

Technical Report Supporting a Minor Change in Licensed Facility Construction Permit Application

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

for

*K227DD.L - Lake Isabella, CA
(Facility ID: 146385)*

*Adjacent Channel Change,
Power increase, New Directional Antenna
& New Primary Station*

as a

*Commercial, Fill-In
FM Translator for
KRWI(FM) - Wofford Heights, CA*

Table of Contents

Table of Contents

Explanation of Technical Report

Exhibit 1 - Service Contour Study: Present vs Proposed Operations

Exhibit 2 - Service Contour Study: Proposed vs Primary Operations

Exhibit 3 - Copy of Existing Antenna Structure Registration

Exhibit 4 - Vertical Plan of Antenna System

Exhibit 5 - HAAT Calculation & Miscellaneous Coordinate Information

Exhibit 6 - Tabulation of Proposed Allocation

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

Exhibit 8 - §74.1204(d) Second / Third Adjacent Given Interference Waiver Request

Exhibit 9 - Manufacturer's Directional Antenna Pattern Documentation

Supplemental Appendix(s):

RF Appendix 1 - Radio Frequency Radiation Compliance Showing

EXPLANATION OF PROPOSAL: This LMS Schedule 349 Filing and accompanying technical report supports a Minor Change in Licensed Facility Construction Permit Application for FM Translator K227DD.L - Lake Isabella, CA (Facility ID: 146385); License File Number BLFT-20190124AAC. This filing requests an adjacent channel change, an increase in power, a new directional antenna pattern and new Fill-In Translator FM Primary Station. Operation on the new adjacent channel of CH228D (93.5 MHz) with a power of 0.078 kW ERP circular polarization (H&V) is requested. The FM Translator will operate from a COR of 2172.4 meters AMSL at the same site location. This filing will specify rebroadcast of new Class A, FM Primary Station KRWI(FM) - Wofford Heights, CA (CH251A); Facility ID No. 198809 as an FM Fill-In Translator. The Translator will remain licensed to the community of Lake Isabella, CA.

FACILITY COMPLIANCE SHOWINGS: A map of the proposed 60 dB μ service contour in relation to the present 60 dB μ service contour has been included in **Exhibit 1**. The minor change proposed service area will overlap a portion of the present service area as noted in the exhibit. The proposed 60 dB μ contour of the Translator lies wholly inside the larger FM Class A primary 60 dB μ contour. The primary station service contour relationship has been plotted in **Exhibit 2**. *Regarding permission to retransmit the new Primary Station, KRWI(FM) - Wofford Heights, CA (Fac ID: 198809); KRWI(FM) is licensed to Rubin Broadcasting, Inc., but operated by Hill Broadcasting under an LMA (Local Marketing Agreement). Translator K227DD.L - Lake Isabella, CA (Fac ID: 146385) is presently being purchased by Hill Broadcasting under pending application BALFT-20200420AAQ. Therefore, both KRWI(FM) and K227DD(CH228D) are under common control by Hill Broadcasting with permission to rebroadcast implied.*

The proposed facility will be located on the tower bearing Antenna Structure Registration Number 1036459. 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 KISV(FM) - Bakersfield, CA (CH231B). The applicant would further like to note the existence of deleted facility DKNAC - Earlimart, CA (FAC ID: 18171); however, this deleted vacancy no longer requires domestic protection. 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 Requests toward KISV(FM) - Bakersfield, CA (CH231B) as noted in ***Exhibit 8***. The interference contour at the site has been calculated to be no less than the 106.4 dBμ F(50:10) contour corresponding to the 66.4 dBμ F(50:50) 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 ***Exhibit 8*** 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 multiple dedicated transmitter buildings located at the remote mountain top site. However, structures of this nature have been exempt as a matter of FCC Policy (see similar grant under BPFT-20160725ABE).

There are three additional facilities, existing or proposed, close enough to merit further study. Therefore, a supplemental contour protection study has been provided toward each facility as included in ***Exhibit(s) 7(a-c)***.

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, 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 reused on 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 twenty-one 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

July 03, 2020

FCC 30 SEC Terrain Database
US Census 2010 PL Database
NED 1983 Coordinate Datum

Terrain
94 3038 m

Exhibit 1

Service Contour Study: Present vs Proposed Operations

Terra Bella

Proposed 60 dBμ F(50:50) Contour

Present 60 dBμ F(50:50) Contour

rove

K227DD.L
CH228D.P

Kernville

Wofford Heights

Mountain Mesa

Lake Isabella

Bodfish

Oildale

Bakersfield

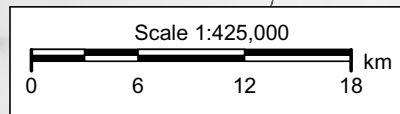
K227DD.L
Lake Isabella, CA
BLFT20190124AAC
Facility ID: 146385
Latitude: 35-42-20.80 N
Longitude: 118-33-34.30 W
ERP: 0.01 kW
Channel: 227D (93.3 MHz)
AMSL Height: 2174.0 m
Horiz. Pattern: Omni

60 dBμ F(50:50) Contour
Total Population: 11,223
Total Area: 752.6 sq. km

CH228D.P
Lake Isabella, CA
Proposed Operation
Facility ID: 146385
Latitude: 35-42-20.60 N
Longitude: 118-33-34.40 W
ERP: 0.078 kW
Channel: 228D (93.5 MHz)
AMSL Height: 2172.4 m
Horiz. Pattern: Directional

60 dBμ F(50:50) Contour
Total Population: 15,541
Total Area: 2,386.3 sq. km

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



FCC 30 SEC Terrain Database
US Census 2010 PL Database
NAD 1983 Coordinate Datum

Exhibit 2

Service Contour Study: Proposed vs Primary Operations

Azimuth (Deg T)	KRWI(FM) 60 dBμ (km)	CH228D.P 60 dBμ (km)
0°T	14.44	14.21
10°T	18.69	18.55
20°T	22.59	22.44
30°T	24.20	24.09
40°T	26.43	26.36
50°T	28.37	28.31
60°T	28.71	28.65
70°T	31.80	31.77
80°T	33.48	33.46
90°T	34.17	34.16
100°T	34.06	34.05
110°T	34.37	34.37
120°T	33.77	33.76
130°T	31.98	31.95
140°T	33.56	33.55
150°T	33.28	25.99
160°T	31.97	25.08
170°T	32.21	25.25
180°T	29.84	29.80
190°T	26.52	26.44
200°T	24.81	24.72
210°T	22.15	21.98
220°T	24.25	20.36
230°T	26.15	23.07
240°T	26.99	24.96
250°T	29.89	29.85
260°T	31.04	31.00
270°T	32.01	31.98
280°T	31.66	31.63
290°T	31.54	31.51
300°T	30.63	30.59
310°T	28.57	28.52
320°T	26.44	26.37
330°T	22.41	22.25
340°T	18.77	18.63
350°T	12.75	12.46

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

KRWI(FM).L
Wofford Heights, CA
BLH20170829AAZ
Facility ID: 198809
Latitude: 35-42-20.60 N
Longitude: 118-33-34.40 W
ERP: 0.077 kW
Channel: 251A (98.1 MHz)
AMSL Height: 2181.0 m
Pattern: Omni

+
KRWI(FM).L
CH228D.P

CH228D.P
Lake Isabella, CA
Proposed Operation
Facility ID: 146385
Latitude: 35-42-20.60 N
Longitude: 118-33-34.40 W
ERP: 0.078 kW
Channel: 228D (93.5 MHz)
AMSL Height: 2172.4 m
Pattern: Directional



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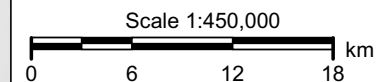


Exhibit 3

Copy of Existing Antenna Structure Registration

(public record copy)

Registration Detail

Reg Number	1036459	Status	Constructed
File Number	A1129709	Constructed	01/02/1966
EMI	No	Dismantled	
NEPA			

Antenna Structure

Structure Type LTOWER - Lattice Tower

Location (in NAD83 Coordinates)

Lat/Long 35-42-20.6 N 118-33-34.4 W
City, State Wofford Heights , CA
Zip 93285

Address Shirley Peak, on Shirley Meadows Road (Shirley Peak #89372)

County KERN

Position of Tower in Array

Center of AM Array

Heights (meters)

Elevation of Site Above Mean Sea Level

2131.4

Overall Height Above Ground (AGL)

71.6

Overall Height Above Mean Sea Level

2203.0

Overall Height Above Ground w/o Appurtenances

66.7

Painting and Lighting Specifications

FCC Paragraphs A1, H, 3, 11, 21, 23

FAA Notification

FAA Study 2018-AWP-11538-OE

FAA Issue Date 09/18/2018

Owner & Contact Information

FRN 0011498342

Owner Entity Type Limited Liability Company

Owner

American Towers LLC
Attention To: FAA/FCC Regulatory Team
10 Presidential Way
Woburn , MA 01801

P: (781)926-4500
F:
E: faa-fcc@americantower.com

Contact

Attention To: FAA/FCC Regulatory Team
10 Presidential Way
Woburn , MA 01801

P: (781)926-4500
F:
E: faa-fcc@americantower.com

Last Action Status

Status	Constructed	Received	02/07/2019
Purpose	Notification	Entered	02/07/2019
Mode	Interactive		

Related Applications

02/07/2019 A1129709 - Notification (NT)
09/21/2018 A1115958 - Modification (MD)
01/15/2013 A0816569 - Change Owner (OC)

Related applications (16)

Comments

Comments

04/02/2008 Corrected OM&L based on email from Sean Brandel and copy of FAA provided.

History

Date

Event

02/07/2019	Construction Notification Received
09/25/2018	Registration Printed
09/24/2018	Modification Received

All History (41)

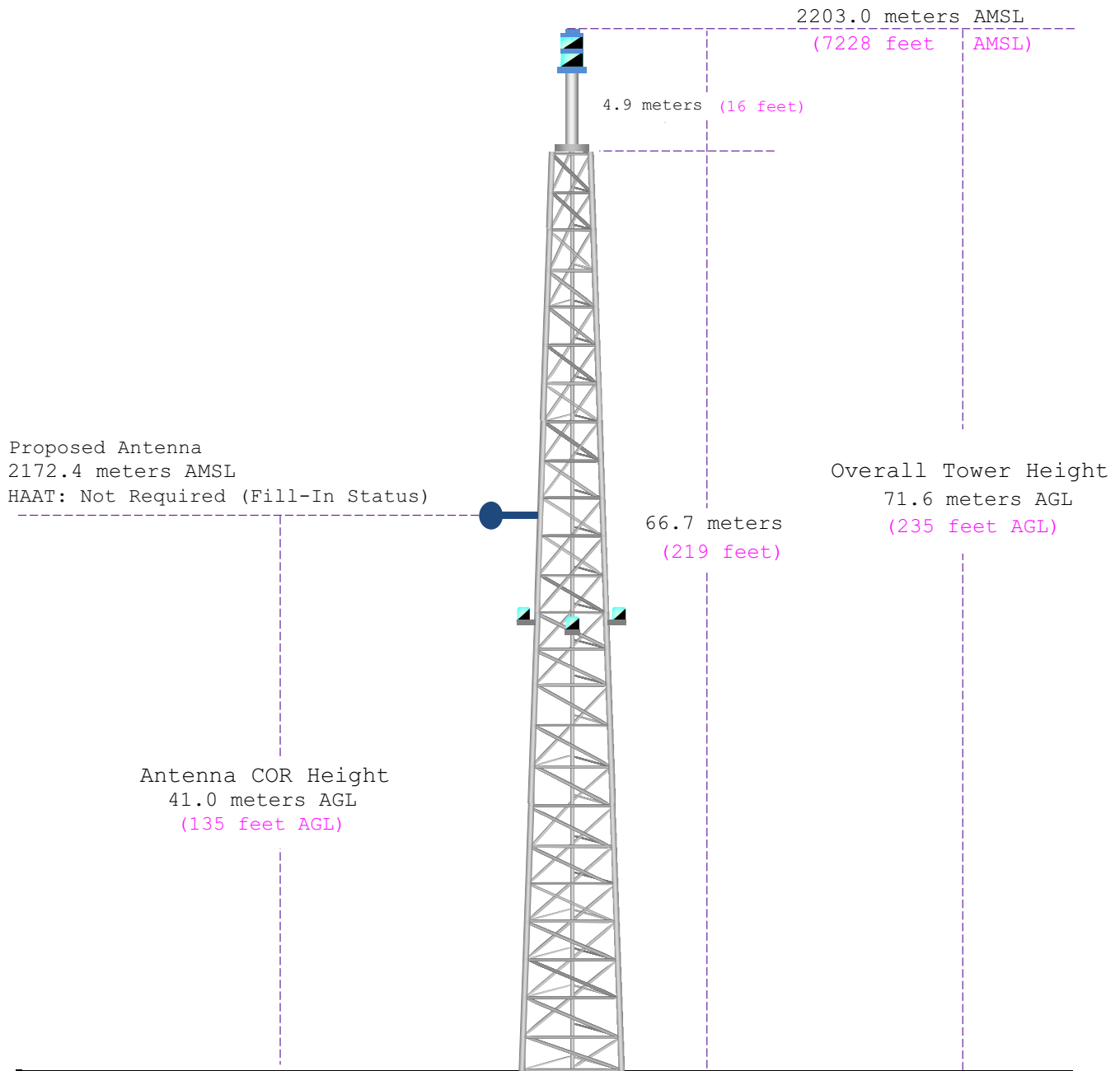
Automated Letters

09/25/2018	Authorization, Reference
01/16/2013	Authorization, Reference
01/16/2013	Ownership Change, Reference 742791

