



**THE FORTY-SIXTH MEETING OF THE
INFORMAL PACIFIC ATC CO-ORDINATING GROUP (IPACG/46)**

**THE THIRTY-THIRD MEETING OF THE
IPACG FANS INTEROPERABILITY TEAM (IPACG FIT/33)**

(Virtual, 14-15 October 2020)

Agenda Item 2: PROBLEM REPORT ACTIVITY (Central Reporting Agency)

**Federal Aviation Administration (FAA) Central Reporting Agency (CRA)
Problem Report (PR) Briefing**

(Presented by the FAA CRA)

SUMMARY

This working paper describes the investigation and disposition of Future Air Navigation System (FANS) PRs that are of interest to the IPACG FIT.

1. Introduction

- 1.1. FANS stakeholders may submit PRs via the <http://www.fans-cra.com/> website.
 - 1.1.1. Airways Corporation of New Zealand (ACNZ) graciously hosts and maintains the website.
 - 1.1.2. The website is used for multiple regions, namely the North and Central Pacific region (IPACG FIT); the South Pacific region (ISPACG FIT); the Asia region (FIT-Asia); and the North Atlantic region (NAT TIG).
- 1.2. Between preparation of the IPACG FIT/32 PR briefing in November 2019 and preparation of this PR briefing in October 2020, the CRA investigated 155 PRs. Of those 155 PRs, 16 PRs (10%) occurred in the North and Central Pacific region. For context, the previous PR briefing for IPACG FIT/32 described 36 PRs (11%) that occurred in the North and Central Pacific region.
- 1.3. Figure 1 illustrates the number of PRs submitted per calendar year starting in 2006. The total number of PRs submitted in 2020 is projected based on the number of PRs submitted to date. The smaller number of PRs submitted in 2020 is undoubtedly due to the effects of the global COVID-19 pandemic.

