EUROCONTROL

European Route Network Improvement Plan/ERNIP

Implementation Monitoring

Monitoring Report: AIRAC 1910

12 September - 09 October 2019

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European Route Network Improvement Plan (ERNIP) Implementation Monitoring

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1. INTRODUCTION

1.1 SUMMARY

This Report provides an update on the evolution of the environment indicators[1] listed in the *Network Performance Plan* and plots on the progress achieved in improving airspace design and utilisation flight efficiency, in line with the improvement proposals implemented in the relevant AIRAC cycle.

This edition focuses on **AIRAC 1910 (12 September - 09 October 2019)**

The methodology used for assessing flight efficiency is described in WP/9 of RNDSG/64. This document can be found at:
https://ost.eurocontrol.int/sites/RNDSG/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2Fsites%2FRNDSG%2FShared%20Documents%2F%21%21%21%20RNDSG%20Meetings%2FRNDSG%20meetings%2051%2D85%2FRNDSG%2D64%20%2820%2D22%20May2008%29

1.2 ACHIEVING THE EUROPEAN TARGET

The Performance Scheme for air navigation services and network functions includes two important key performance areas and associated indicators, related to the operational performance of the European ATM network for the period 2015 - 2019.

- ***Environment***
  - ***<u>average horizontal en-route flight efficiency of the actual trajectory</u>****, defined as follows:*
    - *the indicator is the comparison between the length of the en-route part of the actual trajectory derived from surveillance data and the corresponding portion of the great circle distance, summed over all IFR flights within or traversing the European airspace;*
    - *"en-route" refers to the distance flown outside a circle of 40 NM around the airports;*
    - *where a flight departs from or arrives at a place outside the European airspace, only the part inside the European airspace is considered;*

    This KPI is applicable at both network and Functional Airspace Block level.

  - ***average horizontal en-route flight efficiency of the last filed flight plan trajectory****, defined as follows:*
    - *the difference between the length of the en-route part of the last filed flight plan trajectory and the corresponding portion of the great circle distance, summed over all IFR flights within or traversing the European airspace;*
    - *"en-route" refers to the distance flown outside a circle of 40 NM around the airports;*
    - *where a flight departs from or arrives at a place outside the European airspace, only the part inside the European airspace is considered;*

    This KPI is only applicable at network level.
- ***Capacity***
  - ***minutes of en-route ATFM*** *delay per flight, calculated for the full year and including all IFR flights within European airspace and all ATFM delay causes, excluding exceptional events.*

[1] **FPL**: Flight Plan data provided by NM systems; SAAM analysis carried out by NM.
DES/RAD: Traffic demand provided by NM systems; airspace environment data, profile calculations and SAAM analysis provided by NM.

For the second performance Reference Period starting on 1st January 2015 and ending on 31st December 2019, the European Union-wide performance targets will be as follows:

- ***Environment target***:
    - *Actual trajectory (KEA) - an average of 2.6% route extension by 2019, decreasing from 3.17% in 2012 (based on PRB measurements)*
    - *Last filed flight plan trajectory (KEP) - an average of 4.1% route extension by 2019, decreasing from 5.15% in 2012 (based on PRB measurements)*

- ***Capacity target****: average en route Air Traffic Flow Management (ATFM) delay of 0.5 minutes per flight for each year of the second Reference Period.*

The ERNIP Part 2 - ARN Version 2014 - 2018/19 also responds to the targets included in the Network Performance Plan (NPP) 2015 - 2019 as described below:

- **Route extension - airspace design**
    - **Targets:**
        - **achieve an improvement of the DES indicator by 0.57 percentage points between the baseline year of 2012 and 2019**
- **Route extension - last filed flight plan**
    - **Targets:**
        - **This is a European-wide indicator in RP2 and the NM target for RP2 is to achieve 4.1% value for KEP indicator by 2019 for the entire NM area, fully consistent with the EU-wide target, i.e. a reduction by 1.05 pp (percentage points) between the baseline year of 2012 and 2019**
- **Route extension - actual trajectory**
    - **Targets:**
        - **The NM target for RP2 is to achieve 2.6% value for KEA indicator by 2019 for the SES area, fully consistent with the EU-wide target**
- **NM direct contributions to flight efficiency savings**
    - **The NM objectives is that these FE direct savings will amount to 5% (2015 - 2016) and 7% (2017 - 2019) of the savings required to achieve the annual 0.15 pp reduction (or alternatively 5% of the actual KEP reduction) each year**
- **Increase the CDR1/2 usage**
    - **NM objective is to increase the CDR availability (CD-RAI) and CDR usage (CDR-RAU) by 5% between the baseline year 2012 and 2019**

1.3 AIRSPACE DESIGN DEVELOPMENT AND IMPLEMENTATION MONITORING

The Network Manager coordinates the following activities to achieve the required improvement in flight efficiency:

- Enhancing European en-route airspace design through annual improvements of European ATS route network, high priority being given to:
  - implementation of a coherent package of annual improvements and shorter routes;
  - improving efficiency for the most penalised city pairs;
  - implementation of additional Conditional Routes for main traffic flows;
  - full implementation of Free Route Airspace.
- Improving airspace utilisation and route network availability through:
  - actively supporting and involving aircraft operators and the computer flight plan service providers in flight plan quality improvements;
  - gradually applying route availability restrictions only where and when required;
  - improving the use and availability of civil/military airspace structures.
- Efficient Terminal Manoeuvring Area design and utilisation through:
  - implementing advanced navigation capabilities;
  - implementing Continuous Descent Operations (CDO), improved arrival/departure routes, optimised departure profiles, etc.
- Improving awareness of performance.

1.4 EXTERNAL DOCUMENT RELEASE

The **latest AIRAC report** is available via the EUROCONTROL *Airspace design and utilisation website* (publication/ activity):
https://www.eurocontrol.int/publication/european-route-network-improvement-plan-ernip-monitoring-report-airac-1910

The full list of all monitoring reports is available on the EUROCONTROL *Route network and airspace design* website (function):
https://www.eurocontrol.int/function/route-network-and-airspace-design

A copy of the AIRAC Report of the European Route Network Improvement Plan is available via the restricted EUROCONTROL OneSky Online websites for access by interested members of the RNDSG, ASMSG and NETOPS *(see sub-sections under main section "LIBRARY"):*

https://ost.eurocontrol.int/sites/NETOPS/SitePages/Home.aspx
https://ost.eurocontrol.int/sites/RNDSG/SitePages/Home.aspx
https://ost.eurocontrol.int/sites/ASM-SG/SitePages/Home.aspx

2. LIST OF PROPOSALS IMPLEMENTED AIRAC 1910 (12 SEPTEMBER 2019)

2.1 SUMMARY OF MAJOR PROJECTS IMPLEMENTED ON 12 SEPTEMBER 2019

During the AIRAC cycle 4 (four) airspace improvement package co-ordinated at network level was implemented. Apart from ECAC States AIP en-route publication issues, ATS route network or RAD improvements the list below provides an overview of the major enhancements implemented on 12 September 2019:

- UK
  - DVOR Removal Poject (EGLL STAR routes).
  - Strangford CTA extension.

A description of the improvement measures implemented 12 September 2019 is attached in Annex A. The list is an extract of the ***European Route Network Improvement Plan database*** accessible for registered users via:

https://ext.eurocontrol.int/ernip_database/Index.action

To register, allowing easy access to all information about approval and implementation of proposals to improve the European Route Network and Airspace Structure, please follow:

https://www.eurocontrol.int/database/european-route-network-improvement-plan-database

A description of the airspace changes and improvements together with an orientation map due for implementation on the relevant AIRAC cycle is provided in the *RNDSG Airspace Improvements Synopsis* (*RAIS)* via the restricted EUROCONTROL OneSky Online website for RNDSG.

The latest situation of the European route network structure is available and updated at each AIRAC cycle through the publication of Regional Electronic Charts that can be found here: http://www.eurocontrol.int/articles/eurocontrol-regional-charts

3. EVOLUTION OF PERFORMANCE INDICATORS

3.1 AIRSPACE DESIGN INDICATOR EVOLUTION

The graph below shows the yearly evolution of airspace design flight efficiency (RTE-DES[2]) over the period 2007 - 2018 and its evolution until 9 October 2019. *(Note: inclusion of new measurements will be done as soon as all data will become available)*

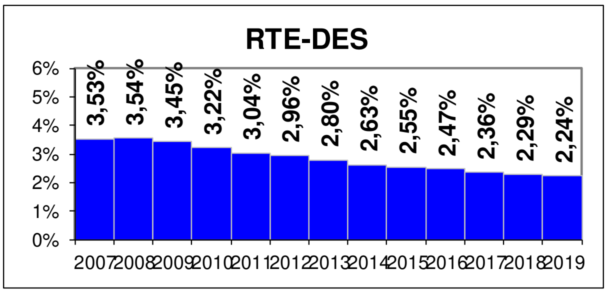


Figure 1 : *Airspace Design indicator evolution*

3.2 FLIGHT PLANNING INDICATOR EVOLUTION

The graph below shows th9e yearly evolution of the last filed flight plan indicator (RTE-FPL[3]) over the period 2007 - 2018 and its evolution until 9 October 2019. *(Note: inclusion of new measurements will be done as soon as all data will become available)*

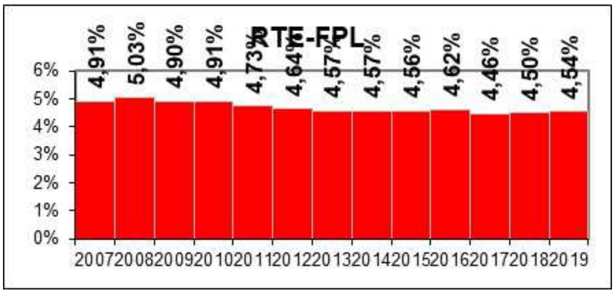


Figure 2 : *Airspace Design indicator evolution*

3.3 ROUTE AVAILABILITY INDICATOR EVOLUTION

The impact of the civil route restrictions included in the Route Availability Document (RAD) is measured through a specific RAD indicator (RTE-RAD[4]). The graph below shows the yearly evolution of the RTE-RAD indicator between January 2012 and 9 October 2019. *(Note: inclusion of new measurements will be done as soon as all data will become available)*

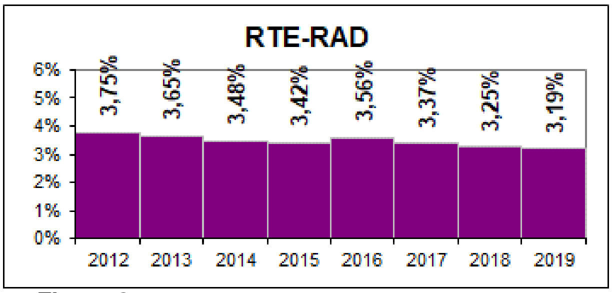


Figure 3 : *Route Availability indicator evolution*

2 **RTE-DES** (Flight Extension due to Route Network Design) This KPI will be calculated by measuring the difference between the shortest route length (from TMA exit and entry points) and the great circle distance. For this KPI the RAD will not be taken into account and all the CDR routes will be considered as open.

