

Technical Report Supporting a Form 340 NCE-FM Minor Change Construction Permit Application

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

for

*KMWC(FM).L - Bethany, MO
(Facility ID: 177107)*

*Non-Adjacent Channel Change
& Minor Site Relocation Change*

*as a
Class A FM Facility on
CH210A (89.9 MHz)*

December, 2017

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EXPLANATION OF PROPOSAL: This Form 340-FM filing and accompanying technical report supports a Minor Change Construction Permit Application for NCE-FM Station KMWC(FM).L - Bethany, MO (Facility ID: 177107). This FCC Form 340-NCE-FM filing requests a non-adjacent change in frequency and change in site location. Operation on the new NCE-FM channel of CH210A (89.9 MHz) is requested with a new power of 1.8 kW ERP (Circular Polarization). A new site location and new antenna COR height of 380 meters AMSL (87 meters HAAT) is requested. KMWC(FM) will continue to employ a non-directional antenna. KMWC(FM) will continue to specify service to the community of Bethany, MO.

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 1243921. In support of the requested site location, 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***.

A change in frequency is requested from CH217A - Bethany, MO to CH210A - Bethany, MO. Commission staff have been consulted and such an inter-reserved band, non-adjacent channel, frequency change is permissible pursuant to 47 C.F.R. Section 73.3573(a)(1)(iv); and as further clarified in DA 07-1671, released April 10, 2007. In this instance, no change to the present city of license is being proposed. In this instance, no change to the operational class is being proposed.

ALLOCATION COMPLIANCE SHOWINGS: The proposed full service NCE-FM site will meet all Class A contour protection requirements of 47 C.F.R. Section 73.509 toward each allocation protection. A tabulation of the proposed NCE-FM allocation toward each relevant protection concern is found in ***Exhibit 6***. There are two (2) allocation concerns deemed close enough requiring further study. Therefore, maps and tabulations of the relevant protected and interference contours toward each concern have been supplied in ***Exhibit(s) 7(a-b)***. 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 will be located more than 320 km of the common border between the United States and Canada or Mexico. Therefore, no additional international compliance showings are believed required.

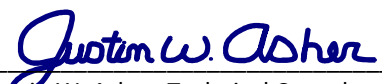
The transmitter site is not located within the affected radius of any TV6 facility, therefore no further TV6 showings are believed required.

The remainder of the information in this report is responsive to the Rules of the Commission, and provides the data for FCC Online Form 340, Section VII.

ENVIRONMENTAL COMPLIANCE SHOWINGS: The proposed facility complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments as set forth under §1.1310 and/or §1.1307(b)(3) of the Commission's rules and the guidelines for RF radiation protection guidelines as set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01). Compliance has been demonstrated in the attached **RF Appendix 1** of this filing. The facility is, or will be, properly marked with signs. Entry is, or will be, restricted by means of fencing with locked doors or gates. In addition, coordination with other users of the site will be secured to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Regarding compliance with the NEPA, Nationwide Programmatic Agreement and NHPA Section 106 for tower co-location, compliance with the Agreement is not required where no new tower construction is being proposed and the tower is not being substantially altered. Specifically, compliance is not necessary where only an antenna and feedline are being added to 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 eighteen years of experience as a broadcast technical consultant before the Federal Communications Commission ("the FCC"); and am familiar with the Code of Federal Regulations Title 47 ("the Rules") as pertaining to this report and its contents herein. The underlying data utilized in this report was taken directly from FCC databases or indirectly through third party software vendors securing data directly from FCC databases. This firm cannot be held liable for errors or omissions resulting from the underlying data. The information contained herein is believed accurate to the date reported below.*



Justin W. Asher, Technical Consultant
December 14, 2017

Exhibit 1
Service Contour Study:
Present vs Proposed Operations

Present 60 dBμ F(50:50) Contour

Proposed 60 dBμ F(50:50) Contour

KMWC.L
Bethany, MO
BMLED20160527AAD
Facility ID: 177107
Latitude: 40-21-19 N
Longitude: 093-56-09 W
ERP: 0.20 kW
Channel: 217A (91.3 MHz)
AMSL Height: 434.0 m
Horiz. Pattern: Omni

60 dBμ F(50:50) Contour
Total Population: 5,343
Total Area: 654.8 sq. km

KMWC.P
Bethany, MO
Proposed Operation
Facility ID: 177107
Latitude: 40-15-17 N
Longitude: 094-00-35 W
ERP: 1.80 kW
Channel: 210A (89.9 MHz)
AMSL Height: 380.0 m
Horiz. Pattern: Omni

60 dBμ F(50:50) Contour
Total Population: 7,855
Total Area: 1,313.6 sq. km

Terrain
217 366 m

Scale 1:300,000
0 4 8 12 km

NED 03 SEC Terrain Database
US Census 2010 PL Database

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

V-Soft Communications LLC ©

Exhibit 2

Service Contour Study: Proposed Longley-Rice Method

non-FCC-sanctioned coverage map
for illustrative purposes only

KMWC.P
Bethany, MO
Proposed Operation
Facility ID: 177107
Latitude: 40-15-17 N
Longitude: 094-00-35 W
ERP: 1.80 kW
Channel: 210A (89.9 MHz)
AMSL Height: 380.0 m
Horiz. Pattern: Omni
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 2.0 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

70 dBμ Longley-Rice Contour
Total Population: 5,600

60 dBμ Longley-Rice Contour
Total Population: 10,532

Savannah

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

Country Club Village

Cosby

Union Star

King City

Stanberry

Maysville

Weatherby

Winston

Pattonsburg

McFall

New Hampton

Albany

Grant City

Mount Ayr

Kellerton

Lamoni

Davis City

Eagleville

Ridgeway

Bethany

KMWC.P

Coffey

Jameson

Gallatin

Jamesport

Gilman City

Trenton

Spickard

Princeton

Mercer

Laredo

NED 03 SEC Terrain Database
US Census 2010 PL Database

> 100.0 dBuV/m
70.0 - 100.0
60.0 - 70.0
54.0 - 60.0

Terrain
201 398 m

Scale 1:500,000
0 8 16 24 km

V-Soft Communications LLC ©

Exhibit 3

Copy of Existing Antenna Structure Registration

(public record copy)

Registration Detail

Reg Number	1243921	Status	Constructed
File Number	A0392878	Constructed	08/11/2004
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long	40-15-17.2 N 094-00-35.5 W	Address	31643 East 220 Avenue
City, State	Bethany , MO		
Zip	64424	County	HARRISON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	303.9	Overall Height Above Ground (AGL)	84.7
Overall Height Above Mean Sea Level	388.6	Overall Height Above Ground w/o Appurtenances	79.2

Painting and Lighting Specifications

FAA Chapters 4, 8, 12
Paint and Light in Accordance with FAA Circular Number 70/7460-1K

FAA Notification

FAA Study	2004-ACE-1510-OE	FAA Issue Date	08/04/2004
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Owner & Contact Information

FRN 0002545929

Owner Entity Type

Owner

Midwest Mobile Radio Service, Inc.
Attention To: Ernist L. Miller
812 South 10th Street
Saint Joseph , MO 64501-3694

P: (816)279-2065
F:
E: erniem@mw-radio.com

Contact

P:
F:
E:

Last Action Status

Status	Constructed	Received	08/28/2004
Purpose	Notification	Entered	08/28/2004
Mode	Interactive		

Related Applications

08/28/2004	A0392878 - Notification (NT)
08/11/2004	A0390337 - Notification (NT)
08/11/2004	A0390338 - Modification (MD)

Related applications (4)

