

**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, HAAT and ERP. The translator will 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 WIYY 2nd adjacent channel 250B**
- E1C Interference study to WASH on 2nd Adjacent channel 246B**
- E1D Interference plot to WRYR-LP on channel 248L1**
- E1E Horizontal pattern**
- E1F Vertical elevation pattern**
- E2 54 dBu and 60 dBu plots**
- E3 HAAT tabulation**
- E4 Aerial photograph of interference area**
- E5 ASR**

Exhibit E1 demonstrates clearance to all facilities with the exception of 2nd adjacent channel stations WIYY and WASH which are addressed below, and two applications that are dismissed concurrent with the filing of this application -- BNPFT20030317GQA at Crownsville, MD and BNPFT-20030317IXP at Severna Park, MD. Exhibit E2 shows that the proposed 54 dBu is contained within the primary station's 54 dBu, and that the proposed W248AO facility's 60 dBu overlaps the licensed W248AO's 60 dBu. 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 132 dBu and the proposed interference contour of 172 dBu (50,10) is 0.00 km, clearly not an interference issue. The WASH (50,50) contour at the proposed W248AO facility is 96.85 dBu or 1,593.9 meters. When the depression angle of 6.55 degrees based on the mounting height of 183 meters AGL is

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considered the ERP reduces to 0.113 kW yielding an interfering 96.85 dBu (50,10) contour of 1,071.6 meters.

This interference contour has been evaluated at every five degrees of depression angle to establish the vertical clearance from the interfering contour to ground level. The proposed tower is located in suburban Baltimore. The immediate surrounding area within the proposed interfering contour does not contain any high rise buildings. An aerial photograph is included as E4 demonstrating that there are no buildings of sufficient height within the 1,071.6 km radius that their highest occupied floor would receive interference based on a minimum clearance of 60.8 meters or 199.5 feet. 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 (Deg)	F	ERP X F² kW	96.85 dBu meters	Vertical Clearance to ground meters
6.55	0.6725	0.113	1,071.6	60.8
10	0.373	0.035	596.4	79.4
15	0.034	0.0002	45.1	111.3
20	0.208	0.011	334.3	68.7
25	0.150	0.0056	238.5	82.2
30	0.000	0.0000	0.0	183.0
35	0.102	0.0026	162.5	89.8
40	0.107	0.0029	171.7	72.6
45	0.049	0.0006	78.1	127.8
50	0.017	0.00001	10.1	175.37
55	0.054	0.0073	86.1	112.5
60	0.061	0.0009	95.6	100.2
65	0.048	0.0010	78.1	112.2
70	0.029	0.0006	45.1	140.6
75	0.013	0.00004	20.2	163.5
80	0.005	0.00000	0.0	183.0
85	0.001	0.00000	0.0	183.0
90	0.001	0.00000	0.0	183.0

Proposed site, antenna and RF calculation:

The proposed facility will utilize a Dielectric DCRM-8C, half-wave spaced antenna mounted at 183 meters AGL. The RF contribution for the proposed facility at

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ASR#1044237 has been calculated to be 0.002 $\mu\text{Watts}/\text{cm}^2$ using the formula provided below and a worst case vertical factor of 0.061 at 60 degrees depression angle (see elevation pattern at E1F). This is 0.001% of of the maximum permissible 200 micro-Watts/ cm^2 exposure for general population/uncontrolled exposure and less than the 5% of that level that is excluded from consideration.

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



Charles M. Anderson March 24, 2011
1519 Euclid Avenue
Bowling Green, KY 42103
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E1 CHANNEL STUDY

REFERENCE
39 20 10.0 N.
76 38 59.0 W.

CH# 248D - 97.5 MHz, Pwr= 0.25 kw DA, HAAT= 183.7 M, COR= 265 M
Average Protected F(50-50)= 17.8 km
Standard Directional

