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

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

for

CH224D.P - Cozad, NE
CH224D (92.7 MHz)

"New FM Translator Operation"

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as a

Commercial, Fill-In Translator
for Class D AM Station
KAMI(AM) - Cozad, NE

June, 2017

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

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Supplemental Appendix(s):

Explanation of Technical Report 1

EXPLANATION OF PROPOSAL: This Form 349 Filing and accompanying technical report supports an Original Construction Permit Application for a new FM Translator facility for CH224D.P - Cozad, NE. This FCC Form 349 Filing requests a new CH224D (92.7 MHz) operation with a power of 0.250 kW ERP (circular polarization). The FM Translator will operate from a COR of 783 meters AMSL. This Form 349 Filing will specify rebroadcast of Class D, AM Primary Station KAMI(AM) - Cozad, NE (1580 kHz); Facility ID No. 69845. The Translator will be licensed to the community of Cozad, NE.

FACILITY COMPLIANCE SHOWINGS: A map of the proposed 60 dBµ service contour has been included in ***Exhibit 1***. The proposed 60 dBµ 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***. AM Station KAMI(AM) is presently rebroadcast on co-owned AM Fill-In Translator K261BT.L - Lexington, NE (FAC ID: 11057); however K261BT.L and this CH224D.P proposal will not serve substantially the same area as noted in ***Exhibit 2***.

The proposed facility will be located on an existing 45.7 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 KVRN-FM - Lexington, NE (CH226C1). 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 KVRN-FM - Lexington, NE (CH226C1) as noted in ***Exhibit 8***. Protection of the worst case calculated 123.2 dBµ F(50:10) Interference Contour, corresponding to the 83.2 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 21, 2017

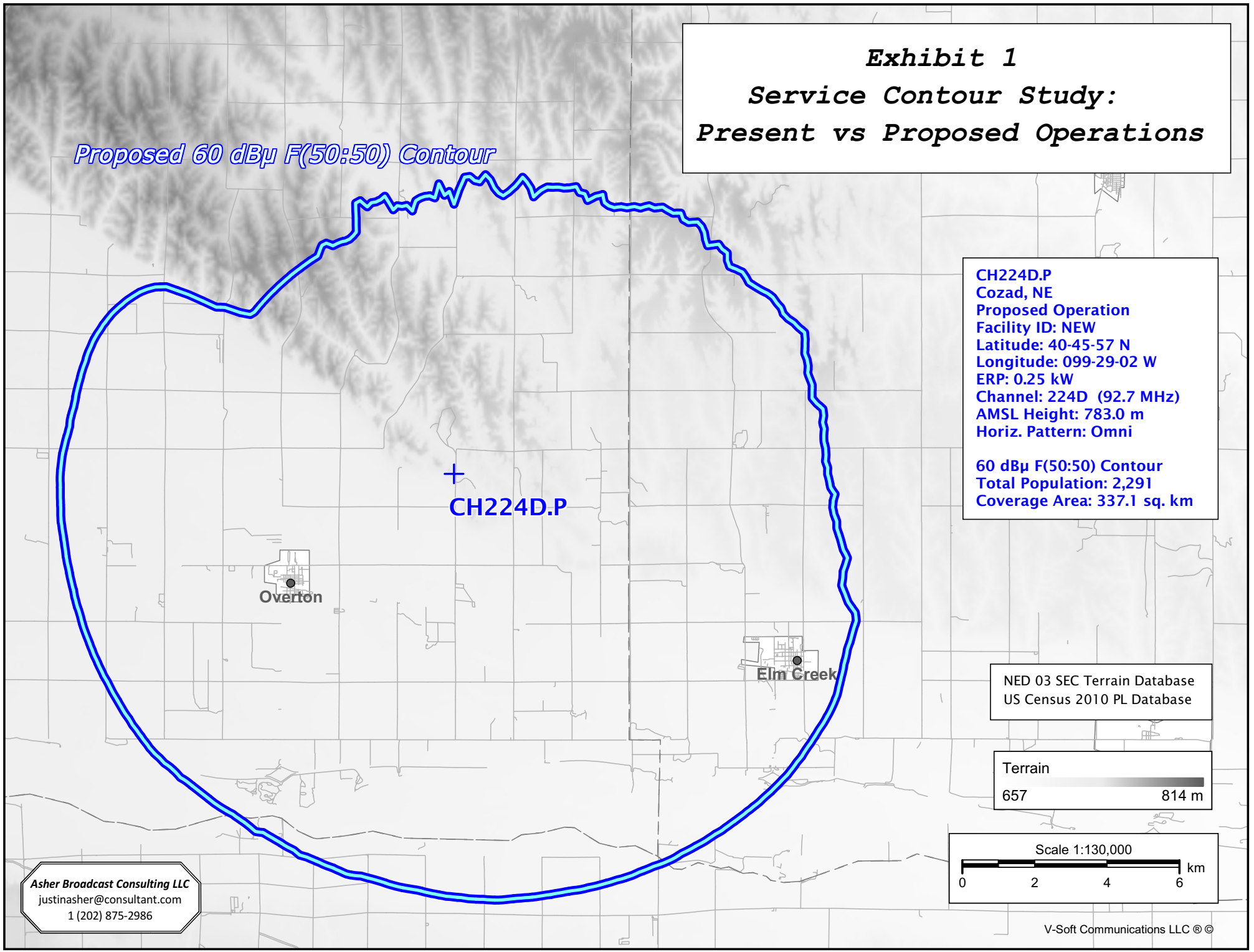
Exhibit 1
Service Contour Study:
Present vs Proposed Operations
Proposed 60 dBµ F(50:50) Contour
CH224D.P
Overton
Elm Creek
CH224D.P
Cozad, NE
Proposed Operation
Facility ID: NEW
Latitude: 40-45-57 N
Longitude: 099-29-02 W
ERP: 0.25 kW
Channel: 224D (92.7 MHz)
AMSL Height: 783.0 m
Horiz. Pattern: Omni
60 dBµ F(50:50) Contour
Total Population: 2,291
Coverage Area: 337.1 sq. km
NED 03 SEC Terrain Database
US Census 2010 PL Database
Terrain
657
814 m
Scale 1:130,000
0
2
4
6
km
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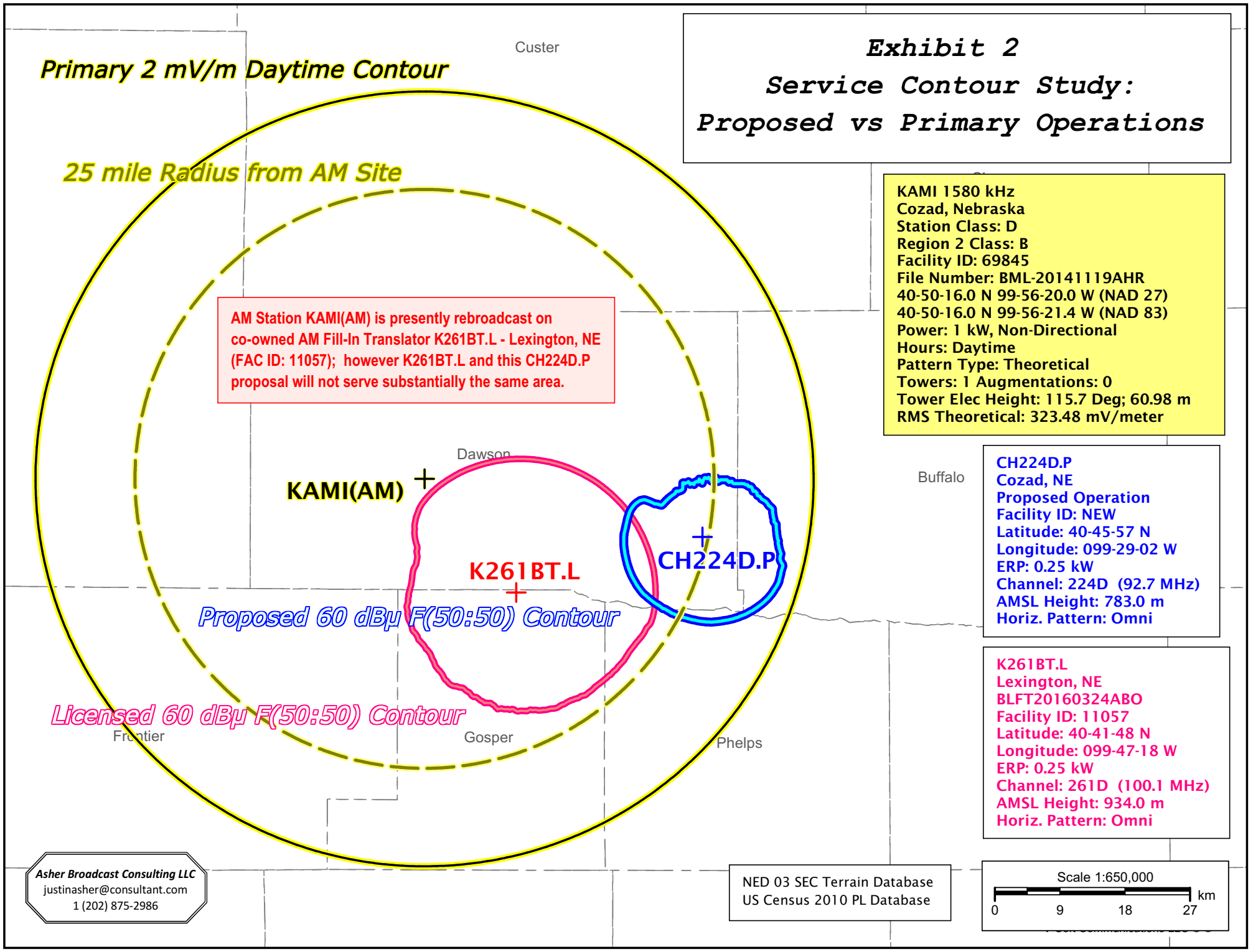
Exhibit 2
Service Contour Study:
Proposed vs Primary Operations
Primary 2 mV/m Daytime Contour
25 mile Radius from AM Site
AM Station KAMI(AM) is presently rebroadcast on co-owned AM Fill-In Translator K261BT.L - Lexington, NE (FAC ID: 11057); however K261BT.L and this CH224D.P proposal will not serve substantially the same area.
KAMI 1580 kHz
Cozad, Nebraska
Station Class: D
Region 2 Class: B
Facility ID: 69845
File Number: BML-20141119AHR
40-50-16.0 N 99-56-20.0 W (NAD 27)
40-50-16.0 N 99-56-21.4 W (NAD 83)
Power: 1 kW, Non-Directional
Hours: Daytime
Pattern Type: Theoretical
Towers: 1 Augmentations: 0
Tower Elec Height: 115.7 Deg; 60.98 m
RMS Theoretical: 323.48 mV/meter
CH224D.P
Cozad, NE
Proposed Operation
Facility ID: NEW
Latitude: 40-45-57 N
Longitude: 099-29-02 W
ERP: 0.25 kW
Channel: 224D (92.7 MHz)
AMSL Height: 783.0 m
Horiz. Pattern: Omni
K261BT.L
Lexington, NE
BLFT20160324ABO
Facility ID: 11057
Latitude: 40-41-48 N
Longitude: 099-47-18 W
ERP: 0.25 kW
Channel: 261D (100.1 MHz)
AMSL Height: 934.0 m
Horiz. Pattern: Omni
KAMI(AM)
K261BT.L
CH224D.P
Proposed 60 dBμ F(50:50) Contour
Licensed 60 dBμ F(50:50) Contour
Custer
Dawson
Buffalo
Frontier
Gosper
Phelps
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NED 03 SEC Terrain Database
US Census 2010 PL Database
Scale 1:650,000
0 9 18 27 km

