

Comprehensive Engineering Statement – August 24, 2021

South Dakota Board of Directors for Educational Telecommunications

This proposal is for a new non-commercial educational FM station.

Geographic Coordinates: N. Lat. 43-41-52.50, W. Long. 98-02-39.30 (N.A.D. 83)

Channel number: 206, 89.1 Mhz.

Proposed Antenna C.O.R, 460.3 m A.M.S.L.

Calculated H.A.A.T., 53.6 m (8 cardinal radials, GLOBE 30 sec. terrain.)

Antenna height center of radiation above ground level, 50.3 meters.

Base elevation at the site, 410 meters.

Tower height above ground, 56.4 m, (existing tower.)

Antenna Type, RFS Model 828FP-4, E.P.A. type 2.

Effective Radiated Power., 16 kW H. & V., cross-polarized.

Pages #2 through #17 compose a contour-to-contour channel study using our FMCommander program that is in wide use throughout the industry. This study uses GLOBE 30 sec. terrain data to show that the proposed facilities will neither cause, nor receive, contour overlap with KUAR Sioux Falls, as per section 73.509 of the Commission's rules. Pages 11 through 17 compose a similar study showing contour overlap is neither caused nor received with KVCH, Huron. These are the only two stations where such detailed studies were needed.

Page #18 is a coverage map showing the 60 dBu city service contour. As shown on the map, the proposed principal city, Mitchell, South Dakota, is covered 100 percent by the city grade contour.

Page #19 is distance to contour and H.A.A.T. table for the eight cardinal radials.

Page #20 through #22 is an R.F. hazard graph and table that shows that the proposed, full-wave, 4-bay, RFS Model 828FP-4, E.P.A. type 2, antenna produces a power density well below the Commission's maximums for this 'uncontrolled' area. Using the OET 65 formulas with the proposed antenna at head height, at the tower base, a total of 32.48 $\mu\text{W}/\text{cm}^2$ is predicted which is 18.6 percent of the 'uncontrolled' maximum of 200 $\mu\text{W}/\text{cm}^2$. The maximum power density of 43.30 $\mu\text{W}/\text{cm}^2$ is located at a 15-meter horizontal distance from the base of the tower. This is 29.3 percent of the 'uncontrolled' maximum. The applicant proposes to use an existing guyed tower at its existing site that, since its inception, has received no environmental objections. There will be no changes to the tower height or other changes that may call for a more detailed environmental analysis. The applicant will reduce power or terminate transmissions as necessary to protect the public and workers on the tower. There is no other broadcast related R.F. sources on or near the tower.

Page # 23 is a map showing the calculated 2010 population within the 60 dBu contour of 22,634. There is not any first or second service.

Page #24 is a map of the 2,236.3 km^2 area contained within the 60 dBu with all lakes removed.

Page #25 is a map showing the number of stations operated by the applicant.

Page #26 is an exhibit stating the qualifications of the preparer.

Doug Vernier, Telecommunication Consultants
V-Soft Communications

Channel Search

South Dakota Board Of Directors For Educational Telecommunications
CH# 206C3 - 89.1 MHz, Pwr= 16 kW, HAAT= 53.6 M, COR= 460.3 M
Average Protected F(50-50)= 26.67 km
Omni-directional

DISPLAY DATES
DATA 08-24-21
SEARCH 08-24-21

REFERENCE
43 41 52.50 N.
98 02 39.30 W.

CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
206A Sioux Falls	KAUR	LIC _CN SD	99.8 280.7	106.80 BLED19870129KB	43 31 36.90 96 44 19.10	0.680 56	35.3 497	10.2 Augustana College Associat	43.2	0.2
204C1 Huron	KVCH	LIC _CN SD	338.4 158.2	59.37 BLED20110224ACF	44 11 39.00 98 19 06.30	60.000 161	6.5 555	55.4 Vcy America Inc.	24.3	1.1
205A Santee	KZYK	LIC _CN NE	170.9 351.0	97.77 BLED20120727AJS	42 49 45.90 97 51 16.20	1.000 40	18.3 464	12.4 Nebraska Indian Community	53.3	43.1
206A Watertown	KPGT	LIC _VN SD	28.9 209.6	153.02 BLED20000609AAR	44 53 56.80 97 06 19.20	0.200 6	22.4 551	6.7 Harvest Community Baptist	101.1	49.1
208A Lake Andes	KDKO	LIC _HN SD	207.0 26.7	76.65 BLED20110211ABV	43 04 58.90 98 28 24.20	0.800 145	1.6 605	21.3 Native American Community	50.9	52.9
207C1 Norfolk	KXNE-FM	LIC _CN NE	158.7 339.3	173.91 BMLD20030822AGC	42 14 15.00 97 16 42.20	45.000 300	92.9 816	63.6 Nebraska Educational Tel ec	54.3	68.0
209C1 Vermillion	KUSD	LIC _CN SD	124.9 305.8	124.55 BLED19920212KA	43 02 59.90 96 47 13.10	32.000 202	6.3 614	55.1 South Dakota Board Of Dire	89.8	66.7

Terrain database is GLOBE 30 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.
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.

HOW TO READ THE FM COMPUTER PRINT-OUT

The computer printout should be self-explanatory for the most part. The parameters of the station being checked, (reference station) are printed in the heading. Contour distances are in kilometers and are predicted using the Commission's TVFMINT FORTRAN subroutine. When interference contour distances are less than 16 kilometers the F(50-50) tables are used. If signal contour distances are less than 1.6 km the free-space equation is used.

The column listed "IN " is the difference in kilometers between of the reference station's protected contour and the data file station's interference contour at the closest point between the contours. (All distances are derived by the method detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90.) Therefore, "IN" column is a measure of incoming interference. Negative distances in this column indicate the presence of contour overlap. Listed antenna heights and power are those given in the FCC database. The column labeled "OUT " shows the greatest distance in kilometers of overlap or smallest of clearance between the reference station's interference contour and the database station's protected contour. Negative distance figures in this column indicate outgoing contour overlap.

Under the "AZI" column, the first row of numbers indicate the True North bearings from the reference station toward the database stations, while the numbers in the second row indicate the reverse bearings from the database stations to the reference station.

The columns labeled "INT" and "PRO" contain the distance in kilometers of the appropriate interference contour and the protected contour of a data base station.

For I.F. relationships, some channel-six TV relationships and relationships with commercial channel stations providing clearance the minimum spacings values the "IN" and "OUT" columns can change their significance. The letter "R" stands for the minimum **required** distance in kilometers, while the letter "M" in the next column follows the **available clear space** (or lack of it) in kilometers. Minimum separation distances when displayed are taken from Sec 73.207 of the rules as amended. Canadian and Mexican separation distances, U/D ratios and protected contour values are from the US/Mexican Working Agreement and the US/Canada Working Agreement".

The call letters of stations meeting the minimum separation distances under the rules will be flagged by the characters "<<" appended to the right-hand side of the call sign. The "^" character appended to the call sign means the station has been "max-classed" according to the provisions of section 73.525 of the Rules.

The first three letters of the "TYPE" column identify the current FCC status of the stations. The fourth letter will be a "D" if the facility is directional. "Z" indicates a 73.215 directional. An "N" indicates it is a 73.215 station that operates with an omni-directional antenna. The fifth letter will be an E, H or V depending on the type of antenna polarization. The sixth letter will be a "Y" if the antenna uses beam tilt or an "X" if the commission is not sure, otherwise it will be an "N" or left blank.

Translator relationships with LPTV/Translators are calculated using the 62 dBu protected and the F(50-10) interference contour, as defined in section 74.1205 of the Rules.

Contour-to-Contour, NEW! vs KAUR
 South Dakota Board Of Directors For Educational Telecommunications

FMCommander Single Allocation Study - 08-24-2021 - GLOBE 30 Sec
 NEW!'s Overlaps (In= 43.2 km, Out= 0.25 km)

NEW! CH 206 C3

Lat= 43 41 52.50, Lng= 98 02 39.30

16.0 kW 53.6 m HAAT, 460.3 m COR

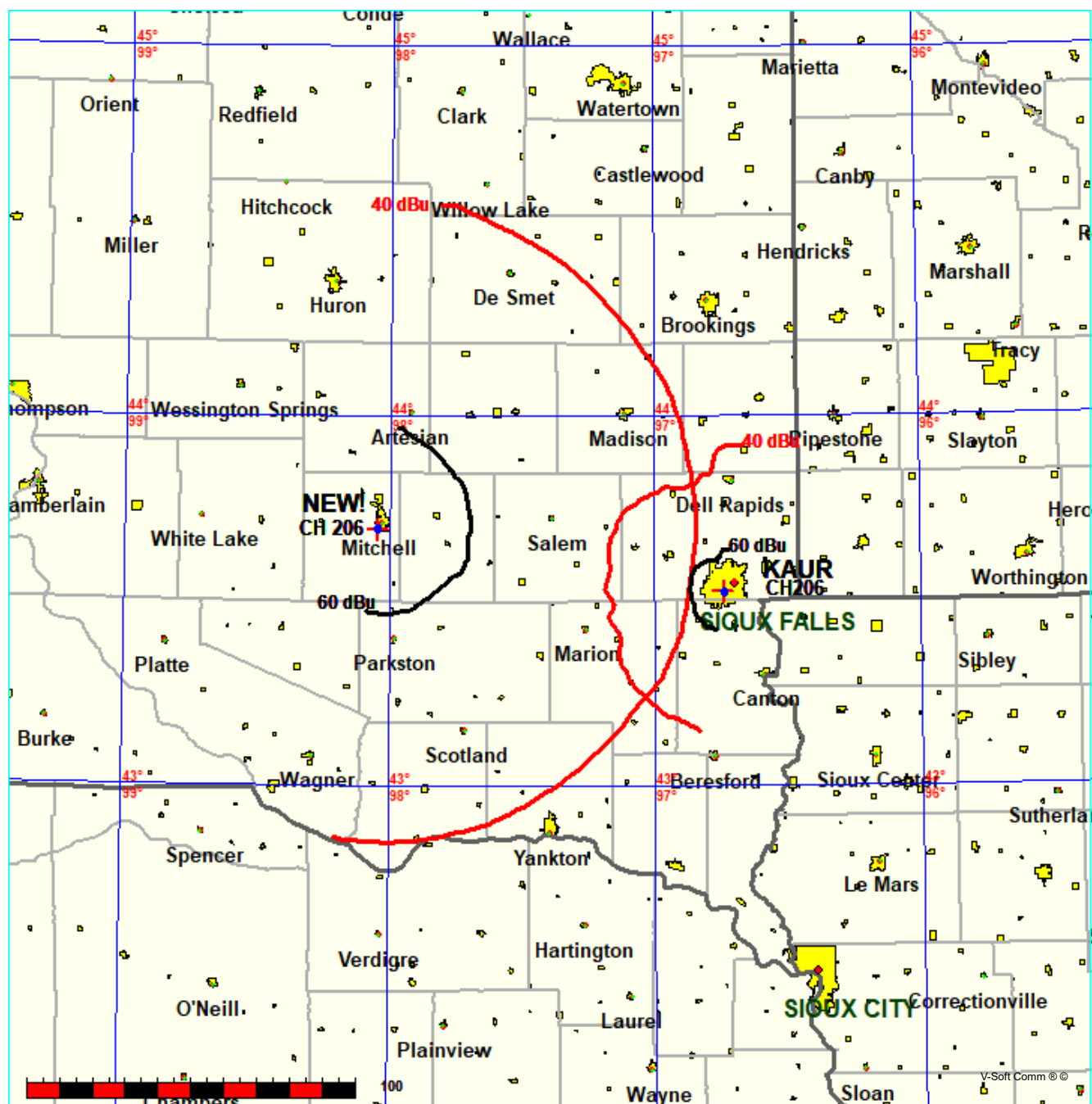
Prot.= 60 dBu, Intef.= 40 dBu

KAUR CH 206 A BLED19870129KB

Lat= 43 31 36.90, Lng= 96 44 19.10

0.68 kW 56 m HAAT, 497 m COR

Prot.= 60 dBu, Intef.= 40 dBu



NEW!

