

# T Z SAWYER TECHNICAL CONSULTANTS

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DIGITAL LPTV FACILITY  
MINOR CHANGE APPLICATION  
K18NV (WAS K46LN)  
FCC FACILITY ID: 186316  
CHEYENNE, WY

DECEMBER 2021

## ENGINEERING NARRATIVE

### Minor Change Application:

K18NV, seeks to modify its existing construction permit to specific a new tower site and antenna system as well as its maximum effective radiated power (ERP). The proposed antenna is a ATC-BCE-46M-VO-18, a slightly directional 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.

### 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 facilities of the existing station 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’s antenna location, as noted below:

#### CALCULATED DISTANCE BETWEEN EXISTING AND PROPOSED SITES

SITE	LAT (NAD83)	LON (NAD83)	(KM)	(MI)
CURRENT/EXISTING	41-08-55.0 N	104-57-24.0 W	19.72	12.25
PROPOSED	41-09-34.5 N	104-43-19.8 W		

### FCC Tower Registration (ASR) - FAA Notification:

The proposed mounting structure is a 56.0 meter AGL self-supporting existing communications tower and has been issued an FCC ASR number of 1008318. No changes in the supporting structure is required that would require notification to the FAA or ASR modification.

### Antenna Elevations:

The center of radiation of the proposed antenna is 30.5 meters AGL, 1895.2 meters AMSL. The ground elevation at the site is 1864.7 meters.

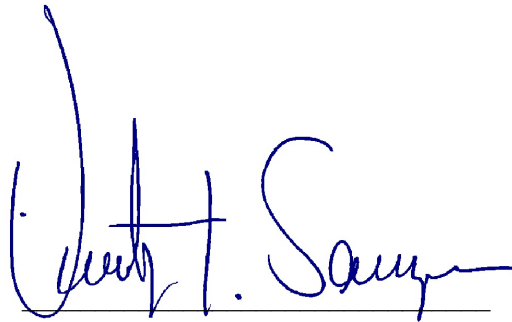
FCC TVStudy Results:

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.

December 24, 2021

A handwritten signature in blue ink, reading "Timothy Z. Sawyer". The signature is fluid and cursive, with a large initial "T" and "S".

Timothy Z. Sawyer, Consulting Engineer

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**PRESENT AND PROPOSED  
FCC 51DBU F(50,90) CONTOUR**

**MINOR CHANGE COMPLIANCE**

**FIGURE 1**

**K18NV-D CP**

FCC Application: 0000157100  
FCC FacID: 186316  
NAD 83 Latitude: 41-08-55 N  
NAD 83 Longitude: 104-57-24 W  
ERP: 15.00 kW  
Channel: 18 Frequency: 497.0 MHz  
Antenna RCAMSL Height: 2039.9 m  
Horiz. Pattern: Omni

CONTOUR OVERLAP  
WITH ORIGINAL CH 46 CP  
AND THIS APPLICATION

**K46LN (OLD CP)**

FCC Application: BNPDTL-20100510AEW  
FCC FacID: 186316  
NAD 83 Latitude: 41-08-55 N  
NAD 83 Longitude: 104-57-24 W  
ERP: 1.00 kW  
Channel: 18 Frequency: 497.0 MHz  
Antenna RCAMSL Height: 2039.0 m  
Horiz. Pattern: Omni

