

**Channel Study**

REFERENCE		CH# 221D - 92.1 MHz, Pwr= 0.01 kW, HAAT= 0.0 M, COR= 313 M								DISPLAY DATES		
41 38 48.5 N.		Average Protected F(50-50)= 3.2 km								DATA 10-13-16		
83 36 17.9 W.		Omni-directional								SEARCH 10-14-16		
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 in km)	*OUT*	
223B Toledo	WVKS	LIC	CN OH	175.8 355.8	12.79 BMLH19961008KA	41 31 55.0 83 35 37.0	50.000 146	6.0 340	65.4 Citicasters Licenses, Inc.	0.3	-53.1*<	
220D Toledo	W220EM!	LIC	C OH	0.0 0.0	0.00 BLFT20160728ACX	41 38 48.5 83 36 17.9	0.055	13.5 313	9.7 Educational Media Foundati	-19.9	-18.6	
221A Bellevue	WOHF	LIC	NCX OH	125.1 305.6	78.52 BLH20120913AAR	41 14 19.0 82 50 16.0	5.800 103	89.6 337	30.6 Bas Broadcasting, Inc.	-17.6*<	26.1	
222B Detroit	WMXD	LIC	ZCN MI	31.1 211.5	89.13 BLH19970303KA	42 19 55.0 83 02 42.0	45.000 146	77.1 331	64.4 Amfm Radio Licenses, L.L.c	5.4	11.7	
221A Hillsdale	WCSR-FM	LIC	CN MI	290.4 109.7	91.23 BLH19910918KB	41 55 41.0 84 38 10.0	6.000 74	79.0 411	22.5 Wcsr, Inc	6.0	48.2	
219B Ann Arbor	WUOM<	LIC	CN MI	343.3 163.1	88.28 BLED19990204KA	42 24 27.0 83 54 50.0	93.000 237	9.0 513	67.3 Regents Of The University	54.0R	34.3M	
220A Defiance	WGDE<	LIC	DCN OH	239.4 58.8	76.35 BLED19990305KB	41 17 41.0 84 23 24.0	6.000 93	41.4 308	26.8 Public Broadcasting Founda	34.0R	42.4M	
221A Wapakoneta	WFGF	LIC	CN OH	201.3 21.0	118.11 BLH19850510KC	40 39 20.0 84 06 54.0	3.000 100	78.2 378	25.6 Childers Media Group Llc	33.5	71.0	
220B1 Leamington	CBEW-FM-1<	OP	DHN ON	56.0 236.7	93.64 9353	42 06 46.0 82 39 52.0	10.450 74	39.2 263	29.7 Cbew-fm-1	60.0R	33.6M	
219D Findlay	W219DS<	LIC	C OH	181.7 1.6	64.14 BLFT20130607AAX	41 04 10.0 83 37 38.0	0.027 84	0.4 320	7.0 Educational Media Foundati	7.0R	57.1M	
218A Delphos	WBIE<	LIC	CX OH	215.2 34.8	95.00 BLED20011116AAW	40 56 48.0 84 15 24.0	5.500 98	2.7 319	27.4 American Family Associatio	26.0R	69.0M	

Terrain database is GLOBE 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= East Zone, Co to 3rd adjacent.  
 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.  
 < = Contour Overlap

FMCommander Single Allocation Study - 10-14-2016 - GLOBE 30 Sec  
W220EM.P's Overlaps (In= -17.58 km, Out= 26.11 km)

