

W250CV CP-Mod Engineering Statement

Background Information:

We recently discovered that the tower has reinforcement bars installed over the tower legs at the uppermost portion of the tower to accommodate the excessive structural load of large dish antennas that had previously occupied that area of the tower. Those antennas were removed years ago. Until now we had been unaware of the reinforcement bars and the mounting limitations for our antennas that they cause. There was no way to install the antennas nor brackets where we intended.

This instant application proposes to modify the CP to reduce RC-AGL for mounting the antenna system lower, where the tower legs permit such installation. Please see the separate attachment “**W250CV Request for Expedited Processing**”.

Minor Change for AM Primary Station as a Fill-In Commercial FM Translator:

This is a minor-change CP-Mod request in compliance with §74.1233. The proposed 60dBu contour is completely enveloped within the 60dB contour of the current CP, as observed in **Figure 1**. It also shows compliance with §74.1201(g) for WGBW as the AM Primary Station for a Fill-In Commercial FM Translator.

Potential Intermodulation Products:

The facility is proposed to be in an antenna farm area where multiple broadcast facilities are on closely located towers. Applicant proposes to install additional band-pass filtering for its transmitter output to prevent prohibited intermodulation products due to the proximity to other nearby FM authorizations.

OET-65:

The OET-65 uncontrolled area, determined by formula $RAD = (33.4 * KWERP) / (DIST^2)$, is located within a 9.1-meter radius of the transit antenna radiation center (RC). The controlled area is within a 4.1-meter radius of the RC. Due to the significantly higher RC AGL, these areas of concern are far above and away from public locations.

A locked fence prevents unauthorized personnel from accessing the affected areas on the tower near the antenna. Radiation warning signs are properly displayed and the licensee shall cooperate with others by reducing power or terminating broadcasts during times when they are within the areas of concern.

Protected Zones Report:

Protected zones report for W250CV.Pr on channel 250D 10-29-2020

Lat. 44 24 32.0 Lng. 88 00 03.0, ERP= 0.25 kw, HAAT= 126.98 m

Facility is okay with respect to Canada. Distance = 352.9 km.

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Facility is okay with respect to AM station towers.

Closest AM Facility is WTAQ, GREEN BAY, WI, L, DA2 at 291.0° at a distance of 6.8 km

Facility is okay with respect to FCC monitoring stations.

Closest FCC Monitoring Station is 259.8 km= Allegan, MI

Facility is okay toward West Virginia Quiet Zone. Distance to center = 977.0 km

Facility is okay toward Table Mountain. Distance to Center = 1499.3 km, Azimuth = 257.4 Degrees True

FM Channel Interference Study:

The FM Channel Study is illustrated in **Figure 2**. Two authorizations (WQLH and WTAQ-FM) are Potentially Affected Stations; they are addressed in following paragraphs to show that no actual interference will occur using the proposed TFC2K2-75WS antenna. Regarding WSPT: Translators are not protected from receiving interference from full-service FM stations.

WQLH Interference

The site for the proposed facility is located within the protected contour on a channel which is second-adjacent to WQLH (the “Affected Station”). We predict the affected station protected contour at the proposed site will be 76.4 dBu F[50,50]. According to established third-adjacent channel contour Undesired-to-Desired (U/D) protection ratios, the corresponding contour for the interfering station should be 40 dB higher than the protected station’s contour. Therefore the respective interfering contour for this proposed amendment is 116.4 dBu F[50,10].

Protection to WQLH from Interference

The predicted interfering contour at maximum radiation is a radius of 168.1 meters (the Affected Area). The proposed radiation center is 76.1m AGL. **Figure 3** displays the actual 116.2dBu interference radiating downward no more than 28.96 meters AGL, far above locations inhabitable by the public. Therefore, all structures and public locations within the Affected Area are well below the actual interference area.

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WTAQ-FM Interference

The site for the proposed facility is located within the protected contour on a channel which is second-adjacent to WTAQ-FM (the “Affected Station”). We predict the affected station protected contour at the proposed site will be 117.8 dBu F[50,50]. According to established third-adjacent channel contour Undesired-to-Desired (U/D) protection ratios, the contour from the interfering station should be 40 dB higher than the protected contour. Therefore the respective interfering contour for this proposed amendment is 157.8 dBu F[50,10].

