

Cullowhee, North Carolina
Application for Minor Modification of
FM Translator W209AE
On Channel 209
by
Western North Carolina Public Radio, Inc.

Technical Exhibit

April 2021

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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 Technical Exhibit 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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Narrative

This Exhibit supports a minor modification application for FM translator W209AE, on Channel 209 in Cullowhee, North Carolina. Allocation details are provided in this exhibit. This proposal complies fully with the requirements of 47 C.F.R. §74.1204(a). The proposed modified facilities create no mutual exclusivities with any licensed facilities, construction permits, or applications as shown in the allocation table in this exhibit.

Figure 1 shows the proposed 60 dBu F(50,50) coverage area, and the licensed coverage area.

The changes are limited to a decrease of elevation.

The minor modification complies with the requirements of Sections 74.1204, 74.1205, 74.1232, and 74.1234.

Licensing Management System Differences

The authorized W209AE facilities, file number BLFT-20170501AAE, were authorized under the Consolidated Data Base System (CDBS) using NAD 27 coordinates to the nearest second and elevations to the nearest meter. The Licensing Management System (LMS) uses NAD83 coordinates to the nearest tenth of a second and elevations to the nearest tenth of a meter. In LMS, the NAD83 coordinates from the Antenna Structure Registration Number are used for this application, while for existing facilities, the original NAD27 coordinates are converted to NAD83. This results in minor changes in allocations, even though there are no physical changes in the actual facilities.

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 under §74.1204(a) contour protection by this application. The allocations table was prepared using the FCC 30 terrain database which is described below.

Table 1: Allocations

Allocation Study Western North Carolina Public Radio												
REFERENCE		CH# 209D - 89.7 MHz, Pwr= 0.019 kw, HAAT= -42.2 M, COR= 878.1 M								DISPLAY DATES		
35 18 50.4 N.		Average Protected F(50-50)= 3.7 km								DATA 04-12-21		
83 12 04.5 W.		Omni-directional								SEARCH 04-12-21		
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	LIC	CN NC	0.0 0.0	0.00 BLFT20170501AAE	35 18 50.40 83 12 04.50	0.019	11.9 883	3.7 Western North Carolina Pub	-15.6*	-15.6*	
Licensed facility being modified.												
209D Clyde, Etc.	W209AD	LIC	CN NC	43.2 223.4	38.84 BLFT20170113ABN	35 34 06.30 82 54 26.40	0.009	47.4 1383	12.8 Western North Carolina Pub	-12.2*	14.2	
209C1 Chattanooga	WYBK	LIC	CN TN	265.9 84.7	192.70 BMLED20140602BAP	35 10 18.30 85 18 58.90	100.000 250	185.6 655	82.3 Bible Broadcasting Network	0.0	98.6	
209D Simpsonville	W209CM	LIC	CN SC	119.8 300.2	82.95 BLFT20120501AEX	34 56 27.40 82 24 40.40	0.210 340	69.1 643	22.8 Radio Training Network, In	5.6	33.1	
06 -- Franklin, Etc.	W06AJ-D«	LI	D N NC	245.7 65.4	37.90 BLDTV-20120625AAZ	35 18 50.56 83 12 04.11	0.193	1.8 1643	29.0	30.8R	7.1M	
211C Greenville	WEPR	LIC	CN SC	119.7 300.2	82.98 BMLED20100628BQG	34 56 29.40 82 24 37.40	85.000 361	10.6 669	75.1 South Carolina Educational	64.2	7.6	
208C Johnson City	WETS-FM	LIC	CN TN	37.3 218.0	157.24 BMLED20060802ATX	36 26 02.30 82 08 07.40	66.000 692	135.1 1318	91.6 East Tennessee State Unive	18.4	60.1	
207C1 Greenville	WLFJ-FM	LIC	DEN SC	119.8 300.3	82.90 BLED19830512AP	34 56 26.40 82 24 43.40	41.000 335	6.4 643	58.1 Radio Training Network, In	68.2	23.8	
Terrain database is FCC NGDC 30 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. 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.												

Source of Data

Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS (converted to NAD 83) or LMS. 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 Geophysical Data Center's (NGDC) 30 arcsecond terrain database, formatted by V-Soft Communications and edited to match the database in use at the Federal Communications Commission.

The Height Above Average Terrain was calculated at 30 degree increments. Data from the V-Soft program PROBE 4 is provided below.

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
Field Strength: 60.00 dBuV/m

Primary Terrain: FCC 30 Second US Database

Transmitter Information:

Call Letters: W209AEm
File Number: Proposed
Latitude: 35-18-50.20 N
Longitude: 083-12-04.10 W
ERP: 0.019 kW
Channel: 209
Frequency: 89.7 MHz
AMSL Height: 878.1 m
Elevation: 859.8 m

Horiz. Antenna Pattern: Omni

Vert. Elevation Pattern: No

Azimuth (deg)	Distance (km)	HAAT (m)
-----	-----	-----
0.0	3.70	-29.5
30.0	3.70	-20.5
60.0	3.70	-264.3
90.0	3.70	13.1
120.0	6.94	103.1
150.0	3.70	-89.5
180.0	3.70	-142.2
210.0	3.70	-179.7
240.0	3.70	-7.8
270.0	3.70	-51.1
300.0	6.46	89.5
330.0	7.28	113.5

Average HAAT for radials shown: -38.8 m

W209AEm

Proposed
Latitude: 35-18-50.20 N
Longitude: 083-12-04.10 W
ERP: 0.019 kW
Channel: 209 89.7 MHz
AMSL Height: 878.1 m
Elevation: 859.8 m
Horiz. Pattern: Omni

W209AE

BLFT20170501AAE
Latitude: 35-18-50.40 N
Longitude: 083-12-04.50 W
ERP: 0.019 kW
Channel: 209 89.7 MHz
AMSL Height: 883.0 m
Elevation: 860.0 m
Horiz. Pattern: Omni

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Proposed F(50-50) 60.00 dBu

Licensed F(50-50) 60.00 dBu

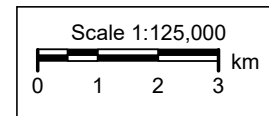
W209AEm
W209AE

Cullowhee

W209AE

Licensed and Proposed Contours
April 2021
Figure 1

Jackson



V-Soft Communications LLC ©