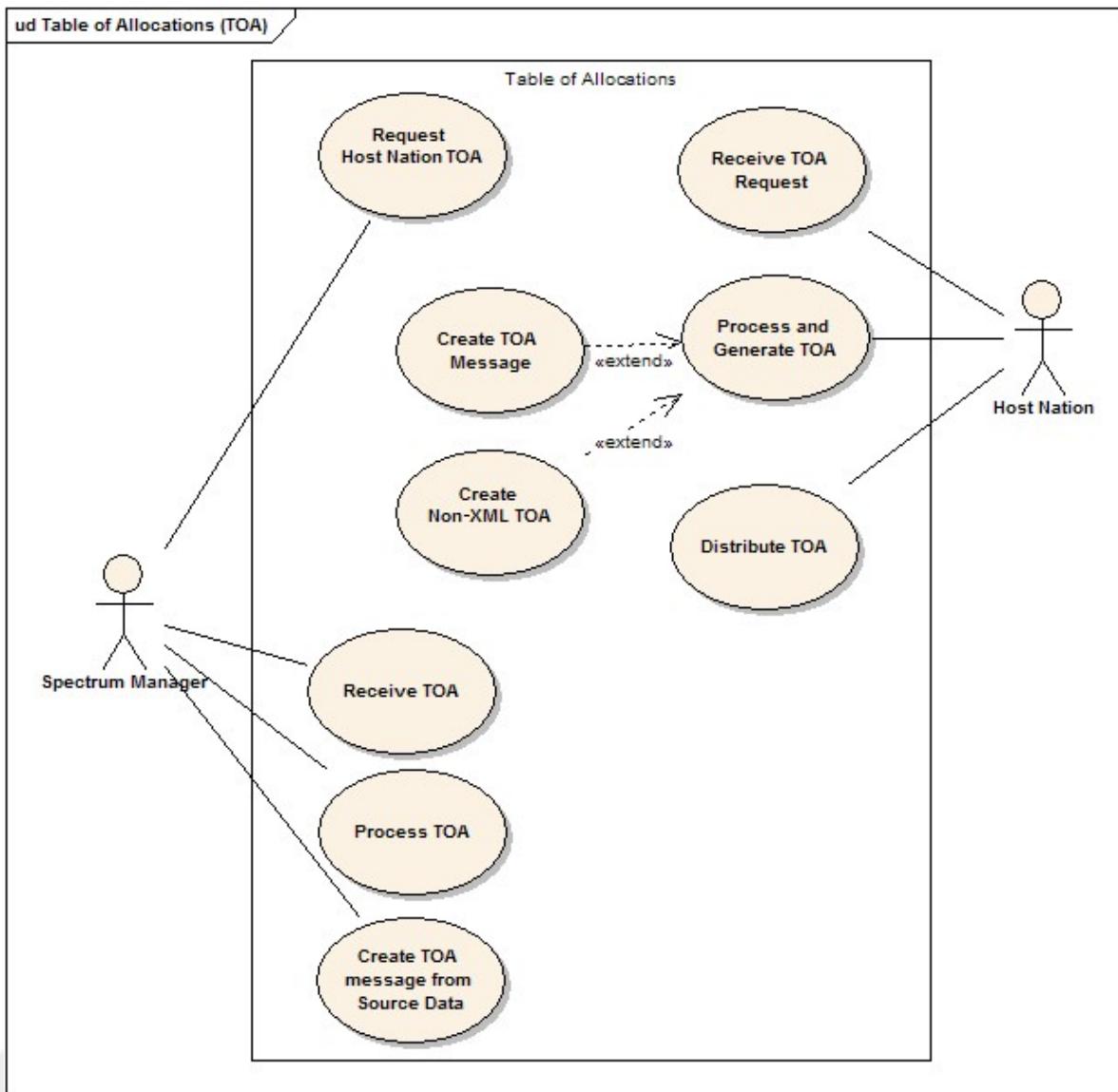
### **2.2.2 Business process**

The reference data are managed dynamically within DOD by the SO PWG in the same manner as the overall SSRF standard as described in Configuration Control, [Paragraph 1.3](#).

### **2.2.3 Table of Allocation**

A Table of Allocation (TOA) describes the national frequency allocation plan and degree of conformity with the ITU Radio Regulations. A TOA contains the division of the radio frequency spectrum into bands and details for the usage of these bands by different types of services, applications, and users. For example, a band of spectrum might be allocated for mobile radio systems used by other than national governmental users, within specified power limits and bandwidth restrictions. A TOA is considered reference data because the national rules for use of spectrum must be known in order to develop/procure equipment that is likely to be permitted to transmit, and to properly plan detailed spectrum use for training and cooperative operations.

Table of Allocation elements are defined in [Volume II, Section 9](#). A summary detailing the use of TOA is illustrated in Figure 2.2.1.

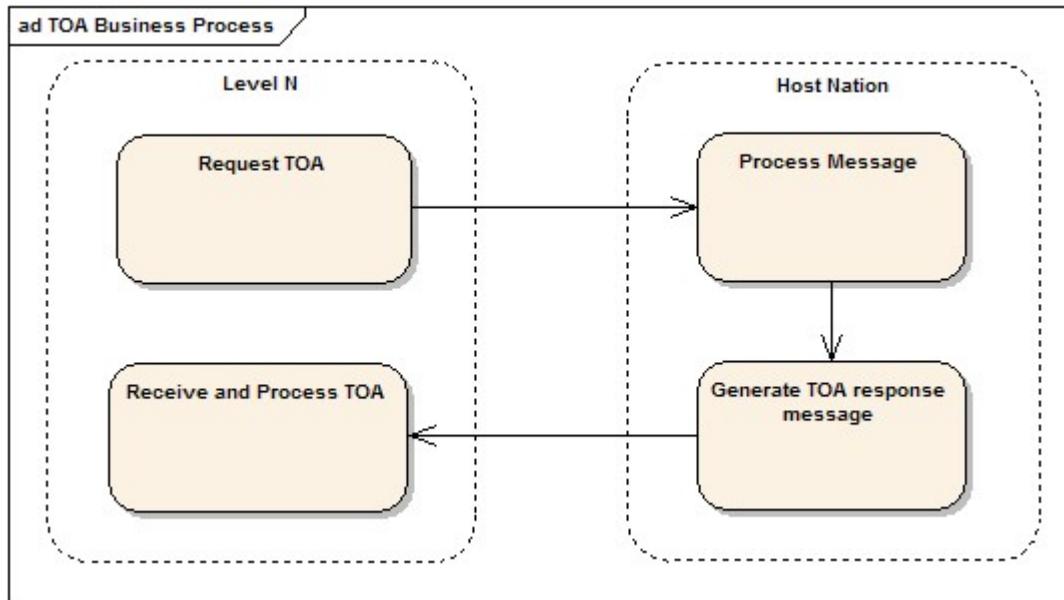


**Figure 2.2.1: Use Case Diagram for Table of Allocation**

#### 2.2.4 TOA Business process

The Table of Allocation provided by the Host Nation should be imported and stored in the respective spectrum management systems.

The business process is detailed in the Activity Diagram in Figure 2.2.2.



**Figure 2.2.2: Activity Diagram for Table of Allocation**

The request for a TOA can be done using the [Administrative](#) transaction, as shown below:

```

<Administrative serial="USA:JSC:DR:2009/001" reason="QUERY" external="Y">
    <Remarks>I need your GE TOA for the band 30-88 MHz</Remarks>
</Administrative>

```

## 2.3 Codes

The codes are contained in code lists which are managed and maintained by the SO PWG in coordination with NTIA and NATO. There are two types of code lists which contain respectively fixed and user expandable lists and are promulgated within the standard at Annexes [F](#) and [G](#). Requests for additions, modifications, or deletions should be submitted to the requester's [SO PWG](#) representative.

Some data elements have predefined lists of values. In some cases, these lists come from official sources and cannot be changed unilaterally by DOD (e.g. ITU list of countries for Contact.country and Location/Address.country). In other cases, the list of values has been predefined by the SO PWG, NTIA, or NATO. It is therefore vital that the Reference Data is imported and stored within a system prior to commencing any spectrum management task. A summary showing the use of Codes is illustrated in figures 2.3.1 and 2.3.2..

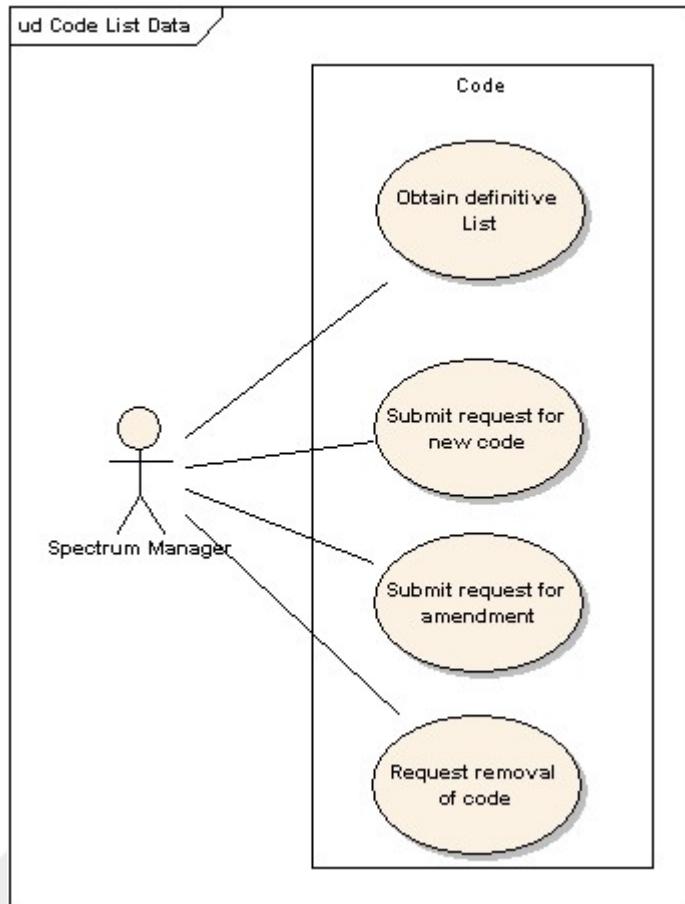


Figure 2.3.1: Use Case Diagram for Code Lists

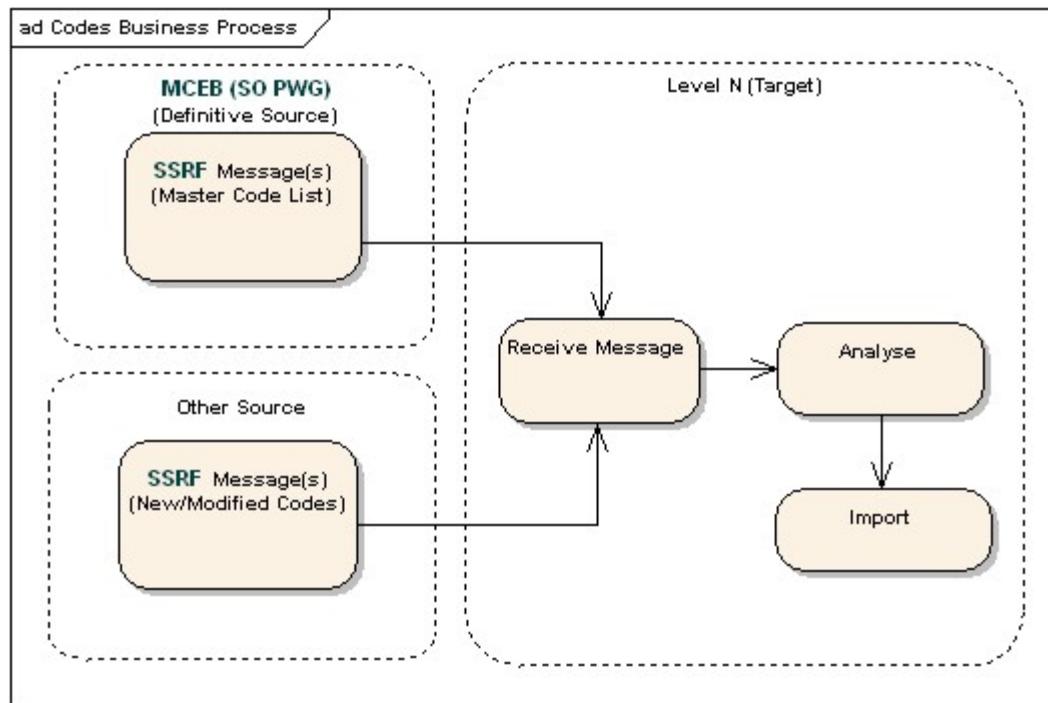


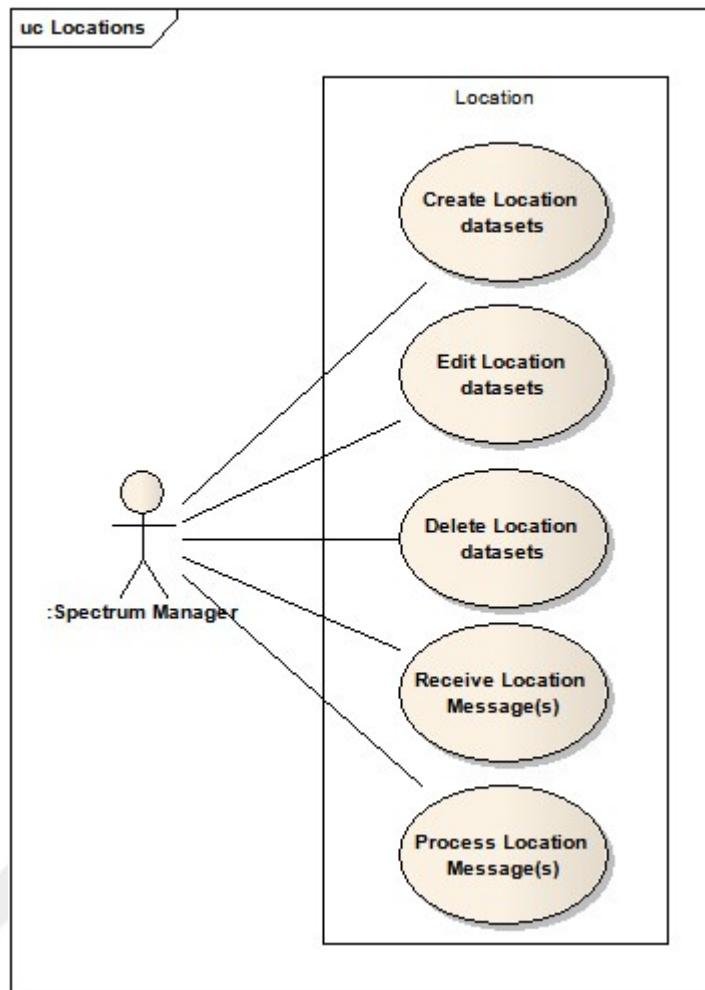
Figure 2.3.2: Activity Diagram for Code Lists

## 2.4 Define Locations

Location elements are defined in [Volume II, section 10](#).

### 2.4.1 Overview

Accurate geographical location data for emitting and, to a lesser extent, receiving stations is key to effective spectrum management. All transmitting stations must have either a fixed location or an area of operation within which authorization to emit electromagnetic energy has been obtained. A summary detailing the use of Location data is illustrated in Figure 2.4.1.



**Figure 2.4.1: Use Case Diagram for Location Data**

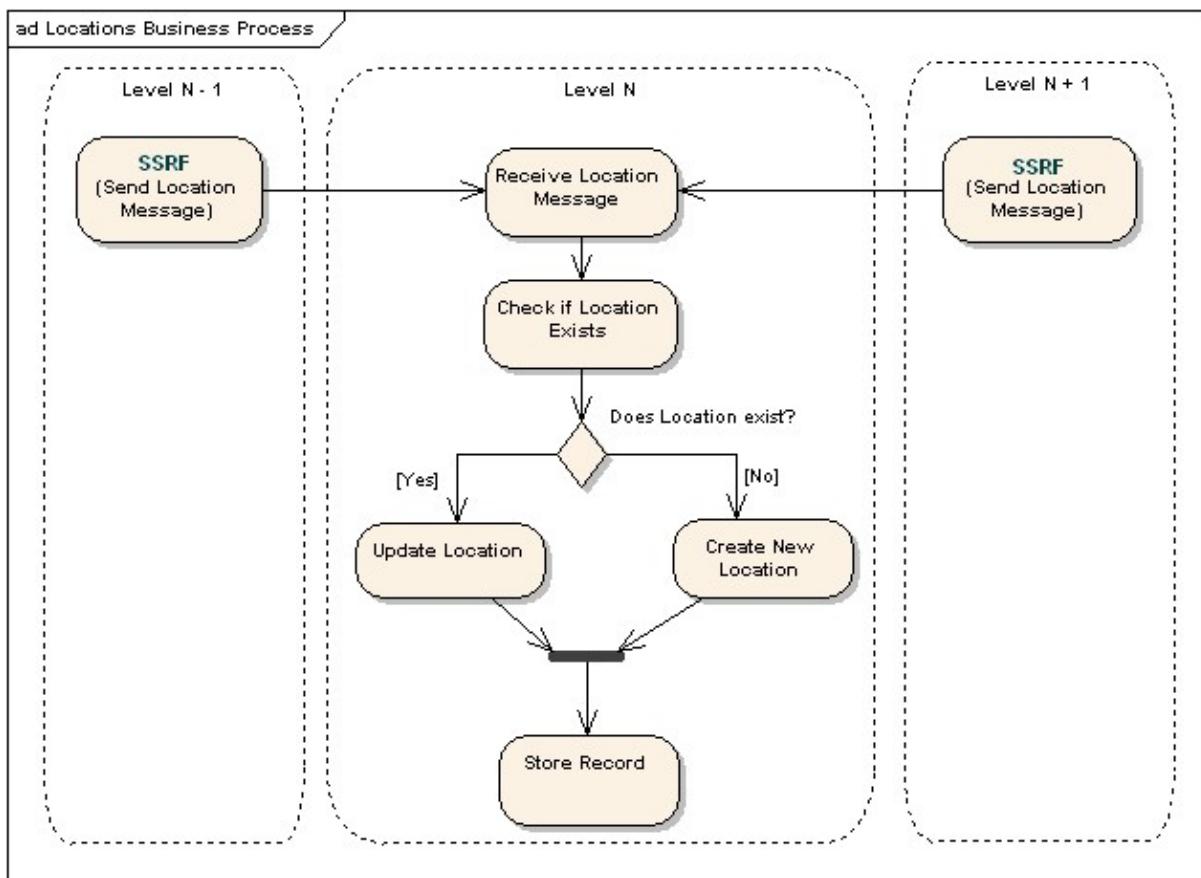
## 2.4.2 Business Process

Each location and area of operation must be uniquely defined. Fixed locations will be described as a point and defined by the coordinates of the antenna location. An Area of Operation will be defined as a polygon with coordinates for each vertex. Location [datasets](#) are included in the data repository once and referenced by other datasets after the initial entry. **To ensure referential integrity, location datasets should not be modified or deleted if one or more other datasets refer to that location.**

Circular Areas of Operation and Service Volumes are not Location datasets. They represent authorization information and are included under the [Link](#) element of an Assignment or Allotment.

- Circular Areas of Operation are defined by a fixed [Location](#) dataset and a radius.
- A Service Volume defines airspace within which a protected operation is permitted. Service Volumes are based upon an area defined by either a polygon dataset or circular area of operation with a vertical component called “height”. See data element [SrvVolume](#).

The business process is detailed in the Activity Diagram in Figure 2.4.2.



**Figure 2.4.2: Activity Diagram for Location Data**

## 2.5 Spectrum Supportability Process

Spectrum Supportability elements are defined in [Volume II, section 11](#).

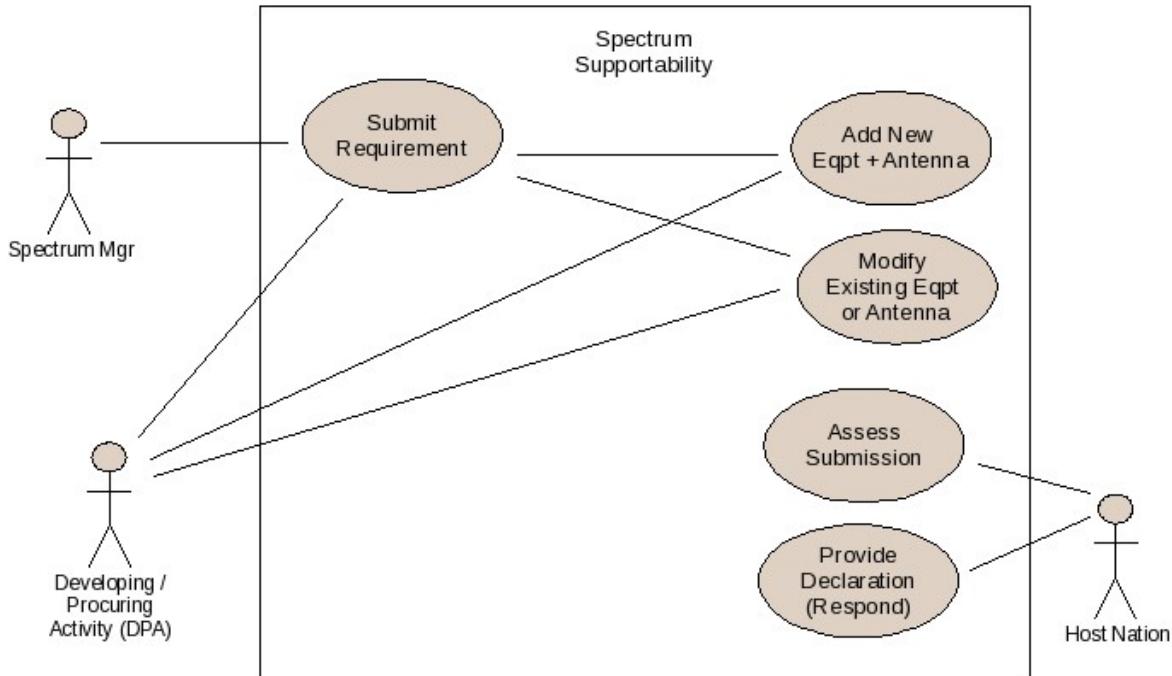
See definitions in [Annex B](#). The business process described here is in line with the policy described in Allied Communication Publication (ACP) 190 U.S. Supplement 1 and [DoDD 4650.1](#).

### 2.5.1 Overview

The aim of the spectrum supportability process is to facilitate the timely provision of information leading to compatible systems that use the electromagnetic spectrum in support of national needs and coalition missions. It allows the Developing/Procuring Authority (DPA) to assess, with a certain degree of confidence, whether the electromagnetic spectrum necessary to support the operation of a Spectrum Dependent System (SDS) or Signal Description (SD) is, or will be, available.

The best approach to reduce the risk of spectrum non-compliance in an acquisition or development project is to conduct a Spectrum Supportability analysis early in the process. This analysis should include, as a minimum, assessments of the Electro-Magnetic Environment (EME) (what other systems are expected to co-operate in the same general location); planned operating locations; host nation regulations and processes; and future plans for worldwide allocations. Ideally, no SDS shall be purchased or procured without such a spectrum supportability determination. Failure to consider spectrum issues early enough in the process may result in program delays, additional

costs, less than full operational capability, or in the worst-case useless systems that cannot be employed and deployed for combat operations. A summary of the Spectrum Supportability process is illustrated in Figure 2.5.1.



**Figure 2.5.1: Use Case Diagram for Spectrum Supportability**

## 2.5.2 Business Process

The Spectrum Supportability Process can be described in three stages:

- i. **Information pull:** The process where Development/Procurement Authorities (DPAs) responsibly research existing information resources in an attempt to identify the best spectrum based on the combination of desired performance characteristics and potentially available spectrum and the best existing spectrum dependant technology to satisfy a capability gap. Information pull is not mandatory but by doing so early in the procurement life cycle, the DPA will be able to mitigate potential risks before they become critical to the success of a product.
- ii. **Spectrum Dependent System (SDS) Submission:** This is the formal submission (using the [SSRequest](#) dataset) of a new or modified SDS ([TxRx](#)) to the potential HN for supportability. SSRequests will be processed using the appropriate and approved supportability channels. At this point in the process the HN is receiving Spectrum Supportability Request with attached TxRx data about a specific piece of equipment(s) and/or associated antenna data. The submitting nation or organization should submit all information needed to support its anticipated training and/or operational requirements in the Host Nation. The Host Nation provides a response in the form of an [SSReply](#).
- iii. **Host Nation Declaration (HND):** This is the response (using the SSReply dataset) provided by the HN to the submission of an SDS. When an HN has provided a declaration for an SDS, the declaration will be applicable until the supportability period has expired, the HND is revised by the HN, or the guest nation submits a revised SSRequest.

The Spectrum Supportability business process is detailed in the Activity Diagram in Figure 2.5.2.

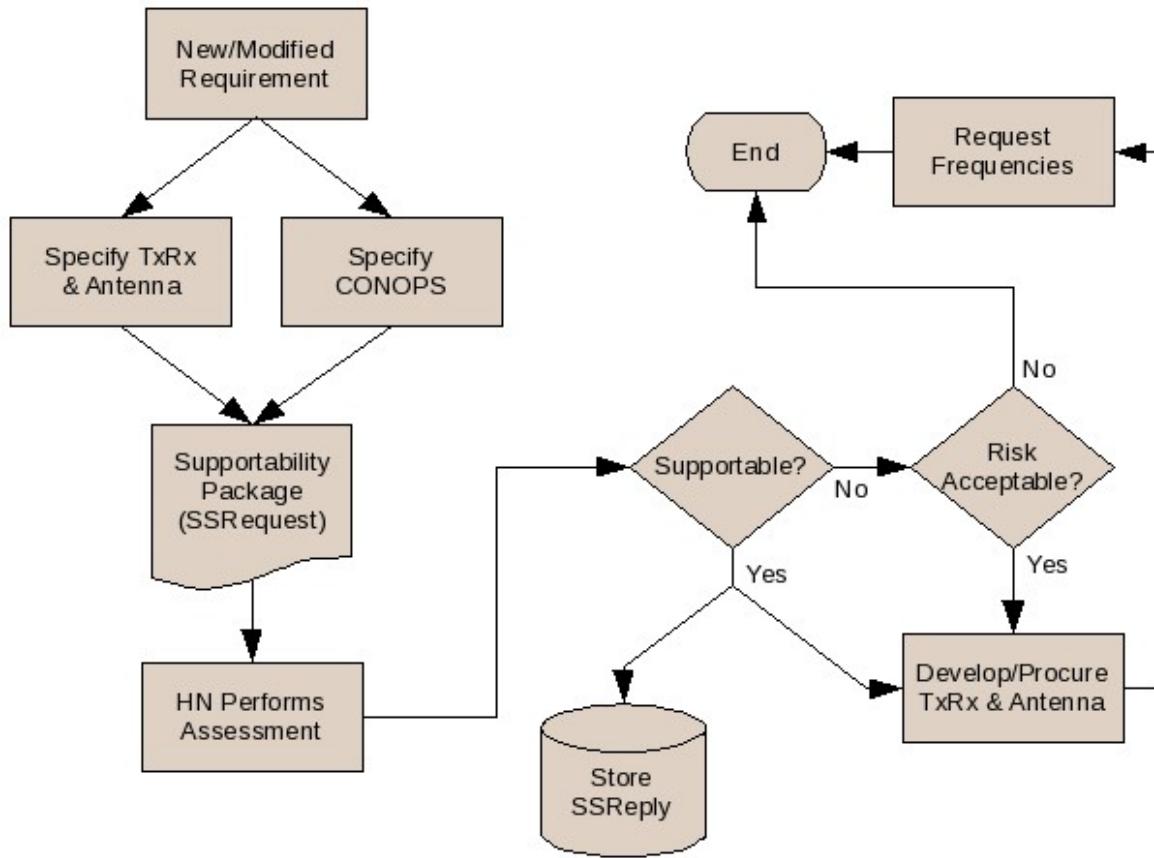


Figure 2.5.2: Activity Diagram for Spectrum Supportability

### 2.5.3 Proposed Business Process

The following business process is under review at NATO FMSC. It is supported in the current release of the SSRF standard, and the business process is described here for information on a possible way ahead. **This process has not been approved by the MCEB for use within the U.S.**

The major change from the current process is to link the Supportability to a [Signal Description](#) (SD) rather than an Equipment ([TxRx](#)), as shown by the proposed steps below. If the TxRx characteristics are within the parameters of the previously approved SD and within the limitations of the SSRequest and the SSReply, the HN may accept the registration and not reply with a HND; unless, the host nation's position has changed on the referenced SD. In either instance the time to obtain HN supportability will be significantly less than the current process which requires a full HN evaluation and response to each TxRx.

The proposed Spectrum Supportability Process can be described in three steps:

- i. **Information pull:** no change to the existing process.
- ii. **SD and SSRequest Submission / SDS Registration (\*):**
  - a. Submission: This is the formal submission of a new or modified [SD](#) and [SSRequest](#) to the potential HN (if NATO through FMSC(SMB)). At this point in the process the DPA is commenting on a generic SD (waveform) and its associated SSRequest (concept of

operations) as to how the signal is planned to be used within the HNs. Each HN decides what type of information is important for making their decision; therefore the information submitted should always be the total information available, and each HN may filter out what it does not need.

- b. Registration: This is the formal registration of a SDS ([TxRx](#)) with the potential HN. This registration may encompass several dependant SDS in the case of complex systems where supportability must be granted as a whole. SSRequests for use within NATO will normally be processed through FMSC(SMB). The SDS characteristics may include links to the appropriate SD (\*).
- iii. **Host Nation Declaration (HND):** This is the response provided by the HN to the submission of an SD and SSRequest. When an HN has provided an HND ([SSReply](#)) to an SD and its associated SSRequest, this declaration will be applicable, until revised by the HN, to any SDS which conforms to the SD and SSRequest. Therefore, any subsequent SDS using this SD will require registration only and not need a full submission. It should be noted that a full submission is required for a SDS that is intended to operate outside of previously approved SD modes and/or related SSRequest.

**\* Notes:**

- In the case where a SDS is a unique design (e.g. in many cases for radars), the SD corresponds to a single SDS and the submission of the SDS contains all the technical characteristics of the SD directly in TxRx dataset.
- In the case of the submission of a theoretical SD, followed by the registration of one or several SDS (TxRx) referencing this SD, the real (measured) characteristics of the registered piece of equipment may be recorded in the TxRx dataset; in this case, these real parameters will have precedence over the theoretical values recorded in the SD when considering assignments.

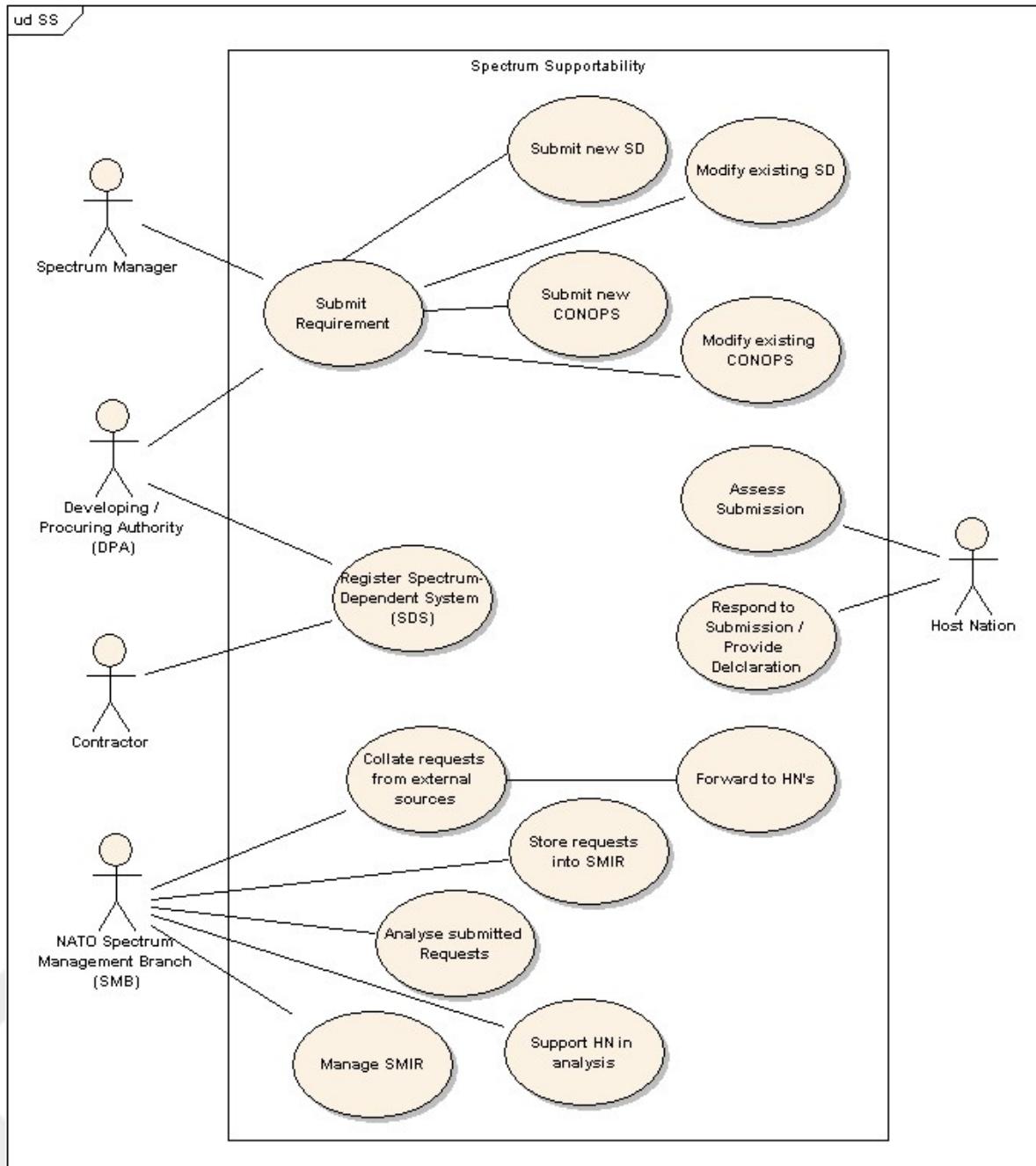


Figure 2.5.4: Use Case Diagram for Proposed Spectrum Supportability Process

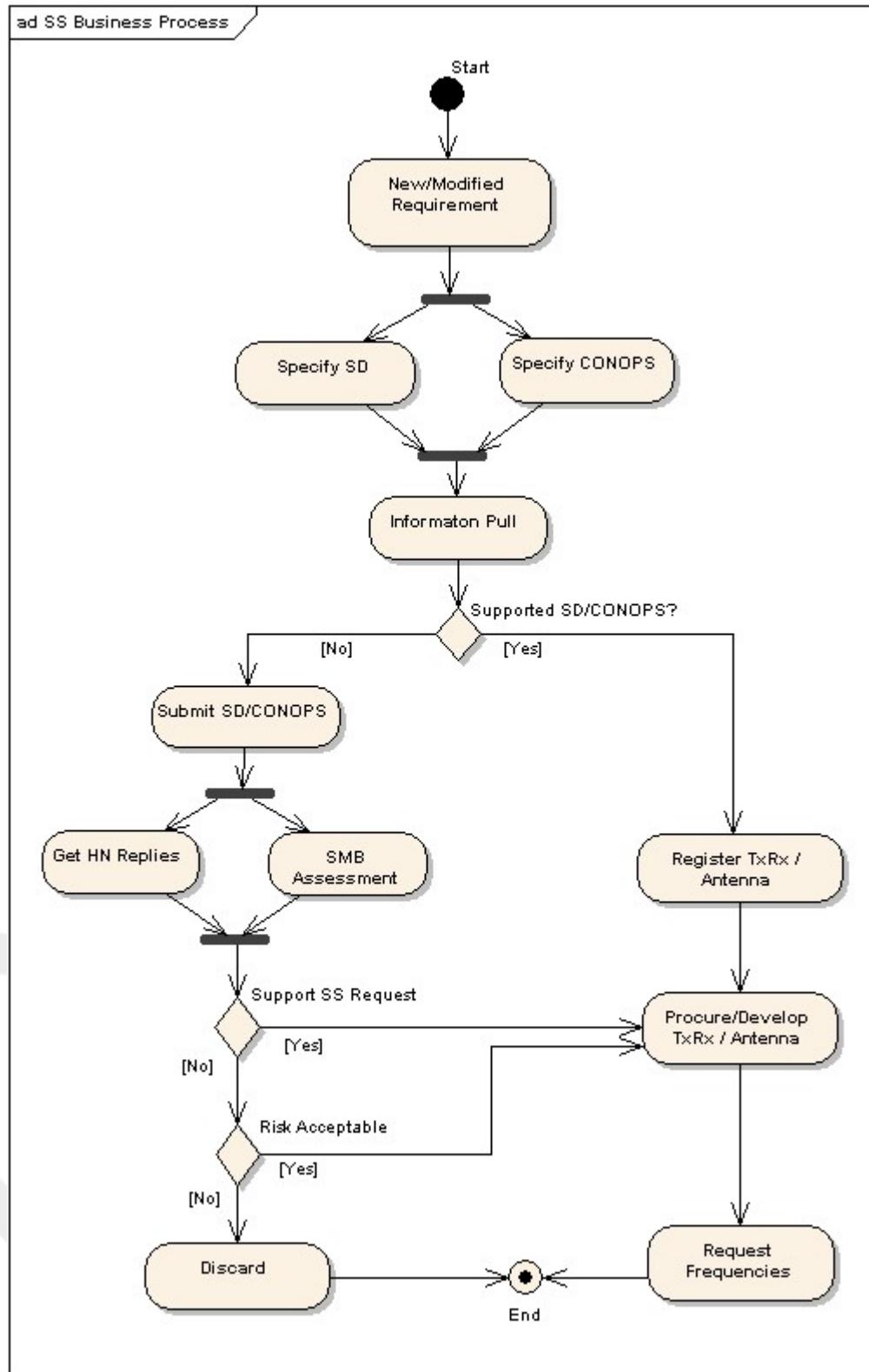


Figure 2.5.5: Activity Diagram for Proposed Spectrum Supportability Process

## 2.6 Define Transmitters/Receivers

Transceiver elements are defined in [Volume II, section 12](#).

### 2.6.1 Overview

Detailed knowledge of equipment parameters is necessary prior to deploying on an operation in order to ensure efficient spectrum management. These parameters are essential to allocating spectrum use, certifying equipment, preparing allotments, engineering frequency assignments, and resolving frequency interference between operational forces. These parameters are exchanged between members of a force as new equipment is identified and/or introduced into service. For operations where non-recorded equipment is being deployed, technical parameter acquisition is a priority.

*Note: Transceivers, transmitters, and receivers are designated under the general abbreviation "TxRx".*

A summary detailing the use of TxRx data is illustrated in Figure 2.6.1.

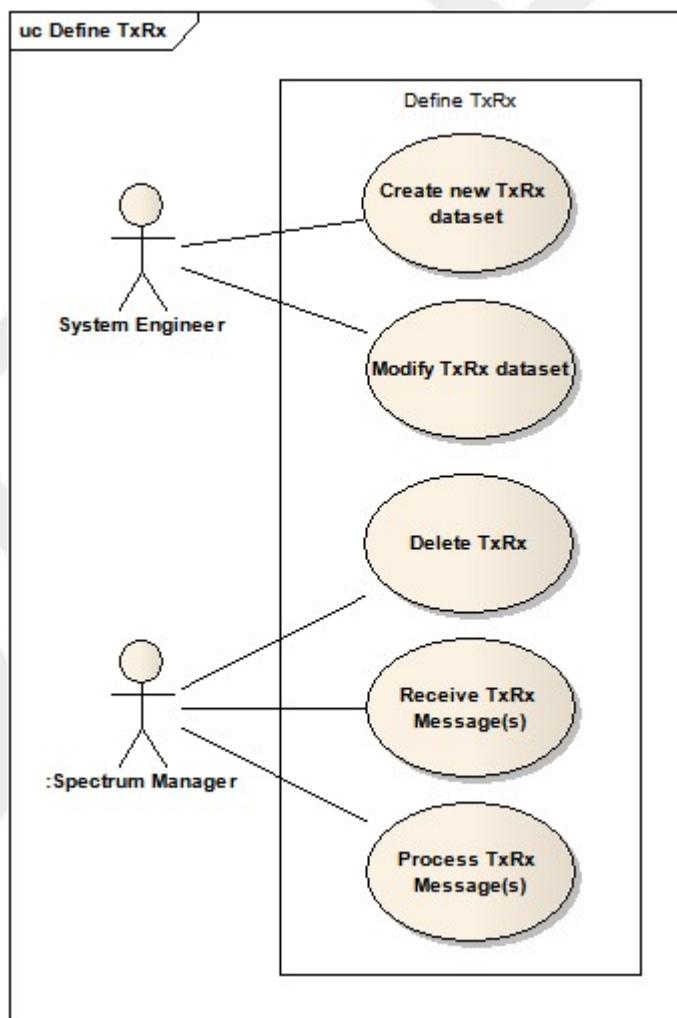
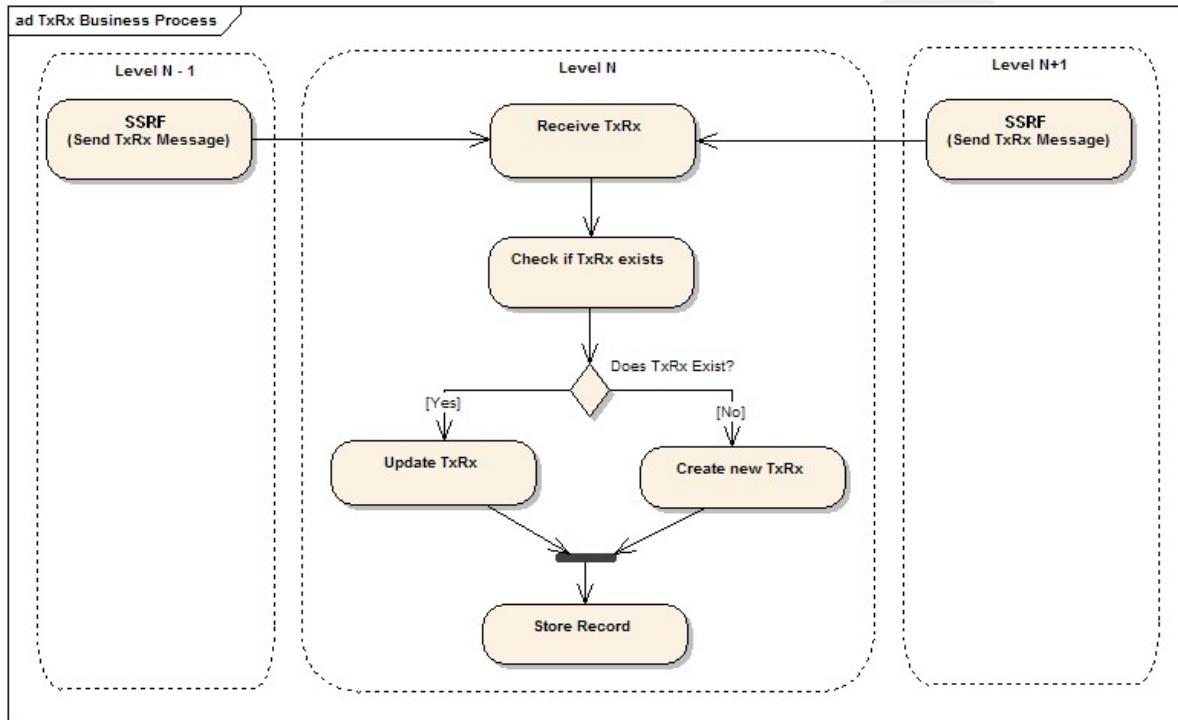


Figure 2.6.1: Use Case Diagram for TxRx Data

## 2.6.2 Business Process

Although TxRx parameters can be submitted alone, most are typically submitted as part of the Spectrum Supportability Process defined in [Paragraph 2.5](#). Furthermore, TxRx parameters also form part of the Assignment or Allotment process in order to define the spectrum required. The business process is detailed in the Activity Diagram in Figure I-17.



**Figure 2.6.2: Activity Diagram for TxRx Data**

## 2.7 Define Antennas

Antenna elements are defined in [Volume II, section 13](#).

### 2.7.1 Overview

Detailed knowledge of antenna parameters is necessary prior to deploying on an operation in order to ensure efficient spectrum management. These parameters are essential to allocating spectrum use, certifying equipment, preparing allotments, engineering frequency assignments, and resolving frequency interference to operational forces. These parameters are exchanged between members of a force as new antennas are identified and/or introduced into service. For allied operations where non-recorded antennas are being deployed, technical parameter acquisition remains a priority.

A summary detailing the use of Antenna data is illustrated in Figure 2.7.1.

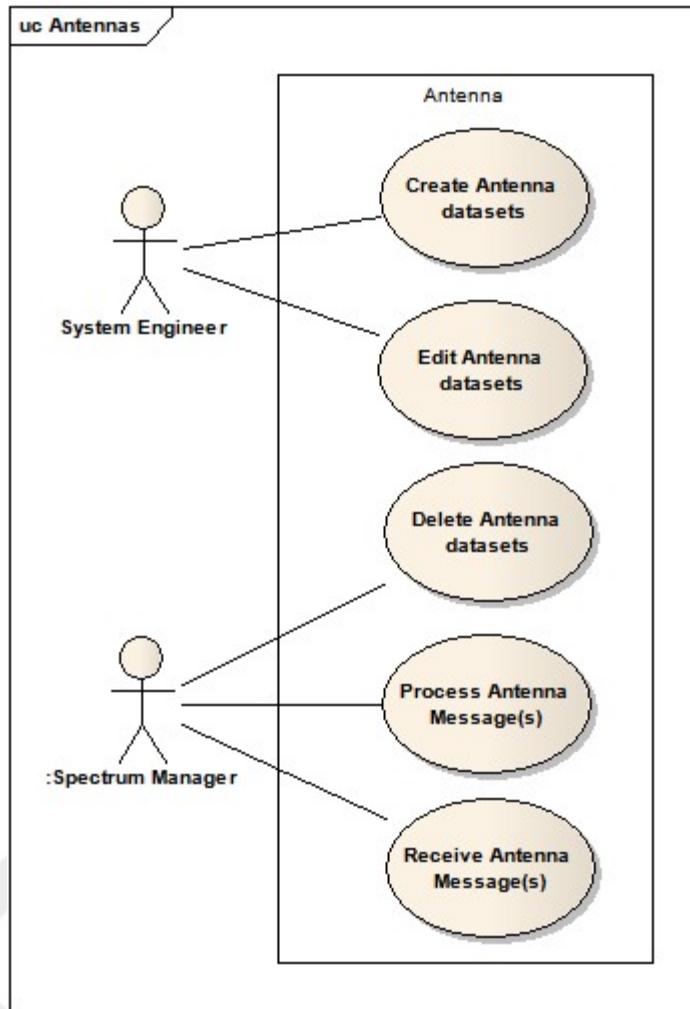
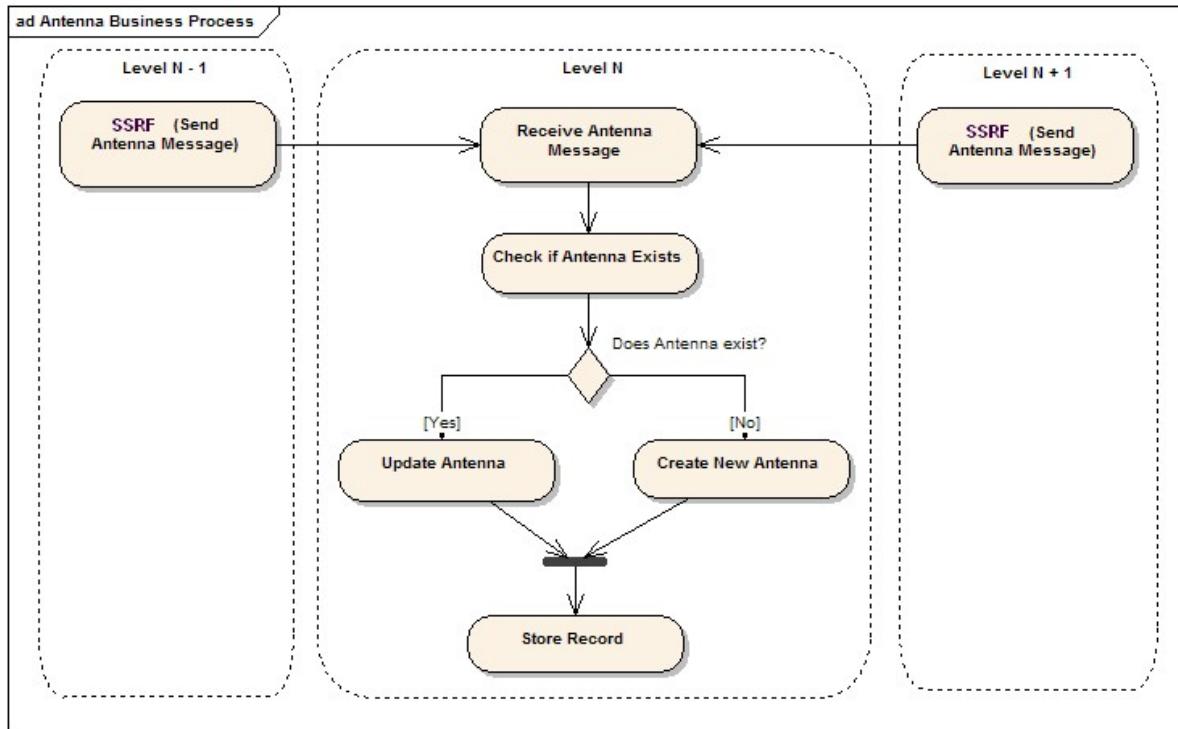


Figure 2.7.1: Use Case Diagram for Antenna Data

## 2.7.2 Business Process

Although Antenna parameters can be submitted alone, most are typically submitted as part of the Spectrum Supportability Process defined in [Paragraph 2.5](#). Furthermore, Antenna parameters also form part of the Assignment or Allotment process in order to define the spectrum required.

The business process is detailed in the Activity Diagram in Figure 2.7.2.



**Figure 2.7.2: Activity Diagram for Antenna Data**

## 2.8 Request/Provide Frequency Allotments /Assignments

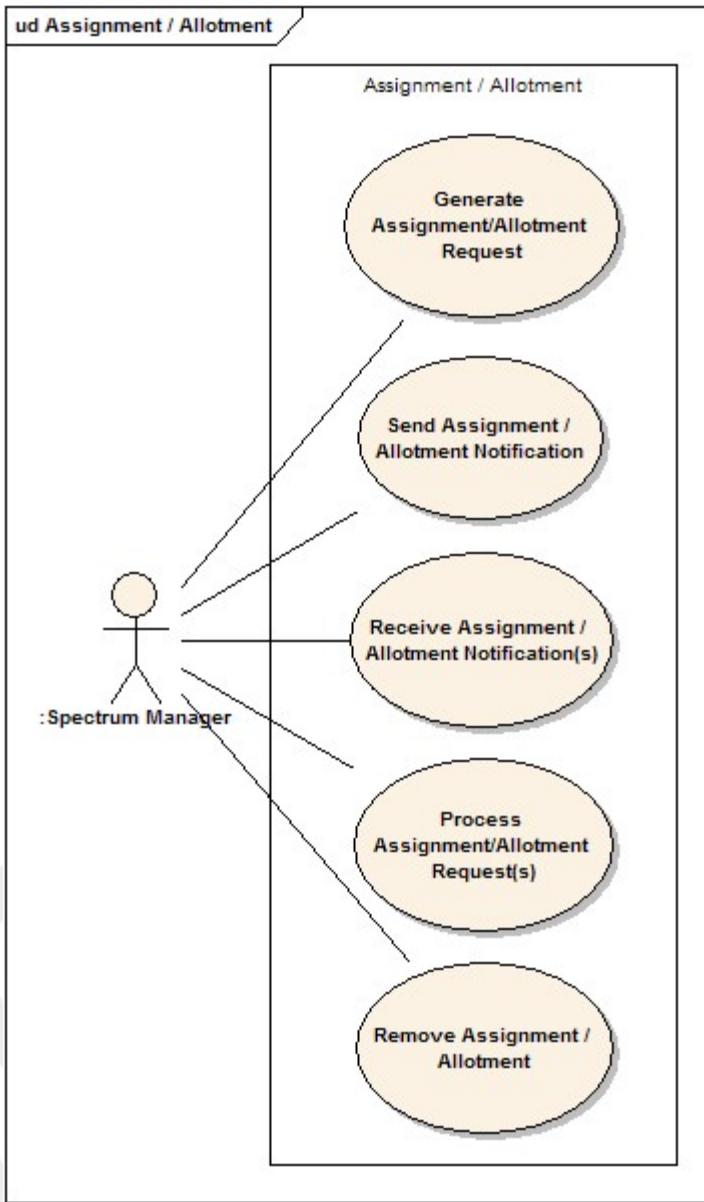
Assignment/Allotment elements are defined in [Volume II, section 14](#).

### 2.8.1 Overview

Once the total frequency requirement for a force is known, it should be submitted as a consolidated allotment request or as a series of assignment requests to the relevant spectrum management authority<sup>(1)</sup>. The SSRF [datasets](#) used for Allotments and Assignments are the same and can be recognized from the code [AL](#) (Allotment) or [AS](#) (Assignment) in part 3 of the Dataset Identifier. However, it should be noted that these messages will be dealt with in different contexts:

- i. **Allotment:** Frequency allotments may be used within a nation or a command to decentralize the frequency management.
- ii. **Assignment:** Frequency resource authorized for use by a given SDS at a specified location or within an AOR.

A summary of the use case for Frequency Allotment and Assignment data is illustrated in Figure 2.8.1.



**Figure 2.8.1: Use Case Diagram for Frequency Allotment and Assignment**

## 2.8.2 Business Process

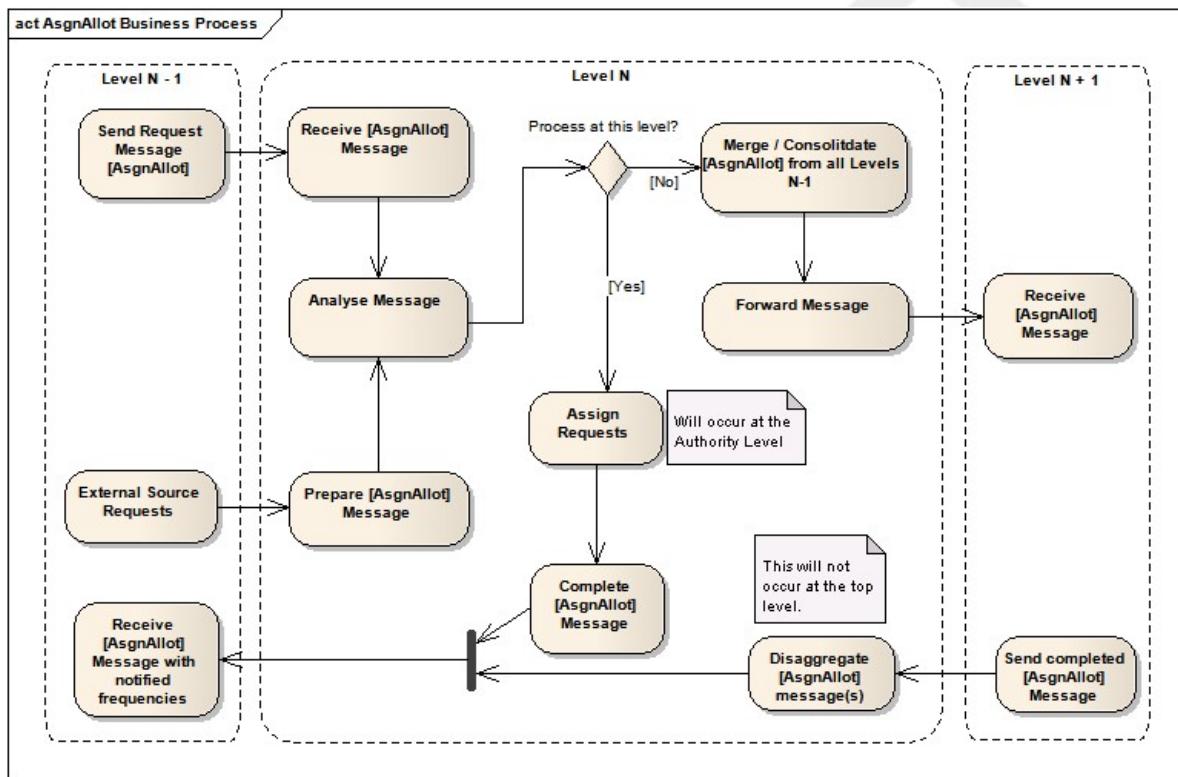
The business processes for Allotment and Assignment are almost identical.

The Frequency Allotment or Assignment process includes all functions required to create and maintain Allotment Plan / Assignment Requests and Responses. This includes the following capabilities:

- Import allotment plans requests and responses
- Query the local data store for allotment plans / assignments
- Create and edit allotment plan / assignment requests and responses

- Track status of allotment plan / assignment requests
- Export and print selected allotment plans / assignments in various formats
- For assignments only, plot the location of selected assignment datasets at least against a political map, and if available on a digital terrain map

The user interaction process is described in Figure 2.8.2, where level "N-1" is the subordinate and "N+1" is the superior authority.



**Figure 2.8.2: Activity Diagram for Frequency Allotment and Assignment Process**

An important part of the process is the user analysis of the request and subsequent decision. There are four cases:

- i. Temporary request that can be satisfied from local allotment. The user will nominate frequencies from its allotment plan and send the response to the subordinate.
- ii. Temporary request that cannot be satisfied from local allotment. The user will send a request for extension of its allotment plan to its superior.
- iii. Permanent request for which the user has authority to assign. Same as case 1.
- iv. Permanent request for which the user does not have the authority to assign. The request is forwarded to the superior authority.

### 2.8.3 Notification of the response

The response to an Allotment or Assignment request is done by re-sending the AsgnAllot dataset, completed with the nominated frequency(ies).

In the case where the request cannot be accommodated without a modification of the parameters (for example a decrease of power), the requester must submit a modified request.

Alternatively, if there is agreement between the requester and the assigning authority, the authority may modify the request and return the modified request completed with the notified frequency(ies).

## 2.9 Report Interference

### 2.9.1 Overview

To provide full spectrum management capability it is important that all significant interference is reported. All interference has a source (the equipment causing the interference) and a victim (the system or assignment suffering from the interference). Resolving interference may be achieved by either readjustment of the source parameters, or re-adjustment of the victim parameters. Since it is important to avoid causing further interference effects on other systems while trying to resolve a particular interference case, the resolution process should be based on careful analysis of the relevant EM environment. Therefore the process should normally involve the use of appropriate spectrum analysis tools.

Typically, interference will be resolved at the lowest possible organizational level. This however, is not always the case, therefore the interference reports must be generated and forwarded through the spectrum management organizational hierarchy. Assuming the victim of the interference is unable to resolve the interference, interference reports should be created at the victim site and sent to higher headquarters IAW [CJCSI 3320.02](#). The lowest level receiving the interference report will attempt deconfliction using the tools available at that level (database, analysis tools applying various propagation and terrain models, etc). If the interference cannot be resolved at the point where the interference is initially detected, an interference report will be prepared and forwarded to the next level for action. In cases involving international coordination, the interference report may be forwarded to the relevant national authority. Regardless of the level an interference issue is resolved and the report closed, the final report should be forwarded to the central database for historical reference.

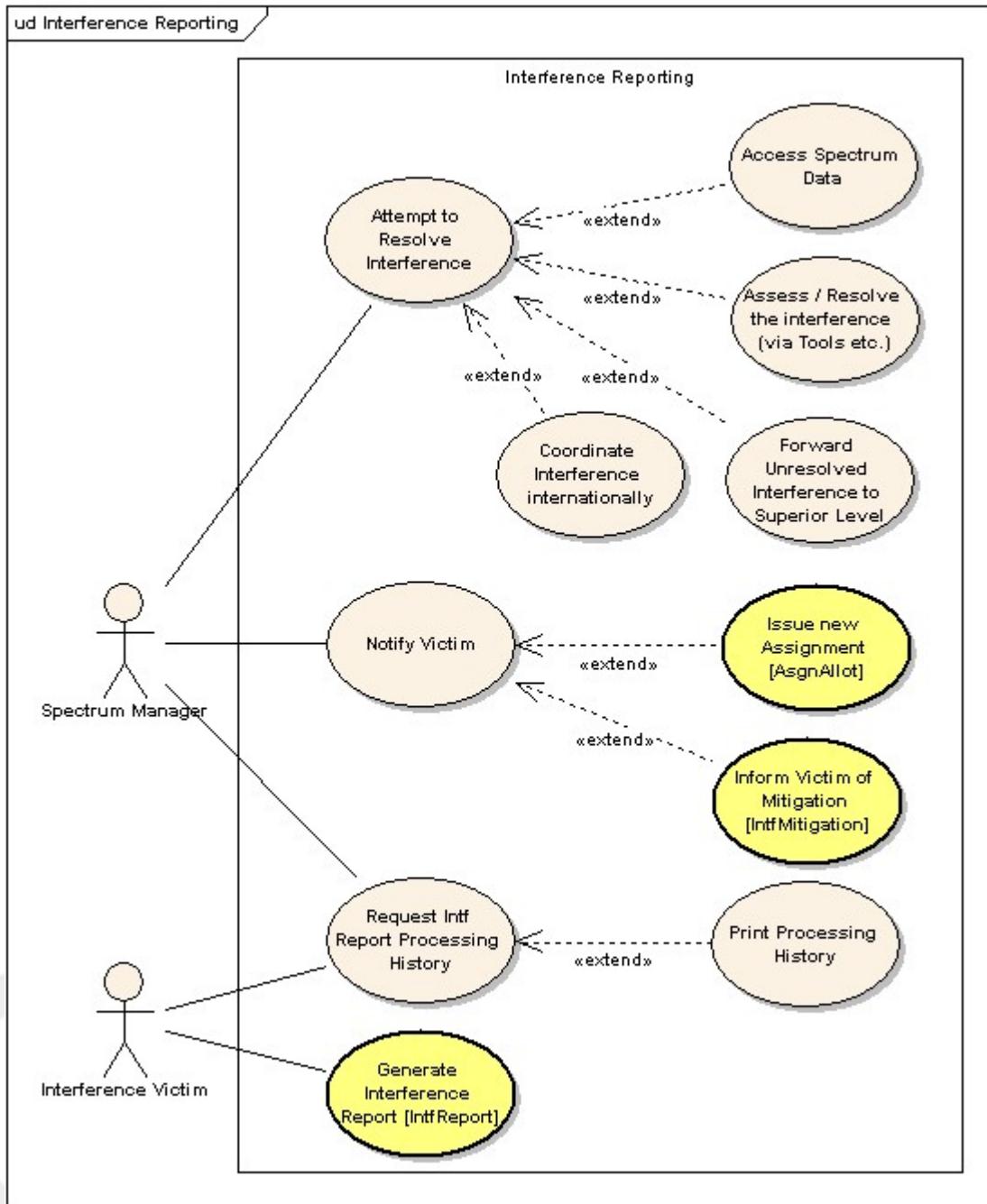
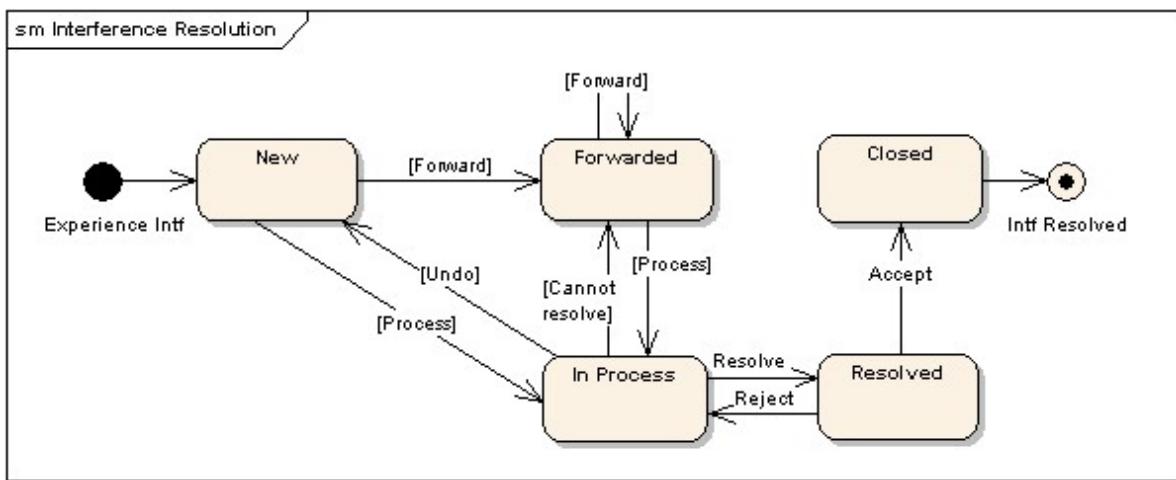


Figure 2.9.1: Use Case Diagram for Interference Reporting

## 2.9.2 Interference Report Processing History

As indicated in the overview section, the interference resolution process may result in an interference report being forwarded through the spectrum management organizational hierarchy. As the interference report is processed through the organization, the status changes and the actions taken at each processing stage shall be recorded and made available to the requesters. As such a processing history of the interference and its mitigation is recorded for later reference.



**Figure 2.9.2: Possible States and Transitions of an Interference Report Processing Chain**

Figure 2.9.2 shows states and state transitions of an interference report while it travels through the organizational hierarchy during a resolution process. According to this state diagram, a message is in a New state when it is first created and sent to an immediate spectrum management authority. If the receiving authority decides that the message can be processed (resolved) at his/her site, the message is put into the In Process state and a resolution is attempted. If the problem is handled the message is put into a Resolved state until the user accepts the resolution, moving it to a Closed state and terminating the process. If the user rejects the resolution, the message is sent back to the In Process state. If the first recipient can not handle the message, the message is forwarded to the next level of authority in the spectrum management organizational hierarchy. Therefore the message is put into a Forwarded state. The forwarding process shall be repeated until the appropriate authority resolves the issue. An interference processing history will provide the sequence of these transitions.

### 2.9.3 Requesting Interference Report Processing History

The processing history will accumulate in the Status element list under the main Interference Report (see [IntfReport](#) element). Requesting the processing history can be achieved by sending a Data Request (see [Administrative](#) Element) message containing the dataset reference of the requested IntfReport element. The resulting SSRF message sent as a response to this request MUST contain the IntfReport element including the accumulated status elements to indicate the stages of the resolution process.

Example:

```

<IntfReport serial="BEL:AR:IR:123" usageType="A"
    entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
<... other Common elements ...>

<Status state="ORIGINATED BY" dateTime="1995-12-31T15:33:48Z"
    byContact="BEL:AR:CN:UNIT1/123"/>
<Remarks xpath=".//Status[1]">Interference detected and cannot be resolved here.</Remarks>

<Status state="FORWARDED TO" dateTime="1996-01-16T16:31:12Z"
    fromContact="BEL:AR:CN:UNIT1/123" toContact="BEL:AR:CN:COMBASE/129"/>
<Remarks xpath=".//Status[2]">This interference requires higher command involvement.</Remarks>
  
```

```
<Status state="RECEIVED BY" dateTime="1996-01-17T16:31:12Z"  
    byContact="BEL:AR:CN:COMBASE/129"/>  
<Remarks xpath=".//Status[3]">Received an interference report.</Remarks>  
  
<Status state="IN PROCESS AT" dateTime="1996-02-01T09:12:12Z"  
    byContact="BEL:AR:CN:COMBASE/129"/>  
<Remarks xpath=".//Status[4]">We can resolve this interference here.</  
Remarks>  
  
<Status state="CLOSED BY" dateTime="1996-03-13T16:00:05Z"  
    byContact="BEL:AR:CN:COMBASE/129"/>  
<Remarks xpath=".//Status[5]">Interference resolved. The source system  
power was reduced.</Remarks>  
  
<... other Common + IntfReport elements...>  
</IntfReport >
```

### 3. Tactical SM Tasks

#### 3.1 Introduction

The data elements used for tactical spectrum management tasks are defined in [Volume III](#). See related definitions in [Annex B](#).

The general tactical requirements are expanded into several operational tasks which must be performed to accomplish spectrum management. In order to conduct tactical spectrum management additional data is required, including: JRFL, Force Elements, BSM Plan, CEOI, Operating Clearance, and JSIR as illustrated in Figure 3.1.1. Individual tasks are described in detail in subsequent paragraphs.

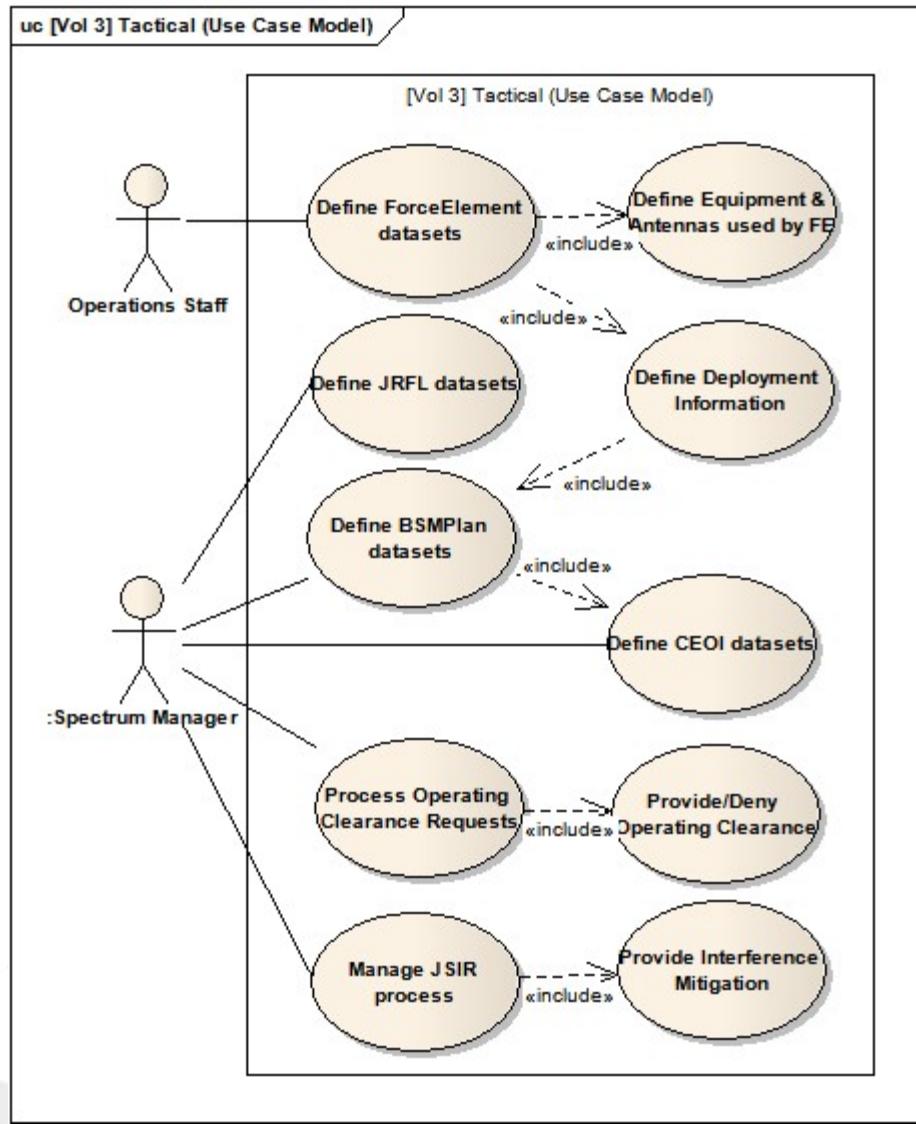


Figure 3.1.1: Core Spectrum Management Operational Tasks

## 3.2 Force Elements

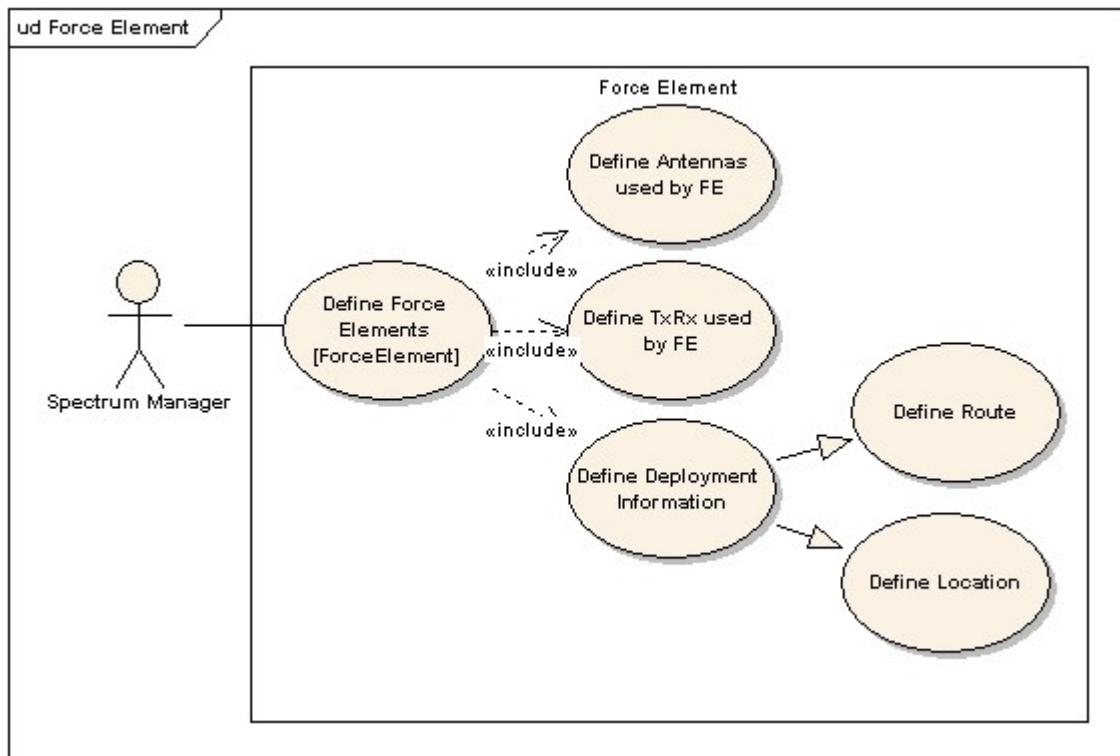
### 3.2.1 Overview

Force Element data elements are defined in [Volume III, section 1](#).

The [ForceElement](#) is used to describe any entity (organization or platform) within a deployment that has spectrum dependent systems. This could be stand-alone equipment, or any group of equipment brought together to perform a task.

The actual or possible deployment of a ForceElement is described in the [FEDeployment](#) data element, using either a reference to a location or to a route.

### 3.2.2 Use cases



**Figure 3.2.1 Business Use Cases For Force Elements Definition**

### 3.3 CEOI

#### 3.3.1 Overview

The Communications Electronics Operation Instructions (CEOI) provides a centralized mechanism for ensuring the governance, ownership, management and coordination of communications management related activity within a specific area of operations. This can be an electronic or paper product that consists of the command, control and communications directory of tactical Force Elements. The CEOI also contains share plans (see below), call signs, call words and frequencies. In addition the CEOI provides procedures for conducting electronic, visual and verbal communications (e.g., sign/countersign, smoke/pyrotechnics, suffix and expanders) to supplement or enhance radio communications security.

Share plans define what the minimum and desired frequency separation tolerance to be accepted when managing spectrum resources. Tactical spectrum manager's use shared plans to creatively develop a spectrum use plan when frequency resources are extremely limited.

CEOI elements are defined in [Volume III, section 2](#).

#### 3.3.2 Business Process

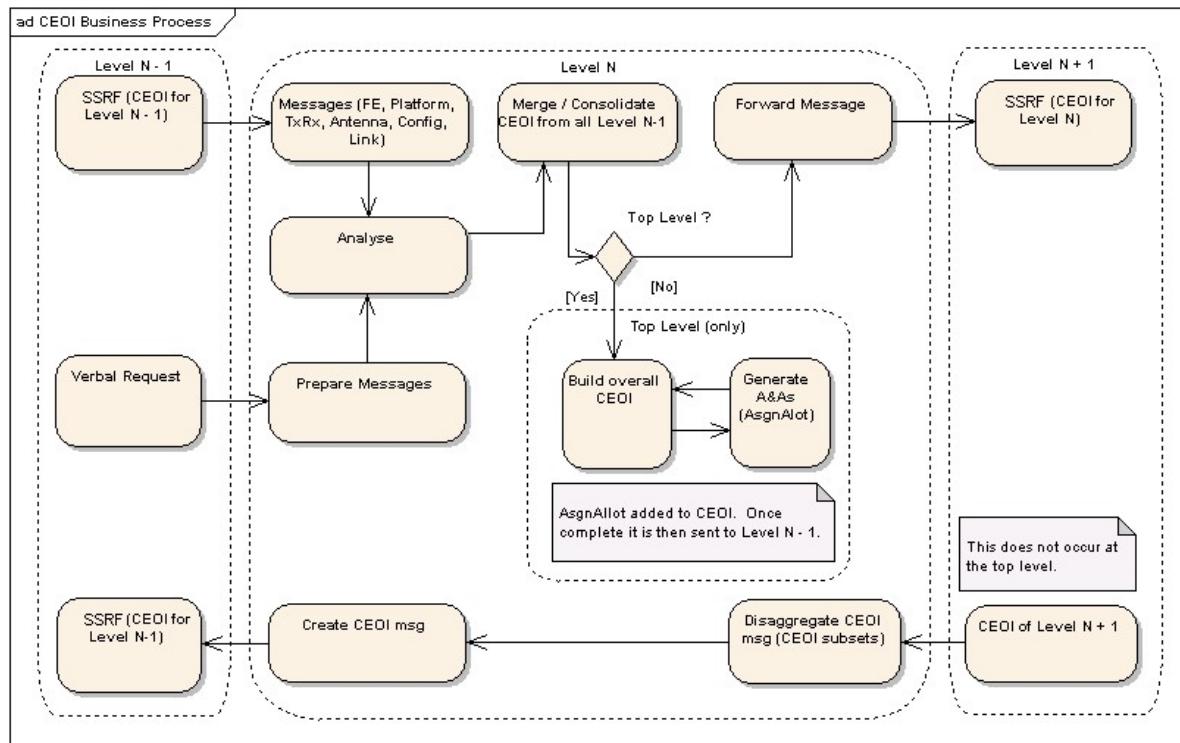


Figure 3.3.1: Activity Diagram for CEOI Definition

## 3.4 BSM Plan

### 3.4.1 Overview

Battlespace Spectrum Management elements are defined in [Volume III, section 3](#).

*Note: This section and the term "Battlespace Spectrum Management" do not describe Joint doctrine. This section is included here for consistency with NATO's SMADEF-XML documentation. For Joint doctrine on Spectrum Management, see [CJCSM 3320.01](#), Electromagnetic Spectrum Use in Joint Military Operations.*

The Battlespace Spectrum Management (BSM) plan is the document which will provide a centralized mechanism for ensuring the holistic governance, ownership, management and co-ordination of all BSM related activity within a specific area of operations. The document is owned by the Spectrum Manager but signed off by the Joint Battlespace Manager (J3/J5). It must be issued to all theater-based stakeholders. The BSM plan can be split down into the following phases.

**1. The Planning Stage.** This will identify the following:

- The Force spectrum requirements
- The BSM strategy/CONOPS
- Spectrum freedoms and constraints.
- Acquire spectrum to support the force requirement.

**2. The Deployment Stage.** This will include the following:

- Setting up the BSM Cell.
- Managing the BSM plan.
- Managing the JRFL.

- Resolving interference issues.
- Where necessary acting as a civil spectrum management authority.
- Conduct spectrum monitoring.

### 3. The Redeployment Stage. This will include the following:

- Where necessary assisting with the development of a civil spectrum management capability.
- Handing over spectrum management responsibilities to the Host Nation, this can include providing sanitized extracts from the BSM plan.
- Handing over to an incoming military force, this will be a transfer of ownership of the BSM plan.

#### 3.4.2 Business Process

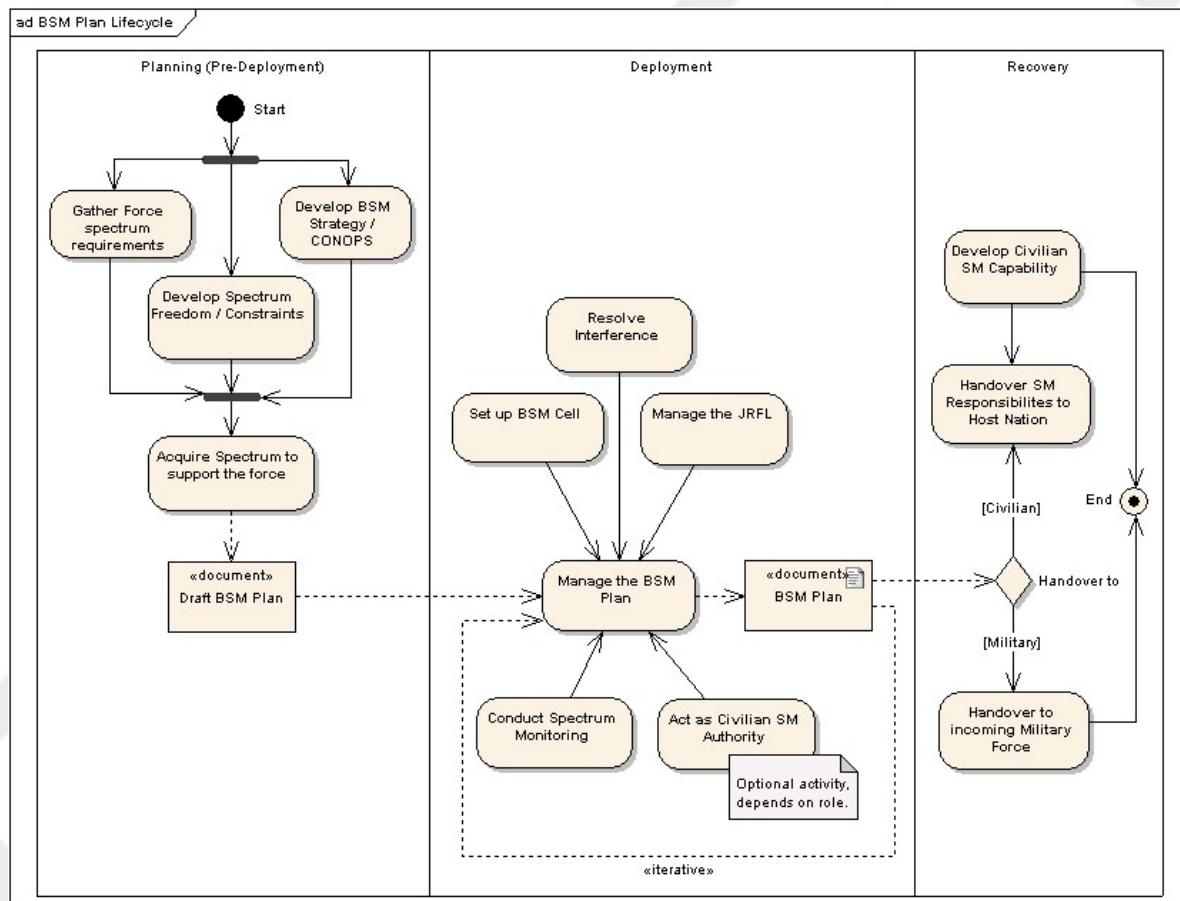


Figure 3.4.1: Activity Diagram for BSM Plan Definition

#### 3.4.2 Scope of the BSM Plan

##### Lead Nation:

Theater or Coalition BSM plan. This should cover all the spectrum stakeholder areas for all participating nations, it will mandate the overarching policy.

##### Participating Nations:

National BSM plan. A nations own BSM plan must be aligned to the Theater BSM plan. It should where possible, reference the Theater BSM plan and only detail national specific elements.

### **3.4.3 Structure of the BSM Plan**

The BSM plan is a standalone document which will form part of the Theater Reference Document set.

The following is a structure of the BSM plan and what it includes:

**References:** These can include the following:

- a. Government Directive
- b. UN Directive
- c. OPORD/OPLAN
- d. ACP 190

**Commanders Spectrum Strategy**, to include:

- a. The Concept of Operations
- b. Commanders BSM mission statement.
- c. Scope of the BSM plan.

The Commanders Spectrum Strategy should consider:

- a. Force posture, aggressive or passive.
- b. Host Nation environment.
- c. Freedoms and Constraints.
- d. Size of force and spectrum requirement.

**Spectrum Management Control Process:**

- a. Authority
  - i. This will ultimately be the Commander of the Task Force but will be delegated to the BSM.
  - ii. Who is delegated to deal with the Host Nation.
- b. Command Relationships.
  - i. Responsibilities for command and subordinate relationships.
  - ii. Management and control processes and level of representation.

**Spectrum Stakeholders:**

- a. Stakeholders required for the operation.
- b. List of POC details for key stakeholders at Joint and Component level.
- c. Define specific responsibilities or reporting chains.

**Supported Systems:**

- a. Systems already given spectrum clearance.
- b. Details current spectrum supportability.

**Force Spectrum Requirements:** Annexes

- a. Task Organization of deployed forces.
- b. Map of Joint operational Area and sub-Areas of Operation.
- c. Supported systems.
- d. Assignments and Allotment.
- e. Spectrum request format.
- f. Interference report and resolution format.
- g. JRFL and request format.

## 3.5 JRFL

### 3.5.1 Definition

Joint Restricted Frequency List elements are defined in [Volume III, section 4](#).

[Ref [CJCSM 3320.01](#)] The Joint Restricted Frequency List (JRFL) is a list of frequencies that must receive various degrees of protection. The JRFL contains frequencies that fit into one of three categories Taboo, Protected or Guarded (see [Annex B](#)).

### 3.5.2 Roles, Responsibilities And Procedures

The JRFL must be compiled in co-ordination between J6 (Communications), J3 (Operations) and J2 (Intelligence) communities. This coordination is necessary because frequencies used by J2 (for intelligence collection or other purposes), by J3 (for EW/INFO OPS purposes), and by J6 (for command and control), must be deconflicted.

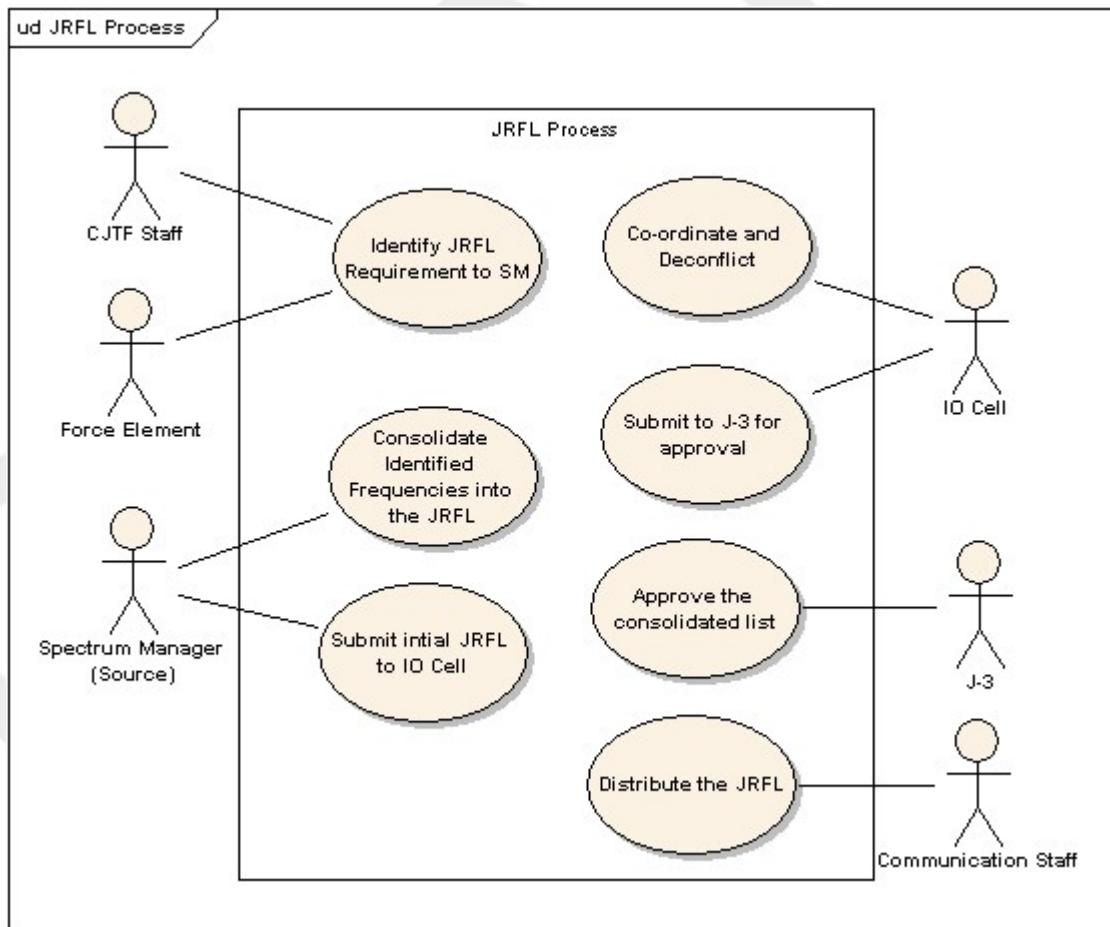


Figure 3.5.1: Business Use Cases For JRFL Definition

### 3.5.3 Business Process

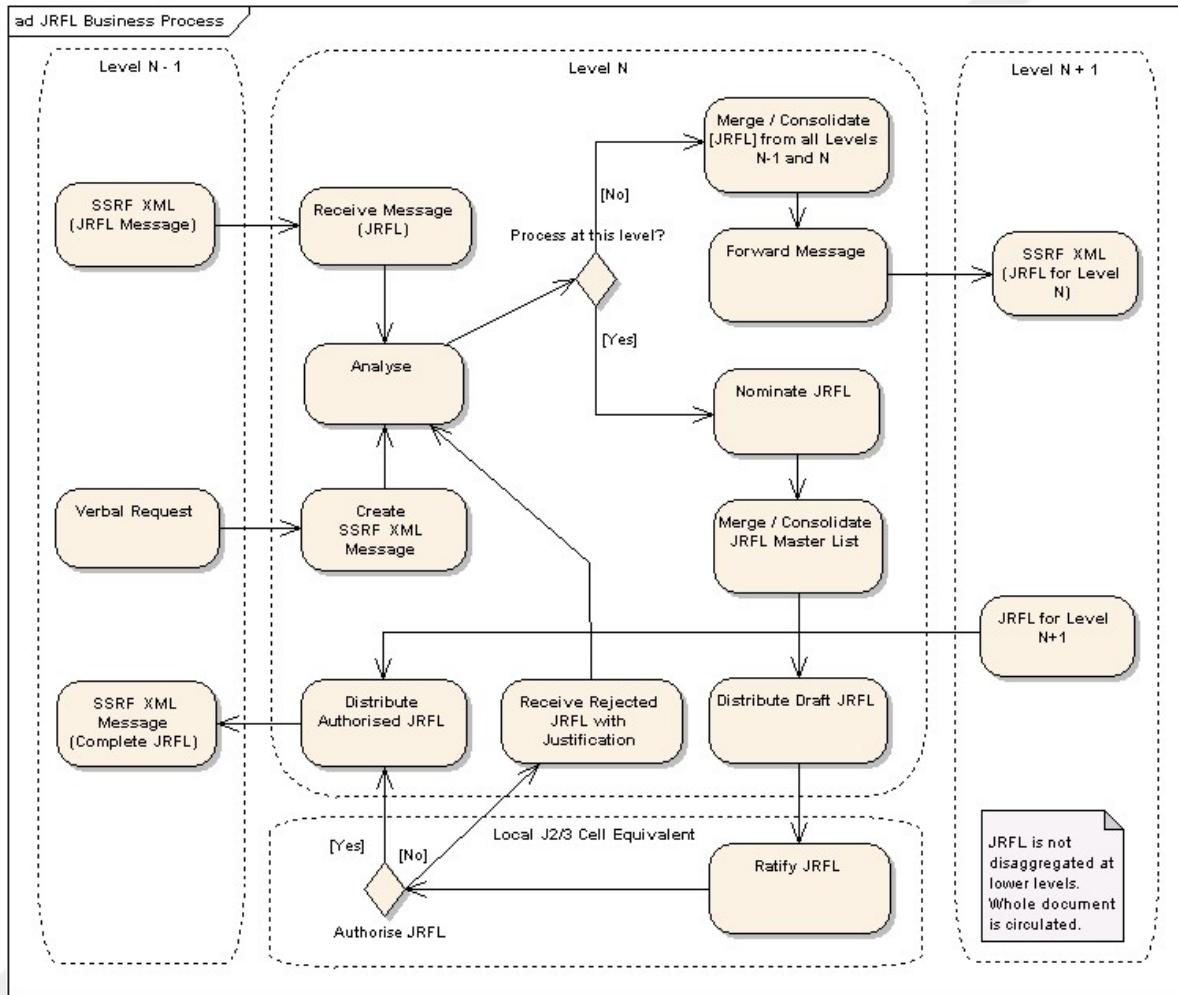


Figure 3.5.2: Activity Diagram for JRFL Definition

## 3.6 JSIR

### 3.6.1 Overview

Joint Spectrum Interference Resolution elements are defined in [Volume III, section 5](#).

[Ref [CJCSM 3320.02](#)] Joint Spectrum Interference Resolution (JSIR) is a process designed to mitigate or define the procedures to mitigate Electromagnetic interference (EMI) that regularly hampers the Command and Control (C2) of military/non-military operations by degrading essential systems that use the electromagnetic spectrum. Since EMI can be caused by enemy, neutral, friendly, or natural sources, it generally must be resolved on a case-by-case basis. The intent of the JSIR procedures is to resolve EMI incidents at the lowest possible level within the command structure. However, when the cause and recipient of the interference are not within the same component force or supporting element, resolution may require assistance from the command, Combined Joint Task Force (CJTF), service spectrum management HQ or higher levels of authority.

### 3.6.2 Business Process

See [section 2.9](#) (Report Interference) for the overview, use cases and activity diagrams.

## 3.7 Operating Clearance

### 3.7.1 Overview

Operating Clearance elements are defined in [Volume III, section 6](#).

*Note: This process is not authorized for U.S. Forces but it may be used by some allied forces. It is described here for informational purposes.*

The aim of the Operating Clearance process is to facilitate the timely provision of information leading to compatible systems that use the electromagnetic spectrum. It allows the operational spectrum managers to assess, with a certain degree of confidence, whether the equipment which will be brought into the operational theater will operate without creating interference. The Operating Clearance is the tactical version of the full Spectrum Supportability process; it MUST NOT be used as a replacement of the full Spectrum Supportability (see [section 2.5](#)), and MUST only be used in cases of short-term requirements in support of a critical operation. Acceptance of this abbreviated procedure is at the discretion of the commander.

A summary of the Operating Clearance process is illustrated in Figure 3.7.1.

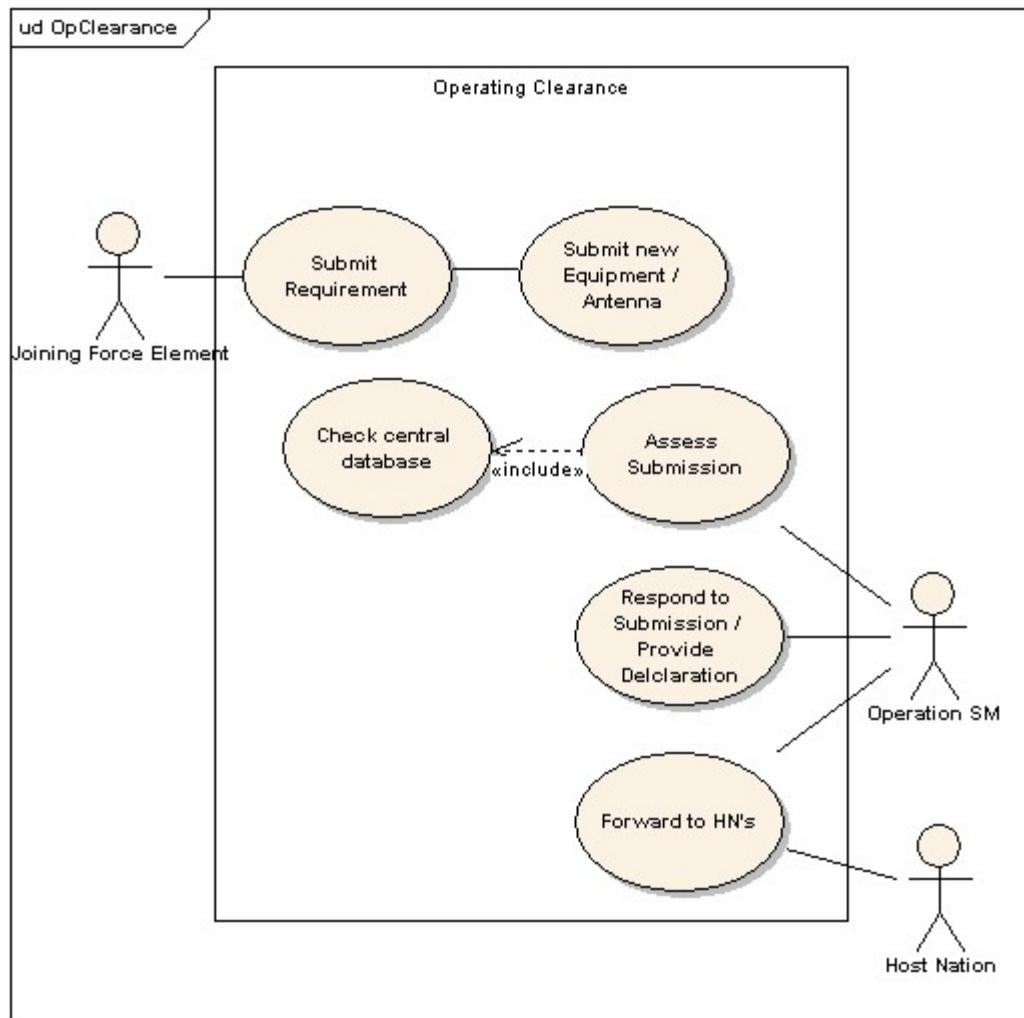


Figure 3.7.1: Business Use Cases For Operating Clearance Process

### 3.7.2 Business Process

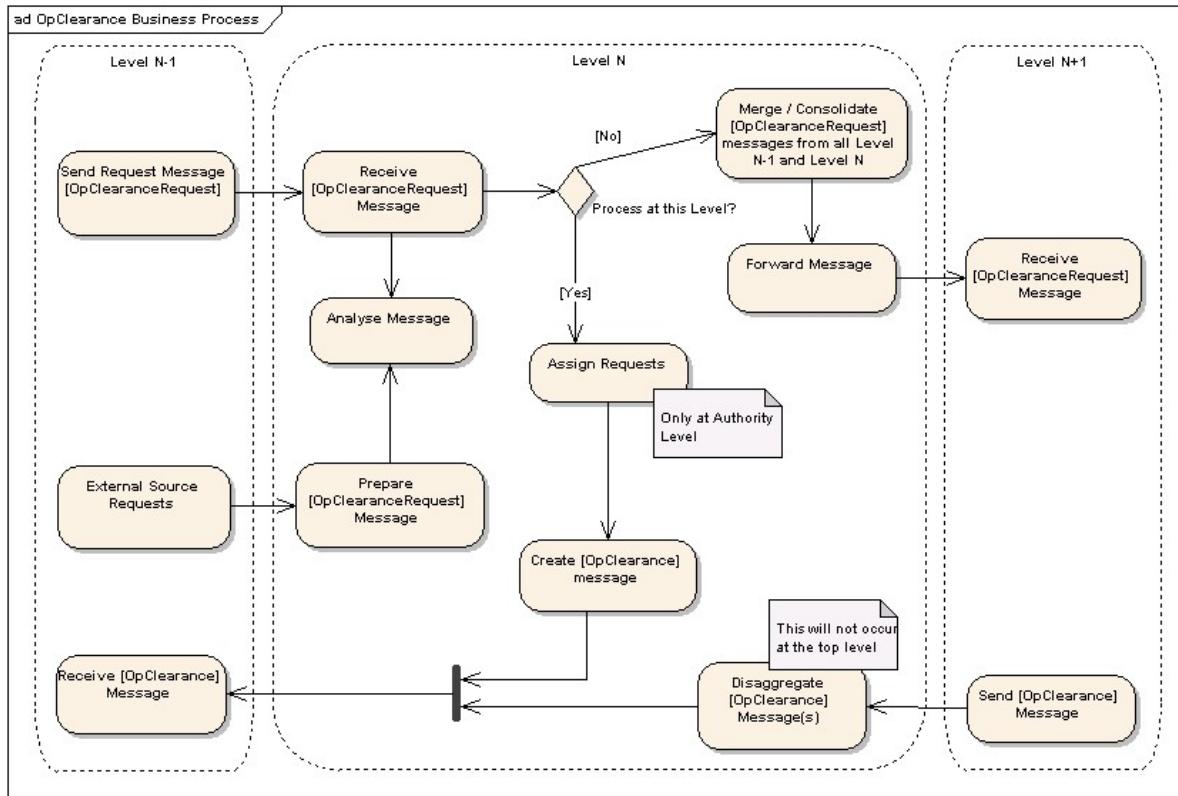


Figure 3.7.2: Activity Diagram for Operating Clearance Process

## 4. Spectrum Analysis Tasks

### 4.1 Introduction

**Note: Completion of this section is pending completion of Volume IV.**

## 5. Environmental Tasks

### 5.1 Introduction

**Note: Completion of this section is pending completion of Volume V.**

## 6. Document Handling

### Note:

In this section, the following apply:

- The word “document” follows the XML definition, ie the set of elements from <SSRF> to </SSRF> included.
- The word “package” designates an electronic package of information including the SSRF “document” and any attached files.

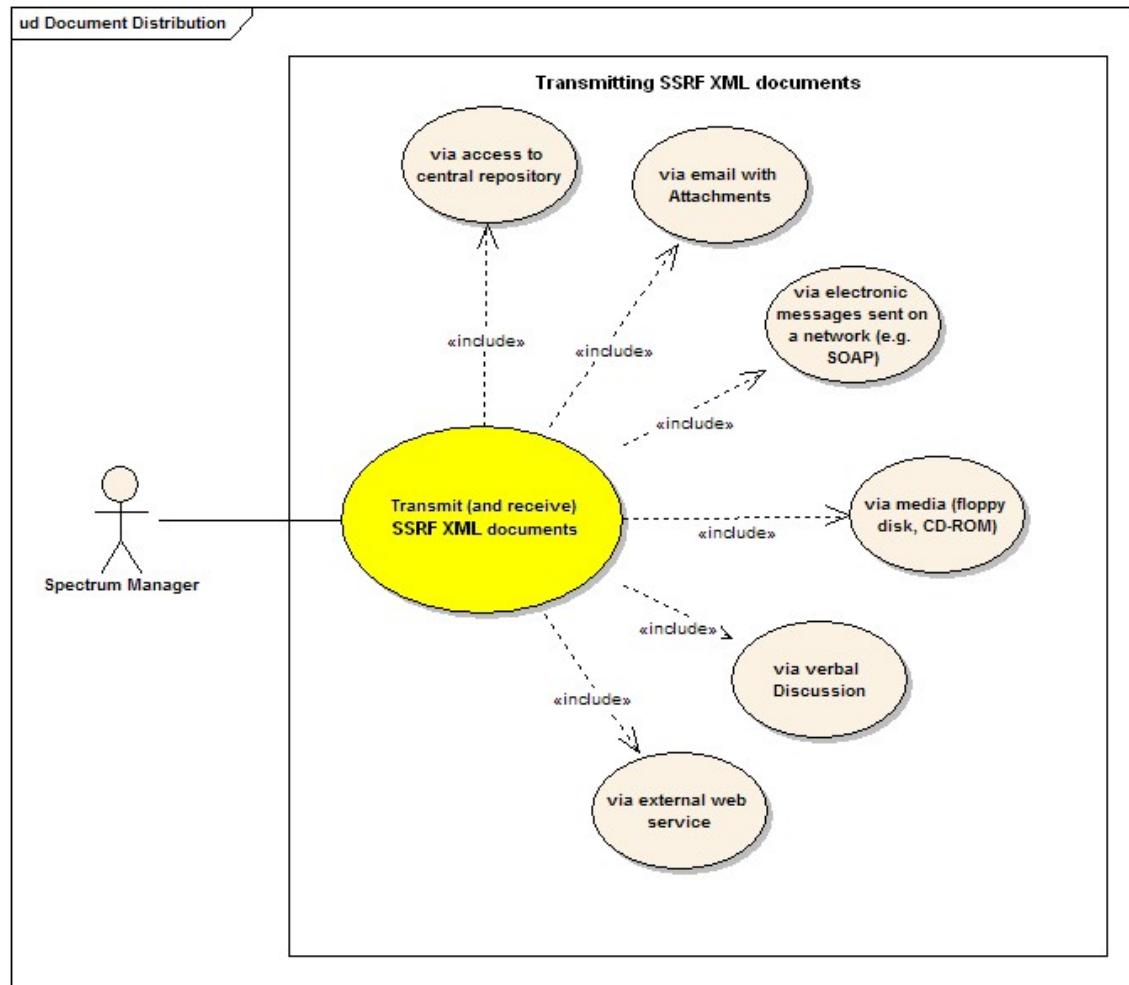
## 6.1 Introduction

The challenge for this standard is to be able to adapt to a variety of scenarios and approaches to sharing information across a wide variety of systems ranging from disconnected laptops to high speed, interconnected central repositories. SSRF supports interoperability between connected and disconnected systems. The important aspect is for information to be shared in a **controlled** and **structured** manner.

This section of the document outlines the document distribution approach that needs to be understood and adhered to in order for communication to be successful. Due to the variety of environments and constraints within each organization and operational area, this standard cannot mandate the way in which documents are transmitted, in particular it cannot mandate specific transport and security protocols. However, it provides a number of core principles and processes, which **MUST** be followed by **every** organization when implementing SSRF compliant capabilities to ensure interoperability.

## 6.2 Document Distribution

This standard supports many different scenarios, both as an internal communication mechanism to support sharing of information between internal systems within an organization as well as interoperability with external agencies/organizations and other nations.



**Figure 6.2.1: XML Document Distribution**

Figure 6.2.1 provides a summary of the different communication mechanisms that MAY be used to share information. Despite these approaches all containing their own rules, they are all similar in that a data file (in this case XML) can be moved from location A to location B.

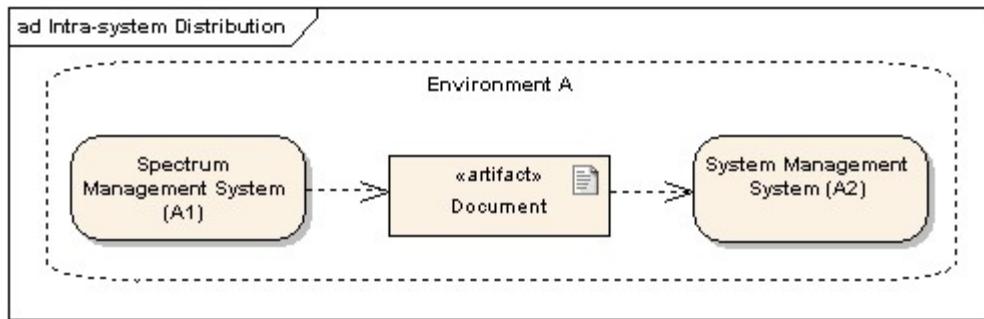
The following section outlines the generic examples of communication between differing systems and services.

### 6.2.1 Connectivity Scenarios

The connectivity between national and international spectrum management systems vary greatly. The Figures in this paragraph illustrate two simple scenarios:

1. Intra-system interoperability (between two systems the same e.g.: ARCADE to ARCADE)
2. Inter-system interoperability (between two differing systems that may not have direct connectivity)

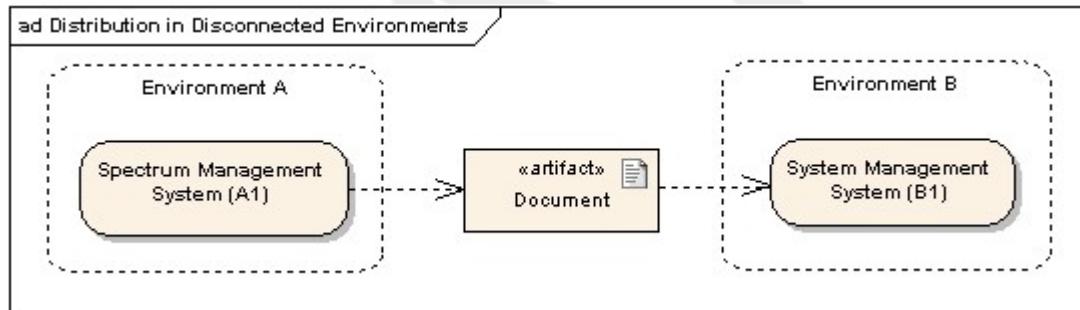
It should be noted that the standard does not currently provide guidance for direct international connectivity between differing national systems.



**Figure 6.2.2: XML Intra-system Distribution**

Interoperability with external services (or systems with no direct connectivity):

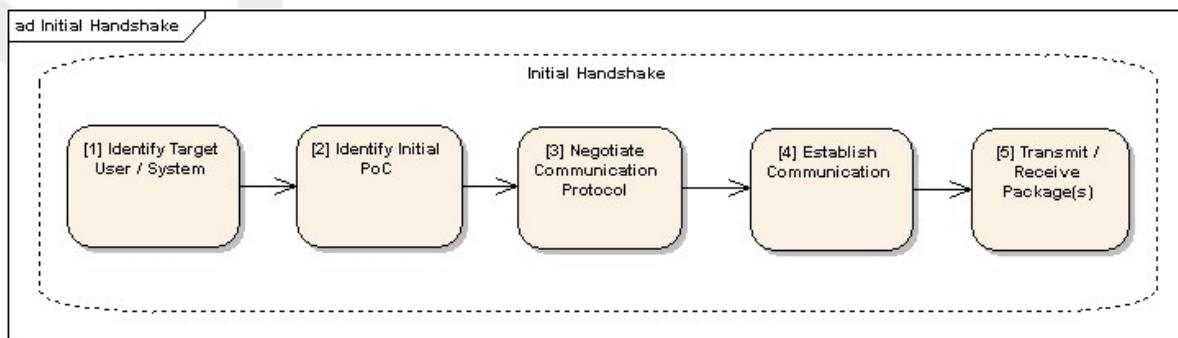
This scenario typically involves asynchronous communications between a spectrum management system and one or more external organizations. A physical separation will often exist between the two systems (For example, this may be required to address security barriers or limitations in connectivity or bandwidth).



**Figure 6.2.3: XML Distribution in Disconnected Environments**

### 6.2.2 Establishing Communication (Initial Handshake)

Before any communication and interaction can take place an initial handshaking process must occur. This process is detailed in Figure 6.2.4.



**Figure 6.2.4: Initial Handshake**

**1. Identify Target User / System**

The first step in setting up communication for SSRF exchange is to identify the communities that are to participate in the exchange.

**2. Identify Initial Point of Contact**

Points of contact need to be established to start the manual handshaking process. This is typically conducted through verbal or email dialogue.

**3. Establish Communication Strategy**

The communities shall agree on the transport strategy. This could range from web services through to files on physical media.

**4. Establish Communication**

Once the strategy has been agreed, it is implemented and communication established.

**5. Transmit / Receive Package(s)**

Once the communication between the communities has been established, spectrum management interoperability can be conducted through the use of SSRF.

***6.2.3 Data Transfer Integrity and Security***

The standard is based on the assumption that the communication channel between parties ensures the data transfer integrity and security. Classification information for the data items is stored within each document, as described within the data standard (see [Volume II, section 1.4](#)).

***6.2.4 Package Types***

The generic distribution process of a SSRF package is detailed in Figure 6.2.5.

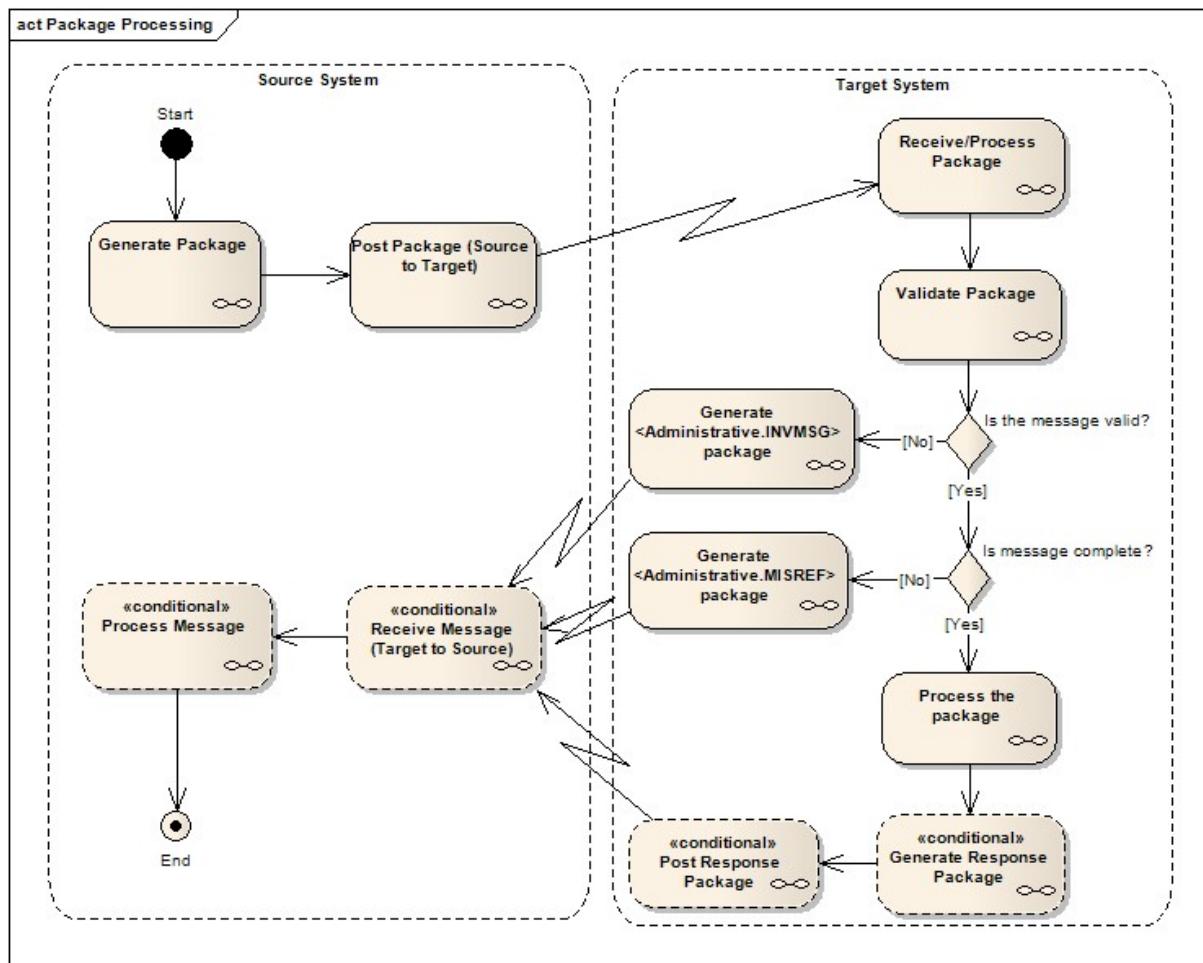


Figure 6.2.5: Processing Packages (XML documents)

The SSRF data standard specifies two different types of packages:

- Asynchronous (one way with no answer expected, e.g. providing a Table Of Allocation to another party)
- Synchronous (Request / Response, e.g. request for assignment expecting a notification)

## 6.3 Document Structure

### 6.3.1 Schema

A SSRF document can contain multiple (and varied) datasets. For example:

```
<SSRF>
  <Header>...</Header>
  <Body>
    <Location> ... </Location>
    <Location> ... </Location>
    <TxRx> ... </TxRx>
    <AsgnAllot> ... </AsgnAllot>
    <AsgnAllot> ... </AsgnAllot>
```

```
</Body>  
</SSRF>
```

### 6.3.2 Order of the datasets within a document

Because some [datasets](#) require other reference data to be present in the data repository (e.g. locations, equipment specifications) in order to be validated, datasets within [transactions](#) MUST be ordered to enable the receiving system to immediately resolve dependencies. This order is provided and enforced by the XML Schema (see [Volume II, section 2](#)). The order in which each type of dataset appears, as defined by the SSRF Schema, enables the receiving system to resolve dependencies by processing the document sequentially.

For example, a document including location, equipment and frequency assignment datasets will be ordered so that location and equipment specifications will be provided before the frequency assignment data. That way the receiving system can process the location and equipment information into its data repository, and further on will validate the assignment dataset against the newly imported location and equipment datasets.

### 6.3.3 Distribution of Referenced Data

Distribution of referenced data is decided at the initial handshake or specified using the **external** attribute of the [Administrative](#) element.

#### Transmit only essential information

Where spectrum management systems are assumed to be synchronized, [transactions](#) normally omit reference datasets. For example, an assignment transaction MAY include only a [LocationRef](#), omitting detailed location information (if the requester knows that the location has been previously defined).

#### Transmit all information

Where spectrum management systems are assumed not to be synchronized, transactions normally include all reference datasets. For example, an assignment transaction SHOULD include the detailed location information referenced within the assignment.

## 6.4 Core versus National Elements

Because it is based on SMADEF-XML, SSRF consists of a set of core elements which must be managed and recorded in every SSRF compliant software tool. There are also a number of national elements that are provided to support a specific nation's requirements.

Within the description of the element, information is provided if an element belongs to a specific nation. For example: "This is a National element (used by: USA)." SSRF implementations MUST support USA national elements as required by the element description, and MUST be prepared to merge USA national elements back into SMADEF-XML or OSMDD formatted datasets received from systems which support those standards when those datasets are owned by DoD.

#### Notes on Input Requirements and Validation Rules:

For national elements, the rules appearing in the section "Input Requirements" (such as "this element is REQUIRED") apply only to the nation(s) implementing this element. All non-USA national elements are considered as optional in the SSRF Schema, and the implementation of national validation rules is left to the nation implementing these elements. Validation rules of a general nature are implemented as part of the standard and are shown in the "Validation rules" section (see [Volume II Paragraph 1.1](#)).

For core elements, additional national rules for a Nation XXX may be indicated in sub-paragraphs "Additional checks for XXX". Rules that refer to "USA" MUST be implemented by SSRF compliant software. Rules for other nations MAY be supported as desired within SSRF implementations. Validation of non-USA rules is OPTIONAL.

**Notes for implementation:**

1. When a [dataset](#) is sent from tool A implementing some national elements to tool B which did not implement them, these elements will not be recorded by tool B. If tool B sends a modification of this dataset to tool A, this tool A must be able to merge the incoming modified dataset with the existing dataset without losing the national elements currently stored in tool A. In other terms, a modification may not be a simple "purge and replace" operation.
2. When a dataset is sent from tool A not implementing some elements specific to nation B expecting them, it is Nation B responsibility to populate and manage these elements. The other nations are NOT expected to populate these national elements. It is the responsibility of the owning nation to ensure that the modification of records (received from non-owning nations) maintain the national elements.

## 6.5 Dataset Management

### 6.5.1 Status Tracking

The [Status](#) element is used to keep track of the status of a dataset. The method for updating and tracking this element is “solution specific” and managed and controlled by each spectrum management system. It is the responsibility of each system to conduct the management of this element.

This paragraph contains indications which MAY be taken into consideration when implementing integrity and version control.

### 6.5.2 Dataset Locking and Ownership

The ownership of datasets can be supported by SSRF using the first two parts of the dataset identifier (see [Country](#) and [orgCode](#) in [Volume II paragraph 1.5](#)). However, the following MAY be used as guidance for ownership operational policies:

- The owner of a dataset is responsible for the dataset throughout its life cycle.
- Solution specific software systems SHOULD allow only the owner to modify their own datasets;
- If someone other than the owner needs to modify the dataset, the dataset SHOULD be sent to the owner for update action.

The locking of individual datasets is a solution specific procedure. Experience in spectrum management software as well as in other cooperative domains has demonstrated that data integrity can best be ensured when only one user has the ability to modify a specific dataset at any time. A modification of a dataset must be approved or withdrawn from the system before another modification can be created.

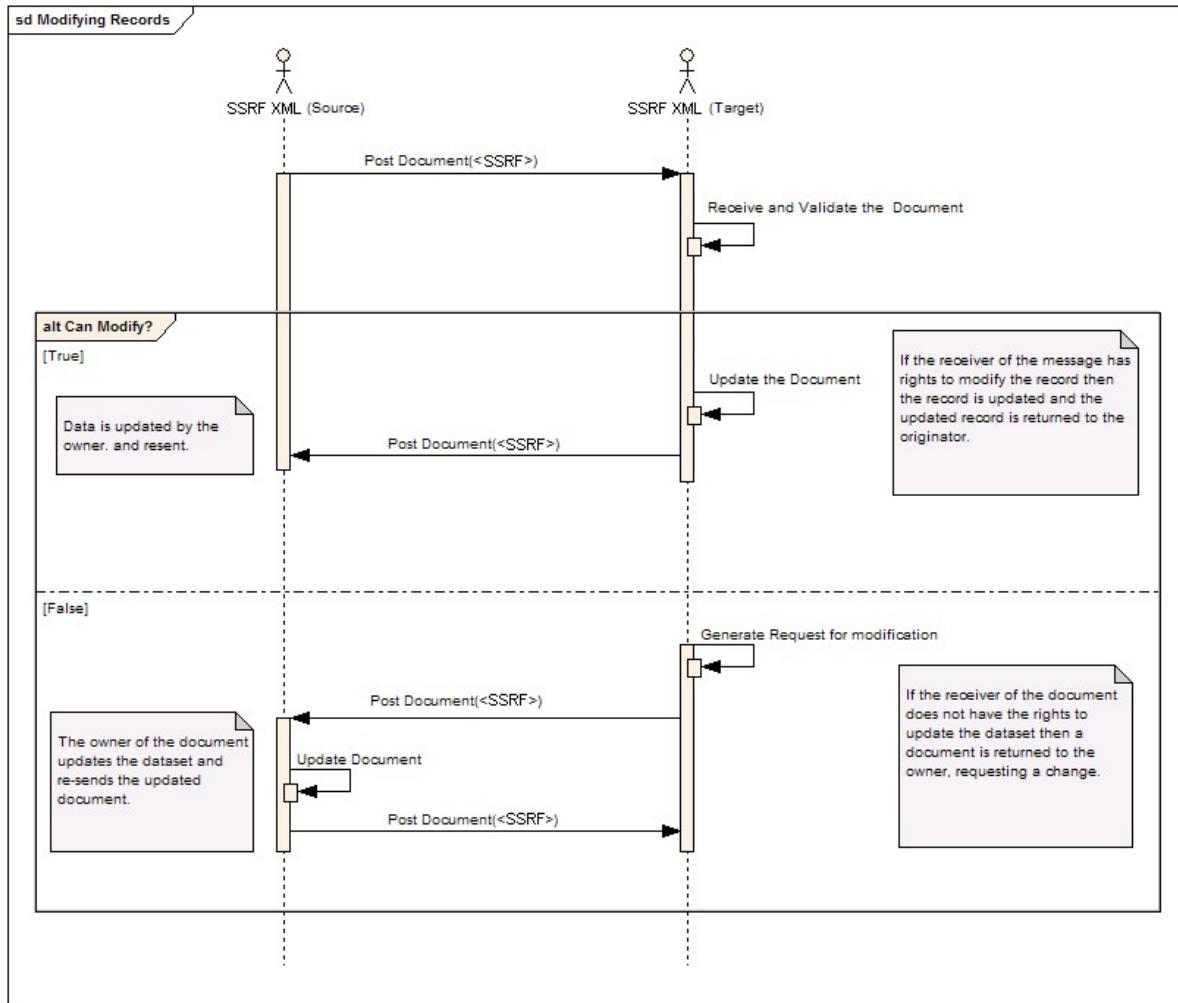


Figure 6.5.1: Dataset Locking

### 6.5.3 Referential Integrity between Datasets

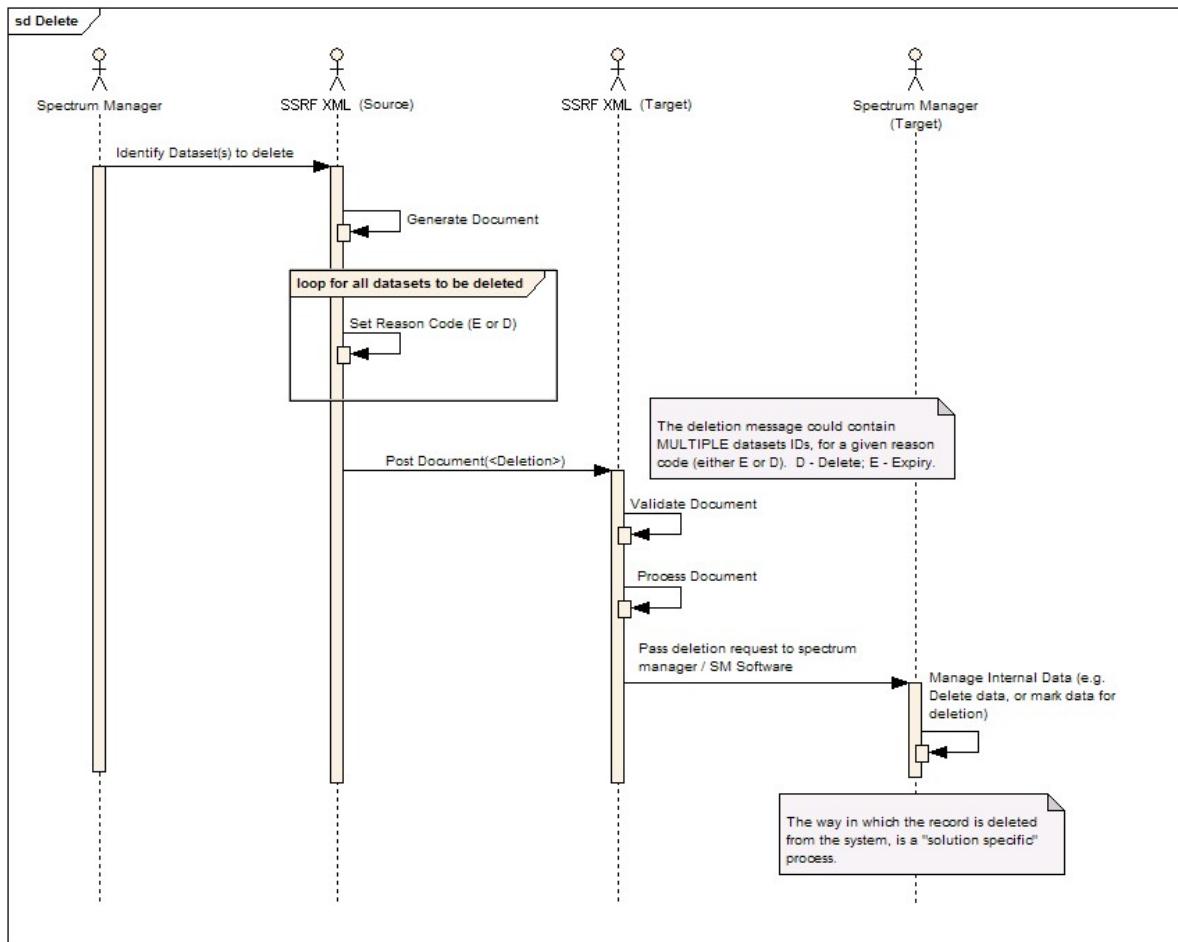
A modification may modify any item within a [dataset](#). However, it cannot be used to modify the dataset identifier (attribute **serial**), as it constitutes the unique identifier attached to each dataset from its creation until it is deleted.

**Warning:**

The modification and deletion of datasets should be considered very carefully. Modifying or deleting datasets **SHOULD** be validated where they are inter-related with existing datasets. Amendments to inter-related datasets **SHOULD** only be permitted within a controlled process. Further details about modifying and deleting specific datasets are contained within the description of each data element.

### 6.5.4 Dataset Deletion

If a dataset expires or requires deleting the "[Deletion](#)" SSRF message is used. The processes for managing the deletion of data are illustrated in Figure 6.5.2. The messages form a request for expiry/deletion. The internal management of datasets is "solution specific".



**Figure 6.5.2: Deleting Data**

The messages form a request for expiry / deletion. It is the responsibility of each systems solution to manage its own datasets.

### 6.5.5 Requesting Data

The [Administrative](#) message is used to request dataset(s) from other spectrum management systems. This element can be used to request specific datasets by specifying the dataset identifier required. Alternatively it can be used to query another repository for information. It is the responsibility of each spectrum management system to manage and control the release of information.

If a received document contains invalid or missing data then the Administrative message SHOULD be used to request that the document is re-sent with the necessary amendments.

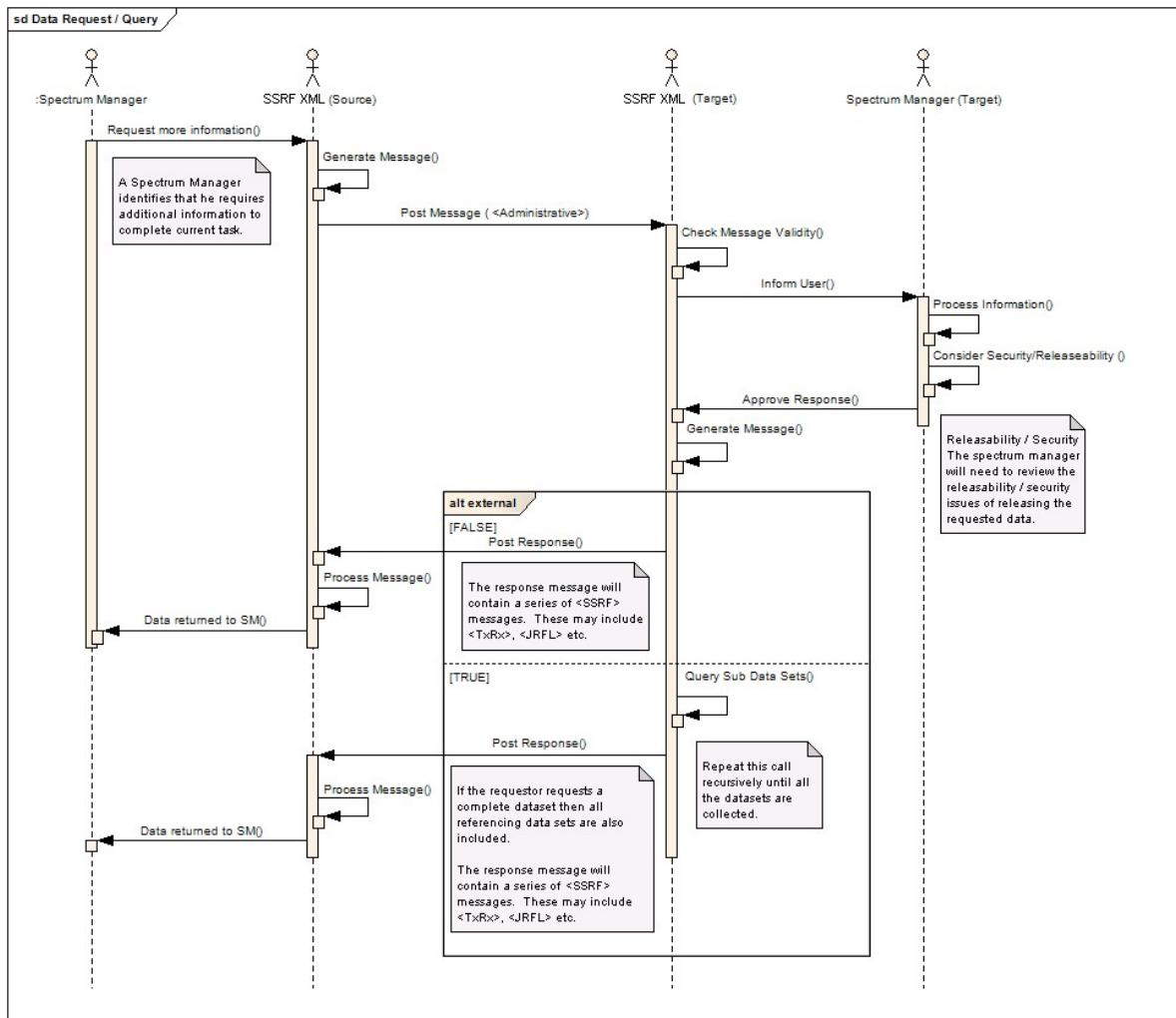


Figure 6.5.3: Data Request

## 6.6 Distribution from a central server

This paragraph contains indications which MAY be taken into consideration when implementing a client/server system.

### 6.6.1 Roles

Users of a centralized system may have one or more roles usually depending upon assigned responsibilities. A [Role](#) (or Job Account) is assigned to an office or position so the account does not change as staff within an office or organization change. The Role identifies the account which has edit authority / control of the proposed action. One or more roles can be assigned to a spectrum manager who has more than one distinctly different areas of responsibility (e.g., a tactical and a sustaining-base function) and who may use the same computer to perform both jobs. The Role is similar to an e-mail address because it is used like an address for workflow routing [dataset](#) of proposals. A new Role, if created on a client computer, is uploaded to the server where it is validated before being made available to other clients on the network. Once a Role has been established, the operator can use it to route a dataset within the system. Status tracking codes are

assigned to datasets as they move through the approval cycle. As a proposal is passed from one user to another, the receiving user's Role is added to the proposal. When a Role is added to a proposal / action it has an associated status entry and may have related status comments when applicable. Once a Role has been sent a copy of a dataset (for action or information), that Role will continue to get all updates to that dataset (as long as that Role remains active) or until the dataset is finally approved. Before creating a new Role, the existing list of accounts should be checked to prevent duplicates.

### **6.6.2 Area of Interest**

The Area of Interest (AOI) defines the [datasets](#) that are to be transferred from a superior level to a subordinate level (or vice-versa). They consist of the data in use by the subordinate level (and its own subordinate levels), and also the "background" data which may not belong to this [Force Element](#) or Command but which are used in the same or adjacent area and must therefore be considered.

The definition of the AOI results (from a data request response or query response) may be used in two ways depending on the implementation of the hierarchical dialog:

- The AOI may be used by the subordinate level to "pull" all relevant datasets from its superior level (most efficient in a client-server architecture over a network)
- The AOI may be used by the superior level to "push" all relevant datasets to each of its subordinates (solution to be used when the different levels are not permanently connected).

## **6.7 Handling Attachments**

### **6.7.1 Background**

From a user perspective, the mechanisms used for attaching files to a SSRF document to form a package should remain largely transparent, similar to e-mail attachments.

The storage and management of the receipt of attachments is "solution specific" to be managed by the implementation, this could include:

- storage as Binary Large Objects (BLOB's) within a data repository or
- files stored within a set of folders.

The transport protocol will dictate how the package should be distributed.

### **6.7.2 Package File Format**

The Package File is intended for use in disconnected environments or between dissimilar systems. It supports the transfer of multiple datasets of various types along with their associated attachments in a single file. The package file is a ZIP archive that contains a single XML file containing all the datasets, and binary files as needed, containing the attachments associated with the datasets in the XML file.

It is RECOMMENDED that sending implementations limit the package file contents to no more than 65534 (64k - 2) attachments and limit the total compressed file size to no larger than 2 GB. When using E-Mail exchanges, it is RECOMMENDED to limit the total compressed file size to no larger than 2 MB to avoid E-Mail server limitations. In any case, it is RECOMMENDED to check the local (operational) limitations before starting the exchanges.

The sending implementation MAY create multiple package files, each within the recommended constraints in order to transfer all the desired datasets. Adhering to these constraints will increase the probability that the package file can be processed by the receiving implementation.

### 6.7.3 File Names

The datasets in a package MUST be stored in an XML file named "datasets.xml" at the root level of the archive. The order of the datasets within the XML file is significant, and is described in [paragraph 6.3.2](#). The attachments are described in [ExtReference](#) datasets, and will also be stored at the root level of the archive.

The file name of each attachment SHOULD be derived from the ExtReference.serial data with colons ":" replaced by dashes "-", and its normal extension as given by the originating software package. As the serial numbers are unique, using the naming convention will create unique file names in the package with no risk of collision.

### 6.7.4 Example

Following is an example of an XML document with datasets that have associated attachments to illustrate the relationship between ExtReference and file names.

```
<SSRF>
  <Header>...</Header>
  <Body>
    <ExtReference serial="USA:AF:EX:123" type="DOCU"
                  title="plan 5027" date="2000-04-27">
      <Attachment mimeType="application/pdf">OPLAN 5027.PDF</Attachment>
    </ExtReference>

    <ExtReference serial="USA:AF:EX:456" type="TECH"
                  title="Model XYZ Repeater Specifications" date="2000-04-27">
      <Attachment mimeType="application/vnd.msword">XYZ Tech Spec.doc</
Attachment>
    </ExtReference>

    <TxRx serial="USA:AF:TR:12387945">
      <ExtRef serial="USA:AF:EX:456" />
      ...
    </TxRx>

    <AsgnAllot serial="USA:MC:AS:52198743">
      <ExtRef serial="USA:AF:EX:123" />
      ...
    </AsgnAllot>
  </Body>
</SSRF>
```

Figure 6.7.1 is a view of the contents of the package file created using the datasets in the example XML document.

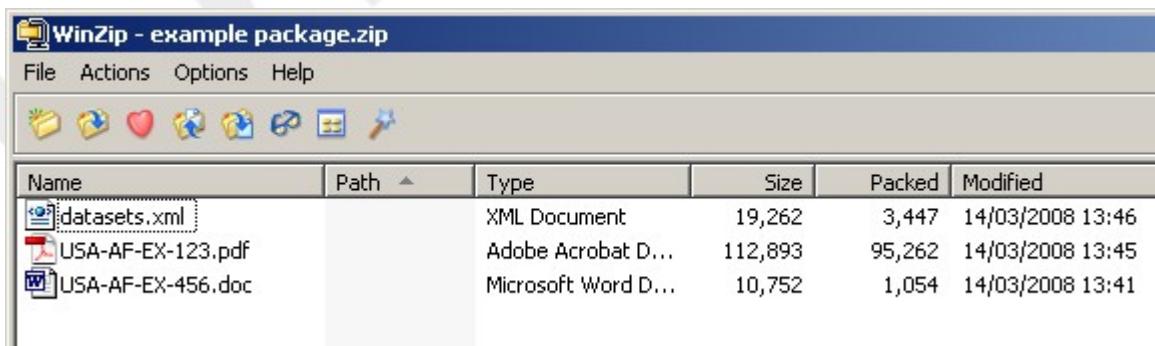


Figure 6.7.1: Example of zipped package

## 6.8 Document Validation

The validation of a SSRF document breaks down into the following categories:

- Document Format (“well formed” and “valid” at the XML / XML Schema level)
- Document Semantics (against the data repository)

### 6.8.1 Invalid Document Format

A SSRF document is considered invalid, and an error message SHOULD be returned, if:

- The document is not “well-formed” (i.e. does not have a correct XML structure);
- The document does not validate against the standard via the SSRF Schema and the SSRF XSLT documents ([see Volume II paragraph 1](#)).

If an invalid document is received the sender SHOULD be informed that the document could not be processed and requesting that the data is re-issued. This is accomplished using the [Administrative](#) message with **reason**=“INVMSG”.

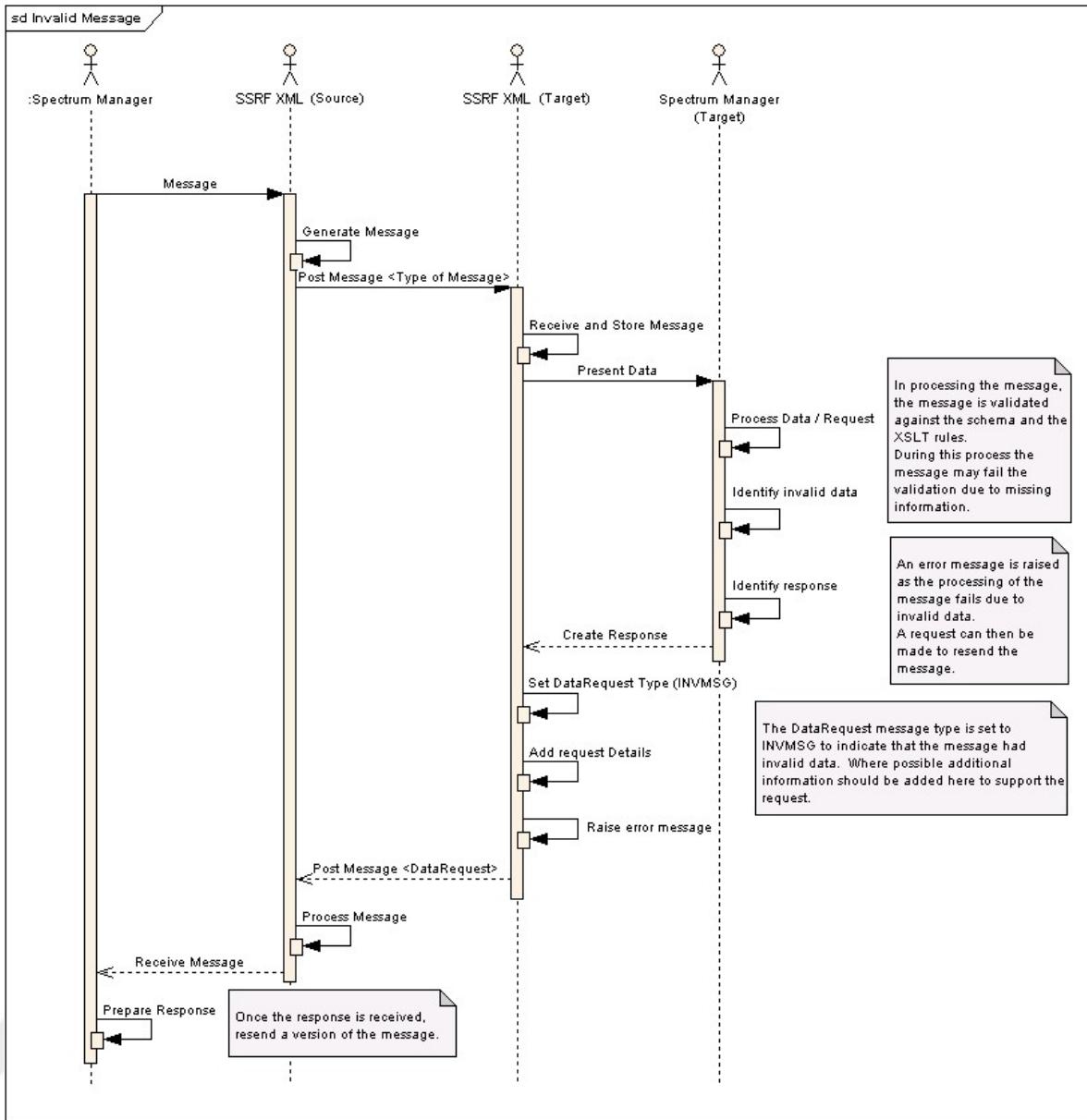


Figure 6.8.1: Invalid Document

### 6.8.2 Invalid Document Semantics

See [paragraph 6.3](#) concerning the order of datasets within a document.

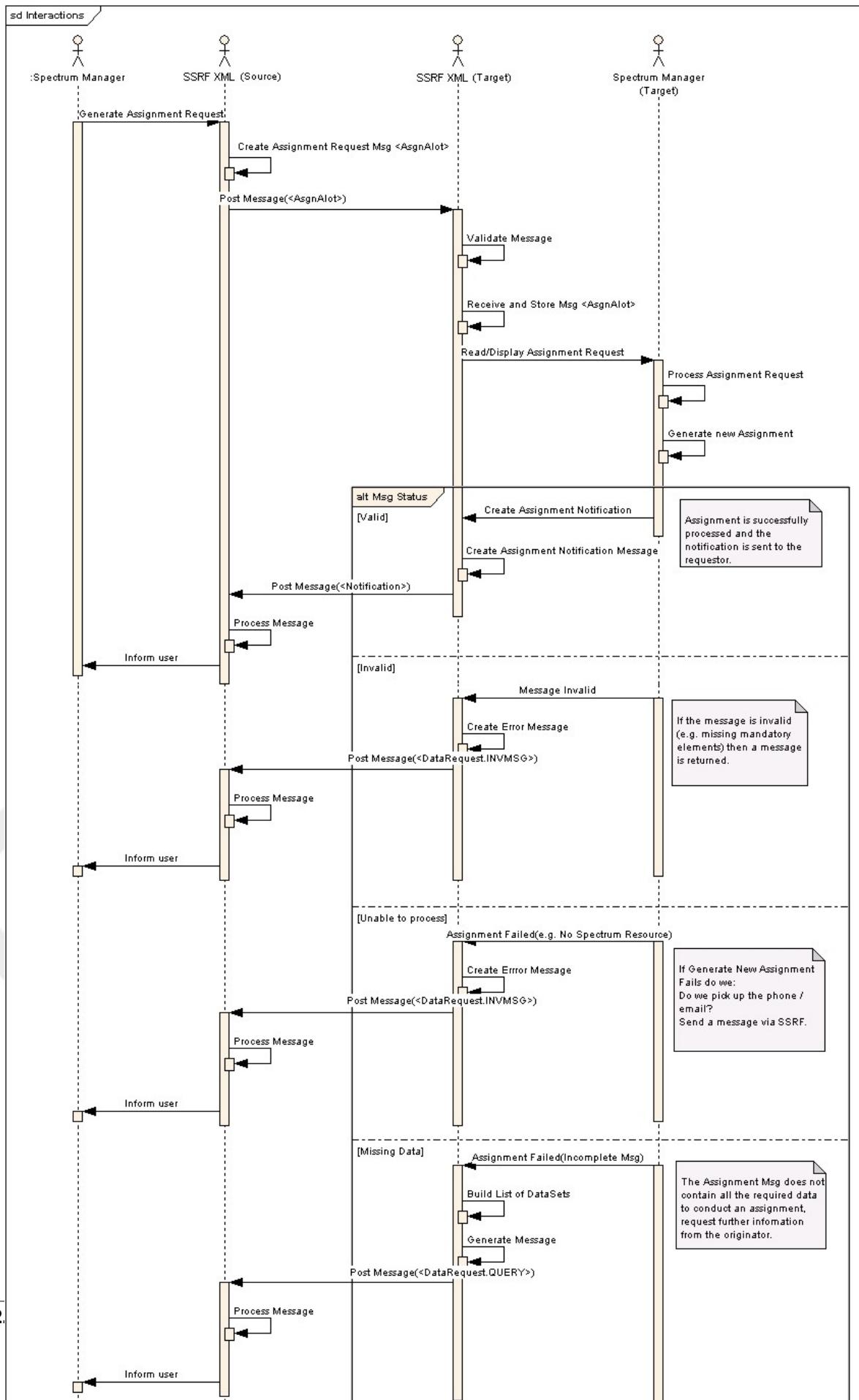
SSRF transactions MAY omit reference datasets, sending only the dependent dataset that is of interest. For example, an equipment supportability document MAY include only a [LocationRef](#), omitting detailed location information. When the referenced data is not included in the document, the receiving system SHOULD check if this data exists locally, and SHOULD generate an error if the data does not exist. In this case, the receiving system MAY automatically create a transaction using the [Administrative](#) dataset to request the required reference data from the sender.

When a sending system does not have all the reference data associated with a dataset, it SHOULD indicate or allow the user to discover that it lacks some reference data before sending the dataset to

the receiving system. In general, systems that send SSRF data SHOULD be able to provide the data required to resolve dependencies in outgoing transactions. Note that there may be security or other policy or procedural considerations involved in transferring reference data associated with dependent datasets.

## 6.9 Summary

The sequence diagram in Figure 6.9.1 demonstrates a sample set of interactions between two spectrum management systems sharing assignment information.



## II. Core Data Elements

# Volume II Core Data Elements

1. [Introduction to data elements](#)
2. [Message](#)
3. [Common elements](#)
4. [Shared elements](#)
5. [Administrative elements](#)
6. [Dataset References](#)
7. [Reference Data](#)
8. [Config, Link and Station elements](#)
9. [Table of Allocations elements](#)
10. [Location elements](#)
11. [Spectrum Supportability elements](#)
12. [Transceiver elements](#)
13. [Antenna elements](#)
14. [Assignment / Allotment elements](#)
15. [Interference Reporting](#)

### 1. Introduction to data elements

This section introduces the data elements and their presentation in this document, and presents formatting and coding standards used throughout volumes II to V.

Reference to XML elements and attributes are normally hyperlinked to the definition of the element. Where it is necessary to specify the exact element and attribute, the reference is done in the style "element.attribute", such as "[BandApplication.title](#)".

The SSRF schema is compliant with the W3C Recommendation ([references \[10\] and \[11\]](#)).

SSRF XML documents are compliant with the W3C Recommendation XML 1.0 Fourth Edition ([reference \[9\]](#)).

The XSL Transformations are compliant with the W3C Recommendation for XSLT 2.0 ([reference \[12\]](#)).

#### 1.1 Presentation of an element

Volume II of this standard presents the characteristics of the core [XML data elements](#), in the following format:

1. Each data element starts with the **element tag**. The online version of this documentation shows also, in the top blue panel, the full name of the element from which the tag has been derived.
2. A **summary table** contains information about each [XML attribute](#), and if applicable about the element value.
  - For each attribute the table shows: its full name, its tag, its occurrence within the element (required, optional or conditional), and its format. See also the special [considerations regarding classification](#).
  - If applicable, the element value is shown having the same name as the element tag. The element value has no attribute tag and this cell is gray.
  - After the attributes, at the bottom of the table, where applicable, additional rows may show:
    - à **Inherits From:** in the cases where an element inherits from another element (XML Schema "extension")
    - à **Sub-Element of:** lists the element(s) of which the element is a Sub-Element of.
      - After each parent is indicated the possible numbers of occurrences: **[0..1]** means "between 0 and 1 occurrences" (i.e. OPTIONAL); **[0..n]** means "between 0 and n occurrences" (i.e. OPTIONAL and [repeatable](#)); **[1..1]** means "exactly 1 occurrence" (i.e. REQUIRED); **[1..n]** means "between 1 and n occurrences" (i.e. REQUIRED and repeatable).
      - The format "**(choice between (elementA [i..j], elementB [k..l])**" means that only one of the two elements may be present (but not both), [i..j] and [k..l] giving the number of occurrences permitted for this element as explained above.
    - à **Sub-elements:** lists the sub-elements of the current element.
    - à **Referenced By:** lists the dataset reference element that refers to the current dataset or element.

The formats are coded as follows:

- **Cx** is a character string of x characters maximum. It may be marked as "Uppercase" when the attribute accepts only upper case characters (when no indication, lower case characters are also permitted).
- **Date** is a date value formatted in 10 characters as **YYYY-MM-DD** (year-month-day). This format is compliant with the W3C Recommendation on XML Schema.
- **DateTime** is a date / time value formatted in 20 to 24 characters as **YYYY-MM-DDThh:mm:ss[.ddd]Z** (year-month-day"**T**"hours:minutes:seconds.milliseconds"**Z**"), where the milliseconds part is optional. This format is compliant with the W3C Recommendation on XML Schema.
- **F** is a frequency in MHz (equivalent to format UN16.6).
- **Memo** is a free text value of unlimited length.
- **Numbers:**
  - à **UNx** is an unsigned (positive) integer number of maximum x digits
  - à **SNx** is an integer number of maximum x digits (excluding minus sign)
  - à **UNx.y** is a unsigned (positive) decimal number of maximum x digits (excluding decimal point as applicable) and with a maximum of y decimal digits.
  - à **SNx.y** is a decimal number of maximum x digits (excluding minus sign and decimal point as applicable) and with a maximum of y decimal digits.
  - à Where applicable, any of these types "UN" and "SN" may be followed by an additional

range constraint in the form [a .. b] meaning that the value is restricted to be between a and b inclusive.

à Where applicable, any of these types "UN" and "SN" may be followed by an additional unit in parenthesis.

à Example: Sensitivity value: SN5.2 [-140.00 .. -30.00] (dBm)

- **Time** is a time value formatted in 9 characters as `hh:mm:ssZ` (hours:minutes:seconds"Z"). Time is always provided in Universal Time Coordinated (UTC), or "Zulu" time.

3. The **Description** paragraph contains a brief description of each attribute or element value that is included in the element. However, the Description of the attribute **cls** will be omitted from each data element since it is the same throughout the document.

4. The **Input Requirement** paragraph contains the rules for submission and any examples needed for clarification of the rules of submission. The conditions indicated in the summary table are explained in this paragraph.

In some elements or attributes, the possible values are restricted to a set of values or a list of codes. In some cases, these lists come from official sources and cannot be changed (e.g. ITU list of countries for Owner.country and Location.country); in other cases, the list of values has been predefined but new values can be inserted by the users as situation or techniques evolve. New values are added using the "[Codes transaction](#)" (e.g. in data elements Manufacturer or AntType). [Annex F](#) presents the fixed lists, and [Annex G](#) presents the user-expandable lists.

See also the special [considerations regarding classification](#).

5. The **Validation Rules** paragraph contains the rules which are implemented either in the XML Schema (Indicator [XSD] on the line) or in the eXtensible Stylesheet Language Transformation (XSLT) (Indicator [XSL ERR AAxxx] on the line, see the list of errors at [Annex X](#)).

In addition, national rules for a Nation XXX may be indicated in sub-paragaphs "Additional checks for XXX". These rules are not enforced in the SSRF XSD / XSLT code; this is the responsibility of the nation to implement them.

6. The **Example** paragraph contains one or several examples of typical entry; where items are inter-related, the examples show in general this relationship.

7. If necessary, general and/or national **Notes**.

## 1.2 XML Schemas and Diagrams

### 1.2.1 XML Schemas

The structure of the SSRF [elements](#) and [documents](#) is defined using [XML Schemas](#) language. The main file is `ssrf.xsd`, which in turn uses several other ".xsd" files using the "include" mechanism.

XML Schema files (.xsd) are regular text files which can be viewed with any text editor, via a web browser, or using dedicated XML tools.

In addition to the structure of the elements, which is also described in this document in a textual format, the Schema files also contain information which may be used by applications, in the standard "<appinfo>" XML sub-element. This element may contain several types of information:

- For the elements and attributes which contain a list of codes (either fixed or user-expandable, see annexes [F](#) and [G](#)), the "<appinfo>" element contains a formatted string "`code=CC:TT;`" with two values: TT contains the two-letter category of list, and CC contains either "FX" for fixed lists or "USR" for user-expandable lists. See the example below for the classification level attributes:

`<annotation>`

```
<appinfo>code=FX:CL;</appinfo>
</annotation>
```

- For the national elements, the "<appinfo>" element contains a formatted string "**nation=x;**" with a list of Nations (ITU country codes separated with commas) using this element.

```
<annotation>
  <appinfo>nation=USA,G;</appinfo>
</annotation>
```

- For the TxRx extended elements used in Spectrum Analysis, the "<appinfo>" element contains the formatted string "**extended;**".

```
<annotation>
  <appinfo>extended;</appinfo>
</annotation>
```

### 1.2.2 XML Diagrams

Complex elements forming a dataset, such as Asgn, Antenna, TxRx, etc are also described using diagrams generated from the XML Schema. The convention in these diagrams is as follows:

- The attributes of the current element are grouped inside a special box entitled "attributes"
- Any optional sub-element or attribute is in a dotted box (see **cls**, **Project**, **Ref**); required sub-elements and attributes are in a plain box (see **Class**, **serial**, **cls**)
- Repeatable sub-elements and attributes are in shadowed boxes with their permitted numbers of occurrence shown below (see **Ref**)
- The characters "s:" in front of sub-elements is the *prefix* used in the XML Schema to *qualify* elements belonging to the SSRF namespace (italicized terms come from the W3C Recommendations on XML Schemas).

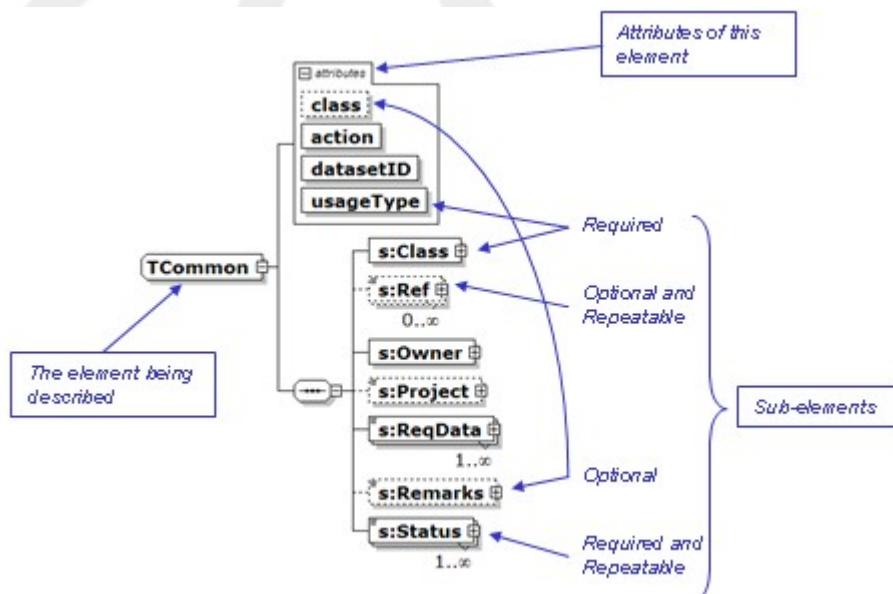


Figure II-1: Example of XML Schema Diagram

## 1.3 Formats and Units

- Data elements designed to contain a dataset identifier, a date, an integer or a decimal number (format codes ID, Date, DateTime, Nn, Nn,d as shown in the element summary tables - see description of these codes above - must be formatted accordingly. XML messages not well-formed (not compliant with XML standard) or not valid (not compliant with the SSRF Schema definition and XML eXtensible Stylesheet Language Transformation (XSLT)) will be rejected.
- Mixed upper- and lower-case are permitted in any data entry, and should be maintained in data repository implementations, excepted for agreed codes which are defined in this document, such as class of stations (stnClass), which must always be exchanged in uppercase. These specific items are indicated by the word "Uppercase".
- The formats and units mentioned in the SSRF data item definitions are the units in which data will be exchanged between organizations. Software may allow the user to establish their own units in screen displays and output reports.  
For example, power is exchanged in dBW, which is in accordance with ITU treaty procedures. Most organizations may choose to view and report power in the internal format; however, some organizations may prefer to view and report (at the user interface level) power in watts, kilowatts or megawatts.
- Frequency values are always transmitted in MHz (format code F in the summary tables). For display purposes, a common practice is to follow the ITU convention, in which a frequency value is formatted with zero to five decimal places and is preceded by a unit indicator as follows:
  - K** - For radio frequencies up to 29999.99999 kHz inclusive
  - M** - For radio frequencies from 30 MHz and up to 9999.99999 MHz inclusive
  - G** - For radio frequencies from 10000 MHz and up to 2999.99999 GHz inclusive
  - T** - For radio frequencies of 3 THz and above

## 1.4 Use of Classification

### 1.4.1 Dataset-level classification

The overall data repository may contain a variety of UNCLASSIFIED, RESTRICTED (non-U.S. datasets), CONFIDENTIAL, SECRET and TOP SECRET [datasets](#) used in the spectrum management business process. Each dataset MUST have an overall security classification which is contained within the [DatasetCls](#) element, attribute **datasetCls**. Each dataset and element also has one or more special handling instructions (see special handling codes listed under data element [Handling](#)). In addition to security classification at the dataset level each classified element must have an associated classification. When needed, datasets and elements may have associated [Compartments](#) markings. The following rules apply to the transaction security classification of such data.

