

ENGINEERING STATEMENT RE  
APPLICATION TO AMEND PENDING APPLICATION  
FCC FILE NO. 0000034904  
**WVIR-TV, CHARLOTTESVILLE, VIRGINIA**  
CHANNEL 2 10 KW ERP MAX 362 METERS HAAT

MAY 2018

COHEN, DIPPELL AND EVERIST, P.C.  
CONSULTING ENGINEERS  
RADIO AND TELEVISION  
WASHINGTON, D.C.

This engineering statement has been prepared on behalf of Virginia Broadcasting Corporation, licensee of TV Station WVIR-TV, Charlottesville, Virginia, in support of its application to amend the pending application, FCC File No. 0000034904.

Station WVIR-TV is currently licensed to operate on Channel 32 (578-584 MHz) for its digital TV operation with 1000 kW maximum effective radiated power ("ERP") at 367.9 meters height above average terrain ("HAAT").

Antenna Site

It is proposed to top-mount the Channel 2 DTV antenna on the existing WVIR-DT self-supported tower (see Exhibit E-1). The tower registration is 1018769.

The WVIR-TV antenna site is located on the Carters Mountain Orchard, east of Route 20, approximately 5.6 km (3.5 miles) south of Charlottesville, Virginia.

The geographic coordinates of the existing tower are as follows:

North Latitude: 37° 59' 0.5"

West Longitude: 78° 28' 54"

NAD-27

North Latitude: 37° 59' 1.0"

West Longitude: 78° 28' 53"

NAD-83

Equipment Data

Antenna: Jampro, Model VHF lamda 6-bay lamda ND or equivalent with 0.5 degree electrical beam tilt. The vertical plane pattern and other exhibits required by Section 73.625(c) are herein included as Exhibits E-2

Transmission Line: 91.4 meters (300 ft) of Dielectric, Type EIA/DCA, 6-1/8" 75 ohm or equivalent with total loss of 0.11 dB

Power Data

Transmitter	Type-accepted	
Transmitter output	3.87 kW	5.88 dBk
Dielectric 6-1/8", rigid 75 ohm or equivalent-length 96.9 meters (318 feet)	97.54%	0.11 dB
Input power to the antenna	3.77 kW	5.77 dBk
Antenna power gain, Main Lobe	2.65	4.23 dBd
ERP	10 kW	10 dBk

Elevation Data

Elevation of the site above mean sea level	445 meters (1460 feet)
Elevation of the top of structure including antenna above ground with lighting and appurtenances	95.7 meters (314 feet)
Elevation of the top of supporting structure above mean sea level with lighting and appurtenances	540.7 meters (1774 feet)
Height of DTV antenna radiation center above ground	82.9 meters (272 feet)

Height of DTV antenna radiation center above mean sea level	527.9 meters (1732 feet)
Height of DTV antenna radiation center above average terrain	362 meters (1187.7 feet)

#### Topographic Data

The average HAAT from the eight cardinal radials from 3.2 to 16.1 kilometers has been previously determined.

#### Interference Analysis

The interference analysis includes the facilities for adjacent proposed operations as provided below.

##### WACP, Atlantic City, NJ, Channel 4

North Latitude: 39° 44' 4.00 "

West Longitude: 74° 50' 27.00"

NAD-83

ASR # 1042989

Height of antenna radiation center above mean sea level (AMSL): 287.7meters (943.9 feet)

Height of antenna radiation center above average terrain (HAAT): 258.4 meters (847.8 feet)

ERP: 34 kW

##### KJWP-TV, Wilmington, DE, Channel 2

North Latitude: 40° 02' 30.14"

West Longitude: 75° 14' 10.08"

NAD-83

ASR # 1231524

Height of DTV antenna radiation center 378.9 meters above mean sea level (1243.1 feet)

Height of DTV antenna radiation center 310.8 meters above average terrain (1019.69 feet)

ERP: 34kW kW

WJLP (WTC SITE) - One World Trade Center, The Freedom Tower, Middletown Township,  
NJ, Channel 3

North Latitude: 40° 42' 46.8"

West Longitude: 74° 00' 47.3"

NAD-83

ASR # 1263701

Height of DTV antenna radiation center 484.6 meters above mean sea level (1590 feet)

Height of DTV antenna radiation center 476 meters above average terrain (1563 feet)

ERP: 9 kW

A study of predicted interference caused by the proposed WVIR operation on Channel 2 digital operation has been performed using the Longley-Rice program for which the source data has been posted and modified as described above by the Commission on its website at <http://www.fcc.gov/oet/tvstudy>. Comparison of service/interference areas and population indicates this model closely matches the FCC's digital TVStudy 2.2 evaluation program. Best efforts have

been made to use data and calculation identical to the FCC's program. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 1 sq. km. Using one-second terrain data sampled approximately every 1.0 km at one-degree azimuth intervals with 2010 census centroids, all studies are based upon data in the Commission's current Licensing and Management System ("LMS") database (as updated) of the FCC's engineering database.

