

Anderson Associates

Broadcast Consultants
1519 Euclid Avenue
Bowling Green, KY 42103

Technical Report W247BL Minor Modification

As the Commission's rules now allow translators to serve a fill-ins for primary AM facilities, this technical report is submitted for a minor modification to W247BL at Crestline, OH, FCC file no. BLFT-20090921ACQ. A change in ERP and antenna orientation is requested for the translator to serve as a fill-in to rebroadcast the primary signal of WRGM(AM) 1440kHz at Ontario, OH, FCC facility I.D. 25476.

The following exhibits are provided to support the FCC form 349 application:

- E-1 W247BL Overlap Study
- E-2 60 dBu Contour within the Daytime 2.0 mV/m WRGM(AM) Contour
- E-3 Interference Plot to WLRD(FM) 245A
- E-4 Tabulation of Interference Contour to WLRD 245A
- E-5 Scala CA5-FM Horizontal Pattern
- E-6 Scala CA5-FM/CP/RM Vertical Elevation Pattern and Tabulation
- E-7 Tower Site Aerial Photo
- E-8 ASR1013230

W247BL.CP Modification Analysis:

Exhibit E-1 shows the W247BL modified facility is inside the 2nd adjacent WLRD(FM) 245A 60 dBu protected contour. Therefore, the interference ratio is utilized to determine the interference contour in accordance with FCC-02-244, paragraph 12.

Exhibit E-3 shows the F(50-50) contour from WLRD(FM) to the new tower site for W247BL is 62.17 dBu. Adding the +40 dBu yields an F(50-10) interfering contour of 102.17 dBu. Since the facility is to be located within an area that might receive

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interference, the vertical elevation pattern of the Scala two bay CA5-FM/CP/RM antenna was used to determine the actual line of sight reduced ERP to the interfering contour.

Exhibit E-4 shows a tabulation of the actual line of sight distance at each degree, starting from 14 degrees to the ground, which demonstrates the actual interfering contour will not exceed the +40 102.17 dBu F(50-10) contour using the V-Soft CONTOUR program. Additionally, the line of sight distance at each degree was calculated to the 102.17 dBu F(50-10) contour using the same program, and the height above ground was calculated geometrically to show the height above ground for each point. The closest height above ground for any of the azimuths was determined to be 17 degrees below horizontal with a 99.47 dBu F(50-10) contour. The actual 102.17 dBu contour occurs at 340 meters along the line of sight path. This point is 36.6 meters above ground vertically (136m AGL - 99.4 meters (340m X sine 17 degrees)), and defines a plane of at least 36.6 meters above ground for the interfering contour along the entire area within the interfering contour. Clearly, the interfering contour will not reach any potential population, roads, or buildings within the reduced vertical interfering contour. Consequently, a waiver of Section 74.1204 is requested.

Antenna System:

W247BL.CP is to be remain at its current tower, ASR #1013230, at coordinates:

40 45 50N 82 37 04W NAD 27.

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The facility will operate at a COR AGL of 136 meters and 0.120 kW ERP using a Scala CA5-FM/CP/RM 2 bay 0.87 wavelength directional antenna stack rotated at an azimuth of 140 degrees.

RF Exposure Calculation:

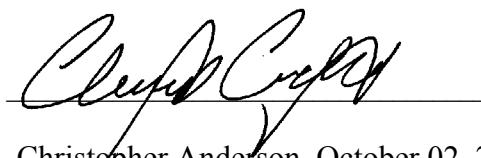
The RF contribution of the facility was calculated using the formula from the OET Bulletin 65:

$$S \text{ (RF in microwatts/cm}^2) = \frac{33.4 \times F^2 \times (H \text{ ERP} + V \text{ ERP in watts})}{R^2 \text{ (distance to radiation center in meters -2m)}}$$

Using the worst-case vertical (F) factor of 0.164, specified by Scala for the CA5-FM/CP stacked antenna, yields an RF value of 0.012 $\mu\text{W}/\text{cm}^2$ to the ground, which is well below 5% of the 200 $\mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure, allowing exclusion from consideration.

