

Channel Study

REFERENCE		CH# 220D - 91.9 MHz, Pwr= 0.055 kW, HAAT= 0.0 M, COR= 313 M								DISPLAY DATES	
41 38 48.5 N.		Average Protected F(50-50)= 4.8 km								DATA 04-12-16	
83 36 17.9 W.		Omni-directional								SEARCH 04-13-16	
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	6.2 340	66.4 Citicasters	-3.5< Licenses, Inc.	-54.7*<
217B Toledo	WGTE-FM	LIC	CN OH	85.2 265.3	14.46 BLED19890123KE	41 39 27.0 83 25 55.0	13.500 289	5.5 470	52.2 Public Broadcasting Founda	-1.3< Public Broadcasting Founda	-38.3*<
221D Toledo	W221BG!	LIC	C OH	0.0 0.0	0.00 BLFT20151021AEX	41 38 48.5 83 36 17.9	0.088	16.2 313	11.2 Educational Media Foundati	-26.2 Educational Media Foundati	-25.2
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	98.6 513	67.1 Regents Of The University	-20.1*< Regents Of The University	7.5
220A Defiance	WGDE	LIC	DCN OH	239.4 58.8	76.35 BLED19990305KB	41 17 41.0 84 23 24.0	6.000 93	86.0 308	27.8 Public Broadcasting Founda	-19.7*< Public Broadcasting Founda	14.7
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	74.1 263	30.1 Cbew-fm-1	9.1 Cbew-fm-1	14.9<
221A Bellevue	WOHF	LIC	NCX OH	125.1 305.6	78.52 BLH20120913AAR	41 14 19.0 82 50 16.0	5.800 103	46.3 337	30.1 Bas Broadcasting, Inc.	22.0 Bas Broadcasting, Inc.	34.1
222B Detroit	WMXD	LIC	ZCN MI	31.1 211.5	89.13 BLH19970303KA	42 19 55.0 83 02 42.0	45.000 146	6.0 331	65.2 Amfm Radio Licenses, L.l.c	72.8 Amfm Radio Licenses, L.l.c	22.9
219D Findlay	W219DS	LIC	C OH	181.7 1.6	64.14 BLFT20130607AAX	41 04 10.0 83 37 38.0	0.027 84	10.3 320	7.3 Educational Media Foundati	43.7 Educational Media Foundati	42.7
220A Marion	WXMF	LIC	DCX OH	164.0 344.3	119.25 BLED20091007ACC	40 36 51.0 83 12 56.0	6.000 93	62.9 367	19.5 Kayser Broadcast Ministrie	46.1 Kayser Broadcast Ministrie	65.3
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	33.8 411	22.5 Wcsr, Inc	47.7 Wcsr, Inc	55.2
220B1 Brunswick	WKJA	LIC	ZCX OH	119.6 300.7	161.97 BLED20110228AAD	40 54 56.0 81 55 56.0	25.000 97	100.3 424	34.0 Penfold Communications, In	51.4 Penfold Communications, In	93.5
220A Howe	WQKO	LIC	NC IN	270.7 89.6	145.65 BLED20120730ACJ	41 39 01.0 85 21 12.0	1.600 132	70.5 416	22.9 Calvary Radio Network, Inc	65.5 Calvary Radio Network, Inc	90.1
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	27.8 American Family Associatio	82.1 American Family Associatio	66.7

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= 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.
 < = Contour Overlap

FMCommander Single Allocation Study - 04-13-2016 - FCC NGDC 30 Sec
W221BG's Overlaps (In= -20.07 km, Out= 7.49 km)