#### Data element DatasetCls (Security Classification)

Data element [DatasetCls](#) is required for all transactions. For New actions, data element [DatasetCls](#) must contain the dataset's security classification, data element [Handling](#) must contain any dataset or element special handling instructions and data element [Decls](#) must record the dataset declassification instructions. See data element [DatasetCls](#) for all details on classification handling.

#### Classification Guide and Entry Procedures for SECRET or CONFIDENTIAL data items

The following guidelines and procedures apply to classified data items:

1. SECRET and CONFIDENTIAL data items must be identified by entering an S or C security classification indicator in the **cls** attribute of the element. A **cls="U"** is not required for UNCLASSIFIED data items. Declassification instructions, derivative classification information and downgrading instructions are not entered at each element level; they are entered only at the

overall dataset level in data element [DatasetCls](#). Special handling instructions may be entered at either the dataset or element level as required by applicable policy and regulation.

2. Data elements are generally classified according to their individual content. However, there may be instances where UNCLASSIFIED data elements become classified when associated with other UNCLASSIFIED or classified data elements or where CONFIDENTIAL data elements may become SECRET when associated with other CONFIDENTIAL or SECRET data elements. For example, the frequency, equipment nomenclature, location, emission designation, and power data elements may be UNCLASSIFIED as individual data elements but become classified when grouped together or when subsets are grouped in various combinations. Therefore, since it is not cost-effective to try to identify the various combinations, all data elements within the group must be given the same security classification. The security classification of datasets with special handling instructions is normally based upon information derived from a source document such as a Security Classification Guide (SCG) or Operations Plan. The identification of this source document must be included in data element [ClsDerived](#).
3. Declassification of the entire dataset would require a Modification transaction with the entry of the new dataset security classification in element [DatasetCls](#), the deletion of data elements [Decl](#)s and [ClsDerived](#), and the deletion of the security classification (attribute **cls**) of each individual classified data element within the dataset.

Note (1):

*In this document the term "classified information" or "classified" is used to mean a data element, data attribute, dataset, data repository, or paragraph (depending on context) that contains Restricted, Confidential, Secret, or Top Secret information.*

#### **1.4.2 Element-level classification**

When applicable, the first attribute in each element will be "**cls**". The classification of all attributes in the element and, if it exists, of the element value will always be the common value in the **cls** attribute. If the attribute **cls** is not present in an element, the element and all of its attributes will always be unclassified. This classification does not apply to sub-elements. See examples below.

Example 1:

```
<Owner cls="C" country="USA"
primaryAgency="AF">
    <Agency>AR</Agency>
</Owner>
```

The **country** and **primaryAgency** data is Confidential.  
The **Agency** is Unclassified.

Example 2:

```
<Owner country="USA"
primaryAgency="AF">
    <Agency cls="C">AR</Agency>
</Owner>
```

The **country** and **primaryAgency** data is Unclassified.  
The **Agency** is Confidential.

As shown above, classification is done at the element level. That means that the organizations responsible for managing the SSRF format have agreed that there will be no instances when the attributes within an XML element would be classified differently. For example, in the example shown above there will be no instance when **country** would be unclassified and **primaryAgency** would be confidential or vice versa.

#### **1.4.3 Printing or displaying classified information**

*Note: this paragraph describes a recommended practice but does not form part of the standard.*

Each element or attribute has its own classification. That is when it is printed or displayed (other than in XML data transfer format) the following format will be followed:

Immediately following the item tag, name, or paragraph number/letter and preceding the data element will be a set of parenthesis "()" containing the classification of the data within the element value or attribute data entry. For example: `Station class code (C) XT`. If the XML tag is used for displaying the data item then it would be: `StnCls.code (C) XT`. In most instances the item tag, name or paragraph number/letter will be followed by a space, the classification information within a set of parenthesis, followed by a space, and the data entry.

#### 1.4.4 Use of the "cls" attribute

The attribute **cls** of an element is required whenever the remaining attributes or element values are classified Restricted, Confidential, Secret, or Top Secret. The attribute **cls** MAY be used when the attributes and element value are all UNCLASSIFIED.

Select a code from the following list:

##### **Code List Category CL:**

Short Code	Definition
U	Unclassified
R	Restricted
C	Confidential
S	Secret
T	Top Secret

*Note for the USA: The letter "R" MUST NOT be used in USA created datasets.*

### 1.5 Dataset Identifiers

#### 1.5.1 Usage

Attribute **serial** is part of data element Common. This data item is a globally unique **dataset identifier** for the dataset inherited from Common (e.g. Location, Asgn, SSRequest, etc).

As SSRF is meant to exchange information (datasets) between different data repositories, a dataset identifier may only apply to the data in the current message and in the data repository from which the data is extracted. For example, an assignment request may refer to a Location record which is known in the local (requester) data repository, therefore the request contains a valid Location identifier with respect to this data repository, however not being known on the addressee side. This message would be valid at the sending side but invalid at the receive side, since the record identified by this **serial** would not exist.

Two solutions are possible to this situation:

- By further handshaking: The addressee may send back a Administrative message, requesting the missing datasets.
- By anticipation: The various software tools may offer an option to send either the dataset identifiers only of all the referred data, or to send a full copy of all referred records.

#### 1.5.2 Input Requirement

When the attribute **serial** is used with an element, the following rules apply:

- The attribute is composed of four parts separated by colons (:). The maximum total length is 28 characters (4+1+4+1+2+1+15).
- Part 1 is the **Country** and is always REQUIRED. It contains one to four alphanumeric uppercase characters representing either the ITU country code or the NATO Command code identifying the originator or organization responsible for maintaining the dataset, as listed in Annex F.

- Part 2 is the **orgCode** and is OPTIONAL. It may contain one to four alphanumeric uppercase characters representing a code for an [Organisation](#) within the country or command. It will normally indicate the organization responsible for maintaining the dataset. Domain naming is left at the discretion of each country, but should be managed by a central authority in the country to allow deconfliction and uniqueness. It should enable the location in the data repository where this dataset information is stored. The [Code List Category AG in Annex G](#) provides examples of possible organization codes. This list MUST be used by USA users, and MAY be used as guidance by other Nations.
- Part 3 is the **Dataset Type** and MUST contain a two-character code from the [Code List Category DT](#) identifying the type of dataset (TR for a TxRx, etc).
- Part 4 is a **Serial Identifier** and is always REQUIRED. It contains one to fifteen alphanumeric characters, whose meaning is left at the discretion of each domain manager.

Examples of **serial** values:

**USA:AR:AS:200600001** An assignment from USA Army

**BEL:AF:TR:123** A Belgian Air Force equipment

### 1.5.3 Examples

Examples are available in elements [TxRx](#), [Antenna](#), [AsgnAllot](#), etc

## 1.6 Prohibited and restricted characters

All national characters should be accepted by any tool and data repository for the elements of type "Memo" and for elements and attributes with mixed case type "Cnn". For items of type "Cnn" indicated as "Uppercase", the valid characters are restricted to [ISO 8859-15](#), also known as Latin-9.

However, because XML is a tag-based text format, some characters are reserved for the start and end delimiters of the tags and internal XML notations. Therefore, the following characters are not allowed as data entries, but can be "escaped", (i.e. replaced by an equivalent string of characters) as follows:

forbidden character	escape string
<	&lt;
>	&gt;
"	&quot;
&	&amp;

It is the responsibility of the software generating the SSRF documents to ensure that these characters are correctly "escaped".

Additionally, because of some national legacy systems, the following symbol should not be used as input data:

| Bar (Pipe)

## 1.7 Internal use of XSL for conditions

### eXtensible Stylesheet Language

The XML Schema allows validating each individual element; the types of validations which are possible with XML Schema are:

- "element is mandatory within its parent element"
- "attribute is mandatory within its element"
- "element / attribute value matches a type, a pattern, or is within a predefined set of values"

But it does not allow checking cross-element and cross-attribute conditions, such as for example "end-date should be after start-date", or "element X must appear if element Y=value". So the Schema must be complemented by another technique. Within this standard, the selected language to express these conditions is the eXtensible Stylesheet Language (XSL). An XSL Transformation (XSLT) is used to produce, from each SSRF message, a text output which may contain warnings and/or errors.

### **Output Format**

Each XSLT output is always formatted as follows, in order to allow different software tools to easily parse this text and present it to the user. The total output is a list of errors and warnings and information strings all concatenated together, each terminated with a semi-colon.

<b>ERR   TTnnn   path   datasetID;</b>	Output for an error. The message is not compliant with the standard.
<b>WRN   TTnnn   path   datasetID;</b>	Output for a warning. The message is compliant with the standard, but does not fulfill special conditions (national conditions for example)
<b>INF   abc   path;</b>	Output for information. Indications issued by the parser which may be used by a software application or ignored, showing the progress of the XSLT.

**path** is an XPath expression giving the location of the error or warning.

### **Example**

**ERR | AS001 | /4/12/2/1) | USA::AS:123;**

This example indicates an error in the AsgnAllot [transaction](#) (4th transaction within the <SSRF> root element, 12th sub-element within this AsgnAllot, 2nd sub-sub-element, 1st sub-sub-sub-element).

### **XSL Files - Language used**

The main XSL file containing the validation checks is [ssrf.xsl](#), which in turn uses several other ".xsl" files using the "include" mechanism. The language used is XSL Transformation version 2.0 as defined by the W3C Recommendation ([reference \[9\]](#)).

Note for developers: XSLT 2.0 is not implemented in Microsoft parsers; however, other parsers exist such as SAXON. SAXON 9.0 for .Net has been tested and produces the expected output.

### **Error codes in data elements**

Where an XSL check is implemented, its error code is mentioned under paragraph "[Validation Rules](#)". A list of error codes is at [Annex X](#).

## **1.8 Use of XPath**

### **1.8.1 Introduction**

[XPath](#) is a language for finding information in an XML document. It is used to navigate through

elements and attributes in an XML document. XPath is a major element in XSLT; it is a W3C Standard; it became a W3C Recommendation on 16 November 1999.

**XPath Path Expressions:** XPath uses path expressions to select nodes or node-sets in an XML document. These path expressions look very much like the expressions you see when you work with a traditional computer file system.

**XPath Standard Functions:** XPath includes over 100 built-in functions. There are functions for string values, numeric values, date and time comparison, node and QName manipulation, sequence manipulation, Boolean values, and more.

### 1.8.2 Limitations within SSRF

XPath expressions are used in a few SSRF elements such as [Remarks](#) and [ExtRef](#) to indicate that the content of these elements is targeted to a specific element within the dataset. therefore the following limitations SHOULD be applied when generating the XPath expressions:

- Functions MAY NOT be used. By only using fixed indices predicates such as [1] or [@name="MODE 1"] the exact target element can be found.
- As the elements using the xpath attribute are always a first-level child of a dataset, all XPath expressions MUST start with "../" to indicate that the path is relative to the dataset root.
- The XPath should select a single node (element or attribute). For Remarks or other references pertaining to the whole dataset, the attribute xpath SHOULD NOT be used.

### 1.8.3 Definitions

**XPath Nodes:** In XPath, there are seven kinds of nodes: element, attribute, text, namespace, processing-instruction, comment, and document (root) nodes. XML documents are treated as trees of nodes. The root of the tree is called the document node (or root node).

Look at the following XML document:

```
<bookstore>
  <book>
    <title lang="en">Harry Potter</title>
    <author>J. K. Rowling</author>
    <year>2005</year>
    <price>29.99</price>
  </book>
</bookstore>
```

Example of nodes in the XML document above:

```
<bookstore> (document node)
<author>J. K. Rowling</author> (element node)
lang="en" (attribute node)
```

**Atomic values:** Atomic values are nodes with no children or parent.

**Items:** Items are atomic values or nodes.

**Parent:** Each element and attribute has one parent. In the example the `book` element is the parent of `title`, `author`, `year`, and `price`.

**Children:** Element nodes may have zero, one or more children. In the example the `title`, `author`, `year`, and `price` elements are all children of `book`.

**Siblings:** Nodes that have the same parent. In the example `title`, `author`, `year`, and `price` are

all siblings.

**Ancestors:** A node's parent, parent's parent, etc. In the example the ancestors of `title` are `book` and `bookstore`.

**Descendants:** A node's children, children's children, etc. In the example descendants of `bookstore` are book, title, author, year, and price.

#### 1.8.4 XPath Syntax

XPath uses path expressions to select nodes or node-sets in an XML document. The node is selected by following a path or steps. The most useful path expressions are listed below:

Expression	Description
<code>nodename</code>	Selects all child nodes of the named node
<code>/</code>	Selects from the root node
<code>//</code>	Selects nodes in the document from the current node that match the selection no matter where they are
<code>.</code>	Selects the current node
<code>..</code>	Selects the parent of the current node
<code>@attributename</code>	Selects attributes

**Predicates:** Predicates are used to find a specific node or a node that contains a specific value. They appear after the node they qualify and are embedded in square brackets.

Examples of predicates (based on the example XML document above):

Path Expression	Result
<code>/bookstore/book[1]</code>	Selects the first book element that is the child of the bookstore element *.
<code>/bookstore/book[last()]</code>	Selects the last book element that is the child of the bookstore element
<code>/bookstore/book[position()&lt;3]</code>	Selects the first two book elements that are children of the bookstore element
<code>//title[@lang]</code>	Selects all the title elements that have an attribute named lang
<code>//title[@lang='eng']</code>	Selects all the title elements that have an attribute named lang with a value of 'eng'
<code>/bookstore/book[price&gt;35.00]/title</code>	Selects all the title elements of the book elements of the bookstore element that have a price element with a value greater than 35.00

\* Note: IE5 and later has implemented that [0] should be the first node, but according to the W3C standard it should have been [1].

**Selecting Unknown Nodes:** XPath wildcards can be used to select unknown XML elements.

Wildcard Expression	Description
<code>*</code>	Matches any element node
<code>/bookstore/*</code>	Selects all the child nodes of the bookstore

	element
@* //title[@*]	Matches any attribute node Selects all title elements which have any attribute
node()	Matches any node of any kind

**Selecting Several Paths:** By using the "|" operator in an XPath expression you can select several paths.

Path Expression	Result
//book/title   //book/price	Selects all the title AND price elements of all book elements
//title   //price	Selects all the title AND price elements in the document
/bookstore/book/title   // price	Selects all the title elements of the book element of the bookstore element AND all the price elements in the document

**Location Paths:** A location path can be absolute or relative. An absolute location path starts with a slash (/) and a relative location path does not. In both cases the location path consists of one or more steps, each separated by a slash. An absolute location path:/step/step/...A relative location path:step/step/...

## 1.9 XML Registry

The SSRF Schema and this document will be published in the [DoD Metadata Registry](#).

## 2. Message

### Structure of a message

Not all data elements and attributes listed in this document are required for every type of [dataset](#) or [transaction](#). The list below shows the top-level elements which MAY or MUST be present in a SSRF message, depending on their occurrence category.

element name	occ	Notes
<a href="#">SSRF</a>	[1..1]	
<a href="#">Header</a>	[1..1]	
<a href="#">MsgInfo</a>	[1..1]	
<a href="#">MsgCls</a>	[0..1]	
<a href="#">Digest</a>	[0..1]	
##any	[0..n]	
<a href="#">Body</a>	[1..1]	
<a href="#">Remarks</a>	[0..n]	<a href="#">Volume II</a>
<a href="#">Compartment</a>	[0..n]	
<a href="#">ExtReference</a>	[0..n]	
<a href="#">Deletion</a>	[0..n]	[****]

<a href="#">Administrative</a>	[0..n]
<a href="#">Response</a>	[0..n]
<a href="#">Codes</a>	[0..n]
<a href="#">Note</a>	[0..n] <span style="border: 1px solid blue; padding: 2px;">*****</span>
<a href="#">BandUser</a>	[0..n]
<a href="#">BandApplication</a>	[0..n]
<a href="#">AntStd</a>	[0..n]
<a href="#">ChnlPlan</a>	[0..n]
<a href="#">CoordStd</a>	[0..n]
<a href="#">CurveStd</a>	[0..n]
<a href="#">EmsMaskStd</a>	[0..n]
<a href="#">EmsStd</a>	[0..n]
<a href="#">RxStd</a>	[0..n]
<a href="#">Organisation</a>	[0..n]
<a href="#">Contact</a>	[0..n]
<a href="#">Role</a>	[0..n]
<a href="#">Location</a>	[0..n]
<a href="#">LocationSet</a>	[0..n]
<a href="#">TOA</a>	[0..n]
<a href="#">SignalDescr</a>	[0..n]
<a href="#">TxRx</a>	[0..n]
<a href="#">Antenna</a>	[0..n]
<a href="#">SSRequest</a>	[0..n]
<a href="#">SSReply</a>	[0..n]
<a href="#">AsgnAllot</a>	[0..n]
<a href="#">IntfReport</a>	[0..n]
<a href="#">IntfMitigation</a>	[0..n]
<a href="#">JRFL</a>	[0..n] <span style="color: blue; font-style: italic;">Volume III</span>
<a href="#">Route</a>	[0..n]
<a href="#">ForceElement</a>	[0..n]
<a href="#">FEDeployment</a>	[0..n]
<a href="#">BSMPlan</a>	[0..n]
<a href="#">Dictionary</a>	[0..n]
<a href="#">CEOI</a>	[0..n]
<a href="#">OpClearanceRequest</a>	[0..n]
<a href="#">OpClearance</a>	[0..n]

Figure II-2: SSRF top-level elements

any

Attribute name	Attribute tag	Occurrence	Format
Attributes to be defined by developers			
Element Content to be defined by developers			
Sub-Element of	<a href="#">Header</a>		

## Description

The XML-Schema element <any> is a placeholder which allows national extensions providing additional protocol information, encryption, etc.

## ***Input and Definition Requirement***

Extension elements are OPTIONAL and repeatable under element [Header](#).

Extension elements MUST be defined in an XML Schema file (.xsd) and this schema MUST be made available to the recipients of the message so that they can validate the received messages. See the example below.

## ***Validation Rules***

None.

## ***Examples***

The Schema for the additional element is defined in a file named extension.xsd with namespace uk:

```
<schema xmlns="http://www.w3.org/2001/XMLSchema"
    xmlns:uk="urn:uk"
    targetNamespace="urn:uk"
    elementFormDefault="qualified"
    attributeFormDefault="unqualified">
    <element name="Recipient">
        <complexType>
            <sequence>
                <element name="firstName">
                    <simpleType>
                        <restriction base="string"><maxLength value="20"/></restriction>
                </simpleType>
            </element>
                <element name="lastName">
                    <simpleType>
                        <restriction base="string"><maxLength value="20"/></restriction>
                </simpleType>
            </element>
        </sequence>
    </complexType>
    </element>
</schema>
```

Example of a SMADEF-XML message using this extension:

```
<SMADEF xmlns="urn:int:nato:standard:smadef:1.2.4"
    xmlns:uk="urn:uk"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="urn:int:nato:standard:smadef:1.2.4 smadef.xsd
    urn:uk extension.xsd">
    <Header>
        <MsgInfo serial="G:AR:MS:1">title</MsgInfo>
```

```

<uk:Recipient>
    <uk:firstName>John</uk:firstName>
    <uk:lastName>Smith</uk:lastName>
</uk:Recipient>
</Header>
...

```

## Attachment

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
MIME Type	contentType	Required	C40
Attachment	Element Content	Required	C255
Sub-Element Of	<a href="#">ExtReference</a>		

### Description

Data element Attachment contains the file name for an external reference (e.g. a line diagram as a graphic file).

### Input Requirement

This element is OPTIONAL under element ExtReference.

Enter:

- In **contentType**, the MIME type of the attachment. Use a code from [Code List Category MT](#) in Annex F. User types may be added upon SO PWG agreement.
- In the **element content**, the file name (including the extension) of an attached file.

### Validation Rules

None.

### Examples

```
<Attachment contentType="application/pdf">OPLAN 5027.PDF</Attachment>
```

### Notes

- When this dataset is exported from the data repository the attachment file MAY automatically be exported with this dataset.
- When attaching a file, user SHOULD follow current national / NATO information security policies.
- The constitution of the package SHOULD follow the guidance given in [CONOPS paragraph 6.7](#).

## Body

Attribute name	Attribute tag	Occurrence	Format
Sub-Element of	SSRF		
Sub-elements	<u>Administrative</u> [0..n], <u>Antenna</u> [0..n], <u>AntStd</u> [0..n], <u>AsgnAllot</u> [0..n], <u>BandApplication</u> [0..n], <u>BandUser</u> [0..n], <u>BSMPlan</u> [0..n], <u>CEOI</u> [0..n], <u>ChnlPlan</u> [0..n], <u>Codes</u> [0..n], <u>Compartment</u> [0..n], <u>Contact</u> [0..n], <u>CoordStd</u> [0..n], <u>CurveStd</u> [0..n], <u>Deletion</u> [0..n], <u>Dictionary</u> [0..n], <u>EmsMaskStd</u> [0..n], <u>EmsStd</u> [0..n], <u>ExtReference</u> [0..n], <u>FEDeployment</u> [0..n], <u>ForceElement</u> [0..n], <u>IntfReport</u> [0..n], <u>IntfMitigation</u> [0..n], <u>JRFL</u> [0..n], <u>Location</u> [0..n], <u>LocationSet</u> [0..n], <u>Note</u> [0..n], <u>OpClearance</u> [0..n], <u>OpClearanceRequest</u> [0..n], <u>Organisation</u> [0..n], <u>Remarks</u> [0..n], <u>Response</u> [0..n], <u>Role</u> [0..n], <u>Route</u> [0..n], <u>RxStd</u> [0..n], <u>SignalDescr</u> [0..n], <u>SSReply</u> [0..n], <u>SSRequest</u> [0..n], <u>TOA</u> [0..n], <u>TxRx</u> [0..n]		

### Description

Data element Body is the root element containing all datasets.

### Input Requirement

This element is REQUIRED under element SSRF.

### Example

See example in the [SSRF](#) element.

### Note

The list of children to element Body will be reviewed as additional volumes are developed to include ElectroOptical, HERO, etc.

## Digest

Attribute name	Attribute tag	Occurrence	Format
Algorithm	algorithm	Required	C6 Uppercase
Digest	Element content	Required	C256 Uppercase
Sub-Element of	<u>Header</u>		

### Description

Data element Digest contains a digest for the Body element, used to control the integrity of a received message.

### Input Requirement

This element is OPTIONAL under Header. Enter:

- In **algorithm**, one of the codes from Code List Category DI depending on the algorithm used to calculate the digest:

#### **Code List Category DI:**

Short Code	Definition
<b>MD5</b>	MD5 digest algorithm
<b>SHA1</b>	SHA-1 digest algorithm
<b>SHA224</b>	SHA-2 224 bits digest algorithm
<b>SHA256</b>	SHA-2 256 bits digest algorithm
<b>SHA384</b>	SHA-2 384 bits digest algorithm
<b>SHA512</b>	SHA-2 512 bits digest algorithm

- In the **element content**, the digest calculated by the software tools generating SSRF messages, according to the selected algorithm (see for example [Annex D](#) for the SHA-1 digest calculation), applied to the entire stream of characters in and including the <Body> </Body> pair.

#### **Example**

```
<Digest algorithm="SHA1">25A2CF03F32F24510F84B97EFEF86D14F0458D5B</Digest>
```

#### **ExtRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Path to target element	xpath	Optional	C255
External Reference Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">Administrative</a> , <a href="#">AllocApp</a> , <a href="#">AntSpec</a> , <a href="#">Common</a> , <a href="#">Std</a>		

#### **Description**

This element contains the dataset identifier referencing an external reference.

#### **Input Requirement**

This element is OPTIONAL and repeatable.

Enter:

- In **xpath** an optional XPath expression indicating if necessary which precise element or attribute is concerned with the ExtRef. The XPath expression MUST be relative to the dataset element (parent of ExtRef). Do not enter a path for an ExtRef which is general to the dataset. Refer to [paragraph 1.8](#) for usage and limitations.
- In **serial** the identifier of an existing external reference (defined in an element [ExtReference](#)).

#### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**EX**".

### Example

```
<ExtRef serial="USA:NTIA:EX:123" />
```

## ExtReference

Attribute name	Attribute tag	Occurrence	Format
Reference Classification	refCls	Optional	C1 Uppercase
Type of Reference	type	Required	C5 Uppercase
Date	date	Optional	<a href="#">Date</a>
Reference Number	num	Optional	C50
Title	title	Optional	C200
<b>Inherits From</b>	<a href="#">Common</a>		
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-elements</b>	<a href="#">Attachment [0..1], <a href="#">URI</a> [0..1]</a>		
<b>Referenced By</b>	<a href="#">ExtRef</a>		

### Description

Data element ExtReference contains bibliographic or any other references applicable to the dataset except those placed in Derivative Classification Authority (Data element [ClsDerived](#)). The references may be message date-time-groups (DTG), E-mails, documents, or letter references.

This element SHOULD be used to store identifiers when importing datasets coming from Multilateral Interoperability Programme (MIP) / Joint C3 Information Exchange Data Model (JC3IEDM) applications, using **type="MIPI"**.

It inherits attributes and sub-elements from element [Common](#).

### Input Requirement

This element is OPTIONAL and repeatable under Body.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

Enter:

- In **type**, one of the Type of Reference Codes from the Code List Category RE:

#### Code List Category RE:

Short Code	Source	Definition
CONTR	INTL	Contact Report: A brief report of a telephone call or a site visit
DBRET	INTL	Database Retrofit
DOCU	INTL	Document in any format not otherwise covered
ECSA	USA	Equipment Characteristics / Space Archive
EMAIL	INTL	Electronic Mail: any email not covered in one of the other specific categories, or any electronic media/transfer.
ENGIN	INTL	Engineering Report

<b>EWIR</b>	USA	Electronic Warfare Integrated Reprogramming (EWIR)
<b>FCC</b>	USA	Federal Communications Commission (FCC) Filing: A document registered with the FCC.
<b>INDUS</b>	INTL	Industry Publication: any document published by a company. Frequently, they are brochures or Specifications Sheets describing the capabilities of an equipment or system.
<b>INTFR</b>	INTL	Interference Report (to be used only when the interference report is not in SSRF format)
<b>ITUNO</b>	INTL	ITU Notification
<b>JAWES</b>	INTL	Janes Weapons Systems
<b>LICEN</b>	INTL	General License Reference
<b>MIPI</b>	INTL	Multilateral Interoperability Programme Identifier
<b>NAT</b>	INTL	National control/request number (may be entered by any organizational level)
<b>NOMEN</b>	USA	Nomenclature Card (DD FORM 61)
<b>SIN</b>	USA	Systems ID Number (USA code used by NTIA)
<b>SPS</b>	USA	Spectrum Planning Subcommittee Number (USA code used by NTIA)
<b>STD</b>	INTL	STANAG or other Standard documentation
<b>TECH</b>	INTL	Technical Manual

- In **date**, the date of the reference if applicable, formatted as in the [Introduction \(paragraph 1.1\)](#).
- In **num**, the number of the document if it has one.
- In **title**, the full title of the document.
- Use occurrences of sub-element [ContactOrgRef](#) to indicate the person who authored the document or the message, and the name of the organization which published the document.

## Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category RE.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**EX**".

## Example

```
<ExtReference serial="USA:AF:EX:123" type="DOCU" title="plan 5027"
org="PACOM" date="2000-04-27">
  < ... Common sub-elements ...>
  <Attachment mimeType="application/pdf">5027.PDF</Attachment>
</ExtReference>
```

## Header

Attribute name	Attribute tag	Occurrence	Format
Sub-Element of	<a href="#">SSRF</a>		
Sub-elements	<a href="#">any [0..n]</a> , <a href="#">Digest [0..1]</a> , <a href="#">MsgCls [0..1]</a> , <a href="#">MsgInfo [1..1]</a>		

## Description

Data element Header contains information about the entire SSRF message.

### ***Input Requirement***

This element is REQUIRED under element SSRF.

The generic [XML "any"](#) is present in the header to allow national extensions providing additional protocol information, encryption, etc.

### ***Example***

See example in the [SSRF](#) element.

## **MsgCls**

Attribute name	Attribute tag	Occurrence	Format
Message Classification	Element Content	Required	C1 Uppercase
Sub-Element of	Header		

### ***Description***

Message Classification specifies the overall classification of an SSRF message. A message may contain one SSRF dataset or a large group of datasets. It is similar to the marking on the outside of the inner wrapper of a classified package sent via postal mail. No downgrade/declassification instructions are needed because all datasets are individually marked with an overall classification of the dataset.

### ***Input Requirement***

This element is REQUIRED under Header.

Enter:

- In the **element content**, a classification Short Code from Code List Category CL that is the same as the highest classified dataset to be included in the message.

#### ***Code List Category CL:***

Short Code	Definition
U	Unclassified
R	Restricted
C	Confidential
S	Secret
T	Top Secret

*Note for the USA: The letter "R" MUST NOT be used in USA created datasets.*

### ***Validation***

- [XSD] The element content of MsgCls MUST use one of the codes from Code List Category CL.

- [XSL ERR GE005] All datasets in a message MUST have a classification lower or equal to the MsgCls.

### **Example**

<MsgCls>U</MsgCls>

## **MsgInfo**

Attribute name	Attribute tag	Occurrence	Format
Serial	serial	Required	See <a href="#">paragraph 1.5</a>
Message Subject	Element content	Required	C100
<b>Sub-Element of</b>	<a href="#">Header</a>		
<b>Referenced By</b>	<a href="#">MessageRef</a>		

### **Description**

Data element MsgInfo contains a unique reference number for each SSRF message. It uses the same format as the dataset identifiers described in [paragraph 1.5](#).

### **Input Requirement**

This element is REQUIRED under Header.

Enter:

- In **serial**, a serial number for the message. This serial number SHOULD be automatically generated by the application.
- In the **element content**, a subject or title for the message.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "MS".

### **Example**

See example in the [SSRF](#) element.

## SSRF

Attribute name	Attribute tag	Occurrence	Format
Namespace	xmlns	Required	fixed text, see example
Schema	xmlns:xsi	Required	fixed text, see example
Schema Location	xsi:schemaLocation	Required	fixed text, see example
Sub-Element of	<b>Root Element</b>		
Sub-elements	<u>Header</u> [1..1], <u>Body</u> [1..1]		

### Description

Data element SSRF is the root element for any SSRF message. It contains attributes defining the namespace used. Every SSRF message contains one Header followed by one Body.

### Input Requirement

None.

### Example

```
<SSRF xmlns="urn:us:gov:dod:standard:ssrf:1.2.4.b"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="urn:us:gov:dod:standard:ssrf:1.2.4.b schema/ssrf.
xsd">

    <Header>
        <Digest algorithm="SHA1">
        25A2CF03F32F24510F84B97EFEF86D14F0458D5B</Digest>
        <MsgInfo serial="USA:AF:MS:2006-0001">UHF freqs for Exercise
XYZ</MsgInfo>
        <MsgCls>U</MsgCls>
        <... national header elements ...>
    </Header>

    <Body>
        <... dataset elements ...>
    </Body>
</SSRF>
```

## URI

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Network	network	Required	C5 Uppercase
Authorization required	authRequired	Required	C1 Uppercase
URI	Element Content	Required	C255 <a href="#">anyURI</a>
Sub-Element Of	<u>ExtReference</u>		

## Description

Data element URI contains the Uniform Resource Identifier to a network resource containing the external reference.

## Input Requirement

This element is OPTIONAL under element ExtReference.

Enter:

- In **network**, the type of network where the resource is located, using a code from Code List Category TE:

### Code List Category TE:

Short Code	Definition
INTS	Multi-national Secure
NATS	National Secure
NATO	NATO Secure
NATU	National non-secure
OTHER	Other cases not covered above.
WEB	Open Internet

- In **authRequired**, one of the codes from Code List Category BO; "Y" means that an specific authorization (such as a login/password to a website) is required to access the resource on the network.

### Code List Category BO:

Short Code	Definition
Y	Yes
N	No

- In the **element content**, the URI.

## Validation Rules

[XSD] The **Element Content** must be a valid URI as defined by [RFC 2396](#), as amended by [RFC 2732](#).

## Example

```
<URI network="WEB" authRequired="Y">http://nhqc3s.nato.int/smadef</URI>
```

## 3. Common elements

Element Common is the ancestor of almost all SSRF datasets, such as AsgnAllot, SSRequest, SSReply, etc. It contains all the elements related to classification, and a few other administrative elements. See [Annex L](#) for a description of the columns in the table below.

Note: These elements, and the attributes of Common, which are inherited by various elements, will not be shown in these individual elements for simplicity. Refer to this table for all inherited elements.

element name	national	content	occ	attributes
<a href="#">Common</a>			[0..n]	(cls(L:CL),+serial(S28+P),+entry(D),lastMod(DT),usageType(L:UT))
<a href="#">Action</a>	(USA)	(S1+P)	[0..1]	(cls(L:CL))
<a href="#">Compartment</a>	(USA)	(S15(L:))	[0..n]	(cls(L:CL),xpath(S255))

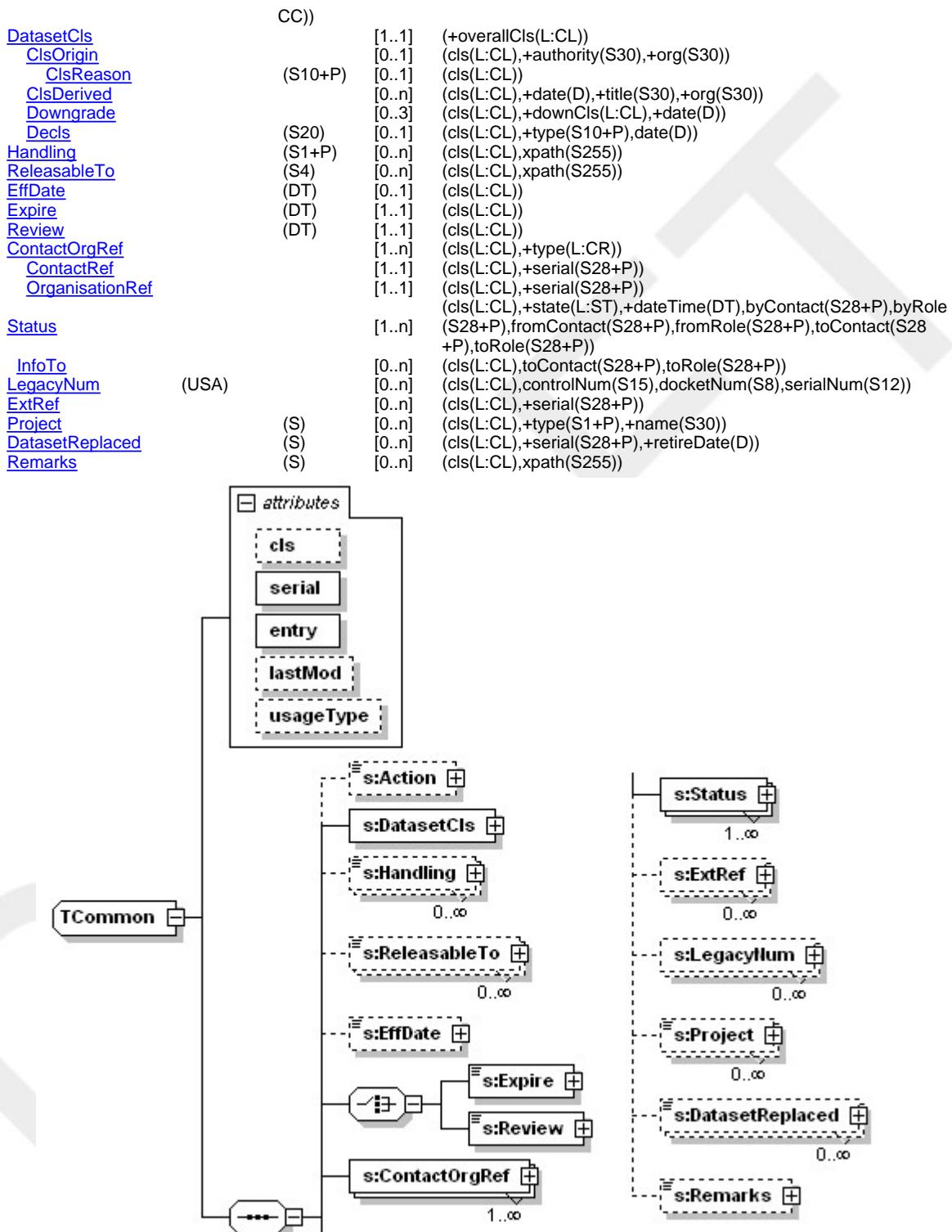


Figure II.3a: Element Common

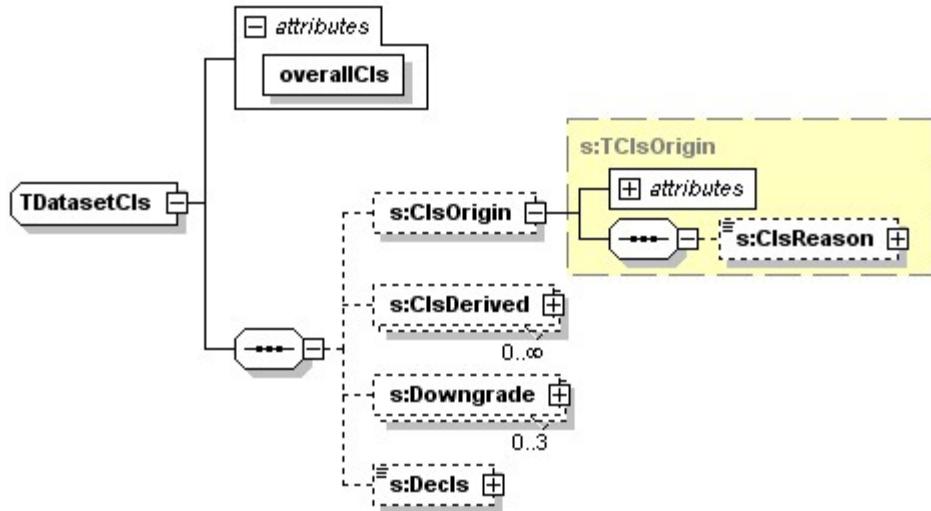


Figure II-3b: Element DatasetCIs

## Action

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Action	Element Content	Required	C1 Uppercase
Sub-Element Of	<u>Common</u>		

## Description

This is a National element (used by: USA).

The type of action element is used to describe the action that is being conducted on a given dataset. This is designed to provide the receiving software with additional information to support the data maintenance.

## Input Requirement

This element is OPTIONAL under element Common, but it is REQUIRED for USA users.

Enter in the element content, one of the type of action codes from Code List Category AC.

### Code List Category AC:

Short Code	Definition
M	Modification. Used to add, substitute, or remove one or more data items in an existing dataset.
N	New. Used to create a new dataset and place it in the repository.

## Validation Rules

- [XSD] The element content MUST use one of the codes from Code List Category AC.

## Example

<Action>N</Action>

## Notes

The "new" type of action indicates that the element defines a new dataset. This is particularly important in a disconnected environment where the datasetID generated may not be unique (in error). In this scenario, if the receiving system receives a dataset with a type of action equal to "New" and the system already contains the same datasetID, the receiving system should reject the dataset.

The "modification" type of action indicates that an existing dataset is being modified. If the datasetID does not exist in the receiving system, the receiving system may either reject the dataset or create the dataset as if a "new" action had been received.

## ClsDerived

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Derivative Classification Date	date	Required	<a href="#">Date</a>
Derivative Classification Document Title	title	Required	C30
Derivative Classification Publishing Organisation	org	Required	C30
<b>Sub-Element Of</b>	<a href="#">DatasetCls</a>		

## Description

This data element indicates:

- The date of the source document from which one or more TOP SECRET, SECRET, CONFIDENTIAL, or RESTRICTED data entries in the dataset were derived;
- The title of the source document from which one or more TOP SECRET, SECRET, CONFIDENTIAL, or RESTRICTED data entries in the dataset were derived;
- The publishing organization of the source document from which one or more TOP SECRET, SECRET, CONFIDENTIAL, or RESTRICTED data entries in the dataset were derived.

## Input Requirement

This element SHOULD be used when the Declassification Instructions in data element [Decls](#) contain DEOADR or when the classification of data is "Derived From" other sources such as security classification guides, Spectrum Supportability documents, or operations plans. An entry in data element [ClsOrigin](#) is omitted when data element ClsDerived is used. Whenever multiple sources are entered, the most restrictive declassification instruction from all of the sources used must be entered in data element [Decls](#).

Enter:

- In **date**, the source date formatted as described in the [Introduction](#).

- In **title**, the title of the document.
- In **org**, the publishing organization.

When the original classification authority extends a declassification date in data element [Decl](#)s beyond the initial ten-year period, these attributes may be used to identify the date the declassification date was extended, the individual and individual's agency or organization that approved the extension. This entry is not necessary when the classification is derived from another source, and the source is identified in accordance with the subparagraph above.

## **Validation Rules**

None.

## **Examples**

A single example:

```
<ClsDerived date="1993-08-15" title="B-1B SCG" org="OC-ALC/LAB"/>
```

A two document example:

```
<ClsDerived date="1992-11-22" title="OPLAN 2104" org="PACOM"/>
<ClsDerived date="1987-06-14" title="J/F 12/05502/4" org="USAFFMA"/>
```

## **ClsOrigin**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Original Classification Authority	authority	Required	C30
Original Classification Authority Organization	org	Required	C30
<b>Sub-Element Of</b>	<a href="#">DatasetCls</a>		
<b>Sub-Elements</b>	<a href="#">ClsReason [0..1]</a>		

## **Description**

This data element indicates:

- In **authority**, the title of the individual who determined the original classification of the classified data in the dataset.
- In **org**, the organization of the individual who determined the original classification of the classified data in the dataset.

## **Input Requirement**

This element is SHOULD be used under element [DatasetCls](#) when classification information is not derived from another document such as a classification guide, Spectrum Supportability document, or operations plan (See data element [ClsDerived](#)).

Enter:

- In **authority**, the title of the original classification authority.

- In **org**, the organization of the original classification authority.

## **Validation Rules**

None.

## **Example**

```
<ClsOrigin authority="CDR" org="3FLT"/>
```

## **Note**

If the identification of the original classification authority reveals additional classified information, an entry of "EXCLUDED, 1.7.B" is permitted in **authority**.

## **ClsReason**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Reason for Classification	Element Content	Required	C11 Uppercase
<b>Sub-Element Of</b>	<u>ClsOrigin</u>		

## **Description**

This data element is a coded data entry indicating the reason(s) the original classification authority determined that the data in this dataset was classified.

## **Input Requirement**

This element is SHOULD be used when classification information is not derived from another document such as a classification guide, Spectrum Supportability document, or operations plan (See data element [ClsDerived](#)).

Enter in the element content the reason for the classification from the list provided below. The data entry will be [1.4](#) followed by one or more letters in alphabetical order applicable to the appropriate paragraphs below.

- A** - Military plans, weapons systems, or operations
- B** - Foreign government information
- C** - Intelligence activities (including special activities), intelligence sources or methods, or cryptology
- D** - Foreign relations or foreign activities of the USA, including confidential sources
- E** - Scientific, technological, or economic matters relating to the national security
- F** - USA Government programs for safeguarding nuclear materials or facilities
- G** - Vulnerabilities or capabilities of systems, installations, projects or plans relating to national security.
- H** - Weapons of mass destruction

## Validation Rules

None.

### Example

```
<ClsReason>1.4EFG</ClsReason>
```

### Common (abstract)

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	see <a href="#">paragraph 1.5</a>
Usage Type	usageType	Optional	C1 Uppercase
Date of Entry	entry	Required	<a href="#">Date</a>
Latest Modification Date/Time	lastMod	Optional	<a href="#">DateTime</a>
Sub-elements	<a href="#">Action [0..1]</a> , <a href="#">Compartment [0..n]</a> , <a href="#">ContactOrgRef [1..n]</a> , <a href="#">DatasetCls [1..1]</a> , <a href="#">DatasetReplaced [0..n]</a> , <a href="#">EffDate [0..1]</a> , <a href="#">(choice between Expire [1..1], Review [1..1])</a> , <a href="#">ExtRef [0..n]</a> , <a href="#">Handling [0..n]</a> , <a href="#">LegacyNum [0..n]</a> , <a href="#">Project [0..n]</a> , <a href="#">ReleasableTo [0..n]</a> , <a href="#">Remarks [0..n]</a> , <a href="#">Status [1..n]</a>		
Inherited by:	<a href="#">Antenna</a> , <a href="#">AsgnAllot</a> , <a href="#">BSMPlan</a> , <a href="#">CEOI</a> , <a href="#">Dictionary</a> , <a href="#">ExtReference</a> , <a href="#">FEDeployment</a> , <a href="#">ForceElement</a> , <a href="#">IntfMitigation</a> , <a href="#">IntfReport</a> , <a href="#">JRFL</a> , <a href="#">Location</a> , <a href="#">LocationSet</a> , <a href="#">OpClearance</a> , <a href="#">OpClearanceRequest</a> , <a href="#">Route</a> , <a href="#">SignalDescr</a> , <a href="#">SSReply</a> , <a href="#">SSRequest</a> , <a href="#">TOA</a> , <a href="#">TxRx</a>		

### Description

This is an abstract element used as a basis for top-level elements.

### Input Requirement

- See [paragraph 1.4](#) for an explanation of the usage of attribute **cls** and sub-element [DatasetCls](#).
- See [paragraph 1.5](#) for attribute **serial**.
- Enter in **usageType**, a code from the Code List Category UT.

#### Code List Category UT:

Short Code	Definition
A	An approved permanent dataset (generally a dataset valid for longer than 90 days)
C	Cancelled dataset
O	Obsolete dataset
P	A permanent proposal (or request)
S	A temporary proposal (or request)
T	An approved temporary dataset (generally a dataset valid for less than 90 days)
U	Unknown usage
X	Superseded dataset

- In **entry**, the date the dataset was initially entered into the data repository (e.g. FRRS for USA, SMIR for NATO).
- In **lastMod**, the date/time a dataset or proposal was last modified.

## Validation Rules

- [XSD] The attribute **usageType** MUST use one of the codes from Code List Category UT.
- [XSD] Common MUST contain either an **Expire** date or a **Review** date

## Note

Attribute **usageType** is introduced in this specification to allow migration of legacy systems. The preferred way to sort temporary versus permanent datasets is through the usage of [Expire](#) versus [Review](#) dates. This attribute may become deprecated in a future release.

## Examples

Examples are available in elements [TxRx](#), [Antenna](#), [AsgnAllot](#), etc

## Compartment

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Path to target element	xpath	Optional	C255
Compartment	Element Content	Required	C20
Sub-Element of	<a href="#">Administrative</a> , <a href="#">Body</a> , <a href="#">Codes</a> , <a href="#">Common</a> , <a href="#">Contact</a> , <a href="#">Organisation</a> , <a href="#">Std</a>		

## Description

This is a National element (used by: USA).

Data element Compartment contains any specialized control system security markings pertinent to the dissemination of the individual element.

## Input Requirement

This element is OPTIONAL and repeatable under all its parents, unless [Handling](#) code **L** is used in the parent dataset. If [Handling](#) code **L** is used in the parent, then this element is REQUIRED.

Enter:

- In **xpath**, an optional XPath expression is indicating if necessary which precise element or attribute is concerned with the compartment. The XPath expression MUST be relative to the dataset element (parent of Compartment). Do not enter a path for a Compartment which is general to the dataset. Refer to [paragraph 1.8](#) for usage and limitations.
- In **Element Content**, a compartment marking code from Code List Category CC:

### Code List Category CC:

Short Code

Definition

<b>HCS</b>	May be used only with TOP SECRET, SECRET, or CONFIDENTIAL.
NOFORN is required	
<b>COMINT</b>	May be used only with TOP SECRET, SECRET, or CONFIDENTIAL
<b>-GAMMA</b>	May be used only with TOP SECRET. Requires SI and ORCON
<b>-ECI</b>	May be used only with TOP SECRET. Requires SI
<b>TALENT KEYHOLE</b>	May be used only with TOP SECRET or SECRET. May require RSEN for imagery product

## Examples

```
<Compartiment xpath=".../Station[3].name">HCS</Compartiment>
```

## Validation Rules

[XSD] The element content MUST use one of the codes from Code List Category CC.

## DatasetClIs

Attribute name	Attribute tag	Occurrence	Format
Dataset Classification	overallClIs	Required	C1 Uppercase
<b>Sub-Element Of</b>	<u>Common</u> , <u>Contact</u> , <u>Organisation</u> , <u>Role</u>		
<b>Sub-elements</b>	<u>ClIsDerived [0..n]</u> , <u>ClIsOrigin [0..1]</u> , <u>Decls [0..1]</u> , <u>Downgrade [0..3]</u>		

## Description

Data element DatasetClIs contains a 1-letter designator representing the security classification of the dataset. It contains all classification and handling sub-elements (see [figure II-3b in section 3 introduction](#)).

## Input Requirement

This element is REQUIRED under all elements derived from Common.

Attribute **overallClIs** is always REQUIRED in this element. Enter the overall security classification of the frequency proposal, assignment, allotment, antenna, Spectrum Supportability, transmitter/receiver equipment or other dataset. As a security precaution, this data item cannot be deleted from a dataset. Select a code from the Code List Category CL.

### Code List Category CL:

Short Code	Definition
<b>U</b>	Unclassified
<b>R</b>	Restricted
<b>C</b>	Confidential
<b>S</b>	Secret
<b>T</b>	Top Secret

*Note for the USA: The letter "R" MUST NOT be used in USA created datasets.*

## Validation Rules

[XSD] The attribute **overallClIs** MUST use one of the codes from Code List Category CL.

[XSL ERR GE003] The attributes **cls** in all sub-elements of the parent dataset MUST have a classification lower or equal to **overallCls**

### **Example**

```
<DatasetCls overallCls="U">
  <... sub-elements ...>
</DatasetCls>
```

## **DatasetReplaced**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Replaced	serial	Required	See <a href="#">paragraph 1.5</a>
Dataset Replaced Retirement Date	retireDate	Optional	<a href="#">Date</a> (C10)
DatasetReplaced	Element Content	Optional	Memo
<b>Sub-Element Of</b>	<a href="#">Common</a>		

### **Description**

This element indicates that a newly created dataset will replace, one or several datasets, or other system. This information is used to determine whether the equipment is updating an existing system, even a non-RF system such as a telephone, or whether it is a totally new development fulfilling a previously nonexistent function.

### **Input Requirement**

This element is OPTIONAL and repeatable under all elements derived from Common. Multiple datasets may be replaced when the new dataset is submitted. Enter:

- In **serial**, the unique reference of the dataset being replaced or to be deleted;
- In **retireDate**, the desired date of deletion of the dataset referenced in **serial**. If the dataset is to be replaced upon approval of this dataset leave the retireDate blank;
- In the element content, an OPTIONAL amplifying information on the systems to be replaced by the introduction of the new system.

### **Validation Rules**

None.

### **Examples**

```
<DatasetReplaced serial="USA:N:AS:198200512" retireDate="1998-10-05"/>
```

### **Note**

Depending upon the implementation, this element MAY be used to automatically delete from the

data repository the replaced dataset(s) at the specified date.

## Decls

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Declassification Instructions	type	Required	C10 Uppercase
Declassification Date	date	Optional	<a href="#">Date</a>
Decls	Element Content	Optional	C40
<b>Sub-Element Of</b>	<a href="#">DatasetCls</a>		

## Description

Data element Decls contains:

- In **type**, the dataset declassification instructions;
- In **date**, the declassification date for DEDATE and DE25Xn types.
- In element content, the event, when after its occurrence, the dataset classification will be changed to UNCLASSIFIED.

## Input Requirement

Element Decls is OPTIONAL under DatasetCls. It SHOULD be used when Data Item [DatasetCls](#), [attribute overallCls](#) contains **R**, **C**, **S**, or **T**.

- Enter the appropriate declassification instruction in **type**, using one of the following formats:

**DEDATE** - Declassify on a date which is within the limit fixed by national rules (e.g. 25 years in the USA). If the declassification date established at the time of the original classification action is to be extended beyond 10 years, a data entry is required in data element [ClsDerived](#).

**DEOADR** - Declassify on: Originating Agency Determination Required. If DEOADR is used in a dataset, an entry is required in data element [ClsDerived](#). This code is included for legacy datasets only.

**DEON EVENT** - Declassify on event. When a dataset is to be declassified on an event, **type** contains DEON EVENT and a data entry is required in the Declassification Instructions Comment (content of this element).

**DEXnnnnnn** - Declassify on: Exempt from automatic declassification. The letters "nnnnnn" indicate one or more reasons (see list below) why TOP SECRET, SECRET, and CONFIDENTIAL datasets cannot be automatically declassified. Enter **DEX** followed by one to seven unique numbers, in numerical order, applicable to the appropriate reason(s) listed below.

- 1 - Reveal an intelligence source, method, or activity, or a cryptology system or activity.
- 2 - Reveal information that would assist in the development or use of weapons of mass destruction.
- 3 - Reveal information that would impair the development or use of technology within a weapons system.
- 4 - Reveal military plans or national security emergency preparedness plans.
- 5 - Reveal foreign government information.

**6** - Damage relations between governments, reveal a CONFIDENTIAL source, or seriously undermine diplomatic activities that are reasonably expected to be ongoing for a period greater than ten years.

**7** - Impair the ability of responsible government officials to protect the head of state, leading government officials, and other individuals for whom protection services, in the interest of national security, are authorized.

**8** - Violate a statute, treaty or international agreement

**DE25Xn** - Declassify on: Permanently valuable information (as defined by the national archivist) is exempt from automatic declassification 25 years beyond the original classification date. (The letter "n" indicates why a TOP SECRET, SECRET, or CONFIDENTIAL dataset cannot be automatically declassified 25 years after the original classification date.) Enter **DE25X** followed by a number "n" from the applicable paragraph below. Note: When the value of "n" is greater than "1," an entry is required in **date** or as the content of this element if declassification is to take place after an event.

**1** - Reveal the identity of a CONFIDENTIAL human source, or reveal information about the application of an intelligence source or method, or reveal the identity of a human intelligence source when the unauthorized disclosure of that source would clearly and demonstrably damage the national security interests.

**2** - Reveal information that would assist in the development or use of weapons of mass destruction

**3** - Reveal information that would impair cryptology systems or activities.

**4** - Reveal information that would impair the application of state-of-the-art technology within a weapon system.

**5** - Reveal actual military war plans that remain in effect.

**6** - Reveal information that would seriously and demonstrably impair relations between governments, or seriously and demonstrably undermine ongoing diplomatic activities.

**7** - Reveal information that would clearly and demonstrably impair the current ability of Government officials to protect the president, vice president, and other officials for whom protection services, in the interest of national security, are authorized.

**8** - Reveal information that would seriously and demonstrably impair current national security emergency preparedness plans.

**9** - Reveal information that would violate a statute, treaty, or international agreement.

- The attribute **date** is REQUIRED when **type** contains DEDATE or DE25Xn, where the value of "n" is greater than 1. The date is formatted as described in the [Introduction](#).
- The **element value** is REQUIRED when the declassification instructions in **type** contain DEON EVENT. It MAY be used when **type** is equal to DE25X2 through DE25X9 if the final declassification is based upon an event and there is no entry in **date**.

## Validation Rules

None.

## Examples

```
<Decls type="DE20051130"/>
<Decls type="DEON EVENT">DECLASSIFY AFTER MISSILE LAUNCH<Decls/>
<Decls type="DEX134"/>
<Decls type="DE25X5" date="2035-12-31"/>
```

## Downgrade

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Downgrading Classification	downCls	Required	C1 Uppercase
Downgrading Date	date	Required	<a href="#">Date</a>
<b>Sub-Element Of</b>	<a href="#">DatasetCls</a>		

### Description

Data element Downgrade contains:

- In **downCls**, the new classification level when a dataset is to be downgraded from TOP SECRET, SECRET, or CONFIDENTIAL to a lower level;
- In **date**, the date that a dataset is planned for downgrading to either **R** for Restricted, **C** for Confidential or **S** for Secret.

### Input Requirement

This data element is REQUIRED whenever there are downgrading instructions contained in the source from which the classified data in the dataset was derived.

Enter the new classification after downgrading ("R" for Restricted, "C" for Confidential or "S" for Secret), and the date the dataset is to be downgraded, formatted as described in the [Introduction](#).

### Validation Rules

None.

### Examples

```
<Downgrade downCls="C" date="1999-11-05" />
```

### Note

For USA users, classification "RESTRICTED" is not used. Therefore, a USA document cannot be downgraded from "CONFIDENTIAL"; it can only be declassified.

## EffDate

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Effective Date	Element Content	Required	<a href="#">DateTime</a>
<b>Sub-Element Of</b>	<a href="#">AllocApp</a> , <a href="#">Common</a> , <a href="#">Contact</a> , <a href="#">Organisation</a> , <a href="#">RelatedOrg</a> , <a href="#">Role</a>		

## Description

This element contains the date/time a dataset is to be operational or effective.

## Input Requirement

This element is OPTIONAL under all elements derived from Common, except under elements [AsgnAllot](#), [JRFL](#), [CEOI](#), [BSMPlan](#), [SSReply](#), [OpClearance](#) where it is REQUIRED.

All dates are formatted as described in the [Introduction](#). To indicate a real effective time, use values 00:00:01Z to 24:00:00Z. The value 00:00:00Z is reserved to indicate that time is not an issue.

## Validation Rules

- [XSL ERR AD006] If part 3 of **serial** (dataset type) in the parent equals "AL", "AS", "JR", "CE", "BS", "HD" or "CL" this element MUST be used.

## Example

```
<EffDate>2005-07-01T00:00:00Z</EffDate>
```

## Expire

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Expiration Date	element content	Required	<a href="#">DateTime</a>
Sub-Element Of	<a href="#">AllocApp</a> , <a href="#">Common</a> , <a href="#">Contact</a> , <a href="#">Organisation</a> , <a href="#">RelatedOrg</a> , <a href="#">Role</a>		

## Description

This data element indicates the date when an assignment, allotment, Spectrum Supportability request or Host Nation Declaration, will expire.

## Input Requirement

Under elements Common, Contact and Organisation, dates **Expire** and **Review** are OPTIONAL, but at least one of them MUST be populated. Under AllocApp and RelatedOrg this element is OPTIONAL.

All dates are formatted as described in the [Introduction](#). To indicate a real effective time, use values 00:00:01Z to 24:00:00Z. The value 00:00:00Z is reserved to indicate that time is not an issue.

## Validation Rules

None.

## Example

<Expire>2005-05-30T00:00:00Z</Expire>

## Note

Depending on the solution, datasets MAY be automatically cancelled on their expiration date and deleted from the data repository. If a dataset is changed from temporary to permanent by using a Review date, then Expire must be deleted.

## Handling

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Caveat	caveat	Optional	C50
Path to target element	xpath	Optional	C255
Handling	Element Content	Required	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">Common</a> , <a href="#">Contact</a> , <a href="#">Organisation</a> , <a href="#">Response</a> , <a href="#">Role</a>		

## Description

Data element Handling contains a one-letter designator representing the dataset special handling instructions.

## Input Requirement

This element is OPTIONAL and repeatable, but it is always REQUIRED and repeatable in datasets owned by the USA. A Special Handling Instruction Code is required in all UNCLASSIFIED datasets as well as in TOP SECRET, SECRET, or CONFIDENTIAL datasets to reflect the fact that if the classified data were removed from the dataset, the remaining UNCLASSIFIED data must still be protected in accordance with the applicable special handling code.

Enter:

- In **xpath**, an optional XPath expression indicating if necessary which precise element or attribute to which the Handling marking applies. The XPath expression MUST be relative to the dataset element (parent of Handling). Do not enter a path for a handling code which is general to the dataset. Refer to [paragraph 1.8](#) for usage and limitations.
- In **Element Content**, the appropriate special handling code from the Code List Category RL:

### Code List Category RL:

#### Code    Definition

- A**    Approved for public release; distribution is unlimited (DoD Directive 5230.24).
- B**    Releasable to soil country and NATO; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
- C**    Releasable to soil country and the North Atlantic Treaty Organization (NATO); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
- D**    Not releasable outside US Department of Defense (DoD) IAW Section 552(b)(1) of Title 5 of the US Code.
- E**    Not Releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US

	Code.
<b>F</b>	Not releasable to foreign nationals and not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>G</b>	Releasable to Federal, State, and Local governments; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>H</b>	Releasable to soil country only; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>J</b>	Contingency assignment - Has Unified commander comments only - not releasable to foreign nationals unless formally coordinated; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>K</b>	Permanent assignment - Available for contingency use within the theater after coordination and approval of cognizant unified commander - releasable to soil nation; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>M</b>	Releasable to coalition operation organizations only; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>N</b>	Releasable to NATO; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>O</b>	Proprietary for commercial use only.
<b>P</b>	Proprietary; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>L</b>	Sensitive Compartmented Information (SCI); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>Q</b>	Special Category (SPECAT); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>R</b>	Special Access Required (SAR); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>Z</b>	Releasable to Australia, Canada, New Zealand, and United Kingdom (CCEB) organizations only; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.

## Validation Rules

[XSD] The element content MUST use one of the codes from Code List Category RL.

## Example

<Handling>A</Handling>

## InfoTo

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Contact Identifier	toContact	Optional	See <a href="#">paragraph 1.5</a>
Job account identifier	toRole	Optional	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<b>Status</b>		

## Description

Data element InfoTo contains a reference to a [Contact](#) and/or to a [Role](#) dataset.

## ***Input Requirement***

This element is OPTIONAL and repeatable under element Status.

Enter:

- In **toContact**, the dataset identifier of the Contact.
- In **toRole**, the dataset identifier of the Role.

## ***Validation Rules***

- [XSL ERR ID001] Part 3 of **toContact** (dataset type) MUST be "**CN**".
- [XSL ERR ID001] Part 3 of **toRole** (dataset type) MUST be "**JA**".

## ***Example***

See example in element [Status](#).

## **Review**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Review Date	Element Content	Required	<a href="#">DateTime</a>
Sub-Element Of	<a href="#">Common</a> , <a href="#">Contact</a> , <a href="#">Organisation</a> , <a href="#">Role</a>		

## ***Description***

This data element indicates the date by which the assignment, Spectrum Supportability request, or Host Nation Declaration is to be reviewed.

## ***Input Requirement***

Dates **Expire** and **Review** are OPTIONAL, but at least one of them MUST be populated.

All dates are formatted as described in the [Introduction](#). To indicate a real effective time, use values 00:00:01Z to 24:00:00Z. The value 00:00:00Z is reserved to indicate that time is not an issue.

The **Review** date should be less than five years, or for an assignment dataset, less than 10 years if the dataset is an Aeronautical Assignment Group (AAG) or Military Assignment Group (MAG). In Spectrum Supportability datasets, this date indicate when the organization responsible for re-initiating host coordination plans to resubmit a Spectrum Supportability request to the host nation for continued use of the equipment.

## ***Validation Rules***

None.

## **Example**

<Review>2005-05-30T00:00:00Z</Review>

## **Note**

Depending on the solution, datasets MAY be automatically cancelled on their expiration date and deleted from the data repository. If a dataset is changed from temporary to permanent by using a Review date, then Expire must be deleted.

## **Project**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type	type	Required	C1 Uppercase
Project Name	name	Required	C30
Project Description	Element Content	Optional	Memo
<b>Sub-Element Of</b>	<a href="#">Common</a> , <a href="#">Role</a>		

## **Description**

Data element Project provides the Project, OPLAN, COMPLAN, or Exercise name.

## **Input Requirement**

This data element is OPTIONAL and repeatable except under [CEOI](#), [JRFL](#), [BSMPlan](#), [OpClearanceRequest](#) where it is REQUIRED and repeatable.

Enter:

- In **type** one of the codes from Code List Category PJ:

### **Code List Category PJ:**

Short Code	Definition
C	COMPLAN
E	Exercise
M	Mission
O	Operation
P	OPLAN
X	Other

- In **name**, the name of the project.
- In the element content, any additional amplifying information about the project.

## **Validation Rules**

None

## Examples

```
<Project type="E" name="JWID 2002">This is a good project.</Project>
```

## Note

When assignments are assigned from an allotment plan, a Ref entry of type "ALLOT" SHOULD be created in each assignment, referring to an allotment dataset.

## ReleasableTo

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Path to target element	xpath	Optional	C255
ReleasableTo	Element Content	Required	C4 Uppercase
<b>Sub-Element Of</b>	<a href="#">Common</a> , <a href="#">Contact</a> , <a href="#">Organisation</a> , <a href="#">Response</a> , <a href="#">Role</a>		

## Description

Data element ReleasableTo contains the country codes for which the dataset is releasable.

## Input Requirement

This element is OPTIONAL and repeatable under element Common.

Enter:

- In **xpath** an optional XPath expression indicating if necessary which precise element or attribute is concerned with the ReleasableTo. The XPath expression MUST be relative to the dataset element (parent of ReleasableTo). Do not enter a path for a ReleasableTo which is general to the dataset. Refer to [paragraph 1.8](#) for usage and limitations.
- In **element content** a code from [Code List Category AN](#).

## Validation Rules

- [XSD] The element content MUST use one of the codes from Code List Category AN.

## Example

```
<ReleasableTo>G</ReleasableTo>
```

## Status

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Status	state	Required	C25
Status Date/Time	dateTime	Required	<a href="#">DateTime</a>
By (Contact Reference)	byContact	Optional	See <a href="#">paragraph 1.5</a>
By (Role - Job Account)	byRole	Optional	See <a href="#">paragraph 1.5</a>
From (Contact Reference)	fromContact	Optional	See <a href="#">paragraph 1.5</a>
From (Role - Job Account)	fromRole	Optional	See <a href="#">paragraph 1.5</a>
To (Contact Reference)	toContact	Optional	See <a href="#">paragraph 1.5</a>
To (Role - Job Account)	toRole	Optional	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<a href="#">Common</a> , <a href="#">Response</a>		
<b>Sub-elements</b>	<a href="#">InfoTo [0..n]</a>		

## Description

Data element Status shows the current and historical status of each dataset. The status date changes as the action/status of the dataset changes within the processing cycle. It may also contain any comment associated with the action. See [Annex S](#) (State diagrams for Status tracking) for further information on the usage of this element.

## Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **state**, the status code; this data SHOULD be entered automatically by the software tools as datasets are transferred from one user to another. (See [Annex F, Code List Category ST](#) for a list of standardised codes).
- In **dateTime**, the date and time, in the format described in the [Introduction, paragraph 1.1](#). This data SHOULD be computer-generated whenever the Dataset Status is changed.
- In **fromContact** or **byContact**, the unique [Contact](#) identifier for the user having a responsibility in the SSRF data exchange community. Use **fromContact** if the change of status implies a data exchange with transfer of edit authority; use **byContact** if the change of status does not involve a change of edit authority.
- In **fromRole** or **byRole**, the unique [Role](#) identifier for the office having a responsibility in the SSRF data exchange community. Use **fromRole** if the change of status implies a data exchange with transfer of edit authority; use **byRole** if the change of status does not involve a change of edit authority.
- In **toContact**, the unique [Contact](#) identifier for the user to which a dataset was transferred which also resulted in a transfer of edit authority.
- In **toRole**, the unique [Role](#) identifier for the office to which a dataset was transferred which also resulted in a transfer of edit authority.

Use the [Remarks](#) element, with its **xpath** attribute referring to the current Status element, to add

any text relating to the status of the dataset which may be beneficial to dataset processors. This data MAY be computer-generated or manually entered. After a [transaction](#) is finished processing and approved, the Status information for that processing cycle is retained in the data repository master dataset. When a modification or delete transaction to an existing dataset is started the previous status information is deleted from the new transaction and a new sequence of Status information is started.

## Validation Rules

- [XSD] The attribute **state** MUST use one of the codes from Code List Category ST.
- [XSL ERR ID001] Part 3 of **byContact**, **fromContact**, and **toContact** (dataset type) MUST be "[CN](#)".
- [XSL ERR ID001] Part 3 of **byRole**, **fromRole**, and **toRole** (dataset type) MUST be "[JA](#)".
- [XSL ERR AD002] Attributes **byContact** and/or **byRole** MUST be used, and attributes **fromContact / fromRole / toContact / toRole** MUST NOT be used, with status codes ACCEPTED BY, ACTIVATED BY, ADMIN MOD BY, APPROVED BY, ASSIGNED BY, AUTHORISED BY, DELETED BY, EXPIRED BY, IMPORTED BY, IN-PROCESS AT, MODIFIED BY, ORIGINATED BY, RECEIVED BY.
- [XSL ERR AD003] Attributes **byContact** and **byRole** MUST NOT be used, and attributes **fromContact** and/or **fromRole**, and **toContact** and/or **toRole** MUST be used, with status codes FORWARDED, RECALLED, REJECTED, RESOLVED, REVIEW REQUIRED.
- [XSL ERR AD004] Attributes **fromContact** and/or **fromRole** MUST be used, attributes **toContact** and **toRole** MUST NOT be used, and Sub-element [InfoTo](#) MUST be used, with status codes COORDINATION, INFO.

## Examples

```
<Remarks xpath=".../Status[15]">
email coordination with host nations, responses due in 60 days
</Remarks>
<Status state="COORDINATION" fromContact="F:NFA:CN:1" dateTime="1995-12-
31T15:33:48Z" >
    <InfoTo toContact="BEL:NFA:CN:789"/>
    <InfoTo toContact="HOL:NFA:CN:012"/>
</Status>

<Status state="MODIFIED" byContact="USA:AF:CN:123" dateTime="2008-01-
01T14:30:00Z"/>

<Status state="FORWARDED" fromContact="USA:AF:CN:123" toContact="USA:DOD:
CN:456"
dateTime="2008-01-01T14:31:00Z" />

<Status state="INFO" fromContact="USA:AF:CN:123" dateTime="2008-01-
01T14:31:00Z">
    <InfoTo toRole="USA:NA:JA:789"/>
    <InfoTo toRole="USA:AR:JA:012"/>
</Status>
```

## WillReplace

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Replaced Retirement Date	retireDate	Optional	<a href="#">Date</a> (C10)
Replace	Element Content	Required	Memo
<b>Sub-Element Of</b>	<a href="#">Antenna</a> , <a href="#">SSRequest</a> , <a href="#">TxRx</a>		

### Description

This element indicates that a newly created dataset will replace, at a given date, one or several systems. This information is used to determine whether the equipment is updating an existing system, even a non-RF system such as a telephone, or whether it is a totally new development fulfilling a previously nonexistent function.

### *Input Requirement*

This element is OPTIONAL and repeatable in datasets Antenna, TxRx and SSRequest.

Enter:

- In **retireDate**, the estimated date of replacement of the system.
- In the element content, the names of systems to be replaced by the introduction of the new system.

### *Validation Rules*

None.

### *Example*

```
<WillReplace>Tactical Radio System (JTRS) in conjunction with Software  
Defined Radios (SDR's) will eventually replace many legacy radios</  
WillReplace>
```

### *Note*

For a replacement of existing dataset(s), the preferred way is to use the element [DatasetReplaced](#) which specifies the exact dataset(s) to be replaced.

## 4. Shared elements

Data elements in this section are used as children of multiple datasets.

## Address

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Street Address	street	Optional	C50
City or Area	cityArea	Optional	C50
State/County	state	Optional	C50
Zip Code/Post Code	postCode	Optional	C10
Country	country	Required	C4 Uppercase
<b>Sub-Element Of</b>	<a href="#">Contact</a> , <a href="#">ForceElement</a> , <a href="#">Location</a> , <a href="#">Role</a>		

### Description

Data element Address contains the name and full address of the location, organization or individual.

### Input Requirement

This element is OPTIONAL under element Contact and REQUIRED under element Location.

Enter:

- In **street**, the street address of the contact;
- In **cityArea**, the city portion of the contact's address or an operational area name;
- In **state**, the state;
- In **postCode**, the zip code or postal code portion of the address;
- In **country**, the country where the location or contact's address is located. Use a one to four alphabetic characters representing either an ITU country code, a NATO Command code, or other geographical entity as listed in [Annex F](#).

### Validation Rules

- [XSD] The attribute **country** MUST use one of the codes from Code List Category AO.

### Examples

```
<Address street="123 Main Street" cityArea="ANNAPOLIS" state="MD"
    postCode="21411-7396" country="USA"/>
```

```
<Address street="10 High Street" cityArea="Blandford Camp" state="Dorset"
    postCode="DT11 8RH" country="G"/>
```

### Note

In the case of a Location of type Polygon (Location.type="[LG](#)"), the polygon may span over several countries. In this case, Address.**country** should be chosen as the geographical entity or area from Code List Category AO matching the most closely to the polygon.

## ApprovalRouting

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Processing	Element Content	Required	C1 Uppercase
Sub-Element Of	<a href="#">AsgnAllot</a> , <a href="#">SSRequest</a>		

### Description

This is a National element (used by: USA).

This element shows whether or not the record is to be processed to national or international level for approval.

### Input Requirement

This element is REQUIRED in all USA AsgnAllot and SSRequest datasets. Use a code from Code List Category PI:

#### Code List Category PI:

Short Code	Definition
Y	The dataset is to be processed to national level authority for approval
U	The dataset is within national boundaries; however, it need not be processed to national level authority for approval
O	The dataset is outside national boundaries and need not be processed to national level authority for approval
N	The dataset is outside national boundaries; however, it must be processed to national or international level authority for approval

### Validation Rules

- [XSD] The element content MUST use one of the codes from Code List Category PI.

### Example

```
<ApprovalRouting>O</ApprovalRouting>
```

## AuthorisedBw

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Necessary Bandwidth	minBw	Required	F (MHz)
Maximum Necessary Bandwidth	maxBw	Optional	F (MHz)
Sub-Element Of	<a href="#">SourceFreqInfo</a> , <a href="#">JRFLEntry</a> , <a href="#">TxRxMode</a>		

### Description

Data element AuthorisedBw identifies the necessary bandwidth portion of the emission designator (see element [EmsDesignator](#)).

## ***Input Requirement***

This element is OPTIONAL. This element or [EmsDesignator](#) MUST appear under TxRxMode. This element, or [FreqSingle](#) or [FreqRange](#) MUST appear under JRFLEntry.

Enter:

- In **minBw**, the minimum or nominal necessary bandwidth which is defined as the value in MHz, for a given class of emission, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions. This is approximately at the -20 dB level on an emission curve.
- In **maxBw**, the maximum required necessary bandwidth which is defined as the value in MHz, for a given class of emission, the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions. This is approximately at the -20 dB level on an emission curve.

## ***Note***

To be able to convert legacy data, the value "0" MAY be used to mean "unknown data". Value "0" SHOULD NOT be used in new datasets.

## ***Validation Rules***

[XSL ERR GE002] If attribute **maxBw** exists, it MUST be greater than **minBw**.

## ***Examples***

```
<AuthorisedBw minBw="0.003" />
<AuthorisedBw minBw="3" maxBw="5" />
```

## **Azimuth**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Start Azimuth	startAz	Required	UN5.2 [0 .. 360] (deg)
Stop Azimuth	stopAz	Optional	UN5.2 [0 .. 360] (deg)
<b>Sub-Element of</b>		<a href="#">AntSpec</a> , <a href="#">DetectedIntf</a> , <a href="#">Pointing</a> , <a href="#">HorzScan</a>	

## ***Description***

This element describes the portion of a circle (in degrees) describing the antenna's scan or range of motion within the antenna's horizontal plane through which the antenna may scan or through which the orientation of the antenna may be adjusted.

## ***Input Requirement***

This element is OPTIONAL except under HorzScan where it is REQUIRED.

An antenna that scans a complete circle has a "0" to "360" degree sector of scanned motion. If the antenna does not scan but its mounting enables it to move or be set up in different orientations, the maximum horizontal motion or adjustment should be entered. If an azimuth range is reported, use both **startAz** and **stopAz**. If a single value is reported, enter zero (0) in **startAz** and the reported value in **stopAz**.

Enter:

- In **startAz**, the starting azimuth specification. This is considered the left limit of an azimuth range when an azimuth range is entered.
- In **stopAz**, the stopping azimuth specification. This is considered the right limit of an azimuth range or the significant value if a single value is reported.

### **Validation Rules**

None.

### **Example**

```
<Azimuth minAz=".01" maxAz="85.9"/>
```

## **Contract**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Contract	contract	Required	C50
<b>Sub-Element of</b>	<u>AsgnAllot [0..n]</u> , <u>SSRequest [0..n]</u>		
<b>Sub-elements</b>	<u>ContactOrgRef [0..n]</u>		

### **Description**

This element contains an identifier for a contract associated with the parent dataset.

### **Input Requirement**

This element is OPTIONAL.

In **contract**, enter identifying information for the contract associated with the parent dataset.

### **Validation Rules**

None.

### **Examples**

```
<Contract contract="DAAB07-9057-TR234"/>
```

## CositeSep

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
CositeSep	Element Content	Required	F (MHz)
Sub-Element Of	Station, TxMode		

### Description

Data element CositeSep identifies the minimum required frequency separation between the equipment for which the assignment is being made and any other equipment operating at the same location.

### Input Requirement

This element is OPTIONAL under Station and TxMode.

Enter:

- For a fixed frequency assignment, the required frequency separation in MHz (without unit), between this equipment and other equipment operated at one location. If the frequency separation is unknown use the NATO recommended frequency separation requirements are listed below.
  - 0.5** (MHz) for a transmitter power below 24.8 dBW (300 watts);
  - 2** (MHz) for a transmitter power above 24.8 dBW (300 watts);
  - 2.0** through **9.9** (MHz) for exceptionally high transmitter powers or difficult cosite constraints.
- For a HAVE QUICK II or SATURN frequency hopping assignments, one of the following values:
  - 0** - Instantaneous separation may be as small as 25 kHz
  - 4** - Minimum separation is 4 MHz
  - 8** - Minimum separation is 8 MHz
  - 12** - Minimum separation is 12 MHz

### Validation Rules

None

### Examples

A separation of 2 MHz required between fixed A/G/A frequencies at the same site:

<CositeSep>2</CositeSep>

A separation of 4 MHz required between net-numbers at the same site:

<CositeSep>4</CositeSep>

## Note

If Station.CositeSep is used and LinkSetup.Tuning.maxFreq is not used (i.e. user specified a single frequency) then the operating frequency MAY be invalid (i.e. it will not fulfil the cosite separation required).

## Notes for NATO UHF A/G/A assignments

1. This data is REQUIRED for NATO air/ground/air (A/G/A) assignments. It avoids the desensitisation of the receiver if two or more radio sets are operated at one location simultaneously, e.g., at a tower. This data also is required to establish the prerequisites for an interference-free radio communication.
2. The NATO tool ARCADE does not check the consistency between values in [Power](#) and values in CositeSep.

## Curve

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Curve Type	type	Required	C6 Uppercase
Curve Origin	origin	Required	C1 Uppercase
Curve Frequency Factor	freqFactor	Required	UN3.1 [-99.9 .. 99.9]
Curve Frequency Constant	freqConst	Required	<a href="#">E</a> (MHz)
Curve Measurement Bandwidth	bw	Optional	F (MHz)
Sub-Element Of	<a href="#">Antenna</a> , <a href="#">Mode</a> , <a href="#">Baseband</a> , <a href="#">Receiver</a> , <a href="#">SignalRx</a> , <a href="#">SignalTx</a> , <a href="#">Transmitter</a>		
Sub-elements	<a href="#">CurvePoint</a> [1..n]		

## Description

Data element Curve defines the type of curve. It contains an indication as to whether the values were measured or calculated, the numeric factor to be applied to the carrier frequency to find the abscissa of the curve, a frequency to be added to the carrier frequency to obtain the origin of the curve, and the measurement bandwidth.

The absolute frequency of the point on the curve will be indicated by:

$$\text{Freq} = \text{Freq}_{\text{carrier}} * X + \text{Freq}_{\text{const}} + \text{Freq}_{\text{offset}}$$

where:

$\text{Freq}_{\text{carrier}}$  = assigned or tuned frequency for which the curve will apply

X = value of **freqFactor**

$\text{Freq}_{\text{const}}$  = value of **freqConst**

$\text{Freq}_{\text{offset}}$  = value of **offset** in each [CurvePoint](#)

## Input Requirement

This element is OPTIONAL and repeatable under each of its parents.

Curves are required in TxRx datasets which are part of a Spectrum Supportability request ([SSRequest](#)). Data element Curve may appear at different levels (Transmitter / Receiver, TxMode / RxMode, SignalTx / SignalRx). If the Curve is independent from the mode, enter it at the Transmitter / Receiver level; if each mode have different Curve's, enter them for each TxMode and/or RxMode.

Enter:

- In **type**, one the following codes to define the corresponding curve:

#### **Code List Category CT:**

Short Code	Definition
<b>BASE</b>	Baseband
<b>FILTER</b>	External filter between TxRx and Antenna
<b>GAIN</b>	Gain of an antenna
<b>IFSEL1</b>	Receiver 1 <sup>st</sup> intermediate frequency selectivity
<b>IFSEL2</b>	Receiver 2 <sup>nd</sup> intermediate frequency selectivity
<b>IFSEL3</b>	Receiver 3 <sup>rd</sup> intermediate frequency selectivity
<b>IFSEL4</b>	Receiver 4 <sup>th</sup> intermediate frequency selectivity
<b>IFSEL5</b>	Receiver 5 <sup>th</sup> intermediate frequency selectivity
<b>INTMOD</b>	Intermodulation rejection
<b>RFSEL</b>	Receiver radio-frequency selectivity
<b>RFSPCT</b>	Transmitter RF spectrum
<b>RXIMAG</b>	Receiver image responses
<b>RXRESP</b>	Receiver spurious responses
<b>TXHARM</b>	Harmonics levels
<b>TXSPUR</b>	Spurious levels

- In **origin**, a **C** for calculated or an **M** for measured values for data elements [CurvePoint](#).

#### **Code List Category OR:**

Short Code	Definition
<b>C</b>	Calculated
<b>M</b>	Measured
<b>X</b>	Unknown

- In **freqFactor**, a numeric factor between -99.9 and 99.9. For example, enter 0 to define a curve around the IF, or 1 to define a curve around the carrier frequency.
- In **freqConst**, a frequency offset (positive or negative) in MHz (without unit).
- In **bw**, the bandwidth of measurement of the curve values, in MHz (without unit).

### **Validation Rules**

[XSD] A Curve element MUST have at least one CurvePoint sub-element.

### **Example**

```
<Curve type="RFSPCT" origin="M" freqFactor="1" freqConst="0" bw="0.001">
  <CurvePoint .../>
</Curve>
```

### **Note**

For more information about the types of curves and how to fill in the data, refer to section 12 on [Transceiver Elements](#), "Frequency Domain curves".

## CurvePoint

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Curve Frequency Offset	offset	Required	<a href="#">F</a> (MHz)
Curve Level	level	Required	SN4.1 [-150 .. 150] (dB)
<b>Sub-Element Of</b>	<a href="#">Curve</a>		

### Description

Data element CurvePoint contains the relative frequency to add to the curve origin to obtain the absolute frequency point on the curve, and the value in dB (relative to the carrier for a TX characteristic, or relative to sensitivity for a RX characteristic).

### Input Requirement

This element is REQUIRED and repeatable under element Curve.

This data element must be repeated for each couple (X, Y) of a curve. Enter:

- In **offset**, a frequency in MHz (without unit). Refer to data element [Curve](#) for instructions of use. If the curve being defined is symmetric, then enter only positive offsets; if the curve is not symmetric (such as a SSB or vestigial sideband modulation spectrum) then enter the full curve including negative offsets. When defining the transmitter RF spectrum and the receiver RF and IF [selectivity](#) curves, enter as a minimum the points corresponding to the -3, -20, -40 and -60 dB values.
- In **level**, a value in dB in the range -150 to 150. Refer to data element [Curve](#) for instructions of use.

### Validation Rules

None

### Examples

```
<CurvePoint offset="0.025" level="-3"/>
<CurvePoint offset="0.05" level="-20"/>
<CurvePoint offset="0.1" level="-40"/>
<CurvePoint offset="1" level="-60"/>
```

### Notes

- For more information about the types of curves and how to fill in the data, refer to "[Transceiver data](#)" general information.
- There is a difference from the previous Spectrum Supportability submission: the offsets entered here will be in general half the bandwidths defined in the old form DD1494.

## Description

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Description	Element Content	Required	Memo
Sub-Element Of	<a href="#">BandApplication</a> , <a href="#">BandUser</a> , <a href="#">Note</a> , <a href="#">OpClearanceRequest</a> , <a href="#">SSRequest</a>		

### Description

Data element Description contains the description of the [Spectrum Supportability](#) or [Operating Clearance](#) being requested. It is also used to provide an overview of the general purpose and functionality of the equipment.

### Input Requirement

This element is REQUIRED.

### Validation Rules

None

### Example

```
<Description>The AN/GRC-171B(V)4 is a UHF Communications System is
designed to process digital data and clear voice for fixed and
transportable applications.</Description>
```

## Elevation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum Elevation	minElev	Required	SN4.2 [-90 .. 90] (deg)
Maximum Elevation	maxElev	Optional	SN4.2 [-90 .. 90] (deg)
Sub-Element of	<a href="#">AntSpec</a> , <a href="#">EmsPowerLimit</a> , <a href="#">Pointing</a> , <a href="#">VertScan</a>		

### Description

This element describes the minimum and maximum elevation specification to which the antenna can point.

### Input Requirement

This element is OPTIONAL except under VertScan where it is REQUIRED.

The ranges are from straight down into the ground "-90" to directly overhead "90". Enter:

- In minElev, the minimum elevation specification. This is the lower limit of an elevation range

when a range is reported.

- In **maxElev**, the maximum elevation specification. This is the upper limit of an elevation range.

### **Validation Rules**

[XSL ERR GE002] If attribute **maxElev** exists, it MUST be greater than **minElev**.

### **Example**

```
<Elevation minElev="-30" maxElev="90" />
```

## **Emergency**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Emergency	Element Content	Required	C1 Uppercase
Sub-Element Of	<u>AsgnAllot</u> , <u>TxRx</u>		

### **Description**

Element Emergency indicates if the equipment or allotment / assignment may be used in a case of emergency.

### **Input Requirement**

This element is OPTIONAL under AsgnAllot and TxRx.

Enter in the element content, the emergency use indicator from Code List Category BO. "Y" indicates the assignment is in support of an emergency function.

#### **Code List Category BO:**

Short Code	Definition
Y	Yes
N	No

### **Validation Rules**

- [XSD] The element content MUST use one of the codes from Code List Category BO.

### **Example**

```
<Emergency>N</Emergency>
```

## EmsDesignator

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Class Of Emission	emsClass	Required	C5 Uppercase
Maximum Necessary Bandwidth	maxNecBw	Required	C4 Uppercase
<b>Sub-Element Of</b>	<a href="#">SourceFreqInfo</a> , <a href="#">EmsSpec</a> , <a href="#">TxRxMode</a>		

### Description

Data element EmsDesignator identifies the necessary bandwidth and emission classification symbols. Emission classification symbols consist of the three required symbols and the two optional symbols shown in the table below.

### *Input Requirement*

This element is OPTIONAL. Use either element EmsDesignator or element [AuthorisedBw](#) under each TxRxMode.

Enter:

- In **maxNecBw**, a code in the format BBBB representing the emission bandwidth. The bandwidth can be determined by using formulas shown in the ITU Radio Regulations, ITU-R Recommendations, or the NTIA Manual. Note that the ITU-R has a special format to express a bandwidth. A bandwidth is always coded on four characters; three digits and a unit designator letter are required, with the unit designator in the position the decimal would normally occupy. Use:

**H** - If the value is less than 1000 Hz

**K** - 1 kHz to values less than 1000 kHz

**M** - 1 MHz to values less than 1000 MHz

**G** - 1 GHz or greater.

Example: A bandwidth of 12.5 kHz will be denoted **12K5**.

A Doppler shift shall not be included in the frequency tolerance or bandwidth of emission; however, when a Doppler shift is significant, it should be reported in a [Remarks](#) element applied to this element with an xpath attribute.

- In **emsClass**, a code in the format CCC[CC] representing the emission classification. The 3 to 5 characters code must be derived from the table below:

First Symbol - Designates Type of Modulation of the Main Carrier
Unmodulated N - Emission of unmodulated carrier
Amplitude Modulated A - Double sideband H - Single sideband, full carrier R - Single sideband, reduced or variable level carrier J - Single sideband, suppressed carrier B - Independent sidebands C - Vestigial sidebands
Angle-Modulated F - Frequency modulation

G - Phase modulation
Amplitude and Angle-Modulated
D - Main carrier is amplitude-modulated and angle-modulated simultaneously or in a preestablished sequence
Pulse
P - Sequence of unmodulated pulses
K - Modulated in amplitude
L - Modulated in width/duration
M - Modulated in position phase
Q - Carrier is angle-modulated during the period of the pulse
V - Combination of the foregoing or is produced by other means
Combination
W - Cases not covered above in which an emission consists of the main carrier being modulated, either simultaneously or in a preestablished sequence, in a combination of two or more of the following modes: amplitude, angle, pulse
Other
X - Cases not otherwise covered
- : Unknown (to be used only by legacy data)
Second Symbol - Designates the Nature of Signal(s) Modulating the Main Carrier
O - No modulating signal
1 - A single channel containing quantised or digital information, not using a modulating subcarrier. (Excludes time-division multiplex)
2 - A single channel containing quantised or digital information, using a modulating subcarrier
3 - A single channel containing analogue information
7 - Two or more channels containing quantised or digital information
8 - Two or more channels containing analogue information
9 - Composite system with one or more channels containing quantised or digital information, together with one or more channels containing analogue information
X - Cases not otherwise covered
- : Unknown (to be used only by legacy data)
Third Symbol - Type of Information to be Transmitted <sup>a</sup>
N - No information transmitted
A - Telegraphy - for aural reception
B - Telegraphy - for automatic reception
C - Facsimile
D - Data transmission, telemetry, telecommand
E - Telephony (including sound broadcasting)
F - Television (video)
W - Combination of the above
X - Cases not otherwise covered. <sup>b</sup>
- : Unknown (to be used only by legacy data)
<sup>a</sup> In this context, the word "information" does not include information of a constant, unvarying, nature such as that provided by standard frequency emissions, continuous wave, pulse radars, etc.
<sup>b</sup> A full explanation for the selection of the letter X shall be provided in element <a href="#">Remarks</a> unless the application is for a non-directional beacon in the bands 190-435 and 510-535 kHz.
Fourth Symbol - Designates the Details of Signal(s)
A - Two-condition code with elements of differing numbers and/or durations
B - Two-condition code with elements of the same number and duration without error correction
C - Two-condition code with elements of the same number and duration with error correction
D - Four-condition code in which each condition represents a signal element of one or more bits
E - Multi-condition code in which each condition represents a signal element of one or more bits
F - Multi-condition code in which each condition or combination of conditions represents a character

G - Sound of broadcasting quality (monophonic)
H - Sound of broadcasting quality (stereophonic or quadraphonic)
J - Sound of commercial quality (excluding categories defined for symbol K and L below)
K - Sound of commercial quality with the use of frequency inversion or band splitting
L - Sound of commercial quality with separate frequency modulated signals to control the level of demodulated signal
M - Monochrome
N - Color
W - Combination of the above
X - Cases not otherwise covered
Fifth Symbol - Designates the Nature of Multiplexing
N - None
C - Code-division multiplex (includes bandwidth expansion techniques)
F - Frequency-division multiplex
T - Time-division multiplex
W - Combination of frequency-division multiplex and time-division multiplex
X - Other types of multiplexing

## Validation Rules

None.

## Note

The character "-" in symbols 1 to 3 has been introduced only to cope with legacy data. It SHOULD NOT be used in new datasets.

## Examples

```
<EmsDesignator emsClass="J3E" maxNecBw="3K00"/>
<EmsDesignator emsClass="PONAN" maxNecBw="3M50"/>
```

## Freq

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Frequency Status	status	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u>Link</u>		
<b>Sub-elements</b>	<u>FreqOld</u> [0..1], (choice between <u>FreqSingle</u> [1..1], <u>FreqRange</u> [1..1]), <u>ITURegistration</u> [0..1], <u>LegacyNum</u> [0..n], <u>NarrowBandPlanning</u> [0..1], <u>PairedFreq</u> [0..1]		

## Description

Element Freq contains the frequency or the frequency band assigned or allotted. For certain operations, the assignment of a range of frequencies (frequency band) may be required in lieu of a specific operating frequency. These types of assignments shall only be requested when specific frequencies will not satisfy the requirements. Frequency band assignments are normally authorized for the following:

- Transmitters which automatically sweep through all frequencies in a band

- Radiosonde transmitters
- Frequency-agile radar beacons (racon)
- Transmitters that use automatic frequency selection based on changing propagation conditions along the transmission path
- Transmitters that automatically pause at several specific operating frequencies within a band
- Operations that require the use of several specific operating frequencies within a band for Research, Development, Test and Evaluation (RDTE) purposes
- Operations that involve a multitude of mobile radiolocation or radionavigation transmitters.
- Tactical and/or training assignments (above 30 Megahertz (MHz)) that require the use of several specific operating frequencies within a band
- Operations devoted exclusively to Electronic Warfare (EW), Electronic Countermeasures (ECM), and/or Electronic Protection Measures (EPM). For sideband operations, enter the reference frequency in [FreqSingle.refFreq](#).

## ***Input Requirement***

This element is OPTIONAL and repeatable under element Link.

**status** indicates the status of the UHF AMS frequency nominated by the NUFAS software tool at NHQC3S/SMB. This code is computer-generated and uses Code List Category FS:

### ***Code List Category FS:***

<b>Short Code</b>	<b>Definition</b>
0	Calculated frequency fulfills all the EMC requirements
1	Calculated frequency has been selected after 1 relaxation
2	Calculated frequency has been selected after 2 relaxations
3	Calculated frequency has been selected after 3 relaxations
4	Frequency violates the resource constraint

## ***Validation Rules***

- [XSD] The attribute **status** MUST use one of the codes from Code List Category FS.
- [XSD] Element Freq MUST have either a [FreqSingle](#) or a [FreqRange](#) sub-element.

## ***Examples***

A VHF assigned frequency:

```
<Freq>
  <FreqSingle>35.125</FreqSingle>
</Freq>
```

An HF assigned frequency with a reference frequency:

```
<Freq>
  <FreqSingle refFreq="6.736">6.7375</FreqSingle>
</Freq>
```

A frequency band assignment:

```
<Freq>
  <FreqRange minFreq="2.000" maxFreq="30.000"/>
</Freq>
```

An UHF A/G/A frequency assigned by NUFAS:

```
<Freq status="1">
  <FreqSingle>238.725</FreqSingle>
</Freq>
```

### Note

See [paragraph 1.3](#) for the REQUIRED transmission format versus recommended viewing format.

### Note 3: for the USA

Special Consideration for Processing Frequency Entries: Frequency(ies) and frequency bands minimum value listed in FRRS datasets cannot be changed.

## FreqOld

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sub-Element Of	<a href="#">Freq</a>		
Sub-Elements	(choice between <a href="#">FreqSingle</a> [1..1], <a href="#">FreqRange</a> [1..1])		

### Description

Element FreqOld contains the frequency or the frequency band which was previous assigned or allotted to the Force Element. It contains the same type of information as element [Freq](#), and should normally be copied automatically from Freq by assignment software tools.

### Input Requirement

This element is OPTIONAL under the Freq element.

### Example

```
<FreqOld>
  <FreqSingle>35.125</FreqSingle>
</FreqOld>
```

### Validation Rules

[XSD] Element FreqOld MUST have either an [FreqSingle](#) or a [FreqRange](#) sub-element.

### Notes

The same notes as for [Freq](#) apply to this element.

## FreqRange

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum Frequency	minFreq	Required	<a href="#">F</a> (MHz)
Maximum Frequency	maxFreq	Required	F (MHz)
Sub-Element Of	<a href="#">Antenna</a> , <a href="#">AntMode</a> , <a href="#">AuthorisedTuning</a> , <a href="#">SourceFreqInfo</a> , <a href="#">Freq</a> , <a href="#">FreqBand</a> , <a href="#">FreqHopset</a> , <a href="#">FreqOld</a> , <a href="#">IFreq</a> , <a href="#">JRFLEntry</a> , <a href="#">SignalTuning</a> , <a href="#">Tuning</a>		

### Description

Data element FreqRange indicates a range of frequencies in the case of a frequency band assignment / allotment or for a tuning range.

### Input Requirement

This element is OPTIONAL and repeatable.

See table above for occurrence of this element within its parent elements.

**Enter all frequency values in MHz without any unit symbol:**

- in **minFreq**, the frequency range minimum value assigned, allotted, or in the tuning range;
- in **maxFreq**, the maximum frequency of the range.

### Validation Rules

- [XSL ERR AN003] This element MUST exist either under Antenna or under AntMode.
- [XSL ERR GE002] **maxFreq** MUST be greater than **minFreq**.

### Example

```
<FreqRange minFreq="225" maxFreq="400"/>
```

## FreqSingle

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Reference Frequency	refFreq	Optional	<a href="#">F</a> (MHz)
Assigned Frequency	Element Content	Required	<a href="#">F</a> (MHz)
Sub-Element Of	<a href="#">Antenna</a> , <a href="#">AntMode</a> , <a href="#">AuthorisedTuning</a> , <a href="#">SourceFreqInfo</a> , <a href="#">Freq</a> , <a href="#">FreqBand</a> , <a href="#">FreqHopset</a> , <a href="#">FreqOld</a> , <a href="#">IFreq</a> , <a href="#">JRFLEntry</a> , <a href="#">SignalTuning</a> , <a href="#">Tuning</a>		

### Description

Data element FreqSingle indicates the specific frequency on which the system may tune or

assigned. It may also indicate the reference, or carrier, frequency (e.g. for HF assignments).

### ***Input Requirement***

This element is OPTIONAL and repeatable.

**Enter all frequency values in MHz without any unit symbol:**

- in the element content, the discrete radio frequency when the equipment only operates on a single channel.
- in **refFreq**, the reference frequency of a suppressed or reduced carrier sideband.

### ***Validation Rules***

None.

### ***Example***

An UHF frequency:

```
<FreqSingle>225</FreqSingle>
```

An HF USB frequency:

```
<FreqSingle refFreq="4.5156">4.517</FreqSingle>
```

## FSCM

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
FSCM	Element Content	Required	C5 Uppercase
Sub-Element Of	<u>Manufacturer</u>		

### ***Description***

**This is a National element (used by: USA).**

Data element FSCM contains the Federal Supply Code for Manufacturers (FSCM).

### ***Input Requirement***

This element is OPTIONAL.

Enter in **FSCM** the Federal Supply Code for Manufacturers.

### ***Validation Rules***

None

### ***Example***

```
<Manufacturer country="USA">XEROX Corporation
```

```
<FSCM>17623</FSCM>
</Manufacturer>
```

### Note

This element is only used by the USA.

## LegacyNum

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Control Number	controlNum	Optional	C15
Docket Number	docketNum	Optional	C40
Serial Number	serialNum	Optional	C12
<b>Sub-Element Of</b>	<u><a href="#">Common</a></u> , <u><a href="#">Freq</a></u>		

### Description

**This is a National element (used by: USA).**

Element LegacyNum is used by the USA. It contains legacy numbers related to previous legacy records that need to be carried over into the revised data repository. Eventually these data items will be phased out.

### Input Requirement

This element is OPTIONAL and repeatable under its parents.

Enter:

- In **controlNum**, the associated legacy control/request number from the previous data repository
- In **docketNum**, the legacy docket number from the previous data repository.
- In **serialNum**, the legacy serial number from the previous data repository.

### Validation Rules

None

### Example

```
<LegacyNum controlNum="ACC 81-007" serialNum="AF 19815163"
docketNum="2AAZ0191"/>
```

## Manufacturer

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Country	country	Optional	C4 Uppercase
Manufacturer Code	code	Required	C5 (Leading zeros required)
<b>Sub-Element Of</b>	<a href="#">Nomenclature</a>		
<b>Sub-elements</b>	<a href="#">FSCM [0..n]</a>		

### Description

Data element Manufacturer contains the manufacturer name of the commercial equipment listed in the corresponding data entry in data element [Nomenclature](#). Additionally the country in which the equipment is manufactured may be included.

### Input Requirement

This element is REQUIRED if attribute **type** of parent element [Nomenclature](#) = "CIV". It is OPTIONAL otherwise.

Enter:

- In **country** the abbreviation of the country where the equipment is manufactured. Use the Geographical Abbreviations list from [Annex F](#).
- In **code** the code of the company that manufactured the equipment. Use the manufacturer codes listed in [Annex G, Code List Category MA](#). The manufacturer's name should be obtained from data plates on equipment whenever possible. This entry is optional when government nomenclature is entered in Data Item [Nomenclature](#).

### Validation Rules

- The attribute **code** SHOULD use one of the codes from Code List Category MA.

### Example

Motorola Corporation has code 10390

```
<Manufacturer country="USA" code="10390" />
```

### Note

The Code List Category MA is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## Mode (abstract)

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Mode Description	descr	Optional	C100
<b>Sub-elements</b>	<u>Curve [0..n]</u>		
<b>Inherited By</b>	<u>AntMode</u> , <u>RxMode</u> , <u>TxMode</u> , <u>TxRxMode</u>		

### Description

This is an abstract element used as a basis for elements TxMode, RxMode, TxRxMode, and AntMode. It identifies each operational mode of an equipment or antenna.

### Input Requirement

Enter:

- In **descr**, a description of the operational mode; this description should be a meaningful identification of the mode.

### Validation Rules

See the inherited elements TxMode, RxMode and AntMode.

### Examples

See the inherited elements TxMode, RxMode and AntMode.

## Nomenclature

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type of Nomenclature	type	Required	C3 Uppercase
Level of Nomenclature	level	Required	C1 Uppercase
<b>Sub-Element Of</b>	<u>Antenna</u> , <u>ForceElement</u> , <u>Receiver</u> , <u>Transmitter</u> , <u>TxRx</u>		
<b>Sub-Elements</b>	<u>Manufacturer [0..n]</u> , <u>NomenclatureName [1..1]</u>		

### Description

Data element Nomenclature identifies either the standard military nomenclature or the commercial model number of an antenna, equipment or platform. Each antenna, equipment or platform may have several types of nomenclature, e.g. both a military nomenclature and a commercial model number.

### Input Requirement

This data element is REQUIRED within elements [Antenna](#), [TxRx](#), and [ForceElement](#), and OPTIONAL within elements [Transmitter](#) and [Receiver](#). If available, the system nomenclature is preferred rather than the component nomenclature; however, either is acceptable.

Enter:

- In **type** one of the codes from Code List Category TO:

#### **Code List Category TO:**

Short Code	Definition
CIV	Civilian or Commercial
MIL	Military (not to be used by USA - USA use GOV)
GEN	Generic
GOV	Government
PN	Part Number
OTH	Other - See remarks

- In **level** one of the codes from Code List Category NU:

#### **Code List Category NU:**

Code	Definition
A	Alternate
N	Nickname
P	Primary

In the case of a ForceElement, use level "P" to enter the full name of the force element and level "N" for its short name.

### **Validation Rules**

[XSD] The attribute **type** MUST use one of the codes from Code List Category TO.

[XSD] The attribute **level** MUST use one of the codes from Code List Category NU..

### **Examples**

A governmental nomenclature.

```
<Nomenclature type="GOV" level="P">
    <NomenclatureName>AN/GRC-103(V)4</NomenclatureName>
</Nomenclature>
```

A commercial handheld model number. A partial nomenclature such as "H23" is incomplete since it applies to a series of handheld units:

```
<Nomenclature type="CIV" level="A">
    <NomenclatureName>H23FFN1130E</NomenclatureName>
    <Manufacturer code="08350"/>
</Nomenclature>
```

### **NomenclatureName**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
NomenclatureName	Element Content	Required	C100
Sub-Element Of	<a href="#">Nomenclature</a>		

## Description

Data element NomenclatureName identifies either the standard military nomenclature or the commercial model number of an antenna, equipment or platform. Each antenna, equipment or platform may have several types of nomenclature, e.g. both a military nomenclature and a commercial model number.

## Input Requirement

This data element is REQUIRED under [Nomenclature](#).

Enter in the element content, the nomenclature subject to the following:

- For a government equipment nomenclature, enter the standard military or government nomenclature.
- If only a commercial model number is available, enter the complete model number and indicate the manufacturer of the equipment in data element [Manufacturer](#), using the manufacturer code listed in [Annex J](#).
- If the nomenclature includes a modification, insert MOD and a number, if applicable, immediately following the nomenclature. For the word MARK, insert MK as the first part of the nomenclature e.g. "**MK 53 MOD 1**".
- If the equipment does not have an assigned government nomenclature or commercial model number, enter a general description in this item (mandatory item), and enter the manufacturer name with a brief description of the equipment in a data element [Remarks](#) referring to this NomenclatureName through its **xpath** attribute.
- If the equipment is being submitted to ITU the maximum number of characters is 20.

## Validation Rules

None.

## Examples

See element [Nomenclature](#) for examples.

## NumUnits

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Co-sited Units	numCosited	Optional	UN5
Units In One Area	numArea	Required	UN5
<b>Sub-Element Of</b>	<a href="#">SSRequest</a> , <a href="#">Station</a>		

## Description

Data element NumUnits contains the maximum number of units (equipment) that will be operating simultaneously in the same environment when the equipment becomes operational.

## ***Input Requirement***

This element is REQUIRED under SSRequest and OPTIONAL under Station.

Enter:

- In **numCosited**, the maximum number of units (equipment) that will be operating simultaneously in the same cosite environment. A cosite situation occurs when several antennas are within the near field of each other.
- In **numArea**, the maximum number of units (equipment) that will be operating simultaneously in the same area of operation. For Spectrum Supportability purposes, an area is generally defined as a country. For Assignments and Allotments, this is the number of stations in the area defined in [StationLoc](#).

Enter the number of land mobile stations, ship stations, and transportable stations associated with the current [AsgnAllot](#) or [SSRequest](#) dataset. The number entered shall represent either the exact number of stations or a range of numbers as follows:

Number of Stations	Enter
1-10	10
11-30	30
31-100	100
101-300	300
301-1000	1000
1001-3000	3000
3001-10000	10000
Above 10000	Nearest 10000

If the exact number is to be recorded, and it is 10, 30, 100, 300, 1000, 3000, or a multiple of 10000, add one to the number to distinguish it from a figure that represents a range of numbers.

## ***Validation Rules***

None.

## ***Example***

```
<NumUnits numCosited="5" numArea="1000"/>
```

## **Remarks**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Path to target element	xpath	Optional	C255
Remarks	Element Content	Required	Memo
Sub-Element Of	<a href="#">Administrative</a> , <a href="#">Body</a> , <a href="#">Codes</a> , <a href="#">Common</a> , <a href="#">Contact</a> , <a href="#">Organisation</a> , <a href="#">Role</a> , <a href="#">Std</a>		

## ***Description***

Data element Remarks contains any remarks pertinent to the level where this element appears that cannot be adequately represented in an established data element. In certain situations, technical data must be included in remarks in order to clearly explain a technical or operational consideration; in these instances, the data must also be entered in the data element(s) specifically established for it.

## ***Input Requirement***

This element is OPTIONAL and repeatable under all its parents.

Enter:

- In **xpath**, an optional XPath expression indicating if necessary which precise element or attribute is concerned with the remark. The XPath expression MUST be relative to the dataset element (parent of Remarks). Do not enter a path for a remark which is general to the dataset. Refer to [paragraph 1.8](#) for usage and limitations.
- In the **Element Content**, as many lines of remarks as necessary. Do not use forbidden characters, or escape them, as explained in the [Introduction \(paragraph 1.7\)](#).

## ***Validation Rules***

None

## ***Examples***

```
<Remarks>Any textual comment.</Remarks>
<Remarks xpath=".//Nomenclature[2]/Manufacturer">This is the Californian
subsidiary of Raytheon</Remarks>
```

## **ResponseDate**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Date Response Required	Element Content	Required	<a href="#">Date</a>
Sub-Element Of			<a href="#">AsgnAllot</a> , <a href="#">OpClearanceRequest</a> , <a href="#">SSRequest</a>

## ***Description***

This element contains the date by which an assignment, allotment or spectrum supportability request is required by the user in order to complete necessary advanced operation coordination.

## ***Input Requirement***

This element is OPTIONAL.

All dates are formatted as described in the [Introduction](#).

Except in an unusual circumstance, the response date should be at least 15 days for an assignment being engineered at a central facility using a software tool, or at least 90 days in the cases where multinational or multi-agency coordination is required, from the date of the message release or initial request date.

## Validation Rules

None

### Example

```
<ResponseDate>2005-05-30</ResponseDate>
```

## Requirement

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Requirement	Element Content	Required	Memo
<b>Sub-Element Of</b>	<a href="#">AsgnAllot</a> , <a href="#">IntfReport</a> , <a href="#">JRFL</a> , <a href="#">SSRequest</a>		

## Description

Data element Requirement contains a description of the types and forms of information to be transmitted or received and the rate of transmission.

### Input Requirement

This element is OPTIONAL in AsgnAllot, IntfReport and JRFL. It is REQUIRED under SSRequest.

For a SSRequest, the requirement should describe:

- The general purpose of the system (e.g. in the PATRIOT system: this is an anti-missile, anti-aircraft system to protect fixed facilities);
- Each significant capability of the system (e.g. in the PATRIOT system: search, acquisition and tracking radar, TT&C, C2 links, etc);
- Any related supportability documents should be listed in the [ExtRef](#) element.

## Validation Rules

None

### Example

```
<Requirement>The Patriot missile is equipped with a track-via-missile (TVM) guidance system. Mid-course correction commands are transmitted to the guidance system from the mobile Engagement Control Centre. The target acquisition system in the missile acquires the target in the terminal phase of flight and transmits the data using the TVM downlink via the ground radar to the Engagement Control Station for final course correction calculations. The course correction commands are transmitted to the missile via the Missile Track Command Uplink. The high explosive 90kg warhead is situated behind the terminal guidance section. The range of the missile is 70km and maximum altitude is greater than 24km. The
```

minimum flight time is the time to arm the missile, which is less than 9s, and the maximum flight time is less than 3.5 mins. Raytheon has developed the Patriot Guidance Enhanced Missile (GEM+), an upgrade to the PAC-2 missile. The upgrade involves a new fuse and the insertion of a new low noise oscillator which increases the seeker's sensitivity to low radar cross-section targets. The GEM+ missile provides an upgraded capability to defeat air-breathing, cruise and ballistic missiles, as a compliment to the PAC-3 missile. The first upgrade fore bodies were delivered to the US Army in November 2002. 376 missiles are being upgraded, of which 230 have been delivered.</Requirement>

## StockNum

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Stock Number Type	type	Optional	C1 Uppercase
Stock Number	Element Content	Required	C20 Uppercase
<b>Sub-Element Of</b>	<a href="#">Antenna</a> , <a href="#">ForceElement</a> , <a href="#">TxRx</a> , <a href="#">Receiver</a> , <a href="#">Transmitter</a>		

## Description

This is a National element (used by: USA).

Data element StockNum provides the equipment stock number and indicates the type of stock number.

## Input Requirement

This element is OPTIONAL.

Enter:

- in the element content, the stock number of the equipment.
- In **type**, the type of stock number extracted from Code List Category NS:

### Code List Category NS:

Short Code	Definition
C	Commercial P/N
L	Line Item Number
N	National Stock Number
T	NATO Stock Number

## Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category NS.

## Example

```
<StockNum type="N">0967-01-234-6799</StockNum>
```

## Time

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Period of Time	period	Optional	C3 Uppercase
<b>Sub-Element Of</b>	<a href="#">AsgnAllot</a> , <a href="#">DetectedIntf</a>		
<b>Sub-Elements</b>	<a href="#">TimeFrame [0..1]</a>		

## Description

Data element Time describes the period of time when the radio frequency will be either guarded (monitored), used for transmission, or subject to an interference, during a 24 hour period. The period indicated is not a limitation or a restriction, but rather the period when the radio frequency must be available to satisfy its operational requirement. It may also define daily start/stop times in its sub-element [TimeFrame](#).

## Input Requirement

This element is OPTIONAL under AsgnAllot and REQUIRED under DetectedIntf.

Enter:

- In **period**, the ITU code for the period of usage. Use the appropriate code from Code List Category TI:

### Code List Category TI:

Short Code	Definition
HX	Intermittently throughout the 24-hour day
HN	Night time
HJ	Day time
H24	Continuously 24 hour per day
HT	Transition period

## Validation Rules

- [XSD] The attribute **period** MUST use one of the codes from Code List Category TI.

## Additional checks for the USA

This element is required on regular assignments using Radio Frequency bands 29.89-50, 138-144, 148-149.90, 150.05-150.80, 162-174, and 406.10-420 MHz, except those for experimental stations and those with notes (element [NoteRef](#)) S321 and S322. For all other bands at 29890 kHz and above, this element is required for assignments with a [StationLoc](#) referring to a [Location](#) having [Address](#).country in US, USA, or USP.

## Example

```
<Time period="HX" />
```

## TimeFrame

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
minute	minutes	Optional	C40
hour	hours	Optional	C40
day of the month	daysOfMonth	Optional	C40
month	months	Optional	C40
day of the week	daysOfWeek	Optional	C40
year	years	Optional	C40
duration	duration	Optional	UN4 (min)
<b>Sub-Element Of</b>	<a href="#">BSMPlan</a> , <a href="#">EmsPowerLimit</a> , <a href="#">FEDeployment</a> , <a href="#">GuardRequirements</a> , <a href="#">HostNationConstraints</a> , <a href="#">JRFL</a> , <a href="#">JRFLEntry</a> , <a href="#">RelatedOrg</a> , <a href="#">Time</a>		

### Description

Data element TimeFrame defines a (daily) starting time and a stop time for many time-related datasets.

### Input Requirement

This element is OPTIONAL under its parents, except under [BSMPlan](#) where it is REQUIRED.

Each attribute (except **duration**) may contain:

- A single number;
- A range (start and stop, separated with an hyphen " - "); optionally, a range may be followed by a step (oblique stroke " / " followed by a number); the full range may be represented by the asterisk " \* ";
- A list of numbers and/or ranges, separated by commas " , ";
- An attribute with value " \* " may be omitted.

Note: The attributes and their format are compatible with the UNIX command "crontab", except for **years** which does not exist in crontab.

Enter :

- In **minutes**, the minutes of hour [0-59]
- In **hours**, the hours of day [0-23] (UTC time)
- In **daysOfMonth**, the day of month [1-31]
- In **months**, the month of year [1-12]
- In **daysOfWeek**, the weekday [0-7 where 0 and 7 are for Sunday, 1 for Monday, etc]
- In **years**, the 4-digit year [1900..2100]
- In **duration**, the number of minutes for which an event will live.

Examples for the **hour** attribute:

"8"	one value: 08h00Z
"5,6,9"	multiple values: 05h00Z, 06h00Z, 09h00Z
"5-8"	range between 05h00Z and 08h00Z inclusive
"*/2"	stepped, every other hour. 00h00Z (midnight), 02h00Z, 04h00Z, etc
"3-12/3"	stepped range, every third hour: 03h00Z, 06h00Z, 09h00Z, and 12h00Z

## Validation Rules

None.

## Example

*Transmission for 2 minutes every 10 minutes from 9am to 5pm every weekday for 2007:*

```
<TimeFrame minutes="*/10" hours="9-17" dayofWeek="0-4" years="2007" duration="2"/>
```

*On the 5-minute mark, every third hour, only on days of the work week (Mon-Fri)*

```
<TimeFrame minutes="5" hours="*/3" dayofWeek="1-5"/>
```

*On the 20 and 50-minute marks every hour, every month except June, only on days of the work week (Mon-Fri)*

```
<TimeFrame minutes="20,50" months="1-5,7-12" dayofWeek="1-5"/>
```

## Title

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Language	lang	Optional	C2 Lowercase
Title	Element Content	Required	C100
Sub-Element Of	<a href="#">AsgnAllot</a> , <a href="#">Administrative</a> , <a href="#">OpClearanceRequest</a> , <a href="#">Organisation</a> , <a href="#">SignalDescr</a> , <a href="#">SSRequest</a> , <a href="#">TOA</a>		

## Description

Data element Title contains the title of the Table of Allocation, Signal Description, or Spectrum Supportability / Operating Clearance Request.

## Input Requirement

This element is REQUIRED under all its parent elements except under Organisation where it is OPTIONAL and repeatable and AsgnAllot where it is OPTIONAL..

Enter in **lang**, a code designating the language in which the title is given (see element [Organisation](#)). Use the two-letter lowercase language tag as defined in ISO 639-1 and used in RFC 4646 "Tags for the Identification of Languages" (e.g. "en" for English, "fr" for French, "de" for German, etc). The

list of codes is at [Annex F \(Code List Category LN\)](#).

## Validation Rules

[XSD] The attribute **lang** MUST use one of the codes from Code List Category LN.

### Example

```
<Title>JTIDS/MIDS waveform</Title>
```

## 5. Administrative elements

### Administrative Data

Data elements in this section provide data to initiate the processing of all spectrum management datasets.

### Time/Date Information

Data items in this section contain data related to implementation of the dataset, time period when the dataset is valid, and expiration/review data.

### Items Related to User-Expandable Lists

Data element [Codes](#) allows the users to propose new data values for the items where a value must be chosen from a list.

### Structure of the administrative datasets

See [Annex L](#) for a description of the columns in the table below.

element name	national	content	occ	attributes
<a href="#">ExtReference</a>			[0..n]	(refCls(L:CL),+type(L:RE),date(D),author(S30),org(S30),num(S50),title(S200))
<a href="#">Attachment</a>			(S255)	[0..1] (cls(L:CL),+mimeType(L:MT))
<a href="#">Deletion</a>			[0..n]	(cls(L:CL),+serial(S28+P),+origin(L:DE))
<a href="#">Reason</a>			(S)	[0..1] (cls(L:CL))
<a href="#">Dataset</a>			[1..n]	(cls(L:CL),+serial(S28+P))
<a href="#">Reason</a>			(S)	[0..1] (cls(L:CL))
<a href="#">Administrative</a>			[0..n]	(cls(L:CL),+serial(S28+P),+reason(L:DR),+external(L:BO))
<a href="#">Compartment</a>			(USA)	(S15(L:CC))
<a href="#">ContactOrgRef</a>			[0..n]	(cls(L:CL),xpath(S255))
<a href="#">ContactRef</a>			[1..n]	(cls(L:CL),+type(L:CR))
<a href="#">OrganisationRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">Remarks</a>			(S)	[1..1] (cls(L:CL),+serial(S28+P))
<a href="#">Dataset</a>			[0..n]	(cls(L:CL))
<a href="#">Reason</a>			(S)	[0..n] (cls(L:CL),+serial(S28+P))
<a href="#">MessageRef</a>			[0..1]	(cls(L:CL))
<a href="#">ExtRef</a>			[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">Response</a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#">Handling</a>			(S1+P)	[0..n] (cls(L:CL))
<a href="#">ReleasableTo</a>			(S4)	[0..n] (cls(L:CL))
<a href="#">Status</a>			[1..n]	(cls(L:CL),+state(L:ST),+dateTime(DT),byContact(S28+P),byRole(S28+P),fromContact(S28+P),fromRole(S28+P),toContact(S28+P),toRole(S28+P))
<a href="#">InfoTo</a>			[0..n]	(cls(L:CL),toContact(S28+P),toRole(S28+P))
<a href="#">AdministrativeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">Reason</a>			(S)	[0..1] (cls(L:CL))

<u>Dataset</u>	[0..n]	(cls(L:CL),+serial(S28+P))
<u>Reason</u>	[0..1]	(cls(L:CL))
<u>Codes</u>	[0..n]	(cls(L:CL),+serial(S28+P))
<u>ContactOrgRef</u>	[1..n]	(cls(L:CL),+type(L:CR))
<u>ContactRef</u>	[1..1]	(cls(L:CL),+serial(S28+P))
<u>OrganisationRef</u>	[1..1]	(cls(L:CL),+serial(S28+P))
<u>Code</u>	[1..n]	(cls(L:CL),+cat(L:LU),+shortCode(S40),+origin(L:AO))
<u>Remarks</u>	[0..n]	(cls(L:CL),xpath(S255))

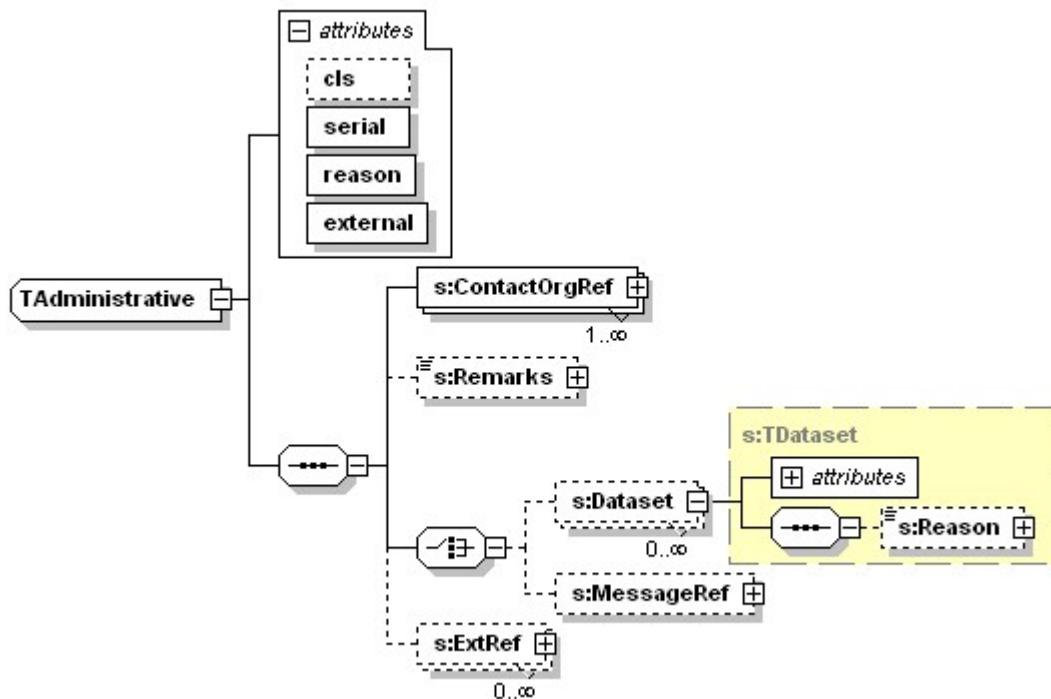


Figure II-5a: Element Administrative

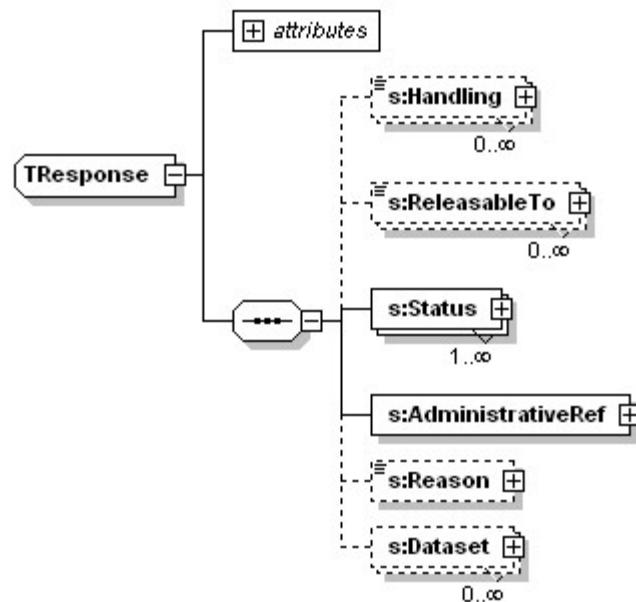


Figure II-5b: Element Response

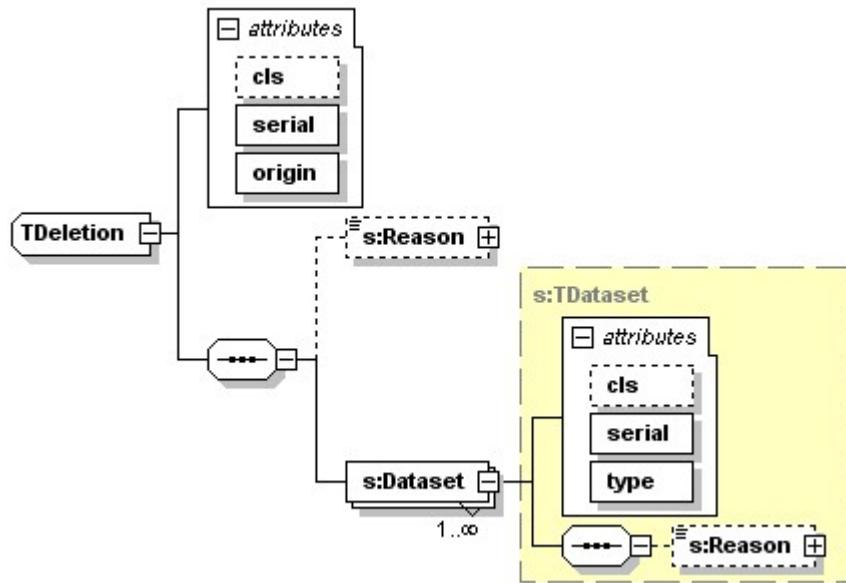


Figure II-5c: Element Deletion

element name	national	content	occ	attributes
<a href="#">Organisation</a>			[0..n]	(cls(L:CL),+serial(S28+P),type(S3+P),+entry(D),lastMod(DT),+country(L:AO),+orgCode(S4+P),name(S100))
<a href="#">DatasetCls</a>			[1..1]	(+overallCls(L:CL))
<a href="#">ClsOrigin</a>			[0..1]	(cls(L:CL),+authority(S30),+org(S30))
<a href="#">ClsReason</a>			[0..1]	(cls(L:CL))
<a href="#">ClsDerived</a>			[0..n]	(cls(L:CL),+date(D),+title(S30),+org(S30))
<a href="#">Downgrade</a>			[0..3]	(cls(L:CL),+downCls(L:CL),+date(D))
<a href="#">Decls</a>	(S20)		[0..1]	(cls(L:CL),+type(S10+P),date(D))
<a href="#">Handling</a>	(S1+P)		[0..n]	(cls(L:CL))
<a href="#">ReleasableTo</a>			[S4]	(cls(L:CL))
<a href="#">EffDate</a>			(DT)	[1..1] (cls(L:CL))
<a href="#">Expire</a>			(DT)	[1..1] (cls(L:CL))
<a href="#">Review</a>			(DT)	[1..1] (cls(L:CL))
<a href="#">Title</a>			(S100)	[0..n] (lang(S2),cls(L:CL))
<a href="#">Project</a>			(S)	[0..n] (cls(L:CL),+type(S1+P),+name(S30))
<a href="#">RelatedOrg</a>			[0..n]	(cls(L:CL),+type(S3+P),+relation(S1+P),+serial(S28+P))
<a href="#">TimeFrame</a>			[0..1]	(cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">Quantity</a>			[0..1]	(cls(L:CL),authorized(UI5),available(UI5))
<a href="#">EffDate</a>			(DT)	[0..1] (cls(L:CL))
<a href="#">Expire</a>			(DT)	[0..1] (cls(L:CL))
<a href="#">Remarks</a>			(S)	[0..n] (cls(L:CL))

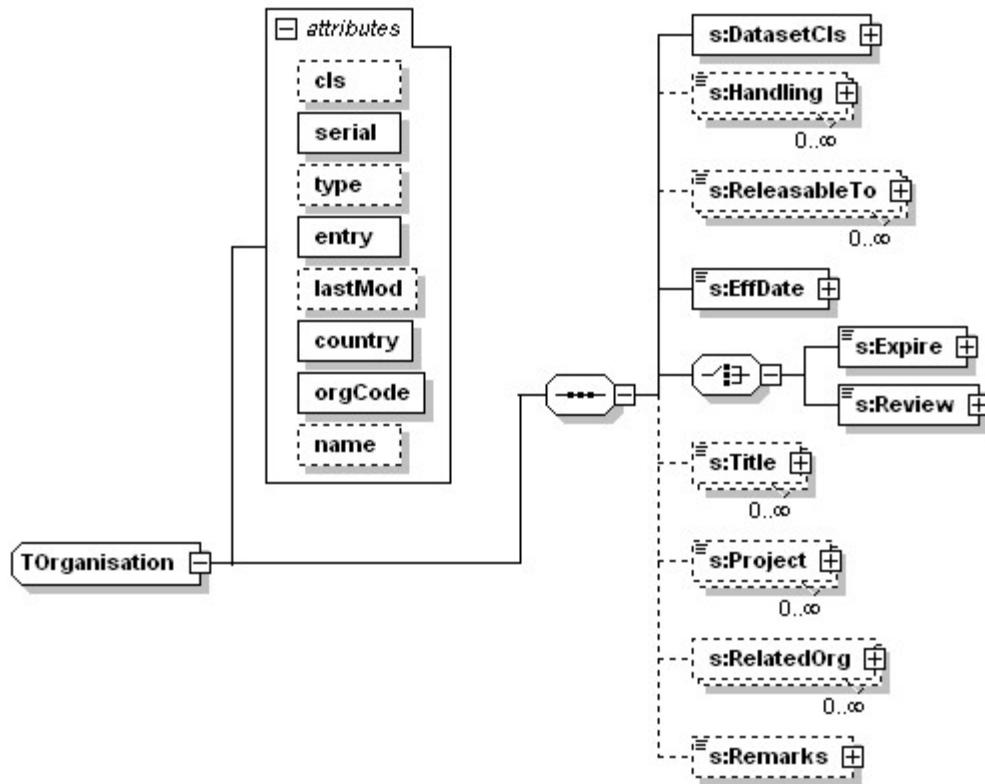


Figure II-5d: Element Organisation

element name	national	content	occ	attributes
<a href="#">Contact</a>			[0..n]	(cls(L:CL),+serial(S28+P),+entry(D),lastMod(DT),title(S10),firstName(S30),lastName(S30),job(S50))
<a href="#">DatasetCls</a>			[1..1]	(+overallCls(L:CL))
<a href="#">ClsOrigin</a>			[0..1]	(cls(L:CL),+authority(S30),+org(S30))
<a href="#">ClsReason</a>			[0..1]	(cls(L:CL))
<a href="#">ClsDerived</a>			[0..n]	(cls(L:CL),+date(D),+title(S30),+org(S30))
<a href="#">Downgrade</a>			[0..3]	(cls(L:CL),+downCls(L:CL),+date(D))
<a href="#">Decls</a>			(S20)	(cls(L:CL),+type(S10+P),date(D))
<a href="#">Handling</a>			(S1+P)	(cls(L:CL))
<a href="#">ReleasableTo</a>			(S4)	(cls(L:CL))
<a href="#">EffDate</a>			(DT)	(cls(L:CL))
<a href="#">Expire</a>			(DT)	(cls(L:CL))
<a href="#">Review</a>			(DT)	(cls(L:CL))
<a href="#">Project</a>			(S)	(cls(L:CL),+type(S1+P),+name(S30))
<a href="#">OrganisationRef</a>			[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">Address</a>			[0..1]	(cls(L:CL),street(S50),cityArea(S50),state(S50),postCode(S10),+country(L:AO))
<a href="#">TelephoneFax</a>			(S20+P)	(cls(L:CL),system(S20),countryCode(UI3),+numType(L:TT))
<a href="#">Email</a>			(S60)	(cls(L:CL),system(S20),emailCls(L:CL),+emailType(L:TE))
<a href="#">Remarks</a>			(S)	(cls(L:CL))

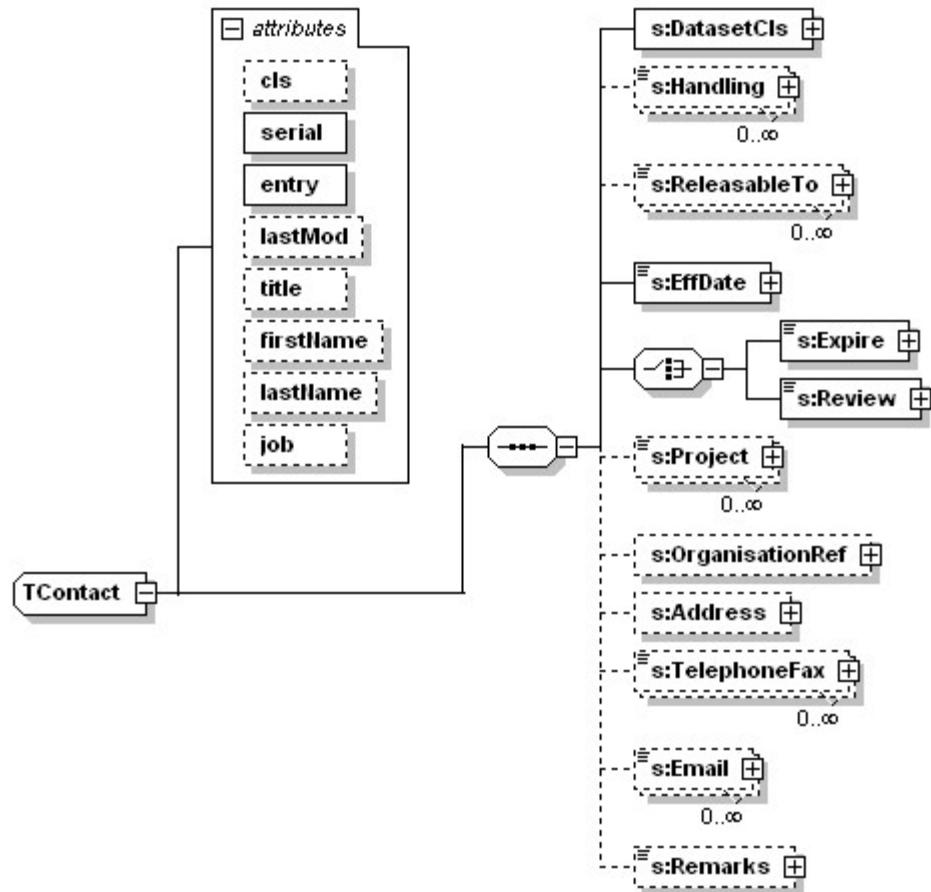


Figure II-5e: Element Contact

element name	national	content	occ	attributes
<a href="#">Role</a>			[0..n]	(cls(L:CL),+serial(S28+P),+entry(D),lastMod(DT),+name(S50))
<a href="#">DatasetCls</a>			[1..1]	(+overallCls(L:CL))
<a href="#">ClsOrigin</a>			[0..1]	(cls(L:CL),+authority(S30),+org(S30))
<a href="#">ClsReason</a>			[0..1]	(cls(L:CL))
<a href="#">ClsDerived</a>			[0..n]	(cls(L:CL),+date(D),+title(S30),+org(S30))
<a href="#">Downgrade</a>			[0..3]	(cls(L:CL),+downCls(L:CL),+date(D))
<a href="#">Decls</a>			[0..1]	(cls(L:CL),+type(S10+P),date(D))
<a href="#">Handling</a>			[0..n]	(cls(L:CL))
<a href="#">ReleasableTo</a>			[S4]	(cls(L:CL))
<a href="#">EffDate</a>			(DT)	[1..1] (cls(L:CL))
<a href="#">Expire</a>			(DT)	[1..1] (cls(L:CL))
<a href="#">Review</a>			(DT)	[1..1] (cls(L:CL))
<a href="#">Project</a>			(S)	[0..n] (cls(L:CL),+type(S1+P),+name(S30)) (cls(L:CL),street(S50),cityArea(S50),state(S50),postCode(S10),+country(L:AO))
<a href="#">Address</a>			[0..1]	(cls(L:CL))
<a href="#">TelephoneFax</a>			[0..n]	(cls(L:CL),system(S20),countryCode(U13),+numType(L:TT))
<a href="#">Email</a>			[0..n]	(cls(L:CL),system(S20),emailCls(L:CL),+emailType(L:TE))
<a href="#">OrganisationRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">ContactRef</a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#">Remarks</a>			(S)	[0..n] (cls(L:CL))

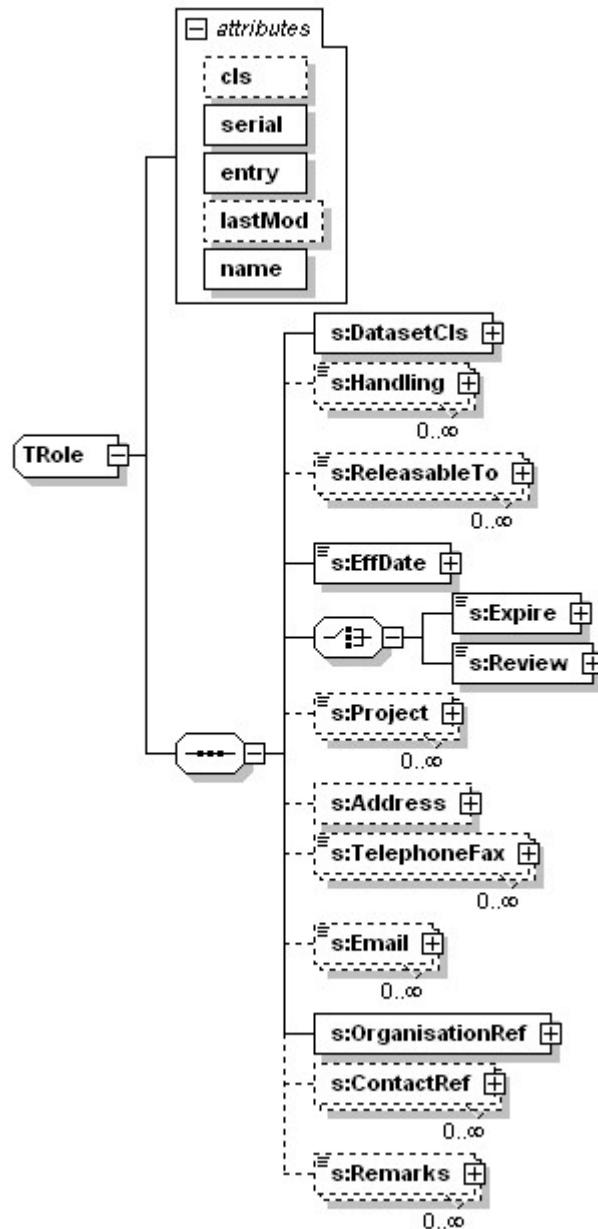


Figure II-5f: Element Role

## Administrative

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Reason for Request	reason	Required	C6 Uppercase
External References Required	external	Required	C1 Uppercase
<b>Sub-Element Of</b>	<u>Body</u>		
<b>Sub-elements</b>	<u>Compartment [0..n]</u> , <u>ContactOrgRef [1..n]</u> , <u>(choice between Dataset [0..n], MessageRef [0..1])</u> , <u>ExtRef [0..n]</u> , <u>Remarks [0..n]</u> , <u>Title [0..1]</u>		
<b>Referenced By</b>	<u>AdministrativeRef</u>		

## Description

Data element Administrative has several usages:

- It can be used to request datasets from another data repository;
- It can also be used to reject an incoming dataset which cannot be validated against the local repository, for example if it refers to unknown datasets;
- Finally, it can be used to set up an Area of Interest (AOI) where data is forwarded to or pulled by a user to maintain a data repository needed by the user to meet mission requirements.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **serial**, the identifier of this Administrative dataset.
- In **reason**, one of the codes from Code List Category DR:

### Code List Category DR:

Short Code	Definition
<b>ACCEPT</b>	This Administrative dataset provides positive answer to an AsgnAllot in COORDINATION.
<b>AOI</b>	This is a request to create a recurring query for data within an Area Of Interest.
<b>CRDCMT</b>	This Administrative dataset provides answer, with comments, to an AsgnAllot sent for COORDINATION.
<b>INVMSG</b>	An invalid message was received; another Administrative dataset should request the missing datasets.
<b>MISREF</b>	The referenced dataset has been rejected because of missing cross-references.
<b>QUERY</b>	This is a request for information; sub-element Remarks contains the criteria.
<b>RECALL</b>	The referenced dataset is being recalled.
<b>REJECT</b>	The received dataset does not fulfill the requirement.
<b>UNSUP</b>	The referenced dataset is not supported by the system.

- In **external**, one of the codes from Code List Category BO; in this list "Y" means that all datasets necessary to guarantee the referential integrity of the data must be transmitted also; "N" means that only the requested datasets must be transmitted. For example, a request for an SSRequest

with external="Y" would require the transmission of the SSRequest and the linked TxRx and Antenna datasets.

### Code List Category BO:

Short Code	Definition
Y	Yes
N	No

Use as many Dataset sub-elements as required.

### Validation Rules

- [XSD] The attribute **reason** MUST use one of the codes from Code List Category DR.
- [XSD] The attribute **external** MUST use one of the codes from Code List Category BO.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**DR**".
- [XSL ERR AD005] Sub-element MessageRef MUST be used if reason="**INVMSG**".

### Examples

*Example of a data request, also requesting all referenced data sets:*

```
<Administrative serial="USA:JSC:DR:123" reason="QUERY" external="Y">
  <...>
</Administrative>
```

### Notes

- In the case of an [AsgnAllot](#), users should make a clear distinction between a denial to assign because of insufficient spectrum resource (in this case, send back the AsgnAllot dataset with an element [Rejected](#) within the Link(s)), and a technically invalid dataset which does not contain some necessary elements (in this case only, use the Administrative dataset).
- The owner of the data does not necessarily have to provide the requested datasets. If some or all of the datasets cannot be provided, dataset [Response](#) SHOULD be used to provide the requester the reason for denying his request.

### Code

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Code Category (Composite Primary Key)	cat	Required	C2 Uppercase
Short Code (Composite Primary Key)	shortCode	Required	C40
Source Country	origin	Required	C4 Uppercase
Code	Element Content	Required	Memo
Sub-Element Of	<a href="#">Codes</a>		

### Description

Data element Code contains the information necessary to create or modify a code entry in lists of codes of [Annex G](#). The Code Category contains a coded entry designating the list in which the entry belongs. The value of code is the recommended code and the element is the description of the code.

## ***Input Requirement***

This element is OPTIONAL and repeatable under element [Codes](#).

Enter:

- In **cat**, the two-letter category code from the Code List Category LU (see also [table G-1](#)). The code identifies the Code List Category to which a proposed code would be added or an existing code definition would be modified.

### ***Code List Category LU:***

Short Code	Definition
<a href="#">AG</a>	Agency (element <a href="#">Organisation</a> )
<a href="#">AM</a>	Antenna Mode (element <a href="#">AntMode</a> )
<a href="#">AS</a>	Antenna Scan (elements <a href="#">HorzScan</a> , <a href="#">VertScan</a> )
<a href="#">AT</a>	Antenna Type (element <a href="#">AntType</a> )
<a href="#">BD</a>	Beam Type (element <a href="#">Beamwidth</a> )
<a href="#">EF</a>	Equipment Function (element <a href="#">EqpFnct</a> )
<a href="#">ET</a>	Force Element Type (*)
<a href="#">MA</a>	Manufacturer (element <a href="#">Manufacturer</a> )
<a href="#">NO</a>	Note (element <a href="#">Note</a> )
<a href="#">RS</a>	Reflector Shape (element <a href="#">Dimension</a> )

(\*) Force element codes will be implemented during volume 3 development.

- In **shortCode**, the unique short code entry within the category, as shown in [table G-1](#). This attribute MUST be used if the category allows it. It MUST NOT be used if the category does not allow it.
- In **origin**, a country or organization code from [Code List Category AO](#).
- In the **element content**, the long text name of the code or a brief description of the entry to be created or modified. See the examples for a long text name and code description respectively.

## ***Validation Rules***

- [XSD] The attribute **cat** MUST use one of the codes from Code List Category LU.
- [XSD] The attribute **origin** MUST use one of the codes from Code List Category AO.

## ***Example***

(See also example at [Annex G](#)).

```
<Code cat="AG" shortCode="AR" origin="NATO">ARMY</Code>
```

```
<Code cat="NO" shortCode="L002" origin="USA">Restricted to (daytime, nighttime, or indicated hours of operation.) Wherever used herein the term daytime means from two hours after local sunrise until two hours before local sunset. The term nighttime only means from two hours prior to local sunset until two hours after local sunrise at (a) specified point(s). Local time at transmitter is applicable unless otherwise specified.</Code>
```

## Codes

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	Body		
Sub-elements	<a href="#">Code [1..n]</a> , <a href="#">Compartment [0..n]</a> , <a href="#">ContactOrgRef [1..n]</a> , <a href="#">Remarks [0..n]</a>		

### Description

This element is used as a top-level element to submit new codes in the expandable code lists described at [Annex G](#).

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **serial**, the identifier of the Codes submission. This identifier may be used later to refer to the submission, especially in case of a rejection by the SO PWG.

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[CD](#)".

### Example

An example is available at [Annex G](#).

## Contact

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Reference	serial	Required	see <a href="#">paragraph 1.5</a>
Contact Title	title	Optional	C10
First Name	firstName	Optional	C30
Last Name	lastName	Optional	C30
Job Title	job	Optional	C50
Date of Entry	entry	Required	<a href="#">Date</a>
Latest Modification Date/ Time	lastMod	Optional	<a href="#">DateTime</a>
Sub-Element Of	Body		
Sub-Elements	<a href="#">Address [0..1]</a> , <a href="#">Compartment [0..n]</a> , <a href="#">DatasetCls [1..1]</a> , <a href="#">EffDate [1..1]</a> , <a href="#">(choice between Expire [1..1], Review [1..1])</a> , <a href="#">EMail [0..n]</a> , <a href="#">Handling [0..n]</a> , <a href="#">OrganisationRef [0..n]</a> , <a href="#">Project [0..n]</a> , <a href="#">ReleasableTo [0..n]</a> , <a href="#">Remarks [0..n]</a> , <a href="#">TelephoneFax [0..n]</a>		
Referenced By	<a href="#">ContactRef</a>		

### Description

This element is the XML root for all parameters of a Contact (individual using the system or being referenced in the system).

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- See [paragraph 1.4](#) for an explanation of the usage of attribute **cls** and sub-element [DatasetCls](#).
- See [paragraph 1.5](#) for attribute **serial**.
- In **title**, the contact title or rank e.g. Ms, Col, etc.
- In **firstName** and **lastName**, the name of the contact individual.
- In **job**, the position of the contact individual.
- In **entry**, the date the dataset was initially entered into the data repository (e.g. FRRS for USA, SMIR for NATO).
- In **lastMod**, the date/time a dataset or proposal was last modified.

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[CN](#)".

### Example

```
<Contact serial="USA:AF:CN:123" title="MAJ" firstName="SCOTT"
lastName="COLLINS" job="USAF Frequency Manager"
entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
<... sub-elements ...>
</Contact>
```

## Dataset

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<a href="#">Deletion, Administrative</a>		
<b>Sub-Elements</b>	<a href="#">Reason [0..1]</a>		

## Description

Data element Dataset is used within a Deletion or an Administrative transaction to specify the identifier of the dataset on which the action must apply.

## Input Requirement

This element is REQUIRED and repeatable under element Deletion. It is OPTIONAL and repeatable under element Administrative.

Enter:

- In **serial**, the unique reference of the dataset being requested or to be deleted.

## Validation Rules

None

## Example

```
<Dataset serial="TUR:MOD:AS:0500001" />
```

## Deletion

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Origin of the deletion	origin	Required	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-elements</b>	<a href="#">Dataset [1..n], Reason [0..1]</a>		

## Description

Data element Deletion is used to delete any dataset from the data repository.

## Input Requirement

This element is OPTIONAL and repeatable.

Use as many Dataset sub-elements as datasets to be deleted.

Enter:

- In **serial**, the identifier of the Deletion.
- In **origin**, the reason of the deletion or request, using one of the following codes:

### Code List Category DE:

Short Code	Definition
D	The Delete transaction was submitted by a user.
E	The record Expiration date passed and the record was not reviewed or updated; therefore the dataset was expired from the active data repository by an approving authority.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**DE**".

## Examples

Example of an AsgnAllot dataset being deleted by a user:

```
<Deletion serial="USA:AR:DE:123" origin="D">
    <Dataset serial="TUR:MOD:AS:123/2"/>
</Deletion>
```

Example of a series of datasets being deleted from a data repository because they expired:

```
<Deletion serial="USA:NTIA:DE:123" origin="E">
    <Dataset serial="USA:AF:AS:0500001"/>
    <Dataset serial="USA:AF:AS:0500002"/>
    <Dataset serial="USA:AF:AS:0500003"/>
</Deletion>
```

## EMail

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
System	system	Optional	C20
Email Classification Level	emailCls	Optional	C1 Uppercase
Email Type	emailType	Required	C5 Uppercase
Email Address	Element Content	Required	C50
Sub-Element Of	Contact, Role		

## Description

This element contains the email address of the contact.

## Input Requirement

This element is OPTIONAL and repeatable under element Contact.

Enter:

- In **system**, the name of the network on which this email address is located (e.g. SIPRNET, NSWAN). Use "**INTERNET**" for the normal World Wide Web.
- In **emailCls**, the highest classification that can be used for the email address. Use a code from Code List Category CL:

### Code List Category CL:

Short Code	Definition
U	Unclassified
R	Restricted
C	Confidential
S	Secret
T	Top Secret

*Note for the USA: The letter "R" MUST NOT be used in USA created datasets.*

- In **emailType**, a type of e-mail address, using a code from Code List Category TE:

### Code List Category TE:

Short Code	Definition
INTS	Multi-national Secure
NATS	National Secure
NATO	NATO Secure
NATU	National non-secure
OTHER	Other cases not covered above.
WEB	Open Internet

- In **element content**, the e-mail address for the contact.

## Validation Rules

None

## Example

```
<email system="INTERNET" emailCls="U" emailType="WEB">john.doe@abc.com</email>
```

## Organisation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Reference	serial	Required	see <a href="#">paragraph 1.5</a>
Type of Organisation	type	Optional	C3 Uppercase
Country	country	Required	C4 Uppercase
Organisation Code	orgCode	Required	C4 Uppercase
Organisation Name	name	Optional	C100
Date of Entry	entry	Required	<a href="#">Date</a>
Latest Modification Date/Time	lastMod	Optional	<a href="#">DateTime</a>
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-Elements</b>	Compartment [0..n], <a href="#">DatasetCls</a> [1..1], <a href="#">EffDate</a> [1..1], ( <b>choice between</b> <a href="#">Expire</a> [1..1] <b>and</b> <a href="#">Review</a> [1..1]), <a href="#">Handling</a> [0..n], <a href="#">Project</a> [0..n], <a href="#">RelatedOrg</a> [0..n], <a href="#">ReleasableTo</a> [0..n], <a href="#">Remarks</a> [0..n], <a href="#">Title</a> [0..n]		
<b>Referenced By</b>	<a href="#">OrganisationRef</a>		

## Description

This element is the XML root for all parameters of an Organisation (service, agency, manufacturer, etc using the system or being referenced in the system). It contains:

- The organization Code which is used in all identifiers for datasets created by this organization.
- The organization full name in the native language of the nation to whom belong the organization.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- See [paragraph 1.4](#) for an explanation of the usage of attribute **cls** and sub-element [DatasetCls](#).
- See [paragraph 1.5](#) for attribute **serial**.
- In **type**, the type of organization. Use a code from Code List Category TO; If OTH is used, a justification SHOULD be inserted using the sub-element Remarks.

### Code List Category TO:

#### Short Code      Definition

CIV	Civilian or Commercial
MIL	Military (not to be used by USA - USA use GOV)
GEN	Generic
GOV	Government
PN	Part Number
OTH	Other - See remarks

- In **country**, the country of the organization. Use a one to four alphabetic characters representing either an ITU country code or a NATO Command code, as listed in [Annex F](#).
- In **orgCode**, the agency abbreviated code as appropriate. This code, together with the country

code, MUST be unique as they will form part of the unique dataset identifiers for all datasets created by this organization. The USA will use a code from the list in [Annex G \(Code List Category AG\)](#).

- In **name**, the full name of the organization in the native language of the nation to whom belong the organization. If this full name has also translations in other languages, use sub-element Title to add the translated names.
- In **entry**, the date the dataset was initially entered into the data repository (e.g. FRRS for USA, SMIR for NATO).
- In **lastMod**, the date/time a dataset or proposal was last modified.

## Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category TO.
- [XSD] The attribute **country** MUST use one of the codes from Code List Category AO.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**OR**".

## Notes on Organisational Information

Data elements [Organisation](#), [Contact](#) and [UserCode](#) serve two major purposes: (1) As applicable, they identify the frequency management chain responsible for managing the dataset and the organizations having an area interest in the assignment area, and (2) they are also used for the selection and distribution of datasets. These data elements are especially important when assignments are needed promptly to meet mission requirements.

Most datasets have a spectrum management chain of command, from the service headquarters or Unified Command down to the operating Force Element. If logically and consistently entered into the datasets, the data concerning the organizations in the spectrum management chain can be used to select and sort datasets in the manner most efficient for use by each management level in the chain. Each organizational level, from the top down, to and including operating Force Elements, must enter its data the same way each time. Although some higher level data entries are standardised by the service or Unified Command, at the operating Force Element level they are frequently not standardised. Therefore, all spectrum management levels should ensure the consistency of the data being entered by those elements subordinate to them. Where organizational data content has not been specified by a higher authority, operating Force Elements can develop their own, but they must be consistent when making data entries in subsequent transactions. Previous variations in organizational data are being "cleaned up" and a periodic review system has been established to maintain data item consistency.

## Examples

```
<Organisation serial="USA:AF:OR:123" country="USA" orgCode="AF"
  entry="2004-05-20" lastMod="2006-11-05T12:30:00Z" name="ACC"/>
<Organisation serial="USA:AR:OR:124" country="USA" orgCode="AR"
  entry="2004-05-20" lastMod="2006-11-05T12:30:00Z" name="NCR"/>
```

## Quantity

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Authorized Number	authorised	Optional	UN5
Available Number	available	Optional	UN5
<b>Sub-Element Of</b>	<a href="#">RelatedOrg</a> , <a href="#">FEAntenna</a> , <a href="#">FETxRx</a>		

### Description

Data element Quantity shows the numbers authorized and / or available.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **authorized**, the authorized quantity.
- In **available**, the available number. Available implies "operational" quantity.

### Validation Rules

None.

### Example

```
<Quantity authorized="10" available="4">
```

## Reason

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Reason	Element Content	Required	Memo
<b>Sub-Element Of</b>	<a href="#">Dataset</a> , <a href="#">Deletion</a> , <a href="#">Response</a>		

### Description

Data element Reason is used within a Deletion or a Dataset to specify the reason for the deletion or data request.

### Input Requirement

This element is OPTIONAL.

Enter any amplifying data that may be applicable to why the dataset is being requested or deleted.

## Validation Rules

None

### Example

```
<Reason>Airbase is closing.</Reason>
```

## RelatedOrg

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Relation Type	type	Required	C3 Uppercase
Relation	relation	Required	C1 Uppercase
Organisation Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<a href="#">ForceElement</a> , <a href="#">Organisation</a>		
<b>Sub-elements</b>	<a href="#">EffDate [0..1]</a> , <a href="#">Expire [0..1]</a> , <a href="#">Quantity [0..1]</a> , <a href="#">TimeFrame [0..1]</a>		

## Description

Data element RelatedOrg identifies an Organisation linked to the current Organisation, the type of relation (reporting, budget, etc) and the relation (parent, child, sibling).

## Input Requirement

This element is OPTIONAL and repeatable under Organisation and ForceElement.

Enter:

- In **serial**, the unique reference of the Organisation associated with the current Organisation.
- In **type**, the type of relationship using a code from Code List Category FT:

### Code List Category FT:

Short Code	Definition
RPT	Reporting
BDG	Budget
PLN	Plan ORBAT
REF	Reference ORBAT
REL	Related (not hierarchical)

- In **relation**, the relationship between the two organizations using a code from Code List Category FR:

### Code List Category FR:

Short Code	Definition
C	The referenced Organisation / Force Element is child of the current Organisation / Force Element
P	The referenced Organisation / Force Element is parent of the current Organisation / Force Element

<b>S</b>	The referenced Organisation / Force Element is a sibling of the current Organisation / Force Element
----------	--

## Validation Rules

[XSD] The attribute **type** MUST use one of the codes from the code list FT.

[XSD] The attribute **relation** MUST use one of the codes from the code list FR.

## Example

```
<RelatedOrg type="RPT" relation="C" serial="USA:AR:OR:05008827" />
```

## Response

Attribute	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-elements</b>	<a href="#">Dataset [0..n]</a> , <a href="#">Handling [0..n]</a> , <a href="#">Reason [0..1]</a> , <a href="#">ReleasableTo [0..n]</a> , <a href="#">AdministrativeRef [1..1]</a> , <a href="#">Status [1..n]</a>		

## Description

Data element Response is used to provide a free-text response to a [Administrative](#), when an answer cannot be provided in the form of one or more datasets.

## Input Requirement

This element is OPTIONAL and repeatable.

- Use the Reason to formulate the free-text answer if the reason to reject is common to all the datasets which cannot be provided;
- Else use Dataset if several datasets cannot be provided, each for different reasons.
- Use the [AdministrativeRef](#) to give the dataset identifier of the Administrative which motivated this Response transaction.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[DP](#)".
- [XSL ERR AD001] Element Reason MUST be present either under element Response or under each Dataset element.

