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DIGITAL LPTV FACILITY MINOR CHANGE APPLICATION

K18NQ-LD

FCC FACILITY ID: 129701
RHINELANDER, WISCONSIN

MARCH 2023

ENGINEERING NARRATIVE

Minor Change Application:

K18NQ-LD seeks to modify its existing LICENSE permit (LMS:0000121379) to specific a new transmission site and antenna system parameters. The proposed antenna is a SCA, "PR-TV" horizontally polarized directional UHF parabolic 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 3.5 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
(via the method prescribed in 47 CFR §73.208 & 73.611(d))

| SITE | LAT (NAD83) | LON (NAD83) | (KM) | (MI) |
|------------------|--------------|---------------|-------|-------|
| CURRENT/EXISTING | 45-34-23.4 N | 088-52-58.7 W | 47.24 | 29.35 |
| PROPOSED LIC MOD | 45-14-16.1 N | 88-30-44.0 W | | |

FCC Tower Registration - ASR# 1034178

American Tower Corporation Site ATC #375191

The proposed antenna mounting structure is 109.7 meters in overall height above ground level (AGL). This is an existing communication tower that has been registered with the FCC and issued ASR number 1034178. The structure's overall height does not change as the proposed antenna is to be side-mounted on the tower at the 30.5 meter AGL level.

Antenna Elevations:

The ground elevation at the site is 354.8 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 354.3 meters above mean sea level (AMSL), as tabulated below:

ALL ELEVATIONS IN METERS

| | |
|--|-------|
| GROUND ELEVATION | 354.8 |
| SUPPORTING STRUCTURE OVERALL HEIGHT AGL | 109.7 |
| ANTENNA HEIGHT AGL - CENTER OF RADIATION | 30.5 |
| ANTENNA RCAMSL - CENTER OF RADIATION | 385.3 |

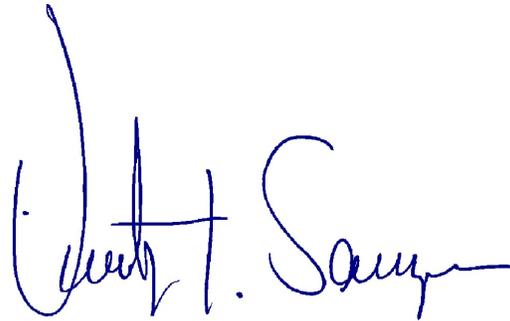
FCC TVStudy Results:

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. A cell size of 1.0 kilometer, with a 1.0 profile spacing (the default setting) was used.

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.

March 5, 2023



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K18NQ-LD EXISTING
 FCC LMS File: 0000121379
 FCC Facility ID: 129701
 NAD 83 Latitude: 45-34-23.40 N
 NAD 83 Longitude: 088-52-58.70 W
 ERP: 1.64 kW
 Channel: 18
 Frequency: 497.0 MHz
 Ant. RCAMSL Height: 586.2 m
 Horiz. Pattern: Directional

K18NQ-LD RHINELANDER, WI
 PRESENT AND PROPOSED SERVICE CONTOURS
 CH 18 LPTV UHF FCC 51 DBU F(50,90)
 PROPOSAL IS IN COMPLIANCE WITH LPTV MINOR CHANGE RULES
 FIGURE 1

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

MINOR CHANGE CONTOUR OVERLAP

FCC 30-MILE SITE MOVE MINOR CHANGE RULE

K18NQ-LD APP PROPOSED
 FCC Facility ID: 129701
 NAD 83 Latitude: 45-14-16.10 N
 NAD 83 Longitude: 088-30-44 W
 ERP: 3.50 kW
 Channel: 18
 Frequency: 497.0 MHz
 Ant. RCAMSL Height: 385.3 m
 Horiz. Pattern: Directional



