

Channel Study

The FCC's Antenna Height Above Average Terrain (HAAT) / Contour Calculations web site was used to determine the proposed site's HAAT of 322 meters. This figure was used for all coverage and interference studies.

The attached V-Soft study results printout in Exhibit #12 page 2 shows all of the co-channel thru third adjacent stations of interest for this proposed modification.

The proposed increased facility's 60 dBu contour does not cause a prohibited contour overlap with any station, as shown in Exhibit #16 pages 12 and 13.

There are no prohibited IF relationships.

Washington State University KNWV-FM Modification										
REFERENCE		CH# 213A - 90.5 MHz, Pwr= 0.56 kW, HAAT=322.0 M, COR= 908 M							DISPLAY DATES	
46 27 26.0 N.		Average Protected F(50-50)= 28.22 km							DATA 08-22-07	
117 06 00.0 W.									SEARCH 09-06-07	
CH CITY	CALL	TYPE STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
213A Clarkston accepted by Canada as B1 940520	KNWV	LIC CN WA	0.0 0.0	0.00 BLED19950721KA	46 27 26.0 117 06 00.0	0.250 76	38.5 908	11.3 Washington State Universit	-52.19*	-59.10*
06-2C Spokane	KHQT	LI HY WA	353.3 173.1	125.83 BMLCT19860805KF	47 34 52.0 117 17 47.0	87.100 653		128.0 Khq, Incorporated	135.4R	-9.6M
214A Pullman	KZUU	LIC CN WA	352.5 172.5	30.68 BLED19820420AE	46 43 51.0 117 09 08.0	0.420 9	11.5 820	8.1 Washington State Universit	6.30	3.52
214A Pullman	KZUU	APP CX WA	351.2 171.2	30.78 BPED20061010AAS	46 43 51.0 117 09 42.0	0.420 11	11.5 821	8.1 Washington State Universit	6.66	4.05
214A Pullman	KZUU	APP NCX WA	351.2 171.2	30.78 BPED20061010AAS	46 43 51.0 117 09 42.0	0.420 11	11.5 821	8.1 Washington State Universit	6.66	4.05
213A Walla Walla	KWCW	LIC C WA	246.0 65.1	104.21 BLED20011010AAE	46 04 11.0 118 19 51.0	0.160 -109	21.1 332	6.3 Aswc Radio Committee	49.61	4.76
211C3 Cottonwood	KNWO	LIC CN ID	131.2 311.7	65.25 BLED19940207KA	46 04 09.0 116 27 54.0	0.250 612	1.1 1759	27.4 Washington State Universit	26.53	36.29
216C Spokane	KPBX-FM	LIC CN WA	0.6 180.6	123.75 BMLD19831028AB	47 34 13.0 117 05 00.0	56.000 725	12.4 1571	91.5 Spokane Public Radio, Inc.	97.58	30.67
212C2 La Grande	KTVR-FM	LIC CX OR	201.2 20.7	136.70 BLED20040504ABP	45 18 33.0 117 43 54.0	0.400 768	57.1 2183	37.3 Oregon Public Broadcasting	45.63	46.98

Terrain database is USGS 03 SEC

ERP and HAAT are on direct line to and from reference station.

• affixed to TV6 Margin= no direct-line contour overlap.

"*"affixed to 'IN' or 'Out' values = site inside protected contour.

**Audio Division****(202)-418-2700****Antenna Height Above Average Terrain (HAAT) / Contour Calculations**[FCC](#) > [MB](#) > [Audio Division](#) > [HAAT/Contour Calculations](#)[FCC site map](#)**Antenna Height Above Average Terrain Calculations -- Input**

Latitude **46 27 26.0 North**
Longitude **117 6 0.0 West** (NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **908.0** meters

Number of Evenly Spaced Radials = 360 0° is referenced to True North

Results:**Calculated HAAT= 322. meters**

(Antenna Height Above Average Terrain)
using the 30 second FCC/NGDC terrain data)

Antenna Radiation Center Heights Above Individual Radials:

0.0°	74.7 meters
1.0°	76.2 meters
2.0°	77.6 meters
3.0°	77.6 meters
4.0°	75.5 meters
5.0°	73.3 meters
6.0°	73.0 meters
7.0°	74.0 meters
8.0°	75.3 meters
9.0°	76.1 meters
10.0°	76.4 meters
11.0°	76.2 meters
12.0°	76.9 meters
13.0°	78.5 meters
14.0°	79.7 meters
15.0°	79.9 meters
16.0°	79.0 meters
17.0°	77.2 meters
18.0°	74.6 meters

19.0°	71.8 meters
20.0°	69.4 meters
21.0°	67.9 meters
22.0°	67.6 meters
23.0°	68.0 meters
24.0°	68.2 meters
25.0°	67.3 meters
26.0°	65.6 meters
27.0°	63.8 meters
28.0°	62.4 meters
29.0°	61.4 meters
30.0°	60.6 meters
31.0°	60.3 meters
32.0°	60.1 meters
33.0°	59.2 meters
34.0°	58.3 meters
35.0°	58.1 meters
36.0°	58.4 meters
37.0°	58.8 meters
38.0°	58.7 meters
39.0°	58.0 meters
40.0°	57.2 meters
41.0°	56.7 meters
42.0°	57.0 meters
43.0°	58.3 meters
44.0°	60.6 meters
45.0°	63.2 meters
46.0°	65.4 meters
47.0°	67.0 meters
48.0°	67.2 meters
49.0°	66.1 meters
50.0°	64.5 meters
51.0°	63.4 meters
52.0°	63.0 meters
53.0°	62.8 meters
54.0°	62.6 meters
55.0°	62.5 meters
56.0°	62.9 meters
57.0°	63.9 meters
58.0°	65.4 meters
59.0°	66.8 meters
60.0°	68.0 meters
61.0°	69.1 meters
62.0°	70.1 meters
63.0°	71.2 meters
64.0°	72.3 meters
65.0°	73.6 meters
66.0°	75.2 meters

67.0°	77.5 meters
68.0°	81.6 meters
69.0°	87.7 meters
70.0°	95.6 meters
71.0°	104.3 meters
72.0°	112.5 meters
73.0°	122.1 meters
74.0°	132.7 meters
75.0°	144.6 meters
76.0°	157.4 meters
77.0°	169.4 meters
78.0°	181.1 meters
79.0°	189.8 meters
80.0°	197.6 meters
81.0°	207.5 meters
82.0°	220.0 meters
83.0°	232.8 meters
84.0°	244.8 meters
85.0°	253.8 meters
86.0°	260.6 meters
87.0°	272.7 meters
88.0°	285.4 meters
89.0°	299.4 meters
90.0°	318.2 meters
91.0°	338.5 meters
92.0°	358.7 meters
93.0°	378.7 meters
94.0°	394.3 meters
95.0°	411.5 meters
96.0°	429.2 meters
97.0°	442.4 meters
98.0°	455.1 meters
99.0°	468.0 meters
100.0°	481.7 meters
101.0°	493.4 meters
102.0°	504.3 meters
103.0°	515.7 meters
104.0°	526.7 meters
105.0°	535.1 meters
106.0°	538.5 meters
107.0°	538.3 meters
108.0°	536.5 meters
109.0°	534.4 meters
110.0°	532.3 meters
111.0°	531.2 meters
112.0°	531.9 meters
113.0°	534.4 meters
114.0°	538.8 meters

