

Technical Report Supporting a Form 349 Application for a New FM Translator Station

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

for

*CH268D.P - Council Bluffs, IA
CH268D (101.5 MHz)*

"New FM Translator Operation"

as a

*Commercial, Fill-In Translator
for Class D AM Station
KLNG(AM) - Council Bluffs, IA*

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RF Appendix 1 - Radio Frequency Radiation Compliance Showing

EXPLANATION OF PROPOSAL: This Form 349 Filing and accompanying technical report supports an Original Construction Permit Application for a new FM Translator facility for CH268D.P - Council Bluffs, IA. This FCC Form 349 Filing requests a new CH268D (101.5 MHz) operation with a power of 0.175 kW ERP (circular polarization). The FM Translator will operate from a COR of 393 meters AMSL. This Form 349 Filing will specify rebroadcast of Class D, AM Primary Station KLNG(AM) - Council Bluffs, IA (1560 kHz); Facility ID No. 72464. The Translator will be licensed to the community of Council Bluffs, IA.

FACILITY COMPLIANCE SHOWINGS: A map of the proposed 60 dB μ service contour has been included in **Exhibit 1**. The proposed 60 dB μ contour of the Translator lies wholly inside the larger 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 1019084. 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. 47 Section 74.1204 toward all allocation protection concerns with the exception of KOOO(FM) - La Vista, NE (CH270C0). A general allocation study for this proposal is found in ***Exhibit 6***.

The applicant would like to note the existence of a C.F.R. 47 Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KOOO(FM)- La Vista, NE (CH270C0) as noted in ***Exhibit 8***. Protection of the worst case calculated 122.8 dBμ F(50:10) Interference Contour, corresponding to the 82.8 dBμ F(50:50) Protected Contour, has been demonstrated through a downward radiation study. Full protection will be afforded the facility as this area will not reach the ground nor a five meter artificial plane representing a standard one and a half story home when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer specifications has been included in ***Exhibit 9***.

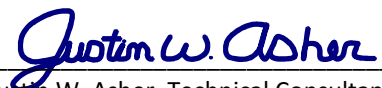
There are two additional facilities, existing or proposed, close enough to merit further study. Therefore, a supplemental contour protection study has been provided toward each facility as included in ***Exhibit(s) 7(a-b)***. It is believed sufficient clearance exists, precluding the need for additional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

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 eighteen 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

June 16, 2017

Exhibit 1
Service Contour Study:
Present vs Proposed Operations

Proposed 60 dBμ F(50:50) Contour

CH268D.P
Council Bluffs, IA
Proposed Operation
Facility ID: new
Latitude: 41-12-28 N
Longitude: 095-54-24 W
ERP: 0.175 kW
Channel: 268D (101.5 MHz)
AMSL Height: 393.0 m
Horiz. Pattern: Directional

60 dBμ F(50:50) Contour
Total Population: 143,971
Coverage Area: 250.6 sq. km

NED 03 SEC Terrain Database
US Census 2010 PL Database

Terrain
280 414 m

Scale 1:125,000
0 2 4 6 km

Asher Broadcast Consulting LLC
justinasher@consultant.com
1 (202) 875-2986

V-Soft Communications LLC ©

Exhibit 2

Service Contour Study: Proposed vs Primary Operations

KLNG 1560 kHz
Council Bluffs, Iowa
Station Class: D
Region 2 Class: B
Facility ID: 72464
File Number: BL-20020410AAU
41-12-28.0 N 95-54-24.0 W (NAD 27)
41-12-28.0 N 95-54-25.0 W (NAD 83)
Power: 10 kW, Non-Directional
Hours: Daytime
Pattern Type: Theoretical
Towers: 1 Augmentations: 0
Tower Electrical Height: 188.4 Deg; 100.57 m
RMS Theoretical: 391.07 mV/meter (per kW)
or 1236.67 mV/meter at 10 kW

CH268D.P
Council Bluffs, IA
Proposed Operation
Facility ID: new
Latitude: 41-12-28 N
Longitude: 095-54-24 W
ERP: 0.175 kW
Channel: 268D (101.5 MHz)
AMSL Height: 393.0 m
Horiz. Pattern: Directional

NED 03 SEC Terrain Database
US Census 2010 PL Database

Scale 1:850,000



V-Soft Communications LLC ©Worth

Primary 2 mV/m Daytime Contour

25 mile Radius from AM Site

Proposed 60 dBμ F(50:50) Contour

KLNG(AM)
CH268D.P

Asher Broadcast Consulting LLC
justinasher@consultant.com
1 (202) 875-2986

Exhibit 3

Copy of Existing Antenna Structure Registration

(public record copy)

Registration Detail

Reg Number	1019084	Status	Constructed
File Number	A0216385	Constructed	01/01/1955
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long	41-12-28.0 N 095-54-25.0 W	Address	3851 S OMAHA BRIDGE RD
City, State	COUNCIL BLUFFS , IA		
Zip	51501	County	POTTAWATTAMIE
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
296.6	102.4
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
399.0	101.5

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 12, 21

FAA Notification

FAA Study	00-ACE-2546-OE	FAA Issue Date	01/12/2001
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Owner & Contact Information

FRN	0006152771	Owner Entity Type	
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Owner

WILKINS COMMUNICATIONS NETWORK INC DBA = KLONG	P: (864)585-1885
P.O. Box 444	F:
SPARTANBURG , SC 29304	E:

Contact

P:
F:
E:

Last Action Status

Status	Constructed	Received	10/04/2001
Purpose	Notification	Entered	10/04/2001
Mode	Interactive		

Related Applications

10/04/2001	A0216385 - Notification (NT)
09/25/2001	A0215179 - Modification (MD)
04/18/1997	A0022856 - New (NE)

Comments

Comments

None

History

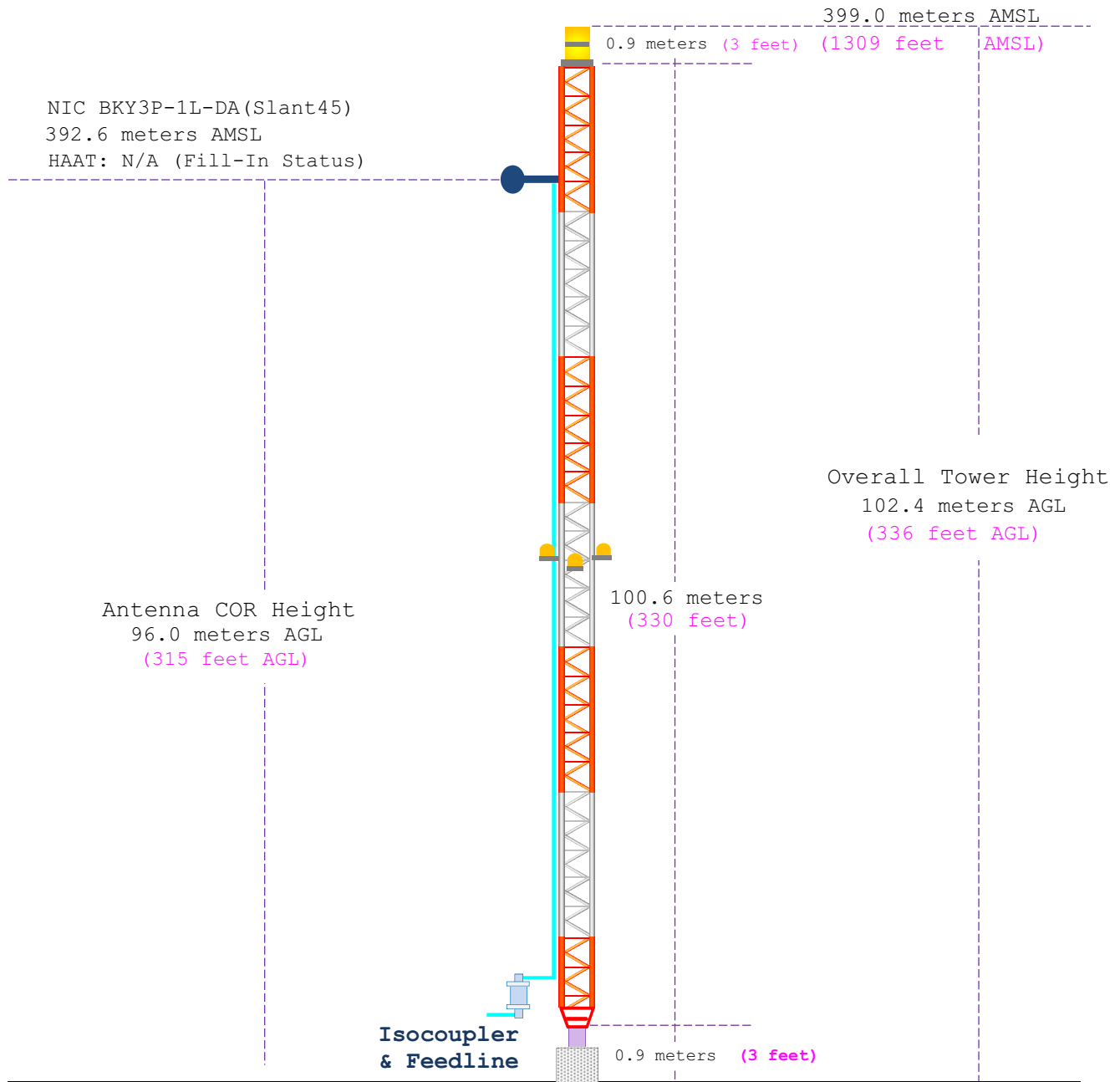
Date	Event
10/04/2001	Construction Notification Received
09/27/2001	Registration Printed
09/26/2001	Modification Received

Automated Letters

09/27/2001	Authorization, Reference 160713
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Exhibit 4

Vertical Plan of Antenna System



Ground Elevation: 296.6 meters AMSL (973 feet AMSL)			
Address: 3851 South Omaha Bridge Road			
City: Council Bluffs	Latitude (D M S)		Longitude (D M S)
County: Pottawattamie	NAD 27 datum values:		41 12 28.00469 95 54 23.95381
State: Iowa	NAD 83 datum values:		41 12 28.00000 95 54 25.00000
Antenna Structure Registration	Drawing		Asher Broadcast Consulting, LLC
1019084	Is Not		justinasher@consultant.com
	To Scale		1(202)875-2986

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1927):

N. Lat. = 411228.0 W. Lng. = 955424.0
 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	298.9	94.1	0.0280	-15.53	0.400	7.26
030	335.1	57.9	0.1750	-7.57	1.000	9.14
060	328.2	64.8	0.1750	-7.57	1.000	9.63
090	323.8	69.2	0.1750	-7.57	1.000	9.93
120	323.4	69.6	0.1750	-7.57	1.000	9.96
150	298.7	94.3	0.1750	-7.57	1.000	11.48
180	314.4	78.6	0.1750	-7.57	1.000	10.54
210	329.9	63.1	0.1750	-7.57	1.000	9.51
240	328.0	65.0	0.1750	-7.57	1.000	9.65
270	339.0	54.0	0.1750	-7.57	1.000	8.81
300	341.7	51.3	0.0280	-15.53	0.400	5.40
330	351.1	41.9	0.0089	-20.53	0.225	3.62

Ave El= 326.03 M HAAT= 66.97 M AMSL= 393.0

NAD 1983 to NAD 1927 Conversion:

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum values:	41 12 28.00469	95 54 23.95381
NAD 83 datum values:	41 12 28.00000	95 54 25.00000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	41.2077778°, -095.9069444°
Degrees Minutes	41°12.46667', -095°54.41667'
Degrees Minutes Seconds	41°12'28.0000", -095°54'25.0000"
UTM	15T 256276mE 4565897mN
UTM centimeter	15T 256276.88mE 4565897.79mN
MGRS	15TTF5627665897
Grid North	-1.9°
GARS	169LY32
Maidenhead	EN21BE19EU08
GEOREF	FJKM05581246

Exhibit 6

Tabulation of Proposed Allocation

Blue Text indicates contour protection studies toward select stations as included in ***Exhibit(s) 7(a-b)***.