Map created on: 04/5/2023
 NED 3 Second US Terrain

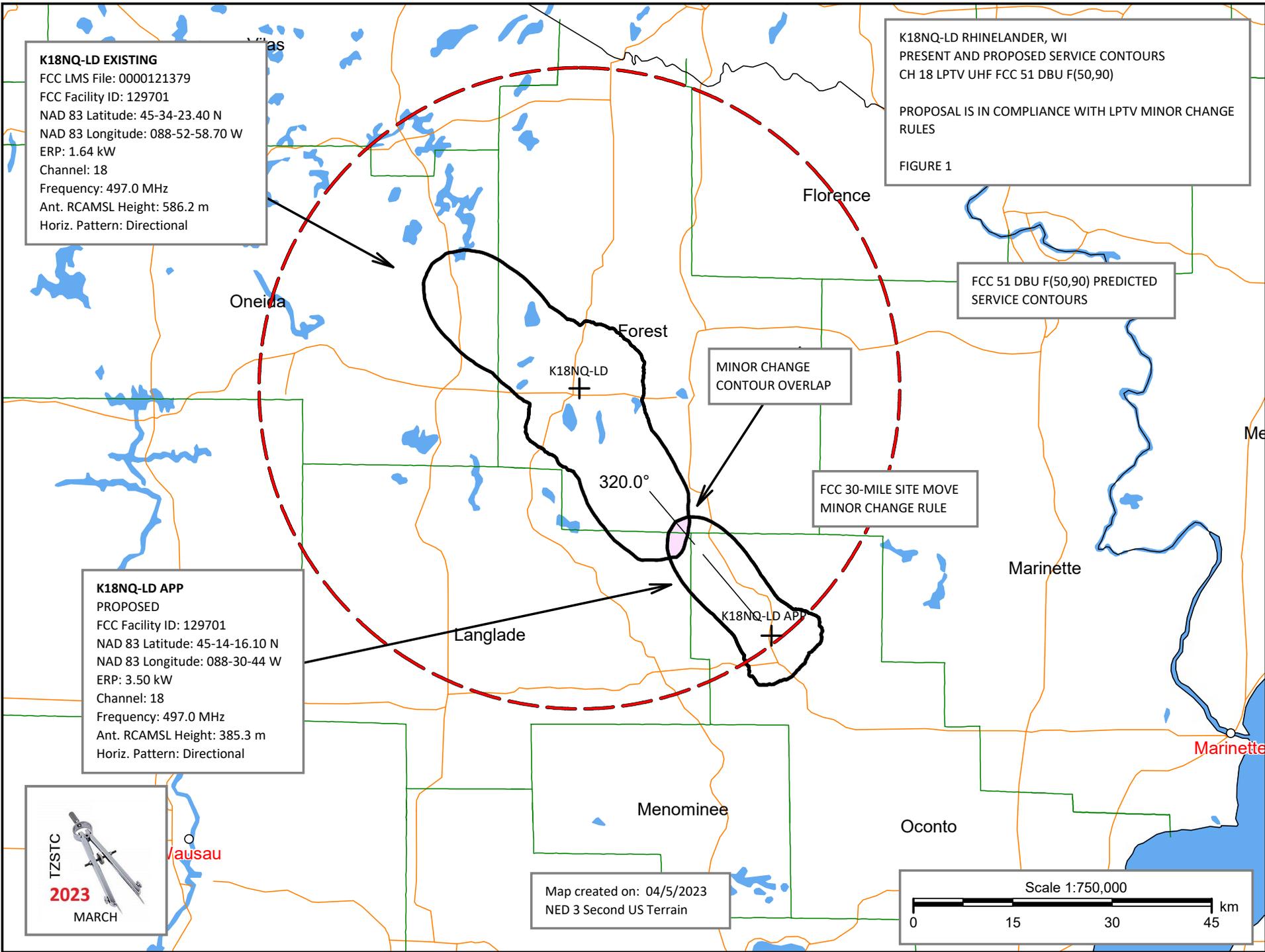
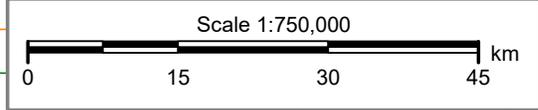


Figure 2 SCA PR-TV K18NQ DIRECTIONAL ANTENNA PATTERN

Pre-Rotation Antenna Pattern...

| Azimuth (deg) | Relative Field |
|---------------|----------------|
| 0.0 | 1.000 |
| 10.0 | 0.808 |
| 20.0 | 0.430 |
| 30.0 | 0.165 |
| 40.0 | 0.090 |
| 50.0 | 0.059 |
| 60.0 | 0.053 |
| 70.0 | 0.049 |
| 80.0 | 0.049 |
| 90.0 | 0.047 |
| 100.0 | 0.047 |
| 110.0 | 0.046 |
| 120.0 | 0.046 |
| 130.0 | 0.040 |
| 140.0 | 0.038 |
| 150.0 | 0.030 |
| 160.0 | 0.028 |
| 170.0 | 0.027 |
| 180.0 | 0.025 |
| 190.0 | 0.027 |
| 200.0 | 0.028 |
| 210.0 | 0.030 |
| 220.0 | 0.038 |
| 230.0 | 0.040 |
| 240.0 | 0.046 |
| 250.0 | 0.046 |
| 260.0 | 0.046 |
| 270.0 | 0.047 |
| 280.0 | 0.049 |
| 290.0 | 0.049 |
| 300.0 | 0.053 |
| 310.0 | 0.059 |
| 320.0 | 0.090 |
| 330.0 | 0.165 |
| 340.0 | 0.430 |
| 350.0 | 0.808 |