Conclusion:

It is concluded that the modification of W247BL complies with all Commission rules and policies.



Christopher Anderson October 02, 2009
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E-1 W247BL Overlap Study

REFERENCE
40 45 50.0 N.
82 37 04.0 W.

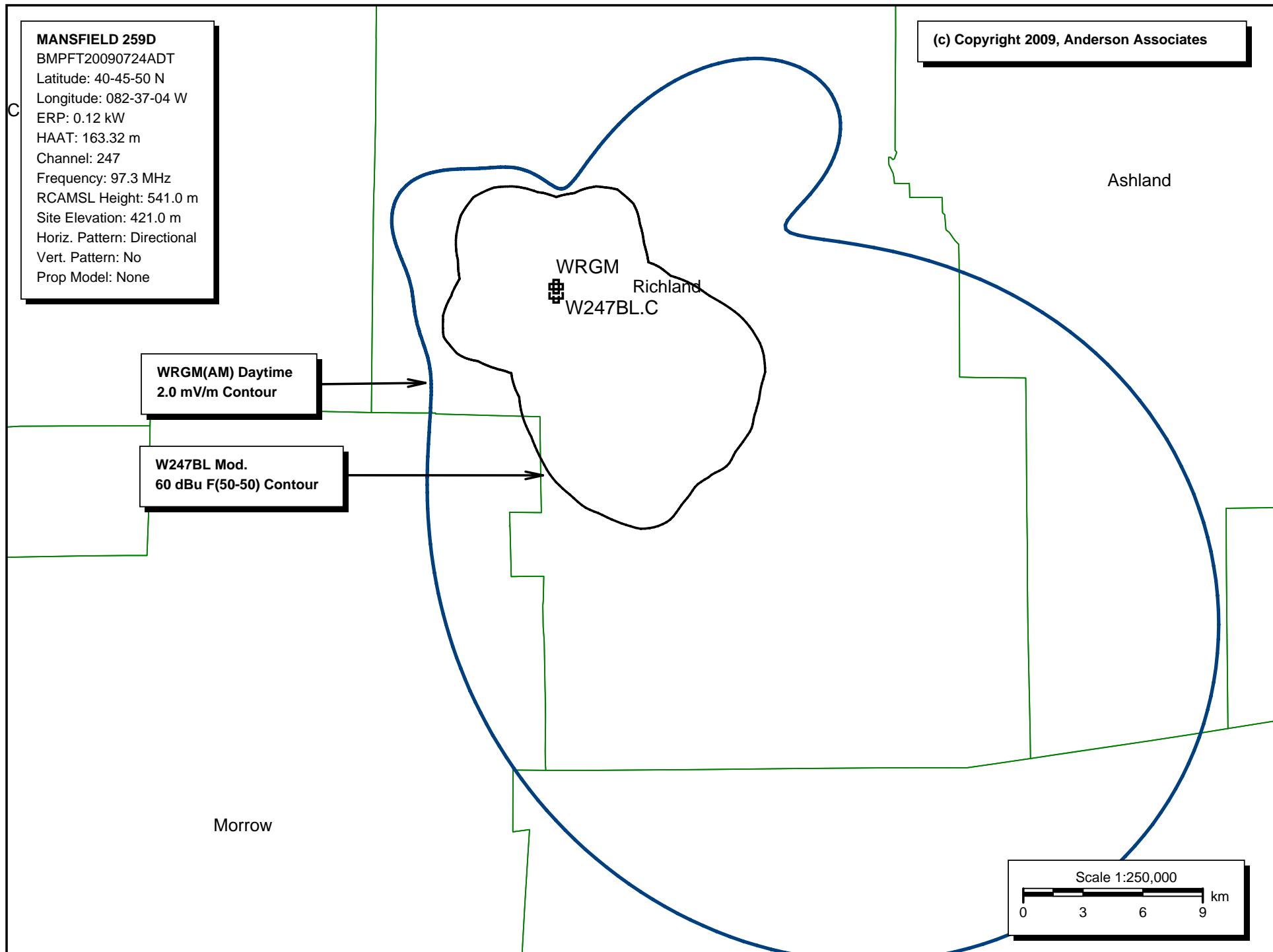
CH# 247D - 97.3 MHz, Pwr= 0.12 kW, HAAT= 161.0 M, COR= 541 M
Average Protected F(50-50)= 13.66 km
Standard Directional

