

## Registration Detail

Reg Number	1005780	Status	Constructed
File Number	A0006802	Constructed	08/01/1972
EMI	No	Dismantled	
NEPA	No		

## Antenna Structure

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

### Location (in NAD83 Coordinates)

Lat/Long	42-40-26.0 N 071-11-24.0 W	Address	119 CHANDLER RD
City, State	ANDOVER , MA		
Zip	01810	County	ESSEX
Center of AM Array		Position of Tower in Array	

### Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
60.9	122.8
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
183.7	121.9

### Painting and Lighting Specifications

FCC Paragraphs 1, 3, 12, 21

### FAA Notification

FAA Study	FAA Issue Date
.	

### Owner & Contact Information

FRN	Owner Entity Type
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#### Owner

GOWDY FAMILY LIMITED PARTNERSHIP DBA = CURT GOWDY	P: (508)683-7171
BROADCASTING WCCM AM	F:
Attention To: JOHN BASSETT	E:
33 FRANKLIN ST	
LAWRENCE , MA 01840	

#### Contact

P:  
F:  
E:

### Last Action Status

Status	Constructed	Received	10/25/1996
Purpose	New	Entered	11/01/1996
Mode	Mail In (Manual)		

### Related Applications

10/25/1996	A0006802 - New (NE)
.	

### Comments

#### Comments

12/30/1996	CLEARED STRUCTURE BASED ON OLD TOWER FILE RECORD 48588, 70-BOS-26-OE.
.	

### History

#### Date

#### Event

None

### Automated Letters

None

## Exhibit 13.2

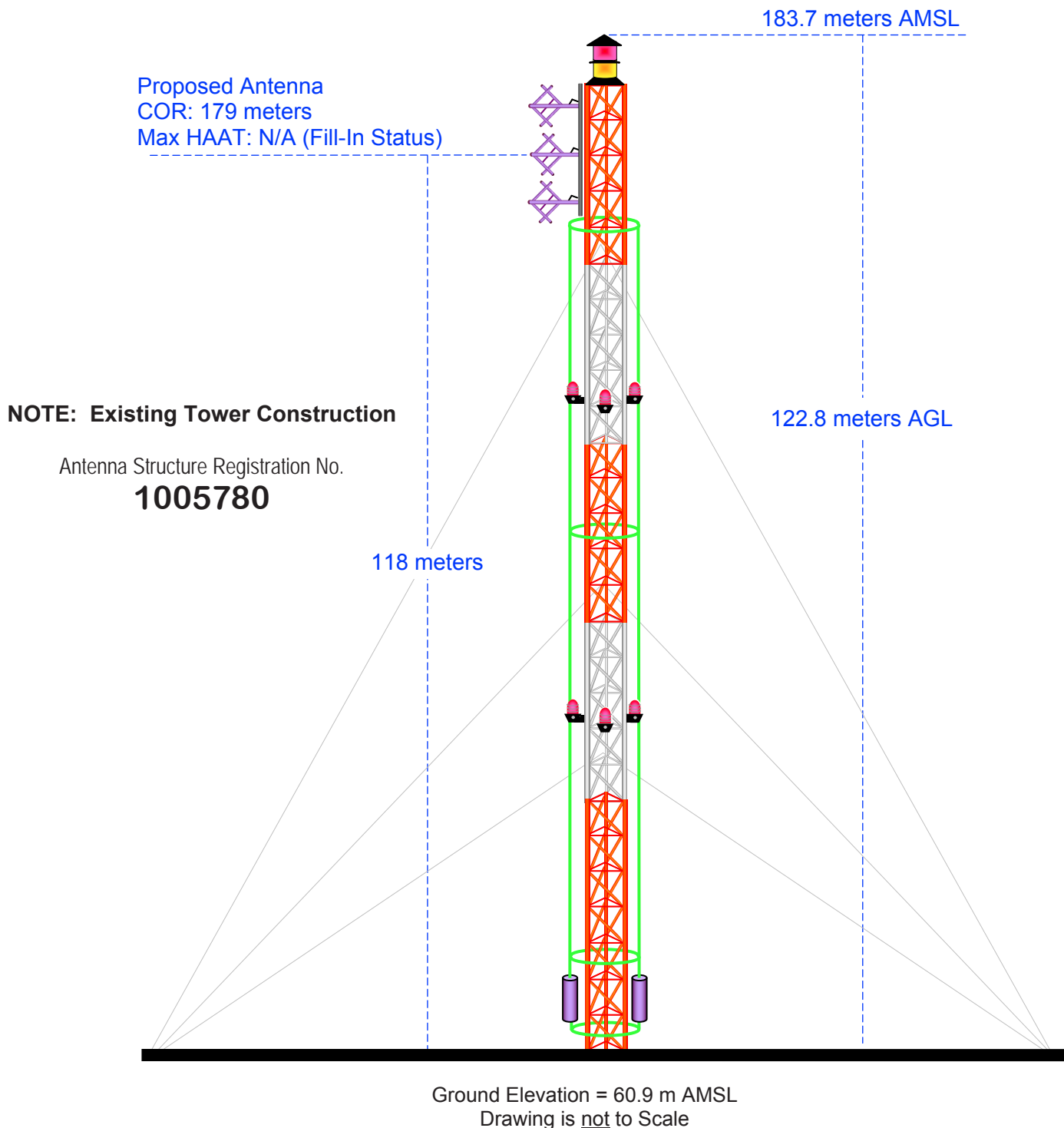
### Vertical Plan of Antenna System

The site is located at 119 Chandler Road,  
the city of Andover, Essex County, Massachusetts.

#### Site Location (NAD 27)

NL: 42° 40' 26"

WL: 71° 11' 26"



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USGS 03 SEC Terrain Database  
U.S. Census 2010 PL Database

