

**September 2022
FM Translator K283BH
Bend, Oregon Channel 283D
Allocation Study**

Background

The licensed K283BH facility is proposed to be modified by changing the antenna model in order to allow K245BC (under its construction permit 0000198451) to diplex. The coordinate and height data are being updated at the same time.

Allocation Study

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules.

KNLX 285C2 Prineville

The K283BH transmitter site is located outside of, but very close to, the 60 dBu protected contour of second-adjacent channel station KNLX 285C2 Prineville. The attached allocation study map demonstrates that there is a small amount of existing overlap caused by the K283BH 100 dBu interfering contour to the KNLX 60 dBu protected contour. The proposed modification will not increase the area of overlap. (Note that the K283BH 100 dBu contour calculation defaults to a Free Space calculation at this power level. The distance to the contour has been specified to the ones place: 859 meters for the licensed 150 watt operation, and 844 meters for the proposed 145 watt operation.)

KWPK-FM 281C2 Sisters

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KWPK-FM 281C2 Sisters. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

Protected Station	Distance & Bearing to Proposal	Station ERP and HAAT on that azimuth	Station Field Strength at Proposal	Corresponding Translator Interfering Contour	Distance to Translator Interfering Contour
KWPK-FM 281C2	0.01 km 61 deg True	34 kW 290 meters	162.3 dBu Free Space	202.3 dBu	0 meters Free Space

The 202.25 dBu interfering contour from the proposed facility extends only zero meters from the antenna per a Free Space calculation. There is no population within this contour, which is contained entirely within the fenced perimeter of the transmitter site (indicated by the black boundary on the transmitter site map). Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KWPK-FM.

IF Channels

The attached spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

SEARCH PARAMETERS

FM Database Date: 20220829

Channel: 283A 104.5 MHz
 Latitude: 44 4 39.6 (NAD83)
 Longitude: 121 19 52.6
 Safety Zone: 50 km
 Job Title: K283BH BEND

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Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KURT LIC	PRINEVILLE OR	BLH-20180620ABA	229C2 93.7	1.000 689.0	44 26 16.5 120 57 16.1	36.7	50.08 35.08	15 CLEAR
KWPK-FM LIC	SISTERS OR	BLH-20010516AAI	281C2 104.1	34.000 180.0	44 4 39.4 121 19 53.1	240.9	0.01 -54.99	55 SHORT
K283BH LIC	BEND OR	0000189089	283D 104.5	0.150 0.0	44 4 39.4 121 19 53.1	240.9	0.01 0.00	0 TRANS
KXXP LIC	WHITE SALMON WA	0000189570	283C1 104.5	0.500 963.0	45 38 55.7 121 43 20.9	350.1 SS	177.31 -22.69	200 SHORT
KXXP CP	WHITE SALMON WA		283C1 104.5	18.000 433.0	45 31 14.4 121 28 51.2	355.8	160.79 -39.21	200 SHORT
KDUK-FM LIC	FLORENCE OR	BLH-20070727AIU	284C 104.7	68.000 707.0	44 17 27.4 123 32 22.4	278.4	178.16 13.16	165 CLEAR
KNLX LIC	PRINEVILLE OR	BLH-20080702AFF	285C2 104.9	0.860 675.0	44 26 12.4 120 57 15.1	36.8	49.99 -5.01	55 SHORT

==== END OF FM SPACING STUDY FOR CHANNEL 283 =====

KNLX 285C2 Prineville
60 dBu F(50,50)

DESCHUTES



K283BH 283D Bend
100 dBu Free Space
Dashed = License
Solid = Proposed

K283BH Bend 2Adj Study Map



Kilometers

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**September 2022
FM Translator K283BH
Bend, Oregon Channel 283D
RF Exposure Study**

Facilities Proposed

The proposed operation will be on Channel 283D (104.5 MHz) with an effective radiated power of 145 watts. Operation is proposed with an antenna to be mounted on the existing KTVZ-TV tower on Awbrey Butte, shared with the K245BC construction permit 0000198451.

