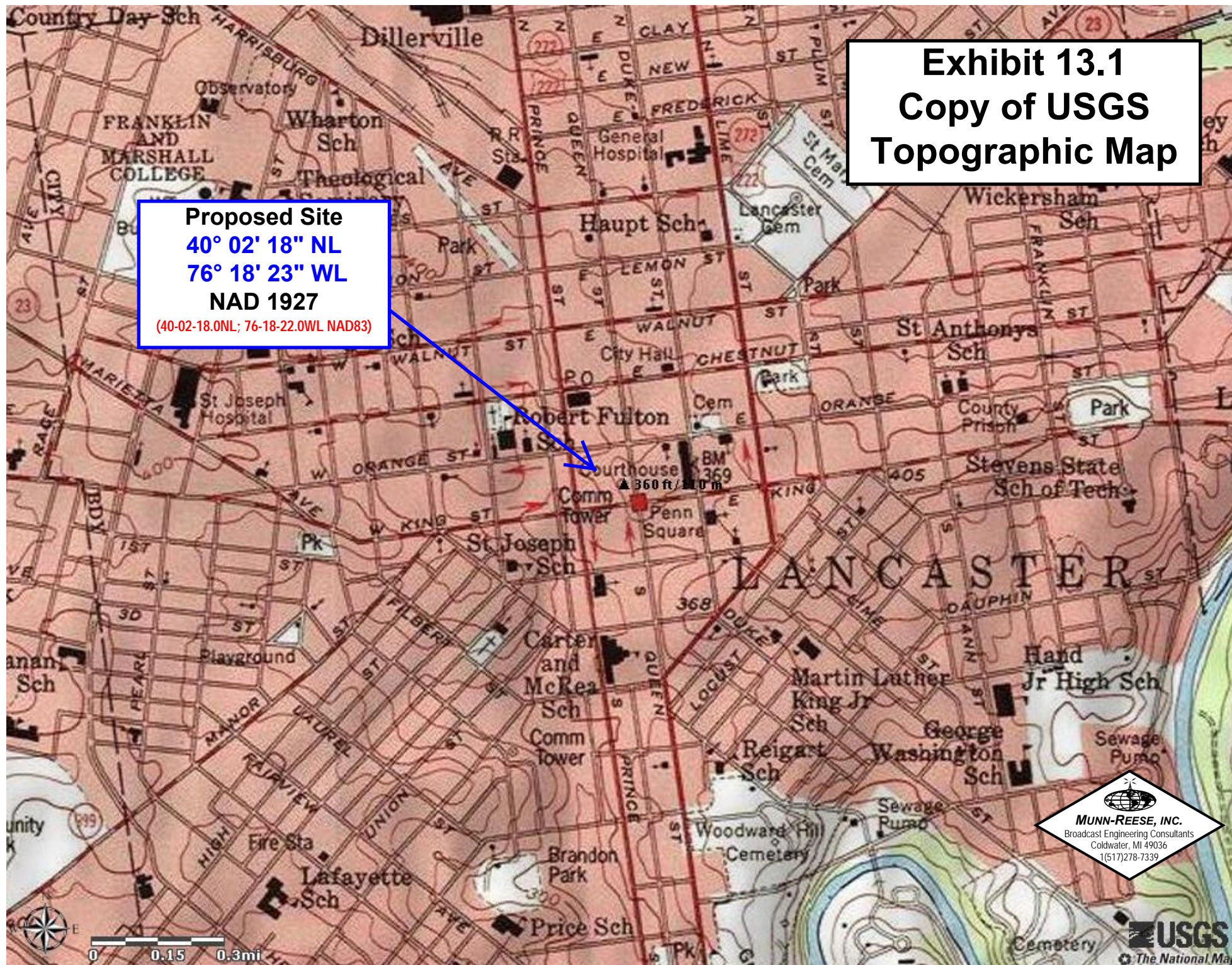


Exhibit 13.1 Copy of USGS Topographic Map

Proposed Site
40° 02' 18" NL
76° 18' 23" WL
NAD 1927
(40-02-18.0NL; 76-18-22.0WL NAD83)




MUNN-REESE, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036
1(517)278-7339


The National Map

Exhibit 13.2 Copy of USGS Aerial Photograph

Proposed Site

40° 02' 18" NL

76° 18' 23" WL

NAD 1927

(40-02-18.0NL; 76-18-22.0WL NAD83)

▲ 360 ft / 110 m



Exhibit 13.3

Vertical Plan of Antenna System

The site is located on the roof of the Griest Building,
8 North Queen Street; the city of Lancaster;
Lancaster County; Pennsylvania.

Site Location (NAD 27)

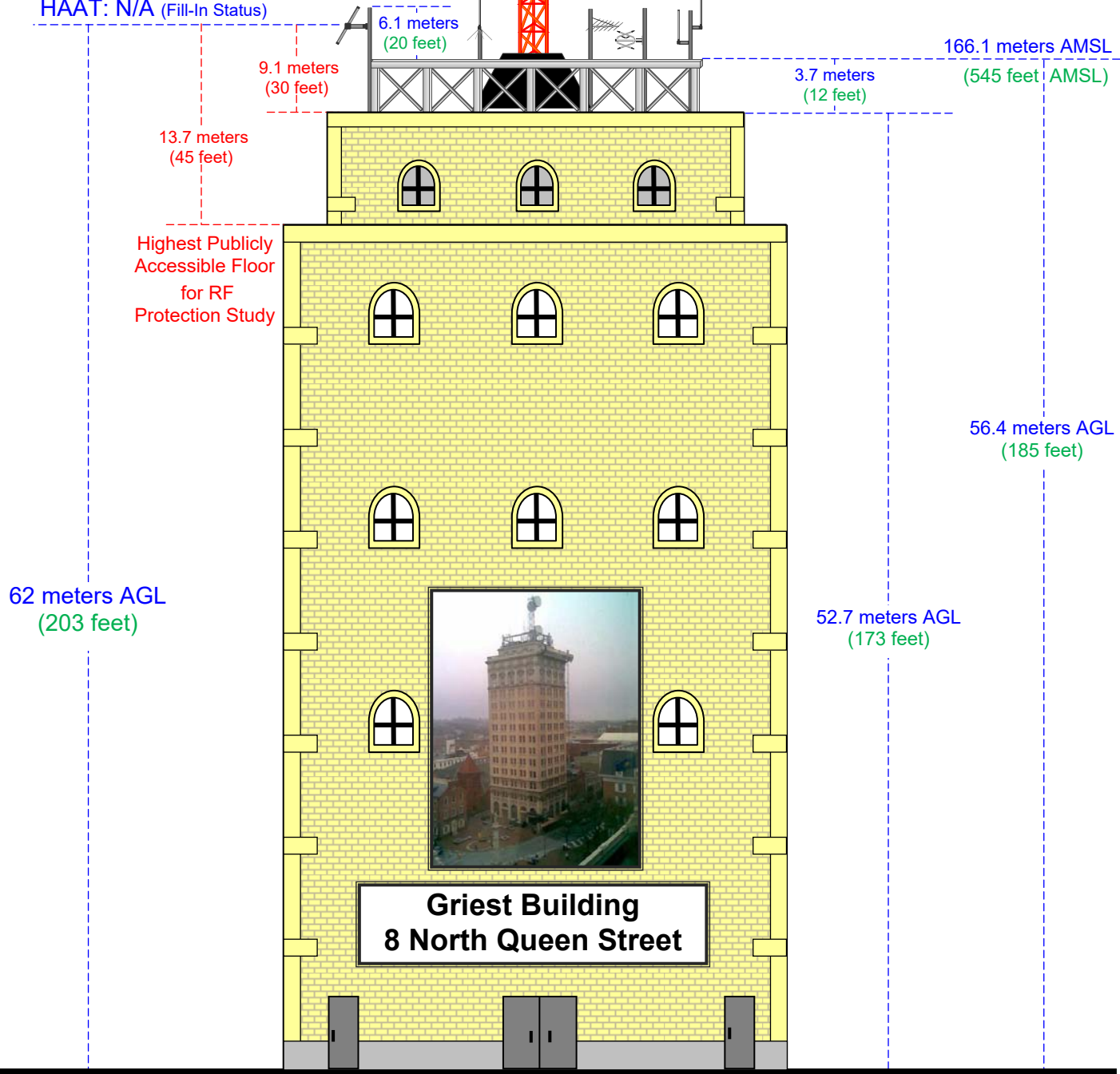
NL: 40° 02' 18"

WL: 76° 18' 23"

(40-02-18.0NL; 76-18-22.0WL NAD1983)

The applicant would like to note the existence of multiple antennas within the "antenna farm complex" located on the building roof top. While Antenna Structure Registration Number 1044369 is located on the roof top, this antenna will not be located on ASR No. 1044369, but rather on a separate roof mounted pole.

Proposed Antenna
COR: 172 meters AMSL
HAAT: N/A (Fill-In Status)



Ground Elevation = 109.7 m AMSL (360 feet)

Drawing is not to Scale

MUNN-REESE, INC.

Broadcast Engineering Consultants
Coldwater, MI 49036

Terrain

49

282 m

NGDC 30 SEC Terrain Database
U.S. Census 2010 PL Database

Exhibit 13.4

Present vs Proposed Service Contour Study

Proposed 60 dBμ F(50:50) Contour

Present 60 dBμ F(50:50) Contour

CH223D.P
W221BV.L
+
Lancaster

CH223D.P

Lancaster, PA

Proposed Operation

Facility ID: 155427

Latitude: 40-02-18 N

Longitude: 076-18-23 W

ERP: 0.25 kW

Channel: 223D (92.5 MHz)

AMSL Height: 172.0 m

Horiz. Pattern: Directional

60 dBμ F(50:50) Contour

Total Population: 190,354

Coverage Area: 270 sq. km

W221BV.L

Lancaster, PA

Pending License

Facility ID: 155427

Latitude: 40-02-18 N

Longitude: 076-18-23 W

ERP: 0.04 kW

Channel: 221D (92.1 MHz)

AMSL Height: 172.0 m

Horiz. Pattern: Directional

60 dBμ F(50:50) Contour

Total Population: 126,529

Coverage Area: 107 sq. km

Mountville

East Petersburg

Millersville

Willow Street

Strasburg



MUNN-REESE, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036
1(517)278-7339

Scale 1:115,000

0 2 4 6 km

NGDC 30 SEC Terrain Database
U.S. Census 2010 PL Database

Exhibit 13.5 Proposed vs. Primary Service Contour Study

CH223D.P
Lancaster, PA
Proposed Operation
Facility ID: 155427
Latitude: 40-02-18 N
Longitude: 076-18-23 W
ERP: 0.25 kW
Channel: 223D (92.5 MHz)
AMSL Height: 172.0 m
Horiz. Pattern: Directional

WLPA(AM)
LANCASTER, PA
1490 kHz Licensed
Domestic Station Class: C
File No: BL-19880311AD
Facility ID No.: 25870
40° 03' 38.00" N Latitude
76° 18' 59.00" W Longitude
Power: 0.6 kilowatts (kW)
ND1 - Non-directional Antenna:
Same constants day and night
RMS Theoretical: 310.60 mV/m
at 1 kilometer

25 mile AM Site Radius

Daytime 2 mV/m AM Contour

Proposed 60 dBμ F(50:50) Contour

WLPA(AM)

Lancaster
CH223D.P

Terrain

-60

544 m

Scale 1:475,000

0 10 20 30 km

V-Soft Communications LLC ©



MUNN-REESE, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036
1(517)278-7339

