

## **WQJZ-LPFM Minor Modification**

This technical report is submitted for a minor modification to WQJZ-LP 280 LP100 at Murfreesboro, TN, FCC facility ID 196315. Changes in tower site and COR AGL are submitted.

### **WQJZ-LPFM Modification Analysis:**

A channel study in exhibit E-1 shows the WQJZ-LPFM modification at channel 280 is fully spaced at its proposed site at coordinates:

**35-51 05.1 N 086 23 38.2W NAD 83.**

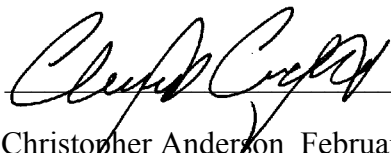
A TOWAIR determination (exhibit E-2) shows the tower does not require registration. A Shively 6812B single bay, nondirectional antenna will be mounted at a COR AGL of 29.0 meters, 213.5 meters AMSL, 25.0 meters HAAT (exhibit E-3) and will operate at 0.100 kW ERP. The average distance to the 60 dBu contour is calculated is 5.6 km. The 60 dBu contour overlaps the current 60 dBu contour licensed facility (exhibit E-4).

### **RF Exposure Calculation:**

The RF contribution of the WQJZ-LPFM modification was calculated using the FMModel program (exhibit E-5). The RF calculated at a distance of 9.1 meters from the radiation center to the highest occupied floor of the multi-story building on which the antenna is mounted =  $79.7 \mu\text{W}/\text{cm}^2$ , which is well below the  $200 \mu\text{W}/\text{cm}^2$  maximum permissible for general public exposure.

**Conclusion:**

It is submitted the minor modification application for WQJZ-LPFM is in full compliance with the Commission rules and policies.



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# E-1 WQJZ-LP100 Mod. Spacing Study

REFERENCE					DISPLAY DATES
35 51 05.10 N.		CLASS = L1			DATA 02-06-23
86 23 38.20 W.		Current Spacings to 2nd Adj.			SEARCH 02-06-23
----- Channel 280 - 103.9 MHz -----					

Call	Channel	Location		Azi	Dist	FCC	Margin	
WQJZ-LP	LIC	280L1	Murfreesboro	TN	153.6	0.41	23.5	-23.1
WUCZ	LIC	281A	Carthage	TN	37.7	64.76	55.5	9.3
WUCZ	ALO	281A	Carthage	TN	37.7	64.76	55.5	9.3
WIAF-LP	LIC	280L1	Antioch	TN	293.4	43.19	23.5	19.7
WDYO-LP	LIC	281L1	Nashville	TN	312.8	43.25	13.5	29.8
WHQV-LP	LIC	280L1	Hendersonville	TN	337.4	54.30	23.5	30.8
WZYP	LIC	282C0	Athens	AL	195.3	118.79	83.5	35.3
WLFM	LIC	280A	Lawrenceburg	TN	239.9	104.33	66.5	37.8
W279CH	LIC	279D	Hermitage	TN	307.3	53.33	14.5	38.8
W279DL	LIC	279D	Columbia	TN	246.3	64.10	20.5	43.6
W280FN	LIC-D	280D	Ashland City	TN	306.1	80.45	31.5	49.0

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All separation margins include rounding

## TOWAIR Determination Results

### \*\*\* 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	35-51-05.1 north
Longitude	086-23-38.2 west

##### Measurements (Meters)

Overall Structure Height (AGL)	29.0
Support Structure Height (AGL)	24.4
Site Elevation (AMSL)	184.5

##### Structure Type

BANT - Building with Antenna on top

## E-3 WQJZ-LP100 Mod. HAAT Calculation

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

#### Input Data

Latitude **35° 51' 5.1"** North  
Longitude **86° 23' 38.2"** West (NAD 83)

These coordinates convert to NAD 27 coordinates of  
35° 51' 04.86", North, 86° 23' 38.23" West (NAD 27).

