

June 2010
FM Translator K281AX
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.

SEARCH PARAMETERS

FM Database Date: 100604

Channel: 280A 103.9 MHz
 Latitude: 45 38 58
 Longitude: 121 16 25
 Safety Zone: 50 km
 Job Title: 280D AT SEVENMILE

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	115.76 20.76	95 CLEAR
KKCWaux LIC	BEAVERTON OR	BXLH-30617ABA	277C 103.3	40.000 394.0	45-31-21 122-44-46	263.5	115.78 0.00	0 AUX
KXPC-FM LIC	LEBANON OR	BMLE-91112AMW	279C 103.7	90.000 624.0	44-34-49 122-30-07	219.5 SS	153.17 -11.83	165 SHORT
KXPC-FM CP	LEBANON OR	BPED-91223AOC	279C 103.7	64.000 740.0	44-28-59 122-34-55	218.9	165.59 0.59	165 CLOSE
KXPCaux LIC	LEBANON OR	BXLH-50606AHX	279C 103.7	0.600 529.0	45-00-35 122-20-17	229.9	109.63 0.00	0 AUX
KXPC-FM1 LIC	MOLALLA OR	BLFTB-50112AAM	279D 103.7	0.600 0.0	45-00-35 122-20-17	229.9	109.63 0.00	0 BOOST
K279AK LIC	GRANGER WA	BLFT-61006AAR	279D 103.7	0.190 100.0	46-18-21 120-03-06	51.9	119.54 0.00	0 TRANS
NEW-T APP	HUSUM WA	BNPFT-30317LZM	279D 103.7	0.250 21.0	45-35-44 121-32-12	253.8	21.37 0.00	0 TRANS
KMTT LIC	TACOMA WA	BLH-80730AKI	279C 103.7	68.000 707.0	47-30-14 121-58-29	345.7	213.03 48.03	165 CLEAR
VAC	MONUMENT OR	RM-11241	280C1 103.9	0.000 0.0	44-49-09 119-25-11	121.8	172.36 -27.64	200 SHORT
K281AX LIC	HOOD RIVER OR	BLFT-70313ABS	281D 104.1	0.020 397.0	45-42-40 121-26-02	298.9	14.24 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	112.34 6.34	106 CLOSE
KFISaux LIC	SCAPPOOSE OR	BXLH-40908AAQ	281C2 104.1	2.450 322.0	45-29-20 122-41-40	261.3	112.34 0.00	0 AUX
K281AX APP	THE DALLES OR	BPFT-00312AAW	281D 104.1	0.250 497.0	45-38-58 121-16-25	0.0	0.00 0.00	0 TRANS

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SEARCH PARAMETERS FM Database Date: 100604

