

Engineering Statement
In Support of an Application for
Authority to Construct a
New FM Translator Station
FID No. 200021
BNPFT-20170727AAH

The Corporate Engineering Department of the Crawford Broadcasting Company, on behalf of its subsidiary, WMUZ Radio, Inc. (WRI), has prepared this Engineering Statement and associated exhibits to accompany an Application for Authority to Construct a New FM Translator Station (BNPFT-20170727AAH, FID No. 200021).

In a Public Notice, "Filing Instructions for Cross-Service FM Translator Auction Filing Window for AM Broadcasters to be Open July 26 to August 2, 2017," DA-17-533, Released June 6, 2017, the Commission outlined the eligibility for certain AM stations to file for new FM translator stations. WRI is licensee of Class D AM station WRDT, Monroe, Michigan (FID No. 25083). This station meets the eligibility requirements for the first filing window (July 26 to August 2, 2017).

WRI proposes to construct a new FM translator station, identified herein as WRDT-FX, on channel 296 with a maximum Effective Radiated Power of 60 watts H&V and employing a Scala HDCA-5CP/2 directional antenna with main lobes oriented SSE and NNW. The antenna will be mounted at an elevation of 312 meters above mean sea level (AMSL) and 121.8 meters above ground level (AGL), which corresponds to a height above average terrain (HAAT) of 118 meters.

Table 1 below shows a channel spacing study from the proposed site for the proposed WRDT-FX on channel 296D. The spacing study shows that the proposed facility is short-spaced to second-adjacent channel stations WGPR (298B) and WDTW-FM (294B) in Detroit. WGPR produces a field strength of 82.6 dBu at the proposed site. The +40 dB 122.6 dBu maximum contour distance from the antenna is 40 meters, which will not reach the ground and as such has zero population. Similarly, WDTW-FM produces a field strength of 82.9 dBu at the proposed site. The +40 dB 122.9 dBu maximum contour distance from the antenna is also 40 meters and will not reach the ground; as such, it also encompasses zero population. 47 C.F.R. §74.1204(d) of the Commission's Rules thus applies for both WGPR and WDTW-FM.

This study shows that WQKL (296A) in Ann Arbor, MI is co-channel to the proposed facility. Figure 1 shows that the proposed facility will not produce any prohibited overlap to the WQKL protected 60 dBu contour.

W296CG is also co-channel to the proposed facility. Figure 1 shows that the proposed facility will not produce any prohibited overlap to the W296CG licensed and CP 60 dBu contours.

WDVD (242B) is a 10.6/10.8 MHz short-spacing to the proposed facility. Because the proposed facility will operate with less than 100 watts ERP, in accordance with 47 C.F.R. §74.1204(g), it will not be subject to intermediate frequency separation requirements.

Figure 2 and Table 2 show the proposed directional antenna pattern for use by WRDT-FX on channel 296D at the proposed site.

Table 3 is a tabulation of the distances to pertinent contours used in the study for the proposed operation of WRDT-FX on channel 296D at the proposed site.

Figure 3 shows the proposed 60 dBu contour of WRDT-FX will be completely contained within the licensed 2 mV/m daytime contour of station WRDT(AM).

It was concluded that the new proposed operation of the proposed WRDT-FX on channel 296D at the proposed site will not cause any harmful interference to any existing stations and will be in full compliance with the Commission's rules.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'W.C. Alexander', is written over a horizontal line.

W.C. Alexander, CPBE, AMD, DRB
Director of Engineering
Crawford Broadcasting Company

FM Study for: WRDT-FX-P FCC Database Date: 8/12/2017

42-22-40

Location: DETROIT, MI Channel Class: 296D

83-14-35

[*] by HAAT indicates calculated as missing in database.

Call Status	City, State	Proponent	File Number	Chan	Cl.	Freq	kW	HAAT	Latitude	Longitude	Dist. Azm.	Required Clear (km)	Site
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>>>>>>> Study For Channel 296 107.1 MHz <<<<<<<<

