Democratic Socialist Republic of Sri Lanka

Civil Aviation Authority of Sri Lanka

Implementing Standards

(Issued under Sec. 120, Civil Aviation Act No. 14 of 2010)

Title: Automatic Dependent Surveillance Broadcast – Out (ADS-B Out) Operations

IS Reference Code: IS-06(i), 10 (iii & iv) & 11 **Date**: 5th November 2021

Pursuant to Sec.120 of the Civil Aviation Act No.14 of 2010 which is hereinafter referred to as the CA Act, Director General of Civil Aviation shall have the power to issue, whenever he considers it necessary or appropriate to do so, such Implementing Standards for the purpose of giving effect to any provision in the CA Act, Regulations or Rules made thereunder including the Articles of the Convention on International Civil Aviation specified in the Schedule to the CA Act.

Accordingly, I, being the Director General of Civil Aviation do hereby issue the Implementing Standards on **Automatic Dependent Surveillance Broadcast – Out (ADS-B Out) Operations** as mentioned in the Attachment hereto (Ref: Attachment No. IS-06(i), 10 (iii & iv) & 11-Att.), elaborating the requirements to be satisfied for the effective implementation of the International Standards and Recommended Practices contained in Annex 06 Part 1, Annex 10 - vol. iii and iv and Annex 11 related to Automatic Dependent Surveillance Broadcast Out (ADS-B Out) Operations.

This Implementing Standard shall be applicable to Air Navigation Service Providers and holders of Air Operator Certificate issued by the DGCA for commercial air transportation and shall come into force with effect from 5th November 2021and remain in force unless revoked. This Implementing Standards will replace the Implementing Standards 064, Edition 01, Revision 00 issued on 10th October 2017.

Attention is also drawn to Sec. 103 of the Act, which states inter alia that failure to comply with Implementing Standard is an offence. Further, if any standard stipulated in this Implementing Standards is not complied with or violated, an appropriate enforcement action will be taken as per the Aviation Enforcement Policy and procedures Manual, SLCAP 0005 by the Director General of Civil Aviation under section 102 of the Civil Aviation Act No.14 of 2010.

Capt. Themiya Abeywickrama
Director General of Civil Aviation and
Chief Executive Officer

Civil Aviation Authority of Sri Lanka
No 152/1, Minuwangoda Road,
Katunayake.
Enclosure: Attachment No. IS-06(i), 10 (iii & IV) & 11 Att.

Implementing Standards

SLCAIS-064: Automatic Dependent Surveillance Broadcast (Out) (ADS-B out) Operations

1. Notice to the Recipient

1.1. The requirements in this Implementing Standard are based on the Standards and Recommended Practices (SARPs) adopted by the International Civil Aviation Organization (ICAO) and incorporated in Annex 06 Part 1, Annex 10 - Vol. iii & iv and Annex 11.

1.2. In pursuance of the obligation cast under Article 38 of the Convention which requires the Contracting States to notify the ICAO of any differences between the National Regulations of the States and practices and the International Standards contained in the respective Annex and any amendments thereto, the CAASL will be taking steps to notify ICAO of such differences relating to either a Standard or a Recommended Practice, if any. The CAASL will also keep the ICAO currently informed of any differences which may subsequently occur, or of the withdrawal of any differences previously notified. Furthermore, the CAASL will take steps for the publication of differences between the National Regulations and practices and the related ICAO Standards and Recommended Practices through the Aeronautical Information Service, which is published in accordance with the provisions in the Annex – 15 to the Convention.

1.3. Taking into account of the ICAO council resolution dated 13 April 1948 which invited the attention of Contracting States of the desirability of using in the State's National Regulations, as far as is practicable, the precise language of those ICAO Standards that are of a regulatory character, to the greatest extent possible the CAASL has attempted to retain the ICAO texts in the Annex in drafting this Implementing Standard.

1.4 The requirements contained in this document are applicable to the Air Navigation Service Providers and holders of Air Operator Certificate issued by the DGCA for commercial air transportation in Sri Lanka.

1.5 The Air Navigation Service Providers in Sri Lanka and aircraft operators who intend to operate within Sri Lanka airspace shall strictly comply with the requirements published in this document.

1.6 This document supersedes the IS 064 dated 10th October 2017 issued by the DGCA and the latter shall be treated as null and void.

1.7 This document may be amended from time to time and the amendments will be issued in the form of new pages to replace the relevant pages of this document.

