

## Exhibit 13.2 - KFNW(AM) - Proposed Translator vs AM Contours

### KFNW.L

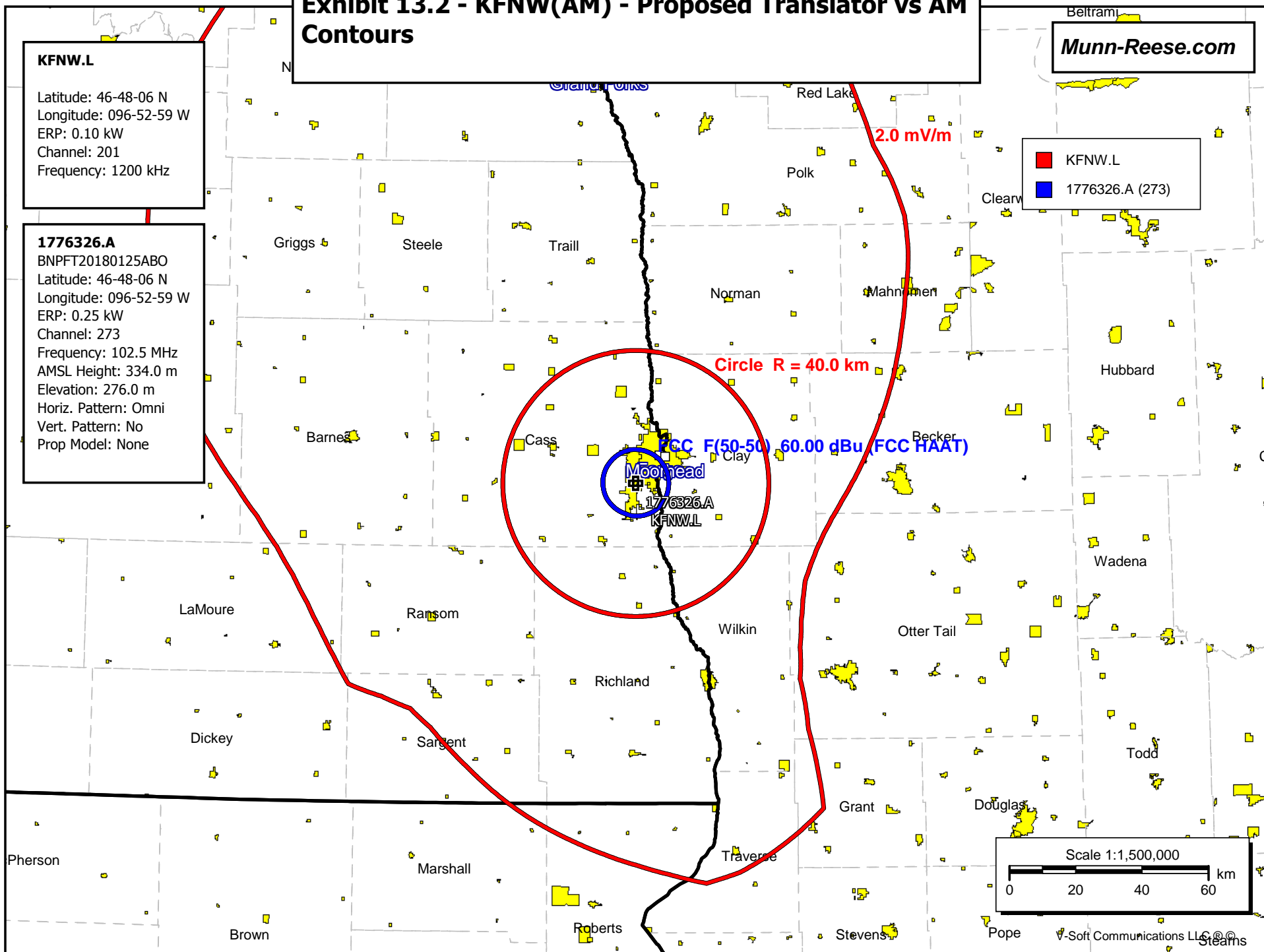
Latitude: 46-48-06 N  
Longitude: 096-52-59 W  
ERP: 0.10 kW  
Channel: 201  
Frequency: 1200 kHz

### 1776326.A

BNPFT20180125ABO  
Latitude: 46-48-06 N  
Longitude: 096-52-59 W  
ERP: 0.25 kW  
Channel: 273  
Frequency: 102.5 MHz  
AMSL Height: 334.0 m  
Elevation: 276.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

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■ KFNW.L  
■ 1776326.A (273)



Munn-Reese  
Coldwater, MI 49036

Exhibit 13.3  
University Of Northwestern-st. Paul  
CH# 273D - 102.5 MHz, Pwr= 0.25 kW, HAAT= 0.0 M, COR= 334 M  
Average Protected F(50-50)= 7.09 km  
Omni-directional

DISPLAY DATES  
DATA 03-26-18  
SEARCH 03-27-18

REFERENCE  
46 48 06.0 N.  
96 52 59.0 W.

CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
273D West Fargo	1776326	APP _C_ ND	0.0 0.0	0.00 BNPFT20180125ABO	46 48 06.0 96 52 59.0	0.250	0.00 334	0.00 University Of Northwestern	64.5R	-64.5M
270C1 Fargo	KRWK	LIC _CX ND	314.5 134.3	33.12 BMLH20071019AJB	47 00 36.0 97 11 41.0	96.000 305	10.3 595	73.2 Midwest Communications, In	12.8*	-41.2*<
272C2 Detroit Lakes	KRCQ	LIC _CX MN	96.0 276.8	79.66 BLH20120605AAQ	46 43 19.0 95 50 37.0	50.000 126	75.3 549	49.7 Leighton Enterprises, Inc.	-5.5*<	16.2*
220C Fargo	KDSU	LIC _CN ND	315.0 134.8	33.36 BLED19820621AB	47 00 48.0 97 11 37.0	100.000 302	169.8 593	84.6 North Dakota State Univers	28.5R	4.9M
274C1 Thief River Falls	KNTN	LIC NCN MN	8.9 189.1	132.31 BLH19911216KA	47 58 38.0 96 36 32.0	100.000 164	90.1 439	60.3 Minnesota Public Radio	32.0*	57.9*
273C1 Devils Lake	KDVL	LIC _CN ND	311.3 129.8	202.95 BLH19830829AB	47 59 16.0 98 55 59.0	100.000 143	151.2 596	55.4 Double Z Broadcasting, Inc	41.7*	113.8*
276C1 Wimbledon	KRVX	LIC NCX ND	278.6 97.5	109.40 BLH20051026ACF	46 56 21.0 98 18 30.0	99.000 144	7.1 587	58.4 Two Rivers Broadcasting, I	92.4*	49.9*
273C1 Willmar	KQIC	LIC _CN MN	141.5 322.8	226.36 BLH19810522AG	45 11 40.0 95 05 01.0	100.000 253	166.1 609	67.3 Lakeland Broadcasting Comp	50.3*	125.8*
273C2 Kelliher	KKWB	LIC ZCX MN	57.0 238.6	195.77 BLH20081029ADY	47 44 21.0 94 41 10.0	50.000 144	135.0 555	49.4 Bemidji Radio, Inc.	50.7*	112.6*
274D Valley City	K274BH	LIC _C_ ND	280.2 99.4	87.06 BLFT20120614ABQ	46 56 07.0 98 00 42.0	0.250 20	10.1 445	7.1 Two Rivers Broadcasting, I	67.0*	66.1*
275C1 Sisseton	KBWS-FM	LIC _CX SD	197.4 17.0	138.17 BMLH20110526AAT	45 36 52.0 97 24 51.0	100.000 140	6.7 698	56.4 Armada Media - Watertown,	121.8*	80.7*
274C2 Pequot Lakes	KTIG	LIC NCN MN	93.2 275.0	188.35 BMLED19980105KC	46 40 48.0 94 25 02.0	40.000 165	75.4 567	50.6 Minnesota Christian Broadc	103.0*	124.0*
270C2 Walker	KQKK	LIC NC_ MN	81.0 262.9	201.19 BLH19990802KA	47 03 14.0 94 15 32.0	50.000 119	5.2 524	47.1 Carol J. Delahunt	186.0*	153.0*
271C2 Roseau	KCAJ-FM	LIC _CN MN	22.3 203.1	222.39 BLH19960626KA	48 38 50.0 95 44 10.0	50.000 87	4.3 429	40.5 North Country Media, Inc.	208.0*	180.8*
272C1 Winnipeg	CITI-FM	APP ?HN MB	356.9 176.7	328.90	49 45 20.0 97 07 52.0	100.000 206	122.6 438	96.1	196.1*	211.7*

Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM  
Contour distances are on direct line to and from reference station. Reference zone= West 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  
Reference station has protected zone issue: AM tower

# Exhibit 13.4 - KFNW(AM) - Proposed Translator vs KRWK(FM) in support of a 74.1204(d) Waiver Request

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## 1776326.A

BNPFT20180125ABO  
Latitude: 46-48-06 N  
Longitude: 096-52-59 W  
ERP: 0.25 kW  
Channel: 273  
Frequency: 102.5 MHz  
AMSL Height: 334.0 m  
Elevation: 276.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

