

April 2017
FM Translator K280FJ
The Dalles, Oregon Channel 280D
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. The attached allocation study maps demonstrate compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

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.

New 283C1 White Salmon

The proposed translator transmitter site is located within the 60 dBu protected contour of authorized third-adjacent channel station New 283C1 White Salmon. 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
New 283C1	34.95 km 90 deg True	5.3 kW 1074 meters	77.3 dBu F(50,50)	117.3 dBu	148.2 meters Free Space

The attached map of the proposed transmitter site depicts the 117.3 dBu contour from the proposed facility. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to New 283C1 White Salmon.

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SEARCH PARAMETERS FM Database Date: 170405

Channel: 280A 103.9 MHz Page 1

Latitude: 45 38 59

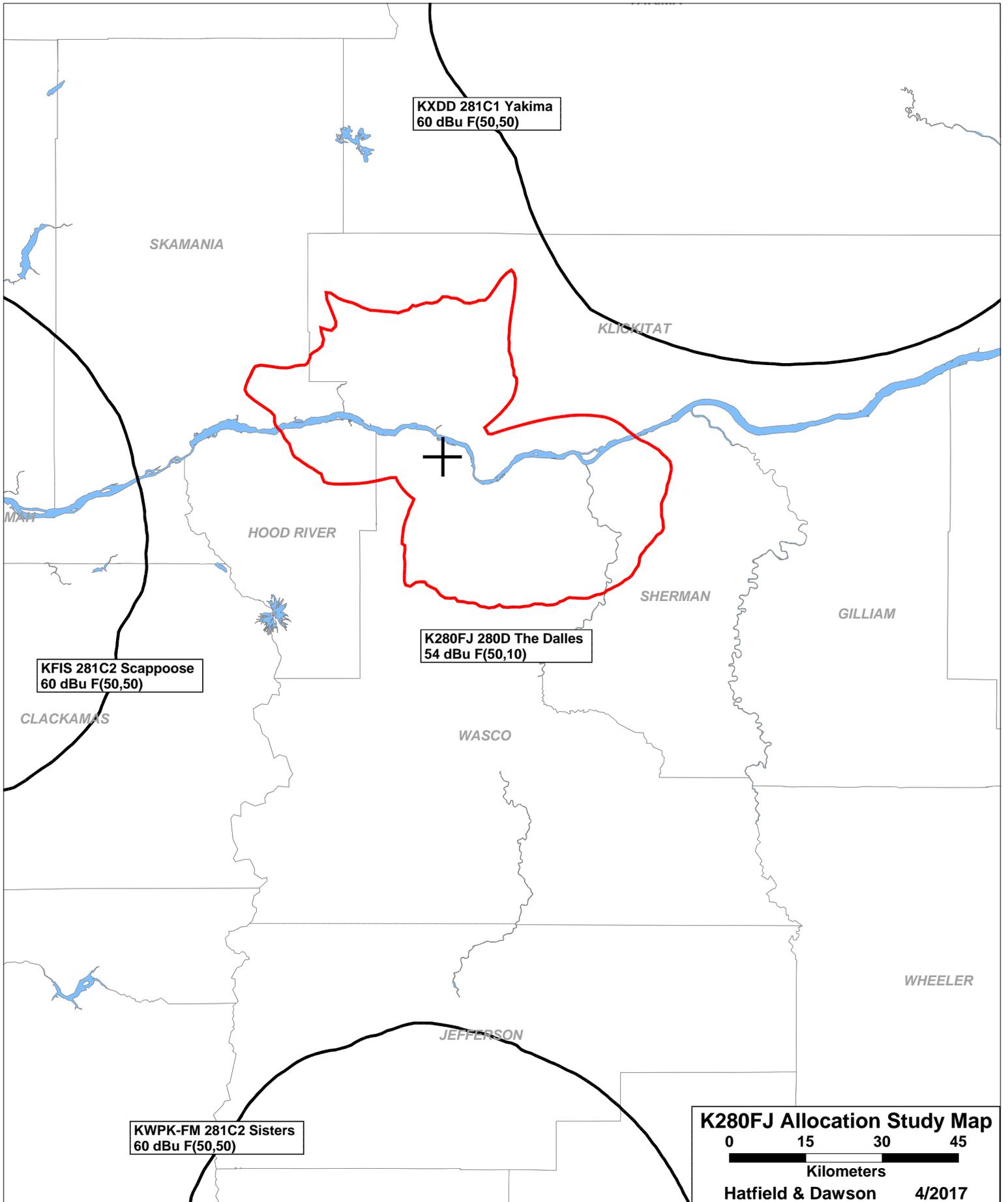
Longitude: 121 16 23

Safety Zone: 50 km

Job Title: K280FJ THE DALLES

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KKCW LIC	BEAVERTON OR	BLH-11214AAF	277C 103.3	100.000 470.0	45-31-21 122-44-45	263.5	115.80 20.80	95 CLEAR