1.8. Status of ICAO Annex components in the Implementing Standard

Some of the components in an ICAO Annex are as follows and they have the status as indicated:

1.8.1. **Standard:** Any specification for physical characteristics, configuration, materiel, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Article 38. The ICAO Standards are reflected in the Implementing Standards if they are locally implemented using the normal fonts and recipients are required to conform to such requirements invariably and the DGCA **will take appropriate enforcement action** when those requirements are not complied with.

1.8.2. **Recommended Practice:** Any specification for physical characteristics, configuration, materiel, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interest of safety, regularity, efficiency or environmentally responsiveness of international air navigation, and to which Contracting States will endeavor to conform in accordance with the Convention. The ICAO Recommended Practices are reflected in the Implementing Standards in italic fonts and the Recipients are encouraged to implement them to the greatest extent possible. However, DGCA **will not take enforcement action** when a Recommended Practice is not satisfied by the recipient.

1.8.3. **Appendices:** Comprising material grouped separately for convenience but forming part of the Standards and Recommended Practices adopted by the Council. Enforcement action on such matters will be as in the case of Standards or Recommended Practices.

Record of Revisions

Rev. No	Date Entered	Entered By
Edition 01 – Rev 00	10.10.2017	-
Edition 02 – Rev 00	06.10.2021	-

List of Effective Pages

Page No	Effective Date	Page No	Effective Date	Page No	Effective Date
1	06.10.2021				
2	06.10.2021				
3	06.10.2021				
4	06.10.2021				
5	06.10.2021				
6	06.10.2021				
7	06.10.2021				
8	06.10.2021				
9	06.10.2021				
10	06.10.2021				
11	06.10.2021				
12	06.10.2021				
13	06.10.2021				
14	06.10.2021				
15	06.10.2021				
16	06.10.2021				
17	06.10.2021				

History of Revision

Rev. No	Source	Areas Subjected to Change	Effective Date
IS 064 1st Edition Rev 00	ICAO Annex 06 Part 1, Annex 10 - Vol. iii & iv, Annex 11, ADS-B Implementation and Operations Guidance Document (AIGD)	New IS	10.10.2017
IS 064 2nd Edition Rev 00	ICAO Annex 06 Part 1, Annex 10 - Vol. iii & iv, Annex 11, ADS-B Implementation and Operations Guidance Document (AIGD) 13th Edition	Replaced IS 064 1st Edition Rev 00	06.10.2021

Table of Contents

Implementing Standards

SLCAIS-064: Automatic Dependent Surveillance Broadcast (Out) (ADS-B Out) Operations

PART I – AIRCRAFT OPERATORS

1. Operational Authorization to conduct ADS-B Operations

No Operational approval is required by the aircraft operators, to conduct ADS-B (Out) operations within Colombo FIR.

2. Aircraft Equipage

2.1 Any aircraft which intends to operate within *Colombo ADS – B (Out) Exclusive airspace** must carry serviceable 1090MHz extended squitter (1090ES) ADS-B transmitting equipment that has been certificated as meeting:-

(a) European Aviation Safety Agency - Certification Considerations for the Enhanced ATS in Non- Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHZ Extended Squitter (AMC 20-24), or

(b) European Aviation Safety Agency - Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance Subpart D — Surveillance (SUR) (CS-ACNS.D.ADS-B), or

(c) Federal Aviation Administration – Advisory Circular No: 20-165A (or later versions) Airworthiness Approval of Automatic Dependent Surveillance – Broadcast (ADS-B) Out Systems, or

(d) The equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia.

* *Colombo ADS – B (Out) Exclusive airspace – Volume of Airspace between FL290 and FL460(inclusive)enclosed by the boundary starting from a point 100000N 0800000E thence along straight lines joining the points 100000N 0820000E – 082048N 0860758E thence clockwise along an arc of 330NM radius centred on 070003N 0804618E up to a point 030000N 0843509E thence along straight lines joining the points 030000N 0780000E (LAVOX) - 060000N 0780000E - 060000N 0770000E - 070000N 0770000E - 090000N 0793000E thence straight line to the starting point (100000N 0800000E),* depicted in Appendix A.

2.2 Any registered aircraft with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots, with a date of manufacture on or after 1 January 2020 which intends to operate within Colombo ADS-B (Out) Exclusive airspace be equipped with ADS-B avionics compliant with Version 2 ES (equivalent to RTCA D0-260B) or later version.

