

E140097 SES-STA-20151202-00912 IB2015002346  
The Boeing Company

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:  
BBSN KuKa Antenna STA Extension

1. Applicant

<b>Name:</b>	The Boeing Company	<b>Phone Number:</b>	206-544-6044
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<b>Country:</b>	USA	<b>Zipcode:</b>	98124 -2207
<b>Attention:</b>	Ronald Center		



File # SES-STA-20151202-00912

Call Sign E140097 Grant Date 4/4/2016  
(or other identifier)

Term Dates 5  
From 4/4/2016 To 4/6/2016

Approved: Paul E. Hayes

Applicant: The Boeing Company  
FileNo.: SES-STA-20151202-00912  
Call Sign:E140097

The Boeing Company, (Boeing) is granted special temporary authority for 30 days beginning April 4, 2016, to continue to flight test a Viasat KuKarray antenna over international waters transiting both the Atlantic and Pacific oceans with satellites currently authorized under call sign E140097 under the following conditions:

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	47dBW	8dBW/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/(m<sup>2</sup> MHz)) for  $\text{THETA} \leq 40^\circ$ ;  $-112$  dB(W/(m<sup>2</sup> 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.



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Term Dates  
From 4/4/2016 To 5/6/2016

Approved: Paul E. Blawie

<b>2. Contact</b>			
<b>Name:</b>	The Boeing Company	<b>Phone Number:</b>	206-544-6053
<b>Company:</b>		<b>Fax Number:</b>	206-662-0701
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<b>City:</b>	Seattle	<b>State:</b>	WA
<b>Country:</b>	USA	<b>Zipcode:</b>	98124 -2207
<b>Attention:</b>		<b>Relationship:</b>	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 SESSTA2015100700672 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 CGX – Fixed Satellite Transmit/Receive Earth Station			
5. Type Request			
<input type="radio"/> Use Prior to Grant <input type="radio"/> Change Station Location <input checked="" type="radio"/> Other			
6. Requested Use Prior Date			
12/14/2015			
7. CityKent			
8. Latitude			
(dd mm ss.s h) 0 0 0.0 N			

9. State WA	10. Longitude (dd mm ss.s h) 0 0 0.0 W
11. Please supply any need attachments. Attachment 1: STA Extension 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; margin-top: 10px;">Renew SES-STA-20151007-00672Viasat KuKarray antenna.</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. Yes <input checked="" type="radio"/> No <input type="radio"/>	
14. Name of Person Signing Ron E Center	15. Title of Person Signing Manager
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).	

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## **Request for Extension of Special Temporary Authority**

### **1 Nature of Request**

Pursuant to ESAA license call sign E140097, Boeing operates on a near global basis its Boeing Broadband Satellite Network (“BBSN”) to exclusively serve the needs of the United States Air Force Air Mobility Command (“AFAMC”).

In cooperation with the Air Force, Boeing identified a next generation of transmit/receive antenna that is suitable for use on a new generation of aircraft that the Air Force is bringing into service. Boeing therefore requested and received Special Temporary Authority (“STA”) for a period of 60 days to conduct the international waters testing of the Viasat KuKarray antenna to ensure that it meets the Air Force mission requirements (File No. SES-STA-20151007-00672). This authority expires December 13, 2015.

In this application, Boeing requests extension of the existing STA for an additional 60 days to permit Boeing and the Air Force time to complete their evaluation of the KuKarray antenna and ensure an orderly transition to the next generation of in-flight connectivity terminals.

### **2 Public Interest Justification**

Boeing’s BBSN exclusively serves the needs of the United States AFAMC to support the operation of critically-important VIP/SAM (Very Important Personnel/Special Air Mission) aircraft used to transport senior leadership of the U.S. Government and the Department of Defense. The BBSN achieves near global coverage through the use of selected U.S. and foreign satellites.

Grant of the requested STA would serve the public interest because the Air Force requires continuity of operations during equipment evaluation, adoption, and transition cycles. Boeing will continue operate the antenna under this STA on an unprotected, non-harmful interference basis.

### **3 Antenna Technical Information**

No change is requested in the operating parameters of the KuKarray antenna, and thus for brevity Boeing incorporates by reference the technical description included in Boeing’s initial STA application, File No. SES-STA-20151007-00672.