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DIGITAL LPTV FACILITY MINOR CHANGE APPLICATION

K31PO-LD

FCC FACILITY ID: 67879

DES MOINES, IOWA

FEBRUARY 2023

ENGINEERING NARRATIVE

Minor Change Application:

K31PO-LD seeks to modify its existing LICENSE permit (LMS: 0000160447) to specific a new transmission site and antenna system parameters. The proposed antenna is a SCA "PR-TV CUS" a horizontally polarized directional UHF paraflector antenna. A full-service filter mask is to be employed. The facility requested is not contingent upon a grant or channel move of any other known facility at the time of filing.

Maximum Effective Radiated Power (ERP) is 2-kilowatts, horizontal polarization only.

Modification Compliance:

Pursuant to 47 CFR §74.787(b) the instant application is considered a "minor" change because;

- There is no change in transmitting antenna location such that the protected service contour resulting from the change does not overlap some portion of the protected service contour of the authorized facility of the station license as illustrated in Figure 1, Present & Proposed Service Contours.
- There is no change in transmitting antenna location greater than 30 miles (48km) from the reference coordinates of the existing station construction permit antenna location, as noted below:

CALCULATED DISTANCE BETWEEN EXISTING LICENSE AND PROPOSED SITES

SITE	LAT (NAD83)	LON (NAD83)	(KM)	(MI)
CURRENT/EXISTING	42-02-54.60 N	092-57-43.30 W	35.25	21.90
PROPOSED LIC MOD	41-54-45.90 N	093-20-47.30 W		

FCC Tower Registration (ASR) 1247340 - FAA Notification:

The proposed antenna mounting structure is 79.3 meter in overall height above ground level (AGL) and has been issued a Antenna Structure Registration (ASR) number 1247340 by the Commission's Wireless Bureau. This is an existing communication tower that does not require further FAA notification as no changes in the supporting structure is required. The antenna is to be side-mounted on the structure at the 30.5 meter AGL level.

Antenna Elevations:

The ground elevation at the site is 313.0 meters above mean sea level (AMSL). The center of radiation of the proposed antenna is 30.5 meters above ground level (AGL). Thus, the center of radiation is 343.5 meters above mean sea level (AMSL), as tabulated below:

ALL ELEVATIONS IN METERS

GROUND ELEVATION	313.0
SUPPORTING STRUCTURE OVERALL HEIGHT AGL	79.3
ANTENNA HEIGHT AGL	30.5
ANTENNA RCAMSL	343.5

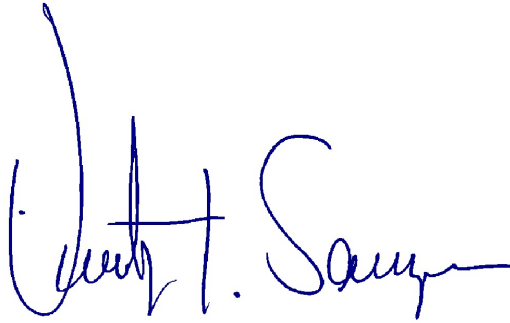
FCC TVStudy Results:

The results of a interference study of the proposal using the FCC TVStudy program (Version 2.2.5), shows that no prohibitive interference will occur from the proposal. A copy of the summary report has been included in this application. The applicant accepts any incoming interference that is predicted to exist to the proposed facility by any authorized or pending, primary or secondary TV station at the time this application is submitted.

Environmental Evaluation Statement:

The environmental evaluation statement concerning this proposal has been included in this application and can be found as a separate file upload within the application. A grant of this proposal would NOT be an action which would have a significant environmental effect as demonstrated in the environmental evaluation statement.

February 23, 2023

A handwritten signature in blue ink, reading "Timothy Z. Sawyer". The signature is fluid and cursive, with the first name "Timothy" and last name "Sawyer" clearly legible.

Timothy Z. Sawyer, Consulting Engineer

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K31PO-LD LIC EXISTING
FCC LMS File: 0000160447
FCC Facility ID: 67879
NAD 83 Latitude: 42-02-54.60 N
NAD 83 Longitude: 092-57-43.30 W
ERP: 2.00 kW
Channel: 31
Frequency: 575.0 MHz
Ant. RCAMSL Height: 335.9 m
Horiz. Pattern: Directional

K31PO-LD APP
PROPOSED
FCC Facility ID: 67879
NAD 83 Latitude: 41-54-45.90 N
NAD 83 Longitude: 093-20-47.30 W
ERP: 2.00 kW
Channel: 31
Frequency: 575.0 MHz
Ant. RCAMSL Height: 343.5 m
Horiz. Pattern: Directional

FCC 51 DBU F(50,90) PREDICTED
SERVICE CONTOURS

K31PO-LD, DES MOINES, IOWA
PRESENT AND PROPOSED SERVICE CONTOURS
CH 31 LPTV UHF FCC 51 DBU F(50,90)

