FIJI AERONAUTICAL INFORMATION CIRCULAR

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PERFORMANCE-BASED COMMUNICATION AND SURVEILLANCE (PBCS) IMPLEMENTATION WITHIN THE NADI FIR

1. INTRODUCTION

This Aeronautical Information Circular (AIC) informs aircraft operators on Fijiôs implementation of Performance-Based Communication and Surveillance (PBCS) in accordance with the ICAO provisions to support the Performance-Based reduced horizontal separation minima application using data link.

PBCS is a concept that enables the management of communication and surveillance capabilities by prescription of Required Communication Performance (RCP) and Required Surveillance Performance (RSP) specifications in Future Air Navigation System (FANS 1/A) data link operations using the Automatic Dependent Surveillance-Contract (ADS-C) and Controller Pilot Data-link Communications (CPDLC).

Pursuant to the ICAO Provisions and amendments to Annexes 4, 6 (Parts I, II, III), 10 (Volumes II, III), 11, 15, PANS-ATM (Doc 4444) and PANS-ABC (Doc 8400) on PBCS, including new Standards and Recommended Practices (SARPS) and related guidance material, Performance-Based Communication and Surveillance (PBCS) Manual (Doc 9869 2nd Edition) and Global Operational Data Link (GOLD) Manual (Doc 10037 1st Edition) were applicable from 10 November 2016.

Recognizing that many States, Air Navigation Service Providers (ANSPs) and aircraft operators will not be ready to fully implement the new PBCS provisions by 10 November 2016, the 27th Meeting of the ICAO Asia Pacific Air Navigation Planning and Implementation Regional Group endorsed the decision to implement PBCS particularly on the use of ICAO PBCS flight plan indicators to determine aircraft eligibility for performance-based separation not later than 29 March 2018

This AIC is provided for information and guidance purposes. It describes an acceptable means of demonstrating compliance with regulations and standards. This AIC on its own does not change, create, amend or permit deviations from regulatory requirements.

1.1 PURPOSE

The purpose of this AIC is to inform the aviation industry of the implementation of Performance-Based Communications and Surveillance (PBCS) within the Nadi FIR as of the 29th March 2018.

Fijian registered air operators and private operators will be required to obtain a Fiji Letter of Authorization (LOA) for Required Communications Performance specification (RCP 240) and Required Surveillance Performance specification (RSP 180) from CAAF in order to be eligible for PBCS reduced separation standards within the Nadi FIR.

Compliance with the *Fiji Air Navigation Regulations* (ANR) and the associated and applicable certification requirements for installation and operation of equipment is assumed.

1.2 APPLICABILITY

This AIC applies to Fiji air operators such as Fiji Airways and Fiji Link holding an Air Operator Certificate (AOC) issued under Part II & III of the Fiji Air Navigation Regulation (ANR) that wish to be eligible for application of separation minima that require the RCP 240 and/or RSP 180 specification within the Nadi OCA/FIR and to the Certified Air Navigation Service Provider who is required to implement the Air Traffic Management (ATM) system capability to process and use PBCS flight plan indicators to determine aircraft eligibility for performance based horizontal separation.

2. REFERENCES AND REQUIREMENTS

2.1 Reference Documents

It is intended that the following reference materials (latest edition) be used in conjunction with this document:

(a) *Air Navigation Regulation 1981* Part II & III ð *Airworthiness; Operation of Aircraft;*
(b) International Civil Aviation Organization (ICAO) DOC 9689 ð *Performance-based Communication and Surveillance (PBCS) Manual;*
(c) ICAO DOC 10037 ð *Global Operational Data Link (GOLD) Manual;*
(d) Federal Aviation Administration (FAA) Advisory Circular (AC) *120-70C* ð *Operational Authorization Process for use of Data Link Communication Systems;*
(e) FAA AC 20-140B ð *Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS);*
(f) FAA AC 20-160 ð *Onboard Recording of Controller Pilot Data Link Communication in Crash Survivable Memory;*
(g) *Safety and Performance Standard for Air Traffic Data Link Services in Oceanic and Remote Airspace* (Oceanic SPR Standard, RTCA DO-306/EUROCAE ED-122);
(h) *Safety and Performance Standard for Air Traffic Data Link Services in Continental Airspace* (Continental SPR Standard, RTCA DO-290/EUROCAE ED-120, Change 1 and Change 2);

(i) *Interoperability Requirements for ATS Applications Using ARINC 622 Data Communications* (FANS 1/A INTEROP Standard, RTCA DO-258A/EUROCAE ED-100A);

(j) *Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1* (ATN B1 INTEROP Standard, RTCA DO-280B/EUROCAE ED-110B); and

(k) *Future Air Navigation System 1/A — Aeronautical Telecommunication Network Interoperability Standard* (FANS 1/A ð ATN B1 INTEROP Standard, RTCA DO305A/EUROCAE ED 154A).

