



SUPPORTING  
EUROPEAN  
AVIATION

# Free Route Airspace (FRA)

*“Giving users the freedom  
to plan a route in specified  
airspace”*

Part 4 - Aeronautical Data Provision

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21 - 25 OCT 2024



## General Overview



# Free Route Airspace: Data Provision

## AIP and AIP Data Set

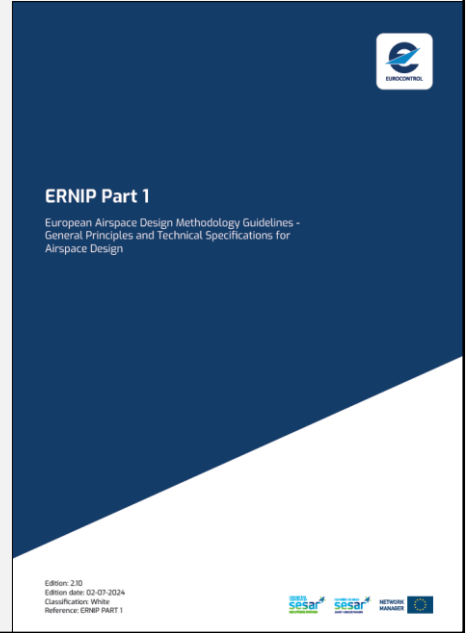
### European Route Network Improvement Plan - Part 1

### Chapter 9 Guidelines for data provision of Airspace Objects in Aeronautical Information Products

#### Section 9.6 Guidelines for data provision of Free Route Airspace

The guidelines included in Chapter 9 are based on ATM and AIM provisions in relevant ICAO SARPs, ICAO PANS and EC Regulations and are supplementary to those provisions for which there is no sufficient guidance material.

<https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-part-1>



# Free Route Airspace: Data Provision

## AIP and AIP Data Set

- The detailed requirements for FRA data origination and publication in AIP and via AIP Data Set, including references to the data quality requirements contained in the ICAO Doc 10066 PANS-AIM are in accordance with ERNIP Part 1, Chapter 9.
- When the AIP data set is provided in accordance with ICAO Doc 10066 PANS-AIM, the AIP sections marked with (#) may be omitted or left blank and reference to the data set availability is provided.

FRA Data	AIP section
FRA terminology and relevant terms or abbreviations for FRA operations	GEN 2.2
FRA General Procedures, including: <ul style="list-style-type: none"> <li>FRA Arrival/Departure Connecting Routes (If not described in ENR 3.3 or AD 2.22)</li> </ul>	ENR 1.3
FRA FLOS Provisions	ENR 1.9
FRA general information on CDR and Special Areas	ENR 1.10
FRA Flight Planning procedures	ENR 2.2
FRA Area definition (lateral limits, vertical limits, time applicability, etc.) If applicable, a name and description for the cross-border FRA that this FRA is part of	ENR 2.2
FRA Arrival/Departure Connecting Routes (If not described in ENR 1.3 or AD 2.22)	ENR 3.3#
1. FRA relevance of NAVAIDs designated as FRA Significant Points: <ul style="list-style-type: none"> <li>(E), for "FRA Horizontal Entry Point";</li> <li>(X), for "FRA Horizontal Exit Point";</li> <li>(I), for "FRA Intermediate Point";</li> <li>(A), for "FRA Arrival Connecting Point";</li> <li>(D), for "FRA Departure Connecting Point".</li> </ul>	ENR 4.1#
2. FRA specific information of NAVAIDs: <ul style="list-style-type: none"> <li>Vertical FL band, if different inside the FRA area;</li> <li>FLOS over relevant NAVAID, if applicable;</li> <li>Aerodrome(s) related to a FRA (A) or FRA (D) or FRA (AD) point;</li> <li>FRA area name related to a FRA (A) or FRA (D) or FRA (AD) point;</li> <li>Different FRA relevance on the same NAVAID during defined periods.</li> </ul>	
1. FRA relevance of SLNCs designated as FRA Significant Points: <ul style="list-style-type: none"> <li>(E), for "FRA Horizontal Entry Point";</li> <li>(X), for "FRA Horizontal Exit Point";</li> <li>(I), for "FRA Intermediate Point";</li> <li>(A), for "FRA Arrival Connecting Point";</li> <li>(D), for "FRA Departure Connecting Point".</li> </ul>	ENR 4.4#
2. FRA specific information of SLNCs: <ul style="list-style-type: none"> <li>Vertical FL band, if different inside the FRA area;</li> <li>FLOS over relevant SLNC;</li> <li>Aerodrome(s) related to a FRA (A) or FRA (D) or FRA (AD) point;</li> <li>FRA area name related to a FRA (A) or FRA (D) or FRA (AD) point;</li> <li>Different FRA relevance on the same SLNC during defined periods.</li> </ul>	
Special Area(s) FRA reconfiguration	ENR 5.1#
Special Area(s) FRA reconfiguration	ENR 5.2#
FRA Arrival/Departure Connecting Routes (If not described in ENR 1.3 or ENR 3.3)	**** AD 2.22
Full FRA description	En-route Charts
1. SIDs/STARs extension in FRA.	Aerodrome Charts
2. FRA Arrival/Departure Connecting Routes (If not described part of en-route Chart).	Charts