#### Contour Data

Utilizing the formula in Section 73.625(b)(2) for the effective heights along each radial, the depression angle  $A_h$ , for each azimuth has been calculated. The maximum radiation value has been used to calculate the ERP where the vertical radiation pattern field value at these angles is greater than 90% of the maximum.

Table I provides the distances calculated by TVStudy 2.2 along each radial spaced every ten degrees in azimuth to the predicted F(50,90) 35 dBu and 28 dBu F(50,90) contours, the effective radiated power and the effective antenna heights. The predicted 35 dBu and 28 dBu contours determined from these distances are shown on the attached map (Exhibit E-4).

The distances along each radial to the limits of F(50,90) 35 dBu and 28 dBu F(50,90) contours were determined from reference to the appropriate propagation data for Channels 2-6, as published by the Commission in Section 73.699 of its rules and TVStudy 2.2.

#### Environmental Statement

The proposed WVIR-TV antenna will replace the current Channel 29 antenna and will be top-mounted on the existing self-supporting tower.

An evaluation has been made to determine compliance with the Commission's specified standards for human exposure to RF fields as set forth in the OET Bulletin No. 65 dated August 1997. For a maximum effective radiated power of 10 kW (H&V) and a radiation center of 82.9 meters above ground level, the proposed DTV operation would have a maximum of less than 3.0 microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ) radio frequency field levels ("RFF") at 2 meters above the base of the tower, based on an antenna field factor of 0.15 in the downward direction 70 to 90 degrees (see Exhibit E-2). The Commission's guidelines for Channel 2 TV operation are 1000  $\mu\text{W}/\text{cm}^2$  for the occupational/controlled and 200  $\mu\text{W}/\text{cm}^2$  for the general population/uncontrolled environment.

There are multiple emitters utilizing the Carter's Mountain antenna farm. However, those television operations within 100 meters will be changing their facilities due to the repack therefore, the RFF study will not consider those stations and addresses only the proposed operation WVIR-TV.

The RFF contribution by WVIR-TV will be calculated using the following formula:

$$S = \frac{33.4(F^2) \text{ Total ERP}}{R^2}$$

where:

S = power density in  $\mu\text{W}/\text{cm}^2$

F = relative field factor

Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization

R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

**WVIR-TV DTV Facility** (based on the proposed operation in this application)

Channel 2	Freq:	56 - 62 MHz Range
	ERP =	20 kW (H&V)
	Polarization =	Circular
	RCAGL -2 meters =	80.9 meters

$$S = \frac{33.4 (F^2) \text{Tot ERP}}{R^2}$$

Total ERP = 20,000 watts (Circular)  
R = 80.9 meters  
F = 0.150 (from elevation data 70° - 90°)

$$S = <3 \mu\text{W}/\text{cm}^2 \text{ (2 meters above ground)}$$

Therefore, WVIR-TV contributes less than 3  $\mu\text{W}/\text{cm}^2$  at 2 meters above ground.

The limit for an uncontrolled environment (general population) for this frequency is 200  $\mu\text{W}/\text{cm}^2$ .

WVIR-TV contributes less than 2 percent calculated RFF level for an uncontrolled environment (general population) two meters above the ground.

Therefore, the RFF percentage from the proposed operation will be less than two (2) percent of the limit for an uncontrolled environment at two meters above ground. Based on this analysis, RFF levels will not exceed current FCC guidelines.

Therefore, members of the public and personnel working around the proposed WVIR-DT, Channel 2 DTV facility would not be exposed to RFF exceeding the Commission's guidelines. With respect to work performed on the tower, Station WVIR-TV will establish procedure to ensure that workers are not exposed to RFF levels above the Commission's guidelines, by reducing or turning off the power, as appropriate.



