

Supporting
European
Aviation



FABEC Expert Workshop NM Support in FRA implementation and Validation

Airspace and System Support

SECTION AIRSPACE DESIGN

Paris - 12th February 2020

Classification : Green



NETWORK
MANAGER





Airspace Design Support



Airspace Design Administrative Changes

- As announced during the first day at RND SG/99 - 4 FEB 2020, in order to make available the necessary resources within NMD Airspace and Capacity Division in support of other projects, an internal re-assignment of tasks on all airspace design and FRA projects support was done.

- As from 22 JAN 2020 the Project Managers for FABEC area are as follows:
 - **Belgium - Mr. Denis Odic** - denis.odic.ext@eurocontrol.int;
 - **France - Mr. Denis Odic** - denis.odic.ext@eurocontrol.int;
 - **Germany - Mr. Stefan Gerris** - stefan.gerris@eurocontrol.int;
 - **MUAC - Mr. Stefan Gerris** - stefan.gerris@eurocontrol.int;
 - **Netherlands - Mr. Alberto Perdones Diaz** - alberto.perdones-diaz@eurocontrol.int
 - **Switzerland - Mr. Fabor Fugedi** - gabor.fugedi@eurocontrol.int.

- Mr. Denis Odic is also coordinating the work performed by the West Team.

- In case of any urgent issues, the Airspace Design Team can be reached also via nm.rndsg@eurocontrol.int.

FRA Design

Relevant FRA Documents

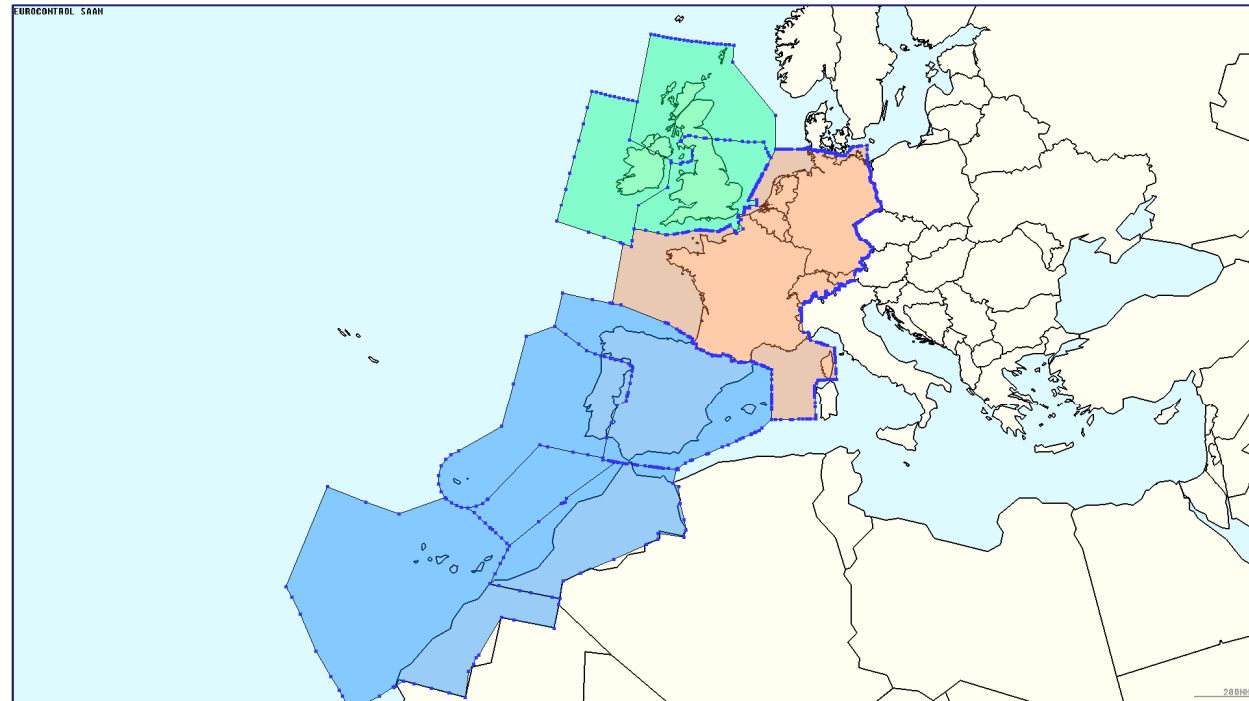
- ERNIP Part 1 - European Airspace Methodology Guidelines:
 - Chapter 6.5.2 - FRA AIP Publication;
 - Chapter 6.5.3 - FRA - Charts Publication;
 - Chapter 6.5.4 - Glossary of terms;
 - Chapter 6.5.5 - FRA AIP Publication Template;
- Free Route Airspace (FRA) Design - Guidelines.



FABEC Area and West Team Area

Members:

- FABEC:
 - Belgium,
 - France,
 - Germany,
 - Netherlands,
 - Switzerland,
 - Luxemburg;
 - Maastricht UAC;
- United Kingdom;
- Ireland;
- Portugal;
- Spain;
- Morocco;





1. DSNA



FRA France

ERNIP Proposals

France FRA Step 1 - AIRAC 2112:

- South West - ex. LFBB FRA (Bordeaux):
 - AIRAC 2112, H24, FL195, ATS routes will be removed in FRA Area;
- North West step 1 - ex. LFRR Atlantic FRA (Brest):
 - AIRAC 2112, H24, FL195, ATS routes will be removed in FRA Area;
- Center - ex. LFFF FRA (Paris LMH sector):
 - AIRAC 2112, H24, FL195, ATS routes will be removed in FRA Area.

France FRA Step 2 - AIRAC 2303:

- North West step 2 - ex. LFRR Central and Atlantic FRA (Brest):
 - AIRAC 2303, H24, FL195, ATS routes will be removed in FRA Area;
- North East - ex. LFEE FRA (Reims):
 - AIRAC 2303, H24, FL195, ATS routes will be removed in FRA Area;
- South East - ex. LFMM FRA (Marseille):
 - AIRAC 2303, H24, FL195, ATS routes will be removed in FRA Area.

France FRA Step 3 - AIRAC 2403:

- North West step 3 - ex. LFRR East FRA (Brest):
 - AIRAC 2403, H24, FL305, ATS routes will be removed in FRA Area.



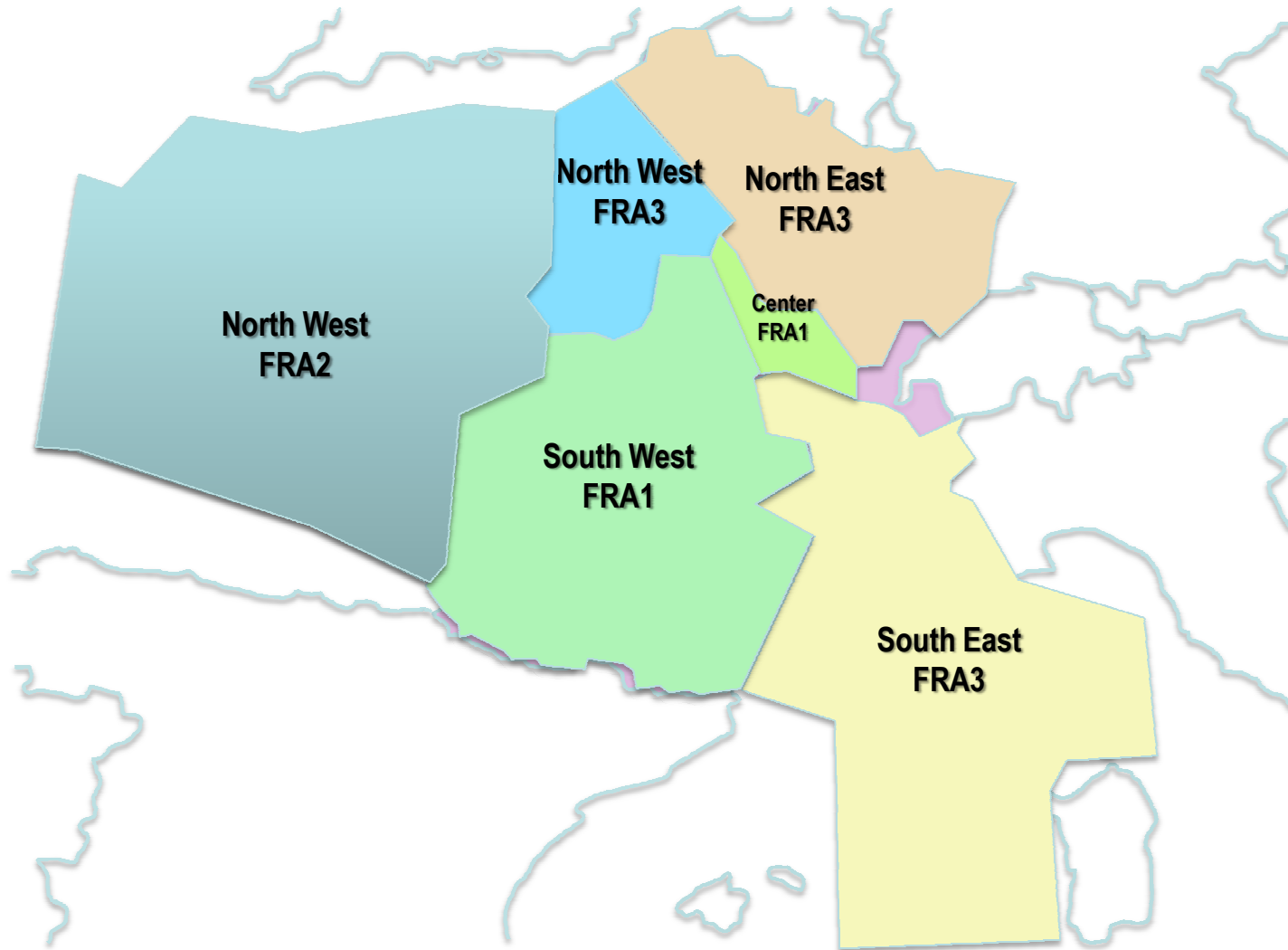
FRA France

Airspace Design Process

1. FRA Area (with coordinate) definition;
2. FRA (E), (X), (EX) points definition on FRA Area boundary;
3. Check do we have FRA (E), (X), (EX) points on all ATS or DCT segment crossing FRA Area boundary;
 - a) If not create new FRA points;
4. Check possibility for FRA Points merge on the boundary;
5. Check alignment of the FRA Points on boundary with FRA Area boundary;
 - a) If is it necessary correct FRA Area boundary to align it with FRA Points;
6. Check alignment of FRA Area boundary and Sectors boundary;
 - a) If is it necessary correct Sector boundary to align with FRA Area boundary;
7. Coordinate with adjacent ACCs for FRA points/border/sectors alignment;
8. Create draft list of the FRA (A) and FRA (D) points for connectivity to terminal area and/or airports;
 - a) Analyses of existing arrival and departure flows in 3D;
 - b) Clarification of local requirements regarding necessary of FRA Connecting routes;
 - c) Create list of the FRA (A) and FRA (D) points with airports for which will be use;
9. Military Areas definition;
10. FRA (I) points definition;
11. Definition of requirements for necessary of establishment of NPZ/s;
12. RAD definition;
13. Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD;
14. Finish until October 2020.



FRA France Areas





FRA France Implementation Step 1

Process for FRA Implementation Steps 1:

1. **FRA Airspace Design: until September 2020.**
2. Test FRA Areas: September 2020 - June 2021.
3. FRA Test/Validation with NM (NMOC): June 2021.
4. ATCO Training: July - November 2012.
5. Preparation for Publication: August - October 2012.
6. Publication: AIRAC 2110.
7. Implementation: 02/12/2012 (AIRAC 2112).



South West (LFBB) FRA Area

- ex. LFBB FRA (Bordeaux):
 - AIRAC 2112, H24, FL195, ATS routes will be removed in FRA Area
 - What will be FRA Area Name?

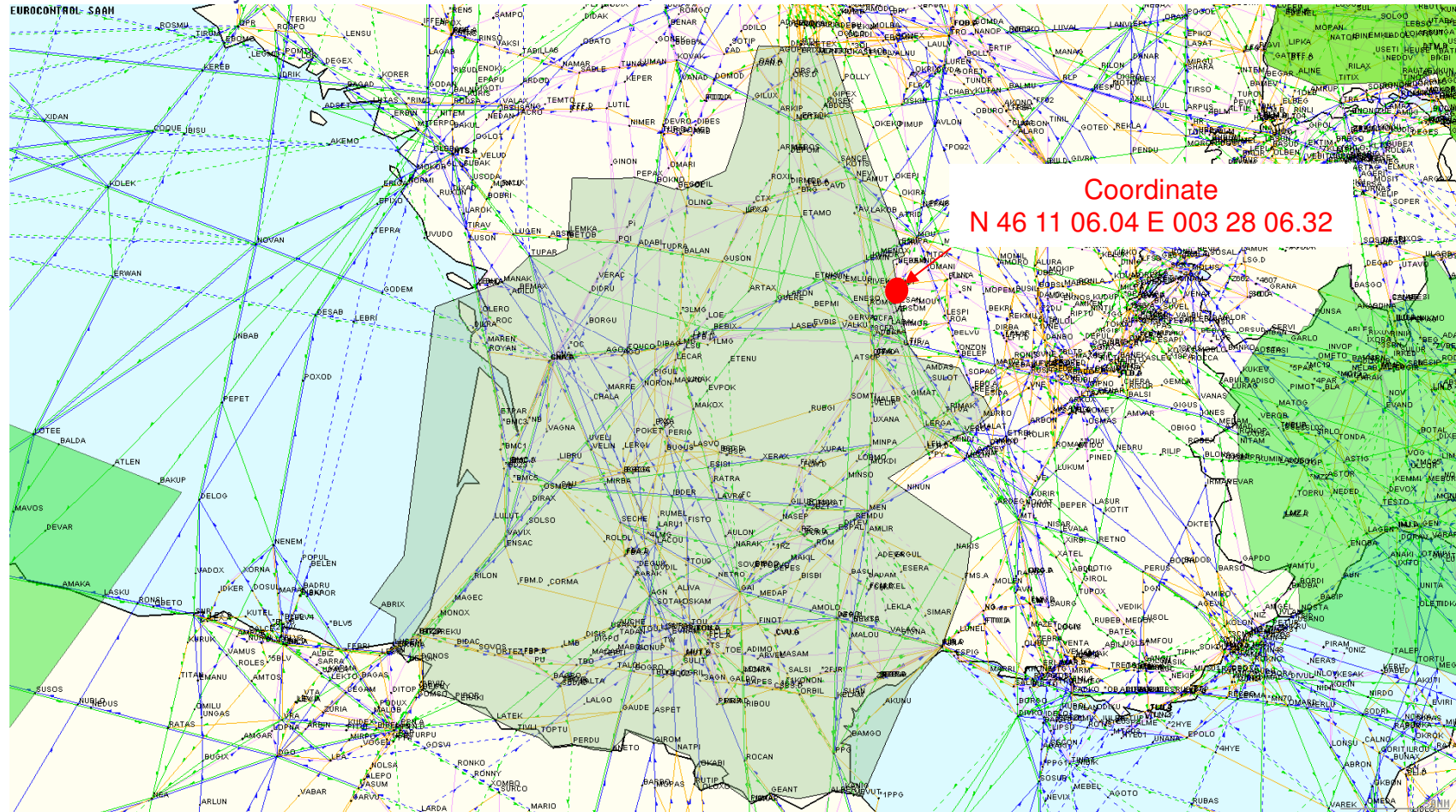
- Ongoing coordination:
 - Definition of FRA (E), (X), (EX) points finished included new point names;
 - Alignment FRA Area with FRA (E), (X), (EX) points finished (including one additional point);
 - Alignment FRA Area and Sectors proposed by NM;
 - LFBB Sector LFBBP1 vertical limit and FRA Area vertical limits required additional clarification.
 - Definition of FRA (A), (D), (AD) points with airports list in progress. Will be finish within two weeks.
 - Coordination with adjacent ACCs;
 - Military Area definition finished.

- Required coordination:
 - FRA will be implemented in Spain.
 - FRA RAD definition;
 - NPZs definition If is it necessary;
 - Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD for test;
 - FRA NM Test/Validation;
 - FRA Publication.

South West (LFBB) FRA Area

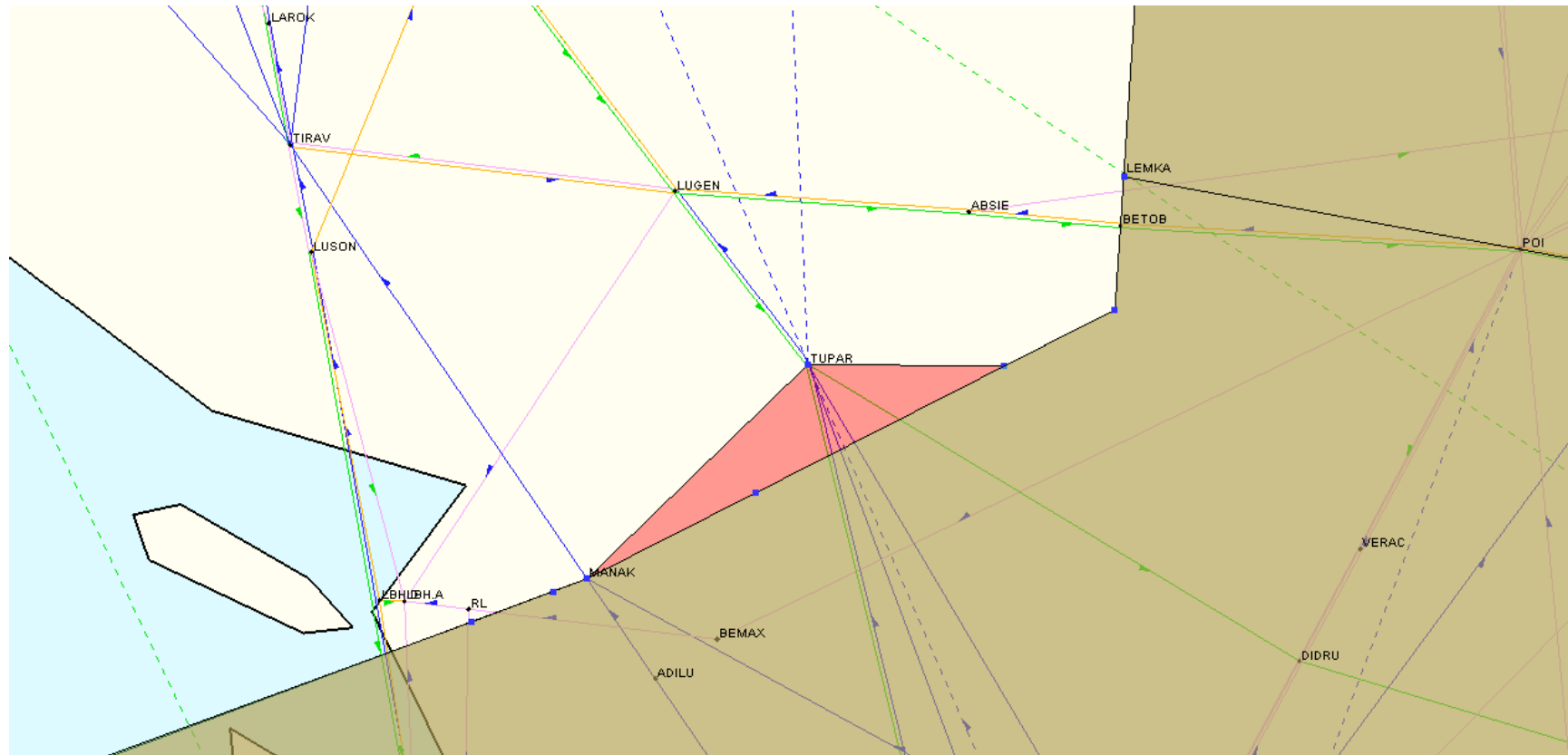
Additional border point

- ➔ NM proposal to insert additional area/border point (accepted by LFBB);
- ➔ Better connectivity with LFMM and LFFF Area border;



