

Technical Report Supporting a Form 349 Minor Construction Permit Application

Pursuant to 47 C.F.R. Section 74:

for

*K278CI.L - York, NE
(Facility ID: 142186)*

"Change in Site Location"

as a

*Commercial, Fill-In
AM Translator for
KAWL(AM) - York, NE*

March, 2017

Asher Broadcast Consulting, LLC
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1(202)875-2986

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Explanation of Technical Report

1

EXPLANATION OF PROPOSAL: This Form 349 Filing and accompanying technical report supports a Minor Construction Permit Application for FM Translator K278CI.L - York, NE (Facility ID: 142186), License Number BLFT-20160303ABV. This FCC Form 349 Filing requests a new site relocation. Continued operation on CH278D (103.5 MHz) at 587 meters AMSL is requested. This Form 349 Filing will continue to specify rebroadcast of Class D, AM Primary Station KAWL(AM) - York, NE (1370 kHz); Facility ID No. 9932. The Translator will remain licensed to the community of York, NE.

FACILITY COMPLIANCE SHOWINGS: A map of the proposed 60 dB μ service contour in relation to the present 60 dB μ service contour has been included in ***Exhibit 1***. The minor change proposed service area will overlap a portion of the present service area as noted in the exhibit. The proposed 60 dB μ contour of the Translator lies wholly inside the lesser of the AM primary daytime 2.0 mV/m contour or a 25 mile radius around the AM site. The primary station service contour relationship has been plotted in ***Exhibit 2***.

The proposed facility will be located on the tower bearing Antenna Structure Registration Number 1026539. In support of this filing, a copy of the existing ASRN has been included in ***Exhibit 3***. A depiction of the tower and antenna configuration has been included in ***Exhibit 4***. Further notification to the FAA or ASR governing authorities is not required as this proposal will not increase the overall tower height.

The applicant would like to note use of the NED 03 second terrain database for all allocation, contour and HAAT showings contained herein. A copy of the proposed HAAT calculation has been included in ***Exhibit 5***.

ALLOCATION COMPLIANCE SHOWINGS: The proposed Translator remains in compliance with C.F.R. Section 74.1204 toward all allocation protection concerns. A general allocation study for this proposal is found in ***Exhibit 6***.

There are three additional facilities, existing or proposed, close enough to merit further study. Therefore, a supplemental contour protection study has been provided toward each facility as included in ***Exhibit(s) 7(a-c)***. It is believed sufficient clearance exists, precluding the need for additional contour protection showings. Additional antenna manufacturer's data has been included in ***Exhibit 8***.

Regarding protection of international concerns, the facility is, and will remain, more than 320 km from the common border between the United States and Canada or Mexico. As a result, no further international protection showings are believed required.

ENVIRONMENTAL COMPLIANCE SHOWINGS: The proposed facility complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments as set forth under §1.1310 and/or §1.1307(b)(3) of the Commission's rules and the guidelines for RF radiation protection guidelines as set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01). Compliance has been demonstrated in the attached ***RF Appendix 1*** of this filing. The facility is, or will be, properly marked with signs. Entry is, or will be, restricted by means of fencing with locked doors or gates. In addition, coordination with other users of the site will be secured to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Regarding compliance with the NEPA, Nationwide Programmatic Agreement and NHPA Section 106 for tower co-location, compliance with the Agreement is not required where no new tower construction is being proposed and the tower is not being substantially altered. Specifically, compliance is not necessary where only an antenna and feed-line are being added to an existing structure, as here. However, should the Commission determine compliance is necessary, upon notification to the applicant, the applicant will file FCC Form 621.

CERTIFICATION OF TECHNICAL CONSULTANT: *I declare, under penalty of perjury, that the contents of this report are true and accurate to the best of my knowledge and belief. I further certify I have over seventeen years of experience as a broadcast technical consultant before the Federal Communications Commission ("the FCC"); and am familiar with the Code of Federal Regulations Title 47 ("the Rules") as pertaining to this report and its contents herein. The underlying data utilized in this report was taken directly from FCC databases or indirectly through third party software vendors securing data directly from FCC databases. This firm cannot be held liable for errors or omissions resulting from the underlying data. The information contained herein is believed accurate to the date reported below.*



