Technical Report Supporting a Schedule 349 Minor Change In Licensed Facility Construction Permit Application

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

for

W280EP.L - Lumberton, NC
(Facility ID: 156774)

"New-Directional Antenna, Decrease in Power & Correction of Coordinates"

---

as a

Regular, Non-Commercial, Non-Fill-In Translator for WYBH(FM) - Fayetteville, NC

July 2020

Asher Broadcast Consulting, LLC
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Explanation of Technical Report 1

EXPLANATION OF PROPOSAL: This Schedule 349 Filing and accompanying technical report supports a Minor Change in Licensed Facility Construction Permit Application for licensed FM Translator W280EP.L - Lumberton, NC (Facility ID: 156774). This FCC Schedule 349 Filing requests a new directional antenna from the same tower site, a decrease in power and a minor correction of coordinates. Continued operation on CH280D (103.9 MHz) with 0.038 kW ERP (circular polarization) at 114.6 meters AMSL is requested. This Schedule 349 Filing will continue to specify rebroadcast of Class A, FM Primary Station WYBH(FM) - Fayetteville, NC (CH216A, 91.1 MHz); Facility ID No. 85067. The Translator will continue to provide service to the community of Lumberton, NC.

FACILITY COMPLIANCE SHOWINGS: A map of the proposed 60 dBµ service contour in relation to the present 60 dBµ service contour has been included in ***Exhibit 1***. The minor change proposed service area will overlap a portion of the presently licensed service area as noted in the exhibit. The proposed 60 dBµ contour of the Translator lies wholly outside of the NCE-FM Primary Station 60 dBµ contour. 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 1020469. In support of this filing, a copy of the existing ASRN has been included in ***Exhibit 3***. A depiction of the tower and antenna configuration has been included in ***Exhibit 4***. Further notification to the FAA or ASR governing authorities is not required as this proposal will not increase the overall tower height.

The applicant would like to note use of the NED 03 second terrain database for all allocation, contour and HAAT showings contained herein. A copy of the proposed HAAT calculation has been included in ***Exhibit 5***. In this instance, the directional antenna results in all individual radials and individual radial powers (MERP's) falling within the allowances of 47 C.F.R. Section 74.1235(b) as noted 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. A general allocation study for this proposal is found in ***Exhibit 6***.

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. Additional manufacturer's directional antenna documentation has been included in ***Exhibit 8***.

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 is 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 10, 2020

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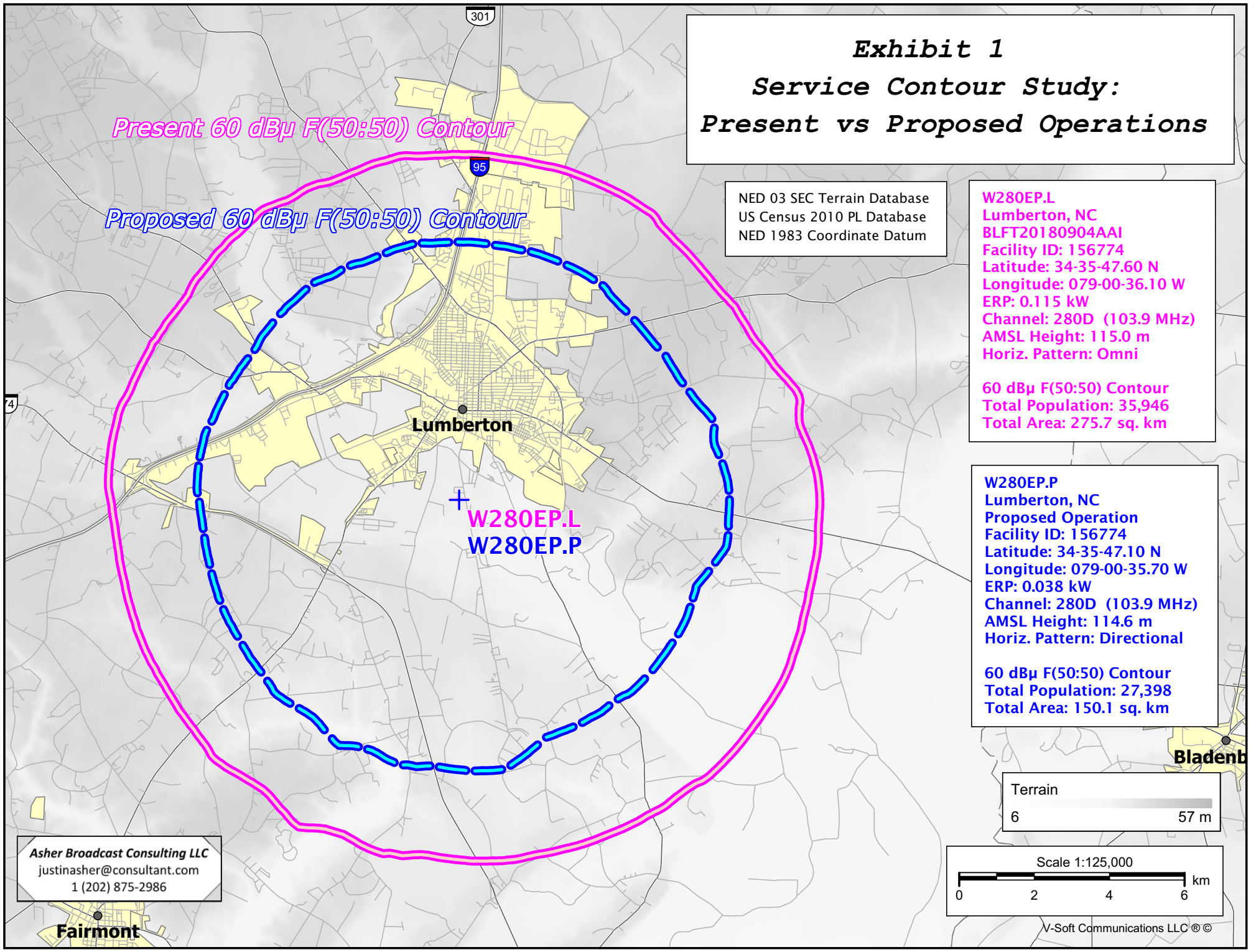
Exhibit 1
Service Contour Study:
Present vs Proposed Operations
Present 60 dBμ F(50:50) Contour
Proposed 60 dBμ F(50:50) Contour
NED 03 SEC Terrain Database
US Census 2010 PL Database
NED 1983 Coordinate Datum
W280EP.L
Lumberton, NC
BLFT20180904AAI
Facility ID: 156774
Latitude: 34-35-47.60 N
Longitude: 079-00-36.10 W
ERP: 0.115 kW
Channel: 280D (103.9 MHz)
AMSL Height: 115.0 m
Horiz. Pattern: Omni
60 dBμ F(50:50) Contour
Total Population: 35,946
Total Area: 275.7 sq. km
W280EP.P
Lumberton, NC
Proposed Operation
Facility ID: 156774
Latitude: 34-35-47.10 N
Longitude: 079-00-35.70 W
ERP: 0.038 kW
Channel: 280D (103.9 MHz)
AMSL Height: 114.6 m
Horiz. Pattern: Directional
60 dBμ F(50:50) Contour
Total Population: 27,398
Total Area: 150.1 sq. km
Lumberton
W280EP.L
W280EP.P
301
95
74
Fairmont
Bladenb
Terrain
6
57 m
Scale 1:125,000
0
2
4
6
km
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V-Soft Communications LLC ® ©