The proposed antenna support structure does not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

DETERMINATION Results	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
Your Specifications	
NAD83 Coordinates	
Latitude	44-04-39.6 north
Longitude	121-19-52.6 west
Measurements (Meters)	
Overall Structure Height (AGL)	59
Support Structure Height (AGL)	59
Site Elevation (AMSL)	1285
Structure Type	
GTOWER - Guyed Structure Used for Communication Purposes	

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

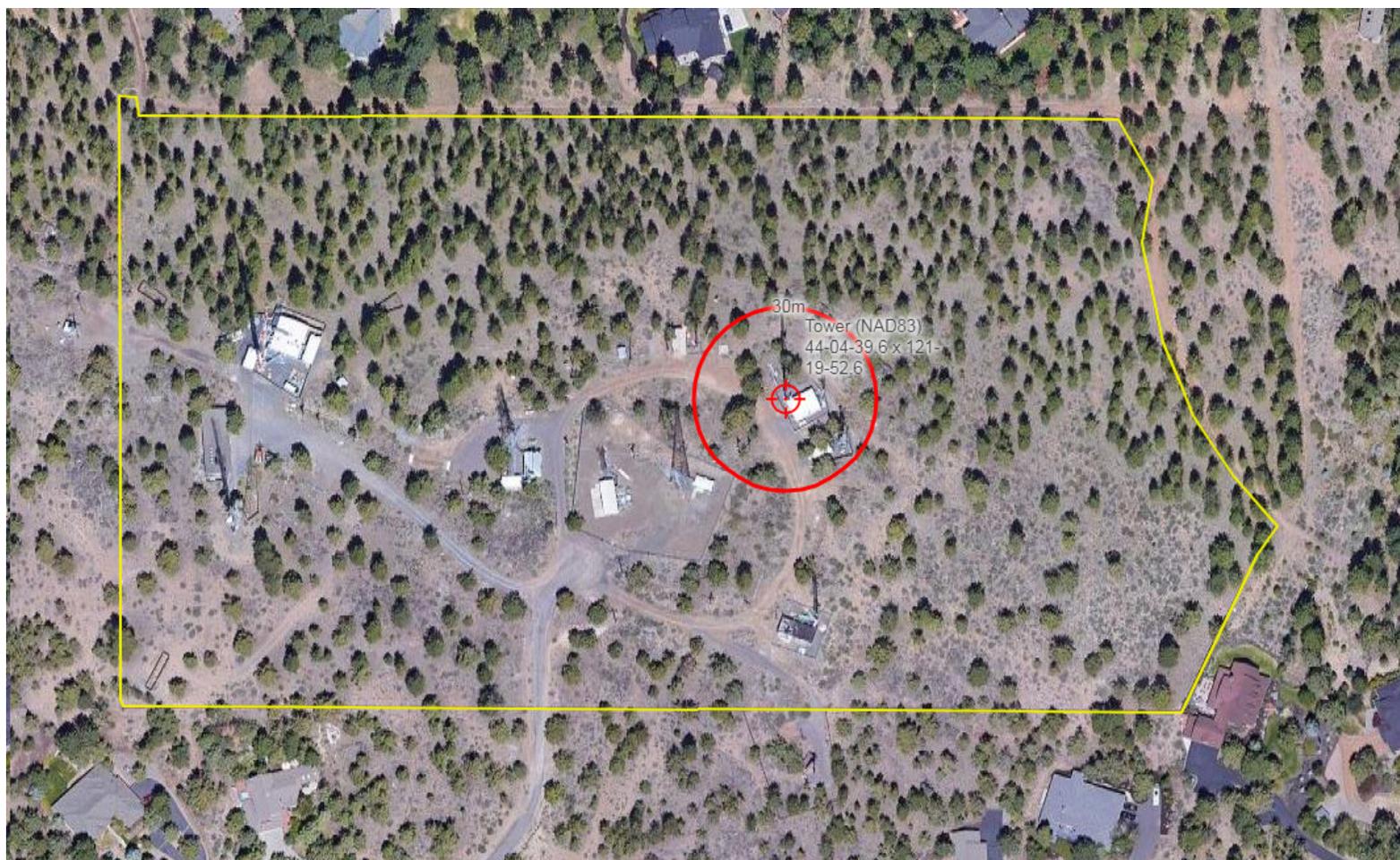
Calculations of the power density produced by the proposed antenna system assume a Type 2 element pattern, which is the element pattern for the Jampro JCPB-1 antenna proposed for use. The highest calculated ground level power density occurs at a distance of 10 meters from the base of the antenna support structure. At this point the power density is calculated to be 26.6 $\mu W/cm^2$, which is 2.7% of 1000 $\mu W/cm^2$ (the FCC MPE for controlled environments such as this one).

