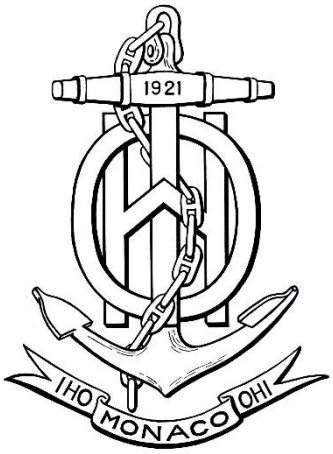
INTERNATIONAL HYDROGRAPHIC ORGANIZATION



MARINE RADIO SERVICES PRODUCT SPECIFICATION

IHO Publication S-123

Appendix C
Feature Catalogue

Edition 1.0.0 – January 2019

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Table of Contents

1 Catalogue header information

Name: Feature Catalogue for S-123
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Field of Application: Marine Navigation
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Contact Instructions: Contact IHO NIPWG Chair
Role: pointOfContact
Classification: unclassified

2 Definition Sources

No definition sources in catalogue

3 Simple Attributes

3.1 Administrative Division

Name: Administrative Division
Definition: Administrative division is a generic term for an administrative region within a country at a level below that of the sovereign state.
Code: 'administrativeDivision'
Remarks:
Aliases: (none)
Value Type: text

3.2 Application profile

Name: Application profile
Definition: name of an application profile that can be used with the online resource (ISO 19115)
Code: 'applicationProfile'
Remarks:
Aliases: (none)
Value Type: text

3.3 Ballast

Name: Ballast
Definition: Whether the vessel is in ballast
Code: 'ballast'
Remarks:
Aliases: (none)
Value Type: boolean

3.4 Call Name

Name: Call Name
Definition: The designated call name of a station, e.g. radio station, radar station, pilot.
Code: 'callName'
Remarks: This is the name used when calling a radio station by radio i.e. "Singapore Pilots".
Aliases: (none)
Value Type: text

3.5 Call sign

Name: Call sign
Definition: The designated call-sign of a radio station.
Code: 'callSign'
Remarks:
Aliases: CALSGN
Value Type: text

3.6 Cardinal direction

Name: Cardinal direction
Definition: Principal and intermediate compass points.
Code: 'cardinalDirection'

Remarks:
Aliases: CARDIR
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'N' Aliases: (none)	north	1	
'NNE' Aliases: (none)	northnortheast	2	
'NE' Aliases: (none)	Northeast	3	
'ENE' Aliases: (none)	eastnortheast	4	
'E' Aliases: (none)	east	5	
'ESE' Aliases: (none)	eastsoutheast	6	
'SE' Aliases: (none)	southeast	7	
'SSE' Aliases: (none)	southsoutheast	8	
'S' Aliases: (none)	south	9	
'SSW' Aliases: (none)	southsouthwest	10	
'SW' Aliases: (none)	southwest	11	
'WSW' Aliases: (none)	westsouthwest	12	
'W' Aliases: (none)	west	13	
'WNW' Aliases: (none)	westnorthwest	14	
'NW' Aliases: (none)	northwest	15	
'NNW' Aliases: (none)	northnorthwest	16	

3.7 Category of authority

Name: Category of authority
Definition: The type of person, government agency or organisation granted powers of managing or controlling access to and/or activity in an area
Code: 'categoryOfAuthority'
Remarks:
Aliases: CATAUT
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'customs' Aliases: (none)	The agency or establishment for collecting duties, tolls. (Merriam-Websters online Dictionary 23rd February 2006, amended).	1	
'border control' Aliases: (none)	The administration to prevent or detect and prosecute violations of rules and regulations at international boundaries (adapted from Merriam-Websters online Dictionary 23rd February 2006).	2	
'police' Aliases: (none)	The department of government, or civil force, charged with maintaining public order. (Adapted from OED)	3	
'port' Aliases: (none)	Person or corporation, owners of, or entrusted with or invested with the power of managing a port. May be called a Harbour Board, Port Trust, Port Commission, Harbour Commission, Marine Department (NP 100 8th Edition 14 Oct 2004)	4	
'immigration' Aliases: (none)	The authority controlling people entering a country.	5	
'health' Aliases: (none)	The authority with responsibility for checking the validity of the health declaration of a vessel and for declaring free pratique.	6	
'coast guard' Aliases: (none)	Organisation keeping watch on shipping and coastal waters according to governmental law; normally the authority with reponsibility for search and rescue.	7	
'agricultural' Aliases: (none)	The authority with responsibility for preventing infection of the agriculture of a country and for the protection of the agricultural interests of a country.	8	
'military' Aliases: (none)	A military authority which provides control of access to or approval for transit through designated areas or airspace.	9	
'private company' Aliases: (none)	A private or publicly owned company or commercial enterprise which exercises control of facilities, for example a callibration area.	10	
'maritime police' Aliases: (none)	A governmental or military force with jurisdiction in territorial waters. Examples could include Gendarmerie Maritime, Carabinierie, and Guardia Civil.	11	
'environmental' Aliases: (none)	An authority with responsibility for the protection of the environment.	12	
'fishery' Aliases: (none)	An authority with responsibility for the control of fisheries.	13	
'finance' Aliases: (none)	an authority with responsibility for the control and movement of money.	14	
'maritime' Aliases: (none)	A national or regional authority charged with administration of maritime affairs.	15	

3.8 Category of broadcast/communication

Name: Category of broadcast/communication
Definition: Classification of broadcast or communications based on public availability and commercial/non-commercial nature.
Code: 'categoryOfBroadcastCommunication'
Remarks:
Aliases: CATBRC
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'commercial'	A service operated with the intention of earning money	1	

Label	Definition	Code	Remarks
Aliases: (none)			
'non-commercial' Aliases: (none)	A service without any financial interest	2	
'public' Aliases: (none)	A service available for the general community	3	
'non-public' Aliases: (none)	A service available for limited and pre-defined customers	4	

3.9 Category of cargo

Name: Category of cargo
Definition: Classification of the different types of cargo that a ship may be carrying
Code: 'categoryOfCargo'
Remarks:
Aliases: CATCGO
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'bulk' Aliases: (none)	Normally dry cargo which is transported to and from the vessel on conveyors or grabs	1	
'container' Aliases: (none)	One of a number of standard sized cargo carrying units, secured using standard corner attachments and bars	2	
'general' Aliases: (none)	Break bulk cargo normally loaded by crane	3	
'category of cargo liquid' Aliases: (none)	Any cargo loaded by pipeline	4	
'passenger' Aliases: (none)	A fee paying traveller	5	
'livestock' Aliases: (none)	Live animals carried in bulk	6	
'dangerous or hazardous' Aliases: (none)	Dangerous or hazardous cargo as described by the IMO International Maritime Dangerous Goods code	7	

3.10 Category of communication preference

Name: Category of communication preference
Definition: Classification of frequencies, VHF channels, telephone numbers, or other means of communication based on preference.
Code: 'categoryOfCommPref'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks

Label	Definition	Code	Remarks
'preferred calling' Aliases: (none)	the first choice channel or frequency to be used when calling a radio station	1	
'alternate calling' Aliases: (none)	a channel or frequency to be used for calling a radio station when the preferred channel or frequency is busy or is suffering from interferenc	2	
'preferred working' Aliases: (none)	the first choice channel or frequency to be used when working with a radio station	3	
'alternate working' Aliases: (none)	a channel or frequency to be used for working with a radio station when the preferred working channel or frequency is busy or is suffering from interference	4	

3.11 Category of dangerous or hazardous cargo

Name: Category of dangerous or hazardous cargo
Definition: Classification of dangerous goods or hazardous materials based on the International Maritime Dangerous Goods Code (IMDG Code)
Code: 'categoryOfDangerousOrHazardousCargo'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'IMDG Code Class 1 Div. 1.1' Aliases: (none)	Explosives, Division 1: substances and articles which have a mass explosion hazard	1	
'IMDG Code Class 1 Div. 1.2' Aliases: (none)	Explosives, Division 2: substances and articles which have a projection hazard but not a mass explosion hazard	2	
'IMDG Code Class 1 Div. 1.3' Aliases: (none)	Explosives, Division 3: substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard	3	
'IMDG Code Class 1 Div. 1.4' Aliases: (none)	Explosives, Division 4: substances and articles which present no significant hazard	4	
'IMDG Code Class 1 Div. 1.5' Aliases: (none)	Explosives, Division 5: very insensitive substances which have a mass explosion hazard	5	
'Class 1: Division 1.6' Aliases: (none)	Explosives, Division 6: extremely insensitive articles which do not have a mass explosion hazard	6	
'IMDG Code Class 2 Div. 2.1' Aliases: (none)	Gases, flammable gases	7	
'IMDG Code Class 2 Div. 2.2' Aliases: (none)	Gases, non-flammable, non-toxic gases	8	
'IMDG Code Class 2 Div. 2.3' Aliases: (none)	Gases, toxic gases	9	

Label	Definition	Code	Remarks
'IMDG Code Class 3' Aliases: (none)	flammable liquids	10	
'IMDG Code Class 4 Div. 4.1' Aliases: (none)	flammable solids, self-reactive substances and desensitized explosives	11	
'IMDG Code Class 4 Div. 4.2' Aliases: (none)	substances liable to spontaneous combustion	12	
'IMDG Code Class 4 Div. 4.3' Aliases: (none)	substances which, in contact with water, emit flammable gases	13	
'IMDG Code Class 5 Div. 5.1' Aliases: (none)	oxidizing substances	14	
'IMDG Code Class 5 Div. 5.2' Aliases: (none)	organic peroxides	15	
'IMDG Code Class 6 Div. 6.1' Aliases: (none)	toxic substances	16	
'IMDG Code Class 6. Div. 6.2' Aliases: (none)	infectious substances	17	
'IMDG Code Class 7' Aliases: (none)	Radioactive material	18	
'IMDG Code Class 8' Aliases: (none)	Corrosive substances	19	
'IMDG Code Class 9' Aliases: (none)	Miscellaneous dangerous substances and articles	20	
'Harmful Substances in packaged form' Aliases: (none)	Harmful substances are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code). Packaged form is defined as the forms of containment specified for harmful substances in the IMDG Code. (MARPOL (73/78) Annex III)	21	

3.12 Category of forecast or warning area

Name: Category of forecast or warning area
Definition: Classification of weather forecast and weather warning areas based on source of warnings and forecasts.
Code: 'categoryOfFrcstAndWarningArea'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'World Meteorological Organization (WMO)'	The forecast and warning area defined by WMO	1	

Label	Definition	Code	Remarks
Aliases: (none)			
'National high seas' Aliases: (none)	The forecast and warning area defined by national authorities covering High Seas	2	
'National offshore' Aliases: (none)	The forecast and warning area defined by national authorities covering offshore waters	3	
'National coastal' Aliases: (none)	The forecast and warning area defined by national authorities covering coastal waters	4	
'National inshore' Aliases: (none)	The forecast and warning area defined by national authorities covering inshore waters	5	
'National local' Aliases: (none)	The forecast and warning area defined by national authorities covering local waters	6	
'Ice' Aliases: (none)	The ice forecast area defined by international or national authorities	7	

3.13 Category of GMDSS area

Name: Category of GMDSS area
Definition: Classification of GMDSS areas based on availability of GMDSS services and GMDSS equipment requirements.
Code: 'categoryOfGMDSSArea'
Remarks:
Aliases: CATGMD
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'Area A1' Aliases: (none)	Within range of VHF coast stations with continuous DSC alerting available (about 20 – 30 miles)	1	
'Area A2' Aliases: (none)	Beyond area A1, but within range of MF coastal stations with continuous DSC alerting available (about l00 miles)	2	
'Area A3' Aliases: (none)	Beyond the first two areas, but within coverage of geostationary maritime communication satellites (in practice this means Inmarsat). This covers the area between roughly 70 deg N and 70 deg S.	3	
'Area A4' Aliases: (none)	The remaining sea areas. The most important of these is the sea around the North Pole (the area around the South Pole is mostly land). Geostationary satellites, which are positioned above the equator, cannot reach this far.	4	

3.14 Category of landmark

Name: Category of landmark
Definition: Classification of prominent cultural and natural features in the landscape
Code: 'categoryOfLandmark'
Remarks: S-123 Note: Only landmarks of relevance to radiocommunications are encoded in S-123 datasets, e.g., radio masts used for marine broadcasts if their location needs to be shown
Aliases: CATLMK
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks

Label	Definition	Code	Remarks
'dish aerial' Aliases: (none)	a parabolic aerial for the receipt and transmission of high frequency radio signals.	4	
'mast' Aliases: (none)	a straight vertical piece of timber or a hollow cylinder.	7	
'tower' Aliases: (none)	a relatively tall structure which may be used for observation, support, storage or communication etc.	17	

3.15 Category of maritime broadcast

Name: Category of maritime broadcast
Definition: Classification of maritime broadcast based on the nature of information conveyed.
Code: 'categoryOfMaritimeBroadcast'
Remarks:
Aliases: CATMAB
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'navigational warning' Aliases: (none)	message containing urgent information relevant to safe navigation broadcast to ships in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as	1	
'meteorological warning' Aliases: (none)	warning of adverse weather conditions	2	
'ice report' Aliases: (none)	report of the ice situation and restrictions to shipping	3	
'SAR information' Aliases: (none)	broadcast message with information about an ongoing SAR operation	4	
'pirate attack warning' Aliases: (none)	warning of possible attack by pirates	5	
'meteorological forecast' Aliases: (none)	broadcast message containing meteorological forecast	6	
'pilot service message' Aliases: (none)	broadcast message about pilot service	7	
'AIS information' Aliases: (none)	broadcast message about AIS information	8	
'LORAN message' Aliases: (none)	broadcast message about the LORAN service	9	
'SATNAV message' Aliases: (none)	broadcast message about Satellite Navigation service	10	
'gale warning' Aliases: (none)	warning of winds of Beaufort force 8 or 9	11	
'storm warning' Aliases: (none)	warning of winds of Beaufort force 10 or over	12	

Label	Definition	Code	Remarks
'tropical revolving storm warning' Aliases: (none)	warning of hurricanes in the North Atlantic and eastern North Pacific, typhoons in the Western Pacific, cyclones in the Indian Ocean and cyclones of similar nature in other regions	13	
'NAVAREA warning' Aliases: (none)	navigational warning or in-force bulletin promulgated as part of a numbered series by a NAVAREA coordinator (Maritime Safety Information Manual 2009)	14	
'coastal warning' Aliases: (none)	navigational warning promulgated as part of a numbered series by a National coordinator (Maritime Safety Information Manual 2009)	15	
'local warning' Aliases: (none)	warning which covers inshore waters, often within the limits of jurisdiction of a harbour or port authority (Maritime Safety Information Manual 2009)	16	
'low water level warning/negative tidal surge' Aliases: (none)	warning of actual or expected low water level	17	
'icing warning' Aliases: (none)	warning of accretion of ice on ships	18	
'tsunami broadcast' Aliases: (none)	broadcasts about tsunamis, including watches, advisories, and other types of messages relating to tsunamis or potential tsunamis	19	

