

File Number BNPFT-20030317GSY

Hendersonville, North Carolina

Application for a new FM Translator

On Channel 267

by

Western North Carolina Public Radio, Inc.

Exhibit 1

Grid Preclusion Showing

July 2013

© 2013 Western North Carolina Public Radio, Inc.

Timothy L. Warner, Inc.  
Post Office Box 8045  
Asheville, North Carolina 28814-8045  
(828) 258-1238  
twarner@tlwinc.net

Table of Contents

Description	Page
Declaration .....	2
Narrative.....	3
Required Showings .....	3
Asheville Market Study .....	4
Asheville LPFM Grid Study Parameters and Overall Results .....	5
LPFM Grid Study Specific Channel Points .....	6
Greenville-Spartanburg Market Study.....	7
Greenville-Spartanburg LPFM Grid Study Parameters and Overall Results .....	8
LPFM Grid Study Specific Channel Points .....	9
Translator Height Above Average Terrain and Distance to Contour .....	10
Preclusion Study Description .....	10
Source of Data.....	11
Hendersonville, North Carolina Preclusion Showing.....	Figure 1

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 1, Grid Preclusion Showing, 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.



---

Timothy L. Warner, P.E.  
Post Office Box 8045  
Asheville, North Carolina 28801  
(828) 258-1238  
[twarner@tlwinc.net](mailto:twarner@tlwinc.net)  
15 July 2013

### Narrative

This Exhibit supports an amendment to an Auction 83 construction permit application for a new FM translator on Channel 267 in Hendersonville, North Carolina, file number BNPFT-20030317GSY. The tech box proposal (short form application) was filed in a filing window for Auction 83. This Exhibit provides a preclusion showing required in a Public Notice<sup>1</sup> of a window to file long form applications for further processing.

This application proposes a minor modification from the original short form application. Specifically, the frequency is changed from channel 270 to 267, the site is changed, the power is increased, height is decreased, and a directional antenna pattern is proposed. The minor modification creates no conflicts with any other Auction 83 tech box proposals, as will be shown in the Allocations Exhibit.

### Required Showings

This facility is located outside the Market Grid, but within 39 kilometers of the Asheville (North Carolina) Market Grid. The Asheville market is listed as a Spectrum Available Market using a 30 minute grid in Appendix B of the Fourth Report and Order.<sup>2</sup> The required showing is identified as Test C, in Attachment B to the Singleton Window PN.

---

<sup>1</sup> *Public Notice Media Bureau Announces FM Translator Auction 83 Filing Window and Filing Procedures*, DA 13-283, released February 26, 2013. (Singleton PN)

<sup>2</sup> *In the Matter of Creation of a Low Power Radio Service, Amendment of Service and Eligibility Rules for FM Broadcast Translator Stations, Fourth Report and Order and Third Order on Reconsideration*, FCC 12-19, released March 19, 2012.

This facility is also located outside the Market Grid, but within 39 kilometers of the market grid of the Greenville-Spartanburg (South Carolina) market. The Greenville-Spartanburg market is listed as a Spectrum Available Market using a 30 minute grid.

This facility is in not with 39 kilometers of any other Appendix A Market. It is not within any out-of-grid Top 50 Spectrum Limited Market.

### Asheville Market Study

The Asheville market protected channel/point combinations were generated using the Commissions LPFM grid tool. A portion of the printout from the LPFM grid tool follows. The preliminary section confirms the parameters studied and provides a summary of the channels. There are no protected points on channel 267, proposed in this application. There are no protected points on first adjacent channels 266 or 268, or on upper second adjacent channel 269. There are protected points on lower second adjacent channel 265.

No I.F. channel protection is required.

Asheville LPFM Grid Study Parameters and Overall Results

Asheville, NC  
 Latitude 35-36-03  
 Longitude 082-33-15  
 Grid Size 31 x 31  
 Micro FM 100 watts at 30m HAAT  
 Co-Channel and 1st Adjacent Protected  
 2nd Adjacent Channel Protected  
 3rd Adjacent Channel Not Protected  
 I.F. Not Protected  
 TV Channel 6 Protected  
 CP Records Protected  
 APP Records Protected  
 FM Translators Protected  
 TV Channel 6 Translators/LP Protected  
 Auc83 FX App Records Protected