FCC Rule, Section 1.1307

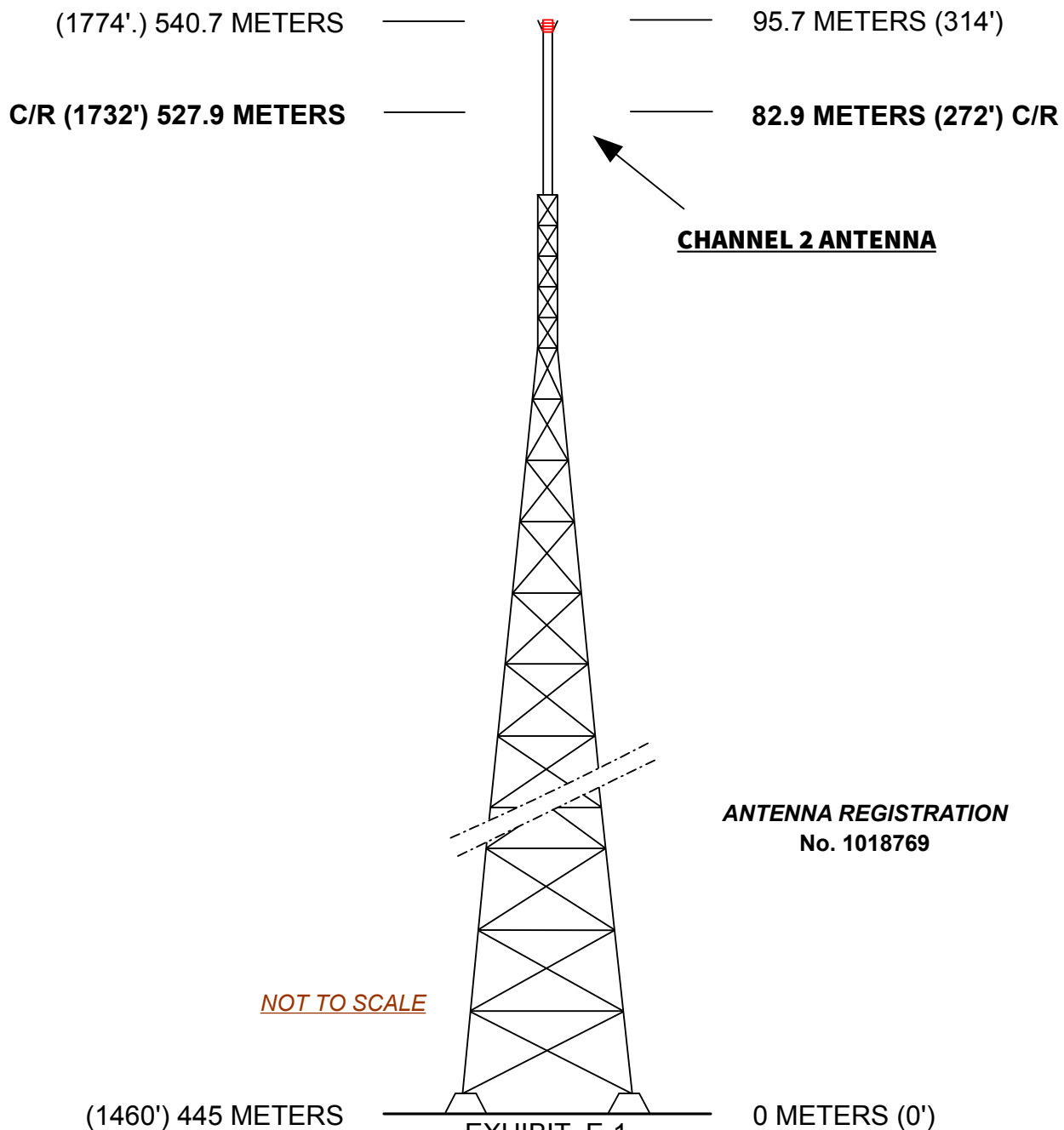
An environmental assessment (“EA”) is categorically excluded under Section 1.1306 of the FCC Rules and Regulations because the tower structure is existing and will not be modified so as to invoke the need for environmental analysis. The existing tower is registered with the FCC, and approved by the FAA, and neither the ASR nor FAA approval will require modification. It was not constructed during 2001-2005 and thus is not a “twilight tower.”

While some structural reinforcement of the tower will be required to support additional weight, there will be no material change in visual appearance, since one antenna is being substituted for another with no increase in overall structure height, including the height of the top-mounted antenna.

Compliance with OET Bulletin No. 65 (non-ionizing radiation) is discussed in the previous section of this exhibit.

**ABOVE MEAN SEA LEVEL**

**ABOVE GROUND**



VERTICAL SKETCH  
FOR THE REPACKING OPERATION OF  
**WVIR-TV, CHARLOTTESVILLE, VIRGINIA**  
CHANNEL 2 10 kW 361 METERS HAAT  
MAY 2018

Cohen, Dippell and Everist, P.C. Consulting Engineers Washington, D.C.

EXHIBIT E-2

ANTENNA MANUFACTURER DATA



# **WVIR-TV**

## **Channel 2, (54-60 MHz)**

### **6-Bay Lambda**

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26 February 2018



## **TV ANTENNA SPECIFICATIONS**

<u>CUSTOMER:</u>	WWIR-TV
<u>CHANNEL:</u>	2 (54 - 60 MHz)
<u>ANTENNA DESCRIPTION:</u>	VHF, Lambda, Circular Polarization
<u>ANTENNA TYPE:</u>	6-Bay Lambda

