

**September 2021  
New FM Channel 216A  
Valparaiso, Indiana  
Allocation Study**

The attached spacing study shows the co-channel and adjacent channel spacing between stations and demonstrates that the proposed operation meets the IF channel spacing requirements as prescribed in §73.207 of the Commission's Rules.

Individual stations were examined to confirm the lack of prohibited contour overlap as prescribed in §73.509 of the Commission's Rules. The attached allocation study exhibits demonstrate requisite contour protection for the following domestic stations:

Cochannel:	WGCS	216A	Goshen
	WBEK	216A	Kankakee
Second-adjacent:	WAUS	214B	Berrien Springs
	WBEZ	218B	Chicago
Third-adjacent:	WRTW	213B1	Crown Point

**TV Channel 6**

Section 73.525 of the Commission's Rules specifies a threshold distance of 177 kilometers for FM stations operating on Channel 216. There is no TV Channel 6 station located within this threshold distance.

```

=====
SEARCH PARAMETERS                               FM Database Date: 20210830
Channel: 216A      91.1 MHz                      Page 1
Latitude: 41 31 49.2 (NAD83)
Longitude: 87 2 3.7
Safety Zone: 50 km
Job Title: VALPARAISO 216A

```

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
WRTW LIC	CROWN POINT IN	BLED-20100225ACD	213B1 90.5	3.100 183.0	41 20 56.1 87 24 2.1	236.7	36.64 -11.36	48 SHORT
WAUS LIC	BERRIEN SPRINGS MI	BLED-19920424KA	214B 90.7	50.000 150.0	41 57 42.1 86 21 2.0	49.6	74.37 5.37	69 CLOSE
WRTE LIC	CHICAGO IL	BLED-20140206ADD	214D 90.7	0.006 107.3	41 52 25.1 87 39 4.1	306.9	63.95 0.00	0 CLS=D
WDCB LIC	GLEN ELLYN IL	BLED-19840113AF	215A 90.9	5.000 91.0	41 50 36.1 88 5 0.2	292.1	94.01 22.01	72 CLEAR
W215BB LIC	WARSAW WINONA LAKE IN	BLFT-20000301ACA	215D 90.9	0.102 0.0	41 13 40.2 85 47 22.0	107.5	109.43 0.00	0 TRANS
W216CL LIC	CHICAGO IL	BMLFT-20160504AB	216D 91.1	0.050 0.0	41 53 56.1 87 37 23.2	310.2	63.85 0.00	0 TRANS
WCYT CP	LAFAYETTE TOWNSHIP IN	BPED-20180313AAH	216A 91.1	1.500 85.0	40 59 47.1 85 17 42.9	111.6	157.34 42.34	115 CLEAR
W216BX LIC	BENTON HARBOR MI	BLFT-20120508ACZ	216D 91.1	0.038 0.0	42 5 7.1 86 26 40.1	38.2	78.76 0.00	0 TRANS
WGCS LIC	GOSHEN IN	BLED-19980313KA	216A 91.1	6.000 89.0	41 33 29.2 85 51 6.0	87.8	98.73 -16.27	115 SHORT
W216BB LIC	WILLIAMSPORT IN	BLFT-19990504UC	216D 91.1	0.019 0.0	40 19 17.1 87 19 9.0	190.2	136.38 0.00	0 TRANS
WCYT LIC	LAFAYETTE TOWNSHIP IN	BLED-19940630KA	216A 91.1	0.125 69.0	40 58 51.1 85 16 47.9	112.0	159.20 44.20	115 CLEAR
WGTD LIC	KENOSHA WI	BLED-20080411AEC	216A 91.1	3.200 62.0	42 36 32.1 87 50 56.3	331.0	137.47 22.47	115 CLEAR
WILV LIC	LOVES PARK IL	BLED-20010727AAW	216B1 91.1	7.000 161.0	42 19 20.1 89 0 41.4	299.0	186.10 43.10	143 CLEAR
WBEK LIC	KANKAKEE IL	BLED-20080324AAC	216A 91.1	2.600 77.3	41 9 39.0 87 52 30.0	239.9	81.45 -33.55	115 SHORT

=====

SEARCH PARAMETERS FM Database Date: 20210830

Channel: 216A 91.1 MHz Page 2

Latitude: 41 31 49.2 (NAD83)

