

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

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

for

*CH241D.P - Fairway, KS
CH241D (96.1 MHz)*

"New FM Translator Operation"

as a

*Commercial, Fill-In Translator
for Class D AM Station
KCNW(AM) - Fairway, KS*

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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 CH241D.P - Fairway, KS. This FCC Form 349 Filing requests a new CH241D (96.1 MHz) operation with a power of 0.250 kW ERP (circular polarization). The FM Translator will operate from a COR of 315 meters AMSL. This Form 349 Filing will specify rebroadcast of Class D, AM Primary Station KCNW(AM) - Fairway, KS (1380 kHz); Facility ID No. 10826. The Translator will be licensed to the community of Fairway, KS.

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 an existing 54.9 meter tower which does not require Antenna Structure Registration. In support of this filing, a copy of USGS Topographic Aerial Photomapping of the existing tower site 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 KRBZ(FM) - Kansas City, MO (CH243C0) and KCHZ(FM) - Ottawa, KS (CH239C1). 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 KRBZ(FM) - Kansas City, MO (CH243C0) and KCHZ(FM) - Ottawa, KS (CH239C1) as noted in ***Exhibit 8***. The Interference Contour at the proposed Translator site has been calculated to be no less than the 120.41 dBμ F(50:10) interference contour corresponding to the worst case protected contour at the Translator site. This represents the proposed interference contour which falls wholly within the 40:1 dBu ratio. As seen in the Aerial Photograph, there is a lack of population, housing, buildings or major roads within this interference contour. The applicant would like to note the existence of the transmitter building, as well as unoccupied storage sheds, located within the interference area. However, structures of this nature are believed exempt as a matter of FCC Policy (see similar grant under BPFT-20160725ABE). A copy of the manufacturer's directional antenna pattern data has been included in ***Exhibit 9***.

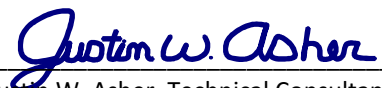
There is one additional facility, existing or proposed, close enough to merit further study. Therefore, a supplemental contour protection study has been provided toward this facility as included in ***Exhibit 7***. It is believed sufficient clearance exists, precluding the need for additional contour 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 17, 2017

Exhibit 1
Service Contour Study:
Present vs Proposed Operations

Proposed 60 dBμ F(50:50) Contour

CH241D.P
Fairway, KS
Proposed Operation
Facility ID: NEW
Latitude: 39-04-19 N
Longitude: 094-40-58 W
ERP: 0.25 kW
Channel: 241D (96.1 MHz)
AMSL Height: 315.0 m
Horiz. Pattern: Directional

60 dBμ F(50:50) Contour
Total Population: 157,120
Coverage Area: 207.9 sq. km

NED 03 SEC Terrain Database
US Census 2010 PL Database

Terrain
214 ————— 331 m

Scale 1:120,000
0 ————— 3 ————— 6 ————— 9 km

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V-Soft Communications LLC ©

Exhibit 2
Service Contour Study:
Proposed vs Primary Operations

Primary 2 mV/m Daytime Contour

25 mile Radius from AM Site

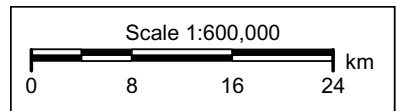
Proposed 60 dBµ F(50:50) Contour

KCNW(AM)
+
CH241D.P

KCNW 1380 kHz
Fairway, Kansas
Station Class: D
Region 2 Class: B
Facility ID: 10826
File Number: BL-19840928AK
39-04-19.0 N 94-40-58.0 W (NAD 27)
39-04-19.0 N 94-40-58.9 W (NAD 83)
Power: 2.5 kW, Non-Directional
Hours: Daytime
Pattern Type: Theoretical
Towers: 1 Augmentations: 0
Tower Elec Height: 90 Deg; 54.31 m
RMS Theo: 305.8 mV/meter (per kW)
or 483.51 mV/meter at 2.5 kW

CH241D.P
Fairway, KS
Proposed Operation
Facility ID: NEW
Latitude: 39-04-19 N
Longitude: 094-40-58 W
ERP: 0.25 kW
Channel: 241D (96.1 MHz)
AMSL Height: 315.0 m
Horiz. Pattern: Directional

NED 03 SEC Terrain Database
US Census 2010 PL Database



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V-Soft Communications LLC ©

Exhibit 3 - USGS Topographic Aerial Photomap of Existing Site

▲ 870 ft/265 m

Site Coordinates

(NGS NADCON)

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum values:	39 04 18.78307	94 40 57.94874
NAD 83 datum values:	39 04 18.80000	94 40 58.80000