### **ELECTRICAL SPECIFICATIONS**

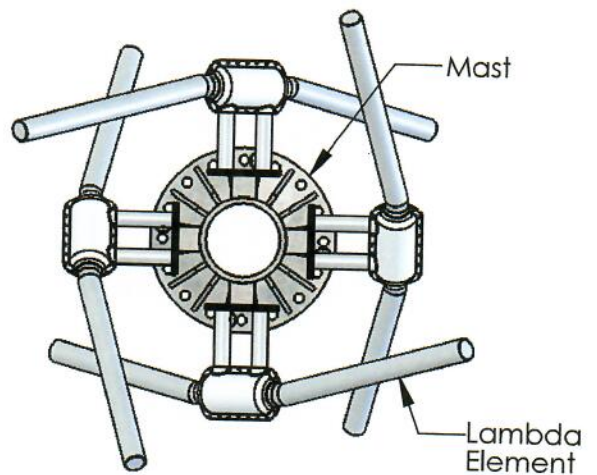
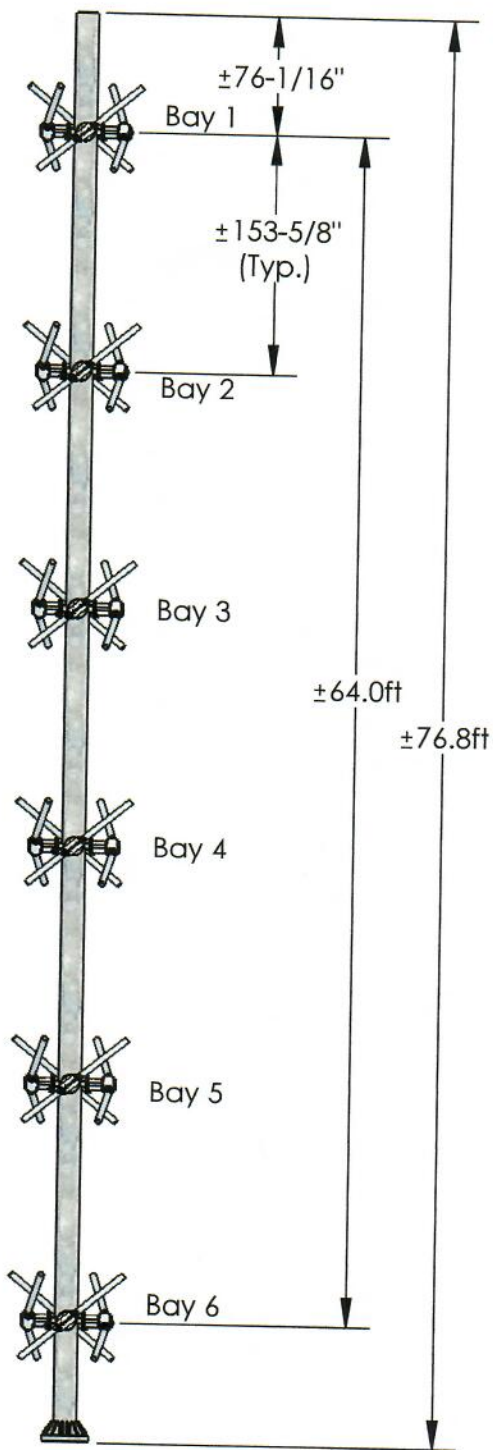
RMS Power gain:	2.65x / 4.23 dBd
Array data:	6 bays
Electrical beam tilt:	-0°
Null fill:	0%
Antenna VSWR:	1.1:1
Input power rating	50 kW
Antenna input impedance:	50 ohm

### **MECHANICAL SPECIFICATIONS**

Overall height of antenna, est:	see mechanical data
Antenna net weight, est:	see mechanical data
Wind force at Radiation Center, est:	see mechanical data
Antenna input connector size:	TBD

**NOTE:** THESE SPECIFICATIONS ARE PREDICTIONS BASED ON AVAILABLE DATA. THE ACTUAL PERFORMANCE MAY DIFFER FROM THESE DUE TO THE ELECTRICAL, MECHANICAL AND MEASURED LIMITATIONS AT YOUR FREQUENCIES.

26 February 2018



**TOP VIEW**

### MECHANICAL LOADING DATA

	Weight, Wt.		Effective Projected Area, EPA	
	no ice	1.26" ice	no ice	1.26" ice
ANTENNA SYSTEM	14,661 lbs. (6650 kg)	21,906 lbs. (9937 kg)	169 sq. ft. (15.6 sq. m)	440 sq. ft. (40.7 sq. m)

### NOTES & ASSUMPTIONS

CODE REFERENCE:		TIA-222-G	
Structure Class:		II	
Structure Type: 1		Latticed structures with triangular, square or rectangular cross sections including appurtenances.	
Exposure Class:		C	
Topographic Category:		1	
Ice Conditions:	@ 33' (10m) AGL	no ice	0.5" (13mm)
	@ 330' (100m) AGL	no ice	1.26" (32mm)
System Includes:		Radomed Lambda Antenna, Standard Mounts, and Feed System including Co-axial Cables.	

### NOTES

Ice thickness at an assumed elevation of 330' (100m) is 1.26" (32mm).

