

Technical Report Supporting a Minor Modification of a Licensed Facility Construction Permit Application

Pursuant to 47 C.F.R. Section 73:

for

*WJOU(FM).L - Huntsville, AL
(Facility ID: 49943)*

*Power Increase, Height Increase,
Correction of Tower Height
& Site Location*

as a
*Class C2, NCE-FM Facility on
CH211C2 (90.1 MHz)*

August 2021

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EXPLANATION OF PROPOSAL: This Minor Modification of a Licensed Facility and accompanying Technical Report supports a Minor Construction Permit Application for NCE-FM Station WJOU(FM).L - Huntsville, AL (Facility ID: 49943). This FCC Schedule 340-NCE-FM filing requests a minor correction of coordinates, ground elevation and tower height at the present site location. A power, height and class increase on the present NCE-FM channel to CH211C2 (90.1 MHz) with 33.0 kW ERP (Circular Polarization) is requested. From the corrected site, an antenna COR height of 58.8 meters AGL, 300.2 meters AMSL (74.1 meters HAAT) is requested. WJOU(FM) will continue to employ a non-directional antenna. WJOU(FM) will continue to specify service to the community of Huntsville, AL.

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. In addition, this exhibit demonstrates NCE-FM grade service of 1.0 mV/m, or 60 dB μ F(50:50), to the entire community of license.

A Longley-Rice coverage map of the proposed operation has been plotted in ***Exhibit 2***. The applicant acknowledges this map has been provided for illustrative purposes only.

The proposed facility will be located on the tower bearing Antenna Structure Registration Number 1060512. However, in the process of preparing this filing, errors in coordinates, tower height and ground elevation was discovered with regard to the underling ASRN. Revised FAA Study 2021-ASO-31639-OE is currently pending to correct these errors. The tower has been constructed to its current 74.3 meter AGL height since August of 1998; therefore, these errors have been in existence for some time. A corrected Antenna Structure Registration will be completed and provided to the Commission upon receipt of the future FAA "Determination of No Hazard". In support of this filing, a copy of USGS Topographic Aerial Photomapping of the existing tower site has been included in ***Exhibit 3***. A depiction of the tower and antenna configuration has been included in ***Exhibit 4***.

The applicant would like to note use of the NED 03 second terrain database for all allocation, contour and HAAT showings contained herein. A copy of the proposed HAAT calculation has been included in ***Exhibit 5***.

ALLOCATION COMPLIANCE SHOWINGS: The proposed full service NCE-FM site will meet all Class C2 contour protection requirements of 47 C.F.R. Section 73.509 toward each allocation protection. A tabulation of the proposed NCE-FM allocation is found in **Exhibit 6**. There are four (4) allocation concerns deemed close enough to require further study. Therefore, maps and/or tabulations of the relevant protected and interference contours toward these concerns have been supplied in **Exhibit(s) 7(a-d)**. It is believed sufficient clearance exists precluding the need for further study. However, additional tabulations or maps will be supplied upon request.

The transmitter site is located more than 320 km from the common border of the United States and Canada or Mexico. As a result, full protection will be afforded all international concerns as noted in the **Exhibit 6** allocation study.

The transmitter site is located within the affected radius of multiple TV6 facilities. However, full protection will be afforded all TV6 concerns as noted in **Exhibit 6**.

The remainder of this report is responsive to the Rules of the Commission, and provides the data for the FCC's online master LMS (Licensing and Management System) form.

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 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.

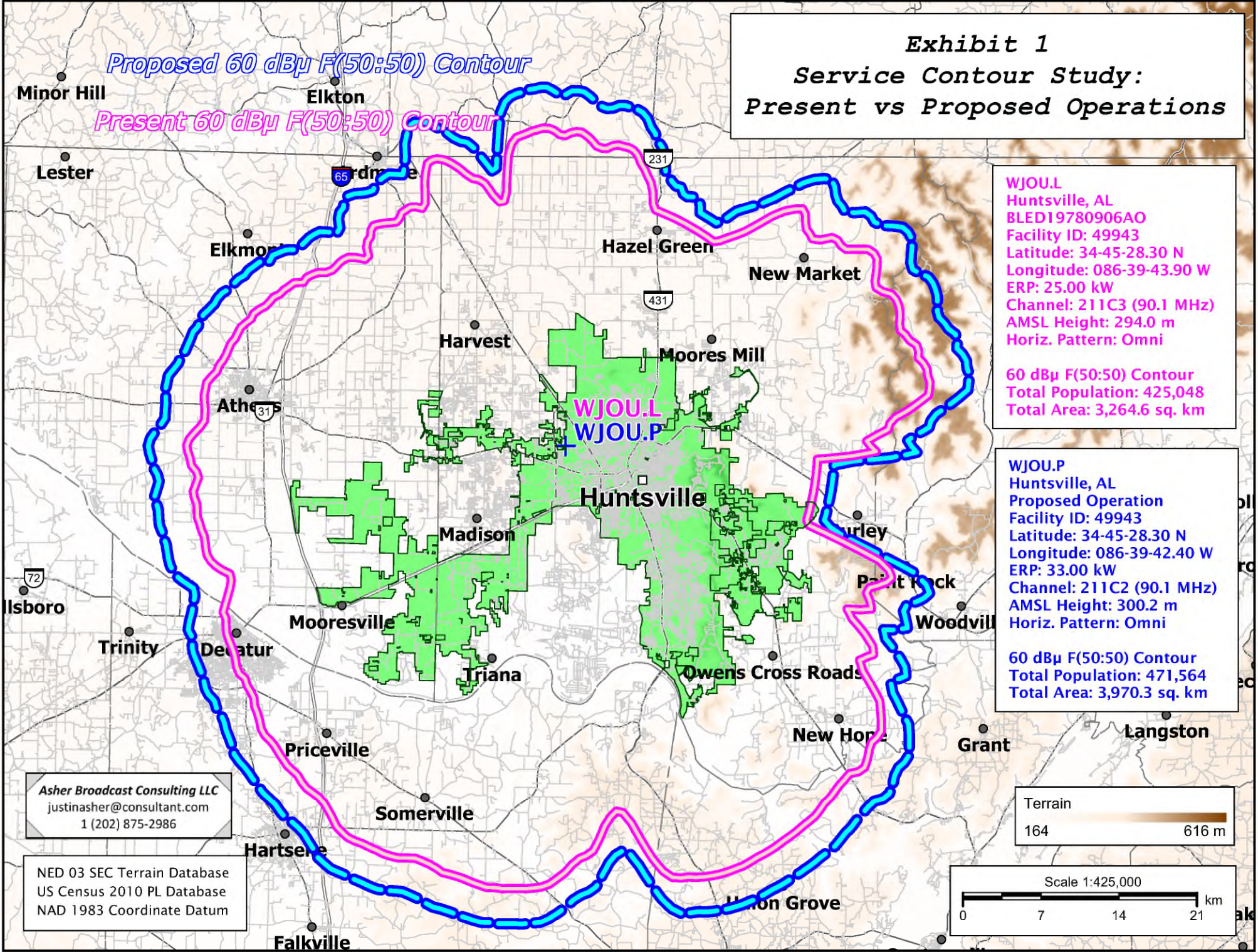
Regarding compliance with the NEPA, Nationwide Programmatic Agreement and NHPA Section 106 for tower co-location, compliance with the Agreement is not required where no new tower construction is being proposed and the tower is not being substantially altered. Specifically, compliance is not necessary where only an antenna and feedline are being replaced on an existing structure. 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-two 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
August 5, 2021

Exhibit 1
Service Contour Study:
Present vs Proposed Operations



WJOU.L
 Huntsville, AL
 BLED19780906A0
 Facility ID: 49943
 Latitude: 34-45-28.30 N
 Longitude: 086-39-43.90 W
 ERP: 25.00 kW
 Channel: 211C3 (90.1 MHz)
 AMSL Height: 294.0 m
 Horiz. Pattern: Omni

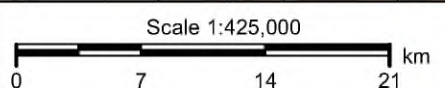
60 dBu F(50:50) Contour
 Total Population: 425,048
 Total Area: 3,264.6 sq. km

WJOU.P
 Huntsville, AL
 Proposed Operation
 Facility ID: 49943
 Latitude: 34-45-28.30 N
 Longitude: 086-39-42.40 W
 ERP: 33.00 kW
 Channel: 211C2 (90.1 MHz)
 AMSL Height: 300.2 m
 Horiz. Pattern: Omni

60 dBu F(50:50) Contour
 Total Population: 471,564
 Total Area: 3,970.3 sq. km

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

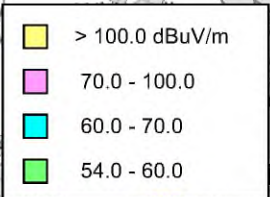
NED 03 SEC Terrain Database
 US Census 2010 PL Database
 NAD 1983 Coordinate Datum



non-FCC-sanctioned coverage map
for illustrative purposes only

NED 03 SEC Terrain Database
US Census 2010 PL Database
NAD 1983 Coordinate Datum

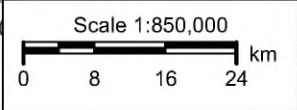
Exhibit 2 Service Contour Study: Proposed Longley-Rice Method



WJOU.P
Huntsville, AL
Proposed Operation
Facility ID: 49943
Latitude: 34-45-28.30 N
Longitude: 086-39-42.40 W
ERP: 33.00 kW
Channel: 211C2 (90.1 MHz)
AMSL Height: 300.2 m
Horiz. Pattern: Omni
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 9.1 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

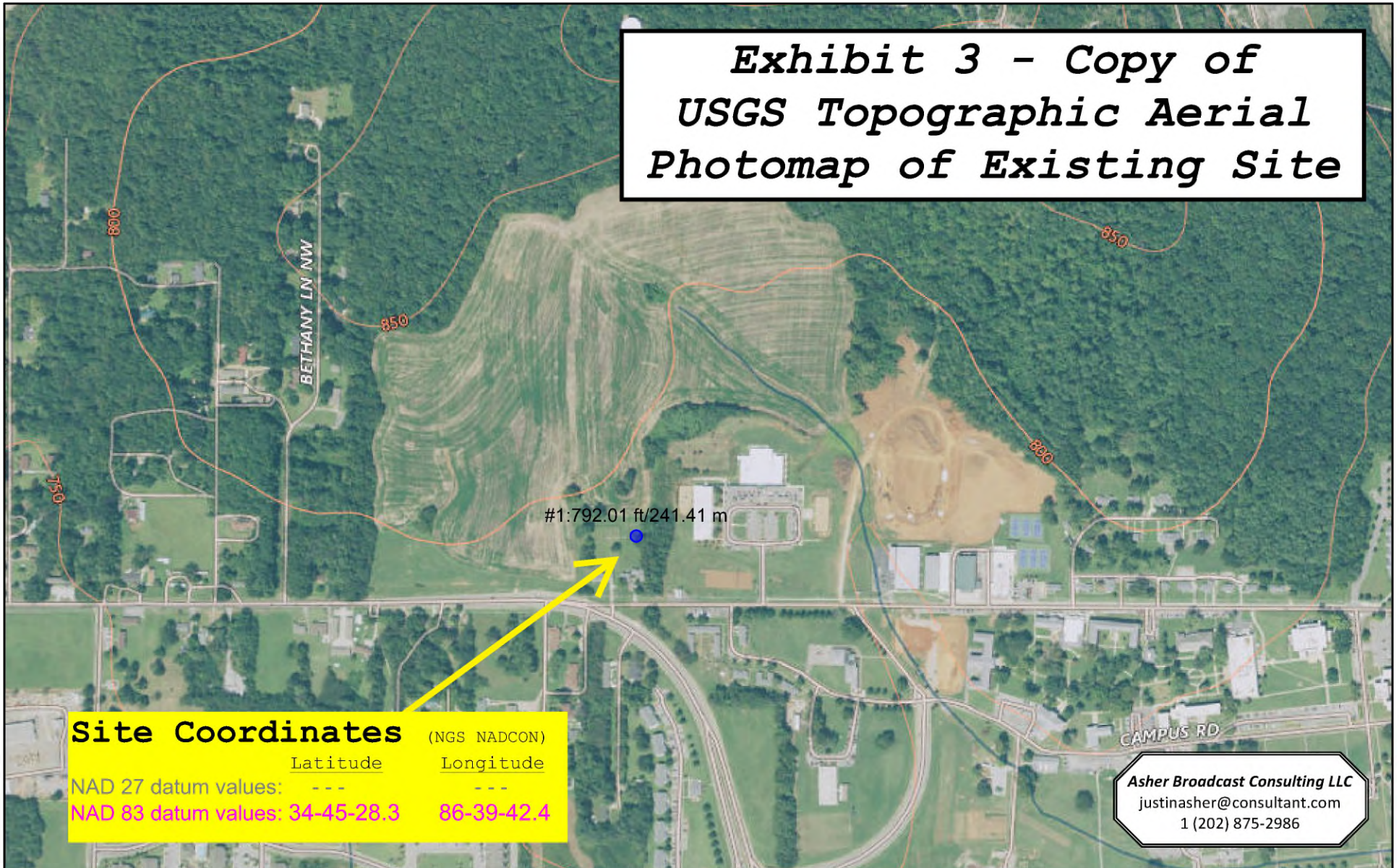
60 dB μ Longley-Rice Contour
Total Population: 531,502

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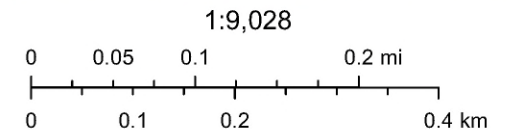


