

E160064 SES-STA-20160624-00605 IB2016001453
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:
3.8 M CC, Kennedy Space Center STA Extension

1. Applicant

Name:	The Boeing Company	Phone Number:	206-544-6044
DBA Name:		Fax Number:	206-662-0701
Street:	PO Box 3707	E-Mail:	ronald.e.center@boeing.com
City:	Seattle	State:	WA
Country:	USA	Zipcode:	98124 -2207
Attention:	Ronald Center		

File # SES-STA-20160624-00605
E160064 Grant Date 6-28-16
Call Sign (or other identifier)
Temp Dates From: 7-28-16 To: 8-3-16
Approved: Ronald E. Center



GRANTED
International Bureau

Applicant: The Boeing Company
File No.: SES-STA-20160624-00605
Call Sign: E160064
Special Temporary Authority

The Boeing Company is granted, Special Temporary Authority extension from SES-STA-20160516-00434, for 30 days, beginning July 4, 2016, to use its fixed earth station, (call-sign E160064) in Kennedy Space Center, Florida, to support communications command and control for recovery operations for the commercial crew transportation system (CCTS), using a 3.8 meter Ku-band antenna, to operate with Galaxy-17 satellite (S2715) at 91° W.L., in the 14000-14500 MHz (Earth-to-space) and 11700-12200 MHz (space-to-Earth) frequency bands, under the following conditions:

1. Operations under this authority are on a non-interference basis only.
2. Operations under this authority are on a non-protected basis only.
3. In the event that there is a report of interference, Boeing Company must immediately terminate transmissions and notify the FCC in writing.
4. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at Boeing Company's own risk.
5. Grant of this authorization is without prejudice to any determination that the Commission may make regarding pending Boeing Company's applications, IBFS File Nos. SES-LIC-20160411-00330 and SES-AMD-20160525-00454.
6. 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.



File # SES-STA-20160624-00605
Call Sign E160064 Grant Date 6-28-16
(or other identifier)
Term Dates
From: 7-4-16 To: 8-3-16
Approved: Paul E. Mack

2. Contact	
Name:	The Boeing Company
Company:	The Boeing Company
Street:	PO Box 3707
Phone Number:	206-544-6053
Fax Number:	206-662-0701
E-Mail:	allen.s.lindsay@boeing.com
City:	Seattle
State:	WA
Country:	USA
Zipcode:	98124 -2207
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 SESLIC2016041100330 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 checked="" type="radio"/> Use Prior to Grant <input type="radio"/> Change Station Location <input type="radio"/> Other	
6. Requested Use Prior Date 07/03/2016	
7. CityTitusville	
8. Latitude (dd mm ss.s h) 28 35 0.0 N	

9. State FL	10. Longitude (dd mm ss.s h) 80 39 13.0 W
11. Please supply any need attachments. Attachment 1: Felony Letter Attachment 2: RADHAZ 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.) Special Temporary Authority Request to initiate operations to support communications command and control for recovery operations for the Commercial Crew Transportation System (CCTS) .	
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 Ronald 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).	

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.



The Boeing Company
P.O. Box 3707
Seattle, WA 98124 2207

This report presents an analysis of the non-ionizing radiation levels for a GD Prodelin 1385 3.8m system.

The calculations used in this analysis were derived from and comply with the procedures outlined in the Federal Communication Commission, Office of Engineering and Technology Bulletin Number 65, which establishes guidelines for human exposure to Radio Frequency Electromagnetic Fields. Bulletin 65 defines exposure levels in two separate categories, the General Population/Uncontrolled Areas limits, and the Occupational / Controlled Area limits. The Maximum Permissible Exposure (MPE) limit of the General Population / Uncontrolled Area is defined in Table (1), and represents a maximum exposure limit averaged over a 30 minute period. The MPE limit of the Occupational / Controlled Area is defined in Table (2), and represents a maximum exposure limit averaged over a 6 minute period. The purpose of this report is to provide an analysis of the earth station power flux densities, and to compare those levels to the specified MPE's.