Exhibit 13.6

Tabulation of Proposed Allocation

Hall Communications, Inc.											
REFERENCE		CH#	223D	-	92.5 MHz,	Pwr=	0.25 kW DA,	HAAT=	60.1 M,	COR=	172 M
40 02 18.0 N.		Average Protected F(50-50)= 7.09 km								DI SPLAY DATES	
76 18 23.0 W.		Standard Directional								DATA 10-12-15	
										SEARCH 10-13-15	
CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LI CENSEE	*IN* (Overlap in km)	*OUT*	
223B	WXIU	LI C DCX PA	89.6	91.00	40 02 19.0	15.000	114.9	58.8	-30.6*<	0.4	
Phi l adel phi a			270.3	BLH20031017ACG	75 14 14.0	279	343	Cbs Radio Stations Inc.			
224A	WLPA-FM	LI C _C PA	275.8	42.27	40 04 32.0	0.700	44.9	29.7	-9.9*<	2.2	
Starview			95.5	BLH20040322AFY	76 48 03.0	291	429	Hall Communications, Inc.			
221D	W221BV	CP DC_ PA	0.0	0.00	40 02 18.0	0.040	0.4	5.5	-9.3*<	-6.6*<	
Lancaster			0.0	BPFT20150427AAL	76 18 23.0		172	Hall Communications, Inc.			
222B	WERQ-FM	LI C DCX MD	201.7	83.70	39 20 18.0	37.000	75.4	63.4	-0.5*<	2.1	
Bal timore			21.5	BLH20130830ACP	76 40 00.0	173	269	Radio One Licenses, LLC			
277B	WARM-FM	LI C _CN PA	267.3	25.02	40 01 38.0	6.400	127.7	85.7	14.5R	10.5M	
York			87.1	BLH19860519KG	76 36 00.0	398	533	Radio License Holding Src			
220A	WYTL«	LI C ZCX PA	61.2	34.20	40 11 09.0	0.450	1.5	21.5	25.5R	8.7M	
Wyomi ssi ng			241.4	BLED20100504AAD	75 57 15.0	166	338	Four Rivers Community Broa			
221D	W221BV	LI C _C PA	107.4	22.47	39 58 39.0	0.010	0.2	8.2	15.4	13.7	
New Hol l and			287.6	BLFT20101014ABZ	76 03 17.0	157	320	Hall Communications, Inc.			
225D	W225CF	CP _C PA	33.6	31.05	40 16 15.0	0.010	0.2	6.3	19.8	23.6	
Denver			213.7	BNPFT20130812ABB	76 06 14.0		244	Ameri can Fm Associates, In			
221A	WTPA	LI C NCX PA	317.9	52.94	40 23 28.0	1.500	2.4	31.7	40.7	20.1	
Pal myra			137.7	BLH20061030ANC	76 43 31.0	183	386	Patri ck H. Si ckafus			
223A	WIBF	LI C _CX PA	300.5	118.36	40 34 20.0	0.310	88.6	30.5	20.3	56.4	
Mexi co			119.7	BLH20150915AAH	77 30 51.0	433	701	Southern Belle, LLC			
220D	W220BX«	LI C DV_ PA	263.6	31.79	40 00 21.0	0.010	0.2	7.3	6.5R	25.3M	
York			83.3	BLFT20100803AAD	76 40 35.0	180	329	Calvary Chapel Of Twin Fal			
222D	W222BY	LI C DV_ PA	47.9	47.19	40 19 19.0	0.090	7.9	5.5	28.6	26.7	
Laurel dale			228.2	BLFT20140402AND	75 53 35.0	242	382	Capstar Tx, LLC			
226B	WPOC	LI C DC_ MD	204.8	91.92	39 17 13.0	16.000	5.3	62.9	77.4	27.7	
Bal timore			24.5	BLH20000714ABE	76 45 16.0	264	363	Citi casters Li censes, Inc.			
223B	WINC-FM	LI C _CN VA	231.3	190.28	38 57 21.0	22.000	149.3	78.3	30.3	59.1	
Win chester			50.2	BLH19910930KDD	78 01 28.0	434	706	Centennial Li censing Li, L			
221D	W221DG	CP _C PA	88.4	59.17	40 03 05.0	0.006	0.2	5.9	52.3	52.7	
Exton			268.8	BNPFT20130830APS	75 36 41.0	159	276	Temple Uni versi ty Of The C			
222A	WVSL-FM	LI C _CX PA	341.5	107.95	40 57 30.0	0.930	40.6	26.8	58.3	68.4	
Ri versi de			161.2	BLH20011024AAD	76 42 53.0	254	450	Mmp Li cense LLC			
220A	WZRG«	LI C ZCX PA	355.5	83.97	40 47 32.0	1.450	1.1	16.9	25.5R	58.5M	
Kul pmont			175.4	BLED20120123AEY	76 23 06.0	202	561	Sal t And Li ght Medi a Minis			
224L1	1593953	APP _ MD	200.7	83.41	39 20 10.0	0.022			69.4	67.5	
Bal timore			20.5	BNPL20131115ANS	76 38 59.0	62	132	Loyol a Uni versi ty Maryl and			

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
 Contour distances are on direct line to and from reference station. Reference zone= East Zone, Co to 3rd adjacent.
 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 restricted contour.
 < = Contour Overlap

Green Text denotes the facility to be modified by this Form 349 Filing. This facility need not be protected.

Blue Highlighted Text denotes supplemental contour protection studies toward select stations as included in **Exhibit 13.7** and **13.9**.

Exhibit 13.7

Contour Protection Studies Toward WXTU(FM) - Philadelphia, PA

Hall Communications, Inc.

FMCommander Single Allocation Study - 10-13-2015 - NGDC 30 SEC
CH223D.P's Overlaps (In= -30.56 km, Out= 0.37 km)

CH223D.P CH 223 D DA
Lat= 40 02 18.0, Lng= 76 18 23.0
0.25 kW 60.1 M HAAT, 172 M COR
Prot.= 60 dBu, Intef.= 34 dBu

WXTU CH 223 B DA BLH20031017ACG
Lat= 40 02 19.0, Lng= 75 14 14.0
15.0 kW 279 M HAAT, 343 M COR
Prot.= 54 dBu, Intef.= 40 dBu

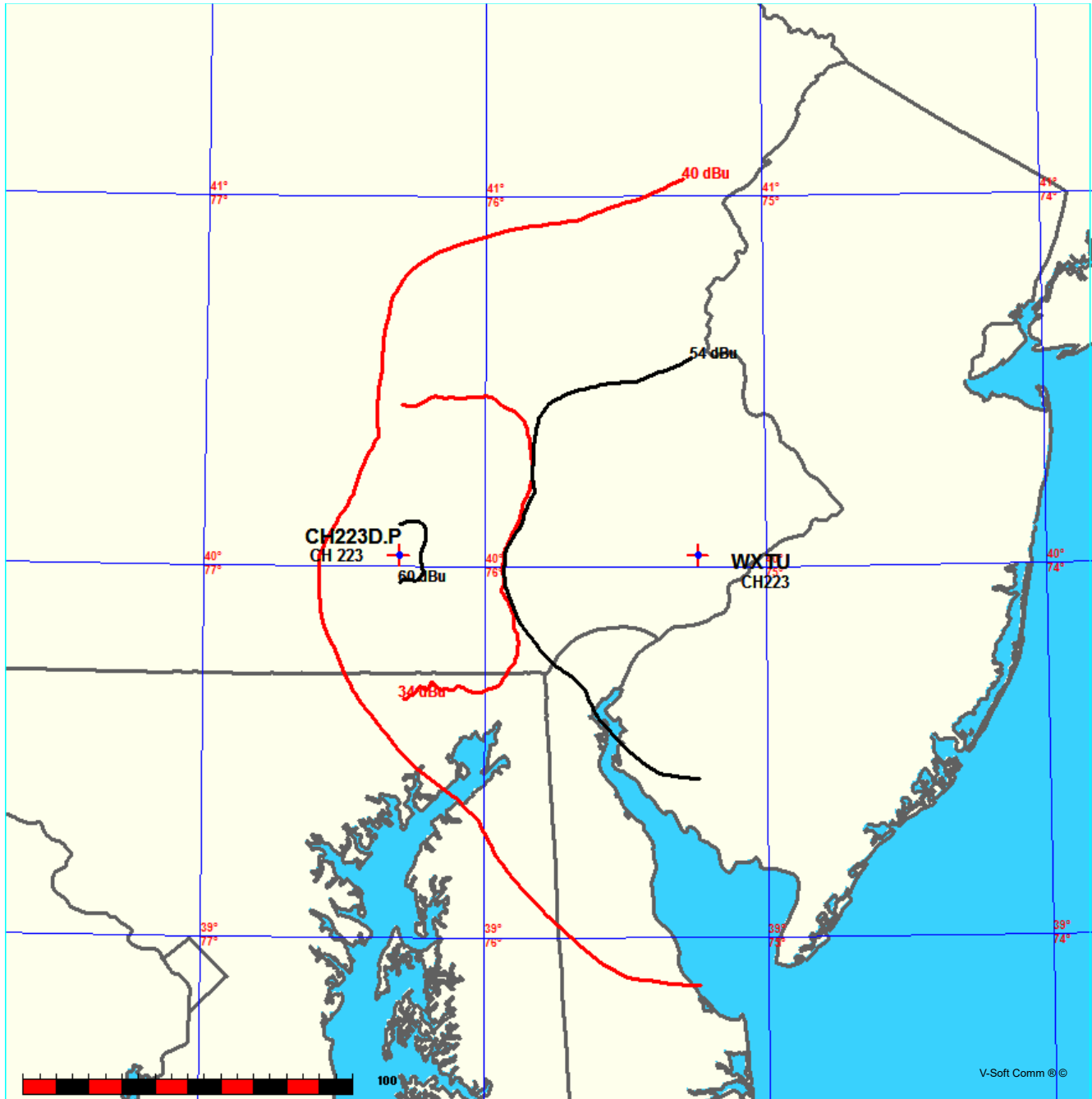


Exhibit 13.7

Contour Protection Studies Toward WXTU(FM) - Philadelphia, PA

10-13-2015

Terrain Data: NGDC 30 SEC

FMOver Analysis

CH223D.P

WXTU BLH20031017ACG

Channel = 223D
Max ERP = 0.25 kW
RCAMSL = 172 M
N. Lat. 40 02 18.0
W. Lng. 76 18 23.0
Protected
60 dBu

Channel = 223B
Max ERP = 15 kW
RCAMSL = 343 M
N. Lat. 40 02 19.0
W. Lng. 75 14 14.0
Interfering
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
045.0	000.2500	0071.5	011.0	275.6	008.9371	0224.1	083.5	47.84*	26.53
046.0	000.2500	0069.7	010.9	275.5	008.9982	0224.3	083.5	47.90*	26.73
047.0	000.2500	0068.1	010.8	275.3	009.0574	0224.4	083.4	47.95*	26.93
048.0	000.2500	0066.4	010.6	275.2	009.1176	0224.5	083.4	48.00*	27.11
049.0	000.2500	0064.7	010.5	275.0	009.1797	0224.5	083.3	48.05*	27.29
050.0	000.2500	0063.0	010.4	274.9	009.2404	0224.6	083.3	48.09*	27.46
051.0	000.2450	0061.7	010.3	274.7	009.3065	0224.6	083.2	48.13*	27.61
052.0	000.2401	0060.7	010.1	274.6	009.3681	0224.7	083.2	48.17*	27.77
053.0	000.2352	0060.0	010.0	274.4	009.4262	0224.8	083.2	48.21*	27.93
054.0	000.2304	0059.4	009.9	274.3	009.4830	0224.9	083.1	48.25*	28.10
055.0	000.2256	0058.8	009.8	274.2	009.5387	0225.1	083.1	48.30*	28.25
056.0	000.2209	0058.4	009.7	274.0	009.5939	0225.2	083.1	48.34*	28.41
057.0	000.2162	0057.9	009.6	273.9	009.6498	0225.3	083.0	48.37*	28.56
058.0	000.2116	0057.3	009.6	273.8	009.7060	0225.4	083.0	48.41*	28.70
059.0	000.2070	0056.9	009.5	273.7	009.7618	0225.6	083.0	48.45*	28.84
060.0	000.2025	0056.4	009.4	273.5	009.8164	0225.7	083.0	48.48*	28.97
061.0	000.1936	0056.2	009.2	273.4	009.8776	0225.8	083.0	48.50*	29.08
062.0	000.1849	0056.1	009.1	273.2	009.9367	0225.9	083.0	48.53*	29.19
063.0	000.1764	0056.0	009.0	273.1	009.9953	0226.0	083.1	48.55*	29.28
064.0	000.1681	0055.8	008.9	273.0	010.0543	0226.1	083.1	48.57*	29.37
065.0	000.1600	0055.5	008.7	272.8	010.1147	0226.3	083.2	48.58*	29.45
066.0	000.1521	0055.1	008.6	272.7	010.1759	0226.4	083.2	48.59*	29.50
067.0	000.1444	0054.6	008.4	272.6	010.2367	0226.5	083.3	48.59*	29.55
068.0	000.1369	0054.3	008.3	272.4	010.2951	0226.7	083.4	48.60*	29.60
069.0	000.1296	0054.4	008.1	272.3	010.3492	0226.8	083.4	48.60*	29.66
070.0	000.1225	0054.5	008.0	272.2	010.4019	0226.9	083.5	48.61*	29.72
071.0	000.1180	0054.7	008.0	272.1	010.4485	0227.0	083.5	48.63*	29.80
072.0	000.1136	0054.8	007.9	272.0	010.4953	0227.1	083.5	48.65*	29.88
073.0	000.1092	0054.8	007.8	271.9	010.5423	0227.3	083.6	48.66*	29.95
074.0	000.1050	0054.8	007.7	271.8	010.5889	0227.4	083.6	48.67*	30.01
075.0	000.1008	0054.8	007.6	271.6	010.6354	0227.5	083.6	48.68*	30.07
076.0	000.0967	0054.7	007.5	271.5	010.6819	0227.6	083.7	48.69*	30.11
077.0	000.0927	0054.7	007.5	271.4	010.7272	0227.8	083.8	48.70*	30.16
078.0	000.0888	0054.5	007.4	271.3	010.7718	0227.9	083.8	48.70*	30.19
079.0	000.0850	0054.4	007.3	271.2	010.8157	0228.0	083.9	48.70*	30.22
080.0	000.0812	0054.3	007.2	271.1	010.8590	0228.0	083.9	48.70*	30.24