## Example

The following example shows the reject of the French Army to transmit an AsgnAllot record requested by German Army:

```

<Response serial="F:AR:DP:456">
  <AdministrativeRef serial="D:AR:DR:123"/>
  <Dataset serial="F:AR:AS:200600123">
    <Reason>This data is not releasable to your nation</Reason>
  </Dataset>
</Response>

```

## Role

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Reference	serial	Required	see <a href="#">paragraph 1.5</a>
Account Name	name	Required	C50
Date of Entry	entry	Required	<a href="#">Date</a>
Latest Modification Date/Time	lastMod	Optional	<a href="#">DateTime</a>
Sub-Element Of	Body		
Sub-Elements	<a href="#">Address [0..1]</a> , <a href="#">ContactRef [0..n]</a> , <a href="#">DatasetCls [1..1]</a> , <a href="#">EffDate [1..1]</a> , <a href="#">(choice between Expire [1..1], Review [1..1])</a> , <a href="#">EMail [0..n]</a> , <a href="#">Handling [0..n]</a> , <a href="#">OrganisationRef [1..1]</a> , <a href="#">Project [0..n]</a> , <a href="#">ReleasableTo [0..n]</a> , <a href="#">Remarks [0..n]</a> , <a href="#">TelephoneFax [0..n]</a>		

## Description

This element is the XML root for all parameters of a Role (position or role representing an organizational user of the system; also known as Job Account in the USA).

## Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- See [paragraph 1.4](#) for an explanation of the usage of attribute **cls** and sub-element [DatasetCls](#).
- See [paragraph 1.5](#) for attribute **serial**.
- In **name**, the name of the Role. The name SHOULD be unique within the agency.
- In **entry**, the date the dataset was initially entered into the data repository (e.g. FRRS for USA, SMIR for NATO).
- In **lastMod**, the date/time a dataset or proposal was last modified.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[JA](#)".

## Example

```

<Role serial="USA:AF:JA:123" name="AETC PRIMARY INBOX"
  entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">

```

```

<OrganisationRef serial="USA:AF:OR:ABCD">
<ContactRef serial="USA:AF:CN:3456"/>
<ContactRef serial="USA:AF:CN:789A"/>
<ContactRef serial="USA:AF:CN:RYFG"/>
<ContactRef serial="USA:AF:CN:XYZ1"/>
<... other sub-elements ...>
</Role>

```

## TelephoneFax

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
System	system	Optional	C20
International Dialing Code	countryCode	Optional	C3 (digits only)
Number Type	numType	Required	C6 Uppercase
Telephone Number	Element Content	Required	C20
<b>Sub-Element Of</b>	<a href="#">Contact</a> , <a href="#">Role</a>		

### Description

Data element TelephoneFax reflects the telephone and/or telefax number(s) of the Contact.

### Input Requirement

This element is OPTIONAL and repeatable under element Contact.

Enter:

- In **system**, the name of the network on which this number can be dialled (e.g. DSN, IVSN, CORMORANT). Use "**PUBLIC**" for normal public telephone or GSM.
- In **countryCode**, the international dial code for the country (international prefix such as "00" or "+" MUST NOT be included in this item).
- In **numType**, the type of telephone or telefax number. Use a code from Code List Category TT:

#### Code List Category TT:

Short Code	Definition
FAXCIV	Civilian telefax number
FAXMIL	Military telefax number
FAXOTH	Other telefax numbers not covered above
TELCIV	Civilian telephone number
TELMIL	Military telephone number
TELOTH	Other telephone numbers not covered above

- In the **element content**, the area code and telephone/telefax number of individual or contact organization.

### Validation Rules

[XSD] **numType** MUST use a code from Code List Category TT.

### **Example**

```
<TelephoneFax countryCode="1" numType="TELCIV">2022813824</TelephoneFax>
```

## **6. Dataset References**

Data elements in this section are pointers to datasets defined in a datastore. They are used to relate the different top-level datasets (for example, to indicate which Location, TxRx and Antenna will be used in an AsgnAllot dataset).

### **AdministrativeRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Data request Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	Response		

### **Description**

Data element AdministrativeRef contains a reference identifying a [Administrative](#) dataset.

### **Input Requirement**

This element is REQUIRED.

The AdministrativeRef dataset is used in [Response](#), to refer to the Administrative dataset which triggered the answer.

Enter in **serial**, the unique identifier as shown in [paragraph 1.5](#), referring to an existing [Administrative](#) dataset.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[DR](#)".

### **Example**

```
<AdministrativeRef serial="D:AR:DR:123"/>
```

### **AntModeRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Antenna Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Antenna Mode Code	antMode	Optional	C4 (Leading zeros required)
Sub-Element Of	Config		

## Description

Data element AntModeRef contains references to the [Antenna](#) and its [mode](#), used to construct this [configuration](#).

## Input Requirement

This element is OPTIONAL.

Enter:

- in **serial**, the identifier of the related Antenna;
- in **antMode**, the unique code of an [AntMode](#) of the antenna.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[AN](#)".

## Example

```
<AntModeRef serial="USA:NTIA:AN:123" antMode="9001"/>
```

## AntStdRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Antenna Standard Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">AllocApp</a> , <a href="#">CoordSpec</a>		

## Description

This is a National element (used by: USA).

This element contains the dataset identifier referencing the antenna standard.

## Input Requirement

This element is OPTIONAL. It is repeatable only under AllocApp.

Enter in **serial** the identifier of an existing antenna standard (defined in an element [AntStd](#)).

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[RA](#)".

## Example

```
<AntStdRef serial="USA:NTIA:RA:123"/>
```

## AsgnAllotRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
AsgnAllot Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	AsgnAllot, JRFLEntry		

### Description

Data element AsgnAllotRef contains a reference identifying an AsgnAllot dataset.

### Input Requirement

This element is OPTIONAL. It is repeatable under AsgnAllot.

Enter:

- In **serial**, the unique reference of an existing [AsgnAllot](#) dataset;

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**AS**" or "**AL**".

### Example

```
<AsgnAllotRef serial="D:AR:AL:123"/>
```

### Note

When assignments are assigned from an allotment plan, an AsgnAllotRef entry of type "AL" SHOULD be created in each assignment, referring to an allotment dataset.

## BandAppRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Band Application Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	AllocApp		

### Description

This element contains the identifier referencing an [BandApplication](#).

### Input Requirement

This element is OPTIONAL.

Enter in **serial** the identifier of an application (defined in an element [BandApplication](#)).

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**RP**".

## Example

```
<BandAppRef serial="USA:NTIA:RP:123"/>
```

### BandUserRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Band User Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	AllocApp		

## Description

This element contains the dataset identifier of a referenced [BandUser](#) for a specific [FreqBand](#).

## Input Requirement

This element is OPTIONAL and repeatable.

Enter in **serial**, the identifier of the related user.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**RU**".

## Example

```
<BandUserRef serial="USA:NTIA:RU:123"/>
```

### ChnlPlanRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Channel Plan Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	AllocApp, CoordSpec		

## Description

This element contains the dataset identifier of a referenced [Channel Plan](#).

## Input Requirement

This element is OPTIONAL. It is repeatable under AllocApp.

Enter in **serial** the identifier of the related channel plan.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**RH**".

### **Example**

```
<ChnlPlanRef serial="USA:NTIA:RH:123" />
```

## ContactOrgRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type of Contact	type	Required	C8 Uppercase
Sub-Element Of	<a href="#">Codes</a> , <a href="#">Common</a> , <a href="#">Contract</a> , <a href="#">Administrative</a> , <a href="#">Station</a>		
Sub-Elements	(choice between <a href="#">ContactRef</a> [1..1], <a href="#">OrganisationRef</a> [1..1], and <a href="#">FERef</a> [1..1])		
Inherited By	<a href="#">ExternalSys</a>		

### **Description**

Data element ContactOrgRef contains references to a [Contact](#) or [Organisation](#) dataset, and the function of this contact/organization with regard to the current dataset.

### **Input Requirement**

This element is REQUIRED and repeatable under elements Codes, Common and Administrative. It is OPTIONAL and repeatable under element Station where it allows to indicate the station Controller and/or the station user.

Enter:

- In **type**, the function of the Contact within the current dataset. Use a code from Code List Category CR:

#### **Code List Category CR:**

Short Code	Definition
AU	Author of a document
AUTH	Authority for an exercise
COORD	Coordinating organization
FM	Frequency Manager (responsible for assignments)
GATEWAY	Point of contact for transactions between different organizational domains
LICENSEE	Licensee of the assignment
OTHER	Any other individual not listed in the categories above
OWNER	The owner of the dataset
PE	Project/System Engineer
PM	Project/System Manager
SM	Spectrum Manager (responsible for planning)
STNCTRL	Station Controller

<b>STOP</b>	Stop buzzer (individual authorized to immediately cease transmission in case of problem)
<b>SUPPLIER</b>	Provider of the equipment or the information
<b>USER</b>	User of the dataset

For Spectrum Supportability requests submit the name and contact phone numbers for the equipment project manager (PM) in the first occurrence and the project engineer (PE) in the second occurrence. For EW requests include the AUTH for the exercise, the FM for the assignment request, and the STOP contact information.

## Validation Rules

- [XSL ERR GE004] Any element inherited from [Common](#) MUST contain at least a ContactOrgRef with type="[GATEWAY](#)" or "[OWNER](#)"

## Example

```
<ContactOrgRef type="OWNER">
  <ContactRef serial="USA:AF:CN:123" />
</ContactOrgRef>
```

## ContactRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Contact Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<a href="#">ContactOrgRef</a> , <a href="#">Role</a>		

## Description

Data element ContactRef contains a reference to a [Contact](#) dataset.

## Input Requirement

This element is OPTIONAL under element ContactOrgRef.

Enter:

- In **serial**, the dataset identifier of the Contact.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[CN](#)".

## Example

See example in element [ContactOrgRef](#).

## CoordStdRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Coordination Standard Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	AllocApp		

### Description

This element contains the dataset identifier of a referenced coordination standard.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter in **serial**, the identifier of an existing coordination standard (defined in an element [CoordStd](#)).

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "RC".

### Example

```
<CoordStdRef serial="USA:NTIA:RC:123"/>
```

## CurveStdRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Curve Standard Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element of	AllocApp		

### Description

This is a National element (used by: USA).

This element contains the dataset identifier of a referenced curve standard.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter in **serial**, the identifier of an existing curve standard (defined in an element [CurveStd](#)).

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "RV".

## Examples

```
<CurveStdRef serial="USA:NTIA:RV:123"/>
```

### EmsMaskStdRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Emission Mask Standard Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	AllocApp		

## Description

This is a National element (used by: USA).

This element contains the dataset identifier of a referenced emission mask standard.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter in **serial**, the identifier of an existing emission mask standard (defined in an element [EmsMaskStd](#)).

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "RM".

## Example

```
<EmsMaskStdRef serial="USA:NTIA:RM:123"/>
```

### EmsStdRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Emission Standard Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	AllocApp, CoordSpec		

## Description

This element contains the dataset identifier of a referenced emission standard.

## Input Requirement

This element is OPTIONAL. It is repeatable under AllocApp.

Enter in **serial**, the identifier of an existing emission standard (defined in an element [EmsStd](#)).

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[RT](#)".

### **Example**

```
<EmsStdRef serial="USA:NTIA:RT:123"/>
```

## **IntfReportRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Interference Report Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<a href="#">IntfMitigation</a>		

### **Description**

This element contains the dataset identifier of a referenced [IntfReport](#) dataset.

### **Input Requirement**

This element is REQUIRED.

Enter in **serial**, the identifier of an existing interference report.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[IF](#)".

### **Example**

```
<IntfReportRef serial="USA:AR:IF:123"/>
```

## **LocationRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Location Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Radius	radius	Optional	UN4 (km)
Included / Excluded	cat	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">AllocApp</a> , <a href="#">BSMPlan</a> , <a href="#">CoordSpec</a> , <a href="#">DetectedIntf</a> , <a href="#">FEDeployment</a> , <a href="#">HostNationConstraints</a> , <a href="#">JRFLEntry</a> , <a href="#">LocationSet</a> , <a href="#">OpClearanceRequest</a> , <a href="#">SSRequest</a> , <a href="#">TOA</a>		
<b>Inherited By</b>	<a href="#">StationLoc</a>		

## Description

Data element LocationRef contains a reference identifying a Location or LocationSet dataset.

Specific usages of this element:

- In the case of a LocationSet, this element defines each individual location.
- In the case of a HostNationConstraints (in a SSReply), this element contains the authorized locations where operation of the equipment or system, subject of the spectrum supportability, is authorized or forbidden.
- In the case of a JRFLEntry (in a JRFL), this element defines the area of usage of the frequencies in this JRFL entry.

## Input Requirement

This element has different occurrence categories depending on its place. Check each parent.

Enter:

- In **serial**, the unique reference of an existing [Location](#) or [LocationSet](#) dataset;
- In **radius**, the radius associated with a Point Location to produce a circle.
- In **cat**, a code from Code List Category IE (default value = "[I](#)"):

### Code List Category IE:

Short Code	Definition
E	The point or area is Excluded
I	The point or area is Included

## Validation Rules

- [XSD] The attribute **cat** MUST use one of the codes from Code List Category IE.
- [XSL ERR LO006] Attribute **radius** MUST NOT be used if **serial** is not of type "[LT](#)".
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[LT](#)", "[LG](#)" or "[LA](#)".

## Example

```
<LocationRef serial="D:AR:LT:123" radius="50"/>
```

## MessageRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Message Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">Administrative</a>		

## Description

Data element MessageRef contains a reference identifying a [SSRF](#) message (through its [Msginfo.serial](#)). It is used in [Administrative](#), to refer to a complete message which was rejected.

## ***Input Requirement***

This element is OPTIONAL.

Enter in **serial**, the unique identifier as shown in [paragraph 1.5](#), referring to a [Msginfo.serial](#).

## ***Validation Rules***

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[MS](#)".

## ***Example***

```
<MessageRef serial="D:AR:MS:123" />
```

## **NoteRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Note Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
NoteRef	Element Content	Optional	Memo
<b>Sub-Element Of</b>	<a href="#">AllocApp</a> , <a href="#">AsgnAllot</a> , <a href="#">FreqBand</a>		

## ***Description***

Data element NoteRef contains a reference identifying the international or national Note(s) applicable to the frequency assignment or table of allocations. In some instances notes must be supported with additional information which is located in the element content.

## ***Input Requirement***

This element is OPTIONAL and repeatable.

Enter:

- In **serial**, the unique identifier for the note formatted as shown in [paragraph 1.5](#), referring to an existing [Note](#) dataset;
- Optionally in element content, the amplifying text associated with a national note requiring an amplifying comment.

## ***Validation Rules***

- The dataset identifiers for IRAC notes, to be used in elements [Note](#) and [NoteRef](#), MUST be:

```
<NoteRef serial="USA:IRAC:RN:Annn">
```

where Annn is the code of the note.

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**RN**".

## Examples

```
<NoteRef dsCserial="USA:IRAC:RN:L116"/>
```

```
<NoteRef dsCserial="USA:IRAC:RN:M003">WRCTV, WASHINGTON, DC, J SMITH (202  
841-5121</NoteRef>
```

## Notes

### For USA

Attribute source and the element data are not normally used in assignments.

### For NATO

Within assignments datasets ([AsgnAllot](#)), NATO should use code **P032** to express that the assignment has been made on a Non Interference Basis (NIB).

## OrganisationRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Organisation Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">Contact</a> , <a href="#">ContactOrgRef</a> , <a href="#">JRFLEntry</a> , <a href="#">Role</a>		

## Description

Data element OrganisationRef contains a reference to an [Organisation](#) dataset.

## Input Requirement

This element is OPTIONAL and repeatable under Contact, REQUIRED under ContactOrgRef and Role, and REQUIRED and repeatable under JRFLEntry.

Enter:

- In **serial**, the dataset identifier of the Organisation.

In the case of a JRFL, this element is used to indicate the owner of the information for the JRFL list as a whole.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**OR**".

## Example

See example in element [ContactOrgRef](#).

## RxStdRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Reception Standard Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">AllocApp</a> , <a href="#">CoordSpec</a>		

### Description

This is a National element (used by: USA).

This element contains the dataset identifier of a referenced reception standard.

### Input Requirement

This element is OPTIONAL. It is repeatable under AllocApp.

Enter in **serial**, the identifier of an existing reception standard (defined in an element [RxStd](#)).

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "RX".

### Example

```
<RxStdRef serial="USA:NTIA:RX:123" />
```

## SignalDescrModeRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Signal Description Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
TxRx Mode Name	modeName	Optional	C40 Uppercase
Tx Mode Name	txMode	Optional	C40 Uppercase
Rx Mode Name	rxMode	Optional	C40 Uppercase
Sub-Element Of	<a href="#">Config</a>		

### Description

Data element SignalDescrModeRef contains references to the Signal Description and its [modes](#), used to construct this [configuration](#).

### Input Requirement

The SignalDescrModeRef dataset is OPTIONAL under [Config](#). It is used when spectrum supportability is accomplished using the proposed new procedure (see [CONOPS paragraph 2.5.3](#)).

Enter:

- in **serial**, the identifier of the related [SignalDescr](#);
- in **modeName**, the unique name of a [TxRxMode](#) of the SignalDescr;
- in **txMode**, the unique name of the transmitted signal [SignalTx](#);
- in **rxMode**, the unique name of the transmitted signal [SignalRx](#).

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[SD](#)".
- [XSL ERR ID002] **modeName** MUST be used if **txMode** or **rxMode** is used.

### **Example**

```
<SignalDescrModeRef serial="D:AR:SD:123" modeName="CLEAR VOICE"
txMode="HIGH POWER"/>
```

## **SignalDescrRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Signal Description Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	TxRx		

### **Description**

Data element SignalDescrRef contains a reference identifying a Signal Description dataset.

### **Input Requirement**

The SignalDescrRef dataset is OPTIONAL and repeatable under [TxRx](#), and used when spectrum supportability is accomplished using the proposed new procedure (see [CONOPS paragraph 2.5.3](#)).

Enter in **serial**, the unique identifier as shown in [paragraph 1.5](#), referring to an existing [SignalDescr](#) dataset.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[SD](#)".

### **Example**

```
<SignalDescrRef serial="D:AR:SD:123"/>
```

## SSRequestRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
SSRequest Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Dependency Type	type	Required	C3 Uppercase
<b>Sub-Element Of</b>	<a href="#">AsgnAllot</a> , <a href="#">SSReply</a> , <a href="#">SSRequest</a>		

### Description

This element contains the dataset identifier of a [SSRequest](#) with which the current dataset has a dependency.

### Input Requirement

This element is OPTIONAL and repeatable, except under SSReply where it is REQUIRED.

Enter in **serial**, the identifier of the referenced SSRequest.

Enter in **type**, the type of dependency between the current dataset and the referred SSRequest.  
Use a code from Code List Category DD:

#### Code List Category DD:

Short Code	Definition
DEP	Dependant Dataset (e.g. in AsgnAllot or SSRequest, one system cannot operate without the other)
REL	Related Dataset (e.g. in AsgnAllot or SSRequest, each system may still operate without the related system)
REQ	The current SSReply is an answer to the referenced SSRequest.
SUP	Superseded Dataset

### Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category DD.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[SR](#)".

### Example

```
<SSRequestRef serial="USA:NTIA:SR:123" type="REQ" />
```

## TxRxModeRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Equipment Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
TxRx Mode Name	modeName	Optional	C40 Uppercase
Tx Mode Name	txMode	Optional	C40 Uppercase
Rx Mode Name	rxMode	Optional	C40 Uppercase
<b>Sub-Element Of</b>	<a href="#">Config</a> , <a href="#">OpClearanceRequest</a>		

### Description

Data element TxRxModeRef contains references to the [TxRx](#) and its [modes](#), used to construct this [configuration](#).

### Input Requirement

This element is REQUIRED.

Enter:

- in **serial**, the identifier of the related [TxRx](#);
- in **modeName**, the unique name of a [TxRxMode](#) of the equipment;
- in **txMode**, the unique name of a [TxMode](#) of the transmitter;
- in **rxMode**, the unique name of a [RxMode](#) of the receiver.

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "TR".
- [XSL ERR ID002] **modeName** MUST be used if **txMode** or **rxMode** is used.

### Example

```
<TxRxModeRef serial="USA:NTIA:TR:123" modeName="CLEAR VOICE" txMode="HIGH POWER" />
```

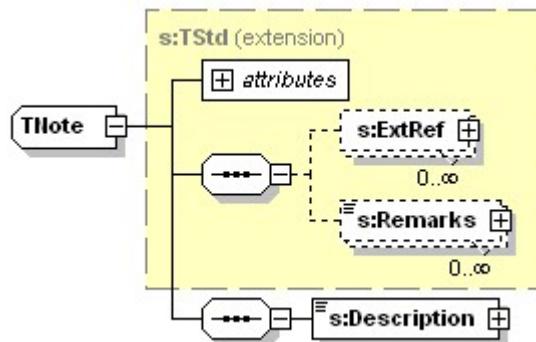
## 7. Reference Data

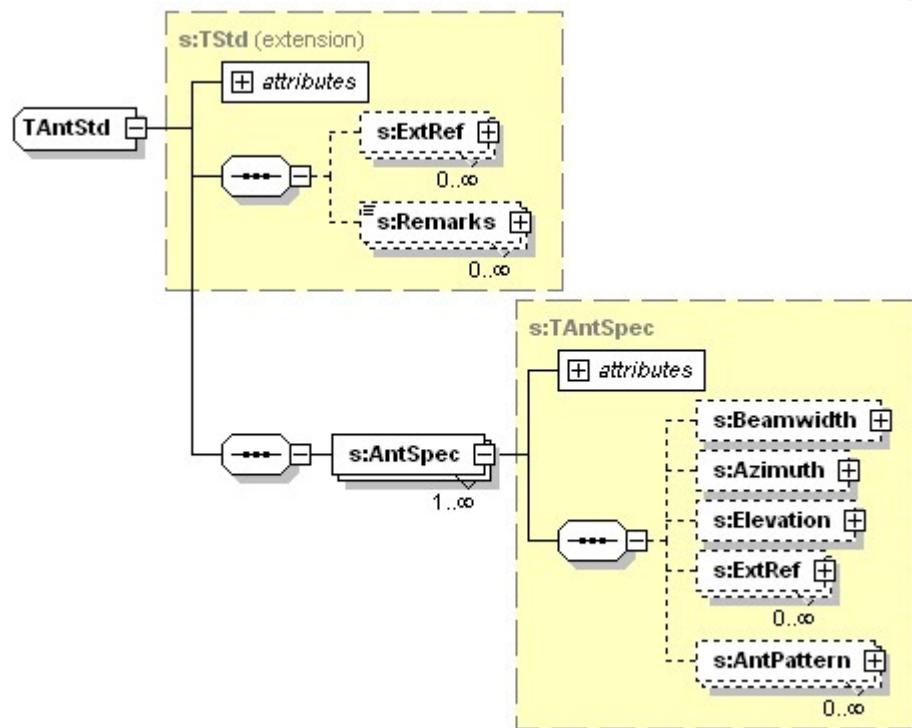
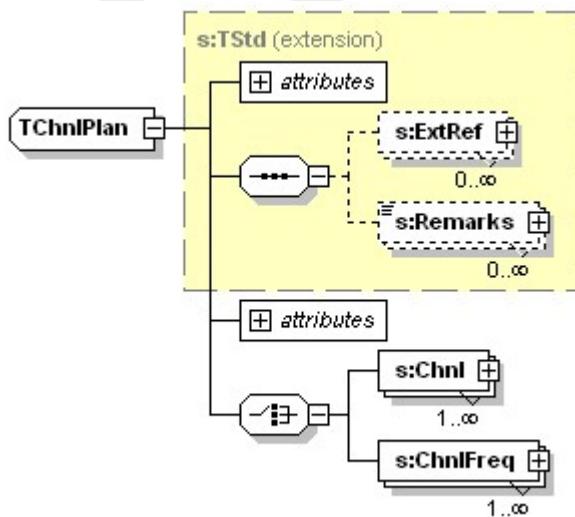
Reference data consists of data used within the spectrum management business area that support this business area. Examples include lists such as notes (national and international), applications, user lists, various standards, channel plans, and various code lists.

See [Annex L](#) for a description of the columns in the table below.

element name	national	content	occ	attributes
<a href="#">Note</a>			[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D))
<a href="#">Description</a>			[1..1]	(cls(L:CL))
<a href="#">BandUser</a>			[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D))
<a href="#">Description</a>			(S)	[0..1] (cls(L:CL))

<a href="#">BandApplication</a>		[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))
<a href="#">Description</a>	(S)	[0..1]	(cls(L:CL))
<a href="#">AntStd</a>	(USA)	[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))
<a href="#">AntSpec</a>	(USA)	[1..n]	(cls(L:CL),gain(SN6.2),diameter(SN6.2),directionality(UN5.2 [0..360]),polarization(S2),sidelobeAttenuation(SI6))
<a href="#">Beamwidth</a>		[0..1]	(cls(L:CL),minHorz(UN5.2 [0..360]),maxHorz(UN5.2 [0..360]),minVert(SN4.2 [-90..90]),maxVert(SN4.2 [-90..90]),beamType(S1+P))
<a href="#">Azimuth</a>		[0..1]	(cls(L:CL),+minAz(UN5.2 [0..360]),maxAz(UN5.2 [0..360]))
<a href="#">Elevation</a>		[0..1]	(cls(L:CL),+minElev(SN4.2 [-90..90]),maxElev(SN4.2 [-90..90]))
<a href="#">AntPattern</a>		[0..n]	(cls(L:CL),+code(L:AP),+origin(L:OR))
<a href="#">AntPatternPoint</a>		[1..n]	(cls(L:CL),+dir(UN5.2 [0..360]),+gain(SN5.2))
<a href="#">ChnlPlan</a>		[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D),relatedPlan(S20))
<a href="#">Chnl</a>		[1..n]	(cls(L:CL),name(S20))
<a href="#">ChnlFreq</a>		[1..n]	(cls(L:CL),+freq(UN16.6),name(S20))
<a href="#">ChnlFreq</a>		[1..n]	(cls(L:CL),+freq(UN16.6),name(S20))
<a href="#">CoordStd</a>		[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))
<a href="#">CoordSpec</a>		[1..n]	(cls(L:CL))
<a href="#">LocationRef</a>		[0..n]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#">ChnlPlanRef</a>		[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">AntStdRef</a>	(USA)	[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">EmsStdRef</a>		[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">RxStdRef</a>	(USA)	[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">CoordProcess</a>	(S)	[1..1]	(cls(L:CL))
<a href="#">CurveStd</a>	(USA)	[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D),EMFieldType(S50),orientation(S15),spec(S10))
<a href="#">CurveSpec</a>	(USA)	[1..n]	(cls(L:CL),xValue(SN9.2),yValue(SN5.2))
<a href="#">XAxis</a>	(USA)	[0..1]	(cls(L:CL),minAxis(SN5.2),maxAxis(SN5.2),units(S7))
<a href="#">YAxis</a>	(USA)	[0..1]	(cls(L:CL),minAxis(SN5.2),maxAxis(SN5.2),units(S7))
<a href="#">EmsMaskStd</a>	(USA)	[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D),curveType(L:CT))
<a href="#">EmsMaskSpec</a>	(USA)	[1..n]	(cls(L:CL),xLow(S20),xLowOp(L:OP),xVariable(S10),xHighOp(L:OP),xHigh(S20),yVariable(S10),severity(S7))
<a href="#">EmsStd</a>		[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))
<a href="#">EmsSpec</a>		[1..n]	(cls(L:CL),requiredMod(S4),authBW(UN16.6),chnlSpacing(UN16.6),duplexSeparation(UN16.6),tolerance(UN16.6),intermodAttenuation(UN5.2),txAttackTime(UN9.5),txReleaseTime(UN9.5))
<a href="#">EmsDesignator</a>		[0..1]	(cls(L:CL),+emsClass(S5+P),+bandwidth(S4+P))
<a href="#">EmsPowerLimit</a>		[0..n]	(cls(L:CL),dutyCycle(UN4.1),powerRefDist(UI5))
<a href="#">TimeFrame</a>		[0..1]	(cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">Elevation</a>		[0..1]	(cls(L:CL),+minElev(SN4.2 [-90..90]),maxElev(SN4.2 [-90..90]))
<a href="#">PowerLimit</a>		[0..1]	(cls(L:CL),limit(SN5.2),type(L:PT),criteria(L:OP))
<a href="#">EmsSpurious</a>		[0..n]	(cls(L:CL),mode(S24),type(S24),level(SN5.2))
<a href="#">RxStd</a>	(USA)	[0..n]	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))
<a href="#">RxSpec</a>	(USA)	[1..n]	(cls(L:CL),sensitivity(SN5.2),sensitivitytype(S24),selectivity(UN5.2),selectivityOffset(UN16.6),tolerance(UN12.6),intermodRejection(UN4.1))
<a href="#">RxSpurious</a>	(USA)	[0..n]	(cls(L:CL),rejection(UN5.2),separation(S24),radiationLimit(UN8.5),radiationType(S24))



**Figure II-7a****Figure II-7b****Figure II-7c**

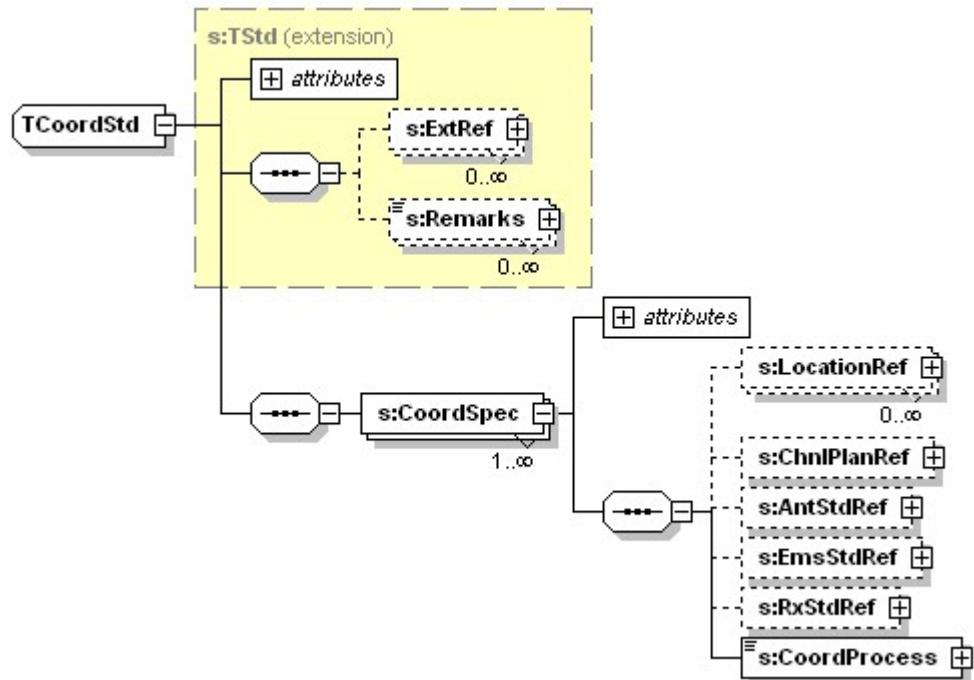


Figure II-7d

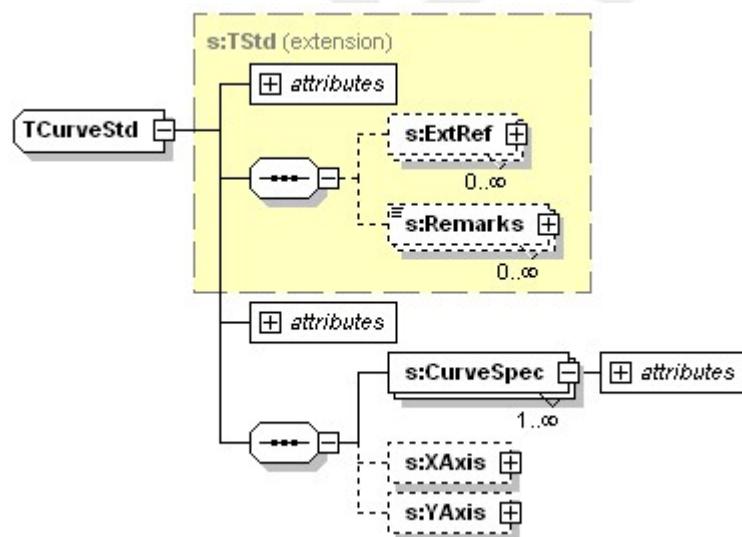


Figure II-7e

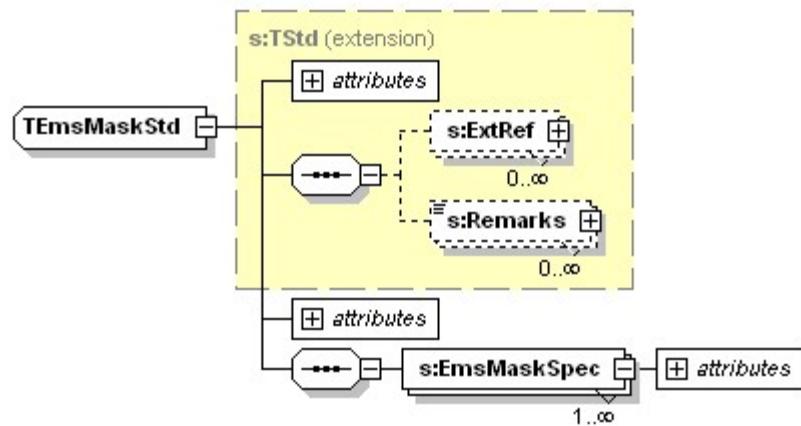


Figure II-7f

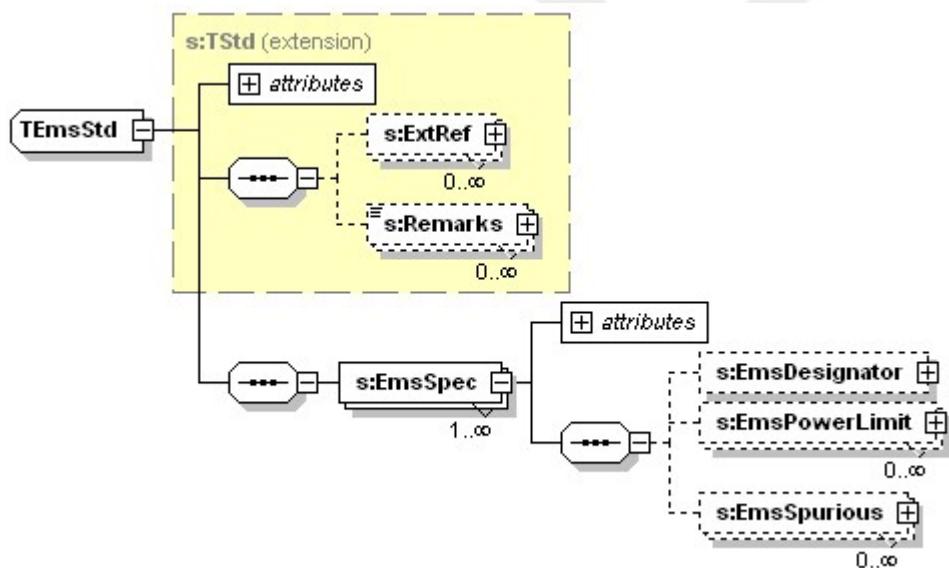


Figure II-7g

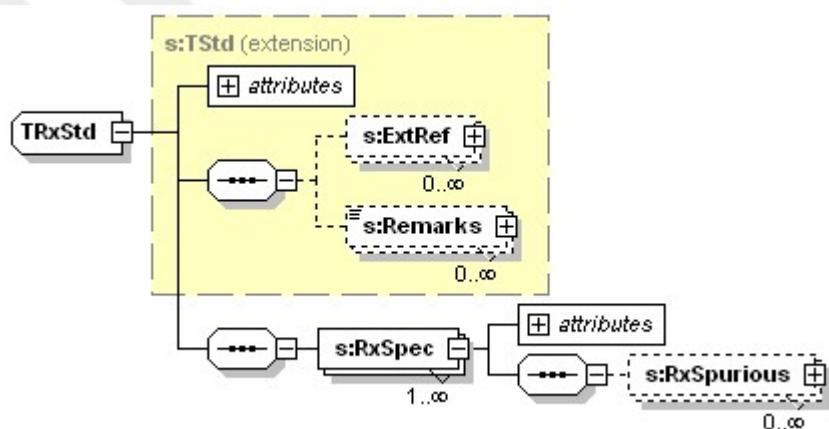


Figure II-7h

## AntSpec

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Gain	gain	Optional	SN6.2
Diameter	diameter	Optional	SN6.2
Polarization	polarisation	Optional	C2
Sidelobe Attenuation	sidelobeAttenuation	Optional	SN6
<b>Sub-Element of</b>	<u>AntStd</u>		
<b>Sub-elements</b>	<u>AntPattern [0..n]</u> , <u>Azimuth [0..1]</u> , <u>Beamwidth [0..1]</u> , <u>Elevation [0..1]</u>		

### Description

This is a National element (used by: USA).

This element describes a unique set of antenna specifications related to an antenna standard.

### Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **gain**, the ratio of the power required at the input of a loss-free reference isotropic antenna to the power supplied to the input of the given antenna to produce, in a given direction the same field strength at the same distance.
- In **diameter**, the diameter of the antenna in meters.
- In **polarisation**, the property that describes the orientation, i.e., time-varying direction and amplitude, of the electric field vector. Enter a code using [Code List Category PO](#).
- In **sidelobeAttenuation**, the minimum attenuation of the antenna's major sidelobes below antenna mainbeam value.

### Validation Rules

[XSD] The attribute **polarisation** MUST use one of the codes from Code List Category PO.

### Example

```
<AntSpec gain="16.6" diameter="3.4" polarisation="HV"
sidelobeAttenuation="5.3"/>
```

## AntStd

Inherits From	Std
Sub-Element of	Body
Sub-elements	<u>AntSpec [1..n]</u>

Referenced By

[AntStdRef](#)

## Description

This is a National element (used by: USA).

This element identifies the antenna standard.

## Input Requirement

This element is OPTIONAL and repeatable.

See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[RA](#)".

## Example

```
<AntStd serial="FIN:MOD:RA:123" name="EN300"
    source="Finish Communications Regulatory Association" admin="MOD">
    ...
</AntStd>
```

## BandApplication

Attribute name	Attribute tag	Occurrence	Format
Inherits from	<a href="#">Std</a>		
Sub-Element of	<a href="#">Body</a>		
Sub-elements	<a href="#">Description [0..1]</a>		
Referenced By	<a href="#">BandAppRef</a>		

## Description

This element contains an application that is applicable to a specific frequency band(s) within a Table of Allocation.

## Input Requirement

This element is OPTIONAL and repeatable.

- See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.
- Optionally, enter in element content, a detailed definition of the application.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**RP**".

### **Example**

```
<BandApplication serial="USA:DOD:RP:123" name="Wind Profiler"
source="USA" admin="DoD">
  <Description>Used for sensing wind shear in the vicinity of
airports</Description>
  <...other Std elements...>
</BandApplication>
```

### **Note**

Also see [BandAppRef](#).

## **BandUser**

Attribute name	Attribute tag	Occurrence	Format
Inherits from	<a href="#">Std</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-elements	<a href="#">Description [0..1]</a>		
Referenced By	<a href="#">BandUserRef</a>		

### **Description**

This element describes a specific user. References to this dataset are used in TOA to indicate which users are authorized to use a specific frequency band.

### **Input Requirement**

This element is OPTIONAL and repeatable.

See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.

Enter optionally in the element content, a detailed definition of the user.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**RU**".

### **Example**

```
<BandUser serial="USA:DOD:RU:123" source="USA" admin="DoD" name="Civil
Support Team">
  <Description>Mobile support teams deploying to support national
emergencies and natural disasters</Description>
  <...other Std elements...>
</BandUser>
```

## Chnl

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Channel Name	name	Optional	C20
Sub-Element Of	<a href="#">ChnlPlan</a>		
Sub-elements	<a href="#">ChnlFreq [1..n]</a>		

### Description

This element identifies the name of a channel within a channel plan.

### Input Requirement

This element is OPTIONAL and repeatable. Use either element Chnl or element [ChnlFreq](#) in a [ChnlPlan](#) dataset.

Enter in **name**, the name or number of the channel

### Validation Rules

None.

### Example

```
<Chnl name="Channel 2 (TV)">
  <ChnlFreq freq="768"/>
</Chnl>
```

## ChnlFreq

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Channel Frequency	freq	Required	F (MHz)
Channel Frequency Name	name	Optional	C20
Sub-Element Of	<a href="#">Chnl</a> , <a href="#">ChnlPlan</a>		

### Description

This element gives the frequency, and optionally the name or number, of a channel within a channel plan.

### Input Requirement

This element is REQUIRED and repeatable. Use either element ChnlPlan or element [ChnlFreq](#) in a ChnlPlan dataset.

Enter:

- In **freq**, the frequency of the channel;
- In **name**, the name or number of the channel.

## **Validation Rules**

None.

## **Example**

```
<ChnlFreq freq="1025" name="1X"/>
```

## **ChnlPlan**

Attribute name	Attribute tag	Occurrence	Format
Related Channel Plan	relatedPlan	Optional	C20
<b>Inherits From</b>	<a href="#">Std</a>		
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-elements</b>	<b>(choice between Chnl [1..n], ChnlFreq [1..n])</b>		
<b>Referenced By</b>	<a href="#">ChnlPlanRef</a>		

## **Description**

This element identifies a channel plan.

## **Input Requirement**

- This element is OPTIONAL and repeatable.
- See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.
- Optionally, enter in **relatedPlan**, the unique name of a related channel plan.

## **Validation Rules**

- [XSD] Either Chnl or ChnlFreq MUST appear under a ChnlPlan, but not both.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[RH](#)".

## **Example**

```
<ChnlPlan serial="USA:DOD:RH:123" name="M162-174"
           startDate="1987-09-01" stopDate="2017-12-31" relatedPlan="M162-174 AF">
    ...
</ChnlPlan>
```

## CoordProcess

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
CoordProcess	Element Content	Required	Memo
<b>Sub-Element Of</b>	<u>CoordSpec</u>		

### Description

This element contains the process to be followed and the expected outcome of a coordination requirement.

### Input Requirement

This element is REQUIRED under CoordSpec.

Enter a detailed description of the process to be followed and the expected outcome of a coordination requirement.

### Validation Rules

None

### Example

```
<CoordProcess>NTIA working with the Department of State will communicate
with the Canadian Ministry of Communications
and Canadian State Department to conclude an international agreement to
be implemented in both countries.</CoordProcess>
```

## CoordSpec

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u>CoordStd</u>		
<b>Sub-elements</b>	<u>AntStdRef [0..1]</u> , <u>ChnlPlanRef [0..1]</u> , <u>CoordProcess [1..1]</u> , <u>EmsStdRef [0..1]</u> , <u>LocationRef [0..n]</u> , <u>RxStdRef [0..1]</u>		

### Description

This element links CoordStd, AntStd, ChnlPlan, EmsStd, RxStd and identifies in the sub-element CoordProcess, the process to be followed and the expected outcome of a coordination requirement.

### Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In sub-element AntStdRef, the antenna dataset identifier applicable to the coordination information in CoordProcess.
- In sub-element ChnlPlanRef, the channel plan dataset identifier applicable to the coordination information in CoordProcess.
- In sub-element EmsStdRef, the transmitter standard dataset identifier applicable to the coordination information in CoordProcess.
- In sub-element RxStdRef, the receiver standard dataset identifier applicable to the coordination information in CoordProcess.

## Validation Rules

None

## Example

```
<CoordSpec>
    ...
</CoordSpec>
```

## CoordStd

Inherits From	<a href="#">Std</a>
Sub-Element Of	<a href="#">Body</a>
Sub-elements	<a href="#">CoordSpec [1..n]</a>
Referenced By	<a href="#">CoordStdRef</a>

## Description

This element contains the name and start / stop dates of the coordination requirement or agreement affecting the implementation of the Tables of Allocations.

## Input Requirement

This element is OPTIONAL and repeatable.

See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[RC](#)".

## Example

```
<CoordStd serial="BIH:MOD:RC:123" name="S5.96" source="BIH"
    admin="Communications Regulatory Agency for Bosnia and Herzegovina"
    startDate="2006-01-01">
    ...
</CoordStd>
```

</CoordStd>

## CurveSpec

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
X Coordinate Value	xValue	Optional	SN9.2
Y Coordinate Value	yValue	Optional	SN5.2
<b>Sub-Element Of</b>	<a href="#">CurveStd</a>		

### Description

This is a National element (used by: USA).

This element describes the X and Y coordinate values for a point on a Curve Standard.

### Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **xValue**, the X value of the x,y point pair.
- In **yValue**, the Y value of the x,y point pair

### Validation Rules

None

### Example

```
<CurveSpecification xValue="700" yValue="-3" />
```

## CurveStd

Attribute name	Attribute tag	Occurrence	Format
Electromagnetic Field Type	EMFieldType	Optional	C50
Orientation	orientation	Optional	C15
Specification	spec	Optional	C10
<b>Inherits From</b>	<a href="#">Std</a>		
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-elements</b>	<a href="#">CurveSpec [1..n], XAxis [0..1], YAxis [0..1]</a>		

### Description

This is a National element (used by: USA).

This element identifies the curve standard related to the table of allocations.

## ***Input Requirement***

This element is OPTIONAL and repeatable.

Enter:

- In **EMFieldType**, the specification of the EM field that the curve represents
- In **orientation**, a frame of reference for the curve. Select azimuth plane or elevation plane.
- In **spec**, the indication of curve being inclusive or exclusive. Select inclusive or exclusive.

## ***Validation Rules***

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**RV**".

## ***Example***

```
<CurveStd serial="USA:NTIA:RV:123" source="USA" EMFieldType="Magnetic
(dBmA)"
  orientation="Azimuth plane" spec="inclusive">
  ...
</CurveStd>
```

## **EmsMaskSpec**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
X Low	xLow	Optional	C20
X Low Op	xLowOp	Optional	C2 Uppercase
X Variable	xVariable	Optional	C10
X High Op	xHighOp	Optional	C2 Uppercase
X High	xHigh	Optional	C20
Y Variable	yVariable	Optional	C10
Severity	severity	Optional	C7
<b>Sub-Element Of</b>	<b>EmsMaskStd</b>		

## ***Description***

**This is a National element (used by: USA).**

This element describes the emission mask standard specifications. It contains:

- In **xLow**, the value or formula for the low end of the X value of the segment
- In **xLowOp**, the operator for the low end of the X value of the segment, usually < or <=
- In **xVariable**, the quantity that is displayed along the X axis of this standard curve
- In **xHighOp**, the operator for the high end of the X value of the segment

- In **xHigh**, the value or formula for the high end of the X value of this segment.
- In **yVariable**, the quantity that is displayed along the Y axis of this standard curve
- In **Severity**, the severity of the failure if record fails this segment of the standard curve,

## ***Input Requirement***

This element is REQUIRED and repeatable.

Enter:

- In **xLow**, the operator for the low end of the X value of the segment. The allowable symbols are bandwidth (BW), Frequency displacement (FreqTol), or a fixed constant. Displacements are in Hz.
- In **xLowOp**, the operator for the low end of the X value of the segment. Allowable symbols are bandwidth (BW), Frequency displacement (FreqTol), or a fixed constant. Use a code from Code List Category OP:

### ***Code List Category OP:***

Short Code	Definition
EQ	Equals
GE	Greater Than or Equals
GT	Greater Than
LE	Less Than or Equals
LT	Less Than

- In **xVariable**, the quantity that is displayed along the X axis of this standard curve. Use: Fd = frequency displacement, a = angle
- In **xHighOp**, the operator for the high end of the X value of the segment. Use a code from Code List Category OP.
- In **xHigh**, the value or formula for the high end of the X value of this segment.
- In **yOp**, the operator for the Y value of this segment. Use a code from Code List Category OP.
- In **yVariable**, the quantity that is displayed along the Y axis of this standard curve. The allowable symbols are: **Fd**, **BW**, **Power** (Watts) (Py), **FreqTol**, **Log()**, **Max()**, **Min()** or a fixed constant. Levels and Attenuation are in dB.
- In **Severity**, the severity of the failure if record fails this segment of the standard curve. Select **FAILURE**, **WARNING**, or **NOTE**.

## ***Validation Rules***

[XSD] The attributes **xLowOp**, **xHighOp** and **yOp** MUST use one of the codes from Code List Category OP.

## ***Example***

```
<EmsMaskSpec xLow="FreqTol" xLowOp="BW" xVariable="Fd" xHighOp="LE"
xHigh="100" yOp="LE" yVariable="Watts" severity="FAILURE"/>
```

## **EmsMaskStd**

Attribute name	Attribute tag	Occurrence	Format

Emission Mask Curve Type	curveType	Optional	C6 Uppercase
Inherits From	Std		
Sub-Element Of	Body		
Sub-elements	<a href="#">EmsMaskSpec [1..n]</a>		
Referenced By	<a href="#">EmsMaskStdRef</a>		

## Description

This is a National element (used by: USA).

This element identifies an emission mask standard, curve type and a date/time stamp.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **name**, the name of this emission mask standard
- In **curveType**, the list of the curve types that must be checked against this standard. Use an entry from Code List Category CT:

### Code List Category CT:

Short Code	Definition
BASE	Baseband
FILTER	External filter between TxRx and Antenna
GAIN	Gain of an antenna
IFSEL1	Receiver 1 <sup>st</sup> intermediate frequency selectivity
IFSEL2	Receiver 2 <sup>nd</sup> intermediate frequency selectivity
IFSEL3	Receiver 3 <sup>rd</sup> intermediate frequency selectivity
IFSEL4	Receiver 4 <sup>th</sup> intermediate frequency selectivity
IFSEL5	Receiver 5 <sup>th</sup> intermediate frequency selectivity
INTMOD	Intermodulation rejection
RFSEL	Receiver radio-frequency selectivity
RFSPCT	Transmitter RF spectrum
RXIMAG	Receiver image responses
RXRESP	Receiver spurious responses
TXHARM	Harmonics levels
TXSPUR	Spurious levels

## Validation Rules

- [XSD] The attribute **curveType** MUST use one of the codes from Code List Category CT.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "RM".

## Example

```
<EmsMaskStd serial="USA:NTIA:RM:123" source="USA"
  name="Direct Short Range Communications (DSRC)" curveType="RFSPCT">
  ... sub elements ...

```

</EmsMaskStd>

## EmsPowerLimit

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Duty Cycle	dutyCycle	Optional	UN4.1
Power Reference Distance	powerRefDist	Optional	UN5 (m)
<b>Sub-Element Of</b>	<a href="#">EmsSpec</a>		
<b>Sub-Elements</b>	<a href="#">Elevation [0..1]</a> , <a href="#">PowerLimit [0..1]</a> , <a href="#">TimeFrame [0..1]</a>		

### Description

This element describes the power limits and duty cycle for an emission standard specification.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **dutyCycle**, the maximum percent of time a transmitter may transmit
- In **powerRefDist**, the reference distance in metres of the power Limit

### Validation Rules

None

### Example

<EmsPowerLimit dutyCycle="10"/>

## EmsSpec

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Required Modulation	requiredMod	Optional	C4
Authorized Bandwidth	authBW	Optional	F (MHz)
Channel Spacing	chnlSpacing	Optional	F (MHz)
Duplex Frequency Separation	duplexSeparation	Optional	F (MHz)
Tolerance	tolerance	Optional	UN7.4 (ppm)
Intermodulation Attenuation	intermodAttenuation	Optional	UN5.2 (dB)
Transmitter Attack Time	txAttackTime	Optional	UN9.5 ( $\mu$ s)
Transmitter Release Time	txReleaseTime	Optional	UN9.5 ( $\mu$ s)
<b>Sub-Element Of</b>	<a href="#">EmsStd</a>		

<b>Sub-elements</b>	<u>EmsDesignator</u> [0..1], <u>EmsPowerLimit</u> [0..n], <u>EmsSpurious</u> [0..n]
---------------------	---

## Description

This element describes EMISSION standard specifications. It contains parameters about bandwidth, modulation, channelisation, and may refer to spectrum curves. It may also contain attack and release times. These are the times required for the transmitter to achieve an operational status from a stand-by status, and to achieve a stand-by status from an operational status.

## Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **requiredMod**, a mandated modulation
- In **authBW**, the maximum allowed bandwidth
- In **chnlSpacing**, the separation between channels in the absence of a formal channel plan
- In **duplexSeparation**, the separation between send and return signals at a site
- In **tolerance**, the maximum frequency drift allowed in a transmitter, in parts per million (ppm)
- In **intermodAttenuation**, the rejection in dB of spurious emissions involving the mixing of two or more signals
- In **txAttackTime**, the time (in microseconds) required for the transmitter to achieve an operational status from a stand-by status
- In **txReleaseTime**, the time (in microseconds) required for the transmitter to achieve a stand-by status from an operational status

## Validation Rules

None

## Example

```
<EmsSpec authBW="0.001" tolerance="10" txAttackTime="0.0011"
txReleaseTime="0.0034">
    ...
</EmsSpec>
```

## EmsSpurious

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Spurious Emission Mode	mode	Optional	C24
Spurious Emission Type	type	Optional	C24
Spurious Emission Level	level	Optional	SN5.2 (dBc)
<b>Sub-Element Of</b>	<u>EmsSpec</u>		

## Description

This element describes [spurious emissions](#) for each mode of specification. It contains the type, level and unit of measure of the spurious emissions.

## **Input Requirement**

This element is OPTIONAL and repeatable.

Enter:

- In **mode**, the equipment mode of specification
- In **type**, the method of the spurious emission
- In **level**, the specified maximum level of a spurious emission in dB referenced to the carrier power (dBc).

## **Validation Rules**

None

## **Example**

```
<EmsSpurious mode="Track" type="3d order" level="-85"/>
```

## EmsStd

Inherits From	<a href="#">Std</a>
Sub-Element Of	<a href="#">Body</a>
Sub-elements	<a href="#">EmsSpec [1..n]</a>
Referenced By	<a href="#">EmsStdRef</a>

## **Description**

This element identifies an emission standard.

## **Input Requirement**

This element is OPTIONAL and repeatable.

See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.

## **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[RT](#)".

## **Example**

```
<EmsStd serial="USA:NTIA:RT:123" source="USA">
```

```
... sub elements ...
</EmsStd>
```

## Note

Attribute name	Attribute tag	Occurrence	Format
Inherits from	<a href="#">Std</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-Elements	<a href="#">Description [1..1]</a>		
Referenced By	<a href="#">NoteRef</a>		

## Description

Data element Note defines an international or national note applicable to the frequency assignments or to the tables of allocations.

## Input Requirement

This element is OPTIONAL and repeatable.

See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.

Enter in **element content**, the text describing the note.

## Validation Rules

- Attribute name SHOULD use a code from [Code List Category NO in Annex G](#).
- The dataset identifiers for IRAC notes, to be used in elements Note and [NoteRef](#), MUST be:  

```
<Note serial="USA:IRAC:RN:Annn" source="USA">
```

 where Annn is the code of the note.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[RN](#)".

## Example

```
<Note serial="USA:IRAC:RN:S120" source="USA" admin="NTIA">
  <Description>Intermittent equipment tests</Description>
  <...other Std elements...>
</Note>
```

## Notes

The Code List Category NO is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## For USA

Attribute source and the element data are not normally used in assignments.

The five types of notes that may be entered in this element when it is used within a system of assignments dataset are: C (coordination), E (emission), L (limitation), M (minute), P (priority), and S (special).

### **For NATO**

Within assignment datasets ([AsgnAllot](#)), NATO should use code **P032** to express that the assignment has been made on a Non Interference Basis (NIB).

## **PowerLimit**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Power Limit	limit	Required	SN5.2 (dBW)
Power Limit Type	type	Optional	C1 Uppercase
Power Limit Criteria	criteria	Required	C2 Uppercase
<b>Sub-Element Of</b>	<b>EmsPowerLimit</b>		

### **Description**

This element describes the power limits for an emission standard specification.

### **Input Requirement**

This element is OPTIONAL.

Enter:

- In **limit**, the specification of a power limit in dBW.
- In **type**, the specification of the power type (peak, Carrier, Mean, PEP) extracted from Code List Category PT:

#### **Code List Category PT:**

Short Code	Definition
<b>C</b>	Carrier Power Use this for "N0N" and for "A3E" sound broadcasting service (Station Class "BC").
<b>M</b>	Mean Power (For all A/A & A/G/A). Use this for most AM emissions using unkeyed full carrier and all frequency modulated emissions. Typical emissions include A2A, A2B, A3C, A3E (less broadcasting service), A3F, A7B, AXX, F1B, F1C, F2B, F3E, F3F, F7B, FXX, H2A, H3E, and H7B.
<b>P</b>	Peak Envelope Power Use this for all pulsed equipment, C3F Television, and the following classes: A1A, A1B, A7B, B7B, B8C, B8E, BXX, C3F, G3E, J2B, J3E, J7B, JXX, K1B, K2B, K3E, K3F, L2B, M2B, M3E, P0N, PXX, R2B and R3C.
<b>X</b>	Use this entry for the submission of space data to the ITU. Enter an "X" if the maximum peak power and power density values are of type C8b.

- In **criteria**, the criteria of the specified power value. Use a code from Code List Category OP:

#### **Code List Category OP:**

Short Code	Definition
EQ	Equals
GE	Greater Than or Equals
GT	Greater Than
LE	Less Than or Equals
LT	Less Than

## Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category PT.
- [XSD] The attribute **criteria** MUST use one of the codes from Code List Category OP.

## Example

```
<PowerLimit limit="23" type="PEP" criteria="GT" timeOfDay="24"
dutyCycle="10"/>
```

## RxSpec

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sensitivity	sensitivity	Optional	SN5.2
Sensitivity Type	sensitivityType	Optional	C24
Selectivity	selectivity	Optional	UN5.2 (dB)
Selectivity Offset	selectivityOffset	Optional	F (MHz)
Tolerance	tolerance	Optional	UN12.6 (ppm)
Intermodulation Rejection	intermodRejection	Optional	UN4.1 (dB)
<b>Sub-Element Of</b>	<u>RxStd</u>		
<b>Sub-elements</b>	<u>RxSpurious [0..n]</u>		

## Description

This is a National element (used by: USA).

This element describes receiver standard specifications. It contains sensitivity, selectivity, and other receiver information.

## Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **sensitivity**, a basic measure of the minimum signal level required for acceptable receiver performance expressed in dB relative 1  $\mu$ V/m
- In **sensitivityType**, a frame of reference for the sensitivity specification.
- In **Selectivity**, the amount of attenuation at a specified frequency offset
- In **selectivityOffset**, the frequency offset from the carrier for a selectivity value

- In **tolerance**, the maximum permissible departure of the centre frequency of the IF passband from the desired centre frequency of the IF passband
- In **intermodRejection**, the minimum amount of rejection in dB to intermodulation products

## Validation Rules

None

### Example

```
<RxSpec sensitivity="-113.9" sensitivityType="10 dB SINAD"
selectivity="60.1" selectivityOffset="12.2" tolerance=".0001"
intermodRejection="83.1"/>
```

## RxSpurious

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Spurious Response Rejection	rejection	Optional	UN5.2 (dB)
Spurious Response Condition	separation	Optional	C24
Spurious Radiation Limit	radiationLimit	Optional	UN8.5 (watts)
Spurious Radiation Type	radiationType	Optional	C24
Sub-Element Of	<a href="#">RxSpec</a>		

## Description

This is a National element (used by: USA).

This element describes receiver standard specifications. It contains information about [spurious responses](#) and spurious radiations.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **rejection**, the response (in dB) to off tuned emissions
- In **separation**, the separation of the spurious response rejection criteria
- In **radiationLimit**, the limit (in Watts) on the amount of unintentional emissions
- In **radiationType**, The coupling mechanism of the spurious radiation. Select either Conducted or Radiated.

## Validation Rules

None

### **Example**

```
<RxSpurious rejection="63.1" separation="Two channels"
radiationLimit=".056" radiationType="Radiated"/>
```

## RxStd

Inherits From	<a href="#">Std</a>
Sub-Element Of	<a href="#">Body</a>
Sub-elements	<a href="#">RxSpec [1..n]</a>
Referenced By	<a href="#">RxStdRef</a>

### **Description**

This is a National element (used by: USA).

This element identifies the reception standard.

### **Input Requirement**

This element is OPTIONAL and repeatable.

See element [Std](#) for attributes **cls**, **serial**, **name**, **source**, **admin**, **start**, and **stop**.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "RX".

### **Example**

```
<RxStd serial="USA:NTIA:RX:EN609" name="EN609" start="2005-06-01"
expire="2020-12-31">
  ... sub elements ...
</RxStd>
```

## Std (abstract)

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Name	name	Optional	C200
Source Country/Organisation	source	Required	C4 Uppercase
Source Administration	admin	Optional	C100
Start Date	startDate	Optional	<a href="#">Date</a> (C10)

Stop Date	stopDate	Optional	<a href="#">Date</a> (C10)
Inherited By	<a href="#">AntStd</a> , <a href="#">BandApplication</a> , <a href="#">BandUser</a> , <a href="#">ChnlPlan</a> , <a href="#">CoordStd</a> , <a href="#">CurveStd</a> , <a href="#">EmsMaskStd</a> , <a href="#">EmsStd</a> , <a href="#">Note</a> , <a href="#">RxStd</a>		
Sub-Elements	<a href="#">Compartment</a> [0..n], <a href="#">ExtRef</a> [0..n], <a href="#">Remarks</a> [0..n]		

## Description

This is an abstract element used as a basis for the datasets describing various standards, channel plans, and notes used in the Tables of Allocations.

## Input Requirement

Enter:

- In **serial**, a globally unique identifier for the dataset inherited from Std (e.g. Location, AsgnAllot, SSRequest, etc). They are always REQUIRED and MUST be formatted as described in the [Introduction to Data Elements](#).
- In **name**, the unique name of the standard or code of the note;
- In **source**, the origin of this definition. Use one of the country or NATO command abbreviation codes listed in [Annex F \(Code List Category AO\)](#). This may be ITU, ECC, NATO HQ, a national administration, or General (A general code is one used by two or more nations.);
- Optionally in **admin**, the exact administration within the **source** (Examples include, but are not limited to: ITU RR, USA NTIA, USA FCC);
- In **start**, the date the standard is effective.
- In **stop**, the date the standard is effective.
- Optionally, in element content, any amplifying information on the standard.

## Validation Rules

- [XSD] The attribute **source** MUST use one of the codes from Code List Category AO.

## Examples

Examples are available in elements [AntStd](#), [ChnlPlan](#), [CoordStd](#), etc

## XAxis

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
X Axis Minimum Value	minAxis	Optional	SN5.2
X Axis Maximum Value	maxAxis	Optional	SN5.2
X Axis Units	units	Optional	C7
Sub-Element Of	<a href="#">CurveStd</a>		

## Description

This is a National element (used by: USA).

This element describes the X Axis of a Curve Standard.

## *Input Requirement*

This element is OPTIONAL.

Enter:

- In **minAxis**, the minimum X Axis value.
- In **maxAxis**, the maximum X Axis value.
- In **units**, the units of the X Axis. Select Hz, kHz, MHz, GHz, ns (nanoseconds),  $\mu$ s (microseconds) or deg (degrees).

## Validation Rules

- [XSL ERR GE001] Attribute **minAxis** MUST exist if **maxAxis** exists.
- [XSL ERR GE002] If attribute **maxAxis** exists, it MUST be greater than **minAxis**.

## Example

```
<XAxis minAxis="45" maxAxis="60" units="Hz" />
```

## YAxis

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Y Axis Minimum Value	minAxis	Optional	SN5.2
Y Axis Maximum Value	maxAxis	Optional	SN5.2
Y Axis Units	units	Optional	C7
Sub-Element Of	CurveStd		

## Description

This is a National element (used by: USA).

This element describes the Y Axis of a Curve Standard.

## *Input Requirement*

This element is OPTIONAL.

Enter:

- In **minAxis**, the minimum Y Axis value.

- In **maxAxis**, the maximum Y Axis value.
- In **units**, the units of the Y Axis. Select dB or other units.

## Validation Rules

- [XSL ERR GE001] Attribute **minAxis** MUST exist if **maxAxis** exists.
- [XSL ERR GE002] If attribute **maxAxis** exists, it MUST be greater than **minAxis**.

## Example

```
<YAxis minAxis="12" maxAxis="35" units="dB" />
```

## 8. Config, Link and Station elements

This section contains those elements which are children of elements Link, Config and Station. These 3 elements may be used in AsgnAllot, SSRequest or SSReply. See [Annex L](#) for a description of the columns in the table below.

element name	national	content	occ	attributes
<a href="#">Config</a>			[1..n]	(cls(L:CL),+name(S24),+stnClass(L:SC),srvNature(L:SV),repeater(L:BO))
<a href="#">TxRxModeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<a href="#">SignalDescrModeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<a href="#">AntModeRef</a>			[0..1]	(cls(L:CL),+serial(S28+P),antMode(L:AM))
<a href="#">EIRP</a>			[0..1]	(cls(L:CL),minEIRP(SN6.2),maxEIRP(SN6.2))

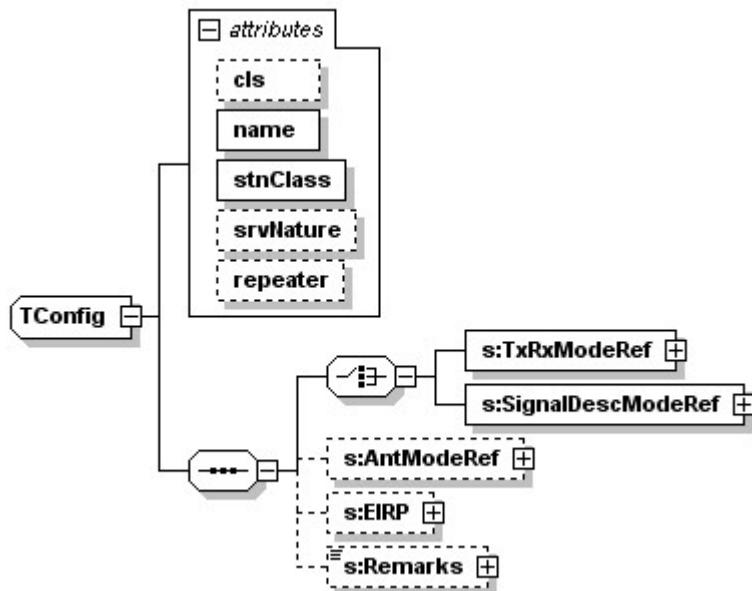


Figure II.8.a: Element Config

element name	national	content	occ	attributes
<a href="#">Station</a>			[1..n]	(cls(L:CL),+name(S100),callSign(S18))
<a href="#">StationLoc</a>			[1..n]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#">SrvVolume</a>			[0..1]	(cls(L:CL),+serial(S28+P),radius(UI4),height(UI5))
<a href="#">CositeSep</a>			[0..1]	(cls(L:CL))
<a href="#">ContactOrgRef</a>			[0..n]	(cls(L:CL),+type(L:CR))
<a href="#">ContactRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">OrganisationRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))

<u>NumUnits</u>	[0..1]	(cls(L:CL),numCosited(UI5),+numArea(UI5))
<u>UserCode</u>	(S6)	(cls(L:CL))
<u>TSDF</u>	(S)	(cls(L:CL),value(S6+P))

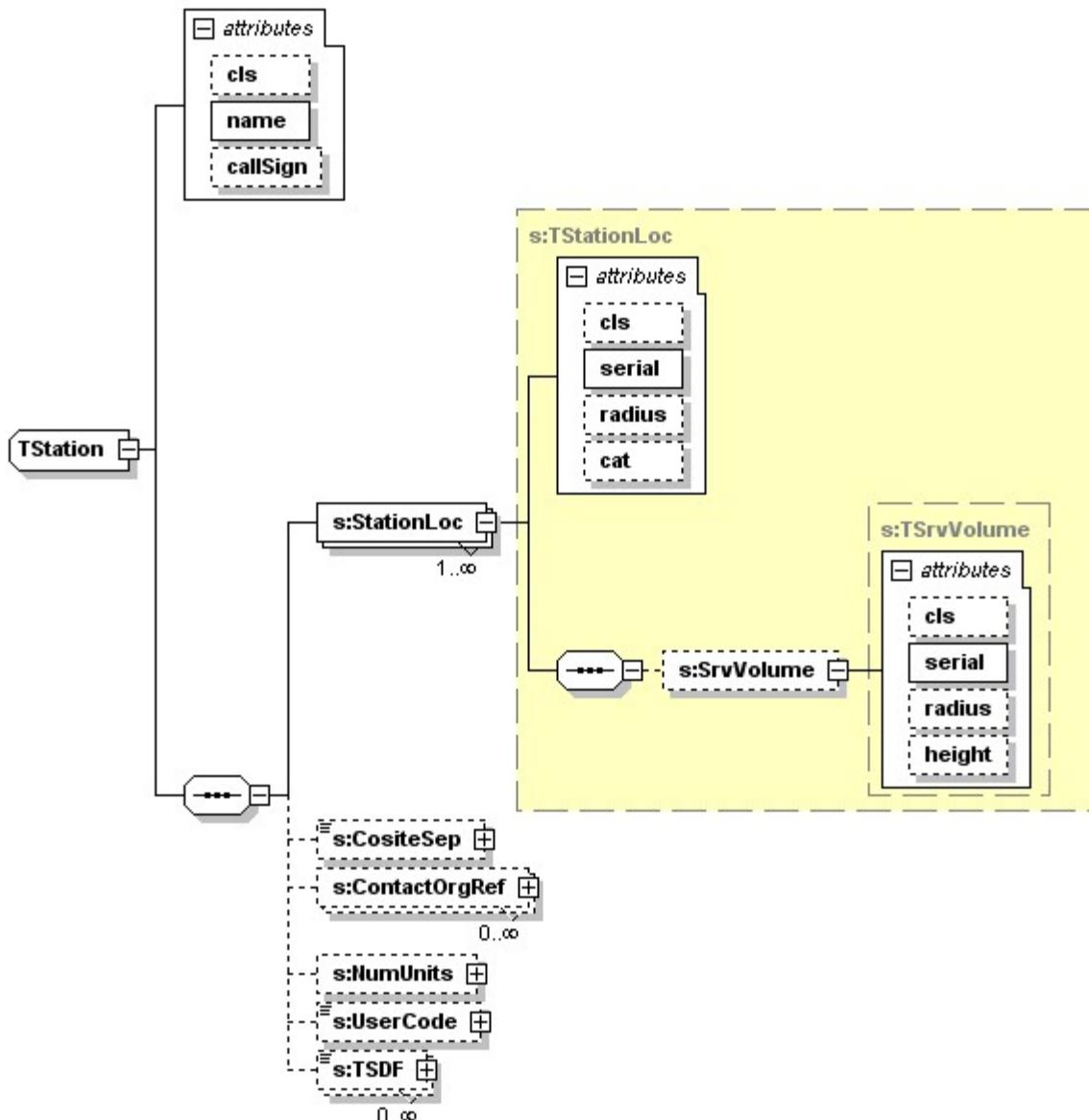


Figure II.8.b: Element Station

element name	national	content	occ	attributes
<u>Link</u>			[1..n]	(cls(L:CL),+name(S24))
<u>Tuning</u>			[0..1]	(cls(L:CL),+tuningStep(UN16.6),+numFreq(UI4),priority(UI1), exclusive(L:BO))
<u>FreqSep</u>		(UN16.6)	[0..1]	(cls(L:CL),+type(L:DS))
<u>FreqSingle</u>		(UN16.6)	[0..n]	(cls(L:CL),refFreq(UN16.6))
<u>FreqRange</u>			[0..n]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>Freq</u>			[1..n]	(cls(L:CL),status(L:FS))
<u>FreqSingle</u>		(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<u>FreqRange</u>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>FreqOld</u>			[0..1]	(cls(L:CL))
<u>FreqSingle</u>		(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<u>FreqRange</u>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>PairedFreq</u>	(USA)	(S24)	[0..1]	(cls(L:CL),+freq(UN16.6),+serial(S28+P))
			[0..1]	(cls(L:CL),+code(L:IR),+date(D),+num(S10+P))

<u>ITURegistration</u>				
<u>LegacyNum</u>	(USA)	[0..n]	(cls(L:CL),controlNum(S15),docketNum(S8),serialNum(S12))	
<u>NarrowBandPlanning</u>	(USA)	[0..1]	(cls(L:CL))	
<u>NavAids</u>		[1..n]	(cls(L:CL),+chnl(S4+P))	
<u>NetNum</u>	(S+P)	[1..n]	(cls(L:CL),status(L:FS))	
<u>Rejected</u>	(S)	[1..1]	(cls(L:CL))	
<u>TxRxStation</u>		[1..n]	(cls(L:CL),+configRef(S24),+stationRef(S100))	
<u>AntHeight</u>	(UI5)	[0..1]	(cls(L:CL))	
<u>Pointing</u>		[0..1]	(cls(L:CL),coverage(L:CO))	
<u>Azimuth</u>		[0..1]	(cls(L:CL),+minAz(UN5.2 [0..360]),maxAz(UN5.2 [0..360]))	
<u>Elevation</u>		[0..1]	(cls(L:CL),+minElev(SN4.2 [-90..90]),maxElev(SN4.2 [-90..90]))	
<u>Blanking</u>		[0..n]	(cls(L:CL),+startAz(UN5.2 [0..360]),+stopAz(UN5.2 [0..360]))	
<u>OtherConfigRef</u>		[0..n]	(cls(L:CL),+configRef(S24))	
<u>TxStation</u>		[1..1]	(cls(L:CL),+configRef(S24),+stationRef(S100))	
<u>AntHeight</u>	(UI5)	[0..1]	(cls(L:CL))	
<u>Pointing</u>		[0..1]	(cls(L:CL),coverage(L:CO))	
<u>Azimuth</u>		[0..1]	(cls(L:CL),+minAz(UN5.2 [0..360]),maxAz(UN5.2 [0..360]))	
<u>Elevation</u>		[0..1]	(cls(L:CL),+minElev(SN4.2 [-90..90]),maxElev(SN4.2 [-90..90]))	
<u>Blanking</u>		[0..n]	(cls(L:CL),+startAz(UN5.2 [0..360]),+stopAz(UN5.2 [0..360]))	
<u>OtherConfigRef</u>		[0..n]	(cls(L:CL),+configRef(S24))	
<u>RxStation</u>		[0..n]	(cls(L:CL),configRef(S24),+stationRef(S100))	
<u>AntHeight</u>	(UI5)	[0..1]	(cls(L:CL))	
<u>Pointing</u>		[0..1]	(cls(L:CL),coverage(L:CO))	
<u>Azimuth</u>		[0..1]	(cls(L:CL),+minAz(UN5.2 [0..360]),maxAz(UN5.2 [0..360]))	
<u>Elevation</u>		[0..1]	(cls(L:CL),+minElev(SN4.2 [-90..90]),maxElev(SN4.2 [-90..90]))	
<u>Blanking</u>		[0..n]	(cls(L:CL),+startAz(UN5.2 [0..360]),+stopAz(UN5.2 [0..360]))	
<u>DCSTrunk</u>	(USA)	(S6)	[0..n]	(cls(L:CL))
<u>OtherConfigRef</u>		[0..n]	(cls(L:CL),+configRef(S24))	

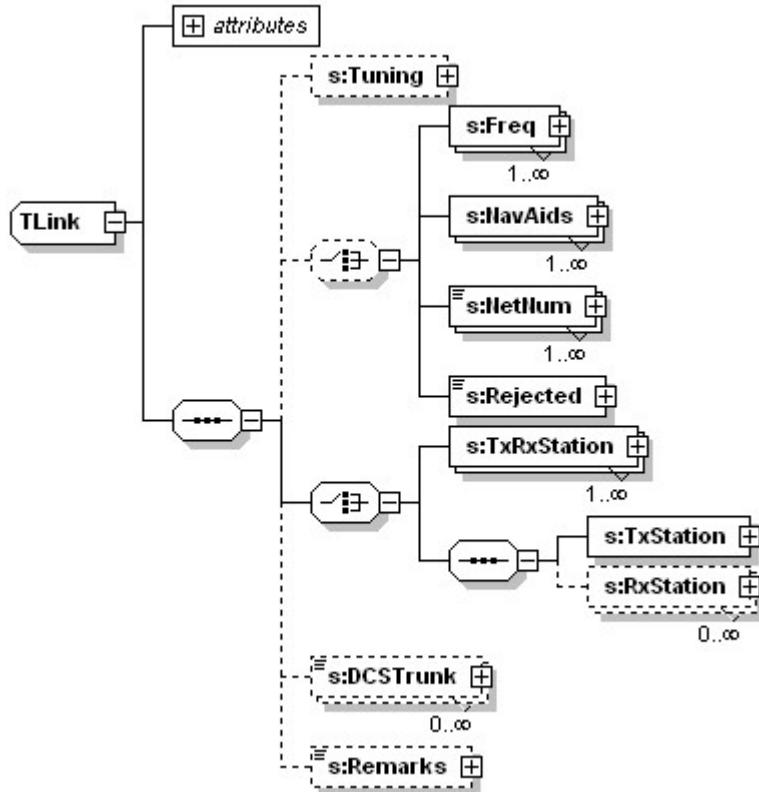


Figure II.8.c: Element Link

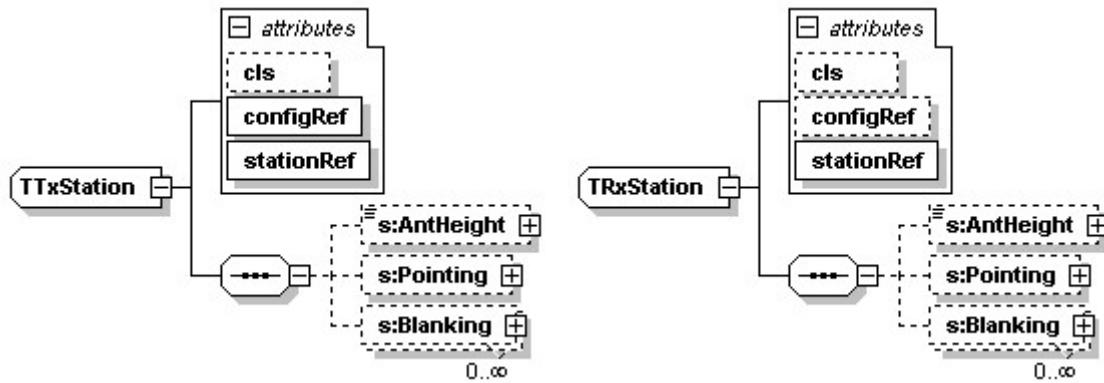


Figure II.8.d: Elements TxStation and RxStation

### AntHeight

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
AntHeight	Element Content	Required	UN5 (m)
Sub-Element Of			RxStation, TxStation, TxRxStation

### Description

Data element AntHeight contains the distance (in metres) between the transmitter or receiver antenna's feed point and the terrain.

### Input Requirement

This element is OPTIONAL.

Enter the antenna feed point height above the terrain, in metres. In the case where the antenna is mounted pointing vertically to a reflector on the same structure, enter the height of the reflector above ground. This item is required except for applications for radio frequencies below 30 MHz or for terrestrial stations operating at 30 MHz and above if for experimental and mobile stations.

### Validation Rules

None.

### Example

<AntHeight>10</AntHeight>

## Blanking

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Antenna Blanking Start Angle	startAz	Required	UN5.2 [0 .. 360] (deg)
Antenna Blanking Stop Angle	stopAz	Required	UN5.2 [0 .. 360] (deg)
<b>Sub-Element Of</b>	<a href="#">RxStation</a> , <a href="#">TxStation</a> , <a href="#">TxRxStation</a>		

### Description

Data element Blanking contains the start and stop angles of a sector that is blanked.

### Input Requirement

This element is OPTIONAL and repeatable.

The angles are measured in degrees, between 0 and 360, in a clockwise direction from true north for fixed systems, and from the nose of an airplane or the bow of a ship for mobile systems.

### Validation Rules

None

### Examples

```
<Blanking startAz="43.6" stopAz="82" />
```

A 10 degrees blanking:

```
<Blanking startAz="355" stopAz="5" />
```

## Config

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Configuration Name	name	Required	C24
Class of Station	stnClass	Required	C4 Uppercase
Nature of Service	srvNature	Optional	C2 Uppercase
Repeater Indicator	repeater	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">AsgnAllot</a> , <a href="#">HostNationConstraints</a> , <a href="#">SSRequest</a>		
<b>Sub-elements</b>	<a href="#">AntModeRef [0..1]</a> , <a href="#">EIRP [0..1]</a> , (choice between <a href="#">SignalDescrModeRef [1..1]</a> , <a href="#">TxRxModeRef [1..1]</a> )		
<b>Referenced By</b>	<a href="#">OtherConfigRef</a>		

### Description

Data element Config identifies each operational [configuration](#) that is required in a SSRequest, granted by a Host Nation in a SSReply, or authorized in a frequency Assignment or Allotment

dataset. It also identifies the functional use of the assigned frequency at a particular transmitting station, and the nature of service in the case of submission of space data to the ITU. Finally, it may indicate if the receiver station is used primarily as a repeater. A direct coupling between the station's receiver and the station's transmitter allows the incoming signal to be retransmitted exactly as received.

## ***Input Requirement***

This element is REQUIRED and repeatable, except under HostNationConstraints where it is OPTIONAL and repeatable.

It is OPTIONAL and repeatable under [HostNationConstraints](#) element. If omitted, the [SSReply](#) is assumed to agree with every Config in the corresponding [SSRequest](#). In case some configurations in SSRequest are not acceptable, use Config in HostNationConstraints to describe the accepted configurations (if necessary, modifying the information from the SSRequest).

Enter:

- In **name**, a nickname for the configuration. The name is free format and must be unique within the dataset.
- In **stnClass**, the standard station class symbol(s). See [Annex F \(Code List Category SC\)](#) for a list of acceptable station class symbols and their definitions.
- In **srvNature**, only in the case of a submission of space data to the ITU, the nature of service. Enter a code from the following table.

### ***Code List Category SV:***

<b>Short Code</b>	<b>Definition</b>
AS	Stations using adaptive system *
AX	Fixed station used for provision of services related to aircraft flight safety *
CA	Cargo Ship *
CO	Station open to official correspondence exclusively
CP	Station open to public correspondence
CR	Station open to limited public correspondence
CV	Station open exclusively to correspondence of a private agency
FS	Land station established solely for the safety of life *
HP	Fixed station using high altitude platform *
MX	Fixed station used for transmission of meteorological information *
OT	Station open exclusively to operational traffic of the service concerned
PX	Fixed station used for press transmission *
RC	Non-directional radio beacon *
RD	Directional radio beacon *
RG	Radio direction-finding station *
RT	Revolving radio beacon *
ST	Fixed station using tropospheric scatter *

\* Applies only to terrestrial services

- In **repeater**, a code from Code List Category BO for each receiver location when a station in the fixed or mobile service is used primarily as a repeater.

### ***Code List Category BO:***

<b>Short Code</b>	<b>Definition</b>
Y	Yes
N	No

## Validation Rules

- [XSD] Config MUST contain either a [SignalDescrModeRef](#) or a [TxRxModeRef](#).
- [XSD] Attribute **name** MUST be unique within the [AsgnAllot](#), [SSRequest](#), or [SSReply](#) dataset.
- [XSD] The attribute **stnClass** MUST use one of the codes from Code List Category SC.
- [XSD] The attribute **srvNature** MUST use one of the codes from Code List Category SV.
- [XSD] The attribute **repeater** MUST use one of the codes from Code List Category BO.

## Examples

```
<Config name="Base Config" stnClass="FX" repeater="Y">
<Config name="Earth Config" stnClass="TG" srvNature="OT">
```

## Note for the USA

For the USA, the suffix R is appended to the **stnClass** if a station is used primarily as a repeater and operates in the bands 29.89 - 50 (exclusive Government use), 138 - 144, 148 - 148.9, 150.05 - 150.8, 162 - 174, and 406.1 - 420 MHz. For this purpose, a repeater consists of a radio transmitter, a radio receiver and coupling between the two so as to retransmit unchanged in intelligence the received signal.

## DCSTrunk

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
DCSTrunk	Element Content	Required	C6
Sub-Element Of	<a href="#">Link</a>		

## Description

This is a National element (used by: USA).

Data element DCSTrunk identifies one or more Defense Communication System (DCS) trunks that may be carried on the link.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In the element content, the trunk identifier that is on the link.

## Validation Rules

None

## Example

An example of two trunks on one link:

```
<DCSTrunk>45CS01</DCSTrunk>
<DCSTrunk>45CS02</DCSTrunk>
```

## EIRP

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal EIRP	minEIRP	Optional	SN6.2 (dBW)
Maximum EIRP	maxEIRP	Optional	SN6.2 (dBW)
<b>Sub-Element Of</b>	<u>Config</u>		

## Description

Data element EIRP contains the power radiated from the transmitter antenna. It is the sum of the power supplied to the antenna and the gain of the antenna, expressed in dBW.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **minEIRP** the minimum or nominal Effective Isotropic Radiated Power (EIRP) in dBW
- In **maxEIRP**, the maximum EIRP in dBW, in the case of a range of values.
- In the case of a SSReply, use the attribute **maxEIRP** (and no **minEIRP**) to specify the maximum authorized power in your Nation for the specified configuration.

## Validation Rules

- [XSL ERR AS004] If EIRP is not under SSReply, attribute **minEIRP** MUST exist.
- [XSL ERR AS005] If EIRP is under SSReply, **minEIRP** MUST NOT be used
- [XSL ERR AS006] If EIRP is not under SSReply and attribute **maxEIRP** exists, it MUST be greater than **minEIRP**.

## Examples

```
<EIRP minEIRP="10"/>
<EIRP minEIRP="10" maxEIRP="17"/>
```

## Notes

To convert Effective Radiated Power (ERP) (power relative to a half wave dipole) to EIRP (power relative to an isotropic source) use the following formula:

$$\text{EIRP} = \text{ERP} + 2.15$$

This data element may be computer-generated by some software applications if not present.

### Note for the USA

This data element is filled in some Federal Communications Commission (FCC) assignments.

## FreqSep

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Separation Type	type	Required	C1 Uppercase
Frequency Separation	Element Content	Required	<a href="#">E</a> (MHz)
Sub-Element Of	<a href="#">Tuning</a>		

### Description

Data element FreqSep identifies the required (exact or minimum) frequency separation between the requested frequencies.

### Input Requirement

Data element FreqSep is OPTIONAL.

Enter:

- In the **element content**: the minimum or exact frequency separation as a number in MHz (without unit).
- In **type**: Use a code from Code List Category DS:

#### Code List Category DS:

Short Code	Definition
E	The separation must be exactly the value entered (for use e.g. when transmit and receive radio frequencies are assigned in fixed pairs).
M	The separation must be at the minimum the value entered.

### Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category DS.

### Example

```
<FreqSep type="E">10</FreqSep>
```

### Note

If the type is "E" the frequency separation should be compatible with the tuning step requested and / or tuning capability of the TxRx which will be used.

## Link

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Link Name	name	Required	C24
<b>Sub-Element Of</b>	<u>AsgnAllot</u>		
<b>Sub-elements</b>	<u>DCSTrunk [0..n]</u> , (choice between <u>Freq [0..n]</u> , <u>NavAids [0..n]</u> , <u>NetNum [0..n]</u> , <u>Rejected [0..1]</u> ), <u>Tuning [0..1]</u> , (choice between <u>TxRxStation [1..n]</u> , ( <u>TxStation [1..1]</u> , <u>RxStation [0..n]</u> ), <u>RxStation [1..n]</u> )		

### Description

Data element Link identifies each link in a system of assignments. This is the top element of each Link. The exact definition of a link is very flexible and depends on the degree of accuracy needed for the assignment. A link can be very generic (one or several base stations serving an area or a volume with non-defined mobiles) to very accurate (such as one link for each radio-relay hop). See [Annex E](#) for examples of links.

### Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **name**, the name of the link.

### Validation Rules

[XSD] Attribute **name** MUST be unique within the parent dataset.

[XSD] Exactly one of TxRxStation, or TxStation (with optional RxStation), or RxStation, MUST appear in a Link.

### Example

```
<Link name="Link1"/>
```

## OtherConfigRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Other Configuration	configRef	Required	C24
<b>Sub-Element of</b>	<u>RxStation</u> , <u>TxRxStation</u> , <u>TxStation</u>		

### Description

This element describes alternate configurations for a station.

## ***Input Requirement***

This element is OPTIONAL and repeatable.

In **configRef**, enter the **name** attribute of one of the configurations defined under elements [Config](#) for the current AsgnAllot, SSRequest or SSReply dataset.

## ***Validation Rules***

[XSD] Attribute configRef MUST refer to an existing Config.name in the current AsgnAllot, SSRequest or SSReply dataset.

## ***Example***

```
<OtherConfigRef configRef="Wideband Voice"/>
```

## **Pointing**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Coverage Code	coverage	Optional	C3 Uppercase
<b>Sub-Element Of</b>	<a href="#">RxStation</a> , <a href="#">TxStation</a> , <a href="#">TxRxStation</a>		
<b>Sub-Elements</b>	<a href="#">Azimuth [0..1]</a> , <a href="#">Elevation [0..1]</a>		

## ***Description***

Data element Pointing describes the pointing characteristics of the antenna. It contains a code describing the capabilities of the antenna. Sub-elements may contain the physical direction of the antenna's main beam. This element may be used for communications with non geostationary satellites, as well as for terrestrial systems.

## ***Input Requirement***

This element is OPTIONAL.

Enter:

- In **coverage**, one of the following codes. This item is REQUIRED for all space stations and OPTIONAL in other cases.

### ***Code List Category CO:***

Short Code	Definition
G	Global
NH	Northern Hemisphere
SH	Southern Hemisphere
WH	Western Hemisphere

<b>EH</b>	Eastern Hemisphere
<b>NWQ</b>	North-western Earth Quarter
<b>SWQ</b>	South-western Earth Quarter
<b>NEQ</b>	North-eastern Earth Quarter
<b>SEQ</b>	South-eastern Earth Quarter

## Validation Rules

None

## Example

<Pointing coverage="NH" />

## Rejected

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Rejected	Element Content	Required	Memo
<b>Sub-Element Of</b>	<u>Link</u>		

## Description

Within an [AsgnAllot](#) this element indicates that one or several requested frequency(ies) could not be assigned by the authority to a specific Link.

## Input Requirement

This element is OPTIONAL under Link.

Enter the reason why the Link could not be assigned the required number of frequencies.

## Validation Rules

None

## Examples

<Rejected>According to data provided, this link would be too long and therefore no successful connection could be established.</Rejected>

<Rejected>You requested 20 HF frequencies but current constraints allow you to have 10 maximum.</Rejected>

## RxStation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Configuration	configRef	Optional	C24
Station	stationRef	Required	C100
Sub-Element Of	<a href="#">Link</a>		
Sub-elements	<a href="#">AntHeight [0..1]</a> , <a href="#">Blanking [0..n]</a> , <a href="#">OtherConfigRef [0..n]</a> , <a href="#">Pointing [0..1]</a>		

### Description

Data element RxStation describes one couple ([station](#), [configuration](#)) used at the receiving end of the current Link.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **configRef**, the **name** attribute of one of the configurations defined under elements [Config](#) for the current AsgnAllot, SSRequest or SSReply dataset.
- In **stationRef**, the **name** attribute of one of the stations defined under elements [Station](#) for the current AsgnAllot dataset.

### Validation Rules

[XSD] Attribute **configRef** MUST refer to an existing [Config.name](#) in the current AsgnAllot, SSRequest or SSReply dataset.

[XSD] Attribute **stationRef** MUST refer to an existing [Station.name](#) in the current AsgnAllot dataset.

[XSD] Attribute **stationRef** MUST be unique within the parent element.

### Example

```
<RxStation configRef="Base Config" stationRef="Base Station"/>
```

## SrvVolume

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Circular Location Radius	radius	Optional	UN4 (km)
Service Volume Height	height	Optional	UN5 (m)
Sub-Element Of	<a href="#">StationLoc</a>		

## Description

Data element SrvVolume contains a reference to the Location (point or polygon) used to describe the service volume of an air/ground/air assignment, and the maximum altitude. This point or polygon must have been defined using a Location action.

Attribute height is the flight altitude in metres of aeronautical navigational aids and air traffic control service area assignments for radio frequencies above 30 MHz and low frequency beacons.

## Input Requirement

This element is REQUIRED whenever an air/ground/air assignment is requested to NHQC3S/SMB. It is OPTIONAL in other cases.

Enter:

- In **serial**, the dataset identifier of a registered [Location](#) (point or polygon);
- In **radius**, the radius associated with a point Location to produce a circle.
- In **height**, the flight altitude in metres of all aeronautical navigational aids and air traffic control assignments for radio frequencies above 30 MHz and for low-frequency beacons. The altitude is always referenced to the mean sea level (MSL).

## Validation Rules

- [XSL ERR LO006] **radius** MUST NOT be used if the **serial** does not contain "[LT](#)".
- [XSL ERR LO007] **radius** MUST be used if the **serial** contains "[LT](#)".
- [XSL ERR AS007] This element MUST be used, AND **serial** MUST NOT contain "[LA](#)", AND **height** MUST be used if the element belongs to an [AsgnAllot](#) dataset with **AsgnType.category** = "[UHFAMS](#)" or "[VHFAMS](#)".

## Examples

A circular service volume with a flight level of 15000 metres above MSL:

```
<SrvVolume serial="HOL:AF:LT:123" radius="100" height="15000"/>
```

A polygonal service volume with a flight level of 15000 metres above MSL:

```
<SrvVolume serial="HOL:AF:LG:456" height="15000"/>
```

## Note:

The Service Volume Height is usually displayed in feet or as a flight level (in hundreds of feet) in software applications; however the transmission within SSRF MUST be in meters. The conversion to feet or flight level is dependant on the software implementation and user interface.

## Station

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Station Name	name	Required	C100
Station Call Sign	callSign	Optional	C18
Sub-Element Of	<a href="#">AsgnAllot</a>		
Sub-elements	<a href="#">ContactOrgRef [0..n]</a> , <a href="#">CositeSep [0..1]</a> , <a href="#">NumUnits [0..1]</a> , <a href="#">StationLoc [1..n]</a> , <a href="#">TSDF [0..n]</a> , <a href="#">UserCode [0..1]</a>		

### Description

Data element Station defines the station, or one of the stations, within the current [AsgnAllot](#) dataset. A station is one or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment necessary at one location for carrying on a radiocommunication, radiolocation, or other spectrum dependent functions. It may indicate the international call sign assigned to the transmitting station. For navigational aids, this data item is used for the NAVAIDS identifier instead of a call sign.

### Input Requirement

Data element Station is REQUIRED and repeatable.

Enter:

- In **name**, the nickname for the station. For stations that have locations the station name may be reflective of that fact such as "[ANNAPOLIS 20](#)" which could mean within 20 kilometres of some point in Annapolis, MD. In other instances the name could be organizationally related.
- In **callSign**, the call sign assigned to the transmitting station. It can be an internationally allocated call sign or the tactical call sign assigned by the operational authority when the Station is used within a [Net](#). For navigational aids, enter the NAVAIDS identifier.

### Validation Rules

- [XSD] Attribute **name** must be unique within the parent dataset.

### Example

```
<Station name="Base Station" callSign="WUH55">
    ...
</Station>
```

## StationLoc

Inherits From	<a href="#">LocationRef</a>
Sub-Element Of	<a href="#">Station</a>
Sub-Elements	<a href="#">SrvVolume [0..1]</a>

## Description

Data element StationLoc contains a reference identifying a Location dataset. In the case of a SSReply, this element contains the authorized locations where operation of the equipment or system, subject of the spectrum supportability, is authorized or forbidden.

## ***Input Requirement***

This element is REQUIRED and repeatable.

The same rules as for [LocationRef](#) apply. Reference the city, base, or geographical area where the station is located. If a fixed station uses a remote antenna, the location should be at the antenna point.

## ***Validation Rules***

The same rules as for [LocationRef](#) apply.

## ***Example***

```
<StationLoc serial="D:AR:LT:123" type="LT" radius="50"/>
```

## TSDF

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
TSDF Value	value	Required	C6
TSDF	Element Content	Optional	Memo
Sub-Element Of	<a href="#">Station</a>		

## Description

Data element TSDF contains the time slot <sup>1</sup> duty factor assigned to stations of a time division multiple access (TDMA) system. It is applicable in particular to the MIDS/JTIDS systems as explained in the notes below.

## ***Input Requirement***

This element is OPTIONAL.

For NATO MIDS/JTIDS assignments, enter in **value** the time slot <sup>1</sup> duty factor <sup>2</sup> expressed as NNN/nn where NNN is the maximum percentage of time that may be used by MIDS/JTIDS users in an operational area (a circle with a 100 nautical mile (183.2 km) radius) and nn is the maximum percentage of time that any individual user may be using MIDS/JTIDS. Optionally, enter in the content of the element any amplifying information.

## ***Validation Rules***

None

### **Example**

```
<TSDF value="40/20">Any free text comments as desired.</TSDF>
```

### **Notes**

1. A JTIDS time slot is a 0.0078125 microsecond time interval during which MIDS/JTIDS messages may be transmitted or received.
2. The 40/20 notation specifies that the total MIDS/JTIDS community will not be assigned more than 40% TSDF, with no more than 20% TSDF assigned to a single user. Note that 100% TSDF corresponds to a maximum pulse transmission rate of 396,288 pulses per 12 second period (an average of 33,024 pulses per second). The total number of pulses allowed per 12 second period is 158,515 for 40% TSDF and 79,257 for 20% TSDF. Using all 1536 time slots in each 12 second period, with 258 pulses per time slot with no contention or multinet overlap conditions results in a TSDF of 100%.

## **Tuning**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Tuning Step	tuningStep	Required	F (MHz)
Number of Frequencies	numFreq	Required	UN4
Priority Value	priority	Optional	UN1
Exclusive	exclusive	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u><a href="#">Link</a></u>		
<b>Sub-elements</b>	<u><a href="#">FreqSep [0..1]</a></u> , <u><a href="#">FreqRange [0..n]</a></u> , <u><a href="#">FreqSingle [0..n]</a></u>		

### **Description**

Data element Tuning indicates the specific frequency or range of frequencies, tuning increment, and number of frequencies, required for an allotment or an assignment.

### **Input Requirement**

This element is OPTIONAL.

Enter:

- In **tuningStep**, the tuning increment expressed in MHz (do not insert any unit). Note that this tuning increment should be compatible with the tuning capability of the TxRx which will be used.
- In **numFreq**, the number of frequencies required.
- In **priority**, a number from 0 to 9 that is used to influence the positioning of the AsgnAllot in the ordering of the assignment and allotment process. Where 9 represents the highest priority and 0 is the lowest priority.
- In **exclusive**, a code from the Code List Category BO (Yes means that this frequency should only be assigned to this request within the operation):

### Code List Category BO:

Short Code	Definition
Y	Yes
N	No

### Validation Rules

- [XSD] The attribute **exclusive** MUST use one of the codes from Code List Category BO.

### Examples

A request for 1 frequency between 225 and 400 MHz on 25 kHz channels:

```
<Tuning tuningStep="0.025" numFreq="1">
    <TuningBlock minFreq="225" maxFreq="400"/>
</Tuning>
```

A request for 10 frequencies in the HF band:

```
<Tuning tuningStep="0.001" numFreq="10">
    <TuningBlock minFreq="2" maxFreq="30"/>
</Tuning>
```

## TxStation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Configuration	configRef	Required	C24
Station	stationRef	Required	C100
<b>Sub-Element Of</b>	<a href="#">Link</a>		
<b>Sub-elements</b>	<a href="#">AntHeight [0..1]</a> , <a href="#">Blanking [0..n]</a> , <a href="#">OtherConfigRef [0..n]</a> , <a href="#">Pointing [0..1]</a>		

### Description

Data element TxStation describes one couple ([station](#), [configuration](#)) used at the transmitting end of the current Link.

### Input Requirement

This element is REQUIRED within the [Link](#) element, unless element [TxRxStation](#) is used.

Enter:

- In **configRef**, the **name** attribute of one of the configurations defined under elements [Config](#) for the current AsgnAllot, SSRequest or SSReply dataset.
- In **stationRef**, the **name** attribute of one of the stations defined under elements [Station](#) for the current AsgnAllot dataset.

## Validation Rules

[XSD] Attribute **configRef** MUST refer to an existing [Config.name](#) in the current AsgnAllot, SSRequest or SSReply dataset.

[XSD] Attribute **stationRef** MUST refer to an existing [Station.name](#) in the current AsgnAllot dataset.

[XSD] Attribute **stationRef** MUST be unique within the parent element.

## Example

```
<TxStation configRef="Base Config" stationRef="Base Station"/>
```

## TxRxStation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Configuration	configRef	Required	C24
Station	stationRef	Required	C100
Sub-Element Of	<a href="#">Link</a>		
Sub-elements	<a href="#">AntHeight [0..1]</a> , <a href="#">Blanking [0..n]</a> , <a href="#">OtherConfigRef [0..n]</a> , <a href="#">Pointing [0..1]</a>		

## Description

Data element TxRxStation describes one couple ([station](#), [configuration](#)) used for both transmitting and receiving in the current Link.

## Input Requirement

This element is REQUIRED and repeatable within the [Link](#) element, unless element [TxStation](#) is used.

Enter:

- In **configRef**, the **name** attribute of one of the configurations defined under elements [Config](#) for the current AsgnAllot, SSRequest or SSReply dataset.
- In **stationRef**, the **name** attribute of one of the stations defined under elements [Station](#) for the current AsgnAllot dataset.

## Validation Rules

[XSD] Attribute **configRef** MUST refer to an existing [Config.name](#) in the current AsgnAllot, SSRequest or SSReply dataset.

[XSD] Attribute **stationRef** MUST refer to an existing [Station.name](#) in the current AsgnAllot dataset.

[XSD] Attribute **stationRef** MUST be unique within the parent element.

## Example

```
<TxRxStation configRef="Base Config" stationRef="Base Station"/>
```

## UserCode

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
User Net/Code	Element Content	Optional	C6
Sub-Element Of	Station		

## Description

Data element UserCode is used to record the designation of the organization using the frequency assignment.

## Input Requirement

This element is OPTIONAL.

Enter in the element content, a code as directed by the responsible agency (USA: see note).

ITU Space Submissions: Using symbols from the country code table of [Annex F](#), indicate the country of the administration to which communications should be sent on urgent matters regarding interference, quality of emissions, and questions referring to the technical operation of stations. If there is no symbol corresponding to the country concerned, spell out the name of the country in data element **Remarks** in the following format: "[REFERENCE TO BOX A3A OR A3B THE COUNTRY IS AAAAAAAA](#)".

## Validation Rules

None.

## Example

```
<UserCode>N53618</UserCode>
```

## Note for the USA

Enter in UserCode a code as directed by the responsible agency as follows:

Army: Enter one Net Control Code.

Navy: Enter the one Unit Identification Code (UIC).

Air Force: Enter a standard use code as directed by Air Force Frequency Management Agency.

## 9. Table of Allocations elements

Table of Allocations dataset: The data repository can store reference data such as allocation datasets. An allocation dataset defines the usage of a frequency band in a specific country in terms of services (ITU allocation) or systems (refined usage in each country). This data is termed Table of Allocations (TOA). The related entities are normally uploaded using a bulk process, not via SSRF transactions.

### **Structure of Element TOA**

See [Annex L](#) for a description of the columns in the table below.

**Note:** Refer to [section 3](#) for Common attributes and sub-elements (inherited by TOA in the table below).

element name	national	content	occ	attributes
<a href="#"><u>TOA</u></a>			[0..n]	()
<a href="#"><u>Title</u></a>		(S100)	[1..1]	(lang(S2),cls(L:CL))
<a href="#"><u>LocationRef</u></a>			[0..n]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#"><u>FreqBand</u></a>			[1..n]	(cls(L:CL),useIndicator(S4+P),sharedUse(L:BO))
<a href="#"><u>FreqSingle</u></a>		(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#"><u>FreqRange</u></a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#"><u>NoteRef</u></a>		(S)	[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>AllocApp</u></a>			[1..n]	(cls(L:CL),accomodation(L:AR),licensing(S50),exclusiveApp(S50),asgnAuthority(S),permit(S))
<a href="#"><u>AllocVariance</u></a>	(USA)		[0..1]	(cls(L:CL),type(L:AV),item(S50),radioService(L:SN),priority(L:PS))
<a href="#"><u>EffDate</u></a>		(DT)	[0..1]	(cls(L:CL))
<a href="#"><u>Expire</u></a>		(DT)	[0..1]	(cls(L:CL))
<a href="#"><u>BandAppRef</u></a>			[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>AntStdRef</u></a>	(USA)		[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>ChnlPlanRef</u></a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>CoordStdRef</u></a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>EmsMaskStdRef</u></a>	(USA)		[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>EmsStdRef</u></a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>LocationRef</u></a>		(S)	[0..n]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#"><u>NoteRef</u></a>		(S)	[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>RxStdRef</u></a>	(USA)	(S10)	[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#"><u>ServiceUse</u></a>		(S10)	[0..n]	(cls(L:CL),+priority(L:PS))
<a href="#"><u>StnClass</u></a>		(S4)	[0..n]	(cls(L:CL))
<a href="#"><u>BandUserRef</u></a>			[0..n]	(cls(L:CL),+serial(S28+P))

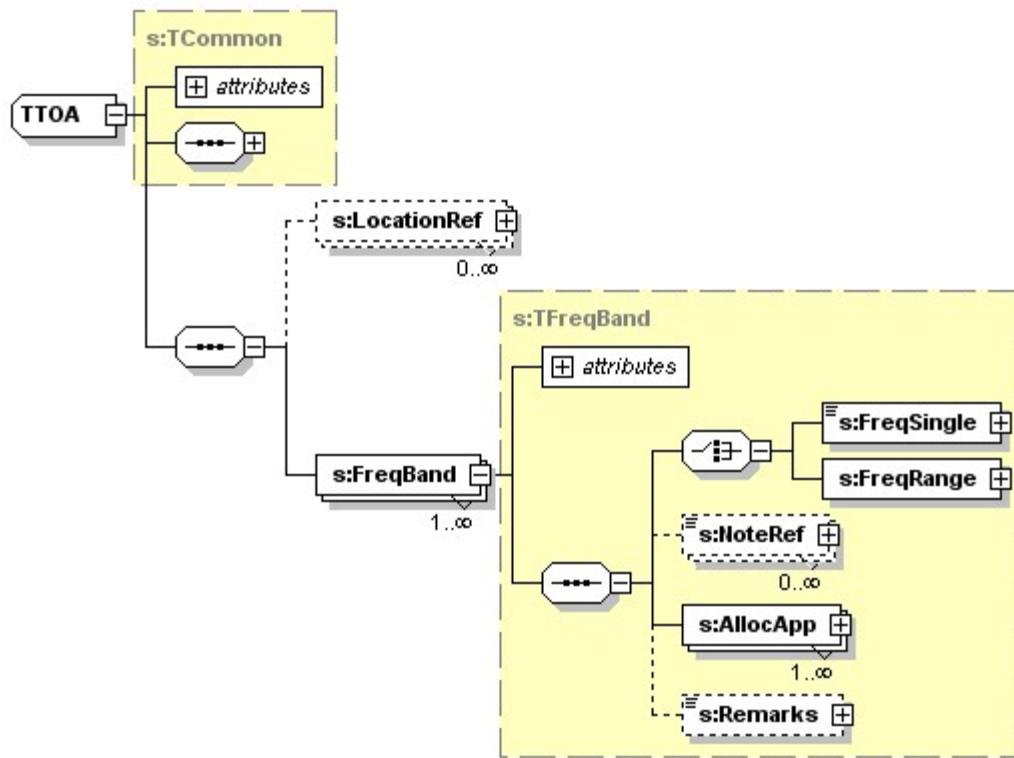


Figure II-9a



Figure II-9b

## AllocApp

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Accommodation	accommodation	Optional	C3 Uppercase
License Requirement	licensing	Optional	C50
Exclusive Application	exclusiveApp	Optional	C50
Assignment Authority	asgnAuthority	Optional	Memo
Service Permit	permit	Optional	Memo
<b>Sub-Element Of</b>	<u>FreqBand</u>		
<b>Sub-elements</b>	<u>AllocVariance</u> [0..1], <u>AntStdRef</u> [0..n], <u>BandAppRef</u> [0..1], <u>BandUserRef</u> [0..n], <u>ChnlPlanRef</u> [0..n], <u>CoordStdRef</u> [0..n], <u>EffDate</u> [0..1], <u>EmsMaskStdRef</u> [0..n], <u>EmsStdRef</u> [0..n], <u>Expire</u> [0..1], <u>LocationRef</u> [0..n], <u>NoteRef</u> [0..n], <u>RxStdRef</u> [0..n], <u>ServiceUse</u> [0..n], <u>StnClass</u> [0..n]		

### Description

This element contains the allocation of a specific frequency band with radiocommunication service, location, station class, application, channel plan, user, coordination standard, antenna standard, emission standard, emission mask standard, reception standard. It also provides additional information:

- the specification of the rights and responsibilities of a user;
- the specification of licensing requirements for certain applications;
- the specification of the ministry responsible for granting assignments;
- the issuance of a license or permit;

### Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **accommodation**, the specification of the rights and responsibilities of a user. Select a code from Code List Category AR:

#### Code List Category AR:

Short Code	Definition
NI	No Impact
NIB	Non-Interference Basis
NPB	Non-Protected Basis

- In **licensing**, the specification of licensing requirements for certain applications
- In **exclusiveApp**, the specification of the single allowed application.
- In **asgnAuthority**, the specification of the ministry responsible for granting assignments.

- In **permit**, the identification of the permit or license

### **Validation Rules**

- [XSD] The attribute **accommodation** MUST use one of the codes from Code List Category AR.

### **Example**

```
<AllocApp accomodation="NIB" licensing="Non Interfering Basis?"  
exclusiveApp="Wind Profiler" asgnAuthority="NTIA" permit="456-678"/>
```

### **Note**

If a license has been granted for this specific FreqBand then it must be entered in an [ExtRef](#) element with its **xpath** attribute referring to the current AllocApp.

## **AllocVariance**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Allocated Variance Type	type	Optional	C1
Allocated Variance Item	item	Optional	C50
Allocated Variance Service	radioService	Optional	C10 Uppercase
Allocated Variance Priority	priority	Optional	UN1
<b>Sub-Element Of</b>	<b>AllocApp</b>		

### **Description**

This is a National element (used by: USA).

This element describes a variance (normally national versus international allocation) from the initial allocation.

### **Input Requirement**

This element is OPTIONAL.

Enter:

- In **type**, the type of variance. Use a code from [Code List Category AV](#):

#### **Code List Category AV:**

Short Code	Definition
A	Additional
D	Different

- In **item**, the item in an allocation that varies from the primary table of allocations (ITU)
- In **radioService**, the variant service; use a code from the list of services in [Annex F, Code List Category SN](#).

- In **priority**, the variant priority. Use a code from [Code List Category PS](#):

#### **Code List Category PS:**

Short Code	Definition
1	Primary
2	Secondary

#### **Validation Rules**

- [XSD] **type** MUST use a code from Code List Category AV
- [XSD] **priority** MUST use a code from Code List Category PS

#### **Example**

```
<AllocVariance type="additional" item="service"
radioService="radiolocation" priority="secondary"/>
```

### FreqBand

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Use Indicator	useIndicator	Optional	C4 Uppercase
Shared Use Indicator	sharedUse	Optional	C1 Uppercase
Sub-Element Of	<u>TOA</u>		
Sub-elements	AllocApp [0..n], (choice between <u>FreqSingle</u> [1..1], FreqRange [1..1]), NoteRef [0..n]		

#### **Description**

This element contains a band of frequencies in a table of allocations and an indication of how the frequency band is shared among permitted users.

#### **Input Requirement**

This element is REQUIRED and repeatable.

Enter:

- In **useIndicator**, one or more of the following codes, in alphabetical order without any separator:
  - G** Government
  - M** Military (not to be used by USA - USA use G)
  - N** Non government
  - A** Amateur
- In **sharedUse**, one of the following codes (**Y** if the band is shared between several users, **N** if it is exclusive):

#### **Code List Category BO:**

Short Code	Definition
Y	Yes

**N** No

### Validation Rules

- [XSD] Element FreqBand MUST have either an [FreqSingle](#) or a [FreqRange](#) sub-element.
- [XSD] Attribute **useIndicator** MUST use 1 to 3 characters in the list (A, G, N).

### Example

```
<FreqBand useIndicator="GN" sharedUse="Y">
    <... Sub-elements ...>
</FreqBand>
```

## ServiceUse

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Service Priority	priority	Required	UN1
ServiceUse	Element Content	Required	C10 Uppercase
<b>Sub-Element Of</b>	AllocApp		

### Description

This element contains the Service allocated in a specific frequency band and the priority for the service.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **priority**, the priority of the related service. Select one of the following codes:

#### Code List Category PS:

Short Code	Definition
1	Primary
2	Secondary

- In **element content**, the code of the related service, from the list of services in [Annex F, Code List Category SN](#).

### Validation Rules

- [XSD] The attribute **priority** MUST use one of the codes from Code List Category PS.
- [XSD] The element content MUST use one of the codes from Code List Category SN.

### Example

```
<ServiceUse priority="1">AM(R)S</ServiceRef>
```

## StnClass

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
StnClass	Element Content	Required	C4 Uppercase
<b>Sub-Element Of</b>	<a href="#">AllocApp</a>		

### Description

This element contains the station class being linked to a specific frequency band.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In element content, the code of a station class being linked to a specific frequency band ([Annex F, Code List Category SC](#)).

### Validation Rules

- [XSD] The element content MUST use one of the codes from Code List Category SC.

### Example

```
<StnClass>AL</StnClass>
```

## TOA

Inherits From	<a href="#">Common</a>
Sub-Element Of	<a href="#">Body</a>
Sub-elements	<a href="#">FreqBand [1..n]</a> , <a href="#">LocationRef [0..n]</a> , <a href="#">Title [1..1]</a>

### Description

This element is the XML root for all parameters of a Table of Allocations. It inherits attributes and sub-elements from element [Common](#).

### Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[TA](#)".

### **Example**

```
<TOA serial="USA:NTIA:TA:2004" usageType="P"
      entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
    <...all Common + TOA elements...>
</TOA>
```

## **10. Location elements**

A location dataset is a group of data elements defining a fixed location or an area (polygon) where the station operates. This type of dataset and the associated data elements are termed Location in this document.

### **Structure of Elements Location and LocationSet**

See [Annex L](#) for a description of the columns in the table below.

**Note:** Refer to [section 3](#) for Common attributes and sub-elements (inherited by Location and LocationSet in the table below).

element name	national	content	occ	attributes
<a href="#">Location</a>			[0..n]	(+name(S100),ITU(L:IT))
<a href="#">Address</a>			[1..1]	(cls(L:CL),street(S50),cityArea(S50),state(S50),postCode(S10),+country(L:AO))
<a href="#">Point</a>			[1..n]	(cls(L:CL),idx(UI4),+lon(S8+P),+lat(S7+P),elev(SI5))
<a href="#">BoundingCircle</a>			[0..1]	(cls(L:CL),+lon(S8+P),+lat(S7+P),radius(UI4),avgElev(SI5),minElev(SI5),maxElev(SI5))
<a href="#">AGAProtection</a>			[0..n]	(cls(L:CL),+criteria(L:PR),freq(UN16.6))
<a href="#">LocationSet</a>			[0..n]	(+name(S100))
<a href="#">LocationRef</a>			[2..n]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))

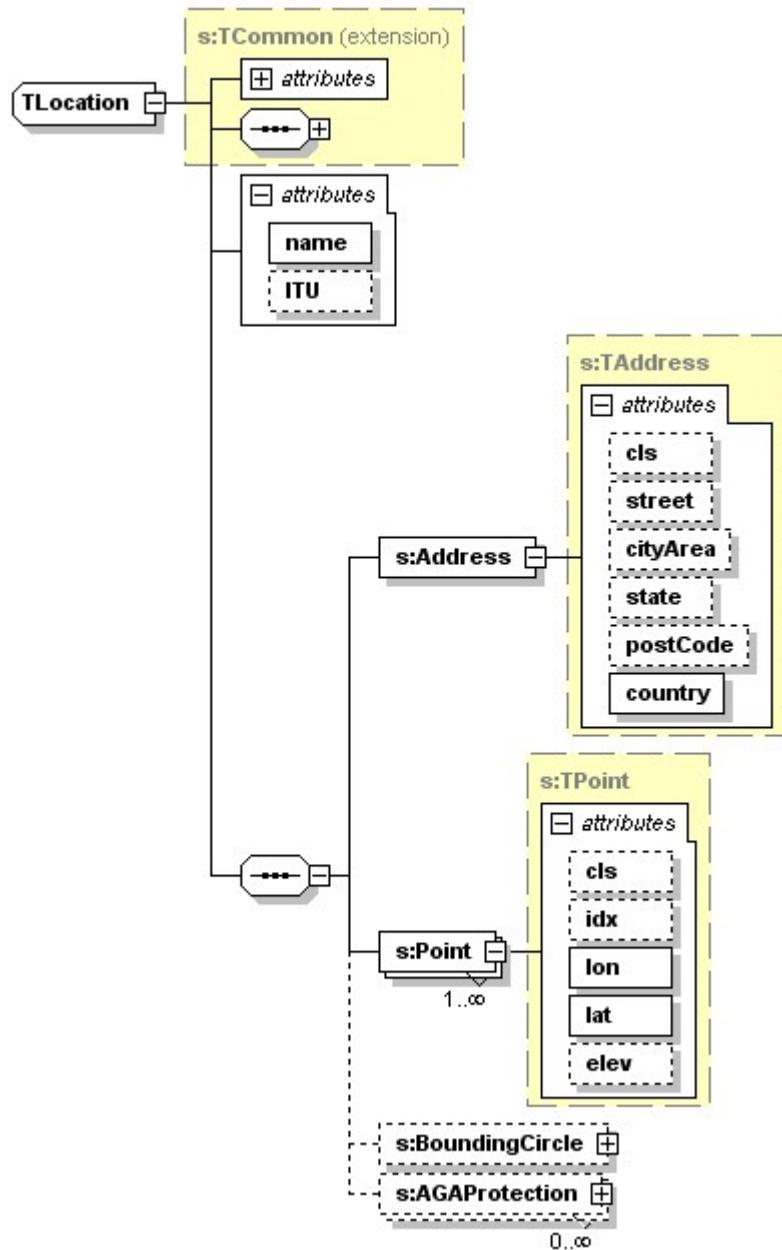


Figure II-10a

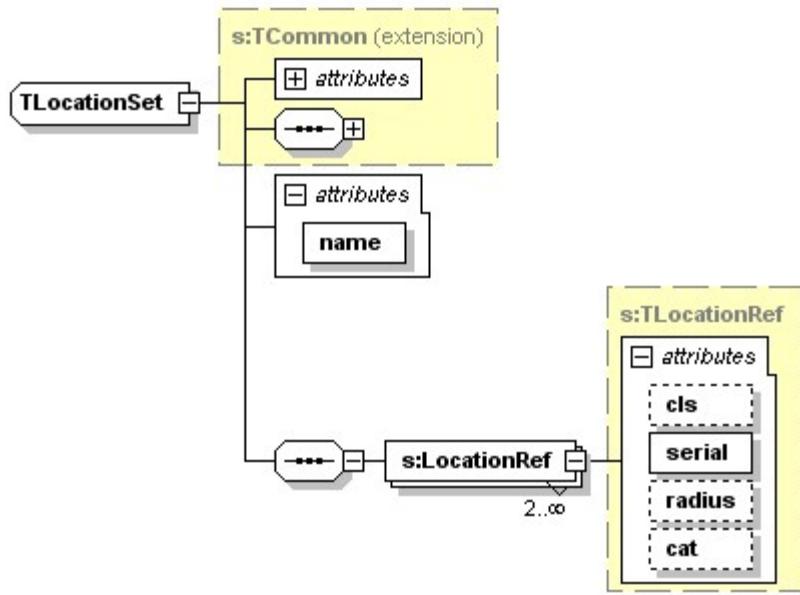


Figure II-10b

## AGAProtection

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
A/G/A Site Protection Criteria	criteria	Required	C6 Uppercase
A/G/A Site Protected Frequency	freq	Optional	<a href="#">E</a> (MHz)
<b>Sub-Element Of</b>	<a href="#">Location</a>		

### Description

Data element AGAProtection describes the protection desired for a UHF air/ground air location (site). It consists of a series of formatted entries that are used by the NUFAS software tool in selecting radio frequencies to be used at the site. Item **criteria** describes the criteria to be used by the NUFAS software, and item **freq** indicates the value to be used for this criteria.

### ***Input Requirement***

This element is OPTIONAL and repeatable.

Use this element when defining a Location to be used as an A/G/A site for [UHFAMS assignments](#) to be performed by NATO / SMB. Select the appropriate paragraph below to format the desired protection criteria to be used by NUFAS. Specific entries in criteria require an entry in freq.

#### Minimum frequency separation:

To specify a minimum frequency separation between each assignment at this site, use criteria="[DFNORM](#)" for normal power transmitters (up to 23 dBW) or criteria="[DFHIGH](#)" for higher power transmitters (more than 23 dBW), and enter the desired frequency separation in MHz in the range 0.1 through 10 in **freq**.

#### Intermodulation:

The NUFAS software can select intermodulation-free (up to 3 signal 5th order) radio frequencies for a site. If the first attempt with full protection aborts (no frequency available) then NUFAS will try again with a first level of relaxation and then with a second level of relaxation. Enter the relevant criteria codes (**P02S2O** to **P23S5O**) to indicate if this order of intermodulation products should be avoided for the particular trial (P0 (full protection), P1 (1st relaxation), P2 (2nd relaxation)). Item **freq** must **not** be used with these codes.

#### Harmonics:

NUFAS software can also protect the assignment against harmonics of existing radio frequencies at the site. Enter the relevant codes (**P0HARM** to **P2HARM**) to indicate if harmonics should be avoided for the particular trial (P0, P1, P2). Item **freq** must **not** be used with these codes.

#### VHF Frequencies:

In addition to the above codes, NUFAS software can also protect against other radio frequencies which are not listed in the SMIR data repository but which can be listed here using criteria="**VHF**" (radio frequencies below 225 MHz) and criteria="**UHF**" (radio frequencies in the UHF 225-400 MHz band). Enter a frequency in MHz in **freq**.

#### **Code List Category PR:**

Short Code	Definition
<b>DFNORM</b>	Frequency Separation - Normal Power
<b>DFHIGH</b>	Frequency Separation - High Power
<b>P02S2O</b>	2-signal 2nd order - full protection
<b>P02S3O</b>	2-signal 3rd order - full protection
<b>P02S5O</b>	2-signal 5th order - full protection
<b>P03S3O</b>	3-signal 3rd order - full protection
<b>P03S5O</b>	3-signal 5th order - full protection
<b>P12S2O</b>	2-signal 2nd order - 1st relaxation
<b>P12S3O</b>	2-signal 3rd order - 1st relaxation
<b>P12S5O</b>	2-signal 5th order - 1st relaxation
<b>P13S3O</b>	3-signal 3rd order - 1st relaxation
<b>P13S5O</b>	3-signal 5th order - 1st relaxation
<b>P22S2O</b>	2-signal 2nd order - 2nd relaxation
<b>P22S3O</b>	2-signal 3rd order - 2nd relaxation
<b>P22S5O</b>	2-signal 5th order - 2nd relaxation
<b>P23S3O</b>	3-signal 3rd order - 2nd relaxation
<b>P23S5O</b>	3-signal 5th order - 2nd relaxation
<b>P0HARM</b>	Full protection against harmonics
<b>P1HARM</b>	Protection against harmonics at the 1st relaxation level
<b>P2HARM</b>	Protection against harmonics at the 2nd relaxation level
<b>VHF</b>	Protection of a VHF frequency
<b>UHF</b>	Protection of a UHF frequency

#### **Validation Rules**

None

#### **Examples**

```
<AGAProtection criteria="DFNORM" freq="0.5"/>
<AGAProtection criteria="DFHIGH" freq="2"/>
<AGAProtection criteria="P02S2O"/>
<AGAProtection criteria="P0HARM"/>
<AGAProtection criteria="VHF" freq="131.5"/>
```

## BoundingCircle

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Centre Longitude	lon	Required	C8 Uppercase
Centre Latitude	lat	Required	C7 Uppercase
Radius	radius	Required	UN4 (km)
Average Terrain Elevation	avgElev	Optional	SN5 (m)
Minimum Terrain Elevation	minElev	Optional	SN5 (m)
Maximum Terrain Elevation	maxElev	Optional	SN5 (m)
Sub-Element Of	<a href="#">Location</a>		

### Description

Data element BoundingCircle represents the smallest circle just containing the polygon defined by the series of Point elements. It is defined by the coordinates (WGS 84) of its centre point and its radius. The bounding ball of any polygon is unique and may be computed through various mathematical algorithms. In addition it may contain the average terrain elevation and the minimum and maximum terrain elevations where the computer application can generate them, in metres related to mean sea level (MSL).

### Input Requirement

This element is OPTIONAL, and may be used only if Location.type = "[LG](#)". If used it will be software-generated.

Enter:

- In **lon**, the geographical longitude (degrees, minutes, seconds, and hemisphere E or W) for the centre of the circle. Use leading zeros as appropriate for degrees, minutes, or seconds. Degrees longitude require three digits. Enter E or W immediately following the seconds.
- In **lat**, the geographical latitude (degrees, minutes, seconds and hemisphere N or S) for the centre of the circle. Use leading zeros as appropriate for degrees, minutes, or seconds. Degrees latitude require two digits. Enter N or S for latitude, immediately following the seconds.
- In **radius**, the radius of the circle in km.
- In **avgElev**, **minElev** and **maxElev**: the average, minimum and maximum elevations inside the polygon, in metres related to MSL. A software application MAY generate these values using a digital terrain database.

### Validation Rules

[XSL ERR LO008] Element BoundingCircle MUST NOT be used if Location.type = "[LT](#)".

### Example

```
<BoundingCircle lon="0792823W" lat="394217N" radius="56" avgElev="239"/>
```

## Note

If **Location.locType="LT"**, enter the site elevation in sub-element [Point](#).

## Location

Attribute name	Attribute tag	Occurrence	Format
Name	name	Required	C100
ITU region	ITU	Optional	UN1 [1 .. 3]
Inherits from	<a href="#">Common</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-elements	<a href="#">Address [1..1]</a> , <a href="#">AGAProtection [0..n]</a> , <a href="#">Point [1..n]</a> , <a href="#">BoundingCircle [0..1]</a>		
Referenced By	<a href="#">LocationRef</a>		

## Description

This element is the root for all parameters of a Location element used to describe a geographical location or polygonal area. It inherits attributes and sub-elements from element [Common](#).

## Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

In addition, enter:

- In **name**, the name of the location.
- In **ITU**, enter one of the ITU Regions from the Code List Category IT. This attribute is used for ITU datasets only.

### Code List Category IT:

Short Code	Definition
1	ITU Region 1
2	ITU Region 2
3	ITU Region 3

## Validation Rules

- [XSD] The attribute **ITU** MUST use one of the codes from Code List Category IT.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[LT](#)" or "[LG](#)".

## Example

```
<Location serial="BEL:AR:LT:123" usageType="P" name="TRAINING"
entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
    <... all Common + Location elements...>
</Location>
```

## Notes

- Where applicable, the data in attributes **name** and **cityArea** should be spelt the same as in the postal zip code directory or gazetteer.
- When creating a location to represent an entire country or other defined geographical area, the country code from Code List Category AO SHALL be used in **name**.
- The following standard abbreviations MAY be used:

Abbreviation	Location Word
ARPT	Airport
ARA	Army Area
CP	Camp
CY	City
CGD	Coast Guard District
CO	County
DI	District
DIV	Division
FT	Fort
IAP	International Airport
IS	Island(s)
LNB	Large Navigational Buoy
MT	Mont, Monte, Mount(s)
MTN	Mountain(s)
MAP	Municipal Airport
PG	Proving Ground(s)
PT	Point
ST	Saint

- An area of operation may be described as a polygon by geographical coordinates. For example, if an assignment is for one or more land mobile stations operating south of 503000N degrees in Germany, then insert D-SOUTH in **name** and the vertices of the polygon in multiple [Point](#) elements.
- Although the data inserted shall normally be geographical names or descriptions, exceptions may be made for experimental operations, mobile operations where the state/country and antenna location data items are identical (such as **country="PAC"**, **cityArea="PAC"**, etc.), and/or space operations. For an assignment to an experimental station, other than one in space, or to a mobile station having identical state/country and antenna location names, words such as AIRCRAFT, BALLOONS, or SHIPS may be used, as appropriate. For an assignment to a station aboard a geostationary satellite, insert GEOSTATIONARY. For an assignment to a station aboard a non geostationary satellite, insert NONGEOSTATIONARY. For an assignment to a station located on a natural object in space, insert the name of the object, e.g., MOON.
- If [Address.country](#) equals "**SPCE**" and the dataset is not submitted to NATO, enter the name of the satellite (for geostationary satellites) or the satellite system name (for nongeostationary satellites) in **name**. An example of a geostationary satellite is given in example 2 and an example for a non-geostationary satellite system is given in example 3. In NATO datasets the Station Name will be computer generated unless it is entered by the user. If sending space data to the ITU, enter the name of the space station using not more than 20 characters (identity of the satellite network).
- If an earth station registered with the ITU uses more than one antenna, the station name should be supplemented by a number (e.g. 1, 2, 3, etc.) to distinguish one antenna from another. For

example "**LANDSTUHL 3**" could represent the third antenna at the earth station in Landstuhl, Germany. If a satellite system is planned to comprise groups of earth stations (each group having different characteristics) a typical earth station corresponding to each such group has to be the subject of a separate notice and should be identified by separate designations in this box.

Also see [LocationRef](#).

## LocationSet

Attribute name	Attribute tag	Occurrence	Format
Area Name	name	Required	C100
Inherits from	<a href="#">Common</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-elements	<a href="#">LocationRef [1..n]</a>		
Referenced By	<a href="#">LocationRef</a>		

### Description

This element is the XML root for a set of Locations, allowing to create a composite geographical area made of a list of disconnected polygons. It inherits attributes and sub-elements from element [Common](#).

### Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

### Validation Rules

- [XSD] An Area MUST contain at least two LocationRef.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[LA](#)".

### Example

```
<LocationSet serial="BEL:AR:LA:123" usageType="P" name="TRAINING AREA"
  entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
  <... all Common + LocationSet elements...>
</LocationSet>
```

### Note

Also see [LocationRef](#).

## Point

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Index	idx	Optional	UN5
Longitude	lon	Required	C8 Uppercase
Latitude	lat	Required	C7 Uppercase
Terrain Elevation	elev	Optional	SN7.2 (m)
<b>Sub-Element Of</b>	<u>Location</u>		

### Description

Data element Point contains the coordinates (WGS 84) of point(s) that represent either the site, the centre of a circle, or the boundary of a polygon. Polygon points are described in a clockwise direction; it is assumed that the last point is connected to the first point to complete the boundary of the polygon.

It contains also the terrain elevation, in metres above mean sea level (MSL) of this point. If the antenna installed at this point is located on a structure such as a tower or a building, the site elevation is specified as the ground elevation at the base of the structure.

### *Input Requirement*

This element is REQUIRED and repeatable.

For a polygon, enter at least three points, and as many as necessary, to bound an assignment operational area or an excluded area.

- Attribute **idx** MUST be used for a polygons. Enter the sequence index of the point.
- Enter in **lon** and **lat**, geographical longitude (degrees, minutes, seconds, and hemisphere E or W) and latitude (degrees, minutes, seconds and hemisphere N or S) for the location. If the seconds are not known, use 00, except in the case of navigation aid systems, geostationary satellites, and microwave facilities where seconds are required. Use leading zeros as appropriate for degrees, minutes, or seconds. Degrees longitude require three digits. Enter E or W for longitude, or N or S for latitude, immediately following the seconds.
- Attribute **elev** is required for fixed stations except for applications for radio frequencies below 30 MHz or for terrestrial stations operating at 30 MHz and above if for experimental and mobile stations. Enter the site (terrain) elevation (at the base of the transmitting antenna structure) in metres above MSL. This information is not required for the ITU notification of a typical earth station.

### *Validation Rules*

[XSL ERR LO002] If Location is of type "LT", only one occurrence of Point is allowed.

[XSL ERR LO003] If Location is of type "LG", there MUST be at least three occurrences of Point.

[XSL ERR LO004] If Location is of type "LG", attribute **idx** MUST be used; If Location is of type "LT", attribute **idx** MUST NOT be used.

[XSL ERR LO005] Attribute **idx** for each Point within a GeoData MUST be in ascending sequential order without gaps.

## Note

In order to be able to accommodate legacy data, a value of "**x**" MAY be used in attributes **lon** and **lat** as a gap filler, but only for legacy data which do not contain this information. The real value SHOULD always be used for new datasets and during the review of old datasets. Datasets containing this value SHOULD NOT be exchanged internationally.

## Example

*Eight longitude points to define the state of MD:*

```
<Point idx="1" lon="0792823W" lat="394217N"/>
<Point idx="2" lon="0754719W" lat="394251N"/>
<Point idx="3" lon="0754141W" lat="382621N"/>
<Point idx="4" lon="0745352W" lat="382547N"/>
<Point idx="5" lon="0745426W" lat="375224N"/>
<Point idx="6" lon="0771859W" lat="375451N"/>
<Point idx="7" lon="0774338W" lat="391947N"/>
<Point idx="8" lon="0792930W" lat="391154N"/>
```

## 11. Spectrum Supportability elements

These data elements contain the items pertaining to the Spectrum Supportability process as described in the ACP190 NATO Supplement 1(A) (Guide to Spectrum Management for Military Operations).

The Spectrum Supportability process is composed of three steps as described in the [CONOPS paragraph 2.5](#).

### Structure of elements SSRequest and SSReply

Note: A SSRequest may refer either to a [SignalDescr](#) or to a real [TxRx](#). See the [introduction to Transceiver data elements](#) for further details. See [Annex L](#) for a description of the columns in the table below.

Note: Refer to [section 3](#) for Common attributes and sub-elements (inherited by SSRequest and SSReply in the tables below).

element name	national	content	occ	attributes
<a href="#">SSRequest</a>			[0..n]	(+stage(L:SG))
<a href="#">ApprovalRouting</a>	(USA)	(S1+P)	[0..1]	(cls(L:CL))
<a href="#">ResponseDate</a>		(D)	[0..1]	(cls(L:CL))
<a href="#">Title</a>		(S100)	[1..1]	(lang(S2),cls(L:CL))
<a href="#">Stage</a>			[1..3]	(cls(L:CL),+num(L:SG),startDate(D),targetDate(D),approvalDate(D),terminationDate(D),numTx(UI6),numRx(UI6))
<a href="#">Stage4Srv</a>		(S10)	[0..1]	(cls(L:CL))
<a href="#">SystemCost</a>	(USA)	(S)	[0..1]	(cls(L:CL),initialCost(S70))
<a href="#">NumUnits</a>			[1..1]	(cls(L:CL),numCosited(UI5),+numArea(UI5))
<a href="#">Description</a>		(S)	[1..1]	(cls(L:CL))
<a href="#">Requirement</a>		(S)	[1..1]	(cls(L:CL))
<a href="#">WillReplace</a>		(S)	[0..n]	(cls(L:CL),retireDate(D))
<a href="#">SSRequestRef</a>			[0..n]	(cls(L:CL),+serial(S28+P),+type(S3+P))
<a href="#">HostNation</a>		(S4)	[0..n]	(cls(L:CL))
<a href="#">Config</a>			[1..n]	(cls(L:CL),+name(S24),+stnClass(L:SC),srvNature(L:SV),repeater(L:BO))
<a href="#">TxRxModeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<a href="#">SignalDescrModeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<a href="#">AntModeRef</a>			[0..1]	(cls(L:CL),+serial(S28+P),antMode(L:AM))
<a href="#">EIRP</a>			[0..1]	(cls(L:CL),minEIRP(SN6.2),maxEIRP(SN6.2))

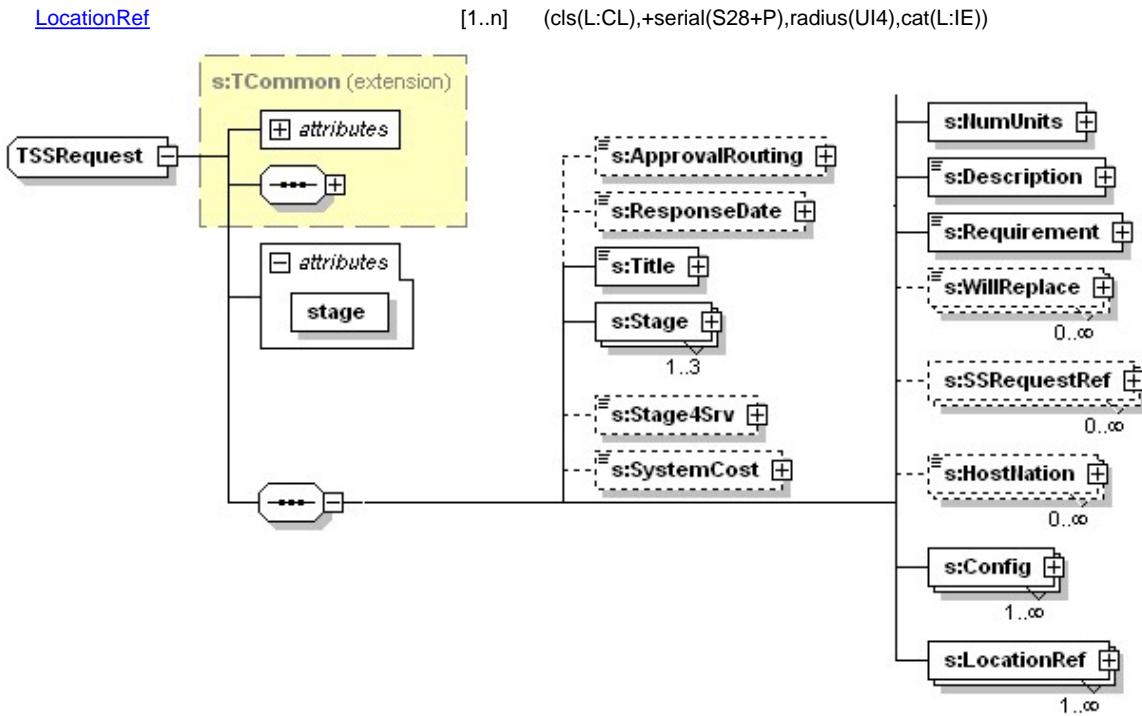


Figure II-11a

element name	national	content	occ	attributes
<a href="#">SSReply</a>			[0..n]	(+status(L:HD))
<a href="#">SSRequestRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),+type(S3+P))
<a href="#">HostNationConstraints</a>			[0..n]	(cls(L:CL))
<a href="#">Config</a>			[0..n]	(cls(L:CL),+name(S24),+stnClass(L:SC),srvNature(L:SV),repeater(L:BO))
<a href="#">TxRxModeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<a href="#">SignalDescrModeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<a href="#">AntModeRef</a>			[0..1]	(cls(L:CL),+serial(S28+P),antMode(L:AM))
<a href="#">EIRP</a>			[0..1]	(cls(L:CL),minEIRP(SN6.2),maxEIRP(SN6.2))
<a href="#">AuthorisedTuning</a>			[0..1]	(cls(L:CL),+tuningStep(UN16.6),+numFreqs(UI4))
<a href="#">FreqSingle</a>	(UN16.6)		[0..n]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqRange</a>			[0..n]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">TimeFrame</a>			[0..1]	(cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">LocationRef</a>			[0..n]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))

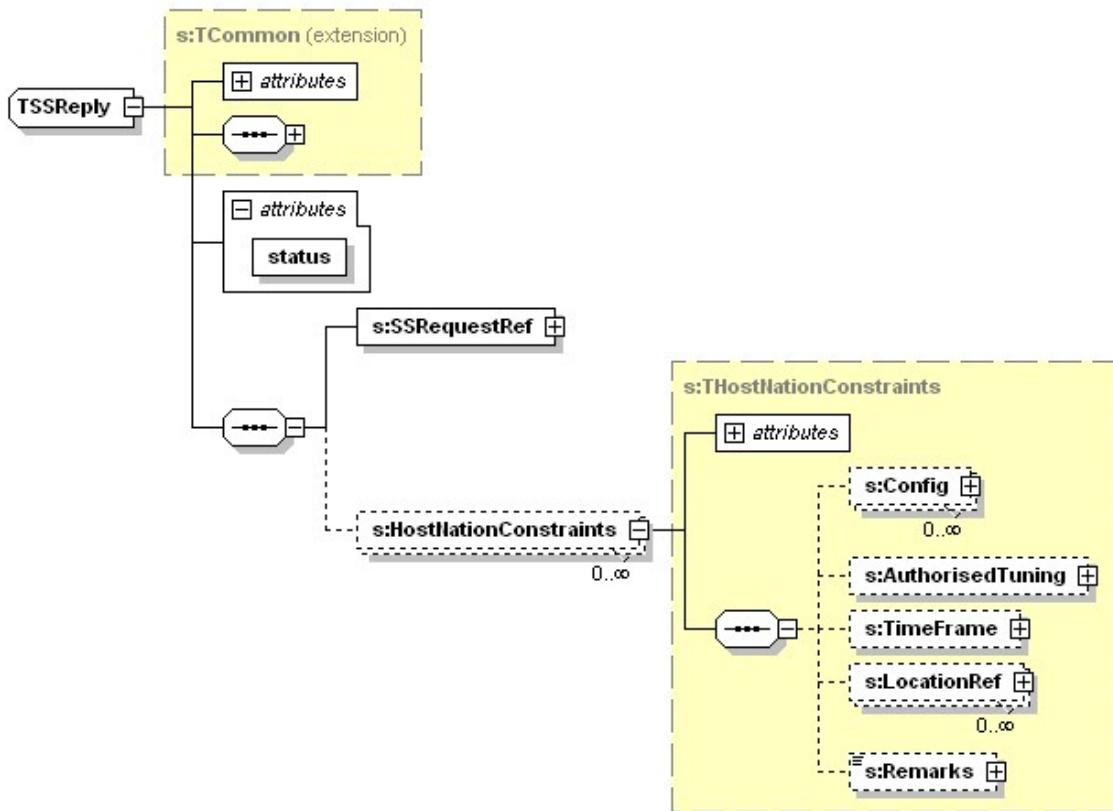


Figure II-11b

## AuthorisedTuning

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Tuning Step	tuningStep	Optional	F (MHz)
Number of Frequencies	numFreq	Optional	UN4
<b>Sub-Element Of</b>	<a href="#">HostNationConstraints</a> , <a href="#">OpClearance</a>		
<b>Sub-elements</b>	<a href="#">FreqRange [0..n]</a> , <a href="#">FreqSingle [0..n]</a>		

### Description

Data element AuthorisedTuning indicates the specific frequency or range of frequencies, tuning increment, and number of frequencies, authorized by a Host Nation for a Spectrum Supportability.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **tuningStep**, the tuning increment expressed in MHz (do not insert any unit).
- In **numFreq**, the number of frequencies required.

## **Validation Rules**

None

### **Example**

```
<AuthorisedTuning tuningStep="0.05" numFreq="100">
    ...
</AuthorisedTuning>
```

## **HostNation**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
HostNation	Element Content	Required	C4 Uppercase
<b>Sub-Element Of</b>	<u>SSRequest</u>		

### **Description**

This element contains the potential host nation to whom the Spectrum Supportability Request is sent.

### **Input Requirement**

This element is OPTIONAL and repeatable.

Enter one of the country codes listed in [Annex F \(Code List Category AO\)](#).

## **Validation Rules**

- [XSD] The element content MUST use one of the codes from Code List Category AO.

### **Example**

```
<HostNation>BEL</HostNation>
```

### **Note**

For SSRequest's sent to NATO, no HostNation implies a full distribution to all NATO Nations.

## HostNationConstraints

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u>SSReply</u>		
<b>Sub-elements</b>	<u>Config [0..n]</u> , <u>AuthorisedTuning [0..1]</u> , <u>LocationRef [0..n]</u> , <u>TimeFrame [0..1]</u>		

### Description

Data element HostNationConstraints is used in SSReply datasets. It contains the operational constraints imposed by the host nation, in terms of tuning range, time schedule of utilisation, and modes of operation.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter the constraints imposed by the host nation.

### Validation Rules

[XSL ERR SS003] At least one of the sub-elements MUST be present in this element.

### Example

```
<HostNationConstraints>
    ...
    </HostNationConstraints>
```

## SSReply

Attribute name	Attribute tag	Occurrence	Format
Status	status	Required	C1 Uppercase
<b>Inherits From</b>	<u>Common</u>		
<b>Sub-Element Of</b>	<u>Body</u>		
<b>Sub-elements</b>	<u>HostNationConstraints [0..n]</u> , <u>SSRequestRef [1..1]</u>		

### Description

This element is the XML root for all parameters of a Host Nation Declaration of Spectrum Supportability. It inherits attributes and sub-elements from element Common.

### Input Requirement

This element is OPTIONAL and repeatable.

See element Common for attributes **serial** and **usageType**, and for common sub-elements.

Enter:

- In **status**, the overall result of the national analysis. Use one of the codes from Code List Category HD:

#### **Code List Category HD:**

Short Code	Definition
Y	Granted as requested
N	Denied
C	Granted with additional constraints or remarks

If **status** = "C", either sub-element HostNationConstraints or sub-element Remarks MUST be used to describe the constraints. Element HostNationConstraints SHOULD be used in preference to free text in this element content.

#### **Validation Rules**

- [XSD] The attribute **status** MUST use one of the codes from Code List Category HD.
- [XSL ERR SS004] If **status** = "C" elements HostNationConstraints and/or Remarks MUST be used.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "HD".

#### **Validation Rules**

None.

#### **Example**

```
<SSReply serial="TUR:MOD:HD:07823/2" status="C"
entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
    <... all Common + SSReply elements ...>
</SSReply>
```

#### **SSRequest**

Attribute name	Attribute tag	Occurrence	Format
Stage of Development	stage	Required	UN1 [1 .. 4]
<b>Inherits From</b>	<u>Common</u>		
<b>Sub-Element Of</b>	<u>Body</u>		
<b>Sub-elements</b>	<u>ApprovalRouting [0..1], Config [1..n], Contract [0..n], Description [1..1], HostNation [0..n], LocationRef [1..n], NumUnits [1..1], WillReplace [0..n], Requirement [1..1], ResponseDate [0..1], SSRequestRef [0..n], Stage [0..3], Stage4Srv [0..1], SystemCost [0..1], Title [1..1]</u>		
<b>Referenced By</b>	<u>SSRequestRef</u>		

#### **Description**

This element is the XML root for all parameters of an SSRequest. It inherits attributes and sub-elements from element Common.

In addition, data element SSRequest contains in **stage**, the stage of development of a system for which Spectrum Supportability is being requested.

## **Input Requirement**

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

Item **stage** is required. Enter a number representing the stage of development from the Code List Category SG:

### **Code List Category SG:**

#### **Short Code Definition**

1	Conceptual (Stage 1 is not used in this data item. It is provided for reference)
2	Experimental
3	Developmental
4	Operational

## **Validation Rules**

- [XSD] The attribute **stage** MUST use one of the codes from Code List Category SG.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[SR](#)".

## **Examples**

```
<SSRequest stage="4" serial="D:AF:SR:07823/2" usageType="P"
entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
  <...all Common + SSRequest elements...>
</SSRequest>
```

## **Stage**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Stage Number	num	Required	UN1 [2 .. 4]
Approval Date	approvalDate	Optional	<a href="#">Date</a>
Stage Start Date	startDate	Optional	<a href="#">Date</a>
System Target Date	targetDate	Optional	<a href="#">Date</a>
Termination Date	terminationDate	Optional	<a href="#">Date</a>
Number of Transmitters in this Stage	numTx	Optional	UN6
Number of Receivers in this Stage	numRx	Optional	UN6
<b>Sub-Element Of</b>	<b>SSRequest</b>		

## Description

Data element Stage contains information about the life-cycle management of the system. This information includes:

- the phase number (stage number in the range of 2-4) for which the rest of the information is being provided;
- the approval date;
- the start date for this phase;
- the target date;
- the termination date;
- the total number of units being built, procured, or used at this stage of allocation.

## Input Requirement

This element is REQUIRED and repeatable up to 3 times.

Enter:

- In **num**, a code (2, 3 or 4) taken from Code List Category SG:

### Code List Category SG:

#### Short Code Definition

1	Conceptual (Stage 1 is not used in this data item. It is provided for reference)
2	Experimental
3	Developmental
4	Operational

- In **approvalDate**, the date by which the approval of the application is required.
- In **startDate**, the date upon which work will commence on this stage.
- In **targetDate**, the date by which a usable version of the system is expected to be available for testing or deployment.
- In **terminationDate**, the date this stage is expected to terminate. For a stage 2 application the date entered is the date when the system is expected to enter stage 3. The date may be an estimate.
- in **numTx** and **numRx**, the total number of equipment applicable to that stage. If the number of transmitters differs from the number of receivers then make two entries for that stage. The first entry will be for transmitters and the second for receivers.

## Validation Rules

- [XSL ERR SS001] Element Stage MUST be used if SSRequest.stage < 4.
- [XSD] The attribute **num** MUST use one of the codes from Code List Category SG.

## Example

```
<Stage num="3" approvalDate="2003-01-01" startDate="2004-01-01"
```

```
targetDate="2005-01-01"
terminationDate="2009-01-01" numTx="2000" numRx="4500"/>
```

## Stage4Srv

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Stage4Srv	Element Content	Required	C10 Uppercase
Sub-Element Of	<u>SSRequest</u>		

### Description

Data element Stage4Srv contains the final service when the system reaches the operational state.

### Input Requirement

This element is OPTIONAL, but it MUST be used when an Spectrum Supportability is being requested for stage 1-3 systems.

Enter in element content a code from [Annex F \(Code List Category SN\)](#).

### Validation Rules

- [XSL ERR SS002] Element Stage4Srv MUST be used if SSRequest.stage < 4.
- [XSD] The element content MUST use one of the codes from Code List Category SN.

### Example

```
<Stage4Srv>AM(OR)S</Stage4Srv>
```

## SystemCost

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Initial System Cost	initialCost	Optional	C70
System Cost	Element Content	Optional	Memo
Sub-Element Of	<u>SSRequest</u>		

### Description

This is a National element (used by: USA).

Data element SystemCost contains an estimate of the total cost and total number of systems.

### Input Requirement

This element is OPTIONAL. It MUST be used by the USA when an Spectrum Supportability is being requested. Enter a brief statement about the total system cost and number of units purchased.

## ***Validation Rules***

None

### ***Example***

```
<SystemCost>10 million dollars for 100 systems and 20M for R&D</  
SystemCost>
```

## 12. Transceiver elements

A transceiver dataset is a group of data entries defining a transmitter/receiver (group named TxRx). A TxRx may include a Transmitter, a Receiver, or both. Each part has one or several modes defined.

### ***Structure of Elements TxRx and SignalDescr***

See [Annex L](#) for a description of the columns in the tables below.