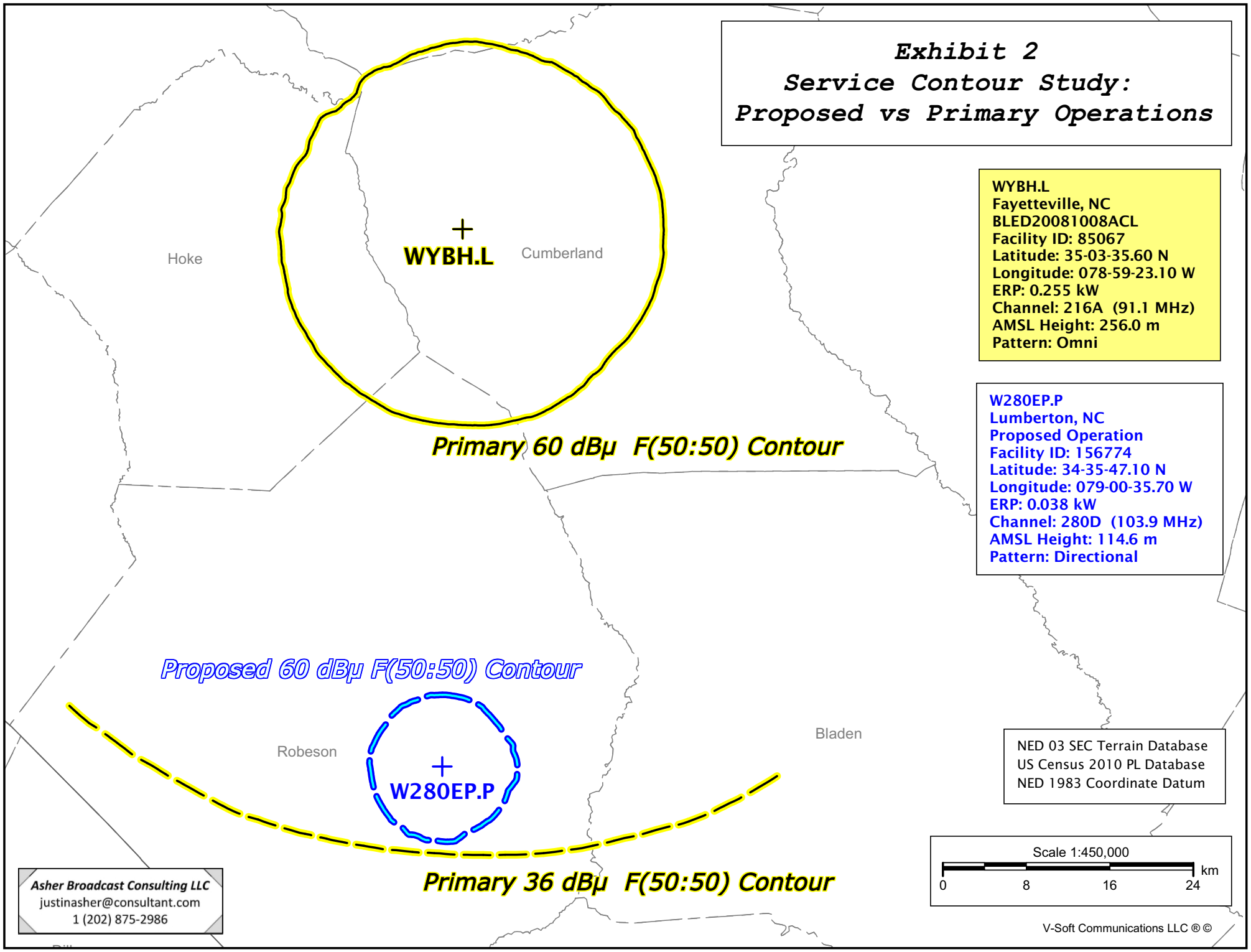
Exhibit 2
Service Contour Study:
Proposed vs Primary Operations
WYBH.L
Fayetteville, NC
BLED20081008ACL
Facility ID: 85067
Latitude: 35-03-35.60 N
Longitude: 078-59-23.10 W
ERP: 0.255 kW
Channel: 216A (91.1 MHz)
AMSL Height: 256.0 m
Pattern: Omni
W280EP.P
Lumberton, NC
Proposed Operation
Facility ID: 156774
Latitude: 34-35-47.10 N
Longitude: 079-00-35.70 W
ERP: 0.038 kW
Channel: 280D (103.9 MHz)
AMSL Height: 114.6 m
Pattern: Directional
Hoke
Cumberland
WYBH.L
Primary 60 dBµ F(50:50) Contour
Proposed 60 dBµ F(50:50) Contour
Robeson
Bladen
W280EP.P
Primary 36 dBµ F(50:50) Contour
NED 03 SEC Terrain Database
US Census 2010 PL Database
NED 1983 Coordinate Datum
Scale 1:450,000
km
0
8
16
24
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ASR Registration Search

Registration 1020469

Map Registration

Exhibit 3
Copy of Existing Antenna Structure Registration
(public record copy)

Registration Detail

Reg Number	1020469	Status	Constructed
File Number	A0786348	Constructed	01/01/1965
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long	34-35-47.1 N 079-00-35.7 W	Address	1498 Alamac Road
City, State	Lumberton , NC		
Zip	28358	County	ROBESON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
34.7	93.3
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
128.0	92.4

Painting and Lighting Specifications

FAA Chapters 3, 4, 5, 12
Paint and Light in Accordance with FAA Circular Number 70/7460-1K