Exhibit 13.7

Contour Protection Studies Toward WXTU(FM) - Philadelphia, PA

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
081.0	000.0790	0054.2	007.1	271.1	010.8999	0228.1	084.0	48.71* 30.29
082.0	000.0767	0054.1	007.1	271.0	010.9405	0228.2	084.0	48.71* 30.32
083.0	000.0745	0053.9	007.0	270.9	010.9805	0228.2	084.1	48.71* 30.36
084.0	000.0724	0053.8	006.9	270.8	011.0198	0228.3	084.1	48.72* 30.39
085.0	000.0702	0053.6	006.9	270.7	011.0586	0228.3	084.2	48.72* 30.42
086.0	000.0681	0053.5	006.8	270.6	011.0969	0228.4	084.2	48.72* 30.44
087.0	000.0660	0053.5	006.8	270.5	011.1344	0228.4	084.3	48.72* 30.47
088.0	000.0640	0053.7	006.7	270.5	011.1713	0228.5	084.3	48.73* 30.50
089.0	000.0620	0053.9	006.7	270.4	011.2079	0228.6	084.3	48.73* 30.54
090.0	000.0600	0054.2	006.6	270.3	011.2440	0228.6	084.4	48.74* 30.57
091.0	000.0595	0054.4	006.7	270.2	011.2801	0228.7	084.4	48.75* 30.64
092.0	000.0590	0054.6	006.7	270.1	011.3162	0228.7	084.4	48.77* 30.71
093.0	000.0586	0054.9	006.7	270.1	011.3524	0228.8	084.4	48.78* 30.77
094.0	000.0581	0055.2	006.7	270.0	011.3796	0228.8	084.4	48.79* 30.82
095.0	000.0576	0055.3	006.7	269.9	011.3794	0228.9	084.4	48.79* 30.81
096.0	000.0571	0055.5	006.6	269.8	011.3792	0228.9	084.4	48.79* 30.80
097.0	000.0566	0055.6	006.6	269.7	011.3790	0229.0	084.4	48.78* 30.78
098.0	000.0562	0055.9	006.6	269.7	011.3787	0229.1	084.4	48.78* 30.77
099.0	000.0557	0056.3	006.7	269.6	011.3785	0229.1	084.4	48.78* 30.77
100.0	000.0552	0056.7	006.7	269.5	011.3783	0229.2	084.5	48.78* 30.77
101.0	000.0559	0057.2	006.7	269.4	011.3781	0229.2	084.4	48.79* 30.80
102.0	000.0566	0057.9	006.8	269.3	011.3779	0229.3	084.4	48.80* 30.84
103.0	000.0574	0058.3	006.8	269.3	011.3777	0229.3	084.4	48.81* 30.86
104.0	000.0581	0058.6	006.9	269.2	011.3774	0229.4	084.4	48.81* 30.87
105.0	000.0588	0058.5	006.9	269.1	011.3772	0229.5	084.4	48.80* 30.86
106.0	000.0595	0058.2	006.9	269.0	011.3770	0229.5	084.4	48.80* 30.83
107.0	000.0603	0057.9	006.9	268.9	011.3768	0229.6	084.5	48.79* 30.80
108.0	000.0610	0057.3	006.9	268.9	011.3766	0229.6	084.5	48.77* 30.76
109.0	000.0618	0056.9	006.9	268.8	011.3764	0229.7	084.6	48.76* 30.72
110.0	000.0625	0056.3	006.9	268.7	011.3762	0229.7	084.6	48.74* 30.67
111.0	000.0702	0055.7	007.0	268.6	011.3759	0229.8	084.5	48.78* 30.77
112.0	000.0784	0054.9	007.2	268.5	011.3756	0229.9	084.4	48.81* 30.87
113.0	000.0870	0054.2	007.3	268.4	011.3753	0230.0	084.4	48.84* 30.96
114.0	000.0961	0053.6	007.4	268.2	011.3750	0230.1	084.3	48.86* 31.04
115.0	000.1056	0053.0	007.6	268.1	011.3747	0230.1	084.2	48.89* 31.12
116.0	000.1156	0052.4	007.7	268.0	011.3744	0230.2	084.2	48.91* 31.18
117.0	000.1260	0051.6	007.8	267.9	011.3740	0230.3	084.1	48.92* 31.22
118.0	000.1369	0050.8	007.9	267.8	011.3737	0230.4	084.1	48.93* 31.26
119.0	000.1482	0050.0	008.0	267.6	011.3734	0230.5	084.1	48.94* 31.28
120.0	000.1600	0049.2	008.1	267.5	011.3731	0230.6	084.1	48.95* 31.30
121.0	000.1681	0048.6	008.2	267.4	011.3729	0230.8	084.1	48.94* 31.28
122.0	000.1764	0048.4	008.3	267.3	011.3726	0230.9	084.1	48.94* 31.29
123.0	000.1849	0049.0	008.5	267.2	011.3722	0231.1	084.1	48.97* 31.36
124.0	000.1936	0050.0	008.7	267.0	011.3717	0231.4	084.0	49.00* 31.47
125.0	000.2025	0050.9	008.9	266.8	011.3713	0231.7	083.9	49.03* 31.55
126.0	000.2116	0051.2	009.0	266.7	011.3709	0231.9	083.9	49.04* 31.59
127.0	000.2209	0051.2	009.1	266.6	011.3706	0232.1	084.0	49.04* 31.59
128.0	000.2304	0050.8	009.2	266.4	011.3703	0232.4	084.0	49.03* 31.55
129.0	000.2401	0050.3	009.2	266.3	011.3701	0232.6	084.1	49.01* 31.50
130.0	000.2500	0050.4	009.3	266.2	011.3697	0232.8	084.1	49.01* 31.49
131.0	000.2500	0051.0	009.4	266.1	011.3694	0233.0	084.2	48.99* 31.44

Exhibit 13.7

Contour Protection Studies Toward WXTU(FM) - Philadelphia, PA

10-13-2015

Terrain Data: NGDC 30 SEC

FMOver Analysis

WXTU BLH20031017ACG

CH223D.P

Channel = 223B

Max ERP = 15 kW

RCAMSL = 343 M

N. Lat. 40 02 19.0

W. Lng. 75 14 14.0

Protected

54 dBu

Channel = 223D

Max ERP = 0.25 kW

RCAMSL = 172 M

N. Lat. 40 02 18.0

W. Lng. 76 18 23.0

Interfering

34 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
231.0	005.7474	0257.3	054.7	125.1	000.2036	0050.9	059.8	29.46	
232.0	005.9158	0258.1	055.1	125.2	000.2041	0051.0	058.7	29.75	
233.0	006.0865	0257.7	055.3	125.1	000.2036	0050.9	057.8	30.02	
234.0	006.2597	0256.4	055.5	125.0	000.2024	0050.9	056.8	30.26	
235.0	006.4354	0254.8	055.6	124.8	000.2007	0050.7	055.8	30.49	
236.0	006.6134	0253.4	055.8	124.6	000.1989	0050.6	054.9	30.71	
237.0	006.7939	0252.0	055.9	124.4	000.1969	0050.4	053.9	30.92	
238.0	006.9769	0250.5	056.0	124.1	000.1945	0050.1	052.9	31.11	
239.0	007.1622	0249.0	056.2	123.8	000.1919	0049.8	052.0	31.30	
240.0	007.3500	0247.7	056.3	123.5	000.1891	0049.5	051.0	31.47	
241.0	007.5402	0246.7	056.5	123.2	000.1863	0049.2	050.1	31.63	
242.0	007.7329	0246.1	056.7	122.8	000.1833	0048.8	049.1	31.79	
243.0	007.9279	0245.5	056.9	122.4	000.1801	0048.6	048.2	31.95	
244.0	008.1254	0244.8	057.0	122.0	000.1765	0048.4	047.2	32.11	
245.0	008.3254	0244.6	057.2	121.6	000.1730	0048.4	046.3	32.30	
246.0	008.5277	0245.0	057.5	121.2	000.1694	0048.5	045.3	32.53	
247.0	008.7325	0245.5	057.8	120.7	000.1656	0048.7	044.3	32.78	
248.0	008.9398	0245.9	058.0	120.2	000.1614	0049.1	043.4	33.03	
249.0	009.1494	0245.5	058.2	119.5	000.1545	0049.6	042.4	33.23	
250.0	009.3615	0244.2	058.3	118.8	000.1456	0050.2	041.6	33.36	
251.0	009.5521	0242.3	058.4	117.9	000.1356	0050.9	040.8	33.44	
252.0	009.7445	0240.2	058.4	116.9	000.1252	0051.7	040.0	33.49	
253.0	009.9389	0238.5	058.4	115.9	000.1148	0052.4	039.3	33.51	
254.0	010.1353	0237.6	058.5	114.9	000.1049	0053.1	038.5	33.50	
255.0	010.3335	0237.1	058.7	113.9	000.0952	0053.7	037.7	33.47	
256.0	010.5337	0236.5	058.8	112.8	000.0853	0054.3	037.0	33.38	
257.0	010.7357	0236.5	059.0	111.7	000.0756	0055.2	036.2	33.29	
258.0	010.9397	0236.9	059.2	110.5	000.0662	0056.0	035.5	33.14	
259.0	011.1457	0237.5	059.4	109.3	000.0619	0056.8	034.8	33.26	
260.0	011.3535	0237.8	059.6	107.9	000.0609	0057.4	034.1	33.56	
261.0	011.3561	0237.6	059.6	106.3	000.0598	0058.1	033.6	33.78	
262.0	011.3587	0237.3	059.6	104.7	000.0586	0058.5	033.2	33.92	
263.0	011.3613	0236.6	059.5	103.0	000.0574	0058.3	032.8	33.95	
264.0	011.3639	0236.1	059.5	101.3	000.0561	0057.4	032.5	33.86	

Exhibit 13.7

Contour Protection Studies Toward WXTU(FM) - Philadelphia, PA

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
265.0	011.3666	0235.0	059.4	099.5	000.0555	0056.4	032.3	33.76
266.0	011.3692	0233.2	059.3	097.6	000.0564	0055.7	032.2	33.77
267.0	011.3718	0231.4	059.1	095.8	000.0572	0055.4	032.2	33.82
268.0	011.3744	0230.2	059.0	093.9	000.0581	0055.1	032.1	33.86
269.0	011.3770	0229.5	059.0	092.1	000.0590	0054.7	032.1	33.87
270.0	011.3796	0228.8	058.9	090.2	000.0599	0054.2	032.1	33.86
271.0	010.9244	0228.1	058.5	088.4	000.0632	0053.8	032.5	33.83
272.0	010.4784	0227.1	058.0	086.7	000.0667	0053.4	033.1	33.79
273.0	010.0418	0226.1	057.5	085.1	000.0701	0053.6	033.6	33.79
274.0	009.6144	0225.2	057.1	083.5	000.0734	0053.9	034.3	33.77
275.0	009.1963	0224.5	056.6	082.0	000.0766	0054.1	034.9	33.72
276.0	008.7876	0223.7	056.1	080.7	000.0797	0054.3	035.6	33.63
277.0	008.3881	0222.2	055.6	079.4	000.0834	0054.4	036.4	33.53
278.0	007.9979	0220.8	055.0	078.3	000.0878	0054.5	037.2	33.45
279.0	007.6170	0221.5	054.6	077.1	000.0924	0054.6	037.9	33.41
280.0	007.2454	0224.2	054.4	075.9	000.0971	0054.7	038.5	33.42
281.0	006.9666	0227.9	054.3	074.7	000.1022	0054.8	039.0	33.48
282.0	006.6934	0231.3	054.2	073.5	000.1071	0054.8	039.5	33.49
283.0	006.4256	0234.8	054.1	072.4	000.1119	0054.8	040.0	33.47
284.0	006.1632	0238.7	054.0	071.3	000.1167	0054.7	040.6	33.44
285.0	005.9063	0242.6	053.9	070.3	000.1213	0054.5	041.2	33.37
286.0	005.6549	0246.3	053.8	069.3	000.1275	0054.4	041.8	33.32
287.0	005.4090	0249.6	053.6	068.4	000.1338	0054.3	042.5	33.27
288.0	005.1685	0252.6	053.4	067.6	000.1398	0054.4	043.3	33.22
289.0	004.9335	0255.5	053.2	066.9	000.1454	0054.7	044.0	33.16
290.0	004.7040	0258.2	053.0	066.2	000.1505	0055.0	044.8	33.09
291.0	004.8496	0261.1	053.4	064.9	000.1606	0055.5	045.1	33.34
292.0	004.9974	0264.3	054.0	063.6	000.1710	0055.9	045.5	33.55
293.0	005.1474	0267.8	054.5	062.4	000.1818	0056.0	045.8	33.71
294.0	005.2997	0271.6	055.0	061.1	000.1928	0056.2	046.2	33.86
295.0	005.4541	0275.2	055.5	059.9	000.2031	0056.5	046.7	33.97
296.0	005.6108	0278.1	056.0	058.7	000.2083	0057.0	047.2	33.97
297.0	005.7697	0280.3	056.4	057.7	000.2132	0057.5	047.8	33.95
298.0	005.9308	0282.1	056.8	056.7	000.2178	0058.0	048.5	33.90
299.0	006.0942	0284.0	057.2	055.7	000.2222	0058.5	049.2	33.82
300.0	006.2597	0286.4	057.6	054.8	000.2267	0059.0	049.9	33.74
301.0	006.5816	0289.0	058.3	053.6	000.2323	0059.6	050.5	33.70
302.0	006.9115	0291.5	058.9	052.5	000.2376	0060.3	051.3	33.65
303.0	007.2495	0293.7	059.5	051.5	000.2427	0061.2	052.0	33.58
304.0	007.5956	0295.1	060.1	050.6	000.2472	0062.2	052.8	33.50
305.0	007.9498	0295.9	060.6	049.7	000.2500	0063.5	053.7	33.38
306.0	008.3120	0296.6	061.1	048.9	000.2500	0064.8	054.6	33.21
307.0	008.6822	0297.6	061.5	048.2	000.2500	0066.1	055.5	33.02
308.0	009.0606	0299.0	062.1	047.5	000.2500	0067.3	056.5	32.81
309.0	009.4470	0300.4	062.6	046.8	000.2500	0068.4	057.5	32.59
310.0	009.8415	0301.5	063.1	046.2	000.2500	0069.4	058.5	32.34
311.0	009.9389	0302.1	063.2	045.9	000.2500	0069.9	059.6	32.03
312.0	010.0369	0302.5	063.3	045.7	000.2500	0070.2	060.7	31.72
313.0	010.1353	0302.5	063.4	045.5	000.2500	0070.5	061.8	31.41
314.0	010.2341	0302.4	063.5	045.4	000.2500	0070.8	062.9	31.10

Exhibit 13.8

Contour Protection Studies Toward WLPA-FM - Starview, PA

Hall Communications, Inc.

