

# Exhibit 13

## FM Channel Study

W278AU as WHBY Fill-In at Appleton Studio Tower

Woodward Communications, Inc.

REFERENCE CH# 278D - 103.5 MHz, Pwr= 0.25 kW, HAAT= 117.1 M, COR= 348 M DISPLAY DATES  
 44 15 37.0 N. Average Protected F(50-50)= 13.9 km DATA 06-20-16  
 88 21 59.9 W. Omni-directional SEARCH 06-20-16

CH CITY	CALL	TYPE STATE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap	*OUT* in km)
278D Green Bay	W278AU!	CP WI	DC	69.9 250.2	32.24 BMPFT20160126AFE	44 21 33.0 87 59 08.0	0.250	57.7 423	18.4 Woodward Communications, I	-41.0	-37.3 /1
280C3 Winneconne	WVBO	LIC WI	ZCX	214.9 34.8	16.33 BLH20030926ARL	44 08 23.0 88 29 02.0	25.000 100	4.1 334	39.6 Cumulus Licensing Llc	-1.7	-24.4* /2
278D Green Bay	W278AU!	LIC WI	C	47.1 227.3	37.79 BLFT20081215AEG	44 29 29.0 88 01 04.0	0.052 26	20.2 232	5.9 Woodward Communications, I	2.3	-19.1 /1
276C3 Reedsville	W0GB	LIC WI	CX	70.0 250.3	32.26 BLH20130913ABF	44 21 32.0 87 59 07.0	3.600 269	3.4 512	40.4 Cumulus Licensing Llc	13.3	-9.3* /2
278D Manitowoc	W278BQ	CP WI	C	110.5 291.0	60.61 BNPFT20130829AHI	44 04 02.0 87 39 21.0	0.250 13	23.8 209	7.1 David R. Magnum	23.1	7.4
225A Chilton	WKZY	LIC WI	NCX	157.1 337.2	22.59 BLH20121015AAA	44 04 22.6 88 15 24.3	5.800 102	6.9 362	4.8 Woodward Communications, I	9.5R	13.1M
277C1 Wisconsin Rapids	WGLX-FM	LIC WI	NCX	290.4 109.4	125.47 BLH20120416ACY	44 38 39.0 89 51 12.0	65.000 244	94.2 596	64.1 Nrg License Sub, Llc	17.8	41.2
278C0 Traverse City	WTCM-FM	LIC MI	CN	83.1 265.0	213.06 BLH19870203KB	44 27 31.0 85 42 02.0	100.000 302	172.3 614	72.6 Wtcm Radio, Inc.	25.4	90.1
279B Wauwatosa	WXSS	LIC WI	C	163.8 344.1	134.58 BMLH20010731ABY	43 05 48.0 87 54 18.0	19.500 257	78.4 466	66.3 Entercom License, Llc	42.4	38.7
279C3 Menominee	WHYB	LIC MI	CX	31.5 212.0	105.36 BLH20150526ABV	45 03 58.0 87 39 55.0	13.000 91	51.2 275	32.7 Radio Plus Bay Cities, Llc	39.0	49.7
276D Fond Du Lac	W276CO	LIC WI	C	186.6 6.6	53.83 BLFT20160505AAC	43 46 45.4 88 26 39.0	0.120	0.8 270	6.7 David R. Magnum	39.2	46.0
277D Waupun	W277AC	LIC WI	C	202.6 22.4	74.45 BLFT20130802AAQ	43 38 30.0 88 43 22.0	0.250	13.4 326	9.6 Radio Plus, Inc.	47.2	43.8
275D Ripon	W275CH	LIC WI	C	220.8 40.5	60.48 BLFT20140825ABM	43 50 51.0 88 51 35.0	0.013	0.3 369	6.6 Vcy America, Inc.	46.3	52.7
224A Waupaca	WDUX-FM	LIC WI	CN	280.9 100.4	56.46 BLH19910314KC	44 21 14.0 89 03 44.0	6.000 74	6.9 341	4.8 Laird Broadcasting Company	9.5R	47.0M
277D Sheboygan	W277BR	LIC WI	C	138.7 319.1	72.99 BLFT20080229AAQ	43 45 56.0 87 45 59.0	0.055 44	6.9 248	4.8 Jubilation Ministries, Inc	53.4	49.4

Terrain database is FCC NGDC 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
 In & Out distances between contours are shown at closest points. Reference Zone= East Zone, Co to 3rd adjacent.  
 All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.  
 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.  
 < = Station meets FCC minimum distance spacing for its class.  
 Reference station has protected zone issue: AM tower

/1 This is the subject facility of this instant application.

