

# ***PERFORMANCE BASED FLIGHT SYSTEMS BRANCH, AFS-470***

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A056, Data Link Communications



## **Data Link Communications Compliance Guide**

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Version: 02.18



PERFORMANCE BASED  
FLIGHT SYSTEMS BRANCH

| Version | Date             | Description of Change  |
|---------|------------------|--|
| 12.17   | October 6, 2018  | Initial Issue of the Data Link Compliance Guide  |
| 01.18   | January 24, 2018 | <ul style="list-style-type: none"><li>• Added tables for change log and summary of document reference numbers.</li><li>• Changed wording for SOC, EQP and CSP requirements.</li><li>• Added two appendices:<br/>Appendix: A Flight Plan Com Descriptors<br/>Appendix: B Quick Website Navigation Guide</li></ul> |
| 02.18   | February 6,      | <ul style="list-style-type: none"><li>• Added note to MON-3</li><li>• Added EQP-6</li><li>• Corrected SOC-2 and SOC-3</li><li>• Added note to EQP-2</li></ul>  |



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## Section 1: Introduction

This compliance guide was developed by the Federal Aviation Administration (FAA) Flight Technologies and Procedures Division (AFS-400) to provide operators with an organized method for submitting required content. This compliance guide is designed to expedite the application process as it condenses into one location the information required for data link communications. Operators adhering to this guidance by supplying the requested documentation will significantly reduce the application processing time. This document provides guidance for:

1. New applications
2. Operators with a current A056 upgrading to include Performance-based Communication and Surveillance (PBCS) capability (See [AC 90-117](#))
3. Operators with a current A056 adding identically equipped aircraft

This document uses the term “Principal Inspector (PI)” which may be a Principal Operations Inspector (POI), Principal Avionics Inspector (PAI) or Principal Maintenance Inspector (PMI). This compliance guide uses the term “operator” to refer to the operator, certificate holder, program manager, and operator/company.

The overarching guidance for data link approval is provided in Advisory Circular ([AC 90-117](#), *Data Link Communication*). [AC 90-117](#) should be considered the “source document” for data link approvals. For airworthiness guidance, refer to [AC 20-140](#), *Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS)*.

We appreciate any feedback to improve this compliance guide.

Contact AFS-470 by calling: (202) 267-8847

## Instructions

1. Operators are strongly encouraged to schedule a pre-application meeting or teleconference with your Flight Standards Office. Operators with an A056 authorization adding identically equipped aircraft should provide their PI with the following:
  - a. Application request letter stating the aircraft is identically equipped as their previously approved aircraft.
  - b. AFM or change order (signed off per serial number) for each new aircraft
2. A [sample letter of request](#) is provided in this compliance guide.
3. Respond to each item of this compliance guide and address any specific items disclosed in the pre-application meeting (See [Section 4](#)). With each attachment, include the corresponding reference number provided in this guide. For each excerpt, include the document title, page number and paragraph number as applicable. If an item is not applicable, provide a brief explanation as to why it does not apply (e.g. “Our aircraft do not use EFB data link communication integration”). **Operators upgrading from an**



existing A056 authorization need only to respond to those items marked “Yes” in the column, “Previous A056 Only”. If possible, submit your application and attachments in a single PDF format. Below is a summary of the documentation reference numbers in this guide for A056 authorizations from U.S. Domestic DCL only to complete U.S. domestic and oceanic remote data link operations.

### Tables: Summary of Documentation Reference Numbers

#### Aircraft Eligibility Summary:

| Reference Number | U.S. Domestic DCL Only | U.S. Domestic DCL and En route CPDLC | Oceanic and Remote PBCS Only | U.S. Domestic DCL, CPDLC En route, and Oceanic and Remote PBCS |
|------------------|------------------------|--------------------------------------|------------------------------|--|
| SOC-1            | *                      | *                                    | X                            | X  |
| SOC-2            | *                      | *                                    | X                            | X  |
| SOC-3            | *                      | *                                    | X                            | X  |
| EQP-1            | X                      | X                                    | X                            | X  |
| EQP-2            | X                      | X                                    |                              | X  |
| EQP-3            |                        | X                                    |                              | X  |
| EQP-4            | X                      | X                                    | X                            | X  |
| EQP-5            | X                      | X                                    | X                            | X  |
| EQP-6            |                        |                                      | X                            | X  |

\*A statement of compliance (SOC) is not required for U.S. domestic data link operations. Part 91 operators are not required to have a Letter of Authorization (LOA) for U.S. domestic data link operations. All operators must meet the minimum equipage requirements for data link operations in the U.S.

#### Operational Requirements Summary:

| Reference Number | U.S. Domestic DCL Only | U.S. Domestic DCL and En route CPDLC | Oceanic and Remote PBCS Only | U.S. Domestic DCL, CPDLC En route, and Oceanic and Remote PBCS |
|------------------|------------------------|--------------------------------------|------------------------------|--|
| OPS-1            | X                      | X                                    | X                            | X  |
| OPS-2            | X                      | X                                    | X                            | X  |
| OPS-3            | X                      | X                                    | X                            | X  |
| EFB-1            | As Required            | As Required                          | As Required                  | As Required  |
| CSP-1            |                        |                                      | X                            | X  |
| MEL-1            | X                      | X                                    | X                            | X  |
| FLP-1            | X                      | X                                    | X                            | X  |
| MON-1            |                        |                                      | X                            | X  |
| MON-2            |                        |                                      | X                            | X  |
| MON-3            |                        |                                      | X                            | X  |
| TNG-1            | 91K, 121, 125 135      | 91K, 121, 125 135                    | 91K, 121, 125 135            | 91K, 121, 125 135  |
| TNG-2            |                        |                                      | 91 Only                      | 91 Only  |

#### Additional Information Summary:

| Reference Number | U.S. Domestic DCL Only | U.S. Domestic DCL and En route CPDLC | Oceanic and Remote PBCS Only | U.S. Domestic DCL, CPDLC En route, and Oceanic and Remote PBCS |
|------------------|------------------------|--------------------------------------|------------------------------|--|
| POI-1            | As Required            | As Required                          | As Required                  | As Required  |
| DOC-1            | X                      | X                                    | X                            | X  |
| DOC-2            | X                      | X                                    | X                            | X  |
| DOC-3            | X                      | X                                    | X                            | X  |
| DOC-4            | X                      | X                                    | X                            | X  |
| DOC-5            | X                      | X                                    | X                            | X  |
| DOC-6            | X                      | X                                    | X                            | X  |
| DOC-7            | X                      | X                                    | X                            | X  |



