



ICAO

International Civil Aviation Organization

**Eighth Meeting of the Surveillance Implementation
Coordination Group (SURICG/8)**

Bangkok, Thailand, 6 – 9 June 2023

Agenda Item 9: Review of the Terms of Reference (ToR) and the Action Items

REVISION TO TERMS OF REFERENCE OF SURICG

(Presented by Hong Kong China and Singapore)

SUMMARY

This paper presents the proposal to revise Terms of Reference of the SURICG for review and consideration.

1. INTRODUCTION

1.1 Hong Kong China and Singapore analyzed the TOR of Mode S and DAPs WG, the analysis is provided in **Appendix A** to this paper, and suggested a revised version of TOR of SURICG which is provided in **Appendix B** to this paper for reference.

2. ACTION BY THE MEETING

2.1 The meeting is invited to:

- a) consider and adopt the TOR proposed in **Appendix B**; and
- b) discuss any related issues as appropriate.

Terms of Reference of Mode S and DAPs Working Group

Working Arrangement of the Mode S and DAPS WG

Membership: The Mode S and DAPS WG shall be composed of experts involved in technical and operation of surveillance services as well as operational experts. Member States of SURICG are encouraged to volunteer to form this Working Group. The working group shall normally invite representatives of International Organizations recognized by the ICAO Council and Industry Partners as required by the group which represent important civil aviation interests to participate in its work in a consultative capacity.

Meetings: The Mode S and DAPS WG shall convene annually with at least one face-to-face meeting per year and supplemented with WebEx meetings as required. The outcome of the meetings shall be reported to the SURICG.

Schedule and delivery: Subject to the extent of prioritized applications considered by the Mode S and DAPS WG, the schedule for delivery of the working group shall be 4 +2 years after initiation of the Mode S DAPS WG (28 March 2018). The delivery point(s) will be nominated by SURICG through discussion. The Mode S and DAPS WG shall report to the APANPIRG via the SURICG.

Terms of Reference. See next section.

Term of Reference

The Objectives of Mode S and DAPs Working Group are to:

- 1) Ensure harmonized implementation of Mode S and DAPs in the Asia and Pacific Regions according to Surveillance Strategy adopted by APANPIRG; (Covered by SURICG Objectives #2 & #3)
- 2) Facilitate the implementation of Mode S and DAPs application in the Asia and Pacific Regions using the project management principles where appropriate to maximize its benefit to region; and (Covered by SURICG Objective #2)
- 3) Review, identify and address major issues in technical, operational and regulatory aspects to facilitate the Mode S and DAPs implementation in the Asia and Pacific Regions. (Covered by SURICG Objective #3)

Deliverables to meet the Objectives:

- 1) Progress report to be submitted to SURICG addressing the Mode S and DAPs Working Group deliverables (listed in 2 to 7 below);
- 2) To study and identify applicable Mode S and DAPs applications in the Asia and Pacific Regions considering: (Will match with SURICG Deliverables #7)
 - Concept of use/operation;
 - Cost of system;
 - Requirement of surveillance systems (focusing on radar);
 - Matching functionality in ATCATM automation system;
 - Other currently available or emerging technologies;
 - ICAO Global Air Navigation Plan (GANP) and Aviation System Block Upgrades (ASBU); and
 - Evaluation method for Mode S and DAPs performance.

- 3) To identify and develop the regional requirements of Mode S and DAPs capability in the area of aircraft equipage, surveillance systems (focusing on radar) and ATC-ATM automation system, taking into account the relevant performance expectations of the Asia/Pacific Seamless ANS Plan; (reflected in Mode S IGD - completed)
- 4) To develop roadmap for Mode S and DAPs application in the Asia and Pacific Regions taking into account of: (Roadmap completed)
 - Available equipment standards;
 - Readiness of airspace users and ATS providers; and
 - Development of standardized and systematic approach to Mode S and DAPs application.
- 5) To develop guidance materials to assist States and airspace users (where applicable) on the use of Mode S and DAPs in the Asia and Pacific Regions; (completed)
- 6) To encourage research and development, trials and demonstrations in the field of Mode S and DAPs application; and (Covered by SURICG Deliverables #10)
- 7) Draft Conclusions and Decisions to be formulated relating to matters in the field of Mode S and DAPs that come within the scope of the SURICG work plan. (Covered by SURICG Deliverables #13)

[Note: Mode S and DAPS Working Group will report to SURICG and SURICG will coordinate with CNS Sub-group.]