Yellow Highlighted Text denotes the existence of a C.F.R. 47 Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KOOO(FM)- La Vista, NE (CH270C0) as noted in ***Exhibit 8***. Protection of the worst case calculated 122.8 dBμ F(50:10) Interference Contour, corresponding to the 82.8 dBμ F(50:50) Protected Contour, has been demonstrated through a downward radiation study. Full protection will be afforded the facility as this area will not reach the ground nor a five meter artificial plane representing a standard one and a half story home when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer specifications has been included in ***Exhibit 9***.

REFERENCE		CH# 268D - 101.5 MHz, Pwr= 0.175 kW DA, HAAT= 67.0 M, COR= 393 M							DISPLAY DATES	
41 12 28.0 N.		Average Protected F(50-50)= 9.78 km							DATA 06-06-17	
95 54 24.0 W.		Standard Directional							SEARCH 06-06-17	
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)
270C0 KOOO		LIC_C	233.9	29.65	41 03 01.0	100.000	11.1	77.2	8.9	-48.5*<
La Vista		NE	53.7	BLH20120203ABL	96 11 33.0	365	716	Nrg License Sub, Llc		
267L1 KJSO-LP		LIC_	317.3	11.98	41 17 13.0	0.011			-0.3<	0.3
Omaha		NE	137.2	BLL20161230AAP	96 00 14.2	88	422	North Omaha Loves Jazz Cul		
267L1 KXNB-LP		LIC_	317.3	11.98	41 17 13.0	0.011			-0.3<	0.3
Omaha		NE	137.2	BLL20161227AAF	96 00 14.2	88	422	Malcolm X Memorial Foundat		
214C2 KVNO		LIC_CX	317.7	14.92	41 18 25.0	8.900	13.0	8.5	14.5R	0.42M
Omaha		NE	137.6	BLED20041013AAU	96 01 37.0	197	540	The Board Of Regents Of Th		
268D K268DF		CP_DC_	235.9	76.44	40 49 10.0	0.130	27.2	8.1	39.8	37.0
Lincoln		NE	55.4	BMPFT20160729ANT	96 39 31.0		464	Alpha 3e Licensee Llc		
267C2 KKYY		LIC_C_	351.7	129.14	42 21 25.0	50.000	81.1	54.8	42.1	66.2
Whiting		IA	171.5	BLH20011002AAS	96 08 02.0	150	509	Powell Broadcasting Compan		
267C3 KLZA		LIC_C_	169.9	123.38	40 06 54.0	25.000	55.2	34.6	57.3	73.2
Falls City		NE	350.0	BLH20010910ABN	95 39 06.0	100	401	Knza, Inc		
267C3 KSIB-FM		LIC_CN	95.1	128.83	41 05 41.0	19.000	59.4	39.1	59.7	76.1
Creston		IA	276.1	BLH19901130KG	94 22 30.0	111	499	G. O. Radio, Limited		
266C1 KLIR		LIC_CX	274.2	125.82	41 16 54.3	100.000	8.5	65.2	109.6	59.9
Columbus		NE	93.3	BMLH20151228BCC	97 24 31.2	237	710	Alpha 3e Licensee Llc		
266C1 KLIR		LIC_CN	274.3	125.80	41 16 55.0	100.000	8.5	65.1	109.6	60.0
Columbus		NE	93.3	BLH19820817AE	97 24 30.0	232	709	Alpha 3e Licensee Llc		
266D K266AN		LIC_C_	72.5	78.88	41 25 02.0	0.250	1.1	12.2	68.1	65.8
Atlantic		IA	253.1	BLFT20120117ACO	95 00 15.0	80	464	Wireless Communications Co		
268C KROR		LIC_CN	257.2	256.10	40 39 28.0	100.000	174.5	74.0	72.4	151.8
Hastings		NE	75.2	BLH19940926KC	98 52 04.0	306	940	Nrg License Sub, Llc		
268C2 KMKF		LIC_CX	192.6	221.12	39 15 54.8	37.000	133.2	51.5	78.0	136.3
Manhattan		KS	12.2	BMLH20111114BIQ	96 27 57.5	176	527	Manhattan Broadcasting Co.		

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 7a

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 06-06-2017 - NED 03 SEC
CH268D.P's Overlaps (In= -0.35 km, Out= 0.31 km)

CH268D.P CH 268 D DA
Lat= 41 12 28.0, Lng= 95 54 24.0
0.175 kW 67 m HAAT, 393 m COR
Prot.= 60 dBu, Intef.= 54 dBu

KJSO-LP CH 267 L1 BLL20161230AAP
Lat= 41 17 13.0, Lng= 96 00 14.2
0.011 kW 88 m HAAT, 421.8 m COR
Prot.= 60 dBu, Intef.= 54 dBu