PROPOSAL IS IN COMPLIANCE WITH LPTV MINOR CHANGE
RULES

FIGURE 1

FCC 30-MILE SITE MOVE
MINOR CHANGE RULE

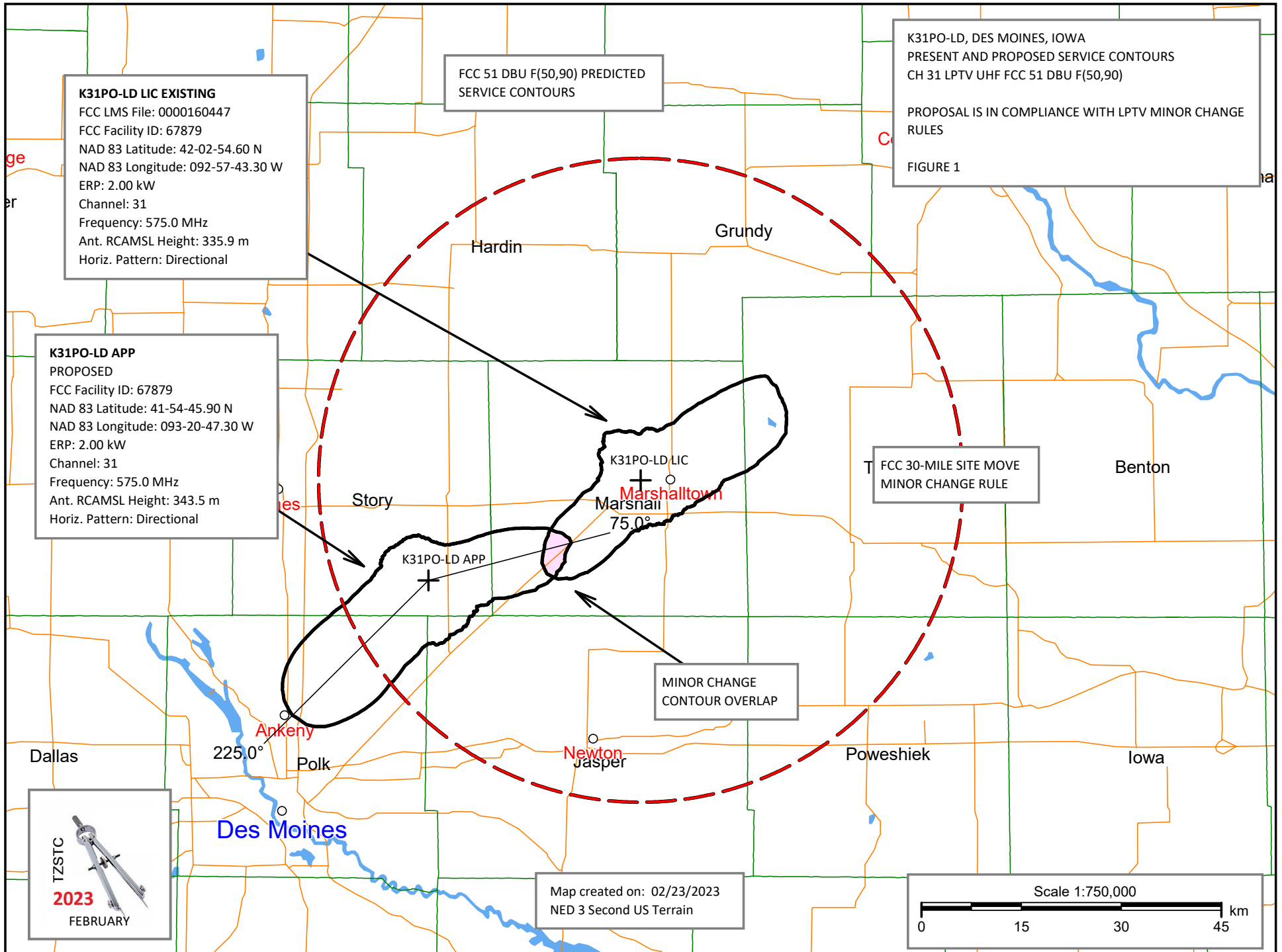
MINOR CHANGE
CONTOUR OVERLAP

Map created on: 02/23/2023
NED 3 Second US Terrain

Scale 1:750,000

0 15 30 45 km

TZSTC
2023
FEBRUARY



K31PO SCA PR-TV CUS DIRECTIONAL ANT PATTERN
Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	1.000
10.0	0.821
20.0	0.456
30.0	0.205
40.0	0.132
50.0	0.101
60.0	0.096
70.0	0.095
80.0	0.095
90.0	0.096
100.0	0.101
110.0	0.132
120.0	0.205
130.0	0.456
140.0	0.821
150.0	1.000
160.0	0.812
170.0	0.443
180.0	0.184
190.0	0.113
200.0	0.084
210.0	0.080
220.0	0.084
230.0	0.086
240.0	0.090
250.0	0.088
260.0	0.088
270.0	0.090
280.0	0.086
290.0	0.084
300.0	0.080
310.0	0.084
320.0	0.113
330.0	0.184
340.0	0.443
350.0	0.812

