

Exhibit 13.1 - Copy of Existing Antenna Structure Registration



Registration Detail

Reg Number	1014661	Status	Constructed
File Number	A0451960	Constructed	01/01/1974
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long	40-45-49.4 N 082-55-59.5 W	Address	0.68 km NW of the intersection of Shearer Rd and Diebler Rd, Crawford County, OH
City, State	BUCYRUS , OH		
Zip	44820	County	CRAWFORD
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	315.8	Overall Height Above Ground (AGL)	93.3
Overall Height Above Mean Sea Level	409.1	Overall Height Above Ground w/o Appurtenances	92.4

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 12, 21

FAA Notification

FAA Study	2004-AGL-4185-OE	FAA Issue Date	08/31/2004
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Owner & Contact Information

FRN	0003303344	Owner Entity Type	
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Owner

Franklin Communications, Inc.
Attention To: Gregory Urbiel
73 Kercheval Avenue, Suite 201
Grosse Pointe Farms , MI 48236

P: (313)886-7070

F:

E: gurbiel@sagacom.com

Contact

Smithwick , Gary S Esq
5028 Wisconsin Avenue, NW Suite 301
Washington , DC 20016

P: (202)363-4050

F:

E: gsmithwick@fccworld.com

Last Action Status

Status	Constructed	Received	06/15/2005
Purpose	Notification	Entered	06/15/2005
Mode	Interactive		

Related Applications

06/15/2005 A0451960 - Notification (NT)
01/04/2005 A0421213 - Change Owner (OC)
01/04/2005 A0421244 - Modification (MD)

Related applications (4)

Comments

Comments

None

History

Date	Event
06/15/2005	Construction Notification Received
01/05/2005	Registration Printed
01/05/2005	Registration Printed
All History (8)	

Automated Letters

01/05/2005 Ownership Change, Reference 390589
01/05/2005 Authorization, Reference 390650
01/05/2005 Authorization, Reference 390730
All letters (4)

Exhibit 13.2

Vertical Plan of Antenna System

THE SITE IS LOCATED 0.68 KM NW OF THE INTERSECTION OF SHEARER ROAD AND DIEBLER ROAD;
THE CITY OF BUCYRUS; CRAWFORD COUNTY; THE STATE OF OHIO.

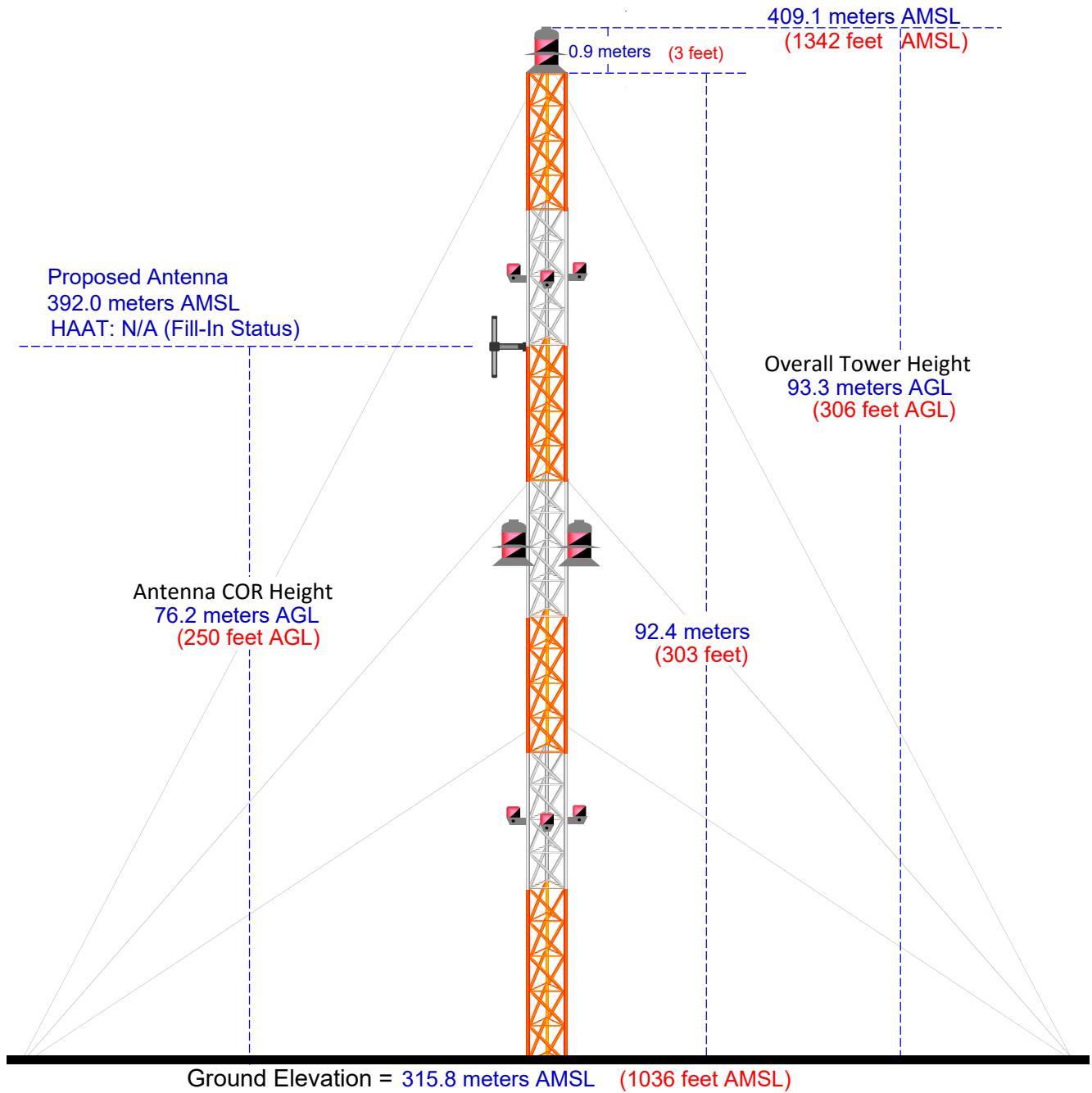
Antenna Structure Registration No.

1014661

Latitude (D M S) Longitude (D M S)

NAD 27 datum values: 40 45 49.19193 82 55 59.83259

NAD 83 datum values: 40 45 49.40000 82 55 59.50000



Drawing is not to Scale

Munn-Reese, Inc.

Broadcast Engineering Consultants
Coldwater, MI 49036

Exhibit 13.3 Proposed Service Contour Map

Proposed 60 dBμ F(50:50) Contour

CH298D.P
Bucyrus, OH
Proposed Operation
Facility ID: 142508
Latitude: 40-45-49 N
Longitude: 082-56-00 W
ERP: 0.25 kW
Channel: 298D (107.5 MHz)
AMSL Height: 392.0 m
Horiz. Pattern: Directional

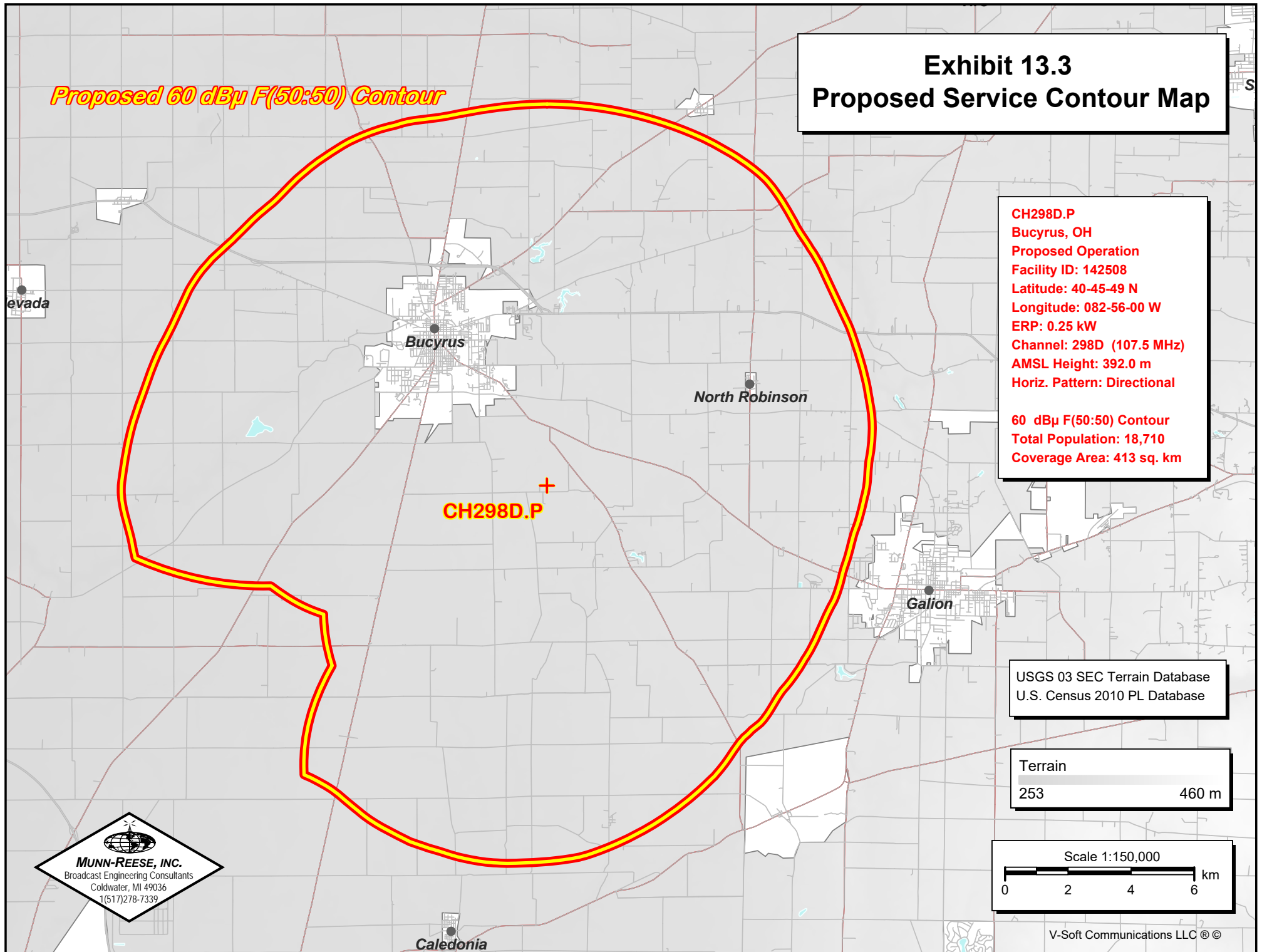
60 dBμ F(50:50) Contour
Total Population: 18,710
Coverage Area: 413 sq. km

