Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of		
Application of Panasonic Avionics	)	
Corporation for Special Temporary Authority	)	
To Operate Up to 100 Technically Identical	)	Call Sign E100089
Aeronautical Mobile-Satellite Service	)	File No.
("AMSS") Aircraft Earth Stations ("AESs") in	)	
the 14.0-14.5 GHz and 10.95-12.75 GHz	)	
Frequency Bands	)	

APPLICATION FOR SPECIAL TEMPORARY AUTHORIZATION

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February 20, 2013

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APPLICATION FOR SPECIAL TEMPORARY AUTHORIZATION

Panasonic Avionics Corporation ("Panasonic"), pursuant to Section 25.120(b)(3) of the Commission's Rules, 47 C.F.R. § 25.120(b)(3), seeks an interim, 60-day special temporary authorization ("STA") to permit operation of up to 100 technically identical aircraft earth stations ("AESs") with the licensed "eXConnect" aeronautical mobile-satellite service ("AMSS") system[1] during the pendency of its blanket license modification application.[2] The new terminal type, the Panasonic phased array terminal (also known as the Aura LE), will operate in accordance with the terms of the Panasonic AMSS Order, prior Commission precedent governing U.S.-licensed AMSS systems and regulatory requirements designed to protect co-frequency services from harmful interference.

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[1] Panasonic Avionics Corporation, Radio Station Authorization, Call Sign E100089, File No. SES-MOD-20111128-01386 and other associated file numbers ("*Panasonic AMSS License*"); *Panasonic Avionics Corporation Application for Authority to Operate Up to 50 Technically Identical Aeronautical Mobile-Satellite Service Aircraft Earth Stations in the 14.0-14.4 GHz and 11.7-12.2 GHz Frequency Bands, Order and Authorization*, DA 11-1480 (rel. Aug. 31, 2011) ("*Panasonic AMSS Order*").

[2] Application of Panasonic Avionics Corporation To Modify AMSS License To Permit Operation of Up to 2000 Technically Identical Aeronautical Mobile-Satellite Service ("AMSS") Aircraft Earth Stations ("AESs") in the 14.0-14.5 GHz and 10.7-12.75 GHz Frequency Bands, Call Sign E100089, IBFS File No. SES-MFS-20120913-00818 (filed Sept. 13, 2012) ("Modification Application").

The instant STA application seeks 60-day interim authority for commercial operation of the terminals to communicate with the following satellite points of communication: Eutelsat 172A (formerly known as GE-23), G-17, Estrela do Sul 2 (Telstar 14R), Telstar 11N, E10A, Anik F1, IS-14 and Amazonas 2 within their respective coverage areas, and is being filed concurrently with a companion amendment to the Modification Application for long-term authority to operate eXConnect AES terminals with the same satellite points of communication.[3] As discussed below, grant of the instant STA application will serve the public interest.

I. BACKGROUND

Panasonic is the world leader in in-flight entertainment and connectivity ("IFEC") systems and services. Panasonic holds blanket license authority to operate an initial 50 MELCO AES terminals installed on Lufthansa aircraft with the G-17 satellite in U.S. airspace. Panasonic is seeking to add the Aura LE terminal, as well as a number of additional satellite points of communication, to its blanket license to enable other foreign aircraft traversing U.S. airspace and U.S.-registered aircraft flying around the world to access in-flight broadband connectivity offered by the eXConnect System.

A. The eXConnect System

The eXConnect System is a global Ku-band AMSS system designed to provide aircraft passengers and crew with seamless in-flight broadband connectivity that supports a wide range of offerings, including IP data, video and voice connectivity. The Aura LE terminal is

[3] Amendment to the Application of Panasonic Avionics Corporation To Modify AMSS License to Permit Operation of Up to 2000 Technically Identical Aeronautical Mobile-Satellite Service ("AMSS") Aircraft Earth Stations ("AESs") in the 14.0-14.5 GHz and 10.95-12.75 GHz Frequency Bands, Call Sign 100089, IBFS Submission ID 2013000426 (filed Feb. 20, 2013) ("Amendment to Modification Application").

Panasonic's next-generation AES terminal and is designed to supplement the previously licensed MELCO terminal. Panasonic is currently operating the Aura LE terminal on a limited basis onboard aircraft in U.S. airspace, and on a full commercial basis onboard foreign aircraft operating in other regions of the world.