DISPLAY DATES
DATA 09-26-09
SEARCH 10-02-09

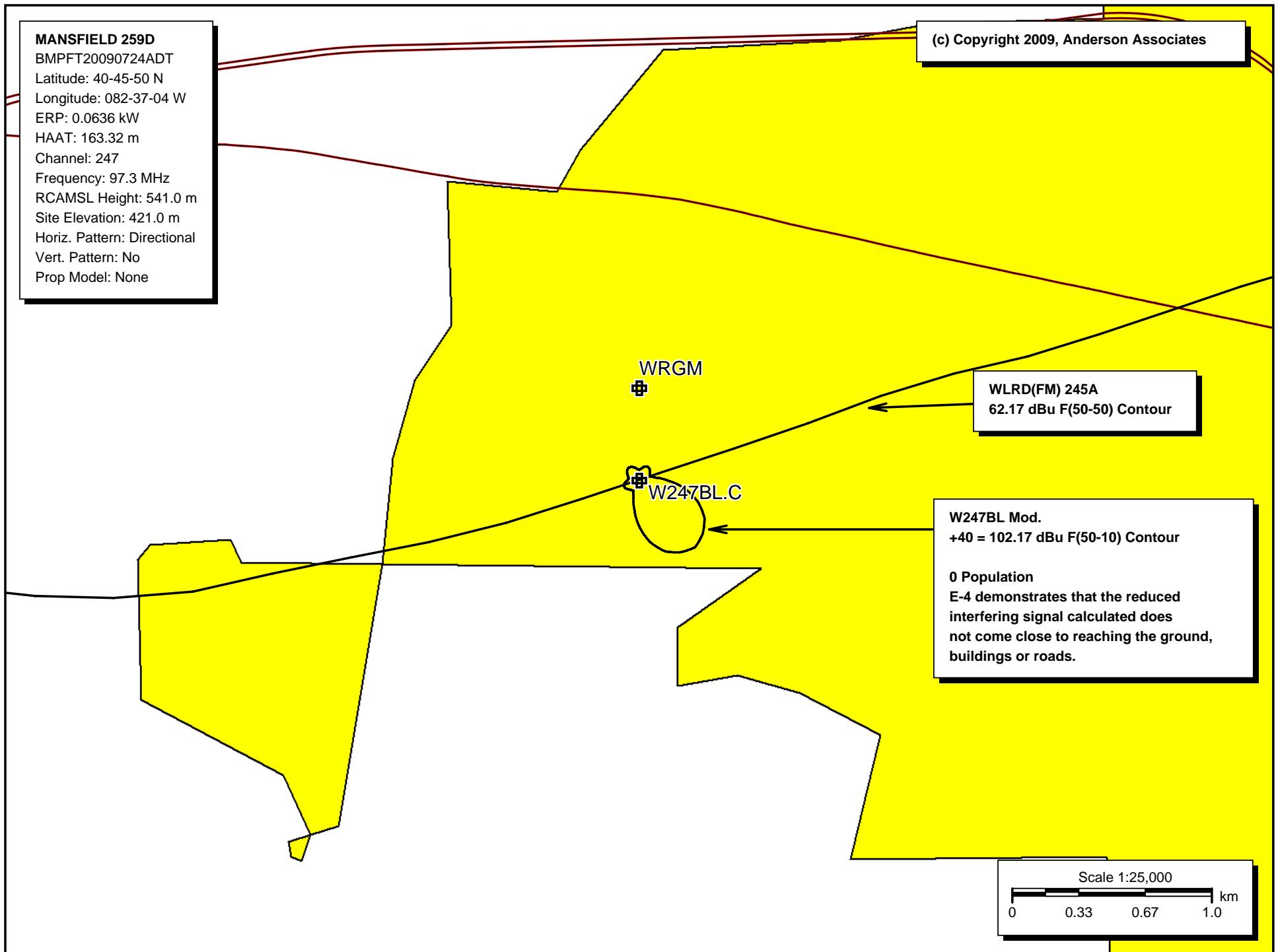
CH CITY	CALL	TYPE STATE	ANT AZI <--	DI ST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km)	*IN* (Overlap in km)	*OUT*
247D	W247BL Crestline	LIC DC_ OH	0.0 0.0	0.0 BLFT20090921ACQ	40 45 50.0 82 37 04.0	0.120 541	18.5 541	5.4 Gsm Medi a Corporati on	-23.5*	-22.3*
245A	WLRLD Willard	LIC _CX OH	359.3 179.3	21.8 BMLH20030711AAD	40 57 36.0 82 37 16.0	6.000 100	2.4 422	24.4 Christian Fai th Broadcast,	14.4	-2.7*<
247A	WJZE Oak Harbor	LIC ZCX OH	319.8 139.3	103.4 BLH20061207AAU	41 28 19.0 83 25 05.0	4.300 118	83.1 307	27.4 Urban Radi o Li censes, Llc	14.0	54.3
246B	WBNS-FM Col umbus	LIC _CN OH	201.6 21.4	94.7 BLH19850125LM	39 58 16.0 83 01 40.0	20.500 238	75.3 484	63.8 Radi ohi o, Incorporated	14.1	20.4
248B	WONE-FM Akron	LIC _C_ OH	68.6 249.3	93.4 BLH20010810AAQ	41 03 53.0 81 34 59.0	12.000 271	71.6 589	61.2 Rubber Ci ty Radi o Group, I	16.8	21.9
250B	WNCI Col umbus	LIC DEX OH	200.4 20.1	94.1 BMLH20080128AAW	39 58 10.0 83 00 10.0	175.000 171	7.0 418	71.2 Ci tti casters Li censes, Inc.	81.7	22.6
248L1	WDCM-LP Mari on	LIC ____ OH	248.9 68.6	46.4 BLL20050429AEM	40 36 46.0 83 07 48.0	0.045 44	6.6 327	4.6 The U. s. Open Juniors	33.9	33.3
