

Engineering Statement
University of Wyoming
11/2/2021
Kaycee, WY

The applicant is applying for a new NCE FM Construction Permit.

Facility ID No: 762748

Geographic Coordinates: N. Lat. 43-53-47.0, W. Long. 106-41-02.9 (NAD 83)

Elevation at the site: 1648.8 m

Channel number: 210 (89.9 MHz)

Antenna height C.O.R. above ground: 10.0 m

Proposed Antenna COR: 1658.8 m AMSL, HAAT: 79.7 m

Tower height above ground: 38.0 m

Antenna Type: ERI MP-3E

ERP: 20.0 kW, circularly polarized

Page #2: Coverage map showing the 60 dBu contour. As shown on the map, the principal city of Kaycee, WY is fully covered by the principal city contour.

Page #3: Distance to contour and HAAT table for the eight cardinal radials.

Pages #4 through #24: Channel study using V-Soft Communications, FMCommander program. This study shows that the proposed facilities will not cause, nor receive, contour overlap interference as per section 73.509 of the Commission's rules.

Page # 25 through #28: RF hazard: The proposed facility would be the sole FM Broadcast facility at this site. Utilizing the FCC FM Model shows that the power density from the proposed 3-bay type #3 antenna with an effective radiated power of 20.0 kW and COR of 10 m A.G. would produce $2.221980084466 \mu\text{W}.\text{cm}^2$ at 3m from the tower base.

Page #29: Description of how the contour-to-contour channel study should be read and the abbreviations used therein.

Page #30: Site map showing the proposed Kaycee, WY site at the proposed coordinates.

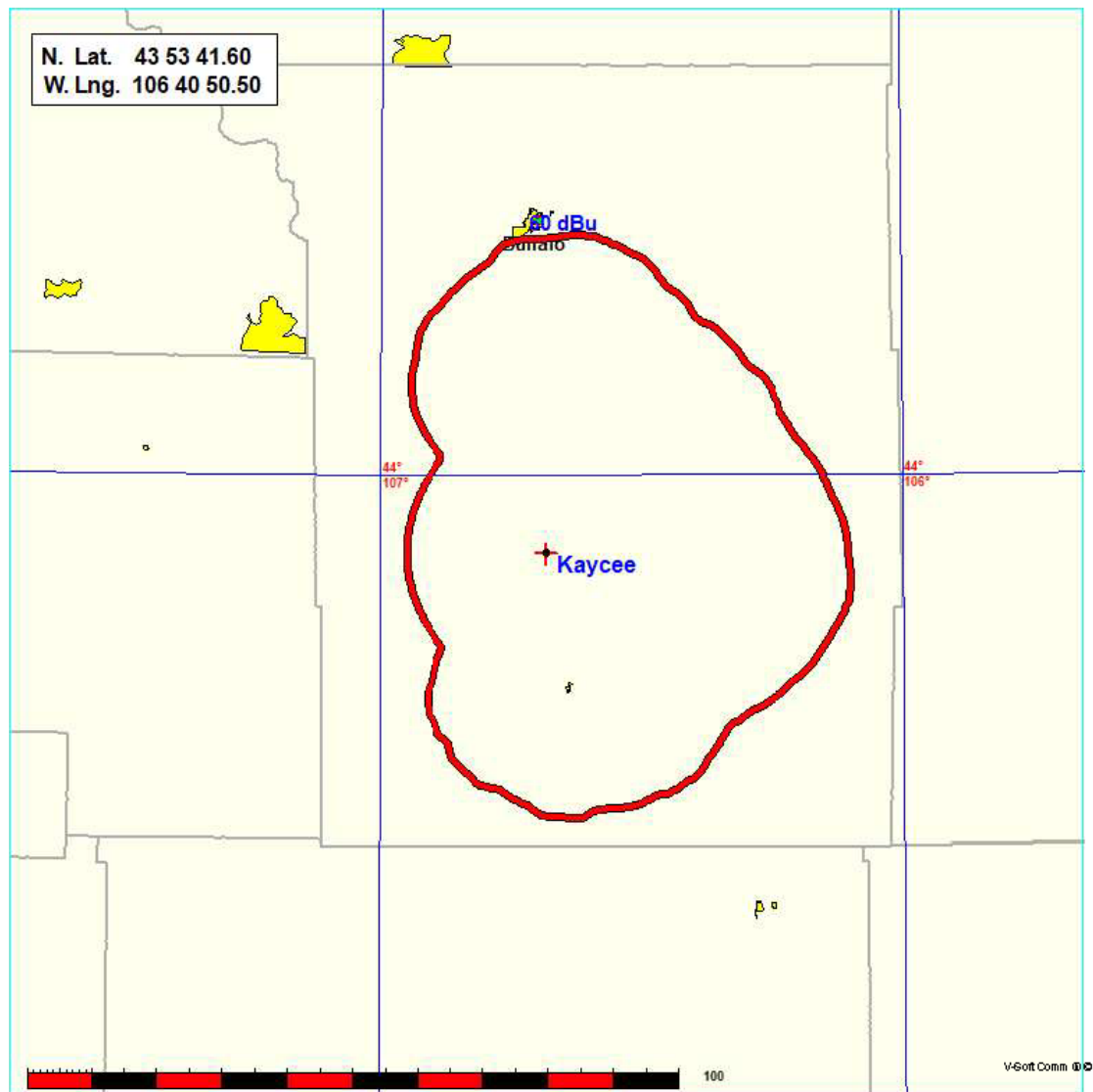
Page #31: Service Count Population report.

Page #32: Exhibit stating the qualifications of the preparer.

Kaycee, WY
University Of Wyoming

Coverage Study - FCC NGDC 30 Sec
11-08-2021

Kaycee CH210 C3, 20.0 kW, 79.7m HAAT, 1656.8m COR AMSL
Service Contour = 60 dBu.