A large, empty rectangular box with a black border, centered on a light gray background. The letters "AIP" are printed in a bold, black, sans-serif font in the center of the box.

**AIP**



## **Free Route Airspace: Data Provision Terminology - GEN 2.2**

- Common terminology and relevant terms/abbreviations for FRA operations.
- A general glossary of FRA terms/abbreviations in accordance with FRA Concept. This may not be an exhaustive list and as such does not prevent States to insert additional FRA terms/abbreviations, if required.
- The FRA relevant terms/abbreviations that are either different from or not contained in ICAO Doc 8400 PANS-ABC, will be marked with an asterisk (\*) to indicate “non-ICAO” status - in accordance with ICAO SARPs. It is important that, for those “non-ICAO” terms/abbreviations, the harmonised terminology presented in FRA Concept is used.





# Free Route Airspace: Data Provision

## FRA General Procedures - ENR 1.3 (1)

- Procedures related to the FRA, including explanation and definitions of applied FRA relevant points, will be described in a dedicated AIP subsection
- As the FRA procedures are seen as supplementary to the general IFR procedures, they will be described in ENR 1.3.
- To adhere to the ICAO AIP structure to the maximum extent, a new (additional) subsection - ENR 1.3.4 “Free Route Airspace - General Procedures” was created, based on the following template.

# Free Route Airspace: Data Provision

## FRA General Procedures - ENR 1.3 (2)

### 4. Free Route Airspace - General Procedures

#### 4.1 Area of application

e.g. “FRA procedures are available in Amwell FIR above FL245. If applicable specify airspace where provision of service is delegated to another ANSP. For further details see ENR 2.2 and ENR Charts.”

#### 4.2 FRA Procedures

##### 4.2.1 General

e.g. “Traffic will be subject to General Rules (ENR 1.1), RAD and Letters of Agreement (LoA) between neighbouring ACCs.”

e.g. “Within FRA users will be able to plan user-preferred trajectories through the use of significant points included in AIP ... (State) ENR 4.4 Name-code designators for significant points and ENR 4.1 Radio navigation aids - en-route, respectively. Segments between significant points will be indicated by means of “DCT” instructions.”

DCT usage/limitations

e.g. “Within the FRA area there will be no limitations on the use of “DCT”.”

##### 4.2.2 Overflying traffic

e.g. “Overflying traffic should plan directly from Amwell FIR entry point to the Amwell FIR exit point.”

##### 4.2.3 Access to/from Terminal Airspace

e.g. “Arriving traffic should plan directly from Amwell FIR entry point to the FRA Arrival Connecting Point (A)/STAR initial waypoint.”

e.g. “Departing traffic should plan directly from FRA Departure Connecting Point (D)/SID final point to the Amwell FIR exit point.”

