

# Digital Flight Data Format Specification

Company:	Navigraph
Author:	Richard Stefan
Version:	1.14
Date:	July 7, 2023

Blank page

## Table of Content

1.	INTRODUCTION .....	8
2.	SPECIFICATION .....	10
2.1.	HEADER LINE.....	10
2.2.	VHF NAVAIDS .....	12
2.3.	ENROUTE NDB NAVAIDS.....	14
2.4.	TERMINAL NDB NAVAIDS.....	15
2.5.	ENROUTE WAYPOINTS .....	17
2.6.	TERMINAL WAYPOINTS .....	18
2.7.	HOLDINGS .....	19
2.8.	ENROUTE AIRWAYS .....	21
2.9.	AIRPORTS.....	23
2.10.	RUNWAYS .....	25
2.11.	LOCALIZER/GLIDESLOPES.....	27
2.12.	LOCALIZER MARKER .....	29
2.13.	TERMINAL PROCEDURES .....	31
2.14.	AIRPORT COMMUNICATION .....	35
2.15.	ENROUTE COMMUNICATION.....	37
2.16.	GRID MORA.....	39
2.17.	AIRPORT MSA .....	41
2.18.	ENROUTE AIRWAYS RESTRICTION.....	43
2.19.	CONTROLLED AIRSPACE .....	45
2.20.	CRUISING TABLES .....	48
2.21.	FIR/UIR.....	50
2.22.	RESTRICTIVE AIRSPACE .....	53
2.23.	GATE .....	55
2.24.	GLS.....	56
2.25.	PATH POINT.....	58

3.	APPENDIXES.....	61
3.1.	NAVAID CLASS.....	61
3.2.	NDB CLASS.....	62
3.3.	WAYPOINT DESCRIPTION CODE .....	63
3.4.	WAYPOINT TYPE FOR ENROUTE WAYPOINTS (EA).....	64
3.5.	WAYPOINT TYPE FOR TERMINAL WAYPOINTS (PC).....	65
3.6.	CRUISE TABLE IDENTIFIER .....	65
3.7.	FIR/UIR INDICATOR .....	65
3.8.	WAYPOINT USAGE.....	66
3.9.	TURN DIRECTION.....	66
3.10.	ROUTE TYPE FOR ENROUTE AIRWAYS .....	66
3.11.	ROUTE TYPE FOR SIDS (PD) .....	66
3.12.	ROUTE TYPE FOR STARS (PE).....	67
3.13.	ROUTE TYPE OF IAPS (PF) .....	67
3.14.	LEVEL.....	67
3.15.	DIRECTIONAL RESTRICTION .....	68
3.16.	IFR CAPABILITY .....	68
3.17.	LONGEST RUNWAY SURFACE.....	68
3.18.	ILS/MLS/GLS CATEGORY .....	68
3.19.	MARKER TYPE.....	68
3.20.	REPORTING UNITS SPEED.....	69
3.21.	REPORTING UNITS ALTITUDE .....	69
3.22.	PATH AND TERMINATION .....	70
3.23.	SPEED LIMIT DESCRIPTION .....	70
3.24.	AIRSPACE TYPE .....	70
3.25.	ALTITUDE DESCRIPTION .....	71
3.26.	BOUNDARY VIA .....	71
3.27.	RESTRICTIVE AIRSPACE TYPE .....	71
3.28.	RESTRICTION TYPE.....	72
3.29.	UNITS OF ALTITUDE.....	72
3.30.	BLOCK INDICATOR .....	72
3.31.	FREQUENCY UNITS .....	72
3.32.	STATION TYPE.....	72

3.33. COMMUNICATION TYPE ..... **73**

3.34. SERVICE INDICATOR ..... **74**

3.35. FIR/UIR ADDRESS ..... **74**

3.36. TIME CODES..... **74**

3.37. TIME DISTANCE..... **74**

3.38. PROCEDURE LEG DATA FIELDS (MINIMUM REQUIREMENTS) ..... **75**

## Revisions

Version	Date	Changes
0.1	10/09/2016	basic dataset – first draft
0.2	15/09/2016	dataset restructuring
0.3	16/09/2016	SQL tables/indices added, new records Crusing, FIR/UIR, Restrictive Airspace, Controlled Aispace, Grid Mora, Airport MSA, Enroute Airways Restriction, Enroute Communication Records added
0.4	20/10/2017	table names standardized, database columns review/corrections
1.0	21/10/2017	New records Gates, GLS added – first version
1.01	23/10/2017	Added “boundary via” in Controlled Airspace table, sort information added in airspace-tables
1.02	15/11/2017	Inbound/Outbound Course and Distance values added to Enroute Airway Records
1.03	02/01/2018	Marker Identifier added to Marker Records, FIR/UIR Address added to FIR/UIR Records
1.04	07/02/2018	ICAO 3-letter codes (continental for USA/CAN) column added in the Airport Records
1.05	06/01/2018	Added “parsed at” in header table
1.06	24/06/2018	Multiple Code field added in MSA and Restricted Airspace table
1.07	28/06/2018	Time Code field added in the Restricted Airspace table
1.08	10/07/2018	Localizer Width added in the Localizer/Glideslope table
1.09	27/07/2018	Distance/Time flag added in the Procedure tables
1.10	16/08/2019	IATA/ATA Designator added in the Airport table
1.11	19/02/2020	Format and link error in the document fixed
1.12	23/08/2021	Add “NDB class” in Appendix
1.13	25/08/2022	surface-code added in the runway table, new PathPoint table added
1.14	06/07/2023	Leg path type minimum requirements

Blank page

## 1. Introduction

This document will define the complete dataset specifications of the Digital Flight Data (DFD) format. It is heavily inspired by the ARINC 424 specifications, though tailored to Flight Simulator add-ons use. Whenever possible, we use the same naming conventions as the ARINC specification, to avoid confusion. Whenever possible, we will also clearly indicate from which sections and record columns the data has to be extracted from.

We used the standard ARINC424-18 specification, but it should forward compatible with 424-19/20. The DFD dataset is provided in a SQLite file. We can also prepare a customized DFD formatted dataset. The DFD can be parsed into any file format, including plain ASCII text files, and can include any record in this documentation, and also additional data.

The **DFD** contains the primary records of the following record types (in parenthesis, the corresponding ARINC 424 section and subsection codes):

- [Airports \(PA\)](#)
- [Enroute Airways \(ER\)](#)
- [Enroute NDB Nav aids \(DB\)](#)
- [Enroute Waypoints \(EA\)](#)
- [Holdings \(EP\)](#)
- [IAP - Instrument Arrival Procedures \(PF\)](#)
- [Localizer Marker \(PM\)](#)
- [Localizer/Glideslopes \(PI\)](#)
- [Runways \(PG\)](#)
- [SID – Standard Instrument Departure \(PD\)](#)
- [STAR – Standard Terminal Arrival Route \(PE\)](#)
- [Terminal NDB Nav aids \(PN\)](#)
- [Terminal Waypoints \(PC\)](#)
- [VHF Nav aids \(D\)](#)
- [Airport Communication \(PV\)](#)
- [Airport MSA \(PS\)](#)
- [Controlled Airspace \(UC\)](#)
- [Cruising Tables \(TC\)](#)
- [Enroute Airway Restriction \(EU\)](#)
- [Enroute Communication \(EV\)](#)
- [FIR/UIR \(UF\)](#)
- [Gate \(PB\)](#)
- [GLS \(PT\)](#)
- [Grid Mora \(AS\)](#)
- [Restrictive Airspace \(UR\)](#)



- Path Point (PP)

Filename: dfd\_xxxx.3sdb  
(xxxx is the cycle-number)

## 2. Specification

When provided in SQLite binary file format, the name of the tables has following syntax: tbl\_<tablename> All columns in the records are lowercase. The columns contain no spaces, the "\_" (underline) character is used to separate words, if necessary.

When provided in ASCII text file format all fields in the records are separated with a | character (vertical bar or ASCII 124). All blanks will be trimmed at the end of each field (excluding special marked fields – see the footnotes)

### 2.1. Header line

SQL Format:

```
CREATE TABLE [tbl_header] (
    [version] TEXT(5) NOT NULL,
    [arincversion] TEXT(6) NOT NULL,
    [revision] TEXT(2) NOT NULL,
    [record_set] TEXT(8) NOT NULL,
    [current_airac] TEXT(4) NOT NULL,
    [effective_fromto] TEXT(10) NOT NULL,
    [previous_airac] TEXT(4) NOT NULL,
    [previous_fromto] TEXT(10) NOT NULL,
    [parsed_at] TEXT(22) NOT NULL
)
```

ASCII Format:

```
version|arincversion|record-set|current AIRAC cycle|Revision|
effective from-to|previous AIRAC cycle|effective from-to|parsed at
```

<i>Field</i>	<i>Format</i>	<i>max. length</i>	<i>ARINC Ref</i>
version	alphanumeric	5	
arincversion	alphanumeric	6	
record-set	alphanumeric	8	
current AIRAC	alphanumeric	4	
Revision	alphanumeric	2	
effective from-to	alphanumeric	10	
previous AIRAC	alphanumeric	4	
effective from-to	alphanumeric	10	
parsed at	alphanumeric	22	

Example:

- 0.3|424-18|extended|1610|2|1509121016|1609|1808140916|01/01/01  
- 10:10:10UTC

Description:

- version : the current version of the specifications (0.3)
- arincversion : the current used ARINC version (424-18)

- `record-set` : indicates the data content - extended
- `current AIRAC` : the current AIRAC cycle (1610)
- `revision` : revision of the current AIRAC cycle
- `effective from-to` : the date, when the current AIRAC cycle starts/ends (Format DDMMDDMMYY– DD is the day, MM is the month, YY is the year) (1509121016)
- `previous AIRAC` : the current AIRAC cycle (1609)
- `effective from-to` : is the date, when the current AIRAC cycle starts/ends (Format DDMMDDMMYY– DD is the day, MM is the month, YY is the year) (1808140916)
- `parsed at` : parsing/creation date of the current AIRAC cycle (Format DD/MM/YY – HH:MM:SS in UTC)

## 2.2.VHF Nav aids

SQL Format:

```
CREATE TABLE [tbl_vhfnavaids] (
    [area_code] TEXT(3),
    [airport_identifier] TEXT(4),
    [icao_code] TEXT(2) NOT NULL,
    [vor_identifier] TEXT(4) NOT NULL,
    [vor_name] TEXT(30),
    [vor_frequency] REAL(5),
    [navaid_class] TEXT(5),
    [vor_latitude] REAL(9),
    [vor_longitude] REAL(10),
    [dme_ident] TEXT(4),
    [dme_latitude] REAL(9),
    [dme_longitude] REAL(10),
    [dme_elevation] INT(5),
    [ilsdme_bias] REAL(3),
    [range] INT(3),
    [station_declination] REAL(5)
)
CREATE UNIQUE INDEX [pk_key]
ON [tbl_vhfnavaids]
([icao_code],[vor_identifier])
```

ASCII Format:

Area Code|Airport ICAO Identifier|ICAO Code|VOR Identifier|VOR Name|VOR Frequency|NAVAID class|VOR Latitude|VOR Longitude|DME Ident|DME Latitude|DME Longitude|DME elevation|ILS/DME bias|Range|Station Declination

Field	Format	max.length	ARINC Ref
Area Code	alphanumeric	3	5.3
Airport Identifier	alphanumeric	4	5.6
ICAO Code	alphanumeric	2	5.14
VOR Identifier	alphanumeric	4	5.33
VOR Name	alphanumeric	30	5.71
VOR Frequency	numeric	5	5.34
NAVAID class <sup>i</sup>	alphanumeric	5	5.35
VOR Latitude	numeric	9	5.36
VOR Longitude	numeric	10	5.37
DME Ident	alphanumeric	4	5.38
DME Latitude	numeric	9	5.36
DME Longitude	numeric	10	5.37
DME Elevation	alphanumeric	5	5.40
ILS/DME bias	numeric	2	5.90
Range	alphanumeric	3	5.149
Station Declination	alphanumeric	5	5.66

## Example:

- EUR|LOWW|LO|WGM|WAGRAM|112.20|VDHW |  
48.32385556|16.49095278||48.32301667|16.49080833|574||130|4.1
- EUR|LOWW|LO|OEX|SCHWECHAT|109.55| IT N|||OEX|48.10885833|16.571  
53889|624||25|4.1