KAUR BLED19870129KB

Channel = 206C3
 Max ERP = 16 kW
 RCAMSL = 460.3 m
 N. Lat. 43 41 52.50
 W. Lng. 98 02 39.30
 Protected
 60 dBu

Channel = 206A
 Max ERP = 0.68 kW
 RCAMSL = 497 m
 N. Lat. 43 31 36.90
 W. Lng. 96 44 19.10
 Interfering
 40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
040.0	016.0000	0061.7	028.3	295.5	000.6800	0042.1	095.7	25.70	
041.0	016.0000	0061.5	028.3	295.4	000.6800	0042.1	095.3	25.79	
042.0	016.0000	0061.1	028.2	295.3	000.6800	0042.1	094.8	25.89	
043.0	016.0000	0060.5	028.1	295.1	000.6800	0042.0	094.4	25.98	
044.0	016.0000	0060.0	028.0	295.0	000.6800	0042.0	094.0	26.07	
045.0	016.0000	0059.8	028.0	294.9	000.6800	0042.0	093.5	26.16	
046.0	016.0000	0059.7	028.0	294.7	000.6800	0042.0	093.1	26.26	
047.0	016.0000	0059.6	027.9	294.6	000.6800	0041.9	092.6	26.35	
048.0	016.0000	0059.6	027.9	294.5	000.6800	0041.9	092.2	26.45	
049.0	016.0000	0059.7	028.0	294.4	000.6800	0041.9	091.7	26.55	
050.0	016.0000	0059.8	028.0	294.2	000.6800	0041.9	091.3	26.64	
051.0	016.0000	0059.9	028.0	294.1	000.6800	0041.8	090.8	26.74	
052.0	016.0000	0059.9	028.0	294.0	000.6800	0041.8	090.4	26.83	
053.0	016.0000	0059.9	028.0	293.8	000.6800	0041.8	090.0	26.93	
054.0	016.0000	0059.8	028.0	293.6	000.6800	0041.7	089.6	27.02	
055.0	016.0000	0059.4	027.9	293.4	000.6800	0041.7	089.2	27.10	
056.0	016.0000	0059.3	027.9	293.3	000.6800	0041.7	088.8	27.19	
057.0	016.0000	0059.8	028.0	293.1	000.6800	0041.6	088.3	27.29	
058.0	016.0000	0060.9	028.2	293.1	000.6800	0041.6	087.8	27.41	
059.0	016.0000	0062.1	028.4	293.0	000.6800	0041.6	087.3	27.53	
060.0	016.0000	0062.9	028.6	292.9	000.6800	0041.6	086.8	27.64	
061.0	016.0000	0063.2	028.6	292.7	000.6800	0041.5	086.4	27.73	
062.0	016.0000	0063.3	028.6	292.5	000.6800	0041.5	086.0	27.82	
063.0	016.0000	0063.4	028.7	292.3	000.6800	0041.4	085.6	27.90	
064.0	016.0000	0063.4	028.7	292.1	000.6800	0041.4	085.2	27.98	
065.0	016.0000	0063.5	028.7	291.8	000.6800	0041.3	084.8	28.06	
066.0	016.0000	0063.4	028.7	291.6	000.6800	0041.2	084.5	28.14	
067.0	016.0000	0063.2	028.6	291.3	000.6800	0041.1	084.2	28.20	
068.0	016.0000	0062.9	028.6	291.0	000.6800	0041.0	083.9	28.26	
069.0	016.0000	0062.4	028.5	290.7	000.6800	0040.9	083.6	28.31	
070.0	016.0000	0061.9	028.4	290.4	000.6800	0040.7	083.4	28.36	
071.0	016.0000	0061.4	028.3	290.1	000.6800	0040.5	083.1	28.40	
072.0	016.0000	0061.0	028.2	289.8	000.6800	0040.4	082.9	28.45	
073.0	016.0000	0060.5	028.1	289.5	000.6800	0040.2	082.7	28.48	
074.0	016.0000	0060.0	028.0	289.2	000.6800	0040.0	082.5	28.51	
075.0	016.0000	0059.5	027.9	288.9	000.6800	0039.8	082.3	28.55	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
076.0	016.0000	0059.2	027.9	288.6	000.6800	0039.7	082.1	28.59
077.0	016.0000	0059.0	027.8	288.3	000.6800	0039.6	081.9	28.63
078.0	016.0000	0059.1	027.8	288.0	000.6800	0039.6	081.6	28.68
079.0	016.0000	0059.3	027.9	287.7	000.6800	0039.5	081.3	28.74
080.0	016.0000	0059.4	027.9	287.4	000.6800	0039.4	081.1	28.78
081.0	016.0000	0059.2	027.9	287.1	000.6800	0039.3	080.9	28.82
082.0	016.0000	0059.2	027.9	286.8	000.6800	0039.2	080.7	28.85
083.0	016.0000	0059.5	027.9	286.5	000.6800	0039.1	080.5	28.90
084.0	016.0000	0060.0	028.0	286.2	000.6800	0039.1	080.2	28.96
085.0	016.0000	0060.4	028.1	285.9	000.6800	0039.0	080.0	29.00
086.0	016.0000	0060.7	028.2	285.5	000.6800	0038.9	079.7	29.04
087.0	016.0000	0060.6	028.1	285.2	000.6800	0038.8	079.6	29.07
088.0	016.0000	0060.6	028.1	284.9	000.6800	0038.6	079.5	29.09
089.0	016.0000	0060.7	028.2	284.5	000.6800	0038.5	079.3	29.11
090.0	016.0000	0060.8	028.2	284.2	000.6800	0038.4	079.2	29.13
091.0	016.0000	0060.9	028.2	283.8	000.6800	0038.2	079.1	29.14
092.0	016.0000	0060.3	028.1	283.5	000.6800	0038.0	079.1	29.13
093.0	016.0000	0059.8	028.0	283.1	000.6800	0037.8	079.1	29.11
094.0	016.0000	0059.1	027.8	282.7	000.6800	0037.6	079.1	29.08
095.0	016.0000	0058.3	027.7	282.4	000.6800	0037.4	079.2	29.05
096.0	016.0000	0057.7	027.6	282.0	000.6800	0037.3	079.3	29.02
097.0	016.0000	0057.5	027.5	281.7	000.6800	0037.2	079.3	29.01
098.0	016.0000	0057.3	027.5	281.3	000.6800	0037.1	079.3	29.01
099.0	016.0000	0057.4	027.5	281.0	000.6800	0037.0	079.3	29.01
100.0	016.0000	0057.8	027.6	280.6	000.6800	0037.0	079.2	29.03
101.0	016.0000	0058.3	027.7	280.3	000.6800	0037.0	079.1	29.05
102.0	016.0000	0059.0	027.8	279.9	000.6800	0037.0	079.0	29.07
103.0	016.0000	0059.8	028.0	279.6	000.6800	0037.0	078.9	29.10
104.0	016.0000	0060.7	028.2	279.2	000.6800	0037.1	078.7	29.13
105.0	016.0000	0061.6	028.3	278.8	000.6800	0037.1	078.6	29.16
106.0	016.0000	0062.2	028.4	278.5	000.6800	0037.2	078.6	29.17
107.0	016.0000	0063.1	028.6	278.1	000.6800	0037.2	078.5	29.19
108.0	016.0000	0063.8	028.7	277.7	000.6800	0037.2	078.5	29.20
109.0	016.0000	0064.2	028.8	277.3	000.6800	0037.3	078.5	29.20
110.0	016.0000	0064.1	028.8	277.0	000.6800	0037.4	078.6	29.18
111.0	016.0000	0063.6	028.7	276.6	000.6800	0037.5	078.8	29.14
112.0	016.0000	0063.2	028.6	276.3	000.6800	0037.6	079.1	29.10
113.0	016.0000	0063.0	028.6	276.0	000.6800	0037.7	079.2	29.07
114.0	016.0000	0063.2	028.6	275.6	000.6800	0037.9	079.4	29.06
115.0	016.0000	0063.6	028.7	275.3	000.6800	0038.0	079.5	29.05
116.0	016.0000	0064.0	028.8	274.9	000.6800	0038.1	079.6	29.03
117.0	016.0000	0064.0	028.8	274.6	000.6800	0038.2	079.8	28.99
118.0	016.0000	0063.4	028.7	274.3	000.6800	0038.2	080.1	28.93
119.0	016.0000	0062.2	028.4	274.0	000.6800	0038.3	080.5	28.84
120.0	016.0000	0060.5	028.1	273.8	000.6800	0038.3	081.0	28.74
121.0	016.0000	0058.7	027.8	273.6	000.6800	0038.3	081.5	28.62
122.0	016.0000	0056.8	027.4	273.5	000.6800	0038.4	082.1	28.50
123.0	016.0000	0055.3	027.0	273.3	000.6800	0038.4	082.6	28.38
124.0	016.0000	0054.1	026.8	273.1	000.6800	0038.5	083.1	28.29
125.0	016.0000	0053.7	026.7	272.9	000.6800	0038.5	083.4	28.21
126.0	016.0000	0053.7	026.7	272.6	000.6800	0038.6	083.7	28.16

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
127.0	016.0000	0053.8	026.7	272.3	000.6800	0038.7	083.9	28.11
128.0	016.0000	0053.9	026.7	272.1	000.6800	0038.8	084.2	28.06
129.0	016.0000	0053.6	026.7	271.9	000.6800	0038.9	084.5	28.00
130.0	016.0000	0053.1	026.6	271.7	000.6800	0039.0	084.9	27.92
131.0	016.0000	0052.6	026.4	271.5	000.6800	0039.1	085.3	27.84
132.0	016.0000	0052.2	026.3	271.3	000.6800	0039.2	085.7	27.76
133.0	016.0000	0052.0	026.3	271.1	000.6800	0039.2	086.0	27.68
134.0	016.0000	0051.9	026.3	270.9	000.6800	0039.1	086.3	27.60
135.0	016.0000	0051.7	026.2	270.7	000.6800	0038.9	086.7	27.52
136.0	016.0000	0051.5	026.2	270.5	000.6800	0038.8	087.1	27.43
137.0	016.0000	0051.3	026.1	270.3	000.6800	0038.6	087.4	27.34
138.0	016.0000	0051.2	026.1	270.1	000.6800	0038.5	087.8	27.25
139.0	016.0000	0051.2	026.1	269.9	000.6800	0038.3	088.1	27.17
140.0	016.0000	0051.4	026.2	269.7	000.6800	0038.1	088.5	27.09
141.0	016.0000	0051.6	026.2	269.5	000.6800	0038.0	088.8	27.00
142.0	016.0000	0051.6	026.2	269.3	000.6800	0037.8	089.1	26.92
143.0	016.0000	0051.5	026.2	269.2	000.6800	0037.7	089.5	26.83
144.0	016.0000	0051.2	026.1	269.0	000.6800	0037.6	089.9	26.73
145.0	016.0000	0051.0	026.0	268.9	000.6800	0037.5	090.4	26.64
146.0	016.0000	0050.8	026.0	268.8	000.6800	0037.4	090.8	26.54
147.0	016.0000	0050.8	026.0	268.6	000.6800	0037.3	091.1	26.45
148.0	016.0000	0050.8	026.0	268.5	000.6800	0037.2	091.5	26.36
149.0	016.0000	0050.9	026.0	268.3	000.6800	0037.1	091.9	26.28
150.0	016.0000	0051.1	026.1	268.2	000.6800	0036.9	092.3	26.19
151.0	016.0000	0051.4	026.1	268.0	000.6800	0036.8	092.7	26.10
152.0	016.0000	0051.6	026.2	267.8	000.6800	0036.7	093.1	26.02
153.0	016.0000	0051.9	026.3	267.7	000.6800	0036.6	093.5	25.93
154.0	016.0000	0052.4	026.4	267.5	000.6800	0036.5	093.8	25.84
155.0	016.0000	0052.7	026.5	267.4	000.6800	0036.4	094.2	25.76
156.0	016.0000	0052.9	026.5	267.2	000.6800	0036.3	094.7	25.67
157.0	016.0000	0053.0	026.5	267.1	000.6800	0036.3	095.1	25.58
158.0	016.0000	0053.4	026.6	267.0	000.6800	0036.2	095.5	25.49
159.0	016.0000	0053.6	026.7	266.9	000.6800	0036.2	095.9	25.40

KAUR BLED19870129KB

NEW!

