



**Kessler and Gehman Associates**  
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# MINOR MODIFICATION APPLICATION TO A DIGITAL TELEVISION TRANSLATOR

CALL SIGN: W05AW-D  
FACILITY ID: 70286  
LOCATION: CHRISTIANSTED, VI

## **Prepared For:**

Virgin Islands Public  
Broadcasting System  
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## **Prepared By:**

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## **1.0 INTRODUCTION AND SCOPE OF WORK**

Virgin Islands Public Broadcasting System is the licensee of a digital television translator broadcast station having call sign W05AW-D, and facility ID 70286. W05AW-D is licensed<sup>1</sup> to operate on channel 5 using a directional antenna with an ERP of 0.3kW at a height of 14.9m AGL on a 15.2m utility pole. It is proposed to modify the license to increase the ERP from 0.3kW to 3kW and change the emission mask from stringent to simple. 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 B,
- 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 B.

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

It is proposed to keep W05AW-D at its licensed location on an existing 15.2m utility pole which does not have an FCC tower registration number. The instant application does not propose to increase or modify the existing support structure.

## **3.0 ALLOCATION ANALYSIS**

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

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<sup>1</sup> FCC File No.: BLDTV-20120222AAJ

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

### **4.1 General Environmental Requirements**

The existing antenna is side mounted to an existing utility pole which is not registered with the FAA and FCC and will not require modification since there is no change proposed to the antenna or the overall height of the structure. Since the existing structure is not required to be registered with the FAA and the FCC, it is thus presumed that the following screening criteria is already mitigated:

- 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. The RFR analysis is conducted pursuant to the following methodology:

Terrain extraction is compiled from the support structure site, if the support structure is on a rooftop with no higher elevations (e.g., elevator shaft) then flat terrain is compiled. Terrain is extracted using radial lengths of 0.25 miles in 0.001-mile increments for 360 radials. 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.

The resulting RFR study in Appendix C demonstrates that the peak exposure is 61.9% of the most restrictive permissible exposure threshold. Pursuant to OET Bulletin 65 concerning multiple-user transmitters that produce power density levels greater than 5.0% of the exposure limit are considered significant contributors to RFR and require a cumulative study including all emitters in the proximity of the proposed transmitter site. The proposed facility is in a complex RF environment and is beyond the scope of theoretical calculations to formulate the cumulative effect. Individually the proposed facility has no significant effect on human exposure but cumulatively may and is thus is not categorically excluded from 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 June 29, 2022.

Kessler and Gehman Associates, Inc.



Ryan Wilhour  
Consulting Engineer

## W05AW-D – Minor Modification Application

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### APPENDIX A – TVStudy V2.2.5 Allocation Analysis

Study created: 2022.06.29 10:44:05

Study build station data: LMS TV 2022-06-29

Proposal: W05AW-D D5 LD LIC CHRISTIANSTED, VI  
File number: W05AW-D Proposed  
Facility ID: 70286  
Station data: User record  
Record ID: 1137  
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
Yes	W05DA-D	D5	LD	LIC	FAJARDO, PR	BLDVL20140530AND	108.9 km
Yes	W05CY-D	D5	LD	LIC	MAYAGUEZ, PR	BLDVL20150205AAD	235.6
No	W05DB-D	D5	LD	LIC	PONCE, PR	BLDVL20140530ANF	193.5
Yes	NEW	D5	LD	CP	SAN JUAN, PR	BNPDVL20090825AVT	156.2
Yes	WFIG-LD	D5	LD	LIC	CHARLOTTE AMALIE, VI	BLANK0000068282	65.0
No	W06DA-D	D6	LD	CP	AGUADA, PR	BLANK0000177742	214.1

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D5  
Mask: Simple  
Latitude: 17 45 17.90 N (NAD83)  
Longitude: 64 47 57.50 W  
Height AMSL: 336.7 m  
HAAT: 317.4 m  
Peak ERP: 3.00 kW  
Antenna: SCA-CL-26 (ID 101827) 0.0 deg  
Elev Pattn: Generic

43.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.001 kW	336.7 m	16.6 km
45.0	0.022	332.6	31.5
90.0	1.73	309.3	62.9
135.0	2.03	328.9	65.3
180.0	0.191	330.6	46.2
225.0	2.64	304.6	66.1
270.0	1.06	260.1	55.9
315.0	0.013	336.7	28.5

Distance to Canadian border: 3009.8 km

Distance to Mexican border: 3427.4 km

Conditions at FCC monitoring station: Santa Isabel PR  
Bearing: 279.7 degrees Distance: 169.0 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 311.3 degrees Distance: 4593.9 km

