

Applicant: The Boeing Company
File No.: SES-STA-20150910-00574
Call Sign: Not Applicable

The Boeing Company, (Boeing) is granted special temporary authority for 30 days to flight test a Viasat KuKarray antenna over international waters transiting both the Atlantic and Pacific oceans with satellites currently authorized under E140097

1. Authorization is granted only for operations within the following limits:

Frequency Band	Emissions	Maximum E.I.R.P.	Maximum E.I.R.P. Density
11.45-11.7 GHz	32M4G7D	0	0
11.7-12.2 GHz	32M4G7D	0	0
12.2-12.75 GHz	32M4G7D	0	0
14.0-14.5 GHz	32M4G7D	47 dBW	8 dBW/4KHz

2. All operations shall be on an unprotected, non-interference basis. In the event of any harmful interference, cease operations immediately and inform the Commission, in writing, immediately
3. Operation pursuant to this authorization must be in compliance with the terms of Boeing's coordination agreements with the National Science Foundation and the National Aeronautics and Space Administration pertaining to operation of aircraft earth stations in the Ku-band. Boeing, however, is not authorized to operate in the 14.0-14.2 GHz frequency band within line-of-sight of the Blossom Point, MD facility until its agreement is updated to reflect the to reflect operations at that facility.
4. 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 aircraft earth station must not produce 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.
5. 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.
6. Aircraft earth stations 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.

7. Grant of this STA is without prejudice to any determination that the Commission may make regarding pending or future Boeing applications.
8. Aircraft earth stations 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 aircraft earth station to determine if it is malfunctioning, and each aircraft earth station must self-monitor and automatically cease transmission on detecting an operational fault that could cause harmful interference to a fixed-satellite service network.
9. The Boeing Network Operating Segment must continuously monitor the Viasat KuKarray antenna terminal to determine if it is functioning correctly within the BBSN system. The NOS must shut off Viasat KuKarray system in the event of a detected fault, or if the aggregate off-axis ESD begins to approach, or exceeds, the applicable coordinated protection limits for all effected off axis satellites related to the target satellites authorized in SES-LIC-20140922-00748
10. Stations authorized herein must not be used to provide air traffic control communications.
11. Operation in the territory or airspace of any country other than the United States must be in compliance with the applicable laws, regulations, and licensing procedures of that country, as well as with the conditions of this authorization.
12. The licensee 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.
13. The licensee shall comply with any pertinent limits established by the International Telecommunication Union to protect other services allocated internationally.
14. For each ESAA transmitter, the licensee shall maintain records of the following data for each operating aircraft earth station (AES), a record of the aircraft 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 AES 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.
15. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at Boeing's risk.