

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION**

EXPERIMENTAL

(Nature of Service)

XT FX

(Class of Station)

WI2XKT

(Call Sign)

0183-EX-ST-2018

(File Number)

NAME The Boeing Company

This Special Temporary Authorization is granted upon the express condition that it may be terminated by the Commission at any time without advance notice or hearing if in its discretion the need for such action arises. Nothing contained herein shall be construed as a finding by the Commission that the authority herein granted is or will be in the public interest beyond the express terms hereof.

This Special Temporary Authorization shall not vest in the grantee any right to operate the station nor any right in the use of the frequencies designated in the authorization beyond the term hereof, nor in any other manner than authorized herein. Neither the authorization nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This authorization is subject to the right of use of control the Government of the United States conferred by Section 706 of the Communications Act of 1934.

Special Temporary Authority is hereby granted to operate the apparatus described below:

Purpose Of Operation:

Testing to ensure compatibility and interoperability

Station Locations

(1) El Segundo, CA - NL 33-55-47; WL 118-23-22

Frequency Information

El Segundo, CA - NL 33-55-47; WL 118-23-22

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
100-108 MHz	FX	NON	1.33 mW (ERP)	
123.125-123.275 MHz	FX	NON	1.33 mW (ERP)	
123.325-123.475 MHz	FX	NON	1.33 mW (ERP)	

This authorization effective May 04, 2018 and
will expire 3:00 A.M. EST November 02, 2018

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

El Segundo, CA - NL 33-55-47; WL 118-23-22

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
128.825-132 MHz	FX	N0N	1.33 mW (ERP)	
136.5-136.975 MHz	FX	N0N	1.33 mW (ERP)	
137-200 MHz	FX	N0N	1.33 mW (ERP)	
200-224 MHz	FX	N0N	90 uW (ERP)	
228.9 MHz	FX	N0N	90 uW (ERP)	
242.525 MHz	FX	N0N	90 uW (ERP)	
296.9 MHz	FX	N0N	90 uW (ERP)	
401-600 MHz	FX	N0N	90 uW (ERP)	
600-607 MHz	FX	N0N	25.3 uW (ERP)	
615-975 MHz	FX	N0N	25.3 uW (ERP)	

Frequency Information

El Segundo, CA - NL 33-55-47; WL 118-23-22

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
981-1018 MHz	FX	N0N	25.3 uW (ERP)	
1032-1084 MHz	FX	N0N	42 uW (ERP)	
1096-1273 MHz	FX	N0N	42 uW (ERP)	
1286-1305 MHz	FX	N0N	42 uW (ERP)	
1313-1399 MHz	FX	N0N	42 uW (ERP)	
1428-1559 MHz	FX	N0N	42 uW (ERP)	
1610-1660 MHz	FX	N0N	42 uW (ERP)	
1669-2310 MHz	FX	N0N	42 uW (ERP)	
2355-2689 MHz	FX	N0N	42 uW (ERP)	
2700-2701 MHz	FX	N0N	42 uW (ERP)	

Frequency Information

El Segundo, CA - NL 33-55-47; WL 118-23-22

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2709-2751 MHz	FX	N0N	42 uW (ERP)	
2759-2851 MHz	FX	N0N	42 uW (ERP)	
2859-2881 MHz	FX	N0N	42 uW (ERP)	
2889-3000 MHz	FX	N0N	42 uW (ERP)	
3000-3649 MHz	FX	N0N	16.7 uW (ERP)	
3701-4989 MHz	FX	N0N	16.7 uW (ERP)	
5030-5250 MHz	FX	N0N	16.7 uW (ERP)	
5250-7795 MHz	FX	N0N	1 W (ERP)	
7805-7850 MHz	FX	N0N	1 W (ERP)	
7860-8406 MHz	FX	N0N	1 W (ERP)	

Frequency Information

El Segundo, CA - NL 33-55-47; WL 118-23-22

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
8416-8474 MHz	FX	N0N	1 W (ERP)	
8484-8999 MHz	FX	N0N	1 W (ERP)	
9201-10670 MHz	FX	N0N	1 W (ERP)	
10701-15340 MHz	FX	N0N	1 W (ERP)	
15401-15700 MHz	FX	N0N	1 W (ERP)	
16200-23599 MHz	FX	N0N	1 W (ERP)	
24001-31299 MHz	FX	N0N	1 W (ERP)	
31801-50199 MHz	FX	N0N	1 W (ERP)	
50401-52500 MHz	FX	N0N	1 W (ERP)	

Special Conditions:

- (1) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (2) Licensee should be aware that other stations may be licensed on these frequencies and if any interference occurs, the licensee of this authorization will be subject to immediate shut down.

