

Problem Report Briefing



**FANS Interoperability Team Meeting
(FIT/23)**

Surfers Paradise, Queensland, Australia

15 March 2016

Suzie Ness – FIT CRA

Agenda

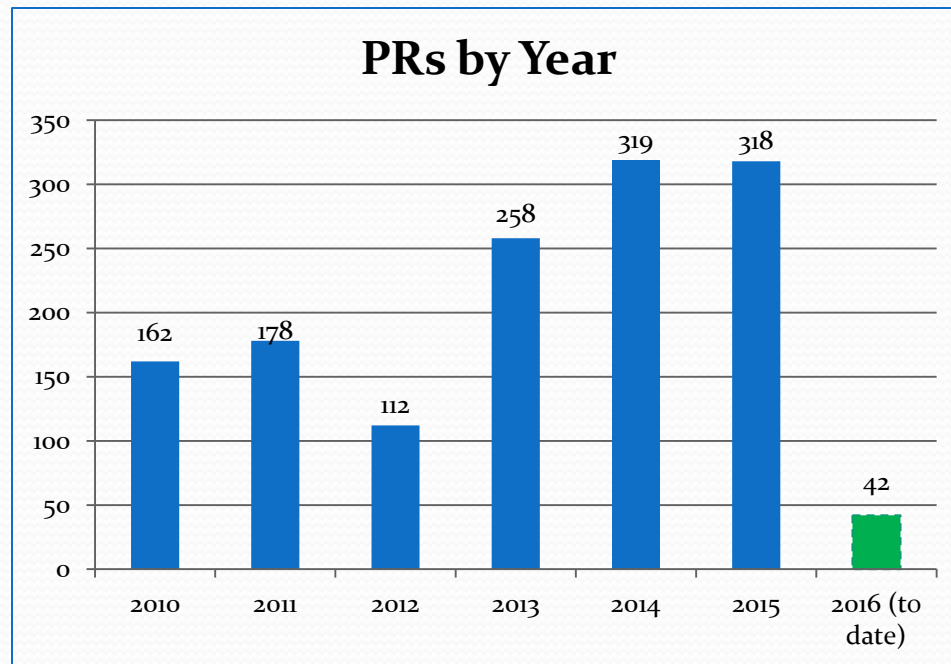
- Introduction
- PR Status Definitions
- PR Type Definitions
- Problem Report Metrics
- Updates on old PRs
- PRs Received Since FIT/22
- Summary of All South Pacific PRs Received Since FIT/22

Introduction

- PRs filed via ISPACG-CRA, NAT DLMA Problem Reporting website:
<http://www.ispacg-cra.com/>
 - Website hosted by Airways Corporation of New Zealand Limited
- Now used for:
 - CRA for South Pacific (ISPACG FIT)
 - CRA for North, Central, East Pacific (IPACG FIT)
 - DLMA for North Atlantic (NAT CNSG)
 - FIT-Asia for South China Sea, Bay of Bengal, Indian Ocean
- Continue to get new entities registered with website

Introduction

- **308** PRs received since FIT/22 (Feb 12, 2015 – Jan 31, 2016)
 - Last year reported **323** PRs received since FIT/22 (Feb 12, 2014 – Feb 11, 2015)
 - **43** PRs received in 2016 as of 23 Feb 2016
- Annual total plateaued in 2015



PR Status Definitions

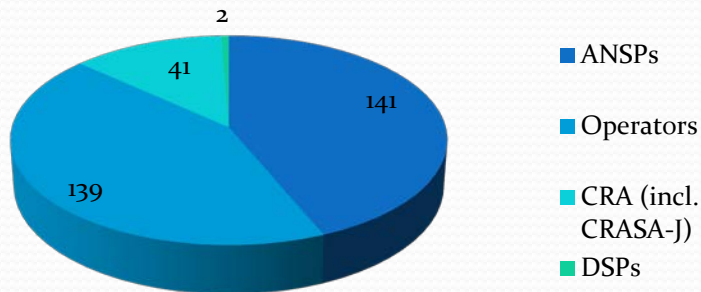
- **RAISED** - the PR has been filed by the originator but has not yet been processed by the CRA
- **ACTIVE** - CRA has processed the PR and allocated a CRA # and someone to investigate it. During this phase the PR is under investigation
- **OPEN** - The investigation is complete however some form of correction is required before it can be closed
- **CLOSED AS DUPLICATE** - Closed because problem is already covered under another PR
- **CLOSED** – Corrective action has been implemented or PR is a non-problem

PR Type Definitions

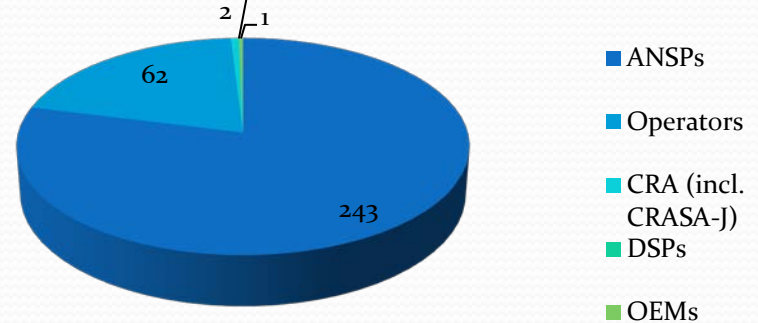
- Website choices: **AIR, GROUND, NETWORK, TBA**
- CRA tracking breaks out as:
 - **AIR – procedural** – Problem due to flight crew action
 - **AIR – technical** – Problem due to avionics fault
 - **GROUND** – Problem due to issue at ATSU
 - **NETWORK** – Problem at GES or in network
 - **Mult** - Problems occurred in more than one area
 - **None** - Problem was a non-problem
 - **TBA** – To Be Assigned – problem type not yet determined