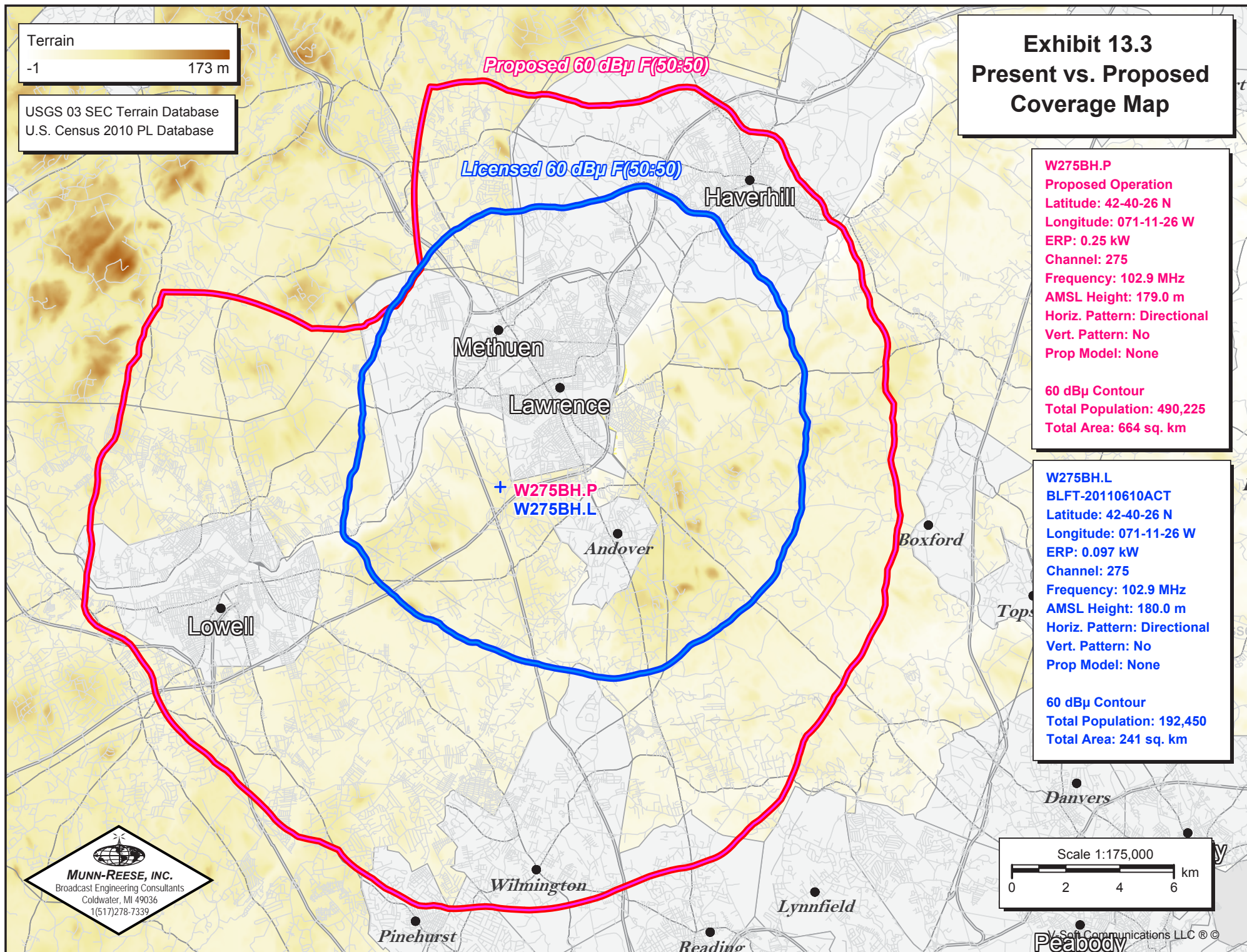
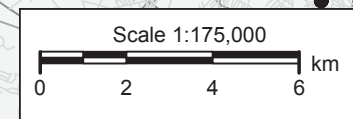
## Exhibit 13.3 Present vs. Proposed Coverage Map

**W275BH.P**  
Proposed Operation  
Latitude: 42-40-26 N  
Longitude: 071-11-26 W  
ERP: 0.25 kW  
Channel: 275  
Frequency: 102.9 MHz  
AMSL Height: 179.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None

**60 dBμ Contour**  
Total Population: 490,225  
Total Area: 664 sq. km

**W275BH.L**  
BLFT-20110610ACT  
Latitude: 42-40-26 N  
Longitude: 071-11-26 W  
ERP: 0.097 kW  
Channel: 275  
Frequency: 102.9 MHz  
AMSL Height: 180.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None

**60 dBμ Contour**  
Total Population: 192,450  
Total Area: 241 sq. km





Call: WNNW(AM)  
BL-20060209AET  
Freq: 800 kHz  
LAWRENCE, MA, US  
Lat: 42-40-26 N  
Lng: 071-11-26 W  
Power: 3.0 kW  
Theoretical RMS:  
286.46 mV/m @ 1km

W275BH.P  
Proposed Operation  
Latitude: 42-40-26 N  
Longitude: 071-11-26 W  
ERP: 0.25 kW  
Channel: 275  
Frequency: 102.9 MHz  
AMSL Height: 179.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None

25 mile Radius - WNNW(AM) Site

WNNW(AM) 2.0 mV/m Daytime AM Contour

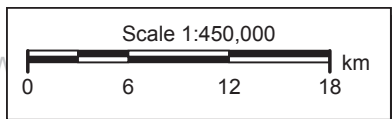
Proposed 60 dBµ F(50:50)

Lawrence

+ W275BH.P  
WNNW(AM)

## Exhibit 13.4 Proposed vs. Primary Service Contour Study

USGS 03 SEC Terrain Database  
U.S. Census 2010 PL Database



# Exhibit 13.5

## Tabulation of Proposed Translator Allocation

Costa-eagle Radio Ventures Limited Partnership CH# 275D - 102.9 MHz, Pwr= 0.25 kW DA, HAAT= 137.0 M, COR= 179 M Average Protected F(50-50)= 15.07 km Standard Directional											
REFERENCE										DISPLAY DATES	
42 40 26.0 N.										DATA 05-08-13	
71 11 26.0 W.										SEARCH 05-09-13	
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)	
275D	W275BH	CP	DV_	0.0	0.00	42 40 26.0	0.250	49.7	14.9	-64.5*	-64.4*
Lawrence		MA		0.0	BPFT20110629AAD	71 11 26.0		181	Costa-eagle Radio Ventures		
275D	W275BH	LIC	DC_	0.0	0.00	42 40 26.0	0.097	34.4	10.2	-49.2*	-59.7*
Lawrence		MA		0.0	BLFT20110610ACT	71 11 26.0		180	Costa-eagle Radio Ventures		
275CO	WBLM	LIC	_CX	21.9	150.13	43 55 29.0	100.000	188.1	84.4	-53.6*	14.4
Portland		ME		202.4	BLH20030224ABB	70 29 29.0	435	551	Radio License Holding Cbc,		
277B	WODS	LIC	_CX	183.9	40.81	42 18 27.4	8.700	4.9	64.8	20.3	-25.8*
Boston		MA		3.9	BLH20101105AAI	71 13 26.7	351	392	Cbs Radio East Inc.		
273B	WKLB-FM	LIC	NC	185.4	40.60	42 18 37.0	14.000	5.4	64.0	19.6	-25.2*
Waltham		MA		5.4	BLH20090515ABT	71 14 14.0	276	320	Charles River Broadcasting		
275L1	WLLO-LP	LIC		328.2	32.07	42 55 08.0	0.100	13.7	92.0	5.6	0.1
Londonderry		NH		148.1	BLL20091228ADQ	71 23 53.0	28	119	Londonderry School Distric		
275B1	WPXC	CP	NCX	147.3	129.70	41 41 20.0	6.800	96.3	40.8	17.6	29.3
Hyannis		MA		327.9	BPH20120716ADE	70 20 49.0	144	151	Codcomm, Inc.		
One Step Application											
275A	WPXC	LIC	_CX	147.3	129.70	41 41 20.0	3.100	84.5	29.1	29.4	48.9
Hyannis		MA		327.9	BLH20030709ABD	70 20 49.0	141	151	Codcomm, Inc.		
276D	W276BJ	LIC	DC_	329.6	57.49	43 07 09.0	0.250	19.6	13.1	30.2	33.5
Concord		NH		149.3	BLFT20081231AAZ	71 32 58.0	139	275	Saga Communications Of New		
275B	WDRG-FM	LIC	_C_	228.4	184.05	41 33 44.0	19.500	134.1	69.7	35.2	48.8
Hartford		CT		47.3	BMLH20110107ACK	72 50 40.0	247	345	Buckley Broadcasting Of Co		
272A	WWHK	LIC	_CX	332.7	68.01	43 13 00.0	3.000	2.3	24.2	57.9	43.5
Concord		NH		152.4	BMLH20060210ABW	71 34 34.0	87	222	Capital Broadcasting Corpo		
221A	WDER-FM	LIC	NC_	290.6	60.08	42 51 41.0	0.170	13.7	92.0	9.5R	50.6M
Peterborough		NH		110.1	BLH20010828AAS	71 52 45.0	423	734	Blount Communications, Inc		
275D	W275AS	LIC	_C_	265.7	115.82	42 35 16.0	0.095	18.3	5.6	82.3	59.9
Greenfield		MA		84.8	BLFT20050307AAG	72 36 06.0	-86	98	Tri-valley Broadcasting Co		
276D	W276CB	LIC	_C_	287.9	94.89	42 55 50.0	0.250	10.1	7.1	70.3	66.0
Keene		NH		107.1	BLFT20080514AGF	72 18 00.0	-93	193	Saga Communications Of New		