2.3 An aircraft carrying 1 090 MHz extended squitter (1090ES) ADS-B equipment shall disable ADS-B transmission unless:

(a) The aircraft emits position information of an accuracy and integrity consistent with the transmitted value of the position quality indicator; or

(b) The aircraft always transmits a value of 0 (zero) for one or more of the position quality indicators (NUCp, NIC, NACp or SIL); or

(c) The operator has received an exemption granted by the Director General of Civil Aviation.

3. Continuous Operation of ADS-B equipment

If an aircraft carries serviceable ADS-B transmitting equipment that complies with an approved equipment configuration, the equipment must be operated continuously during the flight within Colombo ADS – B (Out) Exclusive airspace unless the pilot is directed or approved otherwise by ATC.

4. Operating Procedures

All operators should use the applicable Airplane Flight Manual (AFM), Airplane Flight Manual Supplement (AFMS) or Pilot's Operating Handbook, Rotorcraft Flight Manual (RFM), Rotorcraft Flight Manual Supplement (RFMS), or other required Operating Handbooks or Manuals, to become familiar with the proper operation of the installed ADS-B system and any procedures expected of the user for indications of reduced performance or failures within the system.

5. Unserviceability of ADS-B transmitting equipment

When aircraft ADS-B transmitting equipment becomes unserviceable resulting in its transmitting misleading information; then the pilot shall not fly the aircraft unless the equipment is:

1) Deactivated; or
2) Transmits only a value of zero for the NUCp or NIC or NAC or SIL

Except when specifically authorized by the Civil Aviation Authority otherwise.

6. Transponder Operation and ADS-B out Transmissions.

For ADS-B system installations integrated within a transponder that share control features, operators shall be aware that disabling the transponder may also disable ADS-B transmissions, resulting in a loss of Secondary Surveillance Radar (SSR) services and Traffic Alert and Collision Avoidance System (TCAS)/TCAS II operation, if so equipped.

7. ADS-B Flight Planning Requirements

7.1. ICAO Flight Plan Item 10 – Surveillance Equipment and Capabilities

An appropriate ADS-B designator shall be entered in item 10 of the flight plan indicating the capability of aircraft transmitting ADS-B messages.

Capability categories defined in PANS ATM, Doc4444 as follows:
B1 ADS-B "out" capability using 1090 MHz extended squitter
B2 ADS-B "out" and "in" capability using 1090 MHz extended squitter
U1 ADS-B "out" capability using UAT
U2 ADS-B "out" and "in" capability using UAT
V1 ADS-B "out" capability using VDL Mode 4
V2 ADS-B "out" and "in" capability using VDL Mode 4

7.2. ICAO Flight Plan Item 18 – Other Information

a) ICAO Aircraft Address (24 Bit Code) shall be included in Item 18 of the ICAO flight plan in hexadecimal format.

b) Appropriate Mode S designator shall also be entered in item 10, either S or E Transponder — Mode S, including aircraft identification, pressure-altitude and ADS-B Capability, or L Transponder — Mode S, including aircraft identification, pressure-altitude, ADS-B and Enhanced surveillance capability.

PART II – AIR NAVIGATION SERVICE PROVIDERS

8. ATM system compatibility with ADS-B OUT

ATM systems in Sri Lanka shall be compatible to ADS-B systems in addition to traditional radar systems. ANSP shall ensure ADS-B systems are compatible with other CNS systems and prevailing avionics standards.

9. Navigation system infrastructure for ADS-B OUT operations

ADS-B is dependent upon the data obtained from a navigation systems in order to enable its functions and performance. The navigation infrastructure shall fulfil the corresponding requirements of the ADS-B application, in terms of:

a) Data items; and
b) Performance (e.g. accuracy, integrity, availability etc.).

10. Integration of ADS-B OUT data to Surveillance Infrastructure

10.1. When ADS-B OUT is used to supplement existing surveillance systems or as the principal source of surveillance data, surveillance systems shall incorporate data from ADS-B OUT and other sources to provide a coherent picture that improves both the amount and utility of surveillance data to the user.

10.2. In an event that ADS-B System is being integrated into an existing ATM System, it shall be the responsibility of the Air Navigation Services Provider to ensure no deterioration of the established integrity, accuracy and the dependability of the existing ATM system as a result of introducing the ADS-B Data into it.