FAA Notification

FAA Study	2011-ASO-4329-OE	FAA Issue Date	07/15/2011

Owner & Contact Information

FRN	0004121000	Owner Entity Type	Corporation
Assignor FRN	0008321234	Assignor ID	L00200377

Owner

Educational Media Foundation
5700 West Oaks Blvd
Rocklin , CA 95765

P: (916)251-1600
F:
E: reception@kloveair1.com

Contact

Attention To: Signal Development
5700 West Oaks Blvd
Rocklin , CA 95747

P: (916)251-1600
F:
E: reception@kloveair1.com

Last Action Status

Status	Constructed	Received	09/25/2012
Purpose	Change Owner	Entered	09/25/2012
Mode	Interactive		

Related Applications

09/25/2012	A0786348 - Change Owner (OC)
07/21/2011	A0732712 - Notification (NT)
07/20/2011	A0732647 - Notification (NT)

Related applications (6)

Comments

Comments

07/21/2011	OWNERSHIP INFO UPDATED AS A RESULT OF MOD OF 'O' APPLICATION PROCESSED

History

Date	Event
09/26/2012	Registration Printed
09/26/2012	Change of Ownership Letter Sent
09/25/2012	Change of Ownership Received

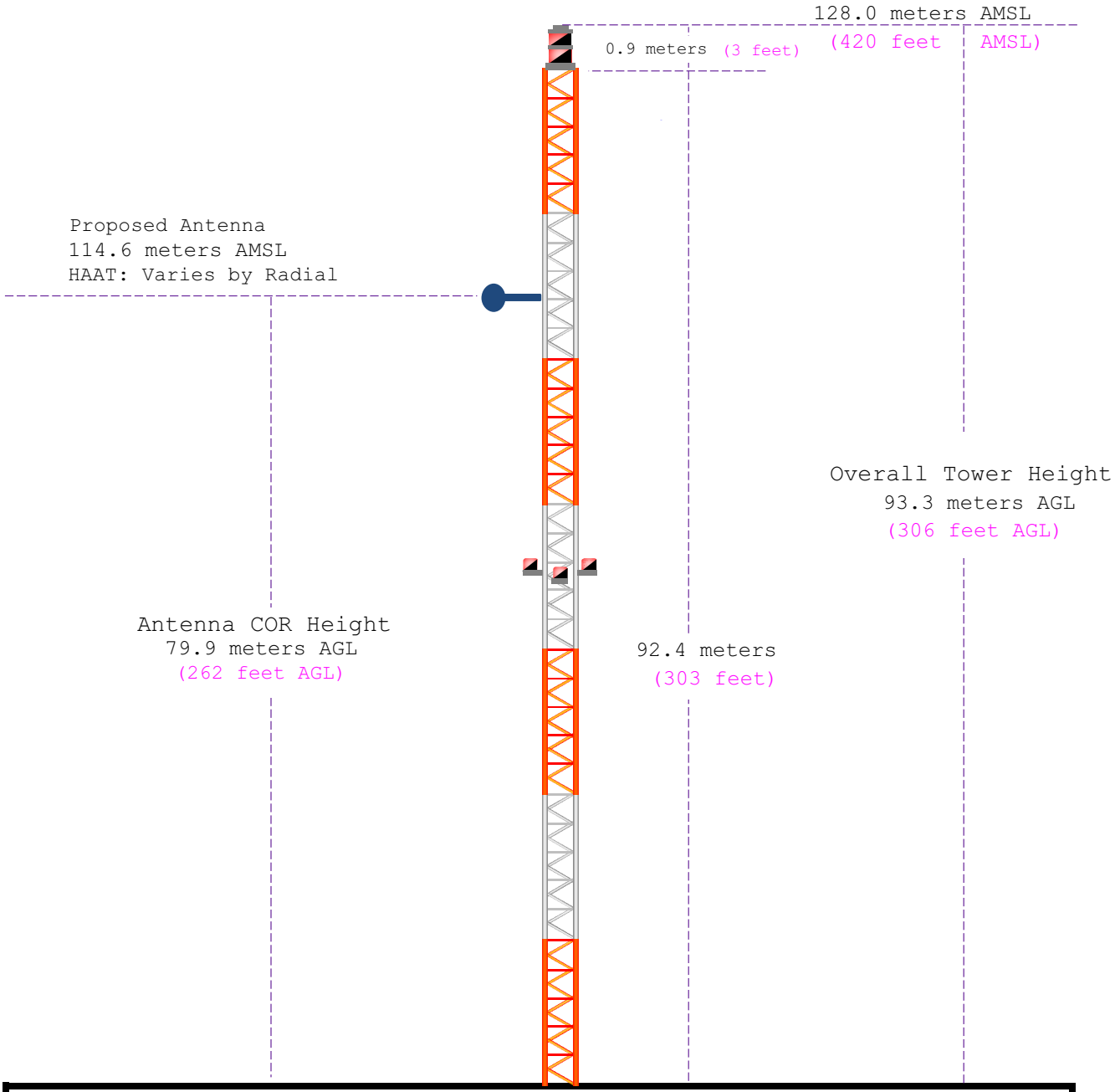
All History (10)

Automated Letters

09/26/2012	Authorization, Reference
09/26/2012	Ownership Change, Reference 727670
07/22/2011	Authorization, Reference

All letters (4)

Exhibit 4
Vertical Plan of Antenna System



Ground Elevation: 34.7 meters AMSL (114 feet AMSL)

Address: 1498 Alamac Road
City: Lumberton
County: Robeson
State: North Carolina

Laitude (D M S)	Longitude (D M S)	
----	----	(NAD 1927)
Lat/Long 34-35-47.1 N	079-00-35.7 W	(NAD 1983)

Antenna Structure Registration
1020469

Drawing Is Not To Scale

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Exhibit 5
HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1983):

N. Lat. = 343547.1 W. Lng. = 790035.7
HAAT and Distance to Contour,
FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	41.9	72.7	0.0380	-14.20	1.000	6.85
030	41.7	72.9	0.0380	-14.20	1.000	6.86
060	45.8	68.8	0.0380	-14.20	1.000	6.67
090	34.7	79.9	0.0380	-14.20	1.000	7.18
120	29.9	84.7	0.0270	-15.69	0.843	6.82
150	31.4	83.2	0.0270	-15.69	0.843	6.76
180	35.0	79.6	0.0380	-14.20	1.000	7.17
210	36.5	78.1	0.0380	-14.20	1.000	7.10
240	40.4	74.2	0.0380	-14.20	1.000	6.92
270	40.5	74.1	0.0380	-14.20	1.000	6.92
300	43.3	71.3	0.0380	-14.20	1.000	6.79
330	41.9	72.7	0.0380	-14.20	1.000	6.85