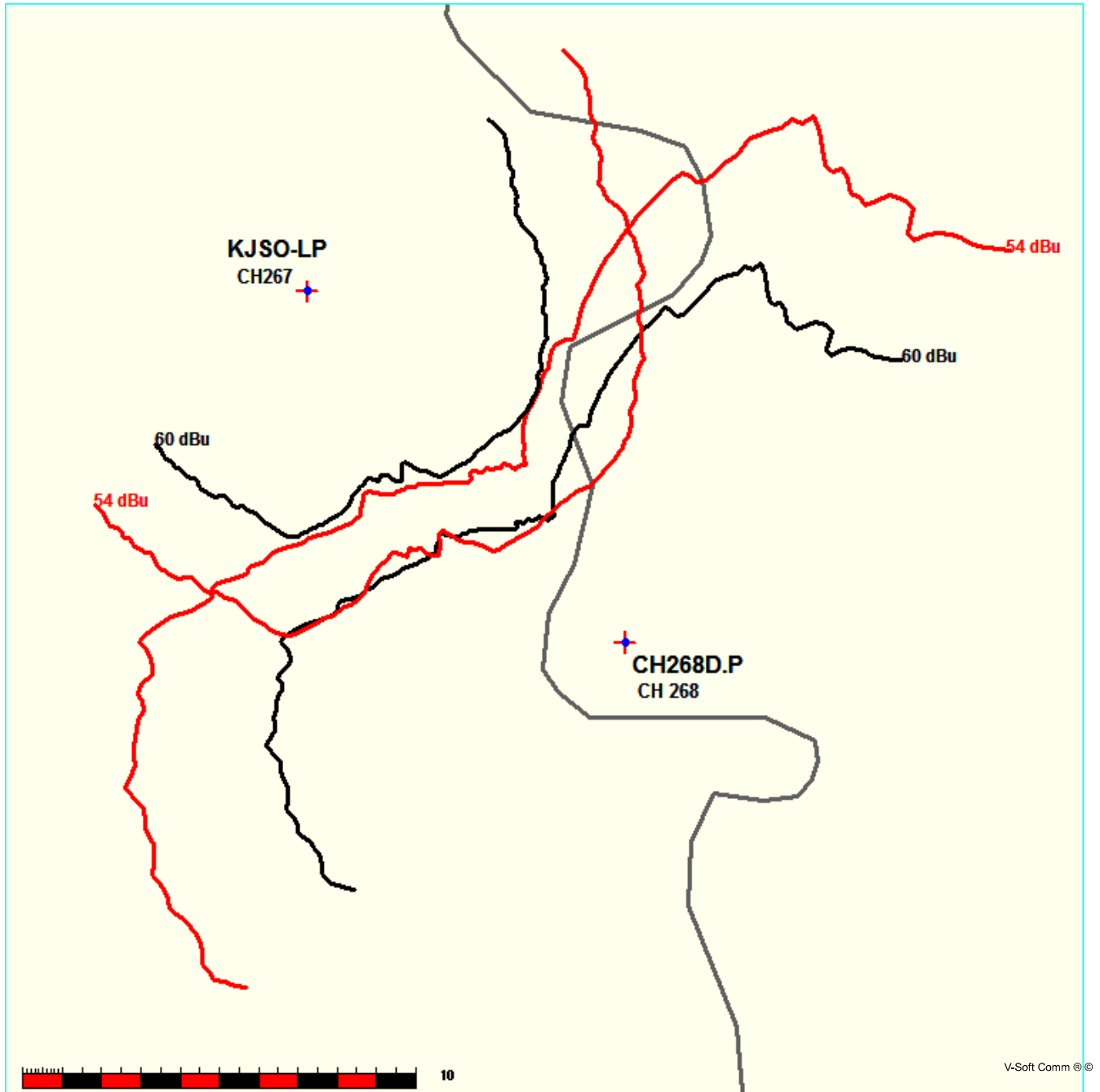


Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

06-06-2017

Terrain Data: NED 03 SEC

FMOver Analysis

CH268D.P

KJSO-LP BLL20161230AAP

Channel = 268D

Max ERP = 0.175 kW

RCAMSL = 393 m

N. Lat. 41 12 28.0

W. Lng. 95 54 24.0

Protected

60 dBu

Channel = 267L1

Max ERP = 0.011 kW

RCAMSL = 421.81 m

N. Lat. 41 17 13.0

W. Lng. 96 00 14.2

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
274.0	000.1235	0051.4	007.8	177.4	000.0110	0097.0	008.3	53.96	
275.0	000.1120	0050.7	007.5	175.4	000.0110	0095.9	008.2	54.05*	0.03
276.0	000.1011	0051.3	007.4	174.3	000.0110	0093.8	008.1	54.05*	0.02
277.0	000.0907	0054.5	007.4	174.3	000.0110	0093.8	007.9	54.32*	0.16
278.0	000.0809	0056.2	007.3	173.4	000.0110	0092.5	007.8	54.41*	0.20
279.0	000.0717	0055.1	007.0	171.1	000.0110	0089.7	007.8	54.21*	0.10
280.0	000.0630	0055.5	006.8	169.4	000.0110	0087.0	007.8	54.03*	0.02
281.0	000.0599	0056.4	006.8	168.9	000.0110	0085.7	007.7	54.13*	0.07
282.0	000.0569	0054.7	006.6	167.2	000.0110	0078.4	007.6	53.39	
283.0	000.0539	0054.6	006.5	166.2	000.0110	0076.7	007.6	53.33	
284.0	000.0510	0055.0	006.4	165.4	000.0110	0075.2	007.5	53.32	
285.0	000.0482	0053.9	006.3	164.0	000.0110	0072.7	007.5	53.09	
286.0	000.0455	0052.8	006.1	162.6	000.0110	0071.1	007.5	52.91	
287.0	000.0429	0052.0	006.0	161.2	000.0110	0069.9	007.4	52.78	
288.0	000.0403	0052.5	005.9	160.4	000.0110	0070.3	007.4	52.96	
289.0	000.0378	0051.7	005.8	159.2	000.0110	0073.4	007.4	53.33	
290.0	000.0354	0050.9	005.7	157.8	000.0110	0070.4	007.4	52.93	
291.0	000.0347	0049.9	005.6	156.9	000.0110	0071.8	007.4	53.14	
292.0	000.0339	0049.1	005.5	155.9	000.0110	0073.1	007.4	53.32	
293.0	000.0331	0047.4	005.4	154.7	000.0110	0077.5	007.4	53.77	
294.0	000.0324	0047.8	005.4	154.1	000.0110	0078.8	007.4	54.05*	0.03
295.0	000.0316	0047.3	005.3	153.2	000.0110	0081.0	007.3	54.34*	0.14
296.0	000.0309	0048.6	005.4	152.9	000.0110	0080.1	007.2	54.47*	0.20
297.0	000.0301	0049.5	005.4	152.4	000.0110	0077.9	007.2	54.40*	0.17
298.0	000.0294	0050.1	005.4	151.7	000.0110	0074.5	007.1	54.14*	0.06
299.0	000.0287	0051.7	005.4	151.3	000.0110	0071.9	007.0	54.07*	0.03
300.0	000.0280	0051.3	005.4	150.5	000.0110	0068.6	007.0	53.67	
301.0	000.0273	0047.5	005.1	148.8	000.0110	0075.5	007.2	54.08*	0.04
302.0	000.0266	0045.5	005.0	147.7	000.0110	0080.8	007.3	54.45*	0.19
303.0	000.0259	0045.3	005.0	146.9	000.0110	0082.2	007.3	54.60*	0.25
304.0	000.0253	0044.6	004.9	146.0	000.0110	0083.4	007.3	54.65*	0.28
305.0	000.0246	0044.7	004.8	145.4	000.0110	0085.7	007.3	54.92*	0.40
306.0	000.0240	0042.9	004.7	144.4	000.0110	0089.7	007.4	55.08*	0.48
307.0	000.0233	0043.2	004.7	143.7	000.0110	0094.3	007.4	55.56*	0.71

Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
308.0	000.0227	0042.0	004.6	142.9	000.0110	0094.1	007.5	55.34* 0.62
309.0	000.0221	0040.5	004.5	142.1	000.0110	0094.6	007.6	55.15* 0.54
310.0	000.0214	0039.6	004.4	141.4	000.0110	0094.5	007.7	54.99* 0.47
311.0	000.0214	0038.4	004.3	140.7	000.0110	0094.9	007.7	54.90* 0.43
312.0	000.0214	0037.0	004.2	140.1	000.0110	0095.1	007.8	54.77* 0.37
313.0	000.0214	0035.4	004.1	139.5	000.0110	0095.6	007.9	54.63* 0.31
314.0	000.0214	0034.2	004.0	138.9	000.0110	0095.7	007.9	54.50* 0.25
315.0	000.0214	0033.2	004.0	138.4	000.0110	0095.9	008.0	54.39* 0.20
316.0	000.0214	0033.2	004.0	137.9	000.0110	0096.4	008.0	54.44* 0.22
317.0	000.0214	0034.9	004.1	137.4	000.0110	0097.1	007.9	54.74* 0.37
318.0	000.0214	0034.3	004.1	136.9	000.0110	0097.6	007.9	54.71* 0.35
319.0	000.0214	0032.6	003.9	136.4	000.0110	0097.9	008.0	54.52* 0.26
320.0	000.0214	0032.5	003.9	135.9	000.0110	0098.5	008.0	54.55* 0.28
321.0	000.0200	0033.9	004.0	135.4	000.0110	0098.9	008.0	54.61* 0.31
322.0	000.0185	0033.4	003.9	135.0	000.0110	0098.9	008.1	54.38* 0.19
323.0	000.0170	0034.4	003.8	134.6	000.0110	0098.4	008.2	54.29* 0.15
324.0	000.0158	0035.3	003.8	134.1	000.0110	0098.3	008.2	54.20* 0.10
325.0	000.0144	0037.7	003.9	133.6	000.0110	0098.0	008.2	54.24* 0.12
326.0	000.0132	0037.3	003.8	133.3	000.0110	0098.2	008.3	54.04* 0.02
327.0	000.0120	0036.8	003.6	133.1	000.0110	0098.3	008.4	53.79
328.0	000.0109	0038.5	003.6	132.6	000.0110	0098.4	008.4	53.79
329.0	000.0098	0040.5	003.6	132.2	000.0110	0098.4	008.4	53.75
330.0	000.0089	0041.9	003.6	131.9	000.0110	0098.8	008.5	53.70
331.0	000.0089	0046.1	003.8	131.0	000.0110	0099.4	008.3	54.09* 0.05
332.0	000.0089	0048.4	003.9	130.3	000.0110	0099.8	008.2	54.26* 0.13
333.0	000.0089	0052.4	004.1	129.4	000.0110	0100.4	008.1	54.59* 0.29
334.0	000.0089	0056.3	004.3	128.4	000.0110	0100.8	008.0	54.86* 0.43
335.0	000.0089	0059.5	004.4	127.6	000.0110	0102.4	007.9	55.15* 0.57
336.0	000.0089	0061.9	004.4	126.8	000.0110	0102.3	007.9	55.21* 0.59
337.0	000.0089	0063.9	004.5	126.1	000.0110	0103.1	007.9	55.31* 0.64
338.0	000.0089	0065.8	004.6	125.4	000.0110	0105.2	007.9	55.52* 0.75
339.0	000.0089	0068.1	004.7	124.6	000.0110	0107.1	007.9	55.72* 0.85
340.0	000.0089	0070.7	004.7	123.7	000.0110	0108.6	007.8	55.91* 0.93
341.0	000.0089	0072.9	004.8	122.9	000.0110	0109.2	007.8	55.98* 0.97
342.0	000.0089	0077.4	005.0	121.7	000.0110	0109.7	007.8	56.14* 1.05
343.0	000.0089	0079.7	005.0	120.9	000.0110	0110.3	007.8	56.20* 1.07
344.0	000.0089	0082.3	005.1	120.0	000.0110	0110.9	007.8	56.25* 1.10
345.0	000.0089	0088.8	005.3	118.4	000.0110	0112.3	007.7	56.54* 1.23
346.0	000.0089	0092.5	005.4	117.3	000.0110	0112.8	007.7	56.60* 1.26
347.0	000.0089	0094.1	005.5	116.5	000.0110	0113.2	007.7	56.54* 1.24
348.0	000.0089	0095.1	005.5	115.9	000.0110	0113.2	007.8	56.41* 1.18
349.0	000.0089	0095.1	005.5	115.5	000.0110	0113.1	007.8	56.24* 1.10
350.0	000.0089	0094.8	005.5	115.1	000.0110	0113.1	007.9	56.05* 1.02
351.0	000.0102	0094.6	005.7	113.5	000.0110	0113.6	007.9	56.16* 1.07

Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

06-06-2017 Terrain Data: NED 03 SEC FMOver Analysis

KJSO-LP BLL20161230AAP

CH268D.P

Channel = 267L1
 Max ERP = 0.011 kW
 RCAMSL = 421.81 m
 N. Lat. 41 17 13.0
 W. Lng. 96 00 14.2
 Protected
 60 dBu

Channel = 268D
 Max ERP = 0.175 kW
 RCAMSL = 393 m
 N. Lat. 41 12 28.0
 W. Lng. 95 54 24.0
 Interfering
 54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
092.0	000.0110	0102.8	006.1	346.5	000.0089	0093.4	008.8	51.60	
093.0	000.0110	0102.9	006.1	346.4	000.0089	0093.2	008.7	51.77	
094.0	000.0110	0101.7	006.0	345.9	000.0089	0092.3	008.6	51.86	
095.0	000.0110	0102.2	006.1	345.8	000.0089	0092.0	008.5	52.03	
096.0	000.0110	0104.0	006.1	345.9	000.0089	0092.3	008.4	52.30	
097.0	000.0110	0104.6	006.1	345.8	000.0089	0091.9	008.3	52.47	
098.0	000.0110	0104.8	006.1	345.5	000.0089	0091.0	008.2	52.57	
099.0	000.0110	0105.4	006.2	345.3	000.0089	0090.1	008.1	52.69	
100.0	000.0110	0106.4	006.2	345.2	000.0089	0089.5	008.0	52.85	
101.0	000.0110	0108.3	006.2	345.2	000.0089	0089.6	007.9	53.12	
102.0	000.0110	0107.2	006.2	344.7	000.0089	0087.2	007.8	53.04	
103.0	000.0110	0106.5	006.2	344.2	000.0089	0083.2	007.7	52.81	
104.0	000.0110	0106.0	006.2	343.7	000.0089	0081.2	007.6	52.78	
105.0	000.0110	0105.3	006.2	343.1	000.0089	0080.0	007.5	52.84	
106.0	000.0110	0107.1	006.2	343.0	000.0089	0079.8	007.4	53.08	
107.0	000.0110	0108.9	006.3	342.9	000.0089	0079.5	007.3	53.34	
108.0	000.0110	0109.8	006.3	342.6	000.0089	0079.0	007.2	53.54	
109.0	000.0110	0109.1	006.3	341.9	000.0089	0077.0	007.1	53.51	
110.0	000.0110	0108.6	006.2	341.3	000.0089	0073.8	007.0	53.32	
111.0	000.0110	0111.3	006.3	341.2	000.0089	0073.3	006.9	53.60	
112.0	000.0110	0113.0	006.4	340.9	000.0089	0072.9	006.8	53.85	
113.0	000.0110	0113.5	006.4	340.3	000.0089	0071.9	006.7	53.97	
114.0	000.0110	0113.7	006.4	339.7	000.0089	0069.8	006.6	53.94	
115.0	000.0110	0113.1	006.4	338.9	000.0089	0067.8	006.5	53.87	
116.0	000.0110	0113.2	006.4	338.2	000.0089	0066.4	006.5	53.90	
117.0	000.0110	0113.0	006.4	337.4	000.0089	0064.6	006.4	53.86	
118.0	000.0110	0112.6	006.4	336.6	000.0089	0062.6	006.3	53.77	
119.0	000.0110	0111.9	006.3	335.7	000.0089	0060.6	006.3	53.66	
120.0	000.0110	0110.9	006.3	334.7	000.0089	0058.8	006.2	53.52	