3.16 Category of radio station

Name: Category of radio station
Definition: Classification of radio services offered by a radio station.
Code: 'categoryOfRadioStation'
Remarks: A radiobeacon is a radio transmitter which emits a distinctive or characteristic signal on which a bearing may be taken.
Aliases: CATROS
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'radio direction-finding station' Aliases: (none)	A radio station intended to determine only the direction of other stations by means of transmission from the latter.	5	
'Decca' Aliases: (none)	The Decca Navigator System is a high accuracy, short to medium range radio navigational aid intended for coastal and landfall navigation.	8	
'Loran C' Aliases: (none)	A low frequency electronic position fixing system using pulsed transmissions at 100 Khz.	9	
'Differential GNSS' Aliases: (none)	A radiobeacon transmitting DGPS correction signals.	10	
'Toran' Aliases: (none)	An electronic position fixing system used mainly by aircraft.	11	
'Omega' Aliases: (none)	A long-range radio navigational aid which operates within the VLF frequency band. The system comprises eight land based stations.	12	
'Syledis' Aliases: (none)	A ranging position fixing system operating at 420-450MHz over a range of up to 400Km.	13	

Label	Definition	Code	Remarks
'Chaika (Chayka)' Aliases: (none)	A low frequency electronic position fixing system using pulsed transmissions at 100 KHz.	14	
'facsimile transmission' Aliases: (none)	Facsimile transmission	17	Needs definition finalized and listed value to be added (restored?) to category of radio station in GI registry
'radio telephone station' Aliases: (none)	The equipment needed at one station to carry on two way voice communication by radio waves only	19	
'AIS base station' Aliases: (none)	*Definition required*	20	As of August 2017, not defined in registry or S-101 DCEG

3.17 Category of radio methods

Name: Category of radio methods
Definition: Categories of radiocommunications based on frequency band and radio traffic method.
Code: 'categoryOfRadioMethods'
Remarks:
Aliases: CATRMT
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'Low Frequency (LF) voice traffic' Aliases: (none)	Frequency in a frequency range between 30 and 300 kHz used for voice traffic	1	
'Medium Frequency (MF) voice traffic' Aliases: (none)	Frequency in a frequency range between 300 and 3 000kHz used for voice traffic	2	
'High Frequency (HF) voice traffic' Aliases: (none)	Frequency in a frequency range between 3 and 30 MHz used for voice traffic	3	
'Very High Frequency (VHF) voice traffic' Aliases: (none)	Frequency in a frequency range between 30 and 300 MHz used for voice traffic	4	
'High Frequency Narrow Band Direct Printing' Aliases: (none)	High Frequency Narrow Band Direct Printing	5	
'NAVTEX' Aliases: (none)	Narrow-band direct-printing telegraphy system for transmission of maritime safety information. (IHO Dictionary, S-32, 5th Edition, 3412)	6	
'SafetyNET' Aliases: (none)	SafetyNET is an international automatic direct-printing satellite-based service for the promulgation of navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages - maritime safety information (MSI) - to ships. (International SafetyNET Manual, 2003 Edition, IMO Publication Number IA908E)	7	
'NBDP Telegraphy (Narrow Band Direct Printing Telegraphy)'	A communications system consisting of teletypewriters connected to a telephonic network to send and receive Narrow Band Direct Printing. (Adapted American Heritage Dictionary)	8	

Label	Definition	Code	Remarks
Aliases: (none)			
'facsimile' Aliases: (none)	A method or device for transmitting documents, drawings, photographs, or the like, by means of radio or telephone for exact reproduction elsewhere.	9	
'NAVIP' Aliases: (none)	A Russian system transmitting navigational information, send by radio and containing information relevant to coastal waters of foreign countries and high seas. (Central Marine Research and Design Institute, St.-Petersburg, Russia)	10	
'Low Frequency (LF) digital traffic' Aliases: (none)	Frequency in a frequency range between 30 and 300 kHz used for digital traffic	11	
'Medium Frequency (MF) digital traffic' Aliases: (none)	Frequency in a frequency range between 300 and 3000kHz used for digital traffic	12	
'High Frequency (HF) digital traffic' Aliases: (none)	Frequency in a frequency range between 3 and 30 MHz used for digital traffic	13	
'Very High Frequency (VHF) digital traffic' Aliases: (none)	Frequency in a frequency range between 30 and 300 MHz used for digital traffic	14	
'Low Frequency (LF) telegraph traffic' Aliases: (none)	Frequency in a frequency range between 30 and 300 kHz used for telegraph traffic	15	
'Medium Frequency (MF) telegraph traffic' Aliases: (none)	Frequency in a frequency range between 300 and 3 000kHz used for telegraph traffic	16	
'High Frequency (HF) telegraph traffic' Aliases: (none)	Frequency in a frequency range between 3 and 30 MHz used for telegraph traffic	17	
'Medium Frequency (MF) Digital Selective Call traffic' Aliases: (none)	Frequency in a frequency range between 300 and 3000kHz used for Digital Selective Call traffic	18	
'High Frequency (HF) Digital Selective Call traffic' Aliases: (none)	Frequency in a frequency range between 3 and 30 MHz used for Digital Selective Call traffic	19	
'Very High Frequency (VHF) Digital Selective Call traffic' Aliases: (none)	Frequency in a frequency range between 30 and 300 MHz used for Digital Selective Call traffic	20	

3.18 Category of relationship

Name: Category of relationship
Definition: Expresses constraints or requirements on vessel actions or activities in relation to a geographic feature, facility, or service

Code: 'categoryOfRelationship'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'prohibited' Aliases: (none)	use of facility, waterway or service is forbidden	1	
'not recommended' Aliases: (none)	use of facility, waterway or service is not recommended	2	
'permitted' Aliases: (none)	use of facility, waterway, or service is permitted but not required	3	
'recommended' Aliases: (none)	use of facility, waterway, or service is recommended	4	
'required' Aliases: (none)	use of facility, waterway, or service is required	5	
'not required' Aliases: (none)	use of facility, waterway, or service is not required	6	

3.19 Category of temporal variation

Name: Category of temporal variation
Definition: An assessment of the likelihood of change within an area since last survey.
Code: 'categoryOfTemporalVariation'
Remarks: S-123 Note: NPUB, DQWG, and S-101 definitions still to be harmonized by the working groups
Aliases:
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'extreme event' Aliases: (none)	No new hydrographic survey conducted after an event (e.g. hurricane, earthquake, volcanic eruption, landslide, etc), which is considered likely to have changed the seafloor significantly.	1	
'likely to change' Aliases: (none)	Continuous or frequent change (e.g. river siltation, sand waves, seasonal storms, icebergs, etc).	2	
'unlikely to change' Aliases: (none)	Significant change to the seafloor is not expected.	4	
'unassessed' Aliases: (none)	Temporal variation not assessed or cannot be determined.	5	

3.20 Category of text

Name: Category of text
Definition: Classification of completeness of textual information in relation to the source.
Code: 'categoryOfText'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'abstract or summary' Aliases: (none)	A statement summarizing the important points of a text	1	
'extract' Aliases: (none)	An excerpt or excerpts from a text	2	
'full text' Aliases: (none)	The whole text	3	

3.21 Category of vessel registry

Name: Category of vessel registry
Definition: The locality of vessel registration or enrolment relative to the nationality of a port, territorial sea, administrative area, exclusive zone or other location.
Code: 'categoryOfVesselRegistry'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'domestic' Aliases: (none)	The vessel is registered or enrolled under the same national flag as the port, harbour, territorial sea, exclusive economic zone, or administrative area in which the object that possesses this attribute applies or is located.	1	
'foreign' Aliases: (none)	The vessel is registered or enrolled under a national flag different from the port, harbour, territorial sea, exclusive economic zone, or other administrative area in which the object that possesses this attribute applies or is located.	2	

3.22 City name

Name: City name
Definition: The name of a town or city.
Code: 'cityName'
Remarks:
Aliases: (none)
Value Type: text

3.23 Communication channel

Name: Communication channel
Definition: A channel number assigned to a specific radio frequency, frequencies or frequency band.
Code: 'communicationChannel'
Remarks: The expected input is the specific VHF-Channel. The attribute 'communication channel' encodes the various VHF-channels used for communication.
Aliases: COMCHA
Value Type: text

3.24 Comparison Operator

Name: Comparison Operator
Definition: Numerical comparison

Code: 'comparisonOperator'
Remarks: The definition of COMPOP provides the relation between the value given in the model and the real ship's value.
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'greater than' Aliases: (none)	The value of the left value is greater than that of the right.	1	
'greater than or equal to' Aliases: (none)	The value of the left expression is greater than or equal to that of the right.	2	
'less than' Aliases: (none)	The value of the left expression is less than that of the right.	3	
'less than or equal to' Aliases: (none)	The value of the left expression is less than or equal to that of the right.	4	
'equal to' Aliases: (none)	The two values are equivalent.	5	
'not equal to' Aliases: (none)	The two values are not equivalent.	6	

3.25 Contact instructions

Name: Contact instructions
Definition: Instructions provided on how to contact a particular person, organisation or service.
Code: 'contactInstructions'
Remarks:
Aliases: (none)
Value Type: text

3.26 Country

Name: Country
Definition: The name of a nation. (Adapted from The American Heritage Dictionaries)
Code: 'country'
Remarks:
Aliases: (none)
Value Type: text

3.27 Data assessment

Name: Data assessment
Definition: The categorisation of the assessment level of bathymetric data for an area.
Code: 'dataAssessment'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks

Label	Definition	Code	Remarks
'assessed' Aliases: (none)	The quality of the bathymetric data has been assessed.	1	
'oceanic' Aliases: (none)	The quality of oceanic bathymetric data has been assessed or is not required.	2	
'unassessed' Aliases: (none)	Not having been assessed.	3	

3.28 Day Of Week

Name: Day Of Week
Definition: The days of the week
Code: 'dayOfWeek'
Remarks: This is an ordered enumeration
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'monday' Aliases: (none)	the day of the week before Tuesday and following Sunday	1	
'tuesday' Aliases: (none)	the day of the week before Wednesday and following Monday	2	
'wednesday' Aliases: (none)	the day of the week before Thursday and following Tuesday	3	
'thursday' Aliases: (none)	the day of the week before Friday and following Wednesday	4	
'friday' Aliases: (none)	the day of the week before Saturday and following Thursday	5	
'saturday' Aliases: (none)	the day of the week before Sunday and following Friday (together with Sunday forms part of the weekend)	6	
'sunday' Aliases: (none)	the day of the week before Monday and following Saturday (together with Saturday forms part of the weekend)	7	

3.29 Day of week is range

Name: Day of week is range
Definition: A statement expressing if the days of the week identified define a range or not.
Code: 'dayOfWeekIsRange'
Remarks:
Aliases: (none)
Value Type: boolean

3.30 Date end

Name: Date end
Definition: The latest date on which an object (e.g., a buoy) will be present.
Code: 'dateEnd'
Remarks: This attribute is to be used to indicate the removal or cancellation of an object at a specific date in the future. See also 'periodic

date end' (PEREND).
Aliases: DATEND
Value Type: S100_TruncatedDate

3.31 Date fixed

Name: Date fixed
Definition: The date when a festival or national holiday recurs on the same day each year in the Gregorian calendar.
Code: 'dateFixed'
Remarks:
Aliases: (none)
Value Type: S100_TruncatedDate

3.32 Date start

Name: Date start
Definition: The earliest date on which an object (e.g., a buoy) will be present.
Code: 'dateStart'
Remarks: This attribute is to be used to indicate the deployment or implementation of an object at a specific date in the future. See also 'periodic date start' (PERSTA).
Aliases: DATSTA
Value Type: S100_TruncatedDate

3.33 Date variable

Name: Date variable
Definition: A day which is not fixed in the Gregorian calendar.
Code: 'dateVariable'
Remarks: Examples: The fourth Thursday in November; new moon day of Kartika (Diwali); Easter Sunday.
Aliases: (none)
Value Type: date

3.34 Delivery point

Name: Delivery point
Definition: Details of where post can be delivered such as the apartment, name and/or number of a street, building or PO Box.
Code: 'deliveryPoint'
Remarks:
Aliases: (none)
Value Type: text

3.35 Direction uncertainty

Name: Direction uncertainty
Definition: The best estimate of the accuracy of a bearing.
Code: 'directionUncertainty'
Remarks:
Aliases: (none)
Value Type: real

Unit of measure name: degrees definition: degrees of arc symbol: °

Quantity specification: planeAngle

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0.0	1
		upperBound	360.0	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.36 Display name

Name: Display name
Definition: A statement expressing if a feature name is to be displayed in certain system display settings or not
Code: 'displayName'
Remarks:
Aliases: (none)
Value Type: boolean

3.37 Distance

Name: Distance
Definition: A linear extent of space
Code: 'distance'
Remarks:
Aliases: (none)
Value Type: real

Unit of measure name: nautical miles definition: Nautical mile symbol: NM

Quantity specification: length

Constraints

string Length	text Pattern	range	precision
(not specified)	(none)	(not specified)	1

For real values, precision is the number of digits after the decimal point.