Ave El= 38.58 M HAAT= 76.02 M AMSL= 114.6 M

NAD 1983 to NAD 1927 Conversion:

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	34.5964167°, -079.0099167°
Degrees Minutes	34°35.78500', -079°00.59500'
Degrees Minutes Seconds	34°35'47.1000", -079°00'35.7000"
UTM	17S 682498mE 3830088mN
UTM centimeter	17S 682498.65mE 3830088.69mN
MGRS	17SPU8249830088
Grid North	1.1°
GARS	202LK46
Maidenhead	FM04LO83TD43
GEOREF	GJLE59403578

Exhibit 6
Tabulation of Proposed Allocation

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

REFERENCE CH# 280D - 103.9 MHz, Pwr= 0.038 kW DA, HAAT= 76.0 M, COR= 114.6 M DISPLAY DATES
34 35 47.10 N. Average Protected F(50-50)= 7.0 km DATA 07-05-20
79 00 35.70 W. Standard Directional SEARCH 07-06-20

CH CALL / CITY	TYPE ANT / STATE	AZI <--	DIST / FILE #	LAT / LNG	PWR(kW) / HAAT(M)	INT(km) / COR(M)	PRO(km) / LICENSEE	*IN* (Overlap in km)	*OUT*
280D W280EP Lumberton	LIC ___ NC	0.0 146.6	0.00 BLFT20180904AAI	34 35 47.60 79 00 36.10	0.115	 115	---Reference--- Educational Media Foundati		
281C1 WYAV Myrtle Beach	LIC ___ SC	181.8 1.8	111.83 BLH19980731KA	33 35 27.60 79 02 54.10	100.000 299	104.8 301	72.2 Dick Broadcasting Company,	-0.1<	29.5
279D W279DQ Fair Bluff	CP D__ NC	178.6 358.6	30.37 BNPFT20180314ABA	34 19 24.00 79 00 06.00	0.250	20.9 140	13.9 Keith Baldwin	2.3	6.3
280C3 WNNL Fuquay-Varina	LIC Z__ NC	11.7 191.9	113.58 BLH19921001KA	35 35 47.50 78 45 17.00	7.900 176	100.6 272	38.5 Radio One Licenses, LLC	6.1	52.2
278C2 WRCQ Dunn	LIC ___ NC	33.0 213.2	60.52 BLH19900207KB	35 03 09.50 78 38 53.00	48.000 153	5.9 187	51.7 Cumulus Licensing LLC	47.8	8.4
280D W280FO Whiteville	LIC ___ NC	138.0 318.2	40.79 BLFT20180710AAS	34 19 23.60 78 42 46.00	0.250	25.1 64	7.5 Wtxy Radio LLC	8.9	10.5
283A WCCG Hope Mills	LIC ___ NC	19.4 199.5	40.85 BLH19970421KB	34 56 34.60 78 51 40.10	6.000 84	2.4 122	24.8 Dr. James E. Carson	31.5	15.6
277C2 WJMX-FM Cheraw	LIC ___ SC	263.2 82.7	82.56 BLH19921118KA	34 30 18.50 79 54 17.20	50.000 150	6.3 197	54.2 Amfm Radio Licenses, L.L.C	69.4	27.9
282C3 WJSG Hamlet	LIC N__ NC	290.2 109.8	69.74 BLH20061109ADN	34 48 39.60 79 43 37.20	6.000 149	3.2 223	33.8 Jackson Broadcasting Compa	59.7	35.5
279C2 WILT Wrightsville Beach	LIC N__ NC	119.9 300.5	110.26 BLH20140121MLI	34 05 52.30 77 58 17.20	22.000 151	67.0 156	44.9 Sunrise Broadcasting, LLC	36.5	55.6
279C2 AL9816 Wrightsville Beach	RSV-A ___ NC	123.0 303.6	120.94 RM11295	33 59 56.63 77 54 33.95	50.000 150	77.2 153	51.4	36.9	59.8
279C0 WSOC-FM Charlotte	LIC ___ NC	296.0 115.0	169.30 BMLH20140821ABX	35 15 06.50 80 41 11.20	100.000 411	120.8 613	81.4 Beasley Media Group Licens	41.6	78.2
281D W281BZ Southern Pines	LIC ___ NC	336.3 156.0	89.53 BLFT20180731ABD	35 19 58.60 79 24 26.10	0.250	24.4 273	16.3 Pinehurst Broadcasting Cor	58.3	63.4

Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
Contour distances are on direct line to and from reference station. Reference zone= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.
< = Contour Overlap
Reference station has protected zone issue: AM tower

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

FMCommander Single Allocation Study - 07-06-2020 - NED 03 SEC
W280EP.P's Overlaps (In= -0.14 km, Out= 29.46 km)

W280EP.P CH 280 D DA
Lat= 34 35 47.10, Lng= 79 00 35.70
0.038 kW 76 m HAAT, 114.6 m COR
Prot.= 60 dBu, Intef.= 54 dBu

WYAV CH 281 C1 BLH19980731KA
Lat= 33 35 27.60, Lng= 79 02 54.10
100.0 kW 299 m HAAT, 301 m COR
Prot.= 60 dBu, Intef.= 54 dBu

