

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

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

for

*CH285D.P - South Lake Tahoe, CA
CH285D (104.9 MHz)*

"New FM Translator Operation"

as a

*Commercial, Fill-In Translator
for Class C AM Station
KOWL(AM) - South Lake Tahoe, CA*

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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 CH285D.P - South Lake Tahoe, CA. This FCC Form 349 Filing requests a new CH285D (104.9 MHz) operation with a power of 0.250 kW ERP (circular polarization). The FM Translator will operate from a COR of 1964 meters AMSL. This Form 349 Filing will specify rebroadcast of Class C, AM Primary Station KOWL(AM) - South Lake Tahoe, CA (1490 kHz); Facility ID No. 55493. The Translator will be licensed to the community of South Lake Tahoe, CA.

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 1015362. 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 FCC 30 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 47 C.F.R. Section 74.1204 toward all allocation protection concerns with the exception of KDOT(FM) - Reno, NV (CH283C). A general allocation study for this proposal is found in ***Exhibit 6***.

The applicant would like to note the existence of a 47 C.F.R. Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KDOT(FM) - Reno, NV (CH283C) as included in ***Exhibit(s) 8(a-b)***. In this instance, the affected station's signal strength at the Translator site has been identified as the 73.9 dBμ F(50:50) service contour, associated with a Translator interference contour adjusted by +40 dBμ per 47 C.F.R. Section 74.1204(a).

Concerning distances between 60 meters of the Translator site to the extent of the interference contour, protection has been demonstrated through a downward radiation study as included in ***Exhibit 8a***. Full protection will be afforded all concerns as this portion of the interference area will not reach the ground nor a two meter artificial plane representing a standard human at ground level when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's vertical radiation pattern data has been included in ***Exhibit 9***.

Concerning distances within 60 meters of the Translator site, protection has been demonstrated through aerial photography of the site as included in ***Exhibit 8b***. Full protection will be afforded all concerns as this portion of the interference area is void of all housing, buildings or major roads representing locations where people live, work or travel on a regular basis. The applicant would like to note the existence of the dedicated transmitter building within this affected radius, however, buildings of this nature have been routinely exempt as a matter of FCC Policy (see similar grant under BPFT-20160129ALR).

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 tower, 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
March 17, 2018

Exhibit 1
Service Contour Study:
Present vs Proposed Operations

CH285D.P
South Lake Tahoe, CA
Proposed Operation
Facility ID: NEW
Latitude: 38-56-34 N
Longitude: 119-57-25 W
ERP: 0.25 kW
Channel: 285D (104.9 MHz)
AMSL Height: 1964.0 m
Horiz. Pattern: Directional

60 dBμ F(50:50) Contour
Total Population: 27,717
Total Area: 200.5 sq. km

FCC 30 SEC Terrain Database
US Census 2010 PL Database

Terrain
1410 3309 m

Scale 1:135,000
0 2 4 6 km

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

V-Soft Communications LLC ©

25 mile Radius from AM Site

Exhibit 2

Service Contour Study: Proposed vs Primary Operations

Primary 2 mV/m Daytime Contour

Proposed 60 dBμ F(50:50) Contour

KOWL(AM)
+
CH285D.P

KOWL 1490 kHz
South Lake Tahoe, California
Station Class: C
Region 2 Class: C
Facility ID: 55493
File Number: BL-
38-56-34.0 N 119-57-25.0 W (NAD 27)
38-56-33.7 N 119-57-28.7 W (NAD 83)
Power: 1 kW, Non-Directional
Hours: Unlimited
Pattern Type: Theoretical
Towers: 1 Augmentations: 0
Tower Elec Height: 109.1 Deg; 60.98 m
RMS Theoretical: 318.65 mV/m

CH285D.P
South Lake Tahoe, CA
Proposed Operation
Facility ID: NEW
Latitude: 38-56-34 N
Longitude: 119-57-25 W
ERP: 0.25 kW
Channel: 285D (104.9 MHz)
AMSL Height: 1964.0 m
Horiz. Pattern: Directional

FCC 30 SEC Terrain Database
US Census 2010 PL Database

Terrain
621 3487 m

Scale 1:475,000
0 6 12 18 km

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

V-Soft Communications LLC ©

Exhibit 3

Copy of Existing Antenna Structure Registration

(public record copy)

Registration Detail

Reg Number	1015362	Status	Constructed
File Number	A0983194	Constructed	01/01/1956
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long	38-56-34.0 N 119-57-29.0 W	Address	TAMARACK & BLACKWOOD RD
City, State	SOUTH LAKE TAHOE , CA		
Zip	96150	County	EL DORADO
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
1906.5	62.5
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
1969.0	61.0

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 11, 21

FAA Notification

FAA Study	FAA Issue Date
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Owner & Contact Information

FRN	0024533671	Owner Entity Type	Limited Liability Company
Assignor FRN	0009739012	Assignor ID	L00814882

Owner

D&H Broadcasting LLC
Attention To: Steve Harness
P.O. Box 11101
Zephyr Cove , NV 89448

P: (775)580-7130
F:
E: STEVE@KRLTFM.COM

Contact

Denbo , Mark
5028 Wisconsin Avenue, N.W.
Suite 301
Washington , DC 20016

P: (202)350-9656
F:
E: mdenbo@fccworld.com

Last Action Status

Status	Constructed	Received	11/12/2015
Purpose	Change Owner	Entered	11/12/2015
Mode	Interactive		

Related Applications

11/12/2015	A0983194 - Change Owner (OC)
02/17/2004	A0364243 - Change Owner (OC)
12/19/2003	A0358465 - Change Owner (OC)

Related applications (4)

Comments

Comments

None

History

Date

11/13/2015
11/13/2015
11/12/2015

Event

Registration Printed
Change of Ownership Letter Sent
Change of Ownership Received

All History (9)

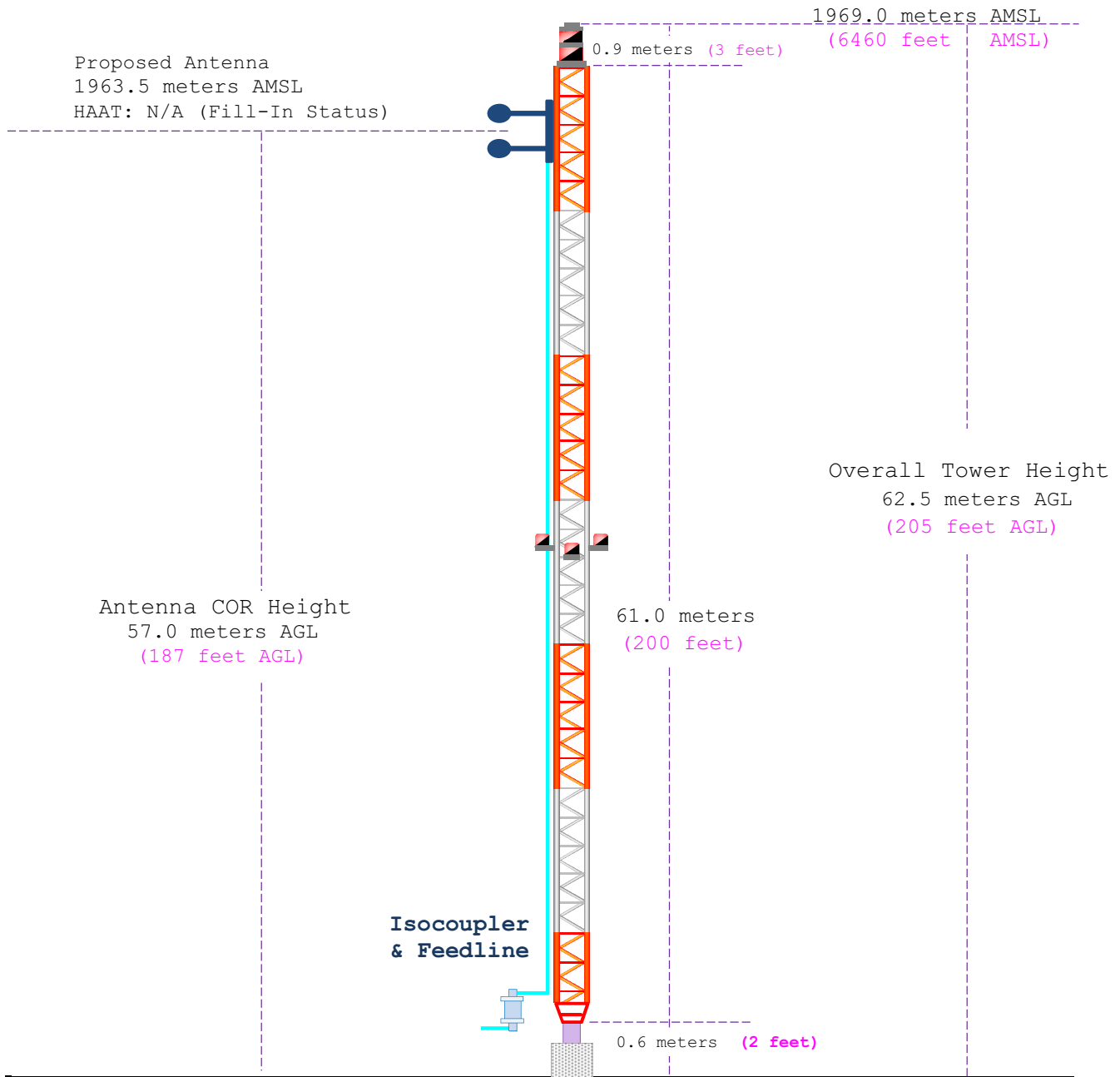
Automated Letters

11/13/2015	Authorization, Reference
11/13/2015	Ownership Change, Reference 888109
02/18/2004	Ownership Change, Reference 321016

All letters (6)

Exhibit 4

Vertical Plan of Antenna System



Ground Elevation: 1906.5 meters AMSL (6255 feet AMSL)		
Address: Tamarack and Blackwood Roads		
City: South Lake Tahoe	Latitude (D M S)	Longitude (D M S)
County: El Dorado	NAD 27 datum values: 38 56 34.33187 119 57 25.34826	
State: California	NAD 83 datum values: 38 56 34.00000 119 57 29.00000	
Antenna Structure Registration 1015362	Drawing Is Not To Scale	Asher Broadcast Consulting, LLC justinasher@consultant.com 1(202)875-2986

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1927):

N. Lat. = 385634.0 W. Lng. = 1195725.0
 HAAT and Distance to Contour,
 FCC, FM 2-10 Mi, 51 pts Method - FCC 30 SEC

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	1901.6	62.4	0.2500	-6.02	1.000	10.35
030	2312.8	-348.8	0.2500	-6.02	1.000	7.09
060	1854.5	109.5	0.1225	-9.12	0.700	11.31
090	1910.3	53.7	0.2500	-6.02	1.000	9.64
120	2120.6	-156.6	0.2500	-6.02	1.000	7.09
150	2626.4	-662.4	0.2500	-6.02	1.000	7.09
180	2336.4	-372.4	0.2500	-6.02	1.000	7.09
210	2006.2	-42.2	0.2500	-6.02	1.000	7.09
240	2063.5	-99.5	0.2500	-6.02	1.000	7.09
270	2028.4	-64.4	0.2500	-6.02	1.000	7.09
300	1900.9	63.1	0.2500	-6.02	1.000	10.41
330	1900.0	64.0	0.2500	-6.02	1.000	10.47

