



**25th MEETING OF COMMUNICATIONS /
NAVIGATION AND SURVEILLANCE SUB-GROUP OF APANPIRG
WEB-CONFERENCE 18 OCT – 22 OCT 2021**

**Review Report of the Sixth Meeting of the
Surveillance Implementation Coordination Group
(SURICG/6)**

Presented by SURICG Co-Chair



High-level Overview on SURICG/6

- a) 24 - 27 August 2021 via video teleconference
- b) 116 participants from 19 States/Administrations
- c) 4 International Organizations (IATA, ICCAIA, IFATCA, RTCA), PCCW Global (CRV Service Provider) and Boeing (Aircraft Manufacturer)
- d) 13 working papers, 23 information papers, 2 presentations/flimsies
- e) Major outcomes :
 - i. 4 Draft Conclusions and 2 Draft Decisions – for endorsement by CNS Sub-Group/25
 - ii. 3 Draft Conclusions – for consideration by CNS Sub-Group/25 and endorsement by APANPIRG/32



Mode S Interrogator Code (IC) Planning and Coordination

- a) SURICG/6 reviewed the proposal to amend the APANPIRG Conclusions adopted more than 10 years ago related to planning and coordination for Mode S Interrogator Code (IC):
- *Coordination Process for SSR Mode S IC (formerly **Conclusion 19/40**)*
 - *Coordination Requirements for SSR Mode S IC (formerly **Conclusion 20/56**)*
 - *Planning Criteria for SSR Mode S IC Assignment (formerly **Conclusion 20/57**)*
- b) After discussion, SURICG/6 considered it necessary to replace those Conclusions with updated ones reflecting the current situation.
- c) Assignment of IC in areas of overlapping coverage across shall be subject to regional planning and coordination via the ICAO APAC Regional Office.
- d) The following Draft Conclusion was adopted for consideration by CNS SG/25 and endorsement by APANPIRG/32:



Mode S Interrogator Code (IC) Planning and Coordination

Draft Conclusion CNS SG/25/XX (SURICG/6/1) - Interrogator Code (IC) Planning and Coordination

What: That,

With the need to extend the Use of Surveillance Identifier (SI) in Interrogator Code (IC) on top of Interrogator Identifier (II), the relevant APANPIRG Conclusions are updated as follows:-

*Coordination Process for SSR Mode S Interrogator Code (IC)
(formerly **Conclusion 19/40**)*

- a) in view of the increasing density of SSR interrogator installations in the region, and that States have varying readiness to extend from Interrogator Identifier (II) to both Interrogator Identifier and Surveillance Identifiers (SI) codes, there will be a period whereby both II and SI will be used.

Expected impact:

- Political / Global
- Inter-regional
- Economic
- Environmental
- Ops/Technical



Mode S Interrogator Code (IC) Planning and Coordination

Draft Conclusion CNS SG/25/XX (SURICG/6/1) - Interrogator Code (IC) Planning and Coordination

- b) while implementing SSR Mode S, States should take into account following issues while assigning IC for these installations
- for planning the implementation of SSR Mode S interrogators, administrations should ensure that the interrogators with overlapping coverage are not operating with the same IC.
 - where, the coverage of the interrogator extends beyond the boundaries of the State, The IC should be worked out in coordination with the ICAO Asia and Pacific Office and the neighboring States concerned, and
 - administrations should inform the ICAO Asia and Pacific Office about the assigned IC for these installations.

Expected impact:

- Political / Global
- Inter-regional
- Economic
- Environmental
- Ops/Technical



Mode S Interrogator Code (IC) Planning and Coordination

Draft Conclusion CNS SG/25/XX (SURICG/6/1) - Interrogator Code (IC) Planning and Coordination

Coordination Requirements for SSR Mode S Interrogator Codes (IC) *(formerly Conclusion 20/56)*

States be advised to provide the following information on SSR Mode S Interrogator Code to the ICAO Asia/Pacific Office for coordination and registration.

- a) Name of country/territory and location of facility;
- b) Antenna Coordinates (Latitude and Longitude);
- c) Elevation of antenna above the Mean Sea Level (MSL) in meters;
- d) Maximum Coverage of SSR Mode S Interrogator in nautical mile;
- e) II Code (1 to 15) or SI Code (1 to 63); and
- f) Remarks (special configuration such as radar clustering, lockout override, II/SI mode capability)

Expected impact:

- Political / Global
- Inter-regional
- Economic
- Environmental
- Ops/Technical



Mode S Interrogator Code (IC) Planning and Coordination

Draft Conclusion CNS SG/25/XX (SURICG/6/1) - Interrogator Code (IC) Planning and Coordination

