

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

**DIGITAL LPTV  
CONSTRUCTION  
PERMIT  
MINOR MODIFICATION  
APPLICATION**

**CALL SIGN: W21DZ-D**  
**FACILITY ID: 167358**  
**FCC File No: 0000054636**  
**LOCATION: Romney, WV**

***Prepared For:***

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

***Prepared By:***

Ryan Wilhour  
Consulting Engineer  
Kessler and Gehman Associates  
507 NW 60<sup>th</sup> Street, Suite D  
Gainesville, FL 32607-2055  
352-332-3157 Extension 3  
[ryan@kesslerandgehman.com](mailto:ryan@kesslerandgehman.com)  
[www.kesslerandgehman.com](http://www.kesslerandgehman.com)

December 9, 2022

**TABLE OF CONTENTS**

1.0 EXECUTIVE SUMMARY ..... 2

2.0 STATION TRANSMITTER LOCATION AND TOWER ELEVATION ..... 2

3.0 ALLOCATION ANALYSIS ..... 3

4.0 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) ..... 3

    4.1 General Environmental Requirements ..... 3

    4.2 Radio Frequency Radiation (RFR) Compliance ..... 3

5.0 CERTIFICATION ..... 5

APPENDIX A – TOWAIR Determination ..... 6

APPENDIX B – TVStudy V2.2.5 Allocation Analysis ..... 7

APPENDIX C – Licensed, Permitted, and Proposed Contour ..... 9

APPENDIX D – Far Field Exposure to RF Emissions ..... 10

## **1.0 EXECUTIVE SUMMARY**

West Virginia Educational Broadcasting Authority. is the licensee of a digital low power television broadcast station having call sign W21DZ-D, and facility ID 167358. W21DZ-D has a construction permit<sup>1</sup> to operate on channel 21 using an omni directional antenna with an ERP of 15kW at a height of 643.9m AMSL on antenna structure number 1261549. It is proposed to modify the construction permit to

- replace the Dielectric TLP-8A omni-directional antenna with a Propagation Systems, Inc. PSILP12OIM-21-EP omni-directional antenna,
- move the transmitter site 0.7km north to a different tower site,
- and reduce the antenna height from 643.9 m to 594.4m AGL.

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**

It is proposed to move W21DZ-D from its permitted location to an 85' tower which does not have an FAA or FCC Antenna Structure Registration Number.

Appendix A is a study 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.”

---

<sup>1</sup> FCC File No.: 0000054636

### **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 existing support structure with the addition of the proposed new antenna will not modify any of the following environmental considerations that 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.

Appendix D is the resulting RFR study demonstrating that the peak exposure is 2.41%. The instant application is compliant with the FCC limits for human exposure to RF radiation and thus is excluded from further environmental processing.

---

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

**5.0 CERTIFICATION**

The foregoing statement and the report regarding the engineering work are true and correct to the best of my knowledge. Executed December 9, 2022.

Kessler and Gehman Associates, Inc.



Ryan Wilhour  
Consulting Engineer

APPENDIX A – TOWAIR Determination

<b>DETERMINATION Results</b>	
<b>Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.</b>	
<b>Your Specifications</b>	
<b>NAD83 Coordinates</b>	
Latitude	39-18-57.1 north
Longitude	078-43-06.9 west
<b>Measurements (Meters)</b>	
Overall Structure Height (AGL)	25.9
Support Structure Height (AGL)	24.4
Site Elevation (AMSL)	572.1
<b>Structure Type</b>	
LTOWER - Lattice Tower	

# W21DZ-D – Construction Permit Minor Modification

Romney, WV

## APPENDIX B – TVStudy V2.2.5 Allocation Analysis

Study created: 2022.12.09 12:07:48

Study build station data: LMS TV 2022-12-08

Proposal: W23DR-D D21 LD CP ROMNEY, WV  
File number: W21DZ Minor Modification  
Facility ID: 167358  
Station data: User record  
Record ID: 1187  
Country: U.S.