Total Area within 60dBu Contour: 4094 km

Kaycee, WY
University of Wyoming

REFERENCE CH# 210C3 - 89.9 MHz, Pwr= 20 kw, HAAT= 79.7 M, COR= 1656.8 M DISPLAY DATES
43 53 41.60 N. Average Protected F(50-50)= 33.57 km DATA 10-25-21
106 40 50.50 W. Omni-directional SEARCH 11-05-21

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
213A Buffalo	KBUW	LIC _CN WY		356.1 176.0	50.40 BLED19991117ABW	44 20 49.90 106 43 27.20	0.430 -60	1.5 1530	8.2 University of Wyoming	1.4 37.2	
209A Gillette	KAXG	LIC _VN WY		69.7 250.6	102.99 BLED20081106AWL	44 12 33.90 105 28 05.90	0.400 137	21.5 1565	13.5 Hi-Line Radio Fellowship,	37.9 23.9	
212C Casper	KCSP-FM	LIC _CN WY		166.6 346.9	131.91 BLED20140923ABP	42 44 23.90 106 18 25.10	100.000 593	17.1 2554	102.6 Western Inspirational Broa	74.5 25.1	
209C3 Ranchester	RCHSTR	____ WY		339.8 159.4	130.22	44 59 33.00 107 15 12.00	4.600 119	58.1 1425	38.4 User	26.6 26.7	
207C3 Sheridan	KWCF	LIC _CN WY		346.0 165.8	81.14 BLED20090729AFG	44 36 09.80 106 55 44.20	0.850 292	1.9 1920	24.8 CSN International	32.7 44.5	
210C1 Rapid City	KJRC	LIC _CN SD		77.0 259.0	232.22 BLED20151113BOC	44 19 41.90 103 50 04.70	25.000 485	150.0 2204	64.4 Real Presence Radio	37.2 49.6	
213C1 Buffalo	KBUW	APP _CN WY		336.9 156.6	88.11 0000161911	44 37 23.30 107 07 02.30	20.000 383	4.2 2371	21.5 University of Wyoming	40.1 41.0	

Terrain database is FCC NGDC 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.
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.

KBUW LIC 213 A Dom 0.430 kW -60 m HAAT MCN
 Buffalo WY 1530.0 m COR AMSL -
 Lat = 44 20 49.90, Lng = 106 43 27.20 - NAD 83
 University Of Wyoming
 Fac ID# 88434 BLED19991117ABW
 Dist = 50.37 km, Azi = 356.1°, Rev Azi =176.0°

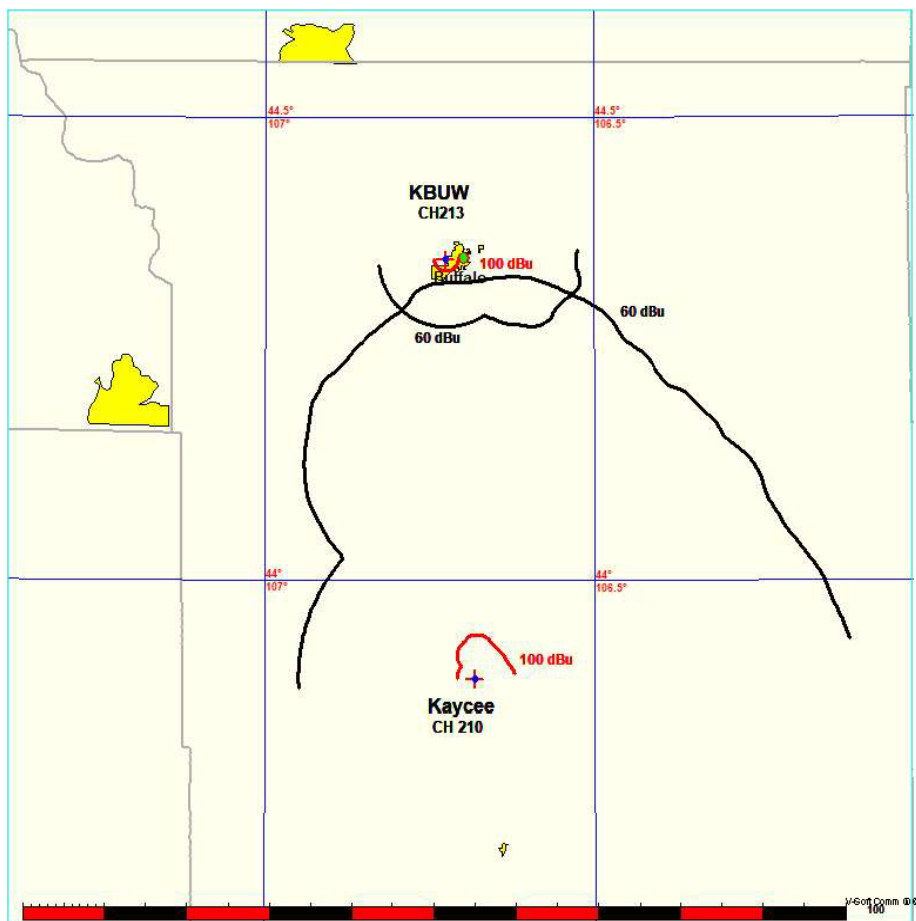
Reference's Greatest Overlaps: (In = 1.39, Out = 37.16)
 Toward Ref: HAAT = -40.1m, 0.43 kW
 Toward Ref: 60 dBu Protected = 8.2 km, Int = 1.45 km
 Direct line Ref. Protected Contour = 47.6 km, Int = 5.09 km
 Direct line Ref. HAAT = 181.4 meters, 20.0 kW

Kaycee, WY
 University Of Wyoming

FMCommander Single Allocation Study - 11-08-2021 - FCC NGDC 30 Sec
 Kaycee's Overlaps (In= 1.39 km, Out= 37.16 km)

Kaycee CH 210 C3
 Lat= 43 53 41.60, Lng= 106 40 50.50
 20.0 kW 79.7 m HAAT, 1656.8 m COR
 Prot.= 60 dBu, Intef.= 100 dBu

KBUW CH 213 A BLED19991117ABW
 Lat= 44 20 49.90, Lng= 106 43 27.20
 0.43 kW -60 m HAAT, 1530 m COR
 Prot.= 60 dBu, Intef.= 100 dBu



