

W250BN.Prop Engineering Statement

The proposed W250BN directional antenna reduces signal towards WCKL to prevent prohibited interference. The directional antenna envelope pattern is provided in the application form and a contour map follows the Channel Study.

74.1204(d) for 2nd/3rd Adjacent Channels

The channel study (see following page) shows two potentially disallowed contour overlaps with third-adjacent channel WRMW and second-adjacent channel WJMR-FM. In following pages please see exhibits showing how the potential interference by W259BN to WRMW and WJMR-FM is located above public areas and will therefore not cause any actual interference.

The one-bay TFC2K-1 antenna, manufactured by BEXT, is proposed to be located on a 30 ft mast with the antenna RC 25 ft above the main roof of the US Bank building. The public is not allowed above the 38th floor of the building. The page entitled "X-Field Elevation Definition" shows how the distance of the public areas from the RC are calculated. Therefore, the walking space of the 38th floor is used in the calculations as the reference elevation with RC 80 ft (24.38m) above that public reference (normally referred to as AGL in exhibits).

W250BN.Prop vs WJMR-FM

The X-Field study of WJMR-FM shows that the TFC2K-1 RX @ 24.38m above public reference elevation has potential for interference only above 3.232m above the public reference point. Allowing 2m for the area on the 38th floor, that leaves an additional 1.232m margin from interference above the heads of the public.

X-field also shows that the potential for interference extends out 42.3m from RC. There are no other structures that close to the proposed antenna on the US Bank building, as the aerial view of the US Bank shows.

W250BN.Prop vs WRMW

The X-Field study of WRNW shows that the TFC2K-1 RX @ 24.38m above public reference elevation has potential for interference only above 15.112m above the public reference point. Allowing 2m for the area on the 38th floor, that leaves an additional 13.112m margin from interference above the heads of the public.

X-field also shows that the potential for interference extends out 18.5m from RC. There are no other structures that close to the proposed antenna on the US Bank building.

Compliance with 74.1204(d)

47 C.F.R. 74.1204(d) states, in part: "In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable."

The forgoing demonstrates compliance since the public is not located or is not allowed where potential exists for second or third adjacent channel interference to WJMR-FM and WRMW.

If required, Applicant also requests a waiver to permit this contour overlap due to no public location nor population being affected.

Fill-In Contour

W250BN is a Fill-In translator for Class B WMYX-FM-HD3. You can see from the last map page that the W250BN 54dBu contour is completely enveloped by the WMYX-FM 54 dBu Contour.

FM Channel Study

US Bank Site

REFERENCE
43 02 18.50 N.
87 54 08.41 W.

