

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

EXPERIMENTAL

(Nature of Service)

WL2XTG

(Call Sign)

XT MO

(Class of Station)

0217-EX-CM-2021

(File Number)

NAME Cisco Systems Inc.

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(k) of the Commission's Rules

Station Locations

- (1) MOBILE: Disney Cruise Lines, Celebration, FL, centered around NL 28-19-44; WL 81-31-59
- (2) MOBILE: Cox Auto, Atlanta, GA, centered around NL 33-54-50; WL 84-20-34
- (3) MOBILE: Presidio Site 1, Spring Hill, TN, centered around NL 35-40-54; WL 86-54-09
- (4) MOBILE: Presidio Site 2, Nesconset, NY, centered around NL 40-51-32; WL 73-08-11
- (5) MOBILE: Presidio Site 3, White Lake, MI, centered around NL 42-39-35; WL 83-32-40
- (6) MOBILE: Seattle-Tacoma International Airport, SeaTac, WA, centered around NL 47-26-56; WL 122-18-34
- (7) MOBILE: Facebook, Austin, TX, centered around NL 30-16-01; WL 97-44-59
- (8) MOBILE: Caterpillar, Mossville, IL, centered around NL 40-50-56; WL 89-33-38
- (9) MOBILE: Freeport McMoRan, Empire, CO, centered around NL 39-46-09; WL 105-50-15
- (10) MOBILE: Apple Site 1, Sunnyvale, CA, centered around NL 37-23-25; WL 122-02-05
- (11) MOBILE: Apple Site 2, Sunnyvale, CA, centered around NL 37-23-29; WL 122-01-50
- (12) MOBILE: The Home Depot, Kennesaw, GA, centered around NL 34-01-23; WL 84-35-14
- (13) MOBILE: Southern Company, Buford, GA, centered around NL 34-06-05; WL 83-59-17
- (14) MOBILE: Delta Airlines, Atlanta, GA, centered around NL 33-39-22; WL 84-25-23
- (15) MOBILE: Amazon, Fresno, CA, centered around NL 34-41-08; WL 119-45-59
- (16) MOBILE: AT&T Site 1, Milford, CT, centered around NL 41-14-14; WL 73-02-17
- (17) MOBILE: AT&T Site 2, Milford, CT, centered around NL 41-14-25; WL 73-02-03

This authorization effective October 28, 2021 and
will expire 3:00 A.M. EST August 01, 2023

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

MOBILE: Disney Cruise Lines, Celebration, FL, centered around NL 28-19-44; WL 81-31-59

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Cox Auto, Atlanta, GA, centered around NL 33-54-50; WL 84-20-34

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Presidio Site 1, Spring Hill, TN, centered around NL 35-40-54; WL 86-54-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	

Frequency Information

MOBILE: Presidio Site 1, Spring Hill, TN, centered around NL 35-40-54; WL 86-54-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Presidio Site 2, Nesconset, NY, centered around NL 40-51-32; WL 73-08-11

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Presidio Site 3, White Lake, MI, centered around NL 42-39-35; WL 83-32-40

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	

Frequency Information

MOBILE: Presidio Site 3, White Lake, MI, centered around NL 42-39-35; WL 83-32-40

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Seattle-Tacoma International Airport, SeaTac, WA, centered around NL 47-26-56; WL 122-18-34

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Facebook, Austin, TX, centered around NL 30-16-01; WL 97-44-59

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

Frequency Information

MOBILE: Caterpillar, Mossville, IL, centered around NL 40-50-56; WL 89-33-38

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Freeport McMoRan, Empire, CO, centered around NL 39-46-09; WL 105-50-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Apple Site 1, Sunnyvale, CA, centered around NL 37-23-25; WL 122-02-05

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	

Frequency Information

MOBILE: Apple Site 1, Sunnyvale, CA, centered around NL 37-23-25; WL 122-02-05

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Apple Site 2, Sunnyvale, CA, centered around NL 37-23-29; WL 122-01-50

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: The Home Depot, Kennesaw, GA, centered around NL 34-01-23; WL 84-35-14

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	

Frequency Information

MOBILE: The Home Depot, Kennesaw, GA, centered around NL 34-01-23; WL 84-35-14

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Southern Company, Buford, GA, centered around NL 34-06-05; WL 83-59-17

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: Delta Airlines, Atlanta, GA, centered around NL 33-39-22; WL 84-25-23