11-08-2021

Terrain Data: FCC NGDC 30 Sec

FMOVer Analysis

Kaycee

KBUW BLED19991117ABW

Channel = 210C3

Max ERP = 20 kW

RCAMSL = 1656.8 m

N. Lat. 43 53 41.60

W. Lng. 106 40 50.50

Protected

60 dBu

Channel = 213A

Max ERP = 0.43 kW

RCAMSL = 1530 m

N. Lat. 44 20 49.90

W. Lng. 106 43 27.20

Interfering

100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
296.0	020.0000	-0154.7	021.5	201.2	000.4300	-0122.8	043.8	33.74	
297.0	020.0000	-0143.7	021.5	201.2	000.4300	-0122.5	043.5	33.84	
298.0	020.0000	-0132.3	021.5	201.1	000.4300	-0122.2	043.1	33.94	
299.0	020.0000	-0123.1	021.5	201.0	000.4300	-0121.8	042.7	34.05	
300.0	020.0000	-0115.9	021.5	201.0	000.4300	-0121.4	042.3	34.16	
301.0	020.0000	-0108.3	021.5	200.9	000.4300	-0120.9	042.0	34.26	
302.0	020.0000	-0097.0	021.5	200.8	000.4300	-0120.4	041.6	34.37	
303.0	020.0000	-0081.9	021.5	200.7	000.4300	-0119.9	041.2	34.48	
304.0	020.0000	-0066.9	021.5	200.6	000.4300	-0119.3	040.9	34.60	
305.0	020.0000	-0054.9	021.5	200.4	000.4300	-0118.7	040.5	34.71	
306.0	020.0000	-0045.4	021.5	200.3	000.4300	-0118.1	040.1	34.82	
307.0	020.0000	-0036.3	021.5	200.1	000.4300	-0117.5	039.8	34.93	
308.0	020.0000	-0025.8	021.5	200.0	000.4300	-0116.9	039.4	35.05	
309.0	020.0000	-0012.2	021.5	199.8	000.4300	-0116.3	039.1	35.16	
310.0	020.0000	0003.6	021.5	199.6	000.4300	-0115.8	038.7	35.28	
311.0	020.0000	0018.9	021.5	199.4	000.4300	-0115.2	038.4	35.40	
312.0	020.0000	0031.4	021.9	199.8	000.4300	-0116.3	037.9	35.57	
313.0	020.0000	0040.0	024.4	203.1	000.4300	-0134.9	036.6	36.00	
314.0	020.0000	0046.0	026.1	205.4	000.4300	-0147.9	035.6	36.34	
315.0	020.0000	0051.7	027.6	207.5	000.4300	-0167.2	034.7	36.67	
316.0	020.0000	0057.7	029.0	209.5	000.4300	-0195.8	033.8	37.00	
317.0	020.0000	0062.8	030.1	211.0	000.4300	-0220.7	033.0	37.30	
318.0	020.0000	0066.6	030.8	212.1	000.4300	-0237.9	032.3	37.58	
319.0	020.0000	0070.1	031.5	213.0	000.4300	-0253.5	031.6	37.86	
320.0	020.0000	0073.7	032.3	214.1	000.4300	-0270.4	030.8	38.19	
321.0	020.0000	0077.3	033.1	215.2	000.4300	-0284.9	030.1	38.54	
322.0	020.0000	0080.5	033.7	216.1	000.4300	-0295.3	029.4	38.91	
323.0	020.0000	0083.6	034.4	217.0	000.4300	-0304.7	028.6	39.30	
324.0	020.0000	0086.8	035.0	217.8	000.4300	-0315.6	027.9	39.72	
325.0	020.0000	0090.0	035.6	218.7	000.4300	-0327.3	027.1	40.16	
326.0	020.0000	0093.4	036.2	219.5	000.4300	-0339.6	026.3	40.64	
327.0	020.0000	0097.6	036.9	220.7	000.4300	-0355.4	025.5	41.16	
328.0	020.0000	0102.8	037.8	222.1	000.4300	-0374.6	024.6	41.74	
329.0	020.0000	0107.4	038.5	223.3	000.4300	-0390.0	023.8	42.31	
330.0	020.0000	0110.5	038.9	224.0	000.4300	-0398.2	023.0	42.87	
331.0	020.0000	0113.4	039.3	224.5	000.4300	-0405.1	022.3	43.44	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
332.0	020.0000	0116.8	039.8	225.1	000.4300	-0412.4	021.5	44.04
333.0	020.0000	0119.9	040.2	225.6	000.4300	-0417.2	020.7	44.64
334.0	020.0000	0121.3	040.4	225.4	000.4300	-0415.8	020.0	45.21
335.0	020.0000	0121.8	040.4	225.0	000.4300	-0410.5	019.3	45.76
336.0	020.0000	0123.5	040.6	224.8	000.4300	-0408.5	018.5	46.36
337.0	020.0000	0126.5	041.0	225.0	000.4300	-0411.6	017.7	47.02
338.0	020.0000	0129.8	041.4	225.4	000.4300	-0415.8	016.9	47.71
339.0	020.0000	0132.8	041.8	225.7	000.4300	-0418.5	016.1	48.41
340.0	020.0000	0135.5	042.2	225.8	000.4300	-0419.2	015.3	49.10
341.0	020.0000	0138.0	042.5	225.7	000.4300	-0418.7	014.5	49.94
342.0	020.0000	0140.3	042.8	225.5	000.4300	-0416.3	013.7	50.94
343.0	020.0000	0142.6	043.1	225.2	000.4300	-0413.5	012.9	52.04
344.0	020.0000	0145.3	043.5	225.0	000.4300	-0410.6	012.0	53.26
345.0	020.0000	0148.0	043.8	224.6	000.4300	-0406.6	011.2	54.57
346.0	020.0000	0150.6	044.1	224.0	000.4300	-0398.8	010.4	55.95
347.0	020.0000	0152.9	044.4	223.0	000.4300	-0385.8	009.6	57.37
348.0	020.0000	0155.2	044.7	221.7	000.4300	-0368.6	008.8	58.84
349.0	020.0000	0158.5	045.1	220.7	000.4300	-0355.4	007.9	60.52
350.0	020.0000	0165.1	045.9	221.6	000.4300	-0367.8	006.8	63.10
351.0	020.0000	0172.4	046.7	222.7	000.4300	-0381.6	005.7	66.23
352.0	020.0000	0177.5	047.2	221.2	000.4300	-0362.8	004.7	69.29
353.0	020.0000	0179.9	047.4	215.8	000.4300	-0291.8	004.0	72.27
354.0	020.0000	0181.0	047.5	206.5	000.4300	-0156.7	003.4	75.08
355.0	020.0000	0181.4	047.6	193.2	000.4300	-0104.7	003.0	77.24
356.0	020.0000	0181.4	047.6	177.1	000.4300	-0044.8	002.8	78.13
357.0	020.0000	0180.9	047.5	161.0	000.4300	0017.8	003.0	77.16
358.0	020.0000	0180.3	047.5	147.7	000.4300	0025.6	003.4	75.09
359.0	020.0000	0180.4	047.5	137.0	000.4300	0050.0	003.9	77.44
000.0	020.0000	0182.1	047.6	127.6	000.4300	0082.2	004.4	79.49
001.0	020.0000	0183.9	047.8	120.5	000.4300	0095.7	005.0	78.67
002.0	020.0000	0185.5	047.9	115.1	000.4300	0097.3	005.7	76.62
003.0	020.0000	0187.5	048.1	110.9	000.4300	0102.1	006.4	74.92
004.0	020.0000	0189.2	048.2	107.8	000.4300	0107.8	007.2	73.34
005.0	020.0000	0190.6	048.3	105.6	000.4300	0113.1	008.0	71.87
006.0	020.0000	0191.3	048.4	104.3	000.4300	0116.7	008.8	70.47
007.0	020.0000	0192.1	048.4	103.2	000.4300	0119.2	009.6	69.06
008.0	020.0000	0192.2	048.5	102.7	000.4300	0120.0	010.5	67.62
009.0	020.0000	0191.5	048.4	102.7	000.4300	0120.0	011.3	66.21
010.0	020.0000	0189.7	048.2	103.2	000.4300	0119.3	012.2	64.86
011.0	020.0000	0187.9	048.1	103.6	000.4300	0118.3	013.0	63.59
012.0	020.0000	0185.8	047.9	104.2	000.4300	0116.7	013.9	62.39
013.0	020.0000	0183.6	047.7	104.8	000.4300	0115.2	014.7	61.29
014.0	020.0000	0181.5	047.6	105.4	000.4300	0113.7	015.5	60.53
015.0	020.0000	0179.7	047.4	105.9	000.4300	0112.4	016.4	59.73
016.0	020.0000	0177.9	047.2	106.4	000.4300	0111.3	017.2	58.96
017.0	020.0000	0176.0	047.1	107.0	000.4300	0110.0	018.0	58.18
018.0	020.0000	0174.6	046.9	107.4	000.4300	0108.9	018.8	57.42
019.0	020.0000	0172.8	046.7	108.0	000.4300	0107.4	019.6	56.64
020.0	020.0000	0169.9	046.4	108.9	000.4300	0105.2	020.5	55.81
021.0	020.0000	0165.9	046.0	110.2	000.4300	0103.3	021.3	55.01
022.0	020.0000	0161.5	045.5	111.5	000.4300	0101.4	022.0	54.24

