



International Civil Aviation Organization

**The Third Meeting of the APANPIRG ATM Sub-Group
(ATM/SG/3)**

Bangkok, Thailand, 3-7 August 2015

Agenda Item 2: Review of Related High Level Meetings

SECOND APANPIRG - RASG COORDINATION MEETING OUTCOMES

(Presented by Secretariat)

SUMMARY

This paper summarizes the outcomes of the coordination meeting between the APANPIRG and Regional Aviation Safety Group (RASG), held on 21st May 2015.

1. INTRODUCTION

1.1 Pursuant to the outcomes of the First PIRG-RASG Global Coordination Meeting (Montreal, 19th March 2013) which confirmed the need for a coordination mechanism between RASGs and PIRGs in each region to ensure consistency of action and avoid overlap and encouraged the sharing of successful initiatives among each other, the APANPIRG/24 Meeting held in June 2013 adopted Decision 24/1 “*That APANPIRG coordinates with APAC-RASG to ensure consistency of action and avoid overlap*”.

1.2 The APRAST/4 Meeting had also developed a Conclusion 4/11 that *APRAST would engage APANPIRG to develop a process to facilitate the review of SEI outputs that have implications for air navigation*. To this end the First APANPIRG-RASG APAC Coordination Meeting was held on 9th September 2014 in Kuala Lumpur, Malaysia. APANPIRG/25 and RASG APAC/5 approved the coordination mechanism principles and framework established by the coordination meeting.

1.3 The Second APANPIRG-RASG-APAC Coordination Meeting was held in Bangkok, Thailand, on 11 May 2015. The meeting was attended by the APANPIRG Chair, RASG Chair and Vice Chair, APRAST Co- Chairs, and Secretariat. RASG Chair is also the second Vice Chair of APANPIRG.

2. DISCUSSION

Safety Priorities

2.1 The Second Coordination Meeting noted that the RASG APAC/3 Final Report identified three priority areas under RASG APAC work programme where the resulting findings would greatly enhance the PIRGs work towards ASBU implementation, namely:

- Control Flight into Terrain (CFIT);
- Runway Safety (RS); and
- Loss of Control (LOC).

2.2 The RASG APAC was collecting information and studying the challenges facing the aviation community regarding these three areas. RASG APAC was expecting to share the results of these studies related to safety with APANPIRG Sub Groups to improve efficiency and effectiveness.

2.3 **Table 1** illustrates the correlation between the identified RASG study and the associated Aviation Safety Block Upgrades (ASBUs). The two shaded ASBU elements were the prime responsibility of the ATM/SG; with the red being priority ASBU elements and the blue are other ASBU elements.

	CFIT	RS	LOC
ASBU Modules	B0-SNET <i>Safety Nets</i>	B0-APTA <i>Optimization of Approach Procedures</i>	B0-AMET <i>Advanced Meteorological Information</i>
	B0-TBO <i>Trajectory Based Operations</i>	B0-RSEQ <i>Runway Sequencing</i>	B0-ACAS <i>Collision Avoidance Systems</i>
	B0-NOPS <i>Network Operations</i>	B0-SURF <i>Surface Operations</i>	
		B0-ASUR <i>Initial Surveillance</i>	

Table 1: RASG Safety Priorities and ASBU elements

2.4 The Coordination Meeting agreed that the APANPIRG Sub-Groups should study the 10 Regional Air Navigation Priorities endorsed by APANPIRG/25 and determine the ASBU modules where correlation exists with the RASG work to avoid a duplication of efforts. Therefore the ATM/G should comment on Table 1, with a view to improving its correlation with known safety hazards.

2.5 The following analysis is provided by the Secretariat to guide the ATM/SG in its considerations. At first study it would appear that B0-NOPS may have only a tenuous influence on CFIT prevention. It was also difficult to see how the B0-TBO element utilizing Automatic Dependent Surveillance-Contract and Controller Pilot Data Link Communications influenced CFIT, so this was a matter for the CNS/SG with ATM/SG input.

2.6 Regarding RS, B0-RSEQ may not be a factor in many runway safety incidents (this would need analysis by States concerned or safety experts to confirm or not). Ironically, the low priority B0-WAKE (*Increased Runway Throughput Through Optimized Wake Turbulence Separation*) may actually adversely affect RS if the six wake turbulence categories were not applied correctly. It was possible that two regional (non-priority) Seamless ATM elements could have an influence on RS if they were not implemented properly:

- 10 Apron Management (*high density aerodromes should provide an appropriate apron management service in order to regulate entry of aircraft into and coordinate exit of aircraft from the apron*);
- 340 Safety Assessment of Changes (*safety teams comprising multidisciplinary operational staff and managers which review safety performance and assess significant proposals for change to ATM systems*); and
- 350 ATM Operators' Performance (*training for the application of tactical, surveillance-based ATC separation; use of control techniques near minimum ATC separation; responses to ATM contingency operations and safety net alerts; and the importance of an effective safety reporting culture*).

2.7 B0-AMET may have much more influence on LOC than B0-ASUR so it may have to be duplicated in the RS and LOS columns as determined by the MET/SG.