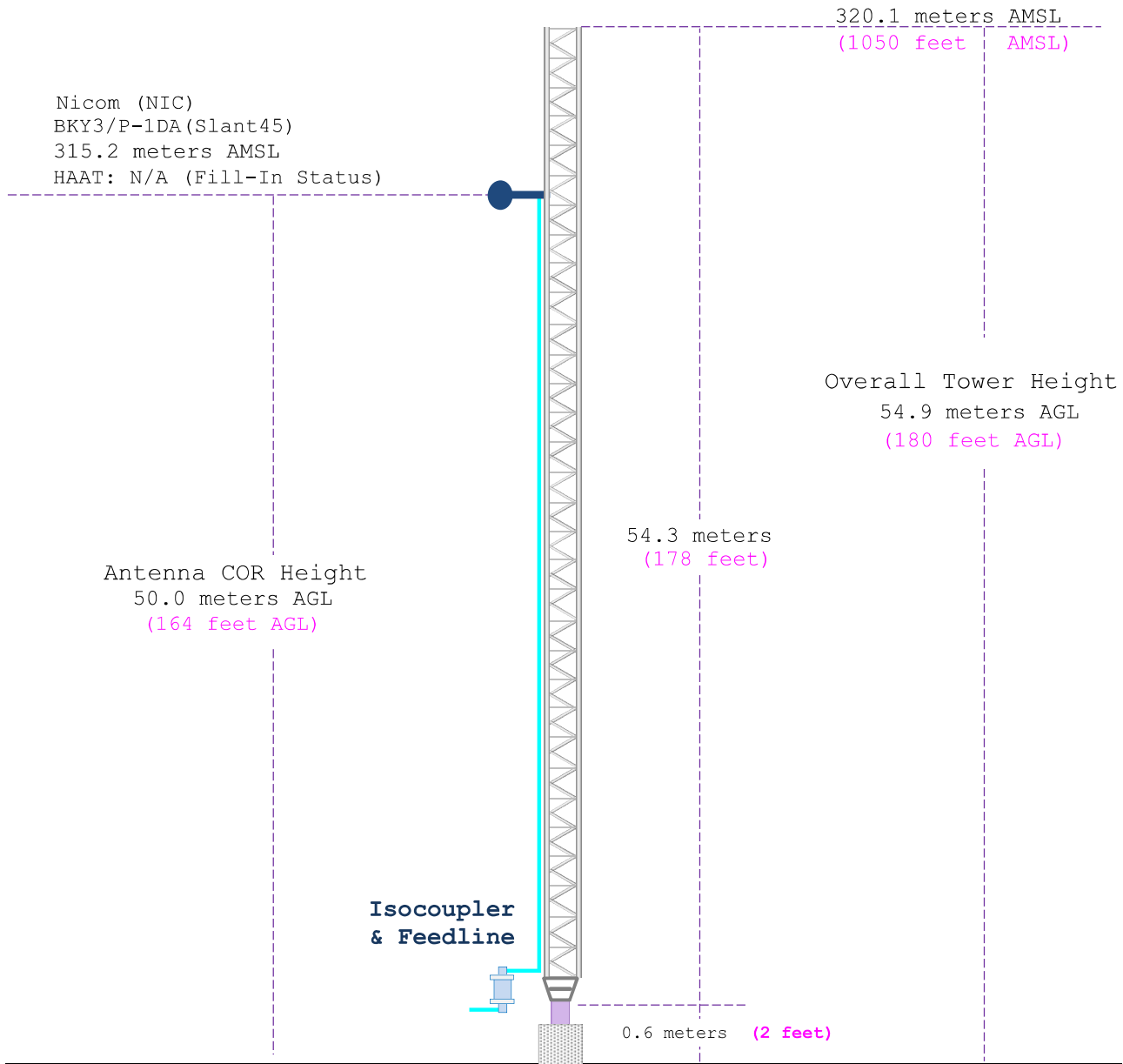
0 100 200ft

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The National Map

Exhibit 4

Vertical Plan of Antenna System



Ground Elevation: 265.2 meters AMSL (870 feet AMSL)		
Address: Southwest of the Intersection of S. 45th Terrace Rd and Metropolitan Ave		
City: Kansas City	Latitude (D M S)	Longitude (D M S)
County: Wyandotte	NAD 27 datum values:	39 04 18.78307 94 40 57.94874
State: Kansas	NAD 83 datum values:	39 04 18.80000 94 40 58.80000
Antenna Structure Registration	Asher Broadcast Consulting, LLC	
Not Required	justinasher@consultant.com	
	1(202)875-2986	

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1927):

N. Lat. = 390419.0 W. Lng. = 944058.0
 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	260.3	54.7	0.2500	-6.02	1.000	9.73
030	250.6	64.4	0.2500	-6.02	1.000	10.49
060	227.7	87.3	0.0900	-10.46	0.600	9.41
090	264.2	50.8	0.0756	-11.21	0.550	6.81
120	274.7	40.3	0.0900	-10.46	0.600	6.31
150	284.9	30.1	0.2025	-6.94	0.900	6.73
180	300.5	14.5	0.2500	-6.02	1.000	7.09
210	305.0	10.0	0.2500	-6.02	1.000	7.09
240	278.5	36.5	0.2500	-6.02	1.000	7.77
270	255.7	59.3	0.1225	-9.12	0.700	8.40
300	281.8	33.2	0.2500	-6.02	1.000	7.42
330	256.3	58.7	0.2500	-6.02	1.000	10.07

Ave El= 270.01 M HAAT= 44.99 M AMSL= 315.0

NAD 1983 to NAD 1927 Conversion:

	Latitude	Longitude
NAD 27 datum values:	39 04 18.78307	94 40 57.94874
NAD 83 datum values:	39 04 18.80000	94 40 58.80000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	39.0718889°, -094.6830000°
Degrees Minutes	39°04.31333', -094°40.98000'
Degrees Minutes Seconds	39°04'18.8000", -094°40'58.8000"
UTM	15S 354409mE 4326102mN
UTM centimeter	15S 354409.31mE 4326102.18mN
MGRS	15SUD5440926102
Grid North	-1.1°
GARS	171LU47
Maidenhead	EM29PB87AG90
GEOREF	FJLK19020431

Exhibit 6

Tabulation of Proposed Allocation

Blue Text indicates contour protection studies toward select allocation concern(s) as included in **Exhibit 7**.

Yellow Highlighted Text denotes the existence of a C.F.R. 47 Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request(s) as included in **Exhibit 8**.

REFERENCE		CH# 241D - 96.1 MHz, Pwr= 0.25 kW DA, HAAT= 45.0 M, COR= 315 M							DISPLAY DATES		
39 04 19.0 N.		Average Protected F(50-50)= 8.73 km							DATA 06-15-17		
94 40 58.0 W.		Standard Directional							SEARCH 06-15-17		
CH CITY	CALL	TYPE STATE	ANT --	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT (M)	INT (km) COR (M)	PRO (km) LICENSEE	*IN* (Overlap in km)	*OUT*
243C0	KRBZ	LIC_C_		110.7	15.61	39 01 20.0	100.000	10.7	75.1	-2.3	-60.1*
Kansas City		MO		290.8	BLH20030422ABI	94 30 49.0	335	611	Entercom	License, Llc	
241C0	KLRQ	LIC_CN		122.8	121.61	38 28 27.0	100.000	172.4	72.8	-57.6*	27.1
Clinton		MO		303.5	BMLD20030926AQB	93 30 28.0	301	560	Educational Media	Foundati	
239C1	KCHZ	LIC_NCX		257.7	30.65	39 00 45.0	98.000	10.2	72.6	11.0	-42.7*
Ottawa		KS		77.4	BMLH20031103ADD	95 01 46.0	299	566	Cmp Houston-kc,	Llc	
241D	K241AR	LIC_C_		255.7	52.37	38 57 14.0	0.250	58.8	18.9	-15.8*	2.5
Lawrence		KS		75.3	BLFT20160816AAG	95 16 11.0		463	University Of	Kansas	
241A	KANS	LIC_C_		241.7	153.78	38 24 21.0	6.000	86.8	28.5	58.1	99.0
Emporia		KS		60.7	BMLH20040506ACD	96 14 13.0	97	453	Kansas Radio,	Inc.	
295C	KTPK	LIC_CX		267.7	106.96	39 01 34.0	100.000	5.5	1.8	28.5R	78.5M
Topeka		KS		86.9	BMLH20040913ABR	95 55 01.0	369	687	Alpha Media	Licensee Llc	
238C2	KAAN-FM	LIC_CN		18.7	139.17	40 15 23.0	50.000	5.3	47.2	123.4	90.2
Bethany		MO		199.1	BLH19890313KD	94 09 23.0	108	396	Alpha Media	Licensee Llc	
241C0	KISO	LIC_NCX		335.8	273.60	41 18 32.0	82.000	168.9	71.6	94.6	168.7
Omaha		NE		154.9	BLH20060531ANS	96 01 33.0	331	674	Clear Channel	Broadcasting	
242C3	KACZ	LIC_NCX		276.5	167.61	39 13 34.0	12.500	62.9	42.6	95.5	111.9
Riley		KS		95.3	BLH20110523ACN	96 37 00.0	145	505	Manhattan	Broadcasting Co.	
244A	AL0976	RSV-A		241.7	153.78	38 24 21.0	6.000	2.8	29.0	142.0	123.6
Emporia		KS		60.7	RM11218	96 14 13.0	100	457			
241C2	KITO-FM	LIC_CN		186.3	278.44	36 34 56.0	50.000	136.6	51.0	134.8	203.4
Vinita		OK		6.1	BLH19890508KD	95 01 35.0	150	376	Kxo, Inc.		
239C	KWWR	LIC_NCY		83.7	220.63	39 15 49.0	100.000	10.9	76.1	201.1	143.9
Mexico		MO		265.3	BLH20000530ACL	92 08 06.0	360	608	Kxeo Radio,	Inc.	

Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. 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.

Reference station has protected zone issue: AM tower

Exhibit 7

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 06-15-2017 - NED 03 SEC
CH241D.P's Overlaps (In= -15.84 km, Out= 2.49 km)

CH241D.P CH 241 D DA
Lat= 39 04 19.0, Lng= 94 40 58.0
0.25 kW 45 m HAAT, 315 m COR
Prot.= 60 dBu, Intef.= 40 dBu

K241AR CH 241 D BLFT20160816AAG
Lat= 38 57 14.0, Lng= 95 16 11.0
0.25 kW 0 m HAAT, 463 m COR
Prot.= 60 dBu, Intef.= 40 dBu

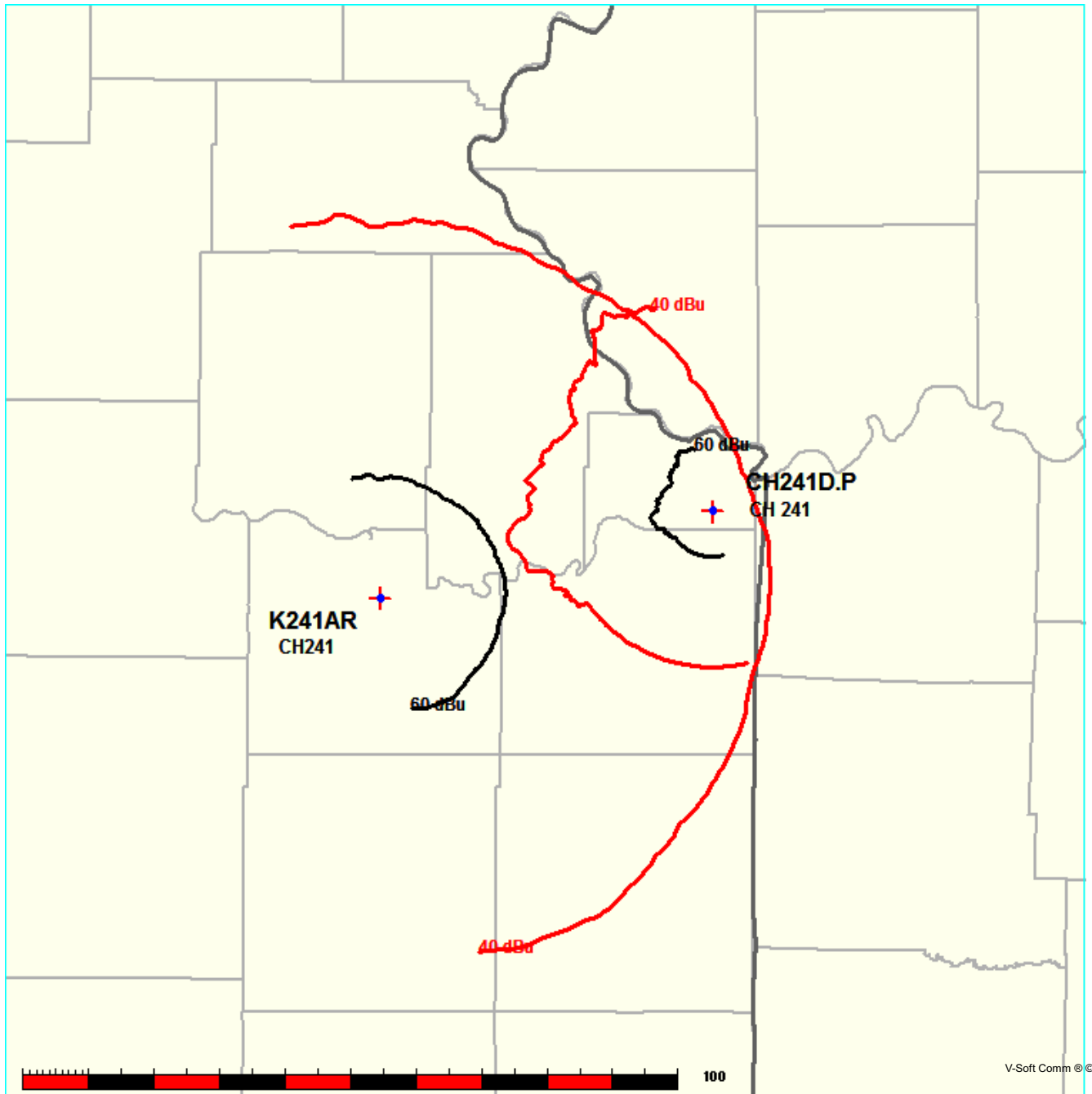


Exhibit 7

Contour Protection Studies Toward Select Allocation Concern(s)

06-15-2017

Terrain Data: NED 03 SEC

FMOver Analysis

CH241D.P

K241AR BLFT20160816AAG

Channel = 241D
 Max ERP = 0.25 kW
 RCAMSL = 315 m
 N. Lat. 39 04 19.0
 W. Lng. 94 40 58.0
 Protected
 60 dBu

