Central location for PBCS tools and information
www.FANS-CRA.com

1. Hosts the Central Reporting Agency (CRA)
   – AKA Data Link Monitoring Agency (DLMA) in the NAT

2. Must register for account to obtain secure access
   – Available to any FANS data link stakeholder
   – Only 1 account per company/organization (if multiple users, expected to share common username and password)

3. Allows stakeholders to log data link problems reports
4. Maintains “FANS Problem Solution Tracker”
5. Hosts PBCS Charter
6. Results provided by fleet and by registration numbers for contributing FIRs
   – Anchorage, New Zealand, Oakland, Gander, New York, Reykjavik, Santa Maria, Shanwick
   – ACP and ASP shown against 95% and 99.9%
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):
Problem reporting, investigation, resolution

Appendix D. Post-implementation monitoring and corrective action (CPDLC and ADS-C)

Figure D-13. Problem reporting and resolution process
www.FANS-CRA.com

Problem report form

Title:

Date UTC (YYYY MM DD):
2017-10-19

Time UTC:

Registration:

Flight Identifier:

Departure and Arrival Airports:

Aircraft Type:

Active Center:

Next Center:

Position:

Description:

ADD FILES  
Select files to upload

SUBMIT
Problem investigation and resolution

• Data collection typically involves obtaining logs from involved parties

• May include:
  – aircraft maintenance system logs
  – built-in test equipment data dumps for some aircraft systems
  – SATCOM activity logs
  – logs/printouts from the flight crew and recordings/logs from the ANSPs involved in the problem

• It is crucial that events are reported shortly after event so that the entity collecting data for the analysis task can request and obtain necessary data in a timely manner, as much of it is subject to limited retention
Problem investigation and resolution

• Following a problem’s identification and resolution, a considerable period of time may elapse while software updates are applied to all aircraft in a fleet
  – Procedural methods to mitigate the problem may need to be developed while the solution is being coordinated

• The regional monitoring entity should identify the need for such procedures and develop recommendations for implementation by the ANSPs, CSPs and operators involved
• 5.1.3 All stakeholders should be actively involved in the problem reporting and resolution process. It is essential that all aircraft operators in a region have the opportunity to become involved in the process and CRAs should be proactive in getting all aircraft operators and other stakeholders to register and participate in the process.

• 5.1.4 The problem identification and resolution process, as it applies to an individual problem, consists of the following phases: a data collection; problem analysis and coordination with affected parties to secure a resolution; and recommendation of interim procedures to mitigate the problem, in some instances.

• 5.2.1.1 The problem identification task begins with the receipt of a problem report from a stakeholder, usually an operator, an ANSP or CSP, but may include an aircraft or avionics manufacturer.
FANS Problem Solution Tracker

- Record of current FANS1/A problems and status (Aircraft, Ground, Network)
- Workarounds and proposed solutions
- Recommended software versions for data link operations

### Color coding legend:
- Problem fixed or a fix is available
- Workaround is available
- There is a pending fix to the problem
- Fix to the problem is not available
- Needs to be further discussed by NAT TIG
- New issue that has not been reviewed by NAT TIG
- Not applicable
- Revised or new text that has not been reviewed by NAT TIG

### Recommended software versions for NAT data link operations

<table>
<thead>
<tr>
<th>Aircraft type</th>
<th>FANS software</th>
<th>ACARS software</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A318/A319/A320/A321</td>
<td>CS87.4</td>
<td>CS87.4</td>
<td>Aircraft with Thales FMS should have FMS software version S5 or S6 or S7</td>
</tr>
<tr>
<td>A330/A340</td>
<td>CLR7.4</td>
<td>CLR7.4</td>
<td>Aircraft with Thales FMS should have FMS software version T3 or T4 or T5</td>
</tr>
<tr>
<td>A350</td>
<td>CLV1.3.1</td>
<td>S3.1</td>
<td></td>
</tr>
<tr>
<td>A380</td>
<td>CLA4.1</td>
<td>S2.1</td>
<td></td>
</tr>
<tr>
<td>MD11 B736/7/8/9</td>
<td>FMS Pegasus -921</td>
<td>FMS U12</td>
<td></td>
</tr>
<tr>
<td>B744</td>
<td>With original FMS: Load 16</td>
<td>With B748 FMS: BPV3.1</td>
<td>Honeywell CMU Mark II: 998-6063-501 or -521 Rockwell Collins CMU-900: 832-9548-012</td>
</tr>
<tr>
<td>B748</td>
<td>FMS BPV3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B75x</td>
<td>FMS Pegasus 2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B76x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B77X</td>
<td></td>
<td>With AIMS-1: BPV16</td>
<td></td>
</tr>
<tr>
<td>B78X</td>
<td></td>
<td>With AIMS-2: BPV17A</td>
<td></td>
</tr>
</tbody>
</table>
PBCS Global Charter

