



**Kessler and Gehman Associates**  
Consultants • Broadcast • Wireless

# MINOR MODIFICATION TO A CONSTRUCTION PERMIT

**CALL SIGN:** W16DT-D  
**FACILITY ID:** 167356  
**FCC File No:** 0000202709  
**LOCATION:** Keyser, WV

## ***Prepared For:***

West Virginia Educational  
Broadcasting Authority  
600 Capitol Street  
Charleston, WV 25301

## ***Prepared By:***

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August 10, 2023

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## **1.0 EXECUTIVE SUMMARY**

West Virginia Educational Broadcasting Authority is the licensee of a digital low power television broadcast station having call sign W16DT-D, and facility ID 167356. W16DT-D has a construction permit<sup>1</sup> to operate on channel 16 using an omni directional antenna with an ERP of 15kW at a height of 951.3m AMSL on a 32m tall structure without an antenna structure number. It is proposed to modify the construction permit to move the antenna to a 24.4m support structure located near the permitted structure. It is hereby proposed to make the following technical changes:

- Move the transmitter site from NAD83 coordinates:
  - 39° 22' 55.3" N / 79° 04' 45.1" W to
  - 39° 22' 56.3" N / 79° 04' 44.3" W
- Increase the antenna height from 951.3m to 958.6m AMSL

The proposed modification is considered “minor” pursuant to 74.787(b) since

- there is no change in frequency (output channel),
- there is no change in transmitting antenna location where the protected contour resulting from the change does not overlap some portion of the protected contour of the authorized facilities of the existing station as demonstrated in Appendix C,
- there is no change in transmitting antenna location of greater than 30 miles (48 kilometers) from the reference coordinates of the existing station's antenna location as demonstrated in Appendix C.

## **2.0 STATION TRANSMITTER LOCATION AND TOWER ELEVATION**

The applicant is unable to build the construction permitted facility in a timely manner due to structural issues recently discovered in the 32m support structure. The structure will be repaired or replaced in a future date; however, in the

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<sup>1</sup> FCC File No.: 0000202709

meantime a mobile Cell on Wheels (“COW”) trailer with a 24.4m telescoping tower will be brought in and erected nearby the original tower to support the W16DT-D antenna until the original tower can be rebuilt or replaced.

The 24.4m COW trailer tower does not have an FAA or FCC Antenna Structure Registration Number. Appendix A is a determination from the FCC’s TOWAIR which indicates that the “Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates provided.”

### **3.0 ALLOCATION ANALYSIS**

Appendix B are the summarized results from TVStudy V2.2.5 which illustrate that there are no interference failures to other facilities.

### **4.0 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)**

#### **4.1 General Environmental Requirements**

The support structure with the addition of the proposed will not trigger any of the following environmental considerations which trigger an environmental assessment:

- Require high intensity white lighting.
- Is not located in an official designated wilderness area or wildlife preserve.
- Does not threaten the existence or habitat of endangered species.
- Does not affect districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture that are listed in the National Register of Historic Places or are eligible for listing.
- Does not affect Indian religious sites.
- Is not located in a floodplain.

- Does not require construction that involves significant changes in surface features (e.g., wetland fill, deforestation, or water diversion).

#### 4.2 Radio Frequency Radiation (RFR) Compliance.

A theoretical analysis has been conducted of the human exposure to radio frequency radiation (“RFR”) using the calculation methodology described in OET Bulletin 65, Edition 97-01, pursuant to the following methodology:

Terrain<sup>2</sup> extraction is compiled from the proposed tower site to radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. In this case flat terrain was used to simulate standing on the top floor of the building. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

Starting from the origin the maximum calculated RFR value is determined among the 360 degree radials for each 0.001 mile increment, the value is then converted into a percentage of the maximum allowable general population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

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<sup>2</sup> Terrain extraction is based upon a 3 arc second point spacing terrain database.

Appendix D is an RFR analysis which demonstrates that the peak RFR exposure is less than 5% of the most restrictive permissible exposure threshold standing anywhere at ground level and in any proximity to the proposed support structure. Pursuant to OET Bulletin 65, since the proposed operation does not exceed 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR and other sources of RFR need not be taken into consideration for a net effect. The instant application is compliant with the FCC limits for human exposure to RFR and thus is excluded from further environmental processing.

## **5.0 CERTIFICATION**

The foregoing statement and the report regarding the engineering work are true and correct to the best of my knowledge. Executed August 10, 2023.

Kessler and Gehman Associates, Inc.