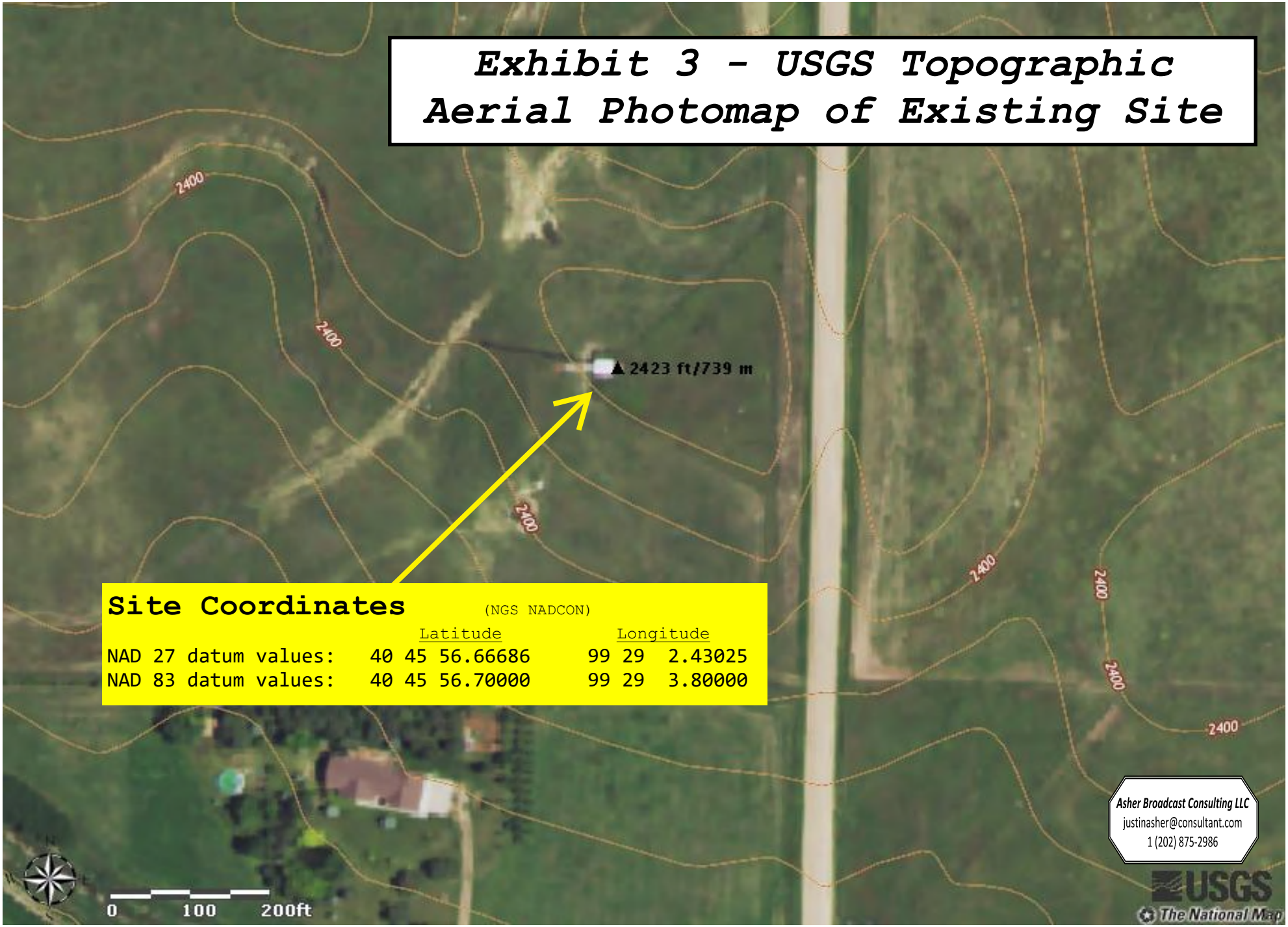
Exhibit 3 - USGS Topographic
Aerial Photomap of Existing Site
2423 ft/739 m
2400
Site Coordinates (NGS NADCON)
Latitude Longitude
NAD 27 datum values: 40 45 56.66686 99 29 2.43025
NAD 83 datum values: 40 45 56.70000 99 29 3.80000
0 100 200ft
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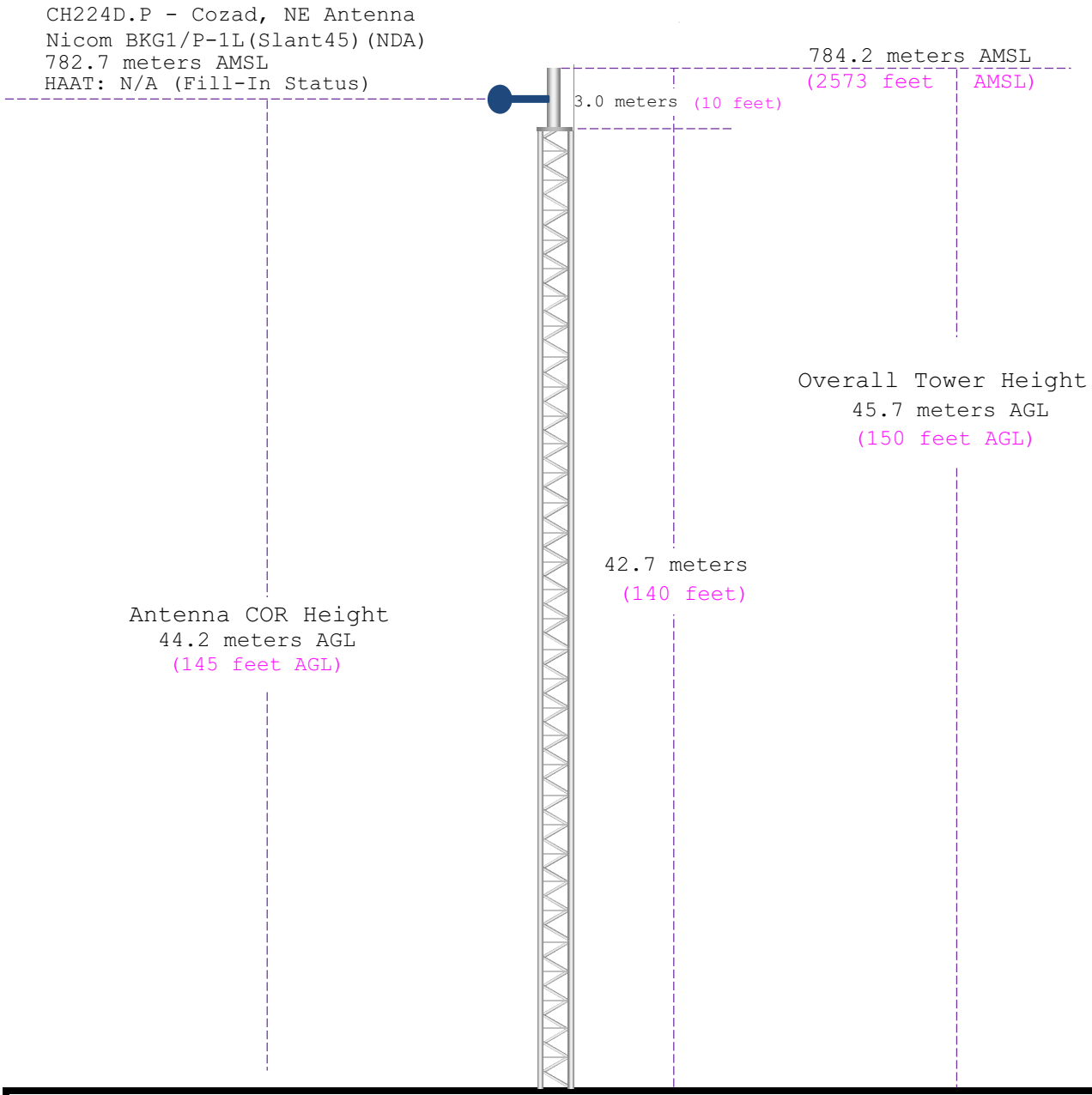
USGS
The National Map