Channel = 241D
 Max ERP = 0.25 kW
 RCAMSL = 463 m
 N. Lat. 38 57 14.0
 W. Lng. 95 16 11.0
 Interfering
 40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
214.0	000.2500	0007.4	007.1	081.0	000.2500	0215.7	047.3	44.90*	12.43
215.0	000.2500	0008.5	007.1	080.9	000.2500	0215.4	047.2	44.92*	12.49
216.0	000.2500	0009.6	007.1	080.8	000.2500	0215.2	047.1	44.95*	12.56
217.0	000.2500	0010.1	007.1	080.7	000.2500	0215.0	047.0	44.97*	12.62
218.0	000.2500	0011.7	007.1	080.6	000.2500	0214.7	047.0	45.00*	12.68
219.0	000.2500	0012.1	007.1	080.5	000.2500	0214.5	046.9	45.02*	12.73
220.0	000.2500	0010.3	007.1	080.4	000.2500	0214.2	046.8	45.04*	12.78
221.0	000.2500	0011.1	007.1	080.3	000.2500	0213.9	046.7	45.06*	12.83
222.0	000.2500	0012.7	007.1	080.1	000.2500	0213.5	046.6	45.07*	12.87
223.0	000.2500	0011.2	007.1	080.0	000.2500	0213.3	046.6	45.09*	12.92
224.0	000.2500	0014.7	007.1	079.9	000.2500	0213.0	046.5	45.11*	12.96
225.0	000.2500	0016.2	007.1	079.8	000.2500	0212.7	046.4	45.13*	13.00
226.0	000.2500	0018.7	007.1	079.6	000.2500	0212.4	046.3	45.14*	13.04
227.0	000.2500	0022.1	007.1	079.5	000.2500	0212.1	046.3	45.15*	13.07
228.0	000.2500	0023.5	007.1	079.4	000.2500	0211.8	046.2	45.17*	13.11
229.0	000.2500	0024.0	007.1	079.3	000.2500	0211.5	046.2	45.18*	13.14
230.0	000.2500	0026.6	007.1	079.1	000.2500	0211.2	046.1	45.20*	13.17
231.0	000.2500	0027.7	007.1	079.0	000.2500	0210.9	046.0	45.21*	13.20
232.0	000.2500	0026.8	007.1	078.9	000.2500	0210.6	046.0	45.21*	13.22
233.0	000.2500	0028.6	007.1	078.7	000.2500	0210.2	045.9	45.22*	13.23
234.0	000.2500	0029.1	007.1	078.6	000.2500	0210.0	045.9	45.23*	13.26
235.0	000.2500	0033.9	007.5	078.6	000.2500	0210.1	045.5	45.40*	13.68
236.0	000.2500	0033.4	007.4	078.5	000.2500	0209.9	045.4	45.40*	13.68
237.0	000.2500	0033.8	007.5	078.3	000.2500	0210.0	045.4	45.44*	13.76
238.0	000.2500	0035.5	007.7	078.3	000.2500	0210.0	045.1	45.53*	13.98
239.0	000.2500	0034.5	007.5	078.0	000.2500	0209.9	045.2	45.50*	13.92
240.0	000.2500	0036.5	007.8	078.0	000.2500	0209.9	044.9	45.61*	14.16
241.0	000.2352	0036.0	007.6	077.7	000.2500	0209.8	045.1	45.55*	14.03
242.0	000.2209	0037.9	007.7	077.6	000.2500	0209.8	045.0	45.60*	14.14
243.0	000.2070	0040.8	007.8	077.5	000.2500	0209.6	044.8	45.68*	14.33
244.0	000.1936	0044.0	008.0	077.4	000.2500	0209.5	044.5	45.77*	14.54
245.0	000.1806	0046.2	008.1	077.2	000.2500	0209.3	044.4	45.81*	14.63
246.0	000.1681	0046.7	008.0	077.0	000.2500	0209.1	044.5	45.76*	14.52

Exhibit 7

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)
247.0	000.1560	0048.6	008.0	076.9	000.2500	0208.9	044.5	45.77* 14.54
248.0	000.1444	0048.5	007.9	076.6	000.2500	0208.6	044.6	45.69* 14.36
249.0	000.1332	0051.6	008.0	076.5	000.2500	0208.3	044.5	45.73* 14.46
250.0	000.1225	0056.0	008.1	076.3	000.2500	0208.2	044.3	45.81* 14.64
251.0	000.1225	0061.6	008.6	076.2	000.2500	0208.1	043.8	45.99* 15.06
252.0	000.1225	0067.3	008.9	076.1	000.2500	0208.0	043.5	46.16* 15.45
253.0	000.1225	0068.3	009.0	075.9	000.2500	0208.0	043.4	46.19* 15.52
254.0	000.1225	0068.0	009.0	075.6	000.2500	0208.0	043.4	46.19* 15.51
255.0	000.1225	0068.2	009.0	075.4	000.2500	0208.0	043.4	46.20* 15.53
256.0	000.1225	0068.3	009.0	075.2	000.2500	0207.9	043.4	46.20* 15.53
257.0	000.1225	0069.9	009.1	075.0	000.2500	0207.7	043.3	46.23* 15.60
258.0	000.1225	0070.5	009.2	074.8	000.2500	0207.6	043.2	46.24* 15.62
259.0	000.1225	0073.6	009.3	074.6	000.2500	0207.4	043.0	46.31* 15.79
260.0	000.1225	0075.3	009.4	074.4	000.2500	0207.0	043.0	46.33* 15.84
261.0	000.1225	0076.0	009.5	074.1	000.2500	0206.6	042.9	46.33* 15.82
262.0	000.1225	0075.8	009.5	073.9	000.2500	0206.3	043.0	46.29* 15.74
263.0	000.1225	0075.9	009.5	073.7	000.2500	0205.9	043.0	46.27* 15.69
264.0	000.1225	0074.6	009.4	073.5	000.2500	0205.8	043.1	46.22* 15.57
265.0	000.1225	0072.5	009.3	073.3	000.2500	0205.7	043.3	46.14* 15.40
266.0	000.1225	0070.5	009.2	073.1	000.2500	0205.7	043.4	46.08* 15.25
267.0	000.1225	0067.3	008.9	073.0	000.2500	0205.7	043.6	45.97* 15.01
268.0	000.1225	0062.6	008.6	072.9	000.2500	0205.7	044.0	45.83* 14.67
269.0	000.1225	0060.6	008.5	072.8	000.2500	0205.7	044.2	45.75* 14.50
270.0	000.1225	0059.3	008.4	072.6	000.2500	0205.8	044.3	45.70* 14.37
271.0	000.1332	0057.3	008.4	072.4	000.2500	0205.6	044.3	45.69* 14.35
272.0	000.1444	0054.6	008.4	072.2	000.2500	0205.3	044.4	45.64* 14.23
273.0	000.1560	0053.9	008.5	072.0	000.2500	0204.8	044.3	45.64* 14.24
274.0	000.1681	0051.9	008.5	071.8	000.2500	0204.5	044.4	45.60* 14.14
275.0	000.1806	0049.5	008.5	071.7	000.2500	0204.2	044.5	45.54* 14.00
276.0	000.1936	0046.1	008.3	071.6	000.2500	0204.1	044.7	45.43* 13.74
277.0	000.2070	0044.4	008.2	071.5	000.2500	0203.8	044.8	45.38* 13.62
278.0	000.2209	0044.7	008.4	071.2	000.2500	0203.3	044.7	45.40* 13.67
279.0	000.2352	0046.3	008.7	070.8	000.2500	0202.8	044.5	45.47* 13.83
280.0	000.2500	0043.2	008.5	070.8	000.2500	0202.8	044.7	45.36* 13.58
281.0	000.2500	0042.3	008.4	070.7	000.2500	0202.8	044.9	45.29* 13.41
282.0	000.2500	0041.9	008.4	070.6	000.2500	0202.8	045.0	45.24* 13.30
283.0	000.2500	0040.4	008.2	070.5	000.2500	0202.8	045.2	45.15* 13.08
284.0	000.2500	0039.6	008.1	070.4	000.2500	0202.8	045.4	45.08* 12.92
285.0	000.2500	0038.2	008.0	070.4	000.2500	0202.8	045.6	44.99* 12.71
286.0	000.2500	0040.0	008.2	070.1	000.2500	0202.8	045.5	45.03* 12.80
287.0	000.2500	0040.2	008.2	069.9	000.2500	0202.9	045.6	45.01* 12.75
288.0	000.2500	0040.6	008.2	069.8	000.2500	0203.1	045.6	45.00* 12.72
289.0	000.2500	0039.2	008.1	069.8	000.2500	0203.1	045.9	44.91* 12.50
290.0	000.2500	0038.2	008.0	069.7	000.2500	0203.2	046.0	44.84* 12.33