3.38 Drum speed

Name: Drum speed
Definition: The drum speed in revolutions per minute.
Code: 'drumSpeed'
Remarks: The drum speed should be encoded using three digits for the speed including a leading zero if necessary.
Aliases: DRMSPD
Value Type: integer

Unit of measure name: revolutions/second definition: Revolutions per second symbol: rev/sec

Quantity specification: otherQuantity

Constraints

string Length	text Pattern	range		precision
3	(none)	lowerBound	1	(not specified)
		upperBound	999	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.39 Estimated range of transmission

Name: Estimated range of transmission
Definition: A linear extent of space
Code: '`estimatedRangeOfTransmission`'
Remarks: The estimated range (distance) assumes 'in vacuo' transmission and a standard antenna height of 5 metres. Thus it gives a hint to the mariner whether he is likely to receive transmission at a certain distance from an object carrying this attribute.
Aliases: ESTRNG
Value Type: real

Unit of measure name: nautical miles definition: Nautical mile symbol: NM

Quantity specification: length

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0.0	1
		upperBound	(none)	
		closure	gtSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.40 File Locator

Name: File Locator
Definition: The string encodes the location of a fragment of text or other information in a support file.
Code: '`fileLocator`'
Remarks:
Aliases: (none)
Value Type: text

3.41 File Reference

Name: File Reference
Definition: The string encodes the file name of an external text file that contains the text in English
Code: '`fileReference`'
Remarks:

Aliases: (none)
Value Type: text

3.42 Fixed Date

Name: Fixed Date
Definition: The date when a festival or national holiday recurs on the same day each year in the Gregorian calendar.
Code: 'fixedDate'
Remarks:
Aliases: (none)
Value Type: date

3.43 Flip bearing

Name: Flip bearing
Definition: The bearing at which text is re-located to the opposite side of a feature when screen display is oriented away from true north.
Code: 'flipBearing'
Remarks:
Aliases: (none)
Value Type: real

Unit of measure name: degrees definition: degrees of arc symbol: °

Quantity specification: planeAngle

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0	0
		upperBound	360	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.44 Frequency Shore Station Receives

Name: Frequency Shore Station Receives
Definition: The shore station receiver frequency expressed in kHz to one decimal place.
Code: 'frequencyShoreStationReceives'
Remarks: Examples: 4379.1 kHz becomes 043791; 13162.8 kHz becomes 131628
Aliases: (none)
Value Type: integer

Unit of measure name: kHz definition: Kilohertz to 1 decimal place converted to an integer symbol: kHz

Quantity specification: frequency

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	1	1

string Length	text Pattern	range		precision
		upperBound	(none)	
		closure	gtSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.45 Frequency Shore Station Transmits

Name: Frequency Shore Station Transmits
Definition: The shore station transmitter frequency expressed in kHz to one decimal place.
Code: 'frequencyShoreStationTransmits'
Remarks: Examples: 4379.1 kHz becomes 043791; 13162.8 kHz becomes 131628
Aliases: (none)
Value Type: integer

Unit of measure name: kHz definition: Kilohertz to 1 decimal place converted to an integer symbol: kHz

Quantity specification: frequency

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	1	1
		upperBound	(none)	
		closure	gtSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.46 Function

Name: Function
Definition: A specific role that describes a feature
Code: 'function'
Remarks:
Aliases: FUNCTN
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'communication' Aliases: (none)	transmitting and/or receiving electronic communication signals.	29	
'radio' Aliases: (none)	broadcast of radio signals.	31	
'microwave' Aliases: (none)	broadcasting and receiving signals using microwaves.	34	

Label	Definition	Code	Remarks
'control' Aliases: (none)	used to control the flow of air, rail, or marine traffic.	39	
'sea rescue control' Aliases: (none)	A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.	44	

3.47 Headline

Name: Headline
Definition: Words set at the head of a passage or page to introduce or categorize
Code: 'headline'
Remarks:
Aliases: (none)
Value Type: text

3.48 Horizontal distance uncertainty

Name: Horizontal distance uncertainty
Definition: The best estimate of the horizontal accuracy of horizontal clearances and distances.
Code: 'horizontalDistanceUncertainty'
Remarks: the error is assumed to be positive and negative. The plus/minus character must not be encoded.
Aliases: HORACC
Value Type: real

Unit of measure name: metres definition: SI Metres symbol: m

Quantity specification: length

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0	1
		upperBound	(none)	
		closure	geSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.49 Index of cooperation

Name: Index of cooperation
Definition: A factor governing the image resolution of radiofax transmissions.
Code: 'indexOfCooperation'
Remarks: (i) The Index of Cooperation must be known to decode the transmission; (ii) The Index of Co-operation is generally 576, although 288 with alternate line scanning is sometimes used.
Aliases: INDCOP
Value Type: integer

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0	(not specified)
		upperBound	(none)	
		closure	gtSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.50 Information confidence

Name: Information confidence
Definition: The likelihood that a vessel will experience the phenomenon described by a feature, or that the service described by the feature will be available.
Code: 'informationConfidence'
Remarks:
Aliases: INFCNF
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'virtuallyCertain' Aliases: (none)	Virtually certain to be experienced by (or available to) an individual vessel; will be experienced by nearly all vessels. (FAA, adapted.)	1	
'highLikelihood' Aliases: (none)	Frequently experienced by (or available to) an individual vessel; experienced by a majority of vessels. (FAA, adapted.)	2	
'mediumLikelihood' Aliases: (none)	Occasionally experienced by (or available to) an individual vessel; experienced by (or available to) about half of all vessels. (FAA, adapted.)	3	
'lowLikelihood' Aliases: (none)	Unlikely, but sometimes (rarely) experienced by (or available to) an individual vessel; experienced by (or available to) a minority of vessels). (FAA, adapted.)	4	

3.51 Is MRCC

Name: Is MRCC
Definition: A True value is an indication that the encoded coastguard station performs the function of a Maritime Rescue and Coordination Centre
Code: 'isMRCC'
Remarks: In S-123 datasets, only MRCC or MRSC coastguard stations are encoded, so the value of this attribute should be TRUE for all instances in an S-123 dataset
Aliases: (none)
Value Type: boolean

3.52 Language

Name: Language
Definition: The method of human communication, either spoken or written, consisting of the use of words in a structured and conventional way
Code: 'language'
Remarks: (S-122)Remarks: The language is encoded by a character code following ISO 639-3
Aliases: (none)
Value Type: text

3.53 Language information

Name: Language information
Definition: A description of the languages, alphabets and scripts in use.
Code: 'languageInformation'
Remarks:
Aliases: LNGINF
Value Type: text

3.54 Logical Connectives

Name: Logical Connectives
Definition: Expresses whether all the constraints described by its co-attributes must be satisfied, or only one such constraint need be satisfied.
Code: 'logicalConnectives'
Remarks: This attribute is intended to be used with co-attributes that encode limits on vessel dimensions, type of cargo, and other characteristics. The combination of constraints described by logicalConnective and its co-attributes defines a subset of vessels to which information described by a feature or information type instance applies (or does not apply, is required, recommended, etc.). The relationship between the vessel subset and the information is indicated by an association - see PermissionType and InclusionType). The two listed values of logicalConnective are two of the basic operations of Boolean logic. The third basic operation (not) is not used.
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'logical conjunction' Aliases: (none)	all the conditions described by the other attributes of the object, or sub-attributes of the same complex attribute, are true	1	
'logical disjunction' Aliases: (none)	at least one of the conditions described by the other attributes of the object, or sub-attributes of the same complex attributes, is true	2	

3.55 Linkage

Name: Linkage
Definition: location (address) for on-line access using a URL/URI address or similar addressing scheme. (Adapted from ISO 19115:2014.)
Code: 'linkage'
Remarks: Adapted from ISO 19115:2014.
Aliases: (none)
Value Type: URL

3.56 Membership

Name: Membership
Definition: indicates whether a vessel is included or excluded from the regulation / restriction / recommendation / nautical information
Code: 'membership'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'included'	Vessels with these characteristics are included in the	1	

Label	Definition	Code	Remarks
Aliases: (none)	regulation/restriction/recommendation/nautical information		
'excluded' Aliases: (none)	Vessels with these characteristics are excluded from the regulation/restriction/recommendation/nautical information	2	

3.57 MMSI Code

Name: MMSI Code
Definition: The Maritime Mobile Service Identity (MMSI) Code is formed of a series of nine digits which are transmitted over the radio path in order to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations, and group calls. These identities are formed in such a way that the identity or part thereof can be used by telephone and telex subscribers connected to the general telecommunications network principally to call ships automatically.
Code: 'mMSICode'
Remarks:
Aliases: (none)
Value Type: integer

3.58 Minute past even hours

Name: Minute past even hours
Definition: The minute past even hours when a routine transmission starts.
Code: 'minutePastEvenHours'
Remarks:
Aliases: MNTEVN
Value Type: integer

Unit of measure name: minutes definition: Minutes (time) symbol: m

Quantity specification: duration

Constraints

string Length	text Pattern	range		precision
2	(none)	lowerBound	0	(not specified)
		upperBound	59	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.59 Minute past every hour

Name: Minute past every hour
Definition: The minute past every hour when a routine transmission starts.
Code: 'minutePastEveryHour'
Remarks: Transmissions more than once every hour can be indicated by repeating the attribute.
Aliases: MNTALL
Value Type: integer

Unit of measure name: minutes definition: Minutes (time) symbol: m

Quantity specification: duration

Constraints

string Length	text Pattern	range		precision
2	(none)	lowerBound	0	(not specified)
		upperBound	59	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.60 Minute past odd hours

Name: Minute past odd hours
Definition: The minute past odd hours when a routine transmission starts.
Code: 'minutePastOddHours'
Remarks:
Aliases: MNTODD
Value Type: integer

Unit of measure name: minutes definition: Minutes (time) symbol: m

Quantity specification: duration

Constraints

string Length	text Pattern	range		precision
2	(none)	lowerBound	0	(not specified)
		upperBound	59	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.61 Name

Name: Name
Definition: The individual name of a feature.
Code: 'name'
Remarks:
Aliases: (none)
Value Type: text

3.62 Name of resource

Name: Name of resource
Definition: Name of the online resource.
Code: 'nameOfResource'

Remarks:
Aliases: NAMRES
Value Type: text

3.63 Nationality

Name: Nationality
Definition: The nationality of the specific object
Code: 'nationality'
Remarks: The nationality is encoded by a 2 character code following ISO 3166. The attribute “nationality” indicates the nationality of the specific feature. Where it is required to encode multiple nationalities relevant to a single feature (for example, for a maritime jurisdiction area that is in dispute between two Coastal States), this must be done by populating the character codes for both Coastal States, delimited by a comma.
Aliases: (none)
Value Type: text

3.64 Observation time

Name: Observation time
Definition: The time on each day when observations are made.
Code: 'observationTime'
Remarks:
Aliases: OBSTIM
Value Type: time

3.65 Online description

Name: Online description
Definition: Detailed text description of what the online resource is/does
Code: 'onlineDescription'
Remarks:
Aliases: (none)
Value Type: text

3.66 Operation

Name: Operation
Definition: Indicates whether the minimum or maximum value should be used to describe a condition or in application processing
Code: 'operation'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'largest value' Aliases: (none)	The numerically largest value computed from the applicable attributes or sub-attributes	1	
'smallest value' Aliases: (none)	The numerically smallest value computed from the applicable attributes or sub-attributes	2	

3.67 Orientation uncertainty

Name: Orientation uncertainty

Definition: The best estimate of the accuracy of a bearing.
Code: 'orientationUncertainty'
Remarks:
Aliases: (none)
Value Type: real

3.68 Picture caption

Name: Picture caption
Definition: Short description of the purpose of the image
Code: 'pictureCaption'
Remarks:
Aliases: (none)
Value Type: text

3.69 Picture information

Name: Picture information
Definition: A set of information to provide credits to picture creator, copyright owner etc.
Code: 'pictureInformation'
Remarks:
Aliases: (none)
Value Type: text

3.70 Postal code

Name: Postal code
Definition: Known in various countries as a postcode, or ZIP code, the postal code is a series of letters and/or digits that identifies each postal delivery area.
Code: 'postalCode'
Remarks:
Aliases: (none)
Value Type: text

3.71 Protocol

Name: Protocol
Definition: connection protocol to be used. Example: ftp, http get KVP, http POST, etc.
Code: 'protocol'
Remarks:
Aliases: (none)
Value Type: text

3.72 Protocol request

Name: Protocol request
Definition: Request used to access the resource. Structure and content depend on the protocol and standard used by the online resource, such as Web Feature Service standard.
Code: 'protocolRequest'
Remarks:
Aliases: (none)
Value Type: text

3.73 Reported date

Name: Reported date

Definition: The date that the item was observed, done, or investigated
Code: 'reportedDate'
Remarks:
Aliases: (none)
Value Type: S100_TruncatedDate

3.74 Scale maximum

Name: Scale maximum
Definition: The maximum scale at which the object may be used, e.g., for ECDIS presentation.
Code: 'scaleMaximum'
Remarks: The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.
Aliases: SCAMAX
Value Type: integer

3.75 Scale minimum

Name: Scale minimum
Definition: The minimum scale at which the object may be used, e.g., for ECDIS presentation.
Code: 'scaleMinimum'
Remarks: The modulus of the scale is indicated, that is 1:1 250 000 is encoded as 1250000.
Aliases: SCAMIN
Value Type: integer

3.76 Signal frequency

Name: Signal frequency
Definition: The frequency of a signal.
Code: 'signalFrequency'
Remarks:
Aliases: SIGFRQ
Value Type: integer

Unit of measure name: Hertz definition: Cycles per second symbol: Hz

Quantity specification: frequency

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0	(not specified)
		upperBound	(none)	
		closure	gtSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.77 Source

Name: Source
Definition: An identifier (publication, document, reference work, instrument, vessel, etc) from which information comes or is acquired.
Code: 'source'

Remarks:
Aliases: (none)
Value Type: text

3.78 Source type

Name: Source type
Definition: type of the source
Code: 'sourceType'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'law or regulation' Aliases: (none)	reaty, convention, or international agreement; law or regulation issued by a national or other authority	1	
'official publication' Aliases: (none)	publication not having the force of law, issued by an international organisation or a national or local administration	2	
'mariner report, confirmed' Aliases: (none)	Reported by mariner(s) and confirmed by another source	7	
'mariner report, not confirmed' Aliases: (none)	reported by mariner(s) but not confirmed	8	
'industry publications and reports' Aliases: (none)	shipping and other industry publication, including graphics, charts and web sites	9	
'remotely sensed images' Aliases: (none)	information obtained from satellite images	10	
'photographs' Aliases: (none)	information obtained from photographs	11	
'products issued by HO services' Aliases: (none)	information obtained from products issued by Hydrographic Offices	12	
'news media' Aliases: (none)	information obtained from news media	13	
'traffic data' Aliases: (none)	information obtained from the analysis of traffic data	14	

3.79 Status

Name: Status
Definition: The condition of an object at a given instant in time.
Code: 'status'
Remarks:
Aliases: STATUS

Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'permanent' Aliases: (none)	intended to last or function indefinitely.	1	
'occasional' Aliases: (none)	acting on special occasions happening irregularly.	2	
'recommended' Aliases: (none)	presented as worthy of confidence, acceptance, use, etc.	3	
'not in use' Aliases: (none)	no longer used for the purpose intended disused.	4	
'periodic/intermittent' Aliases: (none)	recurring at intervals.	5	
'reserved' Aliases: (none)	set apart for some specific use.	6	
'temporary' Aliases: (none)	meant to last only for a time.	7	
'private' Aliases: (none)	not in public ownership or operation.	8	
'mandatory' Aliases: (none)	compulsory enforced.	9	
'extinguished' Aliases: (none)	no longer lit	11	
'illuminated' Aliases: (none)	lit by floodlights, strip lights, etc.	12	
'historic' Aliases: (none)	famous in history of historical interest.	13	
'public' Aliases: (none)	belonging to, available to, used or shared by, the community as a whole and not restricted to private use.	14	
'synchronized' Aliases: (none)	occur at a time, coincide in point of time, be contemporary or simultaneous.	15	
'watched' Aliases: (none)	looked at or observed over a period of time especially so as to be aware of any movement or change.	16	
'un-watched' Aliases: (none)	usually automatic in operation, without any permanently-stationed personnel to superintend it.	17	
'existence doubtful' Aliases: (none)	an object that has been reported but has not been definitely determined to exist.	18	
'buoyed' Aliases: (none)	Marked by buoys	28	

3.80 Telecommunication identifier

Name: Telecommunication identifier
Definition: An identifier, such as words, numbers, letters, symbols, or any combination of those used to establish a contact to a particular person, organisation or service.
Code: 'telecommunicationIdentifier'