Terrain database is USGS 03 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.  
 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.  
 « = Station meets FCC minimum distance spacing for its class.  
 Reference station has protected zone issue:

Blue Highlighted Text denotes contour protection studies WLLO-LP - Londonderry NH as included in **Exhibit 13.6**.  
 WLLO-LP represents the closest contour protection noted in the allocation. It is believed sufficient clearance exists  
 precluding the need for additional contour protection showings, however additional contour protection studies will be  
 supplied upon request.

Yellow highlighted text denotes a §74.1204(d) Waiver Request for given second adjacent channel interference toward  
 WODS(FM) - Boston, MA CH277B and WKLB-FM - Waltham, MA CH273B as included in **Exhibit 13.7**. Full protection  
 will be afforded both facilities as the calculated interference area will not reach the ground nor a 7 meter artificial plane  
 representing a standard two story building when taking into account the downward radiation characteristics of the antenna  
 as supplied by the antenna manufacturer. Antenna manufacturer's documentation has been included in **Exhibit 13.8**.

## Exhibit 13.6

### Contour Protection Studies Toward WLLO-LP - Londonderry, NH

Costa-eagle Radio Ventures Limited Partnership

FMCommander Single Allocation Study - 05-09-2013 - USGS 03 SEC

W275BH.P's Overlaps (In= 0.0 km, Out= 0.0 km)

W275BH.P CH 275 D DA

Lat= 42 40 26.0, Lng= 71 11 26.0

0.25 kW 137 M HAAT, 179 M COR

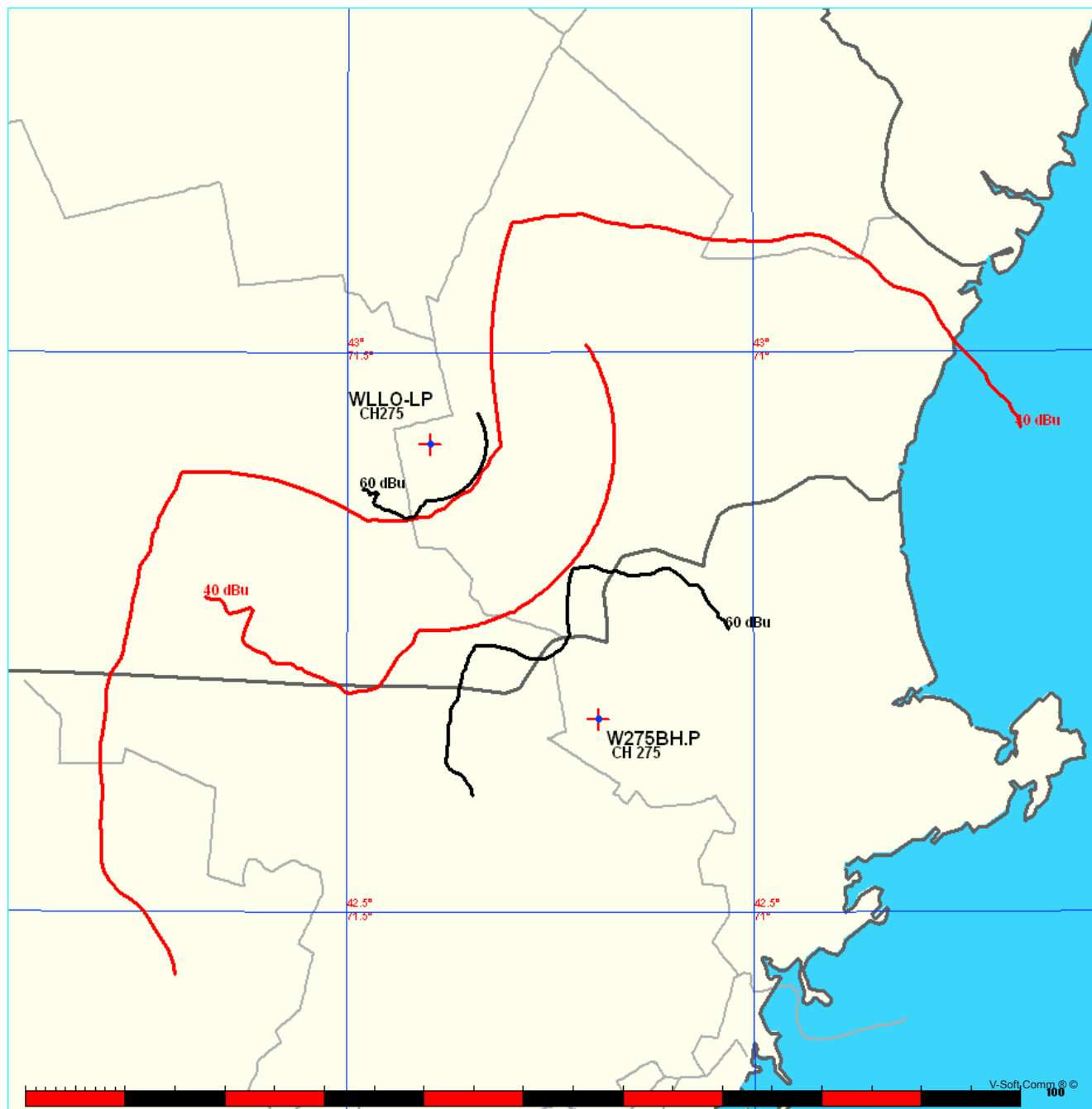
Prot.= 60 dBu, Intef.= 40 dBu

WLLO-LP CH 275 L1 BLL20091228ADQ

Lat= 42 55 08.0, Lng= 71 23 53.0

0.1 kW 28.25948 M HAAT, 119 M COR

Prot.= 60 dBu, Intef.= 40 dBu



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Broadcast Engineering Consultants  
Coldwater, MI 49036

## Exhibit 13.6

### Contour Protection Studies Toward WLLO-LP - Londonderry, NH

05-09-2013

Terrain Data: USGS 03 SEC

FMOver Analysis

W275BH.P

WLLO-LP BLL20091228ADQ

Channel = 275D  
Max ERP = 0.25 kW  
RCAMSL = 179 M  
N. Lat. 42 40 26.0  
W. Lng. 71 11 26.0  
Protected  
60 dBu