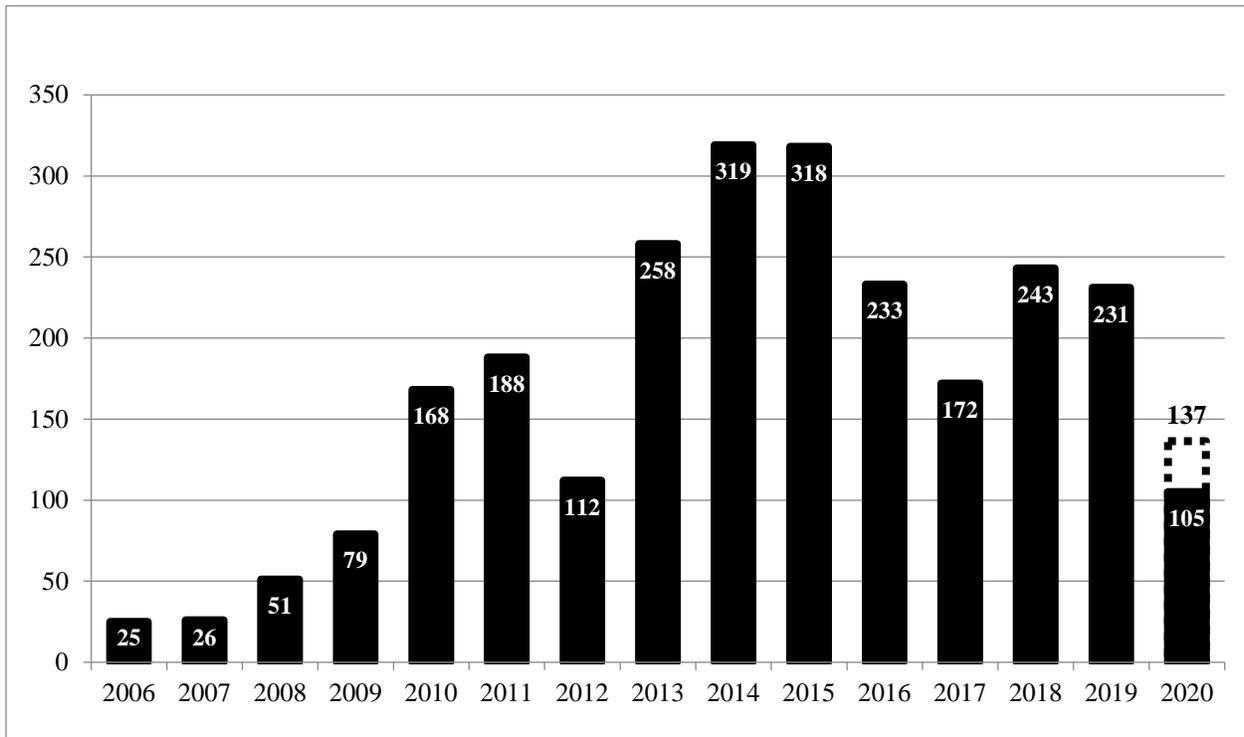


Figure 1 PRs Per Year

1.4. PR status definitions include the following:

- **Raised:** The PR originator submitted the PR but the CRA has not yet processed it.
- **Active:** The CRA processed the PR and assigned it for investigation.
- **Open:** The CRA completed the PR investigation but some form of corrective action is required before the CRA can close it.
- **Open – Fix Available:** The appropriate stakeholder implemented corrective action and a fix is available for installation.
- **Closed As Duplicate:** The CRA closed the PR because it is already tracking the same problem with another PR.
- **Closed:** The appropriate stakeholder implemented corrective action.
- **Closed – Monitoring:** The CRA closed the PR because it cannot determine the corrective action. The CRA will monitor future PRs for any recurrences of the problem.

1.5. PR type definitions include the following:

- **TBA:** To be assigned

- **Air – Procedural:** Flight crew issue
- **Air – Technical:** Avionics issue
- **Ground – Procedural:** Controller issue
- **Ground – Technical:** ATS unit system issue
- **Network:** Communication service provider or SATCOM service provider issue
- **Multiple:** Multiple types of issues
- **None:** Report is a non-problem

2. Discussion

2.1. The FAA CRA updated the status or progress of the following old PRs that are likely of interest to the FIT.

2.1.1. 2852-AG, Open / Air – Technical. Oakland Oceanic reported receiving truncated CPDLC downlinks from multiple 777 airplanes. Boeing and Honeywell plan to fix this issue in future 777 FANS avionics (FDCF) software.

2.1.2. 2892-KS, Open / Air – Technical. A 747-8 flight crew reported that they were unable to log on to Fukuoka because they could not enter the origin and destination airport designators on the ATC LOGON/STATUS page. Boeing and Honeywell plan to fix this issue in future 747-8 FANS avionics (NG FMC) software. Other 747-8 aircraft operators have reported this and similar issues with the ATC LOGON/STATUS page and the CRA is treating this PR as the master PR for this issue. The CRA also closed PRs 2998-GM, 3018-MM, 3068-CJ, and 3076-CJ mentioned in Section 2.4 of this paper as duplicates of this PR.

2.1.3. 2939-KS, Closed / Air – Procedural. A 787 flight crew reported that they were unable to establish a CPDLC connection with Fukuoka. The CRA found that Fukuoka responded to the AFN contact messages from the airplane with negative AFN acknowledgement messages because although the airplane's route entered the Fukuoka FIR the route did not enter ATS data link airspace. Figure 2 illustrates this airspace.