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

Frequency Information

MOBILE: Amazon, Fresno, CA, centered around NL 34-41-08; WL 119-45-59

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	5 W (ERP)	

MOBILE: AT&T Site 1, Milford, CT, centered around NL 41-14-14; WL 73-02-17

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

MOBILE: AT&T Site 2, Milford, CT, centered around NL 41-14-25; WL 73-02-03

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2412-2462 MHz	MO	20M0W7D	2.43 W (ERP)	

Frequency Information

MOBILE: AT&T Site 2, Milford, CT, centered around NL 41-14-25; WL 73-02-03

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
5180-5825 MHz	MO	160MW7D	4 W (ERP)	
5955-7115 MHz	MO	160MW7D	0.5 W (ERP)	

Special Conditions:

- (1) All transmitting and/or receiving equipment used in the study shall be owned by the licensee.
- (2) All customers participating in the experiment shall be informed that this operation is for experimental purposes only and can be cancelled at any time.
- (3) Licensee is required to ensure that trial devices are either rendered inoperable or retrieved by them from trial participants at the conclusion of the trial. Licensee is required to notify trial participants in advance that operation of the trial device is subject to this condition.
- (4) 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.
- (5) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (6) Proponent must acknowledge that the 5150-5250 MHz is allocated for Aeronautical Radionavigation, and any Non Aeronautical Radionavigation System. Development in this frequency range may be on a non-interference basis to future aviation-related operations. Also, 5600-5650 MHz must be notched out and avoided to prevent harmful interference to FAA weather radars. Note that this condition takes the highest priority.
- (7) Cisco shall coordinate with the local Society of Broadcast Engineers frequency coordinator in each corresponding area prior to operation in the proposed frequency bands.
- (8) Cisco shall coordinate with Fixed Microwave Service licensees in each corresponding proposed venue in accordance with 47 C.F.R, Part 101.103(d) prior to commencing experimental operations.
- (9) Operations are subject to the Commission's Part 15 rules.
- (10) For outdoor operation in the 2412-2462 MHz band, the maximum transmitter output power, fed into the 6 dBi antenna, is 30 dBm (1 watt). The Maximum Effective Isotropic Radiated Power (EIRP) is 36 dBm (4 watt).

Special Conditions:

- (11) For outdoor, indoor, or Fixed Point to Point operation in the 5180-5250 MHz (U-NII-1) band, the maximum output power from the standard power access points must not exceed 1 watt (30 dBm) into a 6 dBi antenna for a total of 36 dBm (4 watt) EIRP. In addition, the maximum power spectral density must not exceed 17 dBm in any 1-megahertz band.
- (12) For client device (Client Connected to standard power access point) operating in the 5180-5250 MHz band (U-NII-1), the maximum output power must not exceed 250mW (24dBm) into a 6 dBi antenna for a total of 30 dBm (1 watt) EIRP. In addition, the maximum power spectral density must not exceed 11 dBm in any 1-megahertz band.
- (13) For outdoor or indoor operation in the 5250-5350 MHz ((U-NII-2A) and 5470-5725 MHz (U-NII-2C) bands, the maximum output power, fed into the 6 dBi antenna, from the standard power access points must not exceed the lesser of 250mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density must not exceed 11 dBm in any 1-megahertz band. The U-NII-2A and U-NII-2C bands must deploy dynamic frequency selection (DFS) to protect incumbent radar operations and transmit power control (TPC) to protect the Earth exploration-satellite service.
- (14) Operation in the 5350-5470 MHz ((U-NII-2B) band is not permitted.
- (15) For outdoor, indoor, or Fixed Point to Point operation in the 5725-5825 MHz (U-NII-3) band, the maximum output power from the standard power access points must not exceed 1 watt (30 dBm) into a 6 dBi antenna for a total of 36 dBm (4 watt) EIRP. In addition, the maximum power spectral density must not exceed 30 dBm in any 500-kHz band.
- (16) For an outdoor standard power access point (AFC Controlled) and fixed client device operating in the 5.955-6.425 GHz (U-NII-5) and 6.525-6.875 GHz (U-NII-7) bands, the maximum power spectral density must not exceed 23 dBm (200mW) EIRP in any 1-megahertz band. In addition, the maximum EIRP over the frequency band of operation must not exceed 36 dBm (4 watt).
- (17) For conducting outdoor tests in the 5.18-5.25 GHz (U-NII-1), 5.955-6.425 GHz (U-NII-5) and 6.525-6.875 GHz (U-NII-7) frequency bands, the maximum EIRP from a Standard-Power Access Point (AFC Controlled) and fixed client device must not exceed 125 mW (21 dBm) at any elevation angle of more than 30 degrees above the horizon to protect satellite receivers.
- (18) For client device (Client Connected to outdoor standard power access point), operating in the 5.955-6.425 GHz and 6.525-6.875 GHz bands, the maximum power spectral density must not exceed 17 dBm EIRP in any 1-megahertz band. In addition, the maximum EIRP over the frequency band of operation must not exceed 30 dBm (1 watt).
- (19) Operation in the 6.425-6.525 GHz (U-NII-6) and 6.875-7.115 GHz (U-NII-8) bands is limited to indoor locations.
- (20) For an indoor Low-Power access point operating in the 5.955-7.115 GHz (U-NII-5-8) band, the maximum power spectral density must not exceed 5 dBm EIRP in any 1-megahertz band. In addition, the maximum EIRP over the frequency band of operation must not exceed 30 dBm (1 watt). Access points operating under this section must employ a permanently attached integrated antenna.