Problem Report Metrics

All Problem Reports by Agency Type
Feb 12, 2014 - Feb 12, 2015



All Problem Reports by Agency Type
Feb 12, 2015 - Jan 30, 2016





Updates on Old PRs

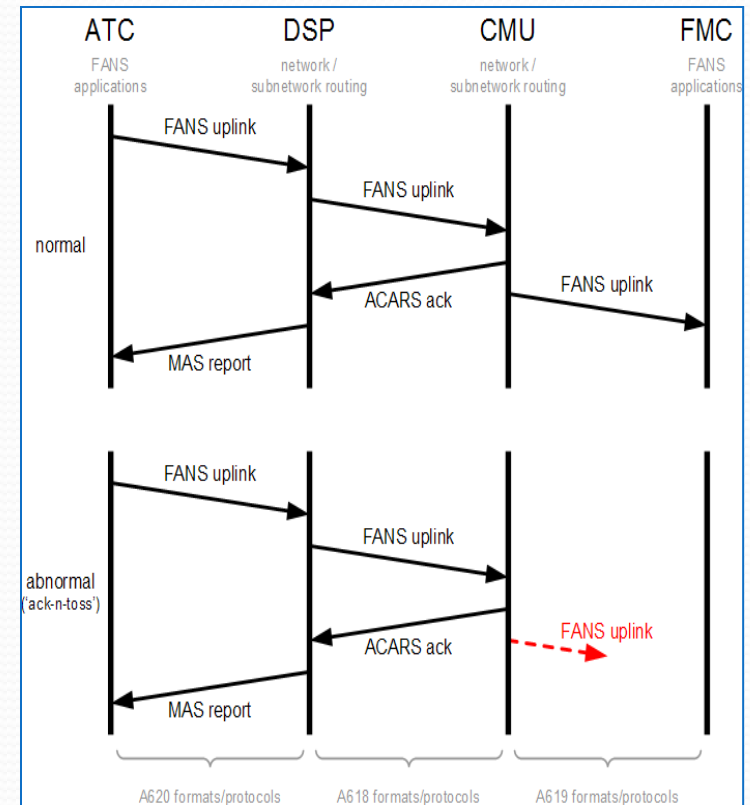
“Ack-n-Toss” PRs

Region: Mult

Status: ACTIVE

Type: AIR-t

- CRA has received 17 PRs since FIT 22 in which “Ack-n-Toss” has been a contributor
 - Also several reports from FAA Data Comm program
 - Reported events involve multiple airplane models
 - Common denominator is Rockwell-Collins CORE -012 CMU
- Rockwell-Collins (RCI) concurs that problem is in CMU
- RCI have not yet reproduced problem in lab, but believe they have sufficient info from in-service events to simulate conditions that cause problem
- RCI requests operators experiencing issue to provide CVR data (if they have datalink recording capability)



1556-GS - Unable CPDLC

Region: NAT

Status: OPEN

Type: AIR-t

- B788 was unable to connect with Dakar (G000)
- Log shows multiple logons, all receiving an ACK indicating success
- Each time, a connect request (CR1) was sent
 - Network ack, but no application response
- SOPAC PRs 1626-GS and 1824-GS are duplicates

UPDATE:

- Fixed in 787 BP3 software release

1645-RP - No CPDLC downlinks from 747-8

Region: SOPAC

Status: CLOSED AS DUPLICATE

Type: AIR-t

- CPDLC connection established with WAAF and subsequently with YBBB
- All AFN and ADS uplinks and downlinks and all CPDLC uplinks worked correctly
- No responses to CPDLC uplinks received by ATC
- 1763-RP is the “master PR” for this problem

UPDATE:

- Suspected issue with glare shield response buttons on aircraft, but no longer believe this to be the case
 - Problem affects CPDLC and AFN downlinks
 - ADS uplinks/downlinks and CPDLC uplinks continue to work correctly
- Suspect internal NG FMS issue but have not been reproduced to date
- Currently collaborating with an operator to collect data

1760-GS - B789 issues with satcom

Region: SOPAC

Status: OPEN

Type: AIR-t

- Aircraft logged on OK and CPDLC and ADS-C established on departure (VHF)
- Transition to SATCOM had issues:
 - Several uplinks received UP INTERCEPT –AIRCRAFT NOT LOGGED ON
 - First and only ADS-C report via SATCOM sent at 1929:32 and received at 1946:39
- Result of known B787 issue with loss of SATCOM

UPDATE:

- Fixed in 787 BP3 software release

1798-GS - Failure to Report

Region: SOPAC

Status: OPEN

Type: AIR-t

- Flight crew reported armed LEVEL AT ALT report did not send
- LEVEL AT ALT trigger logic uses vertical speed signal that is not suitably filtered

UPDATE:

- Fixed in 787 BP3 software release

1825-SN - Spurious CPDLC messages - B772

Region: SOPAC

Status: ACTIVE

Type: AIR-t

- Flight crew contacted ATC via CPDLC and reported "2 instances of a spurious level sent"
 - ATC had not received any such message from the aircraft
- Flight crew also advised that receiving unexpected "communications termination message"

UPDATE:

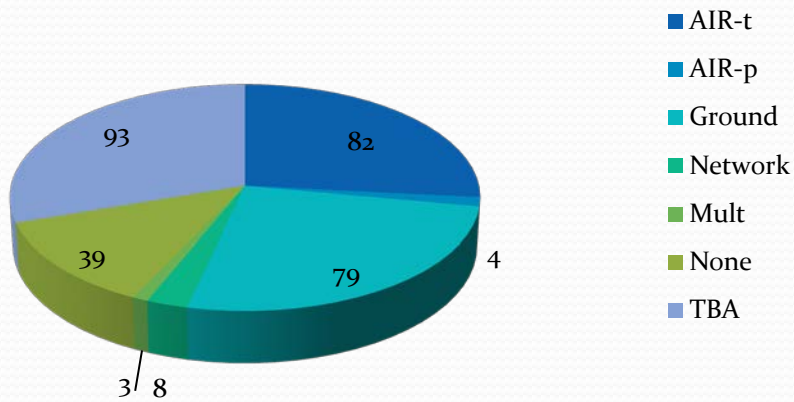
- Fixed in 777 AIMS-2 V17A software release
- Scheduled to certify in March