- *Flight planning within the FRA area will comply with adjacent ATS route network orientation.*

e.g. “For southbound traffic via AAAAA connecting to L1, ODD and EVEN levels are available 50 NM prior arriving AAAAA waypoint.”



# Free Route Airspace: Data Provision

## FRA General Procedures - ENR 1.3 (3)

### 4.2.4 Cross-Border Application

Cross-border - DCT - (NOT) allowed.

Describe the exception of the segments as applicable.

e.g. "Airspace users will have to plan their trajectory inside FRA in Amswell FIR through the use of the intermediate significant points."

e.g. "Intermediate waypoint NARTA suggested for traffic passing through Donlon FIR/UIR."

e.g. "Exceptional cross-border DCT segments allowed are:

AAAAA DCT CCCCC

AAAAA DCT DDDDD

..."

### 4.3 Airspace Limitation - Special Areas

#### 4.3.1 Re-routing Special Areas

e.g. "AOs will plan their trajectory inside FRA disregarding all segregated airspace. In case there is no availability to cross segregated areas," or

e.g. "AOs will plan their trajectory around segregated airspace, when not available for civil operations, by using the 5LNC published for this purpose in ENR 4.4."

#### 4.3.2. Promulgation of route extension

e.g. "In case there is no availability to cross the segregated area, it is expected that the average flight extension to be considered by aircraft operators is approximately 5NM; in exceptional occasions 15NM. However, in most of the cases radar vectors are provided by ATC."

### 4.4 Additional FRA Procedures

e.g. "For speed and level changes inside FRA in Amswell FIR on flight plan Item 15, additionally to a significant point and only for this purpose, aircraft operators may also use geographical coordinates."

e.g. "In terms of flight planning, Item 15, flight levels (FLs) within Amswell FIR FRA area will respect the table of cruising levels included in ENR 1.7, except for waypoint RRRRR. By Letter of Agreement, traffic intending to enter Amswell FIR via RRRRR must enter at ODD FLs and traffic intending to exit Amswell FIR via RRRRR must exit at EVEN FLs."

### 4.5 Route Availability Document (if required)

enter your presentation title



# Free Route Airspace: Data Provision

## FRA General Procedures - ENR 1.3 (4)

### FLOS

- In order to reflect the FRA FLOS procedures, if different from ENR 1.7, the following text and tables should be published in accordance with above template in 4.4 Additional FRA Procedures under Flight Level Orientation Scheme. Cruising levels should be planned in accordance with the information provided in the column "Remarks" in ENR 4.4. The direction of cruising levels (ODD FL or EVEN FL) should be chosen depending on the direction of cruising level required over the relevant significant points as described in the following tables:

Direction of Cruising levels within a FRA area - Overflights		
FLs over FRA (E)	FLs over FRA (X)	FLs inside FRA area
EVEN	EVEN	EVEN FLs for all DCT segments
ODD	ODD	ODD FLs for all DCT segments
EVEN	ODD	A change from EVEN FLs to ODD FLs shall be planned inside the FRA area (might add when required "and before/at relevant FRA significant point")
ODD	EVEN	A change from ODD FLs to EVEN FLs shall be planned inside the FRA area (might add when required "and before/at relevant FRA significant point").



## Free Route Airspace: Data Provision

### FRA General Procedures - ENR 1.3 (5)

#### Cross-border FRA procedures

- In case of cross-border FRA implementation, the relevant ATS airspaces shall be indicated in ENR 1.3.
- FRA procedures specifically related to flight planning and submission of a correct flight plan shall be published in ENR 1.10.
- Definitions of applied FRA relevant points are appropriate in ENR 1.3 together with information on FRA general procedures, recognising that publication of a list of definitions in GEN 2.2 is not mandatory.