FMCommander Single Allocation Study - 10-13-2015 - NGDC 30 SEC

CH223D.P's Overlaps (In= -9.9 km, Out= 2.2 km)

CH223D.P CH 223 D DA

Lat= 40 02 18.0, Lng= 76 18 23.0

0.25 kW 60.1 M HAAT, 172 M COR

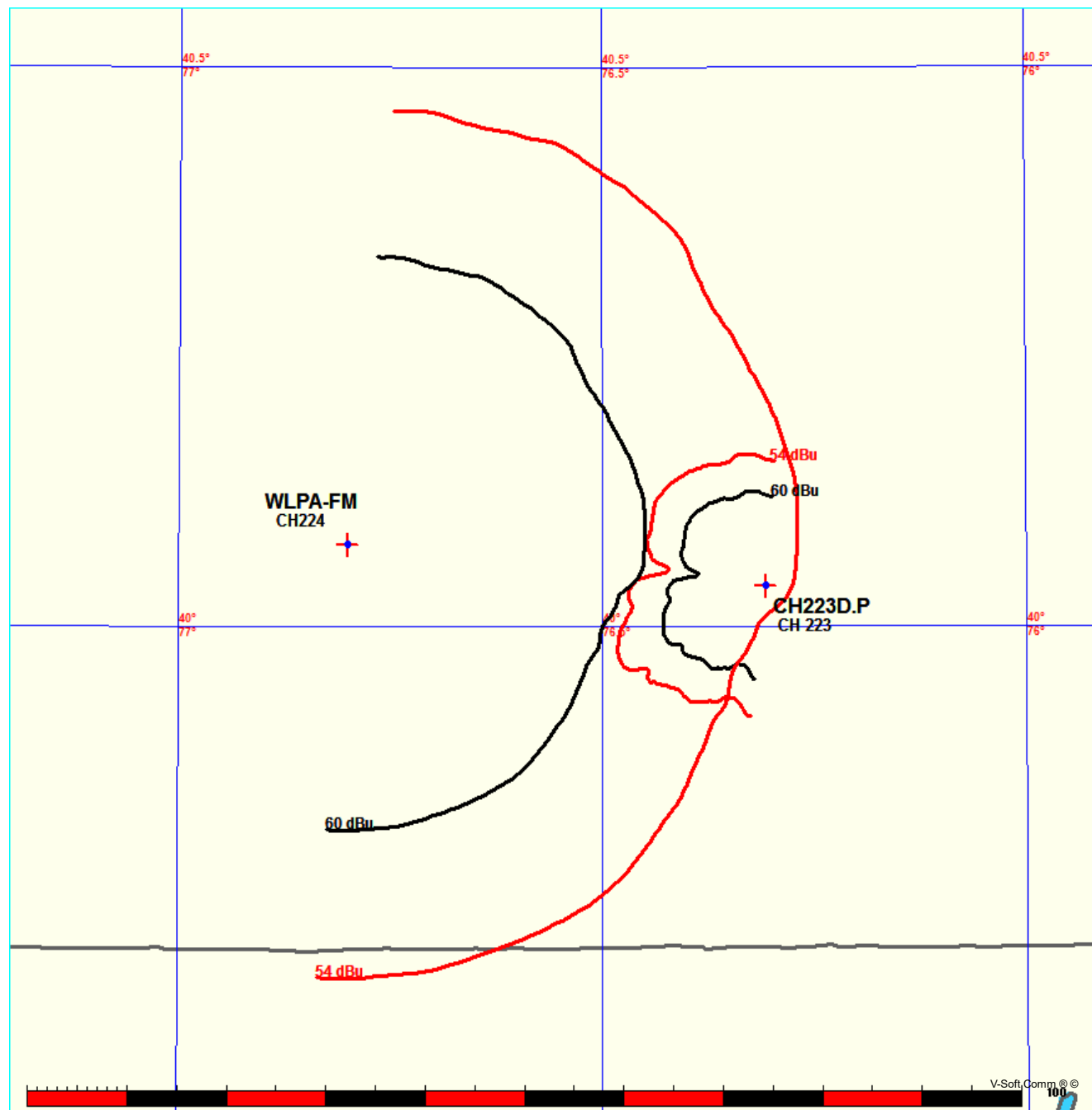
Prot.= 60 dBu, Intef.= 54 dBu

WLPA-FM CH 224 A BLH20040322AFY

Lat= 40 04 32.0, Lng= 76 48 03.0

0.7 kW 291 M HAAT, 429 M COR

Prot.= 60 dBu, Intef.= 54 dBu



MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.8

Contour Protection Studies Toward WLPA-FM - Starview, PA

10-13-2015

Terrain Data: NGDC 30 SEC

FMOVer Analysis

CH223D.P

WLPA-FM BLH20040322AFY

Channel = 223D
Max ERP = 0.25 kW
RCAMSL = 172 M
N. Lat. 40 02 18.0
W. Lng. 76 18 23.0
Protected
60 dBu

Channel = 224A
Max ERP = 0.7 kW
RCAMSL = 429 M
N. Lat. 40 04 32.0
W. Lng. 76 48 03.0
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
231.0	000.2500	0067.5	010.7	107.7	000.7000	0264.1	035.5	56.49*	5.37
232.0	000.2500	0067.0	010.7	107.5	000.7000	0264.7	035.3	56.58*	5.55
233.0	000.2500	0065.7	010.6	107.2	000.7000	0265.5	035.2	56.65*	5.71
234.0	000.2500	0064.3	010.5	106.9	000.7000	0266.5	035.2	56.73*	5.87
235.0	000.2500	0064.3	010.5	106.7	000.7000	0267.2	035.0	56.82*	6.06
236.0	000.2500	0066.5	010.6	106.8	000.7000	0267.1	034.8	56.93*	6.30
237.0	000.2500	0070.5	010.9	106.9	000.7000	0266.6	034.4	57.07*	6.58
238.0	000.2500	0074.4	011.2	107.0	000.7000	0266.1	034.1	57.21*	6.87
239.0	000.2500	0076.7	011.3	107.0	000.7000	0266.2	033.9	57.34*	7.13
240.0	000.2500	0077.5	011.4	106.9	000.7000	0266.7	033.7	57.45*	7.35
241.0	000.2500	0077.9	011.4	106.7	000.7000	0267.4	033.5	57.55*	7.57
242.0	000.2500	0078.1	011.4	106.4	000.7000	0268.2	033.4	57.65*	7.78
243.0	000.2500	0078.1	011.4	106.2	000.7000	0269.2	033.2	57.75*	7.98
244.0	000.2500	0077.7	011.4	105.9	000.7000	0270.2	033.1	57.84*	8.18
245.0	000.2500	0077.1	011.4	105.6	000.7000	0271.4	033.0	57.93*	8.36
246.0	000.2500	0076.5	011.3	105.3	000.7000	0272.5	032.9	58.01*	8.54
247.0	000.2500	0075.4	011.3	105.0	000.7000	0273.7	032.9	58.08*	8.69
248.0	000.2500	0074.1	011.2	104.6	000.7000	0274.8	032.8	58.14*	8.82
249.0	000.2500	0072.9	011.1	104.2	000.7000	0275.6	032.8	58.19*	8.93
250.0	000.2500	0072.0	011.0	103.9	000.7000	0276.3	032.7	58.24*	9.04
251.0	000.2500	0071.0	011.0	103.5	000.7000	0277.1	032.7	58.29*	9.14
252.0	000.2500	0069.8	010.9	103.2	000.7000	0277.8	032.6	58.33*	9.22
253.0	000.2500	0068.5	010.8	102.8	000.7000	0278.4	032.6	58.35*	9.29
254.0	000.2500	0067.0	010.7	102.4	000.7000	0278.9	032.6	58.37*	9.33
255.0	000.2500	0065.5	010.6	102.1	000.7000	0279.5	032.6	58.38*	9.35
256.0	000.2500	0063.8	010.5	101.7	000.7000	0280.0	032.6	58.39*	9.37
257.0	000.2500	0061.7	010.3	101.3	000.7000	0280.8	032.7	58.38*	9.36
258.0	000.2500	0059.0	010.1	100.9	000.7000	0282.2	032.8	58.37*	9.35
259.0	000.2500	0057.0	009.9	100.5	000.7000	0284.0	032.9	58.38*	9.39
260.0	000.2500	0055.3	009.8	100.1	000.7000	0286.4	033.0	58.42*	9.48
261.0	000.2475	0055.3	009.8	099.8	000.7000	0288.8	032.9	58.51*	9.69
262.0	000.2450	0056.4	009.8	099.5	000.7000	0290.9	032.8	58.63*	9.96
263.0	000.2426	0057.5	009.9	099.3	000.7000	0293.2	032.7	58.76*	10.24
264.0	000.2401	0058.8	010.0	099.0	000.7000	0295.7	032.6	58.89*	10.54
265.0	000.2377	0059.0	010.0	098.7	000.7000	0298.7	032.5	59.00*	10.79
266.0	000.2352	0059.0	009.9	098.4	000.7000	0302.0	032.5	59.10*	11.04

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.8

Contour Protection Studies Toward WLPA-FM - Starview, PA

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
267.0	000.2328	0059.0	009.9	098.1	000.7000	0305.1	032.5	59.20* 11.27
268.0	000.2304	0058.5	009.9	097.8	000.7000	0308.3	032.5	59.27* 11.47
269.0	000.2280	0057.2	009.7	097.5	000.7000	0311.3	032.6	59.31* 11.58
270.0	000.2256	0055.8	009.6	097.1	000.7000	0313.7	032.8	59.32* 11.64
271.0	000.2256	0054.5	009.5	096.8	000.7000	0315.4	032.9	59.32* 11.67
272.0	000.2256	0052.1	009.2	096.5	000.7000	0316.7	033.1	59.26* 11.56
273.0	000.2256	0047.1	008.7	096.2	000.7000	0318.0	033.6	59.05* 11.15
274.0	000.2256	0041.9	008.2	095.9	000.7000	0319.1	034.1	58.81* 10.67
275.0	000.2256	0037.1	007.6	095.6	000.7000	0320.1	034.7	58.58* 10.21
276.0	000.2256	0032.8	007.2	095.4	000.7000	0320.8	035.1	58.39* 9.83
277.0	000.2256	0030.6	007.0	095.2	000.7000	0321.4	035.3	58.30* 9.65
278.0	000.2256	0028.9	006.9	095.0	000.7000	0321.8	035.4	58.29* 9.62
279.0	000.2256	0030.1	006.9	094.8	000.7000	0322.2	035.4	58.30* 9.66
280.0	000.2256	0034.2	007.3	094.6	000.7000	0322.6	035.0	58.50* 10.07
281.0	000.2280	0038.5	007.8	094.3	000.7000	0322.9	034.5	58.73* 10.55
282.0	000.2304	0041.8	008.2	094.0	000.7000	0323.2	034.2	58.91* 10.94
283.0	000.2328	0042.9	008.3	093.7	000.7000	0323.4	034.0	58.98* 11.08
284.0	000.2352	0043.7	008.4	093.4	000.7000	0323.4	033.9	59.02* 11.17
285.0	000.2377	0044.7	008.6	093.1	000.7000	0323.5	033.8	59.08* 11.29
286.0	000.2401	0046.0	008.7	092.8	000.7000	0323.6	033.7	59.14* 11.42
287.0	000.2426	0046.7	008.9	092.5	000.7000	0323.7	033.6	59.17* 11.49
288.0	000.2450	0047.3	008.9	092.2	000.7000	0323.7	033.6	59.20* 11.54
289.0	000.2475	0047.9	009.0	091.9	000.7000	0323.8	033.6	59.22* 11.58
290.0	000.2500	0048.5	009.1	091.6	000.7000	0323.8	033.5	59.24* 11.62
291.0	000.2500	0048.8	009.1	091.4	000.7000	0323.9	033.5	59.23* 11.61
292.0	000.2500	0048.6	009.1	091.1	000.7000	0324.0	033.6	59.19* 11.54
293.0	000.2500	0048.3	009.1	090.9	000.7000	0324.0	033.7	59.15* 11.46
294.0	000.2500	0048.3	009.1	090.6	000.7000	0324.0	033.8	59.12* 11.40
295.0	000.2500	0048.6	009.1	090.4	000.7000	0324.0	033.8	59.11* 11.36
296.0	000.2500	0049.1	009.2	090.1	000.7000	0324.1	033.8	59.10* 11.35
297.0	000.2500	0049.8	009.2	089.8	000.7000	0324.2	033.8	59.10* 11.35
298.0	000.2500	0050.4	009.3	089.5	000.7000	0324.3	033.8	59.10* 11.34
299.0	000.2500	0051.1	009.4	089.2	000.7000	0324.5	033.9	59.09* 11.33
300.0	000.2500	0051.6	009.4	088.9	000.7000	0324.6	033.9	59.08* 11.30
301.0	000.2500	0052.3	009.5	088.6	000.7000	0324.7	033.9	59.06* 11.28
302.0	000.2500	0053.0	009.6	088.3	000.7000	0324.8	034.0	59.05* 11.25
303.0	000.2500	0053.9	009.7	088.0	000.7000	0324.9	034.0	59.04* 11.24
304.0	000.2500	0054.9	009.7	087.7	000.7000	0325.0	034.0	59.04* 11.23
305.0	000.2500	0055.6	009.8	087.4	000.7000	0325.1	034.1	59.02* 11.19
306.0	000.2500	0056.1	009.9	087.1	000.7000	0325.2	034.1	58.98* 11.13
307.0	000.2500	0056.4	009.9	086.8	000.7000	0325.3	034.2	58.94* 11.04
308.0	000.2500	0056.5	009.9	086.6	000.7000	0325.4	034.3	58.90* 10.95
309.0	000.2500	0056.6	009.9	086.4	000.7000	0325.6	034.4	58.85* 10.84
310.0	000.2500	0056.6	009.9	086.2	000.7000	0325.8	034.5	58.80* 10.75
311.0	000.2500	0056.7	009.9	086.0	000.7000	0326.0	034.7	58.75* 10.65
312.0	000.2500	0056.8	009.9	085.8	000.7000	0326.2	034.8	58.70* 10.54
313.0	000.2500	0056.8	009.9	085.6	000.7000	0326.4	034.9	58.64* 10.43
314.0	000.2500	0056.7	009.9	085.4	000.7000	0326.5	035.0	58.58* 10.31
315.0	000.2500	0056.7	009.9	085.2	000.7000	0326.7	035.2	58.53* 10.19
316.0	000.2500	0056.7	009.9	085.0	000.7000	0326.8	035.3	58.47* 10.07
317.0	000.2500	0056.6	009.9	084.8	000.7000	0327.0	035.4	58.40* 9.94

