

**April 2015**  
**FM Translator K258CN**  
**Richland, Washington Channel 258D**  
**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 map demonstrates compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

***KUJ-FM 256C1 Burbank:*** The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KUJ-FM 256C1 Burbank. The proposed site is 21.21 km from the KUJ-FM transmitter site at a bearing of 316 degrees True. Given the KUJ-FM antenna's 416 meter HAAT and 17.62 kW ERP along this radial, KUJ-FM places an 82.3 dBu contour at the translator transmitter site. The corresponding interfering contour from the translator is  $82.3 + 40 = 122.3$  dBu. The attached map of the proposed transmitter site depicts the 122.3 dBu contour from the proposed facility, which extends at most 85 meters from the antenna per a Free Space calculation. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KUJ-FM.

***KRKG-FM 261A Pasco (CP):*** The proposed translator transmitter site is located within the 60 dBu protected contour of third-adjacent channel station KRKG-FM 261A Pasco (CP) BPH-20130529AIA. The proposed site is just 0.13 km from the KRKG-FM (CP) transmitter site. Given the KRKG-FM (CP) antenna's ERP of 0.880 kW, KRKG-FM (CP) places a minimum 124.1 dBu contour at the translator transmitter site. The corresponding interfering contour from the translator is  $124.1 + 40 = 164.1$  dBu. The 164.1 dBu contour would extend just 0.7 meters from the transmitting antenna per a Free Space calculation, and would not reach ground level. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KRKG-FM (CP).

***KRKG-FM 261A Pasco (App):*** The proposed translator transmitter site is located within the 60 dBu protected contour of third-adjacent channel station KRKG-FM 261A Pasco (App) BMPH-20141119ACU. The proposed site is 20.72 km from the KRKG-FM (App) transmitter site at a bearing of 315 degrees True. Given the KRKG-FM (App) antenna's 400 meter HAAT and 0.450 kW ERP along this radial, KRKG-FM (App) places a 66.5 dBu contour at the translator transmitter site. The corresponding interfering contour from the translator is  $66.5 + 40 = 106.5$  dBu. The attached map of the proposed transmitter site depicts the 106.5 dBu contour from the proposed facility, which extends at most 525 meters from the antenna per a Free Space calculation. There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KRKG-FM (App).

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: 150424

Channel: 258A 99.5 MHz  
 Latitude: 46 14 8  
 Longitude: 119 19 13  
 Safety Zone: 50 km  
 Job Title: K258CN BADGER

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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)
K204DH LIC	HANFORD WA	BLFT-91006AAY	204D 88.7	0.003 843.0	46-26-52 119-50-20	300.8	46.37 0.00	0 TRANS
K204CZ LIC	KENNEWICK WA	BLFT-90430ABI	204D 88.7	0.010 544.0	46-06-15 119-07-36	134.3	20.90 0.00	0 TRANS
K204DH CP	SUNNYSIDE WA	BPFT-40724AHY	204D 88.7	0.005 843.0	46-26-52 119-50-20	300.8	46.37 0.00	0 TRANS
KUJ-FM LIC	BURBANK WA	BLH-60905AAY	256C1 99.1	52.000 385.0	46-05-58 119-07-40	135.5 SS	21.21 -53.79	75 SHORT
KUJ-aux CP	BURBANK WA	BXPB-30122ADS	256C1 99.1	5.000 -15.0	46-13-18 119-11-10	98.5	10.46 0.00	0 AUX
KDRM LIC	MOSES LAKE WA	BLH-801112AJ	257A 99.3	3.000 61.0	47-05-54 119-17-47	1.1	95.93 23.93	72 CLEAR
KZLY LIC	IONE OR	BLH-31126BMX	258C3 99.5	1.800 370.0	45-29-12 119-25-52	185.9 SS	83.68 -58.32	142 SHORT
K258BM LIC	LA GRANDE OR	BLFT-10525ABW	258D 99.5	0.099 129.0	45-20-53 118-07-02	136.2	135.94 0.00	0 TRANS
RSV	PULLMAN WA	RM-coord-22	258C 99.5	0.000 0.0	46-40-49 116-53-18	74.3	193.26 -32.74	226 SHORT
KZZL-FM LIC	PULLMAN WA	BMLH-20920AAD	258C1 99.5	81.000 323.0	46-40-52 116-58-16	73.8	187.14 -12.86	200 SHORT
K258CN CP MOD	RICHLAND WA	BMPFT-50309ALE	258D 99.5	0.099 0.0	46-06-15 119-07-48	134.8	20.72 0.00	0 TRANS
KAAP LIC	ROCK ISLAND WA	BMLH-70220AAV	258A 99.5	5.300 -25.0	47-22-52 120-17-15	330.3	147.20 32.20	115 CLEAR
K261BS CP	MILTON-FREEWATER OR	BPFT-41110ADI	259D 99.7	0.170 813.0	45-59-23 118-10-31	106.8	92.64 0.00	0 TRANS