DISPLAY DATES
DATA 03-24-11
SEARCH 03-24-11

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*
248D	W248AO Baltimore	LIC _C_	MD	232.8 52.8	0.9 BLFT20090724AAA	39 19 53.0 76 39 28.0	0.008 148	20.1 231	6.1 Hope Christian Church Of M	-34.3*	-54.8*
250B	WIYY Baltimore	LIC _CN	MD	211.7 31.7	0.2 BLH19880914KA	39 20 05.0 76 39 03.0	13.500 288	5.3 373	63.5 Hearst Stations Inc.	-23.5*	-65.3* (1)
248D	647560 Crownsville	APP _C_	MD	175.7 355.7	34.2 BNPFT20030317GQA	39 01 45.0 76 37 12.0	0.010 160	24.8 184	7.4 Hope Christian Church Of M	-10.8	-35.1 (2)
248D	640753 Severna Park	APP _C_	MD	157.4 337.5	36.2 BNPFT20030317IXP	39 02 07.6 76 29 19.1	0.019 92	21.8 100	6.6 Radio Assist Ministry, Inc	-6.4	-33.9 (2)
248B	WLTF Martinsburg	LIC _C_	WV	276.9 96.0	122.5 BLH20041018ACE	39 27 33.0 78 03 48.0	11.500 316	134.0 523	70.1 Prettyman Broadcasting Com	-22.2*	3.1
246B	WASH Washington	LIC NCX	DC	221.0 40.7	56.7 BMLH20040610ABF	38 57 01.0 77 04 47.0	17.500 242	5.4 315	62.9 Amfm Radio Licenses, L.L.C	34.5	-8.0* (3)
248L1	WRYR-LP Sherwood	LIC _C_	MD	156.2 336.4	69.2 BLL20020313ABJ	38 45 59.0 76 19 40.0	0.100 30	18.6 30	5.6 wryr Community Radio Inc	29.7	-0.1 (4)
245B	WLAN-FM Lancaster	LIC _CN	PA	11.7 191.8	80.7 BLH19800930AF	40 02 52.0 76 27 25.0	50.000 152	6.3 279	67.5 Clear Channel Broadcasting	58.8	11.5
247B	WRVV Harrisburg	LIC NCX	PA	350.6 170.5	113.6 BLH20040916ACU	40 20 43.0 76 52 09.0	15.000 260	81.8 444	69.3 Clear Channel Broadcasting	16.5	11.8
248B	WPEN-FM Burlington	LIC ZCX	NJ	56.1 237.0	150.7 BLH20070531AOP	40 04 57.0 75 10 53.0	26.000 208	120.7 274	59.6 Greater Philadelphia Radio	13.3	20.5
248B	AL3047 Burlington	RSV-A _C_	NJ	57.6 238.8	189.6 RM10957	40 14 05.0 74 46 02.0	50.000 150	136.5 183	63.9 Greater Philadelphia Radio	36.0	54.7
248A	WKTT Salisbury	LIC _CN	MD	140.2 320.8	140.6 BLH20000321AAX	38 21 39.0 75 37 00.0	4.500 91	80.6 101	25.4 Delmarva Broadcasting Comp	39.0	51.1
249D	W249BE Alexandria	LIC _VN	VA	215.2 34.9	72.6 BLFT19950906TD	38 48 05.0 77 07 57.0	0.010 -2	4.4 50	3.2 Positive Alternative Radio	50.4	42.9

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.
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 interference study.

(2) Dismissed.

(3) See technical report.

(4) See E1D. Slight overlap over water.

E1A W248AO - WLTF INTERFERENCE PLOT

FMCommander Single Allocation Study - 03-24-2011 - FCC NGDC 30 Sec
W248AO's Overlaps (In= -22.18 km, Out= 3.13 km)

W248AO CH 248 D DA
Lat= 39 20 10.0, Lng= 76 38 59.0
0.25 kW 183.7 M HAAT, 265 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