## KRWK

BMLH20071019AJB  
Latitude: 47-00-36 N  
Longitude: 097-11-41 W  
ERP: 96.00 kW  
Channel: 270  
Frequency: 101.9 MHz  
AMSL Height: 595.0 m  
Elevation: 287.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

1776326.A (273)  
KRWK (270)

FCC F(50-50) 79.25 dBu (FCC HAAT)

FCC F(50-50) 60.00 dBu (FCC HAAT)

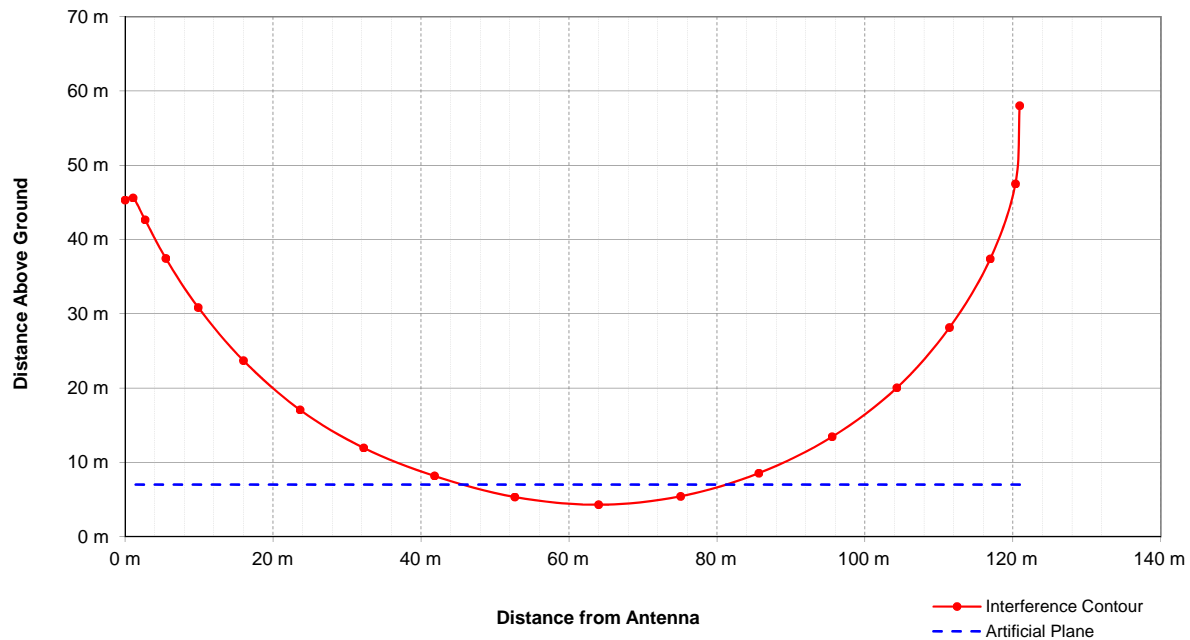
1776326.A

Scale 1:1,500,000

0 20 40 60 km

V-Soft Communications LLC © 2013

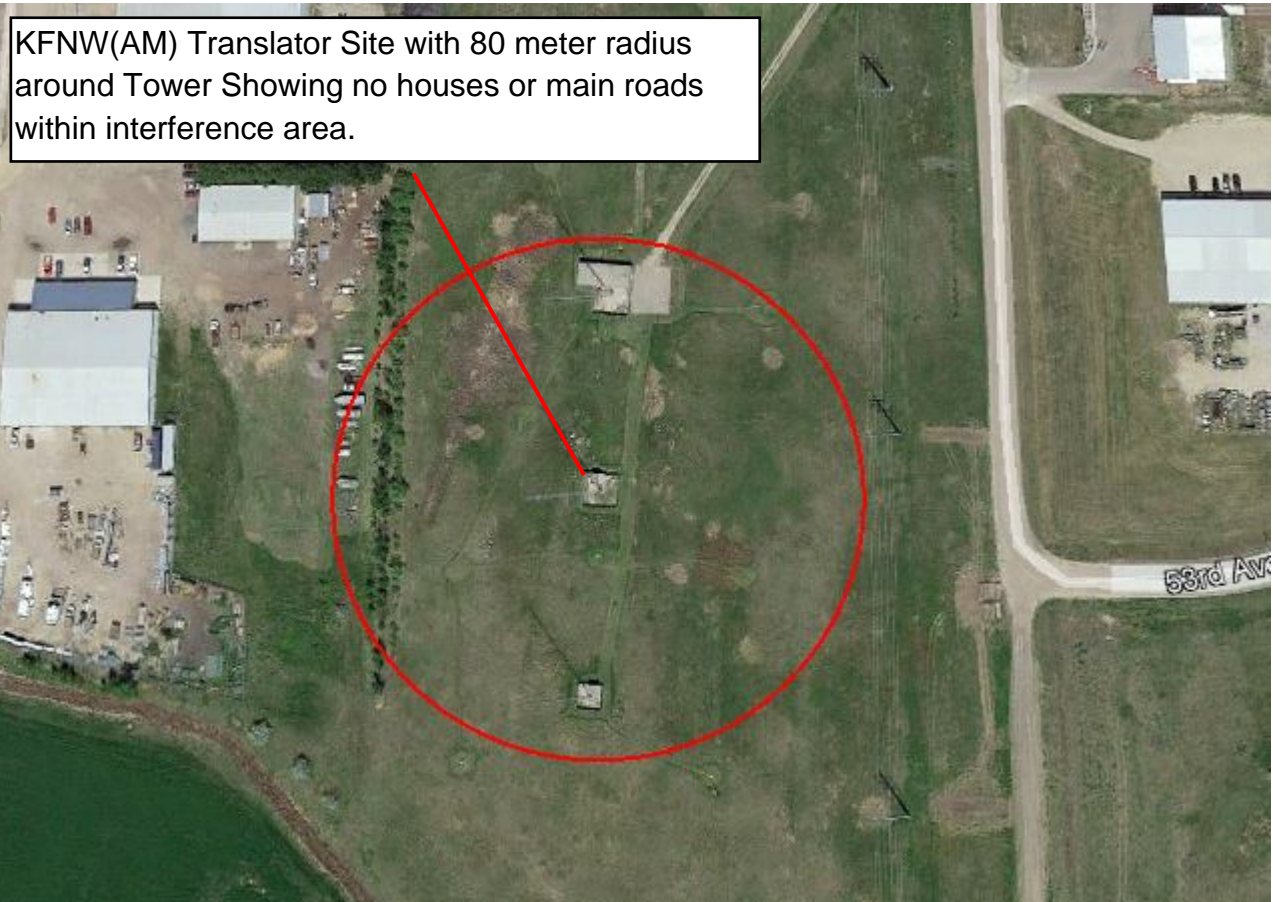