Remarks:
Aliases: (none)
Value Type: text

3.81 Telecommunication carrier

Name: Telecommunication carrier
Definition: The name of a provider or type of carrier for a telecommunication service. This service may include land line based, shore based or satellite based radio connections.
Code: 'telcomCarrier'
Remarks:
Aliases: (none)
Value Type: text

3.82 Text

Name: Text
Definition: A non-formatted digital text string
Code: 'text'
Remarks:
Aliases: (none)
Value Type: text

3.83 Thickness of ice capability

Name: Thickness of ice capability
Definition: The thickness of ice that the ship can safely transit
Code: 'thicknessOfIceCapability'
Remarks:
Aliases: (none)
Value Type: text

3.84 Time reference

Name: Time reference
Definition: Indicates whether a time value is local time or Coordinated Universal Time.
Code: 'timeReference'
Remarks: Local time is the local civil time after daylight savings time (if any) has been applied. For example 0800 local time in New York is the same instant as 1300 UTC on December 1, when DST is not in effect in New York, and 1200 UTC on June 1, when DST is in effect in New York.
Aliases: TIMREF
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'localTime' Aliases: (none)	Local time	1	
'UTC' Aliases: (none)	Universal Coordinated Time	2	

3.85 Time of day end

Name: Time of day end
Definition: Ending time of day, possibly for a period within the day

Code: 'timeOfDayEnd'
Remarks:
Aliases: (none)
Value Type: time

3.86 Time of day start

Name: Time of day start
Definition: Starting time of day, possibly for a period within the day
Code: 'timeOfDayStart'
Remarks:
Aliases: TIMSTA
Value Type: time

3.87 Transmission content

Name: Transmission content
Definition: Content of transmission
Code: 'transmissionContent'
Remarks: Other than MSI.
Aliases: (none)
Value Type: text

3.88 Transmission power

Name: Transmission power
Definition: The maximum power the radio service uses (or is authorized to use) for radio transmission.
Code: 'transmissionPower'
Remarks: The calculation of the power depends on the type of signal. The value encoded must be the actual transmission power, if this is known to be different from the authorized transmission power. (47 CFR 80.215 (19 April 2017), adapted.)
Aliases: (none)
Value Type: real

Unit of measure name: Watts definition: watts symbol: watts

Quantity specification: power

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0.0	1
		upperBound	(none)	
		closure	gtSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.89 Transmission time

Name: Transmission time
Definition: The time in the day when scheduled transmissions start
Code: 'transmissionTime'

Remarks:
Aliases: (none)
Value Type: time

3.90 Uncertainty fixed

Name: Uncertainty fixed
Definition: The best estimate of the fixed vertical accuracy component for depths, heights, vertical distances and vertical clearances.
Code: 'uncertaintyFixed'
Remarks: The maximum of the one-dimensional error. The error is assumed to be positive and negative. The plus/minus character must not be encoded. Note: Definition may need to be updated if it is used for horizontal measurements too?
Aliases: (none)
Value Type: real

Unit of measure name: metre definition: SI metre symbol: m

Constraints

string Length	text Pattern	range	precision
(not specified)	(none)	(not specified)	1

For real values, precision is the number of digits after the decimal point.

3.91 Uncertainty variable

Name: Uncertainty variable
Definition: The best estimate of the variable vertical accuracy component for depths, heights, vertical distances and vertical clearances.
Code: 'uncertaintyVariable'
Remarks: The maximum of the one-dimensional error. The error is assumed to be positive and negative. The plus/minus character must not be encoded. Note: Definition may need to be updated if it is used for horizontal measurements too?
Aliases: (none)
Value Type: real

Unit of measure name: metre definition: SI metre symbol: m

Constraints

string Length	text Pattern	range	precision
(not specified)	(none)	(not specified)	1

For real values, precision is the number of digits after the decimal point.

3.92 Vessels characteristics

Name: Vessels characteristics
Definition: Characteristics of vessels
Code: 'vesselsCharacteristics'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'length overall' Aliases: (none)	The maximum length of the ship (L.O.A.). (http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	1	
'length at waterline' Aliases: (none)	The ship's length measured at the waterline (L.W.L.). (http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	2	
'breadth' Aliases: (none)	The width or beam of the vessel.	3	
'draught' Aliases: (none)	The depth of water necessary to float a vessel fully loaded.	4	
'height' Aliases: (none)	The height of the highest point of a vessel's structure (e.g. radar aerial, funnel, cranes, masthead) above her waterline. (UKHO NP100/2009)	5	
'displacement tonnage' Aliases: (none)	A measurement of the weight of the vessel, usually used for warships. (Merchant ships are usually measured based on the volume of cargo space; see tonnage). Displacement is expressed either in long tons of 2,240 pounds or metric tonnes of 1,000 kg. Since the two units are very close in size (2,240 pounds = 1,016 kg and 1,000 kg = 2,205 pounds), it is common not to distinguish between them. To preserve secrecy, nations sometimes misstate a warship's displacement. (http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	6	
'displacement tonnage, light' Aliases: (none)	The weight of the ship excluding cargo, fuel, ballast, stores, passengers, and crew, but with water in the boilers to steaming level. (http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	7	
'displacement tonnage, loaded' Aliases: (none)	The weight of the ship including cargo, passengers, fuel, water, stores, dunnage and such other items necessary for use on a voyage, which brings the vessel down to her load draft. (http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	8	
'deadweight tonnage' Aliases: (none)	The difference between displacement, light and displacement, loaded. A measure of the ship's total carrying capacity. (http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	9	
'gross tonnage' Aliases: (none)	The entire internal cubic capacity of the ship expressed in tons of 100 cubic feet to the ton, except certain spaces with are exempted such as: peak and other tanks for water ballast, open forecastle bridge and poop, access of hatchways, certain light and air spaces, domes of skylights, condenser, anchor gear, steering gear, wheel house, galley and cabin for passengers. (http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	10	
'net tonnage' Aliases: (none)	Obtained from the gross tonnage by deducting crew and navigating spaces and allowances for propulsion machinery.(http://en.wikipedia.org/wiki/Ship_measurements; 24 July 2010)	11	
'Panama Canal/Universal Measurement System net tonnage' Aliases: (none)	the Panama Canal/Universal Measurement System (PC/UMS) is based on net tonnage, modified for Panama Canal purposes. PC/UMS is based on a mathematical formula to calculate a vessel's total volume; a PC/UMS net ton is equivalent to 100 cubic feet of capacity. (Adapted from http://en.wikipedia.org/wiki/Tonnage 4 Oct 2010)	12	
'Suez Canal net tonnage' Aliases: (none)	the Suez Canal Net Tonnage (SCNT) is derived with a number of modifications from the former net register tonnage of the Moorsom System and was established by the International Commission of Constantinople in its Protocol of 18 December 1873. It is still in use, as amended by the Rules of Navigation of the Suez Canal Authority, and is registered in the Suez Canal Tonnage Certificate. (Adapted from http://en.wikipedia.org/wiki/Tonnage 4 Oct 2010)	13	
'Suez Canal gross	Suez Canal Gross Tonnage (SCGT) is derived with a number of modifications	14	

Label	Definition	Code	Remarks
tonnage' Aliases: (none)	from the former net register tonnage of the Moorsom System and was established by the International Commission of Constantinople in its Protocol of 18 December 1873. It is still in use, as amended by the Rules of Navigation of the Suez Canal Authority, and is registered in the Suez Canal Tonnage Certificate.		

3.93 Vessels characteristics unit

Name: Vessels characteristics unit
Definition: the unit used for vessel characteristics attribute
Code: 'vesselsCharacteristicsUnit'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'metre' Aliases: (none)	The metre (or meter) is the base unit of length in the International System of Units (SI). It is defined as the distance travelled by light in vacuum in 1/299,792,458 of a second.	1	
'foot' Aliases: (none)	A foot (plural: feet) is a non-SI unit of length in a number of different systems including English units, Imperial units, and United States customary units. The most commonly used foot today is the international foot. There are three feet in a yard and 12 inches in a foot.	2	
'metric ton' Aliases: (none)	The tonne or metric ton (U.S.), often redundantly referred to as a metric tonne, is a unit of mass equal to 1,000 kg (2,205 lb) or approximately the mass of one cubic metre of water at four degrees Celsius. It is sometimes abbreviated as mt in the United States, but this conflicts with other SI symbols. The tonne is not a unit in the International System of Units (SI), but is accepted for use with the SI. In SI units and prefixes, the tonne is a megagram (Mg). The Imperial and US customary units comparable to the tonne are both spelled ton in English, though they differ in mass. Pronunciation of tonne (the word used in the UK) and ton is usually identical, but is not too confusing unless accuracy is important as the tonne and UK long ton differ by only 1.6%.	3	
'ton' Aliases: (none)	Long ton (weight ton or imperial ton) is the name for the unit called the "ton" in the avoirdupois or Imperial system of measurements, as used in the United Kingdom and several other Commonwealth countries. It has been mostly replaced by the tonne, and in the United States by the short ton. One long ton is equal to 2,240 pounds (1,016 kg) or 35 cubic feet (0.9911 m3) of salt water with a density of 64 lb/ft³ (1.025 g/ml). It has some limited use in the United States, most commonly in measuring the displacement of ships, and was the unit prescribed for warships by the Washington Naval Treaty—for example battleships were limited to a mass of 35,000 long tons (36,000 t; 39,000 ST).	4	
'short ton' Aliases: (none)	The short ton is a unit of weight equal to 2,000 pounds (907.18474 kg). In the United States it is often called simply ton without distinguishing it from the metric ton (tonne, 1,000 kilograms) or the long ton (2,240 pounds / 1,016.0469088 kilograms); rather, the other two are specifically noted. There are, however, some U.S. applications for which unspecified tons normally means long tons (for example, Navy ships) or metric tons (world grain production figures). Both the long and short ton are defined as 20 hundredweights, but a hundredweight is 100 pounds (45.359237 kg) in the U.S. system (short or net hundredweight) and 112 pounds (50.80234544 kg) in the Imperial system (long or gross hundredweight).	5	

Label	Definition	Code	Remarks
'gross ton' Aliases: (none)	Gross tonnage (GT) is a function of the volume of all ship's enclosed spaces (from keel to funnel) measured to the outside of the hull framing. There is a sliding scale factor. So GT is a kind of capacity-derived index that is used to rank a ship for purposes of determining manning, safety and other statutory requirements and is expressed simply as GT, which is a unitless entity, even though its derivation is tied to the cubic meter unit of volumetric capacity. Tonnage measurements are now governed by an IMO Convention (International Convention on Tonnage Measurement of Ships, 1969 (London-Rules)), which applies to all ships built after July 1982. In accordance with the Convention, the correct term to use now is GT, which is a function of the moulded volume of all enclosed spaces of the ship.	6	
'net ton' Aliases: (none)	Net tonnage (NT) is based on a calculation of the volume of all cargo spaces of the ship. It indicates a vessel’s earning space and is a function of the moulded volume of all cargo spaces of the ship.	7	
'Panama Canal/Universal Measurement System net tonnage' Aliases: (none)	The Panama Canal/Universal Measurement System (PC/UMS) is based on net tonnage, modified for Panama Canal purposes. PC/UMS is based on a mathematical formula to calculate a vessel's total volume; a PC/UMS net ton is equivalent to 100 cubic feet of capacity.	8	
'Suez Canal Net Tonnage' Aliases: (none)	The Suez Canal Net Tonnage (SCNT) is derived with a number of modifications from the former net register tonnage of the Moorsom System and was established by the International Commission of Constantinople in its Protocol of 18 December 1873. It is still in use, as amended by the Rules of Navigation of the Suez Canal Authority, and is registered in the Suez Canal Tonnage Certificate.	9	
'none' Aliases: (none)	Can be used for net and gross tonnages, including Panama Canal/Universal Measurement System net tonnage and The Suez Canal Net Tonnage.	10	
'cubic metres' Aliases: (none)	Cubic metres	11	
'Suez Canal Gross Tonnage' Aliases: (none)	The Suez Canal Gross Tonnage (SCGT) is derived with a number of modifications from the former net register tonnage of the Moorsom System and was established by the International Commission of Constantinople in its Protocol of 18 December 1873. It is still in use, as amended by the Rules of Navigation of the Suez Canal Authority, and is registered in the Suez Canal Tonnage Certificate.	12	

3.94 Vessels characteristics value

Name: Vessels characteristics value
Definition: The value of a particular characteristic such as a dimension or tonnage of a vessel
Code: 'vesselsCharacteristicsValue'
Remarks:
Aliases: (none)
Value Type: real

3.95 Vessel performance

Name: Vessel performance
Definition: A description of the required handling characteristics of a vessel including hull design, main and auxilliary machinery, cargo handling equipment, navigation equipment and manoeuvring behaviour.
Code: 'vesselPerformance'
Remarks:
Aliases: (none)

Value Type: text

3.96 Quality of horizontal measurement

Name: Quality of horizontal measurement
Definition: The degree of reliability attributed to a position
Code: 'qualityOfHorizontalMeasurement'
Remarks:
Aliases: QUAPOS
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'surveyed' Aliases: (none)	the position(s) was(were) determined by the operation of making measurements for determining the relative position of points on, above or beneath the earth's surface. Survey implies a regular, controlled survey of any date.	1	
'unsurveyed' Aliases: (none)	survey data is does not exist or is very poor.	2	
'inadequately surveyed' Aliases: (none)	position data is of a very poor quality.	3	
'approximate' Aliases: (none)	a position that is considered to be less than third-order accuracy, but is generally considered to be within 30.5 metres of its correct geographic location. Also may apply to an object whose position does not remain fixed.	4	
'position doubtful' Aliases: (none)	an object whose position has been reported but which is considered to be doubtful.	5	
'unreliable' Aliases: (none)	an object's position obtained from questionable or unreliable data.	6	
'reported (not surveyed)' Aliases: (none)	an object whose position has been reported and its position confirmed by some means other than a formal survey such as an independent report of the same object.	7	
'reported (not confirmed)' Aliases: (none)	an object whose position has been reported and its position has not been confirmed.	8	
'estimated' Aliases: (none)	the most probable position of an object determined from incomplete data or data of questionable accuracy.	9	
'precisely known' Aliases: (none)	a position that is of a known value, such as the position of an anchor berth or other defined object.	10	
'calculated' Aliases: (none)	a position that is computed from data.	11	

3.97 Maximum display scale

Name: Maximum display scale
Definition: The largest intended viewing scale for the data.
Code: 'maximumDisplayScale'
Remarks:
Aliases: (none)
Value Type: integer

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	1	(not specified)
		upperBound	(none)	
		closure	geSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.98 Minimum display scale

Name: Minimum display scale
Definition: The smallest intended viewing scale for the data.
Code: 'minimumDisplayScale'
Remarks:
Aliases: (none)
Value Type: integer

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	1	(not specified)
		upperBound	(none)	
		closure	geSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.99 Orientation value

Name: Orientation value
Definition: The angular distance measured from true north to the major axis of the object.
Code: 'orientationValue'
Remarks:
Aliases: ORIENT
Value Type: real

Unit of measure name: degrees definition: degrees of arc symbol: °

Quantity specification: planeAngle

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0.0	1
		upperBound	360.0	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.100 Periodic date end

Name: Periodic date end
Definition: The end of the active period for a seasonal object (e.g., a buoy).
Code: 'periodicDateEnd'
Remarks: See also 'date end' (DATEND).
Aliases: PEREND
Value Type: S100_TruncatedDate

3.101 Periodic date start

Name: Periodic date start
Definition: The start of the active period for a seasonal object (e.g., a buoy).
Code: 'periodicDateStart'
Remarks: See also 'date start' (DATSTA).
Aliases: PERSTA
Value Type: S100_TruncatedDate

3.102 Pictorial representation

Name: Pictorial representation
Definition: Indicates whether a pictorial representation of the object is available.
Code: 'pictorialRepresentation'
Remarks: The 'pictorial representation' could be a drawing or a photo. The string encodes the file name of an external graphic file (pixel/vector).
Aliases: PICREP
Value Type: text

3.103 Sector bearing

Name: Sector bearing
Definition: A sector is the part of a circle between two straight lines drawn from the centre to the circumference. Sector bearing specifies the limit of the sector. (Adapted from S-57 Edition 3.1, Appendix A – Chapter 2, Page 2.184, November 2000).
Code: 'sectorBearing'
Remarks: -The values given to the common limits of adjacent sectors should be identical. - The orientation of the bearing is from seaward to the central feature. This conforms with the method used in “List of Lights” publications. - A generic term such as “to shore” cannot be used; a specific bearing must be encoded. Where a light sector limit is defined as “to the shore”, it should be encoded using a value that ensures that, when the limit is drawn, it will fall entirely on land.
Aliases: (none)
Value Type: real

Unit of measure name: degrees definition: degrees of arc symbol: °

Quantity specification: planeAngle

Constraints

string Length	text Pattern	range		precision
(not specified)	(none)	lowerBound	0	2
		upperBound	360.00	
		closure	closedInterval	

For real values, precision is the number of digits after the decimal point.