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
023.0	020.0000	0156.9	044.9	113.0	000.4300	0099.8	022.8	53.49
024.0	020.0000	0153.2	044.5	114.1	000.4300	0098.3	023.6	52.76
025.0	020.0000	0151.5	044.3	114.6	000.4300	0097.7	024.4	52.15
026.0	020.0000	0151.2	044.2	114.8	000.4300	0097.5	025.2	51.59
027.0	020.0000	0150.6	044.1	115.0	000.4300	0097.4	025.9	51.04
028.0	020.0000	0149.0	043.9	115.5	000.4300	0097.1	026.7	50.51
029.0	020.0000	0146.6	043.6	116.2	000.4300	0096.9	027.4	50.00
030.0	020.0000	0144.0	043.3	117.0	000.4300	0097.1	028.2	49.56
031.0	020.0000	0141.1	042.9	117.8	000.4300	0097.3	028.9	49.14
032.0	020.0000	0138.3	042.5	118.6	000.4300	0097.3	029.6	48.72
033.0	020.0000	0136.5	042.3	119.2	000.4300	0097.0	030.4	48.29
034.0	020.0000	0136.6	042.3	119.2	000.4300	0097.0	031.1	47.89
035.0	020.0000	0138.3	042.5	119.0	000.4300	0097.1	031.9	47.52
036.0	020.0000	0140.1	042.8	118.7	000.4300	0097.3	032.6	47.17
037.0	020.0000	0140.3	042.8	118.8	000.4300	0097.2	033.4	46.81
038.0	020.0000	0139.7	042.7	119.2	000.4300	0097.0	034.1	46.45
039.0	020.0000	0138.6	042.6	119.6	000.4300	0096.7	034.8	46.09
040.0	020.0000	0137.8	042.5	120.0	000.4300	0096.3	035.5	45.73
041.0	020.0000	0137.5	042.4	120.2	000.4300	0096.0	036.2	45.38
042.0	020.0000	0137.5	042.4	120.5	000.4300	0095.7	037.0	45.03
043.0	020.0000	0137.3	042.4	120.7	000.4300	0095.4	037.7	44.68
044.0	020.0000	0136.6	042.3	121.1	000.4300	0094.8	038.4	44.33
045.0	020.0000	0135.3	042.1	121.6	000.4300	0094.1	039.1	43.97
046.0	020.0000	0133.9	042.0	122.1	000.4300	0093.4	039.7	43.62
047.0	020.0000	0133.7	041.9	122.4	000.4300	0093.0	040.4	43.29
048.0	020.0000	0134.7	042.1	122.5	000.4300	0092.8	041.2	42.97
049.0	020.0000	0136.2	042.3	122.5	000.4300	0092.8	041.9	42.66
050.0	020.0000	0137.5	042.4	122.6	000.4300	0092.7	042.7	42.34
051.0	020.0000	0138.3	042.5	122.7	000.4300	0092.4	043.4	42.02
052.0	020.0000	0138.5	042.6	123.0	000.4300	0091.9	044.2	41.71
053.0	020.0000	0138.3	042.5	123.4	000.4300	0091.3	044.8	41.39
054.0	020.0000	0137.6	042.5	123.8	000.4300	0090.7	045.5	41.07
055.0	020.0000	0136.7	042.3	124.3	000.4300	0089.8	046.2	40.75

11-08-2021

Terrain Data: FCC NGDC 30 Sec

FMOver Analysis

KBUW BLED19991117ABW

Kaycee

Channel = 213A
 Max ERP = 0.43 kW
 RCAMSL = 1530 m
 N. Lat. 44 20 49.90
 W. Lng. 106 43 27.20
 Protected
 60 dBu

Channel = 210C3
 Max ERP = 20 kW
 RCAMSL = 1656.8 m
 N. Lat. 43 53 41.60
 W. Lng. 106 40 50.50
 Interfering
 100 dBu