### PRELIMINARY DRAWINGS AND CALCULATIONS

#### PROPRIETARY AND CONFIDENTIAL:

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF JAMPRO ANTENNAS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF JAMPRO ANTENNAS IS PROHIBITED.

JAMPRO ANTENNAS, INC., 6340 SKY CREEK DRIVE, SACRAMENTO, CA 95828

NAME	DATE
DRAWN BY: SML	20 Dec 2017
LAST REVISED	



### MECHANICAL LOADING DATA SHEET

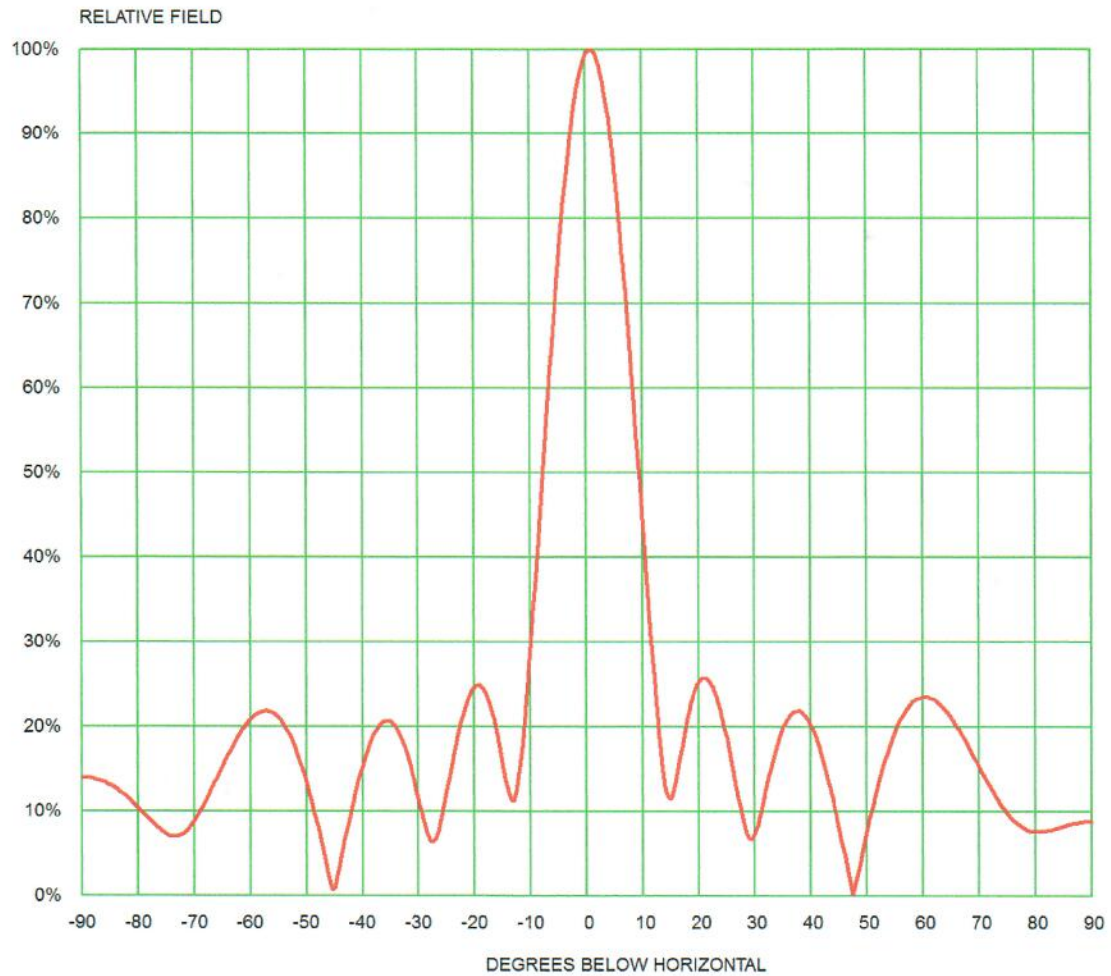
6-Lambda

COMMENTS:

SHEET NO. 6-Lambda

REV. A





**Customer: WVIR-TV**  
**Channel: 2**

**Model: 6-bay Lambda**  
**Description: VHF Antenna**  
**Notes: Circularly Polarized**

EXHIBIT E-3

ALLOCATION STUDY



tvstudy v2.2.5 (4uoc83)  
Database: localhost, Study: WVIR-10kWND3, Model: Longley-Rice  
Start: 2018.05.15 16:48:46

Study created: 2018.05.15 16:48:46

Study build station data: LMS TV 2018-05-14

Proposal: WVIR-TV D2 DT APP CHARLOTTESVILLE, VA  
File number: MayND2018  
Facility ID: 70309  
Station data: User record  
Record ID: 237  
Country: U.S.  
Zone: I

Search options:  
Non-U.S. records included  
Baseline record excluded if station has CP