# Exhibit 13.4 - Downward Radiation Study in Support of a 74.1204(d) Waiver Request



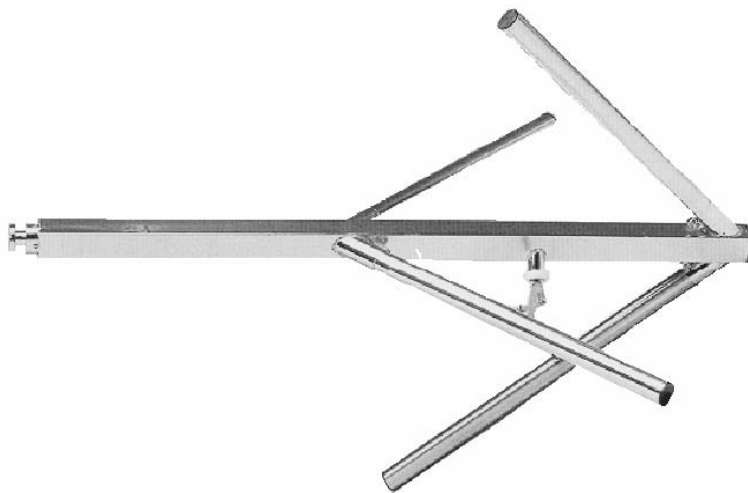
**Proposed Antenna:** 1 Bay Nicom BKG77-1 (One Bay Fully Spaced)  
**Proposed Power:** 0.25 kW  
**Antenna Height AGL:** 58 meters  
**Interference Contour:** 119.25 dBu f(50:10)  
**Artificial Ground Plane Height:** 7 meters  
**Distance (Free Space) Equation:**  $= (10^{((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]) / 20)}) * 1000$   
**Field Strength (dBu) Equation:**  $= 106.92 - (20 * (\text{LOG10}[\text{DistMeters}] / 1000)) + [\text{ERP in dBk}]$