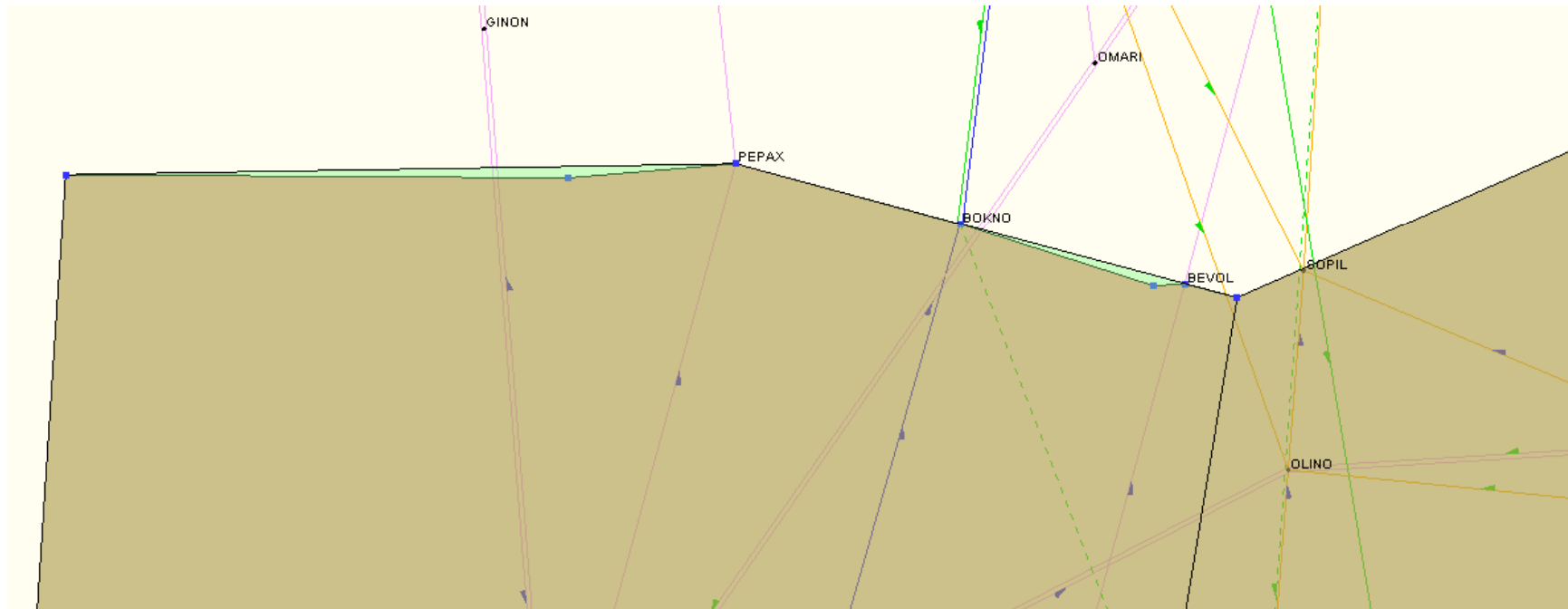
South West (LFBB) FRA Area Area (1)

- No lateral alignment between FRA Area boundary and Sectors border;
- Point TUPAR Area;



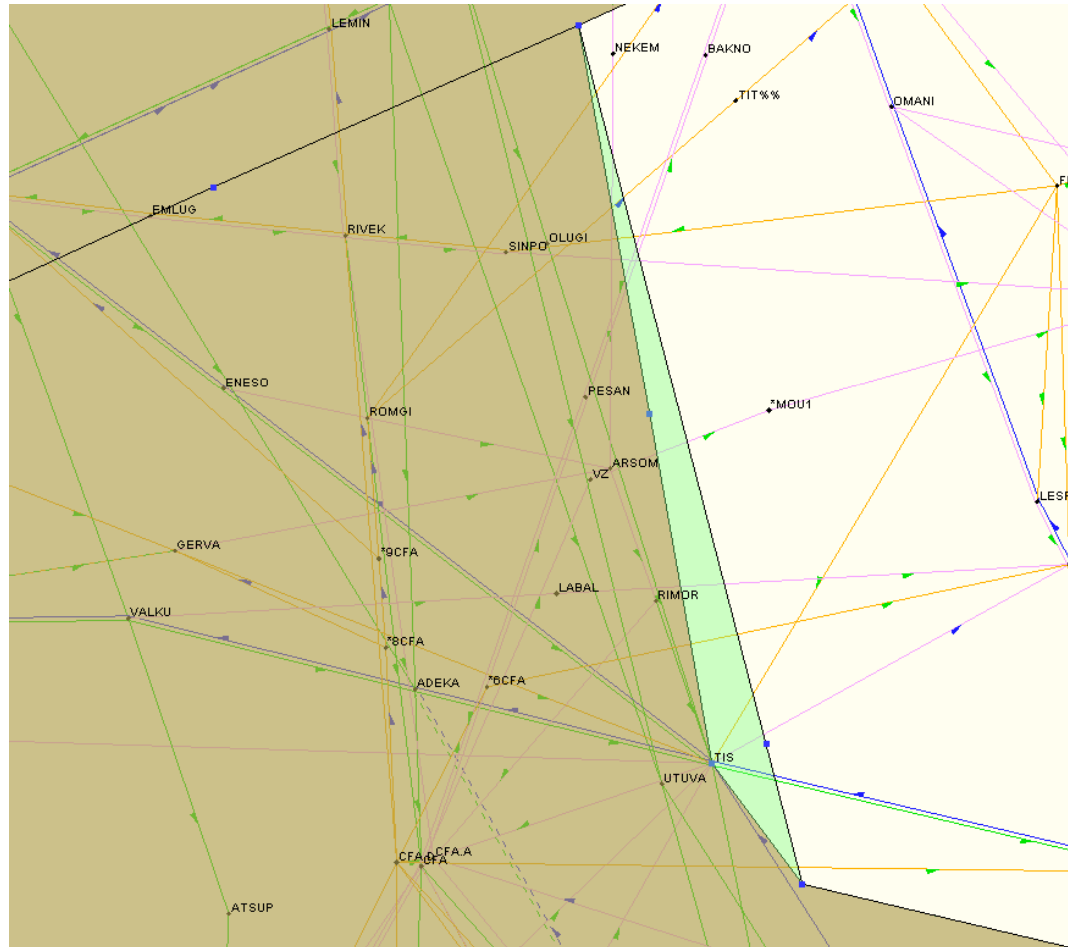
South West (LFBB) FRA Area Area (2)

- No lateral alignment between FRA Area boundary and Sectors border;
- Point PEPEX Area



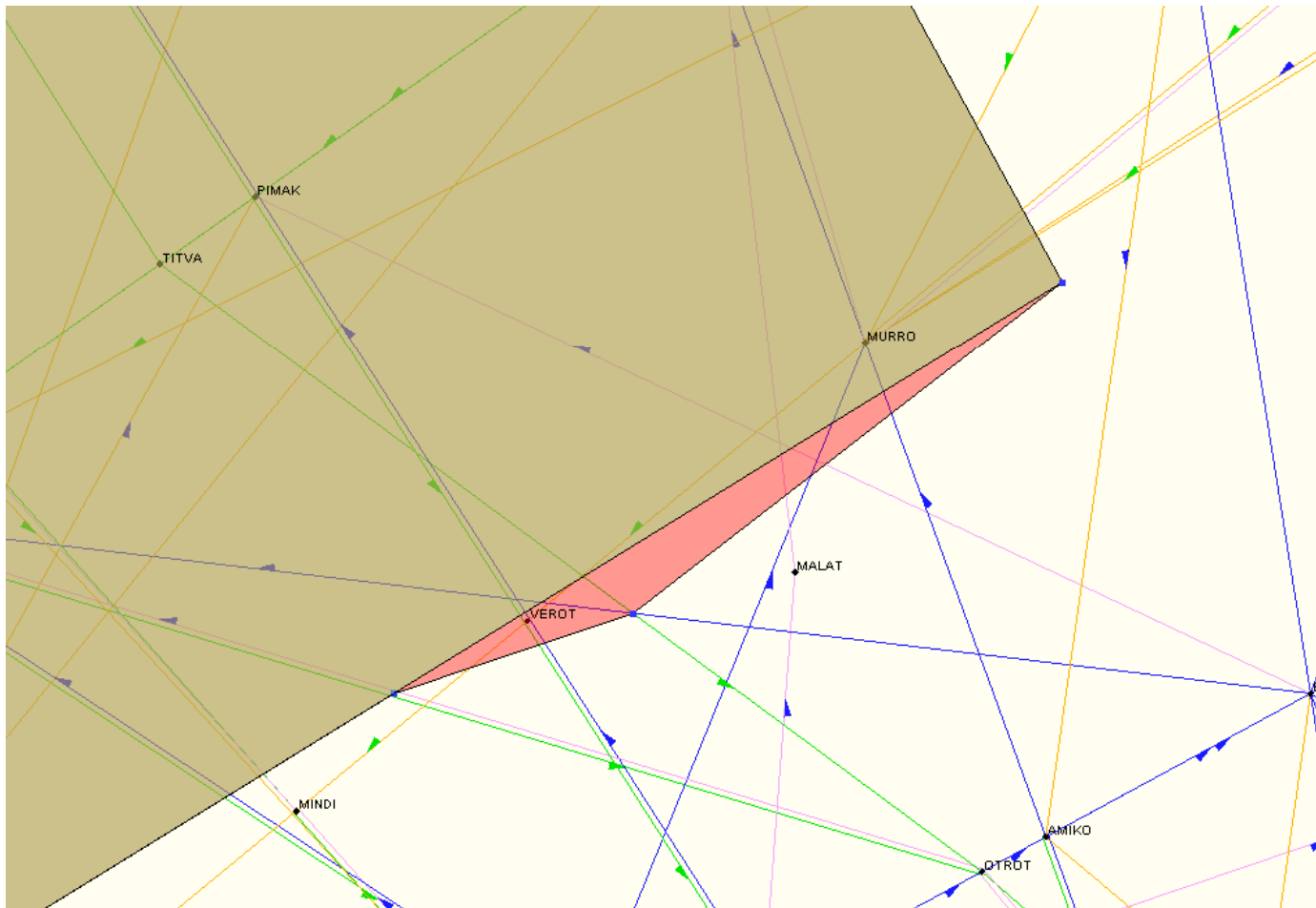
South West (LFBB) FRA Area Area (3)

- No lateral alignment between FRA Area boundary and Sectors border;
- Point TIS Area



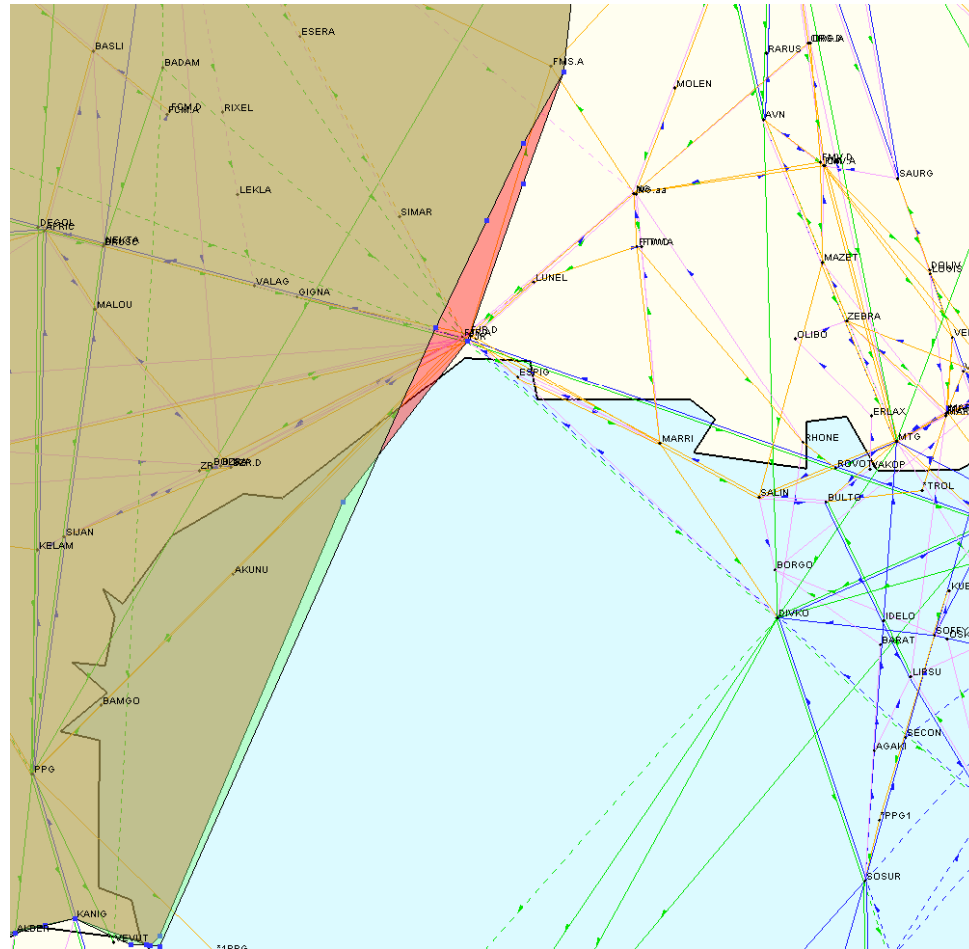
South West (LFBB) FRA Area Area (4)

- No lateral alignment between FRA Area boundary and Sectors border;
- Point VEROT Area



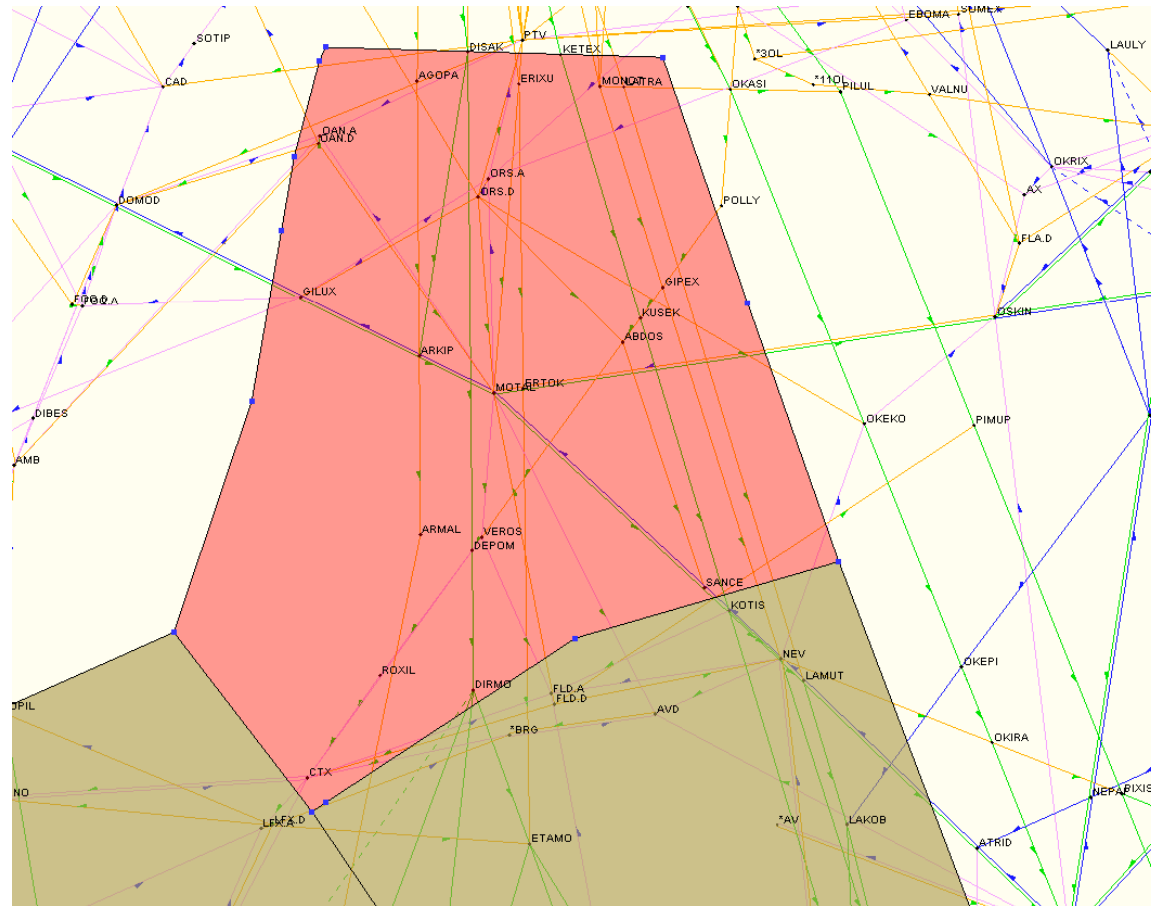
South West (LFBB) FRA Area Area (5)

- No lateral alignment between FRA Area boundary and Sectors border;
- Point FJR Area



South West (LFBB) FRA Area Area (6)

- FRAArea Vertical limits and Sectors vertical limits;
- FRAArea will be FL195 - FL460 (in red) but LFBB Sector LFBBP1 in that area will be FL265 - FL460;
- Question: Below FL285 will be LFFF sectors but it will be LFBB FRA Area. Is it correct?