Protection to WTAQ-FM from Interference

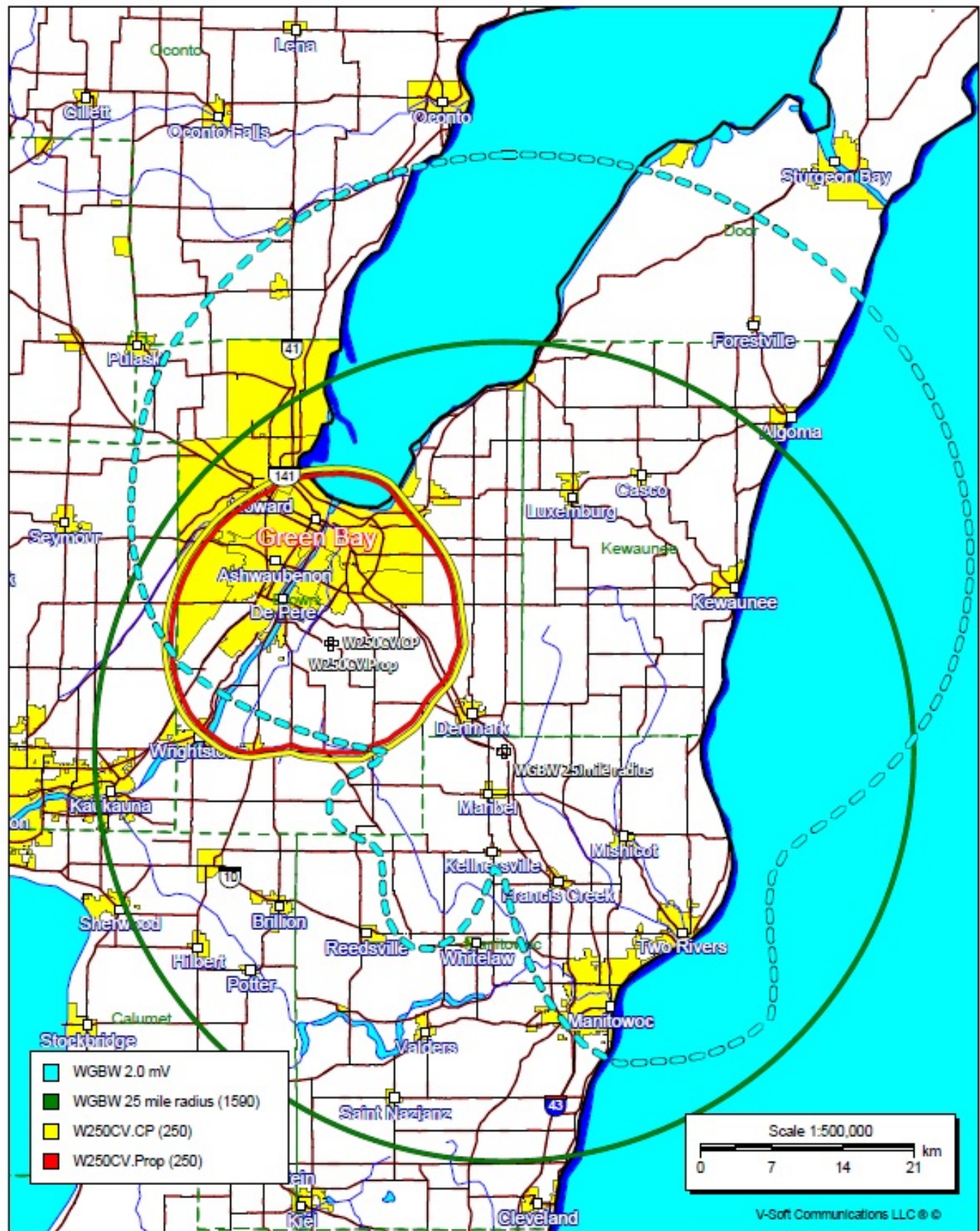
Due to the close proximity of the WTAQ-FM, the predicted interfering contour at maximum radiation is less than a radius of one meter (the Affected Area). The proposed radiation center is 76.1m AGL. Therefore, all structures and public locations within the Affected Area are well below the actual interference area.