3 **RTE-FPL** (Flight Extension due to Route Network Utilisation - last filled FPL) This KPI will be calculated by measuring the difference between the route from the last filed flight plan for each flight (from TMA exit and entry points) and the great circle distance.

4 **RTE-RAD**: (Flight Extension due to Route Network Utilisation - RAD active) This KPI will be calculated by measuring the difference between the shortest plannable route length (from TMA exit and entry points) and the great circle distance. For this KPI the RAD will be taken into account and all the CDR routes will be considered as open.

3.4 FLIGHT EFFICIENCY EVOLUTION PER AIRAC CYCLE

The graph below shows the evolution per AIRAC cycle of the two main flight efficiency indicators RTE-DES and RTE-FPL over the period 2010 - 2018 and the evolution until 9 October 2019. *(Note: inclusion of new measurements will be done as soon as all data will become available)*

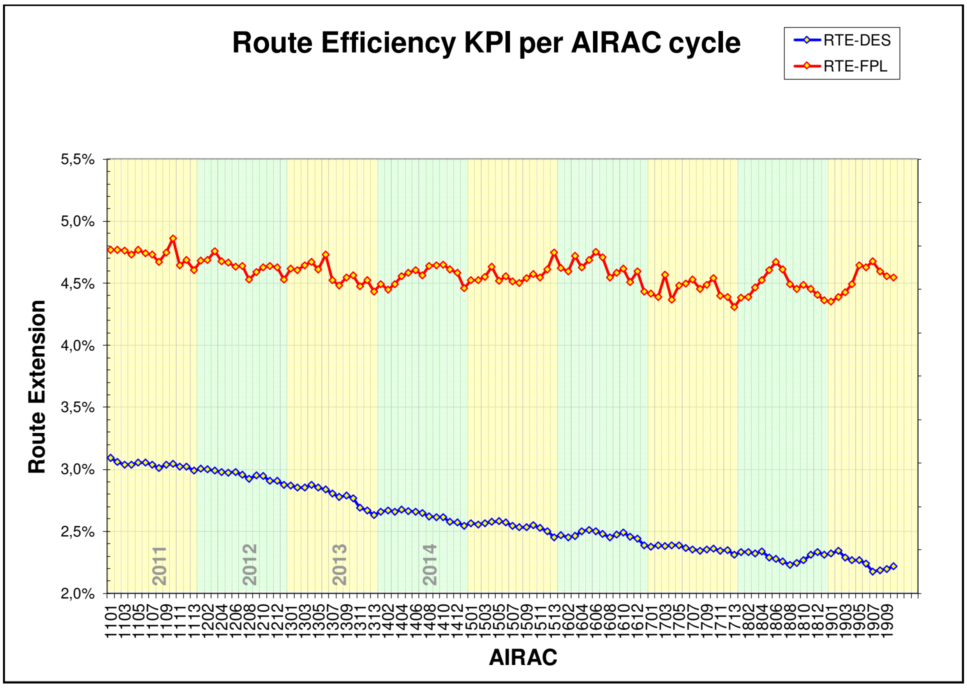


Figure 4 : *Flight efficiency (DES, FPL) evolution per AIRAC cycle*

The graph below shows the evolution per AIRAC cycle of the two main efficiency indicators RTE-DES and RTE-FPL in relation to the RTE-RAD indicator between January 2012 and 9 October 2019. *(Note: inclusion of new measurements will be done as soon as all data will become available)*

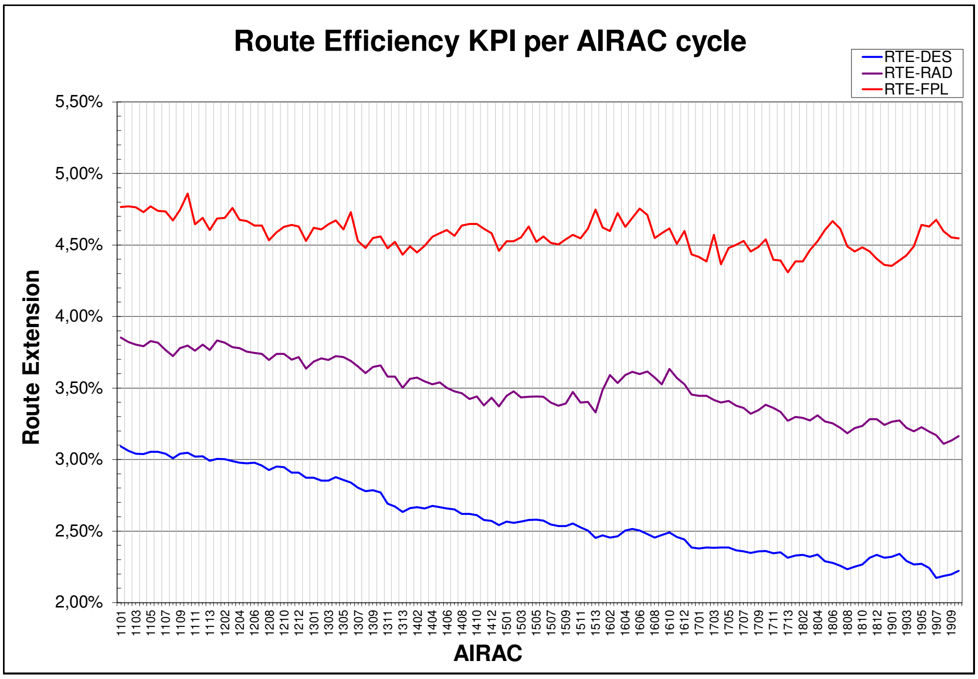


Figure 5 : *Flight efficiency (DES, RAD, FPL) evolution per AIRAC cycle*

The difference between the three indicators (DES, FPL, RAD) clearly indicate that additional efforts must be made to further improve the efficiency of airspace utilisation and to ensure that the indicator based on the latest filed flight plan/ FPL and the RAD indicator follow similar to the airspace design indicator/ DES.

3.4.1 EVOLUTION OF RTE-DES AND RTE-FPL INDICATORS

The current data indicates that, the average yearly route extension due to airspace design was reduced between 2009 and 9 October 2019 by 1.21 percentage points (1.20 in AIRAC 1909). The evolution of the airspace design indicator is on the right path and the contributions of the airspace design projects are key for improving flight efficiency.

The current data indicates that, the average yearly route extension based on the last filed flight plan was reduced between 2009 and 9 October 2019 by 0.36 percentage points (same in AIRAC 1909).

The difference between the airspace design indicator and the last filed flight plan indicator was 1.45 percentage points in 2009 and was 2.30 percentage points in October 2019 (2.29 in AIRAC 1909).

The current data indicates that the route extension due to airspace design went slightly up to 2.22% in October 2019 (2.20 in AIRAC 1909).

The current data show that the route extension based on the last filed flight plan went down to 4.55% in October 2019 (same in AIRAC 1909).

3.4.2 EVOLUTION OF RTE-RAD INDICATOR

As shown in Figure 3 above the impact of the RAD decreased by 0,56 percentage points in October 2019 compared with 2012. More actions will be required to further diminish this impact and to ensure that the target set in the Network Manager Performance Plan is reached.

3.4.3 BENEFITS AND ASSESSMENT OF RTE-DES AND RTE-FPL EVOLUTIONS

Caused by the airspace enhancements implemented during AIRAC 1910 as well as the airspace design improvements put in place since AIRAC 1810 in connection with changing traffic patterns and structure, the **additional, potential savings offered** during AIRAC cycle 1910 amount to 72 000 NMs flown less compared with the equivalent AIRAC cycle in 2018. This translates into 432 tons of fuel, or 1 440 tons of CO2, or € 360 000.

Based on the last filed flight plan indicator and as a result of the airspace design improvements put in place since AIRAC 1810 in connection with changing traffic patterns and the airline choices made, the **actual losses calculated** during the AIRAC cycle 1910 amount to 516 000 NMs flown more compared to the equivalent AIRAC cycle in 2018. This translates into 3 096 tons of fuel, or 10 320 tons of CO2, or € 2 580 000.

While airspace design benefits continue to be implemented the **network performance/ flight efficiency** improves not to the maximum potential, as it is effected by various crisis and closed areas in adjacent airspace(s). The losses recorded on the last filed flight plan data during AIRAC cycle 1910 compared to the equivalent AIRAC cycle in 2018 are mainly because of different flight planning/ airline choices, traffic composition, weather, industrial actions and/or regulations applied due to capacity problems in the network.
The special events recorded for this AIRAC cycle are as follows:

- **Overall crisis situation in Ukraine** that lead a significant number of flights to avoid the entire Ukrainian airspace moving to neighbouring countries (Turkey, Bulgaria, Romania, Poland, Slovakia, etc.); as a result of the Ukrainian crisis adjacent ACCs/ UACs were on-loaded by Far Eastern traffic avoiding the Ukraine airspace leading to increased route extensions.
- **Closure of Libyan airspace** for over flights due to the security situation required procedures with impact on flight efficiency for traffic between Europe and Africa re-routed via Egypt and Tunisia (while traffic to/from Tunisia remains suppressed since the terrorist attack on 26 June 2016.)
- **Avoidance of Syrian airspace** due to the security situation with impact on flight efficiency for traffic between Europe and Middle East and Asia re-routed via Iran and Turkey with additional impacts on the flows from the Ukrainian crisis.