North West (LFRR) Step 1

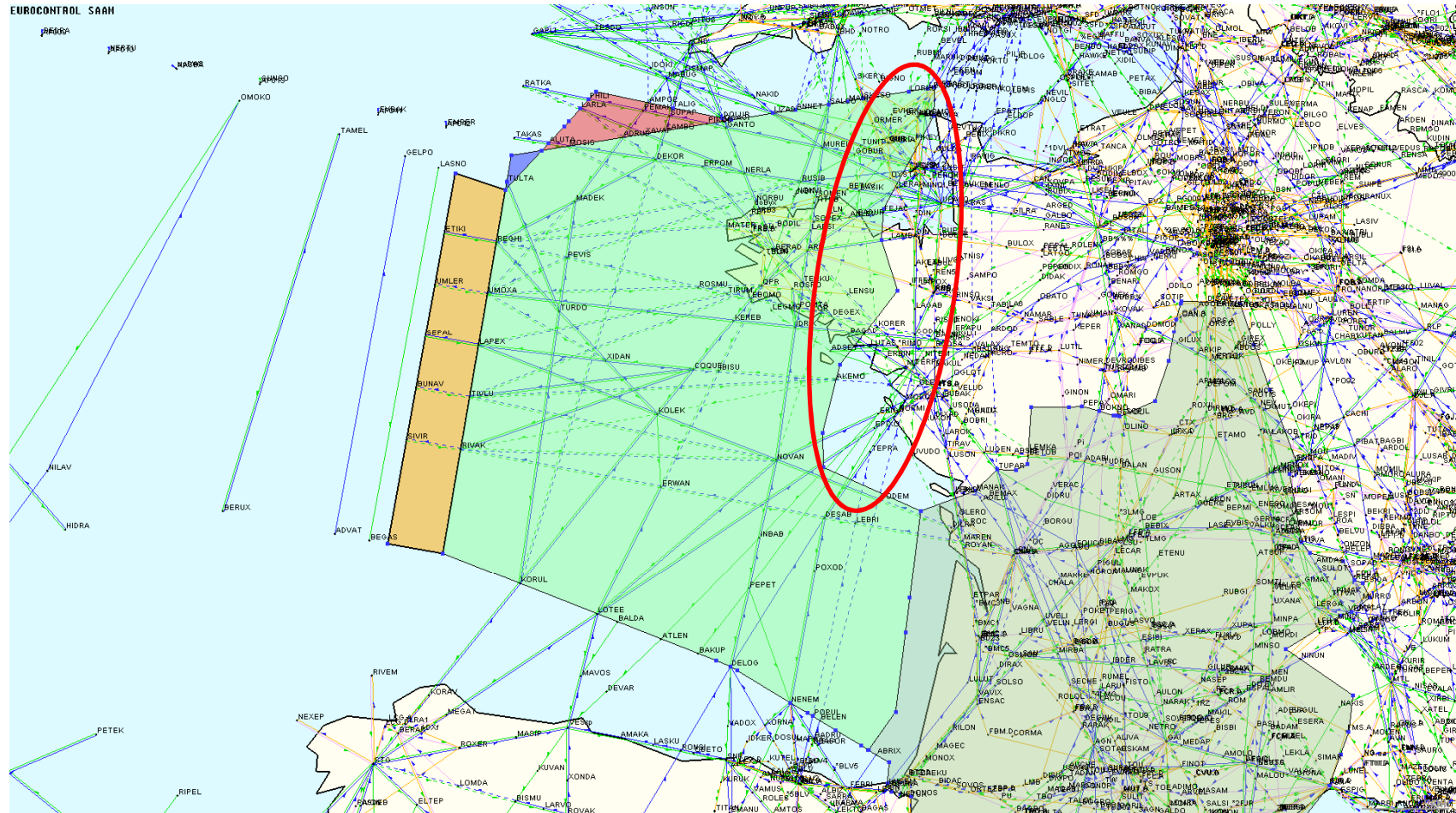
- North West step 1 - ex. LFRR Atlantic FRA (Brest):
 - AIRAC 2112, H24, FL195, ATS routes will be removed in FRA Area;
 - What will be FRA Area Name?

- Ongoing coordination:
 - NMD/OPL Received FRA E, X, I, A and D Points - required additional coordination;
 - NMD/OPL made "LFRR FRA Points" document;
 - NMD/OPL Received RAD (draft) - required additional coordination;
 - NMD/OPL received "New sectorisation" - border adaptation between Atlantic and Central done;
 - Coordination with adjacent ACCs;
 - PEMAK triangle, BOTA Area;
 - Military Area definition finished;

- Required coordination:
 - FRA will be implemented in Spain.
 - FRA Area and Sectors alignment;
 - Final FRA Area and FRA Points;
 - FRA RAD;
 - NPZs definition If is it necessary;
 - Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD for test;
 - FRA NM Test/Validation;
 - FRA Publication.

North West step 1 (LFRR) FRA Area Border

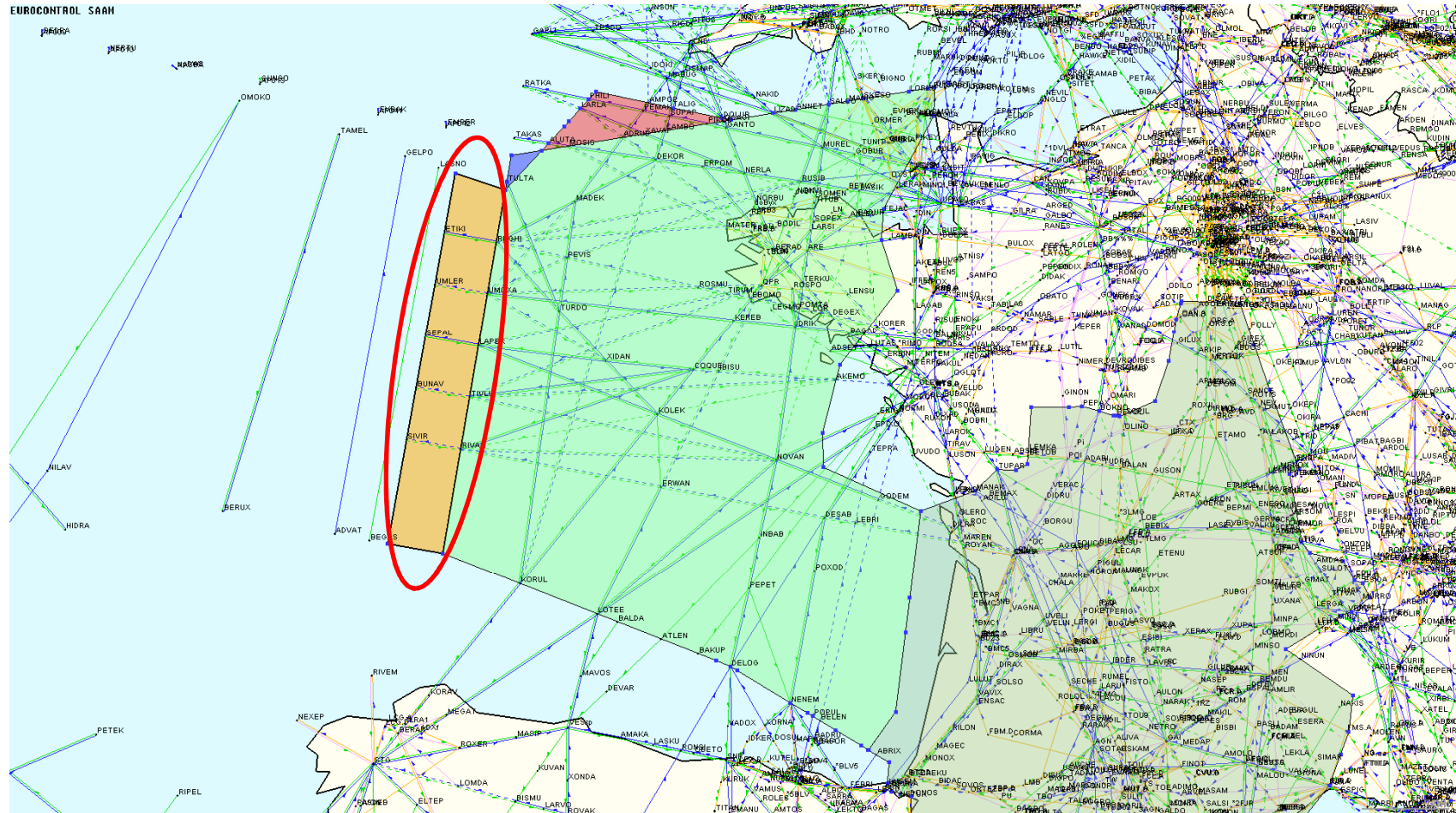
→ We received the coordinates for the new North West and Central border.



North West step 1 (LFRR) FRA Area

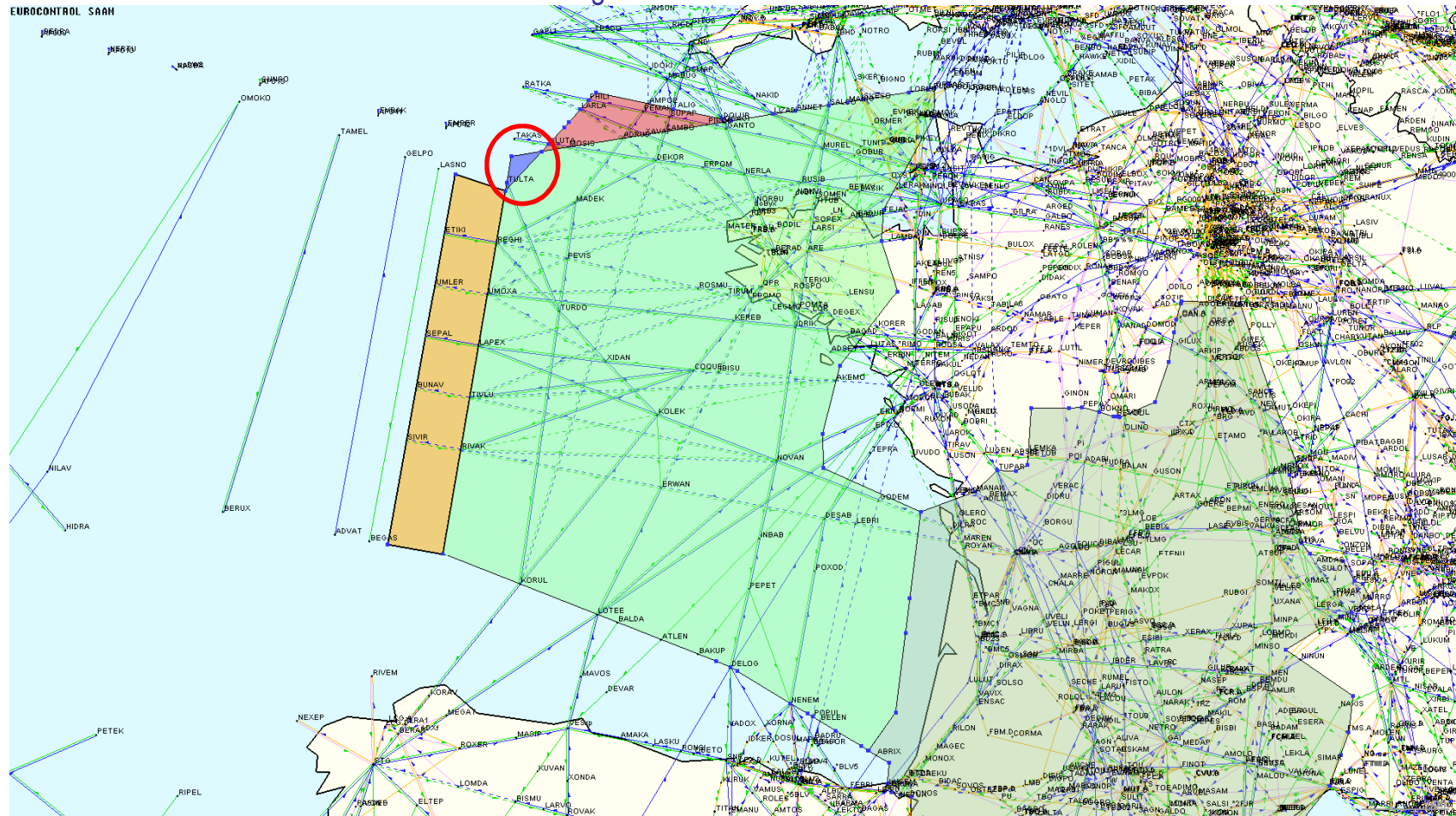
BOTA Area

→ Not in North West FRA Area.



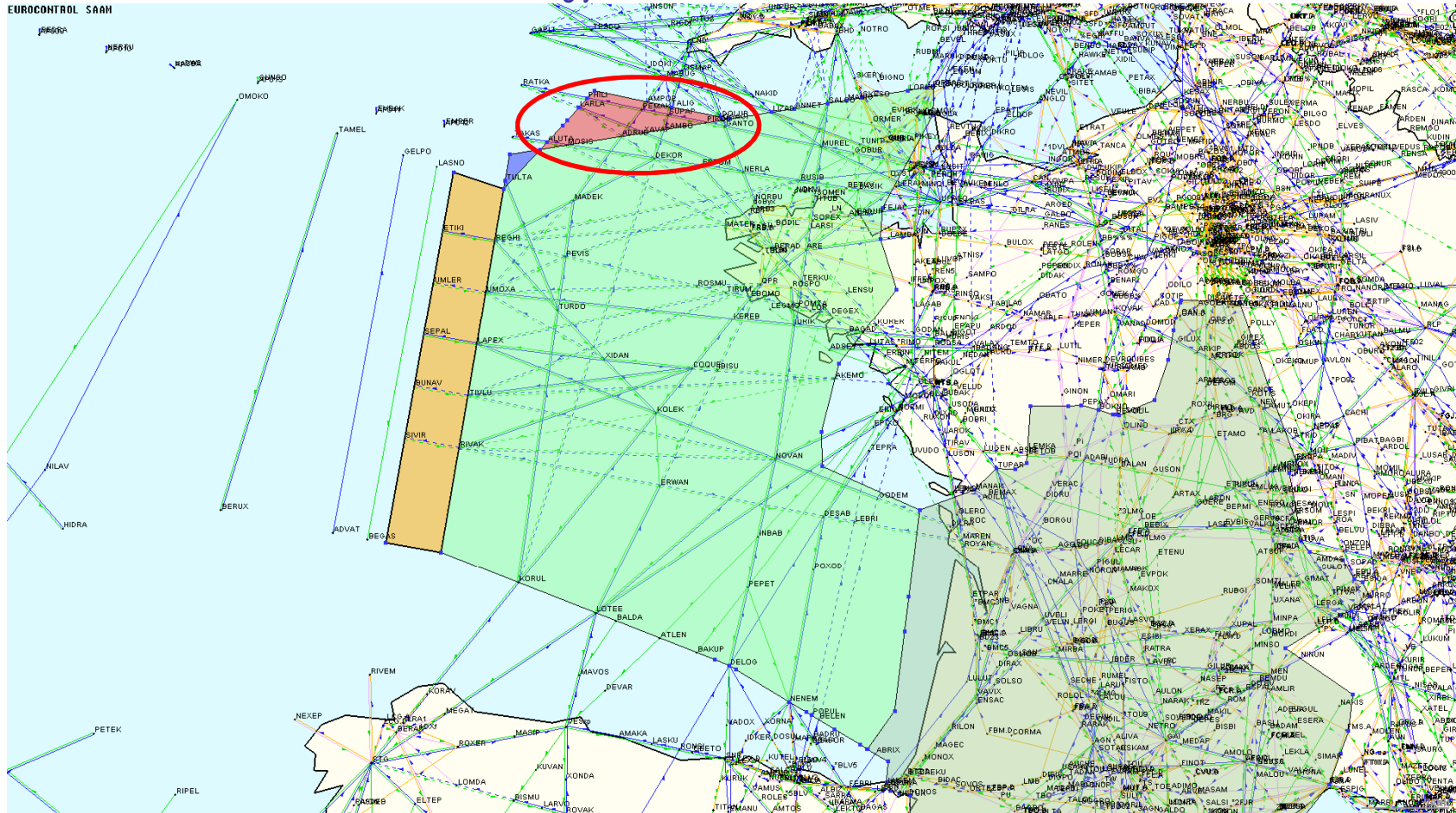
North West step 1 (LFRR) FRA Area TULTA Triangle

- Ongoing coordination process;
- FRA Point and border will be defined in according with this.



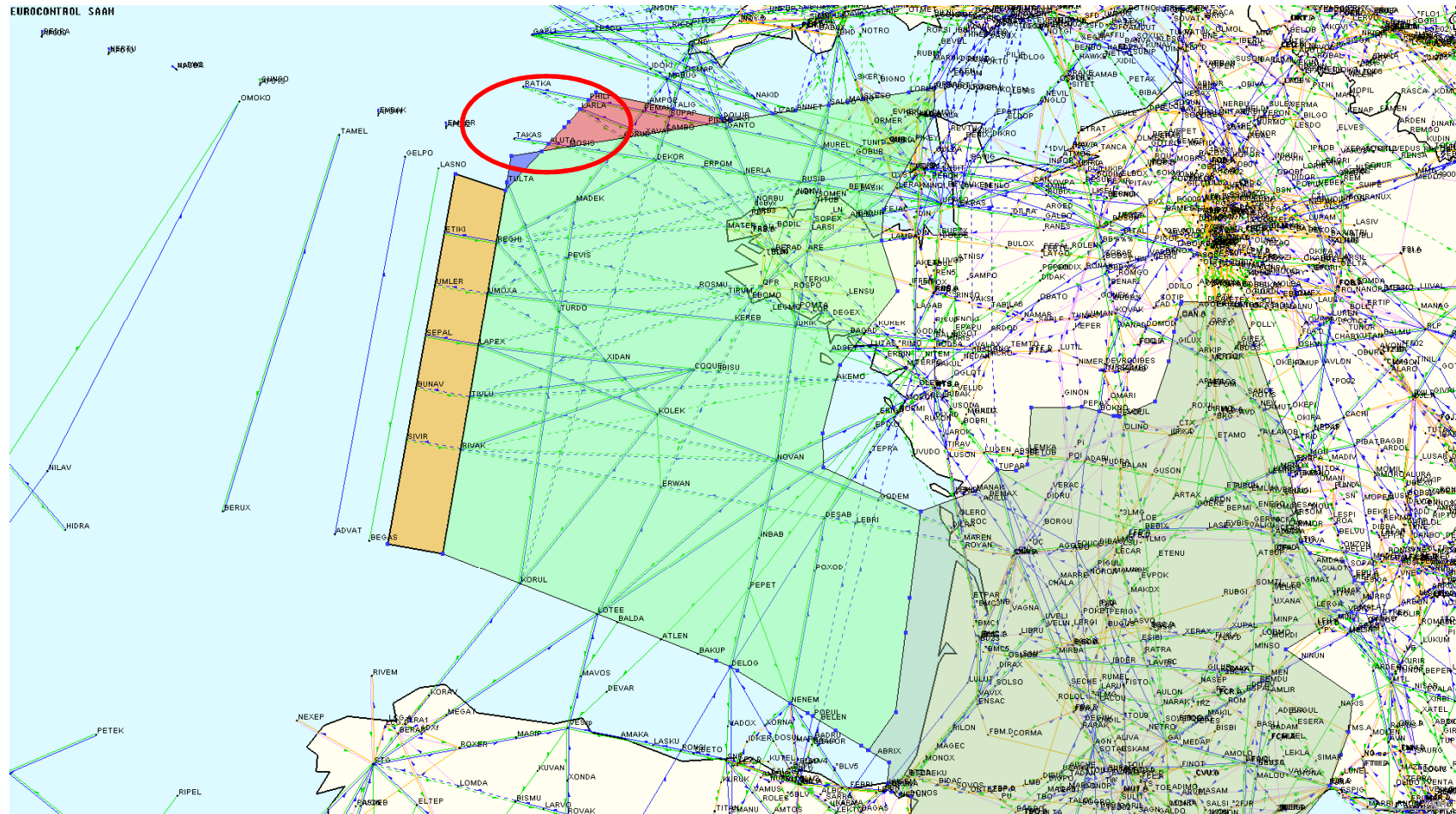
North West step 1 (LFRR) FRA Area PEMEK Triangle

- Ongoing coordination process;
- FRA Point and border will be defined accordingly.



