

WRWM(FM) Minor Modification Application

This technical report is submitted in support of a minor modification to WRWM(FM) 230B1 at Lawrence, IN, FCC file no. BLH-20101203ABV. An increase in ERP and modification of the current antenna center of radiation are requested.

The following exhibits are provided for the form 301 application:

- E-1 WRWM(FM) Spacing Study
- E-2 NED 30 Meter Terrain HAAT Calculation
- E-3 Interference Plot to WIFE-FM 232A
- E-4 FMOver Analysis to WIFE-FM
- E-5 Interference Plot to WFCJ(FM) 229B
- E-6 WRWM(FM) 70 dBu Contour Plot
- E-7 Tower ASR 1241160

WRWM(FM) Modification Analysis:

WRWM(FM) is already designated as a 73.215 short spaced facility with respect to WIFE-FM 232A at Rushville, IN, FCC facility I.D. 54151 and WFCJ(FM) 229B at Miamisburg, OH, FCC facility I.D. 41457 shown in the current spacing study in exhibit E-1. The current WRWM(FM) facility was re-evaluated using the more accurate 30 meter NED terrain database, allowed by previous FCC precedent, and corrects the HAAT calculation to 140 meters using eight equally spaced radials (exhibit E-2). The HAAT correction allows an increase in ERP to 8.4 kW. Exhibits E-3 through E-5 clearly show the ERP increase does not cause any interference overlap to WIFE-FM and WFCJ(FM) at their respective maximum class facilities.

Anderson Associates

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WRWM(FM) Facility:

WRWM(FM) will remain at its current site (ASR 1241160) at coordinates:

39-49-39N 85-58-51W NAD27.

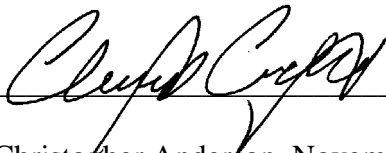
The facility will operate at 8.4 kW ERP with the current ERI MPX-4E-HW antenna at a COR AGL of 138 meters, COR AMSL of 393 meters. Using the NED 30 meter terrain data, the HAAT is calculated to be 140 meters (distance to the 60 dBu contour is 35.65 km). Exhibit E-6 shows the WRWM(FM) modification will continue to place a 70 dBu contour over the Lawrence, IN community of license.

RF Exposure Calculation:

The RF was calculated using the Commission's FMMODEL program. The maximum RF to the ground is $0.760 \mu\text{W}/\text{cm}^2$ at a distance of 530 meters from the base of the tower, which is well below the 5% threshold of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure requiring consideration.

Conclusion:

It is concluded the minor modification to WRWM(FM) is in full compliance with the Commission rules and policies.



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E-1 WRWM(FM) Current Spacing Study

REFERENCE

39 49 39.0 N.

CLASS = B1 Int = B1

85 58 51.0 W.

Current Spacings to 3rd Adj.

DISPLAY DATES

DATA 11-09-11

SEARCH 11-09-11

----- Channel 230 - 93.9 MHz -----

Call	Channel	Location	Azi	Dist	FCC	Margin
WRWM	LIC-N 230B1	Lawrence	IN 0.0	0.0	174.5	-174.5
AL7800	RSV-A 230B1	Lawrence	IN 207.9	12.6	174.5	-161.9 (1)
WIFE-FM	LIC 232A	Rushville	IN 107.8	43.8	47.5	-3.7 (2)
WFCJ	LIC 229B	Miamisburg	OH 96.9	144.0	144.5	-0.48(2)
WJJK	LIC 283B	Noblesville	IN 274.9	16.8	16.5	0.28
AL9217	RSV-A 283B	Noblesville	IN 274.9	16.8	16.5	0.28
WNNF	LIC 231B	Cincinnati	OH 121.4	149.8	144.5	5.3
WFRR	LIC 229A	Walton	IN 350.7	101.1	95.5	5.6
1432396	APP 231A	Worthington	IN 221.1	120.6	95.5	25.1
1428681	APP 231A	Worthington	IN 221.8	121.6	95.5	26.1
AU9112200VAC	231A	Worthington	IN 221.8	121.6	95.5	26.1
AL6342	RSV-A 230B1	Columbus Grove	OH 50.5	200.7	174.5	26.2
WBKS	LIC 230B1	Columbus Grove	OH 50.7	200.9	174.5	26.4
AL9876	RSV-A 230A	Sellersburg	IN 173.3	171.3	142.5	28.8
WGPI	CP 228A	Columbus	IN 184.6	76.4	47.5	28.9
WREB	LIC 232A	Greencastle	IN 256.9	80.3	47.5	32.8
WAYI	LIC 230A	Sellersburg	IN 173.6	175.5	142.5	33.0
WMXQ	LIC-Z 228A	Hartford City	IN 35.3	81.0	47.5	33.5
WPFR-FM	CP 229A	Clinton	IN 256.9	131.9	95.5	36.4
AL7807	RSV-A 229A	Clinton	IN 256.9	131.9	95.5	36.4
WPFR-FM	LIC 229A	Clinton	IN 256.9	131.9	95.5	36.4
WGFA-FM	LIC 231B	Watseka	IL 306.1	185.1	144.5	40.6
WBNI-FM	LIC-N 231A	Roanoke	IN 24.6	141.2	95.5	45.7
AL6644	RSV-A 229A	French Lick	IN 201.9	147.4	95.5	51.9
WLIT-FM	LIC 230B	Chicago	IL 329.1	267.1	210.5	56.6
WKHY	LIC 228A	Lafayette	IN 306.8	104.7	47.5	57.2
WAKW	LIC-D 227B	Cincinnati	OH 119.1	140.6	70.5	70.1
WKTG	LIC-N 230C2	Madisonville	KY 206.2	284.1	199.5	84.6
WKKI	LIC 232A	Celina	OH 54.5	144.5	47.5	97.0

(1) Reserved allocation for WRWM(FM)230B1 from the original MB Docket 05-67.