The National Map Advanced Viewer

Exhibit 3 - Copy of USGS Topographic Aerial Photomap of Existing Site



5/11/2021, 1:11:54 PM

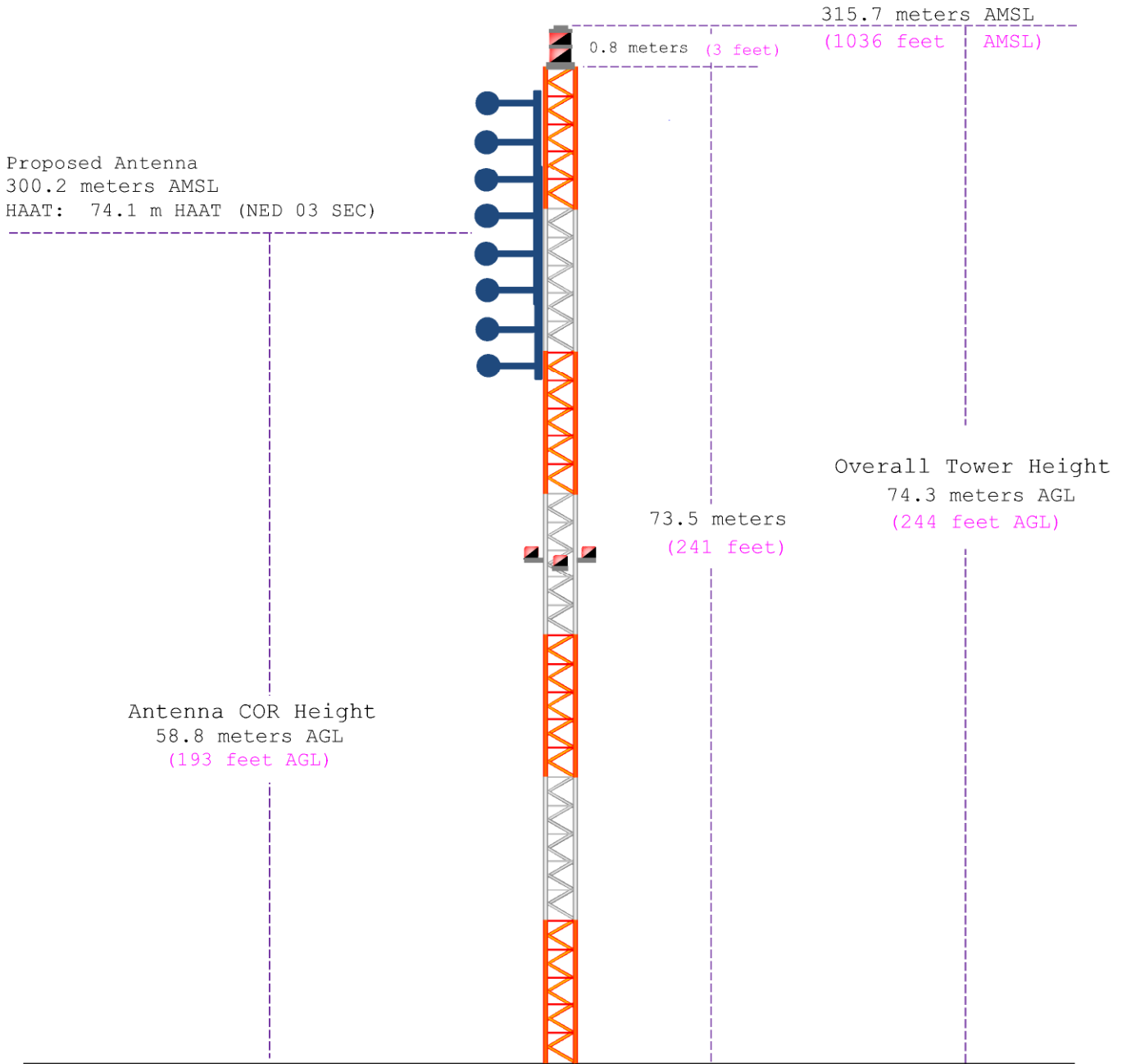


USGS The National Map: Orthoimagery and US Topo. Data refreshed

USGS
2021 USGS

Exhibit 4

Vertical Plan of Antenna System and Support Tower



Ground Elevation: 241.4 meters AMSL (792 feet AMSL)		
Address: 7000 ADVENTIST BLVD (BEHIND STUDIO)		
City: HUNTSVILLE		
County: MADISON		
State: ALABAMA		
Latitude (D M S)		Longitude (D M S)
---		---
(NAD 1927)		(NAD 1927)
Lat/Long 34-45-28.3 N 086-39-42.4 W (NAD 1983)		
Antenna Structure Registration	Drawing Is Not To Scale	Asher Broadcast Consulting, LLC justinasher@consultant.com 1(202)875-2986
1060512 (Pending Modification)		

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (NAD 1983):

N. Lat. = 344528.3 W. Lng. = 863942.4
 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	246.4	53.8	33.0000	15.19	1.000	31.51
045	237.7	62.5	33.0000	15.19	1.000	33.78
090	248.1	52.1	33.0000	15.19	1.000	31.01
135	197.3	102.9	33.0000	15.19	1.000	41.79
180	199.4	100.8	33.0000	15.19	1.000	41.44
225	203.6	96.7	33.0000	15.19	1.000	40.74
270	221.1	79.1	33.0000	15.19	1.000	37.43
315	255.4	44.8	33.0000	15.19	1.000	28.82

Ave El= 226.13 M HAAT= 74.07 M AMSL= 300.2

NAD 1983 to NAD 1927 Conversion:

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	34.7578611°, -086.6617778°
Degrees Minutes	34°45.47167', -086°39.70667'
Degrees Minutes Seconds	34°45'28.3000", -086°39'42.4000"
UTM	16S 530954mE 3846243mN
UTM centimeter	16S 530954.04mE 3846243.40mN
MGRS	16SED3095446243
Grid North	0.2°
GARS	187LK28
Maidenhead	EM64QS01OV02
GEOREF	GJDE20294547

Exhibit 6

Tabulation of Proposed Non-Commercial Allocation

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

REFERENCE		Oakwood University							DISPLAY DATES			
34 45 28.30 N.		CH# 211C2 - 90.1 MHz, Pwr= 33 kW, HAAT= 74.1 M, COR= 300.2 M								DATA 08-02-21		
86 39 42.40 W.		Average Protected F(50-50)= 36.37 km								SEARCH 08-03-21		
		Omni-directional										
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)				
211C3	WJOU	LIC_CN	270.0	0.03	34 45 28.30	25.000		---	Reference---			
Huntsville	AL		90.0	BLED19780906AO	86 39 43.90	70	294	Oakwood University				
212C1	WBHM	LIC_CN	185.2	141.67	33 29 19.30	32.000	98.1	67.1	0.3	8.7		
Birmingham	AL		5.1	BLED19880929KC	86 47 57.90	370	566	Bd Of Trustees/u Of Al At				
210C3	WAKD	LIC DVN	276.0	88.12	34 50 11.30	7.400	42.4	26.1	8.7	2.6		
Sheffield	AL		95.4	BLED20060130APV	87 37 20.10	72	242	American Family Associatio				
210C3	WTBB	LIC_VN	139.8	95.33	34 06 03.30	4.800	42.2	27.4	10.4	2.8		
Gadsden	AL		320.2	BLED20000203AAC	85 59 36.80	157	390	Trinity Christian Academy				
212C	WPLN-FM	LIC_CN	353.3	143.06	36 02 08.20	80.000	107.1	73.4	3.8	16.5		
Nashville	TN		173.1	BMLED20181105ACD	86 50 55.00	345	580	Nashville Public Radio				
210A	WZTN	LIC_CN	340.6	65.66	35 18 53.20	0.400	11.4	8.0	22.6	6.3		
Cornersville	TN		160.5	BLED20121119AHN	86 54 07.00	-3	263	Road Map Ministries				
6 --	WVUA-A<<	CHA_Y	185.4	142.24	33 29 02.38	26.000	32.4	96.3	128.8R	13.5M		
Tuscaloosa	AL		5.3	DTVBL77496	86 48 20.97	395	586					
06 2C	WVUA<<	LI_CN	185.4	142.25	33 29 02.01	26.000	32.4	96.3	128.8R	13.5M		
Tuscaloosa	AL		5.3	BLCDT-20090612AHT	86 48 20.99	395	586					
211C0	WABE	LIC DCN	116.8	240.93	33 45 33.40	100.000	177.1	75.8	24.1	51.3		
Atlanta	GA		298.1	BLED20120521ABP	84 20 04.70	334	615	Board Of Education, City O				
211A	WYZZ	LIC_CN	44.8	153.97	35 44 03.20	0.030	25.0	7.5	95.2	30.9		
Spencer	TN		225.5	BLED20021030AAJ	85 27 32.90	180	600	Church Faith Trinity Assem				
209A	WAWI	LIC_CN	313.4	82.74	35 16 04.20	6.000	1.9	17.8	50.0	60.8		
Lawrenceburg	TN		133.1	BLED19990503KA	87 19 25.00	45	324	American Family Associatio				
209C1	KRLE	LIC DEN	227.6	118.75	34 02 01.40	79.000	6.5	54.5	71.4	59.5		
Carbon Hill	AL		47.0	BLED20121130BEH	87 36 48.10	154	349	Educational Media Foundati				
06+--	WOOT-LP/W<<	LI D_N	67.9	135.33	35 12 26.21	1.400	25.4	6.9	32.3R	103.1M		
Chattanooga, Etc.	TN		248.7	BLTVA-20070713ADV	85 16 51.81		637					
06Z--	WDDA-LP<<	LI D_N	88.2	155.48	34 47 21.20	2.500	21.9	3.7	25.7R	129.8M		
Dalton	GA		269.2	BLTVL-20070122AAY	84 57 34.71		269					
06Z--	WDDA-LP<<	APP D_N	88.2	155.48	34 47 21.20	2.500	21.9	3.7	25.7R	129.8M		
Dalton	GA		269.2	0000154188	84 57 34.71		269					
06 --	W06DJ-D<<	CP DHN	253.9	187.79	34 16 29.00	3.000	26.6	5.5	32.1R	155.7M		
Auburn	MS		72.8	0000150838	88 37 34.31		122					

Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
 In & Out distances between contours are shown at closest points. Reference zone= - Zone 2, 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.
 < = Station meets FCC minimum distance spacing for its class.
 Reference station has protected zone issue: AM tower

Exhibit 7a

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Oakwood University

FMCommander Single Allocation Study - 08-03-2021 - NED 03 SEC
WJOU.P's Overlaps (In= 0.35 km, Out= 8.72 km)

WJOU.P CH 211 C2
Lat= 34 45 28.30, Lng= 86 39 42.40
33.0 kW 74.1 m HAAT, 300.2 m COR
Prot.= 60 dBu, Intef.= 54 dBu

WBHM CH 212 C1 BLED19880929KC
Lat= 33 29 19.30, Lng= 86 47 57.90
32.0 kW 370 m HAAT, 566 m COR
Prot.= 60 dBu, Intef.= 54 dBu

