



Network Manager
nominated by
the European Commission



SDM Workshop – DATALINK -

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17th January 2019

Monitoring the Datalink Performances.



European Aviation Safety Agency

Report

**Technical issues in the implementation of Regulation
(EC) No 29/2009
(Data Link)**

Version 1.1

In response to the EC letter ref. DG MOVE E2/GO/cd
D(2013), Ares(2013)3672917

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VDL Mode 2 Measurement, Analysis and Simulation Campaign

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ELSA Consortium and Programme Partnership	

Abstract
Two batches of investigations, measurements and simulations comprised of data from more than 400 revenue and measurement flights, analysis of 3 million air/ground exchanges, 700 hours of simulation representing 350,000 flight hours, and stress testing of common avionics configurations requiring about 50 days of cumulated live sessions have been conducted. Together with several workgroup sessions, and special investigations into possible protocol optimisations, MF deployment options and technical details for MF network operation, they provided a wealth of observations and findings. These form the foundation for a set of concrete recommendations for improving the performance and robustness of the data link deployment based on the current regulation and implementation rule, and also for the next phases of data link deployment. Improvements seen during the execution of the programme, as well as simulations of scenarios, confirm that performance can be brought to an acceptable operational level even in the short term assuming continued engagement and contributions from all stakeholders.

EASA report (2014)

ELSA Study (June 2016)

- EUROPEAN COMMISSION
- Postpone the rule (2015/310) dates by 5 years
 - Feb 2013-> Feb 2018 (New aircraft and ANSPs)
 - Feb 2015-> Feb 2020 (retrofit except exemptions)
- Tasked:
 - SDM-> Implementation Program (ATN-B1)
 - EASA -> New regulation (RMT)
 - EUROCAE -> Update the standard
 - **EUROCONTROL/NM -> Monitor the performances**

NMB#18 (13,04,2017) approved the new tasks related to the new function:

- Support DLS implementation and reinforce the RFF
 - New tasks coordinated with the RAFT (National Freq. Managers)
- Perform the “pan-European DLS performance monitoring and spectrum coordination function, infrastructure performances impact and monitoring function”
 - Multi-frequency, network performance status and impact.
- Further support the implementation of the DLS Recovery Plan in coordination with SDM and EASA
 - ‘Best in class’, white list, links to flight plans, performance feedback to standards groups.
- Report all findings in conjunction with EC, SDM and EASA
 - Share information, make proposals for improvements



Datalink performances (Sources)

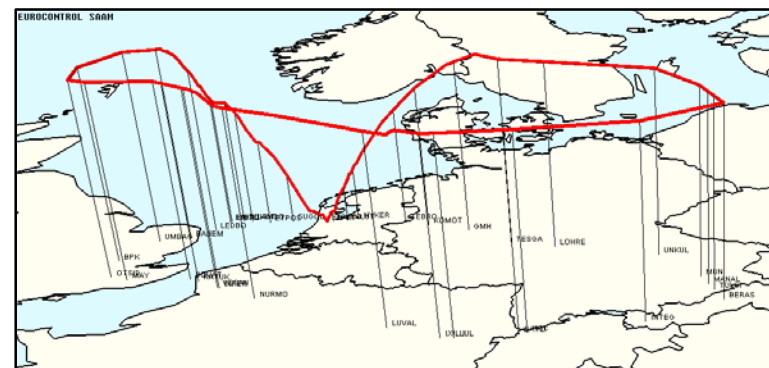
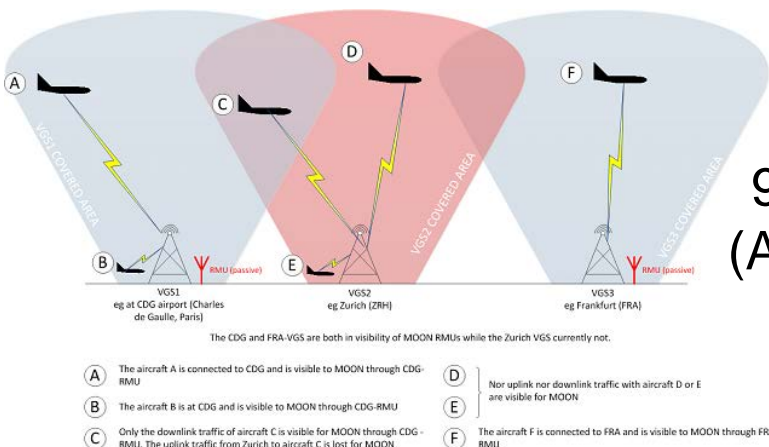


OPS data
(14 EUR Centres)