Notes:

- The details of elements TxRxMode, TxMode and RxMode (which are common SignalDescr and TxRx) to are given in the third table.
- Refer to [section 3](#) for Common attributes and sub-elements (inherited by SignalDescr and TxRx in the tables below).

element name	national	content	occ	attributes
<a href="#">SignalDescr</a>			[0..n]	()
<a href="#">Title</a>		(S100)	[1..1]	(lang(S2),cls(L:CL))
<a href="#">SignalTuning</a>			[0..n]	(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<a href="#">FreqRange</a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">FreqSingle</a>			[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqTolerance</a>		(UN16.6)	[0..1]	(cls(L:CL))
<a href="#">EgpFnct</a>	(USA)	(S2+P)	[0..n]	(cls(L:CL))
<a href="#">TxRxMode</a>			[1..n]	(cls(L:CL),descr(S100),+modeName(S40+P))
...				
<a href="#">SignalTx</a>			[0..1]	(cls(L:CL))
<a href="#">SignalTuning</a>			[0..n]	(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<a href="#">FreqRange</a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">FreqSingle</a>			[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#">Curve</a>			[0..n]	(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1),+freqConst(UN16.6),bw(UN16.6))
<a href="#">CurvePoint</a>			[1..n]	(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<a href="#">FreqTolerance</a>		(UN16.6)	[0..1]	(cls(L:CL))
<a href="#">SignalRx</a>			[0..1]	(cls(L:CL))
<a href="#">SignalTuning</a>			[0..n]	(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<a href="#">FreqRange</a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">FreqSingle</a>			[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#">Curve</a>			[0..n]	(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1),+freqConst(UN16.6),bw(UN16.6))
<a href="#">CurvePoint</a>			[1..n]	(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<a href="#">FreqTolerance</a>		(UN16.6)	[0..1]	(cls(L:CL))
<a href="#">IFreq</a>			[0..5]	(cls(L:CL),+IFNum(L:IF),+tuning(L:LO))
<a href="#">FreqSingle</a>		(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqRange</a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))

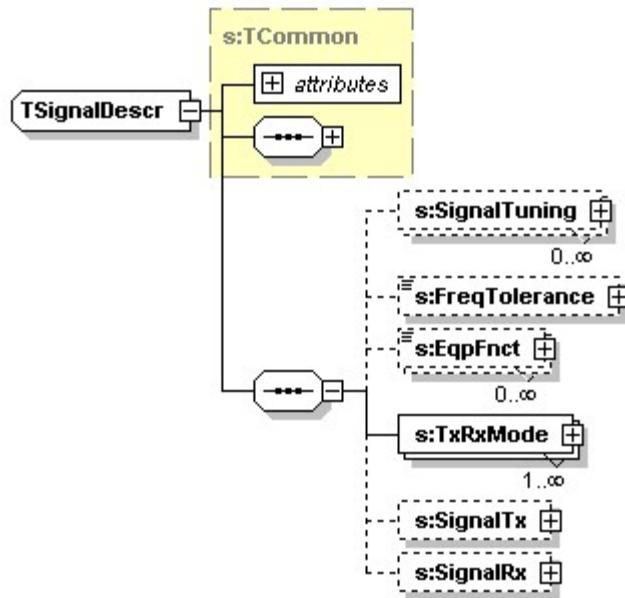


Figure II.12.a: Element SignalDescr

element name	national	content	occ	attributes
<a href="#">TxRx</a>			[0..n]	(eqpType(L:AU))
<a href="#">Nomenclature</a>			[1..n]	(cls(L:CL),+type(S3+P),+level(L:NU))
<a href="#">NomenclatureName</a>		(S100)	[1..1]	(cls(L:CL))
<a href="#">Manufacturer</a>			[0..n]	(cls(L:CL),country(L:AO),+code(L:MA))
<a href="#">FSCM</a>	(USA)	(S5+P)	[0..n]	(cls(L:CL))
<a href="#">StockNum</a>	(USA)	(S20+P)	[0..n]	(cls(L:CL),type(L:NS))
<a href="#">Deployment</a>			[0..1]	(cls(L:CL),+type(L:IN))
<a href="#">Installation</a>			[0..n]	(cls(L:CL))
<a href="#">Emergency</a>			[0..1]	(cls(L:CL))
<a href="#">WillReplace</a>			[0..n]	(cls(L:CL),retireDate(D))
<a href="#">SignalDescrRef</a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#">DuplexSep</a>		(UN16.6)	[0..1]	(cls(L:CL),+type(L:DS))
<a href="#">TSPR</a>	(USA)	(S)	[0..1]	(cls(L:CL))
<a href="#">ELNOT</a>	(USA)	(S)	[0..1]	(cls(L:CL))
<a href="#">SignalTuning</a>			[0..n]	(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<a href="#">FreqRange</a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">FreqSingle</a>			[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqTolerance</a>		(UN16.6)	[0..1]	(cls(L:CL))
<a href="#">EqFnct</a>		(S2+P)	[0..n]	(cls(L:CL))
<a href="#">TxRxMode</a>			[1..n]	(cls(L:CL),descr(S100),+modeName(S40+P))
...				
<a href="#">Transmitter</a>			[0..1]	(cls(L:CL))
<a href="#">Nomenclature</a>			[0..n]	(cls(L:CL),+type(S3+P),+level(L:NU))
<a href="#">NomenclatureName</a>		(S100)	[1..1]	(cls(L:CL))
<a href="#">Manufacturer</a>			[0..n]	(cls(L:CL),country(L:AO),+code(L:MA))
<a href="#">FSCM</a>	(USA)	(S5+P)	[0..n]	(cls(L:CL))
<a href="#">StockNum</a>	(USA)	(S20+P)	[0..n]	(cls(L:CL),type(L:NS))
<a href="#">SignalTuning</a>			[0..n]	(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<a href="#">FreqRange</a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">FreqSingle</a>		(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#">Curve</a>			[0..n]	(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1),+freqConst(UN16.6),bw(UN16.6))
<a href="#">CurvePoint</a>			[1..n]	(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<a href="#">FreqTolerance</a>		(UN16.6)	[0..1]	(cls(L:CL))
<a href="#">OutputDevice</a>		(S40)	[0..1]	(cls(L:CL),+type(L:OT))
<a href="#">Filter</a>		(S)	[0..1]	(cls(L:CL))
<a href="#">Receiver</a>			[0..1]	(cls(L:CL),type(L:RT))
<a href="#">Nomenclature</a>			[0..n]	(cls(L:CL),+type(S3+P),+level(L:NU))
<a href="#">NomenclatureName</a>		(S100)	[1..1]	(cls(L:CL))
<a href="#">Manufacturer</a>			[0..n]	(cls(L:CL),country(L:AO),+code(L:MA))
<a href="#">FSCM</a>	(USA)	(S5+P)	[0..n]	(cls(L:CL))

<u>StockNum</u>	(USA)	(S20+P)	[0..n]	(cls(L:CL),type(L:NS))
<u>SignalTuning</u>			[0..n]	(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<u>FreqRange</u>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>FreqSingle</u>		(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<u>Curve</u>			[0..n]	(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1), +freqConst(UN16.6),bw(UN16.6))
<u>CurvePoint</u>			[1..n]	(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<u>FreqTolerance</u>		(UN16.6)	[0..1]	(cls(L:CL))
<u>IFreq</u>			[0..5]	(cls(L:CL),+IFNum(L:IF),+tuning(L:LO))
<u>FreqSingle</u>		(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<u>FreqRange</u>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>PreselectionType</u>		(S60)	[0..1]	(cls(L:CL))

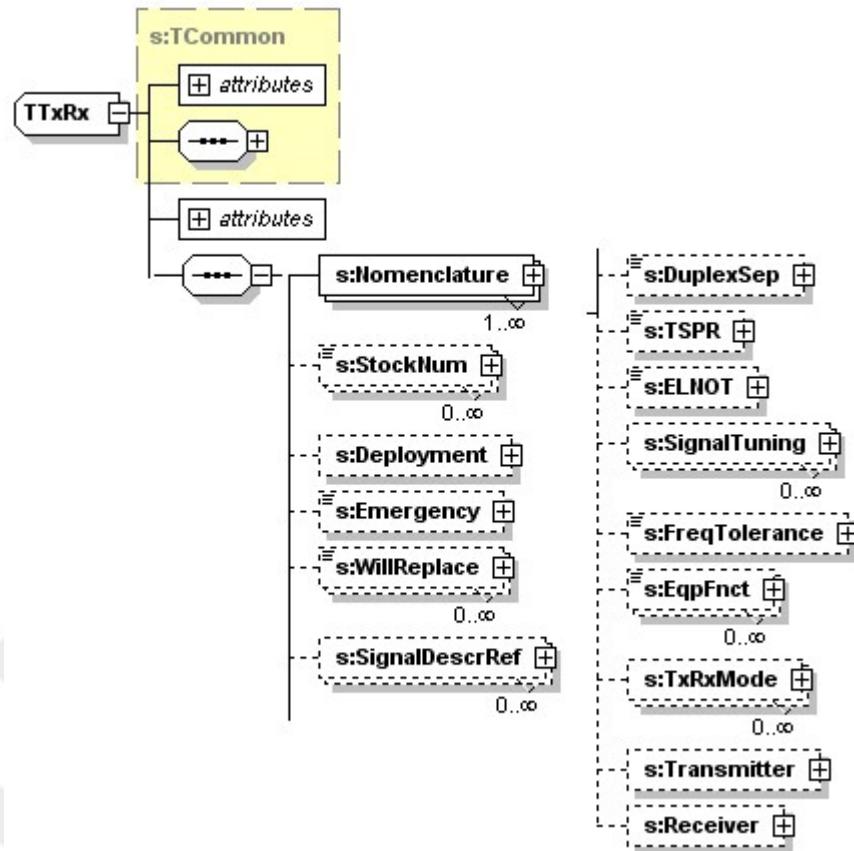


Figure II-10b: Element TxRx

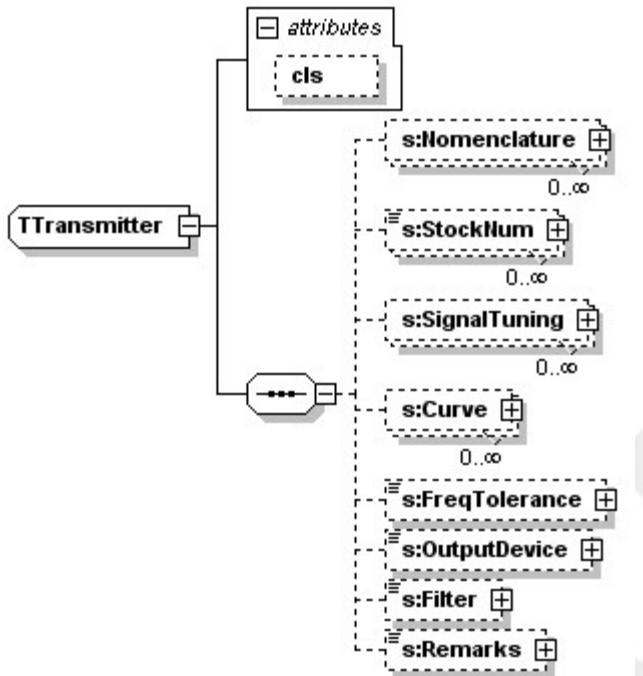


Figure II.12.c: Element Transmitter

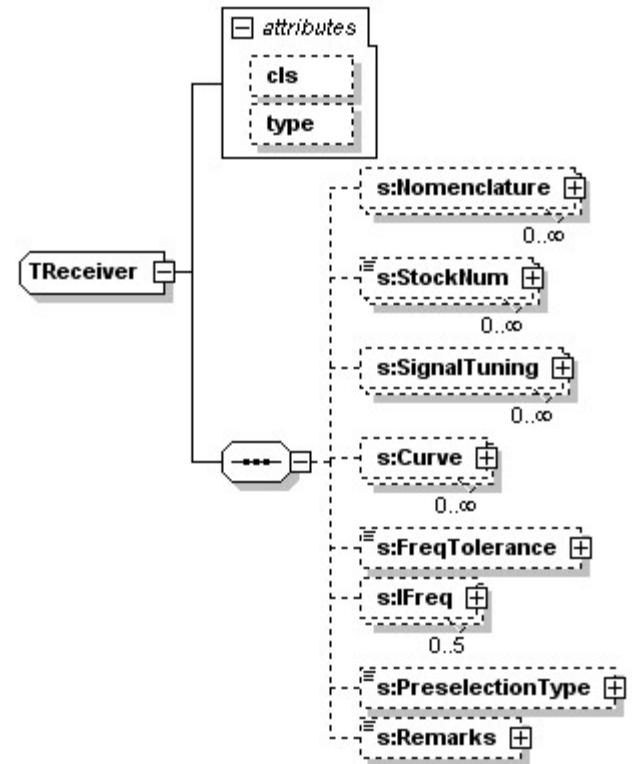
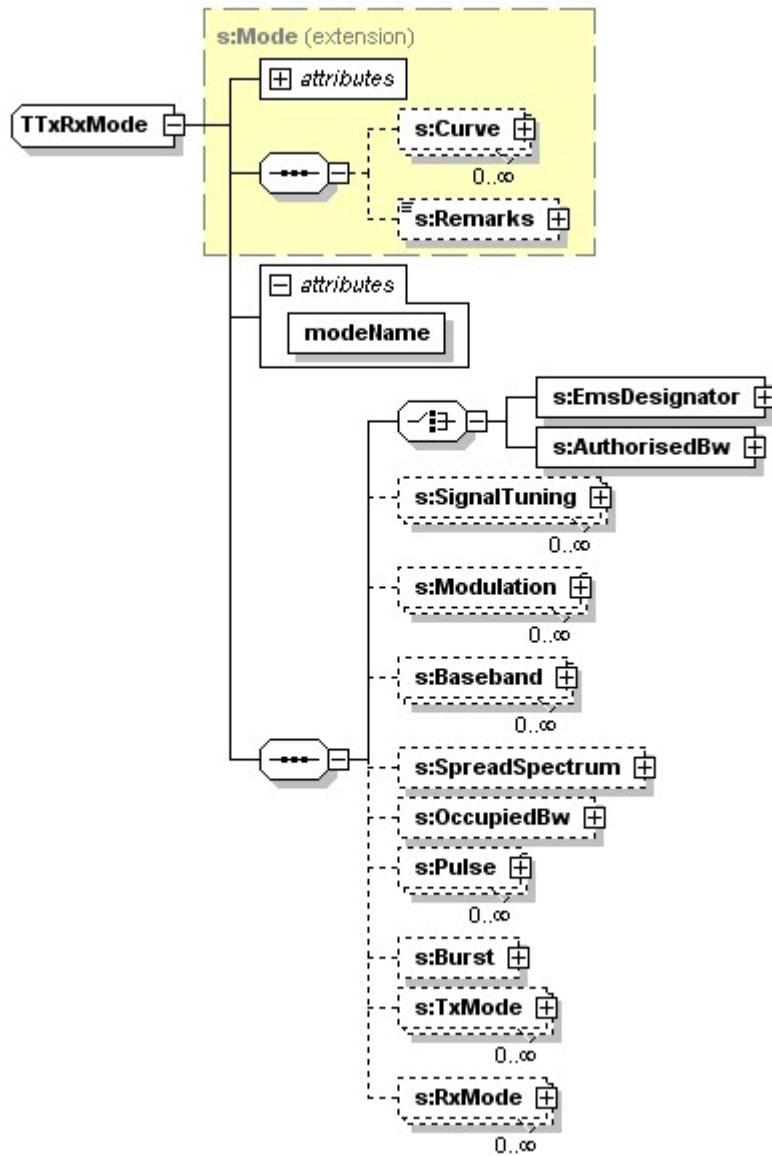


Figure II.12.d: Element Receiver

element name	national	content	occ	attributes
<a href="#">TxRxMode</a>			[0..n]	(cls(L:CL),descr(S100),+modeName(S40+P))
<a href="#">Curve</a>			[0..n]	(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1),+freqConst(UN16.6),bw(UN16.6))
<a href="#">CurvePoint</a>			[1..n]	(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<a href="#">EmsDesignator</a>			[1..1]	(cls(L:CL),+emsClass(S5+P),+bandwidth(S4+P))
<a href="#">AuthorisedBw</a>			[1..1]	(cls(L:CL),+minBw(UN16.6),maxBw(UN16.6))
<a href="#">SignalTuning</a>			[0..n]	(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<a href="#">FreqRange</a>			[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">FreqSingle</a>			[1..1]	(cls(L:CL),refFreq(UN16.6))
<a href="#">Modulation</a>			[0..n]	(cls(L:CL),devRatio(UN6.1),digitalMod(L:MO),maxBitRate(UI10),numBsbChnl(UI5))
<a href="#">AM</a>			[0..1]	(cls(L:CL),idx(UN5.3),RMSIdx(UN5.3))
<a href="#">FM</a>			[0..1]	(cls(L:CL),peakFreqDev(UN16.6),RMSFreqDev(UN16.6),deviationCode(L:FM),peakIdx(UN5.3))
<a href="#">Suppression</a>			[0..1]	(cls(L:CL),carrier(UN5.2),sideBand(UN5.2))
<a href="#">DigitalFormat</a>			[0..1]	(cls(L:CL),numStates(UI5),pulseFormat(L:DF),codeGain(SN6.2),codeRate(UN10.3),codePeriod(UN6.4))
<a href="#">PPM</a>			[0..1]	(cls(L:CL),minPPS(UN9.3),maxPPS(UN9.3))
<a href="#">ModDetails</a>	(S)		[0..1]	(cls(L:CL))
<a href="#">Baseband</a>			[0..n]	(cls(L:CL),+minModFreq(UN16.6),+maxModFreq(UN16.6),signalType(L:MO),BER(SN))
<a href="#">SpreadSpectrum</a>			[0..1]	(cls(L:CL),type(L:SS),gain(SN6.2),pulseFreqDev(UN16.6),infoDataRate(UN10.3),chnlSpacing(UN16.6),directSequenceBw(UN16.6),blockLength(UN12.4),dataBlockSize(UN12.4),codeRate(UN10.3))
<a href="#">FreqHopset</a>			[0..1]	(cls(L:CL),numFREQs(UI4),freqBlocking(L:BO),hopChnlInterleave(UI6))
<a href="#">FreqSingle</a>			[0..n]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqRange</a>			[0..n]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">HopRate</a>			[0..n]	(cls(L:CL),+rate(UN9.3),dwell(UN9.7),bitsPerHop(UI9))
<a href="#">SpreadSpectrumPulse</a>			[0..1]	(cls(L:CL),freqDeviationRise(UN16.6),freqDeviationFall(UN16.6),minWidth(UN9.7),maxWidth(UN9.7))
			[0..1]	(cls(L:CL),minTime(UN12.6),maxTime(UN12.6),minFreq(UN16.6),

<u>SpreadSpectrumSweep</u>			maxFreq(UN16.6)) (cls(L:CL),numSlots(UI5),numPulsesPerDwell(UI12), hopGateLength(UN8.2))
<u>TimeHop</u>	[0..1]		(cls(L:CL),+minBw(UN16.6),maxBw(UN16.6))
<u>OccupiedBw</u>	[0..1]		(cls(L:CL),minPRR(UN9.3),maxPRR(UN9.3),minPD(UN9.3), maxPD(UN9.3))
<u>Pulse</u>	[0..n]		(cls(L:CL),+minPlsCompRatio(UN8.4),maxPlsCompRatio(UN8.4), plsCompMethod(S40))
<u>PulseComp</u>	[0..1]		(cls(L:CL),minRiseTime(UN8.6),maxRiseTime(UN8.6), minFallTime(UN8.6),maxFallTime(UN8.6))
<u>PulseForm</u>	[0..1]		(cls(L:CL),minDutyCycle(UN4.1),maxDutyCycle(UN4.1), minAvgPower(SN6.2),maxAvgPower(SN6.2))
<u>PulseAvgCycle</u>	[0..1]		(cls(L:CL),rate(UN12.3),duration(UN9.7),numPulses(UI8),offTime (UN9.7))
<u>Burst</u>	[0..1]		(cls(L:CL),descr(S100),+txMode(S40+P),numSideTones(UI5), numSubCarriers(UI5))
<u>TxMode</u>	[0..n]		(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1), +freqConst(UN16.6),bw(UN16.6))
<u>Curve</u>	[0..n]		(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<u>CurvePoint</u>	[1..n]		(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<u>SignalTuning</u>	[0..n]		(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>FreqRange</u>	[1..1]		(cls(L:CL),refFreq(UN16.6))
<u>FreqSingle</u>	[1..1]		(cls(L:CL),+minPower(SN6.2),maxPower(SN6.2),powerType(L: PT),+calc(L:BO))
<u>Power</u>	[1..n]		
<u>SubcarrierFreq</u>	(UN16.6)	[0..n]	(cls(L:CL))
<u>SubcarrierTone</u>	(UN16.6)	[0..n]	(cls(L:CL))
<u>CositeSep</u>	(UN16.6)	[0..1]	(cls(L:CL))
<u>RxMode</u>	(UN16.6)	[0..n]	(cls(L:CL),descr(S100),+rxMode(S40+P))
<u>Curve</u>	[0..n]		(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1), +freqConst(UN16.6),bw(UN16.6))
<u>CurvePoint</u>	[1..n]		(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<u>SignalTuning</u>	[0..n]		(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<u>FreqRange</u>	[1..1]		(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>FreqSingle</u>	[1..1]		(cls(L:CL),refFreq(UN16.6))
<u>PostDetectionFreq</u>		[0..1]	(cls(L:CL),+minFreq(UN16.6),maxFreq(UN16.6))
<u>ProcessGain</u>	(SN6.2)	[0..1]	(cls(L:CL))
<u>IFreq</u>		[0..5]	(cls(L:CL),+IFNum(L:IF),+tuning(L:LO))
<u>FreqSingle</u>	(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<u>FreqRange</u>		[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>Sensitivity</u>		[0..1]	(cls(L:CL),level(SN5.2 [-165..-30]),noiseFigure(UN4.1),noiseTemp (UN7.1))
<u>SensitivityCriterion</u>	(SN)	[0..1]	(cls(L:CL),+type(L:SE))
<u>DynamicRange</u>		[0..1]	(cls(L:CL),rxDynamicRange(UN6.2),saturationLevel(SN6.2), signalToNoise(UN6.2))

Figure II.12.e: Element `TxRxMode`

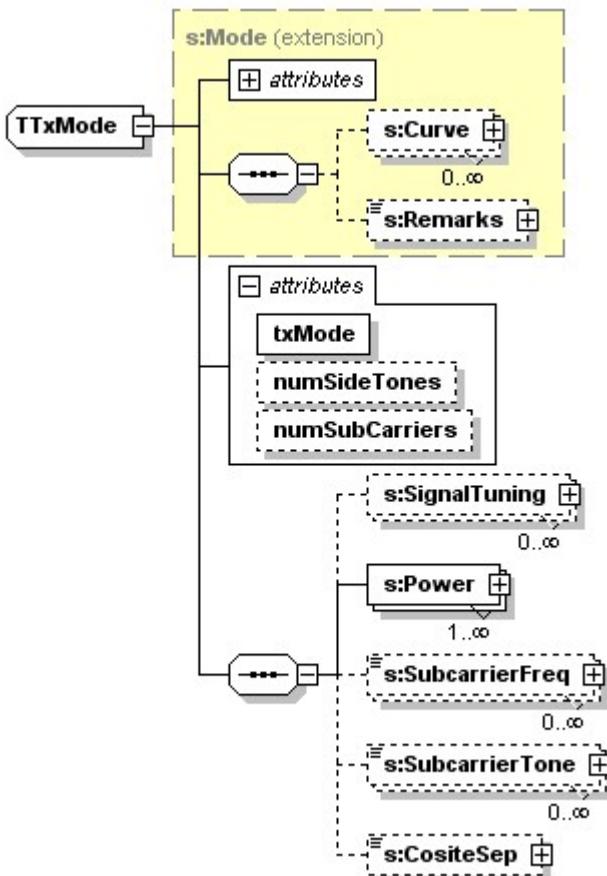


Figure II.12.f: Element TxMode

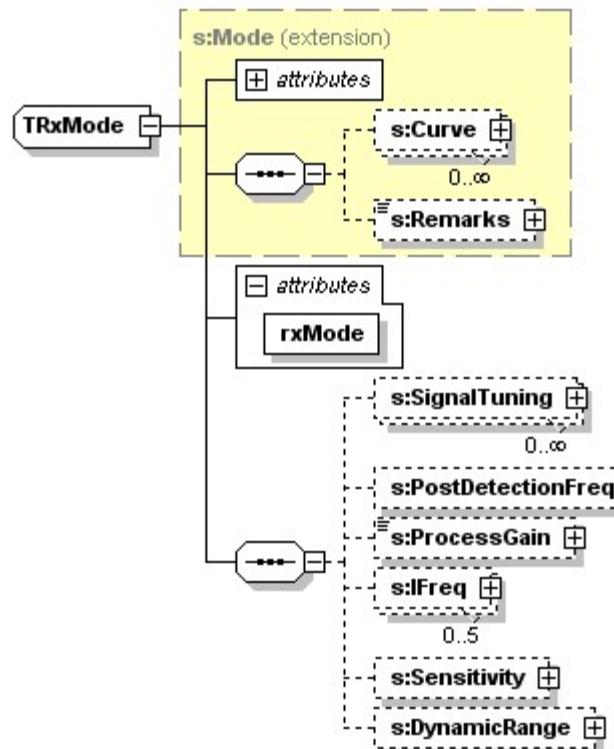


Figure II.12.g: Element RxMode

### Frequency Domain Curves

Data elements [Curve](#) and [CurvePoint](#) are used to store several types of curves describing filter/emission characteristics on the transmitters and receivers. See definitions in [Annex B](#).

### Formulas

A frequency domain curve is defined by a list of pairs (Freq, Y) where Freq is an absolute frequency (generally in MHz) and Y may be in dB, dBc, dBm depending on the type of curve.

The absolute frequency (Freq) of the point on the curve will be specified by

$$\text{Freq} = \text{Fc} * \text{X} + \text{Fo} + \text{dF}$$

where:

**Fc** = carrier frequency (TX) or tuned frequency (RX)

**X** = harmonics number, value of data item **freqFactor** in [Curve](#)

**Fo** = fixed offset, value of data item **freqConst** in [Curve](#)

**dF** = variable offset along the curve, value of data item **offset** in each [CurvePoint](#)

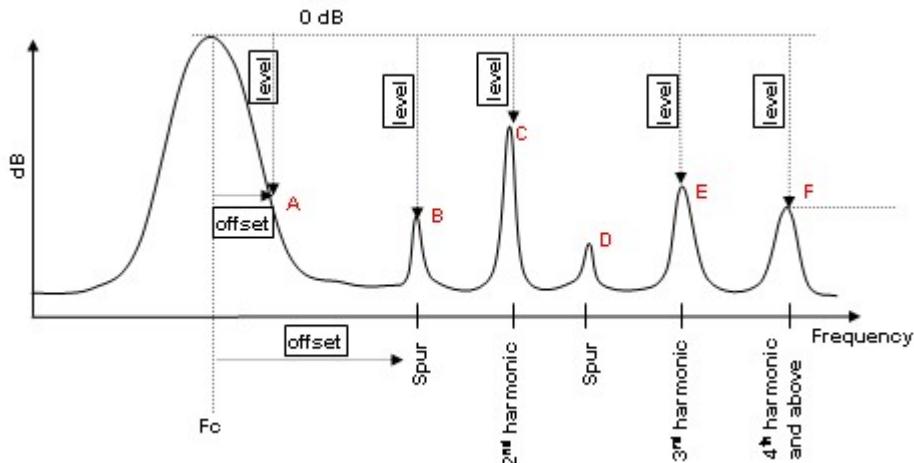


Figure II-12.h : General TX curve

Data used to describe the points A to F in the figure:

point	description	items values
A	-20 dB point on the RF spectrum	<pre>&lt;Curve type="RFSPCT" freqfactor="1" freqConst="0"&gt; &lt;CurvePoint freq="0.00625" value="-20"/&gt;</pre>
B, D	maximum of all spurs (B and D)	<pre>&lt;Curve type="TXSPUR" freqfactor="1" freqConst="1.5"&gt; &lt;CurvePoint freq="0" value="-3"/&gt;</pre>
C	maximum point for 2nd harmonic	<pre>&lt;Curve type="TXHARM" freqfactor="2" freqConst="0"&gt; &lt;CurvePoint freq="0" value="-58"/&gt;</pre>
E	maximum point for 3rd harmonic	<pre>&lt;Curve type="TXHARM" freqfactor="3" freqConst="0"&gt; &lt;CurvePoint freq="0" value="-75"/&gt;</pre>
F	maximum point for all harmonics from 4th onwards	<pre>&lt;Curve type="TXHARM" freqfactor="4" freqConst="0"&gt; &lt;CurvePoint freq="0" value="-78"/&gt;</pre>

Similarly for the receiver characteristics, the curves will be:

description	items values
-20 dB point on the RF selectivity	<pre>&lt;Curve type="RFSEL" freqfactor="1" freqConst="0"&gt; &lt;CurvePoint freq="0.00625" value="-20"/&gt;</pre>
-3 dB point on IF selectivity	<pre>&lt;Curve type="IFSEL" freqfactor="0" freqConst="10.7"&gt; &lt;CurvePoint freq="0.003" value="-3"/&gt;</pre>
image response	<pre>&lt;Curve type="RXIMAG" freqfactor="1" freqConst="21.4"&gt; &lt;CurvePoint freq="0" value="-50"/&gt;</pre>
spurious responses	<pre>&lt;Curve type="RSRESP" freqfactor="1" freqConst="0"&gt;</pre>

	<pre>&lt;CurvePoint freq="0" value="-60"/&gt;</pre>
a filter between the antenna and the RX connector with a +/- 100 kHz pass band	<pre>&lt;Curve type="FILTER" freqfactor="1" freqConst="0"&gt; &lt;CurvePoint freq="0.1" value="-3"/&gt;</pre>

The data for the transmitter RF spectrum curve is normally provided in reference to the maximum power at the carrier frequency and the value of that point is set to 0 dB. All other points in the transmitter curve are referenced to that point. Similarly, the data for the receiver RF selectivity is normally referenced to the centre frequency with maximum selectivity at that point set to 0 dB. The data entered in data item **value** of each [CurvePoint](#) for transmitter related curves (TXHARM, TXSPUR and FILTER) are all referenced to the 0 dB point on the RFSPCT curve. Likewise, the data for all receiver related curves (IFSEL, RXIMAG, RXRESP and FILTER) are referenced to the 0 dB point on the RXSEL curve.

Legacy data only provides the maximum value of any [spurious emissions](#). In these instances, there will be only one set of curve values defining the ceiling for all spurious emissions. See paragraph below. The harmonic levels are expressed slightly differently in that individual maximum values are provided for the second and third harmonics, and a ceiling value for all other harmonics is provided. When existing data is converted to SSRF the value for other harmonics will be stored as if they were the value for the fourth harmonic (see paragraph below for the entry of a single point on each of the harmonic curves).

The table below lists each type of curve (the code will be in attribute **type** of element [Curve](#)), and the associated values of X and F0. Figure 17 provides an example for the transmitter spectrum curve.

CODE	DEFINITION	X	F0
RFSPCT	Transmitter RF spectrum	1	0
TXHARM	Harmonics levels	harmonic number	0
TXSPUR	Spurious levels	1	0
RFSEL	Receiver radio-frequency selectivity	1	0
IFSEL	Receiver Intermediate frequency selectivity	0	IF
RXIMAG	Image responses	1	$\pm 2 * IF$
RXRESP	Receiver spurious responses	1	0
FILTER	External filter between TxRx and Antenna	1	0

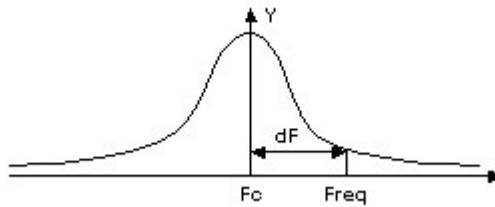


Figure II-12.i : TX Spectrum curve (X=1, F0=0)

#### Special case where the curve is reduced to one point

When the equipment specification lists only a single number for any of the above parameters, the

data elements Curve and CurvePoint can still be used to store this value. Simply enter 0 in the attribute **freq** of [CurvePoint](#) which would normally list the dF value.

## AM

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
RMS Modulation Index	RMSIdx	Optional	UN5.3
Modulation Index	idx	Optional	UN5.3
<b>Sub-Element Of</b>	<a href="#">Modulation</a>		

### Description

Data element AM contains the Root Means Square (RMS) modulation index (deviation ratio) when analog frequency or phase modulation is employed and the [baseband](#) consists of FDM channels or multiple subcarrier signals, and the modulation index (percentage) when double-sideband amplitude modulation (DSB/AM) is employed.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **RMSIdx**, the RMS modulation index when analog or phase modulation is used and the baseband consists of FDM channels or multiple subcarrier signals.
- In **idx**, the amplitude modulation index.

### Validation Rules

None

### Example

```
<AM idx="45" RMSIdx="3.1"/>
```

## Baseband

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum Modulating Frequency	minModFreq	Required	F (MHz)
Maximum Modulating Frequency	maxModFreq	Required	F (MHz)
Channel Spacing	chnlSpacing	Optional	F (MHz)
Signal Type	signalType	Optional	C5 Uppercase
Bit Error Rate	BER	Optional	float
<b>Sub-Element Of</b>	<a href="#">TxRxMode</a>		
<b>Sub-elements</b>	<a href="#">Curve [0..n]</a>		

## Description

Data element Baseband contains:

In **minModFreq**, the minimum modulating frequency measured:

- for a transmitter, on the low side of the spectrum signature at the -3 dB point before the [baseband](#) signal begins the up-conversion process;
- for a receiver, at the -3 dB point on the low frequency side of the receiver baseband, after detection but prior to de-multiplexing or demodulation.

In **maxModFreq**, the maximum modulating frequency:

- for a transmitter, measured on the high side of the spectrum signature at the -3 dB point before the baseband signal begins the up-conversion process.
- for a receiver, frequency that can be recovered and demodulated by the receiver. Specifically, this frequency should have less than 3-dB attenuation relative to the least attenuated demodulated or multiplexed signal.

In **chnlSpacing**, enter the frequency increment between discrete spread spectrum channels typically referenced to the baseband channels.

In **signalType**, the type of modulation.

In **BER**, the Bit Error Rate as a number in scientific notation (decimal number followed by an optional "E" for the power of 10, e.g. 1.5 E-2 representing 0.015).

## ***Input Requirement***

This element is OPTIONAL and repeatable.

It SHOULD be used for all equipment datasets (TxRx) which are part of a Spectrum Supportability request (SSRequest).

Enter:

- In **minModFreq** and **maxModFreq**, the minimum and maximum frequencies in MHz without unit symbol.

In the case of a standard analog voice communications radio, the minimum modulation frequency usually is 300 Hz and the maximum modulation frequency might be 3.4 kHz (see example below).

In the case of a multi-channel frequency-division multiplexed radio, the maximum modulation is the maximum frequency of the greatest channel after being multiplexed. For example, if the multiplexer multiplexes ten 3 kHz channels, the maximum modulation frequency is 10 x 3 kHz or 30 kHz. In the same manner, for the frequency-division multiplexed receiver, the maximum post-detection frequency is the frequency of the greatest channel, after detection but prior to demultiplexing.

- In **signalType**, the signal type code from Code List Category MO:

### ***Code List Category MO:***

Short Code	Definition
<b>AMC</b>	AM Clear Voice
<b>AMS</b>	AM Secure Voice
<b>ASK</b>	Amplitude Shift Keying, On-Off amplitude keying
<b>AUDSK</b>	AUDIO SHIFT-KEYING
<b>BPSK</b>	Binary Phase Shift Key

<b>CDM</b>	Code Division Multiplex
<b>COFDM</b>	Coded Orthogonal Frequency Division Multiplex
<b>DATA</b>	DATA
<b>DOFSK</b>	DOPPLER FREQUENCY-SHIFT
<b>DPSK</b>	Differential Phase Shift Keying
<b>FDM</b>	Frequency Division Multiplex
<b>FMC</b>	FM Clear Voice
<b>FMS</b>	FM Secure Voice
<b>FSK</b>	Frequency Shift Keying
<b>GMSK</b>	Gaussian Minimum Shift Keying
<b>MDAT</b>	MULTICHANNEL DATA
<b>MPCM</b>	MULTICHANNEL PCM VOICE
<b>MSK</b>	Minimum Shift Keying
<b>MUL</b>	MULTICHANNEL
<b>MVOI</b>	MULTICHANNEL VOICE
<b>NOISE</b>	NOISE
<b>OFDM</b>	Orthogonal Frequency Division Multiplex
<b>PCM</b>	Multi-channel PCM Voice
<b>PSK</b>	Phase Shift Keying
<b>QAM</b>	Quadrature Amplitude Modulation
<b>QPRS</b>	Quadrature Partial Response Signaling
<b>QPSK</b>	Quadrature Phase Shift Keying
<b>SDATA</b>	SECURE DATA
<b>SNGL</b>	SINGLE CHANNEL
<b>SNGLV</b>	SINGLE VOICE CHANNEL
<b>SSVC</b>	SINGLE SECURE VOICE CNL
<b>TDM</b>	TIME-DIVISION-MULTIPLEX
<b>TFM</b>	Tuned Frequency Modulation
<b>VIDEO</b>	VIDEO
<b>VODA</b>	MULTICHANNEL VOICE/DATA
<b>OTH</b>	Other

- In **BER** enter the Baseband Bit Error Rate

### Validation Rules

- [XSL ERR GE002] Attribute **maxModFreq** MUST be greater than **minModFreq**.
- [XSD] The attribute **signalType** MUST use one of the codes from Code List Category MO.

### Example

```
<Baseband minModFreq="0.0003" maxModFreq="0.0034" signalType="FMC"
BER="10E-6"/>
```

## Burst

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Pulse Burst Rate	rate	Required	UN12.3
Pulse Burst Duration	duration	Optional	UN9.7 ( $\mu$ s)
Number of Pulses per Burst	numPulses	Optional	UN8
Pulse Burst Off Time	offTime	Optional	UN9.7 ( $\mu$ s)
<b>Sub-Element Of</b>	TxRxMode		

### Description

Data element Burst contains the time characteristics of a pulse burst.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **rate**, the number of pulse bursts per second.
- In **duration**, the pulse burst duration in microseconds.
- In **numPulses**, the number of pulses in a single pulse burst.
- In **offTime**, the pulse burst off time in microseconds (duration of time between the end of one pulse burst to the start of the next pulse burst).

### Validation Rules

None

### Example

```
<Burst rate="256" duration="128" numPulses="256" offTime="512"/>
```

## Deployment

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type of Platform	type	Required	C1 Uppercase
<b>Sub-Element Of</b>	TxRx		
<b>Sub-elements</b>	Installation [0..n]		

### Description

This element provides the general type of platform or force element deployment. For the detailed platform or force element data, the appropriate force element and platforms elements should be

referenced.

Data element Deployment identifies the general category of how the equipment is deployed. For example an equipment may be deployed on an airborne platform, a ship or fixed land installation.

## ***Input Requirement***

This element is OPTIONAL.

Enter in **type** a code from Code List Category IN that indicates the general deployment category for the equipment.

### ***Code List Category IN:***

Short Code	Definition
1	Remote-Piloted Vehicle (Air)
2	Remote-Piloted Vehicle (Land)
3	Remote-Piloted Vehicle (Sea)
A	Air
E	Land Fixed
H	Land Mobile
I	Shipboard
J	Submarine
K	Satellite
L	Land
M	Missile
N	Non Synchronous Orbit
O	Handheld
P	Amphibious
Q	Space
S	Synchronous Orbit
T	Transport
U	Unknown
V	Deep Space
W	Water
Y	Manpack
Z	Other

## ***Validation Rules***

- [XSD] Attribute **type** MUST use one of the codes from Code List Category IN.

## ***Example***

```
<Deployment type="1"/>
```

## DigitalFormat

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Number of Digital States	numStates	Optional	UN5
Digital Pulse Format Code	pulseFormat	Optional	C1 Uppercase
Error Control Coding Gain	codeGain	Optional	SN6.2 (dB)
Pseudorandom Code Rate	codeRate	Optional	UN10.3 (kbps)
Pseudorandom Code Repetition Period	codePeriod	Optional	UN6.4 ( $\mu$ s)
<b>Sub-Element Of</b>	<u>Modulation</u>		

### Description

Data element DigitalFormat contains information about data coding:

- the number of digital states when digital modulation is employed;
- a code that indicates the pulse format used to represent binary digits by pulses when digital modulation is used;
- the amount of gain when error-control coding (e.g., block or convolutional coding) is used for error detection or correction purposes in digital modulation;
- the pseudorandom code rate transmitted in a direct sequence spread spectrum signal;
- the length of time of the pseudorandom code repetition period.

### Input Requirement

This element is OPTIONAL. It MUST be used when Modulation.digitalMod is present.

Enter:

- In **numStates**, the number of states, e.g., 4 for 4-ary Phase Shift-Keying, 64 for 64 level Quadrature AM.
- In **pulseFormat**, a code from Code List Category DF.

#### Code List Category DF:

Short Code	Definition
N	Non-return to Zero
O	Other
R	Return to Zero
S	Split Phase (Manchester)
T	NRZ-M (non return to zero mark)
U	NRZ-S (non return to zero space)
V	Bi-Phase-L (bi-phase level)
W	Bi-Phase-M. (bi-phase mark)
X	Bi-Phase-S (bi-phase space)
Y	DBi-Phase-M (differential bi-phase mark)
Z	DBi-Phase-S (differential bi-phase space)

- In **codeGain**, the amount of error-control coding gain in dB.

- In **codeRate**, the pseudorandom code rate in kilobits per second (kbps).
- In **codePeriod**, the length of time of the pseudorandom code repetition period in microseconds.

### Validation Rules

- [XSL ERR TR001] Element DigitalFormat is REQUIRED when [Modulation.digitalMod](#) is present.
- [XSD] The attribute **pulseFormat** MUST use one of the codes from Code List Category DF.

### Example

```
<DigitalFormat numStates="64" pulseFormat="N" codeGain="22"
  codeRate="30000000" codePeriod="30"/>
```

## DuplexSep

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Duplex Separation Type	type	Required	C1 Uppercase
Frequency Separation	Element Content	Required	<a href="#">E</a> (MHz)
Sub-Element Of	<a href="#">TxRx</a>		

### Description

Data element DuplexSep identifies the required (exact or minimum) offset frequency separation between the transmit and the receive radio frequencies for an equipment capable of operating in the duplex mode.

### Input Requirement

This element is OPTIONAL.

Enter:

- In the element content: the minimum or exact duplex frequency separation as a number in MHz (without unit).
- In **type**: Use a code from Code List Category DS:

#### Code List Category DS:

Short Code	Definition
E	The separation must be exactly the value entered (for use e.g. when transmit and receive radio frequencies are assigned in fixed pairs).
M	The separation must be at the minimum the value entered.

### Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category DS.

### Example

```
<DuplexSep type="E">10</DuplexSep>
```

## DynamicRange

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Receiver Dynamic Range	rxDynamicRange	Optional	UN6.2 (dB)
Saturation Level	saturationLevel	Optional	SN6.2 (dBm)
Signal to Noise Ratio	signalToNoise	Optional	UN6.2 (dB)
<b>Sub-Element Of</b>	<u>RxMode</u>		

### Description

Data element DynamicRange contains characteristics of the receiver:

- the receiver dynamic range;
- the receiver saturation level so that operational capability is reduced or halted;
- the signal to noise ratio.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **rxDynamicRange**, enter the Receiver Dynamic Range which is the difference between the saturation signal level and the minimum acceptable signal level for detection or processing of the receiver circuit.
- In **saturationLevel**, enter the receiver saturation level which is the signal input level of a receiver when the power level applied at the antenna terminals is greater than the upper instantaneous dynamic range value of the receiver front end.
- In **signalToNoise**, enter the receiver Signal-to-Noise Ratio which is the established level of the received signal after detection to the level of the noise accompanying the signal.

### Validation Rules

None

### Example

```
<DynamicRange rxDynamicRange="80" saturationLevel="90"
               signalToNoise="32"/>
```

## EqpFnct

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
EqpFnct	Element Content	Required	C2 Uppercase
<b>Sub-Element Of</b>	<u>SignalDescr, TxRx</u>		

## Description

This is a National element (used by: USA).

Data element EqpFnct contains equipment function codes as listed [Annex G, Code List Category EF](#).

## Input Requirement

This element is OPTIONAL and repeatable.

Enter a value from the list in [Annex G, Code List Category EF](#).

## Validation Rule

- The element content SHOULD use one of the codes from Code List Category EF.

## Additional checks for the USA

- This element is REQUIRED in the USA. It is entered by the JSC and can be ignored by the user.

## Example

*CR* is the code for RADIO RELAY MICROWAVE:

<EqpFnct>CR</EqpFnct>

## Notes

- The Code List Category EF is expandable dynamically by users using a "Codes" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## Filter

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Filter	Element Content	Required	Memo
Sub-Element Of	Transmitter		

## Description

Data element Filter contains the type of transmitter output filter.

## Input Requirement

This element is OPTIONAL.

Enter a brief description of the type of the output filter.

## Validation Rules

None

## Example

```
<Filter>2 pole bandpass</Filter>
```

## FM

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Peak Frequency Deviation	peakFreqDev	Optional	E (MHz)
RMS Frequency Deviation	RMSFreqDev	Optional	F (MHz)
RMS Frequency Deviation Code	deviationCode	Optional	UN1 [1 .. 2]
Peak Modulation Index	peakIdx	Optional	UN5.3
<b>Sub-Element Of</b>	<u>Modulation</u>		

## Description

Data element FM contains information about a frequency modulated transmission:

- the peak frequency deviation when analog modulation is employed;
- the Root Means Square (RMS) frequency deviation when frequency modulation (FM) is employed and the base band consists of frequency-division multiplexed (FDM) channels or multiple subcarrier signals;
- the code that indicates the Root Mean Square (RMS) deviation;
- the peak modulation index (deviation ratio) when using analog frequency or phase modulation.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **peakFreqDev**, the peak frequency deviation in MHz without unit symbol.
- In **RMSFreqDev**, the RMS frequency deviation in MHz without unit symbol.
- In **deviationCode**, the RMS code from Code List Category FM:

### Code List Category FM:

#### Short Code      Definition

1	RMS multichannel deviation
2	RMS deviation per channel

- In **peakIdx**, the peak modulation index when analog or phase modulation is used.

## Validation Rules

- [XSD] The attribute **deviationCode** MUST use one of the codes from Code List Category FM.

## Example

```
<FM peakFreqDev="0.05" RMSFreqDev="0.003" deviationCode="1"
peakIdx="3.1"/>
```

## FreqHopset

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Number of Frequencies in the Hop Set	numFreq	Optional	UN4
Frequency Blocking Indicator	freqBlocking	Optional	C1 Uppercase
Hopping Channel Interleave	hopChnlInterleave	Optional	UN6
<b>Sub-Element Of</b>	<u>SpreadSpectrum</u>		
<b>Sub-elements</b>	<u>FreqSingle [0..n]</u> , <u>FreqRange [0..n]</u> , <u>HopRate [0..n]</u>		

## Description

Data element FreqHopset contains information about a frequency hopping mode of a transmitter:

- the number of frequencies contained in a hop set;
- the code that indicates if a frequency hopping transmitter is capable of blocking frequencies;
- the number of hopping channels that are intermixed and still maintain the intended pattern.

## Input Requirement

This element is OPTIONAL.

Use this element for equipment's which have a spread spectrum frequency hopping capability.

Enter:

- In **numFreq**, the number of frequencies in the hopset.
- In **freqBlocking**, a code from Code List Category BO (Y - The frequency hopped transmitter is capable of blocking frequencies and N - The frequency hopped transmitter is not capable of blocking frequencies):

### Code List Category BO:

Short Code	Definition
Y	Yes
N	No

- In **hopChnlInterleave**, the number of hopping channels that are intermixed and still maintain the intended pattern.

## Validation Rules

- [XSD] The attribute **freqBlocking** MUST use one of the codes from Code List Category BO.

## Example

```
<FreqHopset numFreq="30" freqBlocking="Y" hopChnlInterleave="5689"/>
```

## HopRate

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Hop Rate	rate	Required	UN9.3 (hops/s)
Hop Dwell	dwell	Optional	UN9.7 ( $\mu$ s)
Bits Per Hop	bitsPerHop	Optional	UN9
Sub-Element Of	<a href="#">FreqHopset</a>		

## Description

Data element HopRate contains information about a frequency hopping mode of a transmitter:

- the rate at which a spread spectrum system hops from one frequency to another frequency;
- the length of time a spread spectrum system dwells on a frequency;
- the maximum number of bits per frequency hopping channel.

## Input Requirement

This element is OPTIONAL and repeatable. In the case the equipment is capable of multiple hopping rates, repeat this element to indicate either the discrete settings or the minimum and maximum values of the hopping rate.

Enter:

- In **rate**, the hopping rate in hops per second.
- In **dwell**, the dwell time in microseconds.
- In **bitsPerHop**, the maximum number of bits per frequency hopping channel.

## Validation Rules

None.

## Example

```
<HopRate rate="100" dwell="5" bitsPerHop="1000"/>
```

## FreqTolerance

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
FreqTolerance	Element Content	Required	UN12.6 (ppm)
<b>Sub-Element Of</b>	<u>Receiver</u> , <u>SignalDescr</u> , <u>SignalRx</u> , <u>SignalTx</u> , <u>Transmitter</u> , <u>TxRx</u>		

### Description

Data element FreqTolerance contains the maximum drift from an equipment's centre frequency after normal warm-up time has been allowed.

### Input Requirement

This element is OPTIONAL.

Enter the maximum frequency drift expressed in parts per million (ppm). If the SignalTx and SignalRx FreqTolerance values are the same, enter the common value at the SignalDescr level; otherwise, enter the distinct values in SignalTx and SignalRx. Identically, if the Transmitter and Receiver FreqTolerance values are the same, enter the common value at the TxRx level; otherwise, enter the distinct values in Transmitter and Receiver.

### Validation Rules

[XSL ERR TR003] FreqTolerance MUST NOT appear:

- à at the same time under TxRx and in Transmitter or Receiver;
- à at the same time under SignalDescr and in SignalTx or SignalRx.

### Example

A 100 MHz transmitter with a drift of 10 Hz:

<FreqTolerance>0.1</FreqTolerance>

## IFreq

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Intermediate Frequency Number	IFNum	Required	UN1 [1..5]
Oscillator Tuning	tuning	Required	C1 Uppercase
Mixer Type	mixerType	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u>Receiver</u> , <u>RxMode</u> , <u>SignalRx</u>		
<b>Sub-Elements</b>	(choice between <u>FreqSingle</u> [1..1] and <u>FreqRange</u> [1..1])		

### Description

Data element IFreq contains the intermediate frequency (IF) and the number of the IF used to demodulate the incoming signal. It may also contain the IF upper limit in the case of a range of values, and an indicator as whether the local oscillator (LO) is tuned above, below, or either above or below the RF centre frequency.

## ***Input Requirement***

This element is OPTIONAL. The IF for each receiver stage SHOULD be indicated. If the IF(s) are the same for all RxMode's, enter the IF at the SignalRx or Receiver level; otherwise enter the specific IF's in each RxMode.

Use:

- the sub-element **FreqSingle** for a fixed intermediate frequency;
- the sub-element **FreqRange** if there is a range of intermediate frequencies;

Enter:

- In **tuning**, one of the codes from Code List Category LO to reflect the relationship between the local oscillator frequency and the RF centre frequency.

### ***Code List Category LO:***

<b>Short Code</b>	<b>Definition</b>
A	LO is above the RF centre frequency
B	LO is below the RF centre frequency
E	LO is either above or below the RF centre frequency

- In **IFNum**, enter the number of the IF associated with the Intermediate Frequency from Code List Category IF:

### ***Code List Category IF:***

<b>Short Code</b>	<b>Definition</b>
1	1st Intermediate Frequency
2	2nd Intermediate Frequency
3	3rd Intermediate Frequency
4	4th Intermediate Frequency
5	5th Intermediate Frequency

- In **mixerType**, enter the first intermediate frequency conversion mixer used in the receiver from Code List Category MV:

### ***Code List Category MV:***

<b>Short Code</b>	<b>Definition</b>
A	TUBE
B	CRYSTAL
D	TRANSISTOR
F	DIODE
G	DUAL-GATE MOSFET
I	MICROWAVE IC
W	WAVEGUIDE
Y	SEE REMARKS
Z	UNKNOWN

## ***Validation Rules***

- [XSL ERR TR002] Element IFreq MUST appear either in SignalRx / Receiver or in ALL RxMode sub-elements.

- [XSD] The attribute **tuning** MUST use one of the codes from Code List Category LO.
- [XSD] The attribute **IFNum** MUST use one of the codes from Code List Category IF.
- [XSD] The values of **IFNum** MUST be unique within its parent element.
- [XSD] Element **IFreq** MUST have either an **AsgnFreq** or a **FreqRange** sub-element.

### **Example**

```
<IFreq IFNum="3" tuning="B">
  <FreqRange minFreq="21.4" maxFreq="70.0"/>
</IFreq>
```

### **Installation**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Installation	Element Content	Required	C40
Sub-Element Of	<u>Deployment</u>		

### **Description**

Data element Installation identifies the specific platforms on which an equipment is installed, whether it is mounted at a fixed site atop a mountain, in a shelter, in a vehicle, aboard a helicopter, etc.

### **Input Requirement**

This element is OPTIONAL and repeatable.

Enter the platform(s) upon which the system is mounted. All military vehicles should be identified by their proper nomenclature. If the system is portable and not mounted in a vehicle, the user should be identified (see example 2).

### **Validation Rules**

None

### **Examples**

```
<Installation>C-130 aircraft</Installation>
<Installation>carried by military police</Installation>
```

## Modulation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Deviation Ratio	devRatio	Optional	UN6.1
Digital Modulation Type Code	digitalMod	Optional	C5 Uppercase
Maximum Bit Rate	maxBitRate	Optional	UN10.3 (kilobits/s)
Number of Baseband Channels	numBsbChnl	Optional	UN5
<b>Sub-Element Of</b>	<u>TxRxMode</u>		
<b>Sub-elements</b>	<u>AM [0..1]</u> , <u>FM [0..1]</u> , <u>DigitalFormat [0..1]</u> , <u>PPM [0..1]</u> , <u>Suppression [0..1]</u> , <u>ModDetails [0..1]</u>		

## Description

Data element Modulation contains:

- In **devRatio**, for a frequency or phase modulation equipment, the ratio of the maximum frequency deviation of the carrier to the maximum modulating frequency of the equipment under specified conditions;
- In **digitalMod**, a code that indicates the type of digital modulation;
- In **maxBitRate**, the maximum information bit rate for digital communications systems;
- In **numBsbChnl**, the number of baseband channels contained within a multi-channel baseband such as Frequency-Division Multiplex (FDM) or Pulse-Code Modulation (PCM) baseband that is applied as analog modulation.

## Input Requirement

This element is OPTIONAL and repeatable. It SHOULD always be used in Signal Description datasets ([SignalDescr](#)) which are to be used in a Spectrum Supportability request ([SSRequest](#)).

Enter:

- In **devRatio**: the deviation ratio data applicable to frequency- or phase-modulation equipment. For FM systems the deviation ratio is directly proportional to the frequency deviation of the variance of the modulator. In PM systems the deviation ratio is tied to both the amplitude of the modulating signal and phase deviation constant of the modulator. For example, for an FM system a deviation ratio of 1 indicates that a 3 kHz input frequency will cause a peak instantaneous frequency deviation of 3 kHz. a deviation ratio of 3 is the result of a 9 kHz deviation of the emission when modulated with a 3 kHz signal. Do not use this item for amplitude or pulse modulated systems.
- In **digitalMod**: a code from Code List Category MO whenever digital modulation is used.

### Code List Category MO:

Short Code	Definition
AMC	AM Clear Voice
AMS	AM Secure Voice
ASK	Amplitude Shift Keying, On-Off amplitude keying
AUDSK	AUDIO SHIFT-KEYING
BPSK	Binary Phase Shift Key
CDM	Code Division Multiplex

<b>COFDM</b>	Coded Orthogonal Frequency Division Multiplex
<b>DATA</b>	DATA
<b>DOFSK</b>	DOPPLER FREQUENCY-SHIFT
<b>DPSK</b>	Differential Phase Shift Keying
<b>FDM</b>	Frequency Division Multiplex
<b>FMC</b>	FM Clear Voice
<b>FMS</b>	FM Secure Voice
<b>FSK</b>	Frequency Shift Keying
<b>GMSK</b>	Gaussian Minimum Shift Keying
<b>MDAT</b>	MULTICHANNEL DATA
<b>MPCM</b>	MULTICHANNEL PCM VOICE
<b>MSK</b>	Minimum Shift Keying
<b>MUL</b>	MULTICHANNEL
<b>MVOI</b>	MULTICHANNEL VOICE
<b>NOISE</b>	NOISE
<b>OFDM</b>	Orthogonal Frequency Division Multiplex
<b>PCM</b>	Multi-channel PCM Voice
<b>PSK</b>	Phase Shift Keying
<b>QAM</b>	Quadrature Amplitude Modulation
<b>QPRS</b>	Quadrature Partial Response Signaling
<b>QPSK</b>	Quadrature Phase Shift Keying
<b>SDATA</b>	SECURE DATA
<b>SNGL</b>	SINGLE CHANNEL
<b>SNGLV</b>	SINGLE VOICE CHANNEL
<b>SSVC</b>	SINGLE SECURE VOICE CNL
<b>TDM</b>	TIME-DIVISION-MULTIPLEX
<b>TFM</b>	Tuned Frequency Modulation
<b>VIDEO</b>	VIDEO
<b>VODA</b>	MULTICHANNEL VOICE/DATA
<b>OTH</b>	Other

- In **maxBitRate**: the maximum bit rate in kilobits per second applicable to digital communications systems. For spread spectrum transmissions enter the bit rate after error-correction coding. Do not enter the spectrum-spreading clock or chip rate.
- In **numBsbChnl**: the number of baseband channels.

### Validation Rules

- [XSD] The attribute **digitalMod** MUST use one of the codes from Code List Category MO.

### Example

```
<Modulation devRatio="3" digitalMod="ASK" maxBitRate="27000000"
numBsbChnl="16" />
```

### ModDetails

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
ModDetails	Element Content	Required	Memo
<b>Sub-Element Of</b>	<u>Modulation, SourceFreqInfo</u>		

## Description

This element contains the modulation techniques and coding of this signal.

## Input Requirement

This element is OPTIONAL.

Enter any amplifying details for the modulation techniques and coding of this signal which may not be expressed in the other formatted entries under element Mod.

## Validation Rules

None

## Example

```
<ModDetails>A 13-bit Barker code is used to compress the radar pulses</ModDetails>
```

## OccupiedBw

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Occupied Bandwidth	minBw	Required	E (MHz)
Maximum Occupied Bandwidth	maxBw	Optional	E (MHz)
Sub-Element Of	TxRxMode		

## Description

Data element OccupiedBw contains the Occupied Bandwidth which is defined as the bandwidth that contains 99% of the spectral power under the emission curve.

## Input Requirement

This element is OPTIONAL. It SHOULD always be used in [SignalDescr](#) datasets which are part of a Spectrum Supportability request (SSRequest).

Enter:

- In **minBw**, the nominal or minimum occupied bandwidth in MHz, without unit symbol;
- In **maxBw**, in the case of a range of values, the maximum occupied bandwidth in MHz, without unit symbol.

## Validation Rules

- [XSL ERR GE002] If attribute **maxBw** exists, it MUST be greater than **minBw**.

### **Example**

```
<OccupiedBw minBw="33.500" />
```

## **OutputDevice**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Device Type	type	Required	C2 Uppercase
OutputDevice	Element Content	Optional	C40
<b>Sub-Element Of</b>	Transmitter		

### **Description**

Data element OutputDevice contains the final RF power output device type and name.

### **Input Requirement**

This element is OPTIONAL.

Enter:

- In **type**, the type of the device as a one- or two-letter code from the list below.

#### **Code List Category OT:**

Short Code	Definition
A	Magnetron
AA	Fixed Magnetron
AB	Tunable Magnetron
B	Klystron
C	Traveling-Wave Tube
E	Amplitron
F	Triode
FF	Field Effect Transistor (FET)
G	Tetrode
H	Stabilotron
I	Lighthouse
J	Carcinatron
K	Solid State
N	Reactance Tube
O	Transformer
P	Transistor
PF	Push-Pull FET
Q	Step Recovery Diode
R	Gunn Diode
S	Pentode
T	Diode
U	Cross Field Amplifier
V	Twystron
W	Impatt Diode
YY	Yttrium Iron Garnet

Z Other-See Remarks

- In the element value, the name of the output device. The specific device designation should be provided, for example, VARIAN VTS5751A1.

### **Validation Rules**

None

### **Example**

```
<OutputDevice type="C">VARIAN VTS5751A1</OutputDevice>
```

## **PPM**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Nominal or Minimum Pulses Per Second	minPPS	Required	UN9.3 (pulses/s)
Maximum Pulses Per Second	maxPPS	Optional	UN9.3 (pulses/s)
<b>Sub-Element Of</b>	<u>Modulation</u>		

### **Description**

Data element **PPM** identifies the nominal rate, or the minimum and maximum rates, of pulse position modulation.

### **Input Requirement**

This element is OPTIONAL.

Enter:

- In **minPPS** the nominal or minimum number of pulses emitted per second.
- In **maxPPS**, the maximum number of pulses emitted per second.

### **Validation Rules**

[XSL ERR GE002] If attribute **maxPPS** exists, it MUST be greater than **minPPS**.

### **Example**

```
<PPM minPPS="900" maxPPS="3000" />
```

## **PostDetectionFreq**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum Post Detection Frequency	minFreq	Required	<u>E</u> (MHz)
Maximum Post Detection Frequency	maxFreq	Optional	F (MHz)

<b>Sub-Element Of</b>	<a href="#">RxMode</a>
-----------------------	------------------------

## Description

Data element **PostDetectionFreq** identifies the minimum and maximum Post Detection Frequencies.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **minFreq**, the minimum post detection frequency in MHz.
- In **maxFreq**, the maximum post detection frequency in MHz.

## Validation Rules

[XSL ERR GE002] If attribute **maxFreq** exists, it MUST be greater than **minFreq**.

## Example

```
<PostDetectionFreq minFreq="0.0003" maxFreq="0.3"/>
```

## Power

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Power	minPower	Required	SN6.2 (dBW)
Maximum Power	maxPower	Optional	SN6.2 (dBW)
Power Type	powerType	Optional	C1 Uppercase
Calculated Power	calc	Required	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">TxMode</a>		

## Description

Data element Power identifies the transmitter power.

It contains:

- In **minPower**, the nominal transmitter power, or the minimum power in case of a range of values;
- In **maxPower**, the maximum transmitter power in the case of a range of values;
- In **powerType**, the power type code for carrier, mean, or peak envelope power emitted. The power type code will depend on the type of emission of the transmitter equipment.
- in **calc**, the indication that the power value(s) have been calculated rather than provided by the user.

## ***Input Requirement***

This element is REQUIRED.

Enter:

- In **minPower** and optionally in **maxPower**, the power value in dBW to a maximum of two decimal places. Enter (1) carrier power (pZ) for A3E sound broadcasting in the broadcasting service, (2) mean power (pY) for other amplitude modulated emissions using unkeyed full carrier, and for all frequency modulated emissions, and (3) peak envelope power (pX) for all emission designators other than those referred to in (1) and (2) above, including C3F television (video only).
- In **powerType**, a code from Code List Category PT:

### ***Code List Category PT:***

<b>Short Code</b>	<b>Definition</b>
<b>C</b>	Carrier Power Use this for "N0N" and for "A3E" sound broadcasting service (Station Class "BC").
<b>M</b>	Mean Power (For all A/A & A/G/A). Use this for most AM emissions using unkeyed full carrier and all frequency modulated emissions. Typical emissions include A2A, A2B, A3C, A3E (less broadcasting service), A3F, A7B, AXX, F1B, F1C, F2B, F3E, F3F, F7B, FXX, H2A, H3E, and H7B.
<b>P</b>	Peak Envelope Power Use this for all pulsed equipment, C3F Television, and the following classes: A1A, A1B, A7B, B7B, B8C, B8E, BXX, C3F, G3E, J2B, J3E, J7B, JXX, K1B, K2B, K3E, K3F, L2B, M2B, M3E, P0N, PXX, R2B and R3C.
<b>X</b>	Use this entry for the submission of space data to the ITU. Enter an "X" if the maximum peak power and power density values are of type C8b.

- In **calc**, enter a code from Code List Category OR indicating if the power value(s) have been calculated, or if the values were provided by the user.

### ***Code List Category OR:***

<b>Short Code</b>	<b>Definition</b>
<b>C</b>	Calculated
<b>M</b>	Measured
<b>X</b>	Unknown

## ***Validation Rules***

- [XSL ERR GE002] If attribute **maxPower** exists, it MUST be greater than **minPower**.
- [XSD] The attribute **powerType** MUST use one of the codes from Code List Category PT.
- [XSD] The attribute **calc** MUST use one of the codes from Code List Category OR.

## ***Examples***

```
<Power minPower="-3" powerType="M" calc="M"/>
<Power minPower="-3" maxPower="31.8" powerType="P" calc="X"/>
```

## ***Notes***

- The value must always be transmitted in dBW. Some software tools may translate the value in

watts for display only; in this case it is recommended to precede the value with the unit designator as follows:

- W** - If power is less than 1000 watts
  - K** - If power is at least 1 kW but less than 1000 kW
  - M** - If power is at least 1 MW but less than 1000 MW
  - G** - If power is 1 GW or greater
- In order to be able to accommodate legacy data, a value of "**-9999.99**" MAY be used in attribute **minPower** as a gap filler, but only for legacy data which do not contain this information. The real value SHOULD always be used for new datasets and during the review of old datasets.

### **Notes for ITU space related applications:**

Enter the maximum aggregate power (dBW) of all carriers supplied to the input of the antenna. This information applies only to the case of a receiving satellite antenna beam operating with a transmitting associated earth station.

Enter the maximum total peak envelope power (dBW) supplied to the input of the antenna for each contiguous satellite bandwidth. For a satellite transponder, this corresponds to the maximum saturated peak envelope power in the bandwidth of each transponder. This information applies only to the case of transmission from the space station.

In C8a1 Maximum peak power, enter the appropriate sign (+ or -) and the maximum value of the peak envelope power (RR S1.157), expressed in dBW, supplied to the input of the antenna for each corresponding emission (carrier type).

In C8b1 Maximum peak power, enter the appropriate sign (+ or -) and the maximum value of the total peak envelope power (RR S1.157), expressed in dBW, supplied to the input of the antenna for the corresponding emission.

Note: If the maximum values of peak envelope power are being provided for individual carriers, they should be of type C8a1. If the notification does not concern individual carriers (e.g. as in spread spectrum applications) provide a general designation of emission (data element Emission) and total peak envelope power values of type C8b1.

Data elements/attributes Emission.necBw, Power.maxPower, Power.minPower, Power.powerType, powerDensity, minPowerDensity, and C/NObjective are interrelated. An entry in any of these attributes requires an entry in each of the others.

## **PreselectionType**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
PreselectionType	Element Content	Optional	C60
<b>Sub-Element Of</b>	<u>Receiver</u>		

### **Description**

Data element PreselectionType identifies the type of preselection used in the receiver frontend.

### **Input Requirement**

This element is OPTIONAL.

Enter:

- In **PreselectionType**, the type of preselection used in the receiver frontend.

### **Validation Rules**

None

### **Example**

```
<PreselectionType>6-Pole Chebycheff</PreselectionType>
```

## **ProcessGain**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
ProcessGain	Element Content	Required	SN6.2 (dB)
<b>Sub-Element Of</b>	<u>RxMode</u>		

### **Description**

Data element ProcessGain contains the ratio of the post-processing signal-to-noise ratio to the received signal-to-noise ratio.

### **Input Requirement**

This element is OPTIONAL.

Enter the ratio in dB of the post-processing signal-to-noise ratio to the received signal-to-noise ratio.

### **Validation Rules**

None

### **Example**

```
<ProcessGain>30</ProcessGain>
```

## Pulse

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Pulse Repetition Rate	minPRR	Optional	UN9.3 (PPS)
Maximum Pulse Repetition Rate	maxPRR	Optional	UN9.3 (PPS)
Minimum or Nominal Pulse Duration	minPD	Optional	UN12.6 ( $\mu$ s)
Maximum Pulse Duration	maxPD	Optional	UN12.6 ( $\mu$ s)
<b>Sub-Element Of</b>	<u>TxRxMode</u>		
<b>Sub-elements</b>	<u>PulseAvgCycle [0..1]</u> , <u>PulseComp [0..1]</u> , <u>PulseForm [0..1]</u>		

### Description

Data element Pulse contains the pulse characteristics for all equipment using a pulsed emission:

- number of pulses per second (PPS).
- width of the transmitted pulse.

### Input Requirement

This element is OPTIONAL and repeatable.

For all transmitters using pulsed emissions, enter:

- In **minPRR**, the numeric value for the pulse repetition rate (PRR) of the equipment. PRR will be indicated in pulses per second (PPS). For equipment having a capability for continuously variable PRR over a wide range(s), insert the minimum value in this attribute and the maximum value in **maxPRR**.
- In **maxPRR**, for equipment having a capability for continuously variable PRR over a wide range, insert the maximum value in PPS.
- In **minPD**, a numeric value indicating the characteristic pulse duration of the equipment at the half-power (-3 dB) points. Pulse duration (PD) will be indicated in microseconds. Fractions may be shown to the nearest tenth by using a decimal. For equipment having a capability for continuously variable PDs over a wide range, insert the minimum value in this attribute and the maximum value in **maxPD**.
- In **maxPD**, for equipment having a capability for continuously variable PD over a wide range, insert the maximum value in microseconds.

### Validation Rules

- [XSL ERR GE001] Attribute **minPRR** MUST exist if **maxPRR** exists.
- [XSL ERR GE002] If attribute **maxPRR** exists, it MUST be greater than **minPRR**.
- [XSL ERR GE001] Attribute **minPD** MUST exist if **maxPD** exists.
- [XSL ERR GE002] If attribute **maxPD** exists, it MUST be greater than **minPD**.

## Examples

(fixed pulses)

```
<Pulse minPRR="300" minPD="12"/>
<Pulse minPRR="600" minPD="6"/>
<Pulse minPRR="1200" minPD="3"/>
<Pulse minPRR="2400" minPD="1.5"/>
```

(variable pulses)

```
<Pulse minPRR="300" maxPRR="2400" minPD="1.5" maxPD="12"/>
```

## Notes

As indicated in the input requirements ranged values of PD and PRR should be entered in the minimum and maximum attributes and discrete values should be entered in the minimum attributes. There are various pulsed equipments in operation that have multiple discrete values and also a set of ranged values for the pulse characteristics. For example consider a radar that has discrete PRR values of 300, 600, 1200 and 2400 and corresponding PD values of 12 µs, 6 µs, 3 µs and 1.5 µs in order to maintain a constant duty cycle and therefore a constant average power. Also lets say the radar had a variable PRR and PD function that incorporated the full PRR and PD capability then the data entries would follow the examples. In the case of a pulse reactive radar designed to provide a Low Probability of Intercept (LPI) the pulse characteristics, within predefined limits, will vary as the spectrum environment changes. In these cases the extreme range limits of the pulse characteristics should be entered.

## PulseAvgCycle

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Pulse Duty Cycle	minDutyCycle	Optional	UN4.2 [0 .. 99.99] (%)
Maximum Pulse Duty Cycle	maxDutyCycle	Optional	UN4.2 [0 .. 99.99] (%)
Minimum or Nominal Pulse Average Power	minAvgPower	Optional	SN6.2 (dBW)
Maximum Pulse Average Power	maxAvgPower	Optional	SN6.2 (dBW)
<b>Sub-Element Of</b>	<u>Pulse</u>		

## Description

Data element PulseAvgCycle contains information about the pulse form factor.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **minDutyCycle**, as a percentage, the minimum or nominal ratio of the pulse duration to the pulse period.
- In **maxDutyCycle**, as a percentage, the maximum ratio of the pulse duration to the pulse period.

- In **minAvgPower**, in dBW, the minimum or nominal average power.
- In **maxAvgPower**, in dBW, the maximum average power.

### **Validation Rules**

- [XSL ERR GE001] Attribute **minDutyCycle** MUST exist if **maxDutyCycle** exists.
- [XSL ERR GE002] If attribute **maxDutyCycle** exists, it MUST be greater than **minDutyCycle**.
- [XSL ERR GE001] Attribute **minAvgPower** MUST exist if **maxAvgPower** exists.
- [XSL ERR GE002] If attribute **maxAvgPower** exists, it MUST be greater than **minAvgPower**.

### **Example**

```
<PulseAvgCycle minDutyCycle="50" maxDutyCycle="80" minAvgPower="10"
maxAvgPower="16"/>
```

## **PulseComp**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Pulse Compression Ratio	minPlsCompRatio	Required	UN8.4
Maximum Pulse Compression Ratio	maxPlsCompRatio	Optional	UN8.4
Pulse Compression Method	plsCompMethod	Optional	C40
<b>Sub-Element Of</b>	<b>Pulse</b>		

### **Description**

Data element PulseComp contains the ratio of the uncompressed pulse width to the compressed pulse width, where the compressed pulse width in (microseconds) is 1/frequency displacement (in MHz).

### **Input Requirement**

This element is OPTIONAL.

Enter :

- In **minPlsCompRatio**, the minimum pulse compression ratio which is the ratio of the uncompressed pulse width to the compressed pulse width or the product of the pulse spectral bandwidth and the uncompressed pulse width.
- In **maxPlsCompRatio**, the maximum pulse compression ratio which is the ratio of the uncompressed pulse width to the compressed pulse width or the product of the pulse spectral bandwidth and the uncompressed pulse width.
- In **plsCompMethod**, the method employed to reduce the period of the pulse.

## Validation Rules

[XSL ERR GE002] If attribute **maxPlsCompRatio** exists, it MUST be greater than **minPlsCompRatio**.

## Example

```
<PulseComp minPlsCompRatio="5000" maxPlsCompRatio="8000"
plsCompMethod="Digital Subtraction"/>
```

## PulseForm

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Rise Time	minRiseTime	Optional	UN8.6 ( $\mu$ s)
Maximum Rise Time	maxRiseTime	Optional	UN8.6 ( $\mu$ s)
Minimum or Nominal Fall Time	minFallTime	Optional	UN8.6 ( $\mu$ s)
Maximum Fall Time	maxFallTime	Optional	UN8.6 ( $\mu$ s)
Sub-Element Of	<u>Pulse</u>		

## Description

Data element PulseForm contains the rise time (period for the pulse leading edge to rise from 10% to 90% of the voltage envelope) and fall time (period for the pulse trailing edge to fall from 90% to 10% of the voltage envelope) of a pulse.

## Input Requirement

This element is OPTIONAL. It SHOULD be used for all pulsed systems. Do not use this item for all amplitude and angle-modulated systems. It is not appropriate to enter data concerning short duration FM or AM emission transmitters (i.e., frequency hopping) in this data item.

Enter:

- In **minRiseTime**, the nominal or minimum pulse rise time in microseconds.
- In **maxRiseTime**, the maximum pulse rise time in microseconds for ranged values.
- In **minFallTime**, the nominal or minimum pulse fall time in microseconds.
- In **maxFallTime**, the maximum pulse fall time in microseconds for ranged values.

## Validation Rules

- [XSL ERR GE001] Attribute **minRiseTime** MUST exist if **maxRiseTime** exists.
- [XSL ERR GE002] If attribute **maxRiseTime** exists, it MUST be greater than **minRiseTime**.
- [XSL ERR GE001] Attribute **minFallTime** MUST exist if **maxFallTime** exists.
- [XSL ERR GE002] If attribute **maxFallTime** exists, it MUST be greater than **minFallTime**.

## Examples

A fixed form factor:

```
<PulseForm minRiseTime="0.243" minFallTime="0.27"/>
```

A ranged form factor:

```
<PulseForm minRiseTime="0.02" maxRiseTime="0.3"
minFallTime="0.02" maxFallTime="0.03"/>
```

## Receiver

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u>TxRx</u>		
<b>Sub-elements</b>	<u>Curve [0..n]</u> , <u>FreqTolerance [0..1]</u> , <u>IFreq [0..5]</u> , <u>Nomenclature [0..n]</u> , <u>PreselectionType [0..1]</u> , <u>SignalTuning [0..n]</u> , <u>StockNum [0..n]</u>		

## Description

Data element Receiver contains the characteristics of a receiver or of the receiver part of a transceiver.

## Input Requirement

This element is OPTIONAL.

Enter in **type** the type of receiver from Code List Category RT:

### Code List Category RT:

Short Code	Definition
B	Coherent
C	Non-Coherent
D	Direct View Optics
G	Double Conversion Superheterodyne
H	Superheterodyne
J	Triple Conversion Superheterodyne
K	Crystal
L	Tuned Radio Frequency
N	Super Regenerative
O	Homodyne (Direct Conversion)
P	Quad Conversion Superheterodyne
U	Imaging Detector
V	Non-Imaging Detector
Z	Other-See Remarks

## Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category RT.

## RxMode

Attribute name	Attribute tag	Occurrence	Format
Mode Short Name	rxMode	Required	C40 Uppercase
Receiver Type	type	Optional	C1 Uppercase
Inherits From	<a href="#">Mode</a>		
Sub-Element Of	<a href="#">TxRxMode</a>		
Sub-elements	<a href="#">DynamicRange [0..1]</a> , <a href="#">IFreq [0..5]</a> , <a href="#">PostDetectionFreq [0..1]</a> , <a href="#">ProcessGain [0..1]</a> , <a href="#">Sensitivity [0..1]</a> , <a href="#">SignalTuning [0..n]</a>		
Referenced By	<a href="#">TxRxModeRef</a>		

### Description

This element inherits attributes from element [Mode](#).

### Input Requirement

This element is OPTIONAL and repeatable.

See element [Mode](#) for attributes **cls** and **descr**.

Enter :

- In **rxMode**, a short name for the mode; this name should be a meaningful identification of the mode (i.e. avoid names such as "MODE1").

### Validation Rules

[XSD] Value of attribute **rxMode** MUST be unique within each TxRxMode.

### Example

```
<RxMode rxMode="ACQUISITION" descr="Acquisition with normal scan">
    < ... All RxMode sub-elements ... />
</RxMode>
```

## Sensitivity

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sensitivity Level	level	Optional	SN5.2 [-165 .. -30] (dBm)
Noise Figure	noiseFigure	Optional	UN4.2 (dB)
Noise Temperature	noiseTemp	Optional	UN7.1 (Kelvin)
Sub-Element Of	<a href="#">RxMode</a>		
Sub-Elements	<a href="#">SensitivityCriterion [0..1]</a>		

## Description

Data element Sensitivity contains the minimum RF signal power present at the input terminals that ensures acceptable detection and demodulation of the desired signal, and the criteria used to determine this minimum level.

It may also contain a measure of the internal receiver noise present in the receiver output. It is the ratio of the input signal to noise ratio to the output-signal-to-noise ratio at the standard temperature of 290 Kelvin.

It may also contain the minimum receiver noise temperature.

## Input Requirement

This element is OPTIONAL. It SHOULD be used in all equipment datasets which are part of a SSRequest.

Enter:

- In **level**, the minimum RF signal power level in dBm as it relates to the first three criteria shown in the list below. Note, for MDS and MTR criteria, the RF signal power level is zero and this item may be left blank in those instances.
- In **noiseFigure**, in the case of terrestrial stations, the internal receiver noise in dB. Do not use this item for space stations.
- In **noiseTemp**, enter the temperature in Kelvin at the input of the network that would account for the change in noise at the output.

## Validation Rules

- [XSL ERR TR005] Sub-element SensitivityCriterion MUST exist if attribute **level** exists. It MUST NOT exist if attribute **level** does not exist.

## Example

```
<Sensitivity level="-92" noiseFigure="9" noiseTemp="850">
    <SensitivityCriterion type="SINAD">10</SensitivityCriterion>
</Sensitivity>
```

## SensitivityCriterion

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type	type	Required	C5 Uppercase
SensitivityCriterion	Element Content	Required	float
Sub-Element Of	<u>Sensitivity</u>		

## Description

Data element SensitivityCriterion contains the criteria used to determine the minimum RF signal power present at the input terminals that ensures acceptable detection and demodulation of the

desired signal.

### ***Input Requirement***

This element is OPTIONAL.

Enter:

- In **type**, one of the codes from Code List Category SE:

#### ***Code List Category SE:***

##### **Short Code Definition**

<b>SN</b>	Signal-to-Noise ratio; value is in dB
<b>SINAD</b>	Signal-Plus-Noise-Plus-Distortion to Noise-Plus-Distortion; value is in dB
<b>BER</b>	Bit Error Rate; value is a number in scientific notation
<b>MDS</b>	Minimum Discernable Signal
<b>MTR</b>	Minimum Target Recognition

- In the element content, the value of the criterion; the meaning and unit of this value depends on the **type** selected above.

### ***Validation Rules***

None

### ***Example***

See element [Sensitivity](#).

## **SignalDescr**

<b>Inherits From</b>	<a href="#">Common</a>
<b>Sub-Element Of</b>	<a href="#">Body</a>
<b>Sub-elements</b>	<a href="#">EqpFnct [0..n]</a> , <a href="#">FreqTolerance [0..1]</a> , <a href="#">SignalRx [0..1]</a> , <a href="#">SignalTuning [0..n]</a> , <a href="#">SignalTx [0..1]</a> , <a href="#">Title [1..1]</a> , <a href="#">TxRxMode [1..n]</a>
<b>Referenced By</b>	<a href="#">SignalDescrRef</a> , <a href="#">SignalDescrModeRef</a>

### ***Description***

This element is the XML root for all parameters of a Signal Description. It inherits attributes and sub-elements from element [Common](#).

### ***Input Requirement***

This element is OPTIONAL and repeatable. The SignalDescr dataset is used when spectrum supportability is accomplished using the proposed new procedure (see [CONOPS paragraph 2.5.3](#)).

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

### ***Validation Rules***

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**SD**".

### **Example**

```
<SignalDescr serial="D:AFSD:07823/2" usageType="P"
  entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
  <...all Common + SignalDescr elements...>
</SignalDescr>
```

## **SignalRx**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u>SignalDescr</u>		
<b>Sub-elements</b>	<u>Curve [0..n]</u> , <u>FreqTolerance [0..1]</u> , <u>IFreq [0..5]</u> , <u>SignalTuning [0..n]</u>		
<b>Referenced By</b>	<u>SignalDescrModeRef</u>		

### **Description**

Data element SignalRx is the root element containing the receiving characteristics of a Signal Description.

### **Input Requirement**

This element is OPTIONAL.

### **Validation Rules**

None

## **SignalTuning**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Tuning Step	tuningStep	Optional	F (MHz)
Tunability	tunability	Optional	C1 Uppercase
Number of Preset Channels	numChnl	Optional	UN8
<b>Sub-Element Of</b>	<u>Receiver</u> , <u>RxMode</u> , <u>SignalDescr</u> , <u>SignalRx</u> , <u>SignalTx</u> , <u>Transmitter</u> , <u>TxMode</u> , <u>TxRx</u> , <u>TxRxMode</u>		
<b>Sub-Elements</b>	(choice between <u>FreqSingle [0..1]</u> , <u>FreqRange [0..1]</u> )		

### **Description**

Data element SignalTuning indicates the tuning capabilities, the specific frequency or range of frequencies within which the equipment may tune, and the tuning increments of the equipment.

## ***Input Requirement***

This element is OPTIONAL and repeatable.

It MUST appear either in SignalDescr, or both in SignalTx and SignalRx, or in each TxMode and RxMode. If the tuning is general to the transceiver, enter it at the SignalDescr level; if it is different for the transmission and for the reception, but common to all modes, enter it at both the SignalTx and SignalRx levels; if modes have different tunings, enter them for each TxMode and RxMode. Similarly, it MUST appear either in TxRx, or both in Transmitter and Receiver, or in each TxMode and RxMode

Enter:

- In **tuningStep**, the tuning increment expressed in MHz (do not insert any unit).
- In **tunability**, the common tunability capability for the transmission and the reception at the SignalDescr level; if they are different, enter the corresponding codes in the SignalTx and the SignalRx. Use one of the codes from Code List Category TU:

### ***Code List Category TU:***

#### **Short Code Definition**

<b>F</b>	(fixed) - Systems capable of operating on a single discrete frequency
<b>C</b>	(continuous) - Systems capable of being tuned to any frequency within the requested band
<b>S</b>	(stepped) - Systems capable of being tuned across the authorized or requested band in discrete steps or increments. This includes crystal control.
<b>A</b>	Combination of continuous and stepped
<b>B</b>	Combination of fixed and stepped
<b>D</b>	Combination of fixed and continuous

- In **numChnl**, the number of preset channels available.

## ***Validation Rules***

- [XSL ERR TR004] Element SignalTuning MUST appear:
  - à either in SignalDescr, or in each TxRxMode, or both in SignalTx and SignalRx, or in each TxMode and RxMode;
  - à either in TxRx, or in each TxRxMode, or both in Transmitter and Receiver, or in each TxMode and RxMode.
- [XSD] The attribute **tunability** MUST use one of the codes from Code List Category TU.
- [XSD] Element SignalTuning MUST have either an [FreqSingle](#) or a [FreqRange](#) sub-element.

## ***Example***

```
<SignalTuning tuningStep="0.025" tunability="F">
    <FreqRange minFreq="225" maxFreq="400"/>
</SignalTuning>
```

## SignalTx

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">SignalDescr</a>		
<b>Sub-elements</b>	<a href="#">Curve [0..n]</a> , <a href="#">FreqTolerance [0..1]</a> , <a href="#">SignalTuning [0..n]</a>		
<b>Referenced By</b>	<a href="#">SignalDescrModeRef</a>		

### Description

Data element SignalTx is the root element containing the transmission characteristics of a Signal Description.

### Input Requirement

This element is OPTIONAL.

### Validation Rules

None

## SpreadSpectrum

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Spread Spectrum Type Code	type	Optional	C1 Uppercase
Spread Spectrum Processing Gain	gain	Optional	SN6.2 (dB)
Radar Pulse Frequency Deviation	pulseFreqDev	Optional	F (MHz)
Information Data Rate	infoDataRate	Optional	UN10.3 (bits/s)
Channel Spacing	chnlSpacing	Optional	F (MHz)
Direct Sequence Bandwidth	directSequenceBw	Optional	F (MHz)
Block Length	blockLength	Optional	UN12.4 (kilochips)
Data Block Size	dataBlockSize	Optional	UN12.4 (kilosymbols)
Code Rate	codeRate	Optional	UN10.3 (symbols/bit)
<b>Sub-Element Of</b>	<a href="#">TxRxMode</a>		
<b>Sub-elements</b>	<a href="#">FreqHopset [0..1]</a> , <a href="#">SpreadSpectrumPulse [0..n]</a> , <a href="#">SpreadSpectrumSweep [0..1]</a> , <a href="#">TimeHop [0..1]</a>		

### Description

Data element SpreadSpectrum contains characteristics of systems using spread spectrum techniques:

- the type of spread spectrum system being used;

- the processing gain;
- the total frequency shift during the pulse width (the chirp frequency shift) for linear FM pulsed radars;
- the information data rate, the spread channel spacing, the direct sequence bandwidth, the pseudo-noise block length, the spread channel block size, and the spread channel code rate of the Spread Spectrum signal.

## ***Input Requirement***

This element is OPTIONAL. It should be used for spread spectrum systems.

Enter:

- In **type**, a code from Code List Category SS:

### ***Code List Category SS:***

Short Code	Definition
1	Direct sequence
2	Frequency hopped
3	Time hopped
4	Hybrid (direct sequence and frequency hopped)
5	Hybrid (direct sequence and time hopped)
6	Hybrid (frequency and time hopped)
7	Chirp
8	Diversity
9	Other
A	Automatic Channel Selection (ACS)
F	Free Channel Search (FCS)

- In **gain**, the processing gain in dB.
- In **pulseFreqDev**, for FM pulse radars, the total frequency shift during the pulse width, in MHz without unit symbol.
- In **infoDataRate**, the information data rate in bits per second.
- In **chnlSpacing**, enter the frequency increment between discrete spread spectrum channels typically referenced to the baseband channels.
- In **directSequenceBw**, enter the bandwidth used in a digital format for a spread spectrum signal.
- In **blockLength**, enter the length of the pseudo noise (pn) or pseudo-random (pr) code sequence used for spreading the RF spectrum. The code sequence typically is generated by a feedback shift register where the code length is relatively long (2k - 1 chips for a k- stage shift).
- In **dataBlockSize**, enter the transmission length of a block of data in burst increments.
- In **codeRate**, enter the post encryption number of symbols/bit.

## ***Validation Rules***

- [XSD] The attribute **type** MUST use one of the codes from Code List Category SS.

## ***Example***

```
<SpreadSpectrum type="1" gain="30" pulseFreqDev="0.1" infoDataRate="5000"
  chnlSpacing="50" directSequenceBw="300" blockLength="12.2"
```

```
dataBlocksize="500.2" codeRate="64" />
```

## SpreadSpectrumPulse

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Frequency Deviation Rise	freqDeviationRise	Optional	<u>F</u> (MHz)
Frequency Deviation Fall	freqDeviationFall	Optional	F (MHz)
Minimum Range Gate Width	minWidth	Optional	UN9.7 (ms)
Maximum Range Gate Width	maxWidth	Optional	UN9.7 (ms)
Chirp Rate	chirpRate	Optional	UN9.6 (KChirps/Sec)
<b>Sub-Element Of</b>	<b>SpreadSpectrum</b>		

### Description

Data element **SpreadSpectrumPulse** contains spread spectrum frequency deviations as the pulse rises and falls, and range gate information. The range gate blanks out all signals that originate from ranges outside a narrow window, substantially increasing the signal-to-noise ratio and thereby protecting the radar against unsynchronized jamming pulses.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **deviationRiseTime**, the drift or change in frequency as a pulse rises between 10% and 90% of full amplitude.
- In **deviationFallTime**, the change in frequency as a pulse falls between 90% and 10% of full amplitude.
- In **minWidth** enter the minimum width of the range gate.
- In **maxWidth** enter the maximum width of the range gate.
- In **chirpRate** for linear frequency modulation, the constant rate at which the radio frequency of a pulse is increased throughout the width of the pulse.

### Validation Rules

- [XSL ERR GE001] Attribute **minWidth** MUST exist if **maxWidth** exists.
- [XSL ERR GE002] If attribute **maxWidth** exists, it MUST be greater than **minWidth**.

### Example

```
<SpreadSpectrum freqDeviationRise="0.0239" freqDeviationFall="0.0449"
minWidth="354.7" maxWidth="824.8"/>
```

## SpreadSpectrumSweep

Attribute name	Attribute tag	Occurrence	Format
----------------	---------------	------------	--------

Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Sweep Time	minTime	Optional	UN12.6 ( $\mu$ s)
Maximum Sweep Time	maxTime	Optional	UN12.6 ( $\mu$ s)
Minimum Sweep Frequency	minFreq	Optional	<a href="#">E</a> (MHz)
Maximum Sweep Frequency	maxFreq	Optional	F (MHz)
<b>Sub-Element Of</b>	<a href="#">SpreadSpectrum</a>		

## Description

Data element **SpreadSpectrumSweep** contains spread spectrum sweep frequency and time information:

## Input Requirement

This element is OPTIONAL.

Enter:

- In **minTime**, the minimum or nominal interval of time that a spread signal is swept through a specific bandwidth.
- In **maxTime**, the maximum interval of time that a spread signal is swept through a specific bandwidth.
- In **minFreq**, the minimum frequency for a spread spectrum system that the channel or channel group is swept in a continuous fashion.
- In **maxFreq**, the maximum frequency for a spread spectrum system that the channel or channel group is swept in a continuous fashion.

## Validation Rules

- [XSL ERR GE001] Attribute **minFreq** MUST exist if **maxFreq** exists.
- [XSL ERR GE002] If attribute **maxFreq** exists, it MUST be greater than **minFreq**.
- [XSL ERR GE001] Attribute **minTime** MUST exist if **maxTime** exists.
- [XSL ERR GE002] If attribute **maxTime** exists, it MUST be greater than **minTime**.

## Example

```
<SpreadSpectrumSweep minTime="679.1" maxTime="983.1" minFreq="4567"
maxFreq="8887"/>
```

## SubcarrierFreq

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
SubcarrierFreq	Element Content	Required	<a href="#">E</a> (MHz)
<b>Sub-Element Of</b>	<a href="#">TxMode</a>		

## Description

Data element SubcarrierFreq contains a frequency for the subcarrier. A subcarrier is a secondary channel that resides within the main channel (a carrier within a carrier). A type of multiplexing, the subcarrier is a modulated carrier signal at a lower frequency that is combined with the main carrier signal operating at a higher frequency.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter (using multiple occurrences of this element as necessary) the list of subcarriers, in MHz.

## Validation Rules

None

## Example

```
<SubcarrierFreq>2.0</SubcarrierFreq>
```

## SubcarrierTone

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
SubcarrierTone	Element Content	Required	F (MHz)
Sub-Element Of	TxMode		

## Description

Data element SubcarrierTone contains the sidetone frequency used to modulate the subcarrier.

## Input Requirement

This element is OPTIONAL and repeatable.

Enter (using multiple occurrences of this element as necessary) the list of sidetones, in MHz.

## Validation Rules

None

## Example

```
<SubcarrierTone>0.1</SubcarrierTone>
```

## Suppression

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Carrier Suppression	carrier	Optional	UN5.2 (dB)
Sideband Suppression	sideBand	Optional	UN5.2 (dB)
<b>Sub-Element Of</b>	<a href="#">Modulation</a>		

### Description

Data element Suppression describes the radio frequency carrier suppression and the amount of sideband suppression, typically referenced to single sideband communications equipment.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **carrier**, the amount of reduction of the signals carrier, as compared to a non attenuated signal carrier.
- In **sideBand**, the amount that one or both of the sidebands of a signal are reduced prior to transmission. "One or both" is determined by evaluation of the emission designator.

### Validation Rules

None

### Example

```
<Suppression carrier="60" sideBand="83"/>
```

## TimeHop

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Number of Time Hop Slots	numSlots	Optional	UN5
Number of Pulses Per Dwell	numPulsesPerDwell	Optional	UN12
Hopping Gate Length	hopGateLength	Optional	UN8.2 ( $\mu$ s)
<b>Sub-Element Of</b>	<a href="#">SpreadSpectrum</a>		

### Description

Data element TimeHop is used for time hopped systems. It contains the number of slots, the number of pulses transmitted during the dwell time, and the time slot allocated for the hopping interval in a spread spectrum (time) signal.

## ***Input Requirement***

This element is OPTIONAL. It SHOULD be used for time-hopped systems.

Enter:

- In **numSlots**, the number of time slots.
- In **numPulsesPerDwell**, the number of pulses transmitted during each dwell.
- In **hopGateLength**, the time slot allocated for the hopping interval in a spread spectrum (time) signal.

## ***Validation Rules***

None

## ***Example***

```
<TimeHop numSlots="30" numPulsesPerDwell="5000" hopGateLength="4578.34"/>
```

## **Transmitter**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<u>TxRx</u>		
<b>Sub-elements</b>	<u>Curve [0..n]</u> , <u>Filter [0..1]</u> , <u>FreqTolerance [0..1]</u> , <u>Nomenclature [0..n]</u> , <u>OutputDevice [0..1]</u> , <u>SignalTuning [0..n]</u> , <u>StockNum [0..n]</u>		

## ***Description***

Data element Transmitter is the root element containing the transmitter characteristics of a transceiver.

## ***Input Requirement***

This element is OPTIONAL under element TxRx.

## ***Validation Rules***

None

**TSPR**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
TSPR	Element Content	Required	Memo
<b>Sub-Element Of</b>	<a href="#">TxRx</a>		

**Description**

This is a National element (used by: USA).

This element contains the Telecommunications Service Priorities for Radiotelecommunications.

**Input Requirement**

This element is OPTIONAL.

Enter in the element content, the telecommunications service priority applicable to a spectrum-dependent radiocommunications system intended to be used in direct support of a national emergency declared under Section 706 of the Communications Act of 1934, as amended.

**Validation Rules**

None

**Example**

<TSPR>E-3</TSPR>

**TxMode**

Attribute name	Attribute tag	Occurrence	Format
Mode Short Name	txMode	Required	C40 Uppercase
Number of Side Tones	numSideTones	Optional	UN5
Number of Subcarriers	numSubcarriers	Optional	UN5
<b>Inherits From</b>	<a href="#">Mode</a>		
<b>Sub-Element Of</b>	<a href="#">TxRxMode</a>		
<b>Sub-elements</b>	<a href="#">CositeSep [0..1], Power [1..n], SignalTuning [0..n], SubcarrierFreq [0..n], SubcarrierTone [0..n]</a>		
<b>Referenced By</b>	<a href="#">TxRxModeRef</a>		

**Description**

This element inherits attributes from element [Mode](#). It contains also the number of frequencies for the subcarriers and/or sidetones modulating the carrier individually.

**Input Requirement**

This element is OPTIONAL and repeatable.

See element [Mode](#) for attributes **cls** and **descr**.

Enter :

- In **txMode**, a short name for the mode; this name should be a meaningful identification of the mode (i.e. avoid names such as "MODE1").
- In **numSideTones**, the number of side tone frequencies for the sidetones modulating the carrier individually.
- In **numSubcarriers**, the number of subcarrier frequencies for the subcarriers modulating the carrier individually.

### **Validation Rules**

- [XSD] Value of attribute **txMode** MUST be unique within each **TxRxMode**.
- [XSL ERR TR006] Attribute **numSideTones** MUST be used if sub-element **SubcarrierTone** is used
- [XSL ERR TR007] Attribute **numSubcarriers** MUST be used if sub-element **SubcarrierFreq** is used

### **Example**

```
<TxMode txMode="HIGH POWER" descr="FM Clear voice w/subcarrier">
    < ... All TxMode sub-elements ... />
</TxMode>
```

## **TxRxMode**

Attribute name	Attribute tag	Occurrence	Format
Mode Short Name	modeName	Required	C40 Uppercase
<b>Inherits From</b>	<a href="#">Mode</a>		
<b>Sub-Element Of</b>	<a href="#">SignalDescr</a> , <a href="#">TxRx</a>		
<b>Sub-elements</b>	(choice between <a href="#">AuthorisedBw</a> [1..1], <a href="#">EmsDesignator</a> [1..1]), <a href="#">Baseband</a> [0..n], <a href="#">Burst</a> [0..1], <a href="#">Modulation</a> [0..n], <a href="#">OccupiedBw</a> [0..1] , <a href="#">Pulse</a> [0..n], <a href="#">RxMode</a> [0..n], <a href="#">SignalTuning</a> [0..n], <a href="#">SpreadSpectrum</a> [0..1], <a href="#">TxMode</a> [0..n]		
<b>Referenced By</b>	<a href="#">TxRxModeRef</a> , <a href="#">SignalDescrModeRef</a>		

### **Description**

This element inherits attributes from element [Mode](#). It contains the characteristics of the mode which are common to the transmitter and/or the receiver, such as the baseband signal, the type of modulation and pulses, etc. In addition, use elements [TxMode](#) and [RxMode](#) to enter parameters specific to the transmitter or the receiver.

### **Input Requirement**

This element is REQUIRED and repeatable.

See element [Mode](#) for attributes **cls** and **descr**.

Enter :

- In **modeName**, a short name for the mode; this name should be a meaningful identification of the mode (i.e. avoid names such as "MODE1").

### **Validation Rules**

- [XSD] Value of attribute **modeName** MUST be unique for each TxRxMode within the same TxRx or SignalDescr.

### **Example**

```
<TxRxMode modeName="CLEAR VOICE" descr="FM Clear voice w/subcarrier">
  < ... All TxRxMode sub-elements ... />
</TxRxMode>
```

## **TxRx**

Attribute name	Attribute tag	Occurrence	Format
Equipment Type	eqpType	Optional	C2 Uppercase
Inherits From	<a href="#">Common</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-elements			Deployment [0..1], DuplexSep [0..1], Emergency [0..1], EqpFnct [0..n], FreqTolerance [0..1], Nomenclature [1..n], Receiver [0..1], WillReplace [0..n], SignalDescrRef [0..n], SignalTuning [0..n], StockNum [0..n], Transmitter [0..1], TxRxMode [1..n], TSPR [0..1]
Referenced By	<a href="#">TxRxModeRef</a>		

### **Description**

This element is the XML root for all parameters of an equipment. It inherits attributes and sub-elements from element [Common](#).

In addition, data element TxRx may contain the type of equipment.

### **Input Requirement**

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

Enter in **eqpType** the type of equipment selected from Code List Category AU:

#### **Code List Category AU:**

Short Code	Definition
T	Transmitter only
R	Receiver Only
TR	Transceiver

## Validation Rules

- [XSD] The attribute **eqpType** MUST use one of the codes from Code List Category AU.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**TR**".

## Example

```
<TxRx serial="F:AF:TR:123" usageType="P"
      entry="2004-05-20" lastMod="2006-11-05T12:30:00Z" eqpType="TR">
      < ... all Common + TxRx sub-elements ... />
</TxRx>
```

## 13. Antenna elements

These data elements include information pertaining to Antennas. An Antenna has one or several modes defined.

### Structure of Element Antenna

See [Annex L](#) for a description of the columns in the table below.

**Note:** Refer to [section 3](#) for Common attributes and sub-elements (inherited by Antenna in the table below).

element name	national	content	occ	attributes
<a href="#">Antenna</a>			[0..n]	(+motionType(L:AD),antUse(L:AU),sectBlanking(L:BO),feedType(L:AF),leadType(L:AL))
<a href="#">Nomenclature</a>			[1..n]	(cls(L:CL),+type(S3+P),+level(L:NU))
<a href="#">NomenclatureName</a>		(S100)	[1..1]	(cls(L:CL))
<a href="#">Manufacturer</a>			[0..n]	(cls(L:CL),country(L:AO),+code(L:MA))
<a href="#">FSCM</a>	(USA)	(S5+P)	[0..1]	(cls(L:CL))
<a href="#">StockNum</a>	(USA)	(S20+P)	[0..n]	(cls(L:CL),type(L:NS))
<a href="#">WillReplace</a>		(S)	[0..n]	(cls(L:CL),retireDate(D))
<a href="#">FreqSingle</a>		(UN16.6)	[0..n]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqRange</a>			[0..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">PhasedArray</a>			[0..1]	(cls(L:CL),numMainBeams(UI3),numElements(UI5))
<a href="#">AntType</a>		(S3+P)	[1..1]	(cls(L:CL))
<a href="#">Curve</a>			[0..n]	(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1),+freqConst(UN16.6),bw(UN16.6))
<a href="#">CurvePoint</a>			[1..n]	(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<a href="#">AntPattern</a>			[0..n]	(cls(L:CL),+code(L:AP),+origin(L:OR))
<a href="#">AntPatternPoint</a>			[1..n]	(cls(L:CL),+dir(UN5.2 [0..360]),+gain(SN5.2))
<a href="#">Dimension</a>			[0..1]	(cls(L:CL),shape(S1+P),elementSpacing(UN6.2))
<a href="#">Diameter</a>		(UN6.2)	[1..1]	(cls(L:CL))
<a href="#">HorzVert</a>			[1..1]	(cls(L:CL),+horz(UN6.2),+vert(UN6.2))
<a href="#">Aperture</a>			[0..1]	(cls(L:CL))
<a href="#">Diameter</a>		(UN6.2)	[1..1]	(cls(L:CL))
<a href="#">HorzVert</a>			[1..1]	(cls(L:CL),+horz(UN6.2),+vert(UN6.2))
<a href="#">HorzSidelobe</a>			[0..1]	(cls(L:CL),suppressed(L:BO),az(UN5.2 [0..360]),value(UN5.2))
<a href="#">VertSidelobe</a>			[0..1]	(cls(L:CL),elev(SN4.2 [-90..90]),value(UN5.2))
<a href="#">SysLosses</a>			[0..1]	(cls(L:CL))
<a href="#">AntMode</a>		(UN5.2)	[1..n]	(cls(L:CL),descr(S100),+code(L:AM))
<a href="#">Curve</a>			[0..n]	(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1),+freqConst(UN16.6),bw(UN16.6))
<a href="#">CurvePoint</a>			[1..n]	(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<a href="#">Gain</a>			[1..1]	(cls(L:CL),+minGain(SN5.2),maxGain(SN5.2),frontToBackRatio(UN5.2),elementType(L:EB))
<a href="#">Pol</a>			[1..1]	(cls(L:CL),+type(L:PO),angle(UN5.2 [0..360]))
<a href="#">Beamwidth</a>			[0..1]	(cls(L:CL),minHorz(UN5.2 [0..360]),maxHorz(UN5.2 [0..360]),minVert(SN4.2 [-90..90]),maxVert(SN4.2 [-90..90]),beamType(S1+P))
<a href="#">FreqSingle</a>	(UN16.6)	[0..n]		(cls(L:CL),refFreq(UN16.6))

<a href="#">FreqRange</a>	[0..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">Rotation</a>	[0..1]	(cls(L:CL),+code(L:BO),minRate(UN7.2),maxRate(UN7.2))
<a href="#">HorzScan</a>	[0..1]	(cls(L:CL),+speed(UN7.2),+rate(UI4),+scanType(L:AS))
<a href="#">Azimuth</a>	[1..1]	(cls(L:CL),+minAz(UN5.2 [0..360]),maxAz(UN5.2 [0..360]))
<a href="#">VertScan</a>	[0..1]	(cls(L:CL),+speed(UN7.2),+rate(UI4),+scanType(L:AS))
<a href="#">Elevation</a>	[1..1]	(cls(L:CL),+minElev(SN4.2 [-90..90]),maxElev(SN4.2 [-90..90]))
<a href="#">AntPattern</a>	[0..n]	(cls(L:CL),+code(L:AP),+origin(L:OR))
<a href="#">AntPatternPoint</a>	[1..n]	(cls(L:CL),+dir(UN5.2 [0..360]),+gain(SN5.2))

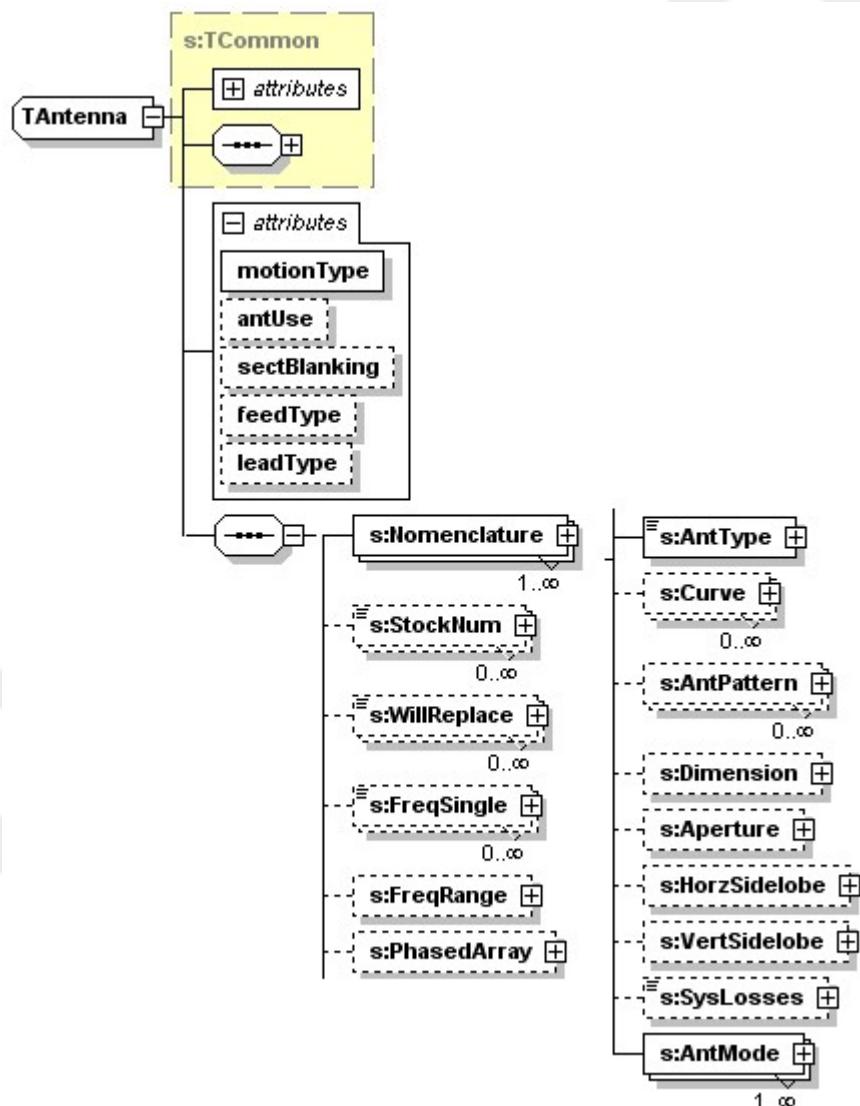


Figure II-13a

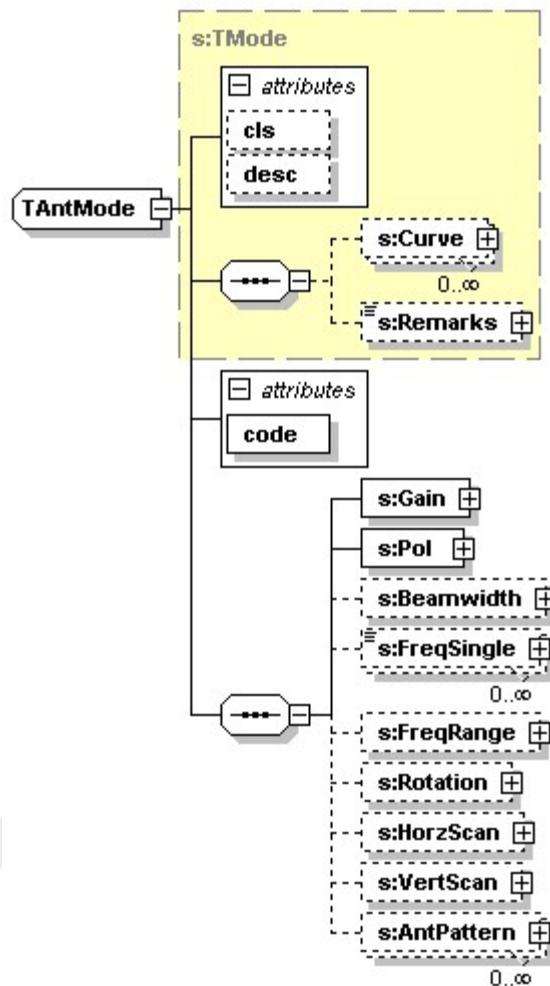


Figure II-13b

## Antenna

Attribute name	Attribute tag	Occurrence	Format
Antenna Motion Type	motionType	Required	C3 Uppercase
Antenna Use	antUse	Optional	C2 Uppercase
Antenna Sector Blanking	sectBlanking	Optional	C1 Uppercase
Antenna Feed Type	feedType	Optional	C1 Uppercase
Antenna Lead Type	leadType	Optional	C1 Uppercase
Inherits From	<u>Common</u>		
Sub-Element Of	<u>Body</u>		
Sub-elements	<u>AntMode</u> [1..n], <u>AntPattern</u> [0..n], <u>AntType</u> [1..1], <u>Aperture</u> [0..1], <u>Curve</u> [0..n], <u>Dimension</u> [0..1], <u>FreqRange</u> [0..1], <u>FreqSingle</u> [0..n], <u>HorzSidelobe</u> [0..1], <u>Nomenclature</u> [1..n], <u>PhasedArray</u> [0..1], <u>WillReplace</u> [0..n], <u>StockNum</u> [0..n], <u>SysLosses</u> [0..1], <u>VertSidelobe</u> [0..1]		

## Description

This element is the XML root for all parameters of an Antenna. It inherits attributes and sub-elements from element [Common](#). It also contains various technical parameters of the antenna: the type of antenna pattern, the antenna use, and an indication as to whether or not sector blanking is possible. Also included is the antenna feed and lead type data.

## *Input Requirement*

This element is OPTIONAL and repeatable.

See element [Common](#) for attribute **serial**, and for common sub-elements.

In addition, enter:

- In **motionType**, a code from Code List Category AD:

### *Code List Category AD:*

Short Code	Definition
DIR	Directional (if the direction of maximum radiation can be mentioned)
ND	Non directional/omnidirectional (if the direction cannot be determined or the radiation is non directional)
ROT	Rotating (if the antenna rotates at a fixed rate)
STR	Steerable (Fixed direction but steerable in the horizontal plane)
SSH	Scanning horizontally through a limited sector
SSV	Vertical scanning (nodding)
TRK	Tracking that can observe a moving object
UNK	Unknown

- In **antUse**, a code from Code List Category AU:

### *Code List Category AU:*

Short Code	Definition
T	Transmitter only
R	Receiver Only
TR	Transceiver

- In **sectBlanking**, a code from Code List Category BO ("Y" if sector blanking is possible and "N" if it is not possible):

### *Code List Category BO:*

Short Code	Definition
Y	Yes
N	No

- In **feedType**, enter a coded entry describing the element used to "illuminate" the reflector for an antenna unit. Use a code from Code List Category AF:

### *Code List Category AF:*

Short Code	Definition
2	Balun
3	Lens
A	Horn
B	Dipole
C	Pill Box
D	Nutating
E	Multi Array Of Folded Dipoles
F	Slotted Linear Array

G	Rotating Spinner Horn
H	Four Horn Cluster
I	Faired Set
J	Mult Feed Horn Lin Vert Array
K	Float Strip Type Power Divider
L	1/2 Wave Radiator
M	Rod
N	Slot
O	Waveguide
P	Cutler
Q	Cassegrain
R	Dipole Array
S	8 Feed Horn Cluster
T	Rotating Dipole
U	Lewis Scanner
V	Probe
W	Conical
X	Feedhorn Cluster
Y	Yagi Element
Z	Other-See Remarks

- In **leadType**, enter a coded entry from Code List Category AL describing the device used for conducting or guiding the radio-frequency energy from the transmitter or receiver to the antenna (e.g., continuous waveguide). Use a code from the following list (Code List Category AL):

#### **Code List Category AL:**

Short Code	Definition
A	Rectangular Waveguide
B	Circular Waveguide
C	Coaxial Cable
D	Dielectric Waveguide
E	Elliptic Waveguide
F	Flexible Coaxial Cable
G	Fin-Line Waveguide
H	Beam Waveguide
I	Rigid Coaxial Cable
J	Flexible Waveguide
K	Air Dielectric Cable
L	Ladder Line
M	Microstrip Line
O	Optic-Fiber Waveguide
P	Open Wire
Q	Coplaner Strip Line
R	Ridge Waveguide
S	Surface-Wave Line
T	Twin Lead
V	Semirigid Waveguide
W	Waveguide
Z	Other-See Remarks

#### **Validation Rules**

- [XSD] The attribute **motionType** MUST use one of the codes from Code List Category AD.
- [XSD] The attribute **antUse** MUST use one of the codes from Code List Category AU.

- [XSD] The attribute **sectBlanking** MUST use one of the codes from Code List Category BO.
- [XSD] The attribute **feedType** MUST use one of the codes from Code List Category AF.
- [XSD] The attribute **leadType** MUST use one of the codes from Code List Category AL.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "AN".

### **Example**

```
<Antenna serial="BEL:AR:AN:123" usageType="P"
entry="2004-05-20" lastMod="2006-11-05T12:30:00Z"
motionType="DIR" antUse="TR" sectBlanking="Y" feedType="H" leadType="C">
<...all Common + Antenna elements...>
</Antenna>
```

## **AntMode**

Attribute name	Attribute tag	Occurrence	Format
Mode Code	code	Required	UN4 (Leading zeros required)
<b>Inherits From</b>	<a href="#">Mode</a>		
<b>Sub-Element Of</b>	<a href="#">Antenna</a>		
<b>Sub-elements</b>	<a href="#">AntPattern [0..n]</a> , <a href="#">Beamwidth [0..1]</a> , <a href="#">FreqRange [0..1]</a> , <a href="#">FreqSingle [0..n]</a> , <a href="#">Gain [1..1]</a> , <a href="#">HorzScan [0..1]</a> , <a href="#">Pol [1..1]</a> , <a href="#">Rotation [0..1]</a> , <a href="#">VertScan [0..1]</a>		
<b>Referenced By</b>	<a href="#">AntModeRef</a>		

### **Description**

This element inherits attributes from element [Mode](#). It contains the technical characteristics of one [antenna mode](#).

### **Input Requirement**

This element is REQUIRED and repeatable.

See element [Mode](#) for attributes cls and descr.

Enter:

- In **code**, a short code for the mode; use a code from the [Code List Category AM in Annex G](#).

### **Validation Rules**

- [XSD] Value of attribute **code** MUST be unique for each AntMode within the same Antenna.
- The attribute **code** SHOULD use one of the codes from Code List Category AM.

### **Example**

```
<AntMode code="1020" descr="Tracking Scan Pattern">
< ... All AntMode sub-elements ... />
```

</AntMode>

### Note

The Code List Category AM is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## AntPattern

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Radiation Pattern Code	code	Required	C4 Uppercase
Origin	origin	Required	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">Antenna</a> , <a href="#">AntMode</a> , <a href="#">AntSpec</a>		
<b>Sub-elements</b>	<a href="#">AntPatternPoint [1..n]</a>		

### Description

Data element AntPattern contains the antenna pattern polarization code.

### Input Requirement

This element is OPTIONAL and repeatable.

Use this element under Antenna if the pattern is common to all modes of the antenna, or under AntMode if the pattern is specific to the mode.

Enter:

- In **code** the polarization code from the list below:

#### Code List Category AP:

Short Code	Definition
HH	Horizontal polarized port response to a horizontally polarized signal in the horizontal direction
HV	Horizontal polarized port response to a vertically polarized signal in the horizontal direction
VV	Vertically polarized port response to a vertically polarized signal in the horizontal direction
VH	Vertically polarized port response to a horizontally polarized signal in the horizontal direction
ELHH	Horizontal polarized port response to a horizontally polarized signal in the vertical direction
ELHV	Horizontal polarized port response to a vertically polarized signal in the vertical direction
ELVV	Vertically polarized port response to a vertically polarized signal in the vertical direction
ELVH	Vertically polarized port response to a horizontally polarized signal in the vertical direction
X	Unknown

- In **origin**, one of the following codes indicating the origin of the values for data elements [AntPatternPoint](#).

#### **Code List Category OR:**

Short Code	Definition
C	Calculated
M	Measured
X	Unknown

#### **Validation Rules**

None

#### **Example**

A horizontal polarized port with a horizontal incoming signal in the vertical direction on an azimuth of 180 degrees from the pointing direction of the antenna. The strength of the incoming signal is 40.1 dB below the maximum gain of the antenna:

```
<AntPattern code="ELHH" origin="M">
  <AntPatternPoint dir="180" gain="40.1">
  <.../>
</AntPattern>
```

#### **AntPatternPoint**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Antenna Radiation Pattern Direction	dir	Required	UN5.2 [0 .. 360] (deg)
Antenna Radiation Pattern Gain	gain	Required	SN5.2 (dB)
<b>Sub-Element Of</b>	<a href="#">AntPattern</a>		

#### **Description**

Data element AntPatternPoint contains one point of the antenna radiation pattern, defined by a direction and gain.

#### **Input Requirement**

This element is REQUIRED and repeatable.

Enter:

- In **dir**, the direction in degrees in reference to the pointing angle of the antenna set to zero.
- In **gain**, the amount of dB gain for the direction relative to the main beam gain.

#### **Validation Rules**

None

## Example

See example in element [AntPattern](#).

### AntType

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
AntType	Element Content	Required	C3 Uppercase
Sub-Element Of	<a href="#">Antenna</a>		

## Description

Data element AntType contains the type of antenna normally associated with the transmitter.

## Input Requirement

This element is REQUIRED.

Enter:

- In element content, a code from [Annex G, Code List Category AT](#).

## Validation Rules

- The element content SHOULD use one of the codes from Code List Category AT.

## Example

<AntType>AHG</AntType>

## Note

The Code List Category AT is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

### Aperture

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sub-Element Of	<a href="#">Antenna</a>		
Sub-Elements	<a href="#">(choice between Diameter [1..1], HorzVert [1..1])</a>		

## Description

Data element Aperture describes the cross-section of an antenna's radiation pattern in the direction

of highest gain. Values described are either the diameter or the Horizontal and Vertical and Dimensions.

## ***Input Requirement***

This element is OPTIONAL.

Use either Diameter or HorzVert to enter the aperture.

## ***Validation Rules***

[XSD] This element MUST contain either a sub-element [Diameter](#) or a sub-element [HorzVert](#).

## ***Examples***

```
<Aperture>
  <Diameter>2.73</Diameter>
</Aperture>

<Aperture>
  <HorzVert horz="4.83" vert="1.8"/>
</Aperture>
```

## ***Notes***

There is often confusion between differences in the physical dimensions of an antenna and the cross section of the radiating pattern used to describe the antenna aperture. In receive the antenna aperture can be visualised as the area of a circle or rectangle constructed broadside to incoming radiation where all radiation passing within the circle or rectangle is delivered by the antenna to a matched load. (Note that transmit and receive are reciprocal, so the aperture is the same for both when the pattern distribution is the same). Thus incoming power density (watts per square metre) x aperture (square metres)= available power from antenna (watts). Antenna gain is directly proportional to aperture. An isotropic antenna has an aperture of  $(\text{wavelength})^2/4\pi$ , and one with gain G has an aperture of  $G \cdot (\text{wavelength})^2/4\pi$ . Generally, antenna gain is increased by the directing radiation in a single direction, while necessarily reducing it in all other directions since power cannot be created by the antenna. Therefore the higher the gain, the larger the aperture and the narrower the associated beamwidth. Large dish antennas, many wavelengths across, have an aperture nearly equal to their physical area.

### **Diameter**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Diameter	Element Content	required	UN6.2 (m)
<b>Sub-Element Of</b>	<a href="#">Aperture</a> , <a href="#">Dimension</a>		

## ***Description***

Data element Diameter describes the physical diameter or the cross-section of an antenna's radiation pattern in the direction of highest gain.

## ***Input Requirement***

This element is OPTIONAL.

Enter the diameter in metres (without unit).

## ***Validation Rules***

None.

## ***Example***

See element [Dimension](#).

## **HorzVert**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Aperture Horizontal Dimension	horz	Required	UN6.2 (m)
Aperture Vertical Dimension	vert	Required	UN6.2 (m)
Sub-Element Of	<a href="#">Aperture</a> , <a href="#">Dimension</a>		

## ***Description***

Data element HorzVert describes the physical dimensions or cross-section of an antenna's radiation pattern in the direction of highest gain.

## ***Input Requirement***

This element is OPTIONAL.

Enter in **horz** and / or **vert**, the linear horizontal and vertical dimensions in metres (without unit).

## ***Validation Rules***

None.

## ***Examples***

See element [Dimension](#).

## Beamwidth

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Horizontal Beamwidth	minHorz	Optional	UN5.2 [0 .. 360] (deg)
Maximum Horizontal Beamwidth	maxHorz	Optional	UN5.2 [0 .. 360] (deg)
Minimum or Nominal Vertical Beamwidth	minVert	Optional	UN5.2 [0 .. 180] (deg)
Maximum Vertical Beamwidth	maxVert	Optional	UN5.2 [0 .. 180] (deg)
Beam Type	beamType	Optional	C1 Uppercase
<b>Sub-Element Of</b>	<a href="#">AntMode</a> , <a href="#">AntSpec</a>		

### Description

Data element Beamwidth describes the angular beamwidth (measured in degrees at the half-power (-3 dB) points) of space, earth or terrestrial station antennas (including experimental) employing earth or space-station techniques.

### Input Requirement

This element is OPTIONAL.

For space, earth, or terrestrial stations (including experimental) employing space or earth station techniques, enter the antenna beamwidth (in degrees) at the half-power (-3 dB) points. For a fractional beamwidth, add a zero before the decimal. For ITU space related data submissions, describe in detail in an [Attachment](#), if the beamwidth is not symmetrical.

Enter:

- In **minHorz**, the minimum or nominal horizontal beamwidth.
- In **maxHorz**, the maximum horizontal beamwidth.
- In **minVert**, the minimum or nominal vertical beamwidth.
- In **maxVert**, the maximum vertical beamwidth.
- In **beamType**, one of the codes describing the shape or type of the antenna main beam as contained in [Annex G, Code List Category BD](#).

### Validation Rules

- [XSL ERR GE001] Attribute **minHorz** MUST exist if **maxHorz** exists.
- [XSL ERR GE002] If attribute **maxHorz** exists, it MUST be greater than **minHorz**.
- [XSL ERR GE001] Attribute **minVert** MUST exist if **maxVert** exists.
- [XSL ERR GE002] If attribute **maxVert** exists, it MUST be greater than **minVert**.
- [XSL ERR AN002] This element MUST contain at least one entry in **minHorz** or in **minVert**.
- The attribute **beamType** SHOULD use one of the codes from Code List Category BD.

## Example

```
<Beamwidth minHorz="15" maxHorz="30" />
```

## Note

The Code List Category BD is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## Dimension

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Reflector Shape	shape	Optional	C1 Uppercase
Element Spacing	elementSpacing	Optional	UN6.2 (m)
<b>Sub-Element Of</b>	<a href="#">Antenna</a>		
<b>Sub-Elements</b>	(choice between <a href="#">Diameter [1..1]</a> , <a href="#">HorzVert [1..1]</a> )		

## Description

Data element Dimension contains the dimension of the major axis of a dish reflector antenna, or the linear horizontal and/or vertical dimensions of a rectangular reflector antenna. It also contains the general shape of the reflector, selected from Code List Category RS and the spacing between the antenna elements.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **shape**, a coded entry used to describe the general shape of the antenna reflector from [Annex G, Code List Category RS](#).
- In **elementSpacing**, the spacing in metres between active or passive antenna elements.

## Validation Rules

- [XSD] This element MUST contain either a sub-element Diameter or a sub-element HorzVert.
- The attribute **shape** SHOULD use one of the codes from Code List Category RS.

## Examples

```
<Dimension>
  <Diameter>2.73</Diameter>
</Dimension>

<Dimension>
```

```
<HorzVert horz="4.83" vert="1.8"/>
</Dimension>
```

## Note

The Code List Category RS is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## Gain

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Minimum or Nominal Gain	minGain	Required	SN5.2 (dBi)
Maximum Gain	maxGain	Optional	SN5.2 (dBi)
Front-to-back Ratio	frontToBackRatio	Optional	UN5.2 (dB)
Element Type	elementType	Optional	C2 Uppercase
<b>Sub-Element Of</b>	<a href="#">AntMode</a>		

## Description

Data element Gain indicates the antenna gain, in decibels with reference to an isotropic source (dBi), in the direction of maximum radiation. It can also contain the gain measured 180 degrees from the direction of maximum main beam gain.

## Input Requirement

This element is REQUIRED.

Enter:

- In **minGain**, the minimum or nominal antenna gain (in dB - dB with reference to an isotropic source) in the direction of maximum radiation. For a negative gain (earth and space stations only), enter a dash before the value of the gain.
- In **maxGain**, the maximum antenna gain in dB if applicable.
- In **frontToBackRatio**, the front-to-back ratio of the main beam to the back lobe in dB.
- In **elementType**, enter a code describing the portion of an antenna acting as the radiator of RF energy, using one of the codes in code list category EB:

### Code List Category EB:

Short Code	Definition
CD	CUP-DIPOLE
D	DIPOLE
H	HORN
HR	RIDGED HORN
R	ROD
S	SLOT
SR	SLOT RHOMBIC
SW	SLOTTED WAVEGUIDE
W	WAVEGUIDE

<b>WR</b>	RIDGE WAVEGUIDE
<b>XD</b>	CROSSED DIPOLES
<b>Z</b>	OTHER-SEE REMARKS

## Validation Rules

- [XSL ERR GE002] If attribute **maxGain** exists, it MUST be greater than **minGain**.

## Note

In order to be able to accommodate legacy data, a value of "**-999.99**" MAY be used in attribute **minGain** as a gap filler, but only for legacy data which do not contain this information. The real value SHOULD always be used for new datasets and during the review of old datasets.

## Examples

```
<Gain minGain="0"/>
<Gain minGain="-10" maxGain="20" frontToBackRatio="40"/>
```

## HorzScan

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Horizontal Scan Speed	speed	Required	UN7.2 (deg/s)
Horizontal Scan Rate	rate	Required	UN4 (scans/min)
Horizontal Scan Type	scanType	Required	C1 Uppercase
<b>Sub-Element Of</b>	<u>AntMode</u>		
<b>Sub-Elements</b>	<u>Azimuth [1..1]</u>		

## Description

Data element HorzScan contains the method about how the antenna beam is steerable in the horizontal axis, the portion of a circle that can be scanned by the antenna, the horizontal scan rate and the number of horizontal scans per minute.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **speed**, the number of degrees per second the antenna is capable of scanning. It is not necessarily the "Sector Scanned" figure times the degrees per second. If a significant portion of time is spent vertically scanning in between horizontal sweeps, the horizontal scan rate will be lower than if the antenna were horizontally scanning all the time.
- In **rate**, the number of complete scans the antenna is capable of making each minute.
- In **scanType**, the antenna horizontal scanning capability from [Annex G, Code List Category AS](#).

## Validation Rules

- The attribute **scanType** SHOULD use one of the codes from Code List Category AS.

## Example

```
<HorzScan speed="90" rate="15" scanType="H"/>
```

## Note

The Code List Category AS is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## HorzSidelobe

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sidelobe Suppression Code	suppressed	Optional	C1 Uppercase
Sidelobe Suppression Azimuth	az	Optional	UN5.2 [0 .. 360] (deg)
Sidelobe Suppression	value	Optional	UN5.2 (dB)
<b>Sub-Element Of</b>	<a href="#">Antenna</a>		

## Description

Data element HorzSidelobe indicates whether a portion of the radiation from an antenna outside of the main beam and usually of much less intensity has been suppressed or eliminated. The suppression or elimination of unwanted signals or interference takes place by means of shielding, filtering, grounding, component relocation, or sometimes redesign of the equipment in use. This element also contains the location of the sidelobe in reference to the direction of maximum gain and the amount of suppression in reference to the main beam gain of the antenna.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **suppressed**, a code from Code List Category BO (code **Y** if sidelobe is suppressed or **N** if sidelobe is not suppressed):

### Code List Category BO:

Short Code	Definition
Y	Yes
N	No

- In **az**, the direction (in degrees) of the suppressed sidelobe in reference to the direction of maximum radiation.
- In **value**, the amount of suppression expressed in dB.

## Validation Rules

- [XSD] The attribute **suppressed** MUST use one of the codes from Code List Category BO.

## Example

```
<HorzSidelobe suppressed="Y" az="10.3" value="30.4"/>
```

## PhasedArray

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Number of Main Beams	numMainBeams	Optional	UN3
Number of Phased Array Elements	numElements	Optional	UN5
<b>Sub-Element Of</b>	<u>Antenna</u>		

## Description

Data element PhasedArray contains the number of main beams and the number of antenna elements in the phased array antenna.

## Input Requirement

This element is OPTIONAL.

It should be used for phased array antennas. Enter the number of main beams and the number of elements.

## Validation Rules

None

## Example

```
<PhasedArray numMainBeams="5000" numElements="5000"/>
```

## Pol

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type of Polarization	type	Required	C2 Uppercase
Polarization Angle	angle	Optional	UN5.2 [0 .. 360] (deg)
<b>Sub-Element Of</b>	<u>AntMode</u> , <u>DetectedIntf</u>		

## Description

Data element Pol describes the polarization of the electromagnetic energy radiated from the antenna. If applicable, it may contain the linear polarization angle.

## ***Input Requirement***

This element is REQUIRED under AntMode and OPTIONAL under DetectedIntf.

Enter:

- In type, the polarization of the antenna using one of the codes in Code List Category PO:

### ***Code List Category PO:***

<b>Code</b>	<b>Source</b>	<b>Polarization</b>	<b>Definition</b>
<b>45</b>	INTL	45-degrees	The electric field intensity vector is either 45 degrees right or left of the vertical plane.
<b>CL</b>	ITU	Left-hand circular	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a left-hand or anti-clockwise direction.
<b>CR</b>	ITU	Right-hand circular	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction.
<b>D</b>	ITU	Dual	When substantially equal-amplitude Vertical and Horizontal polarized components are radiated without particular control of the phase relation between them. Typically, the vertically- and horizontally-polarized sources may be displaced one from the other so that the resultant polarization varies between circular and slant, according to azimuth angle.
<b>E</b>	INTL	Elliptical	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction, or rotates with time in a left-hand or anti-clockwise direction, while varying the field intensity. The magnitude of the horizontal field polarized component and the vertical field polarized component are unequal, resulting in elliptical polarization.
<b>EL</b>	INTL	Elliptic, left	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a left-hand or anti-clockwise direction while varying the field intensity.
<b>ER</b>	INTL	Elliptic, right	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction while varying the field intensity.
<b>H</b>	ITU	Horizontal linear	The electric field intensity vector is in the horizontal plane.

HV	INTL	Horizontal and vertical	The electric field intensity vector is in both the horizontal and vertical planes.
L	ITU	Linear	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, remains in the direction specified by the angle measured anti-clockwise from a line parallel to the equatorial plane; the value of this angle is listed in <b>angle</b> and is expressed in degrees.
M	ITU	Mixed	The collective term applied when both vertical and horizontal components are radiated, embracing slant, circular, and dual polarization.
O	INTL	Oblique, angled, crossed	The electric field intensity vector varies from the horizontal or vertical planes in a crossed manner similar to the letter "X". The angles may vary from 1 to 89 degrees right and left of vertical.
R	INTL	Rotating	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in either a left-hand or anti-clockwise direction or right-hand or clockwise direction.
SR	ITU	Right-hand slant	The electric field intensity vector may vary from 1 to 89 degrees right of the vertical plane.
SL	ITU	Left-hand slant	The electric field intensity vector may vary from 1 to 89 degrees left of the vertical plane.
TC	INTL	Right and left-hand circular	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-handed or clockwise, and left-hand or anti-clockwise direction.
V	ITU	vertical linear	The electric field intensity vector is in the vertical plane
X	INTL	Other or unknown	The polarization is unknown or not one of the above selections.

Item **type** is required for each transmitter antenna as described below:

- a. Assignments above 1000 MHz that must be coordinated (by the IRAC) with the Canadian Department of Communications.
- b. Assignments to earth or space stations or to terrestrial stations (including experimental stations) employing earth or space-station techniques.
- c. Assignments to terrestrial stations at 420 MHz and above except for the optional cases shown below:
  - i. Experimental stations
  - ii. Mobile stations
  - iii. Meteorological aids in the 1660-1700 MHz band
  - iv. TACAN/DME in the 960-1215 MHz band
  - v. Aeronautical telemetry in the 1435-1535, 2200-2290, or 2310-2390 MHz bands
- In **angle**, in the case of linear polarization, the angle (in degrees) measured counter-clockwise in a plane normal to the beam axis from the equatorial plane to the electric vector of the beam as

referenced from the satellite.

### **Validation Rules**

- [XSL ERR AN001] Attribute **angle** MUST BE used when attribute **type** = "L", and MUST NOT be used if **type** is different from "L".
- [XSD] The attribute **type** MUST use one of the codes from Code List Category PO.

### **Examples**

```
<Pol type="V"/>
<Pol type="L" angle="37"/>
```

## **Rotation**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Rotation Indicator	code	Required	C1 Uppercase
Minimum or Nominal Rotation Rate	minRate	Optional	UN7.2 (deg/s)
Maximum Rotation Rate	maxRate	Optional	UN7.2 (deg/s)
<b>Sub-Element Of</b>	<u>AntMode</u>		

### **Description**

Data element Rotation describes the antenna rotation capability, and if applicable, the antenna rotation rate.

### **Input Requirement**

This element is OPTIONAL.

It should be used for rotating antennas. Enter :

- In **code**, a code from Code List Category BO (Y if the antenna can rotate 360 degrees or N if the antenna can not rotate 360 degrees).

#### **Code List Category BO:**

Short Code	Definition
Y	Yes
N	No

- In **minRate**, the nominal or minimum antenna rotation rate in degrees per second.
- In **maxRate**, if applicable, the maximum antenna rotation rate in degrees per second

### **Validation Rules**

- [XSL ERR GE001] Attribute **minRate** MUST exist if **maxRate** exists.

- [XSL ERR GE002] If attribute **maxRate** exists, it MUST be greater than **minRate**.
- [XSD] The attribute **code** MUST use one of the codes from Code List Category BO.

### **Example**

```
<Rotation code="Y" minRate="90" maxRate="120"/>
```

## SysLosses

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
SysLosses	Element Content	Required	UN5.2 (dB)
<b>Sub-Element Of</b>	<u>Antenna</u>		

### **Description**

Data element SysLosses describes the signal losses associated with the antenna and its associated components.

### **Input Requirement**

This element is OPTIONAL.

Enter :

- In the element content, the total system losses in dB.

### **Validation Rules**

None

### **Example**

```
<SysLosses>13</SysLosses>
```

## VertScan

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Vertical Scan Speed	speed	Required	UN7.2 (deg/s)
Vertical Scan Rate	rate	Required	UN4 (scans/min)
Vertical Scan Type	scanType	Required	C1 Uppercase
Minimum Scan Angle	minScanAngle	Optional	SN4.2 [-90 .. 90] (deg)
Maximum Scan Angle	maxScanAngle	Optional	SN4.2 [-90 .. 90] (deg)
<b>Sub-Element Of</b>	<u>AntMode</u>		

## Description

Data element VertScan contains the method about how the antenna beam is steerable in the vertical axis, the minimum and maximum limits of the vertical sector scanned in degrees referenced to the horizon, the vertical scan speed and the number of vertical scans per minute.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **speed**, the number of degrees of vertical scan per second. If an antenna does a horizontal scan per second as part of a raster scan and drops down one degree after each sweep, it is scanning vertically at one degree per second. If the same antenna completed a scan in 30 seconds the vertical scan speed would be 2 degrees per minute.
- In **rate**, the number of complete vertical scans per minute. If the antenna does a horizontal scan per second as part of a raster scan and drops down one degree after each sweep, it is scanning vertically at one degree per second. If the same antenna completed a scan in 30 seconds the vertical scan rate would be 2 scans per minute.
- In **scanType**, the antenna vertical scanning capability from [Annex G, Code List Category AS](#).
- In **minScanAngle**, the minimum limit of the vertical arc scanned relative to the horizontal.
- In **maxScanAngle**, the maximum limit of the vertical arc scanned relative to the horizontal.

## Validation Rules

- The attribute **scanType** SHOULD use one of the codes from Code List Category AS.

## Example

*The antenna is scanning a horizontal sector every second and performs a 30 degree vertical raster scan by changing up one degree per sweep.*

```
<VertScan speed="1" rate="2" scanType="S"/>
```

## Note

The Code List Category AS is expandable dynamically by users using a "[Codes](#)" message; therefore the implementation of the validation rule cannot be enforced within the SSRF standard and is an implementation issue.

## VertSidelobe

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
First Vertical Sidelobe Position	elev	Optional	SN4.2 [-90 .. 90] (deg)
First Vertical Sidelobe Attenuation	value	Optional	UN5.2 (dB)
Sub-Element Of	Antenna		

## Description

Data element VertSidelobe describes the first sidelobe in the vertical plane. It contains the clockwise angular difference between the centre line of the main beam gain and the sidelobe, and the attenuation relative to the main beam gain.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **elev**, the first vertical sidelobe angle in degrees.
- In **value**, the first vertical sidelobe attenuation in dB.

## Validation Rules

None

## Example

```
<VertSidelobe elev="27.4" value="40.4"/>
```

# 14. Assignment / Allotment elements

## Definitions

An allotment dataset is a group of frequencies given to a subordinate organization for local management, for specific types of emissions and services and for a specified period of time. It may define [Stations](#) and [Configurations](#) to further restrict the use of the allotment.

A System of Assignments dataset is a grouping of data entries pertaining to one or more frequencies in use at one or more locations. A system of assignments may contain multiple transmit and receive Stations. Each station may have multiple Configurations with multiple frequencies assigned. Configuration information is reported once for use by one or more stations in the system of assignments.

## Representation of a System of Assignments / Allotment

The most important part of SSRF is the way to represent a system of assignments; the allotment follows exactly the same structure. The model must take into account some universal requirements (common to all nations, for military as well as civil spectrum managers):

The data repository must allow the users (manually as well as through software tools) to analyse new requirements/proposals for potential interference to existing assignments. Therefore the data model must contain geographical and technical references of the transmitters (location and emission characteristics) as well as the receivers (location and receiving characteristics).

The following diagrams show the sub-groups of an assignment.

- The Station element (uniquely identified within its parent dataset by Station.name) contains the geographical and administrative information about the transmit/receive sites.
- The Config (configuration) element (uniquely identified within its parent dataset by Config.name) contains the electrical information: which equipment is used, in which mode,

connected at which antenna.

- The Link element (uniquely identified within its parent dataset by Link.name) contains the connectivity information between stations.

Notes on the "Link" element:

- The Tuning requirements include parameters specific to the assignment such as tuning range, increments, and number of frequencies required. Where data is missing, the values from the registered TxRx parameters should be assumed.
- There are two options to specify the Tuning requirements: under Link or under each TxStation. One or the other should be used, but never a mixture. A Tuning at the Link level indicates that the assigned/allotted frequencies will be common to all TxStation. On the contrary, if each TxStation must have its own dedicated frequency(ies), use the Tuning within each TxStation.
- These flexible repeating factors allow the user to create all types of links. A link can be from very generic (one or several base stations serving an area or a volume with non-defined mobiles) to very accurate (such as one link for each radio-relay hop) to cover different scenarios.

Some typical messages are shown and explained in [Annex E](#).

### ***Structure of element AsgnAllot***

See [Annex L](#) for a description of the columns in the table below.

Notes:

- Refer to [section 3](#) for Common attributes and sub-elements (inherited by AsgnAllot in the table below).
- Refer to [section 8](#) for Config, Station and Link sub-elements

element name	national	content	occ	attributes
<a href="#">AsgnAllot</a>			[0..n]	()
<a href="#">Title</a>		(S100)	[0..1]	(cls(L:CL),lang(S2))
<a href="#">AsgnType</a>	(SMB)		[0..1]	(cls(L:CL),+category(L:CA),resource(L:NR))
<a href="#">ApprovalRouting</a>	(USA)	(S1+P)	[0..1]	(cls(L:CL))
<a href="#">ResponseDate</a>			[0..1]	(cls(L:CL))
<a href="#">Time</a>			[0..1]	(cls(L:CL),period(L:TI))
<a href="#">TimeFrame</a>			[0..1]	(cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">Requirement</a>			[0..1]	(cls(L:CL))
<a href="#">Emergency</a>		(S1+P)	[0..1]	(cls(L:CL))
<a href="#">HostNominate</a>			[0..1]	(cls(L:CL),+authority(L:HN))
<a href="#">FreqSingle</a>			[0..n]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqRange</a>		(UN16.6)	[0..n]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<a href="#">SysOfStation</a>			[0..1]	(cls(L:CL),sysName(S24),+higherLevelSys(S24),lowerLevelSys(S24))
<a href="#">FnctID</a>			[1..1]	(cls(L:CL),+major(S30+P),intermediate(S30+P))
<a href="#">NoteRef</a>			[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">AsgnAllotRef</a>			[0..n]	(cls(L:CL),+serial(S28+P),type(S2+P))
<a href="#">SSRequestRef</a>			[0..n]	(cls(L:CL),+serial(S28+P),+type(S3+P))
<a href="#">Config</a>			[1..n]	(cls(L:CL),+name(S24),+stnClass(L:SC),srvNature(L:SV),repeater(L:BO))
<a href="#">...</a>				
<a href="#">Station</a>			[1..n]	(cls(L:CL),+name(S24),callSign(S18))
<a href="#">...</a>				
<a href="#">Link</a>			[1..n]	(cls(L:CL),+name(S24))
<a href="#">...</a>				
<a href="#">Net</a>			[0..1]	(cls(L:CL),lineNum(UI4),+name(S100),protCode(S1+P),restoral(S3),pushNum(S3))
<a href="#">CallInfo</a>			[0..n]	(cls(L:CL),timePeriod(UI2),+callSign(S3+P),callWord(S15),TAD(S5+P))
<a href="#">Colour</a>			[0..1]	(cls(L:CL),+word(S16),+num(UI2))

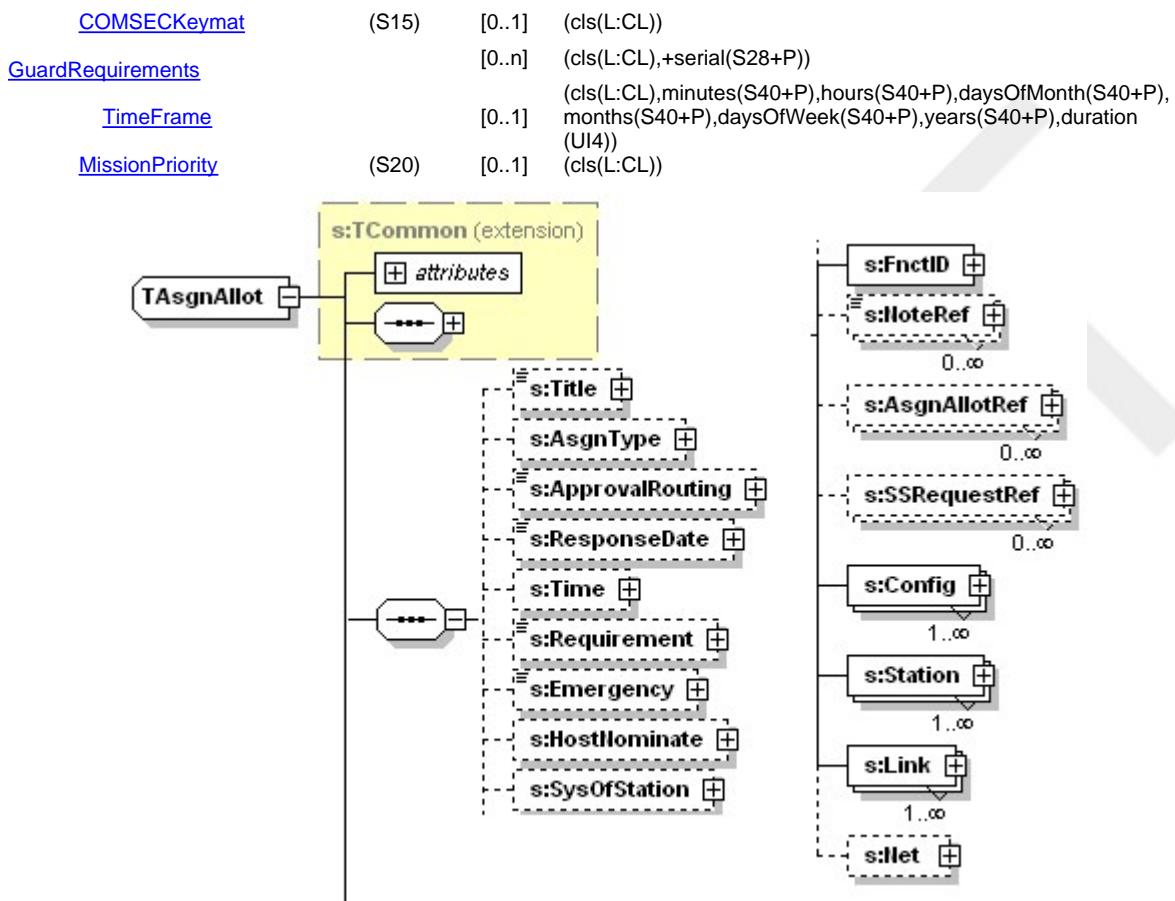


Figure II-14a

## AsgnAllot

Inherits From	<u>Common</u>
Sub-Element Of	<u>Body</u>
Sub-elements	ApprovalRouting [0..1], AsgnAllotRef [0..n], AsgnType [0..1], Config [1..n], Contract [0..n], Emergency [0..1], FnctID [1..n], HostNominate [0..1], Link [1..n], Net [0..1], NoteRef [0..n], Requirement [0..1], ResponseDate [0..1], Station [1..n], SSRequestRef [0..n], SysOfStation [0..1], Time [0..1], Title [0..1]
Referenced By	AsgnAllotRef

### Description

This element is the XML root for all parameters of a system of assignments, and for allotments. It inherits attributes and sub-elements from element Common.

### Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[AS](#)" or "[AL](#)".

## Example

```
<AsgnAllot serial="TUR:MOD:AS:0500001" usageType="P"
  entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
  <...all Common + Asgn elements...>
</AsgnAllot>
```

## Note

When assignments are assigned from an allotment plan, an [AsgnAllotRef](#) entry of type "AL" SHOULD be created in each assignment, referring to an allotment dataset.

## AsgnType

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Category	category	Required	C6 Uppercase
Frequency Resource	resource	Optional	C6 Uppercase
Sub-Element Of	AsgnAllot		

## Description

This is a National element (used by: NHQC3S/SMB).

This element shows the type of assignment and the resource for an UHFAMS assignment; this information is used by the NATO HQ C3 Staff / SMB:

1. to sort the assignments stored in the SMIR (Spectrum Management Information Repository), the central database maintained by the SMB;
2. to perform automated assignments in the NATO UHF band 225-400 MHz.

## Input Requirement

This element is OPTIONAL. It SHOULD be used for all assignments submitted to SMB.

- Attribute **category** is REQUIRED for all assignments submitted to NHQC3S/SMB. The codes are used for categorisation of Asgn (constrained by SMIR data distribution in NATO). Enter a code from Code List Category CA:

### Code List Category CA:

Short Code	Definition
HF	HF frequency or circuit
NAV	Navigational aid
OTHER	Any terrestrial or other link not covered by other codes (e.g. a R/R link)

- UHFAMS** Aeronautical mobile service (A/G/A) in the UHF band, including HQII and SATURN
- VHFAMS** Aeronautical mobile service (A/G/A) in the VHF band
- Attribute **resource** is REQUIRED for assignments in the NATO UHF Band requested to NHQC3S/SMB. The codes are used by the assignment tool NUFAS. Enter a code from Code List Category NR:

#### **Code List Category NR:**

Short Code	Definition
<b>HQFMT1</b>	Have Quick II training net, hopset 1
<b>HQFMT2</b>	Have Quick II training net, hopset 2
<b>HQFMT3</b>	Have Quick II training net, hopset 3
<b>HQFMT4</b>	Have Quick II training net, hopset 4
<b>HQOP</b>	Have Quick II operational net
<b>PMRVHF</b>	(Digital) Private Mobile Radio in the VHF band
<b>PMRUHF</b>	(Digital) Private Mobile Radio in the UHF band
<b>SATST</b>	SATURN special training net
<b>SATTRS</b>	SATURN training net in sub-band mode
<b>SATTRF</b>	SATURN training net in full-band mode
<b>SATOPS</b>	SATURN operational net in sub-band mode
<b>SATOPF</b>	SATURN operational net in full-band mode
<b>UHFAMS</b>	Aeronautical mobile service - A/G/A in the UHF band
<b>UHFOLD</b>	Aeronautical mobile service - A/G/A in the UHF band - old allotment plan (used by NHQC3S/SMB during transitions in UHF Reorganizations)
<b>UHFNB</b>	Aeronautical mobile service - narrow band A/G/A in the UHF band
<b>VHFAMS</b>	Aeronautical mobile service - A/G/A in the VHF band

#### **Validation Rules**

- [XSD] The attribute **category** MUST use one of the codes from Code List Category CA.
- [XSD] The attribute **resource** MUST use one of the codes from Code List Category NR.
- [XSL ERR AS001] The attribute **resource** MUST be used if **category** contains **UHFAMS**.

#### **Example**

```
<AsgnType category="UHFAMS" resource="UHFAMS" />
```

#### **FnctID**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Composite Function Identifier	Element Content	Required	C9
<b>Sub-Element Of</b>	<u>AsgnAllot</u>		

#### **Description**

Data element FnctID identifies the major (or primary), intermediate, and detailed function identifiers of the frequency assignment.

#### **Input Requirement**

This element is REQUIRED and repeatable.

Enter:

- In the element content, an entry from the approved composite codes of standardised Function Identifiers in [Code List Category FN](#) (Annex F). The relationships between Major Function Identifier, Intermediate Function Identifier, and Detailed Function Identifier contained in the table in Code List Category FN must be followed.

## Validation Rules

[XSL ERR AS008]. All FnctID elements within the same AsgnAllot dataset MUST have the same 6 first characters.

### Additional Checks for SMB

For submissions to NHQC3S/SMB where [AsgnType.category](#) = "UHFAMS", the only authorized codes are (where ddd is one of the authorized detailed codes from Annex F):

MAJOR FUNCTION IDENTIFIER	INTERMEDIATE FUNCTION IDENTIFIER	CODE
AIR OPERATIONS	AIR/AIR COMMUNICATIONS	010010ddd
	AIR/GROUND/AIR COMMUNICATIONS	010020ddd
	AIR TRAFFIC CONTROL	010030ddd
	FLIGHT TEST	010050000
	UAV (Unmanned Aerial Vehicle)	010080000
	TRAINING	010090000
	APPROACH/DEPARTURE CONTROL	010110000
GROUND OPERATIONS	CLOSE AIR SUPPORT (CAS)	020060000
SEA OPERATIONS	SHIP/AIR OPERATIONS	030080000
SURVEILLANCE/RECONNAISSANCE	AIR DEFENSE WARNING	060010ddd
OTHER OPERATIONS	SEARCH AND RESCUE	110070ddd

## Examples

<FnctID>010030090</FnctID>

(Translates to AIR OPERATIONS / AIR TRAFFIC CONTROL / GROUND CONTROL)

## Note

FnctID "000000000" (UNKNOWN) exists only to be able to cope with legacy data. It SHOULD NOT be used for newly created SSRF AsgnAllot datasets. The software implementations SHOULD forbid users to select this code.

## Note for the USA

The costs associated with the operational use of the spectrum are of increasing concern to the DOD. The function identifiers permit the analysis of spectrum usage by major, intermediate, and detailed function identifiers. The standardization of data attributes in Data elements Functional Identifier and Detailed Functional Identifier are controlled at the MCEB level.

## HostNominate

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Authority	authority	Required	C1 Uppercase
Sub-Element Of	<u>AsgnAllot</u>		

### Description

Data element HostNominate indicates in an assignment dataset the user's acceptance of host-nation nominations.

### Input Requirement

This element is OPTIONAL.

Enter in **authority** a code from the list below.

#### Code List Category HN:

Short Code	Definition
A	The frequency is preassigned by NATO headquarters (NHQC3S/SMB).
F	The frequency was assigned by the NATO UHF Frequency Assignment Software (NUFAS) at NHQC3S/SMB.
H	Host Nation Nominations are acceptable.
U	The frequency was preassigned by the user.

If code U is used, element(s) FreqRange and/or FreqSingle MUST contain the desired frequency (ies).

### Validation Rules

[XSL AS002] If **authority** = 'U' then HostNominate MUST contain exactly one FreqSingle.

[XSL AS003] If **authority** = 'H' then at least one of the sub-elements FreqRange or FreqSingle MUST be used.

### Example

```
<HostNominate authority="F"/>
```

## ITURegistration

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
ITU-R Registration Code	code	Required	C1 Uppercase
ITU-R Registration Date	date	Required	<u>Date</u>
ITU-R Registration Number	num	Required	C10 Uppercase
Sub-Element Of	<u>Freq</u>		

## Description

Data element ITURegistration indicates the status of registration of an assignment with the International Telecommunication Union-Radiocommunication Sector (ITU-R).

## Input Requirement

This element is OPTIONAL.

Enter:

- In **code**, the status of the assignment's registration with the ITU-R. Choose the appropriate indicator from Code List Category IR:

### Code List Category IR:

Short Code	Definition
R	Registered with ITU-R
U	Notified to ITU-R but received unfavourable findings and therefore not registered in the International Frequency List (IFL)
I	Registration with ITU-R on an insistence basis
O	Not notified to ITU-R due to the rules laid down in the ITU regulations
P	Pending notification to ITU-R
M	Registered with ITU-R but needs to be modified
N	Registration with ITU-R not required
S	Registration with ITU-R not requested for security reasons
Y	Registration with ITU-R is required

- In **date**, the ITU-R registration date, formatted as described in the [Introduction](#).
- In **num**, the ITU-R registration number of the assignment.

## Validation Rules

- [XSD] The attribute **code** MUST use one of the codes from Code List Category IR.

## Example

```
<ITURegistration code="R" date="1969-05-27" num="0000123456"/>
```

## NarrowBandPlanning

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Narrow Band Frequency	Element Content	Required	F (MHz)
Sub-Element Of	Freq		

## Description

**This is a National element (used by: USA).**

Data element NarrowBandPlanning identifies the frequency this assignment will be using when this assignment is converted to a narrow band assignment.

## ***Input Requirement***

This element is OPTIONAL.

Enter in the element content the frequency this assignment will be using when this assignment is converted to a narrow band assignment.

## ***Validation Rules***

None.

## ***Example***

```
<NarrowBandPlanning>167.2875</NarrowBandPlanning>
```

## **NavAids**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Channel	chnl	Required	C4 Uppercase
Sub-Element Of	<a href="#">Link</a>		

## ***Description***

Data element NavAids indicates the DME / TACAN channel (or pair of channels in the case of Air / Air communications).

## ***Input Requirement***

This element is OPTIONAL and repeatable.

For TACAN and DME assignments, enter the channel number of the allocated pair of radio frequencies assigned for use by Air / Ground / Air radionavigation facilities such as: TACAN, VORTAC, DME, MLS/DME, etc ... as follows:

001 through 126 "X"

001 through 126 "Y"

018 through 056 "W"

017 through 119 "Z"

Leading zeros are required.

## ***Validation Rules***

None.

## ***Example***

```
<NavAids chnl="064X" />
```

## NetNum

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Status	status	Optional	C1 Uppercase
NetNum	Element Content	Required	C6 Uppercase
Sub-Element Of	<a href="#">Link</a>		

### Description

Data element NetNum contains the net number for HAVE QUICK II and SATURN systems.

### Input Requirement

This element is OPTIONAL and repeatable.

Use this element in NATO assignments to HAVE QUICK II and SATURN systems.

- Enter in the element content the net number in the format PXXXnn where 'P' is either A for HAVE QUICK II or B for SATURN, XXX is in the range 000 through 999, and nn is one of the following four modes:
  - 00** - sub-band hopping mode (only for SATURN)
  - 25** - full-band hopping mode (HAVE QUICK II and SATURN)
  - 50** - SATURN mode
  - 75** - SATURN mode
- status** indicates the status of the net number nominated by the NUFAS software tool at NHQC3S/SMB. This code is computer-generated and uses Code List Category FS:

#### Code List Category FS:

Short Code	Definition
0	Calculated frequency fulfills all the EMC requirements
1	Calculated frequency has been selected after 1 relaxation
2	Calculated frequency has been selected after 2 relaxations
3	Calculated frequency has been selected after 3 relaxations
4	Frequency violates the resource constraint

### Validation Rules

- [XSD] The attribute **status** MUST use one of the codes from Code List Category FS.

### Example

```
<NetNum status="0">A35125</NetNum>
```

## PairedFreq

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
AsgnAllot Reference	serial	Required	See <a href="#">paragraph 1.5</a>
Frequency	freq	Required	<a href="#">E</a> (MHz)
PairedFreq	Element Content	Optional	C24
<b>Sub-Element Of</b>	<b>Freq</b>		

### Description

This is a National element (used by: USA).

Data element PairedFreq contains the repeater station transmit or receive frequency associated with the transmitter frequency described in this assignment dataset, the agency serial number, and a brief associated comment, associated with the paired frequency.

### *Input Requirement*

This element is OPTIONAL.

**[National rule]** Data element PairedFreq is REQUIRED for assignments where the transmitter or a receiver is used primarily as part of a repeater frequency operation. If there are multiple assignments for the repeater station receive frequency, include only data for one frequency/serial number as a representative of the group of datasets.

Enter:

- In **freq**, the associated frequency in MHz without unit symbol;
- In **serial**, the unique reference of the associated assignment dataset;
- In the element content, any associated information to indicate if the associated frequency is the repeating station transmit "RPT OUT" or receive "RPT IN" frequency.

### *Validation Rules*

None

### *Example*

```
<PairedFreq freq="166.000" serial="BEL:AF:AS:123">RPT IN</PairedFreq>
```

### *Note for the USA*

This element is used to hold legacy data that will assist in merging records together in the new SSRF format. Eventually this element will be deleted as the new structure will hold the necessary information.

## SysOfStation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
System Name	sysName	Optional	C24
Higher Level System	higherLevelSys	Required	C24
Lower Level System	lowerLevelSys	Optional	C24
<b>Sub-Element Of</b>	<a href="#">AsgnAllot</a>		

### Description

Data element SysOfStation defines the name of the system that this assignment belongs and whether or not the assignment provides assets to or uses another assignment resources. It also describes linkages to or from other datasets.

### Input Requirement

Data element is OPTIONAL and repeatable.

Enter:

- In **sysName**, the name of the system to which the AsgnAllot belongs.
- In **lowerLevelSys**, the name of the system that functions as a child to this system within a hierarchy of systems.
- In **higherLevelSys**, the name of the system that functions as a parent to this system within a hierarchy of systems.

### Validation Rules

None.

### Examples

```
<SysOfStation higherLevelSys="BALTIMORE LMR SYSTEM" />
```

## 15. Interference Reporting

An interference report dataset contains information on the victim of the interference and the known parameters of the interferer. This type of dataset and the associated data elements are termed IntfReport in this document.

### Structure of elements IntfReport and IntfMitigation

See [Annex L](#) for a description of the columns in the table below.

Note: Refer to [section 3](#) for Common attributes and sub-elements (inherited by IntfReport and IntfMitigation in the tables below).

element name	national	content	occ	attributes
<a href="#">IntfReport</a> <a href="#">Requirement</a>		(S)	[0..n] [0..1]	() (cls(L:CL))

<u>HelpRequired</u>	(S1+P)	[1..1]	(cls(L:CL))
<u>JSIR</u>		[0..1]	(cls(L:CL),+reported(S3+P))
<u>IntfFEDeploymentRef</u>		[1..n]	(cls(L:CL),+type(S1+P),+serial(S28+P))
<u>DetectedIntf</u>		[1..1]	(cls(L:CL))
<u>Time</u>		[1..1]	(cls(L:CL),period(L:TI))
<u>TimeFrame</u>		[0..1]	(cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<u>ReceivedLevel</u>	(S)	[0..1]	(cls(L:CL),signalLevel(SN5.2),fieldStrength(UN6.1))
<u>Pol</u>		[0..1]	(cls(L:CL),+type(L:PO),angle(UN5.2 [0..360]))
<u>LocationRef</u>		[0..1]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<u>Azimuth</u>		[0..1]	(cls(L:CL),+minAz(UN5.2 [0..360]),maxAz(UN5.2 [0..360]))
<u>SourceLinkRef</u>		[1..1]	(cls(L:CL),+serial(S28+P),+linkName(S24),+txStationRef(S100))
<u>SourceFreqInfo</u>		[1..n]	(cls(L:CL))
<u>FreqSingle</u>	(UN16.6)	[1..1]	(cls(L:CL),refFreq(UN16.6))
<u>FreqRange</u>		[1..1]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))
<u>EmsDesignator</u>		[1..1]	(cls(L:CL),+emsClass(S5+P),+bandwidth(S4+P))
<u>AuthorisedBw</u>		[1..1]	(cls(L:CL),+minBw(UN16.6),maxBw(UN16.6))
<u>ModDetails</u>	(S)	[0..1]	(cls(L:CL))
<u>IntfVictim</u>		[1..1]	(cls(L:CL))
<u>VictimLinkRef</u>		[1..1]	(cls(L:CL),+serial(S28+P),+linkName(S24),txStationRef(S100),rxStationRef(S100))
<u>EffectOnPerformance</u>	(S)	[1..1]	(cls(L:CL))
<u>OtherActivities</u>	(S)	[0..1]	(cls(L:CL))

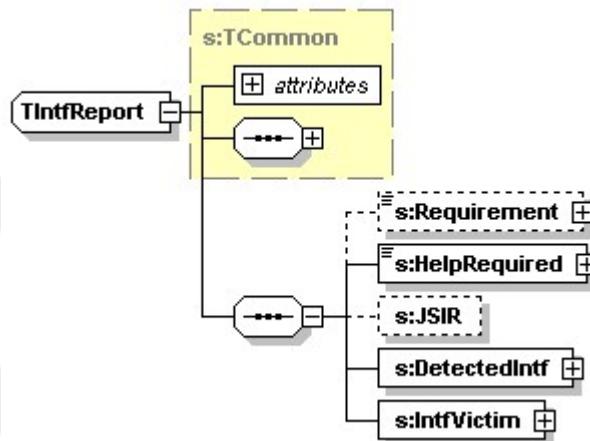


Figure III-15a

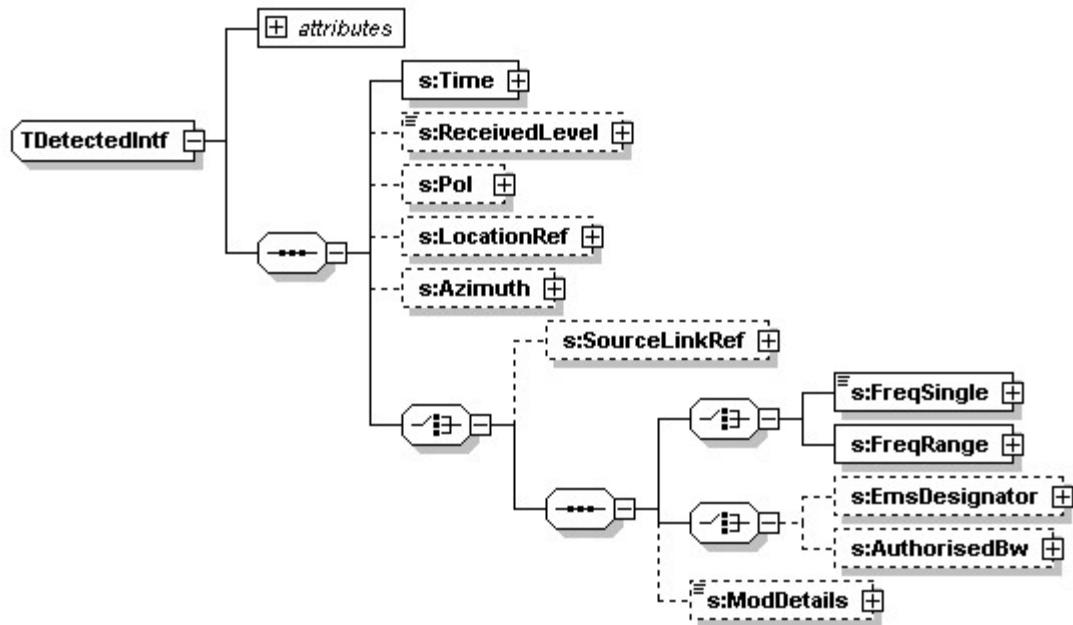


Figure III-15b

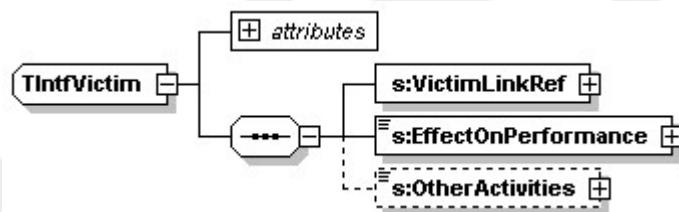


Figure III-15c

element name	national	content	occ	attributes
<a href="#">IntfMitigation</a>			[0..n]	(+responseType(S1+P),evaluation(S3+P),+mod(S1+P))
<a href="#">IntfReportRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))

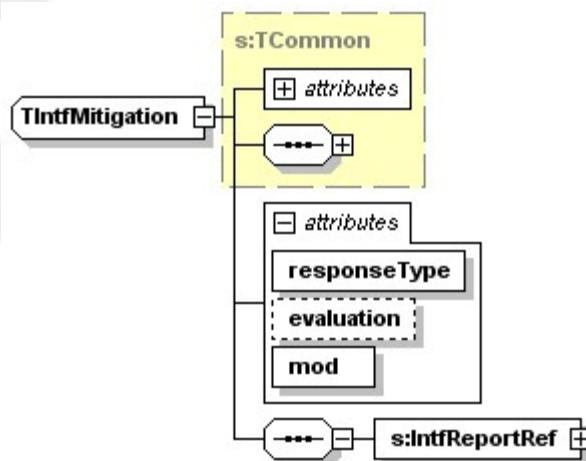


Figure III-15d

## DetectedIntf

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sub-Element Of	<u>IntfReport</u>		
Sub-elements	<u>Azimuth</u> [0..1], <u>LocationRef</u> [0..1], <u>Pol</u> [0..1], <u>ReceivedLevel</u> [0..1], <u>Time</u> [1..1], (choice between <u>SourceLinkRef</u> [1..1] and <u>SourceFreqInfo</u> [1..1])		

### Description

Data element DetectedIntf describes the characteristics of the interference source as detected at the victim site.

