


Approved by OMB
3060-0678

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:
Continuation of 60-day STA for E172B Operations

I. Applicant

Name:	Panasonic Avionics Corporation	Phone Number:	949-672-2364
DBA Name:		Fax Number:	
Street:	26200 Enterprise Way	E-Mail:	mark.defazio@panasonic.aero
City:	Lake Forest	State:	CA
Country:	USA	Zipcode:	92630
Attention:	Mr. Mark DeFazio		



GRANTED
International Bureau

File # SES-STA-20180523-00788
E100089 Grant Date 5-29-18
Call Sign (or other identifier)
Term Dates From: 5-29-18 To: 7-28-18
Approved: Mark E. DeFazio

2. Contact			
Name:	Carlos Nalda	Phone Number:	5713325626
Company:	LMI Advisors	Fax Number:	
Street:	2550 M Street NW Suite 345	E-Mail:	cnalda@lmiadvisors.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20037 -
Attention:		Relationship:	Other
(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.)			
3. Reference File Number SESSTA2018032000248 or Submission ID			
4a. Is a fee submitted with this application?			
<input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).			
<input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee <input type="radio"/> Other (please explain):			
4b. Fee Classification CGB – Mobile Satellite Earth Stations			
5. Type Request			
<input checked="" type="radio"/> Use Prior to Grant <input type="radio"/> Change Station Location <input type="radio"/> Other			
6. Requested Use Prior Date 05/28/2018			
7. City		8. Latitude (dd mm ss.s h) 0 0 0.0	

9. State	10. Longitude (dd mm ss.s h) 0 0 0.0
11. Please supply any need attachments.	
Attachment 1: Narrative	Attachment 2:
Attachment 3:	
12. Description. (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)	
<div style="border: 1px solid black; padding: 5px;"> 60-day STA request for ESAA operations with the E172B satellite. </div>	
13. By checking Yes, the undersigned certifies that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application"; for these purposes. <div style="text-align: right;"> <input checked="" type="radio"/> Yes <input type="radio"/> No </div>	
14. Name of Person Signing Mark DeFazio	15. Title of Person Signing Sr. Manager, Global Regulatory and Licensing
WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).	

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember – You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

**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 Communicate with the EUTELSAT 172B Satellite for Earth Stations Aboard 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 continue to operate its previously authorized earth station aboard aircraft ("ESAA") terminals with the EUTELSAT 172B satellite, which recently replaced the EUTELSAT 172A satellite located at the 172° E.L. orbital location. Panasonic seeks this STA for a period of 60 days, commencing on May 28, 2018, as a continuation of its previously authorized STA for identical ESAA operations with EUTELSAT 172B.¹

Grant of this STA will serve the public interest by ensuring the uninterrupted delivery of broadband services during the Commission's review of Panasonic's application to modify its ESAA blanket license to add EUTELSAT 172B as an authorized point of communications for long-term authority to operate with the satellite.² The EUTELSAT 172B provides services to customer airlines in the Asia-Pacific region that currently rely on the EUTELSAT 172B satellite

¹ See Panasonic Avionics Corporation, File Nos. SES-STA-20180104-00010, SES-STA-20171003-01104 & SES-STA-20180320-00248, Call Sign E100089 ("*EUTELSAT 172B STA*").

² See Panasonic Avionics Corporation, File Nos. SES-MFS-20180122-00052, SES-AMD-20180225-00161 & SES-AMD-20180208-00096, Call Sign E100089 ("*ESAA Modification Application*").

for in-flight connectivity. Panasonic incorporates by reference the draft FCC Form 312 Schedule B and Technical Appendix previously provided with the *EUTELSAT 172B STA* and no other information is changing.

I. DISCUSSION

The EUTELSAT 172B satellite is a critical element of Panasonic's global eXConnect in-flight entertainment and connectivity ("IFEC") system. In particular, the availability of Ku-band high-throughput satellite ("HTS") spot beams on EUTELSAT 172B offers improved capacity and efficiency of eXConnect services provided in the Asia-Pacific region to U.S. airlines and U.S. consumers. Given the significant operational advancements offered by EUTELSAT 172B and because it is the only capacity available to Panasonic for Pacific Ocean coverage, it is important that Panasonic's ESAA terminals be permitted to continue to communicate with EUTELSAT 172B.

This STA request is to renew Panasonic's identical STA authority to operate with the EUTELSAT 172B satellite during the pendency of the *ESAA Modification Application* to add the satellite as an authorized point of communication. The ESAA operations proposed herein are consistent with the Commission's rules and policies governing ESAA operations³ and, for the reasons described herein, grant of the requested STA would serve the public interest.

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*").