Depression	Antenna			Distance		Field Strength		
Angle	Relative	ERP	ERP	from Ant.	Distance	in dBu @	Distance	Field Strength
Below	Field	in kW	in dBk	to Interference	from Ant. to	Artificial Plane	from Ant.	in dBu @
Horizon	Field	in kW	in dBk	Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
0°	1.000	0.250	-6.02	120.91 m	infinite	---	---	---
-5°	0.999	0.250	-6.03	120.79 m	585.16 m	105.55 dBu	665.48 m	104.43 dBu
-10°	0.982	0.241	-6.18	118.74 m	293.70 m	111.38 dBu	334.01 m	110.27 dBu
-15°	0.954	0.228	-6.43	115.35 m	197.05 m	114.60 dBu	224.09 m	113.48 dBu
-20°	0.918	0.211	-6.76	111.00 m	149.11 m	116.69 dBu	169.58 m	115.57 dBu
-25°	0.872	0.190	-7.21	105.44 m	120.68 m	118.08 dBu	137.24 m	116.96 dBu
-30°	0.818	0.167	-7.77	98.91 m	102.00 m	118.98 dBu	116.00 m	117.87 dBu
-35°	0.758	0.144	-8.43	91.65 m	88.92 m	119.51 dBu	101.12 m	118.40 dBu
-40°	0.691	0.119	-9.23	83.55 m	79.34 m	119.70 dBu	90.23 m	118.58 dBu
-45°	0.616	0.095	-10.23	74.48 m	72.12 m	119.53 dBu	82.02 m	118.41 dBu
-50°	0.538	0.072	-11.40	65.05 m	66.58 m	119.05 dBu	75.71 m	117.93 dBu
-55°	0.465	0.054	-12.67	56.22 m	62.26 m	118.36 dBu	70.80 m	117.25 dBu
-60°	0.391	0.038	-14.18	47.28 m	58.89 m	117.34 dBu	66.97 m	116.22 dBu
-65°	0.313	0.024	-16.11	37.85 m	56.27 m	115.80 dBu	64.00 m	114.69 dBu
-70°	0.239	0.014	-18.45	28.90 m	54.27 m	113.78 dBu	61.72 m	112.66 dBu
-75°	0.176	0.008	-21.11	21.28 m	52.80 m	111.36 dBu	60.05 m	110.24 dBu
-80°	0.129	0.004	-23.81	15.60 m	51.79 m	108.83 dBu	58.89 m	107.71 dBu
-85°	0.103	0.003	-25.76	12.45 m	51.19 m	106.97 dBu	58.22 m	105.85 dBu
-90°	0.105	0.003	-25.60	12.70 m	51.00 m	107.17 dBu	58.00 m	106.05 dBu

**Exhibit 13.4 - Aerial Photo of Site in Support of a 74.1204(d)  
Waiver Request**



## Exhibit 13.5 - Manufacturer's Antenna Specifications



**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 <sup>2</sup> (0.04 m <sup>2</sup> )
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)		