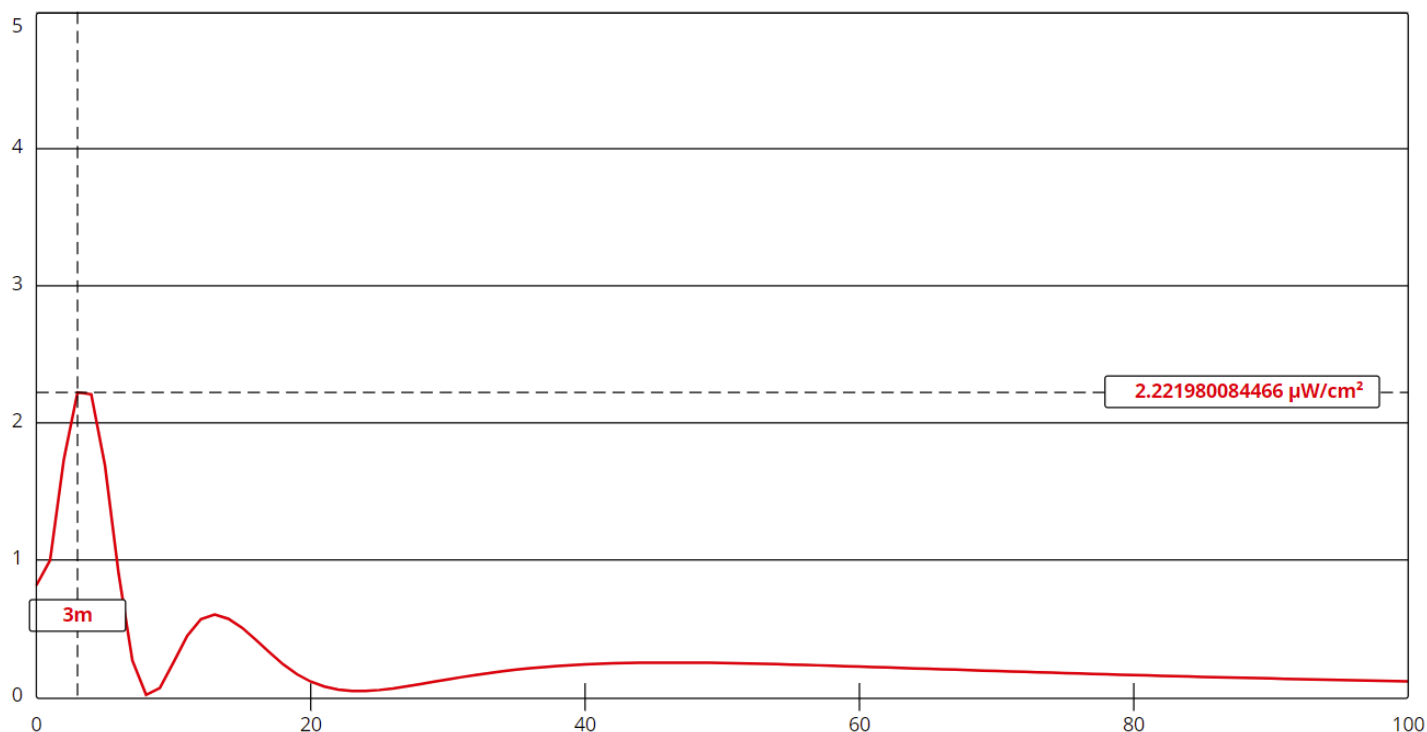
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
116.0	000.4300	0096.9	014.5	012.3	020.0000	0185.2	045.0	63.46	
117.0	000.4300	0097.1	014.5	012.2	020.0000	0185.3	044.7	63.57	
118.0	000.4300	0097.4	014.5	012.2	020.0000	0185.4	044.5	63.69	
119.0	000.4300	0097.1	014.5	012.0	020.0000	0185.7	044.2	63.80	
120.0	000.4300	0096.3	014.4	011.9	020.0000	0186.1	044.0	63.91	
121.0	000.4300	0095.0	014.3	011.6	020.0000	0186.6	043.8	64.03	
122.0	000.4300	0093.5	014.2	011.4	020.0000	0187.2	043.6	64.14	
123.0	000.4300	0092.0	014.1	011.1	020.0000	0187.7	043.4	64.25	
124.0	000.4300	0090.3	014.0	010.8	020.0000	0188.2	043.2	64.35	
125.0	000.4300	0088.5	013.8	010.5	020.0000	0188.8	043.1	64.44	
126.0	000.4300	0086.4	013.7	010.2	020.0000	0189.4	042.9	64.54	
127.0	000.4300	0083.9	013.5	009.8	020.0000	0190.1	042.8	64.63	
128.0	000.4300	0080.8	013.2	009.4	020.0000	0190.9	042.7	64.71	
129.0	000.4300	0076.7	012.9	008.9	020.0000	0191.6	042.7	64.76	
130.0	000.4300	0071.8	012.5	008.3	020.0000	0192.1	042.7	64.78	
131.0	000.4300	0066.6	012.1	007.6	020.0000	0192.2	042.7	64.77	
132.0	000.4300	0062.4	011.8	007.1	020.0000	0192.1	042.7	64.76	
133.0	000.4300	0059.4	011.5	006.7	020.0000	0191.8	042.7	64.75	
134.0	000.4300	0057.0	011.3	006.3	020.0000	0191.5	042.7	64.76	
135.0	000.4300	0054.8	011.1	005.9	020.0000	0191.3	042.6	64.75	
136.0	000.4300	0052.5	010.9	005.5	020.0000	0191.0	042.7	64.74	
137.0	000.4300	0049.9	010.6	005.1	020.0000	0190.6	042.7	64.70	
138.0	000.4300	0047.2	010.3	004.6	020.0000	0190.1	042.8	64.64	
139.0	000.4300	0044.5	010.0	004.1	020.0000	0189.4	042.9	64.57	
140.0	000.4300	0041.9	009.7	003.7	020.0000	0188.6	043.0	64.48	
141.0	000.4300	0039.5	009.4	003.2	020.0000	0187.8	043.1	64.40	
142.0	000.4300	0037.3	009.1	002.8	020.0000	0187.2	043.2	64.33	
143.0	000.4300	0035.4	008.8	002.5	020.0000	0186.5	043.3	64.25	
144.0	000.4300	0033.2	008.6	002.1	020.0000	0185.7	043.4	64.17	
145.0	000.4300	0030.8	008.3	001.7	020.0000	0185.0	043.5	64.07	
146.0	000.4300	0028.4	008.2	001.4	020.0000	0184.7	043.5	64.05	
147.0	000.4300	0026.4	008.2	001.3	020.0000	0184.4	043.5	64.07	
148.0	000.4300	0025.4	008.2	001.1	020.0000	0184.1	043.4	64.10	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
149.0	000.4300	0025.4	008.2	001.0	020.0000	0183.8	043.3	64.12
150.0	000.4300	0025.5	008.2	000.8	020.0000	0183.6	043.2	64.14
151.0	000.4300	0025.6	008.2	000.7	020.0000	0183.3	043.2	64.15
152.0	000.4300	0025.6	008.2	000.5	020.0000	0183.0	043.1	64.17
153.0	000.4300	0025.7	008.2	000.3	020.0000	0182.7	043.0	64.19
154.0	000.4300	0025.5	008.2	000.2	020.0000	0182.4	043.0	64.20
155.0	000.4300	0024.6	008.2	360.0	020.0000	0182.1	042.9	64.22
156.0	000.4300	0022.8	008.2	359.8	020.0000	0181.8	042.8	64.23
157.0	000.4300	0021.1	008.2	359.6	020.0000	0181.5	042.8	64.24
158.0	000.4300	0019.8	008.2	359.5	020.0000	0181.2	042.7	64.25
159.0	000.4300	0018.9	008.2	359.3	020.0000	0180.9	042.7	64.26
160.0	000.4300	0018.3	008.2	359.1	020.0000	0180.6	042.6	64.26
161.0	000.4300	0017.8	008.2	358.9	020.0000	0180.3	042.6	64.27
162.0	000.4300	0017.4	008.2	358.7	020.0000	0180.2	042.5	64.29
163.0	000.4300	0016.3	008.2	358.5	020.0000	0180.2	042.5	64.30
164.0	000.4300	0014.1	008.2	358.4	020.0000	0180.2	042.5	64.32
165.0	000.4300	0010.1	008.2	358.2	020.0000	0180.2	042.4	64.34
166.0	000.4300	0005.0	008.2	358.0	020.0000	0180.3	042.4	64.35
167.0	000.4300	-0000.2	008.2	357.8	020.0000	0180.4	042.4	64.37
168.0	000.4300	-0004.2	008.2	357.6	020.0000	0180.6	042.3	64.39
169.0	000.4300	-0007.6	008.2	357.4	020.0000	0180.7	042.3	64.41
170.0	000.4300	-0010.9	008.2	357.2	020.0000	0180.8	042.3	64.42
171.0	000.4300	-0015.4	008.2	357.0	020.0000	0180.9	042.3	64.43
172.0	000.4300	-0021.2	008.2	356.8	020.0000	0181.0	042.3	64.44
173.0	000.4300	-0026.4	008.2	356.6	020.0000	0181.1	042.3	64.45
174.0	000.4300	-0030.5	008.2	356.5	020.0000	0181.2	042.3	64.46
175.0	000.4300	-0035.3	008.2	356.3	020.0000	0181.3	042.2	64.47
176.0	000.4300	-0039.9	008.2	356.1	020.0000	0181.4	042.2	64.47
177.0	000.4300	-0044.4	008.2	355.9	020.0000	0181.5	042.2	64.47
178.0	000.4300	-0048.5	008.2	355.7	020.0000	0181.5	042.3	64.47
179.0	000.4300	-0052.8	008.2	355.5	020.0000	0181.5	042.3	64.47
180.0	000.4300	-0057.1	008.2	355.3	020.0000	0181.5	042.3	64.46
181.0	000.4300	-0061.4	008.2	355.1	020.0000	0181.5	042.3	64.46
182.0	000.4300	-0065.7	008.2	354.9	020.0000	0181.4	042.3	64.45
183.0	000.4300	-0069.9	008.2	354.7	020.0000	0181.4	042.3	64.44
184.0	000.4300	-0074.1	008.2	354.5	020.0000	0181.3	042.3	64.43
185.0	000.4300	-0077.8	008.2	354.3	020.0000	0181.3	042.4	64.41
186.0	000.4300	-0081.7	008.2	354.2	020.0000	0181.1	042.4	64.39
187.0	000.4300	-0085.9	008.2	354.0	020.0000	0181.0	042.4	64.37
188.0	000.4300	-0089.9	008.2	353.8	020.0000	0180.8	042.5	64.35
189.0	000.4300	-0093.9	008.2	353.6	020.0000	0180.6	042.5	64.32
190.0	000.4300	-0097.8	008.2	353.4	020.0000	0180.4	042.5	64.30
191.0	000.4300	-0101.2	008.2	353.2	020.0000	0180.2	042.6	64.27
192.0	000.4300	-0102.4	008.2	353.0	020.0000	0180.0	042.6	64.24
193.0	000.4300	-0104.0	008.2	352.9	020.0000	0179.7	042.7	64.20
194.0	000.4300	-0107.1	008.2	352.7	020.0000	0179.3	042.7	64.16
195.0	000.4300	-0110.4	008.2	352.5	020.0000	0178.9	042.8	64.12
196.0	000.4300	-0111.6	008.2	352.3	020.0000	0178.5	042.8	64.08
197.0	000.4300	-0112.1	008.2	352.2	020.0000	0178.0	042.9	64.03
198.0	000.4300	-0113.1	008.2	352.0	020.0000	0177.4	042.9	63.97
199.0	000.4300	-0114.4	008.2	351.8	020.0000	0176.8	043.0	63.91

