

# ENGINEERING REPORT

Requesting a Minor Change Application  
for FM Station

WVRS(FM) – Gore, VA  
License Number BLED-20110831ACG  
Facility ID #122630

Power Increase Application

August, 2014

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Discussion of Report

## **Main Studio Location**

- Exhibit 15.1(a) – Topographical Map of Transmitter Site
- Exhibit 15.1(b) – Aerial Photograph of Transmitter Site
- Exhibit 15.2 - Vertical Plan of Antenna System and Support Tower
- Exhibit 15.3 - Tabulation of Operating Conditions
- Exhibit 15.4 - Present and Proposed Contour Study

## **Interference Requirements**

### **Contour Overlap Requirements**

- Exhibit 18.1 - Non-Commercial Allocation Contour Study
- Exhibit 18.2 - Contour Protection Study Toward WCSP-FM – Washington, DC
- Exhibit 18.3 - Contour Protection Study Toward WPER(FM) – Culpepper, VA
- Exhibit 18.4 - Contour Protection Study Toward WXDM(FM) – Front Royal, VA
- Exhibit 18.5 - Directional Antenna Pattern Study

<b>Spacing Requirements</b>	(none)
<b>Grandfathered Short-Spaced Requirements</b>	(none)
<b>Contour Protection Requirements</b>	(none)

<b>TV Channel 6 Protection Requirements</b>	(none)
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**RF Radiation Study Requirement** (See Discussion)

Exhibit 24.1 – RF Radiation Study

(Exhibit Numbering is in response to FCC Online Form 340, Section VII)

# **DISCUSSION OF REPORT**

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This firm was retained to prepare the required engineering report in support of this minor change license modification application for Non-Commercial FM station WVRS(FM), Gore, VA, License Number BLED-20110831ACG. WVRS(FM) presently operates on Channel 211A, 90.1 MHz with 0.009 kW at 805 meters AMSL utilizing a non-directional antenna. The licensee proposes operation at the same site and location on the existing tower on Channel 211A, 90.1 MHz, with 0.25 kW at 805 meters AMSL employing a directional antenna pattern. The facility will continue to serve Gore, VA.

The proposed Class A operation will continue to meet all contour protection requirements towards other stations in the allocation. An FMCommander™ allocation study as supplied by V-Soft® Communications has been included in **Exhibit 18.1**. There are three (3) facilities, existing or proposed, close enough to merit further study. Contour protection maps and tabulations have been supplied for these three facilities as noted in **Exhibit(s) 18.2 to 18.4**. It is believed there is sufficient clearance to preclude the need for further study with respect to the other protected stations shown in the allocation study. **Exhibit 18.5** is a plot and tabulation of the proposed directional antenna pattern.

The transmitter site is not located within 320 km of the common border between the United States and Canada. Full protection is afforded all international facilities as noted in **Exhibit(s) 18.1**. Additional tabulations for each contour employed will be supplied to the FCC upon request.

The transmitter site proposed in this application is not located within the affected radius of any TV-6 facility as noted in the FCC CDBS database at the time of this filing.

The antenna is mounted on an existing tower. The structure does not require Antenna Structure Registration (ASR). A Topographical Map showing the proposed site is included as **Exhibit 15.1(a)**. A satellite photograph of the proposed site is included as **Exhibit 15.1(b)**. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 15.2**. As this proposal will not increase the overall tower height, it is believed the FAA need not be notified. **Exhibit 15.3** is a tabulation of the proposed operating parameters.

The proposed service contour has been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The present and proposed plotted contours are found as **Exhibit 15.4** of this report. This exhibit shows the overall service that is provided by the 1.0 mV/m contour of the facility. The tabulation of the distances to the respective contours shown in this discussion is based on the use of the standard eight cardinal bearings, which were also used for the computation of the HAAT. However, the plotted contours shown in **Exhibit 15.4** are based on the use of a full 360 terrain radials and the NED 03 Second Terrain Database.

The remainder of the information in this report and exhibit numbering is responsive to the Rules of the Commission, and provides the data for FCC Form 340.

**RADIATION PROTECTION:** The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency radiation. This report section is in response to that provision of the Rules. The current Federal Communications Commission guidelines for RF radiation protection are set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01).

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1307(b)(3) of the Commission's rules concerning RF contributors of less than 5%.

## DISCUSSION OF REPORT (continued)

**Exhibit 24.1** provides the details of the study that was made to demonstrate compliance. The facility is properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed.

***In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.***

**DISTANCES TO CONTOURS:** The table below shows the distances to the 1.0 mV/m contour from the proposed facility using an ERP of 0.25 kW at an HAAT of 421 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 391102.0    W. Lng. = 782315.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	339.0	466.0	0.1513	-8.20	0.778	24.65
045	420.6	384.4	0.0227	-16.43	0.301	13.96
090	289.3	515.7	0.0110	-19.58	0.210	13.06
135	279.2	525.8	0.0200	-16.98	0.283	15.65
180	282.2	522.8	0.0251	-16.00	0.317	16.67
225	701.1	103.9	0.1606	-7.94	0.802	11.77
270	396.5	408.5	0.2500	-6.02	1.000	26.09
315	363.6	441.4	0.2500	-6.02	1.000	27.07
Ave El= 383.93 M    HAAT= 421.07 M    AMSL= 805.0						