247B	WKWK-FM Wheel ing	LIC _CN WV	113.9 295.2	178.7 BLH19801203AF	40 05 49.0 80 42 06.0	50.000 128	131.6 456	58.2 Capstar Tx Li mited Partner	35.8	68.2
244B1	WKOV-FM Frazeyburg	CP _CX OH	155.4 335.7	90.0 BPH20070405ABF	40 01 36.0 82 10 38.0	11.500 147	4.0 427	45.5 Jackson County Broadcastin	73.3	43.5
249A	WGNN Castalia	LIC _CN OH	348.3 168.2	71.8 BLH19860724KB	41 23 48.0 82 47 31.0	0.640 221	1.6 416	23.0 Christian Fai th Broadcast,	64.9	48.7
244C1	CHYR-FM Leamington	LIC _C_ ON	1.9 181.9	138.4 BLH19860724KB	42 00 35.0 82 33 45.0	100.000 299	10.2 475	86.8 Beamtli t(Y, N, X)	123.3	51.4
300A	WVMX Westerville	LIC _CX OH	204.7 24.5	63.4 BLH20090511ASY	40 14 41.5 82 55 49.1	3.000 143	0.0 439	0.0 Franklin Communicat ions, I	9.5R	53.9M
244A	WBVI Fostoria	LIC _CN OH	297.7 117.1	81.3 BLH19970721KA	41 06 00.0 83 28 32.0	3.000 88	2.1 324	21.2 Tcb Holdings, Inc., C/o R	73.6	60.0
248D	WOBN Westerville	LIC _HX OH	200.8 20.6	75.9 BLED20081021ABB	40 07 28.0 82 56 06.0	0.029 20	5.8 296	4.1 Otterbein Col lege	64.7	64.3

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 = 1, 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 protected contour.
Reference station has protected zone issue: AM tower