Exhibit 7a
Contour Protection Studies Toward Select Allocation Concern(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
121.0	000.0110	0110.2	006.3	333.8	000.0089	0055.2	006.2	53.11
122.0	000.0110	0109.5	006.3	332.8	000.0089	0051.1	006.2	52.53
123.0	000.0110	0109.3	006.3	331.9	000.0089	0048.0	006.1	52.09
124.0	000.0110	0108.1	006.2	330.9	000.0089	0045.9	006.1	51.73
125.0	000.0110	0106.1	006.2	329.7	000.0091	0041.7	006.1	50.98
126.0	000.0110	0103.4	006.1	328.5	000.0104	0039.2	006.1	50.90
127.0	000.0110	0102.2	006.1	327.4	000.0115	0037.1	006.1	50.88
128.0	000.0110	0101.6	006.0	326.4	000.0127	0037.5	006.1	51.42
129.0	000.0110	0100.3	006.0	325.4	000.0140	0037.4	006.1	51.80
130.0	000.0110	0100.1	006.0	324.4	000.0152	0036.6	006.1	52.04
131.0	000.0110	0099.4	006.0	323.4	000.0165	0035.3	006.1	52.11
132.0	000.0110	0098.5	005.9	322.4	000.0179	0033.4	006.1	51.98
133.0	000.0110	0098.3	005.9	321.4	000.0193	0034.0	006.1	52.50
134.0	000.0110	0098.2	005.9	320.5	000.0208	0033.3	006.1	52.67
135.0	000.0110	0098.9	006.0	319.5	000.0214	0032.5	006.0	52.70
136.0	000.0110	0098.3	005.9	318.5	000.0214	0033.6	006.1	52.93
137.0	000.0110	0097.5	005.9	317.5	000.0214	0034.1	006.1	53.00
138.0	000.0110	0096.3	005.9	316.6	000.0214	0034.4	006.1	52.95
139.0	000.0110	0095.8	005.9	315.6	000.0214	0032.8	006.1	52.52
140.0	000.0110	0095.2	005.8	314.7	000.0214	0033.0	006.2	52.47
141.0	000.0110	0094.8	005.8	313.8	000.0214	0034.4	006.2	52.76
142.0	000.0110	0094.5	005.8	312.8	000.0214	0035.8	006.2	53.01
143.0	000.0110	0094.0	005.8	311.9	000.0214	0037.1	006.2	53.22
144.0	000.0110	0093.1	005.8	311.1	000.0214	0038.3	006.3	53.35
145.0	000.0110	0087.5	005.6	310.6	000.0214	0038.4	006.5	52.83
146.0	000.0110	0083.6	005.5	310.1	000.0214	0039.3	006.6	52.63
147.0	000.0110	0081.9	005.4	309.5	000.0217	0040.0	006.7	52.63
148.0	000.0110	0079.1	005.3	309.0	000.0221	0040.5	006.8	52.49
149.0	000.0110	0073.6	005.1	308.8	000.0222	0040.6	007.1	52.01
150.0	000.0110	0069.5	005.0	308.6	000.0223	0040.8	007.2	51.68
151.0	000.0110	0070.3	005.0	307.8	000.0228	0042.4	007.2	52.09
152.0	000.0110	0076.0	005.2	306.5	000.0236	0043.2	007.1	52.76
153.0	000.0110	0080.5	005.3	305.3	000.0244	0044.6	007.0	53.44
154.0	000.0110	0079.0	005.3	304.8	000.0247	0044.6	007.1	53.27
155.0	000.0110	0076.7	005.2	304.5	000.0249	0044.4	007.2	53.00
156.0	000.0110	0072.6	005.1	304.5	000.0249	0044.4	007.4	52.60
157.0	000.0110	0071.7	005.0	304.0	000.0252	0044.5	007.4	52.51
158.0	000.0110	0070.6	005.0	303.6	000.0255	0045.0	007.5	52.46
159.0	000.0110	0073.7	005.1	302.6	000.0262	0045.3	007.5	52.73
160.0	000.0110	0071.2	005.0	302.5	000.0263	0045.3	007.6	52.48
161.0	000.0110	0069.8	005.0	302.2	000.0265	0045.4	007.7	52.32
162.0	000.0110	0069.5	005.0	301.7	000.0268	0045.6	007.8	52.29
163.0	000.0110	0071.9	005.0	300.9	000.0274	0048.3	007.8	52.93
164.0	000.0110	0072.7	005.1	300.2	000.0278	0050.6	007.8	53.35

Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 06-06-2017 - NED 03 SEC
CH268D.P's Overlaps (In= -0.35 km, Out= 0.31 km)

CH268D.P CH 268 D DA
Lat= 41 12 28.0, Lng= 95 54 24.0
0.175 kW 67 m HAAT, 393 m COR
Prot.= 60 dBu, Intef.= 54 dBu

KXNB-LP CH 267 L1 BLL20161227AAF
Lat= 41 17 13.0, Lng= 96 00 14.2
0.011 kW 88 m HAAT, 421.8 m COR
Prot.= 60 dBu, Intef.= 54 dBu

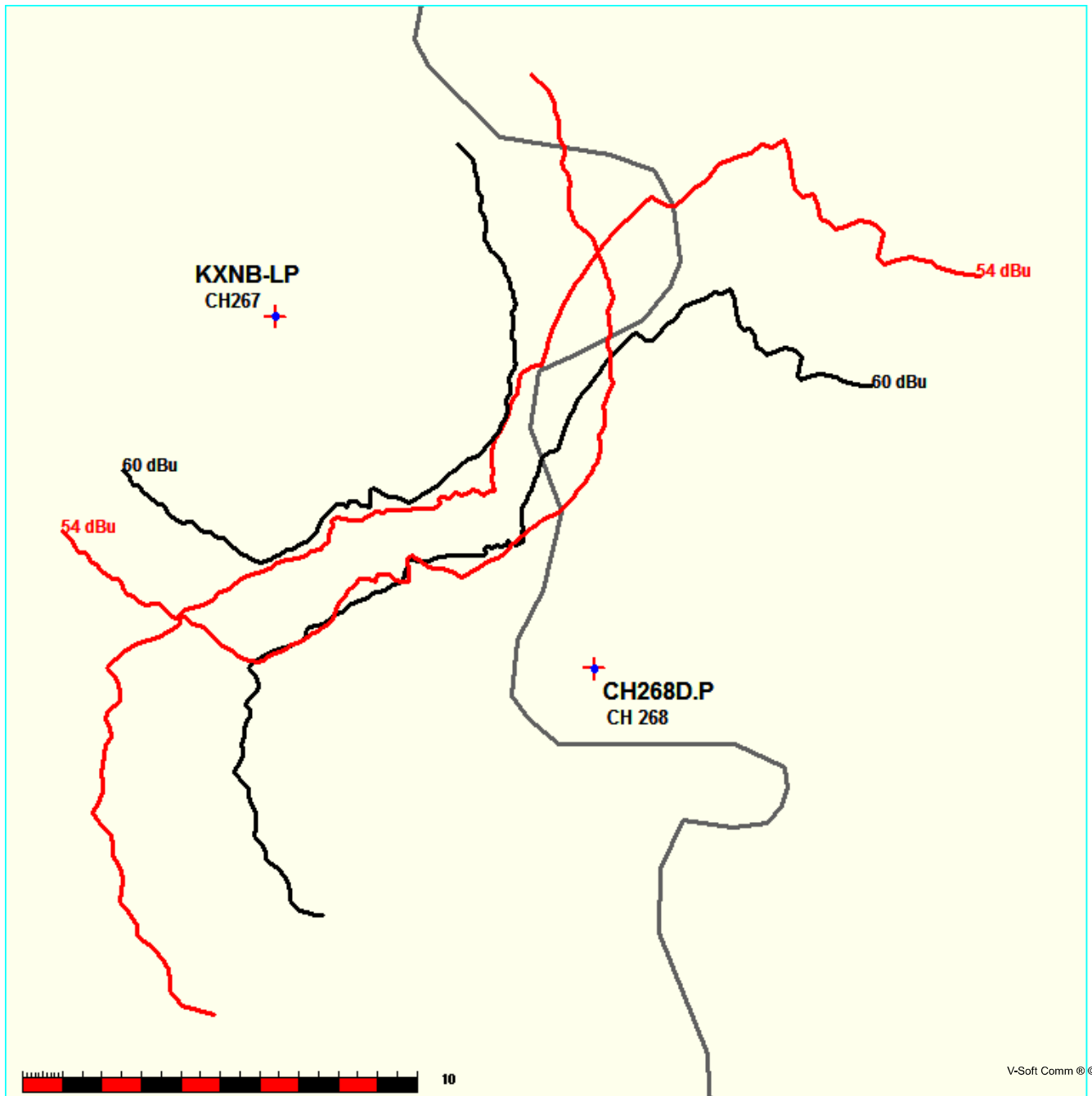


Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

06-06-2017

Terrain Data: NED 03 SEC

FMOver Analysis

CH268D.P

KXNB-LP BLL20161227AAF

Channel = 268D
Max ERP = 0.175 kW
RCAMSL = 393 m
N. Lat. 41 12 28.0
W. Lng. 95 54 24.0
Protected
60 dBu

Channel = 267L1
Max ERP = 0.011 kW
RCAMSL = 421.81 m
N. Lat. 41 17 13.0
W. Lng. 96 00 14.2
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
275.0	000.1120	0050.7	007.5	175.4	000.0109	0095.9	008.2	54.02*	0.01
276.0	000.1011	0051.3	007.4	174.3	000.0110	0093.8	008.1	54.03*	0.02
277.0	000.0907	0054.5	007.4	174.3	000.0110	0093.8	007.9	54.31*	0.15
278.0	000.0809	0056.2	007.3	173.4	000.0110	0092.5	007.8	54.40*	0.19
279.0	000.0717	0055.1	007.0	171.1	000.0110	0089.7	007.8	54.19*	0.10
280.0	000.0630	0055.5	006.8	169.4	000.0109	0087.0	007.8	53.99	0.01
281.0	000.0599	0056.4	006.8	168.9	000.0109	0085.7	007.7	54.08*	0.04
282.0	000.0569	0054.7	006.6	167.2	000.0108	0078.4	007.6	53.32	
283.0	000.0539	0054.6	006.5	166.2	000.0108	0076.7	007.6	53.25	
284.0	000.0510	0055.0	006.4	165.4	000.0108	0075.2	007.5	53.23	
285.0	000.0482	0053.9	006.3	164.0	000.0107	0072.7	007.5	52.97	
286.0	000.0455	0052.8	006.1	162.6	000.0107	0071.1	007.5	52.77	
287.0	000.0429	0052.0	006.0	161.2	000.0106	0069.9	007.4	52.63	
288.0	000.0403	0052.5	005.9	160.4	000.0106	0070.3	007.4	52.80	
289.0	000.0378	0051.7	005.8	159.2	000.0106	0073.4	007.4	53.16	
290.0	000.0354	0050.9	005.7	157.8	000.0105	0070.4	007.4	52.75	
291.0	000.0347	0049.9	005.6	156.9	000.0105	0071.8	007.4	52.95	
292.0	000.0339	0049.1	005.5	155.9	000.0105	0073.1	007.4	53.12	
293.0	000.0331	0047.4	005.4	154.7	000.0105	0077.5	007.4	53.56	
294.0	000.0324	0047.8	005.4	154.1	000.0105	0078.8	007.4	53.83	
295.0	000.0316	0047.3	005.3	153.2	000.0104	0081.0	007.3	54.11*	0.05
296.0	000.0309	0048.6	005.4	152.9	000.0104	0080.1	007.2	54.24*	0.11
297.0	000.0301	0049.5	005.4	152.4	000.0104	0077.9	007.2	54.16*	0.07
298.0	000.0294	0050.1	005.4	151.7	000.0104	0074.5	007.1	53.90	
299.0	000.0287	0051.7	005.4	151.3	000.0104	0071.9	007.0	53.82	
300.0	000.0280	0051.3	005.4	150.5	000.0103	0068.6	007.0	53.41	
301.0	000.0273	0047.5	005.1	148.8	000.0103	0075.5	007.2	53.79	
302.0	000.0266	0045.5	005.0	147.7	000.0102	0080.8	007.3	54.14*	0.06
303.0	000.0259	0045.3	005.0	146.9	000.0102	0082.2	007.3	54.27*	0.11
304.0	000.0253	0044.6	004.9	146.0	000.0102	0083.4	007.3	54.30*	0.13
305.0	000.0246	0044.7	004.8	145.4	000.0101	0085.7	007.3	54.56*	0.24
306.0	000.0240	0042.9	004.7	144.4	000.0101	0089.7	007.4	54.70*	0.31
307.0	000.0233	0043.2	004.7	143.7	000.0101	0094.3	007.4	55.18*	0.52

