

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

EXPERIMENTAL

(Nature of Service)

WJ2XAK

(Call Sign)

XT FX MO

(Class of Station)

0332-EX-CR-2019

(File Number)

NAME AT&T Labs

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(j) of the Commission's Rules

Station Locations

- (1) Waco (MCLENNAN), TX - NL 31-33-50; WL 97-07-07
- (2) Waco (MCLENNAN), TX - NL 31-33-14; WL 97-08-14
- (3) Waco (MCLENNAN), TX - NL 31-33-04; WL 97-07-53
- (4) Waco (MCLENNAN), TX - NL 31-32-47; WL 97-07-05
- (5) Waco (MCLENNAN), TX - NL 31-33-20; WL 97-07-18
- (6) Kalamazoo (KALAMAZOO), MI - NL 42-15-45; WL 85-32-09
- (7) Kalamazoo (KALAMAZOO), MI - NL 42-18-13; WL 85-36-26
- (8) Kalamazoo (KALAMAZOO), MI - NL 42-16-58; WL 85-33-25
- (9) Kalamazoo (KALAMAZOO), MI - NL 42-17-12; WL 85-34-56
- (10) Kalamazoo (KALAMAZOO), MI - NL 42-16-20; WL 85-35-28
- (11) South Bend (ST JOSEPH), IN - NL 41-40-22; WL 86-16-00
- (12) South Bend (ST JOSEPH), IN - NL 41-39-55; WL 86-12-12
- (13) South Bend (ST JOSEPH), IN - NL 41-40-20; WL 86-17-35
- (14) South Bend (ST JOSEPH), IN - NL 41-39-47; WL 86-15-15
- (15) South Bend (ST JOSEPH), IN - NL 41-39-12; WL 86-14-05
- (16) MOBILE: Waco, TX, within 1 km, centered around NL 31-33-50; WL 97-07-07
- (17) MOBILE: Waco, TX, within 1 km, centered around NL 31-33-14; WL 97-08-14
- (18) MOBILE: Waco, TX, within 1 km, centered around NL 31-33-04; WL 97-07-53
- (19) MOBILE: Waco, TX, within 1 km, centered around NL 31-32-47; WL 97-07-05
- (20) MOBILE: Waco, TX, within 1 km, centered around NL 31-33-20; WL 97-07-18
- (21) MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-15-45; WL 85-32-09
- (22) MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-18-13; WL 85-36-26
- (23) MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-16-58; WL 85-33-25
- (24) MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-17-12; WL 85-34-56
- (25) MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-16-20; WL 85-35-28

This authorization effective August 01, 2019 and
will expire 3:00 A.M. EST August 01, 2022

**FEDERAL
COMMUNICATIONS
COMMISSION**



Station Locations

(26) MOBILE: South Bend, IN, within 1 km, centered around NL 41-40-22; WL 86-16-00

(27) MOBILE: South Bend, IN, within 1 km, centered around NL 41-39-55; WL 86-12-12

(28) MOBILE: South Bend, IN, within 1 km, centered around NL 41-40-20; WL 86-17-35

(29) MOBILE: South Bend, IN, within 1 km, centered around NL 41-39-47; WL 86-15-15

(30) MOBILE: South Bend, IN, within 1 km, centered around NL 41-39-12; WL 86-14-05

Frequency Information

Waco (MCLENNAN), TX - NL 31-33-50; WL 97-07-07

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Waco (MCLENNAN), TX - NL 31-33-14; WL 97-08-14

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Frequency Information

Waco (MCLENNAN), TX - NL 31-33-04; WL 97-07-53

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Waco (MCLENNAN), TX - NL 31-32-47; WL 97-07-05

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Waco (MCLENNAN), TX - NL 31-33-20; WL 97-07-18

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %

Frequency Information

Waco (MCLENNAN), TX - NL 31-33-20; WL 97-07-18

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Kalamazoo (KALAMAZOO), MI - NL 42-15-45; WL 85-32-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Kalamazoo (KALAMAZOO), MI - NL 42-18-13; WL 85-36-26

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %

Frequency Information

Kalamazoo (KALAMAZOO), MI - NL 42-18-13; WL 85-36-26

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Kalamazoo (KALAMAZOO), MI - NL 42-16-58; WL 85-33-25

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXX	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Kalamazoo (KALAMAZOO), MI - NL 42-17-12; WL 85-34-56

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

Frequency Information

Kalamazoo (KALAMAZOO), MI - NL 42-16-20; WL 85-35-28

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

South Bend (ST JOSEPH), IN - NL 41-40-22; WL 86-16-00

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.8 W (ERP)	0.001 %

South Bend (ST JOSEPH), IN - NL 41-39-55; WL 86-12-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %

Frequency Information

South Bend (ST JOSEPH), IN - NL 41-39-55; WL 86-12-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

South Bend (ST JOSEPH), IN - NL 41-40-20; WL 86-17-35

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

South Bend (ST JOSEPH), IN - NL 41-39-47; WL 86-15-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %

Frequency Information

South Bend (ST JOSEPH), IN - NL 41-39-47; WL 86-15-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

South Bend (ST JOSEPH), IN - NL 41-39-12; WL 86-14-05

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	FX	800MWXW	610 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	6309.6 W (ERP)	0.001 %
37000-40000 MHz	FX	800MW7W	158.5 W (ERP)	0.001 %

MOBILE: Waco, TX, within 1 km, centered around NL 31-33-50; WL 97-07-07

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

Frequency Information

MOBILE: Waco, TX, within 1 km, centered around NL 31-33-14; WL 97-08-14

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: Waco, TX, within 1 km, centered around NL 31-33-04; WL 97-07-53

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: Waco, TX, within 1 km, centered around NL 31-32-47; WL 97-07-05

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

Frequency Information

MOBILE: Waco, TX, within 1 km, centered around NL 31-33-20; WL 97-07-18

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-15-45; WL 85-32-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-18-13; WL 85-36-26

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

Frequency Information

MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-16-58; WL 85-33-25

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-17-12; WL 85-34-56

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: Kalamazoo, MI, within 1 km, centered around NL 42-16-20; WL 85-35-28

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

Frequency Information

MOBILE: South Bend, IN, within 1 km, centered around NL 41-40-22; WL 86-16-00

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: South Bend, IN, within 1 km, centered around NL 41-39-55; WL 86-12-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: South Bend, IN, within 1 km, centered around NL 41-40-20; WL 86-17-35

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

Frequency Information

MOBILE: South Bend, IN, within 1 km, centered around NL 41-39-47; WL 86-15-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

MOBILE: South Bend, IN, within 1 km, centered around NL 41-39-12; WL 86-14-05

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
27500-28350 MHz	MO	800MWXW	2.8 W (ERP)	0.001 %
37000-40000 MHz	MO	800MW7W	10 W (ERP)	0.001 %

Special Conditions:

- (1) Licensee is required to coordinate operations with existing microwave users in the area to avoid interference.
- (2) The station identification requirements of Section 5.115 of the Commission's Rules are waived.
- (3) Experimental station shall use the minimum power level necessary to establish communications links to minimize potential interference to licensed users.
- (4) 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 band.
- (5) Licensee shall ensure that the transmitting fixed station antenna(s) main beam gain tip down when possible and avoid pointing above the horizon to protect satellite stations.
- (6) This authorization is without prejudice to any determination that the Commission may make regarding pending or future experimental satellite earth station applications.
- (7) 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.