E-2 W247BL Mod. Coverage Plot



E-3 W247BL Mod. Interference Plot to WLRD(FM) 245A



E-4 W247BL.CP Interfering Contour Calculation Table

Based on 0.120 kW and the 102.17 dBu Interfering Contour to WLRD 245A

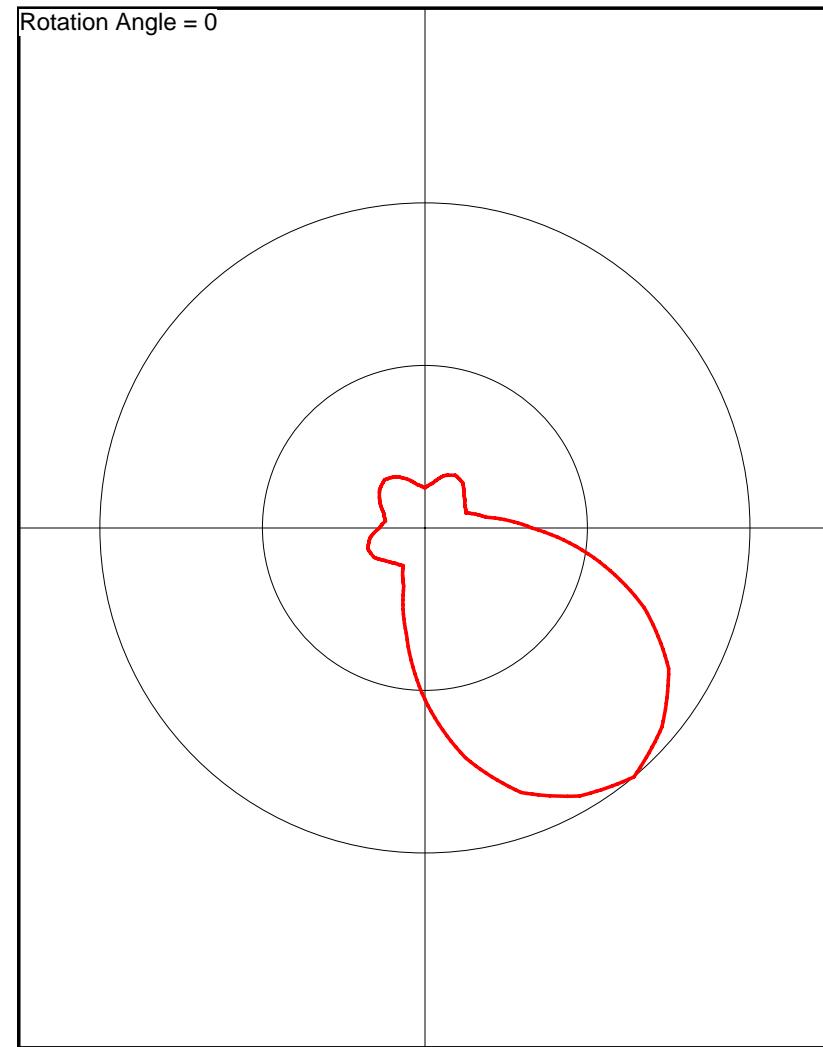
Depression Angle	Vertical F Factor	COR AGL (m)	F ² X 0.120 kW Reduced Vertical ERP	Line of Sight Distance (km)	Actual F(50-10) dBu Interference Contour	Distance to 102.17 dBu F(50-10) Contour (km)
14	0.728	136	0.0636	0.5622	99.17	0.3970
15	0.695	136	0.0580	0.5255	99.34	0.3797
16	0.660	136	0.0523	0.4934	99.45	0.3600
17	0.624	136	0.0467	0.4652	99.47	0.3400
18	0.588	136	0.0415	0.4401	99.44	0.3214
19	0.551	136	0.0364	0.4177	99.33	0.3012
20	0.514	136	0.0317	0.3976	99.15	0.2807
21	0.475	136	0.0271	0.3795	98.88	0.2597
22	0.436	136	0.0228	0.3630	98.51	0.2382
23	0.397	136	0.0189	0.3481	98.07	0.2172
24	0.359	136	0.0155	0.3344	97.54	0.1962
25	0.321	136	0.0124	0.3218	96.90	0.1753
26	0.284	136	0.0097	0.3102	96.17	0.1555
27	0.248	136	0.0074	0.2996	95.31	0.1360
28	0.213	136	0.0054	0.2897	94.21	0.1159
29	0.179	136	0.0038	0.2805	93.01	0.0977
30	0.146	136	0.0026	0.2720	91.45	0.0792
31	0.114	136	0.0016	0.2641	89.63	0.0623
32	0.083	136	0.0008	0.2566	87.18	0.0457
33	0.055	136	0.0004	0.2497	83.74	0.0299
34	0.027	136	0.0001	0.2432	79.20	0.0173
35	0.010	136	0.0000	0.2371	0.00	0.0000
36	0.022	136	0.0001	0.2314	0.00	0.0000
37	0.044	136	0.0002	0.2260	82.85	0.0244
38	0.063	136	0.0005	0.2209	86.06	0.0346
39	0.082	136	0.0008	0.2161	88.68	0.0457
40	0.098	136	0.0012	0.2116	90.41	0.0546
41	0.112	136	0.0015	0.2073	91.73	0.0623
42	0.124	136	0.0018	0.2032	92.52	0.0669
43	0.134	136	0.0022	0.1994	93.48	0.0733
44	0.143	136	0.0025	0.1958	94.09	0.0773
45	0.150	136	0.0027	0.1923	94.86	0.0829
46	0.156	136	0.0029	0.1891	95.19	0.0846
47	0.160	136	0.0031	0.1860	95.68	0.0881
48	0.163	136	0.0032	0.1830	95.98	0.0898
49	0.164	136	0.0032	0.1802	96.12	0.0898
50	0.164	136	0.0032	0.1775	96.25	0.0898
51	0.164	136	0.0032	0.1750	96.37	0.0898
52	0.163	136	0.0032	0.1726	96.49	0.0898
53	0.161	136	0.0031	0.1703	96.45	0.0881
54	0.157	136	0.0030	0.1681	96.39	0.0864
55	0.153	136	0.0028	0.1660	96.13	0.0829
56	0.151	136	0.0027	0.1640	96.24	0.0829
57	0.148	136	0.0026	0.1622	96.15	0.0810
58	0.144	136	0.0025	0.1604	96.04	0.0792
59	0.140	136	0.0024	0.1587	95.92	0.0773
60	0.136	136	0.0022	0.1570	95.55	0.0733