3.104 Selective call number

Name: Selective call number
Definition: When stations of the maritime mobile service (direct printing telegraphy) use selective calling devices, their Selective Call numbers (SELCAL) are formed of four digits (coast stations). (Adapted: Radio Regulations (ITU))
Code: '`selectiveCallNumber`'
Remarks:
Aliases: (none)
Value Type: integer

Constraints

string Length	text Pattern	range		precision
4	(none)	lowerBound	0	(not specified)
		upperBound	(none)	
		closure	geSemiInterval	

For real values, precision is the number of digits after the decimal point.

3.105 Source date

Name: Source date
Definition: The production date of the source, e.g., the date of measurement.
Code: '`sourceDate`'
Remarks:
Aliases: SORDAT
Value Type: text

3.106 Transmission of traffic lists

Name: Transmission of traffic lists
Definition: Describes whether a station transmits traffic lists
Code: '`txTrafficList`'
Remarks:
Aliases: TRMTFC
Value Type: boolean

3.107 Transmission regularity

Name: Transmission regularity
Definition: Classification of regularity or conditions for transmission
Code: '`transmissionRegularity`'
Remarks:
Aliases: TRMREG
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'continuous' Aliases: (none)	transmission is made continuously	1	
'regular' Aliases: (none)	transmission is made regularly according to a schedule	2	
'on receipt' Aliases: (none)	transmission is made when warning or information is received from another authority	3	
'as required' Aliases: (none)	transmission is made under specified conditions or when needed	4	
'on request' Aliases: (none)	transmission is made when requested by a user	5	

3.108 Transmitter identification character

Name: Transmitter identification character
Definition: The NAVTEX transmitter identification character is a single unique letter, which is allocated to each transmitter. It is used to identify the broadcasts, which are to be accepted by the receiver, those which are to be rejected, and the time slot for the transmission.
Code: 'txIdentChar'
Remarks: The transmitter identification character should be indicated by a single character (A-Z)
Aliases: TRIDCA
Value Type: text

Constraints

string Length	text Pattern	range	precision
1	A-Z	(not specified)	(not specified)

For real values, precision is the number of digits after the decimal point.

3.109 Variable Date

Name: Variable Date
Definition: A day which is not fixed in the Gregorian calendar.
Code: 'variableDate'
Remarks:
Aliases: (none)
Value Type: text

3.110 Action or activity

Name: Action or activity
Definition: The action or activity of a vessel
Code: 'actionOrActivity'
Remarks: codeListType=open enumeration; encoding=other: [something]
Aliases: (none)
Value Type: S100_CodeList

Listed Values

Label	Definition	Code	Remarks

Label	Definition	Code	Remarks
'navigating with a pilot' Aliases: (none)	Carrying a qualified pilot as part of the vessel navigation team.	1	
'entering port' Aliases: (none)	Navigating a vessel into a port	2	
'leaving port' Aliases: (none)	Navigating a vessel out of a port.	3	
'berthing' Aliases: (none)	Attaching a vessel to a wharf or jetty	4	
'slipping' Aliases: (none)	Detaching a vessel from a wharf or jetty.	5	
'anchoring' Aliases: (none)	Attaching a vessel to the seabed by means of an anchor and cable.	6	
'weighing anchor' Aliases: (none)	Detaching a vessel from the seabed by recovering an anchor and cable.	7	
'transiting' Aliases: (none)	Navigating a vessel along a route or through a narrow gap, such as under a bridge or through a lock.	8	
'overtaking' Aliases: (none)	Navigating a vessel past another traveling broadly in the same direction.	9	
'reporting' Aliases: (none)	Providing details such as the name, location or intentions of a vessel	10	
'working cargo' Aliases: (none)	Loading or unloading cargo	11	
'landing' Aliases: (none)	Placing crew or passengers on shore	12	
'diving' Aliases: (none)	Placing a swimmer with an air supply below the sea surface.	13	
'fishing' Aliases: (none)	Hunting or catching fish	14	
'discharging overboard' Aliases: (none)	Releasing anything into the sea; often ballast water; or spoil from dredging elsewhere.	15	
'passing' Aliases: (none)	Navigating a vessel past another traveling broadly in the opposite direction.	16	

3.111 Category of RxN

Name: Category of RxN
Definition: The principal subject matter of regulations, restrictions, recommendations or nautical information
Code: 'categoryOfRxN'
Remarks: codeListType=open enumeration; encoding=other: [something]
Aliases: (none)
Value Type: S100_CodeList

Listed Values

Label	Definition	Code	Remarks

Label	Definition	Code	Remarks
'navigation' Aliases: (none)	pertaining to navigation	1	
'communication' Aliases: (none)	pertaining to communication	2	
'environmental protection' Aliases: (none)	pertaining to environmental protection	3	
'wildlife protection' Aliases: (none)	pertaining to wildlife protection	4	
'security' Aliases: (none)	pertaining to security	5	
'customs' Aliases: (none)	pertaining to customs	6	
'cargo operation' Aliases: (none)	pertaining to cargo operation	7	
'refuge' Aliases: (none)	pertaining to a place of safety or refuge	8	
'health' Aliases: (none)	pertaining to health	9	
'natural resources or exploitation' Aliases: (none)	natural resources or exploitation	10	
'port' Aliases: (none)	pertaining to a port	11	
'finance' Aliases: (none)	pertaining to finance	12	
'agriculture' Aliases: (none)	pertaining to agriculture	13	

3.112 Category of schedule

Name: Category of schedule
Definition: Describes the type of schedule, e.g., opening, closure, etc.
Code: 'categoryOfSchedule'
Remarks: codeListType=open enumeration; encoding=other: [something]
Aliases: (none)
Value Type: S100_CodeList

Listed Values

Label	Definition	Code	Remarks
'normal operation' Aliases: (none)	The service, office, is open, fully manned, and operating normally, or the area is accessible as usual.	1	
'closure' Aliases: (none)	The service, office, or area is closed.	2	
'unmanned operation' Aliases: (none)	The service is available but not manned.	3	

3.113 Category of vessel

Name: Category of vessel
Definition: Classification of vessels by function or use.
Code: 'categoryOfVessel'
Remarks: codeListType=open enumeration; encoding=other: [something]
Aliases: (none)
Value Type: S100_CodeList

Listed Values

Label	Definition	Code	Remarks
'general cargo vessel' Aliases: (none)	a vessel designed to carry general cargo	1	
'container carrier' Aliases: (none)	a vessel designed to carry ISO containers	2	
'tanker' Aliases: (none)	a vessel designed to carry bulk liquid or gas, including LPG and LNG	3	
'bulk carrier' Aliases: (none)	a vessel designed to carry bulk solid material	4	
'passenger vessel' Aliases: (none)	a vessel designed to carry passengers; often a cruise ship	5	
'roll-on roll-off' Aliases: (none)	a vessel designed to allow road vehicles to be driven on and off; often a ferry	6	
'refrigerated cargo vessel' Aliases: (none)	a vessel designed to carry refrigerated cargo	7	
'fishing vessel' Aliases: (none)	a vessel designed to catch or hunt fish	8	
'service' Aliases: (none)	a vessel which provides a service such as a tug, anchor handler, survey or supply vessel	9	
'warship' Aliases: (none)	a vessel designed for the conduct of military operations	10	
'towed or pushed composite unit' Aliases: (none)	either a tug and tow, or any combination of a tug providing propulsion to barges or vessels secured ahead or alongside	11	
'tug and tow' Aliases: (none)	a combination of tug(s) and non-powered tow(s)	12	
'light recreational' Aliases: (none)	A pleasure boat or watercraft, or an excursion vessel used for short cruises such as whale watching	13	
'semi-submersible offshore installation' Aliases: (none)	An installation which is designed to float at all times and which is normally anchored in position when deployed in the offshore gas and oil industry.	14	
'jack-up exploration or project installation' Aliases: (none)	An exploration or project installation with legs which can be raised and lowered. The legs are raised when the installation is repositioned. When stationary the legs are lowered to the sea floor and the working platform is raised clear of the sea surface	15	
'livestock carrier'	A vessel designed to carry large quantities of live animals.	16	

Label	Definition	Code	Remarks
Aliases: (none)			
'sport fishing' Aliases: (none)	A vessel used in fishing for pleasure or competition.	17	

3.114 Online function

Name: Online function
Definition: code for function performed by the online resource
Code: 'onlineFunction'
Remarks: codeListType=open enumeration; encoding=other: [something]
Aliases: (none)
Value Type: S100_CodeList

Listed Values

Label	Definition	Code	Remarks
'download' Aliases: (none)	online instructions for transferring data from one storage device or system to another. (ISO 19115:2014)	1	
'information' Aliases: (none)	online information about the resource (ISO 19115:2014)	2	
'offlineAccess' Aliases: (none)	online instructions for requesting the resource from the provider (ISO 19115:2014)	3	
'order' Aliases: (none)	online order process for obtaining the resource (ISO 19115:2014).	4	
'search' Aliases: (none)	online search interface for seeking out information about the resource (ISO 19115:2014).	5	
'completeMetadata' Aliases: (none)	complete metadata provided (ISO 19115:2014).	6	
'browseGraphic' Aliases: (none)	browse graphic provided (ISO 19115:2014).	7	
'upload' Aliases: (none)	online resource upload capability provided (ISO 19115:2014).	8	
'emailService' Aliases: (none)	online email service provided (ISO 19115:2014)	9	
'browsing' Aliases: (none)	online browsing provided (ISO 19115:2014)	10	
'fileAccess' Aliases: (none)	online file access provided (ISO 19115:2014)	11	

3.115 Telecommunication service

Name: Telecommunication service
Definition: Classification of methods of communication over a distance by electrical, electronic, or electromagnetic means.
Code: 'telecommunicationService'
Remarks: codeListType=open enumeration; encoding=other: [something]
Aliases: (none)
Value Type: S100_CodeList

Listed Values

Label	Definition	Code	Remarks
'voice' Aliases: (none)	The transfer or exchange of information by using sounds that are being made by mouth and throat when speaking	1	
'facsimile' Aliases: (none)	a system of transmitting and reproducing graphic matter (as printing or still pictures) by means of signals sent over telephone lines	2	
'SMS' Aliases: (none)	Short Message Service, a form of text messaging communication on phones and mobile phones	3	
'data' Aliases: (none)	facts or information used usually to calculate, analyze, or plan something	4	
'streamedData' Aliases: (none)	Streamed data is data that that is constantly received by and presented to an end-user while being delivered by a provider.	5	
'telex' Aliases: (none)	a system of communication in which messages are sent over long distances by using a telephone system and are printed by using a special machine (called a teletypewriter)	6	
'telegraph' Aliases: (none)	an apparatus, system, or process for communication at a distance by electric transmission over wire	7	
'email' Aliases: (none)	Messages and other data exchanged between individuals using computers in a network.	8	

3.116 Text justification

Name: Text justification
Definition: The anchor point of a text string
Code: 'textJustification'
Remarks:
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'left' Aliases: (none)	The anchor point is at the start of the text string.	1	
'centred' Aliases: (none)	The anchor point is at the centre of the text string.	2	
'right' Aliases: (none)	The anchor point is at the end of the text string.	3	

3.117 Text type

Name: Text type
Definition: The attribute from which a text string is derived.
Code: 'textType'
Remarks: (S-122) Remark: S-122 does not include light features and therefore listed value '2: light characteristic' is omitted from the S-122 application schema.
Aliases: (none)
Value Type: enumeration

Listed Values

Label	Definition	Code	Remarks
'feature name' Aliases: (none)	The attribute from which a text string is derived.	1	

4 Complex Attributes

4.1 Bearing information

Name: Bearing information
Definition: A bearing is the direction one object is from another object.
Code: 'bearingInformation'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
cardinalDirection	enumeration	0..1	1: N 2: NNE 3: NE 4: ENE 5: E 6: ESE 7: SE 8: SSE 9: S 10: SSW 11: SW 12: WSW 13: W 14: WNW 15: NW 16: NNW	false
distance	real	0..1		false
sectorBearing	real	0..2		true
information	complex	0..*		false
orientation	complex	0..1		false

4.2 Contact address

Name: Contact address
Definition: Direction or superscription of a letter, package, etc., specifying the name of the place to which it is directed, and optionally a contact person or organisation who should receive it. (Oxford English Dictionary, 2nd Ed., adapted).
Code: 'contactAddress'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
deliveryPoint	text	0..*		false
cityName	text	0..1		false
administrativeDivision	text	0..1		false
country	text	0..1		false
postalCode	text	0..1		false

4.3 Facsimile drum speed

Name: Facsimile drum speed
Definition: Facsimile drum speed
Code: 'facsimileDrumSpeed'
Remarks:
Aliases: FAXSSP

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
drumSpeed	integer	1..1		false
indexOfCooperation	integer	1..1		false