4. The use of highlights, outlines, tables and/or hyper-links for your supporting documentation (attachments) will greatly reduce the application process time. The compliance guide and attachments should be submitted in a PDF format (See [Naming Convention](#)).
5. For the attachments, please include only the applicable page or paragraph to show compliance. Attaching irrelevant documentation other than the requested page/paragraph to show compliance only delays the application process.
6. Submit this document and another document with all the attachments in a PDF format to your PI. You may combine this document along with the attachments document by using acrobat.
7. Fill in the blanks below:

- Company/Operator Name:

- 14 CFR Part:

- Address:

Suite:

- City:

State:

Zip Code:

### Contact Information

- Contact Name:

- Contact Phone:

- Contact Email:

### Aircraft/Fleet

- ➔ Make:

- ➔ Model:

- ➔ Series:



## Sample Letter of Request

(Fill in the blanks below)

Company/Name:

Federal Aviation Administration (FAA)

Principal Inspector (PI) First Name:

Principal Inspector (PI) Last Name:

PI Email Address:

PI Phone:

Dear Sir/Madam,

Name/Company(FAA Designator: ) request authorization for OpSpec/MSpec/LOA A056, Data Link Communication, operating under Part: of Title 14 of the Code of Federal Regulations.

We request authorization for the following aircraft:

Make: Model: Series:

Registration Number ("N number"):

Serial Number:

**Avionics:**

FMS Make: FMS Model: FMS Series:

FMS Software: Version:

FANS 1/A (+) and/or ATN:

We are sending this application and the associated attachments electronically in a PDF format for your review and approval. Our planned date to commence data link operations is on or about (mm/dd/yyyy):

**Our primary business location:**

Street Address: Suite:

City: State: Zip Code:

Name of Primary Contact:

Phone:

Email:

Please refer to attachments labeled with corresponding references numbers provided in the Data Link Communication Compliance Guide.

Sincerely,





## Naming Convention

Use the following file naming convention when submitting this document and attachments.

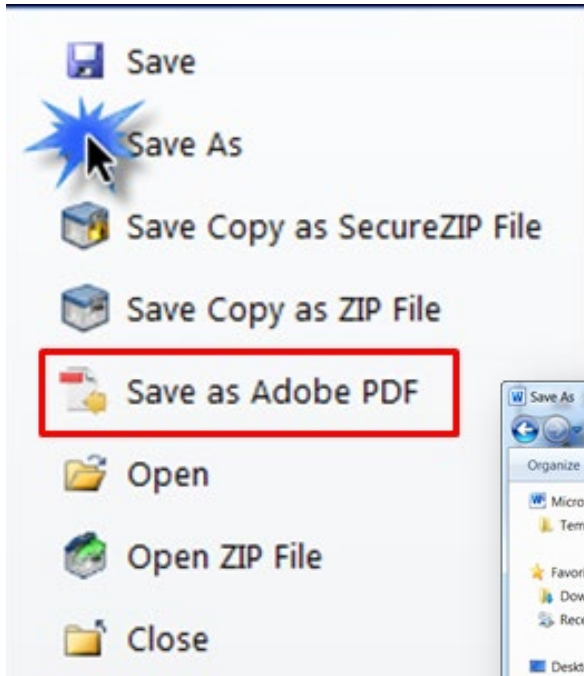
**A056\_Application\_Company/Name\_Date(XX\_XX\_XXXX)\_Version\_Number\_(VX)**

**Example: A056\_Application\_ABCAirlines\_02\_29\_2016\_V2**

Use the following file naming convention when submitting your attachments.

**A056\_Attachments\_Company/Name\_Date(XX\_XX\_XXXX)\_Version\_Number\_(VX)**

**Example: A056\_Attachments\_ABCAirlines\_02\_29\_2016\_V2**

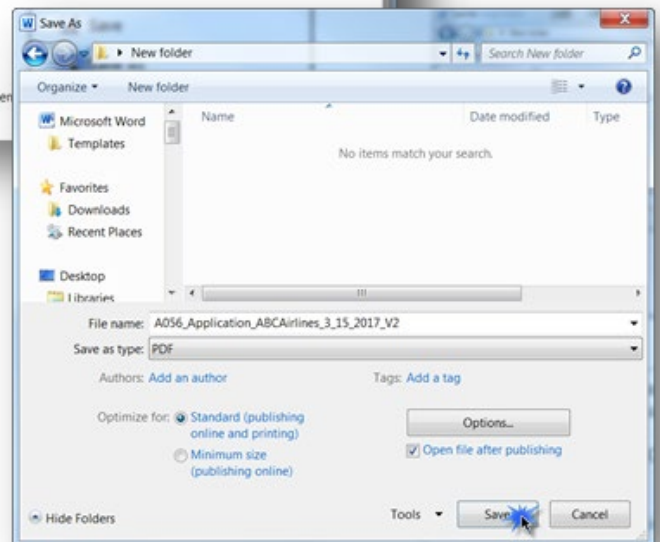
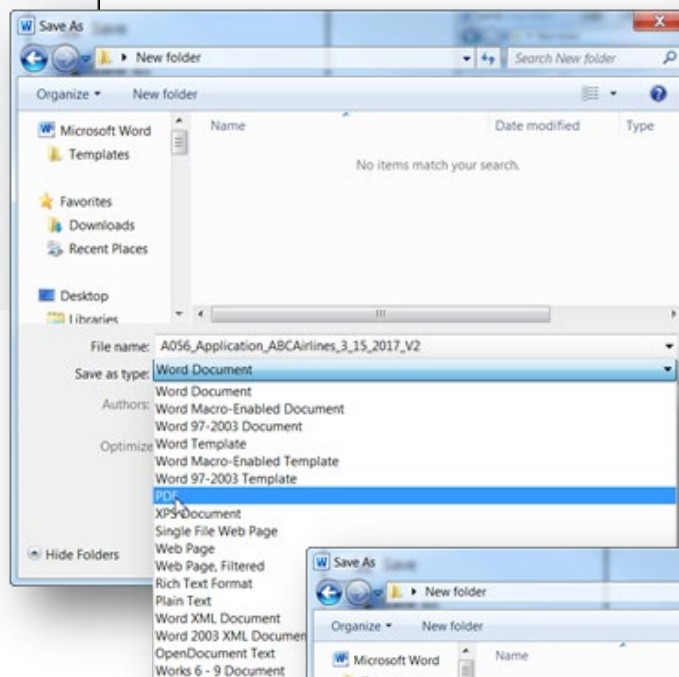


### Step 1:

In MS Word, select “Save As” under File Menu or select “Save as Adobe PDF” and skip Step 2

### Step 2:

Select “PDF” under “Save as type”



### Step 3: Saving file with naming convention.

Use the following naming convention with underlines “\_” as shown:

**A056\_Application\_Your\_Company\_Name\_Date\_Version**

**Example:**

**A056\_Application\_ABCAirlines\_02\_29\_2016\_V2**



## Section 2: Aircraft Eligibility

For each attachment, provide the necessary page(s)/paragraph(s) to establish compliance. Include the corresponding reference numbers with the attachments a separate document. Specific airworthiness guidance is provided in [AC 20-140\(\)](#). For domestic operations only, RCP/RSP performance is not necessary and operators should select N/A in the sample table in section 4. Part 91 operators are not required to have an A056 authorization for U.S. domestic operations.