Justin W. Asher, Technical Consultant

March 21, 2017

Proposed 60 dBμ F(50:50) Contour
Licensed 60 dBμ F(50:50) Contour

Exhibit 1

Service Contour Study: Present vs Proposed Operations

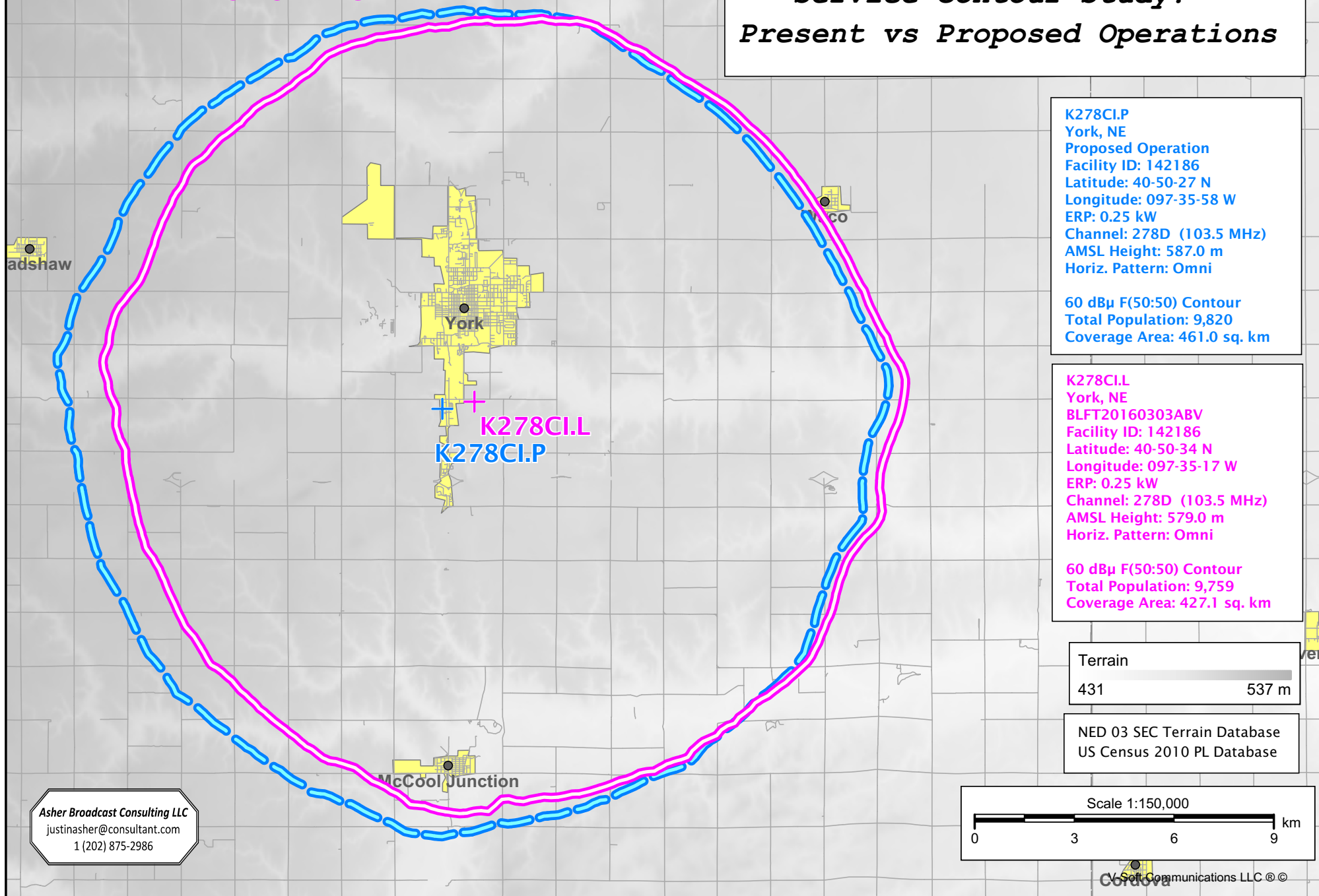


Exhibit 2

Service Contour Study: Proposed vs Primary Operations

Primary 2 mV/m Daytime Contour

25 mile Radius from AM Site

Proposed 60 dBμ F(50:50) Contour

York
+
K278CI.P
KAWL(AM)

KAWL 1370 kHz
York, Nebraska
Station Class: D
Region 2 Class: B
Facility ID: 9932
File Number: BL-20160307ACV
40-50-34.0 N 97-35-17.0 W (NAD 27)
40-50-34.0 N 97-35-18.2 W (NAD 83)
Power: 0.5 kW, Non-Directional
Hours: Daytime
Pattern Type: Theoretical
Towers: 1 Augmentations: 0
Tower Elec Height: 160.4 Deg; 97.5 meters
RMS Theoretical: 312.21 mV/meter (per kW)
or 220.77 mV/meter at 0.5 kW

K278CI.P
York, NE
Proposed Operation
Facility ID: 142186
Latitude: 40-50-27 N
Longitude: 97-35-58 W
ERP: 0.25 kW
Channel: 278D (103.5 MHz)
AMSL Height: 587.0 m
Horiz. Pattern: Omni

NED 03 SEC Terrain Database
US Census 2010 PL Database

Terrain
309 628 m

Scale 1:550,000
0 8 16 24 km

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V-Soft Communications LLC ©

Exhibit 3

Copy of Existing Antenna Structure Registration

(public record copy)

