

GUERNSEY ADVISORY CIRCULAR (GACs)



GAC OPS-1



**ATS Comms &
Surveillance
Authorisations**

© Published by the Director of Civil Aviation, Guernsey

First Issue

May 2020

Guernsey Advisory Circulars (GACs) are issued to provide advice, guidance and information on standards, practices and procedures necessary to facilitate the application and processing of applications for services related to the Guernsey Aircraft Register.

They are not in themselves law or a regulation but may amplify provisions of the laws and regulations, including the Guernsey Aviation requirements, or provide practical guidance. Since GAC's are non-binding, regulated persons may choose alternative means to comply with the guidance. In this case, however, they lose the presumption of compliance provided by the circular and need to demonstrate to the Office of the Director Civil Aviation (ODCA) that they do comply with the law.

The definitive version of GACs is on the States of Guernsey website <http://www.cidca.aero/guernsey-aviation-requirementsgov.gg/> which should be viewed to establish the latest issue.

Enquiries regarding the content of this publication should be addressed to the Director of Civil Aviation, Guernsey Airport, Airport Terminal Building, La Villiaze, Forest, Guernsey, GY8 ODS.

Processing of applications will be done by the Guernsey Aircraft Registry, which operates as '2-REG'. For further information consult <http://www.2-reg.com> or send a message to info@2-reg.com.

Checklist of Pages

	Page no	Issue no	Date
Title page		1	May 2020
Checklist of pages	i	1	May 2020
Revisions	ii	1	May 2020
Contents	iii	1	May 2020
	1	1	May 2020
	2	1	May 2020
	3	1	May 2020
	4	1	May 2020
	5	1	May 2020
	6	1	May 2020
	7	1	May 2020
	8	1	May 2020
	9	1	May 2020
	10	1	May 2020
	11	1	May 2020
	12	1	May 2020
	13	1	May 2020
	14	1	May 2020
	15	1	May 2020
	16	1	May 2020
	17	1	May 2020
	18	1	May 2020
	19	1	May 2020

Revisions

GAC Issue	Subject
Issue 1	First issue
	•

Contents

1 – Purpose	1
2 – Related laws and regulations	1
3 – Abbreviations	2
4 – Definitions	3
5 – Introduction and background	5
5.1 Data Link Systems	5
5.2 FANS 1/A Advantages	6
5.3 Data Link Mandate	6
5.4 PBCS	6
5.5 ICAO Guidance	9
5.6 Operational Use	9
6 – Application process	9
6.1 Requirements	9
6.2 Application Forms	9
6.3 Application for FANS 1/A approval	10
6.4 Application for FANS 1/A + (PBCS) approval	11
6.5 Application for ADS-B OUT	18
6.6 Application for ATN B1	18
6.7 Continuing Surveillance	19

1 – Purpose

The purpose of this Guernsey Advisory Circular (GAC) is to present to applicants guidance for obtaining approval for data link communications and surveillance operations, including Performance-Based Communication and Surveillance (PBCS). This approval will permit 2-REG Air Operator Certificate (AOC) holders, ANL Section 77 (POC) holders and GAR 91 (Private) operators to conduct operations in airspace where these data link communications and surveillance specifications are applied, subject to the applicable requirements of the approval.

1.1 Specific approvals for data link communications and surveillance:

Guernsey regulations require aircraft operators to be approved for certain types of data link communications and surveillance operations. For the following communications and surveillance operations the Guernsey Director of Civil Aviation (DCA) issues a specific approval as means to ensure Guernsey AOC, Section 77 (POC) holders and GAR 91 (Private) operators are compliant with GAR 91 and in particular the requirements of GAR 91.670 and GAR 91.677:

- | |
|---|
| ☐ FANS 1/A |
| ☐ FANS 1/A+ (PBCS) |
| ☐ ATN B1 CPDLC |
| ☐ ADS-B - OUT |

The fees for applying for these specific approvals can be found on the 2-REG website, <https://www.2-reg.com/services/fees-2/>.