(2) WRWM(FM) 230B1 is already designated as a 73.215 short spaced facility with respect to WIFE-FM 232A and WFCJ(FM). There is no change to the current WRWM(FM) spacing.

E-2 WRWM(FM) HAAT Calculation

N. Lat. = 394939.0 W. Lng. = 855851.0

HAAT and Distance to Contour,

3-16 km, 51 pts Method - NED 30 Meter

Azi.	AV EL	HAAT	dBk	60-F5
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000	249.9	143.1	9.24	36.01
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045	262.8	130.2	9.24	34.49
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090	263.7	129.3	9.24	34.39
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135	257.6	135.4	9.24	35.10
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180	251.1	141.9	9.24	35.87
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225	251.4	141.6	9.24	35.83
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270	242.9	150.1	9.24	36.84
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315	242.1	150.9	9.24	36.93
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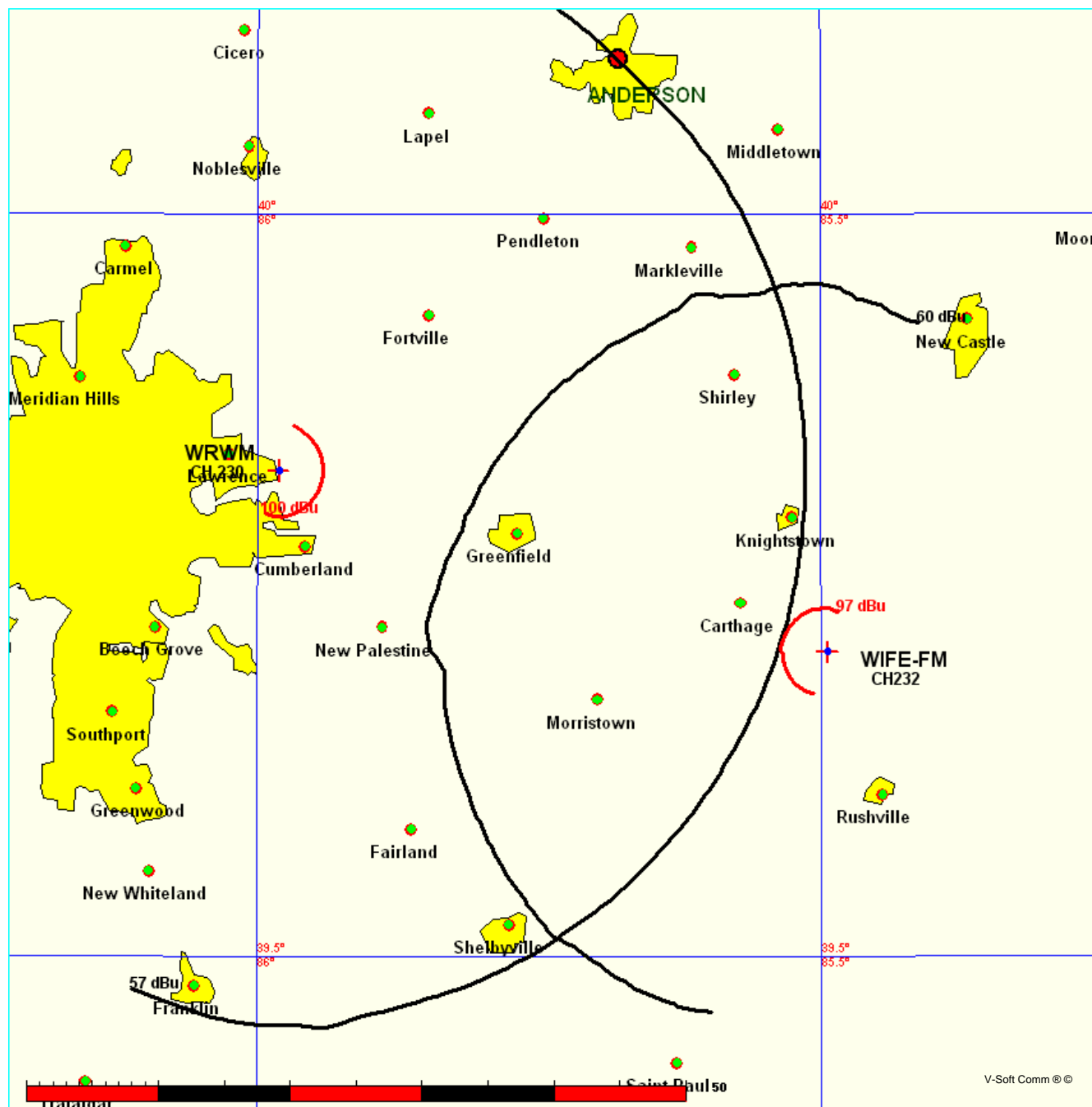
Ave El= 252.69 M HAAT= 140.31 M AMSL= 393

E-3 WRWM(FM) Interference Plot to WIFE-FM 232A

FMCommander Single Allocation Study - 11-09-2011 - NED 30 Meter
WRWM's Overlaps (In= 0.15 km, Out= 11.28 km)

WRWM CH 230 B1 73.215 N
Lat= 39 49 39.0, Lng= 85 58 51.0
8.4 kW 140 M HAAT, 393 M COR
Prot.= 57 dBu, Intef.= 100 dBu

WIFE-FM^ CH 232 A BMLH20000913AAR
Lat= 39 42 22.0, Lng= 85 29 41.0
Max CIs: 6.0 kW 100 M HAAT, 391 M COR
Prot.= 60 dBu, Intef.= 97 dBu



E-4 WRWM(FM) FMOver Analysis to WIFE-FM Max. Class

Terrain Data: NED 30 Meter

WRWM

Channel = 230B1
Max ERP = 8.4 kW
RCAMSL = 393 M
N. Lat. 39 49 39.0
W. Lng. 85 58 51.0
Protected
57 dBu

