

# Exhibit 13.1 - Copy of Existing Antenna Structure Registration



**Registration Detail**

Reg Number	1032658	Status	Constructed
File Number	A0904376	Constructed	09/23/1982
EMI	No	Dismantled	
NEPA	No		

**Antenna Structure**

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

**Location** (in NAD83 Coordinates)

Lat/Long	32-27-29.0 N 084-53-08.0 W	Address	6140 BUENA VISTA ROAD
City, State	COLUMBUS , GA		
Zip	31907	County	MUSCOGEE
Center of AM Array		Position of Tower in Array	

**Heights (meters)**

Elevation of Site Above Mean Sea Level	117.3	Overall Height Above Ground (AGL)	400.9
Overall Height Above Mean Sea Level	518.2	Overall Height Above Ground w/o Appurtenances	381.8

**Painting and Lighting Specifications**

FAA Chapters 3, 4, 5, 13  
 Paint and Light in Accordance with FAA Circular Number 70/7460-1J

**FAA Notification**

FAA Study	97-ASO-3017-OE	FAA Issue Date	08/01/1997
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**Owner & Contact Information**

FRN	0023255110	Owner Entity Type	Limited Liability Company
Assignor FRN	0016421265	Assignor ID	L01313489

**Owner**

SagamoreHill of Columbus GA, LLC  
 Attention To: Louis Wall  
 525 Blackburn Drive  
 Augusta , GA 30907

P: (706)922-5644  
 F:  
 E: louis@shbtv.com

**Contact**

Woodworth , Scott  
 Attention To: Scott Woodworth  
 1875 I Street, NW  
 Suite 500  
 Washington , DC 20006

P: (202)747-1694  
 F:  
 E: swoodworth@edingerlaw.net

**Last Action Status**

Status	Constructed	Received	05/05/2014
Purpose	Change Owner	Entered	05/05/2014
Mode	Interactive		

**Related Applications**

05/05/2014	A0904376	- Change Owner (OC)
10/01/2012	A0787187	- Admin Update (AU)
08/14/2007	A0558075	- Change Owner (OC)

Related applications (4)

**Comments**

**Comments**

None

**History**

Date	Event
05/06/2014	Registration Printed
05/06/2014	Change of Ownership Letter Sent
05/05/2014	Change of Ownership Received

All History (10)

**Automated Letters**

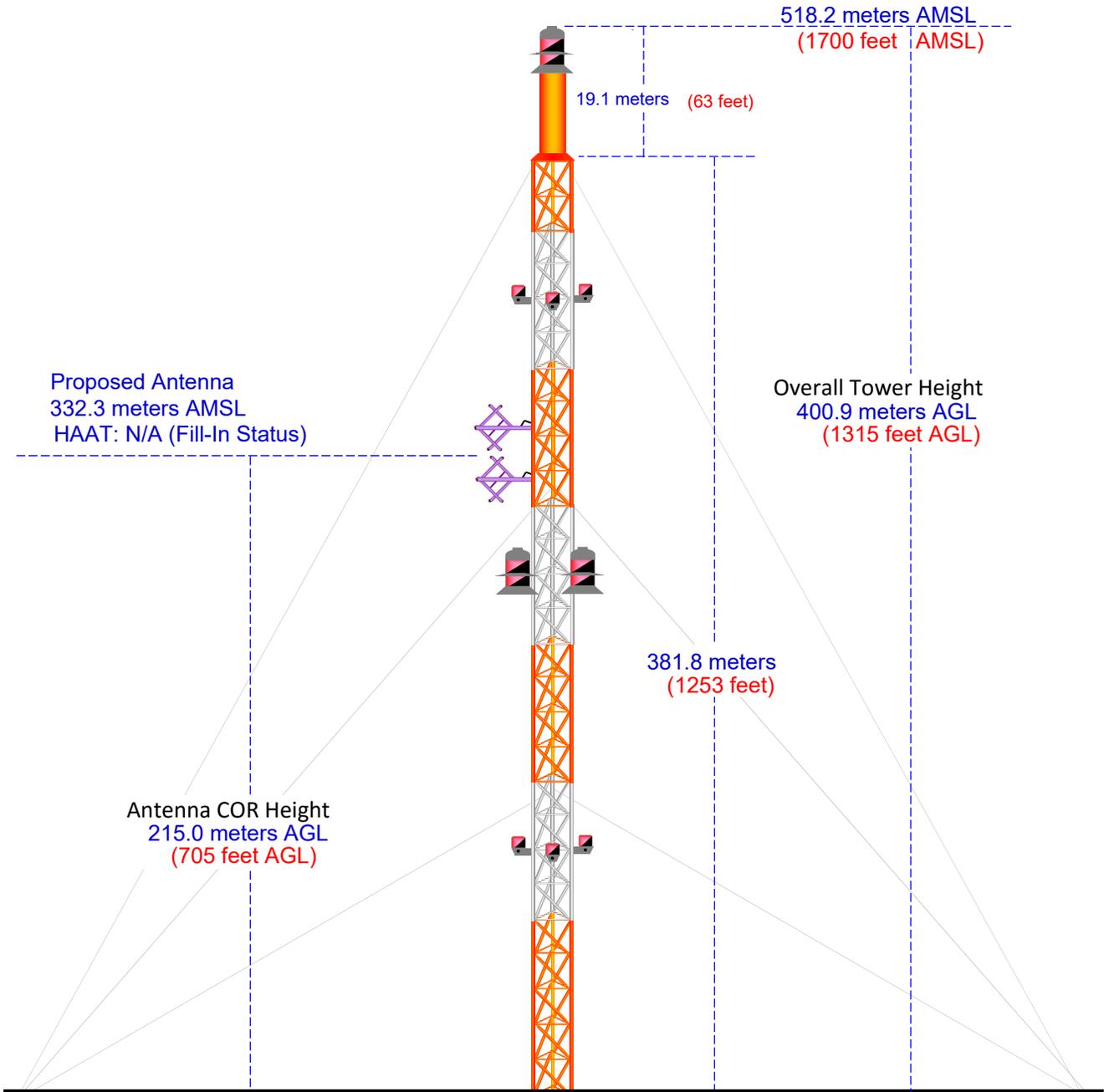
05/06/2014	Authorization, Reference
05/06/2014	Ownership Change, Reference 798509
10/02/2012	Authorization, Reference

All letters (5)

# Exhibit 13.2 Vertical Plan of Antenna System

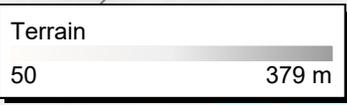
THE SITE IS LOCATED AT 6140 BUENA VISTA ROAD;  
THE CITY OF COLUMBUS; MUSCOGEE COUNTY; THE STATE OF GEORGIA.

Antenna Structure Registration No.	<b>1032658</b>	<u>Latitude (D M S)</u>	<u>Longitude (D M S)</u>
		NAD 27 datum values: 32 27 28.48590 84 53 8.25196	
		NAD 83 datum values: 32 27 29.00000 84 53 8.00000	



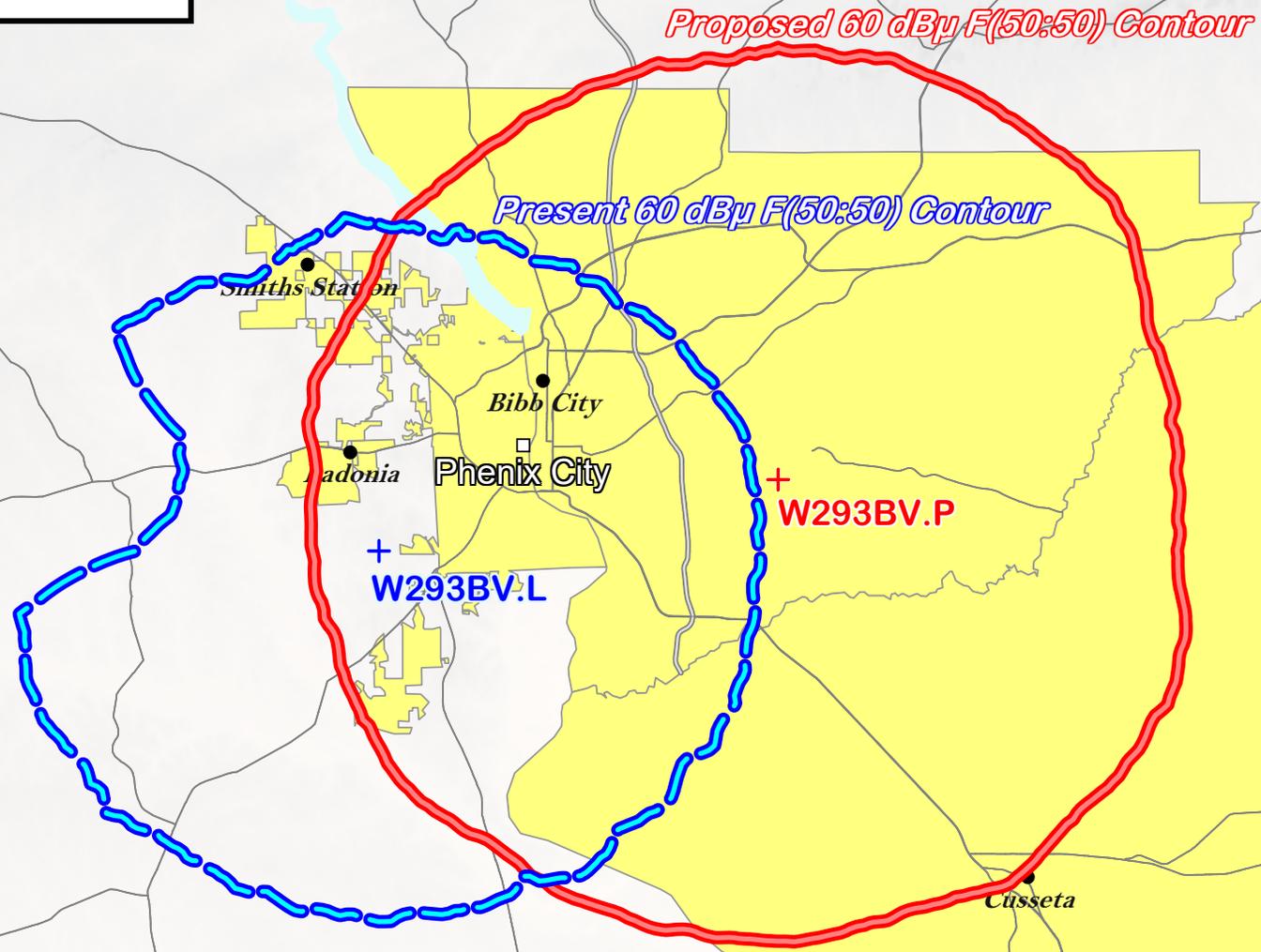
Ground Elevation = 117.3 meters AMSL (385 feet AMSL)