W221BG CH 220 D

Lat= 41 38 48.5, Lng= 83 36 17.9

0.055 kW 0 m HAAT, 313 m COR

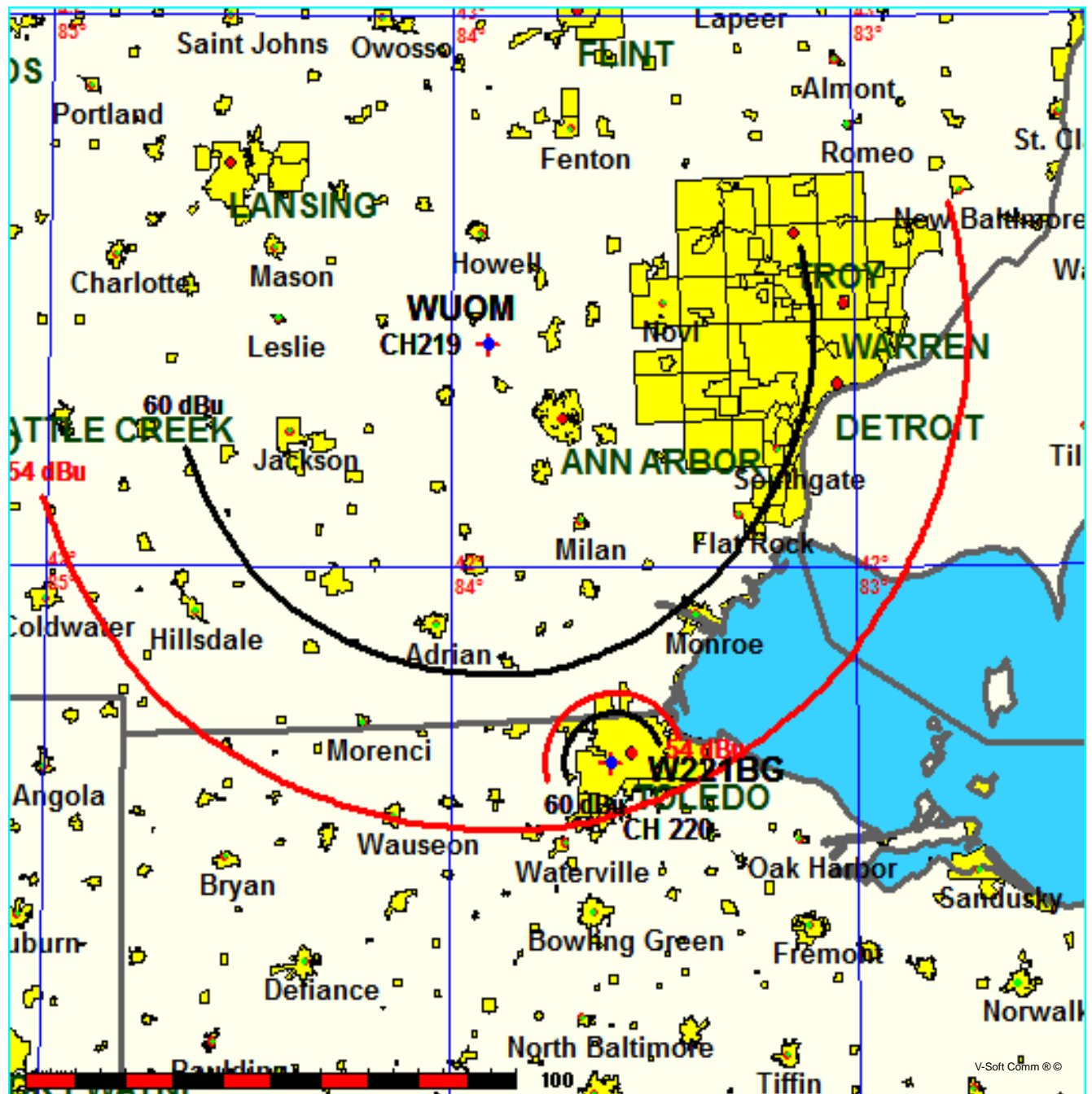
Prot.= 60 dBu, Intef.= 54 dBu

WUOM CH 219 B BLED19990204KA

Lat= 42 24 27.0, Lng= 83 54 50.0

93.0 kW 237 m HAAT, 513 m COR

Prot.= 60 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 is located within the protected 54dBu contour of third 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 W221BG.P:	55 watts
The proposed COR for W221BG.P:	126 meters
WVKS F(50/50) contour at proposed site:	87.3dBu
The F(50/10) contour of proposed W221BG.P:	127.3dBu