Ave El= 2080.14 M HAAT= -116.14 M AMSL= 1964.0

NAD 1983 to NAD 1927 Conversion:

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum values:	38 56 34.33187	119 57 25.34826
NAD 83 datum values:	38 56 34.00000	119 57 29.00000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	38.9427778°, -119.9580556°
Degrees Minutes	38°56.56667', -119°57.48333'
Degrees Minutes Seconds	38°56'34.0000", -119°57'29.0000"
UTM	11S 243626mE 4314588mN
UTM centimeter	11S 243626.45mE 4314588.36mN
MGRS	11SKD4362614588
Grid North	-1.9°
GARS	121LT11
Maidenhead	DM08AW56AG74
GEOREF	EJAJ02515656

Exhibit 6

Tabulation of Proposed Allocation

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

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

REFERENCE		CH# 285D - 104.9 MHz, Pwr= 0.25 kW DA, HAAT= -116.1 M, COR= 1964 M								DISPLAY DATES	
38 56 34.0 N.		Average Protected F(50-50)= 7.09 km								DATA 01-22-18	
119 57 25.0 W.		Standard Directional								SEARCH 01-22-18	
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)	
283C	KDOT	LIC_CN		8.8	41.68	39 18 48.0	25.000	8.2	73.8	26.4	-33.2*<
Reno		NV		188.8	BMLH19950831KA	119 52 59.0	893	2967	Lotus Radio Corp.		
285D	K285EQ	LIC_C_		10.8	72.56	39 35 02.0	0.240	61.9	20.1	3.6<	28.7
Reno		NV		190.9	BLFT20160303ABR	119 47 55.0		1695	Reno Media Group, L.p.		
286D	K286AN	LIC DC_		334.7	36.72	39 14 29.0	0.010	20.1	12.2	6.2	10.0
Truckee		CA		154.6	BLFT20040929AFG	120 08 20.0	601	2635	Nevada City Community Broa		
286D	K286AG	LIC DVN		28.2	34.21	39 12 50.0	0.150	17.2	11.7	10.0<	12.4
Carson City		NV		208.3	BLFT19981013TN	119 46 10.0	73	1815	The Evans Broadcast Compan		
Translator for KRZQ, Sparks, NV Vertical Polarization Only											
287C	KZTI	LIC NHX		39.2	139.76	39 54 46.0	100.000	14.1	93.0	118.6	45.6
Fallon Station		NV		219.8	BLH20121119AOL	118 55 18.0	600	1960	Lazer Licenses, Llc		
286B	KNCI	LIC_CN		251.5	103.74	38 38 31.0	50.000	45.3	36.1	51.3	53.5
Sacramento		CA		70.8	BLH19840815CB	121 05 25.0	152	333	The Entercom Divestiture T		
Grandfathered at 50kw ERP & 152m HAAT											
287D	KZTI-FM1	LIC DC_		10.6	72.57	39 35 03.9	0.099	0.5	12.6	65.0	58.9
Reno		NV		190.7	BLFTB20130314ABU	119 48 06.3		1682	Lazer Licenses, Llc		
283D	K283AY	LIC DC_		222.5	77.27	38 25 45.0	0.130	0.1	2.5	70.1	73.7
West Point		CA		42.2	BLFT20051007AAK	120 33 25.0	173	1049	La Favorita Radio Network,		
232B1	KGRB	LIC_CX		225.4	85.29	38 24 10.0	4.300	18.0	12.3	11.5R	73.8M
Jackson		CA		45.0	BLH20030818AEF	120 39 15.0	241	893	Lazer Licenses, Llc		
285A	KYIX	LIC_CN		301.8	151.55	39 39 04.0	0.260	67.1	22.2	73.9	93.8
South Oroville		CA		120.8	BLH19940204KM	121 27 43.0	472	932	Butte Broadcasting Company		
231A	KNCO-FM	LIC_CX		291.5	93.41	39 14 44.0	0.660	18.0	12.3	9.5R	83.9M
Grass Valley		CA		110.8	BLH20030430AAA	120 57 52.0	299	1190	Nevada County Broadcasters		
283D	K252DO	CP DC_		264.5	93.01	38 51 28.0	0.250	1.1	7.1	84.8	84.8
Auburn		CA		83.8	BMPFT20171219AEV	121 01 35.0		549	Kahi Corporation		
284B	KHTN	LIC ZCX		182.4	156.83	37 32 00.0	1.950	64.3	55.9	85.4	86.8
Planada		CA		2.3	BMLH20160707AAD	120 01 48.0	634	1334	Mapleton License Of Merced		

Terrain database is FCC NGDC 30 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= East Zone 2A, 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 - 01-22-2018 - FCC NGDC 30 Sec
CH285D.P's Overlaps (In= 3.62 km, Out= 28.71 km)

CH285D.P CH 285 D DA
Lat= 38 56 34.0, Lng= 119 57 25.0
0.25 kW -116.1 m HAAT, 1964 m COR
Prot.= 60 dBu, Intef.= 40 dBu

K285EQ CH 285 D BLFT20160303ABR
Lat= 39 35 02.0, Lng= 119 47 55.0
0.24 kW 0 m HAAT, 1695 m COR
Prot.= 60 dBu, Intef.= 40 dBu

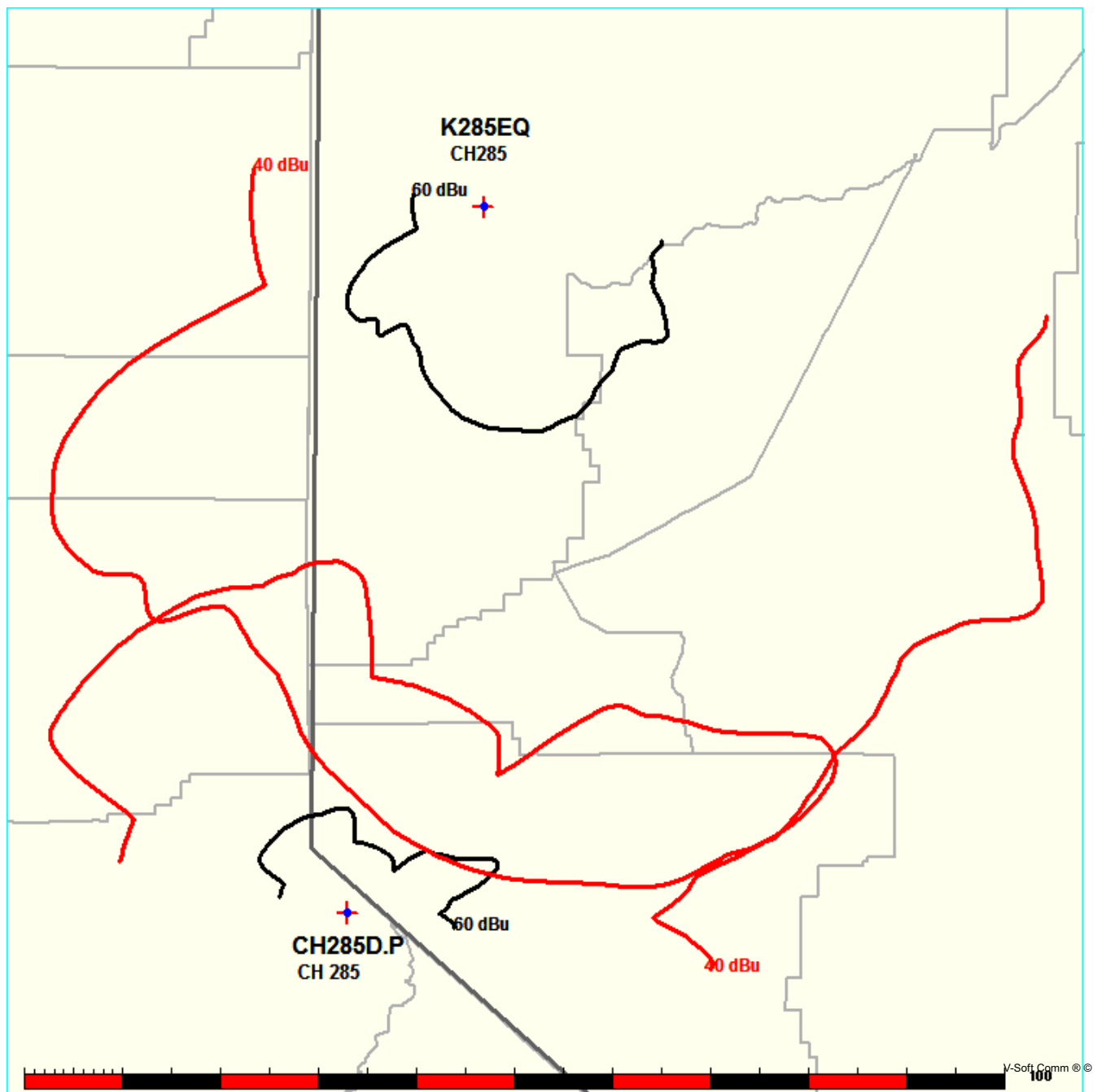


Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

01-22-2018 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

CH285D.P

K285EQ BLFT20160303ABR

Channel = 285D
 Max ERP = 0.25 kW
 RCAMSL = 1964 m
 N. Lat. 38 56 34.0
 W. Lng. 119 57 25.0
 Protected
 60 dBu

Channel = 285D
 Max ERP = 0.24 kW
 RCAMSL = 1695 m
 N. Lat. 39 35 02.0
 W. Lng. 119 47 55.0
 Interfering
 40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
329.0	000.2500	0064.0	010.5	197.0	000.0819	0204.5	065.1	32.77	
330.0	000.2500	0064.0	010.5	196.9	000.0824	0205.2	065.0	32.87	
331.0	000.2500	0064.0	010.5	196.8	000.0828	0205.8	064.9	32.97	
332.0	000.2500	0064.0	010.5	196.7	000.0833	0206.5	064.7	33.06	
333.0	000.2500	0064.0	010.5	196.6	000.0838	0207.2	064.6	33.16	
334.0	000.2500	0063.9	010.5	196.4	000.0843	0208.0	064.5	33.26	
335.0	000.2500	0063.7	010.4	196.3	000.0848	0208.8	064.4	33.35	
336.0	000.2500	0063.4	010.4	196.2	000.0854	0209.6	064.3	33.45	
337.0	000.2500	0063.0	010.4	196.0	000.0859	0210.4	064.2	33.55	
338.0	000.2500	0062.7	010.4	195.9	000.0865	0211.3	064.1	33.64	
339.0	000.2500	0062.4	010.4	195.8	000.0871	0212.2	064.0	33.74	
340.0	000.2500	0062.0	010.3	195.6	000.0877	0213.1	063.9	33.83	
341.0	000.2500	0061.5	010.3	195.5	000.0884	0214.0	063.8	33.93	
342.0	000.2500	0060.9	010.2	195.3	000.0890	0214.9	063.8	34.02	
343.0	000.2500	0060.2	010.2	195.2	000.0897	0215.8	063.7	34.10	
344.0	000.2500	0059.7	010.2	195.0	000.0903	0216.6	063.7	34.19	
345.0	000.2500	0059.7	010.2	194.9	000.0909	0217.3	063.6	34.28	
346.0	000.2500	0060.0	010.2	194.7	000.0915	0218.0	063.5	34.37	
347.0	000.2500	0060.6	010.2	194.6	000.0920	0218.6	063.4	34.46	
348.0	000.2500	0061.0	010.3	194.5	000.0926	0219.2	063.2	34.55	
349.0	000.2500	0061.1	010.3	194.3	000.0932	0219.9	063.2	34.63	
350.0	000.2500	0061.2	010.3	194.2	000.0938	0220.5	063.1	34.72	
351.0	000.2500	0061.7	010.3	194.0	000.0944	0221.2	063.0	34.81	
352.0	000.2500	0062.8	010.4	193.9	000.0950	0221.7	062.8	34.90	
353.0	000.2500	0063.6	010.4	193.8	000.0956	0222.4	062.7	35.00	
354.0	000.2500	0064.0	010.5	193.6	000.0962	0223.1	062.6	35.09	
355.0	000.2500	0064.0	010.5	193.5	000.0969	0223.9	062.6	35.17	
356.0	000.2500	0064.0	010.5	193.3	000.0976	0224.8	062.5	35.26	
357.0	000.2500	0064.0	010.5	193.2	000.0983	0225.7	062.5	35.34	
358.0	000.2500	0064.0	010.5	193.0	000.0991	0226.7	062.4	35.43	
359.0	000.2500	0063.7	010.4	192.8	000.0998	0227.6	062.4	35.51	
000.0	000.2500	0062.4	010.4	192.7	000.1006	0228.7	062.4	35.57	
001.0	000.2500	0061.1	010.3	192.5	000.1014	0229.8	062.5	35.62	