## Description:

- Area Code : geographical area of the navaid
- Airport Identifier : four character ICAO location identifier
- ICAO Code : location indicator of the navaid
- VOR Identifier : navaid identifier
- VOR Name : navaid name
- VOR Frequency : navaid frequency in kHz
- NAVAID class : navaid type, range/power, additional information & collocation (see appendix 3.1)
- VOR Latitude : navaid latitude in degrees decimal floating point (N positive, S negative)
- VOR Longitude : navaid longitude in degrees decimal floating point (E positive, W negative)
- DME Ident : identification of a DME facility, a TACAN facility or the DME (or TACAN) component of a VORDME or VORTAC facility
- DME Latitude : DME latitude in degrees decimal floating point (N positive, S negative)
- DME Longitude : DME longitude in degrees decimal floating point (E positive, W negative)
- DME Elevation : DME elevation in feet AMSL
- ILS/DME bias : specify the DME offset
- Range : navaid usable range in nautical miles
- Station Declination : angular difference between true north and the zero degree radial of the navaid in degrees

## 2.3.Enroute NDB Nav aids

SQL Format:

```
CREATE TABLE [tbl_enroute_ndbnav aids] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2) NOT NULL,
    [ndb_identifier] TEXT(4) NOT NULL,
    [ndb_name] TEXT(30),
    [ndb_frequency] REAL(5),
    [navaid_class] TEXT(5),
    [ndb_latitude] REAL(9),
    [ndb_longitude] REAL(10)
)
CREATE UNIQUE INDEX [pk_db]
ON [tbl_ndbnav aids]
([icao_code],[ndb_identifier])
```

ASCII Format:

Area Code|ICAO Code|NDB Identifier|NDB Name|NDB Frequency|NDB  
class|NDB Latitude|NDB Longitude

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
NDB Identifier	alphanumeric	4	5.33
NDB Name	alphanumeric	30	5.71
NDB Frequency	numeric	5	5.34
NDB class <sup>i</sup>	alphanumeric	5	5.35
NDB Latitude	numeric	9	5.36
NDB Longitude	numeric	10	5.37

Example:

- EUR|LO|STE|STEINHOF|293.00|H MW |48.21061667|16.24713611

Description:

- Area Code : geographical area of the NDB
- ICAO Code : location indicator of the NDB
- NDB Identifier : NDB identifier
- NDB Name : NDB name
- NDB Frequency : NDB frequency in Mhz
- NDB class : NDB type, range/power, additional information & collocation (see appendix 3.2)
- NDB Latitude : NDB latitude in degrees decimal floating point (N positive, S negative)
- NDB Longitude : NDB longitude in degrees decimal floating point (E positive, W negative)

## 2.4. Terminal NDB Nav aids

SQL Format:

```
CREATE TABLE [tbl_terminal_ndbnav aids] (
    [area_code] TEXT(3),
    [airport_identifier] TEXT(4) NOT NULL,
    [icao_code] TEXT(2) NOT NULL,
    [ndb_identifier] TEXT(4) NOT NULL,
    [ndb_name] TEXT(30),
    [ndb_frequency] REAL(5),
    [navaid_class] TEXT(5),
    [ndb_latitude] REAL(9),
    [ndb_longitude] REAL(10)
)
CREATE UNIQUE INDEX [pk_pn]
ON [tbl_ndbnav aids]
([airport_identifier],[icao_code],
[ndb_identifier])
```

ASCII Format:

Area Code|Airport Identifier|ICAO Code|NDB Identifier|NDB Name|NDB  
Frequency|NDB class|NDB Latitude|NDB Longitude

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
Airport Identifier	alphanumeric	4	5.6
ICAO Code	alphanumeric	2	5.14
NDB Identifier	alphanumeric	4	5.33
NDB Name	alphanumeric	30	5.71
NDB Frequency	numeric	5	5.34
NDB class <sup>i</sup>	alphanumeric	5	5.35
NDB Latitude	numeric	9	5.36
NDB Longitude	numeric	10	5.37

Example:

- EUR|ED|MNW|MUNICH|338.00|H MW |48.37426667|16.24713611

Description:

- Area Code : geographical area of the NDB
- Airport Identifier : four character ICAO location identifier
- ICAO Code : location indicator of the NDB
- NDB Identifier : NDB identifier
- NDB Name : NDB name
- NDB Frequency : NDB frequency in Mhz
- NDB class : NDB type, range/power, additional information & collocation (see appendix 3.2)

- `NDB Latitude` : NDB latitude in degrees decimal floating point (N positive, S negative)
- `NDB Longitude` : NDB longitude in degrees decimal floating point (E positive, W negative)



## 2.5.Enroute Waypoints

SQL Format:

```
CREATE TABLE [tbl_enroute_waypoints] (
    [area_code] TEXT(3,
    [icao_code] TEXT(2) NOT NULL,
    [waypoint_identifier] TEXT(5) NOT NULL,
    [waypoint_name] TEXT(25),
    [waypoint_type] TEXT(3),
    [waypoint_usage] TEXT(2),
    [waypoint_latitude] REAL(9,
    [waypoint_longitude] REAL(10)
)
CREATE UNIQUE INDEX [pk_ea]
ON [tbl_enroute_waypoints]
([icao_code],
[waypoint_identifier])
```

ASCII Format:

Area Code|ICAO Code|Waypoint Identifier|Waypoint Name|Waypoint Type|Waypoint Usage|Waypoint Latitude|Waypoint Longitude

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Waypoint Identifier	alphanumeric	5	5.13
Waypoint Name	alphanumeric	25	5.43
Waypoint Type <sup>i</sup>	alphanumeric	3	5.42
Waypoint Usage <sup>i</sup>	alphanumeric	2	5.82
Waypoint Latitude	numeric	9	5.36
Waypoint Longitude	numeric	10	5.37

Example:

- EUR|LO|ABETI|ABETI|WU|RB|47.67771389|17.01284167

Description:

- Area Code : geographical area of the waypoint
- ICAO Code : location indicator of the waypoint
- Waypoint Identifier : waypoint identifier
- Waypoint Name : waypoint name
- Waypoint Type : waypoint type (see appendix 3.4)
- Waypoint Usage : waypoint usage (see appendix 3.8)
- Waypoint Latitude : waypoint latitude in degrees decimal floating point (N positive, S negative)
- Waypoint Longitude : waypoint longitude in degrees decimal floating point (E positive, W negative)

## 2.6. Terminal Waypoints

SQL Format:

```
CREATE TABLE [tbl_terminal_waypoints] (
    [area_code] TEXT(3),
    [region_code] TEXT(4) NOT NULL,
    [icao_code] TEXT(2) NOT NULL,
    [waypoint_identifier] TEXT(5) NOT NULL,
    [waypoint_name] TEXT(25),
    [waypoint_type] TEXT(3),
    [waypoint_latitude] REAL(9),
    [waypoint_longitude] REAL(10)
)
CREATE UNIQUE INDEX [pk_pc]
ON [tbl_terminal_waypoints]
([area_code],[region_code],[icao_code],
[waypoint_identifier])
```

ASCII Format:

```
Area Code|Region Code|ICAO Code|Waypoint
Identifier|Waypoint Name|Waypoint Type|Waypoint Latitude|
Waypoint Longitude
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
Region Code	alphanumeric	4	5.41/2
ICAO Code	alphanumeric	2	5.14
Waypoint Identifier	alphanumeric	5	5.13
Waypoint Name	alphanumeric	25	5.43
Waypoint Type <sup>i</sup>	alphanumeric	3	5.42
Waypoint Latitude	numeric	9	5.36
Waypoint Longitude	numeric	10	5.37

Example:

- EUR|LOWW|LO|FI29|OEX112009|IAF|48.05601389|16.73783056

Description:

- Area Code : geographical area of the waypoint
- Region Code : airport identification code for the terminal waypoint
- ICAO Code : location indicator of the waypoint
- Waypoint Identifier : waypoint identifier
- Waypoint Name : waypoint name
- Waypoint Type : waypoint type (see appendix 3.5)
- Waypoint Latitude : waypoint latitude in degrees decimal floating point (N positive, S negative)
- Waypoint Longitude : waypoint longitude in degrees decimal floating point (E positive, W negative)

## 2.7. Holdings

SQL Format:

```
CREATE TABLE [tbl_holdings] (
    [area_code] TEXT(3),
    [region_code] TEXT(4),
    [icao_code] TEXT(2),
    [fix_identifier] TEXT(5),
    [holding_name] TEXT(25),
    [fix_latitude] REAL(9),
    [fix_longitude] REAL(10),
    [duplicate_identifier] INT(2),
    [inbound_holding_course] REAL(5),
    [turn_direction] TEXT(1),
    [leg_length] REAL(3),
    [leg_time] REAL(2),
    [minimum_altitude] INT(5),
    [maximum_altitude] INT(5),
    [holding_speed] INT(3)
)
```

ASCII Format:

```
Area Code|Region Code|ICAO Code|Fix Identifier|Holding Name|
Fix Latitude|Fix Longitude|Duplicate Identifier|
Inbound Holding Course|Turn Direction|Leg Length|Leg Time|
Minimum Altitude|Maximum Altitude|Holding Speed
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
Region Code	alphanumeric	4	5.41/2
ICAO Code	alphanumeric	2	5.14
Fix Identifier	alphanumeric	5	5.13
Holding Name	alphanumeric	25	5.60
Fix Latitude	numeric	9	5.36
Fix Longitude	numeric	10	5.37
Duplicate Identifier	numeric	2	5.114
Inbound Holding Course	numeric	5	5.62
Turn Direction	alphanumeric	1	5.63
Leg Length	numeric	3	5.64
Leg Time	numeric	2	5.65
Minimum Altitude	numeric	5	5.30
Maximum Altitude	numeric	5	5.127
Holding Speed	numeric	3	5.175

## Example:

- EUR|LOWW|LO|WW814|WW814|48.24151111|16.16855556|50|113.0|R|0|1|5000||210
- EUR|ENRT|ED|LMA|LIMA|51.37091389|6.394925|20|240.0|R|0|1|4000|FL240|

## Description:

- Area Code : geographical area of the waypoint
- Region Code : static text ENRT or airport identification code
- ICAO Code : location indicator of the waypoint
- Fix Identifier : navaid or waypoint identifier
- Holding Name : holding name
- Fix Latitude : navaid or waypoint latitude in degrees decimal floating point (N positive, S negative)
- Fix Longitude : navaid or waypoint longitude in degrees decimal floating point (E positive, W negative)
- Duplicate Identifier : used for more than one holding patterns for a single navaid or waypoint
- Inbound Holding Course : inbound magnetic course in degrees floating point
- Turn Direction : holding turn direction (see appendix 3.9)
- Leg Length : inbound leg length in nautical miles, decimal floating point
- Leg Time : inbound leg time in minutes, decimal floating point
- Minimum Altitude : contain altitudes in feet or flight level
- Maximum Altitude : contain altitudes in feet or flight level
- Holding Speed : holding speed limit in knots

## 2.8.Enroute Airways

SQL Format:

```
CREATE TABLE [tbl_enroute_airways] (
    [area_code] TEXT(3),
    [route_identifier] TEXT(5),
    [seqno] INT(4),
    [icao_code] TEXT(2),
    [fix_identifier] TEXT(5),
    [fix_latitude] REAL(9),
    [fix_longitude] REAL(10),
    [waypoint_description_code] TEXT(4),
    [route_type] TEXT(1),
    [flightlevel] TEXT(1),
    [directional_restriction] TEXT(1),
    [cruising_table_identifier] TEXT(2),
    [minimum_altitude1] INT(5),
    [minimum_altitude2] INT(5),
    [maximum_altitude] INT(5),
    [outbound_course] REAL(5),
    [inbound_course] REAL(5),
    [inbound_distance] REAL(5)
)
```

ASCII Format:

```
Area Code|Route Identifier|Sequence Number|
ICAO Code|Fix Identifier|Fix Latitude|Fix Longitude|
Waypoint Description Code|Route Type|Flightlevel|
Directional Restriction|Cruise Table Identifier|
Minimum Altitude1|Minimum Altitude2|Maximum Altitude|
Outbound Course|Inbound Course|Distance
```

Field	Format	max.length	ARINC Ref
Area Code	alphanumeric	3	5.3
Route Identifier	alphanumeric	5	5.8
Sequence Number	numeric	4	5.12
ICAO Code	alphanumeric	2	5.14
Fix Identifier	alphanumeric	5	5.13
Fix Latitude	numeric	9	5.36
Fix Longitude	numeric	10	5.37
Waypoint Description Code <sup>i</sup>	alphanumeric	4	5.17
Route Type	alphanumeric	1	5.7
Flightlevel	alphanumeric	1	5.19
Directional Restriction	alphanumeric	1	5.115
Cruise Table Identifier	alphanumeric	2	5.134
Minimum Altitude1	numeric	5	5.30
Minimum Altitude2	numeric	5	5.30
Maximum Altitude	alphanumeric	5	5.127
Outbound Course	numeric	5	5.26

