

**Special Displacement Window Application**  
**New Digital to Digital Replacement Translator**

Full Power Television Station:      WHSV-TV Facility ID 4688    Harrisonburg, VA  
Pre-Auction Ch. 49    Reassignment Ch. 20

DTDRT Eligibility:                      An “unable to construct” waiver was granted regarding implementation of WHSV-TV’s Channel 20 reassignment at the licensed WHSV-TV transmitter site at Big Mountain (see file# 0000024849). A Construction Permit (file# 0000029912) authorizes the WHSV-TV Channel 20 post-auction facility to be sited at Elliott Knob, located 76.6 km from the licensed site at Big Mountain. Figure 1 demonstrates that there will be substantial loss of interference-free service within the WHSV-TV pre-auction digital service area (Ch. 49, BLCDT-20060413ACO). The loss results from the incentive auction’s reassignment and the inability to construct the reassignment facility at the Big Mountain site.

Proposed Facility:                      Ch. 15    Broadway, VA  
15 kW ERP    directional (azimuth pattern in Figure 2)

DTDRT Compliance:                      The proposed DTDRT contour encompasses some of the loss area and does not extend beyond the pre-auction digital service area (Figure 1).

TVStudy Analysis report in Table 1

Contingent Application Rule:              No waiver required, not dependent on spectrum to be vacated

Quiet Zone:                                  The site is located within the quiet zone area specified in §73.1030(a) requiring coordination with the National Radio Astronomy Observatory (“NRAO”) at Green Bank, WV. Preliminary coordination with NRAO has been obtained. A detailed description of the technical details of this proposal will be supplied to NRAO for final review. Upon receipt of NRAO’s concurrence, an amendment to this application will be submitted to include the letter of concurrence.

RF Exposure:

The calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 4.1 percent of the general population/uncontrolled maximum permitted exposure limit. Calculations conducted pursuant to FCC OET Bulletin Number 65 and incorporate 15 percent relative field at downward angles (from antenna elevation pattern data). This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

