

**Southport, North Carolina**

**Application for Minor Modification of FM Translator W244DH**

**On Channel 244**

**by**

**Friends of Public Radio, Inc.**

**Exhibit 13**

**Interference Analysis**

**September 2017**

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Table of Contents

Description	Page
Declaration .....	2
Narrative .....	3
Allocations .....	3
Table 1: Allocations .....	5
Table 2: Facilities Protected by U/D Method.....	6
Undesired to Desired Method under §74.1204(d) .....	6
Source of Data .....	7
Licensed and Proposed Contours	
Fill-in Demonstration.....	Figure 1
Antenna Elevation Pattern .....	Figure 2
Interference Contour Elevation.....	Figure 3
Transmitter Site Topographic Map .....	Figure 4
Transmitter Site Aerial Photograph.....	Figure 5

Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 13, Interference Analysis, for Friends of Public Radio, Inc., and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.



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27 September 2017

### Narrative

This Exhibit supports a minor modification application for FM translator W244DH, on Channel 244 in Southport, North Carolina. Allocation details are provided in this exhibit. This proposal complies fully with the requirements of 74 C.F.R. §74.1204(a), with the exception of facilities protected under 47 C.F.R. §74.1204(d) by the Undesired to Desired (U/D) method described below. The proposed modified facilities create no mutual exclusivities with any licensed facilities, construction permits, or applications as shown in the allocation table in this exhibit. W244DH has licensed facilities and a pending silent STA, file number BLSTA-20170922ABI, due to antenna problems at the licensed site.

Figure 1 shows the licensed 60 dBu F(50,50) coverage area, the authorized 60 dBu F(50,50) coverage area, and the proposed 60 dBu F(50,50) coverage area. Figure 1 shows fill-in status confirmation. As shown on Figure 1, the proposed modification is a minor modification of the licensed facilities and of the authorized facilities.

The changes from file number BLFT-20170619ABH are a new site, a new omnidirectional antenna, and a decrease in elevation. The community designation is changed to Southport, North Carolina.

### Allocations

This application proposes service to Southport, North Carolina, on channel 244. An updated Table 1: Allocations is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. All are protected under §74.1204(a) contour protection by this application, with the exception of facilities protected by the Undesired to

Desired (U/D) method. Facilities protected by the U/D method are listed in Table 2. The allocations table was prepared using the GLOBE 30 terrain database which is described below.

Table 1: Allocations

Allocation Study											
Friends Of Public Radio, Inc.											
REFERENCE	CH# 244D - 96.7 MHz, Pwr= 0.25 kw, HAAT= 47.0 M, COR= 53 M							DISPLAY DATES			
33 57 14.0 N.	Average Protected F(50-50)= 11.4 km							DATA 09-27-17			
78 01 40.0 W.	Omni-directional							SEARCH 09-27-17			
CH	CALL	TYPE	ANT	AZI.	DIST	LAT.	Pwr(kw)	INT(km)	PRO(km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG.	HAAT(M)	COR(M)	LICENSEE	(Overlap	in km)
247C1	WMNX	LIC	CX	335.1	11.98	34 03 06.0	100.000	9.5	69.5	-5.6	-58.6*
Wilmington			NC	155.1	BLH20090109AVP	78 04 57.0	269	276	Cumulus Licensing LLC		
Protected by U/D ratio, see text and figures.											
244D	w244DH!	LIC	V	17.9	16.81	34 05 52.0	0.250	38.5	11.1	-30.2	-23.7
Wilmington			NC	197.9	BLFT20170619ABH	77 58 18.0		83	Friends Of Public Radio, Inc		
Facility being modified.											
243C	WFLB	LIC	NCX	314.8	131.03	34 46 49.0	100.000	107.6	74.1	15.4	45.5
Laurinburg			NC	134.2	BMLH20120425ADF	79 02 45.0	318	368	Beasley Media Group, LLC		
298C2	WAZO	LIC	ZCX	344.8	33.32	34 14 37.0	21.000	0.0	0.0	14.5R	18.8M
Southport			NC	164.7	BLH20130530AJH	78 07 24.0	234	243	Sunrise Broadcasting, LLC		
245C0	WWPL	LIC	CX	356.5	160.83	35 23 52.0	100.000	105.2	72.5	47.5	76.8
Goldsboro			NC	176.5	BMLH20090708AEX	78 08 07.0	300	337	New Age Communications, Lt		
244D	w244AY	LIC	HN	249.1	86.52	33 40 23.0	0.027	22.1	6.6	55.3	49.7
Myrtle Beach			SC	68.6	BLFT19960322TA	78 54 05.0	73	80	Augusta Radio Fellowship I		
Translator For WLPG, Florence, SC											
241C2	WKZQ-FM	LIC	NCX	247.1	102.61	33 35 27.0	8.500	4.5	46.1	88.9	55.4
Forestbrook			SC	66.6	BLH20081007ACQ	79 02 55.0	265	267	Alpha Media Licensee Llc		
243D	w243CT	LIC	V	260.3	75.00	33 50 14.0	0.170	9.5	6.7	56.5	56.5
Myrtle Beach			SC	79.8	BLFT20100708TSO	78 49 42.0	36	42	Truth Broadcasting Corpora		
245C	WIWF	LIC	DCY	234.0	192.74	32 55 28.0	100.000	121.4	81.7	62.2	96.4
Charleston			SC	53.1	BLH19860905KA	79 41 58.0	539	543	Radio License Holding Cbc,		