B. Aura LE Terminal

The next-generation Aura LE was developed to optimize performance of the eXConnect System. It is a dual-panel, mechanically steered antenna designed for installation and operation onboard aircraft. The Aura LE has been fully certified for aviation safety, is currently in operation pursuant to U.S. and foreign regulatory approvals, and is superior in performance to the presently authorized MELCO terminal. Panasonic hereby incorporates by reference the full technical showing regarding the Aura LE terminal submitted in connection with the Modification Application,[4] including information relating to orbital debris mitigation/end-of-life disposal plans and coordination status of the proposed satellite points of communication.[5] Panasonic also incorporates by reference the technical information associated with prior grant of AMSS operating authority, which details the operational characteristics of the eXConnect System.[6]

C. Pending Application for 60-Day Special Temporary Authority

Panasonic has requested a 60-day STA to operate the Aura LE terminal and communicate with four satellite points of communication: G-17, Eutelsat 172A, Estrela do Sul 2 and Telstar 11N within their respective coverage areas.[7] On February 6, 2013, the Commission released a

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[4] *See supra* n.2.

[5] *See id.*; *see also supra* n.3.

[6] *See supra* n.1.

[7] Application of Panasonic Avionics Corporation for Special Temporary Authority To Permit Operation of Up to 20 Technically Identical Aeronautical Mobile-Satellite Service ("AMSS")

public notice accepting this STA application for filing.[8] The instant STA application is intended to expand the STA sought by Panasonic. Should the Commission grant the prior STA application and subsequently conclude that grant of the STA requested herein would serve the public interest, Panasonic respectfully requests grant of expanded STA authority at the earliest practicable time.

II. GRANT OF THE REQUESTED STA WILL SERVE THE PUBLIC INTEREST

Grant of the requested 60-day STA will service the public interest by enabling expanded operation of the Aura LE terminal onboard foreign airlines traversing U.S. airspace, as well as operation of the terminal onboard U.S. airlines flying outside the United States within the coverage areas of the proposed satellite points of communication. As discussed herein and in the materials incorporated by reference, the next-generation Aura LE terminal is superior in all material respects to the previously authorized MELCO antenna and is already communicating with these satellites without any reported cases of interference. Furthermore, the addition of new satellite points of communication enhances the capacity and geographic scope of eXConnect operations for U.S. and foreign airlines.

Concurrent with the instant STA request, Panasonic is filing a companion amendment to the Modification Application seeking long-term authority for the operations proposed herein. Interim grant of similar authority will enable U.S. airlines and their passengers to enjoy the same benefits of eXConnect in-flight connectivity available to their foreign counterparts. Panasonic

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Aircraft Earth Stations ("AESs") in the 14.0-14.5 GHz and 10.7-12.75 GHz Frequency Bands, Call Sign E100089, IBFS File No. SES-STA-20120913-008 (filed Sept. 13, 2012).

[8] *Public Notice*, Satellite Radio Applications Accepted for Filing, Report No. SES-01524, at 14 (rel. Feb. 6, 2013) ("*Public Notice*").

expressly acknowledges that any action on the requested STA will not affect the Commission's ultimate determination with respect to the underlying Modification Application.

A. Aura LE Terminal Performance

In previous filings, incorporated herein by reference, Panasonic has provided a detailed technical description of the Aura LE terminal. The Aura LE fully complies with the provisions governing Ku-band AMSS operations embodied in Recommendation ITU-R M.1643, as well as other applicable rules and policies governing such operations.

With respect to U.S. operations, the Aura LE terminal was previously examined and authorized by the Commission in experimental Call Signs WD9XQT and WF2XMD,[9] and the fundamental operational characteristics of the eXConnect System were evaluated and approved in the prior blanket license application proceeding.[10] Interference will be avoided by controlling the off-axis EIRP spectral density emissions along the GSO arc to protect adjacent FSS satellites, and by coordination, frequency avoidance and/or exclusion zones with respect to other users of the Ku-band. Further description of the Aura LE terminal's operational characteristics was provided in the prior STA application[11] and other materials on file with the Commission.

[9] *See* File No. 0544-EX-ST-2008 (ground testing); File No. 0281-EX-PL-2010 (in-flight operations).

[10] *See supra* n.1.

[11] *See supra* n.7.