Current Members: The working group is currently comprised of representatives from Australia, Cambodia, China, Hong Kong China, India, Indonesia, Japan, Republic of Korea, Malaysia, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam, and is led by China and Singapore.

Term of Reference

		Efforts thus far
The Objectives of Mode S and DAPs Working Group are to:		
1	Ensure harmonized implementation of Mode S and DAPs in the Asia and Pacific Regions according to Surveillance Strategy adopted by APANPIRG;	a) Planning of II/SI code assignment in progress. b) Encouraged Mode S forward fit. c) Guidance material on the implementation of DAPs applications in ATM systems is created.
2	Facilitate the implementation of Mode S and DAPs application in the Asia and Pacific Regions using the project management principles where appropriate to maximize its benefit to region; and	High level principle is in the draft guidance material.
3	Review, identify and address major issues in technical, operational and regulatory aspects to facilitate the Mode S and DAPs implementation in the Asia and Pacific Regions.	a) Guidance material on measurement of frequency occupancy is created. b) Guidance material to address technical and operational issues is created. c) Guidance material to address regulatory issues is created.
Deliverables to meet the Objectives:		
1	Progress report to be submitted to SURICG addressing the Mode S and DAPs Working Group deliverables (listed in 2 to 7 below);	
2	To study and identify applicable Mode S and DAPs applications in the Asia and Pacific Regions considering: <ul style="list-style-type: none"> - Concept of use/operation - Cost of system - Requirement of surveillance systems (focusing on radar) - Matching functionality in ATCATM automation system - Other currently available or emerging technologies; - ICAO Global Air Navigation Plan (GANP) and Aviation System Block Upgrades (ASBU); - Evaluation method for Mode S and DAPs performance. 	a) Guidance material on the implementation of DAPs applications in ATM systems is created. b) Means to test and validate DAPs are in the guidance document.
3	To identify and develop the regional requirements of Mode S and DAPs capability in the area of aircraft equipage, surveillance systems (focusing on radar) and ATCATM automation system, taking into account the relevant performance expectations of the Asia/Pacific Seamless ATM Plan;	a) Planning of II/SI code assignment in progress. b) Encouraged Mode S forward fit. c) Guidance material on the implementation of DAPs applications in ATM systems is created.
4	To develop roadmap with a view to formulate mandates for Mode S and DAPs application in the Asia and Pacific Regions taking into account of: <ul style="list-style-type: none"> - Available equipment standards - Readiness of airspace users and ATS providers - Development of standardized and systematic approach to Mode S and DAPs application; 	Road map created.

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5	To develop guidance materials to educate States and airspace users (where applicable) on the use of Mode S and DAPs in the Asia and Pacific Regions:	Guidance material to educated States is created. No need for guidance material for airspace users identified yet.
6	To encourage research and development, trials and demonstrations in the field of Mode S and DAPs application; and	Research and development activities are being shared in the Working Group. These include: a) Deriving weather related information from DAPs; b) Detection of BDS swab.
7	Draft Conclusions and Decisions to be formulated relating to matters in the field of Mode S and DAPS that come within the scope of the SURICG work plan.	On going.

