



Performance Based Communication and Surveillance (PBCS) APPROVAL

PRESENTED BY:

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A350TRI/TRE

**MANAGER TRANSITION & RECURRENT TRAINING, ETHIOPIAN AVIATION
GROUP OCT 2021**

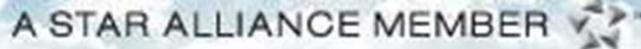
INTRODUCTION

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THE NEW SPIRIT OF AFRICA

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OBJECTIVE

- The objective of this presentation is to highlight for operators, that are in the process of, or are interested in the implementation and approval of PBCS, what they need to do to achieve same.



ABBREVIATIONS

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- PBCS: Performance Based Communication and Surveillance
- PANS-ATM: Procedures for Air Navigation Services – Air Traffic Management
- RCP: Required Communication Performance
- RSP: Required Surveillance Performance
- APAC: Asia and the Pacific



ABBREVIATIONS CONT'D

- NAT: North Atlantic
- PBN: Performance Based Navigation
- RNAV: Area Navigation
- TC: Type Certificate
- STC: Supplemental Type Certificates
- AFM: Aeroplane Flight Manual
- MMEL: Master Minimum Equipment List
- MEL: Minimum Equipment List (Operators)

REFERENCES

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- Annex 6 – Operation of Aircraft
- Annex 11 – Air Traffic Services
- PANS – ATM, DOC 4444
- Global Operational Data Link Manual (Doc 10037)
- PBCS Manual (Doc 9869) and Operational Authorization Guide for PBCS
- FAA Advisory Circular 90 -117
- Transport Canada Advisory Circular 700 - 041

BACKGROUND

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- In 1983 ICAO established a special committee on Future Air Navigation Systems (FANS)
- In 1991, 450 reps from 85 ICAO member states & 13 int'l org gathered in Montreal, Canada to endorse FANS developed by the committee
- In 1996 Aeronautical Mobile Communications Panel recognized the absence of objective criteria



BACKGROUND CONT'D

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- In 1997 The Air Navigation Commission tasked Automatic Dependent Surveillance Panel (ADSP), renamed Operational Data Link Panel – OPLINKP in 2000 to develop ops concept of RCP
- In 2001 OPLINKP produced the document: Concept of Required Communication Performance, ANC requested feedback from ICAO states and got huge support



BACKGROUND CONT'D

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- In 2002, ANC amended the OPLINKP program to develop a Manual on Required Communications Performance (RCP) (DOC9869)
- In 2003, the 11th Air Navigation Conference endorsed recommendations to develop procedures and guidance material on RCP and to investigate areas for further work



BACKGROUND CONT'D

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- In 2005, OPLINKP meeting agreed to include provision for RCP in Annex 6, Annex 11, PANS – ATM (Doc 4444) and the 1st Edition of RCP Manual (Doc 9869)
- In 2007, the ICAO NAT and Asia – Pacific (APAC) regions began collaborating on the global issue of increased use and dependency of commercial communication services for ATC



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- By 2008, the NAT Systems Planning Group (SPG) developed an RCP implementation Plan proposing to mandate RCP in the NAT region by 2015.
- NAT and APAC agreed to develop common guidance material: Global Operational Data Link (GOLD) manual (Doc 10037)
- In 2010, OPLINKP Amended Doc 9869 and renamed it PBCS Manual.



BACKGROUND CONT'D

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- 2nd Edition of the PBCS Manual (Doc 9869) included Required Surveillance Performance (RSP) to provide the operational, functional safety and performance criteria for Surveillance capability.
- In 2014, provisions for PBCS in Annex 6, Annex 11, Annex 15, PANS –ATM (DOC 4444)



PBCS

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- Simply put, $PBCS = PBC + PBS$
- Incorporates concepts of communication (E.g., CPDLC) and surveillance (E.g., ADS-C)
- Such new technologies help in reducing the minimum lateral and longitudinal separation between aircraft, increasing airspace capacity and traffic management efficiency.