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

Terrain
253 460 m

Scale 1:150,000
0 2 4 6 km

V-Soft Communications LLC ©



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

Exhibit 13.4 Proposed vs. Primary Contour & §74.1233(a)(1) Waiver Showing

2 mV/m Daytime Contour

25 mile AM site Radius

**§74.1233(a)(1)
Major Change Waiver
Relocation Distance: 6 km**

Present 60 dBμ F(50:50) Contour

Proposed 60 dBμ F(50:50) Contour

W222CC.L

**WBCO(AM)
CH298D.P**

W222CC.L
Bucyrus, OH
BLFT20160129AIH
Facility ID: 142508
Latitude: 40-48-26 N
Longitude: 082-58-15 W
ERP: 0.25 kW
Channel: 222D (92.3 MHz)
AMSL Height: 328.0 m
Horiz. Pattern: Directional

CH298D.P
Bucyrus, OH
Proposed Operation
Facility ID: 142508
Latitude: 40-45-49 N
Longitude: 082-56-00 W
ERP: 0.25 kW
Channel: 298D (107.5 MHz)
AMSL Height: 392.0 m
Horiz. Pattern: Directional

WBCO 1540 kHz
Bucyrus, Ohio
Station Class: D
Region 2 Class: B
Facility ID: 7111
File Number: BL-20071004ADY
Site Location: 40-45-51.0 N 82-56-05.0 W (NAD 27)
Site Location: 40-45-51.2 N 82-56-04.7 W (NAD 83)
Power: 0.5 kW, Directional
Hours: Daytime
Pattern Type: Augmented
Towers: 4 Augmentations: 14
RMS Theoretical: 203.42 mV/meter

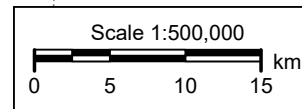


Exhibit 13.5

Tabulation of Proposed Allocation

Franklin Communications, Inc. REFERENCE CH# 298D - 107.5 MHz, Pwr= 0.25 kW DA, HAAT= 77.6 M, COR= 392 M 40 45 49.0 N. Average Protected F(50-50)= 11.41 km 82 56 00.0 W. Standard Directional DISPLAY DATES DATA 04-05-16 SEARCH 04-06-16											
CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*	
298L1 Marion	WZMO-LP	LIC OH	238.9 58.7	34.16 BLL20140724AAD	40 36 16.0 83 16 48.0	0.094 31	307	Marion Community Radio	6.8	0.8	
297B El yria	WNWV	LIC OH	53.9 234.5	96.09 BLH20041102AEC	41 16 10.0 82 00 16.0	20.000 238	77.5 493	Rubber City Radio Group, I	7.6	7.6	
298A Columbus	WCKX	LIC OH	183.4 3.4	89.19 BLH19960213KB	39 57 46.0 82 59 46.0	1.900 126	69.4 368	Blue Chip Broadcasting Li c	7.9	26.1	
Proposed to Canada as Class C1 950126-Accepted by Canada 950331											
298A Fort Shawnee	WZRX-FM	LIC OH	263.9 83.1	97.70 BLH20040820AAZ	40 39 50.0 84 05 07.0	1.350 151	70.1 427	Citicasters Licenses, Inc.	14.3	29.1	
299A Loudonville	WXXF	LIC OH	102.8 283.3	72.73 BLH19900329KF	40 36 58.0 82 05 34.0	6.000 100	45.7 432	Capstar Tx, LI c	17.2	29.5	
Class B1 with respect to Canada											
295D Mansfi eld	W295CA	CP OH	88.5 268.8	32.88 BMPFT20160129AJI	40 46 13.8 82 32 34.4	0.250	1.1 435	Citicasters Licenses, Inc.	21.6	24.1	
245A Willard	WLRD	LIC OH	50.1 230.4	34.18 BMLH20030711AAD	40 57 36.0 82 37 16.0	6.000 100	17.1 422	Christian Faith Broadcast,	9.5R	24.7M	
300A Westerville	WVMX	LIC OH	179.7 359.7	57.67 BLH20090511ASY	40 14 41.5 82 55 49.1	3.000 143	2.7 439	Franklin Communi cations, I	43.1	27.1	
298B Detroit	WGPR	LIC MI	356.5 176.4	177.57 BLH20040422ABP	42 21 28.0 83 03 55.0	50.000 124	135.8 316	Wgpr, Inc.	29.7	56.7	
299A Luckey	WPFX-FM	LIC OH	322.8 142.3	92.98 BLH20100914AGO	41 25 39.0 83 36 30.0	5.200 107	42.2 305	Tol edo Radi o, LI c	38.2	46.9	
244A Fostoria	WBVI	LIC OH	309.6 129.2	59.00 BLH19970721KA	41 06 00.0 83 28 32.0	3.000 88	17.1 324	Tcb Hol dings, Inc., C/o R	9.5R	49.5M	
Specially negotiated, short-spaced allotment											
297D Bellefontaine	W297BP	LIC OH	237.2 56.7	80.65 BLFT20150715AAL	40 22 05.0 83 44 02.0	0.250	20.5 485	V-teck Communi cations, Inc	51.8	55.3	
298B Wheeling	WEGW	LIC WV	112.2 293.6	200.43 BLH20030128ADU	40 03 41.0 80 45 09.0	16.000 269	128.0 587	Capstar Tx, LI c	62.7	85.2	
299D Newark	W299CG	CP OH	153.4 333.7	88.53 BMPFT20160205AEN	40 03 02.0 82 28 04.0	0.250	10.1 334	Mansfi eld Christian School	67.6	66.1	
299B Dayton	WMMX	LIC OH	223.5 42.7	158.53 BMLH20120315ADI	39 43 19.0 84 12 33.0	28.000 200	78.9 467	Citicasters Licenses, Inc.	68.5	68.7	
295B Canton	WRQK-FM	LIC OH	86.5 267.5	126.89 BLH20070209ABX	40 49 22.0 81 25 40.0	27.500 103	4.4 436	Capstar Tx, LI c	112.2	71.1	
297A Swanton	WJUC	LIC OH	320.7 140.0	126.80 BLH19970314KA	41 38 30.0 83 54 03.0	3.000 100	37.4 309	Wel ch Communi cations, Inc.	76.8	83.5	
297A Crooksville	WYBZ	LIC OH	146.4 326.9	129.57 BLH19901116KE	39 47 23.0 82 05 39.0	3.000 92	34.9 370	Y Bridge Broadcasting, Inc	84.3	91.9	
300B Cleveland	WENZ	LIC OH	60.0 241.1	158.42 BLH19870220KG	41 27 54.0 81 17 13.0	16.000 272	5.8 613	Blue Chip Broadcasting Li c	141.8	89.8	

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)
 < = Contour Overlap
 Reference station has protected zone issue: AM tower

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

Exhibit 13.6a

Contour Protection Studies Toward Select Station(s)

Franklin Communications, Inc.

FMCommander Single Allocation Study - 04-06-2016 - USGS 03 SEC
CH298D.P's Overlaps (In= 6.85 km, Out= 0.81 km)

CH298D.P CH 298 D DA
Lat= 40 45 49.0, Lng= 82 56 00.0
0.25 kW 77.6 m HAAT, 392 m COR
Prot.= 60 dBu, Intef.= 40 dBu

WZMO-LP CH 298 L1 BLL20140724AAD
Lat= 40 36 16.0, Lng= 83 16 48.0
0.094 kW 30.74155 m HAAT, 307.4 m COR
Prot.= 60 dBu, Intef.= 40 dBu

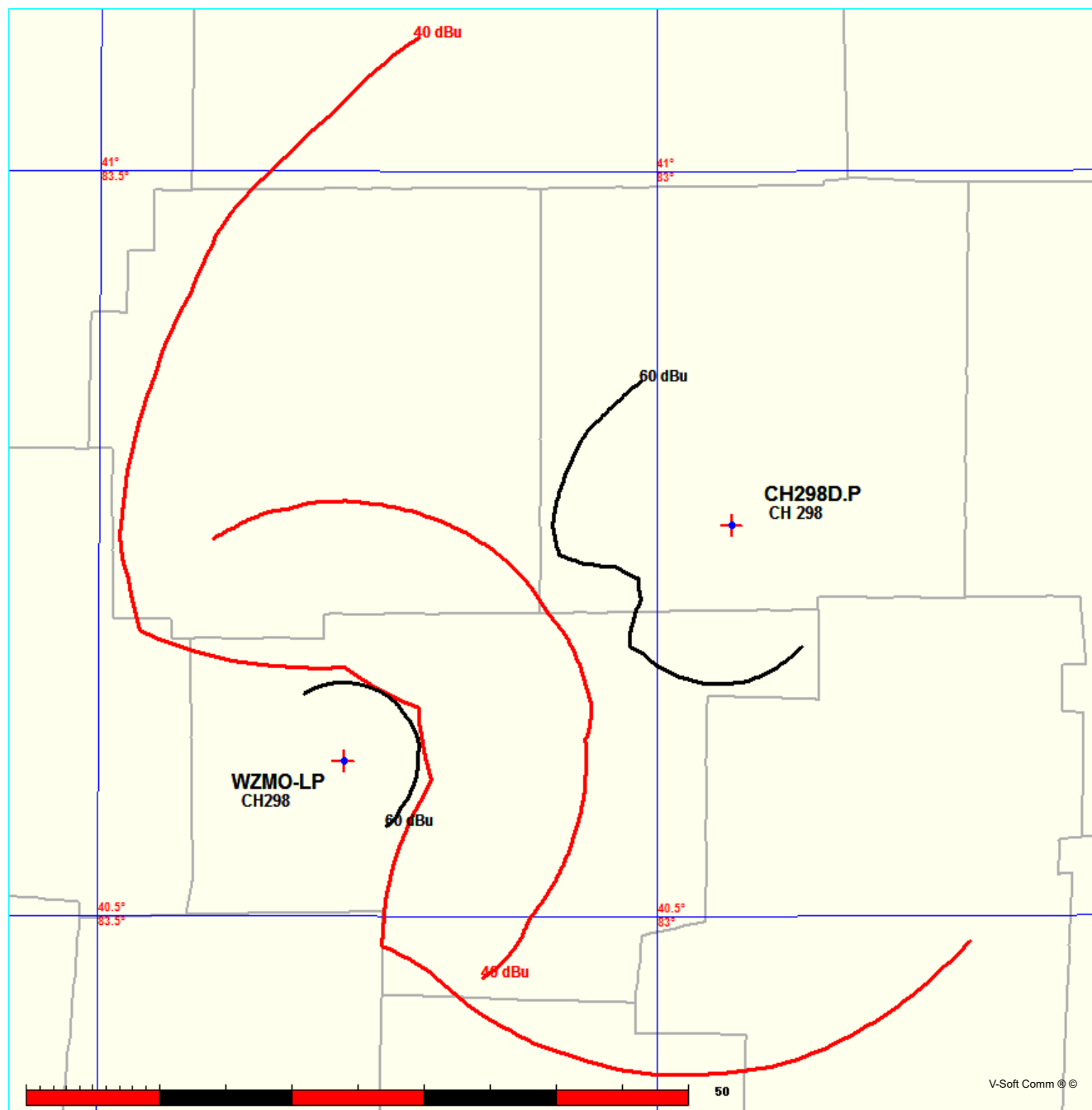


Exhibit 13.6a

Contour Protection Studies Toward Select Station(s)