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)
002.0	000.2500	0059.8	010.2	192.3	000.1023	0230.8	062.5	35.67
003.0	000.2500	0056.7	009.9	192.1	000.1031	0232.1	062.8	35.68
004.0	000.2500	0049.2	009.2	191.9	000.1043	0233.8	063.5	35.54
005.0	000.2500	0039.7	008.1	191.6	000.1054	0235.6	064.5	35.29
006.0	000.2500	0024.4	007.1	191.4	000.1064	0237.1	065.5	35.04
007.0	000.2500	-0000.6	007.1	191.3	000.1069	0237.9	065.5	35.09
008.0	000.2500	-0027.6	007.1	191.2	000.1074	0238.7	065.5	35.14
009.0	000.2500	-0053.1	007.1	191.1	000.1079	0239.5	065.5	35.19
010.0	000.2500	-0074.8	007.1	191.0	000.1084	0240.3	065.5	35.24
011.0	000.2500	-0095.4	007.1	190.9	000.1089	0241.1	065.5	35.29
012.0	000.2500	-0115.3	007.1	190.7	000.1094	0241.8	065.5	35.34
013.0	000.2500	-0135.1	007.1	190.6	000.1099	0242.6	065.5	35.38
014.0	000.2500	-0154.2	007.1	190.5	000.1104	0243.3	065.5	35.43
015.0	000.2500	-0174.1	007.1	190.4	000.1110	0244.1	065.5	35.47
016.0	000.2500	-0195.5	007.1	190.3	000.1115	0244.9	065.5	35.51
017.0	000.2500	-0219.1	007.1	190.2	000.1120	0245.6	065.5	35.55
018.0	000.2500	-0244.4	007.1	190.1	000.1125	0246.4	065.5	35.59
019.0	000.2500	-0271.0	007.1	190.0	000.1130	0247.2	065.6	35.63
020.0	000.2500	-0294.1	007.1	189.9	000.1135	0247.9	065.6	35.67
021.0	000.2500	-0312.1	007.1	189.8	000.1140	0248.7	065.6	35.71
022.0	000.2500	-0325.2	007.1	189.7	000.1145	0249.5	065.6	35.75
023.0	000.2500	-0336.2	007.1	189.6	000.1150	0250.3	065.7	35.79
024.0	000.2500	-0345.8	007.1	189.5	000.1155	0251.1	065.7	35.82
025.0	000.2500	-0352.7	007.1	189.4	000.1160	0251.9	065.7	35.86
026.0	000.2500	-0356.6	007.1	189.3	000.1165	0252.7	065.8	35.89
027.0	000.2500	-0356.6	007.1	189.1	000.1170	0253.4	065.8	35.92
028.0	000.2500	-0353.4	007.1	189.0	000.1175	0254.2	065.8	35.95
029.0	000.2500	-0349.6	007.1	188.9	000.1180	0255.0	065.9	35.98
030.0	000.2500	-0348.8	007.1	188.8	000.1185	0255.7	065.9	36.01
031.0	000.2500	-0350.6	007.1	188.7	000.1190	0256.4	066.0	36.04
032.0	000.2500	-0349.9	007.1	188.6	000.1195	0257.2	066.0	36.07
033.0	000.2500	-0343.4	007.1	188.5	000.1200	0257.9	066.1	36.09
034.0	000.2500	-0332.4	007.1	188.5	000.1205	0258.6	066.1	36.11
035.0	000.2500	-0318.1	007.1	188.4	000.1209	0259.3	066.2	36.14
036.0	000.2500	-0304.5	007.1	188.3	000.1214	0259.9	066.2	36.15
037.0	000.2500	-0290.3	007.1	188.2	000.1219	0260.5	066.3	36.17
038.0	000.2500	-0273.1	007.1	188.1	000.1223	0261.1	066.3	36.19
039.0	000.2500	-0251.9	007.1	188.0	000.1228	0261.6	066.4	36.20
040.0	000.2500	-0228.5	007.1	187.9	000.1231	0262.2	066.5	36.21
041.0	000.2352	-0202.1	007.0	187.9	000.1233	0262.4	066.6	36.16
042.0	000.2209	-0173.6	006.9	187.8	000.1234	0262.6	066.8	36.12
043.0	000.2070	-0143.0	006.8	187.8	000.1235	0262.8	066.9	36.08
044.0	000.1936	-0109.4	006.7	187.8	000.1236	0262.9	067.1	36.03
045.0	000.1806	-0074.3	006.5	187.7	000.1237	0263.0	067.3	35.98
046.0	000.1681	-0040.7	006.4	187.7	000.1238	0263.1	067.4	35.93

Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

01-22-2018 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

K285EQ BLFT20160303ABR

CH285D.P

Channel = 285D
 Max ERP = 0.24 kW
 RCAMSL = 1695 m
 N. Lat. 39 35 02.0
 W. Lng. 119 47 55.0
 Protected
 60 dBu

Channel = 285D
 Max ERP = 0.25 kW
 RCAMSL = 1964 m
 N. Lat. 38 56 34.0
 W. Lng. 119 57 25.0
 Interfering
 40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
148.0	000.2400	0291.8	022.0	025.7	000.2500	-0355.6	058.4	28.12	
149.0	000.2400	0299.5	022.3	025.7	000.2500	-0355.7	057.9	28.22	
150.0	000.2400	0305.3	022.5	025.6	000.2500	-0355.6	057.5	28.31	
151.0	000.2400	0310.2	022.7	025.6	000.2500	-0355.3	057.0	28.40	
152.0	000.2400	0316.1	022.9	025.5	000.2500	-0355.1	056.6	28.50	
153.0	000.2400	0322.6	023.1	025.4	000.2500	-0354.8	056.1	28.60	
154.0	000.2400	0327.6	023.3	025.3	000.2500	-0354.3	055.7	28.69	
155.0	000.2400	0330.0	023.4	025.1	000.2500	-0353.3	055.3	28.76	
156.0	000.2400	0330.8	023.4	024.9	000.2500	-0351.9	055.0	28.84	
157.0	000.2400	0330.3	023.4	024.6	000.2500	-0350.0	054.7	28.90	
158.0	000.2400	0329.0	023.4	024.2	000.2500	-0347.7	054.4	28.96	
159.0	000.2400	0328.0	023.3	023.9	000.2500	-0345.1	054.2	29.01	
160.0	000.2400	0328.6	023.3	023.6	000.2500	-0342.5	053.9	29.08	
161.0	000.2400	0330.9	023.4	023.4	000.2500	-0340.0	053.5	29.15	
162.0	000.2400	0333.7	023.5	023.1	000.2500	-0337.2	053.2	29.22	
163.0	000.2400	0335.8	023.6	022.8	000.2500	-0334.2	052.9	29.29	
164.0	000.2400	0336.6	023.6	022.5	000.2500	-0330.6	052.6	29.36	
165.0	000.2400	0336.0	023.6	022.1	000.2500	-0326.5	052.4	29.41	
166.0	000.2400	0334.4	023.5	021.7	000.2500	-0321.9	052.2	29.45	
167.0	000.2400	0332.1	023.5	021.3	000.2500	-0316.5	052.0	29.49	
168.0	000.2400	0328.4	023.3	020.8	000.2500	-0309.7	051.9	29.51	
169.0	000.2400	0324.2	023.2	020.4	000.2500	-0301.7	051.8	29.54	
170.0	000.2400	0320.8	023.1	019.9	000.2500	-0292.7	051.7	29.56	
171.0	000.2400	0318.3	023.0	019.5	000.2500	-0283.2	051.5	29.59	
172.0	000.2400	0316.0	022.9	019.1	000.2500	-0272.6	051.4	29.61	
173.0	000.2400	0313.8	022.8	018.6	000.2500	-0261.2	051.3	29.63	
174.0	000.2400	0312.0	022.8	018.2	000.2500	-0249.5	051.2	29.66	
175.0	000.2400	0310.1	022.7	017.8	000.2500	-0238.0	051.1	29.68	
176.0	000.2400	0307.8	022.6	017.3	000.2500	-0226.7	051.0	29.70	
177.0	000.2400	0305.7	022.5	016.9	000.2500	-0215.7	051.0	29.71	
178.0	000.2400	0303.2	022.5	016.4	000.2500	-0205.0	050.9	29.72	

