

Exhibit 13.1
Copy of USGS
Topographic Map

Proposed Site
42° 15' 52" NL
85° 25' 47" WL
NAD 1927
(42-15-52.25NL; 85-25-46.85WL NAD83)

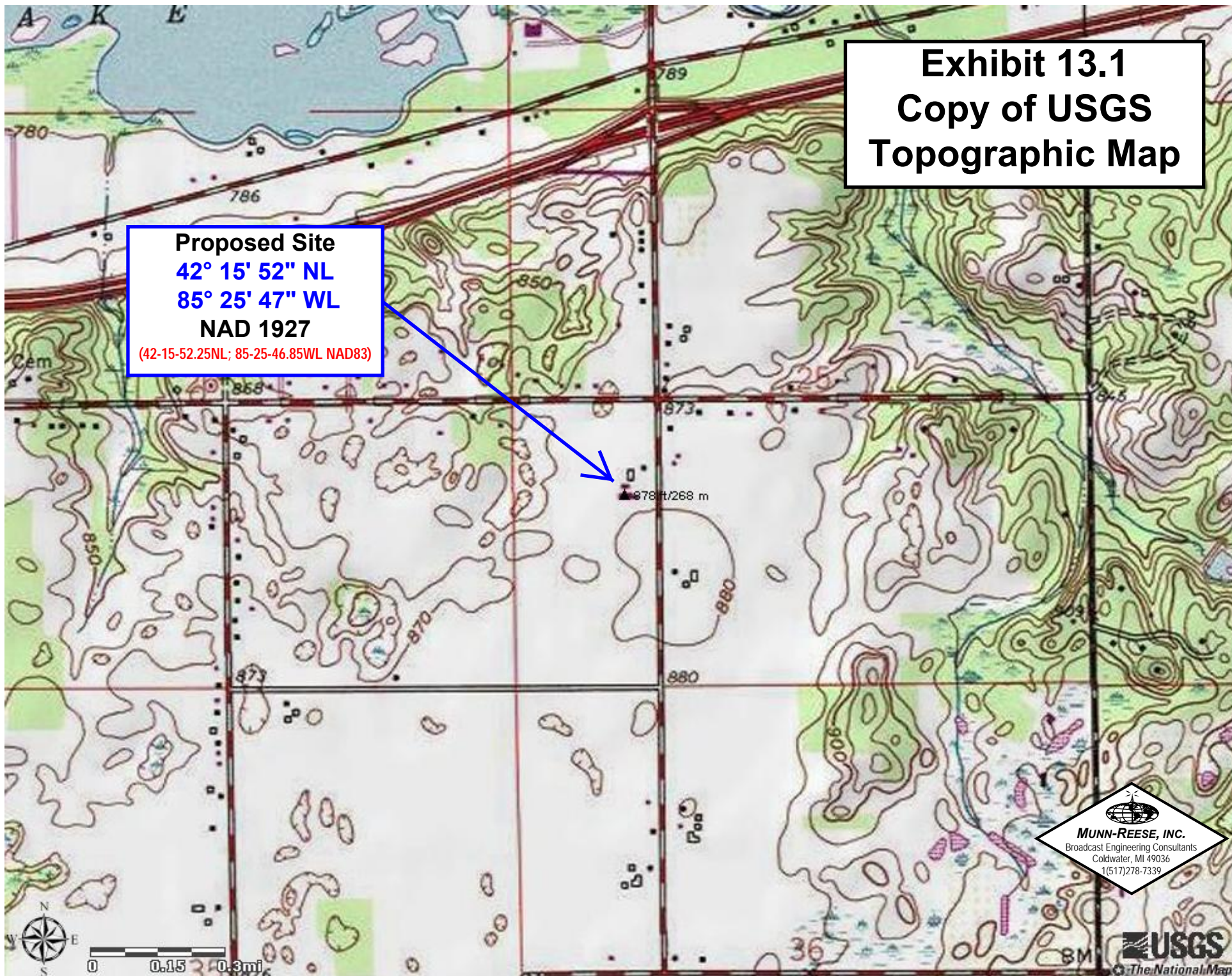


Exhibit 13.2
Copy of USGS
Aerial Photograph

Proposed Site
42° 15' 52" NL
85° 25' 47" WL
NAD 1927
(42-15-52.25NL; 85-25-46.85WL NAD83)