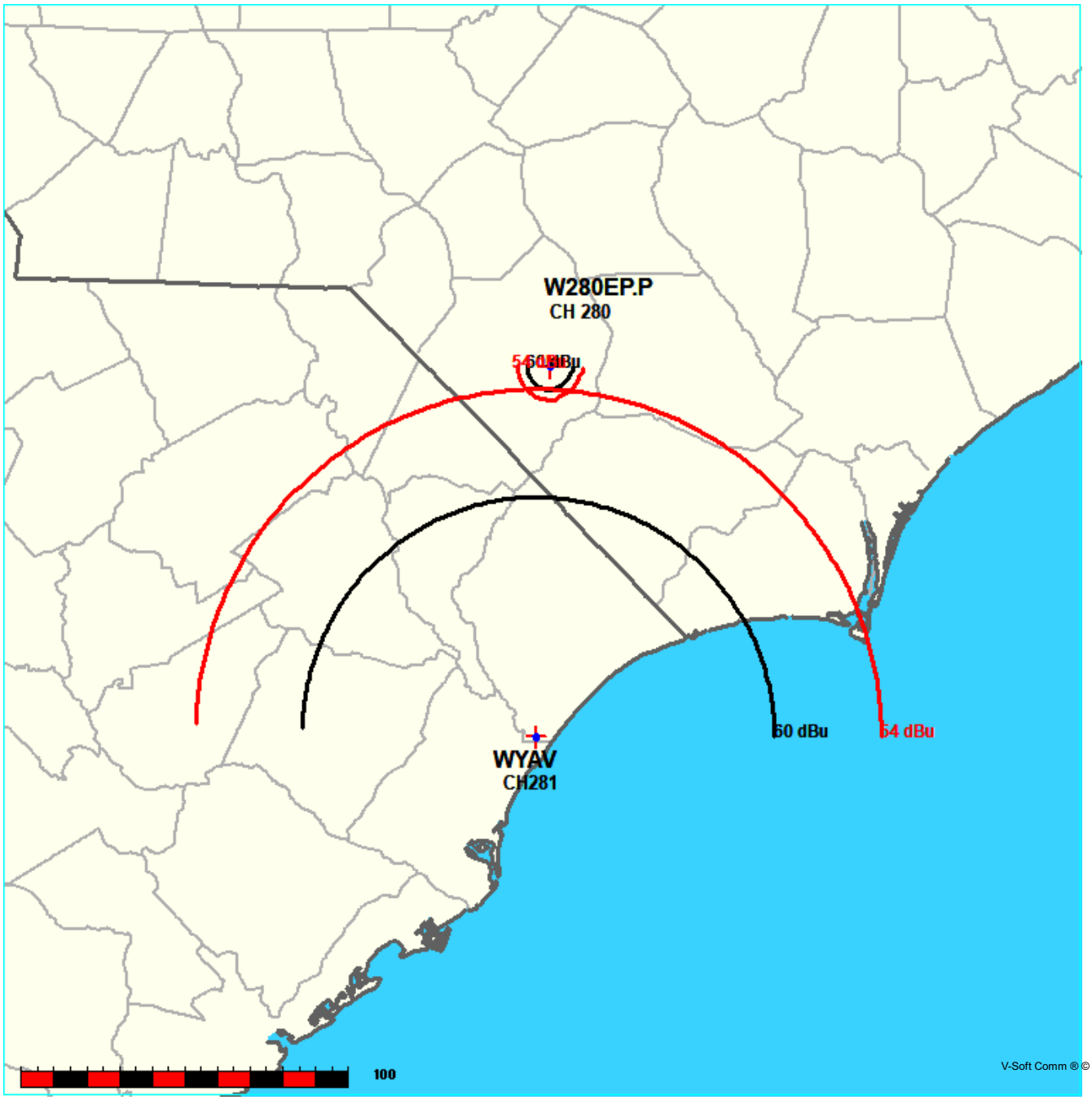

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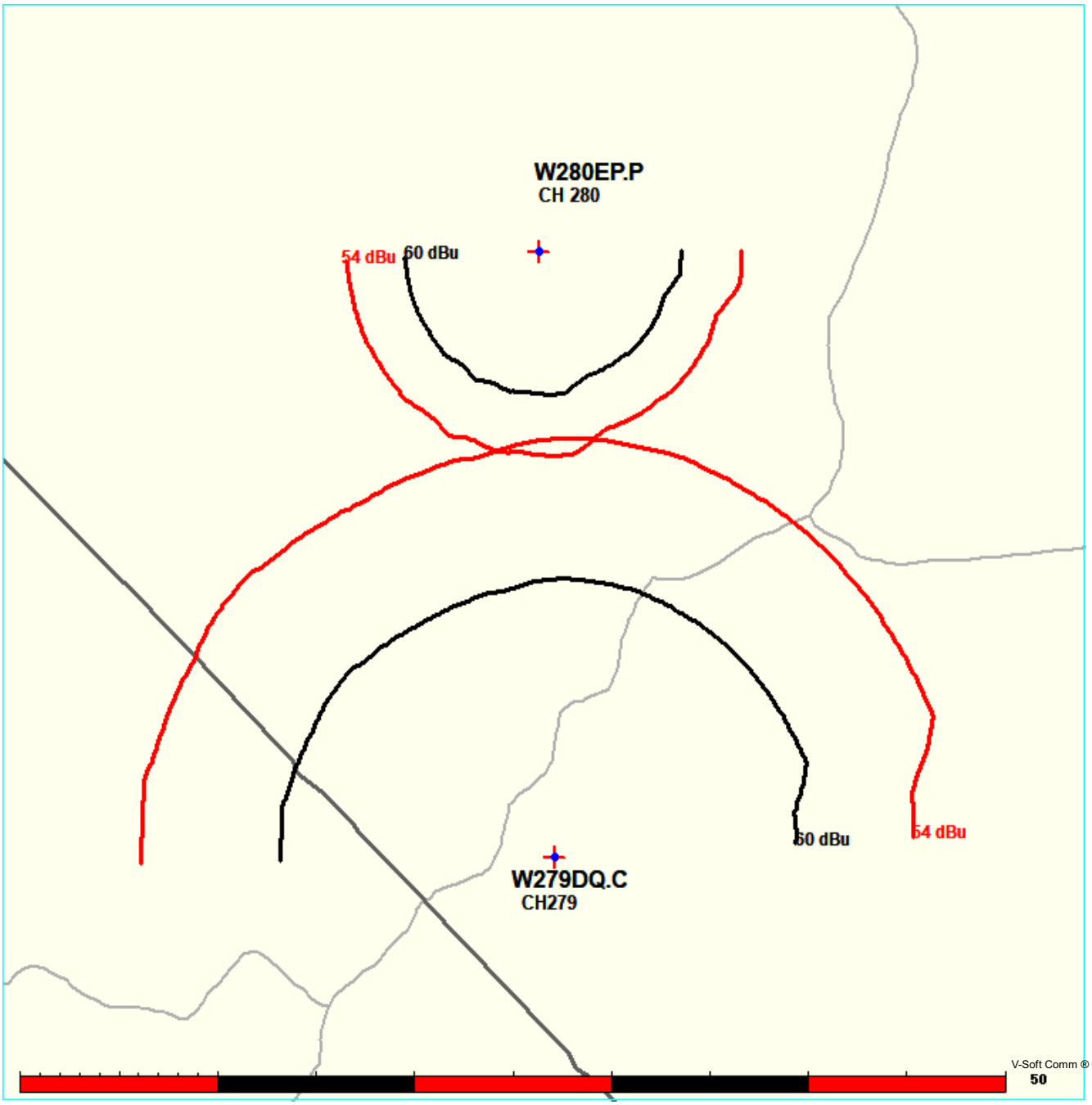
Exhibit 7b
Contour Protection Studies Toward Select Allocation Concern(s)