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)
179.0	000.2400	0300.3	022.4	016.0	000.2500	-0194.6	050.9	29.72
180.0	000.2400	0297.4	022.2	015.5	000.2500	-0184.7	050.9	29.73
181.0	000.2400	0293.7	022.1	015.0	000.2500	-0175.0	050.9	29.72
182.0	000.2400	0289.8	022.0	014.6	000.2500	-0165.7	051.0	29.71
183.0	000.2400	0285.9	021.8	014.1	000.2500	-0156.8	051.0	29.70
184.0	000.2400	0281.5	021.7	013.7	000.2500	-0148.2	051.1	29.68
185.0	000.2400	0276.6	021.5	013.2	000.2500	-0139.6	051.2	29.65
186.0	000.2400	0271.9	021.3	012.8	000.2500	-0131.1	051.4	29.62
187.0	000.2400	0266.9	021.1	012.4	000.2500	-0122.5	051.5	29.59
188.0	000.2400	0261.5	020.9	011.9	000.2500	-0114.1	051.7	29.55
189.0	000.2400	0254.6	020.6	011.5	000.2500	-0105.8	051.9	29.50
190.0	000.2400	0247.1	020.4	011.1	000.2500	-0097.8	052.2	29.44
191.0	000.2400	0240.0	020.1	010.7	000.2500	-0089.9	052.5	29.38
192.0	000.2400	0232.8	019.8	010.4	000.2500	-0082.1	052.8	29.31
193.0	000.2400	0226.7	019.5	010.0	000.2500	-0074.7	053.1	29.25
194.0	000.2400	0221.4	019.3	009.6	000.2500	-0067.5	053.3	29.20
195.0	000.2400	0216.6	019.1	009.3	000.2500	-0060.2	053.6	29.15
196.0	000.2400	0210.7	018.8	009.0	000.2500	-0052.7	053.9	29.08
197.0	000.2400	0204.7	018.5	008.7	000.2500	-0045.1	054.2	29.02
198.0	000.2400	0198.1	018.3	008.4	000.2500	-0037.8	054.5	28.94
199.0	000.2400	0190.4	017.9	008.1	000.2500	-0031.1	054.9	28.86
200.0	000.2400	0181.2	017.5	007.9	000.2500	-0025.1	055.4	28.76
201.0	000.2400	0172.4	017.1	007.7	000.2500	-0019.7	055.9	28.65
202.0	000.2400	0164.8	016.6	007.5	000.2500	-0014.5	056.3	28.55
203.0	000.2400	0157.9	016.2	007.3	000.2500	-0009.8	056.8	28.45
204.0	000.2400	0152.0	015.8	007.2	000.2500	-0005.3	057.3	28.36
205.0	000.2400	0149.2	015.7	007.0	000.2500	0000.3	057.5	28.30
206.0	000.2400	0147.8	015.6	006.7	000.2500	0006.5	057.7	28.27
207.0	000.2400	0145.2	015.4	006.5	000.2500	0011.8	057.9	28.22
208.0	000.2400	0141.3	015.2	006.4	000.2500	0015.9	058.2	28.15
209.0	000.2400	0137.6	014.9	006.2	000.2500	0019.6	058.6	28.08
210.0	000.2400	0133.7	014.7	006.1	000.2500	0022.7	058.9	28.02
211.0	000.2400	0129.8	014.5	005.9	000.2500	0025.5	059.2	27.95
212.0	000.2400	0127.3	014.3	005.8	000.2500	0028.5	059.4	27.90
213.0	000.2400	0127.5	014.3	005.6	000.2500	0032.2	059.5	28.18
214.0	000.2400	0131.1	014.6	005.3	000.2500	0036.7	059.5	28.77
215.0	000.2400	0137.7	014.9	004.9	000.2500	0041.1	059.2	29.37
216.0	000.2400	0145.7	015.4	004.4	000.2500	0045.6	059.0	29.98
217.0	000.2400	0156.0	016.1	003.8	000.2500	0050.8	058.6	30.67
218.0	000.2400	0164.0	016.6	003.3	000.2500	0054.8	058.3	31.15
219.0	000.2400	0167.0	016.8	003.0	000.2500	0056.8	058.3	31.33
220.0	000.2400	0163.7	016.6	002.9	000.2500	0057.3	058.7	31.29
221.0	000.2400	0156.7	016.1	002.9	000.2500	0057.2	059.2	31.12
222.0	000.2400	0150.6	015.8	002.9	000.2500	0057.1	059.6	30.98
223.0	000.2400	0149.1	015.7	002.8	000.2500	0057.7	059.9	30.96

Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 01-22-2018 - FCC NGDC 30 Sec
CH285D.P's Overlaps (In= 9.97 km, Out= 12.38 km)

CH285D.P CH 285 D DA
Lat= 38 56 34.0, Lng= 119 57 25.0
0.25 kW -116.1 m HAAT, 1964 m COR
Prot.= 60 dBu, Intef.= 54 dBu

K286AG CH 286 D DA BLFT19981013TN
Lat= 39 12 50.0, Lng= 119 46 10.0
0.15 kW 73 m HAAT, 1815 m COR
Prot.= 60 dBu, Intef.= 54 dBu

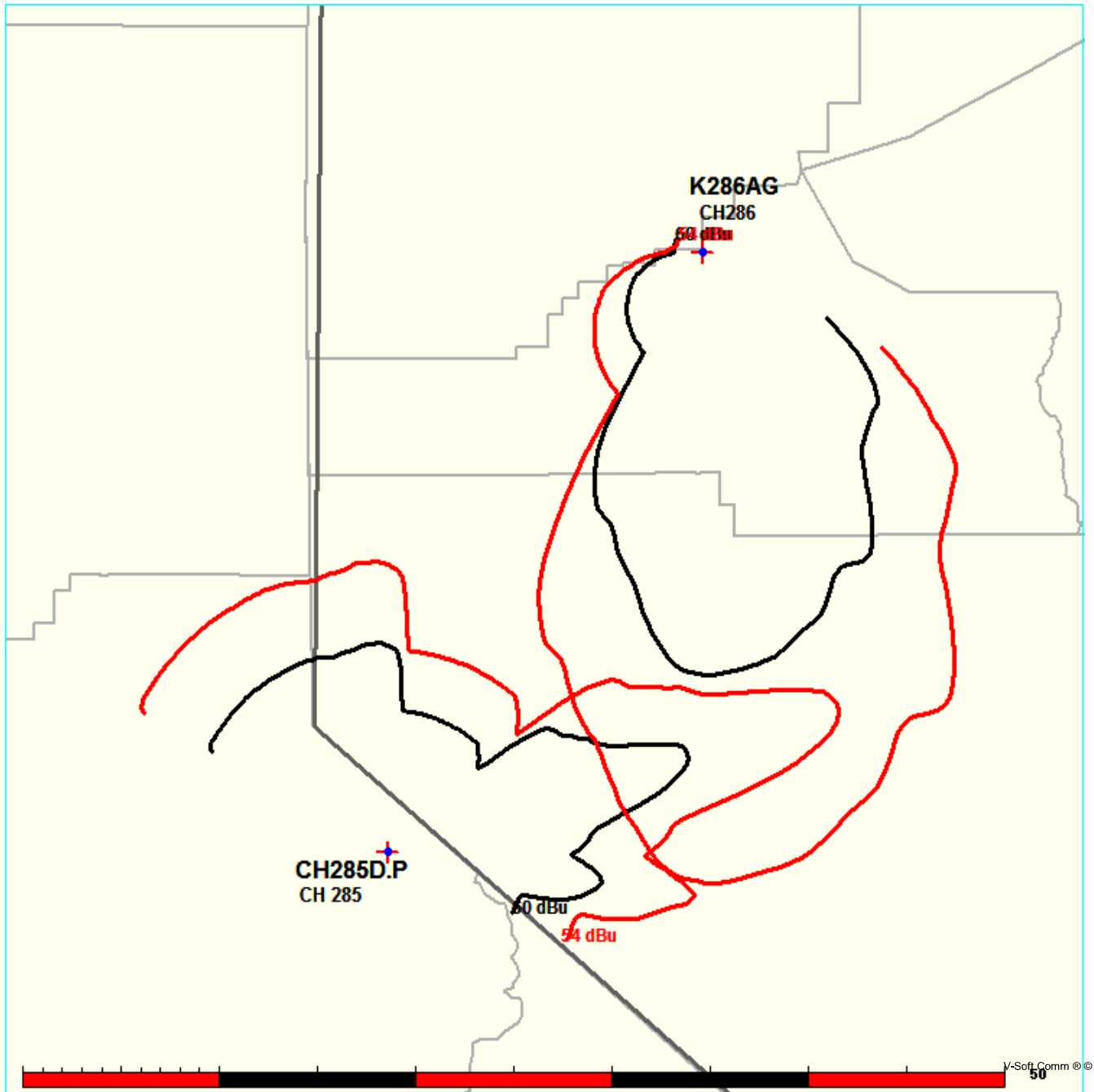


Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

01-22-2018

Terrain Data: FCC NGDC 30 Sec

FMOver Analysis

CH285D.P

K286AG BLFT19981013TN

Channel = 285D
 Max ERP = 0.25 kW
 RCAMSL = 1964 m
 N. Lat. 38 56 34.0
 W. Lng. 119 57 25.0
 Protected
 60 dBu

Channel = 286D
 Max ERP = 0.15 kW
 RCAMSL = 1815 m
 N. Lat. 39 12 50.0
 W. Lng. 119 46 10.0
 Interfering
 54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
347.0	000.2500	0060.6	010.2	222.5	000.0023	-0256.7	027.4	17.21	
348.0	000.2500	0061.0	010.3	222.4	000.0023	-0253.5	027.2	17.47	
349.0	000.2500	0061.1	010.3	222.2	000.0025	-0248.9	027.0	17.77	
350.0	000.2500	0061.2	010.3	221.9	000.0026	-0244.0	026.9	18.07	
351.0	000.2500	0061.7	010.3	221.8	000.0027	-0240.2	026.7	18.33	
352.0	000.2500	0062.8	010.4	221.6	000.0028	-0237.3	026.5	18.56	
353.0	000.2500	0063.6	010.4	221.5	000.0028	-0233.7	026.4	18.82	
354.0	000.2500	0064.0	010.5	221.2	000.0030	-0228.6	026.2	19.11	
355.0	000.2500	0064.0	010.5	221.0	000.0031	-0222.0	026.1	19.43	
356.0	000.2500	0064.0	010.5	220.7	000.0033	-0215.2	026.0	19.75	
357.0	000.2500	0064.0	010.5	220.4	000.0035	-0208.2	025.8	20.07	
358.0	000.2500	0064.0	010.5	220.1	000.0037	-0200.9	025.7	20.39	
359.0	000.2500	0063.7	010.4	219.8	000.0039	-0192.3	025.6	20.72	
000.0	000.2500	0062.4	010.4	219.3	000.0043	-0181.4	025.6	21.08	
001.0	000.2500	0061.1	010.3	218.9	000.0046	-0169.6	025.5	21.43	
002.0	000.2500	0059.8	010.2	218.4	000.0049	-0157.5	025.5	21.76	
003.0	000.2500	0056.7	009.9	217.8	000.0055	-0139.8	025.6	22.18	
004.0	000.2500	0049.2	009.2	216.6	000.0070	-0104.7	026.1	22.88	
005.0	000.2500	0039.7	008.1	215.1	000.0090	-0062.1	026.9	23.48	
006.0	000.2500	0024.4	007.1	213.8	000.0110	-0024.8	027.8	23.85	
007.0	000.2500	-0000.6	007.1	213.6	000.0114	-0018.1	027.7	24.03	
008.0	000.2500	-0027.6	007.1	213.4	000.0118	-0011.2	027.7	24.21	
009.0	000.2500	-0053.1	007.1	213.1	000.0122	-0004.2	027.6	24.38	
010.0	000.2500	-0074.8	007.1	212.9	000.0126	0002.9	027.6	24.55	
011.0	000.2500	-0095.4	007.1	212.7	000.0130	0009.9	027.5	24.72	
012.0	000.2500	-0115.3	007.1	212.4	000.0134	0017.4	027.5	24.89	
013.0	000.2500	-0135.1	007.1	212.2	000.0139	0024.9	027.4	25.06	
014.0	000.2500	-0154.2	007.1	211.9	000.0143	0032.4	027.4	25.78	
015.0	000.2500	-0174.1	007.1	211.7	000.0148	0039.8	027.4	27.61	
016.0	000.2500	-0195.5	007.1	211.4	000.0153	0047.1	027.3	29.25	
017.0	000.2500	-0219.1	007.1	211.2	000.0158	0054.4	027.3	30.68	
018.0	000.2500	-0244.4	007.1	210.9	000.0163	0061.4	027.3	31.85	