- **Staffing** and **capacity issues** in Karlsruhe UAC, Marseille ACC and Wien ACC required regulations, with impact on flight planning route extension.
- **Staffing issues** in Athens ACC and Brussels ACC required regulations, with impact on flight planning route extension.
- **Capacity issues** in Budapest ACC, Langen ACC and Zagreb ACC required regulations, with impact on flight planning route extension.

Figure 6 below shows the airspace unavailability and closed areas in October 2019.

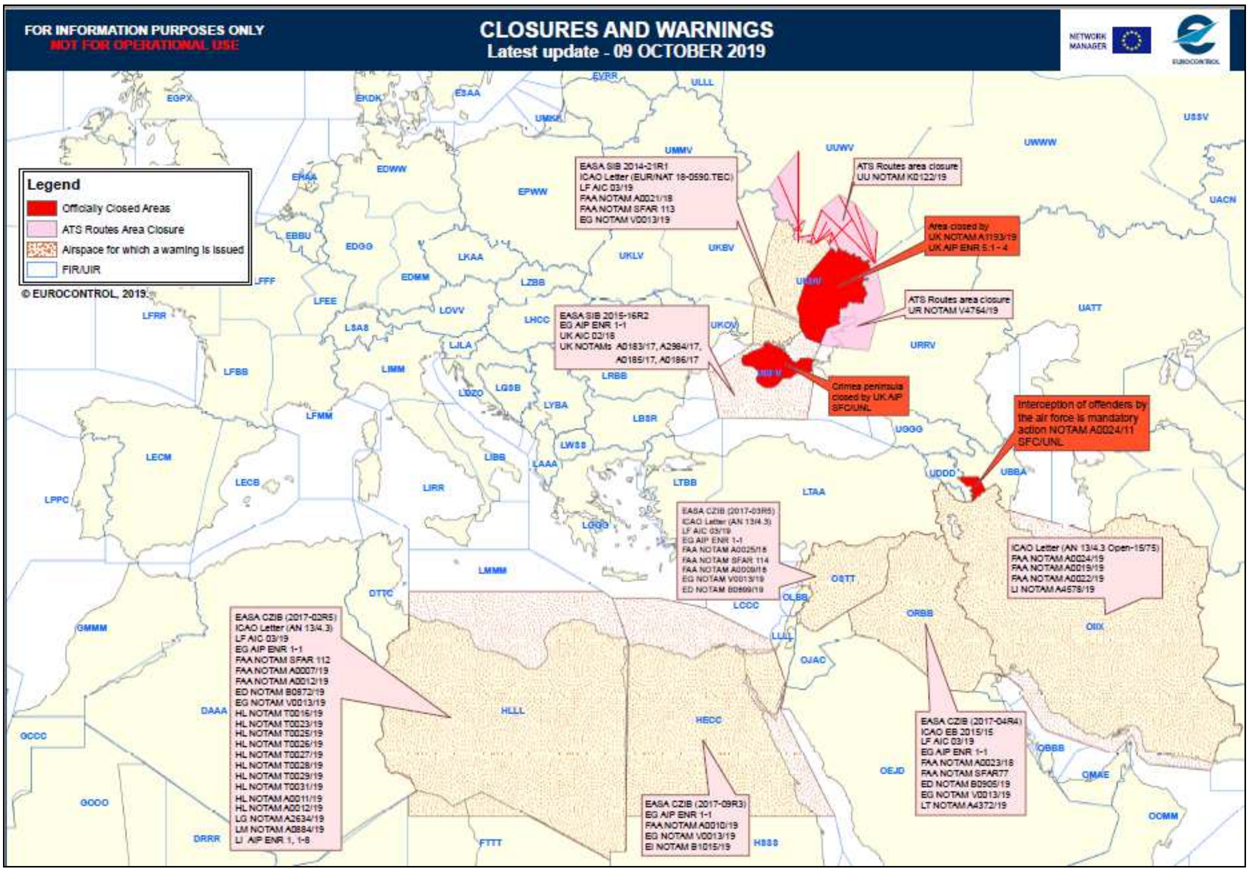


Figure 6 : *Airspace unavailability and closed areas in October 2019*

Figure 7 and Figure 8 below visualise the impact of the mentioned airspace unavailability (see Figure 6 above) by comparing traffic flows in October 2013 and October 2019.

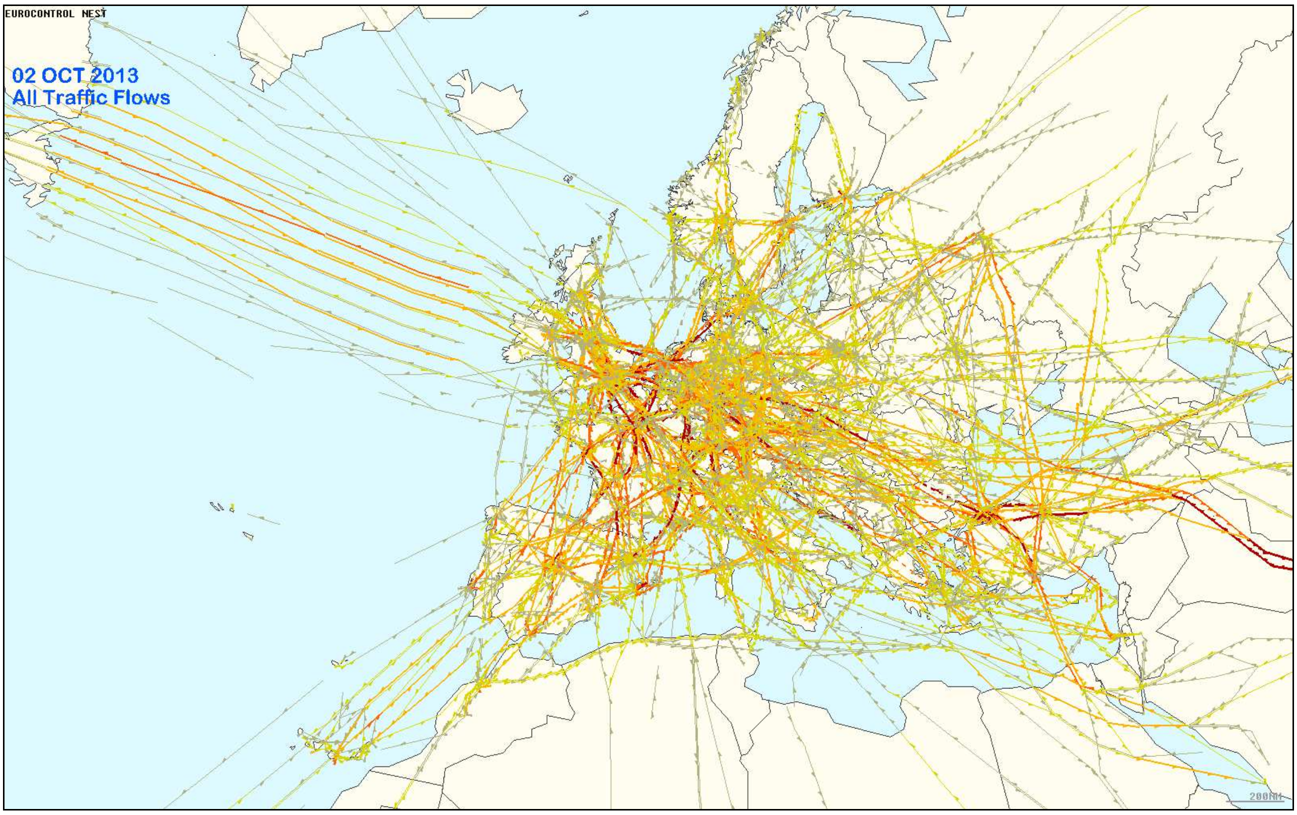
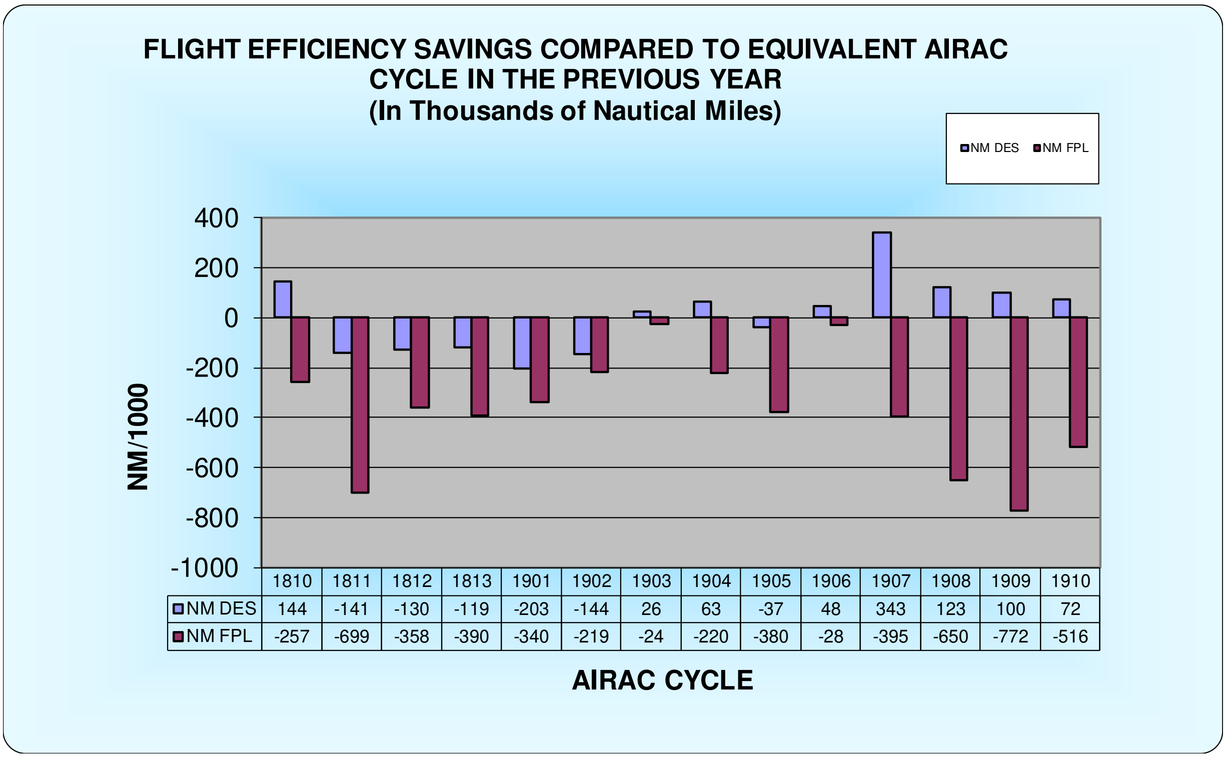