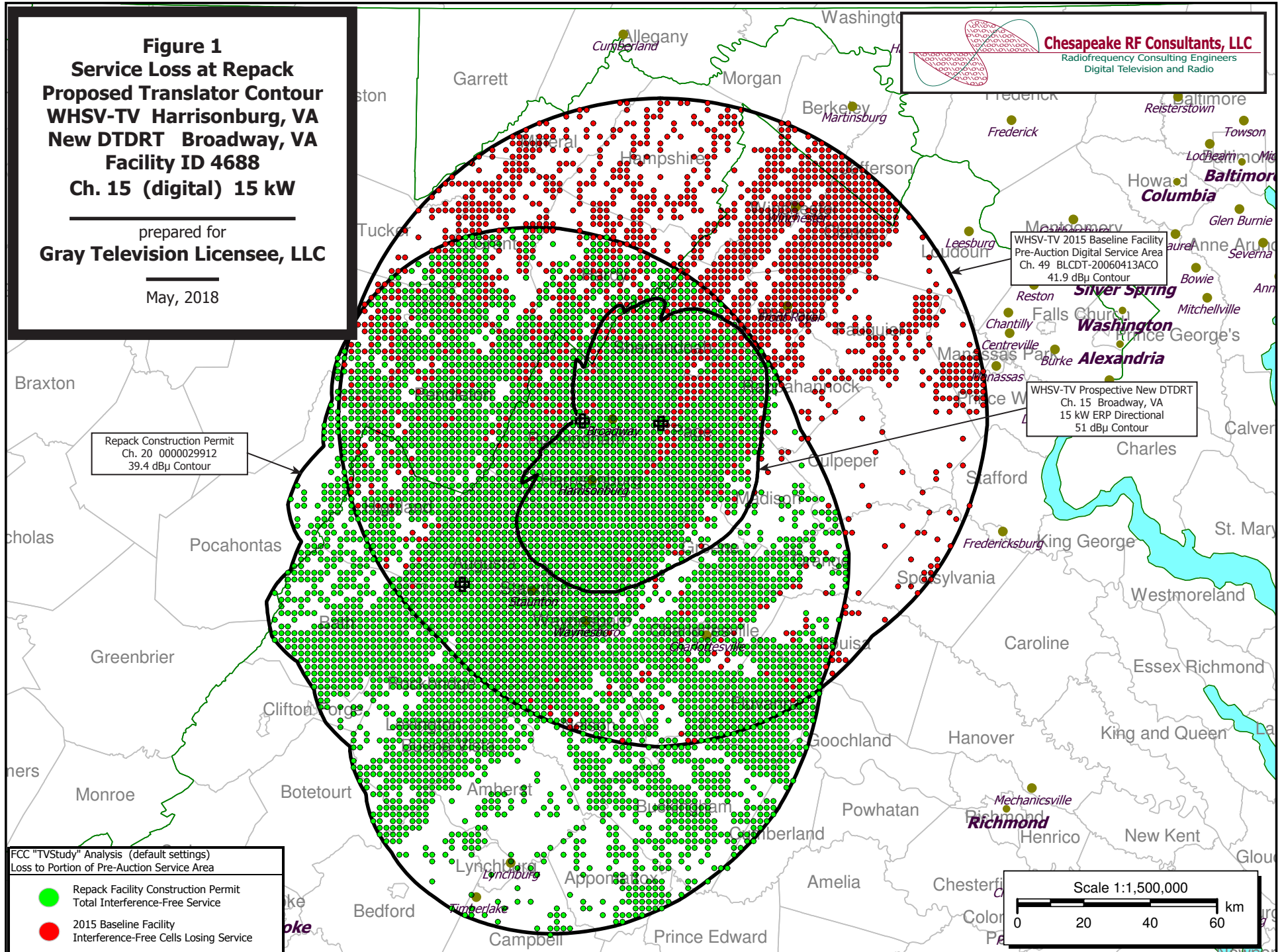
**Chesapeake RF Consultants, LLC**

Joseph M. Davis, P.E.	May 30, 2018	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600

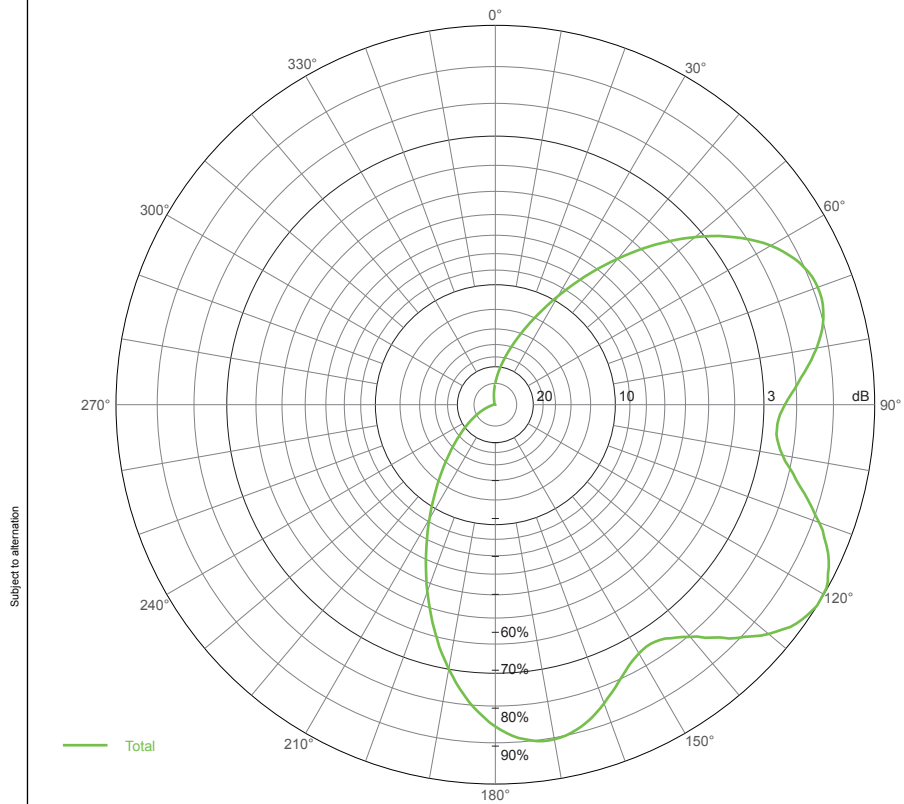
**Figure 1**  
**Service Loss at Repack**  
**Proposed Translator Contour**  
**WHSV-TV Harrisonburg, VA**  
**New DTDRT Broadway, VA**  
**Facility ID 4688**  
**Ch. 15 (digital) 15 kW**

prepared for  
**Gray Television Licensee, LLC**

May, 2018



# Azimuthal Pattern (polar-linear)



Antenna, Order No. UTV-01  
Panels per Bay: 4

Frequency: 479 MHz  
Azimuthal Directivity: 4.98 dB  
Directivity: 14.02 dBd

No.	Azimuth [°]	Radius [mm]	Offset [mm]	Power	Phase [°]
3	1	75	400	-110	1
	2	165	400	110	1
1	1	75	290	0	1
	2	165	290	0	1