Exhibit 4
Vertical Plan of Antenna System



Ground Elevation: 738.5 meters AMSL (2423 feet AMSL)

Address: 75455 Road 447
City: Overton
County: Dawson
State: Nebraska

	Latitude (D M S)	Longitude (D M S)
NAD 27 datum values:	40 45 56.66686	99 29 2.43025
NAD 83 datum values:	40 45 56.70000	99 29 3.80000

Antenna Structure Registration
Not Required

Drawing Is Not To Scale

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Exhibit 5
HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1927):

N. Lat. = 404557.0 W. Lng. = 992902.0
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	749.5	33.5	0.2500	-6.02	1.000	7.44
030	739.7	43.3	0.2500	-6.02	1.000	8.54
060	725.4	57.6	0.2500	-6.02	1.000	9.98
090	721.1	61.9	0.2500	-6.02	1.000	10.32
120	693.2	89.8	0.2500	-6.02	1.000	12.21
150	693.1	89.9	0.2500	-6.02	1.000	12.22
180	701.5	81.5	0.2500	-6.02	1.000	11.68
210	707.8	75.2	0.2500	-6.02	1.000	11.25
240	709.2	73.8	0.2500	-6.02	1.000	11.15
270	713.4	69.6	0.2500	-6.02	1.000	10.87
300	725.0	58.0	0.2500	-6.02	1.000	10.02
330	751.1	31.9	0.2500	-6.02	1.000	7.29

Ave El= 719.16 M HAAT= 63.84 M AMSL= 783.0

NAD 1983 to NAD 1927 Conversion:

	Latitude	Longitude
NAD 27 datum values:	40 45 56.66686	99 29 2.43025
NAD 83 datum values:	40 45 56.70000	99 29 3.80000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	40.7657500°, -099.4843889°
Degrees Minutes	40°45.94500', -099°29.06333'
Degrees Minutes Seconds	40°45'56.7000", -099°29'03.8000"
UTM	14T 459118mE 4512866mN
UTM centimeter	14T 459118.19mE 4512866.46mN
MGRS	14TML5911812866
Grid North	-0.3°
GARS	162LX17
Maidenhead	EN00GS13US97
GEOREF	FJFL30934594