Registration Detail

Reg Number	1026539	Status	Constructed
File Number	A0980003	Constructed	09/23/2015
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type G-TOWER - Guyed Structure Used for Communication Purposes

Location (in NAD83 Coordinates)

Lat/Long	40-50-27.0 N 097-35-59.0 W	Address	2122 S. Lincoln Ave.
City, State	YORK , NE		
Zip	68467	County	YORK
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
500.0	112.8
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
612.8	107.0

Painting and Lighting Specifications

FAA Chapters 4, 6, 13
 Paint and Light in Accordance with FAA Circular Number 70/7460-1H

FAA Notification

FAA Study	93-ACE-0607-OE	FAA Issue Date	02/10/1995
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Owner & Contact Information

FRN	0004180584	Owner Entity Type	Government Entity
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Owner

PERENNIAL PUBLIC POWER DISTRICT
 Attention To: Jeff Burk
 2122 S LINCOLN AVE
 P.O. Box 219
 YORK , NE 68467

P: (402)362-3355
 F:
 E: jburk@perennialpower.com

Contact

Burk , Jeff
 Attention To: Jeff Burk
 2122 S. Lincoln Ave.
 P.O. Box 219
 York , NE 68467

P: (402)362-3355
 F:
 E: jburk@perennialpower.com

Last Action Status

Status	Constructed	Received	09/23/2015
Purpose	Notification	Entered	09/23/2015
Mode	Interactive		

Related Applications

09/23/2015	A0980003 - Notification (NT)
09/23/2015	A0980002 - Modification (MD)
09/23/2015	A0979997 - Admin Update (AU)

Related applications (4)

Comments**Comments**

None

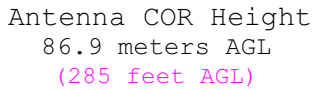
History

Date	Event
09/24/2015	Registration Printed
09/24/2015	Registration Printed
09/23/2015	FRN association email send: Tower email
All History (8)	

Automated Letters

09/24/2015	Authorization, Reference
09/24/2015	Authorization, Reference

Vertical Plan of Antenna System



Address: 2122 South Lincoln Ave.

City: York	Latitude (D M S)		Longitude (D M S)
County: York	NAD 27 datum values:	40 50 26.95962	97 35 57.81728
State: Nebraska	NAD 83 datum values:	40 50 27.00000	97 35 59.00000
enna Structure Registration 1026539	Drawing Is Not To Scale	Asher Broadcast Consulting, LLC justinasher@consultant.com 1(202)875-2986	

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1927):

N. Lat. = 405027.0 W. Lng. = 973558.0
 HAAT and Distance to Contour,
 FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	501.9	85.1	0.2500	-6.02	1.000	11.91
030	499.5	87.5	0.2500	-6.02	1.000	12.06
060	495.2	91.8	0.2500	-6.02	1.000	12.34
090	480.3	106.7	0.2500	-6.02	1.000	13.28
120	486.2	100.8	0.2500	-6.02	1.000	12.91
150	488.8	98.2	0.2500	-6.02	1.000	12.75
180	487.0	100.0	0.2500	-6.02	1.000	12.87
210	504.1	82.9	0.2500	-6.02	1.000	11.77
240	512.0	75.0	0.2500	-6.02	1.000	11.23
270	512.7	74.3	0.2500	-6.02	1.000	11.19
300	511.8	75.2	0.2500	-6.02	1.000	11.25
330	508.6	78.4	0.2500	-6.02	1.000	11.46

Ave EL= 499.02 M HAAT= 87.98 M AMSL= 587

NAD 1983 to NAD 1927 Conversion:

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum values:	40 50 26.95962	97 35 57.81728
NAD 83 datum values:	40 50 27.00000	97 35 59.00000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	40.8408333°, -097.5997222°
Degrees Minutes	40°50.45000', -097°35.98333'
Degrees Minutes Seconds	40°50'27.0000", -097°35'59.0000"
UTM	14T 618050mE 4522031mN
UTM centimeter	14T 618050.07mE 4522031.76mN
MGRS	14TPL1805022031
Grid North	0.9°
GARS	165LX25
Maidenhead	EN10EU81AT82
GEOREF	FJHL24015045

Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

Nebraska Rural Radio Association

FMCommander Single Allocation Study - 03-21-2017 - NED 03 SEC
K278CI.P's Overlaps (In= 20.95 km, Out= 14.25 km)

K278CI.P CH 278 D
Lat= 40 50 27.0, Lng= 97 35 58.0
0.25 kW 88 m HAAT, 587 m COR
Prot.= 60 dBu, Intef.= 40 dBu

K278BR CH 278 D BLFT20110920AAN
Lat= 40 55 39.0, Lng= 98 20 34.0
0.25 kW 46.6 m HAAT, 611 m COR
Prot.= 60 dBu, Intef.= 40 dBu

