



International Civil Aviation Organization

Performance Based Navigation Sub-Group (PBN SG)

First Meeting

(Cairo, Egypt, 1 – 3 April 2014)

Agenda Item 4: PBN Implementation in the MID Region

PBN IN SUPPORT OF CFIT

(Presented by the Secretariat)

SUMMARY

The aim of this paper is to review and update, as deemed necessary, the CFIT Detailed Implementation Plan (DIP) endorsed by the RASG-MID/3 meeting, as requested by MIDANPIRG/14.

Action by the meeting is at paragraph 3.

REFERENCES

- MIDANPIRG/14 Report
- RASG-MID/3 Report

1. INTRODUCTION

1.1 The Second MID Region Annual Safety Report identifies Controlled Flight Into Terrain (CFIT) as one of the three main Focus Areas in the MID Region. The report indicates that CFIT accidents rate in the MID Region for 2012 is **(0.71)** which is above the world rate **(0.16)** for the same year by 77.5%. However, the MID Region had no CFIT accident in 2008, 2009 and 2011, and had one accident in 2010 and one in 2012.

2. DISCUSSIONS

2.1 The meeting may wish to note that the RASG-MID developed the CFIT Safety Enhancement Initiatives (SEIs) and Detailed Implementation Plan (DIP) at **Appendices A and B** to this working paper, respectively, in order to mitigate risks related to CFIT in the MID Region.

2.2 The RASG-MID recognized that PBN enhances safety by addressing a number of risks, including those associated with CFIT and Runway Excursions. In this respect, it was recognized that PBN implementation would reduce in many cases the number of unstable approaches, which was identified as one of the major root causes of CFIT accidents.

2.3 Based on the above, the meeting may wish to review and update, as deemed necessary, the Detailed Implementation Plan (DIP) of the CFIT at **Appendix B** to this working paper, to be in line with the MID Region PBN implementation Plan. Furthermore, the meeting is invited to identify the airports/runways characterized by high level of unstable approaches incidents, to be considered as priority for the implementation of Approaches with vertical Guidance (APVs).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) review and update the DIP related to the CFIT at **Appendix B** to this working paper;
- b) identify the airports/runways characterized by high level of unstable approaches incidents, to be considered as priority for the implementation of Approaches with vertical Guidance (APVs); and
- c) urge States and Users to explore necessary measures in order to foster the implementation of APVs at the identified RWYs.

CFIT Safety Enhancement Initiatives (SEIs)

No	Safety Enhancement Action	GASP Safety Initiative (ICAO Doc 10004)	Best Practices Supporting GASP Safety Initiative (ICAO Doc 10004, Appendix 2)	Safety Impact	Changeability	IC Indicator	Priority	Possible Champion	Time Frame	Notes
RAST-MID/CFIT/1	The construction, approval and implementation of RNAV(GNSS) / RNP-AR procedures to all runways not currently served by precision approach procedures	Safety Management Standardization: Implementation of risk-based standardization Safety Oversight Standardization: Promotion of Compliance with National Regulations and Adoption of Industry Best Practices	BP-GEN-1 BP-GEN-2 BP-GEN-4 BP-STD-S-12 BP-STD-S-13	High	Difficult	P3	1	IATA/CANSO	Long Term	
RAST-MID/CFIT/2	Promote, implement and mandate best practice Standard Operating Procedures with respect to CFIT amongst Aircraft Operators and Air Navigation Service Providers	Safety Management Standardization: Implementation of risk-based standardization Safety Oversight Standardization: Promotion of Compliance with National Regulations and Adoption of Industry Best Practices	BP-GEN-1 BP-GEN-2 BP-GEN-4 BP-STD-S-12 BP-STD-S-13	High	Moderate	P2	2		Mid-Term	
RAST-MID/CFIT/3	Mandate the incorporation of the latest standard CFIT warning and prevention technology onboard operators' aircraft and within ANSP's facilities	Safety Management Standardization: Implementation of risk-based standardization Safety Oversight Standardization: Promotion of Compliance with National Regulations and Adoption of Industry Best Practices	BP-GEN-1 BP-GEN-2 BP-GEN-4 BP-STD-S-12 BP-STD-S-13	High	Difficult	P3	3		Long Term	