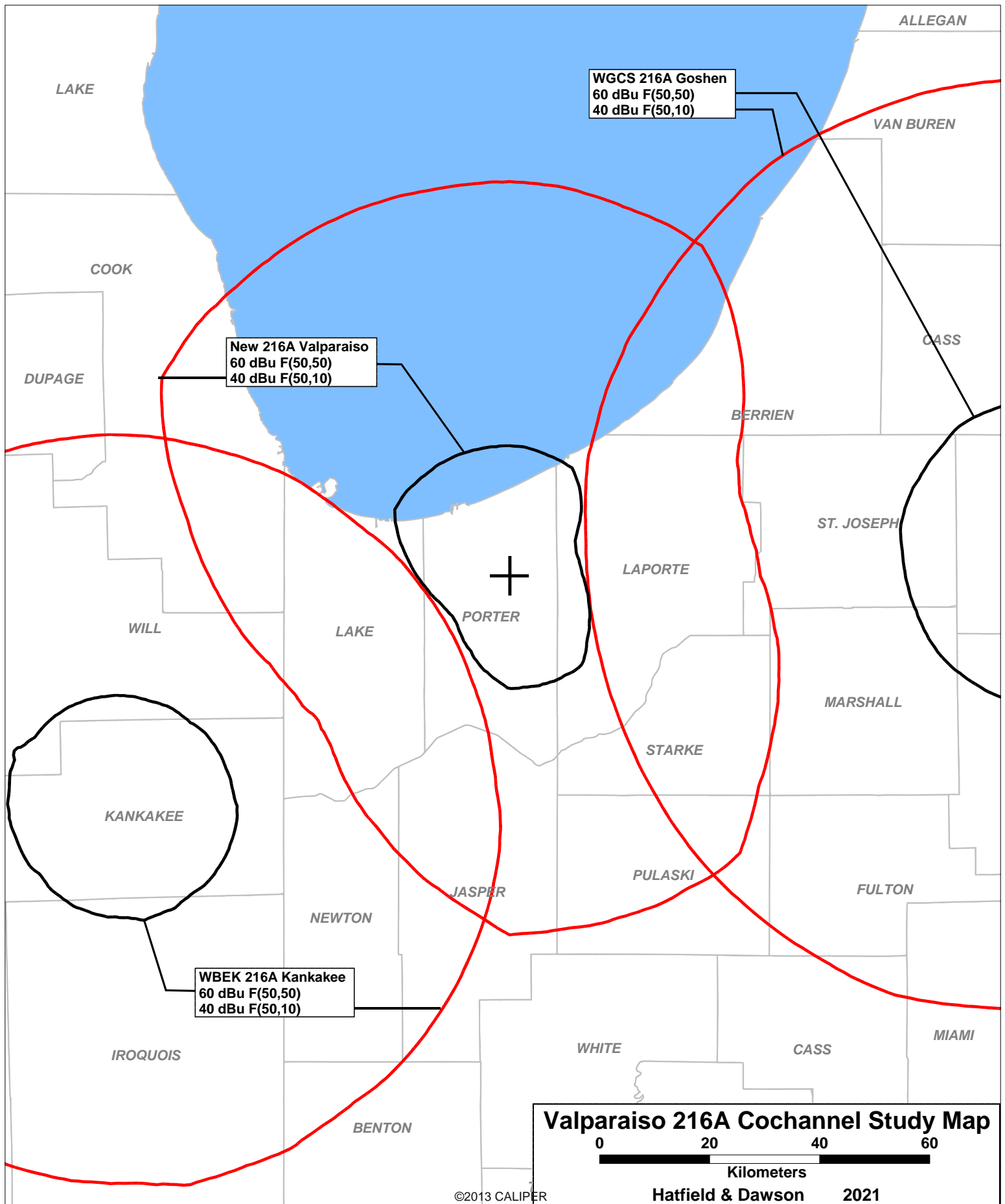
Longitude: 87 2 3.7

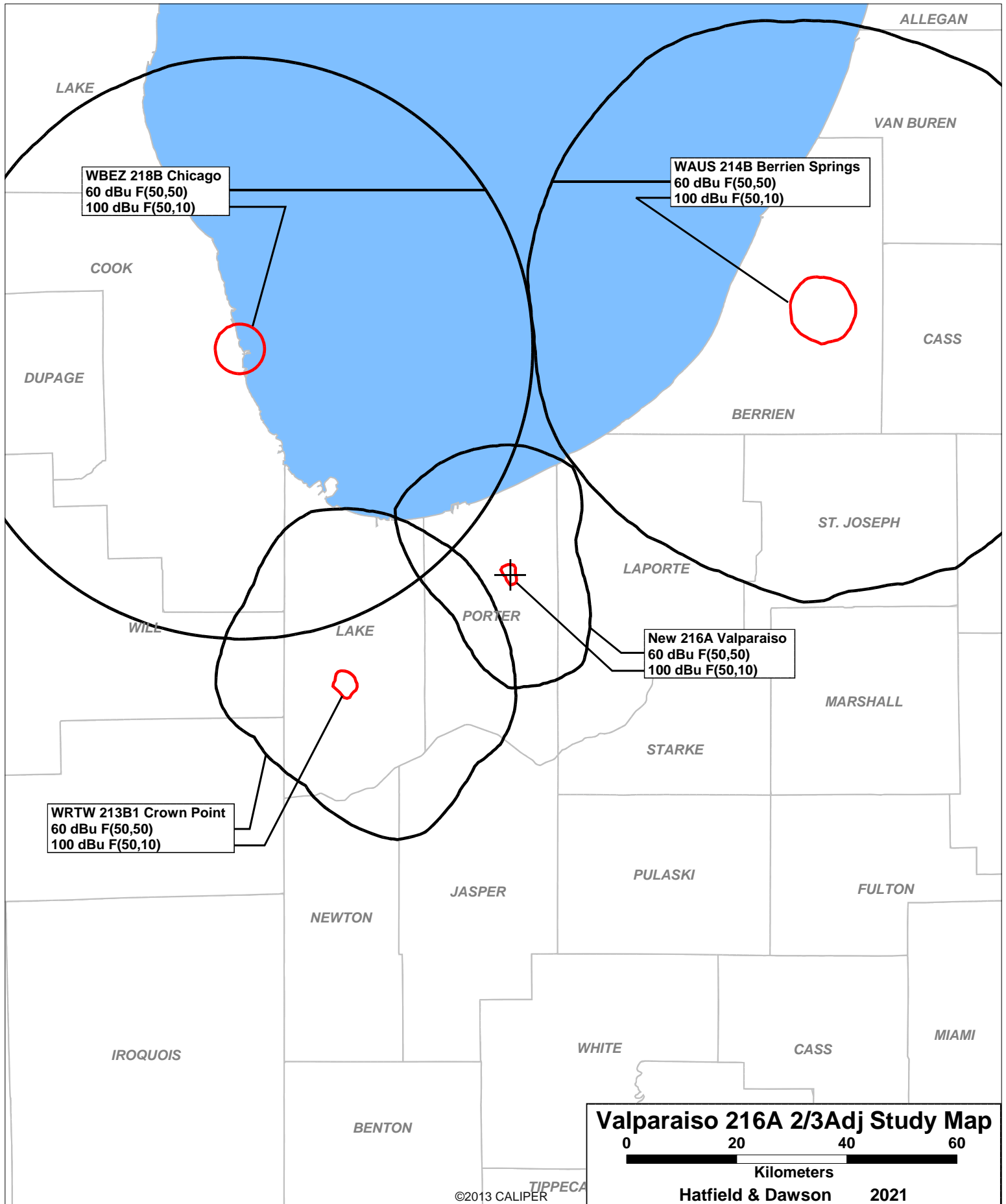
Safety Zone: 50 km

Job Title: VALPARAISO 216A

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
W217BZ LIC	WARSAW IN	BLFT-20120718ACH	217D 91.3	0.055 0.0	41 14 12.2 85 52 45.0	108.3	101.98 0.00	0 TRANS
WJCZ LIC	MILFORD IL	BLED-20050127AFE	217B1 91.3	25.000 27.0	DA 40 35 7.1 87 57 47.1	216.8	130.80 34.80	96 CLEAR
WJCZ CP	MILFORD IL	0000143994	217B 91.3	50.000 27.0	DA 40 35 7.0 87 57 47.0	216.8	130.80 17.80	113 CLEAR
WBEZ LIC	CHICAGO IL	BLED-20101206AAE	218B 91.5	5.700 425.1	41 53 56.1 87 37 23.2	310.2	63.85 -5.15	69 SHORT
WETL LIC	SOUTH BEND IN	BLED-19830926AG	219A 91.7	3.000 91.0	41 37 24.1 86 14 15.0	80.9	67.26 36.26	31 CLEAR
WIMX LIC	SKOKIE IL	BLH-20020722ABF	270B 101.9	4.200 476.0	41 52 44.1 87 38 8.2	308.0	63.27 48.27	15 CLEAR

===== END OF FM SPACING STUDY FOR CHANNEL 216 =====





**September 2021  
New FM Channel 216A  
Valparaiso, Indiana  
RF Exposure Study**

**Facilities Proposed**

The proposed operation will be on Channel 216A (91.1 MHz) with a maximum lobe effective radiated power of 1.35 kilowatts. Operation is proposed with an antenna to be mounted on an existing tower structure with FCC Antenna Structure Registration Number 1235925.