Drawing is not to Scale



NED 03 SEC Terrain Database  
US Census 2010 PL Database

# Exhibit 13.3 Present vs. Proposed Service Contour Study

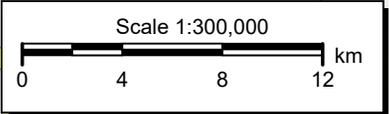


**W293BV.L**  
Columbus, GA  
BLFT20131223AAH  
Facility ID: 146650  
Latitude: 32-25-49 N  
Longitude: 085-03-58 W  
ERP: 0.25 kW  
Channel: 293D (106.5 MHz)  
AMSL Height: 249.0 m  
Horiz. Pattern: Directional

**60 dBμ F(50:50) Contour**  
Total Population: 185,452  
Coverage Area: 680 sq. km

**W293BV.P**  
Columbus, GA  
Proposed Operation  
Facility ID: 146650  
Latitude: 32-27-28 N  
Longitude: 084-53-08 W  
ERP: 0.25 kW  
Channel: 293D (106.5 MHz)  
AMSL Height: 332.0 m  
Horiz. Pattern: Directional

**60 dBμ F(50:50) Contour**  
Total Population: 250,193  
Coverage Area: 1,129 sq. km



# Exhibit 13.4 Proposed vs. Primary Service Contour Map

**Primary 60 dBμ F(50:50) Contour**

**Proposed 60 dBμ F(50:50) Contour**

**W293BV.P**  
 Columbus, GA  
 Proposed Operation  
 Facility ID: 146650  
 Latitude: 32-27-28 N  
 Longitude: 084-53-08 W  
 ERP: 0.25 kW  
 Channel: 293D (106.5 MHz)  
 AMSL Height: 332.0 m  
 Horiz. Pattern: Directional

**WKCN(FM)-HD3**  
 Fort Benning South, GA  
 BLH20110411ABS  
 BDNH-20111024ABN  
 Facility ID: 54670  
 Latitude: 32-27-59 N  
 Longitude: 085-03-22 W  
 ERP: 29.00 kW  
 Channel: 257C2 (99.3 MHz)  
 AMSL Height: 276.9 m  
 Horiz. Pattern: Omni

**WKCN(FM)-HD3**

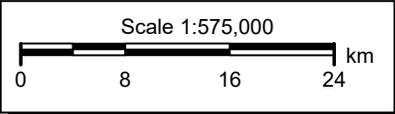


Columbus

**W293BV.P**



NED 03 SEC Terrain Database  
 US Census 2010 PL Database



# Exhibit 13.5

## Tabulation of Proposed Allocation

REFERENCE 32 27 28.0 N.  
84 53 08.0 W.

CH# 293D - 106.5 MHz, Pwr= 0.25 kW DA, HAAT= 216.1 M, COR= 332 M  
Average Protected F(50-50)= 19.25 km  
Standard Directional

DISPLAY DATES  
DATA 02-10-16  
SEARCH 02-11-16

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap)	*OUT* (in km)
293D Columbus	<b>W293BV</b>	LIC DC_ GA		259.8 79.7	17.21 BLFT20131223AAH	32 25 49.0 85 03 58.0	0.250 146	52.2 249	16.1 Pmb Broadcasting, Llc	-55.1*	-60.6*
293D Auburn	<b>W293BI</b>	LIC DC_ AL		283.6 103.3	58.39 BLFT20110131APO	32 34 47.0 85 29 29.0	0.250 61	30.4 232	9.2 Auburn Network, Inc.	8.0	-12.5*<
291C1 Alexander City	<b>WSTH-FM</b>	LIC _CN AL		301.5 121.1	64.30 BLH19950410KB	32 45 30.0 85 28 20.0	86.000 319	9.9 544	71.5 Cc Licenses, Llc	35.0	-8.3*<
293A Smithville	<b>WZIQ</b>	LIC _CX GA		140.5 320.8	94.61 BMLED20090121AEP	31 47 59.0 84 14 54.0	2.450 157	81.9 244	28.1 Augusta Radio Fellowship In	-6.4<	7.1
295D Crystal Valley	<b>W295AY</b>	LIC _C_ GA		273.5 93.4	16.02 BLFT20091019AEJ	32 27 59.0 85 03 22.0	0.250 121	1.1 231	14.7 Pmb Broadcasting, Llc	-4.9*<	0.2
294D Auburn	W293BI	CP DC_ AL		284.8 104.6	46.98 BPFT20160127ADM	32 33 54.0 85 22 13.0	0.165	8.6 332	6.0 Auburn Network, Inc.	18.5	11.5
239A Waverly Hall	AL2423	RSV-A GA		57.4 237.5	22.41 RM10813	32 33 58.0 84 41 03.0	6.000 100	53.3 264	13.2	9.5R	12.9M
292C2 Fort Valley	WQBZ	LIC _CY GA		72.3 252.9	111.75 BLH19900921KD	32 45 31.0 83 44 49.0	50.000 150	77.0 268	51.2 Amfm Radio Licenses, Llc	17.7	35.0
239A Waverly Hall	WIOL-FM	LIC NCX GA		27.6 207.7	30.15 BLH20100429AEB	32 41 54.0 84 44 09.0	6.000 70	53.3 279	13.2 Davis Broadcasting, Inc. O	9.5R	20.7M
294C Enterprise	WKMX	LIC _CN AL		221.3 40.8	154.23 BLH19870105KB	31 24 41.0 85 57 32.0	100.000 326	110.1 422	75.4 Gulf South Communications,	24.1	49.1
293D Tallassee	W293BK	LIC DC_ AL		276.9 96.4	97.87 BLFT20111121FIO	32 33 34.0 85 55 21.0	0.250 154	27.9 267	8.3 Michael Butler Broadcastin	49.8	27.6
294C1 Enterprise One Step Application	WKMX	CP NCX AL		207.3 27.0	144.60 BPH20150508AAD	31 18 02.0 85 35 05.0	100.000 214	96.8 293	65.5 Gulf South Communications,	28.0	49.6

Terrain database is NED 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. Call signs with strikeout 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.  
< = Contour Overlap

Green Text denotes the facility to be modified by this proposal. This facility need not be protected.

Blue Highlighted Text denotes supplemental contour protection studies toward select facilities as included in **Exhibit(s) 13.6 to 13.7.**

Yellow Highlighted Text denotes the existence of a §74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward WSTH-FM - Alexander City, AL (CH291C1) as noted in **Exhibit 13.8.** Protection has been based on the worst case calculated 103.1 dBμ F(50:10) Interference Contour, corresponding to the worst case 63.1 dBμ F(50:50) Protected Contour. Protection has been demonstrated through the attached downward radiation study. Full protection will be afforded the facility as the interference area will not reach the ground nor a seven meter artificial plane representing a standard two story home when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's specifications has also been included in **Exhibit 13.9.**

Red Highlighted Text denotes W293BI.L - Auburn, AL (CH293D), Facility ID: 141199 which no longer requires protection. This facility has relocated to adjacent channel CH294D (106.7 MHz) under granted Construction Permit BPFT-20160127ADM and commenced operation under new call letters W294AR.L(pending) via a recently submitted Form 350 License to Cover Application. Information concerning Translator W294AR.L(pending), Facility ID: 141199 is available on CDBS and a matter of public record before the Commission.