WGPR	DETROIT, MI			298	B	107.5	50.0		42-21-28		14.8	67	
LIC	Fac. No.	70512	BLH-20040422ABP				124		83-03-55		98.6	-52.2	SHORT
WDTWFM	DETROIT, MI			294	B	106.7	61.0		42-19-55		17.1	67	
LIC	Fac. No.	59952	BMLH-19890804KA				155		83-02-42		107.3	-49.9	SHORT
	Special negotiated short-spaced allocation												
NEW	DETROIT, MI			296	D	107.1	.060+		42-22-40		0.0	44	
APP	Fac. No.	200021	BNPFT-20170727AAH				119		83-14-35		0.0	-44.0	SHORT
WQKL	ANN ARBOR, MI			296	A	107.1	3.00		42-16-41		42.6	73	
LIC	Fac. No.	47117	BLH-19911119KA				88		83-44-32		255.1	-30.4	SHORT
W296CG	DETROIT, MI			296	D	107.1	.250+		42-30-40		27.6	44	
LIC	Fac. No.	148656	BLFT-20160712AAV				72		82-57-34		57.5	-16.4	SHORT
W296CG	DETROIT, MI			296	D	107.1	.250+		42-30-40		27.6	44	
CP	Fac. No.	148656	BPFT-20170117ACL				72		82-57-34		57.5	-16.4	SHORT
WDVD	DETROIT, MI			242	B	96.3	20.0		42-27-13		10.6	15	
LIC	Fac. No.	8631	BLH-19861112KB				240		83-09-50		37.7	-4.4	SHORT
	Special Negotiated Short-Spaced Allotment.												
WDVD-A	DETROIT, MI			242	B	96.3	21.0		42-28-16		10.9	15	
LIC	Fac. No.	8631	BXLH-20040924AFI				195		83-12-03		18.5	-4.1	SHORT
WSAQ	PORT HURON, MI			296	A	107.1	6.00		42-58-37		92.2	73	
LIC	Fac. No.	73074	BLH-19910806KA				91		82-27-52		43.5	19.2	CLEAR
NEW	FLINT, MI			297	D	107.3	.250		43-00-38		77.8	32	
APP	Fac. No.	200852	BNPFT-20170731AAT				52		83-39-03		334.7	45.8	CLEAR
NEW	LAPEER, MI			295	D	106.9	.250		43-04-46		78.1	32	
APP	Fac. No.	201347	BNPFT-20170731AGR				49		83-18-35		356.0	46.1	CLEAR
WTLZ	SAGINAW, MI			296	A	107.1	4.90		43-21-14		121.7	73	
LIC	Fac. No.	74093	BMLH-19900416KA				110		83-55-06		333.3	48.7	CLEAR
	Class B1 with respect to Canada												
WJUC	SWANTON, OH			297	A	107.3	3.00		41-38-30		98.3	47	
LIC	Fac. No.	71442	BLH-19970314KA				100		83-54-03		213.9	51.3	CLEAR