Terrain database is GLOBE 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 adj.  
 All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.  
 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 restricted contour.  
 < = Station meets FCC minimum distance spacing for its class.

**Table 2: Facilities Protected by U/D Method**

Facility	WMNX Wilmington, North Carolina
Relationship	247C1, third adjacent
Distance (km)	11.98
Bearing (degrees)	355.1
ERP (kW, on azimuth)	100.0
HAAT (m, on azimuth)	263.5
Ratio	40
Signal Strength (dBu)	95.95
Translator Signal Strength	135.95
Translator distance (km)	.018

**Undesired to Desired Method under §74.1204(d)**

Protection to some facilities is provided through the use of Undesired to Desired Signal Strength Ratio (U/D) calculations. Table 2 lists the parameters studied. The proposed antenna is a Shively 6832-2 antenna. The elevation pattern is shown in Figure 2. The elevation of the 135.95 dBu contour is shown in Figure 3.

The WMNX field strength calculated at ground level at the proposed W244DH site is 95.95 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 135.95 dBu field strength distance is .018 kilometers in the horizontal plane. The proposed antenna location is 45 meters above ground. Since the free space interference contour only goes 17 meters from the antenna, it remains at least 28 meters (91 feet) above ground level. As Figure 3 shows, the 135.95 dBu signal level, calculated using the antenna elevation pattern, does not reach ground level.

Figure 4 is a topographic map of the transmitter site, showing that the site is on a flat terrain. Figure 5 is an aerial photograph of the site. The interference contour, at only 18 meters, remains within the fenced area around the water tank, and is not shown. There is no