Date: 29/04/2013

BKG77SINGLE.PRJ

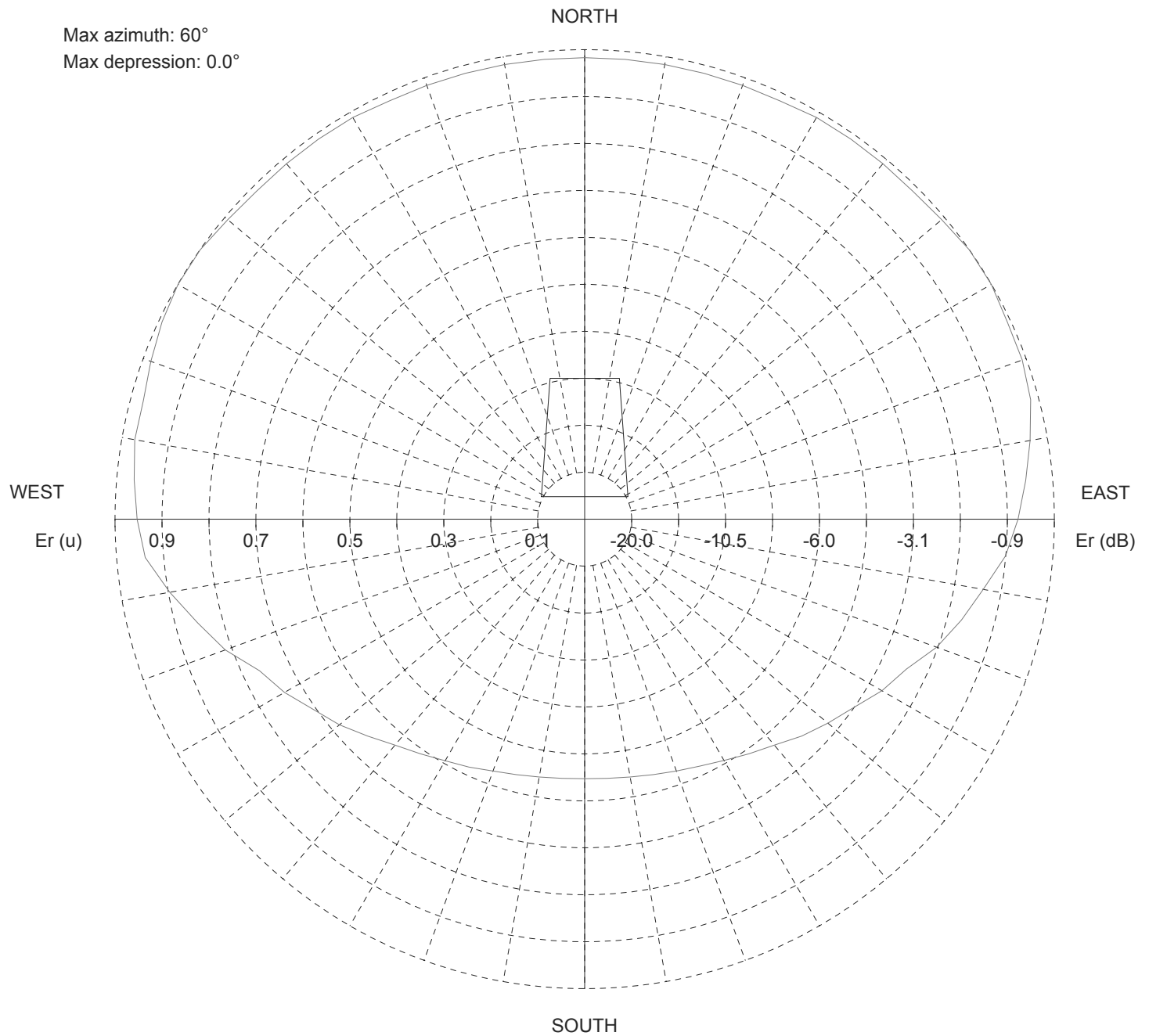
TX station: BKG77-1

Site name:

Frequency: 100.00 MHz

### Horizontal diagram of Maxima

Max azimuth: 60°  
Max depression: 0.0°



—— 0.0° depres. (Total antenna), Gain (dBd): -3.03 ERP T.max (KW): 0.498

ERP E.max (KW): 0.387

NicomUsa, Inc

Date: 29/04/2013

BKG77SINGLE.PRJ

TX station: BKG77-1

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	98.3	373.6	120.0	0.0	73.1	206.6	240.0	0.0	73.8	210.7
5.0	0.0	98.3	373.6	125.0	0.0	69.9	189.2	245.0	0.0	76.4	225.7
10.0	0.0	98.3	373.6	130.0	0.0	67.6	176.7	250.0	0.0	81.5	256.6
15.0	0.0	98.3	373.6	135.0	0.0	65.3	165.1	255.0	0.0	85.3	281.6
20.0	0.0	98.3	373.6	140.0	0.0	62.8	152.7	260.0	0.0	89.7	311.1
25.0	0.0	98.3	373.6	145.0	0.0	61.0	144.0	265.0	0.0	93.9	341.1
30.0	0.0	98.8	377.5	150.0	0.0	59.4	136.3	270.0	0.0	95.3	351.1
35.0	0.0	98.8	377.5	155.0	0.0	58.0	130.3	275.0	0.0	96.3	358.5
40.0	0.0	98.8	377.5	160.0	0.0	57.1	126.1	280.0	0.0	97.3	366.1
45.0	0.0	98.8	377.5	165.0	0.0	56.3	122.8	285.0	0.0	97.3	366.1
50.0	0.0	99.2	380.8	170.0	0.0	55.8	120.3	290.0	0.0	98.3	373.6
55.0	0.0	100.0	386.5	175.0	0.0	55.4	118.7	295.0	0.0	99.3	381.4
60.0	0.0	100.0	386.7	180.0	0.0	55.3	118.2	300.0	0.0	100.0	386.7
65.0	0.0	99.3	381.4	185.0	0.0	55.4	118.7	305.0	0.0	100.0	386.5
70.0	0.0	99.1	380.0	190.0	0.0	55.8	120.3	310.0	0.0	99.2	380.8
75.0	0.0	98.3	373.6	195.0	0.0	56.3	122.8	315.0	0.0	98.8	377.5
80.0	0.0	96.3	358.5	200.0	0.0	57.1	126.1	320.0	0.0	98.8	377.5
85.0	0.0	94.3	343.8	205.0	0.0	58.3	131.4	325.0	0.0	98.8	377.5
90.0	0.0	92.3	329.3	210.0	0.0	59.4	136.5	330.0	0.0	98.8	377.5
95.0	0.0	90.0	312.9	215.0	0.0	61.0	144.0	335.0	0.0	98.3	373.6
100.0	0.0	86.2	287.1	220.0	0.0	62.8	152.7	340.0	0.0	98.3	373.6
105.0	0.0	83.0	266.7	225.0	0.0	65.3	165.1	345.0	0.0	98.3	373.6
110.0	0.0	79.7	245.9	230.0	0.0	68.2	179.6	350.0	0.0	98.3	373.6
115.0	0.0	75.6	221.0	235.0	0.0	70.6	192.7	355.0	0.0	98.3	373.6