Exhibit 13.8

Contour Protection Studies Toward WLPA-FM - Starview, PA

10-13-2015

Terrain Data: NGDC 30 SEC

FMOver Analysis

WLPA-FM BLH20040322AFY

CH223D.P

Channel = 224A

Max ERP = 0.7 kW

RCAMSL = 429 M

N. Lat. 40 04 32.0

W. Lng. 76 48 03.0

Protected

60 dBu

Channel = 223D

Max ERP = 0.25 kW

RCAMSL = 172 M

N. Lat. 40 02 18.0

W. Lng. 76 18 23.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
050.0	000.7000	0317.0	029.5	320.0	000.2500	0055.9	030.1	41.27	
051.0	000.7000	0313.2	029.3	319.7	000.2500	0056.0	029.6	41.56	
052.0	000.7000	0309.9	029.2	319.3	000.2500	0056.1	029.1	41.85	
053.0	000.7000	0307.5	029.1	319.0	000.2500	0056.2	028.6	42.15	
054.0	000.7000	0305.7	029.0	318.8	000.2500	0056.2	028.1	42.46	
055.0	000.7000	0303.8	028.9	318.5	000.2500	0056.3	027.6	42.77	
056.0	000.7000	0302.2	028.8	318.2	000.2500	0056.4	027.1	43.09	
057.0	000.7000	0301.3	028.8	317.9	000.2500	0056.4	026.7	43.42	
058.0	000.7000	0301.1	028.8	317.7	000.2500	0056.5	026.2	43.76	
059.0	000.7000	0301.6	028.8	317.6	000.2500	0056.5	025.7	44.10	
060.0	000.7000	0302.5	028.8	317.4	000.2500	0056.6	025.2	44.46	
061.0	000.7000	0303.7	028.9	317.3	000.2500	0056.6	024.7	44.82	
062.0	000.7000	0304.7	028.9	317.1	000.2500	0056.6	024.2	45.19	
063.0	000.7000	0305.4	029.0	316.8	000.2500	0056.6	023.7	45.56	
064.0	000.7000	0305.7	029.0	316.5	000.2500	0056.7	023.2	45.93	
065.0	000.7000	0305.9	029.0	316.1	000.2500	0056.7	022.7	46.30	
066.0	000.7000	0306.4	029.0	315.7	000.2500	0056.7	022.2	46.68	
067.0	000.7000	0307.4	029.0	315.4	000.2500	0056.7	021.7	47.07	
068.0	000.7000	0308.7	029.1	315.0	000.2500	0056.7	021.2	47.46	
069.0	000.7000	0310.1	029.2	314.6	000.2500	0056.7	020.7	47.86	
070.0	000.7000	0311.7	029.3	314.2	000.2500	0056.7	020.2	48.26	
071.0	000.7000	0313.6	029.3	313.7	000.2500	0056.7	019.7	48.67	
072.0	000.7000	0315.5	029.4	313.3	000.2500	0056.7	019.3	49.09	
073.0	000.7000	0317.3	029.5	312.7	000.2500	0056.8	018.8	49.50	
074.0	000.7000	0318.8	029.6	312.1	000.2500	0056.8	018.3	49.91	
075.0	000.7000	0320.0	029.6	311.3	000.2500	0056.7	017.8	50.30	
076.0	000.7000	0320.9	029.7	310.5	000.2500	0056.7	017.4	50.68	
077.0	000.7000	0321.7	029.7	309.5	000.2500	0056.6	016.9	51.04	
078.0	000.7000	0322.8	029.8	308.6	000.2500	0056.6	016.5	51.42	

Exhibit 13.8

Contour Protection Studies Toward WLPB-FM - Starview, PA

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
079.0	000.7000	0324.3	029.9	307.6	000.2500	0056.5	016.1	51.79
080.0	000.7000	0325.6	029.9	306.4	000.2500	0056.3	015.6	52.14
081.0	000.7000	0326.8	030.0	305.2	000.2500	0055.8	015.2	52.42
082.0	000.7000	0327.6	030.0	303.9	000.2500	0054.7	014.8	52.39
083.0	000.7000	0327.6	030.0	302.3	000.2500	0053.2	014.5	52.54
084.0	000.7000	0327.4	030.0	300.6	000.2500	0052.0	014.2	52.71
085.0	000.7000	0326.8	030.0	298.8	000.2500	0051.0	013.9	52.88
086.0	000.7000	0325.9	029.9	296.9	000.2500	0049.7	013.7	52.96
087.0	000.7000	0325.3	029.9	294.9	000.2500	0048.6	013.4	53.05
088.0	000.7000	0324.9	029.9	292.8	000.2500	0048.3	013.2	53.30
089.0	000.7000	0324.5	029.9	290.7	000.2500	0048.7	013.0	53.63
090.0	000.7000	0324.2	029.8	288.5	000.2463	0047.6	012.9	53.57
091.0	000.7000	0324.0	029.8	286.3	000.2407	0046.2	012.7	53.40
092.0	000.7000	0323.8	029.8	284.0	000.2351	0043.7	012.6	52.93
093.0	000.7000	0323.5	029.8	281.6	000.2295	0040.9	012.6	52.33
094.0	000.7000	0323.1	029.8	279.2	000.2256	0031.0	012.5	50.01
095.0	000.7000	0321.9	029.7	276.9	000.2256	0030.8	012.5	49.92
096.0	000.7000	0318.7	029.6	274.5	000.2256	0039.4	012.7	51.72
097.0	000.7000	0314.6	029.4	272.3	000.2256	0050.9	012.9	53.75
098.0	000.7000	0306.4	029.0	270.3	000.2256	0055.5	013.4	53.92
099.0	000.7000	0296.1	028.5	268.5	000.2292	0057.8	013.9	53.60
100.0	000.7000	0287.1	028.1	266.9	000.2330	0059.0	014.4	53.20
101.0	000.7000	0281.6	027.8	265.3	000.2369	0059.0	014.8	52.82
102.0	000.7000	0279.5	027.7	263.7	000.2410	0058.3	015.1	52.79
103.0	000.7000	0278.1	027.7	262.0	000.2450	0056.4	015.3	52.37
104.0	000.7000	0276.1	027.6	260.5	000.2487	0055.0	015.6	51.97
105.0	000.7000	0273.6	027.5	259.1	000.2500	0056.8	015.9	52.00
106.0	000.7000	0269.9	027.3	257.9	000.2500	0059.3	016.2	52.04
107.0	000.7000	0266.3	027.1	256.7	000.2500	0062.3	016.6	52.09
108.0	000.7000	0263.6	027.0	255.6	000.2500	0064.5	017.0	52.04
109.0	000.7000	0263.0	027.0	254.3	000.2500	0066.5	017.3	52.04
110.0	000.7000	0264.5	027.0	252.9	000.2500	0068.6	017.5	52.09
111.0	000.7000	0267.3	027.2	251.5	000.2500	0070.4	017.7	52.15
112.0	000.7000	0269.7	027.3	250.1	000.2500	0071.9	017.9	52.13
113.0	000.7000	0269.9	027.3	248.9	000.2500	0072.9	018.2	51.98
114.0	000.7000	0267.8	027.2	248.1	000.2500	0073.9	018.6	51.75
115.0	000.7000	0264.8	027.0	247.5	000.2500	0074.8	019.1	51.48
116.0	000.7000	0263.5	027.0	246.7	000.2500	0075.8	019.5	51.27
117.0	000.7000	0264.6	027.0	245.7	000.2500	0076.7	019.8	51.11
118.0	000.7000	0266.7	027.1	244.6	000.2500	0077.3	020.1	50.92
119.0	000.7000	0268.2	027.2	243.7	000.2500	0077.9	020.5	50.70
120.0	000.7000	0268.8	027.2	242.9	000.2500	0078.1	020.8	50.42
121.0	000.7000	0269.6	027.3	242.1	000.2500	0078.1	021.2	50.12
122.0	000.7000	0270.7	027.3	241.4	000.2500	0078.0	021.6	49.80
123.0	000.7000	0272.1	027.4	240.6	000.2500	0077.8	022.0	49.47
124.0	000.7000	0274.0	027.5	239.9	000.2500	0077.5	022.4	49.13
125.0	000.7000	0276.4	027.6	239.1	000.2500	0076.8	022.8	48.76
126.0	000.7000	0278.8	027.7	238.4	000.2500	0075.4	023.2	48.29
127.0	000.7000	0280.5	027.8	237.8	000.2500	0073.5	023.6	47.75
128.0	000.7000	0281.4	027.8	237.3	000.2500	0071.6	024.0	47.20
129.0	000.7000	0281.8	027.8	236.9	000.2500	0070.0	024.5	46.67

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.9

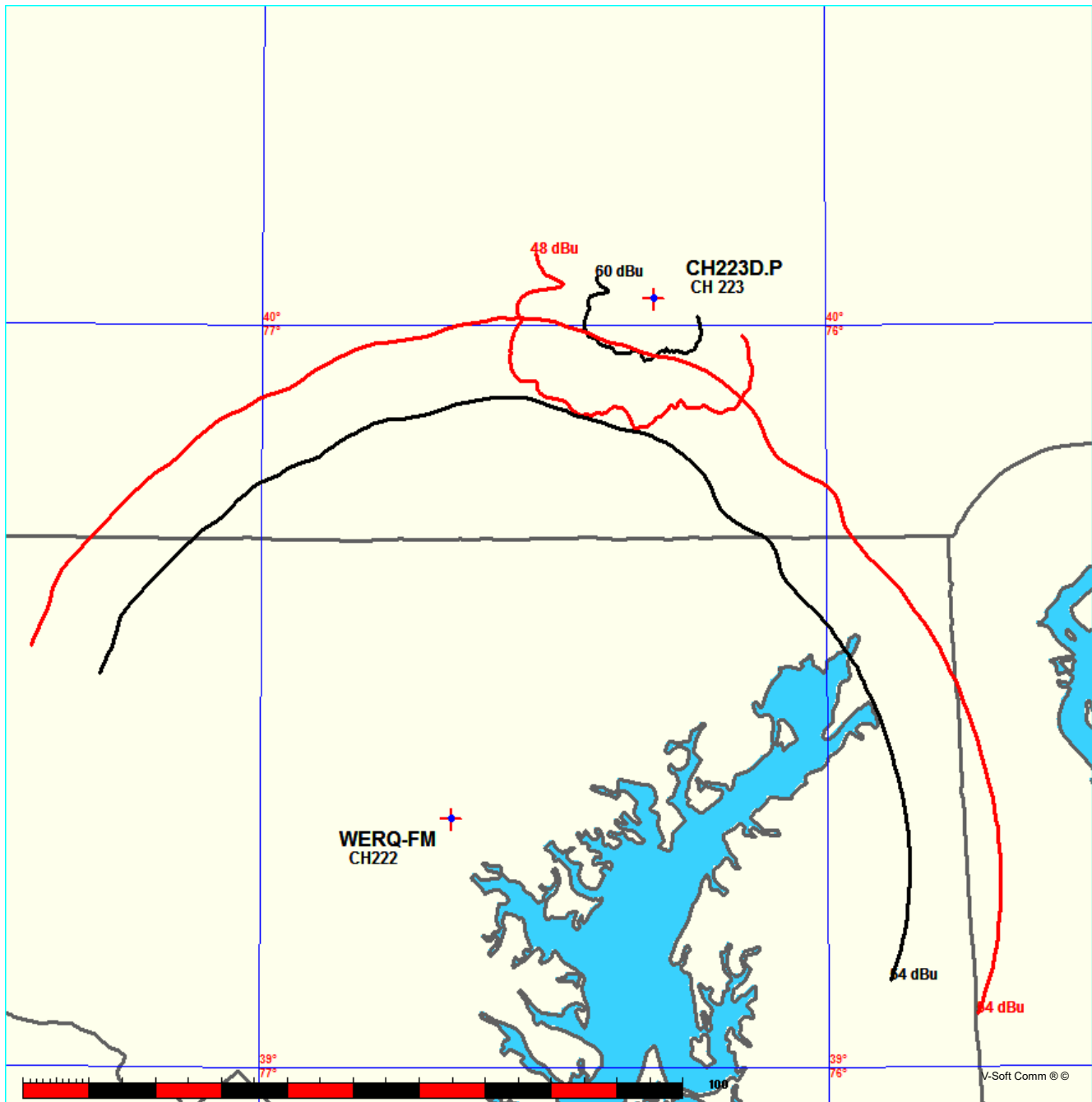
Contour Protection Studies Toward WERQ-FM - Baltimore, MD

Hall Communications, Inc.