Inbound Course	numeric	5	5.28
Inbound Distance	numeric	5	5.27

Example:

- EUR|M725|LO|UMBIL|47.35331944|15.60116944|T|R|L||9000|9000|24500|100.0|237.5|34.0
- EUR|UM725|LO|UMBIL|47.35331944|15.60116944|T|R|H|B|XX|24500|26000|66000|100.0|237.5|34.0

Description:

- Area Code : geographical area of the waypoint
- Route Identifier : enroute route identifier
- Sequence Number : sort order of each enroute airway, no duplicate sequences per airway are possible
- ICAO Code : location indicator of the waypoint
- Fix Identifier : navaid or waypoint identifier
- Fix Latitude : navaid or waypoint latitude in degrees decimal floating point (N positive, S negative)
- Fix Longitude : navaid or waypoint longitude in degrees decimal floating point (E positive, W negative)
- Waypoint Description Code : provides information on the type of fix (see appendix 3.3)
- Route Type : indicated the route type (see appendix 3.10)
- Flightlevel : defines the airway structure (see appendix 3.14)
- Directional Restriction : indicate the flyable direction (see appendix 3.15)
- Cruise Table Identifier : indicate the cruising table (see appendix 3.6)
- Minimum Altitude1 : contain altitudes in feet
- Minimum Altitude2 : contain altitudes in feet
- Maximum Altitude : contain altitudes in feet
- Outbound Course : outbound magnetic course from the waypoint identified in the record's "Fix Identifier" field
- Inbound Course : inbound magnetic course to the waypoint identified in the record's "Fix Identifier" field
- Inbound Distance : contain segment distances/along track distances/excursion distances/DME distances in nautical miles

## 2.9. Airports

SQL Format:

```
CREATE TABLE [tbl_airports] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2) NOT NULL,
    [airport_identifier] TEXT(4) NOT NULL,
    [airport_identifier_3letter] TEXT(3),
    [airport_name] TEXT(30),
    [airport_ref_latitude] REAL(9),
    [airport_ref_longitude] REAL(10),
    [ifr_capability] TEXT(1),
    [longest_runway_surface_code] TEXT(1),
    [elevation] INT(5),
    [transition_altitude] INT(5),
    [speed_limit] INT(3),
    [speed_limit_altitude] INT(5),
    [iata_ata_designator] TEXT(3)
)
CREATE UNIQUE INDEX [pk_pa]
    ON [tbl_airports]
    ([icao_code], [airport_identifier])
```

ASCII Format:

```
Area Code|ICAO Code|Airport Identifier|Airport Identifier 3-
Letter|Airport Name|Airport Ref Latitude|Airport Ref Longitude|
IFR Capability|Longest Runway Surface Code|Elevation|
Transition Altitude|Speedlimit|Speedlimit Altitude|Iata Ata
Designator
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airport Identifier	alphanumeric	4	5.6
Airport Identifier 3-Letter Code	Alphanumeric	3	5.6
Airport Name	alphanumeric	30	5.71
Airport Ref Latitude	numeric	11	5.36
Airport Ref Longitude	numeric	12	5.37
IFR Capability	alphanumeric	1	5.108
Longest Runway Surface Code	alphanumeric	1	5.249
Elevation	alphanumeric	5	5.55
Transition Altitude	numeric	5	5.53
Speed Limit	numeric	3	5.72
Speed Limit Altitude	alphanumeric	5	5.73
IATA/ATA Designator	alphanumeric	3	5.107

Example:

- EUR|LO|LOWW| |SCHWECHAT|48.11027778|16.56972222|Y|H|600|10000|250|FL100|VIE

Description:

- Area Code : geographical area of the airport
- ICAO Code : location indicator of the airport
- Airport Identifier : four character ICAO location identifier
- Airport Identifier 3-Letter Code : three character ICAO continental location identifier for USA and CAN airports
- Airport Name : airport name
- Airport Ref Latitude : airport reference latitude in degrees decimal floating point (N positive, S negative)
- Airport Ref Longitude : airport reference longitude in degrees decimal floating point (E positive, W negative)
- IFR Capability : indicates if the airport has a published IAP (see appendix 3.16)
- Longest Runway Surface Code : define if there is a hard runway or not (see appendix 3.17)
- Elevation : elevation in feet above MSL
- Transition Altitude : transition altitude in feet
- Speed Limit : speed limit in knots
- Speed Limit Altitude : altitude below which speed limit may be imposed (feet or flight level)
- iata\_ata\_designator : IATA/ATA airport designator code



## 2.10. Runways

SQL Format:

```
CREATE TABLE [tbl_runways] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2),
    [airport_identifier] TEXT(4) NOT NULL,
    [runway_identifier] TEXT(3) NOT NULL,
    [runway_latitude] REAL(9),
    [runway_longitude] REAL(10),
    [runway_gradient] INT(5),
    [runway_magnetic_bearing] REAL(6),
    [runway_true_bearing] REAL(7),
    [landing_threshold_elevation] INT(5),
    [displaced_threshold_distance] INT(4),
    [threshold_crossing_height] INT(2),
    [runway_length] INT(5),
    [runway_width] INT(3),
    [llz_identifier] TEXT(4),
    [llz_mls_gls_category] TEXT(1)
)
CREATE UNIQUE INDEX [pk_pg]
    ON [tbl_runways]
    ([airport_identifier],[runway_identifier])
```

ASCII Format:

```
Area Code|ICAO Code|Airport
Identifier|Runway Identifier|Runway Latitude|Runway Longitude|Runway
Gradient|Runway Magnetic Bearing|Runway True
Bearing|Landing Threshold Elevation|
Displaced Threshold Distance|Threshold Crossing Height|
Runway Length|Runway Width|LLZ Identifier|LLZ Category/Class
```

Field	Format	max.length	ARINC Ref
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airport Identifier	alphanumeric	4	5.6
Runway Identifier	alphanumeric	3	5.46
Runway Latitude	numeric	11	5.36
Runway Longitude	numeric	12	5.37
Runway Gradient	numeric	5	5.212
Runway Magnetic Bearing	numeric	6	5.58
Runway True Bearing	numeric	7	5.94
Landing Threshold Elevation	numeric	5	5.68
Displaced Threshold Distance	numeric	4	5.69
Threshold Crossing Height	numeric	2	5.67
Runway Length	numeric	5	5.57
Runway Width	numeric	3	5.109
LLZ Identifier	alphanumeric	4	5.44
ILS/MLS/GLS Category	alphanumeric	1	5.80

Example:

- EUR|LO|LOWW|29|48.10904722|16.57563056|-0.218|292.0|296.019|600||52|11483|148|OEX|3

Description:

- Area Code : geographical area of the runway
- ICAO Code : location indicator of the runway
- Airport Identifier : four character ICAO location identifier
- Runway Identifier : runway identifier
- Runway Latitude : runway latitude in degrees decimal floating point (N positive, S negative)
- Runway Gradient : overall gradient in percent (positive is upward, negative is downward)
- Runway Longitude : runway longitude in degrees decimal floating point (E positive, W negative)
- Runway Magnetic Bearing : magnetic bearing of the runway identifier
- Runway True Bearing : true bearing of the runway identifier
- Landing Threshold Elevation : elevation of the landing threshold in feet
- Displaced Threshold Distance : distance from the extremity of a runway to a threshold in feet
- Threshold Crossing Height : height above the landing threshold on a normal glide path
- Runway Length : runway length in feet
- Runway Width : runway width in feet
- LLZ Identifier : ILS/MLS/GLS facility
- ILS/MLS/GLS Category : ILS/MLS/GLS performance categories (see appendix 3.18)

## 2.11. Localizer/Glideslopes

SQL Format:

```
CREATE TABLE [tbl_localizers_glideslopes] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2),
    [airport_identifier] TEXT(4) NOT NULL,
    [runway_identifier] TEXT(3),
    [llz_identifier] TEXT(4) NOT NULL,
    [llz_latitude] REAL(9),
    [llz_longitude] REAL(10),
    [llz_frequency] REAL(6),
    [llz_bearing] REAL(6),
    [llz_width] REAL(6),
    [ils_mls_gls_category] TEXT(1),
    [gs_latitude] REAL(9),
    [gs_longitude] REAL(10),
    [gs_angle] REAL(4),
    [gs_elevation] INT(5),
    [station_declination] REAL(5)
)
CREATE UNIQUE INDEX [pk_pi]
ON [tbl_localizers_glideslopes]
([airport_identifier],[llz_identifier])
```

ASCII Format:

```
Area Code|ICAO Code|Airport
Identifier|Runway Identifier|LLZ Identifier|
LLZ Latitude|LLZ Longitude|LLZ Frequency|LLZ Bearing|LLZ Width|
ILS Category|GS Latitude|GS Longitude|GS Angle|GS Elevation|
Station Declination
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airport Identifier	alphanumeric	4	5.6
Runway Identifier	alphanumeric	3	5.46
LLZ Identifier	alphanumeric	4	5.44
LLZ Latitude	numeric	9	5.36
LLZ Longitude	numeric	10	5.37
LLZ Frequency	numeric	6	5.45
LLZ Bearing	numeric	6	5.47
LLZ Width	numeric	6	5.51
ILS/MLS/GLS Category	alphanumeric	1	5.80
GS Latitude	numeric	9	5.36
GS Longitude	numeric	10	5.37
GS Angle	numeric	4	5.52
GS Elevation	numeric	5	5.74
Station Declination	numeric	5	5.66

Example:

- EUR|LO|LOWW|29|OEX|48.124775|16.52732778|109.55|292.0|0.0|3|48.10894444|16.57161111|3.00|658|4.0

Description:

- Area Code : geographical area of the localizer
- ICAO Code : location indicator of the localizer
- Airport Identifier : four character ICAO location identifier
- Runway Identifier : runway identifier
- LLZ Identifier : identification code of the LLZ, MLS facility or GLS reference path
- LLZ Latitude : LLZ latitude in degrees decimal floating point (N positive, S negative)
- LLZ Longitude : LLZ longitude in degrees decimal floating point (E positive, W negative)
- LLZ Frequency : VHF frequency of the facility in MHz
- LLZ Bearing : magnetic bearing of the localizer course
- LLZ Width : specifies the localizer course width (in degrees) of the ILS facility
- ILS/MLS/GLS Category : ILS/MLS/GLS performance categories (see appendix 3.18)
- GS Latitude : GS latitude in degrees decimal floating point (N positive, S negative)
- GS Longitude : GS longitude in degrees decimal floating point (E positive, W negative)
- GS Angle : glide slope angle of an ILS facility/GLS approach in degrees
- GS Elevation : elevation of LLZ in feet
- Station Declination : angular difference between true north and the zero degree radial of the LLZ in degrees

## 2.12. Localizer Marker

SQL Format:

```
CREATE TABLE [tbl_localizer_marker] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2),
    [airport_identifier] TEXT(4) NOT NULL,
    [runway_identifier] TEXT(3),
    [llz_identifier] TEXT(4) NOT NULL,
    [marker_identifier] TEXT(4) NOT NULL,
    [marker_type] TEXT(3),
    [marker_latitude] REAL(9),
    [marker_longitude] REAL(10)
)
CREATE UNIQUE INDEX [pk_pm]
ON [tbl_localizer_marker]
([airport_identifier],[llz_identifier])
```

ASCII Format:

Area Code|ICAO Code|Airport Identifier|Runway Identifier|  
LLZ Identifier|Marker Type|Marker Latitude|Marker Longitude

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airport Identifier	alphanumeric	4	5.6
Runway Identifier	alphanumeric	3	5.46
LLZ Identifier	alphanumeric	4	5.44
Marker Identifier	Alphanumeric	5	-
Marker Type	numeric	3	5.99
Marker Latitude	numeric	9	5.36
Marker Longitude	numeric	10	5.37

Example:

- EUR|ED|EDDT|08L|ITLE|OM08L| OM|52.54570278|13.15108333

Description:

- Area Code : geographical area of the marker
- ICAO Code : location indicator of the marker
- Airport Identifier : four character ICAO location identifier
- Runway Identifier : runway identifier
- LLZ Identifier : identification code of the LLZ, MLS facility or GLS reference path
- Marker Identifier: marker identifier
- Marker Type : defines the type of marker (see appendix 3.19)
- Marker Latitude : marker latitude in degrees decimal floating point (N positive, S negative)