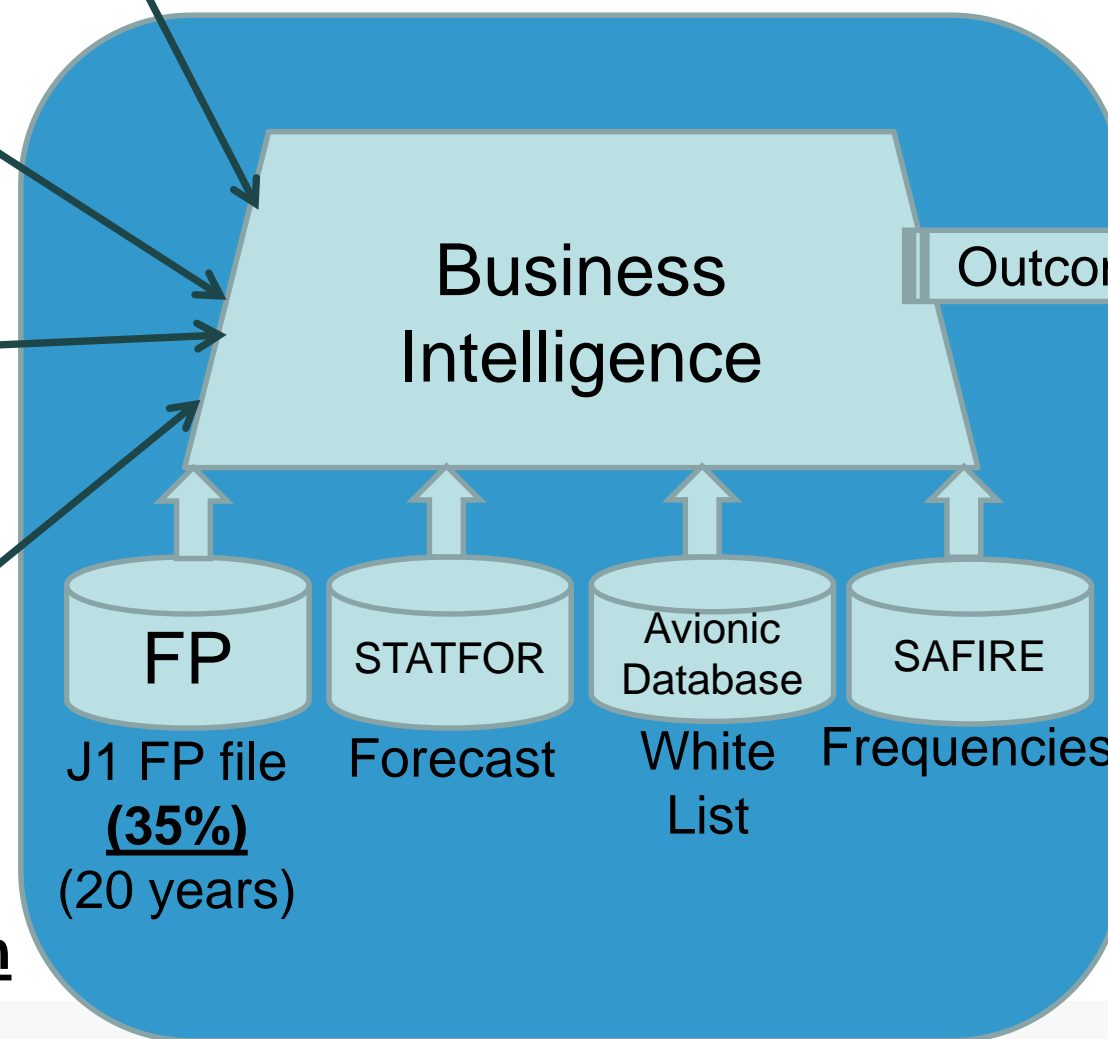


<https://ext.eurocontrol.int/WikiLink>

Moon
9 stations
(AOC/ATM)



Monitoring
Flight
(46% equipped)

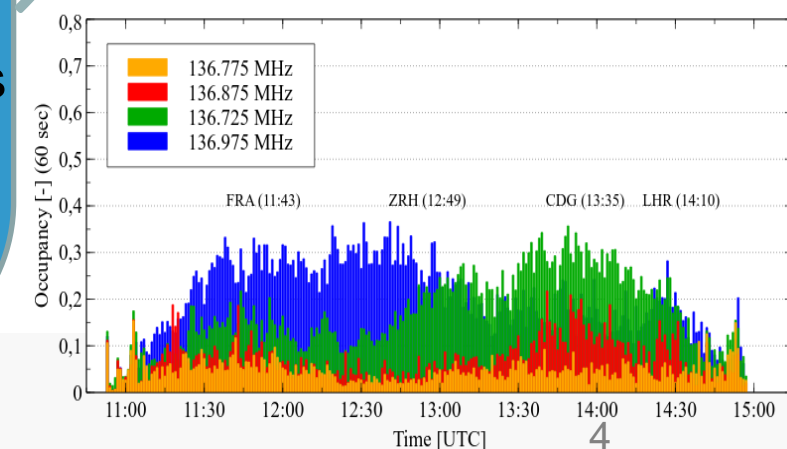


FP
J1 FP file
(35%)
(20 years)