04-06-2016

Terrain Data: USGS 03 SEC

FMOVer Analysis

CH298D.P

WZMO-LP BLL20140724AAD

Channel = 298D

Max ERP = 0.25 kW

RCAMSL = 392 m

N. Lat. 40 45 49.0

W. Lng. 82 56 00.0

Protected

60 dBu

Channel = 298L1

Max ERP = 0.094 kW

RCAMSL = 307.4 m

N. Lat. 40 36 16.0

W. Lng. 83 16 48.0

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
196.0	000.2500	0087.7	012.1	076.7	000.0908	0032.7	026.6	34.34	
197.0	000.2500	0087.7	012.1	076.5	000.0908	0032.7	026.4	34.46	
198.0	000.2500	0087.7	012.1	076.2	000.0908	0032.7	026.3	34.58	
199.0	000.2500	0087.7	012.1	076.0	000.0908	0032.7	026.1	34.69	
200.0	000.2500	0087.8	012.1	075.7	000.0908	0032.7	025.9	34.81	
201.0	000.2500	0087.8	012.1	075.5	000.0908	0032.7	025.7	34.92	
202.0	000.2500	0087.5	012.1	075.2	000.0908	0032.7	025.6	35.03	
203.0	000.2500	0087.3	012.1	074.8	000.0908	0032.8	025.4	35.13	
204.0	000.2500	0087.1	012.0	074.5	000.0908	0032.8	025.3	35.24	
205.0	000.2500	0087.0	012.0	074.2	000.0908	0032.8	025.1	35.35	
206.0	000.2500	0086.8	012.0	073.9	000.0908	0032.8	024.9	35.45	
207.0	000.2500	0086.5	012.0	073.5	000.0908	0032.8	024.8	35.55	
208.0	000.2500	0086.2	012.0	073.1	000.0908	0032.8	024.7	35.65	
209.0	000.2500	0085.8	012.0	072.8	000.0908	0032.9	024.5	35.75	
210.0	000.2500	0085.3	011.9	072.3	000.0908	0032.9	024.4	35.83	
211.0	000.2500	0084.8	011.9	071.9	000.0908	0032.9	024.3	35.91	
212.0	000.2500	0084.4	011.9	071.5	000.0908	0032.8	024.2	35.98	
213.0	000.2500	0083.9	011.8	071.1	000.0908	0032.8	024.1	36.06	
214.0	000.2500	0083.5	011.8	070.7	000.0908	0032.8	024.0	36.13	
215.0	000.2500	0083.4	011.8	070.3	000.0908	0032.8	023.9	36.21	
216.0	000.2500	0083.5	011.8	069.9	000.0908	0032.9	023.7	36.31	
217.0	000.2500	0083.9	011.8	069.5	000.0908	0032.9	023.6	36.41	
218.0	000.2500	0084.3	011.9	069.1	000.0908	0032.9	023.5	36.52	
219.0	000.2500	0085.1	011.9	068.7	000.0908	0032.9	023.3	36.62	
220.0	000.2500	0086.0	012.0	068.3	000.0908	0032.9	023.2	36.74	
221.0	000.2256	0086.9	011.7	067.6	000.0908	0032.9	023.3	36.66	
222.0	000.2025	0087.8	011.5	066.9	000.0908	0032.9	023.4	36.56	
223.0	000.1806	0088.7	011.2	066.2	000.0908	0032.9	023.6	36.46	
224.0	000.1600	0089.6	011.0	065.5	000.0908	0033.0	023.7	36.34	
225.0	000.1406	0090.3	010.7	064.8	000.0908	0033.0	023.9	36.20	
226.0	000.1225	0091.1	010.4	064.2	000.0908	0033.0	024.2	36.03	
227.0	000.1056	0091.7	010.0	063.6	000.0908	0032.9	024.4	35.82	
228.0	000.0900	0092.2	009.7	062.9	000.0908	0032.9	024.7	35.62	
229.0	000.0756	0092.9	009.3	062.4	000.0908	0032.9	025.1	35.41	

Exhibit 13.6a

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)
230.0	000.0625	0093.5	008.9	061.8	000.0908	0032.9	025.4	35.16
231.0	000.0600	0094.1	008.8	061.4	000.0908	0032.9	025.5	35.13
232.0	000.0576	0094.7	008.8	061.1	000.0908	0032.8	025.5	35.10
233.0	000.0552	0095.1	008.7	060.7	000.0908	0032.8	025.5	35.05
234.0	000.0529	0095.8	008.6	060.3	000.0908	0032.8	025.6	35.02
235.0	000.0506	0096.4	008.5	060.0	000.0908	0032.8	025.6	34.98
236.0	000.0484	0096.9	008.5	059.7	000.0908	0032.7	025.7	34.93
237.0	000.0462	0097.5	008.4	059.3	000.0908	0032.7	025.8	34.89
238.0	000.0441	0098.2	008.3	059.0	000.0908	0032.7	025.8	34.84
239.0	000.0420	0098.8	008.2	058.7	000.0908	0032.7	025.9	34.78
240.0	000.0400	0099.4	008.2	058.4	000.0908	0032.6	026.0	34.70
241.0	000.0420	0099.7	008.3	058.0	000.0908	0032.5	025.9	34.78
242.0	000.0441	0100.2	008.4	057.7	000.0908	0032.6	025.8	34.86
243.0	000.0462	0100.6	008.5	057.3	000.0908	0032.6	025.7	34.93
244.0	000.0484	0101.1	008.7	057.0	000.0908	0032.5	025.6	34.98
245.0	000.0506	0101.4	008.8	056.6	000.0908	0032.5	025.5	35.04
246.0	000.0529	0101.6	008.9	056.2	000.0908	0032.4	025.4	35.07
247.0	000.0552	0101.8	009.0	055.8	000.0908	0032.4	025.3	35.11
248.0	000.0576	0102.0	009.1	055.4	000.0908	0032.3	025.2	35.15
249.0	000.0600	0102.2	009.2	055.0	000.0908	0032.3	025.2	35.20
250.0	000.0625	0102.6	009.3	054.6	000.0908	0032.3	025.1	35.24
251.0	000.0756	0102.9	009.8	053.9	000.0908	0032.2	024.7	35.48
252.0	000.0900	0103.3	010.2	053.2	000.0908	0032.3	024.3	35.76
253.0	000.1056	0103.7	010.6	052.5	000.0908	0032.2	024.0	35.97
254.0	000.1225	0104.1	011.0	051.7	000.0908	0032.2	023.7	36.20
255.0	000.1406	0104.5	011.4	050.9	000.0908	0032.3	023.4	36.42
256.0	000.1600	0104.9	011.8	050.1	000.0908	0032.5	023.1	36.65
257.0	000.1806	0105.3	012.2	049.2	000.0909	0032.6	022.9	36.86
258.0	000.2025	0105.6	012.5	048.3	000.0910	0032.8	022.7	37.06
259.0	000.2256	0105.9	012.9	047.3	000.0911	0032.9	022.5	37.23
260.0	000.2500	0106.1	013.2	046.4	000.0912	0033.0	022.3	37.39
261.0	000.2500	0106.3	013.3	045.9	000.0912	0033.0	022.4	37.31
262.0	000.2500	0106.6	013.3	045.4	000.0913	0033.1	022.6	37.23
263.0	000.2500	0106.9	013.3	044.9	000.0913	0033.1	022.7	37.16
264.0	000.2500	0107.4	013.3	044.4	000.0914	0033.1	022.8	37.08
265.0	000.2500	0107.9	013.4	043.9	000.0914	0033.2	022.9	36.99
266.0	000.2500	0108.7	013.4	043.4	000.0914	0033.2	023.1	36.92
267.0	000.2500	0109.5	013.4	042.8	000.0915	0033.3	023.2	36.84
268.0	000.2500	0109.9	013.5	042.4	000.0915	0033.3	023.3	36.74
269.0	000.2500	0110.2	013.5	042.0	000.0916	0033.3	023.5	36.63
270.0	000.2500	0110.0	013.5	041.6	000.0916	0033.3	023.7	36.51
271.0	000.2500	0109.6	013.5	041.3	000.0916	0033.4	023.9	36.38
272.0	000.2500	0109.2	013.4	041.0	000.0917	0033.4	024.1	36.24
273.0	000.2500	0108.8	013.4	040.7	000.0917	0033.4	024.3	36.11
274.0	000.2500	0108.3	013.4	040.4	000.0917	0033.4	024.5	35.97
275.0	000.2500	0108.0	013.4	040.1	000.0917	0033.4	024.7	35.83
276.0	000.2500	0107.7	013.3	039.8	000.0918	0033.4	024.9	35.69

Exhibit 13.6a

Contour Protection Studies Toward Select Station(s)

04-06-2016

Terrain Data: USGS 03 SEC

FMOVer Analysis

WZMO-LP BLL20140724AAD

CH298D.P

Channel = 298L1
Max ERP = 0.094 kW
RCAMSL = 307.4 m
N. Lat. 40 36 16.0
W. Lng. 83 16 48.0
Protected
60 dBu