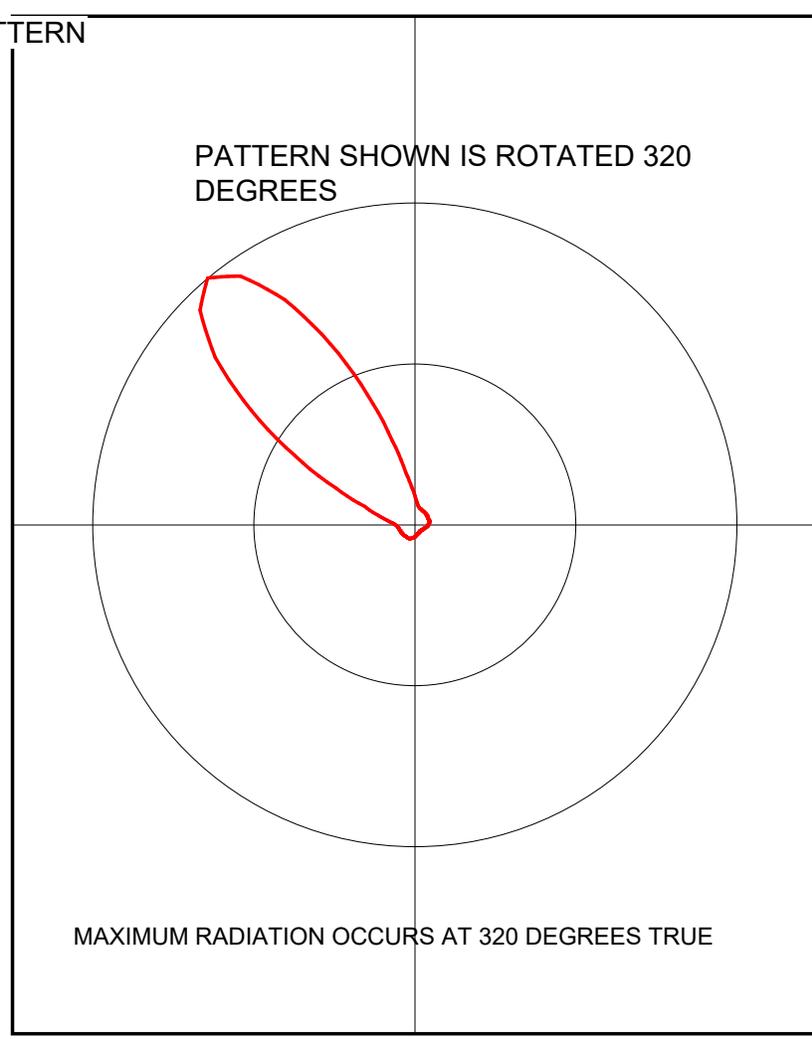


Figure 3 - K18NQ-LD FCC TVSTUDY SUMMARY REPORT

DEFAULT SETTINGS USED

1.0 CELL SIZE

1.0 PROFILE SPACING

Proposal: K18NQ-D D18 LD LIC RHINELANDER, WI
 File number: K18NQ-LD APP
 Facility ID: 129701
 Station data: User record
 Record ID: 698
 Country: U.S.

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

Search options:
 Non-U.S. records included

Stations potentially affected by proposal:

| IX | Call | Chan | Svc | Status | City, State | File Number | Distance |
|-----|----------|------|-----|--------|-------------------|--------------------|----------|
| No | WEAU | D17 | DT | LIC | EAU CLAIRE, WI | BLANK0000120880 | 202.9 km |
| No | WGBD-LD | D17 | LD | LIC | GREEN BAY, WI | BLANK0000068358 | 100.9 |
| No | W17DZ-D | D17 | LD | LIC | SISTER BAY, WI | BLANK0000086983 | 111.2 |
| No | KYIN | D18 | DT | LIC | MASON CITY, IA | BLEDT20090612AHJ | 386.7 |
| No | KRIN | D18 | LD | APP | WATERLOO, IA | BDRTEDT20120604AFO | 346.1 |
| No | WMEU-CD | D18 | DC | LIC | CHICAGO, IL | BLANK0000086889 | 379.9 |
| No | WMEU-CD | D18 | DC | CP | CHICAGO, IL | BLANK0000196962 | 378.0 |
| No | DWMKB-LP | D18z | LD | APP | Rochelle, IL | BLANK0000054707 | 364.6 |
| No | WUHO-LD | D18+ | LD | CP | KALAMAZOO, MI | BLANK0000169853 | 399.5 |
| No | W18ER-D | D18 | LD | LIC | MUSKEGON, MI | BLANK0000068548 | 284.4 |
| No | WURO-LD | D18 | LD | LIC | ROSCOMMON, MI | BLDTL20141113AFT | 333.1 |
| No | WEYI-TV | D18 | DT | LIC | SAGINAW, MI | BLANK0000185142 | 442.7 |
| No | WPBN-TV | D18 | LD | LIC | TRAVERSE CITY, MI | BLANK0000143297 | 228.1 |
| No | KQDS-TV | D18 | DT | LIC | DULUTH, MN | BLANK0000120640 | 327.6 |
| No | KHVM-LD | D18 | LD | CP | MINNEAPOLIS, MN | BLANK0000197038 | 366.0 |
| No | KHVM-LD | D18 | LD | APP | MINNEAPOLIS, MN | BLANK0000202614 | 404.0 |
| No | WBDL-LD | D18 | LD | LIC | ELK MOUND, WI | BLANK0000168884 | 237.1 |
| Yes | WLUK-TV | D18 | DT | LIC | GREEN BAY, WI | BLANK0000199689 | 100.9 |
| No | WMSN-TV | D18 | DT | LIC | MADISON, WI | BLANK0000113879 | 255.9 |
| No | WZMQ | D19 | DT | LIC | MARQUETTE, MI | BLANK0000207012 | 155.6 |
| No | WTPX-TV | D19 | DT | LIC | ANTIGO, WI | BLANK0000054113 | 75.1 |
| No | WMTV | D19 | DT | LIC | MADISON, WI | BLCDT20100413AAW | 255.2 |
| No | WLWK-CD | D19 | DC | LIC | STURGEON BAY, WI | BLANK0000072454 | 97.1 |

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

Record parameters as studied:

Channel: D18
 Mask: Full Service
 Latitude: 45 14 16.10 N (NAD83)
 Longitude: 88 30 44.00 W
 Height AMSL: 385.3 m
 HAAT: 0.0 m
 Peak ERP: 3.50 kW
 Antenna: SCA PR-TV (ID 98391) 320.0 deg
 Elev Patrn: Generic

49.1 dBu contour:

| Azimuth | ERP | HAAT | Distance |
|---------|----------|--------|----------|
| 0.0 deg | 0.028 kW | -3.9 m | 7.7 km |
| 45.0 | 0.008 | 36.3 | 6.2 |
| 90.0 | 0.006 | 78.4 | 8.3 |
| 135.0 | 0.002 | 91.4 | 7.2 |
| 180.0 | 0.005 | 81.5 | 8.2 |
| 225.0 | 0.007 | 37.0 | 6.1 |
| 270.0 | 0.012 | -7.2 | 6.3 |
| 315.0 | 2.86 | -18.1 | 23.7 |

Database HAAT does not agree with computed HAAT
 Database HAAT: 0 m Computed HAAT: 37 m

Distance to Canadian border: 310.6 km

Distance to Mexican border: 2055.0 km

Conditions at FCC monitoring station: Allegan MI
Bearing: 144.1 degrees Distance: 357.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 253.4 degrees Distance: 1474.1 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area

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 0.04% interference to BLANK0000199689 LIC scenario 1

---- Below is IX received by proposal K18NQ-LD APP ----

Proposal receives 73.35% interference from scenario 1 - APPLICANT ACCEPTS INCOMING INTERFERENCE

No IX check failures found.

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K18NQ-LD
LPTV CHANNEL 18 OPERATION
FCC FACILITY ID: 129701
RHINELANDER, WISCONSIN

MARCH 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 3.5 KW | MPE ($\mu\text{W}/\text{CM}^2$) | CALCULATED VALUE ($\mu\text{W}/\text{CM}^2$) | % OF MPE | PASS/FAIL |
|---------------------------------|--------------------------------------|---|-------------|-----------|
| CONTROLLED AREA | 1656.7 | 35.9803 | 2.17% | PASS |
| PUBLIC AREA | 331.3 | | 10.86% | 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.

March 5, 2023

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