Figure 7 : *24h traffic situation Wednesday, 2 October 2013 (flight planned)*

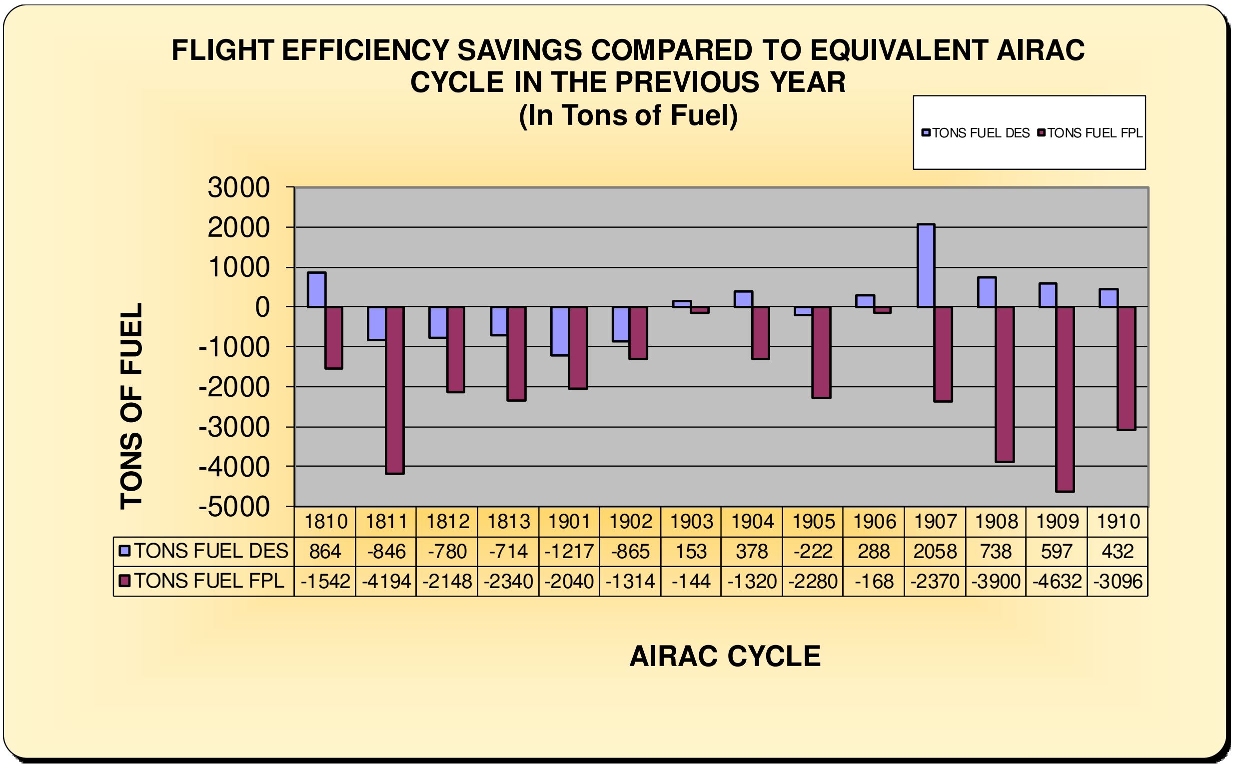
Figure 8 : *24h traffic situation Wednesday, 2 October 2019 (flight planned)*

The comparison between the potential (RTE-DES) and actual (RTE-FPL) savings/ losses related to the different parameters is depicted in the graphs below (see Figure 9 to Figure 12).



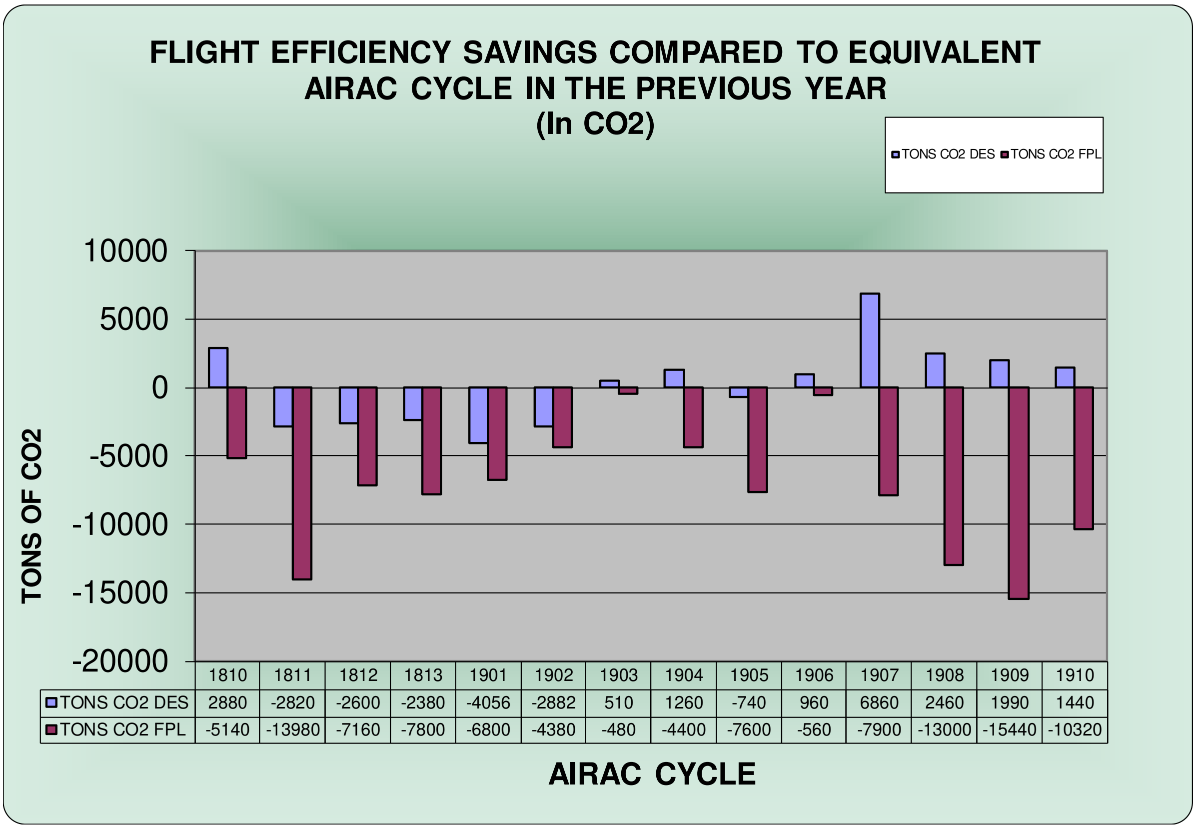
	1810	1811	1812	1813	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
NM DES	144	-141	-130	-119	-203	-144	26	63	-37	48	343	123	100	72
NM FPL	-257	-699	-358	-390	-340	-219	-24	-220	-380	-28	-395	-650	-772	-516

Figure 9 : *Flight Efficiency savings/ losses in Thousands of Nautical Miles*



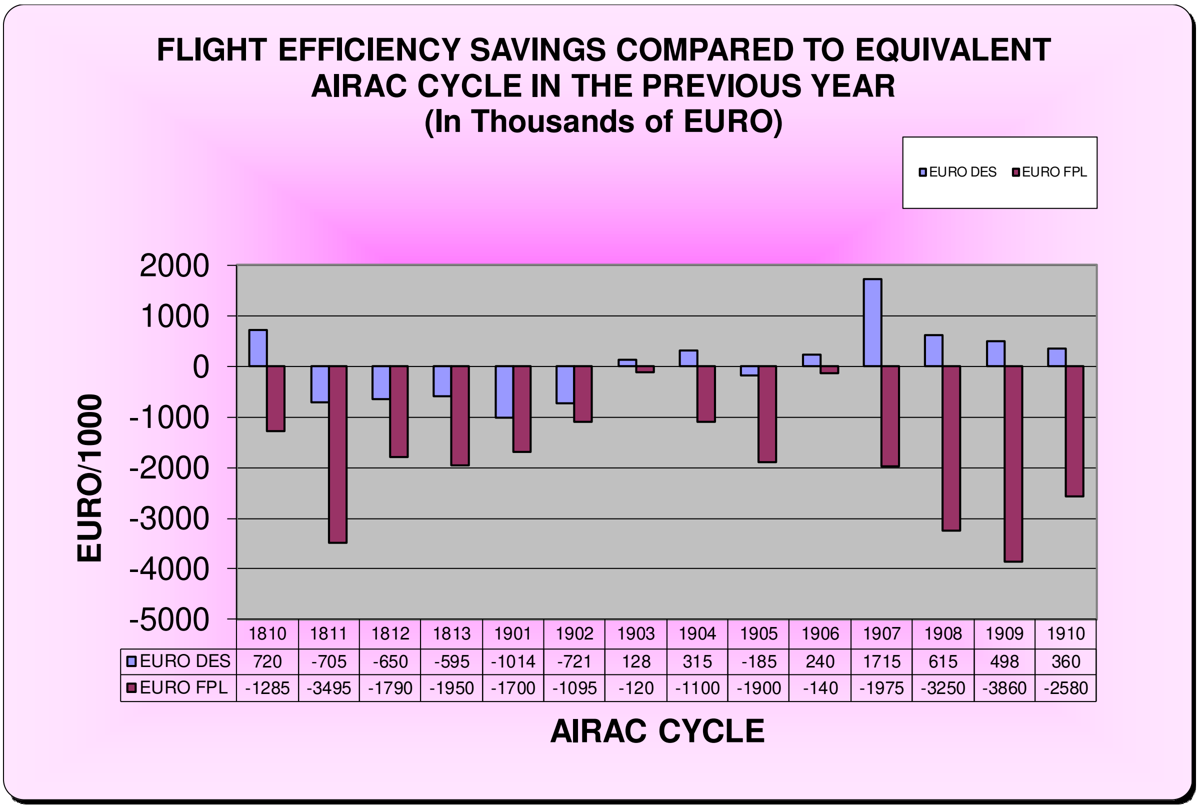
	1810	1811	1812	1813	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
TONS FUEL DES	864	-846	-780	-714	-1217	-865	153	378	-222	288	2058	738	597	432
TONS FUEL FPL	-1542	-4194	-2148	-2340	-2040	-1314	-144	-1320	-2280	-168	-2370	-3900	-4632	-3096