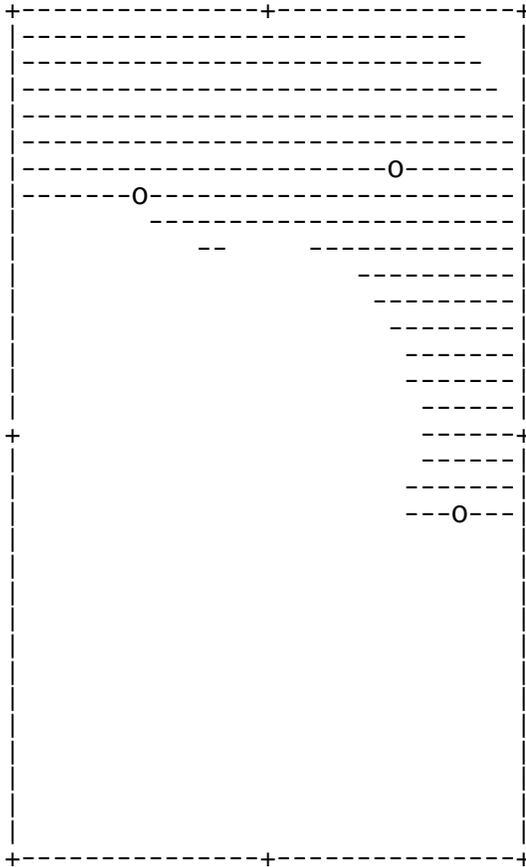
Chan	Avail	Chan	Avail	Chan	Avail	Chan	Avail	Chan	Avail
200	0	220	0	240	61	260	0	280	3
201	0	221	0	241	0	261	0	281	0
202	0	222	0	242	0	262	0	282	0
203	0	223	0	243	0	263	306	283	0
204	0	224	0	244	0	264	58	284	0
205	0	225	0	245	0	265	322	285	0
206	0	226	0	246	0	266	0	286	44
207	0	227	0	247	0	267	0	287	509
208	0	228	0	248	31	268	0	288	0
209	0	229	0	249	4	269	0	289	0
210	0	230	0	250	21	270	0	290	0
211	0	231	0	251	0	271	0	291	0
212	0	232	0	252	0	272	0	292	0
213	0	233	0	253	0	273	0	293	0
214	0	234	0	254	0	274	0	294	0
215	0	235	0	255	0	275	0	295	0
216	0	236	0	256	0	276	0	296	0
217	0	237	0	257	0	277	10	297	0
218	0	238	28	258	0	278	16	298	0
219	0	239	116	259	0	279	2	299	0
								300	0
-----									
Total	1531								

Total allotments, least preclusive spacing: 30  
 Total allotments, most preclusive spacing: 22

Note: Co-channel through second adjacent channel points shown highlighted above.

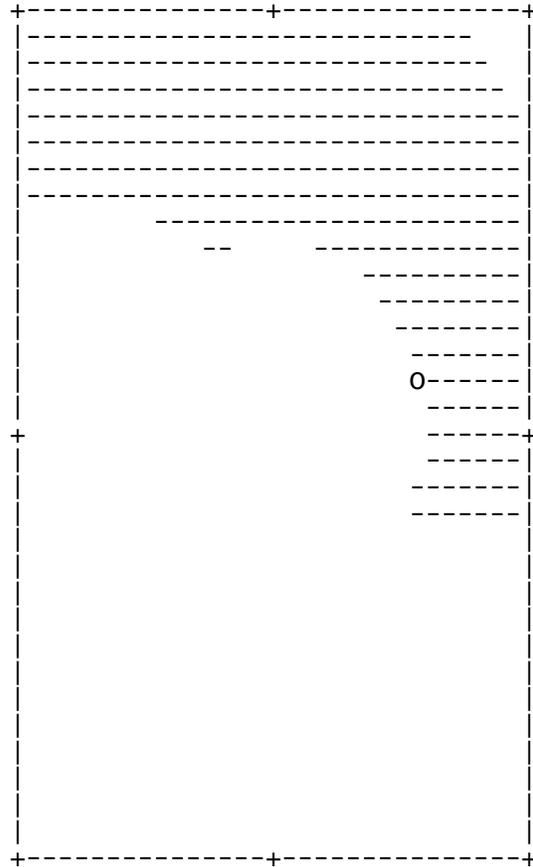
LPFM Grid Study Specific Channel Points

Asheville, NC  
Latitude 35-36-03  
Longitude 082-33-15  
Least preclusive siting  
Availability of channel 265 (X)