11. Functional Requirements for ADS-B out Integration to ATM systems

I. The priority should be adaptable between ADS-B sensor position data and radar data.

II. For ADS-B aircraft, receipt of the Mode S conspicuity code should trigger use of the Flight ID / Aircraft Address for flight plan correlation;

III. If, due to sensor or aircraft capability limitation, no SSR code is received for an aircraft, the system should use Flight ID/ Aircraft Address for track correlation;

IV. For correlation based on Flight ID, the received ID shall exactly match the ACID of the flight plan;

V. For correlation based on Aircraft Address, the received address should match the address entered in the flight plan field 18 CODE/ keyword;

VI. The system should generate an alert for a correlated flight for which the Flight ID from the track does not match the flight plan ACID and/or the Aircraft Address from the track does not match the code given in the flight plan field 18 CODE/ keyword;

VII. The system should allow the setting of ADS-B above or below the radar sources within the Surveillance Data Processor Tile Set on a per-tile basis;

VIII. Priority should only be applied to data received at or above the adapted NUCp, NACp, NIC, and/or SIL thresholds;

IX. The system should be configurable to either discard ADS-B data or display the track with an indication of ADS-B degradation if the received NUCp, NACp, NIC, or SIL is below an adapted threshold;

X. If the system is configured to display the degraded track, the degraded position and status should only be displayed if there are no other surveillance sources available;

XI. The system could allow the adaptation of ADS-B emergency codes to map to SPC Mnemonics.

XII. The system shall generate a conformance alert if the Selected Altitude and the Cleared Flight Level do not match.

XIII. ATC surveillance systems shall provide for the display of safety-related alerts and warnings, including Conflict alert, minimum safe altitude warning, conflict prediction and unintentionally duplicated SSR codes and aircraft identifications.

XIV. All safety net features (MSAW, STCA, MTCA, RAM and DAIW/ RAIM etc.) shall possess the same responsiveness to ADS-B targets as equivalent to radar safety net features.

12. Training of Personnel for ADS-B Operation

Prior to operating any element of the ADS-B system, operational and technical personnel shall undertake appropriate training pertaining to technical and operational aspects of ADS-B respectively.

13. Safety Assessment on ADS-B OUT Operations

13.1. For any future enhancements and changes to the existing procedures, the Air Navigation Service Provider, shall conduct a safety assessment that ensures any additional risks and safety requirements already identified for the airspace where ADS-B is implemented, or any newly identified risks, are effectively controlled and risk is reduced to an acceptable level.

13.2. A safety assessment for all above cases shall include:

a) Identifying failure conditions;
b) Assigning levels of criticality;
c) Determining risks/ probabilities for occurrence;
d) Identifying mitigating measures and fall back arrangements;
e) Categorizing the degree of acceptability of risks; and
f) Operational hazard identification process.

13.3. Following the safety assessment, the ANSP shall institute measures to offset any identified failure conditions that are not already categorized as acceptable. This should be done to reduce the probability of their occurrence to a level as low as reasonably practicable.

14. Conducting ADS-B out Operational Trials

Prior to any changes to the existing procedures or applicable volume of the ADS – B airspace, the Air Navigation Service Provider shall conduct trials with suitably equipped aircraft to ensure they meet the operational and technical requirements to provide ATS.

15. Conducting ADS-B System Monitoring

15.1. Air Navigation Service Provider shall identify and record ADS-B system component failures. The Air Navigation Service Provider shall submit reports mentioned in 15.2 and 15.3 with recorded information,

15.2. ADS-B Periodic Status Report:

Contains summarized statistical data on the performance of the system that should be produced periodically. The Periodic Status Report should give an indication of system performance and identify any trend in system deficiencies, the resultant operational implications, and the proposed resolution, if applicable. Air Navigation service provider shall complete the ADS-B Periodic Status report annually and deliver report to CAASL.

15.3. ADS-B Problem Report:

These reports are to be based on observation of one or more specific events, including those involved with aircraft avionics or reports generated from the routine analysis of data. The Air Navigation Service Provider shall document the problem and resolve it with the appropriate party. These problems shall be recorded at ADS-B Avionics Problem Report Database (APRD) that has been established for that in the ICAO APAC website. APRD contains useful information on the generic ADS-B avionics performance problem commonly encountered in the APAC Region.

16. Retention of ADS-B data

The Air Navigation Provider shall retain records of ADS-B OUT data for at least 30 days to allow for accident/incident investigation processes. These records shall be made available on request to the Civil Aviation Authority of Sri Lanka. These recordings shall be in a form that permits a replay of the situation and identification of the messages that were received by the ATM system.

17. Identification of Failures and providing appropriate Corrective Actions

Air Navigation Service provider shall identify and record ADS-B system component failures that have the potential to negatively impact the safety of controlled flights or compromise service continuity and also shall ensure that appropriate corrective actions are taken to address identified faults.