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)
019.0	000.2500	-0271.0	007.1	210.7	000.0168	0068.3	027.2	32.86
020.0	000.2500	-0294.1	007.1	210.4	000.0173	0074.8	027.2	33.80
021.0	000.2500	-0312.1	007.1	210.2	000.0178	0081.0	027.2	34.66
022.0	000.2500	-0325.2	007.1	209.9	000.0184	0086.7	027.2	35.44
023.0	000.2500	-0336.2	007.1	209.6	000.0189	0092.1	027.2	36.14
024.0	000.2500	-0345.8	007.1	209.4	000.0195	0097.2	027.1	36.78
025.0	000.2500	-0352.7	007.1	209.1	000.0200	0101.8	027.1	37.35
026.0	000.2500	-0356.6	007.1	208.9	000.0206	0106.0	027.1	37.85
027.0	000.2500	-0356.6	007.1	208.6	000.0212	0110.1	027.1	38.32
028.0	000.2500	-0353.4	007.1	208.3	000.0218	0113.8	027.1	38.73
029.0	000.2500	-0349.6	007.1	208.1	000.0224	0117.5	027.1	39.12
030.0	000.2500	-0348.8	007.1	207.8	000.0230	0120.7	027.1	39.45
031.0	000.2500	-0350.6	007.1	207.6	000.0235	0124.0	027.1	39.77
032.0	000.2500	-0349.9	007.1	207.3	000.0241	0127.0	027.1	40.07
033.0	000.2500	-0343.4	007.1	207.0	000.0247	0129.8	027.2	40.35
034.0	000.2500	-0332.4	007.1	206.8	000.0253	0132.4	027.2	40.60
035.0	000.2500	-0318.1	007.1	206.5	000.0258	0134.8	027.2	40.85
036.0	000.2500	-0304.5	007.1	206.3	000.0264	0137.0	027.2	41.08
037.0	000.2500	-0290.3	007.1	206.0	000.0270	0139.0	027.2	41.29
038.0	000.2500	-0273.1	007.1	205.7	000.0276	0140.9	027.3	41.50
039.0	000.2500	-0251.9	007.1	205.5	000.0282	0142.7	027.3	41.69
040.0	000.2500	-0228.5	007.1	205.2	000.0288	0144.5	027.3	41.87
041.0	000.2352	-0202.1	007.0	205.1	000.0293	0145.7	027.4	41.93
042.0	000.2209	-0173.6	006.9	204.9	000.0297	0146.9	027.6	41.98
043.0	000.2070	-0143.0	006.8	204.7	000.0301	0148.1	027.7	42.02
044.0	000.1936	-0109.4	006.7	204.6	000.0305	0149.1	027.9	42.05
045.0	000.1806	-0074.3	006.5	204.4	000.0308	0150.1	028.0	42.06
046.0	000.1681	-0040.7	006.4	204.3	000.0311	0150.9	028.2	42.06
047.0	000.1560	-0010.7	006.3	204.2	000.0314	0151.8	028.3	42.06
048.0	000.1444	0015.0	006.2	204.1	000.0317	0152.5	028.5	42.04
049.0	000.1332	0037.4	006.7	203.4	000.0333	0156.5	028.0	42.78
050.0	000.1225	0057.1	008.2	201.7	000.0379	0160.9	026.7	44.45
051.0	000.1225	0072.5	009.3	200.3	000.0418	0162.3	025.9	45.53
052.0	000.1225	0083.1	009.9	199.2	000.0450	0166.3	025.5	46.38
053.0	000.1225	0088.9	010.2	198.5	000.0472	0171.8	025.3	47.02
054.0	000.1225	0091.6	010.4	198.0	000.0488	0176.6	025.3	47.42
055.0	000.1225	0092.9	010.5	197.5	000.0499	0180.6	025.3	47.67
056.0	000.1225	0094.9	010.6	197.1	000.0511	0185.3	025.4	47.95
057.0	000.1225	0097.8	010.7	196.5	000.0525	0190.7	025.4	48.32
058.0	000.1225	0101.9	010.9	195.9	000.0541	0196.9	025.3	48.74
059.0	000.1225	0106.0	011.1	195.2	000.0558	0202.3	025.3	49.12
060.0	000.1225	0109.5	011.3	194.7	000.0573	0206.2	025.3	49.39
061.0	000.1332	0110.8	011.6	193.9	000.0595	0210.7	025.3	49.78
062.0	000.1444	0110.0	011.8	193.2	000.0612	0214.2	025.3	50.02
063.0	000.1560	0108.8	011.9	192.7	000.0629	0218.5	025.3	50.27

Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

01-22-2018

Terrain Data: FCC NGDC 30 Sec

FMOver Analysis

K286AG BLFT19981013TN

CH285D.P

Channel = 286D

Max ERP = 0.15 kW

RCAMSL = 1815 m

N. Lat. 39 12 50.0

W. Lng. 119 46 10.0

Protected

60 dBu

Channel = 285D

Max ERP = 0.25 kW

RCAMSL = 1964 m

N. Lat. 38 56 34.0

W. Lng. 119 57 25.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
163.0	000.1075	0332.8	019.3	061.8	000.1426	0110.3	024.8	48.20	
164.0	000.1101	0334.5	019.5	062.0	000.1449	0109.9	024.4	48.50	
165.0	000.1126	0335.5	019.6	062.2	000.1466	0109.6	024.0	48.79	
166.0	000.1152	0338.1	019.8	062.4	000.1494	0109.4	023.7	49.13	
167.0	000.1178	0342.3	020.0	062.8	000.1532	0109.1	023.3	49.50	
168.0	000.1205	0345.8	020.2	063.0	000.1565	0108.8	022.9	49.85	
169.0	000.1232	0348.7	020.4	063.3	000.1591	0108.7	022.5	50.21	
170.0	000.1259	0351.8	020.6	063.5	000.1618	0108.7	022.1	50.59	
171.0	000.1276	0354.5	020.8	063.6	000.1629	0108.7	021.7	50.91	
172.0	000.1294	0355.0	020.8	063.5	000.1618	0108.7	021.3	51.17	
173.0	000.1312	0355.0	020.9	063.3	000.1601	0108.7	021.0	51.41	
174.0	000.1330	0355.0	021.0	063.2	000.1581	0108.7	020.6	51.65	
175.0	000.1348	0355.0	021.1	063.0	000.1559	0108.8	020.2	51.88	
176.0	000.1366	0355.0	021.1	062.8	000.1533	0109.1	019.9	52.12	
177.0	000.1385	0355.0	021.2	062.5	000.1504	0109.3	019.5	52.35	
178.0	000.1403	0355.0	021.3	062.2	000.1472	0109.6	019.1	52.57	
179.0	000.1422	0353.6	021.3	061.8	000.1424	0110.3	018.8	52.76	
180.0	000.1441	0351.0	021.3	061.3	000.1363	0110.7	018.5	52.87	
181.0	000.1446	0348.4	021.2	060.6	000.1285	0110.6	018.2	52.85	
182.0	000.1452	0345.8	021.2	059.8	000.1225	0108.9	017.9	52.75	
183.0	000.1458	0341.8	021.1	058.9	000.1225	0105.7	017.6	52.69	
184.0	000.1464	0334.8	020.9	057.7	000.1225	0100.8	017.4	52.43	
185.0	000.1470	0324.7	020.6	056.3	000.1225	0095.8	017.3	52.06	
186.0	000.1476	0311.3	020.2	054.5	000.1225	0092.3	017.3	51.75	
187.0	000.1482	0297.5	019.8	052.7	000.1225	0087.5	017.3	51.23	
188.0	000.1488	0285.2	019.4	051.0	000.1225	0072.0	017.4	49.50	
189.0	000.1494	0271.7	019.0	049.2	000.1315	0040.6	017.5	44.67	
190.0	000.1500	0255.8	018.4	047.2	000.1537	-0005.1	017.7	42.58	
191.0	000.1494	0240.6	017.8	045.3	000.1772	-0064.8	018.0	42.96	

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)
192.0	000.1488	0226.0	017.2	043.4	000.2009	-0128.1	018.3	43.23
193.0	000.1482	0215.8	016.8	042.0	000.2213	-0174.3	018.6	43.47
194.0	000.1476	0210.0	016.5	040.8	000.2381	-0207.0	018.6	43.71
195.0	000.1470	0204.1	016.3	039.7	000.2500	-0236.9	018.8	43.82
196.0	000.1464	0195.9	015.9	038.4	000.2500	-0264.5	019.0	43.65
197.0	000.1458	0185.9	015.5	037.2	000.2500	-0287.0	019.3	43.40
198.0	000.1452	0176.3	015.1	036.1	000.2500	-0303.6	019.6	43.16
199.0	000.1446	0167.8	014.7	035.0	000.2500	-0318.1	019.9	42.91
200.0	000.1441	0163.1	014.4	034.1	000.2500	-0330.9	020.1	42.78
201.0	000.1422	0161.4	014.3	033.3	000.2500	-0339.9	020.1	42.73
202.0	000.1403	0160.7	014.2	032.6	000.2500	-0346.8	020.2	42.70
203.0	000.1385	0158.5	014.0	031.8	000.2500	-0350.4	020.3	42.61
204.0	000.1366	0153.0	013.7	031.0	000.2500	-0350.7	020.6	42.39
205.0	000.1348	0146.1	013.3	030.3	000.2500	-0349.4	020.9	42.11
206.0	000.1330	0139.0	012.9	029.6	000.2500	-0348.5	021.3	41.82
207.0	000.1312	0130.1	012.5	028.9	000.2500	-0349.9	021.8	41.47
208.0	000.1294	0118.4	011.9	028.3	000.2500	-0352.1	022.3	41.03
209.0	000.1276	0103.8	011.1	027.8	000.2500	-0354.1	023.1	40.49
210.0	000.1259	0084.5	010.1	027.5	000.2500	-0355.5	024.2	39.72
211.0	000.1232	0059.3	008.4	027.3	000.2500	-0356.0	025.8	38.61
212.0	000.1205	0030.0	005.9	027.4	000.2500	-0355.7	028.3	37.10
213.0	000.1178	-0000.4	005.9	027.2	000.2500	-0356.2	028.4	37.08
214.0	000.1152	-0030.3	005.8	027.0	000.2500	-0356.6	028.4	37.06
215.0	000.1126	-0059.2	005.8	026.8	000.2500	-0356.9	028.5	37.03
216.0	000.1101	-0087.6	005.8	026.6	000.2500	-0357.0	028.5	37.00
217.0	000.1075	-0117.0	005.7	026.4	000.2500	-0357.1	028.6	36.98
218.0	000.1050	-0146.2	005.7	026.2	000.2500	-0357.0	028.6	36.95
219.0	000.1026	-0173.2	005.7	026.1	000.2500	-0356.7	028.7	36.92
220.0	000.1001	-0198.4	005.6	025.9	000.2500	-0356.3	028.7	36.89
221.0	000.0970	-0222.7	005.6	025.7	000.2500	-0355.8	028.8	36.85
222.0	000.0940	-0245.6	005.5	025.6	000.2500	-0355.3	028.9	36.81
223.0	000.0910	-0266.2	005.5	025.4	000.2500	-0354.7	028.9	36.78
224.0	000.0881	-0286.5	005.5	025.3	000.2500	-0354.0	029.0	36.74
225.0	000.0852	-0308.4	005.4	025.1	000.2500	-0353.3	029.1	36.70
226.0	000.0823	-0330.4	005.4	025.0	000.2500	-0352.5	029.1	36.66
227.0	000.0795	-0348.2	005.3	024.8	000.2500	-0351.7	029.2	36.62
228.0	000.0768	-0361.4	005.3	024.7	000.2500	-0350.9	029.3	36.58
229.0	000.0741	-0370.2	005.2	024.6	000.2500	-0350.0	029.4	36.54
230.0	000.0714	-0375.1	005.2	024.4	000.2500	-0349.2	029.5	36.49
231.0	000.0684	-0377.2	005.1	024.3	000.2500	-0348.4	029.6	36.45
232.0	000.0655	-0378.5	005.1	024.2	000.2500	-0347.7	029.7	36.40
233.0	000.0626	-0376.8	005.0	024.1	000.2500	-0347.0	029.7	36.35
234.0	000.0598	-0374.7	004.9	024.1	000.2500	-0346.2	029.8	36.31
235.0	000.0571	-0375.1	004.9	024.0	000.2500	-0345.5	029.9	36.26

