

## HAAT Calculation

47 CFR 73.811 defines the maximum LPFM facility:

*(a) Maximum facilities. LPFM stations will be authorized to operate with maximum facilities of 100 watts ERP at 30 meters HAAT. An LPFM station with a HAAT that exceeds 30 meters will not be permitted to operate with an ERP greater than that which would result in a 60 dBu contour of 5.6 kilometers. In no event will an ERP less than one watt be authorized. No facility will be authorized in excess of one watt ERP at 450 meters HAAT.*

The HAAT of the instant facility is less than 30m.

Table 1 shows the HAAT of the instant facility calculated along 72 radials using the FCC's HAAT Calculator. It shows -94m. Table 2 shows the HAAT of the instant facility calculated using NED 30m terrain along 72 radials. It is -95.7m.

Table 1

### Antenna Height Above Average Terrain Calculations -- Input

Latitude	<b>47 22 58.6 North</b>
Longitude	<b>120 17 31.3 West</b> (NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **596.0** meters

Number of Evenly Spaced Radials = 72      0° is referenced to True North

### Results:

**Calculated HAAT= -94. meters**

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

**Antenna Radiation Center Heights Above Individual Radials:**

0.0°	330.5 meters
5.0°	184.8 meters
10.0°	96.1 meters
15.0°	10.0 meters
20.0°	-33.4 meters
25.0°	-57.3 meters
30.0°	-85.9 meters
35.0°	-94.9 meters
40.0°	-87.2 meters
45.0°	-80.9 meters
50.0°	-60.6 meters
55.0°	-34.7 meters
60.0°	-8.6 meters
65.0°	34.6 meters
70.0°	92.7 meters
75.0°	107.7 meters
80.0°	141.0 meters
85.0°	189.0 meters
90.0°	267.8 meters
95.0°	340.2 meters
100.0°	367.6 meters
105.0°	343.3 meters
110.0°	204.4 meters
115.0°	146.0 meters
120.0°	92.3 meters
125.0°	55.8 meters
130.0°	16.5 meters
135.0°	-36.9 meters
140.0°	-81.8 meters
145.0°	-139.7 meters
150.0°	-182.6 meters
155.0°	-215.3 meters
160.0°	-275.9 meters
165.0°	-340.9 meters
170.0°	-393.8 meters
175.0°	-426.9 meters
180.0°	-475.5 meters

185.0°	-487.5 meters
190.0°	-487.2 meters
195.0°	-542.9 meters
200.0°	-576.8 meters
205.0°	-591.1 meters
210.0°	-597.6 meters
215.0°	-558.1 meters
220.0°	-498.5 meters
225.0°	-561.3 meters
230.0°	-591.5 meters
235.0°	-569.6 meters
240.0°	-467.2 meters
245.0°	-373.3 meters
250.0°	-315.2 meters
255.0°	-317.4 meters
260.0°	-295.6 meters
265.0°	-255.3 meters
270.0°	-204.7 meters
275.0°	-180.2 meters
280.0°	-202.8 meters
285.0°	-185.3 meters
290.0°	-177.5 meters
295.0°	-149.6 meters
300.0°	-68.9 meters
305.0°	-14.5 meters
310.0°	35.3 meters
315.0°	161.2 meters
320.0°	248.4 meters
325.0°	299.3 meters
330.0°	307.6 meters
335.0°	295.6 meters
340.0°	286.7 meters
345.0°	263.7 meters
350.0°	297.0 meters
355.0°	371.9 meters

Table 2

Call Letters: LPFM  
 Latitude: 47-22-58.60 N  
 Longitude: 120-17-31.30 W  
 ERP: 0.10 kW  
 Channel: 300  
 Frequency: 107.9 MHz  
 AMSL Height: 596.0 m  
 Horiz. Antenna Pattern: Omni  
 Vert. Elevation Pattern: No

Type of contour: FCC  
 Location Variability: 50.0 %  
 Time Variability: 50.0 %  
 # of Radials Calculated: 72  
 FCC Matching HAAT Calculation Used  
 Field Strength: 60.00 dBu

Primary Terrain: NED 30 Meter Terrain

Bearing (deg)	HAAT (m)
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0	314.3
5	165.1
10	82
15	-5.6
20	-47
25	-73.6
30	-103.5
35	-108.3
40	-100.6
45	-93
50	-73.8
55	-53.3
60	-19.4
65	15
70	73
75	92.7
80	124.9
85	165.4
90	245.7
95	338.8
100	369
105	360.3
110	217.9
115	146.5
120	108.6
125	45.9

130	21.6
135	-35.6
140	-80.3
145	-143
150	-179.2
155	-219
160	-278.1
165	-338.1
170	-389.2
175	-416.4
180	-466.6
185	-488.3
190	-474.7
195	-538.5
200	-564
205	-594.6
210	-589.5
215	-548.5
220	-477.8
225	-544.6
230	-576.3
235	-581.7
240	-459.9
245	-363.3
250	-311.4
255	-308.6
260	-311.5
265	-251.1
270	-210.6
275	-173.5
280	-209
285	-176.8
290	-181.4
295	-123.7
300	-53.8
305	-8.4
310	38.3
315	180.6
320	259.6
325	303.4
330	316
335	296
340	275.6
345	258.8
350	288.1
355	350.6

**Average HAAT for radials shown: -95.7 m**