Comments

Comments

None

History

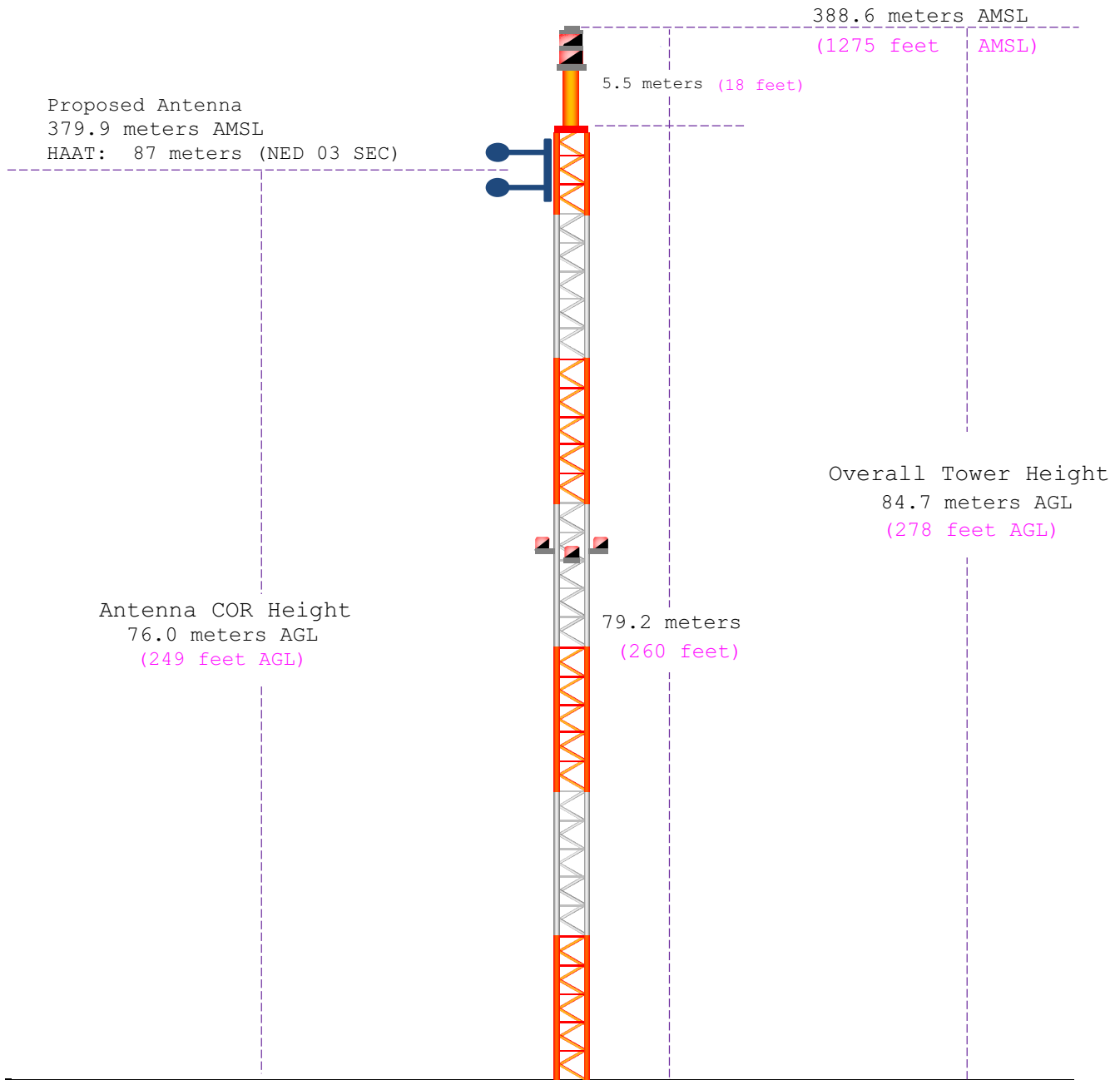
Date	Event
08/28/2004	Construction Notification Received
08/12/2004	Registration Printed
08/11/2004	Modification Received
All History (6)	

Automated Letters

08/12/2004	Authorization, Reference 349592
06/22/2004	Authorization, Reference 340602

Exhibit 4

Vertical Plan of Antenna System



Ground Elevation: 303.9 meters AMSL (997 feet AMSL)		
Address: 31643 East 220 Avenue		
City: Bethany	Latitude (D M S) Longitude (D M S)	
County: Harrison	NAD 27 datum values: 40 15 17.19410 94 00 34.67098	
State: Missouri	NAD 83 datum values: 40 15 17.20000 94 00 35.50000	
Antenna Structure Registration 1243921	Drawing Is Not To Scale	Asher Broadcast Consulting, LLC justinasher@consultant.com 1(202)875-2986

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1927):

N. Lat. = 401517.0 W. Lng. = 940035.0
 HAAT and Distance to Contour,
 FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	304.1	75.9	1.8000	2.55	1.000	18.66
045	299.5	80.5	1.8000	2.55	1.000	19.24
090	296.3	83.7	1.8000	2.55	1.000	19.63
135	298.7	81.3	1.8000	2.55	1.000	19.34
180	282.5	97.5	1.8000	2.55	1.000	21.24
225	277.4	102.6	1.8000	2.55	1.000	21.80
270	288.5	91.5	1.8000	2.55	1.000	20.57
315	293.5	86.5	1.8000	2.55	1.000	19.98

Ave El= 292.57 M HAAT= 87.43 M AMSL= 380.0

NAD 1983 to NAD 1927 Conversion:

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum values:	40 15 17.19410	94 00 34.67098
NAD 83 datum values:	40 15 17.20000	94 00 35.50000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	40.2547778°, -094.0098611°
Degrees Minutes	40°15.28667', -094°00.59167'
Degrees Minutes Seconds	40°15'17.2000", -094°00'35.5000"
UTM	15T 414119mE 4456524mN
UTM centimeter	15T 414119.04mE 4456524.77mN
MGRS	15TVE1411956524
Grid North	-0.7°
GARS	172LW29
Maidenhead	EN20XG81TD65
GEOREF	FJLL59401528

Exhibit 6

Tabulation of Proposed Non-Commercial Allocation

Yellow Highlighted Text denotes supplemental contour protection studies as included in ***Exhibit(s) 7(a-b)***.

