

ENGINEERING EXHIBIT
DTV DISPLACEMENT RELIEF APPLICATION
LPTV STATION W23BH
CHARLESTON, WEST VIRGINIA
CH 16 65 KW (MAX-DA)

Technical Narrative

The engineering exhibit of which this narrative is part supports a digital television displacement relief application for low power television (LPTV) station W23BH on channel 23 at Charleston, West Virginia.

Station W23BH currently is licensed (BLTTL-19950425IA) to operate on analog channel 23 with a directional antenna maximum visual effective radiated power (ERP) of 23.2 kilowatts. The antenna radiation center height above mean sea level (RCAMSL) is 361 meters. Station WSAZ-TV on NTSC channel 3 at Huntington, WV has been allotted channel 23 for its DTV operation.¹ This is the same channel as W23BH's NTSC operation. The WSAZ-TV transmitter site is located 51.4 kilometers from the W23BH transmitter site; therefore, W23BH's analog operation on channel 23 will be displaced by soon expected activation of the WSAZ-TV DTV operation.

¹ See Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order in MM docket No. 87-268 (98-24) ("Memorandum/Sixth Report") at Appendix B.

Proposed Facilities

Station W23BH proposes to operate on channel 16 with a minus carrier frequency offset. It proposes to side-mount a Dielectric type TLP-16J(C) directional antenna at the same location on the existing tower as its current channel 23 antenna. The proposed maximum visual ERP will be 65 kW with the antenna RCMSL at 357.9 meters. There will be no change in city of license (Charleston) or transmitter site. The tower has been assigned registration number 1061555.

NTSC Allocation Considerations

A study has been conducted using the provisions of Sections 74.705, 74.707 and 74.709 to assure that the proposal will not create prohibited interference with other authorized NTSC full-power and LPTV stations. The proposal complies with all FCC rules; however, with respect to the existing and proposed operation of station W16BT Zanesville, Ohio, the interference study was conducted employing the Longley-Rice model. The attached Figure 1 provides information regarding this study.

The proposed facility is located outside of the border areas of Mexico and Canada and therefore, coordination with respect to either country is not required.

DTV Allocation Considerations

The proposed operation will not cause interference to any actual DTV operating facilities on channels 15, 16 or 17. A miniscule amount of interference is expected to DTV

station WKHA-DT Hazard, KY on channel 16; however, that interference is well within the acceptable limit.

Environmental Considerations

The proposed W23BH facilities were evaluated in terms of potential radiofrequency radiation (RFR) exposure at ground level in accordance with OET Bulletin No. 65, *"Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation."* The proposed W23BH power density was calculated using the appropriate equation of the Bulletin. Using a vertical relative field value of 0.179, a peak visual effective radiated power of 75 kW and 10 percent aural power, the calculated power density at ground level at the base of the tower is 0.0161 milliwatts per square centimeter (mW/cm^2), or 4.97 percent of the Commission's recommended limit applicable to general population/uncontrolled exposure areas ($0.32 \text{ mW}/\text{cm}^2$) for TV channel 16). Therefore, based on the threshold of 5%, the proposal will comply with the RF emission rules.

Access to the tower is currently restricted and appropriately marked with warning signs. Furthermore, procedures will be in effect for instances in which workers or other authorized personnel enter the restricted area to ensure that appropriate measures are taken to assure worker safety with respect to radio frequency radiation exposure. Such procedures include reducing the average exposure by spreading out the work over a longer period of time or scheduling work when the station is at reduced power or off the air.

In addition, it appears that the existing structure is otherwise excluded from environmental processing as it

complies with all the criteria for such exclusion in Section
1.1306.

A handwritten signature in cursive script, reading "Louis R. du Treil, Sr.".

Louis R. du Treil, Sr.

du Treil, Lundin & Rackley, Inc.
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ENGINEERING EXHIBIT
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CH 16 65 KW (MAX-DA)

INTERFERENCE CAUSED

W16BT2 39-56-55 081-57-48 16(-) 22.700 kw 363.4 m DA 50.0 % 74.0 dBu
ZANESVILLE OH
CP BPTT20010807AAU
1.00 0.99 0.98 0.95 0.92 0.87 0.82 0.77 0.71 0.67 0.63 0.61
0.60 0.61 0.62 0.64 0.66 0.67 0.68 0.67 0.66 0.64 0.62 0.61
0.60 0.61 0.63 0.67 0.71 0.77 0.82 0.87 0.92 0.95 0.98 0.99
Ref Az: 240.0

Using DEFAULT vertical antenna pattern

| | Area | Pop |
|--------------------------------|----------|-------|
| within Noise Limited Contour | 813.3834 | 67639 |
| not affected by terrain losses | 807.4893 | 67560 |

W23BH 38-22-31 081-39-22 16(-) 65.000 kw 357.5 m DA 10.0 % 74.0
CHARLESTON WV
LIC BLTTL19950425IA
0.28 0.36 0.40 0.37 0.30 0.25 0.30 0.43 0.58 0.73 0.84 0.92
0.98 1.00 0.97 0.89 0.77 0.67 0.61 0.57 0.59 0.57 0.60 0.67
0.76 0.88 0.96 1.00 0.98 0.92 0.84 0.73 0.59 0.44 0.31 0.25
Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 45.00

| Interference | Area | Pop |
|--|------|-----|
| | 0 | 0 |
| ***** | | |
| W16BT 39-56-55 081-57-48 16(-) 8.400 kw 363 m DA 50.0 % 74.0 dBu | | |
| ZANESVILLE OH | | |
| LIC BLTT20010807AAQ | | |
| 1.00 0.99 0.98 0.95 0.92 0.87 0.82 0.77 0.71 0.67 0.63 0.61 | | |
| 0.60 0.61 0.62 0.64 0.66 0.67 0.68 0.67 0.66 0.64 0.62 0.61 | | |
| 0.60 0.61 0.63 0.67 0.71 0.77 0.82 0.87 0.92 0.95 0.98 0.99 | | |
| Ref Az: 240.0 | | |

Using DEFAULT vertical antenna pattern

| | Area | Pop |
|--------------------------------|----------|-------|
| within Noise Limited Contour | 478.3705 | 59120 |
| not affected by terrain losses | 478.3705 | 59120 |

W23BH 38-22-31 081-39-22 16(-) 65.000 kw 357.5 m DA 10.0 % 74.0
CHARLESTON WV
LIC BLTTL19950425IA
0.28 0.36 0.40 0.37 0.30 0.25 0.30 0.43 0.58 0.73 0.84 0.92
0.98 1.00 0.97 0.89 0.77 0.67 0.61 0.57 0.59 0.57 0.60 0.67
0.76 0.88 0.96 1.00 0.98 0.92 0.84 0.73 0.59 0.44 0.31 0.25
Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 45.00

| Interference | Area | Pop |
|--------------------------|------|-----|
| | 0 | 0 |
| Study end time: 09:19:06 | | |

| Facility | Channel | Type | Baseline | Permissible | IX | %Base |
|------------------------|---------|------|----------|-------------|----|-------|
| W16BT2, ZANESVILLE, OH | 16 | TV | 67639 | 2.0 | 0 | 0.00 |
| W16BT, ZANESVILLE, OH | 16 | TV | 59120 | 2.0 | 0 | 0.00 |

CELL SIZE : 1.00

Using offset in determining thresholds

Per 6th Report & Order and FCC OET-69 Bulletin