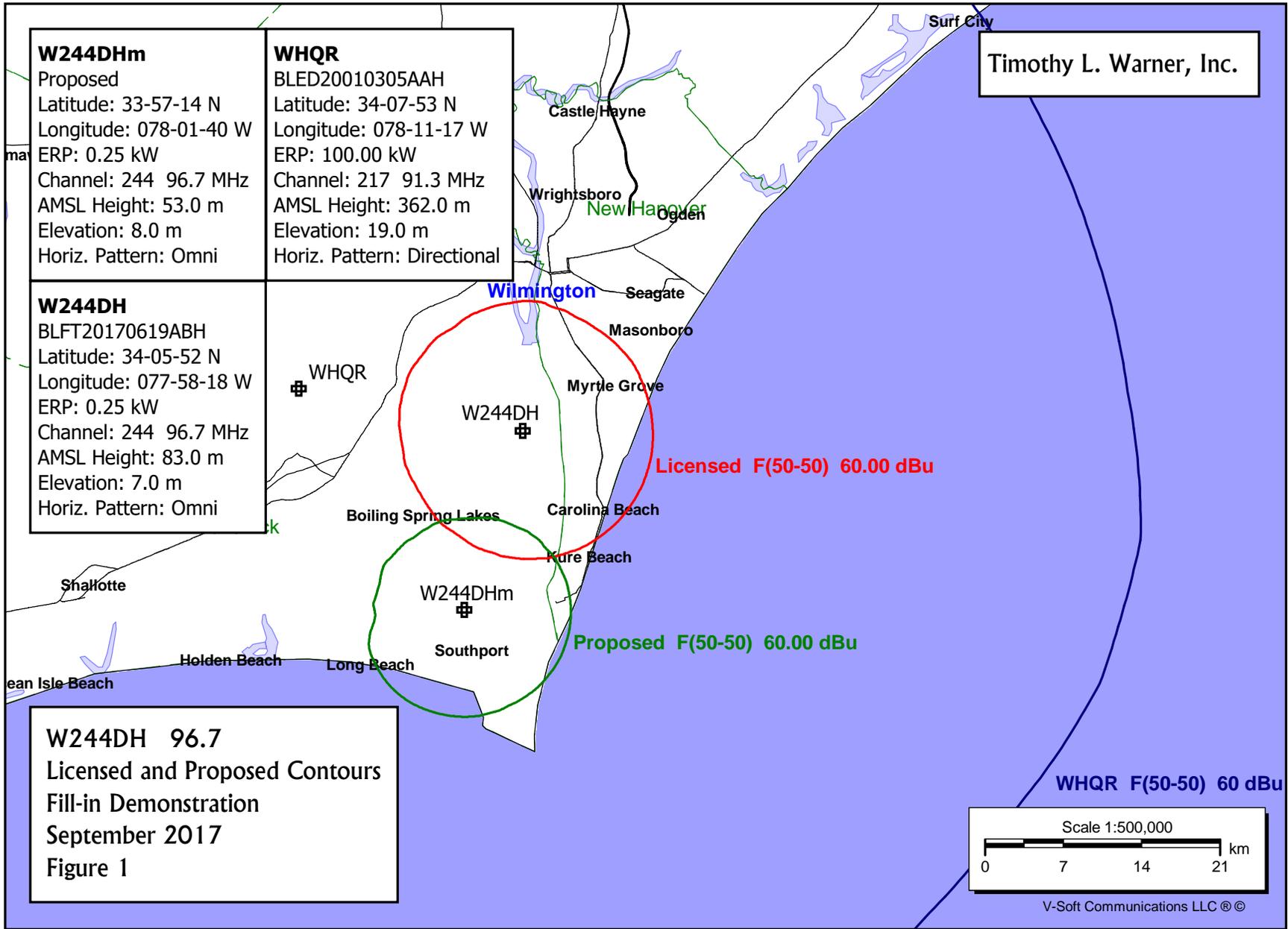
population within the predicted interference area and therefore this facility is permitted under §74.1204(d).

The applicant recognizes that the U/D method is only a tool for predicting likely interference. Should any actual interference be experienced, the applicant will cooperate fully in correcting the interference. Corrective steps may require changes in the transmitting antenna or other steps which would require Commission authorization, may require that the translator cease operation except for brief equipment tests, or may require filtering at the receivers which report interference.

#### Source of Data

Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were evaluated using terrain extracted from the GLOBE 30 arcsecond terrain database, formatted by V-Soft Communications to work with its allocation and mapping programs.



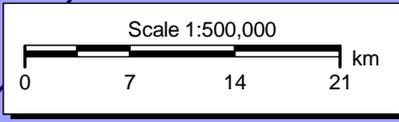
**W244DHm**  
 Proposed  
 Latitude: 33-57-14 N  
 Longitude: 078-01-40 W  
 ERP: 0.25 kW  
 Channel: 244 96.7 MHz  
 AMSL Height: 53.0 m  
 Elevation: 8.0 m  
 Horiz. Pattern: Omni

**WHQR**  
 BLED20010305AAH  
 Latitude: 34-07-53 N  
 Longitude: 078-11-17 W  
 ERP: 100.00 kW  
 Channel: 217 91.3 MHz  
 AMSL Height: 362.0 m  
 Elevation: 19.0 m  
 Horiz. Pattern: Directional

**W244DH**  
 BLFT20170619ABH  
 Latitude: 34-05-52 N  
 Longitude: 077-58-18 W  
 ERP: 0.25 kW  
 Channel: 244 96.7 MHz  
 AMSL Height: 83.0 m  
 Elevation: 7.0 m  
 Horiz. Pattern: Omni

Timothy L. Warner, Inc.