STATFOR
Forecast

Avionic
Database
White
List

SAFIRE
Frequencies



ARINC
SITA

New: CSP logs
-> AOC/ATS traffic evolution



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Current developments



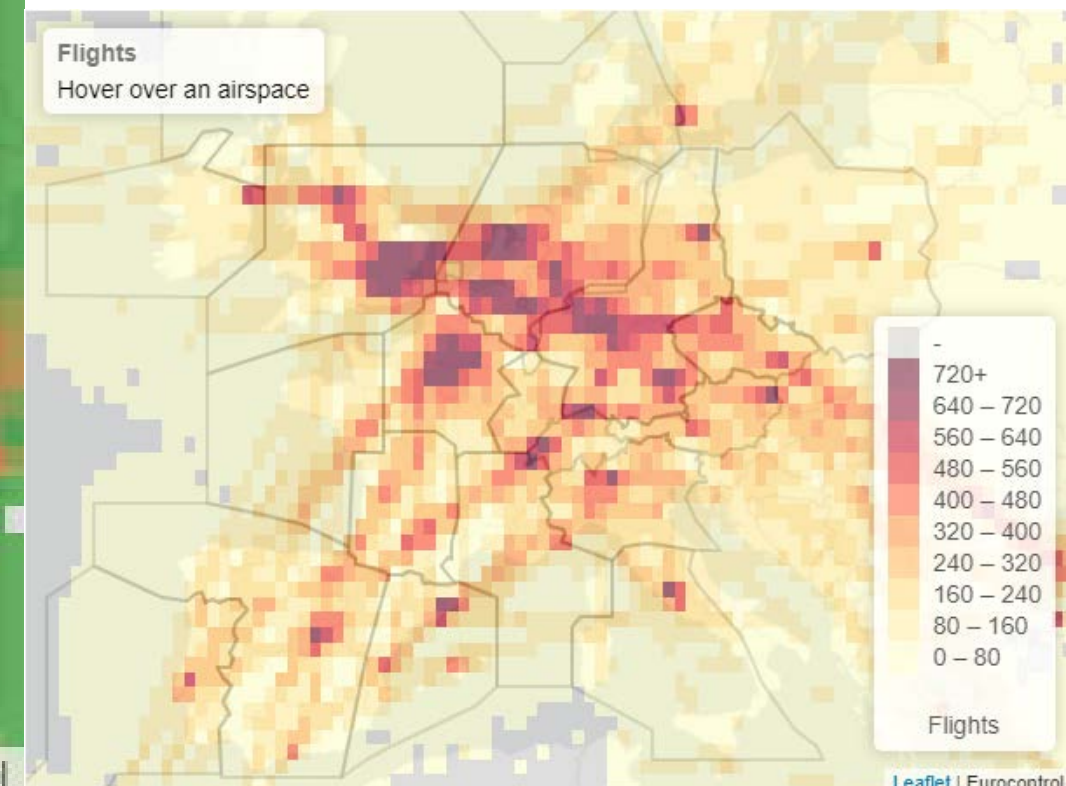
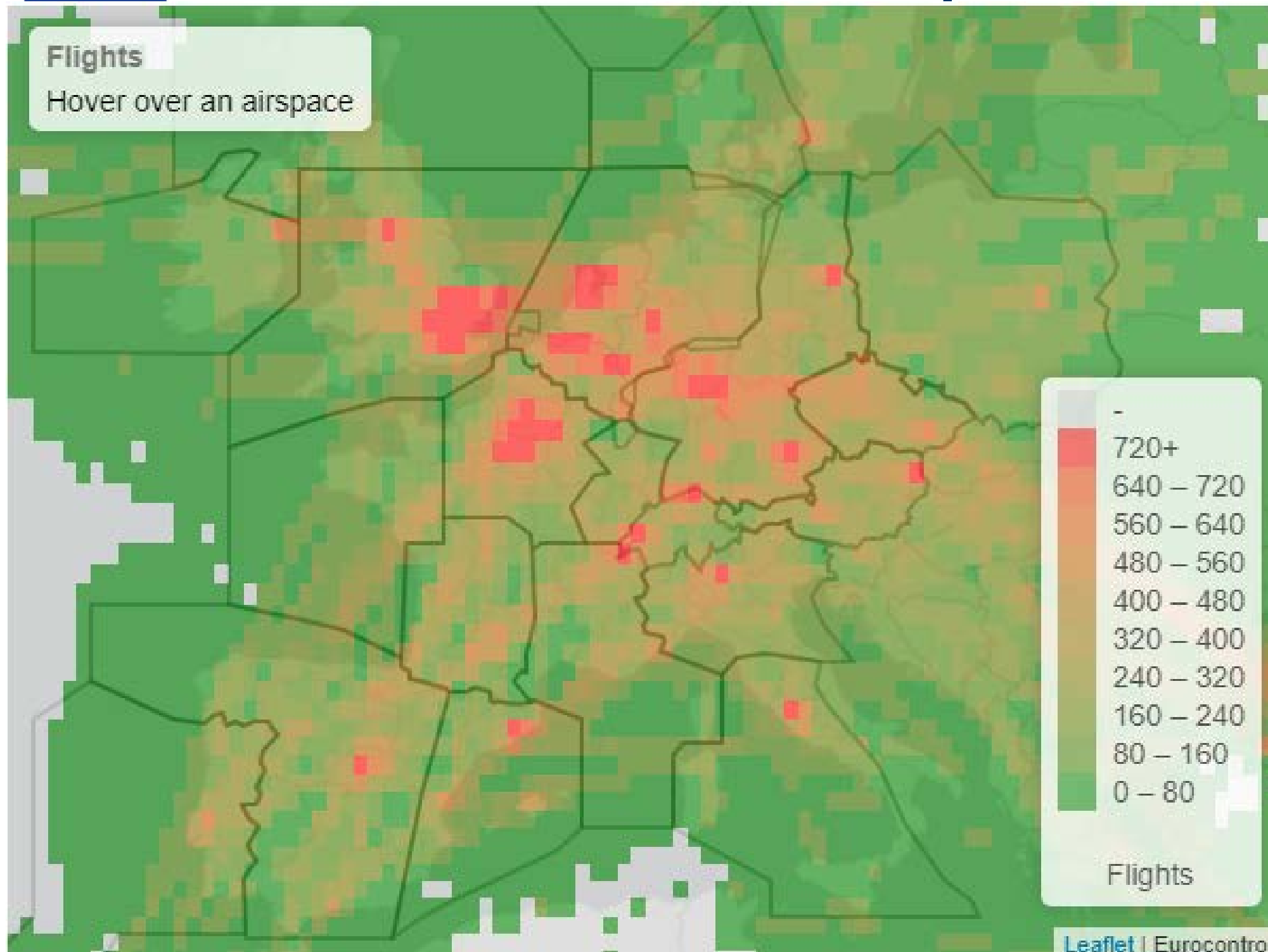
New Heat maps