WIFE-FM BMLH20000913AAR
(^ Max Class Parameters)

Channel = 232A
Max ERP = 6 kW
RCAMSL = 391 M
N. Lat. 39 42 22.0
W. Lng. 85 29 41.0
Interfering
97 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
048.0	008.4000	0130.6	040.1	343.7	006.0000	0095.1	042.0	54.28	
049.0	008.4000	0130.5	040.1	344.2	006.0000	0094.9	041.4	54.53	
050.0	008.4000	0130.7	040.1	344.6	006.0000	0094.4	040.7	54.75	
051.0	008.4000	0130.8	040.1	345.0	006.0000	0094.0	040.1	54.98	
052.0	008.4000	0130.6	040.1	345.4	006.0000	0093.6	039.4	55.22	
053.0	008.4000	0130.7	040.1	345.8	006.0000	0093.2	038.8	55.45	
054.0	008.4000	0130.9	040.1	346.3	006.0000	0093.1	038.2	55.71	
055.0	008.4000	0131.0	040.1	346.7	006.0000	0092.8	037.5	55.96	
056.0	008.4000	0130.9	040.1	347.0	006.0000	0092.4	036.9	56.21	
057.0	008.4000	0131.1	040.2	347.5	006.0000	0092.0	036.2	56.46	
058.0	008.4000	0131.0	040.1	347.8	006.0000	0092.0	035.6	56.76	
059.0	008.4000	0130.6	040.1	348.1	006.0000	0092.0	034.9	57.06	
060.0	008.4000	0130.6	040.1	348.5	006.0000	0091.7	034.2	57.34	
061.0	008.4000	0130.6	040.1	348.8	006.0000	0091.8	033.6	57.65	
062.0	008.4000	0130.4	040.1	349.2	006.0000	0091.8	032.9	57.97	
063.0	008.4000	0130.3	040.0	349.5	006.0000	0091.6	032.2	58.27	
064.0	008.4000	0130.1	040.0	349.8	006.0000	0091.5	031.5	58.58	
065.0	008.4000	0130.3	040.1	350.2	006.0000	0091.6	030.9	58.93	
066.0	008.4000	0130.3	040.1	350.5	006.0000	0092.1	030.2	59.35	
067.0	008.4000	0130.3	040.1	350.8	006.0000	0092.7	029.5	59.78	
068.0	008.4000	0130.3	040.1	351.1	006.0000	0093.2	028.8	60.22	
069.0	008.4000	0130.3	040.1	351.4	006.0000	0093.6	028.1	60.68	
070.0	008.4000	0130.1	040.0	351.7	006.0000	0093.8	027.5	61.13	
071.0	008.4000	0130.0	040.0	351.9	006.0000	0093.5	026.8	61.54	
072.0	008.4000	0130.3	040.1	352.3	006.0000	0093.6	026.1	62.00	
073.0	008.4000	0130.4	040.1	352.6	006.0000	0093.9	025.4	62.51	
074.0	008.4000	0130.6	040.1	352.9	006.0000	0094.4	024.7	63.04	
075.0	008.4000	0130.3	040.1	353.0	006.0000	0094.5	024.0	63.55	
076.0	008.4000	0130.2	040.0	353.2	006.0000	0094.5	023.3	64.06	
077.0	008.4000	0130.0	040.0	353.3	006.0000	0094.4	022.6	64.56	
078.0	008.4000	0130.0	040.0	353.5	006.0000	0094.1	021.9	65.07	
079.0	008.4000	0130.1	040.0	353.7	006.0000	0094.0	021.2	65.60	
080.0	008.4000	0130.0	040.0	353.8	006.0000	0094.0	020.5	66.15	
081.0	008.4000	0129.9	040.0	353.9	006.0000	0094.0	019.8	66.71	
082.0	008.4000	0129.7	040.0	353.9	006.0000	0094.0	019.2	67.27	
083.0	008.4000	0129.5	040.0	353.9	006.0000	0094.0	018.5	67.84	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
084.0	008.4000	0129.5	040.0	353.9	006.0000	0094.0	017.8	68.42
085.0	008.4000	0129.5	040.0	353.8	006.0000	0094.0	017.1	69.00
086.0	008.4000	0129.4	039.9	353.7	006.0000	0094.0	016.4	69.59
087.0	008.4000	0129.5	040.0	353.6	006.0000	0094.1	015.7	70.19
088.0	008.4000	0129.6	040.0	353.5	006.0000	0094.2	015.0	70.65
