

**W248AO
APPLICATION FOR MINOR CHANGE**

This technical report has been developed in support of an application for a minor modification to FM translator W248AO requesting a change in site to an adjacent tower and an increase in HAAT. The translator will continue to serve as a fill in for station WWMX-FM's HD-2 channel.

Allocation exhibits are provided as required by FCC form 349 as follows:

- E1 Interference channel study**
- E1A Interference plot to WLTF**
- E1B Interference study to WRYR-LP**
- E1C Interference study to WASH on 2nd Adjacent channel 246B**
- E1D Aerial photograph of interference area**
- E1E Horizontal and vertical elevation patterns**
- E2 Service contour plots**
- E3 ASR**

Exhibit E1 demonstrates clearance to all facilities with the exception of 2nd adjacent channel stations WIYY and WASH which are addressed below. Exhibit E2 shows that the proposed 54 dBu is contained within the primary station's 54 dBu. The proposed W248AO facility's 60 dBu clearly overlaps the licensed W248AO's 60 dBu since they are on immediately adjacent towers. The FCC 30 second terrain database provided by V-Soft Communications has been used throughout this study.

The proposed W248AO channel 248 facility will be located inside the protected contours of second adjacent channel stations WIYY and WASH. Therefore, an interference analysis has been conducted based on the D/U ratio of +40 dB at the proposed site. The WIYY contour at that site is at least 140 dBu since it is collocated and the proposed interference contour of 180 dBu (50,10) is 0.00 km, clearly not an interference issue. The WASH (50,50) contour at the proposed W248AO facility is 96.94 dBu or 1,577.4 meters. When the depression angle of 7.6 degrees based on the mounting height of 210 meters AGL is considered the ERP reduces to 0.136 kW yielding an interfering 96.94 dBu (50,10) contour of 1164.3 meters.

This interference contour has been evaluated at every degree of depression angle through 13 degrees and at subsequent five degree increments to establish the vertical clearance from the interfering contour to ground level. The proposed tower is located in suburban Baltimore, and the

area was carefully surveyed to determine the maximum building height which was found to be 140 feet (42.7 meters). An aerial photograph is included as E1D demonstrating that there are no buildings of sufficient height within the 1,164.3 km radius that their highest occupied floor would receive interference based on a minimum clearance of 49.3 meters or 167.7 feet – 27.7 feet above the tallest building. Based on this showing that the interfering contour will not reach a populated area, a waiver of Section 74.1204 is requested.

Vertical clearance is demonstrated in the following table.

Depression Angle (Degree)	F	ERP X F² kW	96.94 dBu meters	Vertical Clearance to ground (meters)
7.6	0.738	0.1362	1,164.3	56.0
8	0.714	0.1274	1,126.0	53.3
9	0.651	0.1060	1,027.0	49.3
10	0.586	0.859	924.7	49.4
11	0.520	0.0676	820.3	53.5
12	0.455	0.0518	718.0	60.7
13	0.392	0.0384	618.2	70.9
15	0.277	0.0192	437.2	96.8
20	0.083	0.0017	130.1	165.5
25	0.033	0.0003	54.6	186.9
30	0.067	0.0011	104.6	157.7
35	0.107	0.003	172.8	110.9
40	0.113	0.0032	178.5	95.3
45	0.078	0.0015	122.2	123.6
50	0.042	0.00044	66.2	159.3
55	0.022	0.00012	34.6	181.7
60	0.024	0.00014	37.3	177.7
65	0.039	0.00038	61.5	154.3
70	0.054	0.00073	85.3	132.7
75	0.059	0.00087	93.1	122.5
80	0.051	0.00065	80.4	130.8
85	0.030	0.00023	47.8	162.4
90	0.000	0.00000	0.0	210

Proposed site, antenna and RF calculation:

The proposed facility will utilize a Shively 6832 five bay 0.8 wavelength spaced antenna using binomial feed mounted at 210 meters AGL. The RF contribution for the proposed facility at ASR#1035558 has been calculated to be 0.386 μ Watts/cm² using the formula provided below and

a worst case vertical factor of 1.0. This is 0.19% of the maximum permissible 200 micro-Watts/cm² exposure for general population/uncontrolled exposure and less than the 5% of that level that is excluded from consideration.

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



Charles M. Anderson 12-13-2012
1519 Euclid Avenue
Bowling Green, KY 42103
270-782-0246