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

Search options:  
Non-U.S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WDME-CD	D20	DC	LIC	WASHINGTON, DC	BLANK0000189615	147.2 km
No	W20EU-D	D20	LD	LIC	CHAMBERSBURG, PA	BLANK0000159182	116.4
No	WPGH-TV	D20	DT	LIC	PITTSBURGH, PA	BLANK0000112578	170.9
Yes	WHSV-TV	D20	DT	LIC	HARRISONBURG, VA	BLANK0000063970	137.8
No	W20DY-D	D20	LD	LIC	ROANOKE, WV	BLANK0000179522	134.2
No	WEDW	D21	DD	CP	STAMFORD, CT	BLANK0000193340	478.4
Yes	WMPT	D21	DT	LIC	ANNAPOLIS, MD	BLANK0000136496	185.0
No	WUNG-TV	D21	DT	LIC	CONCORD, NC	BLANK0000113063	470.5
No	WWIW-LD	D21	LD	LIC	RALEIGH, NC	BLANK0000178152	392.0
No	WNCR-LD	D21	LD	LIC	TARBORO, NC	BLANK0000055079	388.2
No	WROC-TV	D21	DT	LIC	ROCHESTER, NY	BLANK0000079899	435.0
No	WQDI-LD	D21	LD	LIC	CANTON, OH	BLANK0000079989	348.1
No	WJW	D21	LD	CP	CLEVELAND, OH	BDRTCDT20101123A0J	256.9
No	WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	375.9
No	WSEE-TV	D21	DT	LIC	ERIE, PA	BLANK0000074552	323.0
Yes	WHLZ-LD	D21	LD	LIC	HARRISBURG, PA	BLANK0000080536	187.3
No	WEFG-LD	D21	LD	CP	PHILADELPHIA, PA	BLANK0000062985	314.2
Yes	WPNT	D21	DT	LIC	PITTSBURGH, PA	BLANK0000112577	170.9
No	WNEP-TV	D21	DT	LIC	SCRANTON, PA	BLANK0000117109	318.4
Yes	WWCW	D21	DT	LIC	LYNCHBURG, VA	BLANK0000199504	235.6
No	WVBT	D21	DT	LIC	VIRGINIA BEACH, VA	BLANK0000125111	337.9
No	W21EB-D	D21	LD	LIC	CLARKSBURG, WV	BLANK0000160514	135.7
Yes	W21EB-D	D21	LD	CP	CLARKSBURG, WV	BLANK0000162212	126.6
No	WHWV-LD	D21z	LD	CP	Huntington, WV	BLANK0000143752	333.9
No	WHWV-LD	D21z	LD	LIC	Huntington, WV	BLANK0000143055	308.5
No	W21EA-D	D21	LD	LIC	PARKERSBURG, WV	BLANK0000160509	230.5
No	WMPB	D22	DT	LIC	BALTIMORE, MD	BLANK0000166001	167.2
No	WTOO-LD	D22	LD	LIC	Clearfield, PA	BLANK0000193171	194.8
No	WTOO-CD	D22	DC	LIC	JOHNSTOWN, PA	BLANK0000099914	119.5
No	WTOO-CD	D22	DC	CP	JOHNSTOWN, PA	BLANK0000154235	126.0
No	WTAE-TV	D22	LD	LIC	PITTSBURGH, PA	BLANK0000088086	164.5
No	WWKH-CD	D22	DC	LIC	UNIONTOWN, PA	BLANK0000189129	100.2
No	WCVE-TV	D22	DT	LIC	RICHMOND, VA	BLANK0000112529	222.8
No	W22EX-D	D22	LD	LIC	STAUNTON, VA	BLANK0000055155	137.8
No	W22CY-D	D22	LD	LIC	CLARKSBURG, WV	BLANK0000150848	139.7
No	W22CV-D	D22	LD	LIC	MOOREFIELD, WV	BLDTT20120608ABX	40.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D21  
Mask: Full Service  
Latitude: 39 18 57.10 N (NAD83)  
Longitude: 78 43 6.90 W

## W21DZ-D – Construction Permit Minor Modification

Romney, WV

Height AMSL: 594.4 m  
HAAT: 238.1 m  
Peak ERP: 15.0 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 1.00

49.5 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	320.8 m	58.5 km
45.0	15.0	241.6	54.0
90.0	15.0	236.5	53.7
135.0	15.0	190.3	51.0
180.0	15.0	79.6	41.8
225.0	15.0	243.2	54.1
270.0	15.0	305.4	57.6
315.0	15.0	287.2	56.6

Distance to Canadian border: 360.7 km

Distance to Mexican border: 2250.7 km

Conditions at FCC monitoring station: Laurel MD  
Bearing: 95.3 degrees Distance: 164.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 280.9 degrees Distance: 2259.2 km