Exhibit 7b
Contour Protection Studies Toward Select Allocation Concern(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	
308.0	000.0227	0042.0	004.6	142.9	000.0100	0094.1	007.5	54.94*	0.42
309.0	000.0221	0040.5	004.5	142.1	000.0100	0094.6	007.6	54.73*	0.33
310.0	000.0214	0039.6	004.4	141.4	000.0099	0094.5	007.7	54.54*	0.25
311.0	000.0214	0038.4	004.3	140.7	000.0098	0094.9	007.7	54.42*	0.20
312.0	000.0214	0037.0	004.2	140.1	000.0098	0095.1	007.8	54.25*	0.12
313.0	000.0214	0035.4	004.1	139.5	000.0097	0095.6	007.9	54.08*	0.04
314.0	000.0214	0034.2	004.0	138.9	000.0096	0095.7	007.9	53.92	
315.0	000.0214	0033.2	004.0	138.4	000.0096	0095.9	008.0	53.79	
316.0	000.0214	0033.2	004.0	137.9	000.0095	0096.4	008.0	53.81	
317.0	000.0214	0034.9	004.1	137.4	000.0095	0097.1	007.9	54.08*	0.04
318.0	000.0214	0034.3	004.1	136.9	000.0094	0097.6	007.9	54.02*	0.01
319.0	000.0214	0032.6	003.9	136.4	000.0093	0097.9	008.0	53.81	
320.0	000.0214	0032.5	003.9	135.9	000.0093	0098.5	008.0	53.82	
321.0	000.0200	0033.9	004.0	135.4	000.0092	0098.9	008.0	53.85	
322.0	000.0185	0033.4	003.9	135.0	000.0092	0098.9	008.1	53.60	
323.0	000.0170	0034.4	003.8	134.6	000.0091	0098.4	008.2	53.49	
324.0	000.0158	0035.3	003.8	134.1	000.0091	0098.3	008.2	53.37	
325.0	000.0144	0037.7	003.9	133.6	000.0090	0098.0	008.2	53.38	
326.0	000.0132	0037.3	003.8	133.3	000.0090	0098.2	008.3	53.17	
327.0	000.0120	0036.8	003.6	133.1	000.0090	0098.3	008.4	52.91	
328.0	000.0109	0038.5	003.6	132.6	000.0089	0098.4	008.4	52.88	
329.0	000.0098	0040.5	003.6	132.2	000.0089	0098.4	008.4	52.82	
330.0	000.0089	0041.9	003.6	131.9	000.0088	0098.8	008.5	52.74	
331.0	000.0089	0046.1	003.8	131.0	000.0087	0099.4	008.3	53.06	
332.0	000.0089	0048.4	003.9	130.3	000.0086	0099.8	008.2	53.18	
333.0	000.0089	0052.4	004.1	129.4	000.0084	0100.4	008.1	53.43	
334.0	000.0089	0056.3	004.3	128.4	000.0083	0100.8	008.0	53.63	
335.0	000.0089	0059.5	004.4	127.6	000.0082	0102.4	007.9	53.85	
336.0	000.0089	0061.9	004.4	126.8	000.0080	0102.3	007.9	53.84	
337.0	000.0089	0063.9	004.5	126.1	000.0079	0103.1	007.9	53.88	
338.0	000.0089	0065.8	004.6	125.4	000.0078	0105.2	007.9	54.03*	0.02
339.0	000.0089	0068.1	004.7	124.6	000.0077	0107.1	007.9	54.17*	0.08
340.0	000.0089	0070.7	004.7	123.7	000.0076	0108.6	007.8	54.28*	0.13
341.0	000.0089	0072.9	004.8	122.9	000.0074	0109.2	007.8	54.28*	0.13
342.0	000.0089	0077.4	005.0	121.7	000.0073	0109.7	007.8	54.35*	0.16
343.0	000.0089	0079.7	005.0	120.9	000.0072	0110.3	007.8	54.33*	0.15
344.0	000.0089	0082.3	005.1	120.0	000.0070	0110.9	007.8	54.30*	0.14
345.0	000.0089	0088.8	005.3	118.4	000.0068	0112.3	007.7	54.47*	0.21
346.0	000.0089	0092.5	005.4	117.3	000.0067	0112.8	007.7	54.43*	0.20
347.0	000.0089	0094.1	005.5	116.5	000.0066	0113.2	007.7	54.31*	0.14
348.0	000.0089	0095.1	005.5	115.9	000.0065	0113.2	007.8	54.12*	0.06
349.0	000.0089	0095.1	005.5	115.5	000.0064	0113.1	007.8	53.91	

Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

06-06-2017

Terrain Data: NED 03 SEC

FMOVer Analysis

KXNB-LP BLL20161227AAF

CH268D.P

Channel = 267L1

Max ERP = 0.011 kW

RCAMSL = 421.81 m

N. Lat. 41 17 13.0

W. Lng. 96 00 14.2

Protected

60 dBu

Channel = 268D

Max ERP = 0.175 kW

RCAMSL = 393 m

N. Lat. 41 12 28.0

W. Lng. 95 54 24.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
092.0	000.0110	0102.8	006.1	346.5	000.0089	0093.4	008.8	51.60	
093.0	000.0110	0102.9	006.1	346.4	000.0089	0093.2	008.7	51.77	
094.0	000.0110	0101.7	006.0	345.9	000.0089	0092.3	008.6	51.86	
095.0	000.0110	0102.2	006.1	345.8	000.0089	0092.0	008.5	52.03	
096.0	000.0110	0104.0	006.1	345.9	000.0089	0092.3	008.4	52.30	
097.0	000.0110	0104.6	006.1	345.8	000.0089	0091.9	008.3	52.47	
098.0	000.0110	0104.8	006.1	345.5	000.0089	0091.0	008.2	52.57	
099.0	000.0110	0105.4	006.2	345.3	000.0089	0090.1	008.1	52.69	
100.0	000.0110	0106.4	006.2	345.2	000.0089	0089.5	008.0	52.85	
101.0	000.0110	0108.3	006.2	345.2	000.0089	0089.6	007.9	53.12	
102.0	000.0110	0107.2	006.2	344.7	000.0089	0087.2	007.8	53.04	
103.0	000.0110	0106.5	006.2	344.2	000.0089	0083.2	007.7	52.81	
104.0	000.0110	0106.0	006.2	343.7	000.0089	0081.2	007.6	52.78	
105.0	000.0110	0105.3	006.2	343.1	000.0089	0080.0	007.5	52.84	
106.0	000.0110	0107.1	006.2	343.0	000.0089	0079.8	007.4	53.08	
107.0	000.0110	0108.9	006.3	342.9	000.0089	0079.5	007.3	53.34	
108.0	000.0110	0109.8	006.3	342.6	000.0089	0079.0	007.2	53.54	
109.0	000.0110	0109.1	006.3	341.9	000.0089	0077.0	007.1	53.51	
110.0	000.0110	0108.6	006.2	341.3	000.0089	0073.8	007.0	53.32	
111.0	000.0110	0111.3	006.3	341.2	000.0089	0073.3	006.9	53.60	
112.0	000.0110	0113.0	006.4	340.9	000.0089	0072.9	006.8	53.85	
113.0	000.0110	0113.5	006.4	340.3	000.0089	0071.9	006.7	53.97	
114.0	000.0110	0113.7	006.4	339.7	000.0089	0069.8	006.6	53.94	
115.0	000.0110	0113.1	006.4	338.9	000.0089	0067.8	006.5	53.87	
116.0	000.0110	0113.2	006.4	338.2	000.0089	0066.4	006.5	53.90	
117.0	000.0110	0113.0	006.4	337.4	000.0089	0064.6	006.4	53.86	
118.0	000.0110	0112.6	006.4	336.6	000.0089	0062.6	006.3	53.77	
119.0	000.0110	0111.9	006.3	335.7	000.0089	0060.6	006.3	53.66	
120.0	000.0110	0110.9	006.3	334.7	000.0089	0058.8	006.2	53.52	
121.0	000.0110	0110.2	006.3	333.8	000.0089	0055.2	006.2	53.11	
122.0	000.0110	0109.5	006.3	332.8	000.0089	0051.1	006.2	52.53	
123.0	000.0110	0109.3	006.3	331.9	000.0089	0048.0	006.1	52.09	
124.0	000.0110	0108.1	006.2	330.9	000.0089	0045.9	006.1	51.73	