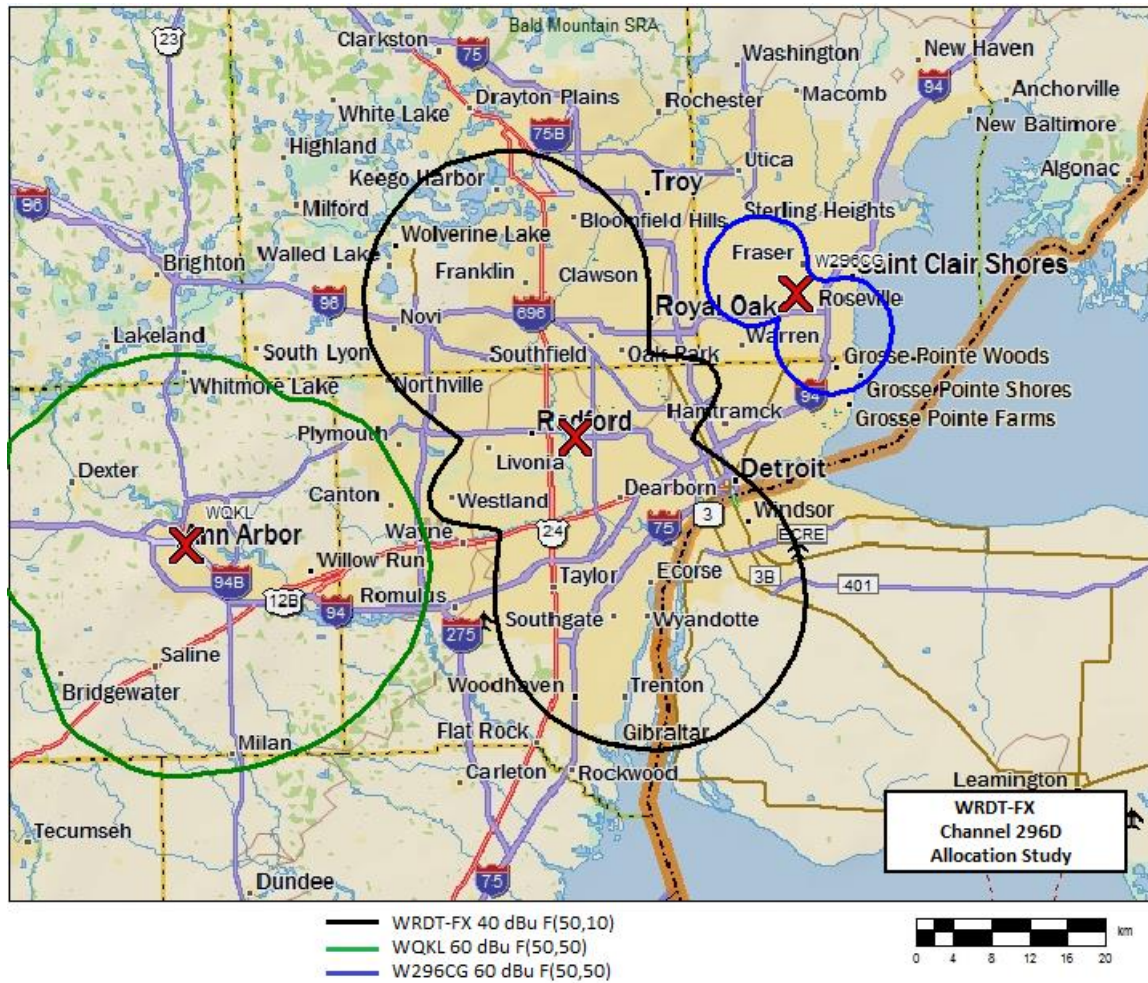


Figure 1 – WRDT-FX-P Contour Protection Study

WRDT-FX_296
Max ERP = 0.060 kW
Orientation = 0 Deg.
Max Scale = 1.000

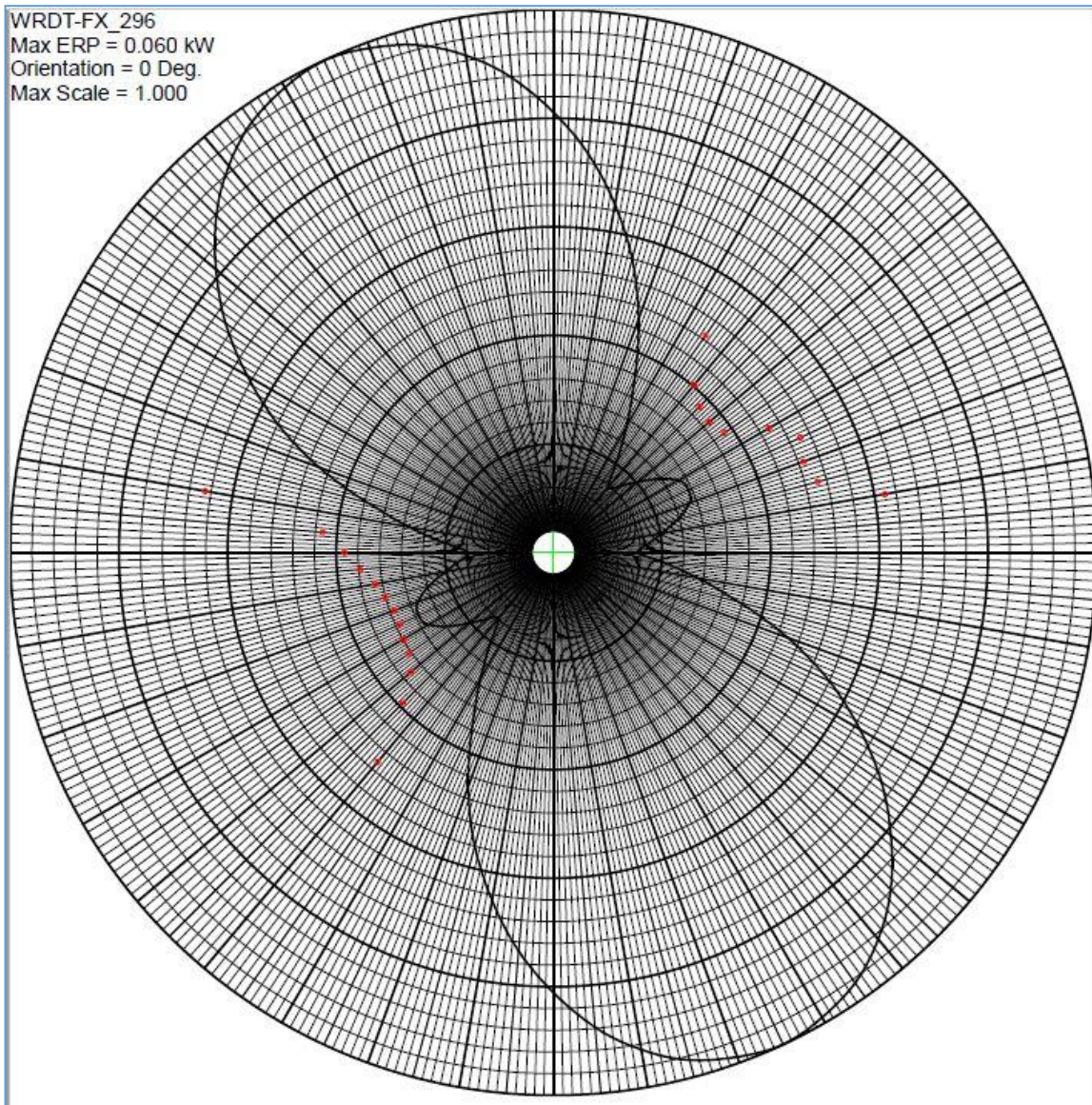


Figure 2 – Composite Directional Pattern With Protections

Table 2
 WRDT-FX_296 Pattern
 Horizontal Plane Pattern
 Pattern RMS: .4317 Field

Azimuth	Field	dBk	ERP(kW)	Azimuth	Field	dBk	ERP(kW)
0	0.811	-14.04	0.04	180	0.811	-14.04	0.04
5	0.737	-14.87	0.03	185	0.737	-14.87	0.03
10	0.651	-15.95	0.03	190	0.651	-15.95	0.03
15	0.560	-17.25	0.02	195	0.560	-17.25	0.02
20	0.459	-18.98	0.01	200	0.459	-18.98	0.01
25	0.354	-21.24	0.01	205	0.354	-21.24	0.01
30	0.269	-23.62	0.00	210	0.269	-23.62	0.00
35	0.201	-26.15	0.00	215	0.201	-26.15	0.00
40	0.157	-28.30	0.00	220	0.157	-28.30	0.00
45	0.173	-27.46	0.00	225	0.173	-27.46	0.00
50	0.202	-26.11	0.00	230	0.202	-26.11	0.00
55	0.237	-24.72	0.00	235	0.237	-24.72	0.00
60	0.266	-23.72	0.00	240	0.266	-23.72	0.00
65	0.274	-23.46	0.00	245	0.274	-23.46	0.00
