

COMPREHENSIVE TECHNICAL EXHIBIT

Discussion

Applicant seeks an LPFM Construction Permit for:
Spartanburg, SC
Channel 268 (101.5 Mhz), Requesting 2nd adjacent waivers. See **Channel Study Discussion**
ERP = .051 kW (See **Figure 2**)
Ground Elevation = 280 meters
RCAGL = 20.7 meters
RCAMSL = 300.7 meters
HAAT = 42 meters (Globe terrain data) (See **Figure 1**)
Overall Tower Height = 24.4 meters
FAA (TOWAIR study), See **Figure 4**
NAD83 Latitude: 34 59 17.2N; Longitude: 82 02 06.4W
No AM station notifications required: Closest AM Facility is WOLI, SPARTANBURG, SC, L, DA2 at 33.3° at a distance of 4.2 km
Facility is okay with respect to FCC monitoring stations.
Closest FCC Monitoring Station is 276.9 km= Powder Springs, GA
Facility is okay toward West Virginia Quiet Zone. Distance to center = 438.9 km
Facility is okay toward Table Mountain. Distance to Center = 2128.3 km, Azimuth = 292.6 Degrees True

HAAT CALCULATION (FCC HAAT Calculator)

[Antenna Height Above Average Terrain Calculations -- Results](#)

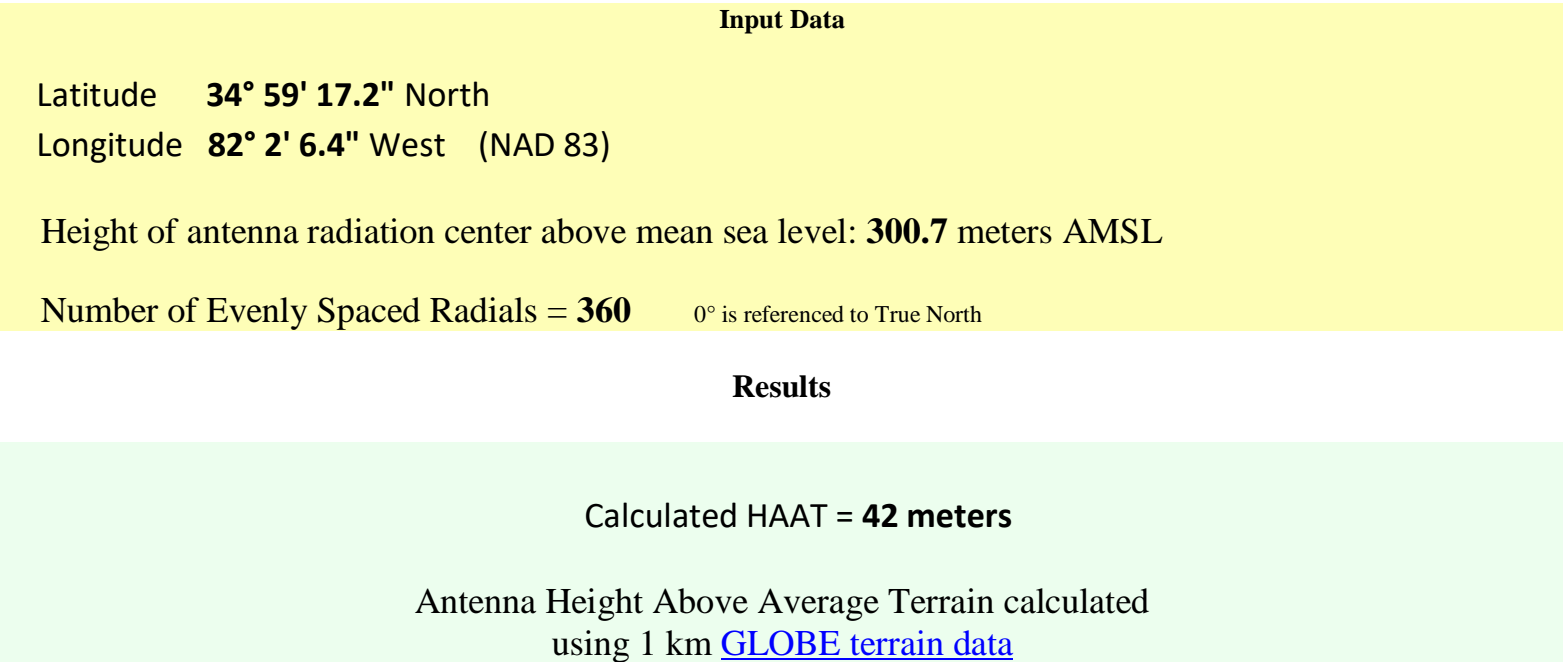


FIGURE 1

ERP Calculation (FCC FMPower Calculator)