2 – Related laws and regulations

This GAC relates to:

- The Air Navigation (Bailiwick of Guernsey) Law, 2012 (ANL), Chapter VI.
- Guernsey Aviation Requirements Part 91, Part 125, Part 119, Part 135 and Part 121.
- ICAO Document 9869 Performance-based Communication and Surveillance (PBCS) Manual
- ICAO Operational Authorization Guide Performance-Based Communication and Surveillance
- ICAO Document 10037 Global Operational Data Link (GOLD) Manual
- ICAO Document 4444 Procedures for Air Navigation Services-Air Traffic Management
- ICAO Document 7030 Regional Supplementary Procedures
- ICAO Annex 6 Operation of Aircraft

- ICAO Annex 11 Air Traffic Services
- ICAO NAT OPS Bulletin 2017_001_Revision 04 Effective 09 July 2019

3 – Abbreviations

ACARS Aircraft Communication Addressing and Reporting System

ADS-B Automatic Dependent Surveillance-Broadcast

ADS-C Automatic Dependent Surveillance-Contract

APAC Asia and The Pacific

ATN B1 Aeronautical Telecommunication Network Baseline 1

CPDLC Controller-Pilot Data Link Communications

CSP Communication Service Provider

DLM Data Link Mandate

ET Expiration Time

EUROCAE European Organization for Civil Aviation Equipment

FANS 1/A Future Air Navigation System

HFDL High Frequency Data Link

HLA High Level Airspace

NAT North Atlantic

OTS Organized Track System

PBC Performance-Based Communications

PBCS Performance-based Communication and Surveillance

PBS Performance-Based Surveillance

RCP Required Communications Performance

RSP Required Surveillance Performance

SATVOICE Satellite Voice

SSP Satellite service provider

4 – Definitions

Definitions, in the context of this GAC, will have the meanings listed in GAR Part 1 (Definitions, Abbreviations and Units of Measurement) unless otherwise stated. The definitions specific to this GAC are the following:

Aeronautical Telecommunication Network Baseline 1 (ATN B1):

ATN B1 generally means that the data link system on an aircraft, the Air Traffic Services Unit (ATSU) ground system, and communication service provision comply with the standard as adapted by Eurocontrol Specification on Data Link Services (EUROCONTROL-SPEC0116). ATN B1 consists of the following data link applications: (i) Context Management (CM) for data link initiation capability (DLIC); and (ii) Limited Controller Pilot Data Link Communications (CPDLC) for Air Traffic Service (ATS) Communications Management (ACM), ATS clearance (ACL), and ATC Microphone Check (AMC).

Automatic Dependent Surveillance – Contract (ADS-C):

A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated and what data would be contained in the reports.

Future Air Navigation System (FANS 1/A):

FANS 1/A generally means that the data link system on an aircraft, the ATSU ground system, and communication service provision comply with the standard. In certain cases, specific reference is made to a particular type of FANS 1/A aircraft as follows: (i) FANS 1/A+ means that the aircraft completely complies with Revision A of the standard, which includes message latency monitor; and (ii) FANS 1/A ADS-C means that the aircraft complies with ATC Facilities Notification (AFN) and ADS-C applications, but does not include the CPDLC application.

Performance-Based Communications (PBC):

ATS communication services and capability based on performance requirements for air traffic service provision, aircraft and flight operations along an ATS route, on an instrument approach procedure or in a designated airspace.

Note: Communication performance requirements are allocated to system components in an RCP specification in terms of communication transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-Based Communications and Surveillance (PBCS) Operation:

Air Traffic Management (ATM) or aircraft operation to which an RCP and/or RSP specification has been prescribed.

Performance-Based Surveillance (PBS):

ATS surveillance services and capability based on performance requirements for air traffic service provision, aircraft and flight operations along an ATS route, on an instrument approach procedure or in a designated airspace.

Note: Surveillance performance requirements are allocated to system components in an RSP specification in terms of surveillance data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Required Communication Performance (RCP) specification:

A set of requirements for air traffic service provision, aircraft capability, and operations needed to support performance-based communication within a defined airspace.

Note 1: See International Civil Aviation Organization (ICAO) Doc 9869 and Appendix B of Global Operational Data Link Document (GOLD) document for RCP specifications.