Detailed Implementation Plan Template

No	Safety Enhancement Action	GASP Safety Initiative (ICAO Doc 10004)	Best Practices Supporting GASP Safety Initiative (ICAO Doc 10004, Appendix 2)	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-MID/CFIT/1	The construction, approval and implementation of RNAV(GNSS) / RNP-AR procedures to all runways not currently served by precision approach procedures	<p>Safety Management Standardization:</p> <p>Implementation of risk-based standardization</p> <p>Safety Oversight Standardization:</p> <p>Promotion of Compliance with National Regulations and Adoption of Industry Best Practices</p>	<p>BP-GEN-1</p> <p>BP-GEN-2</p> <p>BP-GEN-4</p> <p>BP-STD-S-12</p> <p>BP-STD-S-13</p>	High	Difficult	P3	1	Long-Term
Safety Enhancement Action (expanded)		Introduction of RNAV(GNSS) / RNP-AR approaches and removal of traditional non-precision approaches. This is to ensure that the latest performance based navigation technology is utilized, at such airfields, to provide the highest level of safety during the conduct of an approach and landing towards the runway.						
Statement of Work		In an attempt to preclude future CFIT accidents, design an implementation plan to ensure that RNAV(GNSS) and RNP-AR approach design and procedures are adequate and provide sufficient altitude protection during the approach and landing phase and this, around all domestically and internationally identified, Higher Risk Airports served by NPA. Also ensure that pilots and controllers training and guidance in the use of RNAV(GNSS) & RNP-AR is adequate, current, uniformly conducted and supports the optimum utilization of automation resources so that individuals can take a monitoring role.						
Champion Organization		IATA/CANSO						

No	Safety Enhancement Action	GASP Safety Initiative (ICAO Doc 10004)	Best Practices Supporting GASP Safety Initiative (ICAO Doc 10004, Appendix 2)	Safety Impact	Changeability	Indicator	Priority	Time Frame
	Human Resources	CAA Operational Support Service Procedure Designers Air Navigation Service Providers (ANSP)						
	Financial Resources	Options will be explored by SST as required (funds from States or other safety partners)						
	Relation with Current Aviation Community Initiative	IATA & ICAO are jointly developing a CFIT toolkit addressing the CFIT contributing AST safety enhancements addressing the CFIT contributing factors CAST safety enhancements addressing the CFIT contributing factors Partnership between airlines and RNP-AR consulting firms such as Quovadis/Airbus & Etihad Airways for the creation of RNP-AR approaches at specific airfields. These new technology approaches, designed by Airbus' Performance Based Navigation (PBN) subsidiary, Quovadis, utilize 'continuous descent' operations and optimised trajectories. This will enhance flight safety which is at the heart of the RNP-AR Implementation Plan effort.						
	Performance Goal	<p>Goal 1: Implementation Plans to be complete in December 2013</p> <p>Goal 2: Keeping in mind that GNSS with Baro-VNAV is the key enabling technology, PBN and APV operations (APproaches with Vertical guidance) regional operator implementation to be complete:</p> <ul style="list-style-type: none"> - 30% by Dec 2015 - 70% by Dec 2018 - 100% by Dec 2020 <p>Goal 3: Before year 2020, reduce CFIT accidents/incidents by 80%, at these airfields during the conduct of ground-based non-precision approaches.</p> <p>Goal 4: APV to apply to all runways not currently served by precision approach procedures by 2020</p> <p>Goal 5: Promote stable approaches through APV</p>						

No	Safety Enhancement Action	GASP Safety Initiative (ICAO Doc 10004)	Best Practices Supporting GASP Safety Initiative (ICAO Doc 10004, Appendix 2)	Safety Impact	Changeability	Indicator	Priority	Time Frame
Indicators		Number of CFIT related accidents as a percentage of all accidents Maintain CFIT related accidents below the global rate						
Key Milestones (Deliverables)		<ol style="list-style-type: none"> 1. Identify the regional airports/runways which require specific RNP-AR approaches within 6 months. 2. Aircraft Operators FOQA programmes to monitor data (consistency and accuracy of the Operator's fleet for each selected "high risk/special airport) and provide a summary of stable/unstable approaches to MID-RAST each quarter commencing Q4 2013. 3. Identify suitable service providers who can assist Aerodrome Operators/States with procedure design for those airfield/runway combinations identified in deliverable 1 within 12 months. 						
Potential Blockers		<p>Operators may not recognize the safety enhancements benefits</p> <p>Operators may not be able to afford the required technology</p> <p>Operators may have difficulties funding the development of the procedures or planning the required training due to technology or downtime limitations</p>						
Responsible		<p>Core Team:</p> <ol style="list-style-type: none"> 1. 						
DIP Notes								

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