W220EM.P CH 221 D

Lat= 41 38 48.5, Lng= 83 36 17.9

0.01 kW 0 m HAAT, 313 m COR

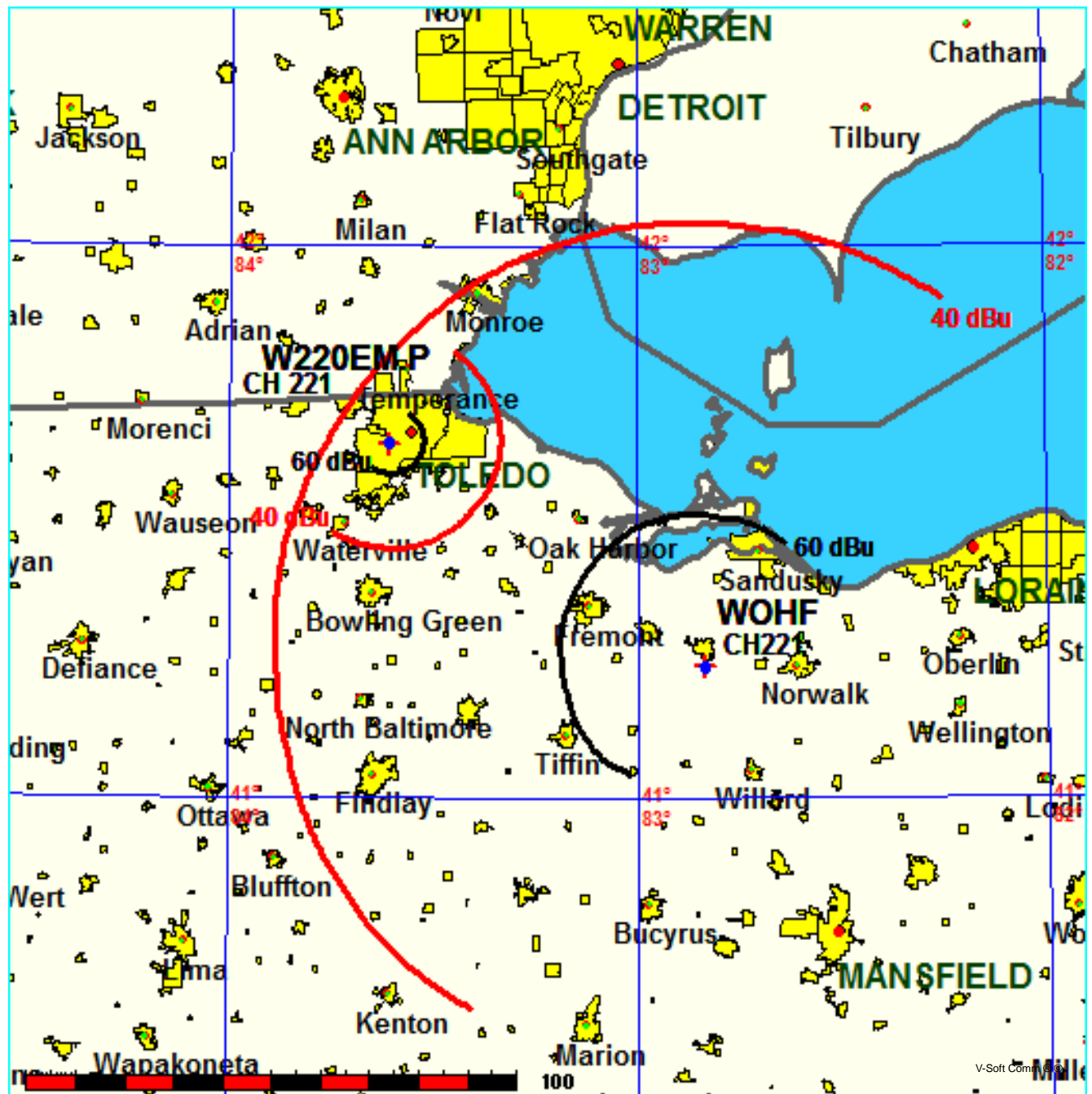
Prot.= 60 dBu, Intef.= 40 dBu

WOHF CH 221 A 73.215 N BLH20120913AAR

Lat= 41 14 19.0, Lng= 82 50 16.0

5.8 kW 103 m HAAT, 337.4 m COR

Prot.= 60 dBu, Intef.= 40 dBu



FMCommander Single Allocation Study - 10-14-2016 - GLOBE 30 Sec  
W220EM.P's Overlaps (In= 5.42 km, Out= 11.7 km)