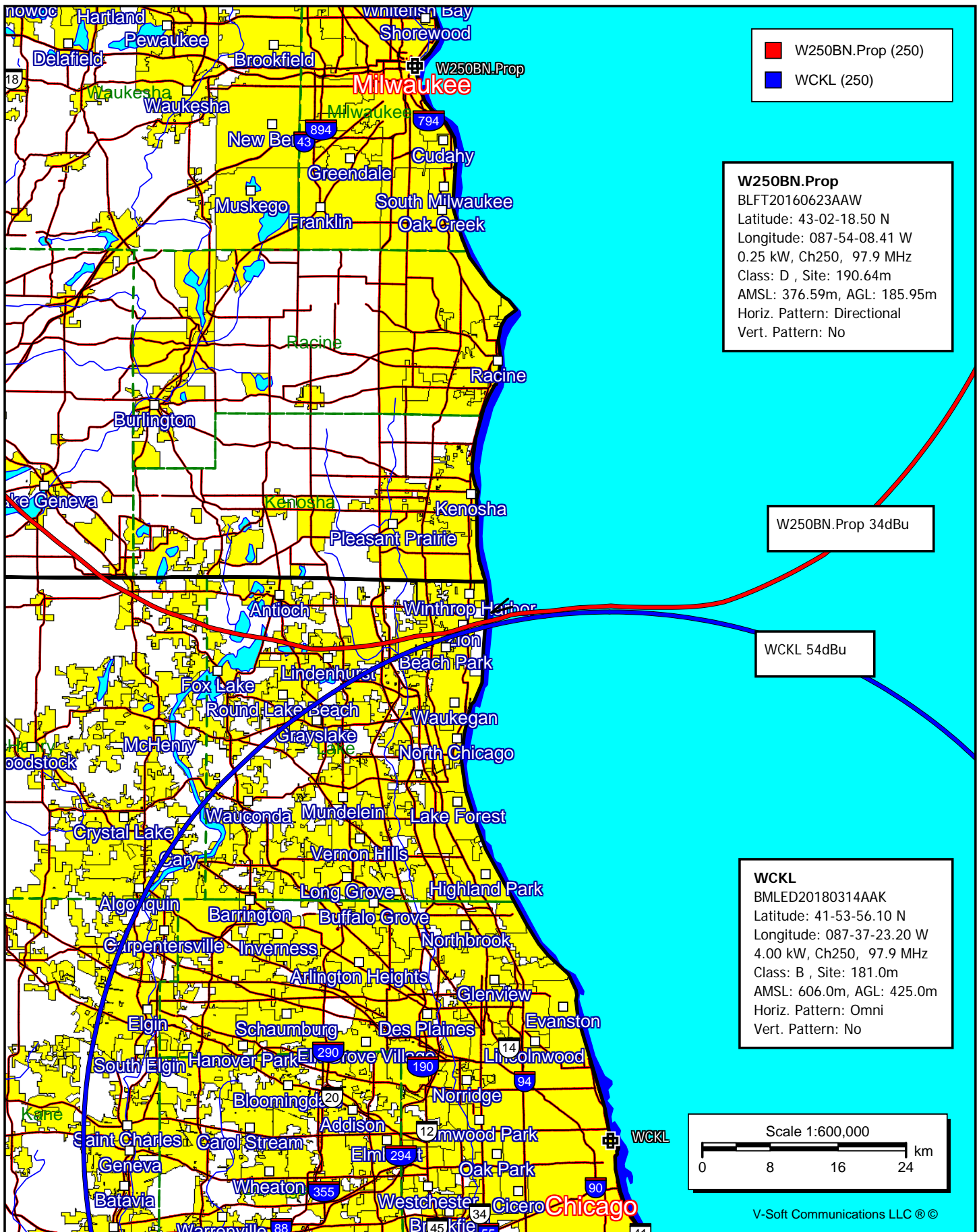
CH# 250D - 97.9 MHz, Pwr= 0.25 kW DA, HAAT= 177.1 M, COR= 376.8 M
Average Protected F(50-50)= 17.48 km
Standard Directional

DISPLAY DATES
DATA 12-01-23
SEARCH 12-27-23

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
250D West Allis	W250BN	LIC DCN WI		272.2 92.2	1.26 BLFT20160623AAW	43 02 20.10 87 55 04.30	0.250		---Reference---		
247B Milwaukee	WRNW	LIC _CN WI		346.0 165.9	8.35 BLH19840925DP	43 06 41.00 87 55 38.30	15.500 278	5.8 491	67.1 Ihm Licenses, LLC	-13.2*<	-60.4*<
252A Menomonee Falls	WJMR-FM	LIC _CN WI		278.4 98.3	6.49 BLH20001213ACF	43 02 49.00 87 58 52.30	4.900 111	3.0 330	31.9 Lakefront Communications,	-13.0*<	-26.5*<
250B Chicago	WCKL	LIC _CN IL		169.7 349.8	128.64 BMLED20180314AAK	41 53 56.10 87 37 23.20	4.000 425	121.4 606	62.3 Educational Media Foundati	-7.7*<	1.3
249C3 Lomira	WFDL-FM	LIC ZCN WI		327.7 147.4	81.10 BLH20020422AAE	43 39 14.00 88 26 25.40	17.500 122	55.0 421	35.4 Radio Plus, Inc.	10.3	21.9
251D Kenosha	W251BU	LIC DCN WI		174.8 354.8	47.91 BLFT20161018AAC	42 36 32.10 87 50 56.30	0.250	12.6 259	9.0 Civic Media, Inc.	20.3	16.3
251B Madison	WMGN	LIC _CN WI		266.5 85.5	120.77 BLH20061121ABB	42 57 46.00 89 22 47.40	36.000 176	79.2 463	66.4 Mid-West Management, Inc.	25.7	20.9
251A Cleveland	WLKN	LIC NCN WI		5.9 186.0	105.65 BLH19991025AET	43 59 03.00 87 45 55.30	5.800 89	43.2 310	28.0 Seehafer Broadcasting Corp	46.2	53.3