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
200.0	000.4300	-0117.0	008.2	351.6	020.0000	0176.1	043.1	63.85
201.0	000.4300	-0121.6	008.2	351.5	020.0000	0175.3	043.1	63.78
202.0	000.4300	-0127.9	008.2	351.3	020.0000	0174.4	043.2	63.71
203.0	000.4300	-0134.1	008.2	351.2	020.0000	0173.4	043.3	63.63
204.0	000.4300	-0139.7	008.2	351.0	020.0000	0172.4	043.4	63.54
205.0	000.4300	-0145.2	008.2	350.8	020.0000	0171.2	043.4	63.45
206.0	000.4300	-0152.5	008.2	350.7	020.0000	0170.1	043.5	63.36
207.0	000.4300	-0162.1	008.2	350.5	020.0000	0169.0	043.6	63.27
208.0	000.4300	-0173.7	008.2	350.4	020.0000	0167.9	043.7	63.18
209.0	000.4300	-0187.7	008.2	350.2	020.0000	0166.9	043.8	63.09
210.0	000.4300	-0204.0	008.2	350.1	020.0000	0165.8	043.9	63.00
211.0	000.4300	-0220.6	008.2	350.0	020.0000	0164.8	044.0	62.91
212.0	000.4300	-0236.9	008.2	349.8	020.0000	0163.8	044.1	62.82
213.0	000.4300	-0253.1	008.2	349.7	020.0000	0162.9	044.2	62.73
214.0	000.4300	-0268.7	008.2	349.6	020.0000	0161.9	044.3	62.64
215.0	000.4300	-0282.7	008.2	349.4	020.0000	0161.0	044.4	62.55
216.0	000.4300	-0294.3	008.2	349.3	020.0000	0160.2	044.5	62.47
217.0	000.4300	-0305.2	008.2	349.2	020.0000	0159.4	044.6	62.39
218.0	000.4300	-0318.1	008.2	349.0	020.0000	0158.8	044.7	62.31
219.0	000.4300	-0332.1	008.2	348.9	020.0000	0158.2	044.8	62.23
220.0	000.4300	-0345.9	008.2	348.8	020.0000	0157.7	044.9	62.16
221.0	000.4300	-0359.7	008.2	348.7	020.0000	0157.2	045.0	62.09
222.0	000.4300	-0372.8	008.2	348.6	020.0000	0156.8	045.1	62.02
223.0	000.4300	-0385.5	008.2	348.5	020.0000	0156.5	045.2	61.95
224.0	000.4300	-0398.8	008.2	348.4	020.0000	0156.2	045.4	61.89
225.0	000.4300	-0411.1	008.2	348.3	020.0000	0155.9	045.5	61.83
226.0	000.4300	-0421.1	008.2	348.2	020.0000	0155.6	045.6	61.76
227.0	000.4300	-0429.3	008.2	348.1	020.0000	0155.4	045.7	61.70
228.0	000.4300	-0436.7	008.2	348.0	020.0000	0155.2	045.8	61.64
229.0	000.4300	-0443.6	008.2	347.9	020.0000	0155.0	046.0	61.58
230.0	000.4300	-0450.1	008.2	347.8	020.0000	0154.8	046.1	61.52
231.0	000.4300	-0455.8	008.2	347.7	020.0000	0154.6	046.2	61.45
232.0	000.4300	-0461.6	008.2	347.7	020.0000	0154.4	046.3	61.39
233.0	000.4300	-0467.7	008.2	347.6	020.0000	0154.2	046.5	61.33
234.0	000.4300	-0473.0	008.2	347.5	020.0000	0154.1	046.6	61.27
235.0	000.4300	-0478.5	008.2	347.5	020.0000	0153.9	046.7	61.21