**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.

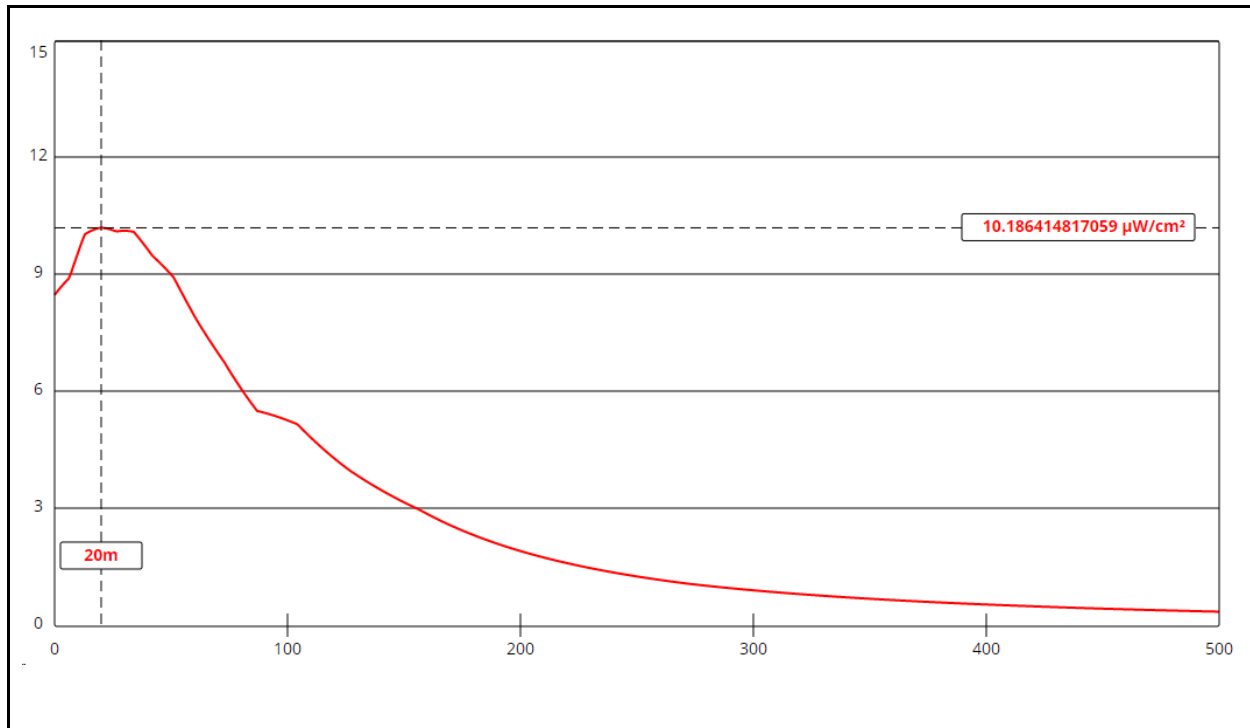
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

The antenna model to be used has not yet been selected. Therefore, calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the "worst case" element pattern. Under this "worst case" assumption, the highest calculated ground level power density occurs at a distance of 20 meters from the base of the antenna support structure. At this point the power density is calculated to be 10.2  $\mu W/cm^2$ , which is 5.1% of 200  $\mu W/cm^2$  (the FCC standard for uncontrolled environments).

(While the ASR record indicates that the structure consists of a tower atop a building, in this

particular case the building itself was constructed solely for supporting the tower and other antennas. This building is not occupied by members of the general population.)

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.