**KATHREIN**

Chesapeake RF  
4x2 UTV-01/X (08)

WHSV  
Kathrein USA mj

Date: 2018.05.25

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KATHREIN SE Anton-Kathrein-Str. 1-3 P.O. Box 10 04 44 83004 ROSENHEIM

## Figure 2

**Antenna Azimuthal Pattern  
WHSV-TV Harrisonburg, VA  
New DTDRT Broadway, VA  
Facility ID 4688  
Ch. 15 (digital) 15 kW**

prepared for  
**Gray Television Licensee, LLC**

May, 2018



# **Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal** (page 1 of 4)



tvstudy v2.2.5 (4uoc83)  
Database: localhost, Study: WHSV-TV DRT-15 prop LilNorth all, Model: Longley-Rice  
Start: 2018.05.30 15:45:07

Study created: 2018.05.30 15:45:07

Study build station data: LMS TV 2018-05-30

Proposal: WHSV-TV D15 LD APP Broadway, VA  
File number: WHSV-TV DRT-15 prop LilNorth  
Facility ID: 4688  
Station data: User record  
Record ID: 2145  
Country: U.S.  
Zone: I

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

Search options:  
Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WWTD-LD	D14	LD	LIC	WASHINGTON, DC	BLDTL20140320ADR	162.1 km
No	WGPX-TV	D14	DT	LIC	BURLINGTON, NC	BLCDT20060418ADO	270.6
No	DWAZH-CD	D14	DC	APP	HARRISONBURG, VA	BLANK0000001154	70.7
No	DWAZH-CD	D14	DC	APP	HARRISONBURG, VA	BLANK0000001573	70.7
Yes	DWAZH-CD	D14	LD	APP	HARRISONBURG, VA	BMPDTL20141029ABQ	63.1
Yes	DWAZH-CD	D14	LD	APP	HARRISONBURG, VA	BDCCDTL20131227ADS	63.1
No	WXOB-LD	D14	LD	CP	RICHMOND, VA	BDCCDTL20100726AIN	164.0
No	WKMR	D15	DT	LIC	MOREHEAD, KY	BMLEDT20120503ADU	395.1
No	W21CK-D	D15	DC	APP	CHARLOTTE, NC	BLANK0000034509	417.6
No	W15DO-D	D15	LD	CP	GREENVILLE, NC	BDCCDTL20120416ABG	347.6
No	WRAZ	D15	DT	CP	RALEIGH, NC	BLANK0000034036	327.7
No	WRPX-TV	D15	DT	LIC	ROCKY MOUNT, NC	BLANK0000048990	285.4
No	W50DV-D	D15	LD	APP	SPARTA, NC	BLANK0000029790	303.6
No	WHWD-LD	D15	LD	APP	STATESVILLE, NC	BLANK0000029372	320.4
No	WEWS-TV	D15	DT	LIC	CLEVELAND, OH	BLCDT20091211ACS	389.8
No	WQCW	D15	DT	CP	PORTSMOUTH, OH	BLANK0000025192	288.5
No	WPSU-TV	D15	DD	LIC	CLEARFIELD, PA	BLEDT20130614ACC	282.2
No	WNSC-TV	D15	DT	LIC	ROCK HILL, SC	BLEDT20060111AAK	459.3
Yes	WFDC-DT	D15	DT	LIC	ARLINGTON, VA	BLANK0000041206	162.1
No	WUDW-LD	D15	LD	LIC	CROZET, VA	BLANK0000014020	136.5
No	W43BO	D15	LD	CP	MARION, ETC., VA	BDISDTL20090910AAZ	299.6
No	W16CE	D15	LD	CP	CHARLESTON, WV	BDISDTL20120605ABM	240.9
No	WINP-TV	D16	DT	CP	PITTSBURGH, PA	BLANK0000034405	223.6
Yes	WVAW-LD	D16	LD	LIC	CHARLOTTESVILLE, VA	BLDTL20090218AEG	78.5
No	WAZC-LP	N16-	TX	LIC	LURAY, VA	BLTTL20020508AAB	25.3
No	WUSV-LD	D16	LD	LIC	CLARKSBURG, WV	BLDTL20140616AEQ	141.4
No	W41DK-D	D16	LD	APP	KEYSER, WV	BLANK0000035614	87.4
No	W22CY	N22-	TX	LIC	CLARKSBURG, WV	BLTTL20060120ADM	141.4

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D15  
Mask: Full Service  
Latitude: 38 36 29.30 N (NAD83)  
Longitude: 78 54 8.70 W  
Height AMSL: 690.3 m  
HAAT: 0.0 m  
Peak ERP: 15.0 kW  
Antenna: KAT LilNorth 4x2UTVC-01 20180525 0.0 deg  
Elev Pattn: Generic  
Elec Tilt: 1.00