Height of antenna radiation center above mean sea level: **213.5** meters ~~AMSL~~

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

#### Results

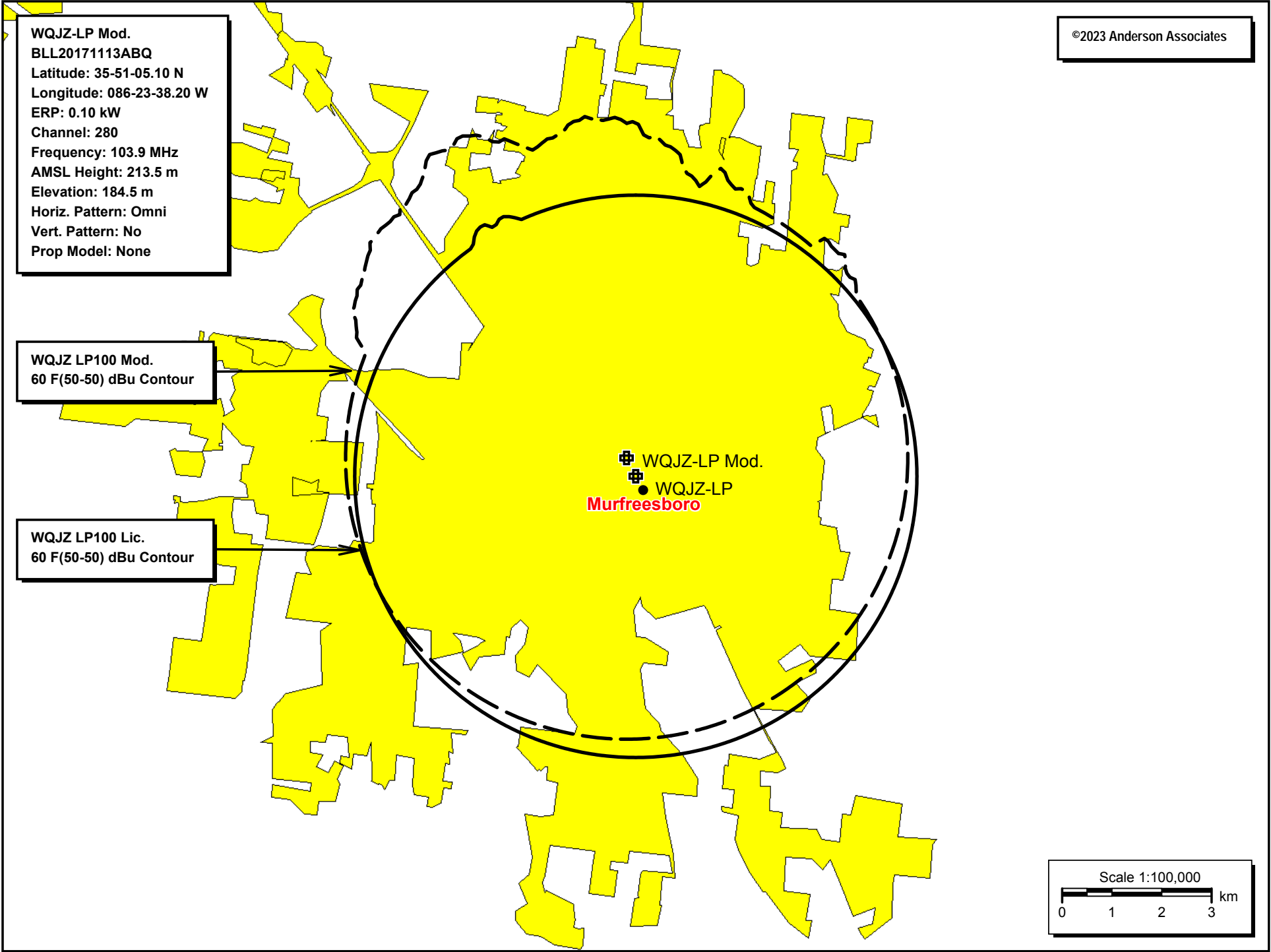
Calculated HAAT = **25 meters**

Antenna Height Above Average Terrain calculated  
using FCC 30 second terrain database (continental USA only)

