

Engineering Statement
prepared for
CBS Radio Inc. of Washington, DC
WJFK-FM Manassas, Virginia
Facility ID 28625
106.7 MHz 20.0 kW (MAX-DA) 223 m

CBS Radio Inc. of Washington, DC (herein “*CBS Radio*”), licensee of WJFK-FM, Manassas, VA, has begun building the facility authorized in Construction Permit BPH-20121106AAQ. This Statement demonstrates that the new WJFK-FM facility will meet the principal community coverage requirements of §73.315(a) and therefore will comply with Construction Permit Special Operating Condition #5:

BEFORE PROGRAM TESTS ARE AUTHORIZED, the permittee must submit an exhibit demonstrating that the measured directional antenna pattern complies with the appropriate community coverage provisions of 47 C.F.R. Sections 73.315 or 73.515.

The proposed directional antenna, designed and modeled by Electronics Research, Inc. (the “ERI Antenna”), meets the protection requirements specified in the Construction Permit while providing necessary coverage of the principal community. The measured antenna pattern has the following composite relative field values across the azimuths pertaining to Manassas, VA coverage.

<u>Azimuth</u>	<u>Relative Field Value</u>
230	0.971
235	0.975
240	0.979
245	0.985

FCC-Method Principal Community Contour

Principal community coverage from authorized facility and the ERI Antenna pattern was predicted using the FCC’s standard coverage prediction methodology. As shown in **Figure 1**, the 70 dBμ contour provides coverage to 22.5 square kilometers or 87.5% of the area within the

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Manassas, VA municipal boundary.¹ The entire Manassas population (100%) is located within the conventionally predicted principal community coverage contour because all areas beyond the contour are presently unpopulated.²

A supplemental coverage study was conducted using the Longley-Rice method.³ **Figure 1** provides a green contour line showing the location of the first predicted field strength of 70 dBμ across the arc that includes the principal community. As shown, the entirety of Manassas is encompassed by this contour and is within the WJFK-FM protected contour. An interference study of shortspaced stations revealed no interference within the principal community.

The FCC-Method and Longley-Rice predicted contour distances are compared below. It is understood that alternative prediction methods are permissible in cases such as this where the alternative and standard prediction methods differ by more than ten percent.⁴

<u>Azimuth (degrees)</u>	FCC-Method	Longley Rice	<u>Difference</u>
	<u>Contour Distance (km)</u>	<u>Contour Distance (km)</u>	
232	30.2	57.4	52.5%
233	30.2	43.5	69.4%
234	30.1	42.5	70.8%
235	30.0	41.8	71.8%
236	29.9	42.1	71.0%
237	29.9	41.6	71.9%
238	29.9	44.7	66.8%
239	29.8	45.4	65.7%
240	29.8	45.6	65.3%
241	29.8	44.5	66.9%
242	29.8	44.5	66.9%
243	29.7	45	66.0%
244	29.7	44.5	66.7%
245	29.7	44.1	67.3%

¹ The geographic boundary of Manassas, VA was retrieved from the 2010 United States Census Bureau shape files. The total area within the municipal boundary is 25.7 square kilometers.

² The portions of Manassas beyond the contour primarily includes Manassas Airport and various industrial facilities.

³ The study predicted field strength at 9.1 meters with a time and situation variability of 50% and cell size of 0.25 kilometers.

⁴ See KFME-FM, Garden City, MO Memorandum Opinion & Order, July 2, 2008.

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Conclusion

As detailed in the foregoing, the WJFK-FM facility will meet the principal community coverage requirements of §73.315(a) and comply with Special Operating Condition #5.



FIGURE 1
PRINCIPAL COMMUNITY COVERAGE

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Cavell, Mertz & Associates, Inc.
Manassas, VA

ERI Antenna Measured Pattern
70 dBu F(50, 50) FCC-Method Contour

Fauquier
ERI Antenna Measured Pattern
70 dBu F(50, 50) Longley Rice Contour

ERI Antenna Measured Pattern
54 dBu F(50, 50) FCC-Method Protected Contour