2.2 Definitions and Abbreviations

The following definitions are used for the purposes of this AIC:

(a) **Actual Communications Performance (ACP)**: The portion of communication transaction time that is monitored against the Required Communication Monitored Performance (RCMP) values provided by the Required Communications Performance (RCP) specification.

(b) **Actual Surveillance Performance (ASP)**: The portion of surveillance data delivery time that is monitored against the RSMP values provided by the Required Surveillance Performance (RSP) specification.

(c) **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-SPEC-0116). 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).

(d) **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.

(e) **Communication Service Provider (CSP)**: Any public or private entity providing communication services for general air traffic. This would include services provided by a satellite service provider (SSP) through a contract or agreement.

(f) **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.

(g) **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.*

(h) **Performance-Based Communications and Surveillance (PBCS) Operatio**n: Air Traffic Management (ATM) or aircraft operation to which an RCP and/or RSP specification has been prescribed.

(i) **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.*

(j) **Required Communication Monitored Performance (RCMP):** An RCP allocation that specifies the maximum time against which ACP is assessed.

(k) **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 Doc 10037 (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).*

(l) **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 ICAO Doc 10037(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).*

(m) **Required Surveillance Monitored Performance (RSMP):** An RSP allocation that specifies the maximum time against which ASP is assessed.

(n) **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.

(o) **Letter of Authorization (LOA):** The authorization containing conditions and limitations associated with the air operator certificate (AOC) and subject to the conditions in the operations manual.

2.3 The following **abbreviations** are used in this AIC:

(a) **AIC:** Aeronautical Information Circular;

(b) **ACM:** ATS Communications Management;

(c) **ACP:** Actual Communications Performance;

(d) **ADS-B:** Automatic Dependent Surveillance ï Broadcast;

(e) **ADS-C:** Automatic Dependent Surveillance ï Contract;

(f) **AFM:** Aircraft Flight Manual;

(g) **AFN:** ATC Facilities Notification;

(h) **AIP:** Aeronautical Information Publication;

(i) **AOC:** Air Operator Certificate;

(j) **ANR:** Air Navigation Regulation

(k) **ANSP:** Air Navigation Service Provider;

(l) **ASP:** Actual Surveillance Performance;

(m) **ATM:** Air Traffic Management;

(n) **ATN B1:** Aeronautical Telecommunication Network Baseline 1;

(o) **ATS:** Air Traffic Service;

(p) **ATSU:** Air Traffic Services Unit;

(q) **CAAF:** Civil Aviation Authority of Fiji

(r) **CM:** Context Management;

(s) **CPDLC:** Controller-Pilot Data Link Communications;

(t) **CSP:** Communications Service Provider;

(u) **COM:** Company Operations Manual;

(v) **EUROCAE:** European Organization for Civil Aviation Equipment;

(w) **FANS 1/A:** Future Air Navigation System (1 = Boeing, A = Airbus);

(x) **GOLD:** Global Operational Data Link Document (Doc 10037);

(y) **HMI:** Human-machine interface;

(z) **ICAO:** International Civil Aviation Organization;

(aa) **LOA:** Letter of Authorisation

(bb) **MEL:** Minimum Equipment List;

(cc) **MMEL:** Master Minimum Equipment List;

(dd) **PBC:** Performance-based Communications;

(ee) **PBCS:** Performance-based Communications and Surveillance;

(ff) **PBN**: Performance-based Navigation;

(gg) **PBS:** Performance-based Surveillance;

(hh) **RCMP:** Required Communication Monitored Performance;

(ii) **RCP:** Required Communications Performance;

(jj) **RNP:** Required Navigation Performance;

(kk) **RSMP:** Required Surveillance Monitored Performance;