Updates on Old PRs – Airbus

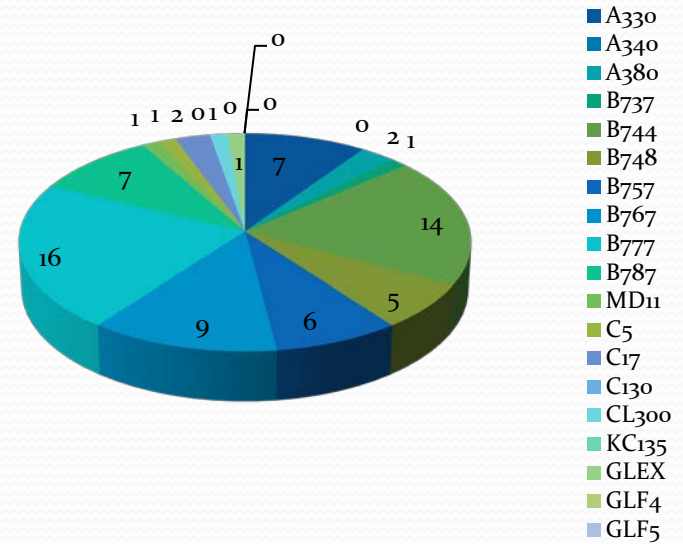
- Refer to Airbus Working Paper

New PRs

**All Problem Reports by
Problem Type
Feb 12, 2015 - Jan 30, 2016**



**All "AIR-Technical" Problem Reports
by Model
Feb 12, 2015 - Jan 31, 2016**



1855-GS - CPDLC route request from B788 commenced at an ATS route

Region: SOPAC

Status: OPEN

Type: AIR-t

- Flight requested an amended route via CPDLC
- The first element in the route clearance field was an ATS route (airway)
- Per Honeywell investigation, whenever airplane is on the last leg of an airway, then route downlinks (route request, or the response to CONFIRM ASSIGNED ROUTE) will begin with the airway
- 777 behaves this way, too (787 behavior was “inherited” from 777 code)

1857-SN - 20 minutes to transition from I4 AME1 to MTSAT (B777)

Region: SOPAC

Status: ACTIVE

Type: AIR-t

- Aircraft departed NCRG and established data-link on AME1 Inmarsat I4 SATCOM
- Aircraft transitioned to MTSAT SATCOM
- First downlink message via MTSAT has a latency of over 24 minutes
- Similar event occurred involving a B789
- B787 event was known problem that causes a SATCOM datalink connection not to become established after IRS alignment (fixed in BPv3)
- B777 problem under investigation by Boeing and Honeywell

1873-SN - Unable to establish CPDLC connection with A388 - CDA NFFF, then NZZO...

Region: SOPAC

Status: OPEN

Type: mult

- Logon was received from flight inbound to YBBB from NFFF
- A number of CPDLC connection requests failed because YBBB was not the next data authority
- NFFF was requested to re-send the NDA message
- Following this further attempts were made to establish a CPDLC connection, but they failed because **NZZO** was the current data authority
- The primary contributors to this problem were:
 1. Airplane possibly hem-stitching along the NZZO-NFFF border, resulting in NZZO and NFFF attempting transfers between each other when neither transferer was the CDA
 2. Airplane flying through patchy VHF coverage
 3. Airbus next-on-busy logic and causing messages to be delivered out of order
- The net effect was that NZZO became the NDA at 17:15 and was still the NDA when NFFF terminated their connection at 19:05
- The avionics behaved admirably
- Similar event occurred the same day involving a B777 (Ref PR- 1874-SN)

1877-MM - CPDLC Accepted/Not Established (B757)

Region: NAT

Status: OPEN

Type: AIR-t

- B757 crew reported logon was accepted but no CPDLC connection
- Position reports (ADS?) were being received
- Previous Eastbound flight had CPDLC with KEWR, KZWY, LPPO
- No FMC power cycles on ground
- Logons were successful, but CR1 received DR1/dm64 with blank center ID
- Position report was sent (addressed to KEWR) and DR1 at flight complete, so FMC thought it had connection with KEWR
- Under investigation by Honeywell
- PRs 1856-SN, 1863-GS and 1950-GS are duplicates

1895-MM - Failed CPDLC transfer from KZAK to NZZO

Region: SOPAC Status: CLOSED AS DUPLICATE Type: mult

- NO AUTO TRANSFER FRM KZAK TO NZZO. SENT POS REPORT AS REMINDER. LOGGED OFF KZAK AND ONTO NZZO. NZZO LOGON OK BUT POS REPORTS AND WX DEV REQ WLD NOT SND. RECEIVED POS REQUEST OK. LOGGED OFF AND ON AGN. THN OK
- Transfer failed because END SERVICE uplink from KZAK could not be delivered while airplane was performing normal transition between Inmarsat Classic Aero satellites
- Time between last downlink via first satellite and first downlink via second satellite was 104 seconds
- KZAK did not attempt to resend END SERVICE uplink
- PR closed as a duplicate of PR 1511-MM
- CRA notified KZAK of incident and recommended that KZAK review their handling of failed uplinks

1898-GS - Loss of ADS-C - B789

Region: SOPAC Status: CLOSED AS DUPLICATE Type: AIR-t

- Aircraft had requested and was issued a climb to FL380 via CPDLC
- Upon receipt of WILCO, a new ADS-C LRDE was established; expected ADS-C report at FL378 was not received
- Demand Contract was uplinked, with no response received
- CPDLC CONTACT instruction was uplinked and was quickly responded to
- 1803-GS (master PR), 1814-GS, 2140-GS are duplicate/related PRs
- Problem due to issue with queuing of messages between message router and datalink applications
- Can cause uplinks to be missed and/or downlinks to be repeated resulting in subsequent downlinks being delayed behind the repeated downlink
- Problem to be fixed in BPv4, planned for later this year

1921-MM - Duplicate WILCOs and STANDBYs (multiple aircraft)

Region: SOPAC

Status: OPEN

Type: AIR-t

- Duplicate WILCOs and STANDBYs received from multiple aircraft types
- In one example duplicate caused by known behavior, namely expiration of the 180-second ACARS-level SATCOM retransmission timer (a.k.a. SAT7)
- For the other five examples, CPDLC application apparently resent the same CPDLC downlink to the ACARS router (the CMU or equivalent) after a relatively short time (between 7 and 15 seconds)
- Boeing and Honeywell investigating