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 KVRN-FM - Lexington, NE (CH226C1) as noted in ***Exhibit 8***. Protection of the worst case calculated 123.2 dBµ F(50:10) Interference Contour, corresponding to the 83.2 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# 224D - 92.7 MHz, Pwr= 0.25 kW, HAAT= 63.8 M, COR= 783 M DISPLAY DATES
40 45 57.0 N. Average Protected F(50-50)= 10.45 km DATA 06-14-17
99 29 02.0 W. Omni-directional SEARCH 06-14-17

CH CALL / CITY	TYPE ANT / STATE	AZI <--	DIST / FILE #	LAT / LNG	PWR(kW) / HAAT(M)	INT(km) / COR(M)	PRO(km) / LICENSEE	*IN* (Overlap in km)	*OUT*
226C1 KRVN-FM	LIC _CX	253.4	26.77	40 41 48.0	100.000	10.3	73.2	5.5	-47.6*<
Lexington	NE	73.2	BLH20070301ABA	99 47 18.0	271	1031	Nebraska Rural Radio Assoc		
222C1 KBRY	LIC _CX	3.7	81.60	41 29 53.8	100.000	9.5	69.3	64.0	11.2
Sargent	NE	183.7	BLH20140616ABK	99 25 14.7	254	1007	Mid Nebraska Broadcasting,		
223C1 KQMA	LIC _CN	172.9	128.66	39 37 02.0	100.000	90.6	60.7	26.3	50.7
Phillipsburg	KS	353.0	BLH19840726CY	99 17 55.0	156	734	Robert D. Yates, Jr. D/b/a		
224C2 KUSO	LIC _C_	51.2	191.16	41 49 50.0	50.000	136.0	50.5	45.4	108.3
Albion	NE	232.3	BLH20000518AAA	97 41 12.0	150	689	Flood Communications, L.l.		
227D K227BQ	LIC _C_	82.8	92.16	40 51 53.0	0.250	1.1	11.4	80.8	79.7
Grand Island	NE	263.5	BLFT20091104AEM	98 23 47.0	90	665	Legacy Communications, Llc		
223D K223CQ	LIC _C_	291.4	114.83	41 08 10.0	0.250	10.2	7.1	94.1	93.0
North Platte	NE	110.6	BLFT20160303AAM	100 45 38.0	76	870	Armada Media - Mccook, Inc		
278C1 KXNP	LIC _CN	295.9	116.05	41 12 49.0	100.000	5.5	1.8	21.5R	94.6M
North Platte	NE	115.0	BLH19820701AQ	100 43 48.0	146	1038	Armada Media - Mccook, Inc		
224C2 KZUH	LIC _CN	140.3	250.92	39 00 52.0	50.000	138.5	52.9	100.1	155.6
Minneapolis	KS	321.5	BLH19930303KF	97 37 42.0	142	533	Rocking M Media, Llc		
223L1 KIVE-LP	LIC ___	84.1	125.19	40 52 18.0	0.100		106.9		105.3
Aurora	NE	265.1	BLL20040909ADF	98 00 09.0	7	557	Dawn Adventist Broadcastin		
224A KBRB-FM	LIC _CN	351.9	200.93	42 33 16.0	4.500	77.2	23.0	116.2	152.5
Ainsworth	NE	171.6	BMLH19901231KD	99 49 52.0	101	857	Sandhills Broadcasting Llc		
225C1 KTGL	LIC _CX	96.0	230.72	40 31 06.0	100.000	98.5	66.9	121.7	149.1
Beatrice	NE	277.7	BMLH20140911ACI	96 46 06.0	247	674	Alpha 3e Licensee Llc		

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

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

FMCommander Single Allocation Study - 06-14-2017 - NED 03 SEC
CH224D.P's Overlaps (In= 63.97 km, Out= 11.16 km)

CH224D.P CH 224 D
Lat= 40 45 57.0, Lng= 99 29 02.0
0.25 kW 63.8 m HAAT, 783 m COR
Prot.= 60 dBu, Intef.= 100 dBu

KBRY CH 222 C1 BLH20140616ABK
Lat= 41 29 53.8, Lng= 99 25 14.7
100.0 kW 254 m HAAT, 1007 m COR
Prot.= 60 dBu, Intef.= 100 dBu

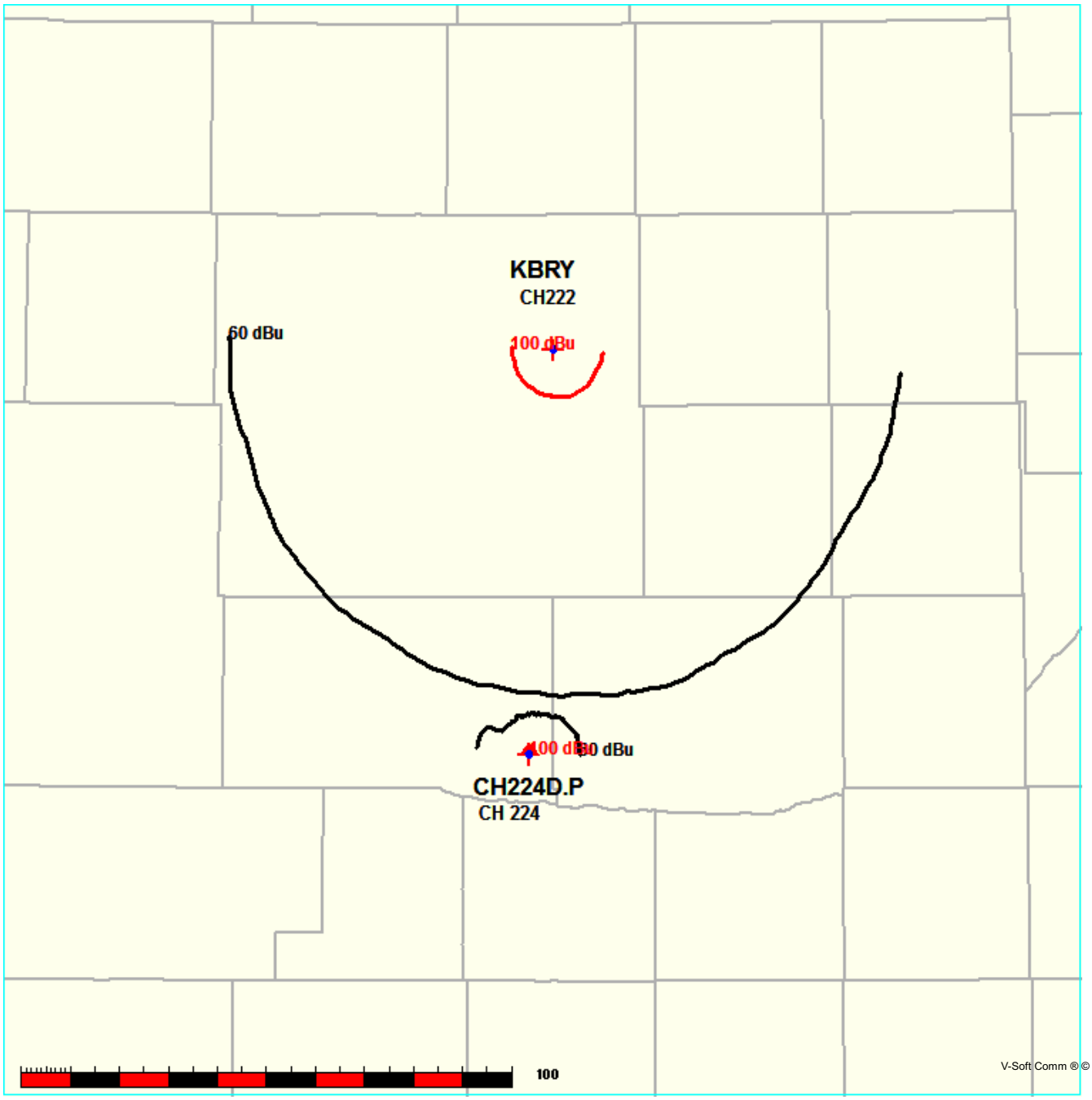

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Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 06-14-2017 - NED 03 SEC
CH224D.P's Overlaps (In= 26.28 km, Out= 50.71 km)