This report provides predicted density levels in the near field, far field, transition region, main reflector surface area, area between the main reflector and sub reflector or feed assembly, as well as the area between the antenna edge and ground.

MPE Limits for General Population/Uncontrolled Area

Frequency Range (MHz)	Power Density (mW/cm ²)
1500-100,000	1.0

Table 1

MPE Limits for Occupational/Controlled Area

Frequency Range (MHz)	Power Density (mW/cm ²)
1500-100,000	5.0

Table 2

Table 3 Contains formulas, equations and parameters that were used in determining the Power Flux Density Levels for the GD Prodelin 1385 3.8m

<i>Data Type</i>	<i>Data Symbol</i>	<i>Data Formula</i>	<i>Data Value</i>	<i>Unit of Measure</i>
Power Input	P	Input	50	W
Antenna Size	D	Input	3.8	m
Antenna Area	A	$A = (\pi D^2) \div 4$	11.34	m ²
Subreflector Size	Sub	Input	N/A	cm
Subreflector Area	A _{sub}	$A_{sub} = (\pi Sub^2) \div 4$	N/A	cm ²
Gain dBi	G _{dBi}	Input	53.2	dBi
Gain Factor	G	$G = 10^{G_{dBi}/10}$	208929.61	Gain Factor
Frequency	f	Input	14125	MHz
Wavelength	λ	$299.79 / f$	0.021234	meters
Aperture Efficiency	η	$\eta = [(G\lambda^2) \div (4\pi A)]$	0.66	n/a
Pi	π	Input	3.14159	Numeric
Constant	C	Input	299792458	m/Sec

Table 3



1. Far Field Analysis

The distance to the far field can be calculated using the following formula:

$$R_{ff} = \frac{0.6D^2}{\lambda} = 408.03 \text{ Meters}$$

The power density in the far field can be calculated using the following formula. Note: this formula requires the use of power in milliwatts and far field distance in centimeters, or requires a post calculation conversion from W/M2:

$$S_{ff} = \frac{PG}{4\pi R_{ff}^2} = 0.5 \text{ mW/cm}^2$$

2. Near Field Analysis

The extent of the Near Field region can be calculated using the following formula:

$$R_{nf} = \frac{D^2}{4\lambda} = 170.01 \text{ Meters}$$

The power density of the near field can be calculated using the following formula. Note: this formula requires the use of power in milliwatts and diameter in centimeters, or requires a post calculation conversion from W/M2:

$$S_{nf} = \frac{16\eta P}{\pi D^2} = 1.166 \text{ mW/cm}^2$$

3. Transition Region Analysis

The transition region extends from the end of the near field out to the beginning of the far field. The power density in the transition region decreases inversely with distance from the antenna, while power density in the far-field decreases inversely with the square of the distance. However the power density in the transition region will not exceed the density in the near field, and can be calculated for any point in the transition region (R), using the following formula. Note: This formula requires the use of distance in centimeters, or requires a post calculation conversion from W/M2.

$$S_t = \frac{S_{nf} R_{nf}}{R} = 1.166 \text{ mW/cm}^2$$

4. Main Reflector Surface Analysis

The maximum power density at the antenna surface area can be calculated using the following formula. Note: this formula requires the use of Power in milliwatts and Area in centimeters squared, or requires a post calculation conversion from W/M2.

$$S_{surface} = \frac{4P}{A} = 1.763 \text{ mW/cm}^2$$

5. Subreflector Surface Analysis

The area between the sub reflector and main reflector presents a potential hazard, with the highest density being located at the sub reflector area. The power density at the sub reflector can be calculated using the following formula. Note: this formula requires the use of Power in milliwatts and Area in centimeters squared, or requires a post calculation conversion from W/M2.

