

ENGINEERING EXHIBIT

Application for an LPTV Station Construction Permit

prepared for

Valor TV, LLC

W25DY Monticello, New York

Facility ID 70097

Ch. 31 14.7 kW 742.8 m AMSL

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prepared for
Valor TV, LLC
W25DY Monticello, New York
Facility ID 31646
Ch. 31 14.7 kW 742.8 m AMSL

Valor TV, LLC (“*Valor*”) is the licensee of television translator station W25DY, Channel 25, Monticello, New York, Facility ID 31646 (CDBS File No. BLDTT-20100506AEI) and has been granted a Construction Permit to operate on Channel 21 (File No. 0000052137). *Valor* herein requests to dismiss the Channel 21 Construction Permit and to replace it with a different channel at a new location. Specifically, *Valor* proposes to operate from registered structure (ASRN 1065043) with coordinates of 41° 41’ 6.20” N Latitude and 74° 21’ 21.60” W Longitude (NAD 83) at 14.7 kW Effective Radiated Power, using an omni-directional antenna centered at 742.8 meters AMSL.

Nature of the Proposal

The proposed antenna system for the W25DY operation is an omni-directional antenna which will be side-mounted on an existing tower structure with the Antenna Structure Registration Number 1065043. No change in structure overall height is necessary to carry out this proposal. Since no change to the structure’s overall height is proposed, no change to structure marking/lighting requirements set forth in the aeronautical study will result.

The proposed digital facility will operate on Channel 31 using a “Full Service” out of channel emission mask, a maximum effective radiated power of 14.7 kW, and an antenna height of 742.8 meters AMSL. **Figure 1** depicts the 51 dB μ F(50,90) coverage contours of the authorized and proposed facilities, as well as the 48 km (30 mile) move limit for displacement applications from the reference coordinates of its community of license. As demonstrated on the provided map, the service area overlap shown demonstrates compliance with §74.787(a)(4).

Allocation Considerations

The instant proposal complies with the Commission’s interference protection requirements toward all DTV, television translator, LPTV, and Class A stations. A detailed interference study was conducted using the FCC’s TV Study program version 2.2.5¹. The interference study results are

¹ The TV Study program was configured to perform its calculations using a cell size of 1 km and a terrain profile increment of 0.1 km. It is believed that this setting better reflects terrain variations than the default setting.

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provided as an attachment to this Engineering Statement and show that any new interference does not exceed the Commission's interference limits (0.5 percent to full service and Class A stations or 2.0 percent to LPTV stations). Accordingly, the instant proposal complies with FCC Rules regarding interference protection to DTV, television translator, LPTV and Class A television facilities.

International Coordination

The proposed transmitter site is located 294.2 km from the U.S.-Canadian border. However, the worst case 25.42 dB μ interfering contour does not cross the border. The proposal is also 2,703.6 km from the U.S.-Mexican border, which is greater than the required coordination distance specified for digital low power television stations. Thus, it is believed that international coordination will not be necessary for the instant proposal.

Other Allocation Considerations

The nearest FCC monitoring station is at Canandaigua, NY, at a distance of 275.4 km from the proposed site. This exceeds by a great margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The proposed site is also located outside the areas specified in §73.1030(a)(1) and §73.1030(b). Thus, notification of the instant proposal to the National Radio Astronomy Observatory at Green Bank, West Virginia, or the Table Mountain Radio Receiving Zone in Boulder County, Colorado is not required. There are no AM broadcast stations located within 3.2 km (2 miles) of the proposed site, according to information extracted from the Commission's engineering database.

Environmental Considerations

The instant proposal is not believed to have a significant environmental impact as defined under §1.1306 of the Commission's Rules. Consequently, preparation of an Environmental Assessment is not required. *Valor* herein proposes to construct the proposed facility on an existing tower structure with the Antenna Structure Registration Number 1065043. The use of existing tower structure has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. No change in structure height is proposed, thus no change in current structure marking and lighting requirements is anticipated. Therefore, it is believed that this

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application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

Human Exposure to Radiofrequency Electromagnetic Field

The proposed operation was evaluated for human exposure to radiofrequency electromagnetic field using the procedures outlined in the Commission's OET Bulletin 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility exceeds the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the cited adopted guidelines.

The W25DY Channel 31 antenna center of radiation will be 53.6 meters above ground level. An effective radiated power of 14.7 kilowatts, elliptically polarized, will be employed utilizing an ERI model AL80-31-E UHF low power antenna. Based on the manufacturer's data, a "worst-case" relative field value of 25 percent is assumed for purposes of the calculation. The "uncontrolled/general population" limit specified in §1.1310 for Channel 31 (center frequency 575 MHz) is 383.3 $\mu\text{W}/\text{cm}^2$.

OET 65's formula for television transmitting antennas is based on the NTSC transmission standards, where the average power is normally much less than the peak power. For the DTV facility in the instant proposal, the peak-to-average ratio is different than the NTSC ratio. The DTV ERP figure herein refers to the average power level. The formula used for calculating DTV signal density in this analysis is essentially the same as equation (10) in OET 65.

$$S = (33.4098) (F^2) (ERP) / D^2$$

Where:

- S = power density in microwatts/cm²
- ERP = total (average) ERP in Watts
- F = relative field factor
- D = distance in meters

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Using this formula and the above assumptions, the proposed facility would contribute a power density of $23.5 \mu\text{W}/\text{cm}^2$ at two meters above ground level near the antenna support structure, or 6.13 percent of the general population/uncontrolled limit.

One other broadcaster, WRWB-FM (Ch 257A, Ellenville, NY) is located on the same tower. Based on a center of radiation of 58 meters above ground and an ERP of 0.115 kW, RF exposure calculations result in an exposure level of $1.59 \mu\text{W}/\text{cm}^2$ or 0.795% of the General Population limit for FM at two meters above ground level according to the FCC's FM Model program. Calculations were performed using a worst-case single bay, Type 1 antenna. A simple sum of the proposal's exposure level and the WRWB-FM level results in a total of 6.925% of the general population/uncontrolled limit. Accordingly, it is believed that the impact of the proposed operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

Safety of Tower Workers and the General Public

As demonstrated herein, excessive levels of RF energy attributable to the proposal will not be caused at publicly accessible areas at ground level or near the base of the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission's guidelines. Nevertheless, access will be restricted and controlled through the use of a locked gate. Additionally, appropriate RF exposure warning signs will be posted.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level. A site exposure policy will be employed protecting maintenance workers from excessive exposure when work must be performed on the tower or in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines would otherwise be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations.

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Conclusion

Based on the preceding, it is believed that the instant proposal complies with all Commission Rules and policies.