K279BO LIC	PORTLAND OR	BLFT-40827AAJ	279D 103.7	0.099 DA 464.0	45-31-21 122-44-45	263.5	115.80 0.00	0 TRANS
K279AK LIC	GRANGER WA	BLFT-10831AAC	279D 103.7	0.190 101.0	46-18-21 120-03-06	51.9	119.49 0.00	0 TRANS
KHTP LIC	TACOMA WA	BLH-80730AKI	279C 103.7	68.000 DA 707.0	47-30-14 121-58-29	345.7	213.02 48.02	165 CLEAR
KKUJ CP	MONUMENT OR	BNPH-30722AAB	280C3 103.9	0.850 272.0	44-51-42 119-25-31	120.6	169.44 27.44	142 CLEAR
K280FJ LIC	THE DALLES OR	BLFT-00930AWO	280D 103.9	0.250 DA 497.0	45-38-58 121-16-25	234.4	0.05 0.00	0 TRANS
K280GI LIC	RICHLAND WA	BLFT-50918ACM	280D 103.9	0.016 407.0	46-14-04 119-19-13	66.0	164.79 0.00	0 TRANS
KFIS LIC	SCAPPOOSE OR	BLH-20306AAK	281C2 104.1	7.000 386.0	45-29-20 122-41-40	261.3 SS	112.39 6.39	106 CLOSE
KXDD LIC	YAKIMA WA	BLH-20305AAX	281C1 104.1	100.000 DA 245.0	46-30-48 120-24-05	34.7 SS	117.31 -15.69	133 SHORT
K282BA LIC	MAUPIN OR	BLFT-01104ABO	282D 104.3	0.034 DA 573.0	45-18-45 121-02-45	154.6	41.48 0.00	0 TRANS
NEW CP	WHITE SALMON WA	BNPH-51013ADJ	283C1 104.5	5.300 951.0	45-38-56 121-43-17	270.0 SS	34.95 -40.05	75 SHORT

