

File Number BNPFT-20030317LKV

Bristol, Virginia

Application for a new FM Translator

On Channel 222

by

Virginia Tech Foundation, Inc.

Exhibit 1

Grid Preclusion Showing

July 2013

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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 1, Grid Preclusion Showing, for Virginia Tech Foundation, 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 an amendment to an Auction 83 construction permit application for a new FM translator on Channel 222 in Bristol, Virginia, file number BNPFT-20030317LKV. 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 Notice¹ 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 primary station is changed, the status is changed to fill-in, the site is changed, the channel is changed to an I.F. channel, the power is increased, and the height is increased. 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 Johnson City (Tennessee) Market Grid. The Johnson City market is listed as a Spectrum Available Market using a 30 minute grid in Appendix B of the Fourth Report and Order.² The required showing is identified as Test C, in Attachment B to the Singleton Window PN.

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.

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

² *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.

Johnson City Market Study

The Johnson City 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 two protected points on channel 222, proposed in this application. There are protected points on lower first adjacent channel 221. There are no protected points on upper first or second adjacent channels 223 or 234, or on lower second adjacent channel 220. No I.F. channel protection is required.

Johnson City LPFM Grid Study Parameters and Overall Results

Johnson City, TN
 Latitude 36-18-48
 Longitude 082-21-13
 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	0	260	40	280	0	
201	0	221	111	241	0	261	177	281	0	
202	0	222	2	242	59	262	112	282	2	
203	0	223	0	243	0	263	86	283	281	
204	0	224	0	244	0	264	0	284	29	
205	0	225	0	245	0	265	51	285	0	
206	0	226	0	246	0	266	0	286	30	
207	0	227	0	247	0	267	0	287	402	
208	0	228	0	248	81	268	0	288	289	
209	0	229	0	249	2	269	0	289	0	
210	0	230	0	250	63	270	0	290	0	
211	0	231	63	251	0	271	49	291	0	
212	0	232	305	252	0	272	0	292	299	
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	3	297	0	
218	0	238	80	258	0	278	196	298	267	
219	0	239	0	259	0	279	0	299	164	
									300	51

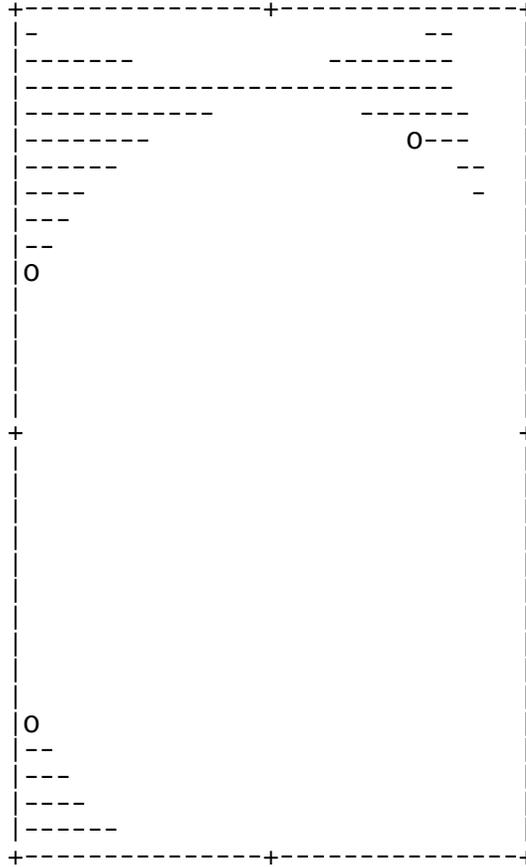
Total	3294									

Total allotments, least preclusive spacing: 53
 Total allotments, most preclusive spacing: 40

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

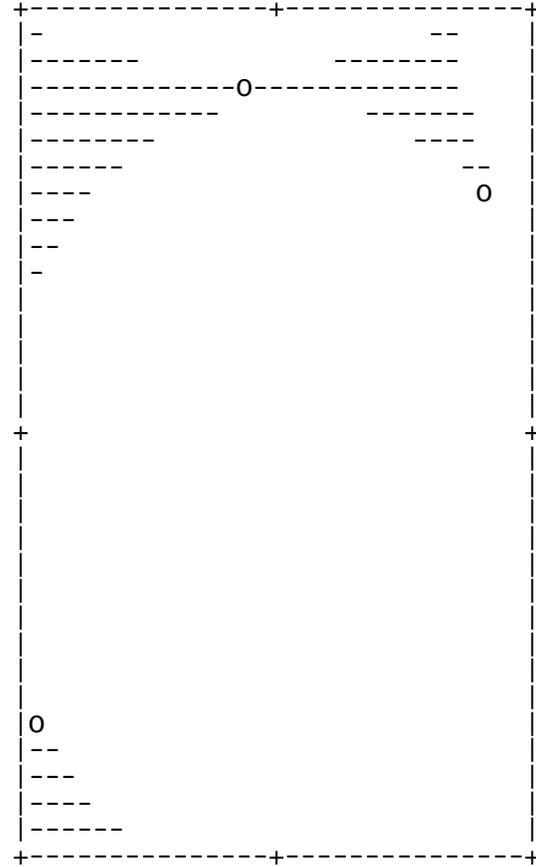
Johnson City LPFM Grid Study Specific Channel Points

Johnson City, TN
Latitude 36-18-48
Longitude 082-21-13
Least preclusive siting
Availability of Channel 221 (X)