/2 Request waiver of 47 C.F.R. 74.1204(a)(3). Please see following pages.

Protected zones report for W278AU-Pr on channel 278D 06-20-2016  
 Lat. 44 15 37.0 Lng. 88 21 59.9, ERP= 0.25 kw, HAAT= 117.1 m

Facility is okay with respect to Canada. Distance = 385.8 km.

Closest AM Facility is WHBY, KIMBERLY, WI, L, ND2 at 270.0° at a distance of 0.0 km

Facility is okay with respect to FCC monitoring stations.

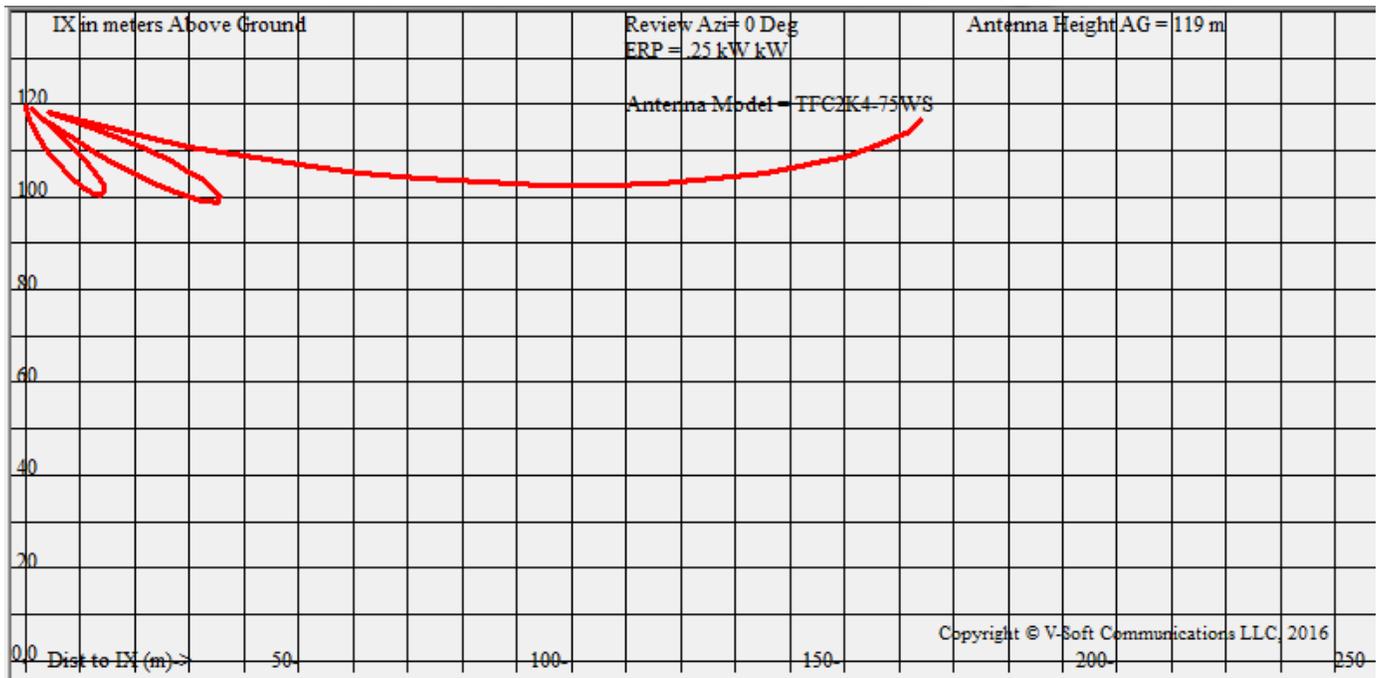
Closest FCC Monitoring Station is 268.2 km= Allegan, MI

Facility is okay toward West Virginia Quiet Zone. Distance to center = 989.1 km

Facility is okay toward Table Mountain. Distance to Center = 1467.0 km, Azimuth = 257.6 Degrees True

## Protection to WVBO from Interference by W278AU

The site for the proposed facility is located within the protected contour which is second-adjacent to WVBO with the proposed facility having radiation center 119 meters AGL. We predict the WVBO contour at the proposed site to be 76.33 dBu F[50,50]. According to established second-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 116.33 dBu F[50,10], which is 169.27 meters from the proposed radiation center.