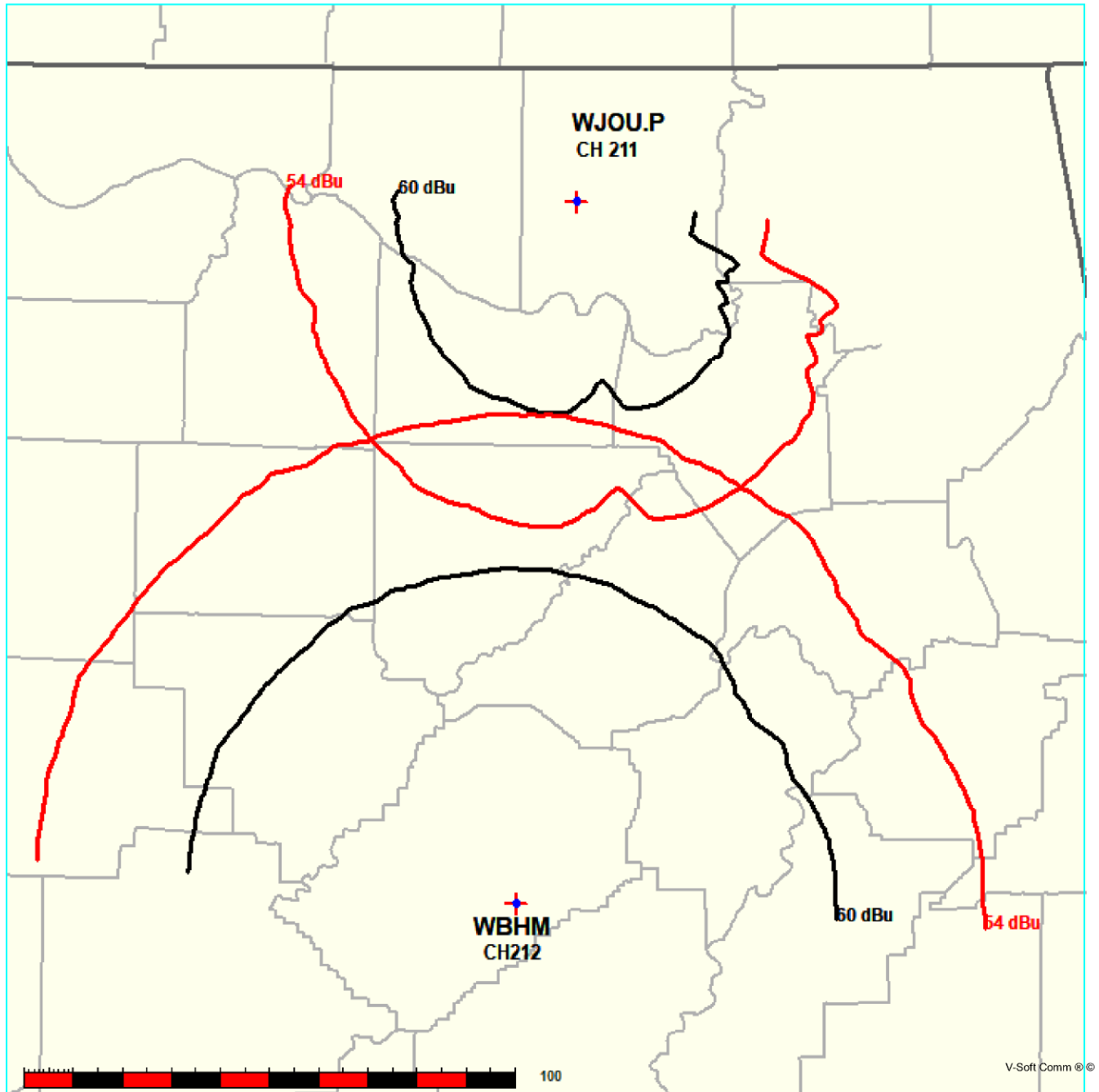


Exhibit 7a

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021

Terrain Data: NED 03 SEC

FMOver Analysis

WJOU.P

WBHM BLED19880929KC

Channel = 211C2

Max ERP = 33 kW

RCAMSL = 300.2 m

N. Lat. 34 45 28.30

W. Lng. 86 39 42.40

Protected

60 dBu

Channel = 212C1

Max ERP = 32 kW

RCAMSL = 566 m

N. Lat. 33 29 19.30

W. Lng. 86 47 57.90

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
143.0	033.0000	0108.9	042.7	019.7	032.0000	0370.4	113.7	49.33	
144.0	033.0000	0109.6	042.9	019.6	032.0000	0371.2	113.0	49.54	
145.0	033.0000	0111.0	043.1	019.4	032.0000	0372.1	112.3	49.76	
146.0	033.0000	0112.5	043.3	019.3	032.0000	0373.0	111.5	49.98	
147.0	033.0000	0113.1	043.4	019.1	032.0000	0374.3	110.9	50.20	
148.0	033.0000	0113.4	043.4	018.9	032.0000	0375.8	110.2	50.41	
149.0	033.0000	0114.2	043.5	018.6	032.0000	0376.7	109.6	50.61	
150.0	033.0000	0114.7	043.6	018.4	032.0000	0377.7	109.0	50.80	
151.0	033.0000	0115.2	043.7	018.2	032.0000	0378.4	108.3	50.99	
152.0	033.0000	0115.8	043.8	017.9	032.0000	0379.2	107.7	51.17	
153.0	033.0000	0116.3	043.8	017.7	032.0000	0379.5	107.1	51.34	
154.0	033.0000	0116.8	043.9	017.4	032.0000	0379.9	106.6	51.50	
155.0	033.0000	0116.9	043.9	017.1	032.0000	0380.8	106.0	51.66	
156.0	033.0000	0117.4	044.0	016.8	032.0000	0381.3	105.5	51.83	
157.0	033.0000	0118.2	044.1	016.5	032.0000	0381.3	104.9	51.98	
158.0	033.0000	0118.0	044.1	016.2	032.0000	0380.5	104.4	52.08	
159.0	033.0000	0118.1	044.1	015.9	032.0000	0379.7	103.9	52.18	
160.0	033.0000	0117.8	044.0	015.5	032.0000	0379.1	103.5	52.27	
161.0	033.0000	0117.4	044.0	015.1	032.0000	0378.6	103.1	52.36	
162.0	033.0000	0116.4	043.8	014.7	032.0000	0379.0	102.8	52.46	
163.0	033.0000	0115.2	043.7	014.3	032.0000	0379.4	102.6	52.54	
164.0	033.0000	0113.6	043.5	013.9	032.0000	0379.0	102.4	52.58	
165.0	033.0000	0113.0	043.4	013.5	032.0000	0378.9	102.1	52.65	
166.0	033.0000	0111.8	043.2	013.1	032.0000	0379.5	101.9	52.73	
167.0	033.0000	0108.0	042.6	012.6	032.0000	0380.5	102.1	52.71	
168.0	033.0000	0101.1	041.5	011.9	032.0000	0382.2	102.8	52.57	
169.0	033.0000	0092.2	039.9	011.2	032.0000	0383.4	103.9	52.31	
170.0	033.0000	0083.1	038.2	010.5	032.0000	0382.6	105.3	51.92	
171.0	033.0000	0077.5	037.1	010.0	032.0000	0382.3	106.1	51.69	
172.0	033.0000	0075.7	036.7	009.6	032.0000	0383.1	106.3	51.67	
173.0	033.0000	0077.0	037.0	009.3	032.0000	0384.0	105.8	51.82	
174.0	033.0000	0080.0	037.6	009.1	032.0000	0384.0	105.0	52.03	
175.0	033.0000	0084.9	038.6	008.9	032.0000	0383.8	103.9	52.31	

Exhibit 7a

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
176.0	033.0000	0090.6	039.7	008.6	032.0000	0383.6	102.7	52.63
177.0	033.0000	0092.9	040.1	008.3	032.0000	0383.9	102.2	52.79
178.0	033.0000	0094.2	040.3	007.9	032.0000	0384.4	101.8	52.90
179.0	033.0000	0096.6	040.7	007.6	032.0000	0384.4	101.3	53.05
180.0	033.0000	0100.8	041.4	007.2	032.0000	0384.5	100.5	53.27
181.0	033.0000	0103.8	041.9	006.8	032.0000	0385.4	099.9	53.45
182.0	033.0000	0107.0	042.4	006.4	032.0000	0386.4	099.3	53.65
183.0	033.0000	0109.2	042.8	006.0	032.0000	0387.3	098.9	53.78
184.0	033.0000	0110.1	042.9	005.6	032.0000	0387.6	098.8	53.84
185.0	033.0000	0110.9	043.0	005.2	032.0000	0388.1	098.6	53.89
186.0	033.0000	0111.3	043.1	004.7	032.0000	0387.1	098.6	53.88
187.0	033.0000	0111.8	043.2	004.3	032.0000	0386.9	098.5	53.88
188.0	033.0000	0112.6	043.3	003.8	032.0000	0386.8	098.4	53.90
189.0	033.0000	0112.6	043.3	003.4	032.0000	0385.8	098.5	53.85
190.0	033.0000	0113.3	043.4	003.0	032.0000	0385.3	098.5	53.84
191.0	033.0000	0112.9	043.3	002.5	032.0000	0386.3	098.7	53.83
192.0	033.0000	0112.2	043.2	002.1	032.0000	0385.8	098.9	53.75
193.0	033.0000	0111.5	043.1	001.7	032.0000	0385.3	099.1	53.67
194.0	033.0000	0110.9	043.1	001.3	032.0000	0385.1	099.4	53.60
195.0	033.0000	0110.7	043.0	000.9	032.0000	0384.8	099.6	53.53
196.0	033.0000	0110.7	043.0	000.4	032.0000	0385.7	099.7	53.51
197.0	033.0000	0109.8	042.9	000.1	032.0000	0386.4	100.1	53.43
198.0	033.0000	0108.6	042.7	359.7	032.0000	0386.5	100.5	53.33
199.0	033.0000	0108.2	042.6	359.3	032.0000	0386.0	100.8	53.23
200.0	033.0000	0107.8	042.6	358.9	032.0000	0386.6	101.1	53.16
201.0	033.0000	0109.0	042.8	358.5	032.0000	0386.8	101.2	53.14
202.0	033.0000	0110.7	043.0	358.0	032.0000	0386.6	101.3	53.12
203.0	033.0000	0111.9	043.2	357.6	032.0000	0386.2	101.4	53.07
204.0	033.0000	0112.1	043.2	357.2	032.0000	0386.0	101.7	52.98
205.0	033.0000	0112.1	043.2	356.8	032.0000	0386.2	102.1	52.89
206.0	033.0000	0112.3	043.3	356.5	032.0000	0386.1	102.4	52.79
207.0	033.0000	0112.4	043.3	356.1	032.0000	0386.1	102.8	52.69
208.0	033.0000	0112.8	043.3	355.7	032.0000	0385.4	103.1	52.58
209.0	033.0000	0113.3	043.4	355.3	032.0000	0384.2	103.5	52.45
210.0	033.0000	0112.3	043.3	355.0	032.0000	0383.2	104.0	52.27
211.0	033.0000	0111.2	043.1	354.7	032.0000	0381.6	104.6	52.07
212.0	033.0000	0108.3	042.7	354.6	032.0000	0381.5	105.4	51.86
213.0	033.0000	0106.1	042.3	354.4	032.0000	0381.6	106.1	51.67
214.0	033.0000	0103.9	042.0	354.2	032.0000	0381.6	106.8	51.48
215.0	033.0000	0102.9	041.8	353.9	032.0000	0381.8	107.4	51.33
216.0	033.0000	0102.5	041.7	353.7	032.0000	0381.8	108.0	51.18
217.0	033.0000	0102.8	041.8	353.4	032.0000	0381.7	108.4	51.06
218.0	033.0000	0101.8	041.6	353.2	032.0000	0381.5	109.1	50.89
219.0	033.0000	0100.4	041.4	353.0	032.0000	0381.6	109.7	50.72
220.0	033.0000	0100.2	041.3	352.7	032.0000	0381.2	110.3	50.57
221.0	033.0000	0100.0	041.3	352.5	032.0000	0380.5	110.8	50.40

Exhibit 7a

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021

Terrain Data: NED 03 SEC

FMOver Analysis

WBHM BLED19880929KC

WJOU.P

Channel = 212C1
Max ERP = 32 kW
RCAMSL = 566 m
N. Lat. 33 29 19.30
W. Lng. 86 47 57.90
Protected
60 dBu

Channel = 211C2
Max ERP = 33 kW
RCAMSL = 300.2 m
N. Lat. 34 45 28.30
W. Lng. 86 39 42.40
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
320.0	032.0000	0376.4	066.3	211.5	033.0000	0109.8	105.9	43.05	
321.0	032.0000	0378.8	066.5	211.4	033.0000	0110.2	104.7	43.31	
322.0	032.0000	0380.0	066.5	211.2	033.0000	0110.7	103.6	43.57	
323.0	032.0000	0382.8	066.7	211.1	033.0000	0111.1	102.4	43.84	
324.0	032.0000	0385.7	066.9	210.9	033.0000	0111.5	101.3	44.12	
325.0	032.0000	0391.5	067.3	210.8	033.0000	0111.6	100.1	44.41	
326.0	032.0000	0392.5	067.4	210.6	033.0000	0111.9	099.0	44.69	
327.0	032.0000	0389.5	067.2	210.2	033.0000	0112.1	098.0	44.93	
328.0	032.0000	0389.5	067.2	209.9	033.0000	0112.5	097.0	45.20	
329.0	032.0000	0392.4	067.3	209.6	033.0000	0112.8	095.8	45.50	
330.0	032.0000	0399.9	067.8	209.5	033.0000	0112.8	094.6	45.83	
331.0	032.0000	0394.9	067.5	209.0	033.0000	0113.3	093.7	46.07	
332.0	032.0000	0389.5	067.2	208.4	033.0000	0113.2	092.9	46.28	
333.0	032.0000	0385.6	066.9	207.9	033.0000	0112.7	092.1	46.48	
334.0	032.0000	0381.8	066.7	207.3	033.0000	0112.4	091.3	46.68	
335.0	032.0000	0382.4	066.7	206.9	033.0000	0112.4	090.4	46.94	
336.0	032.0000	0384.9	066.9	206.5	033.0000	0112.3	089.4	47.21	
337.0	032.0000	0387.8	067.0	206.1	033.0000	0112.3	088.4	47.49	
338.0	032.0000	0392.1	067.3	205.7	033.0000	0112.3	087.3	47.79	
339.0	032.0000	0390.3	067.2	205.1	033.0000	0112.1	086.5	48.00	
340.0	032.0000	0384.5	066.8	204.4	033.0000	0112.3	086.0	48.17	
341.0	032.0000	0385.2	066.9	203.9	033.0000	0112.1	085.1	48.40	
342.0	032.0000	0381.0	066.6	203.2	033.0000	0111.9	084.5	48.55	
343.0	032.0000	0383.2	066.7	202.6	033.0000	0111.6	083.7	48.78	
344.0	032.0000	0384.9	066.9	202.0	033.0000	0110.8	082.9	48.97	
345.0	032.0000	0384.3	066.8	201.4	033.0000	0109.7	082.2	49.12	
346.0	032.0000	0385.5	066.9	200.8	033.0000	0108.6	081.4	49.28	
347.0	032.0000	0384.8	066.9	200.0	033.0000	0107.8	080.8	49.41	
348.0	032.0000	0383.9	066.8	199.3	033.0000	0108.0	080.3	49.58	
349.0	032.0000	0382.2	066.7	198.6	033.0000	0108.3	079.8	49.73	
350.0	032.0000	0380.1	066.5	197.8	033.0000	0108.6	079.3	49.87	
351.0	032.0000	0382.0	066.7	197.1	033.0000	0109.6	078.7	50.10	
352.0	032.0000	0380.3	066.6	196.3	033.0000	0110.7	078.3	50.27	