089.0	008.4000	0129.5	040.0	353.2	006.0000	0094.5	014.3	71.48
090.0	008.4000	0129.4	039.9	352.8	006.0000	0094.3	013.6	72.31
091.0	008.4000	0129.4	039.9	352.4	006.0000	0093.7	012.9	73.19
092.0	008.4000	0129.8	040.0	352.1	006.0000	0093.5	012.2	74.17
093.0	008.4000	0130.0	040.0	351.6	006.0000	0093.7	011.5	75.25
094.0	008.4000	0129.7	040.0	350.6	006.0000	0092.4	010.8	76.22
095.0	008.4000	0129.8	040.0	349.7	006.0000	0091.5	010.2	77.29
096.0	008.4000	0129.8	040.0	348.5	006.0000	0091.7	009.5	78.51
097.0	008.4000	0130.0	040.0	347.3	006.0000	0092.2	008.8	79.81
098.0	008.4000	0130.1	040.0	345.7	006.0000	0093.4	008.2	81.21
099.0	008.4000	0130.2	040.0	343.7	006.0000	0095.1	007.5	82.77
100.0	008.4000	0130.4	040.1	341.3	006.0000	0098.6	006.9	84.71
101.0	008.4000	0130.6	040.1	338.4	006.0000	0100.8	006.3	86.60
102.0	008.4000	0130.5	040.1	334.4	006.0000	0096.9	005.7	87.91
103.0	008.4000	0130.8	040.1	330.0	006.0000	0096.6	005.1	89.66
104.0	008.4000	0131.0	040.1	324.2	006.0000	0098.8	004.7	91.49
105.0	008.4000	0131.1	040.2	317.0	006.0000	0099.4	004.2	93.10
106.0	008.4000	0131.3	040.2	308.3	006.0000	0102.1	003.9	94.66
107.0	008.4000	0131.5	040.2	298.2	006.0000	0104.8	003.7	95.82
108.0	008.4000	0131.5	040.2	287.1	006.0000	0107.1	003.6	96.22
109.0	008.4000	0131.6	040.2	276.0	006.0000	0116.1	003.7	96.47
110.0	008.4000	0131.8	040.2	265.8	006.0000	0106.7	003.9	95.00
111.0	008.4000	0131.8	040.2	257.1	006.0000	0108.1	004.2	93.76
112.0	008.4000	0132.1	040.3	249.6	006.0000	0108.1	004.6	92.30
113.0	008.4000	0132.0	040.3	243.9	006.0000	0108.6	005.1	90.69
114.0	008.4000	0132.2	040.3	239.1	006.0000	0109.3	005.7	89.06
115.0	008.4000	0132.4	040.3	235.3	006.0000	0110.3	006.3	87.42
116.0	008.4000	0132.3	040.3	232.5	006.0000	0110.2	006.9	85.70
117.0	008.4000	0132.4	040.3	230.0	006.0000	0111.1	007.5	84.17
118.0	008.4000	0132.7	040.4	227.9	006.0000	0111.7	008.2	82.80
119.0	008.4000	0132.8	040.4	226.3	006.0000	0111.5	008.8	81.44
120.0	008.4000	0132.9	040.4	225.0	006.0000	0112.7	009.5	80.24
121.0	008.4000	0132.8	040.4	224.1	006.0000	0112.2	010.2	78.97
122.0	008.4000	0133.0	040.4	223.2	006.0000	0110.8	010.9	77.69
123.0	008.4000	0133.2	040.4	222.4	006.0000	0110.4	011.6	76.55
124.0	008.4000	0133.4	040.4	221.8	006.0000	0109.5	012.3	75.43
125.0	008.4000	0133.5	040.5	221.3	006.0000	0109.0	013.0	74.40
126.0	008.4000	0133.7	040.5	220.9	006.0000	0108.5	013.7	73.44
127.0	008.4000	0133.8	040.5	220.7	006.0000	0108.4	014.4	72.58
128.0	008.4000	0134.0	040.5	220.4	006.0000	0108.4	015.1	71.94
129.0	008.4000	0134.3	040.6	220.2	006.0000	0108.2	015.8	71.33
130.0	008.4000	0134.5	040.6	220.1	006.0000	0108.2	016.5	70.73
131.0	008.4000	0134.8	040.6	219.9	006.0000	0108.1	017.2	70.13
132.0	008.4000	0134.9	040.6	220.0	006.0000	0108.1	017.9	69.55
133.0	008.4000	0135.0	040.6	220.1	006.0000	0108.2	018.6	68.97
134.0	008.4000	0135.2	040.7	220.1	006.0000	0108.2	019.3	68.40