No land mobile station failures found

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 0.00% interference to BLANK0000063970 LIC scenario 1  
Proposal causes 0.01% interference to BLANK0000136496 LIC scenario 1  
Proposal causes 0.00% interference to BLANK0000080536 LIC scenario 1  
Proposal causes 0.00% interference to BLANK0000112577 LIC scenario 1  
Proposal causes no interference to BLANK00000199504 LIC  
Proposal causes no interference to BLANK0000162212 CP

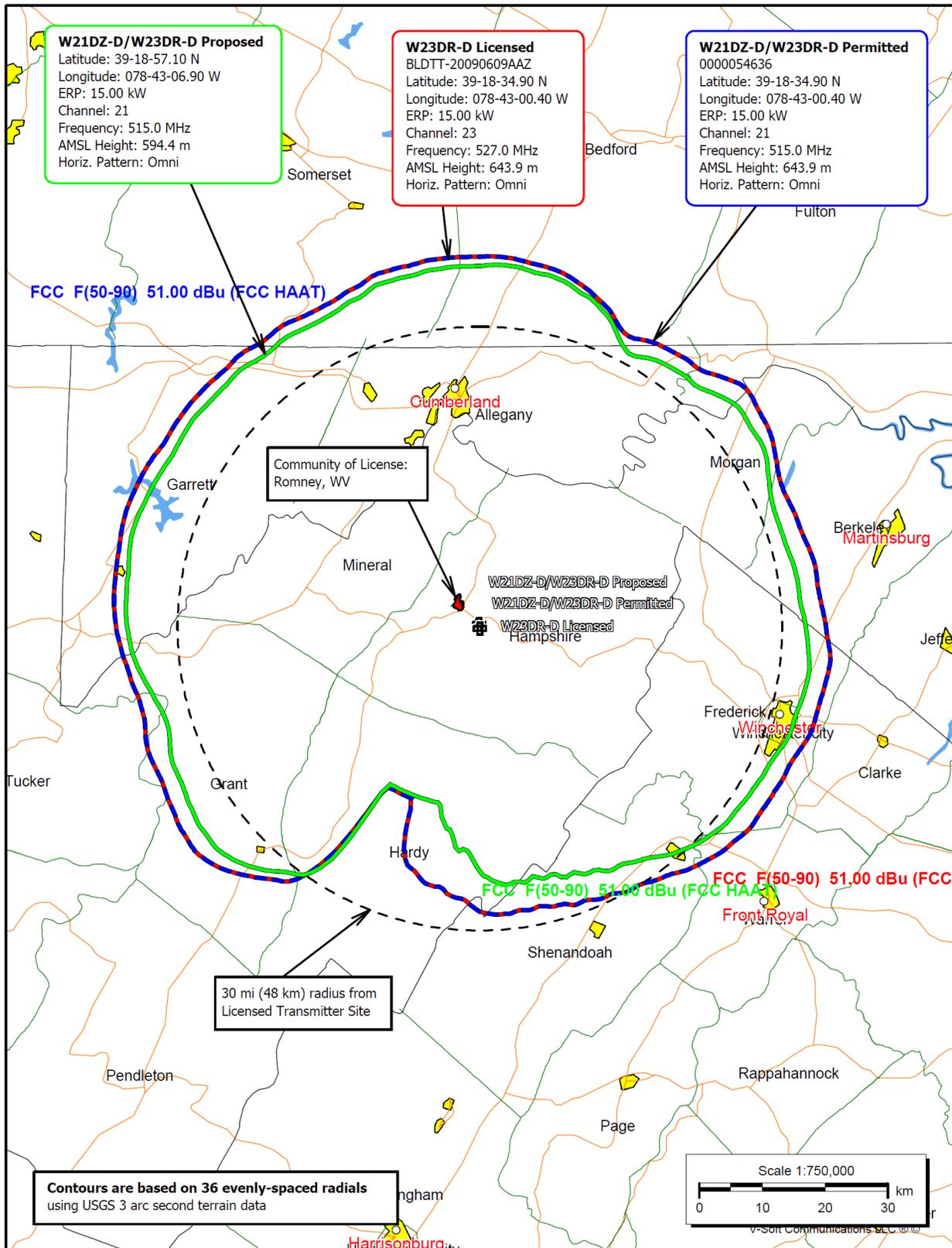
---- Below is IX received by proposal W21DZ Minor Modificati ----

Proposal receives 3.82% interference from scenario 1  
Proposal receives 3.82% interference from scenario 2  
No IX check failures found.

**W21DZ-D – Construction Permit Minor Modification**

Romney, WV

**APPENDIX C – Licensed, Permitted, and Proposed Contour**



APPENDIX D – Far Field Exposure to RF Emissions