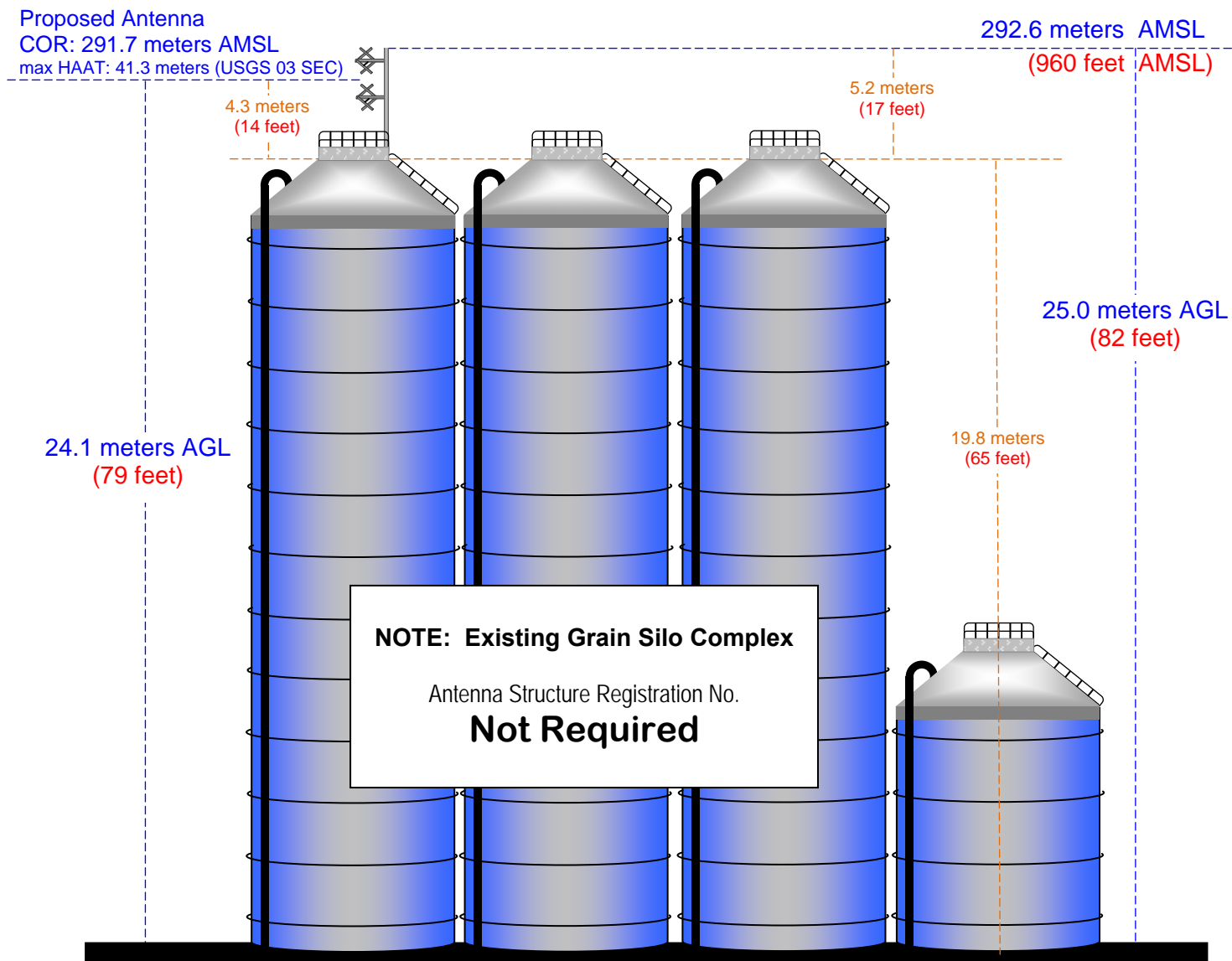
▲ 878 ft/268 m



Exhibit 13.3

Vertical Plan of Antenna System

The site is located at 2636 South 35th Street; the city of Galesburg; Kalamazoo County; Michigan.	Site Location (NAD 27) NL: 42° 15' 52" WL: 85° 25' 47" (42-15-52.25NL; 85-25-46.85WL NAD83)
--	---