Channel: 280A 103.9 MHz Page 2

Latitude: 45 38 58

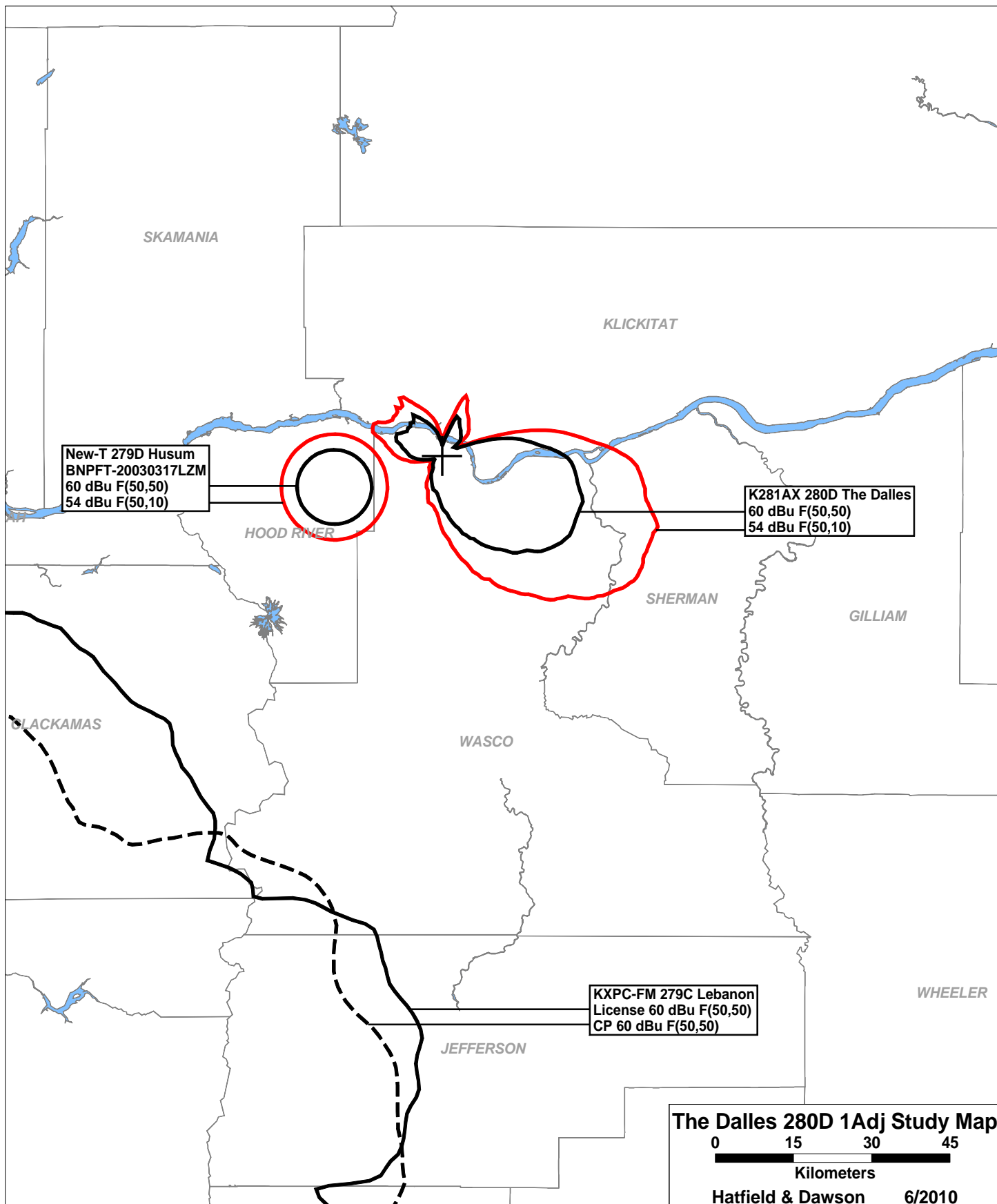
Longitude: 121 16 25

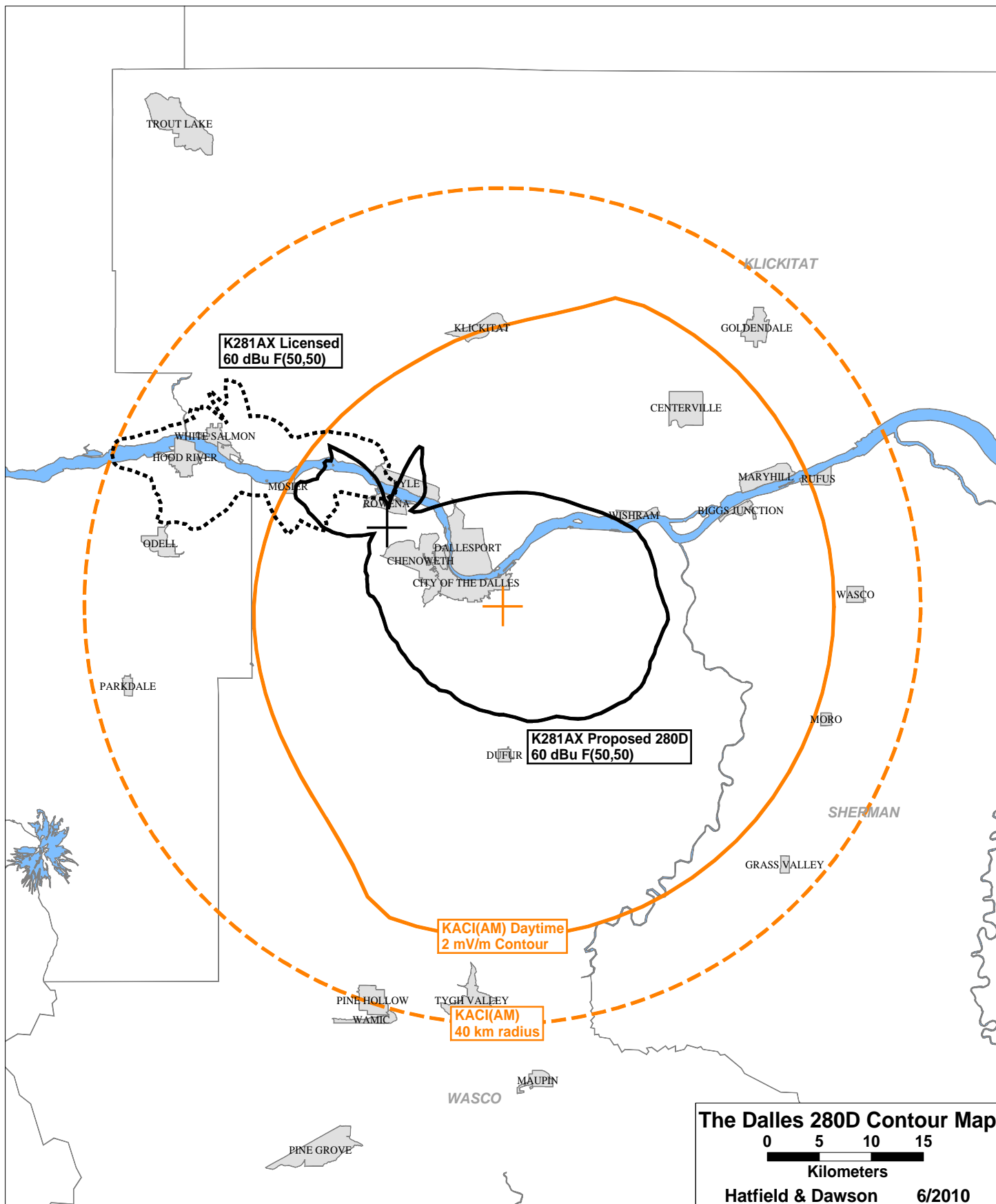
Safety Zone: 50 km

Job Title: 280D AT SEVENMILE

Call	City	Channel	ERP(kW)	Latitude	Bearing	Dist	Req
Status	St	FCC File No.	Freq. HAAT(m)	Longitude	deg-True	(km)	(km)
KXDD	YAKIMA	281C1	100.000 DA	46-30-48	34.7	117.36	133
LIC	WA BLH-20305AAX	104.1	245.0	120-24-05	SS	-15.64	SHORT
K285DC	MAUPIN	282D	0.034 DA	45-18-45	154.6	41.47	0
CP	OR BPFT-00216ADT	104.3	573.0	121-02-45		0.00	TRANS
	MORO	283C2	0.000	45-29-03	113.3	46.24	55
VAC	OR RM-10663	104.5	0.0	120-43-48		-8.76	SHORT

44444 END OF FM SPACING STUDY FOR CHANNEL 280 44444





June 2010
FM Translator K281AX
The Dalles, Oregon Channel 280D
NIER Study

Facilities Proposed

The proposed operation will be on Channel 280D (103.9 MHz) with a maximum lobe effective radiated power of 250 watts. Operation is proposed with an 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.

NIER 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.

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

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 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed K281AX antenna system have been made using the manufacturer's vertical plane pattern for the Scala HDCA5-CP antenna to be used. The highest calculated ground level power density occurs at a distance of 12 meters from the base of the antenna support structure. At this point the power density is calculated to be 36.8 μ W/cm².

Calculations of the power density produced by K281AX 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
K281AX 280D	0.25 kW avg Scala HDCA5-CP	10 m	36.8 μ W/cm ²	200 μ W/cm ²	18.4%

KACI-FM	5.1 kW avg JAM JMPC-2	42 m	39.9 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	20.0%
KMSW(FM)	3.4 kW avg JAM JMPC-2	42 m	26.6 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	13.3%

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K281AX and the operations of the other stations at this site (were their maxima to coincide, which they do not) is 51.7% 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.

K281AX at Sevenmile Hill
Scala HDCA5-CP Manufacturer's Vertical Plane Pattern

ERP	250 Watts H (avg)	
	250 Watts V (avg)	
AGL	10 less 2m is	8 meters
Maximum is	36.79 uW/cm ² at	12 meters

Power Density vs Distance