Channel = 275L1  
Max ERP = 0.1 kW  
RCAMSL = 119 M  
N. Lat. 42 55 08.0  
W. Lng. 71 23 53.0  
Interfering  
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
286.0	000.2500	0125.1	014.4	172.2	000.1000	0023.0	023.5	36.21	
287.0	000.2500	0126.0	014.4	172.1	000.1000	0022.9	023.2	36.39	
288.0	000.2500	0126.5	014.4	171.9	000.1000	0022.8	023.0	36.56	
289.0	000.2500	0124.6	014.3	171.4	000.1000	0022.6	022.8	36.69	
290.0	000.2500	0123.1	014.2	170.9	000.1000	0022.8	022.6	36.82	
291.0	000.2500	0124.6	014.3	170.8	000.1000	0022.9	022.4	37.01	
292.0	000.2500	0125.3	014.4	170.5	000.1000	0023.2	022.2	37.19	
293.0	000.2500	0124.8	014.3	170.1	000.1000	0024.3	022.0	37.34	
294.0	000.2500	0126.0	014.4	169.9	000.1000	0025.1	021.7	37.52	
295.0	000.2500	0125.6	014.4	169.5	000.1000	0026.6	021.5	37.67	
296.0	000.2500	0125.1	014.4	169.0	000.1000	0028.2	021.3	37.81	
297.0	000.2500	0124.7	014.3	168.6	000.1000	0029.2	021.1	37.96	
298.0	000.2500	0123.8	014.3	168.0	000.1000	0029.6	021.0	38.08	
299.0	000.2500	0125.3	014.4	167.8	000.1000	0029.7	020.7	38.27	
300.0	000.2500	0126.0	014.4	167.4	000.1000	0029.9	020.5	38.44	
301.0	000.2190	0126.9	014.0	166.0	000.1000	0030.3	020.6	38.41	
302.0	000.1900	0128.6	013.6	164.8	000.1000	0030.0	020.8	38.25	
303.0	000.1631	0131.5	013.2	163.6	000.1000	0027.8	020.9	38.16	
304.0	000.1382	0133.5	012.8	162.4	000.1000	0026.6	021.1	38.02	
305.0	000.1154	0135.6	012.3	161.2	000.1000	0026.0	021.3	37.84	
306.0	000.0947	0137.1	011.8	160.0	000.1000	0027.1	021.6	37.62	
307.0	000.0760	0137.3	011.2	158.7	000.1000	0026.5	022.0	37.32	
308.0	000.0593	0137.7	010.6	157.4	000.1000	0025.1	022.4	36.98	
309.0	000.0448	0138.9	009.9	156.2	000.1000	0025.9	022.9	36.62	
310.0	000.0322	0137.7	009.1	155.0	000.1000	0027.5	023.6	36.15	
311.0	000.0310	0135.3	008.9	154.5	000.1000	0028.5	023.7	36.08	
312.0	000.0298	0132.1	008.7	153.9	000.1000	0029.4	023.8	36.00	
313.0	000.0286	0129.6	008.6	153.4	000.1000	0030.2	023.9	35.98	
314.0	000.0275	0127.1	008.4	153.0	000.1000	0030.8	024.0	36.05	
315.0	000.0263	0124.8	008.2	152.5	000.1000	0030.5	024.1	35.89	
316.0	000.0252	0124.3	008.1	152.1	000.1000	0030.1	024.2	35.75	
317.0	000.0241	0124.7	008.1	151.8	000.1000	0029.5	024.2	35.70	
318.0	000.0231	0124.5	008.0	151.4	000.1000	0028.6	024.3	35.65	

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Coldwater, MI 49036

**Exhibit 13.6****Contour Protection Studies Toward WLLO-LP - Londonderry, NH**

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
319.0	000.0220	0123.8	007.8	151.0	000.1000	0027.4	024.4	35.60
320.0	000.0210	0124.9	007.8	150.7	000.1000	0026.6	024.4	35.58
321.0	000.0209	0126.5	007.8	150.4	000.1000	0025.8	024.3	35.62
322.0	000.0207	0125.5	007.8	150.0	000.1000	0024.8	024.3	35.61
323.0	000.0206	0124.6	007.7	149.7	000.1000	0023.6	024.4	35.59
324.0	000.0204	0124.9	007.7	149.4	000.1000	0022.7	024.4	35.60
325.0	000.0203	0126.2	007.8	149.1	000.1000	0021.9	024.3	35.62
326.0	000.0202	0127.6	007.8	148.8	000.1000	0021.2	024.3	35.65
327.0	000.0200	0128.6	007.8	148.4	000.1000	0020.5	024.3	35.66
328.0	000.0199	0128.9	007.8	148.1	000.1000	0019.9	024.3	35.66
329.0	000.0197	0128.8	007.8	147.8	000.1000	0019.6	024.3	35.65
330.0	000.0196	0127.5	007.7	147.5	000.1000	0019.3	024.3	35.61
331.0	000.0204	0126.3	007.8	147.2	000.1000	0019.3	024.3	35.64
332.0	000.0213	0125.5	007.8	146.8	000.1000	0019.2	024.3	35.67
333.0	000.0222	0125.9	007.9	146.5	000.1000	0019.0	024.2	35.72
334.0	000.0231	0126.9	008.0	146.1	000.1000	0018.7	024.1	35.78
335.0	000.0240	0126.1	008.1	145.8	000.1000	0018.6	024.1	35.81
336.0	000.0250	0126.3	008.2	145.4	000.1000	0018.3	024.0	35.85
337.0	000.0259	0128.2	008.3	145.0	000.1000	0018.1	023.9	35.93
338.0	000.0269	0129.1	008.4	144.6	000.1000	0017.9	023.8	35.98
339.0	000.0279	0129.0	008.5	144.2	000.1000	0017.6	023.8	36.01
340.0	000.0289	0129.6	008.6	143.8	000.1000	0017.2	023.7	36.05
341.0	000.0412	0129.8	009.4	142.9	000.1000	0015.7	023.0	36.57
342.0	000.0557	0130.9	010.2	141.8	000.1000	0013.8	022.3	37.06
343.0	000.0724	0132.8	010.9	140.7	000.1000	0011.6	021.7	37.53
344.0	000.0912	0133.8	011.6	139.5	000.1000	0010.4	021.2	37.94
345.0	000.1122	0134.2	012.2	138.3	000.1000	0010.2	020.7	38.30
346.0	000.1354	0134.5	012.8	136.9	000.1000	0011.9	020.3	38.63
347.0	000.1608	0135.6	013.4	135.5	000.1000	0018.0	019.9	38.95
348.0	000.1884	0135.9	013.9	134.1	000.1000	0022.4	019.5	39.22
349.0	000.2181	0136.4	014.5	132.5	000.1000	0021.0	019.2	39.48
350.0	000.2500	0136.5	015.0	130.9	000.1000	0021.2	018.9	39.70
351.0	000.2500	0135.6	015.0	130.4	000.1000	0020.8	019.2	39.53
352.0	000.2500	0135.9	015.0	129.8	000.1000	0019.7	019.3	39.40
353.0	000.2500	0136.4	015.0	129.2	000.1000	0017.5	019.5	39.27
354.0	000.2500	0136.8	015.1	128.6	000.1000	0015.6	019.6	39.14
355.0	000.2500	0136.8	015.1	128.0	000.1000	0014.4	019.8	38.99
356.0	000.2500	0136.4	015.0	127.6	000.1000	0013.6	020.0	38.82
357.0	000.2500	0136.7	015.0	127.0	000.1000	0013.0	020.2	38.68
358.0	000.2500	0136.5	015.0	126.6	000.1000	0012.3	020.4	38.51
359.0	000.2500	0134.7	014.9	126.4	000.1000	0012.0	020.7	38.30
000.0	000.2500	0132.8	014.8	126.2	000.1000	0011.8	021.0	38.08
001.0	000.2500	0130.7	014.7	126.1	000.1000	0011.7	021.3	37.86
002.0	000.2500	0129.8	014.6	125.8	000.1000	0011.5	021.5	37.68
003.0	000.2500	0129.0	014.6	125.6	000.1000	0011.2	021.7	37.50
004.0	000.2500	0128.2	014.5	125.3	000.1000	0011.1	022.0	37.32
005.0	000.2500	0128.4	014.5	124.9	000.1000	0011.2	022.2	37.16