Channel = 206A

Max ERP = 0.68 kW

RCAMSL = 497 m

N. Lat. 43 31 36.90

W. Lng. 96 44 19.10

Protected

60 dBu

Channel = 206C3

Max ERP = 16 kW

RCAMSL = 460.3 m

N. Lat. 43 41 52.50

W. Lng. 98 02 39.30

Interfering

40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
221.0	000.6800	0045.5	011.3	105.3	016.0000	0061.8	101.6	39.04	
222.0	000.6800	0045.6	011.3	105.3	016.0000	0061.8	101.4	39.07	
223.0	000.6800	0045.8	011.3	105.2	016.0000	0061.7	101.2	39.11	
224.0	000.6800	0045.8	011.3	105.2	016.0000	0061.7	101.0	39.14	
225.0	000.6800	0045.5	011.3	105.1	016.0000	0061.7	100.9	39.17	
226.0	000.6800	0045.2	011.3	105.0	016.0000	0061.6	100.7	39.20	
227.0	000.6800	0044.9	011.2	105.0	016.0000	0061.6	100.6	39.23	
228.0	000.6800	0044.6	011.2	104.9	016.0000	0061.5	100.4	39.26	
229.0	000.6800	0044.2	011.1	104.8	016.0000	0061.4	100.3	39.28	
230.0	000.6800	0043.7	011.1	104.7	016.0000	0061.4	100.2	39.30	
231.0	000.6800	0043.3	011.0	104.6	016.0000	0061.3	100.0	39.33	
232.0	000.6800	0043.0	011.0	104.5	016.0000	0061.2	099.9	39.35	
233.0	000.6800	0042.9	011.0	104.5	016.0000	0061.2	099.8	39.38	
234.0	000.6800	0042.9	011.0	104.4	016.0000	0061.1	099.6	39.41	
235.0	000.6800	0042.9	010.9	104.3	016.0000	0061.0	099.5	39.43	
236.0	000.6800	0042.6	010.9	104.2	016.0000	0061.0	099.3	39.45	
237.0	000.6800	0042.0	010.8	104.1	016.0000	0060.9	099.2	39.47	
238.0	000.6800	0041.4	010.8	104.0	016.0000	0060.7	099.2	39.48	
239.0	000.6800	0040.7	010.7	103.9	016.0000	0060.6	099.1	39.49	
240.0	000.6800	0040.0	010.6	103.8	016.0000	0060.5	099.0	39.50	
241.0	000.6800	0039.3	010.5	103.7	016.0000	0060.4	099.0	39.51	
242.0	000.6800	0038.5	010.4	103.6	016.0000	0060.3	098.9	39.51	
243.0	000.6800	0037.7	010.3	103.4	016.0000	0060.2	098.9	39.51	
244.0	000.6800	0037.0	010.2	103.3	016.0000	0060.1	098.8	39.52	
245.0	000.6800	0036.4	010.1	103.2	016.0000	0060.0	098.8	39.53	
246.0	000.6800	0036.1	010.0	103.1	016.0000	0059.9	098.7	39.54	
247.0	000.6800	0035.8	010.0	103.0	016.0000	0059.8	098.6	39.55	
248.0	000.6800	0035.6	010.0	102.9	016.0000	0059.7	098.6	39.57	
249.0	000.6800	0035.5	010.0	102.9	016.0000	0059.6	098.5	39.58	
250.0	000.6800	0035.6	010.0	102.8	016.0000	0059.6	098.4	39.60	
251.0	000.6800	0035.9	010.0	102.7	016.0000	0059.5	098.2	39.63	
252.0	000.6800	0036.4	010.1	102.6	016.0000	0059.5	098.1	39.65	
253.0	000.6800	0036.9	010.2	102.6	016.0000	0059.4	097.9	39.69	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
254.0	000.6800	0037.4	010.2	102.5	016.0000	0059.4	097.8	39.71
255.0	000.6800	0038.0	010.3	102.4	016.0000	0059.3	097.6	39.74
256.0	000.6800	0038.4	010.4	102.3	016.0000	0059.3	097.5	39.77
257.0	000.6800	0038.5	010.4	102.3	016.0000	0059.2	097.4	39.79
258.0	000.6800	0038.0	010.3	102.1	016.0000	0059.1	097.4	39.79
259.0	000.6800	0037.2	010.2	102.0	016.0000	0059.0	097.4	39.78
260.0	000.6800	0036.2	010.1	101.9	016.0000	0058.9	097.5	39.76
261.0	000.6800	0035.4	010.0	101.8	016.0000	0058.8	097.5	39.75
262.0	000.6800	0034.7	009.9	101.7	016.0000	0058.7	097.5	39.74
263.0	000.6800	0034.2	009.8	101.6	016.0000	0058.6	097.5	39.74
264.0	000.6800	0034.3	009.8	101.5	016.0000	0058.6	097.5	39.75
265.0	000.6800	0034.9	009.9	101.4	016.0000	0058.5	097.3	39.77
266.0	000.6800	0035.6	010.0	101.3	016.0000	0058.4	097.2	39.80
267.0	000.6800	0036.2	010.1	101.2	016.0000	0058.4	097.1	39.83
268.0	000.6800	0036.8	010.1	101.1	016.0000	0058.3	096.9	39.85
269.0	000.6800	0037.6	010.2	101.0	016.0000	0058.3	096.8	39.88
270.0	000.6800	0038.4	010.4	100.9	016.0000	0058.2	096.6	39.91
271.0	000.6800	0039.2	010.5	100.8	016.0000	0058.2	096.5	39.93
272.0	000.6800	0038.8	010.4	100.7	016.0000	0058.1	096.5	39.93
273.0	000.6800	0038.5	010.4	100.6	016.0000	0058.1	096.5	39.92
274.0	000.6800	0038.3	010.3	100.5	016.0000	0058.0	096.5	39.92
275.0	000.6800	0038.1	010.3	100.4	016.0000	0058.0	096.5	39.92
276.0	000.6800	0037.7	010.3	100.3	016.0000	0057.9	096.6	39.91
277.0	000.6800	0037.4	010.2	100.2	016.0000	0057.9	096.6	39.90
278.0	000.6800	0037.2	010.2	100.1	016.0000	0057.8	096.6	39.90
279.0	000.6800	0037.1	010.2	100.0	016.0000	0057.8	096.6	39.89
280.0	000.6800	0037.0	010.2	099.9	016.0000	0057.8	096.6	39.89
281.0	000.6800	0037.1	010.2	099.8	016.0000	0057.7	096.6	39.89
282.0	000.6800	0037.3	010.2	099.7	016.0000	0057.7	096.6	39.89
283.0	000.6800	0037.7	010.3	099.6	016.0000	0057.6	096.5	39.90
284.0	000.6800	0038.3	010.3	099.5	016.0000	0057.6	096.5	39.92
285.0	000.6800	0038.7	010.4	099.3	016.0000	0057.6	096.4	39.92
286.0	000.6800	0039.0	010.4	099.2	016.0000	0057.5	096.4	39.93
287.0	000.6800	0039.3	010.5	099.1	016.0000	0057.5	096.4	39.93
288.0	000.6800	0039.6	010.5	099.0	016.0000	0057.4	096.4	39.93
289.0	000.6800	0039.9	010.6	098.9	016.0000	0057.4	096.4	39.93
290.0	000.6800	0040.5	010.6	098.8	016.0000	0057.4	096.3	39.94
291.0	000.6800	0041.0	010.7	098.7	016.0000	0057.3	096.3	39.95
292.0	000.6800	0041.4	010.7	098.5	016.0000	0057.3	096.3	39.95
293.0	000.6800	0041.6	010.8	098.4	016.0000	0057.3	096.3	39.94
294.0	000.6800	0041.8	010.8	098.3	016.0000	0057.3	096.3	39.94
295.0	000.6800	0042.0	010.8	098.2	016.0000	0057.3	096.3	39.93
296.0	000.6800	0042.2	010.9	098.1	016.0000	0057.3	096.4	39.93
297.0	000.6800	0042.1	010.8	098.0	016.0000	0057.3	096.4	39.91
298.0	000.6800	0041.7	010.8	097.9	016.0000	0057.3	096.5	39.89
299.0	000.6800	0041.6	010.8	097.8	016.0000	0057.3	096.6	39.87
300.0	000.6800	0041.8	010.8	097.7	016.0000	0057.4	096.7	39.87
301.0	000.6800	0042.3	010.9	097.6	016.0000	0057.4	096.7	39.86
302.0	000.6800	0042.7	010.9	097.5	016.0000	0057.4	096.7	39.86
303.0	000.6800	0042.8	010.9	097.3	016.0000	0057.4	096.8	39.85
304.0	000.6800	0042.7	010.9	097.2	016.0000	0057.4	096.9	39.83