Exhibit 7

Contour Protection Studies Toward Select Allocation Concern(s)

06-15-2017

Terrain Data: NED 03 SEC

FMOver Analysis

K241AR BLFT20160816AAG

CH241D.P

Channel = 241D

Max ERP = 0.25 kW

RCAMSL = 463 m

N. Lat. 38 57 14.0

W. Lng. 95 16 11.0

Protected

60 dBu

Channel = 241D

Max ERP = 0.25 kW

RCAMSL = 315 m

N. Lat. 39 04 19.0

W. Lng. 94 40 58.0

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
030.0	000.2500	0185.2	017.9	273.4	000.1604	0054.0	041.8	34.28	
031.0	000.2500	0183.9	017.8	273.1	000.1571	0053.9	041.5	34.26	
032.0	000.2500	0183.7	017.8	272.9	000.1546	0054.0	041.3	34.30	
033.0	000.2500	0182.5	017.7	272.6	000.1512	0054.3	041.0	34.34	
034.0	000.2500	0182.0	017.7	272.3	000.1483	0054.5	040.8	34.37	
035.0	000.2500	0185.2	017.9	272.3	000.1475	0054.5	040.4	34.48	
036.0	000.2500	0186.8	017.9	272.1	000.1457	0054.5	040.1	34.53	
037.0	000.2500	0189.4	018.1	272.0	000.1444	0054.6	039.8	34.62	
038.0	000.2500	0190.8	018.1	271.8	000.1422	0055.2	039.5	34.75	
039.0	000.2500	0191.3	018.1	271.6	000.1393	0055.9	039.3	34.86	
040.0	000.2500	0190.2	018.1	271.2	000.1355	0057.0	039.0	34.98	
041.0	000.2500	0192.7	018.2	271.0	000.1336	0057.3	038.7	35.07	
042.0	000.2500	0193.5	018.2	270.8	000.1307	0057.9	038.5	35.16	
043.0	000.2500	0195.0	018.3	270.5	000.1280	0058.5	038.2	35.27	
044.0	000.2500	0196.6	018.4	270.3	000.1254	0059.3	037.9	35.38	
045.0	000.2500	0197.1	018.4	269.9	000.1225	0059.3	037.7	35.38	
046.0	000.2500	0196.3	018.4	269.6	000.1225	0059.7	037.5	35.51	
047.0	000.2500	0197.0	018.4	269.2	000.1225	0060.1	037.2	35.66	
048.0	000.2500	0200.1	018.5	269.0	000.1225	0060.6	036.9	35.85	
049.0	000.2500	0201.3	018.6	268.7	000.1225	0062.0	036.6	36.12	
050.0	000.2500	0201.1	018.6	268.3	000.1225	0062.5	036.5	36.26	
051.0	000.2500	0201.4	018.6	267.9	000.1225	0062.5	036.2	36.34	
052.0	000.2500	0203.2	018.7	267.5	000.1225	0064.7	036.0	36.71	
053.0	000.2500	0201.7	018.6	267.0	000.1225	0067.2	035.9	37.06	
054.0	000.2500	0199.7	018.5	266.5	000.1225	0068.6	035.8	37.27	
055.0	000.2500	0197.8	018.4	266.0	000.1225	0070.5	035.7	37.53	
056.0	000.2500	0198.5	018.5	265.6	000.1225	0071.9	035.5	37.77	
057.0	000.2500	0201.4	018.6	265.2	000.1225	0072.5	035.2	37.95	
058.0	000.2500	0202.2	018.6	264.8	000.1225	0072.6	035.0	38.04	

Exhibit 7

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)
059.0	000.2500	0200.8	018.6	264.2	000.1225	0073.9	034.9	38.23
060.0	000.2500	0202.0	018.6	263.8	000.1225	0074.9	034.8	38.41
061.0	000.2500	0201.8	018.6	263.3	000.1225	0075.8	034.6	38.57
062.0	000.2500	0202.3	018.6	262.8	000.1225	0075.9	034.5	38.64
063.0	000.2500	0203.1	018.7	262.3	000.1225	0075.7	034.4	38.68
064.0	000.2500	0202.9	018.7	261.8	000.1225	0075.9	034.3	38.74
065.0	000.2500	0203.8	018.7	261.3	000.1225	0076.2	034.1	38.83
066.0	000.2500	0204.8	018.7	260.8	000.1225	0075.9	034.0	38.86
067.0	000.2500	0204.2	018.7	260.2	000.1225	0075.6	034.0	38.85
068.0	000.2500	0204.7	018.7	259.7	000.1225	0074.8	033.9	38.80
069.0	000.2500	0204.3	018.7	259.2	000.1225	0074.0	033.8	38.72
070.0	000.2500	0202.8	018.7	258.6	000.1225	0072.5	033.8	38.55
071.0	000.2500	0203.0	018.7	258.0	000.1225	0070.6	033.8	38.35
072.0	000.2500	0204.8	018.7	257.5	000.1225	0070.2	033.7	38.35
073.0	000.2500	0205.7	018.8	257.0	000.1225	0069.8	033.6	38.34
074.0	000.2500	0206.4	018.8	256.4	000.1225	0068.7	033.6	38.22
075.0	000.2500	0207.7	018.9	255.8	000.1225	0068.3	033.5	38.20
076.0	000.2500	0208.0	018.9	255.3	000.1225	0068.2	033.5	38.20
077.0	000.2500	0209.1	018.9	254.7	000.1225	0068.0	033.5	38.19
078.0	000.2500	0209.9	019.0	254.1	000.1225	0068.0	033.4	38.19
079.0	000.2500	0211.0	019.0	253.6	000.1225	0068.4	033.4	38.26
080.0	000.2500	0213.2	019.1	253.0	000.1225	0068.3	033.4	38.27
081.0	000.2500	0215.6	019.2	252.4	000.1225	0067.8	033.3	38.23
082.0	000.2500	0216.6	019.3	251.8	000.1225	0066.8	033.3	38.11
083.0	000.2500	0215.2	019.2	251.3	000.1225	0063.5	033.4	37.66
084.0	000.2500	0214.6	019.2	250.7	000.1225	0059.5	033.5	37.11
085.0	000.2500	0213.9	019.2	250.2	000.1225	0056.9	033.7	36.71
086.0	000.2500	0213.8	019.1	249.6	000.1264	0054.3	033.8	36.41
087.0	000.2500	0213.7	019.1	249.1	000.1323	0052.1	033.9	36.22
088.0	000.2500	0213.6	019.1	248.6	000.1381	0049.2	034.0	35.88
089.0	000.2500	0213.4	019.1	248.0	000.1440	0048.5	034.1	35.87
090.0	000.2500	0212.4	019.1	247.5	000.1496	0049.5	034.3	36.15
091.0	000.2500	0211.3	019.0	247.1	000.1552	0048.8	034.4	36.11
092.0	000.2500	0211.3	019.0	246.6	000.1611	0047.7	034.6	36.02
093.0	000.2500	0210.8	019.0	246.1	000.1669	0046.8	034.7	35.96
094.0	000.2500	0209.8	019.0	245.6	000.1724	0046.8	034.9	36.01
095.0	000.2500	0209.1	018.9	245.2	000.1781	0046.5	035.1	36.03
096.0	000.2500	0208.2	018.9	244.8	000.1835	0045.7	035.3	35.93
097.0	000.2500	0207.2	018.9	244.4	000.1888	0044.4	035.5	35.73
098.0	000.2500	0205.6	018.8	244.0	000.1938	0044.0	035.8	35.68
099.0	000.2500	0204.1	018.7	243.6	000.1986	0043.5	036.0	35.60
100.0	000.2500	0202.1	018.6	243.3	000.2031	0042.5	036.3	35.40
101.0	000.2500	0200.7	018.6	242.9	000.2077	0040.5	036.5	35.03