Ground Elevation = 267.6 m AMSL (878 feet)
Drawing is not to Scale

Terrain
226 318 m

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

Exhibit 13.4 Present vs. Proposed Service Contour Study

Present 60 dBμ F(50:50) Contour

Proposed 60 dBμ F(50:50) Contour

W269CS.C

W269CS.P

W269CS.C
Galesburg, MI
BNPFT20130814AAD
Facility ID: 145671
Latitude: 42-17-39 N
Longitude: 085-26-31 W
ERP: 0.12 kW
Channel: 269D (101.7 MHz)
AMSL Height: 296.0 m
Horiz. Pattern: Omni

60 dBμ F(50:50) Contour
Total Population: 15,323
Coverage Area: 123 sq. km

W269CS.P
Galesburg, MI
Proposed Operation
Facility ID: 145671
Latitude: 42-15-52 N
Longitude: 085-25-47 W
ERP: 0.08 kW
Channel: 269D (101.7 MHz)
AMSL Height: 292.0 m
Horiz. Pattern: Omni

60 dBμ F(50:50) Contour
Total Population: 7,473
Coverage Area: 96 sq. km



Terrain

202

387 m

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

Exhibit 13.5 Proposed vs. Primary Service Contour Study

Primary 29 dBμ F(50:50) Contour

Proposed 60 dBμ F(50:50) Contour

Galesburg

W269CS.P

Primary 60 dBμ F(50:50) Contour

WJKN-FM



Scale 1:400,000

0 5 10 15 km

W269CS.P
Galesburg, MI
Proposed Operation
Facility ID: 145671
Latitude: 42-15-52 N
Longitude: 085-25-47 W
ERP: 0.08 kW
Channel: 269D (101.7 MHz)
AMSL Height: 292.0 m
Horiz. Pattern: Omni

WJKN-FM
Spring Arbor, MI
BLED20050411AAG
Facility ID: 91139
Latitude: 42-09-13 N
Longitude: 084-32-57 W
ERP: 2.50 kW
Channel: 207A (89.3 MHz)
AMSL Height: 398.0 m
Horiz. Pattern: Omni

Exhibit 13.6

Tabulation of Proposed Allocation

REFERENCE		CH# 269D - 101.7 MHz, Pwr= 0.08 kw, HAAT= 26.7 M, COR= 297.1 M								DISPLAY DATES	
42 15 52.0 N.		Average Protected F(50-50)= 5.33 km								DATA 03-01-15	
85 25 47.0 W.		Omni-directional								SEARCH 03-02-15	
CH	CALL	TYPE	ANT	AZI	DIST	LAT	PWR(kw)	INT(km)	PRO(km)	*IN*	*OUT*
CITY		STATE		<--	FILE #	LNG	HAAT(M)	COR(M)	LICENSEE	(Overlap	in km)
271B WMUK		LIC _CX		333.7	18.92	42 25 01.0	49.000	5.8	64.0	7.8	-46.4*<
Kalamazoo		MI		153.6	BLED20140522AFS	85 31 55.0	151	414	Western Michigan Universit		
269D W269CS		CP _C_		343.1	3.45	42 17 39.0	0.120	19.6	5.9	-21.4*	-19.9*
Galesburg		MI		163.1	BNPFT20130814AAD	85 26 31.0	29	296	Spring Arbor University		
269A WHZZ		LIC _C_		56.1	85.80	42 41 29.0	4.100	83.2	27.6	-3.4<	38.3
Lansing		MI		236.7	BLH19990811KD	84 33 29.0	121	386	The Macdonald Broadcasting		
266D W266CG		LIC DC_		77.2	20.02	42 18 15.0	0.230	1.0	6.6	13.7	12.8
Battle Creek		MI		257.3	BLFT20140916ABU	85 11 32.0		318	Family Life Broadcasting S		
268B WNSN		LIC _CN		222.4	97.08	41 36 60.0	13.000	77.6	66.1	13.7	19.4
South Bend		IN		41.8	BMLH19900206KG	86 13 01.0	296	536	wsbt, Inc.		
267B WBFX		LIC _CX		3.9	86.54	43 02 28.0	50.000	6.0	65.1	75.3	20.2
Grand Rapids		MI		183.9	BMLH20130607ABB	85 21 28.0	128	378	Cc Licenses, Llc		
269D W269CM		LIC _V_		262.4	42.61	42 12 46.0	0.001	5.6	1.8	31.3	21.9
Paw Paw		MI		82.1	BLFT20130319ADV	85 56 34.0	10	242	Edgewater Broadcasting, In		
269B1 WMRR		LIC _CN		327.0	134.66	43 16 38.0	12.000	106.0	45.6	23.3	68.0
Muskegon Heights		MI		146.4	BLH19940902KB	86 20 05.0	145	335	Cc Licenses, Llc		
Proposed to Canada as Class B 950911											
269A WLDE		LIC _CX		166.3	135.89	41 04 35.0	6.000	85.8	27.6	44.7	90.9
Fort Wayne		IN		346.5	BLH20140814ABA	85 02 43.0	100	338	Sarkes Tarzian, Inc.		
266D W266AE		LIC _C_		135.6	53.61	41 55 08.0	0.027	0.4	6.6	47.9	46.4
Coldwater		MI		315.9	BLFT20041028AFA	84 58 35.0	72	368	Friends Of Christian Radio		
269L1 WRFH-LP		CP _		119.1	75.32	41 55 56.3	0.084			48.5	51.5
Hillsdale		MI		299.6	BNPL20131114BRJ	84 38 02.1	33	370	Hillsdale College		
266D W266BS		LIC DV_		234.7	59.40	41 57 14.0	0.250	0.2	3.8	53.4	55.0
Cassopolis		MI		54.3	BLFT20091029ABE	86 00 57.0	70	330	Larry Langford, Jr.		
267D W267BE		LIC _C_		151.2	73.91	41 40 51.0	0.250	1.1	13.0	67.5	60.2
Angola		IN		331.5	BLFT20091124AHX	85 00 05.0	92	398	Swick Broadcasting Company		
270D W270BL		LIC _V_		211.7	83.86	41 37 18.0	0.013	9.5	6.7	68.6	68.9
Elkhart		IN		31.4	BLFT20070917ADU	85 57 38.0	103	345	Progressive Broadcasting S		