All letters (21)

Exhibit 4

Vertical Plan of Antenna System



Ground Elevation: 2131.4 meters AMSL (6993 feet AMSL)		
Address: Shirley Peak; on Shirley Meadows Road (Shirley Peak #89372)		
City: Wofford Heights	<u>Latitude (D M S)</u>	<u>Longitude (D M S)</u>
County: Kern	---	---
State: California	(NAD 1927)	
	Lat/Long 35-42-20.6 N 118-33-34.4 W (NAD 1983)	
Antenna Structure Registration	Drawing Is Not To Scale	Asher Broadcast Consulting, LLC justinasher@consultant.com 1(202)875-2986
1036459		

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1983):

N. Lat. = 354220.6 W. Lng. = 1183334.4
 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	1955.6	216.8	0.0780	-11.08	1.000	14.21
030	1582.2	590.2	0.0780	-11.08	1.000	24.09
060	1337.2	835.2	0.0780	-11.08	1.000	28.65
090	1013.4	1159.0	0.0780	-11.08	1.000	34.16
120	1039.6	1132.8	0.0780	-11.08	1.000	33.76
150	1070.6	1101.8	0.0330	-14.82	0.650	25.99
180	1271.5	900.9	0.0780	-11.08	1.000	29.80
210	1668.4	504.0	0.0780	-11.08	1.000	21.98
240	1434.0	738.4	0.0572	-12.43	0.856	24.96
270	1145.8	1026.6	0.0780	-11.08	1.000	31.98
300	1225.5	946.9	0.0780	-11.08	1.000	30.59
330	1658.6	513.8	0.0780	-11.08	1.000	22.25

Ave El= 1366.87 M HAAT= 805.53 M AMSL= 2172.4

NAD 1983 to NAD 1927 Conversion:

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	35.7057222°, -118.5595556°
Degrees Minutes	35°42.34333', -118°33.57333'
Degrees Minutes Seconds	35°42'20.6000", -118°33'34.4000"
UTM	11S 358915mE 3952430mN
UTM centimeter	11S 358915.01mE 3952430.33mN
MGRS	11SLV5891552430
Grid North	-0.9°
GARS	123LM43
Maidenhead	DM05RQ29UI49
GEOREF	EJBF26424234

Exhibit 6

Tabulation of Proposed Allocation

Green Text denotes deleted facility DKNAC - Earlimart, CA (FAC ID: 18171) which no longer requires protection.

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

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 8**.

REFERENCE CH# 228D - 93.5 MHz, Pwr= 0.078 kW DA, HAAT= 805.5 M, COR= 2172.4 M DISPLAY DATES 35 42 20.60 N. Average Protected F(50-50)= 28.12 km DATA 06-17-20 118 33 34.40 W. Standard Directional SEARCH 06-17-20											
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*
228A Earlimart	DKNAC	VAC ___N CA		287.4 106.9	67.26	35 53 02.83 119 16 20.38	6.000 100	81.8 189	24.4	-46.0*<	-49.5*<
227D Lake Isabella	K227DD	LIC ___ CA		0.0 202.1	0.00 BLFT20190124AAC	35 42 20.80 118 33 34.30	0.010	21.1 2174	13.5	-35.3*<	-35.0*<
231B Bakersfield	KISV	LIC ___ CA		208.8 28.7	33.96 BLH19960516KB	35 26 16.80 118 44 25.30	4.500 406	3.8 1121	58.6	7.9	-25.9*<
229D Bakersfield	K229CD	LIC D___ CA		230.9 50.7	38.53 BLFT20190924ABN	35 29 11.60 118 53 23.20	0.250	1.8 538	1.6	13.5	1.0
228A Rosamond	KQAV	LIC N___ CA		164.3 344.4	96.01 BLH19930908KD	34 52 26.90 118 16 27.20	3.000 63	53.3 878	13.2	17.7	2.4
228A Rosamond	KQAV	CP Z___ CA		160.7 340.9	103.37 BPH20190114AAK	34 49 38.90 118 11 08.20	6.000 27	68.3 770	15.8	10.1	7.3
225B Visalia	KFSO-FM	LIC ___ CA		341.7 161.5	108.97 BMLH20130506ACI	36 38 08.50 118 56 35.50	17.500 260	7.9 1589	95.8	82.9	12.0
229B Fresno	KSKS	LIC ___ CA		333.1 152.6	171.43 BMLH20050425ABM	37 04 38.80 119 26 04.50	68.000 580	134.5 1404	107.1	15.9	18.4
229A Ridgecrest	KZFX	LIC ___ CA		96.3 276.9	80.78 BLH20120709AAA	35 37 19.80 117 40 16.20	1.700 -68	16.5 708	11.5	30.4	17.4
226A Shafter	KKXX-FM	LIC N___ CA		238.7 58.4	49.71 BLH20031113AHZ	35 28 20.80 119 01 43.40	4.000 123	1.6 331	14.2	23.5	35.0
227L1 Frazier Park	KFZR-LP	LIC ___ CA		199.3 19.1	104.21 BLL20170130ACC	34 49 14.00 118 56 13.70	0.100 -11			47.6	44.8
227B San Luis Obispo	KZOZ	LIC ___ CA		259.2 78.0	193.57 BLH19961226KC	35 21 39.90 120 39 24.60	23.000 472	90.4 808	75.8	72.2	52.3

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

Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 06-17-2020 - FCC NGDC 30 Sec
CH228D.P's Overlaps (In= 13.54 km, Out= 0.99 km)

CH228D.P CH 228 D DA
Lat= 35 42 20.60, Lng= 118 33 34.40
0.078 kW 805.5 m HAAT, 2172.4 m COR
Prot.= 60 dBu, Intef.= 54 dBu

K229CD CH 229 D DA BLFT20190924ABN
Lat= 35 29 11.60, Lng= 118 53 23.20
0.25 kW 0 m HAAT, 538 m COR
Prot.= 60 dBu, Intef.= 54 dBu

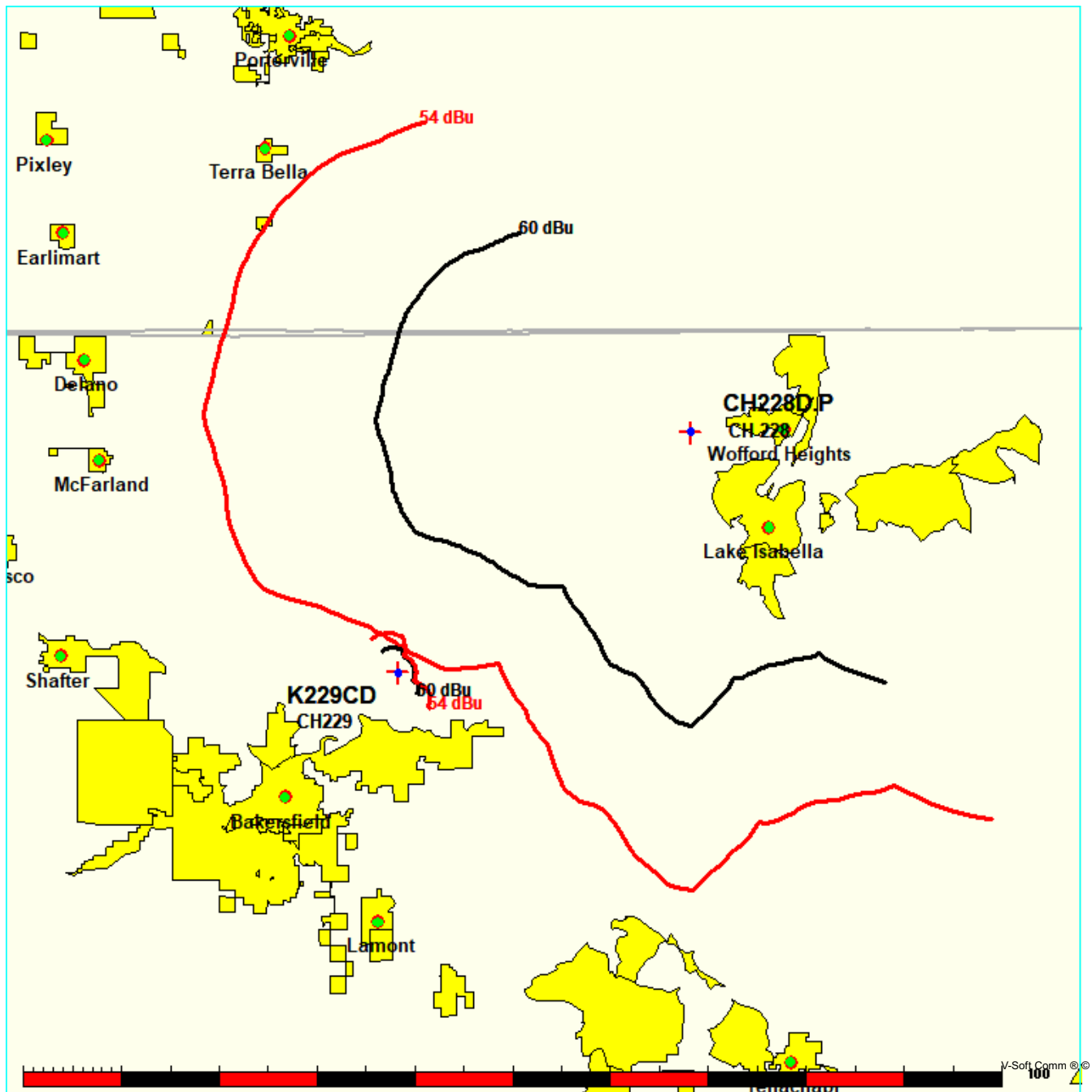


Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

06-17-2020

Terrain Data: FCC NGDC 30 Sec

FMOVer Analysis

CH228D.P

K229CD BLFT20190924ABN

Channel = 228D

Max ERP = 0.078 kW

RCAMSL = 2172.4 m

N. Lat. 35 42 20.60

W. Lng. 118 33 34.40

Protected

60 dBu

Channel = 229D

Max ERP = 0.25 kW

RCAMSL = 538 m

N. Lat. 35 29 11.60

W. Lng. 118 53 23.20

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
189.0	000.0780	0742.9	027.0	095.0	000.0002	-0037.4	025.8	08.17	
190.0	000.0780	0712.0	026.4	093.7	000.0002	-0039.9	025.4	08.45	
191.0	000.0780	0685.7	026.0	092.5	000.0002	-0047.0	025.0	08.71	
192.0	000.0780	0666.1	025.6	091.5	000.0002	-0050.0	024.6	08.97	
193.0	000.0780	0652.2	025.3	090.7	000.0002	-0063.9	024.2	09.23	
194.0	000.0780	0644.1	025.2	090.1	000.0002	-0074.3	023.8	09.51	
195.0	000.0780	0644.0	025.2	089.8	000.0002	-0079.1	023.4	09.81	
196.0	000.0780	0645.2	025.2	089.6	000.0002	-0083.2	022.9	10.12	
197.0	000.0780	0642.5	025.1	089.1	000.0002	-0091.1	022.5	10.42	
198.0	000.0780	0636.0	025.0	088.5	000.0002	-0102.7	022.2	10.70	
199.0	000.0780	0629.6	024.9	087.8	000.0002	-0115.2	021.8	10.97	
200.0	000.0780	0620.6	024.7	086.9	000.0002	-0124.4	021.5	11.23	
201.0	000.0780	0605.5	024.4	085.7	000.0002	-0136.7	021.2	11.43	
202.0	000.0780	0587.3	024.0	084.2	000.0002	-0152.2	021.0	11.59	
203.0	000.0780	0569.6	023.6	082.7	000.0002	-0162.2	020.8	11.73	
204.0	000.0780	0553.8	023.3	081.3	000.0002	-0163.6	020.7	11.85	
205.0	000.0780	0540.0	022.9	079.9	000.0002	-0161.2	020.5	11.97	
206.0	000.0780	0530.8	022.7	078.7	000.0002	-0159.3	020.3	12.12	
207.0	000.0780	0524.5	022.5	077.6	000.0002	-0161.1	020.1	12.28	
208.0	000.0780	0517.5	022.3	076.5	000.0002	-0162.9	019.9	12.42	
209.0	000.0780	0509.7	022.1	075.3	000.0002	-0166.6	019.8	12.54	
210.0	000.0780	0504.0	022.0	074.2	000.0002	-0174.1	019.6	12.67	
211.0	000.0735	0503.9	021.7	072.7	000.0002	-0194.0	019.6	12.69	
212.0	000.0692	0510.8	021.5	071.6	000.0002	-0213.2	019.5	12.80	
213.0	000.0650	0521.1	021.5	070.7	000.0002	-0227.2	019.3	12.95	
214.0	000.0610	0532.4	021.4	069.6	000.0002	-0230.5	019.1	13.09	
215.0	000.0570	0543.0	021.3	068.5	000.0002	-0222.7	019.0	13.19	
216.0	000.0532	0553.1	021.1	067.4	000.0002	-0207.6	018.9	13.25	
217.0	000.0495	0562.9	021.0	066.1	000.0002	-0193.6	018.9	13.29	
218.0	000.0460	0572.9	020.8	064.9	000.0002	-0181.1	018.8	13.30	
219.0	000.0426	0582.2	020.6	063.6	000.0002	-0163.4	018.9	13.27	
220.0	000.0393	0592.5	020.4	062.4	000.0002	-0138.1	018.9	13.23	
221.0	000.0401	0603.9	020.7	061.7	000.0002	-0124.5	018.5	13.58	