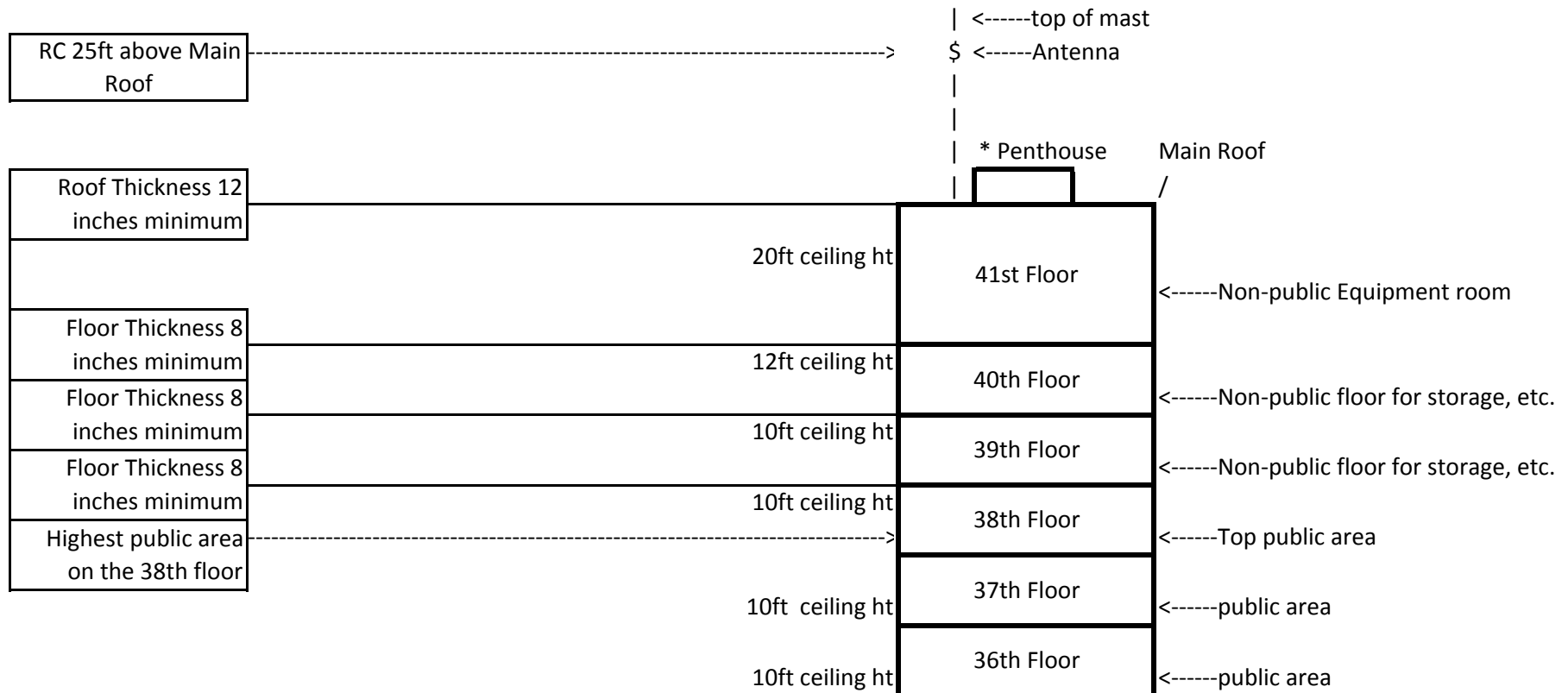
Terrain database is FCC NGDC 30 Sec, R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
Contour distances are on direct line to and from reference station. Reference zone= - ZN1, Co to 3rd adjacent.
All separation margins (if shown) include rounding.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.
< = Contour Overlap