FMCommander Single Allocation Study - 10-13-2015 - NGDC 30 SEC
CH223D.P's Overlaps (In= -0.52 km, Out= 2.14 km)

CH223D.P CH 223 D DA
Lat= 40 02 18.0, Lng= 76 18 23.0
0.25 kW 60.1 M HAAT, 172 M COR
Prot.= 60 dBu, Intef.= 48 dBu

WERQ-FM CH 222 B DA BLH20130830ACP
Lat= 39 20 18.0, Lng= 76 40 00.0
37.0 kW 173 M HAAT, 269 M COR
Prot.= 54 dBu, Intef.= 54 dBu



MUNN-REESE, INC.
Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.9

Contour Protection Studies Toward WERQ-FM - Baltimore, MD

10-13-2015

Terrain Data: NGDC 30 SEC

FMOver Analysis

CH223D.P

WERQ-FM BLH20130830ACP

Channel = 223D

Max ERP = 0.25 kW

RCAMSL = 172 M

N. Lat. 40 02 18.0

W. Lng. 76 18 23.0

Protected

60 dBu

Channel = 222B

Max ERP = 37 kW

RCAMSL = 269 M

N. Lat. 39 20 18.0

W. Lng. 76 40 00.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
157.0	000.2500	0044.5	008.7	026.0	037.0000	0168.2	077.8	53.62	
158.0	000.2500	0044.7	008.7	025.9	037.0000	0168.0	077.7	53.65	
159.0	000.2500	0044.2	008.6	025.8	037.0000	0167.8	077.6	53.66	
160.0	000.2500	0043.2	008.5	025.7	037.0000	0167.3	077.6	53.65	
161.0	000.2500	0042.7	008.5	025.6	037.0000	0167.0	077.5	53.66	
162.0	000.2500	0042.8	008.5	025.5	037.0000	0166.8	077.4	53.68	
163.0	000.2500	0042.0	008.4	025.4	037.0000	0166.5	077.3	53.68	
164.0	000.2500	0039.7	008.1	025.2	037.0000	0165.8	077.4	53.62	
165.0	000.2500	0037.5	007.9	025.0	037.0000	0165.2	077.5	53.56	
166.0	000.2500	0037.6	007.9	024.9	037.0000	0165.0	077.4	53.58	
167.0	000.2500	0039.5	008.1	024.9	037.0000	0165.0	077.2	53.66	
168.0	000.2500	0040.7	008.2	024.9	037.0000	0165.0	077.0	53.72	
169.0	000.2500	0040.3	008.2	024.8	037.0000	0164.7	076.9	53.72	
170.0	000.2500	0039.0	008.0	024.6	037.0000	0164.2	077.0	53.69	
171.0	000.2450	0038.9	008.0	024.5	037.0000	0163.9	076.9	53.69	
172.0	000.2401	0040.6	008.1	024.5	037.0000	0163.8	076.7	53.75	
173.0	000.2352	0042.4	008.3	024.5	037.0000	0163.7	076.5	53.81	
174.0	000.2304	0044.2	008.5	024.4	037.0000	0163.7	076.3	53.88	
175.0	000.2256	0045.2	008.5	024.4	037.0000	0163.5	076.2	53.91	
176.0	000.2209	0046.8	008.6	024.3	037.0000	0163.3	076.0	53.96	
177.0	000.2162	0047.8	008.7	024.2	037.0000	0163.1	075.9	53.99	
178.0	000.2116	0048.3	008.7	024.1	037.0000	0162.9	075.8	54.00	0.00
179.0	000.2070	0050.3	008.9	024.1	037.0000	0162.7	075.6	54.06*	0.19
180.0	000.2025	0052.4	009.0	024.0	037.0000	0162.6	075.4	54.12*	0.37
181.0	000.1958	0054.6	009.1	024.0	037.0000	0162.4	075.2	54.17*	0.53
182.0	000.1892	0057.2	009.3	023.9	037.0000	0162.3	075.1	54.22*	0.69
183.0	000.1828	0059.6	009.4	023.8	037.0000	0162.1	074.9	54.26*	0.82
184.0	000.1764	0060.6	009.4	023.7	037.0000	0161.8	074.8	54.27*	0.84
185.0	000.1702	0061.6	009.3	023.6	037.0000	0161.7	074.8	54.27*	0.84
186.0	000.1640	0063.0	009.4	023.4	037.0000	0161.5	074.7	54.28*	0.88
187.0	000.1580	0066.0	009.5	023.3	037.0000	0161.3	074.6	54.33*	1.02
188.0	000.1521	0067.8	009.5	023.2	037.0000	0161.2	074.5	54.34*	1.06
189.0	000.1463	0067.7	009.4	023.1	037.0000	0161.0	074.6	54.32*	0.99
190.0	000.1406	0065.6	009.2	022.9	037.0000	0160.9	074.8	54.25*	0.78
191.0	000.1380	0063.3	009.0	022.8	037.0000	0160.7	074.9	54.19*	0.59
192.0	000.1351	0060.5	008.7	022.6	037.0000	0160.6	075.1	54.12*	0.38

Exhibit 13.9

Contour Protection Studies Toward WERQ-FM - Baltimore, MD

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
193.0	000.1325	0059.2	008.6	022.5	037.0000	0160.5	075.2	54.08* 0.25
194.0	000.1296	0058.6	008.5	022.4	037.0000	0160.4	075.3	54.05* 0.16
195.0	000.1267	0057.8	008.4	022.2	037.0000	0160.4	075.4	54.02* 0.07
196.0	000.1243	0057.6	008.3	022.1	037.0000	0160.3	075.4	54.00 0.01
197.0	000.1215	0059.0	008.4	022.0	037.0000	0160.3	075.4	54.02* 0.07
198.0	000.1190	0060.3	008.4	021.9	037.0000	0160.2	075.3	54.04* 0.13
199.0	000.1166	0061.1	008.4	021.8	037.0000	0160.2	075.3	54.04* 0.13
200.0	000.1139	0062.3	008.4	021.7	037.0000	0160.2	075.3	54.05* 0.16
201.0	000.1099	0066.1	008.6	021.6	037.0000	0160.1	075.1	54.10* 0.33
202.0	000.1056	0071.7	008.9	021.5	037.0000	0160.1	074.8	54.19* 0.59
203.0	000.1014	0076.4	009.1	021.3	037.0000	0160.1	074.6	54.25* 0.78
204.0	000.0977	0079.7	009.2	021.2	037.0000	0160.0	074.5	54.28* 0.88
205.0	000.0939	0082.1	009.2	021.1	037.0000	0160.0	074.5	54.29* 0.91
206.0	000.0900	0084.7	009.3	021.0	037.0000	0160.0	074.5	54.30* 0.94
207.0	000.0864	0088.4	009.4	020.8	037.0000	0160.0	074.4	54.33* 1.03
208.0	000.0827	0093.2	009.5	020.7	037.0000	0159.9	074.3	54.37* 1.14
209.0	000.0790	0097.3	009.6	020.6	037.0000	0159.9	074.2	54.39* 1.21
210.0	000.0756	0099.7	009.6	020.4	037.0000	0159.8	074.2	54.38* 1.19
211.0	000.0812	0100.1	009.8	020.3	037.0000	0159.8	074.0	54.43* 1.34
212.0	000.0870	0098.8	009.9	020.1	037.0000	0159.7	074.0	54.45* 1.40
213.0	000.0930	0096.4	010.0	020.0	037.0000	0159.6	074.0	54.44* 1.39
214.0	000.0992	0093.0	009.9	019.9	037.0000	0159.5	074.0	54.42* 1.32
215.0	000.1056	0090.0	009.9	019.7	037.0000	0159.4	074.1	54.40* 1.25
216.0	000.1122	0087.7	010.0	019.6	037.0000	0159.3	074.1	54.39* 1.21
217.0	000.1190	0085.2	010.0	019.5	037.0000	0159.1	074.1	54.37* 1.15
218.0	000.1260	0081.8	009.9	019.3	037.0000	0159.0	074.2	54.33* 1.02
219.0	000.1332	0078.2	009.8	019.2	037.0000	0158.9	074.4	54.28* 0.88
220.0	000.1406	0075.7	009.8	019.1	037.0000	0158.8	074.5	54.25* 0.78
221.0	000.1502	0074.3	009.9	019.0	037.0000	0158.6	074.4	54.24* 0.76
222.0	000.1600	0073.3	010.0	018.8	037.0000	0158.5	074.4	54.24* 0.76
223.0	000.1702	0072.4	010.1	018.7	037.0000	0158.3	074.4	54.24* 0.76
224.0	000.1806	0071.4	010.2	018.5	037.0000	0158.2	074.4	54.24* 0.74
225.0	000.1914	0070.6	010.2	018.4	037.0000	0158.1	074.4	54.23* 0.74
226.0	000.2025	0070.4	010.4	018.2	037.0000	0158.0	074.4	54.24* 0.76
227.0	000.2139	0070.1	010.5	018.0	037.0000	0158.1	074.4	54.25* 0.78
228.0	000.2256	0069.4	010.6	017.9	037.0000	0158.1	074.4	54.25* 0.77
229.0	000.2377	0068.2	010.6	017.7	037.0000	0158.2	074.4	54.23* 0.73
230.0	000.2500	0067.5	010.7	017.6	037.0000	0158.2	074.4	54.23* 0.71
231.0	000.2500	0067.5	010.7	017.5	037.0000	0158.3	074.5	54.20* 0.62
232.0	000.2500	0067.0	010.7	017.4	037.0000	0158.3	074.7	54.16* 0.50
233.0	000.2500	0065.7	010.6	017.3	037.0000	0158.4	074.9	54.10* 0.33
234.0	000.2500	0064.3	010.5	017.2	037.0000	0158.4	075.0	54.04* 0.14
235.0	000.2500	0064.3	010.5	017.1	037.0000	0158.5	075.2	54.01* 0.04
236.0	000.2500	0066.5	010.6	016.9	037.0000	0158.7	075.2	54.02* 0.08
237.0	000.2500	0070.5	010.9	016.7	037.0000	0159.0	075.1	54.07* 0.21
238.0	000.2500	0074.4	011.2	016.4	037.0000	0159.3	075.0	54.11* 0.34
239.0	000.2500	0076.7	011.3	016.2	037.0000	0159.6	075.0	54.11* 0.36
240.0	000.2500	0077.5	011.4	016.1	037.0000	0159.8	075.1	54.09* 0.29
241.0	000.2500	0077.9	011.4	016.0	037.0000	0159.9	075.2	54.06* 0.19
242.0	000.2500	0078.1	011.4	015.9	037.0000	0160.0	075.3	54.02* 0.08
243.0	000.2500	0078.1	011.4	015.8	037.0000	0160.1	075.5	53.98

Exhibit 13.9

Contour Protection Studies Toward WERQ-FM - Baltimore, MD

10-13-2015

Terrain Data: NGDC 30 SEC

FMOver Analysis

WERQ-FM BLH20130830ACP

CH223D.P

Channel = 222B

Max ERP = 37 kW

RCAMSL = 269 M

N. Lat. 39 20 18.0

W. Lng. 76 40 00.0

Protected

54 dBu

Channel = 223D

Max ERP = 0.25 kW

RCAMSL = 172 M

N. Lat. 40 02 18.0

W. Lng. 76 18 23.0

Interfering

48 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
336.0	037.0000	0119.4	057.7	245.3	000.2500	0077.0	059.7	32.54	
337.0	037.0000	0118.8	057.6	245.2	000.2500	0077.0	058.7	32.88	
338.0	037.0000	0118.1	057.5	245.0	000.2500	0077.1	057.7	33.22	
339.0	037.0000	0117.9	057.4	244.9	000.2500	0077.2	056.7	33.56	
340.0	037.0000	0118.9	057.6	245.0	000.2500	0077.1	055.7	33.90	
341.0	037.0000	0120.9	057.9	245.2	000.2500	0077.0	054.7	34.25	
342.0	037.0000	0123.2	058.3	245.4	000.2500	0076.9	053.6	34.61	
343.0	037.0000	0125.3	058.6	245.6	000.2500	0076.8	052.6	34.96	
344.0	037.0000	0126.9	058.8	245.7	000.2500	0076.7	051.5	35.32	
345.0	037.0000	0128.4	059.0	245.8	000.2500	0076.6	050.5	35.68	
346.0	037.0000	0130.0	059.3	245.9	000.2500	0076.6	049.4	36.04	
347.0	037.0000	0131.8	059.5	246.0	000.2500	0076.5	048.3	36.40	
348.0	037.0000	0133.8	059.8	246.0	000.2500	0076.5	047.3	36.77	
349.0	037.0000	0135.3	060.0	246.0	000.2500	0076.5	046.2	37.14	
350.0	037.0000	0136.4	060.2	245.9	000.2500	0076.6	045.1	37.53	
351.0	037.0000	0137.1	060.3	245.7	000.2500	0076.7	044.1	37.94	
352.0	037.0000	0136.3	060.2	245.1	000.2500	0077.0	043.1	38.33	
353.0	037.0000	0135.8	060.1	244.6	000.2500	0077.3	042.1	38.74	
354.0	037.0000	0135.9	060.1	244.2	000.2500	0077.6	041.1	39.15	
355.0	037.0000	0136.3	060.2	243.7	000.2500	0077.9	040.1	39.58	
356.0	037.0000	0137.1	060.3	243.3	000.2500	0078.0	039.1	40.01	
357.0	037.0000	0137.8	060.4	242.8	000.2500	0078.1	038.1	40.43	
358.0	037.0000	0140.2	060.8	242.6	000.2500	0078.1	037.0	40.90	
359.0	037.0000	0143.2	061.2	242.4	000.2500	0078.1	035.9	41.39	
000.0	037.0000	0146.1	061.6	242.2	000.2500	0078.1	034.7	41.88	
001.0	037.0000	0147.9	061.8	241.7	000.2500	0078.1	033.7	42.36	
002.0	037.0000	0149.8	062.1	241.2	000.2500	0078.0	032.6	42.82	
003.0	037.0000	0151.5	062.3	240.5	000.2500	0077.7	031.6	43.28	
004.0	037.0000	0153.5	062.6	239.8	000.2500	0077.4	030.5	43.78	
005.0	037.0000	0156.3	062.9	239.1	000.2500	0076.8	029.4	44.31	
006.0	037.0000	0158.2	063.2	238.2	000.2500	0074.9	028.4	44.68	
007.0	037.0000	0159.1	063.3	236.9	000.2500	0070.1	027.5	44.68	
008.0	037.0000	0160.4	063.4	235.6	000.2500	0065.4	026.5	44.70	

MUNN-REESE, INC.