Request for Waiver

Since this proposal complies with 47CFR74.1204(d) based upon the fact that no actual interference will occur due to no population and no public locations within the Affected Area, we hereby request waiver of 47CFR74.1204(a)(3) for separation between this proposed facility and the Potentially Affected Stations.

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Figure 1 - Fill-In Translator Contour



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FM Channel Study

Ethoplex Tower RC = 66.1m AGL

WTRW, Inc.

DISPLAY DATES
DATA 04-27-21
SEARCH 05-25-21

REFERENCE
44 24 32.00 N.
88 00 03.00 W.

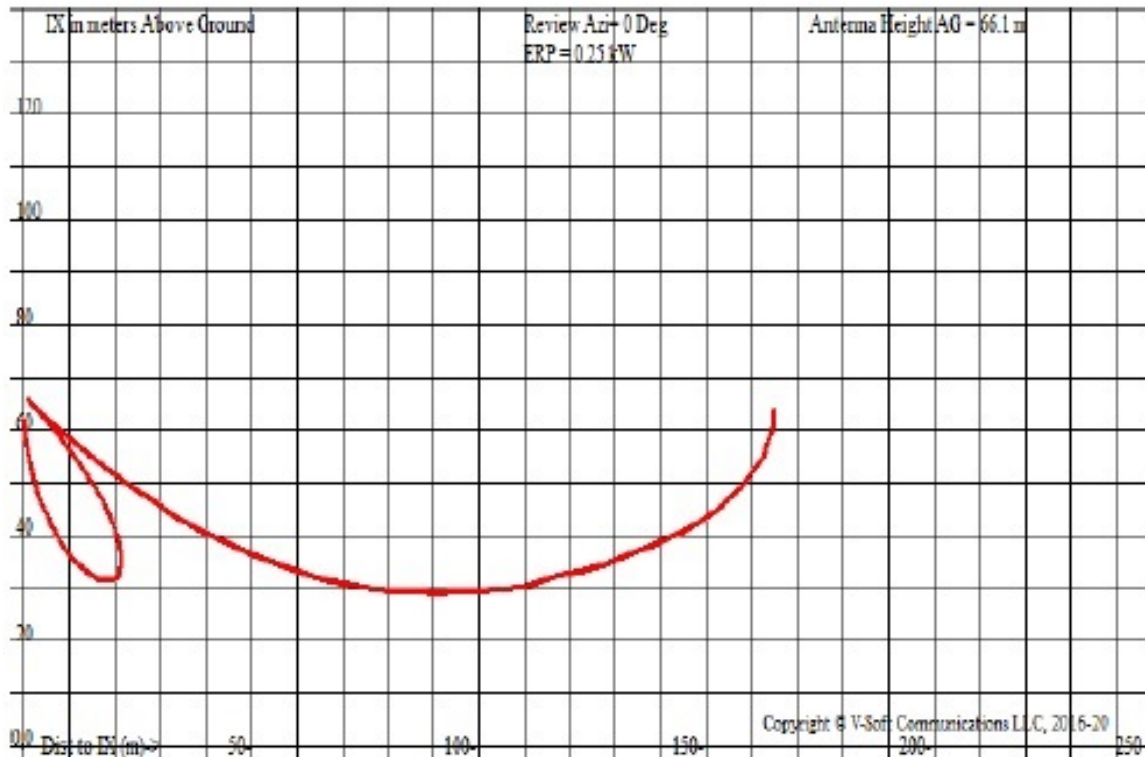
CH	CALL	TYPE	ANT	AZI	DIST	LAT	PWR(KW)	INT(km)	PRO(km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG	HAAT(M)	COR(M)	LICENSEE	(Overlap in km)	
250D	W250CV	CP	CN	0.0	0.00	44 24 32.00	0.250	352	---	Reference---	
Green Bay		WI		0.0	0000125186	88 00 03.00			Wtrw, Inc.		
250C1	WSPT	LIC	CN	277.0	127.68	44 32 16.80	100.000	145.3	49.6	-33.3*<	26.7
Stevens Point		WI		95.9	BLH19961015KB	89 35 43.40	103	436	Muzzy Broadcast Group, LLC		
253C1	WQLH	LIC	CN	337.7	28.35	44 38 40.90	100.000	7.4	60.2	4.8	-32.9*<
Green Bay		WI		157.6	BMLH19910422KJ	88 08 13.30	152	367	Cumulus Licensing LLC		
248A	WTAQ-FM	LIC	CN	226.8	0.49	44 24 21.00	3.000	2.6	28.6	-16.5*<	-29.2*<
Glenmore		WI		46.8	BLH20100209AAC	88 00 19.40	143	371	Midwest Communications, In		
251A	WLKN	LIC	CN	158.2	50.80	43 59 03.00	5.800	35.4	23.4	4.7	12.4
Cleveland		WI		338.4	BLH19991025AET	87 45 55.30	89	310	Seehafer Broadcasting Corp		
249A	WQDC	LIC	CN	42.0	74.33	44 54 13.90	1.850	41.0	27.2	19.2	25.9
Sturgeon Bay		WI		222.4	BLH19960422KC	87 22 13.30	182	378	Case Communications LLC		
249C3	WFDL-FM	LIC	ZCN	202.9	90.98	43 39 14.00	17.500	60.5	40.2	20.0	36.3
Lomira		WI		22.6	BLH20020422AAE	88 26 25.40	122	421	Radio Plus, Inc.		
247D	W247AS	LIC	CN	271.1	63.33	44 25 01.90	0.010	0.2	7.2	47.4	55.0
New London		WI		90.6	BLFT20070402JTS	88 47 45.40	145	391	Educational Media Foundati		
252D	W252DR	LIC	CN	229.9	65.59	44 01 39.90	0.250	1.1	10.0	49.9	54.5
Oshkosh		WI		49.5	BLFT20170605AAE	88 37 39.40		294	Hometown Broadcasting, LLC		