W250BN.Prop Envelope vs WCKL

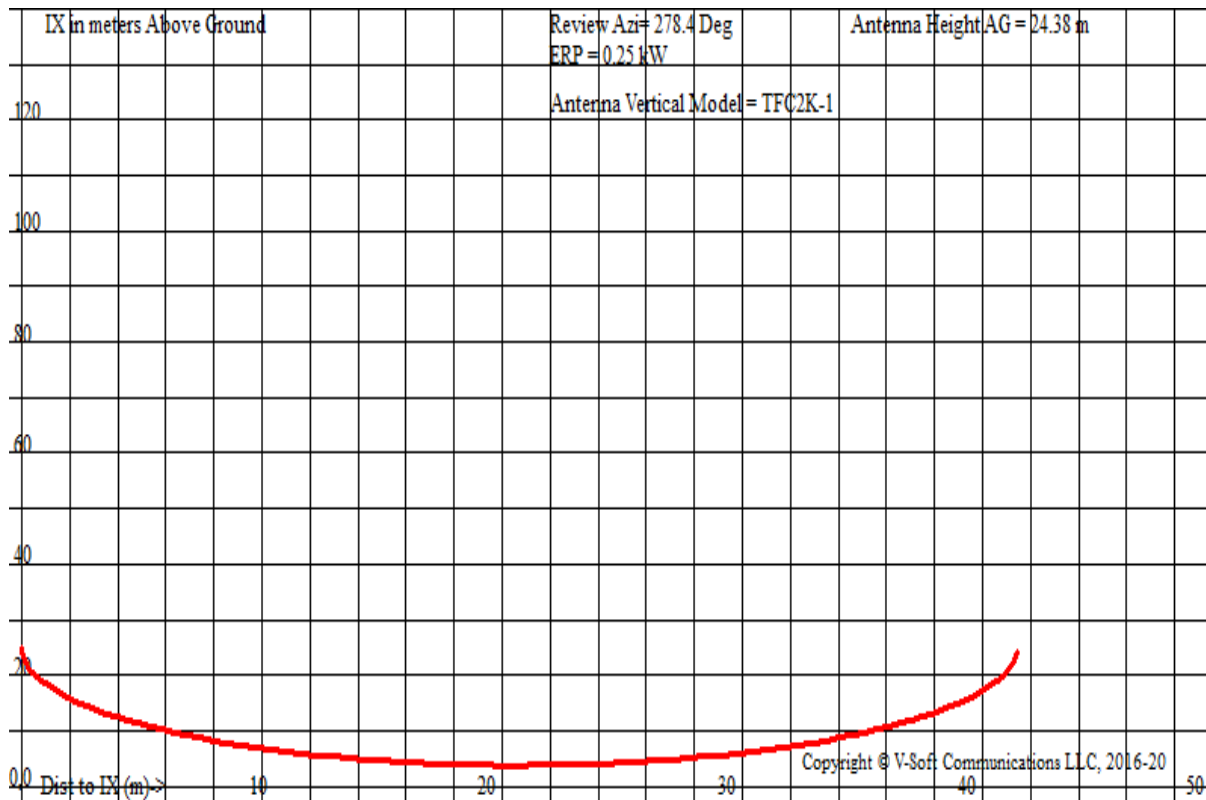


X-Field Elevation Definition

Dist-m	Dist-ft	Description
7.619628	25	Main roof distance below RC
0.304785	1	Thickness of roof above equipment floor 1 ft minimum
6.095703	20	41st floor: Floor-to-Ceiling ht
0.20319	0.666667	Thickness between floors 8 inches minimum
3.657422	12	40th floor: Floor-to-Ceiling ht
0.20319	0.666667	Thickness between floors 8 inches minimum
3.047851	10	39th floor: Floor-to-Ceiling ht
0.20319	0.666667	Thickness between floors 8 inches minimum
3.047851	10	38th floor: Floor-to-Ceiling ht on highest public floor
24.38281	80	Reference AGL to RC for calculations



* Penthouse is a non-public equipment area.