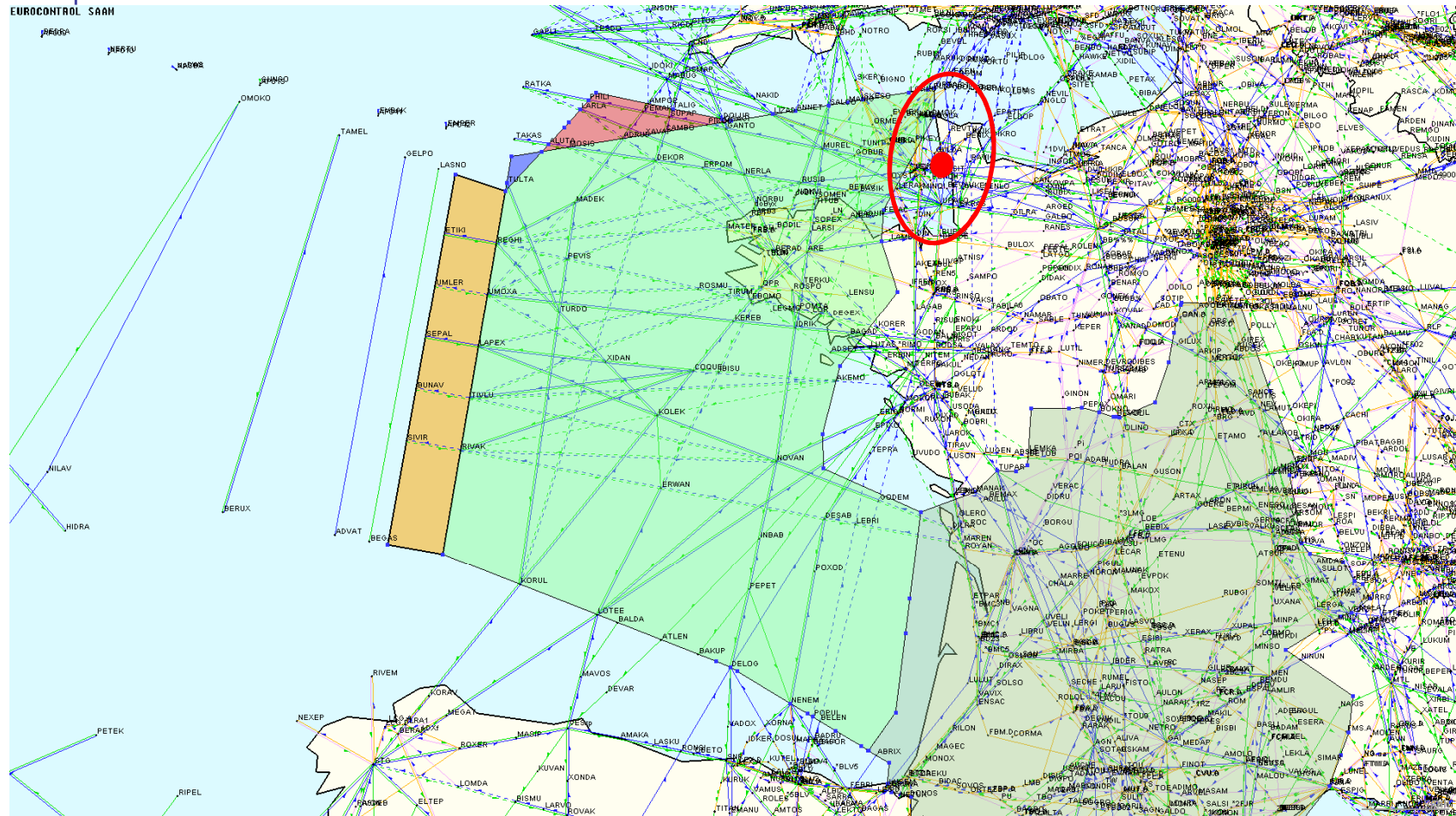
North West step 1 (LFRR) FRA Area RATKA , TAKAS Area

- Ongoing coordination process;
- Not in LFRR Atlantic FRA Area.



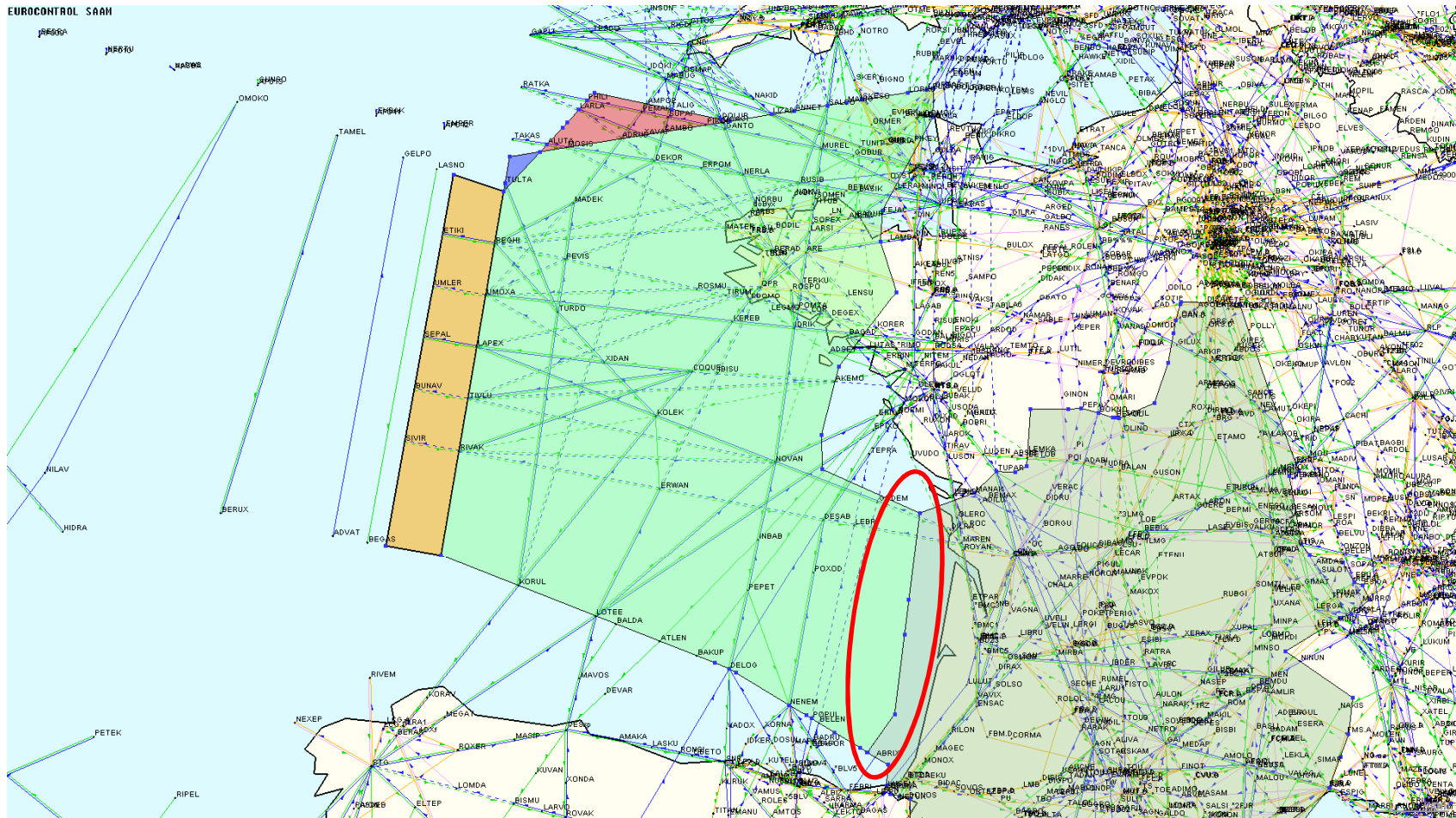
North West step 1 (LFRR) FRA Area JSY Area

- Point JSY out of North West FRA Area;
- Required FRA Area correction.



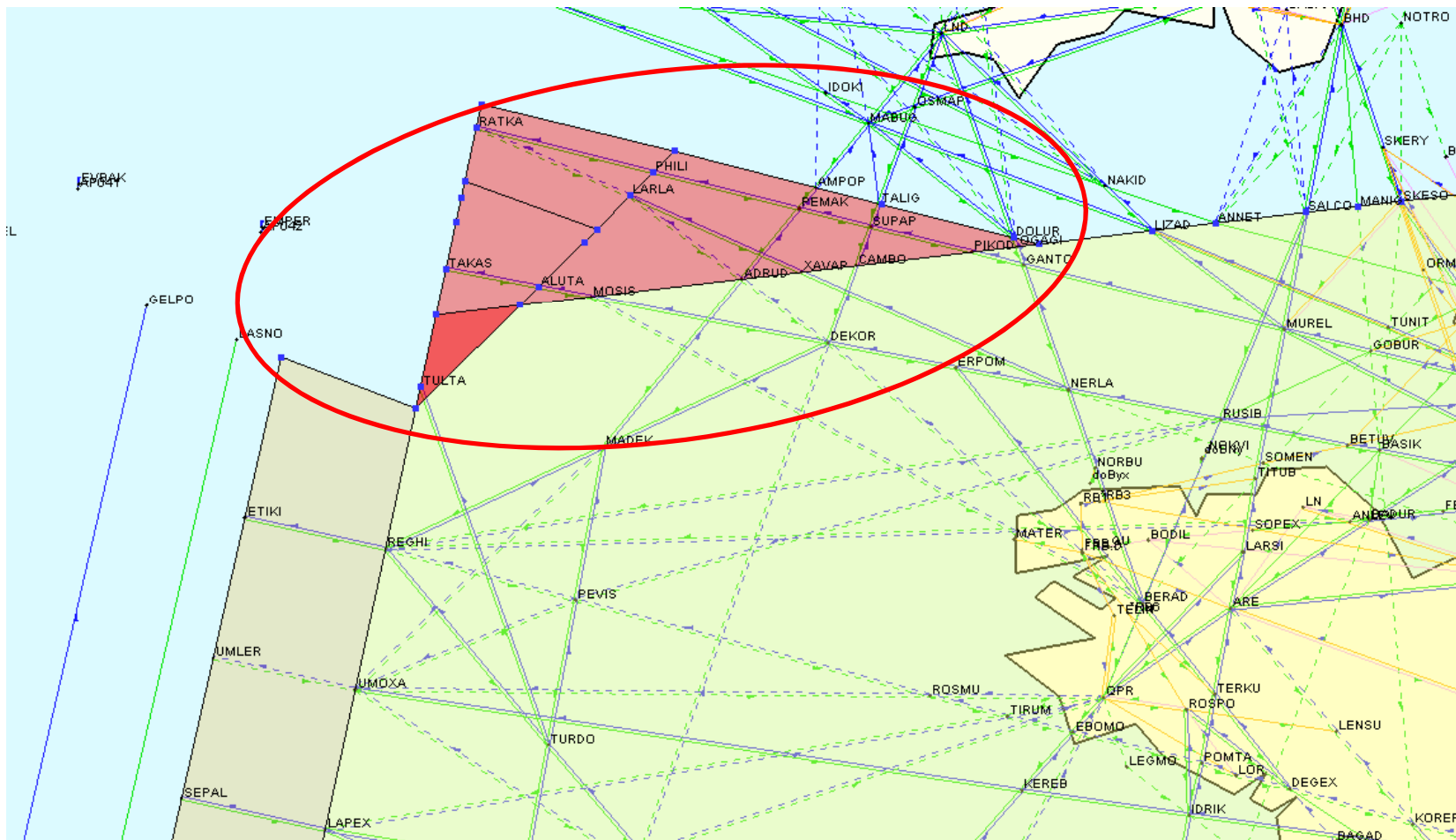
North West step 1 (LFRR) - South West (LFBB) Common FRA border

- We received the new LFBB FRA Area border and this required coordination;
- Ongoing coordination between LFBB and LFRR (FRA Area and Sectors alignment).



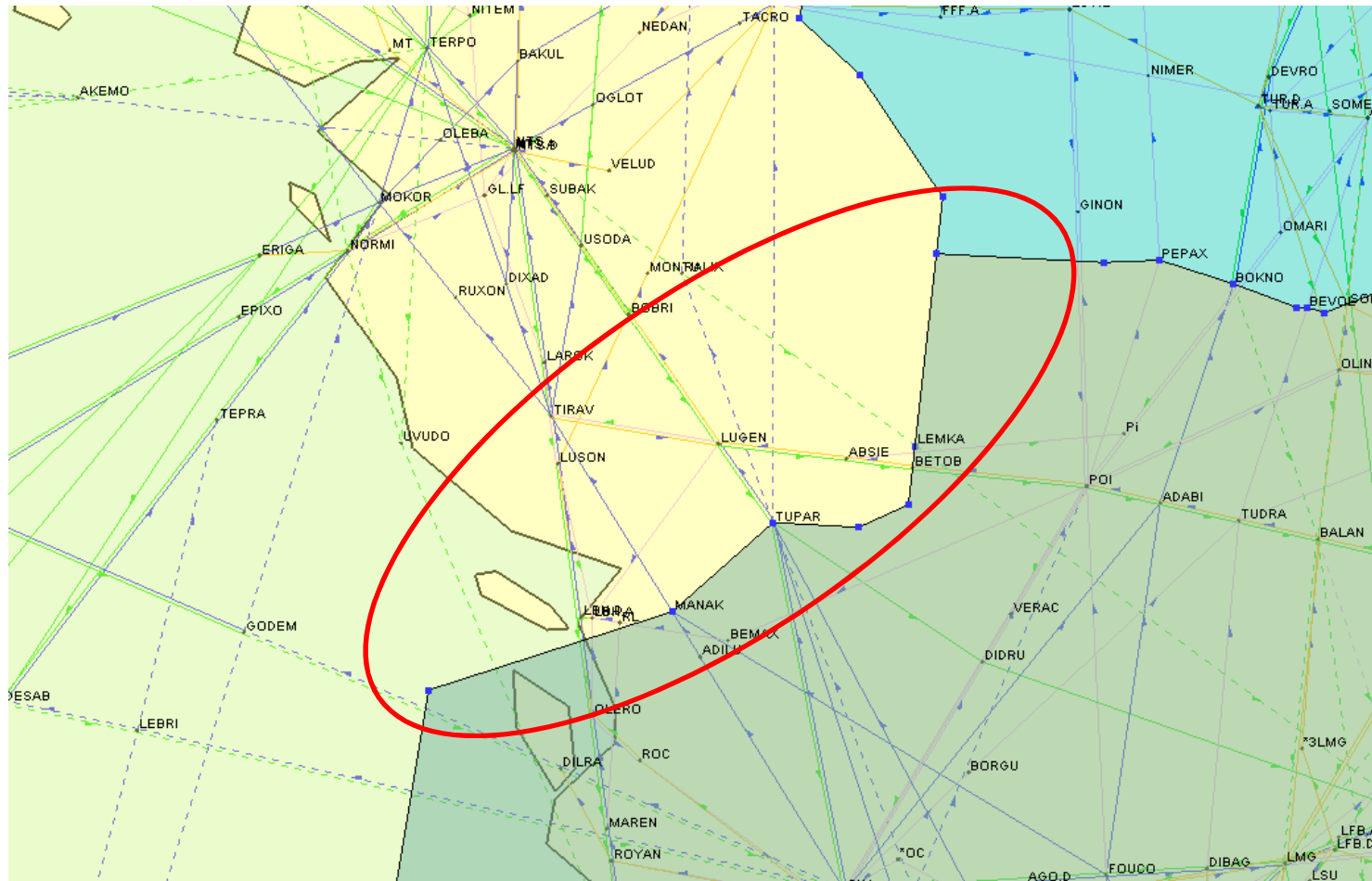
North West step 2 (LFRR) FRA Area RATKA , TAKAS Area

- Ongoing coordination process;
- Red Area will be in LFRR West FRA Area.



North West step 2 (LFRR) FRA Area

→ LFBB and LFRR FRA Area and Sectors alignment.





Center (LFFF) FRA area

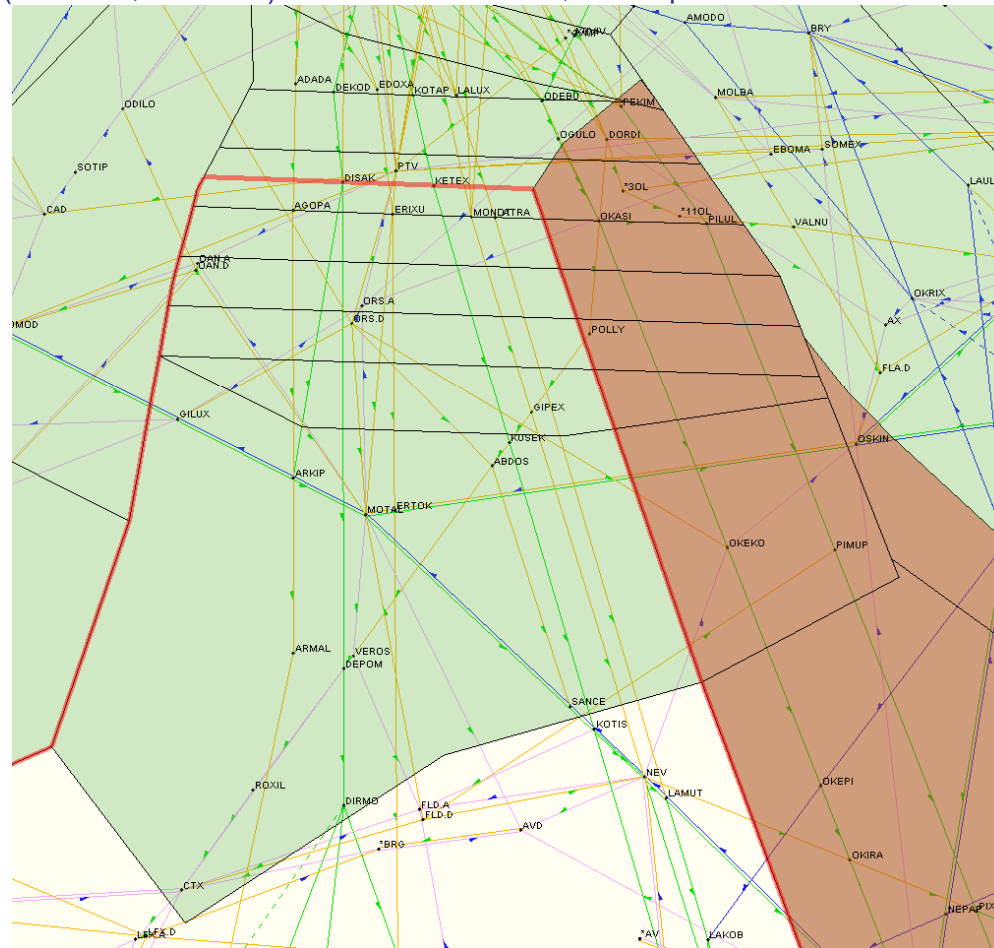
- Center - ex. LFFF FRA (Paris LMH sector):
 - AIRAC 2112, H24, FL195, ATS routes will be removed in FRA Area

- Ongoing coordination:
 - NMD/OPL made “LFFF FRA Points” document and received comments - required additional coordination;

- Required coordination:
 - Alignment with FRA SWISS (boundary and points)
 - Same AIRAC FRA Swiss and FRA LFBB implementation;
 - FRA Area definition (laterally and vertically) - Overlap different LFFF Sectors, South West FRA Area and LFRR Sectors;
 - FRA Points definition and alignment with FRA Area;
 - FRA Area and Sectors alignment;
 - FRA RAD definition;
 - NPZs definition If is it necessary;
 - Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD for test;
 - FRA NM Test/Validation;
 - FRA Publication.