SEARCH PARAMETERS

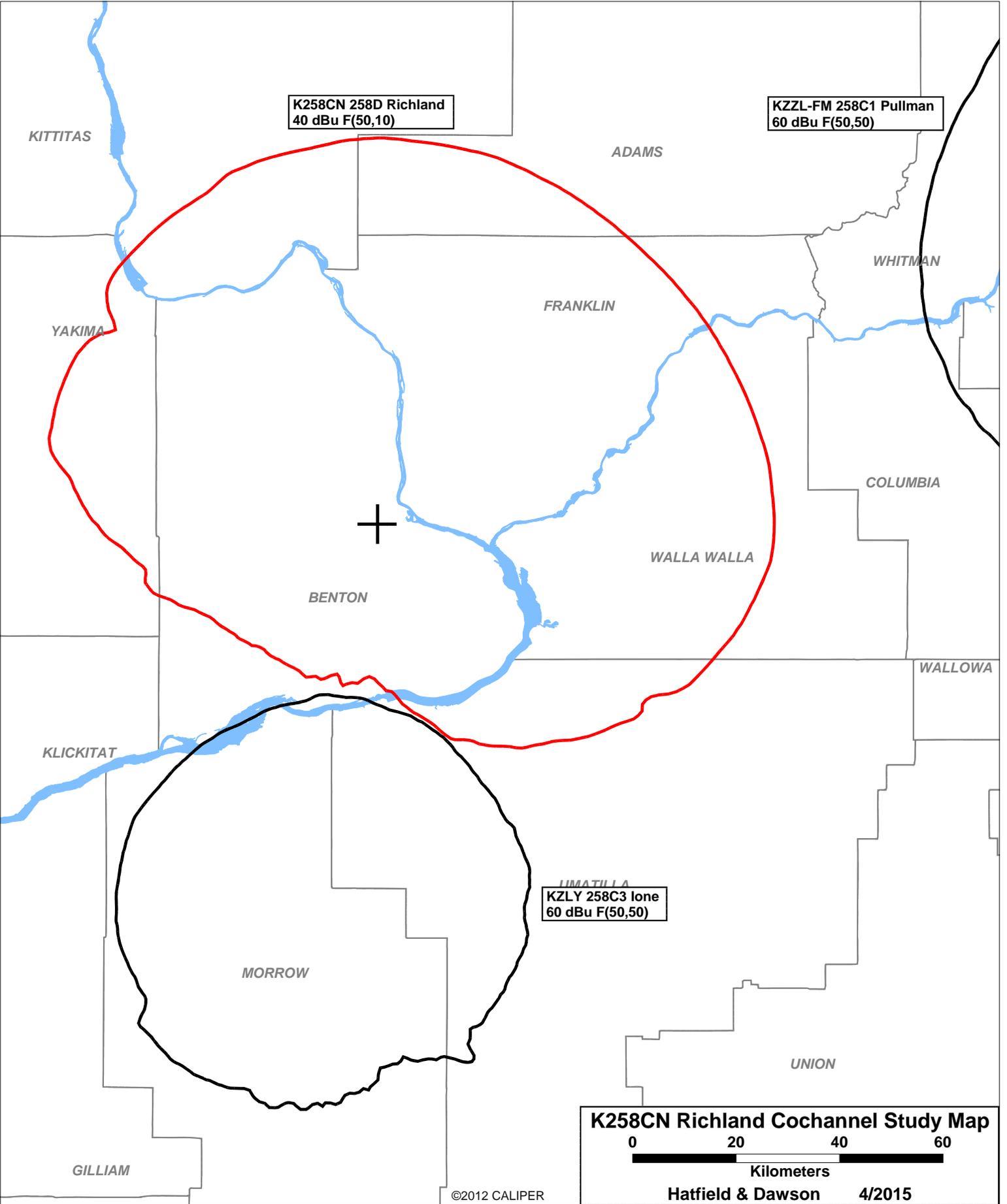
FM Database Date: 150424

Channel: 258A 99.5 MHz  
 Latitude: 46 14 8  
 Longitude: 119 19 13  
 Safety Zone: 50 km  
 Job Title: K258CN BADGER

Page 2

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KHHKaux LIC	YAKIMA WA	BXLH-40718ABA	259C3 99.7	1.000 -59.0	46-36-09 120-30-13	294.6	99.70 0.00	0 AUX
KHHK LIC	YAKIMA WA	BMLH-40204ABJ	259C3 99.7	4.100 245.0	46-31-20 120-20-08	292.6	84.36 -4.64	89 SHORT
RSV	HERMISTON OR	RM-11242	261A 100.1	0.000 0.0	45-51-57 119-18-38	179.0	41.10 10.10	31 CLEAR
	HERMISTON OR	RM-inv-54	261A 100.1	0.000 0.0	45-51-57 119-18-42	179.1	41.10 10.10	31 CLEAR
KQFM LIC	HERMISTON OR	BLH-00211ABO	261A 100.1	5.300 94.0	45-51-57 119-18-42	179.1	41.10 10.10	31 CLEAR
K261BS LIC	MILTON-FREEWATER OR	BLFT-21004ABK	261D 100.1	0.190 146.0	46-02-33 118-20-00	105.4	79.22 0.00	0 TRANS
KRKG-FM CP	PASCO WA	BPH-30529AIA	261A 100.1	0.880 262.0	46-14-04 119-19-13	189.8	0.13 -30.87	31 SHORT
KRKG-FM APP	PASCO WA	BMPH-41119ACU	261A 100.1	0.450 361.0	46-06-15 119-07-48	134.8	20.72 -10.28	31 SHORT

