Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Application of Panasonic Avionics Corporation for 60-Day Special Temporary Authorization ("STA") to Conduct Earth Stations Onboard Aircraft ("ESAA") Operations	)))))	Call Sign E100089 File No. _____

APPLICATION FOR SPECIAL TEMPORARY AUTHORIZATION

Panasonic Avionics Corporation ("Panasonic"), pursuant to Section 25.120 of the Commission's rules, 47 C.F.R. § 25.120, respectfully requests 60-day special temporary authorization ("STA") to operate its previously authorized Single-Panel Antenna ("SPA") and Panasonic Phased Array ("PPA") terminals with satellites on the Commission's Permitted Space Station List ("Permitted List") and certain additional satellite points of communication. Panasonic seeks this STA to ensure there is no lapse of in-flight broadband services to U.S. customers and to facilitate additional ESAA terminal operations commencing on March 20, 2017, or as soon as practicable thereafter.

Panasonic has concurrently filed an application for regular authority to communicate with Permitted List and other satellites, as well as other authority not sought herein, under its *ESAA Blanket License.*[1] This limited STA seeks interim authority during the pendency of the underlying application for regular authority, and will enhance Panasonic's operational flexibility and ensure that enhanced in-flight connectivity services can be available to U.S. passengers flying within the service area of the relevant satellites. Panasonic provides the as-filed FCC

[1] *See* Panasonic Avionics Corporation, File No. SES-MFS-20170312-00255, Call Sign E100089 (filed on March 12, 2017).

Form 312 Schedule B and Technical Appendix associated with its modification application.[2] The ESAA operations with the Permitted List and additional satellites proposed herein are consistent with the Commission's rules and policies[3] and, for the reasons described herein, grant of the requested STA would serve the public interest.

I. BACKGROUND

Panasonic seeks to communicate with the Permitted List and additional satellites as part of the global eXConnect System, a Ku-band aeronautical broadband system that is well-known to the Commission. Panasonic has fully described the eXConnect System in prior submissions and hereby incorporates by reference the technical showing regarding the control functionality and other operational characteristics submitted in prior applications.[4]

Under this requested 60-day STA, Panasonic will operate its licensed PPA and SPA ESAA terminals at two-degree compliant levels while communicating with Permitted List satellites, as well as the JCSAT-2B satellite, and in accordance with the coordination agreements of other satellite points of communication. As noted, Panasonic has filed an underlying earth

[2] Panasonic notes that the underlying modification application contains a request to add the TECOM ESAA terminal to its network and to revise certain information in its *ESAA Blanket License* that is not sought in this STA request. Accordingly, the as-filed FCC Form 312 Schedule B reflects the full scope of Panasonic's proposed operations under the subject modification application, rather than the more limited request to communicate with additional satellites set forth herein.

[3] *See* 47 C.F.R. § 25.227; *see also 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 Nos. 12-376 & 05-20, Notice of Proposed Rulemaking and Report and Order, FCC 12- 161 (rel. Dec. 28, 2012) ("*ESAA Order*").

[4] *See, e.g.*, Panasonic Avionics Corporation, File No. SES-LIC-20100805-00992 (granted August 31, 2011) (Call Sign E100089) and subsequent amendment and modification applications.

station modification application for the operations proposed herein, which serves as its request for regular authority pursuant to Section 25.120(b)(3) of the Commission's rules.

II. DISCUSSION

A. Satellite Points of Communications

1. Permitted List Operations

Panasonic is requesting this STA to operate its ESAA terminals with any satellite on the Commission's Permitted List pursuant to Section 25.227(a)(12) of the Commission's rules, which permits an ESAA system that complies with the off-axis EIRP spectral density ("ESD") limits in Section 25.227(a)(1)(i) to request such authority. Panasonic will operate the ESAA terminals with Permitted List satellites in permissible portions of the 14.0-14.5 GHz band consistent with these uplink off-axis ESD limits, and in the 10.95-11.2 GHz and 11.45-12.2 GHz downlink bands.

Panasonics existing *ESAA Blanket License* generally authorizes its ESAA operations pursuant to Section 25.227(a)(2) of the Commission's rules because, out of an abundance of caution, Panasonic sought satellite operator certification for all ESAA operations. In some cases, the ESAA terminals operate with certain satellite points of communication at off-axis ESD levels in excess of those specified in Section 25.227(a)(1), and in other cases operate consistent with the Commission's two-degree spacing policies embodied in those levels. Panasonic has submitted antenna performance information for the PPA and SPA terminals demonstrating compliance with applicable off-axis ESD levels and the terminals currently are operating with two-degree spaced satellites without interference.[5] Of course, the general performance

[5] *See* Panasonic Avionics Corporation, File No. SES-MFS-20120913-00818, Call Sign E100089 at Technical Appendix (providing off-axis ESD plots for the PPA terminal) and File No. SES-MFS-20160819-00730, Call Sign E100089 at Technical Appendix (providing off-axis ESD plots for the SPA terminal).

characteristics of these previously licensed ESAA terminals are well-understood and will not change.[6]

2. Additional Satellite Points of Communication

Panasonic also seeks to operate the PPA and SPA terminals with three individual satellites (AsiaSat-7, IS-33E and JCSAT-2B) and operate the SPA terminal with one additional satellite (Galaxy 16). The following table provides an overview of the basic parameters of ESAA operations with each individual satellite point of communication.[7] A complete table reflecting all satellites in the eXConnect network is included in the Technical Appendix.