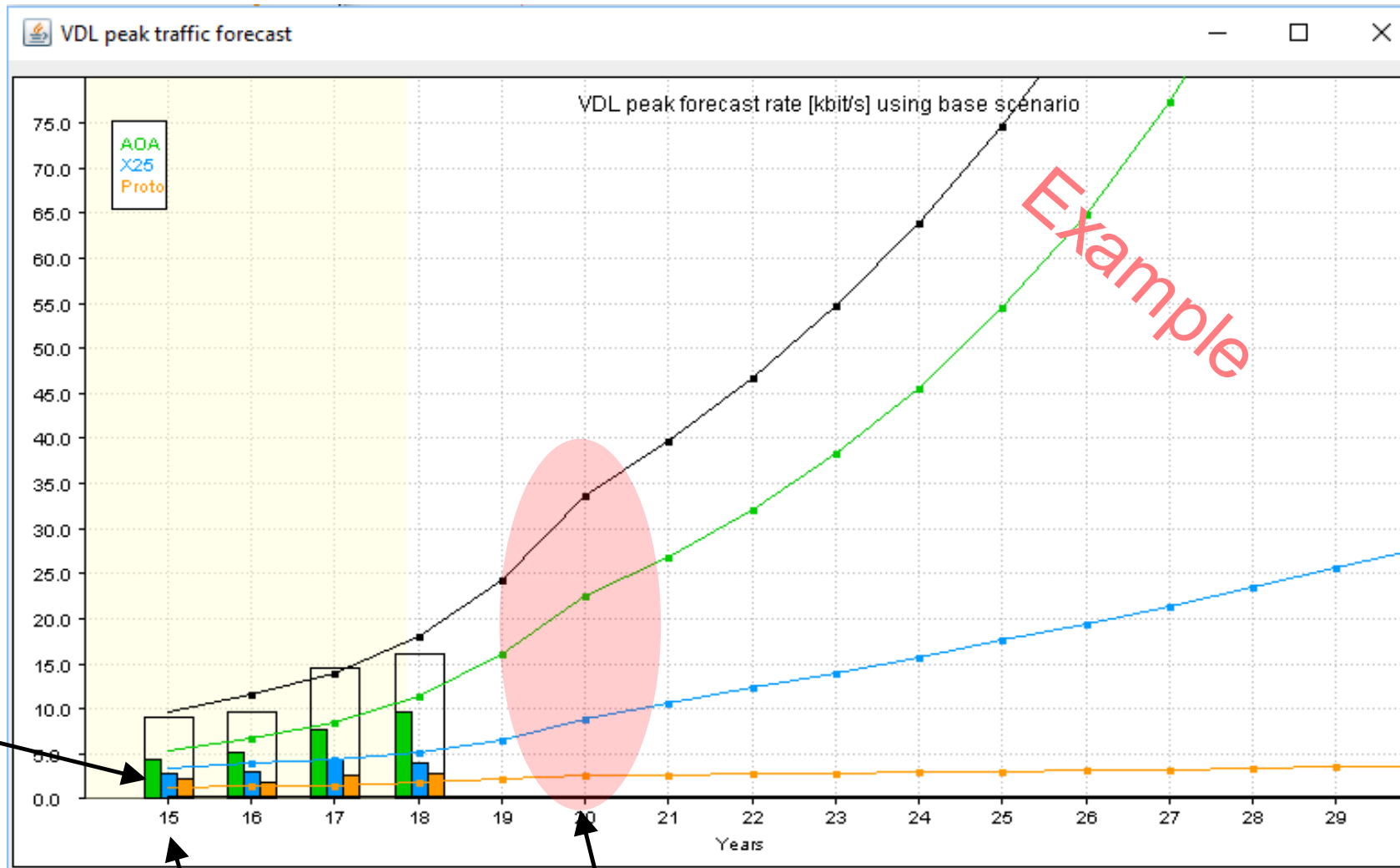
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Showing:

- PA
- Round trip delays
- Etc....

Planned for Spring 2019



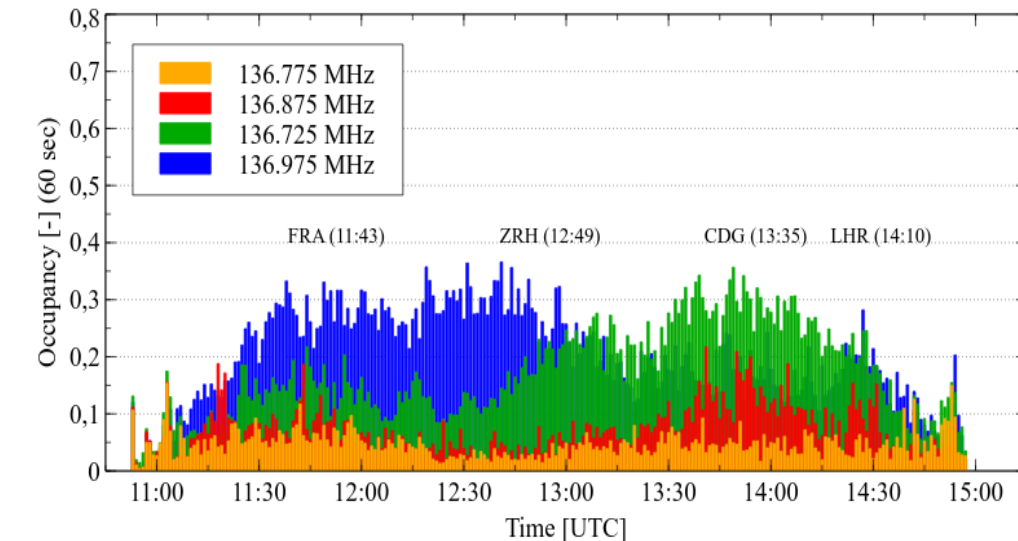
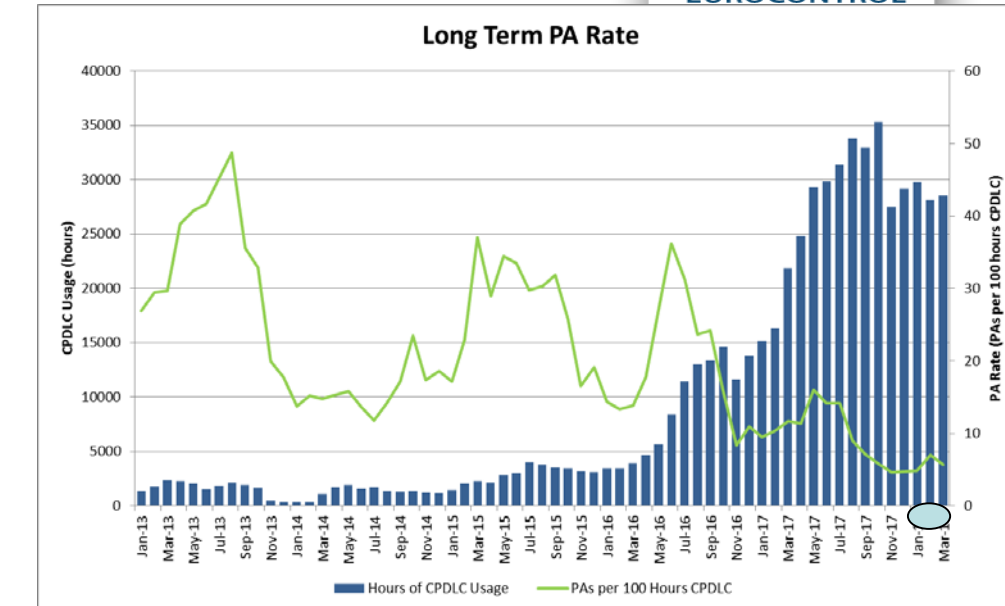