CH224D.P CH 224 D
Lat= 40 45 57.0, Lng= 99 29 02.0
0.25 kW 63.8 m HAAT, 783 m COR
Prot.= 60 dBu, Intef.= 54 dBu

KQMA CH 223 C1 BLH19840726CY
Lat= 39 37 02.0, Lng= 99 17 55.0
100.0 kW 156 m HAAT, 734 m COR
Prot.= 60 dBu, Intef.= 54 dBu

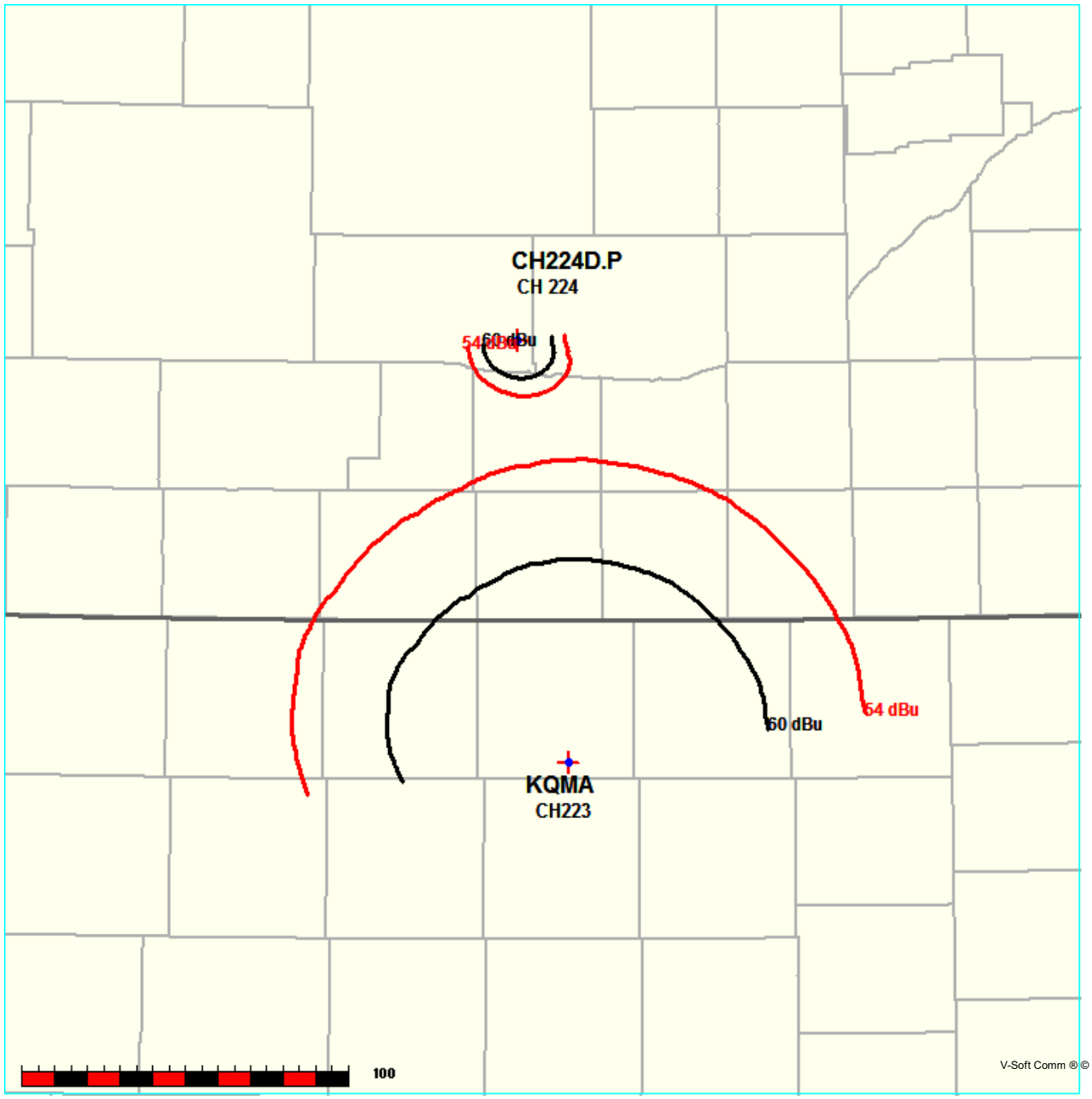

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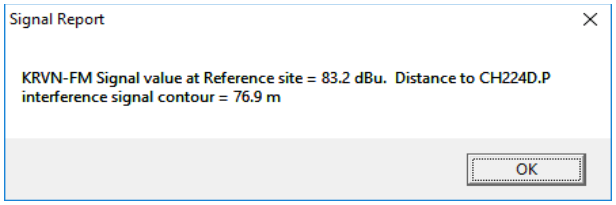
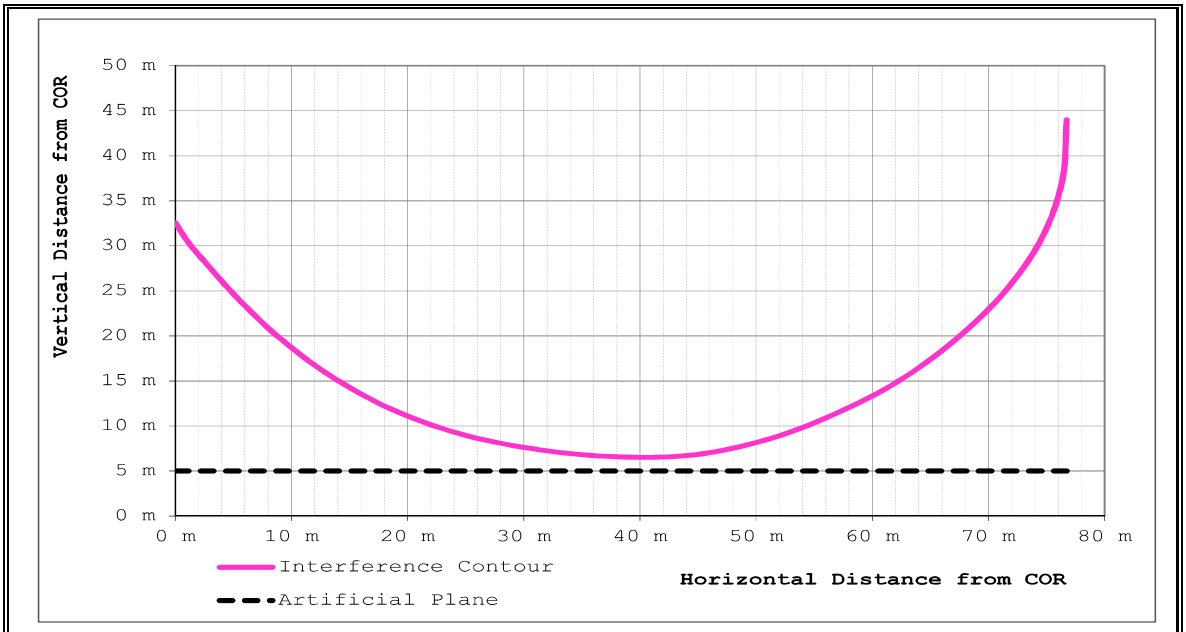
Exhibit 8
C.F.R. Section 74.1204(d) Second / Third Adjacent Given Interference Waiver Request

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 KVRN-FM - Lexington, NE (CH226C1) as noted in ***Exhibit 8***. Protection of the worst case calculated 123.2 dBµ F(50:10) Interference Contour, corresponding to the 83.2 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***.