Penfold Communications, Inc.											
REFERENCE	CH#	210A	-	89.9 MHz, Pwr= 1.8 kW, HAAT= 87.4 M, COR= 380 M	Average Protected F(50-50)= 20.08 km					DISPLAY DATES	
40 15 17.0 N.										DATA	12-14-17
94 00 35.0 W.	Omni-directional									SEARCH	12-14-17
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)
213C1 KXCV	LIC_CX	282.7	76.21	40 24 09.0	100.000	8.0	62.9	48.4	11.4		
Maryville	MO	102.2	BLED20070620ADU	94 53 16.0	193	522	Northwest Missouri State U				
209C2 KJCV-FM	LIC DCX	228.4	84.87	39 44 42.0	25.000	50.7	32.7	12.5	20.0		
Country Club	MO	47.9	BLED20100707FCN	94 45 06.0	106	386	Community Broadcasting, In				
211C1 KKFI	LIC_CN	197.3	136.15	39 05 05.0	100.000	89.6	59.9	23.0	41.0		
Kansas City	MO	17.0	BLED19880302KA	94 28 47.0	129	392	Mid-coast Radio Project, I				
211C WOI-FM	LIC_CN	10.7	175.96	41 48 33.0	100.000	125.1	84.1	30.8	62.3		
Ames	IA	191.0	BLED978	93 36 53.0	454	745	Iowa State University Of S				
212C2 KCKE	LIC_C	130.9	79.95	39 46 53.0	32.000	3.8	36.6	56.8	41.6		
Chillicothe	MO	311.4	BLED20110202AAU	93 18 10.0	82	302	Lake Area Educational Broa				
209C1 KVC1	APP DCN	42.4	143.70	41 12 14.0	100.000	82.3	54.6	42.3	61.1		
Montezuma	IA	223.1	BPED20170717ABD	92 51 07.0	151	392	Vcy America, Inc.				
208A KCJA	LIC_CX	317.0	75.30	40 44 56.0	0.100	0.7	5.6	54.6	67.8		
Conway	IA	136.7	BLED20120119AAA	94 37 08.0	11	384	Calvary Chapel Clarinda, I				
207C1 KCUR-FM	LIC_CN	197.3	136.34	39 04 59.0	100.000	9.8	70.9	103.0	63.4		
Kansas City	MO	17.0	BLED19920728KC	94 28 49.0	250	512	The Curators Of The Univer				
209A KKTR	LIC_CX	93.6	121.86	40 10 40.0	3.500	32.8	22.0	69.1	70.4		
Kirksville	MO	274.5	BLED20080211AEB	92 34 40.0	60	329	Truman State University				
210C2 KMCV	LIC DCX	145.1	223.50	38 35 48.0	50.000	129.6	43.7	74.5	115.3		
High Point	MO	326.0	BLED20101209AJF	92 32 17.0	96	337	Community Broadcasting, In				
209C KIWR	LIC DCN	305.3	206.46	41 18 40.0	100.000	108.5	74.2	78.0	103.0		
Council Bluffs	IA	124.0	BLED19810923AA	96 01 37.0	326	670	Iowa Western Community Col				
264C1 KMZU«	LIC_CN	152.1	111.46	39 21 59.0	99.000	13.0	8.5	21.5R	90.0M		
Carrollton	MO	332.5	BLH19900917KA	93 24 12.0	302	516	Kanza, Inc.				
209C3 KCVQ	LIC_C	165.5	158.98	38 52 10.0	7.700	40.6	26.2	97.7	102.3		
Knob Noster	MO	345.8	BLED20120202ACI	93 32 58.0	70	296	Lake Area Educational Broa				
210C3 KAYP	LIC_V	73.0	217.07	40 47 59.0	9.000	96.3	33.8	100.7	117.6		
Burlington	IA	254.6	BLED20001114AAA	91 32 35.0	134	337	American Family Associatio				
207C2 KHLW	LIC DCX	285.6	137.08	40 34 33.0	50.000	2.5	25.8	114.8	109.4		
Tabor	IA	104.6	BLED20120301ABG	95 34 24.0	116	422	Calvary Chapel Of Omaha				

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= - 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)
 « = Station meets FCC minimum distance spacing for its class.
 < = Contour Overlap

Exhibit 7a

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

Penfold Communications, Inc.

FMCommander Single Allocation Study - 12-14-2017 - NED 03 SEC

KMWC.P's Overlaps (In= 48.36 km, Out= 11.42 km)

KMWC.P CH 210 A

Lat= 40 15 17.0, Lng= 94 00 35.0

1.8 kW 87.4 m HAAT, 380 m COR

Prot.= 60 dBu, Intef.= 100 dBu

KXCV CH 213 C1 BLED20070620ADU

Lat= 40 24 09.0, Lng= 94 53 16.0

100.0 kW 193.1 m HAAT, 521.5 m COR

Prot.= 60 dBu, Intef.= 100 dBu

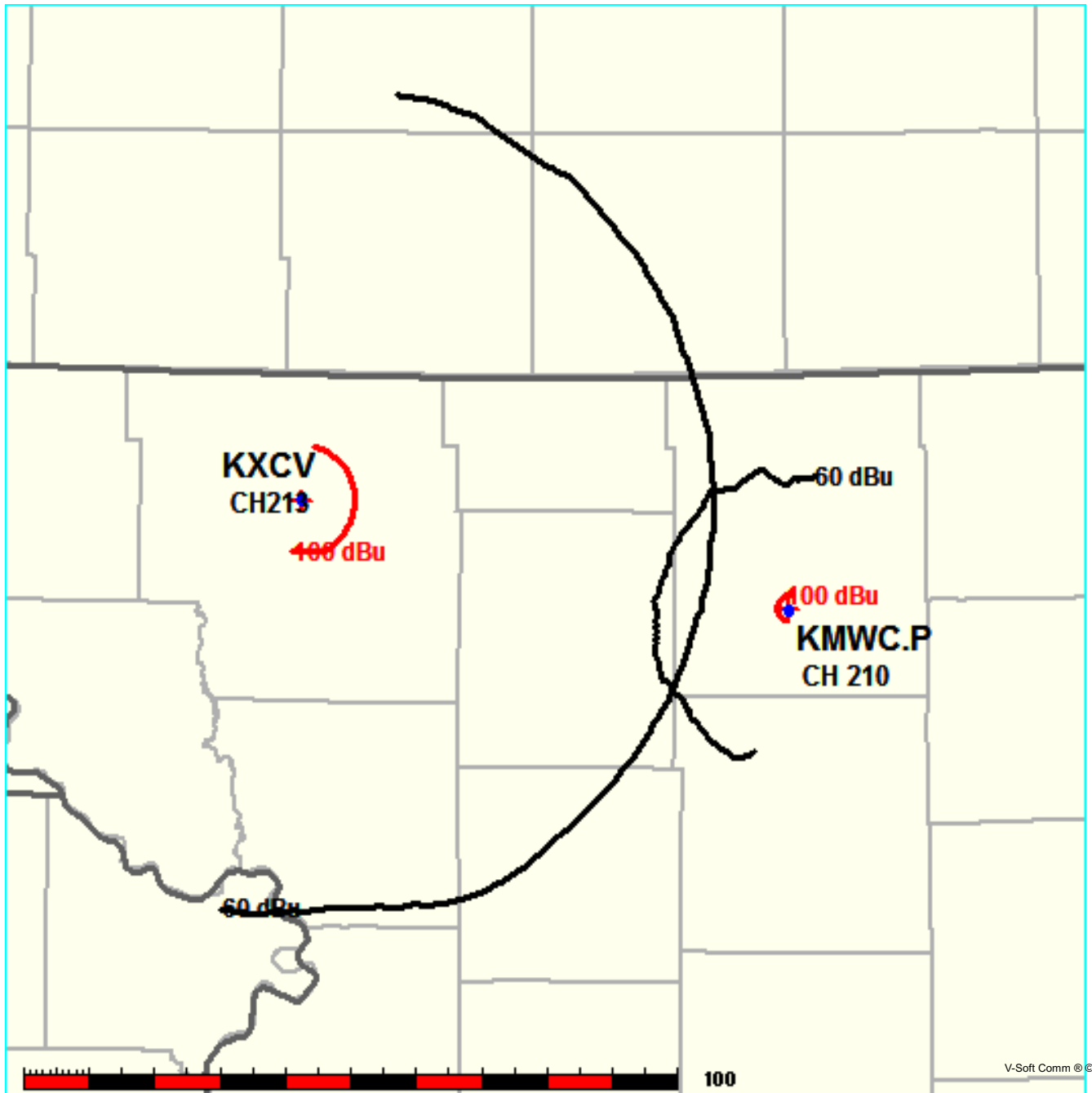


Exhibit 7a

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

12-14-2017

Terrain Data: NED 03 SEC

FMOver Analysis

KMWC.P

KXCV BLED20070620ADU

Channel = 210A
Max ERP = 1.8 kW
RCAMSL = 380 m
N. Lat. 40 15 17.0
W. Lng. 94 00 35.0
Protected
60 dBu