Measured data

Change of VDL equipped a/c rate : 75% in 2020 has been reached

Forecasting starts with 2015 results

737MAX -> more than 1TB in one flight -> 4 years VDL-2





DPMF- Current tasks

- Mandated by the European Commission (Approved by NMB)
 - VDL-2 / ATN-B1- (2) performance monitoring (cf. EC mandate).
- Other monitoring activities related to datalink performances
 - ICAO: Performance Based Monitoring (Oceanic airspace)
 - Performed by ANSPs (Ex. NATS)
 - ICAO asked NM to collect the monitoring data and take action for non compliant aircraft.
 - Others:
 - SATCOM service performances
 - ATS-B2?



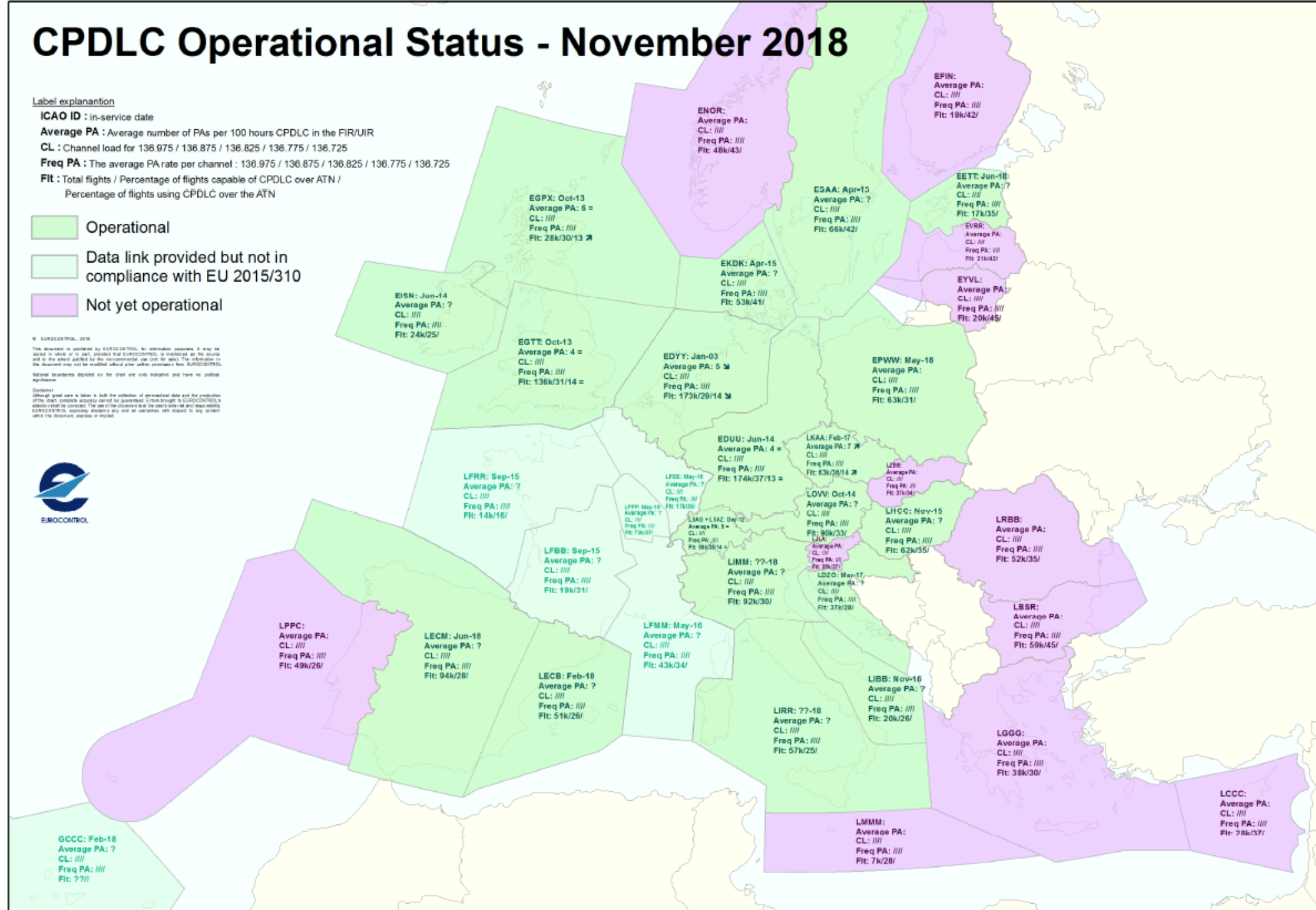
Other DATALINK related tasks

- Run Interop testing (EEC platform, E2E), for all stakeholders (28 last years)
- Support ICAO (Standards and Panels)
- Support: R&D (SESAR, ATS-B2), Rules Making Tasks (EASA), SDM (CEF-Call)
- Contribute to the CEF 2017 DLS IP1
- Radio Frequency Function to find more VDL-2 channels (cf. WP2.5)