===== END OF FM SPACING STUDY FOR CHANNEL 280 =====



**KXDD 281C1 Yakima
60 dBu F(50,50)**

SKAMANIA

Klickitat

HOOD RIVER

SHERMAN

GILLIAM

**K280FJ 280D The Dalles
54 dBu F(50,10)**

**KFIS 281C2 Scappoose
60 dBu F(50,50)**

WASCO

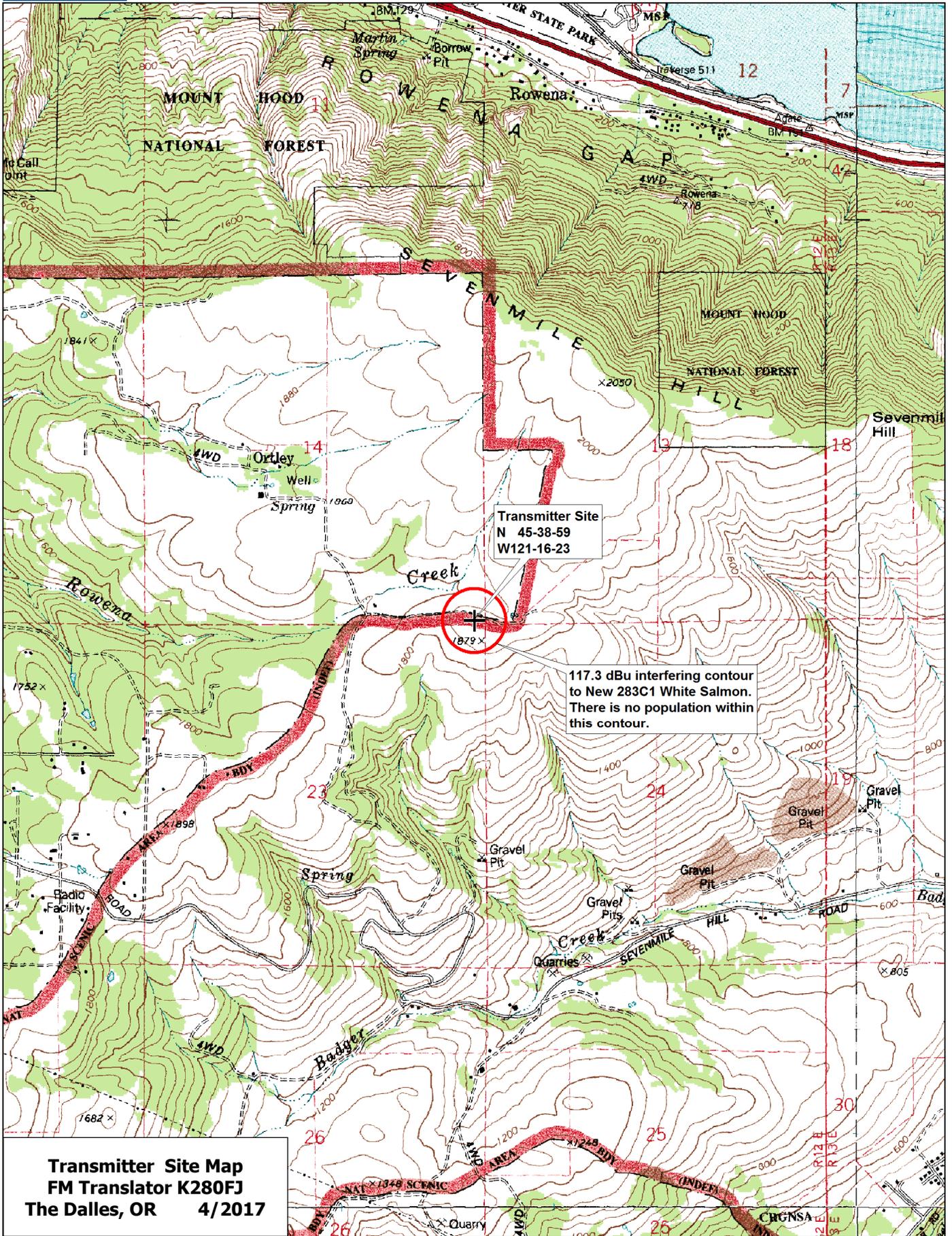
CLACKAMAS

WHEELER

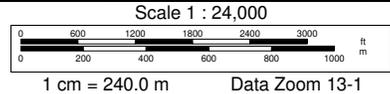
JEFFERSON

**KWPK-FM 281C2 Sisters
60 dBu F(50,50)**

K280FJ Allocation Study Map
0 15 30 45
Kilometers
Hatfield & Dawson 4/2017



Transmitter Site Map
FM Translator K280FJ
The Dalles, OR 4/2017



April 2017
FM Translator K280FJ
The Dalles, Oregon Channel 280D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 280D (103.9 MHz) with an effective radiated power of 240 watts. Operation is proposed with an omnidirectional antenna to be mounted on an existing wooden pole on Sevenmile Hill.

The proposed antenna support structure will 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.

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.