FMCommander Single Allocation Study - 07-06-2020 - NED 03 SEC
W280EP.P's Overlaps (In= 2.29 km, Out= 6.26 km)

W280EP.P CH 280 D DA
Lat= 34 35 47.10, Lng= 79 00 35.70
0.038 kW 76 m HAAT, 114.6 m COR
Prot.= 60 dBu, Intef.= 54 dBu

W279DQ CH 279 D DA BNPFT20180314ABA
Lat= 34 19 24.00, Lng= 79 00 06.00
0.25 kW 0 m HAAT, 140 m COR
Prot.= 60 dBu, Intef.= 54 dBu



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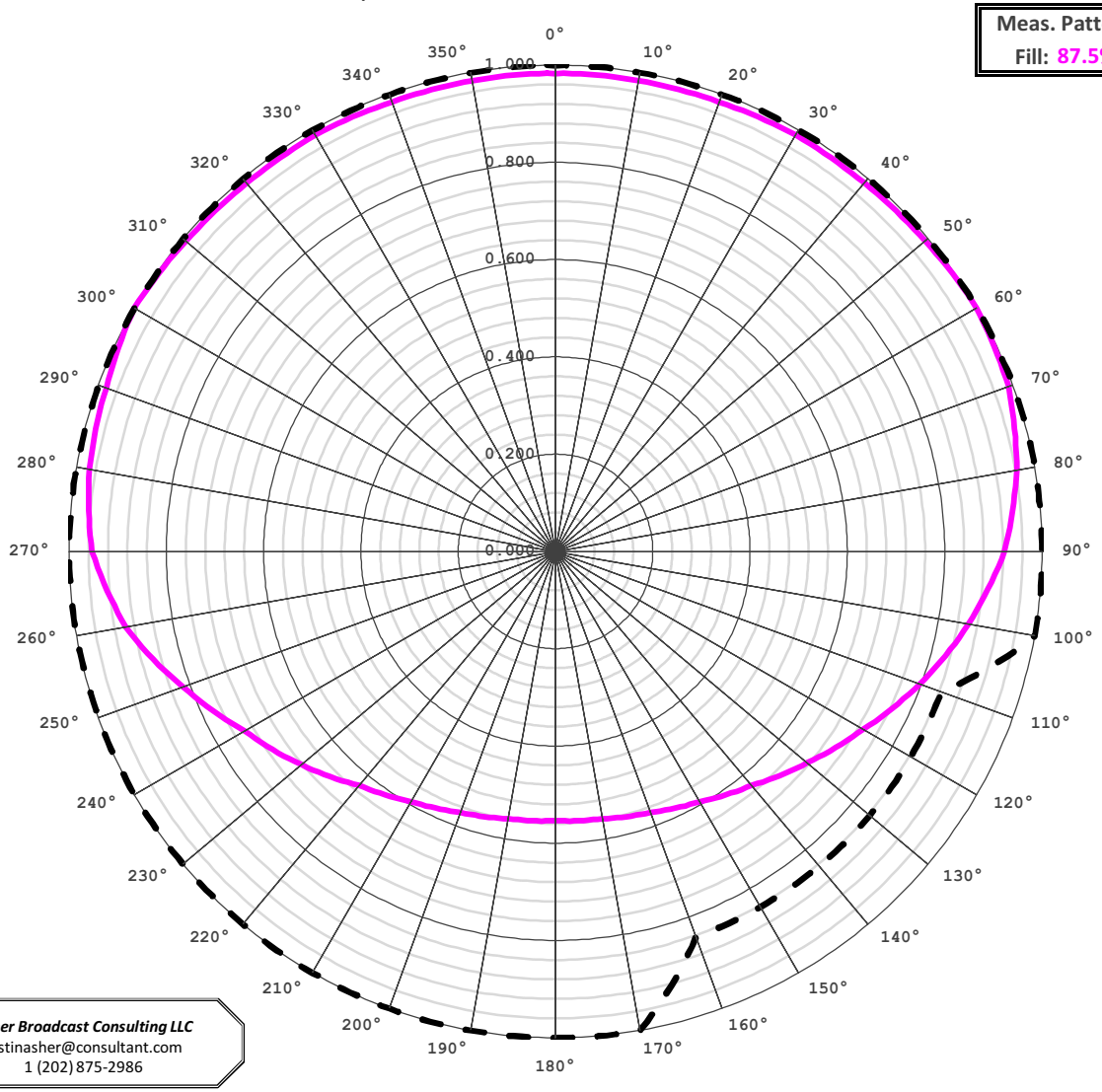
Manufacturer's	Make/Model	Orientation	Power
Element 1:	BKG77	000° True	100.0%
Element 2:			
Element 3:			
Element 4:			
	Composite Power:		100%

Exhibit 8 - Copy of Manufacturer's Directional Antenna Pattern Data

Meas. Pattern Fill: 87.5%



Azimuth ° True	FCC Pattern	Manufacturer's Pattern
0°	1.000	0.983
10°	1.000	0.983
20°	1.000	0.983
30°	1.000	0.988
40°	1.000	0.988
50°	1.000	0.992
60°	1.000	1.000
70°	1.000	0.991
80°	1.000	0.963
90°	1.000	0.923
100°	1.000	0.862
110°	0.843	0.797
120°	0.843	0.731
130°	0.843	0.676
140°	0.843	0.628
150°	0.843	0.594
160°	0.843	0.571
170°	1.000	0.558
180°	1.000	0.553
190°	1.000	0.558
200°	1.000	0.571
210°	1.000	0.594
220°	1.000	0.628
230°	1.000	0.682
240°	1.000	0.738
250°	1.000	0.815
260°	1.000	0.897
270°	1.000	0.953
280°	1.000	0.973
290°	1.000	0.983
300°	1.000	1.000
310°	1.000	0.992
320°	1.000	0.988
330°	1.000	0.988
340°	1.000	0.983
350°	1.000	0.983