RF Hazard Study

The proposed facility would be the sole FM Broadcast facility at this site. Utilizing the FCC FM Model shows that the power density from the proposed 3-bay type #3 antenna with an effective radiated power of 20.0 kW and COR of 10 m A.G. would produce $2.221980084466 \mu\text{W}.\text{cm}^2$ at 3m from the tower base. Note that there is no point along the graph where the power density exceeds the maximum allowed under the rules ($1,000 \mu\text{W}.\text{cm}^2$). The applicant will reduce power or terminate transmissions when necessary to protect the public or workers on or near the tower.



Distance (m)	Power Density ($\mu\text{W}/\text{cm}^2$)
0	0.8
1	1.0
2	1.7
3	2.2
4	2.2
5	1.7
6	0.9
7	0.3
8	0.0
9	0.1
10	0.3
11	0.4
12	0.6
13	0.6
14	0.6
15	0.5
16	0.4
17	0.3
18	0.2
19	0.2
20	0.1
21	0.1
22	0.1
23	0.0
24	0.0
25	0.1
26	0.1
27	0.1
28	0.1
29	0.1
30	0.1
31	0.1
32	0.2
33	0.2
34	0.2
35	0.2

36	0.2
37	0.2
38	0.2
39	0.2
40	0.2
41	0.2
42	0.2
43	0.2
44	0.2
45	0.3
46	0.3
47	0.3
48	0.3
49	0.2
50	0.2
51	0.2
52	0.2
53	0.2
54	0.2
55	0.2
56	0.2
57	0.2
58	0.2
59	0.2
60	0.2
61	0.2
62	0.2
63	0.2
64	0.2
65	0.2
66	0.2
67	0.2
68	0.2
69	0.2
70	0.2
71	0.2
72	0.2
73	0.2
74	0.2
75	0.2

76	0.2
77	0.2
78	0.2
79	0.2
80	0.2
81	0.2
82	0.2
83	0.2
84	0.1
85	0.1
86	0.1
87	0.1
88	0.1
89	0.1
90	0.1
91	0.1
92	0.1
93	0.1
94	0.1
95	0.1
96	0.1
97	0.1
98	0.1
99	0.1
100	0.1

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.