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. Call signs with strikeout need not be protected.
 Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
 "*"affixed to 'IN' or 'OUT' values = site inside restricted contour.
 < = Contour Overlap

Green Text denotes the W269CS.C - Galesburg, MI facility to be modified by this Form 349 Long-Form filing. This facility need not be protected.

Yellow Highlighted Text denotes a §74.1204(d) second adjacent channel given interference waiver request toward WMUK(FM) - Kalamazoo, MI (CH271B). Full protection will be afforded WMUK(FM) as the calculated interference area will not reach the ground nor a 5 meter artificial plane representing a standard 1.5 story building when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. The §74.1204(d) waiver requests have been included in **Exhibit 13.7**. A copy of the antenna manufacturer's vertical radiation pattern has been included in **Exhibit 13.8**.

Terrain

213

318 m

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

WMUK(FM)
+

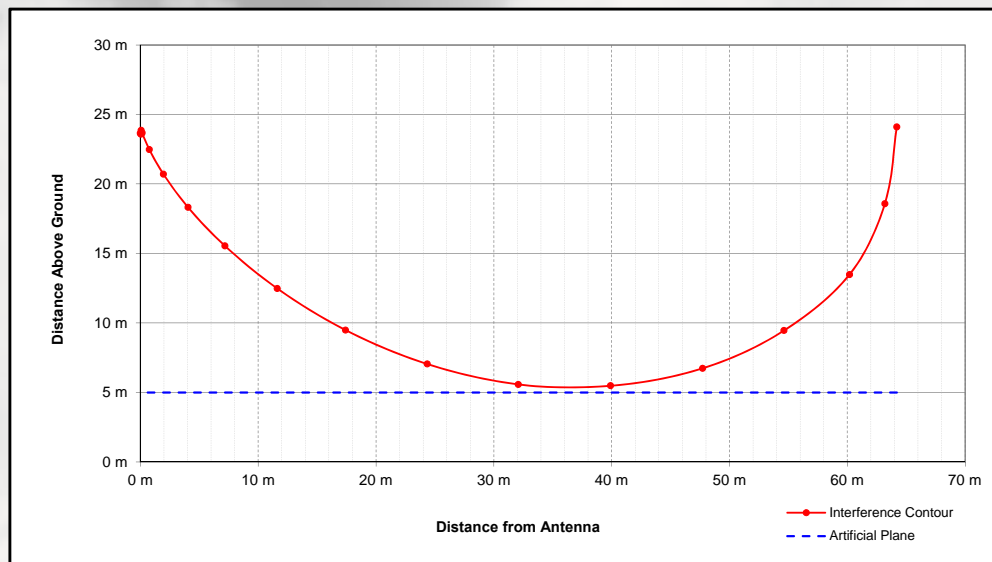


Exhibit 13.7

§74.1204(d) 2nd Adjacent Channel Given Interference Waiver Request Study Toward WMUK(FM)- Kalamazoo, MI

