Global Spectrum Management M/C: 1K-105, P.O. Box 3707, Seattle, WA 98124-2207,

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

EXPERIMENTAL	WK2XKH
(Nature of Service)	(Call Sign)
XT MO	0621-EX-CN-2019
(Class of Station)	(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(b) of the Commission's Rules

Station Locations

(1) MOBILE: CONUS, Alaska, Hawaii, U.S. Territories

Frequency Information

MOBILE: CONUS, Alaska, Hawaii, U.S. Territories

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
14000-14500 MHz	MO	7M60G7D	5000 W (ERP)	

Special Conditions:

(1) The station identification requirements of Section 5.115 of the Commission's Rules are waived.

(2) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.

(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.

This authorization effective August 28, 2019 and will expire 3:00 A.M. EST September 01, 2021

FEDERAL COMMUNICATIONS COMMISSION

Special Conditions:

(4) Prior to operating in the 14.0-14.2 GHz frequency band, in the listed locations, Boeing will coordinate with National Aeronautics and Space Administration (NASA) and notify the Commission of the results of that coordination:
Within 125 km of the NASA TDRSS facilities in Guam (latitude 13° 36' 55" N, longitude 144° 51' 22" E) or,
Within 125 km of the NASA TDRSS facilities in White Sands, New Mexico (latitude 32° 20' 59" N, longitude 106° 36' 31" W and latitude 32° 32' 40" N, longitude 106°36' 48" W) or,
Within 125 km of the NASA TDRSS facilities in Blossom Point, Maryland (latitude 38° 25' 44" N, longitude 77°05' 20" W).

(5) All operations shall be on an unprotected, non-interference basis to government operations. In the event of any harmful interference, cease operations immediately and inform the Commission, in writing, immediately.

(6) The stop buzzer contact for this project is John Landry at (509) 637-5643).

(7) This authorization is without prejudice to any determination that the Commission may make regarding pending or future experimental satellite earth station applications.

Special Conditions:

(8) Licensee is authorized to operate 2 unites of GetSat MicroSat Ku-band antennas to conduct ground and flight over the air test (ESAA) using the 14.0-14.5 GHz frequency band. The operations are subject to the following conditions:

a.POINT OF COMMUNICATION: Ku-band Geostationary-satellite orbit (GSO) Satellites in the list of US Permitted Space Stations.

a.Operations must be in compliance with the applicable ESAAs requirements set forth in Section 25.227 of the Commission's Rules, including the off-axis EIRP power spectral density ("PSD") standards (the "off-axis mask") set forth in Section 25.227(a).

b.The input power spectral density into the antenna must not exceed -14 dBW/4 kHz, as set forth in Section 25.212(c)(2).

c.ESAA in aircraft on the ground must not transmit at elevation angles less than three degrees. There is no minimum angle of antenna elevation for ESAA while airborne.

d.The stations are authorized, on a non-protected and non-harmful interference basis, to transmit to the geostationary-orbit space station using the 14.0-14.5 GHz frequency band that are authorized by the Commissions. The stations authorized herein must immediately terminate operations upon notification that such operation is causing harmful interference to any other radio system lawfully operating in the 14.0-14.5 GHz frequency band. The stations authorized herein cannot claim protection from harmful interference from any radio system lawfully operating in the 14.0-14.5 frequency band.

e.Operations granted in this license are limited by existing and future coordination agreements between the authorized Ku-band GSO Satellite in the list of US Permitted Space Stations and other satellite operators.

() Operations of the authorized ESAA stations must be in compliance with the following additional conditions:

a.Licensee's ESAA stations 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.

b.Licensee's ESAA stations 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 earth station to determine if it is malfunctioning, and each 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.

c.Licensee must maintain a point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized herein, for discussing interference concerns with other licensees, and must submit a

Special letter to be included in its license file with the name and telephone number of the point of contact prior to commencing operation.

(9) Operations of the authorized ESAA stations must be in compliance with the following additional conditions:

a.Licensee's ESAA stations 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.

b.Licensee's ESAA stations 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 earth station to determine if it is malfunctioning, and each 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.

c.Licensee must maintain a point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized herein, for discussing interference concerns with other licensees, and must submit a letter to be included in its license file with the name and telephone number of the point of contact prior to commencing operation.

(10) ESAA must be in compliance with environmental requirement set forth in Section 1.1307 of the Commission's Rules. Licensee shall, at all times, take all necessary measures to ensure that operation of this (these) authorized earth station(s) does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR §§ 1.1307(b) and 1.1310. Compliance can be accomplished in most cases by appropriate restrictions, such as warning and alerting signs informing workers keeping a minimum safe distance of 3.54 meters away from antenna and general public keeping a minimum safe distance of 8 meters away from antenna.