Exhibit 7a

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
353.0	032.0000	0381.5	066.6	195.5	033.0000	0110.5	077.8	50.42
354.0	032.0000	0381.8	066.7	194.7	033.0000	0110.8	077.3	50.56
355.0	032.0000	0383.0	066.7	193.9	033.0000	0111.0	076.9	50.70
356.0	032.0000	0386.0	066.9	193.1	033.0000	0111.3	076.3	50.88
357.0	032.0000	0386.2	066.9	192.3	033.0000	0112.1	076.0	51.02
358.0	032.0000	0386.6	067.0	191.4	033.0000	0112.5	075.7	51.13
359.0	032.0000	0386.5	067.0	190.6	033.0000	0113.2	075.4	51.23
000.0	032.0000	0386.4	067.0	189.7	033.0000	0113.1	075.2	51.29
001.0	032.0000	0384.8	066.9	188.8	033.0000	0112.7	075.1	51.29
002.0	032.0000	0385.5	066.9	187.9	033.0000	0112.6	075.0	51.34
003.0	032.0000	0385.3	066.9	187.0	033.0000	0111.8	074.9	51.33
004.0	032.0000	0387.2	067.0	186.1	033.0000	0111.3	074.7	51.36
005.0	032.0000	0387.8	067.1	185.3	033.0000	0111.1	074.6	51.36
006.0	032.0000	0387.3	067.0	184.4	033.0000	0110.5	074.7	51.32
007.0	032.0000	0385.0	066.9	183.5	033.0000	0109.7	074.9	51.22
008.0	032.0000	0384.3	066.8	182.6	033.0000	0108.6	075.0	51.12
009.0	032.0000	0384.0	066.8	181.7	033.0000	0106.1	075.2	50.94
010.0	032.0000	0382.3	066.7	180.8	033.0000	0103.2	075.4	50.72
011.0	032.0000	0383.2	066.7	180.0	033.0000	0100.6	075.6	50.54
012.0	032.0000	0381.9	066.7	179.1	033.0000	0097.0	075.9	50.25
013.0	032.0000	0379.8	066.5	178.3	033.0000	0094.5	076.3	50.00
014.0	032.0000	0379.1	066.5	177.5	033.0000	0093.4	076.7	49.85
015.0	032.0000	0378.6	066.4	176.6	033.0000	0092.3	077.1	49.68
016.0	032.0000	0380.0	066.5	175.8	033.0000	0089.7	077.4	49.46
017.0	032.0000	0381.0	066.6	175.0	033.0000	0084.8	077.7	49.10
018.0	032.0000	0379.0	066.5	174.2	033.0000	0080.8	078.3	48.73
019.0	032.0000	0374.9	066.2	173.6	033.0000	0078.5	079.0	48.41
020.0	032.0000	0369.0	065.8	172.9	033.0000	0076.7	079.9	48.09
021.0	032.0000	0364.6	065.5	172.3	033.0000	0075.7	080.7	47.83
022.0	032.0000	0365.4	065.6	171.6	033.0000	0076.0	081.2	47.70
023.0	032.0000	0366.5	065.6	170.9	033.0000	0078.0	081.7	47.67
024.0	032.0000	0365.1	065.5	170.2	033.0000	0081.4	082.4	47.65
025.0	032.0000	0365.0	065.5	169.6	033.0000	0086.7	083.1	47.74
026.0	032.0000	0366.8	065.7	168.9	033.0000	0093.0	083.7	47.89
027.0	032.0000	0363.3	065.4	168.4	033.0000	0097.6	084.6	47.87
028.0	032.0000	0362.6	065.4	167.8	033.0000	0102.6	085.3	47.89
029.0	032.0000	0360.7	065.3	167.3	033.0000	0106.2	086.2	47.83
030.0	032.0000	0363.0	065.4	166.7	033.0000	0109.5	086.8	47.79
031.0	032.0000	0361.2	065.3	166.2	033.0000	0111.3	087.7	47.63
032.0	032.0000	0358.7	065.1	165.8	033.0000	0112.2	088.6	47.41
033.0	032.0000	0357.2	065.0	165.3	033.0000	0112.7	089.5	47.18
034.0	032.0000	0357.4	065.0	164.8	033.0000	0113.1	090.4	46.96
035.0	032.0000	0360.8	065.3	164.2	033.0000	0113.4	091.1	46.78
036.0	032.0000	0364.0	065.5	163.7	033.0000	0114.1	091.9	46.61
037.0	032.0000	0363.9	065.5	163.3	033.0000	0114.9	092.8	46.39

Exhibit 7b

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Oakwood University

FMCommander Single Allocation Study - 08-03-2021 - NED 03 SEC
WJOU.P's Overlaps (In= 8.66 km, Out= 2.63 km)

WJOU.P CH 211 C2

Lat= 34 45 28.30, Lng= 86 39 42.40
33.0 kW 74.1 m HAAT, 300.2 m COR
Prot.= 60 dBu, Intef.= 54 dBu

WAKD CH 210 C3 DA BLED20060130APV

Lat= 34 50 11.30, Lng= 87 37 20.10
7.4 kW 72 m HAAT, 242 m COR
Prot.= 60 dBu, Intef.= 54 dBu

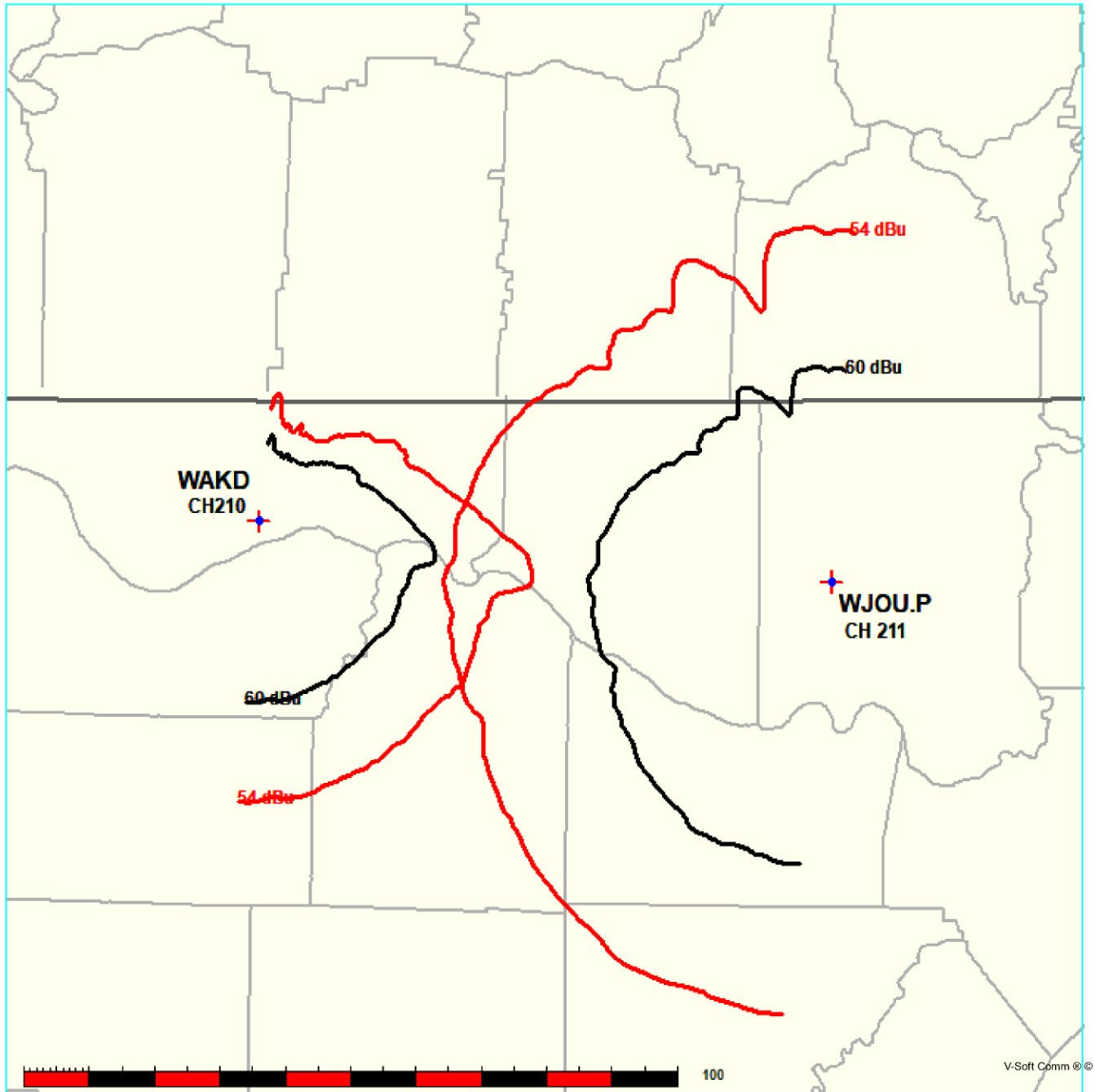


Exhibit 7b

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021

Terrain Data: NED 03 SEC

FMOver Analysis

WJOU.P

WAKD BLED20060130APV

Channel = 211C2

Max ERP = 33 kW

RCAMSL = 300.2 m

N. Lat. 34 45 28.30

W. Lng. 86 39 42.40

Protected

60 dBu

Channel = 210C3

Max ERP = 7.4 kW

RCAMSL = 242 m

N. Lat. 34 50 11.30

W. Lng. 87 37 20.10

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
234.0	033.0000	0086.7	038.9	119.2	007.4000	0066.5	064.7	45.02	
235.0	033.0000	0087.2	039.0	119.0	007.4000	0066.5	064.0	45.20	
236.0	033.0000	0086.8	038.9	118.6	007.4000	0066.4	063.4	45.35	
237.0	033.0000	0085.5	038.7	118.2	007.4000	0065.8	062.9	45.44	
238.0	033.0000	0084.4	038.5	117.7	007.4000	0065.5	062.4	45.56	
239.0	033.0000	0083.8	038.4	117.3	007.4000	0065.6	061.9	45.71	
240.0	033.0000	0083.4	038.3	116.9	007.4000	0065.3	061.4	45.85	
241.0	033.0000	0082.9	038.2	116.5	007.4000	0065.1	060.9	45.98	
242.0	033.0000	0081.6	037.9	115.9	007.4000	0065.3	060.5	46.11	
243.0	033.0000	0080.2	037.6	115.3	007.4000	0065.0	060.1	46.20	
244.0	033.0000	0080.2	037.6	114.9	007.4000	0064.7	059.6	46.33	
245.0	033.0000	0078.0	037.2	114.2	007.4000	0065.2	059.4	46.43	
246.0	033.0000	0075.4	036.7	113.4	007.4000	0065.8	059.3	46.52	
247.0	033.0000	0073.5	036.2	112.7	007.4000	0066.4	059.1	46.63	
248.0	033.0000	0071.6	035.8	112.0	007.4000	0066.6	058.9	46.70	
249.0	033.0000	0071.2	035.7	111.5	007.4000	0066.0	058.6	46.76	
250.0	033.0000	0073.3	036.2	111.3	007.4000	0065.9	057.8	46.99	
251.0	033.0000	0075.4	036.6	111.1	007.4000	0065.8	057.0	47.23	
252.0	033.0000	0076.8	036.9	110.8	007.4000	0065.9	056.4	47.44	
253.0	033.0000	0077.4	037.1	110.4	007.4000	0066.0	055.9	47.61	
254.0	033.0000	0077.2	037.0	109.9	007.4000	0065.9	055.5	47.72	
255.0	033.0000	0076.9	037.0	109.3	007.4000	0066.1	055.2	47.84	
256.0	033.0000	0076.6	036.9	108.7	007.4000	0065.5	054.9	47.89	
257.0	033.0000	0076.9	037.0	108.2	007.4000	0065.3	054.5	48.00	
258.0	033.0000	0077.1	037.0	107.6	007.4000	0065.5	054.1	48.14	
259.0	033.0000	0077.6	037.1	107.0	007.4000	0066.3	053.7	48.35	
260.0	033.0000	0077.3	037.0	106.4	007.4000	0068.1	053.5	48.60	
261.0	033.0000	0076.9	037.0	105.7	007.4000	0069.3	053.3	48.77	
262.0	033.0000	0077.4	037.1	105.2	007.4000	0073.4	052.9	49.26	
263.0	033.0000	0077.7	037.1	104.5	007.4000	0076.2	052.6	49.61	
264.0	033.0000	0076.3	036.8	103.8	007.4000	0080.4	052.6	49.96	
265.0	033.0000	0075.1	036.6	103.0	007.4000	0084.4	052.7	50.29	
266.0	033.0000	0075.7	036.7	102.4	007.4000	0084.8	052.4	50.44	

