Cullowhee, North Carolina

Amendment to

Minor Modification Application for

FM Translator W209AE

File Number BPFT-20170407ABY

On Channel 209

by

Western North Carolina Public Radio, Inc.

Exhibit 13

Interference Analysis

April 2017

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Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 13, Interference Analysis, for Western North Carolina Public Radio, Inc., and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.

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11 April 2017

Narrative

This Exhibit supports an amendment to a modification application for W209AE, for FM translator, application file number BPFT-20170407ABY, on Channel 209 in Cullowhee, North Carolina. The licensed facility file number is BLFT-19870507TB. Allocation details are provided in this exhibit. This amendment is limited to an increase in power, and providing the terrain data to support the increased power. The underlying application changes are a move to an adjacent tower, an increase in elevation, an increase in power, and a change in delivery of the primary signal to relay through another translator. This proposal creates no new mutual exclusivities with any Auction 83 Tech Box filings or any other facility.

Figure 1 shows the proposed 60 dBu F(50,50) coverage area. The application and licensed W209AE 60 dBu F(50,50) contours are shown as well.

Allocations

This application proposes service to Cullowhee, North Carolina, on channel 209. An updated Table 1: Allocations is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. All are protected by this application.

Table 1: Allocations

Allocation Study
Western North Carolina Public Radio

REFERENCE CH# 209D - 89.7 MHz, Pwr= 0.019 kW, HAAT= 0.0 M, COR= 883 M DISPLAY DATES
35 18 50.0 N. Average Protected F(50-50)= 3.7 km DATA 04-11-17
83 12 05.0 W. Omni-directional SEARCH 04-11-17

CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
209D Cullowhee, Etc.	W209AE!	APP	C NC	0.0 0.0	0.00 BPFT20170407ABY	35 18 50.0 83 12 05.0	0.013	10.8 883	3.4 Western North Carolina Pub	-14.5	-15.2
Application being amended.											
209D Cullowhee, Etc.	W209AE!	LIC	DCN NC	0.0 180.0	0.03 BLFT19870507TB	35 18 51.0 83 12 05.0	0.002 -57	1.6 863	0.6 Western North Carolina Pub	-5.3	-12.4
TRANSLATOR FOR WCQSFM, ASHEVILLE, NC.											
Licensed facility being modified.											
209D Clyde, Etc.	W209AD	LIC	C NC	43.2 223.3	38.84 BLFT20170113ABN	35 34 06.0 82 54 27.0	0.009	47.5 1383	12.8 Western North Carolina Pub	-12.4*	14.2
209C1 Chattanooga	WYBK	LIC	CX TN	265.9 84.7	193.15 BMLED20140602BAP	35 10 18.0 85 18 59.0	100.000 250	185.4 655	82.2 Bible Broadcasting Network	0.7	98.9
209D Simpsonville	W209CM	LIC	C SC	119.8 300.2	83.05 BLFT20120501AEX	34 56 27.0 82 24 41.0	0.210 340	68.4 643	22.5 Radio Training Network, In	5.9	31.7
06 D Franklin, Etc.	W06AJ-D	LI	D N NC	245.7 65.4	37.96 BLDTV20120625AAZ	35 10 22.0 83 34 53.0	0.193 921	1.8 1643	28.7	30.5R	7.5M
211C Greenville	WEPR	LIC	C SC	119.7 300.2	83.08 BMLED20100628BQG	34 56 29.0 82 24 38.0	85.000 361	10.5 669	74.6 South Carolina Educational	63.9	8.1
06NT Sapphire Valley,etc	W06AN	LI	DHN NC	136.8 316.9	27.75 BLTTV19820218ID	35 07 54.0 82 59 33.0	0.163 937	1.8 1465	10.1	11.9R	15.8M
208C Johnson City	WETS-FM	LIC	C TN	37.3 217.9	157.18 BMLED20060802ATX	36 26 02.0 82 08 08.0	66.000 692	135.3 1318	91.8 East Tennessee State Unive	18.2	60.1
06NT Maggie Valley, Etc.	W06AP	LI	DHN NC	18.9 199.0	23.92 BLTTV19791109IC	35 31 04.0 83 06 56.0	0.015 402	1.8 1266	1.6	3.4R	20.5M
207C1 Greenville	WLFJ-FM	LIC	DEN SC	119.8 300.3	83.00 BLED19830512AP	34 56 26.0 82 24 44.0	41.000 335	6.4 643	57.6 Radio Training Network, In	67.9	23.9
209A Toccoa Falls	WTXR	LIC	DCX GA	190.7 10.6	80.68 BLED20010125ABQ	34 35 57.0 83 21 55.0	0.400 42	26.1 387	6.5 Radio Training Network, In	51.8	56.7
206C2 Alcoa	WOFM	LIC	CX TN	319.1 138.6	101.79 BLED20150515AAK	36 00 12.8 83 56 34.3	1.850 427	2.8 735	43.2 Educational Media Foundati	88.2	58.1
210C3 Clinton	WDVX	LIC	CN TN	316.9 136.3	135.24 BLED20110614ABH	36 11 53.0 84 13 51.0	0.200 597	54.0 1089	35.4 Cumberland Communities Com	70.4	84.5
209C Columbia	WMHK	LIC	DCN SC	120.6 302.0	260.92 BLED19940323KA	34 05 49.0 80 45 51.0	100.000 426	181.7 507	79.5 Educational Media Foundati	70.5	153.4
06NT Oteen, Etc.	W06AL	LI	DHN NC	64.9 245.4	75.00 BLTTV19850926IA	35 35 49.0 82 27 04.0	0.016 219	1.8 844	2.5	4.3R	70.7M
06NT Bat Cave, Etc.	W06AQ	LI	DHN NC	81.2 261.7	87.42 BLTTV19791220IA	35 25 50.0 82 15 00.0	0.015 577	1.8 872	5.0	6.8R	80.6M
06NT Spruce Pine	W06OD	LI	DHN NC	56.0 236.6	119.65 BLTTV1687	35 54 36.0 82 06 03.0	0.006 300	1.8 945	2.5	4.3R	115.4M