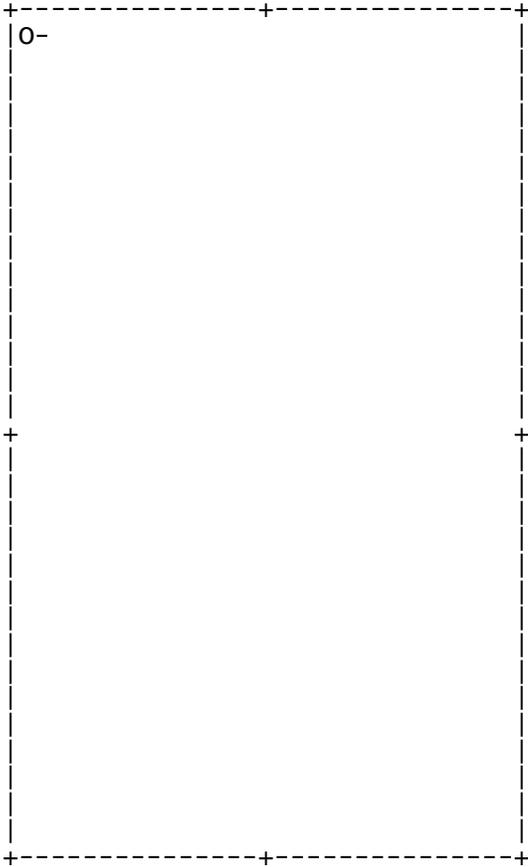
Point #952 at 36-24-48 082-36-13
Point #935 at 36-07-48 082-36-13
Point #213 at 36-29-48 082-12-13

Johnson City, TN
Latitude 36-18-48
Longitude 082-21-13
Most preclusive siting
Availability of Channel 221 (X)



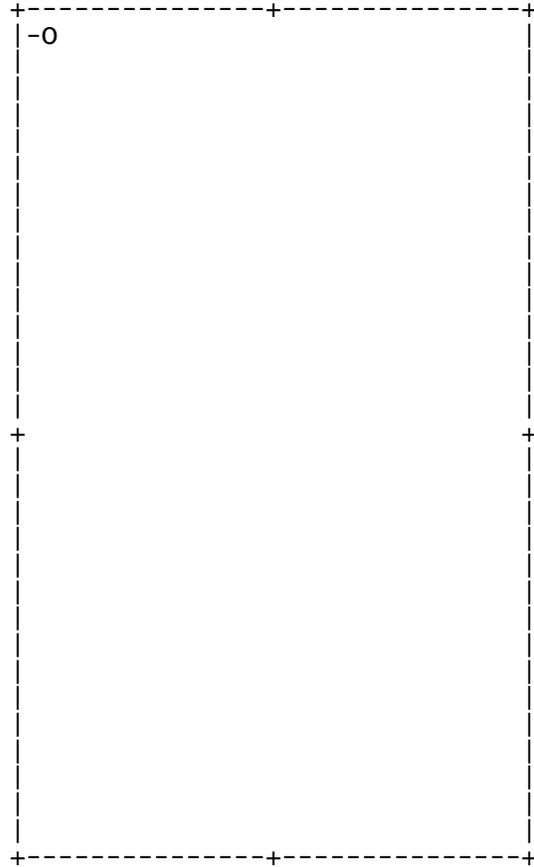
Point #556 at 36-31-48 082-23-13
Point #935 at 36-07-48 082-36-13
Point #087 at 36-27-48 082-08-13

Johnson City, TN
Latitude 36-18-48
Longitude 082-21-13
Least preclusive siting
Availability of channel 222 (X)



Point #961 at 36-33-48 082-36-13

Johnson City, TN
Latitude 36-18-48
Longitude 082-21-13
Most preclusive siting
Availability of channel 222 (X)



Point #930 at 36-33-48 082-35-13

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 79.6 meters. The corresponding distance to the 60 dBu F(50,50) contour is 7.261 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 Johnson City market grid. This facility as proposed in the short form filing is plotted with its Application ID, 637399.A. The Tech Box 60 dBu F(50,50) contour (dashed blue line) is shown. The proposed modified facilities are identified as 637399m. The proposed 60 dBu F(50,50) contour is shown as a solid red line.

A black line shows the 26 kilometer radius circle where the proposed translator facilities could preclude a co-channel LPFM opportunity. A light blue 15 kilometer first adjacent preclusion circle is shown, as is an 8 kilometer second adjacent channel preclusion distance, shown in red.

There are only two (2) protected points on the proposed channel. Those points, numbers 930 and 961, are shown in black near the Northwest corner of the grid. The co-channel 26 kilometer radius circle does not reach the protected points. The lower first adjacent

channel has multiple protected points. The closest points are plotted in blue near the Northeast corner of the market grid. The closest point is number 155. The first adjacent preclusion radius of 15 kilometers does not reach the protected points. Allowable rounding to 14.5 kilometers would increase the lack of preclusion. The preclusion radius of 8 kilometers does not reach the edge of the grid.

The proposed facility does not preclude any identified points on co-channel through second adjacent channel in the Johnson City market.

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.

637399m
 Proposed
 Latitude: 36-40-41 N
 Longitude: 082-04-25 W
 ERP: 0.04 kW
 Channel: 222 92.3 MHz
 AMSL Height: 685.0 m
 Elevation: 635.0 m
 Horiz. Pattern: Omni

637399.A
 BNPFT20030317LKV
 Latitude: 36-35-45 N
 Longitude: 082-09-42 W
 ERP: 0.01 kW
 Channel: 275 102.9 MHz
 AMSL Height: 639.0 m
 Elevation: 549.0 m
 Horiz. Pattern: Omni

WFHG
 Type: AM
 Channel: 980
 Latitude: 36-36-30 N
 Longitude: 082-09-36 W

637399 Bristol, Virginia
 Preclusion Showing
 July 2013
 Figure 1

Timothy L. Warner, Inc.