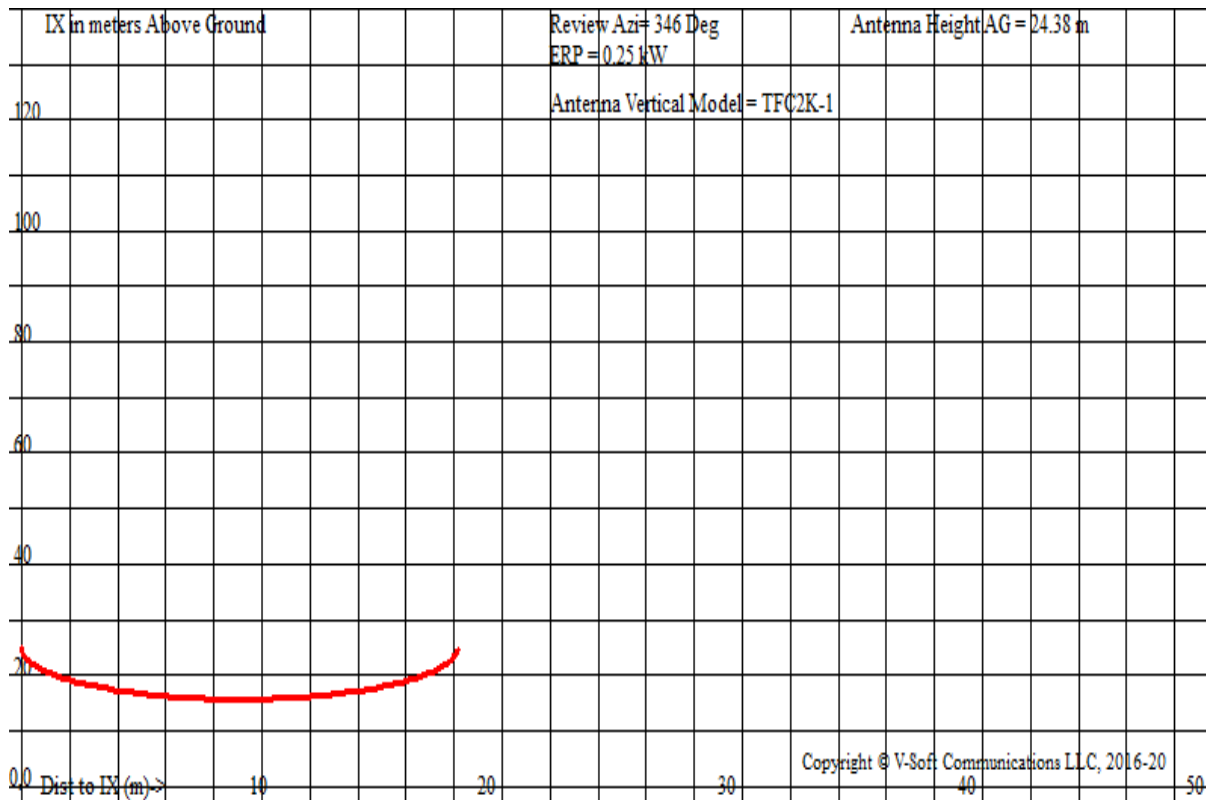
W250BN.Pr , , Showing Protection to **WJMR-FM** , Channel: 252
 Geographic Coordinates: N. 430218.50 W. 87 54 08.41
 74.1204(d) Study - Using USGS 03 SEC Terrain Database
 Translator or LPFM Maximum Antenna ERP = 0.25 kW, Channel: 250
 Translator or LPFM Antenna Height AG = 24.38 meters
 W250BN.Pr Antenna Azimuth Model = Reference Station Antenna

(NAD 83), Vertical Model = TFC2K-1

Protected Station's Contour = 88.36334 dBu
 Translator's or LPFM's full Interference contour 128.36334

Review Azimuth = 278.4 Degrees True
 Relative Field on the horizontal at Review Azimuth = 0.998
 Translator/LPFM ERP on the horizontal at Review Azimuth = 0.249 kW
 Distance between stations = 6.5 km
 Protected Station= WJMR-FM, 4.9 kW, 330 M meters COR AMSL