$$S_{sub_surface} = \frac{4P}{A_{sub}} = \text{N/A} \text{ mW/cm}^2$$

6. Power Density between Reflector and Ground Analysis

The power density between the reflector and the ground can be calculated using the following formula. Note: this formula requires the use of Power in milliwatts and Area in centimeters squared, or requires a post calculation conversion from W/M2.

$$S_{ground} = \frac{P}{A} = 0.441 \text{ mW/cm}^2$$



The Boeing Company
P.O. Box 3707
Seattle, WA 98124 2207

Area	Range Meters	Power Density	Occupational	General Public
Far Field	408	0.5 mW/cm ²	Meets Requirements	Meets Requirements
Near Field	170	1.17 mW/cm ²	Meets Requirements	Potential Hazard
Transition Region	170 - 408	1.17 mW/cm ²	Meets Requirements	Potential Hazard
Main Reflector Surface	N/A	1.76 mW/cm ²	Meets Requirements	Potential Hazard
Sub-Reflector Surface	N/A	N/A mW/cm ²	N/A	N/A
Area Between Reflector and Ground	N/A	0.44 mW/cm ²	Meets Requirements	Meets Requirements

Exhibit

Summary of Boeing Felony Convictions

Past Boeing Convictions: The Boeing Company has pled guilty to felonies on two occasions. In November 1989, Boeing pled guilty in federal court to two counts of violating 18 U.S.C. § 641 and § 642 (unlawful conveyance). These convictions relate to the activity of a Boeing employee in its Washington D.C. office who improperly conveyed two government documents.

In June 1982, Boeing pled guilty in federal court to forty counts of violating 18 U.S.C. §§ 1001 and 1002 (false statements). These convictions relate to false statements that Boeing made in applications to the Exim Bank as to whether payments were made to non regular agents in connection with sales of commercial aircraft.

Past Rockwell Convictions: In December 1996, The Boeing Company completed the acquisition of the aerospace units of Rockwell International Corporation. The acquired units became a wholly owned subsidiary of Boeing, named Boeing North American, Inc. The acquired units had the following felony convictions, all of them prior to the acquisition.

In March 1989, Rockwell pled guilty in federal court to one count of violating 18 U.S.C. § 371 (conspiracy to commit a fraud against the United States), one count of violating 18 U.S.C. § 401 (criminal contempt) and one count of violating 18 U.S.C. § 1001 (false statements). These convictions arose out of activity by the Satellite and Space Electronics Division of Rockwell which was performing work under contracts for the United States government on the Global Positioning System program. The convictions were due to failure to disclose facts relating to a subcontract the disclosure of which were required by the Truth in Negotiations Act, and submission of false claims for payment under a Global Positioning System contract in violation of a prior court injunction.

In March 1992, Rockwell agreed to plead guilty in federal court to five felony and five misdemeanor counts of violating the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 *et seq.*, and the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.* These convictions arose out of activity performed by Rockwell in managing the Rocky Flats Nuclear Weapons Plant under contract to the Department of Energy.

In April 1996, Rockwell pled guilty in federal court to three counts of violating 42 U.S.C. § 6928 (for unlawful storage and disposal of hazardous waste). These convictions resulted from activity by employees of the Rockwell Rocketdyne division test site in Simi Hills, California.

Past McDonnell Douglas Convictions: In August 1997, Boeing completed the acquisition of McDonnell Douglas Corporation, now a wholly owned subsidiary of Boeing. McDonnell Douglas Corporation had the following felony convictions, all of them prior to the acquisition.

In September 1981, McDonnell Douglas Corporation pled guilty in federal court to five counts of violating 18 U.S.C. § 1001 (false statements), three counts of violating U.S.C. § 1341 (fraud by mail) and two counts of violating 18 U.S.C. § 1343 (fraud by wire). These convictions relate to false or incomplete statements made in Exim Bank filings concerning commission sales representatives used in the sale of commercial aircraft in five countries.