Figure 10 : *Flight Efficiency savings/ losses in Tons of Fuel*



	1810	1811	1812	1813	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
TONS CO2 DES	2880	-2820	-2600	-2380	-4056	-2882	510	1260	-740	960	6860	2460	1990	1440
TONS CO2 FPL	-5140	-13980	-7160	-7800	-6800	-4380	-480	-4400	-7600	-560	-7900	-13000	-15440	-10320

Figure 11 : *Flight Efficiency savings/ losses in CO2*



	1810	1811	1812	1813	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
EURO DES	720	-705	-650	-595	-1014	-721	128	315	-185	240	1715	615	498	360
EURO FPL	-1285	-3495	-1790	-1950	-1700	-1095	-120	-1100	-1900	-140	-1975	-3250	-3860	-2580

Figure 12 : *Flight Efficiency savings/ losses in Thousands of EURO*

Note: For additional information on ATFM delay that could impact on network efficiency consult the NM Monthly Network Operations Reports, accessible via:
https://www.eurocontrol.int/library?f%5B0%5D=product%3A807

3.4.4 BENEFITS AND ASSESSMENT OF RTE-RAD EVOLUTIONS

The decrease of the RAD indicator is due to improvements in airspace design and the removal of RAD restrictions. More actions will be required to ensure that the KPI based on the RAD indicator follows trends similar to the airspace design indicator/ DES as well as to ensure that the target set in the Network Manager Performance Plan is reached.

3.5 FREE ROUTE AIRSPACE/ FRA EVOLUTION

FRA implementation leads to improved flight efficiency and has an economic impact in terms of fuel savings as well as notable environmental impact on climate in terms of reduced CO2 emissions.

Full Free Route Airspace implementation has taken place in Armenia, Austria, Bosnia & Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Ireland, Italy, L'viv ACC, Malta, Moldova, Portugal, Serbia/ Montenegro, Slovenia, Slovakia, Sofia ACC, The former Yugoslav Republic of Macedonia, Warsaw ACC and all Scandinavian States (Denmark, Finland, Norway, Sweden) & Baltic States (Estonia, Latvia, Lithuania).

Partial implementation during night, weekend or based on permission to flight plan direct/ DCT between a defined set of points has already been provided in a large number of European states (see Figure 13 below).

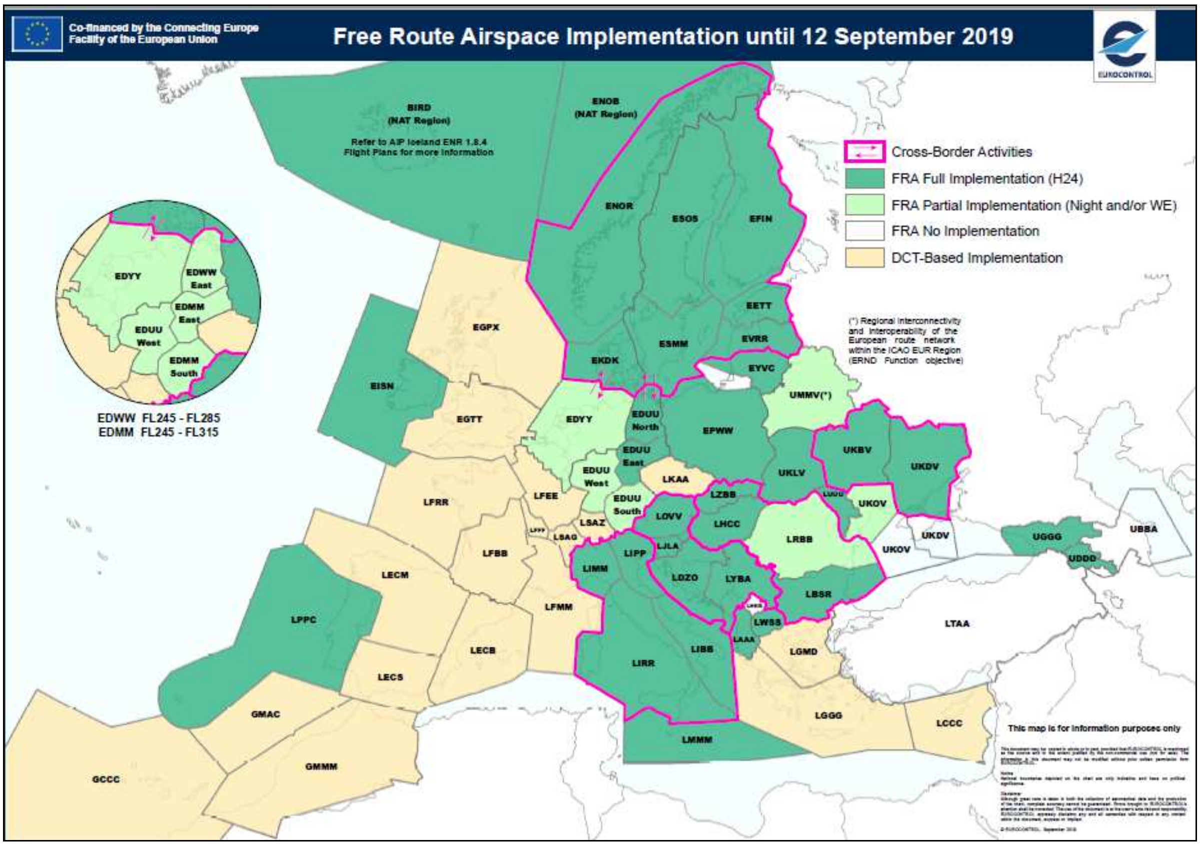


Figure 13 : *Airspace implementation towards Free Route Airspace*

The following Area Control Centres/ ACCs in Europe have already progressed with partially Free Route Airspace Implementation: Athinai ACC, Beograd ACC, Brest ACC, Bremen ACC, Brindisi ACC, Bodo ACC, Bordeaux ACC, Bucuresti ACC, Budapest ACC, Chisinau ACC, Finland ACC, Geneva ACC, Karlsruhe UAC, Kobenhavn ACC, Kyiv ACC, Lisboa ACC, Ljubljana ACC, London ACC, L'viv ACC, Maastricht UAC, Madrid ACC (SAN and ASI sectors), Makedonia ACC, Malmo ACC, Malta ACC, Marseille ACC, Milano ACC, Minsk ACC, Munich ACC, Nicosia ACC, Nipro ACC (excl. Sector DVB), Norway ACC, Padova ACC, Praha ACC, Prestwick ACC, Reykjavik ACC, Reims ACC, Riga ACC, Roma ACC, Shannon ACC, Skopje ACC, Stockholm ACC, Tallinn ACC, Tbilisi ACC, Tirana ACC, Vilnius ACC, Wien ACC, Zagreb ACC and Zurich ACC (see Figure 13 above).

3.6 ASM PERFORMANCE ASSESSMENT

The FUA indicators are calculated separately for two CDR basic categories: CDR1 and CDR2.

Those CDRs, defined as CDR1/2, CDR1/3 or CDR2/3, are measured over time for each category and their individual contribution is added to either CDR1 or CDR2 type reports. The method allows us to align the calculation of the indicators with the way the CDRs' availability is presented in AUP/UUP, Lists ALPHA and BRAVO respectively.

The values for each AIRAC cycle were aggregated by measuring the indicators on a daily basis. By doing this, we could differentiate between each CDR1/2, CDR1/3 or CDR2/3 routes, categorising CDR1 and CDR2 routes with the appropriate metrics.

We measure airspace utilisation with the Rate of Aircraft Interested (RAI) and Rate of Aircraft using CDRs (RAU). The first indicator shows which flights could potentially use available CDRs; the second one indicates the actual CDR uptake.

3.6.1 CDRs OVERVIEW

Figure 14 below is an ECAC map of published CDRs per AIRAC cycle for the last AIRAC cycle of Q3 in 2019 (AIRAC 1909). It is worth noting the diversity of CDR categories: this is one of the consequences of establishing night routes; they are often CDR1 at night but CDR3 by day.
A similar situation may be observed for CDR1/2: CDR2 by day and CDR1 by night and at weekends.

One element that adds a significant level of complexity to the calculation of ASM performance indicators is the published timesheet or activation schedule of various categories of CDRs. The way this schedule is described in the national AIP varies significantly from State to State, and especially so when referring to the switchover from winter/summer, week/weekend and day/night time.

Regarding the basic definition of CDRs, CDR is mostly made up of several elementary segments, spatially sequenced. There are cases when this definition was modified for various reasons, leading to a change in the number of CDRs counted, although the number of elementary segments remained the same.

