

ENGINEERING EXHIBIT

Incentive Auction Channel Reassignment

Application for Digital Television Station Auxiliary Antenna Construction Permit

prepared for

Gray Television Licensee, LLC WITN-TV Washington, NC Facility ID 594 Ch. 34 800 kW 407 m

Gray Television Licensee, LLC ("Gray") is the licensee of digital television station WITN-TV, Facility ID 594, Washington NC. Reassignment of WITN-TV from Channel 32 to Channel 34 was specified in the Incentive Auction Closing and Channel Reassignment Public Notice (DA 17-317, released April 13, 2017). A Construction Permit ("CP", file# 0000034101) authorizes construction of the WITN-TV post-auction facility on Channel 34. Gray herein seeks authorization for an auxiliary antenna for WITN-TV on its post-auction Channel 34.

The CP authorizes WITN-TV to operate with a nondirectional antenna at 1000 kW effective radiated power (ERP) and 592 meters height above average terrain (HAAT). The proposed auxiliary facility will utilize an antenna side-mounted on the same tower structure as the authorized main antenna, and will operate on Channel 34 at 800 kW ERP (nondirectional) and an antenna HAAT of 407 meters.

The WITN-TV tower structure is associated with FCC Antenna Structure Registration number 1006359. No change to the overall structure height will result from this proposal.

Figure 1 shows that the 41 dBu noise limited service contour of the proposed auxiliary facility does not extend beyond that of the authorized main facility. Thus the proposal complies with §73.1675(a).

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 15 percent antenna relative field in downward elevations (pattern data shows less than 15 percent relative field at angles 10 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 $3.6 \,\mu\text{W/cm}^2$, which is 0.9 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.

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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.

List of Attachments

Figure 1 Proposed Auxiliary Contours

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	August 6, 2019	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600