## Free Route Airspace: Data Provision

### FRA Flight Planning - ENR 1.10

- ENR 1.10 is the subsection for information relevant for FRA flight planning for eligible flights, enabling the correct flight planning and submission of a flight plan. This relates to e.g. usage of significant points for flight planning purposes and/or instructions of mandatory items and/or format of the information, enabling the completion of the flight plan.
- Instructions regarding DCT which could be filed in the flight plan in accordance with ICAO Doc 4444 PANS-ATM, Appendix 2, FLIGHT PLAN, ITEM 15, (c) Route (including changes of speed, level and/or flight rules), could be inserted in ENR 1.10.
- Example: Instruction on DCT limitations/usage in the flight plan could be placed under ENR subsection 1.10.4:  
“... ENR 1.10.4 Use of “DCT” in flight plan”.



## Free Route Airspace: Data Provision

### FRA Area - ENR 2.1

- Considering that the FRA is not classified yet by ICAO as an ATS airspace and to allow coherence with data provision via AIP Data Set, it is recommended that this section is **not used** for the publication of FRA data.

*Note: The reason for such requirement is the coherence in data provision as the AIP Data Set does not support "Remarks" data.*



## Free Route Airspace: Data Provision

### FRA Area - ENR 2.2

- For **non-cross-border FRA**, regardless of publication or non-publication of ATS airspaces, each State shall **publish separately the entire FRA**.
- For **cross-border FRA**, each State shall **publish** the following:
  - **Up to the border of relevant FIR** instead of the entire FRA with reference to the other involved States' AIPs for continuing information; or
 

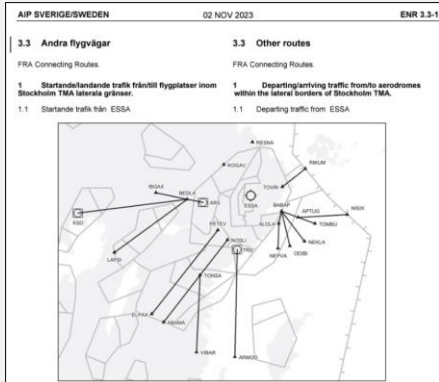
*Note: This practice allows adhering to current ICAO SARPs and PANS on data provision and allows from a data management perspective constructing the overall FRA volume in accordance with involved Data Providers' respective area of responsibility.*
  - **The entire cross-border FRA** for the involved ATS airspaces.
- Identification



## Free Route Airspace: Data Provision

### FRA Connecting Routes - ENR 3.3 or AD 2.22

- For the publication of defined FRA connecting routes, the ENR 3.3 may be used, with a dedicated subsection named "FRA Connecting Routes". This subsection is appropriate for publishing the complete connecting route package for a terminal area.
- Alternatively, the description of the FRA connecting routes can also be published together with details on flight procedures (AD 2.22) for the aerodrome concerned, if appropriate.



ESSA SID Final Waypoint	ESSA FRA Departure Connecting Point	Flight Plan
RESNA	RESNA	RESNA-DCT
TOVRI	RIKUM	TOVRI-N851-RIKUM
BABAP	NISIX	BABAP-P607-APTUG-M851-NISIX
	TOMBU	BABAP-P607-TOMBU-DCT
	NEKLA	BABAP-P156-NEKLA-DCT
	ODIBI	BABAP-N5-ODIBI-DCT
	NEPVA	BABAP-T316-NEPVA-DCT
TRS	ARMOD	TRS-M607-ARMOD-DCT
NOSLI	ABAMA	NOSLI-N850-ABAMA-DCT
	VIBAR	NOSLI-N850-TONSA-L87-VIBAR-DCT
DKR	ELPAX	DKR-N872-ELPAX-DCT
ARS	LAPSI	ARS-N623-BEDLA-N866-LAPSI-DCT
	IBGAX	ARS-N623-IBGAX-DCT (not avbl for ftc via ENOS 1 sector)
	KSD	ARS-N623-BEDLA-P609-KSD-DCT
KOGAV	KOGAV	KOGAV-DCT