**Figure 1**

Applicant proposes to use a BEXT antenna model TFC2K4-75WS, which is a four-bay antenna with  $\frac{3}{4}$  wavelength bay spacing. A graphical representation of radiation in the vertical plane is

displayed in **Figure 1**. The actual interference area clearly does not radiate below below the 90 m AGL elevation. There are no high-rise buildings. Within the area of concern, the highest and largest structure is a warehouse used for loading and unloading transfer trucks.

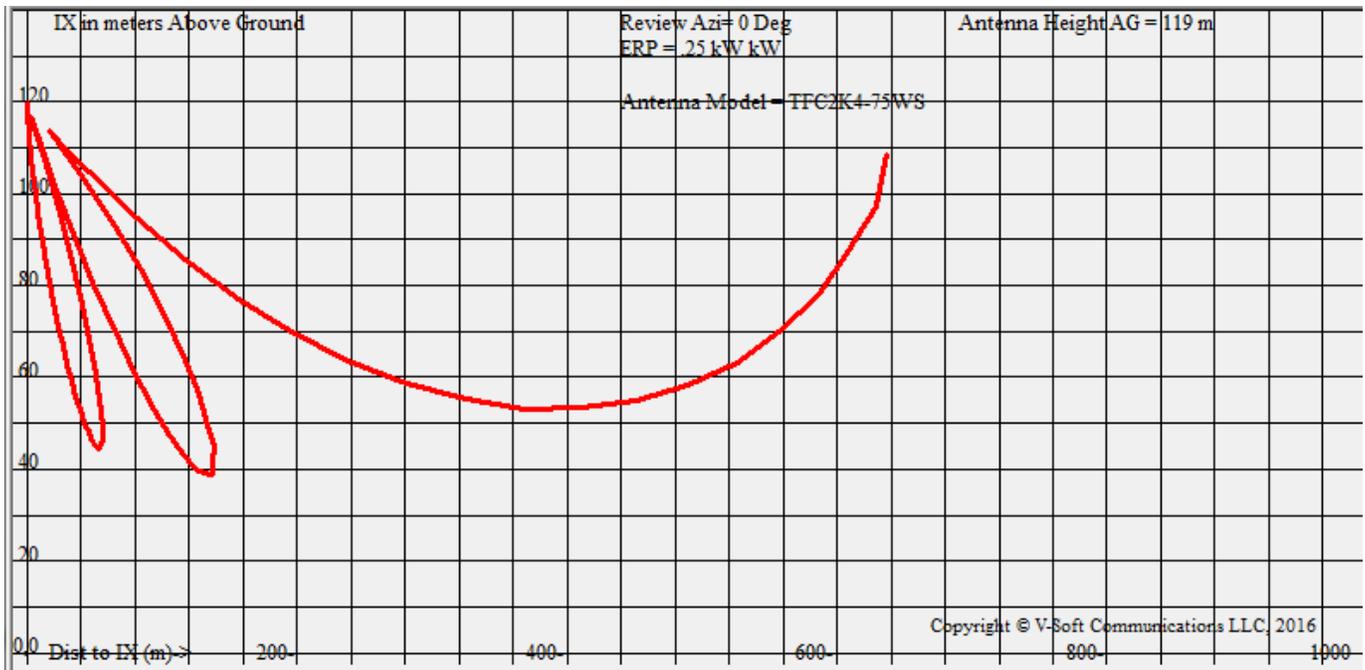
There is no residence, building, road or any public location within the actual area of interference, which is hovering far above the ground. Therefore, the interference area is limited to an area where there are no public places.

## **Protection to WOGB from Interference by W278AU**

The site for the proposed facility is located within the protected contour which is second-adjacent to WOGB with the proposed facility having radiation center 119 meters AGL. We predict the WOGB contour at the proposed site to be 64.54 dBu F[50,50]. According to established second-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 104.54 dBu F[50,10], which is 657.88 meters from the proposed radiation center.

Applicant proposes to use a BEXT antenna model TFC2K-4-75WS, which is a four-bay antenna with  $\frac{3}{4}$  wavelength bay spacing. A graphical representation of radiation in the vertical plane is displayed in **Figure 2**. The actual interference area clearly does not radiate below below the 35 m AGL center of radiation. There are no high-rise buildings. Within the area of concern, the highest and largest structure is a warehouse used for loading and unloading transfer trucks.

There is no residence, building, road or any public location within the actual area of interference, which is hovering far above the ground. Therefore, the interference area is limited to an area where there are no public places.



**Figure 2**

## 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 areas of interference, we hereby request waiver of 47CFR74.1204(a)(3) for separation between this proposed facility and facilities of both WVBO and WOGB.