Exhibit 7b

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
267.0	033.0000	0077.2	037.0	101.8	007.4000	0085.1	051.9	50.63
268.0	033.0000	0077.7	037.1	101.1	007.4000	0084.6	051.6	50.69
269.0	033.0000	0078.6	037.3	100.5	007.4000	0084.3	051.3	50.78
270.0	033.0000	0079.1	037.4	099.8	007.3608	0084.1	051.0	50.82
271.0	033.0000	0078.3	037.2	099.0	007.2222	0084.0	051.1	50.70
272.0	033.0000	0076.3	036.8	098.3	007.0808	0083.8	051.4	50.48
273.0	033.0000	0073.9	036.3	097.5	006.9438	0083.5	051.9	50.22
274.0	033.0000	0072.4	036.0	096.8	006.8153	0082.6	052.2	49.97
275.0	033.0000	0072.5	036.0	096.1	006.6936	0082.1	052.1	49.87
276.0	033.0000	0072.6	036.0	095.4	006.5724	0080.4	052.1	49.65
277.0	033.0000	0073.0	036.1	094.7	006.4517	0078.3	052.0	49.41
278.0	033.0000	0073.5	036.3	094.0	006.3311	0075.7	051.9	49.13
279.0	033.0000	0073.3	036.2	093.3	006.2135	0073.4	052.0	48.81
280.0	033.0000	0073.2	036.2	092.6	006.0971	0071.8	052.1	48.55
281.0	033.0000	0071.6	035.8	092.0	005.9916	0070.5	052.5	48.21
282.0	033.0000	0070.2	035.5	091.4	005.8897	0069.9	052.9	47.95
283.0	033.0000	0069.6	035.4	090.7	005.7864	0068.7	053.2	47.68
284.0	033.0000	0068.5	035.1	090.2	005.6908	0068.4	053.6	47.45
285.0	033.0000	0068.1	035.1	089.5	005.5916	0067.1	053.8	47.18
286.0	033.0000	0067.7	035.0	088.9	005.4957	0065.7	054.0	46.91
287.0	033.0000	0067.5	034.9	088.3	005.4001	0064.6	054.3	46.65
288.0	033.0000	0066.2	034.6	087.8	005.3207	0064.0	054.7	46.39
289.0	033.0000	0066.2	034.6	087.2	005.2277	0064.2	054.9	46.26
290.0	033.0000	0065.7	034.5	086.7	005.1449	0063.6	055.3	46.02
291.0	033.0000	0064.4	034.2	086.3	005.0763	0062.9	055.8	45.74
292.0	033.0000	0063.4	034.0	085.8	005.0074	0062.3	056.2	45.48
293.0	033.0000	0063.0	033.9	085.3	004.9310	0061.5	056.6	45.24
294.0	033.0000	0062.1	033.7	084.9	004.8670	0061.0	057.0	45.00
295.0	033.0000	0060.4	033.3	084.6	004.8200	0060.3	057.7	44.70
296.0	033.0000	0059.7	033.1	084.2	004.7590	0060.0	058.1	44.48
297.0	033.0000	0059.0	033.0	083.8	004.7011	0059.2	058.6	44.23
298.0	033.0000	0057.6	032.6	083.5	004.6624	0059.0	059.2	43.98
299.0	033.0000	0057.3	032.5	083.1	004.6016	0058.7	059.6	43.79
300.0	033.0000	0056.4	032.3	082.8	004.5590	0058.8	060.1	43.60
301.0	033.0000	0055.5	032.0	082.5	004.5183	0058.5	060.7	43.38
302.0	033.0000	0053.0	031.3	082.5	004.5204	0058.6	061.6	43.13
303.0	033.0000	0053.2	031.4	082.1	004.4589	0057.7	061.9	42.91
304.0	033.0000	0052.1	031.0	081.9	004.4343	0057.0	062.5	42.67
305.0	033.0000	0050.8	030.6	081.8	004.4160	0056.7	063.1	42.45
306.0	033.0000	0048.7	030.0	081.8	004.4218	0056.8	063.9	42.24
307.0	033.0000	0047.9	029.8	081.7	004.3952	0056.5	064.5	42.06
308.0	033.0000	0047.7	029.7	081.4	004.3547	0056.3	064.9	41.89
309.0	033.0000	0047.5	029.6	081.1	004.3159	0055.6	065.3	41.69
310.0	033.0000	0047.0	029.5	080.9	004.2863	0055.4	065.8	41.53
311.0	033.0000	0046.3	029.3	080.7	004.2662	0055.4	066.3	41.36
312.0	033.0000	0044.3	028.6	080.9	004.2849	0055.4	067.1	41.19

Exhibit 7b

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021

Terrain Data: NED 03 SEC

FMOver Analysis

WAKD BLED20060130APV

WJOU.P

Channel = 210C3

Max ERP = 7.4 kW

RCAMSL = 242 m

N. Lat. 34 50 11.30

W. Lng. 87 37 20.10

Protected

60 dBu

Channel = 211C2

Max ERP = 33 kW

RCAMSL = 300.2 m

N. Lat. 34 45 28.30

W. Lng. 86 39 42.40

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
050.0	001.8500	0042.7	013.9	283.1	033.0000	0069.4	079.0	47.92	
051.0	001.8872	0043.8	014.1	283.2	033.0000	0069.4	078.7	48.01	
052.0	001.9247	0044.0	014.2	283.1	033.0000	0069.4	078.4	48.08	
053.0	001.9627	0044.1	014.3	283.1	033.0000	0069.5	078.2	48.14	
054.0	002.0010	0044.1	014.4	283.0	033.0000	0069.6	077.9	48.21	
055.0	002.0396	0043.9	014.4	282.9	033.0000	0069.8	077.7	48.28	
056.0	002.0787	0045.5	014.8	282.9	033.0000	0069.7	077.3	48.38	
057.0	002.1181	0047.4	015.2	283.0	033.0000	0069.6	076.8	48.50	
058.0	002.1578	0049.3	015.6	283.1	033.0000	0069.5	076.3	48.61	
059.0	002.1980	0051.0	016.0	283.2	033.0000	0069.4	075.9	48.74	
060.0	002.2385	0052.2	016.3	283.2	033.0000	0069.4	075.4	48.85	
061.0	002.3206	0051.8	016.4	283.0	033.0000	0069.5	075.2	48.92	
062.0	002.4043	0050.6	016.3	282.8	033.0000	0069.8	075.0	48.97	
063.0	002.4894	0050.0	016.3	282.7	033.0000	0069.9	074.8	49.03	
064.0	002.5759	0050.9	016.7	282.7	033.0000	0069.9	074.4	49.15	
065.0	002.6640	0049.3	016.5	282.4	033.0000	0070.0	074.3	49.17	
066.0	002.7535	0048.8	016.6	282.3	033.0000	0070.0	074.1	49.23	
067.0	002.8446	0047.3	016.4	282.0	033.0000	0070.2	074.1	49.25	
068.0	002.9371	0046.5	016.4	281.8	033.0000	0070.3	073.9	49.29	
069.0	003.0310	0046.0	016.4	281.7	033.0000	0070.6	073.8	49.36	
070.0	003.1265	0047.0	016.8	281.6	033.0000	0070.7	073.3	49.48	
071.0	003.2234	0048.3	017.2	281.6	033.0000	0070.8	072.8	49.62	
072.0	003.3219	0049.3	017.6	281.5	033.0000	0071.0	072.4	49.75	
073.0	003.4218	0050.0	017.9	281.4	033.0000	0071.2	071.9	49.87	
074.0	003.5231	0051.1	018.2	281.3	033.0000	0071.3	071.5	50.00	
075.0	003.6260	0051.7	018.5	281.2	033.0000	0071.4	071.1	50.11	
076.0	003.7303	0052.2	018.7	281.0	033.0000	0071.6	070.8	50.22	
077.0	003.8362	0051.9	018.8	280.8	033.0000	0071.9	070.6	50.29	
078.0	003.9435	0053.6	019.2	280.7	033.0000	0072.1	070.0	50.45	
079.0	004.0522	0054.1	019.4	280.5	033.0000	0072.4	069.7	50.56	
080.0	004.1625	0055.0	019.8	280.3	033.0000	0072.7	069.3	50.68	
081.0	004.3024	0055.5	020.0	280.1	033.0000	0073.0	068.9	50.80	
082.0	004.4446	0057.3	020.5	280.0	033.0000	0073.3	068.4	50.97	

Exhibit 7b

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
083.0	004.5892	0058.8	020.9	279.8	033.0000	0073.6	067.9	51.12
084.0	004.7360	0059.6	021.2	279.5	033.0000	0073.7	067.5	51.23
085.0	004.8852	0061.3	021.6	279.3	033.0000	0073.5	067.0	51.36
086.0	005.0366	0062.5	021.9	279.1	033.0000	0073.3	066.6	51.46
087.0	005.1904	0064.1	022.3	278.8	033.0000	0073.3	066.1	51.58
088.0	005.3465	0064.2	022.5	278.5	033.0000	0073.6	065.9	51.67
089.0	005.5049	0065.8	022.9	278.2	033.0000	0073.6	065.4	51.80
090.0	005.6656	0068.1	023.4	277.9	033.0000	0073.5	064.9	51.95
091.0	005.8287	0069.3	023.7	277.6	033.0000	0073.5	064.5	52.05
092.0	005.9940	0070.5	024.1	277.2	033.0000	0073.2	064.1	52.13
093.0	006.1617	0072.5	024.5	276.9	033.0000	0073.0	063.7	52.25
094.0	006.3316	0075.7	025.1	276.5	033.0000	0073.0	063.0	52.44
095.0	006.5039	0079.3	025.8	276.1	033.0000	0072.6	062.3	52.62
096.0	006.6785	0082.0	026.4	275.7	033.0000	0072.6	061.7	52.78
097.0	006.8554	0082.8	026.7	275.3	033.0000	0072.6	061.5	52.87
098.0	007.0346	0083.7	027.0	274.8	033.0000	0072.5	061.2	52.94
099.0	007.2162	0083.9	027.2	274.4	033.0000	0072.4	061.1	52.98
100.0	007.4000	0084.1	027.3	273.9	033.0000	0072.5	060.9	53.02
101.0	007.4000	0084.5	027.4	273.5	033.0000	0072.9	060.9	53.06
102.0	007.4000	0085.1	027.5	273.0	033.0000	0073.9	060.9	53.14
103.0	007.4000	0084.4	027.4	272.6	033.0000	0074.9	061.1	53.15
104.0	007.4000	0078.8	026.5	272.3	033.0000	0075.6	062.0	52.91
105.0	007.4000	0074.0	025.8	272.1	033.0000	0076.1	062.9	52.70
106.0	007.4000	0068.7	024.9	271.8	033.0000	0076.5	063.8	52.46
107.0	007.4000	0066.3	024.6	271.6	033.0000	0077.1	064.2	52.37
108.0	007.4000	0065.3	024.4	271.2	033.0000	0077.8	064.5	52.34
109.0	007.4000	0065.7	024.5	270.9	033.0000	0078.5	064.6	52.37
110.0	007.4000	0065.9	024.5	270.5	033.0000	0079.1	064.7	52.38
111.0	007.4000	0065.8	024.5	270.1	033.0000	0079.2	064.9	52.34
112.0	007.4000	0066.6	024.6	269.8	033.0000	0079.0	064.9	52.31
113.0	007.4000	0066.1	024.5	269.4	033.0000	0079.1	065.2	52.24
114.0	007.4000	0065.4	024.4	269.1	033.0000	0078.8	065.4	52.15
115.0	007.4000	0064.7	024.3	268.8	033.0000	0078.4	065.7	52.04
116.0	007.4000	0065.3	024.4	268.5	033.0000	0078.1	065.8	51.99
117.0	007.4000	0065.5	024.4	268.1	033.0000	0077.8	066.0	51.92
118.0	007.4000	0065.6	024.5	267.8	033.0000	0077.6	066.2	51.85
119.0	007.4000	0066.5	024.6	267.4	033.0000	0077.4	066.3	51.81
120.0	007.4000	0067.6	024.8	267.0	033.0000	0077.2	066.4	51.77
121.0	007.4000	0068.3	024.9	266.7	033.0000	0077.0	066.6	51.71
122.0	007.4000	0068.7	024.9	266.3	033.0000	0076.6	066.8	51.63
123.0	007.4000	0069.5	025.1	266.0	033.0000	0075.7	066.9	51.52
124.0	007.4000	0069.7	025.1	265.7	033.0000	0075.1	067.2	51.41
125.0	007.4000	0070.9	025.3	265.3	033.0000	0074.9	067.3	51.37
126.0	007.4000	0071.5	025.4	264.9	033.0000	0075.2	067.5	51.32
127.0	007.4000	0072.2	025.5	264.6	033.0000	0075.5	067.7	51.29

Exhibit 7c

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Oakwood University

FMCommander Single Allocation Study - 08-03-2021 - NED 03 SEC
WJOU.P's Overlaps (In= 10.45 km, Out= 2.83 km)

WJOU.P CH 211 C2
Lat= 34 45 28.30, Lng= 86 39 42.40
33.0 kW 74.1 m HAAT, 300.2 m COR
Prot.= 60 dBu, Intef.= 54 dBu

WTBB CH 210 C3 BLED20000203AAC
Lat= 34 06 03.30, Lng= 85 59 36.80
4.8 kW 157 m HAAT, 390 m COR
Prot.= 60 dBu, Intef.= 54 dBu