Special Conditions:

- (3) Experimental use is secondary to and must not interfere with Flight Test operations.
- (4) Use of these frequencies is not exclusive. Multiple users are licensed for these frequencies in the same geographic area. Transmission on any given frequency in California may be subject to day-to-day, hour-by-hour scheduling with the Los Angeles Area Flight Test Radio Coordinating Committee. POC's are:
 - Daniel Robinson, Phone (661) 272-7033
 - JJ Littlefield, Phone (661) 810-8694
- (5) Boeing must coordinate with other users as necessary to minimize interference.
- (6) Operation is NOT PERMITTED using the frequency bands:
 - 406-406.1 MHz
 - 410.275-410.325 MHz
 - 1164-1189 MHz
 - 1215-1240 MHz
 - 1559-1610 MHz
 - 4200-4400 MHz
 - 5000-5030 MHz
 - 5091-5150 MHz.
- (7) This frequency assign was coordinated prior to authorize with FAA headquarters, 800 Independence Avenue, S.W. Washington, DC 20591. Phone 202-267-8699.
- (8) Use of this frequency or band under the authority of this assign is subject to further coordination with the WAFC, as necessary to ensure compatibility with the existing uses.
- (9) Periodic testing to ensure integrity of RF shielded room at Boeing facility.
- (10) Most testing conducted inside of chamber.
- (11) Operation using the frequency bands 128.825-132 MHz and 136.5-136.975 MHz is subject to prior coordination with Aviation Spectrum Resources Inc. (ASRI).
- (12) Prior to operations in the 2085.6875 MHz, 2025-2110 MHz, and 8025-8400 MHz, applicant must notify and obtain a written consent from satellite operators. To request this consent, please contact the potentially-affected station operators: Terra Bella Technologies Inc. (Mr. Craig Scheffler at 720-238-5634), Planet Labs, Inc. (Mr. Michael Safyan at 415-829-3313) and Digitalglobe (Mr. Demetrius M Anthony at 703-480-6338) for the proposed operations.
- (13) Operations in the frequency bands 2305-2320 MHz and 2345-2360 MHz must comply with the emission limits set in 47 C.F.R. § 27.53(a) applicable to those bands.
- (14) Operations in the frequency bands 2320-2345 MHz are not authorize in this experimental license.
- (15) Licensee must maintain separation from the grandfathered earth stations as defined in Part 90 subpart Z, or notify and obtain an agreement with the grandfathered earth station licensees prior to accessing to 3650-3700 MHz band. Consult MyIBFS database to identify all existing registered earth stations in the 3650-3700 MHz band for each proposed experimental area of operation. The coordinates of these stations are available at <http://www.fcc.gov/ib/sd/3650/grandftr.pdf>.
- (16) Operations in the 3700-4200 MHz, 5850-7025 MHz, 10700-12200 MHz, 12.7-12.75 GHz, 13750-14500 MHz, 22.55-13.55 GHz, 25.25-27.501 GHz, 31-31.3 GHz, 31.8-33 GHz, 34.7-35.2 GHz, 37-42.5 GHz, and 47.2-51.4 GHz bands are limited to the power of 16.7uW (ERP)

Special Conditions:

- (17) Prior to operation in the 3700-4200 MHz, 5850-7025 MHz, 10700-12200 MHz and 13750-14500 MHz, licensee must notify the potentially-affected earth station operators that are located within a 30 mile radius of the experimental transmitter and obtain their written consent to the proposed operations. Consult MyIBFS database to identify all existing earth stations within a 30 mile radius for each proposed experimental area of operation. The coordinates of these stations are available at <http://www.fcc.gov/ib/sd/3650/grandftr.pdf>.
- (18) Licensee must avoid pointing the transmitting antenna within 15 degrees of any point on the geostationary orbit arc while transmitting signals in the 3700-4200 MHz, 5850-7025 MHz, 10700-12200 MHz and 13750-14500 MHz bands.
- (19) Licensee must ensure that the transmitting antenna(s) main beam do not point above the horizon in order to protect satellite space stations operating in overlapping frequency bands.
- (20) With respect to proposed operation in the 4500-4800 MHz (space-to-Earth), 6725-7025 MHz (Earth-to-space), 10.70-10.95 GHz (space-to-Earth), 11.20-11.45 GHz (space-to-Earth), and/or 12.75-13.25 GHz (Earth-to-space) bands, the proposed operation MUST take into account the applicable requirements of Appendix 30B of the ITU Radio Regulations (incorporated by reference, see §25.108) and it is compatible with other U.S. ITU filings under Appendix 30B.
- (21) Operations in the frequency band 12.2-12.7 GHz are prohibited.
- (22) Prior to operations in the 12.2-12.75 GHz, 17.3-17.8 GHz, 18.3-18.8 GHz, 19.7-20.2 GHz, 24.75-25.15 GHz, 28.35-28.6 GHz, and 29.25-30 GHz bands, applicant must obtain a written consent from DirecTV/AT&T. To request this consent, please contact:

Contact: Jack Wengryniuk
Company: Direct TV/AT&T
Email: JWengryniuk@DIRECTV.com

- (23) Licensee must avoid pointing the transmitting antenna main beam gain within 10 degrees of any point on the geostationary orbital arc while transmitting signals in the 27.5-28.35 GHz and 37-40 GHz bands.
- (24) Experimental station shall use the minimum power level necessary to establish communications links to minimize potential interference to licensed users.
- (25) The authorized station must be in compliance with environmental requirement set forth in Section 1.1307 of the Commission's Rules.
- (26) The authorized station must be in compliance with the Federal Aviation Administration (FAA) requirements as set forth in Section 17.4 of the Commission's Rules.
- (27) This authorization is without prejudice to any determination that the Commission may make regarding pending or future experimental satellite earth station applications.
- (28) The stop buzzer contact for this project is Walter Yang 310-364-2196.
- (29) Operations are on a non-interference basis (NIB) and shall not cause harmful interference to, and shall not claim protection from, interference caused to it by any other lawfully operating station and it shall cease transmission(s) immediately upon notice of such interference and notify the FCC in writing.
- (30) No automatic renewal for this authorization.

Special Conditions:

(31) The Boeing Company must notch out the following discrete frequencies:

(+/- 5.5k) 149.200MHz 150.700MHz 153.830MHz 153.950MHz
154.025MHz 154.235MHz 154.265MHz 154.280MHz 154.295MHz
154.920MHz 155.475MHz 156.075MHz 163.1375MHz 164.900MHz
166.4625MHz 171.2375MHz 411.8625MHz 412.925MHz 412.975MHz
413.000MHz 413.025MHz

(+/- 8k) 156.450MHz 156.525MHz 156.800MHz 161.975MHz
162.025MHz

(+/- 12.5k) 406.025MHz 406.050MHz 406.9125MHz 408.9125MHz
415.9125MHz 418.9125MHz

(32) The Boeing Company must notch out the following frequency bands:

1032 - 1045 MHz
1313 - 1320 MHz
1559 - 1610 MHz
7795 - 7805 MHz
7850 - 7860 MHz
8406 - 8416 MHz
8474 - 8484 MHz
15700 - 16200 MHz

(33) Licensee must prior coordinate testing with other authorized Band 14 operations. Failure to effectively coordinate shall result in FirstNet seeking immediate suspension of the experimental license by the FCC.

(34) Licensee must accept interference from others operating in the band and must not cause interference to FirstNet operations or those approved to operate in Band 14 per license (i.e. AT&T testing or public safety entities authorized to operate on Band 14).

(35) Licensee POC shall submit a "Stop Buzzer" contact to FirstNet at peter.tomczak@firstnet.gov upon authorization issuance with "kill switch" authority; license POC agrees to immediately cease operations on Band 14 if notified of any interference concerns until any issues are resolved.

(36) Licensee agrees that this license may be subject to further review by the FCC and possible re-coordination with FirstNet.

Special Conditions:

(37) Licensee must obtain consents of the following within 50 miles of the test area:

- Paging Service licensees in 152 MHz
- Paging Service licensees in 158 MHz
- Paging Service licensees in 152 MHz/158 MHz
- 218-219 MHz Service licensees
- 220 MHz Service licensees
- 220-222 MHz Service licensees
- Paging Service licensees in 454MHz/459 MHz
- General Aviation Air-Ground Service in 454 MHz/459 MHz
- 700 MHz licensees (698-758 MHz and 775-788 MHz)
- SMR licensees (809-824 MHz/854-869 MHz)
- Cellular licensees (824-849 MHz/869-894 MHz)
- Commercial Air-Ground licensee (849-851 MHz/894-896 MHz)
- SMR licensees (896-901 MHz/935-940 MHz)
- Narrowband PCS licensees (901-902 MHz)
- Location & Monitoring Service licensees (902-928 MHz)
- Paging Service licensees in 929 MHz and 931 MHz
- 1390-92 MHz Band Licensees
- 1392-1395 MHz/1432-1435 MHz Band licensees
- 1670-1675 MHz Band licensee (Crown Castle International,) and the lessee (Ligado Networks)
- Broadband PCS licensees (1850-1910 MHz/1930-1990 MHz)
- WCS licensees (2305-2320 MHz/2345-2360 MHz)
- Aerospace and Flight Test Radio Coordinating Council (AFTRCC), concerning Aeronautical and Fixed frequencies (2360-2390 MHz)

(38) The applicant must obtain consents from the Advance Wireless Service, the Educational Broadband Service and the Broadband Radio Service licensees.

(39) The applicant must coordinate with the local Society of Broadcast Engineers frequency coordinator and the affected Fixed Microwave Service licensees prior to operations.