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
305.0	000.6800	0043.0	011.0	097.1	016.0000	0057.4	096.9	39.82
306.0	000.6800	0043.3	011.0	097.0	016.0000	0057.5	097.0	39.80
307.0	000.6800	0043.5	011.0	096.9	016.0000	0057.5	097.0	39.79
308.0	000.6800	0043.5	011.0	096.8	016.0000	0057.5	097.1	39.77
309.0	000.6800	0043.5	011.0	096.7	016.0000	0057.5	097.2	39.75
310.0	000.6800	0043.2	011.0	096.6	016.0000	0057.5	097.4	39.72
311.0	000.6800	0042.8	010.9	096.6	016.0000	0057.5	097.5	39.69
312.0	000.6800	0042.2	010.9	096.5	016.0000	0057.5	097.7	39.66
313.0	000.6800	0041.5	010.8	096.4	016.0000	0057.6	097.9	39.62
314.0	000.6800	0041.1	010.7	096.4	016.0000	0057.6	098.0	39.59
315.0	000.6800	0040.9	010.7	096.3	016.0000	0057.6	098.2	39.56
316.0	000.6800	0041.1	010.7	096.2	016.0000	0057.6	098.2	39.54
317.0	000.6800	0041.1	010.7	096.1	016.0000	0057.7	098.4	39.52
318.0	000.6800	0040.8	010.7	096.0	016.0000	0057.7	098.5	39.49
319.0	000.6800	0040.4	010.6	096.0	016.0000	0057.7	098.7	39.46
320.0	000.6800	0040.0	010.6	095.9	016.0000	0057.8	098.9	39.42
321.0	000.6800	0039.7	010.5	095.9	016.0000	0057.8	099.0	39.39
322.0	000.6800	0039.5	010.5	095.8	016.0000	0057.8	099.2	39.37
323.0	000.6800	0039.3	010.5	095.7	016.0000	0057.9	099.3	39.33
324.0	000.6800	0038.8	010.4	095.7	016.0000	0057.9	099.5	39.30
325.0	000.6800	0038.3	010.3	095.6	016.0000	0057.9	099.7	39.26
326.0	000.6800	0038.0	010.3	095.6	016.0000	0057.9	099.8	39.23
327.0	000.6800	0038.0	010.3	095.5	016.0000	0058.0	100.0	39.21
328.0	000.6800	0038.2	010.3	095.5	016.0000	0058.0	100.1	39.18
329.0	000.6800	0038.3	010.3	095.4	016.0000	0058.1	100.2	39.16
330.0	000.6800	0038.4	010.4	095.3	016.0000	0058.1	100.4	39.13
331.0	000.6800	0038.2	010.3	095.3	016.0000	0058.1	100.5	39.10
332.0	000.6800	0037.5	010.2	095.3	016.0000	0058.1	100.7	39.06
333.0	000.6800	0036.5	010.1	095.3	016.0000	0058.1	100.9	39.02
334.0	000.6800	0035.7	010.0	095.3	016.0000	0058.1	101.1	38.98
335.0	000.6800	0035.2	009.9	095.2	016.0000	0058.1	101.3	38.94
336.0	000.6800	0034.7	009.9	095.2	016.0000	0058.2	101.5	38.91
337.0	000.6800	0034.1	009.8	095.2	016.0000	0058.2	101.7	38.87
338.0	000.6800	0033.4	009.7	095.2	016.0000	0058.2	101.9	38.83
339.0	000.6800	0033.0	009.6	095.2	016.0000	0058.2	102.1	38.80
340.0	000.6800	0033.1	009.6	095.1	016.0000	0058.2	102.2	38.77

Contour-to-Contour, NEW! vs KVCH
South Dakota Board Of Directors For Educational Telecommunications

FMCommander Single Allocation Study - 08-24-2021 - GLOBE 30 Sec
NEW!'s Overlaps (In= 24.33 km, Out= 1.1 km)

NEW! CH 206 C3

Lat= 43 41 52.50, Lng= 98 02 39.30

16.0 kW 53.6 m HAAT, 460.3 m COR

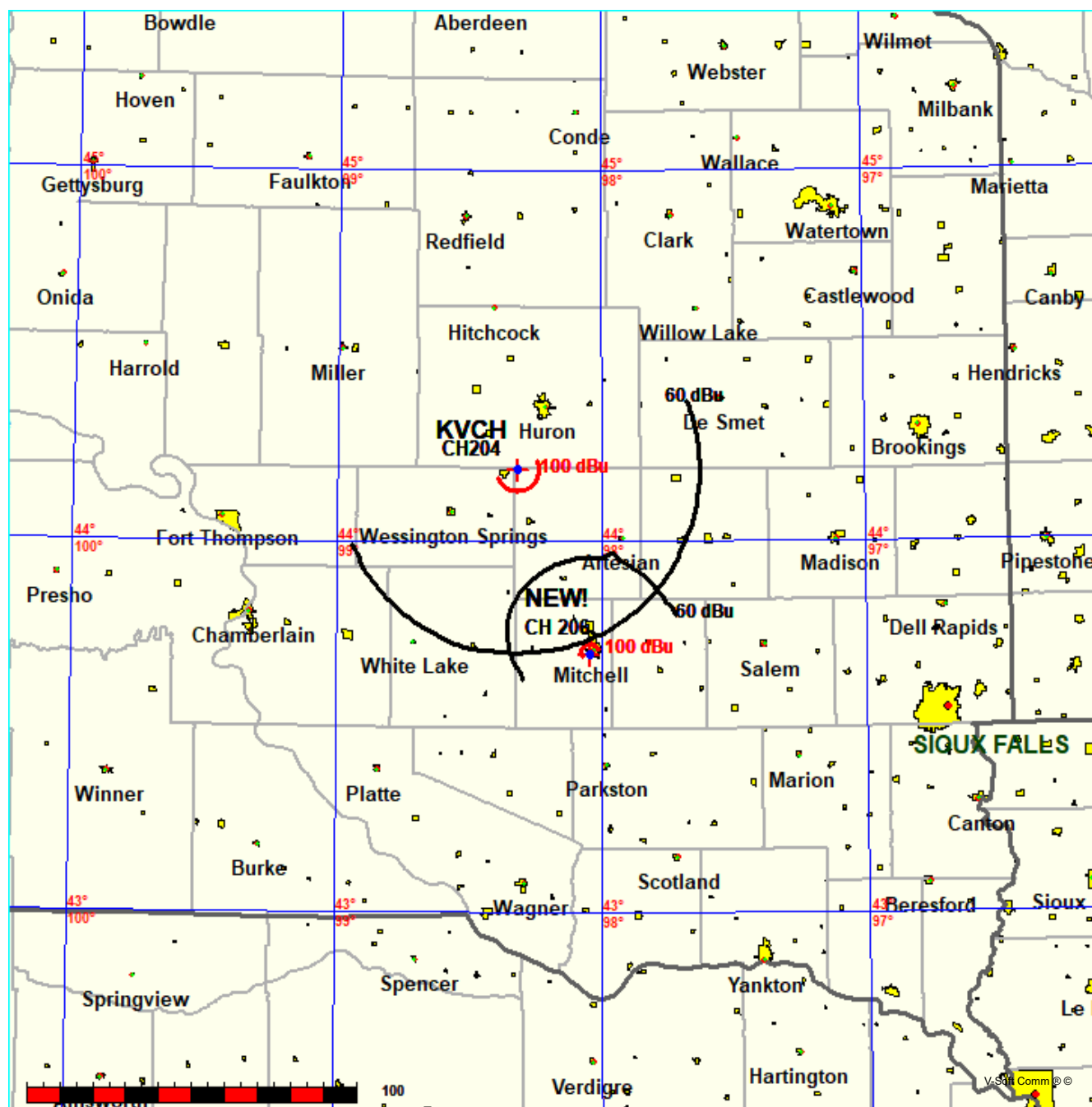
Prot.= 60 dBu, Intef.= 100 dBu

KVCH CH 204 C1 BLED20110224ACF

Lat= 44 11 39.00, Lng= 98 19 06.30

60.0 kW 161 m HAAT, 555 m COR

Prot.= 60 dBu, Intef.= 100 dBu



NEW!

KVCH BLED20110224ACF

Channel = 206C3
 Max ERP = 16 kW
 RCAMSL = 460.3 m
 N. Lat. 43 41 52.50
 W. Lng. 98 02 39.30
 Protected
 60 dBu

Channel = 204C1
 Max ERP = 60 kW
 RCAMSL = 555 m
 N. Lat. 44 11 39.00
 W. Lng. 98 19 06.30
 Interfering
 100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
278.0	016.0000	0047.2	025.1	183.1	060.0000	0159.1	051.8	64.27	
279.0	016.0000	0047.6	025.2	183.2	060.0000	0159.1	051.4	64.44	
280.0	016.0000	0048.1	025.3	183.3	060.0000	0159.1	050.9	64.61	
281.0	016.0000	0048.5	025.4	183.3	060.0000	0159.1	050.5	64.79	
282.0	016.0000	0048.9	025.6	183.4	060.0000	0159.0	050.0	64.97	
283.0	016.0000	0049.4	025.7	183.5	060.0000	0159.0	049.5	65.14	
284.0	016.0000	0050.0	025.8	183.5	060.0000	0159.0	049.1	65.32	
285.0	016.0000	0050.6	026.0	183.6	060.0000	0159.0	048.6	65.50	
286.0	016.0000	0051.1	026.1	183.6	060.0000	0159.0	048.1	65.68	
287.0	016.0000	0051.7	026.2	183.7	060.0000	0158.9	047.7	65.87	
288.0	016.0000	0052.3	026.4	183.7	060.0000	0158.9	047.2	66.06	
289.0	016.0000	0052.9	026.5	183.7	060.0000	0158.9	046.7	66.25	
290.0	016.0000	0053.4	026.6	183.7	060.0000	0158.9	046.2	66.44	
291.0	016.0000	0053.9	026.7	183.7	060.0000	0158.9	045.7	66.64	
292.0	016.0000	0054.3	026.8	183.6	060.0000	0159.0	045.3	66.84	
293.0	016.0000	0054.9	027.0	183.6	060.0000	0159.0	044.8	67.04	
294.0	016.0000	0055.5	027.1	183.6	060.0000	0159.0	044.3	67.25	
295.0	016.0000	0056.0	027.2	183.5	060.0000	0159.0	043.8	67.46	
296.0	016.0000	0056.5	027.3	183.4	060.0000	0159.1	043.3	67.67	
297.0	016.0000	0056.8	027.4	183.2	060.0000	0159.1	042.9	67.88	
298.0	016.0000	0057.0	027.4	183.0	060.0000	0159.1	042.4	68.08	
299.0	016.0000	0057.1	027.4	182.7	060.0000	0159.1	042.0	68.28	
300.0	016.0000	0057.3	027.5	182.5	060.0000	0159.1	041.5	68.48	
301.0	016.0000	0057.5	027.5	182.2	060.0000	0159.2	041.1	68.69	
302.0	016.0000	0057.9	027.6	182.0	060.0000	0159.2	040.6	68.90	
303.0	016.0000	0058.2	027.7	181.7	060.0000	0159.2	040.2	69.11	
304.0	016.0000	0058.4	027.7	181.4	060.0000	0159.2	039.7	69.32	
305.0	016.0000	0058.6	027.7	181.1	060.0000	0159.1	039.3	69.51	
306.0	016.0000	0058.7	027.8	180.7	060.0000	0159.1	038.9	69.71	
307.0	016.0000	0058.8	027.8	180.3	060.0000	0159.0	038.5	69.90	
308.0	016.0000	0059.0	027.8	179.9	060.0000	0158.9	038.1	70.09	
309.0	016.0000	0059.3	027.9	179.5	060.0000	0158.8	037.7	70.28	
310.0	016.0000	0059.5	027.9	179.1	060.0000	0158.7	037.3	70.48	
311.0	016.0000	0059.8	028.0	178.7	060.0000	0158.6	036.9	70.66	
312.0	016.0000	0059.9	028.0	178.2	060.0000	0158.4	036.5	70.84	
313.0	016.0000	0060.0	028.0	177.6	060.0000	0158.4	036.1	71.02	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
314.0	016.0000	0059.9	028.0	177.1	060.0000	0158.2	035.8	71.17
315.0	016.0000	0059.8	028.0	176.5	060.0000	0158.0	035.5	71.32
316.0	016.0000	0059.7	028.0	175.8	060.0000	0158.0	035.2	71.47
317.0	016.0000	0059.7	028.0	175.2	060.0000	0158.0	034.9	71.63
318.0	016.0000	0059.9	028.0	174.6	060.0000	0158.1	034.5	71.80
319.0	016.0000	0060.2	028.1	174.0	060.0000	0158.3	034.2	71.98
320.0	016.0000	0060.4	028.1	173.4	060.0000	0158.5	033.9	72.15
321.0	016.0000	0060.7	028.2	172.7	060.0000	0158.7	033.6	72.32
322.0	016.0000	0060.8	028.2	172.0	060.0000	0158.9	033.3	72.48
323.0	016.0000	0060.9	028.2	171.3	060.0000	0159.1	033.1	72.62
324.0	016.0000	0060.8	028.2	170.5	060.0000	0159.3	032.8	72.74
325.0	016.0000	0060.6	028.1	169.7	060.0000	0159.5	032.7	72.85
326.0	016.0000	0060.5	028.1	168.9	060.0000	0159.7	032.5	72.95
327.0	016.0000	0060.6	028.1	168.1	060.0000	0159.8	032.3	73.07
328.0	016.0000	0061.1	028.2	167.4	060.0000	0160.0	032.0	73.21
329.0	016.0000	0061.5	028.3	166.6	060.0000	0160.3	031.8	73.35
330.0	016.0000	0061.7	028.3	165.7	060.0000	0160.7	031.6	73.46
331.0	016.0000	0061.7	028.3	164.9	060.0000	0160.9	031.5	73.55
332.0	016.0000	0061.8	028.4	164.0	060.0000	0161.2	031.4	73.63
333.0	016.0000	0061.8	028.4	163.1	060.0000	0161.4	031.3	73.70
334.0	016.0000	0061.8	028.4	162.2	060.0000	0161.5	031.2	73.75
335.0	016.0000	0061.9	028.4	161.3	060.0000	0161.6	031.1	73.80
336.0	016.0000	0062.1	028.4	160.4	060.0000	0161.8	031.0	73.86
337.0	016.0000	0062.3	028.5	159.5	060.0000	0162.0	030.9	73.91
338.0	016.0000	0062.5	028.5	158.6	060.0000	0162.3	030.9	73.96
339.0	016.0000	0062.7	028.5	157.7	060.0000	0162.4	030.8	73.99
340.0	016.0000	0062.9	028.6	156.7	060.0000	0162.4	030.8	74.00
341.0	016.0000	0063.0	028.6	155.8	060.0000	0162.4	030.8	73.99
342.0	016.0000	0062.9	028.6	154.9	060.0000	0162.4	030.9	73.95
343.0	016.0000	0062.9	028.6	154.0	060.0000	0162.4	031.0	73.91
344.0	016.0000	0062.9	028.6	153.1	060.0000	0162.5	031.1	73.86
345.0	016.0000	0062.9	028.6	152.2	060.0000	0162.6	031.2	73.82
346.0	016.0000	0063.0	028.6	151.3	060.0000	0162.7	031.3	73.77
347.0	016.0000	0063.0	028.6	150.4	060.0000	0162.9	031.4	73.71
348.0	016.0000	0062.9	028.6	149.5	060.0000	0163.0	031.6	73.63
349.0	016.0000	0063.0	028.6	148.7	060.0000	0163.2	031.7	73.55
350.0	016.0000	0063.3	028.7	147.8	060.0000	0163.3	031.8	73.49
351.0	016.0000	0063.8	028.7	146.9	060.0000	0163.4	031.9	73.43
352.0	016.0000	0064.2	028.8	146.0	060.0000	0163.4	032.1	73.36
353.0	016.0000	0064.4	028.9	145.2	060.0000	0163.4	032.3	73.26
354.0	016.0000	0064.5	028.9	144.4	060.0000	0163.4	032.5	73.14
355.0	016.0000	0064.6	028.9	143.6	060.0000	0163.5	032.8	73.02
356.0	016.0000	0064.6	028.9	142.9	060.0000	0163.7	033.0	72.89
357.0	016.0000	0064.6	028.9	142.2	060.0000	0163.8	033.3	72.75
358.0	016.0000	0064.4	028.9	141.5	060.0000	0164.0	033.6	72.59
359.0	016.0000	0064.2	028.8	140.8	060.0000	0164.1	034.0	72.43
000.0	016.0000	0064.1	028.8	140.2	060.0000	0164.2	034.3	72.26
001.0	016.0000	0064.2	028.8	139.6	060.0000	0164.4	034.6	72.11
002.0	016.0000	0064.3	028.8	138.9	060.0000	0164.6	034.9	71.96
003.0	016.0000	0064.3	028.8	138.3	060.0000	0164.7	035.3	71.79
004.0	016.0000	0064.2	028.8	137.8	060.0000	0164.8	035.6	71.61