### Input Requirement

This element is REQUIRED.

- If the location is known (i.e. found using triangulation, and recorded in a SSRF repository), it may be referred to using a LoactionRef element; otherwise, use the Azimuth to indicate the measured azimuth of the interference.
- If the interferer is known (i.e. registered in a SSRF repository), it may be referred to using a SourceLinkRef element; otherwise, use element SourceFreqInfo to characterise the received interference.

### Validation Rules

None.

### Example

```
<DetectedIntf>
    <... Sub-elements ...>
</DetectedIntf>
```

## EffectOnPerformance

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Effect On Performance	Element Content	Required	Memo
Sub-Element Of	<u>IntfVictim</u>		

### Description

Data element EffectOnPerformance describes the effects of the interference on the receiver's desired operation.

## ***Input Requirement***

This element is REQUIRED.

Enter:

- In the **element content**, the effect that the interfering signal had on the receiver's desired operation.

## ***Validation Rules***

None.

## ***Example***

```
<EffectOnPerformance>Pulse synchronisation is lost</EffectOnPerformance>
```

## **HelpRequired**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
HelpRequired	Element Content	Required	C1 Uppercase
Sub-Element Of	<a href="#">IntfReport</a>		

## ***Description***

Data element HelpRequired indicates if the user needs technical assistance from another organization to solve the interference.

## ***Input Requirement***

This element is REQUIRED.

Enter a code from the list below.

### ***Code List Category BO:***

Short Code	Definition
Y	Yes
N	No

## ***Validation Rules***

None.

## ***Example***

```
<HelpRequired>Y</HelpRequired>
```

## IntfMitigation

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Resolved the interference	responseType	Required	C1 Uppercase
Evaluation of the interference	evaluation	Optional	C3 Uppercase
Modification of	mod	Required	C1 Uppercase
<b>Inherits From</b>	<a href="#">Common</a>		
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-Elements</b>	<a href="#">IntfReportRef [1..1]</a>		

### Description

This element is the XML root for all parameters of an interference mitigation report. It inherits attributes and sub-elements from element [Common](#). An IntfMitigation report describes what is the result of an investigation, or what action(s) were taken to mitigate the effects of the interference.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **responseType**, a code E if the transaction contains an evaluation of the interference or M if the transaction is the definitive solution to the interference. Use a code from Code List Category IM:

#### Code List Category IM:

Short Code	Definition
E	Evaluation
M	Mitigation

- In **evaluation**, a code from Code List Category J1 indicating the type of interference as evaluated by the analysts.

#### Code List Category J1:

Short Code	Definition
MEA	Meaconing
ITR	Intrusion
JAM	Jamming
INT	Interference
ENV	Environmental (natural phenomena such as ducting, sun spot activity, etc)

- In **mod**, a code indicating which assignment has been modified as part of the mitigation. Use a code from Code List Category VS:

#### Code List Category VS:

Short Code	Definition
B	Both source and victim were modified
S	Source of the interference was modified
V	Victim of the interference was modified

### Validation Rules

- [XSD] Attribute **responseType** MUST use one of the codes from Code List Category IM.
- [XSD] Attribute **evaluation** MUST use one of the codes from Code List Category J1.
- [XSD] Attribute **mod** MUST use one of the codes from Code List Category VS.
- [XSD] An interference mitigation MUST also be accompanied by the original interference report in the same message.
- [XSL ERR IT001] This element MUST contain a sub-element [Remarks](#) (inherited from [Common](#)) defining the action taken or the result of the evaluation.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[IM](#)".

### **Example**

```
<IntfMitigation serial="TUR:MOD:IM:0500001" usageType="P"
  responseType="M" mod="V">
  <...all Common elements...>
  <Remarks>The source could not be identified and the frequency was
  changed.</Remarks>
</IntfMitigation>
```

## **IntfReport**

Inherits From	<a href="#">Common</a>
Sub-Element Of	<a href="#">Body</a>
Sub-elements	<a href="#">DetectedIntf</a> [1..1], <a href="#">HelpRequired</a> [1..1], <a href="#">IntVictim</a> [1..1], <a href="#">JSIR</a> [0..1], <a href="#">Requirement</a> [0..1]
Referenced By	<a href="#">IntfReportRef</a>

### **Description**

This element is the XML root for all parameters of an interference report. It inherits attributes and sub-elements from element [Common](#).

### **Input Requirement**

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[IF](#)".

### **Example**

```
<IntfReport serial="TUR:MOD:IF:0500001" usageType="P">
  <...all Common + IntfReport elements...>
</IntfReport>
```

## IntfVictim

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sub-Element Of	<u>IntfReport</u>		
Sub-elements	<u>EffectOnPerformance [1..1]</u> , <u>OtherActivities [0..1]</u> , <u>VictimLinkRef [1..1]</u>		

### Description

Data element IntfVictim describes the victim of interference.

### Input Requirement

This element is REQUIRED.

### Validation Rules

None.

### Example

```
<IntfVictim>
    <... sub-elements ...>
</IntfVictim>
```

## OtherActivities

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Other Activities	Element Content	Required	Memo
Sub-Element Of	<u>IntfVictim</u>		

### Description

Data element OtherActivities describes the other activities that occurred at the time of the interference and might be related to or contribute to the interference.

### Input Requirement

This element is OPTIONAL.

Enter:

- In the **element content**, any other activities that occurred at the time of the interference and might be related to the interference.

## Validation Rules

None.

## Example

```
<OtherActivities>Ambulance passing by every time interference occurs.</OtherActivities>
```

## ReceivedLevel

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Signal Level	signalLevel	Optional	SN5.2 (dBm)
Field Strength	fieldStrength	Optional	UN6.1 (dB $\mu$ V/m)
Acquisition Method	Element Content	Optional	Memo
<b>Sub-Element Of</b>	<u>DetectedIntf</u>		

## Description

Data element ReceivedLevel describes the power level of the source of the interference measured at the victim receiver.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **fieldStrength**, the electromagnetic field strength measured in dB(microVolts/Metre).
- In **signalLevel**, the measured signal level of the interferer at the victim site in dBm.
- In the **element content**, the method used to measure the signal level or field strength.

## Validation Rules

None.

## Example

```
<ReceivedLevel signalLevel="-74" />
```

## Note

The ITU-R Recommendation PN.525-2 gives formulas for converting between field strength and power flux density:

$$E = Pt - 20\log(d) + 74.8$$

Where:

E is the field strength in V/m  
 Pt is the transmitted EIRP in dBW  
 d is the radio path length in km

$$Pr = E - 20 \log_{10} (f) - 167.2$$

Where:

Pr is the power received with an isotropic antenna  
 f is the frequency in GHz

$$PFD = E^2 / (120 * \pi) \quad \text{or} \quad pfd = e - 145.8$$

Where:

PFD is the power flux density in W/m<sup>2</sup> and pfd is in dB(W/m<sup>2</sup>)  
 e is the field strength in dB(μV/m)  
 120 \* π is the "empty space impedance"

## SourceFreqInfo

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sub-Element Of	<u>DetectedIntf</u>		
Sub-Elements	<u>(choice between FreqSingle [1..1], FreqRange [1..1]),</u> <u>(choice between AuthorisedBw [0..1], EmsDesignator [0..1]),</u> <u>ModDetails [0..1]</u>		

### Description

Data element SourceFreqInfo describes the frequency parameters of an unknown source of interference, as measured by the victim receiver.

### Input Requirement

This element is OPTIONAL. Either this element or [SourceLinkRef](#) MUST be used.

See sub-elements.

### Validation Rules

None.

### Example

```
<SourceFreqInfo>
  <... sub-elements ... >
<SourceFreqInfo>
```

## SourceLinkRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Assignment Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Link Name	linkName	Required	C24
Transmitter Station Name	txStationRef	Required	C100
<b>Sub-Element Of</b>	<b>DetectedIntf</b>		

### Description

Element SourceLinkRef contains the reference to a specific Link inside an [AsgnAllot](#) dataset, indicating also the transmitter station generating the interference.

### Input Requirement

This element is OPTIONAL. Either this element or [SourceFreqInfo](#) MUST be used.

Enter:

- In **serial**, the unique reference of the AsgnAllot causing the interference;
- In **linkName**, the name of the Link sub-element of the AsgnAllot causing the interference;
- In **txStationRef**, the name of the TxStation (or a TxRxStation) sub-element of the AsgnAllot element designating the station generating the interference.

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**AS**".

### Example

```
<SourceLinkRef serial="TUR:AR:AS:12345" linkName="LINK1"
txStationRef="Station1"/>
```

## VictimLinkRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Assignment Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Link Name	linkName	Required	C24
Receiver Station Name	rxStationRef	Optional	C100
Transmitter Station Name	txStationRef	Optional	C100
<b>Sub-Element Of</b>	<b>IntfVictim</b>		

## Description

Element VictimLinkRef contains the reference to a specific Link inside an [AsgnAllot](#) dataset identifying the victim of the interference, indicating also the receiver (victim) station and optionally the associated transmitter station if known.

## Input Requirement

This element is REQUIRED.

Enter:

- In **serial**, the unique reference of the AsgnAllot victim of the interference;
- In **linkName**, the name of the [Link](#) sub-element of the AsgnAllot victim of the interference;
- In **rxStationRef**, the name of the [RxStation](#) (or a [TxRxStation](#)) sub-element of the AsgnAllot element designating the station subject to the interference.
- In **txStationRef**, the name of the [TxStation](#) (or a [TxRxStation](#)) sub-element of the AsgnAllot element designating the transmitting station associated with the victim of the interference.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[AS](#)".

## Example

```
<VictimLinkRef serial="TUR:AR:AS:12345" linkName="LINK1"  
rxStationRef="Station1"/>
```



### III. Tactical Information

# Volume III

## Tactical Information

1. [Force Elements](#)
2. [CEOI](#)
3. [BSM Planning](#)
4. [JRFL](#)
5. [JSIR](#)
6. [Operating Clearance](#)

### 1. Force Elements

The Force Element is used to describe any entity (organization or platform) within a deployment that has the ability to transmit or receive information. This could be stand-alone equipment, or any group of equipment brought together to perform a task.

See [Annex L](#) for a description of the columns in the table below.

**Note:** Refer to [Volume II, section 3](#) for Common attributes and sub-elements (inherited by Route, ForceElement and FEDeployment in the tables below).

element name	national	content	occ	attributes
<a href="#">ForceElement</a>			[0..n]	(type(S3+P),+country(L:AO),name(S100),+FEType(S1+P),+cat(S1+P),comp(S3+P),missionCode(L:MC),cmdLevel(L:LC),opsCountry(L:AO),role(L:SR),platform(L:ET))
<a href="#">Nomenclature</a>			[1..n]	(cls(L:CL),+type(S3+P),+level(L:NU))
<a href="#">NomenclatureName</a>		(S100)	[1..1]	(cls(L:CL))
<a href="#">Manufacturer</a>			[0..n]	(cls(L:CL),country(L:AO),+code(L:MA))
<a href="#">FSCM</a>	(USA)	(S5+P)	[0..1]	(cls(L:CL))
<a href="#">StockNum</a>	(USA)	(S20+P)	[0..n]	(cls(L:CL),type(L:NS))
<a href="#">Descriptor</a>			[0..1]	(cls(L:CL),+unit(S2+P),+status(S1+P),+role(S2+P))
<a href="#">Symbol</a>			[0..1]	(cls(L:CL),+type(S5+P),+code(S15+P))
<a href="#">FETxRx</a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#">Quantity</a>			[0..1]	(cls(L:CL),authorized(UI5),available(UI5))
<a href="#">FEAntenna</a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#">Quantity</a>			[0..1]	(cls(L:CL),authorized(UI5),available(UI5))
<a href="#">RelatedOrg</a>			[0..n]	(cls(L:CL),+type(S3+P),+relation(S1+P),+serial(S28+P)) (cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">TimeFrame</a>			[0..1]	months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">Quantity</a>			[0..1]	(cls(L:CL),authorized(UI5),available(UI5))
<a href="#">EffDate</a>		(DT)	[0..1]	(cls(L:CL))
<a href="#">Expire</a>		(DT)	[0..1]	(cls(L:CL))

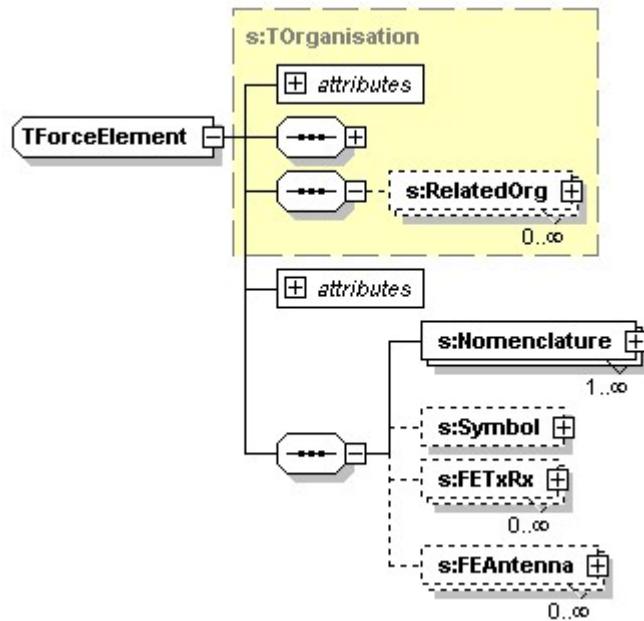


Figure III-1a

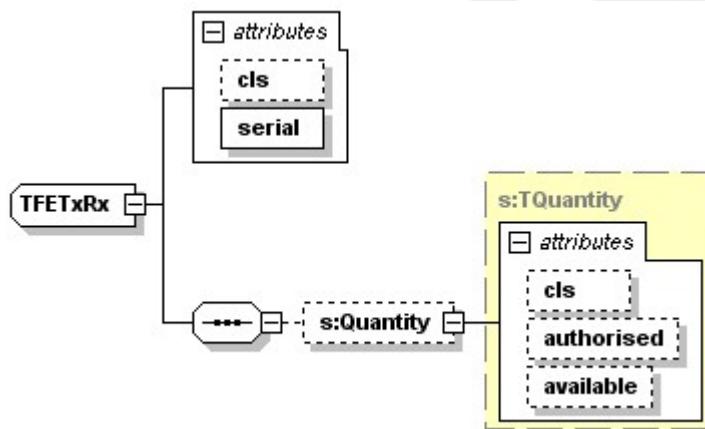


Figure III-1b

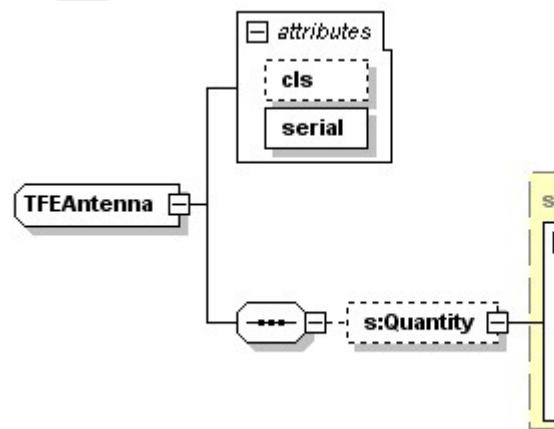


Figure III-1c

element name	national	content	occ	attributes
<a href="#">FEDeployment</a>			[0..n]	(type(S2+P)) (cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P), months(S40+P),daysOfWeek(S40+P),years(S40+P),duration (UI4))
<a href="#">TimeFrame</a>			[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">FERef</a>			[1..1]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#">LocationRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">RouteRef</a>			[1..1]	(cls(L:CL),routIdx(UI3),dateTime(DT),speed(UN7.2))
<a href="#">AtWayPoint</a>				

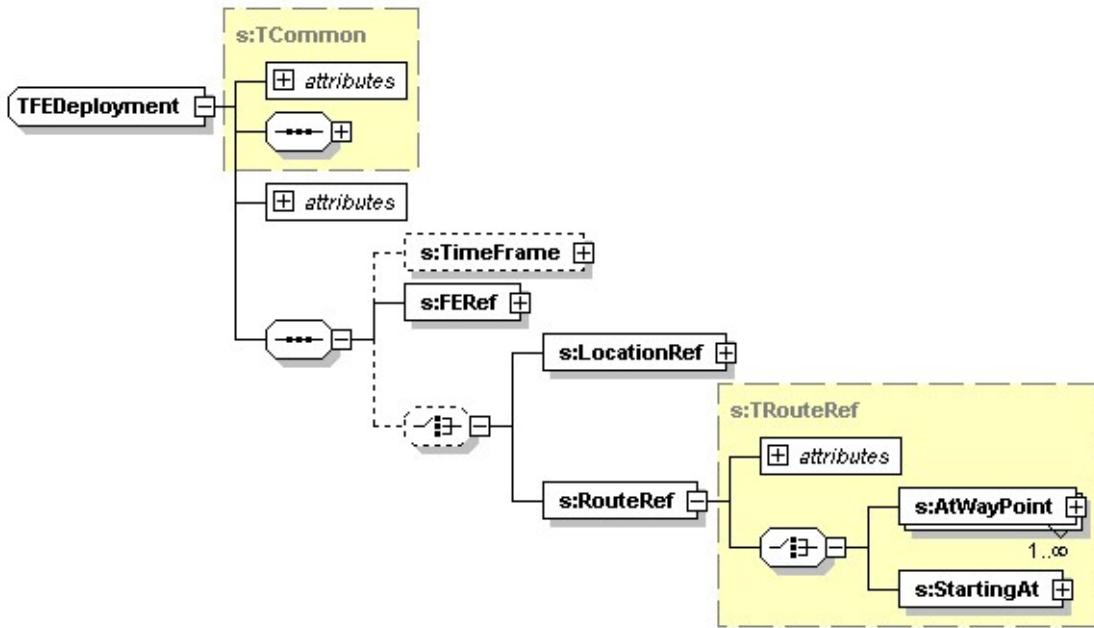


Figure III-1d

element name	national	content	occ	attributes
<a href="#">Route</a>			[0..n]	(+type(L:RC),+name(S100))
<a href="#">WayPoint</a>			[2..n]	(cls(L:CL),+idx(UI2),+lon(S8+P),+lat(S7+P),alt(SN7.2))

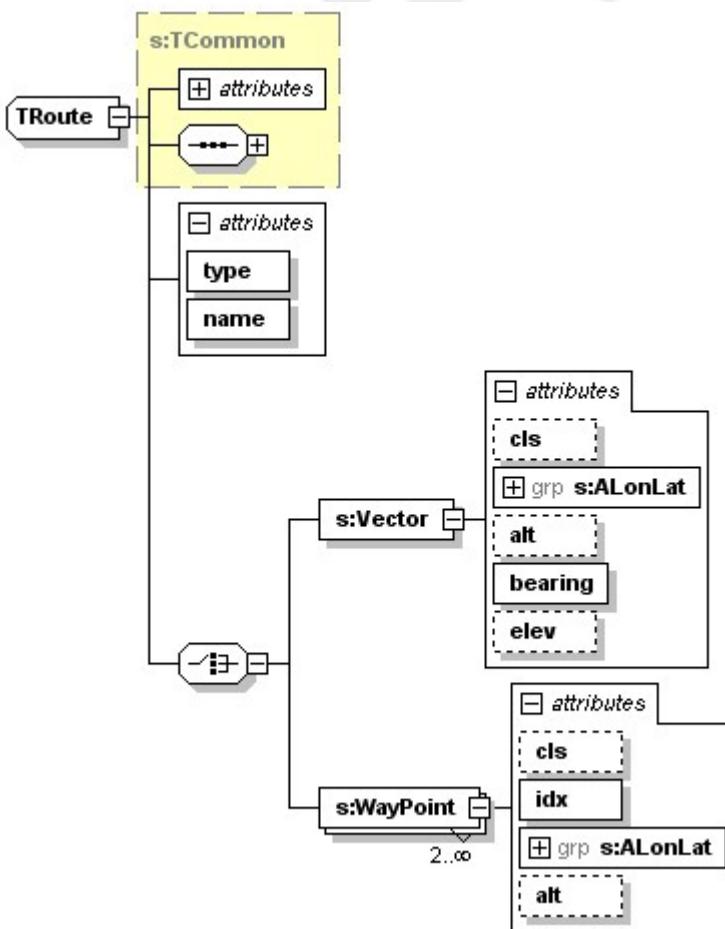


Figure III-1e

## AtWayPoint

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Way Point Index	wayPointIdx	Required	UN3
Date / Time	dateTime	Required	DT
Speed	speed	Optional	UN7.2 (km/h)
<b>Sub-Element Of</b>	<b>RouteRef</b>		

### Description

This element defines point in time at which a force element is at a given waypoint along a Route.

A route is a geographical object described as a series of waypoints listed in sequential order from one end to the other end. Usually routes are entered by Force Elements at the first waypoint and followed up to the last WayPoint; however, that is not required and there are many instances where Force Elements may wish to enter the route at some WayPoint other than one end or the other. The same thing is true about where the Force Element may wish to leave the Route. Routes may be travelled in either direction.

When used by a FEDeployment, the RouteRef will mention the actual waypoints used and the speed of the Force Element on each of these waypoints.

### Input Requirement

This element is REQUIRED and repeatable.

Enter:

- In **wayPointIdx** the sequential index of the waypoint within the route. The point indexes must be in ascending or descending order. Some points may be omitted. For example a route might have 10 waypoints; however, a force element using the route might be time controlled at points 1, 3, 7, and 10. The other points need not be mentioned in FEDeployment ; although, the unit would know all of the points so it could proceed along the identified route;
- In **dateTime**, the date and time that the force element is at the selected waypoint.
- In **speed**, the speed of the force element along a straight route or to the next waypoint. The speed MUST be entered in km/h (software tools may have an option to display the speed in nmi/h for ships and aircrafts, but the transmitted data is standardised in km/h).

### Validation Rules

None.

### Example

```
<AtWayPoint wayPointIdx="1" dateTime="2007-01-15T23:30:00Z"/>
```

## Descriptor

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type of Unit	unit	Required	C2 Uppercase
Status	status	Required	C1 Uppercase
Role	role	Required	C2 Uppercase
<b>Sub-Element Of</b>	<u>ForceElement</u>		

## Description

This element indicates the component, general status, and primary mission of the force element.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **unit** the type of unit of the Force Element, from the Code List Category D1:

### Code List Category D1:

Short Code	Definition
NG	National Guard
RE	Regular
RS	Reservist

- In **status** the force status of the Force Element, from the Code List Category D2:

### Code List Category D2:

Short Code	Definition
A	Active
I	Inactive
P	Planned
R	Reserve

- In **role** the role of the Force Element, from the Code List Category D3:

### Code List Category D3:

Short Code	Definition
CO	Combat
CS	Combat Service Support
OT	Other
SU	Support

## Validation Rules

[XSD] Attribute **unit** MUST use a code from Code List Category D1.

[XSD] Attribute **status** MUST use a code from Code List Category D2.

[XSD] Attribute **role** MUST use a code from Code List Category D3.

### **Example**

```
<Descriptor unit="RE" status="A" role="CO"/>
```

## **FEAntenna**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Antenna Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<a href="#">ForceElement</a>		
<b>Sub-Elements</b>	<a href="#">Quantity [0..1]</a>		

### **Description**

Data element FEAntenna identifies the antenna and quantity of antennas associated with the force element. It contains the antenna dataset identifier for the antenna associated with the force element.

### **Input Requirement**

This element is OPTIONAL and repeatable.

Enter in **serial**, the unique reference of the antenna dataset associated with the force element.

### **Example**

```
<FEAntenna serial="USA:AR:AN:05008827"/>
```

## **FEDeployment**

Attribute name	Attribute tag	Occurrence	Format
Type	type	Required	C2 Uppercase
<b>Inherits From</b>	<a href="#">Common</a>		
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-Elements</b>	<a href="#">TimeFrame [0..1], FERef [1..1], (choice between <a href="#">LocationRef</a> [0..1], <a href="#">RouteRef</a> [0..1])</a>		
<b>Referenced By</b>	<a href="#">IntfFEDeploymentRef</a>		

### **Description**

Data element FEDeployment describes the association of a force element and a location. Each link has a period of time for which the link is valid described by the start and end date/time.

### **Input Requirement**

This element is REQUIRED.

Enter:

- In **type** a value from Code List Category FD indicating the type of deployment:

#### **Code List Category FD:**

Short Code	Definition
CL	Physical location of the force element
CO	Operating area of the force element (typically a polygon / AOR)
CR	Current route
PL	Planned location
PO	Planned operating area
PR	Planned route

#### **Validation Rules**

- [XSD] The attribute **type** MUST use one of the codes from the code list FD.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**FD**".

#### **Example**

```
<FEDeployment serial="USA::FD:123" type="CL">
    <LocationRef ... />
</FEDeployment>
```

#### **FERef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Force Element Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	BSMPlan, CEOI, ContactOrgRef, FEDeployment		

#### **Description**

Data element FERef contains a reference to a [ForceElement](#) dataset.

#### **Input Requirement**

This element is REQUIRED.

Enter:

- In **serial**, the dataset identifier of the ForceElement.

#### **Validation Rules**

None.

#### **Example**

```
<FERef serial="USA:AR:FE:05008827" />
```

## FETxRx

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
TxRx Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">ForceElement</a>		
Sub-elements	<a href="#">Quantity [0..1]</a>		

### Description

Data element FETxRx identifies the equipment and quantity of equipment associated with the force element. It contains the TxRx dataset identifier for the equipment associated with the force element.

### Input Requirement

This element is OPTIONAL.

Enter in **serial**, the TxRx dataset identifier for the equipment associated with the force element.

### Example

```
<FETxRx serial="USA:AR:TR:05008827" />
```

## ForceElement

Attribute name	Attribute tag	Occurrence	Format
Type of Organization	type	Optional	C3 Uppercase
Country	country	Required	C4 Uppercase
Force Element Name	name	Optional	C100
Force Element Type	FEType	Required	C1 Uppercase
Category	cat	Required	C1 Uppercase
Component	comp	Optional	C3 Uppercase
Mission Code	missionCode	Optional	C3 Uppercase
Command Level	cmdLevel	Optional	C3 Uppercase
Operating Country Code	opsCountry	Optional	C4 Uppercase
Role	role	Optional	UN2
Platform Type	platform	Optional	C4 Uppercase
Inherits From	<a href="#">Common</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-elements	<a href="#">Descriptor [0..1], EEAntenna [0..n], FETxRx [0..n], Nomenclature [1..n], RelatedOrg [0..n], StockNum [0..n], Symbol [0..1]</a>		

**Referenced By**

FERef

## Description

The ForceElement is used to describe any Organisation or Equipment that has the ability to transmit or receive information. This could be stand-alone equipment, or any group of equipment brought together to perform a task.

## *Input Requirement*

This element is OPTIONAL and repeatable.

Enter:

- In **type**, the type of organization. Use a code from Code List Category TO; If OTH is used, a justification SHOULD be inserted in sub-element Remarks.

### *Code List Category TO:*

Short Code	Definition
CIV	Civilian or Commercial
MIL	Military (not to be used by USA - USA use GOV)
GEN	Generic
GOV	Government
PN	Part Number
OTH	Other - See remarks

- In **country**, the country of the organization. Use a one to four alphabetic characters representing either an ITU country code or a NATO Command code, as listed in [Annex F](#).
- In **name**, the full name of the organization in the native language of the nation to whom belong the organization. If this full name has also translations in other languages, use sub-element Title to add the translated names.
- In **FEType**, a code from Code List Category FP identifying the type of force element:

### *Code List Category FP:*

Short Code	Definition
O	Organisation or People
E	Equipment

- In **cat**, the category of force element using Code List Category FE:

### *Code List Category FE:*

Short Code	Definition
O	Organisational force element
P	Platform (vehicle, aircraft, ship, etc)

- In **comp**, a code from Code List Category FC identifying the type of component:

### *Code List Category FC:*

Short Code	Definition
AIR	Air component
MAR	Maritime component
LAN	Land component
AMP	Amphibious component
SF	Special Forces
JNT	Joint

OTH              Other

- In **missionCode**, the mission code of the force element representing the primary mission of the Force Element (e.g. Training, Finance), using Code List Category **MC** found in [Annex F](#).
- In **cmdLevel**, the organizational level of the force element according to stratum, echelon or point at which authority or control is maintained, using Code List Category **LC** found in [Annex F](#).
- In **opsCountry**, the country in which the force element planned to operate or is operating using Code List Category **AO** found in [Annex F](#).
- In **role**, the code used to document the main role of the Force Element. This role may be used to derive what equipment (i.e., weapons systems, signal, platforms, etc.) the Force Element is authorized. Also referred to as the table of organization & equipment (TOE). Code is extracted from [Code List Category SR](#) found in Annex F.
- In **platform**, the type of platform if the force element is of **FEType="E"**, using Code List Category **ET** found in [Annex G](#).

## **Validation Rules**

- [XSD] The attribute **type** MUST use one of the codes from Code List Category TO.
- [XSD] The attribute **country** MUST use one of the codes from Code List Category AO.
- [XSD] The attribute **FEType** MUST use one of the codes from the code list FP.
- [XSD] The attribute **comp** MUST use one of the codes from the code list FC.
- [XSD] The attribute **missionCode** MUST use one of the codes from the code list MC.
- [XSD] The attribute **cmdLevel** MUST use one of the codes from the code list LC.
- [XSD] The attribute **opsCountry** MUST use one of the codes from the code list AO.
- [XSD] The attribute **cat** MUST use one of the codes from the code list FE.
- [XSD] The attribute **role** MUST use one of the codes from the code list SR.
- [XSD] The attribute **platform** MUST use one of the codes from the code list ET.
- [XSL ERR FE001] If attribute **FEType="E"** then attribute **platform** MUST be used.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**FE**".

## **Examples**

```
<ForceElement serial="TUR:MOD:FE:0500001" FEType="O"
  cat="O" missionCode="07" cmdLevel="TF" role="51">
  <...all Common + ForceElement elements...>
</ForceElement>

<ForceElement serial="TUR:MOD:FE:0500001" FEType="E" platform="LA"
  cat="H" missionCode="N07" cmdLevel="AFY" role="06">
  <...all Common + ForceElement elements...>
</ForceElement>
```

## Route

Attribute name	Attribute tag	Occurrence	Format
Name	name	Required	C100
Inherits from	<a href="#">Common</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-elements	<a href="#">WayPoint [2..n]</a>		
Referenced By	<a href="#">RouteRef</a>		

### Description

This element is used to define a route (to be) followed by a force element. It inherits attributes and sub-elements from element [Common](#).

### Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial** and **usageType**, and for common sub-elements.

In addition, enter:

- In **name**, the name of the route.

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "RO".

### Example

```
<Route serial="BEL:AR:RO:123" usageType="P" name="TRAINING"
entry="2004-05-20" lastMod="2006-11-05T12:30:00Z">
  <... all Common + Route elements...>
</Route>
```

## RouteRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Route Dataset Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">FEDeployment</a>		
Sub-elements	<a href="#">AtWayPoint [1..n]</a>		

### Description

This element defines which route a given force element is travelling.

## ***Input Requirement***

This element is OPTIONAL.

Enter:

- In **serial**, the unique identifier for the route dataset that the force element is travelling.

## ***Validation Rules***

Validation rules to be implemented in SSRF compliant tools:

- Attribute **wayPointIdx** for each element AtWayPoint MUST correspond to an existing **idx** in the elements WayPoint under the referenced element [Route](#).

## ***Example***

```
<RouteRef serial="USA:AR::05008827">
  ...
</RouteRef>
```

## **Symbol**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Type	type	Required	C5 Uppercase
Code	code	Required	C15 Uppercase
Sub-Element Of	<a href="#">ForceElement</a>		

## ***Description***

This element defines the symbol to be drawn on a map to represent the force element, according either to APP-6A or MIL-STD 2525B.

## ***Input Requirement***

This element is OPTIONAL.

Enter:

- In **type** the standard used to code the symbol, from one of the codes below:

### ***Code List Category SY:***

#### **Short Code Definition**

**APP6A**      Symbol designation according to APP-6A

**2525B**      Symbol designation according to MIL-STD 2525B

- In **code**, the string according to the standard selected;

## ***Validation Rules***

[XSD] Attribute **type** MUST use a code from Code List Category SY.

### **Example**

```
<Symbol code="SFGPUCIZ---HUK*" type="APP6A"/>
```

## WayPoint

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Index	idx	Required	UN2
Latitude	lat	Required	C7 Uppercase
Longitude	lon	Required	C8 Uppercase
Altitude	alt	Optional	SN7.2 (m)
<b>Sub-Element Of</b>	<u>Route</u>		

### **Description**

This element defines a geographical location defined by longitude, latitude and altitude, used for navigational purposes. It is used in the definition of routes and terminal segments.

### **Input Requirement**

This element is REQUIRED and repeatable (at least two occurrences MUST be used).

Enter:

- In **idx** the sequential index of the waypoint within the route;
- In **lon** and **lat**, the geographical longitude (degrees, minutes, seconds, and hemisphere E or W) and latitude (degrees, minutes, seconds and hemisphere N or S) for the waypoint;
- In **alt**, the altitude in metres above or below ground/sea level of the waypoint.

### **Validation Rules**

[XSL ERR L0005] Attribute **idx** for each WayPoint within a Route MUST be in ascending sequential order without gaps.

### **Example**

```
<WayPoint idx="1" lat="453000N" lon="0010030E" alt="5000"/>
```

## 2. CEOI

The Communications Electronic Operation Instructions (CEOI) is an electronic or paper product that consists of the command, control and communications directory of tactical units. The CEOI also contains the call sign, call words and frequencies used by tactical units. Additionally the CEOI provides procedures for conducting electronic, visual and verbal communications methods (e.g., sign/countersign, smoke/pyrotechnics, suffix and expanders) to supplement or enhance radio communications security.

See [Annex L](#) for a description of the columns in the table below.

Note: Refer to [Volume II, section 3](#) for Common attributes and sub-elements (inherited by Dictionary and CEOI in the tables below).

element name	national	content	occ	attributes
<a href="#">Dictionary</a>			[0..n]	(+type(L:DC),+name(S20))
<a href="#">Entry</a>		(S50)	[0..n]	(cls(L:CL),word(S60))
<a href="#">Group</a>			[0..n]	(cls(L:CL),layer(S20),num(UI3),name(S30))
<a href="#">Entry</a>		(S50)	[0..n]	(cls(L:CL),word(S60))

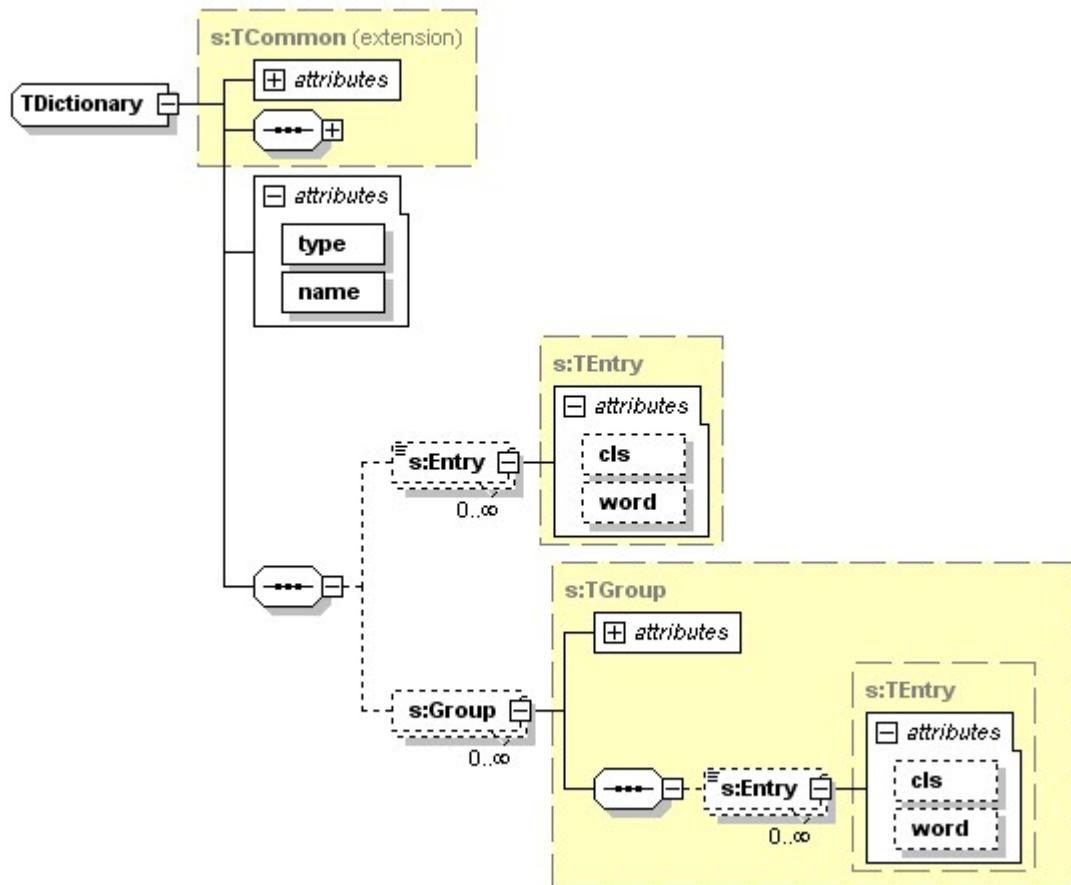


Figure III-2a

element name	national	content	occ	attributes
<a href="#">CEOI</a>			[0..n]	(+version(UN3.1))
<a href="#">ShortTitleInfo</a>		(S)	[1..1]	(cls(L:CL),+shortName(S20),+edition(S2+P))
<a href="#">FERef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">BSMPlanRef</a>			[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">QuickInstruction</a>			[1..1]	(cls(L:CL))
<a href="#">DictionaryRef</a>			[0..n]	(cls(L:CL),+serial(S28+P))
<a href="#">TimePeriod</a>			[1..n]	(cls(L:CL),+period(UI2))
<a href="#">DefPyro</a>			[0..n]	(cls(L:CL),+type(S3+P),+meaning(S10+P))
<a href="#">DefSmoke</a>			[0..n]	(cls(L:CL),+colour(S11+P),+meaning(S6+P))
<a href="#">NetExpander</a>			[0..n]	(cls(L:CL),+function(S30+P),+expander(S1+P))
<a href="#">NetSuffix</a>			[0..n]	(cls(L:CL),+function(S30+P),num(UI2),+suffix(UI2))
<a href="#">Password</a>			[0..n]	(cls(L:CL),+sign(S20),+countersign(S20),+runningCW(S20))
<a href="#">Share</a>			[0..n]	(cls(L:CL),+type(S8+P),+name(S20),desiredSep(UN16.6),minSep(UN16.6))
<a href="#">JRFLRef</a>			[0..1]	(cls(L:CL),+serial(S28+P))
<a href="#">NetRef</a>			[0..n]	(cls(L:CL),+serial(S28+P),callSignGroup(S20),callWordGroup(S20),extractGroup(S20),freqGroup(S20),freqSepGroup(S20))

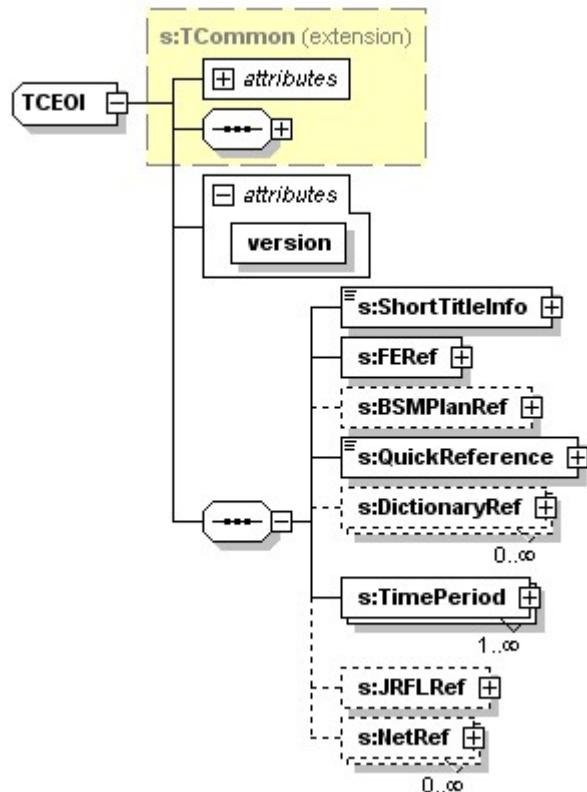


Figure III-2b

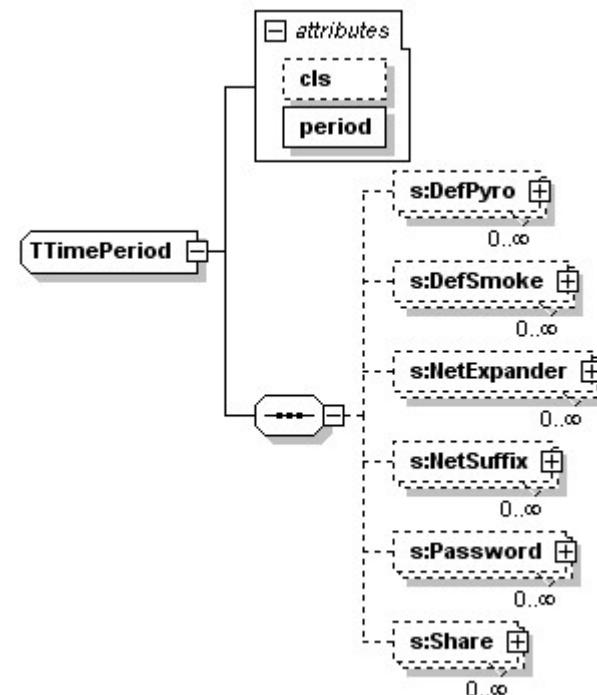


Figure III-2c

## CallInfo

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Time Period	timePeriod	Optional	UN2 [1..99]
Call Sign	callSign	Required	C5 Uppercase
Call Word	callWord	Optional	C15
Tactical Air Designator	TAD	Optional	C5 Uppercase
<b>Sub-Element Of</b>	<u>Net</u>		

### Description

Data element CallInfo contains the tactical net call sign, call word, and tactical air designator (TAD).

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **timePeriod**, the time period for which the information is defined.
- In **callSign**, the tactical call sign assigned to the net. A call sign is defined as any combination of alphanumeric characters, which identifies a communications facility, a command, an authority, an activity or unit; used primarily for establishing and maintaining communications.
- In **callWord**, the tactical call word assigned to the net. A tactical call word is defined as a pronounceable word that identifies a communications facility, a command, an authority, an activity, or a unit.
- In **TAD**, the TAD assigned to the net. A tactical air designator is a series of alphanumeric characters that can be used to identify air/ground/air or air/air frequency channels to prevent inadvertent disclosure of classified information.

### Validation Rules

None.

### Note for the USA:

Enter a "**Y**" if requesting a tactical call sign or call word in the corresponding attribute, or enter the call sign / call word if a specific sign / word is requested.

### Examples

```
<CallInfo timePeriod="01" callWord="GERONIMO" callSign="Z8Q" TAD="115"/>
<CallInfo timePeriod="02" callWord="GERONIMO" callSign="Z9G" TAD="115"/>
```

## CEOI

Attribute name	Attribute tag	Occurrence	Format
Version	version	Required	UN3.1
Inherits From	<a href="#">Common</a>		
Sub-Element Of	<a href="#">Body</a>		
Sub-elements	<a href="#">BSMPlanRef [0..1]</a> , <a href="#">DictionaryRef [0..n]</a> , <a href="#">FERef [1..1]</a> , <a href="#">JRFLRef [0..1]</a> , <a href="#">NetRef [0..n]</a> , <a href="#">QuickInstruction [1..1]</a> , <a href="#">ShortTitleInfo [1..1]</a> , <a href="#">TimePeriod [1..n]</a>		

### Description

This element is the XML root for all parameters of a CEOI. It inherits attributes and sub-elements from element [Common](#).

A primary feature of the SOI/CEOI program is that it provides for frequent, often daily, changes of single-channel FM radio call signs, suffixes, and frequencies; thereby improving COMmunications SECurity (COMSEC). An additional feature of the program is uniformity of document format and program employment. Based upon input from the command concerned, the SOI is generated locally by the authorized command. Distribution of the SOI is limited to those units and individuals who have a requirement to use them. The corps/division signal officer makes these decisions. Subordinate signal officers determine the distribution of SOI items within their units and distribute the SOI extracts required by their commands or units. SOI data also includes information such as suffixes, expanders, signs, countersigns, smoke and pyrotechnic device applications.

### Input Requirement

See element [Common](#) for attributes **serial**, **action** and **usageType**, and for common sub-elements.

In addition, enter:

- In **version**, enter the internal plan version number, managed by the spectrum manager.

### Validation Rules

- [XSL ERR CE001] Every CEOI MUST have a [Project](#) sub-element.
- [XSL ERR CE002] Every CEOI MUST have a [ExtRef](#) sub-element with **type="DOCU"** referring to the source document.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "CE".

### Example

```
<CEOI serial="USA:AR:CE:0500001" usageType="P">
    <...all Common + CEOI elements...>
</CEOI>
```

## Colour

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Colour Word	word	Required	C16
Colour Number	num	Required	UN2
<b>Sub-Element Of</b>	<u>Net</u>		

### Description

Data element Colour contains the net colour word and related number.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **word**, the Colour Word assigned to the net. A tactical colour word is a series of alpha characters that can be used to identify frequencies and nets. These words are usually listed in the Air Tasking Order (ATO) to prevent inadvertent disclosure of classified information.
- In **num**, a two digit Colour Number assigned to the net. These numbers are usually listed in the Air Tasking Order (ATO) to prevent inadvertent disclosure of classified information. A leading zero is required for numbers less than ten.

### Example

```
<Colour word="Orange" num ="03"/>
```

## COMSECKeymat

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
COMSECKeymat	Element Content	Required	C15
<b>Sub-Element Of</b>	<u>Net</u>		

### Description

Data element COMSECKeymat contains the short title of the communications security (COMSEC) keying materiel (Keymat) that is used for the net.

### Input Requirement

This element is OPTIONAL.

Enter in the element content, the COMSEC Keymat for the net, if required.

### Example

<COMSECKeymat>USKAT 3120<COMSECKeymat/>

## DefPyro

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Pyrotechnic	type	Required	C3 Uppercase
Definition	meaning	Required	C10
Sub-Element Of	<u>TimePeriod</u>		

### Description

Data element DefPyro contains a type of Pyrotechnique taken from the [Dictionary PYRO](#) and definition for the use of that type of pyrotechnique taken from Dictionary PYDEF.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **type**, the word for the type of Pyrotechnic device to be used, from Entry.**word** under Dictionary. **type="PYRO"**.
- In **meaning**, the word for the definition of the Pyrotechnic device to be used from Entry.**word** under Dictionary.**type="PYDEF"**.

### Validation Rules

None.

### Example

<DefPyro type="WC" meaning="NO"/>

## DefSmoke

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Colour	colour	Required	C1 Uppercase
Definition	meaning	Required	C6
Sub-Element Of	<u>TimePeriod</u>		

### Description

Data element DefSmoke contains a colour of Smoke taken from the [Dictionary SMOKE](#) and definition for the use of that type of smoke taken from Dictionary SMDEF.

## ***Input Requirement***

This element is OPTIONAL and repeatable.

Enter:

- In **colour**, the word for the colour of SMOKE to be used from Entry.**word** under Dictionary.**type= "SMOKE"**.
- In **meaning**, the word for the definition of the colour of smoke to be used from Entry.**word** under Dictionary.**type= "SMDEF"**.

## ***Validation Rules***

None.

## ***Example***

```
<DefSmoke colour="W" meaning="REAL" />
```

## **Dictionary**

Attribute name	Attribute tag	Occurrence	Format
Type of Dictionary	type	Required	C5 Uppercase
Dictionary Name	name	Required	C20
<b>Inherits From</b>	<a href="#">Common</a>		
<b>Sub-Element Of</b>	<a href="#">Body</a>		
<b>Sub-elements</b>	<a href="#">Entry [0..n], Group [0..n]</a>		
<b>Referenced By</b>	<a href="#">DictionaryRef</a>		

## ***Description***

This element is the XML root for defining a dictionary (a list of words or groups to be used in a tactical environment). It inherits attributes and sub-elements from element [Common](#).

## ***Input Requirement***

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial**, **action** and **usageType**, and for common sub-elements. Dictionaries may manually be entered or loaded from datasets. Once entered, all dictionaries may be manually updated as required by the user.

In addition, enter:

- In **type**, enter the dictionary type from code list Category **DC**:

#### **Code List Category DC:**

Short Code	Definition
<b>CAW15</b>	Call Word (6-15 characters)
<b>CAW5</b>	Call Word (1-5 characters)
<b>CAWUD</b>	Call Word (User Defined 2-15 characters)
<b>CLSGN</b>	A list of call signs
<b>CLSGP</b>	A list of Callsigns to be used in a group of nets
<b>CMSKY</b>	A list of COMSEC Keymat names
<b>COW15</b>	Colour Word (6-15 characters)
<b>COW5</b>	Colour Word (1-5 characters)
<b>COWUD</b>	Sign/Countersign Dictionary
<b>CWDGP</b>	A list of Call words to be used in a group of nets
<b>EXTGP</b>	Extract group
<b>FQSGP</b>	A frequency separation group
<b>FRQGP</b>	A frequency group
<b>NEDEF</b>	A list of net expander definitions
<b>NETXP</b>	A list of net expanders
<b>NTSFX</b>	A list of net suffixes
<b>NSDEF</b>	a list of net suffix definitions
<b>PYRO</b>	See the standardized list of pyrotechniques available(See Code List Category PY)
<b>PYDEF</b>	The list of standard pyrotechniques definitions (See Code List Category PD)
<b>SHRGP</b>	A frequency share group
<b>SMDEF</b>	The list of standard smoke definitions (See Code List Category SD)
<b>SMOKE</b>	The list of available smokes (See Code List Category SM)

- In **name**, a name for this dictionary.

#### **Validation Rules**

- [XSD] The attribute **type** MUST use one of the codes from the code list DC.
- [XSL ERR CE003] If **type** equals FRQGP, FQSGP, or SHRGP then an entry in Group is required.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[DI](#)".

#### **Example**

```
<Dictionary serial="USA:AR:DI:0500001" usageType="P"
  type="CAW15" name="Joint Data">
    <...all Common + Dictionary elements...>
</Dictionary>
```

#### **DictionaryRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Dictionary Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">CEOI</a>		

## Description

This element contains the dataset identifier of a referenced Dictionary.

## **Input Requirement**

This element is OPTIONAL and repeatable.

Enter in **serial** the identifier of the related dictionary.

## **Validation Rules**

None.

## **Example**

```
<DictionaryRef serial="USA:NTIA:DI:123"/>
```

## Entry

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Word	word	Optional	C60
Entry	Element Content	Required	C50
<b>Sub-Element Of</b>	<a href="#">Dictionary</a> , <a href="#">Group</a>		

## Description

Data element Entry contains an entry in a given dictionary.

## **Input Requirement**

This element is OPTIONAL and repeatable under element Dictionary, and REQUIRED and repeatable under element Group.

Enter:

- In **word**, the dictionary word for a call sign, number, function etc. for the attribute described in the element content definition. See Code List Category PY for the list of pyrotechniques located in Dictionary.type="PYRO":

### **Code List Category PY:**

Short Code	Definition
AC	Amber Star Cluster
AP	Amber Star Parachute
GC	Green Star Cluster
GP	Green Star Parachute
GSS	Green Smoke Streamer
RC	Red Star Cluster
RP	Red Star Parachute

<b>RSS</b>	Red Smoke Streamer
<b>VSS</b>	Violet Smoke Streamer
<b>WC</b>	White Star Cluster
<b>WP</b>	White Star Parachute
<b>YSS</b>	Yellow Smoke Streamer

See Code List Category PD for the list of pyrotechnique definitions located in Dictionary.type = "PYDEF":

#### **Code List Category PD:**

<b>Short Code</b>	<b>Definition</b>
<b>AIR</b>	Air strike, CBR or ground attack anticipated.
<b>BREAK</b>	Break contact with enemy/withdraw.
<b>CEASE</b>	Cease all fires/Cease air strike.
<b>CHALLENGE</b>	Challenge: Are you Friendly?
<b>COMMENCE</b>	Commence firing/launch attack.
<b>LIFT</b>	Lift supporting fires
<b>NO</b>	No meaning - use for illumination only.
<b>OBJ</b>	Objective taken/mission accomplished
<b>REPLY</b>	Reply: Friendly troops at this site (Do not bomb or strafe).
<b>REQUEST</b>	Request supporting fires.

See Code List Category SM for the list of smokes located in Dictionary.type = "SMOKE":

#### **Code List Category SM:**

<b>Short Code</b>	<b>Definition</b>
<b>G</b>	Green Smoke
<b>R</b>	Red Smoke
<b>V</b>	Violet Smoke
<b>W</b>	White Smoke
<b>Y</b>	Yellow Smoke

See Code List Category SD for the list of words for smoke definitions located in Dictionary.type = "SMDEF":

#### **Code List Category SD:**

<b>Short Code</b>	<b>Definition</b>
<b>DANGER</b>	Danger - do not land, parachute or drop supplies here
<b>NO</b>	No meaning - use for screening operations only.
<b>REAL</b>	Real emergency - send assistance to this area.
<b>SAFE</b>	Safe to land, parachute, or drop supplies here.
<b>TARGET</b>	Target designation

See the list of suffix numbers (in the range of 01 through 99) available for use for this edition of the CEOI in Dictionary.type = "NTSFX".

See the list of words for the definitions of suffixes located in Dictionary.type = "NSDEF".

See the list of expander characters (in the range of A through Z) for this edition of the CEOI in Dictionary.type = "NETXP".

See the list of words for the definitions of expander words located in Dictionary.type = "NEDEF".

See Dictionary.type = "FRQGP" for a list of frequency groups. (The list of frequency groups are manually entered by grouping [Net.lineNum](#) together when the nets will share the same frequency.)

See Dictionary.type = "FQSGP" for a list of frequency separation groups. (The list of frequency separation groups are manually entered by grouping Net.lineNum together when the nets will share the same frequency separation between nets.)

See Dictionary.type = "SHRGP" for a list of share groups. (The list of share groups are manually entered by grouping Net.lineNum together when the nets will share the same function.)

- In the **element content**, the meaning of the word.

## **Validation Rules**

- [XSL ERR CE004] If Dictionary.type="PYRO" the attribute **word** MUST use one of the codes from the Code List Category PY
- [XSL ERR CE005] If Dictionary.type="PYDEF" the attribute **word** MUST use one of the codes from the Code List Category PD
- [XSL ERR CE006] If Dictionary.type="SMOKE" the attribute **word** MUST use one of the codes from the Code List Category SM
- [XSL ERR CE007] If Dictionary.type="SMDEF" the attribute **word** MUST use one of the codes from the Code List Category SD

## **Example**

```
<Dictionary type="PYDEF" name="my definitions">
    <Entry word="AIR">Air strike, CBR or ground attack anticipated.</
Entry>
</Dictionary>
```

## **Group**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Layer	layer	Optional	C20
Number	num	Optional	UN3
Name	name	Optional	C60
<b>Sub-Element Of</b>	<u>Dictionary</u>		
<b>Sub-Elements</b>	<u>Entry [1..n]</u>		

## **Description**

Data element Group identifies any groups that are needed for entries in a dictionary.

## **Input Requirement**

This element is OPTIONAL and repeatable.

Enter:

- In **layer**, the grouping designator for extract groups if one is assigned.
- In **num**, the number of the group. The group number is used to determine the order of printing extract group pages.
- In **name**, the name of the group.

### **Example**

```
<Group layer="MARFOR" num="027" name="1 BN shared nets">
    <...the list of Entry elements for the group...>
</Group>
```

### **GuardRequirements**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Guard Use	use	Optional	C1 Uppercase
Force Element Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
<b>Sub-Element Of</b>	<b>Net</b>		
<b>Sub-Elements</b>	<b>TimeFrame [0..1]</b>		

### **Description**

Data element GuardRequirements contains a reference to the force elements required to guard (monitor) the net.

### **Input Requirement**

This element is OPTIONAL and repeatable.

Enter:

- In **use**, a code from Code List Category GR:

#### **Code List Category GR:**

Short Code	Definition
G	Guard always
R	Guard when required
W	Guard when directed
L	Listen only
T	Transmit only

- In **serial**, the dataset identifier of the ForceElement required to guard (monitor) the net.

### **Validation Rules**

- [XSD] The attribute **use** MUST use one of the codes from Code List Category GR.

### **Example**

```
<GuardRequirements use="G" serial="USA:AR:FE:05008827">
    <TimeFrame hours="9-17"/>
<GuardRequirements/>
```

## MissionPriority

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Mission Priority	Element Content	Required	UN3
<b>Sub-Element Of</b>	<u>Net</u>		

### Description

This is a National element (used by: USA).

Data element Net contains the priority to be used in automated frequency selection software when making assignments for a CEOI.

### Input Requirement

This element is OPTIONAL.

Enter:

- In the element content, the priority to be used in automated frequency selection software when making assignments for a CEOI. Priority 0 is the highest.

### Validation Rules

None.

### Example

```
<MissionPriority>7</MissionPriority>
```

## Net

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Line Number	lineNum	Optional	UN4
Net Name	name	Required	C100
Protection Code	protCode	Optional	C1 Uppercase
Restoral Priority	restoral	Optional	C3
Push Number	pushNum	Optional	C3
<b>Sub-Element Of</b>	<u>AsgnAllot</u>		
<b>Sub-elements</b>	<u>CallInfo [0..n]</u> , <u>Colour [0..1]</u> , <u>COMSECKeymat [0..1]</u> , <u>GuardRequirements [0..n]</u> , <u>MissionPriority [0..1]</u>		

### Description

Data element Net contains additional information for an AsgnAllot dataset which is specific tactical information pertaining to a net. This element and its sub-elements should be used for assignments

when the intention is to use them to create a CEOI.

## ***Input Requirement***

This element is OPTIONAL.

Enter:

- In **lineNum**, the line number associated with the name.
- In **name**, the net name as it is to appear in the CEOI,
- In **protCode**, one a code from Code List Category PB. This code is used to generate the JRFL Entry for the Net.

### ***Code List Category PB:***

<b>Short Code</b>	<b>Definition</b>
<b>C</b>	Civil infrastructure.
<b>E</b>	Enemy (not Guarded).
<b>G</b>	Guarded. Frequencies with interest to the Intelligence sections.
<b>P</b>	Protected. Frequencies that have importance to the operation, but may be jammed because of geographic or time separation.
<b>T</b>	Taboo. Safety of life, stop buzzer, etc. If priorities are used, Taboo should always be A1.

- In **restoral**, the restoral priority assigned to the net. The first character identifies the type of network, and the second and third numbers prioritise the net within that type of network. This priority will be established by the JTF commander.
- In **pushNum**, the Push Number assigned to the net. A push number is a series of alphanumeric characters assigned to a frequency to assist the aircrew in moving to an alternate frequency.

## ***Validation Rules***

[XSD] The attribute **protCode** MUST use one of the codes from the code list PB.

### ***Example***

```
<Net lineNumber="01373" name="HHC3dBN75Rangers" restoral="A01"
pushNum="123" />
```

## **NetExpander**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Group Function	function	Required	C30 Uppercase
Expander Word	expander	Required	C1
Sub-Element Of	<u>TimePeriod</u>		

## ***Description***

Data element NetExpander contains lists of call sign expanders.

## ***Input Requirement***

This data element is OPTIONAL and repeatable.

Enter:

- In **function** enter the function for which the expander is defined, from Dictionary.**type**="NEDEF".
- In **expander**, the word (letter) for the expander from Dictionary.**type**="NETXP".

## ***Validation Rules***

None.

## ***Example***

```
<NetExpander function="ALTN/COPilot" expander="S" />
<NetExpander function="DRIVER" expander="A" />
```

## **NetRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Assignment/Allotment Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Shared Call Sign Group	callSignGroup	Optional	C20
Shared Call Word Group	callWordGroup	Optional	C20
Extract Group	extractGroup	Optional	C20
Shared Frequency Group	freqGroup	Optional	C20
Shared Frequency Separation Group	freqSepGroup	Optional	C20
<b>Sub-Element Of</b>	<a href="#">CEOI</a>		

## ***Description***

Data element NetRef contains a reference to a [AsgnAllot](#) dataset. It also indicates the shared group to which the [Net](#) belongs (see also element [Share](#)).

## ***Input Requirement***

This element is OPTIONAL and repeatable.

Enter:

- In **serial**, the dataset identifier of the AsgnAllot parent of the Net.
- In **callSignGroup** enter a shared callsign group name (from one of the elements Share with type="CALLSIGN").
- In **callWordGroup** enter a shared callword group name (from one of the elements Share with type="CALLWORD").

- In **extractGroup** enter a shared extract group name (from one of the elements Share with type="EXTRACT").
- In **freqGroup** enter a shared frequency group name (from one of the elements Share with type="FREQ").
- In **freqSepGroup** enter a shared frequency separation group name (from one of the elements Share with type="FREQSEP").

## Validation Rules

- [XSL ERR CE008] An element Share MUST exist in the same CEOI with Share.name = **callSignGroup** and Share.type = "CALLSIGN".
- [XSL ERR CE009] An element Share MUST exist in the same CEOI with Share.name = **callWordGroup** and Share.type = "CALLWORD".
- [XSL ERR CE010] An element Share MUST exist in the same CEOI with Share.name = **extractGroup** and Share.type = "EXTRACT".
- [XSL ERR CE011] An element Share MUST exist in the same CEOI with Share.name = **freqGroup** and Share.type = "FREQ".
- [XSL ERR CE012] An element Share MUST exist in the same CEOI with Share.name = **freqSepGroup** and Share.type = "FREQSEP".
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "AS".

## Example

```
<NetRef serial="USA:AR:AS:05008827" />
```

## NetSuffix

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Group Function	function	Required	C30 Uppercase
Function Number	num	Optional	UN2
Suffix	suffix	Required	UN2 [00..99] with leading zero
Sub-Element Of	TimePeriod		

## Description

Data element NetSuffix contains lists of call sign suffixes.

## Input Requirement

This data element is OPTIONAL and repeatable.

Enter:

- In **function** enter the word describing the function from Dictionary.type="NSDEF"

- In **num**, enter the number associated with the function (e.g. 06 for the Commander). See the list of suffixes for this edition of the CEOI in dictionary.type NTSFX.

### **Validation Rules**

None.

### **Example**

```
<NetSuffix function="COMMANDER" num="06" suffix="62"/>
```

### **Password**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Sign	sign	Required	C20
Countersign	countersign	Required	C20
Running C/W	runningCW	Required	C20
<b>Sub-Element Of</b>	<u>TimePeriod</u>		

### **Description**

Data element Password contains one entry of the list of Passwords for this CEOI.

### **Input Requirement**

This element is OPTIONAL and repeatable.

Enter:

- In **sign**, the challenge word to be used in support of the plan/operation.
- In **countersign**, the reply word to be used in support of the plan/operation.
- In **runningCW**, the emergency password used under extreme pressure situation.

### **Validation Rules**

None

### **Example**

```
<Password sign="CUDDLE" countersign="AMELIA" runningCW="APPRAISAL"/>
```

## QuickInstruction

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
QuickInstruction	Element Content	Required	Memo
Sub-Element Of	<u>CEOI</u>		

### Description

Data element QuickInstruction contains a summary of the operational requirements and important commander information.

### Input Requirement

This element is REQUIRED.

### Example

```
<QuickInstruction>
AUTHORITY CONTROLLING: COMMANDER SEVENTH FLEET
POC: CJTF FREQUENCY MANAGER IS ITCS HEDRICK, DSN 123-4567
THIS CEOI IS THE ONLY AUTHORIZED DOCUMENT FROM WHICH US FORCES MAY
EXTRACT FREQUENCY AND CALLSIGN DATA.
ALL SECURE CIRCUITS WILL USE PLAIN LANGUAGE OR DESIGNATED UNIT CALL
WORDS.
...
</QuickInstruction>
```

## Share

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Share Type	type	Required	C8 Uppercase
Share Name	name	Required	C20
Desired Frequency Separation	desiredSep	Optional	<u>F</u> (MHz)
Minimum Frequency Separation	minSep	Optional	<u>F</u> (MHz)
Sub-Element Of	<u>TimePeriod</u>		

### Description

Data element Share provides the mechanism for coordinating shared communications resources within a specific area of operations. Information provided in the data element Share is pertinent to developing share plans for extracts (i.e. logical grouping of nets), callwords, callsigns, and frequency share groups. Sharing plans are commonly used in CEOI generating tools (such as JACS and RBECS in the USA). It may also provide information on Nets which must observe between themselves a given frequency separation; this information may be used as an input constraint by automated assignment tools.

## ***Input Requirement***

This element is OPTIONAL and repeatable.

Enter:

- In **type**, a code from code list **GT**.

### ***Code List Category GT:***

Short Code	Definition
<b>CALLSIGN</b>	Call Sign Share Group (several nets to be grouped together because they are designated to share the same callsign)
<b>CALLWORD</b>	Call Word Share Group (several nets to be grouped together because they are designated to share the same callword)
<b>EXTRACT</b>	Extract Share Group (several nets to be grouped together for display in the CEOI)
<b>FREQ</b>	Frequency Share Group (several nets to be grouped together because they are designated to share the same frequency)
<b>FREQSEP</b>	Frequency Separation Share Group (several nets to be grouped together because they are designated to share the same frequency)

- In **name**, the group/organization name affiliated with the shared resource from Dictionary.**name**
- In **desiredSep**, the optimal frequency separation between nets to allow successful concurrent operation.
- In **minSep**, the minimum frequency separation required between nets to allow concurrent operation, at the expense of some degradation, if the **desiredSep** cannot be achieved.

## ***Validation Rules***

[XSD] The attribute **type** MUST use one of the codes from the code list GT.

[XSL ERR CE013] If attribute **type="FREQSEP"**, attributes **desiredSep** and **minSep** MUST be used; they MUST NOT be used in other cases.

[XSL ERR CE014] If it is used, value of **desiredSep** MUST be greater than value of **minSep**.

## ***Examples***

```
<Share type="CALLSIGN" name="SAFETY NETS" />
<Share type="FREQSEP" name="SAFETY NETS" desiredSep="1.0" minSep="0.5" />
```

## **ShortTitleInfo**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Short Title Name	shortName	Required	C20
Edition	edition	Required	C2 [A .. Z, AA .. ZZ]
Short Title Information	Element Content	Optional	Memo
<b>Sub-Element Of</b>	<b>CEOI</b>		

## ***Description***

This is the short title information related to a CEOI.

### ***Input Requirement***

This element is REQUIRED.

Enter:

- In **shortName**, a short title for a CEOI
- In **edition**, a two character edition designator for the CEOI
- In the element content, a textual description of the purpose or use of the CEOI.

### ***Validation Rules***

None.

### ***Example***

```
<ShortTitleInfo shortname="Bold Shield" edition="AC">
This CEOI covers all tactical forces participating in an operation to
attack and neutralize
enemy forces in and around the capitol of XYZ
</ShortTitleInfo>
```

## **TimePeriod**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Time Period	period	Required	UN2
<b>Sub-Element Of</b>	<u><a href="#">CEOI</a></u>		
<b>Sub-elements</b>	<u><a href="#">DefPyro [0..n]</a></u> , <u><a href="#">DefSmoke [0..n]</a></u> , <u><a href="#">NetExpander [0..n]</a></u> , <u><a href="#">NetSuffix [0..n]</a></u> , <u><a href="#">Password [0..n]</a></u> , <u><a href="#">Share [0..n]</a></u>		

### ***Description***

This element with its sub-elements defines the data used to make up a time period in a CEOI. TimePeriod data includes information such as suffixes, frequency sharing, expanders, signs, countersigns, smoke and pyrotechnic device applications.

### ***Input Requirement***

This element is REQUIRED and repeatable.

Enter in **period**, the number of the time period.

### ***Validation Rules***

**USA:** the **period** value must be in the range from 01 through 10.

### **Example**

<TimePeriod>03</TimePeriod>

## **3. BSM Planning**

The BSM plan provides a centralized mechanism for ensuring the governance, ownership, management and coordination of all BSM related activity within a specific area of operations.

See [Annex L](#) for a description of the columns in the table below.

**Note:** Refer to [Volume II, section 3](#) for Common attributes and sub-elements (inherited by BSMPlan in the table below).

element name	national	content	occ	attributes
<a href="#">BSMPlan</a>			[0..n]	(+version(UN3.1))
<a href="#">Distribution</a>			[1..n]	(cls(L:CL),+action(L:BO),+serial(S28+P))
<a href="#">Concept</a>	(S)		[1..1]	(cls(L:CL))
<a href="#">Mission</a>	(S)		[1..1]	(cls(L:CL))
<a href="#">Scope</a>	(S)		[1..1]	(cls(L:CL))
<a href="#">ManagementStrategy</a>	(S)		[1..1]	(cls(L:CL))
<a href="#">Responsibilities</a>	(S)		[1..4]	(cls(L:CL),+level(S4+P)) (cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P), months(S40+P),daysOfWeek(S40+P),years(S40+P),duration (UI4))
<a href="#">TimeFrame</a>			[1..1]	months(S40+P),daysOfWeek(S40+P),years(S40+P),duration (UI4))
<a href="#">FERef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">LocationRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#">ExternalSys</a>			[0..n]	(cls(L:CL),+type(L:CR),+name(S50))
<a href="#">ContactRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">OrganisationRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))

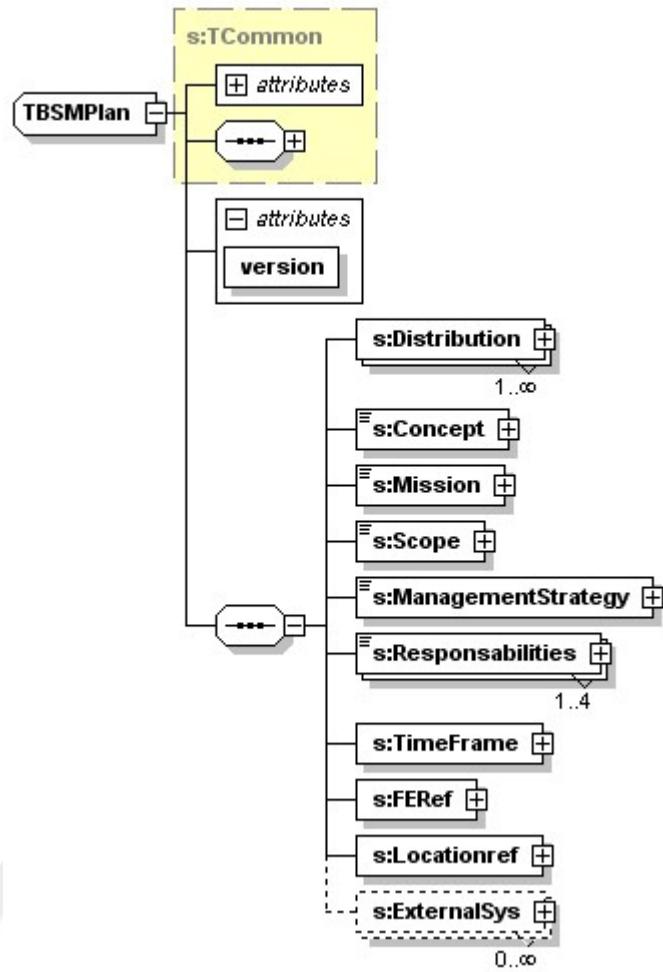


Figure III-3

## BSMPlan

Attribute name	Attribute tag	Occurrence	Format
Version	version	Required	UN3.1
Inherits From	<u>Common</u>		
Sub-Element Of	<u>Body</u>		
Sub-elements	<u>Concept</u> [1..1], <u>Distribution</u> [1..n], <u>ExternalSys</u> [0..n], <u>FERef</u> [1..1], <u>LocationRef</u> [1..1], <u>ManagementStrategy</u> [1..1], <u>Mission</u> [1..1], <u>Responsibilities</u> [1..4], <u>Scope</u> [1..1], <u>TimeFrame</u> [1..1]		
Referenced By	<u>BSMPlanRef</u>		

### Description

Data element BSMPlan provides a centralized mechanism for ensuring the governance, ownership, management and coordination of all BSM related activity within a specific area of operations.

## ***Input Requirement***

This element is OPTIONAL and repeatable.

See element [Common](#) for attribute **serial** and for common sub-elements.

In addition, enter:

- In **version**, enter the internal plan version number, managed by the spectrum manager.

Also provide the reference to the top-level force element deployed/deploying that is managed by this plan in the **FERef** sub-element.

## ***Validation Rules***

- [XSL ERR BS001] Every **BSMPlan** MUST have a [Project](#) sub-element.
- [XSL ERR BS002] Every **BSMPlan** MUST have a [ExtRef](#) sub-element referring to the source document.
- [XSL ERR BS003] Element **BSMPlan** MUST contain at least two occurrences of [ContactOrgRef](#), one with **type** = "**AUTH**" and one with **type** = "**SM**".
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**BS**".

## ***Note***

The organizations with which co-ordination is required (e.g. host nation, civil authority/regulator, adjacent nation(s) and adjacent coalition organizations) will be listed in **ContactOrgRef** sub-elements with **type**="**COORD**".

## ***Example***

```
<BSMPlan serial="G:MOD:BS:0500001" version="1.1">
    <... All Common and BSMPlan sub-elements ...>
</BSMPlan>
```

## **BSMPlanRef**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
BSM Plan Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	CEOI		

## ***Description***

Data element **BSMPlanRef** contains a reference to a [BSMPlan](#) dataset.

## ***Input Requirement***

This element is OPTIONAL.

Enter:

- In **serial**, the dataset identifier of the BSMPlan.

### **Validation Rules**

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**BS**".

### **Example**

```
<BSMPlanRef serial="USA:AR:BS:05008827" />
```

### **Concept**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Concept	Element Content	Required	Memo
Sub-Element Of	<u>BSMPlan</u>		

### **Description**

Data element Concept is part of the Commander Strategy. It describes the way in which the commander will implement the Operational Order (OPORD) with reference to Spectrum Strategy.

### **Input Requirement**

This element is REQUIRED.

### **Validation Rules**

None.

### **Example**

```
<Concept>Memo text</Concept>
```

### **Distribution**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
For Action	action	Required	C1 Uppercase
Organisation Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<u>BSMPlan</u>		

### **Description**

Data element Distribution contains a reference to an [Organisation](#) dataset, to which the BSMPlan will be distributed.

### ***Input Requirement***

This element is REQUIRED and repeatable.

Enter:

- In **action**, a code from Code List Category BO, with Y meaning "for action" and N meaning "for information":

#### ***Code List Category BO:***

Short Code	Definition
Y	Yes
N	No

- In **serial**, the dataset identifier of the Organisation.

### ***Validation Rules***

- [XSD] The attribute **action** MUST use one of the codes from Code List Category BO.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[OR](#)".

### ***Example***

```
<Distribution action="Y" serial="USA:AF:OR:123"/>
```

## **ExternalSys**

Attribute name	Attribute tag	Occurrence	Format
System Name	name	Required	C50
Inherits From	<a href="#">ContactOrgRef</a>		
Sub-Element Of	<a href="#">BSMPlan</a>		

### ***Description***

Data element ExternalSys indicates an external system for which the spectrum is not assigned/allotted by the BSM.

### ***Input Requirement***

This element is OPTIONAL and repeatable.

Enter:

See [ContactOrgRef](#) for inherited attributes;

In **name**, the name of the system;

In the sub-element [OrganisationRef](#) (inherited from ContactOrgRef) the reference to the organization that is responsible for the spectrum management of that system.

## Validation Rules

None.

### Example

```
<ExternalSys name="SATCOM">
    <OrganisationRef ... />
</ExternalSys>

<ExternalSys name=SATCOM type=FM>
    <ContactRef ... />
    <OrganisationRef ... />
</ExternalSys>
```

## ManagementStrategy

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Management Strategy	Element Content	Required	Memo
Sub-Element Of	<u><a href="#">BSMPlan</a></u>		

### Description

Data element ManagementStrategy is a free text element which SHOULD contain at a minimum the following information:

1. Frequency Requests. Timescales, who are they sent to, by what means, formats, E-Mail addresses, etc.
2. Frequency Management. Rules for allotments and assignments usage.
3. Routine Management of the EMS. Rules for additional requests, security, interference and interference resolution.
4. Joint Restricted Frequency List (JRFL). Rules for creation, maintenance, distribution.
5. Tools. List of software tools, availability, usage.

### Input Requirement

This element is REQUIRED.

Enter as many lines of remarks as necessary. Do not use forbidden characters, or escape them, as explained in the [Introduction \(paragraph 1.7\)](#).

## Validation Rules

None

### **Example**

```
<ManagementStrategy>
Free text to describe the management strategy IAW "Description" above
</ManagementStrategy>
```

### **Mission**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Mission	Element Content	Required	Memo
<b>Sub-Element Of</b>	<u>BSMPlan</u>		

### **Description**

Data element Mission is part of the Commander Strategy. It describes the controls employed to ensure the co-ordinated use of the electromagnetic spectrum within the battlespace in order to allow its effective and efficient use thus achieving Spectrum Dominance and delivering an operational advantage.

### **Input Requirement**

This element is REQUIRED.

### **Validation Rules**

None.

### **Example**

```
<Mission>Memo text</Mission>
```

### **Responsibilities**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Level	level	Required	C4 Uppercase
Responsibilities	Element Content	Required	Memo
<b>Sub-Element Of</b>	<u>BSMPlan</u>		

### **Description**

Data element Responsibilities contains directives explaining the spectrum/frequency manager responsibilities.

### **Input Requirement**

This element is REQUIRED and repeatable up to 4 times.

Enter:

- In **level**, a code from Code List Category RP:

#### **Code List Category RP:**

Short Code	Definition
PEER	Peer force elements (WRT the SMOrgRef element)
SELF	Current force element designated in the SMOrgRef element
SUB	Subordinate force elements (WRT the SMOrgRef element)
SUP	Superior element (WRT the SMOrgRef element)

- In the **element content**, as many lines of text as necessary to describe the Spectrum Manager Responsibilities. The subordinate can be identified through the "RPT" hierarchy.

### **Validation Rules**

[XSD] Attribute **level** MUST use a code from Code List Category RP.

[XSL ERR BS004] Each **level** value MUST NOT appear more than once within an element BSMPlan.

[XSL ERR BS005] An element Responsibilities with **level** = "**SELF**" MUST appear within each element BSMPlan.

### **Examples**

```
<Responsibilities level="SUB">
The subordinate spectrum manager is responsible for the following:
a. POC details during initial liaison.
b. Initial and additional spectrum requests to support comms and non-
comms requirements.
c. Interference and interference resolution reports.
d. Assigned or allotted spectrum no longer required by the unit/
organization.
e. Unit/organization Joint Restricted Frequency List (JRFL) entries.
</Responsibilities>
```

### **Scope**

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Scope	Element Content	Required	Memo
Sub-Element Of	<u>BSMPlan</u>		

### **Description**

Data element Scope is part of the Commander Strategy. It contains the information describing all the force elements the plan will apply to.

### **Input Requirement**

This element is REQUIRED.

Enter in the element content a textual description of the force elements the plan will apply to.

## Validation Rules

None.

### Example

```
<Scope>Memo text</Scope>
```

## 4. JRFL

A joint restricted frequency list dataset is a list of frequencies that must be protected while friendly offensive EW operations are taking place. This type of dataset and the associated data elements are termed JRFL in this document.

See [Annex L](#) for a description of the columns in the table below.

**Note:** Refer to [Volume II, section 3](#) for Common attributes and sub-elements (inherited by JRFL in the tables below).

element name	national	content	occ	attributes
<a href="#">JRFL</a>			[0..n]	() (cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">TimeFrame</a>			[0..1]	(cls(L:CL),+protCode(L:PC),priority(S2+P),+justification(S255),+status(S3+P),+IDSF(L:BO))
<a href="#">JRFLEntry</a>			[1..n]	(cls(L:CL),+serial(S28+P),type(S2+P))
<a href="#">AsgnAllotRef</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">OrganisationRef</a>			[1..n]	(cls(L:CL),+serial(S28+P)) (cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">TimeFrame</a>			[1..1]	(cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<a href="#">LocationRef</a>			[0..1]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#">FreqSingle</a>	(UN16.6)		[1..n]	(cls(L:CL),refFreq(UN16.6))
<a href="#">AuthorisedBw</a>			[1..1]	(cls(L:CL),+minBw(UN16.6),maxBw(UN16.6))
<a href="#">FreqRange</a>			[1..n]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))

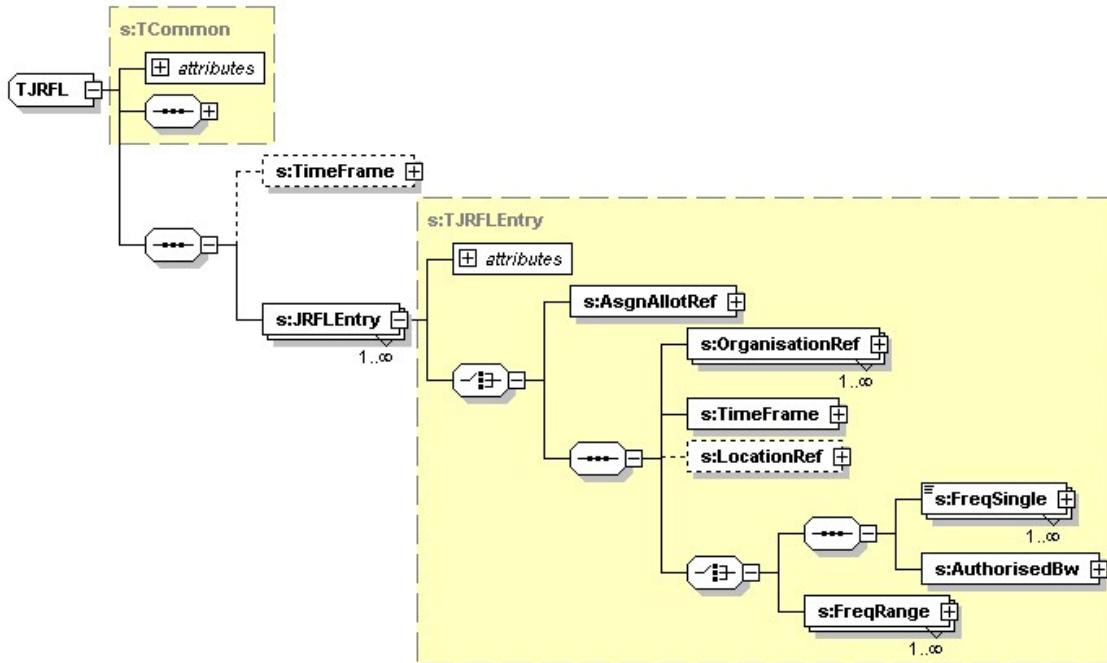


Figure III-4

## JRFL

Attribute name	Attribute tag	Occurrence	Format
Inherits From	<u>Common</u>		
Sub-Element Of	<u>Body</u>		
Sub-elements	<u>TimeFrame [0..1]</u> , <u>JRFLEntry [1..n]</u> , <u>Requirement [0..1]</u>		
Referenced By	<u>JRFLRef</u>		

### Description

This element is the XML root for all parameters of a JRFL. It inherits attributes and sub-elements from element [Common](#). The data element JRFL represents the current list of JRFL and IDSF entries and its associated parameters.

### Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attributes **serial**, **action** and **usageType**, and for common sub-elements.

### Validation Rules

- [XSL ERR JR001] Every JRFL MUST have a [Project](#) sub-element (inherited from Common).
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[JR](#)".

### Example

```
<JRFL usageType="P" serial="TUR:MOD:JR:0500001">
  <...all Common + JRFL elements...>
</JRFL>
```

### JRFLEntry

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Protection Code	protCode	Required	C1 Uppercase
Priority Code	priority	Optional	C2 Uppercase
Justification	justification	Required	C255
Status	status	Required	C3 Uppercase
IDSF	IDSF	Required	C1 Uppercase
<b>Sub-element Of</b>	<u>JRFL</u>		
<b>Sub-elements</b>	<b>(choice between</b> <u>AsgnAllotRef</u> [1..1] <b>or {</b> <u>OrganisationRef</u> [1..n], <u>TimeFrame</u> [1..1], <u>LocationRef</u> [0..1], <b>(choice between</b> <u>FreqSingle</u> [1..n], <u>AuthorisedBw</u> [1..1]) <b>,</b> <u>FreqRange</u> [1..n] <b>) } )</b>		

### Description

This data element defines the protection and priority codes for those nets (frequencies) that are listed in the Joint Restricted Frequency List (JRFL).

A JRFL entry may either refer to an existing Assignment/Allotment (in this case, use the sub-element AsgnAllotRef) or to an arbitrary set of frequencies (in this case describe the frequency/range, its user, location and duration).

In the case of an arbitrary set of frequencies, if multiple organizations are listed they will all use the same set of frequencies; if it is not the case, split the JRFL entry into several entries.

### Input Requirement

This data element is REQUIRED and repeatable.

Enter:

- In **protCode**, one a code from Code List Category PC for the net listed in CEOINet, CEOIMasterNetListName

#### Code List Category PC:

Short Code	Definition
T	Taboo. Safety of life, stop buzzer, etc. If priorities are used, Taboo should always be A1.
G	Guarded. Frequencies with interest to the Intelligence sections.
P	Protected. Frequencies that have importance to the operation, but may be jammed because of geographic or time separation.

- In **priority** the assigned priority code consisting of a letter followed by a number in the range A1 through Z9, with A1 being the highest priority. (All Taboo nets should be assigned an A1 priority code.) This code is set at the local command level.

- In **justification**, enter a description of the justification of why the JRFL entry is required, to support the spectrum manager.
- In **status**, enter the status of the JRFL entry. Use a code from Code List Category TS:

**Code List Category TS:**

Short Code	Definition
APP	Approved
PND	Pending
REV	For Review

- In **IDSF**, enter Y(es) if the entry is part of the International Distress and Safety Frequency (IDSF) list of frequencies that cannot be interfered with. Use a code from Code List Category BO:

**Code List Category BO:**

Short Code	Definition
Y	Yes
N	No

## Validation Rules

- [XSD] The attribute **protCode** MUST use one of the codes from Code List Category PC.
- [XSD] The attribute **status** MUST use one of the codes from Code List Category TS.
- [XSD] The attribute **IDSF** MUST use one of the codes from Code List Category BO.
- [XSL ERR JR002] If **IDSF** = "Y" then **protCode** MUST = "T"

## Example

```
<JRFLEntry protCode="T" justification="" status="APP" IDSF="Y"/>
```

## JRFLRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
JRFL Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	CEOI		

## Description

Data element JRFLRef contains a reference to a [JRFL](#) dataset.

## Input Requirement

This element is OPTIONAL.

Enter:

- In **serial**, the dataset identifier of the JRFL.

## Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**JR**".

### Example

```
<JRFLRef serial="USA:AR:JR:05008827" />
```

## 5. JSIR

Joint Spectrum Interference Resolution (JSIR) is a process designed to mitigate or define the procedures to mitigate Electromagnetic interference (EMI) that regularly hampers the Command and Control (C2) of military/non-military operations by degrading essential systems that use the electromagnetic spectrum. See [CONOPS section 3.6](#) for details.

See [Volume II section 15](#) for the description of the IntfReport dataset which includes the JSIR element.

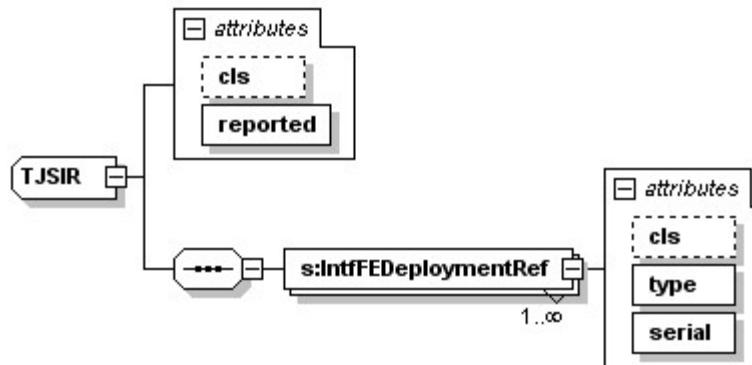


Figure III-5

### IntfFEDeploymentRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Victim / Source indicator type	type	Required	C1 Uppercase
Force Element Deployment Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	JSIR		

### Description

Data element IntfFEDeploymentRef contains a reference to a [FEDeployment](#) dataset.

### Input Requirement

This element is OPTIONAL and repeatable.

Enter:

- In **type**, a code from Code List Category VT indicating if the referenced force element is the source or the victim of the interference;

**Code List Category VT:**

**Short Code      Definition**

**S**                The referenced force element is the Source of the interference

**V**                The referenced force element is the Victim of the interference

- In **serial**, the dataset identifier of the FEDeployment.

### Validation Rules

- [XSD] The attribute **type** MUST use one of the codes from Code List Category VT.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "**FD**".

### Example

```
<IntfFEDeploymentRef type="V" serial="USA:AR:FD:05008827">
```

## JSIR

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Reported Interference Type	reported	Required	C3 Uppercase
<b>Sub-Element Of</b>	<a href="#">IntfReport</a>		
<b>Sub-elements</b>	<a href="#">IntfFEDeploymentRef</a> [1..n]		

### Description

This element contains the additional parameters of a JSIR, which are not covered by the regular [IntfReport](#) element.

### Input Requirement

This element is OPTIONAL.

Enter:

- In **reported**, a code from Code List Category J1 indicating the type of interference as reported by the victim;

**Code List Category J1:**

**Short Code      Definition**

**MEA**            Meaconing

**ITR**             Intrusion

**JAM**            Jamming

**INT**            Interference

**ENV**            Environmental (natural phenomena such as ducting, sun spot activity, etc)

## Validation Rules

[XSD] Attribute **reported** MUST use one of the codes from Code List Category J1.

### Example

```
<JSIR reported="ITR">
  <... JSIR sub-elements ...>
</JSIR>
```

## 6. Operating Clearance

The aim of the Operating Clearance Request / Reply process is to facilitate the exchange of information between a force element joining an exercise or operation and the spectrum manager of this exercise or operation. It will provide the spectrum manager an overview of all the spectrum dependant equipment present in the theater; it also supports the planning stage as the users will be warned in advance of possible restrictions to the use of their equipment.

See [Annex L](#) for a description of the columns in the table below.

**Note:** Refer to [Volume II, section 3](#) for Common attributes and sub-elements (inherited by OpClearanceRequest and OpClearance in the tables below).

element name	national	content	occ	attributes
<a href="#">OpClearanceRequest</a>			[0..n]	()
<a href="#">Description</a>		(S)	[1..1]	(cls(L:CL))
<a href="#">LocationRef</a>			[0..1]	(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#">ResponseDate</a>		(D)	[0..1]	(cls(L:CL))
<a href="#">Title</a>		(S100)	[1..1]	(lang(S2),cls(L:CL))
<a href="#">TxRxModeRef</a>			[1..1]	(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))

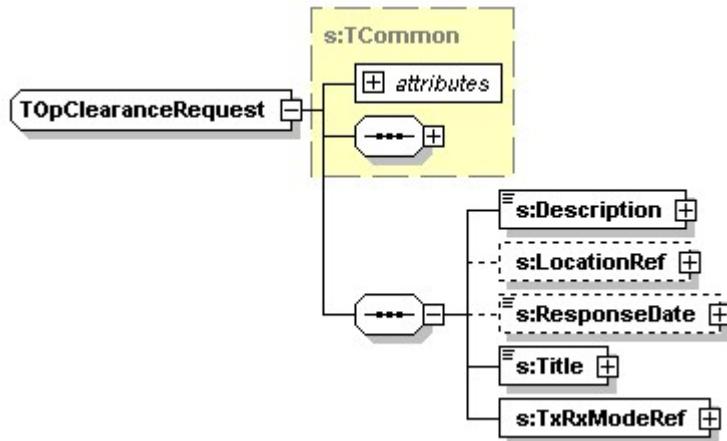


Figure III-6a

element name	national	content	occ	attributes
<a href="#">OpClearance</a>			[0..n]	(+status(L:HD))
<a href="#">OpClearanceRequestRe</a>			[1..1]	(cls(L:CL),+serial(S28+P))
<a href="#">f</a>				
<a href="#">AuthorisedTuning</a>			[0..1]	(cls(L:CL),+tuningStep(UN16.6),+numFreqs(UI4))
<a href="#">FreqSingle</a>		(UN16.6)	[0..n]	(cls(L:CL),refFreq(UN16.6))
<a href="#">FreqRange</a>			[0..n]	(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))

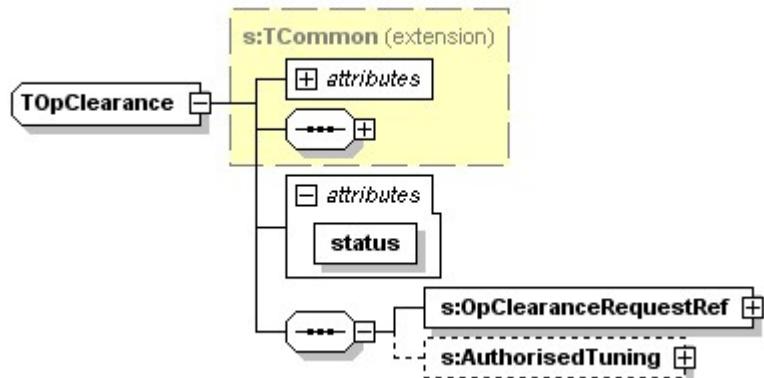


Figure III-6b

## OpClearance

Attribute name	Attribute tag	Occurrence	Format
Status	status	Required	C1 Uppercase
Inherits From	Common		
Sub-Element Of	Body		
Sub-elements	AuthorisedTuning [0..1], OpClearanceRequestRef [1..1]		

### Description

Data element OpClearance indicates the authorization, denial, or constraints imposed on, for the operation of a specific equipment during a specific exercise or operation. OpClearance may be delivered by the spectrum manager if he is controlling the frequency band in which the equipment operates. If not, a [SSRequest](#) should be send to the Host Nation.

### Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attribute **serial** and for common sub-elements.

Enter:

- In **status**, the overall result of the national analysis. Use one of the codes from Code List Category HD:

#### Code List Category HD:

Short Code	Definition
Y	Granted as requested
N	Denied
C	Granted with additional constraints or remarks

If **status** = "**N**" or "**C**", sub-element [Remarks](#) (inherited from Common) MUST be used to describe the constraints or the reason for denial.

- In addition, a sub-element [ContactOrgRef](#) (inherited from Common) with **type="AUTH"** MUST be used to indicate the authority who delivered the authorization to operate.

## Validation Rules

- [XSD] The attribute **status** MUST use one of the codes from Code List Category HD.
- [XSL ERR SS005] OpClearance MUST contain an element [ContactOrgRef](#) with **type="AUTH"**.
- [XSL ERR SS006] If **status** = "N" or "C", sub-element [Remarks](#) MUST be present.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "CL".

## Example

```
<OpClearance serial="TUR:MOD:CL:0500001">
  <... All Common and OpClearance sub-elements ...>
</OpClearance>
```

## OpClearanceRequest

Attribute name	Attribute tag	Occurrence	Format
Inherits From	<a href="#">Common</a>		
Child Of	<a href="#">Body</a>		
Sub-elements	<a href="#">Description</a> [1..1], <a href="#">LocationRef</a> [0..n], <a href="#">ResponseDate</a> [0..1], <a href="#">Title</a> [1..1], <a href="#">TxRxModeRef</a> [1..1]		
Referenced By	<a href="#">OpClearanceRequestRef</a>		

## Description

Data element OpClearanceRequest allows the participating force elements to send to the spectrum manager of the exercise or operation a request to operate a specific equipment which does not have spectrum supportability for the operational theater.

## Input Requirement

This element is OPTIONAL and repeatable.

See element [Common](#) for attribute **serial** and for common sub-elements.

## Validation Rules

- [XSL ERR SS007] Every OpClearanceRequest MUST have a [Project](#) sub-element.
- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "CR".

## Example

```
<OpClearanceRequest serial="TUR:MOD:CR:0500001">
  <... All Common and OpClearanceRequest sub-elements ...>
</OpClearanceRequest>
```

## OpClearanceRequestRef

Attribute name	Attribute tag	Occurrence	Format
Classification	cls	Optional	C1 Uppercase
Operating Clearance Request Identifier	serial	Required	See <a href="#">paragraph 1.5</a>
Sub-Element Of	<a href="#">OpClearance</a>		

### Description

Data element OpClearanceRequestRef contains a reference to a [OpClearanceRequest](#) dataset.

### Input Requirement

This element is REQUIRED.

Enter:

- In **serial**, the dataset identifier of the FEDeployment.

### Validation Rules

- [XSL ERR ID001] Part 3 of **serial** (dataset type) MUST be "[CR](#)".

### Example

```
<OpClearanceRequestRef serial="USA:AR:CR:05008827"/>
```



## VI. Annexes

# Annexes

- A. [Acronyms and Abbreviations](#)
- B. [Definitions](#)
- C. [Unified Modeling Language](#)
- D. [Digest Algorithm](#)
- E. [Examples](#)
- F. [Fixed Lists](#)
- G. [User-expandable Lists](#)
- L. [Alphabetical List of Elements](#)
- S. [State Diagrams for Status Tracking](#)
- X. [XSL Error Codes](#)
- Y. [List of Changes](#)
- Z. [References](#)

## A. Acronyms and Abbreviations

The following acronyms and abbreviations are used throughout this document.

The abbreviations marked with a "Yes" in the last column are approved by the SO PWG to be used whenever applicable in the XML Schema naming of the elements and attributes.

Whenever possible, existing recognized abbreviations are used; however in some cases specific abbreviations have been developed for the sole purpose of these XML Schema conventions.

Acronym	Long Text	Source	XML tag
AAG	Aeronautical Assignment Group	USA(NTIA), IEEE	
ACTF	Agenda Action File		
ADEF	Allied Data Exchange Format	FMSC	
Admin	Administration		Yes
ADP	Automated Data Processing	IEEE	
AFC	Area Frequency Coordinator	IEEE	
AGA	Air/Ground/Air	USA(NTIA)	Yes
AGC	Automatic Gain Control	IEEE	
Alloc	Allocated, Allocation		Yes
Allot	Allotment		Yes
AM	Amplitude Modulation		Yes
AMSL	Above Mean Sea Level		
Ant	Antenna		Yes
AOI	Area Of Interest		
App	Application		Yes
ARCADE	Allied Radio-frequency Computer Aided Data Exchange (NATO tool)	FMSC	
ASCII	American Standard Code for Information Interchange	IEEE	
Asgn	Assignment		Yes
AUTODIN	Automatic Digital Network	IEEE	
Avg	Average	ITU	Yes
Az	Azimuth	USA(NTIA)	Yes
BR	Radiocommunications Bureau (formerly IFRB)	ITU	
Bsb	Baseband		Yes
BSM	Battlespace Spectrum Management		Yes
BSMS	Battlespace Spectrum Management System (GBR tool)	GBR	
Bw	Bandwidth	ITU	Yes
CCF	Central Computer Facility		
CENTCOM	US Central Command		
CEOI	Communications Electronics Operation Instructions	NATO (AAP- 15)	Yes
CJTF	Combined Joint Task Force	NATO	
Cls	Classification	USA(NTIA)	Yes
Cmd	Command	ITU	Yes
Chnl	Channel		Yes
Coeff	Coefficient		Yes
Comp	Compression	ITU	Yes
Config	Configuration	ITU	Yes
CONOPS	Concept of Operations	IEEE	
Const	Constant		Yes
CONUS	Continental United States	USA(NTIA)	

Coord	Coordination		Yes
DCF	Distributed Computer Facility		
DCS	Defense Communications Systems	IEEE	
Descr	Description		Yes
Dev	Deviation	ITU	Yes
Dict	Dictionary		Yes
Dir	Direction	ITU	Yes
DISA	Defense Information Systems Agency	IEEE	
Dist	Distance		Yes
Distr	Distribution		Yes
DMS	Defense Message System		
Doc	Document	USA(NTIA)	Yes
DoD	Department of Defense	IEEE	
Dsg	Designator		Yes
EA	Electronic Attack (electronic warfare component similar to ECM)	USA	
EC	Earth Coverage	USA(NTIA)	
ECM	Electronic Countermeasures	NATO	
EIRP	Effective Isotropic Radiated Power	IEEE	Yes
Elev	Elevation	USA(NTIA)	Yes
Elm	Element		Yes
ELNOT	ELINT Notation	USA(NTIA)	
EMC	Electromagnetic Compatibility	IEEE	
EMI	Electromagnetic Interference		
Ems	Emission	USA(NTIA)	Yes
EO	Electro-Optical	IEEE	Yes
EP	Electronic Protection (electronic warfare component similar to EPM)	USA	
EPM	Electronic Protection Measures	NATO	
Eqp	Equipment		Yes
ERP	Effective Radiated Power	IEEE	
ES	Electronic Warfare Support (electronic warfare component similar to ESM)	USA	
ESM	Electronic Warfare Support Measures	NATO	
EW	Electronic Warfare	IEEE	
Exp	Exponent		Yes
FAA	Federal Aviation Administration	IEEE	
FAS	Frequency Assignment Subcommittee	IEEE	
FCC	Federal Communications Commission	IEEE	
FM	Frequency Modulation	IEEE	Yes
FMO	Frequency Management Office	USA(NTIA)	
FMSC	Frequency Management Sub-Committee (formerly ARFA, now AC/322-SC/3)	USA(NTIA)	
Fnct	Function		Yes
FOV	Field-Of-View	IEEE	Yes
FP	Frequency Panel	USA	
Freq	Frequency	ITU	Yes
FRRS	Frequency Resource Record System	USA(NTIA)	
GAFC	Gulf Area Frequency Coordinator		
Geo	Geographic		Yes
GMF	Government Master File	USA(NTIA)	
GUI	Graphical User Interface		
HERO	Hazards of Electromagnetic Radiation to Ordnance		
HF	High Frequency	IEEE	

Horz	Horizontal		Yes
IAW	In Accordance With	USA(NTIA)	
Id	Identifier	ITU	Yes
Idx	Index		Yes
IERs	Information Exchange Requirements		
IETF	Internet Engineering Task Force		
IF	Intermediate Frequency	ITU	
IFreq	Intermediate Frequency		Yes
Info	Information	ITU	Yes
Intf	Interference		Yes
IO	Information Operations		
IRAC	Interdepartmental Radio Advisory Committee	IEEE	
ITU	International Telecommunication Union	IEEE	
JCS	Joint Chiefs of Staff	USA(NTIA)	
JFMOLANT	Joint Frequency Management Office, Atlantic		
JRFL	Joint Restricted Frequency List		
JSC	Joint Spectrum Center	USA(NTIA)	
JSIR	Joint Spectrum Interference Resolution	USA	Yes
JSMS	Joint Spectrum Management Systems for windows	USA	
JSVC	Joint Service		
JTF	Joint Task Force		
Lat	Latitude	USA(NTIA)	Yes
Loc	Location	ITU	Yes
Lon	Longitude		Yes
MAG	Military Assignment Group	USA(NTIA)	
MAJCOM	Major Commands		
Max	Maximum	ITU	Yes
MCEB	Military Communications - Electronics Board	IEEE	
MIFR	Master International Frequency Register (formerly IFL)	ITU	
MILDEP	Military Department	USA(NTIA)	
MIME	Multipurpose Internet Mail Extensions		
Min	Minimum	ITU	Yes
MoD	Ministry of Defence		
Mod	Modulation	ITU	Yes
MRFL	Master Radio Frequency List (previous name for SMIR)	FMSC	
NARFA	National Allied Radio Frequency Agency (military frequency management office)	FMSC	
NATO	North Atlantic Treaty Organization	USA(NTIA)	
Nav	Navigation		Yes
NAVAIDS	Navigation Aid System	IEEE	
Nec	Necessary		Yes
NJFA	NATO Joint Frequency Agreement	FMSC	
NSA	National Security Agency	IEEE	
NTA	National Table of Allocations		
NTIA	National Telecommunications and Information Administration	IEEE	
Num	Number	ITU	Yes
OMG	Object Management Group (owners of the UML language)		
Ops	Operation / Operating / Operational	ITU	Yes
ORBAT	Order of Battle (from AAP-6: The identification, strength, command, structure, and disposition of the personnel, units, and equipment of any military	NATO	

	force.)		
Org	Organization		Yes
OUS&P	Outside United States & Possessions		
PC	Personal Computer	IEEE	
PD	Pulse Duration	ITU	Yes
PFP	Partnership For Peace	NATO	
PLAD	Plain Language Address		
PO	Periodic Output		
Pol	Polarization		Yes
PPM	Pulse Position Modulation	IEEE	Yes
PPS	Pulses Per Second	IEEE	
PRR	Pulse Repetition Rate	IEEE	Yes
RDTE	Research, Development, Test & Evaluation	IEEE	
Ref	Reference	ITU	Yes
Req	Requester	ITU	Yes
RF	Radio Frequency	IEEE	
RMS	Root Mean Square	ITU	Yes
Rx	Receiver	ITU	Yes
SCG	Security Classification Guide	USA(NTIA)	
SD	Signal Description		
SDS	Spectrum Dependent System	USA	
Sep	Separation		Yes
SFAF	Standard Frequency Action Format (USA standard)	USA(NTIA)	
SIPRNET	SECRET Internet Protocol Router Network	USA	
SMADEF	Spectrum Management Allied Data Exchange Format	FMSC	
SMB	NATO HQ Spectrum Management Branch (part of NATO HQ C3 Staff)	FMSC	
SMIR	Spectrum Management Information Repository (formerly MRFL)	FMSC	
SOPs	Standard Operating Procedures		
Spec	Specification		Yes
SRS	Space Radiocommunications Stations (ITU)	ITU	
Srv	Service		Yes
SSReply	Host Nation Declaration of Spectrum Supportability		Yes
SSRequest	Spectrum Supportability Request		Yes
Stat	Status	ITU	Yes
Std	Standard		Yes
Stn	Station	USA(NTIA)	Yes
Sys	System	ITU	Yes
TAD	Tactical Air Designator		
Temp	Temperature		Yes
TFMC	Theater Frequency Management Cell	FMSC	
TOA	Table Of Allocations		Yes
Tx	Transmitter	ITU	Yes
TxRx	Transceiver		Yes
UIC	Unit Identification Code		
UML	Unified Modeling Language		
US&P	United States and Possessions	USA(NTIA)	
Vert	Vertical		Yes
WRT	With Regards To		
XML	eXtensible Markup Language	W3C	
XSD	XML Schema Definition	W3C	
XSL	eXtensible Stylesheet Language	W3C	

YYYY-MM-DD   The four digit year - two digit month - two digit day,  
separated by hyphens

DRAFT

## B. Definitions

The following definitions relate to the spectrum management process when using SSRF. The basic definitions quoted from the ITU Radio Regulations, such as Allocation, Allotment and Assignment, are provided in ACP 190 NATO Supp 1. In addition, a list of acronyms is included as [Annex A](#).

### ***Operational Definitions***

#### **Antenna Mode**

A set of antenna parameters where the physical function or motion characteristics of the antenna change. For example search / track / illumination (typically provide different gains and beamwidths).

#### **Area of Interest (AOI)**

The Area of Interest (AOI) defines the assignment datasets that are to be transferred from a superior level to a subordinate level. They consist of the assignments in use by this subordinate level (and its own subordinate levels), and also the "background" assignments (assignments which do not belong to this Force Element or Command but which are used in the same or adjacent area and must therefore be protected).

The definition of the AOI results in a Structured Query Language (SQL) statement that may be used in two ways depending on the implementation of the hierarchical dialog:

- The AOI may be used by the subordinate level to "pull" all relevant assignments from its superior level (most efficient in a client-server architecture over a network)
- The AOI may be used by the superior level to "push" all relevant assignments to each of its subordinates (solution to be used when the different levels are not permanently connected).

#### **CEOI**

The Communications-Electronic Operating Instructions (CEOI) is an electronic or paper product that consists of the command, control and communications directory of tactical units. The CEOI also contains the call sign, call words and frequencies used by tactical units. Additionally the CEOI provides procedures for conducting electronic, visual and verbal communications methods (e.g., sign/countersign, smoke/pyrotechnics, suffix and expanders) to supplement or enhance radio communications security.

#### **Configuration**

A grouping of Tx Mode(s) associated with Antenna Mode(s), and/or Rx Mode(s) associated with Antenna Mode(s). There may be instances where the configuration will join more than one Tx Mode, Rx Mode or Antenna Mode. The Configuration holds additional data resulting from the combination of the parameters, e.g. Effective Isotropic Radiated Power (EIRP).

#### **Contact**

A Contact is an appointment (office and/or person) within an armed force or any civil/governmental organization, having a role to play in the spectrum management process. Each Contact must belong to zero or one [Organisation](#).

#### **Electronic Order Of Battle (EOB)**

[AAP6] A list of emitters (transmitters and/or receivers) used by a force, or in a scenario, with specific information on the electromagnetic characteristics, parameters, locations and platforms of these emitters.

#### **Equipment**

In this document, the term equipment is used to designate a transmitter, a receiver, a transceiver or an antenna.

#### **Force element**

A Force Element is an entity within an armed force, or any civil/governmental organization, which can be organized hierarchically into groups of various sizes for functional, tactical and administrative purposes. It may consist of but not limited to personnel, ships, submarines, vehicles or aircraft, and may own equipment.

### **Frequency assignment**

A frequency assignment is a license to operate specific equipment at a location or within an area, in accordance with the constraints and limitations contained within the frequency assignment.

### **Frequency proposal**

A proposed frequency assignment which is in the approval process (upon approval it becomes a frequency assignment).

### **JSIR**

Joint Spectrum Interference Resolution (JSIR) is a process designed to mitigate or define the procedures to mitigate Electromagnetic interference (EMI) that regularly hampers the command and control (C2) of military/non-military operations by degrading essential systems that use the electromagnetic spectrum. Since EMI can be caused by enemy, neutral, friendly, or natural sources, it generally must be resolved on a case-by-case basis. The intent of the JSIR procedures is to resolve EMI incidents at the lowest possible level within the command structure. However, when the cause and recipient of the interference are not within the same component force or supporting element, resolution may require assistance from the combatant command, joint task force (JTF), Service Spectrum Management HQ or higher levels of authority.

### **Link**

A radio connection between two or more stations.

### **Net**

A group of communications stations operating under unified control, for example a Combat Net Radio (CNR).

### **Network**

A group of communications/electronic stations interconnected to perform a common function. Examples include but are not limited to: a communications network, a radar network, a satellite network, etc.

### **Operating Clearance**

The Operating Clearance procedure is the tactical version of the full [Spectrum Supportability](#) process. It MUST NOT be used as a replacement of the Spectrum Supportability process (see [section 2.5](#) of the CONOPS), and MUST only be used in cases of short-term requirements in support of a critical operation. Acceptance of this abbreviated procedure is at the discretion of the commander.

### **Organisation**

An Organisation is an entity within an armed force, or any civil/governmental entity, which can be structured hierarchically into groups of various sizes for functional, tactical and administrative purposes. Each Organisation may have several [Contacts](#).

### **Permanent assignment**

A frequency assignment with a review date ([element Review](#)). This type of assignment must be explicitly deleted by the owner or extended.

### **Platform**

A Platform is any fixed or mobile entity including but not limited to buildings, ships, submarines, vehicles or aircraft, on which are hosted one or more electromagnetic spectrum dependent systems.

**Route**

The path or course taken from one location to another; defined by the vectors, or waypoints starting/ending times, and location identifiers. The vectors may include; latitude, longitude, altitude, bearing and elevation. The waypoints may be identified by a location index, latitude, longitude and elevation. The goal of the route information is to provide planned or implemented transit path information.

**Station**

[ITU] "One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radiocommunication service, or the radio astronomy service." For example, a set of TxRx's and Antennas at a specific location to provide a communication / radiolocation function.

**System of assignments**

Term used to designate a set of data elements storing the information concerning multiple frequencies and multiple stations. This set of data elements is contained in a single SSRF "Asgn" transaction and has a unique identifier, and is stored among multiple inter-related entities in the database.

**Temporary assignment**

A frequency assignment of a specific duration, which can be deleted automatically from the database when the expiration date ([element Expire](#)) is reached (unless the user modifies the date before the assignment expires).

**Tx Mode and Rx Mode**

A set of equipment parameters that affect the emitted RF spectrum or are tailored to receive a specific RF spectrum. Typically, emission changes result in different modes. Examples include search / track / illumination, or narrowband / wideband, or clear voice / secure voice.

***Definitions related to SSRF and XML*****anyURI element type**

**anyURI** represents a Uniform Resource Identifier Reference (URI). An **anyURI** value can be absolute or relative, and may have an optional fragment identifier (i.e., it may be a URI Reference). This type should be used to specify the intention that the value fulfills the role of a URI as defined by [\[RFC 2396\]](#), as amended by [\[RFC 2732\]](#).

Source: <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/#anyURI>

**Data Entry (Value)**

A data entry consists of a series of letters, numbers and/or special characters. A data entry can be either an attribute value or an element value. Each data entry can be an agreed code, a formatted data, or a free text giving one of the characteristics of the dataset.

**Dataset**

In this document, the term dataset is used to designate a set of database records forming a logical entity, or their XML representation as XML elements and attributes. For example, a Location record with all its references and coordinate points (in the case of a polygon) constitutes a dataset. A TxRx with its Transmitter, Receiver, TxMode's and RxMode's, is another example of dataset. The unique identifier of a dataset (primary key) is its **datasetID** (attribute of the Common XML element).

**XML Schema**

The purpose of a schema is to define a class of XML documents by using schema components to constrain and document the meaning, usage and relationships of their constituent parts: data types, elements and their content and attributes and their values. Schemas may also provide for the specification of additional document information, such as normalisation and defaulting of attribute and element values, and have facilities for self-documentation.

In XML Schema, there is a basic difference between "complex types" which allow elements in their content and may carry attributes, and "simple types" which cannot have element content and cannot carry attributes.

An "instance document" is often used to describe an XML document that conforms to a particular schema.

### **Element Security Classification Indicator**

The lowest level of classification is at the element level. Each SSRF element contains an optional "cls" attribute used to indicate the common classification of the attributes and of the value of the current element. The permissible entries are "U" for UNCLASSIFIED, "C" for CONFIDENTIAL, "S" for SECRET and "T" for TOP SECRET (for special stand-alone applications). Some nations also use the letter "R" for RESTRICTED data.

### **XML Document**

An XML document is made of a single XML element called the root element. In SSRF, this root element is <SSRF>.

### **Multiple Occurring Data Entry**

Data elements that can appear more than once under their parent element are called multiple occurring data entries.

### **Single Occurring Data Entry**

A single occurring data entry can appear only once in a dataset or just once in the applicable subgroup of a dataset.

### **Transaction**

A transaction is a formatted grouping of data entries exchanged between spectrum management authorities, used to define some spectrum related datasets (equipment, antenna, location, etc), to request frequency(ies) (assignment, allotment), etc. A transaction is composed of a single <SSRF> root element which may contain as many sub-elements as necessary.

### **Unified Modeling Language**

Unified Modeling Language (UML) is a graphical language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system. The UML offers a standard way to write a system's blueprints, including conceptual things such as business processes and system functions as well as concrete things such as programming language statements, database schemas, and reusable software components.

### **XML Attribute**

Each element may have a set of attributes. An attribute specification is a pair name/value, with the value enclosed between double quotes, in the form name="value". The order of the attributes within an element is not significant. An attribute with no value MUST be omitted.

In the following example, "cls" is the attribute name, and "U" is the attribute value:

<Remarks cls="U">This is my comment</Remarks>

### **XML Element**

An XML element is defined by start-tags and end-tags, or, for empty elements, by an empty-element tag. Each element may have a set of attributes, and may contain other elements (called **sub-elements** in this document). An element with no value and no attributes MUST be omitted.

The name of the element is the text appearing in the start-tag. For non-empty elements, this name is repeated in the end-tag, preceded with a slant.

A non-empty element has a value which is the text enclosed between the start-tag and the end-tag.

In the following example, "Remarks" is the element name, "<Remarks>" is the start-tag, "</Remarks>" is the end-tag, and "This is my comment" is the element value:

<Remarks>This is my comment</Remarks>

The following example shows an empty element containing only attributes:

<Point lon="0053045E" lat="510000N"/>

## Definitions related to Spectrum Supportability

### Developing / Procuring Authority (DPA):

A nation, organization or agency initiating the acquisition of a developmental programme or project, to obtain a Spectrum Dependent System (SDS) or to propose a new Signal Description (SD). The DPA is responsible for the acquisition of the developmental programme or project and is accountable for cost, schedule, and final performance of the product.

### Spectrum-Dependent Systems (SDS):

Those electronic systems, subsystems, devices and/or equipment (as described by Transmitter/Receiver (TXRX) and/or Antenna data elements) that depend on the use of the electromagnetic spectrum for the acquisition and transfer of information. This includes Electronic Counter Measures (ECM) systems, but not Electronic Support Measures (ESM) systems.

### Signal Description (SD):

A set of parameters and maximum values, which define the characteristics of an emission produced by a SDS; the SD may be unique to a specific SDS or may match a given standard (e.g. STANAG 4375 for JTIDS/MIDS); it includes among other things the frequency band, modulation technique and associated bandwidth, duty cycle, and EIRP.

### Concept of Operations (CONOPS):

In this document, CONOPS refers only to the operational parameters having an impact on the usage of the spectrum, such as: station class, number of equipments in specific areas.

### Host Nation (HN):

Sovereign nation in which another nation or a NATO command/agency plans or is likely to conduct training, exercises or operations with the permission of that nation.

### Host Nation Declaration (HND):

The Sovereign nation's authority for the use of a SD or SDS and an associated CONOPS following a review of the technical characteristics and parameters against their national spectrum management policy, allocations, regulations and standards. The HN may impose constraints within the HND and it may have to be reviewed during the life cycle of the SDS.

The statement whether the spectrum supportability is granted, granted with restrictions, or not granted, received from authorities of sovereign nations after their review of the technical characteristics of a SD or SDS, and of the associated CONOPS, with regard of their national spectrum management policy, allocations, regulations, and technical standards. The HND may have to be reviewed during the life cycle of the SDS.

### Notes:

- Decisions regarding the use of spectrum are sovereign and subject to change without notice. Therefore, HND does not have permanent validity but rather, is subject to revisions.
- A positive HND never constitutes a promise of successful frequency assignment, as the real assignment will depend on the availability of the spectrum at the time of the request. However, it is an indication that the host nation should be able to satisfy routine training and operational spectrum requests.

### Spectrum Supportability:

The goal of NATO spectrum supportability is to facilitate the timely provision of information leading to compatible systems that use the electromagnetic spectrum in support of national needs and NATO missions. It allows the DPA to assess, with a certain degree of confidence, whether the

electromagnetic spectrum necessary to support the operation of a SDS, with its related CONOPS, is, or will be, available.

Note: Within NATO and Partner nations, the complete spectrum supportability cycle contains three steps described in more details in the [CONOPS, paragraph 2.5](#):

1. Information Pull - Consideration of anticipated Electro-Magnetic Environment (EME) for the SDS / SD
2. Information Push - SD and CONOPS Submission/SDS Registration
3. Receipt and analysis of the HND's

### ***Definitions related to JRFL***

#### **TABOO**

Any frequency of such importance that it must never be deliberately jammed or interfered with by friendly forces. This includes international distress, stop buzzer, safety and controller frequencies. Component operations and communications elements designate and update this list.

#### **PROTECTED**

Friendly forces operational frequency of such critical importance that jamming should be restricted unless necessary or until it is coordinated. Component operations and communications elements designate and update this list.

#### **GUARDED**

Enemy frequencies currently being exploited for combat information and intelligence. This list is time-oriented in that the list changes as the enemy assumes different combat postures. These may be jammed if the Information Operations (IO) cell determines the operational gain is greater than the information lost. The J-2 (Intelligence Officer) designates and updates this list.

### ***Definitions related to TxRx parameters and Curves***

Data is captured as curves for the following equipment characteristics:

#### ***Spurious Emission:***

Emission on a frequency or frequencies that are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

#### ***Spurious Rejection:***

Spurious receiver responses arise when strong undesired signals and the receiver local oscillator (LO) combine in the mixer to produce a frequency on or near the intermediate frequency. The rejection is the ratio in dB of a particular out-of-band frequency (outside the -60 dB IF bandwidth) signal level required to produce a specified output to the desired signal level required to produce the same output. It should always be a positive number.

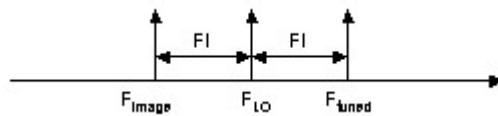
#### ***Selectivity:***

Selectivity is the ability of a receiver to operate on a particular frequency with an acceptable signal-to-noise interference ratio. Selectivity may be measured or calculated at the RF, IF and baseband levels.

#### ***Image Frequency:***

For a receiver, an undesired signal may produce the same intermediate frequency (IF) that the desired input frequency produces. The term image arises from the mirror-like symmetry of signal and image frequencies about the beating-oscillator frequency. The desired station (Ftuned) and the

image frequency ( $F_{\text{image}}$ ) are both separated from the local oscillator ( $F_{\text{LO}}$ ) by the amount of the I. F. as illustrated below:



**Figure B-1 : Image frequency (X=1, F0= -2 \* FI)**

***Image Rejection:***

For superheterodyne receivers. The ratio in dB of the image frequency signal level required to produce a specified output to the desired signal level required to produce the same output. For example, if a receiver had a sensitivity of -100 dBm and could receive an image signal with a maximum power of -20 dBm without causing the standard response, then the receive image rejection would be 80 dB. It should always be a positive number.

***Baseband:***

In transmit the original bandwidth of frequencies produced by a transducer, such as a microphone, telegraph key, multiplexer or other signal initiating device, prior to initial modulation or multiplexing of an RF carrier. In receive the demodulation process at post detection recreates an approximation of the baseband signal at the appropriate bandwidth for signal processing.

## C. Unified Modeling Language

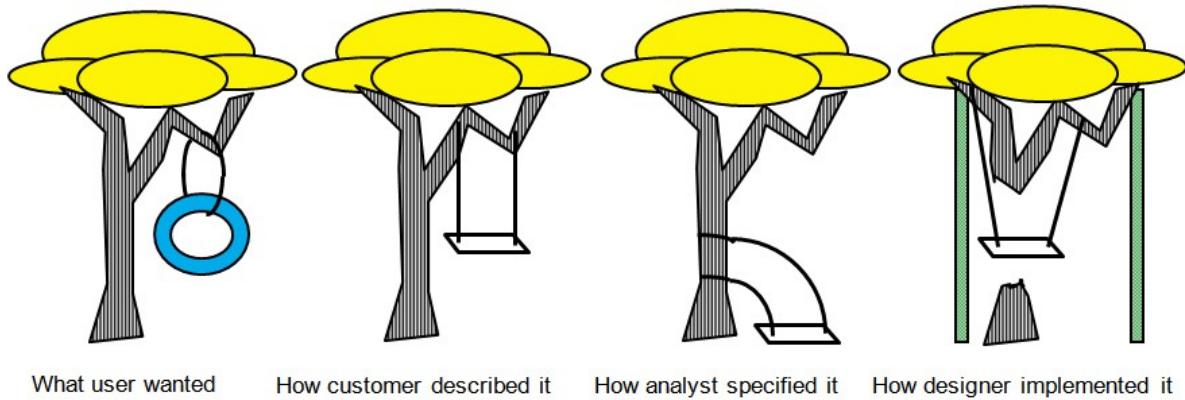
### **Introduction**

The [OMG specification](#) states: "The Unified Modeling Language (UML) is a graphical language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system. The UML offers a standard way to write a system's blueprints, including conceptual things such as business processes and system functions as well as concrete things such as programming language statements, database schemas, and reusable software components."

The Unified Modeling Language (UML) first appeared in the 1990's as an effort to select the best elements from the many modeling systems proposed at the time, and to combine them into a single coherent notation. It has since become the industry standard for software modeling and design, as well as the modeling of other processes in the scientific and business worlds.

#### **Why use UML for SSRF ?**

... To avoid that :



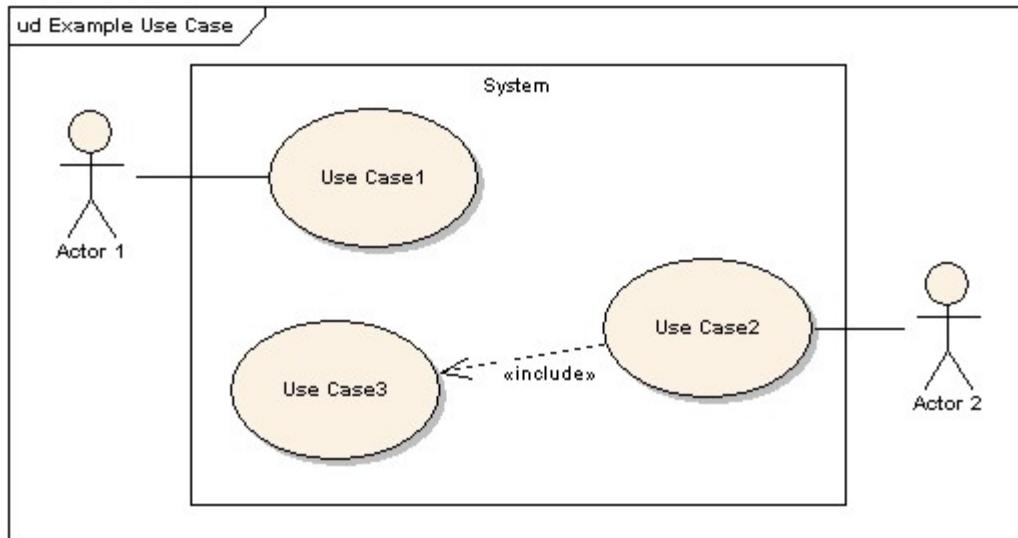
This Annex is not a full description of UML 2.1 and of all the possible diagrams (13). It only contains a short description of the diagrams being used in this document.

### **Use Case Diagrams**

According to the UML specification a use case diagram is "a diagram that shows the relationships among actors and use cases within a system."

The purpose of a Use Case Diagram is to show the high level activities undertaken by a system. The rectangular box illustrates the System, the Actors (drawn as stick figures) represent humans or other systems that interact with the system. The oval shapes represent the use cases or activities that the system performs. The links between the actors and the use cases show which users exercise which use cases.

Use cases can be linked by an arrow with an <<include>> tag, this indicates that the use case pointed to is an optional extra to the source use case. In the figure below, Use Case2 includes Use Case3 as an optional extension point.

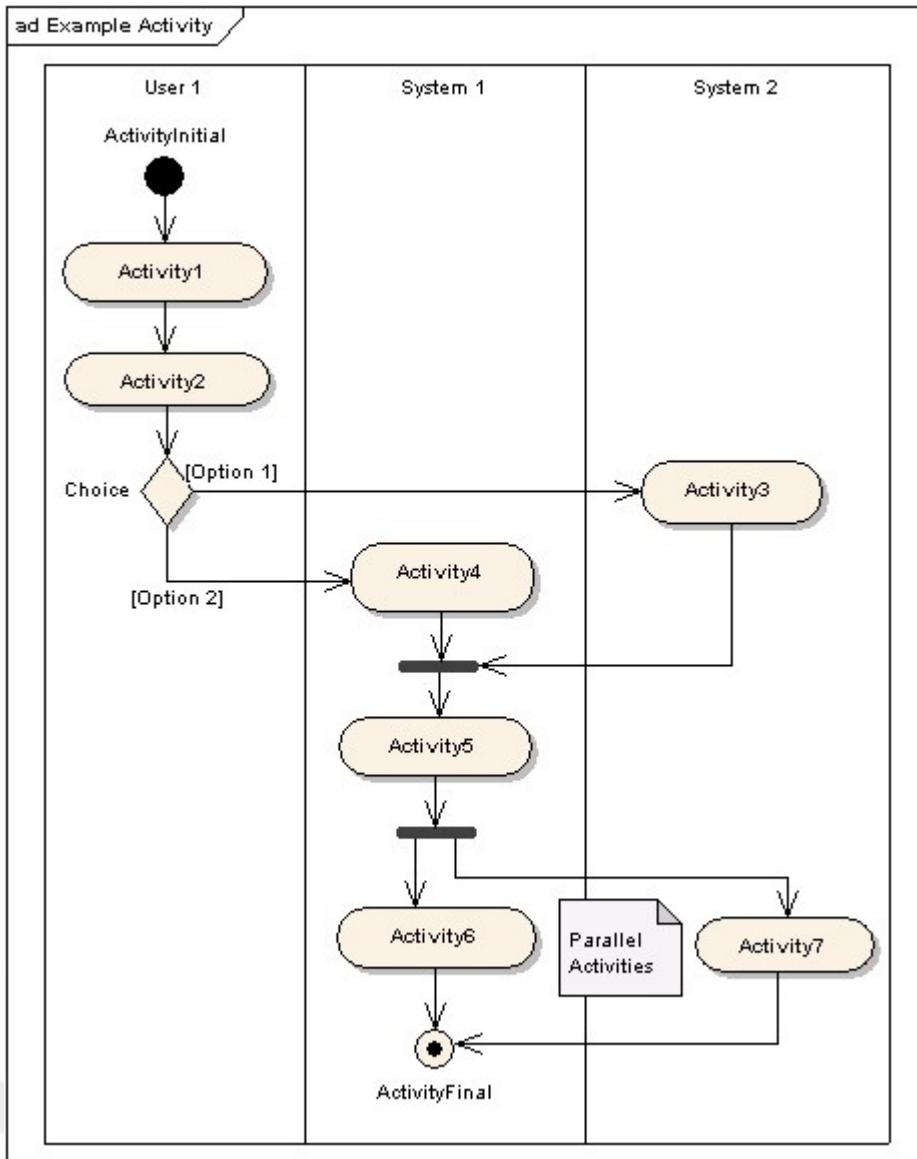


There is no indication of order of execution or which activities are mandatory in these diagrams.

## Activity Diagrams

Activity diagrams are simplified business workflow representations. They represent the flow of control through a complete business process. Each activity represents a discrete activity within the workflow.

The start point of the activity is shown as a solid circle; the end point is a solid circle within a circle. Each activity is shown as a rounded rectangle containing a descriptive name.



Diamonds represent choices the multiple lines coming out of a diamond represent the options. Each option is described by the condition shown in the square brackets. The point where multiple flows join or separate for parallel processing is shown by a heavy horizontal line.

Swim-lanes (full length vertical or horizontal boxes) illustrate who or what is executing the activities within the process.

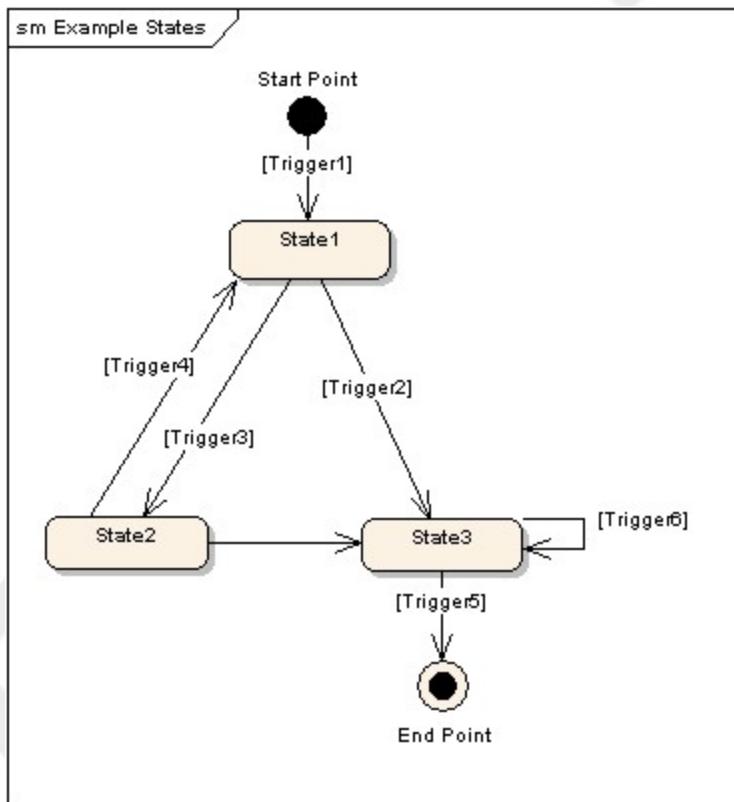
The flow of control through the diagram is generally sequential from the start point to the end point, with parallel processes allowed and clearly indicated.

## Sequence Diagrams

UML sequence diagrams are a dynamic modeling technique, as are activity diagrams described above. UML sequence diagrams are typically used to validate and flesh out the logic of a usage scenario. Sequence diagrams show object interactions arranged in a time sequence, and therefore emphasize the time ordering of messages between objects or actors.

## State Diagrams

State diagrams show the state that an object or document can be in. Often used to follow the progress of an object through a system. The start point in the process is shown by a solid circle, the end point appears as a solid circle within a circle. Each state is shown as a rounded rectangle, showing its name. The arrows between the states indicate the transition trigger that move the object from one state to the next. It is permissible for transition arrows to be shown both ways between states. Transition arrows are also allowed to point to their originating state.



A state diagram does not show the process or activities that surround state transitions and does not show any user interaction.

## D. Digest Algorithm

### **Table of Contents**

1. Introduction
2. SHA Algorithms Summary
3. SHA-1 Algorithm
  - 3.1 Terminology and Notation
  - 3.2 Message padding
  - 3.3 Functions and Constants Used
  - 3.4 Computing the SHA-1 Message Digest
4. References

### **1. Introduction**

A hash function is a transformation that takes an input and returns a fixed-size string, which is called the hash value. Hash functions are used for a variety of computational purposes, including cryptography. In the SSRF case, the hash value or message digest is a "digital fingerprint" of the Body part of the message, used to perform a message integrity check.

Hash algorithms are called "secure" when (in the words of the standard), "it is computationally infeasible to:

- find a message that corresponds to a given message digest, or
- find two different messages that produce the same message digest.
- any change to a message will, with a very high probability, result in a different message digest."

In various standards and applications, the two most-commonly used hash functions are MD5 and SHA-1.

SSRF [Digest](#) element can be used to convey any hash value, according to the selected algorithm applied to the entire stream of characters in and including the <Body> </Body> pair. As of June 2008, the preferred algorithm is SHA-1, so this algorithm is described in the paragraphs 2 and 3 below.

### **2. SHA Algorithms Summary**

The Secure Hash Algorithms (SHA) are five cryptographic hash functions designed by the National Security Agency (NSA) and published by the National Institute of Standards and Technology (NIST) as a U.S. Federal Information Processing Standard.

The five SHA algorithms are denoted SHA-1, SHA-224, SHA-256, SHA-384, and SHA-512. The latter four variants are sometimes collectively referred to as SHA-2. SHA-1 produces a message digest that is 160 bits long, from any message up to 264-1 bits long (1018 bytes); the number in the other four algorithms' names denote the bit length of the digest they produce. SHA-1 is employed in several widely used security applications and protocols, including TLS and SSL, PGP, SSH, S/MIME, and IPsec. It was considered to be the successor to MD5, an earlier, widely-used hash function.

The following is an example of SHA-1 digest in hexadecimal notation:

```
SHA1("The quick brown fox jumps over the lazy dog") = 2fd4e1c6 7a2d28fc  
ed849ee1 bb76e739 1b93eb12
```

Paragraph 3 describes the SHA-1 algorithm. The authoritative source is given in paragraph 4.

### 3. SHA-1 Algorithm

#### 3.1 Terminology and Notation

The following terminology related to bit strings and integers will be used:

- a. A hex digit is an element of the set {0, 1, ..., 9, A, ..., F}. A hex digit is the representation of a 4-bit string. Examples: 7 = 0111, A = 1010.
- b. A word equals a 32-bit string which may be represented as a sequence of 8 hex digits. To convert a word to 8 hex digits each 4-bit string is converted to its hex equivalent as described in (a) above. Example: 1010 0001 0000 0011 1111 1110 0010 0011 = A103FE23.
- c. An integer between 0 and  $2^{32} - 1$  inclusive may be represented as a word. The least significant four bits of the integer are represented by the right-most hex digit of the word representation. Example: the integer 291 =  $2^8 + 2^5 + 2^1 + 2^0 = 256 + 32 + 2 + 1$  is represented by the hex word, 00000123.
- If  $z$  is an integer,  $0 \leq z < 2^{64}$ , then  $z = (2^{32})x + y$  where  $0 \leq x < 2^{32}$  and  $0 \leq y < 2^{32}$ . Since  $x$  and  $y$  can be represented as words  $X$  and  $Y$ , respectively,  $z$  can be represented as the pair of words  $(X, Y)$ .
- d. block = 512-bit string. A block (e.g.,  $B$ ) may be represented as a sequence of 16 words.

#### Operations on Words

The following logical operators will be applied to words:

- a. Bitwise logical word operations

$X \text{ AND } Y$  = bitwise logical "and" of  $X$  and  $Y$ .

$X \text{ OR } Y$  = bitwise logical "inclusive-or" of  $X$  and  $Y$ .

$X \text{ XOR } Y$  = bitwise logical "exclusive-or" of  $X$  and  $Y$ .

$\text{NOT } X$  = bitwise logical "complement" of  $X$ .

- b. The operation  $X + Y$  is defined as follows: words  $X$  and  $Y$  represent integers  $x$  and  $y$ , where  $0 \leq x < 2^{32}$  and  $0 \leq y < 2^{32}$ . For positive integers  $n$  and  $m$ , let  $n \bmod m$  be the remainder upon dividing  $n$  by  $m$ . Compute  $z = (x + y) \bmod 2^{32}$ . Then  $0 \leq z < 2^{32}$ . Convert  $z$  to a word,  $Z$ , and define  $Z = X + Y$ .
- c. The circular left shift operation  $S^n(X)$ , where  $X$  is a word and  $n$  is an integer with  $0 \leq n < 32$ , is defined by  $S^n(X) = (X \ll n) \text{ OR } (X \gg 32-n)$ .

In the above,  $X \ll n$  is obtained as follows: discard the left-most  $n$  bits of  $X$  and then pad the result with  $n$  zeroes on the right (the result will still be 32 bits).  $X \gg n$  is obtained by discarding the right-most  $n$  bits of  $X$  and then padding the result with  $n$  zeroes on the left. Thus  $S^n(X)$  is equivalent to a circular shift of  $X$  by  $n$  positions to the left.

#### 3.2 Message Padding

SHA-1 is used to compute a message digest for a message or data file that is provided as input. The message or data file should be considered to be a bit string. The length of the message is the number of bits in the message (the empty message has length 0). If the number of bits in a message is a multiple of 8, for compactness we can represent the message in hex. The purpose of message padding is to make the total length of a padded message a multiple of 512. SHA-1 sequentially processes blocks of 512 bits when computing the message digest. The following specifies how this padding shall be performed. As a summary, a "1" followed by  $m$  "0"s followed by a 64-bit integer are appended to the end of the message to produce a padded message of length  $512 * n$ . The 64-bit integer is the length of the original message. The padded message is then

processed by the SHA-1 as  $n$  512-bit blocks.

Suppose a message has length  $l < 2^{64}$ . Before it is input to the SHA-1, the message is padded on the right as follows:

a. "1" is appended. Example: if the original message is "01010000", this is padded to "010100001".

b. "0"s are appended. The number of "0"s will depend on the original length of the message. The last 64 bits of the last 512-bit block are reserved for the length  $l$  of the original message.

Example: Suppose the original message is the bit string 01100001 01100010 01100011 01100100 01100101.

After step (a) this gives 01100001 01100010 01100011 01100100 01100101 1.

Since  $l = 40$ , the number of bits in the above is 41 and 407 "0"s are appended, making the total now 448. This gives (in hex)

```
61626364 65800000 00000000 00000000  
00000000 00000000 00000000 00000000  
00000000 00000000 00000000 00000000  
00000000 00000000.
```

c. Obtain the 2-word representation of  $l$ , the number of bits in the original message. If  $l < 2^{32}$  then the first word is all zeroes. Append these two words to the padded message.

Example: Suppose the original message is as in (b). Then  $l = 40$  (note that  $l$  is computed before any padding). The two-word representation of 40 is hex 00000000 00000028. Hence the final padded message is hex

```
61626364 65800000 00000000 00000000  
00000000 00000000 00000000 00000000  
00000000 00000000 00000000 00000000  
00000000 00000000 00000000 00000028.
```

The padded message will contain  $16 * n$  words for some  $n > 0$ . The padded message is regarded as a sequence of  $n$  blocks  $M(1), M(2), \dots$ , first characters (or bits) of the message.

### 3.3 Functions and Constants Used

A sequence of logical functions  $f(0), f(1), \dots, f(79)$  is used in SHA-1. Each  $f(t)$ ,  $0 \leq t \leq 79$ , operates on three 32-bit words  $B, C, D$  and produces a 32-bit word as output.  $f(t;B,C,D)$  is defined as follows: for words  $B, C, D$ ,

$$\begin{aligned} f(t;B,C,D) &= (B \text{ AND } C) \text{ OR } ((\text{NOT } B) \text{ AND } D) & (0 \leq t \leq 19) \\ f(t;B,C,D) &= B \text{ XOR } C \text{ XOR } D & (20 \leq t \leq 39) \\ f(t;B,C,D) &= (B \text{ AND } C) \text{ OR } (B \text{ AND } D) \text{ OR } (C \text{ AND } D) & (40 \leq t \leq 59) \\ f(t;B,C,D) &= B \text{ XOR } C \text{ XOR } D & (60 \leq t \leq 79). \end{aligned}$$

A sequence of constant words  $K(0), K(1), \dots, K(79)$  is used in the SHA-1. In hex these are given by

$$\begin{aligned} K(t) &= 5A827999 & (0 \leq t \leq 19) \\ K(t) &= 6ED9EBA1 & (20 \leq t \leq 39) \\ K(t) &= 8F1BBCDC & (40 \leq t \leq 59) \\ K(t) &= CA62C1D6 & (60 \leq t \leq 79). \end{aligned}$$

### 3.4 Computing the SHA-1 Message Digest

Only method 1 from the RFC is given below. Although using method 2 saves sixty-four 32-bit words of storage, it is likely to lengthen execution time due to the increased complexity of the address computations for the { W[t] } in step (c). There are other computation methods which give identical results.

The message digest is computed using the message padded as described in section 3. The computation is described using two buffers, each consisting of five 32-bit words, and a sequence of eighty 32-bit words. The words of the first 5-word buffer are labeled A,B,C,D,E. The words of the second 5-word buffer are labeled H0, H1, H2, H3, H4. The words of the 80-word sequence are labeled W(0), W(1),..., W(79). A single word buffer TEMP is also employed. To generate the message digest, the 16-word blocks M(1), M(2),..., M(n) defined in section 4 are processed in order. The processing of each M(i) involves 80 steps.

Before processing any blocks, the H's are initialized as follows: in hex,

$$H_0 = 67452301$$

$$H_1 = EFCDAB89$$

$$H_2 = 98BADCFE$$

$$H_3 = 10325476$$

$$H_4 = C3D2E1F0.$$

Now M(1), M(2), ..., M(n) are processed. To process M(i), we proceed as follows:

- a. Divide M(i) into 16 words W(0), W(1), ..., W(15), where W(0) is the left-most word.
- b. For t = 16 to 79 let  $W(t) = S^1(W(t-3) \text{ XOR } W(t-8) \text{ XOR } W(t-14) \text{ XOR } W(t-16))$ .
- c. Let A = H0, B = H1, C = H2, D = H3, E = H4
- d. For t = 0 to 79 do

$$\text{TEMP} = S^5(A) + f(t; B, C, D) + E + W(t) + K(t);$$

$$E = D; D = C; C = S^{30}(B); B = A; A = \text{TEMP};$$

- e. Let  $H_0 = H_0 + A, H_1 = H_1 + B, H_2 = H_2 + C, H_3 = H_3 + D, H_4 = H_4 + E$ .

After processing M(n), the message digest is the 160-bit string represented by the 5 words H0 H1 H2 H3 H4.

## 4. References

<a href="#">IETF RFC 3174</a>	US Secure Hash Algorithm 1 (SHA1)	September 2001
<a href="#">IETF RFC 1321</a>	The MD5 Message-Digest Algorithm	April 1992

## E. Examples

This Annex contains examples of typical SSRF documents.