Choose a U.S. State or Possession:

SC - South Carolina

Station Class:

100 watt LPFM

42

meters Antenna Height Above Average Terrain (HAAT)

Results:

Calculated ERP (rounded per Section 73.212) = **0.051 kW**

Unrounded ERP = **0.050521 kW**

FIGURE 2

CHANNEL STUDY

Channel 268 Study

REFERENCE				CLASS = L1			DISPLAY DATES	
34	59	17.20	N.	Current Spacings to 2nd Adj.			DATA	10-12-23
82	02	06.40	W.	Channel 268 - 101.5 MHz			SEARCH	10-12-23
Call	Channel	Location	Azi	Dist	FCC	Margin		
WROQ	LIC-D 266C1	Anderson	SC 209.6	43.46	72.5	-29.0*		
WBAV-FM	LIC 270C0	Gastonia	NC 68.3	74.31	83.5	-9.2**		
W268BS	LIC-D 268D	Tryon	NC 328.7	36.24	31.5	4.7		
W269DM	LIC 269D	Woodruff	SC 183.9	25.81	20.5	5.3		
WZWK-LP	LIC 268L1	Greenville	SC 240.1	30.28	23.5	6.8		
WQUT	LIC 268C	Johnson City	TN 349.2	144.72	129.5	15.2		
W268CU	LIC-D 268D	Shelby	NC 51.5	54.30	31.5	22.8		
W268CL	LIC-D 268D	Brevard	NC 289.8	62.54	31.5	31.0		
WGOG	LIC 269A	Walhalla	SC 261.6	94.57	55.5	39.1		
WWDW	LIC-D 267C	Sumter	SC 129.7	161.99	119.5	42.5		
W269CW	LIC-D 269D	Hendersonville	NC 317.8	61.71	14.5	47.2		
W268DL	LIC 268D	Anderson	SC 223.7	79.39	31.5	47.9		
W266CP	LIC-D 266D	Candler	NC 325.2	73.12	20.5	52.6		
W266DC	LIC-D 266D	Gastonia	NC 68.3	74.25	20.5	53.8		
W268DM	LIC-D 268D	Rock Hill	SC 92.4	94.70	31.5	63.2		
W269DW	LIC 269D	Newberry	SC 153.8	86.08	20.5	65.6		
WBAC-LP	LIC 268L1	Belmont	NC 71.2	95.64	23.5	72.1		
W269DK	LIC-D 269D	Canton	NC 309.4	102.14	27.5	74.6		
W266DO	LIC-D 266D	Spruce Pine	NC 356.4	99.16	20.5	78.7		
W267CH	LIC 267D	Hickory	NC 39.9	106.69	20.5	86.2		

W267AD	LIC-D	267D	Cherokee	NC	288.1	124.33	27.5	96.8
W267BZ	LIC	267D	Charlotte	NC	78.3	113.95	14.5	99.5

All separation margins include rounding

*2nd adjacent waiver requested

**Lack of contour overlap waiver requested

FIGURE 3

CHANNEL STUDY DISCUSSION & Waiver Request

A channel study of the proposed frequency (**FIGURE 3**) reveals 73.807 short-spacing relative to WROQ, Anderson, SC for which a 2nd adjacent waiver is being requested, and to WBAV-FM, Gastonia, NC which requests a 2nd adjacent waiver based on a lack contour overlap with the proposed facility.