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
135.0	008.4000	0135.3	040.7	220.2	006.0000	0108.2	020.0	67.84
136.0	008.4000	0135.5	040.7	220.4	006.0000	0108.3	020.8	67.28
137.0	008.4000	0135.6	040.7	220.5	006.0000	0108.4	021.5	66.74
138.0	008.4000	0136.0	040.8	220.6	006.0000	0108.4	022.2	66.19
139.0	008.4000	0136.3	040.8	220.8	006.0000	0108.5	022.9	65.67
140.0	008.4000	0136.4	040.8	221.0	006.0000	0108.5	023.6	65.14
141.0	008.4000	0136.5	040.8	221.2	006.0000	0108.9	024.3	64.66
142.0	008.4000	0136.6	040.9	221.5	006.0000	0109.3	025.0	64.19
143.0	008.4000	0136.6	040.9	221.8	006.0000	0109.5	025.7	63.73
144.0	008.4000	0136.7	040.9	222.1	006.0000	0109.8	026.4	63.28
145.0	008.4000	0136.8	040.9	222.4	006.0000	0110.4	027.1	62.87
146.0	008.4000	0136.8	040.9	222.7	006.0000	0110.7	027.8	62.44
147.0	008.4000	0137.0	040.9	223.0	006.0000	0110.7	028.5	62.01
148.0	008.4000	0137.0	040.9	223.4	006.0000	0111.2	029.2	61.64
149.0	008.4000	0137.5	041.0	223.6	006.0000	0111.6	029.9	61.25
150.0	008.4000	0137.7	041.0	223.9	006.0000	0112.3	030.6	60.92
151.0	008.4000	0138.0	041.0	224.3	006.0000	0112.1	031.3	60.54
152.0	008.4000	0138.1	041.0	224.6	006.0000	0112.6	032.0	60.22
153.0	008.4000	0138.0	041.0	225.0	006.0000	0112.7	032.7	59.90
154.0	008.4000	0137.9	041.0	225.4	006.0000	0112.3	033.3	59.54
155.0	008.4000	0138.2	041.1	225.8	006.0000	0112.0	034.0	59.19
156.0	008.4000	0138.5	041.1	226.1	006.0000	0111.6	034.7	58.83
157.0	008.4000	0138.8	041.1	226.5	006.0000	0111.5	035.4	58.50
158.0	008.4000	0138.8	041.1	226.9	006.0000	0111.4	036.1	58.18
159.0	008.4000	0138.8	041.1	227.3	006.0000	0111.2	036.8	57.86
160.0	008.4000	0139.0	041.2	227.7	006.0000	0111.6	037.4	57.59
161.0	008.4000	0139.0	041.2	228.1	006.0000	0111.8	038.1	57.30
162.0	008.4000	0138.9	041.1	228.5	006.0000	0111.3	038.8	56.97
163.0	008.4000	0138.8	041.1	229.0	006.0000	0110.9	039.4	56.65
164.0	008.4000	0138.7	041.1	229.4	006.0000	0111.2	040.1	56.39
165.0	008.4000	0139.0	041.2	229.8	006.0000	0111.1	040.7	56.10
166.0	008.4000	0139.0	041.2	230.3	006.0000	0111.0	041.4	55.81
167.0	008.4000	0139.4	041.2	230.6	006.0000	0110.8	042.0	55.52