1. [Assignment for Broadcast Operation](#)
2. [Assignment for Simplex Operation](#)
3. [Assignment for A/G/A simplex operation](#)
4. [Assignment for pooled A/G/A simplex operation](#)
5. [Assignment for day and night](#)
6. [Assignment for Forward relays simplex operation \(with notified frequencies\)](#)
7. [Spectrum Supportability Request and Answer](#)
8. [SignalDescr and TxRx datasets](#)
9. [Antenna datasets](#)
10. [Location datasets](#)

## 1. Assignment for Broadcast Operation

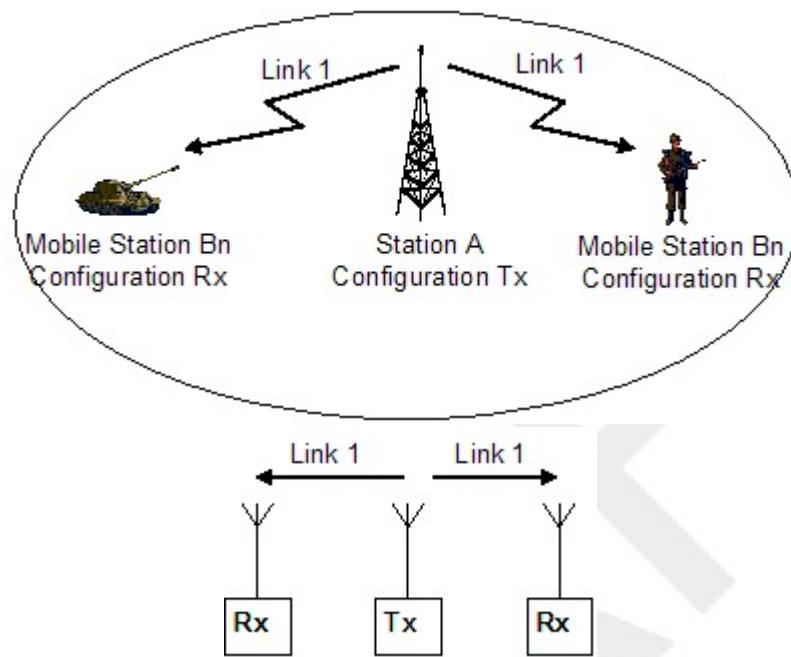


Figure E-1: Assignment for Broadcast Operation

```

<AsgnAllot usageType="A" serial="BEL:AR:AS:060018" entry="2008-01-01">
    <DatasetCls overallCls="U"/>
    <Handling>B</Handling>
    <EffDate>2002-05-30T00:00:00Z</EffDate>
    <Expire>2012-05-30T00:00:00Z</Expire>
    <ContactOrgRef type="USER">
        <OrganisationRef serial="USA::OR:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="OWNER">
        <OrganisationRef serial="BEL::OR:123"/>
    </ContactOrgRef>
    <Status dateTime="2006-01-01T00:00:00Z" state="ORIGINATED BY" byContact="BEL:AR:
CN:123"/>
    <ExtRef serial="BEL:AR:EX:123"/>
    <Remarks xpath=".../Config[1]">TX BROADCAST STATION</Remarks>
    <Remarks xpath=".../Config[2]">RX BROADCAST STATION</Remarks>
    <AsgnType category="HF"/>
    <ResponseDate>2006-09-15</ResponseDate>
    <Time period="H24"/>
    <FnctID major="BROADCAST"/> <!-- [SB: this is not IAW Annex F (code list FN)] -->
    <Config stnClass="FB" name="BC TX">
        <TxRxModeRef serial="XHQ:COM:TR:123" modeName="VOICE" txMode="HIGH POWER"/>
        <AntModeRef serial="XHQ:COM:AN:456" antMode="1234"/>
    </Config>
    <Config stnClass="ML" name="BC RX">
        <TxRxModeRef serial="XHQ:COM:TR:345" modeName="VOICE" txMode="HIGH POWER"/>
        <AntModeRef serial="XHQ:COM:AN:456" antMode="1234"/>
    </Config>
    <Station name="BC TX">
        <StationLoc serial="BEL:AR:LT:123"/>
    </Station>
    <Station name="BC RX1">
        <StationLoc serial="BEL:AR:LT:124" radius="46"/>
    </Station>
    <Station name="BC RX2">
        <StationLoc serial="F:AR:LT:125" radius="93"/>
    </Station>

```

```
<Link name="LINK1">
  <Freq>
    <FreqSingle>15.000</FreqSingle>
  </Freq>
  <TxStation configRef="BC TX" stationRef="BC TX"/>
  <RxStation configRef="BC RX" stationRef="BC RX1"/>
  <RxStation configRef="BC RX" stationRef="BC RX2"/>
</Link>
</AsgnAllot>
```

DRAFT

## 2. Assignment for Simplex Operation

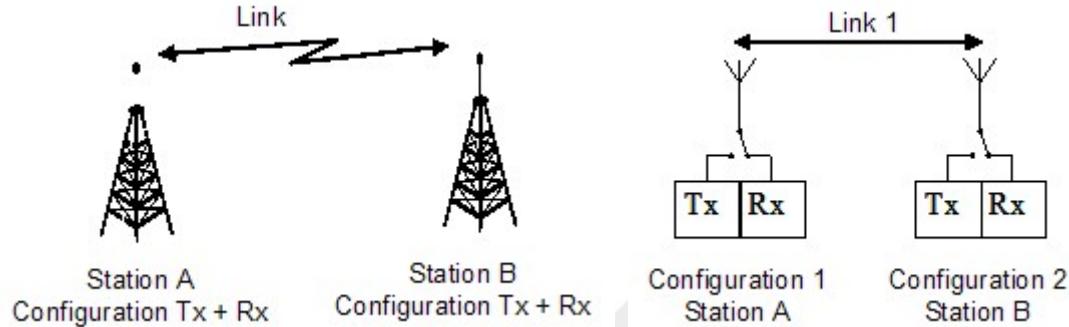


Figure E-2: Assignment for Simplex Operation

```

<AsgnAllot usageType="A" serial="BEL:AR:AS:070123" entry="2006-09-10">
  <DatasetCls overallCls="U"/>
  <EffDate>2006-09-20T00:00:00Z</EffDate>
  <Expire>2006-10-01T00:00:00Z</Expire>
  <ContactOrgRef type="USER">
    <OrganisationRef serial="BEL::OR:123"/>
  </ContactOrgRef>
  <ContactOrgRef type="OWNER">
    <OrganisationRef serial="BEL:AR:OR:456"/>
  </ContactOrgRef>
  <Status state="ORIGINATED BY" byContact="BEL:AR:CN:123" dateTime="2006-09-
19T00:00:00Z"></Status>
  <AsgnType category="HF"/>
  <ResponseDate>2006-09-15</ResponseDate>
  <Time period="H24"/>
  <FnctID>110000000</FnctID>
  <Config stnClass="FB" name="HF SIMPLEX">
    <TxRxModeRef serial="SMB::TR:123" txMode="MODE1"/>
    <AntModeRef serial="SMB::AN:123" antMode="1234"/>
  </Config>
  <Station name="Station1">
    <StationLoc serial="BEL:AR:LT:123"/>
  </Station>
  <Station name="Station2">
    <StationLoc serial="BEL:AR:LT:456"/>
  </Station>
  <Link name="LINK1">
    <Freq>
      <FreqSingle>15.000</FreqSingle>
    </Freq>
    <TxRxStation stationRef="Station1" configRef="HF SIMPLEX"/>
    <TxRxStation stationRef="Station2" configRef="HF SIMPLEX"/>
  </Link>
</AsgnAllot>

```

### 3. Assignment for A/G/A simplex operation

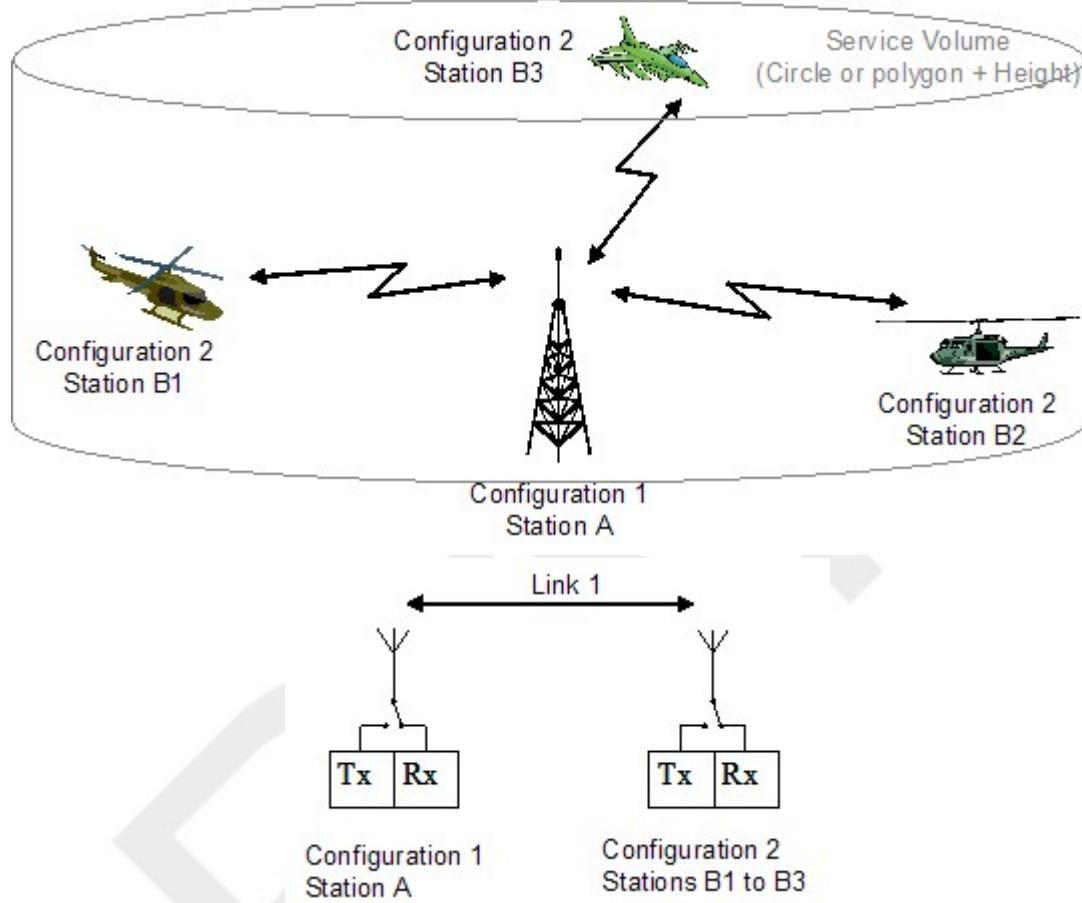


Figure E-3: Assignment for A/G/A simplex operation

```

<AsgnAllot usageType="T" serial="BEL:AF:AS:060025" entry="2008-01-01">
  <DatasetCls overallCls="U"/>
  <EffDate>2006-09-20T00:00:00Z</EffDate>
  <Expire>2006-10-01T00:00:00Z</Expire>
  <ContactOrgRef type="OWNER">
    <ContactRef serial="BEL::CN:123"/>
  </ContactOrgRef>
  <Status state="ORIGINATED BY" byContact="BEL:AF:CN:123" dateTime="2006-09-
  19T00:00:00Z"/>
  <Project type="X" name="AGA1"/>
  <Remarks>AGA SIMPLEX OPERATION</Remarks>
  <Remarks xpath=".../Config[1]">CONFIG FIXED STATION ALPHA(TOWER)</Remarks>
  <Remarks xpath=".../Link[1]">LINK SIMPLEX BETWEEN ALL STATIONS.</Remarks>
  <AsgnType category="UHFAMS" resource="UHFAMS" />
  <ResponseDate>2006-09-15</ResponseDate>
  <Time period="HX"/>
  <FnctID major="XXX"/>
  <Config stnClass="FA" name="CONFIG1">
    <TxRxModeRef serial="XSMB::TR:234" modeName="MODE1" txMode="POWER1" />
    <AntModeRef serial="XSMB::AN:345" antMode="1234" />
  </Config>
  <Station name="STATION1">
    <StationLoc serial="BEL:AF:LT:123">
      <SrvVolume serial="BEL:AF:LT:123" height="15000" radius="46" />
    </StationLoc>
  </Station>
</AsgnAllot>

```

```
</Station>
<Link name="LINK1">
    <Tuning tuningStep="0.025" numFreqs="1"/>
    <Freq status="1">
        <FreqSingle>316.2</FreqSingle>
    </Freq>
    <TxRxStation stationRef="STATION1" configRef="CONFIG1" />
</Link>
</AsgnAllot>
```

#### 4. Assignment for pooled A/G/A simplex operation

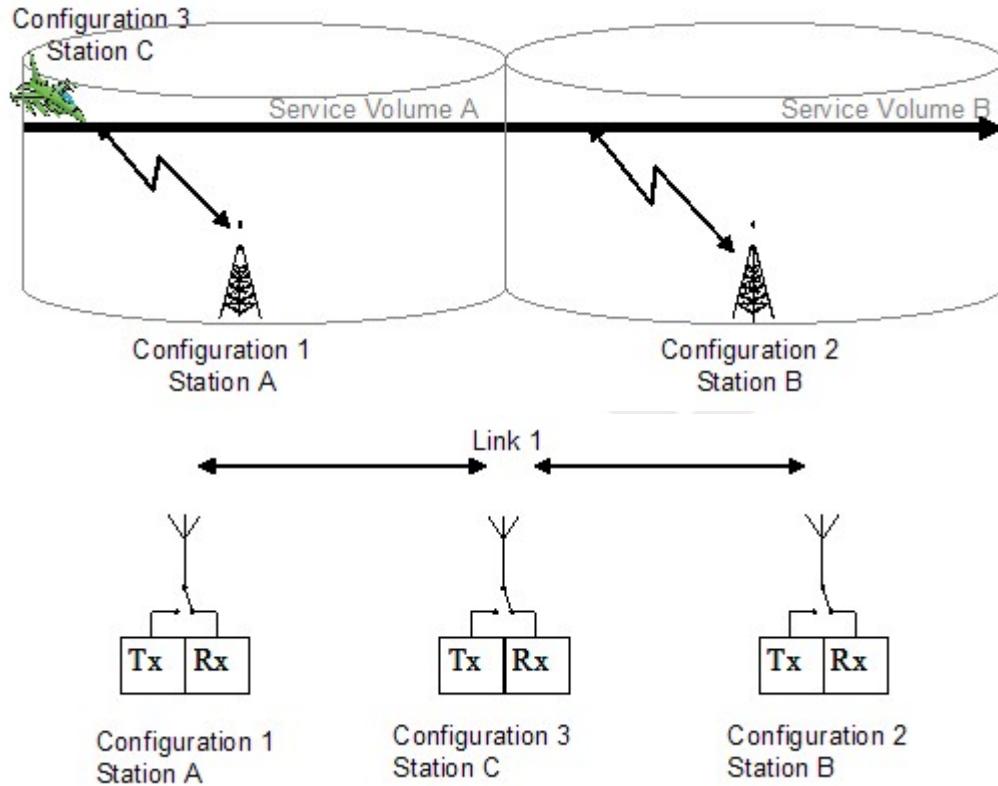


Figure E-4: Assignment for pooled A/G/A simplex operation

```

<AsgnAllot usageType="T" serial="BEL:AF:AS:060026" entry="2008-01-01">
  <DatasetCls overallCls="U"/>
  <EffDate>2006-09-20T00:00:00Z</EffDate>
  <Expire>2006-10-01T00:00:00Z</Expire>
  <ContactOrgRef type="OWNER">
    <ContactRef serial="BEL::CN:123"/>
  </ContactOrgRef>
  <Status state="ORIGINATED BY" byContact="BEL:AF:CN:123" dateTime="2006-09-
  19T00:00:00Z"/>
  <Project type="X" name="AGA POOLED"/>
  <Remarks>POOLED AGA SIMPLEX OPERATION</Remarks>
  <Remarks xpath=".../Config[1]">CONFIG FIXED STATION ALPHA</Remarks>
  <Remarks xpath=".../Config[2]">CONFIG FIXED STATION BRAVO</Remarks>
  <Remarks xpath=".../Link">POOLED ASSIGNMENT WITH TWO GROUND STATION ALPHA AND BRAVO.</
  Remarks>
  <AsgnType category="UHFAMS" resource="UHFAMS" />
  <ResponseDate>2006-09-15</ResponseDate>
  <Time period="HX" />
  <FnctID major="XXX" />
  <Config stnClass="FA" name="CONFIG1">
    <TxRxModeRef serial="XSMB::TR:234" modeName="MODE1" txMode="POWER1" />
    <AntModeRef serial="XSMB::AN:345" antMode="1234" />
  </Config>
  <Config stnClass="FA" name="CONFIG2">
    <TxRxModeRef serial="XSMB::TR:234" modeName="MODE2" txMode="POWER3" />
    <AntModeRef serial="XSMB::AN:345" antMode="1234" />
  </Config>
  <Station name="STATION1">
    <StationLoc serial="BEL:AF:LT:123">
      <SrvVolume serial="BEL:AF:LT:123" height="15000" radius="111" />
    </StationLoc>
  </Station>
</AsgnAllot>

```

```
</StationLoc>
<CositeSep>0.5</CositeSep>
</Station>
<Station name="STATION2">
    <StationLoc serial="BEL:AF:LT:456">
        <SrvVolume serial="BEL:AF:LT:456" height="15000" radius="111"/>
    </StationLoc>
    <CositeSep>0.5</CositeSep>
</Station>
<Link name="HOL001">
    <Tuning tuningStep="0.025" numFreqs="1"/>
    <Freq status="1">
        <FreqSingle>355.125</FreqSingle>
    </Freq>
    <TxRxStation configRef="CONFIG1" stationRef="STATION1"/>
    <TxRxStation configRef="CONFIG2" stationRef="STATION2"/>
</Link>
</AsgnAllot>
```

## 5. Assignment for HF day and night

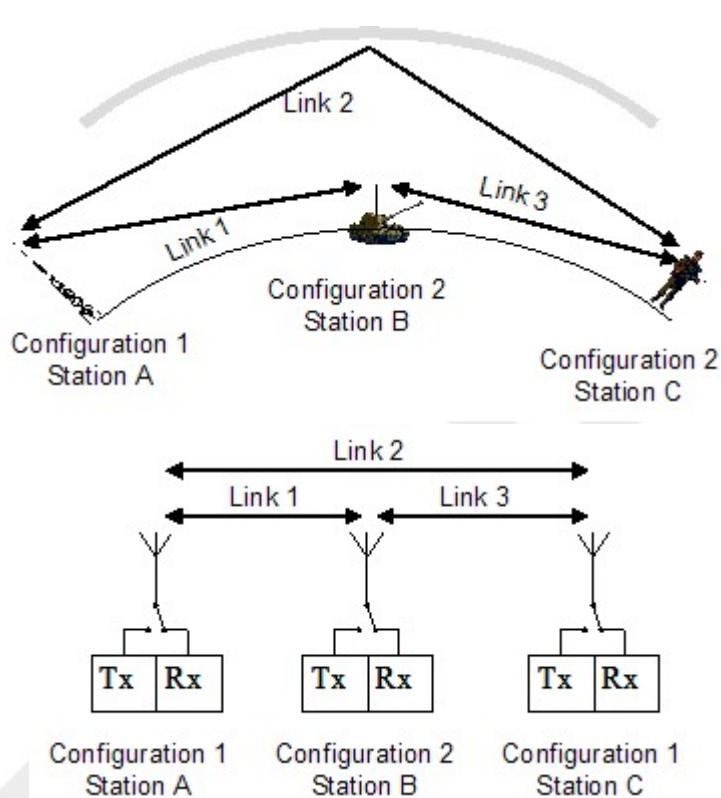


Figure E-5: Assignment for HF day and night

```

<AsgnAllot usageType="S" serial="BEL:AR:AS:060027" entry="2008-01-01">
  <DatasetCls overallCls="U"/>
  <Handling>B</Handling>
  <EffDate>2006-09-20T00:00:00Z</EffDate>
  <Expire>2006-10-01T00:00:00Z</Expire>
  <ContactOrgRef type="USER">
    <OrganisationRef serial="BEL:AR:OR:123"/>
  </ContactOrgRef>
  <ContactOrgRef type="OWNER">
    <OrganisationRef serial="BEL::OR:345"/>
  </ContactOrgRef>
  <Status dateTime="2006-01-01T00:00:00Z" state="ORIGINATED BY" byContact="BEL:AR:
  CN:123"/>
  <ExtRef serial="BEL:AR:EX:456"/>
  <Project type="X" name="HF SIMPLEX"/>
  <Remarks>HF SIMPLEX OPERATION DAY AND NIGHT TIME GROUNDWAVE AND SKYWAVE</Remarks>
  <Remarks xpath="..//Config[1]">CONFIG FIXED STATION ALPHA.</Remarks>
  <Remarks xpath="..//Config[2]">CONFIG MOBILES STATIONS BRAVO AND CHARLIE.</Remarks>
  <Remarks xpath="..//Link[1]">LINK FROM FIXED STATION TO MOBILE STATION 1. ONE DAY AND
  ONE NIGHT FREQUENCIES</Remarks>
  <Remarks xpath="..//Link[2]">LINK FROM FIXED STATION TO MOBILE STATION 2. TWO DAY AND
  TWO NIGHT FREQUENCIES</Remarks>
  <Remarks xpath="..//Link[3]">LINK FROM MOBILE STATION 1 TO MOBILE STATION 2. ONE DAY
  AND ONE NIGHT FREQUENCIES</Remarks>
  <AsgnType category="HF"/>
  <ResponseDate>2006-09-01</ResponseDate>
  <Time period="HX"/>
  <FnctID major="XXX"/>
  <Config stnClass="FX" name="CONFIG1">
    <TxRxModeRef serial="XSMB::TR:123" modeName="MODE1" txMode="POWER1"/>
    <AntModeRef serial="XSMB::AN:123" antMode="1234"/>
  </Config>

```

```
<Config stnClass="ML" name="CONFIG2">
    <TxRxModeRef serial="XSMB::TR:333" modeName="MODE1" txMode="POWER1"/>
    <AntModeRef serial="XSMB::AN:123" antMode="1234"/>
</Config>
<Station name="STATION FX">
    <StationLoc serial="BEL:AR:LT:123" />
    <CositeSep>0.1</CositeSep>
</Station>
<Station name="STATION MOB 1">
    <StationLoc serial="BEL:AR:LT:124" radius="74" />
</Station>
<Station name="STATION MOB 2" callSign="BRAVO">
    <StationLoc serial="BEL:AR:LT:125" radius="111" />
</Station>
<Link name="LINK1">
    <Freq>
        <FreqSingle refFreq="18.4985">18.500</FreqSingle>
    </Freq>
    <Freq>
        <FreqSingle refFreq="6.7490">6.7505</FreqSingle>
    </Freq>
    <TxRxStation configRef="CONFIG1" stationRef="STATION FX"/>
    <TxRxStation configRef="CONFIG2" stationRef="STATION MOB 1"/>
</Link>
<Link name="LINK2">
    <Freq>
        <FreqSingle refFreq="17.4990">17.5005</FreqSingle>
    </Freq>
    <Freq>
        <FreqSingle refFreq="16.1235">16.125</FreqSingle>
    </Freq>
    <Freq>
        <FreqSingle refFreq="4.4985">4.500</FreqSingle>
    </Freq>
    <Freq>
        <FreqSingle refFreq="3.6805">3.682</FreqSingle>
    </Freq>
    <TxRxStation configRef="CONFIG1" stationRef="STATION FX"/>
    <TxRxStation configRef="CONFIG2" stationRef="STATION MOB 2"/>
</Link>
<Link name="LINK3">
    <Freq>
        <FreqSingle refFreq="19.5185">19.520</FreqSingle>
    </Freq>
    <Freq>
        <FreqSingle refFreq="3.6965">3.698</FreqSingle>
    </Freq>
    <TxRxStation configRef="CONFIG2" stationRef="STATION MOB 1"/>
    <TxRxStation configRef="CONFIG2" stationRef="STATION MOB 2"/>
</Link>
</AsgnAllot>
```

## 6. Assignment for Forward relays simplex operation (with notified frequencies)

In this example, Belgium is requesting an assignment to Germany, and Germany notifies the requested frequencies.

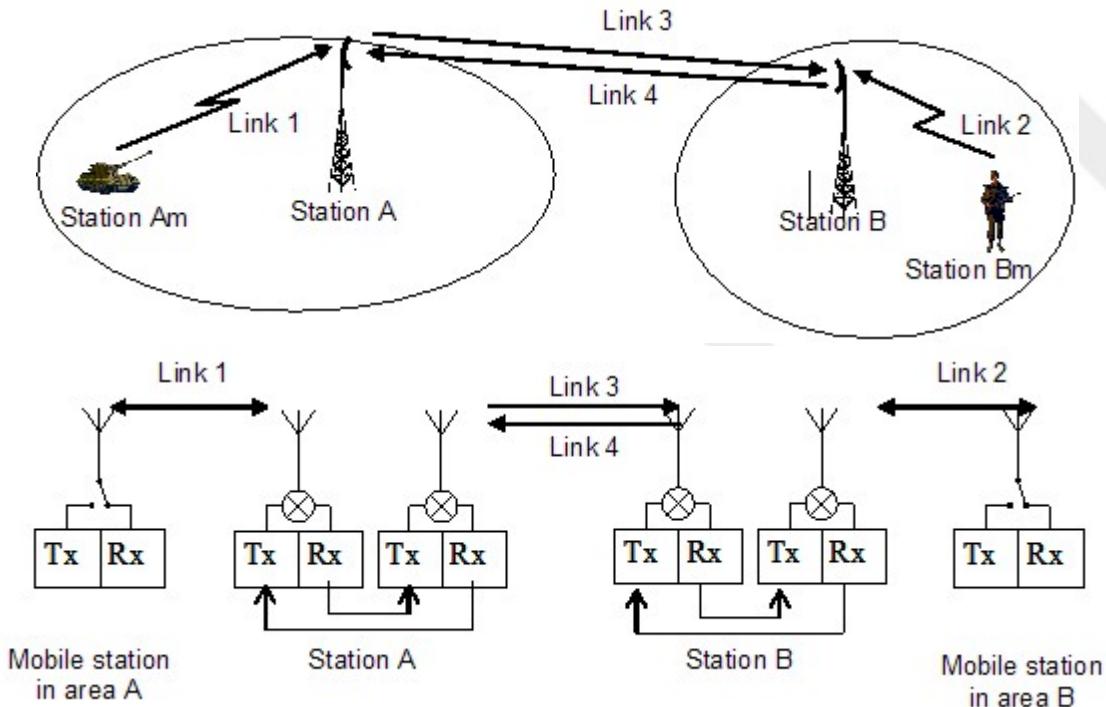


Figure E-6: Assignment for Forward relays simplex operation

```

<AsgnAllot serial="BEL:AR:AS:060023" usageType="A" entry="2008-01-01">
    <DatasetCls overallCls="U"/>
    <EffDate>2006-09-20T00:00:00Z</EffDate>
    <Expire>2006-10-01T00:00:00Z</Expire>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="BEL:MOD:CN:123" />
    </ContactOrgRef>
    <ContactOrgRef type="USER">
        <ContactRef serial="BEL:AR:CN:124" />
    </ContactOrgRef>
    <Status state="ORIGINATED BY" byContact="BEL:AR:CN:123" dateTIme="2006-09-
19T12:34:56.789Z" />
    <Remarks xpath=".../Config[1]">CONFIG RELAY STATION ALPHA AND BRAVO</Remarks>
    <Remarks xpath=".../Config[2]">CONFIG STATION Am</Remarks>
    <Remarks xpath=".../Config[3]">CONFIG STATION Bm</Remarks>
    <Remarks xpath=".../Link[1]">SIMPLEX LINK BETWEEN MOBILE STATION ALPHA MIKE AND BASE
STATION ALPHA</Remarks>
    <Remarks xpath=".../Link[2]">RADIO RELAY DUPLEX LINK BETWEEN STATIONS ALPHA AND BRAVO</
Remarks>
    <Remarks xpath=".../Link[3]">SIMPLEX LINK BETWEEN MOBILE STATION BRAVO MIKE AND BASE
STATION BRAVO</Remarks>
    <AsgnType category="OTHER" />
    <ResponseDate>2006-09-10</ResponseDate>
    <Time period="H24" />
    <FnctID major="XXX" />
    <Config stnClass="FB" name="CONFIG1">
        <TxRxModeRef serial="XHQ::TR:123" modeName="MODEL" txMode="POWER1" />
        <AntModeRef serial="XHQ::AN:123" antMode="1234" />
    </Config>

```

```

<Config stnClass="ML" name="CONFIG2">
    <TxRxModeRef serial="XHQ::TR:124" modeName="MODEL" txMode="POWER1"/>
    <AntModeRef serial="XHQ::AN:124" antMode="1234"/>
</Config>
<Config stnClass="ML" name="CONFIG3">
    <TxRxModeRef serial="XHQ::TR:124" modeName="MODEL" txMode="POWER1"/>
    <AntModeRef serial="XHQ::AN:124" antMode="1234"/>
</Config>
<Station name="STATION FX A" callSign="ALPHA">
    <StationLoc serial="BEL:AR:LT:123"/>
    <CositeSep>0.1</CositeSep>
</Station>
<Station name="STATION FX B" callSign="BRAVO">
    <StationLoc serial="BEL:AR:LT:124"/>
    <CositeSep>0.1</CositeSep>
</Station>
<Station name="STATION MOB A" callSign="ALPHA MIKE">
    <StationLoc serial="BEL:AR:LT:123" radius="27"/>
</Station>
<Station name="STATION MOB B" callSign="BRAVO MIKE">
    <StationLoc serial="BEL:AR:LT:124" radius="111"/>
</Station>
<Link name="LINK AM TO A">
    <Tuning tuningStep="0.025" numFreqs="1"/>
    <Freq>
        <FreqSingle>86.5</FreqSingle>
    </Freq>
    <TxRxStation configRef="CONFIG1" stationRef="STATION FX A"/>
    <TxRxStation configRef="CONFIG2" stationRef="STATION MOB A"/>
</Link>
<Link name="LINK A B">
    <Freq>
        <FreqSingle>4425</FreqSingle>
    </Freq>
    <TxStation configRef="CONFIG1" stationRef="STATION FX A">
        <Pointing>
            <Azimuth minAz="90"/>
        </Pointing>
    </TxStation>
    <RxStation configRef="CONFIG1" stationRef="STATION FX B"/>
</Link>
<Link name="LINK B A">
    <Freq>
        <FreqSingle>4825</FreqSingle>
    </Freq>
    <TxStation configRef="CONFIG1" stationRef="STATION FX B">
        <Pointing>
            <Azimuth minAz="270"/>
        </Pointing>
    </TxStation>
    <RxStation configRef="CONFIG1" stationRef="STATION FX A"/>
</Link>
<Link name="LINK BM TO B">
    <Freq>
        <FreqSingle>37.500</FreqSingle>
    </Freq>
    <Freq>
        <FreqSingle>123</FreqSingle>
    </Freq>
    <TxRxStation configRef="CONFIG1" stationRef="STATION FX B"/>
    <TxRxStation configRef="CONFIG3" stationRef="STATION MOB B"/>
</Link>
</AsgnAllot>

```

## 7. Spectrum Supportability and Reply datasets

Dataset to be coordinated by the United States with foreign nations belonging to NATO, and response from Germany.

```

<ExtReference type="TECH" serial="USA:AF:EX:45123" entry="2008-01-01">
    <DatasetCls overallCls="U"></DatasetCls>
    <EffDate>2000-01-01T00:00:00Z</EffDate>
    <Review>2010-01-01T00:00:00Z</Review>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="USA:AF:CN:12345"/>
    </ContactOrgRef>
    <Status state="IMPORTED BY" byContact="USA:CN:JA:12345" dateTime="2000-01-
01T00:00:00Z"/>
    <Attachment mimeType="application/pdf">USA:AF:EX:45123.pdf</Attachment>
</ExtReference>

<SSRequest serial="USA:AF:SR:EC/06720/1" usageType="S" stage="4" entry="2008-01-01">
    <DatasetCls overallCls="U"/>
    <Handling>B</Handling>
    <EffDate>2002-05-30T00:00:00Z</EffDate>
    <Review>2012-05-30T00:00:00Z</Review>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="USA:AF:CN:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="GATEWAY">
        <ContactRef serial="USA::CN:124"/>
    </ContactOrgRef>
    <Status state="ORIGINATED BY" byContact="USA:AF:CN:123" dateTime="2006-01-
01T00:00:00Z"/>
    <ExtRef serial="USA:AF:EX:45123"/>
    <Remarks>This application describes an unmodified Commercial, Off-the-Shelf (COTS) requirement. The information is furnished upon the condition that:
(a) it will not be released to another nation without specific authority of the Department of the Air Force of the United States.
(b) it will be used for military purposes only
(c) individual or corporate rights originating the information, whether patented or not, will be respected.
(d) the recipient will report promptly to the United States any known or suspected compromise.
(e) the information will be provided substantially the same degree of security afforded it by DoD of the United States.</Remarks>
    <ResponseDate>2002-02-20</ResponseDate>
    <Title>AN/ARC-164(V), RT-1504</Title>
    <Stage num="4"/>
    <NumUnits numArea="1"/>
    <Description>Provides UHF Voice communications with Air Traffic Control (ATC) facility. Provides air-to-air, air-to-ground, and air-to-ship UHF Voice and data communications. AM VOICE, AMMCW TONE, NARROWBAND AND WIDEBAND DATA</Description>
    <Requirement>TBD</Requirement>
    <HostNation>D</HostNation>
    <Config name="Config 1" stnClass="AL">
        <TxRxModeRef serial="USA:AF:TR:123" modeName="MODE 1" />
        <AntModeRef serial="USA:AF:AN:124"/>
    </Config>
    <Config name="Config 2" stnClass="AL">
        <TxRxModeRef serial="USA:AF:TR:123" modeName="MODE 2" />
        <AntModeRef serial="USA:AF:AN:124"/>
    </Config>
    <Config name="Config 3" stnClass="AL">
        <TxRxModeRef serial="USA:AF:TR:123" modeName="MODE 3" />
        <AntModeRef serial="USA:AF:AN:124"/>
    </Config>
    <LocationRef serial="D:MOD:LG:125" />
</SSRequest>

<SSReply usageType="S" serial="D:MOD:HD:EC/06720/1" status="C" entry="2008-01-01">
    <DatasetCls overallCls="U"/>
    <EffDate>2007-05-30T00:00:00Z</EffDate>
    <Review>2012-05-30T00:00:00Z</Review>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="D:AF:CN:123"/>
    </ContactOrgRef>
```

```
<ContactOrgRef type="GATEWAY">
    <ContactRef serial="D:MOD:CN:124" />
</ContactOrgRef>
<Status state="APPROVED BY" byContact="D:MOD:CN:1" dateTime="2006-01-01T15:30:00Z" />
<SSRequestRef type="REQ" serial="USA:AF:SR:EC/06720/1" />
<HostNationConstraints>
    <Config stnClass="AL" name="1">
        <TxRxModeRef serial="USA::TR:123" modeName="MODE 1" />
        <EIRP maxEIRP="-1" />
    </Config>
</HostNationConstraints>
</SSReply>
```

## 8. SignalDescr and TxRx datasets

This example shows a Signal Description, and a transceiver which is compliant with this Signal Description.

```

<SignalDescr serial="USA:AF:SD:EC/06720/1" usageType="S" entry="2008-01-01">
    <DatasetCls overallCls="C"/>
    <Handling>B</Handling>
    <EffDate>2002-05-30T00:00:00Z</EffDate>
    <Review>2012-05-30T00:00:00Z</Review>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="USA:AF:CN:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="PM">
        <ContactRef serial="USA::CN:124"/>
    </ContactOrgRef>
    <Status state="ORIGINATED BY" byContact="USA:AF:CN:123" dateTime="2006-01-01T00:00:00Z"/>
    <Remarks xpath=".../SignalRx">Oscillator with Controlled Synthesizer
        AM voice, Narrowband and Wideband data, AM-MCW tone, and frequency hopping
        (Have Quick II)</Remarks>
    <Title>TEST WAVEFORM</Title>
    <SignalTuning tunability="S" tuningStep="0.025">
        <FreqRange minFreq="225" maxFreq="399.975"/>
    </SignalTuning>
    <FreqTolerance>0.1</FreqTolerance>
    <EqpFnct>C</EqpFnct>
    <TxRxMode modeName="MODE 1">
        <EmsDesignator emsClass="A3E" bandwidth="7K00"/>
        <Modulation maxBitRate ="16000"/>
        <SpreadSpectrum type="2"/>
        <OccupiedBw minBw="0.007"/>
        <TxMode txMode="MODE 1" descr="AM voice, AM-MCW tone, narrowband data">
            <Curve type="RFSPCT" origin="M" freqConst="0" freqFactor="0">
                <CurvePoint offset="0.007" level="-3"/>
                <CurvePoint offset="0.012" level="-20"/>
                <CurvePoint offset="0.032" level="-60"/>
            </Curve>
            <Power minPower="10" powerType="M" calc="C"/>
        </TxMode>
        <RxMode rxMode="MODE 1" descr="AM voice, AM-MCW tone, narrowband data">
            <PostDetectionFreq minFreq="0" maxFreq="0.012"/>
        </RxMode>
    </TxRxMode>
    <TxRxMode modeName="MODE 2">
        <EmsDesignator emsClass="A1D" bandwidth="25K0"/>
        <OccupiedBw minBw="0.025"/>
        <TxMode txMode="MODE 2" descr="Wideband data">
            <Curve type="RFSPCT" origin="M" freqConst="0" freqFactor="0">
                <CurvePoint offset="0.025" level="-3"/>
                <CurvePoint offset="0.028" level="-20"/>
                <CurvePoint offset="0.035" level="-60"/>
            </Curve>
            <Power powerType="M" calc="C" minPower="0"/>
        </TxMode>
        <RxMode rxMode="MODE 2" descr="Wideband data">
            <PostDetectionFreq minFreq="0" maxFreq="0.012"/>
        </RxMode>
    </TxRxMode>
    <TxRxMode modeName="MODE 3">
        <EmsDesignator emsClass="A1D" bandwidth="40K0"/>
        <OccupiedBw minBw="0.040"/>
        <TxMode txMode="MODE 3" descr="frequency hopping (Have Quick II)">
            <Curve type="RFSPCT" origin="M" freqConst="0" freqFactor="0">
                <CurvePoint offset="0.04" level="-3"/>
                <CurvePoint offset="0.058" level="-20"/>
                <CurvePoint offset="0.1" level="-60"/>
            </Curve>
            <Power powerType="M" calc="X" minPower="0"/>
        </TxMode>
        <RxMode rxMode="MODE 3" descr="frequency hopping (Have Quick II)">
            <PostDetectionFreq minFreq="0" maxFreq="0.012"/>
        </RxMode>
    </TxRxMode>

```

```

        <Sensitivity level="-95" noiseFigure="8">
            <SensitivityCriterion type="SN">10</SensitivityCriterion>
        </Sensitivity>
    </RxMode>
</TxRxMode>
<SignalTx>
    <Curve type="TXHARM" origin="M" freqConst="0" freqFactor="2">
        <CurvePoint offset="0" level="-66"/>
    </Curve>
    <Curve type="TXHARM" origin="M" freqConst="0" freqFactor="3">
        <CurvePoint offset="0" level="-66"/>
    </Curve>
    <Curve type="TXSPUR" origin="M" freqConst="0" freqFactor="1">
        <CurvePoint cls="C" offset="0" level="-66"/>
    </Curve>
</SignalTx>
<SignalRx>
    <Curve type="RFSEL" origin="M" freqConst="0" freqFactor="2">
        <CurvePoint offset="6000000" level="-3"/>
        <CurvePoint offset="26000000" level="-20"/>
        <CurvePoint offset="152000000" level="-60"/>
    </Curve>
    <Curve type="IFSEL1" origin="M" freqFactor="0" freqConst="70">
        <CurvePoint offset="50000" level="-3"/>
        <CurvePoint offset="150000" level="-40"/>
        <CurvePoint offset="250000" level="-60"/>
    </Curve>
    <Curve type="IFSEL2" origin="M" freqFactor="0" freqConst="30">
        <CurvePoint offset="24000" level="-3"/>
        <CurvePoint offset="50000" level="-50"/>
        <CurvePoint offset="140000" level="-60"/>
    </Curve>
    <Curve type="RXRESP" origin="M" freqFactor="0" freqConst="0">
        <CurvePoint offset="0" level="-66"/>
    </Curve>
    <Curve type="RXIMAG" origin="M" freqFactor="0" freqConst="0">
        <CurvePoint offset="0" level="66"/>
    </Curve>
    <IFreq IFNum="1" tuning="E">
        <FreqSingle>70</FreqSingle>
    </IFreq>
    <IFreq IFNum="2" tuning="B">
        <FreqSingle>30</FreqSingle>
    </IFreq>
</SignalRx>
</SignalDescr>

<TxRx serial="USA:AF:TR:EC/06720/1" usageType="S" entry="2008-01-01">
    <DatasetCls overallCls="U"/>
    <Handling>B</Handling>
    <EffDate>2002-05-30T00:00:00Z</EffDate>
    <Review>2012-05-30T00:00:00Z</Review>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="USA:AF:CN:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="PM">
        <ContactRef serial="USA::CN:124"/>
    </ContactOrgRef>
    <Status state="ORIGINATED BY" byContact="USA:AF:CN:123" dateTime="2006-01-01T00:00:00Z"/>
    <Remarks>output device = Class C Amplifier RF Bipolar transistors</Remarks>
    <Nomenclature type="MIL" level="P">
        <NomenclatureName>AN/ARC-164(V)</NomenclatureName>
    </Nomenclature>
    <Nomenclature type="CIV" level="P">
        <NomenclatureName>RT-1504</NomenclatureName>
    </Nomenclature>
    <Deployment type="A">
        <Installation>various aircraft</Installation>
    </Deployment>
    <SignalDescrRef serial="USA:AF:SD:EC/06720"/>
    <TxRxMode modeName="MODE 2">
        <EmsDesignator emsClass="A1D" bandwidth="25K0" />
    </TxRxMode>
    <Transmitter>
        <OutputDevice type="Z" />
    </Transmitter>

```

```
</Transmitter>
<Receiver>
    <PreselectionType>Three tuned RF circuits and low pass filters</
PreselectionType>
    </Receiver>
</TxRx>
```

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## 9. Antenna datasets

Two antenna datasets to be coordinated by the United States with foreign nations. They are related to the Supportability package contained in example 7.

```

<Antenna serial="USA:AF:AN:EC06720" usageType="S" motionType="ND" entry="2008-01-01">
    <Action>N</Action>
    <DatasetCls overallCls="U"/>
    <Handling>B</Handling>
    <EffDate>2002-05-30T00:00:00Z</EffDate>
    <Expire>2012-05-30T00:00:00Z</Expire>
    <ContactOrgRef type="USER">
        <ContactRef serial="USA:AF:CN:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="OWNER">
        <OrganisationRef serial="USA:DOD:OR:124"/>
    </ContactOrgRef>
    <Status dateTime="2006-01-01T00:00:00Z" state="ORIGINATED BY" byRole="USA:AF:JA:123"/>
    <Remarks> This antenna is a one piece glass fiber molding; however, it functions just like a ½ wave monopole.  

    Average gains: GE -25 dBi @ M30, -15 dBi @ M88, -10.5 dBi @ M108-118, -5 dBi @118-174, 0 dBi @ 225-400 and 960-1220  

    This antenna is a multi-functional omni-directional antenna which can be used for VHF, UHF, and TACAN equipment.</Remarks>
    <Nomenclature type="CIV" level="A">
        <NomenclatureName>P/N 20-200-45</NomenclatureName>
        <Manufacturer code="02850"/>
    </Nomenclature>
    <AntType>LSB</AntType >
    <AntMode code="1234">
        <Gain minGain="-25"/>
        <Pol type="V"/>
        <Beamwidth minHorz=" 200" maxHorz=" 300" minVert=" 90"/>
        <FreqRange minFreq=" 960" maxFreq=" 1220"/>
        <Rotation code="Y" minRate=" 20" maxRate=" 30"/>
    </AntMode>
    <AntMode code="1235">
        <Gain minGain="-25"/>
        <Pol type="V"/>
        <Beamwidth minHorz=" 360" minVert=" 90"/>
        <FreqRange minFreq=" 960" maxFreq=" 1220"/>
    </AntMode>
</Antenna>

<Antenna serial="USA:AF:AN:EC06720:2" usageType="S" motionType="ND" entry="2008-01-01">
    <Action>N</Action>
    <DatasetCls overallCls="U"/>
    <Handling>B</Handling>
    <EffDate>2002-05-30T00:00:00Z</EffDate>
    <Expire>2012-05-30T00:00:00Z</Expire>
    <ContactOrgRef type="USER">
        <OrganisationRef serial="USA:AF:OR:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="OWNER">
        <OrganisationRef serial="USA:DOD:OR:124"/>
    </ContactOrgRef>
    <Status dateTime="2006-01-01T00:00:00Z" state="ORIGINATED BY" byContact="USA:AF:CN:123"/>
    <Remarks> The top antenna has 4 dBi gain at +30 degrees elevation and the bottom antenna has 4 dBi gain at -30 degrees elevation. The top antenna has a vertical beamwidth of 0 to +50 degrees and a bottom antenna has a vertical beamwidth of 0 to -50 degrees</Remarks>
    <Nomenclature type="CIV" level="P">
        <NomenclatureName>P/N 20-200-45</NomenclatureName>
        <Manufacturer code="13520"/>
    </Nomenclature>
    <FreqRange minFreq=" 225" maxFreq=" 420"/>
    <AntType>LSB</AntType >
    <AntMode code="2345">
        <Gain minGain="-25"/>
        <Pol type="V"/>
        <Beamwidth minHorz=" 360" minVert=" 90"/>
    </AntMode>
</Antenna>
```

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## 10. Location datasets

### 10.1 New Point

```
<Location name="ORLY" usageType="T" serial="F:AF:LT:123" entry="2006-06-20">
    <DatasetCls overallCls="U"/>
    <EffDate>2006-06-20T00:00:00Z</EffDate>
    <Review>2016-06-20T00:00:00Z</Review>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="F:AF:CN:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="GATEWAY">
        <ContactRef serial="F::CN:124"/>
    </ContactOrgRef>
    <Status state="ORIGINATED BY" byContact="F:AF:CN:123" dateTime="2006-05-20T13:30:00Z"/>
    <Address country="F" cityArea="PARIS ORLY"/>
    <Point lon="0010330W" lat="451300N"/>
</Location>
```

### 10.2 New Polygon

```
<Location name="ORLY SECTOR 1" usageType="T" serial="F:AF:LG:124" entry="2006-06-20">
    <DatasetCls overallCls="U"/>
    <EffDate>2006-06-20T00:00:00Z</EffDate>
    <Review>2016-06-20T00:00:00Z</Review>
    <ContactOrgRef type="OWNER">
        <ContactRef serial="F:AF:CN:123"/>
    </ContactOrgRef>
    <ContactOrgRef type="GATEWAY">
        <ContactRef serial="F::CN:124"/>
    </ContactOrgRef>
    <Status state="ORIGINATED BY" byContact="F:AF:CN:123" dateTime="2006-05-20T13:30:00Z"/>
    <Address country="F" cityArea="PARIS ORLY"/>
    <Point idx="1" lon="0010330W" lat="451300N"/>
    <Point idx="2" lon="0010230W" lat="451300N"/>
    <Point idx="3" lon="0010230W" lat="451000N"/>
    <Point idx="4" lon="0010330W" lat="451000N"/>
</Location>
```

## F. Fixed Lists

Some data elements have predefined lists of values. In some cases, these lists come from official sources and cannot be changed (e.g. ITU list of countries for Owner.country and Location.country); in other cases, the list of values has been predefined by the SOPWG but new values can be inserted by the users as situation or techniques evolve (e.g. in data elements Manufacturer or AntType). Annex F presents the fixed lists, and Annex G presents the user-expandable lists.

The table below presents a summary of all fixed code lists within SSRF.

List Category	Applies to element
<a href="#">AA</a>	<a href="#">AsgnAllot.type</a> , <a href="#">AsgnAllotRef.type</a>
<a href="#">AC</a>	<a href="#">Action</a>
<a href="#">AD</a>	<a href="#">Antenna.motionType</a>
<a href="#">AF</a>	<a href="#">Antenna.feedType</a>
<a href="#">AL</a>	<a href="#">Antenna.leadType</a>
<a href="#">AO</a>	<a href="#">SSReply</a> , <a href="#">Owner</a> , <a href="#">Licensee</a>
<a href="#">AP</a>	<a href="#">AntPattern.code</a>
<a href="#">AR</a>	<a href="#">AllocApp.accomodationStatus</a>
<a href="#">AU</a>	<a href="#">Antenna.antUse</a> , <a href="#">TxRx.eqpType</a>
<a href="#">AV</a>	<a href="#">AllocVariance.type</a>
<a href="#">BO</a>	<a href="#">Antenna.sectBlanking</a> and all booleans (Y/N)
<a href="#">CA</a>	<a href="#">AsgnType.category</a>
<a href="#">CC</a>	<a href="#">Compartment</a>
<a href="#">CL</a>	<a href="#">DatasetCls</a>
<a href="#">CO</a>	<a href="#">Pointing.coverage</a>
<a href="#">CR</a>	<a href="#">ContactOrgRef.type</a>
<a href="#">CT</a>	<a href="#">Curve.type</a> , <a href="#">EmsMaskStd.curveType</a>
<a href="#">DC</a>	<a href="#">Dictionary.type</a> , <a href="#">ForceElement.descriptorCode</a>
<a href="#">DD</a>	<a href="#">SSRequestRef.type</a>
<a href="#">DE</a>	<a href="#">Deletion.origin</a>
<a href="#">DF</a>	<a href="#">DigitalFormat.pulseFormat</a>
<a href="#">DI</a>	<a href="#">Digest.algorithm</a>
<a href="#">DR</a>	<a href="#">Administrative.reason</a>
<a href="#">DS</a>	<a href="#">DuplexSep.type</a> , <a href="#">FreqSep.type</a>
<a href="#">DT</a>	<a href="#">Dataset.type</a>
<a href="#">EB</a>	<a href="#">Gain.elementType</a>
<a href="#">EE</a>	<a href="#">Expander.function</a>
<a href="#">FC</a>	<a href="#">ForceElement.comp</a>
<a href="#">FD</a>	<a href="#">FEDeployment.type</a>
<a href="#">FE</a>	<a href="#">ForceElement.cat</a>
<a href="#">FM</a>	<a href="#">FM.deviationCode</a>
<a href="#">FN</a>	<a href="#">FnctID</a>
<a href="#">FP</a>	<a href="#">ForceElement.FEType</a>
<a href="#">FR</a>	<a href="#">RelatedOrg.relation</a>
<a href="#">FS</a>	<a href="#">AsgnFreq.status</a>
<a href="#">FT</a>	<a href="#">RelatedOrg.type</a>
<a href="#">GR</a>	<a href="#">GuardRequirements.use</a>

<u>GT</u>	<a href="#">Share.type</a>
<u>HD</u>	<a href="#">SSReply.status</a>
<u>HN</u>	<a href="#">HostNominate</a>
<u>IE</u>	<a href="#">LocationRef.cat</a>
<u>IF</u>	<a href="#">IFreq.IFNum</a>
<u>IM</u>	<a href="#">IntfMitigation.responseType</a>
<u>IN</u>	<a href="#">Deployment</a>
<u>IR</u>	<a href="#">ITURegistration.code</a>
<u>IT</u>	<a href="#">LocationITU</a>
<u>J1</u>	<a href="#">JSIR.reported, IntfMitigation.evaluation</a>
<u>LA</u>	<a href="#">LocationRef, StationLoc, SrvVolume</a>
<u>LC</u>	<a href="#">ForceElement.cmdLevel</a>
<u>LN</u>	<a href="#">Title.lang</a>
<u>LO</u>	<a href="#">IFreq.tuning</a>
<u>LT</u>	<a href="#">Location</a>
<u>LU</u>	<a href="#">Code.cat</a>
<u>MC</u>	<a href="#">ForceElement.missionCode</a>
<u>MO</u>	<a href="#">Modulation.digitalMod, Baseband.signalType</a>
<u>MT</u>	<a href="#">Attachment.mimeType</a>
<u>MV</u>	<a href="#">IFreq.mixerType</a>
<u>NR</u>	<a href="#">AsgnType.resource</a>
<u>NS</u>	<a href="#">StockNum.numType</a>
<u>NU</u>	<a href="#">Nomenclature.level</a>
<u>OP</u>	<a href="#">EmsMaskSpec, EmsPowerLimit.criteria</a>
<u>OR</u>	<a href="#">AntPattern.origin, Curve.origin</a>
<u>OT</u>	<a href="#">OutputDevice.type</a>
<u>PB</u>	<a href="#">Net.protCode</a>
<u>PC</u>	<a href="#">JRFLEntry.protCode</a>
<u>PD</u>	<a href="#">DefPyro.meaning</a>
<u>PI</u>	<a href="#">AsgnAllot.indicator, SSRequest.indicator</a>
<u>PJ</u>	<a href="#">Project.type</a>
<u>PO</u>	<a href="#">Pol.type</a>
<u>PR</u>	<a href="#">AGAProtection.criteria</a>
<u>PS</u>	<a href="#">AllocSvc.svcCategory, AllocVariance.priority</a>
<u>PT</u>	<a href="#">Power.powerType</a>
<u>PY</u>	<a href="#">DefPyro.type</a>
<u>RE</u>	<a href="#">Reference.type</a>
<u>RL</u>	<a href="#">Handling</a>
<u>RT</u>	<a href="#">Receiver.type</a>
<u>S4</u>	<a href="#">Orbit.orbitType [volume IV]</a>
<u>S9</u>	<a href="#">Launch.status [volume IV]</a>
<u>SC</u>	<a href="#">Config.stnClass</a>
<u>SD</u>	<a href="#">DefSmoke.meaning</a>
<u>SE</u>	<a href="#">SensitivityCriterion</a>
<u>SG</u>	<a href="#">SSRequest.stage, Stage.num</a>
<u>SM</u>	<a href="#">DefSmoke.colour</a>
<u>SN</u>	<a href="#">AllocVariance.radioService, ServiceUse, Stage4Srv</a>
<u>SR</u>	<a href="#">ForceElement.role</a>

<u>SS</u>	<a href="#">SpreadSpectrum.type</a>
<u>ST</u>	<a href="#">Status.stat</a>
<u>SU</u>	<a href="#">Suffix.function</a>
<u>SV</u>	<a href="#">Config.srvNature</a>
<u>SY</u>	<a href="#">Symbol.type</a>
<u>TA</u>	<a href="#">Attachment.transmit</a>
<u>TE</u>	<a href="#">EMail.emailType</a>
<u>TI</u>	<a href="#">Time.period</a>
<u>TO</u>	<a href="#">Organisation.type</a>
<u>TS</u>	<a href="#">BSMPlan.status</a> , <a href="#">CEOI.status</a> , <a href="#">JRFL.status</a> , <a href="#">JRFLEntry.status</a>
<u>TT</u>	<a href="#">TelephoneFax.numType</a>
<u>TU</u>	<a href="#">SignalTuning.tunability</a>
<u>UT</u>	<a href="#">Common.usageType</a>
<u>VS</u>	<a href="#">IntfMitigation.mod</a>
<u>VT</u>	<a href="#">IntfFEDeploymentRef.type</a>

## Geographical Abbreviations (AN and AO)

This Annex contains those abbreviations that will be used in data elements where a country, a command or an area is referenced. The list of codes have several sources:

- The list of country codes comes from ITU Radio Regulations,
- Some area codes have been agreed internationally (such as AFR for Africa),
- Some area and command codes are defined by NATO,
- Some areas have a national code (such as the States codes for the USA)

**Code List AN** below contains the abbreviations that will be used in [ReleasableTo](#). This list is a subset from [Code List Category AO](#), with geographical entities such as states and islands removed.

Short Code	Source	Definition
ABW	ITU	Aruba
AFG	ITU	Afghanistan (Islamic State of)
AFS	ITU	South Africa (Republic of)
AGL	ITU	Angola (Republic of)
AIA	ITU	Anguilla
ALB	ITU	Albania (Republic of)
ALG	ITU	Algeria (People's Democratic Republic of)
AND	ITU	Andorra (Principality of)
ARG	ITU	Argentine Republic
ARM	ITU	Armenia (Republic of)
ARS	ITU	Saudi Arabia (Kingdom of)
ATA	ITU	Antarctica
ATG	ITU	Antigua and Barbuda
AUS	ITU	Australia
AUT	ITU	Austria
AZE	ITU	Azerbaijani Republic
B	ITU	Brazil (Federative Republic of)
BAH	ITU	Bahamas (Commonwealth of the)
BDI	ITU	Burundi (Republic of)
BEL	ITU	Belgium
BEN	ITU	Benin (Republic of)
BER	ITU	Bermuda
BFA	ITU	Burkina Faso
BGD	ITU	Bangladesh (People's Republic of)
BHR	ITU	Bahrain (State of)
BIH	ITU	Bosnia & Herzegovina (Republic of)
BIO	ITU	British Indian Ocean Territory
BLR	ITU	Belarus (Republic of)
BLZ	ITU	Belize
BOL	ITU	Bolivia (Republic of)
BOT	ITU	Botswana (Republic of)
BRB	ITU	Barbados
BRM	ITU	Myanmar (Union of)
BRU	ITU	Brunei Darussalam
BTN	ITU	Bhutan (Kingdom of)
BUL	ITU	Bulgaria (Republic of)
BVT	ITU	Bouvet Island
CAF	ITU	Central African Republic
CAN	ITU	Canada
CBG	ITU	Cambodia (Kingdom of)
CHL	ITU	Chile (except Easter Island)

CHN	ITU	China (People's Republic of)
CHR	ITU	Christmas Island (Indian Ocean)
CKH	ITU	Cook Islands
CLM	ITU	Colombia (Republic of)
CLN	ITU	Sri Lanka (Democratic Socialist Republic of)
CME	ITU	Cameroon (Republic of)
COD	ITU	Congo (Democratic Republic of the)
COG	ITU	Congo (Republic of the)
COM	ITU	Comoros (Islamic Federal Republic of the)
CPV	ITU	Cape Verde (Republic of)
CTI	ITU	Cote d'Ivoire (Republic of)
CTR	ITU	Costa Rica
CUB	ITU	Cuba
CVA	ITU	Vatican City State
CYM	ITU	Cayman Islands
CYP	ITU	Cyprus (Republic of) (see <a href="#">note 1</a> )
CZE	ITU	Czech Republic
D	ITU	Germany (Federal Republic of)
DGA	ITU	Diego Garcia
DJI	ITU	Djibouti (Republic of)
DMA	ITU	Dominica (Commonwealth of)
DNK	ITU	Denmark
DOM	ITU	Dominican Republic
E	ITU	Spain
EGY	ITU	Egypt (Arab Republic of)
EQA	ITU	Ecuador
ERI	ITU	Eritrea
EST	ITU	Estonia (Republic of)
ETH	ITU	Ethiopia
F	ITU	France
FIN	ITU	Finland
FJI	ITU	Fiji (Republic of)
FLK	ITU	Falkland Islands (Malvinas)
FRO	ITU	Faroe Islands
FSM	ITU	Micronesia (Federated States of) (Kapingamarangi, Kosrae, Lamotrek, Namonuito, Nukuoro, Oroluk, Pohnpei, Truk, Ulithi, Woleai, Yap)
FYR	NATO	The Former Yugoslav Republic of Macedonia (see <a href="#">note 2</a> )
G	ITU	United Kingdom of Great Britain and Northern Ireland
GAB	ITU	Gabonese Republic
GEO	ITU	Georgia (Republic of)
GHA	ITU	Ghana
GIB	ITU	Gibraltar
GMB	ITU	Gambia (Republic of the)
GNB	ITU	Guinea-Bissau (Republic of)
GNE	ITU	Equatorial Guinea (Republic of)
GRC	ITU	Greece
GRD	ITU	Grenada
GTM	ITU	Guatemala (Republic of)
GUF	ITU	Guiana (French Department of)
GUI	ITU	Guinea (Republic of)
GUM	ITU	Guam
GUY	ITU	Guyana
HKG	ITU	Hong Kong
HMD	ITU	Heard and McDonald Islands
HND	ITU	Honduras (Republic of)
HNG	ITU	Hungary (Republic of)
HOL	ITU	Netherlands (Kingdom of the)
HRV	ITU	Croatia (Republic of)

HTI	ITU	Haiti (Republic of)
I	ITU	Italy
ICO	ITU	Cocos Keeling Islands
IND	ITU	India (Republic of)
INS	ITU	Indonesia (Republic of)
IRL	ITU	Ireland
IRN	ITU	Iran (Islamic Republic of)
IRQ	ITU	Iraq (Republic of)
ISL	ITU	Iceland
ISR	ITU	Israel (State of)
J	ITU	Japan (includes Iwo Jima, Marcus Island, Ryu Kyu Islands)
JMC	ITU	Jamaica
JOR	ITU	Jordan (Hashemite Kingdom of)
KAZ	ITU	Kazakhstan (Republic of)
KEN	ITU	Kenya (Republic of)
KGZ	ITU	Kyrgyz Republic
KIR	ITU	Kiribati (Republic of)
KNA	ITU	Saint Kitts and Nevis (Federation of)
KOR	ITU	Korea (Republic of)
KRE	ITU	Democratic People's Republic of Korea
KWT	ITU	Kuwait (State of)
LAO	ITU	Lao People's Democratic Republic
LBN	ITU	Lebanon
LBR	ITU	Liberia (Republic of)
LBY	ITU	Libya (Socialist People's Libyan Arab Jamahiriya)
LCA	ITU	Saint Lucia
LIE	ITU	Liechtenstein (Principality of)
LSO	ITU	Lesotho (Kingdom of)
LTU	ITU	Lithuania (Republic of)
LUX	ITU	Luxembourg
LVA	ITU	Latvia (Republic of)
MAC	ITU	Macao
MAU	ITU	Mauritius (Republic of)
MCO	ITU	Monaco (Principality of)
MDA	ITU	Moldova (Republic of)
MDG	ITU	Madagascar (Democratic Republic of)
MEX	ITU	Mexico
MHL	ITU	Marshall Islands (Republic of the) (Ailinglapalap, Arno, Ebeye, Enewetak, Jaluit, Kwajalein, Majuro, Mili, Roi-Namur, Rongelap)
MLA	ITU	Malaysia
MLD	ITU	Maldives (Republic of)
MLI	ITU	Mali (Republic of)
MLT	ITU	Malta
MNE	ITU	Montenegro (Republic of)
MNG	ITU	Mongolian People's Republic
MOZ	ITU	Mozambique (Republic of)
MRC	ITU	Morocco (Kingdom of)
MSR	ITU	Montserrat
MTN	ITU	Mauritania (Islamic Republic of)
MWI	ITU	Malawi
NCG	ITU	Nicaragua
NCL	ITU	New Caledonia
NFK	ITU	Norfolk Island
NGR	ITU	Niger (Republic of the)
NIG	ITU	Nigeria (Federal Republic of)
NIU	ITU	Niue Island
NMB	ITU	Namibia (Republic of)
NOR	ITU	Norway

NPL	ITU	Nepal
NRU	ITU	Nauru (Republic of)
NZL	ITU	New Zealand
OMA	ITU	Oman (Sultanate of)
PAK	ITU	Pakistan (Islamic Republic of)
PHL	ITU	Philippines (Republic of the)
PLW	ITU	Palau (Republic of)
PNG	ITU	Papua New Guinea
PNR	ITU	Panama (Republic of)
POL	ITU	Poland (Republic of)
POR	ITU	Portugal
PRG	ITU	Paraguay (Republic of)
PRU	ITU	Peru
PSE	ITU	Palestinian Authority
PTC	ITU	Pitcairn Island
PTR	ITU	Puerto Rico (including Culebra, Mona, and Vieques)
QAT	ITU	Qatar (State of)
ROU	ITU	Romania
RRW	ITU	Rwandese Republic
RUS	ITU	Russian Federation
S	ITU	Sweden
SDN	ITU	Sudan (Republic of the)
SEN	ITU	Senegal (Republic of)
SEY	ITU	Seychelles (Republic of)
SHN	ITU	Saint Helena
SLM	ITU	Solomon Islands
SLV	ITU	El Salvador (Republic of)
SMA	ITU	American Samoa
SMO	ITU	Western Samoa (Independent State of)
SMR	ITU	San Marino (Republic of)
SNG	ITU	Singapore (Republic of)
SOM	ITU	Somali Democratic Republic
SRB	ITU	Serbia (Republic of)
SRL	ITU	Sierra Leone
STP	ITU	Sao Tome and Principe (Democratic Republic of)
SUI	ITU	Switzerland (Confederation of)
SUR	ITU	Suriname (Republic of)
SVK	ITU	Slovak Republic
SVN	ITU	Slovenia (Republic of)
SWZ	ITU	Swaziland (Kingdom of)
SYR	ITU	Syrian Arab Republic
TCA	ITU	Turks and Caicos Islands
TCD	ITU	Chad (Republic of)
TGO	ITU	Togolese Republic
THA	ITU	Thailand
TJK	ITU	Tajikistan (Republic of)
TKL	ITU	Tokelau Islands
TKM	ITU	Turkmenistan
TON	ITU	Tonga (Kingdom of)
TRD	ITU	Trinidad and Tobago
TUN	ITU	Tunisia
TUR	ITU	Turkey
TUV	ITU	Tuvalu
TZA	ITU	Tanzania (United Republic of)
UAE	ITU	United Arab Emirates
UGA	ITU	Uganda (Republic of)
UKR	ITU	Ukraine
URG	ITU	Uruguay (Eastern Republic of)

USA	ITU	The United States of America
UZB	ITU	Uzbekistan (Republic of)
VCT	ITU	St. Vincent and the Grenadines
VEN	ITU	Venezuela (Republic of)
VTN	ITU	Viet Nam (Socialist Republic of)
VUT	ITU	Vanuatu (Republic of)
WAK	ITU	Wake Island
WAL	ITU	Wallis and Futuna Islands
YEM	ITU	Yemen (Republic of)
ZMB	ITU	Zambia (Republic of)
ZWE	ITU	Zimbabwe (Republic of)
XSC	ITU	Only against assignments notified by the Administration of ex Serbia and Montenegro
XSU	ITU	Only against assignments notified by the Administration of ex-USSR
XUN	ITU	United Nations
XYU	ITU	This code is used to indicate affected administration / coordination information received prior to 01.01.1992 for YUG (Yugoslavia (Federal Republic of)). This code is to be considered as applying equally to Bosnia and Herzegovina, Republic of Croatia, the former Yugoslav Republic of Macedonia, Republic of Slovenia and Federal Republic of Yugoslavia until a final decision has been taken by the five Administrations concerned regarding the status of the assignment or the allotment against which it appears
CCEB	INTL	Five Nations of the Combined Communications-Electronics Board (= AUS, CAN, G, NZL, USA)
NATO	INTL	NATO Nations (28 Nations: ALB, BEL, BUL, CAN, CZE, D, DNK, E, EST, F, G, GRC, HNG, HOL, HRV, I, ISL, LUX, LIT, LVA, NOR, POL, POR, ROU, SVK, SVN, TUR, USA)
NEUR	INTL	NATO European Nations (25 Nations, same as NATO but not including USA, CAN, ISL)
XAEW	INTL	NATO Airborne Early Warning
XASC	INTL	Allied Submarine Command
XSFN	INTL	STRIKEFORCENATO
XHQ	INTL	NATO Headquarters
XSMB	INTL	Spectrum Management Branch in NATO HQ
XO	INTL	Allied Command Operations
XB	INTL	JFC HQ Brunssum
XL	INTL	JHQ Lisbon
XN	INTL	JFC Naples
XT	INTL	ACT
XC3A	INTL	NC3A
XCSA	INTL	NCSA

The codes listed below for **Code List Category AO** are sorted by Source, then by the approved code.

Short Code	Source	Definition
ABW	ITU	Aruba
AFG	ITU	Afghanistan (Islamic State of)
AFS	ITU	South Africa (Republic of)
AGL	ITU	Angola (Republic of)
AIA	ITU	Anguilla
ALB	ITU	Albania (Republic of)
ALG	ITU	Algeria (People's Democratic Republic of)
ALS	ITU	Alaska (State of), United States of America
AMS	ITU	Saint Paul and Amsterdam Islands
AND	ITU	Andorra (Principality of)

AOE	ITU	Western Sahara
ARG	ITU	Argentine Republic
ARM	ITU	Armenia (Republic of)
ARS	ITU	Saudi Arabia (Kingdom of)
ASC	ITU	Ascension
ATA	ITU	Antarctica
ATG	ITU	Antigua and Barbuda
ATN	ITU	Netherlands Antilles
AUS	ITU	Australia
AUT	ITU	Austria
AZE	ITU	Azerbaijani Republic
AZR	ITU	Azores
B	ITU	Brazil (Federative Republic of)
BAH	ITU	Bahamas (Commonwealth of the)
BDI	ITU	Burundi (Republic of)
BEL	ITU	Belgium
BEN	ITU	Benin (Republic of)
BER	ITU	Bermuda
BFA	ITU	Burkina Faso
BGD	ITU	Bangladesh (People's Republic of)
BHR	ITU	Bahrain (State of)
BIH	ITU	Bosnia & Herzegovina (Republic of)
BIO	ITU	British Indian Ocean Territory
BLR	ITU	Belarus (Republic of)
BLZ	ITU	Belize
BOL	ITU	Bolivia (Republic of)
BOT	ITU	Botswana (Republic of)
BRB	ITU	Barbados
BRM	ITU	Myanmar (Union of)
BRU	ITU	Brunei Darussalam
BTN	ITU	Bhutan (Kingdom of)
BUL	ITU	Bulgaria (Republic of)
BVT	ITU	Bouvet Island
CAF	ITU	Central African Republic
CAN	ITU	Canada
CBG	ITU	Cambodia (Kingdom of)
CHL	ITU	Chile (except Easter Island)
CHN	ITU	China (People's Republic of)
CHR	ITU	Christmas Island (Indian Ocean)
CKH	ITU	Cook Islands
CLM	ITU	Colombia (Republic of)
CLN	ITU	Sri Lanka (Democratic Socialist Republic of)
CME	ITU	Cameroon (Republic of)
CNR	ITU	Canary Islands
COD	ITU	Congo (Democratic Republic of the)
COG	ITU	Congo (Republic of the)
COM	ITU	Comoros (Islamic Federal Republic of the)
CPT	ITU	Clipperton Island
CPV	ITU	Cape Verde (Republic of)
CRO	ITU	Crozet Archipelago
CTI	ITU	Cote d'Ivoire (Republic of)
CTR	ITU	Costa Rica
CUB	ITU	Cuba
CVA	ITU	Vatican City State

CYM	ITU	Cayman Islands
CYP	ITU	Cyprus (Republic of) (see <a href="#">note 1</a> )
CZE	ITU	Czech Republic
D	ITU	Germany (Federal Republic of)
DGA	ITU	Diego Garcia
DJI	ITU	Djibouti (Republic of)
DMA	ITU	Dominica (Commonwealth of)
DNK	ITU	Denmark
DOM	ITU	Dominican Republic
E	ITU	Spain
EGY	ITU	Egypt (Arab Republic of)
EQA	ITU	Ecuador
ERI	ITU	Eritrea
EST	ITU	Estonia (Republic of)
ETH	ITU	Ethiopia
F	ITU	France
FIN	ITU	Finland
FJI	ITU	Fiji (Republic of)
FLK	ITU	Falkland Islands (Malvinas)
FRO	ITU	Faroe Islands
FSM	ITU	Micronesia (Federated States of) (Kapingamarangi, Kosrae, Lamotrek, Namonuito, Nukuoro, Oroluk, Pohnpei, Truk, Ulithi, Woleai, Yap)
FYR	NATO	The Former Yugoslav Republic of Macedonia (see <a href="#">note 2</a> )
G	ITU	United Kingdom of Great Britain and Northern Ireland
GAB	ITU	Gabonese Republic
GCA	ITU	Territories of the United Kingdom in Region 1
GCC	ITU	Territories of the United Kingdom in Region 3
GDL	ITU	Guadeloupe (French Department of)
GEO	ITU	Georgia (Republic of)
GHA	ITU	Ghana
GIB	ITU	Gibraltar
GMB	ITU	Gambia (Republic of the)
GNB	ITU	Guinea-Bissau (Republic of)
GNE	ITU	Equatorial Guinea (Republic of)
GRC	ITU	Greece
GRD	ITU	Grenada
GRL	ITU	Greenland
GTM	ITU	Guatemala (Republic of)
GUF	ITU	Guiana (French Department of)
GUI	ITU	Guinea (Republic of)
GUM	ITU	Guam
GUY	ITU	Guyana
HKG	ITU	Hong Kong
HMD	ITU	Heard and McDonald Islands
HND	ITU	Honduras (Republic of)
HNG	ITU	Hungary (Republic of)
HOL	ITU	Netherlands (Kingdom of the)
HRV	ITU	Croatia (Republic of)
HTI	ITU	Haiti (Republic of)
HWA	ITU	Hawaii
HWL	ITU	Howland Island
I	ITU	Italy
ICO	ITU	Cocos Keeling Islands
IND	ITU	India (Republic of)

INS	ITU	Indonesia (Republic of)
IRL	ITU	Ireland
IRN	ITU	Iran (Islamic Republic of)
IRQ	ITU	Iraq (Republic of)
ISL	ITU	Iceland
ISR	ITU	Israel (State of)
J	ITU	Japan (includes Iwo Jima, Marcus Island, Ryu Kyu Islands)
JAR	ITU	Jarvis Island
JMC	ITU	Jamaica
JON	ITU	Johnston Island
JOR	ITU	Jordan (Hashemite Kingdom of)
KAZ	ITU	Kazakhstan (Republic of)
KEN	ITU	Kenya (Republic of)
KER	ITU	Kerguelen Islands
KGZ	ITU	Kyrgyz Republic
KIR	ITU	Kiribati (Republic of)
KNA	ITU	Saint Kitts and Nevis (Federation of)
KOR	ITU	Korea (Republic of)
KRE	ITU	Democratic People's Republic of Korea
KWT	ITU	Kuwait (State of)
LAO	ITU	Lao People's Democratic Republic
LBN	ITU	Lebanon
LBR	ITU	Liberia (Republic of)
LBY	ITU	Libya (Socialist People's Libyan Arab Jamahiriya)
LCA	ITU	Saint Lucia
LIE	ITU	Liechtenstein (Principality of)
LSO	ITU	Lesotho (Kingdom of)
LTU	ITU	Lithuania (Republic of)
LUX	ITU	Luxembourg
LVA	ITU	Latvia (Republic of)
MAC	ITU	Macao
MAU	ITU	Mauritius (Republic of)
MCO	ITU	Monaco (Principality of)
MDA	ITU	Moldova (Republic of)
MDG	ITU	Madagascar (Democratic Republic of)
MDR	ITU	Madeira
MDW	ITU	Midway Islands
MEX	ITU	Mexico
MHL	ITU	Marshall Islands (Republic of the) (Ailinglapalap, Arno, Ebeye, Enewetak, Jaluit, Kwajalein, Majuro, Mili, Roi-Namur, Rongelap)
MLA	ITU	Malaysia
MLD	ITU	Maldives (Republic of)
MLI	ITU	Mali (Republic of)
MLT	ITU	Malta
MNE	ITU	Montenegro (Republic of)
MNG	ITU	Mongolian People's Republic
MOZ	ITU	Mozambique (Republic of)
MRA	ITU	Mariana Islands (except Guam)
MRC	ITU	Morocco (Kingdom of)
MRN	ITU	Marion Island
MRT	ITU	Martinique (French Department of)
MSR	ITU	Montserrat
MTN	ITU	Mauritania (Islamic Republic of)
MWI	ITU	Malawi

MWM	ITU	This code is used to indicate either a coordination that is required, or one that has been obtained, on a worldwide basis.
MYT	ITU	Mayotte Island
NCG	ITU	Nicaragua
NCL	ITU	New Caledonia
NFK	ITU	Norfolk Island
NGR	ITU	Niger (Republic of the)
NIG	ITU	Nigeria (Federal Republic of)
NIU	ITU	Niue Island
NMB	ITU	Namibia (Republic of)
NOR	ITU	Norway
NPL	ITU	Nepal
NRU	ITU	Nauru (Republic of)
NZL	ITU	New Zealand
OCE	ITU	French Polynesia
OMA	ITU	Oman (Sultanate of)
PAK	ITU	Pakistan (Islamic Republic of)
PAQ	ITU	Easter Island (Chile)
PHL	ITU	Philippines (Republic of the)
PHX	ITU	Phoenix Islands
PLM	ITU	Palmyra Island (some 50 islands make up the Atoll of Palmyra)
PLW	ITU	Palau (Republic of)
PNG	ITU	Papua New Guinea
PNR	ITU	Panama (Republic of)
POL	ITU	Poland (Republic of)
POR	ITU	Portugal
PRG	ITU	Paraguay (Republic of)
PRU	ITU	Peru
PSE	ITU	Palestinian Authority
PTC	ITU	Pitcairn Island
PTR	ITU	Puerto Rico (including Culebra, Mona, and Vieques)
QAT	ITU	Qatar (State of)
REU	ITU	Reunion (French Department of)
ROD	ITU	Rodriguez
ROU	ITU	Romania
RRW	ITU	Rwandese Republic
RUS	ITU	Russian Federation
S	ITU	Sweden
SCN	ITU	Saint Christopher and Nevis
SDN	ITU	Sudan (Republic of the)
SEN	ITU	Senegal (Republic of)
SEY	ITU	Seychelles (Republic of)
SHN	ITU	Saint Helena
SLM	ITU	Solomon Islands
SLV	ITU	El Salvador (Republic of)
SMA	ITU	American Samoa
SMO	ITU	Western Samoa (Independent State of)
SMR	ITU	San Marino (Republic of)
SNG	ITU	Singapore (Republic of)
SOM	ITU	Somali Democratic Republic
SPM	ITU	Saint Pierre and Miquelon (French Department of)
SRL	ITU	Sierra Leone
STP	ITU	Sao Tome and Principe (Democratic Republic of)
SUI	ITU	Switzerland (Confederation of)

SUR	ITU	Suriname (Republic of)
SVK	ITU	Slovak Republic
SVN	ITU	Slovenia (Republic of)
SWN	ITU	Swan Islands
SWZ	ITU	Swaziland (Kingdom of)
SYR	ITU	Syrian Arab Republic
TCA	ITU	Turks and Caicos Islands
TCD	ITU	Chad (Republic of)
TGO	ITU	Togolese Republic
THA	ITU	Thailand
TJK	ITU	Tajikistan (Republic of)
TKL	ITU	Tokelau Islands
TKM	ITU	Turkmenistan
TMP	ITU	East Timor
TON	ITU	Tonga (Kingdom of)
TRC	ITU	Tristan da Cunha
TRD	ITU	Trinidad and Tobago
TUN	ITU	Tunisia
TUR	ITU	Turkey
TUV	ITU	Tuvalu
TZA	ITU	Tanzania (United Republic of)
UAE	ITU	United Arab Emirates
UGA	ITU	Uganda (Republic of)
UKR	ITU	Ukraine
URG	ITU	Uruguay (Eastern Republic of)
USA	ITU	The 48 contiguous States of the United States of America and the District of Columbia (excludes the States of Alaska and Hawaii)
UZB	ITU	Uzbekistan (Republic of)
VCT	ITU	St. Vincent and the Grenadines
VEN	ITU	Venezuela (Republic of)
VIR	ITU	United States Virgin Islands (St. Croix, St. John, St. Thomas)
VRG	ITU	British Virgin Islands
VTN	ITU	Viet Nam (Socialist Republic of)
VUT	ITU	Vanuatu (Republic of)
WAK	ITU	Wake Island
WAL	ITU	Wallis and Futuna Islands
YEM	ITU	Yemen (Republic of)
ZMB	ITU	Zambia (Republic of)
ZWE	ITU	Zimbabwe (Republic of)
XAA	ITU	Shared throughout the world
XAX	ITU	Shared by several countries, but in a restricted area of the World
XBR	ITU	Indicates recordings in the MIFR which do not result from a notification (allotments and common frequencies) which are entered by the BR in accordance with the RR. It is also used in some frequency Plans
XCS	ITU	This code is used to indicate affected administration / coordination information received prior to 01.01.1993 for TCH. This code is to be considered as applying equally to the Czech Republic and the Slovak Republic until a final decision has been taken by the two Administrations concerned regarding the status of the assignment or the allotment against which it appears
XGZ	ITU	Gaza Strip
XMM	ITU	This code is used to indicate the use of the frequency assignment for inter-ship communications
XOA	ITU	International Civil Aviation Organization
XSC	ITU	Only against assignments notified by the Administration of ex Serbia and Montenegro

XSP	ITU	Spratly Island
XR1	ITU	Region 1
XR2	ITU	Region 2
XR3	ITU	Region 3
XRY	ITU	Antarctic Region
XSU	ITU	Only against assignments notified by the Administration of ex-USSR
XUN	ITU	United Nations
XVE	ITU	Visible Earth
XWB	ITU	West Bank
XWM	ITU	World Meteorological Organization
XYU	ITU	This code is used to indicate affected administration / coordination information received prior to 01.01.1992 for YUG (Yugoslavia (Federal Republic of)). This code is to be considered as applying equally to Bosnia and Herzegovina, Republic of Croatia, the former Yugoslav Republic of Macedonia, Republic of Slovenia and Federal Republic of Yugoslavia until a final decision has been taken by the five Administrations concerned regarding the status of the assignment or the allotment against which it appears
XZZ	ITU	Administrative status of the geographic area is subject to special arrangements
AFR	INTL	Africa
ANTR	INTL	Antarctica
ARCO	INTL	Arctic Ocean
ASIA	INTL	Asia
CAME	INTL	Central America
CCEB	INTL	Five Nations of the Combined Communications-Electronics Board (AUS, CAN, G, NZL, USA)
EEUR	INTL	Eastern Europe
EUR	INTL	Europe
GEOS	INTL	Geostationary Satellite
HEME	INTL	Hemisphere East
HEMN	INTL	Hemisphere North
HEMS	INTL	Hemisphere South
HEMW	INTL	Hemisphere West
INDO	INTL	Indian Ocean
INTL	INTL	International
ITU	INTL	International Telecommunications Union
LANT	INTL	Atlantic Ocean
MDE	INTL	Middle East
MED	INTL	Mediterranean Sea
MULT	INTL	Multiple Areas
NGEO	INTL	Non-Geostationary Satellite
OCNA	INTL	Oceania
PAC	INTL	Pacific Ocean
SPCE	INTL	Space
UNKN	INTL	Unknown
NATO	INTL	NATO Nations
NEUR	INTL	NATO European Nations (23 Nations, not including USA, CAN, ISL)
WEUR	INTL	Western Europe
XAEW	INTL	NATO Airborne Early Warning
XASC	INTL	Allied Submarine Command
XSFN	INTL	STRIKEFORCENATO
XHQ	INTL	NATO Headquarters
XSMB	INTL	Spectrum Management Branch in NATO HQ
XO	INTL	Allied Command Operations
XB	INTL	JFC HQ Brunssum
XBA	INTL	CC-Air Ramstein

XBA1	INTL	CAOC 1 Finderup Denmark
XBA2	INTL	CAOC 2 Uedem Germany
XBAD	INTL	D-CAOC Uedem Germany
XBA3	INTL	CAOC 3 Reitan Norway
XBA4	INTL	CAOC 4 Meßstetten Germany
XBA9	INTL	CAOC 9 High Wycombe United Kingdom
XBL	INTL	CC-Land Heidelberg
XBM	INTL	CC-Maritime Northwood
XBO1	INTL	ISAF
XL	INTL	JHQ Lisbon
XN	INTL	JFC Naples
XNA	INTL	CC-Air Izmir
XNA5	INTL	CAOC 5 Poggio Renatico Italy
XNAD	INTL	D-CAOC P. Renatico
XNA6	INTL	CAOC 6 Eskisehir Turkey
XNA7	INTL	CAOC 7 Larissa Greece
XNA8	INTL	CAOC 8 Torrejon Spain
XNA0	INTL	CAOC 10 Monsanto Portugal
XNL	INTL	CC-Land Madrid
XNM	INTL	CC-Maritime Naples
XNO1	INTL	EUFOR/NHQSA - Former SFOR
XNO2	INTL	KFOR
XNO3	INTL	NATO Training Mission Iraq
XT	INTL	ACT
XC3A	INTL	NC3A
XCSA	INTL	NCSA
AK	USA	Alaska
AL	USA	Alabama
AR	USA	Arkansas
AZ	USA	Arizona
CA	USA	California
CO	USA	Colorado
CT	USA	Connecticut
DE	USA	Delaware
FL	USA	Florida
GA	USA	Georgia
HI	USA	Hawaii
IA	USA	Iowa
ID	USA	Idaho
IL	USA	Illinois
IN	USA	Indiana
KS	USA	Kansas
KY	USA	Kentucky
LA	USA	Louisiana
MA	USA	Massachusetts
MD	USA	Maryland
ME	USA	Maine
MI	USA	Michigan
MN	USA	Minnesota
MO	USA	Missouri
MS	USA	Mississippi
MT	USA	Montana
NC	USA	North Carolina
ND	USA	North Dakota

NE	USA	Nebraska
NH	USA	New Hampshire
NJ	USA	New Jersey
NM	USA	New Mexico
NV	USA	Nevada
NY	USA	New York
OH	USA	Ohio
OK	USA	Oklahoma
OR	USA	Oregon
PA	USA	Pennsylvania
RI	USA	Rhode Island
SC	USA	South Carolina
SD	USA	South Dakota
TN	USA	Tennessee
TX	USA	Texas
UT	USA	Utah
VA	USA	Virginia
VT	USA	Vermont
WA	USA	Washington
WI	USA	Wisconsin
WV	USA	West Virginia
WY	USA	Wyoming
CBN	USA	Caribbean
DC	USA	District of Columbia
FE	USA	Far East (Countries of China, Japan, Korea, Thailand, Brunei, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Vietnam and East India)
GLM	USA	Gulf of Mexico
GTLK	USA	Great Lakes (collectively)
LAM	USA	Latin America
LERI	USA	Lake Erie
LHUR	USA	Lake Huron
LMIC	USA	Lake Michigan
LONT	USA	Lake Ontario
LSUP	USA	Lake Superior
NAME	USA	North America
PR	USA	Puerto Rico (including Culebra, Mona, and Vieques)
RCVR	USA	Restricted for use only in Passive Sensor and Radio Astronomy listings
SAME	USA	South America
SCAN	USA	Scandinavia
SCML	USA	US - Mid Atlantic
US	USA	For use only when transmitting and/or receiving in all 50 United States and the District of Columbia
USCE	USA	US - Central
USMW	USA	US - Midwest
USNC	USA	US - North Central
USNE	USA	US - North East
USNW	USA	US - North West
USP	USA	For use only when transmitting and/or receiving throughout the US (50 States and District of Columbia), the Commonwealth of Puerto Rico, and the Territories and Possessions (does not include the former Trust Territory of the Pacific Islands)
USSC	USA	US - South Central
USSE	USA	US - South East
USSW	USA	US - South West

USWE USA US - Western  
VI USA Virgin Islands (St. Croix, St. John, St. Thomas)

Notes:

(1) Turkey states that the "Republic of Cyprus" / "Cyprus" referred to in this document is not the original partnership state established in 1960. Therefore, Turkey declares that signature, ratification and implementation of this document neither amount to any form of recognition of the Greek Cypriot Administration, as referred to in this document as "Republic of Cyprus" / "Cyprus", nor prejudice Turkey's rights and obligations emanating from the Treaty of Guarantee, the Treaty of Alliance, and Treaty of Establishment of 1960.

(2) Turkey recognizes the Republic of Macedonia with its constitutional name.

## Function Identifiers (FN)

The following function identifiers form the Code List Category FN and are to be used in data element [FnctID](#).

Immediately following the table is a list containing the definitions for all the data entries contained within the table.

MAJOR FUNCTION IDENTIFIER (mmm-----)	INTERMEDIATE FUNCTION IDENTIFIER (--iii--)	DETAILED IDENTIFIER (-----ddd)	CODE (mmmiidd)
UNKNOWN			000000000
AIR OPERATIONS	AIR/AIR COMMUNICATIONS	A-EPLRS AIR DEFENSE/INTERCEPT BLUE ANGELS HAVE QUICK INSTRUCTOR/STUDENT TRAINING INTERPLANE PILOT-TO-PILOT REFUELING THUNDERBIRDS	010000000 010010000 010010010 010010020 010010030 010010040 010010050 010010060 010010070 010010080 010010090
	AIR/GROUND/AIR COMMUNICATIONS	AIR DEFENSE/INTERCEPT BROADCAST COMMAND POST FLIGHT FOLLOWING (Non-ATC) GOLDEN KNIGHTS HAVE QUICK PILOT-TO-DISPATCHER PILOT-TO-METRO SQUADRON/WING COMMON SOF (SUPERVISOR OF FLYING) TRAINING	010020000 010020010 010020020 010020030 010020040 010020050 010020060 010020070 010020080 010020090 010020100 010020110
	AIR TRAFFIC CONTROL	APPROACH CONTROL ATIS (Auto Terminal Information Service) CLEARANCE DELIVERY DBRITE DEPARTURE CONTROL FEEDER CONTROL FLIGHT INSPECTION GCA GROUND CONTROL LOCAL CONTROL TOWER	010030000 010030010 010030020 010030030 010030040 010030050 010030060 010030070 010030080 010030090 010030100 010030110
	EXECUTIVE	AIR FORCE ONE AIRBORNE COMMAND CENTER CINC/GENERAL OFFICER SUPPORT ERCS (Emergency Rocket Communications Sys) MYSTIC STAR NAOC (National Airborne Operations Center) NORAD WHCA (White House Communications Agency)	010040000 010040010 010040020 010040030 010040040 010040050 010040060 010040070 010040080
	FLIGHT TEST		010050000

	NAVAIDS		010060000
		AIR ROUTE SURVEILLANCE RADAR	010060010
		AIRPORT SURVEILLANCE RADAR	010060020
		BEACON	010060030
		ETCAS (Enhanced Traffic Collision Avoid System)	010060040
		IFF/SIF	010060050
		ILS(instrument landing sys)	010060070
		MLS (Microwave Landing System)	010060080
		PAR	010060090
		RF TAGS (Radio Frequency Tags and Interrogators)	010060100
		TACAN	010060110
		TCAS (Traffic Collision Avoidance System)	010060120
		VOR	010060130
		VORTAC	010060140
		WEATHER RADAR	010060150
	TELECOMMAND		010070000
		COMMAND DESTRUCT/TERMINATION	010070010
		DRONE CONTROL	010070020
		MICROWAVE DATA LINK	010070030
		TMGS (Transportable Mobile Ground Subsystem)	010070040
		TOSS (TV Ordnance Scoring System)	010070050
	UAV (Unmanned Aerial Vehicle)		010080000
	TRAINING		010090000
	TARGET ACQUISITION		010100000
		LONGBOW	010100010
		MISSILE	010100020
	APPROACH/DEPARTURE CONTROL		010110000
	GROUND OPERATIONS		020000000
	AIR DEFENSE		020010000
		ARTILLERY	020010010
		AVENGER-STC	020010020
		FAADC2 (Forward Area Air Defense, Command and Control)	020010030
		LINEBACKER	020010040
		PATRIOT	020010050
		SENTINEL (AN/MPQ-64 Surveillance Radar)	020010060
	ENGINEERS		020020000
		GRIZZLY (M1 Breacher MineSweeper)	020020010
		M93A1 FOX	020020020
		WOLVERINE (Assault Bridge)	020020030
	ARTILLERY		020030000
		AQF (Advanced Quick Fix)	020030010
		LLDR (Lightweight Laser Designator Rangefinder)	020030020
		MLRS (Multiple Launch Rocket System)	020030030
	BATTLE COMMAND		020040000
		A2C2S (Army Airborne Command & Control System)	020040010
		A-EPLRS (SADL)	020040020
		CTT (Commander's Tactical Terminal)	020040030
		EPLRS (Enhanced Position Location Reporting System)	020040040
		LAND WARRIOR	020040050
		NTDR (Near Term Digital Radio)	020040060
		SCAMP (Single Channel Anti-Jam)	020040070

	Manportable Terminal)	
	SINCGARS (Single Channel Ground and Airborne Radio System)	020040080
	SINCGARS-ASIP (Single Channel Ground and Airborne Radio System-Advanced System Improvement Plan)	020040090
	WIN-T (Warfighter Information Network-Tactical)	020040100
CAVALRY		020050000
	STRIKER II (Advanced Fire Support/Scout/Surveillance System)	020050010
CLOSE AIR SUPPORT (CAS)		020060000
COMBAT CONTROL TEAM		020070000
COMMAND POST		020080000
ELECTRONIC WARFARE		020090000
	ACS (Aerial Common Sensor)	020090010
	AHFEWS (Army HF EW System)	020090020
	ARL (Aerial Reconnaissance-Low)	020090030
	IEWCS (Intelligence Electronic Warfare Common Sensor)	020090040
	LMRDFS (Light Man-portable Radio Direction Finding System)	020090050
	TACJAM (Tactical Communications Jamming System)	020090060
	TEAMMATE	020090070
	TRACKWOLF	020090080
FIRE SUPPORT		020100000
	AFATDS	020100010
	ARTILLERY	020100020
	CLOSE AIR SUPPORT (CAS)	020100030
	MFCS (Mortar Fire control System)	020100040
FORWARD AIR CONTROL POST		020110000
GROUND INTERDICTION		020120000
	CIWS (Close-In Weapons System)	020120010
	GBCS-L (Ground Based Common Sensor-Light)	020120020
	GSR (Ground Surveillance Radar)	020120030
	I-REMBASS (Improved-Remotely Monitored Battlefield Sensor System)	020120040
	TRAILBLAZER (Ground Based Communications Intelligence System)	020120050
INFANTRY		020130000
INTELLIGENCE		020140000
	ASAS (All Source Analysis System)	020140010
TACCS		020150000
TRAINING		020160000
SEA OPERATIONS		030000000
	ASW (ANTI-SUBMARINE WARFARE)	030010000
	SONOBOUY	030010010
	ELECTRONIC WARFARE	030020000
	FLEET SUPPORT	030030000
	FORACS (Fleet Operational Readiness Accuracy Check Site)	030040000
	INTELLIGENCE	030050000
	TARGET	030050010
NAVAIDS		030060000
	NAVIGATION RADAR	030060010
RESUPPLY		030070000
SHIP/AIR OPERATIONS		030080000
SHIP/SHIP		030090000

	AEGIS	030090010
SHIP/SHORE OPERATIONS		030100000
	HARBOR-PORT OPERATIONS	030100010
	NAVAL GUNFIRE SUPPORT	030100020
TRAINING		030110000
SPACE OPERATIONS		040000000
EXPERIMENTAL		040010000
SATCOM (SATELLITE COMMUNICATIONS)		040020000
	AEHF (Advanced EHF)	040020010
	AFSATCOM (Air Force Satellite Communications)	040020020
	DSCS (Defense Satellite Communications System)	040020030
	FLTSATCOM (Fleet Satellite Communications)	040020040
	GBS (Global Broadcast System)	040020050
	LEASAT (Leased Satellite)	040020060
	Milstar	040020070
	SPITFIRE (SPITFIRE Manpack UHF SATCOM DAMA Terminal)	040020080
	Trojan SPIRIT	040020090
	Wideband Global SATCOM (WGS) System	040020100
	UFO (UHF Follow-On)	040020110
GPS (GLOBAL POSITIONING SYSTEM)		040030000
METEOROLOGICAL		040040000
	DMSP (Defense Meteorological Satellite Program)	040040010
	SAWDS (SATELLITE AUTOMATED WX DIST SYS)	040040020
NASA		040050000
	SHUTTLE	040050010
RANGE OPERATIONS		050000000
EXPERIMENTAL		050010000
FLIGHT TEST		050020000
RANGE CONTROL		050030000
	OCCS SUPPORT	050030010
	RDMS (Range Data Management Subsystem)	050030020
	TELEMETRY	050030030
	TRUNKING	050030040
SAFETY		050040000
SIMULATOR (S371 required)		050050000
TEST RANGE		050060000
	TARGET	050060010
	TARGET SCORING	050060020
	TEST RANGE TIMING	050060030
	TCRS (Target Control System)	050060040
	TOSS (TV Ordnance Scoring System)	050060050
TRAINING		050070000
	MITT/DTES (Mobile Integrated Tactical Terminal/Distributed Common Ground System Test and Evaluation Strategy)	050070010
SURVEILLANCE / RECONNAISSANCE		060000000
AIR DEFENSE WARNING		060010000
	AWACS (Airborne Warning & Control Sys)	060010010
	BMEWS (Ballistic Missile Early Warning System)	060010020
	CARS (Contingency Airborne Reconnaissance Sys)	060010030

		GRCS (Guardrail Common Sensor)	060010040
		JSS (JOINT SURVEILLANCE SYSTEM)	060010050
		OTHR/ROTHR (Over-the-Horizon Radar)	060010060
		PAVE PAWS	060010070
	TRAINING		060020000
SPECIAL OPERATIONS			070000000
	AIR FORCE SPECIAL OPERATIONS		070010000
	ARMY SPECIAL OPERATIONS		070020000
	CIVIL AFFAIRS		070020010
	PSYCHOLOGICAL OPERATIONS		070020020
	RANGER UNITS		070020030
	SPECIAL FORCES		070020040
	NAVY SPECIAL OPERATIONS		070030000
C3 (Command, Control & Communications)			080000000
	COMMAND NET		080010000
	GLOBAL		080010010
	GLOBAL ALE (Automatic Link Establishment)		080010020
	GLOBAL BLACK		080010030
	GLOBAL DISCRETE		080010040
	GLOBAL RED		080010050
	HICOM (High Command)		080010060
	DATA LINK		080020000
	ARTS (Automated Remote Tracking System) (Telemetry)		080020010
	JTIDS/MIDS		080020020
	SGLS (Space Ground Link Subsystem)		080020030
	TADIL-A		080020040
	TADIL-C		080020050
	COMMUNICATIONS		080030000
	IONOSPHERIC SOUNDER		080030010
	ISYSCON (Integrated System Control)		080030020
	MARS (Military Affiliated Radio System)		080030030
	MICROWAVE		080030040
	MSE (Mobile Subscriber Equipment)		080030050
	RADIO RELAY		080030060
	TACTS (Tactical Trunk Signaling)		080030070
	GCCS (Global Command & Control System)		080040000
	SATELLITE COMMUNICATIONS		080050000
	AEHF (Advanced EHF)		080050010
	AFSATCOM		080050020
	DSCS		080050030
	FLTSATCOM		080050040
	GBS (Global Broadcast System)		080050050
	LEASAT		080050060
	MILSTAR		080050070
	SPITFIRE (SPITFIRE Manpack UHF SATCOM DAMA Terminal)		080050080
	TROJAN SPIRIT		080050090
	Wideband Global SATCOM (WGS) System		080050100
	UFO (UHF Follow-On)		080050110
	TELEMETRY		080060000
	ARTS		080060010
	SGLS		080060020
SUSTAINING OPERATIONS			090000000
	ADMINISTRATIVE		090010000
	INSTALLATION PA SYSTEM (Giant Voice)		090010010

	PAGING	090010020
	TRAVELERS INFORMATION SYSTEM	090010030
	UNLICENSED DEVICE	090010040
	WIRELESS LOCAL AREA NETWORK	090010050
	WIRELESS MIKE	090010060
CIVIL ENGINEERING		090020000
	CIVIL WORKS	090020010
	CONSTRUCTION	090020020
	INDUSTRIAL CONTROLS	090020030
	PRIME BEEF	090020040
	PUBLIC WORKS	090020050
	RED HORSE	090020060
	SAFETY	090020070
	SEABEES	090020080
	UTILITIES	090020090
COMMAND AND CONTROL		090030000
	BASE OPERATIONS	090030010
	COMMAND NET	090030020
	MOMS	090030030
	TRUNKING	090030040
EMERGENCY SERVICES		090040000
	ALARM SYSTEMS	090040010
	DISASTER PLANNING	090040020
	EOD	090040030
	FIRE	090040040
	HAZMAT	090040050
	MEDICAL	090040060
	WARNING SYSTEM	090040070
ENVIRONMENTAL		090050000
	RESOURCES CONSERVATION	090050010
LAW ENFORCEMENT		090060000
	CID (Criminal Investigation Command)	090060010
	DIS (DEFENSE INVESTIGATIVE SERVICE)	090060020
	MILITARY POLICE	090060030
	NCIS (NAVAL CRIMINAL INVESTIGATIVE SERVICE)	090060040
	OSI (OFFICE OF SPECIAL INVESTIGATIONS)	090060050
	SCOPE SHIELD	090060060
	SECURITY FORCE	090060070
	SHORE PATROL	090060080
	SPEED MEASUREMENT SYSTEMS	090060090
	SURVEILLANCE SYSTEMS	090060100
	TETHERED AEROSTAT RADAR	090060110
	WEAPONS STORAGE PROTECTION	090060120
MAINTENANCE		090070000
	AIRCRAFT	090070010
	COMMUNICATIONS	090070020
	EQUIPMENT CHECKS	090070030
	MISSILE	090070040
	MUNITIONS	090070050
	RAMP CONTROL	090070060
	REMOTE CONTROL CRANE	090070070
	RUNWAY ICE DETECTION SYSTEMS	090070080
	SNOW REMOVAL	090070090
METEOROLOGICAL		090080000
	AMSS (Automatic Meteorological Sensor System)	090080010
	ASOS (Auto Surface Observation System)	090080020
	AWOS	090080030
	GOES (Geostationary Operational	090080040

	Environmental Satellites)	
	IMETS (Integrated Meteorological System)	090080050
	NEXRAD	090080060
	WEATHER	090080070
	WIND PROFILER	090080080
NATURAL RESOURCES		090090000
	CONSERVATION	090090010
	WILDLIFE PRESERVATION	090090020
NAVAIDS CONTROLS		090100000
	REMOTE BARRIER CONTROL SYSTEMS	090100010
	RUNWAY LIGHTING CONTROL	090100020
SUPPLY AND LOGISTICS		090110000
	AMPS (Air Movement Planning System)	090110010
	CSSCS (Combat Service Support Control System)	090110020
	INVENTORY/INVENTORY CONTROLS	090110030
	MTS (Movement Tracking System)	090110040
	NISTARS (Navy Integrated Storage Tracking & Retrieval System)	090110050
	POL	090110060
	RESUPPLY	090110070
	RF TAGS	090110080
	SHIPYARD	090110090
TRAINING		090120000
TRANSPORTATION		090130000
	MOTOR POOL	090130010
	TAXI	090130020
DOMESTIC SUPPORT OPERATIONS		100000000
COMMUNITY ASSISTANCE		100010000
	AERO CLUB	100010010
	COLOR/HONOR GUARD	100010020
	EDUCATION	100010030
	MUTUAL AID	100010040
	PUBLIC WORKS	100010050
	TRAINING	100010060
CONTINGENCY		100020000
CONSEQUENCE MANAGEMENT		100030000
	CBR	100030010
	CIVIL SUPPORT TEAM	100030020
	ENVIRONMENTAL CLEANUP	100030030
	FEMA	100030040
	HAZARDOUS MATERIAL RELEASE	100030050
	TECHNICAL ESCORT UNIT	100030060
	TRAINING	100030070
LAW ENFORCEMENT		100040000
	ANTI-TERRORISM	100040010
	CIVIL DISTURBANCES	100040020
	COUNTER DRUG	100040030
	PROJECT COHEN	100040040
	SPECIAL SECURITY OPERATIONS	100040050
OTHER OPERATIONS		110000000
DTSS (Digital Topographic Support System)		110010000
EXERCISE		110020000
EXPERIMENTAL		110030000
ETRAC (Enhanced Tactical Radar		110040000

	Correlator)		
	HYDROLOGIC		110050000
		LOCKS AND DAMS	110050010
	RDTE SUPPORT		110060000
	SEARCH AND RESCUE		110070000
		CAP(Civil Air Patrol)	110070010
	SEISMIC		110080000
	SPECIAL COURIER		110090000
	SPECIAL PROJECTS		110100000
		HAARP (High Frequency Active Auroral Research Program)	110100010
	SURVEY		110110000
	TEST AND MEASUREMENT		110120000

The definitions for the data entries contained in the above table are provided below:

**A2C2S** (Army Airborne Command & Control System)--Used in support of Army Airborne Command & Control System.<sup>5</sup>

**ACS** (Aerial Common Sensor)--Used in support of Intelligence and Electronic Warfare operations.<sup>5</sup>

**ADMINISTRATIVE**--Used for administrative management of personnel and/or material.

**AEGIS**--Used in support of AEGIS cruisers and destroyer weapon system operations.

**AEHF**--Used for voice and/or data transmissions over the Advanced EHF system.

**A-EPLRS**--Used in support of the Airborne Enhanced Position Location Reporting System (A-EPLRS), a secure, electronic warfare (EW)-resistant tactical transmission system supporting the Army Tactical Command and Control System (ATCCS) and the Army Battle Command System.

**AERO CLUB**--Used in support of flight training and recreational flying clubs.

**AFATDS**--Used in support of Advanced Field Artillery Tactical Data System.<sup>5</sup>

**AFSATCOM**--Used for voice and/or data transmissions over the AFSATCOM system

**AHFEWS** (Army HF EW System)--Used in support of Intelligence and Electronic Warfare operations.<sup>5</sup>

**AIR DEFENSE / INTERCEPT**--Used in support of fire finding exercises and operations.<sup>4</sup>

**AIR DEFENSE WARNING**--Used to identify the presence of hostile aircraft and or missiles.<sup>1</sup>

**AIR DEFENSE**--Used in supporting those defensive measures designed to destroy attacking enemy aircraft or missiles in the Earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack.

**AIR FORCE ONE**--Used in support of presidential aircraft operations.

**AIR FORCE SPECIAL OPERATIONS**--Used to support AFSOF units (special operations wings and groups, special tactics groups, and special operations weather teams) which provide aircraft and other support for a variety of SOF missions.<sup>3</sup>

**AIR OPERATIONS**--Used in supporting those functions which typically originate from the air and/or directly support the launching of, actual conduct of, and returning of airborne forces carrying out air operations whether over land or sea.

**AIR ROUTE SURVEILLANCE RADAR**--Used for radar's that monitor aircraft routes.<sup>2</sup>

**AIR TRAFFIC CONTROL**--Used for ground-air and air-ground voice communications dedicated to controlling the movement of aircraft.

**AIR/AIR COMMUNICATIONS**--Used in supporting voice and/or data transmissions between two airborne platforms.<sup>1</sup>

**AIR/GROUND/AIR COMMUNICATIONS**--Used supporting voice and/or data transmissions

between airborne and ground-based platforms.<sup>1</sup>

**AIRBORNE COMMAND CENTER**--Used by airborne command post aircraft in support of the national authority or Unified Commands.<sup>2</sup>

**AIRCRAFT**--Used in supporting air operation under the jurisdiction of the Department of the Army.<sup>4</sup>

**AIRPORT SURVEILLANCE RADAR**--Used for general coverage radars that are located at airdromes.

**ALARM SYSTEMS**--Used for physical security (e.g., Sensors, Motion Detectors, Intrusion & Duress Alarms, Etc).

**AMPS** (Air Movement Planning System)--Used in support of Air movement operations.<sup>6</sup>

**AMSS** (Automatic Meteorological Sensor System)--Used in support of Intelligence and Electronic Warfare operations.<sup>5</sup>

**ANTI-TERRORISM**--Used in direct support of anti-terrorism.

**APPROACH CONTROL**--Used to provide a pilot conducting flight in accordance with instrument flight rules to commence an approach to an airport.<sup>1</sup>

**AQF** (Advanced Quick Fix)--Used in direct support of command and control, fire control nets, also used for ground surveillance, counter/mortar, and counter/battery operations.<sup>5</sup>

**ARL** (Aerial Reconnaissance-Low)--Used in support of Intelligence and Electronic Warfare operations.<sup>5</sup>

**ARMY AVIATION**--Used in supporting the operation of fixed- and rotary-winged aircraft maintained by the Army; includes but is not limited to attack helicopters, scout helicopters, and utility aircraft

**ARTILLERY**--Used to provide internal command, control, and communications to division and below for fire support.<sup>4</sup>

**ARTS** (Automated Remote Tracking System) (Telemetry)--Used in conjunction with the Space Ground Link Subsystem (SGLS).

**ASAS** (All Source Analysis System)--Used in support of Intelligence and Electronic Warfare operations.<sup>5</sup>

**ASOS** (Automated Surface Observation System)--Used for the collection of weather information used by civil and military aircraft.

**ASW** (Anti-Submarine Warfare)--Used in support of anti-submarine warfare operations.

**ATIS** (Auto Terminal Information Service)--Used for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

**AVENGER-STC**--Used in support of Short Range Air Search Radar (Stringer) operations.<sup>6</sup>

**AWACS**--Used in supporting special DoD airborne early warning aircraft that are equipped with search and height-finding radar and communications equipment for controlling weapon systems and performs the air surveillance and control mission.

**AWOS**-- Automatic Weather Observing System: Observes weather conditions at specific location and transmits continuously to aircraft in the area.

**BASE OPERATIONS**--Used in supporting the operations of an Air Terminal; a facility on an airfield that functions as an air transportation hub and accommodates the loading and unloading of airlift aircraft and the in-transit processing of traffic.

**BATTLE COMMAND**--Used in support of command, control, and communications, tactical Internet, and Warfighter Information Network/Satellite networks.<sup>6</sup>

**BEACON**--Used in supporting Marker Beacons, Aeronautical Radio Beacons, and Radar Beacons for radio navigation land stations.<sup>4</sup> Includes Non Directional Beacons (NDR)

**BLUE ANGELS**--Used in support of the Navy BLUE ANGELS demonstration team.

**BMEWS** (Ballistic Missile Early Warning System)--Used in DoD's electronic system for providing detection and early warning of attack by enemy inter-continental ballistic missiles.<sup>2</sup>

**BROADCAST**--Used to support broadcasting signal via Television and/or Radio service.<sup>6</sup>

**C3** (Command, Control, & Communications)--Used in supporting those strategic, inter-/intra-theater, or inter-/intra service C3 functions NOT already covered under another category.

**CAP** (Civil Air Patrol)--A private corporation that can be activated by HQ AF to conduct SAR operations.

**CARS** (Contingency Airborne Reconnaissance System)--Used in support of Airborne Reconnaissance operations.<sup>6</sup>

**CAVALRY**--Used in supporting those ground elements whose missions are reconnaissance, security, and economy of force; to find the enemy, to develop the situation and to provide the commander with reaction time and security.<sup>3</sup>

**CBR** (Chemical, Biological, Radiological)-- Chemical, biological, and radiological teams that respond to terrorist incidents in order to assist local, state, or Federal agencies in the conduct of post-incident mitigation actions.

**CID** - Used in support of U.S. Army (Criminal Investigation Command) CID operations.<sup>6</sup>

**CINC/GENERAL OFFICER SUPPORT**--Used in support of command and control, and logistics, supporting CINC/General Officers.<sup>6</sup>

**CIVIL AFFAIRS**--Used for command activities centered on relationship between military forces and civil authorities and citizens in a friendly or occupied country or area. Command performance of certain functions or exercise of certain authority normally the responsibility of the local government.

**CIVIL DISTURBANCES**--Used to support civil disturbance operations.

**CIVIL ENGINEERING**-- Used to support civil engineering activities.<sup>2</sup>

**CIVIL WORKS**--Used to support civil works activities.<sup>2</sup>

**CIWS** (Close-In Weapons System)--Used in support of weapon system.<sup>6</sup>

**CLEARANCE DELIVERY**--Used by air traffic control tower staff to communicate departure instructions to air crews while the aircraft are still on the ground.<sup>2</sup>

**CLOSE AIR SUPPORT** (CAS)--Used in supporting air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces.

**COLOR/HONOR GUARD**--Used to support military color guard/honor activities.

**COMBAT CONTROL TEAM**--Used in support of Intelligence, Maneuver, Fire Support, Air Defense, Mobility and Survivability, Logistics and Battle Command.<sup>5</sup>

**COMMAND AND CONTROL**--Used for command and control of military operations.<sup>2</sup>

**COMMAND DESTRUCT/TERMINATION**--Used by range safety officers to destroy errant missiles or UAVs.

**COMMAND NET**--Used for command and control of the Commanders Net.<sup>6</sup>

**COMMAND POST/CENTER**--Used in supporting Command, Control, and Communications at the Command Post (CP).<sup>4</sup>

**COMMAND POST**--Used in supporting Command, Control, and Communications at the Command Post (CP).<sup>4</sup>

**COMMUNICATIONS**--Used in supporting the collection by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy or

supporting the passing of data concerning the communications characteristics of a particular area.<sup>2</sup>

**COMMUNICATIONS**--Used to support fixed point to point communications links.

**COMMUNITY ASSISTANCE**--Used to support non-specific community assistance activities.

**CONSEQUENCE MANAGEMENT**--Used to support U.S. government interagency assistance to protect public health and safety, restore essential government services, and provide emergency relief to governments, businesses, and individuals affected by the results of a terrorist incident involving weapons of mass destruction.

**CONSERVATION**--Used to support resources conservation activities.

**CONSTRUCTION**--Used to support construction activities (e.g. road building, erection of power lines, construction of dams or bridges, etc.).

**CONTINGENCY**--Used only during unusual situations (e.g. civil disturbances, communications outages, natural disasters, etc.), and kept in service only for the duration of the contingency.

**COUNTER-DRUG**--Used in direct support of counter drug operations.

**CSSCS** (Combat Service Support Control System)--Used BY COMPUTER software system designed to assist commanders in the planning of Logistics operations.<sup>5</sup>

**CTT** (Commander's Tactical Terminal)--Used to support Command Post operations.

**DATA LINK**--Used in support of the operation of a data link.

**DBRITE** (Digital Bright Radar Indicator Tower Equipment)--Used for DBRITE operations.<sup>6</sup>

**DEPARTURE CONTROL**--Used in controlling aircraft departing from airdromes until they are turned over to air route controllers or go on visual flight rules.<sup>2</sup>

**DIS** (Defense Investigative Service)--Used by DIS organizations.

**DISASTER PLANNING**--Used in direct support of disaster operations.<sup>6</sup>

**DMSP** (Defense Meteorological Satellite Program)--Used in direct support of the Defense Meteorological Satellite Program.<sup>6</sup>

**DOMESTIC SUPPORT OPERATIONS**--Used for various types of military support provided to Federal, state, and local agencies in the areas of disaster assistance, environmental assistance, law enforcement, and community assistance.

**DRONE CONTROL**--Used in direct support of drone control operations.

**DSCS** (Defense Satellite Communication System)--Used for voice and/or data transmissions over the Defense Satellite Communication System.

**DTSS** (Digital Topographic Support System)--Used in direct support of DTSS operations.

**EDUCATION**--Used for military education activities.

**ELECTRONIC WARFARE**--Military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Electronic warfare consists of three divisions: electronic attack, electronic protection, and electronic warfare support. Also called EW.<sup>2</sup>

**EMERGENCY SERVICES**--Used in support of non-specific emergency services.<sup>2</sup>

**ENGINEERS**--Used in supporting Engineers that perform construction, demolition, surveying, road and bridge building, and camouflage for the Army.<sup>4</sup>

**ENVIRONMENTAL CLEANUP**--Used to support environmental cleanup operations.<sup>2</sup>

**ENVIRONMENTAL**--Used to support environmental controls, surveys, and research operations.<sup>5</sup>

**EOD** (Emergency Ordnance Disposal)--Used in supporting EOD during destruction or demolition operations.<sup>4</sup> This includes EOD robotic devices.

**EPLRS** (Enhanced Position Location Reporting System)--Used in support of EPLRS or advanced A-EPLRS system.<sup>5</sup>

**EQUIPMENT CHECKS**--Used to support equipment checks made prior to commencing normal operations.

**ERCS** (Emergency Rocket Communications Systems)--Used to support the Emergency Rocket Communication System or ECM Resistant Communications System.<sup>4</sup>

**ETCAS** (Enhanced Traffic Collision Avoidance System)--Used by aircraft equipped with the ETCAS equipment.

**ETRAC** (Enhanced Tactical Radar Correlator)--Used to support tactical Radar operations.<sup>2</sup>

**EXECUTIVE**--Used by the top echelon leadership of a government agency (e.g. normally used at department level and above where strategic policy is formulated).

**EXERCISE**--Used in supporting a military maneuver or simulated wartime operation involving planning, preparation, and execution.

**EXPERIMENTAL**--Used in supporting activities that require an experimental station class.

**FAADC2** (Forward Area Air Defense, Command and Control)--Used for forward air defense operations.

**FEEDER CONTROL**-- Feeder control transitions aircraft from the en route structure to the initial approach fix for landing.

**FEMA** (Federal Emergency Mgt Agency)--Used to support FEMA (Federal Emergency Mgt Agency) operations.

**FIRE SUPPORT**--Used to support artillery in support of infantry, armored, airborne, and airborne mobile operations.

**FIRE**--Used to notify the presence of a fire, or to direct, control, or coordinate the operations of fire response vehicles, equipment, and personnel during fire suppression or fire prevention activities.

**FLEET SUPPORT**--Used to support fleet units/shore facilities.

**FLIGHT FOLLOWING**-- Issues information and advisories to arriving, departing, and en route aircraft and monitors the flight progress of aircraft. Additionally, flight following posts and relays flight progress reports and posts information to flight data strips, boards, charts and maps.

**FLIGHT INSPECTION**-- Normally accomplished by Federal Aviation Administration (FAA) flight check aircraft to determine if specific navigation aids (NAVAIDS) such as NDB, VOR, TACAN, are functioning properly.

**FLIGHT TEST**--Used to support flight test operations.

**FLTSATCOM** (Fleet Satellite Communications)--Used for voice and/or data transmissions over the FLTSATCOM system.

**FORACS** (Fleet Operational Readiness Accuracy Check Site)--Used to support Fleet Operational Readiness Sites.

**FORWARD AIR CONTROL POST**--Used in supporting a highly mobile USAF tactical air control system radar facility subordinate to the control and reporting center and or control post used to extend radar coverage and control in the forward combat area.<sup>3</sup>

**GBCS-L** (Ground Based Common Sensor-Light)--Used to support the ground based sensor system.<sup>5</sup>

**GBS** (Global Broadcast System)--Used for voice and/or data transmissions over the Satellite Communications System.<sup>4</sup>

**GCA**-- Ground Controlled Approach System: A radar approach system for aircraft arriving at an airfield.

**GCCS-A** (Global Command & Control System-Army)--Used to support Army GCCS operations.<sup>5</sup>

**GLOBAL ALE** (Automatic Link Establishment)--Used in supporting ALE operations within the DoD global communications network.

**GLOBAL BLACK**--Used in support of the USAF Global HF Network for a non-secure email net.

**GLOBAL DISCRETE**--Unpublished (non-FLIP) HF frequencies assigned to DoD global communications network.

**GLOBAL RED**--Used in support of the USAF Global HF Network secure email net.

**GLOBAL**--HF frequencies assigned to DoD global communications network.

**GOES** (Geostationary Operational Environmental Satellites)--GOES is a series of meteorological geostationary orbiting satellites that provide weather prediction data for the Western Hemisphere and particularly for the U.S.

**GOLDEN KNIGHTS**--Used by the Army's Golden Knights demonstration team.

**GPS** (Global Positioning System)--Used for precise positioning/navigation information.<sup>4</sup>

**GRCS** (Guardrail Common Sensor)--Used in support collection and location system.<sup>5</sup>

**GRIZZLY** (M1 Breacher MineSweeper)--Used to support mine sweeping operations using CNR.<sup>6</sup>

**GROUND CONTROL**--Used in supporting those functions which controls originate from the ground and directly support ground-based operations.<sup>4</sup>

**GROUND INTERDICTION**--Used to support ground operations, convoy, scouting, surveillance etc.<sup>6</sup>

**GROUND OPERATIONS**--Used in supporting those functions which originate from the ground and directly support ground-based operations.

**GSR** (Ground Surveillance Radar)--Used to support ground surveillance radar operations.<sup>6</sup>

**HAARP** (High Frequency Active Auroral Research Program)--A scientific endeavor to study the properties and behavior of the ionosphere to understand its use to enhance communications and surveillance systems for both civilian and military purposes.<sup>2</sup>

**HARBOR-PORT OPERATIONS**--Used for controlling movements of ships in harbors and ports.<sup>2</sup>

**HAVE QUICK**--Used in supporting DoD's Jam-resistant UHF Communications Radio.<sup>2</sup>

**HAZARDOUS MATERIAL RELEASE**--Used to support hazardous material release.

**HAZMAT** (Hazardous Materials)--Used to support operations dealing with hazardous materials.

**HICOM** (High Command)--Used to support Unified Command HF high command net.

**HYDROLOGIC**--Used for collection of information regarding the waters of the earth and its atmosphere, or for the control and management of these waters.

**IEWCS** (Intelligence Electronic Warfare Common Sensor)--Used in support of Intelligence and Electronic Warfare operations.<sup>5</sup>

**IFF/SIF**--Used to support Identification Friend or Foe/Selective Identification Features activities.

**ILS** (Instrument Landing System)--Used to support VOR and glideslope aircraft Instrument Landing Systems.

**IMETS** (Integrated Meteorological System)--Used to support the collection of weather reports.<sup>5</sup>

**INDUSTRIAL CONTROLS**--Used to support industrial controls.<sup>2</sup>

**INFANTRY**--Used in supporting those ground-based elements designed to close with and destroy the enemy and which serve as a key element of combat power in close combat.<sup>3</sup>

**INSTALLATION PA SYSTEM** (Giant Voice)--Used by installation public address systems.<sup>2</sup>

**INSTRUCTOR/STUDENT TRAINING**--Used in supporting those activities during training which originate from the class room instructions. Mainly used for training purposes.<sup>4</sup>

**INTELLIGENCE**--Used in support of the gathering of intelligence information.

**INTERPLANE**--Used between aircraft in flight.

**INVENTORY/INVENTORY CONTROLS** (e.g., Optical Scanners, RF Tags, NISTARS (Navy Integrated Storage Tracking & Retrieval System)-- )--Used in support of gathering inventory data at exchange, supply, and other logistical type facilities.

**IONOSPHERIC SOUNDER**--Used in support of ionospheric sounder operations.

**I-REMBASS** (Improved-Remotely Monitored Battlefield Sensor System)--Used to support ground surveillance operations.<sup>5</sup>

**ISYSCON** (Integrated System Control)--Used to manage multiple tactical communications systems.  
<sup>5</sup>

**JSS** (Joint Surveillance System)--Used in supporting the Joint Surveillance System Radars.<sup>2</sup>

**JTIDS/MIDS** (Joint Tactical Information Distribution System)--Used in support of the operation of JTIDS.5 Used in support of the operation of Link 16 Command and Control Tactical Data Systems. Also known as TADIL-B.

**LAND WARRIOR**--Used to support combat net radio operations for Corps and below.<sup>6</sup>

**LAW ENFORCEMENT**--Used to direct, control, or coordinate the activities of personnel engaged in law enforcement duties (e.g. building and installation security, criminal investigations, police activities, intelligence and counter-intelligence operations, intruder detection, etc).

**LEASAT** (Leased Satellite)--Used for voice and/or data transmissions over the LEASAT system.

**LINEBACKER**--Used to operate in forward combat areas, the Linebacker is capable of shooting down rotary- and fixed-wing aircraft, as well as cruise missiles.

**LLDR** (Lightweight Laser Designator Rangefinder)--Used in support of range finding operations.<sup>5</sup>

**LMRDFS** (Light Man-portable Radio Direction Finding System)--Used to support direction finding system.<sup>5</sup>

**LOCAL CONTROL**--Used by air traffic controllers in the vicinity of an airdrome.

**LOCKS AND DAMS**--Used in direct support of the operation of locks and dams.

**LONGBOW** (Apache Helicopter)--Used by the weapons radar on Apache helicopters.<sup>6</sup>

**LOOTING PREVENTION**--Used in direct support of looting prevention.

**M93A1 FOX**--Used to support Bridge operations.<sup>6</sup>

**MAINTENANCE**--Used to support maintenance activities (e.g. resurfacing of roads, maintenance of power lines, repair of dams or bridges, etc).

**MARS** (Military Affiliated Radio System)--Used for voice and/or data transmissions over the Military Affiliated Radio System.

**MEDICAL**--Used to direct, control, or coordinate the activities of medical personnel and emergency response vehicles.

**METEOROLOGICAL**--Used in supporting the collection by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy or supporting the passing of data concerning the meteorological characteristics of a particular area.<sup>2</sup>

**MFCS** (Mortar Fire control System)--Used to support command and control of Mortar Fire Control operations.<sup>5</sup>

**MICROWAVE DATA LINK**--Used in supporting the microwave data links.<sup>4</sup>

**MICROWAVE**--Used to support Microwave data links.<sup>4</sup>

**MILITARY POLICE**--Used to support security operations, military laws, orders and regulations, traffic control, crime prevention, investigations, logistics, coordination, and planning of police functions.<sup>4</sup>

**MILSTAR** (Military Strategic and Tactical Relay System)--Used for voice and/or data transmissions over the MILSTAR system.

**MISSILE**--Used in supporting electronic fire distribution system designed for CONUS use in coordinating all elements of air defense from target detection to target destruction.<sup>4</sup>

**MITT/DTES** (Mobile Integrated Tactical Terminal/Distributed Common Ground System Test and Evaluation Strategy)--Used to support mobile tactical terminal.<sup>5</sup>

**MLRS** (Multiple Launch Rocket System)--Used to support the flight parameters of its main carrying missiles and submissiles.<sup>2</sup>

**MLS** (Microwave Landing System)--Used to support Microwave Landing Systems.

**MOMS** (Man on the Move System)--Used in support of Man on the Move System operations.

**MOTOR POOL**--Used to support the motor pool.<sup>4</sup>

**MSE** (Mobile Subscriber Equipment)--Used to provide secure, automatic digitized voice, data, and facsimile communications to the users, whether static or mobile operations.<sup>5</sup>

**MTS** (Movement Tracking System)--Used to support the movement of personnel and equipment.<sup>5</sup>

**MUNITIONS**--Used in support of the storage or movement of munitions.

**MUTUAL AID**--Used for fire, medical, police, and other emergency services between federal, state and local agencies.

**MYSTIC STAR**--Used to support the president of the USA and senior federal executives.

**NAOC** (National Airborne Operations Center)--Used in direct support of NAOC operations.

**NASA**--Used in support of NASA operations.

**NATURAL RESOURCES**--Used for the management, protection, and conservation of natural resources (e.g. national forests, public lands, wildlife, etc).

**NAVAIDS CONTROLS**--Used to activate and deactivate visual or electronic navigational aids (e.g. runway lights, radio beacons, unmanned lighthouses, etc).

**NAVAIDS**--Used to furnish navigational assistance to aircraft or ships (e.g. instrument landing system (ILS), nondirectional beacon (NDB), long-range navigation (LORAN), etc).

**NAVAL GUNFIRE SUPPORT**--Used in direct support of Naval Gunfire Support Operations.

**NAVIGATION RADAR**--Used for radar navigation in reduced visibility to assist the operator in determining the range and bearing to obstructions (e.g., other craft or buoys), avoiding obstacles, avoiding collisions, accessing the bank of a river or shore, and as an aid to maintain a vessel in a channel to avoid running aground.

**NAVY SPECIAL OPERATIONS**--Used for special, focused warfare operations conducted by Navy Sea, Air, Land (SEAL) teams, SEAL Delivery Vehicle Teams, and Special Boat Units (SBU) under the cognizance of the Naval Special Warfare Command.

**NCIS** (Naval Criminal Investigative Service)--Used by Naval Criminal Investigative Service organizations.

**NDB**-- A signal (beacon) transmitting on a select frequency which is used by aircraft to determine their location in relation to the beacon signal. May serve as a guide to an airfield or location.

**NEXRAD**--Used in support of the Next Generation Weather Radar (NEXRAD).

**NORAD** (North American Air Defense Command)--Used by the North American Air Defense Command.

**NTDR** (Near Term Digital Radio)--Used to support the Army's data communication backbone for platoon to brigade.<sup>5</sup>

**OCCS SUPPORT**--Used for communications support of Observer Controller Communication System (OCCS) programs and projects.

**OSI** (Office of Special Investigation)--Used by Office of Special Investigation organizations.

**OTHER OPERATIONS**--Used in supporting those functions not covered in one of the categories listed above.

**OTHR/ROTHR** (Over-the-Horizon Radars)--Used in supporting THE OTHR. Some systems are relocatable.<sup>2</sup>

**PAGING**--A one-way communications system used for selective calling of personnel. (Note: Although paging systems may be used in direct support of functions shown on this list, such as EXECUTIVE or MEDICAL, all paging assignments shall show PAGING as the function name.)

**PAR** (Precision Approach Radar)--Used for Precision Approach Radar operations.<sup>6</sup>

**PATRIOT**-- An air defense missile system.

**PAVE PAWS** (Precision Acquisition Vehicle Entry Phased Array Warning System)--Used in supporting the Precision Acquisition Vehicle Entry Phased Array Warning System

**PILOT-TO-DISPATCHER**--Used between the base operations dispatcher and air crews.

**PILOT-TO-METRO**--Used between the base weather facility and air crews.

**PILOT-TO-PILOT**--Communication between air crews in flight.

**POL** (Petroleum, Oil, and Lubricants)--Used to support POL activities during exercises and operations.<sup>4</sup>

**PRIME BEEF**--Used in support of the Prime Beef construction team.<sup>2</sup>

**PROJECT COHEN**--Federal Anti-Drug Operations.

**PSYCHOLOGICAL OPERATIONS Used FOR PLANNED** psychological activities in peace and war directed to enemy, friendly, and neutral audiences to influence attitudes and behavior affecting achievement of political and military objectives.

**PUBLIC WORKS**--Used to support public works.<sup>2</sup>

**RADIO RELAY**--Used in supporting signal communication system using very high frequencies and line of sight radio transmitters and receivers in lieu of trunk wire circuits. This system, when used in conjunction with carrier equipment, will provide channels for both voice and Teletype operations.<sup>4</sup>

**RAMP CONTROL**--Used to control the movement of aircraft and vehicle traffic on the flight line.

**RANGE CONTROL**--Used in supporting the Range Control functions on a DoD Range2 (e.g., Range scheduling).

**RANGE OPERATIONS**--Used in supporting general operations on a DoD Test Range or Military Training.<sup>2</sup>

**RANGER UNITS**--Used in supporting those units that plan and conduct special military operations and have the ability to support conventional military operations.<sup>3</sup>

**RDMS** (Range Data Management Subsystem)--Used to support the RDMS currently being used at the National Training Center (NTC).

**RDTE SUPPORT**--Used for communications support of research, development, test, and evaluation (RDT&E) programs and projects. (These frequency assignments do not have an experimental station class.)

**RED HORSE**--Used in support of air force tactical construction operations.

**REFUELING**--Used in supporting voice communications in support of air-air refueling operations.<sup>1</sup>

**REMOTE BARRIER CONTROL SYSTEMS**--Used to control aircraft barrier systems.

**REMOTE CONTROL CRANE**--Used to control remotely controlled cranes such as in a shipyard, harbor or other major industrial facilities.

**RESOURCES CONSERVATION**--Used to support resource conservation research operations.

**RESUPPLY**--Used in support of re-supply operations.

**RUNWAY ICE DETECTION SYSTEMS**--Used to monitor runway ice detection systems.

**RUNWAY LIGHTING CONTROL**--Used to control remotely controlled runway lighting.

**SAFETY**--Used in support of Public works safety net.

**SATELLITE COMMUNICATIONS**--Used for voice and/or data transmissions over a non-specific satellite system

**SAWDS** (Satellite Automated WX Dist Sys)--Network to disseminate weather information to DoD facilities.

**SCAMP** (Single Channel Anti-Jam Manportable Terminal)--Used to support voice and data links for battle command and control communications.<sup>5</sup>

**SCOPE SHIELD**--Tactical handheld radios.

**SEA OPERATIONS**--Used in supporting those functions which originate from on board ship and/or directly support the launching of, actual conduct of, and returning of forces carrying out sea-based operations; operations in a maritime and littoral environment which contribute to gaining and maintaining freedom of action.

**SEABEES**--Used in support of SEABEES construction activities.<sup>2</sup>

**SEARCH AND RESCUE**--Used in supporting Search and Rescue (SAR) operational use of aircraft, surface craft, submarines, specialized rescue teams and equipment to search for and rescue personnel in distress on land or at sea.

**SECURITY FORCE**--Used in providing installation physical security operations.<sup>2</sup>

**SEISMIC**--Used to transmit measurements of stress, strain, or movements of the earth's crust.

**SENTINEL**-- (AN/MPQ-64 Surveillance Radar)--Used for air surveillance and target acquisition/tracking sensor for Short Range Air Defense (SHORAD) weapons systems.<sup>5</sup>

**SGLS** (Space Ground Link Subsystem) (Telemetry)--Used in conjunction with the Automated Remote Tracking System (ARTS).

**SHIP/AIR OPERATIONS**--Used in supporting airborne units assigned to USA Naval ships.

**SHIP/SHIP**--Used in supporting ship-to-ship communications.

**SHIP/SHORE OPERATIONS**--Used in supporting ship-to-shore communications.

**SHIPLYARD**--Used in supporting shipyard operations, except remote controlled cranes.

**SHORE PATROL**--Used by shore patrol activities.

**SHUTTLE**--Used in direct support of Space Shuttle operations.<sup>2</sup>

**SIMULATOR**--Used to support simulator activities.

**SINCGARS**-- (Single Channel Ground and Airborne Radio System)--Used to support combat arms command and control operations.<sup>5</sup>

**SINCGARS-ASIP** (Single Channel Ground and Airborne Radio System-Advanced System Improvement Plan)--Used to support combat arms command and control operations.<sup>5</sup>

**SNOW REMOVAL**--Used to support snow removal activities.<sup>2</sup>

**SOF** (Supervisor of Flying)--Used by the SOF to assist pilots.

**SONOBUOY**-- Used for floating electronic sensors designed to provide various data for Navy antisubmarine warfare (ASW).

**SPACE OPERATIONS**--Used in supporting those functions that directly support operational space missions including satellite control and shuttle missions.<sup>2</sup>

**SPECIAL COURIER**--Used by personnel engaged in transporting valuable, sensitive, hazardous, or classified material.

**SPECIAL FORCES**--Used for specially trained, equipped, and organized forces against strategic or tactical targets in pursuit of national military, political, economic, or psychological objectives. These operations may be conducted during peace or hostilities. They may support conventional operations, or be prosecuted independently when use of conventional forces is inappropriate or infeasible.

**SPECIAL OPERATIONS**--Used in directly supporting Special Operations; those operations conducted by specially trained, equipped, and organized DoD forces (e.g., SOF) against strategic or tactical targets during peacetime or during hostilities.

**SPECIAL PROJECTS**--Used in support of communications electronics systems that are generally one-of-a-kind systems (e.g., Special Forces, intelligence, RF propagation systems, ground and avionics communications-electronics weapons systems, etc).

**SPECIAL SECURITY OPERATIONS**--Used in direct support of special security operations.

**SPEED MEASUREMENT SYSTEMS**--Used by law enforcement activities to measure the speed of vehicles.

**SPITFIRE** (SPITFIRE Manpack UHF SATCOM DAMA Terminal)--Used to support digital voice communications.

**SQUADRON/WING COMMON**--A common frequency used for communication within a squadron or wing; (AF) a unit composed normally of one primary mission group and the necessary supporting organizations; (Navy) the basic organizational and administrative unit for naval-, land-, and tender-based aviation; (Marines) a balanced task organization of aircraft groups/squadrons together with appropriate command, air control, administrative, service, and maintenance units.

**STRIKER II** (Advanced Fire Support/Scout/Surveillance System)--Used to support long range, reconnaissance, surveillance and fire support systems.<sup>6</sup>

**SUPPLY AND LOGISTICS**--Used to support general Supply and Logistics operations.

**SURVEILLANCE SYSTEMS**--Used to support base security surveillance operations.

**SURVEILLANCE/RECONNAISSANCE**--Used in supporting those strategic and tactical sensors and systems which provide warning of air breathing, ballistic missile, space-based, or tactical ground-based attack or to relay voice and/or data on the activities and resources of a potential or real enemy or the characteristics of a particular area obtained through visual observations or other detection methods.<sup>1</sup>

**SURVEY**--Used on an intermittent basis by field survey teams involved in measurement activities (e.g. geodetic surveys, radiation hazard monitoring, pre-construction site surveys, etc).

**SUSTAINING OPERATIONS**--Used in supporting those functions normally performed in conjunction with the continued operation of a Army Post, Navy/Marine Corps Base, Air Force Base, or ships.<sup>2</sup>

**TACAN** (Tactical Air Navigation)--Used by TACAN systems.

**TACCS** (Tactical Army Combat Service Support Computer System)--Used in support of the TACCS.

**TACJAM** (Tactical Communications Jamming System)--Used to support jamming operations.<sup>6</sup>

**TACTS** (Tactical Trunk Signaling)--Used to support trunking systems.<sup>6</sup>

**TADIL-A**--Used in support of the operation of Link 11 Naval Tactical Data Systems (ship to ship and ship to air) operations. Also used by the USAF for air to ground operations.

**TADIL-C**--High Frequencies (HF) Used in support of the operation of Link 11 Naval Tactical Data Systems (ship to ship and ship to air) operations.

**TARGET ACQUISITION**--Used within a system that identifies valid targets.

**TARGET SCORING**--Used to support target scoring of laser equipment.<sup>4</sup>

**TARGET**--Used to support target scoring and precision tracking radar etc.<sup>4</sup>

**TAXI**--Used by base/installation taxi systems.<sup>2</sup>

**TCAS** (Traffic Collision Avoidance System)--Used by aircraft equipped with the TCAS equipment.<sup>2</sup>

**TCRS** (Target Control System)--Used to support target control functions and exercises at NTC.

**TEAMMATE**--Used to support collection and direction finding systems.<sup>5</sup>

**TECHNICAL ESCORT UNIT**--Used to support a technical escort unit which is a deployable explosive and chemical/biological response team that identifies, escorts, decontaminates, disposes, and mitigates explosive chemical and biological devices.

**TELECOMMAND**--Used to remotely control the operations of an unmanned vehicle (land, sea, air, or space), or to activate and deactivate instruments or devices carried by the vehicle (e.g. missile destruct, guidance of remotely piloted vehicles (RPVs), control of overhead cranes, etc).

**TELEMETRY**--Used in supporting the transmission of telemetry data on a DoD Range.<sup>2</sup>

**TEST AND MEASUREMENT**--Used in supporting the test and measurement functions on a DoD Range.<sup>2</sup>

**TEST RANGE TIMING**--Used in supporting the transmission of timing signals on a DoD Range.<sup>2</sup>

**TEST RANGE**--Used in support of operations that are unique to a government test range (e.g. range control, range safety, range timing, etc).

**TETHERED AREOSTAT RADAR**--Used in supporting the Tethered Aerostat Radars and interface system.<sup>2</sup>

**THUNDERBIRDS**--Used by the USAF THUNDERBIRDS demonstration team.

**TMGS** (Transportable mobile ground subsystems)--Used in support of telecommand operations.

**TOSS** (TV Ordnance Scoring System)--Used in support of telecommand operations in scoring target accuracy on military ranges.

**TOWER**-- Controls aircraft within assigned airspace and aircraft/vehicles on ground at airfields.

**TRACKWOLF**--Used to support ground based HF skywave communications intercept and direction finding systems.<sup>5</sup>

**TRAILBLAZER** (Ground Based Communications Intelligence System)--Used by the Army to gather Intelligence.

**TRAINING**--Used to train personnel in the accomplishment of a specific task or set of tasks.

**TRANSPORTATION**--Used to coordinate the routine movement of material and/or personnel from one point to another (e.g. messenger service, supply expeditor, taxi dispatch, etc).

**TRAVELERS INFORMATION SYSTEM**--Used to provide travelers advisories.<sup>2</sup>

**TROJAN SPIRIT**--Used to support the Transportable Trojan Spirit II satellite communications terminal.<sup>5</sup>

**TRUNKING**--Radiotelephony using standard land mobile trunking principles.

**TSU**-- Technical escort unit is a deployable explosive and chemical/biological response team that identifies, escorts, decontaminates, disposes, and mitigates explosive chemical and biological devices.

**UAV** (Unmanned Aerial Vehicle)--Used in supporting the testing and/or operations of pilotless aircraft<sup>2</sup>

**UFO**--Used for voice and/or data transmissions over the UHF Follow-On system.

**UNLICENSED DEVICE**--Used by the government for use by low power devices normally operated without a license under the provisions of Part 15 of the FCC Regulations.

**UTILITIES**--Used for the management, control, and/or distribution of utilities (e.g. electric power, water, telephone service, oil and gas, etc.).

**VOR** (Very High Frequency Omnidirectional Range)--Used for Very High Frequency (VHF) Omnidirectional Range (VOR) operations.<sup>2</sup>

**VORTAC** (VHF Omni-range TACAN)--Used for VORTAC operations.<sup>2</sup>

**WARNING SYSTEM**--A signal or siren that warns of imminent danger (e.g., bomb alert, chemical, tornadoes, etc.)

**WEAPONS STORAGE PROTECTION**--Used to support weapons storage facilities.<sup>6</sup>

**WEATHER RADAR**--Radar frequencies used by aircraft or ground based sites for weather purposes.

**WEATHER**--Used for the transmission of meteorological information (e.g. wind speed, temperature, barometric pressure, forecasts, etc).

**WGS**--Used for voice and/or data transmissions over the Wideband Global SATCOM system.

**WHCA** (White House Communications Agency)--Used in supporting WHCA operations.

**WILDLIFE PRESERVATION**--Used for game wardens, endangered species/wildlife preservation and tracking the movements of wild animals.

**WIND PROFILER**--Used for sensing wind shear in the vicinity of airports.

**WIN-T** (Warfighter Information Network-Tactical)--Used to support the Army's tactical Intranet consisting of switching/routing/transport that provides voice, data and video services.<sup>6</sup>

**WIRELESS LOCAL AREA NETWORK**--Used to support local area network frequency bands.<sup>6</sup>

**WIRELESS MIKE**--A transmitting device used to provide the audio input to a speaker system. (Note: Although wireless mikes may be used in direct support of functions shown elsewhere on this list, such as RDTE SUPPORT or TRAINING, all assignments for these devices shall show WIRELESS MIKE as the function name.)

**WOLVERINE** (Assault Bridge)--Used to support command and control of bridge operations.<sup>6</sup>

### **Notes:**

(none) Taken directly from Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms

1. Adapted from existing definition(s) contained in Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms
2. Definition derived from various DoD sources
3. Definition extracted or derived from HQ Department of the Army, FM 100-5, Operations.
4. Definition extracted or derived from HQ Department of the Army, AR 310-25, Dictionary of

United States Army Terms.

5. Definition extracted or derived from Command, Control, Communications, Computer, Intelligence & Electronic Warfare and Sensors and Information Management (C4IEWS & IM).
6. Definition extracted or derived from Secretary of the Army Research, Development, & Acquisition via the Internet

## Language (LN)

Code List Category LN is used for lang under element [Title](#).

code	Language name
aa	Afar
ab	Abkhazian
ae	Avestan
af	Afrikaans
ak	Akan
am	Amharic
an	Aragonese
ar	Arabic
as	Assamese
av	Avaric
ay	Aymara
az	Azerbaijani
ba	Bashkir
be	Belarusian
bg	Bulgarian
bh	Bihari
bi	Bislama
bm	Bambara
bn	Bengali
bo	Tibetan
br	Breton
bs	Bosnian
ca	Catalan
ce	Chechen
ch	Chamorro
co	Corsican
cr	Cree
cs	Czech
cu	Church Slavic
cv	Chuvash
cy	Welsh
da	Danish
de	German
dv	Divehi
dz	Dzongkha
ee	Ewe
el	Greek
en	English

eo	Esperanto
es	Spanish
et	Estonian
eu	Basque
fa	Persian
ff	Fulah
fi	Finnish
fj	Fijian
fo	Faroese
fr	French
Western Frisian	
ga	Irish
gd	Scottish Gaelic
gl	Galician
gn	Guaraní
gu	Gujarati
gv	Manx
ha	Hausa
he	Hebrew
hi	Hindi
ho	Hiri Motu
hr	Croatian
ht	Haitian
hu	Hungarian
hy	Armenian
hz	Herero
ia	Interlingua (International Auxiliary Language Association)
id	Indonesian
ie	Interlingue
ig	Igbo
ii	Sichuan Yi
ik	Inupiaq
io	Ido
is	Icelandic
it	Italian
iu	Inuktitut
ja	Japanese
jv	Javanese
ka	Georgian
kg	Kongo
ki	Kikuyu
kj	Kwanyama
kk	Kazakh

kl	Kalaallisut
km	Khmer
kn	Kannada
ko	Korean
kr	Kanuri
ks	Kashmiri
ku	Kurdish
kv	Komi
kw	Cornish
ky	Kirghiz
la	Latin
lb	Luxembourgish
lg	Ganda
li	Limburgish
ln	Lingala
lo	Lao
lt	Lithuanian
lu	Luba-Katanga
lv	Latvian
mg	Malagasy
mh	Marshallese
mi	Maori
mk	Macedonian
ml	Malayalam
mn	Mongolian
mo	Moldavian
mr	Marathi
ms	Malay
mt	Maltese
my	Burmese
na	Nauru
nb	Norwegian Bokmål
nd	North Ndebele
ne	Nepali
ng	Ndonga
nl	Dutch
nn	Norwegian Nynorsk
no	Norwegian
nr	South Ndebele
nv	Navajo
ny	Chichewa
oc	Occitan
oj	Ojibwa

om	Oromo
or	Oriya
os	Ossetian
pa	Punjabi
pi	Pali
pl	Polish
ps	Pashto
pt	Portuguese
qu	Quechua
rm	Raeto-Romance
rn	Kirundi
ro	Romanian
ru	Russian
rw	Kinyarwanda
sa	Sanskrit
sc	Sardinian
sd	Sindhi
se	Northern Sami
sg	Sango
sh	Serbo-Croatian
si	Sinhalese
sk	Slovak
sl	Slovenian
sm	Samoan
sn	Shona
so	Somali
sq	Albanian
sr	Serbian
ss	Swati
st	Sotho
su	Sundanese
sv	Swedish
sw	Swahili
ta	Tamil
te	Telugu
tg	Tajik
th	Thai
ti	Tigrinya
tk	Turkmen
tl	Tagalog
tn	Tswana
to	Tonga
tr	Turkish

ts	Tsonga
tt	Tatar
tw	Twi
ty	Tahitian
ug	Uighur
uk	Ukrainian
ur	Urdu
uz	Uzbek
ve	Venda
vi	Vietnamese
vo	Volapük
wa	Walloon
wo	Wolof
xh	Xhosa
yi	Yiddish
yo	Yoruba
za	Zhuang
zh	Chinese
zu	Zulu

## List Of MIME Types (MT)

### Guidance

1. The following list of MIME Types is to be used for values of attribute mimeType in element Attachment.
2. Other types may be added upon request to and after coordination by the SO PWG.

Mime Type	File Extension(s)
application/msword	doc
application/octet-stream	
application/pdf	pdf
application/postscript	ai eps ps
application/visio	vsd
application/vnd.ms-excel	xls
application/vnd.ms-powerpoint	ppt
application/vnd.openxmlformats	xlsx docx pptx xlsm docm pptm
application/vnd.sun.xml.calc	sxc
application/vnd.sun.xml.draw	sxd
application/vnd.sun.xml.impress	sxi
application/vnd.sun.xml.writer	sxw
application/wordperfect	wpd
application/x-dvi	dvi
application/x-latex	latex
application/xhtml+xml	xhtml xht
application/xml	xml xsl
application/xml-dtd	dtd
application/xslt+xml	xslt
application/zip	zip
audio/mpeg	mp3
image/bmp	bmp
image/gif	gif
image/jpeg	jpeg jpg jpe
image/png	png
image/tiff	tiff tif
image/svg+xml	svg
text/css	css
text/html	shtml html htm
text/plain	asc txt
text/rtf	rtf
text/sgml	sgml sgm
video/mp4	mp4
video/mpeg	mpg mpeg

## List Of Station Classes (SC)

### Guidance

1. The following list of station class codes (Code List Category SC) are authorized for use in Data elements [Config](#) and [StnClass](#).
2. The source of each code/definition is either the preface to the ITU BR-IFIC (code "ITU" in the last column), or has been agreed by the SO PWG (code "INTL"). These extended codes from "INTL" MUST NOT be used for data to be submitted to ITU.

The following table is used to determine the proper Station Class symbol to be used versus the Service in which the transmitting station will operate.

Service	Svc Code	Class Definition	Source
Aeronautical Mobile (OR)	AM(OR) S	Aeronautical Station (OR): An aeronautical station in the aeronautical mobile (OR) service.	ITU
Aeronautical Mobile (R)	AM(R)S	Aeronautical Station (R): An aeronautical station in the aeronautical mobile (R) service.	ITU
Aeronautical Mobile	AMS	Aeronautical Station: A land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example on board ship or on a platform at sea.	ITU
	AMS	Aeronautical Broadcast Station: An aeronautical station which makes scheduled broadcasts of meteorological information and notices to airmen. (In certain instances, an aeronautical broadcast station may be placed on board a ship.)	INTL
	AMS	Airdrome Control Station: An aeronautical station providing communication between an airdrome control tower and aircraft.	INTL
	AMS	Telecommand Aeronautical Station: A land station in the aeronautical mobile service the emissions of which are used for terrestrial telecommand.	INTL
	AMS	Flight Test Station: An aeronautical station used for the transmission of essential communications in connection with the testing of aircraft or major components of aircraft.	INTL
	AMS	Aircraft Station: A mobile station in the aeronautical mobile service other than a survival craft station, located on board an aircraft.	ITU
	AMS	Telecommand Aircraft Station: A mobile station in the aeronautical mobile service the emissions of which are used for terrestrial telecommand.	INTL
	AMS	Portable Aircraft Station: A portable station operating in the aeronautical mobile service.	INTL
Aeronautical Mobile-Satellite	AMSS	Aeronautical Mobile-Satellite Space Station: A space station in the aeronautical mobile-satellite service.	ITU
	AMSS	Aeronautical Earth Station: An earth station in the fixed-satellite service or in some cases in the aeronautical mobile-satellite service located at a specified fixed point on land to provide a feeder link for the aeronautical mobile-satellite service.	ITU
	AMSS	Aircraft Earth Station: A mobile earth station in the aeronautical mobile-satellite service located on board an aircraft.	ITU
Aeronautical Radionavigation	ARNS	Aeronautical Radionavigation Land Station: A land station in the aeronautical radionavigation service not intended for use while in motion.	ITU
	ARNS	Aeronautical Marker Beacon Station: A radionavigation land station in the aeronautical radionavigation service which employs a marker beacon.	INTL
	ARNS	Aeronautical Radiobeacon Station: A radiobeacon station in the aeronautical radionavigation service intended for the benefit of aircraft.	INTL
	ARNS	Aeronautical Radar Beacon (racon) Station: A land station in the aeronautical radionavigation service which employs a radar beacon (racon).	INTL
	ARNS	Glide Path (Slope) Station: A radionavigation land station which provides vertical guidance to aircraft during approach to landing.	INTL
	ARNS	Localizer Station: A radionavigation land station in the aeronautical radionavigation service which employs an Instrument Landing System Localizer.	INTL
	ARNS	Omnidirectional Range Station: A radionavigation land station in the aeronautical radionavigation service providing direct indication of the bearing (omni-bearing) of that station from an aircraft.	INTL
	ARNS	Radio Range Station: A radionavigation land station in the aeronautical radionavigation service providing radial equisignal zones. (In certain instances a radio range station may be placed on board a ship.)	INTL
	ARNS	Surveillance Radar Station: A radionavigation land station in the aeronautical radionavigation service employing radar to display the presence of aircraft within its range. (In certain instances, a surveillance radar station may be placed on board a ship.)	INTL
	ARNS	ALTM Radionavigation Land Test Station (Maintenance Test Facility): A radionavigation land station in the aeronautical radionavigation service which is used as a	INTL

		radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft navigational aids, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit maintenance testing by aircraft radio service personnel.	
	ARNS	ALTO Radionavigation Land Test Station (Operational Test Facility): A radionavigation land station in the aeronautical radionavigation service which is used as a radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft navigational aids, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit the pilot to check a radionavigation system aboard the aircraft prior to takeoff.	INTL
	ARNS	AM Aeronautical Radionavigation Mobile Station: A mobile station in the aeronautical radionavigation service intended to be used while in motion or during halts at unspecified points.	ITU
	ARNS	AMA Altimeter Station: A radionavigation mobile station in the aeronautical radionavigation service which employs a radio altimeter.	INTL
Aeronautical Radionavigation-Satellite	ARNSS	EO Aeronautical Radionavigation-Satellite Space Station: A space station in the aeronautical radionavigation-satellite service.	ITU
	ARNSS	TO Aeronautical Radionavigation-Satellite Mobile Earth Station: A mobile earth station in the aeronautical radionavigation-satellite service.	ITU
	ARNSS	TZ Aeronautical Radionavigation-Satellite Earth Station: A fixed earth station in the aeronautical radionavigation-satellite service.	ITU
Amateur	AS	AT Amateur station	ITU
	ASS	EA Space station in the amateur-satellite service	ITU
	ASS	TA Space operation earth station in the amateur-satellite service	ITU
Broadcasting	BS	BC Broadcasting Station (sound): A station (sound) in the broadcasting service.	ITU
	BS	BT Broadcasting Station (television): A station (television) in the broadcasting service.	ITU
	BS	TS Television Sound Channel	INTL
	BS	TV Television Vision Channel	INTL
Broadcasting-Satellite	BSS	EB Broadcasting-Satellite Space Station (sound broadcasting): A space station in the broadcasting-satellite service (sound broadcasting).	ITU
	BSS	EV Broadcasting-Satellite Space Station (television): A space station in the broadcasting-satellite service (television).	ITU
	BSS	UB Earth station in the broadcasting-satellite service (sound broadcasting)	ITU
	BSS	UV Earth station in the broadcasting-satellite service (television)	ITU
	EESS	E3 Space station in the Earth exploration-satellite service(active sensor)	ITU
	EESS	E4 Space station in the Earth exploration-satellite (passive sensor)	ITU
Earth Exploration-Satellite	EESS	EW Earth Exploration-Satellite Space Station: A space station in the Earth exploration-satellite service.	ITU
	EESS	TW Earth Exploration-Satellite Earth Station: An earth station in the Earth exploration-satellite service.	ITU
Fixed	EESS	UW Mobile earth station in the earth exploration-satellite service	ITU
	FS	FX Fixed Station: A station in the fixed service.	ITU
	FS	FXD Telecommand Fixed Station: A fixed station in the fixed service the emissions of which are used for terrestrial telecommand.	INTL
	FS	FXE Telemetry Fixed Station: A fixed station the emissions of which are used for telemetering.	INTL
	FS	FXH Hydrologic and Meteorological Fixed Station: A fixed station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.	INTL
Fixed-Satellite	FSS	EC Fixed-Satellite Space Station: A space station in the fixed-satellite service.	ITU
	FSS	TB Aeronautical Earth Station: An earth station in the fixed-satellite service or in some cases in the aeronautical mobile-satellite service located at a specified fixed point on land to provide a feeder link for the aeronautical mobile-satellite service.	ITU
	FSS	TC Fixed-Satellite Earth Station: An earth station in the fixed-satellite service.	ITU
	FSS	TI Coast Earth Station: An earth station in the fixed-satellite service or in some cases in the maritime mobile-satellite service located at a specified fixed point on land to provide a feeder link for the maritime mobile-satellite.	ITU
	FSS	TY Base Earth Station: An earth station in the fixed-satellite service or in some cases in the land mobile-satellite service located at a specified point or within a specified area on land to provide a feeder link for the land mobile-satellite service.	ITU
	FSS	VA Land Earth Station: An earth station in the fixed-satellite service or in some cases in the mobile-satellite service located at a specified point or within a specified area on land to provide a feeder link for the mobile-satellite service.	ITU
Inter-Satellite Land Mobile	ISS	ES Inter-Satellite Space Station: A space station in the inter-satellite service.	ITU
	LMS	FB Base Station: A land station in the land mobile service.	ITU
	LMS	FBD Telecommand Base Station: A land station in the land mobile service the emissions of which are used for terrestrial telecommand.	INTL
	LMS	ML Land Mobile Station: A mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent.	ITU
	LMS	MLD Telecommand Land Mobile Station: A mobile station in the land mobile service	INTL

			the emissions of which are used for terrestrial telecommand.	
	LMS	MLP	Portable Land Mobile Station: A portable station operating in the land mobile service.	INTL
Land Mobile-Satellite	LMSS	EU	Land Mobile-Satellite Space Station: A space station in the land mobile-satellite service.	ITU
	LMSS	TU	Land Mobile Earth Station: A mobile earth station in the land mobile-satellite service capable of surface movement within the geographical limits of a country or continent.	ITU
	LMSS	TY	Base Earth Station: An earth station in the fixed-satellite service or in some cases in the land mobile-satellite service located at a specified point or within a specified area on land to provide a feeder link for the land mobile-satellite service.	ITU
Meteorological Aids	METAI	SA	Meteorological Aids Mobile Station: A mobile station in the meteorological aids service intended to be used while in motion or during halts at unspecified points.	ITU
	DS			
	METAI	SAR	Radiosonde Station: A station in the meteorological aids service employing a radiosonde.	INTL
	DS			
	METAI	SM	Meteorological Aids Base Station: A land station in the meteorological aids service not intended for use while in motion.	ITU
	DS			
	METAI	SMB	Radar Beacon Precipitation Gage Station: A transponder station in the meteorological aids service, the emissions of which are used for telemetering.	INTL
	DS			
	METAI	SMD	Meteorological Radar Station: A station in the meteorological aids service employing radar.	INTL
	DS			
	METAI	SMR	Radiosonde Ground Station: A station in the meteorological aids service employing a ground station associated with a radiosonde.	INTL
	DS	G		
Meteorological-Satellite	METSS	EM	Meteorological-Satellite Space Station: A space station in the meteorological-satellite service.	ITU
	METSS	TM	Meteorological-Satellite Earth Station: An earth station in the meteorological-satellite service.	ITU
Maritime Mobile	METSS	UN	Mobile earth station in the meteorological-satellite service	ITU
	MMS	FC	Coast Station: A land station in the maritime mobile service.	ITU
	MMS	FCB	Marine Broadcast Station: A coast station which makes scheduled broadcast of time, meteorological, and hydrographical information.	INTL
	MMS	FCD	Telecommand Coast Station: A land station in the maritime mobile service the emissions of which are used for terrestrial telecommand.	INTL
	MMS	MS	Ship Station: A mobile station in the maritime mobile service located on board a vessel which is not permanently moored, other than a survival craft station.	ITU
	MMS	MSD	Telecommand Ship Station: A mobile station in the maritime mobile service the emissions of which are used for terrestrial telecommand.	INTL
	MMS	MSP	Portable Ship Station: A portable station operating in the maritime mobile service.	INTL
	MMS	OD	Oceanographic Data Station: A station in the maritime mobile service located on a ship, buoy or other sensor platform the emissions of which are used for the transmission of oceanographic data.	ITU
	MMS	OE	Oceanographic Data Interrogating Station: A station in the maritime mobile service the emissions of which are used to initiate, modify, or terminate functions of equipment directly associated with an oceanographic data station, including the station itself.	ITU
Maritime Mobile-Satellite	MMSS	EG	Maritime Mobile-Satellite Space Station: A space station in the maritime mobile-satellite service.	ITU
	MMSS	TG	Ship Earth Station: A mobile earth station in the maritime mobile-satellite service located on board ship.	ITU
	MMSS	TI	Coast Earth Station: An earth station in the fixed-satellite service or in some cases in the maritime mobile-satellite service located at a specified fixed point on land to provide a feeder link for the maritime mobile-satellite.	ITU
Maritime Radionavigation	MRNS	NL	Maritime Radionavigation Land Station: A land station in the Maritime Radionavigation Service not intended for use while in motion	ITU
	MRNS	NLC	Maritime Radar Beacon (racon) Station: A land station in the maritime radionavigation service which employs a radar beacon (racon).	INTL
	MRNS	NLM	Marine Radiobeacon Station: A radiobeacon station in the maritime radionavigation service intended for the benefit of ships.	INTL
	MRNS	RM	Maritime radionavigation mobile station	ITU
Maritime Radionavigation-Satellite	MRNSS	EQ	Maritime Radionavigation-Satellite Space Station: A space station in the maritime radionavigation-satellite service.	ITU
	MRNSS	TQ	Maritime Radionavigation-Satellite Mobile Earth Station: A mobile earth station in the maritime radionavigation-satellite service.	ITU
	MRNSS	TX	Maritime Radionavigation-Satellite Earth Station: A fixed earth station in the maritime radionavigation-satellite service.	ITU
Mobile	MS	FL	Land Station: A station in the mobile service not intended to be used while in motion.	ITU
	MS	FLD	Telecommand Land Station: A land station in the mobile service the emissions of which are used for terrestrial telecommand.	INTL
	MS	FLE	Telemetering Land Station: A land station the emissions of which are used for telemetering.	INTL
	MS	FLEA	Aeronautical Telemetering Land Station: A telemetering land station used in the flight testing of manned or unmanned aircraft, missiles, or major components	INTL

		thereof.		
MS	FLEB	Flight Telemetering Land Station: A telemetering land station the emissions of which are used for telemetering to a balloon; to a booster or rocket, excluding a booster or rocket in orbit about the Earth or in deep space; or to an aircraft, excluding a station used in the flight testing of an aircraft.	INTL	
MS	FLEC	Surface Telemetering Land Station: A telemetering land station the emissions of which are intended to be received on the surface of the Earth.	INTL	
MS	FLH	Hydrologic and Meteorological Land Station: A land station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.	INTL	
MS	FLU	Aeronautical Utility Land Station: A land station located at airdrome control towers and used for control of ground vehicles and aircraft on the ground at airmores.	INTL	
MS	GS	Station on board a warship or a military or naval aircraft	INTL	
MS	MO	Mobile Station: A station in the mobile service intended to be used while in motion or during halts at unspecified points.	ITU	
MS	MOB	Radio Beacon Mobile Station: A mobile station the emissions of which are used to determine its location.	INTL	
MS	MOD	Telecommand Mobile Station: A mobile station in the mobile service the emissions of which are used for terrestrial telecommand.	INTL	
MS	MOE	Telemetering Mobile Station: A mobile station the emissions of which are used for telemetering.	INTL	
MS	MOE	Aeronautical Telemetering Mobile Station: A telemetering mobile station used for A transmitting data directly related to the airborne testing of the vehicle, (or major components), on which the station is installed.	INTL	
MS	MOE	Flight Telemetering Mobile Station: A telemetering mobile station used for B transmitting data from an airborne vehicle, excluding data related to airborne testing of the vehicle itself, (or major components thereof).	INTL	
MS	MOE	Surface Telemetering Mobile Station: A telemetering mobile station located on the C surface of the Earth and the emissions of which are intended to be received on the surface of the Earth.	INTL	
MS	MOH	Hydrologic and Meteorological Mobile Station: A mobile station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.	INTL	
MS	MOP	Portable Mobile Station: A portable station operating in the mobile service.	INTL	
MS	MOU	Aeronautical Utility Mobile Station: A mobile station used for communication at airmores with the aeronautical utility land station, the airdrome control station, the US FAA flight service station, ground vehicles, and aircraft on the ground. (All transmissions shall be subject to the control of the airdrome control station and shall be discontinued immediately when so requested by the airdrome control operators.)	INTL	
Mobile-Satellite	MSS	EI	Mobile-Satellite Space Station: A space station in the mobile-satellite service.	ITU
	MSS	TE	Satellite EPIRB Station: A satellite Emergency Position-Indicating Radio Beacon (EPIRB) in the mobile-satellite service	ITU
	MSS	UA	Mobile Earth Station: An earth station in the mobile-satellite service intended to be used while in motion or during halts at unspecified points.	ITU
	MSS	VA	Land Earth Station: An earth station in the fixed-satellite service or in some cases in the mobile-satellite service located at a specified point or within a specified area on land to provide a feeder link for the mobile-satellite service.	ITU
	None	DGP	Differential-Global-Positioning-System (DGPS) Station: a terrestrial station used for the transmission of differential correction information to DGPS receivers aboard aircraft for navigation.	INTL
No Specific Service	None	ED	Space Telecommand Space Station: A space station which receives emissions used for space telecommand.	ITU
	None	EK	Space Tracking Space Station: A space station which transmits or receives and retransmits emissions used for space tracking.	ITU
	None	ER	Space Telemetering Space Station: A space station the emissions of which are used for space telemetering.	ITU
	None	EX	Experimental Station: A station utilizing radio waves in experiments with a view to development of science or technique. (EX is not used on applications.)	INTL
	None	FP	Port Station: A coast station in the port operations service.	ITU
	None	PA	Passenger Ship	INTL
	None	PL	Combination of 2 or more classes of station	ITU
	None	SN	Sounder Network Station: A station equipped with an ionosphere sounder used for the real-time selection of frequencies for operational communication circuits.	INTL
	None	SP	Sounder Prediction Station: A station equipped with an ionosphere sounder for real-time monitoring of upper atmosphere phenomena or to obtain data for the prediction of propagation conditions.	INTL
	None	TD	Space Telecommand Earth Station: An earth station the emissions of which are used for space telecommand.	ITU
	None	TK	Space Tracking Earth Station: An earth station which transmits or receives emissions used for space tracking.	ITU
	None	TR	Space Telemetering Earth Station: An earth station which receives emissions used for space telemetering.	ITU



Unknown

None    X    The station class is not known (legacy data only)

INTL

DRAFT

## List of Services (SN)

The definitions below are coming from the ITU Radio Regulations, edition 2004, Article 1. These codes form the Code List Category SN.

**Radiocommunication service:** A service as defined in this Section involving the transmission, emission and/or reception of radio waves for specific telecommunication purposes.

### List of Services in ITU Article 1

Short Code	Origin	Definition
AFS	ITU	Aeronautical Fixed Service: A radiocommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air transport.
AM(OR)S	ITU	Aeronautical Mobile (Off Route) Service: An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.
AM(R)S	ITU	Aeronautical Mobile (Route) Service: An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.
AMS	ITU	Aeronautical Mobile Service: A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.
AMS(OR)S	ITU	Aeronautical Mobile-Satellite (OR) Service: An aeronautical mobile-satellite service intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.
AMS(R)S	ITU	Aeronautical Mobile-Satellite (R) Service: An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.
AMSS	ITU	Aeronautical Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.
ARNS	ITU	Aeronautical Radionavigation Service: A radionavigation service intended for the benefit and for the safe operation of aircraft.
ARNSS	ITU	Aeronautical Radionavigation-Satellite Service: A radionavigation-satellite service in which earth stations are located on board aircraft.
AS	ITU	Amateur Service: A radiocommunication service for the purpose of self-training, inter-communication and technical investigation carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.
ASS	ITU	Amateur-Satellite Service: A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.
BS	ITU	Broadcasting Service: A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmissions.
BSS	ITU	Broadcasting-Satellite Service: A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public. In the broadcasting-satellite service, the term "direct reception" shall encompass both individual

reception and community reception.

EESS	ITU	Earth Exploration-Satellite Service: A radiocommunication service between earth stations and one or more space stations, which may include links between space stations, in which: - information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors or passive sensors on earth satellites; - similar information is collected from airborne or Earth-based platforms; - such information may be distributed to earth stations within the system concerned; - platform interrogation may be included.
FS	ITU	Fixed Service: A radiocommunication service between specified fixed points.
FSS	ITU	Fixed-Satellite Service: A radiocommunication service between earth stations at given positions when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service, the fixed-satellite service may also include feeder links for other space radiocommunication services.
ISS	ITU	Inter-Satellite Service: A radiocommunication service providing links between artificial earth satellites.
LMS	ITU	Land Mobile Service: A mobile service between base stations and land mobile stations, or between land mobile stations.
LMSS	ITU	Land Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on land.
METAIDS	ITU	Meteorological Aids Service: A radiocommunication service used for meteorological, including hydrological, observations and exploration.
METSS	ITU	Meteorological-Satellite Service: An Earth exploration-satellite service for meteorological purposes.
MMS	ITU	Maritime Mobile Service: A mobile service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.
MMSS	ITU	Maritime Mobile-Satellite Service: A mobile-satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position-indicating radiobeacon stations may also participate in this service.
MRNS	ITU	Maritime Radionavigation Service: A radionavigation service intended for the benefit and for the safe operation of ships.
MRNSS	ITU	Maritime Radionavigation-Satellite Service: A radionavigation-satellite service in which earth stations are located on board ships.
MS	ITU	Mobile Service: A radiocommunication service between mobile and land stations, or between mobile stations.
MSS	ITU	Mobile-Satellite Service: A radiocommunication service: - between mobile earth stations and one or more space stations, or between space stations used by this service; or - between mobile Earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation.
RAS	ITU	Radio Astronomy Service: A service involving the use of radio astronomy.