The Interference Contour corresponding to the worst case WMUK(FM) - Kalamazoo, MI Protected Contour at the proposed Translator site has been calculated to be no less than the 119.8 dBμ F(50:10) Interference Contour corresponding to the worst case WMUK(FM) 79.8 dBμ F(50:50) Protected Contour. This represents the proposed interference contour which falls wholly within the 40:1 dBu ratio. As seen on the map and associated vertical protection study, full protection will be afforded WMUK(FM) as the calculated interference area will not reach the ground nor a 5 meter artificial plane representing a standard 1.5 story building when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's vertical radiation pattern has been included in **Exhibit 13.7**.

Proposed Antenna: BKG77/2 Two Bay 0.5 λ Spaced Proposed Power: 0.08 kW Antenna Height AGL: 24.1 meters Interference Contour: 119.80 dBu f(50:10) Artificial Ground Plane Height: 5 meters Distance (Free Space) Equation: $= (10^{(106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]/20)}) \cdot 1000$ Field Strength (dBu) Equation: $= 106.92 - (20 \cdot (\text{LOG10}[\text{DistMeters}/1000])) + [\text{ERP in dBk}]$								
Depression Angle Below Horizon	Antenna Relative Field	ERP in kW	ERP in dBk	Distance from Ant. to Contour	Distance from Ant. to Artificial Plane	Field Strength in dBu @ Artificial Plane	Distance from Ant. to Ground Level	Field Strength in dBu @ Ground Level
0°	1.000	0.080	-10.97	64.20 m	infinite	---	---	---
-5°	0.988	0.078	-11.07	63.43 m	219.15 m	109.03 dBu	276.52 m	107.01 dBu
-10°	0.952	0.073	-11.40	61.12 m	109.99 m	114.70 dBu	138.79 m	112.68 dBu
-15°	0.881	0.062	-12.07	56.56 m	73.80 m	117.49 dBu	93.12 m	115.47 dBu
-20°	0.791	0.050	-13.01	50.78 m	55.84 m	118.97 dBu	70.46 m	116.96 dBu
-25°	0.686	0.038	-14.24	44.04 m	45.19 m	119.58 dBu	57.03 m	117.56 dBu
-30°	0.577	0.027	-15.75	37.04 m	38.20 m	119.53 dBu	48.20 m	117.51 dBu
-35°	0.463	0.017	-17.66	29.73 m	33.30 m	118.81 dBu	42.02 m	116.79 dBu
-40°	0.354	0.010	-19.99	22.73 m	29.71 m	117.47 dBu	37.49 m	115.45 dBu
-45°	0.256	0.005	-22.80	16.44 m	27.01 m	115.48 dBu	34.08 m	113.47 dBu
-50°	0.174	0.002	-26.16	11.17 m	24.93 m	112.83 dBu	31.46 m	110.81 dBu
-55°	0.110	0.001	-30.14	7.06 m	23.32 m	109.43 dBu	29.42 m	107.41 dBu
-60°	0.061	0.000	-35.26	3.92 m	22.05 m	104.79 dBu	27.83 m	102.77 dBu
-65°	0.028	0.000	-42.03	1.80 m	21.07 m	98.42 dBu	26.59 m	96.40 dBu
-70°	0.007	0.000	-54.07	0.45 m	20.33 m	86.69 dBu	25.65 m	84.67 dBu
-75°	0.004	0.000	-58.93	0.26 m	19.77 m	82.07 dBu	24.95 m	80.05 dBu
-80°	0.008	0.000	-52.91	0.51 m	19.39 m	88.26 dBu	24.47 m	86.24 dBu
-85°	0.008	0.000	-52.91	0.51 m	19.17 m	88.36 dBu	24.19 m	86.34 dBu
-90°	0.007	0.000	-54.07	0.45 m	19.10 m	87.23 dBu	24.10 m	85.21 dBu

WMUK(FM)
Kalamazoo, MI
BLED20140522AFS
Facility ID: 71874
Latitude: 42-25-01 N
Longitude: 085-31-55 W
ERP: 49.00 kW
Channel: 271B (102.1 MHz)
AMSL Height: 414.0 m
Horiz. Pattern: Omni

W269CS.P
Galesburg, MI
Proposed Operation
Facility ID: 145671
Latitude: 42-15-52 N
Longitude: 085-25-47 W
ERP: 0.08 kW
Channel: 269D (101.7 MHz)
AMSL Height: 292.0 m
Horiz. Pattern: Omni