Terrain database is NED 03 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference Zone= East Zone, Co to 3rd adj.
All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

Height Above Average Terrain Tabulation

Height Above Average Terrain was calculated using the NED 03 terrain database, with the parameters shown below. Using data with more detail (than in the underlying application) identified higher terrain in some directions, reducing the HAAT along the controlling directions.

Distance to Contour Report

Type of contour: FCC
Location Variability: 50.0 % Time Variability: 50.0 %
# of Radials Calculated: 360
V-Soft Accurate HAAT Calculation Used***(0.1 km spacing, 3-16 km)***
Field Strength: 60.00 dBuV/m

Primary Terrain: NED 3 Second US Terrain

Transmitter Information:

Call Letters: W209AEm File Number: Proposed
Latitude: 35-18-50 N Longitude: 083-12-05 W
ERP: 0.019 kW
Channel: 209 Frequency: 89.7 MHz
AMSL Height: 883.0 m
Elevation: 860.0 m
Horiz. Antenna Pattern: Omni Vert. Elevation Pattern: No

Azimuth (deg)	Distance (km)	HAAT (m)	
0.0	3.70	-23.1	
30.0	3.70	-28.9	
60.0	3.70	-269.3	
90.0	3.70	10.7	
120.0	7.11	108.3	***Controlling***
150.0	3.70	-84.8	
180.0	3.70	-152.9	
210.0	3.70	-192.4	
240.0	3.70	-0.2	
270.0	3.70	-55.2	
300.0	6.31	85.8	
330.0	6.99	104.7	