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[6] As the Commission is aware, Panasonic controls off-axis ESD emissions from the ESAA terminals through limitations on the transmit power spectral density and control of pointing error. At all times, Panasonic will operate the subject ESAA terminals with Permitted List satellites at two-degree compliant levels.

[7] The SPA and PPA terminals will operate in the uplink direction within the 14.0-14.5 GHz band consistent with satellite operator coordination agreements with co-frequency users, the Commission's rules and applicable international requirements.

Table 1. Proposed Satellite Points of Communication

Satellite	Licensing Admin.[8]	Orbital Location	Downlink Freq. (GHz)	ITU Satellite Network[9]	ITU Region	Service To U.S.[10]
AsiaSat 7	China	105.5° E	12.25-12.75	ASIASAT-CKX	3	No
Galaxy 16	U.S.	99° W	11.7-12.2	U.S.-licensed	2	Yes
IS-33E	U.S.	60° E	10.95-11.2; 11.45-12.2; 12.5-12.6	INTELSAT9-60E	1, 3	No
JCSAT-2B	Japan	154° E	11.45-11.7	N-SAT-154E	3	No

Each of these proposed satellites has been previously authorized as points of communication for similar ESAA operations[11] or is a U.S.-licensed satellite.[12] Accordingly, the technical and operational parameters of each satellite are well known to the Commission, including each satellite's orbital debris mitigation and end-of-life plans, and no new showing regarding these issues is required. In the attached Technical Appendix and draft Form 312

[8] Each foreign licensing administration is a member of the World Trade Organization for services covered under the World Trade Organization Basic Telecommunications Agreement. *See* FCC Form 312 at Item 42; 47 CFR § 25.137(a).

[9] Panasonic provides the ITU satellite network filing name for each non-U.S. licensed satellite.

[10] "Yes" indicates that the relevant satellite will be used for ESAA operations in U.S. territory. "No" indicates that ESAA operations will be conducted outside U.S. territory, even if the satellite may have some coverage of the United States.

[11] *See, e.g.*, Gogo LLC, File No. SES-MFS-20151022-00735, Call Sign E120106 (granted authority to add AsiaSat-7 and JCSAT-2B as authorized points of communication under its ESAA blanket license).

[12] Galaxy 16 is a U.S.-licensed satellite and currently an authorized point of communication for the PPA terminal. IS-33E is a U.S.-licensed satellite that was recently authorized by the Commission (*see* Intelsat License LLC, File No. SAT-LOA-20150327-00016 (Call Sign S2939) (granted on Feb. 25, 2016)).

Schedule B, Panasonic provides information regarding the operational characteristics of the ESAA terminals with each satellite identified in Table 1.

Out of an abundance of caution, Panasonic requests a waiver of the U.S. Table of Allocation to the extent necessary to permit its receive ESAA operations with IS-33E in the 12.5-12.6 GHz downlink band and AsiaSat-7 in the 12.25-12.75 GHz downlink frequency band. In addition, although Panasonic has included satellite operator certifications for most individual satellite points of communication proposed herein confirming that ESAA operations are consistent with their coordination agreements and will not result in unacceptable interference to other satellites within +/- 6 degrees, it has not done so for JCSAT-2B. The absence of such a certification does not affect the request to communicate with this satellite because at all times Panasonic will operate the PPA and SPA terminals consistent with the off-axis ESD levels in Section 25.227(a)(1).[13] Depictions of the geographic areas in which its ESAA terminals will operate with each proposed satellite point of communication are also included.[14]

For the other proposed satellites, Panasonic has confirmed with the operators of each satellite identified above that they have reviewed the technical characteristics of Panasonic's SPA and PPA ESAA terminal operations and such operations are consistent with their coordination agreements and will not result in unacceptable interference to other satellites within +/- 6 degrees of the subject satellite point of communication. Attached hereto are letters confirming that the power levels associated with Panasonic's ESAA terminal operations with each satellite point of communication have been coordinated with operators of adjacent

[13] Although no satellite operator certification is necessary when an ESAA operates in accordance with the Section 25.227(a)(1) mask, Panasonic reserves the right to supplement the record with a certification for JCSAT-2B should it be deemed necessary or appropriate.

[14] *See* Technical Appendix, I.; *see also* 47 C.F.R. § 25.227(b)(4).

satellites[15] and depictions of the geographic areas in which its ESAA terminals will operate with each proposed satellite point of communication.[16]

a. Ground Segment

As indicated in Table 2 below, the gateway earth stations for Panasonic's ESAA network are located in various countries around the world to provide global coverage and vary by satellite. Table 2, below, reflects the gateway earth stations for the satellite points of communication proposed herein. A complete table reflecting all satellites and gateways in the eXConnect network is included in the Technical Appendix.