1923-RP - B744 responds to CR1 with DR1

Region: NAT

Status: CLOSED

Type: AIR-t

- Aircraft responded to first three CR1 messages with DR1 [DM62] COMMANDED TERMINATION
- In each case it took the aircraft a lengthy period (up to 7 minutes) to respond with a DR1
- ATCO told pilot to SELECTE ATC COMM OFF and then log-on again
- Fourth log-on was then successful
- Subsequent transfer failed
- Problem due to a known issue with the FMC version being flown on this aircraft
- Problem was corrected in NG FMS BP3.1 software release

1933-MM - ATS route interpreted as position in CPDLC route clearance (C-17)

Region: SOPAC

Status: OPEN

Type: AIR-t

- Flight crew advised that a CPDLC route clearance could not be loaded because of a "formatting error"
- Investigation indicates that the airway was correctly encoded from the ground system perspective.
- PR was assigned to Boeing C-17 engineering team
- Team has created official internal ADRs (Avionics Deficiency Reports) to address these concerns
- "Process which will likely take time to investigate, resolve and field on all of our C17 fleet and likely at some future build"

1937-GS - CR1 failed because we were CDA - B788

Region: SOPAC

Status: CLOSED

Type: AIR-t

- YBBB unable to establish a CPDLC Connection with an aircraft because YBBB was the CDA
- Similar to a bug previously seen with the B777 (ref PR- 1734-SN)
- No logs received for this event
- Similar to behavior corrected in the latest software release (BPv3)
- ANSPs should report any instance of this behavior for further investigation

1952-SN - Route clearance containing 180W is displayed in flight plan as 179W (B757/B767)

Region: SOPAC

Status: OPEN

Type: AIR-t

- "29N180W" was uplinked as part of a route clearance
- Displayed to flight crew as 29N179W which caused some confusion
- This is a known issue that used to occur with multiple airframe types
 - Ref **old** PR-1128
- All have been corrected except for B757/B767
- New PR generated to track to B757/B767 closure

1970-GS - B788 is trying to establish ADS/CPDLC connection but could not

Region: ASIA

Status: OPEN

Type: NETWORK

- ADS reports and some AFN logons were missing from the DSP log
- Once airplane reestablished VHF, ADS reports started being sent again
- It appeared airplane had been sending messages to another DSP
- Per ARINC investigation“... appears to be related to the fact that Aero Thai (VHF) is not configured to act the same way as our message processor. We are going to take action with Aero Thai to get that configuration updated so as to not ACK ATC messages”.
- Unclear why airplane tuned to an Aerothai frequency
- PR to remain OPEN pending ARINC resolution of the Aerothai issue
- See also PR 1959-GS (closed as duplicate of this PR)

1979-SN - ADS-C Report received with Nav Accuracy Lost (B744)

Region: SOPAC

Status: OPEN

Type: AIR-t

- Single periodic report received with accuracy completely lost, also wind was 180/00
- Crew when queried reported no NAV issues
- No issue with the ADIRU as all other inertial and air data were correct
- ANSPs should report any instance of this behavior for further investigation

1983-MM- ADS-C Disconnects for Congestion (multiple aircraft types)

Region: NAT

Status: OPEN

Type: AIR-t

- Abnormal ADS-C disconnects with reason code "Congestion" observed mainly for B777 aircraft
- Only observed in ADS-C data from New York - not Oakland or Anchorage
- CRA review of several events confirmed multiple 777s appear to have erroneously sent ADS-C disconnect messages with "Congestion" reason code
- PRs 918-GS, 919-GS, and 1986-MM are probable duplicates
- This PR will remain open pending further investigation by Boeing and Honeywell

1989-SN - Repeated CPD Messages (B777)

Region: NAT

Status: OPEN

Type: AIR-t

- More than 60 CPDLC "WILCO" downlinks were received and did not stop until the flight disconnected
- When flight crew disconnected, more than 57 "ERROR : ERROR [Command termination] and then "Cpdlc disconnection due to : : ERROR [Appliction Error]" CPDLC messages were received
- Problem is a probable duplicate of 1490-SN (2014) and others
- Problem is still under investigation by Boeing and Honeywell
- ANSPs should report any instance of this behavior for further investigation

1990-GS- Missing LOAD prompt on an route clearance uplink (B767)

Region: NAT

Status: OPEN

Type: AIR-t

- Aircraft with Line Check Airman in the cockpit conducting a DARP received a CPDLC route clearance uplink that did not contain a LOAD prompt
- Unable to reproduce results in the Boeing labs
- Data provided with report included photograph of a printout of uplink and printout was very different from the uplink
- The flight crew in this case WILCO'd the clearance, without being able to load it or see the content
 - This should be discouraged!
- Operators are encouraged to report any recurrences for investigation

1998-GS - DARP request results in incorrect route uplink

Region: SOPAC

Status: OPEN

Type: mult

- Flight crew sent DARP request; subsequent ATC clearance bore no resemblance to the request (or the flight planned route)
- Problem appears to have been a combination of:
 - (a) Flight crew having prepped the page prior to loading the company DARP route uplink into the FMC
 - (b) An issue with ATOP that resulted in sending of the wrong route
- Airplane side of issue has been closed (subject to reopening if there are further reports that indicate it was more than a procedural issue).
- Ocean 21 ground aspect will remain OPEN until the CRA receives confirmation that problem has been fixed

1999-MM - Weather deviation clearance uplink not displayed (B777)

Region: SOPAC

Status: OPEN

Type: AIR-t

- Weather deviation request was sent to ATC and no response was received
- ATC advised they had sent the clearance
- Problem is due to a shortcoming in the ACARS protocol
- If the avionics send 25 consecutive downlink blocks without receiving any intervening uplink blocks, then the next (26th) uplink is discarded
- A fairly verbose airplane is needed to induce this problem
- Problem has been reproduced in the lab and will be corrected in a future block point

2001-SN - Route Clearance when appended to FreeText Uplink (multiple biz jets)

Region: NAT

Status: OPEN

Type: AIR-t

- When an uplink contains a route clearance appended to free text, the flight crew are unable to review and accept the clearance
- Problem initially observed with a Gulfstream, but is applicable to several aircraft types with Honeywell NZ 6.1 FMS other biz-jet FMS implementations
- No issue if a clearance is sent with freetext appended to the clearance
- Software updates unlikely at all for some aircraft and unlikely anytime soon for others.