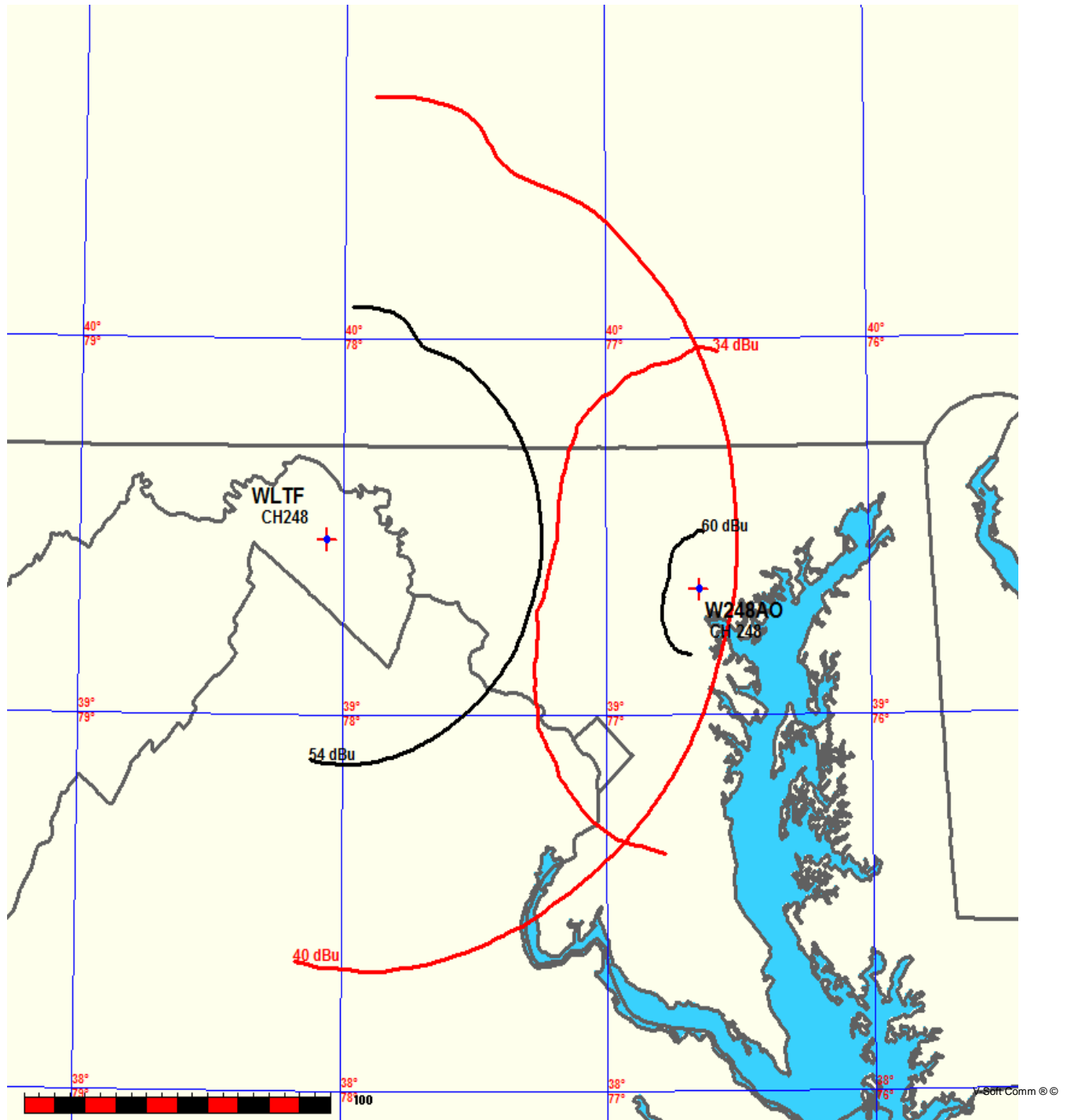


EXHIBIT E1B

WIYY CONTOUR AT W248AO = 132 DBU
W249AO INTERFERENCE CONTOUR = 172 DBU = 0.0 KM

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Scale 1:10,000

0 0.13 0.27 0.4 km

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EXHIBIT E1C

076-45-00 W

39-25-00 N

076-40

076-35-00 W

WASH CONTOUR AT W248AO = 56.85 DBU

W248AO

39-20-00 N

PROPOSED W248AO
INTERFERENCE CONTOUR = 96.85 DBU = 1,593.9 METERS AT 0 DEGREES
DEPRESSION ANGLE AND 1,071.6 METERS AT THE FIRST DEPRESSION
INTERSECTING THE GROUND AT 6.55 DEGREE.

TECHNICAL REPORT SHOWS THAT USE OF EIGHT BAY HALF
WAVE SPACED ANTENNA WILL KEEP THIS CONTOUR WELL
ABOVE ANY BUILDINGS OR MAJOR ROADS.