48.8 dBu contour:  
Azimuth ERP HAAT Distance

**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
(page 2 of 4)



0.0 deg	0.049 kW	137.2 m	19.0 km
45.0	5.31	262.2	50.5
90.0	8.73	328.9	56.7
135.0	11.3	298.8	56.5
180.0	10.8	247.3	53.3
225.0	0.411	118.5	28.7
270.0	0.000	12.8	2.7
315.0	0.000	96.5	2.5

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m    Computed HAAT: 188 m

Distance to Canadian border: 432.3 km

Distance to Mexican border: 2192.4 km

Conditions at FCC monitoring station: Laurel MD  
Bearing: 70.4 degrees    Distance: 190.4 km

\*\*Proposal is within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 282.7 degrees    Distance: 2259.7 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%

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Interference to BMPDTL20141029ABQ APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	DWAZH-CD	D14	LD	APP	HARRISONBURG, VA	BMPDTL20141029ABQ	
Undesireds:	WHSV-TV	D15	LD	APP	Broadway, VA	WHSV-TV DRT-15 prop Li	63.1 km
	WWTD-LD	D14	LD	LIC	WASHINGTON, DC	BLDTL20140320ADR	108.0
	WXOB-LD	D14	LD	CP	RICHMOND, VA	BDCCDTL20100726AIN	165.6
	WFDC-DT	D15	DT	LIC	ARLINGTON, VA	BLANK0000041206	108.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
11665.0	541,935	7886.9	384,195	7561.0	347,967	7554.0    347,833	0.09    0.04
Undesired		Total IX		Unique IX, before		Unique IX, after	
WHSV-TV	D15 LD APP	8.0	134			7.0    134	
WWTD-LD	D14 LD LIC	304.0	35,969	182.4	16,104	181.4    16,104	
WXOB-LD	D14 LD CP	45.9	4,046	20.9	259	20.9    259	
WFDC-DT	D15 DT LIC	108.6	17,841	1.0	0	1.0    0	

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Interference to BDCCDTL20131227ADS APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	DWAZH-CD	D14	LD	APP	HARRISONBURG, VA	BDCCDTL20131227ADS	
Undesireds:	WHSV-TV	D15	LD	APP	Broadway, VA	WHSV-TV DRT-15 prop Li	63.1 km
	WWTD-LD	D14	LD	LIC	WASHINGTON, DC	BLDTL20140320ADR	108.0
	WXOB-LD	D14	LD	CP	RICHMOND, VA	BDCCDTL20100726AIN	165.6
	WFDC-DT	D15	DT	LIC	ARLINGTON, VA	BLANK0000041206	108.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
11665.0	541,935	7886.9	384,195	7561.0	347,967	7554.0    347,833	0.09    0.04
Undesired		Total IX		Unique IX, before		Unique IX, after	
WHSV-TV	D15 LD APP	8.0	134			7.0    134	
WWTD-LD	D14 LD LIC	304.0	35,969	182.4	16,104	181.4    16,104	



**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
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WXOB-LD D14 LD CP	45.9	4,046	20.9	259	20.9	259
WFDC-DT D15 DT LIC	108.6	17,841	1.0	0	1.0	0

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Interference to BLANK0000041206 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WFDC-DT	D15	DT	LIC	ARLINGTON, VA	BLANK0000041206	
Undesireds:	WHSV-TV	D15	LD	APP	Broadway, VA	WHSV-TV DRT-15 prop Li	162.1 km
	WETA-TV	D14	DT	BL	WASHINGTON, DC	DTVBL65670	1.2
	WPSU-TV	D15	DD	LIC	CLEARFIELD, PA	BLEDT20130614ACC	268.8
	WCPB	D16	DT	CP	SALISBURY, MD	BLANK0000029877	143.2
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
24893.2		8,155,201		24129.8		8,065,156	0.45 0.18
				8,114,748			
				23724.2			
				8,079,299			
				23618.1			
Undesired		Total IX		Unique IX, before		Unique IX, after	
WHSV-TV D15 LD APP		338.0		34,776		106.0	14,143
WETA-TV D14 DT BL		3.0		55		3.0	55
WPSU-TV D15 DD LIC		401.7		35,387		169.7	14,754
WCPB D16 DT CP		1.0		7		1.0	7

