



ICAO

*International Civil Aviation Organization***Tenth Meeting of the Surveillance Implementation  
Coordination Group (SURICG/10)***Bangkok, Thailand, 21 - 23 April 2025*

Agenda Item 8: Update on surveillance activities and explore potential cooperation opportunity

**SURVEILLANCE ACTIVITIES IN SRI LANKA**

(Presented by Sri Lanka)

**SUMMARY**

This paper provides information on surveillance activities and challenges in Sri Lanka.

**1. INTRODUCTION**

1.1. This paper provides an overview of the current surveillance infrastructure status, developments in Sri Lanka, as well as the challenges faced in implementing surveillance operations.

**2. DISCUSSION****RADARS**

2.1 Sri Lanka currently operates two Secondary Surveillance Mode A/C Radar stations for Approach Control and Terminal Area Control purposes. The replacement project for the Terminal Area Control Radar is currently in progress, and it is scheduled to be commissioned by December 2025. Feasibility studies for upgrading the Approach Control Mode A/C Radar were discontinued since some of the modules became out of production. Consequently, the plan is being revised to replace this Radar with a new Mode S Radar by 2027.

**ADS-B**

2.2 Sri Lanka has implemented an ADS-B surveillance system, comprising five (5) ADS-B Ground Receiving Stations and a Central Processing Station. This system ensures extensive ADS-B coverage of up to 330 NM. The ADS-B is being used as the primary surveillance means for Area Control purposes.

2.3 ADS-B is integrated to the Approach Control Air Traffic Management (ATM) system to perform Multi Sensor Tracking (MST) along with Radar. Safety assessment is currently being finalized for the usage of ADS-B for air traffic separation below FL290 including Approach Control of the main airport BIA. The safety assessment has been challenging since the ADS-B equipage has not been mandated for this airspace due to various constraints. Discussions are ongoing with the local Operators regarding the mandate of ADS-B equipage.

## 2.4 Challenges with ADS-B Ground Bit Issue

During the integration of ADS-B into new Approach Control Air Traffic Management (ATM) system, an unexpected ground clutter of ADS-B was observed on the ATM displays. Upon investigating, the root cause of the issue, by conducting analysis in both the ATM automation system and ADS-B system, it was found that neither of these systems are causing the ground clutter. It was found that one of the bits in the ADS-B broadcast by some of the aircraft were erroneous. The bit known as Ground Bit Setting (GBS) is supposed to have value '1' if the aircraft is on ground. If airborne, GBS have to be '0'. However, it was identified that, even when some of the aircraft were on ground, GBS was received either as '0' or 'X', causing the ground clutter on ATM displays. The ATM system filters on ground ADS-B targets based on the GBS information received.

### Structure of I021/040 - First Extension

Octet no. 1							
8	7	6	5	4	3	2	1
DCR	GBS	SIM	TST	SAA	CL		FX

bit-8 (DCR)      Differential Correction  
= 0      No differential correction (ADS-B)  
= 1      Differential correction (ADS-B)

bit-7 (GBS)      Ground Bit Setting = 0      Ground Bit not set = 1      Ground Bit set
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GBS information is derived by avionics according to many different criteria, using various combinations of avionic sensors available in aircraft (e.g. weight on wheel switch, strut switch, air frame specific air/ground algorithm, etc.). The aircraft which were sending erroneous GBS data were identified. However, due to the presence of multivarious avionics use cases for the derivation of GBS, isolation of the problem is not straightforward for all aircraft in which the issue is observed. Further discussions are being made with airlines and regulatory bodies to obtain more insight on the exact details of the origination of GBS information.

Since Sri Lanka does not possess Surface Movement Surveillance systems or any other surveillance sensors which covers the areas of on ground aircraft (taxiways, aprons, etc.) the possibility of filtering ground clutter using multi sensor data is not available. Filtering based on other information in ADS-B broadcast such as altitude is also not a possibility since altitude information are also transmitted as 'unknown' sometimes. Accordingly, a suitable manipulation is to be implemented in the ATM system, without impacting the safety of operations.

## 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and

- b) discuss any relevant matter as appropriate

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