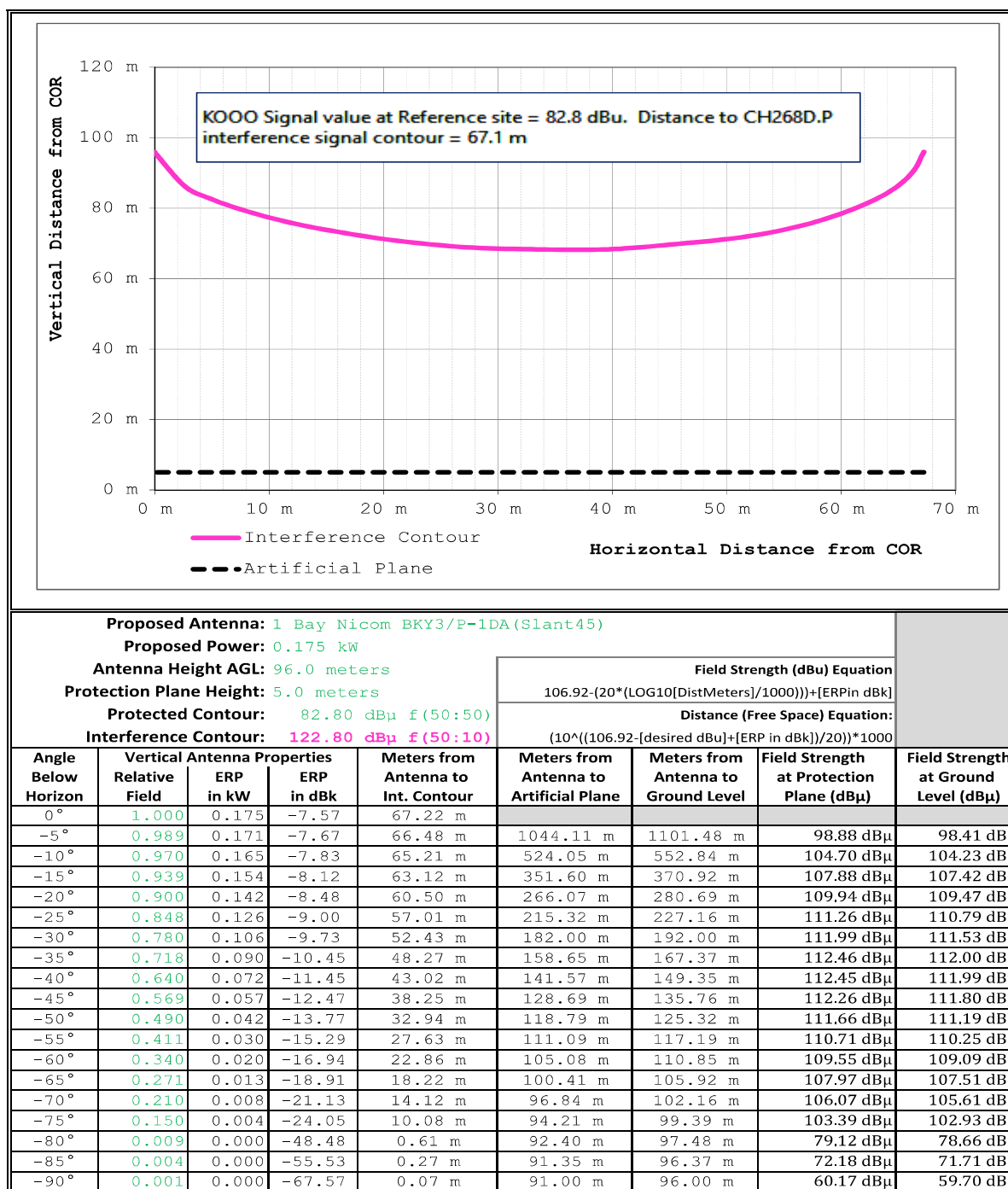
Exhibit 7b
Contour Protection Studies Toward Select Allocation Concern(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
125.0	000.0110	0106.1	006.2	329.7	000.0091	0041.7	006.1	50.98
126.0	000.0110	0103.4	006.1	328.5	000.0104	0039.2	006.1	50.90
127.0	000.0110	0102.2	006.1	327.4	000.0115	0037.1	006.1	50.88
128.0	000.0110	0101.6	006.0	326.4	000.0127	0037.5	006.1	51.42
129.0	000.0110	0100.3	006.0	325.4	000.0140	0037.4	006.1	51.80
130.0	000.0110	0100.1	006.0	324.4	000.0152	0036.6	006.1	52.04
131.0	000.0110	0099.4	006.0	323.4	000.0165	0035.3	006.1	52.11
132.0	000.0110	0098.5	005.9	322.4	000.0179	0033.4	006.1	51.98
133.0	000.0110	0098.3	005.9	321.4	000.0193	0034.0	006.1	52.50
134.0	000.0110	0098.2	005.9	320.5	000.0208	0033.3	006.1	52.67
135.0	000.0110	0098.9	006.0	319.5	000.0214	0032.5	006.0	52.70
136.0	000.0110	0098.3	005.9	318.5	000.0214	0033.6	006.1	52.93
137.0	000.0110	0097.5	005.9	317.5	000.0214	0034.1	006.1	53.00
138.0	000.0110	0096.3	005.9	316.6	000.0214	0034.4	006.1	52.95
139.0	000.0110	0095.8	005.9	315.6	000.0214	0032.8	006.1	52.52
140.0	000.0110	0095.2	005.8	314.7	000.0214	0033.0	006.2	52.47
141.0	000.0110	0094.8	005.8	313.8	000.0214	0034.4	006.2	52.76
142.0	000.0110	0094.5	005.8	312.8	000.0214	0035.8	006.2	53.01
143.0	000.0110	0094.0	005.8	311.9	000.0214	0037.1	006.2	53.22
144.0	000.0110	0093.1	005.8	311.1	000.0214	0038.3	006.3	53.35
145.0	000.0110	0087.5	005.6	310.6	000.0214	0038.4	006.5	52.83
146.0	000.0110	0083.6	005.5	310.1	000.0214	0039.3	006.6	52.63
147.0	000.0110	0081.9	005.4	309.5	000.0217	0040.0	006.7	52.63
148.0	000.0110	0079.1	005.3	309.0	000.0221	0040.5	006.8	52.49
149.0	000.0110	0073.6	005.1	308.8	000.0222	0040.6	007.1	52.01
150.0	000.0110	0069.5	005.0	308.6	000.0223	0040.8	007.2	51.68
151.0	000.0110	0070.3	005.0	307.8	000.0228	0042.4	007.2	52.09
152.0	000.0110	0076.0	005.2	306.5	000.0236	0043.2	007.1	52.76
153.0	000.0110	0080.5	005.3	305.3	000.0244	0044.6	007.0	53.44
154.0	000.0110	0079.0	005.3	304.8	000.0247	0044.6	007.1	53.27
155.0	000.0110	0076.7	005.2	304.5	000.0249	0044.4	007.2	53.00
156.0	000.0110	0072.6	005.1	304.5	000.0249	0044.4	007.4	52.60
157.0	000.0110	0071.7	005.0	304.0	000.0252	0044.5	007.4	52.51
158.0	000.0110	0070.6	005.0	303.6	000.0255	0045.0	007.5	52.46
159.0	000.0110	0073.7	005.1	302.6	000.0262	0045.3	007.5	52.73
160.0	000.0110	0071.2	005.0	302.5	000.0263	0045.3	007.6	52.48
161.0	000.0110	0069.8	005.0	302.2	000.0265	0045.4	007.7	52.32
162.0	000.0110	0069.5	005.0	301.7	000.0268	0045.6	007.8	52.29
163.0	000.0110	0071.9	005.0	300.9	000.0274	0048.3	007.8	52.93
164.0	000.0110	0072.7	005.1	300.2	000.0278	0050.6	007.8	53.35
165.0	000.0110	0073.7	005.1	299.6	000.0283	0051.8	007.8	53.55
166.0	000.0110	0076.4	005.2	298.6	000.0290	0051.1	007.8	53.53
167.0	000.0110	0077.6	005.2	298.0	000.0294	0050.1	007.9	53.34

Exhibit 8

C.F.R. Section 74.1204(d) Second / Third Adjacent Given Interference Waiver Request

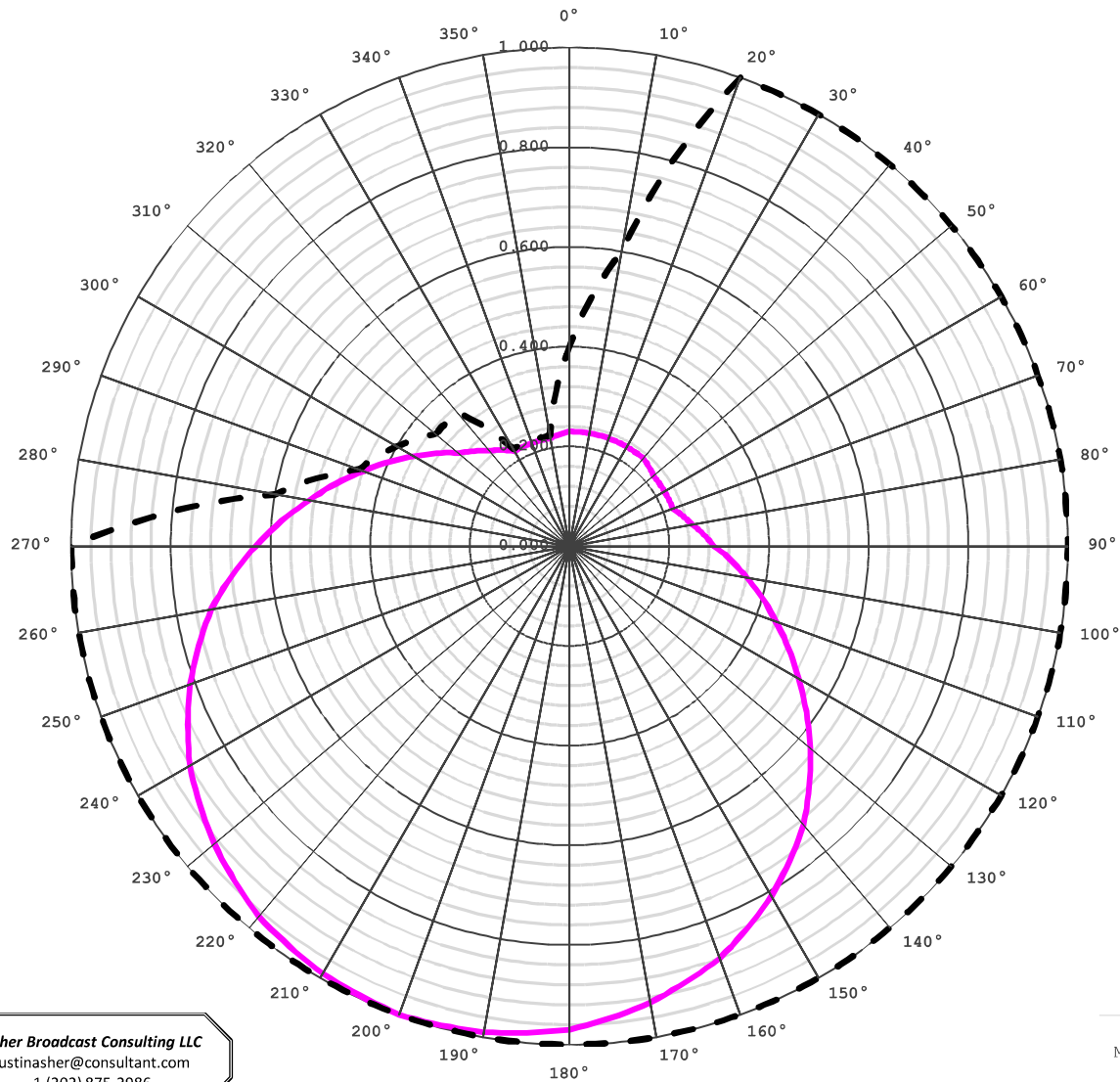
Yellow Highlighted Text denotes the existence of a C.F.R. 47 Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KOOO(FM)- La Vista, NE (CH270C0) as noted in **Exhibit 8**. Protection of the worst case calculated 122.8 dBμ F(50:10) Interference Contour, corresponding to the 82.8 dBμ F(50:50) Protected Contour, has been demonstrated through a downward radiation study. Full protection will be afforded the facility as this area will not reach the ground nor a five meter artificial plane representing a standard one and a half story home when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer specifications has been included in **Exhibit 9**.