A. Proposed Operation with EUTELSAT 172B

Under its ESAA blanket license, Panasonic is presently authorized to operate several ESAA terminal types – the Single Panel Antenna (“SPA”), Panasonic Phased Array (“PPA”) and TECOM Ku-Stream 1000 (“TECOM”) terminals – with the EUTELSAT 172A satellite. EUTELSAT 172A, which has already been relocated to and operates from the 174° E.L. orbital location,⁴ will ultimately be operated on a long-term basis from its new location.⁵ Thus, Panasonic is relying on EUTELSAT 172B at 172° E.L. for connectivity over the Pacific Ocean and requests removal of the EUTELSAT 172A satellite as authorized point of communication in the *ESAA Modification Application*.

1. Request to Communicate with EUTELSAT 172B

ES 172 LLC (whose ultimate parent corporation is Eutelsat S.A., referred to collectively herein as “Eutelsat”) was recently granted authority by the Commission to operate other communications payloads of EUTELSAT 172B to replace the U.S.-licensed EUTELSAT 172A satellite.⁶ In addition, the EUTELSAT 172B will operate certain communications payloads under authority issued by France. Panasonic seeks to conduct Ku-band ESAA operations with both U.S.-licensed and French-licensed payloads on EUTELSAT 172B. The ESAAs will transmit in the 14.0-14.5 GHz band; the table below provides an overview of Panasonic’s proposed ESAA receive operations.

⁴ See ES 172 LLC, File No. SAT-STA-20171122-00160, Call Sign S2610.

⁵ See ES 172 LLC, File Nos. SAT-MOD-20171122-00159 and SAT-AMD-20171205-00165, Call Sign S2610.

⁶ See File No. SAT-RPL-20170927-00136, Call Sign S3021 (“*EUTELSAT 172B Application*”). The application includes information regarding all EUTELSAT 172B satellite service operations, including frequencies for which Commission authority was granted and those which will operate pursuant to French licensing authority.

Table 1. Overview of Eutelsat 172B Operations

Satellite	Licensing Admin.	Orbital Location	Downlink Freq. (GHz)	ITU Satellite Network⁷	ITU Region⁸
Eutelsat 172B	U.S.	172° E	10.95-11.2; 11.45-11.7; 12.2-12.75	USASAT-60A, USASAT-60Y	1, 2, 3
Eutelsat 172B	France	172° E	11.2-11.45	F-SAT-E-30B-172E	1, 3

In the *EUTELSAT 172B Application*, Eutelsat provides the information required by Section 25.114 of the Commission's rules, 47 C.F.R. § 25.114, including substantial technical showings and Schedule S data. Panasonic hereby incorporates by reference the satellite operational parameters and other information set forth in the *EUTELSAT 172B Application* associated with the temporary Ku-band ESAA operations proposed herein. The attached Technical Appendix and draft Form 312 Schedule B provide information regarding the operational characteristics of the ESAA terminals with the EUTELSAT 172B satellite.

With respect to the 11.2-11.45 GHz band, this STA application constitutes a request to communicate with a foreign-licensed satellite under the Commission's rules.⁹ EUTELSAT 172B was launched and operates certain non-U.S. payloads pursuant to authority granted to Eutelsat by

⁷ Panasonic understands that Eutelsat has provide updated operational parameters for EUTELSAT 172B in an ITU satellite network filing designated as USASAT-60Y.

⁸ For bands not identified for ESAA receive operations in the Commission's rules, Panasonic proposes to operate in Region 2 only outside the United States on a non-conforming (unprotected, non-interference) basis.

⁹ See 47 CFR § 25.137. In the interest of administrative convenient and efficiency, Panasonic respectfully requests that incorporation by reference of the *EUTELSAT 172B Application* be deemed to satisfy the technical information requirements of Section 25.137(b) and (d). See 47 CFR § 25.137(b), (d).

France, which is a member of the World Trade Organization for services covered under the World Trade Organization Basic Telecommunications Agreement. Thus, there is a presumption in favor of U.S. market access for the EUTELSAT 172B satellite.¹⁰

2. Higher Power Operations with EUTELSAT 172B

Panasonic seeks to operate its ESAA terminals with EUTELSAT 172B at off-axis EIRP spectral density (“ESD”) levels higher than those set forth in Section 25.227(a)(1) of the Commission’s rules and included in its current license for communication with EUTELSAT 172A. Thus, Panasonic will operate the ESAA terminals pursuant to Section 25.227(a)(2) of the Commission’s rules and incorporates by reference the antenna performance information and off-axis ESD data previously submitted for the SPA, PPA and TECOM ESAA terminals.¹¹ Of course, the antenna performance characteristics of these previously licensed ESAA terminals are well-understood and will not change.

Eutelsat has reviewed the technical characteristics of Panasonic’s proposed ESAA operations at the identified off-axis ESD levels and such operations are consistent with relevant coordination agreements and will not result in unacceptable interference to other satellites within +/- 6 degrees of EUTELSAT 172B. Panasonic incorporates by reference the previously submitted letter confirming that the power levels associated with Panasonic’s ESAA terminal operations are consistent with the coordinated parameters of the satellite.