4.4 Feature name

Name: Feature name
Definition: The complex attribute provides the name of an entity, defines the national language of the name, and provides the option to display the name at various system display settings.
Code: 'featureName'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
displayName	boolean	0..1		false
language	text	0..1		false
name	text	1..1		false

4.5 Fixed date range

Name: Fixed date range
Definition: The complex attribute describes single fixed period, as the date range between its sub-attributes.
Code: 'fixedDateRange'
Remarks: the sub-attributes date start and date end must be encoded using 4 digits for the calendar year (YYYY) and, optionally, 2 digits for the month (MM) (e.g. April = 04) and 2 digits for the day (DD). When no specific month and/or day is required/known, the values are replaced with dashes (-).
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
dateEnd	S100_TruncatedDate	0..1		false
dateStart	S100_TruncatedDate	0..1		false

4.6 Frequency pair

Name: Frequency pair
Definition: A pair of frequencies for transmitting and receiving radio signals. The shore station transmits and receives on the frequencies indicated.
Code: 'frequencyPair'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
frequencyShoreStationReceives	integer	0..*		true
frequencyShoreStationTransmits	integer	0..*		true

4.7 Graphic

Name: Graphic
Definition: Pictorial information such as a photograph, sketch, or other graphic, optionally accompanied by descriptive information about the graphic and the location relative to its subject from which it was made.
Code: 'graphic'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
pictorialRepresentation	text	1..*		false
pictureCaption	text	0..1		false
sourceDate	text	0..1		false
pictureInformation	text	0..1		false
bearingInformation	complex	0..1		false

4.8 Horizontal positional uncertainty

Name: Horizontal positional uncertainty
Definition: The best estimate of the accuracy of a position.
Code: 'horizontalPositionalUncertainty'
Remarks: The expected input is the maximum of the two-dimensional error. The error is assumed to be positive and negative. The plus/minus character shall not be encoded.
Aliases: POSACC

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
uncertaintyFixed	real	1..1		false
uncertaintyVariable	real	0..1		false

4.9 Information

Name: Information
Definition: The complex attribute provides additional textual information that cannot be provided using other allowable attributes for the feature, and defines the language of the text string.
Code: 'information'
Remarks: this complex attribute should be used, for example, to hold the information that is shown on paper charts by cautionary and explanatory notes.
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
fileLocator	text	0..1		false
fileReference	text	0..1		false
headline	text	0..1		false
language	text	0..1		false
text	text	0..1		false

4.10 Online resource

Name: Online resource
Definition: Information about online sources from which a resource or data can be obtained.
Code: 'onlineResource'
Remarks: The complex attribute describes the access to online resources according to ISO 19115.
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
linkage	URL	1..1		false
protocol	text	0..1		false
applicationProfile	text	0..1		false
nameOfResource	text	0..1		false
onlineDescription	text	0..1		false
onlineFunction	S100_CodeList	0..1	1: download 2: information 3: offlineAccess 4: order 5: search 6: completeMetadata 7: browseGraphic 8: upload 9: emailService 10: browsing 11: fileAccess	false
protocolRequest	text	0..1		false

4.11 Orientation

Name: Orientation
Definition: The angular distance measured from true north to the major axis of the feature.
Code: 'orientation'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
orientationUncertainty	real	0..1		false
orientationValue	real	1..1		false

4.12 Schedule by day of week

Name: Schedule by day of week
Definition: The nature and timings of a daily schedule by days of the week.
Code: 'scheduleByDoW'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
categoryOfSchedule	S100_CodeList	0..1	1: normal operation 2: closure 3: unmanned operation	false
tmIntervalsByDoW	complex	1..*		false

4.13 Periodic date range

Name: Periodic date range
Definition: The complex attribute describes the active period for a seasonal feature (e.g. a buoy), as the dates between its sub-attributes
Code: 'periodicDateRange'
Remarks: The sub-attributes date start and date end should be encoded using 4 digits for the calendar year (YYYY), 2 digits for the month (MM) (for example April = 04) and 2 digits for the day (DD). When no specific year is required (that is, the feature is removed at the same time each year) the following two cases may be considered: - same day each year: ----MMDD - same month each year: ----MM-- This conforms to ISO 8601:2004.
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
dateEnd	S100_TruncatedDate	1..1		false
dateStart	S100_TruncatedDate	1..1		false

4.14 Radiocommunications

Name: Radiocommunications
Definition: Detailed radiocommunications description with channels, frequencies, preferences and time schedules
Code: 'radiocommunications'

Remarks:
Aliases: RDOCOM

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
categoryOfCommPref	enumeration	0..1	1: preferred calling 2: alternate calling 3: preferred working 4: alternate working	false
categoryOfMaritimeBroadcast	enumeration	0..*	1: navigational warning 2: meteorological warning 3: ice report 4: SAR information 5: pirate attack warning 6: meteorological forecast 7: pilot service message 8: AIS information 9: LORAN message 10: SATNAV message 11: gale warning 12: storm warning 13: tropical revolving storm warning 14: NAVAREA warning 15: coastal warning 16: local warning 17: low water level warning/negative tidal surge 18: icing warning 19: tsunami broadcast	false
categoryOfRadioMethods	enumeration	0..*	1: Low Frequency (LF) voice traffic 2: Medium Frequency (MF) voice traffic 3: High Frequency (HF) voice traffic 4: Very High Frequency (VHF) voice traffic 5: High Frequency Narrow Band Direct Printing 6: NAVTEX 7: SafetyNET 8: NBDP Telegraphy (Narrow Band Direct Printing Telegraphy) 9: facsimile 10: NAVIP 11: Low Frequency (LF) digital traffic 12: Medium Frequency (MF) digital traffic 13: High Frequency (HF) digital traffic 14: Very High Frequency (VHF) digital traffic 15: Low Frequency (LF) telegraph traffic	false

Sub-attribute	Type	Mult.	Permitted Values	sequential
			16: Medium Frequency (MF) telegraph traffic 17: High Frequency (HF) telegraph traffic 18: Medium Frequency (MF) Digital Selective Call traffic 19: High Frequency (HF) Digital Selective Call traffic 20: Very High Frequency (VHF) Digital Selective Call traffic	
communicationChannel	text	0..*		false
contactInstructions	text	0..1		false
facsimileDrumSpeed	complex	0..1		false
frequencyPair	complex	0..*		false
selectiveCallNumber	integer	0..1		false
signalFrequency	integer	0..1		false
timeOfObservation	complex	0..1		false
timesOfTransmission	complex	0..1		false
tmIntervalsByDoW	complex	0..*		false
transmissionContent	text	0..1		false
transmissionRegularity	enumeration	0..*	1: continuous 2: regular 3: on receipt 4: as required 5: on request	false

4.15 Radio station communication description

Name: Radio station communication description
Definition: Description of the type and content of a communication or broadcast from a radio station.
Code: '`radioStationCommunicationDescription`'
Remarks: This complex attribute is not intended for detailed descriptions of a station's radio services. For detailed descriptions of radio service, use the attributes of the associated RadioServiceArea feature.
Aliases: RDOSUM

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
categoryOfMaritimeBroadcast	enumeration	0..*	1: navigational warning 2: meteorological warning 3: ice report 4: SAR information 5: pirate attack warning 6: meteorological forecast 7: pilot service message 8: AIS information 9: LORAN message 10: SATNAV message 11: gale warning	false

Sub-attribute	Type	Mult.	Permitted Values	sequential
			12: storm warning 13: tropical revolving storm warning 14: NAVAREA warning 15: coastal warning 16: local warning 17: low water level warning/negative tidal surge 18: icing warning 19: tsunami broadcast	
communicationChannel	text	0..*		false
signalFrequency	integer	0..1		false
transmissionContent	text	0..1		false

4.16 RxN Code

Name: RxN Code
Definition: A summary of the impact of the most common types of regulation, restriction, recommendation and nautical information on a vessel.
Code: '`rxnCode`'
Remarks: This attribute converts the subject, topic, and effects of regulations, etc., from plain text or natural language into a set of categories.
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
categoryOfRxN	S100_CodeList	0..1	1: navigation 2: communication 3: environmental protection 4: wildlife protection 5: security 6: customs 7: cargo operation 8: refuge 9: health 10: natural resources or exploitation 11: port 12: finance 13: agriculture	false
actionOrActivity	S100_CodeList	0..1	1: navigating with a pilot 2: entering port 3: leaving port 4: berthing 5: slipping 6: anchoring 7: weighing anchor 8: transiting 9: overtaking 10: reporting 11: working cargo	false

Sub-attribute	Type	Mult.	Permitted Values	sequential
			12: landing 13: diving 14: fishing 15: discharging overboard 16: passing	
headline	text	0..1		false

4.17 Source indication

Name: Source indication
Definition: Information about the source document, publication, or reference from which object data or textual material included or referenced in a dataset are derived
Code: 'sourceIndication'
Remarks:
Aliases: SORIND

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
categoryOfAuthority	enumeration	0..1	1: customs 2: border control 3: police 4: port 5: immigration 6: health 7: coast guard 8: agricultural 9: military 10: private company 11: maritime police 12: environmental 13: fishery 14: finance 15: maritime	false
country	text	0..1		false
reportedDate	S100_TruncatedDate	0..1		false
source	text	0..1		false
sourceType	enumeration	0..1	1: law or regulation 2: official publication 7: mariner report, confirmed 8: mariner report, not confirmed 9: industry publications and reports 10: remotely sensed images 11: photographs 12: products issued by HO services 13: news media 14: traffic data	false

Sub-attribute	Type	Mult.	Permitted Values	sequential
featureName	complex	0..*		true

4.18 Survey date range

Name: Survey date range
Definition: The complex attribute describes the period of the hydrographic survey, as the time between its sub-attributes.
Code: 'surveyDateRange'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
dateEnd	S100_TruncatedDate	1..1		false
dateStart	S100_TruncatedDate	0..1		false

4.19 Telecommunications

Name: Telecommunications
Definition: A means or channel of communicating at a distance by electrical or electromagnetic means such as telegraphy, telephony, or broadcasting.
Code: 'telecommunications'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
categoryOfCommPref	enumeration	0..1	1: preferred calling 2: alternate calling 3: preferred working 4: alternate working	false
telecommunicationIdentifier	text	1..1		false
telcomCarrier	text	0..1		false
contactInstructions	text	0..1		false
telecommunicationService	S100_CodeList	0..*	1: voice 2: facsimile 3: SMS 4: data 5: streamedData 6: telex 7: telegraph 8: email	false
tmIntervalsByDoW	complex	0..*		false

4.20 Text content

Name: Text content
Definition: Textual material, or a pointer to a resource providing textual material. May be accompanied by basic information about its source and relationship to the source.
Code: 'textContent'
Remarks: textContent is intended to allow text passages from other publications to be included in, or referenced by, instances of feature or information types. Exactly one of sub-attributes onlineResource or information must be completed in one instance of textContent. Product specifications may restrict the use or content of onlineResource for security. For example, a product specification may forbid populating onlineResource. Product specification authors must consider whether applications using the data product may be prevented from accessing off-system resources by security policies.
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
categoryOfText	enumeration	0..1	1: abstract or summary 2: extract 3: full text	false
information	complex	0..*		false
onlineResource	complex	0..*		false
sourceIndication	complex	0..*		false

4.21 Time intervals by day of week

Name: Time intervals by day of week
Definition: Time intervals by days of the week
Code: 'tmIntervalsByDoW'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
dayOfWeek	enumeration	0..7	1: monday 2: tuesday 3: wednesday 4: thursday 5: friday 6: saturday 7: sunday	true
dayOfWeekIsRange	boolean	0..1		false
timeReference	enumeration	1..1	1: localTime 2: UTC	false
timeOfDayStart	time	0..*		true
timeOfDayEnd	time	0..*		true

4.22 Time of observation

Name: Time of observation
Definition: The time in the day when a weather or ice observation is made, expressed in UTC or local time. The time of observation normally amplifies the time of transmission of radio-facsimile weather maps or ice charts.
Code: 'timeOfObservation'

Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
observationTime	time	1..1		false
timeReference	enumeration	1..1	1: localTime 2: UTC	false

4.23 Times of transmission

Name: Times of transmission
Definition: One or more times in the day when the radio station starts a routine transmission, normally expressed in UTC or local time.
Code: 'timesOfTransmission'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
minutePastEvenHours	integer	0..1		false
minutePastEveryHour	integer	0..1		false
minutePastOddHours	integer	0..1		false
timeReference	enumeration	0..1	1: localTime 2: UTC	false
transmissionTime	time	0..*		false

4.24 Vessels measurements

Name: Vessels measurements
Definition: Terms and definitions specifically related to vessels
Code: 'vesselsMeasurements'
Remarks:
Aliases: (none)

Sub-Attributes

Sub-attribute	Type	Mult.	Permitted Values	sequential
comparisonOperator	enumeration	0..1	1: greater than 2: greater than or equal to 3: less than 4: less than or equal to 5: equal to 6: not equal to	false
vesselsCharacteristics	enumeration	0..1	1: length overall 2: length at waterline 3: breadth 4: draught 5: height 6: displacement tonnage 7: displacement tonnage, light 8: displacement tonnage, loaded	false

Sub-attribute	Type	Mult.	Permitted Values	sequential
			9: deadweight tonnage 10: gross tonnage 11: net tonnage 12: Panama Canal/Universal Measurement System net tonnage 13: Suez Canal net tonnage 14: Suez Canal gross tonnage	
vesselsCharacteristicsValue	real	0..1		false
vesselsCharacteristicsUnit	enumeration	0..1	1: metre 2: foot 3: metric ton 4: ton 5: short ton 6: gross ton 7: net ton 8: Panama Canal/Universal Measurement System net tonnage 9: Suez Canal Net Tonnage 10: none 11: cubic metres 12: Suez Canal Gross Tonnage	false

5 Roles

5.1 The applicable RxN

Name: The applicable RxN
Definition: The applicable regulation, restriction, recommendation or nautical information
Code: 'theApplicableRxN'
Remarks:
Aliases: (none)

5.2 Applies in location

Name: Applies in location
Definition: The location in which the information item applies
Code: 'appliesInLocation'
Remarks:
Aliases: (none)

5.3 Authority (reference)

Name: Authority (reference)
Definition: A pointer to an Authority object
Code: 'theAuthority'
Remarks:
Aliases: (none)

5.4 Authority service hours

Name: Authority service hours
Definition: The authority for which service hours are given
Code: 'theAuthority_srvHrs'
Remarks:
Aliases: (none)

5.5 Component of

Name: Component of
Definition: A pointer to the aggregate in a whole-part relationship.
Code: 'componentOf'
Remarks: Definition may need to be discussed with S-101 team and GI registry manager
Aliases: (none)

5.6 Consists of

Name: Consists of
Definition: A pointer to a part in a whole-part relationship
Code: 'consistsOf'
Remarks: Definition may need to be discussed with S-101 team and GI registry manager
Aliases: (none)

5.7 Contact details (reference)

Name: Contact details (reference)