B. Addition of Satellite Points of Communications

In the instant STA request, Panasonic seeks authority for eXConnect terminals to communicate with the following points of communication, downlink frequency ranges[12] and service areas:

Table 1. Satellites, Downlink Frequencies and Service Areas

Satellite	Orbital Location	Downlink Frequencies	Coverage Areas/ ITU Regions (R)	STA Operations in the U.S.?
Eutelsat 172A	172° E	11.45-11.7 GHz 11.61-11.70 GHz 10.95-11.2 GHz 11.45-11.7 GHz 12.2-12.75 GHz	North Pacific (R2, R3) Southeast Pacific (R2, R3) Southwest Pacific (R3) (Oceania, SE Asia) South Pacific (R2, R3) (Australia/NZ)	Yes (AK, HI) No No No
G-17	91° W	11.7-12.2 GHz	North America (R2)	Yes (CONUS)
Estrela do Sul 2 (T-14R)	63 ° W	11.45-12.2 GHz	N. Atlantic Ocean (R1, 2) (Canada and Atlantic)	No
Telstar 11N	37.5° W	11.45-12.2 GHz 11.7-12.2 GHz	Atlantic Ocean (R1, 2) United States (R2)	No Yes (CONUS)
Eutelsat 10A	10° E	10.95-11.70 GHz, 12.5-12.75 GHz	Europe, Northern Africa (R1)	No
Anik F1	107.3° W	11.45-12.2 GHz	South America (R2)	No
IS-14	45° W	12.25-12.75 GHz	Europe, Northern Africa (R1)	No
Amazonas 2	61° W	11.7-12.2 GHz	North America	Yes (CONUS)

Panasonic will communicate with these satellites at power levels that are fully consistent with the coordinated parameters of the satellites including, where applicable, the Commission's two-degree spacing requirements.[13]

[12] Panasonic AES terminals will operate in the uplink direction within the 14.0-14.5 GHz band and consistent with its coordination agreements with co-frequency users, the Commission's rules and applicable international requirements.

Interim, near-term access to the foregoing satellites will provide additional capacity for the growing number of U.S. and foreign eXConnect-equipped aircraft operating in U.S. airspace. This additional capacity will ensure maximum flexibility and throughput for eXConnect AMSS operations. Furthermore, adding authorized points of communication with coverage outside the United States will expand the geographic scope of the eXConnect System accessible by U.S. airlines, allowing them to compete more effectively with their foreign counterparts and to offer important in-flight connectivity services to their passengers on long-haul international flights.

C. Public Interest Considerations

Grant of the requested STA will strongly serve the public interest. U.S. airline passengers will benefit from near-term access to expanded in-flight connectivity, supported by the improved Aura LE terminal and additional satellite points of communication. This, in turn, will enhance competition in the mobile broadband market by enabling U.S. aircraft equipped with the eXConnect System to compete with U.S. carriers offering terrestrial-based services and with foreign airlines offering satellite-based connectivity.

Expanded interim authority for the Aura LE antenna also will enable early implementation of service onboard U.S. aircraft flying international routes by allowing Panasonic and its airline customers to work through technical issues during interim operations, which will allow U.S. airlines to better compete with foreign carriers that are already offering in-flight connectivity on such routes.

In addition, the increase in the number of authorized Aura LE terminals also avoid potential disruption of U.S. and foreign airline operations by facilitating the transition from

[13] Panasonic has submitted letters from its satellite operators that the proposed operations are consistent with the coordinated parameters of the satellites in the Modification Application proceeding.

limited initial operations to a more regularized commercial operations. This will strengthen the demand for in-flight connectivity services and enhance their prospects for long-term success.[14]

Failure to grant the instant STA will impede near-term use of the improved Aura LE terminal and prevent U.S. airline passengers from benefitting from U.S. innovation in aeronautical connectivity services. It will also delay implementation of these important offerings on U.S. airlines, which must compete domestically and internationally with carriers that can offer aeronautical connectivity as an additional amenity to their passengers.

Finally, Panasonic again acknowledges that any action on the requested STA will not affect the Commission's ultimate determination with respect to the underlying Modification Application, as amended. Panasonic also acknowledges and accepts that any authorization granted by the Commission will be conditioned upon compliance with relevant requirements adopted in the *ESAA Order*.[15]

III. WAIVER REQUESTS

As described below, Panasonic is seeking a waiver of the U.S. Table of Frequencies Allocations, Section 2.106 of the Commission's Rules, 47 C.F.R. § 2.106, to permit AES receive operations in the Ku-band FSS downlink spectrum identified in Table 1. In addition, Panasonic

[14] Importantly, an increase in the number of Aura LE terminals will not increase the potential for interference from the eXConnect System. Panasonic's AES terminals transmit on individually assigned frequencies and time slots such that, regardless of the number of authorized terminals, only one terminal transmits at a time (*i.e.*, there is no aggregation).