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Interference to BLDTL20090218AEG LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WVAW-LD	D16	LD	LIC	CHARLOTTESVILLE, VA	BLDTL20090218AEG	
Undesireds:	WHSV-TV	D15	LD	APP	Broadway, VA	WHSV-TV DRT-15 prop Li	78.5 km
	WUDW-LD	D15	LD	LIC	CROZET, VA	BLANK0000014020	62.6
	WCPB	D16	DT	CP	SALISBURY, MD	BLANK0000029877	256.3
	WXII-TV	D16	DT	CP	WINSTON-SALEM, NC	BLANK0000034697	245.1
	WINP-TV	D16	DT	CP	PITTSBURGH, PA	BLANK0000034405	302.0
	WTKR	D16	DT	CP	NORFOLK, VA	BLANK0000034472	218.1
	W41DK-D	D16	LD	APP	KEYSER, WV	BLANK0000035614	163.8
	WXOB-LP	N17z	TX	LIC	RICHMOND, VA	BLTTA20020809AAN	94.2
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
11032.2		425,440		9115.5		295,805	0.00 0.00
				299,042			
				8976.3			
				295,805			
				8976.3			
Undesired		Total IX		Unique IX, before		Unique IX, after	
WHSV-TV D15 LD APP		1.0		0		0.0	0
WUDW-LD D15 LD LIC		2.0		15		2.0	15
WCPB D16 DT CP		14.1		250		3.0	59
WXII-TV D16 DT CP		94.9		2,829		56.5	1,065
WINP-TV D16 DT CP		1.0		0		0.0	0
WTKR D16 DT CP		70.6		2,090		28.3	190
W41DK-D D16 LD APP		7.0		0		3.0	0

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Interference to proposal scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WHSV-TV	D15	LD	APP	Broadway, VA	WHSV-TV DRT-15 prop Li	
Undesireds:	DWAZH-CD	D14	LD	APP	HARRISONBURG, VA	BMPDTL20141029ABQ	63.1 km
	WRAZ	D15	DT	CP	RALEIGH, NC	BLANK0000034036	327.7
	WPSU-TV	D15	DD	LIC	CLEARFIELD, PA	BLEDT20130614ACC	282.2
	WFDC-DT	D15	DT	LIC	ARLINGTON, VA	BLANK0000041206	162.1
	WUDW-LD	D15	LD	LIC	CROZET, VA	BLANK0000014020	136.5
	WVAW-LD	D16	LD	LIC	CHARLOTTESVILLE, VA	BLDTL20090218AEG	78.5
Service area		Terrain-limited		IX-free		Percent IX	
5201.2		212,323		3759.0		2.40	0.51
				169,097			
				3668.9			
				168,230			
Undesired		Total IX		Unique IX		Prcnt Unique IX	
DWAZH-CD D14 LD APP		4.0		0		0.11	0.00
WRAZ D15 DT CP		2.0		0		0.00	0.00
WPSU-TV D15 DD LIC		2.0		0		0.03	0.00
WFDC-DT D15 DT LIC		79.1		867		1.81	0.51
WUDW-LD D15 LD LIC		15.0		0		0.05	0.00
WVAW-LD D16 LD LIC		5.0		0		0.00	0.00

**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
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Interference to proposal scenario 2  
\*\*MX: 2.60% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WHSV-TV	D15	LD	APP	Broadway, VA	WHSV-TV DRT-15 prop Li	
Undesireds:	DWAZH-CD	D14	LD	APP	HARRISONBURG, VA	BDCCDTL20131227ADS	63.1 km
	WRAZ	D15	DT	CP	RALEIGH, NC	BLANK0000034036	327.7
	WPSU-TV	D15	DD	LIC	CLEARFIELD, PA	BL EDT20130614ACC	282.2
	WFDC-DT	D15	DT	LIC	ARLINGTON, VA	BLANK0000041206	162.1
	WUDW-LD	D15	LD	LIC	CROZET, VA	BLANK0000014020	136.5
	WVAW-LD	D16	LD	LIC	CHARLOTTESVILLE, VA	BLDTL20090218AEG	78.5
	Service area	Terrain-limited		IX-free		Percent IX	
5201.2	212,323	3759.0	169,097	3598.0	164,698	4.28	2.60
Undesired				Total IX	Unique IX	Prct Unique IX	
DWAZH-CD D14 LD APP	87.8	3,825	74.9	3,532	1.99	2.09	
WRAZ D15 DT CP	2.0	0	0.0	0	0.00	0.00	
WPSU-TV D15 DD LIC	2.0	0	1.0	0	0.03	0.00	
WFDC-DT D15 DT LIC	79.1	867	56.1	574	1.49	0.34	
WUDW-LD D15 LD LIC	15.0	0	2.0	0	0.05	0.00	
WVAW-LD D16 LD LIC	5.0	0	0.0	0	0.00	0.00	