70	0.266	-23.72	0.00	250	0.266	-23.72	0.00
75	0.237	-24.72	0.00	255	0.237	-24.72	0.00
80	0.202	-26.11	0.00	260	0.202	-26.11	0.00
85	0.173	-27.46	0.00	265	0.173	-27.46	0.00
90	0.157	-28.30	0.00	270	0.157	-28.30	0.00
95	0.201	-26.15	0.00	275	0.201	-26.15	0.00
100	0.269	-23.62	0.00	280	0.269	-23.62	0.00
105	0.354	-21.24	0.01	285	0.354	-21.24	0.01
110	0.459	-18.98	0.01	290	0.459	-18.98	0.01
115	0.560	-17.25	0.02	295	0.560	-17.25	0.02
120	0.651	-15.95	0.03	300	0.651	-15.95	0.03
125	0.737	-14.87	0.03	305	0.737	-14.87	0.03
130	0.811	-14.04	0.04	310	0.811	-14.04	0.04
135	0.878	-13.35	0.05	315	0.878	-13.35	0.05
140	0.930	-12.85	0.05	320	0.930	-12.85	0.05
145	0.968	-12.50	0.06	325	0.968	-12.50	0.06
150	0.989	-12.31	0.06	330	0.989	-12.31	0.06
155	1.000	-12.22	0.06	335	1.000	-12.22	0.06
160	0.989	-12.31	0.06	340	0.989	-12.31	0.06
165	0.968	-12.50	0.06	345	0.968	-12.50	0.06
170	0.930	-12.85	0.05	350	0.930	-12.85	0.05
175	0.878	-13.35	0.05	355	0.878	-13.35	0.05