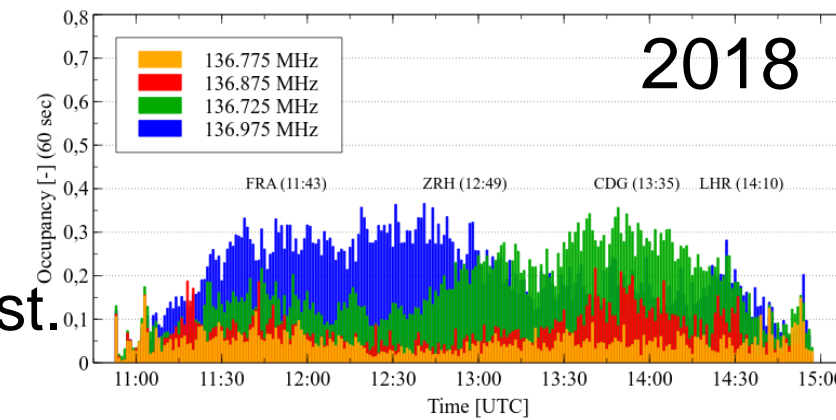
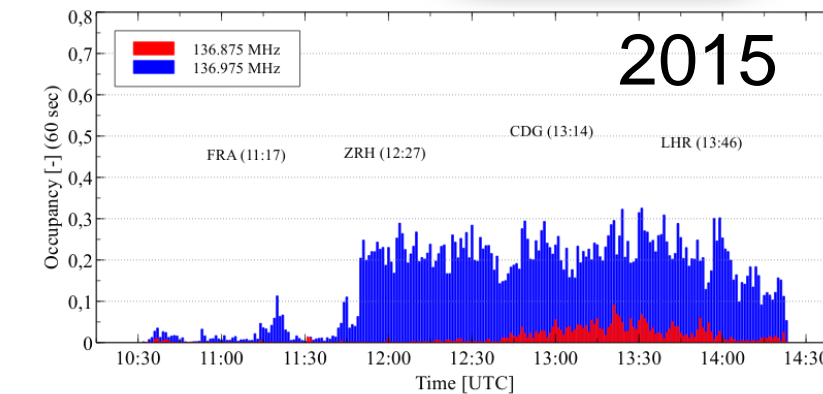
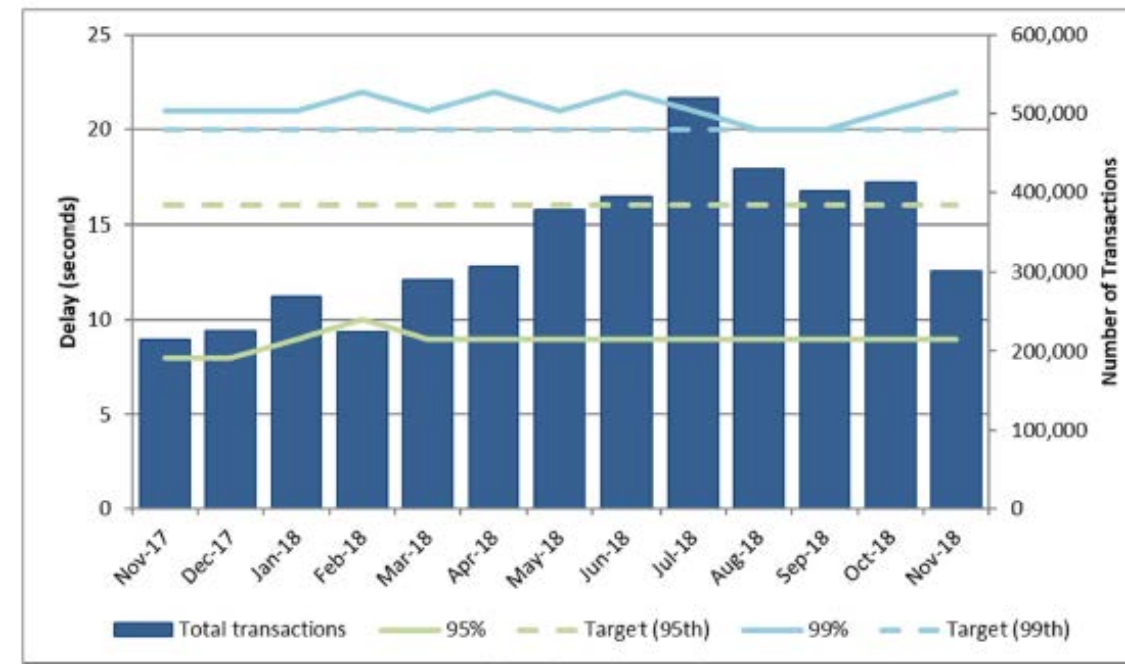
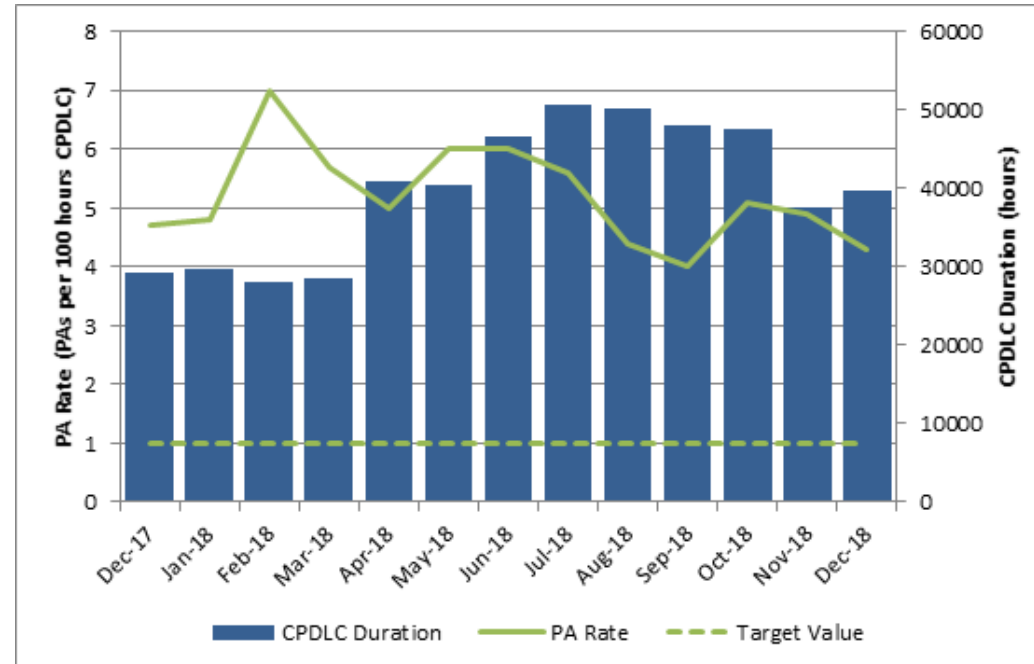
Outcome of the performances monitoring





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Outcome of the performances monitoring



- Much better network performances: PA<5 and 3400 aircraft on the white list.
 - Multi frequency deployed by operators (ANSPs and CSPs)
 - Aircraft upgraded with much better performing avionics
- Medium/poor performances in certain areas
 - Under investigations
- Voice Interferences still observed (-> RFF)
- Good cooperation with EC/EASA/SDM/EUROCAE

Questions?