18. ADS-B Avionics problem identification and correction

In addition to the standards laid down in Sub paragraph 20 of this Implementing Standard in relation to ADS-B operations, Air Navigation Service Provider shall develop systems to:

a) Advise Civil Aviation Authority of Sri Lanka (CAASL) and where appropriate the aircraft operators on the detected ADS-B avionics anomalies and faults;

b) Devise mechanisms and procedures to address identified faults;

c) Ensure that appropriate corrective actions are taken to address identified faults.

19. ATC Surveillance using ADS-B OUT data

19.1. ADS-B track data are to be used to monitor flight path conformance with Air Traffic Control clearances. The ATC requirements relating to monitoring of ADS-B traffic on the situation display shall be similar to those contained in ICAO doc PANS-ATM Doc 4444, Chapter.8

19.2. Before providing an ATS surveillance service to an aircraft, identification shall be established and the pilot so informed. Thereafter, identification shall be maintained until termination of the ATS surveillance service.

19.3. Where ADS-B OUT is used for identification, aircraft may be identified by one or more of the following procedures:

a) Direct recognition of the aircraft identification in an ADS-B label;
b) Transfer of ADS-B identification;

20. Use of ADS-B OUT in combination with RADAR for Surveillance (ADS-B OUT in RADAR Airspace)

20.1. Reserved SSR codes, including 7500, 7600, 7700, operation of IDENT and ADS-B emergency and /or urgency modes, safety related alerts and warnings shall be presented in a clear and distinct manner, providing for ease of recognition.

20.2. Operation of IDENT, emergency and/or urgency modes, safety-related alerts and warnings whether from ADS-B or a radar source, as well as information related to automated coordination shall be presented in a clear and distinct manner.

20.3. When changes in the integrity of surveillance data quality may be caused by satellite constellation issues there shall be a mechanism in place that provides the controller with an advance warning if the data is used for separation purposes.

20.4. Where surveillance data quality degrades such that services need to be limited, symbology or other means shall be used to provide the controller with an indication of the condition.

20.5. Individual position symbols for different surveillance sources may be presented to the controller but the combined symbols are recommended to be presented at the Air Situation displays except for identified areas where Radar returns are low in strength.

20.6. Track labels shall, as a minimum, include information relating to the identity of the aircraft, pressure altitude-derived level information and ground velocity.

20.7. The ADS-B level data presented on the controllers situation display shall be derived from barometric pressure altitude. In the event that barometric altitude is absent, geometric altitude shall not be displayed on displays used for provision of air traffic services

20.8. Due to the possible dual source of emergency indications (Radar and ADS-B), the surveillance system shall ensure that if one surveillance source corrupts or loses the emergency data the ATCO is informed of this inconsistency.

20.9. In the event of a failure or planned outage of ADS-B surveillance data resulting in reduced surveillance coverage, Radar data shall continue to be available. Status monitoring of the ADS-B ground receiver systems is required to detect when the unexpected deterioration occurs.

20.10. If the radar element(s) of the surveillance system fails and ADS-B becomes the only mode of surveillance, separation minima applicable to procedural control services shall be applied

until/unless the use of ADS-B OUT as the only mode of surveillance for ATC separation purpose has been implemented.

21. Use of ADS-B OUT Level Data

Where the ATM system converts ADS-B level data to display barometric equivalent level data, the displayed data shall not be used to determine vertical separation until the data is verified by comparison with a pilot reported barometric level.

22. Performance of ADS-B out Position Reports

The ADS-B out data from the aircraft shall include a NUC/NAC/NIC/SIL categorization of the accuracy and integrity of the horizontal position data.
Air Navigation Service Provider shall elect not to display ADS-B tracks that fail to meet a given position reporting performance criterion except when such tracks are the only mode of surveillance within a given airspace.

23. Reporting Rates

The ATM ADS-B system shall maintain a reporting rate that ensures at least an equivalent degree of accuracy, integrity and availability as for a radar system that is used to provide a similar ATC service. The standard reporting rate is approximately 0.5 second from the aircraft, but the rate of update provided to the ATM system for the situation display may be less frequent (e.g. 5 seconds), provided performance requirements for the service are achieved.

24. ATC Separation Service using ADS-B OUT data

24.1 ADS-B OUT data alone shall not be used for the provision of separation service until the Air Navigation service provider conducts a specific safety assessment to evaluate the suitability of ADS-B OUT data for the provision of separation service in the specific volume of airspace and obtain the approval from Director General of Civil Aviation.