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
005.0	016.0000	0064.0	028.8	137.3	060.0000	0164.9	036.0	71.41
006.0	016.0000	0064.0	028.8	136.7	060.0000	0165.0	036.4	71.23
007.0	016.0000	0064.6	028.9	136.1	060.0000	0165.0	036.7	71.08
008.0	016.0000	0065.6	029.1	135.4	060.0000	0165.1	037.0	70.94
009.0	016.0000	0067.2	029.4	134.5	060.0000	0165.1	037.2	70.83
010.0	016.0000	0069.0	029.7	133.6	060.0000	0165.1	037.4	70.72
011.0	016.0000	0071.3	030.2	132.6	060.0000	0165.0	037.6	70.61
012.0	016.0000	0073.4	030.6	131.7	060.0000	0164.9	037.9	70.48
013.0	016.0000	0074.5	030.8	131.0	060.0000	0164.8	038.3	70.30
014.0	016.0000	0074.3	030.7	130.7	060.0000	0164.7	038.8	70.06
015.0	016.0000	0072.6	030.4	130.8	060.0000	0164.8	039.4	69.77
016.0	016.0000	0070.5	030.0	131.0	060.0000	0164.8	040.0	69.46
017.0	016.0000	0069.2	029.8	131.0	060.0000	0164.8	040.6	69.19
018.0	016.0000	0068.3	029.6	130.9	060.0000	0164.8	041.2	68.94
019.0	016.0000	0067.3	029.4	130.9	060.0000	0164.8	041.7	68.69
020.0	016.0000	0066.3	029.2	130.9	060.0000	0164.8	042.2	68.44
021.0	016.0000	0065.4	029.0	130.9	060.0000	0164.8	042.8	68.20
022.0	016.0000	0064.9	029.0	130.7	060.0000	0164.7	043.3	67.98
023.0	016.0000	0064.9	028.9	130.6	060.0000	0164.7	043.8	67.76
024.0	016.0000	0064.8	028.9	130.4	060.0000	0164.7	044.3	67.55
025.0	016.0000	0064.6	028.9	130.2	060.0000	0164.7	044.8	67.34
026.0	016.0000	0064.2	028.8	130.2	060.0000	0164.7	045.3	67.13
027.0	016.0000	0063.7	028.7	130.1	060.0000	0164.7	045.8	66.91
028.0	016.0000	0063.4	028.7	130.1	060.0000	0164.7	046.3	66.71
029.0	016.0000	0063.1	028.6	130.0	060.0000	0164.7	046.8	66.50
030.0	016.0000	0063.0	028.6	129.9	060.0000	0164.6	047.3	66.31
031.0	016.0000	0063.0	028.6	129.8	060.0000	0164.6	047.8	66.11
032.0	016.0000	0063.3	028.6	129.7	060.0000	0164.6	048.2	65.92
033.0	016.0000	0063.5	028.7	129.5	060.0000	0164.6	048.7	65.73
034.0	016.0000	0063.5	028.7	129.5	060.0000	0164.6	049.2	65.54
035.0	016.0000	0063.3	028.6	129.5	060.0000	0164.6	049.7	65.34
036.0	016.0000	0062.9	028.6	129.5	060.0000	0164.6	050.2	65.15
037.0	016.0000	0062.6	028.5	129.5	060.0000	0164.6	050.7	64.96

08-24-2021

Terrain Data: GLOBE 30 Sec

FMOver Analysis

KVCH BLED20110224ACF

NEW!

Channel = 204C1

Max ERP = 60 kW

RCAMSL = 555 m

N. Lat. 44 11 39.00

W. Lng. 98 19 06.30

Protected

60 dBu

Channel = 206C3

Max ERP = 16 kW

RCAMSL = 460.3 m

N. Lat. 43 41 52.50

W. Lng. 98 02 39.30

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
098.0	060.0000	0160.7	055.2	034.7	016.0000	0063.4	057.6	50.20	
099.0	060.0000	0160.6	055.2	035.1	016.0000	0063.3	056.7	50.47	
100.0	060.0000	0160.7	055.2	035.5	016.0000	0063.1	055.8	50.73	
101.0	060.0000	0161.0	055.2	036.0	016.0000	0062.9	055.0	50.98	
102.0	060.0000	0161.5	055.3	036.5	016.0000	0062.8	054.1	51.24	
103.0	060.0000	0162.0	055.3	036.9	016.0000	0062.6	053.3	51.51	
104.0	060.0000	0162.3	055.4	037.4	016.0000	0062.5	052.4	51.77	
105.0	060.0000	0162.3	055.4	037.8	016.0000	0062.3	051.5	52.04	
106.0	060.0000	0162.0	055.3	038.2	016.0000	0062.1	050.6	52.32	
107.0	060.0000	0161.7	055.3	038.5	016.0000	0062.1	049.7	52.60	
108.0	060.0000	0161.3	055.2	038.9	016.0000	0062.0	048.8	52.89	
109.0	060.0000	0160.8	055.2	039.2	016.0000	0061.9	047.9	53.17	
110.0	060.0000	0160.4	055.1	039.6	016.0000	0061.8	046.9	53.46	
111.0	060.0000	0159.8	055.1	039.9	016.0000	0061.7	046.0	53.76	
112.0	060.0000	0159.4	055.0	040.2	016.0000	0061.6	045.1	54.07	
113.0	060.0000	0159.3	055.0	040.6	016.0000	0061.6	044.2	54.38	
114.0	060.0000	0159.5	055.0	041.0	016.0000	0061.5	043.2	54.69	
115.0	060.0000	0159.8	055.1	041.4	016.0000	0061.3	042.3	55.00	
116.0	060.0000	0160.2	055.1	041.8	016.0000	0061.2	041.4	55.32	
117.0	060.0000	0160.5	055.2	042.2	016.0000	0061.0	040.5	55.64	
118.0	060.0000	0160.8	055.2	042.6	016.0000	0060.8	039.6	55.97	
119.0	060.0000	0161.1	055.2	043.0	016.0000	0060.5	038.7	56.30	
120.0	060.0000	0161.5	055.3	043.4	016.0000	0060.3	037.7	56.64	
121.0	060.0000	0162.1	055.3	043.8	016.0000	0060.1	036.8	56.98	
122.0	060.0000	0162.8	055.4	044.3	016.0000	0059.9	035.9	57.34	
123.0	060.0000	0163.3	055.5	044.7	016.0000	0059.8	034.9	57.72	
124.0	060.0000	0163.7	055.5	045.1	016.0000	0059.8	034.0	58.11	
125.0	060.0000	0164.0	055.6	045.4	016.0000	0059.8	033.1	58.51	
126.0	060.0000	0164.2	055.6	045.8	016.0000	0059.7	032.1	58.92	
127.0	060.0000	0164.3	055.6	046.1	016.0000	0059.7	031.1	59.36	
128.0	060.0000	0164.4	055.6	046.4	016.0000	0059.7	030.2	59.84	
129.0	060.0000	0164.5	055.6	046.7	016.0000	0059.6	029.2	60.36	
130.0	060.0000	0164.7	055.6	046.9	016.0000	0059.6	028.3	60.92	