PBCS

10 November 2016

Lateral Separation Minimum (LatSM)	COM	NAV	SUR	COM	NAV	SUR	
	30NM	-	RNP4	-	23NM	RCP240	RNP4
50 NM	-	RNP4 or 10	-	50 NM	-	RNP4 or 10	-

Longitudinal Separation Minimum (LongSM)	COM	NAV	SUR	COM	NAV	SUR	
	10 Min	See Note 1	See Note 2	Procedural Position Report	10 Min	See Note 1	See Note 2
50 NM	Direct pilot-controller communications (DCPC: Voice or CPDLC)	RNP10	50 NM		Direct pilot-controller communications (DCPC: Voice or CPDLC)	RNP10	
30 NM	CPDLC	RNP4	ADS-C	5 Min	RCP240	RNP4	RSP180
50 NM	CPDLC	RNP4 or 10	ADS-C	30 NM	RCP240	RNP4	RSP180
				50 NM	RCP240	RNP4 or 10	RSP180

Note1. Suitable to comply with the requirements for position reporting contained in 4.11 of Doc 4444.
 Note2. Navigation aids permitting frequent determination of position and speed.

Separation minimum applicable only to PBCS capable aircraft

As of 10 NOV 2016, certain separation minima started to apply ONLY to A/C meeting RCP and RSP specifications



PBCS APPROVAL

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- Operators need PBCS Authorization.
- PBCS authorization- for operators and aircraft- meeting RCP and RSP specs.
- This requires states to have PBCS policy in line with Annex 6 and Doc 9869



OPERATIONAL AUTHORIZATION

- General assessments for PBCS operational authorization:
- A/C Eligibility & Airworthiness compliance
- Documentation & Maintenance of operating procedures for Data Link Sys, participation in PBCS monitoring programs..
- Flight crew and other personnel training....

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- AIRCRAFT ELIGIBILITY : Manufacturer should demonstrate that the aircraft sys meets both RCP and RSP specs
- This should be specific to each individual airframe or the combination of the A/C type and configuration.
- Such compliance should be documented in TC, STC, AFM or compliance statement by manufacturer, accepted by the state of registry or operator if different.

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- In Addition to RCP/RSP specs, manufacturers should document any operating LIMITATIONS, INFORMATIONS or PROCEDURES in the AFM
- PBCS required EQUIPMENT should be in the MEL/MMEL by the manufacturer

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- OPERATOR ELIGIBILITY: Operator should demonstrate the A/C system is capable for intended operation and sys is properly maintained.
- SOPs should be prepared (For Flying Crew, dispatchers and Engineers)

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- **TRAINING:** It is the operator's responsibility to ensure flight crew, dispatchers and maintenance engineers are proficient with PBCS Ops.

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- **CSP COMPLIANCE:** Operators should ensure contracted CSPs comply with RCP/RSP Specification allocation as well as **MONITORING, RECORDING** and **NOTIFICATION** requirements.
- The operator should ensure that their contracted CSPs notify the ATS units of any failure condition that may have an impact on PBCS operations.

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- PARTICIPATION in the PBCS monitoring Program: Operator should establish a process for same.
- Provide Info and subsequent changes:
 - A. Operator name
 - B. Operator contact details
 - C. other coordination information which include e-mail address for the CSP/SSP service fail notification.

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- **FLIGHT PLANNING:** Operators should ensure that planned use of Comm and Surv capabilities are in accordance with regulations, policies and procedures where the flight operates.
- Published in AIPs or other state publications.
- **FLIGHT PLANS** should show RCP/RSP capabilities.

SUMMARY

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- In conclusion, a successful PBCS authorization requires operators to DEVELOPE, APPLY and COMPLY with RCP/RSP Specifications in line with ICAO DOC9869.
- Ethiopian Airlines is approved for PBCS on the AOC for A350, B787 and B777
- We have a separate PBN Manual

SUMMARY CONT'D

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- Evidence of training on PBCS is a mandatory flight crews record.
- Our PART C Route Manual has detailed description of PBCS in line with Doc 9869
- The training is initially done via a dedicated CBT course and subsequently during line/route training/checking every 12 months.



THANK YOU!!