==== END OF FM SPACING STUDY FOR CHANNEL 258 ====

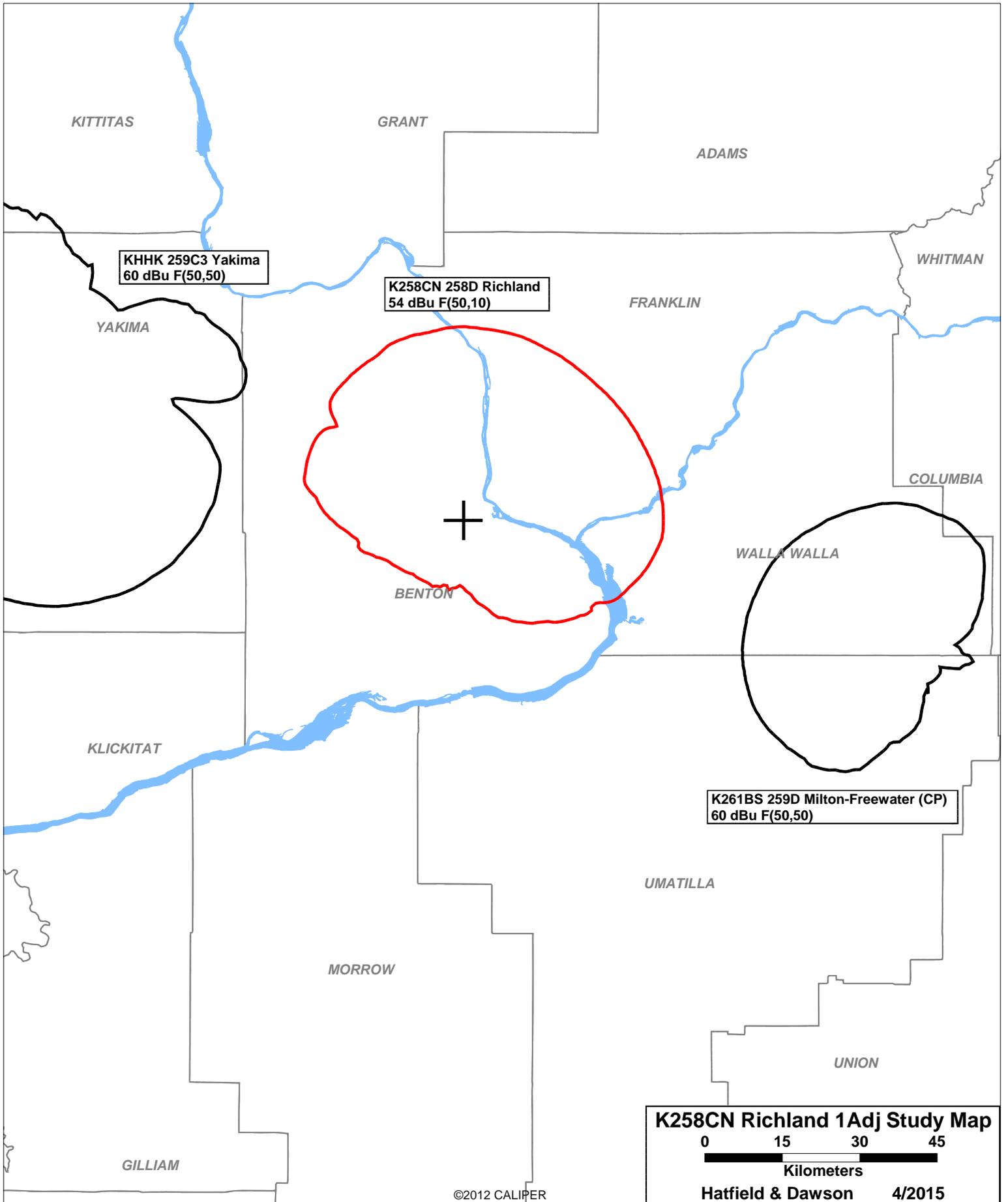


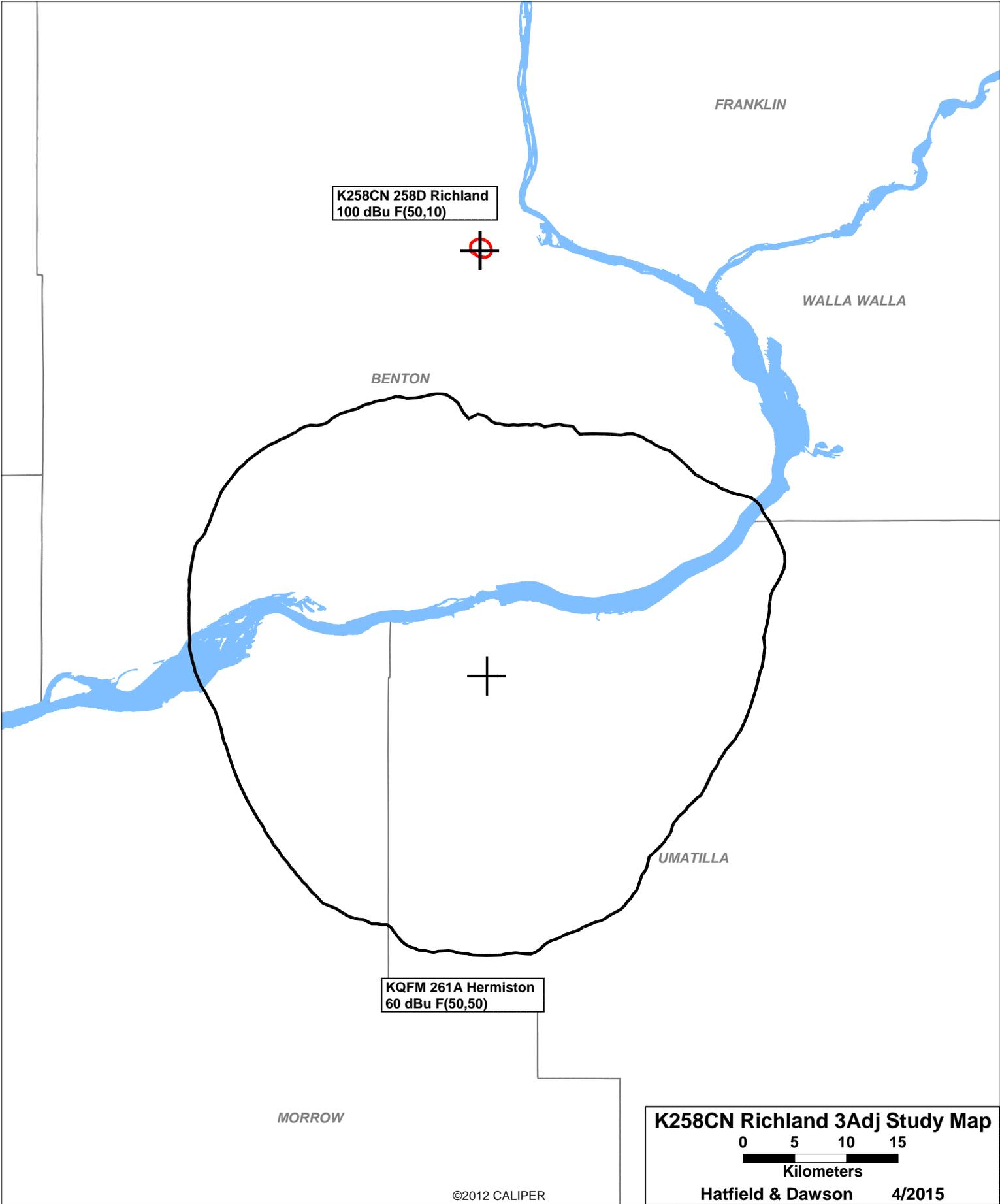
K258CN 258D Richland  
40 dBu F(50,10)

KZZL-FM 258C1 Pullman  
60 dBu F(50,50)

KZLY 258C3 lone  
60 dBu F(50,50)

**K258CN Richland Cochannel Study Map**  
0 20 40 60  
Kilometers  
Hatfield & Dawson 4/2015





K258CN 258D Richland  
100 dBu F(50,10)



FRANKLIN

WALLA WALLA

BENTON



UMATILLA

KQFM 261A Hermiston  
60 dBu F(50,50)

MORROW

**K258CN Richland 3Adj Study Map**

0 5 10 15



Kilometers

Hatfield & Dawson

4/2015

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**April 2015**  
**FM Translator K258CN**  
**Richland, Washington Channel 258D**  
**RF Exposure Study**

**Facilities Proposed**

The proposed operation will be on Channel 258D (99.5 MHz) with a maximum lobe effective radiated power of 250 watts. Operation is proposed with an antenna to be mounted on an existing tower on Badger Mountain. Diplexed operation is proposed with K291BS Richland.

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.