W220EM.P CH 221 D

Lat= 41 38 48.5, Lng= 83 36 17.9

0.01 kW 0 m HAAT, 313 m COR

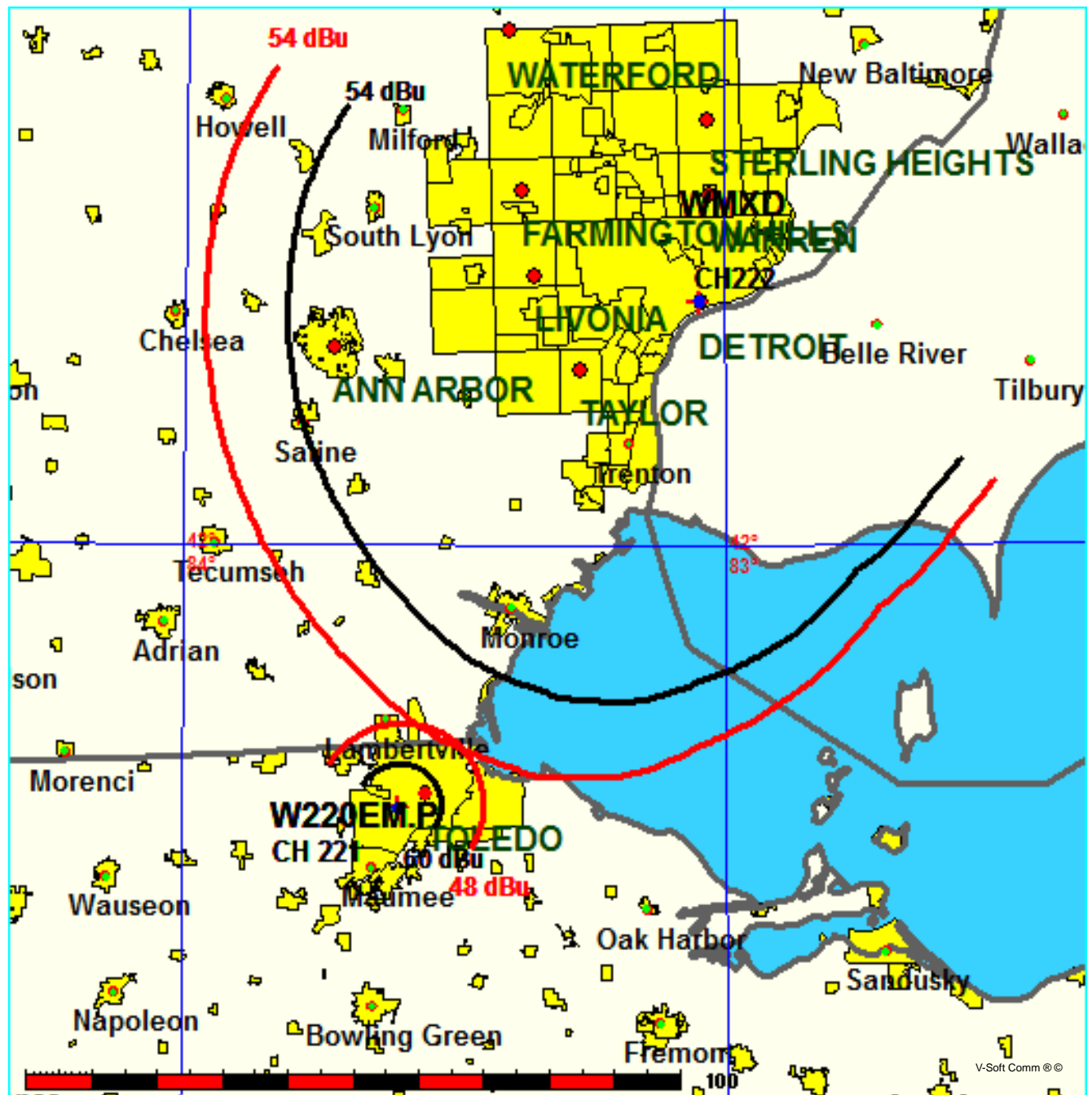
Prot.= 60 dBu, Intef.= 48 dBu

WMXD CH 222 B 73.215 Z BLH19970303KA

Lat= 42 19 55.0, Lng= 83 02 42.0

45.0 kW 146 m HAAT, 331 m COR

Prot.= 54 dBu, Intef.= 54 dBu



**Educational Media Foundation**

5700 W Oaks Blvd  
Rocklin, CA 95765

*Exhibit 13-A  
Toledo, OH*

**Compliance with C.F.R. 74.1204**

The proposed FM Translator to operate on channel 221 is located within the protected 54dBu contour of second adjacent channel station WVKS, channel 223B, Toledo, OH. According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

The proposed ERP for W220EM.P:	10 watts
The proposed COR for W220EM.P:	126 meters
WVKS F(50/50) contour at proposed site:	86.8dBu
The F(50/10) contour of proposed W220EM.P:	126.8dBu

The predicted distance to the 126.8dbu interfering contour is 10.14 meters. Taking into account the vertical elevation pattern of the Nicom BKG77 two bay halfwaved spaced antenna and the height above ground of 126M, it has been determined that the interfering contour of 126.8dbu does not reach the ground. As seen in Exhibit 13-A1, the lowest elevation for this interfering contour is 123.06M above ground at a distance of 6.96m from the antenna.