Terrain database is USGS 03 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= East Zone, 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

Figure 2

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XField (C) 2016-20, V-Soft Communications LLC



W250CV.Pr Green Bay, WI, Showing Protection to WQLH, Channel: 253
 Geographic Coordinates: N. 44 24 32.00 W. 88 00 03.00
 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 = 66.1 meters
 W250CV.Pr Antenna Azimuth Model = TFC2K1, Vertical Model = TFC2K2-75WS

Protected Station's Contour = 76.38734 dBu
 Translator's or LPFM's full Interference contour 116.38734

Review Azimuth = 0 Degrees True
 Relative Field on the horizontal at Review Azimuth = 1.000
 Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW
 Distance between stations = 28.4 km
 Protected Station= WQLH, 100 kW, 367 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	0.2500	168.1137	168.1137	066.100
05.0	0.978	1.0	0.2389	164.3311	163.7058	051.778
10.0	0.891	1.0	0.1985	149.7893	147.5136	040.089
15.0	0.768	1.0	0.1473	129.0272	124.6307	032.705
20.0	0.646	1.0	0.1043	108.6014	102.0520	028.956
25.0	0.517	1.0	0.0667	086.8307	078.6953	029.404
30.0	0.372	1.0	0.0346	062.5383	054.1597	034.831
35.0	0.210	1.0	0.0110	035.2198	028.8504	045.899
40.0	0.050	1.0	0.0006	008.4057	006.4391	060.697
45.0	0.084	1.0	0.0017	014.0375	009.9260	056.174
50.0	0.178	1.0	0.0079	029.9242	019.2349	043.177
55.0	0.227	1.0	0.0128	038.0777	021.8405	034.909
60.0	0.240	1.0	0.0144	040.3473	020.1736	031.158
65.0	0.228	1.0	0.0130	038.3299	016.1989	031.361
70.0	0.200	1.0	0.0100	033.6227	011.4997	034.505
75.0	0.160	1.0	0.0064	026.8141	006.9400	040.200
80.0	0.114	1.0	0.0032	019.1650	003.3280	047.226
85.0	0.064	1.0	0.0010	010.6752	000.9304	055.465
90.0	0.028	1.0	0.0002	004.7072	000.0000	061.393

Figure 3