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)
222.0	000.0408	0616.8	021.0	061.0	000.0002	-0111.3	018.1	13.94
223.0	000.0416	0631.0	021.4	060.2	000.0002	-0100.7	017.6	14.32
224.0	000.0424	0646.0	021.7	059.4	000.0002	-0094.1	017.2	14.70
225.0	000.0431	0661.5	022.1	058.4	000.0002	-0091.2	016.7	15.07
226.0	000.0439	0674.0	022.4	057.4	000.0002	-0091.2	016.3	15.39
227.0	000.0447	0682.0	022.6	056.2	000.0002	-0092.1	016.0	15.65
228.0	000.0455	0685.3	022.8	054.8	000.0002	-0093.5	015.8	15.83
229.0	000.0462	0688.0	022.9	053.4	000.0002	-0098.4	015.7	15.98
230.0	000.0471	0691.5	023.1	052.0	000.0002	-0108.4	015.5	16.13
231.0	000.0481	0695.0	023.2	050.5	000.0002	-0118.9	015.3	16.29
232.0	000.0491	0698.7	023.4	048.9	000.0002	-0125.3	015.1	16.43
233.0	000.0500	0701.9	023.6	047.3	000.0002	-0128.0	015.0	16.55
234.0	000.0510	0704.4	023.7	045.7	000.0002	-0126.7	014.9	16.67
235.0	000.0521	0707.2	023.9	044.0	000.0002	-0121.2	014.8	16.77
236.0	000.0530	0710.7	024.1	042.3	000.0002	-0111.3	014.7	16.84
237.0	000.0540	0715.2	024.2	040.5	000.0002	-0097.3	014.7	16.93
238.0	000.0550	0721.1	024.5	038.7	000.0002	-0082.8	014.6	17.01
239.0	000.0561	0728.9	024.7	036.8	000.0002	-0072.3	014.5	17.09
240.0	000.0572	0738.4	025.0	034.8	000.0002	-0061.3	014.4	17.18
241.0	000.0590	0749.1	025.3	032.5	000.0002	-0053.8	014.3	17.34
242.0	000.0611	0759.1	025.7	030.2	000.0002	-0049.4	014.2	17.47
243.0	000.0630	0768.4	026.1	027.9	000.0002	-0038.2	014.2	17.52
244.0	000.0652	0778.0	026.4	025.6	000.0002	-0027.2	014.1	17.55
245.0	000.0672	0792.7	026.9	022.9	000.0002	-0011.1	014.1	17.61
246.0	000.0692	0812.5	027.4	020.1	000.0002	0014.8	014.0	17.68
247.0	000.0714	0837.2	028.0	016.8	000.0002	0045.6	014.0	21.33
248.0	000.0735	0862.7	028.7	013.5	000.0002	0075.2	014.0	25.60
249.0	000.0758	0884.9	029.3	010.2	000.0002	0109.6	014.0	28.80
250.0	000.0780	0903.8	029.9	007.3	000.0002	0138.4	014.2	30.58
251.0	000.0780	0918.3	030.1	005.5	000.0002	0150.0	014.6	30.92
252.0	000.0780	0930.1	030.3	003.9	000.0002	0151.7	015.0	30.57
253.0	000.0780	0938.6	030.4	002.7	000.0002	0150.2	015.4	30.24
254.0	000.0780	0945.0	030.6	001.7	000.0002	0149.9	015.9	29.83
255.0	000.0780	0950.6	030.7	000.8	000.0002	0151.9	016.4	29.55
256.0	000.0780	0956.4	030.8	360.0	000.0002	0153.8	016.9	29.26
257.0	000.0780	0961.8	030.8	359.3	000.0002	0155.4	017.4	28.95
258.0	000.0780	0967.2	030.9	358.6	000.0002	0156.3	017.9	28.59
259.0	000.0780	0971.3	031.0	358.1	000.0002	0158.0	018.4	28.27
260.0	000.0780	0970.6	031.0	357.9	000.0002	0159.0	018.9	27.89
261.0	000.0780	0968.8	031.0	357.8	000.0002	0159.5	019.5	27.49
262.0	000.0780	0968.8	031.0	357.6	000.0002	0160.3	020.0	27.11
263.0	000.0780	0968.4	031.0	357.5	000.0002	0160.7	020.6	26.71
264.0	000.0780	0972.6	031.0	357.2	000.0002	0161.8	021.1	26.35
265.0	000.0780	0980.5	031.2	356.7	000.0002	0163.3	021.6	26.03
266.0	000.0780	0989.1	031.3	356.3	000.0002	0165.0	022.2	25.71

Exhibit 7a

Contour Protection Studies Toward Select Allocation Concern(s)

06-17-2020 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

K229CD BLFT20190924ABN

CH228D.P

Channel = 229D
 Max ERP = 0.25 kW
 RCAMSL = 538 m
 N. Lat. 35 29 11.60
 W. Lng. 118 53 23.20
 Protected
 60 dBu

Channel = 228D
 Max ERP = 0.078 kW
 RCAMSL = 2172.4 m
 N. Lat. 35 42 20.60
 W. Lng. 118 33 34.40
 Interfering
 54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
006.0	000.0002	0147.6	002.4	233.5	000.0505	0703.2	036.9	53.90	
007.0	000.0002	0140.5	002.3	233.4	000.0504	0703.0	036.9	53.89	
008.0	000.0002	0131.6	002.3	233.3	000.0503	0702.7	036.9	53.88	
009.0	000.0002	0122.2	002.2	233.2	000.0502	0702.5	036.9	53.87	
010.0	000.0002	0111.8	002.2	233.1	000.0501	0702.2	036.9	53.85	
011.0	000.0002	0101.9	002.1	233.0	000.0500	0701.8	036.9	53.82	
012.0	000.0002	0091.3	002.0	232.8	000.0499	0701.4	037.0	53.79	
013.0	000.0002	0080.2	001.9	232.7	000.0498	0701.0	037.0	53.75	
014.0	000.0002	0069.6	001.9	232.6	000.0496	0700.5	037.1	53.71	
015.0	000.0002	0060.5	001.8	232.5	000.0495	0700.0	037.1	53.68	
016.0	000.0002	0052.2	001.7	232.3	000.0494	0699.6	037.2	53.63	
017.0	000.0002	0043.8	001.6	232.2	000.0493	0699.4	037.2	53.61	
018.0	000.0002	0035.0	001.6	232.2	000.0493	0699.2	037.2	53.61	
019.0	000.0002	0025.2	001.6	232.2	000.0492	0699.1	037.2	53.61	
020.0	000.0002	0015.3	001.6	232.1	000.0492	0699.0	037.2	53.61	
021.0	000.0002	0005.9	001.6	232.1	000.0492	0698.9	037.1	53.62	
022.0	000.0002	-0003.0	001.6	232.1	000.0491	0698.9	037.1	53.62	
023.0	000.0002	-0011.6	001.6	232.0	000.0491	0698.8	037.1	53.62	
024.0	000.0002	-0019.1	001.6	232.0	000.0490	0698.7	037.1	53.62	
025.0	000.0002	-0024.7	001.6	232.0	000.0490	0698.6	037.1	53.62	
026.0	000.0002	-0029.1	001.6	231.9	000.0490	0698.5	037.1	53.62	
027.0	000.0002	-0033.4	001.6	231.9	000.0489	0698.3	037.1	53.62	
028.0	000.0002	-0038.5	001.6	231.8	000.0489	0698.2	037.1	53.62	
029.0	000.0002	-0043.9	001.6	231.8	000.0488	0698.0	037.0	53.62	
030.0	000.0002	-0048.5	001.6	231.8	000.0488	0697.9	037.0	53.62	
031.0	000.0002	-0051.5	001.6	231.7	000.0488	0697.7	037.0	53.62	
032.0	000.0002	-0052.9	001.6	231.7	000.0487	0697.5	037.0	53.62	
033.0	000.0002	-0054.7	001.6	231.6	000.0487	0697.3	037.0	53.62	
034.0	000.0002	-0057.8	001.6	231.6	000.0486	0697.2	037.0	53.62	
035.0	000.0002	-0062.5	001.6	231.5	000.0486	0697.0	037.0	53.61	
036.0	000.0002	-0067.9	001.6	231.5	000.0486	0696.8	037.0	53.61	
037.0	000.0002	-0073.4	001.6	231.5	000.0485	0696.6	037.0	53.61	
038.0	000.0002	-0078.9	001.6	231.4	000.0485	0696.4	037.0	53.60	

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)
039.0	000.0002	-0085.1	001.6	231.4	000.0484	0696.2	037.0	53.60
040.0	000.0002	-0092.8	001.6	231.3	000.0484	0696.1	037.0	53.60
041.0	000.0002	-0101.5	001.6	231.3	000.0484	0695.9	037.0	53.60
042.0	000.0002	-0109.2	001.6	231.3	000.0483	0695.8	036.9	53.59
043.0	000.0002	-0115.9	001.6	231.2	000.0483	0695.7	036.9	53.59
044.0	000.0002	-0121.1	001.6	231.2	000.0482	0695.5	036.9	53.58
045.0	000.0002	-0125.0	001.6	231.1	000.0482	0695.4	036.9	53.58
046.0	000.0002	-0127.3	001.6	231.1	000.0481	0695.2	036.9	53.58
047.0	000.0002	-0128.0	001.6	231.0	000.0481	0695.1	036.9	53.57
048.0	000.0002	-0127.4	001.6	231.0	000.0481	0695.0	036.9	53.57
049.0	000.0002	-0125.2	001.6	230.9	000.0480	0694.9	036.9	53.56
050.0	000.0002	-0121.3	001.6	230.9	000.0480	0694.7	036.9	53.56
051.0	000.0002	-0115.7	001.6	230.9	000.0479	0694.5	036.9	53.55
052.0	000.0002	-0108.3	001.6	230.8	000.0479	0694.3	036.9	53.54
053.0	000.0002	-0100.6	001.6	230.8	000.0478	0694.1	036.9	53.54
054.0	000.0002	-0095.7	001.6	230.7	000.0478	0694.0	036.9	53.53
055.0	000.0002	-0093.3	001.6	230.7	000.0478	0693.8	036.9	53.52
056.0	000.0002	-0092.2	001.6	230.6	000.0477	0693.6	036.9	53.51
057.0	000.0002	-0091.5	001.6	230.6	000.0477	0693.5	036.9	53.51
058.0	000.0002	-0090.9	001.6	230.6	000.0476	0693.3	036.9	53.50
059.0	000.0002	-0092.2	001.6	230.5	000.0476	0693.2	036.9	53.49
060.0	000.0002	-0098.1	001.6	230.5	000.0475	0693.0	036.9	53.48
061.0	000.0002	-0111.0	001.6	230.4	000.0475	0692.8	037.0	53.48
062.0	000.0002	-0129.9	001.6	230.4	000.0475	0692.7	037.0	53.47
063.0	000.0002	-0151.3	001.6	230.3	000.0474	0692.5	037.0	53.46
064.0	000.0002	-0169.2	001.6	230.3	000.0474	0692.4	037.0	53.45
065.0	000.0002	-0182.0	001.6	230.3	000.0473	0692.3	037.0	53.44
066.0	000.0002	-0192.1	001.6	230.2	000.0473	0692.1	037.0	53.43
067.0	000.0002	-0203.2	001.6	230.2	000.0473	0692.0	037.0	53.42
068.0	000.0002	-0216.3	001.6	230.1	000.0472	0691.9	037.0	53.41
069.0	000.0002	-0227.1	001.6	230.1	000.0472	0691.8	037.0	53.41
070.0	000.0002	-0230.7	001.6	230.1	000.0471	0691.6	037.0	53.40
071.0	000.0002	-0223.3	001.6	230.0	000.0471	0691.5	037.0	53.39
072.0	000.0002	-0206.8	001.6	230.0	000.0471	0691.4	037.0	53.38
073.0	000.0002	-0189.9	001.6	229.9	000.0470	0691.2	037.1	53.37
074.0	000.0002	-0176.2	001.6	229.9	000.0470	0691.1	037.1	53.36
075.0	000.0002	-0168.3	001.6	229.9	000.0470	0690.9	037.1	53.35
076.0	000.0002	-0164.0	001.6	229.8	000.0469	0690.7	037.1	53.33
077.0	000.0002	-0162.1	001.6	229.8	000.0469	0690.6	037.1	53.32
078.0	000.0002	-0160.3	001.6	229.7	000.0469	0690.5	037.1	53.31
079.0	000.0002	-0159.7	001.6	229.7	000.0468	0690.3	037.1	53.30
080.0	000.0002	-0161.4	001.6	229.7	000.0468	0690.1	037.1	53.29
081.0	000.0002	-0163.4	001.6	229.6	000.0468	0689.9	037.2	53.28
082.0	000.0002	-0163.8	001.6	229.6	000.0467	0689.7	037.2	53.27

Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 06-17-2020 - FCC NGDC 30 Sec
CH228D.P's Overlaps (In= 17.66 km, Out= 2.37 km)

CH228D.P CH 228 D DA
Lat= 35 42 20.60, Lng= 118 33 34.40
0.078 kW 805.5 m HAAT, 2172.4 m COR
Prot.= 60 dBu, Intef.= 40 dBu

KQAV CH 228 A 73.215 N BLH19930908KD
Lat= 34 52 26.90, Lng= 118 16 27.20
3.0 kW 63 m HAAT, 878 m COR
Prot.= 60 dBu, Intef.= 40 dBu

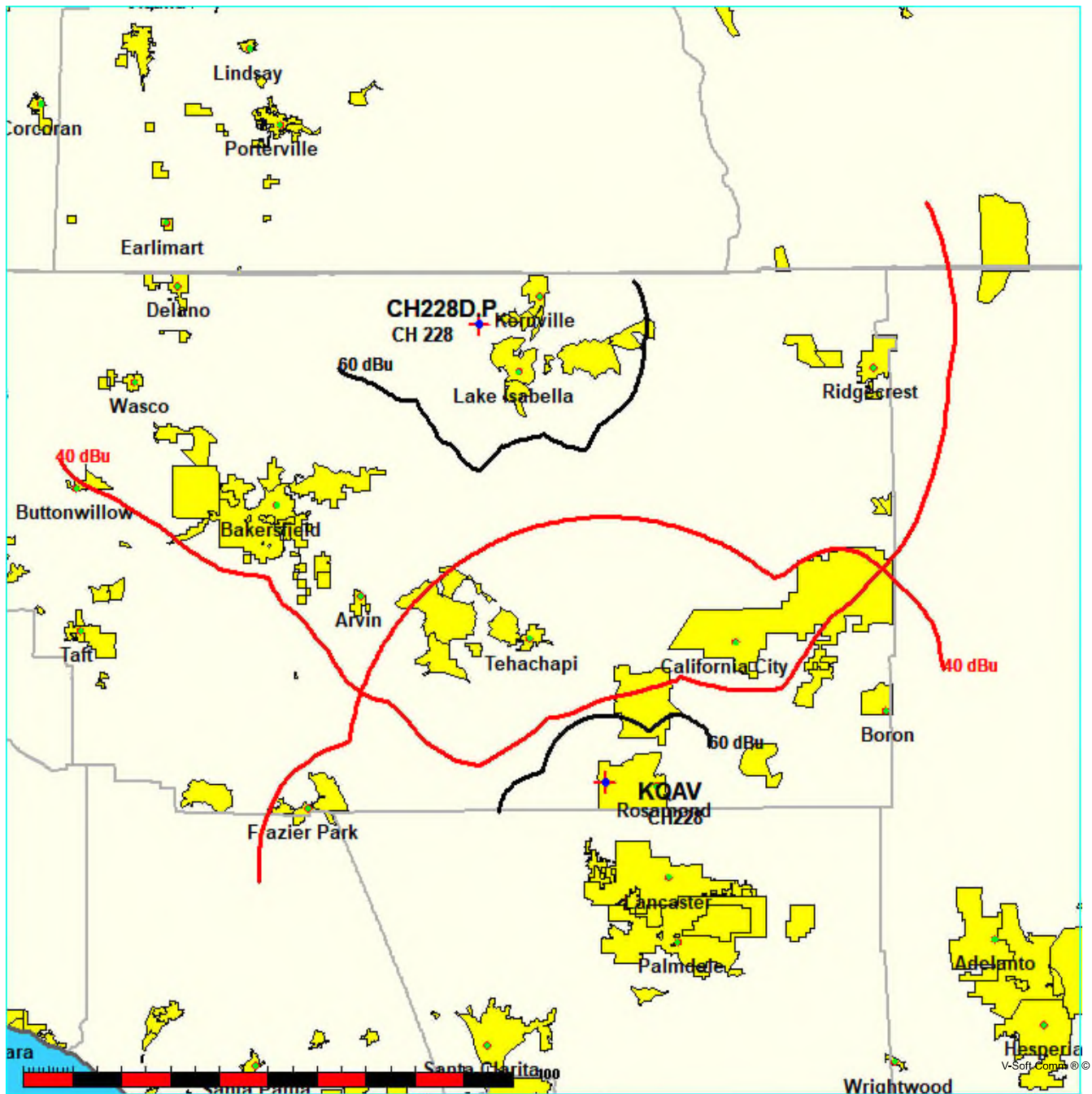


Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

06-17-2020

Terrain Data: FCC NGDC 30 Sec

FMOver Analysis

CH228D.P

KQAV BLH19930908KD

Channel = 228D

Max ERP = 0.078 kW

RCAMSL = 2172.4 m

N. Lat. 35 42 20.60

W. Lng. 118 33 34.40

Protected

60 dBu

Channel = 228A

Max ERP = 3 kW

RCAMSL = 878 m

N. Lat. 34 52 26.90

W. Lng. 118 16 27.20

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
123.0	000.0780	1096.4	033.2	001.5	003.0000	-0037.1	074.4	35.90	
124.0	000.0780	1087.2	033.0	001.2	003.0000	-0038.4	074.0	35.97	
125.0	000.0780	1080.0	032.9	000.9	003.0000	-0039.7	073.6	36.05	
126.0	000.0780	1072.2	032.8	000.5	003.0000	-0041.0	073.2	36.12	
127.0	000.0780	1060.9	032.6	000.2	003.0000	-0042.5	072.8	36.18	
128.0	000.0780	1046.3	032.3	359.7	003.0000	-0044.1	072.5	36.23	
129.0	000.0780	1032.5	032.1	359.3	003.0000	-0045.8	072.2	36.28	
130.0	000.0780	1024.9	031.9	358.9	003.0000	-0046.3	071.9	36.34	
131.0	000.0780	1024.8	031.9	358.6	003.0000	-0046.0	071.5	36.42	
132.0	000.0780	1030.3	032.0	358.4	003.0000	-0045.8	071.0	36.50	
133.0	000.0780	1036.9	032.2	358.1	003.0000	-0045.5	070.5	36.59	
134.0	000.0780	1044.5	032.3	357.9	003.0000	-0045.3	070.0	36.68	
135.0	000.0780	1055.1	032.5	357.6	003.0000	-0045.1	069.5	36.77	
136.0	000.0780	1068.9	032.7	357.4	003.0000	-0044.9	069.0	36.87	
137.0	000.0780	1085.0	033.0	357.2	003.0000	-0044.7	068.4	36.98	
138.0	000.0780	1100.6	033.2	357.0	003.0000	-0044.5	067.8	37.08	
139.0	000.0780	1112.5	033.4	356.7	003.0000	-0044.2	067.3	37.17	
140.0	000.0780	1119.6	033.5	356.3	003.0000	-0043.8	066.9	37.25	
141.0	000.0780	1122.4	033.6	356.0	003.0000	-0043.5	066.5	37.32	
142.0	000.0780	1122.2	033.6	355.5	003.0000	-0043.1	066.2	37.38	
143.0	000.0780	1120.5	033.6	355.1	003.0000	-0042.9	065.9	37.44	
144.0	000.0780	1118.5	033.5	354.6	003.0000	-0042.9	065.6	37.49	
145.0	000.0780	1116.4	033.5	354.2	003.0000	-0042.8	065.3	37.54	
146.0	000.0780	1113.8	033.5	353.7	003.0000	-0042.4	065.1	37.58	
147.0	000.0780	1110.7	033.4	353.2	003.0000	-0041.8	064.9	37.62	
148.0	000.0780	1107.5	033.4	352.7	003.0000	-0041.1	064.7	37.66	
149.0	000.0780	1104.8	033.3	352.3	003.0000	-0040.4	064.5	37.70	
150.0	000.0780	1101.8	033.3	351.8	003.0000	-0039.7	064.3	37.73	
151.0	000.0780	1097.4	033.2	351.3	003.0000	-0039.1	064.2	37.76	
152.0	000.0780	1090.2	033.1	350.7	003.0000	-0038.6	064.1	37.77	
153.0	000.0780	1080.1	032.9	350.2	003.0000	-0038.2	064.1	37.77	
154.0	000.0780	1068.9	032.7	349.7	003.0000	-0038.3	064.1	37.77	

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)
155.0	000.0780	1058.7	032.5	349.1	003.0000	-0038.8	064.1	37.76
156.0	000.0780	1051.5	032.4	348.6	003.0000	-0039.4	064.1	37.77
157.0	000.0780	1046.1	032.3	348.1	003.0000	-0040.2	064.1	37.77
158.0	000.0780	1040.1	032.2	347.6	003.0000	-0041.2	064.1	37.77
159.0	000.0780	1032.9	032.1	347.1	003.0000	-0042.5	064.1	37.76
160.0	000.0780	1024.1	031.9	346.6	003.0000	-0043.7	064.2	37.75
161.0	000.0780	1016.3	031.8	346.1	003.0000	-0044.8	064.3	37.73
162.0	000.0780	1013.0	031.7	345.6	003.0000	-0045.9	064.3	37.73
163.0	000.0780	1015.7	031.8	345.1	003.0000	-0047.1	064.2	37.74
164.0	000.0780	1021.5	031.9	344.6	003.0000	-0048.3	064.1	37.76
165.0	000.0780	1028.7	032.0	344.1	003.0000	-0049.7	064.0	37.79
166.0	000.0780	1036.1	032.1	343.6	003.0000	-0051.1	063.9	37.81
167.0	000.0780	1046.0	032.3	343.1	003.0000	-0052.5	063.8	37.83
168.0	000.0780	1052.7	032.4	342.5	003.0000	-0053.9	063.7	37.85
169.0	000.0780	1051.4	032.4	342.0	003.0000	-0055.4	063.8	37.83
170.0	000.0780	1038.3	032.2	341.6	003.0000	-0056.7	064.1	37.77
171.0	000.0780	1024.1	031.9	341.1	003.0000	-0057.9	064.4	37.71
172.0	000.0780	1006.7	031.6	340.7	003.0000	-0059.1	064.8	37.63
173.0	000.0780	0984.1	031.2	340.3	003.0000	-0060.2	065.3	37.54
174.0	000.0780	0961.4	030.8	339.9	003.0000	-0061.3	065.8	37.44
175.0	000.0780	0948.3	030.6	339.5	003.0000	-0062.5	066.2	37.38
176.0	000.0780	0936.3	030.4	339.1	003.0000	-0063.7	066.5	37.31
177.0	000.0780	0924.2	030.2	338.7	003.0000	-0065.0	066.9	37.25
178.0	000.0780	0916.4	030.1	338.3	003.0000	-0066.5	067.2	37.19
179.0	000.0780	0908.8	029.9	338.0	003.0000	-0068.0	067.5	37.14
180.0	000.0780	0900.9	029.8	337.6	003.0000	-0069.5	067.8	37.08
181.0	000.0780	0894.0	029.7	337.2	003.0000	-0071.0	068.1	37.02
182.0	000.0780	0887.0	029.6	336.9	003.0000	-0072.5	068.5	36.96
183.0	000.0780	0877.5	029.4	336.6	003.0000	-0073.9	068.8	36.90
184.0	000.0780	0855.7	029.0	336.3	003.0000	-0075.0	069.4	36.79
185.0	000.0780	0834.4	028.6	336.1	003.0000	-0075.9	070.0	36.69
186.0	000.0780	0813.0	028.3	335.9	003.0000	-0076.8	070.5	36.59
187.0	000.0780	0794.3	027.9	335.7	003.0000	-0077.6	071.1	36.49
188.0	000.0780	0772.5	027.5	335.5	003.0000	-0078.3	071.7	36.39
189.0	000.0780	0742.9	027.0	335.5	003.0000	-0078.6	072.4	36.26
190.0	000.0780	0712.0	026.4	335.4	003.0000	-0078.9	073.1	36.13
191.0	000.0780	0685.7	026.0	335.3	003.0000	-0079.2	073.8	36.01
192.0	000.0780	0666.1	025.6	335.2	003.0000	-0079.6	074.3	35.91
193.0	000.0780	0652.2	025.3	335.1	003.0000	-0080.2	074.8	35.82
194.0	000.0780	0644.1	025.2	334.9	003.0000	-0080.9	075.2	35.75
195.0	000.0780	0644.0	025.2	334.6	003.0000	-0081.9	075.5	35.69
196.0	000.0780	0645.2	025.2	334.4	003.0000	-0082.9	075.7	35.64
197.0	000.0780	0642.5	025.1	334.1	003.0000	-0083.8	076.1	35.58
198.0	000.0780	0636.0	025.0	334.0	003.0000	-0084.5	076.5	35.51
199.0	000.0780	0629.6	024.9	333.8	003.0000	-0085.2	076.9	35.43