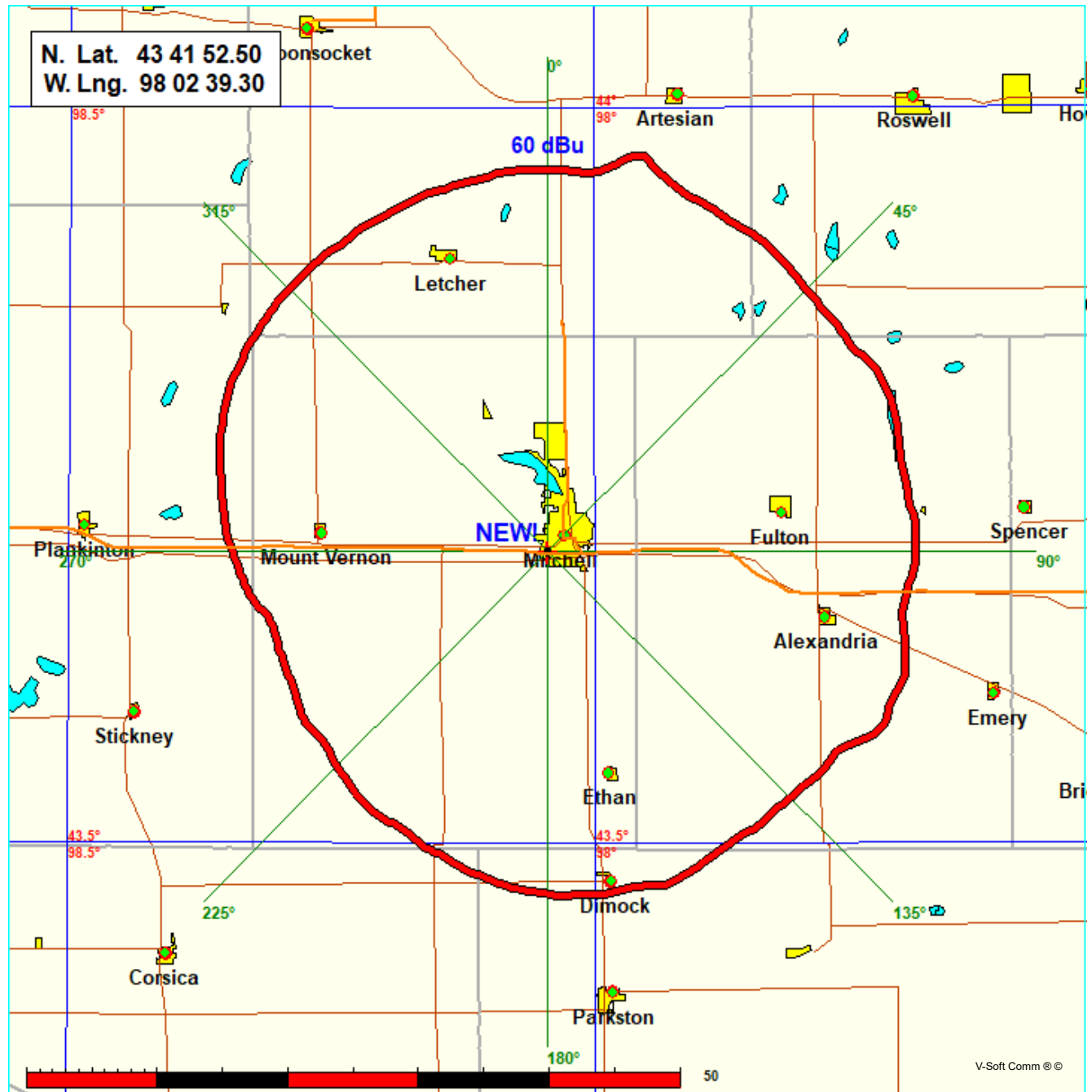
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
131.0	060.0000	0164.8	055.7	047.2	016.0000	0059.6	027.3	61.52
132.0	060.0000	0164.9	055.7	047.4	016.0000	0059.6	026.3	62.14
133.0	060.0000	0165.0	055.7	047.6	016.0000	0059.6	025.4	62.81
134.0	060.0000	0165.1	055.7	047.8	016.0000	0059.6	024.4	63.50
135.0	060.0000	0165.1	055.7	047.9	016.0000	0059.6	023.4	64.22
136.0	060.0000	0165.1	055.7	048.0	016.0000	0059.6	022.5	64.96
137.0	060.0000	0164.9	055.7	048.0	016.0000	0059.6	021.5	65.72
138.0	060.0000	0164.8	055.7	048.0	016.0000	0059.6	020.5	66.51
139.0	060.0000	0164.5	055.6	047.9	016.0000	0059.6	019.5	67.31
140.0	060.0000	0164.3	055.6	047.7	016.0000	0059.6	018.6	68.13
141.0	060.0000	0164.1	055.6	047.5	016.0000	0059.6	017.6	68.95
142.0	060.0000	0163.9	055.5	047.1	016.0000	0059.6	016.6	69.79
143.0	060.0000	0163.6	055.5	046.7	016.0000	0059.6	015.7	70.63
144.0	060.0000	0163.5	055.5	046.2	016.0000	0059.7	014.7	71.32
145.0	060.0000	0163.4	055.5	045.5	016.0000	0059.8	013.8	72.51
146.0	060.0000	0163.4	055.5	044.8	016.0000	0059.8	012.8	73.83
147.0	060.0000	0163.4	055.5	043.8	016.0000	0060.1	011.9	75.29
148.0	060.0000	0163.3	055.5	042.5	016.0000	0060.8	010.9	76.88
149.0	060.0000	0163.1	055.5	040.9	016.0000	0061.5	010.0	78.53
150.0	060.0000	0162.9	055.4	038.8	016.0000	0062.0	009.1	80.20
151.0	060.0000	0162.7	055.4	036.1	016.0000	0062.9	008.2	81.94
152.0	060.0000	0162.6	055.4	032.8	016.0000	0063.5	007.4	83.77
153.0	060.0000	0162.5	055.4	028.4	016.0000	0063.2	006.6	85.79
154.0	060.0000	0162.4	055.4	022.9	016.0000	0064.9	005.8	88.24
155.0	060.0000	0162.4	055.4	015.6	016.0000	0071.2	005.1	91.27
156.0	060.0000	0162.4	055.4	006.3	016.0000	0064.2	004.6	92.36
157.0	060.0000	0162.4	055.4	354.7	016.0000	0064.5	004.2	93.94
158.0	060.0000	0162.3	055.4	341.3	016.0000	0063.0	004.0	94.47
159.0	060.0000	0162.2	055.4	327.7	016.0000	0060.9	004.1	93.82
160.0	060.0000	0161.9	055.3	315.5	016.0000	0059.7	004.4	92.32
161.0	060.0000	0161.7	055.3	305.5	016.0000	0058.7	004.9	90.32
162.0	060.0000	0161.6	055.3	297.5	016.0000	0056.9	005.6	87.91
163.0	060.0000	0161.4	055.3	291.4	016.0000	0054.1	006.3	85.16
164.0	060.0000	0161.2	055.2	286.9	016.0000	0051.6	007.1	82.63
165.0	060.0000	0160.9	055.2	283.4	016.0000	0049.6	008.0	80.42
166.0	060.0000	0160.6	055.2	280.7	016.0000	0048.3	008.8	78.52
167.0	060.0000	0160.1	055.1	278.7	016.0000	0047.5	009.7	76.72
168.0	060.0000	0159.9	055.1	277.0	016.0000	0046.8	010.7	75.00
169.0	060.0000	0159.7	055.1	275.6	016.0000	0046.2	011.6	73.37
170.0	060.0000	0159.5	055.0	274.5	016.0000	0045.8	012.5	71.86
171.0	060.0000	0159.1	055.0	273.7	016.0000	0045.6	013.5	70.50
172.0	060.0000	0158.9	055.0	273.0	016.0000	0045.4	014.4	69.24
173.0	060.0000	0158.6	054.9	272.5	016.0000	0045.0	015.4	68.34
174.0	060.0000	0158.3	054.9	272.1	016.0000	0044.8	016.3	67.46
175.0	060.0000	0158.1	054.9	271.8	016.0000	0044.6	017.3	66.60
176.0	060.0000	0158.0	054.8	271.5	016.0000	0044.4	018.2	65.75
177.0	060.0000	0158.2	054.9	271.2	016.0000	0044.2	019.2	64.91
178.0	060.0000	0158.4	054.9	271.0	016.0000	0044.1	020.1	64.10
179.0	060.0000	0158.7	054.9	270.8	016.0000	0044.0	021.1	63.30
180.0	060.0000	0158.9	055.0	270.6	016.0000	0043.9	022.0	62.53
181.0	060.0000	0159.1	055.0	270.6	016.0000	0043.9	023.0	61.79

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
182.0	060.0000	0159.2	055.0	270.6	016.0000	0043.9	024.0	61.09
183.0	060.0000	0159.1	055.0	270.7	016.0000	0043.9	024.9	60.42
184.0	060.0000	0158.8	054.9	270.9	016.0000	0044.1	025.9	59.79
185.0	060.0000	0158.3	054.9	271.2	016.0000	0044.2	026.8	59.19
186.0	060.0000	0158.1	054.9	271.4	016.0000	0044.3	027.8	58.63
187.0	060.0000	0158.5	054.9	271.5	016.0000	0044.4	028.7	58.08
188.0	060.0000	0158.9	055.0	271.5	016.0000	0044.4	029.7	57.56
189.0	060.0000	0159.3	055.0	271.7	016.0000	0044.5	030.7	57.09
190.0	060.0000	0159.8	055.1	271.8	016.0000	0044.6	031.6	56.66
191.0	060.0000	0160.3	055.1	272.0	016.0000	0044.7	032.6	56.27
192.0	060.0000	0161.1	055.2	272.1	016.0000	0044.8	033.5	55.89
193.0	060.0000	0162.0	055.3	272.2	016.0000	0044.8	034.5	55.51
194.0	060.0000	0163.1	055.5	272.3	016.0000	0044.9	035.5	55.14
195.0	060.0000	0163.7	055.5	272.5	016.0000	0045.0	036.4	54.79
196.0	060.0000	0163.8	055.5	272.9	016.0000	0045.3	037.4	54.47
197.0	060.0000	0164.1	055.6	273.2	016.0000	0045.4	038.3	54.15
198.0	060.0000	0164.4	055.6	273.5	016.0000	0045.5	039.3	53.82
199.0	060.0000	0164.4	055.6	273.8	016.0000	0045.6	040.2	53.50
200.0	060.0000	0164.4	055.6	274.2	016.0000	0045.7	041.2	53.19
201.0	060.0000	0164.6	055.6	274.5	016.0000	0045.8	042.1	52.88
202.0	060.0000	0164.7	055.6	274.9	016.0000	0045.9	043.0	52.59
203.0	060.0000	0164.3	055.6	275.4	016.0000	0046.1	043.9	52.33
204.0	060.0000	0163.8	055.5	275.8	016.0000	0046.3	044.8	52.08
205.0	060.0000	0163.2	055.5	276.3	016.0000	0046.5	045.7	51.84
206.0	060.0000	0162.5	055.4	276.8	016.0000	0046.7	046.6	51.60
207.0	060.0000	0161.9	055.3	277.3	016.0000	0046.9	047.5	51.37
208.0	060.0000	0161.7	055.3	277.7	016.0000	0047.0	048.4	51.14
209.0	060.0000	0161.9	055.3	278.1	016.0000	0047.2	049.3	50.91
210.0	060.0000	0162.1	055.3	278.4	016.0000	0047.4	050.2	50.68
211.0	060.0000	0162.2	055.4	278.8	016.0000	0047.6	051.1	50.45
212.0	060.0000	0162.2	055.4	279.2	016.0000	0047.8	052.0	50.23
213.0	060.0000	0162.1	055.3	279.7	016.0000	0047.9	052.9	50.00
214.0	060.0000	0161.9	055.3	280.1	016.0000	0048.1	053.8	49.77
215.0	060.0000	0161.9	055.3	280.5	016.0000	0048.3	054.7	49.54
216.0	060.0000	0162.0	055.3	280.9	016.0000	0048.4	055.5	49.31
217.0	060.0000	0162.2	055.4	281.4	016.0000	0048.6	056.4	49.09

Proposed 60 dBu Service Contour
South Dakota Board of Directors For Educational Telecommunications

Coverage Study - GLOBE 30 Sec
08-24-2021

NEW! CH206 C3, 16.0 kW, 53.6m HAAT, 460.3m COR AMSL
Service Contour = 60 dBu.