Channel = 213C1
Max ERP = 100 kW
RCAMSL = 521.5 m
N. Lat. 40 24 09.0
W. Lng. 94 53 16.0
Interfering
100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
241.0	001.8000	0106.1	022.2	116.1	100.0000	0195.9	061.5	64.57	
242.0	001.8000	0107.0	022.2	115.9	100.0000	0195.7	061.1	64.69	
243.0	001.8000	0107.1	022.3	115.7	100.0000	0195.6	060.8	64.80	
244.0	001.8000	0105.4	022.1	115.3	100.0000	0195.3	060.6	64.86	
245.0	001.8000	0104.0	021.9	115.0	100.0000	0195.1	060.4	64.93	
246.0	001.8000	0103.4	021.9	114.7	100.0000	0194.9	060.1	65.02	
247.0	001.8000	0103.1	021.8	114.5	100.0000	0194.5	059.9	65.09	
248.0	001.8000	0102.1	021.7	114.2	100.0000	0193.7	059.6	65.14	
249.0	001.8000	0101.9	021.7	113.9	100.0000	0193.3	059.4	65.22	
250.0	001.8000	0100.8	021.6	113.5	100.0000	0193.2	059.2	65.28	
251.0	001.8000	0101.7	021.7	113.3	100.0000	0193.3	058.9	65.40	
252.0	001.8000	0100.4	021.6	113.0	100.0000	0193.3	058.7	65.46	
253.0	001.8000	0099.2	021.4	112.6	100.0000	0193.2	058.6	65.51	
254.0	001.8000	0098.4	021.3	112.3	100.0000	0192.9	058.4	65.56	
255.0	001.8000	0097.1	021.2	111.9	100.0000	0192.4	058.3	65.58	
256.0	001.8000	0095.3	021.0	111.5	100.0000	0192.3	058.2	65.60	
257.0	001.8000	0095.9	021.1	111.2	100.0000	0192.1	058.0	65.69	
258.0	001.8000	0094.5	020.9	110.9	100.0000	0191.4	057.9	65.69	
259.0	001.8000	0094.2	020.9	110.5	100.0000	0190.8	057.7	65.73	
260.0	001.8000	0093.0	020.7	110.2	100.0000	0190.7	057.6	65.75	
261.0	001.8000	0092.5	020.7	109.8	100.0000	0190.8	057.5	65.81	
262.0	001.8000	0093.2	020.8	109.5	100.0000	0191.2	057.3	65.91	
263.0	001.8000	0091.8	020.6	109.1	100.0000	0191.2	057.2	65.92	
264.0	001.8000	0091.7	020.6	108.8	100.0000	0191.2	057.1	65.98	
265.0	001.8000	0091.7	020.6	108.5	100.0000	0191.3	057.0	66.04	
266.0	001.8000	0090.3	020.4	108.1	100.0000	0190.9	057.0	66.02	
267.0	001.8000	0089.2	020.3	107.7	100.0000	0190.5	056.9	66.01	
268.0	001.8000	0089.1	020.3	107.4	100.0000	0190.4	056.8	66.05	
269.0	001.8000	0090.0	020.4	107.1	100.0000	0190.6	056.6	66.14	
270.0	001.8000	0091.5	020.6	106.8	100.0000	0191.0	056.3	66.26	
271.0	001.8000	0092.1	020.6	106.4	100.0000	0191.0	056.2	66.32	
272.0	001.8000	0093.0	020.7	106.1	100.0000	0191.0	056.0	66.40	
273.0	001.8000	0093.6	020.8	105.8	100.0000	0191.6	055.8	66.49	

Exhibit 7a

C.F.R. 47 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)
274.0	001.8000	0092.1	020.6	105.4	100.0000	0192.7	055.9	66.50
275.0	001.8000	0090.9	020.5	105.0	100.0000	0192.7	056.0	66.48
276.0	001.8000	0090.3	020.4	104.6	100.0000	0191.8	056.0	66.43
277.0	001.8000	0088.4	020.2	104.2	100.0000	0190.8	056.1	66.32
278.0	001.8000	0088.1	020.2	103.9	100.0000	0189.8	056.1	66.28
279.0	001.8000	0088.2	020.2	103.5	100.0000	0189.5	056.1	66.29
280.0	001.8000	0087.2	020.1	103.1	100.0000	0190.1	056.2	66.28
281.0	001.8000	0087.3	020.1	102.8	100.0000	0190.6	056.1	66.31
282.0	001.8000	0086.7	020.0	102.4	100.0000	0190.9	056.2	66.30
283.0	001.8000	0084.8	019.8	102.1	100.0000	0191.0	056.4	66.22
284.0	001.8000	0083.4	019.6	101.7	100.0000	0191.4	056.6	66.17
285.0	001.8000	0084.1	019.7	101.4	100.0000	0192.2	056.6	66.23
286.0	001.8000	0085.4	019.8	101.0	100.0000	0192.6	056.4	66.30
287.0	001.8000	0085.5	019.9	100.7	100.0000	0192.2	056.4	66.27
288.0	001.8000	0083.5	019.6	100.3	100.0000	0191.7	056.7	66.14
289.0	001.8000	0083.3	019.6	100.0	100.0000	0191.1	056.8	66.09
290.0	001.8000	0083.3	019.6	099.7	100.0000	0191.0	056.8	66.07
291.0	001.8000	0084.2	019.7	099.3	100.0000	0190.9	056.8	66.08
292.0	001.8000	0085.8	019.9	098.9	100.0000	0190.4	056.7	66.11
293.0	001.8000	0086.9	020.0	098.6	100.0000	0190.0	056.6	66.10
294.0	001.8000	0087.5	020.1	098.2	100.0000	0189.7	056.6	66.09
295.0	001.8000	0087.2	020.1	097.9	100.0000	0189.6	056.8	66.03
296.0	001.8000	0086.7	020.0	097.5	100.0000	0189.1	056.9	65.95
297.0	001.8000	0086.7	020.0	097.2	100.0000	0189.0	057.0	65.90
298.0	001.8000	0086.6	020.0	096.9	100.0000	0188.7	057.2	65.84
299.0	001.8000	0086.1	019.9	096.6	100.0000	0188.2	057.4	65.75
300.0	001.8000	0085.2	019.8	096.3	100.0000	0187.6	057.6	65.64
301.0	001.8000	0085.0	019.8	096.0	100.0000	0187.5	057.7	65.57
302.0	001.8000	0086.0	019.9	095.6	100.0000	0187.5	057.8	65.56
303.0	001.8000	0086.0	019.9	095.3	100.0000	0188.0	057.9	65.52
304.0	001.8000	0084.6	019.7	095.1	100.0000	0188.5	058.3	65.43
305.0	001.8000	0085.7	019.9	094.7	100.0000	0189.3	058.3	65.44
306.0	001.8000	0085.7	019.9	094.4	100.0000	0189.7	058.5	65.39
307.0	001.8000	0084.8	019.8	094.2	100.0000	0189.8	058.7	65.30
308.0	001.8000	0083.9	019.7	094.0	100.0000	0189.9	059.0	65.20
309.0	001.8000	0083.9	019.7	093.7	100.0000	0190.1	059.2	65.14
310.0	001.8000	0084.9	019.8	093.4	100.0000	0190.7	059.3	65.13
311.0	001.8000	0087.1	020.1	093.0	100.0000	0190.4	059.3	65.11
312.0	001.8000	0085.5	019.9	092.8	100.0000	0190.2	059.7	64.97
313.0	001.8000	0085.5	019.9	092.5	100.0000	0190.0	059.9	64.88
314.0	001.8000	0085.1	019.8	092.3	100.0000	0189.9	060.2	64.78
315.0	001.8000	0086.5	020.0	092.0	100.0000	0189.8	060.3	64.74
316.0	001.8000	0086.6	020.0	091.7	100.0000	0189.7	060.5	64.65
317.0	001.8000	0086.9	020.0	091.5	100.0000	0189.6	060.7	64.57
318.0	001.8000	0086.4	020.0	091.3	100.0000	0189.5	061.0	64.46