(ll) **RSP:** Required Surveillance Performance;

(mm) **RTCA:** Radio Technical Commission for Aeronautics;

(nn) **SATVOICE:** Satellite Voice;

(oo) **SOP:** Standard Operating Procedures;

(pp) **SSP:** Satellite Service Provider;

(qq) **STC:** Supplemental Type Certificate;

(rr) **SVOM:** Satellite Voice Operations Manual;

3. BACKGROUND

The standards and procedures for ATM operation are predicated on communication and surveillance capabilities. The application of a reduced separation minimum must be supported by the appropriate Required Communications Performance (RCP)/Required Surveillance Performance (RSP) specification. The RCP/RSP specifications provide the operational performance criteria and associated allocations to the ATM subsystems for the communication and surveillance capabilities supporting the ATM operation.

PBCS provisions in ICAO Annex 6 Operation of Aircraft and Doc 4444 Procedures for Air Navigation Services ï Air Traffic Management (PANS-ATM) became applicable from November 2016.

Performance-based operations and monitoring have been implemented in the Nadi FIR (NFFF) to ensure the ongoing safety and efficiency of ATM operations. The performance of FANS 1/A (and equivalent) Controller-Pilot Data Link Communications (CPDLC) and ADS-C are monitored in the Nadi FIR Upper Airspace against the RCP 240 and RSP 180 specifications.

To support these PBCS provisions, performance-based separation minima is to be applied in accordance with the ICAO PBCS flight plan indictors that show an aircraftôs eligibility for performance-based horizontal separation.

4. REQUIIRED COMMUNICATION PERFORMANCE (RCP) 240 AND REQUIRED SURVEILLANCE PERFORMANCE (RSP) 180

4.1 General

a) The PBCS concept provides a framework to apply RCP and RSP specifications to ensure the acceptable communication and surveillance capabilities and performance of an operational system.

b) The main components that involve the joint participation from States, ANSPs and aircraft operators under the PBCS implementation framework consist of the following:
   1. To prescribe RCP and RSP specifications, for aircraft operators, aircraft systems and infrastructure supporting datalink operations, when applying separations predicated on such performance;
   2. Operational approval of aircraft operators for a communication and/or surveillance capability including aircraft equipage for operations where RCP and/or RSP specifications will have to be prescribed;

3. Indication of an aircraft's communication and performance capability in the form of RCP / RSP specifications in the flight plan; and
4. Monitoring programmes to assess actual communication and surveillance performance against RCP and RSP specifications and to determine corrective action to report, analyse and resolve problems.

c) The PBCS provision applies RCP 240 and RSP 180 specifications to the application of 55.5 km (30 NM) and 93 km (50 NM) longitudinal separation minima and application of a 55.5 km (30 NM) lateral separation minimum.

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

e) 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. However, CAAF allows operators to obtain the necessary certificates for equipment approval. In such cases, the guidelines in section 2.0 of Appendix A would apply to the aircraft operator.

f) The PBCS requirements for the design of the aircraft system concern its functionality, interoperability and performance in accordance with national airworthiness standards. There are no additional PBCS requirements concerning the production and airworthiness certificates other than those provided by national regulations. Certificates issued for design, production and airworthiness approval of the aircraft system do not constitute operational approval to use the system for PBCS operations.

g) The aircraft operator must obtain an operational approval in the form of a Letter of Authorization from the Civil Aviation Authority of Fiji (CAAF) to be eligible for PBCS operations. The operational approval must address flight crew training and qualification, Minimum Equipment List (MEL), maintenance, user modifiable software and CSP/SSP service agreements.

4.2 Required communication performance (RCP) specifications

The RCP 240 specification shall be applicable to controller-pilot data link communications (CPDLC) service and aircraft capability used to support the PBCS separation minima.

4.2.1 Means of compliance

The aircraft operator shall:

a) participate in the Pacific PBCS monitoring programmes; and
b) by 29 March 2018, be approved by the State of the Operator or the State of Registry, as appropriate, to file the RCP 240 flight plan designator.

The Fiji air navigation service provider shall:

a) establish PBCS monitoring programmes; and
b) from 29 March 2018, apply the RCP 240 flight plan designator to determine aircraft eligibility for relevant separation minima.