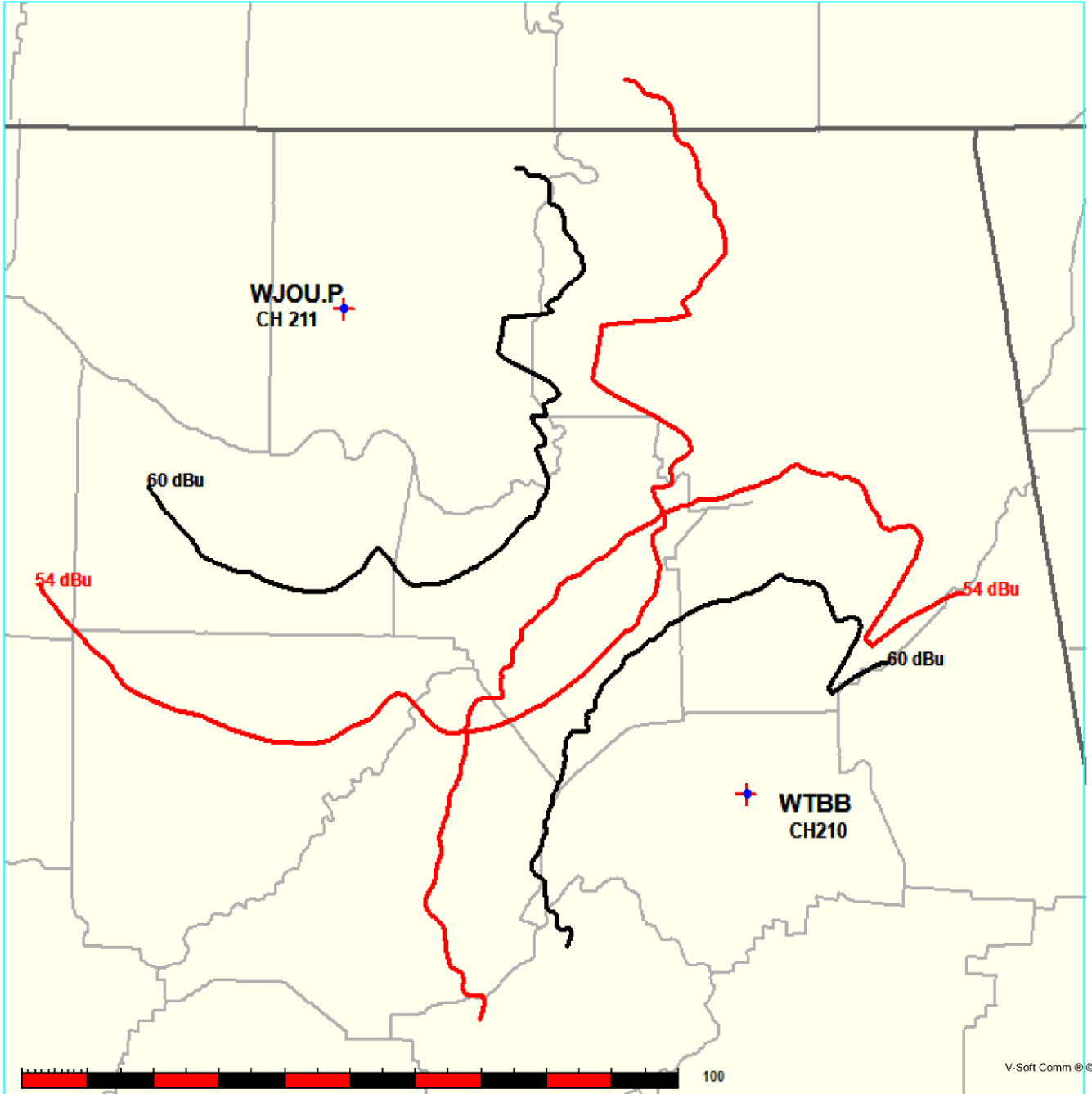


Exhibit 7c

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021 Terrain Data: NED 03 SEC FMOVer Analysis

WJOU.P

WTBB BLED20000203AAC

Channel = 211C2
Max ERP = 33 kW
RCAMSL = 300.2 m
N. Lat. 34 45 28.30
W. Lng. 86 39 42.40
Protected
60 dBu

Channel = 210C3
Max ERP = 4.8 kW
RCAMSL = 390 m
N. Lat. 34 06 03.30
W. Lng. 85 59 36.80
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
098.0	033.0000	0006.5	024.2	332.0	004.8000	0103.5	079.0	41.34	
099.0	033.0000	0013.8	024.2	331.8	004.8000	0103.4	078.7	41.43	
100.0	033.0000	0017.9	024.2	331.6	004.8000	0103.3	078.3	41.52	
101.0	033.0000	0020.2	024.2	331.4	004.8000	0103.2	078.0	41.61	
102.0	033.0000	0026.5	024.2	331.2	004.8000	0103.0	077.7	41.69	
103.0	033.0000	0027.7	024.2	331.0	004.8000	0102.7	077.4	41.77	
104.0	033.0000	0020.9	024.2	330.8	004.8000	0102.7	077.1	41.86	
105.0	033.0000	0016.5	024.2	330.5	004.8000	0102.6	076.8	41.93	
106.0	033.0000	0023.3	024.2	330.3	004.8000	0102.4	076.5	42.01	
107.0	033.0000	0032.1	024.8	330.4	004.8000	0102.5	075.7	42.24	
108.0	033.0000	0036.6	026.2	330.9	004.8000	0102.7	074.3	42.63	
109.0	033.0000	0047.7	029.7	332.5	004.8000	0104.4	071.5	43.56	
110.0	033.0000	0060.6	033.3	334.2	004.8000	0107.9	068.4	44.66	
111.0	033.0000	0066.3	034.7	334.6	004.8000	0108.6	067.1	45.12	
112.0	033.0000	0068.8	035.2	334.6	004.8000	0108.6	066.3	45.37	
113.0	033.0000	0067.6	034.9	334.0	004.8000	0107.2	066.1	45.36	
114.0	033.0000	0065.2	034.4	333.3	004.8000	0106.0	066.1	45.28	
115.0	033.0000	0062.4	033.8	332.5	004.8000	0104.6	066.2	45.15	
116.0	033.0000	0062.3	033.8	332.1	004.8000	0103.7	065.9	45.20	
117.0	033.0000	0064.6	034.3	332.0	004.8000	0103.5	065.1	45.43	
118.0	033.0000	0066.7	034.7	331.8	004.8000	0103.4	064.4	45.65	
119.0	033.0000	0063.3	034.0	330.9	004.8000	0102.7	064.7	45.50	
120.0	033.0000	0059.0	033.0	330.0	004.8000	0102.4	065.3	45.31	
121.0	033.0000	0061.3	033.5	329.8	004.8000	0102.2	064.5	45.53	
122.0	033.0000	0068.3	035.1	330.0	004.8000	0102.4	062.8	46.09	
123.0	033.0000	0073.9	036.3	330.0	004.8000	0102.4	061.5	46.54	
124.0	033.0000	0076.3	036.8	329.7	004.8000	0102.0	060.7	46.77	
125.0	033.0000	0074.4	036.4	329.0	004.8000	0101.7	060.8	46.71	
126.0	033.0000	0072.8	036.1	328.3	004.8000	0101.7	060.9	46.69	
127.0	033.0000	0076.1	036.8	328.0	004.8000	0101.7	060.0	47.00	
128.0	033.0000	0082.6	038.1	327.9	004.8000	0101.7	058.5	47.53	
129.0	033.0000	0090.3	039.6	327.7	004.8000	0102.0	056.9	48.14	
130.0	033.0000	0094.0	040.3	327.2	004.8000	0102.4	056.1	48.49	

Exhibit 7c

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
131.0	033.0000	0097.5	040.9	326.7	004.8000	0102.2	055.3	48.77
132.0	033.0000	0100.8	041.4	326.1	004.8000	0101.9	054.6	49.03
133.0	033.0000	0101.7	041.6	325.4	004.8000	0101.6	054.3	49.12
134.0	033.0000	0101.3	041.5	324.6	004.8000	0100.9	054.2	49.10
135.0	033.0000	0102.9	041.8	323.9	004.8000	0100.6	053.8	49.22
136.0	033.0000	0105.6	042.2	323.2	004.8000	0100.5	053.3	49.42
137.0	033.0000	0108.2	042.6	322.5	004.8000	0101.1	052.8	49.64
138.0	033.0000	0107.9	042.6	321.7	004.8000	0101.6	052.8	49.68
139.0	033.0000	0105.6	042.2	320.8	004.8000	0102.8	053.1	49.64
140.0	033.0000	0105.9	042.3	320.0	004.8000	0103.7	053.1	49.73
141.0	033.0000	0106.5	042.4	319.2	004.8000	0103.8	053.0	49.76
142.0	033.0000	0107.5	042.5	318.4	004.8000	0105.0	052.9	49.89
143.0	033.0000	0108.9	042.7	317.6	004.8000	0104.4	052.7	49.91
144.0	033.0000	0109.6	042.9	316.8	004.8000	0104.6	052.7	49.93
145.0	033.0000	0111.0	043.1	315.9	004.8000	0102.2	052.6	49.80
146.0	033.0000	0112.5	043.3	315.1	004.8000	0100.5	052.5	49.71
147.0	033.0000	0113.1	043.4	314.3	004.8000	0099.3	052.6	49.59
148.0	033.0000	0113.4	043.4	313.5	004.8000	0098.8	052.7	49.50
149.0	033.0000	0114.2	043.5	312.6	004.8000	0099.9	052.8	49.55
150.0	033.0000	0114.7	043.6	311.8	004.8000	0100.6	053.0	49.54
151.0	033.0000	0115.2	043.7	311.0	004.8000	0101.2	053.2	49.51
152.0	033.0000	0115.8	043.8	310.2	004.8000	0102.1	053.4	49.50
153.0	033.0000	0116.3	043.8	309.4	004.8000	0101.8	053.6	49.39
154.0	033.0000	0116.8	043.9	308.7	004.8000	0102.2	053.9	49.31
155.0	033.0000	0116.9	043.9	307.9	004.8000	0102.8	054.2	49.23
156.0	033.0000	0117.4	044.0	307.2	004.8000	0103.2	054.5	49.14
157.0	033.0000	0118.2	044.1	306.4	004.8000	0104.1	054.8	49.09
158.0	033.0000	0118.0	044.1	305.8	004.8000	0104.3	055.2	48.94
159.0	033.0000	0118.1	044.1	305.1	004.8000	0102.9	055.6	48.69
160.0	033.0000	0117.8	044.0	304.5	004.8000	0102.0	056.1	48.45
161.0	033.0000	0117.4	044.0	303.9	004.8000	0101.1	056.6	48.20
162.0	033.0000	0116.4	043.8	303.4	004.8000	0100.6	057.2	47.95
163.0	033.0000	0115.2	043.7	302.9	004.8000	0100.6	057.8	47.72
164.0	033.0000	0113.6	043.5	302.5	004.8000	0100.7	058.5	47.48
165.0	033.0000	0113.0	043.4	302.0	004.8000	0101.5	059.1	47.33
166.0	033.0000	0111.8	043.2	301.6	004.8000	0102.0	059.7	47.13
167.0	033.0000	0108.0	042.6	301.5	004.8000	0101.9	060.7	46.79
168.0	033.0000	0101.1	041.5	301.7	004.8000	0102.0	061.9	46.35
169.0	033.0000	0092.2	039.9	302.3	004.8000	0100.9	063.5	45.77
170.0	033.0000	0083.1	038.2	303.1	004.8000	0100.5	065.2	45.22
171.0	033.0000	0077.5	037.1	303.4	004.8000	0100.6	066.4	44.85
172.0	033.0000	0075.7	036.7	303.3	004.8000	0100.5	067.2	44.62
173.0	033.0000	0077.0	037.0	302.7	004.8000	0100.5	067.5	44.53
174.0	033.0000	0080.0	037.6	302.0	004.8000	0101.5	067.6	44.55
175.0	033.0000	0084.9	038.6	301.0	004.8000	0101.6	067.6	44.57
176.0	033.0000	0090.6	039.7	299.9	004.8000	0099.0	067.5	44.43

Exhibit 7c

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021

Terrain Data: NED 03 SEC

FMOver Analysis

WTBB BLED20000203AAC

WJOU.P

Channel = 210C3

Max ERP = 4.8 kW

RCAMSL = 390 m

N. Lat. 34 06 03.30

W. Lng. 85 59 36.80

Protected

60 dBu

Channel = 211C2

Max ERP = 33 kW

RCAMSL = 300.2 m

N. Lat. 34 45 28.30

W. Lng. 86 39 42.40

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
275.0	004.8000	0113.5	028.5	154.9	033.0000	0116.9	077.9	50.69	
276.0	004.8000	0112.6	028.4	154.6	033.0000	0116.9	077.5	50.80	
277.0	004.8000	0112.7	028.4	154.4	033.0000	0116.9	077.1	50.92	
278.0	004.8000	0110.9	028.2	154.1	033.0000	0116.8	076.8	51.01	
279.0	004.8000	0111.3	028.3	153.9	033.0000	0116.7	076.4	51.13	
280.0	004.8000	0110.8	028.2	153.7	033.0000	0116.6	076.0	51.24	
281.0	004.8000	0111.7	028.3	153.5	033.0000	0116.6	075.5	51.37	
282.0	004.8000	0113.3	028.5	153.4	033.0000	0116.5	075.0	51.51	
283.0	004.8000	0115.2	028.7	153.3	033.0000	0116.5	074.5	51.67	
284.0	004.8000	0113.3	028.5	152.9	033.0000	0116.3	074.3	51.73	
285.0	004.8000	0114.8	028.7	152.7	033.0000	0116.1	073.8	51.86	
286.0	004.8000	0115.4	028.7	152.5	033.0000	0116.0	073.4	51.98	
287.0	004.8000	0114.2	028.6	152.2	033.0000	0115.9	073.1	52.05	
288.0	004.8000	0113.2	028.5	151.8	033.0000	0115.7	072.8	52.13	
289.0	004.8000	0111.5	028.3	151.4	033.0000	0115.5	072.6	52.18	
290.0	004.8000	0104.3	027.4	150.7	033.0000	0115.1	072.9	52.07	
291.0	004.8000	0094.1	026.1	149.8	033.0000	0114.6	073.6	51.83	
292.0	004.8000	0095.4	026.3	149.6	033.0000	0114.5	073.2	51.96	
293.0	004.8000	0097.6	026.6	149.4	033.0000	0114.5	072.7	52.11	
294.0	004.8000	0099.1	026.8	149.2	033.0000	0114.4	072.3	52.23	
295.0	004.8000	0099.4	026.8	149.0	033.0000	0114.1	072.0	52.31	
296.0	004.8000	0102.0	027.2	148.8	033.0000	0113.9	071.4	52.46	
297.0	004.8000	0100.3	027.0	148.4	033.0000	0113.7	071.4	52.47	
298.0	004.8000	0097.6	026.6	147.9	033.0000	0113.3	071.4	52.43	
299.0	004.8000	0097.4	026.6	147.6	033.0000	0113.2	071.2	52.49	
300.0	004.8000	0099.3	026.8	147.3	033.0000	0113.1	070.8	52.62	
301.0	004.8000	0101.7	027.1	147.1	033.0000	0113.1	070.3	52.76	
302.0	004.8000	0101.5	027.1	146.7	033.0000	0113.0	070.1	52.81	
303.0	004.8000	0100.5	027.0	146.4	033.0000	0112.8	070.0	52.82	
304.0	004.8000	0101.1	027.1	146.0	033.0000	0112.5	069.8	52.89	
305.0	004.8000	0102.9	027.3	145.7	033.0000	0112.3	069.4	52.99	
306.0	004.8000	0104.4	027.5	145.4	033.0000	0111.8	069.0	53.07	
307.0	004.8000	0103.2	027.3	145.0	033.0000	0111.0	069.0	53.03	