2005-MM - Delayed CC1 from 777

Region: NOPAC

Status: OPEN

Type: AIR-t

- Sent CR1 and received MAS; CC1 received 20 minutes later
- Two occurrences reported
- See also PR 1956-MM (closed as duplicate of this PR)
- Under investigation by Boeing and Honeywell
- ANSPs should report any instance of this behavior (CC1s delayed by multiples of 10 minutes) for further investigation

2070-RP - Invalid position in AFN logon of B748

Region: SOPAC

Status: OPEN

Type: AIR-t

- B748s (and B744s with NG FMS) sometimes send AFN logon with invalid position
- Problem also observed with other non-Boeing aircraft (e.g. GLF4)
- Boeing has reproduced the problem in the lab
- Note that the Honeywell NG FMS is used on B748's, B744s, and other non-Boeing aircraft, including Gulfstream models

2123-GS - CONFIRM ASSIGNED ROUTE Uplink Anomaly (Blank Page with SEND prompt) (B767)

Region: NAT

Status: ACTIVE

Type: TBA

- Flight received CONFIRM ASSIGNED ROUTE report request.
- When the report page was accessed to send the assigned route report, the page was blank
- PRs 2131-GS and 2167-GS are duplicates
- PR under investigation by Boeing

2134-SN - ATC uplink displayed incorrectly (B777)

Region: SOPAC

Status: ACTIVE

Type: AIR-t

- Flight crew requested a Tailored Arrival and ATC uplinked a clearance and T.A. displayed correctly on the MFD
- When flight crew selected the LOAD FMC prompt, an incorrect route clearance loaded into the FMC
 - Loaded route was a DARP re-route completed earlier in the flight.
- Flight crew rejected the uplink and ATC sent it again; second uplink displayed and loaded correctly
- Also see 1755-RP
- Problem under investigation by Boeing and Honeywell.

New Airbus PRs

- Refer to Airbus Working Paper



Questions?



South Pacific PRs

CRA number	Status	Type	Title	Findings
1855-GS	OPEN	AIR-t	CPDLC route request from B788 commenced at an ATS route	Flight requested an amended route via CPDLC. The first element in the route clearance field was an ATS route (airway). Honeywell has investigated, and found that this behaviour was inherited from 777 code. Whenever either airplane is on the last leg of an airway, then route downlinks (route request, or the response to CONFIRM ASSIGNED ROUTE) will begin with the airway.
1857-SN	ACTIVE	AIR-t	20 minutes to transition from I4 AME1 to MTSAT	Aircraft departed NCRG and established data-link on AME1 Inmarsat I4 SATCOM. Aircraft transitioned to MTSAT SATCOM. First downlink message via MTSAT has a latency of over 24 minutes. Similar event occurred involving a B789. B787 event was known problem that causes a SATCOM datalink connection not to become established after IRS alignment (fixed in Blockpoint 3). B777 problem under investigation by Boeing and Honeywell.
1860-RP	CLOSED	none	Discrepancy in ADS-C and CPDLC estimates from GLF5	Comparing the ADS-C and CPDLC estimates for position GILLY, it was noted that there was a 2 minute discrepancy. PR closed due to not being authorized to obtain logs.
1861-SN	CLOSED	AIR	Low FOM in ADS-C reports from - A332	Flight was displayed as a low quality ADS-C position symbol, indicating an ADS-C report with low FOM had been received. Airline was contacted and confirmed that for this aircraft the clock was not synchronized GPS (due to pilot action). Airbus has asked operator to correct the clock discrepancy.
1862-SN	OPEN	AIR-t	C5 improperly encodes 180E waypoint in predicted route	From 2015/02/17 - 2015/03/05 64 ADS-C reports with the 180E waypoint improperly encoded were received from C5 aircraft. LMCO contact recently confirmed correction is a priority in upcoming avionics fix package.

CRA number	Status	Type	Title	Findings
1860-RP	CLOSED	none	Discrepancy in ADS-C and CPDLC estimates from GLF5	Comparing the ADS-C and CPDLC estimates for position GILLY, it was noted that there was a 2 minute discrepancy. PR closed due to not being authorized to obtain logs.
1861-SN	CLOSED	AIR	Low FOM in ADS-C reports from - A332	Flight was displayed as a low quality ADS-C position symbol, indicating an ADS-C report with low FOM had been received. Airline was contacted and confirmed that for this aircraft the clock was not synchronized GPS (due to pilot action). Airbus has asked operator to correct the clock discrepancy.
1862-SN	OPEN	AIR-t	C5 improperly encodes 180E waypoint in predicted route	From 2015/02/17 - 2015/03/05 64 ADS-C reports with the 180E waypoint improperly encoded were received from C5 aircraft. LMCO contact recently confirmed correction is a priority in upcoming avionics fix package.
1865-MM	CLOSED AS DUPLICATE	AIR-t	Climb clearance not received	Sent CLIMB TO AND MAINTAIN F370, REPORT LEVEL F370 and received the MAS. After receiving no response, sent CONFIRM RECEIPT OF CLIMB CLEARANCE and received the MAS. Then received the following downlink: WHEN CAN WE EXPECT CLIMB TO FL370. The CMU sent ACARS acknowledgements to both the climb clearance uplink and the subsequent uplink querying whether the clearance had been received, but the available evidence indicates that the avionics did not present either of those uplinks to the flight crew. "Ack-n-toss" event.
1873-SN	OPEN	mult	Unable to establish CPDLC connection with A388 - CDA NFFF, then NZZO...	Unable to establish CPDLC connection under rather unusual circumstances. Many factors contributed to problem. Refer to slide in CRA presentation.