Broadcast Engineering Consultants

COLDWATER, MI 49036

Exhibit 13.9

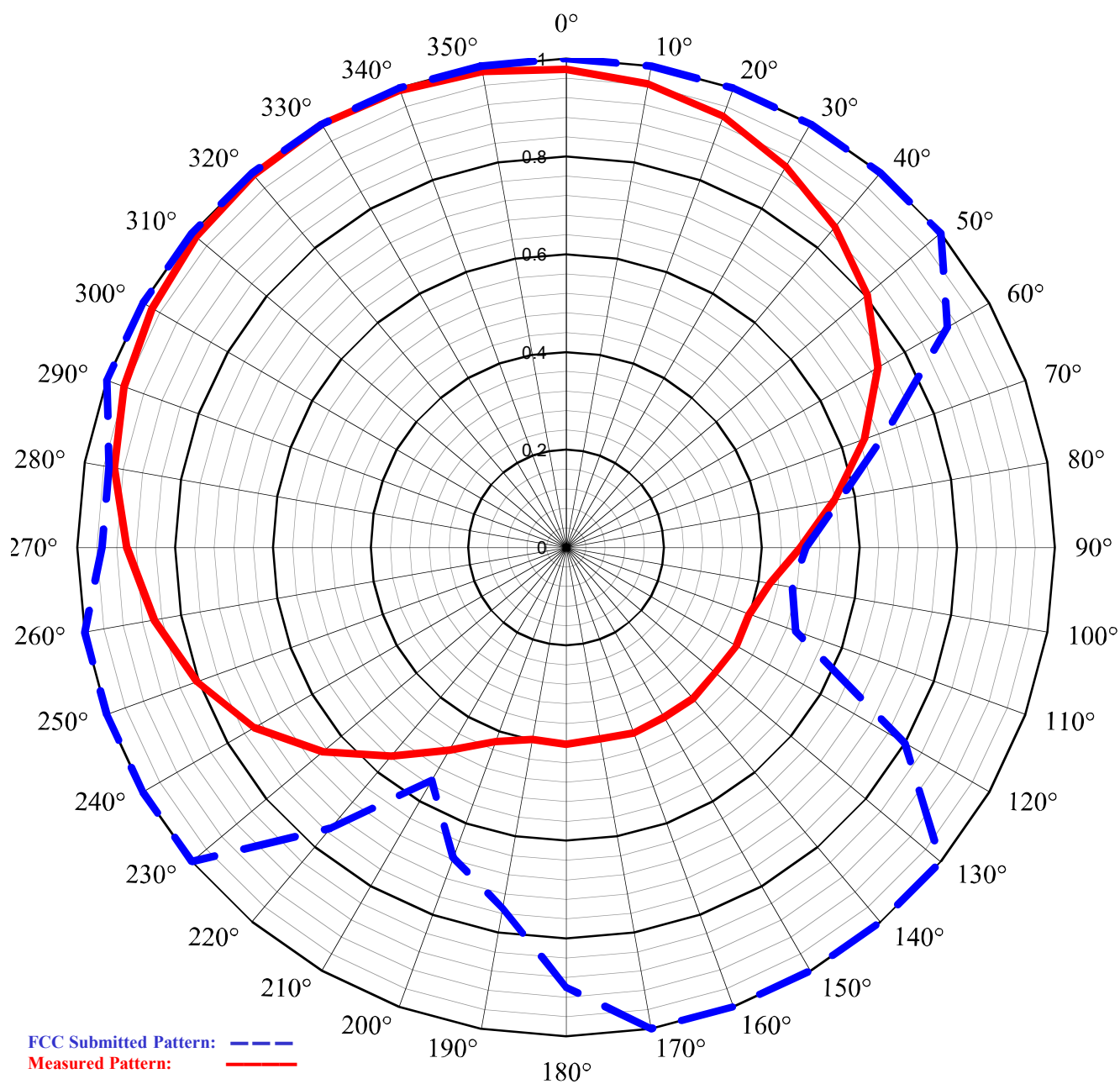
Contour Protection Studies Toward WERQ-FM - Baltimore, MD

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
009.0	037.0000	0161.7	063.6	234.2	000.2500	0064.2	025.6	45.16
010.0	037.0000	0163.0	063.7	232.6	000.2500	0066.4	024.7	46.06
011.0	037.0000	0163.5	063.8	230.7	000.2500	0067.5	024.0	46.75
012.0	037.0000	0163.0	063.7	228.5	000.2315	0068.8	023.3	47.05
013.0	037.0000	0161.4	063.6	226.0	000.2020	0070.4	022.9	47.01
014.0	037.0000	0160.4	063.4	223.4	000.1742	0072.1	022.4	46.93
015.0	037.0000	0160.2	063.4	220.8	000.1484	0074.6	021.9	46.90
016.0	037.0000	0159.9	063.4	218.1	000.1268	0081.4	021.5	47.31
017.0	037.0000	0158.6	063.2	215.2	000.1068	0089.5	021.3	47.63
018.0	037.0000	0158.1	063.1	212.3	000.0886	0098.2	021.0	47.86
019.0	037.0000	0158.6	063.2	209.3	000.0778	0098.3	020.7	47.54
020.0	037.0000	0159.6	063.3	206.3	000.0888	0085.8	020.5	47.08
021.0	037.0000	0160.0	063.4	203.3	000.1005	0077.4	020.3	46.79
022.0	037.0000	0160.3	063.4	200.1	000.1134	0062.6	020.3	45.58
023.0	037.0000	0160.9	063.5	197.0	000.1215	0059.0	020.3	45.41
024.0	037.0000	0162.5	063.7	193.8	000.1301	0058.8	020.3	45.70
025.0	037.0000	0165.3	064.0	190.5	000.1392	0064.4	020.2	46.78
026.0	037.0000	0168.2	064.4	187.2	000.1567	0066.6	020.2	47.56
027.0	037.0000	0170.4	064.6	184.0	000.1764	0060.6	020.4	47.20
028.0	037.0000	0171.6	064.7	181.0	000.1959	0054.6	020.7	46.47
029.0	037.0000	0172.6	064.8	178.1	000.2109	0048.6	021.2	45.35
030.0	037.0000	0173.3	064.9	175.5	000.2232	0046.0	021.7	44.64
031.0	037.0000	0173.3	064.9	173.1	000.2346	0042.6	022.4	43.64
032.0	037.0000	0172.7	064.9	171.1	000.2448	0038.9	023.2	42.43
033.0	037.0000	0171.8	064.8	169.2	000.2500	0040.0	024.0	42.16
034.0	037.0000	0170.7	064.6	167.5	000.2500	0040.5	024.9	41.62
035.0	037.0000	0169.4	064.5	166.1	000.2500	0037.7	025.8	40.38
036.0	037.0000	0167.9	064.3	164.8	000.2500	0037.8	026.8	39.78
037.0	037.0000	0165.4	064.0	163.8	000.2500	0040.1	027.9	39.64
038.0	037.0000	0161.7	063.6	163.3	000.2500	0041.6	029.0	39.27
039.0	037.0000	0157.1	063.0	162.9	000.2500	0042.1	030.3	38.74
040.0	037.0000	0152.4	062.4	162.8	000.2500	0042.3	031.5	38.19
041.0	037.0000	0148.6	061.9	162.5	000.2500	0042.6	032.7	37.74
042.0	037.0000	0146.7	061.7	162.0	000.2500	0042.8	033.8	37.35
043.0	037.0000	0146.9	061.7	161.0	000.2500	0042.7	034.7	36.96
044.0	037.0000	0148.0	061.8	160.0	000.2500	0043.1	035.6	36.70
045.0	037.0000	0149.5	062.0	159.0	000.2500	0044.1	036.5	36.54
046.0	037.0000	0151.7	062.3	158.0	000.2500	0044.7	037.4	36.31
047.0	037.0000	0154.9	062.8	156.8	000.2500	0044.5	038.3	35.94
048.0	037.0000	0159.1	063.3	155.5	000.2500	0044.3	039.1	35.58
049.0	037.0000	0162.4	063.7	154.5	000.2500	0045.2	040.1	35.42
050.0	037.0000	0162.9	063.7	154.0	000.2500	0046.0	041.1	35.18
051.0	037.0000	0160.7	063.5	154.0	000.2500	0046.0	042.3	34.80
052.0	037.0000	0157.0	063.0	154.3	000.2500	0045.5	043.5	34.33
053.0	037.0000	0153.3	062.5	154.6	000.2500	0045.0	044.6	33.88
054.0	037.0000	0150.8	062.2	154.8	000.2500	0044.9	045.8	33.51
055.0	037.0000	0150.2	062.1	154.6	000.2500	0045.0	046.8	33.22
056.0	037.0000	0150.7	062.2	154.4	000.2500	0045.4	047.9	32.98
057.0	037.0000	0151.9	062.4	154.0	000.2500	0046.1	049.0	32.79
058.0	037.0000	0153.5	062.6	153.6	000.2500	0046.9	050.0	32.61
059.0	037.0000	0155.5	062.8	153.2	000.2500	0047.8	051.1	32.43

Exhibit 13.10

Manufacturer's Directional Antenna Pattern Documentation

Measured Composite Pattern in Relative Field



Call Sign: CH223D.P

Channel: 223D

Max ERP: 0.250 kW (V)
0.250 kW (H)

Antenna Make: Nicom USA Inc.

Model: BKG1/P-1DA(Slant45)

Munn-Reese, Inc.

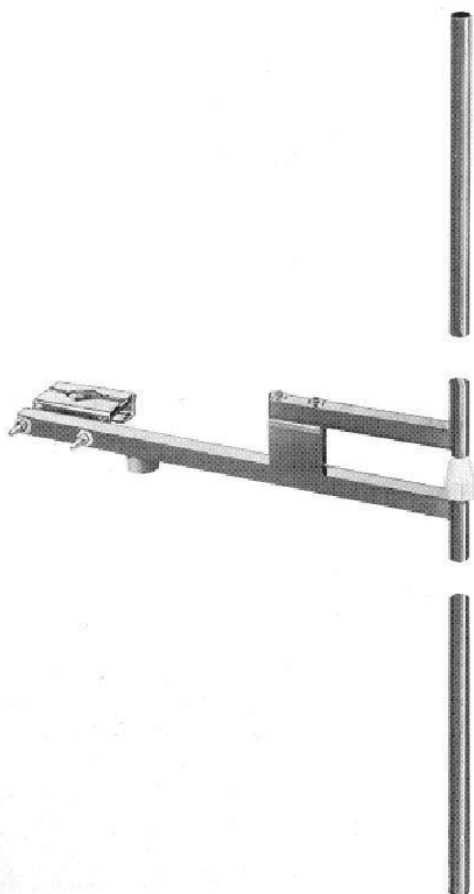
Broadcast Engineering Consultants
Coldwater, MI 49036