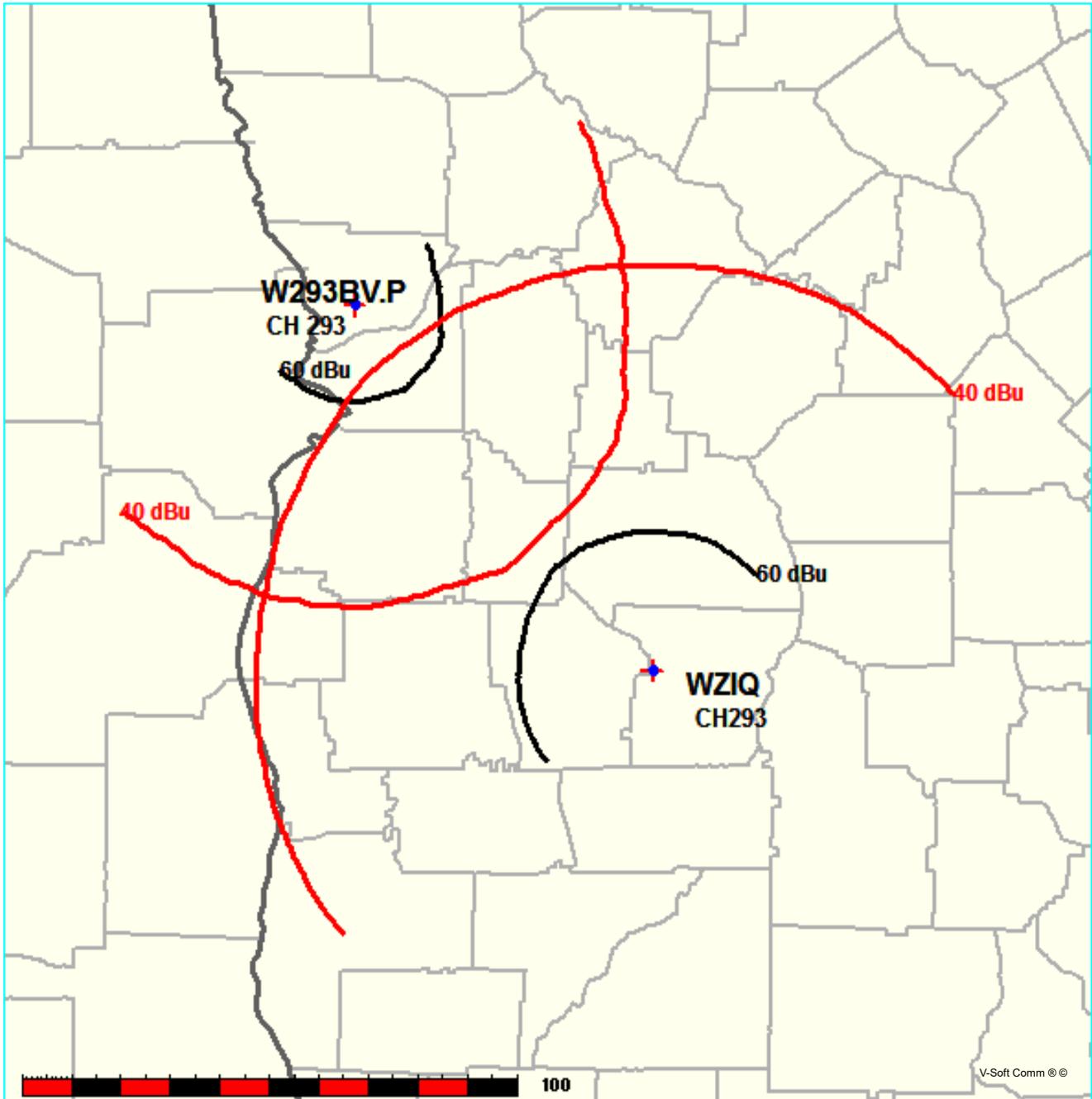
# Exhibit 13.6

## Contour Protection Studies Toward Select Station(s)

FMCommander Single Allocation Study - 02-11-2016 - NED 03 SEC  
W293BV.P's Overlaps (In= -6.42 km, Out= 7.05 km)

W293BV.P CH 293 D DA  
Lat= 32 27 28.0, Lng= 84 53 08.0  
0.25 kW 216.1 m HAAT, 332 m COR  
Prot.= 60 dBu, Intef.= 40 dBu

WZIQ CH 293 A BMLED20090121AEP  
Lat= 31 47 59.0, Lng= 84 14 54.0  
2.45 kW 157 m HAAT, 244 m COR  
Prot.= 60 dBu, Intef.= 40 dBu



# Exhibit 13.6

## Contour Protection Studies Toward Select Station(s)

02-11-2016

Terrain Data: NED 03 SEC

FMOver Analysis

W293BV.P

WZIQ BMLED20090121AEP

Channel = 293D  
Max ERP = 0.25 kW  
RCAMSL = 332 m  
N. Lat. 32 27 28.0  
W. Lng. 84 53 08.0  
Protected  
60 dBu

Channel = 293A  
Max ERP = 2.45 kW  
RCAMSL = 244 m  
N. Lat. 31 47 59.0  
W. Lng. 84 14 54.0  
Interfering  
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
098.0	000.1600	0219.0	017.3	328.9	002.4500	0155.6	082.7	39.74	
099.0	000.1600	0218.7	017.3	328.8	002.4500	0155.4	082.5	39.80	
100.0	000.1600	0218.2	017.2	328.6	002.4500	0155.2	082.3	39.86	
101.0	000.1640	0217.7	017.3	328.5	002.4500	0155.1	082.0	39.94	
102.0	000.1681	0216.3	017.4	328.4	002.4500	0155.0	081.7	40.01*	0.05
103.0	000.1722	0215.6	017.5	328.3	002.4500	0154.9	081.5	40.09*	0.31
104.0	000.1764	0215.1	017.6	328.2	002.4500	0154.8	081.2	40.18*	0.57
105.0	000.1806	0215.6	017.7	328.1	002.4500	0154.7	080.9	40.26*	0.86
106.0	000.1849	0217.1	017.9	328.0	002.4500	0154.6	080.5	40.36*	1.18
107.0	000.1892	0218.7	018.0	327.9	002.4500	0154.5	080.2	40.46*	1.50
108.0	000.1936	0220.3	018.2	327.8	002.4500	0154.4	079.9	40.56*	1.83
109.0	000.1980	0220.7	018.3	327.7	002.4500	0154.3	079.6	40.65*	2.11
110.0	000.2025	0221.4	018.5	327.6	002.4500	0154.2	079.3	40.74*	2.40
111.0	000.2070	0221.3	018.6	327.5	002.4500	0154.2	079.0	40.82*	2.67
112.0	000.2116	0219.9	018.6	327.3	002.4500	0154.2	078.8	40.89*	2.89
113.0	000.2162	0217.2	018.6	327.1	002.4500	0154.1	078.6	40.94*	3.06
114.0	000.2209	0216.4	018.7	326.9	002.4500	0154.1	078.3	41.02*	3.30
115.0	000.2256	0216.9	018.8	326.8	002.4500	0154.2	078.1	41.10*	3.58
116.0	000.2304	0217.0	018.9	326.6	002.4500	0154.2	077.8	41.18*	3.84
117.0	000.2352	0216.9	019.0	326.4	002.4500	0154.2	077.6	41.26*	4.09
118.0	000.2401	0215.2	019.0	326.2	002.4500	0154.3	077.4	41.32*	4.28
119.0	000.2450	0213.8	019.0	326.0	002.4500	0154.4	077.2	41.39*	4.48
120.0	000.2500	0213.6	019.1	325.8	002.4500	0154.5	077.0	41.46*	4.73
121.0	000.2500	0211.4	019.0	325.5	002.4500	0154.6	076.9	41.48*	4.79
122.0	000.2500	0208.6	018.9	325.3	002.4500	0154.6	076.9	41.49*	4.81
123.0	000.2500	0208.7	018.9	325.1	002.4500	0154.7	076.8	41.54*	4.96
124.0	000.2500	0210.4	019.0	324.8	002.4500	0154.8	076.6	41.60*	5.16
125.0	000.2500	0212.1	019.1	324.6	002.4500	0154.9	076.4	41.66*	5.36
126.0	000.2500	0213.6	019.1	324.4	002.4500	0155.2	076.2	41.72*	5.55
127.0	000.2500	0214.1	019.2	324.2	002.4500	0155.4	076.1	41.77*	5.71
128.0	000.2500	0213.0	019.1	323.9	002.4500	0155.6	076.1	41.80*	5.79
129.0	000.2500	0212.7	019.1	323.7	002.4500	0155.6	076.0	41.82*	5.85
130.0	000.2500	0214.1	019.2	323.4	002.4500	0155.5	075.9	41.86*	5.98

# Exhibit 13.6

## Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	
131.0	000.2500	0215.2	019.2	323.2	002.4500	0155.4	075.7	41.90*	6.10
132.0	000.2500	0214.6	019.2	323.0	002.4500	0155.4	075.7	41.91*	6.13
133.0	000.2500	0214.7	019.2	322.7	002.4500	0155.4	075.6	41.93*	6.19
134.0	000.2500	0213.5	019.1	322.5	002.4500	0155.4	075.6	41.93*	6.19
135.0	000.2500	0212.6	019.1	322.2	002.4500	0155.5	075.6	41.93*	6.21
136.0	000.2500	0211.9	019.1	321.9	002.4500	0155.5	075.6	41.93*	6.22
137.0	000.2500	0211.1	019.0	321.7	002.4500	0155.6	075.6	41.93*	6.22
138.0	000.2500	0211.5	019.0	321.4	002.4500	0155.7	075.6	41.95*	6.28
139.0	000.2500	0213.7	019.1	321.2	002.4500	0155.8	075.5	41.99*	6.40
140.0	000.2500	0213.1	019.1	320.9	002.4500	0155.9	075.5	41.99*	6.40
141.0	000.2500	0214.3	019.2	320.7	002.4500	0156.1	075.4	42.02*	6.48
142.0	000.2500	0215.8	019.2	320.4	002.4500	0156.2	075.4	42.04*	6.54
143.0	000.2500	0217.0	019.3	320.2	002.4500	0156.2	075.4	42.05*	6.59
144.0	000.2500	0219.1	019.4	319.9	002.4500	0156.4	075.3	42.08*	6.68
145.0	000.2500	0220.4	019.4	319.6	002.4500	0156.4	075.3	42.09*	6.72
146.0	000.2500	0223.1	019.6	319.4	002.4500	0156.6	075.2	42.13*	6.82
147.0	000.2500	0224.4	019.6	319.1	002.4500	0156.8	075.2	42.14*	6.86
148.0	000.2500	0226.1	019.7	318.9	002.4500	0157.1	075.2	42.16*	6.91
149.0	000.2500	0227.0	019.7	318.6	002.4500	0157.3	075.2	42.16*	6.93
150.0	000.2500	0228.9	019.8	318.3	002.4500	0157.4	075.2	42.17*	6.96
151.0	000.2500	0228.1	019.8	318.1	002.4500	0157.5	075.3	42.14*	6.86
152.0	000.2500	0226.1	019.7	317.8	002.4500	0157.6	075.4	42.09*	6.71
153.0	000.2500	0223.6	019.6	317.6	002.4500	0157.7	075.6	42.03*	6.52
154.0	000.2500	0222.3	019.5	317.4	002.4500	0157.7	075.8	41.99*	6.38
155.0	000.2500	0220.1	019.4	317.1	002.4500	0157.8	076.0	41.93*	6.19
156.0	000.2500	0218.9	019.4	316.9	002.4500	0157.8	076.1	41.88*	6.04
157.0	000.2500	0216.8	019.3	316.7	002.4500	0157.9	076.3	41.82*	5.85
158.0	000.2500	0217.6	019.3	316.5	002.4500	0157.9	076.4	41.80*	5.77
159.0	000.2500	0217.1	019.3	316.2	002.4500	0158.1	076.6	41.76*	5.64
160.0	000.2500	0215.7	019.2	316.0	002.4500	0158.2	076.8	41.70*	5.47
161.0	000.2500	0215.4	019.2	315.8	002.4500	0158.2	076.9	41.65*	5.31
162.0	000.2500	0214.0	019.2	315.6	002.4500	0158.2	077.1	41.58*	5.10
163.0	000.2500	0213.3	019.1	315.4	002.4500	0158.1	077.3	41.52*	4.90
164.0	000.2500	0213.7	019.1	315.2	002.4500	0158.0	077.4	41.47*	4.75
165.0	000.2500	0215.8	019.2	314.9	002.4500	0157.8	077.5	41.44*	4.64
166.0	000.2500	0217.6	019.3	314.7	002.4500	0157.7	077.6	41.40*	4.52
167.0	000.2500	0217.0	019.3	314.5	002.4500	0157.6	077.8	41.33*	4.31
168.0	000.2500	0216.0	019.2	314.3	002.4500	0157.5	078.1	41.26*	4.07
169.0	000.2500	0217.2	019.3	314.1	002.4500	0157.4	078.2	41.21*	3.90
170.0	000.2500	0217.1	019.3	313.9	002.4500	0157.2	078.4	41.14*	3.67
171.0	000.2500	0218.5	019.4	313.6	002.4500	0156.9	078.6	41.07*	3.48
172.0	000.2500	0220.9	019.5	313.4	002.4500	0156.6	078.7	41.02*	3.31
173.0	000.2500	0221.4	019.5	313.2	002.4500	0156.5	078.9	40.95*	3.09
174.0	000.2500	0222.2	019.5	313.0	002.4500	0156.3	079.1	40.89*	2.87
175.0	000.2500	0223.2	019.6	312.8	002.4500	0156.1	079.3	40.82*	2.65
176.0	000.2500	0223.7	019.6	312.6	002.4500	0155.9	079.5	40.74*	2.40