WIFE-FM BMLH20000913AAR
(^ Max Class Parameters)
Channel = 232A
Max ERP = 6 kW
RCAMSL = 391 M
N. Lat. 39 42 22.0
W. Lng. 85 29 41.0
Protected
60 dBu

WRWM
Channel = 230B1
Max ERP = 8.4 kW
RCAMSL = 393 M
N. Lat. 39 49 39.0
W. Lng. 85 58 51.0
Interfering
100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
228.0	006.0000	0111.8	029.8	149.7	008.4000	0137.7	038.7	60.08	
229.0	006.0000	0110.9	029.7	149.7	008.4000	0137.7	038.2	60.32	
230.0	006.0000	0111.1	029.7	149.8	008.4000	0137.7	037.7	60.56	
231.0	006.0000	0110.5	029.6	149.9	008.4000	0137.7	037.2	60.81	
232.0	006.0000	0110.2	029.6	149.9	008.4000	0137.7	036.6	61.05	
233.0	006.0000	0110.3	029.6	150.1	008.4000	0137.8	036.1	61.30	
234.0	006.0000	0110.3	029.6	150.1	008.4000	0137.8	035.6	61.55	
235.0	006.0000	0110.3	029.6	150.2	008.4000	0137.8	035.1	61.80	
236.0	006.0000	0110.1	029.6	150.3	008.4000	0137.8	034.6	62.06	
237.0	006.0000	0109.8	029.5	150.3	008.4000	0137.8	034.1	62.31	
238.0	006.0000	0109.5	029.5	150.3	008.4000	0137.8	033.6	62.57	
239.0	006.0000	0109.4	029.5	150.2	008.4000	0137.8	033.0	62.83	
240.0	006.0000	0109.1	029.5	150.2	008.4000	0137.8	032.5	63.09	
241.0	006.0000	0109.1	029.5	150.2	008.4000	0137.8	032.0	63.35	
242.0	006.0000	0109.0	029.4	150.2	008.4000	0137.8	031.5	63.61	
243.0	006.0000	0108.6	029.4	150.0	008.4000	0137.7	031.0	63.88	
244.0	006.0000	0108.6	029.4	150.0	008.4000	0137.7	030.5	64.17	
245.0	006.0000	0108.5	029.4	149.9	008.4000	0137.7	030.0	64.46	
246.0	006.0000	0108.5	029.4	149.8	008.4000	0137.7	029.4	64.75	
247.0	006.0000	0108.4	029.4	149.6	008.4000	0137.7	028.9	65.06	
248.0	006.0000	0108.1	029.3	149.4	008.4000	0137.6	028.4	65.36	
249.0	006.0000	0108.0	029.3	149.2	008.4000	0137.7	027.9	65.68	
250.0	006.0000	0108.0	029.3	149.0	008.4000	0137.5	027.4	66.00	
251.0	006.0000	0108.0	029.3	148.8	008.4000	0137.4	026.9	66.32	
252.0	006.0000	0108.0	029.3	148.6	008.4000	0137.3	026.4	66.64	
253.0	006.0000	0107.9	029.3	148.3	008.4000	0137.2	025.9	66.97	
254.0	006.0000	0108.0	029.3	148.0	008.4000	0137.0	025.4	67.30	
255.0	006.0000	0108.0	029.3	147.7	008.4000	0136.9	024.9	67.64	
256.0	006.0000	0108.1	029.3	147.4	008.4000	0136.9	024.4	67.98	
257.0	006.0000	0108.1	029.3	147.0	008.4000	0137.0	024.0	68.34	
258.0	006.0000	0108.0	029.3	146.5	008.4000	0137.0	023.5	68.69	
259.0	006.0000	0108.0	029.3	146.0	008.4000	0136.8	023.0	69.03	
260.0	006.0000	0108.1	029.3	145.6	008.4000	0136.8	022.5	69.38	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
261.0	006.0000	0108.3	029.4	145.0	008.4000	0136.8	022.1	69.74
262.0	006.0000	0108.0	029.3	144.3	008.4000	0136.7	021.6	70.07
263.0	006.0000	0107.6	029.3	143.6	008.4000	0136.6	021.2	70.40
264.0	006.0000	0107.4	029.2	142.8	008.4000	0136.6	020.8	70.73
265.0	006.0000	0107.0	029.2	142.0	008.4000	0136.7	020.4	71.05
266.0	006.0000	0106.5	029.1	141.0	008.4000	0136.5	020.0	71.35
267.0	006.0000	0106.5	029.1	140.1	008.4000	0136.4	019.6	71.67
268.0	006.0000	0108.2	029.4	139.7	008.4000	0136.5	019.0	72.11
269.0	006.0000	0111.1	029.7	139.6	008.4000	0136.5	018.4	72.61
270.0	006.0000	0114.7	030.1	139.5	008.4000	0136.5	017.7	73.16
271.0	006.0000	0115.7	030.2	138.7	008.4000	0136.1	017.3	73.52
272.0	006.0000	0116.8	030.4	137.8	008.4000	0135.9	016.8	73.89
273.0	006.0000	0117.3	030.4	136.6	008.4000	0135.5	016.4	74.22
274.0	006.0000	0118.0	030.5	135.4	008.4000	0135.3	016.0	74.55
275.0	006.0000	0116.9	030.4	133.6	008.4000	0135.1	015.7	74.74
276.0	006.0000	0116.1	030.3	131.9	008.4000	0134.9	015.5	74.94
277.0	006.0000	0114.7	030.1	130.0	008.4000	0134.5	015.3	75.05
278.0	006.0000	0113.5	030.0	128.0	008.4000	0134.0	015.1	75.15
279.0	006.0000	0112.6	029.9	126.1	008.4000	0133.8	015.0	75.14
280.0	006.0000	0112.9	029.9	124.3	008.4000	0133.4	014.7	75.39
281.0	006.0000	0111.6	029.8	122.2	008.4000	0133.1	014.7	75.44
282.0	006.0000	0110.8	029.7	120.1	008.4000	0132.8	014.6	75.53
283.0	006.0000	0110.9	029.7	118.2	008.4000	0132.7	014.4	75.70
284.0	006.0000	0110.1	029.6	116.1	008.4000	0132.3	014.4	75.70
285.0	006.0000	0109.4	029.5	114.0	008.4000	0132.2	014.4	75.70
286.0	006.0000	0108.1	029.3	111.9	008.4000	0132.1	014.5	75.60
287.0	006.0000	0107.2	029.2	109.8	008.4000	0131.8	014.5	75.49
288.0	006.0000	0106.5	029.1	107.8	008.4000	0131.5	014.6	75.39
289.0	006.0000	0106.8	029.2	105.8	008.4000	0131.2	014.6	75.40
290.0	006.0000	0107.6	029.3	103.8	008.4000	0130.9	014.5	75.45
291.0	006.0000	0106.6	029.2	101.9	008.4000	0130.4	014.7	75.20
292.0	006.0000	0106.1	029.1	100.0	008.4000	0130.4	014.9	75.02
293.0	006.0000	0106.1	029.1	098.1	008.4000	0130.1	015.0	74.88
294.0	006.0000	0106.1	029.1	096.2	008.4000	0129.7	015.1	74.87
295.0	006.0000	0105.6	029.0	094.5	008.4000	0129.8	015.4	74.69
296.0	006.0000	0105.1	029.0	092.8	008.4000	0130.1	015.6	74.49
297.0	006.0000	0105.0	029.0	091.2	008.4000	0129.5	015.8	74.27
298.0	006.0000	0104.7	028.9	089.6	008.4000	0129.4	016.1	74.05
299.0	006.0000	0104.5	028.9	088.1	008.4000	0129.6	016.4	73.82
300.0	006.0000	0104.0	028.8	086.7	008.4000	0129.4	016.7	73.55
301.0	006.0000	0103.8	028.8	085.4	008.4000	0129.4	017.0	73.30
302.0	006.0000	0103.3	028.7	084.1	008.4000	0129.5	017.3	73.02
303.0	006.0000	0103.4	028.7	082.8	008.4000	0129.6	017.6	72.77
304.0	006.0000	0102.4	028.6	081.9	008.4000	0129.7	018.1	72.43
305.0	006.0000	0102.2	028.6	080.8	008.4000	0130.0	018.4	72.16
306.0	006.0000	0102.3	028.6	079.7	008.4000	0130.1	018.8	71.89
307.0	006.0000	0102.2	028.6	078.7	008.4000	0130.1	019.1	71.58
308.0	006.0000	0102.1	028.6	077.7	008.4000	0129.9	019.5	71.27
309.0	006.0000	0102.1	028.6	076.8	008.4000	0130.1	019.9	70.97
310.0	006.0000	0101.9	028.5	076.0	008.4000	0130.2	020.3	70.65
311.0	006.0000	0101.6	028.5	075.3	008.4000	0130.3	020.8	70.32