## Free Route Airspace: Data Provision

### FRA Points - ENR 4.1 and ENR 4.4 - General Provisions

- FRA significant points will be published with a clear reference to the Free Route Airspace.
- As any NAVAID and/or 5LNC can be used as a FRA significant point, the publication of appropriate FRA relevance shall be considered.
- Publication of FRA relevance shall be done either in the column "Remarks" or in added column named "FRA relevance" by an extension to the respective tables.
- The FRA relevance of the significant points shall be indicated by the following letters and published within brackets:
  - (E), for "FRA Horizontal Entry Point".
  - (X), for "FRA Horizontal Exit Point".
  - (I), for "FRA Intermediate Point".
  - (A), for "FRA Arrival Connecting Point".
  - (D), for "FRA Departure Connecting Point".
- The FRA relevance indication letter(s) shall be published within brackets as follows:
  - FRA(...) - when publication is done in column "Remarks".
  - (...) - when publication is done in separate column.
- Any unique combinations of letters can be published.



# Free Route Airspace: Data Provision

## FRA Points - ENR 4.1 and ENR 4.4 - Specific Information

- When required, specific information with respect to the FRA relevance of the significant points may be published.
- As specific information is considered:
  - Vertical FL band in FRA relevance, if different inside the FRA area from general FRA vertical limits.
  - FLOS over relevant FRA significant point.
  - Aerodrome(s) related to a FRA Arrival Connecting Point and/or FRA Departure Connecting Point.
  - FRA area name related to a FRA Arrival Connecting Point and/or FRA Departure Connecting Point located on a common boundary of two FRA areas.
  - Different FRA relevance on the same significant point during defined time periods.
  - FRA points relevance association with different FRA areas in same State (not applicable to "Area for cross-border provision of ATS").

Application	Data provision format and examples	
	If added column is used for FRA relevance	Column "Remarks"
Association with aerodromes (and when required FRA area)		FRA(A): EADA, NETWORK FRA FRA(D): EADB or FRA(AD) EADB (if applied to both arrival and departure traffic)
	(AD)	FRA(AD): EADA, EADB or (A): EADA, NETWORK FRA (D): EADB
		(AD): EADB (if applied to both arrival and departure traffic)
	(AD)	(AD): EADA, EADB
Association with different FRA areas in same State*		FRA(E): EACCFRAW FRA(EX): EACCFRAW-EADDFRAE FRA(I): EADDFRAE
	(E)	(E): EACCFRAW
	(EX)	(EX): EACCFRAW-EADDFRAE
	(I)	(I): EADDFRAE
	(I)	FRA(I): 5500 FT AMSL - FL245 FRA(X): FL245 - FL660
Within defined vertical limits		FRA(I): FL175 - FL660
	(X)	(I): 5500 FT AMSL - FL245 (X): FL245 - FL660
	(I)	(I): FL175 - FL660



# Free Route Airspace: Data Provision

## FRA Points - ENR 4.1

- Legend for FRA relevance: (E) = "Horizontal Entry point", (X) = "Horizontal Exit point", (I) = "Intermediate point", (A) = "Arrival Connecting point", (D) = "Departure Connection point".

Name of station (VAR) (VOR: Declination)	ID	FREQ (CH)	Hours of operations	Coordinates	ELEV DME antenna	Remarks
BOORSPIJK VOR/DME (7°W)	BOR	115.500 MHZ (CH 102X)	H24	522206N 0322230W	30 M	Coverage 250 KM FRA(I) To plan when EAD370 is activated
DONLON VOR/DME (7°W)	DON	116.400 MHZ (CH 111X)	H24	522636N 0320003W	60 M	Coverage 250 KM FRA(A): EADA, EADB STAR EADA and EADB

Name of station (VAR) (VOR: Declination)	ID	FREQ (CH)	Hours of operations	Coordinates	ELEV DME antenna	FRA relevance	Remarks
BOORSPIJK VOR/DME (7°W)	BOR	115.500 MHZ (CH 102X)	H24	522206N 0322230W	30 M	(I)	Coverage 250 KM
DONLON VOR/DME (7°W)	DON	116.400 MHZ (CH 111X)	H24	522636N 0320003W	60 M	(A)	Coverage 350 KM (A): EADA, EADB STAR EADA and EADB



## Free Route Airspace: Data Provision

### FRA Points - ENR 4.4

- Legend for FRA relevance: (E) = "Horizontal Entry point", (X) = "Horizontal Exit point", (I) = "Intermediate point", (A) = "Arrival Connecting point", (D) = "Departure Connection point".