# Exhibit 13.6

## Contour Protection Studies Toward Select Station(s)

02-11-2016

Terrain Data: NED 03 SEC

FMOver Analysis

WZIQ BMLED20090121AEP

W293BV.P

Channel = 293A

Max ERP = 2.45 kW

RCAMSL = 244 m

N. Lat. 31 47 59.0

W. Lng. 84 14 54.0

Protected

60 dBu

Channel = 293D

Max ERP = 0.25 kW

RCAMSL = 332 m

N. Lat. 32 27 28.0

W. Lng. 84 53 08.0

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
276.0	002.4500	0142.5	027.0	154.6	000.2500	0221.1	077.8	34.04	
277.0	002.4500	0143.4	027.1	154.5	000.2500	0221.4	077.4	34.19	
278.0	002.4500	0143.3	027.0	154.3	000.2500	0221.9	077.0	34.34	
279.0	002.4500	0143.0	027.0	154.1	000.2500	0222.2	076.6	34.47	
280.0	002.4500	0142.6	027.0	153.9	000.2500	0222.5	076.3	34.61	
281.0	002.4500	0141.6	026.9	153.6	000.2500	0222.7	075.9	34.72	
282.0	002.4500	0141.3	026.9	153.4	000.2500	0222.9	075.6	34.84	
283.0	002.4500	0140.9	026.8	153.1	000.2500	0223.3	075.2	34.97	
284.0	002.4500	0141.3	026.9	152.9	000.2500	0223.8	074.9	35.12	
285.0	002.4500	0141.7	026.9	152.7	000.2500	0224.3	074.5	35.26	
286.0	002.4500	0142.4	027.0	152.5	000.2500	0224.8	074.1	35.40	
287.0	002.4500	0143.3	027.0	152.3	000.2500	0225.3	073.7	35.55	
288.0	002.4500	0144.1	027.1	152.0	000.2500	0226.0	073.3	35.70	
289.0	002.4500	0144.8	027.2	151.8	000.2500	0226.6	072.9	35.85	
290.0	002.4500	0145.5	027.2	151.6	000.2500	0227.2	072.6	35.99	
291.0	002.4500	0146.3	027.3	151.3	000.2500	0227.7	072.2	36.13	
292.0	002.4500	0146.8	027.3	151.0	000.2500	0228.1	071.9	36.25	
293.0	002.4500	0146.5	027.3	150.7	000.2500	0228.3	071.6	36.36	
294.0	002.4500	0145.9	027.3	150.4	000.2500	0228.5	071.4	36.45	
295.0	002.4500	0145.3	027.2	150.1	000.2500	0228.9	071.1	36.54	
296.0	002.4500	0145.2	027.2	149.7	000.2500	0228.5	070.9	36.62	
297.0	002.4500	0145.2	027.2	149.4	000.2500	0227.6	070.6	36.67	
298.0	002.4500	0145.3	027.2	149.1	000.2500	0227.1	070.3	36.74	
299.0	002.4500	0145.7	027.2	148.8	000.2500	0226.7	070.1	36.82	
300.0	002.4500	0147.2	027.4	148.5	000.2500	0226.3	069.7	36.91	
301.0	002.4500	0147.6	027.4	148.2	000.2500	0226.0	069.5	36.99	
302.0	002.4500	0148.1	027.4	147.8	000.2500	0226.0	069.2	37.07	
303.0	002.4500	0148.6	027.5	147.5	000.2500	0225.5	069.0	37.14	
304.0	002.4500	0148.1	027.4	147.1	000.2500	0224.6	068.8	37.16	

# Exhibit 13.6

## Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
305.0	002.4500	0148.0	027.4	146.7	000.2500	0224.1	068.6	37.20
306.0	002.4500	0148.9	027.5	146.4	000.2500	0223.7	068.4	37.27
307.0	002.4500	0150.3	027.6	146.0	000.2500	0223.1	068.1	37.34
308.0	002.4500	0151.3	027.7	145.7	000.2500	0222.6	067.9	37.40
309.0	002.4500	0152.9	027.8	145.3	000.2500	0221.5	067.6	37.45
310.0	002.4500	0153.6	027.9	144.9	000.2500	0220.3	067.4	37.46
311.0	002.4500	0154.2	027.9	144.5	000.2500	0219.7	067.3	37.50
312.0	002.4500	0155.4	028.0	144.2	000.2500	0219.5	067.0	37.56
313.0	002.4500	0156.3	028.1	143.8	000.2500	0218.6	066.9	37.59
314.0	002.4500	0157.3	028.2	143.4	000.2500	0217.8	066.7	37.61
315.0	002.4500	0157.9	028.2	142.9	000.2500	0216.9	066.6	37.62
316.0	002.4500	0158.2	028.3	142.5	000.2500	0216.3	066.5	37.63
317.0	002.4500	0157.8	028.2	142.1	000.2500	0215.8	066.5	37.62
318.0	002.4500	0157.6	028.2	141.7	000.2500	0215.4	066.4	37.61
319.0	002.4500	0156.9	028.2	141.2	000.2500	0214.9	066.5	37.58
320.0	002.4500	0156.3	028.1	140.8	000.2500	0213.8	066.5	37.53
321.0	002.4500	0155.9	028.1	140.4	000.2500	0213.0	066.5	37.48
322.0	002.4500	0155.5	028.0	140.0	000.2500	0213.1	066.6	37.47
323.0	002.4500	0155.4	028.0	139.6	000.2500	0213.7	066.6	37.49
324.0	002.4500	0155.6	028.1	139.1	000.2500	0213.8	066.6	37.49
325.0	002.4500	0154.8	028.0	138.7	000.2500	0213.2	066.7	37.42
326.0	002.4500	0154.4	028.0	138.3	000.2500	0212.2	066.8	37.36
327.0	002.4500	0154.1	027.9	137.9	000.2500	0211.4	066.9	37.29
328.0	002.4500	0154.6	028.0	137.5	000.2500	0211.1	067.0	37.26
329.0	002.4500	0155.7	028.1	137.1	000.2500	0211.0	067.0	37.26
330.0	002.4500	0156.1	028.1	136.6	000.2500	0211.5	067.0	37.25
331.0	002.4500	0156.1	028.1	136.2	000.2500	0211.8	067.1	37.23
332.0	002.4500	0155.9	028.1	135.8	000.2500	0211.9	067.3	37.18
333.0	002.4500	0154.9	028.0	135.5	000.2500	0212.0	067.5	37.11
334.0	002.4500	0153.6	027.9	135.1	000.2500	0212.4	067.8	37.05
335.0	002.4500	0152.8	027.8	134.7	000.2500	0213.2	068.0	37.00
336.0	002.4500	0152.6	027.8	134.3	000.2500	0213.3	068.2	36.94
337.0	002.4500	0151.9	027.8	134.0	000.2500	0213.5	068.4	36.87
338.0	002.4500	0151.0	027.7	133.6	000.2500	0213.9	068.7	36.80
339.0	002.4500	0151.0	027.7	133.3	000.2500	0214.3	068.9	36.75
340.0	002.4500	0151.4	027.7	132.9	000.2500	0214.8	069.0	36.70
341.0	002.4500	0151.3	027.7	132.5	000.2500	0214.9	069.3	36.63
342.0	002.4500	0151.1	027.7	132.2	000.2500	0214.8	069.5	36.55
343.0	002.4500	0150.8	027.7	131.9	000.2500	0214.6	069.8	36.45
344.0	002.4500	0150.5	027.6	131.5	000.2500	0215.1	070.1	36.38
345.0	002.4500	0150.2	027.6	131.2	000.2500	0215.3	070.3	36.29
346.0	002.4500	0150.2	027.6	130.9	000.2500	0215.1	070.6	36.19
347.0	002.4500	0150.4	027.6	130.6	000.2500	0215.0	070.9	36.10
348.0	002.4500	0150.5	027.6	130.3	000.2500	0214.5	071.2	35.99
349.0	002.4500	0150.9	027.7	129.9	000.2500	0213.9	071.4	35.87
350.0	002.4500	0151.2	027.7	129.6	000.2500	0213.5	071.7	35.76