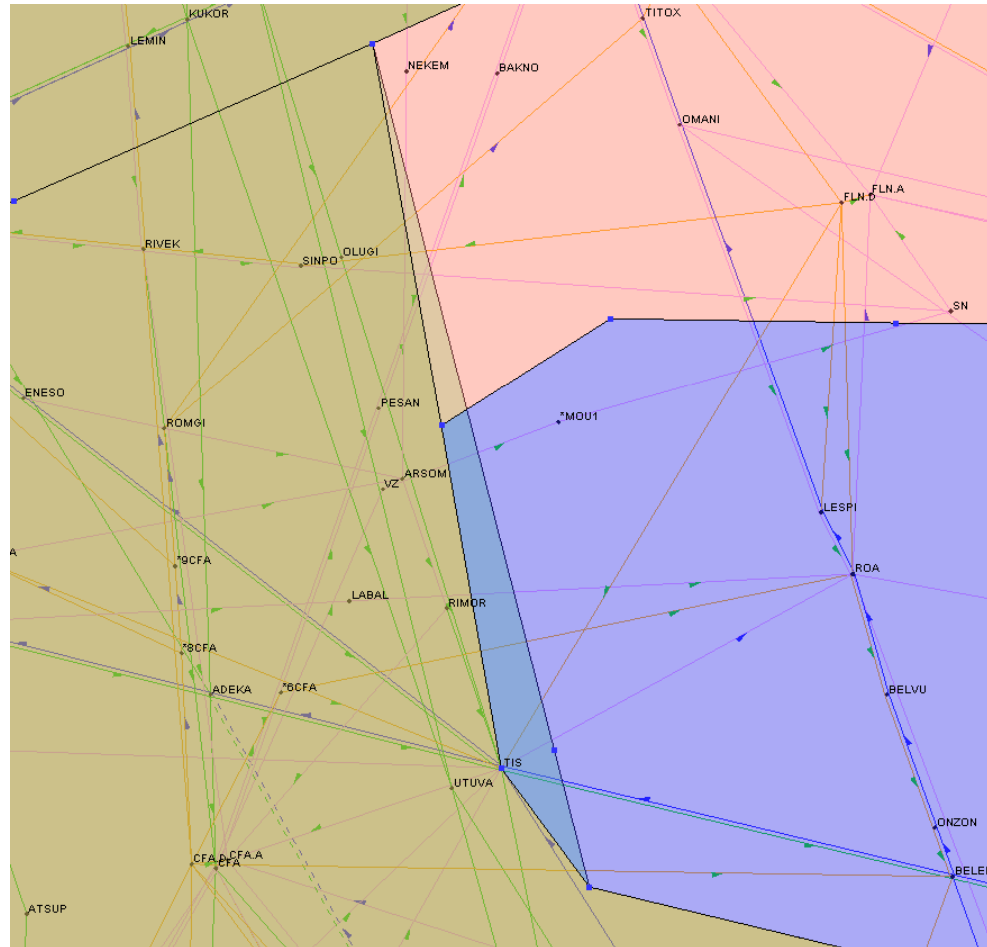
Center (LFFF) FRA area

- Red line LFBB FRA, Green Area LFFF Sectors, Red Area FRA LFFF Area;
- Overlap LFFF Sectors (LFFFDO, LFFFDG) and LFBB FRA Area; Overlap LFFF FRA Area and LFFFUS Sectors.



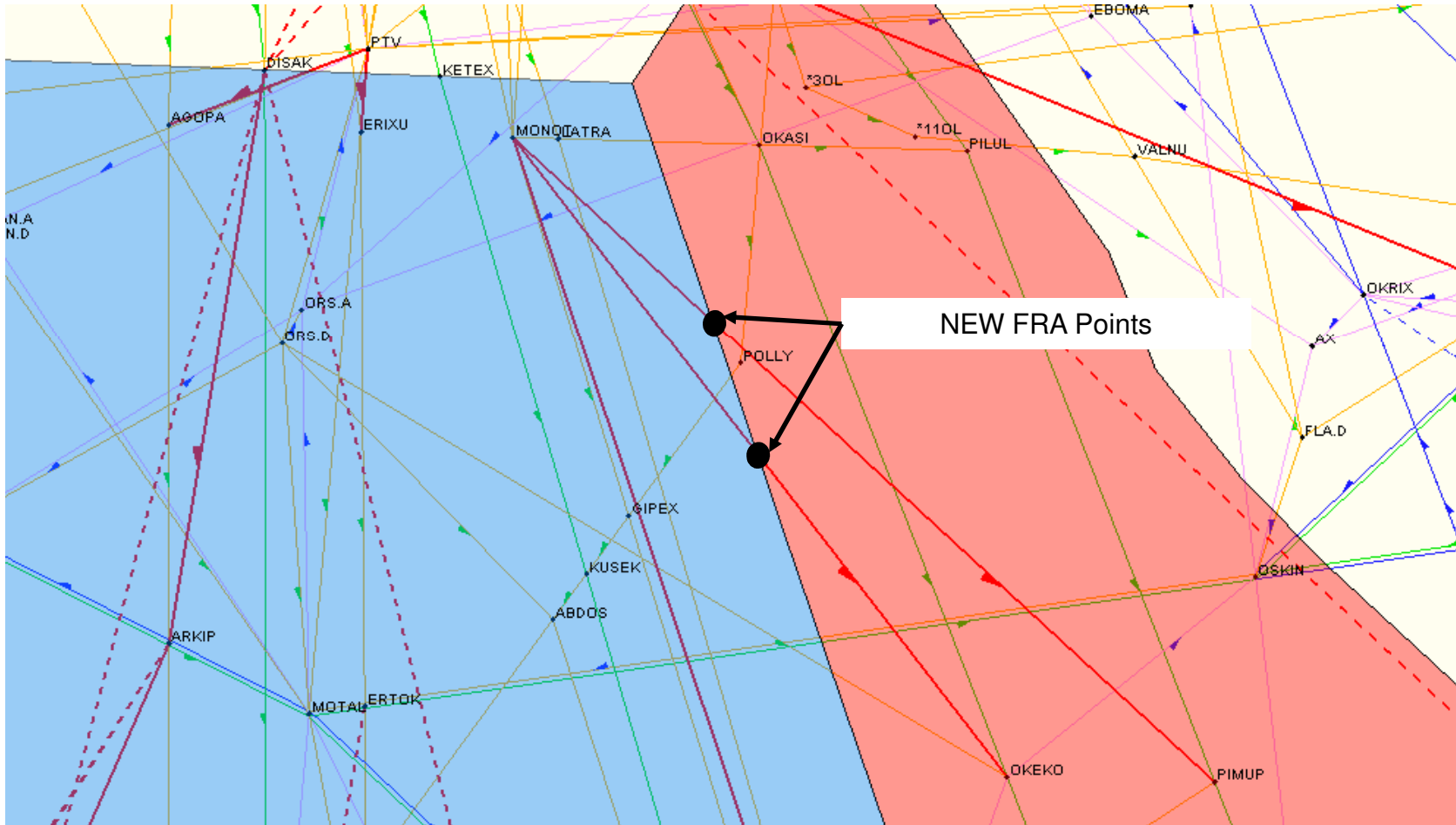
Center (LFFF) FRA area

- No lateral alignment between FRA Area boundary and Sectors border;
- Point TIS Area.



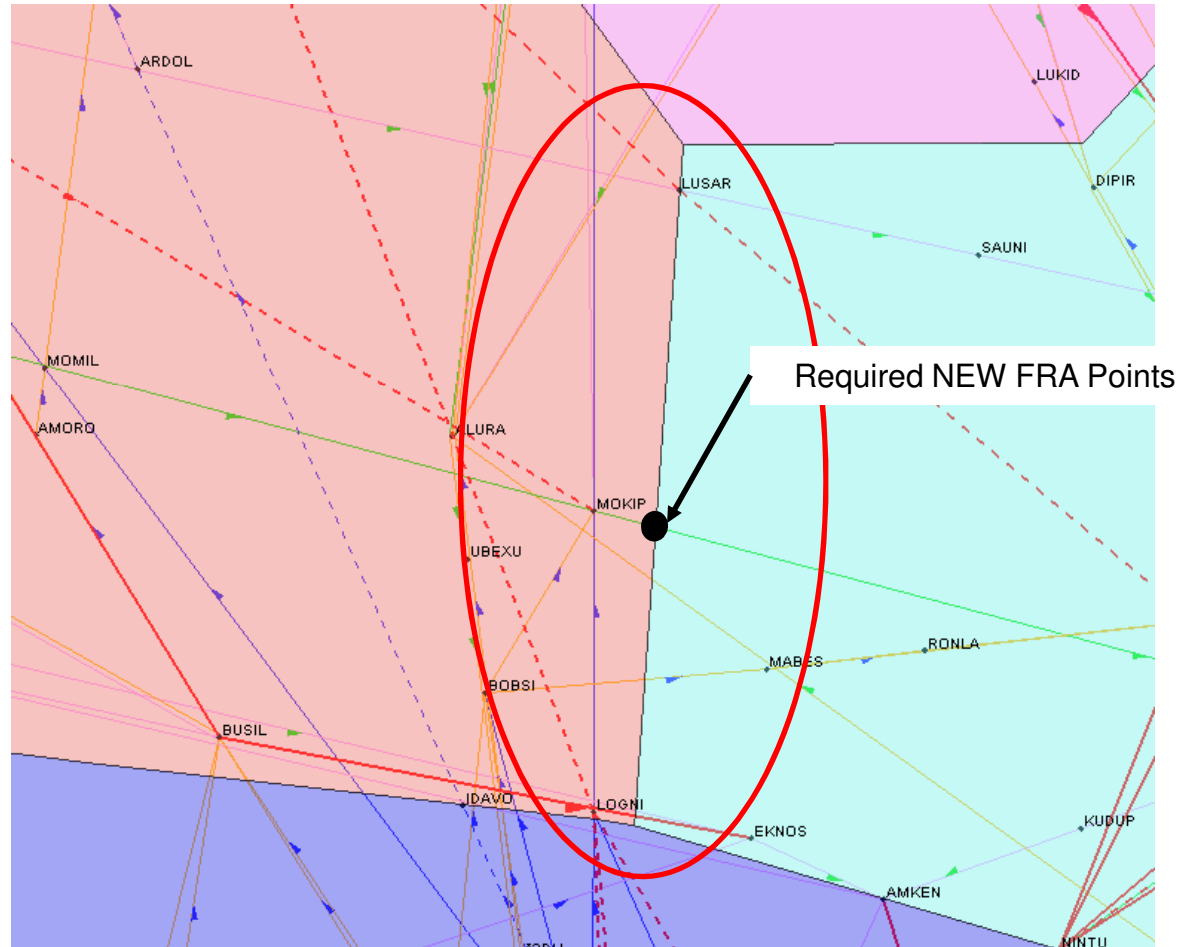
Center (LFFF) FRA area

- MONOT will be FRA D point in LFBB;
- We Need new FRA Point on the FRA Area border between LFBB - LFFF for DCTs MONTA - PIMUP and MONTA-OKEKO.



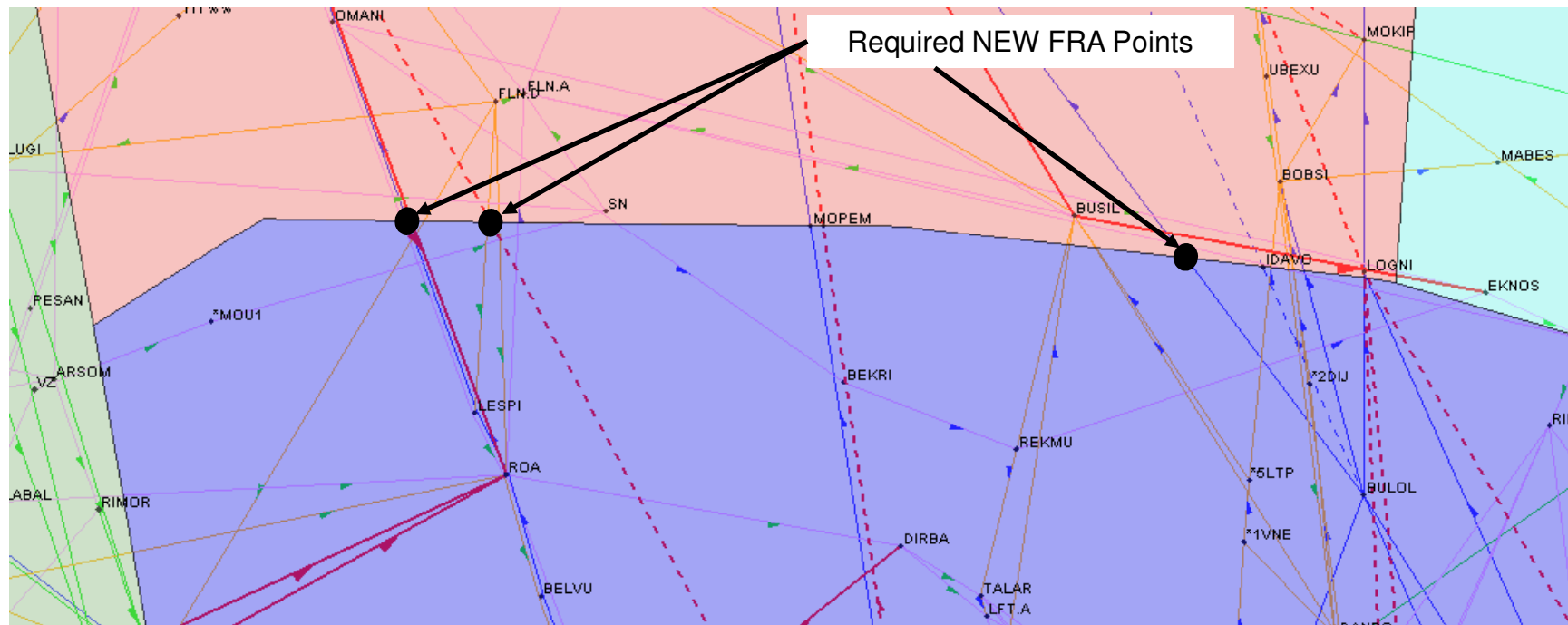
Center (LFFF) FRA area

→ Interface with SWISS FRA.



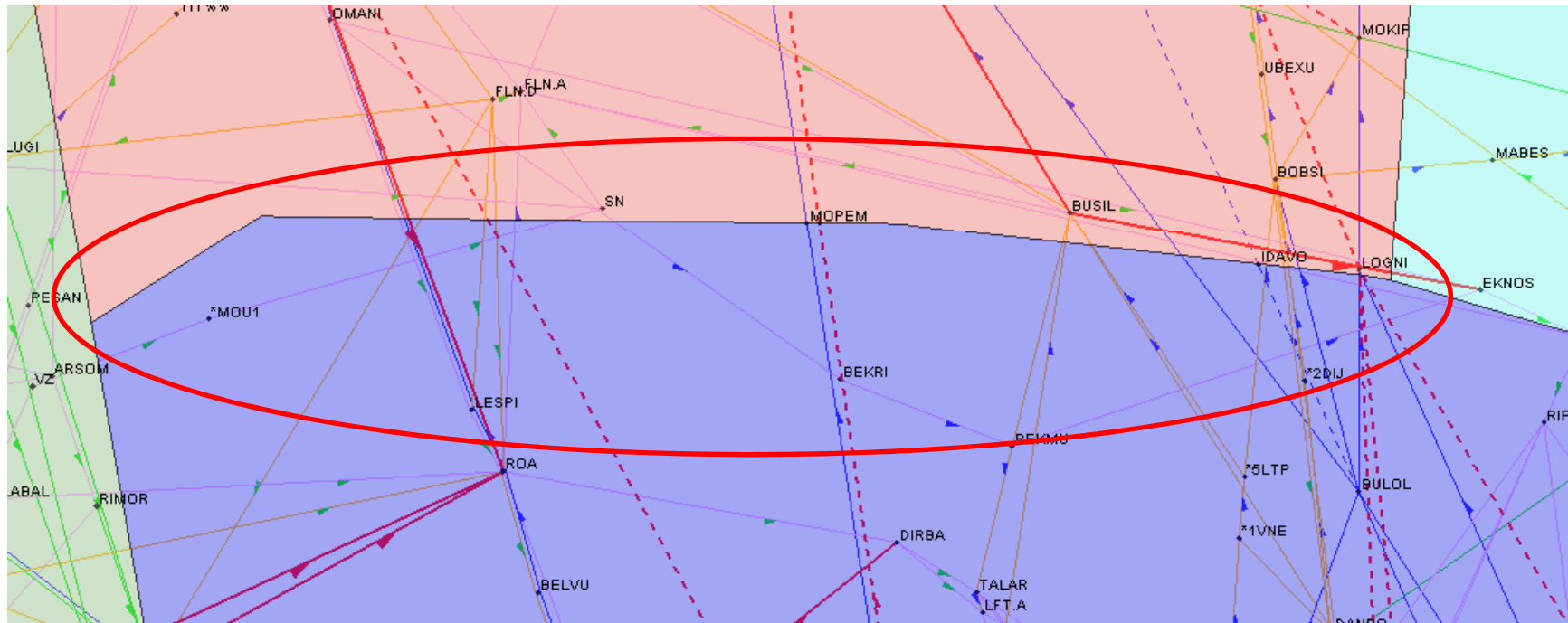
Center (LFFF) FRA area

→ New points.



Center (LFFF) FRA area

→ Interface with LFMM FRA area.



Center (LFFF) FRA area

- Ongoing coordination process;
- Interface with LFEE FRA area, FRA Points definition.





North West (LFRR) FRA Area Step 2

- North West step 2 - ex. LFRR West (LFRR Central and Atlantic FRA as one cell):
 - AIRAC 2303, H24, FL195, ATS routes will be removed in FRA Area;
 - What will be FRA Area Name?

- Ongoing coordination:
 - NMD/OPL Received FRA E, X, I, A and D Points - required additional coordination;
 - NMD/OPL made “LFRR FRA Points” document - required additional coordination;
 - NMD/OPL Received RAD (draft) - required additional coordination;
 - Coordination with adjacent ACCs;
 - Military Area definition finished;

- Required coordination:
 - Final FRA Area and FRA Points definition;
 - Final FRA RAD definition;
 - NPZs definition, If is it necessary;
 - Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD for test;
 - FRA NM Test/Validation;
 - FRA Publication.



North East (LFEE) FRA Area

- North East - ex. LFEE FRA (Reims):
 - AIRAC 2303, H24, FL195, ATS routes will be removed in FRA Area.

- Ongoing coordination:
 - NMD/OPL made “LFFF FRA Points” document - required additional coordination.

- Required coordination:
 - FRA will be implemented in MUAC, DFS, LFFF and Swiss.
 - FRA Area definition (laterally and vertically) - Overlap different LFFF Sectors, South West FRA Area and LFRR Sectors;
 - FRA Points definition and alignment with FRA Area;
 - FRA Area and Sectors alignment;
 - FRA RAD definition;
 - NPZs definition If is it necessary;
 - Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD for test;
 - FRA NM Test/Validation;
 - FRA Publication.