Key Performance Indicators

2.8 The Coordination Meeting noted that the RASG APAC/APRAST and APANPIRG would study the European Region's Key Performance Indicators (KPIs) and then identify a set of KPIs for the APAC Region which should be meaningful and achievable, with clarity on the criteria for the data to be collected.

2.9 The European Region's KPIs were:

- Capacity throughput KPIs
 - Peak Arrival Capacity
 - Peak Arrival Throughput
- Customer-focused KPIs: On-Time Punctuality / Schedule Delay
 - Actual off-block time against scheduled departure time
 - Actual on-block time against scheduled arrival time
- Flight efficiency KPIs
 - Taxi-Out Additional Time
 - Taxi-In Additional Time
- Delay KPIs (if ATFM exists)
 - En-Route ATFM Delay
 - Airport/Terminal ATFM Delay

2.10 It should be noted that APANPIRG/20 agreed to the similar regional performance metric under *Conclusion 20/4 (Asia/Pacific Performance Metrics): APAC Metric 4* (Average delays for departures at State's primary international airports for the busiest hour on a weekly basis), and that this metric was not able to be fulfilled due to a lack of State data and sub-regional Air Traffic Flow Management (ATFM) within the Asia/Pacific. Therefore the ATFM-based European KPIs may not be practical in the Asia/Pacific at this time.

2.11 In light of this, the ATM/SG should consider if there were any other suitable KPIs for the Asia/Pacific Region, noting the following comment of the KPIs by the Second RASG-PIRG Coordination Meeting:

- *The KPIs presented are related to performance of operations at Aerodromes and ANSPs only. There are no KPIs showing the performance of ATM operations;*
- *There could be challenges in collecting data for KPIs from all APAC States/Administrations;*
- *The need, purpose, relevance and benefits of the KPIs have to be explained clearly to States/Administrations in order that they could give priority and facilitate in providing the necessary data. Each KPI and data to be collected should be well defined, and if necessary explained with examples;*
- *There was also discussion as whether the KPIs in a region would be used by the ICAO for comparing with KPIs in other regions as they might not be directly comparable due to unique regional operational considerations. A uniform methodology for collecting data should be developed and applied throughout all ICAO Regions. The KPIs for the region should also take into account the regional priorities and plans;*

- *The APAC could share the good experiences on other regions such as EUR. It is therefore important to know the rationale of how their KPIs were developed;*
- *While recognizing the challenges in collecting some ATM related data, consideration could be given to start collecting data from major/hub airports. The identification of such airports could be based on the number of aircraft movements;*
- *Discuss the 4 air navigation related KPIs with respective Sub Groups and submit outcomes to APANPIRG;*
- *Discuss the 4 safety-related KPIs with APRAST and submit outcomes to RASG-APAC;*
- *While noting that the submission rate of occurrences/incidents in the region is very low, members considered that reporting rate of such occurrence may not be a good item for the KPI since an increase in such reporting could also be a result of improvement in reporting and safety culture and not necessary a safety concern.*

Global KPIs

2.12 The following Global Core Key Performance Indicators were proposed by the High Level Safety Conference (HLSC):

- Effective Implementation of State Safety Oversight System
 - USOAP EI scores overall
 - Number and duration of USOAP CMA SSCs by technical area
 - Number and percentage of certified international aerodromes
- Progress in SSP/SMS Implementation
 - Percentage of implemented gap analysis questions (per operator and State)
- Frequency and Severity of Accidents and Incidents
 - Occurrences by type per number of departures (rate)
 - Number and distribution of occurrences by severity level and category
- Fleet Modernization and Industry Certification
 - Percentage of operated aircraft above 20 years
 - Number of operators holding industry certifications (IOSA, etc.)

Alerting Services

2.13 Regarding Global Flight Tracking, the APSAR/TF/4 had noted that SAR training exercises were a matter for APANPIRG, while interaction matters between Annex 12 – *Search and Rescue* and Annex 13- *Aircraft Accident and Incident Investigation* would be managed by the RASG Accident Investigation Group (AIG) in coordination with APANPIRG Contributing Bodies.

RASMAG

2.14 The coordination meeting noted the advice provided by RASMAG Chair that the task of the RASMAG was to review airspace safety performance and facilitate the implementation of airspace safety monitoring and performance assessment services and agreed that RASMAG would continue its current function as an APANPIRG Sub-group and report to APANPIRG. The meeting also noted that RASMAG would however continue to share the ATM Data and analysis submitted by Regional Monitoring Agencies (RMAs) and En-Route Monitoring Agencies (EMAs) with RASG/APRAST.

2.15 The ICAO Regional Office in letter AN 3/3 – AP-AGA0106/15 dated 12 June 2015 invited the APANPIRG Sub group Chairs and APRAST Co-chair to report status on the action taken by their respective Sub Group on the second coordination meeting outcomes.

CNS/SG

2.16 The CNS/SG/19 meeting discussed the matters in this paper related to CNS issues, and developed a Flimsy with the outcomes of that discussion (**Attachment A**). The ATM/SG was invited to discuss the draft position developed by the CNS/SG.