Exhibit 8

§74.1204(d) 2nd/3rd Adjacent Channel Given Interference Waiver Request

120.41 dB μ F(50:10) Interference Contour

Yellow Highlighted Text denotes a C.F.R. 47 Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KRBZ(FM) - Kansas City, MO (CH243C0) and KCHZ(FM) - Ottawa, KS (CH239C1) as noted in **Exhibit 8**. The Interference Contour at the proposed Translator site has been calculated to be no less than the 120.41 dB μ F(50:10) interference contour corresponding to the worst case protected contour at the Translator site. This represents the proposed interference contour which falls wholly within the 40:1 dBu ratio. As seen in the Aerial Photograph, there is a lack of population, housing, buildings or major roads within this interference contour. The applicant would like to note the existence of the transmitter building, as well as unoccupied storage sheds, located within the interference area. However, structures of this nature are believed exempt as a matter of FCC Policy (see similar grant under BPFT-20160725ABE).

The transmitter building and unoccupied storage sheds are located within the interference area. However, structures of this nature are believed exempt as a matter of FCC Policy (see similar grant under BPFT-20160725ABE).

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

Site Coordinates

(NGS NADCON)

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum:	39 04 18.78307	94 40 57.94874
NAD 83 datum:	39 04 18.80000	94 40 58.80000

Google Earth Pro™
Account #4375669785
Used with Permission

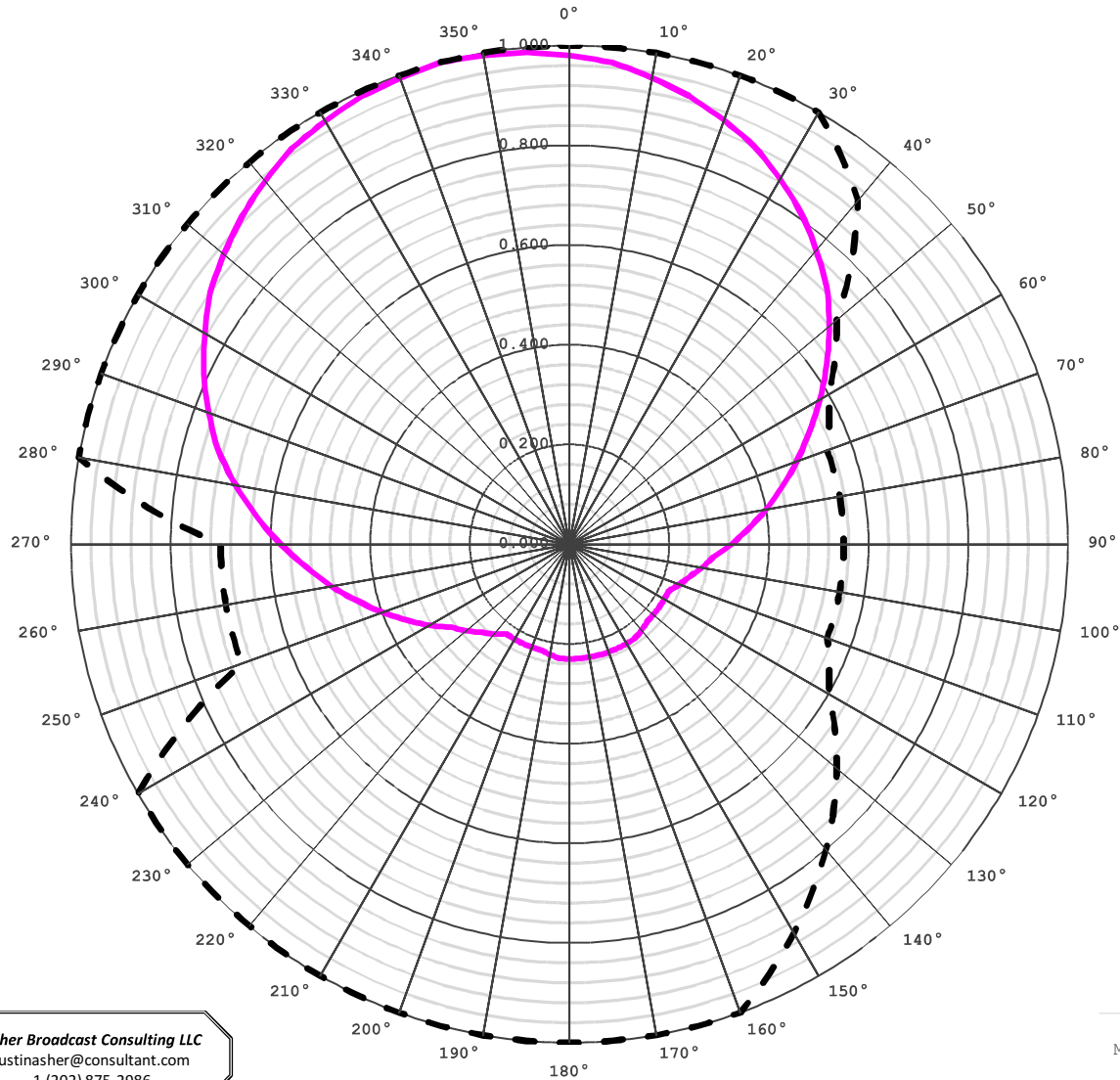
Google Earth

600 ft

Manufacturer's	Make/Model	Orientation	Power
Element 1:	BKY3P(Slant45)	345° 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°	1.000	0.980
10°	1.000	0.950
20°	1.000	0.905
30°	1.000	0.845
40°	0.900	0.770
50°	0.700	0.680
60°	0.600	0.580
70°	0.550	0.485
80°	0.550	0.400
90°	0.550	0.325
100°	0.550	0.270
110°	0.550	0.235
120°	0.600	0.220
130°	0.700	0.220
140°	0.800	0.225
150°	0.900	0.230
160°	1.000	0.230
170°	1.000	0.230
180°	1.000	0.230
190°	1.000	0.225
200°	1.000	0.220
210°	1.000	0.220
220°	1.000	0.235
230°	1.000	0.270
240°	1.000	0.325
250°	0.700	0.400
260°	0.700	0.485
270°	0.700	0.580
280°	1.000	0.680
290°	1.000	0.770
300°	1.000	0.845
310°	1.000	0.905
320°	1.000	0.950
330°	1.000	0.980
340°	1.000	0.995
350°	1.000	0.995

