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March 6, 2014

**VIA ELECTRONIC FILING**

Nnake Nweke  
Experimental Licensing Branch  
Office of Engineering and Technology  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**Re: Panasonic Avionics Corporation, Call Sign WF2XMD, File No. 0184-EX-ML-2013;  
Addition of New Antenna Type for Testing and Demonstration**

Dear Mr. Nweke:

Panasonic Avionics Corporation ("Panasonic"), through its attorneys, hereby notifies the Commission, pursuant to Section 5.77 of the Commission's Rules, 47 C.F.R. § 5.77, that Panasonic will test an additional Ku-band transmit/receive terminal type not specifically listed in the above referenced authorization. Panasonic will operate up to five (5) such terminals for testing and demonstration with the eXConnect Ku-band aeronautical mobile-satellite service ("AMSS") system under the above-referenced authorization. In this connection, Panasonic will operate five (5) fewer MELCO antennas (one of two antenna types authorized under this experimental license) so that the total number of antenna terminals authorized for operation under this license does not change.

The new terminal, which will be marketed under the name "Panasonic SPA" (Single Panel Antenna), is manufactured by Panasonic using the same antenna panel and positioner technology as the currently authorized dual-panel Panasonic phased array antenna ("PPA," previously known as the "Aura LE" antenna). The Panasonic SPA is designed to operate within the same technical envelope (e.g., off-axis EIRP spectral density levels, emissions designators, pointing

accuracies, cessation of emissions requirements, and RF safety characteristics) as the currently authorized version of the antenna.<sup>1</sup>

In addition, the antenna complies fully with the Section 25.227 of the rules governing earth stations aboard aircraft (“ESAAs”).<sup>2</sup> Panasonic intends to add the Panasonic SPA to its existing FCC commercial license after appropriate testing necessary to obtain the extensive technical information required to support a blanket license application under the Commission’s ESAA rules.<sup>3</sup> In the meantime, Panasonic acknowledges and accepts that the conditions in its existing experimental authority will apply to operation of the Panasonic SPA antenna, including operation on an unprotected, non-interference basis and the requirement to immediately cease operations in the event of harmful interference.

The Panasonic SPA terminal is fully compliant with the Commission’s two-degree spacing requirements and the off-axis EIRP spectral density levels associated with routinely licensed VSATs that have been applied to mobile Ku-band terminals in similar contexts (e.g., earth stations onboard vessels (ESVs), vehicle-mounted earth stations (VMESs) and ESAA terminals). These are the same levels applicable to Panasonic’s aeronautical broadband operations and included in coordination agreements between its serving satellite operators and adjacent operators within +/- 6 degrees.

Because the Panasonic SPA will operate with the same technical parameters as the currently authorized Panasonic phased array (Aura LE) antenna (i.e., same emissions designators, transmit spectrum and authorized power) and Panasonic will otherwise conform to the conditions of its existing experimental license, operation of the new terminal is consistent with Section 5.77 of the Commission’s Rules, 47 C.F.R. § 5.77.

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<sup>1</sup> Panasonic hereby incorporates by reference the technical information submitted to the FCC regarding the Panasonic PPA (Aura LE) antenna. *See* Call Sign WF2XMD, File Nos. 0281-EX-PL-2010, 0143-EX-ML-2012, 0210-EX-RR-2013, 0184-EX-ML-2013; *see also* Call Sign WF2XRS, File Nos. 0043-EX-PL-2011, 0124-EX-RR-2013.

<sup>2</sup> *See* 47 C.F.R. § 25.227.

<sup>3</sup> *See* Panasonic Avionics Corporation, Radio Station Authorization, Call Sign E100089, File Nos. SES-MOD-20111128-01386, SES-LIC-20100805-00992.

Please feel free to contact the undersigned with any questions you may have regarding this matter.