WMUK(FM).L - 79.8 dBμ
F(50:50) Contour

W269CS.P

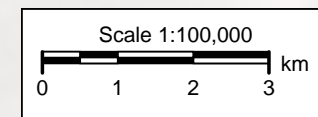
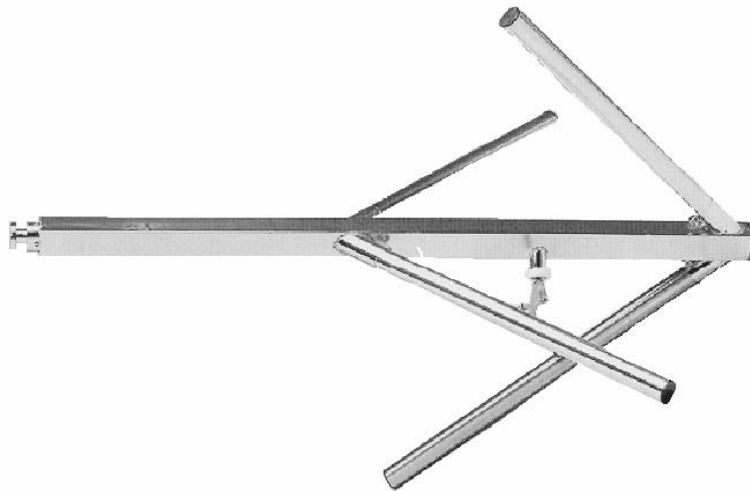


Exhibit 13.8 - Copy of Manufacturer's Vertical Radiation Pattern Data



NICOM
BKG77

Low Power

**Broadband
FM Circular
Polarization
Antenna
*Antena de
FM Banda Ancha
Polarizacion Circular***

This antenna, constructed completely of stainless steel, offers circular polarization for better coverage especially in urban areas. In order to facilitate and decrease shipping costs, this model is simple to break down and reassemble when ready to be installed. It is insulated with Teflon, and with the appropriate connector has a maximum input of 0.5 kw.

Esta antena, fabricada completamente de acero inoxidable, le ofrece polarización circular para mejor alcance, especialmente en zonas urbanas. Para facilitar y disminuir los costos de transportación, este modelo es fácil de desarmar y volver a montar tan pronto que la quiera instalar. Está aislada con Teflon, y con el conector apropiado tiene una entrada máxima de 0.5 kw.



TECHNICAL SPECIFICATIONS (per bay)

Antenna type	circular polarization dipole	Front-to-back ratio	3 dB
Frequency range	87.5 - 108 MHz	Lightening protection	all parts grounded
Bandwidth	500 kHz max	Max wind velocity	119 mph (190 km/h)
Impedance	50 ohms	Wind load	8 Lbs (3.6 kg)
Connectors	N type (0.5 kw)	Wind surface	0.3 ft ² (0.04 m ²)
Power rating	500 Watts max	Materials (external)	stainless steel
VSWR	< 1.1:1	Mounting	from 2" to 4"
Polarization	vertical and horizontal	Weight	7.7 Lbs (3.5 kg)
Gain	- 3 dBd (referred to half-wave dipole)	Dimensions	58"×32"×32" (1450×800×800mm)
H plane	omnidirectional ±1.5 dB (with a 4" mast)	Packing	72"×6"×6" (1500×152×152mm)
V plane	omnidirectional ±3 dB (with a 4" mast)		