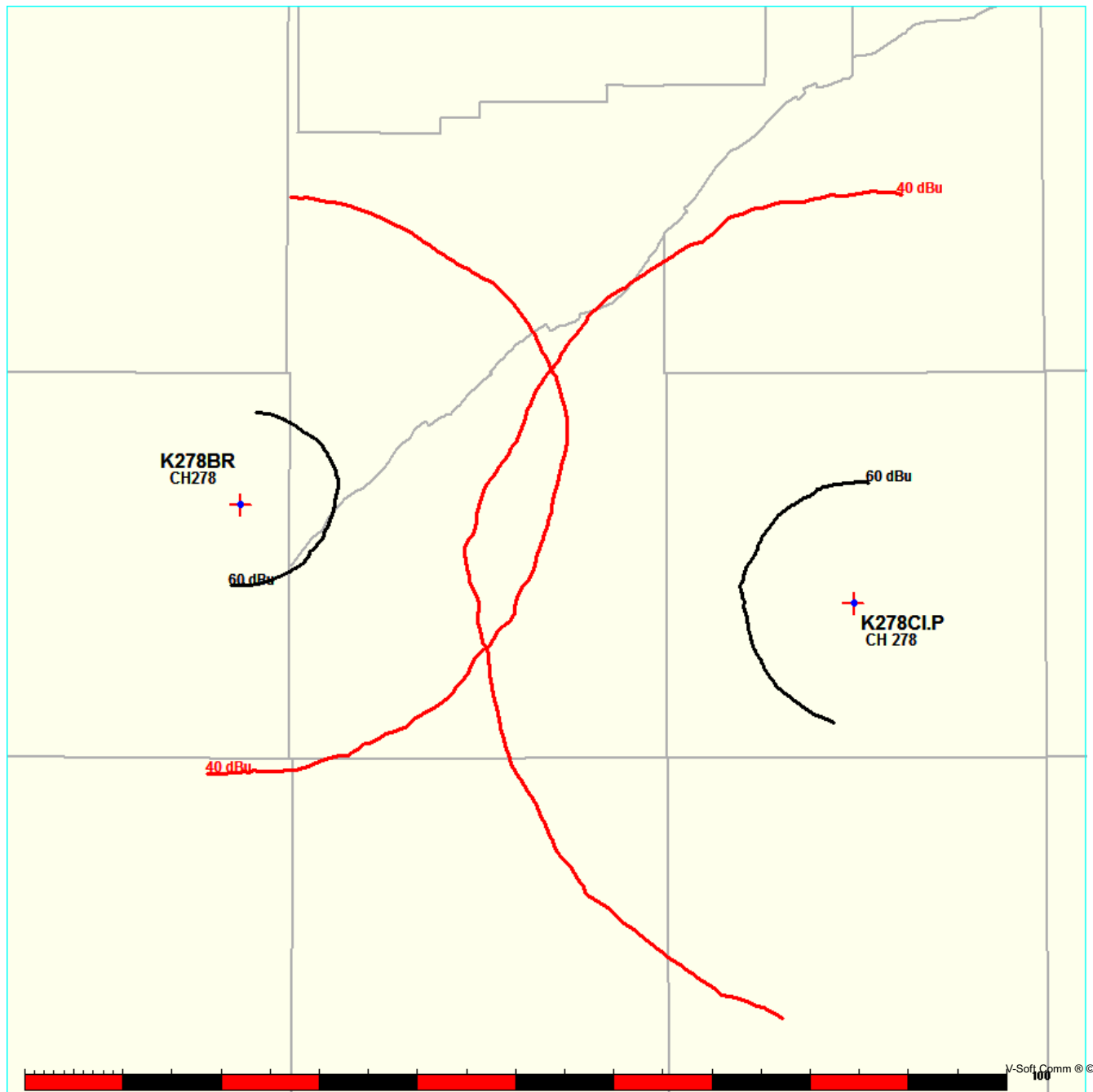


Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

Nebraska Rural Radio Association

FMCommander Single Allocation Study - 03-21-2017 - NED 03 SEC
K278CI.P's Overlaps (In= 19.48 km, Out= 15.53 km)

K278CI.P CH 278 D
Lat= 40 50 27.0, Lng= 97 35 58.0
0.25 kW 88 m HAAT, 587 m COR
Prot.= 60 dBu, Intef.= 40 dBu

K278BR.CH 278 D BPFT20170217AAG
Lat= 40 55 11.0, Lng= 98 22 38.0
0.25 kW 0 m HAAT, 624 m COR
Prot.= 60 dBu, Intef.= 40 dBu