Definition: A pointer to a Contact Details object
Code: 'theContactDetails'
Remarks:
Aliases: (none)

5.8 Control authority

Name: Control authority
Definition: The controlling organization or authority for a geographically located service
Code: 'controlAuthority'
Remarks:
Aliases: (none)

5.9 Controlled service

Name: Controlled service
Definition: The service controlled by an organisation or authority
Code: 'controlledService'
Remarks:
Aliases: (none)

5.10 Defined for

Name: Defined for
Definition: A pointer to a specific spatial type(s).
Code: 'definedFor'
Remarks:
Aliases: (none)

5.11 Defines

Name: Defines
Definition: A pointer to an information type providing spatial quality information.
Code: 'defines'
Remarks:
Aliases: (none)

5.12 The information

Name: The information
Definition: Information related to an organisation
Code: 'theInformation'
Remarks:
Aliases: (none)

5.13 Identifies

Name: Identifies
Definition: A pointer to a specific feature(s).
Code: 'identifies'
Remarks:
Aliases: (none)

5.14 Information provided for

Name: Information provided for
Definition: A pointer to a specific feature(s) for which further information is required.
Code: 'informationProvidedFor'
Remarks:
Aliases: (none)

5.15 Is applicable to

Name: Is applicable to
Definition: The object or class of objects to which the regulation, restriction, recommendation, or nautical information applies
Code: 'isApplicableTo'
Remarks:
Aliases: (none)

5.16 Location service hours

Name: Location service hours
Definition: The location for which service hours are given
Code: 'location_srvHrs'
Remarks:
Aliases: (none)

5.17 The organisation

Name: The organisation
Definition: The organisation to which information relates
Code: 'theOrganisation'
Remarks:
Aliases: (none)

5.18 Partial working day

Name: Partial working day
Definition: The work hours for a non-standard workday
Code: 'partialWorkingDay'
Remarks:
Aliases: (none)

5.19 Positions

Name: Positions
Definition: A pointer to a specific cartographically positioned location for text.
Code: 'positions'
Remarks:
Aliases: (none)

5.20 Permission

Name: Permission
Definition: The permissions for a location
Code: 'permission'
Remarks:
Aliases: (none)

5.21 Provides information

Name: Provides information
Definition: A pointer to an object that provides more information about the referencing feature or information type.
Code: 'providesInformation'
Remarks:
Aliases: (none)

5.22 The RxN

Name: The RxN
Definition: The regulation, restriction, recommendation, or nautical information
Code: 'theRxN'
Remarks:
Aliases: (none)

5.23 Service area

Name: Service area
Definition: The area served by a service provider.
Code: 'serviceArea'
Remarks: Distinction: servicePlace (the facility for which contact information is provided)
Aliases: (none)

5.24 Service Hours (reference)

Name: Service Hours (reference)
Definition: Service hours for an authority or service provider
Code: 'theServiceHours'
Remarks:
Aliases: (none)

5.25 The service hours for a non-standard workday

Name: The service hours for a non-standard workday
Definition: The usual service hours to which an exception applies
Code: 'theServiceHours_nsdy'
Remarks:
Aliases: (none)

5.26 Service place

Name: Service place
Definition: Pointer to service or facility
Code: 'servicePlace'
Remarks: Distinction: serviceArea (area served by a provider)
Aliases: (none)

5.27 Service provider

Name: Service provider
Definition: Pointer to a feature from where a provider supplies a service.
Code: 'serviceProvider'
Remarks:
Aliases: (none)

5.28 Vessel location

Name: Vessel location
Definition: The location to which the permission statement applies
Code: 'vslLocation'
Remarks:
Aliases: (none)

6 Information Associations

6.1 Additional information

Name: Additional information
Definition: A feature association for the binding between at least one instance of a geo feature and an instance of an information type.
Code: 'additionalInformation'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: providesInformation informationProvidedFor

6.2 Authority contact

Name: Authority contact
Definition: Contact information for an authority
Code: 'authorityContact'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: theAuthority theContactDetails

6.3 Authority hours

Name: Authority hours
Definition: Service hours for an authority
Code: 'authorityHours'
Remarks: This association links an info type to a Service Hours object. Distinction: location_srvHrs, which links a geographic feature (e.g., RadioStation) to a Service Hours object.
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: theAuthority_srvHrs theServiceHours

6.4 Associated RxN

Name: Associated RxN
Definition: Association between a geographic location and a regulation, restriction, recommendation, or nautical information
Code: 'associatedRxN'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: appliesInLocation theRxN

6.5 Exceptional workday

Name: Exceptional workday
Definition: Exception to the usual working day
Code: 'exceptionalWorkday'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: theServiceHours_nsdy partialWorkingDay

6.6 InclusionType

Name: InclusionType
Definition: Association class specifying the relationship between the subset of vessels described by an APPLIC data object and a regulation (restriction, recommendation, or nautical information).
Code: 'InclusionType'
Remarks:
Aliases: (none)

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
membership	enumeration	1..1	1 : included 2 : excluded	false

Role: theApplicableRxN isApplicableTo

6.7 Location hours

Name: Location hours
Definition: Working hours for a service or facility described by a geographic location
Code: 'locationHours'
Remarks: This association links a geo feature to a Service Hours object. Distinction: authyHours, which links an information type (Authority) to a Service Hours object.
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: location_srvHrs theServiceHours

6.8 PermissionType

Name: PermissionType
Definition: Association class for associations describing whether the subsets of vessels determined by the ship characteristics specified in APPLIC may (or must, etc.) transit, enter, or use a feature.
Code: 'PermissionType'
Remarks:
Aliases: (none)

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfRelationship	enumeration	1..1	1 : prohibited 2 : not recommended	false

Attribute	Type	Mult.	Permitted Values	Sequential
			3 : permitted 4 : recommended 5 : required 6 : not required	

Role: vslLocation permission

6.9 Related organisation

Name: Related organisation
Definition: Related organisation
Code: 'relatedOrganisation'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: theInformation theOrganisation

6.10 Service contact

Name: Service contact
Definition: Contact details for a service or facility
Code: 'srvContact'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: servicePlace theContactDetails

6.11 Service control

Name: Service control
Definition: Association between a geographically located service and the organisation that controls it
Code: 'srvControl'
Remarks: This is an information association linking a location where a service is provided with an information type describing the provider. Contrast to serviceProvisionArea, which is a feature association linking the area served with another feature describing the provider. Role controlledService encodable only as a generic inverse association in 3.0.0 datasets as it is an information->feature link
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: controlledService controlAuthority

6.12 Spatial Association

Name: Spatial Association
Definition: An association for the binding between a spatial type and its spatial quality information.
Code: 'spatialAssociation'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role: definedFor defines

7 Feature Associations

7.1 Core aggregation

Name: Core aggregation
Definition: A feature association for the binding between an aggregation feature that describes areas of varying uncertainty about a service or phenomenon and a geographic feature describing the service or phenomenon.
Code: 'coreAggregation'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role(s): componentOf consistsOf

7.2 Fuzzy zone aggregation

Name: Fuzzy zone aggregation
Definition: A feature association for the binding between an aggregation feature that describes areas of varying uncertainty about a service or phenomenon and zones of uncertainty about the service or phenomenon.
Code: 'fuzzyZoneAggregation'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role(s): componentOf consistsOf

7.3 Service provision area

Name: Service provision area
Definition: Association linking the location from which a service is provided and the area(s) served.
Code: 'serviceProvisionArea'
Remarks: This is a feature association linking a provider described by a geographic feature with the area served (another geographic feature). Contrast to srvControl, which is an information association linking the area served to an information object describing the provider.
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role(s): serviceProvider serviceArea

7.4 Text association

Name: Text association
Definition: A feature association for the binding between a geo feature and the cartographically positioned location for text.
Code: 'textAssociation'
Remarks:
Aliases: (none)

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Role(s): identifies positions

8 Information Types

8.1 InformationType

Name: InformationType Abstract type: true
Definition: Generalized information type which carries all the common attributes
Code: 'InformationType'
Remarks:
Aliases: (none)

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
fixedDateRange	complex	0..1		false
periodicDateRange	complex	0..*		false
featureName	complex	0..*		false
sourceIndication	complex	0..*		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	additionalInformation	providesInformation	NauticalInformation

8.2 AbstractRxN

Name: AbstractRxN Abstract type: true
Definition: An abstract superclass for information types that encode rules, recommendations, and general information in text or graphic form.
Code: 'AbstractRxN'
Remarks: Subtypes of AbstractRxN carry the same attributes, but differ in the nature of information they encode. There are currently four such subtypes: Regulations, Restrictions, Recommendations, and NauticalInformation.
Aliases: (none) Supertype: InformationType

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfAuthority	enumeration	0..1	1 : customs 2 : border control 3 : police 4 : port 5 : immigration 6 : health 7 : coast guard 8 : agricultural 9 : military 10 : private company 11 : maritime police 12 : environmental 13 : fishery 14 : finance	false

Attribute	Type	Mult.	Permitted Values	Sequential
			15 : maritime	
textContent	complex	0..*		false
graphic	complex	0..*		false
rxnCode	complex	0..*		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	InclusionType		Applicability
association	0..*	relatedOrganisation	theOrganisation	AbstractRxN

8.3 Applicability

Name: Applicability
Definition: Describes the relationship between vessel characteristics and: (i) the applicability of an associated information object or feature to the vessel; or, (ii) the use of a facility, place, or service by the vessel; or, (iii) passage of the vessel through an area.
Code: '`Applicability`'
Remarks:
Aliases: (none) Supertype: InformationType

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
ballast	boolean	0..1		false
categoryOfCargo	enumeration	0..*	1 : bulk 2 : container 3 : general 4 : category of cargo liquid 5 : passenger 6 : livestock 7 : dangerous or hazardous	false
categoryOfDangerousOrHazardousCargo	enumeration	0..*	1 : IMDG Code Class 1 Div. 1.1 2 : IMDG Code Class 1 Div. 1.2 3 : IMDG Code Class 1 Div. 1.3 4 : IMDG Code Class 1 Div. 1.4 5 : IMDG Code Class 1 Div. 1.5 6 : Class 1: Division 1.6 7 : IMDG Code Class 2 Div. 2.1 8 : IMDG Code Class 2 Div. 2.2 9 : IMDG Code Class 2 Div. 2.3 10 : IMDG Code Class 3 11 : IMDG Code Class 4 Div. 4.1 12 : IMDG Code Class 4 Div. 4.2 13 : IMDG Code Class 4 Div. 4.3 14 : IMDG Code Class 5 Div. 5.1 15 : IMDG Code Class 5 Div. 5.2 16 : IMDG Code Class 6 Div. 6.1 17 : IMDG Code Class 6. Div. 6.2 18 : IMDG Code Class 7 19 : IMDG Code Class 8	false

Attribute	Type	Mult.	Permitted Values	Sequential
			20 : IMDG Code Class 9 21 : Harmful Substances in packaged form	
categoryOfVessel	S100_CodeList	0..1	1 : general cargo vessel 2 : container carrier 3 : tanker 4 : bulk carrier 5 : passenger vessel 6 : roll-on roll-off 7 : refrigerated cargo vessel 8 : fishing vessel 9 : service 10 : warship 11 : towed or pushed composite unit 12 : tug and tow 13 : light recreational 14 : semi-submersible offshore installation 15 : jack-up exploration or project installation 16 : livestock carrier 17 : sport fishing	false
categoryOfVesselRegistry	enumeration	0..1	1 : domestic 2 : foreign	false
logicalConnectives	enumeration	0..1	1 : logical conjunction 2 : logical disjunction	false
thicknessOfIceCapability	text	0..1		false
vesselPerformance	text	0..1		false
information	complex	0..*		false
vesselsMeasurements	complex	0..*		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	InclusionType	theApplicableRxN	AbstractRxN
association	0..*	PermissionType	vslLocation	InformationType

8.4 Authority

Name: Authority
Definition: A person or organisation having political or administrative power and control.
Code: '`Authority`'
Remarks:
Aliases: (none) Supertype: InformationType

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfAuthority	enumeration	1..1	1 : customs 2 : border control 3 : police 4 : port	false

Attribute	Type	Mult.	Permitted Values	Sequential
			5 : immigration 6 : health 7 : coast guard 8 : agricultural 9 : military 10 : private company 11 : maritime police 12 : environmental 13 : fishery 14 : finance 15 : maritime	
textContent	complex	0..1		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	authorityContact	theContactDetails	ContactDetails
association	0..*	relatedOrganisation	theInformation	AbstractRxN
association	0..*	authorityHours	theServiceHours	ServiceHours

8.5 Contact details

Name: Contact details
Definition: information on how to reach a person or organisation by postal, internet, telephone, telex and radio systems
Code: '`ContactDetails`'
Remarks:
Aliases: (none) Supertype: InformationType

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
callName	text	0..1		false
callSign	text	0..1		false
communicationChannel	text	0..*		false
contactAddress	complex	0..*		false
contactInstructions	text	0..1		false
frequencyPair	complex	0..*		false
information	complex	0..*		false
mMSICode	integer	0..1		false
onlineResource	complex	0..*		false
telecommunications	complex	0..*		false
radiocommunications	complex	0..*		false

Information bindings

(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	authorityContact	theAuthority	Authority

8.6 Nautical information

Name: Nautical information
Definition: Nautical information about a related area or facility.
Code: 'NauticalInformation'
Remarks: The association ref and role are overloaded since the feature association to this object has the same name, but the informationType element distinguishes it. The info->feature association is not allowed in edition 3.0.0. As a result, the multiplicity of informationProvidedFor role must be 0 because an instance may be associated with either feature or information type.
Aliases: (none) Supertype: AbstractRxN

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	additionalInformation	informationProvidedFor	InformationType

8.7 Non-standard working day

Name: Non-standard working day
Definition: Days when many services are not available. Often days of festivity or recreation when normal working hours are limited, esp. a national or religious festival, etc.
Code: 'NonStandardWorkingDay'
Remarks:
Aliases: (none) Supertype: InformationType

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
dateFixed	S100_TruncatedDate	0..*		false
dateVariable	date	0..*		false
information	complex	0..*		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	exceptionalWorkday	theServiceHours_nsdy	ServiceHours

8.8 Service Hours

Name: Service Hours
Definition: The time when a service is available and known exceptions.