Table 2. Gateway Earth Stations Table

Satellite	Satellite Operator	Gateway Earth Station Location	Country	Gateway Operator	FCC Call Sign
AsiaSat-7	AsiaSat	Beijing	China	China Telecom Satellite	N/A
Galaxy 16	Intelsat	Brewster, WA	U.S.	U.S. Electrodynamics	E120043
IS-33E	Intelsat	Cologne	Germany	Stellar	N/A
IS-33E[17]	Intelsat	Moscow	Russia	Gazprom	N/A
JCSAT-2B	SKY Perfect JSAT	Kapolei, HI	U.S.	Hawaii Pacific Teleport LP	E010016

[15] *See* Technical Appendix, I.

[16] *See* Technical Appendix, I; *see also* 47 C.F.R. § 25.227(b)(4).

[17] Effective November 2017, the gateway earth station in Moscow, Russia will no longer support IS-33E satellite operations. Panasonic includes representative link budgets for IS-33E with both gateway earth station locations.

Network control and monitoring of the earth stations and the eXConnect System will continue to be provided by a Panasonic Mission Control Center ("MCC") in Lake Forest, California on a 24/7 basis. The MCC makes use of the Network Management System (NMS) to provide complete control and visibility to all components the eXConnect network. The NMS system has the capability of shutting down any component in the system that is malfunctioning. The primary points of contact at Panasonic's MCC facility has been previously provided to the Commission by Panasonic.[18]

3. Waiver Request

Although Panasonic has previously been granted a waiver of Section 2.106 of the Commission's rules, 47 C.F.R. § 2.106, to operate ESAA terminals in the 12.25-12.75 GHz downlink band, out of an abundance of caution, Panasonic respectfully requests a similar waiver here. Specifically, Panasonic's ESAA terminals will communicate with IS-33E in the 12.5-12.6 GHz downlink band and with AsiaSat-7 in the 12.25-12.75 GHz downlink band.

The FCC's Table of Allocations permits use of the 10.95-11.2 GHz and 11.45-11.7 GHz bands (on an unprotected basis) and the 11.7-12.2 GHz and 14.0-14.5 GHz bands (on a primary basis) for ESAA operations.[19] Panasonic seeks to utilize FSS satellite capacity available in the 12.25-12.75 GHz band for ESAA receive operations on an unprotected, non-harmful interference basis outside the United States (principally in Regions 1 and 3).[20] The Commission previously

[18] *See* Panasonic Avionics Corporation, File No. SES-MFS-20160819-00730 (Call Sign E100089), Technical Appendix.

[19] *See* 47 C.F.R. § 2.106 and n. NG52 and NG55; 47 C.F.R. § 25.227.

[20] The 12.5-12.75 GHz band is allocated for FSS downlinks in Region 1 and the 12.2-12.75 is allocated for FSS downlinks in Region 3.

waived Section 2.106 with respect to operation of Panasonic's eXConnect System and other in-flight connectivity providers in this additional Ku-band downlink spectrum.[21] The requested waiver would serve the public interest because use of this downlink (receive) spectrum is essential to offering in-flight broadband connectivity in Ku-band spectrum and presents a negligible risk of interference to other spectrum users.[22]

B. Public Interest Considerations

Section 25.120(a) of the Commission's rules require that an STA request "must contain the full particulars of the proposed operation including all facts sufficient to justify the temporary authority sought and the public interest therein."[23] The particulars of Panasonic's ESAA operations are well-known to the Commission and it has provided additional information relevant to its proposed operations with Permitted List and other satellites in the attached FCC Form 312 Schedule B and Technical Appendix.

Additionally, Section 25.120(a) provides that STA requests should be filed at least three business days prior to commence of proposed operations. Here, Panasonic has timely filed this 60-day STA request so that the Commission may permit operations by March 20, 2017. In order to continue providing uninterrupted broadband satellite services to aircraft in the United States and elsewhere, Panasonic requires this interim authority that will allow it to enhance operational flexibility and ensure that U.S. customers continue to receive advanced in-flight broadband services.

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[21] *See, e.g.*, Panasonic Avionics Corporation, SES-MFS-20150609-00349 (Call Sign E100089).

[22] *See id.*

[23] *See* 47 C.F.R. § 25.120(a).

Grant of this request would serve the public interest because the additional satellites will provide added bandwidth for the eXConnect System and ensure that Panasonic has sufficient capacity to meet increasing demand and enhance the in-flight user experience. Additionally, the ability to access Permitted List satellites will provide Panasonic with the operational flexibility to continue servicing customers using the eXConnect system and ensure that Panasonic can serve existing and new travel routes, further enhancing U.S. leadership in in-flight mobile broadband services.

III. CONCLUSION

In view of the foregoing, the public interest would be served by a grant of a 60-day STA to allow Panasonic to conduct ESAA operations with Permitted List and other satellites specified herein commencing March 20, 2017, or at the earliest practicable time thereafter.