

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

EXPERIMENTAL

(Nature of Service)

XD MO

(Class of Station)

WH2XAV

(Call Sign)

0082-EX-CM-2016

(File Number)

NAME Microsoft Corporation

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(d j) of the Commission's Rules

Station Locations

- (1) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-42; WL 122-08-30
- (2) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-39-59; WL 122-08-35
- (3) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-37; WL 122-08-30
- (4) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-37; WL 122-08-28
- (5) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-23; WL 122-08-30
- (6) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-35; WL 122-08-08
- (7) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-12; WL 122-07-50
- (8) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-34; WL 122-08-16
- (9) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-21; WL 122-07-50
- (10) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-39-05; WL 122-08-08
- (11) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-09; WL 122-07-49
- (12) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-10; WL 122-07-41
- (13) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-36-42; WL 122-08-04
- (14) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-40; WL 122-08-12
- (15) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-28; WL 122-07-32
- (16) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-14; WL 122-07-34
- (17) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-50; WL 122-08-00
- (18) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-39-10; WL 122-08-09
- (19) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-26; WL 122-08-28
- (20) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-14; WL 122-08-25
- (21) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-12; WL 122-07-50
- (22) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-20; WL 122-08-32
- (23) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-22; WL 122-08-29
- (24) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-27; WL 122-08-09
- (25) MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-59; WL 122-08-04

This authorization effective December 05, 2016 and
will expire 3:00 A.M. EST March 01, 2018

FEDERAL
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COMMISSION



Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-42; WL 122-08-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-39-59; WL 122-08-35

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-37; WL 122-08-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-37; WL 122-08-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-37; WL 122-08-28

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-23; WL 122-08-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-23; WL 122-08-30

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-35; WL 122-08-08

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-12; WL 122-07-50

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-34; WL 122-08-16

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-21; WL 122-07-50

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-39-05; WL 122-08-08

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-39-05; WL 122-08-08

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-09; WL 122-07-49

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-10; WL 122-07-41

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-10; WL 122-07-41

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-36-42; WL 122-08-04

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-40; WL 122-08-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-28; WL 122-07-32

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-14; WL 122-07-34

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-50; WL 122-08-00

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-50; WL 122-08-00

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-39-10; WL 122-08-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-26; WL 122-08-28

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-26; WL 122-08-28

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2110-2130 MHz	MO	10M0F9W	10 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-14; WL 122-08-25

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-12; WL 122-07-50

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-20; WL 122-08-32

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-22; WL 122-08-29

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-27; WL 122-08-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	

Frequency Information

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-27; WL 122-08-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

MOBILE: Redmond, WA, within 0.05 km, centered around NL 47-38-59; WL 122-08-04

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1980-1985 MHz	MO	200KG9W	100 uW (ERP)	
1985-1990 MHz	MO	5M00F9W	100 uW (ERP)	
2110-2130 MHz	MO	10M0F9W	100 uW (ERP)	

Special Conditions:

- (1) 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.
- (2) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (3) All of the experimental devices will be under control of Microsoft Corp. and they will be retrieved by Microsoft Corp. from the participants upon completion of the experiment.
- (4) Microsoft Corp. must prior coordinate and obtain consent from the local Advanced Wireless Service (AWS) licensee(s) in 2110-2130 MHz band to avoid interference.
- (5) Operation in the 1980-1990 MHz band requires prior frequency coordination with 2 GHz microwave users and consent of PCS licensee(s) to avoid interference.

Special Conditions:

- (6) This authorization is issued for the express purpose of conducting experimental operations described in the related application. The use of this radio station in any other manner or for any other purpose will constitute a violation of the privileges herein authorized. Except as subsequently authorized by the Commission, this radio station shall not be operated after the expiration date of the contract designated in the related application and enumerated above.
- (7) Microsoft will be responsible for ensuring that the devices are used in authorized locations and in a manner authorized.
- (8) Microsoft 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.
- (9) Under this authorization, the total number of experimental devices shall not exceed 6000 units.
- (10) The designated point-of-contact to terminate transmissions if interference occurs is "wdgcell@microsoft.com".