<p><i>Planning Criteria for SSR Mode S Interrogator Code (IC) Assignment (formerly Conclusion 20/57)</i></p> <p>The planning criteria for SSR Mode S IC coordination and assignment as provided in Appendix J of Doc 9924 (Third Edition, 2020) be adopted for use in the Asia/Pacific Region.</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input checked="" type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Ops/Technical</p>
<p>Why: Due to higher density of radars, some States are facing a shortage of II codes. It has to be solved by transiting from II to SI code. It is noted that state may use a mixture of II and SI codes before complete migration to SI code. The assignment of interrogator codes (IC), where necessary in areas of overlapping coverage, across international boundaries of flight information regions, shall be the subject of regional air navigation agreements. States still have to coordinate with ICAO APAC Regional Office on the allocation of II codes and SI codes.</p>	<p>Follow-up:</p> <p><input checked="" type="checkbox"/> Required from States</p>
<p>When: 02-Dec-2021</p>	<p>Status: Draft to be adopted by PIRG</p>
<p>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"/> Other: SURICG</p>	



Transition from Interrogator Identifier (II) Code to Mix of II and Surveillance Identifier (SI) Code

- a) SURICG/6 noted the increasing density of Mode S radars in the region with shortage of II codes, which has to be solved by transiting from II to a mix of II and SI codes. It is noted that radars using II and SI codes can co-exist, hence there is no need for a big bang approach. However, States still have to coordinate with ICAO APAC Regional Office on allocation of SI codes.

- b) The following Draft Conclusion was adopted for consideration by CNS SG/25 and endorsement by APANPIRG/32:



Transition from Interrogator Identifier (II) Code to Mix of II and Surveillance Identifier (SI) Code

Draft Conclusion CNS SG/25/XX (SURICG/6/2) - Transition from II code to II and SI mixed code

What: States with Mode S radar capable of performing II/SI mode operations are encouraged to transit from II code to II and SI mixed code, so as to ease the shortage of II codes. States planning to perform the transition shall coordinate with ICAO APAC Regional Office to obtain the SI codes.

Expected impact:

- Political / Global
- Inter-regional
- Economic
- Environmental
- Ops/Technical

Why: Due to higher density of radars, some States are facing a shortage of IC codes, which has to be solved by transiting from II to II and SI mixed code. It is noted that radars using II and SI codes can co-exist, hence there is no need for a big bang approach. However, States still have to coordinate with ICAO APAC Regional Office on the allocation of SI codes.

Follow-up:

- Required from States

When: 02-Dec-2021

Status: To be adopted by PIRG

Who: Sub groups APAC States ICAO APAC RO ICAO HQ Other: SURICG



APAC Regional Roadmap for Mode S Implementation

- a) Mode S DAPs WG/4 re-visited and revised the Regional Roadmap for Mode S Implementation proposed by the DAPs WG/3, which covered topics including Mode S mandates, use of SI Codes, radar clustering, use of conspicuity code, mandating weather reporting capability, datalink map and monitoring of 1030 and 1090 MHz usage.

- b) SURICG/6 reviewed the revised Regional Roadmap for Mode S Implementation provided in **Appendix B** to this paper, taking into account prevailing pandemic situation and needs of the region. The following Draft Conclusion was adopted for the consideration by CNS SG/25 and endorsement by APANPIRG/32:



APAC Regional Roadmap for Mode S Implementation

<p>Draft Conclusion CNS SG/25/XX (SURICG/6/3) - The APAC Regional Roadmap for Mode S Implementation</p>	
<p>What: That, the APAC Regional Roadmap for Mode S Implementation provided in Appendix B to this paper be adopted.</p>	<p>Expected impact:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
<p>Why: The revised Roadmap defined the scope and rational steps for the implementation of Mode S in APAC region.</p>	<p>Follow-up: <input type="checkbox"/> Required from States</p>
<p>When: 02-Dec-2021</p>	<p>Status: To be adopted by PIRG</p>
<p>Who: <input type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> APANPIRG <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Other: SURICG</p>	





Revision of Regional Supplement to ASTERIX Interface Control Document (ICD)

- a) EUROCONTROL published System Area Codes (SAC) for surveillance systems for various regions except APAC. The Mode S DAPs WG/4 meeting deliberated and considered beneficial to publish the APAC SAC at EUROCONTROL website.
- b) ICAO APAC also used to track of SIC allocation within the States through the Regional Supplement to ASTERIX ICD which States have their own control and may change from time to time without a need for ICAO APAC to manage.
- c) Subsequently, the Regional Supplement to ASTERIX ICD provided at **Appendix D** to this paper was revised to update the latest SAC and remove all SIC.
- d) The following Draft Conclusion was formulated for endorsement by CNS SG/25:



Revision of Regional Supplement to ASTERIX Interface Control Document (ICD)

Draft Conclusion CNS SG/25/XX (SURICG/6/5) - Revision of the Regional Supplement to ASTERIX Interface Control Document (ICD)

What: ICAO APAC Regional Office to:-

- (a) update EUROCONTROL with the latest SAC allocation within Asia Pacific; and
- (b) to coordinate the allocation of SAC within Asia Pacific and not the SIC.