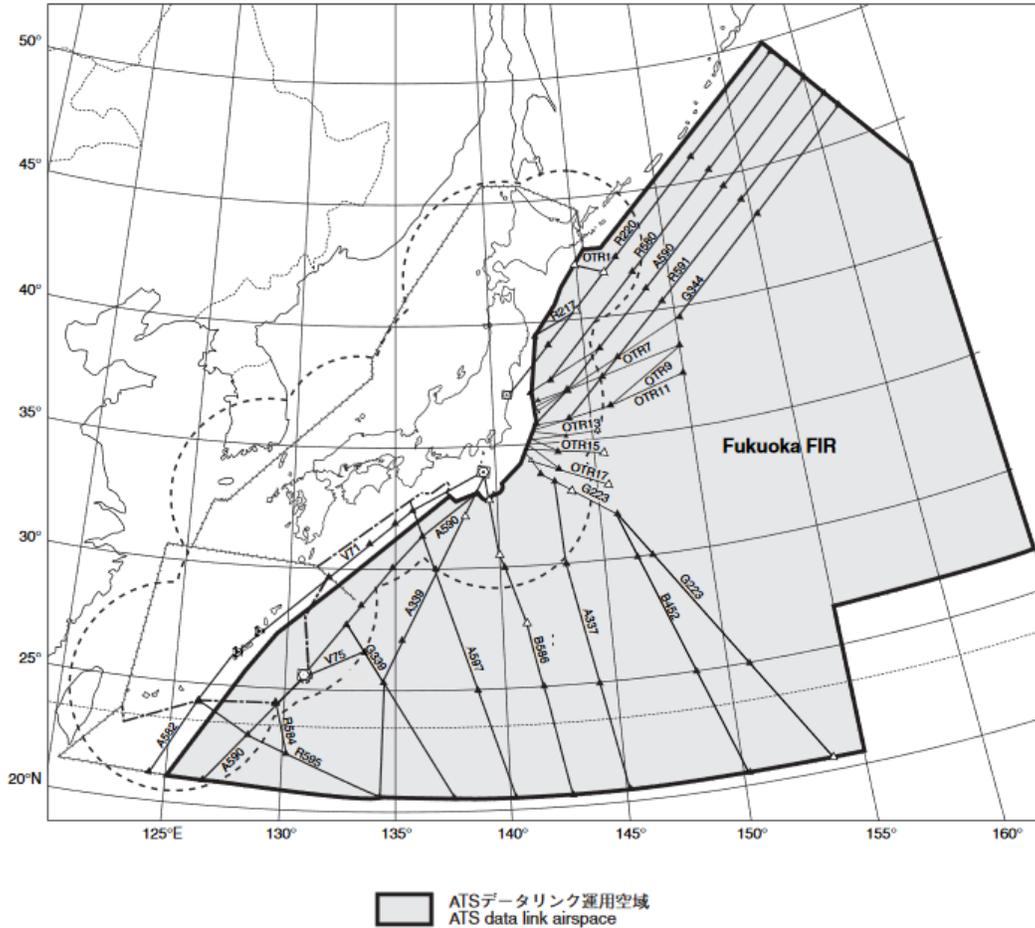


Figure 2 ATS Data Link Airspace in the Fukuoka FIR

- 2.2. The FAA CRA investigated the following significant new PRs that occurred in the North and Central Pacific region.
- 2.2.1. 3028-MM, Closed – Monitoring / TBA. Oakland Oceanic as well as New York Oceanic and Auckland Oceanic reported that during a 30-minute period they received multiple delayed ADS-C reports and that multiple uplinks failed to be delivered. ARINC and SITA did not investigate this PR within their 90-day audit periods, although SITA indicated that no network delays were apparent. Oakland Oceanic agreed with placing this PR in the Closed – Monitoring state.
- 2.2.2. 3037-CJ, Closed As Duplicate / Air – Technical. A 747-400 operator reported multiple occasions when its airplanes lost CPDLC communications. Boeing found that these problems were caused by an interface issue between the FANS avionics (the FMC) and the ACARS avionics (the CMU) known as the “peripheral lockup” issue. Collins CMU-900 core software -012 and later fixes this issue and Boeing advised the operator

accordingly. The CRA closed this PR as a duplicate of PR 1021-MM, which is the master PR for this issue.

- 2.2.3. 3051-CJ, Closed As Duplicate / Air – Technical. A Gulfstream G650 flight crew reported that they could not send a response to a CPDLC uplink from Oakland Oceanic. Honeywell indicated that this problem was caused by the same issue that is tracked with PR 2905-CJ and that the issue is fixed in G650 Block Point 3 avionics software that will become available in early 2021.
 - 2.2.4. 3052-CJ, Closed / None. A Gulfstream G650 flight crew asked why a STANDBY downlink response is not available for a WHEN CAN YOU ACCEPT [altitude] uplink request and whether the responses to such a request are monitored for PBCS purposes. The CRA and Honeywell responded that the CPDLC syntax does not allow a STANDBY response and that the responses are monitored for PBCS purposes.
 - 2.2.5. 3093-GM, Active / TBA. Oakland Oceanic reported that during a 25-minute period it received multiple delayed ADS-C reports via Inmarsat SATCOM from a 767 and an A330. Oakland Oceanic also reported that three ADS-C demand contract requests it sent to the A330 failed to be delivered. For the 767, the CRA found that the delayed ADS-C reports were caused by the airplane operating on the coverage boundary of the Inmarsat Asia-Pacific I-4 satellite. For the A330, the Inmarsat SATCOM logs indicated that a SATCOM avionics reset occurred. Collins (the SATCOM avionics supplier) is investigating potential reasons for the reset.
 - 2.2.6. 3106-SH, Active / TBA. Oakland Oceanic reported that it sent an ADS-C event contract request, an ADS-C periodic contract request, and a CPDLC connect request to an A350 but that it did not receive an ADS-C acknowledgement to the periodic contract request or a CPDLC connect confirm from the airplane. Oakland Oceanic also reported similar behavior by an A330 several days later. The CRA assigned this PR to Airbus to investigate.
- 2.3. The FAA CRA investigated the following significant new PRs that occurred outside of the North and Central Pacific region but which are likely of interest to the FIT.
- 2.3.1. 2931-CJ, Open / Air – Technical. Shanwick Oceanic reported that it was unable to establish CPDLC and ADS-C connections with a 777. This problem occurred because the ACARS avionics lost the VHF link but did not switch to using the SATCOM link as designed. Boeing and Honeywell plan to fix this issue in future 777 ACARS avionics (DCMF) software. Other stakeholders have reported this issue and the CRA is treating this PR as the master PR for this issue.
 - 2.3.2. 3025-MM, Closed / Network. Auckland Oceanic reported that ADS-C reports from a 747-400 were significantly delayed after it switched to the Inmarsat Asia-Pacific satellite region. Inmarsat indicated that the problem occurred because of a “log-on storm” event

following routine maintenance and that in April 2020 it implemented several changes to reduce the risk of another similar event due to signaling channel overload.