61	0.132	136	0.0021	0.1555	95.39	0.0712
62	0.127	136	0.0019	0.1540	95.21	0.0691
63	0.122	136	0.0018	0.1526	95.01	0.0669
64	0.117	136	0.0016	0.1513	94.78	0.0646
65	0.112	136	0.0015	0.1501	94.53	0.0623
66	0.112	136	0.0015	0.1489	94.60	0.0623
67	0.112	136	0.0015	0.1477	94.67	0.0623
68	0.113	136	0.0015	0.1467	94.73	0.0623
69	0.113	136	0.0015	0.1457	94.73	0.0623
70	0.113	136	0.0015	0.1447	94.85	0.0623
71	0.114	136	0.0016	0.1438	94.90	0.0623
72	0.115	136	0.0016	0.1430	94.95	0.0623
73	0.116	136	0.0016	0.1422	95.00	0.0623
74	0.117	136	0.0016	0.1415	95.37	0.0646
75	0.118	136	0.0017	0.1408	95.41	0.0646
76	0.120	136	0.0017	0.1402	95.45	0.0646
77	0.122	136	0.0018	0.1396	95.78	0.0669
78	0.124	136	0.0018	0.1390	95.82	0.0069
79	0.126	136	0.0019	0.1385	96.13	0.0691
80	0.128	136	0.0020	0.1381	96.16	0.0691
81	0.130	136	0.0020	0.1377	96.45	0.0712
82	0.131	136	0.0021	0.1373	96.47	0.0712
83	0.133	136	0.0021	0.1370	96.74	0.0733
84	0.135	136	0.0022	0.1367	96.75	0.0733
85	0.137	136	0.0023	0.1365	97.00	0.0753
86	0.139	136	0.0023	0.1363	97.02	0.0753
87	0.140	136	0.0024	0.1362	97.25	0.0773
88	0.142	136	0.0024	0.1361	97.25	0.0773
89	0.143	136	0.0025	0.1360	97.26	0.0773
90	0.144	136	0.0025	0.1360	97.47	0.0792

