ENGINEERING EXHIBIT

Incentive Auction Channel Reassignment

Application for License to Cover Digital Television Station

prepared for

Thomas Broadcasting Company
WOAY-TV Oak Hill, WV
Facility ID 66804
Ch. 31 320 kW 210 m

Thomas Broadcasting Company ("Thomas") is the licensee of digital television station WOAY-TV, Channel 50, Facility ID 66804, Oak Hill, WV. Reassignment of WOAY-TV from Channel 50 to Channel 31 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice* (*"CCRPN"*, DA 17-317, released April 13, 2017). A Construction Permit ("CP" file# 0000028013) authorizes WOAY-TV to operate on Channel 31 at 320 kW effective radiated power ("ERP") with a nondirectional antenna at 210 meters height above average terrain ("HAAT"). *Thomas* has completed construction of the WOAY-TV facility as authorized in the CP and is seeking a license to cover the CP.

Special Operating Condition

Standard broadcast station WOAY(AM) (Facility ID 12550, 860 kHz, Oak Hill, WV) is co-located with WOAY-TV and utilizes the WOAY-TV tower structure as its nondirectional radiator. This statement provides support regarding compliance with the following special condition on the WOAY-TV CP:

> "Prior to construction of the tower authorized herein, permittee shall notify AM Station(s) listed below so that the station(s) may commence determining operating power by the indirect method. Permittee shall be responsible for the installation and continued maintenance of detuning apparatus necessary to prevent adverse effects upon the radiation pattern of the AM station(s). Both prior to construction of the tower and subsequent to the installation of all appurtenances thereon, antenna impedance measurements of the AM station(s) shall be made and sufficient field strength measurements, taken at 8 locations along each of six equally spaced radials, shall be made to establish that the AM radiation pattern is essentially omnidirectional. Prior to or simultaneous with the filing of application for license to cover this permit, the results of the field strength measurements and the impedance measurements shall be submitted to the Commission in an application for the AM station(s) to return to the direct method of power determination.
> Callsign: WOAY City: OAK HILL State: WV."

The special condition requiring AM station field strength measurements to examine potential pattern disturbance would be appropriate if the AM station utilized a different tower structure than the WOAY-TV tower. Since WOAY(AM) utilizes the WOAY-TV tower structure itself, there is no pattern disturbance resulting from buildout of the WOAY-TV CP. Rather, the appropriate special condition[1] should have required post-construction antenna impedance measurements to determine any changes in the AM antenna resistance, and, if a change in excess of 2 percent from the licensed value is found, then the AM station would need to file FCC Form 302-AM for direct power measurement.

To that end, the installation of the authorized WOAY-TV facility is being coordinated with the WOAY(AM) operation. WOAY(AM) went silent to accommodate the construction of the Channel 31 WOAY-TV facility (see CDBS file# (BLSTA-20191011AAN). Tower reinforcement work and guy wire replacement is still underway, and the WOAY(AM) operation will be restored following that work when personnel are no longer working on the tower. Prior to WOAY(AM) resuming operation, AM antenna impedance measurements will be conducted and the WOAY(AM) antenna coupling components will be adjusted as needed. If it is determined that the AM antenna resistance has changed beyond the 2 percent threshold, the licensee of WOAY(AM) will file FCC Form 302-AM for direct power measurement.

As described herein, coordination with station WOAY(AM) has been accomplished for use of the same tower structure. Accordingly, *Thomas* believes that it has complied with the intended requirements of the special condition on the Channel 31 CP and requests a license to cover.

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[1]The special condition typical for co-location of a TV or FM antenna on a tower used as a nondirectional AM station radiator is: "This construction permit authorizes the mounting of an antenna on the nondirectional tower of the AM station identified below. During the installation of the antenna, the AM station shall determine operating power by the indirect method (see Section 73.51 of the Commission's Rules). Upon completion of the antenna installation, antenna impedance measurements on the AM antenna shall be made. If the resistance of the AM antenna has changed by more than 2 percent from the licensed value (see Section 73.45(c)(1) of the Commission's Rules), an application for the AM station to return to direct power measurement, including a tower sketch of the installation, shall be filed with the Commission by the AM station licensee using form FCC 302-AM. (See Section 1.30003 of the Commission's Rules.) The permittee must submit confirmation of completion of the requirements of this condition in the application for license to cover this construction permit."

Construction Differences

The WOAY-TV reassignment facility has been constructed pursuant to the technical parameters specified in the CP, except that elliptical polarization was implemented in lieu of horizontal polarization. The resulting increase in vertically polarized ERP is permitted by §73.1690(c)(4) to be specified on a license application. However, electronic filing provided by the FCC's Licensing and Management System does not provide opportunity for the applicant to change polarization.

Thomas requests that the license record specify elliptical polarization rather than horizontal polarization as authorized in the CP. The effective radiated power, nondirectional pattern, antenna location, and antenna height as constructed match the values authorized in the CP. A summary of the technical values which differ from those authorized in the CP is provided below.

	CP File# 0000028013	As-Built Values for License
Antenna Make	Dielectric	Dielectric
Antenna Model	TFU-31JTH-R O4	TFU-31JTH/VP-R O4
Polarization	Horizontal	Elliptical

The antenna provides 25 percent vertical polarization, where the maximum horizontally polarized nondirectional ERP is 320 kW and the maximum vertically polarized nondirectional ERP is 80 kW. The vertically polarized component does not exceed the horizontally polarized component at any azimuth.

Chesapeake RF Consultants, LLC
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