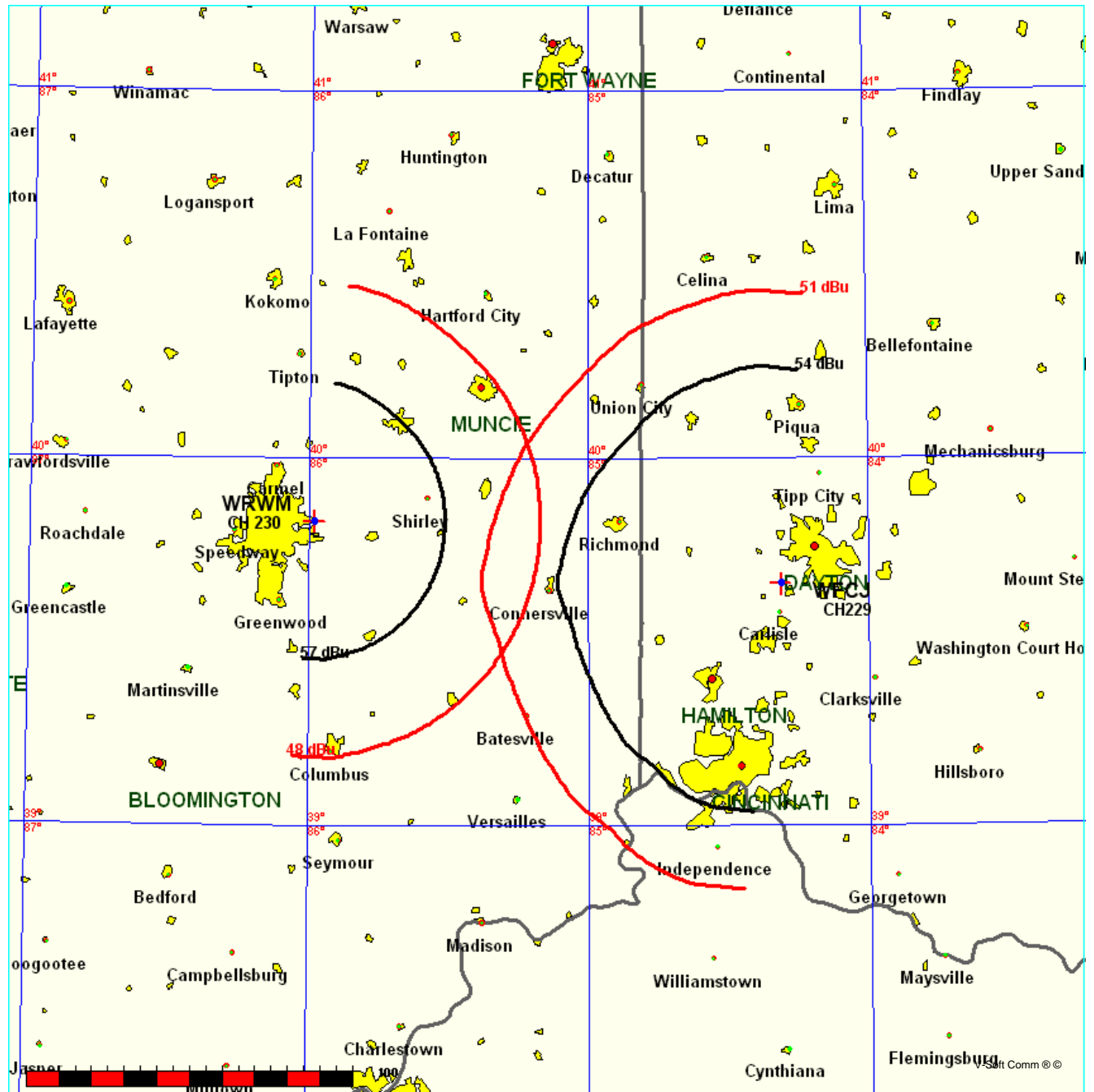
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
312.0	006.0000	0101.5	028.5	074.6	008.4000	0130.3	021.2	69.99
313.0	006.0000	0101.1	028.4	074.0	008.4000	0130.6	021.6	69.67
314.0	006.0000	0100.9	028.4	073.4	008.4000	0130.6	022.1	69.33
315.0	006.0000	0100.7	028.4	072.8	008.4000	0130.4	022.5	68.98
316.0	006.0000	0100.0	028.3	072.5	008.4000	0130.5	023.0	68.63
317.0	006.0000	0099.4	028.2	072.1	008.4000	0130.3	023.5	68.26
318.0	006.0000	0099.2	028.2	071.7	008.4000	0130.2	023.9	67.92
319.0	006.0000	0098.5	028.1	071.4	008.4000	0130.1	024.4	67.56
320.0	006.0000	0098.7	028.1	070.9	008.4000	0130.0	024.9	67.23
321.0	006.0000	0098.6	028.1	070.6	008.4000	0130.0	025.3	66.91
322.0	006.0000	0098.7	028.1	070.2	008.4000	0130.0	025.8	66.59
323.0	006.0000	0098.9	028.1	069.8	008.4000	0130.1	026.2	66.29
324.0	006.0000	0098.9	028.1	069.5	008.4000	0130.2	026.7	65.97
325.0	006.0000	0098.5	028.1	069.3	008.4000	0130.2	027.2	65.66
326.0	006.0000	0097.8	028.0	069.2	008.4000	0130.2	027.7	65.34
327.0	006.0000	0097.4	027.9	069.1	008.4000	0130.2	028.2	65.03
328.0	006.0000	0097.0	027.9	069.0	008.4000	0130.3	028.7	64.73
329.0	006.0000	0096.8	027.9	068.9	008.4000	0130.3	029.2	64.45
330.0	006.0000	0096.6	027.8	068.8	008.4000	0130.3	029.6	64.16
331.0	006.0000	0096.6	027.8	068.7	008.4000	0130.3	030.1	63.88
332.0	006.0000	0096.5	027.8	068.6	008.4000	0130.3	030.6	63.61
333.0	006.0000	0096.4	027.8	068.5	008.4000	0130.3	031.1	63.35
334.0	006.0000	0096.8	027.9	068.3	008.4000	0130.3	031.6	63.09
335.0	006.0000	0097.1	027.9	068.2	008.4000	0130.3	032.0	62.85
336.0	006.0000	0097.4	027.9	068.1	008.4000	0130.3	032.5	62.61
337.0	006.0000	0098.2	028.1	067.9	008.4000	0130.3	033.0	62.37
338.0	006.0000	0100.2	028.3	067.4	008.4000	0130.3	033.5	62.12
339.0	006.0000	0101.5	028.5	067.1	008.4000	0130.3	034.0	61.88
340.0	006.0000	0100.3	028.3	067.4	008.4000	0130.3	034.5	61.64
341.0	006.0000	0099.1	028.2	067.7	008.4000	0130.3	035.0	61.41
342.0	006.0000	0097.8	028.0	068.0	008.4000	0130.3	035.5	61.18
343.0	006.0000	0095.4	027.7	068.6	008.4000	0130.3	035.9	60.95
344.0	006.0000	0094.9	027.6	068.8	008.4000	0130.3	036.4	60.73
345.0	006.0000	0094.1	027.5	069.0	008.4000	0130.3	036.9	60.51
346.0	006.0000	0093.2	027.4	069.3	008.4000	0130.2	037.3	60.28
347.0	006.0000	0092.5	027.3	069.5	008.4000	0130.2	037.8	60.07