39-15-00 N

ANDERSON ASSOCIATES

Scale 1:100,000
0 1 2 3 km

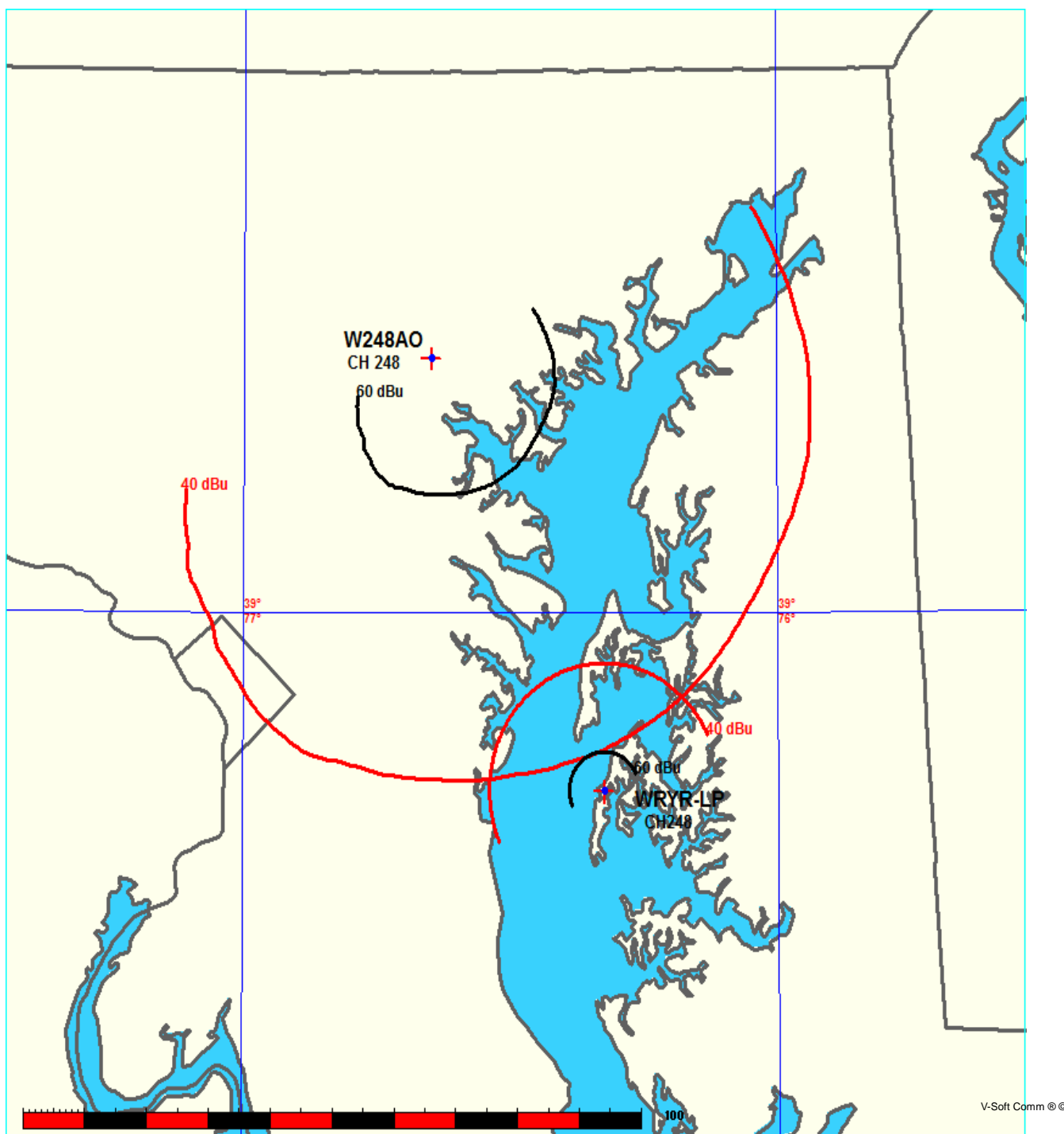
V-Soft Communications LLC® ©

E1D W248AO - WRYR-LP INTERFERENCE PLOT

FMCommander Single Allocation Study - 03-24-2011 - FCC NGDC 30 Sec
W248AO's Overlaps (In= 29.75 km, Out= -0.13 km)

W248AO CH 248 D DA
Lat= 39 20 10.0, Lng= 76 38 59.0
0.25 kW 183.7 M HAAT, 265 M COR
Prot.= 60 dBu, Intef.= 40 dBu