**Munn-Reese, Inc.**

Broadcast Engineering Consultants

Coldwater, MI 49036



## Exhibit 13.6

### Contour Protection Studies Toward WLL0-LP - Londonderry, NH

05-09-2013

Terrain Data: USGS 03 SEC

FMOver Analysis

WLL0-LP BLL20091228ADQ

W275BH.P

Channel = 275L1

Max ERP = 0.1 kW

RCAMSL = 119 M

N. Lat. 42 55 08.0

W. Lng. 71 23 53.0

Protected

60 dBu

Channel = 275D

Max ERP = 0.25 kW

RCAMSL = 179 M

N. Lat. 42 40 26.0

W. Lng. 71 11 26.0

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
103.0	000.1000	0010.4	005.6	336.3	000.0252	0126.5	028.4	39.44	
104.0	000.1000	0011.0	005.6	336.1	000.0251	0126.4	028.3	39.46	
105.0	000.1000	0010.3	005.6	336.0	000.0250	0126.3	028.2	39.48	
106.0	000.1000	0008.5	005.6	335.9	000.0248	0126.2	028.2	39.50	
107.0	000.1000	0006.9	005.6	335.7	000.0247	0126.1	028.1	39.52	
108.0	000.1000	0007.2	005.6	335.6	000.0246	0126.1	028.0	39.54	
109.0	000.1000	0009.0	005.6	335.5	000.0245	0126.0	027.9	39.56	
110.0	000.1000	0012.0	005.6	335.3	000.0243	0126.0	027.9	39.58	
111.0	000.1000	0014.0	005.6	335.2	000.0242	0126.0	027.8	39.60	
112.0	000.1000	0014.0	005.6	335.0	000.0241	0126.1	027.7	39.62	
113.0	000.1000	0014.8	005.6	334.9	000.0239	0126.2	027.7	39.64	
114.0	000.1000	0015.4	005.6	334.7	000.0238	0126.3	027.6	39.67	
115.0	000.1000	0016.9	005.6	334.6	000.0236	0126.5	027.5	39.69	
116.0	000.1000	0017.7	005.6	334.4	000.0235	0126.7	027.5	39.72	
117.0	000.1000	0018.9	005.6	334.3	000.0233	0126.9	027.4	39.74	
118.0	000.1000	0017.6	005.6	334.1	000.0232	0126.9	027.3	39.76	
119.0	000.1000	0016.6	005.6	333.9	000.0230	0126.8	027.3	39.76	
120.0	000.1000	0015.7	005.6	333.8	000.0229	0126.6	027.2	39.75	
121.0	000.1000	0014.2	005.6	333.6	000.0227	0126.5	027.2	39.75	
122.0	000.1000	0012.6	005.6	333.4	000.0226	0126.3	027.1	39.74	
123.0	000.1000	0011.7	005.6	333.2	000.0224	0126.1	027.1	39.73	
124.0	000.1000	0012.3	005.6	333.0	000.0222	0125.9	027.0	39.72	
125.0	000.1000	0011.2	005.6	332.9	000.0221	0125.8	027.0	39.70	
126.0	000.1000	0011.6	005.6	332.7	000.0219	0125.7	026.9	39.70	
127.0	000.1000	0012.9	005.6	332.5	000.0217	0125.6	026.9	39.69	
128.0	000.1000	0014.3	005.6	332.3	000.0216	0125.6	026.9	39.68	
129.0	000.1000	0016.9	005.6	332.1	000.0214	0125.5	026.8	39.67	
130.0	000.1000	0020.2	005.6	331.9	000.0212	0125.5	026.8	39.66	
131.0	000.1000	0021.1	005.6	331.7	000.0211	0125.6	026.7	39.65	
132.0	000.1000	0020.6	005.6	331.5	000.0209	0125.7	026.7	39.65	
133.0	000.1000	0021.8	005.6	331.3	000.0207	0125.9	026.7	39.64	
134.0	000.1000	0022.4	005.6	331.1	000.0206	0126.1	026.6	39.64	
135.0	000.1000	0020.3	005.6	330.9	000.0204	0126.4	026.6	39.64	