Name-code designator	Coordinates	ATS route or other route	Remarks	
ABOLA	454236N 0351012W	NIL	FRA(D): EADA FRA(E): ODD FL for entering aircraft	
ATLIM	544306N 0470000W	G456	FRA(I) FRA(A): EADA	
BARIM	423006N 0370006W	NIL	FRA(EX)	
EBOTO	423006N 0260054W	A876	FRA(I): FL215 - FL660 2300-0400 (2200-0300) FRA(EX): FL095 - FL215, ODD FL for entering aircraft, EVEN FL for exiting aircraft 0400-2300 (0300-2200).	
Name-code designator	Coordinates	ATS route or other route	FRA relevance	Remarks
ABOLA	454236N 0351012W	NIL	(DE)	(D): EADA (E): ODD FL for entering aircraft
ATLIM	544306N 0470000W	G456	(IA)	(A): EADA
BARIM	423006N 0370006W	NIL	(EX)	
EBOTO	423006N 0260054W	A876	(IEX)	(I): FL175 - FL660 2300-0400 (2200-0300) (EX): ODD FL for entering aircraft, EVEN FL for exiting aircraft 0400-2300 (0300-2200)



## Free Route Airspace: Data Provision

### Airspace Reservations

- The following AIP subsections are used for publication of information of Special Areas:
  - ENR 1.9 - to include general information on CDR1 and TRA/TSA.
  - ENR 2.2.
  - ENR 5.1.
  - ENR 5.2 shall be used for any "special area" (CIV/MIL) including TRA/TSA specific information.
- There is the potential for airspace reservations to be reconfigured to meet different task needs and this will require updates to ENR 5.1 and ENR 5.2.



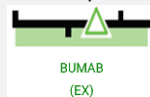
## Free Route Airspace: Data Provision Charts - Types

- The chart types that can be affected by FRA implementation are Enroute Charts and Aerodrome Charts.

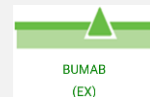


## Free Route Airspace: Data Provision Charts - FRA Symbols (1)

- The FRA relevance of a significant point shall be indicated by the following letters and published within brackets:
  - (E), for "FRA Horizontal Entry Point".
  - (X), for "FRA Horizontal Exit Point".
  - (I), for "FRA Intermediate Point".
  - (A), for "FRA Arrival Connecting Point".
  - (D), for "FRA Departure Connecting Point".
- Any unique combinations of letters can be published.
  - Example:
    - (EX) - FRA Horizontal Entry/Exit point.
    - (XD) - FRA Horizontal Exit/Departure connecting point.
- The chart presentation of the FRA boundary and FRA significant points is based on the following example:
  - FRA boundary in coincidence with FIR with "on-request" FRA Horizontal Entry/Exit point.



- Independent FRA boundary with "compulsory" FRA Horizontal Entry/Exit point.



## Free Route Airspace: Data Provision

### Charts - FRA Symbols (2)

- In States where ATS route network is withdrawn the FRA Chart is the only source indicating if a significant point is used for reporting purposes and is established either as “compulsory” or as “on-request” reporting point.
- Letter(s) in the charting symbol are not viable options as might be unreadable on the charts. Suggestion is made to add FRA related information in the label like in the example above.
- Based on the best practice applied by EUROCONTROL ERC/ERN Charts and in cooperation with charting experts, green colour is suggested
- Provisions have been developed to comply with ICAO Annex 4:
  - Conformity with ICAO symbols 121 (Annex 4, Appendix 2-18); and green colour suggested for FRA related points.
  - Conformity with ICAO airspace classifications 126 (Annex 4, Appendix 2-19); and green colour for FRA related boundary.