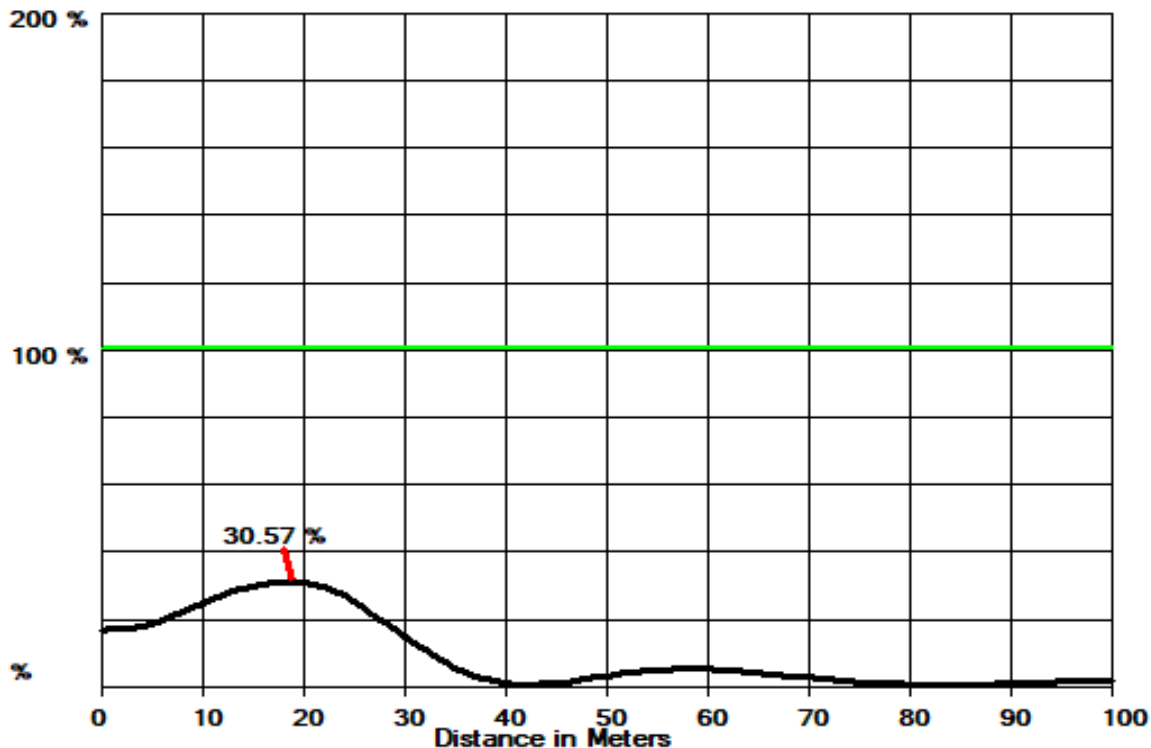
N. Lat. = 43 41 52.5 W. Lng. = 98 02 39.3
 HAAT and Distance to Contour,
 FCC, FM 2-10 Mi, 51 pts Method - GLOBE 30 SEC

South Dakota Board Of Directors For Educational Telecommunications

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	396.2	64.1	16.0000	12.04	1.000	28.79
045	400.5	59.8	16.0000	12.04	1.000	27.98
090	399.5	60.8	16.0000	12.04	1.000	28.18
135	408.6	51.7	16.0000	12.04	1.000	26.23
180	410.3	50.0	16.0000	12.04	1.000	25.82
225	421.4	38.9	16.0000	12.04	1.000	22.91
270	416.8	43.5	16.0000	12.04	1.000	24.15
315	400.5	59.8	16.0000	12.04	1.000	27.98

Ave El= 406.71 M HAAT= 53.59 M AMSL= 460.3

EPA Type 2: Opposed "V" dipole, 4 Bays, Spac= 1, H=16 kW, V=16 kW, 50.3 M AG



HORZ. DISTANCE FROM FM RADIATOR VS POWER DENSITY (Microwatt/Square cm)
 Dist(Meters) PD (H) PD (V) Total (uW/cm2) Percent Max. (200)

Dist(Meters)	PD (H)	PD (V)	Total (uW/cm2)	Percent Max. (200)
0	6.96	25.52	32.48	16.2
1	6.36	26.57	32.94	16.5
2	5.79	27.62	33.41	16.7
3	5.24	28.66	33.90	16.9
4	4.71	29.68	34.39	17.2
5	4.96	31.36	36.33	18.2
6	5.44	33.24	38.68	19.3
7	5.93	35.08	41.01	20.5
8	6.42	36.87	43.29	21.6
9	7.24	38.45	45.70	22.8
10	8.48	39.80	48.28	24.1
11	9.75	40.99	50.74	25.4
12	11.03	42.00	53.02	26.5
13	12.30	42.79	55.09	27.5
14	13.85	43.17	57.03	28.5
15	15.34	43.30	58.64	29.3
16	16.73	43.14	59.88	29.9
17	17.97	42.70	60.67	30.3
18	19.32	41.76	61.08	30.5
19	20.84	40.30	61.14	30.6
20	22.09	38.59	60.67	30.3
21	23.02	36.64	59.66	29.8
22	23.61	34.49	58.10	29.0
23	23.51	32.24	55.75	27.9
24	22.75	29.92	52.66	26.3
25	21.72	27.46	49.18	24.6

Dist (Meters)	PD (H)	PD (V)	Total (uW/cm2)	Percent Max.
26	20.45	24.91	45.36	22.7
27	18.97	22.32	41.29	20.6
28	17.36	19.71	37.07	18.5
29	15.81	17.06	32.87	16.4
30	14.13	14.53	28.65	14.3
31	12.37	12.15	24.52	12.3
32	10.59	9.96	20.54	10.3
33	8.83	7.98	16.80	8.4
34	7.13	6.21	13.35	6.7
35	5.50	4.68	10.18	5.1
36	4.07	3.38	7.45	3.7
37	2.85	2.32	5.17	2.6
38	1.86	1.48	3.34	1.7
39	1.09	0.85	1.94	1.0
40	0.54	0.41	0.95	0.5
41	0.20	0.15	0.35	0.2
42	0.05	0.04	0.08	0.0
43	0.07	0.05	0.12	0.1
44	0.25	0.17	0.42	0.2
45	0.56	0.37	0.93	0.5
46	0.98	0.64	1.62	0.8
47	1.48	0.94	2.43	1.2
48	2.05	1.27	3.32	1.7
49	2.64	1.60	4.24	2.1
50	3.24	1.92	5.15	2.6
51	3.82	2.21	6.02	3.0
52	4.36	2.47	6.83	3.4
53	4.86	2.69	7.54	3.8
54	5.29	2.86	8.15	4.1
55	5.64	3.00	8.64	4.3
56	5.92	3.08	9.00	4.5
57	6.11	3.12	9.24	4.6
58	6.20	3.13	9.33	4.7
59	6.18	3.11	9.29	4.6
60	6.08	3.05	9.13	4.6
61	5.91	2.96	8.87	4.4
62	5.68	2.84	8.52	4.3
63	5.40	2.69	8.09	4.0
64	5.08	2.52	7.61	3.8
65	4.73	2.34	7.07	3.5
66	4.35	2.15	6.50	3.3
67	3.96	1.95	5.91	3.0
68	3.56	1.75	5.31	2.7
69	3.16	1.55	4.71	2.4
70	2.77	1.36	4.12	2.1
71	2.39	1.17	3.56	1.8
72	2.03	0.99	3.02	1.5
73	1.69	0.83	2.52	1.3
74	1.38	0.68	2.05	1.0
75	1.10	0.54	1.63	0.8
76	0.85	0.42	1.26	0.6
77	0.63	0.31	0.94	0.5

Dist (Meters)	PD (H)	PD (V)	Total (uW/cm2)	Percent Max.
78	0.45	0.22	0.66	0.3
79	0.30	0.14	0.44	0.2
80	0.18	0.09	0.26	0.1
81	0.09	0.04	0.14	0.1
82	0.04	0.02	0.05	0.0
83	0.01	0.00	0.01	0.0
84	0.01	0.00	0.01	0.0
85	0.03	0.02	0.05	0.0
86	0.08	0.04	0.12	0.1
87	0.15	0.07	0.22	0.1
88	0.23	0.12	0.35	0.2
89	0.33	0.17	0.50	0.2
90	0.44	0.23	0.67	0.3
91	0.57	0.29	0.86	0.4
92	0.70	0.36	1.06	0.5
93	0.84	0.43	1.27	0.6
94	0.98	0.51	1.49	0.7
95	1.13	0.59	1.72	0.9
96	1.28	0.67	1.95	1.0
97	1.42	0.75	2.17	1.1
98	1.57	0.83	2.40	1.2
99	1.71	0.91	2.62	1.3
100	1.85	0.99	2.83	1.4