CRA number	Status	Type	Title	Findings
1874-SN	CLOSED AS DUPLICATE	GROUND	Unable to establish CPDLC connection with B77L- CDA NFFF, then NZZO...	Unable to establish CPDLC connection under rather unusual circumstances. Similar to event described in 1873-SN.
1875-SN	ACTIVE	AIR-t	Address forwarding failed (multiple times) for GLEX	CPDLC and ADS-C were working, which means there was no Air-Ground comm problem. There was no AFN response to any of the multiple contact advisories and no AFN complete messages. All AFN uplinks were received by the aircraft as indicated by the MAS S's received by YBBB. This would indicate that the avionics were not processing the Contact Advisory. Assigned to Bombardier for further investigation.
1876-MM	CLOSED AS DUPLICATE	AIR-t	Missing CPDLC uplinks for MD11	A CPDLC route clearance was uplinked. No response was received. When the flight crew was queried, they advised that the uplink had not been received. A subsequent CONTACT instruction was also lost. This PR is a recurrence of the MD-11 'ack-n-toss' issue
1882-SN	CLOSED	none	Address forwarding failed for GLF5	PR closed due to not being authorized to obtain logs.
1886-SN	ACTIVE	TBA	Principal Adviser Global Operations	Downlink DM24 -Route Request- last line contained: N774 TESAT TESAT Uplinked -Route Clearance- did not contain YSSY as destination. Flight Crew needed to manually insert YSSY prior to executing route. Per Airbus, the problem of duplicate " TESAT TESAT" was confirmed by the ground traces and is a know behavior. The issue with destination "YSSY" missing in the CLEARED uplink was also confirmed.

CRA number	Status	Type	Title	Findings
1890-SN	ACTIVE	TBA	Low FOM in ADS-C reports from A333	Flight was displayed as a “low quality” ADS-C position symbol, indicating an ADS-C report with low FOM had been received. Assigned to Airbus for further investigation.
1894-SN	ACTIVE	TBA	'Fast clock' in downlinks from Airbuses	Analysis of AFN and CPDLC downlinks has shown a number of occasions when the time stamp in the downlink is before the "received" time stamp, indicating a clock problem. Assigned to Airbus for further investigation.
1895-MM	CLOSED AS DUPLICATE	mult	Failed CPDLC transfer from KZAK to NZZO	NO AUTO TRANSFER FRM KZAK TO NZZO. SENT POS REPORT AS REMINDER. LOGGED OFF KZAK AND ONTO NZZO. NZZO LOGON OK BUT POS REPORTS AND WX DEV REQ WLD NOT SND. RECEIVED POS REQUEST OK. LOGGED OFF AND ON AGN. THN OK Transfer failed because END SERVICE uplink from KZAK could not be delivered while airplane was performing normal transition between Inmarsat Classic Aero satellites. Time between last downlink via first satellite and first downlink via second satellite was 104 seconds.
1896-MM	ACTIVE	AIR-t	B77W performance degradation	One operator's B77W fleet started transitioning to Inmarsat I4 in 2013. Since the transition completed performance observed has reduced from meeting the RSP180 99.9% 180 second requirement to now only achieving 99.1% in 180 seconds. Investigation by the operator has revealed that when the ORT was modified an adventitious change was made to the low speed channel from the high speed channel. Operator expected to have all of their B77Ws switched to using the high-speed channel by early December (2015). PR originator expected to provide update as early as January (2016) when performance data for December are available.

CRA number	Status	Type	Title	Findings
1897-MM	CLOSED	AIR-t	Delayed CPDLC and loss of ADS-C - B744	Delays in CPDLC and loss of ADS-C were experienced for two aircraft at about the same time. One aircraft's delayed CPDLC message was determined to have been the result of a transient satcom (avionics or network) issue. The other aircraft's delay was the result of the message having been transmitted via HFDL.
1898-GS	OPEN	AIR-t	Loss of ADS-C - B789	Aircraft had requested and was issued a climb to FL380 via CPDLC. Upon receipt of the WILCO, a new ADS-C LRDE was established. The expected ADS-C report at FL378 was not received. Demand Contract uplinked was uplinked, with no response received. A CPDLC CONTACT instruction was uplinked which was quickly responded to. 1803-GS (2014), 1814-GS, 2140-GS are duplicate/related PRs This behaviour is being fixed in the next software release (BPv4) planned for later this year.
1899-MM	OPEN	AIR-t	Data link problems - B738	No logon received (by YBBB) and data link problems (with YMMM). Both the aircraft operator and SITA indicated that they are investigating the problem.
1902-SN	ACTIVE	TBA	No WCE downlinked following change to Next + 1 - A332	Following a CPDLC re-route, no WCE was triggered following a change to the Next + 1 waypoint. Assigned to Airbus for further investigation.
1910-RP	OPEN	AIR-t	B77W not responding to uplinks	Aircraft logged on but CPDLC and ADS-C unsuccessful. MAS was received on all uplinks but no response from the aircraft. Multiple AFN log-ons and CPDLC CR1 and ADS-C contract requests sent over next few hours with no success. Problem under investigation by Honeywell and Boeing.

CRA number	Status	Type	Title	Findings
1911-RP	CLOSED	none	Non-delivery of one uplink	Aircraft was operating normally when a single CPDLC clearance uplink failed. The communication log showed that the aircraft had been successfully communicating with the ground over APK1. A message containing instruction to CLIMB TO and MAINTAIN was uplinked. However, this uplink was transmitted over a different station than the one which the aircraft was logged on to. The message was not received by the aircraft and a NO ACK 311 message was received by the ground. SITA reported that the aircraft was temporarily logged off from SATCOM during the timeframe in question. As a result, the UL was unsuccessful.
1912-SN	ACTIVE	TBA	Uplinked CPDLC route clearance - No LOAD prompt or error message - A332	Flight crew advised no LOAD prompt or error message displayed upon receipt of a CPDLC route clearance. Assigned to Airbus to investigate.
1914-SN	CLOSED	none	Delayed CPDLC downlink - B773	A CPDLC downlink request took 11 minutes to be delivered. Closed due to no logs available for review.
1915-MM	OPEN	AIR-t	CPDLC route request replaced waypoint names with lat/longs	The avionics appear to have converted all the waypoints in a CPDLC route request into lat/longs. Assigned to Boeing C-17 engineering team to investigate.
1921-MM	OPEN	AIR-t	Duplicate WILCOs and STANDBYs	Duplicate WILCOs and STANDBYs observed. In one of the six examples, all evidence indicates that the duplicate was caused by known behavior, namely expiration of the 180-second ACARS-level SATCOM retransmission timer (a.k.a. SAT7) because the airplane apparently did not receive the first ACARS acknowledgement. For the other five examples, however, for unknown reasons the CPDLC application apparently resent the same CPDLC downlink to the ACARS router (the CMU or equivalent) after a relatively short time (between 7 and 15 seconds). Boeing and Honeywell are investigating.

