

WEKF

Corbin, Kentucky

Application for Modification of Noncommercial FM Station

On Channel 203 Class C2

by

Eastern Kentucky University

Exhibit 19

Television Channel 6 Protection Under 47 C.F.R. §73.525

December 2009

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

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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 19, Television Channel 6 Protection Under 47 C.F.R. §73.525 for Eastern Kentucky University, 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
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Narrative

This Exhibit provides details of the Television Channel 6 Protection under 47 C.F.R. §73.525 for the proposed modified facilities for station WEKF to serve Corbin, Kentucky.

This Exhibit supports an amendment to change coordinates and elevation to conform to changes in the antenna structure registration.

Interference Calculations

There are only television channel six stations which are effected station according to §73.525(a)(1) is WKRP-LP, Alexandria, Tennessee, and WOOT-LP, Chattanooga, Tennessee. Protection is provided under the contour methods in §73.525(e). The low power television protected service contour used is the 62 dBu F(50,50) contour as described in §74.707(a)(1)(i). Figure 1 shows the WKRP-LP 62 dBu F(50,50) contour and the proposed WEKF interfering contour. Figure 2 shows the WOOT-LP 62 dBu F(50,50) contour and the proposed WEKF interfering contour.

In addition, WATE television formerly operated on channel 6 in Knoxville, Tennessee, with the distance to be considered affected. A letter of support from WATE is included with this application.

The Effective Radiated Power for the Corbin facility is adjusted for mixed polarization as follows:

$$\text{Power} = [\text{Horizontal ERP} + (\text{Vertical ERP}/A)] \quad \text{where in this case } A=40$$

because the entire predicted interference area lies outside any cities with populations of 50,000 persons or more¹.

¹ §73.525(e)(4)(ii)

For this facility, the proposed ERP is 22,000 Watts Vertical and 22,000 Watts Horizontal. Therefore $P = 22,550$ Watts.

Interference Population

There are no areas of overlap with television channel 6 stations that may be affected. This application is therefore in compliance with the limit of no more than 3,000 persons as listed in §73.525(c).

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. Terrain data is 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. 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.

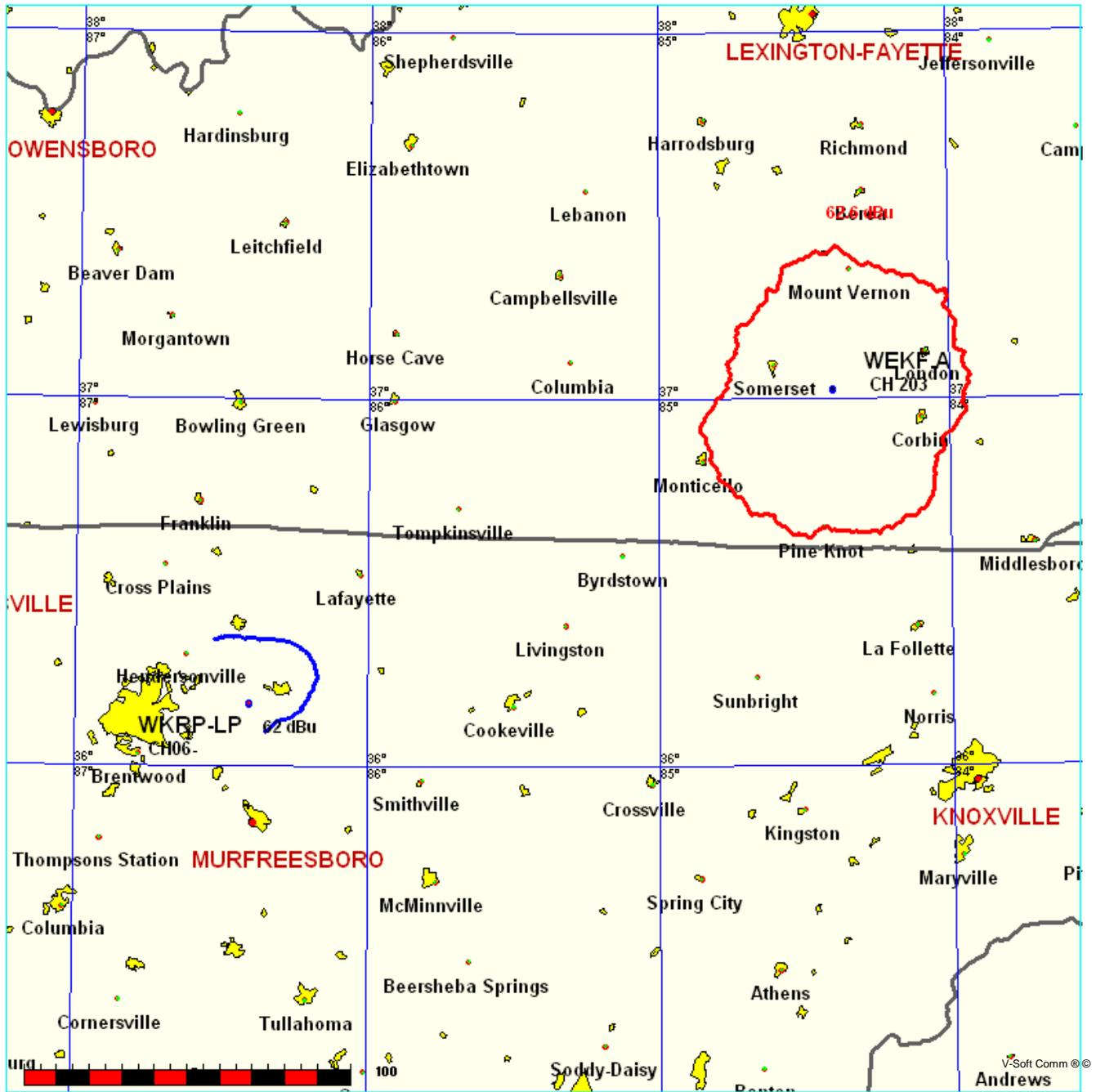
All population data is from 2000 U.S. Census SF1 data files. Population is counted by considering the location of the centroid of each census bloc. The data for each block is counted if it falls within the area being counted.

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Figure 1: Television Channel 6 Study: WKRP-LP

FMCommander Single Allocation Study - 12-04-2009 - NED 03 SEC
WEKF.A's Overlaps (In= 40.05 km, Out= 12.01 km)

WEKF.A CH 203 C2 DA
Lat= 37 01 13.0, Lng= 84 23 43.0
22.55 kW 146.9 M HAAT, 465 M COR
Intef. = 62.6 dBu

WKRP-LP CH 06- T DA BLTVL20080530AAC
Lat= 36 09 00.0, Lng= 86 23 13.0
2.0 kW 160 M HAAT, 322 M COR
Prot. = 62 dBu



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 Figure 2: Television Channel 6 Study: WOOT-LP

FMCommander Single Allocation Study - 12-04-2009 - NED 03 SEC
 WEKF.A's Overlaps (In= 40.05 km, Out= 12.01 km)

WEKF.A CH 203 C2 DA
 Lat= 37 01 13.0, Lng= 84 23 43.0
 22.55 kW 146.9 M HAAT, 465 M COR
 Intef. = 62.6 dBu

WOOT-LP CH 06+ T BLTVA20070713ADV
 Lat= 35 12 26.0, Lng= 85 16 52.0
 1.4 kW 0 M HAAT, 637 M COR
 Prot. = 62 dBu