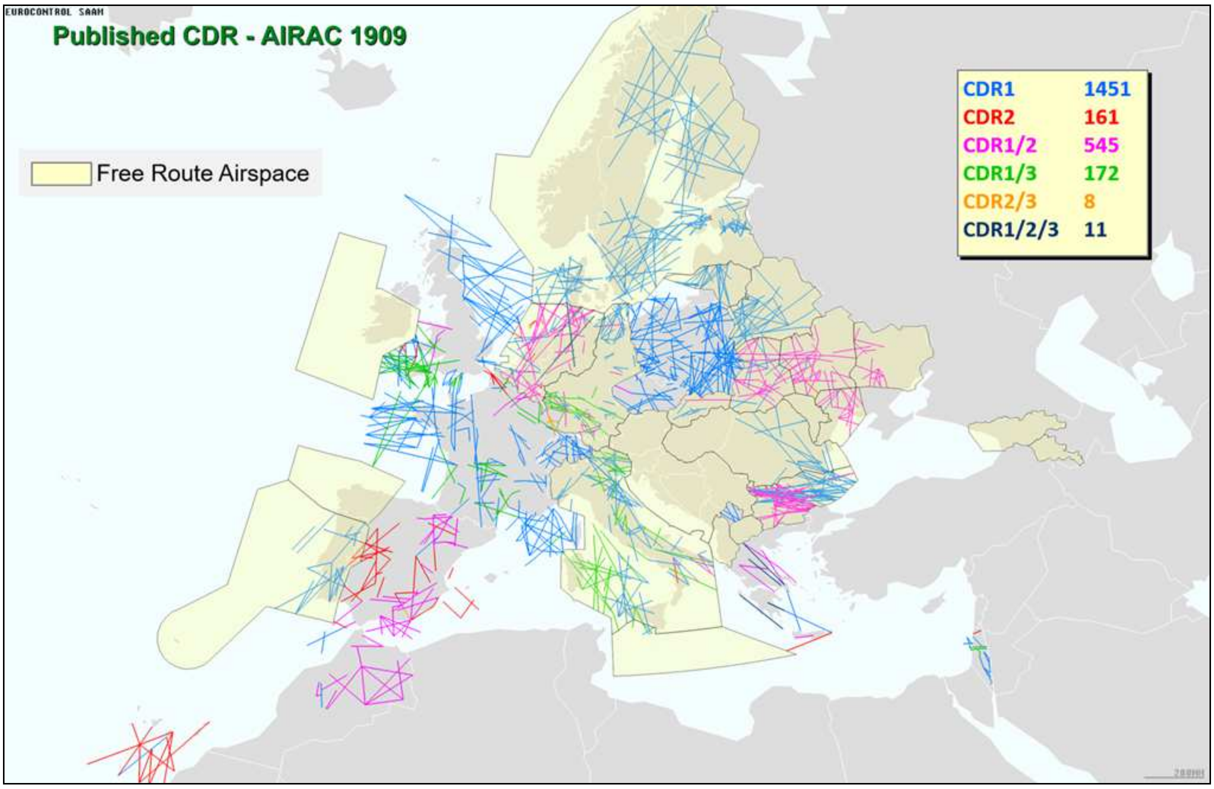


Figure 14 : *ECAC map of published CDR1, CDR2, CDR1/2, CDR1/3 and CDR2/3 for the last AIRAC (1909) of Q3 in 2019.*

"Flights interested" represents the maximum number of flights that could potentially have made use of an available CDR in their flight plans. The absolute numbers averaged daily for an AIRAC cycle in Q2 and Q3 2019 are:

- 32719 (Q2) and 36891 (Q3) daily average IFPS flights
- 7083 (Q2) and 6343 (Q3) interested flights on CDR1s
- 4664 (Q2) and 7557 (Q3) effectively planning at least one CDR1 segment
- 2176 (Q2) and 3480 (Q3) actually flying on at least one CDR1 segment
- 284 (Q2) and 494 (Q3) interested flights on CDR2s
- 183 (Q2) and 325 (Q3) effectively planning at least one CDR2 segment
- 132 (Q2) and 224 (Q3) actually flying on at least one CDR2 segment

3.6.2 FUA PERFORMANCE INDICATORS

Figure 15 and Figure 16 below show the aggregated values of the three FUA KPIs[5] (RoCA, RAI and RAU) for Q2 and Q3 in 2019 compared with the same period in 2018 for CDR1 and CDR2.

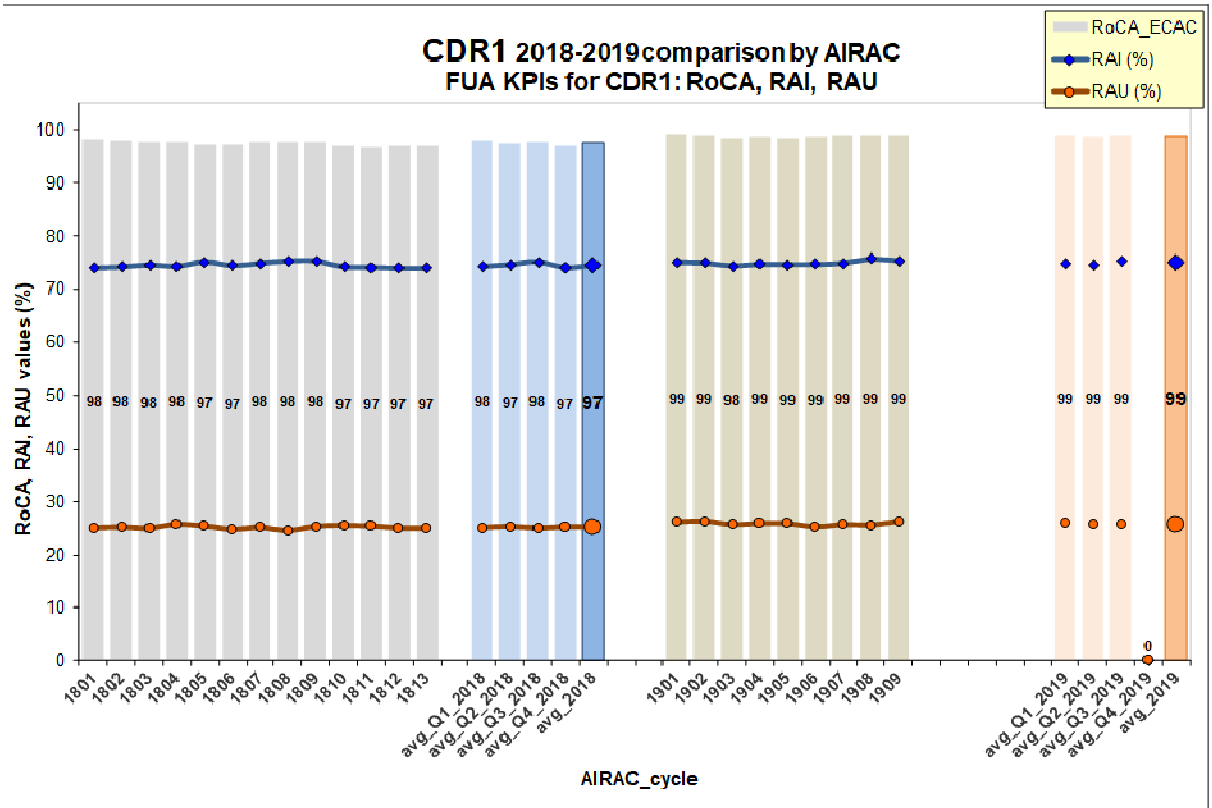


Figure 15 : *CDR1 RoCA, RAI and RAU per AIRAC cycle for Q2 and Q3 in 2019 compared with 2018*

The CDRs' availability is quantified by the RoCA indicator (rate of CDR availability – as defined by the ASM Handbook) and represents (in percentage terms) the ratio of the total opening of the CDR segment, no matter which category, in a given period.

[5] **RoCA** (Rate of CDR availability) represents the average CDR availability according to the EAUP/EUUP related to a given time period. RoCA (in %) is calculated as the ratio of the total CDR segment opening, whatever category it may be, to the total time of days (D).

RAI (Rate of Aircraft Interested) represents the average number of aircraft interested in filing flight plans to take advantage of an available CDR. RAI represents (in %) the ratio of the number of flights planned on an available CDR to the number of potential users of this CDR.

RAU (Rate of Actual Use of CDR) represents the average number of aircraft having actually used an available CDR during a given time period. RAU represents (in %) the ratio of the number of flights (AU) having actually used an available CDR to the number of potential users (PU) of this CDR.