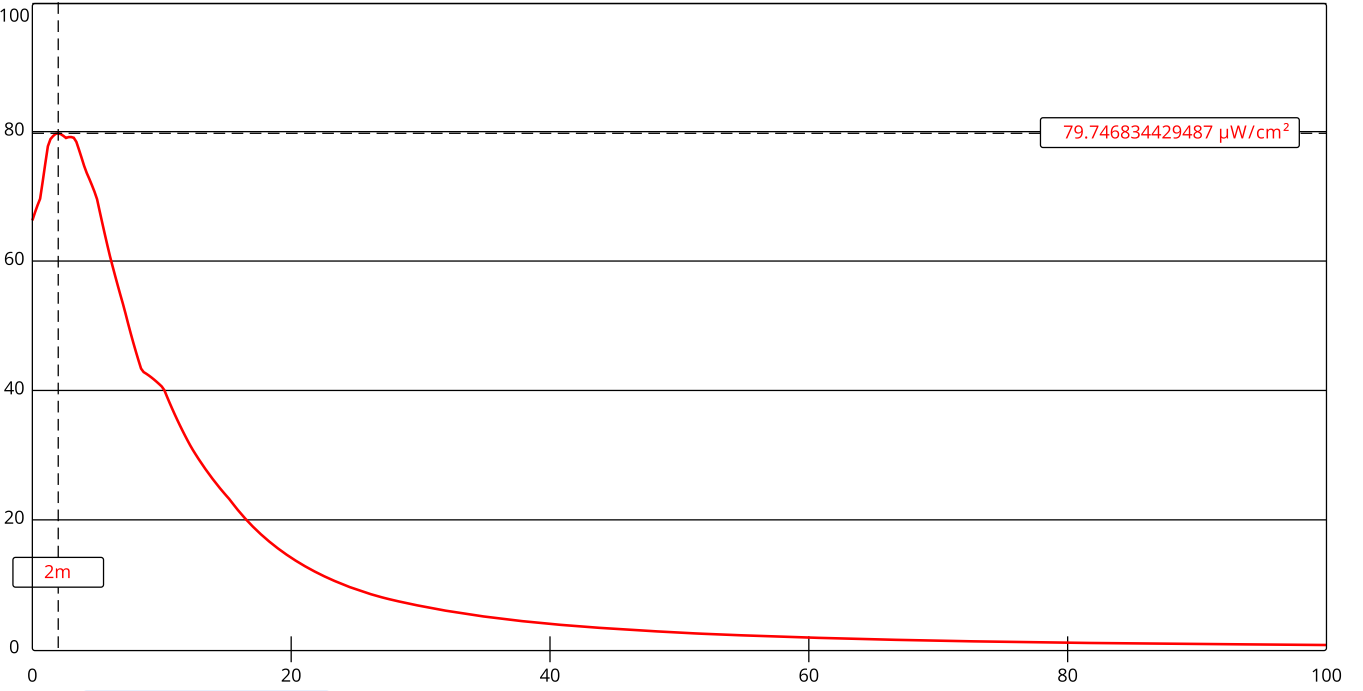
#### Individual "Radial HAAT" Values, in meters

0°	51.3 m
45°	36.5 m
90°	15.0 m
135°	3.5 m
180°	10.9 m
225°	9.8 m
270°	26.1 m
315°	49.4 m

E-4 WQJZ-LP100 Mod. 60 dBu Contour Plot



E-5 WQJZ-LP100 Mod. RF Calculation



Channel Selection	Channel 280 (103.9 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	<input type="text" value="9.1"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="100"/>	ERP-V (W)	<input type="text" value="100"/>
Num of Elements	<input type="text" value="1"/>	$\lambda$	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>		