4.3 Required surveillance performance (RSP) specifications

The RSP 180 specification shall be applicable to automatic dependent surveillance ï contract (ADS-C) service used to support the PBCS separation minima.

4.3.1 Means of compliance

The aircraft operator shall:

a) participate in the PAC PBCS monitoring programmes; and
b) by 29 March 2018, be approved by the State of the Operator or the State of Registry, as appropriate, to file the RSP 180 flight plan designator.

The Fiji air navigation service provider shall:

a) establish PBCS monitoring programmes; and
b) from 29 March 2018, apply the RSP 180 flight plan designator to determine aircraft eligibility for relevant separation minima.

4.4 Conditions for Authorization

a) Appendix A provides the specific conditions that must be met in order to qualify for RCP 240 and RSP 180 Authorization. The intent is to transcribe these conditions into the operatorôs Air Operator Certificate (AOC) by reference to Appendix A. Appendix B provides guidance which is applicable to the specific conditions in Appendix A.

b) Additional guidance is provided in the documents referenced in section 2.1 above.

5.0 AERODROME/AIRSPACE REQUIREMENTS

There will be no introduction of any new airspace separations with the introduction of PBCS. However, existing application of performance-based reduced separation standards, as per ICAO Document 4444, will, as of March 29 2018, become subject to PBCS Authorisation of participating aircraft within the Nadi Flight Information Region (FIR).

This affects the following separations currently in use:

- 30NM lateral; and
- 30NM and 50NM longitudinal.

6.0 CONCLUSION

Aircraft operators conducting flights in the Nadi FIR, where separations are dependent on Performance-Based Communication and Surveillance (PBCS), shall start using RCP/RSP indicators in their flight plans as soon as possible, however, no later than March 29 2018.

The application of existing and planned RNAV and RNP-based 50 NM and 30NM longitudinal and 30NM lateral separation minima shall continue, subject to the conditions that:

a) PBCS monitoring is in place; and
b) Performance-based horizontal separation using PBCS designators in flight plans is implemented as soon as practically possible

The ANSP shall implement ATM system capability to process and use ICAO PBCS flight plan indicators to determine aircraft eligibility for performance based horizontal separation by not later than 29 March 2018;

The CAA Fiji will incorporate PBCS as part of its risk-based assessment used to plan audit and surveillance activities for Air Navigation Service Providers and Airline Operations.

APPENDIX A - CONDITIONS REQUIRED FOR AUTHORIZATION FOR REQUIRED COMMUNICATIONS PERFORMANCE (RCP) 240 AND REQUIRED SURVEILLANCE PERFORMANCE (RSP) 180

1.0 Aircraft Operational PBCS approval shall be documented through:

a) an amendment to the Operations Manual (OM), if it is required; and
b) an Operations Specification (Ops Spec), associated with the air operator certificate (AOC); or
c) a letter of authorization (LOA) issued by CAAF.

2.0 The aircraft operational approval assessment shall take into account the following:

a) aircraft eligibility and airworthiness compliance (any limitations, assumptions or specific procedures considered in the framework of the airworthiness approval must be addressed);
b) operating procedures for the specific data link system(s) (Including use of message sets);
c) maintenance of operating procedures (documented in the OM or other documents);
d) compliance requirements for contracted Communication Service Provider (CSPs);
e) documented procedures for problem reporting and a local/regional performance monitoring process;
f) pilot initial training /competency requirements and continuing qualification requirements;
g) dispatch training requirements;
h) engineer training requirements and;
i) control of configuration, subnetwork configuration for managing communication media and routing policies (operators need to document the management of such configuration).

2.1 If the aircraft operator is currently approved for data link operations, the operatorôs CAA authority may assess only the differences between PBCS requirement and approved data link operation on above listed items

3.0 An aircraft is eligible for Required Communication Performance (RCP) / Required Surveillance Performance (RSP) applications stated in;

a) the Type Certificate (TC); or
b) the Supplemental Type Certificate (STC); or
c) the associated documentation-Aeroplane Flight Manual (AFM) or equivalent; 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.

3.1 The aircraft operator must have a configuration / equipment list detailing the pertinent hardware and software components for the aircraft / fleet(s) applicable to the specific RCP/RSP operation.