• Available an “alternate means of compliance” for CSP “contract/agreement” needed for operator approval if accepted by State of Operator/State of Registry

• Hosted on the www.FANS-CRA.com website where stakeholders will go to sign and obtain proof of respective CSP signature, as required by approval process
PBCS Global Charter – web interface

Charter Purpose and Applicability

The purpose of this charter is to foster a joint agreement among stakeholders as to the support required from each stakeholder for successful performance-based communication and surveillance (PBCS) operations under the PBCS framework. Stakeholders include ANSPs using PBCS to support ATM operations in their airspace, aircraft operators participating in PBCS operations, communication service providers (CSPs), satellite service providers (SSPs), aircraft manufacturers, and aircraft equipment suppliers.

References

ICAO Doc 10013, Global Operational Data Link (GOLD) Manual.

PBCS Charter - Point of Contact

Name: Paul Radford
Email: paul.radford@airways.co.nz

To indicate acceptance of charter and add your organization 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.

Charter Status

Charter Name: Paul Radford
Charter Email: paul.radford@airways.co.nz
CSP Outage Email: CSP_outage@airways.co.nz

Date signed:
Date: 2017-06-25
Time: 23:43:03

Date un signed:
Date: Today
Time: Now

Note: You are 12 hours ahead of server time.
4.3.2 Communication services provision

4.3.2.1 The CSP should provide services that meet the RCP/RSP allocations provided in the specifications. These allocations are used to establish contractual arrangements, which support safety oversight and approval of both ANSP and aircraft operator for provision and use of the services respectively.

4.3.2.2 The CSP should ensure that the services it provides adhere to the contractual arrangements, which include:
   a) RCP/RSP allocations, as contained in appropriate RCP/RSP specifications;
   b) notification to ATS units, aircraft operators and others, as appropriate, of any failure condition that may impact PBCS operations.
CSP Compliance – Further considerations

• Ensuring the compliance of CSP allocations through the ANSP and operator is particularly important because no direct State safety oversight requirements under existing Annex provisions
  – ATS provision and aircraft operation are subject to the certification and/or SMS requirements under Annexes 6, 11 and 19

• Difficult to justify absolving the CSPs from PBCS requirements while other stakeholders are expected to adhere to the stated “terms” of the PBCS concept

• Some States and operators may prefer an enforceable “contract/agreement” to specify performance and safety requirements for the CSPs
Performance data

www.FANS-CRA.com
Actual Surveillance Performance (ASP)

<table>
<thead>
<tr>
<th>1</th>
<th>Downlink sent</th>
<th>Aircraft time at position</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Downlink received</td>
<td>Date/time ATSU receives position report</td>
</tr>
</tbody>
</table>
Actual Communication Performance (ACP)

RCP 240 specification (communication transaction times and RCP continuity)

<table>
<thead>
<tr>
<th>ATM</th>
<th>Controller issues ATG instruction</th>
<th>Monitored operational performance</th>
<th>Controller receives response</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.9%</td>
<td>P_{C1A30G(30)}</td>
<td>210</td>
<td>95% P_{C1A30G(30)} ET</td>
</tr>
<tr>
<td>95%</td>
<td>P_{C1A30G(30)}</td>
<td>180</td>
<td>95% P_{C1A30G(30)} TT</td>
</tr>
</tbody>
</table>

RCP 240/D allocations - CPDLC example

<table>
<thead>
<tr>
<th>RCP</th>
<th>RCP PORT</th>
<th>RCTP</th>
<th>RCP</th>
<th>RCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.9%</td>
<td>60</td>
<td>P_{RCP(150)}</td>
<td>99.9%</td>
<td></td>
</tr>
<tr>
<td>95%</td>
<td>60</td>
<td>P_{RCP(120)}</td>
<td>95%</td>
<td></td>
</tr>
</tbody>
</table>

Note: $P_{SUBSCRIP}([value])$ means part of the specified [value], and that the combination of all the allocations in the row, denoted by, $P_{SUBSCRIP}$ equals the [value] specified.

ACP

1. Uplink Sent: Date/time ATSU sent CPDLC clearance to the aircraft
2. MAS Received: Date/time ATSU receives the MAS for the CPDLC clearance
3. WILCO Sent: Date/time aircraft sends WILCO response for the CPDLC clearance
4. WILCO Received: Date/time ATSU receives WILCO response for the CPDLC clearance