Exhibit 7a

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

12-14-2017

Terrain Data: NED 03 SEC

FMOver Analysis

KXCV BLED20070620ADU

KMWC.P

Channel = 213C1
Max ERP = 100 kW
RCAMSL = 521.5 m
N. Lat. 40 24 09.0
W. Lng. 94 53 16.0
Protected
60 dBu

Channel = 210A
Max ERP = 1.8 kW
RCAMSL = 380 m
N. Lat. 40 15 17.0
W. Lng. 94 00 35.0
Interfering
100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
057.0	100.0000	0187.8	062.6	336.9	001.8000	0085.0	054.8	43.43	
058.0	100.0000	0186.1	062.5	336.9	001.8000	0085.0	053.7	43.83	
059.0	100.0000	0186.6	062.5	337.2	001.8000	0085.8	052.6	44.29	
060.0	100.0000	0187.1	062.6	337.4	001.8000	0086.3	051.5	44.72	
061.0	100.0000	0187.2	062.6	337.5	001.8000	0086.6	050.4	45.14	
062.0	100.0000	0188.5	062.7	337.8	001.8000	0086.7	049.4	45.54	
063.0	100.0000	0189.4	062.8	338.0	001.8000	0087.4	048.3	45.99	
064.0	100.0000	0188.1	062.7	337.9	001.8000	0087.2	047.2	46.36	
065.0	100.0000	0186.5	062.5	337.8	001.8000	0086.8	046.1	46.73	
066.0	100.0000	0185.0	062.4	337.7	001.8000	0086.6	045.0	47.13	
067.0	100.0000	0185.2	062.4	337.7	001.8000	0086.6	043.9	47.54	
068.0	100.0000	0183.9	062.3	337.5	001.8000	0086.6	042.8	47.96	
069.0	100.0000	0184.0	062.3	337.5	001.8000	0086.5	041.7	48.39	
070.0	100.0000	0184.1	062.3	337.4	001.8000	0086.5	040.6	48.82	
071.0	100.0000	0184.1	062.3	337.3	001.8000	0086.3	039.5	49.25	
072.0	100.0000	0185.0	062.4	337.3	001.8000	0086.3	038.5	49.70	
073.0	100.0000	0184.1	062.3	337.0	001.8000	0085.4	037.4	50.07	
074.0	100.0000	0184.9	062.4	336.9	001.8000	0085.0	036.3	50.51	
075.0	100.0000	0184.7	062.3	336.7	001.8000	0084.3	035.2	50.91	
076.0	100.0000	0185.4	062.4	336.5	001.8000	0084.1	034.1	51.37	
077.0	100.0000	0186.2	062.5	336.2	001.8000	0083.8	033.1	51.84	
078.0	100.0000	0187.0	062.6	336.0	001.8000	0083.6	032.0	52.32	
079.0	100.0000	0188.5	062.7	335.8	001.8000	0083.9	030.9	52.89	
080.0	100.0000	0188.7	062.7	335.3	001.8000	0084.5	029.8	53.53	
081.0	100.0000	0189.7	062.8	334.9	001.8000	0084.6	028.7	54.16	
082.0	100.0000	0188.3	062.7	333.9	001.8000	0086.2	027.7	54.95	
083.0	100.0000	0187.8	062.6	333.1	001.8000	0088.9	026.7	55.88	
084.0	100.0000	0187.3	062.6	332.1	001.8000	0089.1	025.7	56.58	
085.0	100.0000	0187.1	062.6	331.1	001.8000	0089.2	024.7	57.28	
086.0	100.0000	0187.7	062.6	330.1	001.8000	0089.5	023.7	58.05	
087.0	100.0000	0188.1	062.7	328.9	001.8000	0091.7	022.7	59.00	
088.0	100.0000	0188.6	062.7	327.6	001.8000	0095.2	021.7	60.10	
089.0	100.0000	0189.1	062.8	326.2	001.8000	0097.6	020.8	61.07	

Exhibit 7a

C.F.R. 47 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)
090.0	100.0000	0188.8	062.7	324.3	001.8000	0096.7	019.9	61.69
091.0	100.0000	0189.2	062.8	322.5	001.8000	0093.3	019.0	62.08
092.0	100.0000	0189.8	062.8	320.4	001.8000	0090.4	018.2	62.50
093.0	100.0000	0190.4	062.9	318.1	001.8000	0086.4	017.3	62.80
094.0	100.0000	0189.9	062.8	315.2	001.8000	0087.0	016.6	63.46
095.0	100.0000	0188.7	062.7	312.0	001.8000	0085.5	016.0	63.81
096.0	100.0000	0187.5	062.6	308.5	001.8000	0083.8	015.5	64.08
097.0	100.0000	0188.8	062.7	305.1	001.8000	0085.9	014.8	64.74
098.0	100.0000	0189.6	062.8	301.3	001.8000	0085.4	014.3	65.30
099.0	100.0000	0190.5	062.9	297.3	001.8000	0086.5	013.9	65.98
100.0	100.0000	0191.1	063.0	292.9	001.8000	0086.8	013.5	66.45
101.0	100.0000	0192.6	063.1	288.3	001.8000	0083.4	013.2	66.54
102.0	100.0000	0191.0	062.9	283.5	001.8000	0083.8	013.3	66.47
103.0	100.0000	0190.3	062.9	278.8	001.8000	0088.3	013.4	66.79
104.0	100.0000	0190.2	062.9	274.2	001.8000	0091.8	013.5	66.93
105.0	100.0000	0192.7	063.1	269.4	001.8000	0090.5	013.5	66.78
106.0	100.0000	0191.1	063.0	265.3	001.8000	0091.3	014.0	66.22
107.0	100.0000	0190.8	062.9	261.3	001.8000	0092.9	014.5	65.81
108.0	100.0000	0190.8	062.9	257.6	001.8000	0095.5	015.0	65.63
109.0	100.0000	0191.2	063.0	254.1	001.8000	0098.4	015.6	65.40
110.0	100.0000	0190.7	062.9	251.0	001.8000	0101.7	016.3	65.10
111.0	100.0000	0191.7	063.0	248.0	001.8000	0102.1	017.0	64.59
112.0	100.0000	0192.5	063.1	245.3	001.8000	0104.0	017.7	64.14
113.0	100.0000	0193.4	063.2	242.8	001.8000	0107.3	018.5	63.79
114.0	100.0000	0193.4	063.2	240.7	001.8000	0105.8	019.4	62.96
115.0	100.0000	0195.1	063.3	238.5	001.8000	0100.7	020.2	61.85
116.0	100.0000	0195.8	063.4	236.8	001.8000	0100.5	021.1	61.12
117.0	100.0000	0196.4	063.5	235.2	001.8000	0102.1	022.0	60.53
118.0	100.0000	0196.7	063.5	233.9	001.8000	0102.2	023.0	59.80
119.0	100.0000	0197.4	063.5	232.6	001.8000	0099.9	024.0	58.86
120.0	100.0000	0197.3	063.5	231.7	001.8000	0099.6	025.0	58.10
121.0	100.0000	0197.4	063.6	230.8	001.8000	0099.2	026.1	57.35
122.0	100.0000	0196.6	063.5	230.2	001.8000	0099.2	027.1	56.64
123.0	100.0000	0197.8	063.6	229.3	001.8000	0100.2	028.2	56.08
124.0	100.0000	0198.8	063.7	228.5	001.8000	0101.5	029.2	55.57
125.0	100.0000	0198.9	063.7	228.0	001.8000	0102.1	030.3	55.01
126.0	100.0000	0199.2	063.7	227.6	001.8000	0103.7	031.4	54.57
127.0	100.0000	0200.1	063.8	227.1	001.8000	0104.7	032.5	54.13
128.0	100.0000	0200.0	063.8	226.8	001.8000	0104.5	033.6	53.59
129.0	100.0000	0200.5	063.8	226.5	001.8000	0104.5	034.7	53.07
130.0	100.0000	0200.0	063.8	226.3	001.8000	0104.6	035.8	52.56
131.0	100.0000	0200.5	063.8	226.1	001.8000	0104.7	036.9	52.07
132.0	100.0000	0200.7	063.9	226.0	001.8000	0104.8	038.0	51.58
133.0	100.0000	0201.6	064.0	225.7	001.8000	0104.5	039.1	51.07
134.0	100.0000	0202.4	064.0	225.6	001.8000	0104.1	040.2	50.56