South East (LFMM) FRA Area

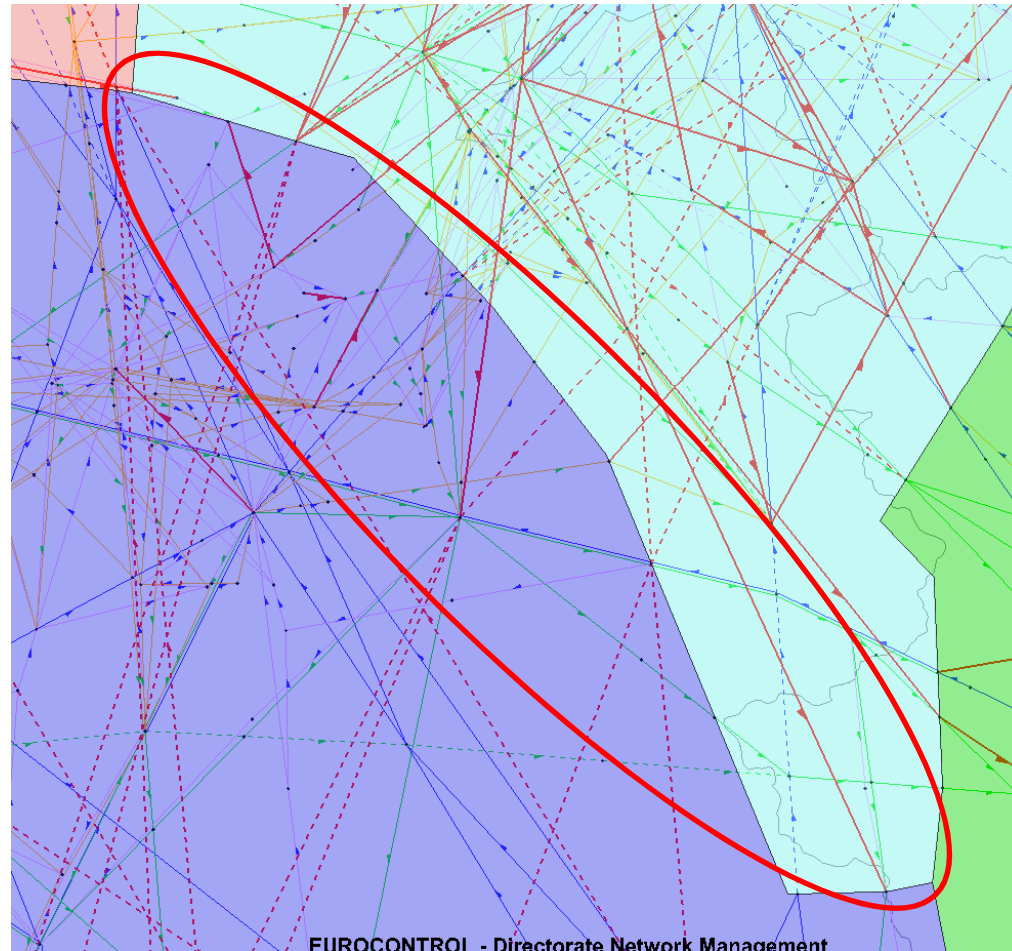
- LFMM FRA (Marseille):
 - AIRAC 2303, H24, FL195, ATS routes will be removed in FRA Area;

- Ongoing coordination:
 - NMD/OPL made “LFFF FRA Points” document - required additional coordination.

- Required coordination:
 - FRA will be implemented in MUAC, DFS, LFFF and Swiss.
 - FRA Area definition (laterally and vertically) - Overlap different LFFF Sectors, South West FRA Area and LFRR Sectors;
 - FRA Points definition and alignment with FRA Area;
 - FRA Area and Sectors alignment;
 - FRA RAD definition;
 - NPZs definition If is it necessary;
 - Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD for test;
 - FRA NM Test/Validation;
 - FRA Publication.

South East (LFMM) FRA Area

→ Interface with SWISS FRA.





North West (LFRR) FRA Area Step 3

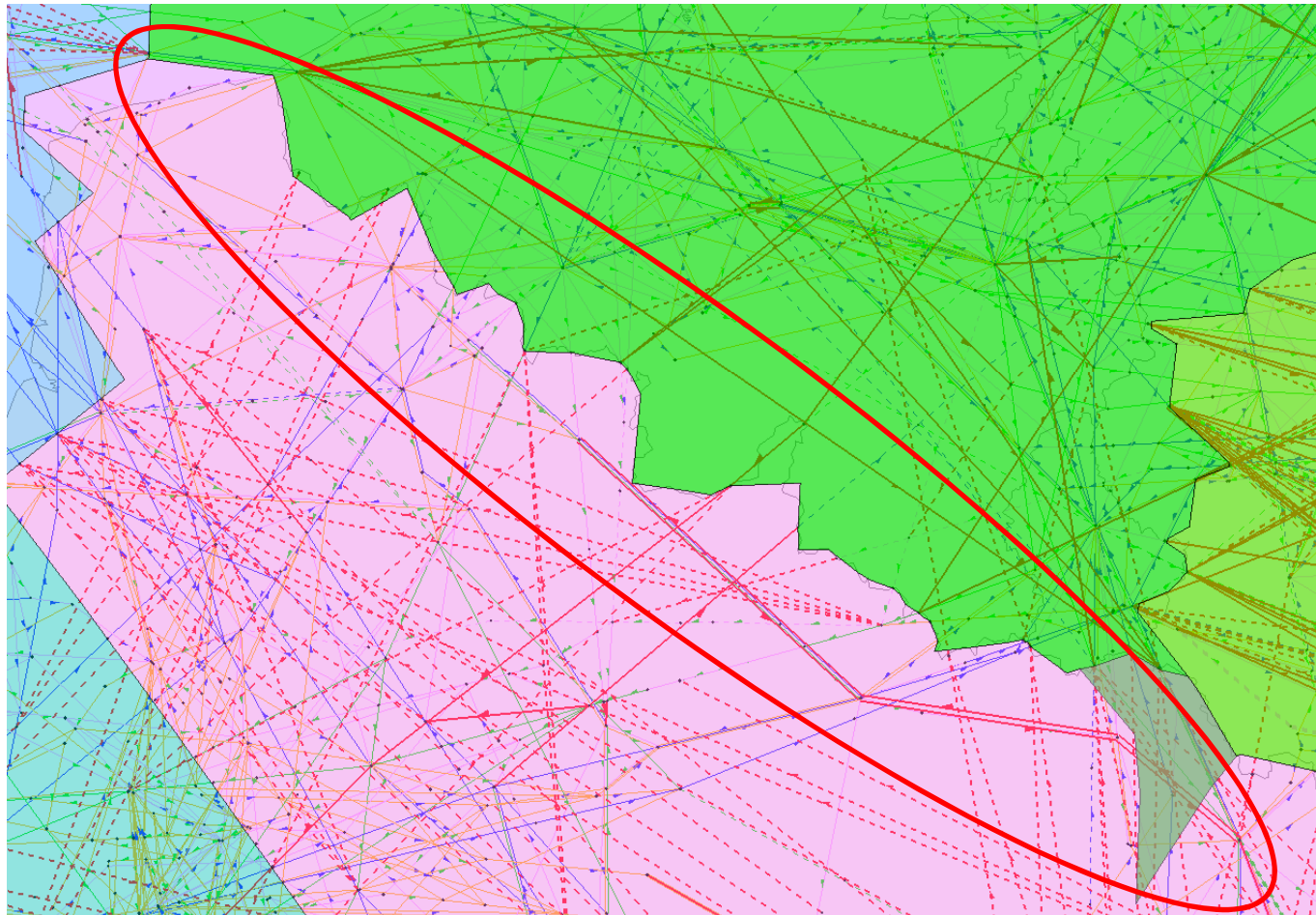
- North West step 3 - ex. LFRR East FRA (Brest):
 - AIRAC 2403, H24, FL305, ATS routes will be removed in FRA Area;
 - Is it one FRA Area with North West or two separate Areas?
 - FRA Points type on the border between North West step 2 and North West step 3?
 - What will be FRA Area Name?

- Ongoing coordination:
 - NMD/OPL Received FRA E, X, I, A and D Points - required additional coordination;
 - NMD/OPL made “LFRR FRA Points” document - required additional coordination;
 - Coordination with adjacent ACCs;
 - Military Area definition finished;

- Required coordination:
 - Final FRA Area and FRA Points definition;
 - FRA RAD definition;
 - NPZs definition, If is it necessary;
 - Make final draft for FRA Area, FRA Points, Sectors, NPZ/s and RAD for test;
 - FRA NM Test/Validation;
 - FRA Publication.

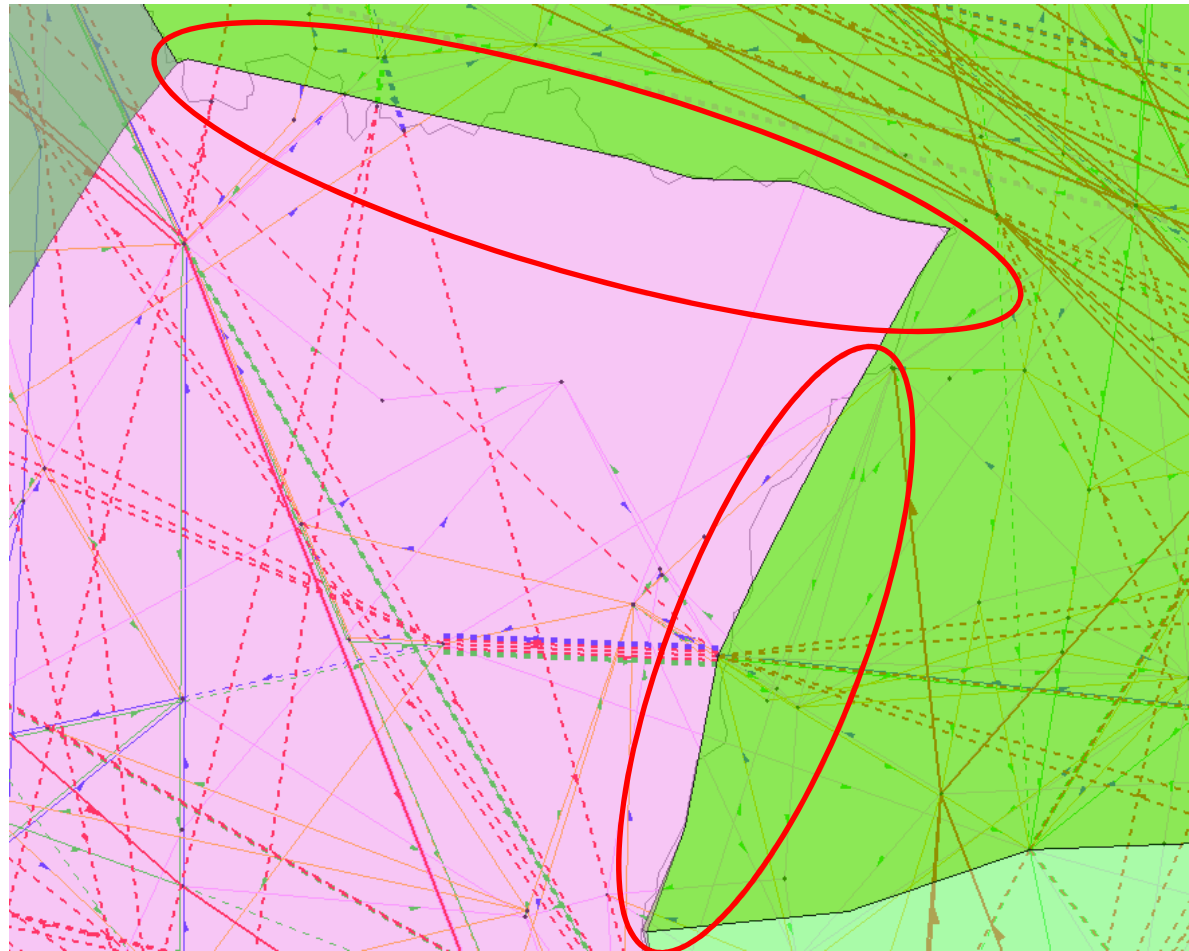
North West (LFRR) FRA Area Step 3

→ Interface with MUAC and skeyes.



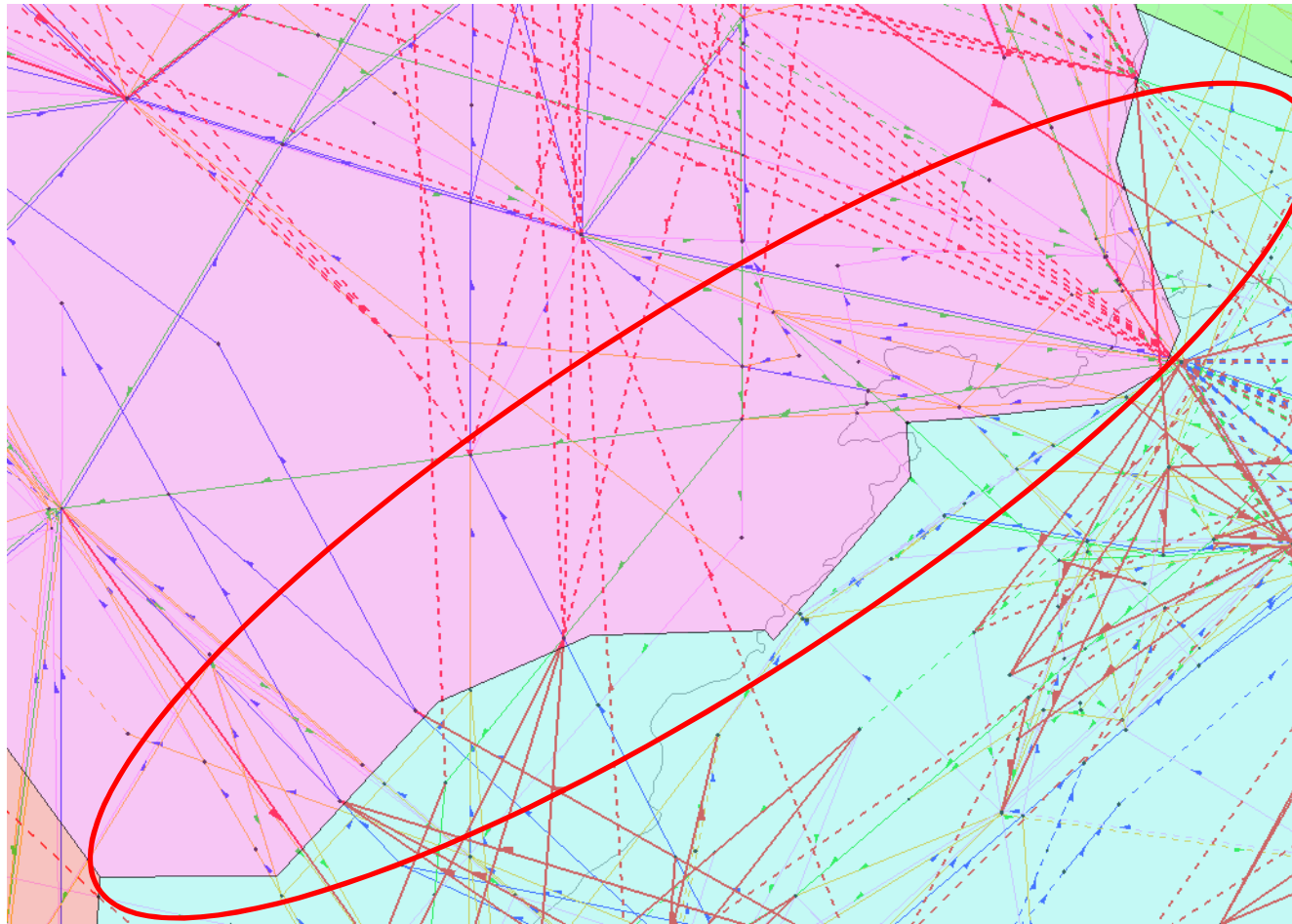
North West (LFRR) FRA Area Step 3

→ Interface with DFS.



North West (LFRR) FRA Area Step 3

→ Interface with skyguide.





2. DFS

DFS FRA



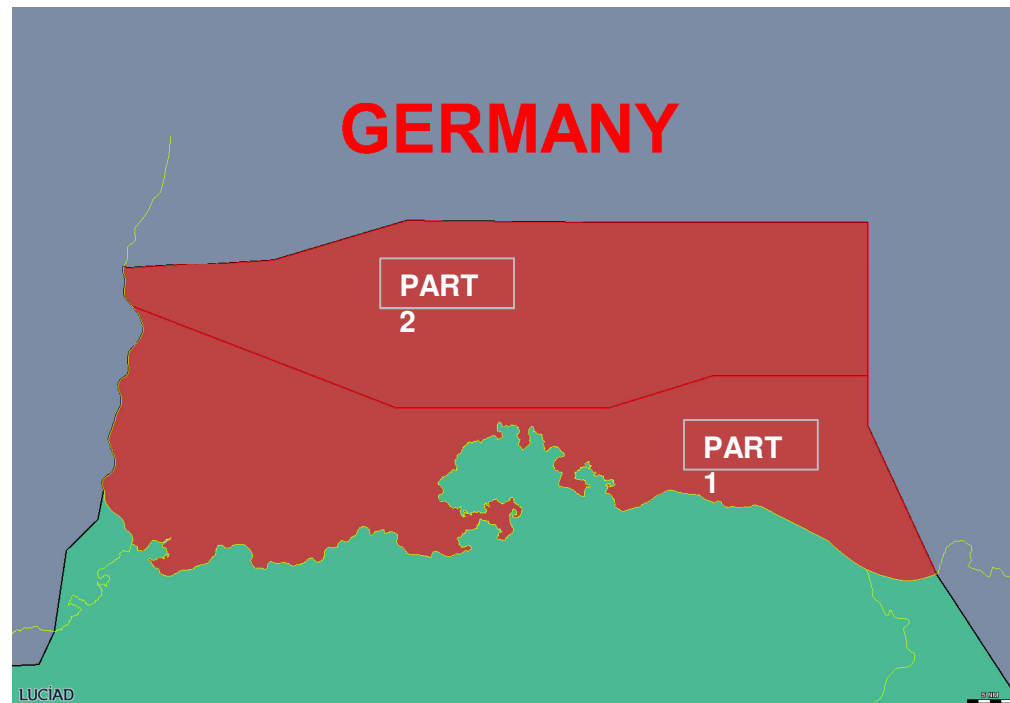
FRA Documents:

- Border/Point alignment on DFS FRA - FRACZECH:
 - Boundary NIRGO, ODOMO, VEMUT, VESUB;
 - Different FRA relevance in FRA.

- Ongoing process DFS - NM:
 - Definition of FRA Connecting Routes and FRA (A) / FRA (D) points relevant aerodromes definition in AIP - meeting in March 2020;
 - Study for changing the DFL for a number of DFS sectors - meeting 3 March 2020.