### Statement of Compliance (SOC):

| Check Box | Reference Number | Previous A056 Only | SOC Attachments  |
|-----------|------------------|--------------------|--|
|           | SOC-1            | Yes                | <p>Provide an OEM Statement of Compliance (SOC). The SOC must indicate interoperability (INTEROP) (See AC 90-117, <i>p. C-3, Table C-3</i>). This may be documentation from the aircraft manufacturer, the operator, the manufacturer of the data link system, or another party. The statement of compliance must indicate the aircraft data link system meets the aircraft-allocated requirements for Required Communication Performance (RCP) and Required Surveillance Performance (RSP) specifications stated in the AFM, AFM Supplement, or other acceptable documentation. An example SOC is provided in Table C-3 of <a href="#">AC 90-117</a>.</p> <p><b>Note:</b> For a FANS 1/A CPDLC and ADS C aircraft system, RTCA DO 306/EUROCAE ED 122 is equivalent to RCP 240, RCP 400, RSP 180 and RSP 400 specifications.</p> |



## SOC Continued:

| Check Box | Reference Number | Previous A056 Only | SOC Attachments  |
|-----------|------------------|--------------------|--|
|           | SOC-2            | Yes                | <p>Provide documentation of the subnetworks that are supported by your aircraft. The SOC should reference AC 20-140B or later for any of the following subnetworks:</p> <ul style="list-style-type: none"> <li>• VDL M0/A,</li> <li>• VDL M2 (<i>VDL Mode 2 TSO C-160 or VDL TSO C-160a</i>)</li> <li>• High Frequency Data Link (HFDL),</li> <li>• Satellite communications (SATCOM) International Maritime Satellite Organization (INMARSAT) (Classic Aero), and</li> <li>• SATCOM Iridium (Short Burst Data (SBD)).</li> </ul> <p>(<i>AC 90-117, p. 3-2 and p. C-3</i>)</p>   |
|           | SOC-3            | Yes                | <p>Provide documentation that your aircraft data link system meets the aircraft-allocated requirements of RCP and RSP specifications. The compliance statement should reference AC 20-140B or later revision for any of the following performance specifications:</p> <ul style="list-style-type: none"> <li>• RCP 400 and/or RCP 240</li> <li>• RSP 400 and/or RSP 180</li> </ul> <p>The compliance statement should reference AC 20-140C or later revision for:</p> <ul style="list-style-type: none"> <li>• RCP 130 and/or RCP 240 and/or RCP 400</li> <li>• RSP 160 and/or RSP 180 and/or RSP 400</li> </ul> <p>Note: Documentation of the lowest RCP and RSP value is adequate for showing compliance. For fleet aircraft, records for every tail number are not necessary provided that all the aircraft have the same data link configuration.</p> <p>(<i>AC 90-117, p. 3-2 and p. C-3</i>)</p> |



## Equipage Attachments:

| Check Box | Reference Number | Previous A056 Only | Equipage Attachments   |
|-----------|------------------|--------------------|--|
|           | EQP-1            |                    | <p>Provide documentation of maintenance and manufacturer/model of data link equipment installation records (AFM, Service Bulletins and Aircraft Service Changes (ASC) related to data link communications, Supplemental Type Certificates (STCs) etc.) Provide documentation of the following installed data communication equipment:</p> <ul style="list-style-type: none"> <li>FANS 1/A (Satellite, HF, VHF) equipment and/or ATN (VDL 2) VHF equipment</li> <li>Data communications recording equipment (CVR, CVD-FR etc.) See Part 91, §<a href="#">91.609(j)</a> and InFO <a href="#">16004</a>.</li> </ul> <p>(<i>AC 90-117, p. 3-1</i>)</p>       |
|           | EQP-2            | Yes                | <p>For U.S. domestic airspace en route operations, provide documentation that your aircraft is equipped with VDL M2. The VDL M2 requirement must include a tunable radio approved to <a href="#">TSO-C160a</a> or later in lieu of <a href="#">TSO-C160</a>.</p> <p><b>Note 1:</b> If not equipped with VDL M2, the operator may use an alternate non-VDL M2 means of compliance in coordination with their CSP(s) as per <a href="#">AC 90-117</a>. (<i>AC 90-117, p. 3-3</i>)</p> <p><b>Note 2:</b> Equivalent documentation (e.g. OEM, regulatory) that meets the specification of tuning to more than one VDL M2 channel may also be acceptable.</p> |
|           | EQP-3            | Yes                | <p>For en route U.S. domestic airspace operations, provide documentation your avionics system has “push to load” capability enabling the pilot to incorporate received routing changes (e.g., uplink message (UM)79, UM80, and UM83) into the FMS supported by B2 and FANS 1/A (+) operations. (<i>AC 90-117, p. 3-2</i>)</p>  |



## Equipage Attachments Continued:

| Check Box | Reference Number | Previous A056 Only | Equipage Attachments  |
|-----------|------------------|--------------------|---|
|           | EQP-4            |                    | Provide documentation that your cockpit voice recorder(s) and flight data recorder(s) are in compliance with 14 CFR Part § <a href="#">91.609</a> (j), Part § <a href="#">121.359</a> (k), § <a href="#">125.227</a> (i), § <a href="#">135.151</a> (h). FAA <a href="#">INFO 16004</a> provides additional guidance concerning the applicability of these regulations. ( <i>AC 90-117, p. 1-5</i> )  |
|           | EQP-5            |                    | Provide documentation of current configuration (e.g. current avionics software load); aircraft modifications (if applicable, list all Aircraft Service Changes (ASC) specific to data link communications, Service bulletins etc).<br><br><b>Note:</b> The operator must confirm any modifications did not affect the data link system, or if it was affected, affirm compliance to the associated INTEROP, subnetworks and performance standards. ( <i>AC 90-117, p. 3-3</i> ) |
|           | EQP-6            | Yes                | Provide documentation that your FANS 1/A system includes message latency monitoring indicated by the “+” symbol. RCP 240 requires latency monitoring.   |



## Section 3: Operational Requirements

For each attachment, provide the necessary page(s)/paragraph(s) to establish compliance. Include the corresponding reference numbers with the attachments.