Access to the Awbrey Butte communications site is restricted by a locked gate and perimeter fence which surrounds the site. The area within the fence is considered a controlled environment. The closest point on the fenceline is 91 meters, due north of the tower, but the calculated ground-level power density from this facility falls below 5% of the FCC MPE for uncontrolled environments at a point 30 meters from the tower, and remains below 5% at all points beyond the fenceline.

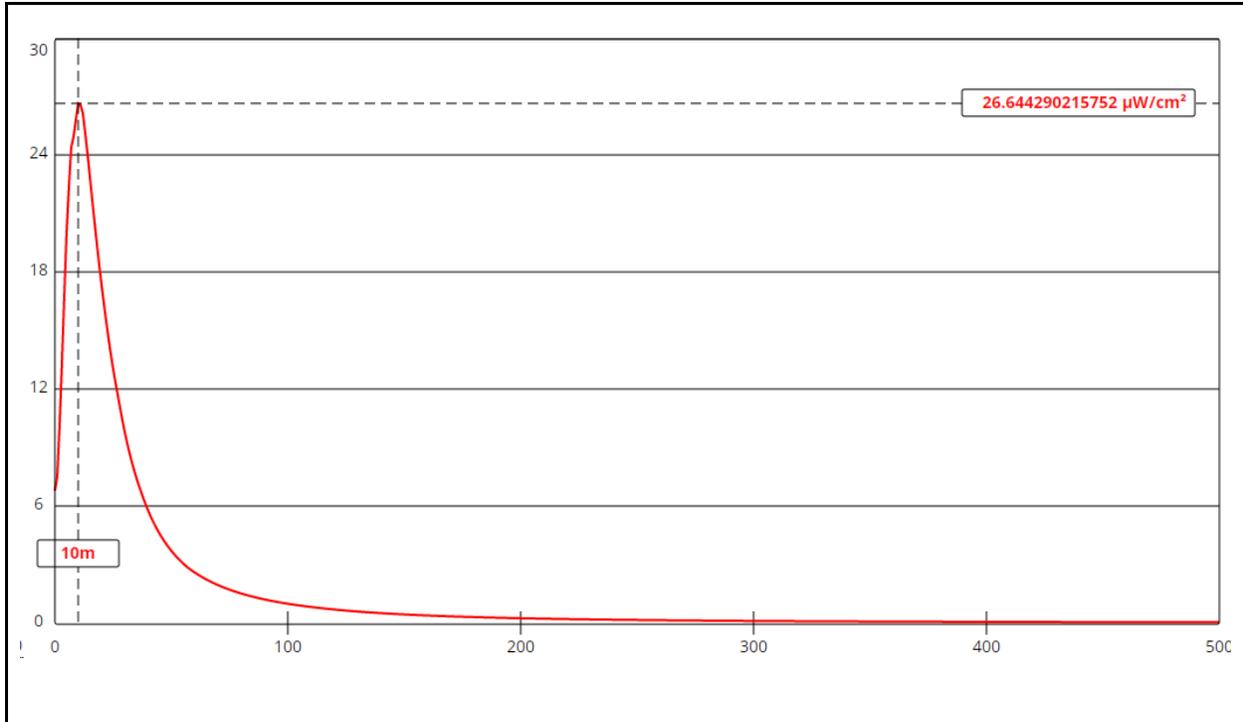
These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307 of the Commission's Rules exempts applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicant's proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.

Hatfield & Dawson Consulting Engineers



The yellow polygon indicates the fenced perimeter of the communication site. The calculated ground-level power density from the proposed facility is below 5% of the occupational MPE at all areas within the fenceline, and falls (and remains) below 5% of the general population MPE at 30 meters from the tower.