E1 W248AO CHANNEL STUDY

REFERENCE 39 20 05.0 N. 76 39 03.0 W.		CH# 248D - 97.5 MHz, Pwr= 0.25 kw DA, HAAT= 0.0 M, COR= 307 M Average Protected F(50-50)= 7.09 km Standard Directional						DISPLAY DATES DATA 12-11-12 SEARCH 12-12-12		
CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
248D Baltimore	W248AO	APP DC_ MD	0.0 0.0	0.00 BPFT20121127AWZ	39 20 05.0 76 39 03.0	0.250	58.9 307	18.9 Hope Christian Church of M	-77.8*	-77.8*
248D Baltimore	W248AO	LIC DC_ MD	31.7 211.7	0.18 BLFT20110729ALI	39 20 10.0 76 38 59.0	0.250	57.6 265	18.4 Hope Christian Church of M	-76.0*	-76.3*
250B Baltimore	WIYY	LIC _CN MD	0.0 0.0	0.00 BLH19880914KA	39 20 05.0 76 39 03.0	13.500 288	5.3 373	64.1 Hearst Stations Inc.	-24.2*	-66.0 (1)
248B Martinsburg	WLTF	LIC _C_ WV	277.0 96.1	122.14 BLH20041018ACE	39 27 33.0 78 03 48.0	11.500 316	133.4 523	70.1 Prettyman Broadcasting Com	-23.8*	1.6
246B Washington	WASH	LIC NCX DC	221.0 40.7	56.52 BMLH20040610ABF	38 57 01.0 77 04 47.0	17.500 242	5.4 315	62.9 Amfm Radio Licenses, L.l.c	31.1	-8.3* (1)
248L1 Sherwood	WRYR-LP	LIC ____ MD	156.1 336.3	69.06 BLL20020313ABJ	38 45 59.0 76 19 40.0	0.100 30	18.6 30	5.6 Wryr Community Radio Inc	30.5	3.7
248B Burlington	WPEN-FM	LIC ZCX NJ	56.0 237.0	150.68 BLH20070531AOP	40 04 57.0 75 10 53.0	26.000 208	126.3 274	59.7 Greater Philadelphia Radio	6.6	11.4
247B Harrisburg	WRVV	LIC NCX PA	350.7 170.5	113.88 BLH20040916ACU	40 20 43.0 76 52 09.0	15.000 260	81.8 444	69.3 Clear Channel Broadcasting	13.5	6.8
245B Lancaster	WLAN-FM	LIC _CN PA	11.8 191.9	80.99 BLH19800930AF	40 02 52.0 76 27 25.0	50.000 152	6.3 279	67.5 Clear Channel Broadcasting	56.1	11.5
248A Salisbury	WKTT	LIC _CN MD	140.1 320.7	140.50 BLH20000321AAX	38 21 39.0 75 37 00.0	4.500 91	80.6 101	25.4 Delmarva Broadcasting Comp	38.1	52.0
249D Alexandria	W249BE	CP DC_ VA	215.8 35.5	70.70 BPFT20120829AET	38 49 04.0 77 07 41.0	0.002	3.2 79	2.2 Positive Alternative Radio	47.0	39.0
249D Alexandria	W249BE	LIC _VN VA	215.2 34.9	72.41 BLFT19950906TD	38 48 05.0 77 07 57.0	0.010 -2	4.4 50	3.2 Positive Alternative Radio	47.4	40.0
247D New London	636346	APP _C_ PA	49.2 229.7	83.34 BNPFT20030317EXX	39 49 20.0 75 54 43.0	0.010 154	9.9 288	7.0 Hope Christian Church of M	54.6	48.8
249D Oxford	646554	APP _C_ PA	49.2 229.7	83.34 BNPFT20030317BFF	39 49 20.0 75 54 43.0	0.010 153	9.9 287	7.0 Four Rivers Community Broa	54.7	48.8

Terrain database is FCC NGDC 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding
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.

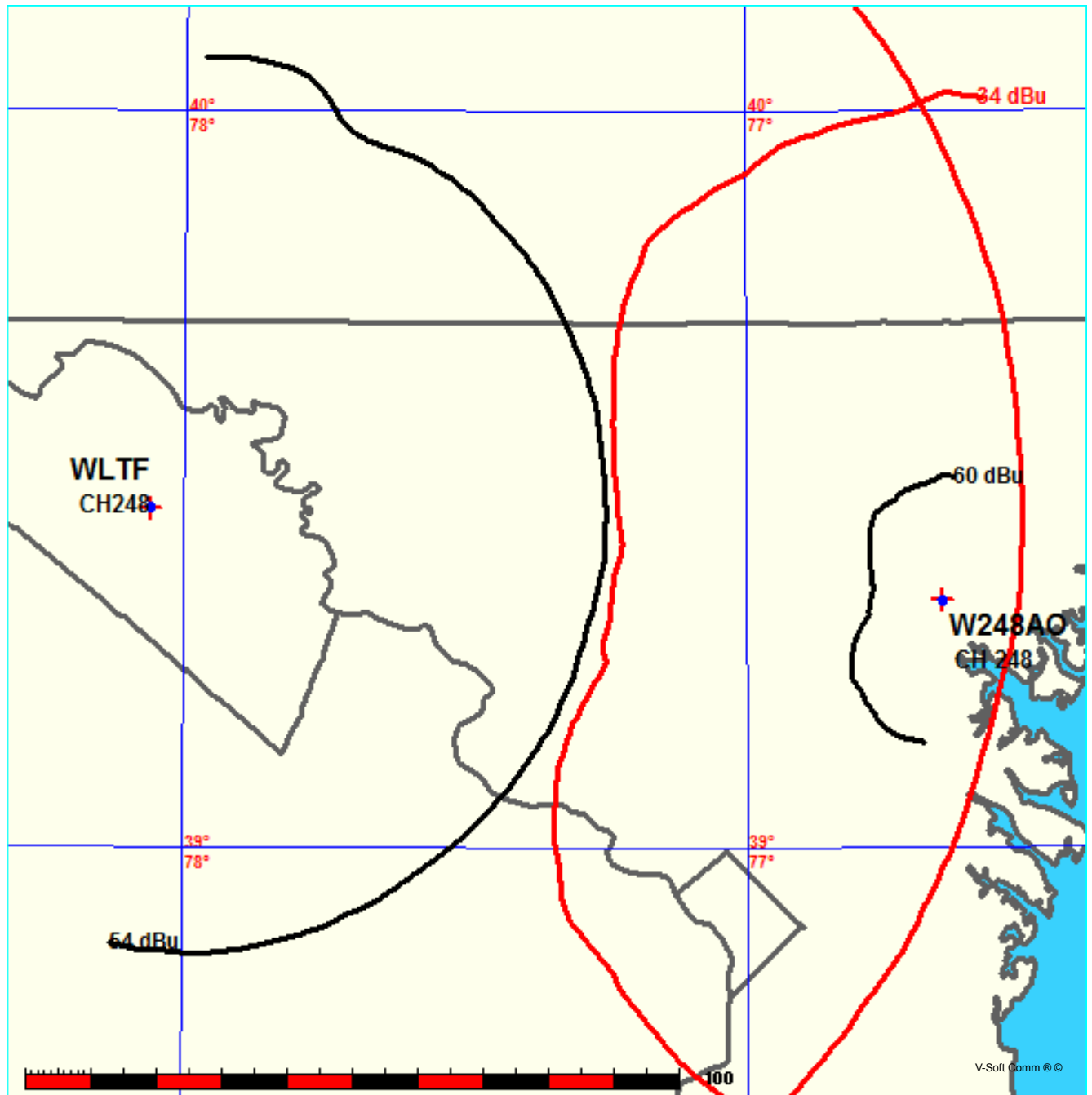
1. See Technical Report for disproof of interference.