Exhibit 7b

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

Penfold Communications, Inc.

FMCommander Single Allocation Study - 12-14-2017 - NED 03 SEC
KMWC.P's Overlaps (In= 12.48 km, Out= 20.03 km)

KMWC.P CH 210 A
Lat= 40 15 17.0, Lng= 94 00 35.0
1.8 kW 87.4 m HAAT, 380 m COR
Prot.= 60 dBu, Intef.= 54 dBu

KJCV-FM CH 209 C2 DA BLED20100707FCN
Lat= 39 44 42.0, Lng= 94 45 06.0
25.0 kW 105.7 m HAAT, 385.5 m COR
Prot.= 60 dBu, Intef.= 54 dBu

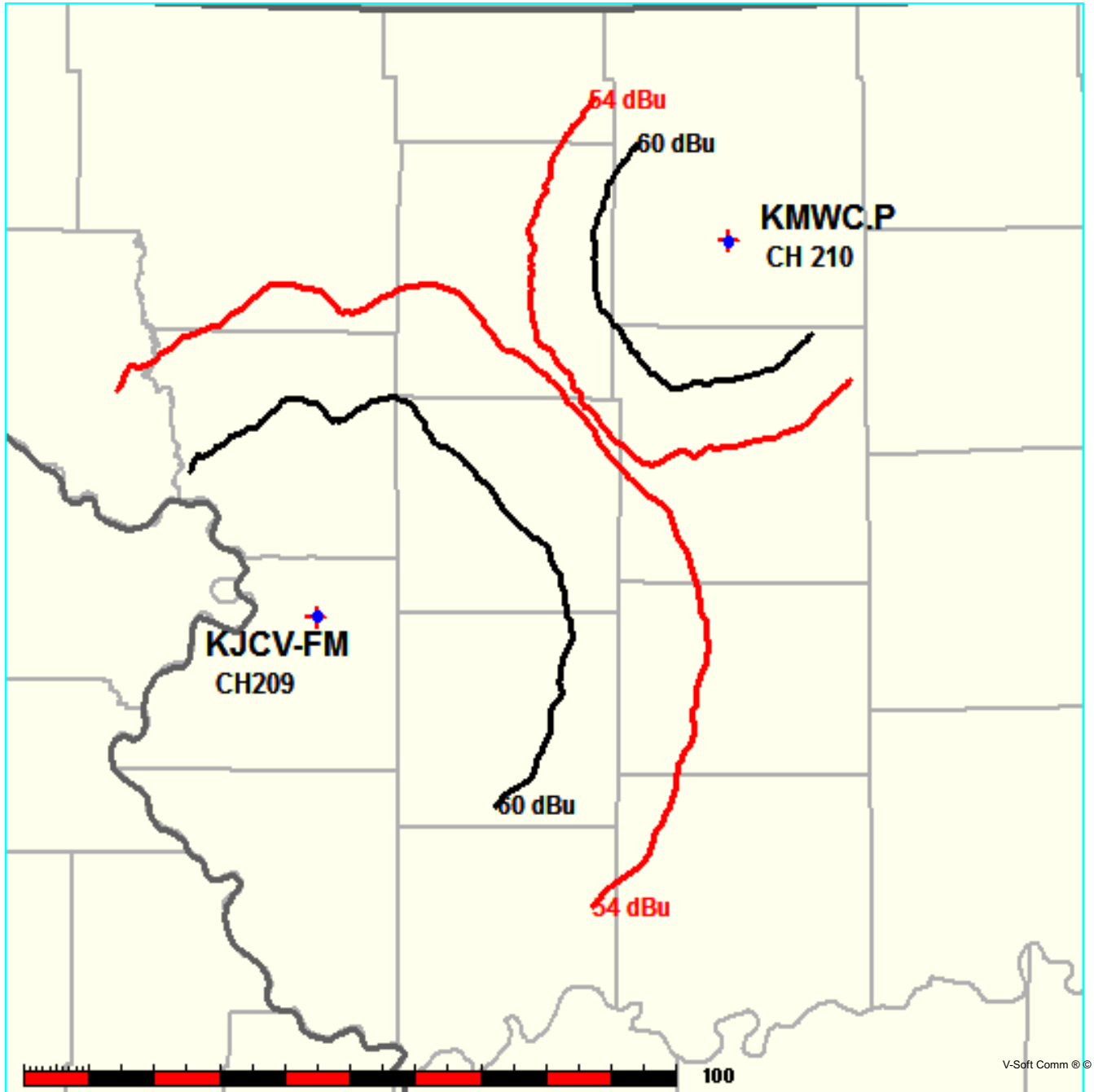


Exhibit 7b

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

12-14-2017

Terrain Data: NED 03 SEC

FMOver Analysis

KMWC.P

KJCV-FM BLED20100707FCN

Channel = 210A

Max ERP = 1.8 kW

RCAMSL = 380 m

N. Lat. 40 15 17.0

W. Lng. 94 00 35.0

Protected

60 dBu

Channel = 209C2

Max ERP = 25 kW

RCAMSL = 385.5 m

N. Lat. 39 44 42.0

W. Lng. 94 45 06.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
186.0	001.8000	0098.7	021.4	059.7	010.4173	0103.5	070.6	47.15	
187.0	001.8000	0101.8	021.7	059.7	010.4154	0103.6	070.1	47.30	
188.0	001.8000	0104.6	022.0	059.7	010.4155	0103.6	069.6	47.44	
189.0	001.8000	0107.6	022.3	059.7	010.4156	0103.6	069.1	47.59	
190.0	001.8000	0106.6	022.2	059.4	010.4286	0103.4	068.9	47.66	
191.0	001.8000	0105.0	022.0	059.1	010.4438	0103.5	068.7	47.72	
192.0	001.8000	0104.9	022.0	058.9	010.4547	0103.8	068.4	47.83	
193.0	001.8000	0106.1	022.2	058.7	010.4618	0103.9	068.0	47.95	
194.0	001.8000	0107.8	022.3	058.6	010.4678	0104.0	067.6	48.08	
195.0	001.8000	0110.6	022.6	058.5	010.4716	0104.0	067.2	48.22	
196.0	001.8000	0114.8	023.0	058.5	010.4723	0104.0	066.6	48.39	
197.0	001.8000	0119.3	023.4	058.5	010.4740	0103.9	066.0	48.56	
198.0	001.8000	0123.6	023.7	058.4	010.4773	0103.9	065.5	48.72	
199.0	001.8000	0126.6	024.0	058.3	010.4843	0103.6	065.1	48.84	
200.0	001.8000	0128.1	024.1	058.1	010.4951	0103.1	064.7	48.93	
201.0	001.8000	0127.8	024.0	057.7	010.5101	0102.9	064.5	49.00	
202.0	001.8000	0127.0	024.0	057.4	010.5262	0103.2	064.3	49.08	
203.0	001.8000	0126.2	023.9	057.1	010.5427	0103.2	064.1	49.15	
204.0	001.8000	0124.8	023.8	056.7	010.5604	0103.2	063.9	49.20	
205.0	001.8000	0123.3	023.7	056.3	010.5785	0103.4	063.8	49.26	
206.0	001.8000	0121.6	023.6	056.0	010.5970	0103.7	063.7	49.32	
207.0	001.8000	0120.4	023.5	055.6	010.6148	0103.7	063.6	49.36	
208.0	001.8000	0119.1	023.4	055.2	010.6328	0103.1	063.5	49.36	
209.0	001.8000	0119.5	023.4	054.9	010.6482	0102.4	063.3	49.40	
210.0	001.8000	0119.6	023.4	054.6	010.6644	0102.2	063.1	49.45	
211.0	001.8000	0118.4	023.3	054.2	010.6828	0102.7	063.0	49.52	
212.0	001.8000	0116.6	023.1	053.8	010.7022	0102.8	063.0	49.54	
213.0	001.8000	0114.7	023.0	053.4	010.7216	0102.9	063.0	49.54	
214.0	001.8000	0114.0	022.9	053.1	010.7394	0102.5	062.9	49.55	
215.0	001.8000	0113.1	022.8	052.7	010.7575	0102.6	062.9	49.58	
216.0	001.8000	0111.8	022.7	052.3	010.7761	0101.7	062.9	49.53	
217.0	001.8000	0110.8	022.6	051.9	010.7943	0100.8	062.9	49.50	