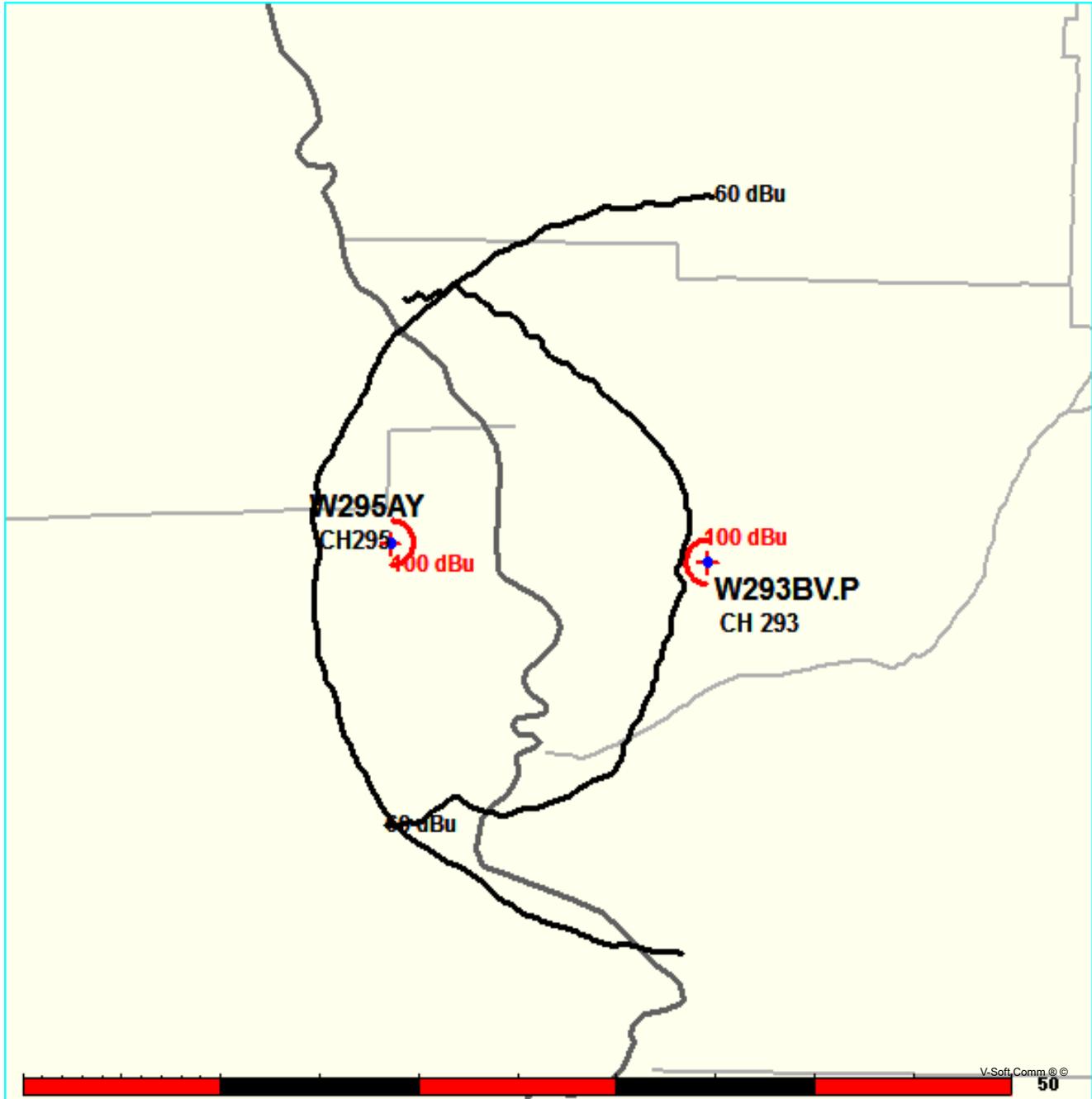
# Exhibit 13.7

## Contour Protection Studies Toward Select Station(s)

FMCommander Single Allocation Study - 02-11-2016 - NED 03 SEC  
W293BV.P's Overlaps (In= -4.86 km, Out= 0.25 km)

W293BV.P CH 293 D DA  
Lat= 32 27 28.0, Lng= 84 53 08.0  
0.25 kW 216.1 m HAAT, 332 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

W295AY CH 295 D BLFT20091019AEJ  
Lat= 32 27 59.0, Lng= 85 03 22.0  
0.25 kW 120.8 m HAAT, 231 m COR  
Prot.= 60 dBu, Intef.= 100 dBu



# Exhibit 13.7

## Contour Protection Studies Toward Select Station(s)

02-11-2016

Terrain Data: NED 03 SEC

FMOver Analysis

W293BV.P

W295AY BLFT20091019AEJ

Channel = 293D  
Max ERP = 0.25 kW  
RCAMSL = 332 m  
N. Lat. 32 27 28.0  
W. Lng. 84 53 08.0  
Protected  
60 dBu

Channel = 295D  
Max ERP = 0.25 kW  
RCAMSL = 231 m  
N. Lat. 32 27 59.0  
W. Lng. 85 03 22.0  
Interfering  
100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
230.0	000.2500	0245.1	020.5	178.6	000.2500	0120.4	014.1	59.94	
231.0	000.2500	0246.6	020.5	179.7	000.2500	0120.3	013.9	60.23	
232.0	000.2500	0246.8	020.5	180.7	000.2500	0120.8	013.6	60.61	
233.0	000.2500	0246.5	020.5	181.6	000.2500	0120.5	013.3	60.96	
234.0	000.2500	0246.6	020.5	182.6	000.2500	0120.8	013.1	61.35	
235.0	000.2500	0244.8	020.5	183.3	000.2500	0122.4	012.7	61.89	
236.0	000.2500	0243.3	020.4	184.1	000.2500	0123.5	012.4	62.42	
237.0	000.2500	0243.2	020.4	185.2	000.2500	0122.6	012.1	62.77	
238.0	000.2500	0241.8	020.3	186.0	000.2500	0122.3	011.8	63.22	
239.0	000.2500	0240.7	020.3	186.9	000.2500	0122.0	011.5	63.68	
240.0	000.2500	0243.3	020.4	188.4	000.2500	0118.8	011.3	63.79	
241.0	000.2500	0241.4	020.3	189.2	000.2500	0118.2	011.0	64.28	
242.0	000.2500	0241.1	020.3	190.4	000.2500	0119.2	010.7	64.83	
243.0	000.2500	0240.6	020.3	191.5	000.2500	0120.8	010.4	65.44	
244.0	000.2500	0240.6	020.3	192.7	000.2500	0123.7	010.1	66.12	
245.0	000.2500	0240.6	020.3	194.0	000.2500	0121.5	009.8	66.46	
246.0	000.2500	0239.1	020.2	195.0	000.2500	0120.8	009.5	66.99	
247.0	000.2500	0239.2	020.2	196.4	000.2500	0119.7	009.3	67.42	
248.0	000.2500	0236.6	020.1	197.3	000.2500	0121.7	008.9	68.22	
249.0	000.2500	0234.6	020.0	198.3	000.2500	0124.1	008.6	69.01	
250.0	000.2500	0232.8	020.0	199.4	000.2500	0124.4	008.3	69.68	
251.0	000.2500	0232.9	020.0	201.0	000.2500	0124.0	008.0	70.19	
252.0	000.2500	0235.9	020.1	203.3	000.2500	0125.4	007.8	70.68	
253.0	000.2500	0238.1	020.2	205.6	000.2500	0128.3	007.6	71.32	
254.0	000.2500	0236.1	020.1	207.0	000.2500	0129.2	007.3	72.14	
255.0	000.2500	0236.1	020.1	208.9	000.2500	0130.5	007.1	72.86	
256.0	000.2500	0238.2	020.2	211.5	000.2500	0130.6	006.9	73.35	
257.0	000.2500	0238.5	020.2	213.7	000.2500	0131.1	006.6	74.01	
258.0	000.2500	0237.5	020.2	215.7	000.2500	0132.6	006.4	74.83	
259.0	000.2500	0235.9	020.1	217.7	000.2500	0135.9	006.1	75.82	
260.0	000.2500	0233.9	020.0	219.8	000.2500	0132.6	005.8	76.47	
261.0	000.2500	0234.3	020.0	222.6	000.2500	0131.8	005.6	77.03	
262.0	000.2500	0235.1	020.1	225.7	000.2500	0131.6	005.4	77.58	
263.0	000.2500	0234.0	020.0	228.5	000.2500	0129.3	005.2	78.18	