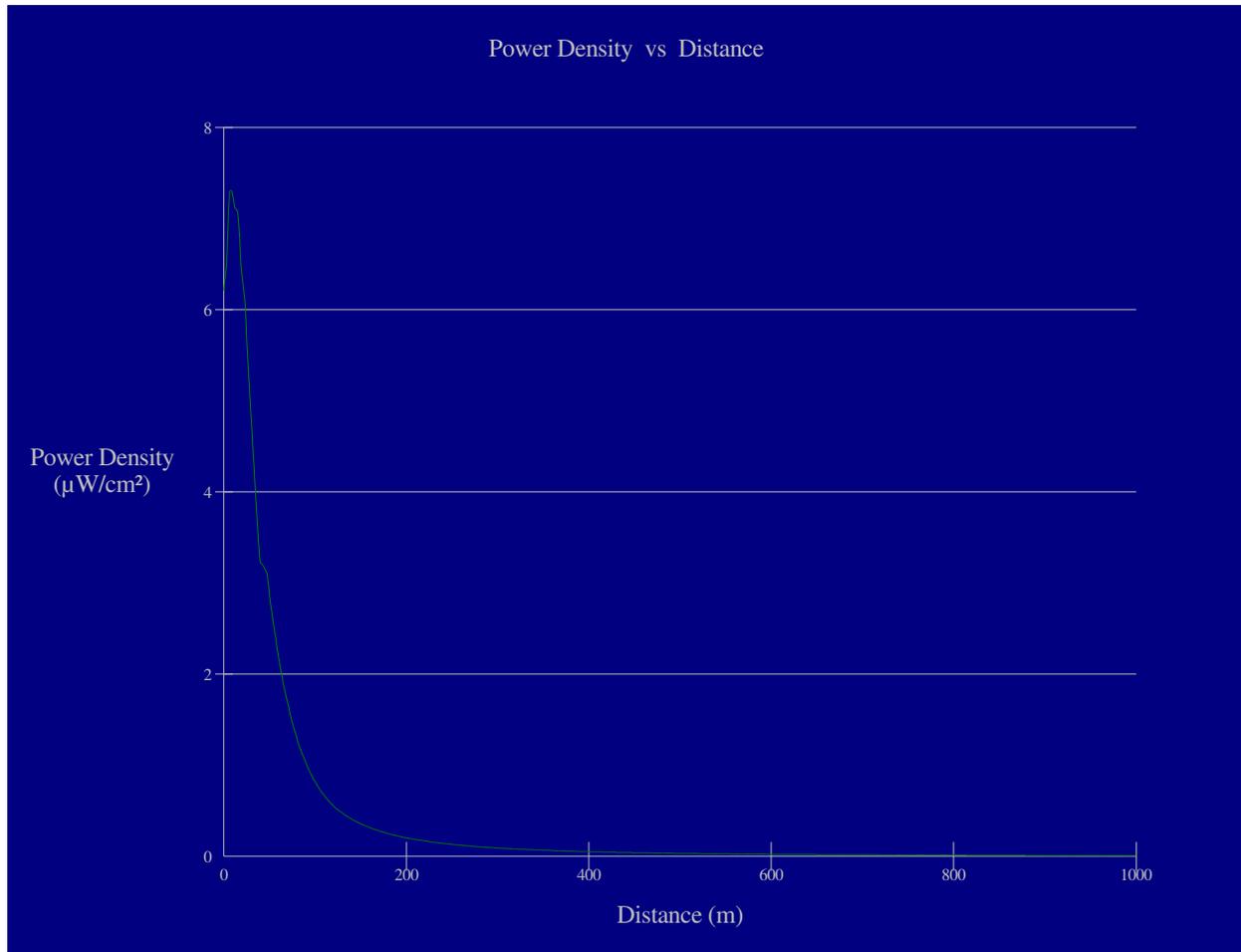
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed translator antenna system have been made using the "worst case" element pattern for a vertical dipole antenna. The highest calculated ground level power density from the translator occurs at a distance of 8 meters from the base of the antenna support structure. At this point the power density is calculated to be 7.3  $\mu W/cm^2$ , which is 3.7% of 200  $\mu W/cm^2$  (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K258CN alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes 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.

It is understood that the applicant 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.



**Ground-Level RF Exposure**

**OET FMModel**

**K258CN Richland**

Antenna Type: Shively 6020-1 dipole

No. of Elements: 1

Element Spacing: 1.0 wavelength

Distance: 1000 meters

Horizontal ERP: zero kW

Vertical ERP: 0.250 kW

Antenna Height: 35 meters AGL

Maximum Calculated Power Density is 7.3 µW/cm<sup>2</sup> at 8 meters from the antenna structure.