E1A W248A0 - WLTF INTERFERENCE PLOT

FMCommander Single Allocation Study - 11-13-2012 - FCC NGDC 30 Sec
W248AO's Overlaps (In= -23.82 km, Out= 1.6 km)

W248AO CH 248 D DA
Lat= 39 20 05.0, Lng= 76 39 03.0
0.25 kW 225.8 M HAAT, 307 M COR
Prot.= 60 dBu, Intef.= 34 dBu

WLTF CH 248 B BLH20041018ACE
Lat= 39 27 33.0, Lng= 78 03 48.0
11.5 kW 316 M HAAT, 523 M COR
Prot.= 54 dBu, Intef.= 40 dBu



E1B W248AO TO WRUR-LP INTERFERENCE PLOT

W248AO.A

BPFT20121127AWZ
Latitude: 39-20-05 N
Longitude: 076-39-03 W
ERP: 0.25 kW
Channel: 248
Frequency: 97.5 MHz
AMSL Height: 307.0 m
Elevation: 97.0 m
Horiz. Pattern: Directional

WRUR-LP

BLL20020313ABJ
Latitude: 38-45-59 N
Longitude: 076-19-40 W
ERP: 0.10 kW
Channel: 248
Frequency: 97.5 MHz
AMSL Height: 30.0 m
Elevation: 0.0 m
Horiz. Pattern: Omni

W248AO APPLICATION
40 DBU (50:10)

W248AO LICENSED 40 DBU

WRUR-LP 60 DBU

Scale 1:250,000

0 3 6 9 km

W248AO

BLFT20110729ALI

Latitude: 39-20-05 N

Longitude: 076-39-03 W

ERP: 0.1406 kW

Channel: 248

Frequency: 97.5 MHz

AMSL Height: 307.0 m

Elevation: 97.0 m

Horiz. Pattern: Directional

E1C W248AO - WASH INTERFERENCE PLOT

W248AO REDUCED ERP (0.136 kW)

BASED ON VERTICAL ANGLE OF 7.6 DEGREES

96.54 DBU (50:10) INTERFERING CONTOUR.

SEE TECHNICAL REPORT FOR PROOF OF
LACK OF INTERFERENCE.