**Munn-Reese, Inc.**

Broadcast Engineering Consultants

Coldwater, MI 49036

**Exhibit 13.6****Contour Protection Studies Toward WLLO-LP - Londonderry, NH**

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
136.0	000.1000	0015.8	005.6	330.7	000.0202	0126.5	026.6	39.63
137.0	000.1000	0011.8	005.6	330.5	000.0200	0126.7	026.6	39.62
138.0	000.1000	0010.4	005.6	330.3	000.0199	0127.0	026.5	39.62
139.0	000.1000	0010.1	005.6	330.1	000.0197	0127.3	026.5	39.61
140.0	000.1000	0010.5	005.6	329.9	000.0196	0127.7	026.5	39.63
141.0	000.1000	0012.3	005.6	329.7	000.0196	0128.0	026.5	39.67
142.0	000.1000	0014.1	005.6	329.5	000.0197	0128.4	026.5	39.71
143.0	000.1000	0016.0	005.6	329.3	000.0197	0128.6	026.5	39.74
144.0	000.1000	0017.4	005.6	329.0	000.0197	0128.8	026.5	39.77
145.0	000.1000	0018.1	005.6	328.8	000.0198	0128.9	026.4	39.79
146.0	000.1000	0018.7	005.6	328.6	000.0198	0129.0	026.4	39.80
147.0	000.1000	0019.3	005.6	328.4	000.0198	0128.9	026.4	39.81
148.0	000.1000	0019.8	005.6	328.2	000.0199	0128.9	026.4	39.81
149.0	000.1000	0021.7	005.6	328.0	000.0199	0128.9	026.4	39.82
150.0	000.1000	0024.6	005.6	327.8	000.0199	0128.9	026.4	39.82
151.0	000.1000	0027.4	005.6	327.6	000.0199	0128.8	026.4	39.82
152.0	000.1000	0030.0	005.6	327.3	000.0200	0128.7	026.5	39.82
153.0	000.1000	0030.8	005.7	327.1	000.0200	0128.6	026.4	39.86
154.0	000.1000	0029.2	005.6	326.9	000.0200	0128.5	026.5	39.80
155.0	000.1000	0027.4	005.6	326.7	000.0201	0128.3	026.5	39.79
156.0	000.1000	0026.2	005.6	326.5	000.0201	0128.1	026.5	39.77
157.0	000.1000	0024.9	005.6	326.3	000.0201	0127.9	026.5	39.75
158.0	000.1000	0025.6	005.6	326.1	000.0202	0127.7	026.5	39.73
159.0	000.1000	0026.8	005.6	325.9	000.0202	0127.4	026.6	39.70
160.0	000.1000	0027.1	005.6	325.7	000.0202	0127.1	026.6	39.68
161.0	000.1000	0026.1	005.6	325.5	000.0202	0126.8	026.6	39.64
162.0	000.1000	0026.2	005.6	325.3	000.0203	0126.6	026.6	39.62
163.0	000.1000	0026.9	005.6	325.1	000.0203	0126.3	026.7	39.58
164.0	000.1000	0028.3	005.6	324.9	000.0203	0125.9	026.7	39.54
165.0	000.1000	0030.2	005.7	324.7	000.0204	0125.4	026.7	39.51
166.0	000.1000	0030.2	005.7	324.5	000.0204	0125.3	026.7	39.48
167.0	000.1000	0030.1	005.6	324.3	000.0204	0125.1	026.8	39.45
168.0	000.1000	0029.6	005.6	324.1	000.0204	0125.0	026.8	39.41
169.0	000.1000	0028.3	005.6	323.9	000.0205	0124.9	026.9	39.38
170.0	000.1000	0024.8	005.6	323.7	000.0205	0124.8	026.9	39.36
171.0	000.1000	0022.6	005.6	323.5	000.0205	0124.8	027.0	39.33
172.0	000.1000	0022.8	005.6	323.3	000.0205	0124.7	027.0	39.30
173.0	000.1000	0023.2	005.6	323.2	000.0206	0124.6	027.1	39.27
174.0	000.1000	0024.1	005.6	323.0	000.0206	0124.6	027.1	39.24
175.0	000.1000	0024.8	005.6	322.8	000.0206	0124.7	027.2	39.22
176.0	000.1000	0023.5	005.6	322.6	000.0206	0124.7	027.2	39.19
177.0	000.1000	0022.8	005.6	322.5	000.0207	0124.8	027.3	39.17
178.0	000.1000	0020.4	005.6	322.3	000.0207	0125.0	027.3	39.15
179.0	000.1000	0019.8	005.6	322.1	000.0207	0125.3	027.4	39.13
180.0	000.1000	0021.1	005.6	322.0	000.0207	0125.6	027.4	39.12
181.0	000.1000	0022.8	005.6	321.8	000.0208	0126.0	027.5	39.12

**Munn-Reese, Inc.**Broadcast Engineering Consultants  
Coldwater, MI 49036

Terrain

-14

173 m

WKLB-FM - 65.05 dBu F(50:50) Contour

WODS(FM) - 65.05 dBu F(50:50) Contour

W275BH.P - 105.05 dBu F(50:10) Contour

W275BH.P

## Exhibit 13.7

§74.1204(d) 2nd Adjacent  
Channel Given Interference  
Waiver Request Study TowardWODS(FM) - CH277B - Boston, MA  
WKLB-FM - CH233B - Waltham, MA

The Interference Contour corresponding to the WODS(FM) - Boston, MA or WKLB-FM - Waltham, MA Protected Contour at the proposed Translator site has been calculated to be no less than than the 105.05 dBu F(50:10) Interference Contour corresponding to the worst case WODS(FM) or WKLB-FM 65.05 dBu F(50:50) Protected Contour. This represents the proposed interference contour which falls wholly within the 40:1 dBu ratio. As seen on the map and associated vertical protection study, full protection will be afforded WODS(FM) and WKLB-FM as the calculated interference area will not reach the ground nor a 7 meter artificial plane representing a standard two story building when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's vertical radiation pattern has been included in **Exhibit 13.8**.

## W275BH.P

Proposed Operation

Latitude: 42-40-26 N

Longitude: 071-11-26 W

ERP: 0.25 kW

Channel: 275

Frequency: 102.9 MHz

AMSL Height: 179.0 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model: None

## WODS(FM)

BLH20101105AAI

Latitude: 42-18-27.40 N

Longitude: 071-13-26.70 W

ERP: 8.70 kW

Channel: 277

Frequency: 103.3 MHz

AMSL Height: 391.6 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: None

## WKLB-FM

BLH20090515ABT

Latitude: 42-18-37 N

Longitude: 071-14-14 W

ERP: 14.00 kW

Channel: 273

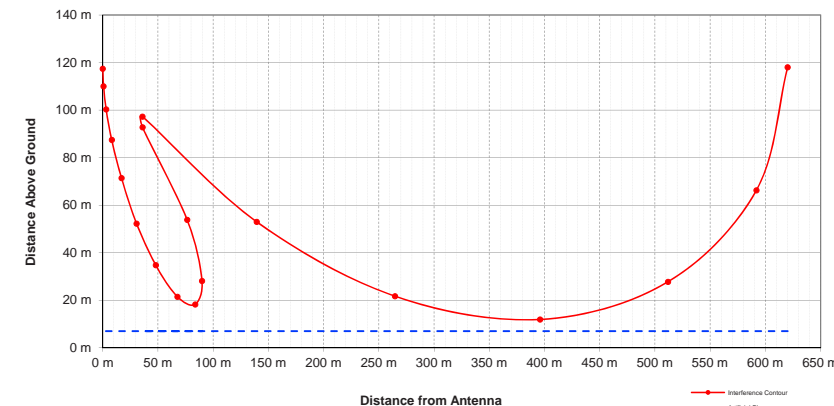
Frequency: 102.5 MHz

AMSL Height: 320.0 m

Horiz. Pattern: Omni

Vert. Pattern: No

Prop Model: None



Proposed Antenna: 3 Bay PSI FMEC-3DA 0.625 spaced

Proposed Power: 0.25 kW

Antenna Height AGL: 118 meters

Interference Contour: 105.05 dBu F(50:10)

Artificial Ground Plane Height: 7 meters

Distance (Free Space) Equation:  $=(10 \times ((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]/20)) \times 1000)$ Field Strength (dBu) Equation:  $=106.92 - (20 \times (\text{LOG} 10(\text{DistMeters}/1000))) + [\text{ERP in dBk}]$ 