Exhibit 13.8 - Copy of Manufacturer's Vertical Radiation Pattern Data



TX station: BKG77/2 GENERIC

Site name: 1/2 WAVE SEPARATION

Frequency: 98.10 MHz

Vertical diagram

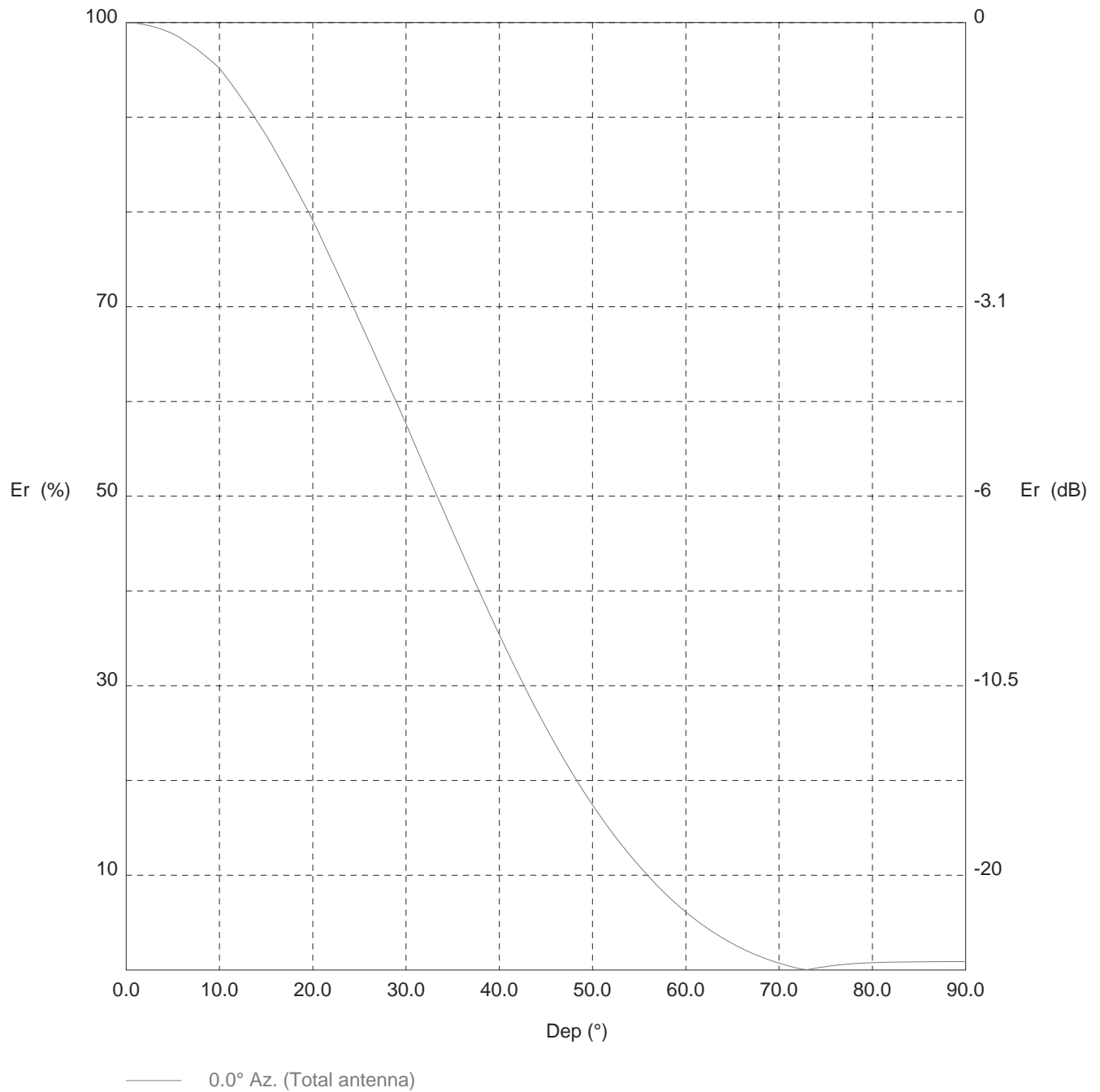


Exhibit 13.8 - Copy of Manufacturer's Vertical Radiation Pattern Data



TX station: BKG77/2 GENERIC

Site name: 1/2 WAVE SEPARATION

Frequency: 98.10 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	914.2	30.0	57.7	304.2	60.0	6.1	3.4
0.5	100.0	913.7	30.5	56.5	292.0	60.5	5.7	3.0
1.0	99.9	912.9	31.0	55.3	280.1	61.0	5.3	2.6
1.5	99.9	911.6	31.5	54.2	268.5	61.5	5.0	2.3
2.0	99.8	910.0	32.0	53.0	257.2	62.0	4.6	1.9
2.5	99.7	908.1	32.5	51.9	246.3	62.5	4.3	1.7
3.0	99.5	905.7	33.0	50.8	235.6	63.0	3.9	1.4
3.5	99.4	903.0	33.5	49.6	225.3	63.5	3.6	1.2
4.0	99.2	899.9	34.0	48.5	215.3	64.0	3.3	1.0
4.5	99.0	896.5	34.5	47.4	205.5	64.5	3.1	0.9
5.0	98.8	892.7	35.0	46.3	196.1	65.0	2.8	0.7
5.5	98.5	887.7	35.5	45.2	186.5	65.5	2.5	0.6
6.0	98.2	882.4	36.0	44.0	177.3	66.0	2.3	0.5
6.5	97.9	876.7	36.5	42.9	168.4	66.5	2.0	0.4
7.0	97.6	870.7	37.0	41.8	159.8	67.0	1.8	0.3
7.5	97.2	864.3	37.5	40.7	151.5	67.5	1.6	0.2
8.0	96.9	857.7	38.0	39.6	143.5	68.0	1.4	0.2
8.5	96.5	850.8	38.5	38.5	135.8	68.5	1.2	0.1
9.0	96.1	843.5	39.0	37.5	128.5	69.0	1.0	0.1
9.5	95.6	836.0	39.5	36.4	121.4	69.5	0.9	0.1
10.0	95.2	828.2	40.0	35.4	114.6	70.0	0.7	0.0
10.5	94.5	817.1	40.5	34.4	107.9	70.5	0.6	0.0
11.0	93.9	805.8	41.0	33.3	101.5	71.0	0.4	0.0
11.5	93.2	794.4	41.5	32.3	95.4	71.5	0.3	0.0
12.0	92.5	782.7	42.0	31.3	89.5	72.0	0.2	0.0
