

Panasonic Avionics Corp.
Conventional Experimental Application
for Testing In-flight Entertainment and Connectivity (“IFEC”) Solution

Introduction

Pursuant to Sections 5.54(a)(1), 5.59(a)(1) and 5.63¹ of the rules of the Federal Communications Commission (“FCC”), Panasonic Avionics Corporation (“PAC”) respectfully requests a two-year conventional experimental license for testing its in-flight entertainment and connectivity solution (“IFEC”). As explained below, PAC seeks to assess the suitability of a Ku-band aeronautical flat panel user terminal for use in delivering PAC’s IFEC services, connecting with Eutelsat’s OneWeb non-geostationary satellite orbit (“NGSO”) system, which consists of a constellation of low-Earth orbit (“LEO”) satellites as well as associated ground control facilities and gateway earth stations. PAC seeks authority to test this terminal in flight on routes in US and non-US airspace, including routes flown at and near the Earth’s equator.

Description of Applicant and Proposed Testing

PAC provides global, high-speed in-flight entertainment and connectivity (“IFEC”) services for commercial passenger aviation that delivers a high-quality entertainment experience for people when they fly. In this filing, PAC requests a conventional experimental authorization to test the performance and suitability of the Intellian Technologies, Inc. (“Intellian”) OW11FA Ku-band aeronautical flat panel user terminal for use in delivering PAC’s IFEC services via Eutelsat’s OneWeb low-Earth orbit NGSO satellite constellation (call sign S2963). By connecting with OneWeb, Intellian’s OW11FA is designed to provide low latency, high-speed connectivity for IFEC services. PAC notes that the testing proposed in the instant experimental license application is intended to complement operations conducted pursuant to the Special Temporary Authority recently granted to Intellian on June 29, 2026 (ICFS File No. SES-STA-20260401-00831).

As shown in the exhibits to this Application, the Intellian OW11FA is an electrically identical variant within the OW11Fx family of user terminals that has been optimized for use in Earth Station Aboard Aircraft applications. The OW11Fx product line has been shown to be compliant with Part 25 of the FCC’s rules and bears an existing FCC equipment authorization (FCC ID: XXZ-OW11FX). The Commission has previously licensed other OW11Fx variants to operate with the OneWeb NGSO constellation² and, to PAC’s knowledge, those terminals have operated successfully and without harmful interference to any other users.

PAC seeks to assess the specific suitability of OW11FA terminal for aircraft use in delivering PAC’s IFEC services. Tests conducted pursuant to this experimental license will include operation of the OW11FA terminal while mounted on a US-registered test aircraft, both on the ground at Flagler Executive Airport (ICAO: KFIN, FAA LID: FIN), Palm Coast, FL, and while in flight within and outside U.S. airspace. Specifically, PAC needs to test the terminal in flight

¹ 47 C.F.R. §§ 5.54(a)(1), 5.59(a)(1) and 5.63.

² See, e.g., WorldVu Satellites Limited, Call Sign E220121, File No. SES-MOD-20240410-00855 (granted Aug. 13, 2024); RigNet, Inc., Call Sign E240155, File No. SES-STA-20241230-02732 (granted Apr. 25, 2025); Viasat, Inc., Call Sign E240154, File No. SES-STA-20241230-02740 (granted Apr. 24, 2025).

along and near the equator, in order to assess its performance while angled away from the geostationary arc overhead. PAC intends to collect data following takeoff from FIN in the U.S., while *en route* south to the equator, and along routes flown in international airspace and over foreign points, as well as on the return journey.

Today, most IFEC services in the passenger cabins of commercial aircraft are delivered using terminals that communicate solely with geostationary orbit (“GEO”) satellites, which limits the speed of the service and introduces data traffic latencies that are suboptimal for two-way interactive communications. PAC proposes to evaluate the ability of the OW11FA terminal to deliver a superior user experience by integrating lower earth orbit (“LEO”) communications capabilities. PAC’s existing Experimental License, call sign WP2XVV, authorizes communication with the OneWeb constellation using a different, also previously licensed experimental terminal.³ By expanding this testing program to include the Intellian OW11FA terminal, PAC believes it will contribute to the development, extension, and expansion of IFEC services using NGSO platforms.

Performance Testing

PAC requests authorization to allow ground, mobile and airborne demonstration and performance testing of the OW11FA terminal connected to OneWeb’s NGSO satellites, with permission from the satellite and network operators.