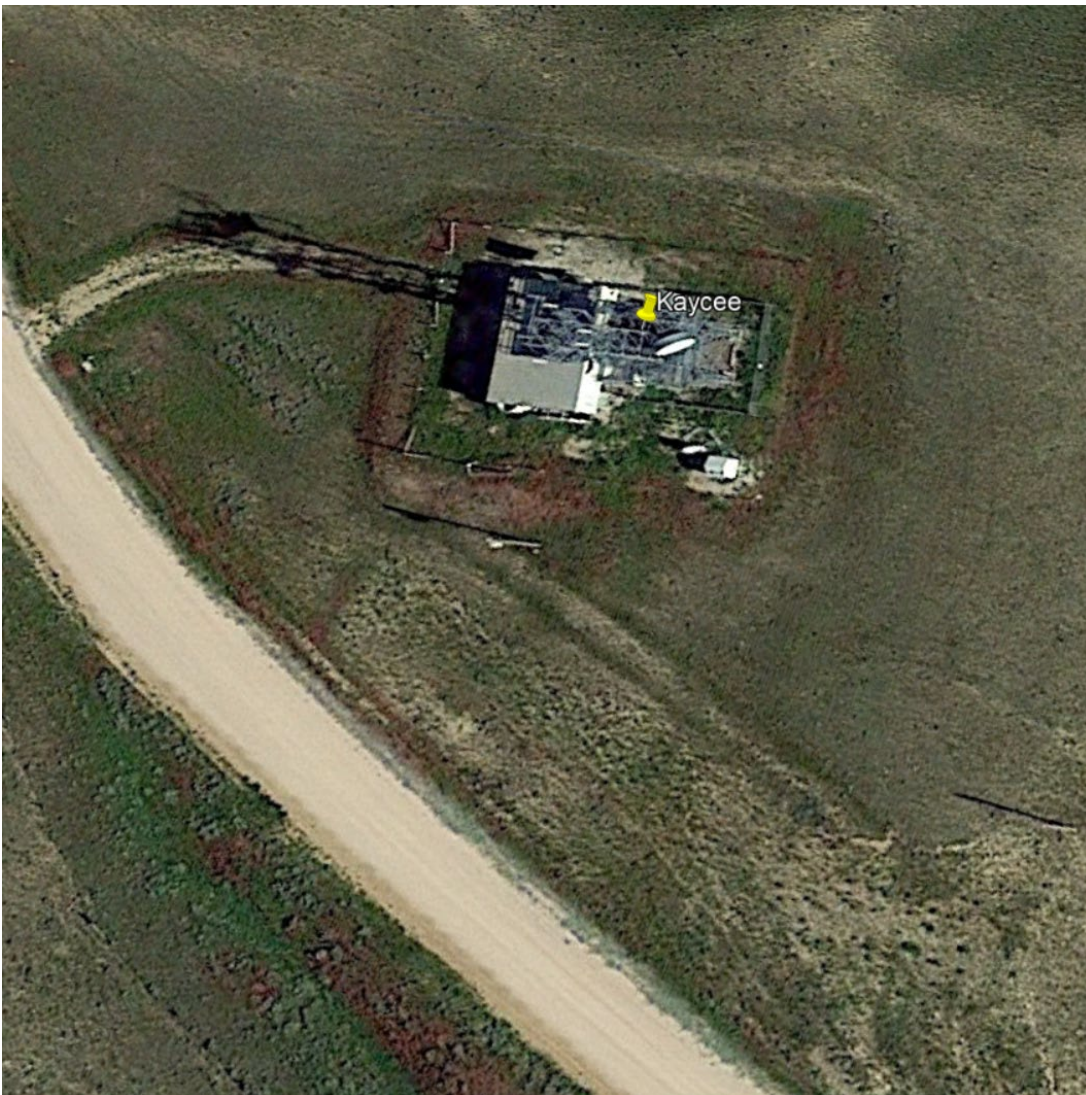
Translator relationships with LPTV/Translators are calculated using the 62 dBu protected and the F(50-10) interference contour, as defined in section 74.1205 of the Rules.

Proposed Kaycee Tower Site

N. Lat. 43-53-47.00

W. Long. 106-41-02.90

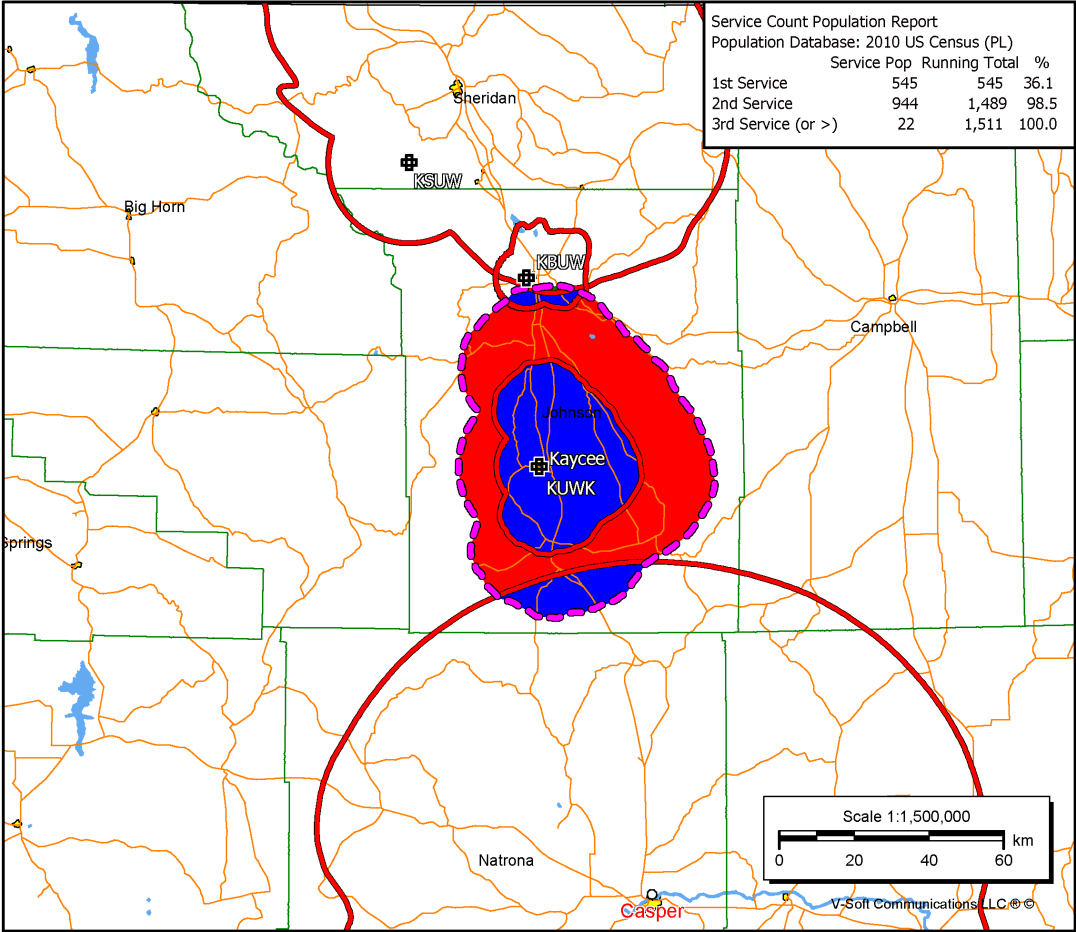
Base Elevation 1648.8 m



Site availability confirmation: Union Wireless, Sue Finch, Agent,
(307)782-4418 (10/22/2021)

Service Count Population Count

Kaycee
Latitude: 43-53-41.60 N
Longitude: 106-40-50.50 W
ERP: 20.00 kW
Channel: 210
Frequency: 89.9 MHz
AMSL Height: 1656.8 m
Horiz. Pattern: Omni



Declaration:

I, Paul Montoya, declare that I have been active in broadcast engineering for over 45 years.

That, I have held a Federal Communications Commission First Class Radiotelephone License continually since 1977. In 1985, this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-15-10699.

That, I am certified as a Certified Senior Radio Engineer (#7040) by the Society of Broadcast Engineers, Indianapolis, Indiana.

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

That, I am employed by the University of Wyoming as Director of Engineering and have prepared 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.

Paul Montoya



Executed on November 1, 2021