Channel = 298D
Max ERP = 0.25 kW
RCAMSL = 392 m
N. Lat. 40 45 49.0
W. Lng. 82 56 00.0
Interfering
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
014.0	000.0940	0033.4	005.8	246.7	000.0545	0101.7	030.3	39.78	
015.0	000.0940	0033.4	005.8	246.6	000.0542	0101.7	030.2	39.80	
016.0	000.0940	0033.4	005.8	246.4	000.0539	0101.7	030.1	39.82	
017.0	000.0940	0033.4	005.8	246.3	000.0536	0101.7	030.1	39.84	
018.0	000.0940	0033.4	005.8	246.2	000.0533	0101.6	030.0	39.86	
019.0	000.0940	0033.4	005.8	246.1	000.0530	0101.6	029.9	39.87	
020.0	000.0940	0033.4	005.8	245.9	000.0527	0101.6	029.8	39.88	
021.0	000.0940	0033.4	005.8	245.8	000.0524	0101.6	029.8	39.90	
022.0	000.0940	0033.4	005.8	245.6	000.0521	0101.6	029.7	39.91	
023.0	000.0940	0033.4	005.8	245.5	000.0518	0101.5	029.6	39.92	
024.0	000.0940	0033.4	005.8	245.4	000.0514	0101.5	029.6	39.93	
025.0	000.0940	0033.4	005.8	245.2	000.0511	0101.5	029.5	39.93	
026.0	000.0940	0033.4	005.8	245.1	000.0508	0101.4	029.4	39.94	
027.0	000.0940	0033.4	005.8	244.9	000.0504	0101.4	029.4	39.94	
028.0	000.0940	0033.4	005.8	244.7	000.0500	0101.4	029.3	39.94	
029.0	000.0940	0033.4	005.8	244.6	000.0497	0101.3	029.2	39.94	
030.0	000.0940	0033.4	005.8	244.4	000.0493	0101.2	029.2	39.94	
031.0	000.0940	0033.4	005.8	244.3	000.0490	0101.2	029.1	39.93	
032.0	000.0940	0033.4	005.8	244.1	000.0486	0101.1	029.1	39.92	
033.0	000.0940	0033.4	005.8	243.9	000.0482	0101.0	029.0	39.91	
034.0	000.0940	0033.4	005.8	243.7	000.0478	0100.9	029.0	39.90	
035.0	000.0940	0033.4	005.8	243.6	000.0474	0100.9	028.9	39.89	
036.0	000.0940	0033.4	005.8	243.4	000.0471	0100.8	028.9	39.87	
037.0	000.0940	0033.4	005.8	243.2	000.0467	0100.7	028.8	39.86	
038.0	000.0940	0033.4	005.8	243.0	000.0463	0100.6	028.8	39.84	
039.0	000.0940	0033.4	005.8	242.8	000.0459	0100.5	028.8	39.82	
040.0	000.0940	0033.4	005.8	242.6	000.0455	0100.5	028.7	39.80	
041.0	000.0940	0033.4	005.8	242.5	000.0451	0100.4	028.7	39.77	
042.0	000.0940	0033.3	005.8	242.3	000.0447	0100.3	028.6	39.74	
043.0	000.0940	0033.2	005.8	242.1	000.0442	0100.2	028.6	39.72	
044.0	000.0940	0033.2	005.8	241.9	000.0438	0100.1	028.6	39.68	
045.0	000.0940	0033.1	005.8	241.7	000.0434	0100.0	028.6	39.64	
046.0	000.0940	0033.0	005.8	241.5	000.0430	0099.9	028.5	39.60	

Exhibit 13.6a

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)
047.0	000.0940	0032.9	005.8	241.3	000.0426	0099.8	028.5	39.56
048.0	000.0940	0032.8	005.8	241.1	000.0422	0099.7	028.5	39.52
049.0	000.0940	0032.7	005.8	240.9	000.0418	0099.7	028.5	39.48
050.0	000.0940	0032.5	005.8	240.7	000.0413	0099.6	028.5	39.44
051.0	000.0940	0032.3	005.7	240.5	000.0409	0099.6	028.5	39.39
052.0	000.0940	0032.2	005.7	240.3	000.0405	0099.5	028.5	39.35
053.0	000.0940	0032.3	005.7	240.1	000.0401	0099.4	028.5	39.30
054.0	000.0940	0032.2	005.7	239.9	000.0403	0099.3	028.5	39.31
055.0	000.0940	0032.3	005.7	239.7	000.0407	0099.2	028.4	39.35
056.0	000.0940	0032.4	005.7	239.5	000.0411	0099.0	028.4	39.39
057.0	000.0940	0032.5	005.8	239.3	000.0415	0098.9	028.4	39.43
058.0	000.0940	0032.5	005.8	239.1	000.0419	0098.8	028.4	39.47
059.0	000.0940	0032.7	005.8	238.9	000.0423	0098.7	028.4	39.51
060.0	000.0940	0032.8	005.8	238.7	000.0427	0098.6	028.4	39.54
061.0	000.0940	0032.8	005.8	238.4	000.0432	0098.5	028.4	39.58
062.0	000.0940	0032.9	005.8	238.2	000.0436	0098.4	028.4	39.61
063.0	000.0940	0032.9	005.8	238.0	000.0440	0098.2	028.4	39.63
064.0	000.0940	0033.0	005.8	237.8	000.0444	0098.0	028.4	39.65
065.0	000.0940	0033.0	005.8	237.6	000.0449	0097.8	028.4	39.67
066.0	000.0940	0033.0	005.8	237.4	000.0453	0097.7	028.4	39.69
067.0	000.0940	0032.9	005.8	237.2	000.0457	0097.7	028.5	39.71
068.0	000.0940	0032.9	005.8	237.0	000.0462	0097.6	028.5	39.73
069.0	000.0940	0032.9	005.8	236.8	000.0466	0097.5	028.5	39.75
070.0	000.0940	0032.8	005.8	236.6	000.0470	0097.4	028.5	39.76
071.0	000.0940	0032.8	005.8	236.4	000.0474	0097.2	028.5	39.77
072.0	000.0940	0032.9	005.8	236.2	000.0479	0097.1	028.6	39.78
073.0	000.0940	0032.8	005.8	236.1	000.0483	0096.9	028.6	39.79
074.0	000.0940	0032.8	005.8	235.9	000.0487	0096.8	028.6	39.79
075.0	000.0940	0032.8	005.8	235.7	000.0491	0096.7	028.7	39.80
076.0	000.0940	0032.7	005.8	235.5	000.0495	0096.6	028.7	39.81
077.0	000.0940	0032.7	005.8	235.3	000.0499	0096.5	028.8	39.81
078.0	000.0940	0032.5	005.8	235.1	000.0503	0096.5	028.8	39.81
079.0	000.0940	0032.3	005.7	235.0	000.0507	0096.4	028.9	39.80
080.0	000.0940	0032.1	005.7	234.8	000.0511	0096.2	028.9	39.78
081.0	000.0940	0031.8	005.7	234.6	000.0514	0096.1	029.0	39.76
082.0	000.0940	0031.4	005.7	234.5	000.0518	0096.0	029.0	39.74
083.0	000.0940	0031.0	005.6	234.4	000.0521	0096.0	029.1	39.71
084.0	000.0940	0030.5	005.6	234.2	000.0524	0095.9	029.2	39.68
085.0	000.0940	0029.6	005.5	234.1	000.0527	0095.8	029.3	39.65
086.0	000.0940	0028.7	005.5	233.9	000.0530	0095.7	029.3	39.64
087.0	000.0940	0028.2	005.5	233.8	000.0534	0095.7	029.4	39.63
088.0	000.0940	0027.9	005.5	233.6	000.0538	0095.6	029.5	39.62
089.0	000.0940	0027.6	005.5	233.5	000.0541	0095.5	029.5	39.61
090.0	000.0940	0027.4	005.5	233.3	000.0545	0095.4	029.6	39.60
091.0	000.0940	0027.2	005.5	233.2	000.0548	0095.3	029.6	39.58
092.0	000.0940	0027.0	005.5	233.0	000.0552	0095.2	029.7	39.56

Exhibit 13.6b

Contour Protection Studies Toward Select Station(s)

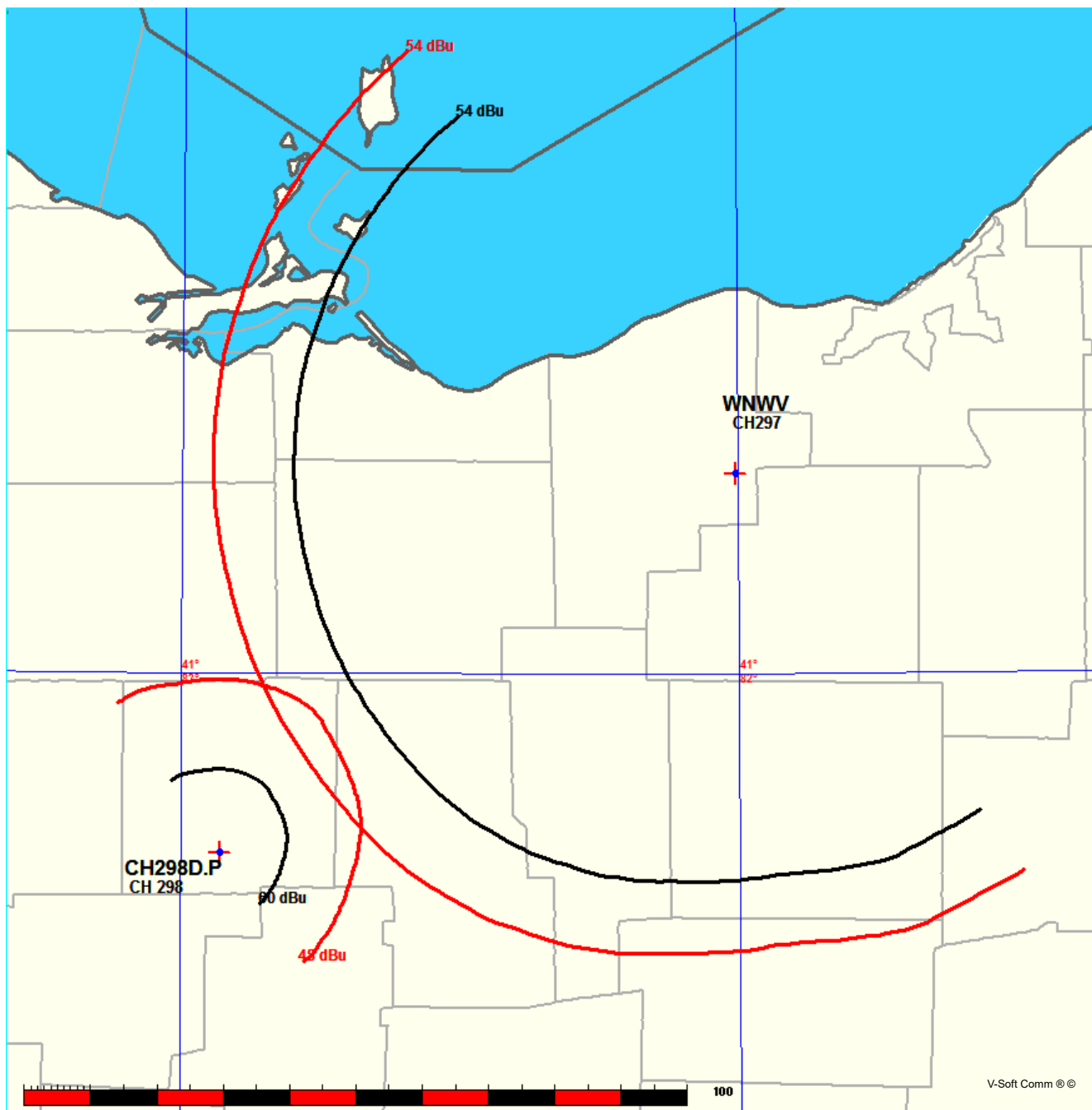
Franklin Communications, Inc.