Depression	Antenna	ERP	ERP	Distance	Distance	Field Strength	Distance	Field Strength
Angle	Relative	in kW	in dBk	from Ant.	from Ant. to	in dBu @	from Ant.	in dBu @
Below	Field			Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
Horizon								
0°	1.000	0.250	-6.02	620.11 m	infinite	---	---	---
-5°	0.958	0.229	-6.39	594.07 m	1273.58 m	98.43 dBu	1353.90 m	97.89 dBu
-10°	0.838	0.176	-7.56	519.65 m	639.22 m	103.25 dBu	679.53 m	102.72 dBu
-15°	0.661	0.109	-9.62	409.89 m	428.87 m	104.66 dBu	455.92 m	104.13 dBu
-20°	0.454	0.052	-12.88	281.53 m	324.54 m	103.82 dBu	345.01 m	103.28 dBu
-25°	0.248	0.015	-18.13	153.79 m	262.65 m	100.40 dBu	279.21 m	99.87 dBu
-30°	0.067	0.001	-29.50	41.55 m	222.00 m	90.49 dBu	236.00 m	89.96 dBu
-35°	0.071	0.001	-29.00	44.03 m	193.52 m	92.19 dBu	205.73 m	91.66 dBu
-40°	0.161	0.006	-21.88	99.84 m	172.69 m	100.29 dBu	183.58 m	99.76 dBu
-45°	0.205	0.011	-19.79	127.12 m	156.98 m	103.22 dBu	166.88 m	102.69 dBu
-50°	0.210	0.011	-19.58	130.22 m	144.90 m	104.12 dBu	154.04 m	103.59 dBu
-55°	0.190	0.009	-20.45	117.82 m	135.51 m	103.84 dBu	144.05 m	103.30 dBu
-60°	0.155	0.006	-22.21	96.12 m	128.17 m	102.55 dBu	136.25 m	102.02 dBu
-65°	0.117	0.003	-24.66	72.55 m	122.47 m	100.50 dBu	130.20 m	99.97 dBu
-70°	0.080	0.002	-27.96	49.61 m	118.12 m	97.51 dBu	125.57 m	96.98 dBu
-75°	0.051	0.001	-31.87	31.63 m	114.92 m	93.84 dBu	122.16 m	93.31 dBu
-80°	0.029	0.000	-36.77	17.98 m	112.71 m	89.11 dBu	119.82 m	88.58 dBu
-85°	0.013	0.000	-43.74	8.06 m	111.42 m	82.24 dBu	118.45 m	81.71 dBu
-90°	0.001	0.000	-66.02	0.62 m	111.00 m	59.99 dBu	118.00 m	59.46 dBu

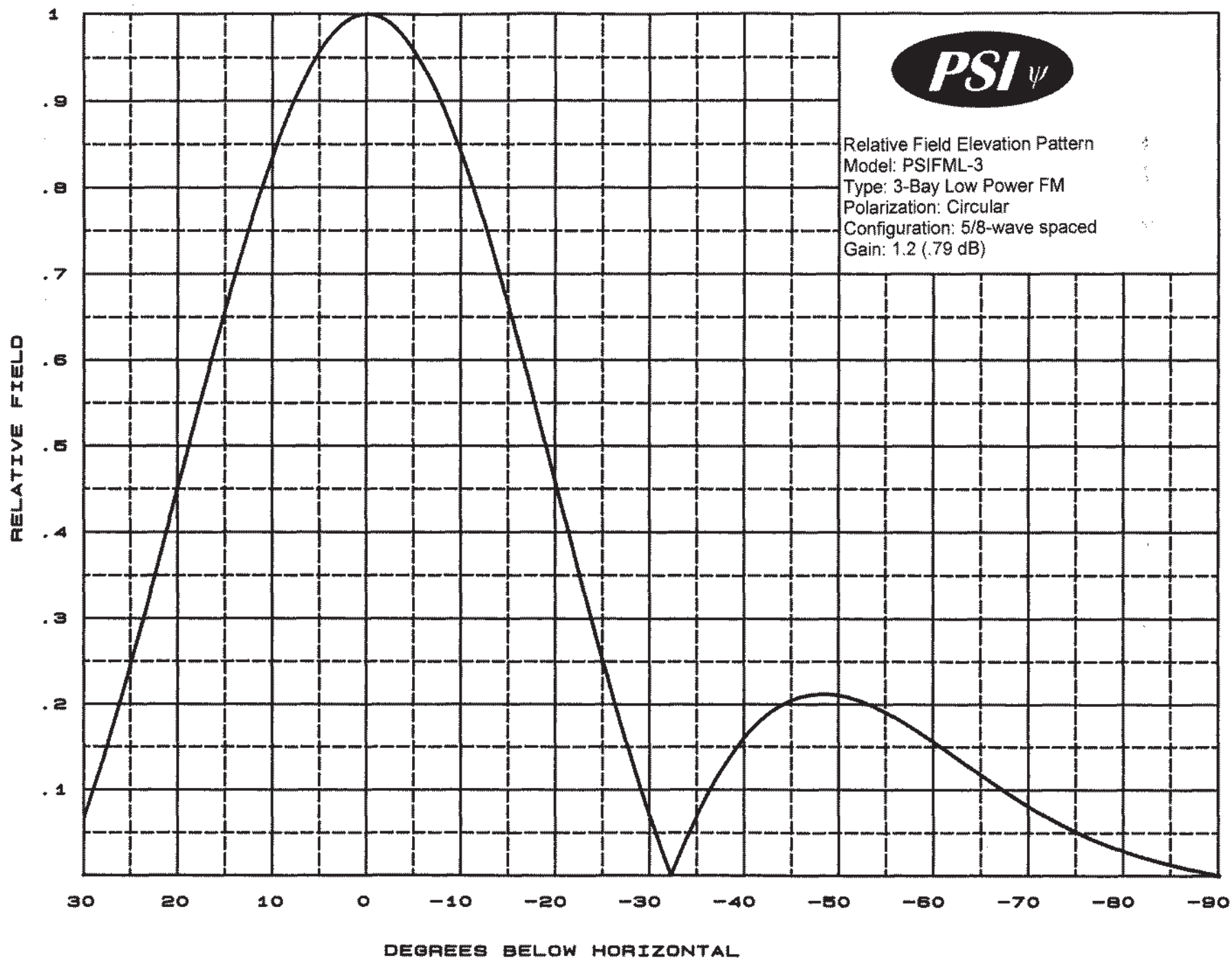
WKLB-FM +  
WODS(FM)USGS 03 SEC Terrain Database  
U.S. Census 2010 PL Database