The predicted distance to the 127.3dbu interfering contour is 22.5 meters. Taking into account the vertical elevation pattern of the Nicom BKG77 two bay antenna and the height above ground of 126M, it has been determined that the interfering contour of 127.3dbu does not reach the ground. As seen in Exhibit 13-A1, the lowest elevation for this interfering contour is 119.5M above ground at a distance of 15m 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 22.5m 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
W221BG
Toledo, OH

ERP (kw): 0.055
Height of Antenna above Ground (m): 126
Translator's IX Contour: 127.3
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	0.0550	22.4482	126.000
5	0.988	0.0537	22.1788	124.067
10	0.952	0.0498	21.3707	122.289
15	0.881	0.0427	19.7769	120.881
20	0.791	0.0344	17.7565	119.927
25	0.686	0.0259	15.3995	119.492
30	0.577	0.0183	12.9526	119.524
35	0.463	0.0118	10.3935	120.039
40	0.354	0.0069	7.9467	120.892
45	0.256	0.0036	5.7467	121.936
50	0.174	0.0017	3.9060	123.008
55	0.104	0.0006	2.3346	124.088
60	0.061	0.0002	1.3693	124.814
65	0.028	0.0000	0.6285	125.430
70	0.007	0.0000	0.1571	125.852
75	0.008	0.0000	0.1796	125.827
80	0.009	0.0000	0.2020	125.801
85	0.009	0.0000	0.2020	125.799
90	0.009	0.0000	0.2020	125.798

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 is located within the protected 60dBu contour of third adjacent channel station WGTE-FM, channel 217B, 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 W221BG.P:	55 watts
The proposed COR for W221BG.P:	126 meters
WGTE-FM F(50/50) contour at proposed site:	84.7dBu
The F(50/10) contour of proposed W221BG.P:	124.7dBu

The predicted distance to the 124.7dbu interfering contour is 30.28 meters. Taking into account the vertical elevation pattern of the Nicom BKG77 two bay antenna and the height above ground of 126M, it has been determined that the interfering contour of 124.7dbu does not reach the ground. As seen in Exhibit 13-A1, the lowest elevation for this interfering contour is 117.2M above ground at a distance of 20.77m from the antenna.