Table 3
FM Contour Distances
WRDT-FX-P 296D

Azi. Deg.	ERP kW	HAAT m	60	54	40	34
			dBu (50,50) km	dBu (50,10) km	dBu (50,10) km	dBu (50,10) km
0	0.039	109	8.5	12.0	28.5	40.86
5	0.033	107	8.1	11.4	26.9	38.59
10	0.025	107	7.6	10.7	25.3	36.16
15	0.019	107	7.0	9.9	23.4	33.39
20	0.013	108	6.4	9.0	21.3	30.24
25	0.008	109	5.7	8.0	18.5	26.62
30	0.004	111	5.0	7.0	15.9	23.38
35	0.002	113	4.3	6.1	13.7	20.29
40	0.001	114	3.7	5.4	12.1	17.68
45	0.002	114	3.9	5.7	12.8	18.75
50	0.002	115	4.3	6.2	13.8	20.55
55	0.003	116	4.7	6.7	15.1	22.43
60	0.004	117	5.1	7.2	16.3	23.88
65	0.005	117	5.1	7.3	16.6	24.24
70	0.004	117	5.1	7.2	16.3	23.88
75	0.003	117	4.8	6.8	15.2	22.53
80	0.002	118	4.4	6.3	14.0	20.85
85	0.002	118	4.0	5.8	13.0	19.15
90	0.001	119	3.8	5.6	12.4	18.15
95	0.002	122	4.4	6.4	14.2	21.17
100	0.004	123	5.2	7.4	16.9	24.64
105	0.008	126	6.1	8.6	20.2	28.66
110	0.013	128	7.0	9.8	23.2	32.96
115	0.019	130	7.7	10.9	25.9	36.75
120	0.025	131	8.4	11.8	28.0	39.76
125	0.033	132	9.0	12.6	30.0	42.37
130	0.039	133	9.4	13.3	31.6	44.44
135	0.046	132	9.8	13.7	32.7	45.99
140	0.052	132	10.1	14.1	33.7	47.24
145	0.056	132	10.3	14.4	34.4	48.11
150	0.059	132	10.4	14.6	34.8	48.58
155	0.060	132	10.4	14.7	35.0	48.82
160	0.059	132	10.4	14.6	34.8	48.58
165	0.056	131	10.2	14.4	34.3	47.97
170	0.052	129	9.9	14.0	33.3	46.82
175	0.046	129	9.7	13.6	32.4	45.57

Table 3
Crawford Broadcasting
FM Contour Distances
WRDT-FX-P 268D

Azi. Deg.	ERP kW	HAAT m	60 dBu (50,50) km	54 dBu (50,10) km	40 dBu (50,10) km	34 dBu (50,10) km
180	0.039	129	9.3	13.1	31.1	43.91
185	0.033	129	8.9	12.5	29.6	41.98
190	0.025	128	8.3	11.7	27.7	39.37
195	0.019	127	7.7	10.8	25.6	36.36
200	0.013	126	6.9	9.8	23.0	32.71
205	0.008	126	6.1	8.6	20.2	28.66
210	0.004	124	5.2	7.4	17.0	24.74
215	0.002	123	4.4	6.4	14.3	21.26
220	0.001	123	3.9	5.7	12.6	18.51
225	0.002	122	4.1	5.9	13.2	19.52
230	0.002	122	4.4	6.4	14.3	21.23
235	0.003	122	4.9	6.9	15.6	23.02
240	0.004	121	5.2	7.3	16.6	24.30
245	0.005	121	5.2	7.4	16.9	24.67
250	0.004	120	5.1	7.3	16.5	24.20
255	0.003	119	4.8	6.8	15.3	22.72
260	0.002	118	4.4	6.3	14.0	20.85
265	0.002	116	4.0	5.8	12.9	18.95
270	0.001	114	3.7	5.4	12.1	17.68
275	0.002	115	4.3	6.2	13.8	20.50
280	0.004	116	5.1	7.2	16.3	23.91
285	0.008	115	5.8	8.2	19.1	27.36
290	0.013	114	6.6	9.3	21.9	31.11
295	0.019	113	7.2	10.2	24.1	34.35
300	0.025	112	7.7	10.9	25.9	37.00
305	0.033	112	8.2	11.6	27.6	39.44
310	0.039	111	8.6	12.1	28.8	41.20
315	0.046	111	9.0	12.6	30.0	42.83
320	0.052	110	9.2	12.9	30.8	43.86
325	0.056	110	9.4	13.2	31.4	44.72
330	0.059	112	9.6	13.4	32.1	45.52
335	0.060	113	9.6	13.6	32.4	45.94
340	0.059	112	9.6	13.4	32.1	45.52
345	0.056	113	9.5	13.3	31.9	45.23
350	0.052	113	9.3	13.1	31.2	44.37
355	0.046	111	9.0	12.6	30.0	42.83

