

**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**

**Reference No. :** IS-06(i),11& 10 (iii & iv)

**SLCAIS:** 064

**Date:** 10<sup>th</sup> October 2017

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 of the 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 as mentioned in the Attachment hereto (Ref: IS-06(i),11& 10 (iii & iv)-Att.), for the purpose of elaborating the requirements on Automatic Dependent Surveillance Broadcast Out (ADS-B OUT) Operations 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.

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 in to force with immediate effect and remain in force unless revoked. This shall be applicable to any civil aircraft operator with effect from 2020.

Attention is also drawn to Sec. 103 of the Act, which states inter alia that failure to comply with Implementing Standard is an offence.

H.M.C. Nimalsiri  
Director General of Civil Aviation and  
Chief Executive Officer

Civil Aviation Authority of Sri Lanka  
04, Hunupitiya Road  
Colombo 02.

Enclosure: Attachment No. IS-06(i), 11& 10 (iii & IV)-Att.

## **Implementing Standards**

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

#### **1. GENERAL:**

##### **1.1. Applicability**

- i. Holders of Air Operator Certificate issued by the DGCA for commercial air transportation shall comply with the requirements published in this document and are hereby instructed to forward to the DGCA a “Declaration of Conformance” which indicates the degree of compliance with each items 2 to 10 detailed in the document.
- ii. Holders of Air Operator Certificate issued by the DGCA for any other operation other than commercial Air transport shall comply with the requirement by 2020.
- iii. Air Navigation Service Providers shall comply with the requirements published in item 11 to 29 of this document.
- iv. This document may be amended from time to time and the amendments will be reflected with the vertical line on the right side of the text.

##### **1.2. Purpose**

The intent of this Implementing standard is to facilitate operations using Automatic Dependent Surveillance Broadcast (ADS-B) technology.

### **AIRCRAFT OPERATORS**

#### **2. Operational Authorization to conduct ADS-B Operations**

##### **2.1 Local Aircraft Operators**

Commercial operators will be issued an Operations Specification (Ops, Specs.) and General Aviation a “Letter of Authorization” (LOA) for ADS-B operational approval.

##### **2.2 Foreign Aircraft Operators**

**2.2.1.** Any Foreign Aircraft Operator operating in the Colombo Terminal Control Area (TMA) shall have the relevant operational approval from the state of registry if ADS-B operational approvals are issued by the particular State.

**2.2.2** Aircraft that does not have the relevant ADS-B operational approval from a state of registry which requires such approval will not be accorded priority in the delineated airspace.

#### **3. Aircraft Equipage**

With implementation of Automatic Dependent Surveillance Broadcast (ADS-B OUT) within the Terminal Control Area (TMA) of Colombo FIR, each aircraft intending to use ADS-B OUT within Colombo TMA shall:

- 3.1.** Be equipped with serviceable ADS-B OUT avionics complying with minimum operational performance standards detailed in RTCA/DO-260, DO 260A or DO-260B.
- 3.2.** Carry serviceable 1090 MHz Extended Squitter (1090 ES) ADS-B transmitting equipment that has been certified 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 2024),
  - or
  - b) European Aviation Safety Agency – Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS) Subpart D – Surveillance (SUR) (CSACNS.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.
- 3.3.** Use GNSS equipment compliant with Technical Standard Orders TSO-C145, TSCO-C146, TSO-C196, later versions or equivalent standards acceptable to the Civil Aviation Authority of Sri Lanka, and suitable for use with ADS-B.
- 3.4.** 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, NAC or SIL); or
  - (c) The operator has received an exemption granted by the appropriate ATS authority.

#### **4. 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 in all airspace at all altitudes unless the pilot is directed or approved otherwise by ATC.

#### **5. 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.

## **6. 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

## **7. 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.

## **8. Revision of MEL**

The operator shall submit documentation for proposed MEL (if used) revisions that address appropriate dispatch procedures of the aircraft with the ADS-B OUT system inoperative or partially inoperative.

## **9. Flight Crew Training.**

Pilots conducting operations under this authorization shall be trained in the use and limitations of the installed ADS-B system, unless one of the crewmembers is an approved trainer on ADS-B training, as appropriate. Operators shall submit documentation that details the method and content of the pilot training to be conducted.