Note 2: The term RCP, defined by ICAO as “a statement of performance requirements for operational communication in support of specific ATM functions”, is used to align the concept of PBC with the concept of PBN. The term RCP is now used in the context of a specification that is applicable to the prescription of airspace requirements, qualification of ATS provision, aircraft capability, and operational use, including post-implementation monitoring (e.g. RCP 240 refers to the criteria for various components of the operational system to ensure an acceptable intervention capability for the controller is maintained).

Required Surveillance Performance (RSP) specification:

A set of requirements for air traffic service provision, aircraft capability, and operations needed to support performance-based surveillance within a defined airspace.

Note 1: See ICAO Doc 9869 and Appendix C of the GOLD document for RSP specifications.

Note 2: The term RSP is used in the context of a specification that is applicable to the prescription of airspace requirements, qualification of ATS provision, aircraft capability,

and operational use, including post-implementation monitoring (e.g. RSP 180 refers to the criteria for various components of the operational system to ensure an acceptable surveillance capability for the controller is maintained).

Satellite Service Provider (SSP):

An entity or group of entities that provide, via satellite, aeronautical fixed services and/or aeronautical mobile services at least from the signal in space to/from aircraft, to the attachment point of the ground earth station (GES) to the ground communication services network.

5 – Introduction and background

5.1 Data Link Systems

Data link is a generic term describing different types of data link systems. Most data link equipped aircraft have VHF data link; others have additional HF and satellite capability. Data link communications permit the transmission and receipt of digital information. Systems include FANS 1/A, ACARS and ATN Baseline 1 (B1).

5.1.1 ICAO set out to establish a FANS architecture in the 1980s; FANS 1/A is ACARS-based and provides data link communications between pilots and ATC. FANS 1/A+ indicates an updated system that detects old messages that may no longer apply via a message latency monitor. ACARS was introduced by airlines in the 1980s in order to reduce pilot workload (e.g. D-ATIS and DCL/PDC) and improve data integrity. FANS 1/A comprises CPDLC and ADS-C.

5.1.2 CPDLC is a means of pilot/controller data link communication, with standard format or free text messages available. ADS-C is an automated surveillance information system that transmits data (such as aircraft identification, position, altitude, Mach number, vertical speed, true track, magnetic heading, ground speed, navigation waypoints and meteorological information) without pilot input to an ATSU. ADS-C is provided on a contract basis and may provide emergency/covert information depending upon the contract and aircraft capability.

5.1.3 ATN B1 are ATS applications comprising Context Management and CPDLC supported by an ATN network.

Digital departure clearances may be provided by CPDLC-DCL or PDC.

5.2 FANS 1/A Advantages

Demonstrable benefits of FANS 1/A have been:

- Fewer ground departure delays whilst awaiting clearance
- Fully automated oceanic position reporting (via ADS-C)
- Improved ATS controller awareness of aircraft situation
- Improved oceanic communications quality (compared with HF)
- Reduction in human error
- Reduced lateral and longitudinal separation

5.3 Data Link Mandate

In 2015, Data Link Mandate (DLM) airspace was established in the ICAO NATHLA region within the OTS between FL 350-390 (inclusive), in the first of 3 phased implementations (2A); phase 2B established DLM across the whole of the NAT-HLA FL 350-390 (inclusive). Such designated airspace requires aircraft to be fitted with, and using, CPDLC and ADS-C. Phase 2C of the NAT Data Link Mandate was implemented on 30 January 2020, such that DLM airspace now encompasses FL 290 to FL 410 (inclusive) across all of the NAT-HLA area, except:

1. Airspace north of 80 degrees North
2. New York Oceanic East FIR
3. Airspace where an ATS surveillance service is available and enabled by VHF communications, radar, multi-lateration and/or ADS-B; the aircraft is required to be equipped with transponder/ADS-B extended squitter transmitter
4. Tango routes T9 and T290 (routes T213, T13 and T16 will require data link)

(See NAT OPS Bulletin 2017_001_Revision 04 for chart of ATS surveillance airspace, flights allowed to flight plan into NAT region DLM airspace and operational policies applicable to that region)

5.4 PBCS

PBCS has involved the establishment of RCP and RSP specifications which have allocated criteria to ATS provision, including communications services, aircraft capability, and the aircraft operator; PBCS has, alongside PBN (RNP 10, RNP 4 and RNP 2), permitted reductions in oceanic lateral and longitudinal separation minima. In the NAT-HLA OTS, for example, Reduced Lateral Separation Minima (RLatSM) includes a requirement for RNP 4, CPDLC with RCP 240 and ADS-C with RSP 180.

