

International Civil Aviation Organization



ICAO

**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

TERMS OF REFERENCE OF SURICG AND ACTION ITEMS

(Presented by the Secretariat)

SUMMARY

This paper presents the Terms of Reference of the SURICG and its action items for review and update.

1. INTRODUCTION

1.1 APANPIRG/26 meeting held from 7-10 September 2015 in Bangkok reviewed and agreed to the draft Terms of Reference for a broader “Surveillance Implementation Coordination Group (SURICG)” and adopted following Decision:

Decision APANPIRG/26/45 – Surveillance Implementation Coordination Group

*That, the Surveillance Implementation Coordination Group (SURICG) be established with Terms of Reference provided in **Appendix K** to WP/9.*

1.2 It was also suggested that SEA/BOB ADS-B WG which reported to ADS-B SITF would report to APANPIRG through SURICG from 2017 onwards.

1.3 Mode S DAPs WG was established by SURICG/2 in 2017, and the ToR of Mode S DAPs WG was revised in 2022 by SURICG/7, renamed the WG as Mode S and DAPs Working Group.

1.4 The SURICG/7 meeting held in May 2022 reviewed and updated the action items from SURICG/6 meeting.

2. DISCUSSION

2.1 In September 2015, APANPIRG/26 noted that following the reorganization of APANPIRG structure and the revised Terms of Terms of the Sub Groups, **it is necessary for the Sub group to review the structure of its Working Groups and Task Forces and their Terms of Reference.** APANPIRG adopted the following Decision.

Decision APANPIRG/26/66 - Review Terms of Reference of Contributory Bodies under the APANPIRG Sub Groups

That, the Secretariat, in consultation with Chairs of the existing Task Forces and Working Groups under the APANPIRG Sub Groups, reviews the TOR as necessary,

and submits to the respective Sub Groups and APANPIRG/27 for further review and adoption.

2.2 In accordance with *Decision APANPIRG/26/66*, the SURICG/1 meeting held in April 2016 reviewed its TOR and proposed necessary changes. The CNS SG/20 endorsed the revised TORs of ACSICG, PBNICG and SURICG, the APANPIRG adopted the following consolidated Decision (SG/20-D2; SG/20-D6 and SG/20-D16) on the revised TORs of ACSICG, PBNICG and SURICG.

Decision APANPIRG/27/47 : Revised TOR of Aeronautical Communication Services Implementation Coordination Group – (ACSICG); Performance Base Navigation Implementation Coordination Group (PBNICG) and Surveillance Implementation Coordination Group (SURICG).	
That, the Revised Terms of References of ACSICG, PBNICG and SURICG provided in Appendix C to APANPIRG/27-WP/9 are adopted.	Expected impact: <input type="checkbox"/> Political /Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: Result of review according to APANPIRG Decision 26/66	
When: 30-Sep-16	Status: Adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> APANPIRG <input type="checkbox"/> Other:	

2.3 In August 2021, SURICG ToR was reviewed by SURICG/6 in the view of integration of SEA/BOB ADS-B WG ToR and presented by draft Decision for consideration of CNS SG/25 which was further adopted in CNS SG/25 through the following decision:

Decision CNS SG/25/14 (SURICG/6/8): Revised ToR of Surveillance Implementation Coordination Group (SURICG)	
That, the Revised Terms of Reference of the Surveillance Implementation Coordination Group (SURICG) provided in Appendix N to this report be adopted.	Expected impact: <input type="checkbox"/> Political /Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: The ToR from dissolved SEA/BOB ADS-B WG was reviewed and necessary updates were identified.	Follow-up: <input type="checkbox"/> Required from States
When: 22-Oct-2021	Status: Adopted by Sub-Group
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> APANPIRG <input checked="" type="checkbox"/> Other: SURICG	

2.4 The revised SURICG ToR adopted by the CNS SG/25 Meeting is provided in **Appendix A** to this paper for easy reference.

2.5 The Sixth Meeting of the Mode S Downlink Aircraft Parameters working group (Mode S and DAPs WG/6) was held in ICAO APAC Regional Office, Bangkok, Thailand from 28 to 30 March 2023. The meeting reviewed the achievements of Mode S and DAPs WG, considered that most of the tasks outlined in ToR had been completed or already in the process of completion, and the remained tasks of the WG could be transferred under SURICG and thus of the view that the Mode S and DAPs WG was able to dissolve. The ToR of Mode S and DAPs WG is provided in **Appendix B** to this paper for reference.

2.6 The list of action items consolidated up to SURICG/7 meeting is provided in **Appendix C** to this paper for further review and updates. The final Action item list by Mode S and DAPs WG/6 is provided in **Appendix D** of **WP03** for this meeting.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) review **Appendix A** and **B** for the need of further revision on ToR of SURICG;
- c) review and update the actions items provided in the **Appendix C** and identify ways for SURICG to follow up; and
- d) discuss any related issues as appropriate.

