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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

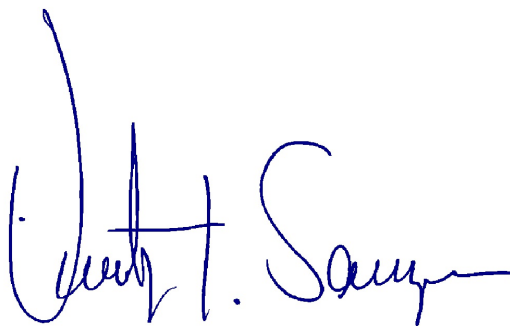
FCC TVStudy Results:

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

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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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

K18NQ-LD

320.0°

K18NQ-LD APP

Langlade

Menominee

Oconto

Marinette

Marinette

Oneida

Florence

TZSTC

2023

MARCH

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

Scale 1:750,000

0 15 30 45 km

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

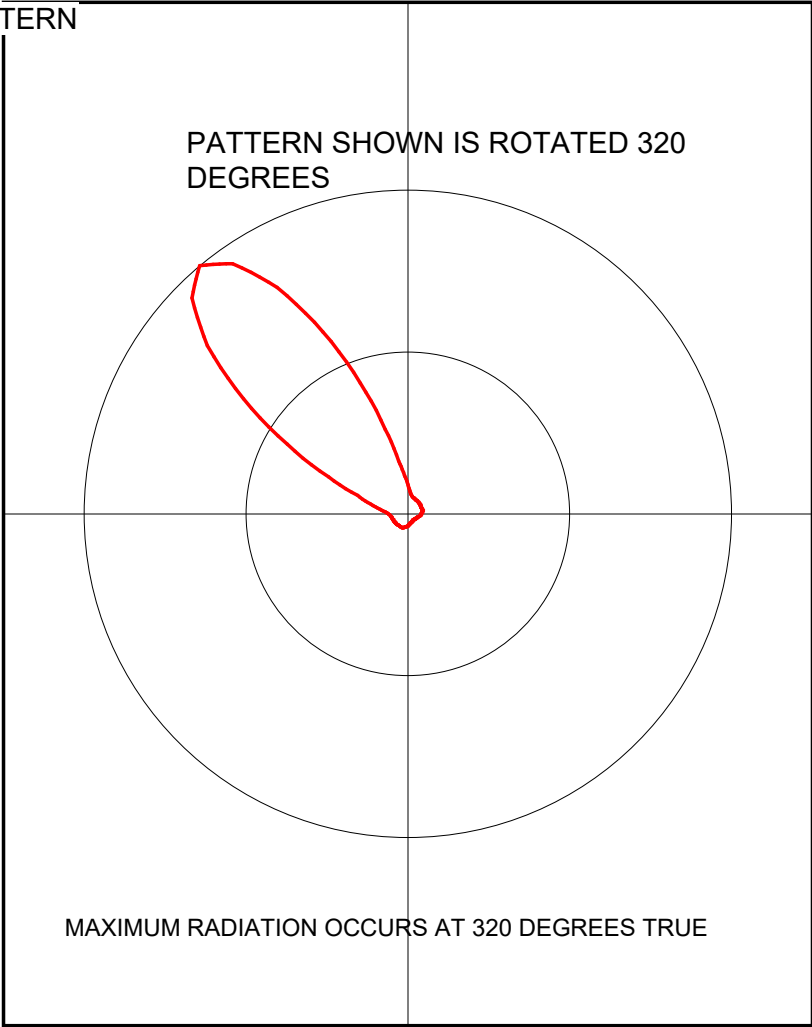


Figure 3 - K18NQ-LD FCC TVSTUDY SUMMARY REPORT

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	BL EDT20090612AHJ	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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