Pilot training shall address the following:

- a) ADS-B operating procedures;
- b) Flight planning;
- c) MEL procedures;
- d) ADS-B phraseology applicable to specific regions of operation;
- e) ADS-B system operation, including normal/abnormal/contingency procedures;
- f) Correct entry of ICAO aircraft ID as applicable to the flight;
- g) Operational procedures regarding the transmission of the generic emergency code (i.e., 7700) in cases when the flight crew actually selected a discrete emergency code (e.g., 7500, 7600);
- h) Handling of data source errors (e.g., discrepancies between navigation data sources); and
- i) Incident reporting procedures.

## **10. ADS-B Flight Planning Requirements**

### **10.1. 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

## **10.2. 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.

## **AIR NAVIGATION SERVICE PROVIDERS**

### **11. 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.

### **12. 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 fulfill the corresponding requirements of the ADS-B application, in terms of:

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

### **13. Integration of ADS-B OUT data to Surveillance Infrastructure**

**13.1.** 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.

**13.2.** 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.

### **14. 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/ RAIW etc) shall possess the same responsiveness to ADS-B targets as equivalent to radar safety net features.

## **15. 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.

## **16. Safety Assessment on ADS-B OUT Operations**

**16.1.** For initial implementation as well as any future enhancements, 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.

**16.2.** A safety assessment that shall be conducted in 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 fallback arrangements;
- e) Categorizing the degree of acceptability of risks; and
- f) Operational hazard identification process.

**16.3.** 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.

## **17. Conducting ADS-B out Operational Trials**

Air Navigation Service Provider shall conduct trials with suitably equipped aircraft to ensure they meet the operational and technical requirements to provide an ATS.

## **18. Conducting ADS-B System Monitoring**

**18.1.** Air Navigation Service Provider shall identify and record ADS-B system component failures. With recorded information Air Navigation Service Provider should submit reports mentioned in **18.2** and **18.3**.

### **18.2. 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 should complete the ADS-B Periodic Status report annually and deliver report to CAASL.

### **18.3. 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 should document the problem and resolve it with the appropriate party. These problems should 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.

## **19. Retention of ADS-B data**

The Air Navigation Provider shall retain records of ADS-B OUT data for at least 30 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.

## **20. 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.

## **21. 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.

## **22. ATC Surveillance using ADS-B OUT data**

**22.1.** 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 should be similar to those contained in ICAO doc PANS-ATM Doc 4444, Chapter.8

**22.2.** 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.

**22.3.** 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;
- c) Observation of compliance with an instruction to TRANSMIT ADS-B IDENT.

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

**23.1.** 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.

**23.2.** 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.

**23.3.** 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.

**23.4.** 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.

**23.5.** 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.

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

**23.7.** 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



- 23.8.** 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.
- 23.9.** 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.
- 23.10.** 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.

#### **24. 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.

#### **25. 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.

#### **26. Reporting Rates**

The 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.

#### **27. ATC Separation Service using ADS-B OUT data**

- 27.1.** ADS-B OUT data alone shall not be used for the provision of separation service. The Air Navigation service provider shall undertake specific safety assessment study for the suitability of ADS-B OUT data for the provision of separation service for CAASL to consider such approval. The particular Safety Case will form the basis for the regulatory approval for such.
- 27.2.** For ADS-B systems to support aircraft separation services, it shall operate with duplicated/redundant systems.
- 27.3.** ADS-B OUT data shall not be used for separation unless a suitable means of determining data integrity is used.
- 27.4.** 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.

- 27.5.** If an unpredicted loss of integrity occurs (including a RAIM warning report from aircrew) then;
- ADS-B separation shall not be applied by ATC to the particular aircraft reporting until the integrity has been assured; and
  - 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.