115.0°	544.8 meters
116.0°	551.7 meters
117.0°	558.5 meters
118.0°	564.5 meters
119.0°	569.7 meters
120.0°	573.1 meters
121.0°	574.6 meters
122.0°	574.2 meters
123.0°	571.9 meters
124.0°	568.8 meters
125.0°	565.1 meters
126.0°	561.5 meters
127.0°	557.9 meters
128.0°	555.0 meters
129.0°	552.8 meters
130.0°	551.7 meters
131.0°	552.0 meters
132.0°	552.9 meters
133.0°	554.0 meters
134.0°	554.9 meters
135.0°	555.5 meters
136.0°	556.1 meters
137.0°	557.2 meters
138.0°	559.2 meters
139.0°	562.2 meters
140.0°	566.2 meters
141.0°	570.2 meters
142.0°	573.6 meters
143.0°	576.3 meters
144.0°	578.1 meters
145.0°	578.7 meters
146.0°	578.2 meters
147.0°	576.9 meters
148.0°	576.2 meters
149.0°	576.8 meters
150.0°	578.5 meters
151.0°	580.6 meters
152.0°	583.8 meters
153.0°	590.2 meters
154.0°	601.1 meters
155.0°	613.6 meters
156.0°	622.4 meters
157.0°	625.9 meters
158.0°	625.8 meters
159.0°	620.6 meters
160.0°	610.7 meters
161.0°	602.0 meters
162.0°	599.2 meters

163.0°	600.1 meters
164.0°	601.4 meters
165.0°	599.5 meters
166.0°	592.3 meters
167.0°	582.7 meters
168.0°	572.7 meters
169.0°	565.0 meters
170.0°	558.9 meters
171.0°	549.9 meters
172.0°	540.2 meters
173.0°	530.6 meters
174.0°	523.2 meters
175.0°	516.6 meters
176.0°	511.8 meters
177.0°	508.6 meters
178.0°	507.2 meters
179.0°	508.3 meters
180.0°	509.4 meters
181.0°	514.0 meters
182.0°	518.6 meters
183.0°	517.8 meters
184.0°	516.2 meters
185.0°	514.6 meters
186.0°	508.5 meters
187.0°	501.8 meters
188.0°	498.5 meters
189.0°	494.0 meters
190.0°	485.9 meters
191.0°	480.2 meters
192.0°	479.3 meters
193.0°	478.4 meters
194.0°	477.5 meters
195.0°	476.2 meters
196.0°	475.0 meters
197.0°	473.9 meters
198.0°	471.6 meters
199.0°	468.3 meters
200.0°	464.1 meters
201.0°	459.6 meters
202.0°	455.5 meters
203.0°	452.2 meters
204.0°	449.9 meters
205.0°	447.6 meters
206.0°	444.2 meters
207.0°	439.1 meters
208.0°	432.9 meters
209.0°	426.6 meters
210.0°	421.4 meters

211.0°	417.3 meters
212.0°	413.0 meters
213.0°	409.0 meters
214.0°	405.9 meters
215.0°	403.2 meters
216.0°	400.4 meters
217.0°	397.9 meters
218.0°	396.7 meters
219.0°	397.2 meters
220.0°	400.2 meters
221.0°	405.6 meters
222.0°	413.5 meters
223.0°	421.6 meters
224.0°	429.1 meters
225.0°	438.4 meters
226.0°	452.8 meters
227.0°	473.2 meters
228.0°	497.1 meters
229.0°	518.8 meters
230.0°	532.9 meters
231.0°	537.9 meters
232.0°	535.2 meters
233.0°	529.5 meters
234.0°	525.2 meters
235.0°	524.7 meters
236.0°	530.6 meters
237.0°	541.3 meters
238.0°	552.8 meters
239.0°	561.4 meters
240.0°	565.6 meters
241.0°	562.9 meters
242.0°	552.7 meters
243.0°	534.2 meters
244.0°	510.9 meters
245.0°	487.6 meters
246.0°	465.7 meters
247.0°	445.3 meters
248.0°	426.9 meters
249.0°	412.5 meters
250.0°	403.4 meters
251.0°	400.5 meters
252.0°	398.9 meters
253.0°	397.1 meters
254.0°	395.5 meters
255.0°	396.5 meters
256.0°	398.1 meters
257.0°	392.8 meters
258.0°	383.6 meters