CRA number	Status	Type	Title	Findings
1922-SN	OPEN	AIR-t	Duplicated waypoints in CPDLC downlink route request - A333	A CPDLC route request contained repeated/duplicated waypoints. Assigned to Airbus to investigate.
1924-MM	ACTIVE	TBA	[Blank] Current Data Authority for GLF5	A Gulfstream logged on to YBBB and a Connect Request was uplinked. The Connect request failed because we 'weren't the next data authority' – the Current Data Authority was “ ”. Gulfstream investigation in progress.
1929-SN	CLOSED	AIR-t	'insufficientMsgStorageCapacity' - A388	In response to a CPDLC route clearance an error message 'insufficientMsgStorageCapacity' was received. Airbus confirmed that this problem has been fixed and the corrected software is available for retrofit.
1933-MM	OPEN	AIR-t	ATS route interpreted as position in CPDLC route clearance	The flight crew advised that a CPDLC route clearance could not be loaded because of a "formatting error". Investigation indicates that the airway was correctly encoded from the ground system perspective. PR was assigned to Boeing C-17 engineering. They Reported that they have created official internal ADRs (Avionics Deficiency Reports) to address these concerns. However, this is a process which will likely take time to investigate, resolve and field on all of our C17 fleet and likely at some future build.
1937-GS	CLOSED	AIR-t	CR1 failed because we were CDA - B788	Unable to establish a CPDLC Connection with an aircraft because we were the CDA Similar to a bug previously seen with the B777 (ref PR- 1734-SN) No logs received for this event. The behaviour appears to be at least partly similar to behaviour corrected in the latest software release (BPv3). ANSPs should report any instance of this behaviour that they experience for further investigation.

CRA number	Status	Type	Title	Findings
1938-SN	ACTIVE	AIR-t	Acft retained Active centre after disconnecting CPDLC - A332	Aircraft continued to show NZZO as the "Active Centre" even after disconnecting CPDLC. Assigned to Airbus for investigation.
1952-SN	OPEN	AIR-t	Route clearance containing 180W is displayed in flight plan as 179W	"29N180W" was uplinked as part of a route clearance. However it was displayed to the flight crew as 29N179W which caused some confusion. This is a known issue that used to occur with multiple airframe types. All have been corrected except for B757/B767. New PR generated to track to B757/B767 closure. Ref OLD PR-1128.
1953-MM	CLOSED	AIR-t	Duplicated waypoints in route request	ATC received a route request that received multiple repeated waypoints. Airbus indicated that the problem is caused by a known avionics issue which (1) has been fixed in later P4 (Step1A) avionics software and (2) has a workaround with AOC (A702) flight plan uplinks that they will provide to aircraft operator. See also PR 1922.
1956-MM	CLOSED AS DUPLICATE	AIR-t	Delayed CC1	The cause of delayed CC1s from 787s is understood and being corrected. The 'master' PR for the 787 issue is 1803-GS. The cause of delayed CC1s from 777s, however, is not understood. The 'master' PR for the 777 issue is 2005-MM
1959-GS	CLOSED AS DUPLICATE	NETWORK	DR1 not received - B788	The airplane had SATCOM, but no HFDL, and with no VHF link to their contracted DSP, messages went missing, with media advisories indicating loss of VDL mode A and VDL mode 2 connections which weren't supposed to exist. The airplane was over the middle of Australiaso. This was apparently another case of an aircraft connecting to Aerothai.
1960-SN	ACTIVE	TBA	Downlinks not received - A332	A CPDLC Connection has been established. However no CPDLC downlinks could be received. Assigned to Airbus for investigation.

CRA number	Status	Type	Title	Findings
1966-SN	CLOSED AS DUPLICATE	AIR-t	DM64 contained blank [facilitydesignation]	CPDLC Connection requests were responded to with DM64 containing a blank data authority (or 'spaces'). Per CRA analysis, the airplane suffered (at least) three episodes of the "ack-n-toss" problem during the flight. This problem has been isolated to the Rockwell-Collins CMU and is under investigation by RCI. One of these episodes involved the AFN ack from YBBB. As a result, the first three CR1s received DR1s with four spaces for the current data authority in reply. This is a known behavior of the Pegasus FMC on the 757 and 767. If there is no (successful) AFN logon prior to receipt of a CR1, then the FMC is supposed to just send a DR1.
1979-SN	OPEN	AIR-t	ADS-C Report received with Nav Accuracy Lost	Single periodic report received with "Accuracy completely lost". Previous report at 0236:15 has ETA 52S170W at 0302:55 and Wind 290/38 - accuracy lost report has ETA 52S170W at 0302:48 and Wind 180/00 - next report at 0253:26 (on-demand) has ETA 52S170W at 0302:54 and Wind 302/41. Crew when queried reported no NAV issues. CRA also noted that some of the met data in the same report looked weird: Wind dir = 180 degree Wind spd = 0.0 knots. I would suspect an issue with the ADIRU, but other inertial and air data look correct.
1988-MM	OPEN	GROUND	Unable to establish CPDLC connection - CDA was WMFC	Unable to establish CPDLC because CDA was "WMFC". Flight crew advised no active CPDLC connection. ACARS message log analysis indicates that WMFC did not send any CPDLC uplinks as the CDA, although it may have been confused as to the status of its CPDLC connection with the aircraft. PR assigned to WMFC to investigate further.