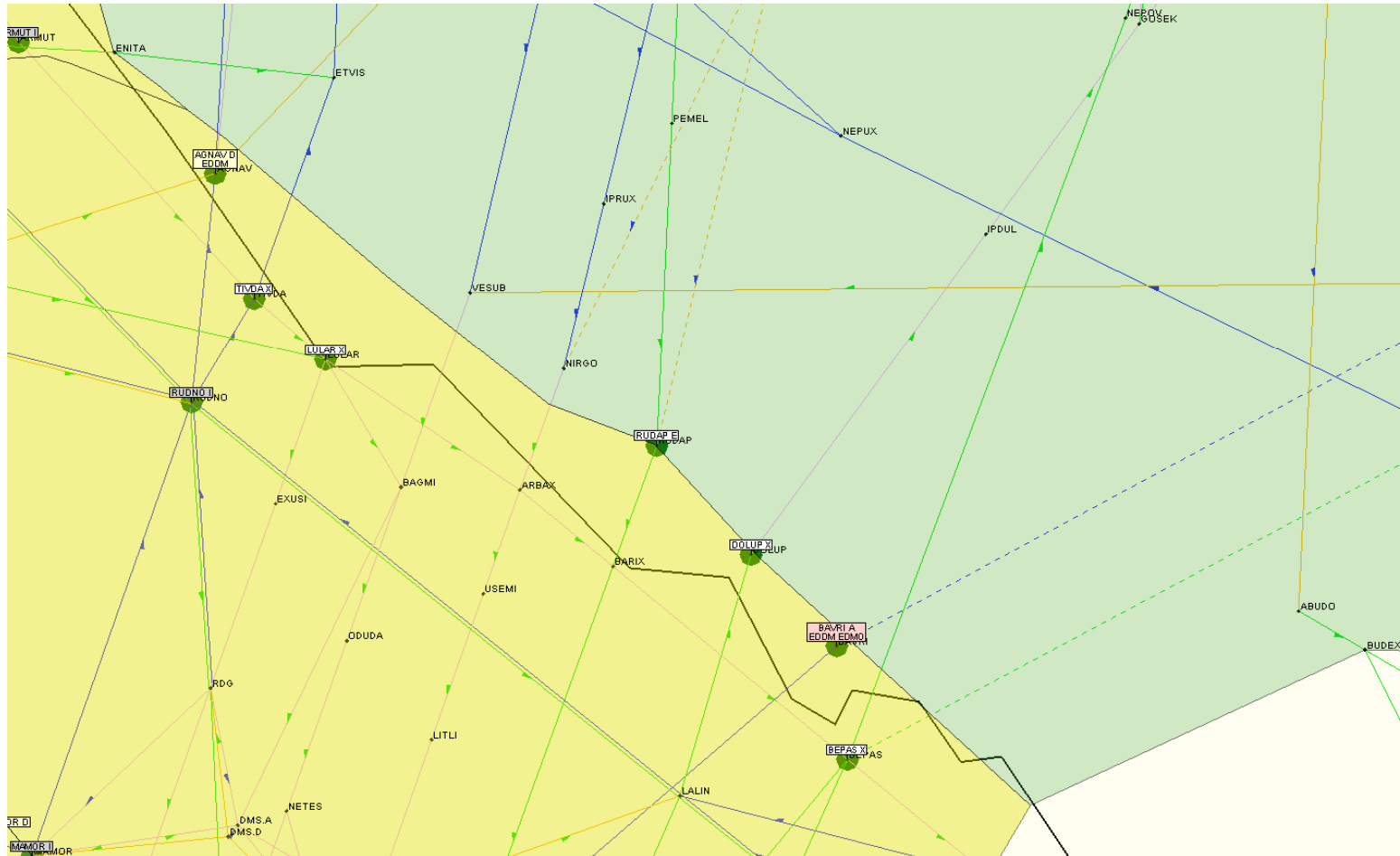
DFS FRA - Swiss FRA Interface

- Interface Agreed;
- Swiss FRA: Part 1 FL195 – FL660 and Part 2 FL195-FL660;



DFS FRA - FRACZECH border TIVDA, LULAR, BEPAS

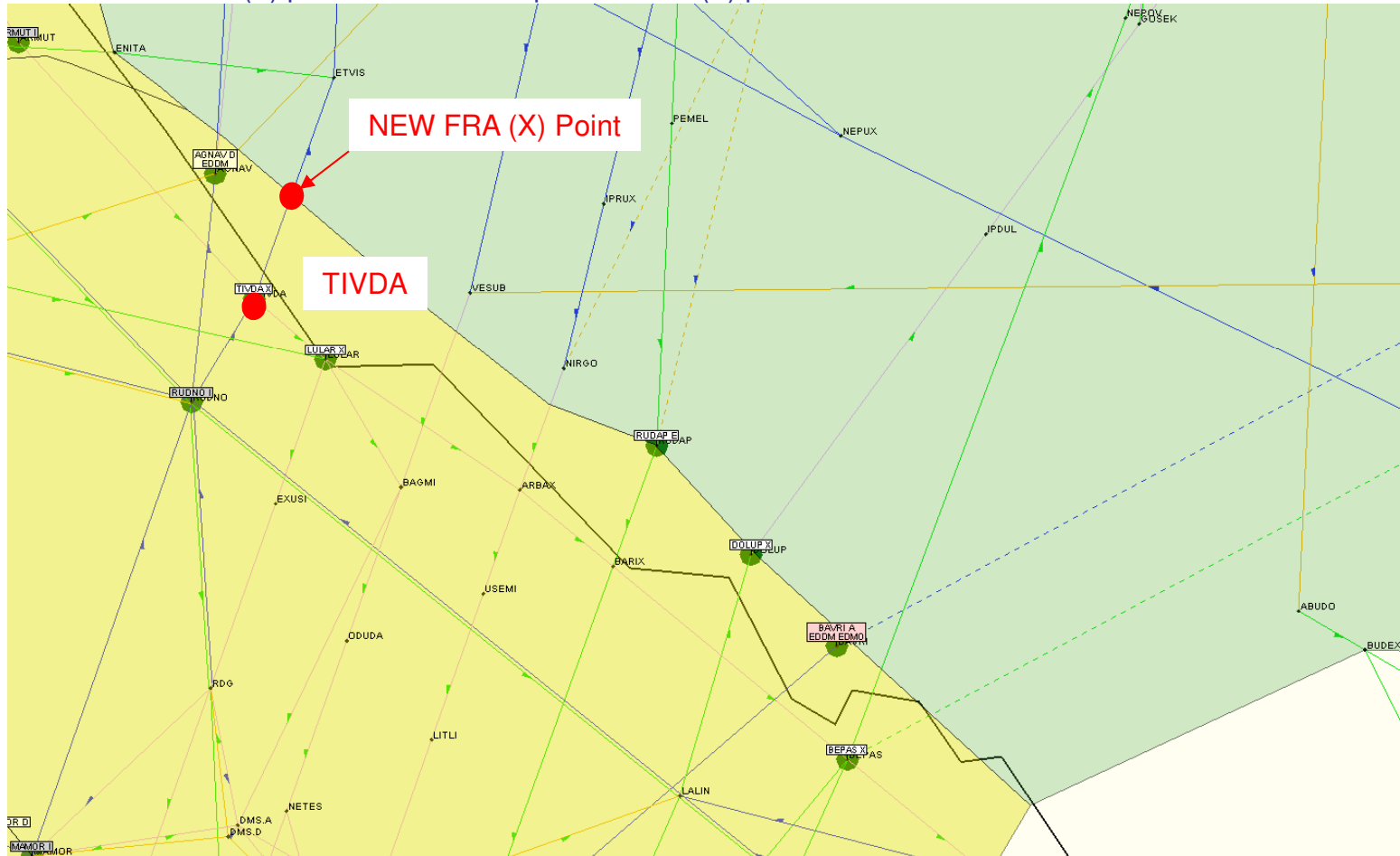
→ DFS - FRA CZECH FRA (E) and (X) Points will not be on the FRA Border.



DFS FRA - FRACZECH border

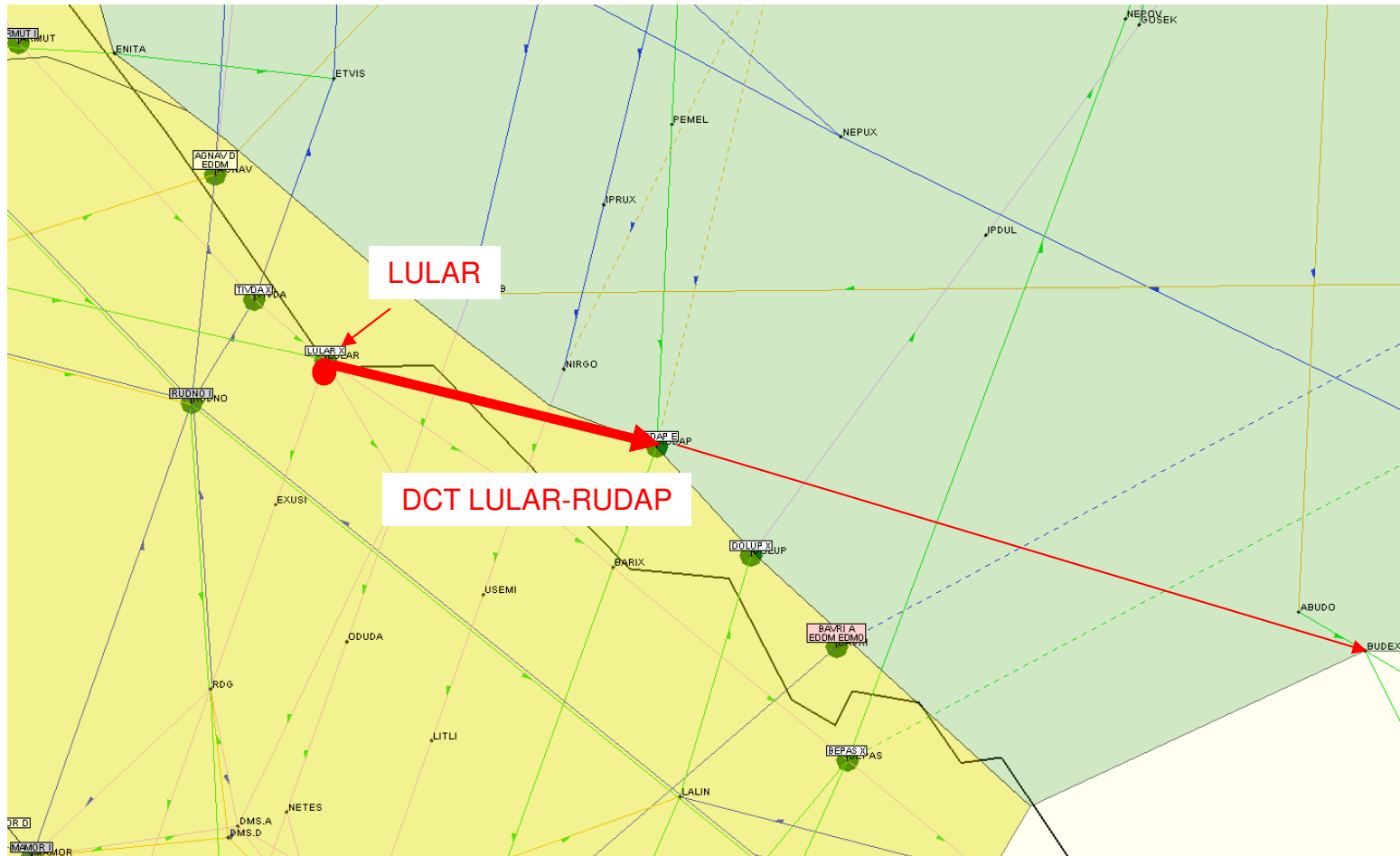
TIVDA

- To create NEW point on segment TIVDA - ETVIS (on the border);
- Delete TIVDA as FRA (X) point and use NEW point as FRA (X) point.



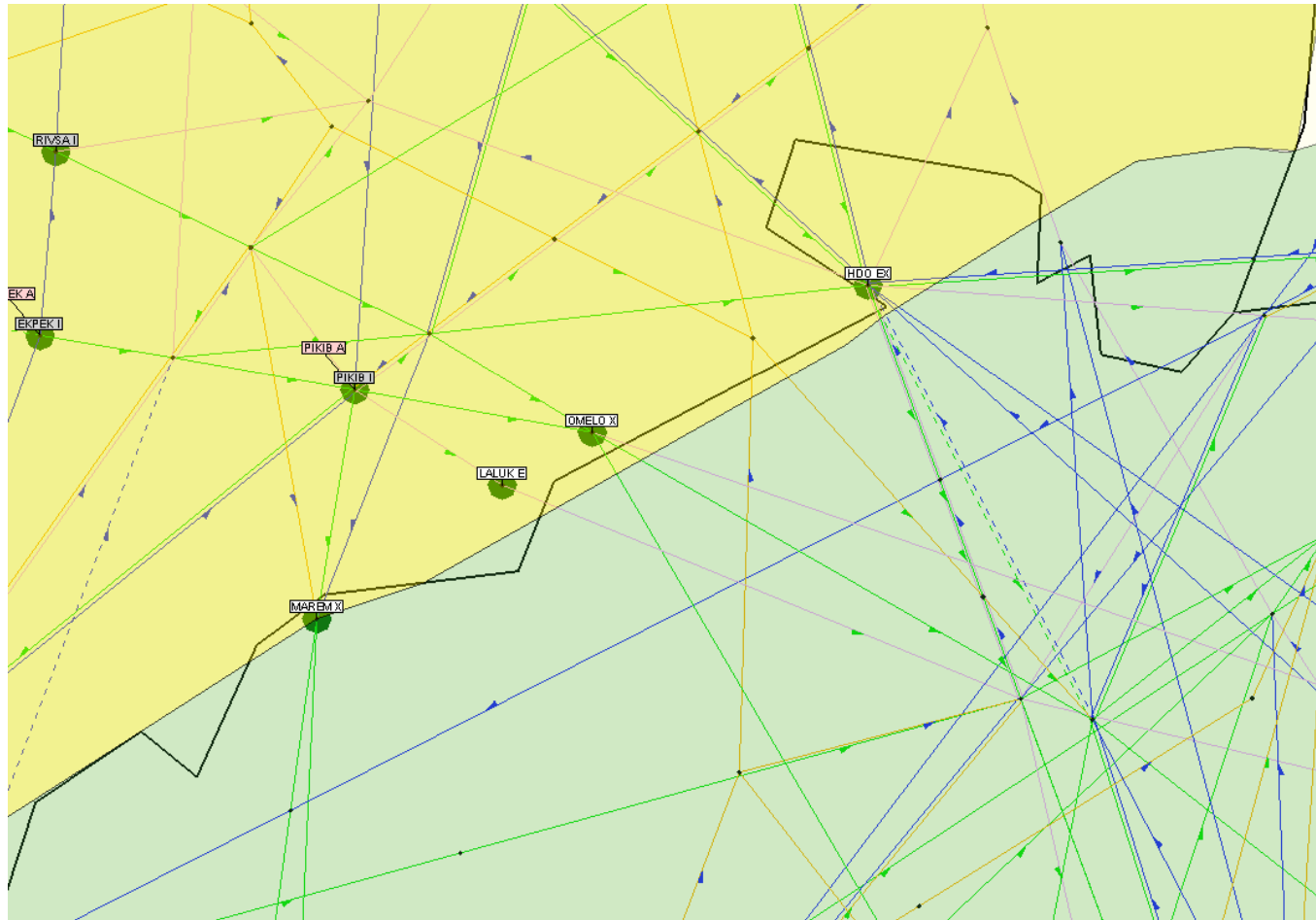
DFS FRA - FRACZECH border LULAR

→ To delete LULAR as DFS FRA (X) and create DCT LULAR - RUDAP.



DFS FRA - FRACZECH border LALUK, OMELO, HDO

→ DFS - FRA CZECH FRA (E) and (X) points will not be on the FRA Border.

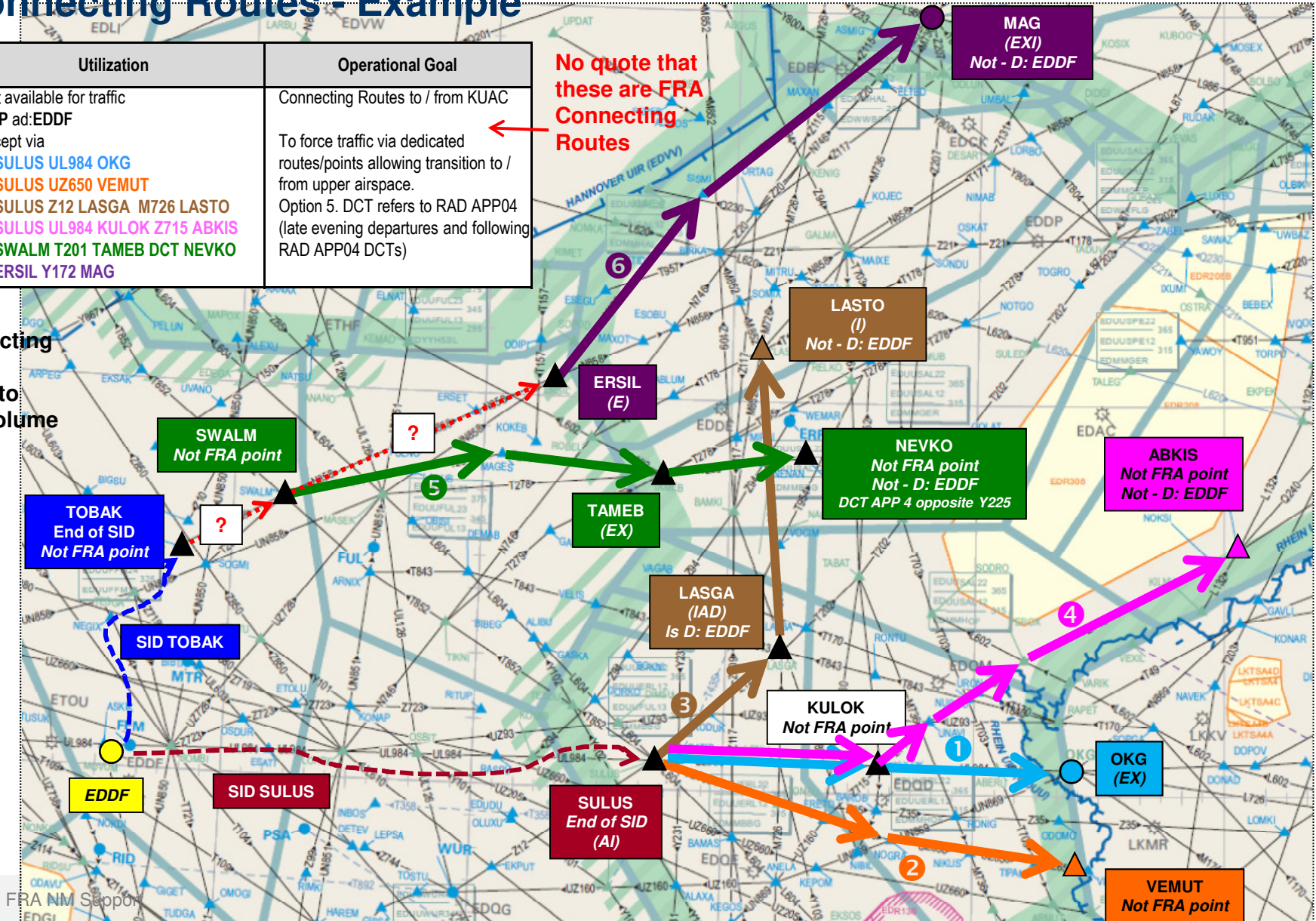


DFS FRA Connecting Routes - Example

Point or Airspace	Utilization	Operational Goal
EDUUAEP	Not available for traffic DEP ad:EDDF except via 1. SULUS UL984 OKG 2. SULUS UZ650 VEMUT 3. SULUS Z12 LASGA M726 LASTO 4. SULUS UL984 KULOK Z715 ABKIS 5. SWALM T201 TAMEB DCT NEVKO 6. ERSIL Y172 MAG	Connecting Routes to / from KUAC To force traffic via dedicated routes/points allowing transition to / from upper airspace. Option 5. DCT refers to RAD APP04 (late evening departures and following RAD APP04 DCTs)

No quote that these are FRA Connecting Routes

FRA Connecting Routes referenced to Airspace Volume





3. skyguide

skyguide FRA



- Step 1 (AIRAC 2112):
 - Night DCT needs to be implemented due technical problem (DCTs start and finish outside CH FRA Area);
 - FRA (E) and FRA (X) points only for overflights. Only existing points will be used as FRA (E) and FRA (X) points on CH FRA border but outside Switzerland FIR/UIR. The new FRA (E) and FRA (X) points can be made only if it is FRA border point on Switzerland FIR/UIR border;
 - No FRA (A) and FRA (D) points. Will be used ATS network with SID and STAR exiting CH FRA Area via point which are not FRA Points. ATS route vertical limits will be defined in according with needs/profile. Routes will connect to/from FRA points (EXI) to allow FRA after or before routing.
 - NM-skyguide to analyse possible implementation of FRA (A) and FRA (D) points only within Switzerland FIR/UIR;
 - BALS currently well outside of CH FRA Area and new FRA points will be established at CH FRA Area border;
 - Other FRA (E) and FRA (X) points might be inside or outside of CH FRA Area as they are out of Switzerland FIR/UIR. NM will check possibility for adaptations in CACD as temporary solution (not in AIP).
 - Other issues will be resolved in Step 2 (like HOC point,).

- Step 2 (implementation t.b.d.):
 - FRA Improvement in the line with FRA implementations/changes in adjacent areas (like LFMM FRA, LFRR FRA, FRA-IT, DFS FRA);
 - This step will be used to correct “problem” for Step 1. This depends from NMOC, French and Swiss ATM systems.



