

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE**

EXPERIMENTAL

(Nature of Service)

WF2XAL

(Call Sign)

XT FX MO

(Class of Station)

0149-EX-ML-2013

(File Number)

NAME The Boeing Company

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.3(i) of the Commission's Rules

Station Locations

- (1) MOBILE: Up to 10,000 feet flight level, Boardman, OR, within 16 km, centered around NL 45-44-54; WL 119-47-38
- (2) MOBILE: Up to 10,000 feet flight level, Fort Leonard Wood, MO, within 16 km, centered around NL 37-44-30; WL 92-08-27
- (3) MOBILE: Up to 10000 feet flight level, Eglin AFB, FL, within 42 km, centered around NL 30-29-12; WL 86-30-30
- (4) MOBILE: Up to 10000 feet flight level, China Lake, CA, within 100 km, centered around NL 35-55-03; WL 117-39-24
- (5) MOBILE: Ground checks only, Berkeley, MO, within 2 km, centered around NL 38-45-13; WL 90-20-59
- (6) MOBILE: Ground checks only, St. Charles, MO, within 2 km, centered around NL 38-55-55; WL 90-25-23
- (7) MOBILE: Ground checks only, St. Charles, MO, within 2 km, centered around NL 38-48-18; WL 90-28-15
- (8) MOBILE: Ground checks only, Vandalia, IL, within 2 km, centered around NL 38-59-30; WL 89-09-58
- (9) MOBILE: Ground checks only, Seattle, WA, within 15 km, centered around NL 47-30-59; WL 122-18-20
- (10) MOBILE: Ground checks only, Huntington Beach, CA, within 2 km, centered around NL 33-44-54; WL 118-02-02
- (11) MOBILE: Ground checks only, Seal Beach, CA, within 2 km, centered around NL 33-45-24; WL 118-05-12
- (12) MOBILE: Ground checks only, Anaheim, CA, within 2 km, centered around NL 33-51-16; WL 117-51-06
- (13) MOBILE: Up to 10000 feet flight level, Las Cruces, NM, within 25 km, centered around NL 32-17-40; WL 106-55-30

This authorization effective September 24, 2013 and
will expire 3:00 A.M. EST September 04, 2014

**FEDERAL
COMMUNICATIONS
COMMISSION**



Station Locations

- (14) Philadelphia, PA - NL 39-51-50; WL 75-19-19; MOBILE: Philadelphia, PA, within 12 km, centered around NL 39-51-50; WL 75-19-19
- (15) MOBILE: 3,000 foot flight level, Dersert Rock, NV, within 10 km, centered around NL 36-37-19; WL 116-01-58

Frequency Information

MOBILE: Up to 10,000 feet flight level, Boardman, OR, within 16 km, centered around NL 45-44-54; WL 119-47-38

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Up to 10,000 feet flight level, Boardman, OR, within 16 km, centered around NL 45-44-54; WL 119-47-38

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Up to 10,000 feet flight level, Fort Leonard Wood, MO, within 16 km, centered around NL 37-44-30; WL 92-08-27

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	

Frequency Information

MOBILE: Up to 10,000 feet flight level, Fort Leonard Wood, MO, within 16 km, centered around NL 37-44-30; WL 92-08-27

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Up to 10000 feet flight level, Eglin AFB, FL, within 42 km, centered around NL 30-29-12; WL 86-30-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Up to 10000 feet flight level, Eglin AFB, FL, within 42 km, centered around NL 30-29-12; WL 86-30-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Up to 10000 feet flight level, China Lake, CA, within 100 km, centered around NL 35-55-03; WL 117-39-24

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	

Frequency Information

MOBILE: Up to 10000 feet flight level, China Lake, CA, within 100 km, centered around NL 35-55-03; WL 117-39-24

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Berkeley, MO, within 2 km, centered around NL 38-45-13; WL 90-20-59

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Berkeley, MO, within 2 km, centered around NL 38-45-13; WL 90-20-59

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Ground checks only, St. Charles, MO, within 2 km, centered around NL 38-55-55; WL 90-25-23