Exhibit 13.10

Manufacturer's Directional Antenna Pattern Documentation

MEASURED PATTERN (from manufacturer)								SUBMITTED PATTERN (to FCC)							
Enter		Measured	Calculated			Measured	Relative	Enter		Submitted	Calculated			Submitted	Relative
Max ERP		Relative	dB		Equiv	Relative	Field	Max ERP		Relative	dB		Equiv	Relative	Field
(kW)	° True	Field	Change	Suppression	Power	Field ²	RMS	(kW)	° True	Field	Change	Suppression	Power	Field ²	RMS
0.250	0°	0.978	-0.10	-0.19	0.239	0.96	0.739	0.250	0°	1	0.00	0.00	0.250	1.00	0.905
	10°	0.963	-0.13	-0.33	0.232	0.93			10°	1	0.00	0.00	0.250	1.00	
	20°	0.939	-0.22	-0.55	0.220	0.88			20°	1	0.00	0.00	0.250	1.00	
	30°	0.899	-0.38	-0.92	0.202	0.81			30°	1	0.00	0.00	0.250	1.00	
	40°	0.856	-0.43	-1.35	0.183	0.73			40°	1	0.00	0.00	0.250	1.00	
	50°	0.804	-0.54	-1.89	0.162	0.65			50°	1	0.00	0.00	0.250	1.00	
	60°	0.737	-0.76	-2.65	0.136	0.54			60°	0.9	-0.92	-0.92	0.203	0.81	
	70°	0.65	-1.09	-3.74	0.106	0.42			70°	0.7	-2.18	-3.10	0.123	0.49	
	80°	0.557	-1.34	-5.08	0.078	0.31			80°	0.57	-1.78	-4.88	0.081	0.32	
	90°	0.479	-1.31	-6.39	0.057	0.23			90°	0.49	-1.31	-6.20	0.060	0.24	
	100°	0.423	-1.08	-7.47	0.045	0.18			100°	0.47	-0.36	-6.56	0.055	0.22	
	110°	0.399	-0.51	-7.98	0.040	0.16			110°	0.5	0.54	-6.02	0.063	0.25	
	120°	0.403	0.09	-7.89	0.041	0.16			120°	0.8	4.08	-1.94	0.160	0.64	
	130°	0.398	-0.11	-8.00	0.040	0.16			130°	1	1.94	0.00	0.250	1.00	
	140°	0.404	0.13	-7.87	0.041	0.16			140°	1	0.00	0.00	0.250	1.00	
	150°	0.401	-0.06	-7.94	0.040	0.16			150°	1	0.00	0.00	0.250	1.00	
	160°	0.404	0.06	-7.87	0.041	0.16			160°	1	0.00	0.00	0.250	1.00	
	170°	0.398	-0.13	-8.00	0.040	0.16			170°	1	0.00	0.00	0.250	1.00	
	180°	0.403	0.11	-7.89	0.041	0.16			180°	0.9	-0.92	-0.92	0.203	0.81	
	190°	0.399	-0.09	-7.98	0.040	0.16			190°	0.75	-1.58	-2.50	0.141	0.56	
	200°	0.423	0.51	-7.47	0.045	0.18			200°	0.675	-0.92	-3.41	0.114	0.46	
	210°	0.479	1.08	-6.39	0.057	0.23			210°	0.55	-1.78	-5.19	0.076	0.30	
	220°	0.557	1.31	-5.08	0.078	0.31			220°	0.75	2.69	-2.50	0.141	0.56	
	230°	0.65	1.34	-3.74	0.106	0.42			230°	1	2.50	0.00	0.250	1.00	
	240°	0.737	1.09	-2.65	0.136	0.54			240°	1	0.00	0.00	0.250	1.00	
	250°	0.804	0.76	-1.89	0.162	0.65			250°	1	0.00	0.00	0.250	1.00	
	260°	0.856	0.54	-1.35	0.183	0.73			260°	1	0.00	0.00	0.250	1.00	
	270°	0.899	0.43	-0.92	0.202	0.81			270°	0.95	-0.45	-0.45	0.226	0.90	
	280°	0.939	0.38	-0.55	0.220	0.88			280°	0.95	0.00	-0.45	0.226	0.90	
	290°	0.963	0.22	-0.33	0.232	0.93			290°	1	0.45	0.00	0.250	1.00	
	300°	0.978	0.13	-0.19	0.239	0.96			300°	1	0.00	0.00	0.250	1.00	
	310°	0.989	0.10	-0.10	0.245	0.98			310°	1	0.00	0.00	0.250	1.00	
	320°	0.995	0.05	-0.04	0.248	0.99			320°	1	0.00	0.00	0.250	1.00	
	330°	1	0.04	0.00	0.250	1.00			330°	1	0.00	0.00	0.250	1.00	
	340°	0.995	-0.04	-0.04	0.248	0.99			340°	1	0.00	0.00	0.250	1.00	
	350°	0.989	-0.05	-0.10	0.245	0.98			350°	1	0.00	0.00	0.250	1.00	

Exhibit 13.10 - Manufacturer's Directional Antenna Pattern Documentation (Actual Pattern Rotated to 330°T)



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

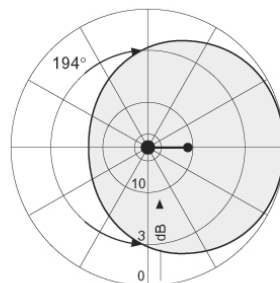
This antenna can be easily installed because of its lightness. Electrically grounded it gives excellent protection against lightning. Combined in arrays of more elements this dipole offers high gain over a wide angle.

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.

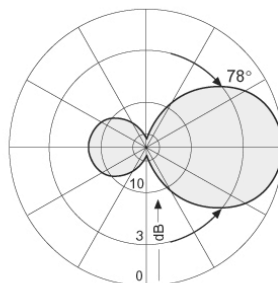
TECHNICAL SPECIFICATIONS

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)



in H-plane
Horizontal Radiation Pattern



in E-plane
Vertical Radiation Pattern

Exhibit 13.10 - Manufacturer's Directional Antenna Pattern Documentation (Actual Pattern Rotated to 330°T)



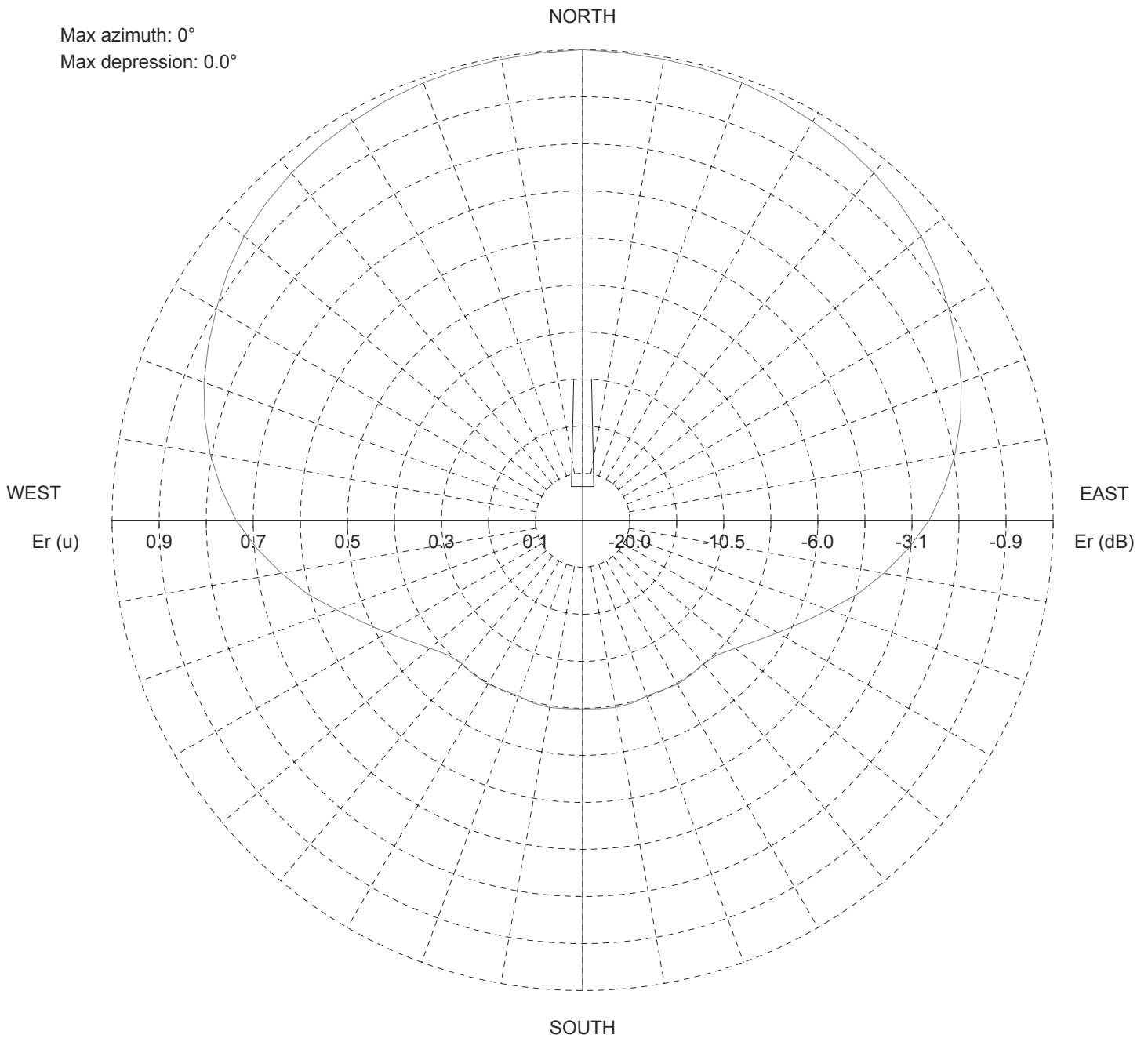
TX station: BKG1/P

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 13.10 - Manufacturer's Directional Antenna Pattern Documentation (Actual Pattern Rotated to 330°T)



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 13.10 - Manufacturer's Directional Antenna Pattern Documentation (Actual Pattern Rotated to 330°T)



TX station: BKG1/P

Site name:

Frequency: 100.00 MHz

Vertical diagram

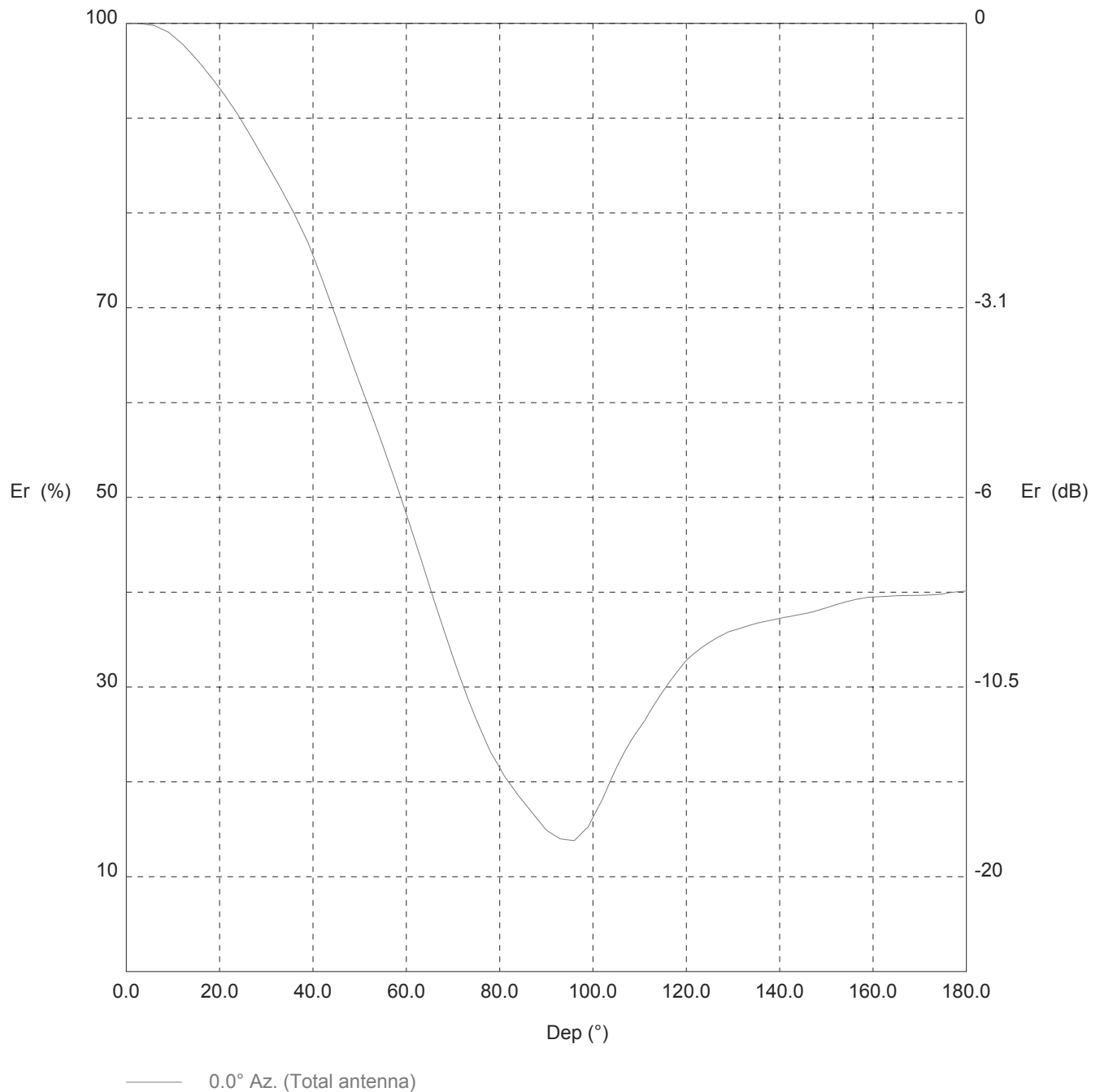


Exhibit 13.10 - Manufacturer's Directional Antenna Pattern Documentation (Actual Pattern Rotated to 330°T)



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