

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of  
Application of Panasonic Avionics  
Corporation to Modify its Earth Stations  
Aboard Aircraft (“ESAA”) Blanket License

Call Sign E100089  
File No. SES-MOD-\_\_\_\_\_

**MODIFICATION APPLICATION**

By this application, Panasonic Avionics Corporation (“Panasonic”) seeks to modify its existing earth stations aboard aircraft (“ESAA”) blanket license, Call Sign E100089 (“*ESAA Blanket License*”),<sup>1</sup> by adding new satellite points of communication for its previously licensed ESAA terminals and making certain administrative corrections to the *ESAA Blanket License* to capture its previously approved operations that do not appear in its current license document. The modifications sought herein will strengthen Panasonic’s global coverage by allowing access to additional spacecraft and generally improve its ability to provide next-generation, in-flight broadband connectivity services to U.S. airline passengers and crew members. Pursuant to Section 25.117(c) of the Commission's rules,<sup>2</sup> Panasonic includes an FCC Form 312 Schedule B and Technical Appendix to provide the required technical information pertaining to the proposed modification. The remaining information submitted in support of its *ESAA Blanket License* has not changed.

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<sup>1</sup> See Panasonic Avionics Corporation, Radio Station Authorization, File No. SES-MFS-20181128-03302, Call Sign E100089 (“*ESAA Blanket License*”). ESAAAs are now included in a broader category of broadband satellite mobility terminals called earth stations in motion (“ESIMs”) and governed by Section 25.228 of the Commission’s rules, 47 C.F.R. § 25.228.

<sup>2</sup> 47 C.F.R. § 25.117(c).

## I. BACKGROUND

Panasonic provides advanced aeronautical broadband satellite services that enable in-flight communications connectivity to passengers and crew using Ku-band ESAA terminals and a global network of U.S. and foreign satellites and gateway earth stations. Panasonic has fully described its system in prior submission and hereby incorporates by reference the technical showings regarding the control functionality and other operational characteristics submitted in connection with prior applications.<sup>3</sup> Panasonic's *ESAA Blanket License*, which supports its global ESAA operations on U.S.-registered aircraft (and non-U.S.- registered aircraft traversing U.S. airspace), must be regularly modified to reflect adjustments to Panasonic's global network resulting from technological developments and changes in customer demand. Most recently, it was modified to add six new satellites as authorized points of communication.<sup>4</sup>

The license modifications proposed herein are consistent with the coordinated parameters of the proposed new satellites and the Commission's rules governing Ku-Band ESAAs,<sup>5</sup> and will allow Panasonic to further optimize the eXConnect ESAA system by making available additional satellite capacity to support its operations. Moreover, in this modification application, Panasonic seeks to reincorporate certain previously authorized operations (including transmissions in the 14.0-14.5 GHz (Earth-to-space) band and an authorized point of communication) that were inadvertently omitted from the *ESAA Blanket License*, which will ensure its ongoing operations are accurately reflected in the license.

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<sup>3</sup> See Panasonic Avionics Corporation, File No. SES-LIC-20100805-00992, Call Sign E100089, and subsequent filings and modifications.

<sup>4</sup> See Panasonic Avionics Corporation, File No. SES-MFS-20181128-03302, Call Sign E100089 ("2018 Modification Application").

<sup>5</sup> See 47 C.F.R. § 25.228.

## II. DISCUSSION

Panasonic hereby seeks to modify its *ESAA Blanket License* to add three (3) new satellite points of communications and Single Panel Antenna (SPA) and Panasonic Phased Array (PPA) terminals, as provided in Table 1, below. Moreover, Panasonic makes certain administrative corrections to the *ESAA Blanket License* regarding the operations of the SPA and PPA terminals.

### A. Proposed New Satellite Points of Communication

The following table provides an overview of the basic parameters of ESAA operations with each individual satellite point of communication. Each satellite is licensed by a member country of the World Trade Organization (“WTO”) for services covered under the WTO Basic Telecommunications Agreement.<sup>6</sup>

**Table 1 - Proposed Satellite Points of Communication<sup>7</sup>**

Satellite	License Admin.	Orbital Location	Downlink Freq. (GHz) <sup>8</sup>	ITU Region	Serves U.S.
GSAT-14	India	74° E	10.7-12.75	3	No
Telstar 19V, NOAR Beam	Brazil	63° W	10.7-12.75	2	Yes
Horizon 3e, Beam K32	U.S.	169° E	10.7-12.75	3	Yes

<sup>6</sup> See 47 C.F.R. § 25.137(a)(2); see also *Amendment of the Commission’s Regulatory Policies to Allow Non-U.S. Licensed satellites Providing Domestic and International Service in the United States*, Report and Order, IB Docket No. 96-111, 12 FCC Rcd 24094, ¶ 39 (1997) (“We adopt our proposal to apply a presumption in favor of entry in considering applications to access non-U.S. satellites licensed by WTO members to provide services covered by the ... WTO Basic Telecom Agreement.”); *Id.*, ¶ 64 (“[W]e will not evaluate the effective competitive opportunities in the route market for non-U.S. satellites licensed by a WTO member providing WTO covered services. Thus, we will not perform an ECO-Sat test on any route, whether a WTO route market or a non-WTO route market.”).