**TERMS OF REFERENCE OF
SURVEILLANCE IMPLEMENTATION COORDINATION GROUP (SURICG)**

Consists of objectives and deliverables as follows:

The Objectives of the SURICG are to:

- 1) *Ensure continuous and coherent development of the Surveillance parts of the Asia/Pacific Regional Air Navigation Plan (APAC e-ANP) in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs, the Global Air Navigation Plan and the Global Aviation Safety Plan;*
- 2) *Facilitate the implementation of Surveillance systems and services identified in the Aviation System Block Upgrades (ASBU) modules, APAC ANP, and Asia/Pacific Seamless ATM Plan elements using the project management principles where appropriate; and*
- 3) *Review, identify and address major issues in technical, operational, safety and regulatory aspects to facilitate the implementation or provision of efficient Surveillance services in the Asia and Pacific Regions.*

Deliverables to meet the Objectives:

- 1) *Progress report to be submitted to CNS SG addressing the SURICG deliverables (listed in 2 to 13 below);*
- 2) *Surveillance parts of the APAC ANP to be reviewed and aligned with work programme of States and, as necessary, amendment proposals prepared to update the APAC ANP to reflect changes in the operational and global requirements;*
- 3) *To review the outcome of the Surveillance Panel, SAS Panel, AN-Conf, APANPIRG and CNS SG related to surveillance, revise and update a tasks list and action items for the SURICG and formulate relevant Working Groups to work on those tasks / action items;*
- 4) *To develop regional targets/metrics for planning, implementation, measurement and monitoring of Surveillance systems and services;*
- 5) *To review and update the Surveillance Strategy by considering currently available and emerging technologies with respect to concept of operations, relative costing, technical and operational performance and maturity of alternative technology/solutions such as primary radar, secondary radar including Mode-S, ADS-B, Multilateration, ADS-C, multi-static primary radar (MPSR) and existing and emerging technology for detection of UAS including RPAS;*
- 6) *To study and identify applicable multilateration applications in the Asia and Pacific Regions considering:*
 - *Concept of use/operation*
 - *Required site and network architecture*
 - *Expected surveillance coverage*
 - *Cost Benefits Analysis*
 - *Recommended separation minimums*

- 7) To study and identify applicable Mode S ~~radar~~ and DAPs applications in the Asia and Pacific Regions considering:
- Concept of use/operation;
 - Assignment of and migration to SI code in APAC;
 - Required site and network architecture;
 - Expected surveillance coverage;
 - Cost of system;
 - Requirement of surveillance systems (focusing on radar)
 - Matching functionality required in ATC ATM automation system;
 - ~~the use of Enhanced MODE S data (DAPS)~~
 - Other currently available or emerging technologies;
 - ~~ICAO GANP and ASBU; and~~
 - Evaluation method for Mode S and DAPs performance.
- 8) To develop an implementation plan for ADS-B applications in the Asia and Pacific Regions including implementation target dates taking into account:
- available equipment standards;
 - readiness of airspace users and ATS providers;
 - identifying sub-regional areas (FIRs) where there is a positive cost/benefit for implementation of ADS-B and associated VHF voice communications;
 - developing a standardised and systematic task-list approach to ADS-B implementation; and
 - major traffic flows.
- 9) To coordinate ADS-B implementation plan and concept of operations with other ICAO regions where ADS-B implementation is going on and with relevant external bodies such as EUROCONTROL, EUROCAE, RTCA and Industry;
- 10) To encourage research and development, trials and demonstrations in the field of Surveillance and other relevant areas; ¶
- 11) Facilitate implementation of surveillance data sharing (including DCPC) and sharing surveillance information and expertise between States through organizing educational seminars and providing guidance materials to educate States and airspace users
- 12) To support the ICAO in making specific recommendations, developing guidance materials, aimed at improving the Surveillance services by the use of existing and/or new procedures, facilities and technologies; and
- 13) Draft Conclusions and Decisions to be formulated relating to matters in the field of Surveillance that come within the scope of the APANPIRG or CNS Sub-group work plan.

[Note: The Implementation Coordination Group, while undertaking the tasks, should take into account of the work being undertaken by SAS, Surveillance Panels with a view to avoid any duplication.

The Implementation Coordination Group will report to CNS Sub-group and CNS Sub-group will coordinate with ATM Sub-group.]

Membership:

All APAC member States/Administrations providing air navigation services in the Asia and Pacific Regions.

The Surveillance Implementation Coordination Group shall normally invite representatives of International Organizations recognized by the ICAO Council and Industry partners as required by the group which represent important civil aviation interests to participate in its work in a consultative capacity.