# Exhibit 13.7

## Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
264.0	000.2500	0232.9	020.0	231.5	000.2500	0127.3	004.9	78.79
265.0	000.2500	0232.2	019.9	234.9	000.2500	0124.1	004.7	79.24
266.0	000.2500	0231.9	019.9	238.6	000.2500	0123.8	004.5	79.82
267.0	000.2500	0231.8	019.9	242.6	000.2500	0122.8	004.4	80.32
268.0	000.2500	0230.3	019.9	246.5	000.2500	0120.7	004.2	80.90
269.0	000.2500	0228.3	019.8	250.7	000.2500	0119.1	004.0	81.56
270.0	000.2500	0226.5	019.7	255.2	000.2500	0118.7	003.8	82.23
271.0	000.2500	0225.0	019.6	260.1	000.2500	0114.3	003.7	82.54
272.0	000.2500	0226.0	019.7	265.5	000.2500	0112.4	003.7	82.47
273.0	000.2500	0227.6	019.7	270.9	000.2500	0110.2	003.7	82.15
274.0	000.2500	0229.4	019.8	276.1	000.2500	0109.0	003.8	81.74
275.0	000.2500	0232.8	020.0	281.1	000.2500	0109.5	004.0	81.08
276.0	000.2500	0235.5	020.1	285.8	000.2500	0108.7	004.1	80.39
277.0	000.2500	0237.3	020.2	290.3	000.2500	0107.7	004.3	79.77
278.0	000.2500	0236.0	020.1	295.0	000.2500	0097.5	004.3	78.79
279.0	000.2500	0233.8	020.0	299.8	000.2500	0098.0	004.3	78.75
280.0	000.2500	0235.1	020.1	303.7	000.2500	0089.6	004.5	77.30
281.0	000.2500	0237.2	020.2	307.1	000.2500	0086.4	004.8	76.18
282.0	000.2500	0237.9	020.2	310.7	000.2500	0082.4	004.9	75.12
283.0	000.2500	0235.8	020.1	314.7	000.2500	0080.7	005.0	74.60
284.0	000.2500	0233.3	020.0	318.6	000.2500	0083.7	005.1	74.57
285.0	000.2500	0229.5	019.8	322.8	000.2500	0079.2	005.2	73.83
286.0	000.2500	0228.0	019.8	326.1	000.2500	0077.8	005.4	73.12
287.0	000.2500	0227.0	019.7	329.1	000.2500	0079.1	005.6	72.64
288.0	000.2500	0225.0	019.6	332.2	000.2500	0078.9	005.8	72.06
289.0	000.2500	0223.2	019.6	335.1	000.2500	0079.3	005.9	71.53
290.0	000.2500	0223.4	019.6	337.3	000.2500	0080.5	006.2	70.90
291.0	000.2500	0222.4	019.5	339.6	000.2500	0083.7	006.4	70.63
292.0	000.2500	0220.3	019.4	342.2	000.2500	0090.9	006.6	70.86
293.0	000.2500	0218.4	019.3	344.6	000.2500	0095.0	006.8	70.71
294.0	000.2500	0216.9	019.3	346.7	000.2500	0097.7	007.1	70.36
295.0	000.2500	0218.2	019.3	347.9	000.2500	0099.6	007.4	69.77
296.0	000.2500	0216.9	019.3	349.8	000.2500	0101.1	007.6	69.34
297.0	000.2500	0216.9	019.3	351.3	000.2500	0104.1	007.9	68.99
298.0	000.2500	0218.0	019.3	352.4	000.2500	0103.0	008.2	68.27
299.0	000.2500	0220.4	019.4	353.2	000.2500	0098.9	008.5	67.24
300.0	000.2500	0220.2	019.4	354.5	000.2500	0094.1	008.8	66.27
301.0	000.2500	0220.5	019.4	355.7	000.2500	0091.8	009.1	65.50
302.0	000.2500	0221.4	019.5	356.7	000.2500	0090.9	009.4	64.86
303.0	000.2500	0222.1	019.5	357.8	000.2500	0091.8	009.7	64.40
304.0	000.2500	0222.6	019.5	358.8	000.2500	0091.2	010.0	63.83
305.0	000.2500	0222.7	019.5	359.9	000.2500	0089.6	010.2	63.18
306.0	000.2500	0220.6	019.4	001.4	000.2500	0088.8	010.5	62.70
307.0	000.2500	0218.7	019.4	002.8	000.2500	0088.7	010.7	62.31
308.0	000.2500	0216.2	019.2	004.3	000.2500	0088.8	010.9	61.95
309.0	000.2500	0215.2	019.2	005.4	000.2500	0093.4	011.2	61.96

# Exhibit 13.7

## Contour Protection Studies Toward Select Station(s)

02-11-2016

Terrain Data: NED 03 SEC

FMOver Analysis

W295AY BLFT20091019AEJ

W293BV.P

Channel = 295D

Max ERP = 0.25 kW

RCAMSL = 231 m

N. Lat. 32 27 59.0

W. Lng. 85 03 22.0

Protected

60 dBu

Channel = 293D

Max ERP = 0.25 kW

RCAMSL = 332 m

N. Lat. 32 27 28.0

W. Lng. 84 53 08.0

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
048.0	000.2500	0096.5	012.6	325.0	000.2500	0205.1	011.5	68.43	
049.0	000.2500	0098.0	012.7	325.6	000.2500	0204.2	011.3	68.73	
050.0	000.2500	0100.1	012.9	326.4	000.2500	0203.0	011.1	69.01	
051.0	000.2500	0102.0	013.0	327.2	000.2500	0201.7	010.9	69.30	
052.0	000.2500	0103.3	013.1	327.7	000.2500	0201.1	010.6	69.64	
053.0	000.2500	0102.9	013.0	327.7	000.2500	0201.1	010.4	70.03	
054.0	000.2500	0102.6	013.0	327.6	000.2500	0201.2	010.2	70.43	
055.0	000.2500	0102.3	013.0	327.6	000.2500	0201.2	010.0	70.82	
056.0	000.2500	0103.3	013.1	328.0	000.2500	0200.8	009.7	71.20	
057.0	000.2500	0105.7	013.2	329.0	000.2500	0200.9	009.5	71.61	
058.0	000.2500	0107.0	013.3	329.5	000.2500	0200.1	009.3	71.99	
059.0	000.2500	0108.4	013.4	330.1	000.2500	0198.8	009.1	72.36	
060.0	000.2500	0109.7	013.5	330.6	000.2500	0198.0	008.8	72.76	
061.0	000.2500	0110.9	013.5	331.1	000.2500	0198.2	008.6	73.21	
062.0	000.2500	0113.4	013.7	332.1	000.2500	0198.7	008.3	73.69	
063.0	000.2500	0115.4	013.8	332.9	000.2500	0200.5	008.1	74.23	
064.0	000.2500	0116.0	013.8	333.2	000.2500	0200.6	007.9	74.71	
065.0	000.2500	0117.2	013.9	333.7	000.2500	0200.6	007.6	75.21	
066.0	000.2500	0118.5	014.0	334.1	000.2500	0200.9	007.4	75.75	
067.0	000.2500	0120.0	014.1	334.8	000.2500	0199.9	007.1	76.27	
068.0	000.2500	0121.6	014.2	335.4	000.2500	0199.4	006.9	76.84	
069.0	000.2500	0123.4	014.3	336.2	000.2500	0198.1	006.6	77.40	
070.0	000.2500	0124.8	014.3	336.8	000.2500	0197.8	006.4	78.01	
071.0	000.2500	0126.7	014.4	337.6	000.2500	0196.3	006.1	78.62	
072.0	000.2500	0127.5	014.5	337.9	000.2500	0196.0	005.9	79.28	
073.0	000.2500	0128.2	014.5	338.0	000.2500	0195.8	005.6	79.97	
074.0	000.2500	0130.6	014.7	339.4	000.2500	0196.1	005.3	80.73	
075.0	000.2500	0131.5	014.7	339.7	000.2500	0196.1	005.1	81.46	
076.0	000.2500	0133.0	014.8	340.4	000.2500	0195.1	004.8	82.20	
077.0	000.2500	0134.1	014.9	340.9	000.2500	0195.5	004.5	83.01	
078.0	000.2500	0134.6	014.9	340.9	000.2500	0195.5	004.3	83.85	
079.0	000.2500	0135.3	015.0	341.0	000.2500	0195.7	004.0	84.74	
080.0	000.2500	0136.1	015.0	341.2	000.2500	0195.9	003.8	85.69	

# Exhibit 13.7

## Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
081.0	000.2500	0136.6	015.0	341.0	000.2500	0195.6	003.5	86.65
082.0	000.2500	0136.9	015.1	340.5	000.2500	0195.1	003.2	87.64
083.0	000.2500	0136.4	015.0	338.8	000.2500	0196.6	003.0	88.69
084.0	000.2500	0137.5	015.1	338.8	000.2500	0196.6	002.7	89.89
085.0	000.2500	0137.4	015.1	337.0	000.2500	0197.4	002.5	91.10
086.0	000.2500	0137.2	015.1	334.5	000.2500	0200.3	002.2	92.38
087.0	000.2500	0137.6	015.1	332.3	000.2500	0199.0	002.0	93.68
088.0	000.2500	0137.7	015.1	328.7	000.2500	0200.6	001.7	94.98
089.0	000.2500	0136.2	015.0	320.9	000.2500	0203.0	001.6	95.93
090.0	000.2500	0134.1	014.9	310.4	000.2500	0212.2	001.5	97.62
091.0	000.2500	0132.3	014.8	299.5	000.2500	0220.3	001.4	97.99
092.0	000.2500	0130.8	014.7	288.2	000.2500	0224.3	001.4	98.07
093.0	000.2500	0130.6	014.7	277.6	000.2500	0237.3	001.4	98.28
094.0	000.2500	0129.7	014.6	267.0	000.2500	0231.7	001.4	97.90
095.0	000.2500	0127.3	014.5	258.7	000.2500	0236.3	001.6	95.87
096.0	000.2500	0127.5	014.5	250.3	000.2500	0232.5	001.7	95.44
097.0	000.2500	0130.8	014.7	239.3	000.2500	0241.3	001.7	95.65
098.0	000.2500	0134.1	014.9	228.2	000.2500	0244.6	001.7	95.47
099.0	000.2500	0134.9	014.9	221.9	000.2500	0234.1	001.9	94.52
100.0	000.2500	0132.7	014.8	221.2	000.2500	0233.3	002.2	93.07
101.0	000.2500	0132.0	014.8	218.9	000.2500	0226.1	002.4	91.83
102.0	000.2500	0131.4	014.7	217.1	000.2500	0225.9	002.7	90.70
103.0	000.2500	0131.2	014.7	215.2	000.2500	0225.9	002.9	89.66
104.0	000.2500	0130.6	014.7	214.1	000.2500	0226.2	003.1	88.65
105.0	000.2500	0130.5	014.7	212.7	000.2500	0229.0	003.4	87.77
106.0	000.2500	0130.7	014.7	211.3	000.2500	0230.0	003.6	86.91
107.0	000.2500	0131.9	014.8	209.3	000.2500	0229.4	003.9	86.08
108.0	000.2500	0133.7	014.9	207.1	000.2500	0230.0	004.1	85.30
109.0	000.2500	0132.5	014.8	207.5	000.2500	0230.3	004.4	84.45
110.0	000.2500	0130.1	014.6	208.9	000.2500	0230.2	004.6	83.62
111.0	000.2500	0131.1	014.7	207.7	000.2500	0230.4	004.9	82.94
112.0	000.2500	0132.3	014.8	206.6	000.2500	0229.5	005.1	82.25
113.0	000.2500	0132.8	014.8	206.1	000.2500	0229.5	005.4	81.57
114.0	000.2500	0132.8	014.8	206.0	000.2500	0229.4	005.6	80.90
115.0	000.2500	0132.9	014.8	205.9	000.2500	0229.3	005.9	80.24
116.0	000.2500	0134.9	014.9	204.8	000.2500	0227.7	006.2	79.55
117.0	000.2500	0136.0	015.0	204.3	000.2500	0227.3	006.4	78.90
118.0	000.2500	0135.3	015.0	204.7	000.2500	0227.6	006.7	78.31
119.0	000.2500	0136.8	015.1	204.1	000.2500	0227.4	007.0	77.69
120.0	000.2500	0137.7	015.1	203.9	000.2500	0227.4	007.2	77.10
121.0	000.2500	0137.7	015.1	204.1	000.2500	0227.4	007.5	76.54
122.0	000.2500	0137.7	015.1	204.4	000.2500	0227.3	007.7	76.00
123.0	000.2500	0139.6	015.2	203.8	000.2500	0227.4	008.0	75.45
124.0	000.2500	0140.4	015.3	203.8	000.2500	0227.4	008.3	74.93
125.0	000.2500	0140.4	015.3	204.1	000.2500	0227.4	008.6	74.43
126.0	000.2500	0140.3	015.3	204.5	000.2500	0227.4	008.8	73.94

