THE FORTY-THIRD MEETING OF THE INFORMAL PACIFIC ATC CO-ORDINATING GROUP (IPACG/43)

(Tokyo, Japan 27-28 September 2017)

Agenda Item 2: Report on Relevant Outcomes from Other Meetings

Highlights from PARC CWG

(Presented by the United States)

SUMMARY

This paper provides relevant outcomes and discussion points from the recent 38th meeting of the performance-based operations aviation rulemaking committee (PARC) communications working group (CWG).

1. Introduction

1.1 The PARC is an Aviation Rulemaking Committee chartered by FAA that operates under the FAA Administrator's authority (49 U.S.C. Section 106(p)(5)) to "provide a forum for the U.S. aviation community to discuss, prioritize, and resolve issues, provide direction for U.S. flight operations criteria, support … NextGen … and to produce U.S. consensus positions for global harmonization," and provide "advice and recommendations to the Associate Administrator for Aviation Safety".

1.2 The PARC CWG is a Working Group of the PARC and works on matters concerning aeronautical communications, establishing projects to manage its work program and developing project reports that provide advice and recommendations for the PARC Steering Group (SG) to review and submit to the FAA.

1.3 The 38th meeting of the PARC CWG was held in Washington, DC, United States from 29-31 August. This paper provides information from the meeting that may be of interest to the IPACG.

2. Discussion

2.1. The PARC CWG maintains a "project workbook" to track the status of and report on the projects supported and worked by the group. Below is a list of the CWG projects, status and relevant discussion points from the recent meeting.

i) Completed Projects (Recommendations submitted to FAA)

(1) Jul 2006 – **Roadmap for data link**

(2) Sep 2010 – **FANS 1/A over Iridium (FOI)**

(a) During the recent meeting, the performance challenges for FANS over Iridium were again discussed following briefings from the FAA and Japan Civil Aviation Bureau (JCAB) on performance monitoring. Iridium was reminded of the tasking to investigate

causes for poor performance. It was proposed that depending on the outcome of the investigation, CWG may consider revisiting its recommendations regarding FOI.

(3) Mar 2011 – **FANS 1/A over High Frequency Data Link**

(4) Sep 2012 – **FANS 1/A over Inmarsat-4 Classic Aero**

(5) Nov 2014 – **FAA data link recording (DLR) rule**

(6) May 2016 – **FANS 1/A over non-VDL M2 project**

(a) A presentation was provided on the FAA response to the PARC CWG report, which was received by the PARC in June 2017.

(b) The FAA agreed to accept CPDLC over Plain Old ACARS (POA), VHF data link (VDL) mode 0/A, within US enroute airspace, provided that:

(i) the communication service provider (CSP) meets or exceeds the FAA Data Communications Network Services (DCNS) requirements,

(ii) the operator uses a compliant CSP and owns the associated fees,

(iii) the operator decleares compliance via filing the applicable codes in the flight plan,

(iv) it is agreed that the FAA may suspend the use of POA for any observed non-compliance,

(v) it is understood that VDL mode 2 is preferred and operators should have a plan to phase out POA.

(c) The FAA agreed that a new required communication performance (RCP) specification should be developed based on the DCNS requirements and agreed to advocate within ICAO to include the respective specification in ICAO Doc 9869, PBCS Manual.

ii) <u>Current Activities (Work in progress)</u>

(1) Performance-based communication and surveillance (PBCS)

(a) FAA regularly presents monitoring within FAA oceanic airspace and updates on FAA and global implementation.

(b) JCAB regularly presents monitoring within Fukuoka oceanic airspace.

(2) FAA NextGen project

(a) Briefings were provided by the FAA domestic data commnications program (Data Comm) on program status and handling of known avionics issues.

(b) The tower service implementation is complete with tower services operational at all 55 data comm airports, with 7 more planned based on operator and site response.

(c) The en-route phase is proceeding, with initial services integration and testing, and full services early development and requirements baselining.

(d) The program has made use of the NAT FANS problem solution tracker and established the program's recommended minimum avionics equipage list. In addition, the program briefed on the ground fixes that have been developed to mitigate the avionics issues determined to be most critical to the en route implementation (see figure below).