<sup>7</sup> The ESAA terminals will operate in the uplink direction within the 14.0-14.5 GHz band consistent with satellite coordination agreements, the Commission’s rules, and applicable international requirements. See attached FCC Form 312 Schedule B for an overview of Panasonic’s ESAA transmit operations.

<sup>8</sup> Operation in the 10.7-10.95 and 11.2-11.45 GHz bands outside the United States are consistent with footnote NG52 of the U.S. Table of Allocations (limiting the use of these bands by GSO FSS satellites to international systems). See 47 C.F.R. § 2.106, n. NG52.

Panasonic will communicate with each new satellite point of communication at previously approved off-axis EIRP spectral density (“ESD”) levels and in compliance with the mask provided in Section 25.218(f) of the Commission’s rules.<sup>9</sup> Accordingly, Panasonic seeks ESAA operating authority with these satellites pursuant to Section 25.228(g)<sup>10</sup> of the Commission’s rules and will operate the terminals at all times consistent with the provisions governing Ku-band ESAA operations. Panasonic provides information regarding the operational characteristics of the ESAA terminals in the FCC Form 312 Schedule B,<sup>11</sup> and incorporates by reference the performance information and off-axis ESD data previously submitted for the SPA and PPA.<sup>12</sup>

The Horizon 3e and Telstar 19V satellites have been previously authorized to serve the U.S. market and are on the Commission’s Space Station Approval List (the “Permitted List”). Although Panasonic currently has authority to operate its ESAA terminals with any U.S.-licensed or non-U.S. licensed satellite on the Commission’s Permitted List, it seeks to add these satellites separately because it will be operating in receive frequency bands outside of the authorized Permitted List bands in certain circumstances (*see* Section C, *infra*).

The GSAT-14 satellite has not previously been authorized to communicate with U.S.-licensed ESAA terminals, but Panasonic will only operate the PPA and SPA with GSAT-14 outside of U.S. territory only (*i.e.*, the satellite is neither providing service in U.S. airspace nor communicating with a U.S.-licensed gateway earth station) and, consistent with Commission

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<sup>9</sup> *See* 47 C.F.R. § 25.218(f).

<sup>10</sup> *See* 47 C.F.R. § 25.228(g).

<sup>11</sup> As described in more detail in Section D below, the PPA and SPA terminals operate at generic power levels, regardless of the serving satellite, and will operate below those levels with the new satellites proposed herein.

<sup>12</sup> *See* Panasonic Avionics Corporation, File No. SES-MFS-20120913-00818, Call Sign E100089 at Technical Appendix (off-axis ESD plots for the PPA terminal) and File No. SES-MFS-20160819-00730, Call Sign E100089 at Technical Appendix (off-axis ESD plots for the SPA terminal).

precedent,<sup>13</sup> Panasonic provides relevant operational parameters, along with orbital debris mitigation and satellite end-of-life information, rather than a full U.S. market access demonstration under Section 25.137(d) of the Commission’s rules.

In support of its request to operate the ESAA terminals with satellites noted above, Panasonic also provides coverage maps and link budgets for each satellite in the attached Technical Appendix.<sup>14</sup> Out of an abundance of caution and in the interest of administrative convenience, Panasonic also resubmits certain technical information relating to the Apstar 6D, which was previously included in the *2018 Modification Application* for the PPA and SPA but inadvertently omitted from the *ESAA Blanket License* grant for the SPA terminal (*see* Section D, *infra*).

**B. Remote Control Point**

Network control and monitoring of the earth stations and the eXConnect system will continue to be provided by the Panasonic Customer Performance Center (“CPC”) in Lake Forest, California, on a 24/7 basis. The CPC makes use of a network management system (“NMS”) to provide complete control and visibility to all components the eXConnect System. 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 CPC facility are provided below and in the FCC Form 312, Schedule B.