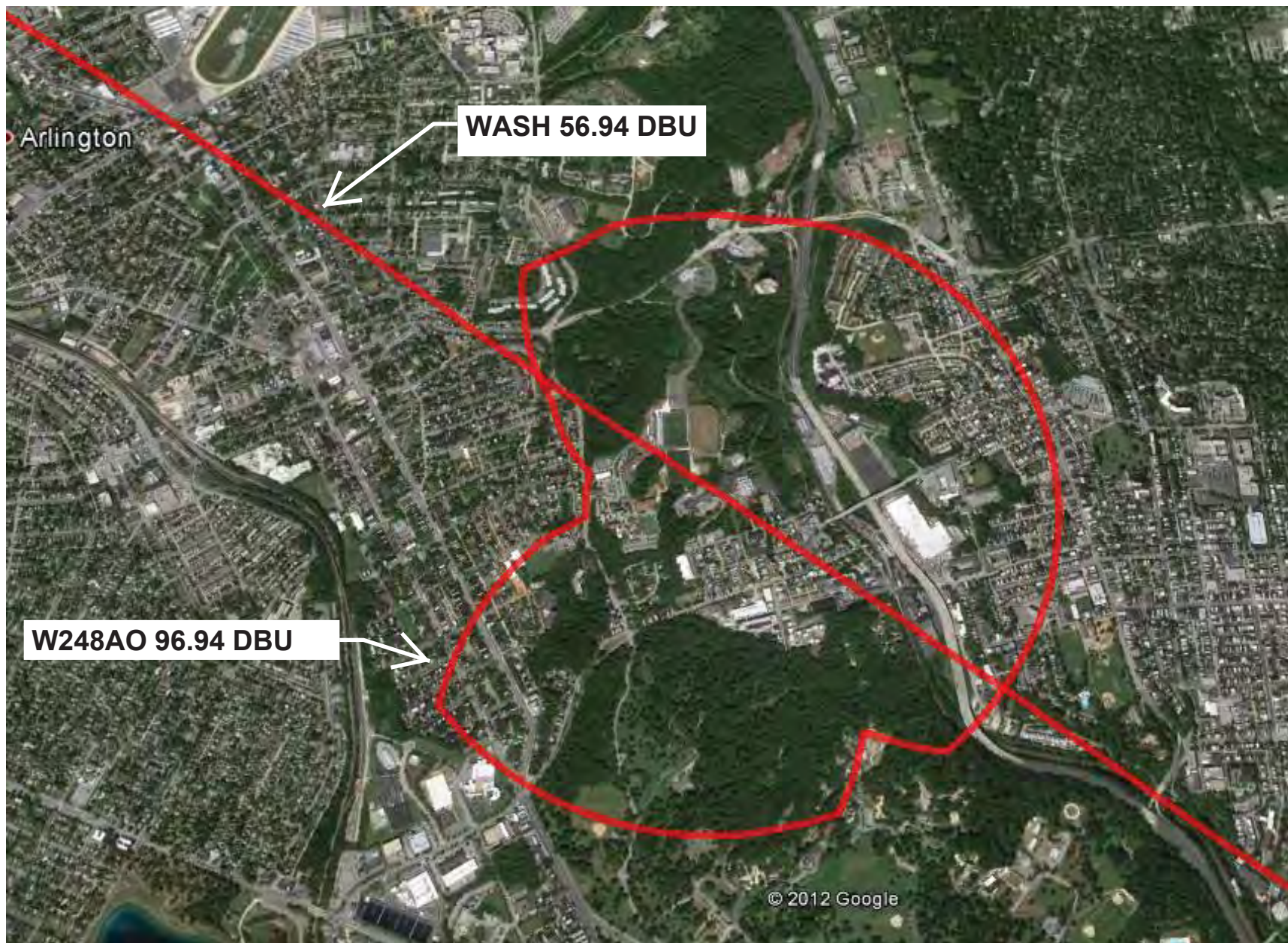
WASH 59.94 DBU

W248AO
WY

Scale 1:25,000

0 0.33 0.67 1.0 km

EXHIBIT E1D
AERIAL PHOTOGRAPH OF W248AO INTERFERENCE AREA



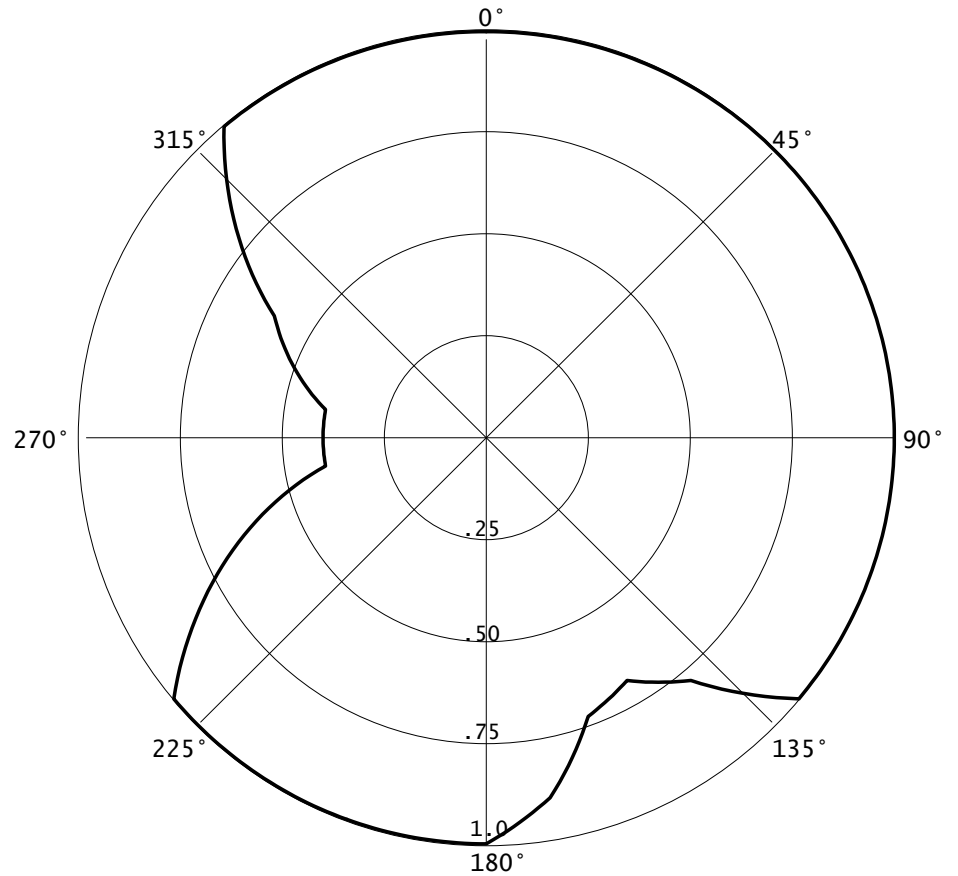
E1E W248AO DA ENVELOPE

12-13-2012

RMS(V)= .899

Graph is Relative Field

Azi	Field	dBk	kw
000	1.000	-06.021	0.250
010	1.000	-06.021	0.250
020	1.000	-06.021	0.250
030	1.000	-06.021	0.250
040	1.000	-06.021	0.250
050	1.000	-06.021	0.250
060	1.000	-06.021	0.250
070	1.000	-06.021	0.250
080	1.000	-06.021	0.250
090	1.000	-06.021	0.250
100	1.000	-06.021	0.250
110	1.000	-06.021	0.250
120	1.000	-06.021	0.250
130	1.000	-06.021	0.250
140	0.780	-08.179	0.152
150	0.690	-09.244	0.119
160	0.730	-08.754	0.133
170	0.900	-06.936	0.202
180	1.000	-06.021	0.250
190	1.000	-06.021	0.250
200	1.000	-06.021	0.250
210	1.000	-06.021	0.250
220	1.000	-06.021	0.250
230	1.000	-06.021	0.250
240	0.800	-07.959	0.160
250	0.600	-10.458	0.090
260	0.400	-13.979	0.040
270	0.400	-13.979	0.040
280	0.400	-13.979	0.040
290	0.500	-12.041	0.063
300	0.600	-10.458	0.090
310	0.800	-07.959	0.160
320	1.000	-06.021	0.250
330	1.000	-06.021	0.250
340	1.000	-06.021	0.250
350	1.000	-06.021	0.250