## Ground-Level RF Exposure

OET FMModel

### Valparaiso 216A

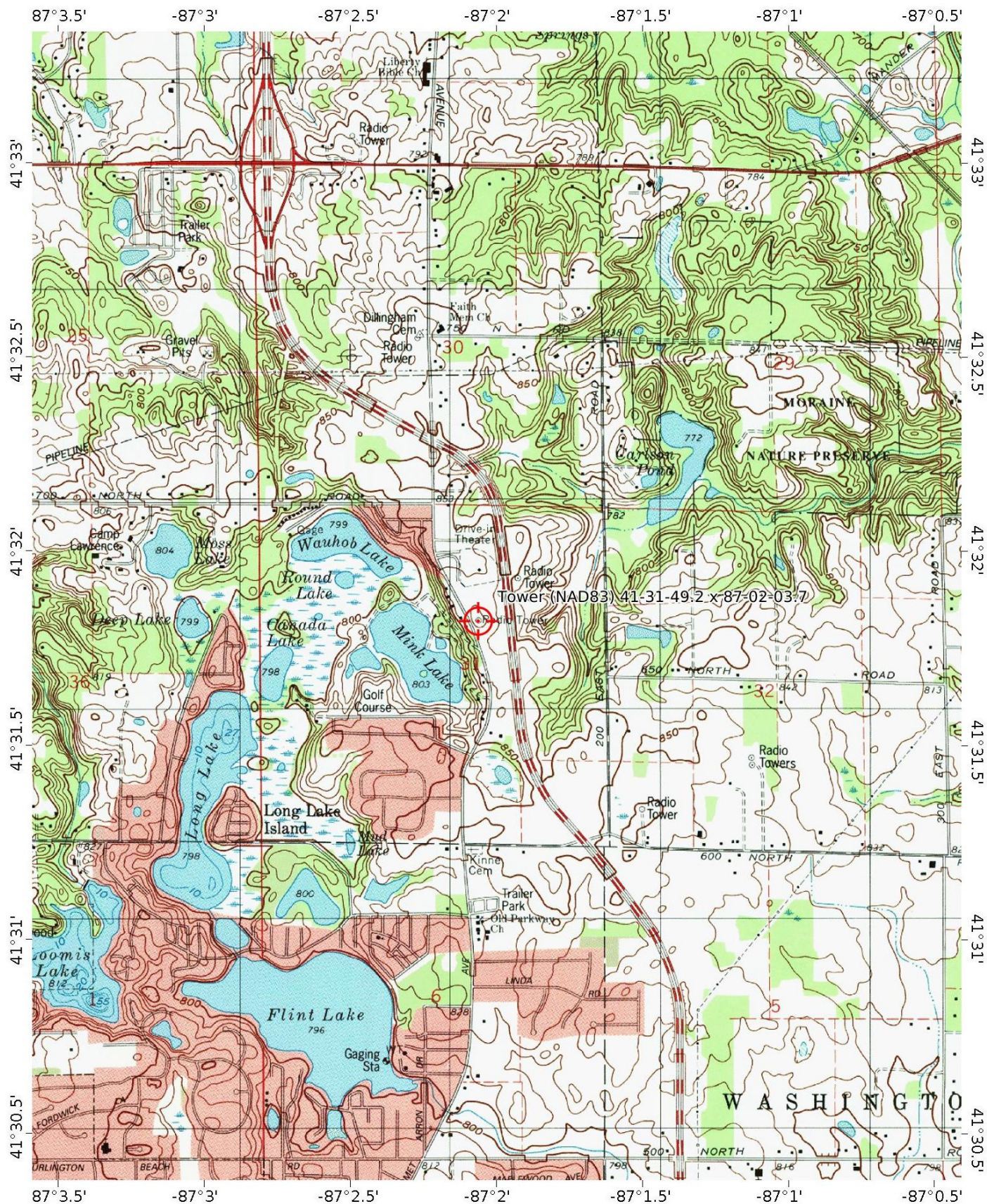
Antenna Type: Type 1 assumed  
No. of Elements: 1  
Element Spacing: 1 wavelength

Distance: 500 meters  
Horizontal ERP: 1.35 kW  
Vertical ERP: 1.35 kW

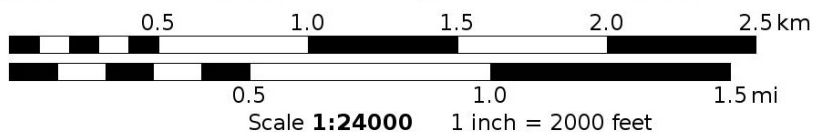
Antenna Height: 75 meters AGL

Maximum Calculated Power Density is 10.2  $\mu\text{W}/\text{cm}^2$  at 20 meters from the antenna structure.





Mercator Projection  
WGS84  
USNG 16TDL-16TDM  
 CALTOPO



Hatfield & Dawson Consulting Engineers



**September 2021**  
**New FM Channel 216A**  
**Valparaiso, Indiana**  
**Area and Population Calculation Methodology**

Calculation of the area within the 60 dBu contour was performed by the mapping program Maptitude, which includes a function which automatically calculates the area within irregular polygons. In cases where the 60 dBu contour included any large water areas, those were excluded by using a related tool in the program which allows the user to “clip” to the land area within the contour. The software returns the area of the land area.

Total area inside 60 dBu contour:	1,134 sq km
Water area excluded:	209 sq km
Total land area inside 60 dBu contour:	925 sq km

Population was calculated by summing the individual populations of each of the census blocks from the 2010 Census whose centroids are encompassed by the proposed 60 dBu contour.

Population inside 60 dBu contour:	184,644
-----------------------------------	---------