Point #106 at 35-33-03 082-21-15  
Point #738 at 35-45-03 082-41-15  
Point #243 at 35-46-03 082-25-15

Asheville, NC  
Latitude 35-36-03  
Longitude 082-33-15  
Most preclusive siting  
Availability of channel 265 (X)



Point #204 at 35-38-03 082-24-15

**Greenville-Spartanburg Market Study**

The Greenville-Spartanburg market protected channel/point combinations were generated using the Commissions LPFM grid tool. A portion of the printout from the LPFM grid tool follows. The preliminary section confirms the parameters studied and provides a summary of the channels. There are protected no points on channel 267, proposed in this application. There are protected points on second adjacent channel 269. There are no protected points on the lower first or second adjacent channels or the upper first adjacent channel. No I.F. channel protection is required.

Greenville-Spartanburg LPFM Grid Study Parameters and Overall Results

Greenville, SC  
 Latitude 34-51-09  
 Longitude 082-23-39  
 Grid Size 31 x 31  
 Micro FM 100 watts at 30m HAAT  
 Co-Channel and 1st Adjacent Protected  
 2nd Adjacent Channel Protected  
 3rd Adjacent Channel Not Protected  
 I.F. Not Protected  
 TV Channel 6 Protected  
 CP Records Protected  
 APP Records Protected  
 FM Translators Protected  
 TV Channel 6 Translators/LP Protected  
 Auc83 FX App Records Protected

Chan	Avail								
200	0	220	0	240	0	260	0	280	0
201	0	221	0	241	15	261	0	281	0
202	0	222	0	242	21	262	0	282	35
203	0	223	0	243	0	263	0	283	0
204	0	224	0	244	0	264	0	284	0
205	0	225	0	245	0	265	0	285	18
206	0	226	0	246	154	266	0	286	43
207	0	227	0	247	87	267	0	287	0
208	0	228	0	248	211	268	0	288	0
209	0	229	0	249	0	269	50	289	0
210	0	230	0	250	0	270	25	290	0
211	0	231	0	251	0	271	0	291	0
212	0	232	0	252	0	272	0	292	0
213	0	233	0	253	0	273	0	293	0
214	0	234	0	254	0	274	0	294	43
215	0	235	0	255	0	275	0	295	0
216	0	236	0	256	0	276	0	296	0
217	0	237	0	257	0	277	0	297	0
218	0	238	19	258	110	278	0	298	0
219	0	239	6	259	0	279	0	299	0
								300	168

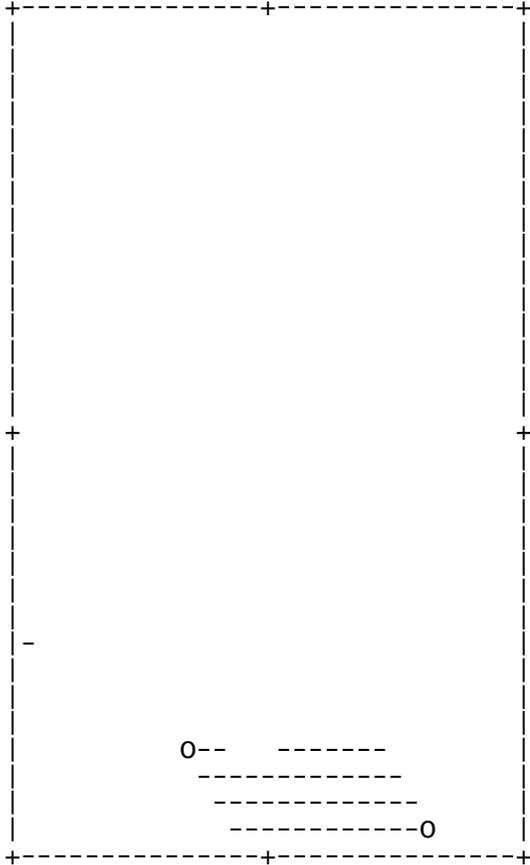
-----  
 Total 1005

Total allotments, least preclusive spacing: 27  
 Total allotments, most preclusive spacing: 20