¹⁰ See generally 47 CFR § 25.137(a)(2).

¹¹ 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); see also Row44 Inc., File No. SES-MFS-20150928-00635, Call Sign E080100 (providing off-axis ESD plots for the TECOM terminal).

B. Ground Segment

The gateway earth station for EUTELSAT 172B is located in Kapolei, HI, will operate in Ka-band frequencies and will be operated by Hawaii Pacific Teleport, L.P. (“HPT”). HPT has filed an earth station application to communicate with the satellite in Ka-band uplink and downlink frequencies that remains pending with the Commission.¹² As the Commission is aware, the gateway earth station is essential to enabling the ESAA operations proposed herein.

Network control and monitoring of Panasonic’s ESAAs and the eXConnect network will continue to be provided by a Panasonic Mission Control Center (“MCC”) in Lake Forest, California on a 24/7 basis. The contact details for the MCC are on file with the Commission.

C. Non-Conforming, Non-Interference Operations

The FCC’s Table of Allocations permits use of the 10.95-11.2 GHz and 11.45-11.7 GHz (space-to-Earth) bands on an unprotected basis, and the 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space) bands on a primary basis for ESAA operations.¹³ EUTELSAT 172B supports operations in all of the ESAA bands except 11.7-12.2 GHz, and also supports ESAA downlink operations in the 11.2-11.45 GHz and 12.2-12.75 GHz (space-to-Earth) bands. Panasonic seeks to utilize this additional EUTELSAT 172B downlink capacity on an unprotected, non-harmful interference basis outside the United States.

Panasonic previously was granted a waiver of Section 2.106 of the Commission’s rules, 47 C.F.R. § 2.106, to operate ESAA terminals in the 11.2-11.45 GHz and 12.2-12.75 GHz downlink bands. Panasonic understands, however, that current Commission practice is to allow such ESAA receive operations (outside of the United States only) on a non-conforming, non-

¹² See File No. SES-MFS-20170721-00787, Call Sign E150010.

¹³ See 47 C.F.R. § 2.106 and n. NG52 and NG55; 47 C.F.R. § 25.227.

interference basis through license conditions.

In light of the Commission's current practice, and given that its ESAA receive operations present a negligible risk of interference to other spectrum users and the temporary nature of this STA request, Panasonic requests that the Commission permit ESAA operations in the 11.2-11.45 GHz and 12.2-12.75 GHz bands consistent with its current approach of granting authority to operate ESAA terminals outside the United States on a non-conforming, non-interference basis.

D. Public Interest Considerations

Grant of this STA request will strongly serve the public interest by ensuring uninterrupted communication with the EUTELSAT 172B satellite, which serves a critical function in Panasonic's eXConnect network as the only available capacity for Pacific Ocean coverage. The EUTELSAT 172B satellite includes vital HTS beam to support growing traffic requirements in the Asia-Pacific region and this STA will ensure no failure of in-flight broadband connectivity in the region. Grant of this request would further serve the public interest by extending U.S. leadership in mobile broadband services.

II. CONCLUSION

In view of the foregoing, the public interest would be served by a grant of this 60-day STA to allow Panasonic to continue to conduct ESAA operations with the EUTELSAT 172B satellite, commencing on May 28, 2018.

Applicant: Panasonic Avionics Corporation
Call Sign: E100089
File No.: SES-STA-20180523-00788
Special Temporary Authority (STA)



File # SES-STA-20180523-00788
Call Sign E100089 Grant Date 5-29-18
(or other identifier)
Term Dates
From: 5-29-18 To: 7-28-18
Approved: [Signature]

Panasonic Avionics Corporation ("Panasonic") is granted extension of STA for 60 days to operate earth station aboard aircraft (ESAA) antennas pursuant to Section 25.227(a)(2) of the Commission's rules, 47 C.F.R. § 25.227(a)(2), to communicate with the Eutelsat 172B satellite (Call Sign S3021) at the 172° E orbital location in the: (1) 14.0-14.5 GHz (Earth-to-space) frequency band; (2) 10.95-11.2 GHz and 11.45-11.7 GHz and 12.2-12.75 GHz (space-to-Earth) in ITU regions 1, 2 and 3; (3) in the 11.2-11.45 GHz (space-to-Earth) in ITU regions 1 and 3, subject to the following conditions:

1. Operations are on an unprotected and non-harmful interference basis. Panasonic must cease operations immediately upon notification of such interference and must immediately inform the Commission, in writing, of such an event.
2. Operation pursuant to this authorization must be in compliance with the terms of Panasonic coordination agreements with the National Science Foundation and the National Aeronautics and Space Administration pertaining to operation of ESAA in the Ku-Band.
3. Operation pursuant to this authorization outside the United States in the 14.0-14.5 GHz band must be in compliance with the provisions of Annex 1, Part C of Recommendation ITU-R M.1643, with respect to any radio astronomy station performing observations in the 14.47-14.5 GHz band.
4. The use of the frequency bands 10.95 – 11.2 GHz and 11.45 – 11.70 GHz in the fixed satellite service is limited to international service.
5. When operating in international airspace within line-of-sight of the territory of a foreign administration where Fixed Service networks have a primary allocation in the 14.0-14.5 GHz band, an ESAA must not operate in a manner that would produce predicted ground-level power flux density (pfd) in such territory in excess of the following values unless the foreign administration has imposed other conditions for protecting its FS stations: $-132 + 0.5 \times \text{THETA}$ dB(W/(m² MHz)) for $\text{THETA} \leq 40^\circ$; -112 dB(W/(m² MHz)) for $40^\circ < \text{THETA} \leq 90^\circ$. Where: THETA is the angle of arrival of the radio-frequency wave in degrees above the horizontal, and the aforementioned limits relate to the pfd and angles of arrival that would be obtained under free space propagation conditions.
6. Operation pursuant to this authorization must conform to the terms of coordination agreements between the operator of Eutelsat 172B and other Ku-band geostationary satellites within six angular degrees of Eutelsat 172B. In the event that another GSO Fixed-Satellite Service (FSS) space station commences operation in the 14.0-14.5 GHz band at a location within six degrees of any of these space stations, ESAA operating pursuant to this temporary authority

shall cease transmitting to that space station unless and until such operation has been coordinated with the new space station's operator or Panasonic demonstrates that such operation will not cause harmful interference to the new co-frequency space station.

7. Panasonic must operate in accordance with the off-axis eirp spectral densities supplied to Eutelsat in obtaining the satellite operator certifications for Eutelsat 172B. Panasonic shall automatically cease emissions within 100 milliseconds if the ESAA transmitter exceeds the off-axis eirp spectral densities supplied to the target satellite operator and transmission shall not resume until Panasonic conforms to the off-axis eirp spectral densities supplied to the target satellite operator.

8. Panasonic must take all necessary measures to ensure that the operation authorized does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR 1.1307(b) and 1.1310. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers.

9. Panasonic must maintain a U.S. point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized herein. Panasonic must submit a letter to be included in its license file with the name and telephone number of the point of contact prior to commencing operation.

10. ESAA authorized herein must employ a tracking algorithm that is resistant to capturing and tracking adjacent satellite signals, and each station must be capable of inhibiting its own transmission in the event it detects unintended satellite tracking.

11. ESAA authorized herein must be monitored and controlled by a ground-based network control and monitoring center. Such stations must be able to receive "enable transmission" and "disable transmission" commands from the network control center and must cease transmission immediately after receiving a "parameter change" command until receiving an "enable transmission" command from the network control center. The network control center must monitor operation of each ESAA to determine if it is malfunctioning, and each ESAA must self-monitor and automatically cease transmission on detecting an operational fault that could cause harmful interference to a fixed satellite service network.

12. Stations authorized herein must not be used to provide air traffic control communications.

13. For each ESAA transmitter, Panasonic shall maintain records of the following data for each operating ESAA, a record of the ESAA location (i.e., latitude/longitude/altitude), transmit frequency, channel bandwidth and satellite used shall be time annotated and maintained for a period of not less than one year. Records shall be recorded at time intervals no greater than one (1) minute while the ESAA is transmitting. The ESAA operator shall make this data available,

in the form of a comma delimited electronic spreadsheet, within 24 hours of a request from the Commission, NTIA, or a frequency coordinator for purposes of resolving harmful interference events. A description of the units (i.e., degrees, minutes, MHz . . .) in which the records values are recorded will be supplied along with the records.

14. ESAA on the ground must not transmit at elevation angles less than three degrees. There is no minimum angle of antenna elevation angle for ESAAs while airborne, 47C.F.R. § 25.205(b).

15. Panasonic shall comply with any pertinent limits established by the International Telecommunication Union to protect other services allocated internationally.

16. In connection with the provision of service in any particular country, Panasonic is obliged to comply with the applicable laws, regulations, rules, and licensing procedures of that country.

17. Grant of this authorization is without prejudice to any determination that the Commission may make regarding Panasonic's pending application FCC IBFS file number SES-MFS-20180122-00052 and SES-AMD-20180208-00096.

18. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at Panasonic's risk.

19. Operations during the period May 28, 2018 to the grant of this authorization were authorized pursuant to Section 1.62 of the commission's rules, 47 C.F.R. § 1.62.

20. This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately. Petitions for reconsideration under Section 1.106 or applications for review under Sections 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within thirty days of the date of the public notice indicating that this action was taken.