3.2 The aircraft operator should document the configuration control for subnetwork, communication media and routing policies

3.3 Cockpit indication, procedures (including message sets) and system description should be addressed in the Aeroplane Flight Manual (AFM) or Flight Crew Operation Manual (FCOM)

4.0 Data link operational training:

a) General aviation operators must be proficient with the procedures and operations associated with the use of data link communication systems in accordance with their AFM and AFM Supplement if applicable;

b) Other type of operators should have a training program addressing the operational practices, procedures, and training items related to data link communication operations (e.g., initial, upgrade, or recurrent training for pilots, operational control personnel, and maintenance personnel).

***Note**: A separate training program is not required if data link communication training is integrated in the current training program. However, the applicant must identify the training elements outlined within PBCS manual in the existing training program.*

5.0 Standard Operating Procedures (SOPs) must be developed to cover both normal and abnormal (contingency) procedures for the systems used in the approved data link operations. The SOPs must address:

a) preflight planning requirements including MELs, eligible flight plan filing and applicable regional requirements;
b) actions to be taken in the data link operation, to include specific RCP/RSP required cases
c) actions to be taken for the loss of data link capability before entering the airspace requiring specific RCP/RSP specification;
d) actions to be taken for the loss of data link capability while in the airspace requiring specific RCP/RSP specification;
e) problem reporting procedures to the local/regional monitoring agency (central reporting agency) in the event of data link problem such as:
    i. Failure to log on,
    ii. Disconnects,
    iii. Corrupted messages, and
    iv. Excessive delay

5.1 General aviation pilots must ensure that they have suitable procedures/checklists, provided by the manufacturer, covering all these areas.

5.2 Regional specific requirements should be addressed in the Operations Manual or other guidance materials for pilots and other operational personnel.

6.0 Contracted CSPs should comply with the requirements of the services for RCP/RSP specification, this compliance will be shown either through contracted

Service Level Agreements (SLAs) for data link services or through participation to the PBCS charter. Detail service requirement will be shown in 4.3.2 of PBCS Manual.

6.1 The aircraft operator can demonstrate their contracted CSP compliance with RCP/RSP specification through a contracted SLA or its participation in the Global PBCS charter.

7.0 The aircraft operator should establish a process to participate in post-implementation PBCS monitoring (RCP/RSP).

Note: *This procedure should address the actions to be taken for the case of performance non-compliance whether the source is from the operator's own monitoring process, Communication Service Provider (CSP), or foreign authority.*

8.0 AIRCRAFT OPERATOR REQUIREMENTS

8.1 The operator shall ensure that procedures are established and the flight crew and other personnel are trained and qualified for PBCS operations. The flight crew procedures and training shall include normal operations and those associated with alerts provided by the aircraft system to indicate failures when the aircraft is no longer capable of meeting the RCP/RSP specification prescribed for the associated ATM operations.

8.2 The operator shall ensure that contracted services with CSPs/SSPs, are bound by contractual arrangements stipulating the RCP/RSP allocations, including any monitoring or recording requirements.

Note1*: Operator can demonstrate this compliance through a contracted SLA or its participation in the PBCS charter.*
Note2: *ANSPs and Operators should register their contact for CSP failure notification through CRA website (http://www.fans-cra.com/).*

8.3 The operator shall ensure that contractual arrangements include a provision for the CSP/SSP to notify the Air Traffic Service (ATS) units appropriate for the route system of the aircraft operator of failure conditions impacting PBCS operations.

Note1*: The State of the operator can issue the approval based on various types of the compliance statement issued by aircraft manufacturer or based on other alternative means of compliance which are acceptable to the State.*
Note 2*: When using PBCS charter as an alternative means of compliance, the operator should present evidence of signing the PBCS charter and evidence their CSP also signed PBCS charter.*
Note 3*: When using PBCS charter as an alternative means of compliance, the operator shall notify their State authority of any change of status regarding PBCS charter.*

8.4 The operator shall ensure that the aircraft system has been approved for the intended use in accordance with the RCP 240 and RSP 180 specifications.

8.5 The operator shall ensure that the aircraft system is properly maintained, including configuring user modifiable software, such as software used to manage

communication media and routing policies, to meet the RCP 240 and RSP 180 specifications.

