INTERNATIONAL CIVIL AVIATION ORGANIZATION West and Central Africa Office Twenty Second Meeting of the SAT

Paris, France (07-09 June 2017)

Agenda Item 4 . 2: Performance Based Navigation (PBN) in the South Atlantic

RNP4 in the EUR/SAM corridor °°°°°° REDUCTION OF LONGITUDINAL SEPARATION MINIMUM FOR RNP10 (Aircrafts equipped) AND RNP4 IMPLEMENTATION PLAN

(Presented by ASECNA SENEGAL)

SUMMARY

This paper presents a proposal on RNP4 implementation with the application of routes lateral segregation instead of vertical segregation on the same route.

I- Introduction

The reduction of the longitudinal separation from 8ONM (10min) to 30NM (05min) for RNP4 equipped aircraft will increase the airspace capacity and thus allow the aircraft to have their optimal flight levels. With regard to the implementation of RNP4, we propose as first step lateral segregation rather than vertical segregation.

II- Discussion

1. Statistics of RNP 4 equipped aircraft in Dakar Oceanic FIR

- Traffic statistics in Dakar Oceanic in June 2016 reveals an average of **68, 57%** RNP4 aircraft equipped in the EUR/SAM corridor.

- Traffic statistics in Dakar Oceanic from July to December 2016 also shows **89%** of ADS_C and **92%** of CPDLC equipped aircraft.

- It can be noticed that:
    - Boliviana (BOV), Edelweiss (EDW), Brasilian Air Force (BRS), Azura (AZU) are neither equipped ADS-C nor CPDLC.

- Portugal (TAP) and Argentina (ARG) are equipped but most of the time they don't log on with Dakar ACC.
- Some flights are only ADS-C equipped but not CPDLC or vice versa; for example some Royal Air Maroc (RAM) and Argentina (ARG) flights.

2. Proposal for RNP4 implementation

In accordance with Doc 4444 in Chapter 5 paragraph 5.4.2.9.2, we propose in order to apply RNP4: – The creation of two unidirectional RNP4 routes in the corridor between which one RNAV/RNP10 route will be inserted in order to offset the aircraft RNP4 losses capacity; - The reduction of time longitudinal separation from 10 minutes to 05 minutes with Mach Number Technique so as to take into account the speed of following aircraft; - Coordination revisions regarding estimates will be from 3 to 1 minute.

3. In case of degraded situations

- HF frequencies will be used as back-up in case of CPDLC failure.
- In case of ground or on board deficiency (loss of ADS-C/ CPDLC capacity), aircraft on RNP 4 routes will be rerouted to RNAV10 tracks and 10 minutes separation with Mach Number Technic (MNT) will be applied.
- In case of general failure, RNP4 operations will be suspended.

4- Advantages and disadvantages of route segregation

4.1 Advantages

- A single standard separation for traffic on the same route
- Increase of airspace capacity
- Reduction of Air Traffic controller (ATC) workload by having more ability to meet pilots' requirements.

4.2 Disadvantages This vertical segregation fits with the concept "most capable, best served" but may lead to the application of different separation standards for the same group of aircraft;

- Therefore, application of both RNAV10 and RNP 4 on the same route will lead to an airspace sectorization that needs more ATC resources;

III/ ACTION BY THE MEETING

The meeting is invited to:

- take note of the information provided in this working paper;
- urge airlines which are not yet ADS-C/ CPDLC equipped and the equipped one but not using CPDLC to do so.
- take into consideration the proposal contained in this paper with the aim of reaching a successful implementation of RNP4 in the EUR/SAM corridor.

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Traffic statistics in Dakar Oceanic FIR from July to December 2016

Month	JULY 2016		AUGUST 2016		SEPTEMBER 2016		OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		Average	
EUR/SAM Traffic	3314		3401		2924		2471		2591		2678		2897	
ADSC/CPDLC	ADS C	CPDLC	ADS C	CPDLC	ADS C	CPDLC	ADS C	CPDLC	ADS C	CPDLC	ADS C	CPDLC	ADS C	CPDLC
Number	3 024	3 096	3 015	3 107	2 625	2 705	2 205	2 289	2 301	2 391	2 400	2 523	**2595**	**2685**
Percentage (%)	91	93	88	91	89	92	89	92	88	92	89	94	**89**	**92**