WRYR-LP CH 248 L1 BLL20020313ABJ
Lat= 38 45 59.0, Lng= 76 19 40.0
0.1 kW 29.9915 M HAAT, 30 M COR
Prot.= 60 dBu, Intef.= 40 dBu



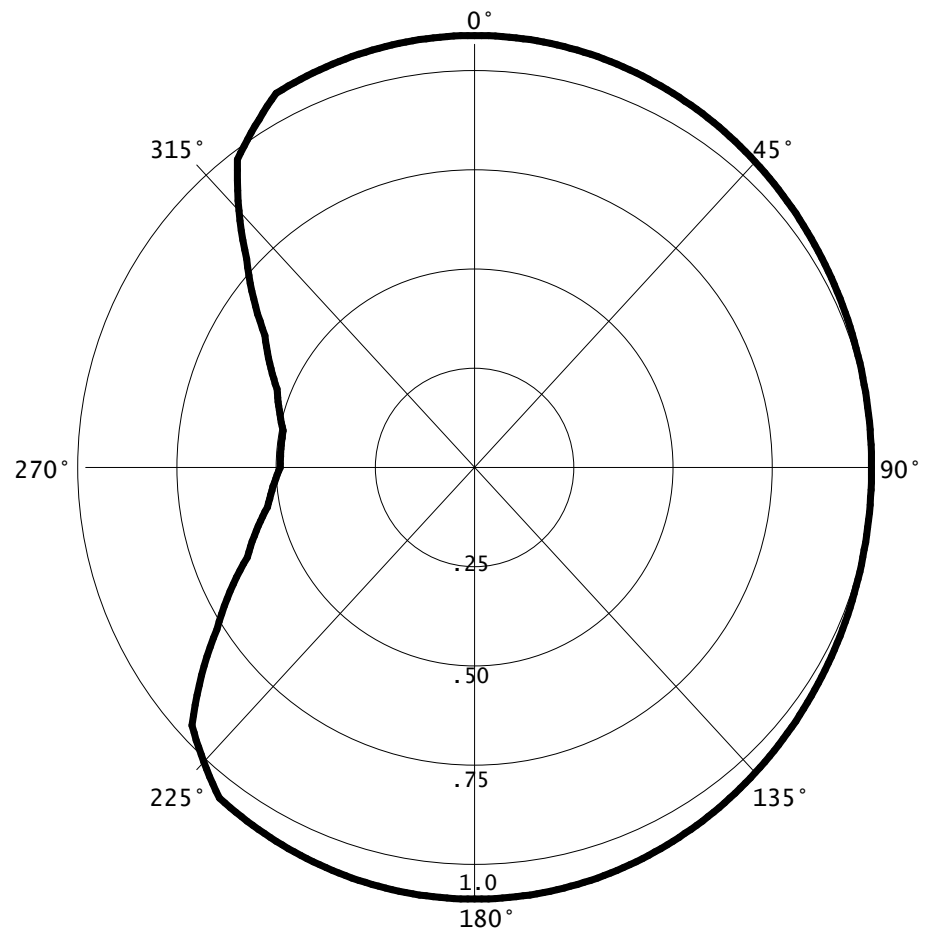
E1E W248AO DA

3-24-2011

RMS(V)= .922

Graph is Relative Field

Azi	Field	dBk	kw
000	1.000	-06.0	0.250
010	1.000	-06.0	0.250
020	1.000	-06.0	0.250
030	1.000	-06.0	0.250
040	1.000	-06.0	0.250
050	1.000	-06.0	0.250
060	1.000	-06.0	0.250
070	1.000	-06.0	0.250
080	1.000	-06.0	0.250
090	1.000	-06.0	0.250
100	1.000	-06.0	0.250
110	1.000	-06.0	0.250
120	1.000	-06.0	0.250
130	1.000	-06.0	0.250
140	1.000	-06.0	0.250
150	1.000	-06.0	0.250
160	1.000	-06.0	0.250
170	1.000	-06.0	0.250
180	1.000	-06.0	0.250
190	1.000	-06.0	0.250
200	1.000	-06.0	0.250
210	1.000	-06.0	0.250
220	1.000	-06.0	0.250
230	0.930	-06.7	0.216
240	0.750	-08.5	0.141
250	0.610	-10.3	0.093
260	0.530	-11.5	0.070
270	0.490	-12.2	0.060
280	0.490	-12.2	0.060
290	0.530	-11.5	0.070
300	0.610	-10.3	0.093
310	0.750	-08.5	0.141
320	0.930	-06.7	0.216
330	1.000	-06.0	0.250
340	1.000	-06.0	0.250
350	1.000	-06.0	0.250