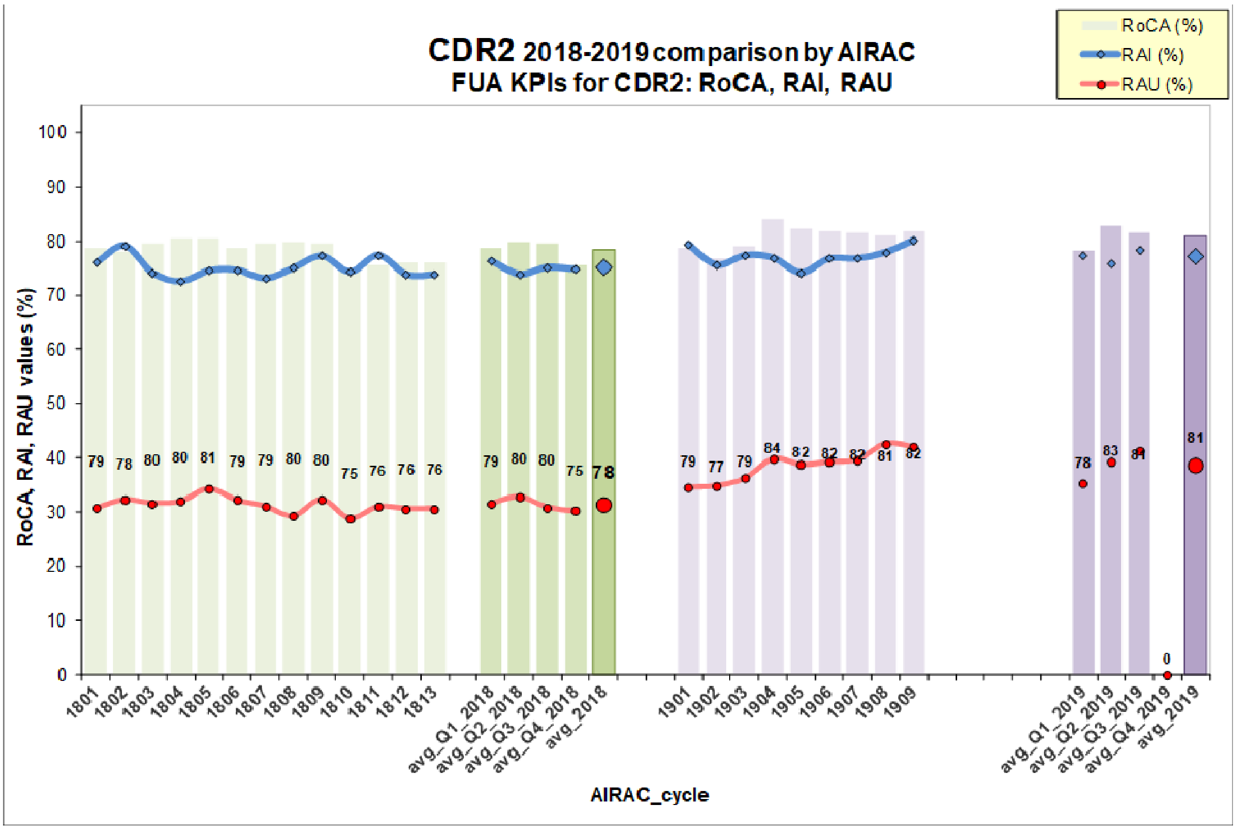


Figure 16 : *CDR2 RoCA, RAI and RAU per AIRAC cycle for Q2 and Q3 in 2019 compared with 2018*

The situation for CDR1 shows a very high value of RoCA, 99% in both Q3 and Q2. RAI has a relatively constant value (75%) in Q2 and Q3 2019. The same applies to the RAU (26%) for all three quarters Q1, Q2 and Q3 in 2019. For CDR1 the RoCA value is slightly higher in Q2 and Q3 2019 (83% and 81%) compared to 2018.

For CDR2, the RoCA value is slightly higher in Q2 and Q3 of 2019 (83% and 81%) compared with 2018. RAI increased from 76% to 78% (Q2 and Q3). Between Q2 and Q3, the RAU increased from 39% to 41%.

In March 2019 a major change in the European airspace started with the implementation of Free Route Airspace in Germany. As a consequence a significant number of CDRs are losing their importance as more direct routeing options become available. With the continuous expansion of Free Route Airspace developments the impact on FUA KPI only calculated for CDRs will be less relevant for the airspace availability and usage within ECAC.

The indicators characterising the utilisation of the available CDRs are represented by the Rate of Aircraft Interested (RAI) for flight planning using available CDRs and the Rate of Actual Use of CDR (RAU).

The AIRAC variation is shown in Figures 15 and 16 above, whereas averaged values (% of flights) for Q2 and Q3 2019 which could have planned (interested flights) on CDR1 and CDR2 are shown in Figures 17, 18, 19 and 20 below.

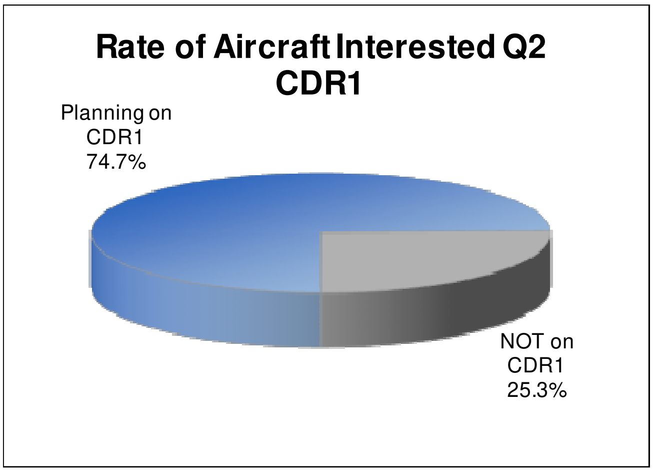


Figure 17 : *RAI for CDR1 averaged for Q2 2019*

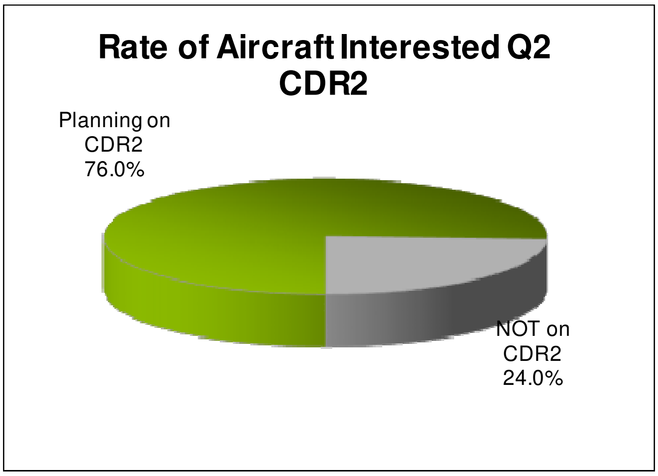


Figure 18 : *RAI for CDR2 averaged for Q2 2019*

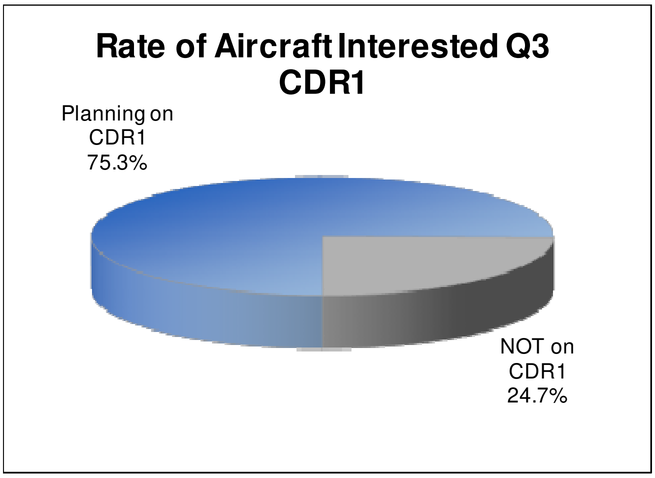


Figure 19 : *RAI for CDR1 averaged for Q3 2019*

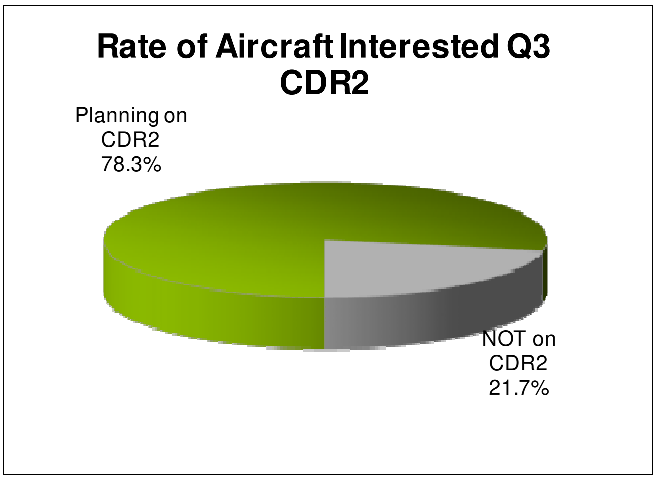


Figure 20 : *RAI for CDR2 averaged for Q3 2019*

Figures 17 and 19 show the average percentage of flights for the second and third quarter 2018, which could potentially have made use of CDR1 in their flight plans (interested flights). The percentage of flights interested on CDR2s is shown in figures 18 and 20. For CDR1, around 25% of flights did not make use of a CDR1, so missing an opportunity. The percentage of flights missing planning opportunities on CDR2s is slightly lower, with a figure between 22% and 24%.

The figures that follow represent the percentage of flights averaged for each quarter (Q2 and Q3) which actually flew on a CDR. Figures 21 and 23 show the actual use of CDR1; Figures 22 and 24 represent the CDR2 actual usage in percent.