**27.6.** 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  $\pm 300$  foot (consistent with MODE C information)

**28. 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 found in PANS ATM Doc4444, Chapter 12.

Circumstances	Controller Phraseology	Flight Crew Phraseology
To request the capabilities of the ADS-B airborne equipment	ADVISE ADS-B CAPABILITY	ADS-B TRANSMITTER (data link); ADS-B RECEIVER (data link); NEGATIVE ADS-B.
To request reselection of the aircraft identification	RE-ENTER FLIGHT IDENTIFICATION.	WILCO/UNABLE
Termination of RADAR and/or ADS-B	IDENTIFICATION LOST[reasons] (instructions)	WILCO
To request the operation of the MODE S or ADS-B ident feature	SQUAWK IDENT TRANSMIT ADS-B IDENT	WILCO IDENT
To request aircraft switching to other transponder or termination of ADS-B transmitter operation	SWITCH TO OTHER TRANSPONDER STOP ADS-B TRANSMISSION. SQUAWK (code) ONLY	WILCO
<i>Note: 1. In many cases the ADS-B transmitter cannot be operated independently of the SSR transponder and switching off the ADS-B transmission would also</i>		

<p><i>switch off the SSR transponder operation</i></p> <p>2. <i>“STOP ADS-B TRANSMISSION” applies only to aircraft that have the facility to switch off the ADS-B transmission, while maintaining SSR operation.</i></p>		
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## 29. 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.

**Appendix A****APPLICATION FOR ADS-B OUT OPERATIONAL APPROVAL**

Please complete the form in BLOCK CAPITALS using black or dark blue ink.

This form is designed to elicit all the required information from those operators requiring the ADS-B-OUT Operational Approval. Complete Section I, II and III and submit to the Deputy Director General Flight Safety Regulations, Civil Aviation Authority, No 04 Hunupitiya Road, Colombo 02, Sri Lanka.

The assessment to the application of the Operational Approval is based on EASA Acceptance Means of Compliance AMC 20-24. Applicants are strongly advised to read the AMC 20-24 and 'Notes for Completion' at the end of this form.

**SECTION I OPERATOR DETAILS**

Name of Operator

Applicants Name and Designation

Address

Tel.

Email

**SECTION II**

<b>Aircraft Registration</b>	<b>Aircraft Model</b>	<b>GNSS Receiver Model</b>	<b>ADS-B Transponder Model</b>	<b>Airworthiness Compliance Standard</b>

**SECTION III – OPERATIONAL APPROVAL**

Paragraph 1 - The airworthiness compliance of EASA AMC 20-24 is declared in the Aircraft Flight Manual, AFM supplement or other appropriate airworthiness documentation. If the aircraft does not have the equipment certification, alternatively compliance with Appendix XI of CASA CAO 20.18 specified requirements needs to be demonstrated.

Alternate compliance FAA AC No 20-165

ADS-B equipages compliance requirements can be referred to (to be entered by Airworthiness)

Paragraph 2 -Appropriate flight operations training programme and operational procedures are established to ensure that pilots are knowledgeable about ADS-B operations and their onboard operational equipment.

The Operations Manual, preferably Section B, should include a system description, operational and contingency procedures and training elements for use of the ADS-B application.

Aircraft operators should ensure that flight crew are thoroughly familiar with all relevant aspects of ADS-B applications. Flight crew training should address the

- a) General understanding of ADS-B operating procedure
- b) Specific ADS-B associated phraseology;
- c) General understanding of the ADS-B technique and technology;
- d) Characteristics and limitations of the flight deck human-machine interface, including an overview of ADS-B environment and system descriptions.

Paragraph 3 - The Minimum Equipment List needs to reflect the functional requirements of the ADS-B system, such as GPS/MMR and ATC transponder

Paragraph 4 - The continuing airworthiness of ADS-B system must be assured. Existing maintenance programme or a proposed maintenance programme needs to be reviewed to ensure that it meets relevant requirements.

Maintenance tests should include a periodic verification check of aircraft derived data including the ICAO 24 bit aircraft address using suitable ramp test equipment and periodicity for the check of the ADS-B transmitter should be established.

Address for submissions:  
 Director Flight Operations  
 Civil Aviation Authority of Sri Lanka  
 No.4 Hunupitiya Road  
 Colombo 02.

Contact details for enquiries:  
 011 2358882 or  
 011 2304632  
 ext.882

**SECTION IV SIGNATURE BLOCK**

Signature: .....

Name.....

Designation: .....

Date: .....

*Please note that a minimum of 60 working days will normally be required to check and confirm the information given above – if data is missing or omitted the process may take considerably longer.*