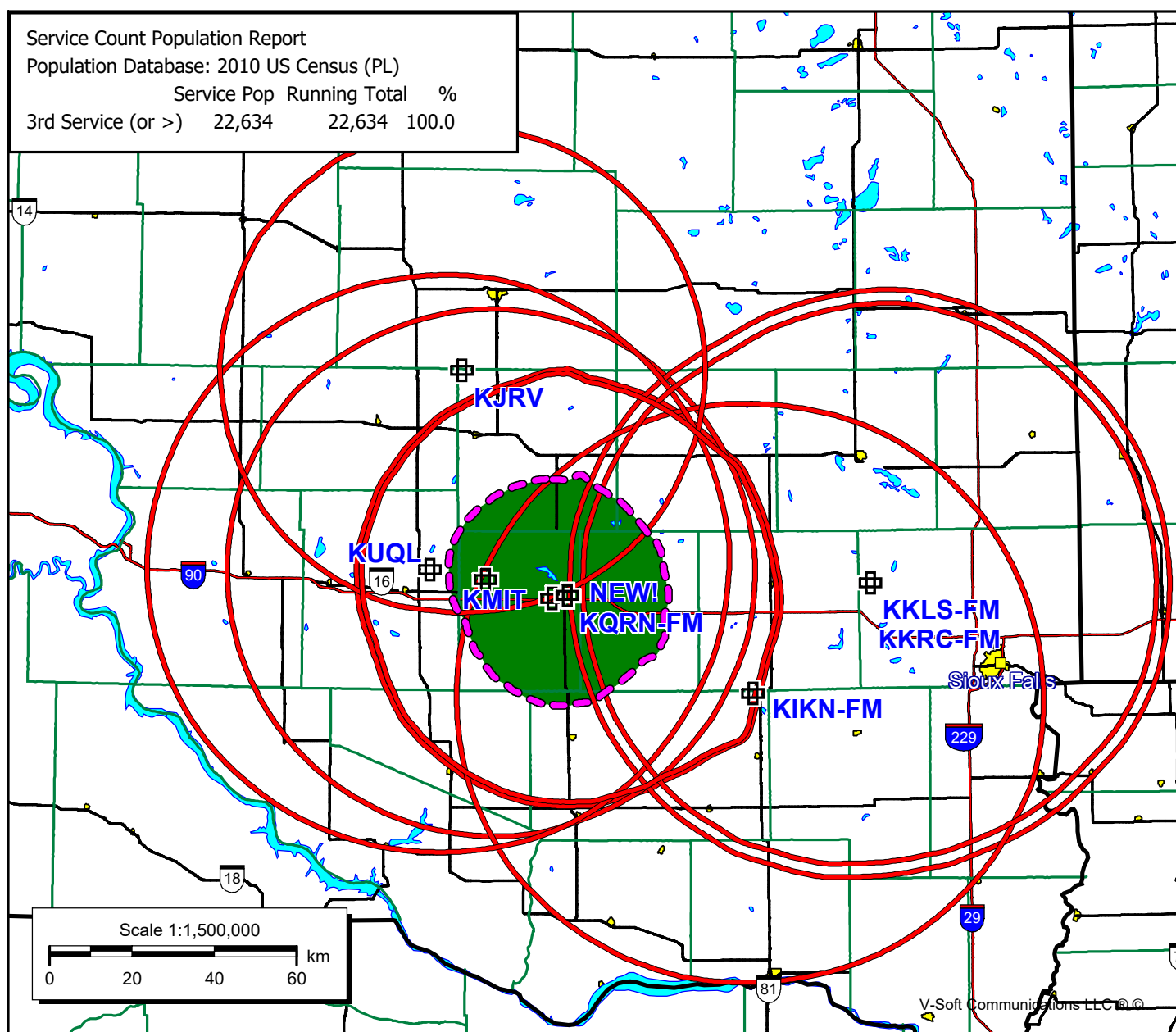
NEW!

Latitude: 43-41-52.50 N
 Longitude: 098-02-39.30 W
 ERP: 16.00 kW
 Channel: 206
 Frequency: 89.1 MHz
 AMSL Height: 460.3 m
 Elevation: 410 m
 Horiz. Pattern: Omni
 Vert. Pattern: No
 Prop Model: None

Service Count Population Report

Population Database: 2010 US Census (PL)

	Service Pop	Running Total	%
3rd Service (or >)	22,634	22,634	100.0

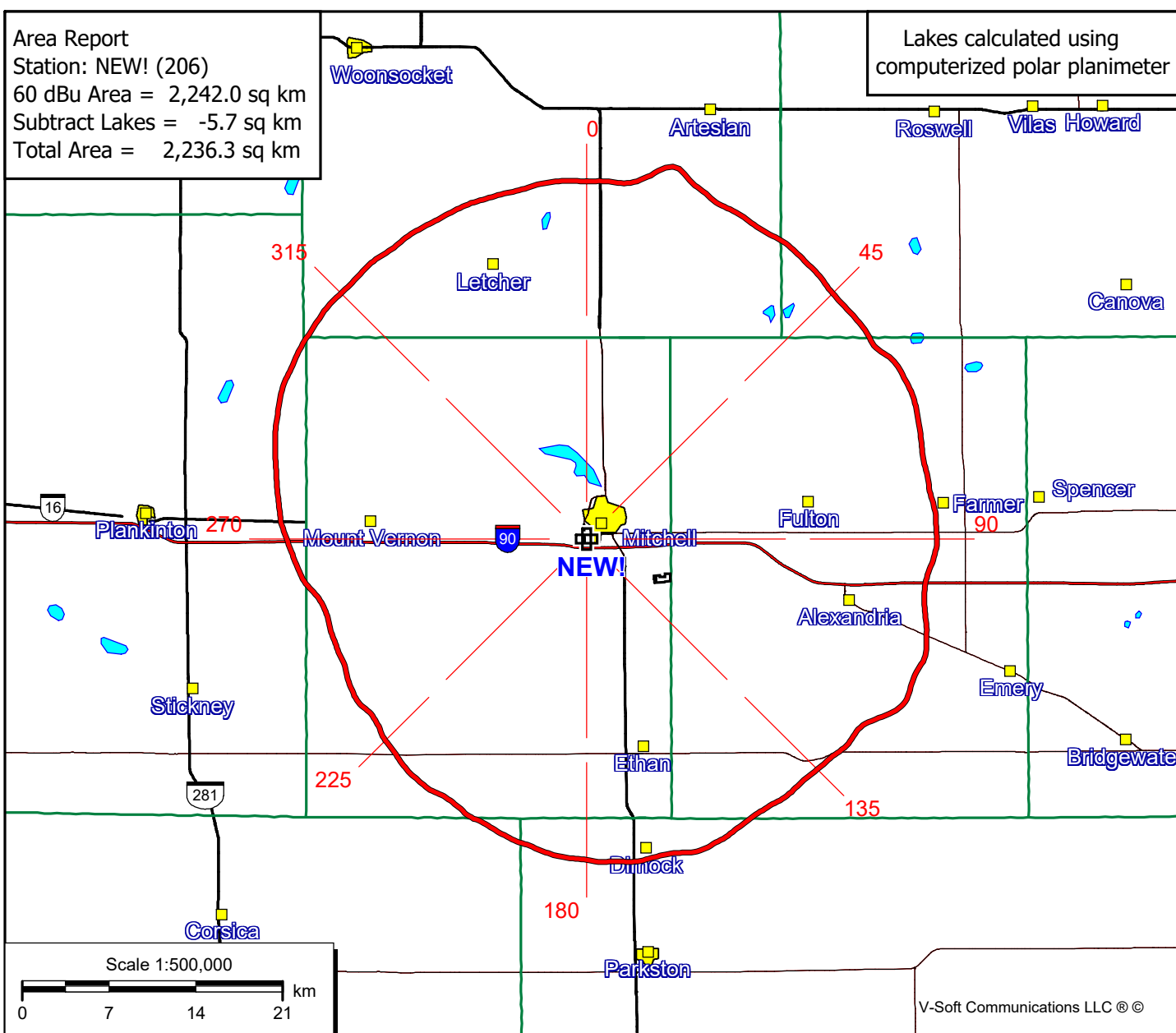


Doug Vernier
 1600 Picturesque Dr.
 Cedar Falls, Iowa 50613
 Telecommunication Consultants

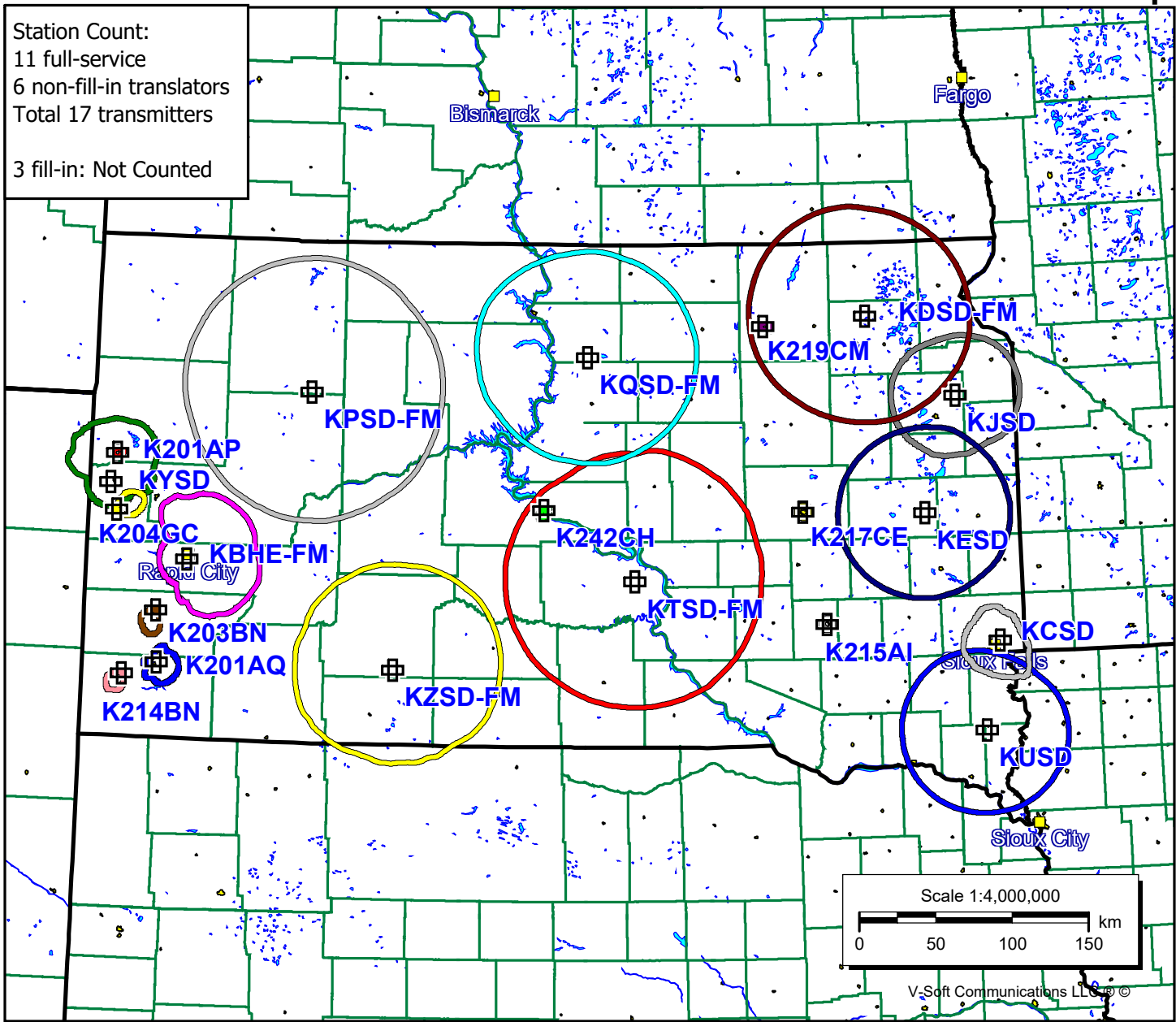
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Latitude: 43-41-52.50 N
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 Elevation: 410.0 m
 Horiz. Pattern: Omni
 Vert. Pattern: No
 Prop Model: None

V Doug Vernier
 1600 Picturesque Dr.
 Cedar Falls, Iowa 50613
 Telecommunication Consultants



Station Count Map



Declaration:

I, Douglas L. Vernier, declare that I have received training as an engineer from the University of Michigan School of Engineering. That, I have received degrees from the University in the field of Broadcast Telecommunications. That, I have been active in broadcast consulting for over 30 years;

That, I have held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1985, this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-16-16464;

That, I am certified as a Professional Broadcast Engineer (#50258) by the Society of Broadcast Engineers, Indianapolis, Indiana. (Re-certified 1/2006.)

That, my qualifications are a matter of record with the Federal Communications Commission;

That, I have been retained by the South Dakota Board of Directors For Educational Telecommunications to prepare the engineering showings appended hereto:

That, I have prepared these broadcast engineering showings, the technical information contained in same and the facts stated within are true of my knowledge;

That, under penalty of perjury, I declare that the foregoing is correct.

Douglas L. Vernier

A handwritten signature in blue ink, appearing to read "Doug Vernier", with a large, stylized loop at the end.

Executed on August 24 2021