RDS	ITU	Radiodetermination Service: A radiocommunication service for the purpose of radiodetermination.
RDSS	ITU	Radiodetermination-Satellite Service: A radiocommunication service for the purpose of radio-determination involving the use of one or more space stations. This service may also include feeder links necessary for its own operation.
RLS	ITU	Radiolocation Service: A radiodetermination service for the purpose of radiolocation.
RLSS	ITU	Radiolocation-Satellite Service: A radiodetermination-satellite service used for the purpose of radiolocation. This service may also include the feeder links necessary for its operation.
RNS	ITU	Radionavigation Service: A radiodetermination service for the purpose of radionavigation.
RNSS	ITU	Radionavigation-Satellite Service: A radiodetermination-satellite service used for the purpose of radionavigation. This service may also include feeder links necessary for its operation.
SFTSS	ITU	Standard Frequency and Time Signal Service: A radiocommunication service for scientific, technical and other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.
SFTSSS	ITU	Standard Frequency and Time Signal-Satellite Service: A radiocommunication service using space stations on earth satellites for the same purpose as those of the standard frequency and time signal service. This service may also include feeder links necessary for its operation.
SMRS	USA	Specialized Mobile Radio Service: A radio service in which licensees provide land mobile communications services in the 800 MHz and 900 MHz bands on a commercial basis to entities eligible to be licensed under this part, federal government entities, and individuals.
SOS	ITU	Space Operation Service: A radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand. These functions will normally be provided within the service in which the space station is operating.
SRS	ITU	Space Research Service: A radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes.
SS	ITU	Special Service: A radiocommunication service, not otherwise defined in this Section, carried on exclusively for specific needs of general utility, and not open to public correspondence.

## Standard Requirement (SR)

Code List Category SR is used for **role** under element [ForceElement](#).

Short Code	Definition
1	Aviation
3	Chemical
5	Engineering
6	Field artillery
7	Infantry
8	Medical
9	Ordnance
10	Quartermaster

11	Signal
12	AG/Band
13	Army Material Command
14	Finance
16	Chaplain
17	Armor
19	Military police
20	General
27	Judge Advocate
30	Military intelligence (EAC)
31	Special Forces
32	Military intelligence (SIGINT EAC)
33	Psychological Operations
34	Military Intelligence (corps and below)
40	Space/ Missile Defense
41	Civil Affairs
42	Supply
43	Maintenance
44	Air Defense
45	Censorship
47	Brigade Combat Team/IDIV
51	Army
52	Corps
55	Transportation
57	Airborne Division
63	Combat Service Support
67	Airmobile
77	Separate Light Infantry
87	Heavy Division/Brigade
99	Other/Unknown

## Status Codes (ST)

The following standard status codes form the Code List Category ST and are used in Data element [Status](#) to track the status of datasets within automated processing systems. The following are brief descriptions of each code. (In this annex, the term "User" either refers to an actual user or a User Account):

Notes:

- The third column shows the datasets in which the code will be used (Ref = All reference datasets, section 5 in Annex 2; Tactical = all tactical datasets, section 8 in Annex 2).
- The fourth column shows if the code is linked to a data exchange (DE):
  - Code T: A data exchange will in most cases carry the Edit Authority out from the sender and give it to the recipient (T = transfer of edit authority along with the dataset);
  - Code K: In the cases where the dataset is sent for info, the sender keeps the Edit Authority, which means that the recipient must accept the dataset "as is" and can do nothing with it except store it and further send it for info (K = send dataset but keep edit authority);
  - Code No: Means that this status is added locally but does not involve a data exchange (eg a MODIFIED BY is just another log added to the dataset when the user makes any change, it does not imply that the dataset is sent to anybody).

Code	Explanation	Used in	DE
<b>ACCEPTED BY</b>	<p>This code is added by the victim upon receipt of an IntfMitigation dataset, if the proposed mitigation solves the interference.</p> <p><b>Special Meaning for USA:</b> This code signifies that the NTIA has received the proposal and has accepted it (i.e., it has been approved by the FAS). However, the actual assignment may not be added to the GMF for a few days. This status is assigned only to U.S. records that have been sent to NTIA.</p> <p><b>Special Meaning for GBR:</b> This code signifies that the user has received the assignment and has accepted it.</p>	IntfMitigation <b>USA, GBR: AsgnAllot</b>	No
<b>ACTIVATED BY</b>	This code is used to bring a "waiting" dataset into effect	SSRequest , Tactical	No
<b>ADMIN MOD BY</b>	This code is placed on the transaction when an administrative modification is created and sent to the CCF. When this code is added to a master dataset, the prior existing status information is not purged from the dataset.	All datasets	No
<b>APPROVED BY</b>	This code indicates that a User approved a transaction. The transaction is then normally forwarded to the next User in the spectrum management chain of command.	<b>USA Only</b>	
<b>ASSIGNED BY</b>	This code indicates that a User has assigned a temporary or permanent proposal. (Technically a permanent transaction remains a transaction until it is sent to the server master data repository but according to the frequency management coordination process, a permanent transaction becomes an assignment the moment the user assigns it.)	AsgnAllot	No
<b>AUTHORISED BY</b>	This code is used in the tactical datasets to authorize a JRFL, etc (could be merged with APPROVED BY ?)	Tactical	No
<b>COMPLIANCE</b>	This code identifies that compliance was performed successfully or performed with errors or warnings and overridden. If compliance is run on multiple proposals, all proposals will receive the same compliance status. If a User runs compliance on a record and subsequently loads the record back into the editor, and modifies the record, the previous compliance status will be erased. Compliance should be re-run before loading it back to the database. This status is automatically assigned by the system when there are no errors and manually if the errors are overridden.	<b>USA Only</b>	
<b>COORDINATION (from, to list)</b>	This code identifies the beginning and ending of manual (non-system related) coordination. The comment field is used to describe the coordination effort.	AsgnAllot, SSRequest	K

		, tactical	
<b>DELETED BY</b>	This code indicates that a dataset has been deleted as a result of a user submitted delete transaction.	All datasets	No
<b>EXPIRED BY</b>	This code identifies that a dataset has been removed from a national or international data repository because the dataset expiration date (Expire element) has been reached. Some automated systems may retain for a period of time expired and deleted datasets for user reference. This status reflects why a dataset was deleted. When this code is added to a master dataset, the prior existing status information is not purged from the dataset.	AsgnAllot, Ref, Tactical	No
<b>FORWARDED (from, to)</b>	This code indicates that the User has requested the transaction be transferred from the current User to another User, usually on another platform.	All datasets	T
<b>IMPORTED BY</b>	This code identifies the User that first imported a dataset transaction into a SSRF compliant system, from an external source.	All datasets	No
<b>IN-PROCESS AT</b>	This code identifies the first time the proposal was opened by a User on its system (i.e. equivalent to a "read" status in MS Outlook). The intent is to identify when each User began working on the proposal.	All datasets	No
<b>INFO (from, to list)</b>	This code indicates that a courtesy copy of the transaction was forwarded to the specified list of Users.	All datasets	K
<b>LATERAL COORDINATION</b>	This code indicates that a proposal has been electronically laterally coordinated with one or more data exchanging clients (i.e., coordinating Users). This status is different than the status of COORDINATION, in that the Originator of a lateral coordination proposal does not give up Edit Authority. The Originator and Coordinators add their coordination comments into the proposal on the LATERAL COORDINATION status line. Normally, the Originator will assign a suspense date to the Coordinators stating when their comments must be returned. The Originator does not have to wait until all comments have been received, before closing the Lateral Coordination cycle.	<b>USA Only</b>	
<b>MODIFIED BY</b>	This code identifies the last time the dataset was modified by the User.	All datasets	No
<b>NOTIFIED BY</b>	This code indicates that a User has posted the Temporary Assignment (T) to a Server (or has requested that the Temporary Assignment (T) be posted during the next data exchange). This posting serves to notify the community of the Temporary Assignment.	<b>USA Only</b>	
<b>ORIGINATED BY</b>	This code identifies the User that originated (created) a dataset transaction	All datasets	No
<b>RECALLED (from, to)</b>	This code allows the originator of a dataset to regain edit authority if he realizes he made an error after he already forwarded it	All datasets	T
<b>RECEIVED BY</b>	This code indicates the transaction has been received by the given User for processing.	All datasets	No
<b>REGISTERED WITH</b>	This code indicates that a request has been made to register a non-reportable proposal. Registration converts non-reportable Permanent Proposals into Permanent Assignments once they are successfully validated and processed on the Central Server. The REGISTERED WITH status should also be used for Administrative Modifications to reportable records. There are only a limited number of Users that have the authority to register a record. Authority to register them must be set by the server database administrator or the help desk administrator as requested by authorized agencies.	<b>USA Only</b>	
<b>REJECTED (from, to)</b>	This code indicates that a User has rejected a dataset or that the dataset was automatically rejected during validation by a SSRF compliant system.	All datasets	T
<b>RESOLVED (from, to)</b>	This code is added to the IntfReport by a User who submits a related IntfMitigation dataset to solve the interference. The IntfReport should always be sent back with the IntfMitigation.	IntfReport	T
<b>REVIEW REQUIRED (from, to)</b>	This code is used to send back a dataset from the User having the Edit Authority on the record to the originator of the dataset when the review date of dataset is reached, requesting the originator to review the data.	AsgnAllot, Ref, SSRequest , SSReply,	T

		Tactical	
SUBMITTED TO	This code is a request to submit the Permanent Proposal (P) to the external approval authority, which is outside the current SPECTRUM XXI domain, to become a Permanent Assignment (A). There are only a limited number of Users that have the authority to submit a record to the approval authority. Authority to submit must be set by the server database administrator or help desk administrator as requested by authorized agencies.	USA Only	
TABLED BY	This code is used by NTIA only. It signifies that the proposal has been tabled for further discussion.	USA Only	

## Other Lists

### *Code List Category AA:*

Short Code	Definition
AL	Allotment
AS	Assignment

### *Code List Category AC:*

Short Code	Definition
M	Modification. Used to add, substitute, or remove one or more data items in an existing dataset.
N	New. Used to create a new dataset and place it in the repository.

### *Code List Category AD:*

Short Code	Definition
DIR	Directional (if the direction of maximum radiation can be mentioned)
ND	Non directional/omnidirectional (if the direction cannot be determined or the radiation is non directional)
ROT	Rotating (if the antenna rotates at a fixed rate)
STR	Steerable (Fixed direction but steerable in the horizontal plane)
SSH	Scanning horizontally through a limited sector
SSV	Vertical scanning (nodding)
TRK	Tracking that can observe a moving object
UNK	Unknown

### *Code List Category AF:*

Short Code	Definition
2	Balun
3	Lens
A	Horn
B	Dipole
C	Pill Box
D	Nutating
E	Multi Array Of Folded Dipoles
F	Slotted Linear Array
G	Rotating Spinner Horn
H	Four Horn Cluster
I	Faired Set
J	Mult Feed Horn Lin Vert Array
K	Float Strip Type Power Divider

L	1/2 Wave Radiator
M	Rod
N	Slot
O	Waveguide
P	Cutler
Q	Cassegrain
R	Dipole Array
S	8 Feed Horn Cluster
T	Rotating Dipole
U	Lewis Scanner
V	Probe
W	Conical
X	Feedhorn Cluster
Y	Yagi Element
Z	Other-See Remarks

***Code List Category AL:***

Short Code	Definition
A	Rectangular Waveguide
B	Circular Waveguide
C	Coaxial Cable
D	Dielectric Waveguide
E	Elliptic Waveguide
F	Flexible Coaxial Cable
G	Fin-Line Waveguide
H	Beam Waveguide
I	Rigid Coaxial Cable
J	Flexible Waveguide
K	Air Dielectric Cable
L	Ladder Line
M	Microstrip Line
O	Optic-Fiber Waveguide
P	Open Wire
Q	Coplaner Strip Line
R	Ridge Waveguide
S	Surface-Wave Line
T	Twin Lead
V	Semirigid Waveguide
W	Waveguide
Z	Other-See Remarks

***Code List Category AP:***

Short Code	Definition
HH	Horizontal polarized port response to a horizontally polarized signal in the horizontal direction
HV	Horizontal polarized port response to a vertically polarized signal in the horizontal direction
VV	Vertically polarized port response to a vertically polarized signal in the horizontal direction
VH	Vertically polarized port response to a horizontally polarized signal in the horizontal direction
ELHH	Horizontal polarized port response to a horizontally polarized signal in the vertical direction
ELHV	Horizontal polarized port response to a vertically polarized signal in the vertical

	direction
<b>ELVV</b>	Vertically polarized port response to a vertically polarized signal in the vertical direction
<b>ELVH</b>	Vertically polarized port response to a horizontally polarized signal in the vertical direction
<b>X</b>	Unknown

#### *Code List Category AR:*

<b>Short Code</b>	<b>Definition</b>
<b>NI</b>	No Impact
<b>NIB</b>	Non-Interference Basis
<b>NPB</b>	Non-Protected Basis

#### *Code List Category AU:*

<b>Short Code</b>	<b>Definition</b>
<b>T</b>	Transmitter only
<b>R</b>	Receiver Only
<b>TR</b>	Transceiver

#### *Code List Category AV:*

<b>Short Code</b>	<b>Definition</b>
<b>A</b>	Additional
<b>D</b>	Different

#### *Code List Category BO:*

<b>Short Code</b>	<b>Definition</b>
<b>Y</b>	Yes
<b>N</b>	No

#### *Code List Category CA:*

<b>Short Code</b>	<b>Definition</b>
<b>HF</b>	HF frequency or circuit
<b>NAV</b>	Navigational aid
<b>OTHER</b>	Any terrestrial or other link not covered by other codes (e.g. a R/R link)
<b>UHFAMS</b>	Aeronautical mobile service (A/G/A) in the UHF band, including HQII and SATURN
<b>VHFAMS</b>	Aeronautical mobile service (A/G/A) in the VHF band

#### *Code List Category CC:*

<b>Short Code</b>	<b>Definition</b>
<b>HCS</b>	May be used only with TOP SECRET, SECRET, or CONFIDENTIAL.
NOFORN is required	
<b>COMINT</b>	May be used only with TOP SECRET, SECRET, or CONFIDENTIAL
<b>-GAMMA</b>	May be used only with TOP SECRET. Requires SI and ORCON
<b>-ECI</b>	May be used only with TOP SECRET. Requires SI
<b>TALENT KEYHOLE</b>	May be used only with TOP SECRET or SECRET. May require RSEN for imagery product

### **Code List Category CL:**

<b>Short Code</b>	<b>Definition</b>
<b>U</b>	Unclassified
<b>R</b>	Restricted
<b>C</b>	Confidential
<b>S</b>	Secret
<b>T</b>	Top Secret

*Note for the USA: The letter "R" MUST NOT be used in USA created datasets.*

### **Code List Category CO:**

<b>Short Code</b>	<b>Definition</b>
<b>G</b>	Global
<b>NH</b>	Northern Hemisphere
<b>SH</b>	Southern Hemisphere
<b>WH</b>	Western Hemisphere
<b>EH</b>	Eastern Hemisphere
<b>NWQ</b>	North-western Earth Quarter
<b>SWQ</b>	South-western Earth Quarter
<b>NEQ</b>	North-eastern Earth Quarter
<b>SEQ</b>	South-eastern Earth Quarter

### **Code List Category CR:**

<b>Short Code</b>	<b>Definition</b>
<b>AU</b>	Author of a document
<b>AUTH</b>	Authority for an exercise
<b>COORD</b>	Coordinating organization
<b>FM</b>	Frequency Manager (responsible for assignments)
<b>GATEWAY</b>	Point of contact for transactions between different organizational domains
<b>LICENSEE</b>	Licensee of the assignment
<b>OTHER</b>	Any other individual not listed in the categories above
<b>OWNER</b>	The owner of the dataset
<b>PE</b>	Project/System Engineer
<b>PM</b>	Project/System Manager
<b>SM</b>	Spectrum Manager (responsible for planning)
<b>STNCTRL</b>	Station Controller
<b>STOP</b>	Stop buzzer (individual authorized to immediately cease transmission in case of problem)
<b>SUPPLIER</b>	Provider of the equipment or the information
<b>USER</b>	User of the dataset

### **Code List Category CT:**

<b>Short Code</b>	<b>Definition</b>
<b>BASE</b>	Baseband
<b>FILTER</b>	External filter between TxRx and Antenna
<b>GAIN</b>	Gain of an antenna
<b>IFSEL1</b>	Receiver 1 <sup>st</sup> intermediate frequency selectivity
<b>IFSEL2</b>	Receiver 2 <sup>nd</sup> intermediate frequency selectivity
<b>IFSEL3</b>	Receiver 3 <sup>rd</sup> intermediate frequency selectivity
<b>IFSEL4</b>	Receiver 4 <sup>th</sup> intermediate frequency selectivity
<b>IFSEL5</b>	Receiver 5 <sup>th</sup> intermediate frequency selectivity
<b>INTMOD</b>	Intermodulation rejection
<b>RFSEL</b>	Receiver radio-frequency selectivity

<b>RFSPCT</b>	Transmitter RF spectrum
<b>RXIMAG</b>	Receiver image responses
<b>RXRESP</b>	Receiver spurious responses
<b>TXHARM</b>	Harmonics levels
<b>TXSPUR</b>	Spurious levels

#### **Code List Category DC:**

<b>Short Code</b>	<b>Definition</b>
<b>CAW15</b>	Call Word (6-15 characters)
<b>CAW5</b>	Call Word (1-5 characters)
<b>CAWUD</b>	Call Word (User Defined 2-15 characters)
<b>CLSGN</b>	A list of call signs
<b>CLSGP</b>	A list of Callsigns to be used in a group of nets
<b>CMSKY</b>	A list of COMSEC Keymat names
<b>COW15</b>	Colour Word (6-15 characters)
<b>COW5</b>	Colour Word (1-5 characters)
<b>COWUD</b>	Sign/Countersign Dictionary
<b>CWDGP</b>	A list of Call words to be used in a group of nets
<b>EXTGP</b>	Extract group
<b>FQSGP</b>	A frequency separation group
<b>FRQGP</b>	A frequency group
<b>NEDEF</b>	A list of net expander definitions
<b>NETXP</b>	A list of net expanders
<b>NTSFX</b>	A list of net suffixes
<b>NSDEF</b>	a list of net suffix definitions
<b>PYRO</b>	See the standardized list of pyrotechniques available(See Code List Category PY)
<b>PYDEF</b>	The list of standard pyrotechniques definitions (See Code List Category PD)
<b>SHRGP</b>	A frequency share group
<b>SMDEF</b>	The list of standard smoke definitions (See Code List Category SD)
<b>SMOKE</b>	The list of available smokes (See Code List Category SM)

#### **Code List Category DD:**

<b>Short Code</b>	<b>Definition</b>
<b>DEP</b>	Dependant Dataset (e.g. in AsgnAllot or SSRequest, one system cannot operate without the other)
<b>REL</b>	Related Dataset (e.g. in AsgnAllot or SSRequest, each system may still operate without the related system)
<b>REQ</b>	The current SSReply is an answer to the referenced SSRequest.
<b>SUP</b>	Superseded Dataset

#### **Code List Category DE:**

<b>Short Code</b>	<b>Definition</b>
<b>D</b>	The Delete transaction was submitted by a user.
<b>E</b>	The record Expiration date passed and the record was not reviewed or updated; therefore the dataset was expired from the active data repository by an approving authority.

#### **Code List Category DF:**

<b>Short Code</b>	<b>Definition</b>
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N	Non-return to Zero
O	Other
R	Return to Zero
S	Split Phase (Manchester)
T	NRZ-M ( non return to zero mark)
U	NRZ-S (non return to zero space)
V	Bi-Phase-L (bi-phase level)
W	Bi-Phase-M. (bi-phase mark)
X	Bi-Phase-S (bi-phase space)
Y	DBi-Phase-M (differential bi-phase mark)
Z	DBi-Phase-S (differential bi-phase space)

#### **Code List Category DI:**

Short Code	Definition
MD5	MD5 digest algorithm
SHA1	SHA-1 digest algorithm
SHA224	SHA-2 224 bits digest algorithm
SHA256	SHA-2 256 bits digest algorithm
SHA384	SHA-2 384 bits digest algorithm
SHA512	SHA-2 512 bits digest algorithm

#### **Code List Category DR:**

Short Code	Definition
ACCEPT	This Administrative dataset provides positive answer to an AsgnAllot in COORDINATION.
AOI	This is a request to create a recurring query for data within an Area Of Interest.
CRDCMT	This Administrative dataset provides answer, with comments, to an AsgnAllot sent for COORDINATION.
INVMMSG	An invalid message was received; another Administrative dataset should request the missing datasets.
MISREF	The referenced dataset has been rejected because of missing cross-references.
QUERY	This is a request for information; sub-element Remarks contains the criteria.
RECALL	The referenced dataset is being recalled.
REJECT	The received dataset does not fulfill the requirement.
UNSUP	The referenced dataset is not supported by the system.

#### **Code List Category DS:**

Short Code	Definition
E	The separation must be exactly the value entered (for use e.g. when transmit and receive radio frequencies are assigned in fixed pairs).
M	The separation must be at the minimum the value entered.

#### **Code List Category DT:**

Short Code	Definition
AL	Allotment
AN	Antenna
AS	Assignment
BS	BSM Plan
CD	Codes
CE	CEOI
CL	Operating Clearance
CN	Contact

CR	Operating Clearance request
DE	Deletion
DI	Dictionary
DR	Administrative
DP	Response
EX	External reference
FD	Force Element Deployment
FE	Force Element
HD	Spectrum Supportability Reply (Host Nation Declaration)
HO	HERO
IF	Interference Report
IM	Interference Mitigation
JR	JRFL
LA	Location Set (Area)
LG	Location Polygon
LT	Location Point
MS	Message
OR	Organisation
RA	Antenna Standard
RC	Coordination Standard
RH	Channel Plan
RM	Emission Mask Standard
RN	Note
RO	Route
RP	Band Application
RR	Reception Standard
RT	Emission Standard
RU	Band User
RV	Curve Standard
SD	Signal Description
SR	Spectrum Supportability Request
TA	Table of Allocations
TR	Transceiver (Transmitter/Receiver)

#### **Code List Category EB:**

Short Code	Definition
CD	CUP-DIPOLE
D	DIPOLE
H	HORN
HR	RIDGED HORN
R	ROD
S	SLOT
SR	SLOT RHOMBIC
SW	SLOTTED WAVEGUIDE
W	WAVEGUIDE
WR	RIDGE WAVEGUIDE
XD	CROSSED DIPOLES
Z	OTHER-SEE REMARKS

#### **Code List Category EE:**

Short Code	Definition
ALT	ALTN/COPilot
DEP	DEPUTY/STAFF AST
FIR	FIR CON TM/REAR
FWD	FORWARD

JR	JR AIDE/2ND/ENL
MAIN	MAIN
OIC	SEC/TM LDR/OIC
NCOIC	SEC/TM LDR/NCOIC
RTO	RTO/DVR/PILOT
1ST OFF	SR AIDE/1ST OFF
SP1	SPARE 1
SP2	SPARE 2
SP3	SPARE 3
SP4	SPARE 4
SP5	SPARE 5
SP6	SPARE 6
SP7	SPARE 7
SP8	SPARE 8
SP9	SPARE 9
SP10	SPARE 10
SP11	SPARE 11
SP12	SPARE 12
SP13	SPARE 13
SP14	SPARE 14
SP15	SPARE 15
SP16	SPARE 16

***Code List Category FC:***

<b>Short Code</b>	<b>Definition</b>
AIR	Air component
MAR	Maritime component
LAN	Land component
AMP	Amphibious component
SF	Special Forces
JNT	Joint
OTH	Other

***Code List Category FD:***

<b>Short Code</b>	<b>Definition</b>
CL	Physical location of the force element
CO	Operating area of the force element (typically a polygon / AOR)
CR	Current route
PL	Planned location
PO	Planned operating area
PR	Planned route

***Code List Category FE:***

<b>Short Code</b>	<b>Definition</b>
O	Organisational force element
P	Platform (vehicle, aircraft, ship, etc)

***Code List Category FM:***

<b>Short Code</b>	<b>Definition</b>
1	RMS multichannel deviation
2	RMS deviation per channel

***Code List Category FP:***

<b>Short Code</b>	<b>Definition</b>
O	Organisation or People
E	Equipment

***Code List Category FR:***

<b>Short Code</b>	<b>Definition</b>
C	The referenced Organisation / Force Element is child of the current Organisation / Force Element
P	The referenced Organisation / Force Element is parent of the current Organisation / Force Element
S	The referenced Organisation / Force Element is a sibling of the current Organisation / Force Element

***Code List Category FS:***

<b>Short Code</b>	<b>Definition</b>
0	Calculated frequency fulfills all the EMC requirements
1	Calculated frequency has been selected after 1 relaxation
2	Calculated frequency has been selected after 2 relaxations
3	Calculated frequency has been selected after 3 relaxations
4	Frequency violates the resource constraint

***Code List Category FT:***

<b>Short Code</b>	<b>Definition</b>
RPT	Reporting
BDG	Budget
PLN	Plan ORBAT
REF	Reference ORBAT
REL	Related (not hierarchical)

***Code List Category GR:***

<b>Short Code</b>	<b>Definition</b>
G	Guard always
R	Guard when required
W	Guard when directed
L	Listen only
T	Transmit only

***Code List Category GT:***

<b>Short Code</b>	<b>Definition</b>
CALLSIGN	Call Sign Share Group (several nets to be grouped together because they are designated to share the same callsign)
CALLWORD	Call Word Share Group (several nets to be grouped together because they are designated to share the same callword)
EXTRACT	Extract Share Group (several nets to be grouped together for display in the CEOI)
FREQ	Frequency Share Group (several nets to be grouped together because they are designated to share the same frequency)
FREQSEP	Frequency Separation Share Group (several nets to be grouped together because they are designated to share the same frequency)

***Code List Category HD:***

<b>Short Code</b>	<b>Definition</b>
Y	Granted as requested
N	Denied
C	Granted with additional constraints or remarks

***Code List Category HN:***

<b>Short Code</b>	<b>Definition</b>
A	The frequency is preassigned by NATO headquarters (NHQC3S/SMB).
F	The frequency was assigned by the NATO UHF Frequency Assignment Software (NUFAS) at NHQC3S/SMB.
H	Host Nation Nominations are acceptable.
U	The frequency was preassigned by the user.

***Code List Category IE:***

<b>Short Code</b>	<b>Definition</b>
E	The point or area is Excluded
I	The point or area is Included

***Code List Category IF:***

<b>Short Code</b>	<b>Definition</b>
1	1st Intermediate Frequency
2	2nd Intermediate Frequency
3	3rd Intermediate Frequency
4	4th Intermediate Frequency
5	5th Intermediate Frequency

***Code List Category IM:***

<b>Short Code</b>	<b>Definition</b>
E	Evaluation
M	Mitigation

***Code List Category IN:***

<b>Short Code</b>	<b>Definition</b>
1	Remote-Piloted Vehicle (Air)
2	Remote-Piloted Vehicle (Land)
3	Remote-Piloted Vehicle (Sea)
A	Air
E	Land Fixed
H	Land Mobile
I	Shipboard
J	Submarine
K	Satellite
L	Land
M	Missile
N	Non Synchronous Orbit
O	Handheld
P	Amphibious
Q	Space

S	Synchronous Orbit
T	Transport
U	Unknown
V	Deep Space
W	Water
Y	Manpack
Z	Other

#### **Code List Category IR:**

Short Code	Definition
R	Registered with ITU-R
U	Notified to ITU-R but received unfavourable findings and therefore not registered in the International Frequency List (IFL)
I	Registration with ITU-R on an insistence basis
O	Not notified to ITU-R due to the rules laid down in the ITU regulations
P	Pending notification to ITU-R
M	Registered with ITU-R but needs to be modified
N	Registration with ITU-R not required
S	Registration with ITU-R not requested for security reasons
Y	Registration with ITU-R is required

#### **Code List Category IT:**

Short Code	Definition
1	ITU Region 1
2	ITU Region 2
3	ITU Region 3

#### **Code List Category J1:**

Short Code	Definition
MEA	Meaconing
ITR	Intrusion
JAM	Jamming
INT	Interference
ENV	Environmental (natural phenomena such as ducting, sun spot activity, etc)

#### **Code List Category LA:**

Short Code	Definition
LA	Area
LG	Polygon
LT	Point

#### **Code List Category LC:**

Code List Category LC is used for attribute **cmdLevel** under element [ForceElement](#)

Short Code	Definition
A	Numbered Army
ACD	Academy
ACS	Accounts Control Section
ACT	Activity
ADM	Admission
AF	Numbered Air Force
AFY	Air Facility

<b>AGP</b>	Army Group
<b>AGY</b>	Agency
<b>ANX</b>	Annex
<b>AP</b>	Air Patrol
<b>AR</b>	Area
<b>ARO</b>	Area Regional Office
<b>ARS</b>	Arsenal
<b>AST</b>	Air Station
<b>AUG</b>	Augmentation
<b>B</b>	Barge
<b>BAS</b>	Base
<b>BD</b>	Board
<b>BDE</b>	Brigade
<b>BKS</b>	Barracks
<b>BLT</b>	Battalion Landing Team
<b>BN</b>	Battalion
<b>BND</b>	Band
<b>BR</b>	Branch
<b>BSN</b>	Basin
<b>BT</b>	Boat
<b>BTY</b>	Battery
<b>BU</b>	Business Unit
<b>CAY</b>	Corps Artillery
<b>CDC</b>	Consolidated Distribution Centre
<b>CEC</b>	Communications-Electronics Complex
<b>CEP</b>	Communications-Electronics Package
<b>CGC</b>	USCG Cutter
<b>CGE</b>	College
<b>CLN</b>	Clinic
<b>CMD</b>	Command
<b>CMN</b>	Commission
<b>CMP</b>	Camp
<b>CO</b>	Company
<b>CPS</b>	Corps
<b>CRW</b>	Crew
<b>CTP</b>	Port Captain
<b>CTR</b>	Centre
<b>DAO</b>	Defense Attaché Office
<b>DAY</b>	Division Artillery
<b>DEP</b>	Depot
<b>DET</b>	Detachment
<b>DIR</b>	Director/Directorate
<b>DIV</b>	Division
<b>DMB</b>	Detachment For MEB
<b>DMF</b>	Detachment For MEF
<b>DML</b>	MEU DET Residual
<b>DMM</b>	MEB DET Residual
<b>DMP</b>	II MEB And MEU DET Residual
<b>DMR</b>	Detachment Residual
<b>DMT</b>	II MEB Detachment Residual
<b>DMU</b>	Detachment For MEU
<b>DSP</b>	Dispensary
<b>DST</b>	District
<b>DTL</b>	Detail
<b>ELE</b>	Element
<b>FAC</b>	Facility
<b>FAR</b>	Field Artillery

<b>FLO</b>	Flotilla
<b>FLT</b>	Numbered Fleet
<b>FOA</b>	Field Operating Activity
<b>FOR</b>	Force
<b>FT</b>	Flight
<b>FTR</b>	Force Troops
<b>GAR</b>	Garrison
<b>GRP</b>	Group
<b>HBD</b>	Headquarters. Headquarters Company And Band
<b>HHB</b>	Headquarters And Headquarters Battery
<b>HHC</b>	Headquarters And Headquarters Company
<b>HHD</b>	Headquarters And Headquarters Detachment
<b>HHS</b>	Headquarters, Headquarters And Service Company
<b>HHT</b>	Headquarters And Headquarters Troop
<b>HM</b>	Home
<b>HMC</b>	Headquarters And Maintenance Company
<b>HQ</b>	Headquarters
<b>HQC</b>	Headquarters Company
<b>HQD</b>	Headquarters Detachment
<b>HQS</b>	Headquarters And Service Company
<b>HSB</b>	Headquarters, Headquarters And Service Battery
<b>HSC</b>	Headquarters, Headquarters And Support Company
<b>HSP</b>	Hospital
<b>INS</b>	Installation
<b>ISP</b>	Inspector
<b>IST</b>	Institute
<b>LAB</b>	Laboratory
<b>LIB</b>	Library
<b>MAA</b>	Military Assistance Advisory Group
<b>MAG</b>	Marine Air Group
<b>MAW</b>	Marine Air Wing
<b>MEB</b>	Marine Expeditionary Brigade
<b>MEF</b>	Marine Expeditionary Force
<b>MER</b>	Merchant Ship
<b>MEU</b>	Marine Expeditionary Unit
<b>MF</b>	Marine Forces
<b>MGR</b>	Manager
<b>MGZ</b>	Magazine
<b>MIS</b>	Mission
<b>MSC</b>	MSC Ship
<b>MSF</b>	MSC One-Time Charter
<b>MTF</b>	Maintenance Float
<b>MUS</b>	Museum
<b>NSC</b>	Navy Support Craft
<b>NSL</b>	No Significant Level
<b>OBS</b>	Observatory
<b>ODC</b>	Office Of Defense Cooperation
<b>OFC</b>	Office
<b>OFF</b>	Officer
<b>OIC</b>	Officer-In-Charge
<b>OL</b>	Operating Location
<b>OMC</b>	Office Of Military Cooperation
<b>PKG</b>	Package
<b>PKT</b>	Packet
<b>PLN</b>	Plant
<b>PLT</b>	Platoon
<b>PO</b>	Post Office

PRT	Port
PTY	Party
PVG	Proving Ground
RCT	Regimental Combat Team
REG	Region
REP	Representative
RES	Reserves
RGN	Region(al)
RGT	Regiment
RLT	Regimental Landing Team
RNG	Range
SCH	School
SCM	Support Command
SCO	Service Company
SCT	Sector
SEC	Section
SHP	Shop
SIP	Ship, Foreign/Merchant
SQ	Squadron
SQD	Squad
SS	Shop Stores
SST	Substation
STA	Station
STF	Staff
STP	Special Troops
STR	Store
SU	Subunit
SUP	Supervisor
SVC	Service
SYD	Shipyards
SYS	System
TE	Task Element
TF	Task Force
TG	Task Group
TM	Team
TML	Terminal
TRN	Train
TRP	Troop
TU	Task Unit
U	Unit
USS	US Ship
WG	Wing
WKS	Works

**Code List Category LO:**

Short Code	Definition
A	LO is above the RF centre frequency
B	LO is below the RF centre frequency
E	LO is either above or below the RF centre frequency

**Code List Category LT:**

Short Code	Definition
LG	Polygon
LT	Point

### **Code List Category LU:**

<b>Short Code</b>	<b>Definition</b>
<a href="#"><b>AG</b></a>	Agency (element <a href="#">Organisation</a> )
<a href="#"><b>AM</b></a>	Antenna Mode (element <a href="#">AntMode</a> )
<a href="#"><b>AS</b></a>	Antenna Scan (elements <a href="#">HorzScan</a> , <a href="#">VertScan</a> )
<a href="#"><b>AT</b></a>	Antenna Type (element <a href="#">AntType</a> )
<a href="#"><b>BD</b></a>	Beam Type (element <a href="#">Beamwidth</a> )
<a href="#"><b>EF</b></a>	Equipment Function (element <a href="#">EqpFnct</a> )
<a href="#"><b>ET</b></a>	Force Element Type (*)
<a href="#"><b>MA</b></a>	Manufacturer (element <a href="#">Manufacturer</a> )
<a href="#"><b>NO</b></a>	Note (element <a href="#">Note</a> )
<a href="#"><b>RS</b></a>	Reflector Shape (element <a href="#">Dimension</a> )

(\*) Force element codes will be implemented during volume 3 development.

Code List Category EM is used for attribute **missionCode** under element [ForceElement](#)

### **Code List Category MC:**

<b>Code</b>	<b>Definition</b>
<b>1</b>	Task Organization
<b>2</b>	Major Command
<b>3</b>	Medical/Dental
<b>4</b>	Chemical/Ordnance
<b>5</b>	Maintenance
<b>6</b>	Supply
<b>7</b>	Research and Development
<b>8</b>	Admin and Special Services
<b>9</b>	Composite Forces
<b>10</b>	Intelligence / Psychological Operations
<b>11</b>	Law enforcement / Security
<b>12</b>	Finance
<b>13</b>	Training
<b>14</b>	Transportation / Fleet Auxiliaries
<b>15</b>	Civil Affairs
<b>16</b>	Multifunction Post
<b>17</b>	Infantry
<b>18</b>	Artillery /Air & Space Defense
<b>19</b>	Armor/Antitank
<b>20</b>	Aviation/Anti-Aircraft
<b>21</b>	Engineering
<b>22</b>	Communications
<b>23</b>	Tactical Control
<b>24</b>	Special Ops
<b>25</b>	Combat Support
<b>26</b>	Recruiting
<b>27</b>	Naval Support
<b>28</b>	Warships
<b>29</b>	Aviation Support
<b>30</b>	Civil Air Patrol
<b>31</b>	Miscellaneous
<b>32</b>	Unknown

***Code List Category MO:***

<b>Short Code</b>	<b>Definition</b>
<b>AMC</b>	AM Clear Voice
<b>AMS</b>	AM Secure Voice
<b>ASK</b>	Amplitude Shift Keying, On-Off amplitude keying
<b>AUDSK</b>	AUDIO SHIFT-KEYING
<b>BPSK</b>	Binary Phase Shift Key
<b>CDM</b>	Code Division Multiplex
<b>COFDM</b>	Coded Orthogonal Frequency Division Multiplex
<b>DATA</b>	DATA
<b>DOPFSK</b>	DOPPLER FREQUENCY-SHIFT
<b>DPSK</b>	Differential Phase Shift Keying
<b>FDM</b>	Frequency Division Multiplex
<b>FMC</b>	FM Clear Voice
<b>FMS</b>	FM Secure Voice
<b>FSK</b>	Frequency Shift Keying
<b>GMSK</b>	Gaussian Minimum Shift Keying
<b>MDAT</b>	MULTICHANNEL DATA
<b>MPCM</b>	MULTICHANNEL PCM VOICE
<b>MSK</b>	Minimum Shift Keying
<b>MUL</b>	MULTICHANNEL
<b>MVOI</b>	MULTICHANNEL VOICE
<b>NOISE</b>	NOISE
<b>OFDM</b>	Orthogonal Frequency Division Multiplex
<b>PCM</b>	Multi-channel PCM Voice
<b>PSK</b>	Phase Shift Keying
<b>QAM</b>	Quadrature Amplitude Modulation
<b>QPRS</b>	Quadrature Partial Response Signaling
<b>QPSK</b>	Quadrature Phase Shift Keying
<b>SDATA</b>	SECURE DATA
<b>SNGL</b>	SINGLE CHANNEL
<b>SNGLV</b>	SINGLE VOICE CHANNEL
<b>SSVC</b>	SINGLE SECURE VOICE CNL
<b>TDM</b>	TIME-DIVISION-MULTIPLEX
<b>TFM</b>	Tuned Frequency Modulation
<b>VIDEO</b>	VIDEO
<b>VODA</b>	MULTICHANNEL VOICE/DATA
<b>OTH</b>	Other

***Code List Category MV:***

<b>Short Code</b>	<b>Definition</b>
<b>A</b>	TUBE
<b>B</b>	CRYSTAL
<b>D</b>	TRANSISTOR
<b>F</b>	DIODE
<b>G</b>	DUAL-GATE MOSFET
<b>I</b>	MICROWAVE IC
<b>W</b>	WAVEGUIDE
<b>Y</b>	SEE REMARKS
<b>Z</b>	UNKNOWN

***Code List Category NR:***

<b>Short Code</b>	<b>Definition</b>
<b>HQFMT1</b>	Have Quick II training net, hopset 1

<b>HQFMT2</b>	Have Quick II training net, hopset 2
<b>HQFMT3</b>	Have Quick II training net, hopset 3
<b>HQFMT4</b>	Have Quick II training net, hopset 4
<b>HQOP</b>	Have Quick II operational net
<b>PMRVHF</b>	(Digital) Private Mobile Radio in the VHF band
<b>PMRUHF</b>	(Digital) Private Mobile Radio in the UHF band
<b>SATST</b>	SATURN special training net
<b>SATTRS</b>	SATURN training net in sub-band mode
<b>SATTRF</b>	SATURN training net in full-band mode
<b>SATOPS</b>	SATURN operational net in sub-band mode
<b>SATOPF</b>	SATURN operational net in full-band mode
<b>UHFAMS</b>	Aeronautical mobile service - A/G/A in the UHF band
<b>UHFOLD</b>	Aeronautical mobile service - A/G/A in the UHF band - old allotment plan (used by NHQC3S/SMB during transitions in UHF Reorganizations)
<b>UHFNB</b>	Aeronautical mobile service - narrow band A/G/A in the UHF band
<b>VHFAMS</b>	Aeronautical mobile service - A/G/A in the VHF band

***Code List Category NS:***

<b>Short Code</b>	<b>Definition</b>
<b>C</b>	Commercial P/N
<b>L</b>	Line Item Number
<b>N</b>	National Stock Number
<b>T</b>	NATO Stock Number

***Code List Category NU:***

<b>Code</b>	<b>Definition</b>
<b>A</b>	Alternate
<b>N</b>	Nickname
<b>P</b>	Primary

***Code List Category OP:***

<b>Short Code</b>	<b>Definition</b>
<b>EQ</b>	Equals
<b>GE</b>	Greater Than or Equals
<b>GT</b>	Greater Than
<b>LE</b>	Less Than or Equals
<b>LT</b>	Less Than

***Code List Category OR:***

<b>Short Code</b>	<b>Definition</b>
<b>C</b>	Calculated
<b>M</b>	Measured
<b>X</b>	Unknown

***Code List Category OT:***

<b>Short Code</b>	<b>Definition</b>
<b>A</b>	Magnetron
<b>AA</b>	Fixed Magnetron
<b>AB</b>	Tunable Magnetron
<b>B</b>	Klystron
<b>C</b>	Traveling-Wave Tube

<b>E</b>	Amplitron
<b>F</b>	Triode
<b>FF</b>	Field Effect Transistor (FET)
<b>G</b>	Tetrode
<b>H</b>	Stabilotron
<b>I</b>	Lighthouse
<b>J</b>	Carcinatron
<b>K</b>	Solid State
<b>N</b>	Reactance Tube
<b>O</b>	Transformer
<b>P</b>	Transistor
<b>PF</b>	Push-Pull FET
<b>Q</b>	Step Recovery Diode
<b>R</b>	Gunn Diode
<b>S</b>	Pentode
<b>T</b>	Diode
<b>U</b>	Cross Field Amplifier
<b>V</b>	Twystron
<b>W</b>	Impatt Diode
<b>YY</b>	Yttrium Iron Garnet
<b>Z</b>	Other-See Remarks

#### **Code List Category PB:**

<b>Short Code</b>	<b>Definition</b>
<b>C</b>	Civil infrastructure.
<b>E</b>	Enemy (not Guarded).
<b>G</b>	Guarded. Frequencies with interest to the Intelligence sections.
<b>P</b>	Protected. Frequencies that have importance to the operation, but may be jammed because of geographic or time separation.
<b>T</b>	Taboo. Safety of life, stop buzzer, etc. If priorities are used, Taboo should always be A1.

#### **Code List Category PC:**

<b>Short Code</b>	<b>Definition</b>
<b>T</b>	Taboo. Safety of life, stop buzzer, etc. If priorities are used, Taboo should always be A1.
<b>G</b>	Guarded. Frequencies with interest to the Intelligence sections.
<b>P</b>	Protected. Frequencies that have importance to the operation, but may be jammed because of geographic or time separation.

#### **Code List Category PD:**

<b>Short Code</b>	<b>Definition</b>
<b>AIR</b>	Air strike, CBR or ground attack anticipated.
<b>BREAK</b>	Break contact with enemy/withdraw.
<b>CEASE</b>	Cease all fires/Cease air strike.
<b>CHALLENGE</b>	Challenge: Are you Friendly?
<b>COMMENCE</b>	Commence firing/launch attack.
<b>LIFT</b>	Lift supporting fires
<b>NO</b>	No meaning - use for illumination only.
<b>OBJ</b>	Objective taken/mission accomplished
<b>REPLY</b>	Reply: Friendly troops at this site (Do not bomb or strafe).
<b>REQUEST</b>	Request supporting fires.

**Code List Category PI:**

<b>Short Code</b>	<b>Definition</b>
Y	The dataset is to be processed to national level authority for approval
U	The dataset is within national boundaries; however, it need not be processed to national level authority for approval
O	The dataset is outside national boundaries and need not be processed to national level authority for approval
N	The dataset is outside national boundaries; however, it must be processed to national or international level authority for approval

**Code List Category PJ:**

<b>Short Code</b>	<b>Definition</b>
C	COMPLAN
E	Exercise
M	Mission
O	Operation
P	OPLAN
X	Other

**Code List Category PO:**

<b>Code</b>	<b>Source</b>	<b>Polarization</b>	<b>Definition</b>
45	INTL	45-degrees	The electric field intensity vector is either 45 degrees right or left of the vertical plane.
CL	ITU	Left-hand circular	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a left-hand or anti-clockwise direction.
CR	ITU	Right-hand circular	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction.
D	ITU	Dual	When substantially equal-amplitude Vertical and Horizontal polarized components are radiated without particular control of the phase relation between them. Typically, the vertically- and horizontally-polarized sources may be displaced one from the other so that the resultant polarization varies between circular and slant, according to azimuth angle.
E	INTL	Elliptical	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction, or rotates with time in a left-hand or anti-clockwise direction, while varying the field intensity. The magnitude of the horizontal field polarized component and the vertical field polarized component are unequal, resulting in elliptical polarization.

<b>EL</b>	INTL	Elliptic, left	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a left-hand or anti-clockwise direction while varying the field intensity.
<b>ER</b>	INTL	Elliptic, right	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-hand or clockwise direction while varying the field intensity.
<b>H</b>	ITU	Horizontal linear	The electric field intensity vector is in the horizontal plane.
<b>HV</b>	INTL	Horizontal and vertical	The electric field intensity vector is in both the horizontal and vertical planes.
<b>L</b>	ITU	Linear	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, remains in the direction specified by the angle measured anti-clockwise from a line parallel to the equatorial plane; the value of this angle is listed in <b>angle</b> and is expressed in degrees.
<b>M</b>	ITU	Mixed	The collective term applied when both vertical and horizontal components are radiated, embracing slant, circular, and dual polarization.
<b>O</b>	INTL	Oblique, angled, crossed	The electric field intensity vector varies from the horizontal or vertical planes in a crossed manner similar to the letter "X". The angles may vary from 1 to 89 degrees right and left of vertical.
<b>R</b>	INTL	Rotating	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in either a left-hand or anti-clockwise direction or right-hand or clockwise direction.
<b>SR</b>	ITU	Right-hand slant	The electric field intensity vector may vary from 1 to 89 degrees right of the vertical plane.
<b>SL</b>	ITU	Left-hand slant	The electric field intensity vector may vary from 1 to 89 degrees left of the vertical plane.
<b>TC</b>	INTL	Right and left-hand circular	The electric field intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in a right-handed or clockwise, and left-hand or anti-clockwise direction.
<b>V</b>	ITU	vertical linear	The electric field intensity vector is in the vertical plane
<b>X</b>	INTL	Other or unknown	The polarization is unknown or not one of the above selections.

### Code List Category PR:

Short Code	Definition
<b>DFNORM</b>	Frequency Separation - Normal Power
<b>DFHIGH</b>	Frequency Separation - High Power
<b>P02S20</b>	2-signal 2nd order - full protection

<b>P02S3O</b>	2-signal 3rd order - full protection
<b>P02S5O</b>	2-signal 5th order - full protection
<b>P03S3O</b>	3-signal 3rd order - full protection
<b>P03S5O</b>	3-signal 5th order - full protection
<b>P12S2O</b>	2-signal 2nd order - 1st relaxation
<b>P12S3O</b>	2-signal 3rd order - 1st relaxation
<b>P12S5O</b>	2-signal 5th order - 1st relaxation
<b>P13S3O</b>	3-signal 3rd order - 1st relaxation
<b>P13S5O</b>	3-signal 5th order - 1st relaxation
<b>P22S2O</b>	2-signal 2nd order - 2nd relaxation
<b>P22S3O</b>	2-signal 3rd order - 2nd relaxation
<b>P22S5O</b>	2-signal 5th order - 2nd relaxation
<b>P23S3O</b>	3-signal 3rd order - 2nd relaxation
<b>P23S5O</b>	3-signal 5th order - 2nd relaxation
<b>P0HARM</b>	Full protection against harmonics
<b>P1HARM</b>	Protection against harmonics at the 1st relaxation level
<b>P2HARM</b>	Protection against harmonics at the 2nd relaxation level
<b>VHF</b>	Protection of a VHF frequency
<b>UHF</b>	Protection of a UHF frequency

#### **Code List Category PS:**

<b>Short Code</b>	<b>Definition</b>
1	Primary
2	Secondary

#### **Code List Category PT:**

<b>Short Code</b>	<b>Definition</b>
<b>C</b>	Carrier Power Use this for "N0N" and for "A3E" sound broadcasting service (Station Class "BC").
<b>M</b>	Mean Power (For all A/A & A/G/A). Use this for most AM emissions using unkeyed full carrier and all frequency modulated emissions. Typical emissions include A2A, A2B, A3C, A3E (less broadcasting service), A3F, A7B, AXX, F1B, F1C, F2B, F3E, F3F, F7B, FXX, H2A, H3E, and H7B.
<b>P</b>	Peak Envelope Power Use this for all pulsed equipment, C3F Television, and the following classes: A1A, A1B, A7B, B7B, B8C, B8E, BXX, C3F, G3E, J2B, J3E, J7B, JXX, K1B, K2B, K3E, K3F, L2B, M2B, M3E, P0N, PXX, R2B and R3C.
<b>X</b>	Use this entry for the submission of space data to the ITU. Enter an "X" if the maximum peak power and power density values are of type C8b.

#### **Code List Category PY:**

<b>Short Code</b>	<b>Definition</b>
<b>AC</b>	Amber Star Cluster
<b>AP</b>	Amber Star Parachute
<b>GC</b>	Green Star Cluster
<b>GP</b>	Green Star Parachute
<b>GSS</b>	Green Smoke Streamer
<b>RC</b>	Red Star Cluster
<b>RP</b>	Red Star Parachute
<b>RSS</b>	Red Smoke Streamer
<b>VSS</b>	Violet Smoke Streamer
<b>WC</b>	White Star Cluster

<b>WP</b>	White Star Parachute
<b>YSS</b>	Yellow Smoke Streamer

### **Code List Category RE:**

<b>Short Code</b>	<b>Source</b>	<b>Definition</b>
<b>CONTR</b>	INTL	Contact Report: A brief report of a telephone call or a site visit
<b>DBRET</b>	INTL	Database Retrofit
<b>DOCU</b>	INTL	Document in any format not otherwise covered
<b>ECSA</b>	USA	Equipment Characteristics / Space Archive
<b>EMAIL</b>	INTL	Electronic Mail: any email not covered in one of the other specific categories, or any electronic media/transfer.
<b>ENGIN</b>	INTL	Engineering Report
<b>EWIR</b>	USA	Electronic Warfare Integrated Reprogramming (EWIR)
<b>FCC</b>	USA	Federal Communications Commission (FCC) Filing: A document registered with the FCC.
<b>INDUS</b>	INTL	Industry Publication: any document published by a company. Frequently, they are brochures or Specifications Sheets describing the capabilities of an equipment or system.
<b>INTFR</b>	INTL	Interference Report (to be used only when the interference report is not in SSRF format)
<b>ITUNO</b>	INTL	ITU Notification
<b>JAWES</b>	INTL	Janes Weapons Systems
<b>LICEN</b>	INTL	General License Reference
<b>MIPI</b>	INTL	Multilateral Interoperability Programme Identifier
<b>NAT</b>	INTL	National control/request number (may be entered by any organizational level)
<b>NOMEN</b>	USA	Nomenclature Card (DD FORM 61)
<b>SIN</b>	USA	Systems ID Number (USA code used by NTIA)
<b>SPS</b>	USA	Spectrum Planning Subcommittee Number (USA code used by NTIA)
<b>STD</b>	INTL	STANAG or other Standard documentation
<b>TECH</b>	INTL	Technical Manual

### **Code List Category RL:**

<b>Code</b>	<b>Definition</b>
<b>A</b>	Approved for public release; distribution is unlimited (DoD Directive 5230.24).
<b>B</b>	Releasable to soil country and NATO; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>C</b>	Releasable to soil country and the North Atlantic Treaty Organization (NATO); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>D</b>	Not releasable outside US Department of Defense (DoD) IAW Section 552(b)(1) of Title 5 of the US Code.
<b>E</b>	Not Releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>F</b>	Not releasable to foreign nationals and not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>G</b>	Releasable to Federal, State, and Local governments; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>H</b>	Releasable to soil country only; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>J</b>	Contingency assignment - Has Unified commander comments only - not releasable to

	foreign nationals unless formally coordinated; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>K</b>	Permanent assignment - Available for contingency use within the theater after coordination and approval of cognizant unified commander - releasable to soi nation; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>M</b>	Releasable to coalition operation organizations only; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>N</b>	Releasable to NATO; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>O</b>	Proprietary for commercial use only.
<b>P</b>	Proprietary; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>L</b>	Sensitive Compartmented Information (SCI); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>Q</b>	Special Category (SPECAT); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>R</b>	Special Access Required (SAR); otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.
<b>Z</b>	Releasable to Australia, Canada, New Zealand, and United Kingdom (CCEB) organizations only; otherwise, not releasable outside the US Government IAW Section 552(b)(1) of Title 5 of the US Code.

#### **Code List Category RO:**

<b>Short Code</b>	<b>Definition</b>
AUTH	Organisation who has given authority for the spectrum management process
COORD	Organisation with which co-ordination is required
SM	Spectrum Manager Organisation that is the Authority/Responsible for this BSM Plan

#### **Code List Category RT:**

<b>Short Code</b>	<b>Definition</b>
B	Coherent
C	Non-Coherent
D	Direct View Optics
G	Double Conversion Superheterodyne
H	Superheterodyne
J	Triple Conversion Superheterodyne
K	Crystal
L	Tuned Radio Frequency
N	Super Regenerative
O	Homodyne (Direct Conversion)
P	Quad Conversion Superheterodyne
U	Imaging Detector
V	Non-Imaging Detector
Z	Other-See Remarks

#### **Code List Category S4:**

<b>Short Code</b>	<b>Definition</b>
1	LEO
2	LEO Sun-Synchronous
3	LEO Polar
4	LEO Equatorial

5	LEO Intermediate
6	LEO Retrograde
A	MEO
C	Cislunar
D	GEO Near-Synchronous
E	GEO Synchronous
G	GEO Stationary
H	GEO Drift
I	GEO Inclined Drift
J	GEO Inclined
K	Highly Elliptic (HEO)
L	Lunar
M	Molniya
N	Non-Earth
S	Heliocentric
V	Deep Eccentric
W	Deep Space
X	GEO Transfer

#### *Code List Category S9:*

Short Code	Definition
F	Future
L	Launched

#### *Code List Category SD:*

Short Code	Definition
DANGER	Danger - do not land, parachute or drop supplies here
NO	No meaning - use for screening operations only.
REAL	Real emergency - send assistance to this area.
SAFE	Safe to land, parachute, or drop supplies here.
TARGET	Target designation

#### *Code List Category SE:*

Short Code	Definition
SN	Signal-to-Noise ratio; value is in dB
SINAD	Signal-Plus-Noise-Plus-Distortion to Noise-Plus-Distortion; value is in dB
BER	Bit Error Rate; value is a number in scientific notation
MDS	Minimum Discernable Signal
MTR	Minimum Target Recognition

#### *Code List Category SG:*

Short Code	Definition
1	Conceptual (Stage 1 is not used in this data item. It is provided for reference)
2	Experimental
3	Developmental
4	Operational

#### *Code List Category SM:*

Short Code	Definition
------------	------------

<b>G</b>	Green Smoke
<b>R</b>	Red Smoke
<b>V</b>	Violet Smoke
<b>W</b>	White Smoke
<b>Y</b>	Yellow Smoke

**Code List Category SS:**

<b>Short Code</b>	<b>Definition</b>
1	Direct sequence
2	Frequency hopped
3	Time hopped
4	Hybrid (direct sequence and frequency hopped)
5	Hybrid (direct sequence and time hopped)
6	Hybrid (frequency and time hopped)
7	Chirp
8	Diversity
9	Other
A	Automatic Channel Selection (ACS)
F	Free Channel Search (FCS)

**Code List Category SU:**

<b>Short Code</b>	<b>Definition</b>
CO	COMMANDER
XP	COFS/XO
GS1	G1/S1
GS2	G2/S2
GS3	G3/S3
GS30PS	G3/S3 OPS
GS3OPA	G3/S3/ AIR
GS4	G4/S4/ SUP SGT
GS5	G5/S5
GS6	G6/SIGO/COMM CH
PLTLEAD	PLT/SEC/TM LDR
PLTSGT	PLT/SEC/TM SGT
ADCM	ADC (M)
ADCS	ADC (S)
ACT1	ACT/FO 1
ACT2	ACT/FO 2
ACT3	ACT/FO 3
ACT4	ACT/FO 4
ACFT5	ACFT 5
ACFT6	ACFT 6
ACFT7	ACFT 7
ACFT8	ACFT 8
ACFT9	ACFT 9
ACFT10	ACFT 10
ACFT11	ACFT 11
ACFT12	ACFT 12
ACFTM	ACFT MAINT OFF
AIR	AIR DEF OFF
ALO	ALO/TACP
AME	AME
AMMO	AMMO OFF
ATSE	ATSE
AVLB	AVLB

AVN	AVN OFF
CHAP	CHAPLAIN
CHEM	CHEMICAL OFF
COMSEC	COMSEC OFF
CSCE	CSCE/CNCE/SCC
CSM	CSM/SGM/1SG
ENGRO	ENGR OFF
EWO	EW OFF
FAC	FAC/ACT
FAARP	FAARP
FDC	FDC
FDO	FDO
FLTF	FLT FOL
FLTO	FLT OPS
FSCOORD	FSCOORD
FSE	FSE/FSO/FIST
HELI	HELIPAD
HQ	HQ COMDT
IG	IG
INT	INTL/SCTY OFF
LNO1	LN OFF 1
LNO2	LN OFF 2
LNO3	LN OFF 3
LNO4	LN OFF 4
MAINO	MAINT OFF
MATO	MATERIAL OFF
MET	MET/SWO
NAICO	NAICO
NCS	NCS
PMO	PMO
RADAR	RADAR
RECV	RECOVERY VEH
RTS	RTS/NRI STA
SAFE	SAFETY OFF
SIG	SIGSEC
WPNSO	SP WPNS OFF
MEDO	SURG/MED OFF /MED
TARGET	TARGET ACC OFF
TM1	TM/SQD/SC/SN/TK1
TM2	TM/SQD/SC/SN/TK2
TM3	TM/SQD/SC/SN/TK3
TM4	TM/SQD/SC/SN/TK4
TM5	TM/SQD/SC/SN/TK5
TM6	TM/SQD/SC/SN/TK6
TM7	TM/SQD/SC/SN/TK7
TM8	TM/SQD/SC/SN/TK8
TOC	TOC/CP/AADCP
TRANS	TRANS/MTR OFF
VTR	VTR
SP1	SPARE 1
SP2	SPARE 2
SP3	SPARE 3
SP4	SPARE 4
SP5	SPARE 5
SP6	SPARE 6
SP7	SPARE 7
SP8	SPARE 8
SP9	SPARE 9

SP10	SPARE 10
SP11	SPARE 11
SP12	SPARE 12
SP13	SPARE 13
SP14	SPARE 14
SP15	SPARE 15
SP16	SPARE 16

**Code List Category SV:**

Short Code	Definition
AS	Stations using adaptive system *
AX	Fixed station used for provision of services related to aircraft flight safety *
CA	Cargo Ship *
CO	Station open to official correspondence exclusively
CP	Station open to public correspondence
CR	Station open to limited public correspondence
CV	Station open exclusively to correspondence of a private agency
FS	Land station established solely for the safety of life *
HP	Fixed station using high altitude platform *
MX	Fixed station used for transmission of meteorological information *
OT	Station open exclusively to operational traffic of the service concerned
PX	Fixed station used for press transmission *
RC	Non-directional radio beacon *
RD	Directional radio beacon *
RG	Radio direction-finding station *
RT	Revolving radio beacon *
ST	Fixed station using tropospheric scatter *

\* Applies only to terrestrial services

**Code List Category SY:**

Short Code	Definition
APP6A	Symbol designation according to APP-6A
2525B	Symbol designation according to MIL-STD 2525B

**Code List Category TA:**

Short Code	Definition
C	Not transmitted for classification reasons
R	Not transmitted because of connectivity restrictions
S	Not transmitted for sensitivity reasons
T	Transmitted

**Code List Category TE:**

Short Code	Definition
INTS	Multi-national Secure
NATS	National Secure
NATO	NATO Secure
NATU	National non-secure
OTHER	Other cases not covered above.
WEB	Open Internet

### **Code List Category TI:**

<b>Short Code</b>	<b>Definition</b>
HX	Intermittently throughout the 24-hour day
HN	Night time
HJ	Day time
H24	Continuously 24 hour per day
HT	Transition period

### **Code List Category TO:**

<b>Short Code</b>	<b>Definition</b>
CIV	Civilian or Commercial
MIL	Military (not to be used by USA - USA use GOV)
GEN	Generic
GOV	Government
PN	Part Number
OTH	Other - See remarks

### **Code List Category TS:**

<b>Short Code</b>	<b>Definition</b>
APP	Approved
PND	Pending
REV	For Review

### **Code List Category TT:**

<b>Short Code</b>	<b>Definition</b>
FAXCIV	Civilian telefax number
FAXMIL	Military telefax number
FAXOTH	Other telefax numbers not covered above
TELCIV	Civilian telephone number
TELMIL	Military telephone number
TELOTH	Other telephone numbers not covered above

### **Code List Category TU:**

<b>Short Code</b>	<b>Definition</b>
F	(fixed) - Systems capable of operating on a single discrete frequency
C	(continuous) - Systems capable of being tuned to any frequency within the requested band
S	(stepped) - Systems capable of being tuned across the authorized or requested band in discrete steps or increments. This includes crystal control.
A	Combination of continuous and stepped
B	Combination of fixed and stepped
D	Combination of fixed and continuous

### **Code List Category UT:**

<b>Short Code</b>	<b>Definition</b>
A	An approved permanent dataset (generally a dataset valid for longer than 90 days)
C	Cancelled dataset
O	Obsolete dataset

<b>P</b>	A permanent proposal (or request)
<b>S</b>	A temporary proposal (or request)
<b>T</b>	An approved temporary dataset (generally a dataset valid for less than 90 days)
<b>U</b>	Unknown usage
<b>X</b>	Superseded dataset

#### ***Code List Category VS:***

<b>Short Code</b>	<b>Definition</b>
<b>B</b>	Both source and victim were modified
<b>S</b>	Source of the interference was modified
<b>V</b>	Victim of the interference was modified

#### ***Code List Category VT:***

<b>Short Code</b>	<b>Definition</b>
<b>S</b>	The referenced force element is the Source of the interference
<b>V</b>	The referenced force element is the Victim of the interference

## G. User-expandable Lists

Some data elements have predefined lists of values. In some cases, these lists come from official sources and cannot be changed (e.g. ITU list of countries for Owner.country and Location.country); in other cases, the list of values has been predefined by the SOPWG but new values can be inserted by the users as situation or techniques evolve (e.g. in data elements Manufacturer or AntType). Annex F presents the fixed lists, and Annex G presents the user-expandable lists.

The table below presents a summary of expandable code lists within SSRF. Any of these lists may be extended with new values by the user, using the [\*\*<Codes>\*\*](#) type of transaction described below.

### **Code List Category LU:**

<b>Short Code</b>	<b>Definition</b>
<a href="#"><b>AG</b></a>	Agency (element <a href="#">Organisation</a> )
<a href="#"><b>AM</b></a>	Antenna Mode (element <a href="#">AntMode</a> )
<a href="#"><b>AS</b></a>	Antenna Scan (elements <a href="#">HorzScan</a> , <a href="#">VertScan</a> )
<a href="#"><b>AT</b></a>	Antenna Type (element <a href="#">AntType</a> )
<a href="#"><b>BD</b></a>	Beam Type (element <a href="#">Beamwidth</a> )
<a href="#"><b>EF</b></a>	Equipment Function (element <a href="#">EqpFnct</a> )
<a href="#"><b>ET</b></a>	Force Element Type (*)
<a href="#"><b>MA</b></a>	Manufacturer (element <a href="#">Manufacturer</a> )
<a href="#"><b>NO</b></a>	Note (element <a href="#">Note</a> )
<a href="#"><b>RS</b></a>	Reflector Shape (element <a href="#">Dimension</a> )

(\*) Force element codes will be implemented during volume 3 development.

To provide flexibility when the list of possible values is assumed to evolve, a special type of transaction "Codes" has been created. The example below provides an example of such a transaction to create a new manufacturer and a new agency. See data elements under [\*\*Codes\*\*](#) for further details.

#### Example:

```
<Codes serial="USA::CO:123">
  <ContactOrgRef type="AU">
    <ContactRef serial="USA:DOD:CN:456" />
  </ContactOrgRef>
  <Code cat="MA" code="0123" origin="F">THALES</Code>
  <Code cat="AG" code="SK" origin="USA">SPY KIDS</Code>
</Codes>
```

## Organisation Code (AG)

The Code List Category AG is used in element [Organisation](#) and in the dataset identifiers (attribute `orgCode`).

Short Code	Source	Full Text
A	USA	Department of Agriculture
AB	USA	ANDEAN State Telecom Enterprises
AF	INTL	Air Force
AFC	USA	Foreign Science and Technology Center
AFR	USA	U.S. Africa Command (USAFRICOM)
AID	USA	Agency for International Development
AJ	F	Administration Des Postes Et Telecommunications
AO	ARS	ARABSAT Organization
AOTC	USA	Architect of the Capitol
AR	INTL	Army
ARA	INTL	Arianespace
AUSC	USA	Administrative Office of the United States Courts
BBG	USA	Broadcasting Board of Governors
BM	USA	Ministry Of Industry And Tech
BN	USA	Bureau Of Radioselect Emiss. Control
BS	B	All Brazilian Space Programme
CA	INTL	Civil Aviation
CAC	INTL	Commercial
C	USA	Dept Of Commerce
CEN	USA	U.S. Central Command (USCENTCOM)
CFC	USA	Foreign Technology Division
CG	INTL	Coast Guard
CIA	USA	Central Intelligence Agency
CIT	USA	U.S. Court of International Trade
CNES	F	French Space Agency (CNES)
CPSC	USA	Consumer Products Safety Commission
CSB	USA	U.S. Chemical Safety Hazard Investigations Board
DA	USA	Direction Affaires Industrielles et Internationales
DB	USA	Department Of Communications (DOC)
DISA	USA	Defense Information Systems Agency (DISA)
DOD	USA	Department Of Defense (DOD)
DOE	USA	Department of Energy
	D	German Research and Development Institute for Air and Space Travel (DFVLR)
DF	USA	Department Of Trade And Industry
DHD	USA	Director/Telecommunications Division
DR	CAN	National Research Council
DHS	USA	Department of Homeland Security
DSA	USA	Defense Security Agency (DSA)
DW	USA	Department Of Commerce
ED	USA	Department of Education
EEOC	USA	Equal Employment Opportunity Commission
EG	EGY	Egyptian Radio & Television Union (ERTU)
EPA	USA	Environmental Protection Agency
ES	EUR	European Space Agency (ESA)
EUR	USA	U.S. European Command (USEUCOM)
FAA	USA	Federal Aviation Administration
FC	USA	Dir Fricuencias Radioelectricas
FCC	USA	Federal Communications Commission

FCS	USA	Foreign Commercial
FDIC	USA	Federal Deposit Insurance Corporation
FMCS	USA	Federal Mediation and Conciliation Service
FRS	USA	Federal Reserve System
GAP	USA	Foreign Government
GAO	USA	Government Accountability Office
GOS	INTL	Government Agencies
GPO	USA	Government Printing Office
GSA	USA	General Services Administration
GZ	RUS	Russian Space Agency (RKA)
HHS	USA	Department of Health and Human Services
HR	USA	House of Representatives
HUD	USA	Department of Housing and Urban Development
HUH	USA	U.S. Government
I	USA	Department of the Interior
IBWC	INTL	International Boundary and Water Commission, U.S. and Mexico
ICC	USA	Interstate Commerce Commission
IO	IND	Indian Space Research Organization (ISRO)
IS	USA	Institute of Space & Astronautical Science
ITC	USA	International Trade Commission
J	USA	Department of Justice
JM	J	Japan Meteorological Agency (JMA)
KG	RUS	Komitet Gosudarstvennoi Bezopasnosti (KGB)
L	USA	Department of Labor
LA	USA	U.S. Joint Forces Command (USJFCOM)
LC	USA	Library of Congress
MC	USA	Marine Corps
MD	INTL	Ministry Of Defence
MH	INTL	Ministry Transport & Telecommunications
MI	INTL	Ministry Of Information
MP	INTL	Ministry Of Telecommunications
N	INTL	Navy
NARA	USA	National Archives and Records Administration
NASA	USA	National Aeronautics and Space Administration
NRC	USA	Nuclear Regulatory Commission
NGAL	USA	National Gallery of Art
NLRB	USA	National Labor Relations Board
NNC	USA	U.S. Northern Command (USNORTHCOM)
NEA	USA	National Endowment for the Arts
NFA	INTL	National Allied Radio Frequency Agency (NARFA)
NOA	USA	National Oceanic and Atmospheric Administration
NSA	USA	National Security Agency (NSA)
NSD	USA	National Space Development Agency (NASDA)
NSF	USA	National Science Foundation
OPM	USA	Office of Personnel Management
PAC	USA	U.S. Pacific Command (USPACOM)
RDA	USA	Radio Communications Agency
S	USA	Department of State
SAC	USA	Strategic Air Command (SAC)
SBA	USA	Small Business Administration
SC	USA	Supreme Court
SEC	USA	Securities and Exchange Commission
SEN	USA	Senate
SES	INTL	Societe Europeenne des Satellites
SI	USA	Smithsonian Institution
SSA	USA	Social Security Administration
SOU	USA	U.S. Southern Command (USSOUTHCOM)

SUP	USA	Pakistan SUPARCO
T	USA	Department of Treasury
TDA	USA	U.S. Trade and Development Agency
TK	TUR	Turkish Telecommunications Authority (TK)
TRAN	USA	Department of Transportation
TVA	USA	Tennessee Valley Authority
USCP	USA	U.S. Capitol Police
USPC	USA	U.S. Peace Corps
USPS	USA	U.S. Postal Service
USTR	USA	U.S. Trade Representative
VA	USA	Department of Veterans Affairs
X	INTL	Other - see remarks

## AntMode (AM)

The Code List Category AM is used in element [AntMode](#) attribute code.

Short Code	Definition
0010	2-Dimensional Long Range
0020	2-Dimensional Medium Long Range
0030	2-Dimensional Medium Short Range
0040	2-Dimensional Short Range
0050	3-Dimensional Long Range
0060	3-Dimensional Medium Long Range
0070	3-Dimensional Medium Short Range
0080	3-Dimensional Short Range
0090	4-Bar Scan Pattern
0100	5 Degree Elevation Scan
0110	Acquisition
0120	Acquisition And Track
0130	Acquisition With Local Scan
0140	Acquisition With Normal Scan
0150	Beacon Function
0160	Burn-Thru/Chirp Thru Scan
0170	Capture Beam
0180	Circular Polarization
0190	Circular Scan
0200	Command Downlink
0210	Command Uplink
0220	Communications And Beacon Downlink
0230	Communications And Ttc Uplink
0240	Communications Downlink
0250	Communications Uplink
0260	Conical Beam
0270	Conical Fed
0280	Continuous Wave Illumination
0290	Cosecant Squared Beam
0300	Cross Scan (CS)
0310	Crosslink Receive
0320	Crosslink Transmit
0330	Downlink
0340	Downlink Transmit
0350	Elevation
0360	ESM With Rotating Scan Angles
0370	Fan Beam
0380	Fast Scan
0390	Ground Detect Mode
0400	Ground Map
0410	Ground Map Pencil (GMP)
0420	Ground Map Spoiled (GMS)
0430	Guidance Beam
0440	Helical Scan
0450	High Beam
0460	High Gain
0470	Horizontal Polarization
0480	IFF
0490	Launch Downlink
0500	Launch Uplink
0510	Left Hand Circular
0520	Linear Polarization

0530	Long Range
0540	Low Beam
0550	Low Gain
0560	Mid-High Beam
0570	Mid-Low Beam
0580	Missile Reference Beam
0590	Narrow Beam
0600	Omnidirectional Pattern (IsIs)
0610	Orderwire And Ttc
0620	Pencil Beam
0630	Precision Approach
0640	Primary Beam
0650	Radar
0660	Range-Tracking
0670	Rearward Beam
0680	Receive
0690	Receive Downlink
0700	Receive Uplink
0710	Right Hand Circular Polarization
0720	Rotating
0730	Rx Downlink
0740	Scan
0750	Scan - High Power
0760	Scan + ECCM
0770	Scan + Moving Target Indicator
0780	Scan + MtI + ECCM
0790	Search
0800	Search-360 Deg. Rotating
0810	Search-Circular Scan
0820	Search-Conical Scan
0830	Secondary Beam
0840	Sector Scan
0850	Short Range
0860	Sidelobe Suppression
0870	Simultaneous Mode
0880	Slow Scan
0890	Spot Beam
0900	Sum And Difference
0910	Target Detection
0920	Target Illuminator Beam
0930	Telecommand Uplink
0940	Telemetry Downlink
0950	Terrain Avoidance Override (TAO)
0960	Terrain Following Override (TFO)
0970	Tgw Downlink Beam
0980	Track
0990	Track Beam
1000	Tracking Beam
1020	Tracking With Normal Scan
1030	Transmit
1040	Transmit Uplink
1050	Ttc
1060	Ttc Downlink
1070	Ttc Uplink
1080	Uplink
1090	Uplink Acquisition
1100	Vertical Polarization

<b>1110</b>	Vertical Scan
<b>1120</b>	Wide Beam
<b>1130</b>	Wide Spot Beam Link
<b>9001 to 9019</b>	Mode 1 to Mode 19
<b>9021 to 9026</b>	Band 1 to Band 6
<b>9030</b>	A/G/A and A/A Mode
<b>9031</b>	Transmit Band 1
<b>9032</b>	Receive Band 1
<b>9033</b>	Transmit Band 2
<b>9034</b>	Receive Band 2
<b>9035</b>	Transmit Band 3
<b>9036</b>	Receive Band 3
<b>9037</b>	Transmit Band 4
<b>9038</b>	Receive Band 4

## HorzScan, VertScan (AS)

The Code List Category AS is used in elements [HorzScan](#) / [VertScan](#).

Short Code	Definition
A	Fixed
B	Sector Scan
C	360 Degrees Rotating
D	Tracker
E	Electronic Scan (360 Degrees)
F	Electronic Scan (Sector)
G	Bi-Directional Sector
H	Horizontal
I	Conical
J	Raster
K	Helical
L	Lobing
M	Manual
N	Mechanically Steerable
O	Other-See Remarks
P	Palmer Raster
Q	Fixed-3 Axis Stabilized
S	Spiral
V	Vertical
U	Unidirectional Sector

## AntType (AT)

The Code List Category AT is used in element [AntType](#).

Short Code	Definition
A	Aperture Antenna
AA	Synthetic Aperture
AC	Corner Reflector
AFP	Flat Plate
AH	Horn
AHA	Multi-Horn Array
AHB	Biconical Horn
AHC	Conical Horn
AHD	Dielectric Horn
AHE	E-Sectoral Horn
AHF	Equi-Angular Spiral
AHG	Corrugated HORN
AHH	Hog Horn
AHP	Pyramidal Horn
AHS	H-Sectoral Horn
AL	Lens
ALD	Dielectric Lens
ALL	Luneburg Lens
ALM	Metal Plate Lens
AOP	Organ Pipe
AP	Parabolic Reflector
APA	Parabolic Cylinder
APB	Pill Box
APC	Cassegrain
APD	Parabolic Segment
APE	Parabolic Mesh
APPF	Parabolic Segment Mesh
APG	Parabolic High
APO	Orange Peel Reflector
APP	Periscope
APS	CSC2 Reflector
AR	Passive Reflector
BA	Batwing
BAA	Batwing Array
BEV	Beverage Antenna
BFA	Backfire Antenna
BR	Backfill Radiator
COP	Coplanar Array
CU	Coupler
DIC	Dichroic
FC	Scimitar
FCP	Fin Cap
FDG	Folded Dipole/W Ground Plane
FEE	Feed
FL	Log Periodic
FLA	Log Periodic Array
FLC	Crossed Log Periodic Array
FLT	Flexible Tape
FR	Franklin
FS	Spiral
FSB	Cavity Backed Spiral
FSC	Conical Spiral

<b>FSR</b>	Flat Screen Reflector
<b>GRE</b>	Gregorian
<b>IND</b>	Inverted Discone
<b>L</b>	Linear Antenna
<b>LA</b>	Dipole Array
<b>LAA</b>	Adcock Array
<b>LAB</b>	Broadside Array
<b>LAC</b>	Collinear Array
<b>LAD</b>	Stacked Dipole
<b>LAE</b>	Endfire Array
<b>LAF</b>	Billboard
<b>LAG</b>	Cylindrical Array
<b>LAM</b>	Mattress
<b>LAP</b>	Planar Array
<b>LAR</b>	Conformal Array
<b>LAS</b>	Swastika
<b>LAT</b>	Turnstile
<b>LAW</b>	Wullenweber Array
<b>LAZ</b>	Trilinear Array
<b>LCA</b>	Cup-Dipole-Array
<b>LCD</b>	Cup-Dipole
<b>LCS</b>	Log Conical Spiral
<b>LD</b>	Dipole
<b>LDA</b>	Coaxial Dipole
<b>LDB</b>	Bow Tie
<b>LDC</b>	Biconical Dipole
<b>LDD</b>	Doublet
<b>LDE</b>	Discone
<b>LDF</b>	Folded Dipole
<b>LDG</b>	Discage
<b>LDH</b>	Halfwave Dipole
<b>LDI</b>	Stripline Dipole
<b>LDJ</b>	Cavity Backed Dipole
<b>LDK</b>	Bow Tie Array
<b>LDO</b>	Crossed Dipoles
<b>LDR</b>	Dipole W/Reflector
<b>LDS</b>	Sleeve Dipole
<b>LF</b>	Folded Monopole
<b>LM</b>	Monopole
<b>LMA</b>	Monopole Array
<b>LMB</b>	Fan Monopole
<b>LMC</b>	Conical Monopole
<b>LMD</b>	Biconical
<b>LMF</b>	Flat Top
<b>LMG</b>	Ground Plane
<b>LMH</b>	Ground-Plane Whip
<b>LMI</b>	Top Hat
<b>LMJ</b>	Vertical Top Hat
<b>LML</b>	Inverted /L/
<b>LMR</b>	Monopole With Reflector
<b>LMT</b>	Tower
<b>LPA</b>	Folded Trapezoidal Log-Periodic Array
<b>LR</b>	Radial Line
<b>LS</b>	Stub
<b>LSB</b>	Blade
<b>LSP</b>	Probe
<b>LV</b>	Vertical Radiator

<b>LVS</b>	Vertical Stabilizer
<b>LW</b>	Whip
<b>LWE</b>	Helical Whip
<b>LWH</b>	Half Wave Whip
<b>LWQ</b>	Quarter Wave Whip
<b>O</b>	Loop Antenna
<b>OA</b>	Loop Array
<b>OOA</b>	Cubical Quad Array
<b>OAC</b>	Cubical Quad
<b>OAI</b>	Inverted Cone
<b>OB</b>	Crossed Loops
<b>OF</b>	Ferrite Loop Antenna
<b>OFS</b>	Ferrite Loop Stick
<b>OH</b>	Halo
<b>OL</b>	Half Loop
<b>OS</b>	Single-Turn Loop
<b>OW</b>	Open Wire
<b>P</b>	Phased Array Antenna
<b>PC</b>	Ported Coaxial Cable
<b>PD</b>	Phased Array Dipole
<b>PH</b>	Phased Array Horn
<b>PI</b>	Pine Cone
<b>PLS</b>	Planar Slot
<b>PW</b>	Phased Array Waveguide
<b>PWR</b>	Phased Array Ridged Waveguide
<b>PWS</b>	Phased-Array Slotted Waveguide
<b>PY</b>	Phased Array Yagi
<b>QLP</b>	Quad Log Periodic
<b>RHV</b>	Vertical Half Rhombic
<b>RW</b>	Ridged Waveguide
<b>SK</b>	Skeleton Slot W/Reflector
<b>SPA</b>	Standing-Wave Waveguide Planar Array
<b>T</b>	Antenna Group
<b>TA</b>	Traveling Wave Antenna
<b>TD</b>	Rod
<b>TDC</b>	Corrugated Rod
<b>TDD</b>	Dielectric Rod
<b>TH</b>	Helical
<b>THA</b>	Axial Mode Helix
<b>THH</b>	Helix Array
<b>THN</b>	Normal Mode Helix
<b>THQ</b>	Quadrafilair Helix
<b>TL</b>	Long Wire
<b>TLW</b>	Trailing Wire
<b>TPA</b>	Traveling-Wave Waveguide Planar Array
<b>TR</b>	Rhombic
<b>TRM</b>	Multi-Curtain Rhombic
<b>TRN</b>	Nested Rhombics
<b>TRS</b>	Single Curtain Rhombic
<b>TV</b>	Vee
<b>TVH</b>	Horizontal Vee
<b>TVI</b>	Inverted Vee
<b>TW</b>	Slotted Waveguide
<b>TWA</b>	Slot Array
<b>TWB</b>	Cavity Backed Slot
<b>TWC</b>	Cylindrical Slot
<b>TWD</b>	Annular Slot

<b>TWO</b>	Open-Ended Waveguide
<b>TWP</b>	Slotted Waveguide Planar Array
<b>TWS</b>	Single Slot
<b>TWT</b>	Multiple Slot
<b>TWU</b>	Microstrip
<b>TWV</b>	Stripline
<b>TWW</b>	Micro-Strip Array
<b>TWZ</b>	Patch
<b>TY</b>	Yagi Unidirectional Array
<b>UNK</b>	Unknown
<b>USL</b>	Clover Leaf
<b>VA</b>	Vertical Array
<b>W</b>	Waveguide
<b>Z</b>	Other-See Remarks

## Beam Type (BD)

The Code List Category BD is used in element [Beamwidth](#).

Short Code	Definition
C	Cosecant Squared
E	Elliptical
F	Fan
H	Cardioid
O	Omni
P	Pencil
Q	Shaped Beam
S	Single Symmetrical Lobe
Y	Hyperbolic
Z	Other - See Remarks

## Equipment Function Codes (EF)

The Code List Category EF is used in element [EqpFnct](#), Equipment Function Code.

Short Code	Definition
AJ	EW active jamming
AK	EW reactive jamming
C	Communications
CA	Air Traffic Control
CB	Broadcast Radio/Television
CC	Radio Comm P/P Or Net
CD	Data
CE	Emergency Communications
CF	Pager
CG	Secure Voice
CH	Video Link
CL	Video/Data Link
CM	Monitor
CP	Troposcatter
CR	Radio Relay Microwave
CS	Satellite Communications
CT	Telemetry
CU	Satellite Broadcast
CV	Satellite Telemetry
CZ	Communications Other - See Remarks
E	Electronic Warfare
EB	Jamming-Barrage
EC	Electronic Counter-Countermeasures
ED	Deception
EE	Jamming
EF	Frequency Hopping
EI	Intercept
EJ	Jamming-Spot
ER	Radar Warning Receiver
ES	Jamming-Sweep
ET	Anti-Satellite
EU	Anti-Satellite Target
EZ	Countermeasures Other - See Remarks
G	Control
GG	Guidance
GS	Satellite Control (Uplink)
GZ	Control Other - See Remarks
I	Instrumentation
IC	Calibration
IE	Equipment Monitor
IF	Frequency Standard
IR	Test Range Instrumentation
IT	Test Equipment
IZ	Instrumentation Other-See Remarks
L	Location
LA	Satellite Tracking
LB	Satellite Beacon
LH	Homing
LI	Intrusion Detector
LL	Low-Light Level Television
LM	Miss Distance Indicator (MDI)

<b>LR</b>	Laser Reflector
<b>LS</b>	Sonobuoy
<b>LT</b>	Tracking/Ranging
<b>LZ</b>	Location Other - See Remarks
<b>M</b>	Meteorological Aid
<b>MB</b>	Meteor Burst
<b>MG</b>	Missile Guidance
<b>MH</b>	Missile Homing
<b>MR</b>	Radiosonde
<b>MS</b>	Meteorological Satellite
<b>MT</b>	Missile Tracking
<b>MY</b>	Submarine Buoy
<b>MZ</b>	Meteorological Other - See Remarks
<b>N</b>	Navigation Aids
<b>NA</b>	Altimeter
<b>NB</b>	Beacon
<b>NC</b>	LORAC
<b>ND</b>	Direction Finder
<b>NE</b>	Distance Measurement Equip-Dme
<b>NF</b>	IFF/SIF
<b>NG</b>	Space Based Navigation Aid
<b>NI</b>	Instrument Landing System (ILS)
<b>NJ</b>	Microwave Landing System (MLS)
<b>NK</b>	Global Positioning System/Navstar
<b>NL</b>	LORAN
<b>NM</b>	Drift Angle Measurement
<b>NO</b>	OMEGA
<b>NP</b>	Navigation Transponder
<b>NR</b>	VORTAC
<b>NS</b>	SHORAN
<b>NT</b>	TACAN
<b>NU</b>	Localizer
<b>NV</b>	VHF Omnidirectional Range (VOR)
<b>NZ</b>	Navigation Other - See Remarks
<b>O</b>	Electroptical Equipment
<b>OA</b>	Laser Designator
<b>OB</b>	Ultraviolet Warning Receiver
<b>OC</b>	Infrared Countermeasures
<b>OE</b>	Forward Looking Infrared (FLIR)
<b>OF</b>	Forward Looking Radar (FLR)
<b>OG</b>	Laser Weapon
<b>OH</b>	Infrared Seeker
<b>OI</b>	Infrared Warning Receiver
<b>OJ</b>	Infrared Surveillance
<b>OK</b>	Infrared Search And Track
<b>OL</b>	Laser Communications
<b>OM</b>	Night Vision/Image Intensifier
<b>ON</b>	Night Vision/Thermal Image
<b>OP</b>	Electroptical Surveillance
<b>OQ</b>	Telescope
<b>OR</b>	Laser Radar
<b>OS</b>	Laser Range Finder
<b>OT</b>	TV Seeker
<b>OU</b>	Unknown
<b>OV</b>	Laser Tracker
<b>OW</b>	Laser Warning Receiver
<b>OX</b>	Laser Seeker

P	Space-Based Surveillance
PE	Elint Reconnaissance
PN	Nuclear Detonation Detection
PP	Photo Reconnaissance
PR	Remote Sensing
R	Radar
R+	Radar, Synthetic-Aperture
R,	Radar, Ranging
R0	Radar, Over The Horizon
R1	Radar, Monopulse
R2	Radar, Precision Approach
R3	Radar, Reconnaissance
R4	Radar, Tail Warning
R5	Radar Calibration Aid
R6	Radar, Warfare Simulator
R7	Radar, Target Acquisition
R8	Radar, Transponder
R9	Radar, Track-While Scan
R?	Radar, Terrain Avoidance
RA	Radar, Acquisition
RB	Radar, Bombing
RC	Radar, CW
RD	Radar, Doppler
RE	Radar, Terrain Following
RF	Radar, Fire Control
RG	Radar, Ground Control Approach
RH	Radar, Height Finder
RI	Radar, Illuminator
RJ	Radar Intercept
RK	Radar, Space-Based
RL	Radar, Side Looking
RM	Radar, Mapping
RN	Radar Navigation
RP	Radar Transponder
RQ	Radar, Pulse Compression
RR	Radar, Duplex Repeater
RS	Radar, Search
RT	Radar, Tracking
RU	Interrogator
RV	Radar, Velocity Measurement
RW	Radar, Meteorological
RX	Radar, Weather Avoidance
RY	Retransmission
RZ	Radar, Other-See Remarks
S	Radar, Special
SA	Radio Astronomy
SB	Optical Astronomy
SC	Signal Collection
SD	Deep Space Mission
SE	Seeker
SF	Scientific Investigation
SG	Communications, Special
SH	Search And Rescue
SI	Ionospheric Sounder
SJ	Collision Avoidance
SM	Manned Platform
SP	Radar, Spread Spectrum

<b>SQ</b>	Communications, Spread Spectrum
<b>SR</b>	Research
<b>SS</b>	Simulator
<b>ST</b>	Trainer
<b>SZ</b>	Special Other - See Remarks

## Force Element Type (ET)

Code List Category ET is used for type under element [ForceElement](#).

<b>Short Code</b>	<b>Definition</b>
<b>AA</b>	AirCraft
<b>AH</b>	Helicopter
<b>AV</b>	V/STOL
<b>F</b>	Air Launched Missile
<b>LA</b>	Armored Land Vehicle
<b>LN</b>	Non-Tactical Land Vehicle
<b>LT</b>	Tactical Land Vehicle
<b>MA</b>	Air Launched Missile
<b>ML</b>	Surface Launched Missile
<b>MW</b>	Water Launched Missile
<b>UV</b>	Unmanned Air Vehicles
<b>VA</b>	Army Lighter / Boat
<b>VH</b>	Army Amphibious Vessel
<b>VP</b>	Army Tug Boat
<b>WAA</b>	Command Ship
<b>WAB</b>	Landing Craft, Air Cushion
<b>WAC</b>	Amphibious Command Ship
<b>WAD</b>	Amphibious Assault Ship
<b>WAE</b>	Amphibious Transport Dock
<b>WCA</b>	Aid to Navigation Boat
<b>WCB</b>	High Endurance Cutter
<b>WCC</b>	Motor Life Boat
<b>WCD</b>	Medium Endurance Cutter
<b>WCE</b>	Patrol Boat
<b>WCF</b>	Utility Boat
<b>WCG</b>	Transportable Port Security Boat
<b>WMA</b>	Mine Countermeasure Ship
<b>WMB</b>	Coastal Mine Hunter
<b>WSA</b>	Cruiser
<b>WSB</b>	Aircraft Carrier
<b>WSC</b>	Destroyer
<b>WSD</b>	Guided Missile Destroyer
<b>WSE</b>	Frigates
<b>WSF</b>	Coastal Patrol Craft
<b>WSG</b>	Littoral combat Ship
<b>WTA</b>	Crane Ship
<b>WTB</b>	Ammunition Ship
<b>WTC</b>	Combat Stores Ship
<b>WTD</b>	Research Ship
<b>WTE</b>	Surveillance Ship
<b>WTF</b>	Survey Ship
<b>WTG</b>	Hospital Ship
<b>WTH</b>	Container Ship
<b>WTI</b>	Dry Cargo/Ammunition Ship

<b>WTJ</b>	Fast Sealift Ship
<b>WTK</b>	Underway Replenishment Oiler
<b>WTL</b>	Fast Combat Support Ship
<b>WTM</b>	Transport Tanker
<b>WTN</b>	Cable Repair Ship
<b>WTO</b>	Rescue & Salvage
<b>WTP</b>	Ocean-Going Tug
<b>WTQ</b>	USMC Aviation Support Ship
<b>WTR</b>	Research Vessel
<b>WUB</b>	Ballistic Missile Submarine
<b>WUC</b>	Attack Submarine
<b>WXA</b>	Fast Combat Support Ship
<b>WXB</b>	salvage Ship
<b>WXC</b>	Submarine Tender
<b>WXD</b>	Yard Patrol Craft
<b>WZA</b>	Special Operations Craft

## Manufacturer (MA)

The Code List Category MA is used in element [Manufacturer](#).

- 00010 3 DBM SYSTEMS
- 00020 A.H. SYSTEMS INCORPORATED
- 00030 A.F. ANTRONICS
- 00040 A.J. ASSOCIATES
- 00050 AACOMM INCORPORATED
- 00060 ABA ELECTROMECHANICAL SYSTEMS INCORPORATED
- 00070 AC MARINE CORPORATION
- 00080 ACE R/C INCORPORATED
- 00090 ACR ELECTRONICS CORPORATION
- 00100 ACRODYNE INDUSTRIES INCORPORATED
- 00110 ADAMS-RUSSELL COMPANY INCORPORATED
- 00120 ADDISON INDUSTRIES LIMITED
- 00130 ADLER ELECTRONICS COMPANY
- 00140 ADMIRAL CORPORATION
- 00150 ADVANCED COUNTERMEASURES SYSTEMS
- 00160 ADVANCED ELECTRONICS
- 00170 ADVANCED NAVIGATION INCORPORATED
- 00180 ADVANCED TECHCOM INCORPORATION
- 00190 ADVANCED TRAINING SYSTEMS
- 00200 AEA ELECTRONIC LTD
- 00210 AEL DEFENSE CORPORATION
- 00215 AEROCOMM
- 00220 AERO GEO-ASTRO CORPORATION
- 00230 AEROFLEX INCORPORATED
- 00240 AEROJET ELECTROSYSTEMS CO SUB OF GENCORP INC
- 00250 AERONAUTICAL COMMUNICATIONS EQUIPMENT INC
- 00260 AERONAUTICAL ELECT INC/SEE AEROTRON INC
- 00270 AERONCA MANUFACTURING CORPORATION
- 00280 AEROSPACE RESEARCH INCORPORATED
- 00290 AEROSPATIALE
- 00300 AEROTRON INCORPORATED
- 00310 AEROVIRONMENT
- 00320 AEROWAVE
- 00330 AERTECH INCORPORATED
- 00340 AES CORPORATION
- 00350 AGERE SYSTEMS INC. (N. AMERICA)
- 00355 AGILENT TECHNOLOGIES
- 00360 AIKEN INDUSTRIES INCORPORATED
- 00370 AIL/DIVISION OF EATON CORPORATION
- 00380 AINSLIE CORPORATION
- 00390 AIR ASSOCIATES COMPANY
- 00400 AIR COMMUNICATION INCORPORATED
- 00410 AIR KING PRODUCTS COMPANY INCORPORATED
- 00420 AIR TARGET SWEDEN (ATS)
- 00430 AIRCRAFT ACCESSORIES INCORPORATED
- 00440 AIRCRAFT ARMAMENTS INC NKA AAI CORPORATION
- 00450 AIRCRAFT RADIO CORPORATION
- 00455 AIR DEFENSE INCORPORATED
- 00460 AIREON MANUFACTURING CORPORATION
- 00470 AIRFORCE AVIONICS LABORATORIES
- 00480 AIRONET
- 00490 AIRPORT SYSTEMS INTERNATIONAL INCORPORATED
- 00500 AIRSYS ATM INCORPORATED
- 00510 ALCATEL
- 00520 ALCOM LTD

00530 ALDEN ELECTRONICS INCORPORATED  
00540 ALENIA SPAZIO  
00550 ALEPH INC  
00560 ALFORD MANUFACTURING COMPANY  
00565 ALIEN TECHNOLOGY CORPORATION  
00570 ALL PRODUCTS COMPANY  
00580 ALLEN D CARDWELL CO  
00590 ALLEN OSBORNE ASSOCIATES INCORPORATED  
00600 ALLGON ANTENNA AB  
00610 ALLIED ELECTRONICS CORPORATION  
00620 ALLIED SIGNAL AEROSPACE  
00630 ALLIED SIGNAL COMMERCIAL AVIATION SYSTEMS  
00640 ALLIED TECHNOLOGY GROUP, INC.  
00645 ALPHA BETA TECHNOLOGIES  
00650 ALPHA INDUSTRIES INCORPORATED  
00660 ALUMA TOWER CO  
00670 ALVARION INCORPORATED  
00680 AMECOM DIVISION OF LITTON INDUSTRIES  
00690 AMERICAN ELECTRONIC LABORATORIES INC  
00700 AMERICAN NUCLEONICS CORPORATION  
00710 AMERICAN TELEPHONE & TELEGRAPH  
00720 AMERI-KING CORP  
00730 AMEX SYSTEMS INCORPORATED  
00740 AMPLEX CORPORATION  
00745 AMPHENOL ANTEL  
00750 AMPHENOL CANADIAN LIMITED  
00760 AMPLICA INC  
00770 AMPLIFIER RESEARCH  
00780 AMTECH CORPORATION  
00790 ANDREA RADIO CORPORATION  
00800 ANDREW ANTENNA CORPORATION LIMITED  
00810 ANDREW CORPORATION  
00820 ANDY HISH ASSOCIATES  
00830 ANRITSU ELECTRIC  
00840 ANTEKNA CORPORATION  
00850 ANTENEX INCORPORATED  
00855 ANTENNA ASSOCIATES INCORPORATED  
00860 ANTENNA CORPORATION OF AMERICA  
00870 ANTENNA ELECTRONICS COMPANY  
00880 ANTENNA FACTOR (SUBSIDIARY OF LINX TECHNOLOGIES)  
00890 ANTENNA FOR COMMUNICATIONS  
00900 ANTENNA LABORATORIES INCORPORATED  
00910 ANTENNA PRODUCTS COMPANY  
00920 ANTENNA RESEARCH ASSOCIATES  
00930 ANTENNA SPECIALISTS COMPANY  
00940 ANY & COMPANY LIMITED  
00950 ANZAC INDUSTRIES  
00960 AOR LTD  
00970 APELCO  
00980 APPLIED COMMUNICATIONS  
00990 APPLIED CONCEPTS  
01000 APPLIED DEVICES CORPORATION  
01010 APPLIED RESEARCH INCORPORATED  
01020 APPLIED SPECIALTIES INC  
01030 APPLIED SYSTEMS ENGINEERING  
01040 APPLIED TECHNOLOGY  
01050 ARCATA ASSOCIATES INCORPORATED  
01060 ARF PRODUCTS INCORPORATED

01070 ARGO SYSTEMS INCORPORATED  
01080 ARKAY INTERNATIONAL INCORPORATED  
01090 ARTEX INCORPORATED  
01095 ARUBA NETWORKS INCORPORATED  
01100 ARVIN INDUSTRIES INCORPORATED  
01110 ASAHI DENKI  
01120 ASCOM INC.  
01125 ASELSAN AS  
01130 ASSOCIATED ELECTRICAL INDUSTRIES LIMITED  
01140 ASSOCIATED RADIO SERVICE  
01150 ASTRAL ELECTRONICS INCORPORATED  
01160 ASTRO COMMUNICATIONS LABORATORIES INC  
01170 ASTRON WIRELESS TECHNOLOGIES, INC.  
01180 ASTRONAUTICS OF AMERICA  
01190 ATACS CORPORATION  
01195 ATK MISSILE SYSTEMS COMPANY  
01200 ATIR LTD  
01210 ATLANTIC AEROSPACE ELECTRONICS CORP  
01220 ATLANTIC RESEARCH CORPORATION  
01230 ATMOSPHERIC INSTRUMENTATION RESEARCH CORP  
01240 AUDIO INTELLIGENCE DEVICES INC  
01250 AUDIOPACK TECHNOLOGIES INC  
01260 AUDIOVOX  
01270 AUL INSTRUMENT INCORPORATED  
01280 AUSTIN CUSTOM ANTENNAS  
01290 AUSTRON  
01300 AUTOMATIC RADIO COMPANY  
01310 AUTOMATION INDUSTRIES  
01320 AUTONETICS  
01330 AUTRONICS  
01340 AVANTEK INCORPORATED  
01350 AVCO CORPORATION  
01360 AVION ELECTRONICS INCORPORATED  
01370 AXXCELERA BROADBAND WIRELESS INC.  
01380 AYDIN CORPORATION  
01390 BABCOCK ELECTRONICS CORPORATION  
01400 BAE SYSTEMS  
01410 BAI AEROSYSTEMS INCORPORATED  
01420 BAIRD CORPORATION/REPLACES BAIRD ATOMIC INC  
01430 BALL AEROSPACE SYSTEM DIV, BALL CORP  
01440 BALL BROTHERS  
01450 BARKER WILLIAMSON  
01460 BARON SERVICES  
01470 BAUER ELECTRONICS CORPORATION  
01480 BAYSIDE ELECTRONICS INCORPORATED  
01490 BBN TECHNOLOGIES  
01500 BDM CORPORATION  
01510 BECKER AVIONICS  
01520 BECKMAN INSTRUMENTS INCORPORATED  
01530 BEECH AIRCRAFT CO  
01535 BELAIR NETWORKS INCORPORATED  
01540 BELL & HOWELL COMMUNICATIONS COMPANY  
01550 BELL AEROSPACE COMPANY  
01560 BELL HELICOPTER TEXTRON INCORPORATED  
01570 BELL TELEPHONE COMPANY  
01580 BELMONT RADIO CORPORATION  
01590 BENCO TV ASSOCIATES LIMITED  
01600 BENDIX CORPORATION

01610 BENRUS WATCH COMPANY  
01620 BERTEA PRODUCTS  
01630 BEUKERS LABORATORIES INCORPORATED  
01640 BF GOODRICH AEROSPACE AVIONICS SYSTEMS  
01650 BHARAT  
01660 BIGGS ASSOCIATES INCORPORATED  
01670 B-K MANUFACTURING COMPANY  
01680 BLAW-KNOX  
01690 BLONDER TONGUE LABORATORIES INCORPORATED  
01700 BLUDWORTH  
01710 BOEING AEROSPACE  
01720 BOGAN-PRESTO  
01730 BOGNER  
01740 BOONTON ELECTRONIC CORPORATION  
01750 BR COMMUNICATIONS AKA BARRY RESEARCH CORP  
01760 BREEZCOM INCORPORATED  
01770 BRELONIX INCORPORATED  
01780 BRIAR TEK INCORPORATED  
01790 BRITISH AEROSPACE PUBLIC LIMITED COMPANY  
01800 BRITISH COMMUNICATIONS CORPORATION  
01810 BRITISH STANDARD CABLE  
01820 BRITISH THOMSON HOUSTON LIMITED  
01830 BROADCAST MICROWAVE SERVICES  
01840 BROADCOMM  
01850 BRUBAKER MANUFACTURING COMPANY INC  
01860 BRUNSWICK CORPORATION  
01870 BUDD ELECTRONIC CO  
01880 BUDELMAN ELECTRONICS CORPORATION  
01890 BUFFALO TECHNOLOGY INCORPORATED  
01900 BUNKER RAM0 WORLD SERVICES CORP  
01910 BUNNELL COMPANY  
01920 BUTLER NATIONAL CORPORATION  
01930 C & S ANTENNA LIMITED  
01940 CABLEWAVE SYSTEMS INCORPORATED  
01950 CADRE (DIVISION OF AMPHENOL)  
01960 CALIFORNIA AMPLIFIERS  
01970 CALIFORNIA MICROWAVE  
01980 CALSPAN CORPORATION  
01990 CAMBRIDGE CONSULTANTS  
02000 CAMFIELD MANUFACTURING COMPANY  
02010 CANADIAN ARSENALS LIMITED  
02020 CANADIAN MARCONI  
02030 CANADIAN MOTOROLA  
02040 CANADIAN RADIO CORPORATION  
02050 CANOGA ELECTRONICS CORPORATION  
02060 CAPEHART CORPORATION  
02070 CARDION ELECTRONICS  
02080 CARTWRIGHT, INCORPORATED  
02090 CATTRON INCORPORATED  
02100 CCA ELECTRONICS CORPORATION  
02110 CECOM ELECTRONICS LIMITED  
02120 CELWAVE SYSTEMS INC - FORMERLY PHELPS DODGE  
02130 CENTURION INTERNATIONAL INC  
02140 CERAGAN NETWORKS  
02150 CESSNA AIRCRAFT COMPANY  
02160 CETEC ANTENNAS  
02170 CHANCE VOUGHT AIRCRAFT CORPORATION  
02180 CHANNEL MASTER CORPORATION

02190 CHELTON INC  
02200 CHILDS  
02210 CHINA ELECTRONIC IMPORT & EXPORT CORP  
02215 CHRYSLER TECHNOLOGIES AIRBORNE SYSTEMS INC.  
02220 CHU ASSOCIATES  
02230 CINCINNATI ELECTRONICS CORPORATION  
02240 CISCO SYSTEMS INCORPORATED  
02250 CLAIRMONT INDUSTRIES INCORPORATED  
02260 CLARION CORPORATION  
02270 CLARK INSTRS. INCORPORATED  
02280 CLEGG LABORATORIES DIV OF SQUIRES-SAUNDERS  
02285 CMC ELECTRONICS INC.  
02290 CMI INCORPORATED  
02300 COAST NAVIGATION SCHOOL INCORPORATED  
02310 COASTAL CLIMATE COMPANY  
02320 COBER ELECTRONICS INCORPORATED  
02330 COBRA COMMUNICATIONS, PROD DIV OF DYNASCAN  
02335 CODAN LIMITED  
02340 CODAR OCEAN SENSORS  
02345 COHERENT COMMUNICATIONS INCORPORATED  
02350 COLLINS RADIO COMPANY  
02360 COLLINS RADIO OF CANADA  
02370 COLONIAL RADIO CORPORATION/RPLCD BY GTE  
02380 COLT COMMUNICATION CORP  
02390 COLUMBUS ELECTRONICS CORPORATION  
02400 COMANT INDUSTRIES  
02410 COMET COMPANY LTD  
02420 COMMUNICATION SPECIALISTS  
02430 COMMUNICATION-APPLIED TECHNOLOGY CO-INC  
02440 COMMUNICATIONS AND DOCUMENTATION TECHNOLOGIES  
02450 COMMUNICATIONS AND POWER INDUSTRIES  
02460 COMMUNICATIONS ASSOCIATES INCORPORATED  
02470 COMMUNICATIONS CO INC  
02480 COMMUNICATIONS COMPONENTS CORPORATION  
02490 COMMUNICATIONS ELECTRONICS COMPANY  
02500 COMMUNICATIONS EQUIPMENT & ENGINEERING CO.  
02510 COMMUNICATIONS PRODUCTS COMPANY  
02520 COMMUNICATIONS TECHNOLOGY INCORPORATED  
02530 COMMUNITRONICS  
02540 COMPUTER AUTOMATION TECHNOLOGY, INC.  
02550 COMPUTERS DEVICES  
02560 COMPUTING DEVICES COMPANY  
02570 COMREX  
02580 COMSAT RSI  
02590 COMTECH GOVERNMENT SYSTEMS DIVISION  
02600 COMWAVE  
02610 CONDOR  
02620 CONDUCTRON CORPORATION  
02625 CONEXANT  
02630 CONIC CORPORATION  
02640 CONSPEC CONTROLS INCORPORATED  
02650 CONTINENTAL ELECTRONICS LIMITED  
02660 CONTINENTAL ELECTRONICS MANUFACTURING CO.  
02670 CONTINENTAL RADIO  
02680 CONTRAVES AG  
02690 CONTRAVES ITALIANA  
02700 CONTROL CHIEF INCORPORATED  
02710 CONTROL DATA CORP

02720 CONTROL INDUSTRIES INCORPORATED  
02730 CONTROL SCIENCE CORPORATION  
02740 COOK COMMUNICATIONS CORPORATION  
02750 COOK ELECTRIC COMPANY  
02760 CORNELL AERONAUTICAL LABORATORIES INC.  
02770 COROMETRICS MEDICAL SYSTEMS  
02780 COSSER ELECTRONICS  
02790 COSSOR INSTRUMENTS LIMITED  
02800 C-Q CONSTRUCTION CORP.  
02810 CRAIG SYSTEMS INCORPORATED  
02820 CROSLEY  
02830 CRUISE TECHNOLOGIES  
02840 CTA SPACE SYSTEMS  
02850 CUBIC CORP  
02860 CULBERTSON INDUSTRIES CORPORATION  
02870 CURTISS WRIGHT CORPORATION  
02880 CUSH CRAFT  
02890 CUSTOMS SIGNAL CORPORATION  
02900 CUTLER-HAMMER INC/AIL DIV OF CUTLER-HAMMER  
02910 CYBERNET INTERNATIONAL INC  
02920 CYLINK CORPORATION  
02930 DAGE ELECTRIC COMPANY  
02940 DALMO VICTOR COMPANY  
02950 DANIELS ELECTRONICS, LTD  
02960 DANMAR  
02970 DAPA COMMUNICATIONS INCORPORATED  
02980 DARE INCORPORATED  
02990 DATA AIRCRAFT PRODUCTS INC  
03000 DATA CONTROL SYSTEM  
03010 DATA DESIGN LABORATORIES  
03020 DATA RADIO INC  
03030 DATA SYSTEM INCORPORATED  
03040 DATA TRANSMISSION SCIENCES  
03050 DATAPATH, INC  
03060 DATRON SYSTEMS INCORPORATED  
03070 DAVCO ELECTRONICS INCORPORATED  
03080 DAVIDSON OPTRONICS INC  
03090 DAYSTROM INCORPORATED  
03100 DAYTON GRANGER INC.  
03110 DB CONTROL INC.  
03120 DE BERNARDI SCIENTIFIC CORPORATION  
03130 DEBEG GMBH  
03140 DECATUR ELECTRONICS INCORPORATED  
03150 DECCA RADAR LIMITED  
03160 DECIBEL PRODUCTS INCORPORATED  
03170 DEFENSE COMMUNICATION ENGINEERING, INC  
03180 DEFENSE ELECTRONICS  
03190 DEFENSE SYSTEMS INCORPORATED  
03200 DEFIANCE MACHINE TOOL COMPANY  
03210 DEL NORTE TECHNOLOGY INCORPORATED  
03220 DELCO RADIO DIVISION  
03230 DELL STAR  
03240 DELMAR ENGINEERING LABORATORIES  
03250 DENRO LABS  
03260 DERO RESEARCH DEVELOPMENT CORPORATION  
03270 DESIGN ANALYSIS ASSOCIATES INCORPORATED  
03280 DESKIN RESEARCH GROUP  
03290 DEVELCO INCORPORATED

03300 DEWEY ELECTRONIC INCORPORATION  
03310 DIAMOND ANTENNA MICROWAVE COMPANY  
03320 DIAMOND LABORATORIES  
03330 DICKEY-JOHN CORPORATION  
03340 DIELECTRIC PRODUCTS ENGINEERING CO. INC.  
03350 DIGITAL MICROWAVE CORPORATION  
03355 DIGITAL RECEIVER TECHNOLOGY  
03360 DIVCO WAYNE CORPORATION  
03370 DIXON INDUSTRIES CORPORATION  
03380 DOOLITTLE RADIO INCORPORATED  
03390 DORNE MARGOLIN INCORPORATED  
03400 DORSETT LABORATORIES  
03410 DOUGLAS AIRCRAFT  
03420 DRAKE RL COMPANY  
03430 DRS PRECISION ECHO INC  
03440 DRS TECHNOLOGIES INC.  
03445 DTC COMMUNICATIONS INC  
03450 DUBOSE MARINE RADIO  
03460 DUBROW DEVELOPMENT CO  
03470 DUMONT LABORATORIES  
03480 DX RADIO SYSTEMS INC.  
03490 DYMEC  
03500 DYNAIR ELECTRONICS INCORPORATED  
03510 DYNALEC CORPORATION  
03520 DYNAMICS CORPORATION OF AMERICA  
03530 DYNASCAN CORP  
03540 DYNATRONICS INCORPORATED  
03550 DYNELL ELECTRONICS CORPORATION  
03560 E.F. DATA  
03570 EAGLE TECHNOLOGY INC  
03580 EARMARK INC  
03590 EASTERN MICROWAVE CORPORATION  
03600 EATON CORPORATION - AIL DIVISION  
03610 EB CORPORATION  
03620 ECATEK INCORPORATED  
03630 ECI/DIV OF E-SYSTEMS INCORPORATED  
03640 EDLER INDUSTRIES INCORPRATED  
03650 EDMAC ASSOCIATES,INC.  
03660 EDO CORPORATION  
03670 EICO ELECTRONICS INSTRUMENTS INCORPORATED  
03680 EITEL ELECTRONICS  
03690 ELDICO ELECTRONICS  
03700 ELDYNE INCORPORATED  
03710 ELECTRAC INCORPORATED  
03720 ELECTRIC VOICE CORPORATION  
03730 ELECTRO DATA INCORPORATED  
03740 ELECTRO MECHANICAL RESEARCH INCORPORATED  
03750 ELECTRO SYSTEMS INTERNATIONAL  
03760 ELECTROFAB  
03770 ELECTROFACT NV  
03780 ELECTROLAB  
03790 ELECTROMAGNETIC PROCESSES, INC  
03800 ELECTROMAGNETIC SCIENCES, INC  
03810 ELECTROMAGNETIC TECHNOLOGY CORPORATION  
03820 ELECTROMAGNETICS SYSTEMS LABORATORIES  
03830 ELECTROMATIC INCORPORATED  
03840 ELECTRONIC DEFENSE LABORATORIES INC  
03850 ELECTRONIC ENGINEERING COMPANY

03860 ELECTRONIC NAVIGATION INDUSTRIES  
03870 ELECTRONIC NAVIGATION INSTRUMENTS  
03880 ELECTRONIC RESOURCES INCORPORATED  
03890 ELECTRONIC SPECIALTY COMPANY  
03900 ELECTRONIC SYSTEMS TECHNOLOGY  
03910 ELECTRONICS COMMUNICATIONS INC  
03920 ELECTRONICS MISSILES COMMUNICATIONS INC  
03930 ELECTRONICS RESEARCH INDUSTRIES  
03940 ELECTRONIQUE AEROSPATIALE  
03950 ELECTRONIQUE MARCEL DASSAULT  
03960 ELECTRO-OPTICAL SYSTEMS INC/DIV OF XEROX  
03970 ELECTROSPACE SYSTEMS INCORPORATED  
03980 ELECTROTAPÉ  
03990 ELECTROTECHNIC CORPORATION  
04000 ELMER  
04005 ELPRO TECHNOLOGIES  
04010 ELTA ELECTRONICS INDUSTRIES LTD.  
04020 EM SYSTEMS INCORPORATED  
04030 EMC INSTRUMENT INCORPORATED  
04040 EMCEE BROADCAST PRODUCTS INC  
04050 EMERALD MARINE PRODUCTS CORPORATION  
04060 EMERGENCY BEACON CORPORATION  
04070 EMERSON ELECTRIC COMPANY  
04080 EMERSON RESEARCH LABORATORIES  
04090 EMHISER RESEARCH INCORPORATED  
04100 EMI COSSAR ELECTRONICS LIMITED  
04110 EMI ELECTRONICS LIMITED  
04120 EMPOWER RF SYSTEMS, INC.  
04130 EMR (SANGAMO WESTON, INCORPORATED)  
04140 EMS TECHNOLOGIES LTS  
04150 ENERGY SYSTEMS INCORPORATED  
04160 ENERGY-ONIX BROADCAST EQUIPMENT COMPANY INC  
04170 ENGINEERING SERVICES  
04180 ENTERASYS NETWORKS  
04190 ENTERPRISE ELECTRONICS CORPORATION  
04200 ENVIRONMENTAL DEVICES CORPORATION  
04210 ENVIRONMENTAL RESEARCH INSTITUTE OF MICH  
04220 EPSCO INCORPORATED  
04230 EPSILON LAMBDA ELECTRONICS CORPORATION  
04240 ERCO RADIO LABORATORIES INCORPORATED  
04250 ERICSSON  
04260 ERICSSON, L.M. LIMITED  
04270 ERNST, GRIER GERMERHAUSEN CO  
04280 ESCO  
04290 ESL INCORPORATED/DIVISION OF TRW  
04300 ESPEY MFG AND ELECTRONICS CORPORATION  
04310 ESTERLINE ELECTRIC COMPANY  
04320 E-SYSTEMS INCORPORATED  
04330 EUREKA SYSTEMS INC  
04340 EUROPEAN AERONAUTIC DEFENSE AND SPACE COMPANY  
04350 EUROPEAN ANTENNAS  
04360 EUROSATELLITE GMBH  
04370 EXECUTONE INCORPORATED  
04380 EYRING RESEARCH INSTITUTE  
04390 F&H MANUFACTURING CORP  
04400 FAIRCHILD SPACE & ELECTRONICS COMPANY  
04410 FAIRCHILD STRATOS  
04420 FAIRCHILD WESTON SYSTEMS, INC.

04430 FANON ELECTRONICS INCORPORATED  
04440 FARINON ELECTRIC MICROWAVE AND VIDEO  
04450 FARINON MICROWAVE INCORPORATED  
04460 FARNSWORTH TV RADIO  
04465 FARR RESEARCH INCORPORATED  
04470 FEDERAL ELECTRIC CORPORATION  
04480 FEDERAL SIGN AND SIGNAL  
04490 FEDERAL SIGNAL CORPORATION  
04500 FEDERAL TELEGRAPH COMPANY  
04510 FEDERAL TELEPHONE RADIO CORPORATION  
04520 FEI-ZYFER INC.  
04530 FEMCO INCORPORATED  
04540 FERRANTI LTD ELECTRO SYSTEMS DEPARTMENT  
04550 FIGGIE INTL INC, HARTMAN ELECTRICAL MFG  
04560 FINCO  
04570 FINNEY COMPANY  
04580 FISHER RESEARCH LABORATORIES  
04590 FLAM AND RUSSEL INC  
04595 FLEETWOOD GROUP INCORPORATED  
04600 FLIGHT REFUELING LTD  
04610 FLIGHTLINE ELECTRONICS  
04620 FLIR SYSTEMS INC  
04630 FLITE TRONICS  
04640 FONET INCORPORATED  
04650 FORD AEROSPACE AND COMMUNICATIONS CORP.  
04660 FORT WORTH TOWER COMPANY  
04670 FOSTER AIRDATA SYSTEMS INC  
04680 FRAN AIR PRODUCTS COMPANY  
04690 FRANCIS INDUSTRIES INCORPORATED  
04700 FRASER-VOLPE  
04710 FREDERICK ELECTRONICS CORPORATION  
04720 FREEWAVE INCORPORATED  
04730 FRENCH CENTER NATIONAL D'ETUDES SPATIALES (CNES)  
04740 FREQUENCY ENGINEERING LABORATORIES  
04750 FREQUENCY SOURCE INCORPORATED  
04760 FUCHS ELECTRONICS  
04770 FUJITSU ELECTRIC  
04780 FURUNO ELECTRIC COMPANY LIMITED  
04790 FUTABA OF AMERICA  
04800 GABRIEL CORPORATION  
04810 GALAXY ELECTRONICS INCORPORATED  
04820 GALAXY MICROSYSTEMS INCORPORATED  
04830 GAM ELECTRONICS INCORPORATED  
04840 GARMIN INTERNATIONAL  
04850 GATES RADIO COMPANY  
04860 GEC TELECOMMUNICATIONS LIMITED  
04870 GENERAL ATOMICS CORPORATION  
04880 GENERAL AVIATION ELECTRONICS INCORPORATED  
04890 GENERAL COMMUNICATION COMPANY  
04900 GENERAL DEVELOPMENT CORPORATION  
04910 GENERAL DYNAMICS CORPORATION  
04920 GENERAL ELECTRIC CORPORATION  
04930 GENERAL ELECTRIC LIMITED  
04940 GENERAL ELECTRONIC LABORATORIES  
04950 GENERAL INSTRUMENT CORPORATION  
04960 GENERAL MICROWAVE CORPORATION  
04970 GENERAL MOTORS CORPORATION  
04980 GENERAL PRECISION INCORPORATED LIMITED

04990 GENERAL PRECISION LABORATORY INCORPORATED  
05000 GENERAL RADIO TELEPHONE COMPANY  
05010 GENERAL SERVICE ENGINEERING  
05020 GEO SPACE SYSTEMS INCORPORATED  
05030 GEODYNE CORPORATION  
05040 GEORGIA INSTITUTE OF TECHNOLOGY  
05050 GEOTEL DEVELOPMENT COMPANY  
05060 GIBSON ANTENNAS  
05065 GIGABEAM HEADQUATERS  
05070 GILFILLAN BROS INCORPORATED  
05080 GLB ELECTRONICS INCORPORATED  
05090 GLOBAL MICROWAVE SYSTEM INC  
05100 GLOBE INDUSTRIES  
05110 GONSET CORPORATION  
05115 GOODRICH CORPORATION OPTICAL AND SPACE SYSTEMS  
05120 GOODYEAR AEROSPACE CORPORATION  
05130 GOULD ELECTRONICS CORPORATION  
05135 GRACE INDUSTRIES INCORPORATED  
05140 GRANGER ASSOCIATES  
05150 GRANGER ASSOCIATES LIMITED  
05160 GRANITE STATE MACHINE COMPANY  
05170 GRANT APPLIED PHYSICS  
05180 GREEN MOUNTAIN RADIO RESEARCH  
05190 GRINAKER ELECTRONICS LIMITED  
05200 GRUEN WATCH COMPANY  
05210 GRUMMAN AIRCRAFT ENGINEERING CORPORATION  
05220 GTE SYLVANIA  
05230 GYRODYNE COMPANY  
05240 H.R.SMITH  
05250 HADRON, INC.  
05260 HAIGH-FARR  
05270 HALLCRAFTER COMPANY  
05280 HALLMARK INSTRUMENTS INCORPORATED  
05290 HALSTEAD  
05300 HAMMARLUND MANUFACTURING COMPANY  
05310 HAMTRONICS, INCORPORATED  
05320 HANDAR COMPANY  
05330 HARBOR ELECTRONICS SERVICE  
05340 HARRIS CORPORATION - AEROSPACE SYSTEMS DIV  
05350 HARRIS CORPORATION R.F. COMMUNICATIONS  
05360 HARTMAN MARINE ELECTRONICS CORPORATION  
05370 HARTMAN SYSTEMS DIVISION OF A-T-O INC.  
05380 HARVEY RADIO LABORATORIES INCORPORATED  
05390 HASTINGS RAYDIST INCORPORATED  
05400 HAYS CORPORATION  
05410 HAZELTINE CORPORATION  
05420 HEATH COMPANY  
05430 HENRY RADIO COMPANY  
05440 HERCULES DEFENSE ELECTRONICS SYSTEMS  
05450 HERLEY MICROWAVE SYSTEMS INC  
05460 HERMES ELECTRONICS LIMITED  
05470 HEWLETT PACKARD  
05480 HIGHWAY INFORMATION SYSTEMS INCORPORATED  
05490 HITACHI  
05500 HOFFMAN ELECTRONICS CORPORATION  
05510 HOLLANDSE SIGNAALAPPARATEN B.V.  
05520 HONEYWELL INCORPORATED  
05530 HORNET ANTENNA PRODUCTS COMPANY

05540 HOUSEHOLD DATA SERVICES INCORPORATED  
05550 HOUSTON CORPORATION  
05560 HRB SINGER INCORPORATED  
05570 HT SYSTEMS  
05580 HUBER & SUHNER AG  
05590 HUDSON AMERICAN  
05600 HUGHES AIRCRAFT COMPANY  
05610 HULL ELECTRONICS COMPANY  
05620 HUNTLEY  
05630 HUSTLER  
05640 HYBRID NETWORKS INC  
05650 HYCON COMPANY  
05660 HY-GAIN ELECTRONICS CORPORATION  
05670 HYPERLINK TECHNOLOGIES  
05680 HYTENNA  
05690 ICOM AMERICA INCORPORATED  
05700 IFR SYSTEMS INC  
05710 ILLINOIS INSTITUTE TECHNICAL RESEARCH  
05720 IMO VARO, INC.  
05730 INDUSTRIAL INST TELECOMMUNICATIONS  
05740 INDUSTRIAL RADIO CORPORATION  
05750 INOVONICS CORPORATION  
05760 INSIGHT TECHNOLOGY  
05770 INSTRUMENT & FLIGHT RESEARCH INCORPORATED  
05780 INSTRUMENTS FOR INDUSTRY CORPORATION  
05790 INTECH INCORPORATED  
05800 INTERAD LIMITED  
05810 INTERMEC  
05820 INTERNATIONAL AERADIO LIMITED  
05830 INTERNATIONAL BUSINESS MACHINE COMPANY  
05840 INTERNATIONAL LASER SYSTEMS INCORPATED  
05850 INTERNATIONAL MICROWAVE CORPORATION  
05860 INTERNATIONAL RADIO ELECTRONICS CORP  
05870 INTERNATIONAL SIGNAL AND CONTROL  
05880 INTERNATIONAL STANDARD ELECTRONICS CORP  
05890 INTERNATIONAL TELEPHONE & TELEGRAPH CORP  
05900 INTERNAV LTD  
05910 INTERSTATE ELECTRONICS COMPANY  
05920 INTERWAVE COMMUNICATIONS  
05930 ISC DEFENSE SYSTEMS INC  
05940 ISLIP RADIO CORPORATION  
05950 ISRAEL AIRCRAFT INDUSTRIES LTD  
05960 ITA ELECTRONIC CORPORATION  
05970 ITEK CORPORATION  
05980 ITI ELECTRONICS INCORPORATED  
05990 ITT AEROSPACE/OPTICAL  
06000 ITT AVIONICS DIVISON  
06010 ITT DECCA INCORPORATED  
06020 ITT DEFENSE COMMUNICATION DIVISION  
06030 ITT FEDERAL LABORATORIES  
06040 ITT GILFILLAN  
06050 ITT KELLOGG TELECOMMUNICATIONS SYSTEM  
06060 ITT MACKAY MARINE  
06070 ITT STANDARD  
06080 ITT TELECOMMUNICATIONS  
06090 J AND H SMITH MFG CO.  
06100 J.L. WHITE COMPANY  
06110 JAMPRO ANTENNA COMPANY

06120 JANEL LABORATORIES  
06130 JAPAN AVIOTRONICS  
06140 JAPAN PIEZO CO. LTD. (AZDEN)  
06150 JAPAN RADIO COMPANY  
06160 JAPAN REMOTE CONTROL CO LTD  
06170 JASCO INTERNATIONAL INC  
06180 JASIK LABORATORIES  
06190 JAY TAP INCORPORATED  
06200 JAYBEAM  
06210 JEFFERSON TRAVIS  
06215 JENNINGS ENGINEERING  
06220 JERROLD ELECTRONICS CORPORATION  
06230 JET PROPULSION LABORATORY  
06240 JFD RESEARCH/DEVELOPMENT LABORATORIES  
06250 JOHN HOPKINS UNIVERSITY  
06260 JOHNSON DATA TELEMETRY CORPORATION  
06270 JOHNSON E.F. COMPANY  
06280 KAAR ENGINEERING CORPORATION  
06290 KAHN RESEARCH LABORATORIES  
06300 KALMUS  
06310 KAMAN SCIENCES CORP  
06320 KATHREIN INC  
06330 KAVOURAS INCORPORATED  
06340 KEARFOTT ENGINEERING CORPORATION  
06350 KEBBY MICROWAVE CORPORATION  
06360 KEITH ANDERSON COMPANY  
06370 KEL CORPORATION  
06380 KELTEC INDUSTRIES  
06390 KELVIN HUGHES LIMITED  
06400 KENNEDY COMPANY  
06410 KENWOOD  
06420 KEY SYSTEMS INCORPORATED  
06430 K-F ELECTRONICS  
06440 KIGORE CORPORATION  
06450 KINEMETRICS  
06460 KING FISHER COMPANY  
06470 KING RADIO CORPORATION  
06480 KINN ELECTRONICS CORPORATION  
06490 KLM COMMUNICATIONS INC  
06495 KMA ANTENNAS  
06500 KNIGHT ELECTRONICS CORPORATION  
06510 KOBE KOGYO CORPORATION  
06520 KOKUSAI ELECTRIC COMPANY  
06530 KOLLSMAN INSTRUMENT CORPORATION  
06540 KONIGSBERG ELECTRONICS INCORPORATED  
06550 KOR ELECTRONICS INC  
06560 KORAD CORPORATION/DIV OF UNION CARBIDE  
06570 KRAFT SYSTEMS INCORPORATED  
06580 KRECO COMPANY  
06590 KUBOTA KISHO SHOKKI COMPANY  
06600 KURES-ALTERMAN CORPORATION  
06610 KUSTOM ELECTRONICS INC  
06620 KUSTOM SIGNAL CORPORATION  
06630 KVH INDUSTRIES INCORPORATED  
06640 KYOKUTO DENSHI KAISHA LTD  
06650 KYORITSU DEMPJA COMPANY LIMITED  
06660 L.L.ELECTRONICS  
06670 L-3 COMMUNICATIONS

06680 LABARGE INCORPORATED  
06690 LABORATORIES CENTRAL DE TELECOMM  
06700 LABORATORY FOR ELECTRONICS INCORPORATED  
06710 LAFAYETTE RADIO  
06720 LAGUNA INDUSTRIES  
06730 LAMBDA PACIFIC ENGINEERING  
06740 LAND AND JOINT SYSTEMS; THALES  
06750 LAPOINT INDUSTRIES INC  
06760 LARSON ELECTRONICS  
06765 LASERCRAFT  
06770 LAVOIE LABORATORIES INCORPORATED  
06780 LE MATERIEL TELEPHONIQUE  
06790 LEAR INCORPORATED  
06800 LECTROSONIC INCORPORATED  
06810 LEICA GEOSYSTEMS INC.  
06820 LEIGH INSTRUMENTS LIMITED  
06830 LENKURT ELECTRIC COMPANY  
06840 LENKURT ELECTRONICS CO. OF CANADA LIMITED  
06845 LERC S.A.  
06850 LEWYT MANUFACTURING CORPORATION  
06860 LFE CORP, ELECTRONICS DIV.  
06870 LINCOLN LABORATORIES  
06880 LINEAR SYSTEMS INCORPORATED  
06890 LING TEMCO VOUGHT INCORPORATED  
06900 LINK RADIO  
06910 LINKABIT WIRELESS INC  
06920 LINKSYS  
06930 LINX TECHNOLOGIES  
06940 LITTON INDUSTRIES  
06950 LITTON SYSTEMS LIMITED  
06960 LNR COMMUNICATIONS  
06970 LOCKHEED ELECTRONICS COMPANY  
06980 LOCKHEED MARTIN ASTRO SPACE  
06990 LOCUS INCORPORATED  
07000 LOEA CORPORATION  
07010 LOGIMETRICS INCORPORATED  
07020 LONE STAR ELECTRONICS  
07030 LONG WAVE, INC.  
07040 LORAIN ELECTRONICS INCORPORATED  
07050 LORAL ELECTRONICS CORPORATION  
07060 LORCH ELECTRONICS  
07070 LORENZ  
07080 LORRAIN COUNTY RADIO CORPORATION  
07090 LOS ALAMOS TECHNICAL ASSOCIATES INC  
07100 LOTEK WIRELESS INCORPORATED  
07110 LOW POWER BROADCAST CO.  
07120 LTV AEROSPACE DEFENSE CO SIERRA RSRCH DIV  
07130 LTV ELECTROSYSTEMS INCORPORATED  
07140 LUCAS AEROSPACE  
07150 LUNAR ELECTRONICS  
07160 M/A COM MAC  
07170 M2 ANTENNA SYSTEMS INC  
07175 MACAULAY BROWN INCORPORATED  
07180 MACKAY RADIO-TELEGRAPH COMPANY  
07190 MADAH-COM  
07200 MAGELLAN SYSTEMS CORP  
07210 MAGNAVOX COMPANY  
07220 MAGNETIC AB SWEDEN

07230 MAL MOBLEY  
07240 MALIBU RESEARCH  
07250 MANSON LABORATORIES INCORPORATED  
07260 MARCONI SELEX, INC.  
07270 MARCONI INSTRUMENTS DIV ENGLISH ELECTRONIC  
07280 MARCONI INTERNATIONAL MARINE CO  
07290 MARCONI RADAR SYSTEMS LIMITED  
07300 MARCONI RADIO  
07310 MARCONI SPACE & DEFENSE SYS LTD  
07320 MARCONIS WIRELESS TELEGRAPH COMPANY LTD  
07330 MARELLI LENKURT ELECTRIC  
07340 MARINE RESCUE TECHNOLOGIES LTD.  
07350 MARITEK INCORPORATED  
07360 MARITIME TELECOMMUNICATIONS NETWORK INC  
07370 MARK PRODUCTS COMPANY (ALSO ANIXTER-MARK)  
07380 MARTECH, INC  
07390 MARTI ELECTRONICS  
07400 MARTIN MARIETTA AIR SPACE  
07410 MARYLAND ELECTRONICS CORPORATION  
07420 MASTER MOBILE MOUNTS INCORPORATED  
07430 MATRA-MARCONI SPACE  
07440 MATSUSHITA ELECTRIC CORPORATION  
07450 MAX PLANCK INSTITUTE  
07460 MAXAR  
07470 MAXON ELECTRONICS INCORPORATED  
07480 MAXRAD INC  
07490 MAXSON ELECTRONICS CORP ELECTRONICS DESIGN  
07500 MAXWELL ELECTRONICS CORPORATION  
07510 MB ASSOCIATES  
07520 MCDONNEL AIRCRAFT CORPORATION  
07530 MCDONNELL DOUGLAS CORPORATION  
07540 MCKAY DYMEK COMPANY  
07550 McMARTIN INDUSTRIES INCORPORATED  
07560 MDTT INCORPORATED  
07565 MEADS INTERNATIONAL  
07570 MECHANICAL PRODUCT INCORPORATED  
07580 MEGA INDUSTRIES  
07590 MEGAPULSE INCORPORATED  
07600 MEGGIORIN GROUP  
07610 MEI TECHNOLOGY  
07620 MEISEI DENKI COMPANY  
07630 MEL EQUIPMENT COMPANY LIMITED  
07640 MELABS  
07650 MELPAR INCORPORATED  
07660 MENTOR RADIO COMPANY  
07670 METEOR COMMUNICATIONS CORP  
07680 METRIC SYSTEMS CORPORATION  
07690 METRODATA SYSTEMS  
07700 METROTEK ELECTRONICS COMPANY  
07705 MI TECHNOLOGIES  
07710 MICREL SEMICONDUCTOR  
07720 MICRO COMMUNICATIONS COMPANY  
07730 MICRO ELECTRONICS INCORPORATED  
07740 MICRO SYSTEMS INC  
07750 MICROCOM CORPORATION  
07760 MICRO-CONTROLS INCORPORATED  
07770 MICRODOT INCORPORATED  
07780 MICRODYNE CORPORATION

07785 MICROHARD SYSTEMS INCORPORATED  
07790 MICROLAB/FXR  
07800 MICRO-LINK SYSTEM VARIAN  
07810 MICROLOGIC  
07820 MICROMEGA DIVISION OF BUNKER-RAMO CORP  
07830 MICRONETICS INCORPORATED  
07840 MICRO-NOW INSTRUMENT COMPANY INCORPORATED  
07850 MICROPHASE CORPORATION  
07860 MICRO-TEL CORPORATION  
07870 MICROVISION  
07880 MICROWAVE & ELECTRONIC SYSTEMS LIMITED  
07890 MICROWAVE ANTENNA DESIGNS INC  
07900 MICROWAVE ASSOCIATES INCORPORATED  
07910 MICROWAVE BYPASS SYSTEMS  
07920 MICROWAVE CAVITY LABORATORY  
07930 MICROWAVE CONTROL COMPANY  
07940 MICROWAVE DATA SYSTEMS  
07950 MICROWAVE DESIGN & MANUFACTURING INC  
07960 MICROWAVE INNOVATIONS INC.  
07970 MICROWAVE NETWORKS INC  
07980 MICROWAVE POWER DEVICES INCORPORATED  
07990 MICROWAVE PRODUCTS INCORPORATED  
08000 MICROWAVE RADIO CORP  
08010 MICROWAVE RESEARCH CORP  
08020 MICROWAVE RESOURCES, INC  
08030 MICROWAVE SENSORS INCORPORATION  
08040 MICROWAVE SERVICE COMPANY  
08050 MICROWAVE SPECIALTY CORPORATION  
08060 MID AMERICAN RELAY SYSTEMS  
08070 MID STATE RADIO  
08080 MIDLAND INTERNATIONAL CORPORATION  
08090 MIDWEST RADIO CORPORATION  
08100 MILITARY TECHNOLOGY PTY LIMITED  
08110 MILLER INDUSTRIES  
08120 MILLIFLECT INCORPORATED  
08130 MILLIMETER WAVE TECHNOLOGY INCORPORATED  
08140 MIRAGE SYSTEMS  
08150 MISSAWA  
08160 MISSION ENGINEERING CORPORATION  
08170 MITCHEL CAMERA CORPORATION  
08180 MITEQ INCORPORATED  
08190 MITRE CORPORATION  
08200 MITREX  
08210 MITSUBISHI ELECTRIC CORPORATION DENKI/MELCO  
08220 MNEMONICS INCORPORATED  
08230 MOBILE KNOWLEDGE INCORPORATED  
08240 MOBILE MARK ANTENNA  
08250 MOBILE TELESYSTEMS INC  
08260 MODEL ENGINEERING & MANUFACTURING CORP  
08270 MONACO ENTERPRISES INCORPORATED  
08280 MONITOR ELECTRONICS INCORPORATED  
08290 MONITRON CORPORATION  
08300 MOOG COMPONENTS GROUP  
08310 MORAD ELECTRONICS CORPORATION  
08320 MORFAX LTD  
08330 MORROW RADIO MANUFACTURING COMPANY  
08340 MOSLEY ELECTRONICS COMPANY  
08350 MOTOROLA CORPORATION

08360 MPH INDUSTRIES INCORPORATED  
08370 M-TECH CORPORATION  
08380 MU-BLOX (U-BLOX)  
08390 MULTI ELMAC COMPANY  
08400 MULTIPONT NETWORKS  
08410 MULTI-PRODUCTS COMPANY  
08420 MULTITONE ELECTRONICS  
08430 MULTRONICS INCORPORATED  
08440 MUNIQUIP COMPANY  
08450 MUNSTON ELECTRONIC MANUFACTURING COMPANY  
08460 MX-MARINE INC.  
08470 MZ ENTERPRISES  
08480 NADY SYSTEMS INCORPORATED  
08490 NANAYO ELECTRIC COMPANY  
08500 NANKAI MUSEN COMPANY  
08510 NAPCO INDUSTRIES INCORPORATED  
08520 NARCO AVIONICS  
08530 NARDA MICROWAVE CORPORATION  
08540 NATIONAL  
08550 NATIONAL AERONAUTIC CORPORATION  
08560 NATIONAL CASH REGISTER OF CANADA  
08570 NATIONAL COMPANY  
08580 NATIONAL ELECTRONICS LABORATORIES  
08590 NAUTICAL ELECTRONIC LABORATORIES LIMITED  
08600 NAVAL AIR DEVELOPMENT CENTER  
08610 NAVAL AMMUNITION DEPOT  
08620 NAVAL AVIONICS  
08630 NAVAL ENGINEERING CENTER  
08640 NAVAL OCEAN SYSTEMS CENTER  
08650 NAVAL ORDNANCE TEST CENTER CHINA LAKE CA  
08660 NAVAL RESEARCH LABORATORY  
08670 NAVAL UNDERWATER SYSTEM CENTER  
08680 NAVAL WEAPONS CENTER  
08690 NAVALAIR WARFARE CENTER WEAPONS DIVISION  
08700 NAVCOM DEFENSE ELECTTRONICS  
08710 NAVIDYNE CORPORATION  
08720 NEC AMERICA INCORPORATED  
08730 NEC, JAPAN  
08740 NEMSCLARKE  
08750 NEPTUNE TECHNOLGY INC.  
08760 NERA  
08770 NEULINK DIV OF CELTRONICS  
08780 NEUTEC DIV OF CELLTRONICS INC  
08790 NEVADA AIR PRODUCTS COMPANY  
08800 NEW TRONICS DIVISION  
08810 NEWTON COMPANY  
08820 NEXTEL INCORPORATED  
08830 NICOM  
08840 NIHON DENKI COMPANY  
08850 NIHON MUSEN COMPANY  
08860 NIPPON ELECTRONICS COMPANY LIMITED  
08870 NISSAN  
08880 NOISE COM  
08890 NOKIA  
08900 NORAND DATA SYSTEMS  
08910 NORDEN SYSTEMS INCORPORATED  
08920 NORTHEAST METAL CORPORATION  
08930 NORTHEASTERN ENGINEERING COMPANY

08940 NORTHERN ELECTRIC COMPANY LIMITED  
08950 NORTHERN RADIO COMPANY  
08960 NORTHERN TELECOM INC NORTHEAST ELECTRONICS  
08970 NORTHROP CORPORATION  
08980 NORTHSTAR TECHNOLOGIES  
08990 NORTHWEST INSTRUMENTS COMPANY  
09000 NORWEGIAN DEFENSE RESEARCH ESTABLISHMENT  
09010 NOVA ENGINEERING, INC.  
09020 NOVAK ELECTRONICS  
09030 NOVA-TECH AVIONICS  
09040 NUCOMM  
09050 NURAD INCORPORATED  
09060 OCEAN APPLIED RESEARCH  
09070 ODETICS, PRECISION TIME DIVISION  
09080 ODOM OFFSHORE SURVEYS INC.  
09090 OKI DENKI COMPANY  
09100 OKLAHOMA AEROTRONICS COMPANY  
09110 OLSON RADIO CORPORATION  
09120 OMERA (FRANCE)  
09130 OMNISTAR INCORPORATED  
09140 OMNITEK INCORPORATED  
09150 OMNITRONIX INCORPORATED  
09155 OPHIR  
09160 OPOS ELECTRONICS  
09170 OPTIC ELECTRONIC CORPORATION  
09180 OPTO-MECHANIK  
09190 ORBITAL SCIENCES CORPORATION  
09200 OSBORNE ELECTRONICS CORPORATION  
09210 OZALID DIVISION OF GENERAL ANILINE & FILM  
09220 PACE COMMUNICATIONS CORPORATION  
09230 PACIFIC ADVANCED ENGINEERING INC  
09235 PACIFIC CONSULTANTS LLC  
09240 PACIFIC CREST CORPORATION  
09250 PACIFIC MISSILE RANGE COMPANY  
09260 PACIFIC NORTHWEST LABORATORY  
09270 PACKARD BELL CORPORATION  
09280 PAGE COMMUNICATIONS ENGINEERS INCORPORATED  
09290 PAN AMERICAN AIRWAYS  
09300 PANTRONICS CORPORATION  
09310 PARK AIR ELECTRONICS  
09320 PARSONS ELECTRONICS  
09330 PATHCOM INCORPORATED  
09340 PATTERSON MANUFACTURING COMPANY  
09350 PEARCE SIMPSON INCORPORATED  
09360 PERFECTION  
09370 PERKIN-ELMER APPLIED SCIENCE/AEROSPACE DIV  
09380 PHELPS DODGE - SEE CELWAVE SYSTEMS INC.  
09390 PHILCO CORPORATION (PHILCO FORD CORP)  
09400 PHILCO CORPORATION OF CANADA LIMITED  
09410 PHILIPS AUDIO VISUAL CORPORATION  
09420 PHILIPS TELECOMMUNICATIE INDUSTRIE  
09430 PHILIPS TELEINDUSTRI AB  
09440 PHILMORE MANUFACTURING COMPANY  
09450 PHYSICAL SCIENCE LAB  
09460 PICKARD-BURNS INCORPORATED  
09470 PIPER AIRCRAFT CORPORATIONS (ELECT DIV)  
09480 PISCATTINY ARSENAL  
09490 PIUSON ASSOCIATES INC

09500 PLECTRON CORPORATION  
09510 PLESSEY COMPANY LIMITED  
09515 PLEXTEK LIMITED  
09520 PMTC CODE 1242  
09530 POINTER AVIONICS INC  
09540 POINTER ELECTRONICS  
09550 POLARAD ELECTRONICS CORPORATION  
09560 POLE / ZERO CORPORATION  
09570 POLYTRONICS LABORATORIES CORPORATION  
09580 POWER SYSTEMS TECHNOLOGY INC  
09590 PREMAX PRODUCTS DIVISION  
09600 PREMIER WIRELESS INCORPORATED  
09610 PROCOM  
09620 PRODELIN INCORPORATED  
09630 PROFESSIONAL ELECTRONICS CO  
09640 PROTECTION TECHNOLOGIES, INC  
09650 PROXIM  
09660 PYLE TELECOMMUNICATIONS LIMITED  
09670 QEI CORPORATION  
09680 QUALCOMM, INC  
09690 QUALI-TRON  
09695 QUALITY PERFORMANCE INCORPORATED  
09700 QUANTA SYSTEMS CORPORATION  
09710 QUINTRON CORP  
09720 R&D ASSOC ELECTRONICS NAVIGATION IND. INC.  
09730 R.A. MILLER INDUSTRY  
09740 R.J. GUMM COMPANY  
09750 RACAL COMMUNICATIONS INCORPORATED  
09760 RACAL ELECTRONICS LIMITED  
09770 RACAL INSTRUMENTS LIMITED  
09780 RACAL-DECCA MARINE INC.  
09790 RACAL-TACTICOM LTD  
09800 RACON INCORPORATED  
09810 RADAIR INCORPORATED  
09820 RADAR TECHNOLOGY INCORPORATED  
09830 RADARTRONIC AIS  
09835 RADIALL  
09840 RADIAN CORPORATION  
09850 RADIATION SYSTEMS INC  
09860 RADIO COMMUNICATIONS EQUIPMENT ENGR LTD  
09870 RADIO CORPORATION OF AMERICA  
09880 RADIO ELECTRONICS LABORATORIES  
09890 RADIO ENGINEERING LABORATORIES  
09900 RADIO FREQUENCY LAB  
09910 RADIO FREQUENCY SYSTEMS  
09920 RADIO HOLLAND GROUP USA  
09930 RADIO MARINE CORPORATION  
09940 RADIO RECEPTOR COMPANY  
09950 RADIO RESEARCH INSTRUMENT CO., INC.  
09960 RADIO SHACK  
09970 RADIO SPECIALTY COMPANY  
09980 RADIO SYSTEMS INC  
09990 RADIO TEL LTD  
10000 RADIO WAVES INCORPORATED  
10010 RADIONICS  
10020 RAFAEL  
10030 RAILWAY COMMUNICATION INCORPORATED  
10035 RAMI

10040 RA-NAV INCORPORATED  
10050 RANDTRON SYSTEMS  
10060 RANGER COMMUNICATIONS  
10070 RANNOCH CORPORATION  
10080 RANTEC CORPORATION  
10090 RAPITEC, INCORPORATED  
10095 RADTEC ENGINERRING INC  
10100 RAULAND-BORGE CORP  
10110 RAVEN INDUSTRIES  
10120 RAY JEFFERSON COMPANY  
10130 RAYTHEON COMPANY  
10140 RAYTHEON MARINE GMBH  
10150 RAYTRON LTD  
10160 RCA VICTOR COMPANY LIMITED  
10170 REACTION INSTITUTE, INC.  
10180 REALISTIC COMPANY  
10190 RECON OPTICAL INC, CAI DIV.  
10200 REDIFON LIMITED  
10210 REDLINE COMMUNICATIONS  
10220 REEVES INSTRUMENT CORPORATION  
10230 REGENCY ELECTRONICS INCORPORATED  
10240 REL INCORPORATED  
10250 RELIABLE SYSTEMS SERVICES CORP  
10260 RELM COMMUNICATIONS INC.  
10270 REMTRON INCORPORATED  
10280 REPCO INCORPORATED  
10290 REPUBLIC AVIATION CORPORATION  
10300 RESDEL ENGINEERING CORPORATION  
10310 RESEARCH IN MOTION LTD  
10320 REX BASSETT INCORPORATED  
10330 RF COMMUNICATIONS ASSOCIATES INC.  
10340 RF SYSTEMS INCORPORATED  
10350 RF TECHNOLOGY  
10360 RHG ELECTRONICS LABORATORY INC.  
10370 RITCON INC  
10380 RITRON INCORPORATED  
10390 ROBERT DOLLAR COMPANY  
10400 ROBERTSON-SHIPMATE  
10410 ROBYNS (DEFUNCT)  
10420 ROCKWELL INTERNATIONAL  
10430 RODALE ELECTRONIC  
10440 RODELCO  
10450 ROHDE SCHWARZ  
10460 ROHN MANUFACTURING COMPANY  
10470 ROHR CORPORATION  
10480 ROME AIR DEVELOPMENT CENTER  
10490 ROZENDAL ASSOCIATES  
10500 RS ELECTRONICS CORPORATION  
10510 RSL ELECTRONICS INCORPORATED  
10520 RUST CORPORATION OF AMERICA  
10530 RYAN AERONAUTICAL COMPANY  
10540 RYUKYU TSUSHINKI KOGYO COMPANY  
10550 S.P. RADIO A/S  
10560 SAAB SYSTEMS INC.  
10570 SAAB-SCANIA AEROSPACE DIVISION  
10580 SABRE COMMUNICATIONS CORPORATION  
10590 SAFE ENVIRONMENTAL ENGINEERING  
10600 SAGAMO-WESTON

10605 SAIC  
10610 SAMPSON COMPANY  
10620 SAMSUNG ELECTRONICS CO LTD  
10630 SANDERS ASSOCIATES INCORPORATED  
10640 SANDIA CORPORATION  
10650 SANTA BARBARA RESEARCH CENTER  
10660 SANWA ELECTRONIC INSTRUMENT CO.  
10670 SARKES TARZIAN INCORPORATED  
10680 SARNOFF DAVID RESEARCH CENTER  
10690 SATELLITE TRANSMISSION SYSTEMS INC  
10700 SAVI TECHNOLOGY INCORPORATED  
10710 SCALA RADIO CORPORATION  
10720 SCANWELL LABORATORIES INCORPORATED  
10730 SCI SYSTEMS, INC.  
10740 SCIENTIFIC ATLANTA COMPANY  
10750 SCIENTIFIC RADIO SYSTEMS INCORPORATED  
10760 SCIENTIFIC RESEARCH CORPORATION  
10770 SCOPE INCORPORATED  
10780 SCOTT EH RADIO LABORATORIES INCORPORATED  
10790 SEA DATAMARINE INTERNATIONAL  
10800 SEA TEL, INC  
10810 SEABOARD ELECTRONICS  
10820 SEAVEY ENGINEERING CORP  
10830 SEGNALAMENTO MARITTIMO ED AERRO  
10840 SEIMAC LIMITED  
10850 SEISCOR MANUFACTURING COMPANY  
10860 SELENIA S.P.A.  
10870 SEMCO  
10880 SENOR ELECTRONICS  
10890 SENSIS CORPORATION  
10900 SENSOR SYSTEMS  
10910 SENSTAR CORPORATION  
10920 SERCEL  
10930 SERDEX CORPORATION  
10940 SERV-AIR INC  
10950 SERVO CORPORATION OF AMERICA  
10960 SETCHELL CARLSON INCORPORATED  
10970 SGC INCORPORATED  
10980 SHADOW TECHNOLOGIES  
10990 SHAKESPEARE  
11000 SHIBA ELECTRIC COMPANY  
11010 SHURE BROTHERS INCORPORATED  
11020 SIDEBOARD ASSOCIATES INCORPORATED  
11030 SIEMENS CORPORATION (FMLY SIEMENS-HALSKE)  
11040 SIERRA ELECTRONIC (DIVISION OF PHILCO)  
11050 SIERRA MONOLITHICS INC  
11060 SIERRA NEVADA CORPORATION  
11070 SIERRA RESEARCH CORPORATION  
11080 SIGMA WIRELESS LTD  
11090 SIGNAL COMMUNICATIONS INCORPORATED  
11100 SIGNALS ANTENNA SYSTEMS  
11110 SIMPSON ELECTRONICS  
11120 SINCLAIR RADIO LABORATORIES  
11130 SINGER COMPANY KEARFOTT DIVISION  
11140 SINTRA-THOMSON  
11150 SIPPICAN OCEAN SYSTEMS  
11160 SITCO  
11170 SI-TEX MARINE ELECTRONICS INC/DIV SMITH IN

11180 SKANTI  
11190 SKIPPER MARINE ELECTRONICS  
11200 SKYCRAFTERS INCORPORATED  
11210 SKYLINE PILOT SUPPLY  
11220 SKYMASTS  
11230 SKYWAY RADIO INCORPORATED  
11235 SMART MODULAR TECHNOLOGIES  
11236 SMARTEQ WIRELESS AB  
11240 SMYTHE RESEARCH ASSOCIATES  
11250 SOLADYNE INTERNATIONAL INCORPORATED  
11260 SOLARTRON ELECTRONICS GROUP LTD.  
11270 SOLID STATE SOURCES  
11280 SONAR RADIO CORPORATION  
11290 SONEX INCORPORATED  
11300 SONICRAFT INCORPORATED  
11310 SOUTHCMM INTERNATIONAL INCORPORATED  
11320 SOUTHERN AVIONICS  
11330 SOUTHERN CALIFORNIA MICROWAVE  
11340 SOUTHERN MARINE RESEARCH INC  
11350 SOUTHWEST MICROWAVE  
11360 SOUTHWEST RESEARCH INSTITUTE  
11365 SPACE AND NAVAL WARFARE SYSTEMS  
11370 SPACE AVIONICS INCORPORATED  
11380 SPACE DATA CORPORATION  
11390 SPACE ELECTRONICS  
11400 SPACE GENERAL  
11410 SPACE MICROWAVE LABORATORIES  
11420 SPACE ORDINANCE SYSTEMS  
11430 SPAR AEROSPACE LIMITED  
11440 SPARTA ELECTRONIC CORPORATION  
11450 SPARTON ELECTRONICS  
11460 SPC TECHNOLOGY DIV OF PREMIER INDUSTRIAL  
11470 SPEARS ASSOCIATES INC  
11480 SPECIFIC PRODUCTS INCORPORATED  
11485 SPECMAT TECHNOLOGIES INC.  
11490 SPECTROLAB INC  
11500 SPECTRUM COMMUNICATIONS INC  
11510 SPENCER KENNEDY LABORATORIES  
11520 SPERRY CORPORATION  
11530 SPERRY GYROSCOPE COMPANY OF CANADA LIMITED  
11540 SPERRY MARINE INC  
11550 SPILSBURY - TINDALL  
11560 SPRINGER AIRCRAFT RADIO CORPORATION  
11570 SQUIRES SANDERS INCORPORATED  
11580 SR TELECOM INC  
11590 SRI INTERNATIONAL CORP.  
11600 SSE TECHNOLOGIES  
11610 STAILES INCORPORATED  
11620 STANDARD COMMUNICATIONS  
11630 STANDARD ELECTRICA S.A.  
11640 STANDARD ELECTRONICS  
11650 STANDARD HORIZON INCORPORATED  
11660 STANDARD RADIO & TELEFON AB ITT  
11670 STANDARD TELEPHONES-CABLES LIMITED  
11680 STANFORD RESEARCH INSTITUTE  
11690 STANFORD TELECOMMUNICATIONS INC.  
11700 STEINBRECHER  
11710 STELLA DORADUS LIMITED

11720 STEPHENSON  
11730 STERLING PRECISION CORPORATION  
11740 STEWART WARNER CORPORATION OF CANADA LTD  
11750 STEWART-WARNER ELECTRONICS  
11760 STODDARD AIRCRAFT RADIO COMPANY  
11770 STONER ELECTRONICS  
11780 STRATEX NETWORKS  
11790 STROMBERG CARLSON PRODUCTS  
11800 STRONG ELECTRONICS  
11810 STRUCTURAL TECHNOLOGY  
11820 STRUTHERS ELECTRONICS CORPORATION  
11830 SUN CHEMICAL CORP.  
11840 SUNAIR ELECTRONICS INCORPORATED  
11850 SUTRON CO  
11860 SVENSKA RADIO  
11870 SWAN ELECTRONIC CORPORATION  
11875 SENOAO INTERNATIONAL COMPANY  
11880 SWINTEK CORDLESS MICROPHONE CO.  
11890 SYLVANIA ELECTRONIC DEFENSE LABORATORY  
11900 SYMBOL TECHNOLOGIES INCORPORATED  
11910 SYMETRICS ENGINEERING CORPORATION  
11920 SYNERGETICS  
11930 SYRACUSE RESEARCH CORP  
11940 SYSCON CORP  
11950 SYSTEM PLANNING COMPANY  
11960 SYSTEMS & ELECTRONICS INC.  
11970 SYSTEMS DYNAMICS  
11980 SYSTEMS ENGINEERING & MANAGEMENT CORP  
11990 SYSTEMS RESEARCH LABORTORIES INCORPORATED  
12000 SYSTRON DONNER CORP (DEMORNAY BONARDI)  
12010 TACO INC  
12020 TAD-AMERICAN CORPORATION  
12030 TADIRAN ISRAEL INDUSTRIES LIMITED  
12040 TAIT ELECTRONICS  
12050 TAIYO MUSEN COMPANY  
12060 TAMPA MICROWAVE  
12070 TASKER INDUSTRIES  
12080 TAYBURN ELECTRONICS  
12090 TCOM INDUSTRIES INCORPORATED  
12100 TDS ELECTRONICS COMPANY LIMITED  
12110 TECH RESOURCES INCORPORATED  
12120 TECHCOMM  
12130 TECHDYN SYSTEMS CORPORATION  
12140 TECHNICAL APPLIANCE CORPORATION  
12150 TECHNICAL MATERIAL CORP  
12160 TECHNICAL RADIO CORPORATION  
12170 TECHNICAL SYSTEMS ASSOCIATES  
12180 TECHNICAL SYSTEMS DIVISION  
12190 TECHNOLOGY FOR COMMUNICATIONS INTERNATIONAL  
12200 TECHNOLOGY SERVICE CORPORATION  
12210 TECHTEST LIMITED  
12220 TECOM INDUSTRIES INC  
12230 TEK MARK COMPANY  
12240 TEK PRODUCTS INCORPORATED  
12250 TE-KA-DE COMPANY  
12260 TEKK INCORPORATED  
12270 TEL INSTRUMENT ELECTRONIC CORPORATION  
12280 TELCOM INDUSTRIES

12290 TELEAUTOGRAPH CORPORATION  
12300 TELECHROME  
12310 TELECOMMUNICATIONS RADIOPHYSIQUE & TELE  
12320 TELELECTRO SYSTEMS CORPORATION  
12330 TELEDESIGN  
12340 TELE-DYNAMICS  
12350 TELEDYNE BROWN ENGINEERING  
12360 TELEDYNE MICORNETICS  
12370 TELEDYNE RYAN ELECTRONICS  
12380 TELEDYNE SYSTEMS COMPANY  
12390 TELEDYNE TELEMETRY CORPORATION  
12400 TELEFONIEBOLAGET L M ERICSON  
12410 TELEFUNKEN GMBH  
12420 TELEMET COMPANY  
12430 TELEMOTIVE DIVISION OF DYNASCAN  
12440 TELEPHONICS CORP  
12445 TELETRONICS TECHNOLOGY CORPORATION  
12450 TELESCIENCES TRANSMISSION SYSTEMS INC  
12460 TELE-SIGNAL CORPORATION  
12470 TELESYSTEMS  
12480 TELEVISION TECHNOLOGY CORPORATION  
12490 TELEVISION TRANSMISSION INCORPORATED  
12500 TELEVIDEO ELECTRONICS  
12510 TELEX COMMUNICATIONS/HY-GAIN ELECTRONIC DIV.  
12520 TELKOR  
12530 TELLINE RADIO INCORPORATED  
12540 TELLUROMETER (PTY) LIMITED  
12550 TELONIC INDUSTRIES INC  
12560 TELREX LABORATORIES  
12570 TELUDIST INCORPORATED  
12580 TELXON CORPORATION  
12590 TEMCO AEROSYSTEMS  
12600 TEPCO CORPORATION  
12610 TERMA ELEKTRONISK INDUSTRY  
12620 TERRA COMMUNICATIONS INCORPORATED  
12630 TESSCO, INC.  
12640 TETRA CORPORATION INCORPORATED  
12650 TEXAS INSTRUMENT INCORPORATED  
12660 TEXTRA DIVISION  
12670 TEXTRON DEFENSE SYSTEM (AVCO-TEXTRON)  
12674 TEKTRONIX  
12675 THALES COMMUNICATIONS INCORPORATED  
12680 THIOKOL CHEMICAL CORP. DIV OF TRANS TECH  
12690 THOMAS MOLD-DIE COMPANY  
12700 THOMSON CSF  
12710 THOMSON-HOUSTON  
12720 THRANE & THRANE  
12730 TITAN CORPORATION  
12740 TITAN SEVERE ENVIRONMENT SYSTEMS  
12750 TOKAI COMM CORPORATION  
12760 TOKO INCORPORATED  
12770 TOKYO SHIBAURA ELECTRIC CORPORATION  
12780 TOKYO KEIKI SIEZOSHO COMPANY LIMITED  
12790 TOMOCO ELECTRONICS PTY LTD  
12800 TOPP MANUFACTURING COMPANY  
12810 TOSHIBA COMPANY LIMITED  
12820 TOTSU DENKI  
12830 TOWNSEND ASSOCIATES

12840 TOYO MUSEN  
12850 TOYO TSUSHININKI  
12860 TRACOR INCORPORATED  
12870 TRAID CORPORATION  
12880 TRAK ELECTRONICS  
12890 TRANSCIENCE INCORPORATED  
12900 TRANSCO PRODUCTS INCORPORATED  
12910 TRANSCORE  
12920 TRANSCRYPT INTERNATIONAL  
12930 TRANSFORMATION TECHNIQUES INCORPORATED  
12940 TRANSMITTER EQUIPMENT MANUFACTURING CO  
12950 TRANSTEXAS  
12960 TRANSWORLD  
12970 TREX ENTERPRISES' INCORPORATED  
12980 TRF COMPANY  
12990 TRIDEA ELECTRONIC CORPORATION  
13000 TRILON ELECTRONICS CORPORATION  
13010 TRIMBLE NAVIGATION  
13020 TRIO-KENWOOD COMMUNICATIONS  
13030 TRIVEC-AVENT  
13040 TRON-TEK  
13050 TRUETIME  
13060 TRW ELECTRONICS  
13070 TRYLON INCORPORATED  
13072 TUBITAK UEKAE  
13080 TULL AVIATION CORPORATION  
13090 TYCHO-TECH  
13100 U.B. CORPORATION  
13110 UNIDEN/FORCE INC  
13120 UNIMETRICS CORPORATION  
13130 UNISYS CORPORATION  
13140 UNITED ELECTRO DYNAMICS CORPORATION  
13150 UNITED SCIENTIFIC LABORATORIES  
13160 UNITED STATES NAVGUIDE CORPORATION  
13170 UNITED TELECONTROL INCORPORATED  
13180 UNIV OF LOWELL FOR ATMOSPHERIC RESEARCH  
13190 UNIVAC CORPORATION  
13200 UNIVERSAL AVIONICS CORPORATION  
13210 UNIVERSITY OF DENVER RESEARCH INSTITUTE  
13220 UNIVERSITY OF TEXAS APPLIED RESEARCH LAB  
13230 US ARMY ELECTRONICS COMMAND  
13240 US ARMY MISSILE COMMAND  
13250 USE HSA (HOLLANDSE SIGNAL APPARATEN)  
13260 USN AVIONICS FACILITY  
13270 UTICA COMMUNICATIONS  
13280 UTILICOM INCORPORATED  
13290 UTL CORPORATION  
13300 VAISALA INCORPORATED  
13310 VALCOM LIMITED  
13320 VALLEY FORGE RESEARCH CENTER  
13330 VARIAN ASSOCIATES  
13340 VARO INCORPORATED INTEGRATED SYSTEMS DIV  
13350 VECTOR MANUFACTURE COMPANY  
13360 VECTRAN  
13370 VEGA ELECTRONICS CO (VEGA PRECISION LAB)  
13380 VERIFONE INCORPORATED  
13390 VERTEX COMMUNICATIONS CORP  
13400 VHF ENGINEERING CO.