24.2 Upon satisfactory compliance with the requirement specified in 24.1, ADS-B OUT surveillance data alone will be permitted to be utilized for the provision of Separation service within the airspace declared in the AIP. Any changes to the dimensions of the delineated airspace shall be subject to approval of Director General of Civil Aviation.

24.3 ADS-B OUT surveillance data outside the delineated airspace referred in 24.2 shall not be used for the for the provision separation service.

24.4 For ATM ADS-B systems to support aircraft separation services, it shall operate with duplicated/redundant systems.

24.5 ADS-B OUT data shall not be used for separation unless a suitable means of determining data integrity is used.

24.6 GNSS Integrity prediction service shall be a prerequisite for employing ADS-B to provide separation service. The prediction service shall be made available to all ATS units that are employing ADS-B to provide a separation service. This requirement is imposed to ensure that air traffic controllers are alerted in advance of any predicted degradation of the GNSS service and the associated reduction in their ability to provide ADS-B separation to flights that are within the affected area.

24.7 If an unpredicted loss of integrity occurs (including a RAIM warning report from aircrew) then;

(a) ADS-B separation shall not be applied by ATC to the particular aircraft reporting until the integrity has been assured; and

(b) The controller shall check with other aircraft in the vicinity of the aircraft reporting the RAIM warning, to determine if they have also been affected and establish alternative forms of separation if necessary.

24.8 Verification of Vertical separation using ADS-B data

Where the ATM system converts ADS-B level data to display barometric equivalent level data, the displayed data shall not be used to determine vertical separation until the data is verified by comparison with a pilot reported barometric level.

The vertical tolerances for ADS-B level information shall be ±300 foot (consistent with MODE C information).

25. ADS-B Phraseology

To ensure the safe and efficient use of ADS-B OUT for surveillance along with Radar, pilots and controllers shall strictly adhere to standard radiotelephony phraseology that are specified in Chapter 12 – 12.4 ATS SURVEILLANCE SERVICE PHRASEOLOGIES of PANS ATM Doc. 4444, (16th Edition) and any amendment thereto.

26. Emergency Procedures

The ADS-B avionics may transmit emergency status messages to any ADS-B ground station within coverage. The controller receiving these messages shall determine the nature of the emergency, acknowledge receipt if appropriate, and initiate any assistance required. An aircraft equipped with ADS-B might operate the emergency and/or urgency mode as follows:

a) emergency;
b) No communications;
c) Unlawful interference;
d) Minimum fuel; and/or
e) Medical.

The various circumstances surrounding each emergency situation preclude the establishment of exact detailed procedures to be followed. The procedures outlined in PANS-ATM Doc4444, Chapter 15 provides a general guide to air traffic services personnel and where necessary, should be adapted for the use of ADS-B operations.

Acronyms

ACID	– Aircraft Identification
ADS – B	– Automatic Dependent Surveillance – Broadcast
AFM	– Airplane Flight Manual
AFMS	– Airplane Flight Manual Supplement
AIP	– Aeronautical Information Publication
ANSP	– Air Navigation Service Provider
APAC	– Asia Pacific
APRD	– ADS-B Avionics Problem Report Database
ATC	– Air Traffic Control
ATM	– Air Traffic Management
ATS	– Air Traffic Services
CAASL	– Civil Aviation Authority of Sri Lanka
CNS	– Communication, Navigation, Surveillance
DAIW	– Danger Area Infringement Warning
DGCA	– Director General of Civil Aviation
FIR	– Flight Information Region
GNSS	– Global navigation satellite system
ICAO	– International Civil Aviation Authority
MSAW	– Minimum Safe Altitude Warning
MTCA	– Medium Term Conflict Alert
NACp	– Navigation Accuracy Category
NIC	– Navigation Integrity Category
NUCp	– Navigation Uncertainty Category
PANS ATM	– Procedures for Air Navigation Services – Air Traffic Management
RAM	– Route Adherence Monitoring
RAIM	– Receiver Autonomous Integrity Monitoring
RFM	– Rotorcraft Flight Manual
RFMS	– Rotorcraft Flight Manual Supplement
SARPs	– Standards and Recommended Practices
SIL	– Source Integrity Level
SSR	– Secondary Surveillance Radar
STCA	– Short Term Conflict Alert
TCAS	– Traffic Collision Avoidance System
UAT	– Universal Access Transceiver
VDL	– VHF Data Link

Appendix A – Colombo ADS – B (out) Exclusive Airspace