Ground Demonstration and Performance Testing

PAC requests authorization to test the OW11FA terminal to ascertain its suitability for use in delivering PAC’s IFEC services. PAC will conduct testing from fixed locations as set forth below:

Site Name (or identifier/call sign)	FIXED: Flagler Executive Airport (FIN), Palm Coast, FL
Longitude (NAD 83)	81° 12’ 23” W
Latitude (NAD 83)	29° 28’ 03” N
Antenna Height above Ground (meters)	2.5 meters
Ground Elevation (AMSL)	10.1 meters
Antenna Location (Ground, Roof)	Ground (aboard aircraft)
Location Radius	1 km
Path details	Airport runway and apron
Roof Height (meters)	N/A
No. of terminals	1

³ See Panasonic Avionics Corp., File No. 0203-EX-ST-2025, Call Sign WP2XVV (granted Sept. 23, 2025; expiring Oct. 1, 2027).

Mobile Demonstration and Performance Testing

PAC additionally requests authorization for mobile testing of the OW11FA terminal to accommodate tests that cannot be accomplished in a fixed location. Mobile testing of the terminal by PAC will be performed using a flight test aircraft equipped with the OW11FA terminal. Mobile tests will be conducted with the terminal in LEO mode, connecting to the OneWeb constellation.

Mobile testing is required in order to observe and measure the performance of the terminal in flight conditions. The test will require the terminal to switch connections across multiple satellites to validate antenna performance characteristics in defined scenarios, specifically including while operating at or near the equator with the geostationary arc directly overhead.

Mobile operation of the OW11FA terminal will occur onboard a leased aircraft conducting flights within United States and non-U.S. airspace, including in international and foreign airspace. No commercial passengers will have access to IFEC services as part of these test operations.

Specifically, in-flight performance testing will occur across the Contiguous United States (“CONUS”)⁴ as well as outside of CONUS, subject to the non-interference constraints described below. The OW11FA terminal will transmit from a maximum altitude of 44,000 feet (13,411 meters) during aircraft performance testing, as follows:

Site Name (or identifier/call sign)	MOBILE: Flagler Executive Airport (FIN), Palm Coast, FL
Antenna Location	Aircraft mounted (mobile)
Location Radius	CONUS and NON-CONUS Airspace
Path Details	Airport taxiway/runway, Airborne flight routes within CONUS and NON-CONUS Airspace, including testing along and near the equator.
Roof Height	13,140 meters
No. of terminals	1

For flights outside of U.S. airspace, PAC will either turn off the system or comply with applicable requirements of the relevant foreign authorities, including during any refueling stops.

LEO Operation:

For LEO operations, the OW11FA terminal will communicate with the OneWeb LEO constellation using the transmit frequencies set forth in Table 1, below. Receive operations will

⁴ See 47 C.F.R. § 25.103.

be on an unprotected basis and cannot, by nature, cause interference to any other licensed operations. OW11FA terminal specification and test parameters are described in Appendix A.

Table 1: LEO Mode Terminal Specification

Point of Communication (Call Sign)	Satellite Licensee	Earth-to-Space Frequencies (Tx)	Space-to-Earth Frequencies (Rx)
ONEWEB (S2963)	WorldVu Satellites Limited (OneWeb)	14.0-14.5 GHz	10.7-12.7 GHz

For LEO operations, the Intellian OW11FA Emission Description is provided in Appendix B. Intellian OW11FA User Terminal Details and Specifications are described in Appendix C.

Non-Interference to Other Services

The OW11FA terminal will operate on a non-interference basis to other services and in accordance with the requirements applicable to earth stations aboard aircraft (ESAAs) set forth in the FCC's rules, including but not limited to Sections 25.218 and 25.228, 47 C.F.R. §§ 25.218, 25.228.

As required by Section 25.228(b) of the Commission's rules, each OW11FA terminal is self-monitoring and will mute within 100 ms of detecting any of the following conditions:

- Internal faults on the hardware or software;
- Invalid direction detected, includes coordination zones, or exceeded scan angles;
- Detection of pointing error, such as excessive angular velocity or acceleration; or
- Emission limits are exceeded.

PAC will *not* conduct tests within 125 km or radio line of sight of NASA's Tracking and Data Relay Satellite System (TDRSS) earth stations, *see* 47 C.F.R. § 25.228(j)(1-2). Thus, there is no risk of harmful interference to NASA's TDRSS, and no coordination is required.

In addition, PAC will *not* conduct tests in the vicinity of, or within radio line of sight of, radio astronomy service (RAS) observatories specified in 47 C.F.R. § 25.228(j)(3). Thus, there is no risk of harmful interference to RAS operations at those sites, and no coordination is required.