Exhibit 7b

Contour Protection Studies Toward Select Allocation Concern(s)

06-17-2020

Terrain Data: FCC NGDC 30 Sec

FMOver Analysis

KQAV BLH19930908KD

CH228D.P

Channel = 228A

Max ERP = 3 kW

RCAMSL = 878 m

N. Lat. 34 52 26.90

W. Lng. 118 16 27.20

Protected

60 dBu

Channel = 228D

Max ERP = 0.078 kW

RCAMSL = 2172.4 m

N. Lat. 35 42 20.60

W. Lng. 118 33 34.40

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
299.0	003.0000	-0056.5	013.2	170.5	000.0346	1031.3	087.2	38.27	
300.0	003.0000	-0060.8	013.2	170.4	000.0343	1032.7	087.1	38.29	
301.0	003.0000	-0065.2	013.2	170.3	000.0339	1034.1	086.9	38.31	
302.0	003.0000	-0069.7	013.2	170.2	000.0336	1035.6	086.7	38.33	
303.0	003.0000	-0074.2	013.2	170.1	000.0332	1037.2	086.5	38.35	
304.0	003.0000	-0078.5	013.2	170.0	000.0330	1038.7	086.4	38.37	
305.0	003.0000	-0082.6	013.2	169.9	000.0330	1040.3	086.2	38.43	
306.0	003.0000	-0086.6	013.2	169.8	000.0330	1041.9	086.0	38.49	
307.0	003.0000	-0090.5	013.2	169.6	000.0330	1043.5	085.9	38.55	
308.0	003.0000	-0094.1	013.2	169.5	000.0330	1045.1	085.7	38.61	
309.0	003.0000	-0097.7	013.2	169.4	000.0330	1046.6	085.6	38.67	
310.0	003.0000	-0101.4	013.2	169.3	000.0330	1048.1	085.4	38.72	
311.0	003.0000	-0105.8	013.2	169.2	000.0330	1049.6	085.3	38.78	
312.0	003.0000	-0110.1	013.2	169.0	000.0330	1050.9	085.1	38.83	
313.0	003.0000	-0113.7	013.2	168.9	000.0330	1052.0	085.0	38.88	
314.0	003.0000	-0116.3	013.2	168.8	000.0330	1052.7	084.9	38.93	
315.0	003.0000	-0117.9	013.2	168.7	000.0330	1053.3	084.7	38.97	
316.0	003.0000	-0119.1	013.2	168.5	000.0330	1053.5	084.6	39.01	
317.0	003.0000	-0120.1	013.2	168.4	000.0330	1053.6	084.5	39.04	
318.0	003.0000	-0120.2	013.2	168.3	000.0330	1053.4	084.4	39.08	
319.0	003.0000	-0119.0	013.2	168.1	000.0330	1053.1	084.3	39.11	
320.0	003.0000	-0117.9	013.2	168.0	000.0330	1052.7	084.2	39.14	
321.0	003.0000	-0118.3	013.2	167.9	000.0330	1052.2	084.0	39.16	
322.0	003.0000	-0120.1	013.2	167.7	000.0330	1051.5	083.9	39.19	
323.0	003.0000	-0121.2	013.2	167.6	000.0330	1050.7	083.8	39.21	
324.0	003.0000	-0121.1	013.2	167.4	000.0330	1049.7	083.8	39.23	
325.0	003.0000	-0120.3	013.2	167.3	000.0330	1048.6	083.7	39.25	
326.0	003.0000	-0119.5	013.2	167.1	000.0330	1047.3	083.6	39.26	
327.0	003.0000	-0117.7	013.2	167.0	000.0330	1046.0	083.5	39.27	
328.0	003.0000	-0114.3	013.2	166.8	000.0330	1044.5	083.4	39.28	
329.0	003.0000	-0108.8	013.2	166.7	000.0330	1043.0	083.3	39.29	
330.0	003.0000	-0103.3	013.2	166.5	000.0330	1041.4	083.3	39.30	
331.0	003.0000	-0098.1	013.2	166.4	000.0330	1039.8	083.2	39.31	

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)
332.0	003.0000	-0093.4	013.2	166.2	000.0330	1038.2	083.1	39.31
333.0	003.0000	-0088.8	013.2	166.1	000.0330	1036.8	083.1	39.32
334.0	003.0000	-0084.4	013.2	165.9	000.0330	1035.5	083.0	39.32
335.0	003.0000	-0080.5	013.2	165.8	000.0330	1034.3	083.0	39.32
336.0	003.0000	-0076.4	013.2	165.6	000.0330	1033.2	083.0	39.33
337.0	003.0000	-0072.0	013.2	165.5	000.0330	1032.1	082.9	39.33
338.0	003.0000	-0067.8	013.2	165.3	000.0330	1030.9	082.9	39.33
339.0	003.0000	-0064.1	013.2	165.1	000.0330	1029.7	082.9	39.33
340.0	003.0000	-0061.0	013.2	165.0	000.0330	1028.6	082.8	39.32
341.0	003.0000	-0058.2	013.2	164.8	000.0330	1027.3	082.8	39.32
342.0	003.0000	-0055.5	013.2	164.7	000.0330	1026.1	082.8	39.31
343.0	003.0000	-0052.6	013.2	164.5	000.0330	1025.0	082.8	39.31
344.0	003.0000	-0049.9	013.2	164.3	000.0330	1023.8	082.8	39.30
345.0	003.0000	-0047.2	013.2	164.2	000.0330	1022.7	082.8	39.29
346.0	003.0000	-0044.9	013.2	164.0	000.0330	1021.7	082.8	39.28
347.0	003.0000	-0042.6	013.2	163.9	000.0330	1020.7	082.8	39.27
348.0	003.0000	-0040.4	013.2	163.7	000.0330	1019.7	082.8	39.26
349.0	003.0000	-0038.9	013.2	163.5	000.0330	1018.8	082.8	39.24
350.0	003.0000	-0038.2	013.2	163.4	000.0330	1017.9	082.9	39.23
351.0	003.0000	-0038.8	013.2	163.2	000.0330	1017.0	082.9	39.21
352.0	003.0000	-0040.0	013.2	163.1	000.0330	1016.1	082.9	39.19
353.0	003.0000	-0041.5	013.2	162.9	000.0330	1015.3	083.0	39.18
354.0	003.0000	-0042.7	013.2	162.8	000.0330	1014.5	083.0	39.16
355.0	003.0000	-0042.9	013.2	162.6	000.0330	1013.9	083.1	39.14
356.0	003.0000	-0043.5	013.2	162.4	000.0330	1013.4	083.1	39.12
357.0	003.0000	-0044.5	013.2	162.3	000.0330	1013.2	083.2	39.10
358.0	003.0000	-0045.4	013.2	162.1	000.0330	1013.0	083.2	39.08
359.0	003.0000	-0046.3	013.2	162.0	000.0330	1013.0	083.3	39.06
000.0	003.0000	-0043.1	013.2	161.8	000.0330	1013.1	083.4	39.04
001.0	003.0000	-0039.2	013.2	161.7	000.0330	1013.4	083.4	39.02
002.0	003.0000	-0035.4	013.2	161.5	000.0330	1013.8	083.5	39.00
003.0	003.0000	-0031.2	013.2	161.4	000.0330	1014.3	083.6	38.98
004.0	003.0000	-0026.5	013.2	161.2	000.0330	1015.0	083.7	38.96
005.0	003.0000	-0022.2	013.2	161.1	000.0330	1015.7	083.8	38.94
006.0	003.0000	-0017.8	013.2	160.9	000.0330	1016.6	083.9	38.92
007.0	003.0000	-0013.6	013.2	160.8	000.0330	1017.6	084.0	38.90
008.0	003.0000	-0010.6	013.2	160.7	000.0330	1018.5	084.1	38.88
009.0	003.0000	-0008.1	013.2	160.5	000.0330	1019.6	084.2	38.86
010.0	003.0000	-0006.0	013.2	160.4	000.0330	1020.8	084.3	38.83
011.0	003.0000	-0003.9	013.2	160.3	000.0330	1021.9	084.4	38.81
012.0	003.0000	-0001.5	013.2	160.1	000.0330	1023.1	084.5	38.78
013.0	003.0000	0001.1	013.2	160.0	000.0330	1024.2	084.6	38.76
014.0	003.0000	0003.3	013.2	159.9	000.0330	1025.4	084.8	38.73
015.0	003.0000	0005.0	013.2	159.7	000.0330	1026.5	084.9	38.70
016.0	003.0000	0006.4	013.2	159.6	000.0330	1027.7	085.0	38.67

Exhibit 7c

Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 06-17-2020 - FCC NGDC 30 Sec
CH228D.P's Overlaps (In= 10.06 km, Out= 7.35 km)

CH228D.P CH 228 D DA
Lat= 35 42 20.60, Lng= 118 33 34.40
0.078 kW 805.5 m HAAT, 2172.4 m COR
Prot.= 60 dBu, Intef.= 40 dBu

KQAV-C CH 228 A 73.215 Z BPH20190114AAK
Lat= 34 49 38.90, Lng= 118 11 08.20
6.0 kW 26.9 m HAAT, 769.6 m COR
Prot.= 60 dBu, Intef.= 40 dBu

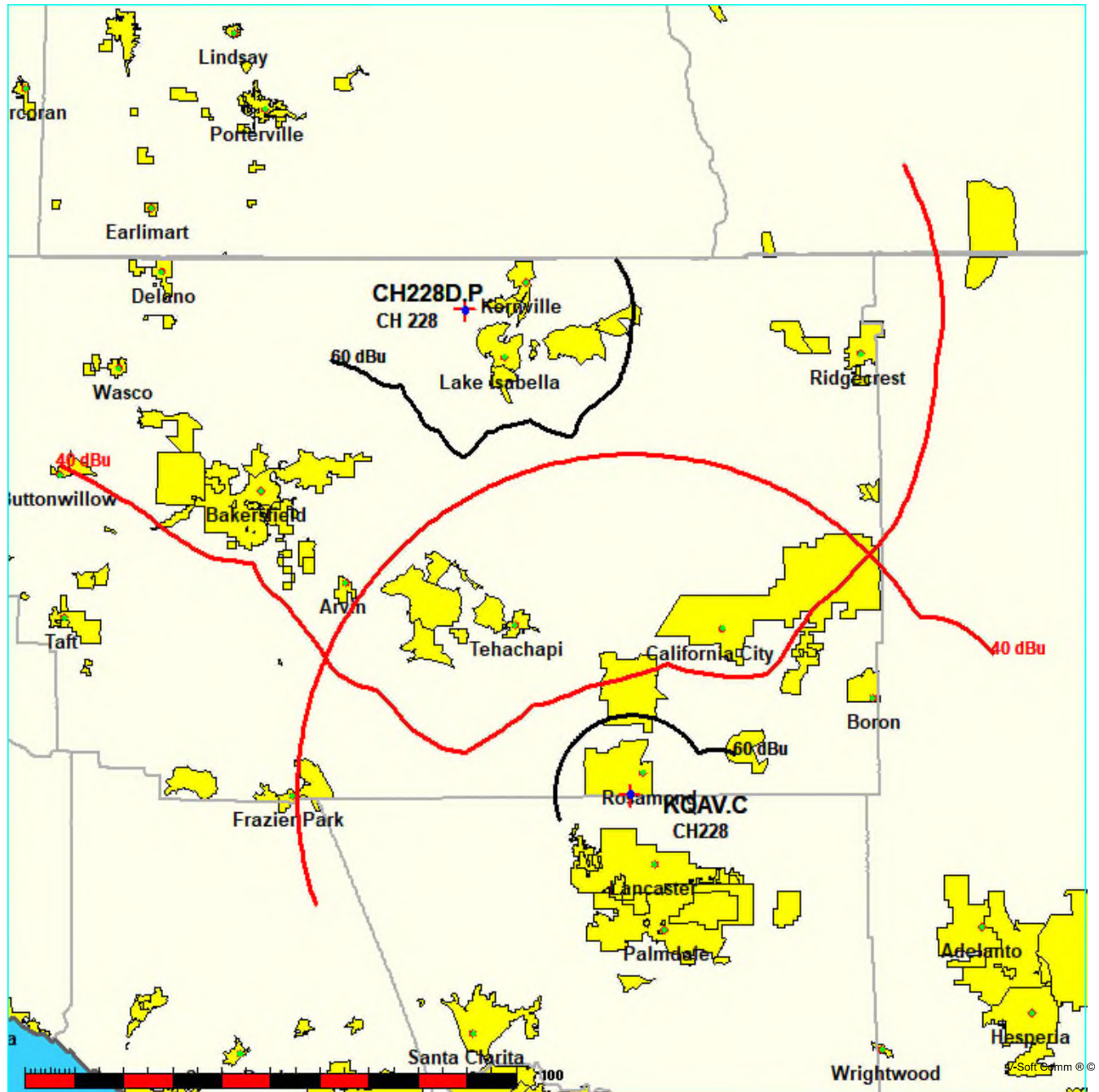


Exhibit 7c

Contour Protection Studies Toward Select Allocation Concern(s)