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

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

Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 345.0°T) (public record copy)

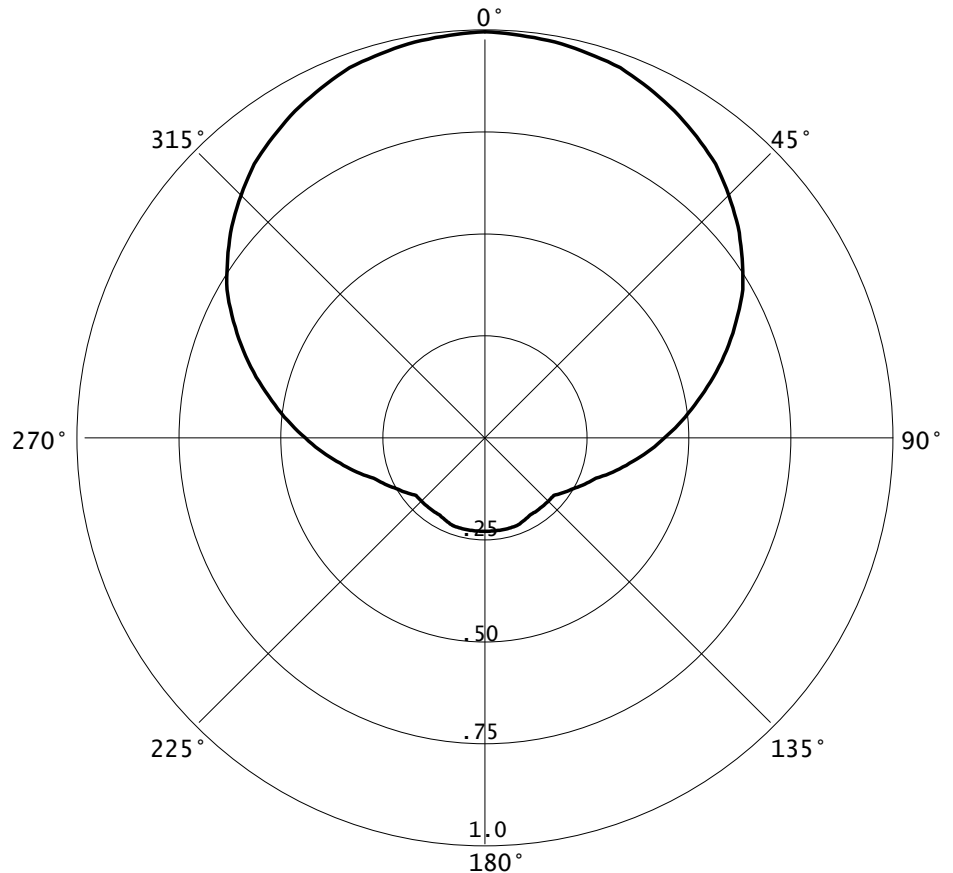
BKG1/P-1DA(Slant45)

RMS(V)= .608

COMPOSITE PATTERN

Graph is Relative Field

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 BKG1/P broadcast element mounted at a 45° (degree) slant orientation to achieve horizontal and vertical polarization. The BKG1/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.

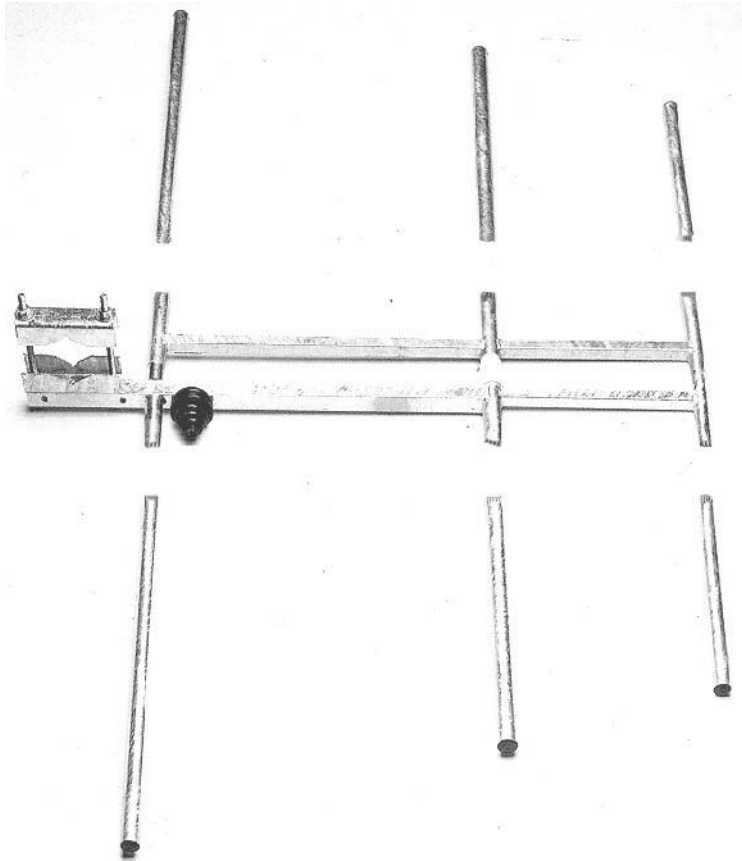
The maximum antenna gain for a single BKG1/P-1DA(Slant45) element will be -3.0 dBd or the common horizontal or vertical maximum antenna gain of 0.0 dBd adjusted by 3 dBd for dual broadcast in the Horizontal and Vertical planes (-3.0 dBd = 0.0 dBd - 3.0 dBd). The maximum gain for multiple bay options of the Nicom BKG1/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 345.0°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		