30-MILE RADIUS  
MINOR CHANGE COMPLIANCE

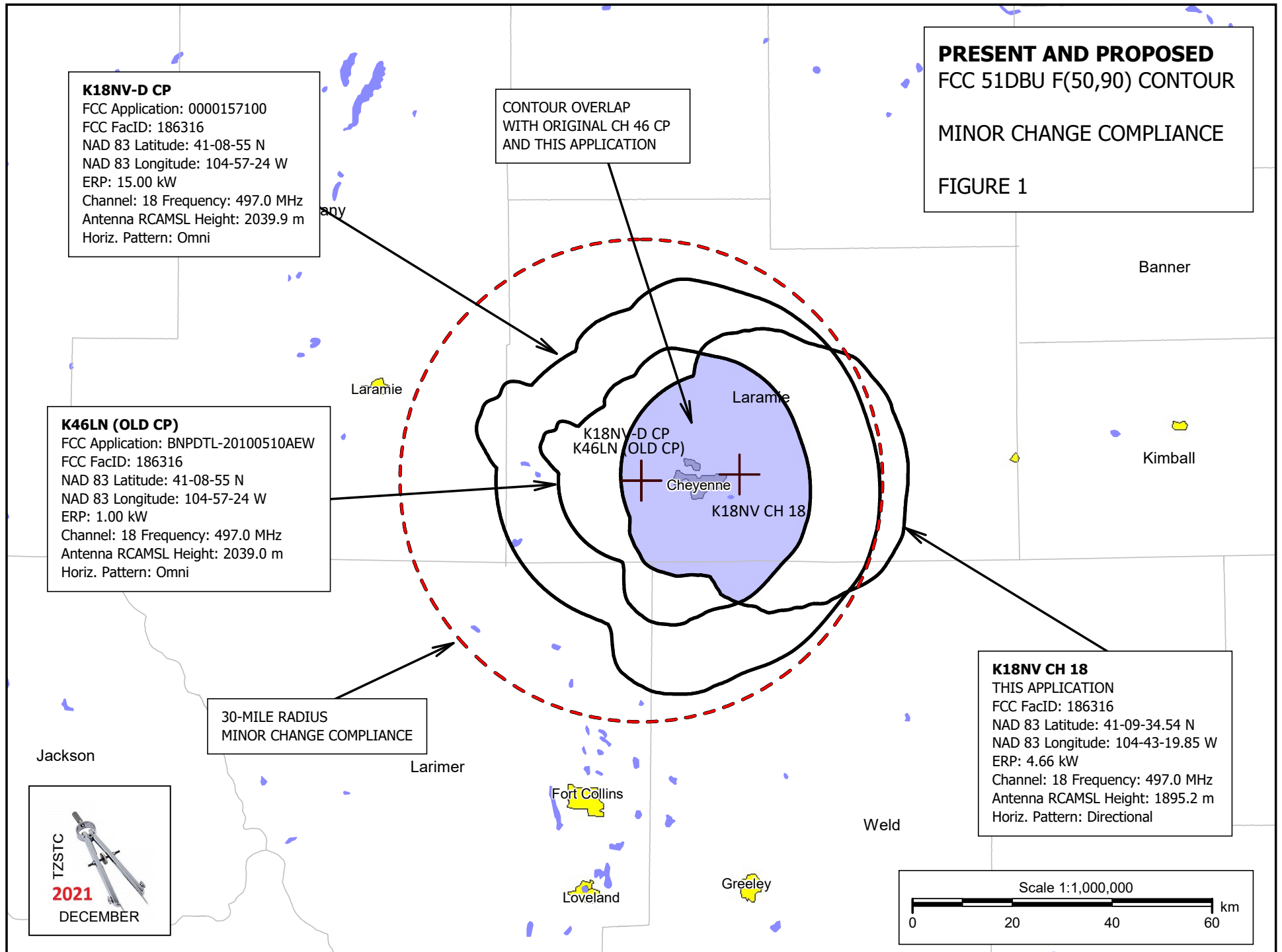
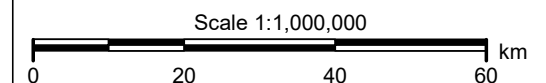
**K18NV CH 18**

THIS APPLICATION  
FCC FacID: 186316  
NAD 83 Latitude: 41-09-34.54 N  
NAD 83 Longitude: 104-43-19.85 W  
ERP: 4.66 kW  
Channel: 18 Frequency: 497.0 MHz  
Antenna RCAMSL Height: 1895.2 m  
Horiz. Pattern: Directional