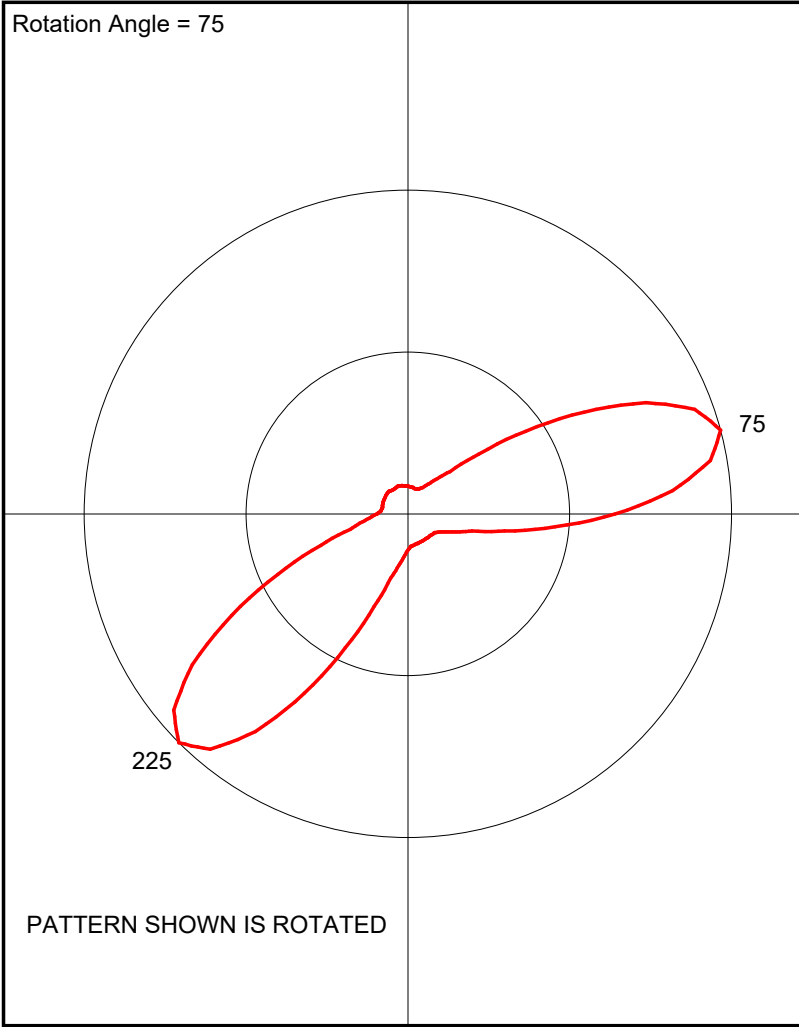


FIGURE 3 K31PO-LD - FCC TVSTUDY SUMMARY REPORT

CELL SIZE 1.0 KM
 PROFILE SPACING 1.0

Study build station data: LMS TV 2023-02-22

Proposal: K31PO-D D31 LD APP Des Moines, IA
 File number: K31PO APP
 Facility ID: 67879
 Station data: User record
 Record ID: 688
 Country: U.S.