SHIVELY LABS

W248AO MEASURED DA

DATE: 16-Oct-12
SHOP ORDER: 30309
STATION: W921BA
FREQUENCY: 97.5
ANTENNA TYPE: 6832-5

TOWER: 12-FT FACE
MOUNT: POLE MOUNT
MOUNT REMARKS: SEE SKETCH
A-DIMENSION INCHES: N/A

HORIZONTAL PARASITIC: N/A
B-DIMENSION:
C-DIMENSION
PARASITIC LENGTH:

VERTICAL PARASITIC: N/A
D-DIMENSION:
E-DIMENSION:
F-DIMENSION
PARASITIC LENGTH:

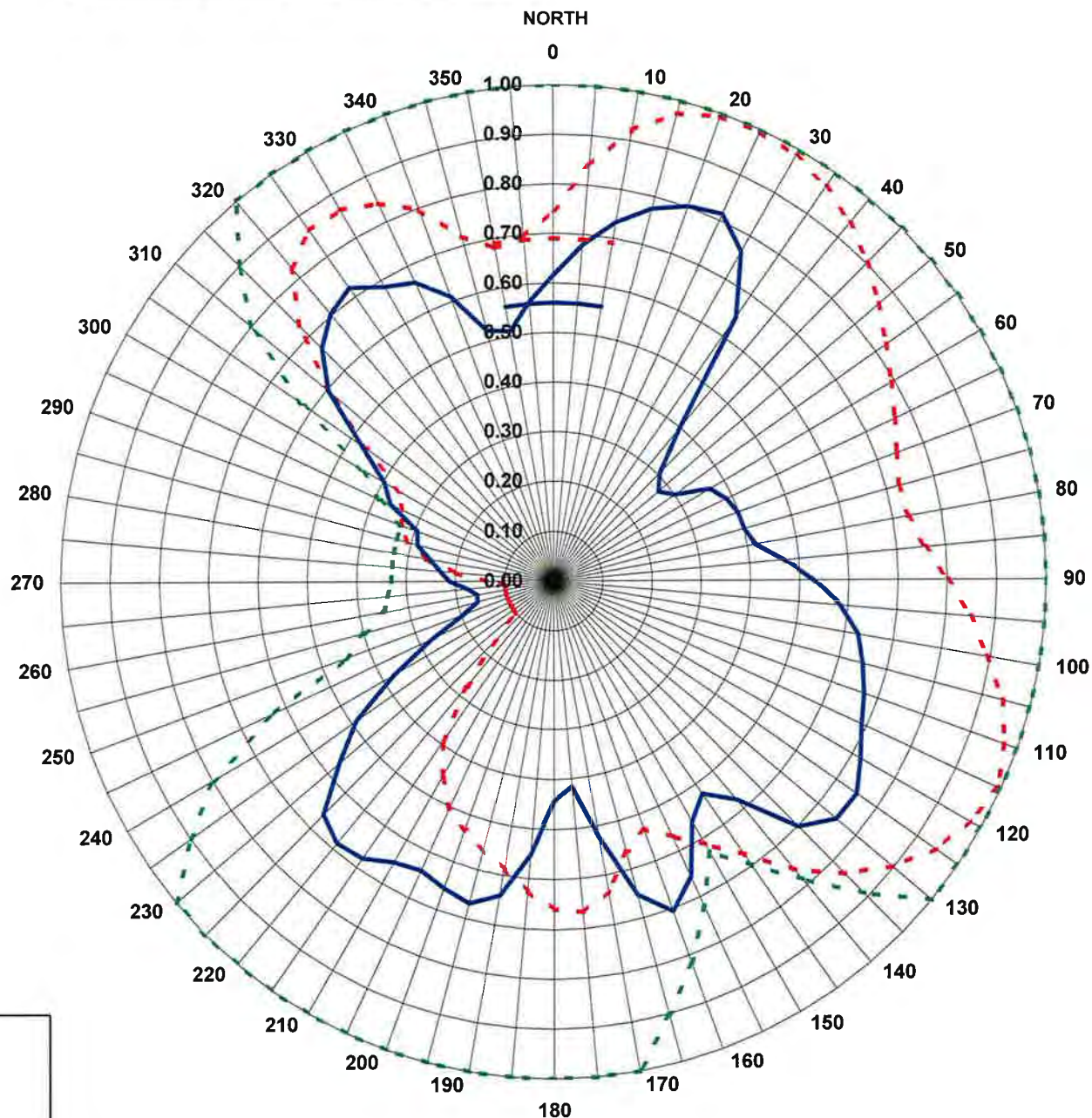
1st LEG AZIMUTH: 89-DEGREES
ANTENNA HEADING: 69-DEGREES
LADDER:

PATTERN NUMBER: 02-BB

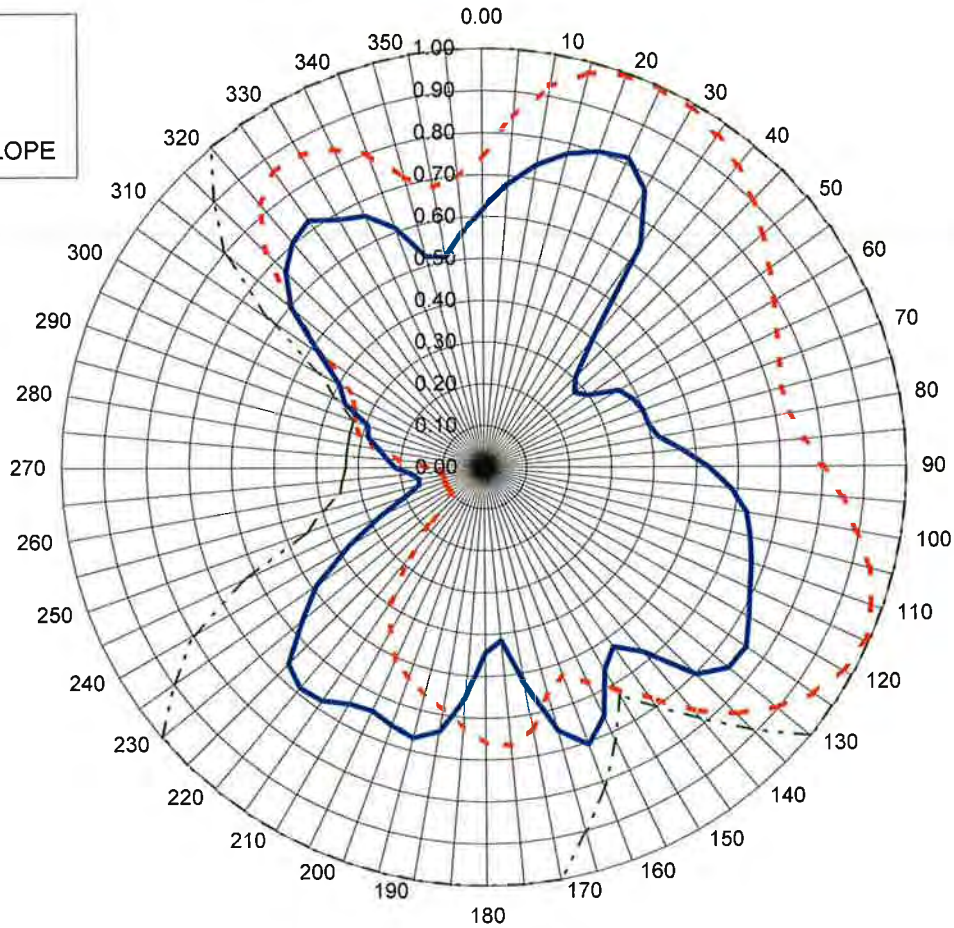
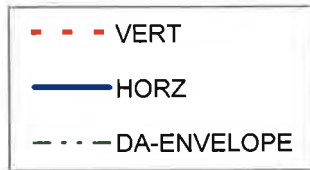
VERTICAL RMS: 68.90%
HORIZONTAL RMS: 56.01%



6832-5 BAY ANTENNA
MOUNTED TO A 3-INCH PIPE
OFF SET 32-INCHES FROM LEG
ROTATED 20-DEGREES CCW
AZIMUTH 69-DEGREES



SHIVELY LABS



SHOP ORDER 30309
 STATION W921BA
 PATTERN 02-BB

V-RMS 68.90%
 H-RMS 56.01%

DA-RMS 89.34%
 DA 85% 75.94%

COMP RMS 72.03%

DEGREE	VERT	HORZ	DEGREE	VERT	HORZ	DEGREE	VERT	HORZ	DEGREE	VERT	HORZ
0	0.75	0.62	90	0.80	0.53	180	0.66	0.44	270	0.14	0.21
5	0.84	0.68	95	0.85	0.58	185	0.63	0.55	275	0.20	0.23
10	0.92	0.73	100	0.89	0.63	190	0.59	0.64	280	0.26	0.25
15	0.97	0.78	105	0.94	0.65	195	0.56	0.67	285	0.31	0.29
20	0.99	0.80	110	0.97	0.67	200	0.53	0.66	290	0.33	0.29
25	1.00	0.81	115	0.99	0.69	205	0.51	0.64	295	0.34	0.37
30	0.99	0.76	120	0.97	0.72	210	0.45	0.65	300	0.36	0.40
35	0.97	0.65	125	0.95	0.75	215	0.39	0.68	305	0.46	0.48
40	0.94	0.40	130	0.90	0.75	220	0.28	0.69	310	0.59	0.60
45	0.90	0.31	135	0.83	0.70	225	0.18	0.66	315	0.73	0.66
50	0.86	0.28	140	0.76	0.58	230	0.10	0.57	320	0.83	0.70
55	0.83	0.30	145	0.67	0.52	235	0.10	0.49	325	0.86	0.72
60	0.79	0.37	150	0.61	0.56	240	0.10	0.38	330	0.86	0.68
65	0.76	0.39	155	0.57	0.66	245	0.10	0.27	335	0.84	0.66
70	0.74	0.40	160	0.53	0.71	250	0.10	0.20	340	0.80	0.61
75	0.73	0.40	165	0.56	0.65	255	0.10	0.16	345	0.72	0.52
80	0.73	0.42	170	0.63	0.52	260	0.10	0.16	350	0.68	0.51
85	0.76	0.47	175	0.67	0.42	265	0.10	0.18	355	0.69	0.56