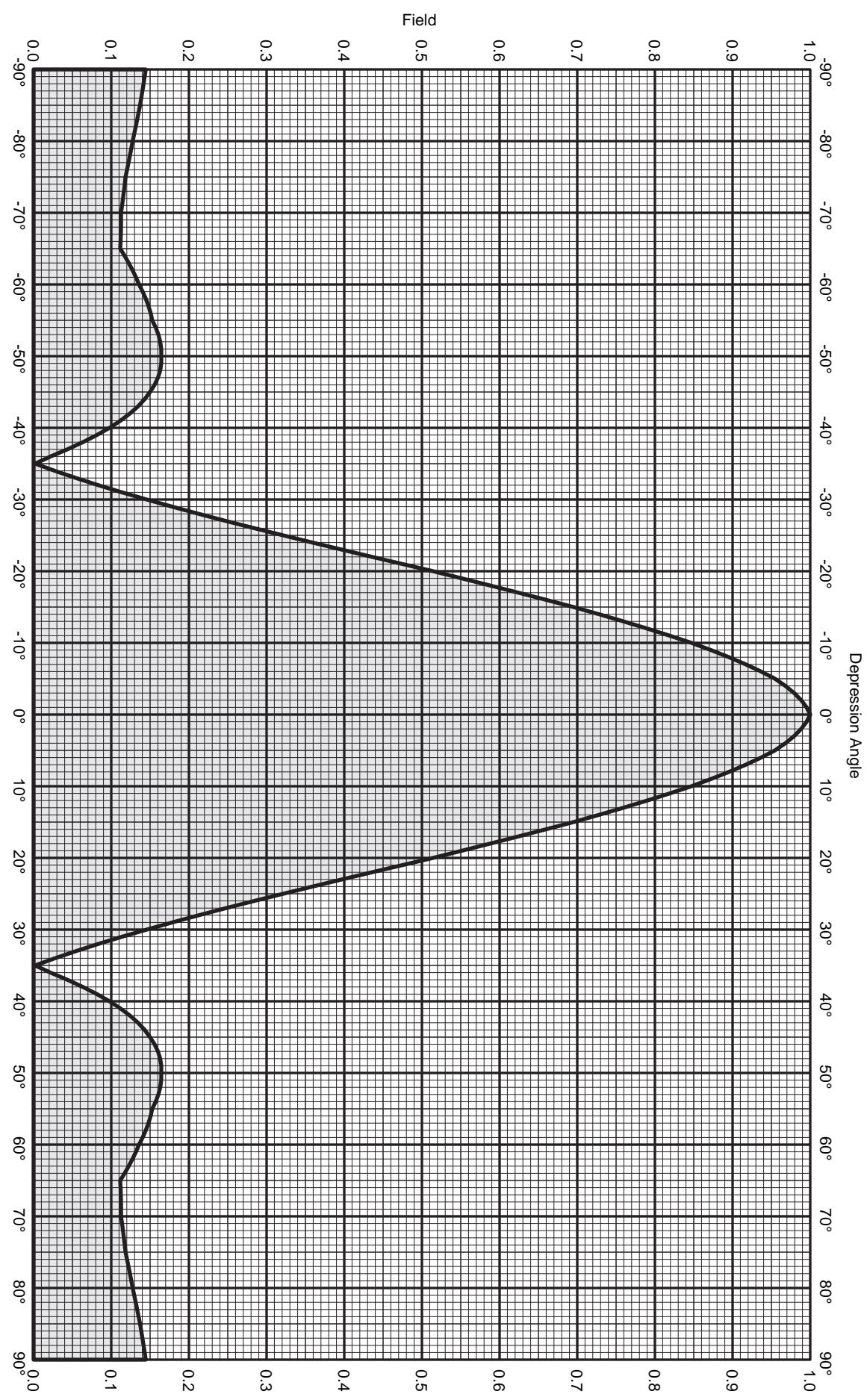
* This table is based on the 102.17 dBu F(50-10) interfering contour calculated to WLRD 245A. Starting from the 102.17 dBu F(50-10) contour, the line of sight distance was calculated at each degree geometrically, using 136 meters as the COR AGL. The resulting line of sight contours were calculated using V-Soft's Contour program at each degree, and the vertical F factors were obtained from the antenna manufacturer's published data. The distance to the 102.17 dBu F(50-10) contour at each degree represents the line of sight distance to show the lowest line of sight distance above ground, which is also calculated geometrically, using the reduced vertical ERP, and shows the closest of the interfering contour points to occur at 17 degrees below horizontal, which defines a plane 136 - 99.5 meters = 36.5 meters above the ground; therefore, cannot be received by any population, roads, or buildings contained within the reduced interfering contour inside the 2nd adjacent WLRD 245A.