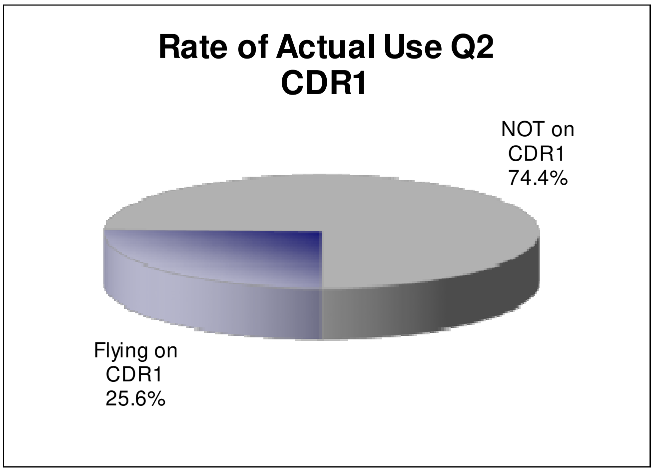


Figure 21 : *RAU for CDR1 averaged for Q2 2019*

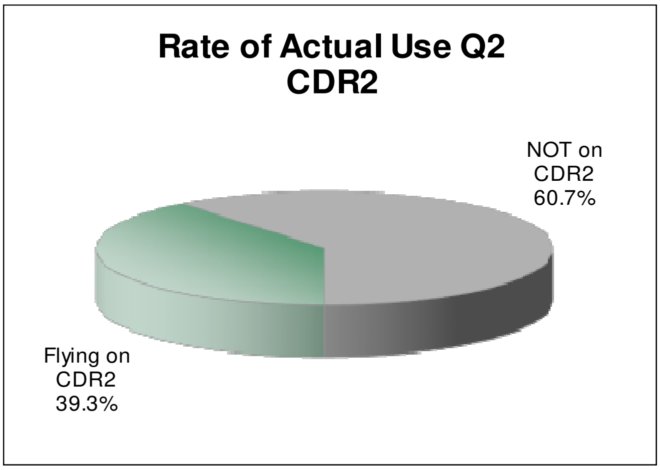


Figure 22 : *RAU for CDR2 averaged for Q2 2019*

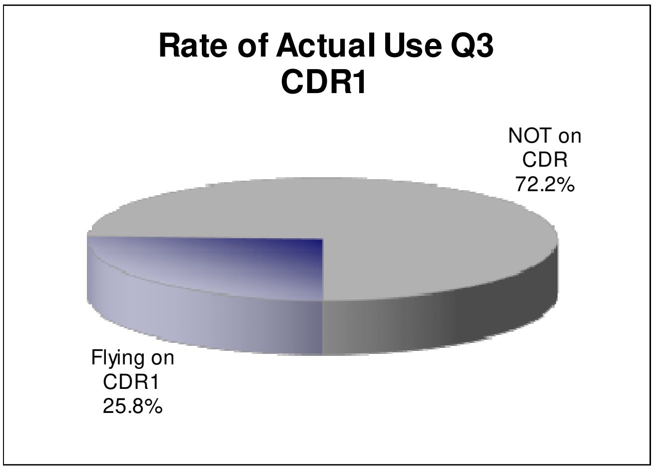


Figure 23 : *RAU for CDR1 averaged for Q3 2019*

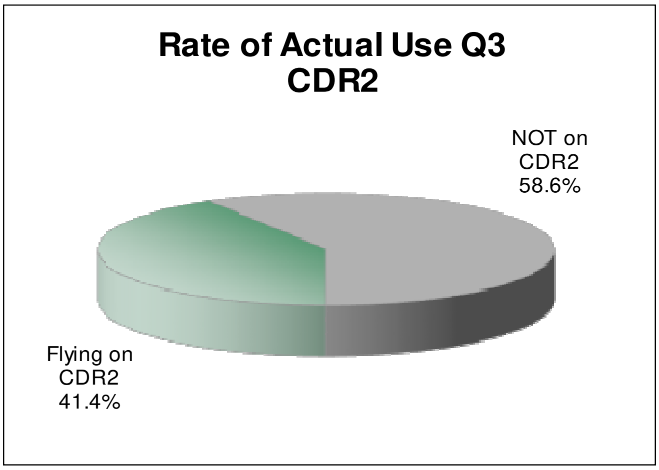


Figure 24 : *RAU for CDR2 averaged for Q3 2019*

The data originated from NM data warehouse, the utilization of FIND together with other internally developed tools allowed to get a comprehensive view of the evolution for the major FUA KPIs used for ASM performance reporting. The increased complexity of CDR environment requires additional effort to carry out the adequate assessment.

The analysis shows that the CDR1s offer a much better stability and predictability than CDR2s in terms of airspace management. CDR1s have a positive impact on flight planning and the usage of the available opportunities in terms of airspace management.

There is still a gap between the options offered by CDRs availability and the actual flight planning activity: 74-75% for CDR1s and 76-78% for CDR2s. There is a positive trend compared to the past, planning on CDRs improved with the constant increase of traffic demand.

The results show a realistic stable value of RoCA for CDR1 and CDR2 over the nine AIRAC cycles in 2019.

Lower values of RAU compared with RAI over this summer have different causes. One reason is the re-orientation of traffic flows for the summer season. Another is the new opportunities created by Free Route Airspace regions and the implementation of a significant number of plannable DCTs, which in many cases offer better route options than the available CDRs. Additionally, during this summer a significant number of flights were strategically re-routed towards areas with less capacity problems.

Statistics are planned on RSAs KPI values early 2020, as soon as the NMIR ASM Dashboard passes its validation phase and becomes available for reporting purposes.

Note: The ASM Performance Assessment for ***Q1 2019*** *is included for AIRAC 1904.*

The ***ASM Performance Assessment for 2019****, providing a full picture of the whole year 2019 as well as the performance (behaviour of the aircraft operators and the efficiency of the ANSPs managing the airspace) in the first, second, third and fourth quarter/* ***Q1 - Q4 2019*** *(AIRAC 1901 – AIRAC 1913) will be included in the ERNIP Implementation Monitoring Report for AIRAC 1913.*

ANNEX A: DETAILED LIST OF PROJECTS IMPLEMENTED 12 SEPTEMBER 2019

The following table presents detailed information about each of the improvement proposals developed within the RNDSG and implemented during the relevant AIRAC cycle. The description of the proposals is based on the information available from different sources (e.g. AOs, ANSPs and EUROCONTROL). The table includes:

- Proposal ID number:
  A reference number to identify each proposal allowing tracing at which RNDSG it was initiated.
- Project Name:
  Dedicated Name and Phase/ Step of the improvement project.
- Description:
  A detailed description of the planned improvement proposal.
- Objective:
  A brief description of the purpose of the enhancement measure.
- Implementation Status:
  The implementation status defined as Proposed, Planned, Confirmed or Implemented.
- Project Group:
  The Functional Airspace Block Group (FAB), Regional Focus Group (RFG), Sub-Group (SG) or any other Project Group(s) involved directly or indirectly by the proposed enhancement measure.
- Project Category:
  The nature of the proposed enhancement measure defined through Project Categories (e.g. Airspace Structure, ATC Sectors, ATS Routes, Free Route Airspace, TMA etc.).
- States and Organisations:
  The States and/or Organisations involved directly or indirectly by the proposed enhancement measure.
- Originator(s):
  The States and/or Organisations who have originated the proposal.
- Comments:
  The conditions and/or pre-requisites, which have to be met in order to implement the proposal or any other relevant comment(s).

<u>Note:</u> The list of implemented changes for this AIRAC cycle does not claim to be complete. For the correctness and verification of the relevant aeronautical information consult official State AIP publications.
The data from this document should not be used for operational purpose

	Proposal ID: 97.024	Impl. Status:	State(s) & Org.	Comments:
1.	**Project Name: Route Re-designation France** **Description:** To re-designate ATS route segment **N869** ROMAK - NARAK as **Z869**. **Objective:** To rationalise the existing ATS route designators in France FIR in order to further facilitate flight planning and release RDs.	Implemented 12 SEP 2019 **Project Category:** Route Redesignation	FRA **Originator(s):** FRA	
	Proposal ID: 89.020c	**Impl. Status:**	**State(s) & Org.**	**Comments:**
2.	**Project Name: Unnamed Significant Points** **Description:** To remove from ENR 3 in AIP unnamed significant points. **Objective:** To further improve the AIP airspace data publication.	Implemented 12 SEP 2019 **Project Category:** AIP ATS Routes	FRA **Originator(s):** EUROCONTROL	• only 3 points remain (1 to remove and 2 to rename) • WEF 12 SEP 2019, 2 points (GIGOT, TACRO) have been introduced **Related proposals:** • 89.020a • 89.020b • 97.010
	Proposal ID: 97.027	**Impl. Status:**	**State(s) & Org.**	**Comments:**
3.	**Project Name: DVOR Removal Poject** **Description:** To extend NIGIT 1H STAR for EGLL back to BEDEK and redesignated as BEDEK 1H. **Objective:** To further improve STAR routes for EGLL.	Implemented 12 SEP 2019 **Project Category:** ATS Routes	GBR **Originator(s):** GBR	Requered due to a latent safety risk where the NIGIT 1H STAR is showing FL140 at NIGIT but that Standing Agreement is FL140 BEDEK the STAR is extended back to BEDEK.
	Proposal ID: 97.028	**Impl. Status:**	**State(s) & Org.**	**Comments:**
4.	**Project Name: CTA Expansion** **Description:** To extend the: a. Strangford CTA to 13 portions to replace the airspace currnently partly defined by airways L10, N34, P6, P600 and P620 FL195 and below; b. Irish Sea CTA 1 FL195 - FL255 to define the airspace above the Strangford CTA and Class G airspace. **Objective:** To allow UK RNAV routes to correctly promulagted in ENR 3.3.	Implemented 12 SEP 2019 **Project Category:** AIP Airspace Structure ATS Routes	GBR **Originator(s):** GBR	This will allow L10, N34, P6 and P620 to be transferred from ENR 3.1 to ENR 3.3 in the UK AIP.

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ANNEX B: ACRONYMS AND TERMINOLOGY

1. The following ISO-3 coding of States is used in the column *States and Organisation*:

ALB	Albania		IRN	Iran, Islamic Republic of
ARM	Armenia		IRQ	Iraq
AUT	Austria		ITA	Italy
AZE	Azerbaijan		LBY	Libyan Arab Jamahiriya
BEL	Belgium		LTU	Lithuania
BGR	Bulgaria		LUX	Luxembourg
BIH	Bosnia and Herzegovina		LVA	Latvia
BLR	Belarus		MAR	Morocco
CHE	Switzerland		MDA	Moldova, Republic of
CYP	Cyprus		MKD	North Macedonia
CZE	Czech Republic		MLT	Malta
DEU	Germany		MNE	Montenegro
DNK	Denmark		NLD	Netherlands
DZA	Algeria		NOR	Norway
EGY	Egypt		POL	Poland
ESP	Spain		PRT	Portugal
EST	Estonia		ROU	Romania
FIN	Finland		RUS	Russian Federation
FRA	France		SRB	Serbia
GBR	United Kingdom		SVK	Slovakia
GEO	Georgia		SVN	Slovenia
GRC	Greece		SWE	Sweden
HRV	Croatia		SYR	Syrian Arab Republic
HUN	Hungary		TUN	Tunisia
ISL	Iceland		TUR	Turkey
IRL	Ireland		UKR	Ukraine

MUAC	Maastricht UAC			

2. *BLUMED FAB, DANUBE FAB and FAB CE proposals referenced in proposal number box are coded with a unique identification number abbreviated as BM or DN or CE, respectively, following by four digits (XXXX) (example BM0001 or DN0001 or CE0001).*

3. *The content of each proposal is an indication of State's intention to implement the relevant airspace improvement but don't represent a copy of any official publication. For the correctness and verification of the relevant aeronautical information consult official State AIP publication. The data from this document should not be used for operational purposes.*

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EUROCONTROL