The PBCS concept is aligned with that of performance-based navigation (PBN). While the PBN concept applies required navigation performance (RNP) and area navigation (RNAV) specifications to the navigation element, the PBCS concept applies required communication performance (RCP) and required surveillance performance (RSP) specifications to communication and surveillance elements, respectively. However, there are some differences between the PBCS and PBN concepts:

- a) the PBCS concept applies RCP and RSP specifications, which allocate criteria to ATS provision, including communication services, aircraft capability, and the aircraft operator; whereas the PBN concept applies RNP/ RNAV specifications, which allocate criteria only to the aircraft capability and the aircraft operator; and;
- b) the PBCS concept includes post-implementation monitoring programmes, on a local and regional basis, with global exchange of information, whereas the PBN concept includes real time monitoring and alerting functionality in the aircraft capability.

Note: PBCS includes real time alerts (e.g. when a communication transaction expires or a position report is overdue) that are conceptually different than the PBN alerts (e.g. RNP UNABLE).

The PBCS provides air traffic services providers with some level of assurance that the aircraft and flight crew meet the communication and surveillance requirements needed for the application of the performance-based separation standards. PBCS also provides a framework in which all stakeholders (regulators, air traffic service providers, operators, communication service providers (CSP), manufacturers) continue to collaborate in optimizing the use of available airspace while identifying and mitigating safety risks.

5.4.1 The RCP specification represents operational parameters for the complete communication transaction; the designator (e.g. RCP 240) makes the RCP ET (in seconds) readily apparent to operators and airspace planners.

5.4.2 The RSP specification represents the value for the surveillance delivery time (in seconds). RSP enables the efficient use of airspace by allowing reduced lateral and longitudinal separation of aircraft by providing accurate and frequent updates of aircraft position.

5.4.3 The Performance-Based Communications and Surveillance (PBCS) provision applies RCP 240 and RSP 180 specifications to the application of 55.5

km (30 NM), 93 km (50 NM) and 5-minute longitudinal separation minima; and application of a 42.6 km (23 NM) lateral separation minimum (formerly 55.5 km (30 NM) lateral).

The ATS system, Communications Service Provider/Satellite Service Provider (CSP/SSP) system, operator and the aircraft system must all comply with an RCP/RSP specification.

The aircraft system is approved by the State of Design and/or State of Manufacture, which typically issues design, production and airworthiness certificates to an aircraft manufacturer or equipment supplier in accordance with national regulations.

The PBCS requirements for the aircraft system design concern its functionality, interoperability and performance in accordance with 2-REG airworthiness standards. There are no additional PBCS requirements concerning the production and airworthiness certificates other than those provided by the GARs. However, it is emphasized that certificates issued for design, production and airworthiness approval of the aircraft system do not in themselves constitute operational approval to use the system for PBCS operations.

5.5 ICAO Guidance

Full guidance and information concerning PBCS operations are in ICAO Document 9869; information with reference to procedural separation standards is in ICAO Document 4444. Performance-based separation standards have been implemented by the NAT and APAC regions, and are summarised in the table below:

10 November 2016

Lateral Separation Minimum (LatSM)								
		COM	NAV	SUR		COM	NAV	SUR
	30NM	-	RNP4	-	23NM	RCP240	RNP4	RSP180
	50NM	-	RNP 4 or 10	-	50NM	-	RNP4 or 10	

Longitudinal Separation Minimum (LongSM)								
		COM	NAV	SUR		COM	NAV	SUR
	10Min	See Note 1	See Note 2	Procedural Position Report	10Min	See Note 1	See Note 2	Procedural Position Report
	50NM	Direct pilot-controller comms (DCPC Voice or CPDLC)	RNP10		50NM	Direct pilot-controller comms (DCPC Voice or CPDLC)	RNP10	
	30NM	CPDLC	RNP4	ADS-C	5 Min	RCP240	RNP4	RSP180
	50NM	CPDLC	RNP4 or 10	ADS-C	30NM	RCP240	RNP4	RSP180
					50NM	RCP240	RNP4 or 10	RSP180

Note 1. Suitable to comply with the requirements for position reporting contained in 4.11 of Doc 4444.