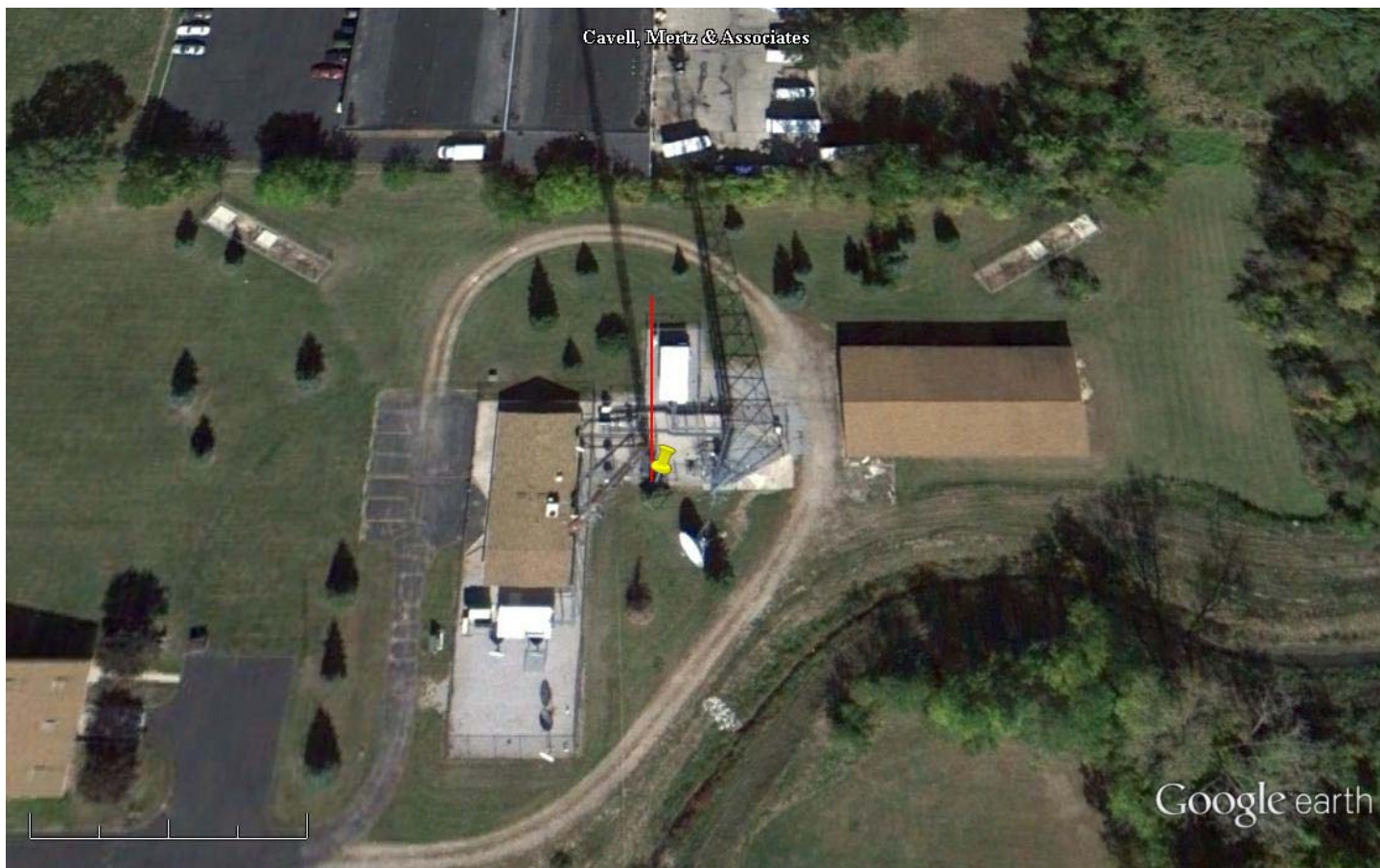
As can be seen in Exhibit 13–A2 there are no surrounding structures which are tall enough to enter the interfering contour within the 30.28m distance from the antenna.

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
W221BG
Toledo, OH

ERP (kw): 0.055
Height of Antenna above Ground (m): 126
Translator's IX Contour: 124.7
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	0.0550	30.2818	126.000
5	0.988	0.0537	29.9184	123.392
10	0.952	0.0498	28.8283	120.994
15	0.881	0.0427	26.6782	119.095
20	0.791	0.0344	23.9529	117.808
25	0.686	0.0259	20.7733	117.221
30	0.577	0.0183	17.4726	117.264
35	0.463	0.0118	14.0205	117.958
40	0.354	0.0069	10.7197	119.109
45	0.256	0.0036	7.7521	120.518
50	0.174	0.0017	5.2690	121.964
55	0.104	0.0006	3.1493	123.420
60	0.061	0.0002	1.8472	124.400
65	0.028	0.0000	0.8479	125.232
70	0.007	0.0000	0.2120	125.801
75	0.008	0.0000	0.2423	125.766
80	0.009	0.0000	0.2725	125.732
85	0.009	0.0000	0.2725	125.729
90	0.009	0.0000	0.2725	125.727



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