12.5	91.8	770.9	42.5	30.3	84.0	72.5	0.1	0.0
13.0	91.1	759.0	43.0	29.3	78.7	73.0	0.0	0.0
13.5	90.4	746.9	43.5	28.4	73.6	73.5	0.1	0.0
14.0	89.6	734.6	44.0	27.4	68.8	74.0	0.2	0.0
14.5	88.9	722.3	44.5	26.5	64.3	74.5	0.3	0.0
15.0	88.1	709.8	45.0	25.6	59.9	75.0	0.4	0.0
15.5	87.3	696.2	45.5	24.7	55.8	75.5	0.4	0.0
16.0	86.4	682.5	46.0	23.8	51.9	76.0	0.5	0.0
16.5	85.5	668.7	46.5	23.0	48.2	76.5	0.5	0.0
17.0	84.6	655.0	47.0	22.1	44.7	77.0	0.6	0.0
17.5	83.8	641.2	47.5	21.3	41.5	77.5	0.6	0.0
18.0	82.8	627.4	48.0	20.5	38.4	78.0	0.7	0.0
18.5	81.9	613.7	48.5	19.7	35.4	78.5	0.7	0.0
19.0	81.0	599.9	49.0	18.9	32.7	79.0	0.7	0.0
19.5	80.1	586.2	49.5	18.2	30.1	79.5	0.7	0.1
20.0	79.1	572.5	50.0	17.4	27.7	80.0	0.8	0.1
20.5	78.1	557.6	50.5	16.7	25.5	80.5	0.8	0.1
21.0	77.1	542.9	51.0	16.0	23.4	81.0	0.8	0.1
21.5	76.0	528.2	51.5	15.3	21.4	81.5	0.8	0.1
22.0	75.0	513.7	52.0	14.6	19.6	82.0	0.8	0.1
22.5	73.9	499.3	52.5	14.0	17.9	82.5	0.8	0.1
23.0	72.8	485.1	53.0	13.3	16.3	83.0	0.8	0.1
23.5	71.8	471.1	53.5	12.7	14.8	83.5	0.9	0.1
24.0	70.7	457.2	54.0	12.1	13.4	84.0	0.9	0.1
24.5	69.6	443.5	54.5	11.5	12.2	84.5	0.9	0.1
25.0	68.6	429.9	55.0	11.0	11.0	85.0	0.8	0.1
25.5	67.5	416.4	55.5	10.4	9.9	85.5	0.9	0.1
26.0	66.4	403.0	56.0	9.9	8.9	86.0	0.9	0.1
26.5	65.3	389.8	56.5	9.3	8.0	86.5	0.9	0.1
27.0	64.2	376.9	57.0	8.8	7.1	87.0	0.9	0.1
27.5	63.1	364.2	57.5	8.3	6.4	87.5	0.9	0.1
28.0	62.0	351.7	58.0	7.9	5.6	88.0	0.9	0.1
28.5	60.9	339.4	58.5	7.4	5.0	88.5	0.9	0.1
29.0	59.8	327.4	59.0	7.0	4.4	89.0	0.9	0.1
29.5	58.8	315.7	59.5	6.5	3.9	89.5	0.9	0.1