

## **ENGINEERING EXHIBIT**

### **Incentive Auction Channel Reassignment**

#### **Application for Digital Class A Television Station Construction Permit**

prepared for

##### **Gray Television Licensee, LLC**

WSVF-CD Harrisonburg, VA

Facility ID 190915

Ch. 36 11.4 kW

*Gray Television Licensee, LLC ("Gray")* is the licensee of Class A television station WSVF-CD, Channel 43, Facility ID 190915, Harrisonburg, VA. *Gray* herein proposes construction of the WSVF-CD post-auction facility on Channel 36. Reassignment of WSVF-CD from Channel 43 to Channel 36 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice ("CCRPN"*, DA 17-317, released April 13, 2017).

The proposed Channel 36 operation will employ a replacement main antenna system to be installed on the WSVF-CD tower in lieu of the existing main Channel 36 antenna. The overall structure elevation is less than 61 meters above ground and passes the FCC's TOWAIR program for the transmitter location, thus FCC antenna structure registration is not necessary. No change to the overall structure height will result.

The site is located within the quiet zone area specified in §73.1030(a) requiring coordination with the National Radio Astronomy Observatory ("NRAO") at Green Bank, WV. *Gray* has obtained preliminary coordination with NRAO, and the proposed Channel 36 facility parameters comply with the power limit identified by NRAO in the direction of the Green Bank Telescope. A detailed description of the technical details of this proposal will be supplied to NRAO for final review. Upon receipt of NRAO's concurrence, an amendment to this application will be submitted to include the letter of concurrence.

The proposed antenna is an ERI model AL8O-36 composite system with a parabolic cancellation element. The cancellation element will be oriented at 273 degrees True North which will create the required minima towards the NRAO. The proposal complies with the NRAO's limit 4.2 Watts maximum ERP at 273 degrees True. As part of the reassignment to Channel 36, the main antenna (presently ERI model AL8O-43) will be replaced with the AL8O-36, while the existing parabolic cancellation element is broadband and will continue to be utilized.

*Gray* proposes to operate WSVF-CD with an effective radiated power of 11.4 kW. The proposed operation matches the *CCRPN* reassignment parameters. Therefore, no extension in the Class A protected contour will occur and interference analysis to other television facilities is not required.

The nearest FCC monitoring station is 190 km distant at Laurel, MD. This exceeds by a large margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site location is beyond the border areas requiring international coordination. There are no authorized AM stations within 3 kilometers of the site.

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 12 percent antenna relative field in downward elevations (pattern data shows less than 12 percent relative field at angles 25 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is  $12.9 \mu\text{W}/\text{cm}^2$ , which is 3.2 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

**Chesapeake RF Consultants, LLC**

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