



**THE FORTY-NINTH MEETING OF THE  
INFORMAL PACIFIC ATC COORDINATING GROUP  
(IPACG/49)**

**THE THIRTY-SIXTH MEETING OF THE  
FANS INTEROPERABILITY TEAM (FIT/36)**

(Minato City, Tokyo, Japan, 04 December 2024)

Agenda Item 4: Any Other Business

**Safety Services-over-Certus Evaluation**

(Presented by Iridium Satellite)

**SUMMARY**

This paper introduces the Safety Services-over-Certus evaluation to be conducted by the Federal Aviation Administration-sponsored Performance-based operations Aviation Rulemaking Committee Communications Working Group and proposes that the evaluation proceed in the South Pacific region with no special operational conditions or restrictions.

**1. Introduction**

1.1. The Performance-based operations Aviation Rulemaking Committee (PARC) Communications Working Group (CWG) is sponsored by the Federal Aviation Administration (FAA) to address communications-related issues concerning implementation, regulations, policies, and interpretive material for aircraft certification and operational authorization. The PARC CWG provides reports and recommendations to the FAA, although it also recognizes the importance of global harmonization and standardization.

1.2. Safety Services-over-Certus (SSOC) is a PARC CWG project that will evaluate the performance of ATC data and voice communications using the Iridium Certus SATCOM service. The SSOC project will not be a trial, but rather an operational evaluation during revenue flights using FAA-approved aircraft installations of Iridium Certus SATCOM avionics for use by the FANS-1/A applications for ATC data communications and by the flight crew for ATC voice communications.

1.3. Based on the performance data that will be collected during the evaluation, the nominal outcome of the SSOC project will be a recommendation to the FAA that it accept Iridium Certus as a viable medium for FANS-1/A operations in airspace where the RCP240 and RSP180 specifications are applied and for ATC voice communications in airspace where the RCP400 specification is applied.

1.4. This paper is intended to promote coordination with the IPACG FIT regarding the SSOC project and specifically requests support from the Pacific ATS providers for the project. The PARC CWG expects that participating aircraft will operate in the Pacific region and requests that participating ATS providers share SSOC performance data with the PARC CWG for analysis.

## 2. Discussion

2.1. Launch of the Iridium NEXT satellite network was completed in January 2019. This new network involves complete replacement of the Iridium satellites, updates to the teleport network, and major updates to the ground station infrastructure. A key aspect of this effort is ensuring that the current subscriber base of over one million users is not adversely affected by any of the network changes.

2.2. Iridium calls the services offered on the Iridium NEXT network Iridium Certus. These services are Internet Protocol (IP) based and represent a major step forward for Iridium in moving from narrowband services to broadband capabilities.

2.3. Iridium is also working with avionics manufacturers on development of compatible avionics. These avionics will support flight deck use by ACARS routers (CMU, ATSU, etc.) for data communications, by EFBs for real-time connectivity, and by the flight crew for voice communications.

2.4. Iridium expects that these avionics will enter the market in late Q1 2025 following technical certification against RTCA DO-262(), Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS), and successful completion of the Collins Aerospace and SITAONAIR qualification processes (AQP and VAQ respectively).

2.5. Relevant avionics design considerations for the SSOC evaluation include the following:

- i) The FAA will use Advisory Circular (AC) 20-140C, Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS), as the basis for design approval. The path identifiers for Certus have been identified by Collins and SITA and Iridium is driving with the FAA the updates to AC 20-140C.
- ii) Iridium and the FAA are also working on the updates to Technical Standard Order (TSO) TSO-C159 that will refer to RTCA DO-262(), Appendix F as the basis for approving Iridium Certus SATCOM avionics. The TSO has updated AES classification identifiers that can support AES identification.
- iii) For interoperability, the FAA recognizes the applicability of ARINC Specification 618, Air/Ground Character-Oriented Protocol Specification, and ARINC Characteristic 771, Low-Earth Orbiting Aviation Satellite Communication Systems.

2.6. Relevant operational considerations for the SSOC evaluation include the following:

- i) Aircraft equipped for SSOC will file flight plans with the existing J7 descriptor, "CPDLC FANS 1/A SATCOM (Iridium)", in item 10.
- ii) Collins Aerospace and SITAONAIR have implemented unique ground station identifiers for the Iridium Certus paths so that SSOC performance can be specifically analyzed.

(1) Collins (CAS) For Iridium Certus the ACARS ID is IG2

(2) SITA For Iridium Certus the ACARS ID is IGW4

2.7. The expected performance of Iridium Certus will greatly reduce the latency of data and voice communications in the network. All applications of the service should satisfy the requirements of all

airspace regions, including oceanic and continental aircraft separation standards.

2.8. Similar to the previous FANS-over-SwiftBroadband Safety evaluation, the PARC CWG proposes that the SSOC evaluation proceed in the Pacific region with no special operational conditions or restrictions on the basis that:

- i) Performance-Based Communication and Surveillance (PBCS) monitoring is in place and active;
- ii) aircraft equipped for SSOC will be introduced in small numbers over a period of time; and
- iii) the PARC CWG will coordinate the details of participating aircraft with the affected ATS providers.

2.9. The PBCS data format for FANS/1/A messages shall be used for all data collection activities as per ICAO DOC 9869 2nd Edition, Appendix D Post-implementation monitoring and corrective action (CPDLC and ADS-C).

- i) Attached as separate file extraction. ICAO Doc 9869.2nd.ed\_AppD data formats.pdf

### **3. Action by the meeting**

3.1. The meeting is invited to:

- 3.1.1. Note the content of this working paper;
- 3.1.2. Review and accept or reject the proposal in paragraph 2.8 and 2.9; and
- 3.1.3. If the proposal is accepted, then provide contact information for each participating ATS provider for sharing of SSOC performance data.