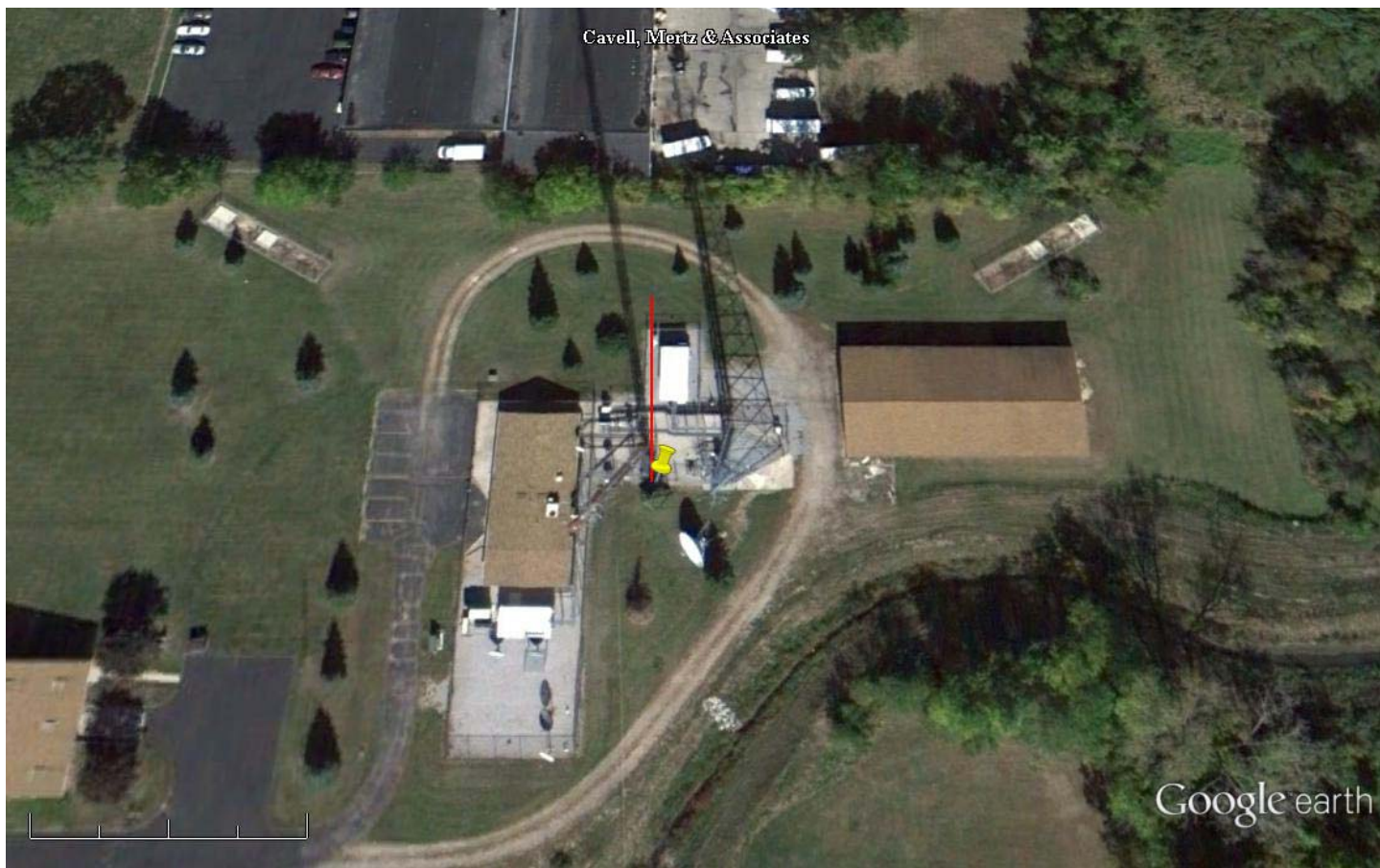
As can be seen in Exhibit 13–A2 there are no surrounding structures which are tall enough to enter the interfering contour within the 10.14 m distance from the antenna.

Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 13 - A2  
74.1204(d) Showing  
W220EM  
Toledo, OH

ERP (kw): 0.01  
Height of Antenna above Ground (m): 126  
Translator's IX Contour: 126.8  
Antenna Type: Nicom BKG77-2HW

<u>Depression Angle from Horizon</u>	<u>Antenna Relative Field</u>	<u>ERP (kw) from the Antenna RF</u>	<u>Dist. To IX Contour (m)</u>	<u>Height IX Contour Above Ground (m)</u>
0	1	0.0100	10.1391	126.000
5	0.988	0.0098	10.0174	125.127
10	0.952	0.0091	9.6524	124.324
15	0.881	0.0078	8.9326	123.688
20	0.791	0.0063	8.0200	123.257
25	0.686	0.0047	6.9554	123.061
30	0.577	0.0033	5.8503	123.075
35	0.463	0.0021	4.6944	123.307
40	0.354	0.0013	3.5892	123.693
45	0.256	0.0007	2.5956	124.165
50	0.174	0.0003	1.7642	124.649
55	0.104	0.0001	1.0545	125.136
60	0.061	0.0000	0.6185	125.464
65	0.028	0.0000	0.2839	125.743
70	0.007	0.0000	0.0710	125.933
75	0.008	0.0000	0.0811	125.922
80	0.009	0.0000	0.0913	125.910
85	0.009	0.0000	0.0913	125.909
90	0.009	0.0000	0.0913	125.909



Google earth

feet 200  
meters 70



Yellow Pin Marker:

NAD27

41 38' 49.0" N

83 36' 18.0" W

Red Marker: 28.7m at zero degrees true north