[15] *Revisions to Parts 2 and 25 of the Commission's Rules to Govern the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service Earth Stations in Frequency Bands Allocated to the Fixed Satellite Service, IB Docket No. 12-376; Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service Earth Stations in Frequency Bands Allocated to the Fixed Satellite Service*; IB Docket No. 05-20, Notice of Proposed Rulemaking and Report and Order, FCC 12-161, ¶ 112 (rel. Dec. 28, 2012) ("*ESAA Order*").

seeks a limited waiver of Section 25.283(c) of the Commission's Rules, 47 C.F.R. § 25.283(c), with respect to certain satellite points of communication that do not fully company with the Commission's requirements for the venting of stored energy at the satellite end of life.

A. Downlink Frequencies

As the Commission is aware, AMSS receive operations in Ku-band FSS downlink spectrum are on a non-conforming unprotected, non-interference basis only. In its earlier applications, Panasonic requested a waiver of the U.S. Table of Allocations, 47 C.F.R. §2.106, with respect to the downlink bands for its proposed satellite points of communication. Panasonic again seeks the appropriate waiver to all requested satellites and downlink bands identified above in Table 1.

Panasonic will only utilize receive spectrum allocated for FSS downlinks, will not claim protection from conforming uses of the spectrum and will cease operations upon notification that its operations are causing interference to any conforming use of the band. In addition, Panasonic will immediately terminate eXConnect operations upon notification that such operations are not permitted under the terms of a coordination agreement with, or are causing harmful interference to, any lawfully operating radio system in the 10.95-12.75 GHz band in conformance with the U.S. Table of Frequency Allocations.

The Commission has previously granted such a waiver to Panasonic to operate the MELCO AES terminal, as well as to other Ku-band AMSS licensees. In so doing, the Commission has concluded that the purpose of the rules would not be undermined because potential for interference from these AES receive operations is *de minimis*, particularly in the context of coordination with potentially affected operators. The Commission should reach the same conclusion here. Given the unique circumstances of this application, there is ample ground

for the Commission to waive this and any other rules or policies necessary to authorize the limited, temporary receive operations proposed herein.

B. Orbital Debris Mitigation/End-of-Life Plans

Panasonic requests a limited waiver of Section 25.283(c) regarding the removal of stored energy at satellite end of life. Specifically, two of the satellites that Panasonic seeks to use as points of communication – Eutelsat 10A and Anik F1 -- are unable to completely vent all helium and thus will retain some residual pressure at end of life. Panasonic therefore requests a waiver of Section 25.283(c) to the extent necessary to permit communication with Eutelsat 10A and Anik F1. The other satellites (Eutelsat 172A, G-17, Estrela do Sul 2, Telstar 11N, IS-14 and Amazonas 2) are each either U.S.-licensed or have been added to the Permitted Space Station List, and therefore do not require an additional showing of compliance with the Commission's orbital debris requirements.

As further explained in the Amendment to the Modification Application,[16] waiver of the venting requirement for the E10A and Anik F1 satellites is appropriate because the inability to completely vent is inherent to the satellite bus designs for each satellite. In addition, each satellite bus design was developed prior to the Commission's adoption of its orbital debris and venting requirements in 2004.[17] Compliance is impossible as both satellites are in currently orbit. Grant of the requested waiver would not undermine the policy objective of the orbital debris rules, and there is ample Commission precedent in support of a grant based on these same

[16] *See* Amendment to Modification Application, Narrative Statement at 6-12.

[17] *Mitigation of Orbital Debris*, Second Report and Order, 19 FCC Rcd 11567 (2004).

conditions. To avoid duplicative pleading, Panasonic hereby incorporates by reference the relevant portions of the Amendment to Modification Application.[18]

IV. CONCLUSION

The additional authority requested herein will enable further introduction of eXConnect operations on an interim basis during the pendency of Panasonic's Modification Application. In particular, expanded introduction of the Aura LE terminal onboard U.S. airlines, as well as broader geographic coverage, will enhance competition in the U.S. broadband services market and better position U.S. airlines to compete domestically and internationally. In view of the foregoing, the public interest will be served by a grant of the requested 60-day STA to enable Panasonic to operate up to 100 technically identical Aura LE terminals with the additional satellite points of communication identified herein.

[18] *See* Amendment to Modification Application, Narrative Statement at 6-12; Attachment 1, Technical Appendix at 3-1 (Orbital Debris Plan for Anik F1) and 4-2 (Orbital Debris Plan for E10A).