E1F

Proposal Number

Revision

Date

15 Feb 2011

Call Letters

Channel **248**

Location

Washington, DC

Customer

CBS Radio

Antenna Type

DCR-M8C

ELEVATION PATTERN

RMS Gain at Main Lobe

2.4 (3.80 dB)

Beam Tilt

0.00 Degrees

RMS Gain at Horizontal

2.4 (3.80 dB)

Frequency

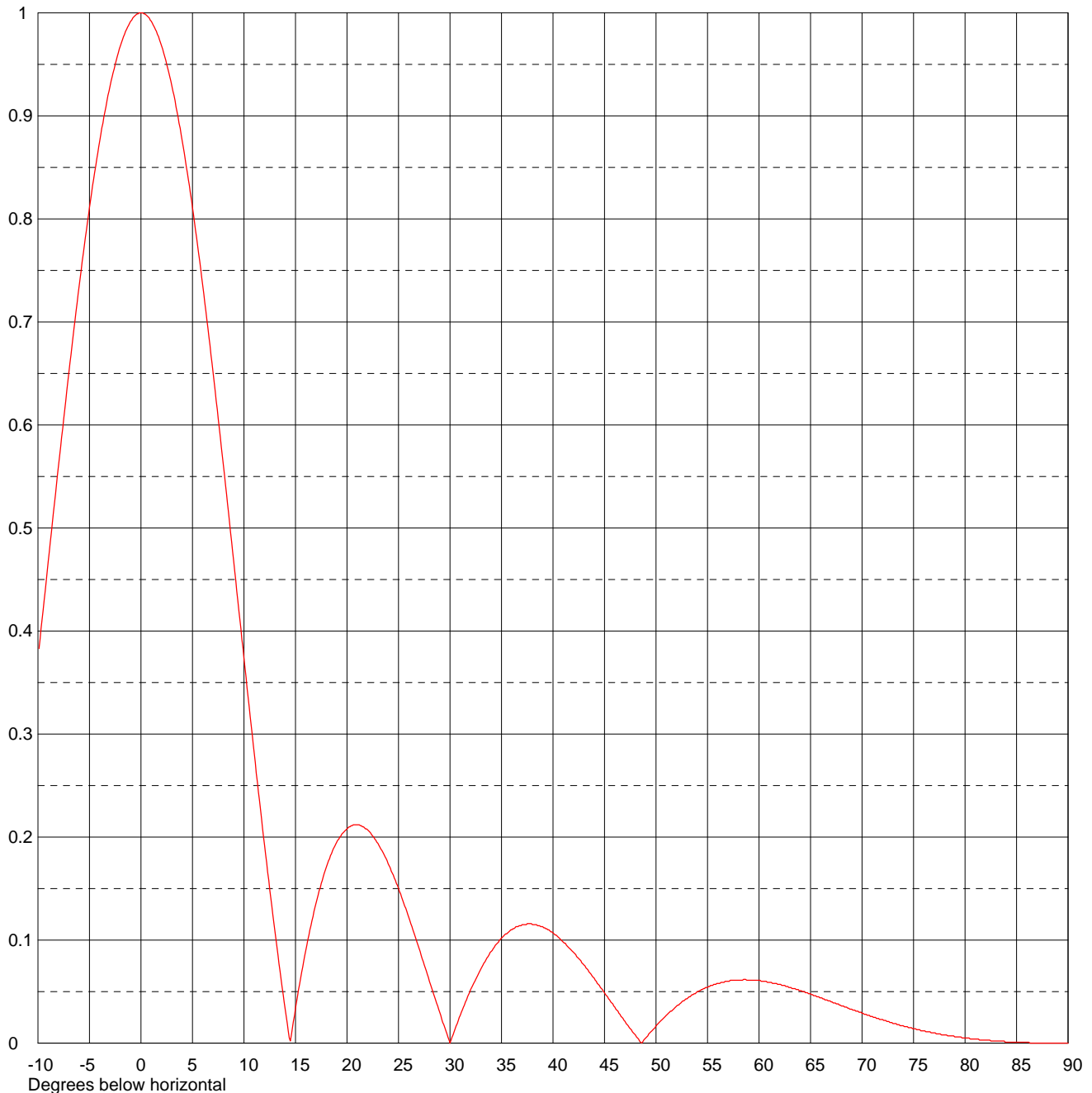
97.50 MHz

Calculated / Measured

Calculated

Drawing #

FC08M5000048000-90



Remarks:



Proposal Number

Revision

Date

15 Feb 2011

Call Letters

Channel **248**

Location

Washington, DC

Customer

CBS Radio

Antenna Type

DCR-M8C

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #

FC08M5000048000-90

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.373	2.4	0.954	10.6	0.317	30.5	0.014	51.0	0.027	71.5	0.024
-9.5	0.420	2.6	0.946	10.8	0.299	31.0	0.027	51.5	0.031	72.0	0.023
-9.0	0.468	2.8	0.938	11.0	0.281	31.5	0.040	52.0	0.036	72.5	0.021
-8.5	0.515	3.0	0.929	11.5	0.236	32.0	0.052	52.5	0.040	73.0	0.019
-8.0	0.561	3.2	0.920	12.0	0.192	32.5	0.062	53.0	0.043	73.5	0.018
-7.5	0.606	3.4	0.909	12.5	0.149	33.0	0.072	53.5	0.047	74.0	0.017
-7.0	0.651	3.6	0.899	13.0	0.109	33.5	0.081	54.0	0.050	74.5	0.015
-6.5	0.694	3.8	0.888	13.5	0.070	34.0	0.089	54.5	0.052	75.0	0.014
-6.0	0.735	4.0	0.876	14.0	0.033	34.5	0.096	55.0	0.054	75.5	0.013
-5.5	0.774	4.2	0.864	14.5	0.002	35.0	0.102	55.5	0.056	76.0	0.012
-5.0	0.811	4.4	0.851	15.0	0.034	35.5	0.106	56.0	0.058	76.5	0.011
-4.5	0.845	4.6	0.838	15.5	0.063	36.0	0.110	56.5	0.059	77.0	0.010
-4.0	0.876	4.8	0.825	16.0	0.090	36.5	0.113	57.0	0.060	77.5	0.009
-3.5	0.904	5.0	0.811	16.5	0.114	37.0	0.115	57.5	0.061	78.0	0.008
-3.0	0.929	5.2	0.796	17.0	0.136	37.5	0.116	58.0	0.061	78.5	0.007
-2.8	0.938	5.4	0.782	17.5	0.155	38.0	0.115	58.5	0.062	79.0	0.006
-2.6	0.946	5.6	0.766	18.0	0.171	38.5	0.114	59.0	0.061	79.5	0.006
-2.4	0.954	5.8	0.751	18.5	0.184	39.0	0.113	59.5	0.061	80.0	0.005
-2.2	0.961	6.0	0.735	19.0	0.195	39.5	0.110	60.0	0.061	80.5	0.004
-2.0	0.968	6.2	0.719	19.5	0.203	40.0	0.107	60.5	0.060	81.0	0.004
-1.8	0.974	6.4	0.702	20.0	0.208	40.5	0.103	61.0	0.059	81.5	0.003
-1.6	0.979	6.6	0.685	20.5	0.211	41.0	0.098	61.5	0.058	82.0	0.003
-1.4	0.984	6.8	0.668	21.0	0.212	41.5	0.093	62.0	0.057	82.5	0.002
-1.2	0.988	7.0	0.651	21.5	0.210	42.0	0.088	62.5	0.056	83.0	0.002
-1.0	0.992	7.2	0.633	22.0	0.207	42.5	0.082	63.0	0.054	83.5	0.002
-0.8	0.995	7.4	0.615	22.5	0.201	43.0	0.076	63.5	0.053	84.0	0.001
-0.6	0.997	7.6	0.597	23.0	0.194	43.5	0.069	64.0	0.051	84.5	0.001
-0.4	0.999	7.8	0.579	23.5	0.185	44.0	0.063	64.5	0.049	85.0	0.001
-0.2	1.000	8.0	0.561	24.0	0.174	44.5	0.056	65.0	0.048	85.5	0.001
0.0	1.000	8.2	0.542	24.5	0.163	45.0	0.049	65.5	0.046	86.0	0.001
0.2	1.000	8.4	0.524	25.0	0.150	45.5	0.042	66.0	0.044	86.5	0.000
0.4	0.999	8.6	0.505	25.5	0.136	46.0	0.035	66.5	0.042	87.0	0.000
0.6	0.997	8.8	0.486	26.0	0.122	46.5	0.028	67.0	0.040	87.5	0.000
0.8	0.995	9.0	0.468	26.5	0.107	47.0	0.021	67.5	0.038	88.0	0.000
1.0	0.992	9.2	0.449	27.0	0.092	47.5	0.014	68.0	0.036	88.5	0.000
1.2	0.988	9.4	0.430	27.5	0.076	48.0	0.008	68.5	0.035	89.0	0.000
1.4	0.984	9.6	0.411	28.0	0.060	48.5	0.001	69.0	0.033	89.5	0.000
1.6	0.979	9.8	0.392	28.5	0.045	49.0	0.005	69.5	0.031	90.0	0.000
1.8	0.974	10.0	0.373	29.0	0.030	49.5	0.011	70.0	0.029		
2.0	0.968	10.2	0.355	29.5	0.015	50.0	0.017	70.5	0.027		
2.2	0.961	10.4	0.336	30.0	0.000	50.5	0.022	71.0	0.026		