User records included:  
239 WJLP D3 DT APP MIDDLETOWN TOWNSHIP, NJ WJLP9kW  
240 KJWP D2 DT APP WILMINGTON, DE KJWP34kW

Individual records excluded:  
0000035792 KJWP D2 DT APP \*P WILMINGTON, DE BLANK0000035792

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
Yes	KJWP	D2	DT	LIC	WILMINGTON, DE	BLCDT20131129AIH	361.7 km
Yes	KJWP	D2	DT	APP	WILMINGTON, DE	KJWP34kW	361.7
Yes	WQED	D2	DT	CP	PITTSBURGH, PA	BLANK0000025254	302.0
Yes	WBRA-TV	D3	DT	LIC	ROANOKE, VA	BLANK0000047419	171.4

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D2  
Latitude: 37 59 1.00 N (NAD83)  
Longitude: 78 28 53.00 W  
Height AMSL: 527.9 m  
HAAT: 361.0 m  
Peak ERP: 10.0 kW  
Antenna: Omnidirectional  
Elev Pattn: Generic  
Elec Tilt: 1.00

28.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	10.0 kW	383.6 m	110.7 km
45.0	10.0	296.5	106.9
90.0	10.0	411.8	112.7
135.0	10.0	399.7	111.8
180.0	10.0	393.5	111.4
225.0	10.0	348.3	109.2
270.0	10.0	311.0	107.9
315.0	10.0	355.9	109.4

Database HAAT does not agree with computed HAAT  
Database HAAT: 361 m    Computed HAAT: 363 m

ERP exceeds maximum  
ERP: 10.0 kW    ERP maximum: 5.62 kW

Distance to Canadian border: 508.6 km

Distance to Mexican border: 2184.9 km

Conditions at FCC monitoring station: Laurel MD  
Bearing: 47.2 degrees    Distance: 195.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 284.4 degrees    Distance: 2311.7 km

Study cell size: 2.00 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%

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 Interference to BLCDT20131129AIH LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance		
Desired:	KJWP	D2	DT	LIC	WILMINGTON, DE	BLCDT20131129AIH			
Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	361.7 km		
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	361.7		
	WSBE-TV	D2	DT	CP	PROVIDENCE, RI	BLANK0000029862	388.5		
	WJLP	D3	DT	LIC	MIDDLETOWN TOWNSHIP, NJ	BLANK0000001037	132.3		
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX		
35855.7	11,594,463	34940.7	11,467,616	34532.5	11,038,674	34448.5 11,027,591	0.24 0.10		
Undesired				Total IX	Unique IX, before	Unique IX, after			
WVIR-TV D2 DT BL	12.1	631	12.1	631					
WVIR-TV D2 DT APP	96.0	11,714	96.0	11,714					
WSBE-TV D2 DT CP	32.0	21,725	0.0	0	0.0	0			
WJLP D3 DT LIC	396.2	428,311	364.2	406,586	364.2	406,586			

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 Interference to BLCDT20131129AIH LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KJWP	D2	DT	LIC	WILMINGTON, DE	BLCDT20131129AIH	
Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	361.7 km
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	361.7
	WSBE-TV	D2	DT	CP	PROVIDENCE, RI	BLANK0000029862	388.5
	WJLP	D3	DT	APP	MIDDLETOWN TOWNSHIP, NJ	BLANK0000035766	127.6
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX

35855.7	11,594,463	34940.7	11,467,616	33915.6	10,551,165	33831.6	10,540,082	0.25	0.11
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Undesired		Total IX	Unique IX, before	Unique IX, after
WVIR-TV D2 DT BL	12.1	631	12.1 631	
WVIR-TV D2 DT APP	96.0	11,714		96.0 11,714
WSBE-TV D2 DT CP	32.0	21,725	0.0 0	0.0 0
WJLP D3 DT APP	1013.1	915,820	981.1 894,095	981.1 894,095

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Interference to BLCDT20131129AIH LIC scenario 3

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KJWP	D2	DT	LIC	WILMINGTON, DE	BLCDT20131129AIH	
Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	361.7 km
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	361.7
	WSBE-TV	D2	DT	CP	PROVIDENCE, RI	BLANK0000029862	388.5
	WJLP	D3	DT	APP	MIDDLETOWN TOWNSHIP, NJ	WJLP9kW	127.6
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
35855.7	11,594,463	34940.7	11,467,616	34135.8	10,752,688	34051.9 10,741,605	0.25 0.10

Undesired		Total IX	Unique IX, before	Unique IX, after
WVIR-TV D2 DT BL	12.1	631	12.1 631	
WVIR-TV D2 DT APP	96.0	11,714		96.0 11,714
WSBE-TV D2 DT CP	32.0	21,725	0.0 0	0.0 0
WJLP D3 DT APP	792.8	714,297	760.8 692,572	760.8 692,572