NED 03 SEC Terrain Database  
US Census 2010 PL Database

**WSTH-FM**  
Alexander City, AL  
BLH19950410KB  
Facility ID: 60763  
Latitude: 32-45-30 N  
Longitude: 085-28-20 W  
ERP: 86.00 kW  
Channel: 291C1 (106.1 MHz)  
AMSL Height: 544.0 m  
Horiz. Pattern: Omni

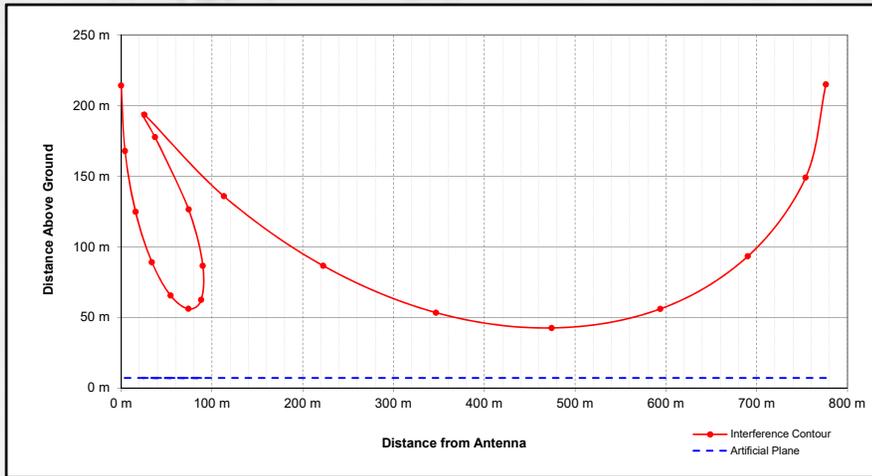
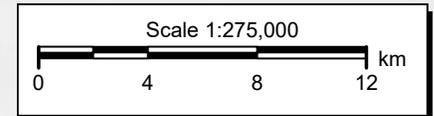
**W293BV.P**  
Columbus, GA  
Proposed Operation  
Facility ID: 146650  
Latitude: 32-27-28 N  
Longitude: 084-53-08 W  
ERP: 0.25 kW  
Channel: 293D (106.5 MHz)  
AMSL Height: 332.0 m  
Horiz. Pattern: Directional

## Exhibit 13.8

### §74.1204(d) 2nd/3rd Adjacent Channel Given Interference Waiver Request WSTH-FM - Alexander City, AL Channel CH291C1 (106.1 MHz)

**WSTH-FM**  
+

Terrain  
54 419 m



The applicant would like to note the existence of a §74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward WSTH-FM - Alexander City, AL (CH291C1) as noted in **Exhibit 13.8**. Protection has been based on the worst case calculated 103.1 dBμ F(50:10) Interference Contour, corresponding to the worst case 63.1 dBμ F(50:50) Protected Contour. Protection has been demonstrated through the attached downward radiation study. Full protection will be afforded the facility as the interference area will not reach the ground nor a seven meter artificial plane representing a standard two story home when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's specifications has also been included in **Exhibit 13.9**.

Proposed Antenna: 2 Bay PSI FML-0.75λ (Three-quarter Spaced)  
Proposed Power: 0.25 kW  
Antenna Height AGL: 215 meters  
Interference Contour: 103.1 dBμ f(50:10)  
Artificial Ground Plane Height: 7 meters  
Distance (Free Space) Equation:  $= (10^{((106.92 - [\text{desired dB}\mu] + [\text{ERP in dBk}]) / 20)) * 1000}$   
Field Strength (dBu) Equation:  $= 106.92 - (20 * (\text{LOG}10[\text{DistMeters}/1000])) + [\text{ERP in dBk}]$

Depression Angle Below Horizon	Antenna Relative Field	ERP in kW	ERP in dBk	Distance from Ant. to Interference Contour	Distance from Ant. to Artificial Plane	Field Strength in dBu @ Artificial Plane	Distance from Ant. to Ground Level	Field Strength in dBu @ Ground Level
0°	1.000	0.250	-6.02	776.19 m	infinite			
-5°	0.975	0.238	-6.24	756.79 m	2386.53 m	93.12 dBu	2466.65 m	92.84 dBu
-10°	0.903	0.204	-6.91	700.90 m	1197.82 m	98.45 dBu	1236.14 m	96.16 dBu
-15°	0.792	0.157	-8.05	614.75 m	803.65 m	100.77 dBu	830.70 m	100.49 dBu
-20°	0.650	0.106	-9.76	504.53 m	608.15 m	101.48 dBu	628.62 m	101.19 dBu
-25°	0.493	0.061	-12.16	382.66 m	492.17 m	100.91 dBu	508.73 m	100.63 dBu
-30°	0.331	0.027	-15.62	256.92 m	416.00 m	98.91 dBu	430.00 m	98.63 dBu
-35°	0.178	0.008	-21.01	138.16 m	362.64 m	94.72 dBu	374.84 m	94.43 dBu
-40°	0.043	0.000	-33.35	33.38 m	323.59 m	83.37 dBu	334.48 m	83.08 dBu
-45°	0.068	0.001	-29.37	52.78 m	294.16 m	88.18 dBu	304.06 m	87.89 dBu
-50°	0.149	0.006	-22.56	115.65 m	271.52 m	95.69 dBu	280.66 m	95.40 dBu
-55°	0.202	0.010	-19.91	156.79 m	253.92 m	98.91 dBu	262.47 m	98.62 dBu
-60°	0.227	0.013	-18.90	176.20 m	240.18 m	100.41 dBu	248.26 m	100.12 dBu
-65°	0.226	0.013	-18.94	175.42 m	229.50 m	100.77 dBu	237.23 m	100.48 dBu
-70°	0.205	0.011	-19.79	159.12 m	221.35 m	100.23 dBu	228.80 m	99.95 dBu
-75°	0.168	0.007	-21.51	130.40 m	215.34 m	98.74 dBu	222.58 m	98.46 dBu
-80°	0.118	0.003	-24.58	91.59 m	211.21 m	95.84 dBu	218.32 m	95.56 dBu
-85°	0.061	0.001	-30.31	47.35 m	208.79 m	90.21 dBu	215.82 m	89.92 dBu
-90°	0.001	0.000	-66.02	0.78 m	208.00 m	54.54 dBu	215.00 m	54.25 dBu

WSTH-FM - 63.1 F(50:50)dBμ Contour

W293BV.P



# Exhibit 13.9

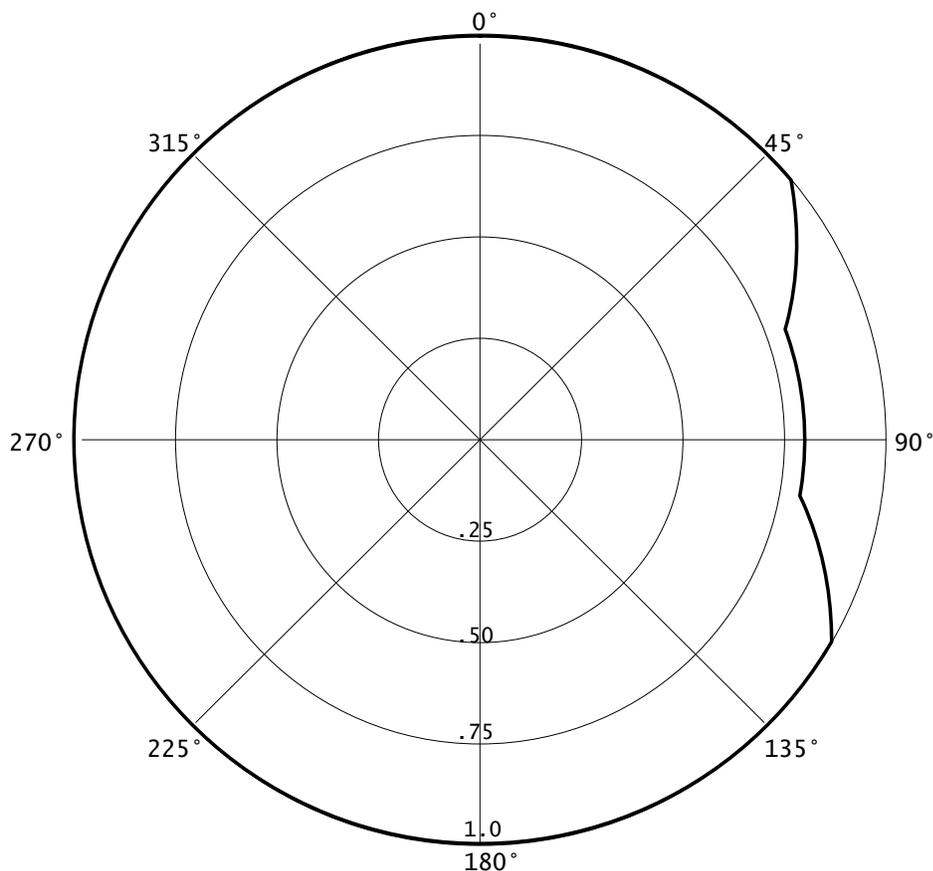
## Proposed Directional Antenna Information

01-12-2016

RMS(V)= .974

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	0.900	-06.936	0.202
070	0.800	-07.959	0.160
080	0.800	-07.959	0.160
090	0.800	-07.959	0.160
100	0.800	-07.959	0.160
110	0.900	-06.936	0.202
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	1.000	-06.021	0.250
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



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.