Antenna Mfg.: Shively Labs

Date: 11/13/2012

Antenna Type: 0

Station: 0

Frequency: 97.5

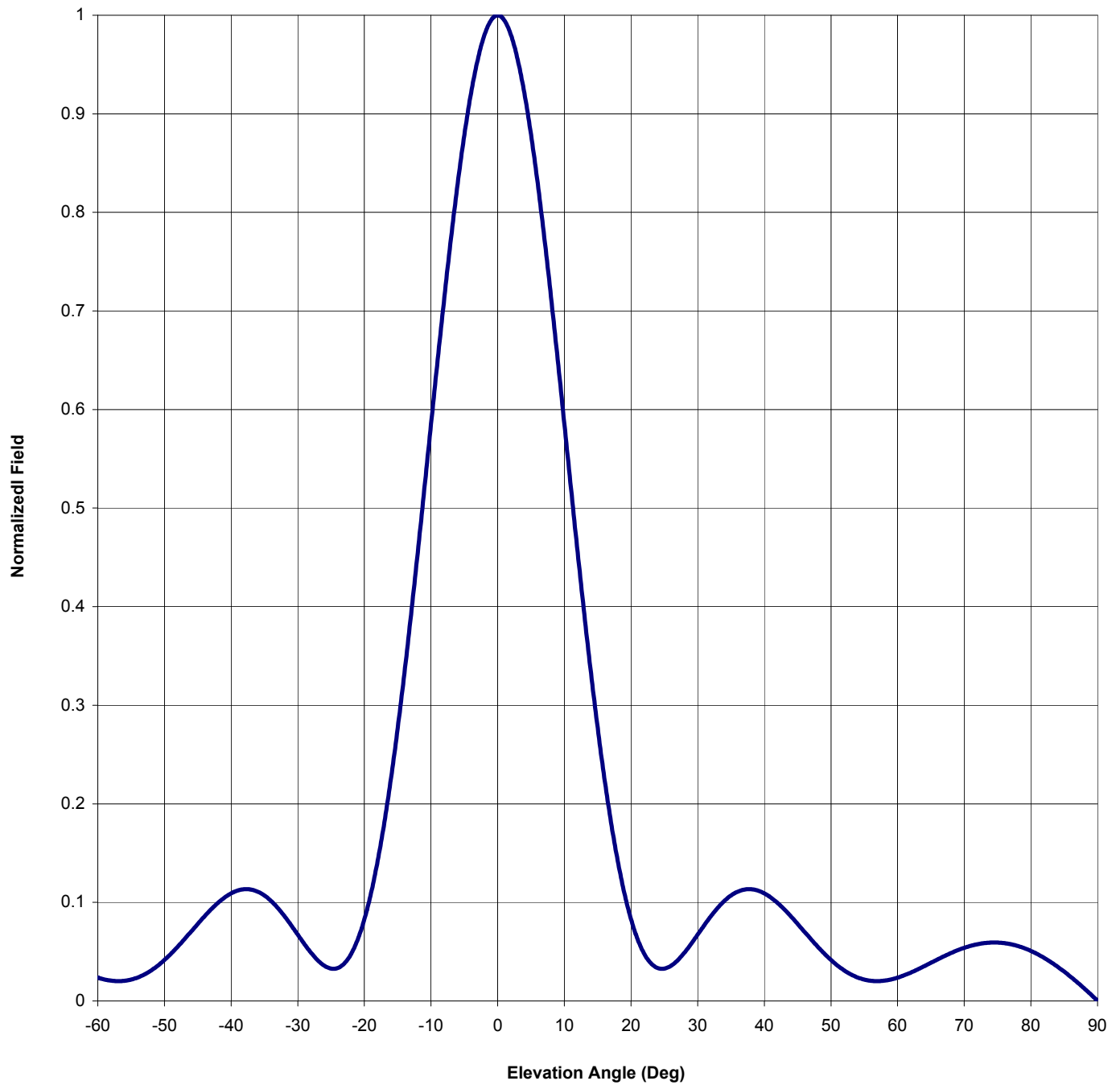
Channel #: 248

Figure: Figure 3

Beam Tilt 0

Gain (Max) 2.046 3.108 dB

Gain (Horizon) 2.046 3.108 dB



Antenna Mfg.: Shively Labs

Date: 11/13/2012

Antenna Type: 0

Station: 0

Beam Tilt 0

Frequency: 97.5

Gain (Max) 2.046

3.108 dB

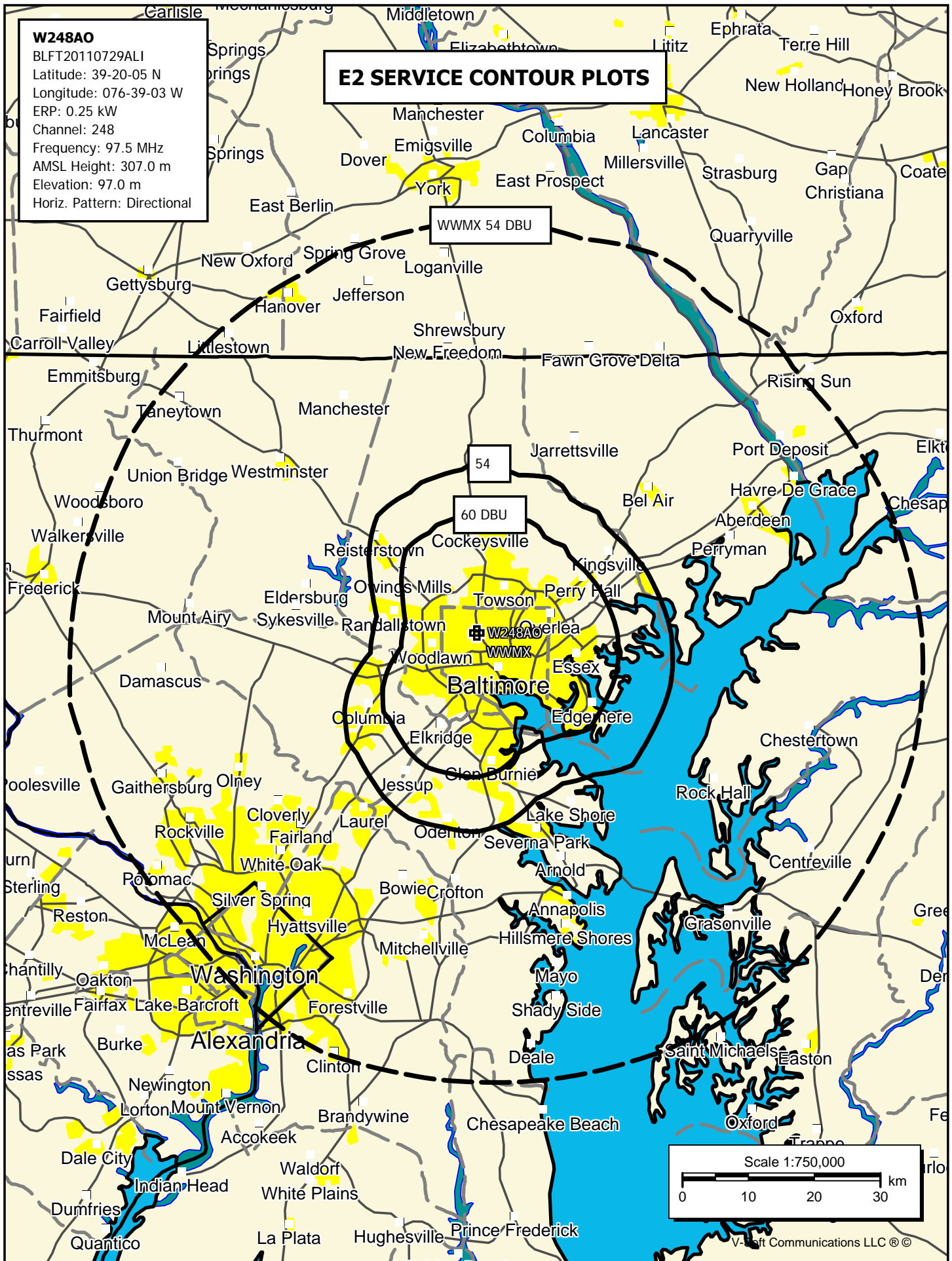
Channel #: 248

Gain (Horizon) 2.046

3.108 dB

Figure: Figure 3

Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field
-90	0.000	-44	0.086	0	1.000	46	0.070
-89	0.007	-43	0.093	1	0.995	47	0.063
-88	0.013	-42	0.099	2	0.980	48	0.055
-87	0.019	-41	0.105	3	0.955	49	0.048
-86	0.024	-40	0.109	4	0.921	50	0.042
-85	0.030	-39	0.112	5	0.879	51	0.036
-84	0.035	-38	0.113	6	0.829	52	0.031
-83	0.039	-37	0.113	7	0.774	53	0.027
-82	0.044	-36	0.111	8	0.714	54	0.024
-81	0.047	-35	0.107	9	0.651	55	0.022
-80	0.051	-34	0.101	10	0.586	56	0.020
-79	0.054	-33	0.094	11	0.520	57	0.020
-78	0.056	-32	0.086	12	0.455	58	0.021
-77	0.058	-31	0.077	13	0.392	59	0.022
-76	0.059	-30	0.067	14	0.332	60	0.024
-75	0.059	-29	0.058	15	0.277	61	0.026
-74	0.059	-28	0.049	16	0.226	62	0.029
-73	0.059	-27	0.041	17	0.181	63	0.032
-72	0.058	-26	0.036	18	0.142	64	0.035
-71	0.056	-25	0.033	19	0.110	65	0.039
-70	0.054	-24	0.033	20	0.083	66	0.042
-69	0.051	-23	0.038	21	0.062	67	0.045
-68	0.049	-22	0.048	22	0.048	68	0.049
-67	0.045	-21	0.062	23	0.038	69	0.051
-66	0.042	-20	0.083	24	0.033	70	0.054
-65	0.039	-19	0.110	25	0.033	71	0.056
-64	0.035	-18	0.142	26	0.036	72	0.058
-63	0.032	-17	0.181	27	0.041	73	0.059
-62	0.029	-16	0.226	28	0.049	74	0.059
-61	0.026	-15	0.277	29	0.058	75	0.059
-60	0.024	-14	0.332	30	0.067	76	0.059
-59	0.022	-13	0.392	31	0.077	77	0.058