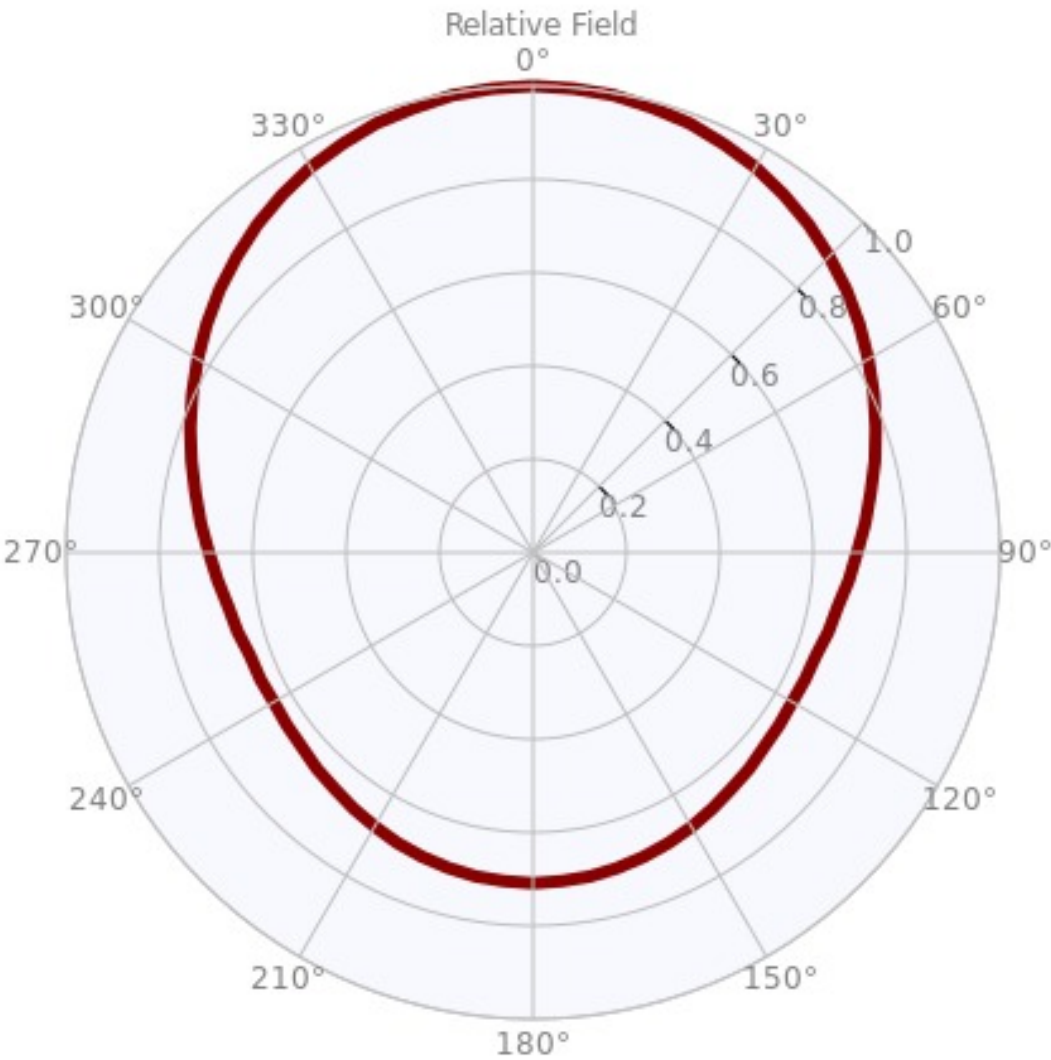
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