- `Marker Longitude` : marker longitude in degrees decimal floating point (E positive, W negative)

## 2.13. Terminal Procedures

SQL Format:

```
CREATE TABLE [tbl_sids/stars/iaps] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2),
    [airport_identifier] TEXT(4),
    [procedure_identifier] TEXT(6),
    [route_type] TEXT(1),
    [transition_identifier] TEXT(5),
    [seqno] INT(3),
    [waypoint_identifier] TEXT(5),
    [waypoint_latitude] REAL(9),
    [waypoint_longitude] REAL(10),
    [waypoint_description_code] TEXT(4),
    [turn_direction] TEXT(1),
    [rnp] REAL(4),
    [path_termination] TEXT(2),
    [recommended_navaid] TEXT(4),
    [recommended_navaid_latitude] REAL(9),
    [recommended_navaid_longitude] REAL(10),
    [arc_radius] REAL(7),
    [theta] REAL(5),
    [rho] REAL(5),
    [magnetic_course] REAL(5),
    [route_distance_holding_distance_time] REAL(5),
    [distance_time] TEXT(1),
    [altitude_description] TEXT(1),
    [altitude1] INT(5),
    [altitude2] INT(5),
    [transition_altitude] INT(5),
    [speed_limit_description] TEXT(1),
    [speed_limit] INT(3),
    [vertical_angle] REAL(4),
    [center_waypoint] TEXT(5),
    [center_waypoint_latitude] REAL(9),
    [center_waypoint_longitude] REAL(9)
)
```

ASCII Format:

```
Area Code|ICAO Code|Airport Identifier|
Procedure Identifier|Route Type|Transition Identifier|
Sequence Number|Waypoint Identifier|Waypoint Latitude|Waypoint
Longitude|Waypoint Description Code|Turn Direction|RNP|
Path and Termination|Recommended Navaid|
Recommended Navaid Latitude|Recommended Navaid Longitude|
ARC Radius|Theta|Rho|Magnetic Course|
Route Distance/Holding Distance or Time|Distance Time|Altitude
Description|Altitude1|Altitude2|Transition Altitude|
Speed Limit Description|Speed Limit|Vertical Angle|Center Waypoint|
Center Waypoint Latitude|Center Waypoint Longitude
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airport Identifier	alphanumeric	4	5.6
Procedure Identifier	alphanumeric	6	5.9/10
Route Type	alphanumeric	1	5.7
Transition Identifier	alphanumeric	5	5.11
Sequence Number	numeric	3	5.12
Waypoint Identifier	alphanumeric	5	5.13
Waypoint Latitude	numeric	9	5.36
Waypoint Longitude	numeric	10	5.37
Waypoint Description Code	alphanumeric	4	5.17
Turn Direction	alphanumeric	1	5.20
RNP	numeric	5	5.211
Path and Termination	alphanumeric	2	5.21
Recommended Navaid	alphanumeric	4	5.23
Recommended Navaid Latitude	numeric	9	5.36
Recommended Navaid Longitude	numeric	10	5.37
ARC Radius	numeric	7	5.204
Theta	numeric	5	5.24
Rho	numeric	5	5.25
Magnetic Course	numeric	5	5.26
Route Distance/Holding Distance or Time	numeric	5	5.27
Distance Time	alphanumeric	1	-
Altitude Description	alphanumeric	1	5.29
Altitude1	numeric	5	5.30
Altitude2	numeric	5	5.30
Transition Altitude	numeric	5	5.53
Speed Limit Description	alphanumeric	1	5.261
Speed Limit	numeric	3	5.72
Vertical Angle	numeric	4	5.70
Center Waypoint	alphanumeric	5	5.144
Center Waypoint Latitude	numeric	9	5.36
Center Waypoint Longitude	numeric	10	5.37

Example:

- EUR|LO|LOWW|ADAM1A|5|RW11|10|WW100|48.08981667|16.63360278|EY||  
|CF|FMD|48.10511389|16.62926389||165.2|0.9|112.0|3.0||||10000|-  
|205|||||



## Description:

- `Area Code` : geographical area of the marker
- `ICAO Code` : location indicator of the marker
- `Airport Identifier` : four character ICAO location identifier
- `Procedure Identifier` : name of the terminal procedure
- `Route Type` : element of the terminal procedure (see appendix 3.11/3.12/3.13)
- `Transition Identifier` : describes the type of transition to be made from the enroute environment into the terminal area and vice versa
- `Sequence Number` : sequence definition phase of the terminal procedure
- `Waypoint Identifier` : navaid or waypoint identifier
- `Waypoint Latitude` : navaid or waypoint latitude in degrees decimal floating point (N positive, S negative)
- `Fix Longitude` : navaid or waypoint longitude in degrees decimal floating point (E positive, W negative)
- `Waypoint Description Code` : the field provides information on the type of fix (see appendix 3.3)
- `Turn Direction` : turn direction (see appendix 3.9)
- `RNP` : statement of the Navigation Performance necessary for operation within a defined airspace in accordance with ICAO Annex 15 and/or State published rules
- `Path and Termination` : defines the path geometry for a single record of an terminal procedure (see appendix 3.22)
- `Recommended Navaid` : reference facility for the fix
- `Recommended Navaid Latitude` : recommended navaid latitude in degrees decimal floating point (N positive, S negative)
- `Recommended Navaid Longitude` : recommended navaid longitude in degrees decimal floating point (E positive, W negative)
- `ARC Radius` : used to define the radius of a precision turn
- `Theta` : defined as the magnetic bearing to the waypoint identified in the record's "Fix Identifier" field from the Navaid in the "Recommended Navaid" field
- `Rho` : defined as the geodesic distance in nautical miles to the waypoint identified in the record's "Fix Identifier" field from the NAVAID in the "Recommended Navaid" field
- `Magnetic Course` : outbound magnetic course from the waypoint identified in the record's "Fix Identifier" field
- `Route Distance/Holding Distance or Time` : contain segment distances/along track distances/excursion distances/DME distances
- `Distance/Time` : indicates, if the value in the "Route Distance/Holding" column references to a time value, or distance value (see appendix 3.37)
- `Altitude Description` : designate whether a waypoint should be crossed (see appendix 3.25)
- `Altitude1` : contain altitudes in feet or flight level
- `Altitude2` : contain altitudes in feet or flight level
- `Transition Altitude` : transition altitude in feet

- `Speed Limit Description` : designate whether the speed limit coded at a fix in a terminal procedure description is a mandatory, minimum or maximum speed (see appendix 3.23)
- `Speed Limit` : speed limit in knots
- `Vertical Angle` : defines the vertical navigation path prescribed for the procedure
- `Center Waypoint` : represents the MSA Center, that point (Navaid or Waypoint) on which the MSA is predicated
- `Center Waypoint Latitude` : center fix latitude in degrees decimal floating point (N positive, S negative)
- `Center Waypoint Longitude` : center fix longitude in degrees decimal floating point (E positive, W negative)

## 2.14. Airport Communication

SQL Format:

```
CREATE TABLE [tbl_airport_communication] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2),
    [airport_identifier] TEXT(4),
    [communication_type] TEXT(3),
    [communication_frequency] REAL(5),
    [frequency_units] TEXT(1),
    [service_indicator] TEXT(3),
    [callsign] TEXT(25),
    [latitude] REAL(9),
    [longitude] REAL(10)
)
```

ASCII Format:

```
Area Code|ICAO Code|Airport Identifier|Communication Type|
Communication Frequency|Frequency Units|Service Indicator|Callsign|
Latitude|Longitude
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airport Identifier	alphanumeric	4	5.6
Communication Type	alphanumeric	3	5.101
Communication Frequency	numeric	5	5.103
Frequency Units	alphanumeric	1	5.104
Service Indicator	alphanumeric	3	5.106
Callsign	alphanumeric	25	5.105
Latitude	numeric	9	5.36
Longitude	numeric	10	5.37

Example:

- EUR|LO|LOWW|APP|118.775|V||WIEN RADAR|48.11027778|16.56972222

Description:

- **Area Code** : geographical area of the facility
- **ICAO Code** : location indicator of the facility
- **Airport Identifier** : four character ICAO location identifier
- **Communication Type** : specified the type of communication unit (see appendix 3.33)
- **Communication Frequency** : specifies a frequency for the facility identified in the communication type field
- **Frequency Units** : designate the frequency spectrum area for the frequency (see appendix 3.31)

- `Service Indicator` : define the use of the frequency for the specified communication type (see appendix 3.34)
- `Callsign` : name of the facility being called
- `Latitude` : latitude in degrees decimal floating point (N positive, S negative)
- `Longitude` : longitude in degrees decimal floating point (E positive, W negative)

## 2.15. Enroute Communication

SQL Format:

```
CREATE TABLE [tbl_enroute_communication] (
    [area_code] TEXT(3),
    [fir_rdo_ident] TEXT(4),
    [fir_uir_indicator] TEXT(1),
    [communication_type] TEXT(3),
    [communication_frequency] REAL(5),
    [frequency_units] TEXT(1),
    [service_indicator] TEXT(3),
    [remote_name] TEXT(25),
    [callsign] TEXT(30),
    [latitude] REAL(9),
    [longitude] REAL(10)
)
```

ASCII Format:

```
Area Code|FIR/RDO Ident|FIR/UIR Indicator|Communication Type|Comm
Frequency|Frequency Units|
Service Indicator|Remote Name|CallSign|Latitude|Longitude
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
FIR/RDO Ident	alphanumeric	4	5.190
FIR/UIR Indicator	alphanumeric	1	5.117
Communication Type	alphanumeric	3	5.101
Communication Frequency	numeric	5	5.103
Frequency Units	alphanumeric	1	5.104
Service Indicator	alphanumeric	3	5.106
Remote Name	alphanumeric	25	5.189
Callsign	alphanumeric	30	5.105
Latitude	numeric	9	5.36
Longitude	numeric	10	5.37

Example:

- EUR|LOVV|F|||130.475|||VIENNA RADAR|48.11027778|16.56972222

Description:

- Area Code : geographical area of the facility
- FIR/RDO Ident : identifies the Flight Information Region or Upper Information Region
- FIR/UIR Indicator : contain the identifier of a FIR, UIR or combined FIR/UIR (see appendix 3.7)
- Communication Type : specified the type of communication unit (see appendix 3.33)

- `Communication Frequency` : specifies a frequency for the facility identified in the communication type field
- `Frequency Units` : designate the frequency spectrum area for the frequency (see appendix 3.31)
- `Service Indicator` : define the use of the frequency for the specified communication type (see appendix 3.34)
- `Remote Name` : name of unmanned air/ground facility
- `Callsign` : name of the facility being called
- `Latitude` : latitude in degrees decimal floating point (N positive, S negative)
- `Longitude` : longitude in degrees decimal floating point (E positive, W negative)

## 2.16. Grid Mora

SQL Format:

```
CREATE TABLE [tbl_grid_mora] (
    [starting_latitude] INT(3),
    [starting_longitude] INT(4),
    [mora01] TEXT(3),
    [mora02] TEXT(3),
    [mora03] TEXT(3),
    [mora04] TEXT(3),
    [mora05] TEXT(3),
    [mora06] TEXT(3),
    [mora07] TEXT(3),
    [mora08] TEXT(3),
    [mora09] TEXT(3),
    [mora10] TEXT(3),
    [mora11] TEXT(3),
    [mora12] TEXT(3),
    [mora13] TEXT(3),
    [mora14] TEXT(3),
    [mora15] TEXT(3),
    [mora16] TEXT(3),
    [mora17] TEXT(3),
    [mora18] TEXT(3),
    [mora19] TEXT(3),
    [mora20] TEXT(3),
    [mora21] TEXT(3),
    [mora22] TEXT(3),
    [mora23] TEXT(3),
    [mora24] TEXT(3),
    [mora25] TEXT(3),
    [mora26] TEXT(3),
    [mora27] TEXT(3),
    [mora28] TEXT(3),
    [mora29] TEXT(3),
    [mora30] TEXT(3)
)
```

ASCII Format:

Start Latitude|Start

Longitude|Mora01|Mora02|Mora03|Mora04|Mora05|Mora06|Mora07|Mora08|  
Mora09|Mora10|Mora11|Mora12|Mora13|Mora14|Mora15|Mora16|Mora17|  
Mora18|Mora19|Mora20|Mora21|Mora22|Mora23|Mora24|Mora25|Mora26|  
Mora27|Mora28|Mora29|Mora30

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Starting Latitude	numeric	3	5.36
Starting Longitude	numeric	4	5.37
Mora01 - Mora30	numeric	5	5.143

## Example:

- N48|E000|035|035|035|035|035|035|064|064|055|046|041|037|  
050|073|057|050|042|046|076|091|088|054|073|078|088|065|029|  
026|025|027

## Description:

- Starting Latitude : latitude in degrees decimal floating point (N positive, S negative)
- Starting Longitude : longitude in degrees decimal floating point (E positive, W negative)
- Mora01 – Mora30: terrain and obstruction clearance within the section outlined by latitude and longitude blocks in feet



## 2.17. Airport MSA

SQL Format:

```
CREATE TABLE [tbl_airport_msa] (
  [area_code] TEXT(3),
  [icao_code] TEXT(2),
  [airport_identifier] TEXT(4),
  [msa_center] TEXT(5),
  [msa_center_latitude] REAL(9),
  [msa_center_longitude] REAL(10),
  [magnetic_true_indicator] TEXT(1),
  [multiple_code] TEXT(1),
  [radius_limit] INT(2),
  [sector_bearing_1] INT(3),
  [sector_altitude_1] INT(3),
  [sector_bearing_2] INT(3),
  [sector_altitude_2] INT(3),
  [sector_bearing_3] INT(3),
  [sector_altitude_3] INT(3),
  [sector_bearing_4] INT(3),
  [sector_altitude_4] INT(3),
  [sector_bearing_5] INT(3),
  [sector_altitude_5] INT(3)
)
```

ASCII Format:

```
Area Code|ICAO Code|Airport Identifier|MSA Center|
MSA Center Latitude|MSA Center
Longitude|Magnetic/True/Indicator|Multiple Code|Radius Limit|
Sector Bearing 1|Sector Altitude 1|
Sector Bearing 2|Sector Altitude 2|
Sector Bearing 3|Sector Altitude 3|
Sector Bearing 4|Sector Altitude 4|
Sector Bearing 5|Sector Altitude 5
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airport Identifier	alphanumeric	4	5.6
MSA Center	alphanumeric	5	5.144
MSA Center Latitude	numeric	9	5.36
MSA Center Longitude	numeric	10	5.37
Magnetic/True Indicator	alphanumeric	1	5.165
Multiple Code	alphanumeric	1	5.130
Radius Limit	numeric	2	5.145
Sector Bearing 1-5	numeric	3	5.146
Sector Altitude 1-5	numeric	3	5.147



## 2.18. Enroute Airways Restriction

SQL Format:

```
CREATE TABLE [tbl_enroute_airway_restriction] (
    [area_code] TEXT(3),
    [route_identifier] TEXT(5),
    [restriction_identifier] INT(3),
    [restriction_type] TEXT(2),
    [start_waypoint_identifier] TEXT(5),
    [start_waypoint_latitude] REAL(9),
    [start_waypoint_longitude] REAL(10),
    [end_waypoint_identifier] TEXT(5),
    [end_waypoint_latitude] REAL(9),
    [end_waypoint_longitude] REAL(10),
    [start_date] TEXT(7),
    [end_date] TEXT(7),
    [units_of_altitude] TEXT(1),
    [restriction_altitude1] INT(3),
    [block_indicator1] TEXT(1),
    [restriction_altitude2] INT(3),
    [block_indicator2] TEXT(1),
    [restriction_altitude3] INT(3),
    [block_indicator3] TEXT(1),
    [restriction_altitude4] INT(3),
    [block_indicator4] TEXT(1),
    [restriction_altitude5] INT(3),
    [block_indicator5] TEXT(1),
    [restriction_altitude6] INT(3),
    [block_indicator6] TEXT(1),
    [restriction_altitude7] INT(3),
    [block_indicator7] TEXT(1)
)
```

ASCII Format:

```
Area Code|Route Identifier|Restriction Identifier|
Restriction Type|Start Waypoint Identifier|Start Waypoint Latitude|
Start Waypoint Longitude|End Waypoint Identifier|
End Waypoint Latitude|End Waypoint Longitude|Start Date|
End Date|Units of Altitude|Restriction Altitude1|
Block Indicator1|Restricted Altitude2|
Block Indicator2|Restricted Altitude3|Block Indicator3|
Restricted Altitude4|Block Indicator4|Restricted Altitude5|
Block Indicator5|Restricted Altitude6|Block Indicator6|
Restricted Altitude7|Block Indicator7
```

Field	Format	max.length	ARINC Ref
Area Code	alphanumeric	3	5.3
Route Identifier	alphanumeric	5	5.8
Restriction Identifier	numeric	3	5.154
Restriction Type	alphanumeric	2	5.201
Start Waypoint Identifier	alphanumeric	5	5.13
Start Waypoint Latitude	numeric	9	5.36
Start Waypoint Longitude	numeric	10	5.37

End Waypoint Identifier	alphanumeric	5	5.13
End Waypoint Latitude	numeric	9	5.36
End Waypoint Longitude	numeric	10	5.37
Start Date	alphanumeric	7	5.157
End Date	alphanumeric	7	5.157
Units of Altitude	alphanumeric	1	5.160
Restriction Altitude1-7	numeric	3	5.161
Block Indicator1-7	alphanumeric	1	5.203

Example:

- EUR|M984|033|NR|STO|48.41713611|16.01859444|MIKOV|  
48.78474444|16.62100278|

Description:

- Area Code : geographical area
- Route Identifier : enroute route identifier
- Restriction Identifier : assign a unique identifier
- Restriction Type : define the type of the restriction (see appendix 3.28)
- Start Waypoint Identifier : start fix
- Start Waypoint Latitude : start fix latitude in degrees decimal floating point (N positive, S negative)
- Start Waypoint Longitude : start fix longitude in degrees decimal floating point (E positive, W negative)
- End Waypoint Identifier : end fix
- End Waypoint Latitude : end fix latitude in degrees decimal floating point (N positive, S negative)
- End Waypoint Longitude : end fix longitude in degrees decimal floating point (E positive, W negative)
- Start Date: specific the effective date which does not corresponding with the AIRAC date
- End Date: specific the effective date which does not corresponding with the AIRAC date
- Units of Altitude : indicate the units of measurement for the restriction altitudes (see appendix 3.29)
- Restriction Altitude1-7 : specify the altitude profile for a specific restriction
- Block Indicator1-7 : specify that the altitudes that follow in the restriction record (see appendix 3.30)

## 2.19. Controlled Airspace

SQL Format:

```
CREATE TABLE [tbl_controlled_airspace] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2),
    [airspace_center] TEXT(5),
    [controlled_airspace_name] TEXT(30),
    [airspace_type] TEXT(1),
    [airspace_classification] TEXT(1),
    [multiple_code] TEXT(1),
    [time_code] TEXT(1),
    [seqno] INT(3),
    [flightlevel] TEXT(1),
    [boundary_via] TEXT(2),
    [latitude] REAL(9),
    [longitude] REAL(10),
    [arc_origin_latitude] REAL(9),
    [arc_origin_longitude] REAL(10),
    [arc_distance] REAL(5),
    [arc_bearing] REAL(5),
    [unit_indicator_lower_limit] TEXT(1),
    [lower_limit] TEXT(5),
    [unit_indicator_upper_limit] TEXT(1),
    [upper_limit] TEXT(5)
)
```

Sort Order:

[rowid]

ASCII Format:

```
Area Code|Area Code|Airspace Center|Controlled Airspace Name|
Airspace Type|Airspace Classification|Multiple Code|
Time Code|Sequence Number|Flightlevel|
Boundary Via|Latitude|Longitude|Arc Origin Latitude|
Arc Origin Longitude|Arc Distance|Arc Bearing|
Unit Indicator Lower Limit|Lower Limit|
Unit Indicator Upper Limit|Upper Limit
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Airspace Center	alphanumeric	5	5.214
Controlled Airspace Name	alphanumeric	30	5.216
Airspace Type	alphanumeric	1	5.213
Airspace Classification	alphanumeric	1	5.215
Multiple Code	alphanumeric	1	5.130
Time Code	alphanumeric	1	5.131
Sequence Number	numeric	4	5.12
Flightlevel	alphanumeric	1	5.19
Boundary Via	alphanumeric	2	5.118

Latitude	numeric	9	5.36
Longitude	numeric	10	5.37
Arc Origin Latitude	numeric	9	5.36
Arc Origin Longitude	numeric	10	5.37
Arc Distance	numeric	5	5.119
Arc Bearing	numeric	5	5.120
Unit Indicator Lower Limit	alphanumeric	1	5.133
Lower Limit	alphanumeric	5	5.121
Unit Indicator Upper Limit	alphanumeric	1	5.133
Upper Limit	alphanumeric	5	5.121

Example:

- EUR|LOWW|VIENNA CTR|M|D|10|L||48.30611111|16.60305556| || || |  
GND|M|2500

Description:

- Area Code : geographical area
- ICAO Code : location indicator of the airspace center
- Airspace Center : define the navigation element upon which the controlled airspace being defined is predicated, but not necessarily centered
- Controlled Airspace Name : the name of the controlled airspace when assigned
- Airspace Type : indicate the type of controlled airspace (see appendix 3.24)
- Airspace Classification : indicating the published classification of the controlled airspace, when assigned
- Multiple Code : indicate Restrictive Airspace having the same designator but subdivided or differently divided by lateral and/or vertical detail
- Time Code : Active Time (see appendix 3.36 )
- Airspace Type : indicated restrictive Airspace Areas or MSA Centers having the same designator but subdivided or differently divided by lateral and/or vertical detail
- Sequence Number : sort order of each airspace, no duplicate sequences per airspace are possible
- Flightlevel : defines the airway structure (see appendix 3.14)
- Boundary Via : defines the path of the boundary from the position identified in the record to the next defined position (see appendix 3.26)
- Latitude : latitude in degrees decimal floating point (N positive, S negative)
- Longitude : longitude in degrees decimal floating point (E positive, W negative)
- Arc Origin Latitude : arc origin latitude in degrees decimal floating point (N positive, S negative)
- Arc Origin Longitude : arc origin longitude in degrees decimal floating point (E positive, W negative)

- `Arc Distance` : define the distance in nautical miles from the "Arc Origin" position
- `Arc Bearing` : contains the true bearing from the "Arc Origin" position to the beginning of the arc
- `Unit Indicator Lower Limit` : specified as "above mean sea level" (MSL) or "above ground level" (AGL)
- `Lower Limit` : contain the lower limits
- `Unit Indicator Upper Limit` : specified as "above mean sea level" (MSL) or "above ground level" (AGL)
- `Upper Limit` : contain the upper limits

## 2.20. Cruising Tables

SQL Format:

```
CREATE TABLE [tbl_cruising_tables] (
    [cruise_table_identifier] TEXT(2),
    [seqno] INT(3),
    [course_from] REAL(5),
    [course_to] REAL(5),
    [mag_true] TEXT(1),
    [cruise_level_from1] INT(5),
    [vertical_separation1] INT(5),
    [cruise_level_to1] INT(5),
    [cruise_level_from2] INT(5),
    [vertical_separation2] INT(5),
    [cruise_level_to2] INT(5),
    [cruise_level_from3] INT(5),
    [vertical_separation3] INT(5),
    [cruise_level_to3] INT(5),
    [cruise_level_from4] INT(5),
    [vertical_separation4] INT(5),
    [cruise_level_to4] INT(5)
)
```

ASCII Format:

```
Cruise Table Identifier|Sequence Number|Course From|Course To|
Mag/True|Cruise Level From 1|Vertical Separation 1|
Cruise Level To 1|Cruise Level From 2|Vertical Separation 2|
Cruise Level To 2|Cruise Level From 3|Vertical Separation 3|
Cruise Level To 3|Cruise Level From 4|Vertical Separation 4|
Cruise Level To 4
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Cruise Table Identifier	alphanumeric	2	5.134
Sequence Number	numeric	1	5.12
Course From	numeric	5	5.135
Course To	numeric	5	5.135
Mag/True	alphanumeric	1	5.165
Cruise Level From 1	numeric	5	5.136
Vertical Separation 1	numeric	5	5.136
Cruise Level To 1	numeric	5	5.136
Cruise Level From 2	numeric	5	5.136
Vertical Separation 2	numeric	5	5.136
Cruise Level To 3	numeric	5	5.136
Cruise Level From 4	numeric	5	5.136
Vertical Separation 4	numeric	5	5.136
Cruise Level To 4	numeric	5	5.136



Example:

- A4|1|360.0|179.0|M|200|2000|27000|27000|4000|31000|31000|1000|32000|32000|3000|

Description:

- `Cruise Table Identifier` : indicate the cruising table (see appendix 3.6)
- `Sequence Number` : sort order of each cruise table, no duplicate sequences per cruise table are possible
- `Course From` : indicate the lowest course for which a block of cruising levels are prescribed
- `Course To` : indicate the highest course for which a block of cruising levels is prescribed
- `Mag/True` : course from/to in magnetic or true degrees
- `Cruise Level From 1-4`: indicate the lowest cruising level prescribed for use within the `Course From/To` fields
- `Vertical Separation 1-4` : indicate the minimum separation prescribed to be maintained between the cruising levels
- `Cruise Level To 1-4` : indicate the highest cruising level prescribed for use within the `Course From/To` fields

## 2.21. FIR/UIR

SQL Format:

```
CREATE TABLE [tbl_fir_uir] (
    [area_code] TEXT(3),
    [fir_uir_identifier] TEXT(4),
    [fir_uir_address] TEXT(4),
    [fir_uir_name] TEXT(25),
    [fir_uir_indicator] TEXT(1),
    [seqno] INT(3),
    [boundary_via] TEXT(2),
    [adjacent_fir_identifier] TEXT(4),
    [adjacent_uir_identifier] TEXT(4),
    [reporting_units_speed] INT(1),
    [reporting_units_altitude] INT(1),
    [fir_uir_latitude] REAL(9),
    [fir_uir_longitude] REAL(10),
    [arc_origin_latitude] REAL(9),
    [arc_origin_longitude] REAL(10),
    [arc_distance] REAL(5),
    [arc_bearing] REAL(5),
    [fir_upper_limit] TEXT(5),
    [uir_lower_limit] TEXT(5),
    [uir_upper_limit] TEXT(5),
    [cruise_table_idenfier] TEXT(2)
)
```

Sort Order:

[rowid]

ASCII Format:

Area Code|FIR/UIR Identifier|FIR/UIR Address|FIR/UIR Name|FIR/UIR  
Indicator|Sequence Number|Boundary Via|Adjacent FIR Identifier|  
Adjacent UIR Identifier|Reporting Units Speed|  
Reporting Units Altitude| FIR/UIR Latitude|  
FIR/UIR Longitude|Arc Origin Latitude|Arc Origin Longitude|  
Arc Distance|Arc Bearing|FIR Upper Limit|UIR Lower Limit|  
UIR Upper Limit|Cruise Table Identifier

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
FIR/UIR Identifier	alphanumeric	4	5.116
FIR/UIR Address	Alphanumeric	4	5.151
FIR/UIR Name	alphanumeric	25	5.125
FIR/UIR Indicator	alphanumeric	1	5.117
Sequence Number	numeric	4	5.12
Boundary Via	alphanumeric	2	5.118
Adjacent FIR Identifier	alphanumeric	4	5.116
Adjacent UIR Identifier	alphanumeric	4	5.116
Reporting Units Speed	numeric	1	5.122

Reporting Units Altitude	numeric	1	5.123
FIR/UIR Latitude	numeric	9	5.36
FIR/UIR Longitude	numeric	10	5.37
Arc Origin Latitude	numeric	9	5.36
Arc Origin Longitude	numeric	10	5.37
Arc Distance	numeric	5	5.119
Arc Bearing	numeric	5	5.120
FIR Upper Limit	alphanumeric	5	5.121
UIR Lower Limit	alphanumeric	5	5.121
UIR Upper Limit	alphanumeric	5	5.121
Cruise Table Identifier	alphanumeric	2	5.134

Example:

- EUR|LOVV|ZRZX|VIENNA|F|10|G|LKAA||1|1|49.000000|15.00388889|||  
|UNLTD|||XX

Description:

- Area Code : geographical area
- FIR/UIR Identifier : identifies the Flight Information Region and Upper Information Region of airspace
- FIR/UIR Address : communication address of the FIR/UIR to supplement the FIR/UIR ident (see appendix 3.35)
- FIR/UIR Name : the name of the controlled airspace when assigned
- FIR/UIR Indicator : indicate the type of controlled airspace (see appendix 3.7)
- Sequence Number : sort order of each airspace, no duplicate sequences per airspace are possible
- Boundary Via : defines the path of the boundary from the position identified in the record to the next defined position (see appendix 3.26)
- Adjacent FIR Identifier : identifies the Flight Information Region and Upper Information Region of airspace
- Adjacent UIR Identifier : identifies the Flight Information Region and Upper Information Region of airspace
- Reporting Units Speed : indicate the units of measurement concerning True Air Speed used in the specific FIR/UIR (see appendix 3.20)
- Reporting Units Altitude : indicate the units of measurement concerning the altitude used in the specific FIR/UIR (see appendix 3.21)
- FIR/UIR Latitude : FIR/UIR latitude in degrees decimal floating point (N positive, S negative)
- FIR/UIR Longitude : FIR/UIR longitude in degrees decimal floating point (E positive, W negative)
- Arc Origin Latitude : arc origin latitude in degrees decimal floating point (N positive, S negative)

- `Arc Origin Longitude` : arc origin longitude in degrees decimal floating point (E positive, W negative)
- `Arc Distance` : define the distance in nautical miles from the "Arc Origin" position
- `Arc Bearing` : contains the true bearing from the "Arc Origin" position to the beginning of the arc
- `FIR Upper Limit` : contain the FIR upper limits
- `UIR Lower Limit` : contain the UIR lower limits
- `UIR Upper Limit` : contain the UIR upper limits
- `Cruise Table Identifier` : indicate the cruising table (see appendix 3.6)

## 2.22. Restrictive Airspace

SQL Format:

```
CREATE TABLE [tbl_restrictive_airspace] (
    [area_code] TEXT(3),
    [icao_code] TEXT(2),
    [restrictive_airspace_designation] TEXT(10),
    [restrictive_airspace_name] TEXT(30),
    [restrictive_type] TEXT(1),
    [multiple_code] TEXT(1),
    [seqno] INT(3),
    [boundary_via] TEXT(2),
    [flightlevel] TEXT(1),
    [latitude] REAL(9),
    [longitude] REAL(10),
    [arc_origin_latitude] REAL(9),
    [arc_origin_longitude] REAL(10),
    [arc_distance] REAL(5),
    [arc_bearing] REAL(5),
    [unit_indicator_lower_limit] TEXT(1),
    [lower_limit] TEXT(5),
    [unit_indicator_upper_limit] TEXT(1),
    [upper_limit] TEXT(5)
)
```

Sort Order:

[rowid]

ASCII Format:

```
Area Code|ICAO Code|Restrictive Airspace Designation|
Restrictive Airspace Name|Restrictive Type|Multiple Code|
Sequence Number|Boundary Via|Flightlevel|Latitude|Longitude|
Arc Origin Latitude|Arc Origin Longitude|Arc Distance|Arc Bearing|
Unit Indicator Lower Limit|Lower Limit|Unit Indicator Upper Limit|
Upper Limit
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
ICAO Code	alphanumeric	2	5.14
Restrictive Airspace Designation	alphanumeric	10	5.129
Restrictive Airspace Name	alphanumeric	30	5.126
Restrictive Type	alphanumeric	1	5.128
Multiple Code	alphanumeric	1	5.130
Sequence Number	numeric	4	5.12
Boundary Via	alphanumeric	2	5.118
Flightlevel	alphanumeric	1	5.19
Latitude	numeric	9	5.36
Longitude	numeric	10	5.37
Arc Origin Latitude	numeric	9	5.36
Arc Origin Longitude	numeric	10	5.37

Arc Distance	numeric	5	5.119
Arc Bearing	numeric	5	5.120
Unit Indicator Lower Limit	alphanumeric	1	5.133
Lower Limit	alphanumeric	5	5.121
Unit Indicator Upper Limit	alphanumeric	1	5.133
Upper Limit	alphanumeric	5	5.121

Example:

- EUR|LO|21|LIZUM|D||10|G|L|47.225000|11.61666667| |||||GND|M|21000

Description:

- Area Code : geographical area of the airspace
- ICAO Code : location indicator of the airspace
- Restrictive Airspace Designation : contains the number or name that uniquely identifies the restrictive airspace
- Restrictive Airspace Name : name of the restrictive airspace when assigned
- Restrictive Type : indicate the type of Airspace in which the flight of aircraft is prohibited or restricted (see appendix 3.27)
- Multiple Code : indicate Restrictive Airspace having the same designator but subdivided or differently divided by lateral and/or vertical detail
- Sequence Number : sort order of each airspace, no duplicate sequences per airspace are possible
- Boundary Via : defines the path of the boundary from the position identified in the record to the next defined position (see appendix 3.26)
- Flightlevel : defines the airway structure (see appendix 3.14)
- Latitude : latitude in degrees decimal floating point (N positive, S negative)
- Longitude : longitude in degrees decimal floating point (E positive, W negative)
- Arc Origin Latitude : arc origin latitude in degrees decimal floating point (N positive, S negative)
- Arc Origin Longitude : arc origin longitude in degrees decimal floating point (E positive, W negative)
- Arc Distance : define the distance in nautical miles from the "Arc Origin" position
- Arc Bearing : contains the true bearing from the "Arc Origin" position to the beginning of the arc
- FIR Upper Limit : contain the lower and upper limits of the FIR
- UIR Lower Limit : contain the lower and lower limits of the UIR
- UIR Upper Limit : contain the lower and upper limits of the UIR

## 2.23. Gate

SQL Format:

```
CREATE TABLE [tbl_gate] (  
    [area_code] TEXT(3),  
    [airport_identifier] TEXT(4),  
    [icao_code] TEXT(2),  
    [gate_identifier] TEXT(5),  
    [gate_latitude] REAL(9),  
    [gate_longitude] REAL(10),  
    [name] TEXT(25)  
)
```

ASCII Format:

```
Area Code|Airport Identifier|ICAO Code|Gate Identifier|  
Gate Latitude|Gate Longitude|Gate Name
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
Airport ICAO Identifier	alphanumeric	4	5.6
ICAO Code	alphanumeric	2	5.14
Gate Identifier	alphanumeric	5	5.56
Gate Latitude	numeric	9	5.36
Gate Longitude	numeric	10	5.37
Name	alphanumeric	5	5.60

Example:

- EUR|LOWW|LO|57| 48.11837222| 16.56030833|57

Description:

- Area Code : geographical area of the gate
- Airport Identifier : four character ICAO location identifier
- ICAO Code : location indicator of the gate
- Gate Identifier : Airport Gate identifier
- Gate Latitude : latitude in degrees decimal floating point (N positive, S negative)
- Gate Longitude : longitude in degrees decimal floating point (E positive, W negative)
- Name : name of the gate

## 2.24. GLS

SQL Format:

```
CREATE TABLE [tbl_gls] (
    [area_code] TEXT(3),
    [airport_identifier] TEXT(4),
    [icao_code] TEXT(2),
    [glc_ref_path_identifier] TEXT(4),
    [glc_category] TEXT(1),
    [glc_channel] INT(5),
    [runway_identifier] TEXT(5),
    [glc_approach_bearing] REAL(5),
    [station_latitude] REAL(9),
    [station_longitude] REAL(10),
    [glc_station_ident] TEXT(4),
    [glc_approach_slope] REAL(4),
    [magnetic_variation] REAL(6),
    [station_elevation] INT(5),
    [station_type] TEXT(3)
)
```

ASCII Format:

```
Area Code|Airport Identifier|ICAO Code|GLS Ref Path Identifier|
GLS Category|GLS Channel|Runway Identifier|GLS Approach Bearing|
Station Latitude|Station Longitude|GLS Station Ident|
GLS Approach Slope|Magnetic Variation|Station Elevation|
Station Type
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
Airport ICAO Identifier	alphanumeric	4	5.6
ICAO Code	alphanumeric	2	5.14
GLS Ref Path Identifier	alphanumeric	4	5.44
GLS Category	alphanumeric	1	5.80
GLS Channel	numeric	5	5.244
Runway Identifier	alphanumeric	5	5.46
GLS Approach Bearing	numeric	5	5.47
Station Latitude	numeric	9	5.36
Station Longitude	numeric	10	5.37
GLS Station Ident	alphanumeric	4	5.243
GLS Approach Slope	numeric	4	5.52
Magnetic Variation	numeric	6	5.39
Station Elevation	numeric	5	5.74
Station Type	alphanumeric	3	5.247



## Example:

- EUR|EDDF|ED|G07A|1|21159|RW07L|67.0|50.02711111|8.52151667|  
EDDF|3.0|2.0|376|L

## Description:

- Area Code : geographical area of the gate
- Airport Identifier : four character ICAO location identifier
- ICAO Code : location indicator of the gate
- GLS Ref Path Identifier : Identification code of the GLS Reference Path
- GLS Category : ILS/MLS/GLS performance categories (see appendix 3.18)
- GLS Channel : identifies the channel that will be decoded to identify the augmentation system used. 20001 – 39999 for GBAS, 40000 – 99999 for SBAS
- Runway Identifier : runway identifier
- GLS Approach Bearing : magnetic bearing of the GLS course
- Station Latitude : latitude in degrees decimal floating point (N positive, S negative)
- Station Longitude : longitude in degrees decimal floating point (E positive, W negative)
- GLS Station Ident : identification code for retrieval of such a transmitter (not a transmitted identifier)
- GLS Approach Slope : glide slope angle of an GLS approach in degrees
- Magnetic Variation : specifies the angular difference between true north and magnetic north at the location
- Station Elevation : elevation of GLS ground station in feet
- Station Type : identifies the type of the different ground station (see appendix 3.32)

## 2.25. Path Point

SQL Format:

```
CREATE TABLE [tbl_pathpoints] (
    [area_code] TEXT(3),
    [airport_identifier] TEXT(4),
    [icao_code] TEXT(2),
    [approach_procedure_ident] TEXT(6),
    [runway_identifier] TEXT(5),
    [sbas_service_provider_identifier] INT(2),
    [reference_path_identifier] TEXT(2),
    [landing_threshold_latitude] REAL(11),
    [landing_threshold_longitude] REAL(12),
    [ltp_ellipsoid_height] REAL(6),
    [glidepath_angle] REAL(4),
    [flightpath_alignment_latitude] REAL(11),
    [flightpath_alignment_longitude] REAL(12),
    [course_width_at_threshold] REAL(5),
    [length_offset] INT(4),
    [path_point_tch] INT(6),
    [tch_units_indicator] TEXT(1),
    [hal] INT(3),
    [val] INT(3),
    [fpap_ellipsoid_height] REAL(6),
    [fpap_orthometric_height] REAL(6),
    [ltp_orthometric_height] REAL(6),
    [approach_type_identifier] TEXT(10),
    [gnss_channel_number] INT(5)
)
```

ASCII Format:

```
Area Code|Airport Identifier|ICAO Code|Approach Procedure
Ident|Runway Identifier|SBAS Service Provider Identifier|Reference
Path Identifier|Landing Threshold Latitude|Landing Threshold
Longitude|LTP Ellipsoid Height|Glidepath Angle|Flightpath Alignment
Latitude|Flightpath Alignment Longitude|Course Width At
Threshold|Length Offset|Path Point TCH|TCH Units
Indicator|HAL|VAL|FPAP Ellipsoid Height|FPAP Orthometric Height|LTP
Orthometric Height|Approach Type Identifier|GNSS Channel Number
```

<i>Field</i>	<i>Format</i>	<i>max.length</i>	<i>ARINC Ref</i>
Area Code	alphanumeric	3	5.3
Airport ICAO Identifier	alphanumeric	4	5.6
ICAO Code	alphanumeric	2	5.14
Approach Procedure Ident	alphanumeric	6	5.10
Runway Identifier	alphanumeric	5	5.46
SBAS Service Provider Identifier	numeric	2	5.255
Reference Path Identifier	alphanumeric	4	5.257
Landing Threshold Latitude	numeric	11	5.267
Landing Threshold Longitude	numeric	12	5.268
LTP Ellipsoid Height	numeric	16	5.225

Glidepath Angle	numeric	4	5.226
Flightpath Alignment Latitude	numeric	11	5.267
Flightpath Alignment Longitude	numeric	12	5.268
Course Width At Threshold	numeric	5	5.228
Length Offset	numeric	4	5.259
Path Point TCH	numeric	6	5.265
TCH Units Indicator	numeric	1	5.266
HAL	numeric	3	5.263
VAL	numeric	3	5.264
FPAP Ellipsoid Height	numeric	6	5.225
FPAP Orthometric Height	numeric	6	5.227
LTP Orthometric Height	numeric	6	5.227
Approach Type Identifier	numeric	10	5.262
GNSS Channel Number	numeric	5	5.244

Example:

- USA|KCDW|K6|R10|RW10|0|W10A|40.87721667|  
-74.28566111|19.0|0.0|40.88016667|  
-74.25326389|106.75|1616|0|F|40|0|19.0|51.5|51.5|LP|81922

Description:

- Area Code : geographical area of the point
- Airport Identifier : four character ICAO location identifier
- ICAO Code : location indicator of the point
- Approach Procedure Ident : Identifier of the approach route
- Runway Identifier : runway identifier
- SBAS Service Provider Identifier : associate the approach procedure to a particular satellite based approach system service provider
- Reference Path Identifier : identifier to confirm selection of the correct approach procedure
- Landing Threshold Latitude : latitude of the navigation feature identified
- Landing Threshold Longitude : longitude of the navigation feature identified
- LTP Ellipsoid Height : height of a surveyed point in reference to the WGS-84 ellipsoid
- Glidepath Angle : angle in degrees
- Flightpath Alignment Latitude : latitude of the navigation feature identified
- Flightpath Alignment Longitude : longitude of the navigation feature identified
- Course Width At Threshold : width of the lateral course at the Landing Threshold Point (LTP)
- Length Offset : distance from the stop end of the runway (SER) to the FPAP

- `Path Point TCH` : height above the runway threshold (LTP)
- `TCH Units Indicator` : define the units (meters or feet)
- `HAL` : Horizontal Alert Limit is the radius of a circle in the horizontal plane
- `VAL` : Vertical Alert Limit is half the length of a segment on the vertical axis
- `FPAP Ellipsoid Height` : height of a surveyed point in reference to the WGS-84 ellipsoid
- `FPAP Orthometric Height` : height of a surveyed point in reference to Mean Sea Level (MSL)
- `LTP Orthometric Height` : height of a surveyed point in reference to Mean Sea Level (MSL)
- `Approach Type Identifier` : Identifies the approach types published on a given approach procedure
- `GNSS Channel Number` : identifies the channel

### 3. Appendixes

#### 3.1. Navaid Class

	1	2	3	4	5
Facility	Navaid Type 1	Navaid Type 2			
VOR	V				
DME		D			
TACAN		T			
MIL TACAN		M			
ILS/DME		I			
ILS/TACAN		I			
MLS/DME N		N			
MLS/DME P		P			
			Range Power		
Terminal			T		
Low Altitude			L		
High Altitude			H		
Undefined			U		
ILS/TACAN			C		
				Additional Information	
Bias ILS/DME or ILS/TACAN				D	
Automatic Transcribed Weather Broadcast				A	
Scheduled Weather Broadcast				B	
No voice on Frequency				W	
Voice on Frequency				blank	
					Collocation
Collocated Navaid					blank
Non-Collocated Navaid					N

### 3.2.NDB Class

	1	2	3	4	5
Facility	Navaid Type 1	Navaid Type 2			
NDB	H				
SABH	S				
Marine Bacon	M				
Inner Marker		I			
Middle Marker		M			
Outer Marker		O			
Back Marker		C			
			Range Power		
200 Watts or More			H		
50 to 1999 Watts			blank		
25 to Less Than 50			M		
Less Than 25 Watts			L		
				Additional Information	
Automatic Transcribed Weather Broadcast				A	
Scheduled Weather Broadcast				B	
No voice on Frequency				W	
Voice on Frequency				blank	
					Collocation
BFO Operation					B

### 3.3. Waypoint Description Code

	1	2	3	4
Airport as Waypoint	A			
Essential Waypoint	E			
Off Airway Waypoint	F			
Runway as Waypoint	G			
Heliport as Waypoint	H			
NDB navaid as Waypoint	N			
Phantom Waypoint	P			
Non-Essential Waypoint	R			
Transition Essential Waypoint	T			
VHF Navaid as Waypoint	V			
end of SID/STAR/IAP route Type		B		
end of enroute Airway or terminal procedure		E		
uncharted airway intersection		U		
Fly-Over Waypoint		Y		
unnamed Stepdown Fix After final Approach Fix			A	
unnamed Stepdown Fix before Final Approach Fix			B	
ATC Compulsory Waypoint			C	
Oceanic Gateway Waypoint			G	
First leg of Missed Approach Procedure			M	
Path Point Fix			P	
Named Stepdown Fix			S	
Initial Approach Fix				A
Intermediate Approach Fix				B
Initial Approach Fix with Holding				C
Initial Approach with Final Approach Course Fix				D
Final End Point Fix				E
Published Final Approach Fix or Database Final Approach Fix				F
Holding Fix				H
Final Approach Course Fix				I
Published Missed Approach Point Fix				M

### 3.4. Waypoint Type for Enroute Waypoints (EA)

Waypoint Type	1	2	3
Combined named intersection and RNAV	C		
unnamed, charted intersection	I		
NDB navaid as waypoint	N		
named intersection	R		
uncharted Airway intersection	U		
VFR Waypoint	V		
RNAV Waypoint	W		
Final Approach Fix		A	
Initial and Final Approach Fix		B	
Final Approach Course Fix		C	
Intermediate Approach Fix		D	
Off-Route intersection in the FAA National Ref System		E	
Off-Route Intersection		F	
Initial Approach Fix		I	
Final Approach Course Fix at Initial Approach Fix		K	
Final Approach Course Fix at Intermediate Approach Fix		L	
Missed Approach Fix		M	
Initial Approach Fix and Missed Approach Fix		N	
Oceanic Entry/Exit Waypoint		O	
Pitch and Catch Point in the FAA High Altitude Redesign		P	
AACAA and SUA Waypoints in the FAA High Altitude Redesign		S	
FIR/UIR or Controlled Airspace Intersection		U	
Latitude/Longitude Intersection Full Degree of Latitude		V	
Latitude/Longitude Intersection, Half Degree Latitude		W	
SID			D
STAR			E
Approach			F
Multiple			Z



### 3.5. Waypoint Type for Terminal Waypoints (PC)

Waypoint Type	1	2	3
ARC Center Fix Waypoint	A		
Combined Named Intersection and RNAV Waypoint	C		
Unnamed, Charted Intersection	I		
Middle Marker as Waypoint	M		
Terminal NDB Navaid as Waypoint	N		
Outer Marker as Waypoint	O		
Named Intersection	R		
VFR Waypoint	V		
RNAV Waypoint	W		
Final Approach Fix		A	
Initial Approach Fix and Final Approach Fix		B	
Final Approach Course Fix		C	
Intermediate Approach Fix		D	
Initial Approach Fix		I	
Final Approach Course Fix at Initial Approach Fix		K	
Final Approach Course Fix at Intermediate Approach Fix		L	
Missed Approach Fix		M	
Initial Approach Fix and Missed Approach Fix		N	
Unnamed Stepdown Fix		P	
Named Stepdown Fix		S	
FIR/UIR or Controlled Airspace Intersection		U	
SID			D
STAR			E
Approach			F
Multiple			Z

### 3.6. Cruise Table Identifier

Field	Description
AA	ICAO standard cruise table
AO	Exception to ICAO cruise table
BB-ZZ	Modified cruise table
BO-ZO	Exception to modified cruise table

### 3.7. FIR/UIR Indicator

Field	Type
F	FIR
U	UIR
B	Combined FIR/UIR

### 3.8. Waypoint Usage

Usage	1	2
High and Low Altitude		B
High Altitude only		H
Low Altitude only		L
Terminal Use Only		blank
RNAV	R	

### 3.9. Turn Direction

Turn	Description
L	Left turn
R	Right turn

### 3.10. Route Type for Enroute Airways

Airway Type	Field Content
Control	C
Direct Route	D
Helicopter Route	H
Official Designated Airways except RNAV Airways	O
RNAV Airways	R
Undesignated ATS Route	S

### 3.11. Route Type for SIDs (PD)

SID Route Type	Field Content
Engine Out SID	0
SID Runway Transition	1
SID or SID Common Route	2
SID Enroute Transition	3
RNAV SID Runway Transition	4
RNAV SID or SID Common Route	5
RNAV SID Enroute Transition	6
FMS SID Runway Transition	F
FMS SID or SID Common Route	M
FMS SID Enroute Transition	S
Vector SID Runway Transition	T
Vector SID Enroute Transition	V

### 3.12. Route Type for STARs (PE)

STAR Route Type	Field Content
STAR Enroute Transition	1
STAR or STAR Common Route	2
STAR Runway Transition	3
RNAV STAR Enroute Transition	4
RNAV STAR or STAR Common Route	5
RNAV STAR Runway Transition	6
Profile Descent Enroute Transition	7
Profile Descent Common Route	8
Profile Descent Runway Transition	9
FMS STAR Enroute Transition	F
FMS STAR or STAR Common Route	M
FMS STAR Runway Transition	S

### 3.13. Route Type of IAPs (PF)

IAP Route Type	Field Content
Approach Transition	A
Localizer/Back course Approach	B
VORDME Approach	D
FMS Approach	F
IGS Approach	G
ILS Approach	I
GLS Approach	J
LOC only Approach	L
MLS Approach	M
NDB Approach	N
GPS Approach	P
NDB DME Approach	Q
RNAV Approach	R
VOR Approach using VORDME/VORTAC	S