Depression Angle From Horiz. (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.0	1.0	1.0	0.2495	042.3027	042.3027	024.380
05.0	0.996	1.0	0.2473	042.1124	041.9521	020.710
10.0	0.985	1.0	0.2421	041.6682	041.0351	017.144
15.0	0.966	1.0	0.2326	040.8433	039.4516	013.809
20.0	0.940	1.0	0.2205	039.7646	037.3665	010.780
25.0	0.906	1.0	0.2048	038.3263	034.7354	008.183
30.0	0.866	1.0	0.1871	036.6342	031.7261	006.063
35.0	0.819	1.0	0.1674	034.6459	028.3803	004.508
40.0	0.766	1.0	0.1464	032.4039	024.8228	003.551
45.0	0.707	1.0	0.1247	029.9080	021.1482	003.232
50.0	0.643	1.0	0.1032	027.2006	017.4842	003.543
55.0	0.574	1.0	0.0821	024.2606	013.9153	004.507
60.0	0.500	1.0	0.0624	021.1514	010.5757	006.062
65.0	0.423	1.0	0.0445	017.8729	007.5534	008.182
70.0	0.342	1.0	0.0292	014.4675	004.9482	010.785
75.0	0.259	1.0	0.0167	010.9564	002.8357	013.797
80.0	0.174	1.0	0.0076	007.3607	001.2782	017.131
85.0	0.087	1.0	0.0019	003.6803	000.3208	020.714
90.0	0.001	1.0	0.0000	000.0423	000.0000	024.338



W250BN.Pr , , Showing Protection to **WRNW** , Channel: 247
 Geographic Coordinates: N. 430218.50 W. 87 54 08.41
 74.1204(d) Study - Using USGS 03 SEC Terrain Database
 Translator or LPFM Maximum Antenna ERP = 0.25 kW, Channel: 250
 Translator or LPFM Antenna Height AG = 24.38 meters
 W250BN.Pr Antenna Azimuth Model = Reference Station Antenna