Key En Route Avionics Issues

HARRIS

List of issues determined by DCIT to be critical to En Route implementation

Issue	CPDLC Message	Aircraft Impacted	Status
Route clearance route not displayed on the MCDU	UM80 UM79 UM83	B737, B757, B767	Changed route free text added to route clearance uplinks.
Route clearance (UM80) fails to load En Route with STAR + TRANS	UM80	B744, B757, B767, G280	Loadable route to arrival procedure, hand load arrival, determined by DAT code
Route clearance (UM80) with runway dependent STARs fail to load	UM80	B748, B787, A320-340, 350,380 Honeywell, G650	Loadable route to arrival procedure, hand load arrival, determined by DAT code
UM83 fails to load	UM83	B737, B744, B757, B767, B777, MD11	UM 83 disabled in ground system for all aircraft.
Unable to confirm assigned altitude in response to Monitor TOC	UM135	B747-8	Requires BP4.0 for EnRoute participation, determined by DAT code (Sep-19)

Technology to Connect, Inform and Protect ™ Data Comm Minimum Equipage List | 3

(3) FANS 1/A over SwiftBroadband (SBB)

(a) PBCS monitoring data was provided by the FAA for Oakland oceanic airspace. There has been no change noted.

(b) PBCS monitoring data was provided by JCAB for Fukuoka oceanic airspace. There has been no change noted.

(c) Inmarsat provided a briefing on the status of implementation and the proposed recommendations for the report including FAA acceptance of FANS 1/A over SwiftBroadband as a viable medium for FANS 1/A operations in airspace which require application of RSP 180 and RCP 240 for reduced aircraft separations. The project report is anticipated to be finalized by December 2017.

(d) Inmarsat further provided a briefing on analysis of the media transitions that are being observed for the HAL B763 fleet using SBB. The analysis further proved that the media transitions are not specific to SBB, as similar performance issues are observed over the other sub-networks, and that the routings of the HAL B763 within Oaklnd oceanic airspace are such that the impact of media transitions is more concentrated.

(e) This led to discussions on avionics design with regards to media transitions, particularly ARINC specification 618-8, AIR/GROUND CHARACTER-ORIENTED PROTOCOL SPECIFICATION, which defines the commnications management unit (CMU) VHF-to-Satcom Routing Timer, Routing Airborne Timer 1 (RAT1), and the

CMU No ACK timer (SAT7). Tables A1 and A2 in the Appendix provide further information on these timers and changes made in supplement 8 of ARINC 618, published August 2017.

(f) Changes to the specification 618 regarding media handling are expected to improve latency performance, but the changes will not be implemented in the avionics, and avaiable for implemented on aircraft for at least a few years.

(g) It was discussed that the media transitions impact most, if not all, flights, and the PBCS montioring data reflects that aircraft using routes that are more impacted by VHF/SAT transitions hav more difficulty meeting the RSP180/RCP240 latncy requirements. Therefore, further consideration should be given to where the separation standards requiring RSP180/RCP240 are applied, i.e. geographic regions outside of the transition boundaries.

(4) Satellite voice (SATvoice) communications

(a) An update was provided by JetBlue on the SATvoice trial being conducted and challenges encountered on the air and ground sides with the use of SATvoice. Initial results are anticipated in 4th quarter 2017.

(b) A briefing was provided by Airservices Australia on SATvoice trials.

(i) Phase 1 includes the demonstration of SATVoice direct to HF Operators meeting RCP 400 in a domestic and international environment with a target date within October and November 2017.

(ii) Phase 2 includes demonstration of SATVoice direct to ATC meeting RCP 400 in a domestic and international environment and development of a proposal for SATVoice in parallel to using CPDLC as primary.

(iii) Phase 3 involves developing a Conops and technical design proposal to enable management of SATVoicecalls to the relevant HF/ATC Operator and a refined ConOps and proposal required prior to consideration to review requirements for dual HF carriage.

(iv) Phase 4 involves the development and deployment of capability of SATVoice calls to the relevant HF/ATC Operator and review of the requirements for dual HF carriage.

(c) A briefing was provided by Avionica on the status of the SATvoice report, which is anticipated to be finalized by the end of September 2017. The recommendations will include that Iridium and Inmarsat SATCOM operations be accepted for normal ATS voice safety services beyond temporary MMEL relief and that guidance be published on normal dual SATCOM and HF (1+1) operations in FAA oceanic airspace.

iii) <u>Other</u>

(1) A new project had been proposed to assess the performance of FANS route clearances sent to airplanes with and without route clearance push-to-load-capability.

(a) Based on discussions at the 55th meeting of the Data Comm Implementation Team (DCIT), the FAA requested the CWG to decline the project.

3. Action by the meeting

3.1. The meeting is invited to note the information.