Sincerely,

PANASONIC AVIONICS CORPORATION



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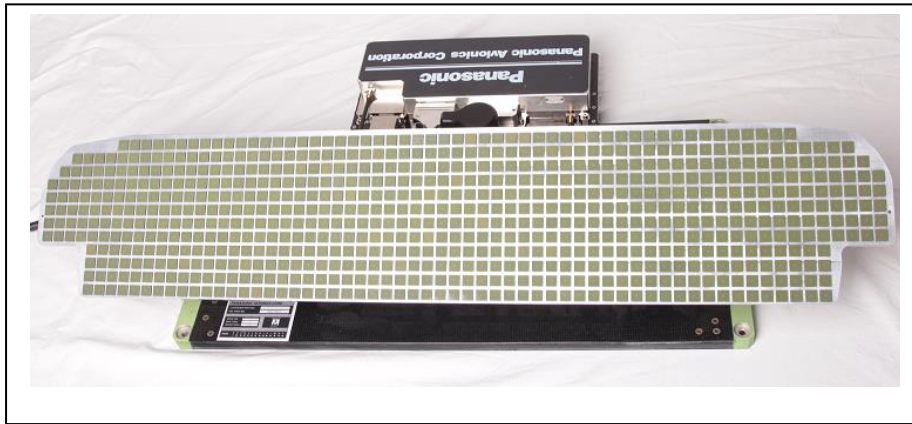
(202) 626-6659  
Its Attorneys

Attachment

cc (w/ att.): Tony Serafini

## Panasonic Ku-Band Aeronautical Satellite Communications Antenna System

Panasonic Avionics Corporation's Ku-Band Communication Antenna system consists of (i) a fuselage mounted Ku-band antenna; (ii) a +28 VDC power supply; and (iii) a Broadband Controller Unit mounted inside the cabin. The system provides broadband Internet connectivity to a wide range of commercial, private and government aircraft. Technical information regarding the Ku-band antenna is provided below.



The Ku-band Antenna is designed to receive and transmit commercial Ku-band satellite signals consistent with the FCC's earth stations aboard aircraft (ESAA) rule. See 47 C.F.R. §25.227. The antenna is interconnected to a broadband controller; satellite modem, power supply and ARINC 429 bus.

### Features:

- Specifically designed to work with the Panasonic Global Satellite Network to provide global broadband connectivity.
- Compliant with FCC's two-degree spacing policies (where applicable) and ESAA rules.
- Simple aircraft integration and installation requires minimal aircraft structural modifications with only three small fuselage connectors for two RF and one data/power cables.
- Complete antenna system with built-in antenna controls and power amplifiers
- No special cooling or ducting required for the installation.
- Equipment qualified to applicable RTCA DO-160 qualification requirements.

## Radio Frequency Specification

PARAMETER	SPECIFICATION
Receive Polarization	Simultaneous Vertical (V) and Horizontal (H) or Right Hand Circular Polarization (RHCP) and Left Hand Circular Polarization (LHCP)
Standard Receive Bands	Five Standard Switched Bands of 500 MHz: 10.70 to 11.20 GHz 11.20 to 11.70 GHz 11.70 to 12.20 GHz 12.25 to 12.77 GHz 12.20 to 12.70 GHz
Transmit Ku-band Frequency Range	14.0 GHz to 14.5 GHz
Transmit Polarization	Capability of providing both continuous V or H
Transmit Cross Polarization Isolation	20 dB Minimum
Transmit Effective Isotropic Radiated Power (EIRP)	$\geq 45$ dBW
Transmit Spectral Growth	Complies with FCC CFR 25.202 with Binary Phase Shift Keying (BPSK) Modulation
Other Technical Specifications	Complies with FCC CFR 25.227 for ESAAs (Earth Stations Aboard Aircraft).  Pointing Accuracy: 0.2 degrees 3-sigma (auto mute at 0.5 offset, will not resume until pointed within 0.2 degrees)  Auto Mute Functionality: cessation of transmissions within 100 ms of 0.5 deg offset  Pointing Control: continuous pointing based on data from ARINC 429 bus; same approach as licensed dual-panel  Power Control: maximum power setting based on maximum skew angles and permissible off-axis EIRP levels (compliant with coordinated levels for each satellite point of communication).