4. LVNL

LVNL



Airspace Projects:

- LVNL
 - DARP Project: LVNL and NM are working on this project.



5. skeyes

skeyes



Airspace Projects:

- skeyes
 - Support border alignment/adaptation between Brussels ACC / MUAC and Paris ACC / Reims ACC.



6. MUAC



MUAC FRA

→ Possible further reconsideration of the definition of FRA Connecting Routes and FRA (A) / FRA (D) points relevant aerodromes definition in AIPs - information and ideas already provided to MUAC..

Point or Airspace	Utilization	Operational Goal
EDYYUTA	Not available for traffic ARR EDDK except-via 1. DIK 2. PAM 3. [LARBU, POVEL, TOLTA] - PODER Z189 RUNER 4. REMBA UL607 SPI	Connecting Routes to / from Maastricht UAC. Flight plans which follow one of the given route options can enter the airspace volume which is controlled by Maastricht UAC. Flight plans which follow other routes (which are not listed in column F) shall laterally or vertically (profile shall stay below FL245) avoid entering the airspace of Maastricht UAC.

FRA Connecting Routes referenced to Airspace Volume →

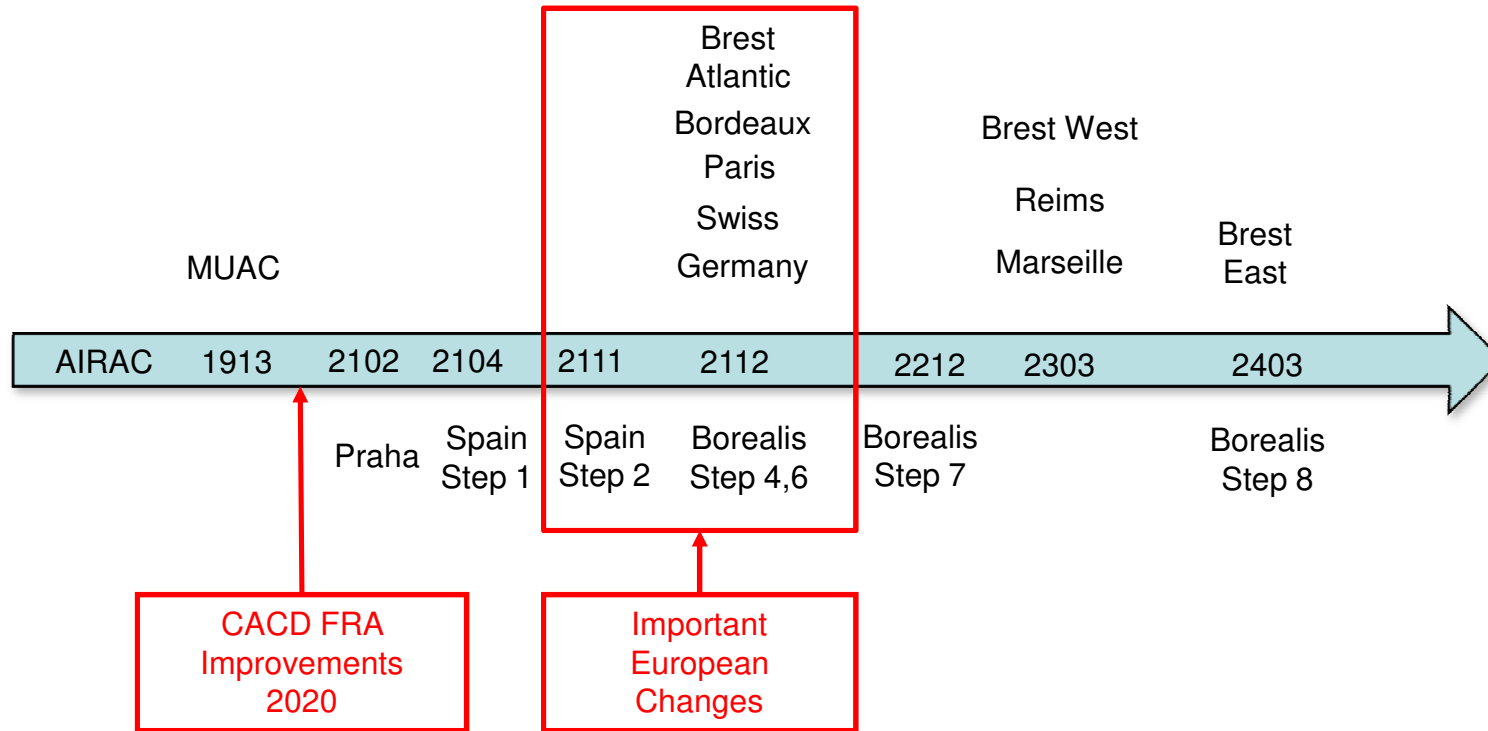
← **No quote that these are FRA Connecting Routes**

EDDK STARs - **DEPOK** / ERNEP / **KOPAG** / GULKO / NVO

1. **DIK** (IAD) - **FRA (A)** for which aerodrome/s - FRA Arrival Connecting Route: DIK **T856 DEPOK**
2. **PAM** (IAD) - **FRA (A)** for which aerodrome/s - FRA Arrival Connecting Route: PAM **L620 SONEB Z841 GETNI T858 KOPAG**
- 3a. **LARBU** (IAD) / **PODER** (IA) - Which **FRA (A)** is for which aerodrome/s - FRA Arrival Connecting Route: LARBU Z189 PODER Z189 RUNER **T858 KOPAG**
- 3b. **POVEL** (IAD) / **PODER** (IA) - Which **FRA (A)** is for which aerodrome/s - FRA Arrival Connecting Route: POVEL Q201 PODER Z189 RUNER **T858 KOPAG**
- 3c. **TOLTA (I)** / **PODER** (IA) - **TOLTA** not **FRA (A)** point; **PODER** **FRA (A)** for which aerodrome/s - FRA Arrival Connecting Route: TOLTA DCT PODER Z189 RUNER **T858 KOPAG**
4. **REMBA** (IAD) - **FRA (A)** for which aerodrome/s - FRA Arrival Connecting Route: REMBA UL607 SPI **T857 DENOV T861 ERUKI T856 DEPOK**



ERNIP FRA Implementation





NMOC Support



NMOC Improvements

FRA Point Usage

- Major improvement - introduction in CACD of FRA Point Usage feature;
- Possible real operational use during second half of 2020;

- Facilitation of Free Route Airspaces definition and data maintenance. Prerequisite for successful results is:
 - Appropriate AIP Publication of FRA (E), FRA (X) and FRA (EX) points, including relevant specific information;
 - Appropriate AIP Publication of FRA (A), FRA (D) and FRA (AD) points, and publication of aerodromes related to each FRA significant point. Thus will allow proper processing and no requirements for other than FRA restrictions generated by NMOC.
- FRA Restriction generation from FRA Point Usage data;
 - Prerequisite for successful results is appropriate AIP publication of FRA significant points;
 - Expectations for less or even no RAD restrictions in addition to FRA restrictions;
- Maintain FPL validation against FRA constraints as is;
- Maintain and improve path finder generation.



FRA Point Usage Development Timeline

- NM 23.0
 - Initial introduction of PT Usage in FRA Context only;
 - Only FRA (E), (X) and (I) roles;
 - FRA restriction generation on OPT only.

- NM 23.5
 - Adding of FRA roles (A) and (D).
 - Generation of FRA restrictions on OPT and OPS.
 - Last bug fixes.

- NM 24.0
 - FRA point usage on Floor and Ceiling.



FRA Point Usage Roles

- **Entry** for a “closed FRA border”

- **Exit** for a “closed FRA border”

- **Intermediate** for a FRA airspace
 - Only those points which are flagged intermediate are allowed in a limited FRA airspace. Points not flagged are not allowed e.g. ILS, LOC etc.
 - Only those points which are flagged intermediate or any geo position are allowed in an unlimited FRA airspace.

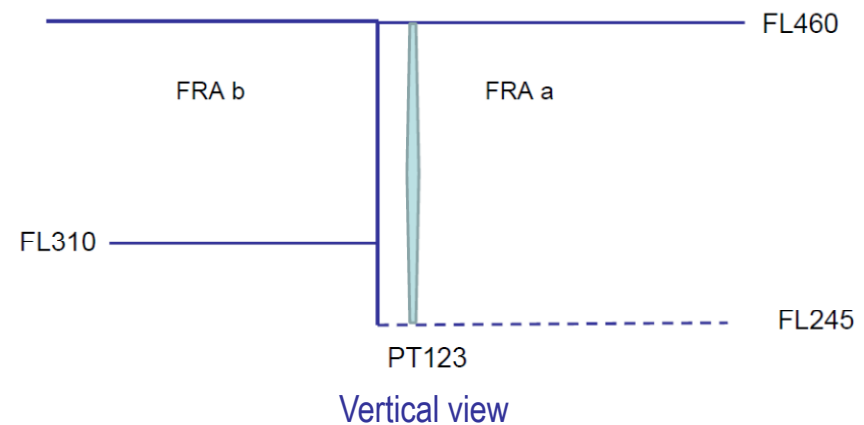
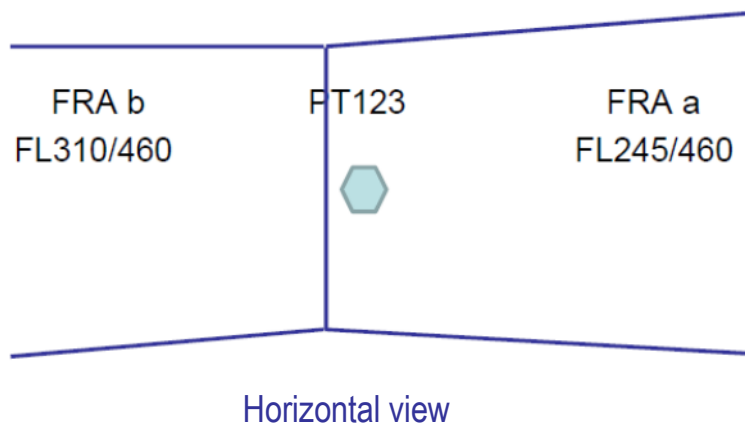
- **Arrival** for a particular aerodrome coming from a FRA airspace

- **Departure** for a particular aerodrome going into a FRA airspace

FRA Point Usage

Multiple Roles En-route

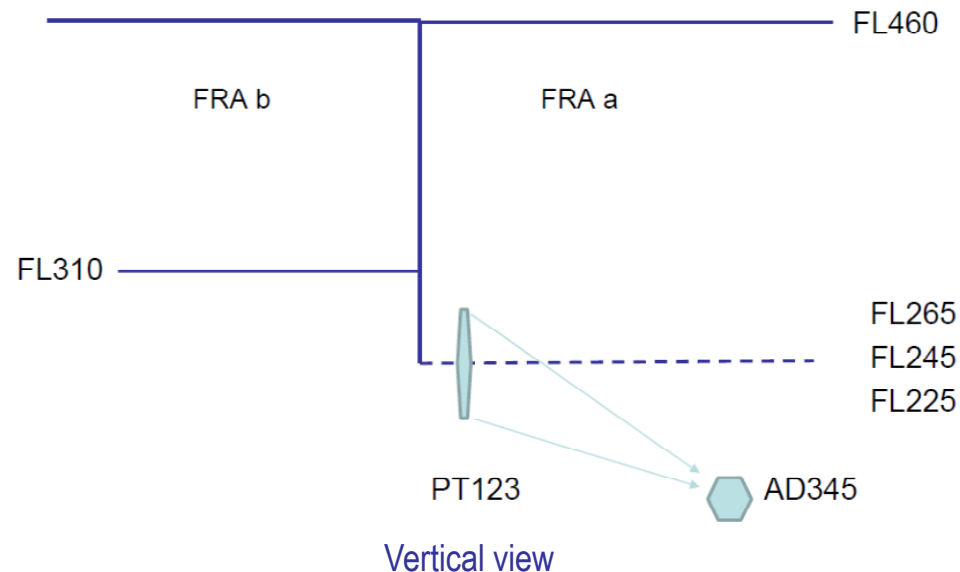
- A point can be Entry, Exit and Intermediate simultaneously at concurrent or divergent FL bands for a particular FRA airspace and obviously at the same time for the neighboring FRA . e.g. - PT123 is:
 - (E) for border FRAb/FRAa between FL245 and FL460 during FRAa OPS
 - (E) for border FRAa/FRAb between FL310 and FL460 during FRAb OPS
 - (X) for border FRAb/FRAa between FL245 and FL460 during FRAa OPS
 - (X) for border FRAa/FRAb between FL310 and FL460 during FRAb OPS
 - (I) for airspace FRAa between FL245 and FL460 during FRAa OPS



FRA Point Usage

Multiple Roles Arrival (1)

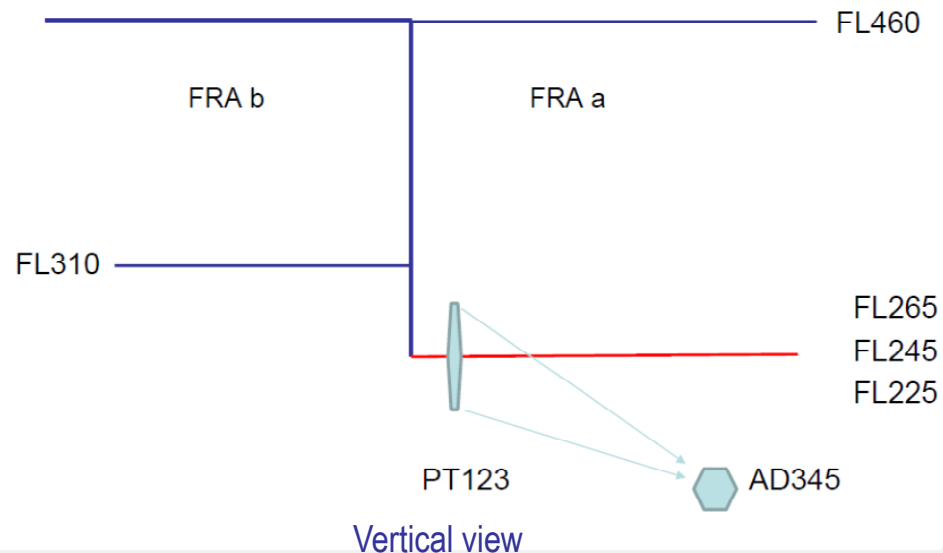
- With “OPEN floor” PT123 can be:
 - (E) for border FRAb/FRAa between FL245 and FL460 during FRAa OPS
 - (E) for border FRAa/FRAb between FL310 and FL460 during FRAb OPS
 - (X) for border FRAb/FRAa between FL245 and FL460 during FRAa OPS
 - (X) for border FRAa/FRAb between FL310 and FL460 during FRAb OPS
 - (I) for airspace FRAa between FL245 and FL460 during FRAa OPS
 - **(A) for aerodrome345 between FL225 and FL265 during FRAa OPS**
- If PT123 is (A) between FL225 and FL264 it must also be (I) at least between FL225 and FL265 or higher



FRA Point Usage

Multiple Roles Arrival (2)

- With “CLOSED floor” PT123 can be:
 - (E) for border FRAb/FRAa between FL245 and FL460 during FRAa OPS
 - (E) for border FRAa/FRAb between FL310 and FL460 during FRAb OPS
 - (X) for border FRAb/FRAa between FL245 and FL460 during FRAa OPS
 - (X) for border FRAa/FRAb between FL310 and FL460 during FRAb OPS
 - (I) for airspace FRAa between FL245 and FL460 during FRAa OPS
 - (A) for aerodrome345 between FL225 and FL265 during FRAa OPS
 - (X) for the FRAa floor between FL225 and FL265 during FRAa OPS
- If PT123 is (A) between FL225 and FL264 it must also be (X) at least between FL225 and FL265 or wider





FRA Point Usage Restrictions and Availability

- FRA restrictions:
 - Interface data between CACD and Frontline systems;
 - Derived from the assembly of:
 - FRA airspace definition;
 - FRA point roles;
 - Points flagged as FRA (I) will be added to the FRA airspace restriction;
 - Points flagged as FRA (E), FRA (X) and FRA (EX) will be added to the FRA border restriction with the appropriate FLs;
 - Points flagged as FRA (A), FRA (D) and FRA (AS) will be added to additional FRA restrictions grouped per combination FRA Floor and Aerodrome(s):
 - Stored in CACD;
 - Visible in AIRSPACE@NES;
 - Available via B2B to AO.

- FRA Point Usage:
 - Interface data between ENVCOOR and ADS;
 - Stored in CACD;
 - Visible in AIRSPACE@NES.



FRA Point Usage CACD screen

RS	Role	Element Type	Element Id		MIN FL	MAX FL	Start → End Date	H-1	H0	H+1	BFR	Days	Start → End Time
	FRA-A	Aerodrome or Aerodrome Set	-	EBBR or EBBR/ EBCL	FL095	FL245	2019/09/24 --					1234567	04:00 22:00
■	FRA-D	Aerodrome or Aerodrome Set	EBBR or EBBR/ EBCL	-	FL095	FL245	2019/09/24 --					1234567	04:00 22:00
	FRA-I	Airspace	-	-	FL095	FL660	2019/09/24 --					1234567	04:00 22:00
	FRA-E	Airspace border			FL095	FL660	2019/09/24 --					1234567	04:00 22:00
■	FRA-X	Airspace volume			FL095	FL660	2019/09/24 --					1234567	04:00 22:00

- RS: Existence of restriction generated for relevant FRA point - when ticked NMOC system generates automatically a restriction;
- Role: FRA relevance: FRA-A, FRA-D, FRA-I, FRA-E, FRA-X. For FRA (EX) there are two separate records with same information.
- Element Type:
 - For FRA-A or FRA-D point relevance to FRA Airspace Volume or FRA Airspace Border and Aerodrome or Aerodrome Set (two or more aerodromes);
 - For FRA-I point relevance to FRA Airspace Volume;
 - For FRA-E or FRA-X point relevance to FRA Airspace Border or FRA Airspace Volume;
- Element Id: Only for FRA-A or FRA-D point relevant Aerodrome or Aerodrome Set;
- MIN FL: FRA point lower vertical limit (FL);
- MAX FL: FRA point upper vertical limit (FL);
- Start → End Date: FRA point applicability: expressed as YYYY/MM/DD;
- H-1, H0, H+1, BFR: applicability reference to Holiday and Busy Friday, respectively;
- Days: FRA point applicability: expressed as day/s of the week 1234567;
- Start → End Time: FRA point applicability: expressed as hh:mm.



FABEC FRA Areas

Possible FRA Point Usage in CACD

- MUAC FRA:
 - FRA (A), FRA (D) and FRA (AD) points published in States AIPs but relevant aerodrome/s not published. Currently no information for publication plans;
 - Full usage of NMOC feature will not be achieved.
- DFS FRA:
 - FRA (A), FRA (D) and FRA (AD) points published in State AIP but relevant aerodrome/s not published. Coordination with NM for such AIP publication is in progress;
 - Possibility to fully use the NMOC feature.
- FRA France:
 - All FRA airspace objects planned to be defined as per FRA Concept;
 - FRA (A), FRA (D) and FRA (AD) points planned and proper AIP publication of relevant aerodrome/s will be discussed and coordinated;
 - Possibility to fully use the NMOC feature.
- Swiss:
 - No FRA (A), FRA (D) and FRA (AD) points planned with initial implementation;
 - Full usage of NMOC feature will not be achieved.



FABEC FRA Areas

NMOC Validation

- In accordance with NM Flight Planning Requirements - Guidelines, Annex 1 NMOC Operational Validation Guidelines;
- Further coordination required with NMOC relevant OPS Project Manager for each FABEC FRA project.



QUESTIONS and COMMENTS