Ryan Wilhour  
Consulting Engineer

APPENDIX A – TOWAIR Determination

<b>DETERMINATION Results</b>	
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.	
<b>Your Specifications</b>	
<b>NAD83 Coordinates</b>	
Latitude	39-22-56.3 north
Longitude	079-04-44.3 west
<b>Measurements (Meters)</b>	
Overall Structure Height (AGL)	24.4
Support Structure Height (AGL)	24.4
Site Elevation (AMSL)	946.4
<b>Structure Type</b>	
POLE - Any type of Pole	

# W16DT-D – Minor Modification to a Construction Permit

Keyser, WV

## APPENDIX B – TVStudy V2.2.5 Allocation Analysis

Study created: 2023.08.10 13:20:45

Study build station data: LMS TV 2023-08-09

Proposal: W41DK-D D16 LD CP KEYSER, WV  
File number: W41DK-D  
Facility ID: 167356  
Station data: User record  
Record ID: 1321  
Country: U.S.

Build options:  
Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WPSU-TV	D15	DD	LIC	CLEARFIELD, PA	BLEDT20130614ACC	200.8 km
No	WFDC-DT	D15	DT	LIC	ARLINGTON, VA	BLANK000041206	179.0
Yes	WVPT	D15	DT	CP	STAUNTON, VA	BLANK0000149712	136.8
Yes	WVPT	D15	DD	CP	STAUNTON, VA	BLANK0000201196	136.8
No	WCPB	D16	DT	LIC	SALISBURY, MD	BLANK0000166002	321.4
No	WDRH-LD	D16-	LD	LIC	Raleigh, NC	BLANK0000193085	400.9
No	WXII-TV	D16	DT	LIC	WINSTON-SALEM, NC	BLANK0000157823	353.0
No	WNYO-TV	D16	DT	LIC	BUFFALO, NY	BLANK0000136976	405.1
No	WRAP-LD	D16-	LD	LIC	CLEVELAND, OH	BLANK0000176891	313.9
No	WOSU-TV	D16	DT	LIC	COLUMBUS, OH	BLANK0000111772	339.5
Yes	W16EJ-D	D16	LD	LIC	Harrisburg, PA	BLANK0000168717	209.0
No	WDUM-LD	D16	LD	LIC	Philadelphia, PA	BLANK0000124581	336.6
Yes	WINP-TV	D16	DT	LIC	PITTSBURGH, PA	BLANK0000214889	140.3
No	WAPK-CD	D16	DC	LIC	BRISTOL VA/KINGSPORT, TN	BLANK0000070481	423.6
Yes	WVAW-LD	D16	LD	LIC	CHARLOTTEVILLE, VA	BLDRTL20090218AEG	163.8
No	WTKR	D16	DT	LIC	NORFOLK, VA	BLANK0000118339	364.1
Yes	WUSV-LD	D16	LD	CP	Fairmont, WV	BLANK0000072244	105.2
Yes	WUSV-LD	D16	LD	LIC	Fairmont, WV	BLDRTL20140616AEQ	105.2
No	WZTS-LD	D16	LD	LIC	SUMMERSVILLE, WV	BLANK0000025146	230.3
No	WJMB-CD	D17	DC	LIC	BUTLER, PA	BLDFTA20121108ALX	185.0
No	WJMB-CD	D17	DC	CP	BUTLER, PA	BLANK0000131009	185.0
No	W17EF-D	D17	LD	LIC	WHEELING, WV	BLANK0000214695	156.7
No	W17EF-D	D17	LD	CP	WHEELING, WV	BLANK0000216363	156.7

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D16  
Mask: Stringent  
Latitude: 39 22 56.30 N (NAD83)  
Longitude: 79 4 44.30 W  
Height AMSL: 958.6 m  
HAAT: 416.8 m  
Peak ERP: 15.0 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 1.50

48.9 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	407.1 m	63.6 km
45.0	15.0	567.2	69.5
90.0	15.0	597.4	70.5
135.0	15.0	579.5	69.9
180.0	15.0	456.2	65.9
225.0	15.0	158.2	49.7

## W16DT-D – Minor Modification to a Construction Permit

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Keyser, WV

270.0	15.0	265.9	56.0
315.0	15.0	302.9	58.1

Distance to Canadian border: 345.1 km

Distance to Mexican border: 2230.0 km

Conditions at FCC monitoring station: Laurel MD  
Bearing: 96.4 degrees Distance: 195.8 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 280.6 degrees Distance: 2227.4 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area