FMCommander Single Allocation Study - 04-06-2016 - USGS 03 SEC

CH298D.P's Overlaps (In= 7.64 km, Out= 7.58 km)

CH298D.P CH 298 D DA
Lat= 40 45 49.0, Lng= 82 56 00.0
0.25 kW 77.6 m HAAT, 392 m COR
Prot.= 60 dBu, Intef.= 48 dBu

WNWV CH 297 B BLH20041102AEC
Lat= 41 16 10.0, Lng= 82 00 16.0
20.0 kW 238 m HAAT, 493 m COR
Prot.= 54 dBu, Intef.= 54 dBu



MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.6b

Contour Protection Studies Toward Select Station(s)

04-06-2016

Terrain Data: USGS 03 SEC

FMOver Analysis

CH298D.P

WNWV BLH20041102AEC

Channel = 298D

Max ERP = 0.25 kW

RCAMSL = 392 m

N. Lat. 40 45 49.0

W. Lng. 82 56 00.0

Protected

60 dBu

Channel = 297B

Max ERP = 20 kW

RCAMSL = 493 m

N. Lat. 41 16 10.0

W. Lng. 82 00 16.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
011.0	000.2500	0087.6	012.1	239.9	020.0000	0246.4	087.6	50.79	
012.0	000.2500	0087.6	012.1	239.8	020.0000	0246.3	087.5	50.84	
013.0	000.2500	0087.6	012.1	239.7	020.0000	0246.3	087.3	50.88	
014.0	000.2500	0087.6	012.1	239.6	020.0000	0246.2	087.2	50.93	
015.0	000.2500	0087.5	012.1	239.5	020.0000	0246.2	087.0	50.97	
016.0	000.2500	0087.5	012.1	239.4	020.0000	0246.1	086.9	51.02	
017.0	000.2500	0087.5	012.1	239.3	020.0000	0246.1	086.7	51.06	
018.0	000.2500	0087.5	012.1	239.2	020.0000	0246.0	086.6	51.10	
019.0	000.2500	0087.5	012.1	239.1	020.0000	0246.0	086.5	51.15	
020.0	000.2500	0087.5	012.1	239.0	020.0000	0245.9	086.3	51.19	
021.0	000.2500	0087.5	012.1	238.8	020.0000	0245.9	086.2	51.23	
022.0	000.2500	0087.5	012.1	238.7	020.0000	0245.8	086.1	51.26	
023.0	000.2500	0087.4	012.1	238.6	020.0000	0245.8	086.0	51.30	
024.0	000.2500	0087.4	012.1	238.5	020.0000	0245.7	085.9	51.34	
025.0	000.2500	0087.3	012.1	238.4	020.0000	0245.6	085.7	51.37	
026.0	000.2500	0087.2	012.0	238.3	020.0000	0245.5	085.6	51.40	
027.0	000.2500	0087.1	012.0	238.1	020.0000	0245.5	085.5	51.43	
028.0	000.2500	0087.0	012.0	238.0	020.0000	0245.4	085.4	51.46	
029.0	000.2500	0086.9	012.0	237.9	020.0000	0245.4	085.3	51.49	
030.0	000.2500	0086.8	012.0	237.8	020.0000	0245.3	085.2	51.52	
031.0	000.2500	0086.6	012.0	237.6	020.0000	0245.2	085.2	51.54	
032.0	000.2500	0086.4	012.0	237.5	020.0000	0245.1	085.1	51.56	
033.0	000.2500	0086.1	012.0	237.4	020.0000	0245.1	085.0	51.58	
034.0	000.2500	0085.8	012.0	237.2	020.0000	0245.0	085.0	51.60	
035.0	000.2500	0085.5	011.9	237.1	020.0000	0244.9	084.9	51.62	
036.0	000.2500	0084.9	011.9	237.0	020.0000	0244.8	084.9	51.63	
037.0	000.2500	0084.1	011.8	236.8	020.0000	0244.8	084.8	51.63	
038.0	000.2500	0083.2	011.8	236.7	020.0000	0244.7	084.8	51.64	
039.0	000.2500	0082.3	011.7	236.5	020.0000	0244.7	084.8	51.63	
040.0	000.2500	0081.3	011.7	236.4	020.0000	0244.6	084.8	51.63	
041.0	000.2500	0080.3	011.6	236.2	020.0000	0244.5	084.8	51.62	
042.0	000.2500	0079.2	011.5	236.1	020.0000	0244.5	084.9	51.61	
043.0	000.2500	0078.2	011.5	235.9	020.0000	0244.4	084.9	51.61	
044.0	000.2500	0077.2	011.4	235.8	020.0000	0244.3	084.9	51.60	

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.6b

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)
045.0	000.2500	0076.5	011.3	235.7	020.0000	0244.3	084.9	51.59
046.0	000.2500	0075.9	011.3	235.5	020.0000	0244.3	084.9	51.59
047.0	000.2500	0075.4	011.3	235.4	020.0000	0244.2	084.9	51.59
048.0	000.2500	0074.9	011.2	235.3	020.0000	0244.2	084.9	51.58
049.0	000.2500	0074.5	011.2	235.1	020.0000	0244.2	084.9	51.58
050.0	000.2500	0074.0	011.2	235.0	020.0000	0244.1	085.0	51.57
051.0	000.2500	0073.5	011.1	234.9	020.0000	0244.1	085.0	51.56
052.0	000.2500	0072.9	011.1	234.7	020.0000	0244.1	085.0	51.55
053.0	000.2500	0072.2	011.0	234.6	020.0000	0244.0	085.1	51.54
054.0	000.2500	0071.6	011.0	234.5	020.0000	0244.0	085.1	51.53
055.0	000.2500	0071.1	011.0	234.3	020.0000	0244.0	085.1	51.51
056.0	000.2500	0070.7	010.9	234.2	020.0000	0244.0	085.2	51.50
057.0	000.2500	0070.3	010.9	234.1	020.0000	0243.9	085.2	51.49
058.0	000.2500	0069.9	010.9	234.0	020.0000	0243.9	085.2	51.47
059.0	000.2500	0069.6	010.9	233.8	020.0000	0243.9	085.3	51.46
060.0	000.2500	0069.4	010.8	233.7	020.0000	0243.8	085.3	51.45
061.0	000.2500	0069.2	010.8	233.6	020.0000	0243.8	085.4	51.43
062.0	000.2500	0069.0	010.8	233.5	020.0000	0243.7	085.4	51.42
063.0	000.2500	0068.7	010.8	233.3	020.0000	0243.7	085.4	51.40
064.0	000.2500	0068.4	010.8	233.2	020.0000	0243.7	085.5	51.38
065.0	000.2500	0068.0	010.8	233.1	020.0000	0243.6	085.6	51.36
066.0	000.2500	0067.8	010.7	233.0	020.0000	0243.6	085.6	51.34
067.0	000.2500	0067.5	010.7	232.9	020.0000	0243.5	085.7	51.32
068.0	000.2500	0067.3	010.7	232.7	020.0000	0243.5	085.8	51.30
069.0	000.2500	0067.0	010.7	232.6	020.0000	0243.5	085.8	51.27
070.0	000.2500	0066.7	010.7	232.5	020.0000	0243.4	085.9	51.25
071.0	000.2500	0066.5	010.6	232.4	020.0000	0243.4	086.0	51.22
072.0	000.2500	0066.2	010.6	232.3	020.0000	0243.4	086.1	51.20
073.0	000.2500	0066.0	010.6	232.2	020.0000	0243.4	086.1	51.17
074.0	000.2500	0065.6	010.6	232.1	020.0000	0243.4	086.2	51.14
075.0	000.2500	0065.4	010.6	232.0	020.0000	0243.4	086.3	51.11
076.0	000.2500	0065.2	010.6	231.9	020.0000	0243.4	086.4	51.08
077.0	000.2500	0065.0	010.5	231.7	020.0000	0243.4	086.5	51.05
078.0	000.2500	0064.7	010.5	231.6	020.0000	0243.4	086.6	51.02
079.0	000.2500	0064.3	010.5	231.5	020.0000	0243.3	086.7	50.99
080.0	000.2500	0063.9	010.5	231.4	020.0000	0243.3	086.8	50.95
081.0	000.2500	0063.5	010.4	231.4	020.0000	0243.3	086.9	50.91
082.0	000.2500	0062.9	010.4	231.3	020.0000	0243.3	087.1	50.87
083.0	000.2500	0062.4	010.4	231.2	020.0000	0243.3	087.2	50.83
084.0	000.2500	0061.8	010.3	231.1	020.0000	0243.3	087.3	50.79
085.0	000.2500	0061.1	010.3	231.0	020.0000	0243.3	087.5	50.74
086.0	000.2500	0060.5	010.2	230.9	020.0000	0243.2	087.6	50.70
087.0	000.2500	0060.2	010.2	230.8	020.0000	0243.2	087.7	50.66
088.0	000.2500	0059.9	010.2	230.8	020.0000	0243.2	087.9	50.62
089.0	000.2500	0059.8	010.2	230.7	020.0000	0243.2	088.0	50.58
090.0	000.2500	0059.5	010.1	230.6	020.0000	0243.2	088.1	50.54

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.6b

Contour Protection Studies Toward Select Station(s)