Code: 'ServiceHours'
Remarks:
Aliases: (none) Supertype: InformationType

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
scheduleByDoW	complex	1..*		false
information	complex	0..*		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	exceptionalWorkday	partialWorkingDay	NonStandardWorkingDay
association	0..*	authorityHours	theAuthority_srvHrs	Authority

8.9 Recommendations

Name: Recommendations
Definition: Recommendations for a related area or facility.
Code: 'Recommendations'
Remarks:
Aliases: (none) Supertype: AbstractRxN

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

8.10 Regulations

Name: Regulations
Definition: Regulations for a related area or facility.
Code: 'Regulations'
Remarks:
Aliases: (none) Supertype: AbstractRxN

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

8.11 Restrictions

Name: Restrictions

Definition: Restrictions for a related area or facility.
Code: 'Restrictions'
Remarks:
Aliases: (none) Supertype: AbstractRxN

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

8.12 Spatial Quality

Name: Spatial Quality
Definition: *Definition required*
Code: 'SpatialQuality'
Remarks: To be defined by DQWG?
Aliases: (none)

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfTemporalVariation	enumeration	0..1	1 : extreme event 2 : likely to change 4 : unlikely to change 5 : unassessed	false
qualityOfHorizontalMeasurement	enumeration	0..1	1 : surveyed 2 : unsurveyed 3 : inadequately surveyed 4 : approximate 5 : position doubtful 6 : unreliable 7 : reported (not surveyed) 8 : reported (not confirmed) 9 : estimated 10 : precisely known 11 : calculated	false
horizontalPositionalUncertainty	complex	0..1		false

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

8.13 Spatial Quality Points

Name: Spatial Quality Points
Definition: *Definition required*
Code: 'SpatialQualityPoints'
Remarks: to be finalized by DQWG
Aliases: (none) Supertype: SpatialQuality

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)

(No local bindings, but may inherit bindings from super-types, if any)

9 Feature Types

9.1 FeatureType

Name: FeatureType Abstract type: true
Definition: Generalized feature type which carries all the common attributes
Code: 'FeatureType'
Remarks:
Aliases: (none)
Feature use type: geographic
Permitted primitives: noGeometry

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
fixedDateRange	complex	0..1		false
periodicDateRange	complex	0..*		false
featureName	complex	0..*		false
sourceIndication	complex	0..1		false
textContent	complex	0..1		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	PermissionType	permission	Applicability
association	0..*	associatedRxN	theRxN	AbstractRxN
association	0..*	additionalInformation	providesInformation	NauticalInformation

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..1	textAssociation	positions	TextPlacement

9.2 Fuzzy area aggregate

Name: Fuzzy area aggregate Abstract type: true
Definition: Aggregation of a geographic feature describing a service or phenomenon with zones of different confidence about the availability of the service, occurrence of the phenomenon, or applicability of the information described by the geographic feature.
Code: 'FuzzyAreaAggregate'
Remarks:
Aliases: (none) Supertype: FeatureType
Feature use type: geographic
Permitted primitives: noGeometry

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
composition	1..*	fuzzyZoneAggregation	consistsOf	IndeterminateZone

9.3 Building

Name: Building
Definition: A free-standing self-supporting construction that is roofed, usually walled, and is intended for human occupancy (for example: a place of work or recreation) and/or habitation.
Code: 'BUISGL'
Remarks: S-123 remark: Used only if needed to encode a location relevant to radiocomms but for which a radio service or station is not appropriate. The radio communications information must be encoded using a RadioStation and/or RadioServiceArea.
Aliases: (none) Supertype: FeatureType
Feature use type: geographic
Permitted primitives: point surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
function	enumeration	0..*	29 : communication 31 : radio 34 : microwave 39 : control 44 : sea rescue control	false
status	enumeration	0..*	1 : permanent 2 : occasional 4 : not in use 5 : periodic/intermittent 7 : temporary 8 : private 14 : public	false

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but will inherit super-type bindings if any)

9.4 Coastguard station

Name: Coastguard station
Definition: A station at which a visual/radio/radar marine watch is kept either continuously or at certain times only. (IHO Dictionary – S-32).
Code: 'CoastguardStation'
Remarks: Only those instances concerned to radio communications are encoded in S-123 datasets.
Aliases: (none) Supertype: FeatureType
Feature use type: geographic
Permitted primitives: point surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
communicationChannel	text	0..*		false
isMRCC	boolean	0..1		false
status	enumeration	0..*	1 : permanent 2 : occasional 4 : not in use 5 : periodic/intermittent 7 : temporary 16 : watched 17 : un-watched	false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvContact	theContactDetails	ContactDetails
association	0..1	locationHours	theServiceHours	ServiceHours
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but will inherit super-type bindings if any)

9.5 GMDSS area

Name: GMDSS area
Definition: An area defined for a global communications service based upon automated systems, both satellite based and terrestrial, to provide distress alerting and promulgation of maritime safety information for mariners.
Code: 'GMDSSArea'
Remarks:
Aliases: (none) Supertype: FeatureType
Feature use type: geographic
Permitted primitives: surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfGMDSSArea	enumeration	1..1	1 : Area A1 2 : Area A2 3 : Area A3 4 : Area A4	false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	serviceProvisionArea	serviceProvider	RadioStation

9.6 Inmarsat ocean region area

Name: Inmarsat ocean region area
Definition: The ocean region of the earth's surface, within which a station can obtain line-of-sight communication, with an Inmarsat satellite
Code: 'InmarsatOceanRegionArea'
Remarks:
Aliases: (none) Supertype: FeatureType
Feature use type: geographic
Permitted primitives: surface

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but will inherit super-type bindings if any)

9.7 Indeterminate zone

Name: Indeterminate zone
Definition: A region in which the perception of a phenomenon or the availability of a service is known only to a specified level of confidence.
Code: 'IndeterminateZone'
Remarks: IndeterminateZone features associated to the same fuzzy area aggregate must not overlap.
Aliases: INDZON Supertype: FeatureType
Feature use type: geographic
Permitted primitives: surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
informationConfidence	enumeration	1..1	1 : virtuallyCertain 2 : highLikelihood 3 : mediumLikelihood 4 : lowLikelihood	false

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
composition	1..1	fuzzyZoneAggregation	componentOf	FuzzyAreaAggregate

9.8 Landmark

Name: Landmark
Definition: Any prominent object on land which can be used in determining a location or a direction.
Code: 'Landmark'
Remarks: S-123 remark: Used only if needed to encode a location relevant to radiocomms but for which a radio service or station is not appropriate. The radio communications information must be encoded using a RadioStation and/or RadioServiceArea.
Aliases: (none) Supertype: FeatureType
Feature use type: geographic
Permitted primitives: point surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfLandmark	enumeration	1..*	4 : dish aerial 7 : mast 17 : tower	false
function	enumeration	0..*	29 : communication 31 : radio 34 : microwave 39 : control 44 : sea rescue control	false
status	enumeration	0..*	1 : permanent 2 : occasional 4 : not in use 5 : periodic/intermittent 7 : temporary 8 : private 14 : public	false

Information bindings
(Bindings are also inherited from super-types, if any.)

(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but will inherit super-type bindings if any)

9.9 NAVAREA/METAREA

Name: NAVAREA/METAREA
Definition: The geographic areas in which various governments are responsible for navigation and weather warnings.
Code: 'NavigationalMeteorologicalArea'
Remarks: The roman number of NAV/METAREA is to be coded by using the feature name attribute. NAVTEX transmitting station identification characters are allocated within the same areas.
Aliases: NAVARE Supertype: FeatureType
Feature use type: geographic
Permitted primitives: surface

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	serviceProvisionArea	serviceProvider	RadioStation

9.10 NAVTEX station area

Name: NAVTEX station area
Definition: The geographic areas in which radio stations are responsible for broadcast navigation and weather warnings.
Code: 'NavtexStationArea'
Remarks: The range of the broadcast may cover more than the area described but the responsibility is strictly limited by international agreed borders.
Aliases: NAVTEX Supertype: FeatureType
Feature use type: geographic
Permitted primitives: surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
txIdentChar	text	1..1		false
status	enumeration	0..1	1 : permanent 4 : not in use 7 : temporary	false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	serviceProvisionArea	serviceProvider	RadioStation

9.11 Radio service area

Name: Radio service area
Definition: The area where a radio service can be obtained and the characteristics of the radio transmission.
Code: 'RadioServiceArea'
Remarks:
Aliases: RDOSVC Supertype: FeatureType
Feature use type: geographic
Permitted primitives: surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
callSign	text	0..1		false
categoryOfBroadcastCommunication	enumeration	1..1	1 : commercial 2 : non-commercial 3 : public 4 : non-public	false
languageInformation	text	0..1		false
status	enumeration	0..1	1 : permanent 2 : occasional 4 : not in use 5 : periodic/intermittent 7 : temporary 8 : private 14 : public 16 : watched 17 : un-watched	false
radiocommunications	complex	0..*		false
timeReference	enumeration	0..1	1 : localTime 2 : UTC	false
transmissionPower	real	0..1		false
txIdentChar	text	0..1		false
txTrafficList	boolean	0..1		false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvContact	theContactDetails	ContactDetails
association	0..1	locationHours	theServiceHours	ServiceHours
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	serviceProvisionArea	serviceProvider	RadioStation
aggregation	0..1	coreAggregation	componentOf	RadioServiceAreaAggregate

9.12 Radio station

Name: Radio station
Definition: A place equipped to transmit radio waves.
Code: 'RadioStation'
Remarks: Such a station may be either stationary or mobile, and may also be provided with a radio receiver. In British terminology, also called 'w/t station'. The transmission of a radio station may serve to provide mariners with a line of position (IHO Chart Specifications, M-4). The object 'radio station' is used to encode the point of transmission of the signal. S-123 remarks: (1) The area in which the radio service can be obtained is described by an RDOSVC object. (2) The S-123 definition differs from the 2016 S-101 definition by omitting the optional attribute communicationChannel (bound to the NPUBs domain complex attribute radioStationCommunicationDescription instead). The NPUBs domain feature also binds attribute orientation to RadioStation.
Aliases: RDOSTA Supertype: FeatureType
Feature use type: geographic
Permitted primitives: point

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
callSign	text	0..1		false
categoryOfRadioStation	enumeration	0..1	5 : radio direction-finding station 8 : Decca 9 : Loran C 10 : Differential GNSS 11 : Toran 12 : Omega 13 : Syledis 14 : Chaika (Chayka) 17 : facsimile transmission 19 : radio telephone station 20 : AIS base station	false
estimatedRangeOfTransmission	real	0..1		false
orientation	complex	0..1		false
radiocommunications	complex	0..*		false
status	enumeration	0..*	1 : permanent 2 : occasional 4 : not in use 5 : periodic/intermittent 7 : temporary 8 : private 16 : watched	false

Attribute	Type	Mult.	Permitted Values	Sequential
			17 : un-watched	

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvContact	theContactDetails	ContactDetails
association	0..1	locationHours	theServiceHours	ServiceHours
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	serviceProvisionArea	serviceArea	RadioServiceArea
association	0..*	serviceProvisionArea	serviceArea	NavtexStationArea
association	0..*	serviceProvisionArea	serviceArea	NavigationalMeteorologicalArea
association	0..*	serviceProvisionArea	serviceArea	GMDSSArea
association	0..*	serviceProvisionArea	serviceArea	WeatherForecastWarningArea

9.13 Weather forecast and warning area

Name: Weather forecast and warning area
Definition: An area for which weather forecasts and warnings are provided for specified periods.
Code: 'WeatherForecastWarningArea'
Remarks: The periodic data attributes are used to encode the periods when seasonal forecasts and warnings are provided.
Aliases: WETFCA Supertype: FeatureType
Feature use type: geographic
Permitted primitives: surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfFrcstAndWarningArea	enumeration	1..1	1 : World Meteorological Organization (WMO) 2 : National high seas 3 : National offshore 4 : National coastal 5 : National inshore 6 : National local 7 : Ice	false
nationality	text	0..1		false
status	enumeration	0..1	1 : permanent 2 : occasional 4 : not in use 5 : periodic/intermittent 7 : temporary 8 : private 14 : public	false

Information bindings
(Bindings are also inherited from super-types, if any.)

Assoc. Type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	srvControl	controlAuthority	Authority

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	0..*	serviceProvisionArea	serviceProvider	RadioStation
aggregation	0..1	coreAggregation	componentOf	ForecastAreaAggregate

9.14 Forecast area aggregate

Name: Forecast area aggregate
Definition: Aggregation of areas where forecasts and warnings broadcasted for a Weather forecast and warning area may be available with differing levels of reliability.
Code: 'ForecastAreaAggregate'
Remarks:
Aliases: (none) Supertype: FuzzyAreaAggregate
Feature use type: geographic
Permitted primitives: noGeometry

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
aggregation	1..1	coreAggregation	consistsOf	WeatherForecastWarningArea

9.15 Radio service area aggregate

Name: Radio service area aggregate
Definition: Aggregation of areas where radio services from a single radio service are available to different levels of reliability
Code: 'RadioServiceAreaAggregate'
Remarks:
Aliases: (none) Supertype: FuzzyAreaAggregate
Feature use type: geographic
Permitted primitives: noGeometry

Attribute Bindings

(No local bindings, but will inherit bindings from super-types if any)

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
aggregation	1..1	coreAggregation	consistsOf	RadioServiceArea

9.16 Data coverage

Name: Data coverage
Definition: A geographical area that describes the coverage and extent of spatial types.
Code: 'DataCoverage'
Remarks:
Aliases: (none)
Feature use type: meta
Permitted primitives: surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
maximumDisplayScale	integer	1..1		false
minimumDisplayScale	integer	1..1		false

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but will inherit super-type bindings if any)

9.17 Quality of NonBathymetric Data

Name: Quality of NonBathymetric Data
Definition: An area within which a uniform assessment of the quality of the non-bathymetric data exists
Code: 'QualityOfNonBathymetricData'
Remarks:
Aliases: (none)
Feature use type: meta
Permitted primitives: surface

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
categoryOfTemporalVariation	enumeration	1..1	1 : extreme event 2 : likely to change	false

Attribute	Type	Mult.	Permitted Values	Sequential
			4 : unlikely to change 5 : unassessed	
dataAssessment	enumeration	1..1	1 : assessed 2 : oceanic 3 : unassessed	false
directionUncertainty	real	0..1		false
horizontalDistanceUncertainty	real	0..1		false
horizontalPositionalUncertainty	complex	1..1		false
information	complex	0..*		false
sourceIndication	complex	0..1		false
surveyDateRange	complex	0..1		false

Information bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)
(No local bindings, but will inherit super-type bindings if any)

9.18 Text Placement

Name: Text Placement
Definition: The Text Placement feature is used in association with the Feature Name attribute or a light description to optimise text positioning in ECDIS.
Code: '`TextPlacement`'
Remarks: The role names are consistent with their definition in the March 2017 S-101 DCEG: TextPlacement->identifies->FeatureType and FeatureType->positions->TextPlacement
Aliases: (none)
Feature use type: cartographic
Permitted primitives: point

Attribute Bindings

Attribute	Type	Mult.	Permitted Values	Sequential
flipBearing	real	0..1		false
scaleMinimum	integer	0..1		false
textJustification	enumeration	1..1	1 : left 2 : centred 3 : right	false
text	text	0..1		false
textType	enumeration	0..1	1 : feature name	false

Information bindings
(Bindings are also inherited from super-types, if any.)

(No local bindings, but may inherit bindings from super-types, if any)

Feature bindings
(Bindings are also inherited from super-types, if any.)

Assoc. type	Mult.	Name of association	Role of assoc. target	Name of target class
association	1..1	textAssociation	identifies	FeatureType