**W244DH 96.7**  
 Licensed and Proposed Contours  
 Fill-in Demonstration  
 September 2017  
 Figure 1

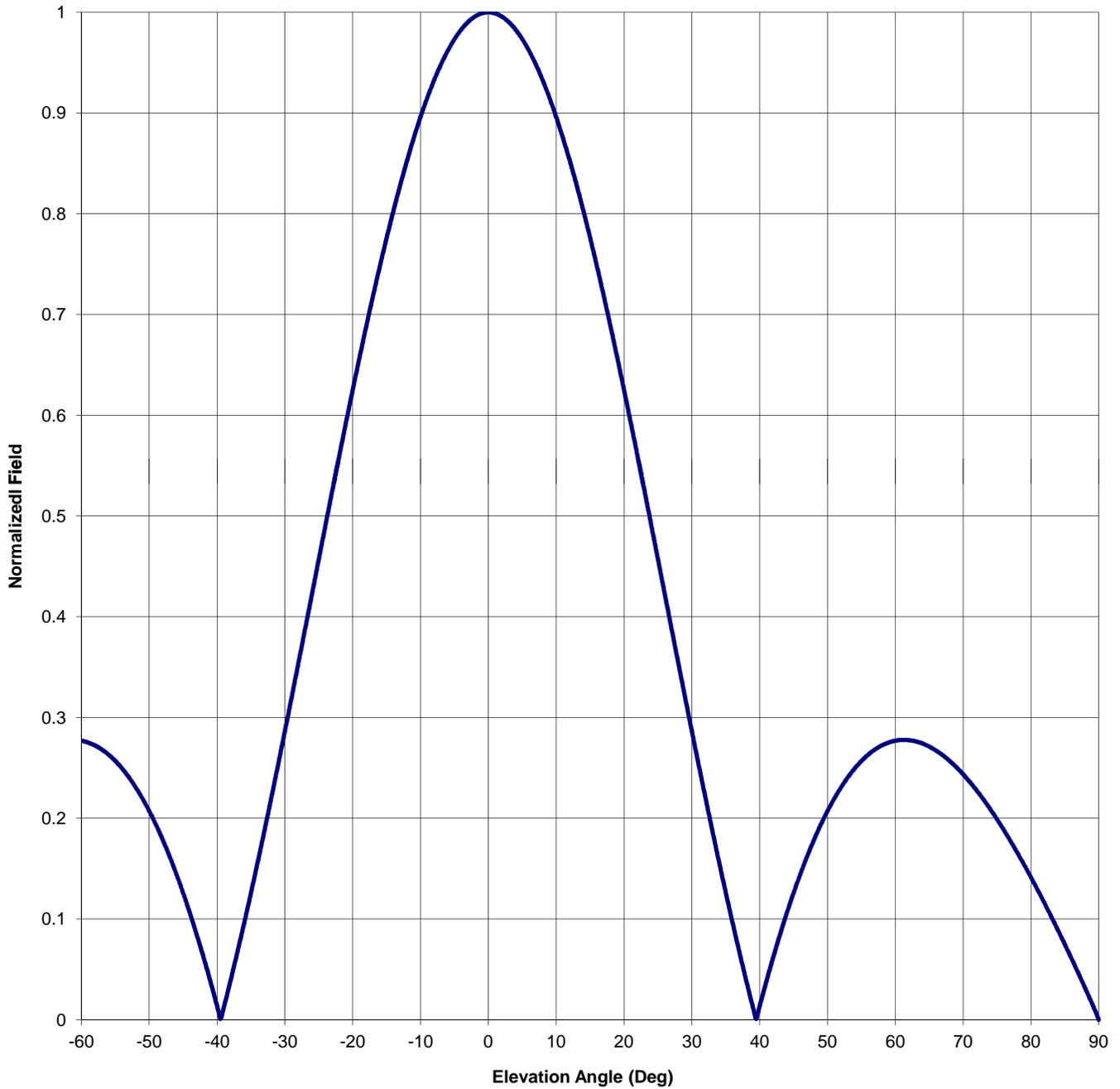


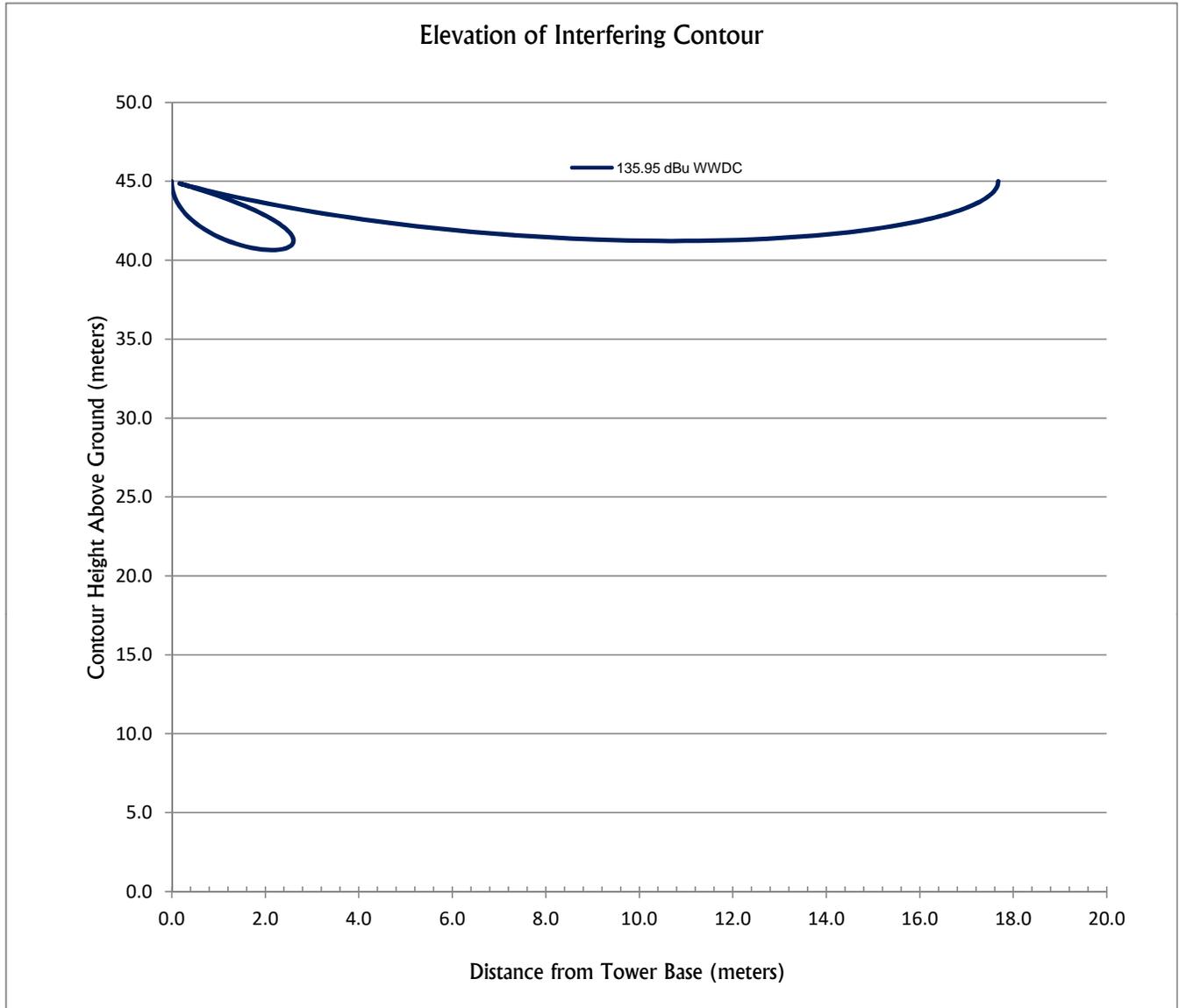
V-Soft Communications LLC ©