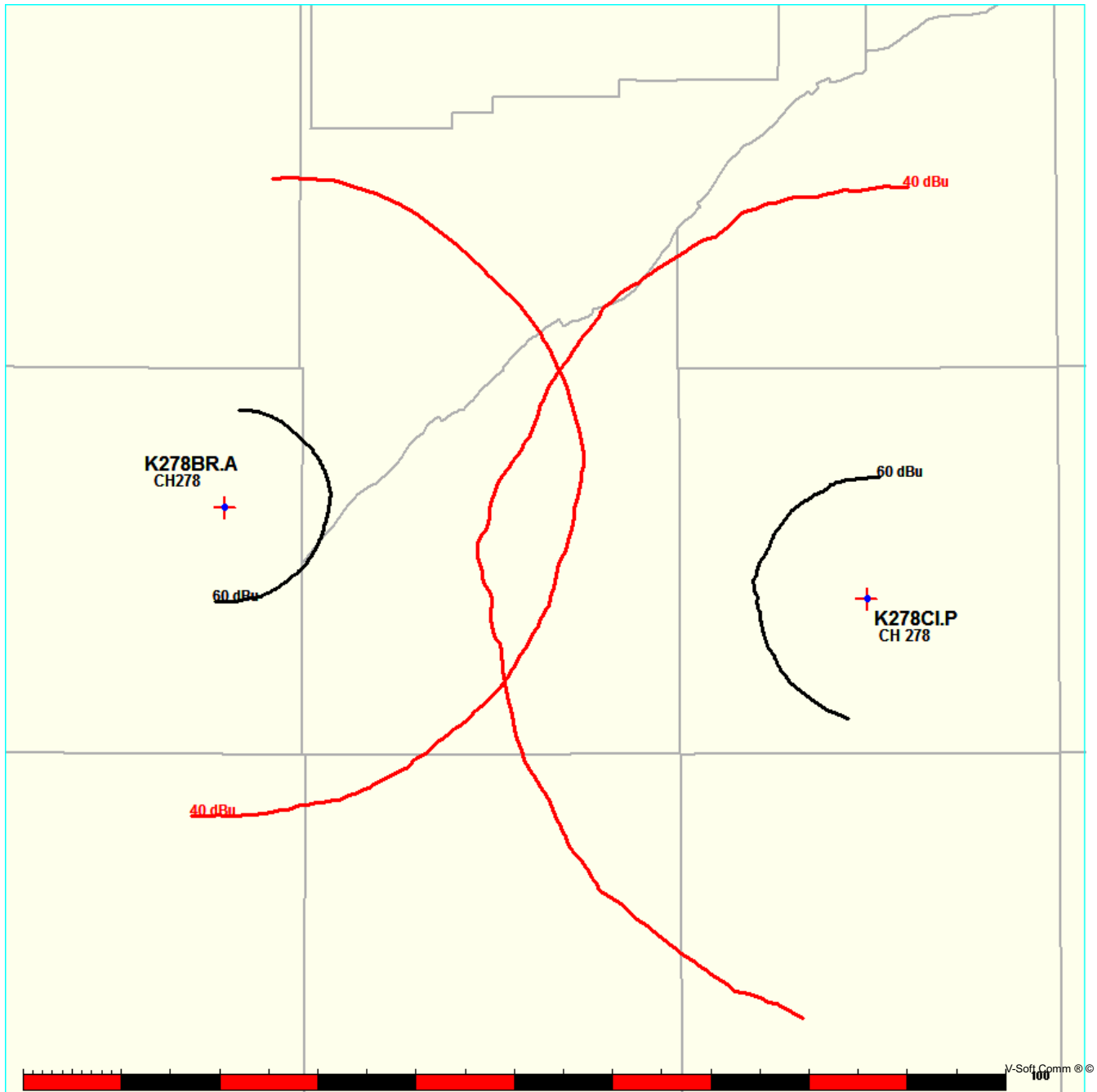


Exhibit 7c

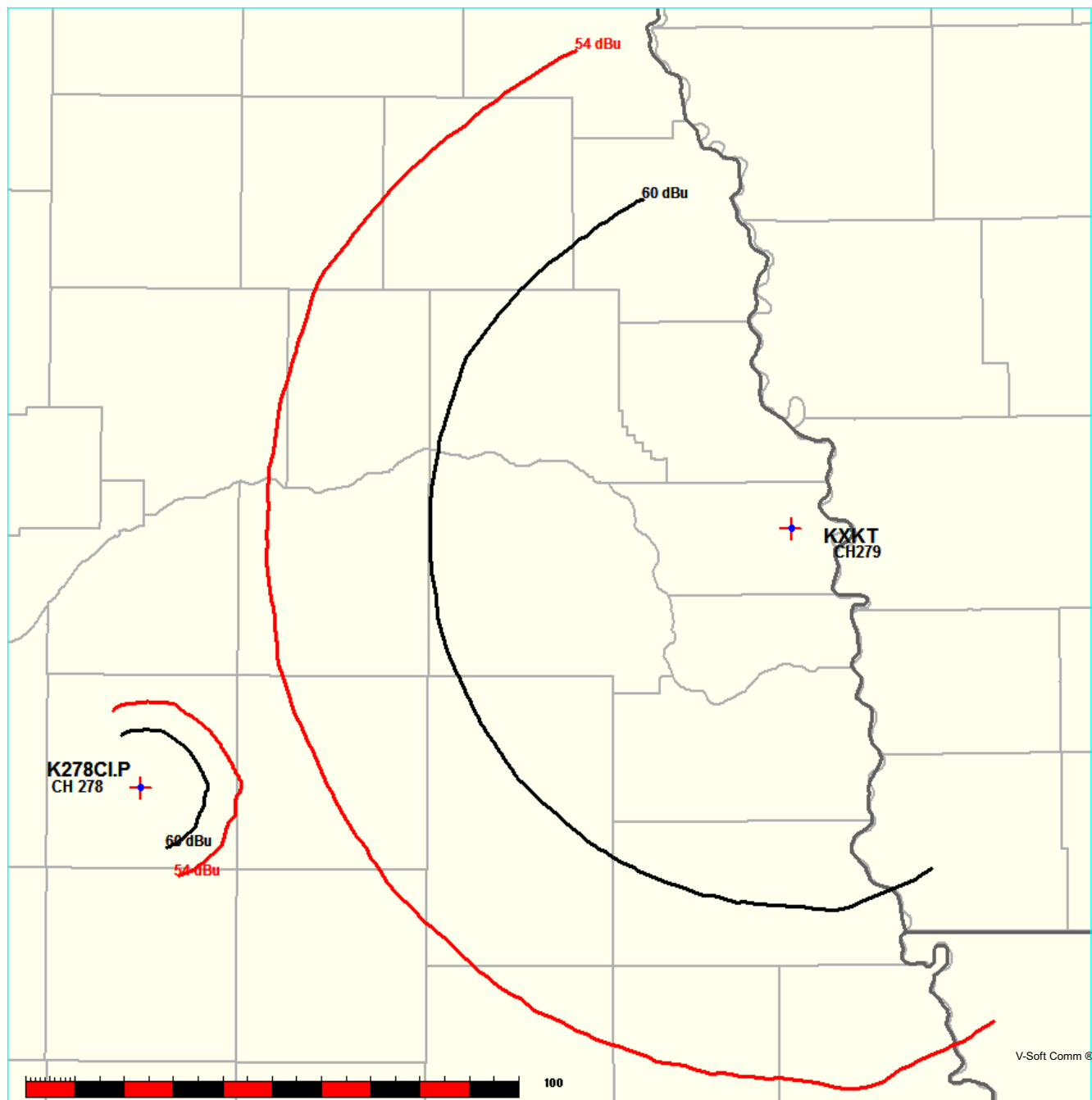
Contour Protection Studies Toward Select Allocation Concern(s)

Nebraska Rural Radio Association

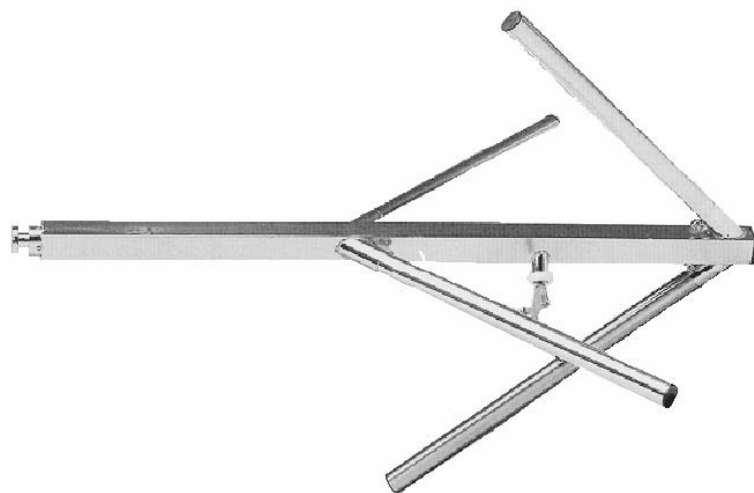
FMCommander Single Allocation Study - 03-21-2017 - NED 03 SEC
K278CI.P's Overlaps (In= 22.07 km, Out= 49.36 km)

K278CI.P CH 278 D
Lat= 40 50 27.0, Lng= 97 35 58.0
0.25 kW 88 m HAAT, 587 m COR
Prot.= 60 dBu, Intef.= 54 dBu

KXKT CH 279 C0 BLH20060531ANQ
Lat= 41 18 32.0, Lng= 96 01 33.0
100.0 kW 331 m HAAT, 674 m COR
Prot.= 60 dBu, Intef.= 54 dBu



**Exhibit 8 - Copy of
Manufacturer's Antenna Data
(public record copy)**



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)		

