

Applicant: Panasonic Avionics Corporation
Call Sign: E100089
File No.: SES-STA-20180104-00010
Special Temporary Authority

Panasonic Avionics Corporation (“Panasonic”) is granted an extension of special temporary authority for 60 days beginning January 17, 2018 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 [ww.fcc.gov/oet/rfsafety](http://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 ESAAAs 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 any pending applications.

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

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.