Build options:
 Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KLJB	D30	DT	LIC	DAVENPORT, IA	BLANK0000099537	255.4 km
No	KPTH	D30	DT	LIC	SIOUX CITY, IA	BLANK0000063710	248.1
No	K30QY-D	D30	LD	LIC	OAKLAND, MN	BLANK0000194532	175.4
No	K30QY-D	D30	LD	CP	OAKLAND, MN	BLANK0000195575	141.0
No	K31NJ-D	D31	LD	LIC	LANSING, IA	BLANK0000093973	236.0
No	K31PP-D	D31	LD	LIC	SIOUX CITY, IA	BLANK0000196008	253.1
No	WFLD	D31	DT	LIC	CHICAGO, IL	BLANK0000055195	472.4
No	WQAD-TV	D31	DT	LIC	MOLINE, IL	BLANK0000120809	255.4
No	K31EF-D	D31	LD	LIC	FROST, MN	BLDTT20090730ACQ	192.0
No	K31NT-D	D31	LD	LIC	JACKSON, MN	BLANK0000064445	231.0
No	KARE	D31	DT	LIC	MINNEAPOLIS, MN	BLANK0000165989	350.5
No	K31OR-D	D31	LD	LIC	OLIVIA, MN	BLANK0000081516	339.6
No	K31LN-D	D31	LD	LIC	ROCHESTER, MN	BLANK0000195945	250.4
No	K31KV-D	D31	LD	LIC	ST. JAMES, MN	BLDTL20120625AAY	264.4
No	KCWE	D31	DT	LIC	KANSAS CITY, MO	BLANK0000153381	329.6
No	KDNL-TV	D31	DT	LIC	ST. LOUIS, MO	BLANK0000158069	450.2
No	KLKN	D31	LD	LIC	LINCOLN, NE	BLCDDT20090903AAK	307.2
No	KPTP-LD	D31	LD	LIC	NORFOLK, NE	BLDTL20120106AAG	331.7
No	KMTV-TV	D31	DT	LIC	OMAHA, NE	BLANK0000187563	232.7
No	WITI	D31	DT	LIC	MILWAUKEE, WI	BLANK0000086971	465.2
No	W31EV-D	D31	LD	APP	WAUSAU, WI	BLANK0000193285	425.0
No	KFKZ-LD	D32	LD	LIC	CEDAR FALLS, IA	BLANK0000069608	127.8
No	KCRG-TV	D32	DT	CP	CEDAR RAPIDS, IA	BLANK0000150618	130.6
Yes	K32NM-D	D32	LD	LIC	DES MOINES, IA	BLANK0000080995	43.8
No	KMEG	D32	DT	LIC	SIOUX CITY, IA	BLANK0000064025	248.1
No	WTJR	D32	DT	LIC	QUINCY, IL	BLCDDT20091110ADL	274.3

No non-directional AM stations found within 0.8 km
 No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D31
 Mask: Full Service
 Latitude: 41 54 45.90 N (NAD83)
 Longitude: 93 20 47.30 W
 Height AMSL: 343.5 m
 HAAT: 0.0 m
 Peak ERP: 2.00 kW
 Antenna: SCA PR-TV CUS
 Elev Pattn: Generic

50.4 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.014 kW	34.7 m	6.5 km
45.0	0.068	22.7	8.9
90.0	0.819	39.5	18.9
135.0	0.018	55.3	8.8
180.0	0.025	59.7	9.8
225.0	2.00	71.4	29.6
270.0	0.018	59.9	9.0
315.0	0.016	43.6	7.5

Database HAAT does not agree with computed HAAT
 Database HAAT: 0 m Computed HAAT: 48 m

Distance to Canadian border: 695.6 km

Distance to Mexican border: 1530.6 km

Conditions at FCC monitoring station: Grand Island NE
Bearing: 257.1 degrees Distance: 437.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 262.8 degrees Distance: 1014.1 km

Study cell size: 1.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Proposal causes 0.00% interference to BLANK0000080995 LIC scenario 1

---- Below is IX received by proposal K31P0 APP ----

Proposal receives 0.02% interference from scenario 1

No IX check failures found.

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K31PO-LD

LPTV CHANNEL 31 OPERATION

FACILITY ID: 67879

DES MOINES, IOWA

FEBRUARY 2023

ENVIRONMENTAL EVALUATION STATEMENT

A grant of this proposal would NOT be an action which would have a significant environmental effect as demonstrated in this environmental evaluation statement. Any changes in equipment, or construction, if necessary will not trigger any event with regards to Section 106 of the National Historical Preservation Act (NHPA).

The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high intensity white lights. Furthermore, operation of the proposed facility will not involve the exposure of workers or the general public to levels of radio frequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. (The current FCC guidelines are based upon criteria contained in the National Council of Radiation Protection and Measurements (NCRP) Report No.86 (1986) and ANSI/IEEE C95.1-1992.)

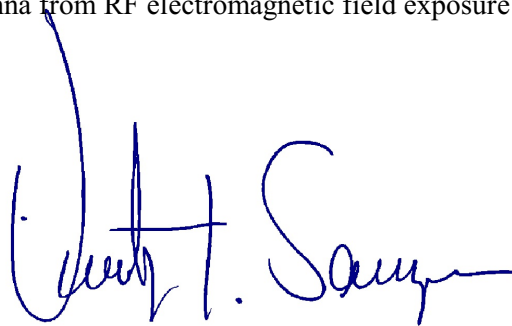
CALCULATED POWER DENSITY AT 2 METERS AGL (0.5 ANTENNA RELATIVE FIELD VALUE) ERP MAX (H ONLY)

CR AGL 30.5 M ERP MAX 2.0 KW	MPE ($\mu\text{W}/\text{CM}^2$)	CALCULATED VALUE ($\mu\text{W}/\text{CM}^2$)	% OF MPE	PASS/FAIL
CONTROLLED AREA	1916.7	20.5602	1.07%	PASS
PUBLIC AREA	383.3		5.36%	PASS

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs are posted at the site. The applicant will coordinate exposure procedures with any co-located facilities and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

February 23, 2023

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