13410 VIASAT TECHNOLOGY COMPANY  
13420 VIDAR CORPORATION  
13430 VIDEO CONSULTANTS  
13440 VISTA MANUFACTURING COMPANY  
13450 VISUAL MANUFACTURING DIVISION  
13460 VITRO ELECTRONICS  
13470 VIZ MANUFACTURING COMPANY  
13480 VOCALINE COMPANY OF AMERICA  
13490 VOUGHT CORPORATION  
13500 VYTEK INCORPORATED  
13510 WADDELL DYNAMICS  
13520 WALTER-DITTLE (MORCOM)  
13530 WARD ELECTRONIC INDUSTRIES  
13540 WATKINS-JOHNSON MANUFACTURING COMPANY  
13545 WAVE WIRELESS NETWORKING  
13550 WAVEBAND ELECTRONICS  
13560 WAVETEK  
13570 WAVETRONICS INC  
13580 WEBCOR INCORPORATED  
13590 WEBSTER GREEN COMPANY  
13600 WEBSTER MANUFACTURING COMPANY  
13610 WEIBEL SCIENTIFIC INCORPORATED  
13620 WEIGH-TRONIX INCORPORATED  
13630 WEMS INC  
13640 WESCOM MICROWAVE INCORPORATED  
13650 WESTBEND AUTOTRONICS INCORPORATED  
13660 WESTERN ELECTRIC COMPANY INCORPORATED  
13670 WESTERN MULTIPLEX CORP  
13680 WESTERN RADIO COMMUNICATIONS CORPORATION  
13690 WESTERN UNION  
13700 WESTINGHOUSE AIR BRAKE COMPANY  
13710 WESTINGHOUSE ELECTRIC COMPANY  
13720 WESTREX CORPORATION(DIV LITTON SYSTEMS)  
13730 WHITTAKER CORPORATION  
13740 WICKS INDUSTRIES  
13750 WIDE BAND SYSTEMS INCORPORATED  
13760 WI-LAN INCORPORATED  
13770 WILCOX ELECTRIC CORPORATION  
13780 WILCOX GAY CORPORATION  
13790 WILSON ELECTRONICS  
13800 WIND TURBINE COMPANY  
13810 WINDIGO SYSTEMS  
13820 WOOD AND DOUGLAS  
13830 WORKSHOP ASSOCIATES  
13840 WORLD RADIO LABORATORIES  
13850 WULFSBERG ELECTRONICS  
13860 WYMAN RESEARCH INC  
13870 XEROX CORPORATION  
13880 XETRON CORPORATION  
13885 XICOM TECHNOLOGY  
13890 YAESU  
13900 YOUNG DESIGN INCORPORATED  
13910 ZCOMAX TECHNOLOGIES, INC.  
13920 ZENITH RADIO CORPORATION  
13930 ZETA LABORATORIES

## Approved Dataset Notes (NO)

The Code List Category NO is used for element [Note](#) (Approved Dataset Notes).

Organizations may have a set of approved notes to register in assignments and allocations. Organizations may add their own notes as necessary after coordination with the SO PWG. The origin of the note is given in the second column after its code.

Within the USA, only IRAC-approved Coordination (C), Emission (E), Limitation (L), Minute (M), Priority (P) and Special (S) dataset notes may be used.

The dataset identifiers for IRAC notes, to be used in elements [Note](#) and [NoteRef](#), MUST be:

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<Note serial="USA:IRAC:RN:Annn" ...>
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where Annn is the code of the note.

Code	Origin	Definition
C002	USA	Subject to coordination with the Western Area Frequency Coordinator located at the Naval AirWarfare Center, Weapons Division, China Lake, CA, prior to use within a 322 kilometer radius of Pt. Mugu or in California south of Latitude 37 30' North.
C003	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the Western Area Frequency Coordinator (WAFC) who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the WAFC as necessary to ensure compatibility with existing uses.
C004	USA	Subject to coordination with the Eastern Area Frequency Coordinator located at Patrick AFB, Florida, prior to use within the area bounded by 24 N 31 30'N and 77 W 83 W.
C005	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the Eastern Area Frequency Coordinator, Patrick AFB, Florida, who also coordinated it, as appropriate, with Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the Eastern AFC, Patrick AFB, Florida, as necessary to ensure compatibility with existing uses.
C006	USA	Subject to coordination with the Area Frequency Coordinator located at White Sands Missile Range, New Mexico, prior to use in the State of New Mexico or other U.S. territory within a 240 kilometer radius of WSMR plus the area of Utah and Colorado that lies south of 41 North and between 108 and 111 West. Phone: 505-678-5417 or 3702, Autovon: 258-5417 or 3702.
C007	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the Area Frequency Coordinator, WSMR, New Mexico, who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the AFC, WSMR, New Mexico, as necessary to ensure compatibility with the existing uses.
C008	USA	Subject to Coordination with the Area Frequency Coordinator, State of Arizona, ATTN: SFISFAC-SH, Ft. Huachuca, AZ 85613-5000, Phone: (520) 538-6423; FAX (520) 538-8525; DSN 879-6423.
C009	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the Area Frequency Coordinator, Ft. Huachuca, Arizona, who also coordinated it, as

		appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the AFC, Ft. Huachuca, as necessary to ensure compatibility with existing uses.
C010	USA	Subject to coordination with the Gulf Area Frequency Coordinator located at Eglin AFB, Florida, prior to use within the area bounded by 24 N 33 30'N and 83 W 90 W.
C011	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the Gulf Area Frequency Coordinator, Eglin AFB, Florida, who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the Gulf AFC, Eglin AFB, Florida, as necessary to ensure compatibility with existing uses.
C012	USA	Subject to coordination with the Joint Frequency Management Office located at the Commander in- Chief, Pacific Headquarters, Camp H. M. Smith, Hawaii, prior to use with the area enclosed by 322 kilometer radius of Honolulu, Hawaii.
C013	USA	Subject to local coordination with Frequency Manager, AFFTC, Edwards AFB, California.
C015	USA	Subject to prior coordination with Frequency Manager, Air Force Space and Missile Technical Center, Vandenberg AFB, California.
C016	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the HQ USAF Frequency Coordinator, Alexandria, VA., who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the HQ USAF Frequency Coordinator, Alexandria, VA., as necessary to ensure compatibility with existing uses.
C019	USA	Subject to prior coordination with Army Frequency Management Office (AFMO) - CONUS, 1214 Stanley Road, Suite 32, Ft. Sam Houston, Texas 78234-5032. Phone: 210-221-2050/2820, (DSN 471).
C022	USA	Subject to prior coordination with Frequency Manager, Army Missile Command, Huntsville, Alabama.
C024	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to its authorization with AFMO CONUS, Ft. Sam Houston, Texas, who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with AFMO CONUS, Ft. Sam Houston, Texas, as necessary to ensure compatibility with existing uses.
C026	USA	Subject to prior coordination with DOE Frequency Coordinator for Albuquerque Operations Office. Phone 575-3458, FTS, or (702) 295-3458, Commercial, or 575-3343, FTS, (702) 295-3343, Commercial (weekends, holidays, and off-duty hours).
C027	USA	Subject to prior coordination with DOE Area Frequency Coordinator, Las Vegas, Nevada, when used within the State of Nevada or within a 160 kilometer radius of Mercury or Tonopah, Nevada. Phone 575-3458 or 1162 FTS, 702-295-3458 or 1162 Commercial, and 575-3343 FTS or, 702-295-3343 Commercial (weekends, holidays, and off-duty hours).
C030	USA	The Department of Commerce is designated as control for Federal use of this frequency. Use under this assignment is subject to initial coordination with, and subsequent coordination as indicated by, Radio Frequency Coordinator

		S.I.G. Research Facilities Center, NOAA, Department of Commerce, P. O. Box 520197, Miami, Florida 33152. Phone 305-526-2936 (FTS 350-2936).
C031	USA	Subject to prior coordination with FAA Eastern Regional Office, JFK International Airport, New York 11430, Attn: Frequency Management Office. Phone 718-712-8343.
C032	USA	Subject to prior coordination with FAA Southern Regional Office, P. O. Box 20636, Atlanta, Georgia 30344, Attn: Frequency Management Office. Phone 404-763-7385/6.
C033	USA	Subject to prior coordination with FAA Central Regional Office, 601 East 12th Street, Kansas City, Missouri 64106, Attn: Frequency Management Office. Phone 816-426-5647.
C034	USA	Subject to prior coordination with FAA Southwest Regional Office, 4400 Blue Mound, Fort Worth, Texas 76193-0483, Attn: Frequency Management Office. Phone 817-740-3237.
C035	USA	Subject to prior coordination with FAA Western Regional Office, P.O. Box 92007, Worldway Center, Los Angeles, California 90009, Attn: Frequency Management Office. Phone 310-297-1872.
C036	USA	Subject to prior coordination with FAA Alaskan Regional Office, 222 West 7th Ave., Anchorage, Alaska 99513. Phone 907-243-7246 or 4399.
C037	USA	Subject to prior coordination with FAA Western Pacific Regional Office, Honolulu ARTCC, P.O. Box 50109, Honolulu, Hawaii 96850-4983 Attn: Frequency Management Office. Phone 808-541-1241.
C038	USA	Subject to prior coordination with FAA New England Regional Office, 12 New England Executive Park, Burlington, Massachusetts 01803. Phone 617-273-7177.
C039	USA	Subject to prior coordination with FAA Great Lakes Regional Office, 2300 East Devon Avenue, Des Plaines, Illinois 60018. Phone 312-694-7071.
C041	USA	Subject to prior coordination with FAA Northwest Regional Office, 1601 Lind Avenue, S.W., Renton, Washington 98055-4056. Phone 206-227-2464.
C042	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Northwest Coordinator, Seattle, Washington. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Northwest Coordinator, Seattle, Washington, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Northwest regional coordination has been accomplished.
C043	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Western Coordinator, Los Angeles, California. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA Western Coordinator, Los Angeles, California, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Western regional coordination has been accomplished.
C045	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Central Coordinator, Kansas City, Missouri. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Central Coordinator, Kansas City, Missouri, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Central regional coordination has been accomplished.

C046	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Southwest Coordinator, Ft. Worth, Texas. Use of this frequency or band under the authority of this assignment is subject to such further coordination with the FAA Southwest Coordinator, Ft. Worth, Texas, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Southwest regional coordination has been accomplished.
C047	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Great Lakes Coordinator, Des Plaines, Illinois. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA Great Lakes Coordinator, Des Plaines, Illinois, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Great Lakes regional coordination has been accomplished.
C048	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Southern Coordinator, Atlanta, Georgia. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA Southern Coordinator, Atlanta, Georgia, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Southern regional coordination has been accomplished.
C049	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Eastern Coordinator, New York, New York. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA Eastern Coordinator, New York, New York, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Eastern regional coordination has been accomplished.
C050	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA New England Coordinator, Burlington, Massachusetts. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA New England Coordinator, Burlington, Massachusetts, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA New England regional coordination has been accomplished.
C052	USA	Subject to local coordination with FCC Engineer-in-Charge to avoid interference to non-Federal services.
C057	USA	Subject to prior coordination with NASA Spectrum Manager, Johnson Space Center, Houston, Texas. Telephone: (FTS) 525-0122 or (commercial) 713-483-0122.
C060	USA	Prior to operational use, this frequency assignment must be coordinated with and concurred by the commander of the military installation listed.
C061	USA	Operational use of this frequency assignment has been coordinated with and concurred by the commander of the military installation listed.
C062	USA	DOE use of this frequency for telemetering is subject to prior coordination at the national level with agencies having assignments in the same band and will be subject, at the time of such coordination, to adjustment to preclude harmful interference.

C065	USA	Subject to coordination, prior to use, with the Department of the Interior, Bureau of Land Management, National Interagency Fire Center, Boise, Idaho. Telephone: (208) 387-5644.
C067	USA	Subject to coordination with the Area Frequency Coordinator located at Nellis AFB, Nevada, prior to use in the states of Nevada, Utah west of 111 W and Idaho south of 44 N.
C068	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the Area Frequency Coordinator, Nellis AFB, Nevada, who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the AFC as necessary to ensure compatibility with existing uses.
C069	USA	Subject to coordination and scheduling with Mr. Dane Clark; National Environmental Satellite, Data, and Information Service (NESDIS); U.S. Department of Commerce; Direct Services Division (E/SP3); Room 3340 FB4 NOAA; 5200 Auth Road, Suitland, MD 20746-4304; Telephone: (301) 457-5681.
C071	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Alaskan Coordinator, Anchorage, Alaska. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA Alaskan Coordinator, Anchorage, Alaska, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Alaskan regional coordination has been accomplished.
C072	USA	This frequency assignment on 1030 MHz or in one of the bands 1215-1400, 2700-2900 or 9000- 9200 MHz was coordinated prior to authorization with the FAA Pacific Coordinator, Honolulu, Hawaii. Use of the frequency or band under the authority of this assignment is subject to such further coordination with the FAA Pacific Coordinator, Honolulu, Hawaii, as necessary to ensure compatibility with existing uses. This Note applied to an Aeronautical Assignment Group (AAG) frequency (see Section 1.3.2) indicates FAA Pacific regional coordination has been accomplished.
C073	USA	Subject to prior coordination with NASA Spectrum Manager, Wallops Flight Center, Wallops Island, Virginia. Telephone: (FTS) 8-889-1278 or commercial 804-824-1278.
C074	USA	Operational activities should be coordinated with NASA Spectrum Manager responsible for JPL/Goldstone Programs. Mail: 4800 Oak Grove Drive, Mail Stop 303-404, Pasadena, CA 91109. Telephone: (FTS) 8-792-0068 or (commercial) 818-354-0068.
C075	USA	This assignment has been coordinated with the Hydrology Committee in accordance with Section 8.3.6.
C076	USA	This assignment has been coordinated with the Electromagnetic Spectrum Manager, National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230. Telephone: 703-292-4896 in accordance with Section 8.3.7, for the band 1660-1670 MHz, or Section 8.3.19.
C078	USA	The domestic fixed aspects of this assignment have been coordinated with NTIA in accordance with Section 8.2.11 of the NTIA manual.
C081	USA	This assignment is for a station in the National Radio Quiet Zone. Successful coordination has been effected in accordance with Section 8.3.9 of the NTIA Manual.
C085	USA	Subject to prior coordination with Army Frequency Coordinator, Military

		District of Washington, ATTN: ASNK-OPB, Fort Lesley J. McNair, Washington, D.C. 20319-5050. Phone 202-475-2554 or 2486, Autovon 335-2554 or 2486.
C086	USA	This frequency assignment in one of the bands 1435-1525, 2310-2320 and 2345-2390 MHz was coordinated prior to authorization with the Mid-Atlantic Area Frequency Coordinator, Patuxent River, Maryland, who also coordinated it, as appropriate, with the Aerospace and Flight Test Radio Coordinating Council. Use of this frequency under the authority of this assignment is subject to such further coordination with the AFC as necessary to ensure compatibility with existing uses.
C088	USA	Prior to use, this frequency assignment must be scheduled with the Post Frequency Manager, Aberdeen Proving Ground, MD. Telephone: 410-278-7591; DSN 298-7591.
C089	USA	This frequency assignment was coordinated prior to authorization with FAA Headquarters, 800 Independence Avenue, S.W., Washington, D.C. 20591. Phone: 202-267-8699.
C090	USA	In the band 162 to 174 MHz, subject to coordination with adjacent channel users (bandwidth equal to or greater than 12.5 kHz) prior to establishing a station on an interstitial channel under S322 procedures. This note is automatically deleted on January 1, 2005.
C092	USA	In the band 406.1 to 420 MHz, subject to coordination with adjacent channel users (bandwidth equal to or greater than 12.5 kHz) prior to establishing a station on an interstitial channel under S322 procedures. This note is automatically deleted on January 1, 2008.
C093	USA	Subject to coordination with the Area Frequency Coordinator located at the Atlantic Fleet Weapons Training Facility, Roosevelt Roads, Puerto Rico, prior to use within the area 370 kilometers of Headquarters Building, Atlantic Fleet Weapons Training Facility, Roosevelt Roads, Puerto Rico.
C094	USA	Subject to coordination with the Area Frequency Coordinator located at the Naval Air Warfare Center Aircraft Division, Patuxent River, Maryland, prior to use within the area enclosed by 100 kilometer radius of Headquarters Building, Naval Air Warfare Center Aircraft Division, Patuxent River, Maryland.
C095	USA	The non-military agency allotted primary use of this frequency, or which shares primary allotment status with AGA, has agreed neither Record Notes PO74 nor P076 are required for this assignment.
E013	USA	A3 emission authorized for secondary and intermittent operation.
E023	USA	Voice transmission is authorized for test and maintenance only.
E028	USA	Lower sideband transmission. The carrier is higher than the assigned frequency shown by one half of the indicated bandwidth. Applies to SSB transmission.
E029	USA	Upper sideband transmission. The carrier is lower than the assigned frequency shown by one half of the indicated bandwidth. Applies to SSB transmission.
E030	USA	Lower sideband greater. The suppressed carrier is higher than the assigned frequency shown by 1.5 kHz. Applies to two or more independent sideband channels.
E031	USA	Upper sideband greater. The suppressed carrier is lower than the assigned frequency shown by 1.5 kHz.
E032	USA	Lower sideband greater. The suppressed carrier is higher than the assigned frequency shown by .5 kHz. Applies to two or more independent sideband channels.
E033	USA	Upper sideband greater. The suppressed carrier is lower than the assigned

		frequency shown by .5 kHz.
E035	USA	Lower sideband transmission.
E036	USA	Upper sideband transmission.
E037	USA	Full-carrier SSB emission (3KH3E) shall be used except (1) when it is known that the receiving station is capable of receiving suppressed-carrier emission (3KJ3E) and (2) upon request of any station using the same carrier frequency (Ref: FCC 87.67b).
E038	USA	When a single sideband emission is used from the various emissions shown on this HF assignment, the carrier frequency will be set to place the center of intelligence at the assigned frequency.
E039	USA	The authorized emission bandwidth shall be so located within the band that it does not extend beyond the upper or lower limits of the authorized band shown in the *FRB entry of circuit remarks. If a portion(s) of the authorized band is to be excluded (*FBE) the authorized emission bandwidth must not extend into any portion(s) of the excluded band(s).
L002	USA	Restricted to (daytime, nighttime, or indicated hours of operation.) Wherever used herein the term daytime means from two hours after local sunrise until two hours before local sunset. The term nighttime only means from two hours prior to local sunset until two hours after local sunrise at (a) specified point(s). Local time at transmitter is applicable unless otherwise specified.
L003	USA	For communication with _____ stations only.
L012	USA	To be used only in an emergency jeopardizing life, public safety, or important property under conditions calling for immediate communication where other means of communication do not exist or are temporarily disrupted or inadequate. To insure that radio equipment for emergency use is maintained in satisfactory operating condition, testing on such frequencies is permitted, provided that insofar as practicable, transmitters shall be tested with a non-radiating load and the test use of a radiating antenna held to a minimum and provided further that such testing shall be restricted to test message traffic and shall not include operator training.
L113	USA	L012 FX
L116	USA	L2 daytime
L121	USA	L2 daytime Hawaii and westward
L125	USA	L2 local sunrise to local sunset
L131	USA	L2 nighttime
L168	USA	L3 GCA or approach control
L171	USA	L3 Agriculture
L174	USA	L3 Army
L177	USA	L3 Federal Aviation Administration
L180	USA	L3 Coast Guard
L182	USA	L3 Interior
L187	USA	L3 Military
L188	USA	L3 Military aircraft or aircraft authorized for military use
L190	USA	L3 Navy
L192	USA	L3 non-Federal
L195	USA	L3 non-Federal coast stations
L197	USA	L3 non-Federal public correspondence
L199	USA	L3 non-Federal ships

L201	USA	L3 public correspondence
L203	USA	L3 U.S. Army Engineers
L242	USA	L2 1300-2300 GMT
L255	USA	L2 0200-0730 GMT
L256	USA	L2 0200-0800 GMT and 1800-2300 GMT
L282	USA	This assignment is for "back-up" use only when regular channels are either temporarily disrupted or inadequate.
L283	USA	Limited to communications in or near a port, or in locks or waterways, between coast stations and ship stations, or between ship stations, in which messages are restricted to those related to the operational handling, the movement and the safety of ships, and, in emergency, to the safety of persons. Messages which are of a public correspondence nature shall be excluded.
L294	USA	L2 1400-2200 GMT
L308	USA	L3 Commerce
L309	USA	L012 FB
L318	USA	Authority under this assignment is limited to temporary periods and locations for telemetry of seismic data.
L330	USA	This assignment is limited to communications with non-Federal ships for the exchange of traffic dealing with safety of life or property when other means of communication are not practicable.
L331	USA	L2 0900-1300 and 1400-1600 GMT
L332	USA	L2 2200-0300 GMT
L334	USA	L2 0330-1830 GMT
L336	USA	L2 1000-1700 GMT
L339	USA	L2 1200-0300 GMT
L341	USA	Limited to operations conducted in accordance with Bridge-to-Bridge portion of Section 8.2.29 of the NTIA Manual.
L343	USA	L3 Tennessee Valley Authority
L347	USA	L2 2330-2230 GMT
L350	USA	Limited to use from November 15 to April 1.
L353	USA	L2 0100-0600 Local
L355	USA	Limited to ground transmissions only.
L357	USA	This band assignment is authorized only for air/ground frequency assignment in the AAG/MAG bands (118-137 MHz and those frequencies utilized by the FAA for air traffic control in the 225-328.6 and 335.4-400 MHz band) and is for "back-up" use only when regular channels are either temporarily disrupted or inadequate. Actual frequencies will be listed in Agency Remarks.
L358	USA	L2 1300-2200 GMT
M001	USA	A note concerning this assignment is recorded in the minutes of the FAS meeting at which the application was approved. The source of the note is identified in the CIRCUIT REMARKS field (*NTS).
M002	USA	This assignment was coordinated with IRAC or NTIA, and/or is subject to the conditions stated in the letter, the IRAC Document, the FAS Docket, or the FCC Regulation referenced in the CIRCUIT REMARKS field (*NTS).
M003	USA	Subject to coordination prior to activation and, as appropriate, possible scheduling with the activity(ies) or station(s) listed in the CIRCUIT REMARKS field (*NTS).

M004	USA	Subject to coordination prior to activation and, as appropriate, possible scheduling with the activity(ies) listed in the CIRCUIT REMARKS field (*NTS) when used within interference range of such activity(ies) or station(s).
M006	USA	Subject to coordination prior to activation with the National Weather Service Meteorologist-In-Charge at the location(s) listed in the CIRCUIT REMARKS field (*NTS).
M007	USA	Subject to notification of activation to the agency or activity listed in the CIRCUIT REMARKS field (*NTS).
M008	USA	Operations under the authority of this assignment are subject to immediate adjustment, including cessation, if they result in harmful interference to the operations listed in the CIRCUIT REMARKS field (*NTS).
M009	USA	Operations under the authority of this assignment a) are on a noninterference basis to the operations of the agency listed in the CIRCUIT REMARKS field (*NTS) on the same or adjacent channel and b) no protection can be afforded by that agency.
M010	USA	This assignment was agreed to on a nonrenewable basis by the agency identified in the CIRCUIT REMARKS field (*NTS).
M011	USA	Limited to the non-broadcast hours of and subject to coordination prior to activation with the station(s) listed in the CIRCUIT REMARKS field (*NTS).
M013	USA	Subject to prior coordination with and concurrence by the organization/official listed in the CIRCUIT REMARKS field (*NTS) and to temporary cessation when required for marine environmental operations.
M014	USA	During transmission, aircraft shall not exceed the altitude listed in the CIRCUIT REMARKS field (*NTS).
M015	USA	The system using this assignment was reviewed by the SPS in accordance with Chapter 10 and the assignment is being made subject to conditions stated in the IRAC and SPS documents referenced in the CIRCUIT REMARKS field (*NTS).
M016	USA	This assignment, made pursuant to Resolution 8 of the GWARC-79, is for planning purposes and is not an authority to operate. Operations may commence after satisfactory replacement action has been completed for (FAS DKT number(s) -- optional: freq, agency serial number), and/or after (XXYY) (Date agreed to by displaced agency).
M017	USA	This non-Federal space station assignment is made with the understanding that protection cannot be guaranteed to reception of the non-Federal earth station(s) identified in the CIRCUIT REMARKS field (*NTS) due to the operation of existing transmitting earth stations and/or Federal fixed stations.
P032	USA	Noninterference basis
P074	USA	Not to preclude expansion and adjustment of operations within the band 162.0 to 174.0 MHz by non-military Federal agencies.
P076	USA	Not to preclude expansion and adjustment of operations within the band 406.1 to 420.0 MHz by non-military Federal agencies.
S012	USA	This operation does not include operator qualification training, but is a periodic operation of a communications system manned by fully qualified operators who are military reservists or affiliates. Except in emergencies, this frequency assignment will not be used as a means for passing traffic that in the absence of this authorization would require delivery by other means.
S015	USA	Remote control
S017	USA	This assignment is for the training of personnel in the technique and operational aspects of the electronic equipment.
S032	USA	Common simplex channel for emergency and distress communications only.

		Available to all stations operating in or with aeronautical services.
S034	USA	Disaster communications
S035	USA	Distress, safety and calling
S038	USA	FAC operation simultaneous with RLL
S041	USA	For calibrating direction finders
S043	USA	For emergency use at scene of air sea rescue
S047	USA	For transmission of hydrologic and meteorological data
S048	USA	For transmission of hydrologic data
S059	USA	Radio direction finding
S063	USA	Search and rescue communications
S067	USA	Subject to Department of the Interior, Bureau of Indian Affairs net control
S068	USA	Subject to immediate shutdown as needs of service may dictate
S070	USA	Subject to immediate cancellation upon notice from FCC
S085	USA	Training and testing operations
S120	USA	Intermittent equipment tests
S139	USA	Transmissions on this frequency will be discontinued upon receipt of notification to the effect that harmful interference is being caused to the international broadcasting service.
S141	USA	This U.S. Government record is outside of the US&P and therefore does not fall within the jurisdiction of the NTIA and IRAC/FAS. This record is incorporated into the Government Master File for spectrum management, analysis and information purposes and does not constitute NTIA authority to transmit.
S142	USA	Drone Control
S144	USA	This assignment is not in complete conformity with the National Table of Frequency Allocations. Those operations that are conducted under the non-conforming portions of this assignment are on a secondary basis to operations conducted under assignments that are in conformity with the National Table of Frequency Allocations.
S145	USA	This frequency is subject to adjustment upon notice from the Military.
S147	USA	These frequencies are used for a very short time only during actual nuclear test or dry runs prior to actual test. Such use of frequencies will be on a secondary basis subject to the avoidance of harmful interference to all operations established in accordance with international allocations applicable to these frequencies and to all other operations regularly authorized within the United States and Possessions on specific frequencies within these bands.
S148	USA	This is an assignment for domestic service use in providing instantaneous transmission of vital emergency, operational command and alerting traffic of such importance as to affect the immediate survival and defense of the Nation. Circuits utilizing this frequency will be maintained in an operational status at all times, with on-the-air test transmissions to insure the highest degree of readiness. This assignment requires protection commensurate with the importance of the communications for which the circuit is intended.
S149	USA	Any use of this assignment that is not at a transient location or that is for a period exceeding 15 days shall be notified to the FAS.
S150	USA	This assignment is for a frequency that has been allotted for the primary use of another agency or for all government agencies (AGA); or, the emission bandwidth overlaps a frequency or frequencies allotted for primary use by another agency or all government agencies (AGA). If the frequency is allotted

		to another agency, the operations on this frequency must be moved to a properly allotted frequency, unless the agency to which the frequency is allotted agrees to the continued use of their allotted frequency. If the frequency is allotted for AGA and there are available frequencies allotted to the agency for its primary use, this operation should be moved to a frequency allotted primarily to the agency. The transition from this frequency in the 406.1-420 MHz band is in accordance with the provisions outlined in section 4.3.9 of the NTIA Manual.
S151	USA	This assignment must be narrowbanded in accordance with either Section 4.3.7, 4.3.9, or 5.3.5.2 of the NTIA Manual.
S154	USA	Scene of disaster frequency.
S155	USA	For interception and retransmission of television signals.
S157	USA	Non-Federal service
S159	USA	U.S. Government short-distance low-power service
S160	USA	This assignment has been made pursuant to Part 7.12 of the NTIA Manual and has been coordinated in accordance with Section 8.3.3.
S164	USA	This assignment is not in complete conformity with the National Table of Frequency Allocations. Nevertheless, in the national interest, it is on an equal basis with assignments that are in conformity with the National Table of Frequency Allocations.
S165	USA	This assignment has been made pursuant to Section 7.5.2 of the NTIA Manual for communication with non-Federal stations in the maritime mobile service.
S170	USA	Authorized additionally in tactical and training operations when employing single sideband equipment with 3KH3E, 4KJ7B, 4KJ9W emissions for use with peak envelope powers not to exceed 2000 watts. In such operations the following additional conditions are applicable. All necessary emissions under the several modes of operation, including reduced carriers, shall be within kHz of the listed frequency. If harmful interference is caused to authorized operations, the power of this operation will be reduced to the mean power shown for this listing. In the determination of particular listed frequencies and associated carrier frequencies to meet individual tactical needs, due consideration will be given, particularly when utilizing powers in excess of the powers normally authorized on this frequency, to the avoidance of harmful interference to radio services authorized on the same or adjacent frequencies. With respect to the conduct of peacetime training operations, such use of the frequency is on a non-interference basis to the authorized operations of other agencies.
S171	USA	Authorized additionally in tactical and training operations when employing single sideband equipment with 3KH3E, 4KJ7B, 4KJ9W emissions for use with peak envelope powers not to exceed 400 watts. In such operations the following additional conditions are applicable. All necessary emissions under the several modes of operation, including reduced carriers, shall be within kHz of the listed frequency. If harmful interference is caused to authorized operations, the power of this operation will be reduced to the mean power shown for this listing. In the determination of particular listed frequencies and associated carrier frequencies to meet individual tactical needs, due consideration will be given, particularly when utilizing powers in excess of the powers normally authorized on this frequency, to the avoidance of harmful interference to radio services authorized on the same or adjacent frequencies. With respect to the conduct of peacetime training operations, such use of the frequency is on a noninterference basis to the authorized operations of other agencies.

S179	USA	Power shown is for emergencies only. Normal power is 4 kW or less.
S181	USA	This assignment was authorized pursuant to Public Law 87-795.
S185	USA	Secondary service. Maximum number of transmitters authorized: 10
S186	USA	Power shown is for intermittent or emergency use. Normal power is 20 kW.
S189	USA	Tactical and/or training operations.
S195	USA	Safety Communications.
S196	USA	This assignment is for range safety (command destruct/flight termination) in the band 406.1-420 MHz and is authorized in accordance with Section 8.2.54 of the NTIA Manual with an expiration date not to exceed December 31, 2006.
S199	USA	Navy operations authorized by assignments bearing this note shall not cause harmful interference to those non-Federal operations existing at the time of authorization. The Navy agrees to make such adjustments of its group of high frequency coast telegraph assignments bearing this note as may be necessary to accommodate necessary expansion or adjustment of the non-Federal coast telegraph service.
S200	USA	JCS communication circuit
S205	USA	Civil defense network
S206	USA	This assignment is for an operation for which other telecommunication facilities do not exist, are inadequate, or are impracticable of installation, and for which the use of frequencies above 30 MHz is not practicable. This note applies to FX or AX station classes only.
S208	USA	This assignment is for the domestic haul of overseas traffic in transit or destined for the United States, for an operation where technical and operational requirements dictate such use. The domestic radio haul is a segment of the overall overseas radio system.
S211	USA	50 kW mean power used during emergency or unusually poor propagation conditions. 10 kW mean power used during normal conditions. 2.5 kW mean power used during unusually good propagation conditions.
S219	USA	Power shown is for emergency use. Normal power is 3 kW.
S227	USA	Power shown is for emergency use. Normal power is 1.5 kW.
S233	USA	This assignment is part of a frequency pool, and, with Department of State approval, it may be used by foreign embassies that are authorized the use of other frequency assignments under Public Law 87-795.
S242	USA	The NASA Unified S-band system operates in the 2270-2290 MHz portion of the 2200-2290 MHz space telemetering band on a shared basis. This system will be utilized in space missions of extended duration. In certain geographical areas agencies conducting telemetering operations on the shared frequencies in the 2270-2290 MHz band may be requested by NASA to adjust such operations as necessary to support the space mission involved.
S264	USA	This assignment will not be used except in the event that full-scale atmospheric nuclear testing is resumed, and it is further subject to prior coordination with PACOM.
S265	USA	Transmissions shall be directed so as to avoid harmful interference to FAA stations in the Edwards AFB area.
S267	USA	Required for use in emergency areas when required to make initial contact with RACES units. Also for communications with RACES stations on matters requiring coordination.
S279	USA	This listing represents a use of a laser(s) for telecommunication purposes and it is entered in the Government Master File (GMF) for information.
S286	USA	The Coast Guard agrees to make such adjustments in its coast telegraph

		operations as necessary to provide an accommodation for non-Federal coast radiotelegraph operations anticipated by the designation of this frequency in Part 81, FCC Rules.
S288	USA	This frequency assignment is to support the National Command Authority. Circuits utilizing this frequency will be maintained in operational status at all times.
S291	USA	Operations are subject to compliance with FCC Rules and Regulations Part 87, subpart c. Advisory service shall be given to any private aircraft upon request. The use of this frequency shall not be a deterrent to the establishment of a non-Federal advisory station in this area. Operations on this frequency shall cease upon the establishment of non-Federal facilities or upon notice of harmful interference thereto.
S292	USA	Not to be a bar to complete operational implementation of common system aids to Air Navigation.
S296	USA	Not to preclude assignment of this frequency to other agencies at specific locations.
S297	USA	This assignment is part of the Wide-area Multi-user Land Mobile Justice Wireless Network certified by NTIA in IRAC Doc. 31594. The provisions of paragraphs 3 through 5 of Section 8.2.48A of the NTIA Manual, except for the provisions of Paragraph 3 of that Section that require each agency to conduct requirements= analysis of need and to conduct an analysis of alternatives to operating their own system, are waived for this assignment.
S298	USA	Subject to Department of the Interior, U.S. Fish and Wildlife Service net control.
S299	USA	Power shown is into a buried vertical dipole. ERP is approximately 1 Kw.
S300	USA	This assignment in the 162 to 174 MHz band supports the Federal Wildlife Telemetry program managed by the Department of the Interior's U.S. Fish and Wildlife Service. It is authorized on an noninterference basis and will be used for short-term periods at unspecified locations throughout the United States and possessions.
S301	USA	Operations under the authority of this assignment a) are not protected from harmful interference which may be caused by authorized stations operating in accordance with the National Table of Frequency Allocations and b) are subject to immediate adjustment, including cessation, if they result in harmful interference to authorized stations operating in accordance with that table.
S302	USA	Subject to the understanding that equipment will not be developed for operational use in this band.
S303	USA	Subject to the understanding that there is not intended operational use of this equipment within USP.
S319	USA	Federal Government use of frequencies in the 4940-4990 MHz band will be on a non interference basis to any non-Federal operations and shall not hinder the implementation of any non-Federal operations.
S320	USA	This planning assignment is to assess the viability of the relocation of a current assignment from the 1710-1770 MHz band for the possible future accommodation of commercial advanced mobile wireless systems in that band. This assignment is not to exceed three years (see section 9.6.5 of the NTIA Manual). This note will be deleted if this assignment is activated.
S321	USA	This assignment is for planning purposes not to exceed 3 years (see Section 9.6.5). The Note will be deleted after the assignment has been activated or this assignment will be deleted after specific locations have been notified.
S322	USA	Stations established under the authority of this assignment shall conform to its technical particulars and shall be notified, as specified in Section 9.1.3 of the

		NTIA Manual, for inclusion in the list of Frequency Assignment to Federal Radio Stations.
S323	USA	This assignment is for use in a system, or research and development looking toward such a system, for which funds have been committed for Stage 1 (Planning [conceptual]), as defined in Section 10.4.1 of the NTIA Manual prior to January 1, 1973. Follow-on stages in the system life cycle are subject to the provisions of Part 10.4 of the NTIA Manual.
S326	USA	This assignment is for use in a system, or research and development looking toward such a system, for which funds had been committed for Stage 4 (Procurement), as defined in Section 10.4.1 of the NTIA Manual, prior to January 1, 1973.
S327	USA	Marine environmental protection command/control/surveillance operations. Authorized additionally for other maritime mobile operations when not required for marine environmental purposes.
S328	USA	This assignment is not planned for renewal. It has been replaced by another assignment.
S330	USA	The equipment nomenclature or appropriate equipment coding is to be provided within six months after activation of the authorized stations.
S334	USA	Subject to Department of the Interior, Bureau of Land Management net control.
S335	USA	This telemetry assignment is on a non-interference, non-protected basis as concerns assignments in the aeronautical mobile service.
S340	USA	To be used in support of DOE scientific missions with protected status for short periods of time during actual operations. Such use will require coordination between the DOD and DOE and will be on a scheduled basis.
S341	USA	Subject to the continued applicability of note P074, this WSMR assignment is exempt from the requirement to be converted to a frequency listed in Section 4.3.7, NTIA Manual.
S343	USA	Within the areas listed in footnote US117 in the National Table of Frequency Allocations, operations under the authority of this assignment, other than those of mobile stations, are subject to prior coordination with the Secretary of the Committee on Radio Frequencies of the National Academy of Sciences.
S344	USA	This assignment has been granted a waiver and need not comply to the provisions of Section 8.2.20 of the NTIA Manual.
S345	USA	DOE operations in the band 4400-4940 MHz under this authority will be for emergency deployment of the NEST system. For such use in a given area, DOE will select clear channels based upon current GMF records. If time permits, DOE will coordinate specific frequencies with the appropriate military frequency managers/coordinators in the field. Tests and training will not be conducted under this authority; frequency applications for such operations will be submitted to the FAS/IRAC on a case by case basis.
S348	USA	Operations are subject to compliance with FCC Rules and Regulations, Part 95, Subpart D. Transmitters may be operated only by employees of the Federal Government only for the purpose of interfacing with Non-Federal licensees to coordinate essential and mutual activities. This authority may be revoked by the Federal Communications Commission in its discretion at any time.
S349	USA	Not to preclude assignment of this frequency outside of normal land mobile interference range (excluding skip and sporadic E reflection etc.) of DOE receive stations.
S350	USA	In the frequency band 30-400 MHz for this FAC operation, power shown is for primary equipment. Back-up equipment has been engineered and installed

		with output power up to 35 watts. Use of this back-up equipment is authorized during emergencies and/or failure of primary equipment.
S351	USA	This assignment is planned for implementation or deletion as a consolidation of frequencies being used.
S354	USA	This planned assignment is for a Space Project that has been approved in principle by NTIA in the research/development phase. Some operational characteristics have not been determined. This listing does not provide authority to transmit.
S355	USA	This assignment is for a wide-area, common-use frequency pursuant to Section 4.2.5 of the NTIA Manual.
S356	USA	This assignment is for a local-area, common-use frequency pursuant to Section 4.2.6 of the NTIA Manual.
S357	USA	Power shown is for emergencies only. Normal power is 10 kw.
S358	USA	This assignment is exempt from referral to NTIA by Exception 1 of the domestic fixed policy in Section 8.2.11 of the NTIA Manual.
S359	USA	This assignment is exempt from referral to NTIA by Exception 2 of the domestic fixed policy in Section 8.2.11 of the NTIA Manual.
S360	USA	This assignment is exempt from referral to NTIA by Exception 3 of the domestic fixed policy in Section 8.2.11 of the NTIA Manual.
S361	USA	Multiple transmitting and/or receiving stations operating at FIXED locations are involved in this assignment; and, it is not feasible to indicate all specific locations. (The method of operation must be fully explained in supplementary details when S361 is applied to a frequency assignment.)
S362	USA	One or more transportable transmitting and/or receiving stations are utilized in this assignment.
S366	USA	All operations will be outside of the U.S./Canada Border Zone, or for assignments for frequencies below 1000 MHz the power used while operating in the Border Zone will not exceed 5 watts.
S367	USA	This frequency assignment has been made on an exceptional basis for operation in the National Radio Quiet Zone on the conditions that use shall be minimized consistent with operational requirements and that any technical modification to this assignment shall be coordinated in accordance with NTIA Manual 8.3.9.
S368	USA	Subject to Department of the Interior, Bureau of Reclamation net control.
S369	USA	This assignment is in accordance with Section 8.2.44.
S370	USA	Transportable Earth Station operations in the 7300-7750 MHz and 8025-8400 MHz bands shall be deployed in such a manner as not to cause harmful interference to existing assignments and will adjust to allow additional stations of other radio services in these bands as required.
S371	USA	This assignment is in accordance with Chapter 10 and Part 7.14 of the NTIA Manual.
S373	USA	This assignment, in the 2700-2900 MHz band, is for operation in a designated heavily used area or for collocated operation (see Annex D of the NTIA Manual). This equipment has the capability of implementing the additional Electromagnetic Compatibility (EMC) provisions of RSEC Criteria D under Section 5.3 of the NTIA Manual. Implementation of this capability may be necessary at a later date.
S375	USA	Operations authorized by assignments bearing this note shall be subject to the GMF recording method being developed in accordance with IRAC Doc. 23200/1 (FAS ADM 830029/1).
S376	USA	Operations on this frequency under direct-control of the USDA, Forest

		Service.
S378	USA	In emergency situations a maximum power of 25 watts for ship stations and 10 watts for coast stations is authorized.
S379	USA	This assignment shall expire upon conclusion of the OPERATION ALLIANCE mission.
S381	USA	Operations under this assignment are for SHARES traffic in accordance with Section 7.3.5 of the NTIA Manual.
S382	USA	This record is retained for spectrum management and analysis purposes and does not constitute an NTIA authority to transmit.
S383	USA	This sounder assignment complies with Section 8.2.21 of the NTIA Manual. The frequency bands listed in paragraph 1.c. of Section 8.2.21 have been suppressed. The information required by paragraph 2 of Section 8.2.21 is provided in the supplementary details of this assignment.
S384	USA	This assignment has been made pursuant to Part 4.3.2 of the NTIA Manual.
S385	USA	This GMF listing identifies passive sensor or Radio Astronomy receiving stations for spectrum management and analysis purposes and does not constitute an NTIA authority to transmit. Interference protection to the receiving station is afforded only to the extent provided in the National Table of Frequency Allocations.
S386	USA	Operations authorized by assignments bearing this note shall be restricted to direct support of the OPERATION ALLIANCE mission, and are subject to the management and control of the U.S. Customs Service.
S387	USA	Upon implementation of narrowband operations this channel will be vacated.
S388	USA	This assignment supports DSCS Operations Center earth stations limited to locations at Fort Detrick, and Fort Meade, Maryland, and Camp Roberts, California. This assignment shall not preclude new terrestrial assignments within or overlapping the frequency band 7250-7750 MHz provided each new terrestrial assignment does not exceed a maximum tolerable interfering power of -141.3 dBm in any 30 kHz bandwidth at the earth station receiver. In addition, this assignment has no priority over either future meteorological-satellite systems (See G104) or terrestrial assignments authorized prior to April 26, 1994.
S389	USA	The bands 2390-2400 and 2402-2417 MHz were identified for immediate reallocation, effective August 10, 1994, for exclusive non-Federal use under Title VI of the Omnibus Budget Reconciliation Act of 1993. Effective August 10, 1994, any Federal operations in these bands are on a non-interference basis to non-Federal operations and shall not hinder the implementation of any non-Federal operations.
S390	USA	This assignment for wideband telephony, facsimile and/or special transmission systems in the Maritime Mobile Service is being made in accordance with the NTIA Manual, Section 8.2.29, paragraph 5.c.(1) and ITU RR 52.170.
S391	USA	This assignment is an expansion or enhancement of an existing system in the 138-150.8 or 406.1- 420 MHz band which utilizes a band-width greater than 11 kHz.
S392	USA	The bands 2300-2310 and 2400-2402 MHz were identified for reallocation, effective August 10, 1995, for exclusive non-Federal use under Title VI of the Omnibus Budget Reconciliation Act of 1993. Effective August 10, 1995, any Federal operations in these bands are on a non-interference basis to authorized non-Federal operations and shall not hinder the implementation of any non-Federal operations.
S393	USA	The band 2417-2450 MHz was identified for reallocation, effective August 10,

		1995, for mixed Federal and non-Federal use under Title VI of the Omnibus Budget Reconciliation Act of 1993.
S396	USA	This assignment is in accordance with either Section 4.3.7, paragraph 5d, or Section 4.3.9, paragraph 6d, of the NTIA Manual.
S397	USA	This assignment is for a joint law enforcement requirement pursuant to Section 4.3.16 of this Manual.
S398	USA	This assignment is for a joint incident response requirement pursuant to Section 4.3.16 of this Manual.
S399	USA	Effective January 1, 2005, any Federal operation in the band 162-174 MHz, not conforming to the 12.5 kHz channel plan, is on a non-interference basis to all operations that do conform to the 12.5 kHz channel plan in accordance with Section 4.3.7 of the NTIA Manual.
S400	USA	A temporary waiver has been granted to this assignment for continued wideband operations (emissions equal to or greater than 12.5 kHz) in the 162–174 MHz band not to exceed one calendar year.
S401	USA	This record requires review every 10 years per NTIA Manual, Annex F.
S514	USA	This assignment supports NASA Space Program ATS-3.
S518	USA	This assignment supports NASA Space Program ATS-1.
S544	USA	This assignment supports NASA Deep Space Program PIONEER.
S545	USA	This assignment supports NASA/Commerce Earth Exploration Service Space Program LANDSAT.
S553	USA	This assignment shall expire upon completion of Space Project Defense Meteorological Satellite Program Block 5.
S558	USA	This assignment shall expire upon completion of Space Project SAMSO 080-70.
S566	USA	This assignment shall expire upon completion of Space Project Advanced Technology Satellite Global Positioning System.
S567	USA	This assignment shall expire upon completion of Space Project Deep Space Program.
S569	USA	This assignment shall expire upon completion of Space Project Transit Improvement Program (TIP).
S570	USA	This assignment shall expire upon completion of Space Project FLEETSATCOM.
S572	USA	This assignment shall expire upon completion of Space Project Air Force Satellite Data System.
S575	USA	This assignment supports NASA Space Program TDRSS.
S576	USA	This assignment supports NASA Space Program Space SHUTTLE (STS).
S589	USA	This assignment supports NASA Space Program IMP-8.
S594	USA	This assignment is for Space System GOES.
S595	USA	This assignment shall expire upon completion of Space Project GPS Phase II.
S597	USA	This assignment is in support of Navy Space Surveillance System.
S603	USA	This assignment is in support of Space Ground Link Subsystem (SGLS) operations.
S604	USA	This assignment is in support of foreign space operations.
S606	USA	This assignment shall expire upon completion of Space Project NATO IIIA.
S615	USA	This assignment is in support of the FCC authorized EUTELSAT Atlantic Bird-2 Satellite located at 8.0 WL.
S616	USA	This assignment shall expire upon completion of Space Project DSCS Phase

		II.
S617	USA	This assignment supports NASA Space Program SAR.
S619	USA	This assignment is in support of the INTELSAT V.
S621	USA	This Application is in support of a DOD Space Project.
S625	USA	This assignment shall expire upon completion of Space Project IUS.
S626	USA	This assignment shall expire upon completion of Space Project LEASAT (FLTSATCOM-A).
S627	USA	This assignment is in support of the Small Business Satellite.
S629	USA	This assignment is in support of Space System TIROS-N.
S632	USA	This assignment supports NASA Deep Space Program VOYAGER.
S634	USA	This note is to be used in conjunction with S604, to reflect assignments used by NASA in a cooperative effort with the European Space Agency (ESA) in support of Space Program ULYSSES (formerly known as the International Solar Polar Mission (ISPM)).
S641	USA	This assignment supports NASA Space Program SPACE TELESCOPE (ST).
S643	USA	This assignment shall expire upon completion of Space Project DSCS Phase III.
S647	USA	This assignment supports NASA Space Program ERBS.
S651	USA	This assignment supports NASA Space Program Space Station.
S661	USA	This assignment is in support of the Strategic Defense Initiative (SDI) Program.
S662	USA	This assignment is for Common Carrier service provided in a non-Federal Domestic Satellite System. The specific frequency and satellite is dependent upon the Common Carrier selected to provide the service.
S664	USA	This assignment shall expire upon termination of the satellite system STATSIONAR (USSR).
S665	USA	This assignment is in the INMARSAT space system. If this assignment is for a transportable landbased or aeronautical INMARSAT terminal, it is subject to coordination with the Common Carrier Bureau of the Federal Communications Commission. This coordination will be conducted by the Communications Satellite Corporation in accordance with Annex E.
S666	USA	This assignment is in support of Space Project NATO IV.
S668	USA	This assignment supports NASA Space Program Tethered Satellite System (TSS).
S670	USA	This assignment is in support of the FCC authorized INTELSAT satellite system.
S671	USA	This assignment supports the Orbital Sciences Corporation DATASAT Space System.
S673	USA	This assignment supports NASA Space Program Cosmic Background Explorer (COBE) Satellite.
S674	USA	This assignment supports NASA Space Program Atmospheric Research Satellite (UARS).
S678	USA	This frequency supports AF/DOE Space Project ALEXIS.
S680	USA	This frequency supports Commerce project Pan-Pacific Educational and Cultural Experiments by Satellite (PEACESAT).
S681	USA	This assignment supports NASA Extra-Vehicular Activity UHF Communications Subsystem.
S683	USA	This assignment supports NASA TOPEX/Poseidon (TOPO) Mission.

S684	USA	This assignment supports NASA Space Program Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX) in the Small Explorer (SMEX) Project.
S687	USA	This assignment supports NASA Tether Dynamics Explorer/Tethered Atmospheric Probe (TDE/TAP).
S690	USA	This assignment supports the LIGHT-SAT Satellite System.
S692	USA	This assignment supports Motorola Satellite Communications, Inc.'s IRIDIUM space system.
S696	USA	This assignment supports NASA Tropical Rainfall Measurement Mission (TRMM).
S698	USA	This assignment will expire upon completion of the Space Project NATO IV.
S700	USA	This assignment supports NASA SeaStar Ocean Color Project.
S701	USA	This assignment supports NASA Energy Transient Experiment (HETE).
S703	USA	This assignment supports the NASA Summer Undergraduate Research Fellowship Satellites I and II (SURFSAT).
S707	USA	This assignment supports the German SAFIR System.
S708	USA	This assignment supports the NASA Total Ozone Monitoring Spectrometer Earth Probe (TOMSEP).
S710	USA	This assignment supports the MILSTAR Communications Satellite System.
S712	USA	This assignment supports DOE proliferation detection and environmental monitoring satellite program.
S713	USA	This assignment supports the NASA Fast Auroral Snapshot Explorer (FAST).
S714	USA	This assignment supports the NASA Submillimeter Wave Astronomy Satellite (SWAS).
S715	USA	This assignment supports the NASA International Solar Terrestrial Program (ISTP) Interplanetary Physics Laboratory WIND.
S717	USA	This assignment supports the NASA Earth Observing System AM (EOS), which is also known as Aqua.
S719	USA	This assignment supports the NASA Advanced Composition Explorer (ACE).
S720	USA	This assignment supports the NASA Near Earth Asteroid Rendezvous (NEAR).
S722	USA	This assignment supports the NASA CASSINI Satellite System.
S723	USA	This assignment supports the NASA Advanced X-Ray Astrophysics Facility- Imaging (AXAF-I) Satellite System.
S724	USA	This assignment is for commercial service using the Russian LOUTCH WSDRN Satellite.
S726	USA	This assignment supports the NASA X-Ray Timing Explorer (XTE).
S730	USA	This assignment supports the NOAA K, L, and M Satellite System.
S731	USA	This assignment supports the NASA Polar Plasma Laboratory Satellite System - POLAR.
S733	USA	This assignment supports the EARTHWATCH Remote Sensing System.
S737	USA	This assignment supports the Hughes Communications Galaxy, Inc. GALAXY VIII (I) Satellite.
S738	USA	This assignment supports the NASA Mars Global Surveyor.
S739	USA	This assignment supports the NASA Transition Region an Coronal Explorer satellite system (TRACE).
S740	USA	This assignment supports the NASA Wide-Field Infrared Explorer satellite

		(WIRE).
S742	USA	This assignment is for use by a Federal Government earth station supporting a foreign space operation. The responsible Federal agency has waived the NTIA spectrum certification process for the earth station operation. Therefore, although this operation may be in accordance with the National Table of Frequency Allocations, it must be conducted on an unprotected, non-interference basis to those U.S. Operations that are in conformity with the National Table of Frequency Allocations.
S743	USA	This assignment shall expire upon termination of the satellite system EXPRESS (Russia).
S745	USA	This assignment is in support of a Federal Government Space Program.
S747	USA	This assignment is for a receive only earth station for the IRS-1B Satellite.
S748	USA	This assignment is for a receive only earth station for the IRS-1C Satellite.
S749	USA	This assignment is for a receive only earth station for the ERS-2 Satellite.
S750	USA	This assignment is in support of the Space Test Experiment Platform (STEP 0) program.
S752	USA	This assignment supports the NASA Gravity Probe-B satellite system.
S758	USA	This assignment is in support of the PANAMSAT PAS-8 and PAS-9 Satellites.
S759	USA	This assignment supports the NASA Thermosphere-Ionosphere-Mesosphere-Energetics-Dynamics (Timed) Satellite System.
S760	USA	This assignment supports the Ikonos-1 and Ikonos-2 Satellite System.
S761	USA	This assignment supports the NASA Imager for Magnetopause-to-Aurora Global Exploration (IMAGE).
S762	USA	This assignment supports the ICO Medium Orbit Satellite Constellation.
S763	USA	This assignment is in support of a federal government program using a commercial contractor operating in the non-Federal space band. The license to operate is held by a non-Federal entity in support of this program. This record is incorporated into the Government Master File for spectrum analysis, and information purposes.
S765	USA	This assignment supports the GLOBALSTAR Satellite System.
S767	USA	This assignment supports the Orbview Space System.
S768	USA	This assignment supports the NASA Microwave Anisotropy (MAP) Satellite System.
S769	USA	This assignment is for a receive only earth station for the IRS-1D Satellite.
S771	USA	This assignment supports the NASA Quicksat Satellite System.
S772	USA	This assignment supports the NASA Lyman-Far Ultraviolet Spectroscopic Explorer (FUSE) Satellite System.
S773	USA	This assignment supports the NASA X-38 201 Vehicle Communications System.
S775	USA	This assignment supports the NASA Active Cavity Radiometer Irradiance Monitor Satellite System (ACRIMSAT).
S778	USA	This assignment supports the NASA Stardust Satellite System.
S780	USA	This assignment supports the NASA Earth Orbiter-1 (EO-1) Communications System.
S781	USA	This assignment supports the NASA USAGenesis Communications System.
S782	USA	This assignment supports the NASA Earth Observation System-PM (EOS-PM), which is also known as Terra Communications System.
S783	USA	This assignment is in support of the NAHUEL-C Satellite System (Argentina).

S785	USA	This assignment supports the NASA High Energy Solar Spectroscopic Imager (HESSI) Communications System.
S786	USA	This assignment supports the NASA Galaxy Evolution Explorer (GALEX) Satellite Communications System.
S787	USA	This assignment supports the NASA Ice, Cloud, and Land Elevation (ICESAT) Satellite Communications System.
S788	USA	This assignment supports the NASA Space Infrared Telescope Facility (SIRTF) Communications System.
S789	USA	This assignment supports the FCC Galaxy-11 Satellite System.
S790	USA	This assignment supports the NASA X-38 201 Vehicle Communications System.
S791	USA	This assignment supports the NASA Mars Surveyor 2001 Orbiter Communications System.
S792	USA	This assignment supports the NASA Wire-less Video System (WVS) Communications System.
S794	USA	This assignment supports the NASA Triana Satellite Communications System.
S795	USA	This assignment supports the HISPA-SAT-1C Satellite System.
S796	USA	This assignment supports the Astrovision Satellite System.
S797	USA	This assignment supports the NASA Solar Radiation and Climate Experiment (SORCE) Satellite Communications System.
S799	USA	This assignment supports the NASA Swift Gamma Ray Medium Class Experiment (MIDEX) Satellite Communications System.
S801	USA	This assignment supports the NASA Cosmic Hot Intersteller Plasma Spectrometer (CHIPS) Mission Satellite Communications system.
S802	USA	This assignment is in support of the FCC authorized AMC-4 (formerly GE-4) satellite system.
S804	USA	This assignment is in support of the PANAMSAT PAS-5 satellite system.
S805	USA	This assignment is in support of the PANAMSAT PAS-1R satellite system.
S806	USA	This assignment is in supports the NASA PICASSO Satellite Communications System.
S811	USA	This assignment supports the NASA Ionospheric Observation Nano-Satellite Formation Satellite Communications System.
S812	USA	This assignment supports the NASA Earth Observing System (EOS) - Aura Satellite Communications System.
S813	USA	This assignment supports the NASA Full-Sky Astrometric Mapping Explorer (FAME) Satellite Communications System.
S814	USA	This assignment is in support of the Atlantic Bird 2 (EUTELSAT) at 8.0 WL satellite system.
S816	USA	In the band 3600-3650 MHz, in accordance with US245, i) an EMC analysis based on the NTIA TR-99-361 report was performed by the non-Federal applicant and the non-Federal applicant agrees to accept this potential for unacceptable interference, and ii) these fixed-satellite service operations are limited to international inter-continental systems.
S817	USA	In the band 3650-3700 MHz, in accordance with US348, an EMC analysis based on the NTIA TR- 99-361 Report was performed by the non-Federal applicant and the non-Federal applicant agrees to accept this potential for unacceptable interference from the three station identified in US348. Additionally, per US245, in the band 3650-3700 MHz, these fixed-satellite service operations are limited to international inter-continental systems.

S818	USA	The band 5850-5925 MHz is shared on a co-primary basis with Federal Government radiolocation systems in the U.S. and Possessions. In accordance with US245, i) the applicant is aware of the potential allocation and electromagnetic compatibility issues in the 5850- 5925 MHz frequency band and the applicant agrees to accept this potential for unacceptable interference from radiolocation stations operating in accordance with footnote G2 and ii) these fixed-satellite service operations are limited to international inter-continental satellite systems.
S819	USA	In the U.S. and Possessions, the band 5850-5925 MHz is shared on a co-primary basis with Federal radiolocation systems. In accordance with US245, this earth station transmitter has been successfully coordinated with the Federal Government. The Federal operators have evaluated the potential interference from this earth station transmitter to their radiolocation receivers and have concluded that no unacceptable interference will occur. Any conditions placed on the earth station transmitter are included in SUPPLEMENTARY DETAILS. Any conditions required to protect radiolocation receivers will also be included in the FCC license.
S820	USA	This assignment is in support of the FCC authorized New Skies satellite system.
S821	USA	This assignment supports the NASA Mercury Surface Space Environment, Geochemistry and Ranging (MESSENGER) Satellite Communications System.
S822	USA	This assignment is in support of the FCC authorized JCSAT-2 Satellite located at 154.0 EL.
S823	USA	This assignment is in support of the FCC authorized TELSTAR-6 satellite system.
S824	USA	This assignment is in support of the NASA Mars Exploration Rover 1 and 2 (MER-1 and MER-2) Satellite Communications System.
S825	USA	This assignment is in support of the FCC authorized Mabuhay (AGUILA 2) satellite located at 146.0 EL.
S826	USA	This assignment is in support of the FCC authorized GE-3 satellite located at 87.0 WL.
S828	USA	This assignment is in support of the FCC authorized ECHOSTAR 1 satellite located at 148 WL.
S829	USA	This assignment is in support of the FCC authorized ECHOSTAR 2 satellite located at 148 WL.
S830	USA	This assignment is in support of the FCC authorized ECHOSTAR 4 satellite located at 119 WL.
S831	USA	This assignment is in support of the FCC authorized ECHOSTAR 6 satellite located at 119 WL.
S832	USA	This assignment is in support of the FCC authorized GALAXY III-C, GALAXY VIII(I)-R, AND GALAXY VIII- I satellites located at 95.0 WL.
S833	USA	This assignment is in support of the FCC authorized EUTELSAT Atlantic Bird-3 satellite located at 5.0 WL.
S834	USA	This assignment supports the NASA Deep Impact Satellite Communications System.
S835	USA	This assignment supports the NASA AeroAstro ST-5 Nanosat Constellation Trailblazer (ST-5) Satellite Communications System.
S836	USA	This assignment supports the NASA New Horizons Satellite Communications Systems.
S837	USA	This assignment supports the NASA Mars Reconnaissance Orbiter Satellite

		Communications Systems.
S838	USA	This assignment supports the NASA Spectroscopy and Photometry of the Intergalactic Medium's Diffuse Radiation (SPIDR) Satellite Communications System.
S839	USA	This assignment supports the NASA Solar Terrestrial Relations Observatory (STEREO) Satellite Communications System.
S840	USA	This assignment is in support of the FCC authorized Marisat-F2 Satellite located at 33.9 W.L.
S841	USA	This assignment is in support of the FCC authorized AMOS Satellite located at 4.0 W.L.
S842	USA	This assignment is in support of the NASA DAWN Satellite Communications System.
S843	USA	This assignment is in support of the FCC authorized ESTRELA DO SUL 1 Satellite located at 63.0 W.L.
S844	USA	This assignment is in support of the FCC authorized experimental non-voice non-geostationary Aprize satellite.
S845	USA	This assignment supports the NASA Aeronomy of ice in the Mesosphere (AIM) Satellite Communications Systems.
S846	USA	This assignment supports the NASA Demonstration of Autonomous Rendezvous Technology (DART) satellite communications systems.
S848	USA	This assignment is in support of the FCC authorized non-geostationary IRS-P6 satellite.
S849	USA	This assignment is in support of the FCC authorized non-geostationary QUICKBIRD-1 satellite.
S850	USA	This assignment supports the NASA Time History of Events and Macroscale Interactions during Substorms (THEMIS) Satellite Communications Systems.
S852	USA	This assignment is in support of the FCC authorized ORBVIEW Satellite
S853	USA	This assignment supports the FCC authorized Lockheed Martin- 133W-RNSS Satellite.
S854	USA	This assignment is in support of the FCC authorized Lockheed Martin-UFO 7 Satellite.
S855	USA	This assignment is in support of the FCC authorized Cal Poly State University CP 1 Satellite.
S856	USA	This assignment is in support of the FCC authorized Mobile Satellite Ventures AMSC-1 Satellite located at 100.95 W.L.
S857	USA	This assignment is in support of the FCC authorized Mobile Satellite Ventures MSAT-1 Satellite at 106.95 W L.
S858	USA	This assignment supports the NASA Glory Satellite Communications System.
S859	USA	This assignment is in support of the FCC authorized Lockheed Martin- 107.3W-RNSS Satellite.
S860	USA	This assignment is in support of the FCC authorized AMC-9 Satellite located at 0830000 RLG.
S861	USA	This assignment is in support of the FCC authorized NONGEOSTATIONARY ORBVIEW-5 Satellites.
S862	USA	This assignment is in support of the FCC authorized Galaxy 27 (formerly Intelsat IA-7) at 129 WL.
S863	USA	This assignment is in support of the FCC authorized INTELSAT-IA-6-Satellite.
S864	USA	Aeronautical mobile operations are also authorized under the following conditions: 1.) That these operations will not be used as the basis for

		coordinating use of the spectrum and 2.) Operation from airborne platforms are not protected and shall not cause harmful interference to other authorized stations.
S865	USA	This assignment is in support of Geostationary satellite Apstar V at 1380000E.
S866	USA	This assignment is in support of Geostationary satellite RPS-2.
S867	USA	This assignment is in support of Non-Geostationary satellite IKONOS-2.
S868	USA	This assignment is in support of Non-Geostationary satellite IRS-1C.
S869	USA	This assignment is in support of Non-Geostationary satellite IRS-ID.
S870	USA	This assignment is in support of Non-Geostationary satellite IRS-P6.
S871	USA	This assignment is in support of the Non-Geostationary CubeSat Test Bed (CSTB) satellite.
S873	USA	This assignment supports the NASA Genesis spacecraft.
S874	USA	This assignment is in support of the DOE Cobra Flight Experiment (CFE) Satellite System.
S875	USA	This assignment supports NASA Gamma Ray Large Area Telescope (GLAST).
S876	USA	This assignment is in support of the DOC National Polar-Orbiting Operational Environmental Satellite System (NPOESS).
S877	USA	This assignment is in support of the FCC authorized Orbit Orbcomm J1 satellite.
S878	USA	This assignment supports the NASA Lunar Prospector Satellite System.
S879	USA	This assignment supports operations for the NASA Interstellar Boundary Explorer (IBEX) spacecraft.
S880	USA	This assignment supports the NASA Mars Scout Lander System.
S881	USA	This assignment supports the NASA Kepler Satellite Mission System.
S882	USA	This assignment supports the NASA Phoenix Mars Scout System.
S883	USA	This assignment supports the NASA Lunar Reconnaissance Orbiter System.
S884	USA	This assignment supports the NASA Interstellar Boundary Explorer System.
S885	USA	This assignment supports the NASA Widefield Infrared Survey Explorer System.
S886	USA	This assignment supports the NASA Space Technology 8 System.
S887	USA	This assignment supports the NASA Fast Satellite (FASTSAT) System.
S888	USA	This assignment supports the NASA Distress Alerting Satellite System.
S889	USA	This assignment supports the NASA Orbiting Carbon Observatory (OCO).
S890	USA	This assignment supports the NASA Mars Science Laboratory (MSL).
S891	USA	This assignment supports the FCC authorized INTELSAT 805 at 55.500 WL
S892	USA	This assignment supports the FCC authorized HISPASAT 1C at 30.000 WL
S893	USA	This assignment supports the FCC authorized ANIK F1 at 107.300 WL
S894	USA	This assignment supports the FCC authorized ANIK E2 at 111.100 WL
S895	USA	This assignment supports the FCC authorized ANIK E1 at 118.700 WL
S896	USA	This assignment supports the FCC authorized AMC-9 at 83.000 WL
S897	USA	This assignment supports the FCC authorized AMC-5 (formerly GE-5) at 79.000 WL
S898	USA	This assignment supports the FCC authorized AMC 6 at 72.000 WL
S899	USA	This assignment supports the FCC authorized Terrestar 1 at 111.100 WL

S900	USA	This assignment supports the NASA Global Precipitation Measurement (GPM) System.
S901	USA	This assignment is in support of the FCC authorized SBS-6 at 74 WL.
S902	USA	This assignment is in support of the FCC authorized Horizons-1 at 127 WL.
S903	USA	This assignment is in support of the FCC authorized Galaxy 28 (formerly Intelsat IA-8) at 89 WL.
S904	USA	This assignment will expire upon completion of Air Force WGS project phase I.
S905	USA	This assignment supports the NASA Lunar Crater Observation and Sensing Satellite (LCROS).
S906	USA	This assignment is in support of the FCC authorized non-geostationary Worldview 60 (WV-1) Satellite.
S907	USA	This assignment is in support of the FCC authorized non-geostationary Worldview 110 (WV-2) Satellite.
S908	USA	This assignment supports DOC Ocean Surface Topography Mission (OSTM)
S909	USA	This assignment supports NASA space program James Webb Space Telescope.
S910	USA	This assignment is in support of the FCC authorized AMC satellite constellation.
S911	USA	This assignment is in support of the FCC authorized fixed satellite system, New Dawn.
S912	USA	This assignment supports NASA space program Radiation Belt Strom Probes (RBSP).
S913	USA	This assignment supports NASA space program Solar Dynamics Observatory (SDO).

## Reflector Shape (RS)

The Code List Category RS is used in element [Dimension](#).

Short Code	Definition
1	Cone
2	Clamshell
3	Curved Convergent
4	Parasitic
5	Polarized
6	Hyperbolic
7	Cavity
8	Cylindrical
A	Rod
B	Boxed Slot
C	Corner
D	Double Corner
E	Elliptical
F	Plane
H	Horn
L	Lens
M	Mattress
O	Orange Peel
P	Parabolic
Q	Parabolic Segment
R	Rectangular
S	Screen
T	Trough
Y	Plate
Z	Other - See Remarks

## L. Alphabetical List of Elements

This Annex contains all SSRF elements, listed in alphabetical order. Each element contains the following information:

elt name	national	content	attributes
LocationRef			(cls(L:CL),+locRef(S+P),radius(UI4),cat(L:IE))
ClsOrigin	(USA)		(cls(L:CL),+authority(S30),+org(S30),reason(S+P))
Project		(S20)	(cls(L:CL))

- **Elt name:** contains the XML name of the element
- **National:** if the element is National, this column shows the nation(s) using it
- **Content:** if the element has a content (in addition to its attributes), this column shows the type of the content (see below for the codes)
- **Attributes:** contains the name of each attribute of the element and its type in parenthesis (see below for the codes); a "+" in front of the attribute means it is required (otherwise it is optional).
- In addition, similar tables in volumes I to V contain a column **occ** showing the possible number of occurrences of the element within its parent element, in the form [0..1] (optional element), [0..n] (optional and repeatable), [1..1] (required), [1..n] (required and repeatable).

### Codes for element and attribute types:

S : string (memo)

Snn : string of maximum nn characters

S+P : string with a pattern (needs to see the XML Schema to know which pattern)

UIn : unsigned integer of maximum n digits

In : integer of maximum n digits

UDn.f : unsigned decimal of maximum n digits and maximum f decimals.

Dn.f : decimal of maximum n digits and maximum f decimals.

date : standard XML date format, "yyyy-mm-dd"

dateTime : standard XML date/time format, "yyyy-mm-ddThh:mm:ssZ"

L:AA : Code List Category AA

[a..b] : number between a and b inclusive

## SSRF Elements

element name	national	content	attributes
<a href="#">Action</a>	(USA)	(S1+P)	(cls(L:CL))
<a href="#">Address</a>			(cls(L:CL),street(S50),cityArea(S50),state(S50),postCode(S10),+country(L:AO))
<a href="#">Administrative</a>			(cls(L:CL),+serial(S28+P),+reason(L:DR),+external(L:BO))
<a href="#">AdministrativeRef</a>			(cls(L:CL),+serial(S28+P))
<a href="#">AGAProtection</a>			(cls(L:CL),+criteria(L:PR),freq(UN16.6))
<a href="#">AllocApp</a>			(cls(L:CL),accomodation(L:AR),licensing(S50),exclusiveApp(S50),asgnAuthority(S),permit(S))
<a href="#">AllocVariance</a>	(USA)		(cls(L:CL),type(L:AV),item(S50),radioService(L:SN),priority(L:PS))
<a href="#">AM</a>			(cls(L:CL),idx(UN5.3),RMSIdx(UN5.3))
<a href="#">Antenna</a>			(+motionType(L:AD),antUse(L:AU),sectBlanking(L:BO),feedType(L:AF),leadType(L:AL))
<a href="#">AntHeight</a>			(cls(L:CL))
<a href="#">AntMode</a>			(cls(L:CL),descr(S100),+code(L:AM))
<a href="#">AntModeRef</a>			(cls(L:CL),+serial(S28+P),antMode(L:AM))
<a href="#">AntPattern</a>			(cls(L:CL),+code(L:AP),+origin(L:OR))

<a href="#">AntPatternPoint</a>			(cls(L:CL),+dir(UN5.2 [0..360]),+gain(SN5.2))
<a href="#">AntSpec</a>	(USA)		(cls(L:CL),gain(SN6.2),diameter(SN6.2),directionality(UN5.2 [0..360]), polarization(S2),sidelobeAttenuation(S16))
<a href="#">AntStd</a>	(USA)		(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D))
<a href="#">AntStdRef</a>	(USA)	(S3+P)	(cls(L:CL),+serial(S28+P))
<a href="#">AntType</a>			(cls(L:CL))
<a href="#">Aperture</a>			(cls(L:CL))
<a href="#">ApprovalRouting</a>	(USA)	(S1+P)	(cls(L:CL))
<a href="#">AsgnAllot</a>			()
<a href="#">AsgnAllotRef</a>			(cls(L:CL),+serial(S28+P),type(S2+P))
<a href="#">AsgnType</a>	(SMB)	(S255)	(cls(L:CL),+category(L:CA),resource(L:NR))
<a href="#">Attachment</a>			(cls(L:CL),+mimeType(L:MT))
<a href="#">AtWayPoint</a>			(cls(L:CL),routeIdx(UI3),dateTime(DT),speed(UN7.2))
<a href="#">AuthorisedBw</a>			(cls(L:CL),+minBw(UN16.6),maxBw(UN16.6))
<a href="#">AuthorisedTuning</a>			(cls(L:CL),+tuningStep(UN16.6),+numFreqs(UI4))
<a href="#">Azimuth</a>			(cls(L:CL),+minAz(UN5.2 [0..360]),maxAz(UN5.2 [0..360]))
<a href="#">BandApplication</a>	(S)		(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D))
<a href="#">BandAppRef</a>			(cls(L:CL),+serial(S28+P))
<a href="#">BandUser</a>	(S)		(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D))
<a href="#">BandUserRef</a>			(cls(L:CL),+serial(S28+P))
<a href="#">Baseband</a>			(cls(L:CL),+minModFreq(UN16.6),+maxModFreq(UN16.6),signalType(L: MO),BER(SN))
<a href="#">Beamwidth</a>			(cls(L:CL),minHorz(UN5.2 [0..360]),maxHorz(UN5.2 [0..360]),minVert (SN4.2 [-90..90]),maxVert(SN4.2 [-90..90]),beamType(S1+P))
<a href="#">Blanking</a>			(cls(L:CL),+startAz(UN5.2 [0..360]),+stopAz(UN5.2 [0..360]))
<a href="#">BoundingCircle</a>			(cls(L:CL),+lon(S8+P),+lat(S7+P),radius(UI4),avgElev(SI5),minElev(SI5), maxElev(SI5))
<a href="#">BSMPlan</a>			(+version(UN3.1))
<a href="#">BSMPlanRef</a>			(cls(L:CL),+serial(S28+P))
<a href="#">Burst</a>			(cls(L:CL),rate(UN12.3),duration(UN9.7),numPulses(UI8),offTime(UN9.7))
<a href="#">CallInfo</a>			(cls(L:CL),timePeriod(UI2),+callSign(S3+P),callWord(S15),TAD(S5+P))
<a href="#">CEOI</a>			(+version(UN3.1))
<a href="#">Chnl</a>			(cls(L:CL),name(S20))
<a href="#">ChnlFreq</a>			(cls(L:CL),+freq(UN16.6),name(S20))
<a href="#">ChnlPlan</a>			(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D),relatedPlan(S20))
<a href="#">ChnlPlanRef</a>			(cls(L:CL),+serial(S28+P))
<a href="#">ClsDerived</a>			(cls(L:CL),+date(D),+title(S30),+org(S30))
<a href="#">ClsOrigin</a>			(cls(L:CL),+authority(S30),+org(S30))
<a href="#">ClsReason</a>	(S10+P)	(S)	(cls(L:CL))
<a href="#">Code</a>			(cls(L:CL),+cat(L:LU),+shortCode(S40),+origin(L:AO))
<a href="#">Codes</a>			(cls(L:CL),+serial(S28+P))
<a href="#">Colour</a>			(cls(L:CL),+word(S16),+num(UI2))
<a href="#">Common</a>			(cls(L:CL),+serial(S28+P),entry(D),lastMod(DT),usageType(L:UT))
<a href="#">Compartment</a>	(USA)	(S15(L: CC))	(cls(L:CL),xpath(S255))
<a href="#">COMSECKeymat</a>		(S15)	(cls(L:CL))
<a href="#">Concept</a>		(S)	(cls(L:CL))
<a href="#">Config</a>			(cls(L:CL),+name(S24),+stnClass(L:SC),srvNature(L:SV),repeater(L:BO))
<a href="#">Contact</a>			(cls(L:CL),+serial(S28+P),entry(D),lastMod(DT),title(S10),firstName(S30), lastName(S30),job(S50))
<a href="#">ContactOrgRef</a>			(cls(L:CL),+type(L:CR))
<a href="#">ContactRef</a>			(cls(L:CL),+serial(S28+P))
<a href="#">CoordProcess</a>	(S)		(cls(L:CL))
<a href="#">CoordSpec</a>			(cls(L:CL))
<a href="#">CoordStd</a>			(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D))
<a href="#">CoordStdRef</a>			(cls(L:CL),+serial(S28+P))
<a href="#">CositeSep</a>	(UN16.6)		(cls(L:CL))
<a href="#">Curve</a>			(cls(L:CL),+type(L:CT),+origin(L:OR),+freqFactor(UN3.1),+freqConst (UN16.6),bw(UN16.6))
<a href="#">CurvePoint</a>	(USA)		(cls(L:CL),+offset(UN16.6),+level(SN5.1))
<a href="#">CurveSpec</a>			(cls(L:CL),xValue(SN9.2),yValue(SN5.2))
<a href="#">CurveStd</a>	(USA)		(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100), startDate(D),stopDate(D),EMFieldType(S50),orientation(S15),spec(S10))
<a href="#">Dataset</a>			(cls(L:CL),+serial(S28+P),+type(L:DT))
<a href="#">DatasetCls</a>			(+overallCls(L:CL))
<a href="#">DatasetReplaced</a>	(USA)	(S)	(cls(L:CL),+serial(S28+P),+retireDate(D))
<a href="#">DCSTrunk</a>		(S6)	(cls(L:CL))
<a href="#">Decls</a>		(S20)	(cls(L:CL),+type(S10+P),date(D))

<a href="#">DefPyro</a>		(cls(L:CL),+type(S3+P),+meaning(S10+P))	
<a href="#">DefSmoke</a>		(cls(L:CL),+colour(S11+P),+meaning(S6+P))	
<a href="#">Deletion</a>		(cls(L:CL),+serial(S28+P),+origin(L:DE))	
<a href="#">Deployment</a>		(cls(L:CL),+type(L:IN))	
<a href="#">Description</a>	(S)	(cls(L:CL))	
<a href="#">Descriptor</a>		(cls(L:CL),+unit(S2+P),+status(S1+P),+role(S2+P))	
<a href="#">DetectedIntf</a>		(cls(L:CL))	
<a href="#">Diameter</a>	(UN6.2)	(cls(L:CL))	
<a href="#">Dictionary</a>		(+type(L:DC),+name(S20))	
<a href="#">DictionaryRef</a>		(cls(L:CL),+serial(S28+P))	
<a href="#">DigitalFormat</a>		(cls(L:CL),numStates(UI5),pulseFormat(L:DF),codeGain(SN6.2),codeRate(UN10.3),codePeriod(UN6.4))	
<a href="#">Dimension</a>		(cls(L:CL),shape(S1+P),elementSpacing(UN6.2))	
<a href="#">Distribution</a>		(cls(L:CL),+action(L:BO),+serial(S28+P))	
<a href="#">Downgrade</a>		(cls(L:CL),+downCls(L:CL),+date(D))	
<a href="#">DuplexSep</a>	(UN16.6)	(cls(L:CL),+type(L:DS))	
<a href="#">DynamicRange</a>		(cls(L:CL),rxDynamicRange(UN6.2),saturationLevel(SN6.2),signalToNoise(UN6.2))	
<a href="#">EffDate</a>	(D)	(cls(L:CL))	
<a href="#">EffDate</a>	(DT)	(cls(L:CL))	
<a href="#">EffectOnPerformance</a>	(S)	(cls(L:CL))	
<a href="#">EIRP</a>		(cls(L:CL),minEIRP(SN6.2),maxEIRP(SN6.2))	
<a href="#">Elevation</a>		(cls(L:CL),+minElev(SN4.2 [-90..90]),maxElev(SN4.2 [-90..90]))	
<a href="#">ELNOT</a>	(USA)	(S)	(cls(L:CL))
<a href="#">Email</a>		(S60)	(cls(L:CL),system(S20),emailCls(L:CL),+emailType(L:TE))
<a href="#">Emergency</a>		(S1+P)	(cls(L:CL))
<a href="#">EmsDesignator</a>		(cls(L:CL),+emsClass(S5+P),+bandwidth(S4+P))	
<a href="#">EmsMaskSpec</a>	(USA)	(cls(L:CL),xLow(S20),xLowOp(L:OP),xVariable(S10),xHighOp(L:OP),xHigh(S20),yVariable(S10),severity(S7))	
<a href="#">EmsMaskStd</a>	(USA)	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D),curveType(L:CT))	
<a href="#">EmsMaskStdRef</a>	(USA)	(cls(L:CL),+serial(S28+P))	
<a href="#">EmsPowerLimit</a>		(cls(L:CL),dutyCycle(UN4.1),powerRefDist(UI5))	
<a href="#">EmsSpec</a>		(cls(L:CL),requiredMod(S4),authBW(UN16.6),chnlSpacing(UN16.6),duplexSeparation(UN16.6),tolerance(UN16.6),intermodAttenuation(UN5.2),txAttackTime(UN9.5),txReleaseTime(UN9.5))	
<a href="#">EmsSpurious</a>		(cls(L:CL),mode(S24),type(S24),level(SN5.2))	
<a href="#">EmsStd</a>		(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))	
<a href="#">EmsStdRef</a>		(cls(L:CL),+serial(S28+P))	
<a href="#">Entry</a>		(cls(L:CL),word(S60))	
<a href="#">EqFnct</a>	(USA)	(S50)	(cls(L:CL))
<a href="#">Expire</a>		(S2+P)	(cls(L:CL))
<a href="#">Expire</a>		(D)	(cls(L:CL))
<a href="#">ExternalSys</a>		(DT)	(cls(L:CL))
<a href="#">ExtRef</a>		(cls(L:CL),+type(L:CR),+name(S50))	
<a href="#">ExtReference</a>		(cls(L:CL),+serial(S28+P))	
<a href="#">FEAntenna</a>		(refCls(L:CL),+type(L:RE),date(D),author(S30),org(S30),num(S50),title(S200))	
<a href="#">FEDeployment</a>		(cls(L:CL),+serial(S28+P))	
<a href="#">FERef</a>		(type(S2+P))	
<a href="#">FETxRx</a>		(cls(L:CL),+serial(S28+P))	
<a href="#">Filter</a>		(cls(L:CL),+serial(S28+P))	
<a href="#">FM</a>	(S)	(cls(L:CL))	
<a href="#">FnctID</a>		(cls(L:CL),peakFreqDev(UN16.6),RMSFreqDev(UN16.6),deviationCode(L:FM),peakIdx(UN5.3))	
<a href="#">ForceElement</a>		(cls(L:CL),+major(S30+P),intermediate(S30+P))	
<a href="#">Freq</a>		(type(S3+P),+country(L:AO),name(S100),+FEType(S1+P),+cat(S1+P),comp(S3+P),missionCode(L:MC),cmdLevel(L:LC),opsCountry(L:AO),role(L:SR),platform(L:ET))	
<a href="#">FreqBand</a>		(cls(L:CL),status(L:FS))	
<a href="#">FreqHopset</a>		(cls(L:CL),useIndicator(S4+P),sharedUse(L:BO))	
<a href="#">FreqOld</a>		(cls(L:CL),numFreqs(UI4),freqBlocking(L:BO),hopChnlInterleave(UI6))	
<a href="#">FreqRange</a>		(cls(L:CL),+minFreq(UN16.6),+maxFreq(UN16.6))	
<a href="#">FreqSep</a>	(UN16.6)	(cls(L:CL),+type(L:DS))	
<a href="#">FreqSingle</a>	(UN16.6)	(cls(L:CL),refFreq(UN16.6))	
<a href="#">FreqTolerance</a>	(UN16.6)	(cls(L:CL))	
<a href="#">FSCM</a>	(USA)	(S5+P)	(cls(L:CL))
<a href="#">Gain</a>		(cls(L:CL),+minGain(SN5.2),maxGain(SN5.2),frontToBackRatio(UN5.2))	
<a href="#">Group</a>		(cls(L:CL),layer(S20),num(UI3),name(S30))	
<a href="#">GuardRequirements</a>		(cls(L:CL),+serial(S28+P))	
<a href="#">Handling</a>	(S1+P)	(cls(L:CL))	
<a href="#">HelpRequired</a>	(S1+P)	(cls(L:CL))	

<u>HopRate</u>		(cls(L:CL),+rate(UN9.3),dwell(UN9.7),bitsPerHop(UI9))
<u>HorzScan</u>		(cls(L:CL),+speed(UN7.2),+rate(UI4),+scanType(L:AS))
<u>HorzSidelobe</u>		(cls(L:CL),suppressed(L:BO),az(UN5.2 [0..360]),value(UN5.2))
<u>HorzVert</u>	(S4)	(cls(L:CL),+horz(UN6.2),+vert(UN6.2))
<u>HostNation</u>		(cls(L:CL))
<u>HostNationConstraints</u>		(cls(L:CL))
<u>HostNominate</u>		(cls(L:CL),+authority(L:HN))
<u>IFreq</u>		(cls(L:CL),+IFNum(L:IF),+tuning(L:LO))
<u>InfoTo</u>		(cls(L:CL),toContact(S28+P),toRole(S28+P))
<u>Installation</u>	(S40)	(cls(L:CL))
<u>IntfFEDeploymentRef</u>		(cls(L:CL),+type(S1+P),+serial(S28+P))
<u>IntfMitigation</u>		(+responseType(S1+P),evaluation(S3+P),+mod(S1+P))
<u>IntfReport</u>		()
<u>IntfReportRef</u>		(cls(L:CL),+serial(S28+P))
<u>IntfVictim</u>		(cls(L:CL))
<u>ITUREgistration</u>		(cls(L:CL),+code(L:IR),+date(D),+num(S10+P))
<u>JRFL</u>		()
<u>JRFLEntry</u>		(cls(L:CL),+protCode(L:PC),priority(S2+P),+justification(S255),+status(S3+P),+IDSF(L:BO))
<u>JRFLRef</u>		(cls(L:CL),+serial(S28+P))
<u>JSIR</u>		(cls(L:CL),+reported(S3+P))
<u>LegacyNum</u>	(USA)	(cls(L:CL),controlNum(S15),docketNum(S8),serialNum(S12))
<u>Link</u>		(cls(L:CL),+name(S24))
<u>Location</u>		(+name(S100),ITU(L:IT))
<u>LocationRef</u>		(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<u>LocationSet</u>		(+name(S100))
<u>ManagementStrategy</u>	(S)	(cls(L:CL))
<u>Manufacturer</u>		(cls(L:CL),country(L:AO),+code(L:MA))
<u>Mission</u>	(S)	(cls(L:CL))
<u>MissionPriority</u>	(S20)	(cls(L:CL))
<u>ModDetails</u>	(S)	(cls(L:CL))
<u>Mode</u>		(cls(L:CL),descr(S100))
<u>Modulation</u>		(cls(L:CL),devRatio(UN6.1),digitalMod(L:MO),maxBitRate(UI10),numBsbChnl(UI5))
<u>MsgCls</u>	(S+P)	(L:CL)
<u>NarrowBandPlanning</u>	(USA)	(cls(L:CL))
<u>NavAids</u>	(UN16.6)	(cls(L:CL),+chnl(S4+P))
<u>Net</u>		(cls(L:CL),lineNum(UI4),+name(S100),protCode(S1+P),restoral(S3),pushNum(S3))
<u>NetExpander</u>		(cls(L:CL),+function(S30+P),+expander(S1+P))
<u>NetNum</u>	(S+P)	(cls(L:CL),status(L:FS))
<u>NetRef</u>		(cls(L:CL),+serial(S28+P),callSignGroup(S20),callWordGroup(S20),extractGroup(S20),freqGroup(S20),freqSepGroup(S20))
<u>NetSuffix</u>		(cls(L:CL),+function(S30+P),num(UI2),+suffix(UI2))
<u>Nomenclature</u>	(S100)	(cls(L:CL),+type(S3+P),+level(L:NU))
<u>NomenclatureName</u>		(cls(L:CL))
<u>Note</u>	(S)	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))
<u>NoteRef</u>	(S)	(cls(L:CL),+serial(S28+P))
<u>NumUnits</u>		(cls(L:CL),numCosited(UI5),+numArea(UI5))
<u>OccupiedBw</u>		(cls(L:CL),+minBw(UN16.6),maxBw(UN16.6))
<u>OpClearance</u>		(+status(L:HD))
<u>OpClearanceRequest</u>		()
<u>OpClearanceRequestRe</u>		(cls(L:CL),+serial(S28+P))
<u>Organisation</u>		(cls(L:CL),+serial(S28+P),type(S3+P),entry(D),lastMod(DT),+country(L:AO),+orgCode(S4+P),name(S100))
<u>OrganisationRef</u>		(cls(L:CL),+serial(S28+P))
<u>OtherActivities</u>	(S)	(cls(L:CL))
<u>OutputDevice</u>	(S40)	(cls(L:CL),+type(L:OT))
<u>PairedFreq</u>	(S24)	(cls(L:CL),+freq(UN16.6),+serial(S28+P))
<u>Password</u>		(cls(L:CL),+sign(S20),+countersign(S20),+runningCW(S20))
<u>PhasedArray</u>		(cls(L:CL),numMainBeams(UI3),numElements(UI5))
<u>Point</u>		(cls(L:CL),idx(UI4),+lon(S8+P),+lat(S7+P),elev(SI5))
<u>Pointing</u>		(cls(L:CL),coverage(L:CO))
<u>Pol</u>		(cls(L:CL),+type(L:PO),angle(UN5.2 [0..360]))
<u>PostDetectionFreq</u>		(cls(L:CL),+minFreq(UN16.6),maxFreq(UN16.6))
<u>Power</u>		(cls(L:CL),+minPower(SN6.2),maxPower(SN6.2),powerType(L:PT),+calc(L:BO))
<u>PowerLimit</u>		(cls(L:CL),limit(SN5.2),type(L:PT),criteria(L:OP))
<u>PPM</u>		(cls(L:CL),minPPS(UN9.3),maxPPS(UN9.3))
<u>PreselectionType</u>	(S60)	(cls(L:CL))

<a href="#">ProcessGain</a>	(SN6.2)	(cls(L:CL))
<a href="#">Project</a>	(S)	(cls(L:CL),+type(S1+P),+name(S30))
<a href="#">Pulse</a>		(cls(L:CL),minPRR(UN9.3),maxPRR(UN9.3),minPD(UN9.3),maxPD(UN9.3))
<a href="#">PulseAvgCycle</a>		(cls(L:CL),minDutyCycle(UN4.1),maxDutyCycle(UN4.1),minAvgPower(SN6.2),maxAvgPower(SN6.2))
<a href="#">PulseComp</a>		(cls(L:CL),+minPlsCompRatio(UN8.4),maxPlsCompRatio(UN8.4),plsCompMethod(S40))
<a href="#">PulseForm</a>		(cls(L:CL),minRiseTime(UN8.6),maxRiseTime(UN8.6),minFallTime(UN8.6),maxFallTime(UN8.6))
<a href="#">Quantity</a>	(S)	(cls(L:CL),authorized(UI5),available(UI5))
<a href="#">QuickInstruction</a>		(cls(L:CL))
<a href="#">Reason</a>	(S)	(cls(L:CL))
<a href="#">ReceivedLevel</a>	(S)	(cls(L:CL),signalLevel(SN5.2),fieldStrength(UN6.1))
<a href="#">Receiver</a>		(cls(L:CL),type(L:RT))
<a href="#">Rejected</a>	(S)	(cls(L:CL))
<a href="#">RelatedOrg</a>		(cls(L:CL),+type(S3+P),+relation(S1+P),+serial(S28+P))
<a href="#">ReleasableTo</a>	(S4)	(cls(L:CL))
<a href="#">Remarks</a>	(S)	(cls(L:CL),xpath(S255))
<a href="#">Requirement</a>	(S)	(cls(L:CL))
<a href="#">Responsibilities</a>		(cls(L:CL),+level(S4+P))
<a href="#">Response</a>		(cls(L:CL),+serial(S28+P))
<a href="#">ResponseDate</a>	(D)	(cls(L:CL))
<a href="#">Review</a>	(DT)	(cls(L:CL))
<a href="#">Role</a>		(cls(L:CL),+serial(S28+P),+entry(D),lastMod(DT),+name(S50))
<a href="#">Rotation</a>		(cls(L:CL),+code(L:BO),minRate(UN7.2),maxRate(UN7.2))
<a href="#">Route</a>		(+type(L:RC),+name(S100))
<a href="#">RouteRef</a>		(cls(L:CL),+serial(S28+P))
<a href="#">RxMode</a>		(cls(L:CL),descr(S100),+rxMode(S40+P))
<a href="#">RxSpec</a>	(USA)	(cls(L:CL),sensitivity(SN5.2),sensitivityType(S24),selectivity(UN5.2),selectivityOffset(UN16.6),tolerance(UN12.6),intermodRejection(UN4.1))
<a href="#">RxSpurious</a>	(USA)	(cls(L:CL),rejection(UN5.2),separation(S24),radiationLimit(UN8.5),radiationType(S24))
<a href="#">RxStation</a>		(cls(L:CL),configRef(S24),+stationRef(S100))
<a href="#">RxStd</a>	(USA)	(cls(L:CL),+serial(S28+P),name(S200),+source(L:AO),admin(S100),startDate(D),stopDate(D))
<a href="#">RxStdRef</a>	(USA)	(cls(L:CL),+serial(S28+P))
<a href="#">Scope</a>	(S)	(cls(L:CL))
<a href="#">Sensitivity</a>		(cls(L:CL),level(SN5.2 [-165..-30]),noiseFigure(UN4.1),noiseTemp(UN7.1))
<a href="#">SensitivityCriterion</a>	(SN)	(cls(L:CL),+type(L:SE))
<a href="#">ServiceUse</a>	(S10)	(cls(L:CL),+priority(L:PS))
<a href="#">Share</a>		(cls(L:CL),+type(S8+P),+name(S20),desiredSep(UN16.6),minSep(UN16.6))
<a href="#">ShortTitleInfo</a>	(S)	(cls(L:CL),+shortName(S20),+edition(S2+P))
<a href="#">SignalDescr</a>		()
<a href="#">SignalDescrModeRef</a>		(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<a href="#">SignalDescrRef</a>		(cls(L:CL),+serial(S28+P))
<a href="#">SignalRx</a>		(cls(L:CL))
<a href="#">SignalTuning</a>		(cls(L:CL),tuningStep(UN16.6),tunability(L:TU),numChnl(UI8))
<a href="#">SignalTx</a>		(cls(L:CL))
<a href="#">SSRF</a>		(digest(S+P))
<a href="#">SourceFreqInfo</a>		(cls(L:CL))
<a href="#">SourceLinkRef</a>		(cls(L:CL),+serial(S28+P),+linkName(S24),+txStationRef(S100))
<a href="#">SpreadSpectrum</a>		(cls(L:CL),type(L:SS),gain(SN6.2),pulseFreqDev(UN16.6),infoDataRate(UN10.3),chnlSpacing(UN16.6),directSequenceBw(UN16.6),blockLength(UN12.4),dataBlockSize(UN12.4),codeRate(UN10.3))
<a href="#">SpreadSpectrumPulse</a>		(cls(L:CL),freqDeviationRise(UN16.6),freqDeviationFall(UN16.6),minWidth(UN9.7),maxWidth(UN9.7),chirpRate(UN9.6))
<a href="#">SpreadSpectrumSweep</a>		(cls(L:CL),minTime(UN12.6),maxTime(UN12.6),minFreq(UN16.6),maxFreq(UN16.6))
<a href="#">SrvVolume</a>		(cls(L:CL),+serial(S28+P),radius(UI4),height(UI5))
<a href="#">SSReply</a>		(+status(L:HD))
<a href="#">SSRequest</a>		(+stage(L:SG))
<a href="#">SSRequestRef</a>		(cls(L:CL),+serial(S28+P),+type(S3+P))
<a href="#">Stage</a>		(cls(L:CL),+num(L:SG),startDate(D),targetDate(D),approvalDate(D),terminationDate(D),numTx(UI6),numRx(UI6))
<a href="#">Stage4Srv</a>	(S10)	(cls(L:CL))
<a href="#">Station</a>		(cls(L:CL),+name(S24),callSign(S18))
<a href="#">StationLoc</a>		(cls(L:CL),+serial(S28+P),radius(UI4),cat(L:IE))
<a href="#">Status</a>		(cls(L:CL),+state(L:ST),+dateTime(DT),by(S28+P),byContact(S28+P),byRole(S28+P),fromContact(S28+P),fromRole(S28+P),toContact(S28+P),toRole(S28+P))

<u>StnClass</u>		(S4)	(cls(L:CL))
<u>StockNum</u>	(USA)	(S20+P)	(cls(L:CL),type(L:NS))
<u>SubcarrierFreq</u>		(UN16.6)	(cls(L:CL))
<u>SubcarrierTone</u>		(UN16.6)	(cls(L:CL))
<u>Suppression</u>			(cls(L:CL),carrier(UN5.2),sideBand(UN5.2))
<u>Symbol</u>			(cls(L:CL),+type(S5+P),+code(S15+P))
<u>SysLosses</u>		(UN5.2)	(cls(L:CL))
<u>SysOfStation</u>			(cls(L:CL),sysName(S24),+higherLevelSys(S24),lowerLevelSys(S24))
<u>SystemCost</u>	(USA)	(S)	(cls(L:CL),initialCost(S70))
<u>TelephoneFax</u>		(S20+P)	(cls(L:CL),system(S20),countryCode(UI3),+numType(L:TT))
<u>Time</u>			(cls(L:CL),period(L:TI))
<u>TimeFrame</u>			(cls(L:CL),minutes(S40+P),hours(S40+P),daysOfMonth(S40+P),months(S40+P),daysOfWeek(S40+P),years(S40+P),duration(UI4))
<u>TimeHop</u>			(cls(L:CL),numSlots(UI5),numPulsesPerDwell(UI12),hopGateLength(UN8.2))
<u>TimePeriod</u>			(cls(L:CL),+period(UI2))
<u>Title</u>	(S100)		(lang(S2),cls(L:CL))
<u>TOA</u>			()
<u>Transmitter</u>			(cls(L:CL))
<u>TSDF</u>	(S)		(cls(L:CL),value(S6+P))
<u>TSPR</u>	(USA)	(S)	(cls(L:CL))
<u>Tuning</u>			(cls(L:CL),+tuningStep(UN16.6),+numFreqs(UI4),priority(UI1),exclusive(L:BO))
<u>TxMode</u>			(cls(L:CL),descr(S100),+txMode(S40+P),numSideTones(UI5),numSubCarriers(UI5))
<u>TxRx</u>			(eqpType(L:AU))
<u>TxRxMode</u>			(cls(L:CL),descr(S100),+modeName(S40+P))
<u>TxRxModeRef</u>			(cls(L:CL),+serial(S28+P),modeName(S40+P),txMode(S40+P),rxMode(S40+P))
<u>TxRxStation</u>			(cls(L:CL),+configRef(S24),+stationRef(S100))
<u>TxStation</u>			(cls(L:CL),+configRef(S24),+stationRef(S100))
<u>URI</u>	(S255)		(cls(L:CL))
<u>UserCode</u>	(S6)		(cls(L:CL))
<u>VertScan</u>			(cls(L:CL),+speed(UN7.2),+rate(UI4),+scanType(L:AS))
<u>VertSidelobe</u>			(cls(L:CL),elev(SN4.2 [-90..90]),value(UN5.2))
<u>VictimLinkRef</u>			(cls(L:CL),+serial(S28+P),+linkName(S24),txStationRef(S100),rxStationRef(S100))
<u>WayPoint</u>			(cls(L:CL),+idx(UI2),+lon(S8+P),+lat(S7+P),alt(SN7.2))
<u>WillReplace</u>	(S)		(cls(L:CL),retireDate(D))
<u>XAxis</u>	(USA)		(cls(L:CL),minAxis(SN5.2),maxAxis(SN5.2),units(S7))
<u>YAxis</u>	(USA)		(cls(L:CL),minAxis(SN5.2),maxAxis(SN5.2),units(S7))

## S. State Diagrams for Status Tracking

### 1. Applicability

The state diagrams presented below are not a mandatory feature of the SSRF standard, because any nation may have slightly differing internal business processes; however, they represent “best practises” when the exchange crosses between different nations.

### 2. General approach

#### 2.1 Edit Authority – Recall process

The fundamental concept for a successful SSRF implementation is the Edit Authority. Only one user may have Edit Authority on a dataset at each point in time during the lifetime of the dataset.

Once the dataset has been FORWARDED to another system (e.g. for assignment) the originator should lose the edit authority on this dataset (in order to avoid that different users make concurrent changes on copies of the dataset).

In case the dataset is incorrect or needs to be modified (e.g. a change in assignment parameters), the originator may recall its dataset using a RequestReject message. In this case the user currently having the edit authority on the dataset should send it back to the originator, giving back edit authority on the latest version of the dataset. The originator may then modify and resend the corrected dataset or delete the dataset if it has become obsolete.

### 3. States and transitions

States are grouped into two categories:

- States where the dataset remains local to a user. These states have an attribute “by”.
- States triggering a data exchange. These states have two attributes: “from” and “to”. A data exchange will in most cases carry the Edit Authority out from the sender and give it to the recipient, who must therefore be unique. In the cases where the dataset is sent for info, the sender keeps the Edit Authority, which means that the recipients, who may be multiple, must accept the dataset “as is” and can do nothing with it except store it and further send it for info only.

### 4. Status Log

The states shown in the various diagrams represent the status of a dataset at some point during its lifetime. Each new state / status is appended to the dataset by adding a new element <Status>. Each state has a mandatory “timestamp” indicating at which date/time the entry into this state occurred. It may also have an optional “comment” attached to it.

So the status log may show lines such as:

```
<Status stat="MODIFIED" by="USA:AF:CN:123" dateTime="2008-01-01T14:30:00Z"/>
<Status stat="FORWARDED" from="USA:AF:CN:123" to="USA:DOD:CN:456" dateTime="2008-01-01T14:31:00Z"/>
<Status stat="INFO" from="USA:AF:CN:123" dateTime="2008-01-01T14:31:00Z">
    <InfoTo>USA:NA:CN:789</InfoTo>
    <InfoTo>USA:AR:CN:012</InfoTo>
```

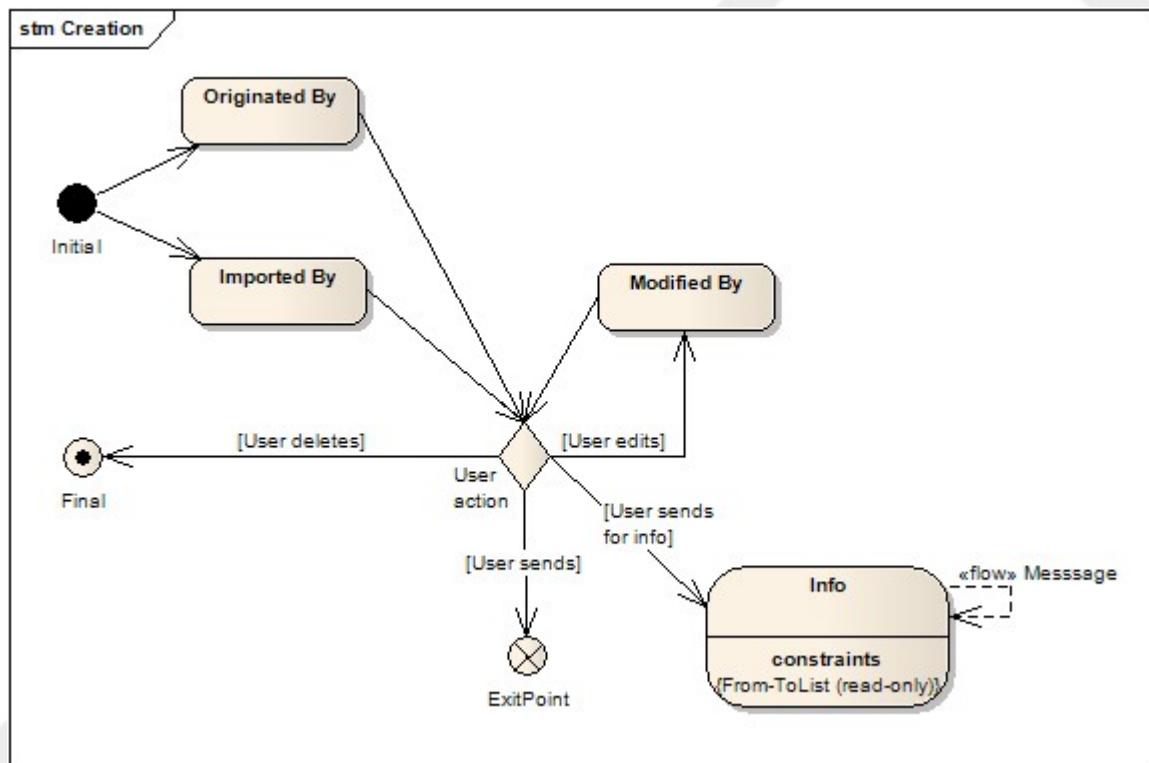
</Status>

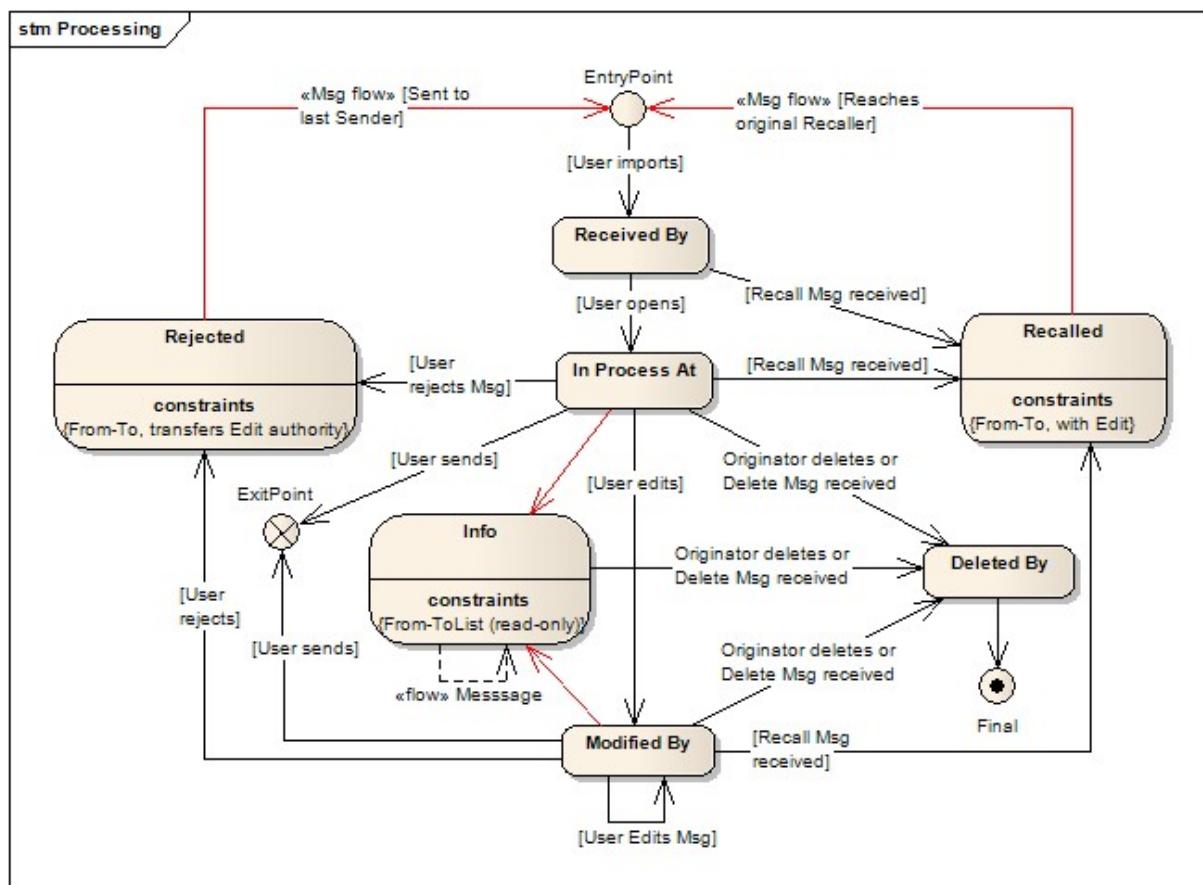
## 5. Diagrams

Some datasets are very specific and have their own state diagram. Other datasets follow a common business process and therefore only one state diagram has been developed.

## 6. Composite States for Creation and Processing

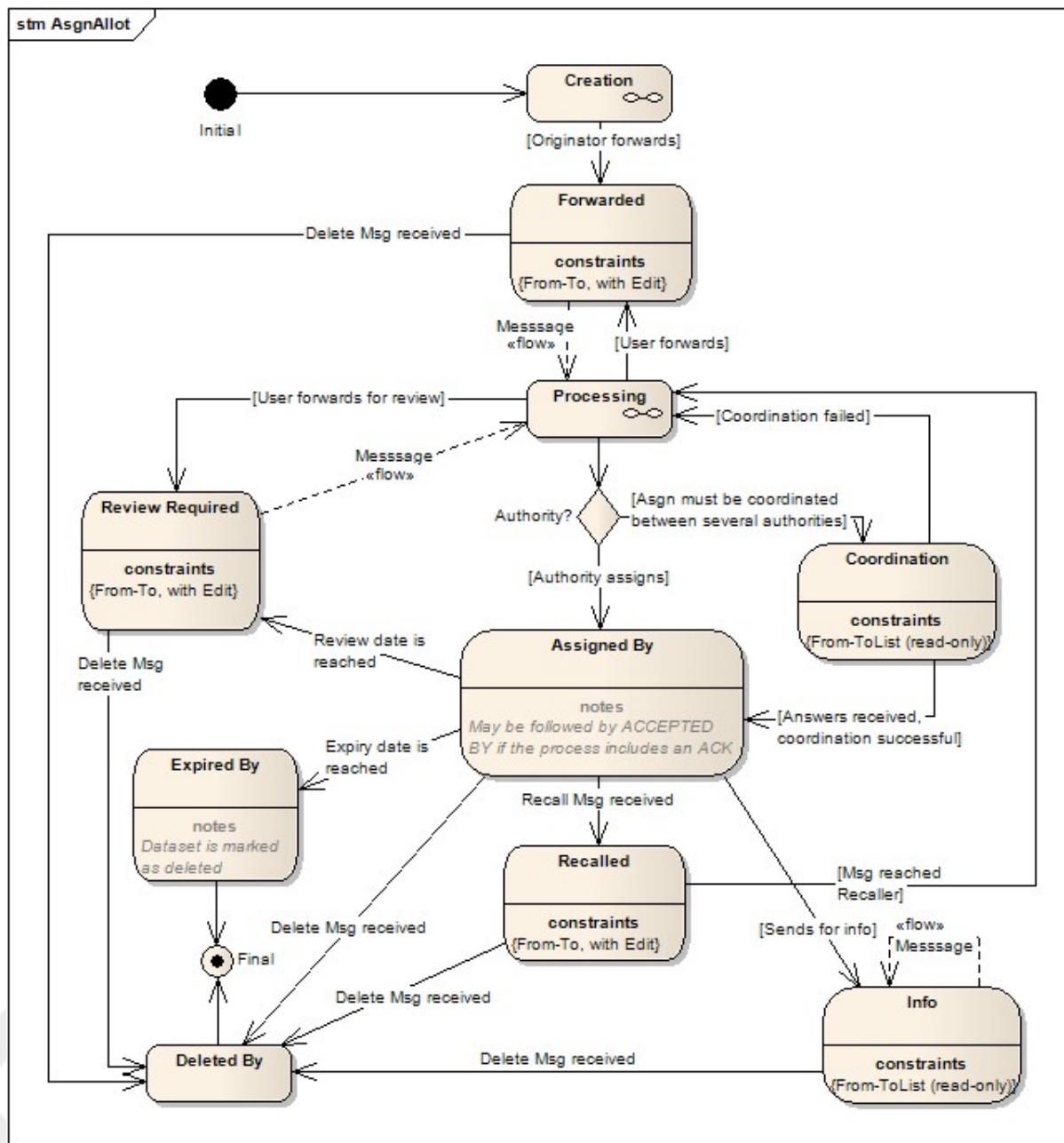
In order to simplify the state diagrams for all the datasets, the creation and processing steps have been developed as two composite states:





Note that the Processing composite state above contains the Rejected, Recalled, Info and Deleted transitions/states. This will decrease the number of transitions necessary in the following diagrams.

## 7. AsgnAllot



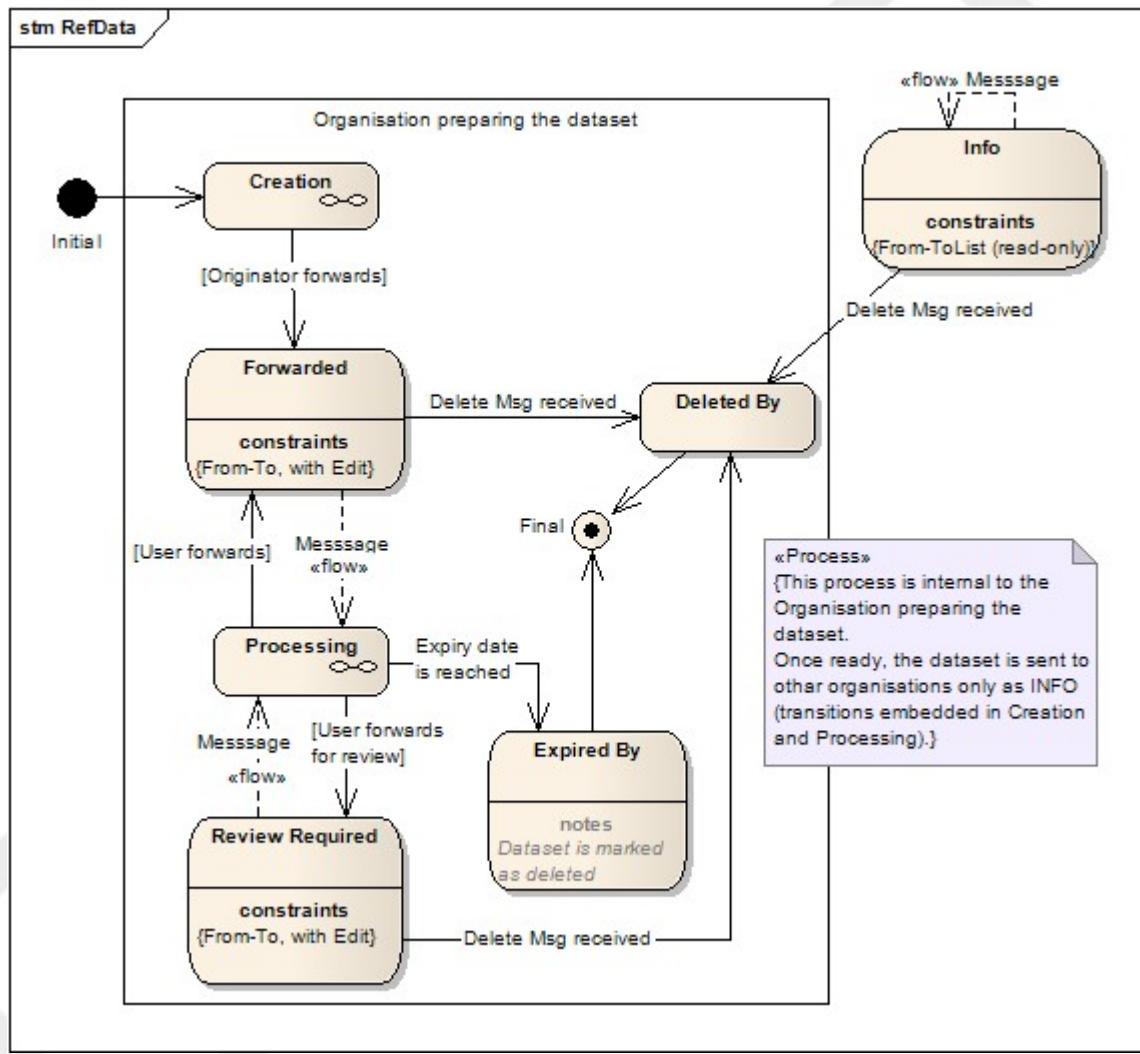
#### Explanations on specific states / transitions:

- The preferred approach is that the assignment authority will keep the edit authority on the finalized dataset.
- Once **ASSIGNED BY** the assignment authority, the AsgnAllot is sent back (now including the assigned frequency(ies)) as **INFO** via the entire chain of command down to the requester.
- If the originator wants later to modify this assignment, he should first send a **Administrative (RECALL)** message to gain edit authority on the dataset (referring to the assignment dataset using the **Dataset** sub-element).
- Some Nations may want the user to acknowledge the receipt of the final assignment message. In this case, the user should send an **Administrative (ACCEPT)** message (referring to the assignment dataset using the **Dataset** sub-element). The assignment dataset may then receive

an additional Status of **ACCEPTED BY**.

## 8. Reference Data

This state diagram covers the following datasets: Txrx, Antenna, Location, LocationSet, Route, Organisation, Contact, TOA, FE, FEDeployment, Dictionary



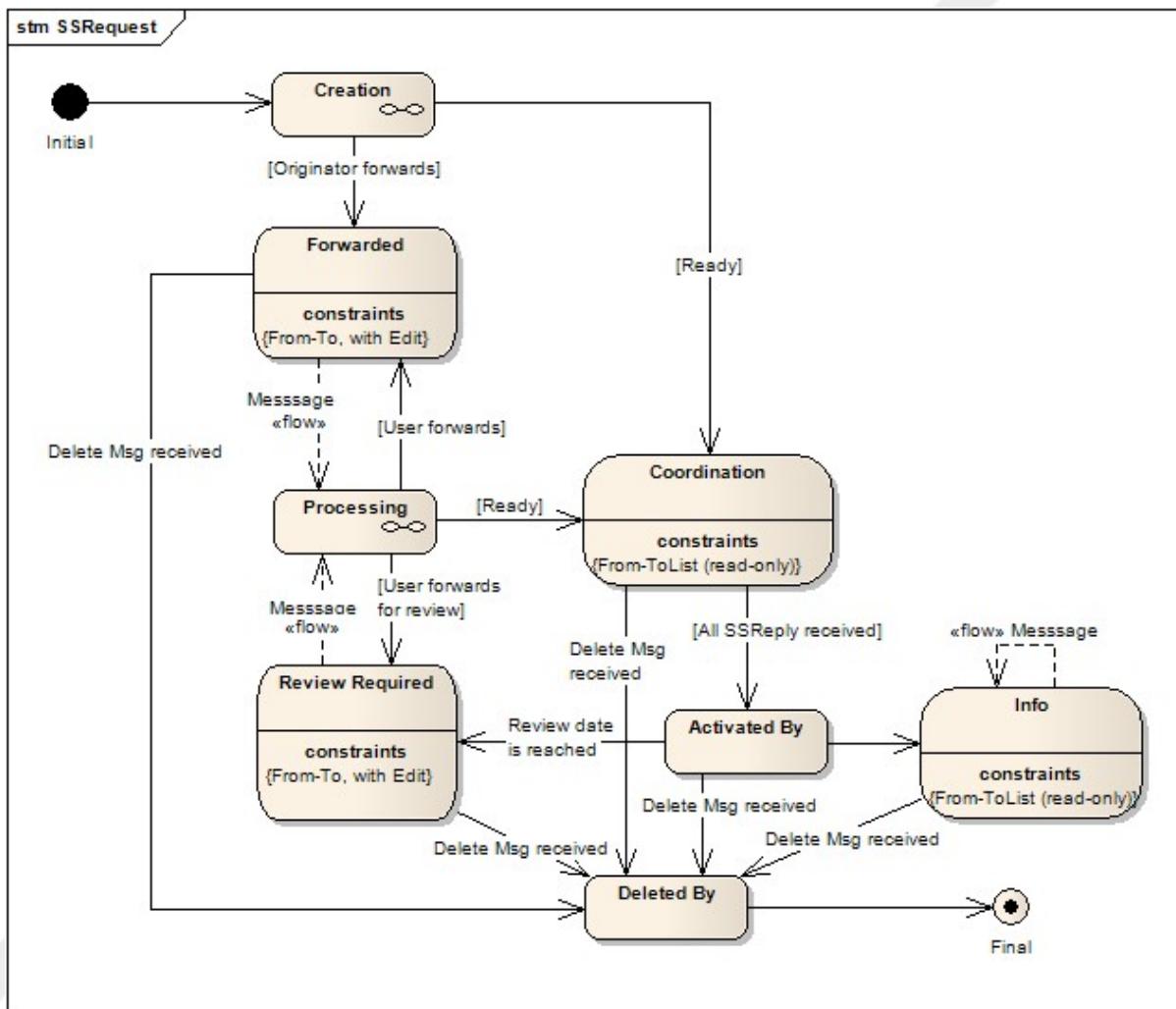
*Explanations on specific states / transitions:*

- The state transitions for reference data are relatively simple. Once a reference dataset has been created (or imported from an external resource) and is ready at the originator level, it can only be **FORWARDED** and **MODIFIED BY** the originating organization.
- When ready, the dataset is sent to other organizations for **INFO**. This causes the dataset to be sent to a remote system without transferring the edit authority. The remote systems receiving the dataset can not do anything with the dataset apart from storing it to a local database.

## 9. Spectrum Supportability

The first state diagram covers SSRequest and OpclearanceRequest. The second diagram covers SSReply and Opclearance.

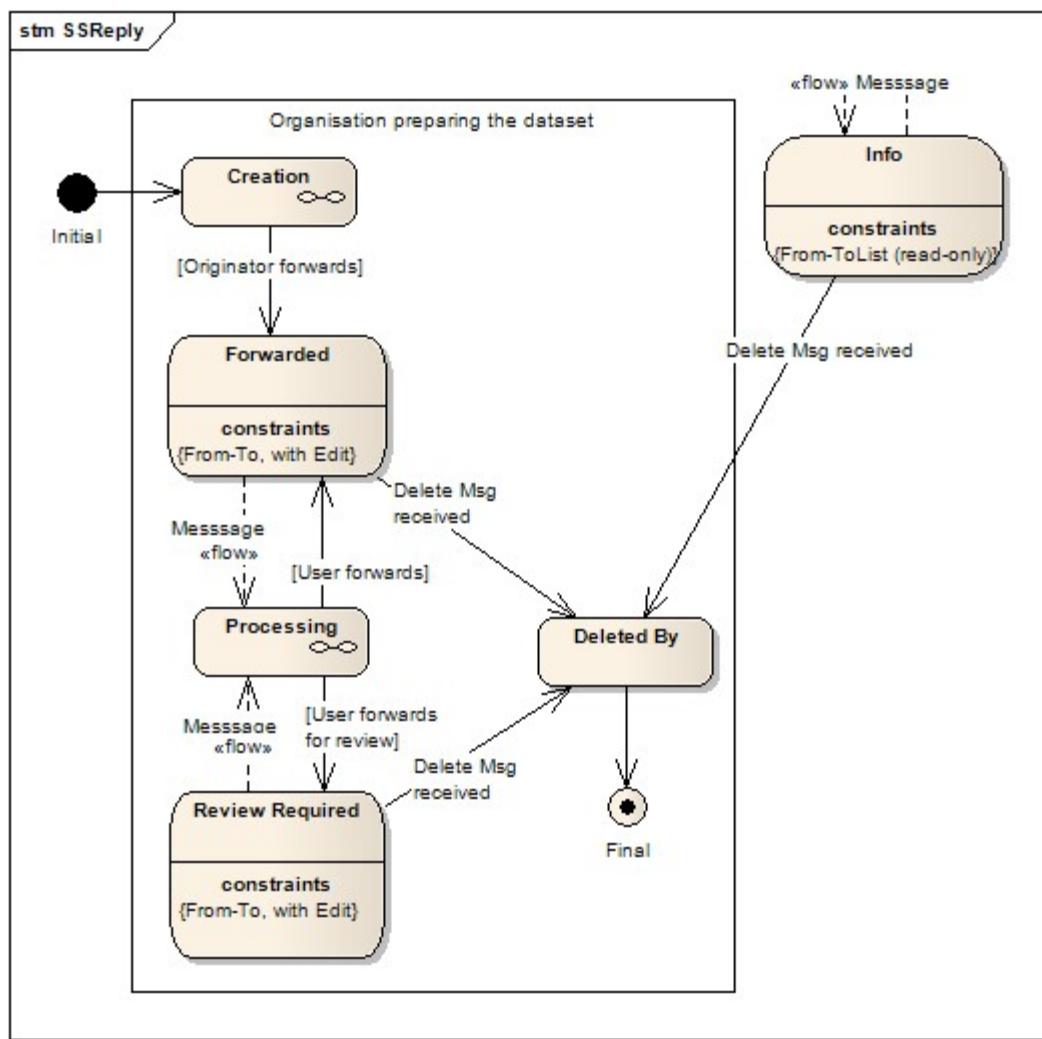
## 9.1 Spectrum Supportability Request



*Explanations on specific states / transitions:*

After the SSRequest has been prepared within an organization (which may or may not include several steps of Forwarding / Processing) and it is ready for external coordination, it is sent as read-only to the list of countries/organizations (**COORDINATION**). When all the replies have been received (see next paragraph), the issuing user (who kept the edit authority on the request) modifies its status to **ACTIVE**.

## 9.2 Spectrum Supportability Reply

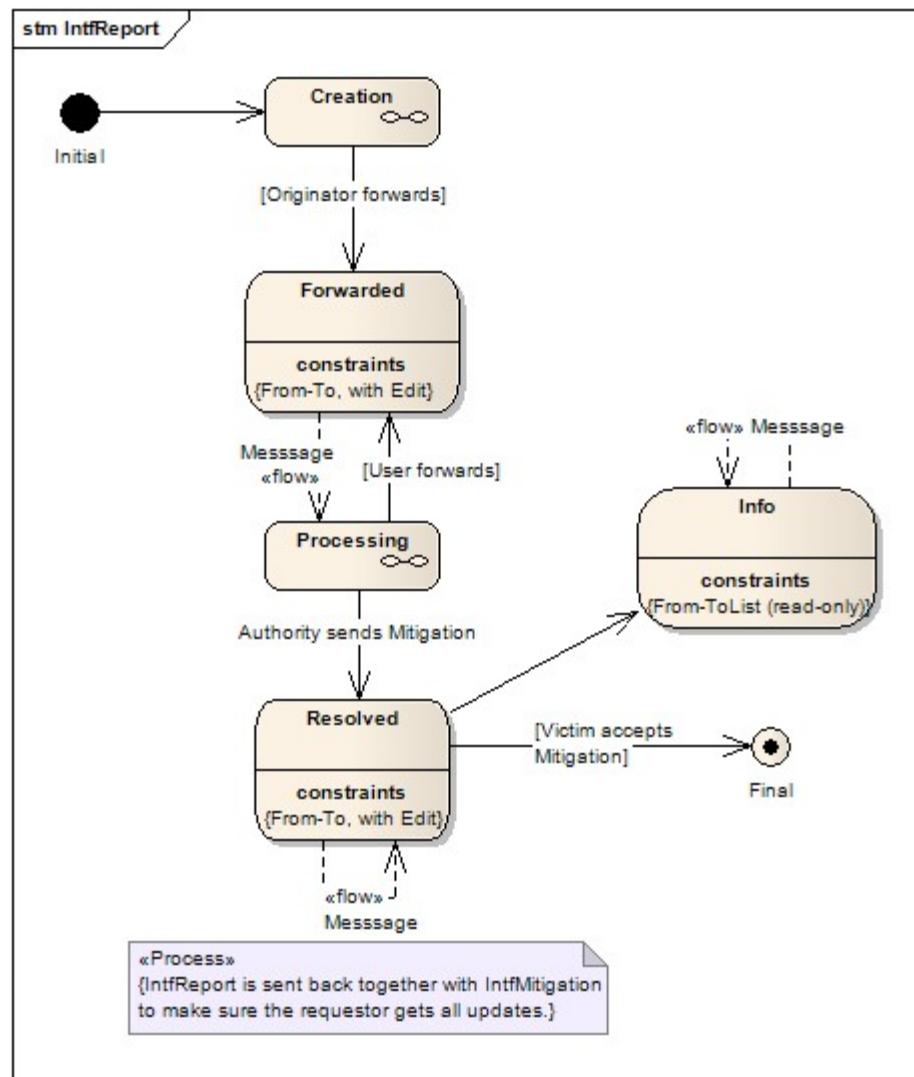


*Explanations on specific states / transitions:*

After the SSReply has been prepared within an organization (which may or may not include several steps of Forwarding / Processing) and it is ready for external publication, it is sent as read-only (**INFO**) to the Supportability requester (the user who initiated the **COORDINATION** in the previous section).

## 10. IntfReport and IntfMitigation

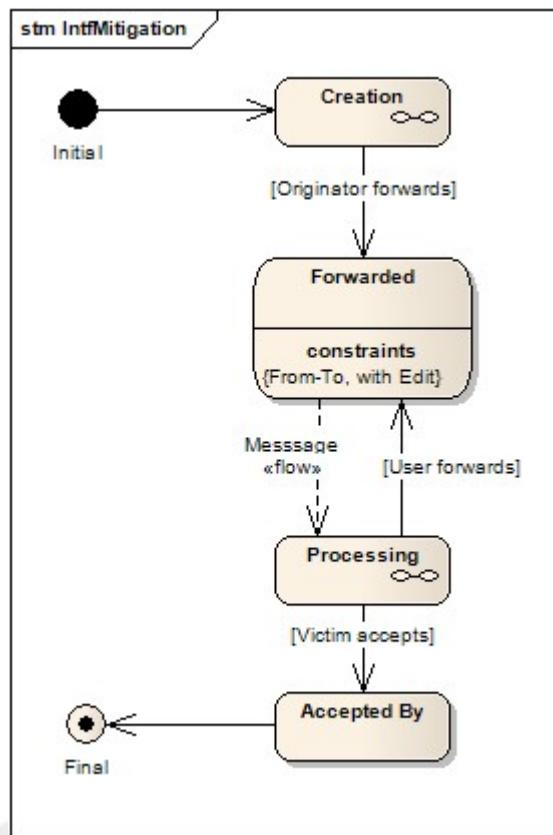
### 10.1 IntfReport



*Explanations on specific states / transitions:*

- Once the Interference Report is forwarded from the Originator through the hierarchy, it may be modified by each echelon. Therefore, to ensure that the requester gets a copy of its modified Report, it should be re-transmitted in the same message as the IntfMitigation dataset with the “**RESOLVED**” status which also transfers the edit authority.
- The Report with “**RESOLVED**” will follow the Mitigation down the chain (from resolver to victim), unless the Mitigation gets **REJECTED** in which case the Report will be sent back (**FORWARDED**) up the chain.

## 10.2 IntfMitigation

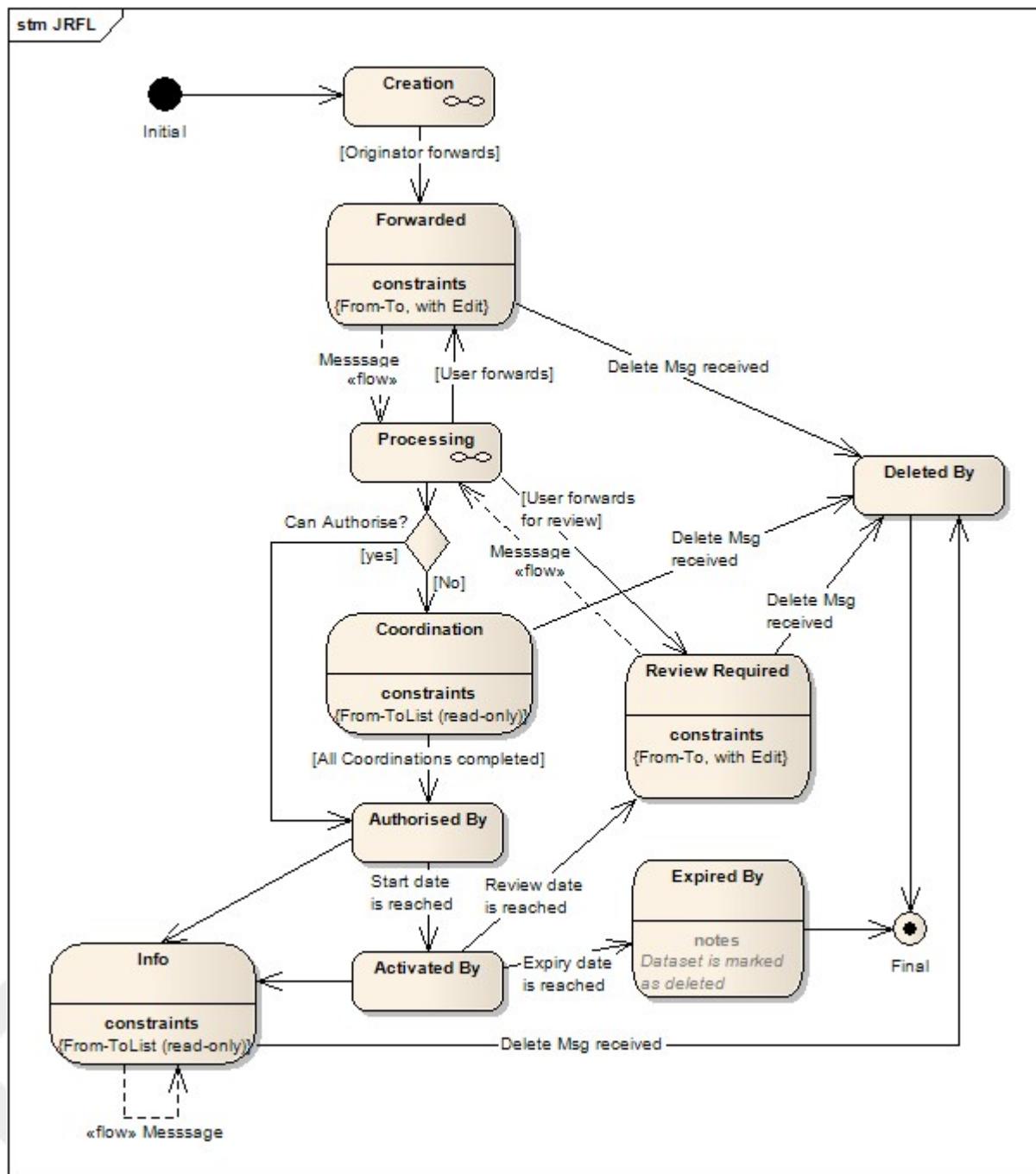


*Explanations on specific states / transitions:*

The Mitigation will be sent together with the Report, to the victim who first issued the Report. If at any level the Mitigation is **REJECTED** (within the Processing composite state), the Report should be sent (**FORWARDED**) back the chain.

## 11. Tactical Data

This state diagram covers the following datasets: JRFL, CEOI, and BSMPlan.



#### *Explanations on specific states / transitions:*

Once the JRFL has been created and reviewed within an organization, it may be directly **AUTHORISED** or first sent to **COORDINATION** with other organizations. A JRFL may be **AUTHORISED** but not yet **ACTIVATED** if it was prepared in advance.

## 12. Summary of Status Code Usage

The numbers in the first row of the table below refer to the section numbers above (4 = AsgnAllot, etc).

	AsgnAllot	Ref. Data	Spect. Support.		Interference		Tactical
	7	8	9.1	9.2	10.1	10.2	11
ACCEPTED BY						X	
ACTIVATED BY			X				X
ADMIN MOD BY	X	X	X	X	X	X	X
ASSIGNED BY	X						
AUTHORISED BY							X
COORDINATION	X		X				X
DELETED BY	X	X	X	X	X	X	X
EXPIRED BY	X	X					X
FORWARDED	X	X	X	X	X	X	X
IMPORTED BY	X	X	X	X	X	X	X
INFO	X	X	X	X	X	X	X
IN-PROCESS AT	X	X	X	X	X	X	X
MODIFIED BY	X	X	X	X	X	X	X
ORIGINATED BY	X	X	X	X	X	X	X
RECALLED	X	X	X	X	X	X	X
RECEIVED BY	X	X	X	X	X	X	X
REJECTED	X	X	X	X	X	X	X
RESOLVED					X		
REVIEW REQUIRED	X	X	X	X			X

## X. XSL Error Codes

This Annex lists all the error codes produced by the SSRF Stylesheet. They are grouped according to the datasets to which they apply. The two first characters of each code indicate the type of dataset and are in most cases similar to the [code list DT](#).

### **Antenna errors:**

- AN001 Angle applies only to Linear type
- AN002 Beamwidth must contain at least one entry in minHorz or in minVert
- AN003 FreqRange must exist under Antenna or under AntMode

### **AsgnAllot errors:**

- AS001 UHFAMS Asgn requires a function code and a resource
- AS002 A User-preassigned Asgn requires one Tuning.FreqSingle in each Link
- AS003 Host Nominations require at least one FreqRange or FreqSingle
- AS004 Min EIRP missing and not a Host Nation Constraint
- AS005 Min EIRP must not be used in a Host Nation Constraint
- AS006 maxEIRP MUST be greater than minEIRP
- AS007 An UHFAMS or VHFAMS Asgn requires a service volume and an altitude in each StationLoc

### **Location errors:**

- LO002 A Point Location may have only one Point
- LO003 A Polygon Location must have at least three Points
- LO004 A polygon must use the idx for each Point
- LO005 Point indices must be in sequence
- LO006 Radius is only allowed around a Point
- LO007 A radius must be used with a Point to form a Circular Service Volume
- LO008 BoundingBall is not allowed for a Point

### **SSRequest / SSReply and OpClearanceRequest / OpClearance errors:**

- SS001 Stage is missing
- SS002 Stage4Srv is missing
- SS003 At least one of the sub-elements MUST be present in this element.
- SS004 If status = "C" elements HostNationConstraints and/or Remarks MUST be used.
- SS005 OpClearance MUST contain an element ContactOrgRef with type="AUTH"
- SS006 If status = "N" or "C", sub-element Remarks MUST be present
- SS007 An OpClearanceRequest must have a Project sub-element

### **TxRx errors:**

- TR001 A digital modulation must contain a DigitalFormat element
- TR002 Element IFreq must appear either in ALL RxMode or in SignalRx/Receiver
- TR003 Element FreqTolerance must appear either in TxRx, or both in Transmitter and Receiver

TR004 Element SignalTuning must appear either in SignalDescr, or both in SignalTx and SignalRx, or in each TxMode and RxMode

TR005 Both SensitivityCriterion and level must be used, or none

TR006 Attribute numSideTones MUST be used if sub-element SubCarrierTone is used

TR007 Attribute numSubcarriers MUST be used if sub-element SubCarrierFreq is used

#### **IntfMitigation errors:**

IT001 An interference mitigation must contain Remarks defining the action taken or the result of the evaluation

#### **BSMPlan errors:**

BS001 BSMPlan MUST have a Project sub-element

BS002 BSMPlan MUST have a ExtRef sub-element referring to the source document

BS003 BSMPlan MUST contain at least two occurrences of ContactOrgRef with type "AUTH" and "SM"

BS004 Each level MUST NOT appear more than once

BS005 An element Responsibilities with level "SELF" MUST appear

#### **CEOI errors:**

CE001 A CEOI must have a Project sub-element

CE002 A CEOI must have a ExtRef sub-element with type="DOCU" referring to the source document

CE003 If type equals FRQGP, FQSGP, or SHRGP then an entry in Group is required

CE004 Entries of type PYRO must use Code List Category PY

CE005 Entries of type PYDEF must use Code List Category PD

CE006 Entries of type SMOKE must use Code List Category SM

CE007 Entries of type SMDEF must use Code List Category SD

CE008 A Share with name = callSignGroup and type="CALLSIGN" must exist

CE009 A Share with name = callWordGroup and type="CALLWORD" must exist

CE010 A Share with name = extractGroup and type="EXTRACT" must exist

CE011 A Share with name = freqGroup and type="FREQ" must exist

CE012 A Share with name = freqSepGroup and type="FREQSEP" must exist

CE013 desiredSep and minSep must only be used if type="FREQSEP"

CE014 desiredSep must be greater than minSep

#### **ForceElement errors:**

FE001 An equipment must indicate the type of platform

#### **JRFL errors:**

JR001 A JRFL MUST have a Project sub-element

JR002 If IDSF = "Y" then protCode MUST = "T"

#### **Other errors (Administrative, General, Identifier):**

AD001 Reason must be present under Response or under each Dataset

AD002 This status code does not allow "from" or "to" but requires "by"

- AD003 This status code does not allow "by" but requires "from" and "to"
- AD004 This status code does not allow "to" but requires sub-element InfoTo
- AD005 Sub-element MessageRef MUST be used if reason is INVMSG
- AD006 Element EffDate MUST be used under AsgnAllot, JRFL, CEOI, BSMPlan, SSReply and OpClearance.
- GE001 Max without a Min
- GE002 Min greater than Max
- GE003 A sub-element has a higher classification than the dataset overallCIs
- GE004 Any Common element MUST contain at least a GATEWAY or an OWNER
- ID001 Invalid dataset type in serial
- ID002 modeName MUST be used if txMode or rxMode is used

## Y. List of Changes

### *Version History*

Ver	Date	Description	Comments
1.2.4	02 Mar 2009	First release. Based on SMADEF-XML v1.2.4 (19 Dec 2008). Includes early implementation of some planned features of SMADEF-XML v2.0.	Approved by SO PWG 08 Jan 2009.
1.2.4b	01 May 2009	Corrected update to previous release.	Approved by SO PWG 07 May 2009

### *Changes from SSRF v1.2.4*

These changes represent corrections and clarifications to assist developers in proper implementation, and to support the migration of legacy data stores to a data model that is compatible with this standard..

Element	Change or Correction	Reference
<a href="#"><u>serial</u></a>	Corrected formatting of dataset identifiers to allow numbers for NATO command codes.	CCB12.SMB-01
<a href="#"><u>RxStd</u></a>	Corrected dataset type for Receiver Types from RR to RX.	CCB12.SMB-04
<a href="#"><u>Tuning</u></a>	Corrected attribute name numFreqs to numFreq for consistency with definition.	CCB12.SMB-05
List NR	Added missing code "VHFAMS" to list of NATO frequency resource types.	CCB12.SMB-07
<a href="#"><u>Sensitivity.level</u></a>	Increased maximum allowable RF equipment sensitivity level from -30 to -10 dBm.	CCB12.SMB-08
<a href="#"><u>SSRequest</u></a>	Corrected typographic error in description of SSRequest that refers to element Location.	CCB12.SMB-09
<a href="#"><u>SSRequest</u></a>	Corrected requirement to specify J/F-12 stage information for an RF equipment to be optional.	CCB12.SMB-10
<a href="#"><u>List AN</u></a>	Changed code list for ReleasableTo to include only countries. Removed geographic areas like islands and continents.	CCB12.SMB-11
<a href="#"><u>List FN</u></a>	Added numeric codes to Function Code list for easier software implementation.	CCB12.SMB-12
<a href="#"><u>HostNominate</u></a>	Removed Frequency data from Host Nation nomination acceptability information to avoid confusion with actual requested frequency data under Link.	CCB12.SMB-15
<a href="#"><u>TelephoneFax</u></a>	Corrected format of telephone number data to allow leading zeros in both the country code and the phone number itself.	CCB12.SMB-16
<a href="#"><u>Manufacturer.code</u></a>	Corrected format of manufacturer codes to accept leading zeros.	CCB12.SMB-16
<a href="#"><u>AntMode.code</u></a> ,	Corrected format of antenna mode codes to accept	CCB12.SMB-16

Element	Change or Correction	Reference
<a href="#">AntModeRef.antMode</a>	leading zeros.	
<a href="#">EmsDesignator</a>	Corrected typographic error in specification for emission designator that referred to old (pre-XML) SMADEF item number.	CCB12.SMB-18
<a href="#">Annex Z</a>	Updated list of references to include latest (5th) edition of W3C XML Recommendation.	CCB12.SMB-22
<a href="#">Example E-2</a>	Corrected copy/paste errors in example assignment simplex operation.	CCB12.SWE018
<a href="#">Link</a>	Corrected validation rule for link frequency information to support possibility of disapproval of requested frequency.	CCB12.SWE019
<a href="#">SysOfStation</a>	Corrected attribute titles for consistency in system name specification.	CCB12.SWE024
<a href="#">CurvePoint</a>	Added text to curve point specification to clarify that frequency offset can be positive or negative.	CCB12.SWE026
<a href="#">CurvePoint</a>	Corrected CurvePoint level to include range restrictions (.level).	CCB12.SWE026
<a href="#">Beamwidth</a>	Corrected possible range of antenna beamwidth from +/- 90 degrees to 180 degrees. Also corrected example code for consistency.	CCB12.SWE029
<a href="#">RelatedOrg</a>	Corrected text in description of related organization data to indicate that data is optional within organization records.	CCB12.SWE029
<a href="#">Body</a>	Corrected list of top level datasets to include Role.	CCB12.USA-001
<a href="#">MsgCls</a>	Corrected message classification to indicate that it is required, not optional.	CCB12.USA-008
<a href="#">Annex L</a>	Corrected alphabetical list of elements to include Mode and MsgCls.	CCB12.USA-015
List AP	Added code for "Unknown" to list of antenna patterns.	CCB12.USA-020
<a href="#">OutputDevice</a>	Changed requirement to enter the name/nomenclature of transmitter output device from mandatory to optional and still allow entry of device type data.	CCB12.USA-021
<a href="#">Pulse</a>	Increased maximum allowable radar pulse rates to account current technology.	CCB12.USA-026
<a href="#">List SC</a>	Added code for "Unknown" to list of station classes to be used only to support migration of legacy data.	CCB12.USA-030
<a href="#">EmsDesignator</a>	Added code for "Unknown" as an option for the 1st, 2nd, and 3rd positions of emission designators to be used only to support migration of legacy data.	CCB12.USA-031
<a href="#">AuthorisedBw</a>	Added note to authorized bandwidth specification to clarify that a bandwidth of zero is used only to represent an unknown bandwidth and may be used only to support	CCB12.USA-031

Element	Change or Correction	Reference
	migration of legacy data.	
<a href="#">Power</a>	Added note to power specification to clarify that a value of -9999.99 dBW represents "Unknown" and may be used only to support migration of legacy data.	CCB12.USA-032
<a href="#">Point</a>	Added note to lat/long specification for a geographic point to clarify that an "X" may be used to represent "Unknown" but only to support migration of legacy data in records that will not be exchanged internationally.	CCB12.USA-033
<a href="#">Gain</a>	Added note to gain specification to clarify that a value of -999.99 dB may be used as the minimum gain to represent "Unknown" but only to support migration of legacy data.	CCB12.USA-034
<a href="#">List EF</a> , <a href="#">EqFnct</a>	Updated equipment function code list to include jammers.	CCB12.USA-042
<a href="#">Antenna</a> , <a href="#">List AD</a>	Added code to antenna motion type/directionality to represent "Unknown".	CCB12.USA-043
<a href="#">List AT</a>	Corrected spelling errors and expanded abbreviations in list of antenna types.	CCB12.USA-057
<a href="#">Common</a>	Corrected the list of elements which share a common base data structure (added Dictionary, IntfMitigation, and ForceElement).	CCB12.USA-058
<a href="#">TxRxStation</a> , <a href="#">TxStation</a> , <a href="#">RxStation</a>	Added validation rule to station information sets to clarify that station names must be unique within an assignment.	CCB12.USA-059
<a href="#">TxRxStation</a>	Removed erroneous validation rule from station specification that applies to link data.	CCB12.USA-060
<a href="#">List TO</a> , <a href="#">Nomenclature</a>	Added Part Number to list of nomenclature types.	CCB12.USA-075
Volume I, Para 1.3, <a href="#">Configuration Control</a>	Added link to SO PWG KCC on DKO as source of current version of this document.	SO PWG, 07-May-2009
<a href="#">SSRF</a>	Updated XML namespace declaration to reflect current version number (1.2.4.b).	SO PWG, 07-May-2009
Foreword	Added distribution statement.	J65A, 08-May-2009

### Differences from SMADEF-XML v1.2.4b

In order to support the requirements of DoD users, SSRF may implement some features planned for SMADEF-XML earlier than the current version of SMADEF-XML. The features listed below are implemented in SSRF v1.2.4b and planned for SMADEF-XML v2.0.

SDG-11 Serial	Element	Description	Adjudication
USA036	ExtReference	Add a node that allows the attachment to either specify a "FileName" or a "URI" and	See SB proposal in AC/322(SC/3-WG/3)W

SDG-11 Serial	Element	Description	Adjudication
		remove “URI” from the ExtReference type enumeration. Alternatively, you could add a URI attribute to Attachment, but then the file name can be redundant and confusing. The other advantage of having a “URI” element is that it could be expanded in the future with additional attributes of its own such as “authorizationRequired”, “validUntil”, etc	P(2008)0002 for 2.0. No change in 1.2.3.  [SOPWG] Added element <a href="#">URI</a> .
USA056	DetectedIntf	For the element DetectedIntf (choice between SourceLinkRef 1..1] and SourceFreqInfo 1..n]), should be DetectedIntf (choice between SourceLinkRef 0..n] or SourceFreqInfo 0..n])	Change SourceFreqInfo to 1..1 since the resolution will be nightmare if several sources are detected (each source could lead to a different mitigation)  [SOPWG] Modified <a href="#">DetectedIntf</a> .
USA057 USA159	IntfVictim	Add ForceElement as a sub element of IntfVictim with occurrences of 0...n]	Add FERef in the choice under ContactOrgRef, so that any Station of an AsgnAllot can be connected to a FE  [SOPWG] Modified <a href="#">ContactOrgRef</a> .  .
USA073	New Requirement	<b>Comment:</b> Need a field to identify compartments for SCI records <b>Recommendation:</b> 1. Create a Common Element called ‘Compartment’. This element should contain two uppercase characters and allow for multiple entries. This element should be mandatory if Releasability Code ‘L’ is used, otherwise it should be optional. 2. Create two new elements (COMPARTMENT and RELEASABILITY) with an attribute called caveat. Both elements will be multiple occurring and have a sibling relationship. 3. Create a new element called COMPARTMENTREF with two attributes (caveats and releasability) having multiple occurrences and being used as reference data. <b>Rationale:</b> The releasability Code ‘L’ identifies a record as SCI, but does not identify the compartment(s) as required by DOD security marking policy. This new element would be used exclusively on the JWICS server which allows the processing and storage of SCI records. Need to be able to classify individual and specific lines with	To be drafted USA + SMB (similar to ReleasableTo, with XPath attribute)  [SOPWG] 1. Added element <a href="#">Compartment</a> under <a href="#">Common</a> with attribute <b>xpath</b> . 2. Modified elements <a href="#">Handling</a> and <a href="#">ReleasableTo</a> to add attributes <b>xpath</b> . Also added attribute <b>caveat</b> to Handling.  [Note: Handling and ReleasableTo were modified to include xpath in SMADEF-XML v1.2.4b]

SDG-11 Serial	Element	Description	Adjudication
		caveats. This requirement will support the TS SCI world and support future cross domain solutions.	
USA076	New Requirement	Add optional sub-element “Contract” to AsgnAllot and SSRequest to hold contract information related to a frequency assignment (often needed for experimental stations) or contract info associated with a new system. See proposed element below this table.	Agreed – also add child ContactOrgRef  [SOPWG] Added element <a href="#">Contract</a> with sub-element <a href="#">ContactOrgRef</a> .
USA090	Station, Link, and Config	Current setup of Station, Link, and Config does not allow an AsgnAllot dataset to specify multiple possible configurations for a single link. For example, a tactical radio relay link could operate at any of several data rates & bandwidths. There is no way to authorize each possible configuration in a single AsgnAllot without making it appear that these are separate links operating simultaneously. This also applies to cases where the system may change from data to voice mode with different emission designators (e.g.; 10K0F1D to 11K0F3E).	Add elt OtherConfigRef 0..n] under TxStation, RxStation, TxrxStation SMB to draft proposal – SMB + TUR to study impact  [SOPWG] Added element <a href="#">OtherConfigRef</a> .
USA112	Baseband	Add element Curve as a sub-element 0..n] of Baseband and add a sub-element for it of Remarks 0..1†	Agreed, second part taken care under USA070  [SOPWG] Modified element <a href="#">Baseband</a> .
USA129	Contact	For the element Contact change the sub-element relationship for OrganisationRef from 0...1] to 0...n]	Agreed – <del>Delete job from Contact</del>  [SOPWG] Modified element <a href="#">Contact</a> .
USA147	Baseband	For the element Baseband add the attribute Channel Spacing detailed in the redline version. <del>Also add the sub-element Curve 0..n†</del>	Agreed  [SOPWG] Modified element <a href="#">Baseband</a> .
USA149	IFreq	For the element IFreq add the attribute name Mixer Type following the information in the Redline copy	Agreed – Delete the word “first” in the definition  [SOPWG] Modified element <a href="#">IFreq</a> .
USA153	SpreadSpectrumPulse	For the element SpreadSpectrumPulse add the attribute name Chirp Rate following the information in the Redline copy	Agreed  [SOPWG]

SDG-11 Serial	Element	Description	Adjudication
			Modified element <a href="#">SpreadSpectrumPulse</a> .
USA157	VertScan	For the element VertScan add the attribute names Minimum Scan Angle and Maximum Scan Angle following the information in the Redline copy	Agreed – also delete Elevation from VertScan  [SOPWG] Modified element <a href="#">VertScan</a> .
USA166	SpreadSpectrum	SpreadSpectrumPulse should be 0..n] under its parent	Agreed  [SOPWG] Modified element <a href="#">SpreadSpectrum</a> .
USA-JDR0 08	Link	Required sub-elements of Link should provide 3 choices: TxRxStation 1..n], (TxStation 1..1], RxStation 0..n]), RxStation 1..n]. It is possible to have a Link with no Transmitters (listening station)	Agreed as will allow more general usage.  [SOPWG] Added RxStation 1..n] to <a href="#">Link</a> .
USA-JDR0 11	Receiver	Move the attribute Receiver Type from the element Receiver to the element RxMode. This is necessary because in some cases the type of receiver changes per mode. This is especially true for Software Defined Radios (SDR)'s	Agreed as it will provide more flexibility  [SOPWG] Moved attribute <b>type</b> to <a href="#">RxMode</a> .

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