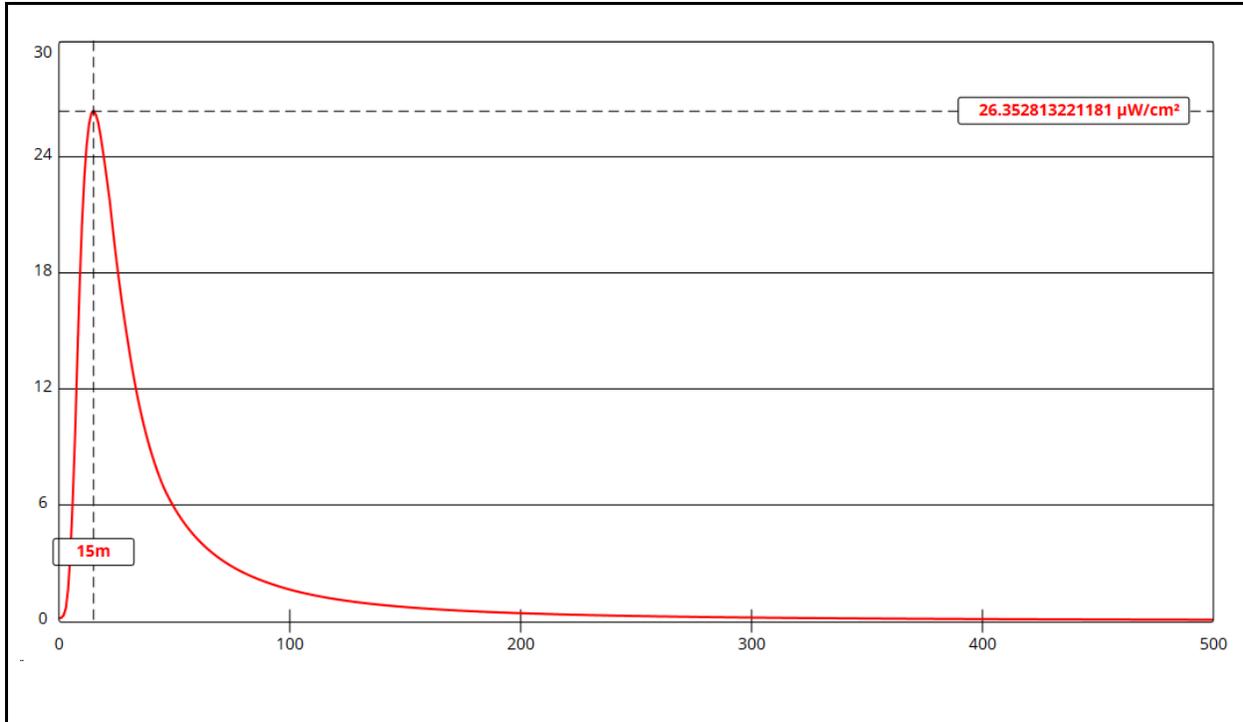
Calculations of the power density produced by the proposed antenna system assume a Type 2 element pattern, which is the appropriate element pattern for the Jampro JLLP-2 half-wave antenna to be used. The highest calculated ground level power density occurs at a distance of 15 meters from the base of the antenna support structure. At this point the power density is calculated to be 26.4 $\mu W/cm^2$, which is 13.2% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

Calculations of the power density produced by K280FJ and the other stations at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Antenna Height AGL	Calculated Max Exposure	Gen Pub FCC Limit	% of Limit
K280FJ 280D	0.240 kW H 0.240 kW V JAM JLLP-2 half wave	10 m Type 2	26.4 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	13.2%
KMSW(FM) 224C3	3.4 kW H 3.4 kW V JAM JMPC-2	42 m Type 2	26.7 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	13.4%

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K280FJ and the operations of the other stations at this site (were their maxima to coincide, which they do not) is 26.6% of the FCC standard for uncontrolled environments.

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 radiation in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

K280FJ The Dalles

Antenna Type: Jampro JLLP-2 half wave (Type 2)
 No. of Elements: 2
 Element Spacing: 0.5 wavelength

Distance: 500 meters
 Horizontal ERP: 240 W
 Vertical ERP: 240 W

Antenna Height: 10 meters AGL

Maximum Calculated Power Density is 26.4 μW/cm² at 15 meters from the antenna structure.