Note1*: The operator is responsible for all maintenance of data link communication systems. Maintenance procedures for data link communication are approved or accepted as part of an operator's initial maintenance manual approval or as a revision to that manual.*
Note2*: Operators should maintain their aircraft in a configuration of communication media and routing policies which has been shown to provide acceptable data link communication performance. This configuration management should be documented in the control process by the operators.*

8.6 The operator shall participate in Air Navigation Service Provider (ANSP) and regional PBCS monitoring programs, which are applicable to the aircraft operator's route system, and shall provide the following information to regional PBCS monitoring entities specified in the Fiji Aeronautical Information Publication (AIP):

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

Note: *This requirement can be satisfied by providing information through the CRA website (http://www.fans-cra.com/).*

8.7 The operator shall advise the appropriate PBCS monitoring entities of any changes to the information listed above.

8.8 The operator shall establish procedures to report problems identified by the flight crew or other personnel, to the regional PBCS monitoring entities identified in AIPs (or equivalent publications) associated with the route of flight on which the problem occurred.

Note*: Required reporting items are listed in ICAO's Performance-based Communications and Surveillance Manual (Doc 9869) and Global Operational Data Link Manual (Doc 10037).*

8.9 The operator shall ensure procedures are established to disclose operational data, including data from its CSPs/SSPs, in a timely manner, to the appropriate PBCS monitoring entity, when requested for the purposes of investigating a reported problem.

8.10 When filing RCP/RSP capabilities, the operator shall ensure that the planned use of associated communication and surveillance capabilities for the flight will be in accordance with regulations, policies and procedures in control areas for the flight as published in the AIP.

8.11 The operator shall ensure that the proper information to denote PBCS capabilities is included in the ICAO flight plan as follows:

a) Item 10a; CPDLC COM Descriptors (J1-J7); RCP capability ("P1" or "P2"); and
b) Item 10b; ADC-C capability ("D1" or "G1"); and
c) Item 18; "SUR/RSP180" to show RSP capability

Table: Item 10a Flight Plan CPDLC COM Descriptors

Descriptors	System
J1	CPDLC ATN VDL Mode 2
J2	CPDLC FANS 1/A HFDL
J3	CPDLC FANS 1/A VDL Mode 0/A
J4	CPDLC FANS 1/A VDL Mode 2
J5	CPDLC FANS 1/A SATCOM (Inmarsat)
J6	CPDLC FANS 1/A SATCOM (MTSAT)
J7	CPDLC FANS 1/A SATCOM (Iridium)
P1	CPDLC RCP 400
P2	CPDLC RCP 240

Table: Item 10b Flight Plan Descriptors for Surveillance Equipment

Descriptors	System
D1	ADS-C with FANS 1/A capabilities
G1	ADS-C with ATN capabilities

9.0 AIRCRAFT REQUIREMENTS

9.1 The "RCP 240 and RSP 180" Letter of Authorization is specific to each individual airframe.

9.2 The aircraft manufacturer or supplier must demonstrate that aircraft system meets the RCP 240 and RSP 180 allocations as per ICAO's Performance-based Communications and Surveillance Manual (Doc 9869) and Global Operational Data Link Manual (Doc 10037).

Note1*: For a FANS 1/A CPDLC and ADS-C aircraft system, RTCA DO-306/EUROCAE ED-122 is equivalent to RCP 240 and RSP 180 specifications. For an ATN B1 or FANS 1/A CPDLC aircraft system, RTCA DO-290/EUROCAE ED-120 provides performance criteria for the European Region.*

Note2*: FAA AC20-140A or later satisfies the requirement for RCP240/400, RSP 180/400.*

Note3*: Aircraft eligibility for a particular RCP/RSP application should be stated in;*

a) the TC; or

b) the STC; or

c) the associated documentation — AFM or equivalent 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.

***Note4**: The State of the operator can issue the approval based on the compliance statement issued by aircraft manufacturer as indicated in Note 3 or based on other alternative means of compliance which are acceptable to the State.*

9.3 The aircraft manufacturer or equipment supplier shall demonstrate that the aircraft meets the RCP 240 and RSP 180 integrity criteria and associated safety requirements as per ICAO Doc 9869 (PBCS Manual) and Doc 10037 (GOLD Manual) .

9.4 The aircraft manufacturer or supplier shall demonstrate that the aircraft system meets the RCP 240 and RSP 180 availability criteria. The aircraft manufacturer or supplier shall demonstrate that the aircraft system, when operating with a representative ATS provision (i.e. simulation or real ground system), is capable of meeting the operational RCP 240 and RSP 180 time and continuity criteria.