Stop Buzzer Contact

In case of any reported interference, PAC will cease OW11FA transmissions as soon as possible upon notification to PAC's 24/7 point of contact:

Stephen Moon, Stephen.Moon@panasonic.aero, +1 (949) 462-1320

APPENDIX A

Intellian OW11FA – Technical Specifications and Test Parameters

Tx Parameter	
Frequencies	14-14.5GHz
Antenna Coverage	0-360° in azimuth, 37-90° in elevation
Channel Bandwidth	20 MHz (Single Carrier) 40 MHz (Dual Carrier)
Polarization	LHCP
Total Power at antenna flange (Watts)	1.5 W
Beamwidth	TX: 3.24(EI), 2.77(Az) @14GHz
Duty Cycle	20%
Max EIRP per Carrier	33.6 dBW
Max EIRP Density per Carrier	6.3 dBW/4kHz
Pointing Accuracy	±0.5°

Table 1 – ESAA Terminal Tx Specifications

Rx Parameter	
Frequencies	10.7 – 12.7GHz
Antenna Coverage	0-360° in azimuth, 37-90° in elevation
Channel Bandwidth	250 MHz
Polarization	RHCP

Table 2 – ESAA Terminal Rx Specification

Appendix B

Intellian OW11FA – Emission Description

Link	Emission Designator	Bandwidth [MHz]	EIRP PSD [dBW/4kHz]	Frequency
Return (E-S)	2M16D7W / 18M0D7W	20	6.3	14.0 – 14.5
Forward (S-E)	250MG7W	250		10.7 – 12.7

Table 3 – Emission Description

Appendix C

Intellian OW11FA User Terminal Details and Specifications



OW11FA
Ku Band Aeronautical Flat Panel

CONNECTED BY
EUTELSAT
ONWEB

– AVIATION

The OW11FA is the ideal Flat Panel user terminal for Aviation markets, delivering low-latency, high-speed connectivity and reliability for operational communications, route optimization, and in-flight passenger connectivity.

Optimized Performance

Utilizing Intellian's innovative antenna design, the OW11FA delivers the maximum throughput allowed on the Eutelsat's OneWeb LEO (Low Earth Orbit) network. Offering the highest link margin, performance is guaranteed even during high-speed flight and at the lowest elevation angles, meeting the rigorous demands of global airline connectivity.

Seamless Connectivity

The OW11FA features Intellian's advanced tracking technology and extended scan range that improves connection reliability and availability even while in motion. Delivering the best performance at scan, the innovative flat panel technology facilitates smooth reliable handovers, which ensure seamless and uninterrupted connectivity.

Integrated System Architecture

The OW11FA is engineered as a Single Line Replaceable Unit (LRU), significantly reducing complexity. Featuring an embedded modem with Power-In and Ethernet-Out, it eliminates the need for separate, bulky indoor equipment. This streamlined architecture provides direct data connectivity to the aircraft's network with minimal footprint.

Simplified Installation

The OW11FA does not require any additional external radomes enabling simple and fast installation. The embedded modem architecture contributes further to the accelerated deployment of the system but also facilitates rapid "plug-and-play" replacement, ensuring minimal aircraft downtime and a faster return to service.

Aerospace Grade Reliability

Designed to thrive in the harshest flight conditions, the OW11FA is fully qualified to RTCA DO-160 standards. This ensures dependable performance against extreme pressure changes, vibration, and temperature fluctuations inherent in commercial aviation environments.

Intellian's Aviation Flat Panel Portfolio consists of a portfolio of Half-duplex and Full-duplex user terminals, based on active electronically scanned arrays (AESA) for aviation markets.



OW11FA Technical Specifications

Outdoor Unit	
Rx RF Performance	13 dB/k
Tx RF Performance	+36.6 dBW
Dimensions	127 x 58 cm (50" x 23")
Weight	<20 kg (44 lbs)
Environmental Specification	RTCA DO-160
Typical Power Consumption	300W
Modem	Integrated OneWeb modem (SSM-Aero)
Operating Temp	-55 °C to +70 °C (-67 °F to +158 °F)
Interface	GigE Data Connector: MIL-STD-38999 56 VDC Power Input: MIL-STD-38999
Aviation Certs	RTCA DO-160
Downlink Throughput	**195 Mbps
Uplink Throughput	**32 Mbps

*For the approved and verified GNSS solution, please reference the User Manual.
**Performance subject to network configuration. Please consult your Eutelsat
contact for service offerings in your region.

Installation
Intellian enables a streamlined installation process through its integrated single-LRU architecture, reducing system complexity and minimizing installation time.

User Case



System Diagram