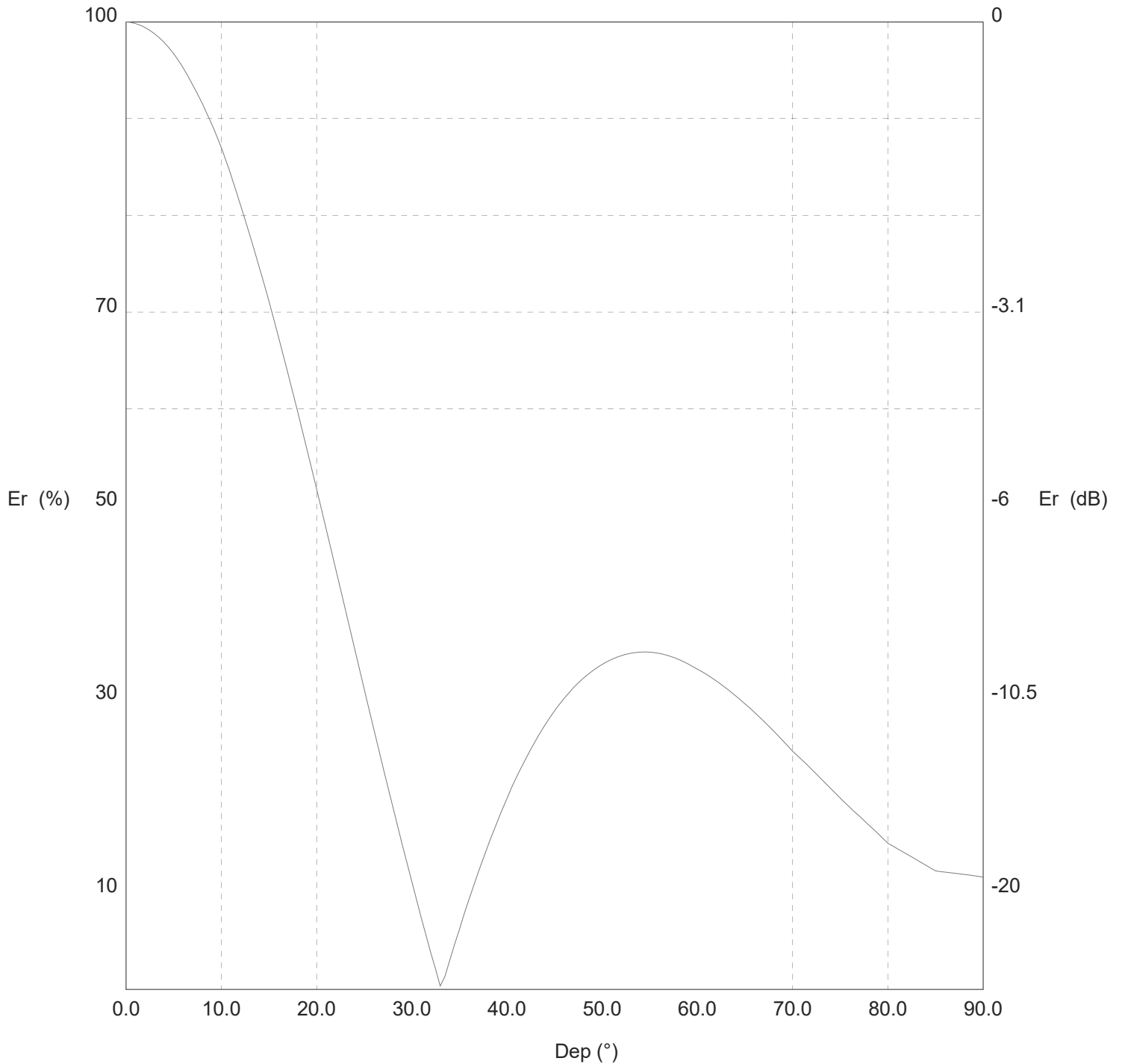
Exhibit 8 - Copy of Manufacturer's Antenna Data (public record copy)

TX station: BKG77/2 GENERIC

Site name: 0.85 WAVE SEPARATION

Frequency: 98.10 MHz

Vertical diagram



— 0.0° Az. (Total antenna)

Exhibit 8 - Copy of Manufacturer's Antenna Data (public record copy)