259.0°	372.9 meters
260.0°	361.5 meters
261.0°	349.5 meters
262.0°	339.6 meters
263.0°	337.4 meters
264.0°	341.0 meters
265.0°	345.4 meters
266.0°	355.4 meters
267.0°	365.7 meters
268.0°	371.2 meters
269.0°	376.8 meters
270.0°	382.4 meters
271.0°	388.4 meters
272.0°	382.7 meters
273.0°	376.3 meters
274.0°	369.7 meters
275.0°	361.2 meters
276.0°	354.4 meters
277.0°	345.1 meters
278.0°	337.8 meters
279.0°	333.2 meters
280.0°	324.2 meters
281.0°	312.6 meters
282.0°	301.5 meters
283.0°	294.4 meters
284.0°	290.2 meters
285.0°	285.3 meters
286.0°	279.2 meters
287.0°	274.4 meters
288.0°	270.9 meters
289.0°	268.1 meters
290.0°	266.7 meters
291.0°	266.4 meters
292.0°	268.6 meters
293.0°	274.7 meters
294.0°	283.7 meters
295.0°	294.1 meters
296.0°	302.9 meters
297.0°	309.6 meters
298.0°	315.8 meters
299.0°	323.1 meters
300.0°	331.2 meters
301.0°	338.5 meters
302.0°	344.0 meters
303.0°	347.2 meters
304.0°	349.4 meters
305.0°	348.6 meters
306.0°	344.1 meters

307.0°	336.7 meters
308.0°	326.9 meters
309.0°	315.3 meters
310.0°	303.0 meters
311.0°	288.1 meters
312.0°	269.7 meters
313.0°	248.7 meters
314.0°	226.2 meters
315.0°	203.0 meters
316.0°	180.1 meters
317.0°	160.2 meters
318.0°	144.1 meters
319.0°	128.9 meters
320.0°	113.7 meters
321.0°	100.5 meters
322.0°	90.6 meters
323.0°	82.9 meters
324.0°	75.7 meters
325.0°	68.9 meters
326.0°	63.6 meters
327.0°	60.4 meters
328.0°	58.0 meters
329.0°	55.9 meters
330.0°	54.5 meters
331.0°	54.4 meters
332.0°	54.1 meters
333.0°	53.2 meters
334.0°	52.2 meters
335.0°	51.8 meters
336.0°	52.0 meters
337.0°	52.7 meters
338.0°	53.5 meters
339.0°	54.2 meters
340.0°	55.4 meters
341.0°	57.2 meters
342.0°	59.1 meters
343.0°	61.0 meters
344.0°	62.6 meters
345.0°	63.6 meters
346.0°	63.8 meters
347.0°	63.8 meters
348.0°	64.1 meters
349.0°	64.8 meters
350.0°	65.2 meters
351.0°	65.8 meters
352.0°	66.8 meters
353.0°	68.4 meters
354.0°	70.5 meters

355.0°	72.7 meters
356.0°	73.0 meters
357.0°	72.2 meters
358.0°	72.3 meters
359.0°	73.5 meters

New Antenna Height Above Average Terrain (HAAT) calculation?