CRA number	Status	Type	Title	Findings
1998-GS	OPEN	mult	DARP request results in incorrect route uplink	The crew sent a DARP request and the subsequent ATC clearance bore no resemblance to the request (or the flight planned route). This appears to have been a combination of: (a) The flight crew having prepped the page prior to loading the company DARP route uplink into the FMC, and (b) an issue with ATOP that resulted in sending of the wrong route. The airplane side of the issue will be closed (subject to reopening if there are further reports that indicate it was more than a procedural issue). The ATOP ground aspect will remain OPEN, until the CRA receives confirmation that this has been fixed.
1999-MM	OPEN	AIR-t	Weather deviation clearance uplink not displayed	Weather deviation request sent at 0825 - no response. Our logs show there was an ATC uplink to the airplane at 0826 which was not displayed. In response to a crew request, ATC advised they had sent the clearance. This problem is due to a shortcoming in the ACARS protocol. If the avionics send 25 consecutive downlink blocks without receiving any intervening uplink blocks except for the acknowledgments to those downlink blocks, then they discard the next uplink. In this case, the previous uplink block with UBI D was a free-text uplink, uplink blocks with UBIs E through Z and then A through C were acknowledgements to 25 consecutive maintenance report, ADS-C, and other downlink blocks -- lastly the weather deviation request -- and then the next uplink block with UBI D was the weather deviation clearance that the avionics discarded as a duplicate of the previous uplink block with UBI D. A fairly verbose airplane is needed to induce this problem This problem has been reproduced in an avionics engineering lab and is targeted to be fixed in a future software blockpoint.

CRA number	Status	Type	Title	Findings
1992-SN	CLOSED AS DUPLICATE	AIR-t	ADS Contract Rejected	The ADS contract was rejected due to "Invalid operational mode". We then received four ADS Emergency reports. The flight crew reported "NO EMERGENCY" and shortly after we received a "Cancel emergency mode". Subsequent reports were received at about a 5 minute rate and most only contained the Basic Group, however every fifth report contained the Flight ID(not asked for) and the Earth Reference Group. This continued until the flight exited Oakland airspace at 0354z. There were a couple of things going on here. 1. The pilot in the right seat can put ADS into emergency mode with his foot... This problem is unique to the B744 with the "classic" FMC. There's a footrest on the center aisle stand for the pilot in the right seat, right next to the MCDU. When the ATC LOGON/STATUS page is displayed, the pilot can inadvertently bump the button that puts ADS-C into emergency mode. If ADS-C is in emergency mode when a contract request is received, the FMC will nak the request with incorrect operating mode and then start sending ADS emergency reports. The default ADS Emergency reports contain the basic, flight id, and earth reference groups and are sent at a 5 minute rate. We've moved the ADS EMERGENCY prompt out of the way on the new FMC available for the B744, but most operators still have the "classic" FMC. 2. When the pilot selects CANCEL EMERGENCY, all that does is change the operating mode back to Normal. All other characteristics (reporting groups and rate) remain the same as when the Emergency Mode was active. Part 1 is a known problem. Part 2 is correct behavior.

CRA number	Status	Type	Title	Findings
2004-MM	ACTIVE	AIR-t	No Next + 1 waypoint - sent as '0000.0N 00000.0E' - C-17	Next + 1 in ADS-C reports was being received as "0000.0N 00000.0E". Assigned to Boeing C-17 engineering team for investigation.
2070-RP	OPEN	AIR-t	Invalid position in AFN logon of B748	B748s (or B744s with NG FMS) sometimes send AFN logon with invalid position. Problem also observed with other non-Boeing aircraft (e.g. GLF4). Boeing was able to reproduce the problem in the lab. Note that the Honeywell NG FMS is used on B748's, B744s, and other non-Boeing aircraft, including Gulfstream model(s).
2071-MM	CLOSED	AIR-t	CPDLC route clearance not received - B77L	A CPDLC route clearance was uplinked but not received by the aircraft. SITA indicated that for reasons unknown the aircraft briefly logged off SATCOM just before the uplink was sent.
2124-SN	OPEN	TBA	CPDLC error messages received in response to an EXPECT uplink - A380	On receipt of an EXPECT uplink it appears that A380s respond with an error message. The behavior is per design. Airbus provided an IP to ISPACG a few years ago on their plan to disable a number of rarely used uplink messages.
2130-SH	ACTIVE	TBA	Unable to establish CPDLC connection - CDA was WIII	YBBB was unable to establish a CPDLC connection with aircraft because the avionics considered the the aircraft was connected to WIII. No amount of troubleshooting could correct the problem
2134-SN	ACTIVE	AIR-t	ATC uplink displayed incorrectly	Flight crew requested a Tailored Arrival and ATC uplinked a clearance and T.A. displayed correctly on the MFD When flight crew selected the LOAD FMC prompt, an incorrect route clearance loaded into the FMC. The loaded route was a DARP re-route completed earlier in the flight. The crew rejected the uplink and ATC sent it again, the second displayed and loaded correctly. Also see 1755-RP. Problem under investigation by Boeing and Honeywell.

CRA number	Status	Type	Title	Findings
2149-SN	ACTIVE	TBA	ADS-C Log On problem flight B737-900ER	A flight crew reported two issues: 1. Inability for automatic system logon to ADS-C only (CPDLC logged on normally) 2. There was a CPDLC system failure and subsequent requirement to log off and then back. The CRA is in communication with the operator involved.
2155-MM	ACTIVE	TBA	Multiple duplicate CPDLC position reports received from B77W	Multiple duplicated CPDLC position reports were received from one aircraft. Other data link related problems were also encountered. CRA investigation in progress.
2158-SN	CLOSED	GROUND	Incorrect ADS-C Reason code used by numerous aircraft types	Incorrect reason code was actually the result of a decoding error in the ground system software. This PR was close at originator's request.
2159-SN	ACTIVE	TBA	Incorrect ADS-C estimate - A332	An ADS-C report resulted in a grossly erroneous estimate (8-10 minute error) being held by ATC for the next waypoint. Assigned to Airbus for investigation.