04-06-2016

Terrain Data: USGS 03 SEC

FMOver Analysis

WNWV BLH20041102AEC

CH298D.P

Channel = 297B

Max ERP = 20 kW

RCAMSL = 493 m

N. Lat. 41 16 10.0

W. Lng. 82 00 16.0

Protected

54 dBu

Channel = 298D

Max ERP = 0.25 kW

RCAMSL = 392 m

N. Lat. 40 45 49.0

W. Lng. 82 56 00.0

Interfering

48 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
189.0	020.0000	0199.9	061.6	093.6	000.2500	0058.0	068.8	28.63	
190.0	020.0000	0201.6	061.8	093.7	000.2500	0058.0	067.7	28.91	
191.0	020.0000	0203.9	062.0	093.7	000.2500	0058.0	066.6	29.19	
192.0	020.0000	0205.8	062.2	093.8	000.2500	0058.0	065.5	29.47	
193.0	020.0000	0207.9	062.4	093.8	000.2500	0058.0	064.4	29.75	
194.0	020.0000	0210.0	062.6	093.8	000.2500	0058.0	063.3	30.04	
195.0	020.0000	0211.6	062.7	093.8	000.2500	0058.0	062.2	30.34	
196.0	020.0000	0212.5	062.8	093.7	000.2500	0058.0	061.1	30.65	
197.0	020.0000	0214.4	063.0	093.6	000.2500	0058.0	060.0	30.97	
198.0	020.0000	0216.7	063.2	093.5	000.2500	0058.1	058.9	31.30	
199.0	020.0000	0218.2	063.3	093.4	000.2500	0058.1	057.7	31.63	
200.0	020.0000	0219.6	063.4	093.2	000.2500	0058.2	056.7	31.97	
201.0	020.0000	0220.7	063.5	093.0	000.2500	0058.2	055.6	32.31	
202.0	020.0000	0222.0	063.6	092.8	000.2500	0058.3	054.5	32.66	
203.0	020.0000	0223.0	063.7	092.5	000.2500	0058.4	053.4	33.01	
204.0	020.0000	0223.9	063.8	092.1	000.2500	0058.6	052.3	33.36	
205.0	020.0000	0225.0	063.9	091.7	000.2500	0058.7	051.2	33.71	
206.0	020.0000	0226.5	064.0	091.4	000.2500	0058.9	050.2	34.07	
207.0	020.0000	0228.4	064.2	091.0	000.2500	0059.1	049.1	34.43	
208.0	020.0000	0230.6	064.4	090.6	000.2500	0059.3	048.0	34.79	
209.0	020.0000	0232.3	064.6	090.2	000.2500	0059.5	046.9	35.15	
210.0	020.0000	0233.3	064.6	089.6	000.2500	0059.6	045.9	35.50	
211.0	020.0000	0233.9	064.7	088.9	000.2500	0059.8	044.9	35.86	
212.0	020.0000	0234.2	064.7	088.2	000.2500	0059.9	043.9	36.20	
213.0	020.0000	0234.6	064.8	087.4	000.2500	0060.1	043.0	36.57	
214.0	020.0000	0235.4	064.8	086.5	000.2500	0060.3	042.0	36.94	
215.0	020.0000	0236.5	064.9	085.7	000.2500	0060.7	041.1	37.33	
216.0	020.0000	0237.8	065.0	084.8	000.2500	0061.2	040.1	37.75	
217.0	020.0000	0239.4	065.1	083.8	000.2500	0061.9	039.2	38.19	
218.0	020.0000	0240.5	065.2	082.8	000.2500	0062.5	038.3	38.61	
219.0	020.0000	0241.3	065.3	081.6	000.2500	0063.1	037.5	39.02	
220.0	020.0000	0241.6	065.3	080.3	000.2500	0063.8	036.7	39.42	
221.0	020.0000	0241.8	065.3	079.0	000.2500	0064.3	035.9	39.79	

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.6b

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)
222.0	020.0000	0242.3	065.4	077.5	000.2500	0064.9	035.2	40.15
223.0	020.0000	0242.7	065.4	076.0	000.2500	0065.2	034.5	40.48
224.0	020.0000	0242.8	065.4	074.4	000.2500	0065.5	033.9	40.79
225.0	020.0000	0242.8	065.4	072.7	000.2500	0066.1	033.3	41.11
226.0	020.0000	0243.0	065.4	071.0	000.2500	0066.5	032.8	41.38
227.0	020.0000	0243.1	065.5	069.2	000.2500	0067.0	032.3	41.65
228.0	020.0000	0243.1	065.5	067.3	000.2500	0067.5	031.9	41.90
229.0	020.0000	0243.1	065.5	065.3	000.2500	0068.0	031.6	42.13
230.0	020.0000	0243.1	065.5	063.3	000.2500	0068.6	031.3	42.36
231.0	020.0000	0243.3	065.5	061.3	000.2500	0069.1	031.0	42.55
232.0	020.0000	0243.4	065.5	059.2	000.2500	0069.6	030.8	42.71
233.0	020.0000	0243.6	065.5	057.1	000.2500	0070.2	030.7	42.85
234.0	020.0000	0243.9	065.5	054.9	000.2500	0071.1	030.6	43.00
235.0	020.0000	0244.1	065.5	052.8	000.2500	0072.3	030.6	43.15
236.0	020.0000	0244.4	065.6	050.6	000.2500	0073.7	030.6	43.30
237.0	020.0000	0244.9	065.6	048.5	000.2500	0074.6	030.7	43.36
238.0	020.0000	0245.4	065.6	046.4	000.2500	0075.7	030.8	43.41
239.0	020.0000	0245.9	065.7	044.3	000.2500	0077.0	031.0	43.45
240.0	020.0000	0246.4	065.7	042.2	000.2500	0079.0	031.3	43.55
241.0	020.0000	0246.9	065.8	040.2	000.2500	0081.1	031.6	43.62
242.0	020.0000	0247.3	065.8	038.3	000.2500	0082.9	032.0	43.64
243.0	020.0000	0247.8	065.8	036.4	000.2500	0084.6	032.5	43.61
244.0	020.0000	0248.1	065.9	034.6	000.2500	0085.6	033.0	43.48
245.0	020.0000	0248.4	065.9	032.9	000.2500	0086.2	033.5	43.28
246.0	020.0000	0248.6	065.9	031.2	000.2500	0086.5	034.2	43.04
247.0	020.0000	0248.9	065.9	029.7	000.2500	0086.8	034.8	42.78
248.0	020.0000	0249.1	065.9	028.2	000.2500	0087.0	035.5	42.48
249.0	020.0000	0249.3	066.0	026.7	000.2500	0087.1	036.2	42.17
250.0	020.0000	0249.5	066.0	025.4	000.2500	0087.3	037.0	41.85
251.0	020.0000	0249.6	066.0	024.1	000.2500	0087.4	037.8	41.51
252.0	020.0000	0249.6	066.0	023.0	000.2500	0087.4	038.7	41.16
253.0	020.0000	0249.6	066.0	021.9	000.2500	0087.5	039.5	40.79
254.0	020.0000	0249.6	066.0	020.9	000.2500	0087.5	040.4	40.43
255.0	020.0000	0249.7	066.0	019.9	000.2500	0087.5	041.4	40.05
256.0	020.0000	0249.9	066.0	019.0	000.2500	0087.5	042.3	39.68
257.0	020.0000	0250.1	066.0	018.1	000.2500	0087.5	043.3	39.30
258.0	020.0000	0250.6	066.1	017.3	000.2500	0087.5	044.2	38.92
259.0	020.0000	0251.2	066.1	016.5	000.2500	0087.5	045.2	38.55
260.0	020.0000	0251.7	066.2	015.8	000.2500	0087.5	046.2	38.17
261.0	020.0000	0252.4	066.2	015.1	000.2500	0087.5	047.2	37.80
262.0	020.0000	0253.0	066.3	014.5	000.2500	0087.6	048.3	37.43
263.0	020.0000	0253.4	066.3	014.0	000.2500	0087.6	049.3	37.05
264.0	020.0000	0254.1	066.3	013.4	000.2500	0087.6	050.4	36.66
265.0	020.0000	0254.7	066.4	013.0	000.2500	0087.6	051.5	36.27
266.0	020.0000	0255.3	066.4	012.5	000.2500	0087.6	052.6	35.87
267.0	020.0000	0255.8	066.5	012.1	000.2500	0087.6	053.7	35.47
268.0	020.0000	0256.2	066.5	011.8	000.2500	0087.6	054.8	35.06

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.7

Manufacturer's Directional Antenna Pattern Data

Azimuth ° True	FCC Pattern	Composite Pattern
0°	1.000	0.989
10°	1.000	0.995
20°	1.000	1.000
30°	1.000	0.995
40°	1.000	0.989
50°	1.000	0.978
60°	1.000	0.963
70°	1.000	0.939
80°	1.000	0.899
90°	1.000	0.856
100°	1.000	0.804
110°	1.000	0.737
120°	1.000	0.650
130°	1.000	0.557
140°	1.000	0.479
150°	1.000	0.423
160°	1.000	0.399
170°	1.000	0.403
180°	1.000	0.398
190°	1.000	0.404
200°	1.000	0.401
210°	1.000	0.404
220°	1.000	0.398
230°	0.500	0.403
240°	0.400	0.399
250°	0.500	0.423
260°	1.000	0.479
270°	1.000	0.557
280°	1.000	0.650
290°	1.000	0.737
300°	1.000	0.804
310°	1.000	0.856
320°	1.000	0.899
330°	1.000	0.939
340°	1.000	0.963
350°	1.000	0.978

Model:	Antenna 1	Antenna 2	Antenna 3	Antenna 4	Composite
Orientation	BKG1/P(V)				Power
Power:	020° True				100%
	100.0%				