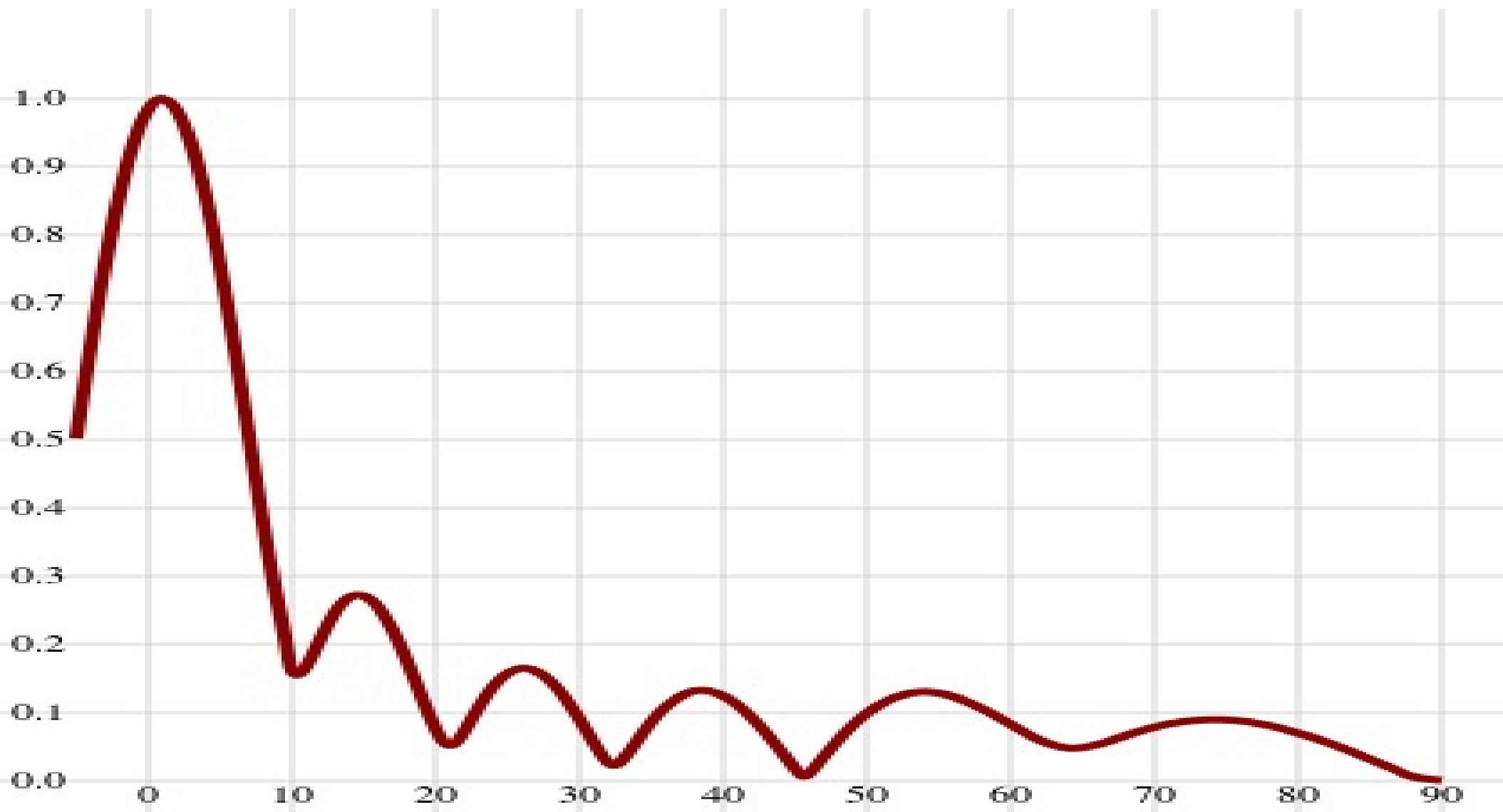
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# Horizontal Azimuth Pattern