Note 2. Navigation aids permitting frequent determination of position & speed.

Separation minimum applicable only to PBCS capable aircraft.

5.6 Operational Use

Operational use of both data link communications and surveillance and PBCS require approval by the DCA.

6 – Application process

6.1 Requirements

- This GAC applies to AOC, Section 77 (POC) operators and and GAR 91(Private) operators, who are referred to as the “operator” in this document.
- This section describes the approval process.

6.2 Application Forms

- Application for approval of use of FANS 1/A datalink (CPDLC and ADSC) must be made using Form A.OPS.SPA available from 2-REG.

- Application for approval of PBCS must be made using Form A.OPS.SPA available from 2-REG. PBCS approval will certify that aircraft and operator meet both the communication and surveillance requirements.

If an operator has been approved for data link operations, then the DCA will assess only the additional requirements for PBCS operations.

- Application for approval of use of ADS-B OUT must be made using Form A.OPS.SPA available from 2-REG.
- Application for approval of use of ATN B1 CPDLC must be made using Form A.OPS.SPA available from 2-REG.

6.3 Application for FANS 1/A approval

The application must reference the aircraft registration, unless all of the operator's aircraft are of the same type and may be considered "group aircraft", with identical equipment and software provision. Aircraft eligibility, aircraft maintenance, operational eligibility (including relevant sections of the Operations Manual) and pilot training / competence must all be addressed to the satisfaction of the DCA by means of a statement of compliance.

Aircraft eligibility:

- The components of a FANS 1/A equipped aircraft are normally installed at manufacture and statements confirming the capabilities of this system are included in the Type Certificate and/or AFM. However, where an aircraft has been modified in order to incorporate CPDLC and/or ADS-C, the necessary information may be contained in AFM Supplements or STCs.
- The operator will be required to submit documentary evidence of aircraft equipment capabilities (including applicable software versions) and necessary MEL and AMP amendments.

Maintenance organization:

- The operator or contracted Part-145 maintenance organization must demonstrate its competence to provide maintenance support of FANS 1/A equipment and software, including but not limited to fault analysis and correction, use of test equipment, return to service authorization, software update procedures and MEL reliefs. The operator must also demonstrate that engineering staff training is in place and adequate.

Operational eligibility:

- The operator must demonstrate that all procedures are in place to meet the specific operational criteria for designated airspace where

FANS 1/A carriage is mandatory and that pilots are suitably trained and competence confirmed for the use of data link equipment.

- The following must be demonstrated by the operator as being in place in procedures:
 - SOPs including contingency procedures
 - Applicable procedures in FCOMs and QRH
 - Suitably amended MEL
 - Pilot training programmes, including as a minimum:
 - Data link systems theory relevant to operational use, including capabilities, systems and services
 - AFM and AFM Supplement limitations
 - Normal and non-normal data link communications procedures, including PDC/DCL clearances and logon
 - Data link communications equipment faults and fault reporting
 - ADS contracts
 - MEL reliefs for data link operations
 - Human Factors aspects of data link communications
 - Data base management
- A valid aircraft Radio Licence including satellite communication transmitting approval frequencies must be carried on board the aircraft.

Approval of FANS 1/A operations will be by means of inclusion in the Ops Spec for an AOC operator and Ops Spec for the holder of a Section 77 (POC). For GAR 91 (Private) operators a separate approval will be issued.