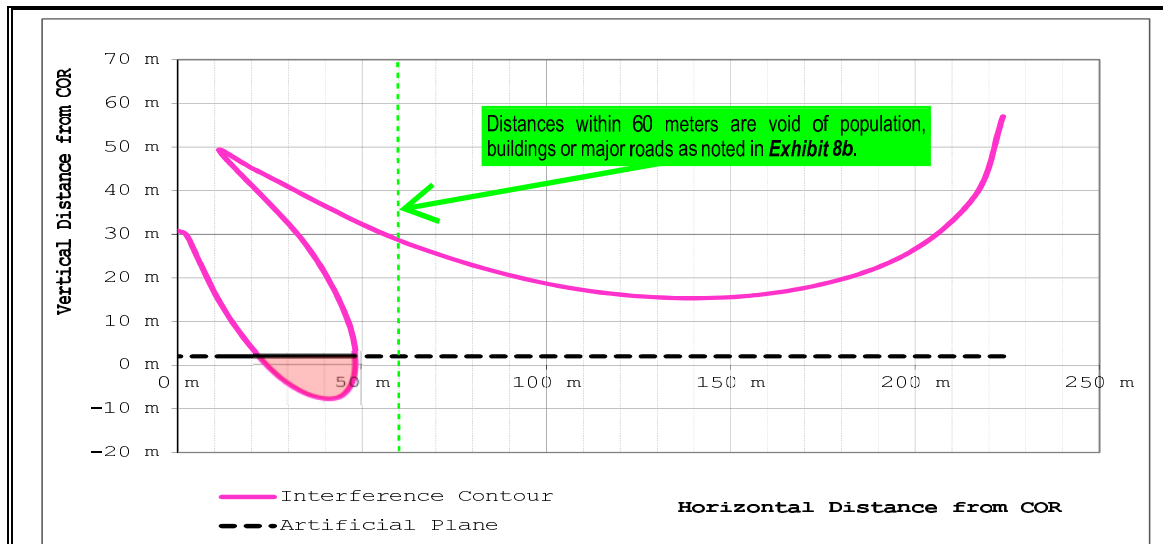
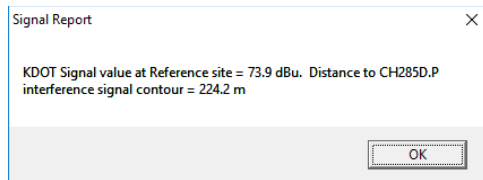
Exhibit 8a

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

The applicant would like to note the existence of a 47 C.F.R. Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KDOT(FM) - Reno, NV (CH283C) as included in **Exhibit(s) 8(a-b)**. In this instance, the affected station's signal strength at the Translator site has been identified as the 73.9 dBμ F(50:50) service contour, associated with a Translator interference contour adjusted by +40 dBμ per 47 C.F.R. Section 74.1204(a).

Concerning distances between 60 meters of the Translator site to the extent of the interference contour, protection has been demonstrated through a downward radiation study as included in **Exhibit 8a**. Full protection will be afforded all concerns as this portion of the interference area will not reach the ground nor a two meter artificial plane representing a standard human at ground level when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's vertical radiation pattern data has been included in **Exhibit 9**.

Concerning distances within 60 meters of the Translator site, protection has been demonstrated through aerial photography of the site as included in **Exhibit 8b**. Full protection will be afforded all concerns as this portion of the interference area is void of all housing, buildings or major roads representing locations where people live, work or travel on a regular basis. The applicant would like to note the existence of the dedicated transmitter building within this affected radius, however, buildings of this nature have been routinely exempt as a matter of FCC Policy (see similar grant under BPFT-20160129ALR).

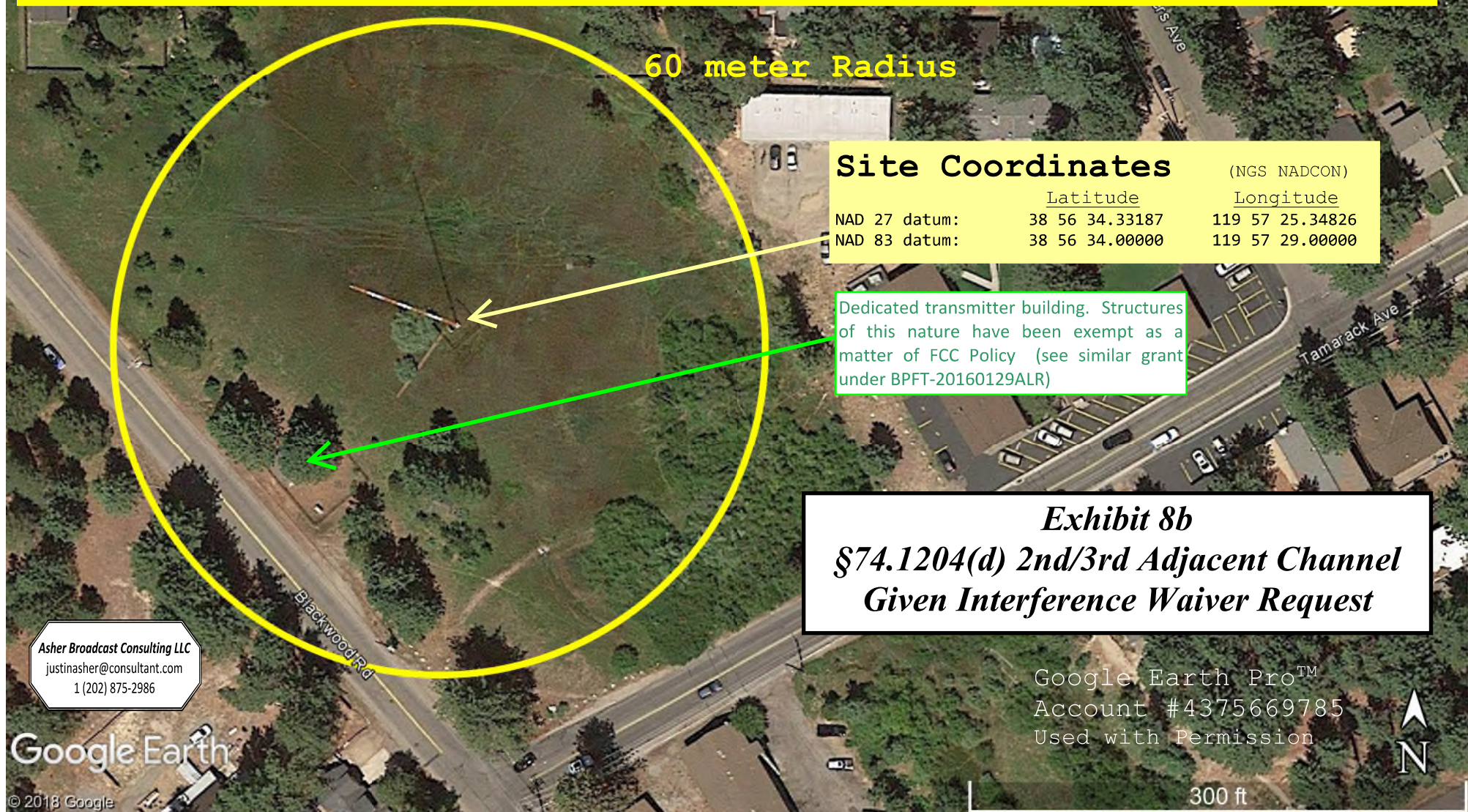


Proposed Antenna: 2 Bay Nicom BKG77/2L(0.85WL)					Field Strength (dBu) Equation $106.92 - (20 * (\text{LOG10}[\text{DistMeters}/1000])) + [\text{ERP in dBk}]$			
Proposed Power: 0.250 kW					Distance (Free Space) Equation: $(10^{((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]) / 20)) * 1000}$			
Antenna Height AGL: 57.0 meters								
Protection Plane Height: 2.0 meters								
Protected Contour: 73.90 dBμ f(50:50)								
Interference Contour: 113.90 dBμ f(50:10)								
Angle Below Horizon	Vertical 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	223.86 m				
-5°	0.967	0.234	-6.31	216.47 m	631.05 m	654.00 m	104.61 dBμ	104.30 dBμ
-10°	0.871	0.190	-7.22	194.98 m	316.73 m	328.25 m	109.69 dBμ	109.38 dBμ
-15°	0.711	0.126	-8.98	159.16 m	212.50 m	220.23 m	111.39 dBμ	111.08 dBμ
-20°	0.518	0.067	-11.73	115.96 m	160.81 m	166.66 m	111.06 dBμ	110.75 dBμ
-25°	0.310	0.024	-16.19	69.40 m	130.14 m	134.87 m	108.44 dBμ	108.13 dBμ
-30°	0.112	0.003	-25.04	25.07 m	110.00 m	114.00 m	101.06 dBμ	100.75 dBμ
-35°	0.062	0.001	-30.17	13.88 m	95.89 m	99.38 m	97.11 dBμ	96.80 dBμ
-40°	0.198	0.010	-20.09	44.32 m	85.56 m	88.68 m	108.19 dBμ	107.88 dBμ
-45°	0.288	0.021	-16.83	64.47 m	77.78 m	80.61 m	112.27 dBμ	111.96 dBμ
-50°	0.336	0.028	-15.49	75.22 m	71.80 m	74.41 m	114.30 dBμ	113.99 dBμ
-55°	0.349	0.030	-15.16	78.13 m	67.14 m	69.58 m	115.22 dBμ	114.91 dBμ
-60°	0.331	0.027	-15.62	74.10 m	63.51 m	65.82 m	115.24 dBμ	114.93 dBμ
-65°	0.295	0.022	-16.62	66.04 m	60.69 m	62.89 m	114.63 dBμ	114.32 dBμ
-70°	0.246	0.015	-18.20	55.07 m	58.53 m	60.66 m	113.37 dBμ	113.06 dBμ
-75°	0.197	0.010	-20.13	44.10 m	56.94 m	59.01 m	111.68 dBμ	111.37 dBμ
-80°	0.151	0.006	-22.44	33.80 m	55.85 m	57.88 m	109.54 dBμ	109.23 dBμ
-85°	0.122	0.004	-24.29	27.31 m	55.21 m	57.22 m	107.79 dBμ	107.48 dBμ
-90°	0.117	0.003	-24.66	26.19 m	55.00 m	57.00 m	107.46 dBμ	107.15 dBμ

The applicant would like to note the existence of a 47 C.F.R. Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KDOT(FM) - Reno, NV (CH283C) as included in **Exhibit(s) 8(a-b)**. In this instance, the affected station's signal strength at the Translator site has been identified as the 73.9 dBμ F(50:50) service contour, associated with a Translator interference contour adjusted by +40 dBμ per 47 C.F.R. Section 74.1204(a).