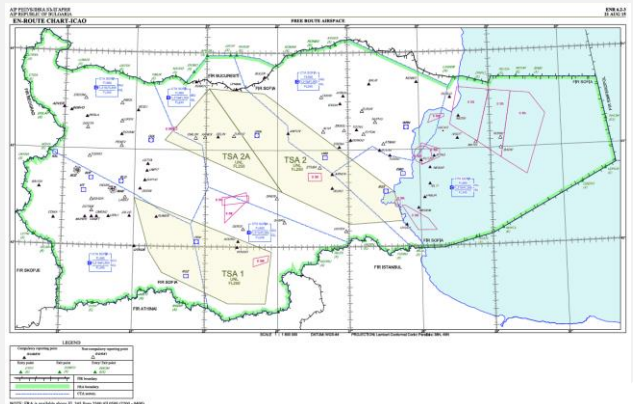


## Free Route Airspace: Data Provision

### ENR 6 Enroute Chart - Non-Cross-border FRA

Two alternatives are available:

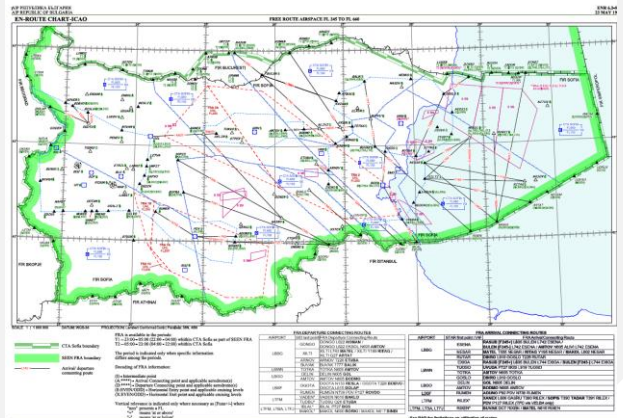
- To embed the relevant information into the existing Enroute Charts. In case FRA vertical limit coincides with the lower/upper limits of relevant ATS airspace, States may recognise no need to publish a separate chart; or
- If the FRA vertical limit does not coincide with the lower/upper limits of relevant ATS airspace - a new FRA dedicated Enroute Chart may need to be developed and published in the AIP as a new subsection of section ENR 6. *ENROUTE CHARTS (ENR 6.x). This FRA chart will accompany the Enroute Chart(s).*



## Free Route Airspace: Data Provision

### ENR 6 Enroute Chart - Cross-border FRA

- A new FRA dedicated Enroute Chart may need to be developed and published as a new *subsection of section ENR 6. ENROUTE CHARTS (ENR 6.x)*:
  - This chart will encompass the total FRA boundary (perimeter) of the involved States.
  - The chart may exclude involved States related FRA significant points, to avoid clutter in the chart. For information on related FRA significant points within, a reference to each individual States AIP is sufficient.
- When the FRA area is provided only inside the publishing State, the FIR border, toward the adjacent State(s) with which cross-border FRA is applicable, shall not be indicated by green colour. Such “open” border will indicate the existence of cross-border FRA area.



## Free Route Airspace: Data Provision

### Aerodrome Charts (SID/STAR and Area Charts)

- In the context of the FRA Concept, the access to/from terminal airspace needs to be considered and appropriate refinements to TMA structures initiated, including the definition of additional SIDs/STARs to permit more flexibility.
- Updates and changes to Aerodrome Charts may be needed if SIDs/STARs are extended, or for publishing FRA Connecting routes. Therefore, FRA implementation may also affect the Area Chart - ICAO, if published by States.



## AIP Data Set



## Free Route Airspace: Data Provision

### FRA via Aeronautical Data Catalogue

- When originating data for FRA, Table “Airspace Data - Other Regulated Airspace” should be used for ensuring aeronautical data quality requirements.
- As the FRA is not considered, in AIP Data Set, as an ATS airspace the unit(s) providing the service within each FRA area cannot be provided in Table “Airspace Data - Other Regulated Airspace”.
- The data for FRA significant points relevance and relevant specific information cannot be provided neither in Table “ATS and other routes data - Waypoint” nor in Table “Radio navigation aids/systems data - Radio Navaid” as no remarks text field available.





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