- 2.3.3. 3082-MM, Closed / Network. Auckland Oceanic reported that a 767 did not meet RSP180 at the 95% level due to frequent HFDL use and no SATCOM use. The aircraft operator attempted to resolve the problem by changing various avionics hardware and software but performance did not improve. The aircraft operator eventually determined that a communications service provider registration issue prevented the airplane from using SATCOM. The aircraft operator and communications service provider resolved that issue and Auckland Oceanic reported that the airplane has since performed well. This PR indicates the complexity of the ATS data link system and PBCS compliance.
- 2.3.4. 3090-SH, Open / Air – Technical. A 777 flight crew reported that they were unable to log on to Bodø Oceanic because the aircraft registration was no longer available to the FANS avionics. Boeing and Honeywell plan to fix this issue in future 777 FANS avionics (FDCF) software. Other 777 aircraft operators have reported this issue and the CRA is treating this PR as the master PR for this issue.
- 2.4. The FAA CRA received the following less-significant new PRs that occurred in the North and Central Pacific region.
 - 2.4.1. 2998-GM, Closed As Duplicate / Air – Technical. A 747-8 flight crew reported that after logging on to and establishing a CPDLC connection with Anchorage the ATC LOGON/STATUS page continued to display the “SENDING” indication. This problem was caused by the same issue that is tracked with PR 2892-KS and the CRA closed this PR as a duplicate of that one.
 - 2.4.2. 3018-MM, Closed as Duplicate / Air – Technical. A 747-8 flight crew reported that after losing datalink communications with Oakland Oceanic they were unable to send another log on message because they could not enter Oakland Oceanic’s “KZAK” designator on the ATC LOGON/STATUS page. This problem was caused by the same issue that is tracked with PR 2892-KS and the CRA closed this PR as a duplicate of that one.
 - 2.4.3. 3022-MM, Closed – Monitoring / Air – Technical. A Gulfstream G600 flight crew reported that they temporarily lost datalink communications with Oakland Oceanic. Honeywell indicated that an avionics reset occurred for unknown reasons and that it has not received other similar reports. The CRA will monitor future PRs for recurrences of this issue.
 - 2.4.4. 3067-CJ, Active / TBA. A 747-8 flight crew reported that after losing datalink communications they initially were unable to log on to Fukuoka again but that they later successfully logged on to Fukuoka again. Boeing found that a SATCOM avionics failure caused the loss of datalink communications, that reversion to HF data link (which Fukuoka does not support) caused the initial inability to log on to Fukuoka again, and that the flight crew resetting the SATCOM avionics circuit breaker allowed the SATCOM

avionics to resume operation and the flight crew to successfully log on to Fukuoka again. Boeing is continuing to investigate reasons for the SATCOM avionics failure.

- 2.4.5. 3068-CJ, Closed as Duplicate / Air – Technical. A 747-8 flight crew reported that they were unable to log on to Fukuoka because the ATC LOGON/STATUS page was not responsive. This problem was caused by the same issue that is tracked with PR 2892-KS and the CRA closed this PR as a duplicate of that one.
- 2.4.6. 3076-CJ, Closed as Duplicate / Air – Technical. A 747-8 flight crew reported that they were unable to log on to Fukuoka because the ATC LOGON/STATUS page was not responsive but that after making a different FMC the master FMC they successfully logged on to Manila. This problem was caused by the same issue that is tracked with PR 2892-KS and the CRA closed this PR as a duplicate of that one.
- 2.4.7. 3110-CJ, Active / TBA. A 747-8 flight crew reported that they were unable to log on to Anchorage because they could not enter the origin and destination airport designators on the ATC LOGON/STATUS page. Boeing is investigating this PR, which may have been caused by the same issue that is tracked with PR 2892-KS.
- 2.4.8. 3111-CJ, Active / TBA. A 747-8 flight crew reported DATALINK LOST and SATVOICE LOST indications. Boeing is investigating this PR.
- 2.4.9. 3115-SH, Active / TBA. Anchorage reported unexpected ADS-C behavior by a 747-8. Boeing is investigating this PR.
- 2.4.10. 3117-SH, Active / TBA. A 747-8 flight crew reported that they were unable to log on to Oakland Oceanic because they could not enter the origin and destination airport designators on the ATC LOGON/STATUS page. Boeing is investigating this PR, which may have been caused by the same issue that is tracked with PR 2892-KS.

3. Action by the meeting

- 3.1. The FAA CRA invites the IPACG FIT to:
 - a) note the content of this paper; and
 - b) promote expeditious resolution of Active and Open PRs.