**THE FORTY-FIRST MEETING OF THE**

**INFORMAL PACIFIC ATC CO-ORDINATING GROUP**

**(IPACG/41)**

(Kyoto, Japan 16 – 17 September 2015)

Agenda Item 5: Communications/Navigation/Surveillance (CNS) Issues

**FANS 1/A over High Frequency Data Link (HFDL)**

(Presented by Civil Aviation Bureau of JAPAN)

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| SUMMARY This paper provides information on plans to evaluate the use of FANS 1/A over high frequency data link (HFDL) in the Fukuoka Flight Information Region (FIR). |

# Introduction

## At IPACG/34 FIT/21 (May 2011), the IPACG FIT reviewed the potential benefits and issues with using HFDL as an accepted medium for FANS 1/A messages. At that time, the meeting concluded that HFDL might be acceptable as a tertiary communications path but ADS reports via HFDL cannot be used for any reduced separation applications because of the JCAB Data-Link Centre System (DLCS) automatically rejects any HFDL messages. JCAB agreed to continue to monitor the performance of HFDL as a viable medium in the future. (Refer to IPACG/34 FIT/21 Meeting Report).

## JCAB and FAA have since been transitioning from *FANS 1/A Operations Manual (FOM)* to the *Global Operational Data Link Document (GOLD)* post-implementation monitoring. GOLD monitoring is now being referred to as performance-based communication and surveillance (PBCS) monitoring under the proposed ICAO provisions targeted for approval in November 2016. At IPACG/39 (Feb 2014), JCAB and FAA agreed to establish technical meetings to further discuss PBCS implementation and monitoring. JCAB and FAA continue to collaborate on PBCS implementation in various forums, such as IPACG, FAA-sponsored Performance-based Operations Aviation Rulemaking Committee’s Communication Working Group (PARC CWG) and ICAO Operational Data Link Specific Working Group (OPDLWG, formerly OPLINKP).

## This paper provides information on JCAB plans to reconsider the decision taken at IPACG/34 FIT/21 and evaluate the use of FANS 1/A over HFDL in the Fukuoka FIR over a two year period tentatively scheduled to begin in November 2015.

# Discussion

## The use of aircraft communications addressing and reporting system (ACARS) over HFDL is restricted in the Fukuoka FIR. Any messages including controller-pilot data link communications (CPDLC) downlink messages, any kind of automatic dependent surveillance – contract (ADS-C) reports, any kind of flight information service (FIS) requests, departure clearance (DCL) requests are rejected by the DLCS. In addition, when the DLCS receives any downlink message over HFDL, it automatically sends a free text message to the flight crew stating, “HF DATA LINK IS NOT AVAILABLE FOR ATC COMM IN FUKUOKA FIR”.

## The JCAB implemented the automated rejection function to reject downlink messages received via any of the HF stations listed in a configuration file. These messages are being rejected because there were concerns with the continuous use of FANS 1/A messages over HFDL in reduced separation operations.

## However, JCAB recognizes that RTCA DO 258A/EUROCAE ED 100A, FANS 1/A Interoperability Standard, identifies the criteria for priority selection of different sub-networks used by the FANS 1/A system. These criteria indicate that VHF is the highest priority followed by SATCOM, and then HF may provide an appropriate alternative if both VHF and SATCOM are unavailable or fail to deliver a message.

## JCAB also recognizes that procedures for applying reduced separation minima, including 30 NM and 50 NM longitudinal and 30 NM lateral separation minima, ADS‑C climb descent procedure (ADS‑C CDP) and the automatic dependent surveillance - broadcast in trail procedure (ADS‑B ITP) separation minima, provide some mitigation against potential delays in CPDLC and ADS‑C messages sent over HFDL. However, it is noted that operators must ensure that:

1. SATCOM is serviceable prior to dispatch of the flight; and
2. Flights crews are trained to notify ATC of equipment failure, such as with SATCOM, or loss of connectivity causing degraded performance of ADS‑C and CPDLC, in accordance with procedures provided in the *GOLD Manual* (Doc 10037), paragraph 5.9.4.

## The GOLD Manual (Doc 10037), paragraph 5.9.4 states:

**5.9.4 Data link system failures**

5.9.4.1 When operating CPDLC and the aircraft data link system provides an indication of degraded performance resulting from a failure or loss of connectivity, the flight crew should notify the ATS unit of the failure as soon as practicable, including:

a) When operating outside of VHF coverage area and the SATCOM data link system fails;

…

*Note.— Timely notification is appropriate to ensure that the ATS unit has time to assess the situation and apply a revised separation standard, if necessary.*

## JCAB has now established PBCS monitoring program as an initial step to PBCS implementation in Japan. The local PBCS monitoring program, which commenced in April 2015, will contribute to raise the awareness of any non-compliance that would cause continuous use of FANS 1/A over HFDL by a particular operators/aircraft operation in the Fukuoka FIR.

## Given the conditions discussed above, JCAB is planning to evaluate the use of FANS 1/A over HFDL in the Fukuoka FIR through PBCS monitoring program. JCAB is tentatively planning to begin the evaluation in November 2015. JCAB anticipates that the evaluation will last approximately 2 years.

## During the evaluation period, JCAB will monitor the use of FANS 1/A over HFDL through the PBCS monitoring program, including any problem reports submitted to CRA JAPAN. Cooperation from operators and communication services providers (CSPs) to ensure that the conditions discussed above are valid will be essential to conclude following the evaluation period on a favorable decision by JCAB to continue the use of FANS 1/A over HFDL in the Fukuoka FIR.

# Action by the meeting

## The meeting is requested to:

1. note the content of this information paper.

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