6.4 Application for FANS 1/A + (PBCS) approval

According to ICAO Annex 6 Part I, a PBCS operational authorization should be obtained from an assessment of the required elements in the Operations Manual (OM). Aircraft eligibility, aircraft maintenance, operational eligibility (including relevant sections of the Operations Manual) and pilot training / competence must all be addressed to the satisfaction of the DCA by means of a statement of compliance. The DCA will issue a specific approval and document it in the Operations Specification (Ops Spec), associated with the air operator certificate (AOC) or, for a Section 77 (POC) operator. For GAR 91 (Private) operators a separate approval will be issued.

The assessment for the PBCS operational authorization will assess the following aspects:

- aircraft eligibility and airworthiness compliance (any limitations, assumptions or specific procedures considered in the framework of the airworthiness approval must be addressed);
- documentation and maintenance of operating procedures for the specific data link system(s) including use of message sets;
- means of ensuring compliance of contracted services, such as those with communication services providers (CSPs) with respect to PBCS operations;
- documentation and maintenance of procedures for participation in PBCS monitoring programmes including problem reporting;
- documentation and maintenance of policies and procedures to control configuration of aircraft system including software and communication subnetwork for managing media and routing;
- flight crew initial training /competency requirements and continuing qualification requirements;
- training requirements for other personnel (e.g. flight dispatchers and engineers).

All aspects must be demonstrated to the satisfaction of the DCA.

Aircraft eligibility:

The aircraft manufacturer or equipment supplier should demonstrate that aircraft system meets the required communication performance (RCP)/required surveillance performance (RSP) specifications allocated to the aircraft system as contained in the PBCS Manual (Doc 9869).

Note1. For a FANS 1/A CPDLC and ADS-C aircraft system, the Safety and Performance Requirements Standard for Air Traffic Data Link Services in Oceanic and Remote airspace (RTCA DO-306/EUROCAE ED-122) is equivalent to RCP240, RCP400, RSP180 and RSP400 contained in the PBCS Manual (Doc 9869, 2nd Edition).

Note 2. FAA AC20-140A or later satisfy the requirement for RCP240/400, RSP 180/400.

The demonstration of compliance with the RCP and RSP specifications should be specific to each individual airframe or the combination of the aircraft type and

configuration. The demonstrated compliance with specific RCP/RSP specifications may be documented in one of the following documents:

- a) the Type Certificate (TC);
- b) the Supplemental Type Certificate (STC);
- c) the Aeroplane Flight Manual (AFM), AFM Supplement, or other acceptable document; or
- d) a compliance statement from the manufacturer, which has been approved by the State of Design and accepted by the State of Registry or the State of the Operator, if different.

Note: The DCA may issue an approval at his discretion based on the compliance statement issued by the OEM as listed above or based on other alternative means of compliance that are acceptable to the DCA.

In addition to the indication of compliance with specific RCP/RSP specifications, the OEM or equipment supplier should document any associated operating limitations, information and procedures in the AFM or other appropriate documents.

The OEM or equipment supplier should identify any specific items related to PBCS capability in the master minimum equipment list (MMEL) and/or minimum equipment list (MEL).

Note: When required for the intended operation, operators will adopt provisions for certain specific systems to be operational at dispatch. The MEL should be amended to highlight the impact of losing an associated system/sub-system on data link operational capability. Equipment required in current FANS 1/A-capable models is as follows:

- *VHF, SATCOM, or HFDL radios, as appropriate*
- *ACARS management unit (MU)/communications management unit (CMU)*
- *Flight management computer (FMC) integration; and*
- *Printer (if operator procedures require its use).*

Operator eligibility:

Aircraft system: The operator should demonstrate that the aircraft system is capable of meeting the applicable RCP/RSP specifications prescribed for the

intended operation and ensure that the aircraft system is properly maintained to continue to meet the applicable RCP/RSP specifications.

The operator should also ensure that the following are documented and managed appropriately:

- configuration and equipment list detailing the pertinent hardware and software components for the aircraft /fleet(s) applicable to the specific RCP/RSP operation
- configuration control for subnetwork, communication media and routing policies; and
- description of systems including display and alerting functions (including message sets).