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Interference to KJWP34kW APP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KJWP	D2	DT	APP	WILMINGTON, DE	KJWP34kW	
Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	361.7 km
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	361.7
	WQED	D2	DT	CP	PITTSBURGH, PA	BLANK0000025254	403.6
	WSBE-TV	D2	DT	CP	PROVIDENCE, RI	BLANK0000029862	388.5
	WJLP	D3	DT	LIC	MIDDLETOWN TOWNSHIP, NJ	BLANK0000001037	132.3

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
45387.2 13,779,531	44348.3 13,577,430	43428.7 12,339,903	43376.9 12,325,126	0.12 0.12

Undesired	Total IX	Unique IX, before	Unique IX, after
WVIR-TV D2 DT BL	16.1 645	16.1 645	
WVIR-TV D2 DT APP	68.0 15,422		68.0 15,422
WQED D2 DT CP	32.2 5,178	32.2 5,178	32.2 5,178
WSBE-TV D2 DT CP	27.9 50,126	0.0 0	0.0 0
WJLP D3 DT LIC	871.3 1,231,704	843.4 1,181,578	843.4 1,181,578

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Interference to KJWP34kW APP scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KJWP	D2	DT	APP	WILMINGTON, DE	KJWP34kW	

Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	361.7 km
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	361.7
	WQED	D2	DT	CP	PITTSBURGH, PA	BLANK0000025254	403.6
	WSBE-TV	D2	DT	CP	PROVIDENCE, RI	BLANK0000029862	388.5
	WJLP	D3	DT	APP	MIDDLETOWN TOWNSHIP, NJ	BLANK0000035766	127.6

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
45387.2 13,779,531	44348.3 13,577,430	42575.5 11,806,795	42523.6 11,792,018	0.12 0.13

Undesired	Total IX	Unique IX, before	Unique IX, after
WVIR-TV D2 DT BL	16.1 645	16.1 645	
WVIR-TV D2 DT APP	68.0 15,422		68.0 15,422
WQED D2 DT CP	32.2 5,178	32.2 5,178	32.2 5,178
WSBE-TV D2 DT CP	27.9 50,126	0.0 0	0.0 0
WJLP D3 DT APP	1724.5 1,764,812	1696.6 1,714,686	1696.6 1,714,686

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Interference to KJWP34kW APP scenario 3

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KJWP	D2	DT	APP	WILMINGTON, DE	KJWP34kW	

Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	361.7 km
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	361.7

WQED	D2	DT	CP	PITTSBURGH, PA	BLANK0000025254	403.6
WSBE-TV	D2	DT	CP	PROVIDENCE, RI	BLANK0000029862	388.5
WJLP	D3	DT	APP	MIDDLETOWN TOWNSHIP, NJ	WJLP9kW	127.6

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
45387.2 13,779,531	44348.3 13,577,430	42915.9 11,996,724	42864.0 11,981,947	0.12 0.12

Undesired	Total IX	Unique IX, before	Unique IX, after
WVIR-TV D2 DT BL	16.1 645	16.1 645	
WVIR-TV D2 DT APP	68.0 15,422		68.0 15,422
WQED D2 DT CP	32.2 5,178	32.2 5,178	32.2 5,178
WSBE-TV D2 DT CP	27.9 50,126	0.0 0	0.0 0
WJLP D3 DT APP	1384.1 1,574,883	1356.2 1,524,757	1356.2 1,524,757

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Interference to BLANK0000025254 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WQED	D2	DT	CP	PITTSBURGH, PA	BLANK0000025254	
Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	302.0 km
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	302.0

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
27846.4 3,310,841	26682.8 3,221,156	26638.5 3,220,614	26582.3 3,218,975	0.21 0.05

Undesired	Total IX	Unique IX, before	Unique IX, after
WVIR-TV D2 DT BL	44.2 542	44.2 542	
WVIR-TV D2 DT APP	100.5 2,181		100.5 2,181

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Interference to BLANK0000047419 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WBRA-TV	D3	DT	LIC	ROANOKE, VA	BLANK0000047419	
Undesireds:	WVIR-TV	D2	DT	BL	CHARLOTTESVILLE, VA	DTVBL70309	171.4 km
	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	171.4

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
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51076.4	1,726,408	48714.1	1,677,204	48670.4	1,676,716	48630.6	1,676,312	0.08	0.02
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Undesired			Total IX	Unique IX, before	Unique IX, after
WVIR-TV D2 DT BL	43.7		488	43.7	488
WVIR-TV D2 DT APP	83.5		892		83.5 892

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Interference to proposal scenario 1  
0.96% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	
Undesireds:	KJWP	D2	DT	LIC	WILMINGTON, DE	BLCDT20131129AIH	361.7 km
	WQED	D2	DT	CP	PITTSBURGH, PA	BLANK0000025254	302.0
	WBRA-TV	D3	DT	LIC	ROANOKE, VA	BLANK0000047419	171.4