Study cell size: 1.00 km  
Profile point spacing: 1.00 km

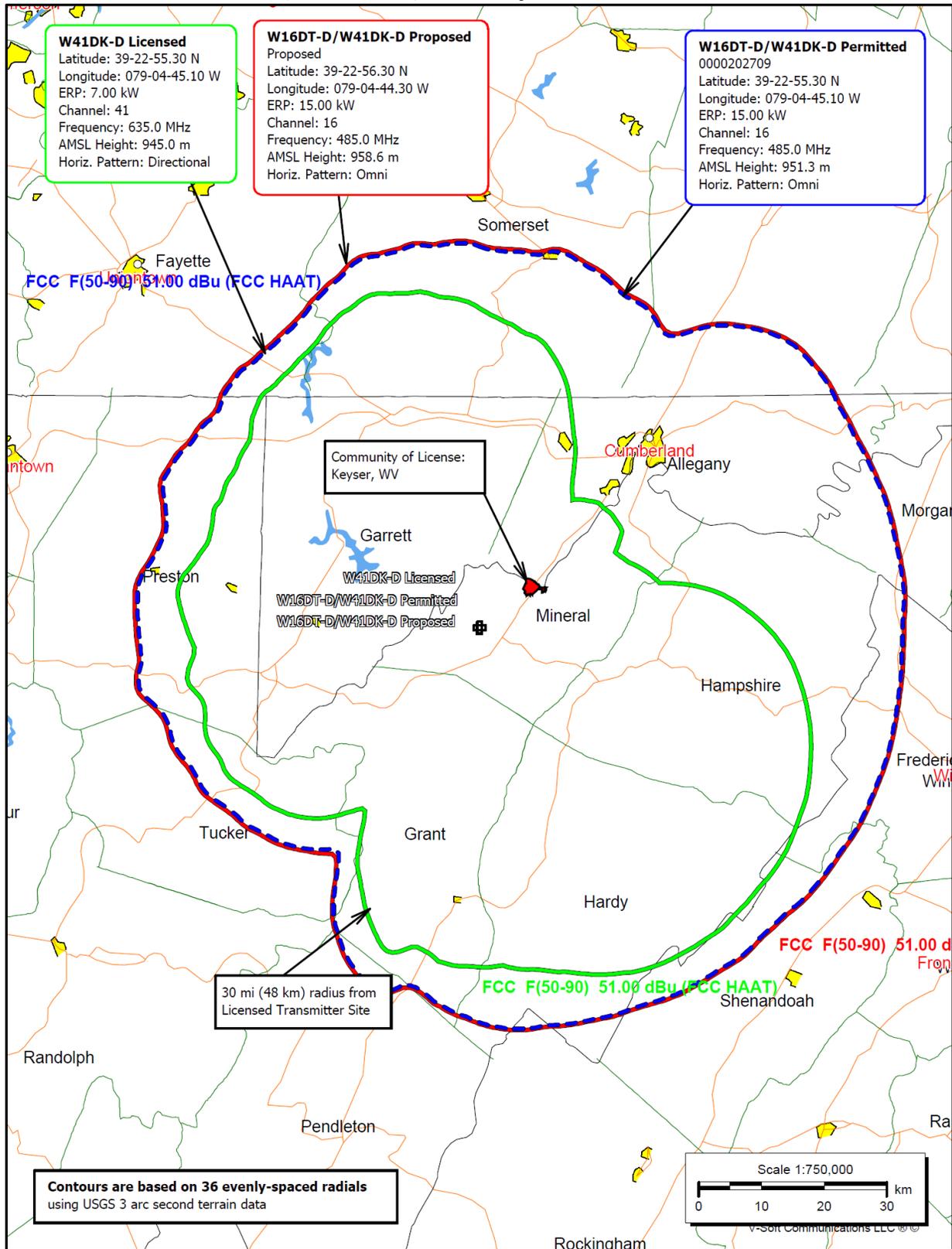
Maximum new IX to full-service and Class A: 0.50%  
Maximum new IX to LPTV: 2.00%

Proposal causes 0.02% interference to BLANK0000149712 CP scenario 1  
Proposal causes 0.00% interference to BLANK0000201196 CP scenario 1  
Proposal causes 0.00% interference to BLANK0000168717 LIC scenario 1  
Proposal causes 0.24% interference to BLANK0000214889 LIC scenario 2  
Proposal causes no interference to BLDTL20090218AEG LIC  
Proposal causes 0.02% interference to BLANK0000072244 CP scenario 1  
Proposal causes 1.19% interference to BLDTL20140616AEQ LIC scenario 1

---- Below is IX received by proposal W41DK-D ----

Proposal receives 3.23% interference from scenario 1  
Proposal receives 2.89% interference from scenario 2  
No IX check failures found.

APPENDIX C – Licensed, Permitted, and Proposed Contour



APPENDIX D – Far Field Exposure to RF Emissions