This section includes the minimum operational requirements in the following areas:

1. Operational Procedures
2. CSP Requirements
3. MMEL/MEL
4. Flight Plans
5. Monitoring Performance and Reporting
6. Training

### Operational Procedures

Establish policies and procedures for pilots and operational staff involved in data link operations and incorporate them in the appropriate operations manuals.

| Check Box | Reference Number | Previous A056 Only | Operational Attachments  |
|-----------|------------------|--------------------|--|
|           | OPS-1            |                    | <p>Attach operational data link procedures from the following documents:</p> <ul style="list-style-type: none"> <li>• AFM (page/paragraph),</li> <li>• Domestic data link procedures from your operations manual, and</li> <li>• For international/oceanic and remote airspace operations, operational data link procedures from your International Operations Manual (IOM)</li> </ul> <p>(See <i>AC 90-117</i>, p. 5-2)</p> <p><b>Note:</b> Generic procedure manuals do not qualify.</p> |
|           | OPS-2            |                    | <p>Attach documentation of procedures for establishing and maintaining voice communications (including any required SELCAL check(s)). (<i>AC 90-117</i>, p. 5-5)</p> <p><b>Note:</b> In-flight publications should include a listing of ATSU identifiers required for international operations.</p>  |



## Operational Procedures Continued

| Check Box | Reference Number | Previous A056 Only | Operational Attachments   |
|-----------|------------------|--------------------|---|
|           | OPS-3            |                    | Attach procedures and limitations applicable to data link communication equipment for both normal and emergency operations in compliance with <a href="#">AC 90-117</a> . ( <i>AC 90-117</i> , p. 7-3 and p. 7-4) |

## Electronic Flight Bag (EFB)

| Check Box | Reference Number | Previous A056 Only | EFB Attachment  |
|-----------|------------------|--------------------|---|
|           | EFB-1            |                    | Provide documentation to show how the Electronic Flight Bag (EFB) is updated for data link operations. If not applicable, then record the reference number with “Not Applicable”. |

## Communication Service Provider (CSP) Eligibility

The operator is responsible to ensure their CSP provides the minimum performance and service.

| Check Box | Reference Number | Previous A056 Only | CSP Attachment  |
|-----------|------------------|--------------------|---|
|           | CSP-1            | YES                | <p>Provide documentation of each CSP arrangement. The operator is responsible to ensure each CSP service provides the following:</p> <ol style="list-style-type: none"> <li>1. Failure Notification,</li> <li>2. Recording data link messages,</li> <li>3. CSP Integrity,</li> <li>4. Compliance with CSP allocations for RCP/RSP, and</li> <li>5. Adequate subnetwork coverage for the route flown.</li> </ol> <p><b>or</b></p> <p>Provide charter membership documentation of operator and CSP. When providing documentation of charter membership, provide a screen shot of the charter stakeholders with your name included in the screen capture (<a href="#">See Appendix B, Becoming a Charter Member</a>).</p> <p><b>Note:</b> Operators and CSPs need only to become charter members by following the instructions at <a href="http://www.fans-cra.com/">http://www.fans-cra.com/</a>. See <a href="#">Appendix B</a> of this guide.</p> <p>(<i>AC 90-117</i>, p. 4-1 and 4-5)</p> |



## MEL/MMEL

| Check Box | Reference Number | Previous A056 Only | MEL/MMEL Attachment   |
|-----------|------------------|--------------------|---|
|           | MEL-1            | Yes                | <p>Provide documentation of your Minimum Equipment List (MEL) and Master Minimum Equipment List (MMEL) that addresses all data communication equipment (Section 23).</p> <p><b>Note 1:</b> Reference FAA Policy Letter 106, (PL-106), High Frequency (HF) Communications MMEL Requirements.</p> <p><b>Note 2:</b> If MMEL has not been updated for CPDLC equipment for aircraft that are issued an STC, the operator is reminded that they must adhere to <a href="#">14 CFR 91.213</a>. (<i>AC 90-117, p. 5-1 and pp. B-1 and B-2</i>)</p> |

## Flight Plans

| Check Box | Reference Number | Previous A056 Only | Flight Plan Attachment   |
|-----------|------------------|--------------------|--|
|           | FLP-1            | Yes                | <p>Demonstrate the appropriate use of flight plan designators by completing a sample flight plan of a typical route your pilots fly. If your operation includes oceanic routes, provide an oceanic flight plan. Below are resources to aid in your flight planning:</p> <ul style="list-style-type: none"> <li>• FAA <a href="#">ICAO Flight Plan Quick Guide</a></li> <li>• FAA <a href="#">Form 7233-4</a></li> <li>• <a href="#">AC 90-117, Appendix D</a></li> <li>• <a href="#">Appendix A of this guide</a></li> </ul> |

## Performance Monitoring

| Check Box | Reference Number | Previous A056 Only | Monitoring Attachment<br>(Oceanic and Remote Operations)  |
|-----------|------------------|--------------------|---|
|           | MON-1            | Yes                | Provide documentation of your data link monitoring process with procedures to address substandard performance. ( <i>AC 90-117, pp. 6-1 and 6-2</i> )  |
|           | MON-2            | Yes                | Provide documentation of procedures to report data link communication failures and/or problems. This should include contacting the appropriate Data Link Monitoring Agency (DLMA) for your area of operation. ( <i>AC 90-117, p. 8-1</i> )  |
|           | MON-3            | Yes                | <p>Provide documentation of demonstrated performance results from: <a href="https://www.faa.gov/air_traffic/separation_standards/PBCS_Monitoring/">https://www.faa.gov/air_traffic/separation_standards/PBCS_Monitoring/</a> (<i>AC 90-117, p. 6-2</i>)</p> <p><b>Note:</b> If no data or insufficient data, then compliance is based on the SOC.</p> |





## Training

| Check Box | Reference Number | Previous A056 Only | Training Attachment   |
|-----------|------------------|--------------------|---|
|           | TNG-1            |                    | If you are under Part 91K, 121, 125, and/or 135, provide documentation that your training program addresses 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). Training curricula should be in accordance with AC <a href="#">90-117</a> , §§ <a href="#">91.3</a> , <a href="#">91.703</a> (a) (1) and (2) and ICAO <a href="#">Annex 2</a> (Rules of the Air), paragraph 2.5.1. ( <i>AC 90-117, Chapter 7</i> ) |
|           | TNG-2            |                    | If you are under Part 91, show the syllabus and certificate of completion of data link communications training. ( <i>AC 90-117, p. 7-1</i> )  |