	Service area		Terrain-limited		IX-free		Percent IX
	38028.6	2,210,378	36103.1	2,161,075	35723.4	2,140,401	1.05 0.96

Undesired			Total IX	Unique IX	Prcnt Unique IX
KJWP D2 DT LIC	104.3		8,691	96.3 8,283	0.27 0.38
WQED D2 DT CP	76.0		735	68.0 327	0.19 0.02
WBRA-TV D3 DT LIC	207.4		11,656	207.4 11,656	0.57 0.54

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Interference to proposal scenario 2  
\*\*MX: 2.57% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WVIR-TV	D2	DT	APP	CHARLOTTESVILLE, VA	MayND2018	
Undesireds:	KJWP	D2	DT	APP	WILMINGTON, DE	KJWP34kW	361.7 km
	WQED	D2	DT	CP	PITTSBURGH, PA	BLANK0000025254	302.0
	WBRA-TV	D3	DT	LIC	ROANOKE, VA	BLANK0000047419	171.4

	Service area		Terrain-limited		IX-free		Percent IX
	38028.6	2,210,378	36103.1	2,161,075	35515.0	2,105,447	1.63 2.57

Undesired			Total IX	Unique IX	Prcnt Unique IX
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KJWP D2 DT APP	312.7	43,645	304.7	43,237	0.84	2.00
WQED D2 DT CP	76.0	735	68.0	327	0.19	0.02
WBRA-TV D3 DT LIC	207.4	11,656	207.4	11,656	0.57	0.54



TABLE I  
COMPUTED COVERAGE DATA  
FOR THE PROPOSED DTV OPERATION OF  
WVIR-TV, CHARLOTTESVILLE, VIRGINIA  
CHANNEL 2 10 KW ERP ND 362 METERS HAAT  
MAY 2018

<u>Radial</u> N ° E, T	<u>Average</u> <u>Elevation</u> meters	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u> degrees	<u>Effective</u> <u>Radiated</u> <u>Power</u> kW	<u>Distance to Contour</u>	
					<u>35 dBu</u> km	<u>28 dBu</u> km
0	144.3	383.6	0.445	10	96.3	110.7
10	163.6	364.3	0.433	10	95.4	109.7
20	183.0	344.9	0.422	10	94.7	109.1
30	202.4	325.5	0.410	10	93.9	108.6
40	221.7	306.2	0.397	10	92.8	107.6
50	218.6	309.3	0.399	10	93.0	107.8
60	193.0	334.9	0.415	10	94.3	108.9
70	167.4	360.5	0.431	10	95.2	109.6
80	141.7	386.2	0.446	10	96.5	110.9
90	116.1	411.8	0.461	10	98.0	112.7
100	118.8	409.1	0.459	10	97.8	112.5
110	121.5	406.4	0.458	10	97.7	112.3
120	124.2	403.7	0.456	10	97.5	112.1
130	126.9	401.0	0.455	10	97.3	111.9
140	128.9	399.0	0.453	10	97.2	111.8
150	130.3	397.6	0.453	10	97.1	111.7
160	131.7	396.2	0.452	10	97.1	111.6
170	133.0	394.9	0.451	10	97.0	111.5
180	134.4	393.5	0.450	10	96.9	111.4
190	144.5	383.4	0.445	10	96.3	110.7
200	154.5	373.4	0.439	10	95.8	110.1
210	164.5	363.4	0.433	10	95.4	109.7
220	174.6	353.3	0.427	10	95.0	109.4
230	183.7	344.2	0.421	10	94.6	109.1
240	192.0	335.9	0.416	10	94.3	108.9
250	200.3	327.6	0.411	10	94.0	108.6
260	208.6	319.3	0.406	10	93.6	108.3
270	216.9	311.0	0.400	10	93.1	107.9

COHEN, DIPPELL AND EVERIST, P.C.

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COMPUTED COVERAGE DATA  
FOR THE PROPOSED DTV OPERATION OF  
WVIR-TV, CHARLOTTESVILLE, VIRGINIA  
CHANNEL 2 10 KW ERP ND 362 METERS HAAT  
MAY 2018

<u>Radial</u> N ° E, T	<u>Average</u> <u>Elevation</u> meters	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u> degrees	<u>Effective</u> <u>Radiated</u> <u>Power</u> kW	<u>Distance to Contour</u>	
					<u>35 dBu</u> km	<u>28 dBu</u> km
280	206.9	321.0	0.407	10	93.6	108.4
290	196.9	331.0	0.413	10	94.1	108.7
300	186.9	341.0	0.419	10	94.5	109.0
310	177.0	350.9	0.425	10	94.9	109.3
320	168.9	359.0	0.430	10	95.2	109.5
330	162.7	365.2	0.434	10	95.4	109.7
340	156.6	371.3	0.437	10	95.7	110.0
350	150.4	377.5	0.441	10	96.0	110.3