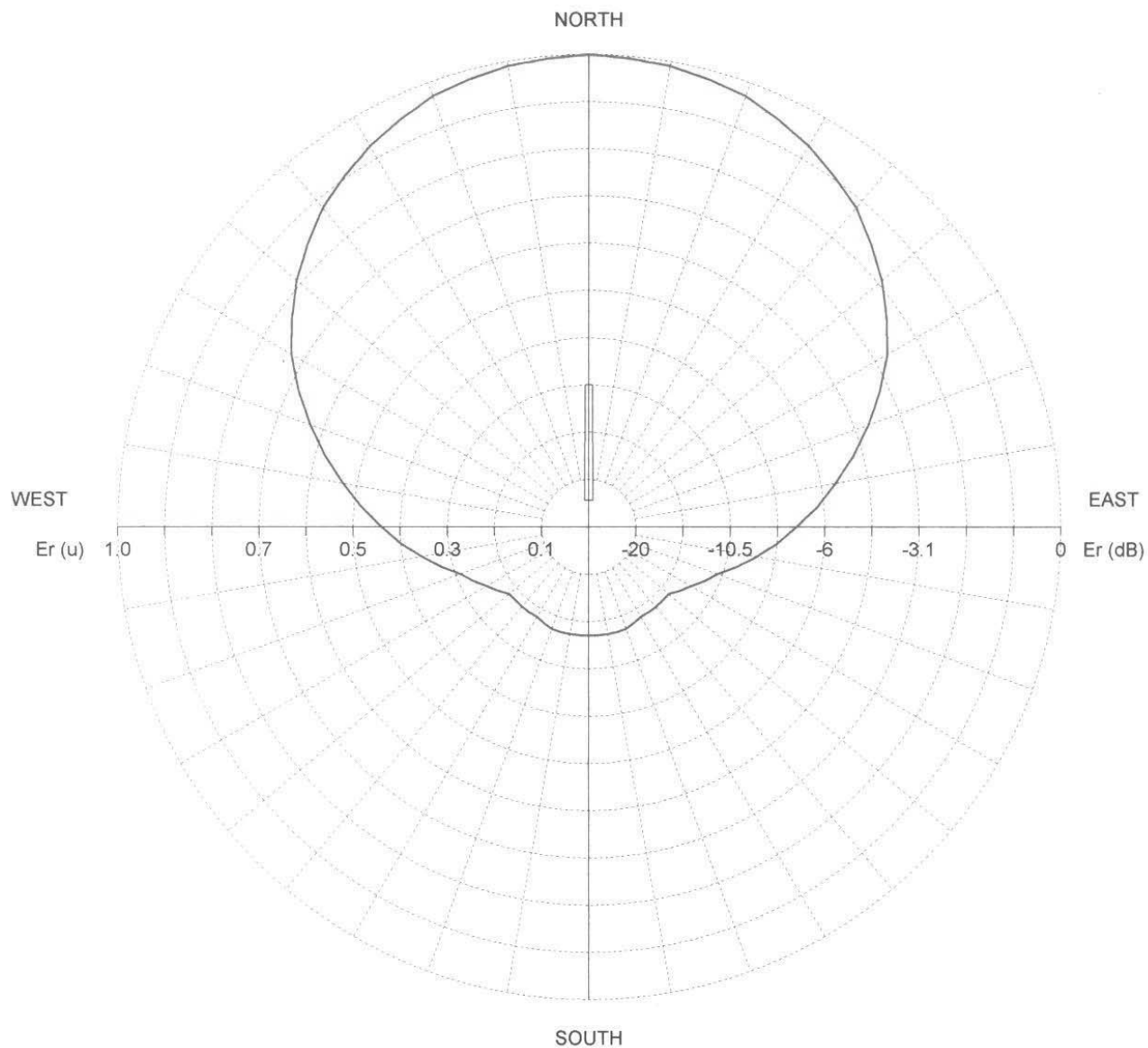
Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 345.0°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 345.0°T) (public record copy)

TX station: BKY/3

Site name:

Frequency: 98.00 MHz

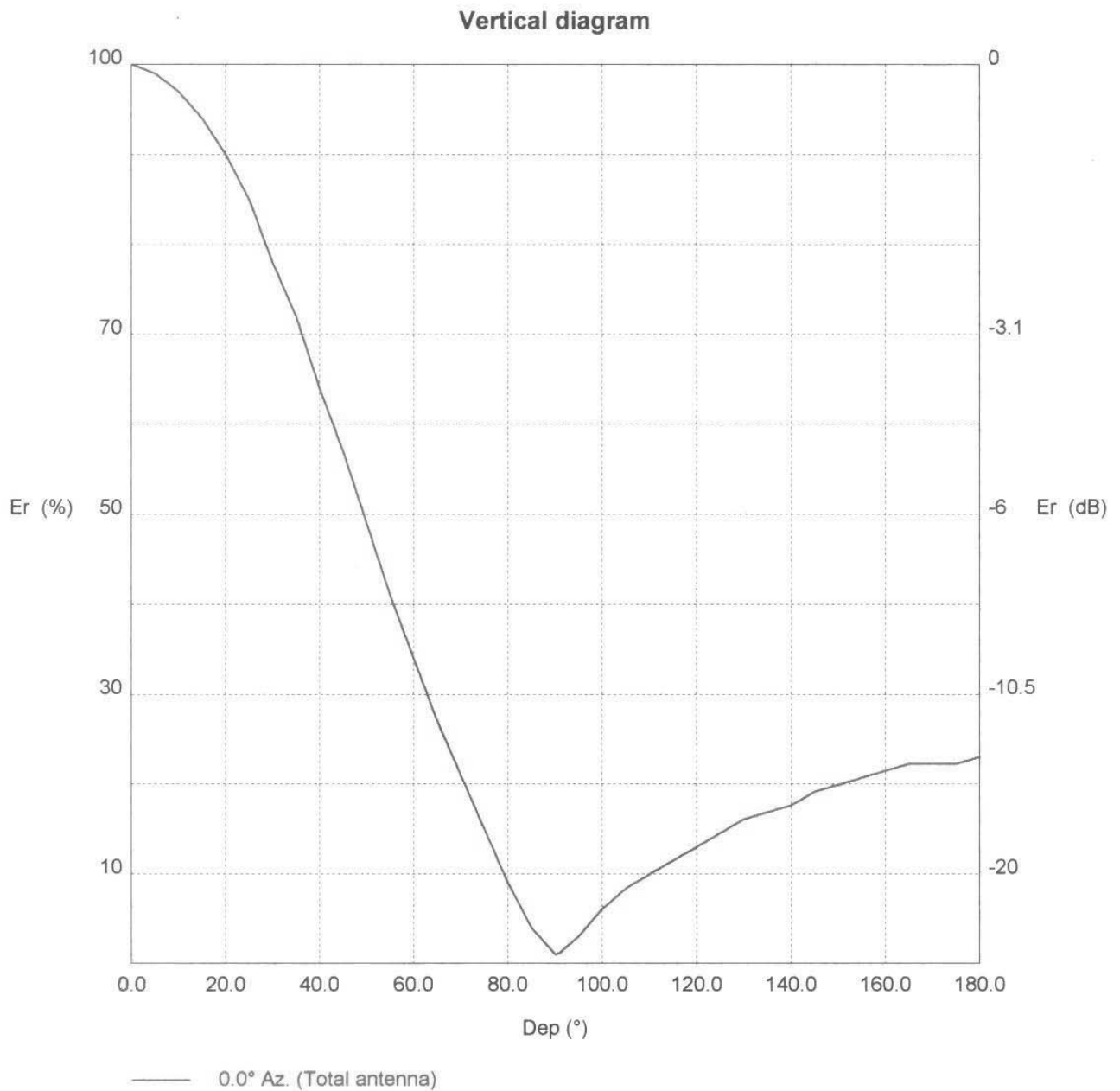


Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 345.0°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