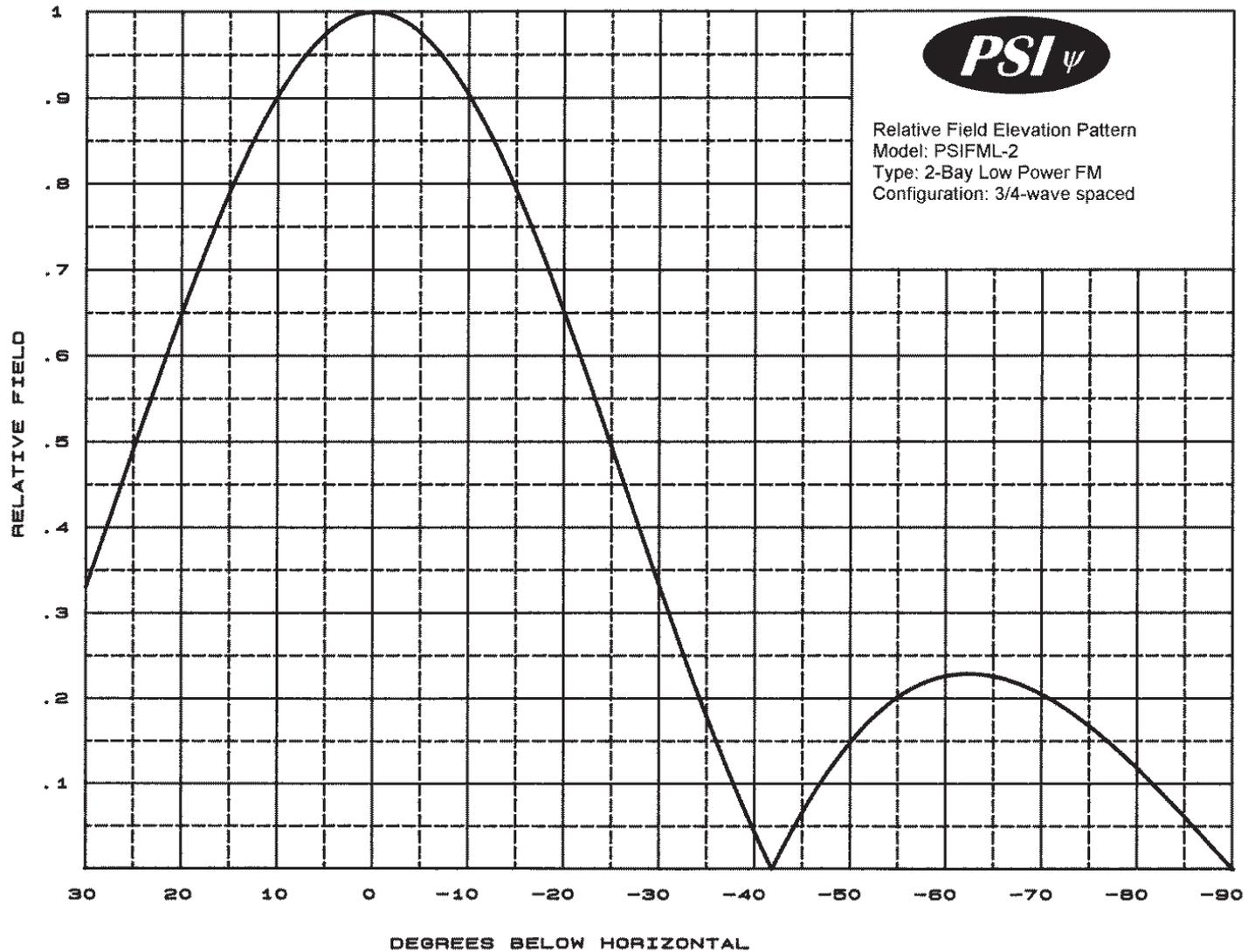
The directional antenna will be mounted on the tower which is of uniform cross section. No other antennas of any type are or will be mounted on the same tower level as the directional antenna.

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. The antenna will be assembled under the supervision of a qualified engineer.

The directional antenna pattern will be produced by means of parasitic elements, adjusted to produce the required pattern.

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

# Exhibit 13.9 Proposed Directional Antenna Information (Manufacturer's Vertical Radiation Pattern Data)



# Exhibit 13.9

## Proposed Directional Antenna Information (Manufacturer's Vertical Radiation Pattern Data)



### Propagation Systems Inc.

Elevation Pattern Tabulation

Antenna: PSIFML-2 Special

Bay spacing: 3/4 wave

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-90.00	0.001	-60.000	-50.00	0.149	-16.513	-10.00	0.903	-0.883
-89.00	0.012	-38.221	-49.00	0.135	-17.364	-9.00	0.921	-0.713
-88.00	0.025	-32.201	-48.00	0.120	-18.405	-8.00	0.937	-0.561
-87.00	0.037	-28.679	-47.00	0.104	-19.677	-7.00	0.952	-0.429
-86.00	0.049	-26.207	-46.00	0.086	-21.289	-6.00	0.964	-0.315
-85.00	0.061	-24.285	-45.00	0.068	-23.404	-5.00	0.975	-0.219
-84.00	0.073	-22.748	-44.00	0.048	-26.425	-4.00	0.984	-0.139
-83.00	0.085	-21.443	-43.00	0.027	-31.481	-3.00	0.991	-0.079
-82.00	0.096	-20.349	-42.00	0.005	-46.848	-2.00	0.996	-0.036
-81.00	0.107	-19.378	-41.00	0.018	-34.664	-1.00	0.999	-0.009
-80.00	0.118	-18.538	-40.00	0.043	-27.417	0.00	1.000	0.000
-79.00	0.129	-17.792	-39.00	0.068	-23.365	1.00	0.999	-0.009
-78.00	0.139	-17.125	-38.00	0.094	-20.529	2.00	0.996	-0.036
-77.00	0.149	-16.522	-37.00	0.121	-18.329	3.00	0.991	-0.079
-76.00	0.159	-15.984	-36.00	0.149	-16.531	4.00	0.984	-0.139
-75.00	0.168	-15.508	-35.00	0.178	-14.998	5.00	0.975	-0.219
-74.00	0.176	-15.072	-34.00	0.207	-13.669	6.00	0.964	-0.315
-73.00	0.184	-14.685	-33.00	0.237	-12.489	7.00	0.952	-0.429
-72.00	0.192	-14.335	-32.00	0.268	-11.431	8.00	0.937	-0.561
-71.00	0.199	-14.026	-31.00	0.299	-10.475	9.00	0.921	-0.713
-70.00	0.205	-13.752	-30.00	0.331	-9.602	10.00	0.903	-0.882
-69.00	0.211	-13.518	-29.00	0.363	-8.801	11.00	0.884	-1.072
-68.00	0.216	-13.315	-28.00	0.395	-8.061	12.00	0.863	-1.279
-67.00	0.220	-13.146	-27.00	0.428	-7.377	13.00	0.841	-1.508
-66.00	0.224	-13.009	-26.00	0.460	-6.742	14.00	0.817	-1.757
-65.00	0.226	-12.904	-25.00	0.493	-6.151	15.00	0.792	-2.029
-64.00	0.228	-12.834	-24.00	0.525	-5.599	16.00	0.765	-2.322
-63.00	0.229	-12.800	-23.00	0.557	-5.083	17.00	0.738	-2.639
-62.00	0.229	-12.794	-22.00	0.589	-4.603	18.00	0.710	-2.979
-61.00	0.228	-12.829	-21.00	0.620	-4.154	19.00	0.680	-3.344
-60.00	0.227	-12.898	-20.00	0.650	-3.736	20.00	0.650	-3.736
-59.00	0.224	-13.009	-19.00	0.680	-3.344	21.00	0.620	-4.154
-58.00	0.220	-13.158	-18.00	0.710	-2.979	22.00	0.589	-4.603
-57.00	0.215	-13.351	-17.00	0.738	-2.639	23.00	0.557	-5.083
-56.00	0.209	-13.600	-16.00	0.765	-2.323	24.00	0.525	-5.599
-55.00	0.202	-13.894	-15.00	0.792	-2.029	25.00	0.493	-6.151
-54.00	0.194	-14.260	-14.00	0.817	-1.759	26.00	0.460	-6.742
-53.00	0.184	-14.685	-13.00	0.840	-1.510	27.00	0.428	-7.377
-52.00	0.174	-15.192	-12.00	0.863	-1.281	28.00	0.395	-8.061
-51.00	0.162	-15.795	-11.00	0.884	-1.072	29.00	0.363	-8.801
						30.00	0.331	-9.602