Expected impact:

- Political / Global
- Inter-regional
- Economic
- Environmental
- Ops/Technical

Why:

EUROCONTROL published the SAC for all the regions except Asia Pacific. It is believed that the publication will be beneficial to the developers of future message protocol and surveillance related applications.

SIC is managed by State and there is little value for ICAO APAC to manage the SIC. Considering the workload to manage the SIC and the negligible benefits, it is proposed that ICAO APAC not to manage SIC.

Follow-up:

- Required from States

When: 22-Oct-2021

Status: To be adopted by Sub Group

Who: Sub groups APAC States ICAO APAC RO APANPIRG ICAO HQ Other: SURICG



Amendments to Mode S DAPs IGD

- a) Mode S DAPs WG/4 reviewed and proposed improvements to Mode S DAPs Implementation and Guidance (IGD). The main amendments include:
- advice to mandating Mode S transponder, other protocols for DAPs extraction, use of parameters in the ATM automation system, Mode S DAPs application examples and identified issues, and Mode S radar parameter information.
- b) SURICG/6 reviewed and supported the proposed amendments. A Draft Conclusion was formulated to adopt the updated Mode S DAPs IGD Edition 3.0 provided in **Appendix C** to this paper for endorsement by CNS/25:



Amendments to Mode S DAPs IGD

Draft Conclusion CNS SG/25/XX (SURICG/6/4) - Mode S DAPs IGD 3.0	
<p>What: That, the <i>Mode S DAPs Implementation and Operation Guidance Document</i> Edition 3.0 provided in Appendix C to this Report be adopted.</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Ops/Technical</p>
<p>Why: Editorial correction and revision to reflect regional updates in implementation</p>	<p>Follow-up:</p> <p><input type="checkbox"/> Required from States</p>
<p>When: 22-Oct-2021</p>	<p>Status: To be adopted by Sub Group</p>
<p>Who: <input type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> APANPIRG <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Other: SURICG</p>	





Amendments to ADS-B AIGD

- a) SURICG/6 reviewed and updated “ADS-B Implementation and Operations Guidance Document” (AIGD) with inclusion of a newly reported ADS-B avionics issue as described in IP/07 of the SURICG/6.

- b) SURICG/6 formulated a Draft Conclusion to adopt the updated AIGD Version 14 provided in **Appendix H** to this paper for endorsement by CNS SG/25 meeting.



Amendments to ADS-B AIGD

Draft Conclusion CNS SG/25/XX (SURICG/6/9) - Revised ADS-B Implementation and Operations Guidance Document (AIGD)

What: That, the revised ADS-B Implementation and Operations Guidance Document (AIGD) provided in **Appendix H** to the Report, which consolidated all change proposals during SURICG/6, be adopted as Version 14

Expected impact:
 Political / Global
 Inter-regional
 Economic
 Environmental
 Ops/Technical

Why: Updates from SURICG/6

Follow-up:
 Required from States

When: 22-Oct-21

Status: To be adopted by Sub Group

Who: Sub groups APAC States ICAO APAC RO APANPIRG ICAO HQ Other:





Integrity of ICAO Aircraft Address and Target Identification in ADS-B / MLAT / Mode S Data & Flight Plan

- a) SURICG/6 was informed of **recurring inconsistencies** in ICAO Aircraft Address and Target Identification between ADS-B / MLAT / Mode S data and flight plan for some aircraft flying within FIRs of some member States/Administrations, despite **repeated efforts** were spent to follow up with concerned airlines to address the discrepancies.
- b) Such issues has not only caused **safety implications** to ATC operation but also induced **additional workload** to ATC controllers and supporting staff. As such, SURICG/6 considered necessary to formulate a Draft Conclusion for endorsement by CNS SG/25 to **urge States to follow up and address the issues**.
- c) Hong Kong China, one of those who reported the observations, was requested to share with relevant CAAs on information of concerned airlines. U.S.A and IATA have been receiving information from Hong Kong China since Aug 2021. **Hong Kong China will contact other relevant CAAs to share information as appropriate.**



Integrity of ICAO Aircraft Address and Target Identification in ADS-B / MLAT / Mode S Data & Flight Plan

Draft Conclusion CNS SG/25/XX (SURICG/6/7) - Integrity of ICAO Aircraft Address and Target Identification in ADS-B / MLAT / Mode S Data and Flight Plan

What: To urge States/Administrations to proactively follow up with air operators to address discrepancies of ICAO Aircraft Address and Target Identification between ADS-B / MLAT / Mode S data and flight plan.