TX station: BKG77/2 GENERIC

Site name: 0.85 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	11.2	11.5	60.0	33.1	100.1
0.5	100.0	913.3	30.5	9.3	7.9	60.5	32.8	98.4
1.0	99.8	911.3	31.0	7.5	5.1	61.0	32.5	96.7
1.5	99.7	908.1	31.5	5.6	2.9	61.5	32.2	94.8
2.0	99.4	903.9	32.0	3.8	1.3	62.0	31.9	92.8
2.5	99.1	898.4	32.5	2.1	0.4	62.5	31.5	90.8
3.0	98.8	891.9	33.0	0.3	0.0	63.0	31.1	88.7
3.5	98.4	884.3	33.5	1.4	0.2	63.5	30.8	86.5
4.0	97.9	875.7	34.0	3.0	0.8	64.0	30.4	84.2
4.5	97.3	865.9	34.5	4.6	2.0	64.5	29.9	81.9
5.0	96.7	855.2	35.0	6.2	3.5	65.0	29.5	79.5
5.5	96.0	842.7	35.5	7.8	5.5	65.5	29.1	77.2
6.0	95.2	829.2	36.0	9.3	7.9	66.0	28.6	74.8
6.5	94.4	814.9	36.5	10.7	10.5	66.5	28.2	72.5
7.0	93.5	799.7	37.0	12.1	13.5	67.0	27.7	70.0
7.5	92.6	783.6	37.5	13.5	16.7	67.5	27.2	67.6
8.0	91.6	766.9	38.0	14.9	20.2	68.0	26.7	65.1
8.5	90.5	749.4	38.5	16.1	23.8	68.5	26.2	62.7
9.0	89.4	731.2	39.0	17.4	27.7	69.0	25.7	60.2
9.5	88.3	712.5	39.5	18.6	31.6	69.5	25.1	57.8
10.0	87.1	693.1	40.0	19.8	35.7	70.0	24.6	55.3
10.5	85.7	670.8	40.5	20.9	39.8	70.5	24.1	53.3
11.0	84.2	648.2	41.0	21.9	43.9	71.0	23.7	51.2
11.5	82.7	625.3	41.5	22.9	48.1	71.5	23.2	49.2
12.0	81.2	602.3	42.0	23.9	52.2	72.0	22.7	47.2
12.5	79.6	579.0	42.5	24.8	56.4	72.5	22.2	45.2
13.0	78.0	555.7	43.0	25.7	60.4	73.0	21.7	43.2
13.5	76.3	532.4	43.5	26.5	64.4	73.5	21.2	41.3
14.0	74.6	509.1	44.0	27.3	68.3	74.0	20.7	39.3
14.5	72.9	485.8	44.5	28.1	72.1	74.5	20.2	37.4
15.0	71.1	462.7	45.0	28.8	75.8	75.0	19.7	35.5
15.5	69.3	439.1	45.5	29.5	79.3	75.5	19.3	33.9
16.0	67.4	415.8	46.0	30.1	82.7	76.0	18.8	32.4
16.5	65.6	392.9	46.5	30.7	85.9	76.5	18.4	30.8
17.0	63.6	370.3	47.0	31.2	88.9	77.0	17.9	29.3
17.5	61.7	348.1	47.5	31.7	91.8	77.5	17.4	27.8
18.0	59.8	326.5	48.0	32.1	94.4	78.0	17.0	26.4
18.5	57.8	305.3	48.5	32.6	96.9	78.5	16.5	24.9
19.0	55.8	284.7	49.0	32.9	99.2	79.0	16.0	23.5
19.5	53.8	264.7	49.5	33.3	101.2	79.5	15.6	22.1
20.0	51.8	245.3	50.0	33.6	103.1	80.0	15.1	20.8
20.5	49.7	226.1	50.5	33.9	104.8	80.5	14.8	20.0
21.0	47.6	207.5	51.0	34.1	106.3	81.0	14.5	19.3
21.5	45.6	189.8	51.5	34.3	107.6	81.5	14.3	18.6
22.0	43.5	172.8	52.0	34.5	108.7	82.0	14.0	17.8
22.5	41.4	156.7	52.5	34.6	109.6	82.5	13.7	17.1
23.0	39.3	141.3	53.0	34.7	110.3	83.0	13.4	16.4
23.5	37.2	126.8	53.5	34.8	110.8	83.5	13.1	15.7
24.0	35.2	113.0	54.0	34.9	111.1	84.0	12.8	15.0
24.5	33.1	100.1	54.5	34.9	111.2	84.5	12.5	14.4
25.0	31.0	88.1	55.0	34.9	111.1	85.0	12.2	13.7
25.5	29.0	76.8	55.5	34.8	110.7	85.5	12.2	13.6
26.0	26.9	66.3	56.0	34.7	110.2	86.0	12.1	13.4
26.5	24.9	56.7	56.5	34.6	109.4	86.5	12.1	13.3
27.0	22.9	47.9	57.0	34.5	108.5	87.0	12.0	13.2
27.5	20.9	39.9	57.5	34.3	107.5	87.5	11.9	13.0
28.0	18.9	32.7	58.0	34.1	106.3	88.0	11.9	12.9
28.5	17.0	26.3	58.5	33.9	104.9	88.5	11.8	12.8
29.0	15.0	20.6	59.0	33.6	103.5	89.0	11.7	12.6
29.5	13.1	15.7	59.5	33.4	101.8	89.5	11.7	12.5