Study cell size: 1.00 km

Profile point spacing: 1.00 km

## W05AW-D – Minor Modification Application

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

Maximum new IX to LPTV: 2.00%

Proposal causes 0.88% interference to BLDVL20140530AND LIC scenario 1

Proposal causes no interference to BLDVL20150205AAD LIC

Proposal causes 0.03% interference to BNPDVL20090825AVT CP scenario 1

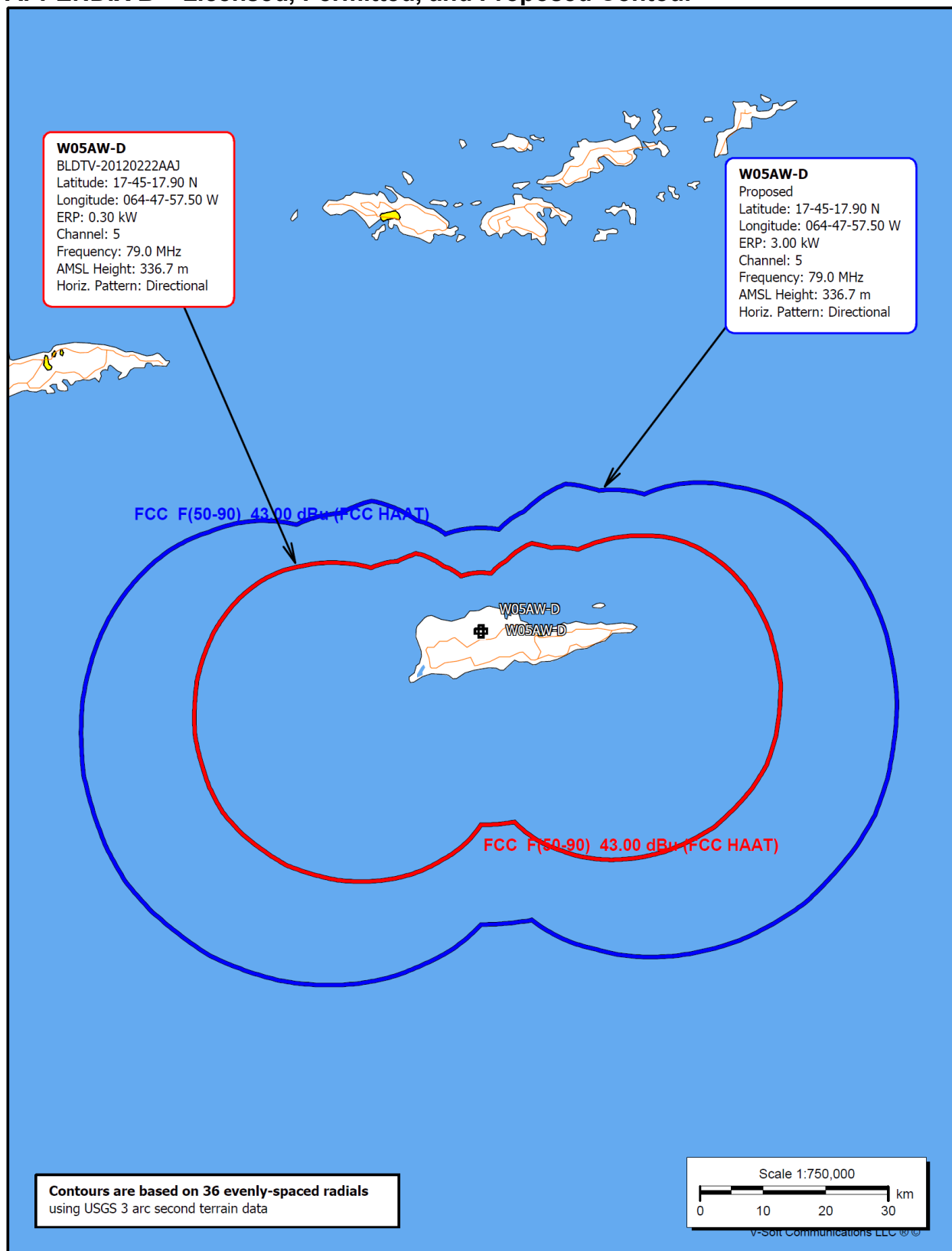
Proposal causes no interference to BLANK0000068282 LIC

Proposal causes no interference to W05AW-D Proposed LIC

No IX check failures found.



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



## APPENDIX C – Far Field Exposure to RF Emissions