E-5 DA Antenna Pattern
2-Scala CA5-FM 140 Degree Azimuth

Azimuth (deg)	Effective Field
0.0	0.123
10.0	0.140
20.0	0.171
30.0	0.187
40.0	0.181
50.0	0.157
60.0	0.142
70.0	0.134
80.0	0.190
90.0	0.329
100.0	0.528
110.0	0.718
120.0	0.866
130.0	0.952
140.0	1.000
150.0	0.952
160.0	0.866
170.0	0.718
180.0	0.528
190.0	0.329
200.0	0.190
210.0	0.134
220.0	0.142
230.0	0.157
240.0	0.181
250.0	0.187
260.0	0.171
270.0	0.140
280.0	0.123
290.0	0.135
300.0	0.160
310.0	0.182
320.0	0.193
330.0	0.182
340.0	0.160
350.0	0.135



E-6 Scala CA5-FM/CP Vertical Elevation Pattern



Two CA5-FM/CP/RM Yagis

Oriented at horizon

Maximum array gain: 8.5 dBd

circular polarization
Elevation pattern

Post Office Box 4580
Medford, OR 97501 (USA)
Phone: (541) 779-6500
Fax: (541) 779-3991
<http://www.kathrein-scala.com>

E-7 AERIAL PHOTO 82°37'30"

363000

82°37'15"

363500

82°37'0"

82°36'45"

364000

82°36'30"



82°37'30"

82°37'15"

363500

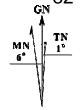
82°36'45"

364000

82°36'30"

1:10000 Scale
0 200 400 600 800 1000 Feet
0 100 200 300 Meters

Universal Transverse Mercator (UTM) Projection Zone17
North American Datum of 1983 (NAD83)
UTM Grid shown in Blue



Magnetic declination at center of map on
September 17, 2009

E-8 W247BL ASR

ASR Registration Search

Registration 1013230

 [Map Registration](#)

Registration Detail

Reg Number	1013230	Status	Constructed
File Number	A0015853	Constructed	03/04/1990
FAA Study	89-AGL-379-OE	EMI	No
FAA Issue Date	08/21/1989	NEPA	No

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long 40-45-50.0 N 082-37-04.0 W 2900 PARK AVE W

City, State ONTARIO , OH

Center of AM Array

Heights (meters)

Elevation of Site Above Mean Sea Level Overall Height Above Ground (AGL)

420.6 143.9

Overall Height Above Mean Sea Level Overall Height Above Ground w/o Appurtenances

564.5 143.9

Painting and Lighting Specifications

FAA Chapters 3, 4, 5, 9

Paint and Light in Accordance with FAA Circular Number 70/7460-1G

Owner & Contact Information

FRN Licensee ID

Owner

MID STATE TELEVISION INC
Attention To: GUNTHER MEISSE
2900 PARK AVE W
MANSFIELD , OH 44906

P: (419)529-5900

E:

Contact

P:

E:

Last Action Status

Status	Constructed	Received	02/06/1997
Purpose	New	Entered	02/07/1997
Mode	Mail In (Manual)		

Related Applications

02/06/1997 A0015853 - New (NE)

Comments

Comments

None

Automated Letters

None