Operational procedures: The operator should ensure that standard operating procedures (SOPs) are established for flight crew and other relevant personnel (flight dispatchers and maintenance engineers). The SOPs should include both normal and non-normal (contingency) procedures for the data link systems used in the PBCS operations, addressing the following:

- pre-flight planning requirements including MELs, eligible flight plan filing
- actions to be taken in the data link operation, to include specific RCP/RSP required cases
- actions to be taken for the loss of data link capability while in and prior to entering the airspace requiring specific RCP/RSP specifications (global procedures are in ICAO Document 4444)
- Occurrence reporting procedures to the local/regional PBCS monitoring agency (e.g. central reporting agency); and
- specific regional requirements, if applicable.

Training: The operator should ensure that flight crew and other personnel (flight dispatchers and maintenance engineers) are proficient with the PBCS operations. The subject matter areas that should, as a minimum, be addressed during the training are:

Flight Crew:

- Data link communications system theory (relevant to operational use)
- AFM and AFM Supplement limitations
- Normal pilot response to data link communication messages

- Message elements in the message set used in each environment
- Required Communication Performance (RCP)/Required Surveillance Performance (RSP) specifications and their performance requirements
- Implementation of performance-based reduced separation with associated RCP/RSP specifications or other possible performance requirements associated with their routes
- Other ATM operations involving data link communication services
- Both normal and non-normal (contingency) procedures (see Note 2); and
- Data link communication failure/problem and reporting

Note 1: Training may be provided through training material and other means that simulate equipment functionality.

Note 2: No consolidated indication of PBCS integrity is displayed to flight crew. Flight crew training should include reaction to alerts such as failure of a particular communication means, definitive communications loss or failure of the communication or surveillance functions.

Dispatchers/Flight Operations Officers:

- Proper use of data link and PBCS flight plan designators;
- air traffic service provider's separation criteria and procedures relevant to RCP/RSP specifications;
- MEL remarks or exceptions based on data link communications;
- Procedures for transitioning to voice communication and other contingency procedures related to the operation in the event of abnormal behaviour of the data link communication;
- Coordination with the ATS unit related to or following a data link communication exceptional event (e.g. log-on or connection failures); and
- Contingency procedures to transition to a different separation standard when data link communication fails.

Engineering and maintenance personnel:

- Data link communication equipment including its installation, maintenance and modification
- MEL relief and procedures for RTS authorizations
- Correction of reported non-performance of data link system

Note: Operators unsure of required maintenance procedures for data link communication-related equipment should contact field service representatives of their aircraft OEM.

Note: A separate training program is not required if data link communication is integrated in the existing training programme. However, the operator should ensure that such a programme incorporates the basic PBCS concept and requirements for flight crew and other personnel that have a direct impact on the overall data link performance required for ATS provision (e.g. reduced separation).

CSP compliance:

The operator should ensure that contracted CSPs comply with the RCP/RSP specification allocations as well as monitoring, recording and notification requirements; and that their contracted CSPs notify the ATS units of any failure condition that may have an impact on PBCS operations. Notification should be made to all relevant ATS units regardless of whether or not the CSP has a contract with them.

Note: The operator may demonstrate the compliance of their contracted CSP through service level agreements (SLAs)/contractual arrangements for data link services or through a joint agreement among PBCS stakeholders (e.g. MOU or PBCS Charter).

Participation in PBCS monitoring programmes:

Operators should establish a process to participate in local or regional PBCS monitoring programmes and provide the following information, including any subsequent changes, to monitoring entities:

- operator name;
- operator contact details; and
- other coordination information which include e-mail address for the CSP/SSP service fail notification.

The process should also address the actions to be taken with respect to problem reporting and resolution of deficiencies, such as:

- reporting problems identified by the flight crew or other personnel to the PBCS monitoring entities associated with the route of flight on which the problem occurred
- disclosing operational data in a timely manner to the appropriate PBCS monitoring entities when requested for the purposes of investigating a reported problem
- investigating and resolving the cause of the deficiencies reported by the PBCS monitoring entities

Flight Planning:

When planning to operate in airspace where RCP/RSP specifications are prescribed for certain services such as reduced separation, the operator should ensure that the planned use of associated communication and surveillance capabilities for the flight are in accordance with regulations, policies and procedures in control areas for the flight as published in the AIP or other State publications.