9.5 The aircraft manufacturer or supplier shall demonstrate that the aircraft system provides the flight crew with alerts in case of aircraft system or connectivity failures that would cause the aircraft to no longer be capable of meeting the RCP 240 and RSP 180 specification.

9.6 The aircraft manufacturer or equipment supplier shall identify any specific items related to PBCS capability in the master minimum equipment list (MMEL).

***Note**: MMEL or MEL Provisions for Systems Related to CPDLC/ADS-C Operations. Pilots dispatch and maintenance personnel must be familiar with the MEL requirements. For flights that intend to use data link and when required for the intended operation, operators will adopt provisions for certain specific systems to be operational at dispatch. The MEL must be amended to highlight the impact of losing an associated system/subsystem and the affect it has on data link operational capability.*

Equipment required in current FANS 1/A-capable models is as follows:
1. VHF, SATCOM, or HFDL radios, as appropriate;
2. ACARS management unit (MU)/communications management unit (CMU);
3. Flight management computer (FMC) integration; and
4. Printer (if company procedures require its use).*

**Corruption of the CPDLC message could occur when printed. Caution should be exercised when reviewing printed versions of CPDLC messages.*

Note: HFDL currently does not meet RCP240/RSP180 performance.

9.7 The aircraft manufacturer or equipment supplier shall identify the demonstrated PBCS capability of the aircraft, any associated operating limitations, information and procedures, in the flight manual.

APPENDIX B – TRAINING REQUIREMENTS

1. PILOTS

Following subjects should be addressed in data link communications including PBCS training during the initial introduction of a pilot to data link communication systems:

1) Normal pilot response to data link communication messages
2) Message elements in the message set used in each environment;
3) Required Communication Performance (RCP)/Required Surveillance Performance (RSP) specifications and their performance requirements;
4) Implementation of reduced separation with associated data communication system requirements to comply with RCP 240 and RSP 180 or other possible performance requirements associated with their routes;
5) Data link communications system theory (relevant to operational use);
6) Operations involving data link communication services;
7) Nominal and unacceptable performance;
8) Normal and non-normal use;
9) Data link communication events and reporting;
10) AFM and AFM Supplement limitations; (add FCOM, etc.)

Note1*: If flight crew already has Data link training, only additional training on PBCS (RCP/RSP) related areas are required.*
Note2*: Above training items can be trained by Training Material and Simulator or any other means that simulate the functionality.*

2. DISPATCH

Training for an aircraft dispatcher or other operational control personnel include:

1) Proper use of Datalink and PBCS flight plan designators;
2) ATSU separation criteria and procedures relevant to RCP/RSP criteria;
3) MEL remarks or exceptions based on data link communications;
4) 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 services;
5) Coordination with the ATSU related to or following a special data link communication exceptional event; and
6) Contingency procedures to transition to a different separation standard when data link communication services fail.

3. ENGINEERING

Operators should ensure maintenance personnel receive training on their airplaneôs data link communication equipment. Training includes:

1) Installation
2) Modification
3) Correction of reporting system discrepancies
4) Use of test equipment

5) MEL relief
6) Procedures
7) Return to service authorizations

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

4. AIR TRAFFIC CONTROL

Following subjects should be addressed in data link communications including PBCS training during the initial introduction of an ATCO to data link communication systems:

1) ATC separation criteria and procedures relevant to RCP/RSP criteria;
2) Normal ATC response to data link communication messages;
3) Message elements in the message set used in each environment;
4) Required Communication Performance (RCP)/Required Surveillance Performance (RSP) specifications and their performance requirements;
5) Implementation of reduced separation with associated data communication system requirements to comply with RCP 240 and RSP 180 or other possible performance requirements associated with their routes;
6) Data link communications system theory (relevant to operational use);
7) Operations involving data link communication services;
8) Nominal and unacceptable performance;
9) Normal and non-normal use;
10) Data link communication events and reporting;
11) Contingency procedures to transition to a different separation standard when data link communication services fail.

***Note1**: If the ATCO already has Data link training, only additional training on PBCS (RCP/RSP) related areas are required.*
***Note2**: Above training items can be trained by Training Material and ATC Simulator or any other means that simulate the functionality.*