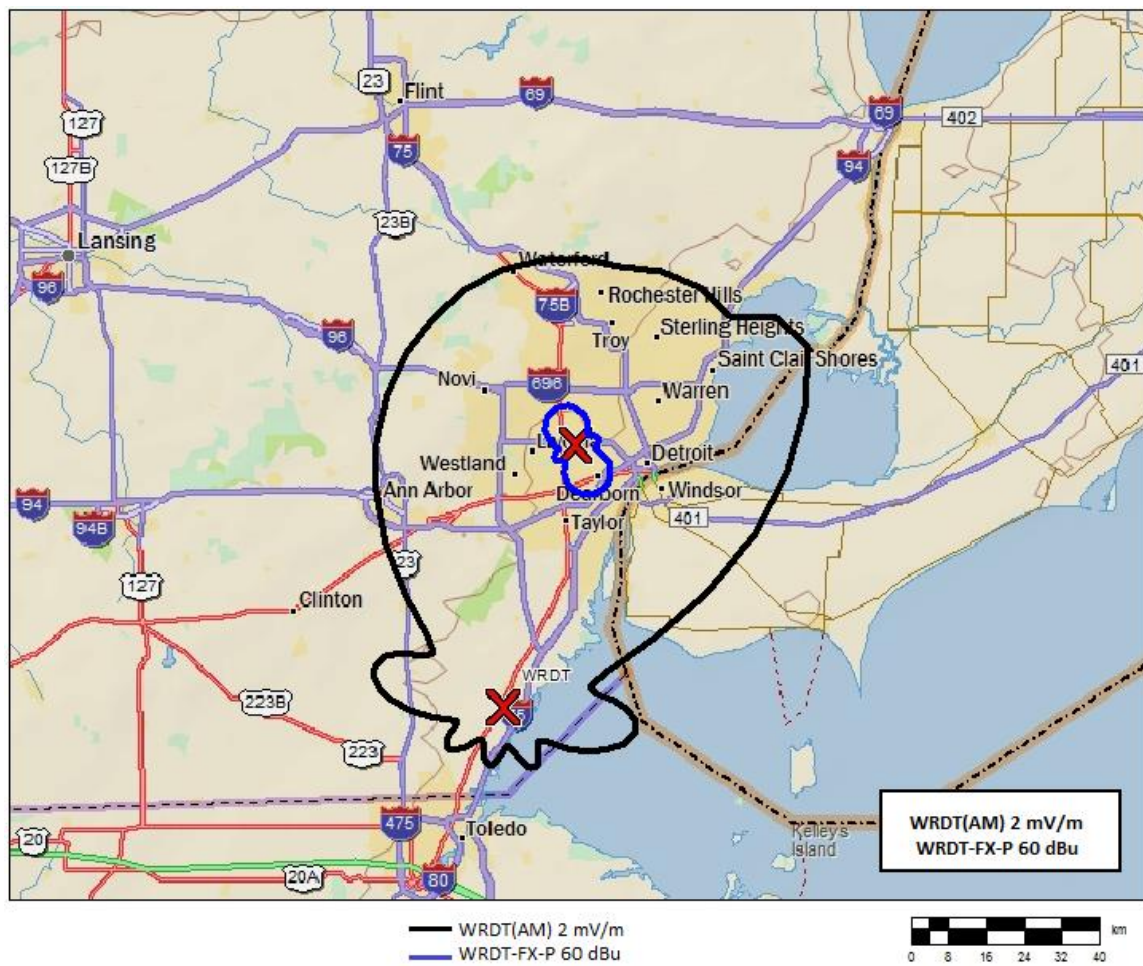


Figure 3 – WRDT-FX-P 60 dBu and WRDT(AM) 2 mV/m Daytime Contours