Panasonic Avionics Corporation  
Customer Performance Center  
26200 Enterprise Way  
Lake Forest, CA 92630 USA  
E: [cpc@panasonic.aero](mailto:cpc@panasonic.aero)

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<sup>13</sup> See 47 C.F.R. § 25.137(d); *e.g.* AC BidCo LLC, File No. SES-MFS 20151022-00735, Call Sign E120106.

<sup>14</sup> Panasonic notes that the power levels provided in the example link budgets are maximums and Panasonic will operate the terminals at or below the levels provided in the Schedule B at all times.

T: +1 949 462 1395  
M: +1 949 690 6706

### **C. Non-Conforming ESAA Receive Operations**

The Commission's Table of Frequency Allocations ("Table of Allocations") contemplates use of the 10.7-11.7 GHz (space-to-Earth) bands by ESAA terminals on an unprotected basis only, and permits such operations in the 11.7-12.2 GHz (space-to-earth) and 14-14.5 GHz (Earth-to-space) bands on a primary basis.<sup>15</sup> As described in Table 1, the proposed satellites also support operations in the 12.2-12.75 GHz downlink band. Consistent with its existing authority in the *ESAA Blanket License*, Panasonic will operate in the 10.7-10.95 GHz, 11.2-11.45 GHz and 12.2-12.75 GHz bands on an unprotected, non-harmful interference basis outside the United States only. All new satellite points of communication will operate consistent with ITU regulations and there is no potential for interference from Panasonic's receive-only operations in the subject bands. Use of this available Ku-band downlink spectrum is essential to Panasonic's in-flight broadband connectivity offering.

Panasonic requests that the Commission continue to permit ESAA operations with the new satellites in the 10.7-10.95 GHz, 11.2-11.45 GHz, 12.2-2.75 GHz pursuant to its current practice of granting authority to operate ESAA terminals outside the United States on a non-conforming, non-interference basis given that its ESAA receive operations present a negligible risk of interference to other spectrum users.

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<sup>15</sup> See 47 C.F.R. § 2.106, n. NG52 and n. NG527A; 47 C.F.R. § 25.228. In the 10.7-10.95 GHz and 11.2-11.45 GHz bands, Panasonic will limit its ESAA receive operations to outside of the United States consistent with footnote NG52.

**D. Corrections to the *ESAA Blanket License***

Panasonic respectfully requests certain administrative corrections be made to the *ESAA Blanket License*. First, in connection with grant of the *2018 Modification Application*, the authorized transmissions for the SPA and PPA terminals in the 14.0-14.5 GHz band were not included in the *ESAA Blanket License*. Based on consultation with Commission staff, Panasonic has reentered the transmit data for the PPA and SPA terminals in the attached FCC Form 312 Schedule B to ensure the ESAA terminal transmissions are accurately reflected in the license document. The PPA and SPA transmission characteristics provided are “generic” maximum operating power levels (*i.e.*, the same regardless of serving satellite) and all PPA and SPA terminals will operate at all times either at or below these levels.<sup>16</sup>

Second, in the *2018 Modification Application*, Panasonic included a request to operate the PPA and SPA terminals with the Apstar 6D satellite and included all relevant satellite and terminal information to support its request. Although the Apstar 6D is currently listed as an authorized point of communication in the *ESAA Blanket License* for the PPA terminal, it was not included in the license document as an authorized point of communication for the SPA terminal. Panasonic understands this was an inadvertent omission and that the SPA terminal can communicate with Apstar 6D as proposed in the prior modification application. Out of an abundance of caution, however, Panasonic has included the Apstar 6D in the FCC Form 312 Schedule B attached to this application so that it may be added as a point of communication for the SPA terminal.

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<sup>16</sup> Panasonic notes that, while the information in Section B of the *ESAA Blanket License* is not satellite-specific, Item E60 in Section C (EIRP Density Towards the Horizon) is a satellite location-specific input. Thus, Panasonic provides Item E60 values for each satellite point of communication and reserves the right to supplement this application with the underlying calculations for each value provided.

### **E. Public Interest Statement**

Grant of the requested modification will serve the public interest by extending the coverage, increasing the capacity, and improving the operational capabilities of the Panasonic ESAA system. This will provide a direct benefit to U.S. consumers who will be able to access improved in-flight broadband applications and will further enhance competition and U.S. leadership in aeronautical broadband services. All of these benefits will be achieved consistent with the Commission's rules and policies for ESAA operations.

### **III. CONCLUSION**

Based on the foregoing, Panasonic respectfully request that Commission grant its request to modify its *ESAA Blanket License*, Call Sign E100089, by adding new satellite points of communication for its previously licensed PPA and SPA terminals and updating the *ESAA Blanket License* to accurately reflect Panasonic's ESAA operations.