06-17-2020

Terrain Data: FCC NGDC 30 Sec

FMOver Analysis

CH228D.P

KQAV BPH20190114AAK

Channel = 228D
 Max ERP = 0.078 kW
 RCAMSL = 2172.4 m
 N. Lat. 35 42 20.60
 W. Lng. 118 33 34.40
 Protected
 60 dBu

Channel = 228A
 Max ERP = 6 kW
 RCAMSL = 769.6 m
 N. Lat. 34 49 38.90
 W. Lng. 118 11 08.20
 Interfering
 40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
119.0	000.0780	1146.1	034.0	357.1	006.0000	-0048.6	081.2	37.59	
120.0	000.0780	1132.8	033.8	356.7	006.0000	-0048.0	080.8	37.67	
121.0	000.0780	1119.9	033.6	356.4	006.0000	-0047.4	080.5	37.75	
122.0	000.0780	1107.3	033.3	356.0	006.0000	-0046.6	080.1	37.82	
123.0	000.0780	1096.4	033.2	355.7	006.0000	-0045.8	079.8	37.89	
124.0	000.0780	1087.2	033.0	355.3	006.0000	-0045.0	079.4	37.96	
125.0	000.0780	1080.0	032.9	355.0	006.0000	-0044.2	079.0	38.03	
126.0	000.0780	1072.2	032.8	354.7	006.0000	-0043.5	078.7	38.10	
127.0	000.0780	1060.9	032.6	354.3	006.0000	-0043.1	078.4	38.16	
128.0	000.0780	1046.3	032.3	353.9	006.0000	-0042.9	078.2	38.20	
129.0	000.0780	1032.5	032.1	353.4	006.0000	-0042.8	077.9	38.24	
130.0	000.0780	1024.9	031.9	353.1	006.0000	-0042.7	077.6	38.30	
131.0	000.0780	1024.8	031.9	352.8	006.0000	-0042.6	077.3	38.37	
132.0	000.0780	1030.3	032.0	352.5	006.0000	-0042.5	076.8	38.45	
133.0	000.0780	1036.9	032.2	352.2	006.0000	-0042.5	076.4	38.54	
134.0	000.0780	1044.5	032.3	352.0	006.0000	-0042.4	075.9	38.62	
135.0	000.0780	1055.1	032.5	351.7	006.0000	-0042.3	075.4	38.71	
136.0	000.0780	1068.9	032.7	351.5	006.0000	-0042.3	074.9	38.81	
137.0	000.0780	1085.0	033.0	351.2	006.0000	-0042.2	074.4	38.91	
138.0	000.0780	1100.6	033.2	351.0	006.0000	-0042.2	073.8	39.00	
139.0	000.0780	1112.5	033.4	350.6	006.0000	-0042.1	073.4	39.09	
140.0	000.0780	1119.6	033.5	350.3	006.0000	-0042.0	073.0	39.16	
141.0	000.0780	1122.4	033.6	349.9	006.0000	-0041.9	072.6	39.22	
142.0	000.0780	1122.2	033.6	349.5	006.0000	-0041.7	072.4	39.27	
143.0	000.0780	1120.5	033.6	349.1	006.0000	-0041.5	072.1	39.31	
144.0	000.0780	1118.5	033.5	348.6	006.0000	-0041.3	071.9	39.35	
145.0	000.0780	1116.4	033.5	348.2	006.0000	-0041.1	071.7	39.39	
146.0	000.0780	1113.8	033.5	347.8	006.0000	-0040.9	071.5	39.42	
147.0	000.0780	1110.7	033.4	347.3	006.0000	-0040.5	071.4	39.45	
148.0	000.0780	1107.5	033.4	346.9	006.0000	-0040.1	071.2	39.48	
149.0	000.0780	1104.8	033.3	346.4	006.0000	-0039.7	071.1	39.50	
150.0	000.0780	1101.8	033.3	345.9	006.0000	-0039.3	071.0	39.52	
151.0	000.0780	1097.4	033.2	345.5	006.0000	-0039.0	070.9	39.54	

Exhibit 7c

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)
152.0	000.0780	1090.2	033.1	345.0	006.0000	-0038.6	070.9	39.54
153.0	000.0780	1080.1	032.9	344.5	006.0000	-0038.3	070.9	39.53
154.0	000.0780	1068.9	032.7	344.0	006.0000	-0038.1	071.0	39.52
155.0	000.0780	1058.7	032.5	343.6	006.0000	-0038.0	071.1	39.50
156.0	000.0780	1051.5	032.4	343.1	006.0000	-0038.0	071.1	39.49
157.0	000.0780	1046.1	032.3	342.6	006.0000	-0038.1	071.2	39.49
158.0	000.0780	1040.1	032.2	342.2	006.0000	-0038.2	071.2	39.48
159.0	000.0780	1032.9	032.1	341.7	006.0000	-0038.3	071.3	39.46
160.0	000.0780	1024.1	031.9	341.3	006.0000	-0038.4	071.4	39.44
161.0	000.0780	1016.3	031.8	340.8	006.0000	-0038.6	071.6	39.41
162.0	000.0780	1013.0	031.7	340.4	006.0000	-0038.8	071.6	39.40
163.0	000.0780	1015.7	031.8	339.9	006.0000	-0039.2	071.6	39.40
164.0	000.0780	1021.5	031.9	339.5	006.0000	-0039.5	071.6	39.42
165.0	000.0780	1028.7	032.0	339.0	006.0000	-0039.9	071.5	39.43
166.0	000.0780	1036.1	032.1	338.6	006.0000	-0040.4	071.4	39.44
167.0	000.0780	1046.0	032.3	338.1	006.0000	-0041.0	071.3	39.46
168.0	000.0780	1052.7	032.4	337.6	006.0000	-0041.7	071.3	39.46
169.0	000.0780	1051.4	032.4	337.2	006.0000	-0042.4	071.5	39.43
170.0	000.0780	1038.3	032.2	336.8	006.0000	-0043.1	071.8	39.37
171.0	000.0780	1024.1	031.9	336.4	006.0000	-0043.8	072.2	39.30
172.0	000.0780	1006.7	031.6	336.1	006.0000	-0044.6	072.6	39.22
173.0	000.0780	0984.1	031.2	335.7	006.0000	-0045.2	073.2	39.13
174.0	000.0780	0961.4	030.8	335.4	006.0000	-0045.9	073.7	39.03
175.0	000.0780	0948.3	030.6	335.1	006.0000	-0046.6	074.1	38.96
176.0	000.0780	0936.3	030.4	334.8	006.0000	-0047.3	074.5	38.89
177.0	000.0780	0924.2	030.2	334.4	006.0000	-0048.0	074.9	38.82
178.0	000.0780	0916.4	030.1	334.1	006.0000	-0048.7	075.2	38.76
179.0	000.0780	0908.8	029.9	333.8	006.0000	-0049.3	075.5	38.69
180.0	000.0780	0900.9	029.8	333.5	006.0000	-0049.7	075.9	38.63
181.0	000.0780	0894.0	029.7	333.2	006.0000	-0050.0	076.2	38.56
182.0	000.0780	0887.0	029.6	332.9	006.0000	-0050.1	076.6	38.50
183.0	000.0780	0877.5	029.4	332.6	006.0000	-0050.1	077.0	38.42
184.0	000.0780	0855.7	029.0	332.4	006.0000	-0050.0	077.6	38.31
185.0	000.0780	0834.4	028.6	332.3	006.0000	-0049.9	078.2	38.20
186.0	000.0780	0813.0	028.3	332.1	006.0000	-0049.7	078.8	38.09
187.0	000.0780	0794.3	027.9	332.0	006.0000	-0049.5	079.3	37.98
188.0	000.0780	0772.5	027.5	331.9	006.0000	-0049.2	079.9	37.86
189.0	000.0780	0742.9	027.0	331.8	006.0000	-0049.1	080.6	37.72
190.0	000.0780	0712.0	026.4	331.8	006.0000	-0049.1	081.3	37.57
191.0	000.0780	0685.7	026.0	331.8	006.0000	-0049.0	082.0	37.44
192.0	000.0780	0666.1	025.6	331.7	006.0000	-0048.8	082.6	37.32
193.0	000.0780	0652.2	025.3	331.6	006.0000	-0048.5	083.1	37.22
194.0	000.0780	0644.1	025.2	331.4	006.0000	-0048.1	083.5	37.14
195.0	000.0780	0644.0	025.2	331.2	006.0000	-0047.4	083.8	37.08
196.0	000.0780	0645.2	025.2	331.0	006.0000	-0046.7	084.1	37.02

Exhibit 7c

Contour Protection Studies Toward Select Allocation Concern(s)

06-17-2020

Terrain Data: FCC NGDC 30 Sec

FMOver Analysis

KQAV BPH20190114AAK

CH228D.P

Channel = 228A

Max ERP = 6 kW

RCAMSL = 769.6 m

N. Lat. 34 49 38.90

W. Lng. 118 11 08.20

Protected

60 dBu

Channel = 228D

Max ERP = 0.078 kW

RCAMSL = 2172.4 m

N. Lat. 35 42 20.60

W. Lng. 118 33 34.40

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
296.0	006.0000	0009.7	015.8	167.6	000.0330	1050.8	092.9	36.58	
297.0	006.0000	0007.5	015.8	167.5	000.0330	1050.2	092.7	36.64	
298.0	006.0000	0005.1	015.8	167.4	000.0330	1049.4	092.5	36.70	
299.0	006.0000	0002.6	015.8	167.3	000.0330	1048.5	092.3	36.75	
300.0	006.0000	-0000.1	015.8	167.2	000.0330	1047.5	092.1	36.80	
301.0	006.0000	-0003.0	015.8	167.0	000.0330	1046.4	091.9	36.85	
302.0	006.0000	-0006.5	015.8	166.9	000.0330	1045.3	091.7	36.90	
303.0	006.0000	-0010.7	015.8	166.8	000.0330	1044.1	091.5	36.94	
304.0	006.0000	-0015.5	015.8	166.7	000.0330	1042.8	091.3	36.98	
305.0	006.0000	-0020.3	015.8	166.5	000.0330	1041.5	091.1	37.03	
306.0	006.0000	-0024.3	015.8	166.4	000.0330	1040.1	090.9	37.07	
307.0	006.0000	-0026.2	015.8	166.3	000.0330	1038.7	090.7	37.11	
308.0	006.0000	-0025.9	015.8	166.1	000.0330	1037.4	090.6	37.15	
309.0	006.0000	-0024.1	015.8	166.0	000.0330	1036.2	090.4	37.18	
310.0	006.0000	-0021.8	015.8	165.9	000.0330	1035.1	090.2	37.22	
311.0	006.0000	-0019.8	015.8	165.7	000.0330	1034.0	090.1	37.26	
312.0	006.0000	-0019.0	015.8	165.6	000.0330	1033.0	089.9	37.29	
313.0	006.0000	-0019.2	015.8	165.4	000.0330	1032.0	089.8	37.33	
314.0	006.0000	-0020.5	015.8	165.3	000.0330	1030.9	089.6	37.36	
315.0	006.0000	-0022.1	015.8	165.1	000.0330	1029.8	089.5	37.39	
316.0	006.0000	-0023.8	015.8	165.0	000.0330	1028.6	089.3	37.42	
317.0	006.0000	-0025.1	015.8	164.8	000.0330	1027.4	089.2	37.45	
318.0	006.0000	-0025.5	015.8	164.7	000.0330	1026.2	089.1	37.48	
319.0	006.0000	-0025.4	015.8	164.5	000.0330	1025.1	089.0	37.50	
320.0	006.0000	-0025.2	015.8	164.4	000.0330	1023.9	088.8	37.53	
321.0	006.0000	-0025.1	015.8	164.2	000.0330	1022.8	088.7	37.55	
322.0	006.0000	-0025.5	015.8	164.0	000.0330	1021.7	088.6	37.57	
323.0	006.0000	-0026.3	015.8	163.9	000.0330	1020.7	088.5	37.59	
324.0	006.0000	-0027.4	015.8	163.7	000.0330	1019.7	088.4	37.61	
325.0	006.0000	-0029.2	015.8	163.5	000.0330	1018.8	088.3	37.63	
326.0	006.0000	-0031.3	015.8	163.4	000.0330	1017.8	088.2	37.65	
327.0	006.0000	-0033.5	015.8	163.2	000.0330	1016.8	088.2	37.66	
328.0	006.0000	-0036.1	015.8	163.0	000.0330	1015.8	088.1	37.67	