218.0	001.8000	0108.7	022.4	051.5	010.8137	0100.1	063.0	49.43	

Exhibit 7b**C.F.R. 47 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)
219.0	001.8000	0107.6	022.3	051.2	010.8319	0099.6	063.0	49.40
220.0	001.8000	0107.4	022.3	050.8	010.8491	0099.2	062.9	49.40
221.0	001.8000	0108.9	022.4	050.5	010.8653	0098.8	062.7	49.45
222.0	001.8000	0109.2	022.5	050.2	010.8825	0098.6	062.6	49.48
223.0	001.8000	0108.3	022.4	049.8	010.8971	0098.9	062.6	49.49
224.0	001.8000	0104.8	022.0	049.4	010.9099	0099.3	062.9	49.42
225.0	001.8000	0102.6	021.8	049.0	010.9220	0099.4	063.1	49.37
226.0	001.8000	0104.8	022.0	048.7	010.9330	0100.1	062.9	49.50
227.0	001.8000	0104.8	022.0	048.3	010.9445	0100.6	062.9	49.54
228.0	001.8000	0102.2	021.8	048.0	010.9562	0100.7	063.1	49.47
229.0	001.8000	0100.7	021.6	047.7	010.9675	0100.6	063.3	49.42
230.0	001.8000	0099.3	021.4	047.3	010.9787	0100.3	063.4	49.35
231.0	001.8000	0099.6	021.5	047.0	010.9899	0100.4	063.4	49.36
232.0	001.8000	0099.4	021.5	046.6	011.0011	0100.1	063.5	49.33
233.0	001.8000	0100.3	021.6	046.3	011.0125	0099.7	063.4	49.33
234.0	001.8000	0102.5	021.8	045.9	011.0246	0099.0	063.2	49.35
235.0	001.8000	0102.4	021.8	045.6	011.0359	0098.8	063.3	49.32
236.0	001.8000	0100.5	021.6	045.3	011.0461	0098.9	063.6	49.25
237.0	001.8000	0100.6	021.6	045.0	011.0573	0099.0	063.6	49.24
238.0	001.8000	0100.3	021.5	044.6	011.0680	0099.2	063.7	49.22
239.0	001.8000	0101.5	021.7	044.3	011.0799	0099.1	063.7	49.24
240.0	001.8000	0104.2	022.0	043.9	011.0932	0099.0	063.5	49.29
241.0	001.8000	0106.1	022.2	043.5	011.1059	0098.9	063.4	49.31
242.0	001.8000	0107.0	022.2	043.1	011.1178	0098.7	063.5	49.29
243.0	001.8000	0107.1	022.3	042.8	011.1290	0098.4	063.6	49.24
244.0	001.8000	0105.4	022.1	042.5	011.1380	0098.6	063.9	49.16
245.0	001.8000	0104.0	021.9	042.3	011.1472	0098.6	064.2	49.08
246.0	001.8000	0103.4	021.9	042.0	011.1570	0098.4	064.4	49.02
247.0	001.8000	0103.1	021.8	041.7	011.1668	0098.2	064.6	48.94
248.0	001.8000	0102.1	021.7	041.4	011.1757	0098.1	064.8	48.87
249.0	001.8000	0101.9	021.7	041.1	011.1854	0098.5	065.0	48.83
250.0	001.8000	0100.8	021.6	040.9	011.1936	0098.6	065.3	48.76
251.0	001.8000	0101.7	021.7	040.5	011.2046	0098.6	065.4	48.73
252.0	001.8000	0100.4	021.6	040.3	011.2122	0098.6	065.7	48.64
253.0	001.8000	0099.2	021.4	040.1	011.2194	0098.3	066.0	48.53
254.0	001.8000	0098.4	021.3	039.9	011.2132	0097.8	066.3	48.42
255.0	001.8000	0097.1	021.2	039.7	011.2002	0097.5	066.6	48.30
256.0	001.8000	0095.3	021.0	039.5	011.1897	0097.4	067.0	48.17
257.0	001.8000	0095.9	021.1	039.2	011.1704	0097.1	067.2	48.10
258.0	001.8000	0094.5	020.9	039.1	011.1596	0097.1	067.5	47.99
259.0	001.8000	0094.2	020.9	038.8	011.1448	0097.1	067.8	47.91
260.0	001.8000	0093.0	020.7	038.7	011.1342	0097.0	068.1	47.80
261.0	001.8000	0092.5	020.7	038.5	011.1212	0096.9	068.4	47.70
262.0	001.8000	0093.2	020.8	038.2	011.1032	0096.9	068.6	47.64