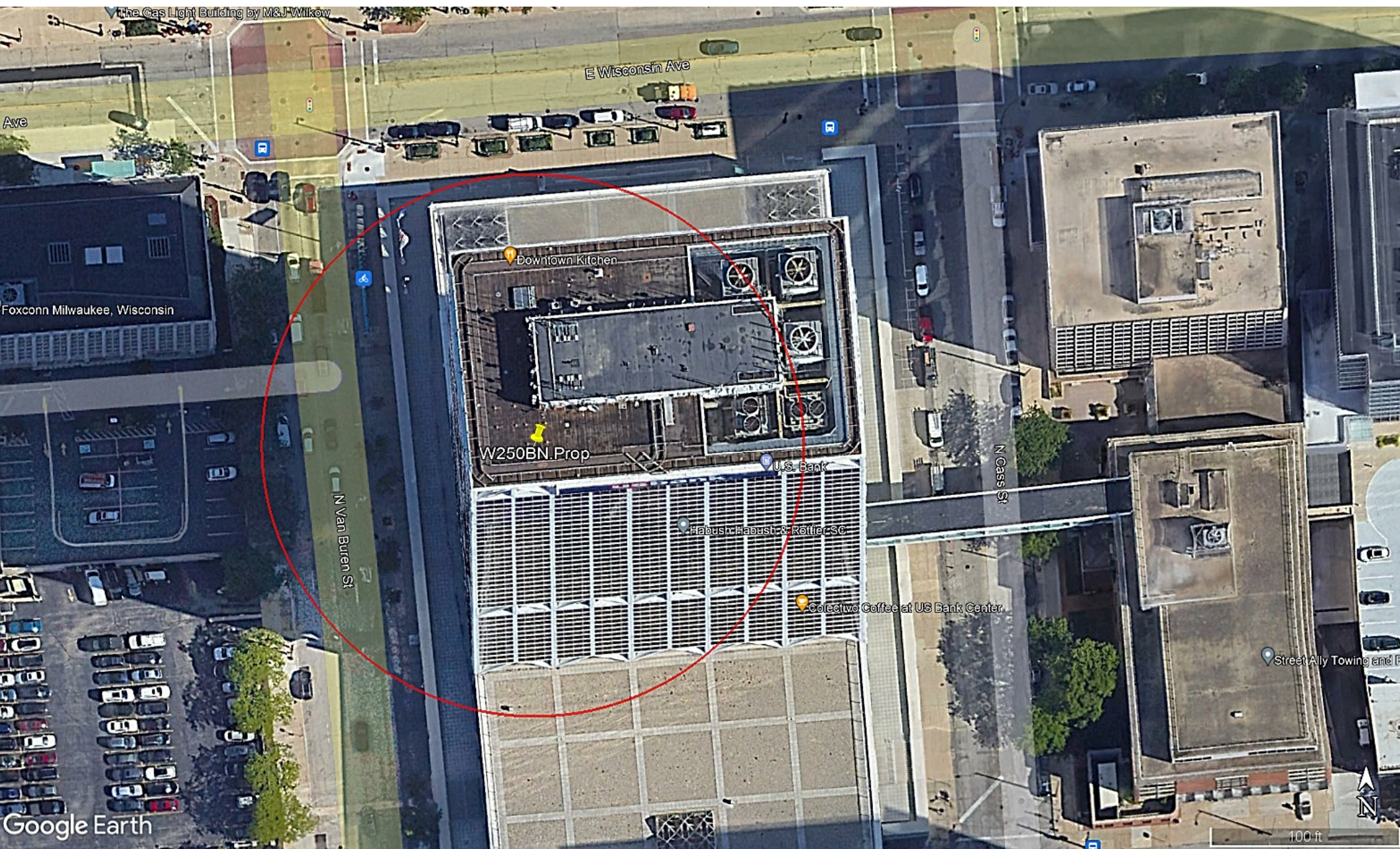
(NAD 83), Vertical Model = TFC2K-1

Protected Station's Contour = 94.78034 dBu
 Translator's or LPFM's full Interference contour 134.78034

Review Azimuth = 346 Degrees True
 Relative Field on the horizontal at Review Azimuth = 0.840
 Translator/LPFM ERP on the horizontal at Review Azimuth = 0.176 kW
 Distance between stations = 8.4 km
 Protected Station= WRNW, 15.5 kW, 491 M meters COR AMSL

Depression Angle From Horiz. (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.0	1.0	0.84	0.2100	018.5393	018.5393	024.380
05.0	0.996	0.84	0.2081	018.4558	018.3856	022.771
10.0	0.985	0.84	0.2037	018.2612	017.9838	021.209
15.0	0.966	0.84	0.1958	017.8997	017.2897	019.747
20.0	0.940	0.84	0.1856	017.4269	016.3759	018.420
25.0	0.906	0.84	0.1724	016.7966	015.2229	017.281
30.0	0.866	0.84	0.1575	016.0550	013.9040	016.352
35.0	0.819	0.84	0.1409	015.1837	012.4377	015.671
40.0	0.766	0.84	0.1232	014.2011	010.8787	015.252
45.0	0.707	0.84	0.1050	013.1073	009.2682	015.112
50.0	0.643	0.84	0.0868	011.9208	007.6625	015.248
55.0	0.574	0.84	0.0691	010.6323	006.0984	015.671
60.0	0.500	0.84	0.0525	009.2696	004.6348	016.352
65.0	0.423	0.84	0.0375	007.8328	003.3103	017.281
70.0	0.342	0.84	0.0246	006.3404	002.1686	018.422
75.0	0.259	0.84	0.0141	004.8017	001.2428	019.742
80.0	0.174	0.84	0.0064	003.2258	000.5602	021.203
85.0	0.087	0.84	0.0016	001.6129	000.1406	022.773
90.0	0.001	0.84	0.0000	000.0185	000.0000	024.361

W250BN 1BAY 250W VS WJMR-FM Radius of Interference Area



W250BN-Prop Fill-In Contour (54dBu) for WMYX-FM (Using HD-3)