E-5 WRWM(FM) Interference Plot to WFCJ(FM) 229B

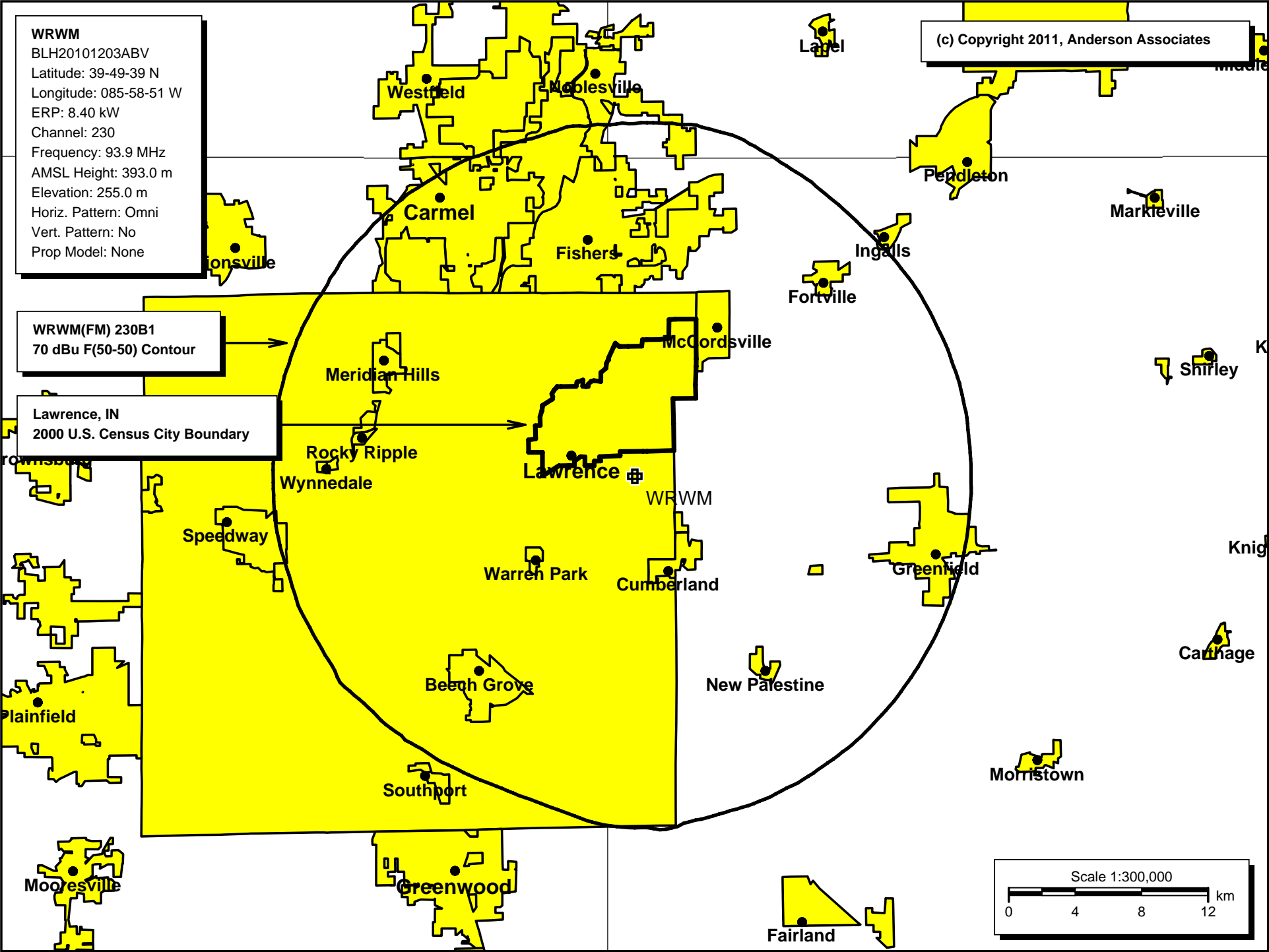
FMCommander Single Allocation Study - 11-09-2011 - NED 30 Meter
WRWM's Overlaps (In= 13.77 km, Out= 7.63 km)

WRWM CH 230 B1 73.215 N
Lat= 39 49 39.0, Lng= 85 58 51.0
8.4 kW 140 M HAAT, 393 M COR
Prot.= 57 dBu, Intef.= 48 dBu

WFCJ^ CH 229 B BMLH20080102ABQ
Lat= 39 39 35.0, Lng= 84 18 53.0
Max CIs: 50.0 kW 150 M HAAT, 418 M COR
Prot.= 54 dBu, Intef.= 51 dBu



E-6 WRWM(FM 70 dBu Coverage Plot



E-7 WRWM(FM) Tower ASR

ASR Registration Search

Registration 1241160

 [Map Registration](#)

Registration Detail

Reg Number	1241160	Status	Constructed
File Number	A0434480	Constructed	01/20/2004
FAA Study	2003-AGL-5520-OE	EMI	No
FAA Issue Date	10/09/2003	NEPA	No

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Communications Purposes

Location (in NAD83 Coordinates)

Lat/Long 39-49-39.1 N 085-58-50.9 W 10512 East 38th St.
City, State Indianapolis , IN
Center of
AM Array

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
254.5	142.6
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
397.1	141.7

Painting and Lighting Specifications

FAA Chapters 4, 8, 12
Paint and Light in Accordance with FAA Circular Number 70/7460-1K

Owner & Contact Information

FRN	0003251303	Licensee ID	L00012998
Assignor FRN	0002143840	Assignor ID	L00133222

Owner

Indianapolis Radio License Co. Attention To: Craig Bremer 140 East Market St. York , PA 17401	P: (717)852-2305 E: craig.bremer@suspfz.com
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Contact

Philips , Norman J 221 West Philadelphia St. York , PA 17405-1069	P: (717)852-2132 E: nphilips@dfwradio.com
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Last Action Status

Status	Constructed	Received	03/16/2005
Purpose	Change Owner	Entered	03/16/2005
Mode	Interactive		