Manufacturer's	Make/Model	Orientation	Power
Element 1:	BKY3P(Slant45)	200° True	100.0%
Element 2:			
Element 3:			
Element 4:			

Composite Power: 100%

Exhibit 9 - Copy of Manufacturer's Directional Antenna Pattern Data



Azimuth ° True	FCC Pattern	Manufacturer's Pattern
0°	0.400	0.230
10°	0.600	0.230
20°	1.000	0.230
30°	1.000	0.230
40°	1.000	0.230
50°	1.000	0.220
60°	1.000	0.220
70°	1.000	0.220
80°	1.000	0.250
90°	1.000	0.290
100°	1.000	0.360
110°	1.000	0.440
120°	1.000	0.530
130°	1.000	0.630
140°	1.000	0.730
150°	1.000	0.810
160°	1.000	0.880
170°	1.000	0.930
180°	1.000	0.970
190°	1.000	0.990
200°	1.000	1.000
210°	1.000	0.990
220°	1.000	0.970
230°	1.000	0.930
240°	1.000	0.880
250°	1.000	0.810
260°	1.000	0.730
270°	1.000	0.630
280°	0.600	0.530
290°	0.450	0.440
300°	0.400	0.360
310°	0.350	0.290
320°	0.350	0.250
330°	0.225	0.220
340°	0.225	0.220
350°	0.225	0.220

FCC Pattern: - - -
Manufacturer's Pattern: —

Asher Broadcast Consulting LLC
justinasher@consultant.com
1 (202) 875-2986

Exhibit 9

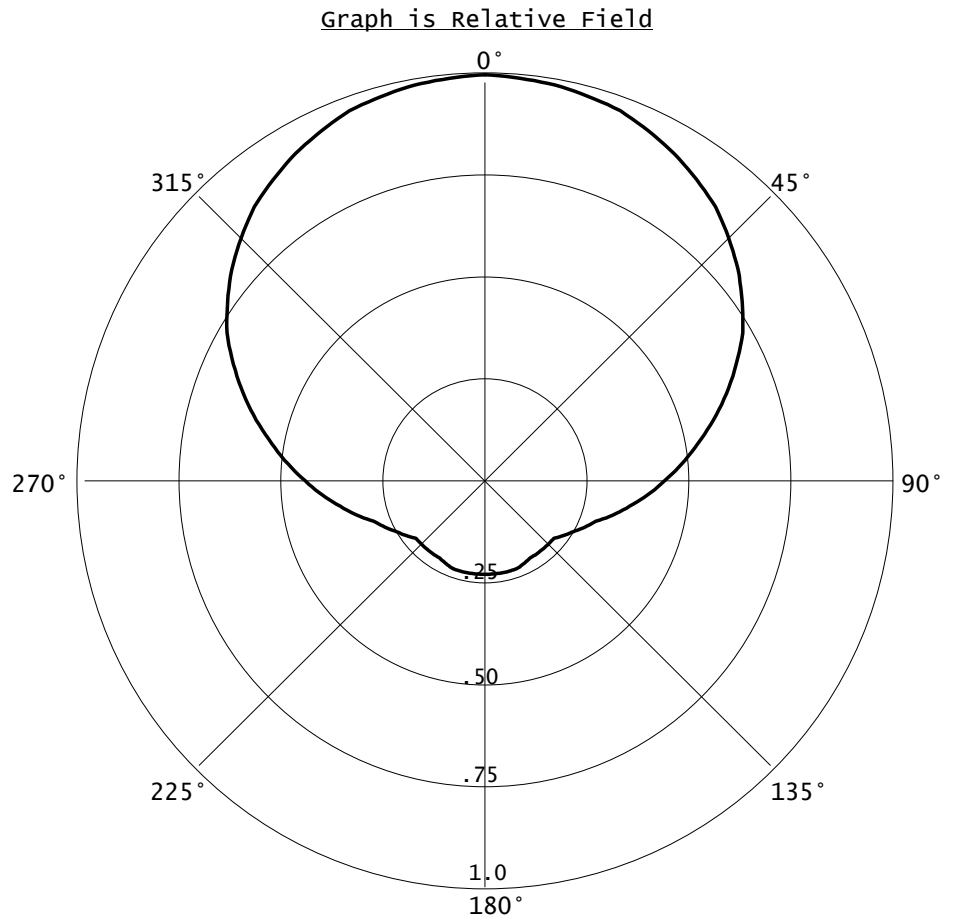
Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 200.0°T) (public record copy)

BKY3/P-1DA(Slant45)

RMS(V)= .608

COMPOSITE PATTERN

Azi	Field	dbk
000	1.000	-10.000
010	0.990	-10.087
020	0.970	-10.265
030	0.930	-10.630
040	0.880	-11.110
050	0.810	-11.830
060	0.730	-12.734
070	0.630	-14.013
080	0.530	-15.514
090	0.440	-17.131
100	0.360	-18.874
110	0.290	-20.752
120	0.250	-22.041
130	0.220	-23.152
140	0.220	-23.152
150	0.220	-23.152
160	0.230	-22.765
170	0.230	-22.765
180	0.230	-22.765
190	0.230	-22.765
200	0.230	-22.765
210	0.220	-23.152
220	0.220	-23.152
230	0.220	-23.152
240	0.250	-22.041
250	0.290	-20.752
260	0.360	-18.874
270	0.440	-17.131
280	0.530	-15.514
290	0.630	-14.013
300	0.730	-12.734
310	0.810	-11.830
320	0.880	-11.110
330	0.930	-10.630
340	0.970	-10.265
350	0.990	-10.087



The directional antenna pattern will be produced by means of a Nicom Dipole Reflector BKY3/P broadcast element mounted at a 45° (degree) slant orientation to achieve horizontal and vertical polarization. The BKY3/P-1DA(Slant45) Directional Pattern is therefore a maximum composite pattern of the current horizontal and vertical broadcast patterns as notified by Nicom USA, Inc.

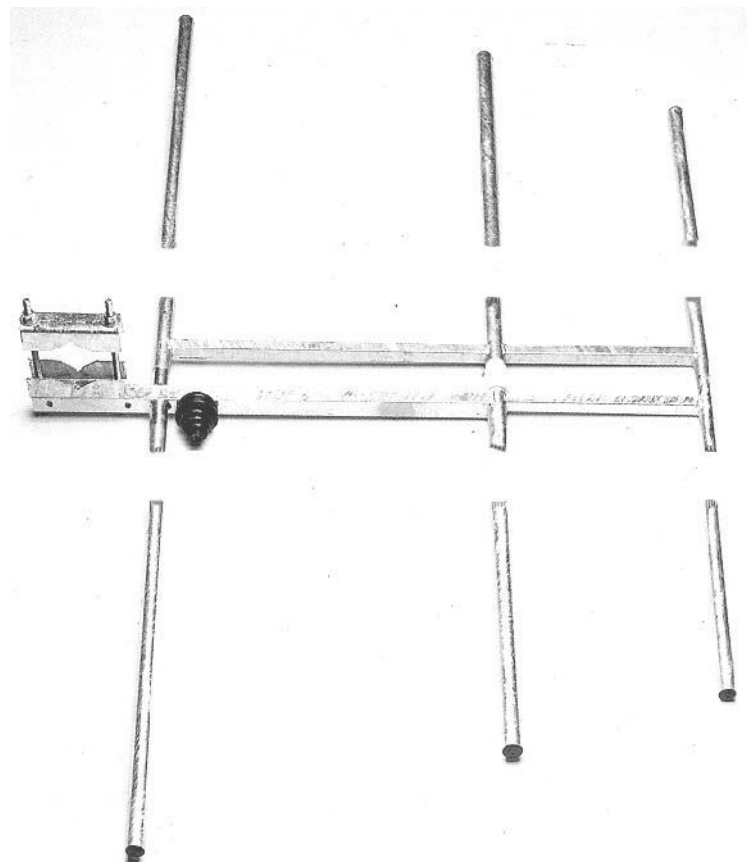
The maximum antenna gain for a single BKY3/P-1DA(Slant45) element will be 1.5 dBd or the common horizontal or vertical maximum antenna gain of 4.5 dBd adjusted by 3 dBd for dual broadcast in the Horizontal and Vertical planes (1.5 dBd = 4.5 dBd - 3.0 dBd). The maximum gain for multiple bay options of the Nicom BKY3/P-DA(Slant45) antenna would therefore also be adjusted by -3 dBd to account for operation in the horizontal and vertical planes.

The antenna proposed in this application will be mounted in accordance with specific instructions provided by the antenna manufacturer. The directional antenna will be mounted on the tower which is of uniform cross section. No other antennas of any type are or will be mounted on the same tower level as the directional antenna.

No antenna is or will be mounted within any vertical or horizontal distance specified by the antenna manufacturer as being necessary for proper operation of the directional antenna. In addition, the antenna will be assembled under the supervision of a qualified engineer and installed pursuant to the manufacturer's instructions and manufacturer specified antenna orientation.

Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 200.0°T) (public record copy)



NICOM
BKY3/P
Medium Power
Portable
Broadband FM
Directional Antenna
Antena Portátil
Direccional
de FM Banda Ancha

This broadband dipole antenna constructed of stainless steel is designed to last a long time in any weather condition. Because of its sturdy construction it can support up to 2 kw of input power with the appropriate connector. Since it has a wide angle of radiation it is strongly recommended for omnidirectional arrays. Due to the fact that it is easily disassembled and reassembled, it can be placed in a compact container making it very portable and

inexpensive to ship.

Esta antena dipolo de banda ancha, fabricada de acero inoxidable fue concebida para ser duradera en cualquier condición de clima. Debido a su robusta construcción puede soportar hasta 2 kw de potencia de entrada con el conector apropiado. Esta antena es recomendada para formaciones omnidireccionales ya que tiene un gran ángulo de irradiación. Dado al hecho que es fácil de armar y desarmar esta antena puede ser enviada en un contenedor muy compacto rendiéndola portátil y económica para envíos.

TECHNICAL SPECIFICATIONS

Antenna type	3 element directional antenna	Front-to-back ratio	18 dB
Frequency range	87.5 - 108 MHz	Lightning protection	all parts grounded
Bandwidth	20 MHz	Max wind velocity	130 mph (208 km/h)
Impedance	50 Ohms	Wind load	48.4 Lbs (22 kg)
Connectors	N type (1 kw) - EIA 7/8 (2 kw)	Wind surface	2.0 ft ² (0.19 m ²)
Power rating	2000 Watts max.	Materials (external)	stainless steel
VSWR	< 1.2 max.	Mounting	from 2" to 4"
Polarization	vertical or horizontal	Weight	20 Lbs (9 kg)
Gain	4.5 dB (referred to half-wave dipole)	Dimensions	50"×72"×3" (1250×1800×60mm)
H plane	150 degrees	Packing	53"×19"×4" (1300×480×100mm)
V plane	70 degrees		