Exhibit 7c

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
308.0	004.8000	0102.7	027.3	144.6	033.0000	0110.2	068.9	53.02
309.0	004.8000	0101.9	027.1	144.2	033.0000	0109.7	068.9	53.00
310.0	004.8000	0102.2	027.2	143.8	033.0000	0109.5	068.7	53.03
311.0	004.8000	0101.3	027.1	143.4	033.0000	0109.1	068.8	53.01
312.0	004.8000	0100.4	027.0	143.0	033.0000	0108.9	068.8	53.00
313.0	004.8000	0099.4	026.8	142.6	033.0000	0108.6	068.8	52.97
314.0	004.8000	0099.1	026.8	142.2	033.0000	0108.1	068.8	52.95
315.0	004.8000	0100.3	026.9	141.9	033.0000	0107.2	068.5	52.97
316.0	004.8000	0102.3	027.2	141.5	033.0000	0106.8	068.2	53.04
317.0	004.8000	0104.7	027.5	141.1	033.0000	0106.6	067.9	53.12
318.0	004.8000	0104.7	027.5	140.7	033.0000	0106.5	067.9	53.13
319.0	004.8000	0104.2	027.4	140.3	033.0000	0106.3	067.9	53.11
320.0	004.8000	0103.7	027.4	139.9	033.0000	0105.7	068.0	53.06
321.0	004.8000	0102.4	027.2	139.5	033.0000	0105.1	068.1	52.98
322.0	004.8000	0101.4	027.1	139.1	033.0000	0105.4	068.3	52.95
323.0	004.8000	0100.7	027.0	138.7	033.0000	0106.4	068.4	52.97
324.0	004.8000	0100.6	027.0	138.3	033.0000	0107.4	068.4	53.01
325.0	004.8000	0101.3	027.1	137.9	033.0000	0108.0	068.4	53.06
326.0	004.8000	0101.8	027.1	137.5	033.0000	0108.4	068.4	53.08
327.0	004.8000	0102.4	027.2	137.1	033.0000	0108.3	068.4	53.07
328.0	004.8000	0101.7	027.1	136.7	033.0000	0107.8	068.6	52.99
329.0	004.8000	0101.7	027.1	136.3	033.0000	0106.8	068.7	52.91
330.0	004.8000	0102.4	027.2	135.9	033.0000	0105.4	068.7	52.83
331.0	004.8000	0102.7	027.3	135.6	033.0000	0104.2	068.8	52.74
332.0	004.8000	0103.5	027.4	135.1	033.0000	0103.3	068.8	52.67
333.0	004.8000	0105.7	027.6	134.7	033.0000	0102.1	068.7	52.64
334.0	004.8000	0107.2	027.8	134.3	033.0000	0101.4	068.7	52.61
335.0	004.8000	0108.7	028.0	133.8	033.0000	0101.3	068.7	52.60
336.0	004.8000	0107.8	027.9	133.5	033.0000	0101.4	068.9	52.52
337.0	004.8000	0107.9	027.9	133.1	033.0000	0101.6	069.1	52.48
338.0	004.8000	0108.3	027.9	132.7	033.0000	0101.8	069.3	52.44
339.0	004.8000	0108.6	028.0	132.4	033.0000	0101.5	069.5	52.37
340.0	004.8000	0109.0	028.0	132.0	033.0000	0100.8	069.6	52.28
341.0	004.8000	0110.8	028.2	131.5	033.0000	0099.5	069.7	52.19
342.0	004.8000	0111.5	028.3	131.2	033.0000	0098.1	069.9	52.06
343.0	004.8000	0114.0	028.6	130.7	033.0000	0096.4	069.9	51.95
344.0	004.8000	0114.9	028.7	130.3	033.0000	0095.0	070.1	51.82
345.0	004.8000	0114.8	028.7	130.0	033.0000	0093.9	070.4	51.67
346.0	004.8000	0115.6	028.7	129.6	033.0000	0092.8	070.6	51.54
347.0	004.8000	0116.1	028.8	129.3	033.0000	0091.8	070.8	51.41
348.0	004.8000	0115.8	028.8	128.9	033.0000	0090.0	071.2	51.21
349.0	004.8000	0116.8	028.9	128.6	033.0000	0087.5	071.4	51.00
350.0	004.8000	0118.9	029.1	128.2	033.0000	0084.2	071.6	50.76
351.0	004.8000	0118.5	029.0	127.9	033.0000	0081.7	071.9	50.51
352.0	004.8000	0117.9	029.0	127.6	033.0000	0080.0	072.3	50.30
353.0	004.8000	0117.4	028.9	127.4	033.0000	0078.5	072.7	50.10

Exhibit 7d

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Oakwood University

FMCommander Single Allocation Study - 08-03-2021 - NED 03 SEC
WJOU.P's Overlaps (In= 3.79 km, Out= 16.54 km)

WJOU.P CH 211 C2
Lat= 34 45 28.30, Lng= 86 39 42.40
33.0 kW 74.1 m HAAT, 300.2 m COR
Prot.= 60 dBu, Intef.= 54 dBu

WPLN-FM CH 212 C BMLED20181105ACD
Lat= 36 02 08.20, Lng= 86 50 55.00
80.0 kW 345 m HAAT, 580 m COR
Prot.= 60 dBu, Intef.= 54 dBu

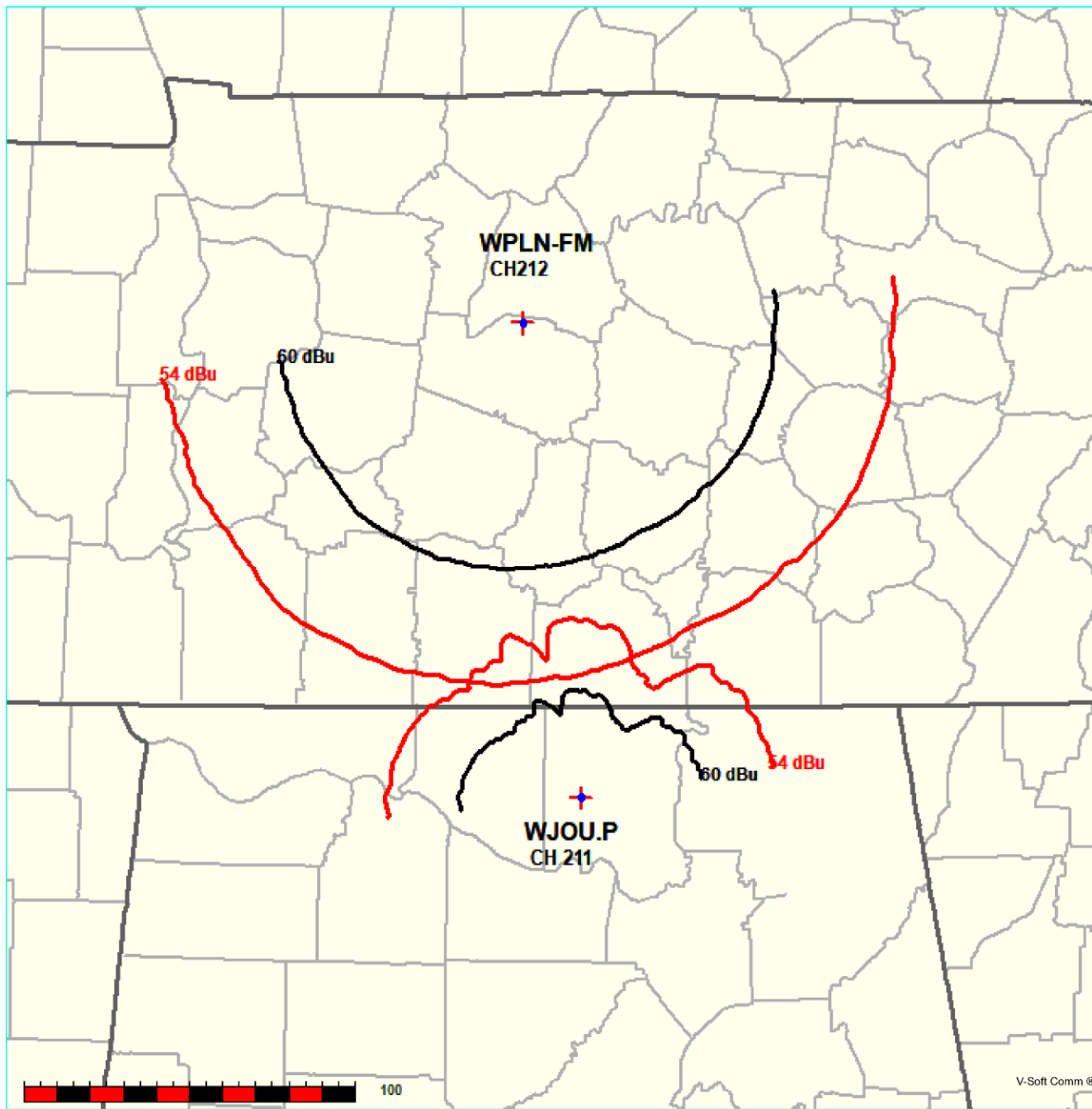


Exhibit 7d

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021

Terrain Data: NED 03 SEC

FMOver Analysis

WJOU.P

WPLN-FM BMLED20181105ACD

Channel = 211C2
Max ERP = 33 kW
RCAMSL = 300.2 m
N. Lat. 34 45 28.30
W. Lng. 86 39 42.40
Protected
60 dBu

Channel = 212C
Max ERP = 80 kW
RCAMSL = 580 m
N. Lat. 36 02 08.20
W. Lng. 86 50 55.00
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
311.0	033.0000	0046.3	029.3	182.4	080.0000	0350.2	123.0	50.20	
312.0	033.0000	0044.3	028.6	182.0	080.0000	0349.5	123.0	50.17	
313.0	033.0000	0042.2	028.0	181.6	080.0000	0349.2	123.0	50.15	
314.0	033.0000	0042.7	028.2	181.5	080.0000	0349.1	122.6	50.26	
315.0	033.0000	0044.8	028.8	181.6	080.0000	0349.2	121.8	50.46	
316.0	033.0000	0045.9	029.2	181.5	080.0000	0349.1	121.2	50.60	
317.0	033.0000	0046.1	029.2	181.4	080.0000	0349.1	120.7	50.70	
318.0	033.0000	0047.6	029.7	181.3	080.0000	0349.1	120.1	50.86	
319.0	033.0000	0047.8	029.7	181.2	080.0000	0349.1	119.7	50.96	
320.0	033.0000	0047.2	029.5	180.9	080.0000	0349.6	119.5	51.03	
321.0	033.0000	0046.0	029.2	180.6	080.0000	0349.7	119.4	51.05	
322.0	033.0000	0045.1	028.9	180.4	080.0000	0349.2	119.3	51.05	
323.0	033.0000	0044.5	028.7	180.1	080.0000	0348.6	119.1	51.07	
324.0	033.0000	0045.3	029.0	180.0	080.0000	0348.3	118.6	51.18	
325.0	033.0000	0045.8	029.1	179.8	080.0000	0347.8	118.2	51.26	
326.0	033.0000	0045.8	029.1	179.6	080.0000	0346.8	117.9	51.29	
327.0	033.0000	0045.8	029.1	179.4	080.0000	0345.9	117.7	51.32	
328.0	033.0000	0044.6	028.7	179.1	080.0000	0344.8	117.7	51.26	
329.0	033.0000	0043.5	028.4	178.8	080.0000	0345.0	117.8	51.26	
330.0	033.0000	0045.0	028.9	178.7	080.0000	0345.0	117.1	51.42	
331.0	033.0000	0047.5	029.6	178.7	080.0000	0345.0	116.2	51.65	
332.0	033.0000	0051.1	030.7	178.7	080.0000	0344.9	115.0	51.95	
333.0	033.0000	0053.3	031.4	178.6	080.0000	0344.9	114.2	52.15	
334.0	033.0000	0055.3	032.0	178.5	080.0000	0344.9	113.4	52.35	
335.0	033.0000	0055.6	032.0	178.2	080.0000	0345.2	113.1	52.43	
336.0	033.0000	0054.8	031.8	177.9	080.0000	0344.8	113.1	52.42	
337.0	033.0000	0053.7	031.5	177.6	080.0000	0343.5	113.2	52.34	
338.0	033.0000	0051.3	030.8	177.2	080.0000	0342.7	113.6	52.18	
339.0	033.0000	0049.4	030.2	176.9	080.0000	0341.7	114.0	52.05	
340.0	033.0000	0046.8	029.4	176.5	080.0000	0340.7	114.6	51.85	
341.0	033.0000	0045.1	028.9	176.2	080.0000	0340.0	115.0	51.73	
342.0	033.0000	0044.3	028.6	175.9	080.0000	0340.0	115.1	51.70	
343.0	033.0000	0041.8	027.9	175.6	080.0000	0339.9	115.7	51.54	