Special Conditions:

- (21) For a subordinate device operating under the control of an indoor access point in the 5.955-7.115 GHz band, the maximum power spectral density must not exceed 5 dBm EIRP in any 1-megahertz band, and the maximum EIRP over the frequency band of operation must not exceed 30 dBm. Access points operating under this section must employ a permanently attached integrated antenna.
- (22) For client device (Client Connected to indoor Low-Power access point), operating under the control of an indoor access point in the 5.955 -7.115 GHz bands, the maximum power spectral density must not exceed -1 dBm EIRP in any 1-megahertz band, and the maximum EIRP over the frequency band of operation must not exceed 24 dBm (250mW).
- (23) Non-approved equipment must be labeled.
- (24) Non-approved equipment must be retrieved.
- (25) For the 2412-2462 MHz band, Cisco shall amend the Power of 4W (ERP) in to 2.43W ERP/4 watts/ 36 dBm EIRP.
- (26) For the 5180-5825 MHz, Cisco shall amend the Power of 4W (ERP) to the following:
 - 2.43W ERP/4 watts/ 36 dBm/ 6dBW EIRP for outdoor/indoor/fixed point-to-point device in the 5180-5250 MHz (U-NII-1)
 - 0.61 W ERP /30 dBm/1watt/0dBW EIRP for client device in the 5180-5250 MHz (U-NII-1)
 - 0.61 W ERP /30 dBm/1watt/0dBW EIRP for outdoor/indoor device in 5250-5350 MHz (U-NII-2A) & 5470-5725 MHz (U-NII-2C)
 - 2.43W ERP/4 watts/ 36 dBm/ 6dBW for outdoor/indoor/Fixed Point to Point device in the 5725-5825 MHz (U-NII-3) band

Special Conditions:

(27) For the 5955-7115 MHz band, applicant's power of 0.5 W is below the Commission's limits:

() For outdoor operations:

2.43W ERP/4 watts/ 36 dBm/ 6dBW EIRP for an outdoor standard power access point (AFC Controlled) and fixed client device operating in the 5.955-6.425 GHz (U-NII-5) and 6.525-6.875 GHz (U-NII-7) bands,

0.61 W ERP /30 dBm/1watt/0dBW EIRP for client device (Client Connected to outdoor standard power access point), operating in the 5.955-6.425 GHz and 6.525-6.875 GHz bands.

() For indoor operations: Applicant's power of 0.5 W is below the Commission's limits except client device (Client Connected to indoor Low-Power access point):

() Operation in the 6.425-6.525 GHz (U-NII-6) and 6.875-7.115 GHz (U-NII-8) bands is limited to indoor locations.

0.61 W ERP /30 dBm/1watt/0dBW EIRP for an indoor Low-Power access point operating in the 5.955-7.115 GHz (U-NII-5-8) band,

0.61 W ERP /30 dBm/1watt/0dBW EIRP for a subordinate device operating under the control of an indoor access point in the 5.955-7.115 GHz band,

0.153W ERP /250mW/24dBm/-6dBW for client device (Client Connected to indoor Low-Power access point), operating under the control of an indoor access point in the 5.925 -7.115 GHz band