Exhibit 7b

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

12-14-2017

Terrain Data: NED 03 SEC

FMOVer Analysis

KJCV-FM BLED20100707FCN

KMWC.P

Channel = 209C2

Max ERP = 25 kW

RCAMSL = 385.5 m

N. Lat. 39 44 42.0

W. Lng. 94 45 06.0

Protected

60 dBu

Channel = 210A

Max ERP = 1.8 kW

RCAMSL = 380 m

N. Lat. 40 15 17.0

W. Lng. 94 00 35.0

Interfering

54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
003.0	008.0940	0100.9	030.4	247.1	001.8000	0103.0	066.9	40.61	
004.0	008.1796	0095.2	029.7	246.3	001.8000	0103.1	066.7	40.65	
005.0	008.2656	0092.2	029.3	245.8	001.8000	0103.8	066.5	40.77	
006.0	008.3521	0092.6	029.4	245.7	001.8000	0103.9	066.0	40.93	
007.0	008.4390	0091.4	029.3	245.3	001.8000	0104.0	065.6	41.05	
008.0	008.5264	0092.6	029.5	245.3	001.8000	0104.0	065.0	41.23	
009.0	008.6142	0094.2	029.9	245.3	001.8000	0104.0	064.4	41.41	
010.0	008.7025	0097.1	030.4	245.4	001.8000	0104.0	063.7	41.64	
011.0	008.7912	0100.6	031.0	245.5	001.8000	0103.9	062.9	41.89	
012.0	008.8804	0104.4	031.6	245.7	001.8000	0103.9	062.1	42.16	
013.0	008.9700	0107.4	032.2	245.8	001.8000	0103.8	061.3	42.42	
014.0	009.0601	0110.5	032.7	245.9	001.8000	0103.8	060.6	42.68	
015.0	009.1506	0114.5	033.3	246.0	001.8000	0103.5	059.7	42.96	
016.0	009.2416	0117.0	033.7	245.9	001.8000	0103.7	059.0	43.22	
017.0	009.3330	0118.7	034.0	245.7	001.8000	0103.9	058.4	43.47	
018.0	009.4249	0121.4	034.4	245.6	001.8000	0103.9	057.7	43.74	
019.0	009.5172	0123.3	034.7	245.4	001.8000	0104.0	057.0	43.98	
020.0	009.6100	0124.3	034.9	245.1	001.8000	0104.0	056.5	44.19	
021.0	009.7032	0124.3	035.0	244.8	001.8000	0104.4	056.0	44.40	
022.0	009.7969	0123.4	034.9	244.3	001.8000	0105.1	055.6	44.59	
023.0	009.8910	0123.3	035.0	243.8	001.8000	0105.6	055.1	44.79	
024.0	009.9856	0121.9	034.9	243.3	001.8000	0106.5	054.8	44.98	
025.0	010.0806	0120.1	034.8	242.7	001.8000	0107.4	054.5	45.14	
026.0	010.1761	0117.0	034.5	242.0	001.8000	0107.0	054.4	45.16	
027.0	010.2720	0113.0	034.0	241.2	001.8000	0106.2	054.5	45.09	
028.0	010.3684	0111.1	033.8	240.6	001.8000	0105.7	054.3	45.13	
029.0	010.4652	0108.2	033.5	239.9	001.8000	0103.7	054.3	44.99	
030.0	010.5625	0105.5	033.2	239.2	001.8000	0102.0	054.3	44.88	
031.0	010.6276	0102.0	032.6	238.4	001.8000	0100.4	054.5	44.70	
032.0	010.6929	0100.8	032.5	237.8	001.8000	0100.4	054.3	44.75	
033.0	010.7584	0098.6	032.2	237.1	001.8000	0100.7	054.4	44.74	
034.0	010.8241	0096.4	031.9	236.4	001.8000	0100.5	054.5	44.70	
035.0	010.8900	0094.8	031.6	235.8	001.8000	0100.6	054.5	44.71	

Exhibit 7b

C.F.R. 47 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)
036.0	010.9561	0094.4	031.6	235.2	001.8000	0102.0	054.3	44.86
037.0	011.0224	0095.9	031.9	234.8	001.8000	0102.7	053.9	45.09
038.0	011.0889	0097.0	032.2	234.3	001.8000	0102.7	053.5	45.23
039.0	011.1556	0097.0	032.2	233.7	001.8000	0101.9	053.3	45.25
040.0	011.2225	0098.1	032.4	233.2	001.8000	0100.7	052.9	45.31
041.0	011.1890	0098.6	032.5	232.6	001.8000	0099.8	052.8	45.31
042.0	011.1556	0098.5	032.5	232.0	001.8000	0099.4	052.7	45.30
043.0	011.1222	0098.5	032.4	231.4	001.8000	0099.7	052.6	45.35
044.0	011.0889	0099.0	032.5	230.7	001.8000	0099.2	052.5	45.36
045.0	011.0556	0098.9	032.5	230.1	001.8000	0099.3	052.5	45.37
046.0	011.0224	0099.1	032.5	229.5	001.8000	0099.9	052.4	45.43
047.0	010.9892	0100.4	032.7	228.9	001.8000	0100.9	052.2	45.59
048.0	010.9561	0100.7	032.7	228.3	001.8000	0101.6	052.2	45.65
049.0	010.9230	0099.5	032.5	227.7	001.8000	0103.3	052.4	45.68
050.0	010.8900	0098.6	032.3	227.0	001.8000	0104.7	052.6	45.70
051.0	010.8406	0099.3	032.4	226.4	001.8000	0104.5	052.6	45.71
052.0	010.7912	0100.9	032.6	225.8	001.8000	0104.6	052.4	45.77
053.0	010.7420	0102.5	032.8	225.1	001.8000	0102.8	052.3	45.71
054.0	010.6929	0102.9	032.8	224.5	001.8000	0103.2	052.3	45.70
055.0	010.6439	0102.6	032.8	223.9	001.8000	0105.1	052.5	45.76
056.0	010.5950	0103.7	032.9	223.3	001.8000	0107.4	052.5	45.92
057.0	010.5463	0103.2	032.8	222.7	001.8000	0108.7	052.8	45.91
058.0	010.4976	0103.0	032.7	222.1	001.8000	0108.9	053.0	45.84
059.0	010.4491	0103.7	032.8	221.5	001.8000	0109.5	053.1	45.84
060.0	010.4006	0103.8	032.8	220.9	001.8000	0108.8	053.3	45.72
061.0	010.5950	0103.6	032.9	220.3	001.8000	0107.8	053.4	45.61
062.0	010.7912	0103.7	033.0	219.7	001.8000	0107.3	053.4	45.56
063.0	010.9892	0104.0	033.2	219.0	001.8000	0107.5	053.5	45.55
064.0	011.1890	0104.0	033.4	218.4	001.8000	0108.7	053.6	45.58
065.0	011.3906	0104.6	033.6	217.7	001.8000	0109.2	053.7	45.59
066.0	011.5940	0105.2	033.8	217.1	001.8000	0110.7	053.8	45.65
067.0	011.7992	0105.9	034.1	216.4	001.8000	0111.2	053.9	45.65
068.0	012.0062	0107.4	034.4	215.6	001.8000	0112.3	053.9	45.72
069.0	012.2150	0109.0	034.8	214.9	001.8000	0113.3	053.9	45.77
070.0	012.4256	0110.2	035.1	214.2	001.8000	0114.0	054.0	45.77
071.0	012.9061	0112.7	035.8	213.2	001.8000	0114.3	053.9	45.84
072.0	013.3956	0114.7	036.3	212.3	001.8000	0116.0	053.8	45.96
073.0	013.8943	0115.8	036.8	211.5	001.8000	0117.1	053.9	45.99
074.0	014.4020	0115.6	037.0	210.8	001.8000	0118.7	054.2	45.98
075.0	014.9189	0113.0	037.0	210.4	001.8000	0119.3	054.7	45.82
076.0	015.4449	0111.4	037.0	209.9	001.8000	0119.6	055.1	45.68
077.0	015.9800	0109.2	037.0	209.5	001.8000	0119.6	055.6	45.48
078.0	016.5242	0107.5	037.0	209.0	001.8000	0119.6	056.1	45.29
079.0	017.0776	0107.9	037.3	208.4	001.8000	0119.0	056.4	45.15
080.0	017.6400	0108.8	037.7	207.6	001.8000	0119.6	056.6	45.08
081.0	018.1050	0108.9	037.9	207.1	001.8000	0120.3	057.0	44.97