Exhibit 7d

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
344.0	033.0000	0038.0	026.7	175.3	080.0000	0339.9	116.8	51.27
345.0	033.0000	0034.5	025.6	174.9	080.0000	0340.1	117.8	51.04
346.0	033.0000	0035.0	025.7	174.7	080.0000	0340.6	117.6	51.11
347.0	033.0000	0039.8	027.2	174.6	080.0000	0340.9	116.0	51.51
348.0	033.0000	0045.4	029.0	174.5	080.0000	0341.1	114.2	51.97
349.0	033.0000	0050.4	030.5	174.3	080.0000	0341.4	112.7	52.38
350.0	033.0000	0053.2	031.3	174.1	080.0000	0342.5	111.8	52.65
351.0	033.0000	0054.5	031.7	173.8	080.0000	0343.6	111.4	52.81
352.0	033.0000	0055.1	031.9	173.5	080.0000	0344.5	111.2	52.90
353.0	033.0000	0055.3	032.0	173.2	080.0000	0344.9	111.1	52.94
354.0	033.0000	0055.9	032.1	172.9	080.0000	0344.6	110.9	52.97
355.0	033.0000	0056.0	032.1	172.6	080.0000	0344.3	110.9	52.95
356.0	033.0000	0056.4	032.3	172.4	080.0000	0343.7	110.9	52.95
357.0	033.0000	0056.2	032.2	172.1	080.0000	0343.3	110.9	52.91
358.0	033.0000	0055.0	031.9	171.8	080.0000	0343.2	111.3	52.80
359.0	033.0000	0053.7	031.5	171.5	080.0000	0342.7	111.8	52.67
000.0	033.0000	0053.8	031.5	171.3	080.0000	0342.2	111.8	52.63
001.0	033.0000	0054.9	031.8	170.9	080.0000	0341.8	111.6	52.67
002.0	033.0000	0055.0	031.9	170.7	080.0000	0341.3	111.7	52.63
003.0	033.0000	0054.7	031.8	170.4	080.0000	0340.6	111.9	52.55
004.0	033.0000	0053.5	031.4	170.2	080.0000	0339.9	112.3	52.40
005.0	033.0000	0052.0	031.0	169.9	080.0000	0339.3	112.9	52.23
006.0	033.0000	0050.8	030.6	169.7	080.0000	0338.7	113.4	52.07
007.0	033.0000	0050.3	030.5	169.5	080.0000	0338.2	113.7	51.98
008.0	033.0000	0050.7	030.6	169.2	080.0000	0338.1	113.7	51.97
009.0	033.0000	0051.8	030.9	168.9	080.0000	0338.1	113.6	51.99
010.0	033.0000	0052.0	031.0	168.6	080.0000	0338.1	113.7	51.96
011.0	033.0000	0051.7	030.9	168.4	080.0000	0338.4	114.0	51.91
012.0	033.0000	0051.6	030.9	168.2	080.0000	0338.3	114.3	51.84
013.0	033.0000	0051.1	030.7	168.0	080.0000	0337.7	114.6	51.72
014.0	033.0000	0049.8	030.3	167.8	080.0000	0337.3	115.2	51.56
015.0	033.0000	0047.4	029.6	167.7	080.0000	0337.1	116.1	51.34
016.0	033.0000	0046.0	029.2	167.6	080.0000	0336.8	116.7	51.17
017.0	033.0000	0044.0	028.5	167.5	080.0000	0336.7	117.5	50.98
018.0	033.0000	0042.6	028.1	167.4	080.0000	0336.6	118.1	50.82
019.0	033.0000	0039.9	027.3	167.4	080.0000	0336.6	119.1	50.59
020.0	033.0000	0036.6	026.2	167.5	080.0000	0336.7	120.2	50.33
021.0	033.0000	0035.5	025.9	167.4	080.0000	0336.5	120.7	50.20
022.0	033.0000	0034.5	025.6	167.3	080.0000	0336.3	121.3	50.07
023.0	033.0000	0033.8	025.4	167.2	080.0000	0336.0	121.7	49.96
024.0	033.0000	0034.1	025.4	167.0	080.0000	0335.1	121.9	49.88
025.0	033.0000	0032.6	025.0	167.0	080.0000	0335.0	122.5	49.73
026.0	033.0000	0032.4	024.9	166.9	080.0000	0334.5	122.9	49.63
027.0	033.0000	0033.1	025.1	166.6	080.0000	0334.0	123.0	49.59
028.0	033.0000	0033.2	025.2	166.5	080.0000	0334.0	123.2	49.53

Exhibit 7d

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

08-03-2021 Terrain Data: NED 03 SEC FMOver Analysis

WPLN-FM BMLED20181105ACD

WJOU.P

Channel = 212C
Max ERP = 80 kW
RCAMSL = 580 m
N. Lat. 36 02 08.20
W. Lng. 86 50 55.00
Protected
60 dBu

Channel = 211C2
Max ERP = 33 kW
RCAMSL = 300.2 m
N. Lat. 34 45 28.30
W. Lng. 86 39 42.40
Interfering
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
128.0	080.0000	0358.8	074.4	023.5	033.0000	0033.9	104.8	40.39	
129.0	080.0000	0357.3	074.3	023.2	033.0000	0033.8	103.6	40.63	
130.0	080.0000	0357.0	074.3	023.0	033.0000	0033.8	102.4	40.88	
131.0	080.0000	0352.2	074.0	022.6	033.0000	0033.9	101.2	41.10	
132.0	080.0000	0345.0	073.4	022.1	033.0000	0034.4	100.2	41.33	
133.0	080.0000	0340.3	073.1	021.7	033.0000	0035.0	099.1	41.57	
134.0	080.0000	0343.4	073.3	021.5	033.0000	0035.2	097.8	41.83	
135.0	080.0000	0345.7	073.5	021.3	033.0000	0035.4	096.6	42.09	
136.0	080.0000	0346.8	073.6	021.0	033.0000	0035.5	095.4	42.34	
137.0	080.0000	0344.1	073.4	020.6	033.0000	0035.8	094.3	42.57	
138.0	080.0000	0341.3	073.2	020.1	033.0000	0036.4	093.3	42.82	
139.0	080.0000	0341.3	073.2	019.7	033.0000	0037.3	092.2	43.10	
140.0	080.0000	0344.3	073.4	019.4	033.0000	0038.5	090.9	43.42	
141.0	080.0000	0342.7	073.3	019.0	033.0000	0040.0	089.9	43.72	
142.0	080.0000	0340.1	073.1	018.4	033.0000	0041.7	088.9	44.02	
143.0	080.0000	0340.6	073.1	018.0	033.0000	0042.7	087.9	44.31	
144.0	080.0000	0338.1	072.9	017.4	033.0000	0043.5	087.0	44.57	
145.0	080.0000	0335.8	072.8	016.8	033.0000	0044.4	086.0	44.82	
146.0	080.0000	0333.2	072.6	016.1	033.0000	0045.8	085.2	45.10	
147.0	080.0000	0330.4	072.4	015.5	033.0000	0046.7	084.4	45.34	
148.0	080.0000	0326.9	072.1	014.8	033.0000	0047.8	083.6	45.58	
149.0	080.0000	0324.5	071.9	014.1	033.0000	0049.6	082.8	45.87	
150.0	080.0000	0323.6	071.9	013.4	033.0000	0050.5	082.0	46.12	
151.0	080.0000	0320.7	071.7	012.7	033.0000	0051.4	081.3	46.33	
152.0	080.0000	0319.8	071.6	012.0	033.0000	0051.6	080.5	46.53	
153.0	080.0000	0322.4	071.8	011.4	033.0000	0051.8	079.6	46.76	
154.0	080.0000	0323.6	071.9	010.7	033.0000	0052.0	078.8	46.97	
155.0	080.0000	0327.3	072.2	010.0	033.0000	0052.0	077.8	47.20	
156.0	080.0000	0329.0	072.3	009.3	033.0000	0052.0	077.0	47.39	
157.0	080.0000	0328.4	072.2	008.5	033.0000	0051.5	076.4	47.51	
158.0	080.0000	0328.0	072.2	007.7	033.0000	0050.4	075.8	47.58	
159.0	080.0000	0328.0	072.2	006.8	033.0000	0050.4	075.2	47.72	
160.0	080.0000	0329.7	072.3	006.0	033.0000	0050.7	074.5	47.91	

Exhibit 7d

47 C.F.R. Section 73.509 Contour Protection Studies Toward Select Station(s)

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
161.0	080.0000	0330.0	072.3	005.1	033.0000	0051.7	073.9	48.11
162.0	080.0000	0328.5	072.2	004.2	033.0000	0053.2	073.5	48.31
163.0	080.0000	0332.0	072.5	003.4	033.0000	0054.4	072.8	48.56
164.0	080.0000	0336.7	072.8	002.5	033.0000	0054.9	072.1	48.78
165.0	080.0000	0337.0	072.9	001.5	033.0000	0054.9	071.7	48.88
166.0	080.0000	0334.5	072.7	000.5	033.0000	0054.5	071.5	48.89
167.0	080.0000	0335.0	072.7	359.5	033.0000	0053.5	071.2	48.90
168.0	080.0000	0337.8	072.9	358.6	033.0000	0054.3	070.7	49.07
169.0	080.0000	0338.1	072.9	357.5	033.0000	0055.8	070.5	49.24
170.0	080.0000	0339.4	073.0	356.5	033.0000	0056.2	070.2	49.33
171.0	080.0000	0341.8	073.2	355.5	033.0000	0056.1	070.0	49.40
172.0	080.0000	0343.2	073.3	354.5	033.0000	0055.9	069.8	49.43
173.0	080.0000	0344.7	073.4	353.4	033.0000	0055.4	069.6	49.42
174.0	080.0000	0342.8	073.3	352.4	033.0000	0055.0	069.8	49.36
175.0	080.0000	0339.9	073.1	351.3	033.0000	0054.6	070.1	49.26
176.0	080.0000	0340.0	073.1	350.3	033.0000	0053.9	070.2	49.18
177.0	080.0000	0342.1	073.2	349.2	033.0000	0051.3	070.2	48.98
178.0	080.0000	0345.0	073.5	348.2	033.0000	0046.5	070.2	48.58
179.0	080.0000	0344.7	073.4	347.2	033.0000	0040.5	070.4	48.00
180.0	080.0000	0348.3	073.7	346.1	033.0000	0035.3	070.5	47.52
181.0	080.0000	0349.4	073.8	345.1	033.0000	0034.3	070.7	47.38
182.0	080.0000	0349.6	073.8	344.1	033.0000	0037.8	071.1	47.62
183.0	080.0000	0353.8	074.1	343.0	033.0000	0041.8	071.2	47.94
184.0	080.0000	0357.7	074.4	342.0	033.0000	0044.3	071.4	48.12
185.0	080.0000	0358.3	074.4	341.0	033.0000	0045.1	071.9	48.08
186.0	080.0000	0355.8	074.2	340.1	033.0000	0046.6	072.6	48.03
187.0	080.0000	0355.4	074.2	339.2	033.0000	0048.9	073.2	48.07
188.0	080.0000	0355.2	074.2	338.3	033.0000	0050.5	073.8	48.04
189.0	080.0000	0354.3	074.1	337.5	033.0000	0052.9	074.6	48.04
190.0	080.0000	0356.8	074.3	336.6	033.0000	0054.0	075.1	47.98
191.0	080.0000	0360.3	074.6	335.7	033.0000	0055.3	075.6	47.94
192.0	080.0000	0360.4	074.6	334.9	033.0000	0055.5	076.4	47.77
193.0	080.0000	0358.0	074.4	334.2	033.0000	0055.6	077.3	47.54
194.0	080.0000	0356.3	074.3	333.5	033.0000	0054.4	078.3	47.24
195.0	080.0000	0357.1	074.3	332.8	033.0000	0052.8	079.1	46.95
196.0	080.0000	0361.4	074.6	331.9	033.0000	0050.9	079.7	46.68
197.0	080.0000	0361.3	074.6	331.3	033.0000	0048.4	080.7	46.30
198.0	080.0000	0362.1	074.7	330.6	033.0000	0046.7	081.6	45.99
199.0	080.0000	0366.3	075.0	329.9	033.0000	0044.7	082.3	45.69
200.0	080.0000	0369.4	075.2	329.2	033.0000	0043.5	083.2	45.42
201.0	080.0000	0369.4	075.2	328.6	033.0000	0043.7	084.2	45.20
202.0	080.0000	0368.4	075.1	328.1	033.0000	0044.4	085.3	44.99
203.0	080.0000	0366.4	075.0	327.7	033.0000	0045.2	086.5	44.76
204.0	080.0000	0368.3	075.1	327.1	033.0000	0045.7	087.5	44.55
205.0	080.0000	0369.8	075.2	326.6	033.0000	0045.9	088.6	44.32
206.0	080.0000	0371.4	075.4	326.1	033.0000	0045.9	089.6	44.08