3. ACTION BY THE MEETING

3.1 ATM/SG is invited to note, discuss and comment on:

- a) the correlation between the identified RASG study and the associated ASBUs; and
- b) regional KPIs; and
- c) the CNS/SG Flimsy as a joint CNS-ATM response to the RASG.

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Introduction

CNS SG19 WP04 reported the outcomes of the coordination meeting between APANPIRG & RASG APAC held on 21st May 2015. CNS SG was invited to note, discuss and take appropriate action on these outcomes, with the view that the third RASG APANPIRG Regional coordination meeting will be held in April/May 2016 to discuss the progress achieved on the actions suggested in this Report.

Suggestions from CNS SG/19

The RASG APAC/3 Final Report noted three areas under their work programme where the resulting findings would greatly enhance the PIRGs work towards ASBU implementation. These areas include Control Flight into Terrain, Runway Safety and Loss of Control.

Currently the RASG APAC is collecting information and studying the challenges facing the aviation community regarding these three areas. RASG APAC to share the results of these studies related to safety with APANPIRG Sub Groups to improve efficiency and effectiveness.

In this connection, the CNS SG meeting reviewed the input available and proposes the following suggestions.

1. Amend the chart illustrating the correlation between the identified RASG study and the associated ASBUs as follows:
 - Add APTA as a safety barrier both for CFIT and RS (protection means, mostly through vertical guidance). Priority 1.
 - Add SURF as a safety barrier for RS. Priority 3.
 - Delete ASUR as a safety barrier for RS (ASUR does not provide for runway safety as this is a SURF issue).
 - Include also regional Seamless ATM items in the chart. If this option is retained then:
 - Add 10 Apron Management (*high density aerodromes should provide an appropriate apron management service in order to regulate entry of aircraft into and coordinate exit of aircraft from the apron*) for RS as a risk control;
 - Add 340 Safety Assessment of Changes (*safety teams comprising multidisciplinary operational staff and managers which review safety performance and assess significant proposals for change to ATM systems*) as a transversal risk prevention mechanism; and
 - Add 350 ATM Operators' Performance (*training for the application of tactical, surveillance-based ATC separation; use of control techniques near minimum ATC separation; responses to ATM contingency operations and safety net alerts; and the importance of an effective safety reporting culture*) should be considered for RS as a major risk prevention and risk factor.
2. As per the RASG APAC Meeting Conclusion 4/4 and 4/23, RASG would endorse the APAC seamless ATM Plan, it is therefore suggested that RASG could propose to APANPIRG to allocate a different priority based on the contribution of the said item to the regional risk.
3. As it was already done for ACAS last year, it is suggested that RASG uses the APAC regional picture reflecting the implementation status of ANS improvements to assess how far and where the barriers are implemented.

A dedicated grouping could be developed in the regional picture that would present the ASBU and regional items of interest to RASG.

Responsibility for Airborne Safety Systems (seamless item 170)

4. The Responsibility matrix for all Seamless items adopted by APANPIRG/25 shows that for Airborne Safety Systems (seamless item 170) the endorsing body is CNS SG. As the Second RASG–APAC Regional Coordination Meeting identified that RASG was to continue with the lead responsibility for the implementation of ACAS II, it is proposed that RASG replaces CNS SG in the Responsibility matrix for that for Airborne Safety Systems (seamless item 170). However RASG should note that the responsibility is not only with TCAS v7.1 but to implement the Seamless ATM objective:

All Category R and S upper controlled airspace, and Category T airspace supporting high density aerodromes should require the carriage of an operable mode S transponder within airspace where Mode S radar services are provided; and ACAS and Terrain Awareness Warning Systems (TAWS), unless approved by ATC (ASBU Priority 2)

KPIs and analysis of operational safety

5. *the Key Performance Indicators listed on Page 7 under "Measuring Global Air Navigation" are primarily ATM-oriented and not necessarily appropriate metrics for safety analysis. The metrics listed on page 8, while more closely aligned to Safety, really provide no baseline by which to do analysis and several do not directly align with safety analysis (i.e. Fleet age by itself is not a safety metric where a comparison of accidents/incidents to fleet age is).*

Some operational safety metrics that could provide a more viable analysis could include:

- Runway Incursions and Excursions/total operations and their causal factors
- Airspace Incursions/total operations and their causal factors
- Operational Errors or Deviations/total operations and their causal factors
- Readback/Hearback Errors/total transmissions and correlation to control experience, time on position, etc
- Communication/Navigation/Surveillance failures/hours of operation and their causal factors
- Automation Failures/hours of operation and their causal factors
- Intra- and Inter-facility coordination errors/total transmission and their causal factors.

RASMAG and FIT/Asia data in the analysis of operational safety (specifically navigation accuracy and interfacility coordination issues) are potentially rich far beyond their primary analysis and could be better exploited.

Note: The information above may require going to the ATM/SG for further discussion so it could be essentially a joint submission from the SGs to the RASG.