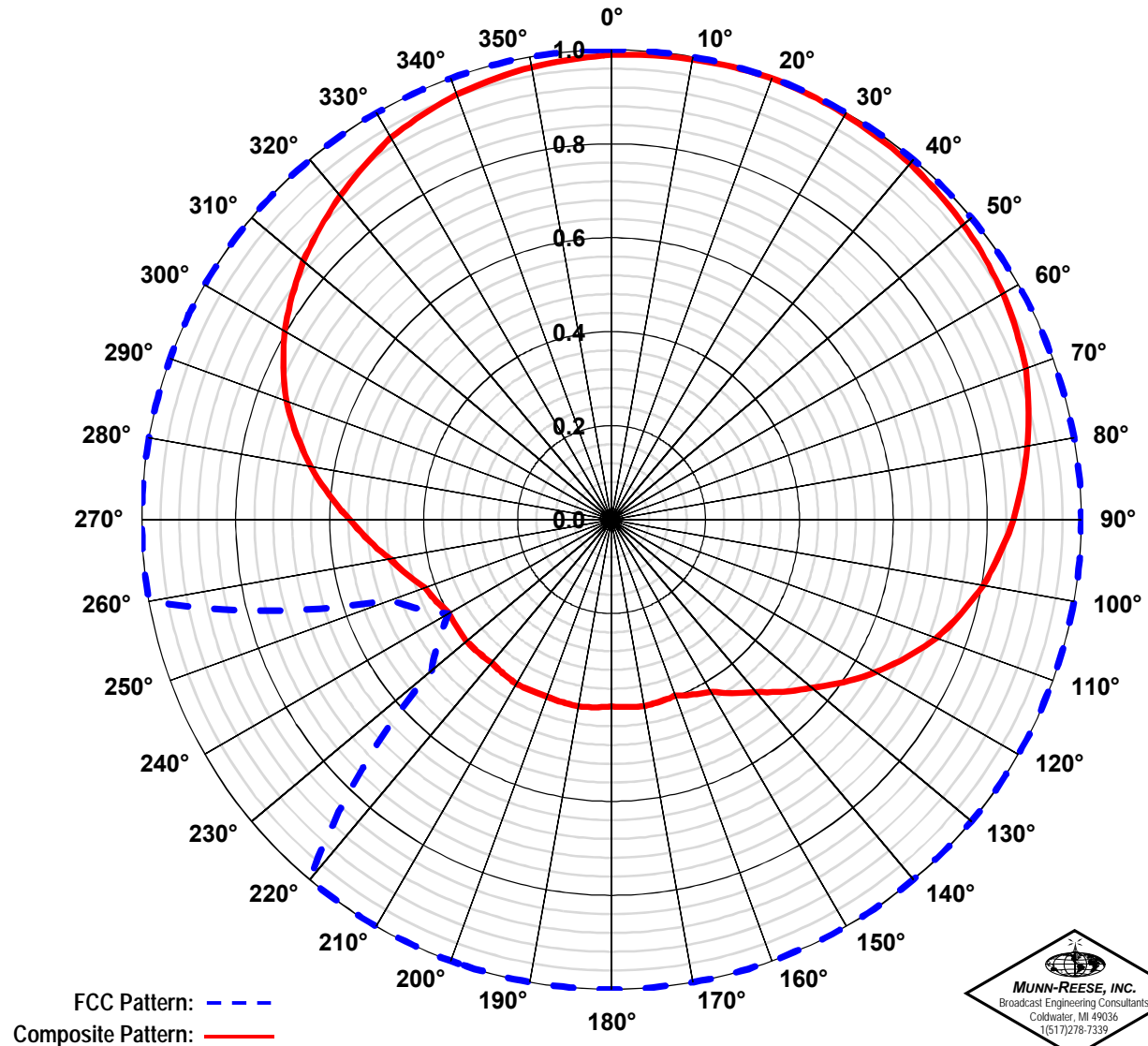
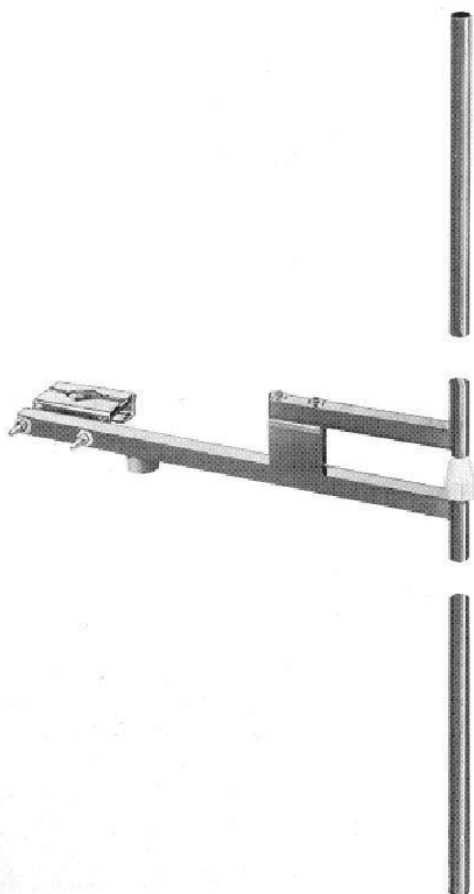


Exhibit 13.7 - Manufacturer's Directional Antenna Pattern Data



NICOM **BKG1/P** **Low Power** **Broadband** **FM Dipole** **Dipolo de FM** **Banda Ancha**

This antenna can be easily installed because of its lightness. Electrically grounded it gives excellent protection against lightning. Combined in arrays of more elements this dipole offers high gain over a wide angle.

Esta antena puede ser facilmente armada debido a su ligereza. Es conectada por tierra lo cual ofrece óptima protección contra relámpagos. Combinada de arrays de varios elementos este dipolo puede ofrecer buena ganancia a través de un amplio ángulo.

TECHNICAL SPECIFICATIONS

Antenna type	dipole	Front-to-back ratio	7 dB
Frequency range	87.5 - 108 MHz	Lightning protection	all parts grounded
Bandwidth	20 MHz	Max wind velocity	119 mph (190 km/h)
Impedance	50 Ohms	Wind load	39.6 Lbs (18 kg)
Connectors	N type	Wind surface	1.2 ft ² (0.11 m ²)
Power rating	500 Watts max.	Materials (external)	anti-corrosive aluminum
VSWR	< 1.3	Mounting	from 2" to 4"
Polarization	vertical	Weight	8.8 Lbs (4 kg)
Gain	0 dBd (unity gain)	Dimensions	55"×33"×2" (1400×850×60 mm)
H plane	194 degrees	Packing	59"×36"×4" (1500×900×100 mm)
V plane	78 degrees		

Radiation Patterns (at mid-band)

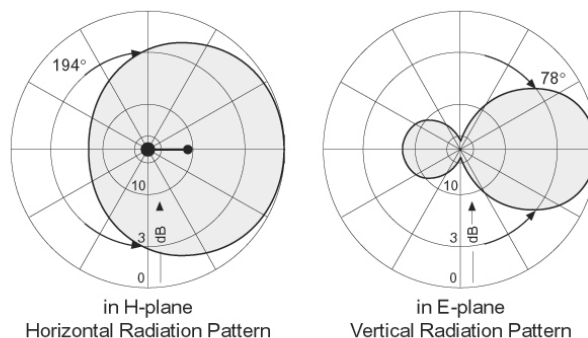


Exhibit 13.7 - Manufacturer's Directional Antenna Pattern Data



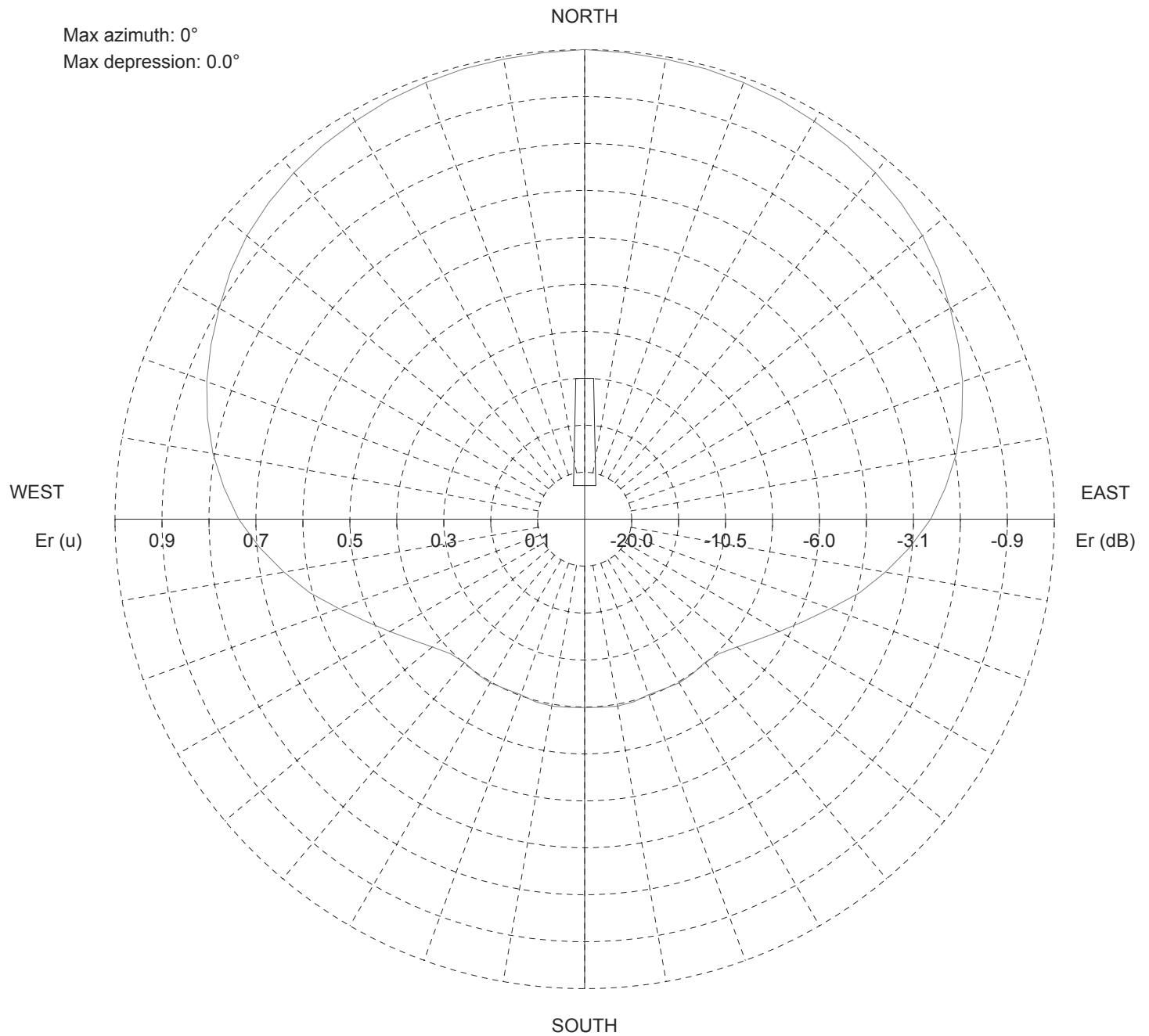
TX station: BKG1/P

Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima

Max azimuth: 0°
Max depression: 0.0°



—— 0.0° depres. (Total antenna), Gain (dBd): 0.00 ERP T.max (KW): 1.

ERP E.max (KW): 0.776

Exhibit 13.7 - Manufacturer's Directional Antenna Pattern Data



TX station: BKG1/P

Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima

Az (°)	Dep (°)	Er (%)	ERP (W)	Az (°)	Dep (°)	Er (%)	ERP (W)	Az (°)	Dep (°)	Er (%)	ERP (W)
0.0	0.0	100.0	776.2	120.0	0.0	47.9	178.0	240.0	0.0	47.9	178.0
5.0	0.0	99.7	772.1	125.0	0.0	44.8	156.0	245.0	0.0	51.5	205.9
10.0	0.0	99.5	768.1	130.0	0.0	42.3	139.1	250.0	0.0	55.7	240.8
15.0	0.0	99.3	765.7	135.0	0.0	40.5	127.4	255.0	0.0	60.6	285.0
20.0	0.0	98.9	759.7	140.0	0.0	39.9	123.3	260.0	0.0	65.0	328.3
25.0	0.0	98.5	753.4	145.0	0.0	40.1	125.1	265.0	0.0	69.5	374.7
30.0	0.0	97.8	743.2	150.0	0.0	40.3	126.0	270.0	0.0	73.7	421.3
35.0	0.0	97.2	733.2	155.0	0.0	39.9	123.5	275.0	0.0	77.1	461.6
40.0	0.0	96.3	720.1	160.0	0.0	39.8	122.8	280.0	0.0	80.4	501.4
45.0	0.0	95.2	703.9	165.0	0.0	40.3	126.1	285.0	0.0	83.2	536.8
50.0	0.0	93.9	684.4	170.0	0.0	40.4	126.9	290.0	0.0	85.6	569.2
55.0	0.0	92.1	658.3	175.0	0.0	40.3	125.8	295.0	0.0	87.8	598.3
60.0	0.0	89.9	627.1	180.0	0.0	40.1	125.0	300.0	0.0	89.9	627.1
65.0	0.0	87.8	598.3	185.0	0.0	40.3	125.8	305.0	0.0	92.1	658.3
70.0	0.0	85.6	569.2	190.0	0.0	40.4	126.9	310.0	0.0	93.9	684.4
75.0	0.0	83.2	536.8	195.0	0.0	40.3	126.1	315.0	0.0	95.2	703.9
80.0	0.0	80.4	501.4	200.0	0.0	39.8	122.8	320.0	0.0	96.3	720.1
85.0	0.0	77.1	461.6	205.0	0.0	39.9	123.5	325.0	0.0	97.2	733.2
90.0	0.0	73.7	421.3	210.0	0.0	40.3	126.0	330.0	0.0	97.8	743.2
95.0	0.0	69.5	374.7	215.0	0.0	40.1	125.1	335.0	0.0	98.5	753.4
100.0	0.0	65.0	328.3	220.0	0.0	39.9	123.3	340.0	0.0	98.9	759.7
105.0	0.0	60.6	285.0	225.0	0.0	40.5	127.4	345.0	0.0	99.3	765.7
110.0	0.0	55.7	240.8	230.0	0.0	42.3	139.1	350.0	0.0	99.5	768.1
115.0	0.0	51.5	205.9	235.0	0.0	44.8	156.0	355.0	0.0	99.7	772.1