Expected impact:

- Political / Global
- Inter-regional
- Economic
- Environmental
- Ops/Technical

Why: Such discrepancies will cause safety implications in ATC operation and induce additional workload to controllers and supporting staff in handling the cases.

Follow-up:

- Required from States

When: 22-Oct-2021

Status: To be adopted by Sub Group

Who: Sub groups APAC States ICAO APAC RO APANPIRG ICAO HQ Other:



Revised TOR of Surveillance Study Group (SURSG)

- a) The newly established Surveillance Study Group (SURSG) held its first meeting in April 2021 and started working on various tasks related to sharing of surveillance data via SWIM platform in collaboration with SWIM Task Force.
- b) SURSG/1 considered it necessary to fine tune its TOR to fit into operation of the group for meeting its objectives. For example, adding chairperson's role and function, frequency of meetings, working mode of the various task leads and meetings for effective progress update, decision making, work assignments/deliverables, and the need to update the list of contributing States as necessary.
- c) SURICG/6 reviewed and supported the proposed amendments and formulated a Draft Decision for endorsement by CNS SG/25:



Revised TOR of Surveillance Study Group (SURSG)

Draft Decision CNS SG/25/XX (SURICG/6/6) - Revised ToR of Surveillance Study Group (SURSG)	
<p>What: That, the Revised Terms of Reference of the Surveillance Study Group (SURSG) provided in Appendix E to this paper be adopted.</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Ops/Technical</p>
<p>Why: The SURSG/1 meeting reviewed the ToR and made amendments on adding chair role and function, frequency of the meeting of SURSG and the mode of the various task lead meetings for effective progress update, decision making, work assignments as they arise and the need to update the list of contributing States as necessary</p>	<p>Follow-up:</p> <p><input type="checkbox"/> Required from States</p>
<p>When: 22-Oct-2021</p>	<p>Status: Draft to be adopted by Sub Group</p>
<p>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"/> Other</p>	



Revised TOR of Surveillance Implementation and Coordination Group (SURICG)

- a) With dissolution of the SEA/BOB ADS-B Working Group, the residual tasks of SEA/BOB ADS-B Working Group have been integrated into SURICG. SURICG/6 reviewed its TOR to ensure the TOR can cover those residual tasks.
- b) As a result of the review, SURICG/6 considered necessary to update TOR as provided in **Appendix G** to this paper. The update focuses on ADS-B data sharing while taking into account the major traffic flows and provisions of “Direct Controller Pilot Communication” (DCPC).
- c) The following Draft Decision was adopted for endorsement by CNS SG/25:



Revised TOR of Surveillance Implementation and Coordination Group (SURICG)

<p>Draft Decision CNS SG/25/XX (SURICG/6/8) - Revised ToR of Surveillance Implementation and Coordination Group (SURICG)</p>	
<p>What: That, the Revised Terms of Reference of the Surveillance Implementation Coordination Group (SURICG) provided in Appendix G to this paper be adopted.</p>	<p>Expected impact:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
<p>Why: The ToR from dissolved SEA/BOB ADS-B WG was reviewed and necessary updates were identified.</p>	<p>Follow-up:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Required from States
<p>When: 22-Oct-2021</p>	<p>Status: Draft to be adopted by Sub Group</p>
<p>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"/> Other</p>	





Other Reviews and Discussions

- SURICG/6 reviewed and discussed other topics as summarized below:
 - a) Reviewed outcomes of relevant and previous meetings on surveillance, and action items for SURICG.
 - b) Formulated planning criteria to support ICAO APAC in coordinating additional SAC assignment to a State/Administration when such request is raised.
 - c) Established an Ad-hoc group to discuss performance specifications and benchmarking of radar for APAC Region, and to prepare a working paper to make recommendation on way forward to SURICG/7. Volunteered states have been solicited into this group.
 - d) Provided updates on:
 - work being done by ICAO Surveillance Panel to address conflicting contents in Doc 8071 Vol III on flight inspections for radars (Singapore and Secretariat will present the same contents under IP/09 for this meeting)
 - other work undertaken by ICAO Surveillance Panel's Aeronautical Surveillance Working Group
 - Boeing's latest development of ADS-B avionics for ADS-B Out and ADS-B-In
 - RTCA's latest development of surveillance related standards
 - surveillance implementation activities from States, Space Based ADS-B Service Provider, and CRV Service Provider



Thank You