Allocation (FCC) Pattern: - - -
Manufacturer's Pattern: ———

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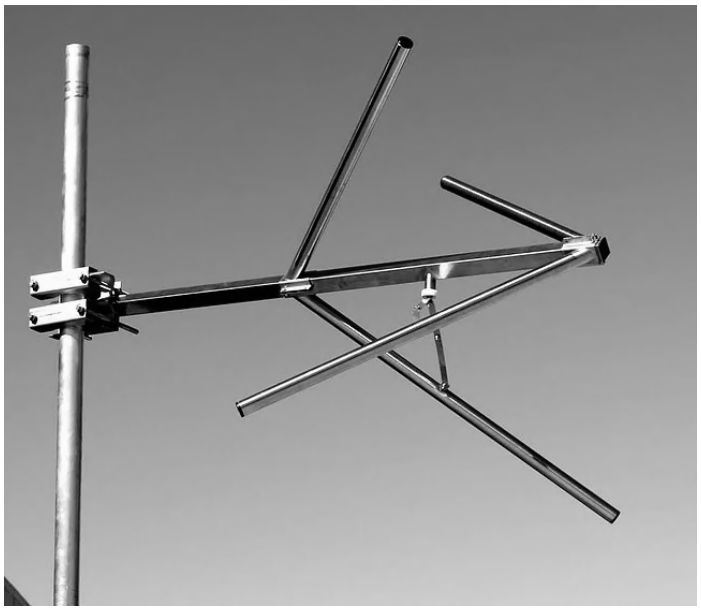
Exhibit 8
Copy of Manufacturer's Directional Antenna Documentation
(Actual Antenna Pattern rotated to 000.0°T) *(public record copy)*

NICOM Your Number 1 Source For Radio And Digital TV Gear

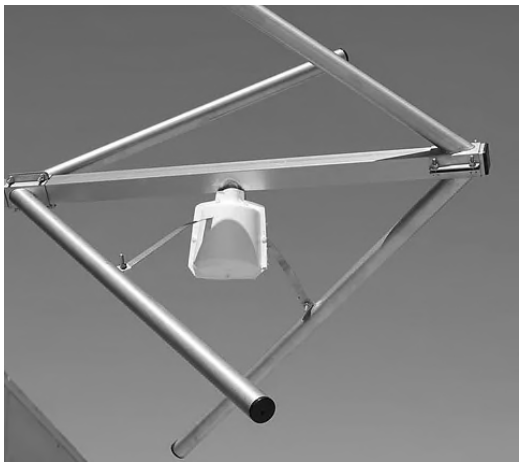
BKG 77

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"×32"×32" (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



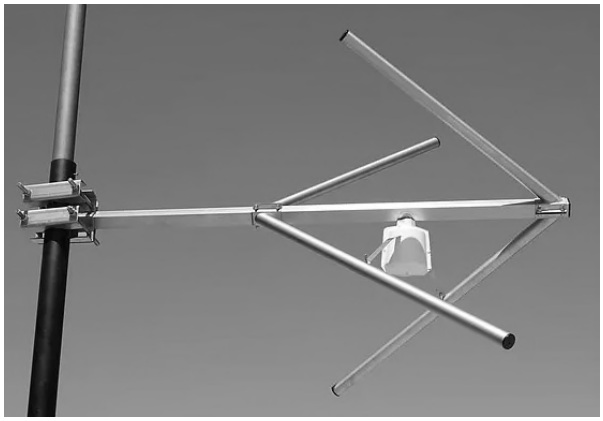


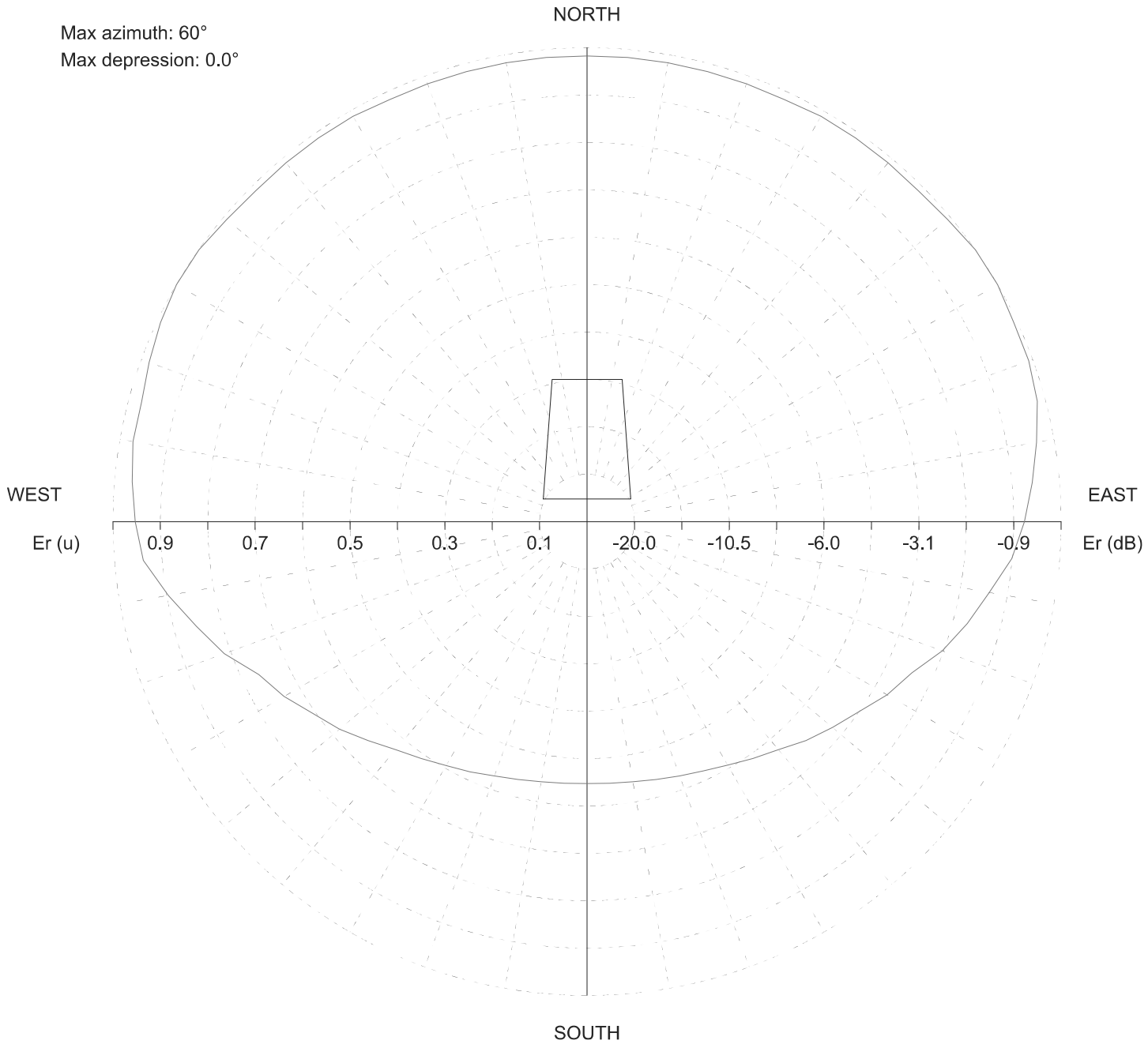
Exhibit 8
Copy of Manufacturer's Directional Antenna Documentation
(Actual Antenna Pattern rotated to 000.0°T) *(public record copy)*