## Section 4: Additional Information

### Additional PI Requested Documentation.

**T**his section is optional and reserved for any additional information that may be requested by your Principal Inspector (PI). For each attachment, provide the necessary page(s)/paragraph(s) to establish compliance. Include the corresponding reference number with the attachment.

| Check Box | Reference Number | Previous A056 Only | Additional PI Requested Documentation                               |
|-----------|------------------|--------------------|---|
|           | POI-1            | Yes                | If requested, attach additional documentation requested by your PI. |

### Document Review

Check each document below to indicate you are familiar with each. Copy the table below and include it with your application with each document checked.

| Check Box | Reference Number | Previous A056 Only | Document List   |
|-----------|------------------|--------------------|---|
|           | DOC-1            |                    | <a href="#">AC 90-117</a> , Data Link Communications  |
|           | DOC-2            |                    | <a href="#">AC 20-140</a> ( ) Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS). |
|           | DOC-3            |                    | Global Operational Data Link (GOLD) Manual ( <a href="#">Doc 10037</a> ), ICAO.   |
|           | DOC-4            |                    | Performance-based Communication and Surveillance (PBCS) Manual ( <a href="#">Doc 9869</a> ), ICAO.  |
|           | DOC-5            |                    | State Aeronautical Information Publications (AIP). ( <a href="#">U.S. Link</a> )  |
|           | DOC-6            |                    | State Notices to Airmen (NOTAM). ( <a href="#">U.S. Link</a> )  |
|           | DOC-7            |                    | <a href="#">FAA chart supplements</a> , Oceanic Errors Safety Bulletin (OESB) ( <a href="#">NAT OPS Bulletins</a> ).                            |



## Sample Authorization Table

Use the table below and provide your information as part of your application.

### Aircraft:

Make:

Model:

Series:

### Data Link System:

Make:

Model:

Series

### Software:

FMS Software:

Version Number:

| INTEROP<br>(Check all that apply)            | Subnetworks<br>(Check all that apply)   | CSP                             | RCP | RSP | Limitations (If no<br>limitations, type "N/A") |
|--|---|---------------------------------|-----|-----|--|
| FANS 1/A<br>(+) with<br>"push to<br>load"    | VDL Mode<br>0/A                         | Rockwell-<br>Collins<br>(ARINC) |     |     | U.S Domestic<br>CPDLC En<br>Route Only         |
| FANS 1/A<br>(+) without<br>"push to<br>load" | VDL Mode<br>2 TSO<br>C-160              |                                 |     |     | ADS-C Only                                     |
| ATN B1                                       | VDL Mode<br>2 TSO<br>C-160a or<br>later | SITA                            |     |     | Other  |
| B2   | HFDL                                    | Other                           |     |     |  |
|  | SATCOM<br>(Iridium)                     |                                 |     |     |  |
|  | SATCOM<br>(Inmarsat)                    |                                 |     |     |  |
|  | SATCOM<br>MTSTAT                        |                                 |     |     |  |



## Appendix A: Flight Plan Com Descriptors

**Table A-1. Item 10a Flight Plan COM Descriptors**

| Descriptors | System                           |
|-------------|----------------------------------|
| E1          | FMC WPR ACARS                    |
| E2          | D-FIS ACARS                      |
| E3          | PDC ACARS                        |
| 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                    |

Note: Part 91 operators filing “J” codes for U.S. domestic data link services must have a data link authorization to file J5–J7 in oceanic and remote continental airspace.

J1 through J7 for Controller-Pilot Data Link Communication (CPDLC) (Table B-1, Item 10a Flight Plan COM Descriptors); and P1 and P2 for RCP Performance (Table B-1).

Example. As a flight plan example, use the following:

If Actual Communications Performance (ACP) meets at least RCP 240 at 95 percent and Actual Surveillance Performance (ASP) meets at least RSP 180 at 95 percent, then the operator approved for RCP 240/RSP 180 may file the following:

- Field 10: “P2.”
- Field 18: “SUR/RSP180.”



In Item 10a of the flight plan, operators should insert one of the descriptors, P1-P2, as appropriate, listed in Table B-1, to identify an aircraft's RCP capability.

**Table A-2. Item 10b Flight Plan COM Descriptors**

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

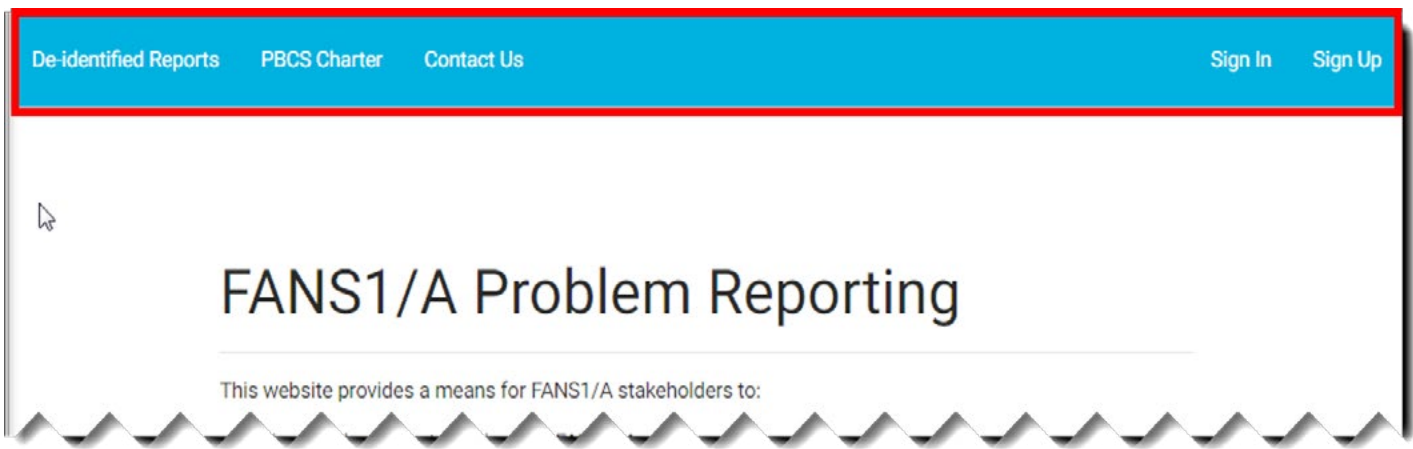
In Item 10b of the flight plan, operators should insert one of the descriptors, D1 and G1, as appropriate, listed in Table B-2, to identify an aircraft's RSP capability



## Appendix B: Quick Website Navigation Guide

For FANS 1/A Problem reporting and/or charter membership go to: <http://www.fans-cra.com/>. This appendix provides screen shots for navigating the website to report a data link problem and/or charter membership.