**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 applications in the Asia and Pacific Regions considering:*
 - *Concept of use/operation*
 - *Required site and network architecture*
 - *Expected surveillance coverage*
 - *Cost of system*
 - *Matching functionality required in ATC automation system*
 - *the use of Enhanced MODE S data (DAPS)*

- 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; and*
 - *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 ~~implementations~~ sharing of surveillance ~~information~~ 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.

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 and 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;
- 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
- 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.

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:
 - Concept of use/operation;
 - Cost of system;
 - Requirement of surveillance systems (focusing on radar);
 - Matching functionality in ATC-ATM 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;

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- 4) To develop roadmap for Mode S and DAPs application in the Asia and Pacific Regions taking into account of:
- 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;
- 6) To encourage research and development, trials and demonstrations in the field of Mode S and DAPs application; and
- 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.

[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.

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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: - 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: - 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.

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LIST OF ACTION ITEMS FOR SURICG

Action Item No.	Subject	Forum Raised	Status / Target Date	Remarks / follow-up	Action Party	Status
6-1	Mode S and DAPs WG to reflect the required updates for II and SI mixed code allocation in Mode S DAPs IGD.	SURICG/6	SURICG/8		DAPs WG in consultation with Surveillance Panel	In progress
6-2	DAPs Working Group to consider rename to better reflect the focus of work scope not only on DAPs but also on Mode S Radars	SURICG/6	DAPs WG/5		DAPs WG	Completed
6-3	Regional coverage map of surveillance and DCPC included in the Seamless ANS Plan (3.0) to update the coverage map during next Seamless ANS Plan review	SURICG/6	Next Seamless ANS Planning and Implementation WG Meeting or suitable forum		Hong Kong China and Thailand with Secretariat Support	In progress
6-4	Ad-hoc Working Group to discuss performance specifications and sharing of baselining of performance of radar for APAC Region	SURICG/6	SURICG/8		Secretariat and States (including China, India, Indonesia, ROK, Singapore)	In progress Outcome: Guidance Material on radar performance and testing
6-5	Development of a SI code allocation/implementation plan and related issues	SURICG/6	SURICG/8		Secretariat with DAPs WG	In progress Enhancement on Tool to support the allocation of SI code

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LIST OF ACTION ITEMS FOR SURICG

Action Item No.	Subject	Forum Raised	Status / Target Date	Remarks / follow-up	Action Party	Status
7-1	Set up a List of Points of Contact for Mode S II/SI Coordination Matters	SURICG/7	Mode S WG/6		Secretariat with Mode S and DAPs WG	
7-2	ROK to provide their point of contact on sharing their software <i>Astecat</i> for measuring performance of radar	SURICG/7	SURICG/8		ROK, with Secretariat support	
7-3	Working Paper on reporting the inconsistent ICAO Aircraft Address and Target Identification between surveillance data and flight plan be submitted to RASG-APAC	SURICG/7	RASG-APAC/12		Hong Kong China	Hong Kong China to liaise with RASG-APAC on way forward Need further discussion with ATM
7-4	Workshop on consistency of ICAO Aircraft Address and Target Identification between surveillance data and flight plan	SURICG/7	SURICG/8		Hong Kong China, Secretariat	Need further discussion with ATM

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LIST OF ACTION ITEMS FOR SURICG

Action Item No.	Subject	Forum Raised	Status / Target Date	Remarks / follow-up	Action Party	Status
7-5	Guidance Material on consistency of ICAO Aircraft Address and Target Identification between surveillance data and flight plan	SURICG/7	SURICG/8		Hong Kong China, Secretariat	Need further discussion with ATM
7-6	Alignment of SUR SG Report with AIGD regarding definitions of Tiers 1 and 2	SURICG/7	CNS SG/26		Hong Kong China, Chair of SUR SG	

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All members States/Administrations to contribute with papers at next meeting on any of the following items.

- ASBUs relating to ADS-B IN
- Implementation of Space Based ADS-B
- Increased Effectiveness of Ground-based Safety Nets using ADS-B
- Use of lower cost, lower performance ADS-B systems (TSO199)
- Use of Mode S DAPS in APAC region
- Use of electronic scan primary radars in APAC region
- Use of Mode C transponder veils in APAC region
- Use of Flight ID data from mode S interrogation and ADS-B
- Mode S problem reporting in APAC region
- Mode S analysis tools used in APAC region
- ADS-B test equipment used in APAC region
- Need to amend SUPPs 7030 on SIL matter
- Management issues with 24 bit ICAO codes in APAC
- Update and maintain ADS-B problem database
- Consider need for aircraft transponder Mode S mandates