Scale 1:200,000

0 2 4 6 km

V-Soft Communications LLC ©

# Exhibit 13.8 - Vertical Radiation Pattern Documentation from Antenna Manufacturer



# Exhibit 13.8 - Vertical Radiation Pattern Documentation from Antenna Manufacturer



## Propagation Systems Inc.

Elevation Pattern Tabulation

Antenna: PSIFML-3 Special

Bay spacing: 5/8 wave

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.00	0.001	-60.000	-50.00	0.210	-13.537	-10.00	0.838	-1.536
-89.00	0.002	-52.869	-49.00	0.212	-13.487	-9.00	0.867	-1.238
-88.00	0.005	-46.288	-48.00	0.212	-13.475	-8.00	0.894	-0.974
-87.00	0.007	-42.766	-47.00	0.211	-13.518	-7.00	0.918	-0.743
-86.00	0.010	-40.133	-46.00	0.208	-13.619	-6.00	0.939	-0.543
-85.00	0.013	-38.009	-45.00	0.205	-13.778	-5.00	0.958	-0.377
-84.00	0.015	-36.219	-44.00	0.199	-14.006	-4.00	0.973	-0.240
-83.00	0.018	-34.735	-43.00	0.192	-14.315	-3.00	0.985	-0.135
-82.00	0.022	-33.345	-42.00	0.184	-14.714	-2.00	0.993	-0.061
-81.00	0.025	-32.041	-41.00	0.173	-15.222	-1.00	0.998	-0.016
-80.00	0.029	-30.862	-40.00	0.161	-15.860	0.00	1.000	0.000
-79.00	0.032	-29.783	-39.00	0.147	-16.655	1.00	0.998	-0.016
-78.00	0.037	-28.715	-38.00	0.131	-17.661	2.00	0.993	-0.061
-77.00	0.041	-27.731	-37.00	0.113	-18.936	3.00	0.985	-0.135
-76.00	0.046	-26.791	-36.00	0.093	-20.628	4.00	0.973	-0.240
-75.00	0.051	-25.890	-35.00	0.071	-22.967	5.00	0.958	-0.377
-74.00	0.056	-25.027	-34.00	0.047	-26.536	6.00	0.939	-0.543
-73.00	0.062	-24.178	-33.00	0.021	-33.406	7.00	0.918	-0.741
-72.00	0.068	-23.385	-32.00	0.006	-43.926	8.00	0.894	-0.972
-71.00	0.074	-22.622	-31.00	0.036	-28.859	9.00	0.867	-1.237
-70.00	0.080	-21.889	-30.00	0.067	-23.424	10.00	0.838	-1.536
-69.00	0.087	-21.198	-29.00	0.101	-19.948	11.00	0.806	-1.871
-68.00	0.094	-20.515	-28.00	0.135	-17.364	12.00	0.773	-2.241
-67.00	0.102	-19.869	-27.00	0.172	-15.299	13.00	0.737	-2.653
-66.00	0.109	-19.256	-26.00	0.209	-13.581	14.00	0.700	-3.104
-65.00	0.117	-18.672	-25.00	0.248	-12.099	15.00	0.661	-3.597
-64.00	0.124	-18.115	-24.00	0.288	-10.807	16.00	0.621	-4.139
-63.00	0.132	-17.581	-23.00	0.329	-9.658	17.00	0.580	-4.729
-62.00	0.140	-17.087	-22.00	0.370	-8.629	18.00	0.539	-5.374
-61.00	0.148	-16.611	-21.00	0.412	-7.696	19.00	0.497	-6.079
-60.00	0.155	-16.168	-20.00	0.454	-6.851	20.00	0.455	-6.848
-59.00	0.163	-15.763	-19.00	0.497	-6.081	21.00	0.412	-7.696
-58.00	0.170	-15.376	-18.00	0.538	-5.377	22.00	0.370	-8.625
-57.00	0.177	-15.027	-17.00	0.580	-4.731	23.00	0.329	-9.658
-56.00	0.184	-14.707	-16.00	0.621	-4.139	24.00	0.288	-10.807
-55.00	0.190	-14.425	-15.00	0.661	-3.599	25.00	0.248	-12.099
-54.00	0.196	-14.172	-14.00	0.700	-3.104	26.00	0.209	-13.581
-53.00	0.200	-13.960	-13.00	0.737	-2.653	27.00	0.172	-15.299
-52.00	0.205	-13.778	-12.00	0.772	-2.243	28.00	0.135	-17.364
-51.00	0.208	-13.637	-11.00	0.806	-1.871	29.00	0.101	-19.934
						30.00	0.068	-23.404



# Exhibit 13.9

## Proposed Directional Antenna Information

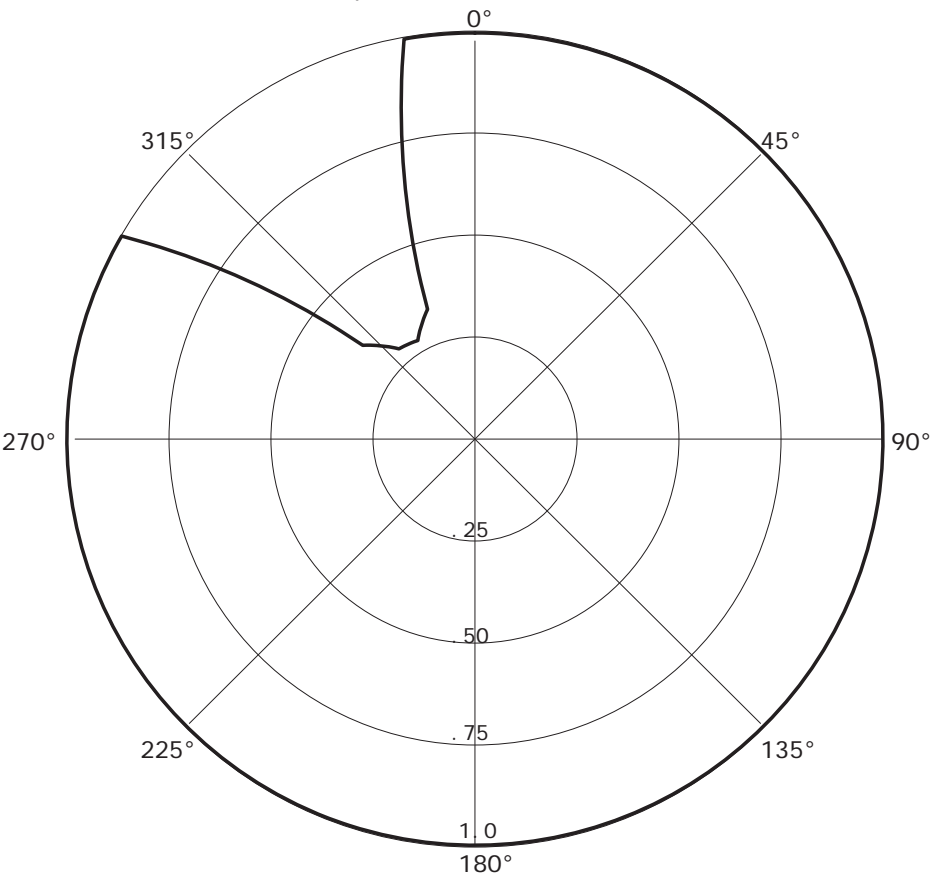
W275BH. P

05-09-2013

RMS(V)= .947

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	1.000	-06.021	0.250
150	1.000	-06.021	0.250
160	1.000	-06.021	0.250
170	1.000	-06.021	0.250
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	1.000	-06.021	0.250
250	1.000	-06.021	0.250
260	1.000	-06.021	0.250
270	1.000	-06.021	0.250
280	1.000	-06.021	0.250
290	1.000	-06.021	0.250
300	1.000	-06.021	0.250
310	0.359	-14.919	0.032
320	0.290	-16.773	0.021
330	0.280	-17.077	0.020
340	0.340	-15.391	0.029
350	1.000	-06.021	0.250



The antenna proposed in this application will be mounted in accordance with specific instructions provided by the antenna manufacturer. The antenna will be tested by the manufacturer using the type of mounting which will be employed in the field.

The directional antenna will be mounted on the tower which is of uniform cross section. No other antennas of any type are or will be mounted on the same tower level as the directional antenna.

No antenna is or will be mounted within any vertical or horizontal distance specified by the antenna manufacturer as being necessary for proper operation of the directional antenna. In addition, the antenna will be assembled under the supervision of a qualified engineer and installed pursuant to the manufacturer's instructions and manufacturer specified antenna orientation.

The directional antenna pattern will be produced by means of parasitic elements and/or reflective panels adjusted to produce the required pattern.

The antenna pattern will be measured by the manufacturer on the test range, and the measurement results will be supplied to the Commission at the time Form 350-FM is filed covering the construction.