### Home Page Menu



The Home Page header has five user function tabs:

1. De-identified Reports
2. PBCS Charter
3. Contact Us
4. Sign In – Note: current users of the ISPACG-CRA/NAT DLMA/ FIT-ASIA website please continue to use your existing username/password. Do not sign up again.
5. Sign Up



## De-Identified Reports

The De-identified Reports list is controlled by the appropriate regional Central Reporting Agency/ Data Link Monitoring Agency (CRA/DLMA).

Reports displayed in this list have been assigned to the list by the CRA/DLMA.

A user may download the de-identified reports in EXCEL format using the DOWNLOAD button

The screenshot shows the 'FANS1/A Problem Reporting' website interface. The top navigation bar includes 'De-identified Reports', 'PBICS Charter', and 'Contact Us'. A 'Sign In' button is also visible. The main content area is titled 'De-identified Reports' and features a 'DOWNLOAD' button. Below this is a table listing various reports with columns for CRA Ref, Region, Status, Type, and Title. The table contains multiple rows of data, including reports from 2529-MM, 2512-MM, 2508-SH, 2506-MM, and 2500-MM. A large, semi-transparent 'Excel Spreadsheet' watermark is overlaid on the bottom half of the image.

| CRA Ref | Region | Status | Type                                  | Title   |
|---------|--------|--------|---------------------------------------|---|
| 2529-MM | NAT    | Closed | AIR - Procedural - Flight Crew Action | A/C Queried CPDLC Re-route but None was Uplinked                    |
| 2512-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Unable to ACCEPT CPDLC Message                                      |
| 2508-SH | IPACG  | Active | GROUND - Technical                    | Multiple messages received from Avionics                            |
| 2506-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Wrong navaid loaded from a UM79 route change message                |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Climb clearance delivered late ("24 hours) to incorrect (next+1) fl |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Aircraft logged on LZZZ unsuccessfully                              |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Position Reports Not Delivered                                      |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | FANS PROBLEM REPORT   |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | FANS PROBLEM REPORT   |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Unexpected Point Included in ADS-C Report and Possible Out of S     |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | ADS Gave Incorrect Current Position Timestamp and Appeared Slov     |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Aircraft Did Not Send ACK for ADS-C Deviation Contract              |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | CPDLC - Spurious messages received by aircraft                      |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | CONFIRM - SIGNED ROUTE Up/Link Anomaly (Blank B with SEND           |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | ATC Link appeared in error by                                       |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | CONFIRM - SIGNED ROUTE Anomaly                                      |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Pilot sought clarification for a (UM79) message.                    |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Intermittent Connection   |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | 8787s send reject (SMI = REJ) messages in response to uplinks       |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | CPDLC Connectivity Issues while on a 1/2 Degree Track               |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | ACK-N-TOSS EVENT  |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Multiple duplicate CPDLC position reports received from 877W        |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | MAS received but no downlinks received for aircraft                 |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Aircraft received CPDLC message not sent by ATC - A332              |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | MAS received but no downlinks received for aircraft                 |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | ADS-C Report Missing Requested Data                                 |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | RCL Text Appears Twice in A620 Header                               |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | Incorrect ADS-C estimate - A332                                     |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | FANS PROBLEM REPORT   |
| 2500-MM | NAT    | Closed | AIR - Technical - Avionics Fault      | CPDLC Connectivity Issues while on a 1/2 Degree Track               |



## PBCS Charter Sign-In

The PBCS Charter link provides the sign-in screen for charter members.

The screenshot shows the 'FANS1/A Problem Reporting' page. The top navigation bar includes 'De-identified Reports', 'PBCS Charter' (highlighted with a hand icon), and 'Contact Us'. On the right, there are 'Sign In' and 'Sign Up' links. The main content area contains information about the website's purpose and a list of actions stakeholders can take. An orange arrow points from the 'PBCS Charter' link to a sign-in form on the right. The form has fields for 'Username' (with a placeholder 'Your Username') and 'Password' (with a placeholder '\*\*\*\*\*'), and a 'SIGN IN' button.

## Contact Us

A "Contact Us" function is provided for CRA/DLMA and website queries.

The screenshot shows the 'FANS1/A Problem Reporting' page with the 'Contact Us' link highlighted in the top navigation bar. An orange arrow points from the 'Contact Us' link to a contact form on the right. The form includes fields for 'Name:', 'Email:', and 'Message:', and a 'SEND' button.





## Sign-Up

The sign-up link allows stakeholders to request access to the website. Fill in the requested details and then click the SIGN UP button. This action will log the stakeholders information on the website and advise the CRA that a new user application has been received.

The CRA will process the user request, assign the new user the appropriate permissions, and advise the new user if their application has been successful.

### Notes:

1. Display Name: Enter the name to be displayed on the “My Reports” page after logging in.
2. Additional Emails: List all other emails that are to be used in automatic email notifications from the website for this log-on.
3. Username/Password: Enter the username and password that you want to use on this site
4. Email: List your primary email contact
5. Organization: Enter your company name.
6. Location: Enter city and country.

The screenshot shows the 'FANS1/A Problem Reporting' website. The top navigation bar includes links for 'De-identified Reports', 'PBCS Charter', 'Contact Us', 'Sign In', and 'Sign Up'. An orange arrow points from the 'Sign Up' link to the sign-up form below. The form contains the following fields:

- Username: \_\_\_\_\_
- Password: \_\_\_\_\_
- First Name: \_\_\_\_\_
- Last Name: \_\_\_\_\_
- Email for CRA communications: \_\_\_\_\_
- Email for CSP Outage Notifications(If Required): \_\_\_\_\_
- Display Name (If Applicable): \_\_\_\_\_
- Organisation: \_\_\_\_\_
- Location: \_\_\_\_\_
- Phone Number: \_\_\_\_\_
- Additional Emails (separate by semicolon or space): \_\_\_\_\_

A blue 'SIGN UP' button is located at the bottom right of the form.



## Sign-In

Once you have signed-up for the website, use your username and password as shown below.

The diagram illustrates the sign-in process on the FANS1/A website. It consists of three sequential screenshots connected by orange arrows.

**Screenshot 1: FANS1/A Problem Reporting**  
This is the main page of the website. The top navigation bar includes links for 'De-identified Reports', 'PBCS Charter', and 'Contact Us'. A 'Sign In' link is highlighted in the top right corner of the navigation bar.

**Screenshot 2: Login Form**  
This is the login page. It features a 'Sign In' link in the top right corner of the navigation bar. Below the navigation bar, there is a section for 'Username' and 'Password'. The 'Username' field is labeled 'Your Username' and the 'Password' field is labeled 'Password'. A 'SIGN IN' button is located below the password field.