Date: 29/04/2013

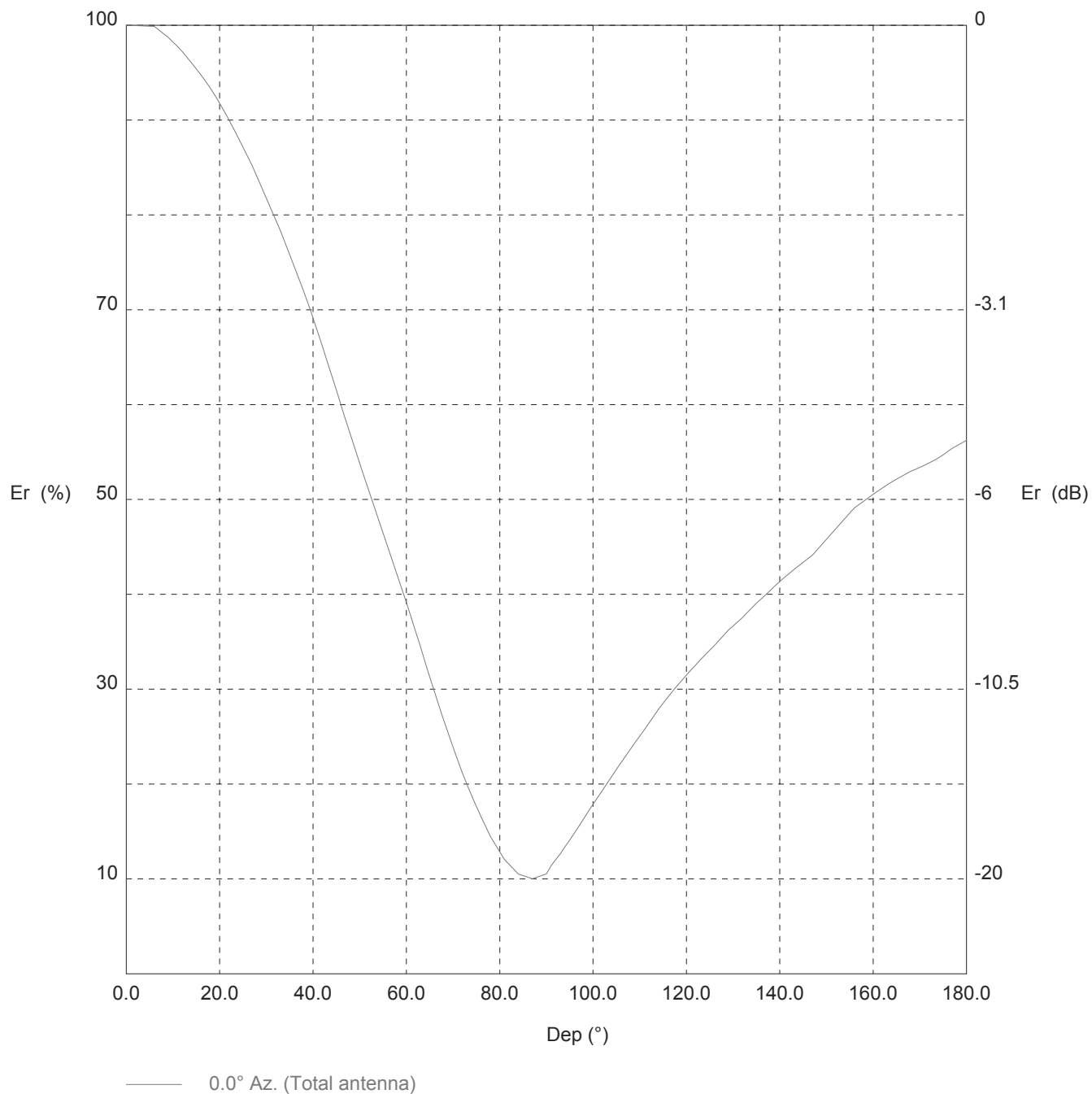
BKG77SINGLE.PRJ

TX station: BKG77-1

Site name:

Frequency: 100.00 MHz

### Vertical diagram



TX station: BKG77-1

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	373.6	60.0	39.1	57.2	120.0	31.5	37.0
1.0	100.0	373.5	61.0	37.6	52.8	121.0	32.0	38.3
2.0	100.0	373.4	62.0	36.1	48.6	122.0	32.6	39.6
3.0	99.9	373.3	63.0	34.5	44.6	123.0	33.1	41.0
4.0	99.9	373.1	64.0	32.9	40.5	124.0	33.6	42.2
5.0	99.9	372.9	65.0	31.3	36.6	125.0	34.1	43.5
6.0	99.9	372.8	66.0	29.7	33.0	126.0	34.6	44.7
7.0	99.5	369.9	67.0	28.2	29.8	127.0	35.2	46.2
8.0	99.1	367.0	68.0	26.8	26.8	128.0	35.7	47.6
9.0	98.7	364.1	69.0	25.3	23.9	129.0	36.2	49.1
10.0	98.2	360.5	70.0	23.9	21.3	130.0	36.7	50.3
11.0	97.7	356.9	71.0	22.5	18.9	131.0	37.1	51.5
12.0	97.2	353.3	72.0	21.1	16.6	132.0	37.6	52.7
13.0	96.6	348.9	73.0	19.9	14.8	133.0	38.1	54.1
14.0	96.0	344.5	74.0	18.8	13.2	134.0	38.6	55.6
15.0	95.4	340.1	75.0	17.6	11.6	135.0	39.1	57.0
16.0	94.7	335.4	76.0	16.6	10.2	136.0	39.5	58.4
17.0	94.1	330.8	77.0	15.5	9.0	137.0	40.0	59.7
18.0	93.4	326.1	78.0	14.5	7.8	138.0	40.4	61.1
19.0	92.6	320.4	79.0	13.7	7.0	139.0	40.9	62.5
20.0	91.8	314.7	80.0	12.9	6.2	140.0	41.4	63.9
21.0	91.0	309.1	81.0	12.0	5.4	141.0	41.8	65.3
22.0	90.0	302.7	82.0	11.5	5.0	142.0	42.2	66.5
23.0	89.1	296.5	83.0	11.0	4.5	143.0	42.6	67.8
24.0	88.1	290.3	84.0	10.5	4.1	144.0	43.0	69.0
25.0	87.2	283.8	85.0	10.3	4.0	145.0	43.4	70.3
26.0	86.2	277.4	86.0	10.2	3.9	146.0	43.8	71.6
27.0	85.2	271.1	87.0	10.0	3.7	147.0	44.1	72.8
28.0	84.0	263.9	88.0	10.2	3.9	148.0	44.7	74.7
29.0	82.9	256.8	89.0	10.4	4.0	149.0	45.3	76.5
30.0	81.8	249.8	90.0	10.5	4.1	150.0	45.8	78.4
31.0	80.6	242.9	91.0	11.4	4.8	151.0	46.4	80.3
32.0	79.5	236.1	92.0	12.0	5.4	152.0	46.9	82.3
33.0	78.3	229.3	93.0	12.7	6.0	153.0	47.5	84.3
34.0	77.1	222.0	94.0	13.4	6.7	154.0	48.0	86.2
35.0	75.8	214.7	95.0	14.1	7.4	155.0	48.6	88.2
36.0	74.5	207.6	96.0	14.8	8.2	156.0	49.1	90.2
37.0	73.2	200.4	97.0	15.6	9.1	157.0	49.5	91.5
38.0	71.9	193.3	98.0	16.4	10.0	158.0	49.8	92.8
39.0	70.6	186.3	99.0	17.1	11.0	159.0	50.2	94.1
40.0	69.1	178.6	100.0	17.9	11.9	160.0	50.5	95.4
41.0	67.6	170.9	101.0	18.6	12.9	161.0	50.9	96.8
42.0	66.1	163.5	102.0	19.3	13.9	162.0	51.2	98.1
43.0	64.6	156.0	103.0	20.1	15.0	163.0	51.5	99.2
44.0	63.1	148.7	104.0	20.8	16.2	164.0	51.8	100.4
45.0	61.6	141.6	105.0	21.5	17.3	165.0	52.1	101.6
46.0	60.0	134.4	106.0	22.3	18.5	166.0	52.4	102.7
47.0	58.4	127.5	107.0	23.0	19.7	167.0	52.7	103.7
48.0	56.8	120.7	108.0	23.7	21.0	168.0	53.0	104.8
49.0	55.3	114.4	109.0	24.4	22.2	169.0	53.2	105.7
50.0	53.8	108.2	110.0	25.1	23.5	170.0	53.4	106.5
51.0	52.3	102.2	111.0	25.7	24.8	171.0	53.6	107.4
52.0	50.8	96.6	112.0	26.5	26.2	172.0	53.9	108.4
53.0	49.4	91.1	113.0	27.2	27.6	173.0	54.1	109.4
54.0	47.9	85.8	114.0	27.9	29.0	174.0	54.4	110.5
55.0	46.5	80.7	115.0	28.5	30.4	175.0	54.7	111.9
56.0	45.0	75.7	116.0	29.2	31.8	176.0	55.1	113.3
57.0	43.6	71.0	117.0	29.8	33.1	177.0	55.4	114.7
58.0	42.1	66.2	118.0	30.4	34.4	178.0	55.7	115.9
59.0	40.6	61.6	119.0	30.9	35.7	179.0	56.0	117.0