Proposed Antenna: 1 Bay Nicom BKG1/P-1L(Slant45)
Proposed Power: 0.250 kW
Antenna Height AGL: 44.0 meters
Protection Plane Height: 5.0 meters
Protected Contour: 83.20 dBµ f(50:50)
Interference Contour: 123.20 dBµ f(50:10)

Field Strength (dBu) Equation
106.92-(20*(LOG10[DistMeters]/1000)))+[ERPin dBk]

Distance (Free Space) Equation:
(10^((106.92-[desired dBu]+[ERP in dBk])/20))*1000

Angle Below Horizon	Vertical Antenna Properties: Relative Field	ERP in kW	ERP in dBk	Meters from Antenna to Int. Contour	Meters from Antenna to Artificial Plane	Meters from Antenna to Ground Level	Field Strength at Protection Plane (dBµ)	Field Strength at Ground Level (dBµ)
0°	1.000	0.250	-6.02	76.73 m				
-5°	0.999	0.250	-6.03	76.65 m	447.47 m	504.84 m	107.88 dBµ	106.83 dBµ
-10°	0.987	0.244	-6.13	75.73 m	224.59 m	253.39 m	113.76 dBµ	112.71 dBµ
-15°	0.963	0.232	-6.35	73.89 m	150.68 m	170.00 m	117.01 dBµ	115.96 dBµ
-20°	0.931	0.217	-6.64	71.44 m	114.03 m	128.65 m	119.14 dBµ	118.09 dBµ
-25°	0.895	0.200	-6.98	68.67 m	92.28 m	104.11 m	120.63 dBµ	119.59 dBµ
-30°	0.853	0.182	-7.40	65.45 m	78.00 m	88.00 m	121.68 dBµ	120.63 dBµ
-35°	0.808	0.163	-7.87	62.00 m	67.99 m	76.71 m	122.40 dBµ	121.35 dBµ
-40°	0.755	0.143	-8.46	57.93 m	60.67 m	68.45 m	122.80 dBµ	121.75 dBµ
-45°	0.689	0.119	-9.26	52.87 m	55.15 m	62.23 m	122.83 dBµ	121.78 dBµ
-50°	0.621	0.096	-10.16	47.65 m	50.91 m	57.44 m	122.63 dBµ	121.58 dBµ
-55°	0.554	0.077	-11.15	42.51 m	47.61 m	53.71 m	122.22 dBµ	121.17 dBµ
-60°	0.483	0.058	-12.34	37.06 m	45.03 m	50.81 m	121.51 dBµ	120.46 dBµ
-65°	0.407	0.041	-13.83	31.23 m	43.03 m	48.55 m	120.42 dBµ	119.37 dBµ
-70°	0.332	0.028	-15.60	25.47 m	41.50 m	46.82 m	118.96 dBµ	117.91 dBµ
-75°	0.266	0.018	-17.52	20.41 m	40.38 m	45.55 m	117.27 dBµ	116.23 dBµ
-80°	0.215	0.012	-19.37	16.50 m	39.60 m	44.68 m	115.59 dBµ	114.55 dBµ
-85°	0.180	0.008	-20.92	13.81 m	39.15 m	44.17 m	114.15 dBµ	113.10 dBµ
-90°	0.149	0.006	-22.56	11.43 m	39.00 m	44.00 m	112.54 dBµ	111.49 dBµ

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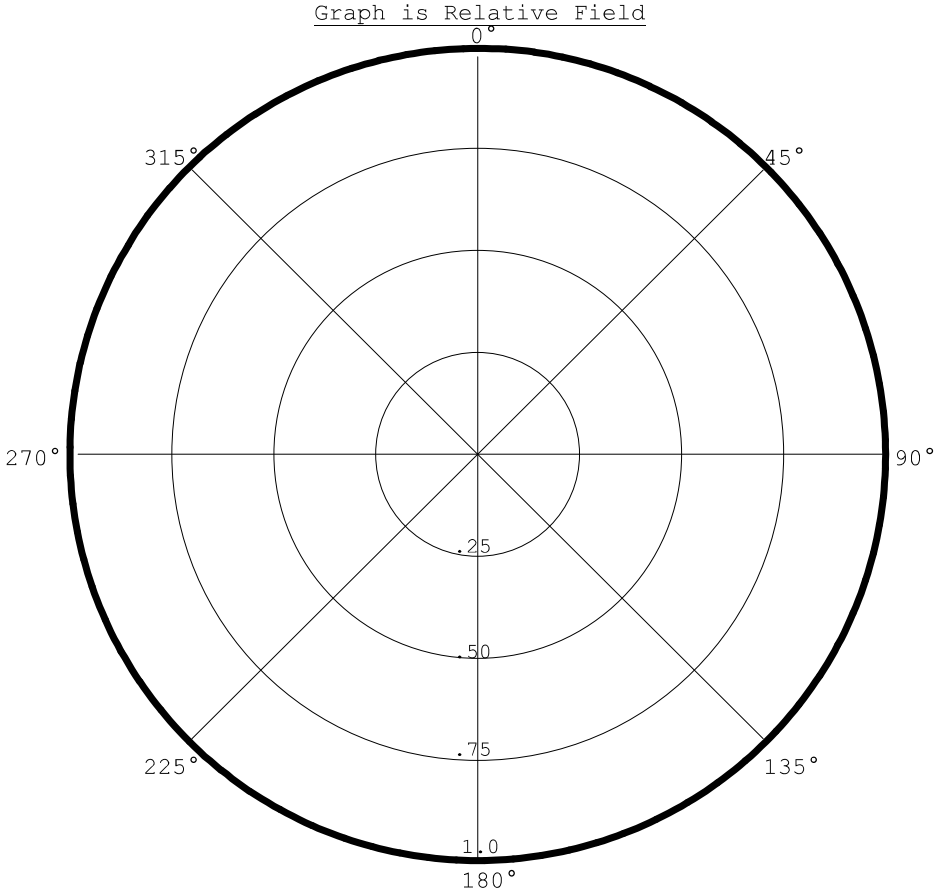
Exhibit 9 - Copy of Manufacturer's Vertical Radiation Pattern Documentation
(public record copy)

BKG1/P-1L(Slant45)
COMPOSITE PATTERN

Azi	Field	dBk	kW
000	1.000	-06.021	0.250
010	1.000	-06.021	0.250
020	1.000	-06.021	0.250
030	1.000	-06.021	0.250
040	1.000	-06.021	0.250
050	1.000	-06.021	0.250
060	1.000	-06.021	0.250
070	1.000	-06.021	0.250
080	1.000	-06.021	0.250
090	1.000	-06.021	0.250
100	1.000	-06.021	0.250
110	1.000	-06.021	0.250
120	1.000	-06.021	0.250
130	1.000	-06.021	0.250
140	1.000	-06.021	0.250
150	1.000	-06.021	0.250
160	1.000	-06.021	0.250
170	1.000	-06.021	0.250
180	1.000	-06.021	0.250
190	1.000	-06.021	0.250
200	1.000	-06.021	0.250
210	1.000	-06.021	0.250
220	1.000	-06.021	0.250
230	1.000	-06.021	0.250
240	1.000	-06.021	0.250
250	1.000	-06.021	0.250
260	1.000	-06.021	0.250
270	1.000	-06.021	0.250
280	1.000	-06.021	0.250
290	1.000	-06.021	0.250
300	1.000	-06.021	0.250
310	1.000	-06.021	0.250
320	1.000	-06.021	0.250
330	1.000	-06.021	0.250
340	1.000	-06.021	0.250
350	1.000	-06.021	0.250

06-14-2017 RMS(V)= 1.