Exhibit 13.7 - Manufacturer's Directional Antenna Pattern Data



TX station: BKG1/P

Site name:

Frequency: 100.00 MHz

Vertical diagram

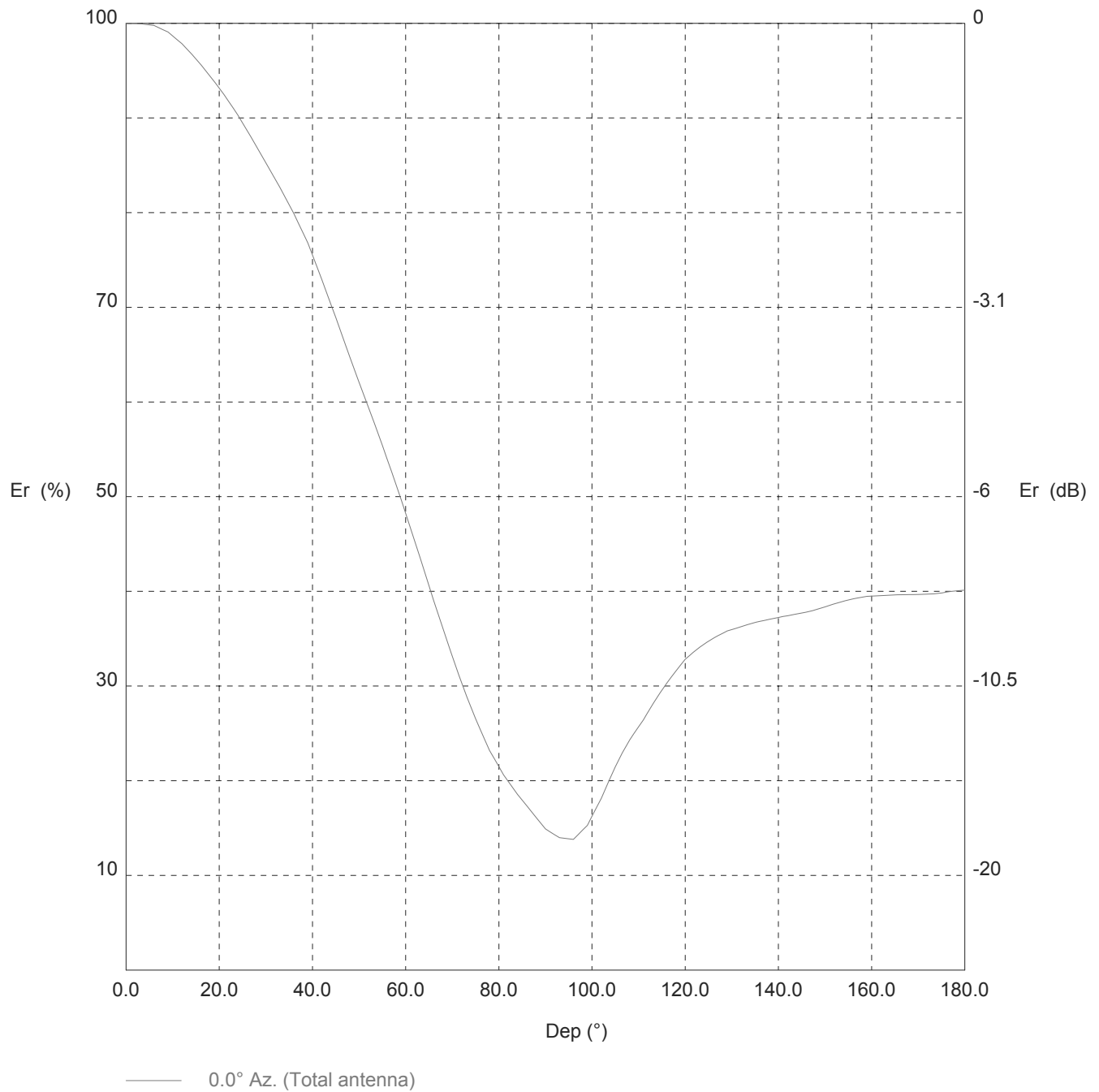


Exhibit 13.7 - Manufacturer's Directional Antenna Pattern Data



TX station: BKG1/P

Site name:

Frequency: 100.00 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	776.2	60.0	48.3	180.9	120.0	32.8	83.6
1.0	100.0	776.1	61.0	46.8	169.7	121.0	33.2	85.8
2.0	100.0	775.9	62.0	45.2	158.9	122.0	33.7	88.0
3.0	100.0	775.7	63.0	43.7	148.5	123.0	34.1	90.2
4.0	99.9	774.8	64.0	42.2	138.1	124.0	34.4	91.9
5.0	99.8	773.8	65.0	40.6	128.0	125.0	34.7	93.6
6.0	99.8	772.9	66.0	39.1	118.4	126.0	35.0	95.3
7.0	99.5	769.2	67.0	37.6	109.6	127.0	35.3	96.8
8.0	99.3	765.6	68.0	36.1	101.1	128.0	35.6	98.2
9.0	99.1	762.0	69.0	34.6	92.9	129.0	35.8	99.6
10.0	98.7	755.7	70.0	33.2	85.4	130.0	36.0	100.4
11.0	98.3	749.5	71.0	31.7	78.1	131.0	36.1	101.3
12.0	97.9	743.2	72.0	30.3	71.2	132.0	36.3	102.1
13.0	97.3	735.2	73.0	29.0	65.4	133.0	36.4	103.0
14.0	96.8	727.2	74.0	27.8	59.9	134.0	36.6	103.8
15.0	96.3	719.2	75.0	26.5	54.6	135.0	36.7	104.7
16.0	95.7	710.3	76.0	25.4	50.1	136.0	36.8	105.3
17.0	95.1	701.4	77.0	24.3	45.8	137.0	36.9	105.9
18.0	94.5	692.6	78.0	23.2	41.7	138.0	37.0	106.5
19.0	93.8	683.0	79.0	22.3	38.7	139.0	37.1	107.1
20.0	93.1	673.5	80.0	21.5	35.8	140.0	37.2	107.7
21.0	92.5	664.1	81.0	20.6	33.1	141.0	37.3	108.2
22.0	91.8	653.7	82.0	19.9	30.9	142.0	37.4	108.8
23.0	91.0	643.4	83.0	19.2	28.8	143.0	37.5	109.3
24.0	90.3	633.1	84.0	18.6	26.7	144.0	37.6	109.8
25.0	89.5	621.6	85.0	17.9	25.0	145.0	37.7	110.4
26.0	88.7	610.3	86.0	17.3	23.4	146.0	37.8	111.0
27.0	87.8	599.0	87.0	16.7	21.8	147.0	37.9	111.6
28.0	87.0	587.3	88.0	16.1	20.2	148.0	38.1	112.5
29.0	86.1	575.7	89.0	15.5	18.7	149.0	38.2	113.4
30.0	85.3	564.3	90.0	14.9	17.3	150.0	38.4	114.2
31.0	84.4	552.9	91.0	14.6	16.5	151.0	38.5	115.2
32.0	83.5	541.7	92.0	14.3	15.8	152.0	38.7	116.1
33.0	82.7	530.6	93.0	14.0	15.2	153.0	38.8	117.1
34.0	81.7	518.8	94.0	13.9	15.0	154.0	39.0	117.9
35.0	80.8	507.1	95.0	13.9	14.9	155.0	39.1	118.6
36.0	79.9	495.6	96.0	13.8	14.8	156.0	39.2	119.4
37.0	78.9	482.9	97.0	14.3	15.9	157.0	39.3	119.9
38.0	77.8	470.4	98.0	14.8	17.0	158.0	39.4	120.4
39.0	76.8	458.0	99.0	15.3	18.1	159.0	39.5	120.9
40.0	75.5	442.7	100.0	16.2	20.5	160.0	39.5	121.1
41.0	74.2	427.7	101.0	17.2	23.0	161.0	39.5	121.3
42.0	72.9	412.9	102.0	18.1	25.5	162.0	39.5	121.4
43.0	71.6	398.0	103.0	19.3	28.8	163.0	39.6	121.6
44.0	70.3	383.3	104.0	20.4	32.3	164.0	39.6	121.7
45.0	68.9	368.9	105.0	21.5	35.9	165.0	39.6	121.9
46.0	67.5	354.2	106.0	22.4	39.1	166.0	39.6	122.0
47.0	66.2	339.7	107.0	23.4	42.4	167.0	39.6	122.0
48.0	64.8	325.5	108.0	24.3	45.8	168.0	39.7	122.1
49.0	63.4	312.3	109.0	25.0	48.5	169.0	39.7	122.1
50.0	62.1	299.4	110.0	25.7	51.3	170.0	39.7	122.2
51.0	60.8	286.8	111.0	26.4	54.2	171.0	39.7	122.2
52.0	59.5	274.4	112.0	27.2	57.6	172.0	39.7	122.4
53.0	58.1	262.3	113.0	28.1	61.1	173.0	39.7	122.5
54.0	56.8	250.4	114.0	28.9	64.6	174.0	39.8	122.7
55.0	55.4	238.3	115.0	29.6	67.9	175.0	39.8	123.2
56.0	54.0	226.6	116.0	30.3	71.1	176.0	39.9	123.7
57.0	52.6	215.1	117.0	31.0	74.4	177.0	40.0	124.2
58.0	51.2	203.3	118.0	31.6	77.5	178.0	40.0	124.5
59.0	49.7	191.9	119.0	32.2	80.5	179.0	40.1	124.7