Remarks:

EXHIBIT E2

W248AO
BLFT20090724AAA
Latitude: 39-20-10 N
Longitude: 076-38-59 W
ERP: 0.25 kW
Channel: 248
Frequency: 97.5 MHz
AMSL Height: 265.0 m
Elevation: 82.0 m
Horiz. Pattern: Directional
Prop Model: None

**PROPOSED 54 DBU IS CONTAINED
WITHIN WMMX 54 DBU**

**PROPOSED 60 DBU ENCOMPASSES
EXISTING 60 DBU CONTOUR**

EXISTING W248AO 60 DBU

WMMX 54 DBU

W248AO
W248AO
W248AO
WMMX

ANDERSON ASSOCIATES

Scale 1:750,000

0 10 20 30 km

Soft Communications LLC ©

E3 HAAT AND 60 DBU TABULATION

N. Lat. = 392010 W. Lng. = 733859
HAAT and Distance to Contour,
V-Soft 3-16 km, 131 pts Method - FCC 30 SEC

Azi.	AV EL	HAAT	dBk	60-F5
000	0.0	265.0	-6.02	21.26
030	0.0	265.0	-6.02	21.26
060	0.0	265.0	-6.02	21.26
090	0.0	265.0	-6.02	21.26
120	0.0	265.0	-6.02	21.26
150	0.0	265.0	-6.02	21.26
180	0.0	265.0	-6.02	21.26
210	0.0	265.0	-6.02	21.26
240	0.0	265.0	-6.02	21.26
270	0.0	265.0	-6.02	21.26
300	0.0	265.0	-6.02	21.26
330	0.0	265.0	-6.02	21.26

Ave E1= 0.00 M HAAT= 265.00 M AMSL= 265 M

 [Map Registration](#)**Registration Detail**

Reg Number	1044237	Status	Granted
File Number	A0164383	Constructed	01/01/1987
FAA Study	98-AEA-3546-OE	EMI	No
FAA Issue Date	05/26/1999	NEPA	No

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long 39-20-10.0 N 076-38-58.0 W 3900 HOOPERAVE
 City, State BALTIMORE , MD
 Center of
 AM Array

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
82.0	390.1
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
472.1	389.2

Painting and Lighting Specifications

FAA Chapters 4, 7, 13
 Paint and Light in Accordance with FAA Circular Number 70/7460-1J
 .

Owner & Contact Information

FRN	0006151393	Licensee ID	L00319605
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Owner

CUNNINGHAM COMMUNICATIONS, INC Attention To: Duncan Smith 10706 Beaver Dam Road Cockeysville , MD 21030	P: (410)568-1500 E:
--	------------------------

Contact

P:
 E:

Last Action Status

Status	Granted	Received	02/01/2001
Purpose	Modification	Entered	02/01/2001
Mode	Interactive		

Related Applications