Exhibit 7c

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)
329.0	006.0000	-0039.3	015.8	162.8	000.0330	1014.9	088.0	37.69
330.0	006.0000	-0043.1	015.8	162.7	000.0330	1014.2	088.0	37.70
331.0	006.0000	-0046.8	015.8	162.5	000.0330	1013.6	087.9	37.71
332.0	006.0000	-0049.5	015.8	162.3	000.0330	1013.2	087.8	37.72
333.0	006.0000	-0050.1	015.8	162.1	000.0330	1013.0	087.8	37.73
334.0	006.0000	-0048.9	015.8	162.0	000.0330	1013.0	087.8	37.75
335.0	006.0000	-0046.8	015.8	161.8	000.0330	1013.2	087.7	37.76
336.0	006.0000	-0044.7	015.8	161.6	000.0330	1013.6	087.7	37.77
337.0	006.0000	-0042.7	015.8	161.4	000.0330	1014.2	087.7	37.78
338.0	006.0000	-0041.2	015.8	161.3	000.0330	1014.9	087.6	37.80
339.0	006.0000	-0040.0	015.8	161.1	000.0330	1015.8	087.6	37.81
340.0	006.0000	-0039.1	015.8	160.9	000.0330	1017.0	087.6	37.82
341.0	006.0000	-0038.5	015.8	160.7	000.0330	1018.2	087.6	37.83
342.0	006.0000	-0038.3	015.8	160.5	000.0330	1019.6	087.6	37.84
343.0	006.0000	-0038.0	015.8	160.4	000.0330	1021.1	087.6	37.85
344.0	006.0000	-0038.1	015.8	160.2	000.0330	1022.6	087.6	37.86
345.0	006.0000	-0038.6	015.8	160.0	000.0330	1024.2	087.7	37.87
346.0	006.0000	-0039.4	015.8	159.8	000.0330	1025.8	087.7	37.88
347.0	006.0000	-0040.3	015.8	159.6	000.0330	1027.4	087.7	37.88
348.0	006.0000	-0041.0	015.8	159.5	000.0330	1028.9	087.8	37.88
349.0	006.0000	-0041.5	015.8	159.3	000.0330	1030.5	087.8	37.89
350.0	006.0000	-0041.9	015.8	159.1	000.0330	1032.0	087.9	37.88
351.0	006.0000	-0042.2	015.8	158.9	000.0330	1033.5	087.9	37.88
352.0	006.0000	-0042.4	015.8	158.8	000.0330	1034.9	088.0	37.88
353.0	006.0000	-0042.7	015.8	158.6	000.0330	1036.2	088.0	37.87
354.0	006.0000	-0043.0	015.8	158.4	000.0330	1037.4	088.1	37.86
355.0	006.0000	-0044.2	015.8	158.2	000.0330	1038.5	088.2	37.85
356.0	006.0000	-0046.5	015.8	158.1	000.0330	1039.6	088.3	37.83
357.0	006.0000	-0048.4	015.8	157.9	000.0330	1040.7	088.3	37.82
358.0	006.0000	-0047.4	015.8	157.7	000.0330	1041.8	088.4	37.80
359.0	006.0000	-0043.5	015.8	157.6	000.0330	1042.8	088.5	37.78
000.0	006.0000	-0039.5	015.8	157.4	000.0330	1043.8	088.6	37.76
001.0	006.0000	-0036.9	015.8	157.2	000.0330	1044.8	088.7	37.74
002.0	006.0000	-0034.9	015.8	157.1	000.0330	1045.7	088.9	37.71
003.0	006.0000	-0032.7	015.8	156.9	000.0330	1046.5	089.0	37.69
004.0	006.0000	-0028.2	015.8	156.8	000.0330	1047.4	089.1	37.66
005.0	006.0000	-0023.1	015.8	156.6	000.0330	1048.2	089.2	37.63
006.0	006.0000	-0018.5	015.8	156.4	000.0330	1049.1	089.4	37.60
007.0	006.0000	-0015.2	015.8	156.3	000.0330	1049.9	089.5	37.57
008.0	006.0000	-0012.9	015.8	156.1	000.0330	1050.7	089.6	37.53
009.0	006.0000	-0011.4	015.8	156.0	000.0330	1051.6	089.8	37.50
010.0	006.0000	-0011.0	015.8	155.8	000.0330	1052.6	089.9	37.46
011.0	006.0000	-0010.5	015.8	155.7	000.0330	1053.5	090.1	37.42
012.0	006.0000	-0009.9	015.8	155.6	000.0330	1054.5	090.2	37.39
013.0	006.0000	-0009.3	015.8	155.4	000.0330	1055.4	090.4	37.35

Exhibit 8

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

CH228D.P - 106.4 dBμ F(50:10) Interference Contour

Yellow Highlighted Text denotes a 47 C.F.R. Section 74.1204(d) Second/ Third Adjacent Channel Given Interference Waiver Request toward KISV(FM) - Bakersfield, CA (CH231B) as noted in **Exhibit 8**. The interference contour at the site has been calculated to be no less than the 106.4 dBμ F(50:10) contour corresponding to the 66.4 dBμ F(50:50) 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 multiple dedicated transmitter buildings located at the remote mountain top site. However, structures of this nature have been exempt as a matter of FCC Policy (see similar grant under BPFT-20160725ABE).

Signal Report

KISV Signal value at Reference site = 66.4 dBu. Distance to CH228D.P interference signal contour = 296.7 m

OK

Multiple dedicated transmitter buildings. Structures of this nature have been exempt as a matter of FCC Policy (see similar grant under BPFT-20160725ABE).

Google Earth Pro™
Account #4375669785
Used with Permission

Site Coordinates (NGS NADCON)

Latitude	Longitude
NAD 83 datum: 35-42-20.6 N	118-33-34.4 W

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



1000 ft

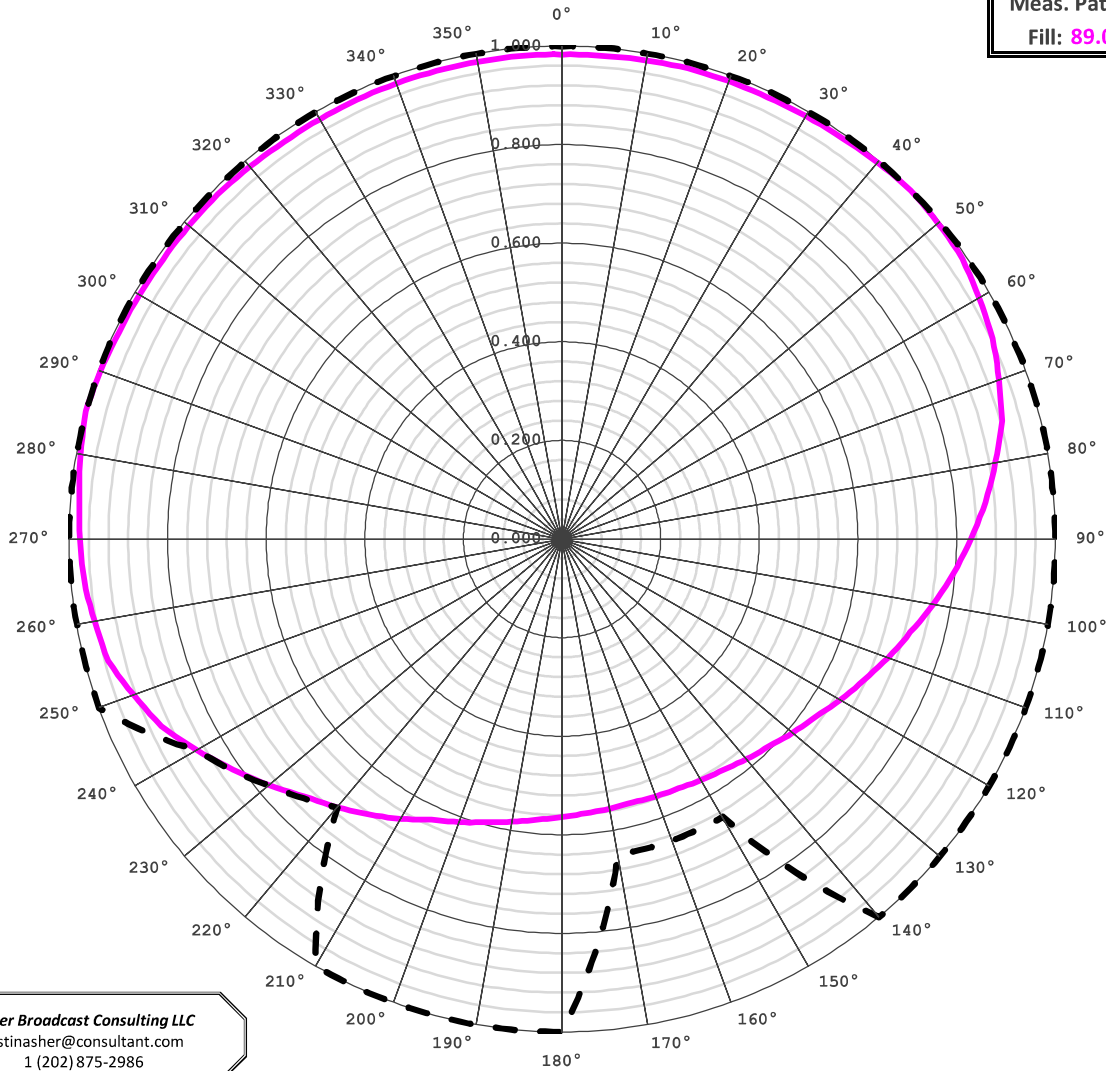
Google Earth

Manufacturer's	Make/Model	Orientation	Power
Element 1:	BKG77	345° 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: 89.0%



Azimuth ° True	FCC Pattern	Manufacturer's Pattern
0°	1.000	0.983
10°	1.000	0.986
20°	1.000	0.988
30°	1.000	0.990
40°	1.000	0.996
50°	1.000	0.996
60°	1.000	0.977
70°	1.000	0.943
80°	1.000	0.893
90°	1.000	0.830
100°	1.000	0.764
110°	1.000	0.704
120°	1.000	0.652
130°	1.000	0.611
140°	1.000	0.583
150°	0.650	0.565
160°	0.650	0.556
170°	0.650	0.556
180°	1.000	0.565
190°	1.000	0.583
200°	1.000	0.611
210°	1.000	0.655
220°	0.710	0.710
230°	0.777	0.777
240°	0.856	0.856
250°	1.000	0.925
260°	1.000	0.963
270°	1.000	0.978
280°	1.000	0.992
290°	1.000	0.996
300°	1.000	0.990
310°	1.000	0.988
320°	1.000	0.986
330°	1.000	0.983
340°	1.000	0.983
350°	1.000	0.983

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

Allocation (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)



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

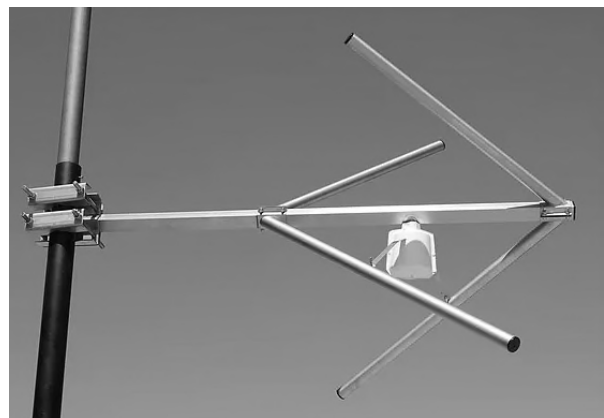


Exhibit 9
Copy of Manufacturer's Directional Antenna Documentation
(Actual Antenna Pattern rotated to 345.0°T) *(public record copy)*