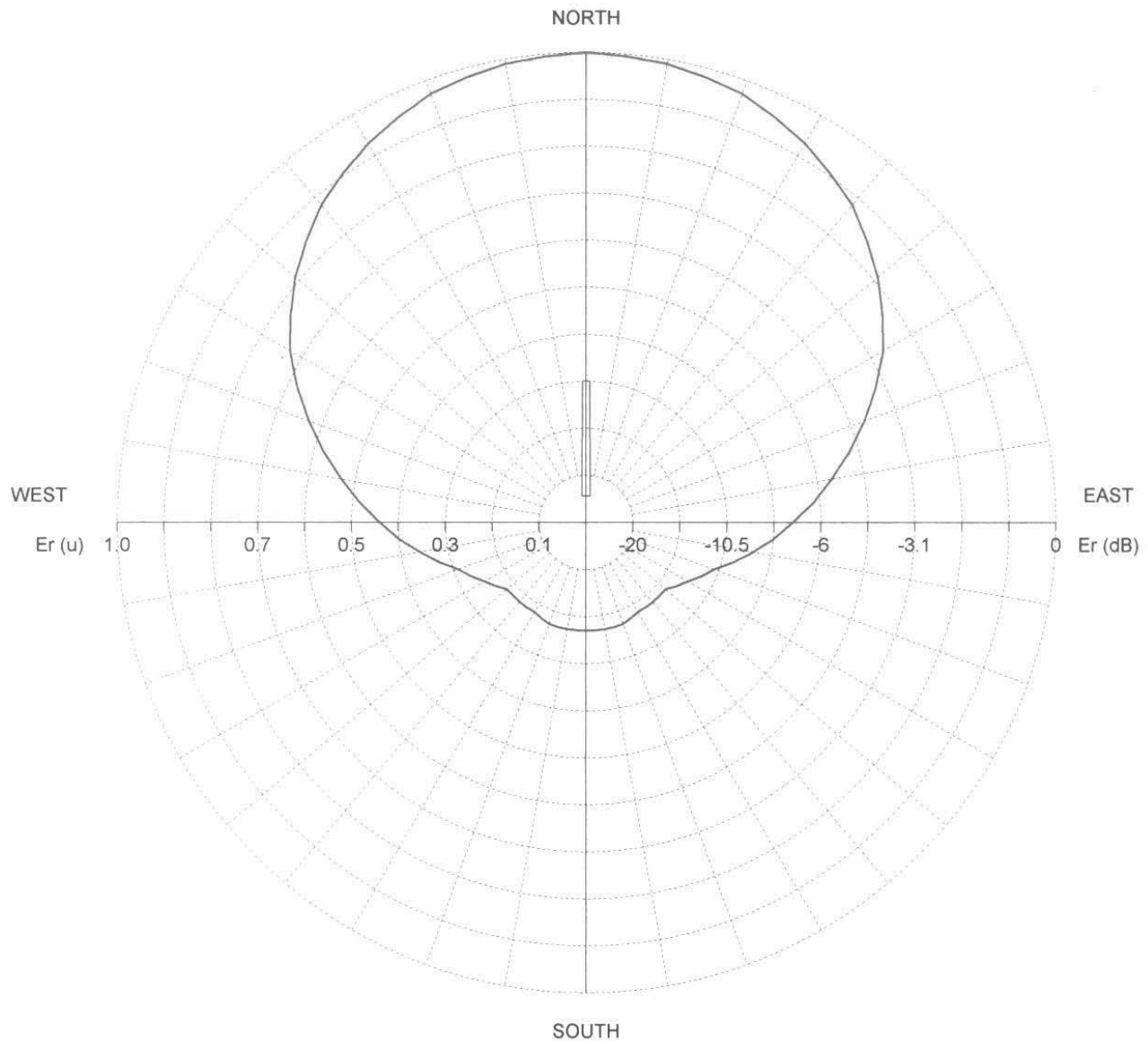
Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 200.0°T) (public record copy)

TX station: BKY/3
Frequency: 98.00 MHz

Site name:

Horizontal diagram



—— 0.0° depres. (Total antenna), Gain (dBd): 3.6 ERP T.max (KW): 2.291

ERP E.max (KW): 1.778

Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 200.0°T) (public record copy)

TX station: BKY/3

Site name:

Frequency: 98.00 MHz

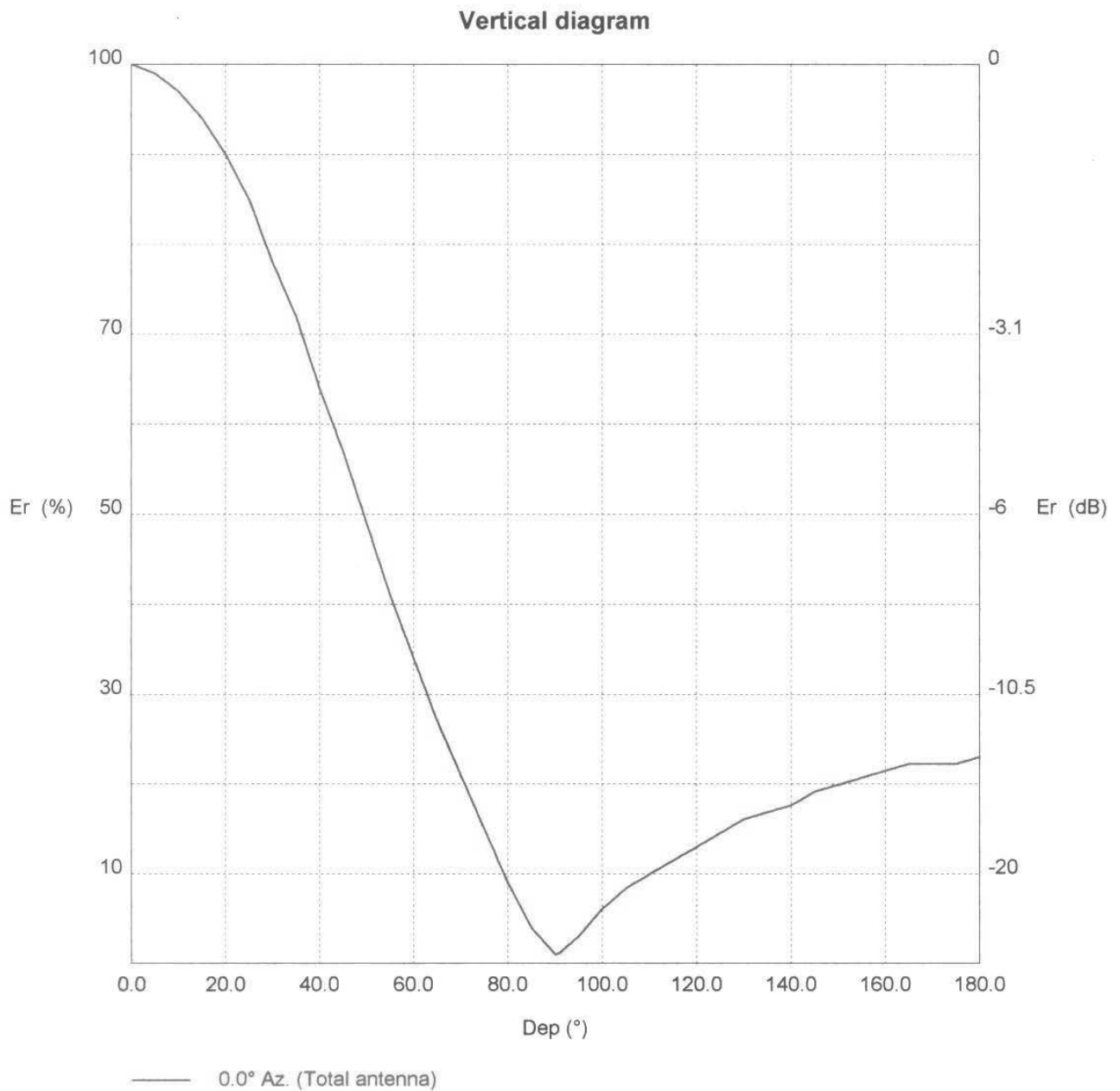


Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 200.0°T) (public record copy)

TX station: BKY/3

Site name:

Frequency: 98.00 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)
0.0	100.0	1.78	60.0	34.0	0.21	120.0	13.0	0.03
2.0	99.6	1.76	62.0	31.2	0.17	122.0	13.6	0.03
4.0	99.2	1.75	64.0	28.4	0.14	124.0	14.3	0.04
6.0	98.6	1.73	66.0	25.8	0.12	126.0	14.9	0.04
8.0	97.8	1.70	68.0	23.4	0.10	128.0	15.5	0.04
10.0	97.0	1.67	70.0	21.0	0.08	130.0	16.1	0.05
12.0	95.8	1.63	72.0	18.6	0.06	132.0	16.4	0.05
14.0	94.6	1.59	74.0	16.2	0.05	134.0	16.7	0.05
16.0	93.2	1.54	76.0	13.8	0.03	136.0	17.0	0.05
18.0	91.6	1.49	78.0	11.4	0.02	138.0	17.3	0.05
20.0	90.0	1.44	80.0	9.0	0.01	140.0	17.6	0.06
22.0	88.0	1.38	82.0	7.0	0.01	142.0	18.2	0.06
24.0	86.0	1.32	84.0	5.0	0.00	144.0	18.9	0.06
26.0	83.6	1.24	86.0	3.4	0.00	146.0	19.3	0.07
28.0	80.8	1.16	88.0	2.2	0.00	148.0	19.6	0.07
30.0	78.0	1.08	90.0	1.0	0.00	150.0	19.9	0.07
32.0	75.6	1.02	92.0	1.7	0.00	152.0	20.2	0.07
34.0	73.2	0.95	94.0	2.6	0.00	154.0	20.5	0.08
36.0	70.4	0.88	96.0	3.7	0.00	156.0	20.9	0.08
38.0	67.2	0.80	98.0	4.9	0.00	158.0	21.2	0.08
40.0	64.0	0.73	100.0	6.1	0.01	160.0	21.5	0.08
42.0	61.2	0.67	102.0	7.1	0.01	162.0	21.8	0.08
44.0	58.4	0.61	104.0	8.0	0.01	164.0	22.1	0.09
46.0	55.4	0.55	106.0	8.7	0.01	166.0	22.2	0.09
48.0	52.2	0.48	108.0	9.4	0.02	168.0	22.2	0.09
50.0	49.0	0.43	110.0	10.0	0.02	170.0	22.2	0.09
52.0	45.8	0.37	112.0	10.6	0.02	172.0	22.2	0.09
54.0	42.6	0.32	114.0	11.2	0.02	174.0	22.2	0.09
56.0	39.6	0.28	116.0	11.8	0.02	176.0	22.4	0.09
58.0	36.8	0.24	118.0	12.4	0.03	178.0	22.7	0.09

TX station: BKY/3

Site name:

Frequency: 98.00 MHz

Horizontal diagram at 0.0° depres. (Total antenna)

Az (°)	Er (%)	ERP (KW)	Az (°)	Er (%)	ERP (KW)	Az (°)	Er (%)	ERP (KW)
0.0	100.0	1.78	120.0	25.0	0.11	240.0	25.0	0.11
10.0	99.0	1.74	130.0	22.0	0.09	250.0	29.0	0.15
20.0	97.0	1.67	140.0	22.0	0.09	260.0	36.0	0.23
30.0	93.0	1.54	150.0	22.0	0.09	270.0	44.0	0.34
40.0	88.0	1.38	160.0	23.0	0.09	280.0	53.0	0.50
50.0	81.0	1.17	170.0	23.0	0.09	290.0	63.0	0.71
60.0	73.0	0.95	180.0	23.0	0.09	300.0	73.0	0.95
70.0	63.0	0.71	190.0	23.0	0.09	310.0	81.0	1.17
80.0	53.0	0.50	200.0	23.0	0.09	320.0	88.0	1.38
90.0	44.0	0.34	210.0	22.0	0.09	330.0	93.0	1.54
100.0	36.0	0.23	220.0	22.0	0.09	340.0	97.0	1.67
110.0	29.0	0.15	230.0	22.0	0.09	350.0	99.0	1.74