

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	CALL	TYPE	ANT	AZI.	DIST	LAT.	Pwr(kw)	INT(km)	PRO(km)	*IN*	*OUT*	
CITY			STATE	<--	FILE #	LNG.	HAAT(M)	COR(M)	LICENSEE	(Overlap	in km)	
209D	W209AE	LIC	CN	0.0	0.00	35 18 50.40	0.019	11.9	3.7	-15.6*	-15.6*	
Cullowhee, Etc.			NC	0.0	BLFT20170501AAE	83 12 04.50		883	Western North Carolina Pub			
Licensed facility being modified.												
209D	W209AD	LIC	CN	43.2	38.84	35 34 06.30	0.009	47.4	12.8	-12.2*	14.2	
Clyde, Etc.			NC	223.4	BLFT20170113ABN	82 54 26.40		1383	Western North Carolina Pub			
209C1	WYBK	LIC	CN	265.9	192.70	35 10 18.30	100.000	185.6	82.3	0.0	98.6	
Chattanooga			TN	84.7	BMLE20140602BAP	85 18 58.90	250	655	Bible Broadcasting Network			
209D	W209CM	LIC	CN	119.8	82.95	34 56 27.40	0.210	69.1	22.8	5.6	33.1	
Simpsonville			SC	300.2	BLFT20120501AEX	82 24 40.40	340	643	Radio Training Network, In			
06 --	W06AJ-D«	LI	D N	245.7	37.90	35 18 50.56	0.193	1.8	29.0	30.8R	7.1M	
Franklin, Etc.			NC	65.4	BLDTV-20120625AAZ	83 12 04.11		1643				
211C	WEPR	LIC	CN	119.7	82.98	34 56 29.40	85.000	10.6	75.1	64.2	7.6	
Greenville			SC	300.2	BMLE20100628BQG	82 24 37.40	361	669	South Carolina Educational			
208C	WETS-FM	LIC	CN	37.3	157.24	36 26 02.30	66.000	135.1	91.6	18.4	60.1	
Johnson City			TN	218.0	BMLE20060802ATX	82 08 07.40	692	1318	East Tennessee State Unive			
207C1	WLFJ-FM	LIC	DEN	119.8	82.90	34 56 26.40	41.000	6.4	58.1	68.2	23.8	
Greenville			SC	300.3	BLED19830512AP	82 24 43.40	335	643	Radio Training Network, In			

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

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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

Proposed F(50-50) 60.00 dBu

Licensed F(50-50) 60.00 dBu

⊕ Cullowhee
W209AEm
W209AE

W209AE
Licensed and Proposed Contours
April 2021
Figure 1

Jackson