TACAN Approach	T
SDF Approach	U
VOR Approach	V
MLS Type A Approach	W
LDA Approach	X
MLS Type B and C Approach	Y
Missed Approach	Z

### 3.14. Level

Level	Description
B	All Altitudes
H	High Level Airways
L	Low Level Airways

### 3.15. Directional Restriction

Direction	Description
F	One way in direction route is coded (Forward)
B	One way in opposite direction route is coded (backwards)
blank	no restrictions on direction

### 3.16. IFR Capability

Direction	Description
Y	Instrument Approach Procedure published
N	no Instrument Approach Procedure published

### 3.17. Longest Runway Surface

Code	Description
H	Hard Surface (asphalt or concrete)
S	Soft Surface (gravel, grass or soil)
W	Water Runway
U	undefined

### 3.18. ILS/MLS/GLS Category

Definition	Category/Classification
ILS Localizer Only, no glideslope	0
ILS Localizer/MLS/GLS Category I	1
ILS Localizer/MLS/GLS Category II	2
ILS Localizer/MLS/GLS Category III	3
IGS Facility	I
LDA Facility with Glideslope	L
LDA Facility no Glideslope	A
SDF Facility with Glideslope	S
SDF Facility no Glideslope	F

### 3.19. Marker Type

Field	Type of Facility
-IM	Inner Marker
-MM	Middle Marker
-OM	Outer Marker
-BM	Back Marker
L--	Locator at Marker

- blank

### 3.20. Reporting Units Speed

Field	Reporting Units
0	not specified
1	TAS in Knots
2	TAS in Mach
3	TAS in Kilometer/hour

### 3.21. Reporting Units Altitude

Field	Reporting Units
0	not specified
1	Altitude in Flightlevel
2	Altitude in Meters
3	Altitude in Feet

### 3.22. Path and Termination

Path & Termination	Description
IF	Initial Fix
TF	Track to a Fix
CF	Course to a Fix
DF	Direct to a Fix
FA	Fix to an Altitude
FC	Track from a Fix for a Distance
FD	Track from a Fix to a DME Distance
FM	From a Fix to a Manual termination
CA	Course to an Altitude
CD	Course to a DME Distance
CI	Course to an Intercept
CR	Course to a Radial termination
RF	Constant Radius Arc
AF	Arc to Fix
VA	Heading to an Altitude
VD	Heading to a DME Distance termination
VI	Heading to an Intercept
VM	Heading to a Manual termination
VR	Heading to a Radial termination
PI	045/180 Procedure turn
HA, HF, HM	Holding in lieu of Procedure Turn

### 3.23. Speed Limit Description

Speed Limit	Description
@ or blank	Mandatory Speed, cross fix at speed specified in the Speed Limit field
+	Minimum Speed, cross fix at or above speed specified in Speed Limit field
-	Maximum Speed, cross fix at or below speed specified in Speed Limit field

### 3.24. Airspace Type

Field	Description
A	Class C Airspace (USA)
C	Control Area, ICAO Designation (CTA)
K	Control Area, ICAO Designation (CTA)
M	Terminal Control Area, ICAO Designation (TMA or TCA)
Q	Military Control Zone (MCTR)
R	Radar Zone or Radar Area (USA)
T	Class B Airspace (USA)
W	Terminal Control Area (TCA)
X	Terminal Area (TMA)
Y	Terminal Radar Service Area (TRSA)
Z	Class D Airspace, ICAO Designation (CTR)

### 3.25. Altitude Description

Field	Description
+	at or above altitude specified in Altitude1 field
-	at or below altitude specified in Altitude1 field
@ or blank	at altitude specified in Altitude1 field
B	at or above to at or below altitudes in Altitude1 field and Altitude2 field
C	at or above altitude specified in Altitude2 field
G	Glide Slope altitude (MSL) specified in Altitude2 field and at altitude specified in Altitude1 field
H	Glide Slope altitude (MSL) specified in Altitude2 field and at or above altitude specified in Altitude1 field
I	Glide Slope Intercept Altitude specified in Altitude2 field and at altitude specified in Altitude1 field
J	Glide Slope Intercept Altitude specified in Altitude2 field and at or above altitude specified in Altitude1 field
V	at altitude on the coded vertical angle in the Altitude2 field and at or above altitude specified in Altitude1 field
X	at altitude on the coded vertical angle in Altitude2 field and at altitude specified in Altitude1 field
Y	at altitude on the coded vertical angle in Altitude2 field and at or below altitude specified in the Altitude1 field

### 3.26. Boundary Via

Field	Description
C-	Circle
G-	Great Circle
H-	Rhumb Line
L-	Counter Clockwise ARC
R-	Clockwise ARC
-E	End of description, return to origin point

- blank

### 3.27. Restrictive Airspace Type

Field	Type
A	Alert
C	Caution
D	Danger
M	Military Operations Area
P	Prohabited
R	Restricted
T	Training
W	Warning
U	Unknown

### 3.28. Restriction Type

Field	Description
AE	Altitude exclusion
TC	Cruising Table Replacement
SC	Seasonal Restriction
NR	Note Restriction

### 3.29. Units of Altitude

Field	Description
F	Restriction Altitudes are expressed in hundreds of feet
K	Restriction Altitudes are expressed in metric Flightlevel
L	Restriction Altitudes are expressed in feet Flightlevel
M	Restriction Altitudes are expressed in tens of meters

### 3.30. Block Indicator

Field	Description
B	indicates an altitude block
I	indicates an individual altitudes block

### 3.31. Frequency Units

Field	Description
H	High Frequency (3.000 kHz – 30.000 kHz)
V	Very High Frequency (30.000 kHz – 200 MHz)
U	Ultra High Frequency (200 MHz – 3.000 MHz)
C	Communication Channel for 8.33 kHz spacing

### 3.32. Station Type

Field	Description
L--	LAAS/GLS ground station
C--	SCAT-1 station

- blank



### 3.33. Communication Type

Field	Description	Communication		
		Airport	Enroute	Both
ACC	Area Control Center			X
ACP	Airlift Command Post	X		
AIR	Air to Air	X		
APP	Approach Control	X		
ARR	Arrival Control	X		
ASO	Automatic Surface Observing System (ASOS)	X		
ATI	Automatic Terminal Information Services (ATIS)	X		
AWI	Airport Weather Information Broadcast (AWIB)	X		
AWO	Automatic Weather Observing Service (AWOS)			X
AWS	Aerodrome Weather Information Service (AWIS)	X		
CLD	Clearance Delivery	X		
CPT	Clearance, Pre-Taxi	X		
CTA	Control Area (Terminal)	X		
CTL	Control			X
DEP	Departure Control	X		
DIR	Director (Approach Control Radar)	X		
EFS	Enroute Flight Advisory Service (EFAS)		X	
EMR	Emergency			X
FSS	Flight Service Station			X
GCO	Ground Comm Outlet	X		
GND	Ground Control	X		
GET	Gate Control	X		
HEL	Helicopter Frequency	X		
INF	Information			X
MIL	Military Frequency			X
MUL	Multicom			X
OPS	Operations	X		
PAL	Pilot Activated Lighting	X		
RDO	Radio			X
RDR	Radar			X
RFS	Remote Flight Service Station (RFSS)			X
RMP	Ramp/Taxi Control	X		
RSA	Airport Radar Service Area (ARSA)	X		
TCA	Terminal Control Area (TCA)	X		
TMA	Terminal Control Area (TMA)	X		
TML	Terminal	X		
TRS	Terminal Radar Service Area (TRSA)	X		
TWE	Transcriber Weather Broadcast (TWEB)		X	
TWR	Tower, Air Traffic Control	X		
UAC	Upper Area Control		X	
UNI	Unicom	X		
VOL	Volmet		X	

### 3.34. Service Indicator

Field	Description
A--	Airport Advisory Service (AAS)
C--	Community Aerodrome Radio Station (CARS)
D--	Departure Service
F--	Flight Information Service (FIS)
I--	Initial Contact (IC)
L--	Arrival Service
P--	Pre-Departure Clearance (Data Link Service)
S--	Aerodrom Flight Information Service (AFIS)
T	Terminal Area Control
-A-	Aerodrome Traffic Frequency (ATF)
-C-	Common Traffic Advisory Frequency (CTAF)
-M-	Mandatory Frequency (MF)
-R-	Air/Air
-S-	Secondary Frequency
--A	Air/Ground
--D	VHF Direction Finding Service (VDF)
--G	Remote Communications Air to Ground (RCAG)
--L	Language other than English
--M	Military Use Frequency
--P	Pilot Controlled Light (PCL)
--R	Remote Communications Outlet (RCO)

- blank

### 3.35. FIR/UIR Address

Field	Description
ZQZX	related to an IFR Flight
ZFZX	related to an VFR Flight
ZOZX	related to an Oceanic FIR/UIR
ZRZX	related to all other FIR/UIR

### 3.36. Time Codes

Field	Description
C	active continuously, including holidays
H	active continuously, excluding holidays
N	active none continuously, refer to continuation records
(blank)	active times announced by Notams

### 3.37. Time Distance

Field	Description
T	Time in minute(s)
D	Distance in nautical miles

### 3.38. Procedure Leg Data Fields (minimum requirements)

#### AF (Arc to a Fix)

FixIdentifier, TurnDirection, RecommendedNavaid, Theta (fix radial), RHO, MagCourse (boundary radial)

#### CA (Course to an Altitude)

MagCourse, Alt1+ (at or above)

#### CD (Course to a DME Distance)

RecommendedNavaid, MagCourse RouteDISTANCEHoldingTime (DME distance)

#### CF (Course to a Fix)

FixIdentifier, RecommendedNavaid, Theta, RHO, MagCourse (course to specific fix), RouteDISTANCEHoldingTime (Path length)

#### CI (Course to Intercept)

MagCourse

#### CR (Course to a Radial termination)

RecommendedNavaid, Theta, MagCourse

#### DF (Direct to a Fix)

FixIdentifier, FlyOver

#### FA (Fix to an Altitude)

FixIdentifier, RecommendedNavaid, Theta, RHO, MagCourse, Alt1+ (at or above)

#### FC (Track from a Fix for a Distance)

FixIdentifier, FlyOver, RecommendedNavaid, Theta, RHO, MagCourse, RouteDISTANCEHoldingTime (Path length)

#### FD (Track from a Fix to a DME Distance)

FixIdentifier, RecommendedNavaid, Theta, RHO, MagCourse, RouteDISTANCEHoldingTime (DME distance)

#### FM (From a Fix to Manual termination)

FixIdentifier, RecommendedNavaid, Theta, RHO, MagCourse

#### HA (Holding mandatory)

FixIdentifier, TurnDirection, MagCourse, RouteTIMEDistanceHoldingTime, Alt1+ (at or above)

#### HF (Holding in lieu of Procedure Turn)

FixIdentifier, TurnDirection, MagCourse, RouteTIMEDistanceHoldingTime

#### HM (Holding mandatory)

FixIdentifier, TurnDirection, MagCourse, RouteTIMEDistanceHoldingTime

**IF (Initial Fix)**

FixIdentifier

**PI (045/180 Procedure Turn)**

FixIdentifier, TurnDirection, RecommendedNavaid, Theta, RHO, MagCourse,  
RouteTimeDISTANCEHoldingTime (excursion distance from fix), Alt1

**RF (Constant Radius Arc)**

FixIdentifier, TurnDirection, Theta (inbound tangential track), MagCourse,  
RouteTimeDISTANCEHoldingTime (along track distance), ArcCenter

**TF (Track to a Fix)**

FixIdentifier, Overfly

**VA (Heading to an Altitude)**

MagCourse (Heading), Alt1+ (at or above)

**VD (Heading to a DME Distance)**

RecommendedNavaid, MagCourse (Heading), RouteTimeDISTANCEHoldingTime (DME distance)

**VI (Heading to an Intercept)**

MagCourse (Heading)

**VM (Heading to a Manual Termination)**

MagCourse(Heading)

**VR (Heading to a Radial)**

RecommendedNavaid, Theta, MagCourse (Heading)

---

<sup>i</sup> This field will NOT be trimmed