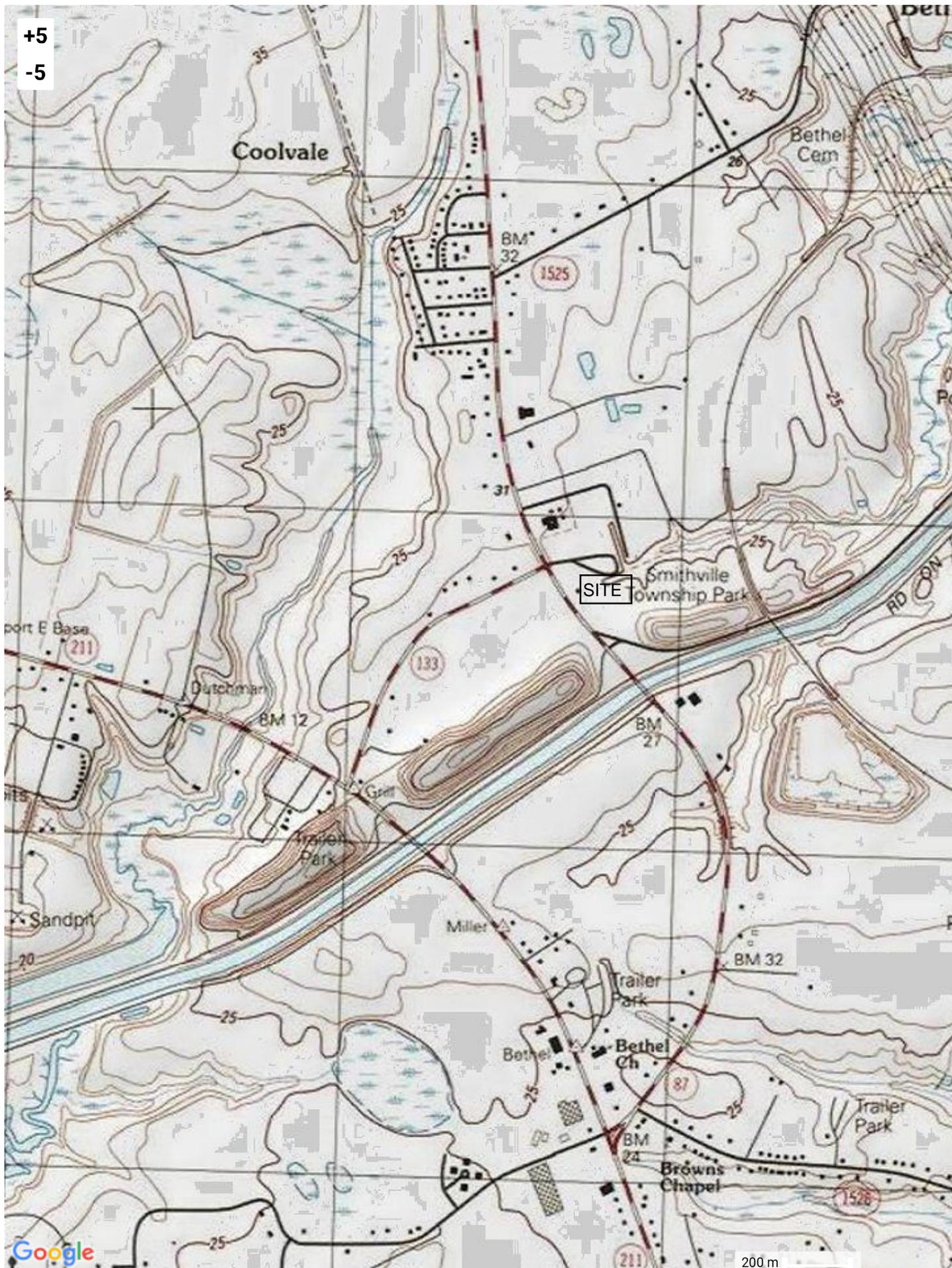
Antenna Mfg.: Shively  
Antenna Type: 6832-2  
Station: W244DH  
Frequency: 96.7  
Channel #: 244  
Figure: 2

Date: 9/27/2017

Beam Tilt	0	
Gain (Max)	0.981	-0.085 dB
Gain (Horizon)	0.981	-0.085 dB







+5  
-5

SITE

200 m

Topographic Map, Figure 4

# W244DH

Aerial Photograph of Proposed Site  
September 2017  
Figure 5

## Legend

 W244DM Proposed Site

 W244DH Proposed Site

Dosher Cutoff SE 



River Rd SE

700 ft