**Screenshot 3: MY REPORTS**  
This is the 'MY REPORTS' page. It shows a table of 'Reports Logged by Me'. The table has columns for 'ID', 'Reference', 'Title', 'Date', and 'Status'. A 'DOWNLOAD' button is located to the right of the table.

| ID           | Reference | Title  | Date       | Status |
|--------------|-----------|--|------------|--------|
| ZOA-2019-001 | 2548-SH   | No data in the Predicted Route Group for the entire flight             | 15.11.2017 | Active |
| ZOA-2017-006 | 2514-SH   | Delayed ADS-C reports and MAS Failures observed with multiple aircraft | 20.09.2017 | Active |
| ZOA-2017-005 | 2513-SH   | Unexpected WLCO  | 12.10.2017 | Active |



# New Report

After signing-in, the first link in the header is “Report”. Selecting Report gives two options: New Report and My Reports. Below displays the form for filing a new report.

Report

De-identified Reports

Performance Data

PBCS Charter

Contact Us

Manual

FAA (United States)

New Report

My Reports

MY REPORTS

SEARCH

Reports Logged by Me

| ID           | Reference | Title        |
|--------------|-----------|--------------|
| ZOA-2018-001 | 2548-SH   | No da        |
| ZOA-2017-006 | 2514-SH   | Delay aircra |

Report

De-identified Reports

Performance Data

PBCS Charter

Contact Us

Manual

FAA (United States)

Originator's Reference Number:

Title:

Date UTC (YYYY-MM-DD):  
2018-01-16

Registration:

Departure and Arrival Airports:

Active Center:

Position:

Time UTC:

Flight Identifier:

Aircraft Type:

Next Center:



## My Reports

The My Reports page opens by default on logging in and displays four sections:

- “Reports Pending CRA action”;
- “Reports Logged by Me”;
- “Reports Assigned to me”; and
- “Closed Reports relating to Me”.

A DOWNLOAD button associated with each section allows the user to download the reports in an EXCEL format.

Originator's Reference Number: \_\_\_\_\_

Title: \_\_\_\_\_

Date UTC (YYYY-MM-DD): 2018-01-16

Registration: \_\_\_\_\_

Departure and Arrival Airports: \_\_\_\_\_

Active Center: \_\_\_\_\_

Position: \_\_\_\_\_

**MY REPORTS** [SEARCH](#)

### Reports Logged by Me

| ID           | Reference | Title  | Date       | Status |
|--------------|-----------|--|------------|--------|
| ZOA-2018-001 | 2548-SH   | No data in the Predicted Route Group for the entire flight             | 15.11.2017 | Active |
| ZOA-2017-006 | 2514-SH   | Delayed ADS-C reports and MAS Failures observed with multiple aircraft | 20.09.2017 | Active |
| ZOA-2017-005 | 2513-SH   | Unexpected WILCO   | 12.10.2017 | Active |
| ZNY2017-002  | 2475-MM   | Aircraft Unable to Establish Connection to KZWH or LPPO                | 13.07.2017 | Active |
| ZOA-2017-004 | 2470-SH   | ADS-C position reports received with a Figure of Merit Value of 0      | 05.08.2017 | Active |

[DOWNLOAD](#)



## Upload Data

The “Performance Data” option in the my reports header provides a means to display FANS1/A performance data. Selecting performance data gives the following options:

Upload Data: Only displayed if user has required permissions.

View Data: Displays any performance data that has been uploaded (See image below).

| CRA Ref | Region    | Status              | Type                                  | Title  |
|---------|-----------|---------------------|---------------------------------------|--|
| 2529-MM | NAT TIG   | Closed              | AIR - Procedural - Flight Crew Action | A/C Queried CPDLC Re-route but None was Unlinked |
| 2512-MM | NAT TIG   | Closed              | AIR - Procedure                       | Crew Action                                      |
| 2508-SH | IPACG FIT | Active              | AIR - Technical Fault                 |  |
| 2506-MM | NAT TIG   | Closed As Duplicate | AIR - Technical Fault                 |  |
| 2500-MM | NAT TIG   | Closed As Duplicate | AIR - Technical Fault                 |  |

## View Data

**FANS1/A Problem Solution Tracker**  
(Uploaded by Airways New Zealand at Oct. 26, 2017, 7:16 p.m.)

Developed by NAT TIG this spreadsheet provides a description of current FANS1/A problems and their status. Any workaround and any proposed solutions are also described. The spreadsheet also provides the recommended software versions for different aircraft types for NAT data link operations. Updated 26 October 2017

[FANS-PROBLEM-SOLUTION-TRACKER\\_2017-10-26\\_R1.XLSX](#)

**PAC PBCS Monitoring Result - Jan-Jun 2017**  
(Uploaded by FAA (United States) at Oct. 11, 2017, 1:59 p.m.)

Monitoring results by fleet and by individual airframe for ADS-C ASP and CPDLC RCP in Anchorage, Auckland, and Oakland FIRs during Jan-Jun 2017

[PAC PBCS MONITORING REPORT JAN-JUN 2017 ALL RESULTS.XLSX](#)



## PBCS Charter

Under PBCS Charter, stakeholders can view the charter on-line as shown below by clicking on the various charter sections or by means of downloading the charter by clicking the “DOWNLOAD PDF” button.

The screenshot shows the PBCS Charter page. The navigation menu at the top includes: Report, De-identified Reports, Performance Data, PBCS Charter (selected), Contact Us, Manual, and FAA (United States). The main content area is titled "Performance-Based Communication and Surveillance (PBCS) Global Charter" and includes a "DOWNLOAD PDF" button. Below the title is a table of contents with the following sections:

| ID           | Reference | Title                             |
|--------------|-----------|-----------------------------------|
| ZOA-2018-001 | 2548-SH   | No data in the Predicted R        |
| ZOA-2017-006 | 2514-SH   | Delayed ADS-C reports an aircraft |
| ZOA-2017-005 | 2513-SH   | Unexpected WILCO                  |

The main content area also includes a "MY REPORTS" section and a "SEARCH" bar. The "PBCS CHARTER" section is highlighted, and the "DOWNLOAD PDF" button is visible.