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, St. Charles, MO, within 2 km, centered around NL 38-55-55; WL 90-25-23

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, St. Charles, MO, within 2 km, centered around NL 38-48-18; WL 90-28-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, St. Charles, MO, within 2 km, centered around NL 38-48-18; WL 90-28-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Ground checks only, Vandalia, IL, within 2 km, centered around NL 38-59-30; WL 89-09-58

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Vandalia, IL, within 2 km, centered around NL 38-59-30; WL 89-09-58

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Seattle, WA, within 15 km, centered around NL 47-30-59; WL 122-18-20

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Seattle, WA, within 15 km, centered around NL 47-30-59; WL 122-18-20

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Ground checks only, Huntington Beach, CA, within 2 km, centered around NL 33-44-54; WL 118-02-02

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Huntington Beach, CA, within 2 km, centered around NL 33-44-54; WL 118-02-02

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Ground checks only, Seal Beach, CA, within 2 km, centered around NL 33-45-24; WL 118-05-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Seal Beach, CA, within 2 km, centered around NL 33-45-24; WL 118-05-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Ground checks only, Anaheim, CA, within 2 km, centered around NL 33-51-16; WL 117-51-06

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: Ground checks only, Anaheim, CA, within 2 km, centered around NL 33-51-16; WL 117-51-06

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

MOBILE: Up to 10000 feet flight level, Las Cruces, NM, within 25 km, centered around NL 32-17-40; WL 106-55-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2205.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2216.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2239.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2268.5 MHz	MO	4M00F7D	1.22 W (ERP)	

Frequency Information

MOBILE: Up to 10000 feet flight level, Las Cruces, NM, within 25 km, centered around NL 32-17-40; WL 106-55-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2282.5 MHz	MO	4M00F7D	1.22 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

Philadelphia, PA - NL 39-51-50; WL 75-19-19; MOBILE: Philadelphia, PA, within 12 km, centered around NL 39-51-50; WL 75

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	FX	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

Frequency Information

MOBILE: 3,000 foot flight level, Dersert Rock, NV, within 10 km, centered around NL 36-37-19; WL 116-01-58

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
902-928 MHz	MO	230KF1D	61 W (ERP)	
2410.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2433.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2452.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2462.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2472.75 MHz	MO	16M0F3F	1.22 W (ERP)	
2486 MHz	MO	16M0F3F	1.22 W (ERP)	
2490 MHz	MO	16M0F3F	1.22 W (ERP)	
2495 MHz	MO	16M0F3F	1.22 W (ERP)	

Special Conditions:

- (1) Operation is subject to prior coordination with affected Educational Broadband Service/Broadband Radio Service (EBS/BRS) licensees.
- (2) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.

Special Conditions:

- (3) 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.
- (4) Operation is subject to prior coordination with Fixed Microwave licensees in the immediate area.
- (5) The designated point-of-contact to terminate transmissions if interference occurs is Bobby Cartmill at 341-705-0171.
- (6) Operation at Eglin AFB, Florida is subject to prior coordination with Gulf Area Frequency Coordinator at (850) 883-7535.
- (7) Operation at China Lake, CA is subject to prior coordination with Western Area Frequency Coordinator at (760) 939-6948.
- (8) During transmission, aircraft shall not exceed the altitude 0100 AGL.
- (9) Operation is NOT permitted on the frequency band 2200 - 2300 MHz in Huntington Beach, CA; Seal Beach, CA; Anahem, CA; Philadelphia, PA and Dersert Rock, NV due to potential harmful interference with Federal operations.
- (10) Operation the frequency band 2203.5-2284.5 MHz in China Lake, CA is permitted using the radius of operation up to 42 km only.
- (11) Operation is subject to coordination with the Area Frequency Coordinator located at White Sands Missile Range (WSMR), New Mexico, prior to use in the state of New Mexico or other U.S. territory within a 240 km radius of WSMR plus the area of Utah and Colorado that lies south of 41 North and between 108 and 111 West.