


Federal Communications Commission

[FCC Home](#) | [Search](#) | [Updates](#) | [E-Filing](#) | [Initiatives](#) | [For Consumers](#) | [Find People](#)



Antenna Structure Registration

[FCC](#) > [WTB](#) > [ASR](#) > [Online Systems](#) > TOWAIR

[FCC Site Map](#)

TOWAIR Determination Results

HELP

 [New Search](#)  [Printable Page](#)

\*\*\* NOTICE \*\*\*

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results	
Structure does not require registration. The structure meets the 6.10-meter (20-foot) Rule criteria.	
Your Specifications	
NAD83 Coordinates	
Latitude	37-19-53.2 north
Longitude	121-53-11.2 west
Measurements (Meters)	
Overall Structure Height (AGL)	24.4
Support Structure Height (AGL)	24.4
Site Elevation (AMSL)	28.1
Structure Type	
BPOLE - Building with Pole	

## Antenna Height Above Average Terrain Calculations -- Results

### Input Data

Latitude **37° 19' 53.4"** North

Longitude **121° 53' 7.4"** West (NAD 27)

These coordinates convert to NAD 83 coordinates of  
37° 19' 53.19", North, 121° 53' 11.24" West (NAD 83).

Height of antenna radiation center above mean sea level: **56.6** meters AMSL

Number of Evenly Spaced Radials = **8**      0° is referenced to True North

### Results

Calculated HAAT = **-51 meters**

Antenna Height Above Average Terrain calculated  
using 1 km [GLOBE terrain data](#)

### Individual "Radial HAAT" Values, in meters

0°	19.1 m
45°	-238.0 m
90°	-169.0 m
135°	4.8 m
180°	-48.4 m
225°	-37.1 m
270°	7.0 m
315°	52.0 m

Print Results?

New Calculation?

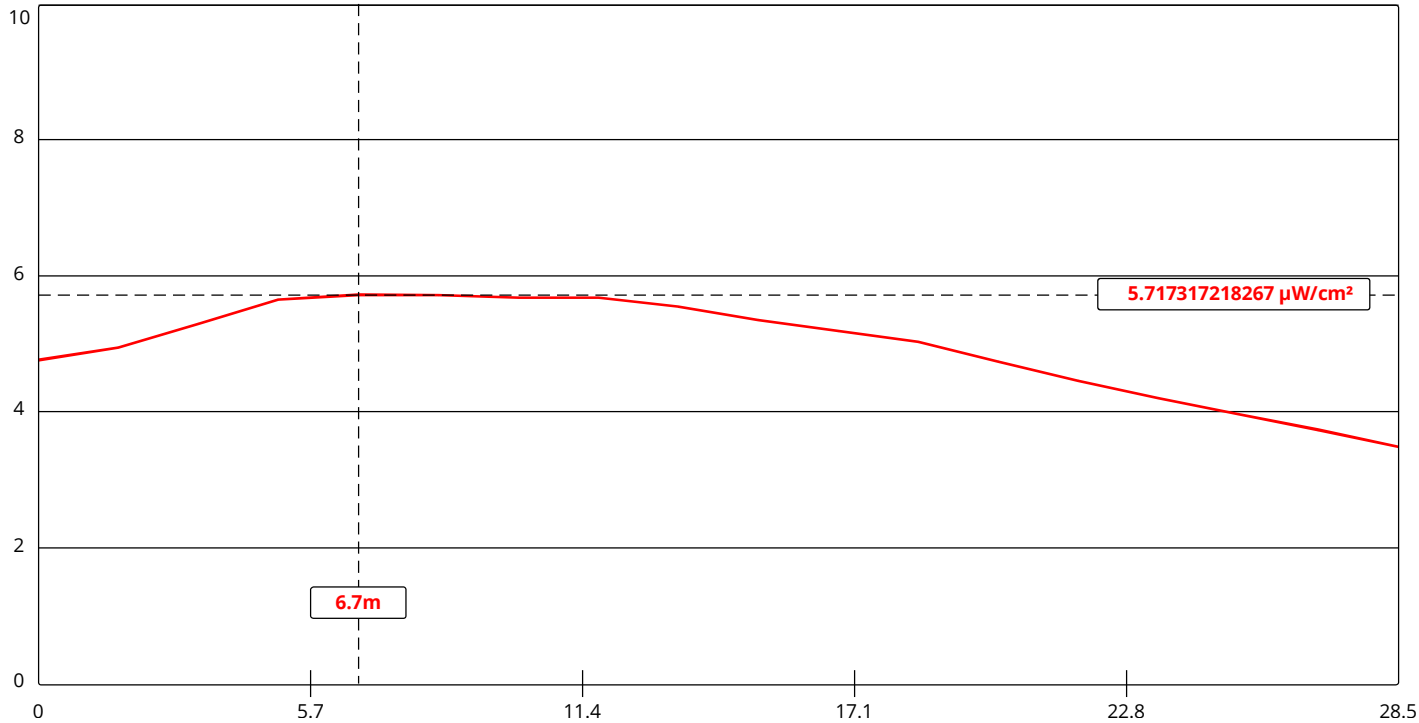


# FM Model

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data [published in 1985 by the EPA \(http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL\)](http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL).

This version uses the actual distance to each antenna element, rather than the distance to the antenna’s radiation center, improving separation distance precision. While most predictions using this updated FM Model will be similar to the previous version, this correction could result in significant differences from the previous model at short separation distances from the bottom element of an antenna array where accurate exposure estimation is most critical. Appendix A of the [FM Model Public Notice \(https://www.fcc.gov/document/oet-announces-updates-fmmodel-software\)](https://www.fcc.gov/document/oet-announces-updates-fmmodel-software) contains a brief description of these changes.

Under *Antenna Type* in the user interface below is a collapsible list of associated antenna models cross-referenced with the five EPA element types, initially in Appendix B of the [FM Model Public Notice \(https://www.fcc.gov/document/oet-announces-updates-fmmodel-software\)](https://www.fcc.gov/document/oet-announces-updates-fmmodel-software), including any subsequent changes we received. Element designs that are not in this list because they were not specifically evaluated by EPA, e.g., panel antennas, vertical dipoles, etc., should be treated as Type 1. We continue to invite suggested changes and corrections to this list. Inclusion of antenna models on this list does not constitute an endorsement of those manufacturers or their products by the FCC.



Channel Selection	Channel 224 (92.7 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	28.5	Distance (m)	28.5
ERP-H (W)	100	ERP-V (W)	100
Num of Elements	1	Element Spacing (λ)	1
Num of Points	17	Apply	

Hide Tabular Results -

Distance (m)	Power Density (μW/cm²)
0	4.8
1.7	4.9
3.4	5.3
5.0294	5.6
6.7	5.7
8.3824	5.7
10.059	5.7
11.7	5.7
13.4	5.5
15.088	5.3
16.8	5.2
18.4	5.0
20.1	4.7
21.8	4.5
23.5	4.2
25.1	4.0
26.8	3.7
28.5	3.5

Go to the Top of the Page