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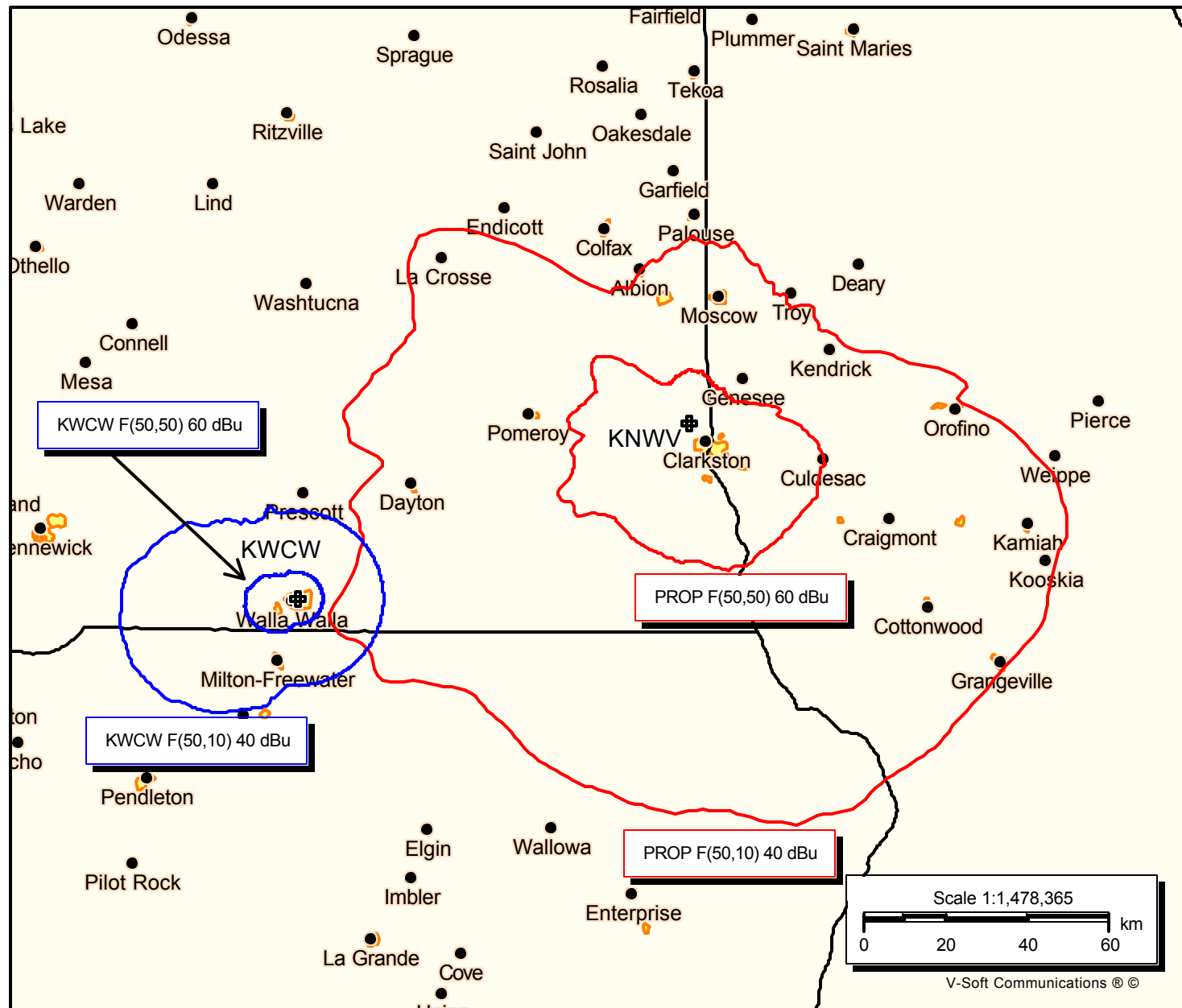
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KNWV PROPOSED

BLED19950721KA
Latitude: 46-27-26 N
Longitude: 117-06-00 W
ERP: 0.42 kW
Channel: 213
Frequency: 90.5 MHz
AMSL Height: 908.0 m
Elevation: 890.0 m
HAAT: 322.0 m
Horiz. Pattern: Omni

KWCW

BLED20011010AAE
Latitude: 46-04-11 N
Longitude: 118-19-51 W
ERP: 0.16 kW
Channel: 213
Frequency: 90.5 MHz
AMSL Height: 332.0 m
Elevation: 298.0 m
HAAT: -16.0 m
Horiz. Pattern: Omni



Scale 1:1,478,365

0 20 40 60 km

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KNWV PROPOSED

BLED19950721KA
Latitude: 46-27-26 N
Longitude: 117-06-00 W
ERP: 0.42 kW
Channel: 213
Frequency: 90.5 MHz
AMSL Height: 908.0 m
Elevation: 890.0 m
HAAT: 322.0 m
Horiz. Pattern: Omni

KZUU

BLED19820420AE
Latitude: 46-43-51 N
Longitude: 117-09-08 W
ERP: 0.42 kW
Channel: 214
Frequency: 90.7 MHz
AMSL Height: 820.0 m
Elevation: 792.0 m
HAAT: 32.0 m
Horiz. Pattern: Omni