With respect to WBAV-FM:

WBAV-FM is a Class C0 facility operating with a power of 100 kW at 301 meters HAAT, which is less than the maximum allowed for a Class C0 facility. A study of the contour relationships between the 100 dBu (F50,10) interfering contour of the proposed facility and the protected 60 dBu F(50,50) of WBAV-FM reveals the lack of any contour overlap (see **Figure 4**). A waiver of 73.807 relative to WBAV-FM is therefore requested.

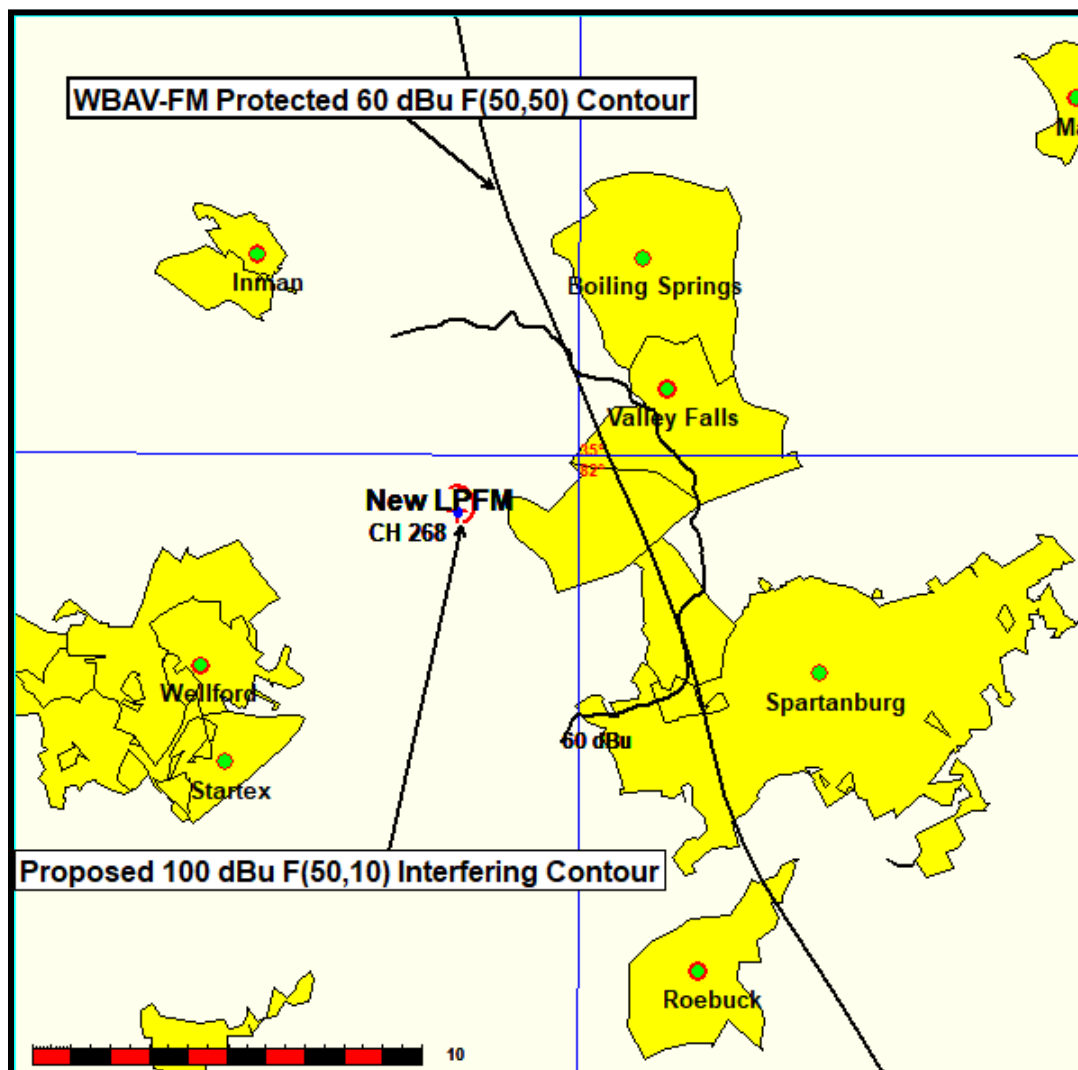


FIGURE 4

With respect to WROQ:

The proposed facility is located within the 60 dBu protected service contour of second-adjacent channel facility WROQ, Anderson, SC. WROQ is located 43.5 km from the proposed site. WROQ places a 71.73 dBu F[50, 50] service contour at the proposed LPFM site. Using the Undesired-to-Desired method for calculating proposed interference, the proposed interfering contour with respect to WROQ is 111.73 dBu ($71.73 + 40$) (free space method employed). At 51 watts, this interfering signal would, in the worst case, extend 129.84 meters from the proposed antenna. This “interference zone” would intersect nearby occupied structures. To alleviate this scenario, the Applicant proposes use of a 4 bay 0.85 wavelength Nicom BKG-88 antenna which displays reduced downward radiation. With the RCAGL at 20.7 meters on a 24.4 meter supporting tower, the extent of the interference zone is raised above ground level by 5.1 meters (see tabulation, **FIGURE 5**). There are no adjacent tall buildings nor is the proposed antenna on a roof top. Adjacent structures are all single story. Based on these findings, the proposed LPFM station will not create any interference to listeners or

potential listeners of WROQ. The applicant is requesting a waiver of \$73.807 with respect to second adjacent channel short-spaced station WROQ, Anderson, SC.

Freespace Interference Study based on Vertical Radiation Pattern
Nicom BKG88 4 bay 0.85 spacing

Depression Angle (from COR)	Antenna Relative Field	ERP (watts)	D (from FCC) Dist to F(50,10) Interfering Contour from Antenna (m)	Horiz Dist of Interfering Contour from Tower (m)	Vertical Clearance of Interfering Contour above ground (m)	INT Contour = 111.7 dBu ERP = 51 watts CORAGL = 20.7 meters
5	0.863	38	112.5	112.1	11.0	
10	0.517	13.6	67.4	66.4	9.0	
15	0.118	0.7	15.4	14.9	16.7	
20	0.161	1.3	21	19.7	13.5	
25	0.243	3	31.7	28.7	7.3	
30	0.161	1.3	20.9	18.1	10.3	
35	0.07	0.2	9.1	7.5	15.5	
40	0.12	0.7	15.6	12.0	10.7	
45	0.17	1.5	22.1	15.6	5.1	
50	0.144	1.1	18.7	12.0	6.4	
55	0.075	0.3	9.8	5.6	12.7	
60	0.001	0	0.1	0.1	20.6	
65	0.059	0.2	7.7	3.3	13.7	
70	0.089	0.4	11.6	4.0	9.8	
75	0.096	0.5	12.5	3.2	8.6	
80	0.086	0.4	11.2	1.9	9.7	
85	0.076	0.3	9.9	0.9	10.8	
90	0.074	0.3	9.6	0.0	11.1	
				vertical clearance =	5.1	

FIGURE 5

TOWAIR study

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	34-59-17.2 north
Longitude	082-02-06.4 west

Measurements (Meters)

Overall Structure Height (AGL)	24.4
Support Structure Height (AGL)	0
Site Elevation (AMSL)	280

Structure Type

LTOWER - Lattice Tower

Figure 4

Input protection of any relevant FM Translators or Boosters

There are five (5) FM translator authorizations within 10 km of the proposed LPFM transmitter site (see **Figure 6**), however, the proposed frequency (channel 268) does not occupy the 3rd adjacent channel to the primary station off-air input of any of the nearby translators. Thus the Application complies with the provisions of 73.827(a).

SPARTANBURG, SC FM TRANSLATORS/BOOSTERS WITHIN 10 KM OF PROPOSED CHANNEL 268

FCC ID	DISTANCE (km)	Translator INPUT	Primary CHANNEL
W238AW	4.53	Internet	207
W231BA	9.45	Other	297
W246CV	4.54	Other	AM
W283CG	4.54	Other	229
W289BS	4.16	Other	AM

FIGURE 6

RF EXPOSURE

The proposed 4 bay 0.85 wavelength spaced antenna will be mounted with RCAGL of 20.7 meters above ground level radiating 51 watts H & V. FMModel predicts a worst case maximum ground level exposure of 1.45 uW/cm² at 0.61 meters from the base of the tower, well within limits for uncontrolled access. All occupied structures in the immediate surrounding area are single story.