## View PBCS Charter

The screenshot shows the PBCS Charter page. The navigation menu at the top includes: Report, De-identified Reports, Performance Data, PBCS Charter (selected), Contact Us, Manual, and FAA (United States). The main content area is titled "Performance-Based Communication and Surveillance (PBCS) Global Charter" and includes a "DOWNLOAD PDF" button. Below the title is a table of contents with the following sections:

| ID           | Reference | Title                             |
|--------------|-----------|-----------------------------------|
| ZOA-2018-001 | 2548-SH   | No data in the Predicted R        |
| ZOA-2017-006 | 2514-SH   | Delayed ADS-C reports an aircraft |
| ZOA-2017-005 | 2513-SH   | Unexpected WILCO                  |

The main content area also includes a "MY REPORTS" section and a "SEARCH" bar. The "PBCS CHARTER" section is highlighted, and the "DOWNLOAD PDF" button is visible.



## Becoming a Charter Member

Clicking “CHARTER STAKEHOLDERS” results in a list of current charter members. If you are not a charter member, click “YOUR CHARTER STATUS” and enter your name, email, and check the box that shows your username and then click “UPDATE”. When providing documentation of charter membership, provide a screen shot of the charter stakeholders with your name included within the screen capture.

The screenshot shows the PBCS Charter web application interface. The top navigation bar includes links for Report, De-identified Reports, Performance Data, PBCS Charter, Contact Us, and Manual. The main content area has three tabs: PBCS CHARTER, CHARTER STAKEHOLDERS, and YOUR CHARTER STATUS. The CHARTER STAKEHOLDERS tab is selected, showing a list of stakeholders with checkboxes for selection. The YOUR CHARTER STATUS tab is also visible, showing a form for entering user information and an UPDATE button.

**CHARTER STAKEHOLDERS**

Performance-Based Communication and Surveillance (PBCS) Global Charter  
Charter Document Version October 19

**1 Charter Purpose and Applicability**

**2 References**

**3 Term**

**4 Confidentiality**

**5 No Basis for Claims**

**6 Support of PBCS by Stakeholders**

**7 Administration of Charter**

**Aircraft Manufacturers and Aircraft Equipment Suppliers**

☒ Airbus ☒ Boeing

**Communication Service Provider**

☒ Rockwell Collins IMS (ARINC) ☒ SITAONAIR

**ANSP and CAA**

☒ Airways New Zealand ☒ Isavia (Iceland)

**Aircraft Operator**

**PBCS Charter - Point of Contact**

☐ Your Username

Name: \_\_\_\_\_

Email: \_\_\_\_\_

To indicate acceptance of charter and add your organisation to the list of charter stakeholders select the tick box above and then select update.

To remove yourself from the list of charter stakeholders deselect the tick box and then select update.

**UPDATE**





# Appendix C: Definitions and Acronyms

## Definitions

### A

**Aircraft Communications Addressing and Reporting System (ACARS).** ACARS is a digital datalink system for transmission of short messages between aircraft and ground stations via airband radio or satellite. ACARS as a term refers to the complete air and ground system, consisting of a service provider and aircraft/ground equipment.

**Automatic Dependent Surveillance-Contract (ADS-C).** ADS-C is a surveillance information system using automated reports. An agreement is established between the ground system and the aircraft via a data link. Without pilot input, the ATSU can establish a “contract” to provide reports of aircraft position, altitude, speed, elements of navigational intent and meteorological data. The system can generate the following types of reports:

- Periodic—The ATSU can set or alter the update rate as needed (a higher update rate is usually required in high traffic areas).
- Event—A change in vertical rate, lateral deviation or altitude automatically triggers a report.
- Demand—An ATSU can request an update as needed, and this does not affect an existing contract preset rate.

**Aeronautical Telecommunication Network (ATN).** A global internetwork architecture that allows ground, air-ground, and avionic data subnetworks to exchange digital data for the safety of air navigation and for the regular, efficient, and economic operation of air traffic services.

### C

**Controller-Pilot Data Link Communications (CPDLC).** CPDLC is a two-way data-link communication system by which controllers can transmit digital text messages to an aircraft as an alternative to voice communications. Messages from an aircraft to the ATSU may follow a standard format or may be free-text. Messages from a controller normally follow a standard format and usually requiring a response from the flight crew.

**CSP Integrity.** The CSP must pass messages without manipulating the information that is protected by error detection codes that are used by the aircraft system and the ATSU. In particular, the CSP must not reconstitute or regenerate any of the error detection codes.

### F

**Future Air Navigation System (FANS).** FANS is an avionics system which provides direct data link communication between the pilot and the air traffic controller. The communications include air traffic control clearances, pilot requests and position reporting.

### R

**Required Communication Performance (RCP).** A set of requirements for air traffic service provision, aircraft





capability, and operations needed to support performance-based communication within a defined airspace.

Required Surveillance Performance (RSP). A statement of the performance requirements for operational surveillance in support of specific ATM functions.

## Acronyms

| Acronym | Meaning   |
|---------|---|
| ACARS   | Aircraft Communications Addressing and Reporting System |
| ADS-C   | Automatic Dependent Surveillance-Contract               |
| AIM     | Aeronautical Information Manual                         |
| AFM     | Airplane Flight Manual                                  |
| ATN     | Aeronautical Telecommunication Network                  |
| ATS     | Air Traffic Service                                     |
| ATSU    | Air Traffic Service Unit                                |
| CPDLC   | Controller-Pilot Data Link Communication                |
| CRA     | Central Reporting Agency                                |
| CSP     | Communication Service Provider                          |
| CVDFR   | Cockpit Voice and Flight Data Recorder                  |
| CVR     | Cockpit Voice Recorder                                  |
| DLMA    | Data Link Monitoring Agency                             |
| EFB     | Electronic Flight Bag                                   |
| FANS    | Future Air Navigation System                            |
| HF      | High Frequency  |
| HFDL    | High Frequency Data Link                                |
| ICAO    | International Civil Aviation Organization               |
| INTEROP | Interoperability Requirements Standards                 |
| LOA     | Letter of Authorization                                 |
| MEL     | Minimum Equipment List                                  |
| MMEL    | Master Minimum Equipment List                           |
| MSpec   | Management Specification                                |
| OEM     | Original Equipment Manufacturer.                        |
| OpSpec  | Operation Specification                                 |
| PAI     | Principal Avionics Inspector                            |
| PBCS    | Performance-based Communication and Surveillance        |
| PI      | Principal Inspector                                     |
| POI     | Principal Avionics Inspector                            |
| PMI     | Principal Maintenance Inspector                         |
| RCP     | Required Communication Performance                      |
| RSP     | Required Surveillance Performance                       |
| SATCOM  | Satellite Communication                                 |
| SBD     | Short Burst Data  |
| SELCAL  | Selective-Calling Radio System                          |



| Acronym | Meaning                    |
|---------|----------------------------|
| SOC     | Statement of Compliance    |
| SSP     | Satellite Service Provider |
| VDL     | VHF Data Link              |
| VHF     | Very High Frequency        |