Ground-Level RF Exposure

OET FMModel

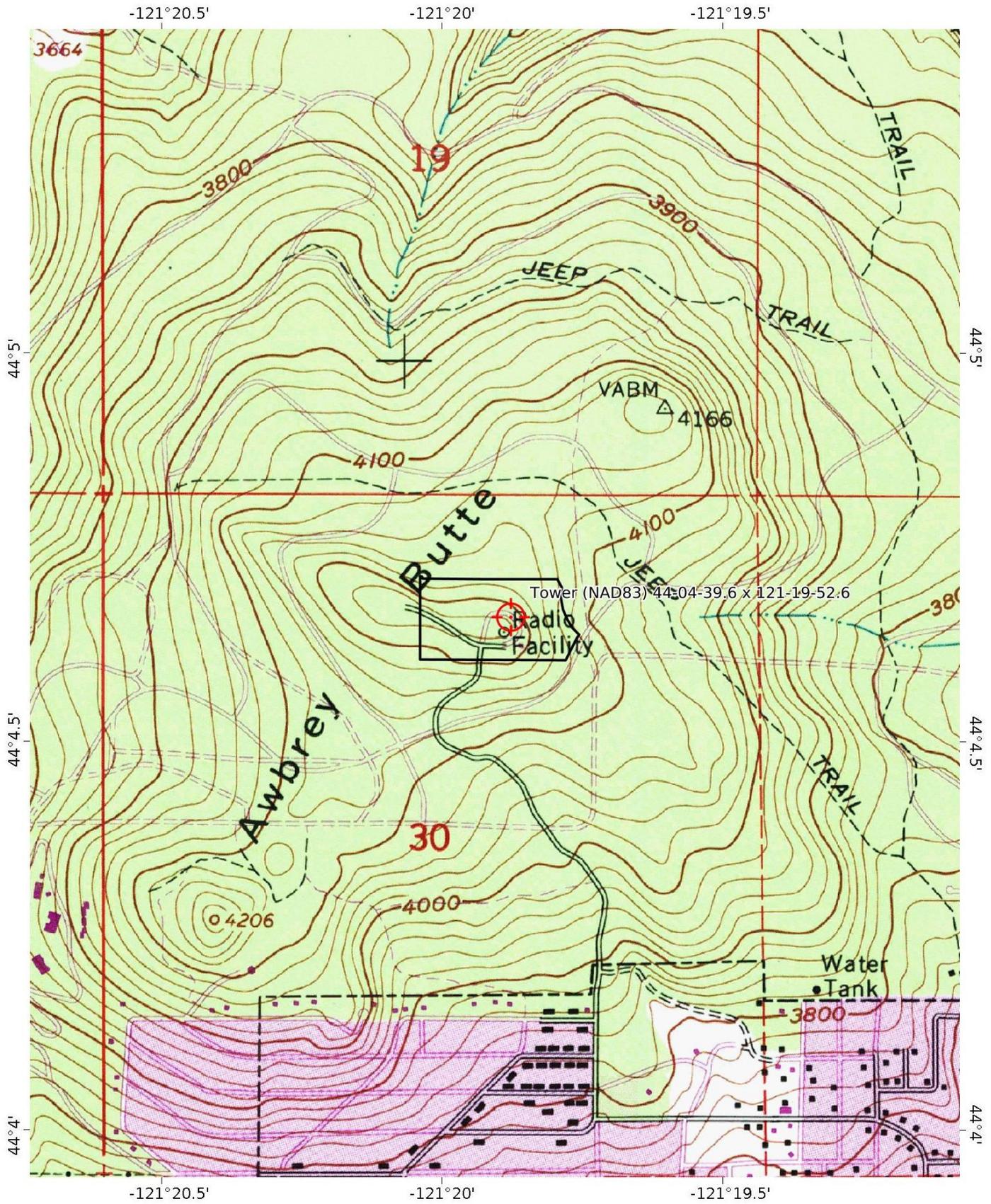
K283BH Bend

Antenna Type: Jampro JCPB-1 (Type 2)
 No. of Elements: 1
 Element Spacing: 1.0 wavelength