The operator should ensure that the proper information indicating PBCS operational authorization for RCP/RSP capabilities is included in the ICAO flight plan as follows:

- Item 10a - CPDLC descriptors (J1-J7); RCP capability “P1” or “P2” (see Note 1); and
- Item 10b - ADS-C descriptors (D1 or G1); and
- Item 18 - “SUR/RSP180” (See Note 2) or “SUR/RSP400” to show RSP capability

Note 1: “P2” identifies an aircraft’s RCP 240 capability

Note 2: “SUR/RSP180” indicates an aircraft’s RSP 180 capability

Note 3: RCP/RSP capabilities are inserted only when CPDLC, ADS-C and SATVOICE (M1-M3) descriptors are also inserted. While RCP/RSP capability denotes performance CPDLC, ADS-C and SATVOICE descriptors denote the interoperability for the aircraft equipment.

Note 4: The inclusion of PBCS capability in the filed flight plan indicates that the relevant aircraft equipment comprising the aircraft system is approved and serviceable, and that the operator is eligible (e.g. flight crew training and

qualification) to use the equipment for PBCS operations. If these conditions are not met then PBCS capability should not be included in the flight plan.

Note 5: RNP 4 capability is also required for operation within reduced separation minima; Tango routes T9 and T290 will require RNP 2 capability.

6.5 Application for ADS-B OUT

To apply for ADS-B – OUT, the operator should complete the appropriate section of the application form together with a copy of the AFM Limitations Section or AFM supplement showing a statement of compliance that the aircraft is certificated for ADS-B – OUT. The submission must include any relevant supporting documentation to evidence embodiment of the required equipment.

Aircraft eligibility:

The aircraft is equipped with systems ensuring compliance to conduct Automatic Dependent Surveillance – Broadcast (ADS-B) Operations.

Operational eligibility:

Procedures are in place that meet the specific operational criteria for airspace where ADS-B is mandatory and flight crews are suitably trained and competent to operate the ADS-B equipment.

Continuing airworthiness:

Appropriate procedures have been instituted in respect of continuing airworthiness to ensure continued conformity and the MEL amended accordingly.

FAA/ EASA references:

The application is made with reference to FAA AC 20-165B or latest revision and/or EASA AMC 20-24 (ADS-B NRA) or latest revision.

Approval of ADS-B OUT operations will be by means of inclusion in the Ops Spec for an AOC operator and Ops Spec for the holder of a Section 77 (POC). For GAR 91 (Private) operators a separate approval will be issued.

6.6 Application for ATN B1

To apply for ATN B1, the operator should complete the appropriate section of the application form together with a copy of the AFM Limitations Section or AFM supplement showing a statement of compliance that the aircraft is certificated

for ATN B1. The submission must include any relevant supporting documentation to evidence embodiment of the required equipment.

Aircraft eligibility:

The aircraft is equipped with systems ensuring compliance to conduct data link communications during flight operations.

Operational eligibility:

Procedures are in place that meet the specific operational criteria for airspace where ATN B1 is mandatory and flight crews are suitably trained and competent to operate the data link communication equipment.

The ATC Data Link system has been demonstrated to comply with all applicable safety, performance and interoperability requirements.

Continuing airworthiness:

Appropriate procedures have been instituted in respect of continuing airworthiness to ensure continued conformity and the MEL amended accordingly.

ICAO Gold Manual:

The declaration is made with reference to the ICAO Global Operational Data Link Document (GOLD) Second Edition-26 April 2013 or latest revision.

Approval of ATN B1 operations will be by means of inclusion in the Ops Spec for an AOC operator and Ops Spec for the holder of a Section 77 (POC). For GAR 91 (Private) operators a separate approval will be issued.

6.7 Continuing Surveillance

Data link communication and surveillance approvals are not time-limited; however, they will be subject to the 2-REG continuing surveillance programme for AOCs in order to ensure that all procedures are followed and are effective. Any operational event that may have an influence on the operator's continuing data link/PBCS capability must be reported to 2-REG and will be evaluated.

END