Date: 29/04/2013

BKG77SINGLE.PRJ

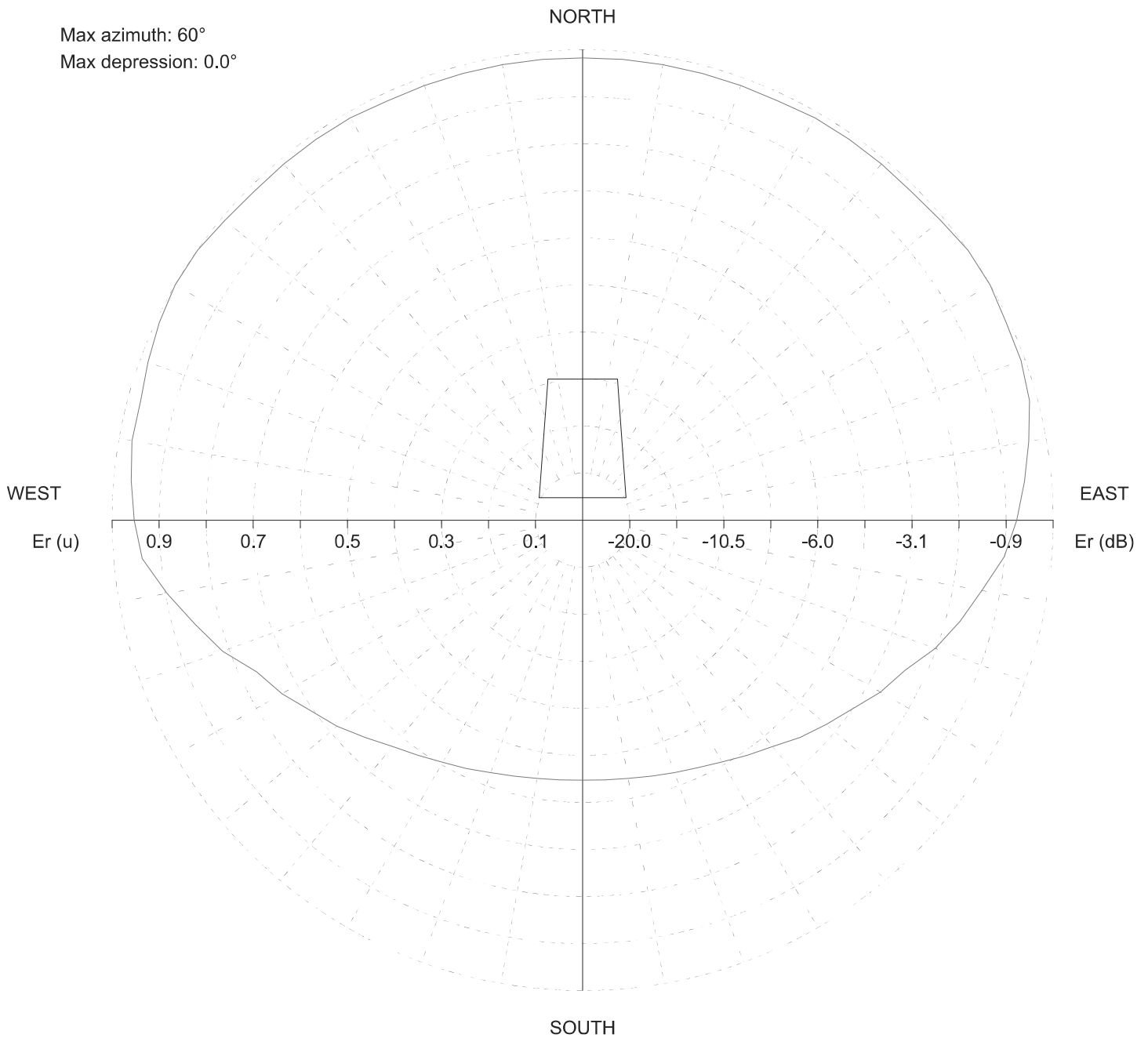
TX station: BKG77-1

Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima

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 345.0°T) (public record copy)

Date: 29/04/2013

BKG77SINGLE.PRJ

TX station: BKG77-1

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 345.0°T) **(public record copy)**

Date: 29/04/2013

BKG77SINGLE.PRJ

TX station: BKG77-1

Site name:

Frequency: 100.00 MHz

Vertical diagram

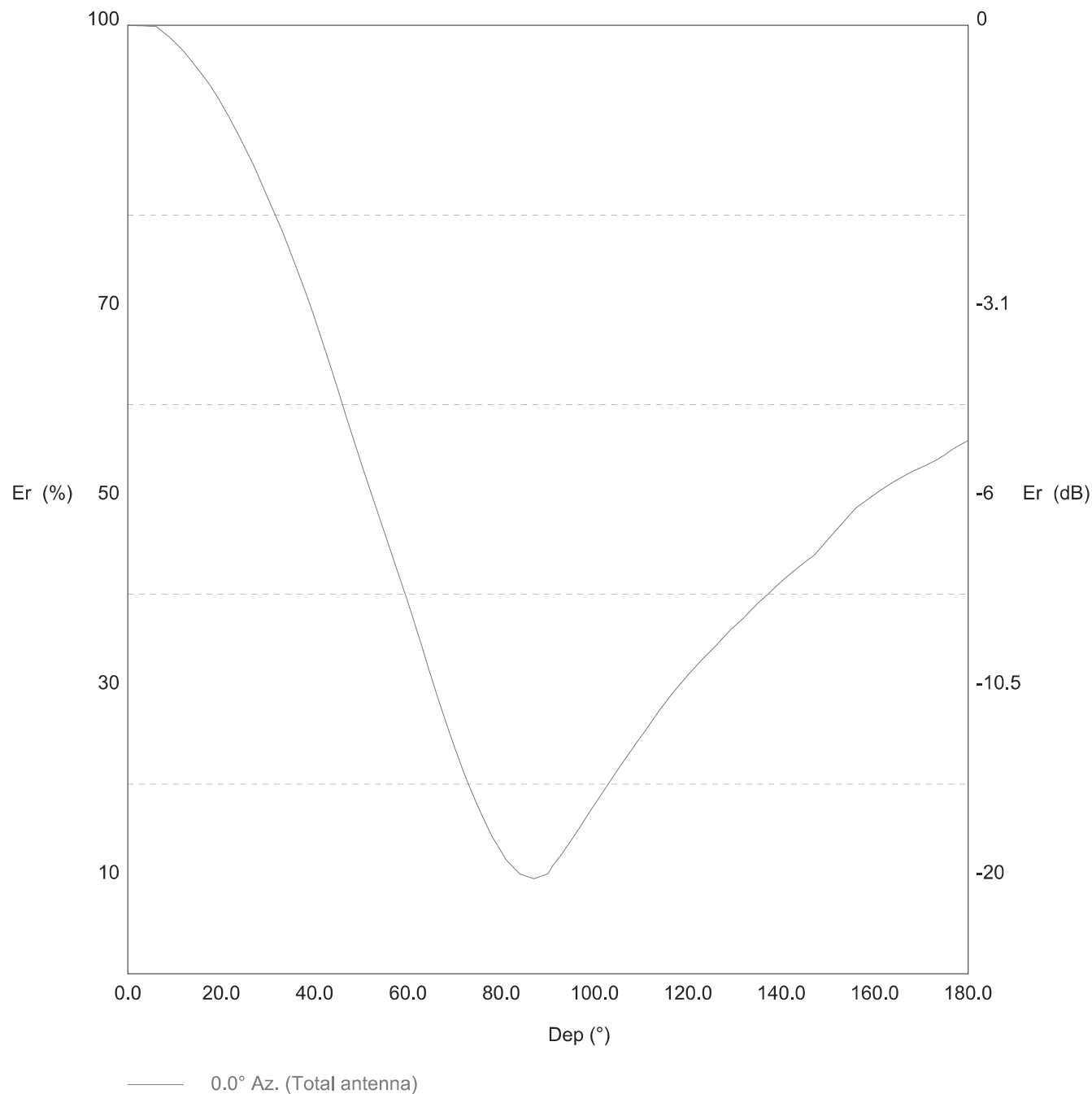


Exhibit 9

Copy of Manufacturer's Directional Antenna Documentation

(Actual Antenna Pattern rotated to 345.0°T) (public record copy)

TX station: BKG77-1

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	373.6	60.0	39.1	57.2	120.0	31.5	37.0
1.0	100.0	373.5	61.0	37.6	52.8	121.0	32.0	38.3
2.0	100.0	373.4	62.0	36.1	48.6	122.0	32.6	39.6
3.0	99.9	373.3	63.0	34.5	44.6	123.0	33.1	41.0
4.0	99.9	373.1	64.0	32.9	40.5	124.0	33.6	42.2
5.0	99.9	372.9	65.0	31.3	36.6	125.0	34.1	43.5
6.0	99.9	372.8	66.0	29.7	33.0	126.0	34.6	44.7
7.0	99.5	369.9	67.0	28.2	29.8	127.0	35.2	46.2
8.0	99.1	367.0	68.0	26.8	26.8	128.0	35.7	47.6
9.0	98.7	364.1	69.0	25.3	23.9	129.0	36.2	49.1
10.0	98.2	360.5	70.0	23.9	21.3	130.0	36.7	50.3
11.0	97.7	356.9	71.0	22.5	18.9	131.0	37.1	51.5
12.0	97.2	353.3	72.0	21.1	16.6	132.0	37.6	52.7
13.0	96.6	348.9	73.0	19.9	14.8	133.0	38.1	54.1
14.0	96.0	344.5	74.0	18.8	13.2	134.0	38.6	55.6
15.0	95.4	340.1	75.0	17.6	11.6	135.0	39.1	57.0
16.0	94.7	335.4	76.0	16.6	10.2	136.0	39.5	58.4
17.0	94.1	330.8	77.0	15.5	9.0	137.0	40.0	59.7
18.0	93.4	326.1	78.0	14.5	7.8	138.0	40.4	61.1
19.0	92.6	320.4	79.0	13.7	7.0	139.0	40.9	62.5
20.0	91.8	314.7	80.0	12.9	6.2	140.0	41.4	63.9
21.0	91.0	309.1	81.0	12.0	5.4	141.0	41.8	65.3
22.0	90.0	302.7	82.0	11.5	5.0	142.0	42.2	66.5
23.0	89.1	296.5	83.0	11.0	4.5	143.0	42.6	67.8
24.0	88.1	290.3	84.0	10.5	4.1	144.0	43.0	69.0
25.0	87.2	283.8	85.0	10.3	4.0	145.0	43.4	70.3
26.0	86.2	277.4	86.0	10.2	3.9	146.0	43.8	71.6
27.0	85.2	271.1	87.0	10.0	3.7	147.0	44.1	72.8
28.0	84.0	263.9	88.0	10.2	3.9	148.0	44.7	74.7
29.0	82.9	256.8	89.0	10.4	4.0	149.0	45.3	76.5
30.0	81.8	249.8	90.0	10.5	4.1	150.0	45.8	78.4
31.0	80.6	242.9	91.0	11.4	4.8	151.0	46.4	80.3
32.0	79.5	236.1	92.0	12.0	5.4	152.0	46.9	82.3
33.0	78.3	229.3	93.0	12.7	6.0	153.0	47.5	84.3
34.0	77.1	222.0	94.0	13.4	6.7	154.0	48.0	86.2
35.0	75.8	214.7	95.0	14.1	7.4	155.0	48.6	88.2
36.0	74.5	207.6	96.0	14.8	8.2	156.0	49.1	90.2
37.0	73.2	200.4	97.0	15.6	9.1	157.0	49.5	91.5
38.0	71.9	193.3	98.0	16.4	10.0	158.0	49.8	92.8
39.0	70.6	186.3	99.0	17.1	11.0	159.0	50.2	94.1
40.0	69.1	178.6	100.0	17.9	11.9	160.0	50.5	95.4
41.0	67.6	170.9	101.0	18.6	12.9	161.0	50.9	96.8
42.0	66.1	163.5	102.0	19.3	13.9	162.0	51.2	98.1
43.0	64.6	156.0	103.0	20.1	15.0	163.0	51.5	99.2
44.0	63.1	148.7	104.0	20.8	16.2	164.0	51.8	100.4
45.0	61.6	141.6	105.0	21.5	17.3	165.0	52.1	101.6
46.0	60.0	134.4	106.0	22.3	18.5	166.0	52.4	102.7
47.0	58.4	127.5	107.0	23.0	19.7	167.0	52.7	103.7
48.0	56.8	120.7	108.0	23.7	21.0	168.0	53.0	104.8
49.0	55.3	114.4	109.0	24.4	22.2	169.0	53.2	105.7
50.0	53.8	108.2	110.0	25.1	23.5	170.0	53.4	106.5
51.0	52.3	102.2	111.0	25.7	24.8	171.0	53.6	107.4
52.0	50.8	96.6	112.0	26.5	26.2	172.0	53.9	108.4
53.0	49.4	91.1	113.0	27.2	27.6	173.0	54.1	109.4
54.0	47.9	85.8	114.0	27.9	29.0	174.0	54.4	110.5
55.0	46.5	80.7	115.0	28.5	30.4	175.0	54.7	111.9
56.0	45.0	75.7	116.0	29.2	31.8	176.0	55.1	113.3
57.0	43.6	71.0	117.0	29.8	33.1	177.0	55.4	114.7
58.0	42.1	66.2	118.0	30.4	34.4	178.0	55.7	115.9
59.0	40.6	61.6	119.0	30.9	35.7	179.0	56.0	117.0