Distance: 500 meters
 Horizontal ERP: 145 W
 Vertical ERP: 145 W

Antenna Height: 12 meters AGL

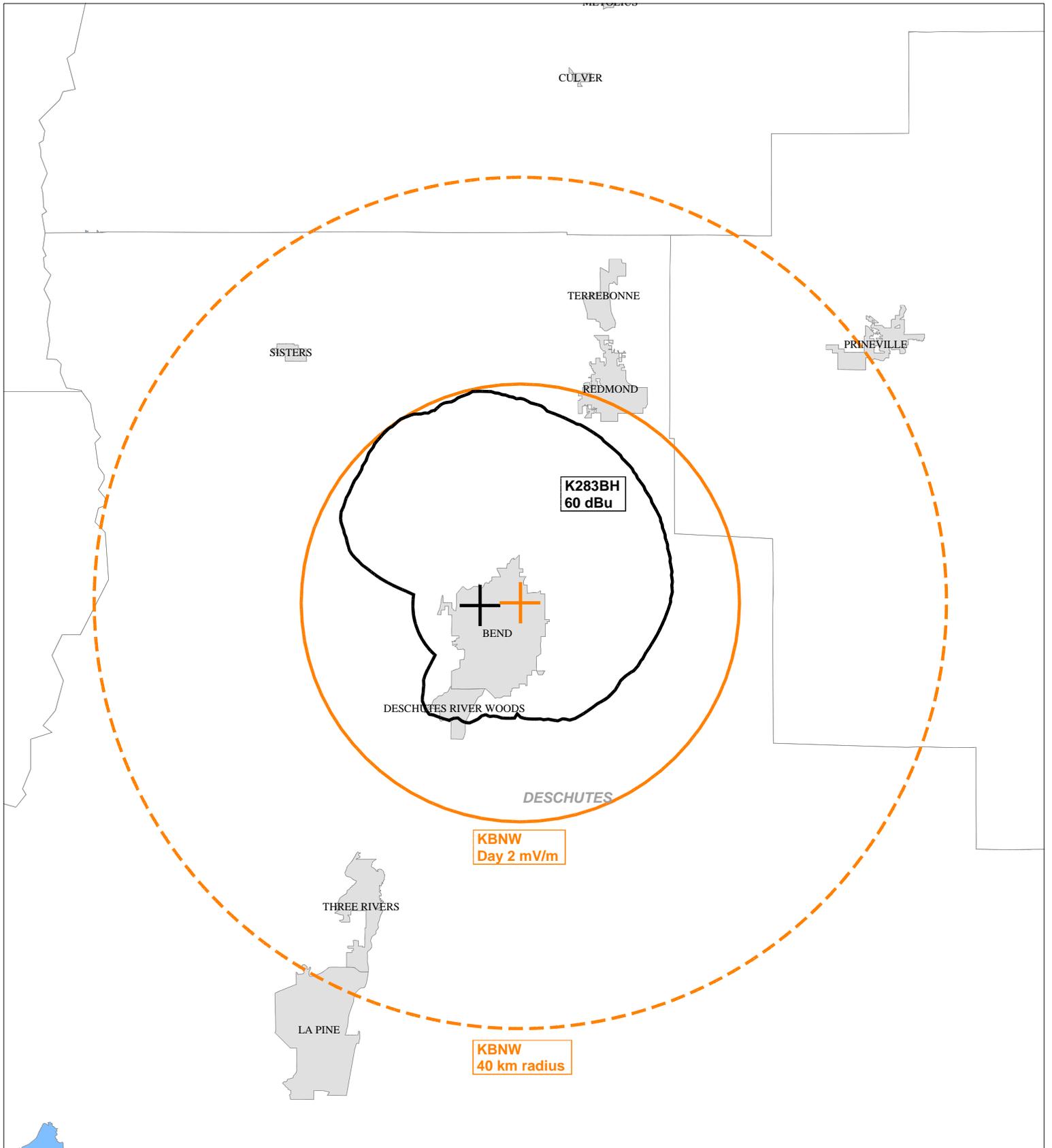
Maximum Calculated Power Density is 26.6 μW/cm² at 10 meters from the antenna structure.



Mercator Projection
 WGS84
 UTM Zone 10T
 CALTOPO



MN
 14.4°



K283BH Contour Map

0 5 10 15

Kilometers

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