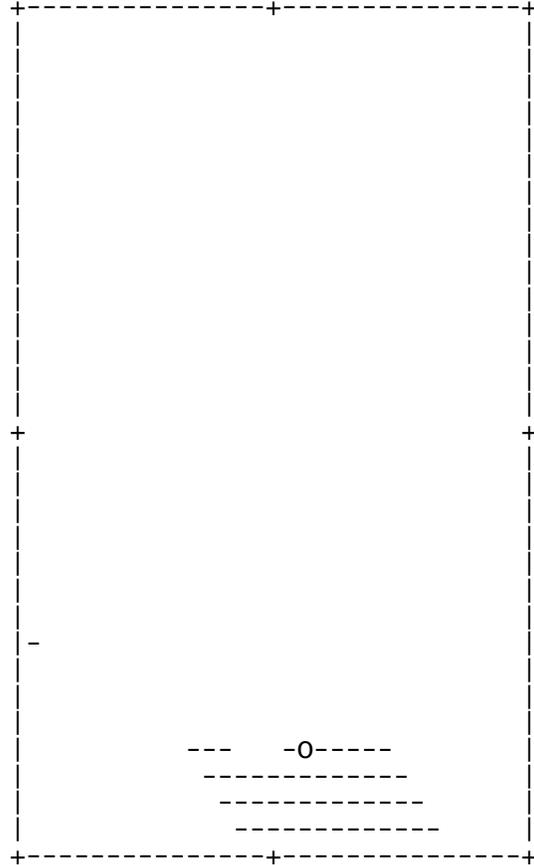
Note: Co-channel through second adjacent channel points shown highlighted above.

LPFM Grid Study Specific Channel Points

Greenville, SC  
Latitude 34-51-09  
Longitude 082-23-39  
Least preclusive siting  
Availability of channel 269 (X)



Greenville, SC  
Latitude 34-51-09  
Longitude 082-23-39  
Most preclusive siting  
Availability of channel 269 (X)



### Translator Height Above Average Terrain and Distance to Contour

The proposed translator facilities Height Above Average Terrain for the 12 radials used for translators is -76.3 meters. The corresponding distance to the 60 dBu F(50,50) contour is 7.089 kilometers, using the FM Curves utility on the Audio Division website. This translator falls in the smallest classification for separation requirements in 47 C.F.R. §73.807(d)(1). The required separation for co-channel operation is 26 kilometers. The required separation for first adjacent channels is 15 kilometers, and the required separation distance for second adjacent channels is 8 kilometers.

### Preclusion Study Description

Figure 1 shows the relationship of the proposed facilities to the Asheville market grid, and the Greenville-Spartanburg market grid. This facility as proposed in the short form filing is plotted with its Application ID, 649352.A. The Tech Box 60 dBu F(50,50) contour (dashed blue line) is shown. The proposed modified facilities are identified as 649352m. The proposed 60 dBu F(50,50) contour is shown as a solid blue line.

A black line shows the 26 kilometer radius circle where the proposed translator facilities could preclude a co-channel LPFM opportunity. The 26 kilometer co-channel preclusion circle reaches the Greenville-Spartanburg market grid. A light blue 15 kilometer first adjacent preclusion circle is shown, as is an 8 kilometer second adjacent channel preclusion distance, shown in red. The second adjacent preclusion radius does not reach either the Asheville market or the Greenville-Spartanburg market, and therefore does not preclude any identified second adjacent channel points in either market. The closest (southernmost)

second adjacent channel protected points are plotted in the Asheville market grid. The closest second adjacent channel protected points fall below (South of) the lower margin of the map.

The proposed facility does not preclude any identified points on co-channel through second adjacent channel in the Asheville or Greenville-Spartanburg markets.

### 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 V-Soft Communications NED 03 terrain database. The NED 03 database is derived from the USGS National Elevation Data 30 meter terrain database.

**649352m**  
 Proposed  
 Latitude: 35-16-13 N  
 Longitude: 082-38-14 W  
 ERP: 0.18 kW  
 Channel: 267 101.3 MHz  
 AMSL Height: 703.0 m  
 Elevation: 684.0 m  
 Horiz. Pattern: Directional

**649352.A**  
 BNPFT20030317GSY  
 Latitude: 35-18-34 N  
 Longitude: 082-31-11 W  
 ERP: 0.01 kW  
 Channel: 270 101.9 MHz  
 AMSL Height: 963.0 m  
 Elevation: 945.0 m  
 Horiz. Pattern: Omni

**649352 Hendersonville, NC**  
 Preclusion Showing  
 July 2013  
 Figure 1

Timothy L. Warner, Inc.