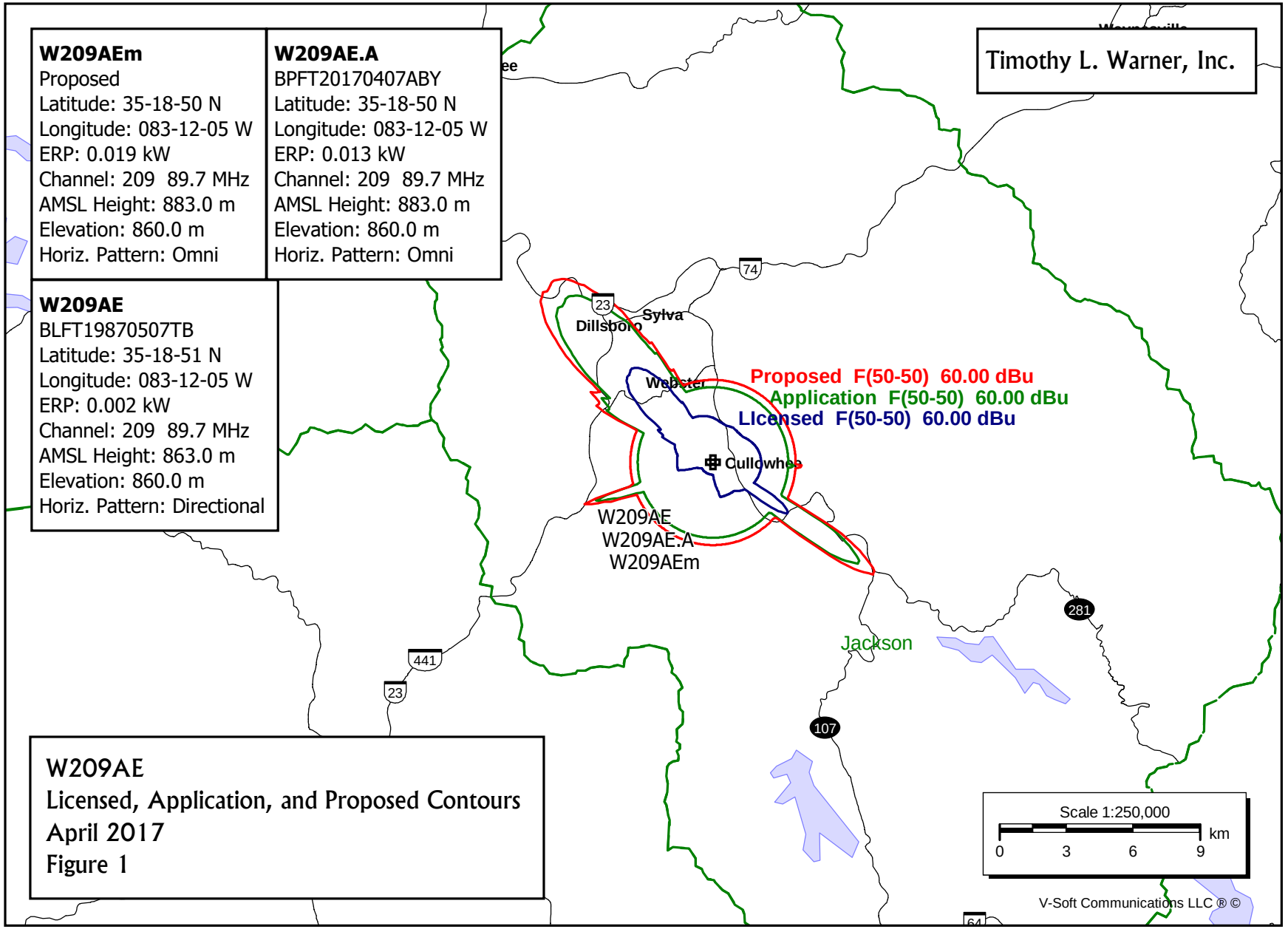
Average HAAT for radials shown: -41.4 m

Source of Data

Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were evaluated using terrain extracted from the National Elevation Dataset (NED) 03 terrain database. The NED 03 database is derived from the USGS National Elevation Dataset 30 meter terrain database. The USGS National Elevation Dataset has been developed by merging the highest-resolution, best-quality elevation data available across the United States into a seamless raster format. NED is the result of the maturation of the USGS effort to provide 1:24,000-scale Digital Elevation Model (DEM) data for the conterminous US and 1:63,360-scale DEM data for Alaska.

All population data is from 2010 U.S. Census PL data files. Population is counted by considering the location of the centroid of each census block. The data for each block is counted if it falls within the area being counted.


W209AEm
Proposed
Latitude: 35-18-50 N
Longitude: 083-12-05 W
ERP: 0.019 kW
Channel: 209 89.7 MHz
AMSL Height: 883.0 m
Elevation: 860.0 m
Horiz. Pattern: Omni
W209AE.A
BPFT20170407ABY
Latitude: 35-18-50 N
Longitude: 083-12-05 W
ERP: 0.013 kW
Channel: 209 89.7 MHz
AMSL Height: 883.0 m
Elevation: 860.0 m
Horiz. Pattern: Omni
W209AE
BLFT19870507TB
Latitude: 35-18-51 N
Longitude: 083-12-05 W
ERP: 0.002 kW
Channel: 209 89.7 MHz
AMSL Height: 863.0 m
Elevation: 860.0 m
Horiz. Pattern: Directional
Timothy L. Warner, Inc.
Proposed F(50-50) 60.00 dBu
Application F(50-50) 60.00 dBu
Licensed F(50-50) 60.00 dBu
Dillsboro
Sylva
Webster
Cullowhee
Jackson
W209AE
W209AE.A
W209AEm
74
23
441
281
107
Scale 1:250,000
km
0 3 6 9
V-Soft Communications LLC ® ©
W209AE
Licensed, Application, and Proposed Contours
April 2017
Figure 1