-58	0.021	-12	0.455	32	0.086	78	0.056
-57	0.020	-11	0.520	33	0.094	79	0.054
-56	0.020	-10	0.586	34	0.101	80	0.051
-55	0.022	-9	0.651	35	0.107	81	0.047
-54	0.024	-8	0.714	36	0.111	82	0.044
-53	0.027	-7	0.774	37	0.113	83	0.039
-52	0.031	-6	0.829	38	0.113	84	0.035
-51	0.036	-5	0.879	39	0.112	85	0.030
-50	0.042	-4	0.921	40	0.109	86	0.024
-49	0.048	-3	0.955	41	0.105	87	0.019
-48	0.055	-2	0.980	42	0.099	88	0.013
-47	0.063	-1	0.995	43	0.093	89	0.007
-46	0.070	0	1.000	44	0.086	90	0.000
-45	0.078			45	0.078		



E3 Registration 1035558

 [Map Registration](#)

Registration Detail

Reg Number	1035558	Status	Constructed
File Number	A0622149	Constructed	08/26/1964
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Communica

Location (in NAD83 Coordinates)

Lat/Long	39-20-05.0 N 076-39-02.0 W	Address	TELEVISION HILL
City, State	BALTIMORE , MD		
Zip	21211	County	BALTIMORE CITY
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
97.0	304.0
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
401.0	271.0

Painting and Lighting Specifications

FCC Paragraphs A1, B, D, H

FAA Notification

FAA Study	77-AEA-222-OE	FAA Issue Date	03/22/1977
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Owner & Contact Information

FRN	0018520213	Owner Entity Type
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Owner

Television Tower Inc	P: (410)578-7551
Attention To: Rick Seaby	F:
3725 Malden Ave.	E: rseaby@cbs.com
Baltimore , MD 21211	

Contact

Seaby , Rick	P: (410)578-7551
3725 Malden Ave.	F:
Baltimore , MD 21211	E: rseaby@cbs.com

Last Action Status

Status	Constructed	Received	02/19/2009
Purpose	Admin Update	Entered	02/19/2009
Mode	Interactive		

Related Applications<http://wireless2.fcc.gov/UlsApp/AsrSearch/asrRegistration.jsp?regKey=...>