Concerning distances between 60 meters of the Translator site to the extent of the interference contour, protection has been demonstrated through a downward radiation study as included in **Exhibit 8a**. Full protection will be afforded all concerns as this portion of the interference area will not reach the ground nor a two meter artificial plane representing a standard human at ground level when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's vertical radiation pattern data has been included in **Exhibit 9**.

Concerning distances within 60 meters of the Translator site, protection has been demonstrated through aerial photography of the site as included in **Exhibit 8b**. Full protection will be afforded all concerns as this portion of the interference area is void of all housing, buildings or major roads representing locations where people live, work or travel on a regular basis. The applicant would like to note the existence of the dedicated transmitter building within this affected radius, however, buildings of this nature have been routinely exempt as a matter of FCC Policy (see similar grant under BPFT-20160129ALR).

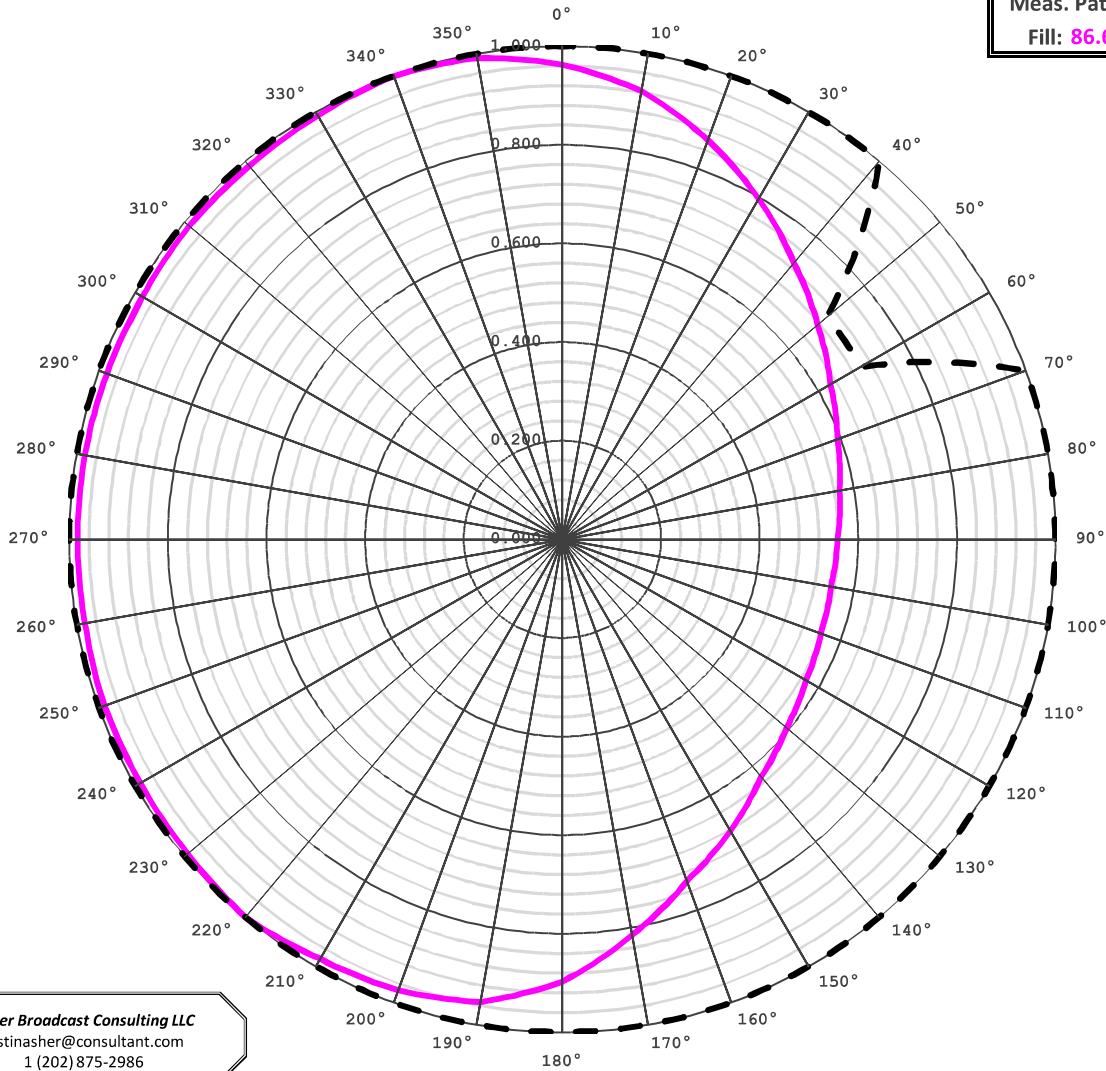


Manufacturer's	Make/Model	Orientation	Power
Element 1:	BKG77	280° True	100.0%
Element 2:			
Element 3:			
Element 4:			

Composite Power: 100%

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

Meas. Pattern
Fill: 86.6%



Azimuth ° True	FCC Pattern	Manufacturer's Pattern
0°	1.000	0.963
10°	1.000	0.923
20°	1.000	0.862
30°	1.000	0.797
40°	1.000	0.731
50°	0.700	0.676
60°	0.700	0.628
70°	1.000	0.594
80°	1.000	0.571
90°	1.000	0.558
100°	1.000	0.553
110°	1.000	0.558
120°	1.000	0.571
130°	1.000	0.594
140°	1.000	0.628
150°	1.000	0.682
160°	1.000	0.738
170°	1.000	0.815
180°	1.000	0.897
190°	1.000	0.953
200°	1.000	0.973
210°	1.000	0.983
220°	1.000	1.000
230°	1.000	0.992
240°	1.000	0.988
250°	1.000	0.988
260°	1.000	0.983
270°	1.000	0.983
280°	1.000	0.983
290°	1.000	0.983
300°	1.000	0.983
310°	1.000	0.988
320°	1.000	0.988
330°	1.000	0.992
340°	1.000	1.000
350°	1.000	0.991

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 280.0°T) (public record copy)



Your Number 1 Source For Radio And Digital TV Gear

BKG 77

Medium Power Broadband FM Circular Polarization Antenna

TECHNICAL SPECIFICATIONS

Antenna type: circular

polarization: dipole

Front-to-back ratio: 3 dB

Frequency range: 87.5 - 108 MHz

Lightening protection: all parts grounded

Bandwidth: 20 MHz

Max wind velocity: 120 mph (190 km/h)

Impedance: 50 ohms

Wind load: 53 Lbs (24 kg)

Connectors: N type (1 kw) -7/8 type / 7/16DIN(2 kw)

Wind surface: 1.1 ft² (0.10 m²)

Power rating: 2000 Watts max

Materials (external): stainless steel

VSWR: < 1.3

Mounting: from 2" to 4"

Polarization: vertical and horizontal

Weight: 25 Lbs (11.3 kg)

Gain: -3 dBd (referred to half-wave dipole)

Dimensions: 58"x32"x32" (1450×800×800mm)

H plane: omnidirectional ±1.5 dB (with a 4" mast)

V plane: omnidirectional ±3 dB (with a 4" mast)

Packing: 68"×10"×10"



Optional Mini-Radome

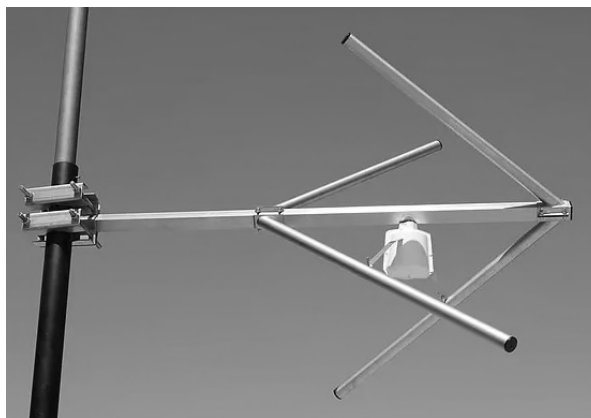
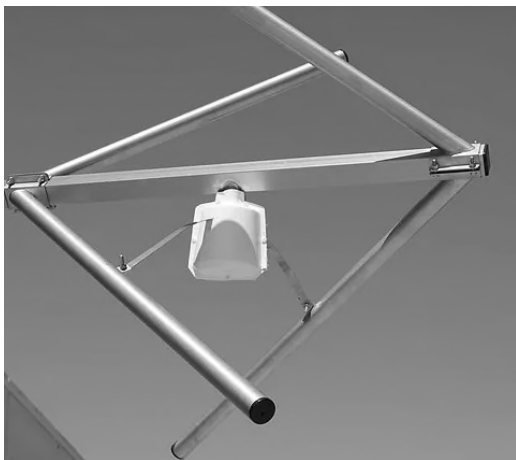


Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 280.0°T) (public record copy)

Date: 29/04/2013

BKG77SINGLE.PRJ

TX station: BKG77-2(0.85WL)

Site name:

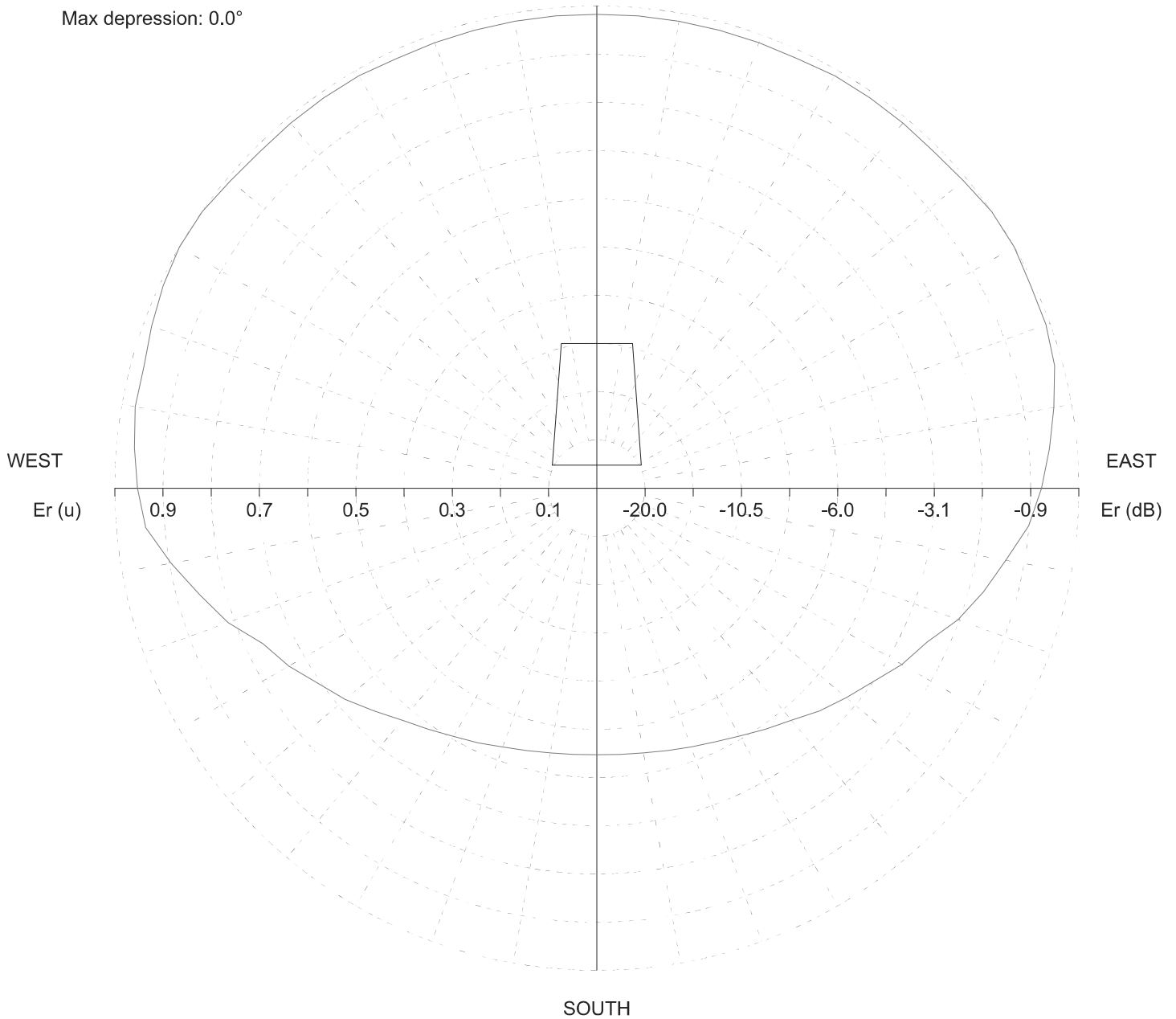
Frequency: 100.00 MHz

Horizontal diagram of Maxima

NORTH

Max azimuth: 60°

Max depression: 0.0°



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

ERP E.max (KW): 0.387

NicomUsa, Inc

Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation

(Actual Antenna Pattern rotated to 280.0°T) (public record copy)

Date: 29/04/2013

BKG77SINGLE.PRJ

TX station: BKG77-2(0.85WL)

Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima

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

Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation

(Actual Antenna Pattern rotated to 280.0°T)

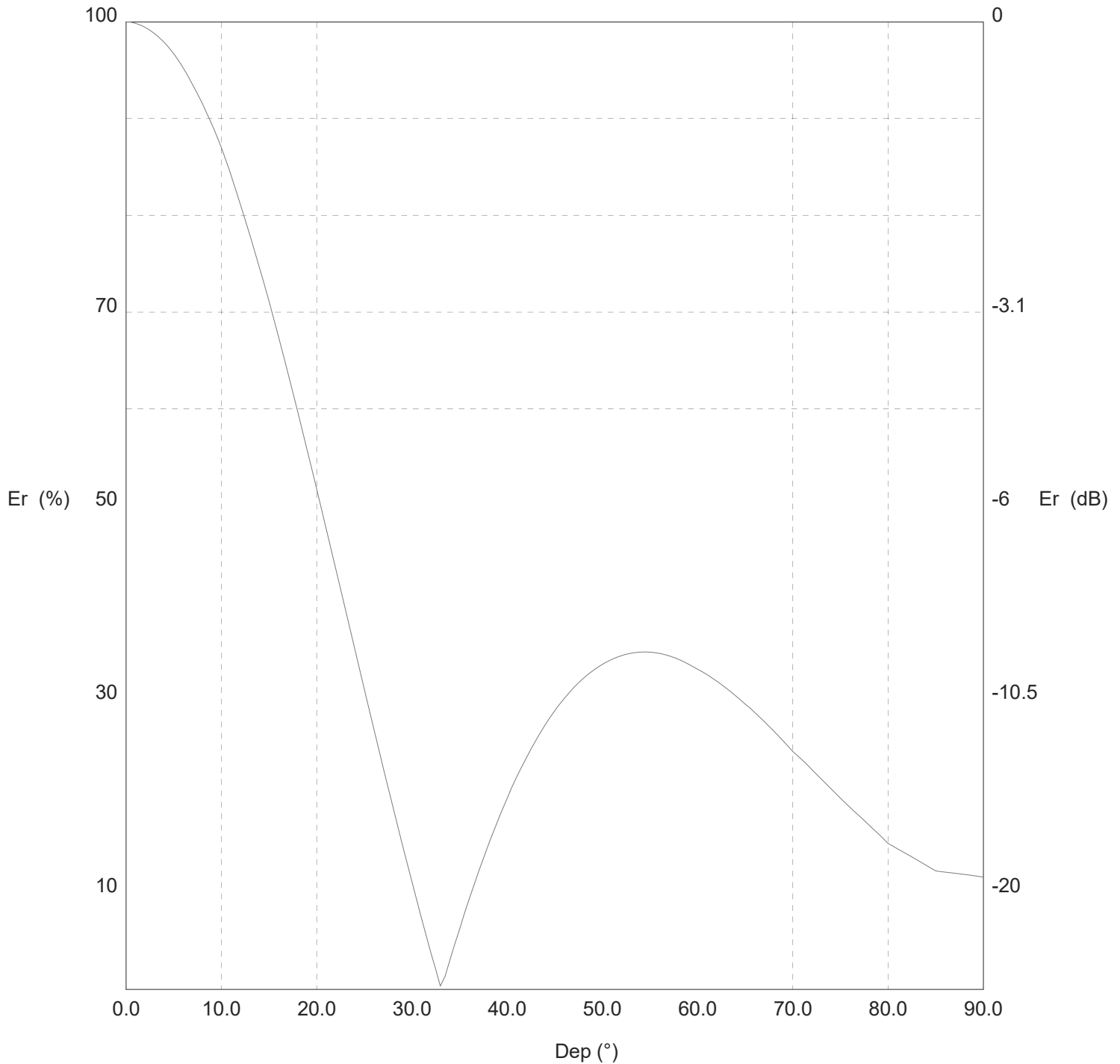
(public record copy)

TX station: BKG77-2(0.85WL)

Site name: 0.85 WAVE SEPARATION

Frequency: 98.10 MHz

Vertical diagram



— 0.0° Az. (Total antenna)

Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation (Actual Antenna Pattern rotated to 280.0°T) (public record copy)

TX station: BKG77-2(0.85WL)

Site name: 0.85 WAVE SEPARATION

Frequency: 98.10 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	914.2	30.0	11.2	11.5	60.0	33.1	100.1
0.5	100.0	913.3	30.5	9.3	7.9	60.5	32.8	98.4
1.0	99.8	911.3	31.0	7.5	5.1	61.0	32.5	96.7
1.5	99.7	908.1	31.5	5.6	2.9	61.5	32.2	94.8
2.0	99.4	903.9	32.0	3.8	1.3	62.0	31.9	92.8
2.5	99.1	898.4	32.5	2.1	0.4	62.5	31.5	90.8
3.0	98.8	891.9	33.0	0.3	0.0	63.0	31.1	88.7
3.5	98.4	884.3	33.5	1.4	0.2	63.5	30.8	86.5
4.0	97.9	875.7	34.0	3.0	0.8	64.0	30.4	84.2
4.5	97.3	865.9	34.5	4.6	2.0	64.5	29.9	81.9
5.0	96.7	855.2	35.0	6.2	3.5	65.0	29.5	79.5
5.5	96.0	842.7	35.5	7.8	5.5	65.5	29.1	77.2
6.0	95.2	829.2	36.0	9.3	7.9	66.0	28.6	74.8
6.5	94.4	814.9	36.5	10.7	10.5	66.5	28.2	72.5
7.0	93.5	799.7	37.0	12.1	13.5	67.0	27.7	70.0
7.5	92.6	783.6	37.5	13.5	16.7	67.5	27.2	67.6
8.0	91.6	766.9	38.0	14.9	20.2	68.0	26.7	65.1
8.5	90.5	749.4	38.5	16.1	23.8	68.5	26.2	62.7
9.0	89.4	731.2	39.0	17.4	27.7	69.0	25.7	60.2
9.5	88.3	712.5	39.5	18.6	31.6	69.5	25.1	57.8
10.0	87.1	693.1	40.0	19.8	35.7	70.0	24.6	55.3
10.5	85.7	670.8	40.5	20.9	39.8	70.5	24.1	53.3
11.0	84.2	648.2	41.0	21.9	43.9	71.0	23.7	51.2
11.5	82.7	625.3	41.5	22.9	48.1	71.5	23.2	49.2
12.0	81.2	602.3	42.0	23.9	52.2	72.0	22.7	47.2
12.5	79.6	579.0	42.5	24.8	56.4	72.5	22.2	45.2
13.0	78.0	555.7	43.0	25.7	60.4	73.0	21.7	43.2
13.5	76.3	532.4	43.5	26.5	64.4	73.5	21.2	41.3
14.0	74.6	509.1	44.0	27.3	68.3	74.0	20.7	39.3
14.5	72.9	485.8	44.5	28.1	72.1	74.5	20.2	37.4
15.0	71.1	462.7	45.0	28.8	75.8	75.0	19.7	35.5
15.5	69.3	439.1	45.5	29.5	79.3	75.5	19.3	33.9
16.0	67.4	415.8	46.0	30.1	82.7	76.0	18.8	32.4
16.5	65.6	392.9	46.5	30.7	85.9	76.5	18.4	30.8
17.0	63.6	370.3	47.0	31.2	88.9	77.0	17.9	29.3
17.5	61.7	348.1	47.5	31.7	91.8	77.5	17.4	27.8
18.0	59.8	326.5	48.0	32.1	94.4	78.0	17.0	26.4
18.5	57.8	305.3	48.5	32.6	96.9	78.5	16.5	24.9
19.0	55.8	284.7	49.0	32.9	99.2	79.0	16.0	23.5
19.5	53.8	264.7	49.5	33.3	101.2	79.5	15.6	22.1
20.0	51.8	245.3	50.0	33.6	103.1	80.0	15.1	20.8
20.5	49.7	226.1	50.5	33.9	104.8	80.5	14.8	20.0
21.0	47.6	207.5	51.0	34.1	106.3	81.0	14.5	19.3
21.5	45.6	189.8	51.5	34.3	107.6	81.5	14.3	18.6
22.0	43.5	172.8	52.0	34.5	108.7	82.0	14.0	17.8
22.5	41.4	156.7	52.5	34.6	109.6	82.5	13.7	17.1
23.0	39.3	141.3	53.0	34.7	110.3	83.0	13.4	16.4
23.5	37.2	126.8	53.5	34.8	110.8	83.5	13.1	15.7
24.0	35.2	113.0	54.0	34.9	111.1	84.0	12.8	15.0
24.5	33.1	100.1	54.5	34.9	111.2	84.5	12.5	14.4
25.0	31.0	88.1	55.0	34.9	111.1	85.0	12.2	13.7
25.5	29.0	76.8	55.5	34.8	110.7	85.5	12.2	13.6
26.0	26.9	66.3	56.0	34.7	110.2	86.0	12.1	13.4
26.5	24.9	56.7	56.5	34.6	109.4	86.5	12.1	13.3
27.0	22.9	47.9	57.0	34.5	108.5	87.0	12.0	13.2
27.5	20.9	39.9	57.5	34.3	107.5	87.5	11.9	13.0
28.0	18.9	32.7	58.0	34.1	106.3	88.0	11.9	12.9
28.5	17.0	26.3	58.5	33.9	104.9	88.5	11.8	12.8
29.0	15.0	20.6	59.0	33.6	103.5	89.0	11.7	12.6
29.5	13.1	15.7	59.5	33.4	101.8	89.5	11.7	12.5