## Elevation pattern -5 to 90





Azimuth Pattern Tabulation, FCC

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0°	1.000	0.00	90°	0.694	-3.17	180°	0.709	-2.99	270°	0.694	-3.17
10°	0.995	-0.04	100°	0.663	-3.57	190°	0.705	-3.04	280°	0.734	-2.69
20°	0.979	-0.18	110°	0.645	-3.81	200°	0.694	-3.17	290°	0.781	-2.15
30°	0.953	-0.42	120°	0.641	-3.86	210°	0.678	-3.38	300°	0.829	-1.63
40°	0.918	-0.74	130°	0.647	-3.78	220°	0.661	-3.60	310°	0.876	-1.15
50°	0.876	-1.15	140°	0.661	-3.60	230°	0.647	-3.78	320°	0.918	-0.74
60°	0.829	-1.63	150°	0.679	-3.36	240°	0.641	-3.86	330°	0.953	-0.42
70°	0.781	-2.15	160°	0.694	-3.17	250°	0.645	-3.81	340°	0.979	-0.18
80°	0.734	-2.69	170°	0.705	-3.04	260°	0.663	-3.57	350°	0.995	-0.04

FCC TVSTUDY SUMMARY OUTPUT - K18NV MOD OF CP

Proposal: K18NV-D D18 LD APP CHEYENNE, WY  
 File number: K18NV WAS K46LN  
 Facility ID: 186316  
 Station data: User record  
 Record ID: 585  
 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	KPJR-TV	D17	DT	LIC	GREELEY, CO	BLANK0000071955	118.8 km
No	KPJR-TV	D17	DT	CP	GREELEY, CO	BLANK0000158506	118.8
No	K17NH-D	D17	LD	LIC	STERLING, CO	BLANK0000117672	154.8
No	KTWO-TV	D17	DT	LIC	CASPER, WY	BLCDT20110315ABB	221.8
No	K18MS-D	D18	LD	LIC	AKRON, CO	BLANK0000117623	168.0
No	K18LN-D	D18	LD	CP	ASPEN, CO	BNPDTL20090825BXE	280.0
Yes	KZCS-LD	D18z	LD	LIC	COLORADO SPRINGS, CO	BLANK0000116066	268.6
Yes	KPXC-TV	D18	DT	LIC	DENVER, CO	BLANK0000071556	119.1
No	K18LL-D	D18	LD	LIC	EADS, ETC., CO	BLANK0000001779	342.6
No	KRMJ	D18	DT	LIC	GRAND JUNCTION, CO	BLEDT20100430ADO	413.6
No	K18FO-D	D18	LD	LIC	IDALIA, CO	BLDTT20110120ABQ	247.2
No	K18IQ-D	D18	LD	CP	JACKS CABIN, CO	BPDTT20150123AHE	324.9
No	K18IQ-D	D18	LD	LIC	JACKS CABIN, CO	BLDTT20091125AFJ	324.9
No	K18KH-D	D18	LD	LIC	JULESBURG, CO	BLDTT20120430AAK	198.7
No	K18FN-D	D18	LD	LIC	PEETZ, CO	BLDTT20110928AKM	128.6
No	K18GM-D	D18	LD	LIC	PLEASANT VALLEY, CO	BLDTT20110613AAT	230.9
No	K18GD-D	D18	LD	LIC	REDSTONE, CO	BLDTT20091221ABB	300.7
No	K18NB-D	D18	LD	LIC	WRAY, CO	BLANK0000117480	243.8
No	KHME	D18	LD	LIC	RAPID CITY, SD	BLCDT20131125BMM	345.0
Yes	K18JD-D	D18	LD	LIC	TORRINGTON, WY	BLDTT20110415ABJ	111.0
No	KRMA-TV	D19	LD	LIC	DENVER, CO	BLANK0000064177	79.1
No	KSBS-CD	D19	DC	LIC	DENVER, CO	BLANK0000068957	164.8
No	K19LW-D	D19	LD	LIC	STERLING, CO	BLANK0000117467	154.8
No	DDKCHY-LP	D19+	LD	APP	CHEYENNE, WY	BLANK0000071845	24.7
No	K19FX-D	D19	LD	LIC	LARAMIE, WY	BLDTT20111129FFV	62.0

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: 41 9 34.50 N (NAD83)  
 Longitude: 104 43 19.80 W  
 Height AMSL: 1895.2 m  
 HAAT: 0.0 m  
 Peak ERP: 4.66 kW  
 Antenna: ATC-BCE46M-VO-18 270.0 deg  
 Elev Pattn: Generic  
 Elec Tilt: 1.00

49.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	2.24 kW	61.2 m	30.0 km
45.0	2.00	97.6	34.5
90.0	2.34	97.8	35.3
135.0	2.00	96.4	34.4
180.0	2.24	43.3	26.2
225.0	3.75	47.0	29.5
270.0	4.66	26.0	25.9
315.0	3.75	12.4	24.9

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m    Computed HAAT: 60 m

Distance to Canadian border: 871.4 km

Distance to Mexican border: 1054.5 km

Conditions at FCC monitoring station: Grand Island NE  
Bearing: 90.8 degrees    Distance: 528.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 200.3 degrees    Distance: 123.3 km  
ERP: 2.85 kW    Field strength: 7.0 dBu, 0.0 mV/m

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 no interference to BLANK0000116066 LIC  
Proposal causes 0.04% interference to BLANK0000071556 LIC scenario 1  
Proposal causes no interference to BLDTT20110415ABJ LIC

---- Below is IX received by proposal K18NV WAS K46LN ----

Proposal receives 0.40% interference from scenario 1  
No IX check failures found.



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K18NV (WAS K46LN)  
PROPOSED LPTV CHANNEL 18 OPERATION  
FACILITY ID: 186316  
CHEYENNE, WY  
DECEMBER 2021

## 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.)

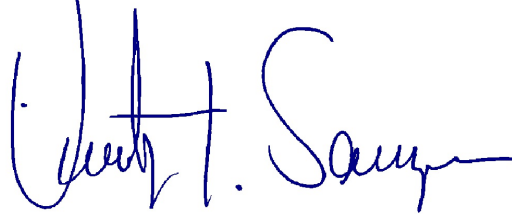
CALCULATED POWER DENSITY AT 2 METERS AGL (0.3 ANTENNA RELATIVE FIELD VALUE) ERP MAX (H+V)

CR AGL 30.5 M ERP MAX 6.06 KW	MPE ( $\mu\text{W}/\text{CM}^2$ )	CALCULATED VALUE ( $\mu\text{W}/\text{CM}^2$ )	% OF MPE	PASS/FAIL
CONTROLLED AREA	1656.7	22.419	1.35%	PASS
PUBLIC AREA	331.3		6.77%	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.

December 24, 2021

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