Date: 29/04/2013 BKG77SINGLE.PRJ

TX station: BKG77-1 Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima



0.0° depres. (Total antenna), Gain (dBd): -3.03 ERP T.max (KW): 0.498 ERP E.max (KW): 0.387

NicomUsa, Inc

Exhibit 8
Copy of Manufacturer's Directional Antenna Documentation
(Actual Antenna Pattern rotated to 000.0°T) *(public record copy)*

Date: 29/04/2013 BKG77SINGLE.PRJ

TX station: BKG77-1 Site name:

Frequency: 100.00 MHz

Horizontal diagram of Maxima

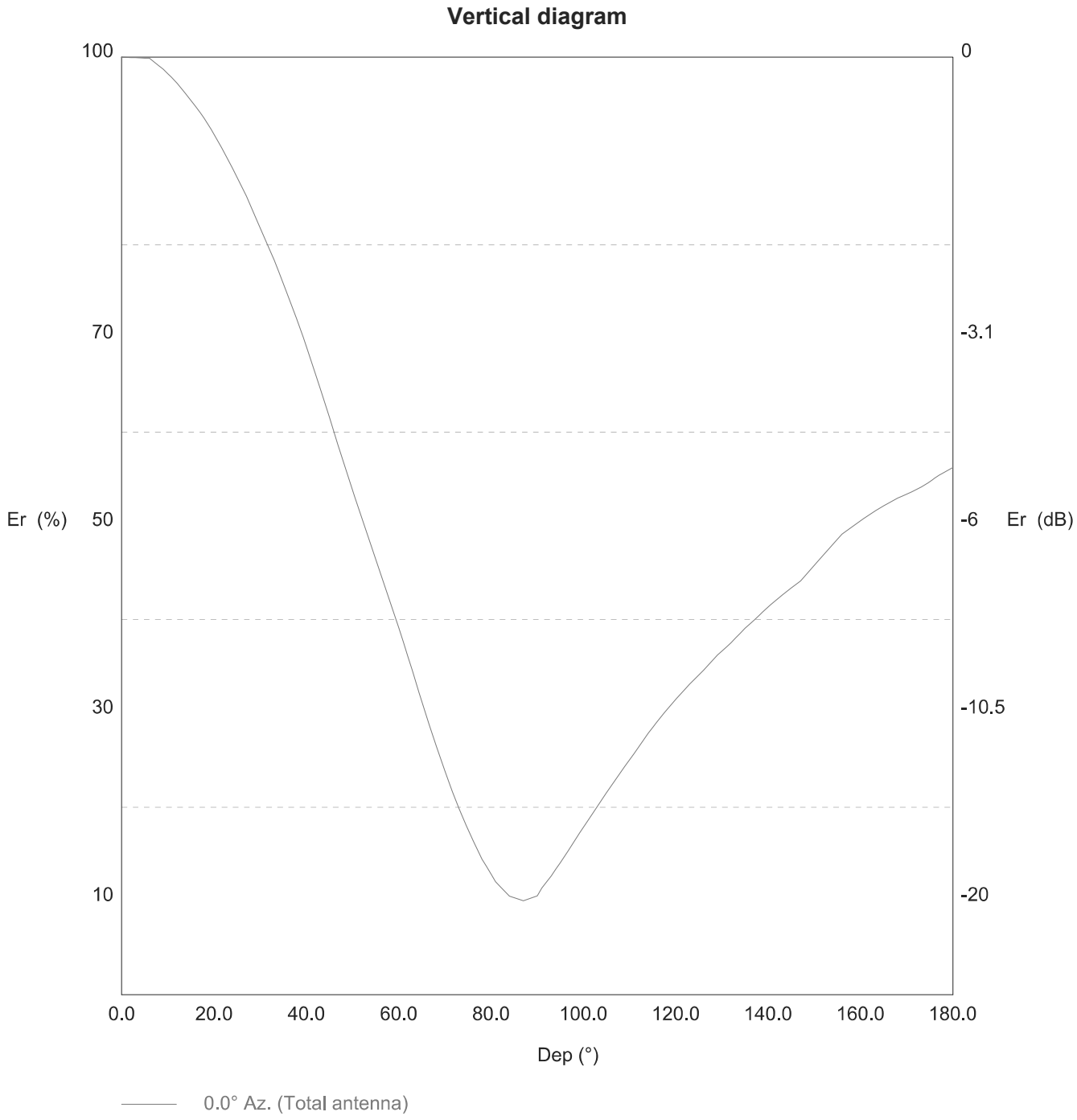
Az (°)	Dep (°)	Er (%)	ERP (W)	Az (°)	Dep (°)	Er (%)	ERP (W)	Az (°)	Dep (°)	Er (%)	ERP (W)
0.0	0.0	98.3	373.6	120.0	0.0	73.1	206.6	240.0	0.0	73.8	210.7
5.0	0.0	98.3	373.6	125.0	0.0	69.9	189.2	245.0	0.0	76.4	225.7
10.0	0.0	98.3	373.6	130.0	0.0	67.6	176.7	250.0	0.0	81.5	256.6
15.0	0.0	98.3	373.6	135.0	0.0	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 8
Copy of Manufacturer's Directional Antenna Documentation
(Actual Antenna Pattern rotated to 000.0°T) *(public record copy)*

Date: 29/04/2013 BKG77SINGLE.PRJ

TX station: BKG77-1 Site name:

Frequency: 100.00 MHz



NicomUsa, Inc

Exhibit 8
Copy of Manufacturer's Directional Antenna Documentation
(Actual Antenna Pattern rotated to 000.0°T) *(public record copy)* E.PRJ

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