Graph is Relative Field



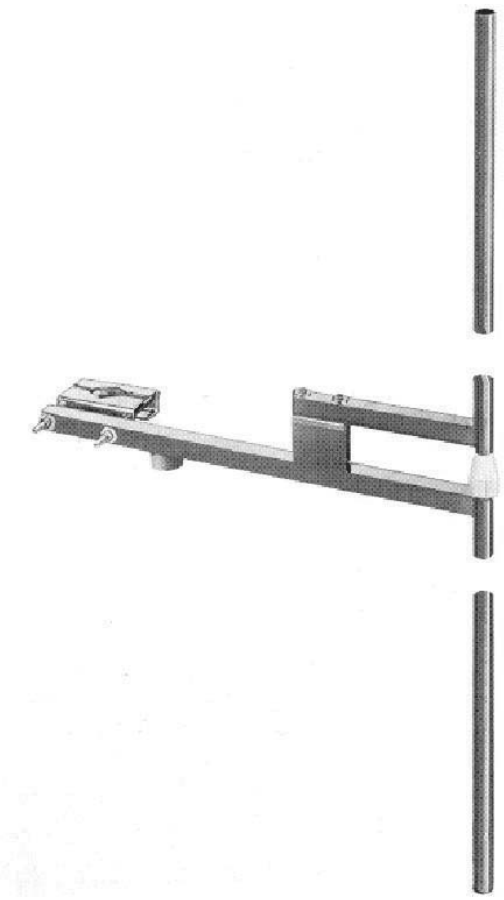
The non-directional antenna pattern will be produced by means of a Nicom Dipole BKG1/P broadcast element mounted at a 45° (degree) slant orientation to achieve horizontal and vertical polarization. The BKG1/P-1L(Slant45) Pattern is therefore a maximum composite pattern of the current horizontal and vertical 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 non-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 non-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 Vertical Radiation Pattern Documentation
(public record copy)



NICOM

BKG1/P

Low Power

Broadband FM Dipole

Dipolo de FM Banda Ancha

This antenna can be easily installed because of its lightness. Electrically grounded it gives excellent protection against lightning. Combined in arrays of more elements this dipole offers high gain over a wide angle.

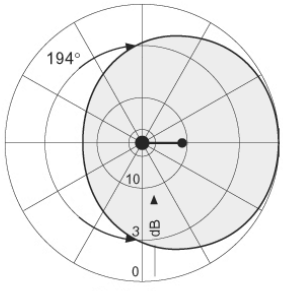
Esta antena puede ser facilmente armada debido a su ligereza. Es conectada por tierra lo cual ofrece óptima protección contra relámpagos. Combinada de arrays de varios elementos este dipolo puede ofrecer buena ganancia a través de un amplio ángulo.

TECHNICAL SPECIFICATIONS

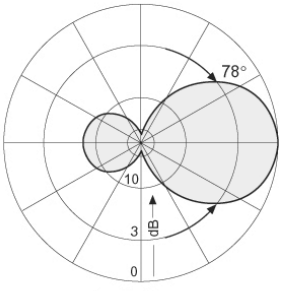
Antenna type	dipole
Frequency range	87.5 - 108 MHz
Bandwidth	20 MHz
Impedance	50 Ohms
Connectors	N type
Power rating	500 Watts max.
VSWR	< 1.3
Polarization	vertical
Gain	0 dBd (unity gain)
H plane	194 degrees
V plane	78 degrees

Front-to-back ratio	7 dB
Lightning protection	all parts grounded
Max wind velocity	119 mph (190 km/h)
Wind load	39.6 Lbs (18 kg)
Wind surface	1.2 ft^2 (0.11 m^2)
Materials (external)	anti-corrosive aluminum
Mounting	from 2" to 4"
Weight	8.8 Lbs (4 kg)
Dimensions	55"×33"×2" (1400×850×60 mm)
Packing	59"×36"×4" (1500×900×100 mm)

Radiation Patterns (at mid-band)



in H-plane
Horizontal Radiation Pattern



in E-plane
Vertical Radiation Pattern

2626 Southport Way Ste B • National City, CA 91950 • Tel (619) 477-6298 • Fax (619) 477-6296 • http://www.NicomUSA.com

Exhibit 9 - Copy of Manufacturer's Vertical Radiation Pattern Documentation
(public record copy)

TX station: BKG1/P

Site name:

Frequency: 100.00 MHz

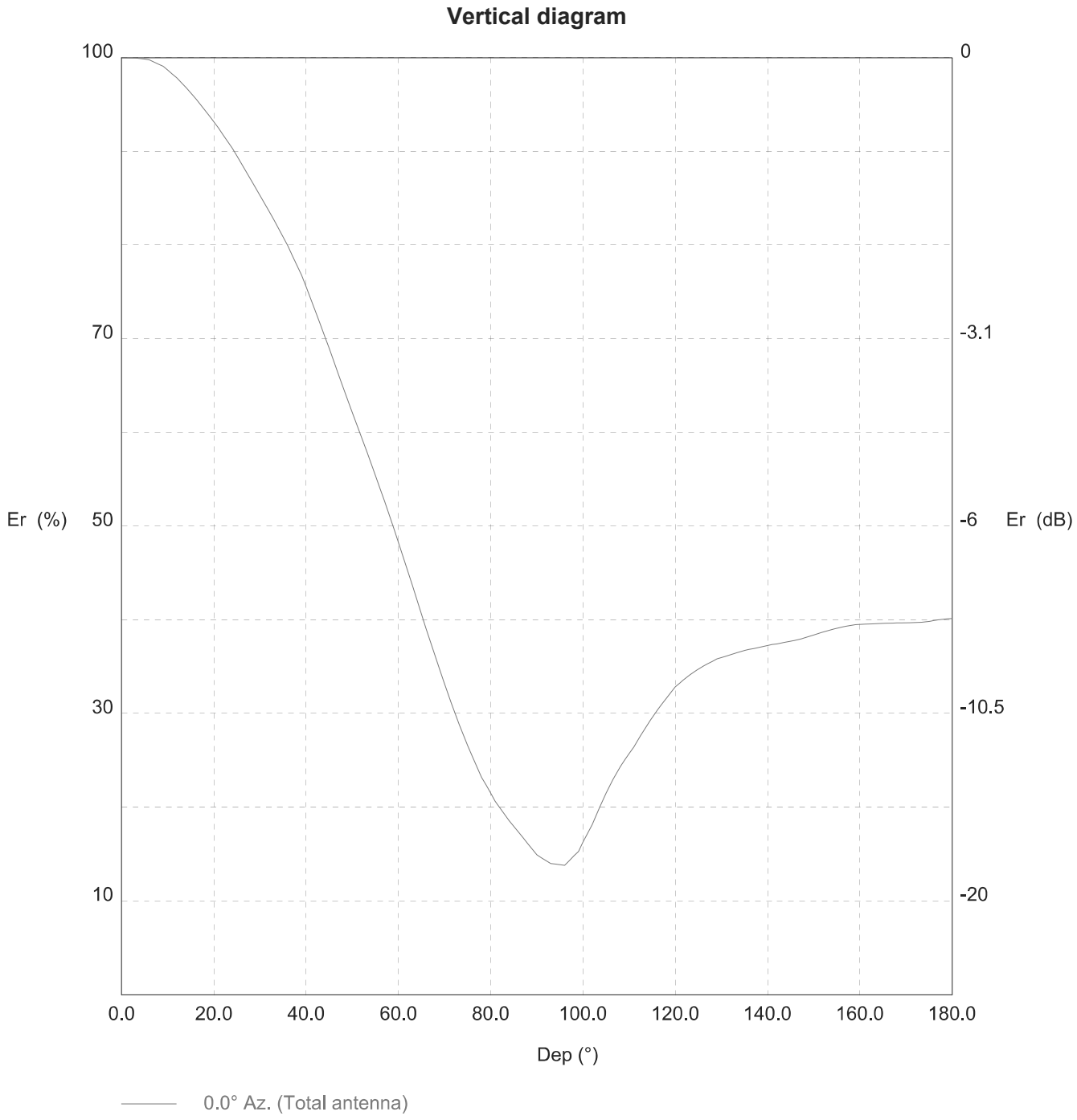


Exhibit 9 - Copy of Manufacturer's Vertical Radiation Pattern Documentation
(public record copy)

TX station: BKG1/P

Site name:

Frequency: 100.00 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	776.2	60.0	48.3	180.9	120.0	32.8	83.6
1.0	100.0	776.1	61.0	46.8	169.7	121.0	33.2	85.8
2.0	100.0	775.9	62.0	45.2	158.9	122.0	33.7	88.0
3.0	100.0	775.7	63.0	43.7	148.5	123.0	34.1	90.2
4.0	99.9	774.8	64.0	42.2	138.1	124.0	34.4	91.9
5.0	99.8	773.8	65.0	40.6	128.0	125.0	34.7	93.6
6.0	99.8	772.9	66.0	39.1	118.4	126.0	35.0	95.3
7.0	99.5	769.2	67.0	37.6	109.6	127.0	35.3	96.8
8.0	99.3	765.6	68.0	36.1	101.1	128.0	35.6	98.2
9.0	99.1	762.0	69.0	34.6	92.9	129.0	35.8	99.6
10.0	98.7	755.7	70.0	33.2	85.4	130.0	36.0	100.4
11.0	98.3	749.5	71.0	31.7	78.1	131.0	36.1	101.3
12.0	97.9	743.2	72.0	30.3	71.2	132.0	36.3	102.1
13.0	97.3	735.2	73.0	29.0	65.4	133.0	36.4	103.0
14.0	96.8	727.2	74.0	27.8	59.9	134.0	36.6	103.8
15.0	96.3	719.2	75.0	26.5	54.6	135.0	36.7	104.7
16.0	95.7	710.3	76.0	25.4	50.1	136.0	36.8	105.3
17.0	95.1	701.4	77.0	24.3	45.8	137.0	36.9	105.9
18.0	94.5	692.6	78.0	23.2	41.7	138.0	37.0	106.5
19.0	93.8	683.0	79.0	22.3	38.7	139.0	37.1	107.1
20.0	93.1	673.5	80.0	21.5	35.8	140.0	37.2	107.7
21.0	92.5	664.1	81.0	20.6	33.1	141.0	37.3	108.2
22.0	91.8	653.7	82.0	19.9	30.9	142.0	37.4	108.8
23.0	91.0	643.4	83.0	19.2	28.8	143.0	37.5	109.3
24.0	90.3	633.1	84.0	18.6	26.7	144.0	37.6	109.8
25.0	89.5	621.6	85.0	17.9	25.0	145.0	37.7	110.4
26.0	88.7	610.3	86.0	17.3	23.4	146.0	37.8	111.0
27.0	87.8	599.0	87.0	16.7	21.8	147.0	37.9	111.6
28.0	87.0	587.3	88.0	16.1	20.2	148.0	38.1	112.5
29.0	86.1	575.7	89.0	15.5	18.7	149.0	38.2	113.4
30.0	85.3	564.3	90.0	14.9	17.3	150.0	38.4	114.2
31.0	84.4	552.9	91.0	14.6	16.5	151.0	38.5	115.2
32.0	83.5	541.7	92.0	14.3	15.8	152.0	38.7	116.1
33.0	82.7	530.6	93.0	14.0	15.2	153.0	38.8	117.1
34.0	81.7	518.8	94.0	13.9	15.0	154.0	39.0	117.9
35.0	80.8	507.1	95.0	13.9	14.9	155.0	39.1	118.6
36.0	79.9	495.6	96.0	13.8	14.8	156.0	39.2	119.4
37.0	78.9	482.9	97.0	14.3	15.9	157.0	39.3	119.9
38.0	77.8	470.4	98.0	14.8	17.0	158.0	39.4	120.4
39.0	76.8	458.0	99.0	15.3	18.1	159.0	39.5	120.9
40.0	75.5	442.7	100.0	16.2	20.5	160.0	39.5	121.1
41.0	74.2	427.7	101.0	17.2	23.0	161.0	39.5	121.3
42.0	72.9	412.9	102.0	18.1	25.5	162.0	39.5	121.4
43.0	71.6	398.0	103.0	19.3	28.8	163.0	39.6	121.6
44.0	70.3	383.3	104.0	20.4	32.3	164.0	39.6	121.7
45.0	68.9	368.9	105.0	21.5	35.9	165.0	39.6	121.9
46.0	67.5	354.2	106.0	22.4	39.1	166.0	39.6	122.0
47.0	66.2	339.7	107.0	23.4	42.4	167.0	39.6	122.0
48.0	64.8	325.5	108.0	24.3	45.8	168.0	39.7	122.1
49.0	63.4	312.3	109.0	25.0	48.5	169.0	39.7	122.1
50.0	62.1	299.4	110.0	25.7	51.3	170.0	39.7	122.2
51.0	60.8	286.8	111.0	26.4	54.2	171.0	39.7	122.2
52.0	59.5	274.4	112.0	27.2	57.6	172.0	39.7	122.4
53.0	58.1	262.3	113.0	28.1	61.1	173.0	39.7	122.5
54.0	56.8	250.4	114.0	28.9	64.6	174.0	39.8	122.7
55.0	55.4	238.3	115.0	29.6	67.9	175.0	39.8	123.2
56.0	54.0	226.6	116.0	30.3	71.1	176.0	39.9	123.7
57.0	52.6	215.1	117.0	31.0	74.4	177.0	40.0	124.2
58.0	51.2	203.3	118.0	31.6	77.5	178.0	40.0	124.5
59.0	49.7	191.9	119.0	32.2	80.5	179.0	40.1	124.7