

**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. 28   Luray, 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:              Waiver of §73.3700(g)(2)(i) requested  
Operation on proposed channel will not commence until the following station achieves its post-auction facility:  
WFPT Ch. 28 Frederick, MD (repacked to Ch. 21, obtained major change to remain on Ch. 28 with modified facility)  
The applicant will accept a corresponding special operating condition on the CP authorization.

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 0.45 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.  
207 Old Dominion Road

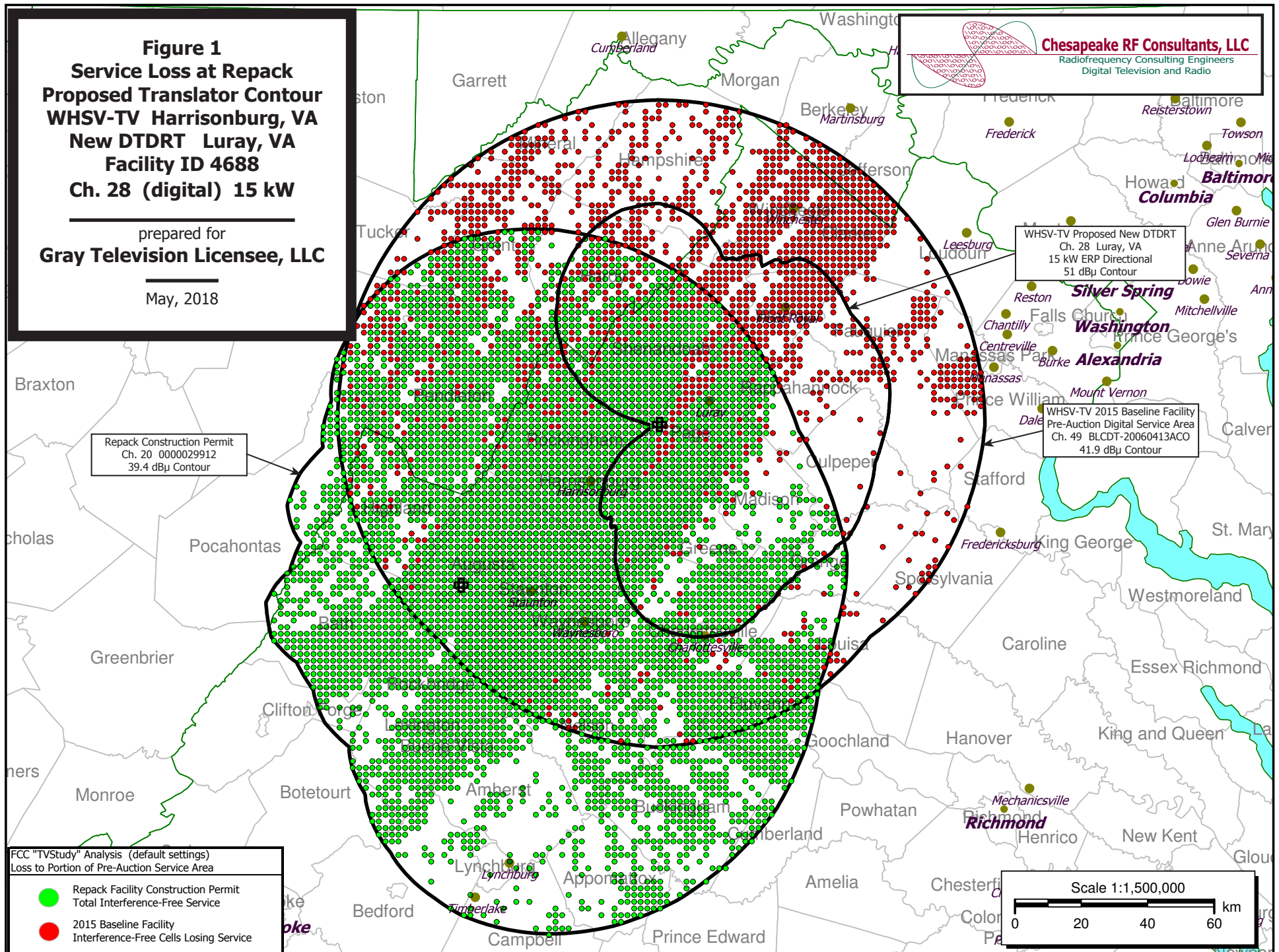
May 16, 2018  
Yorktown, VA 23692

703-650-9600

**Figure 1**  
**Service Loss at Repack**  
**Proposed Translator Contour**  
**WHSV-TV Harrisonburg, VA**  
**New DTDRT Luray, VA**  
**Facility ID 4688**  
**Ch. 28 (digital) 15 kW**

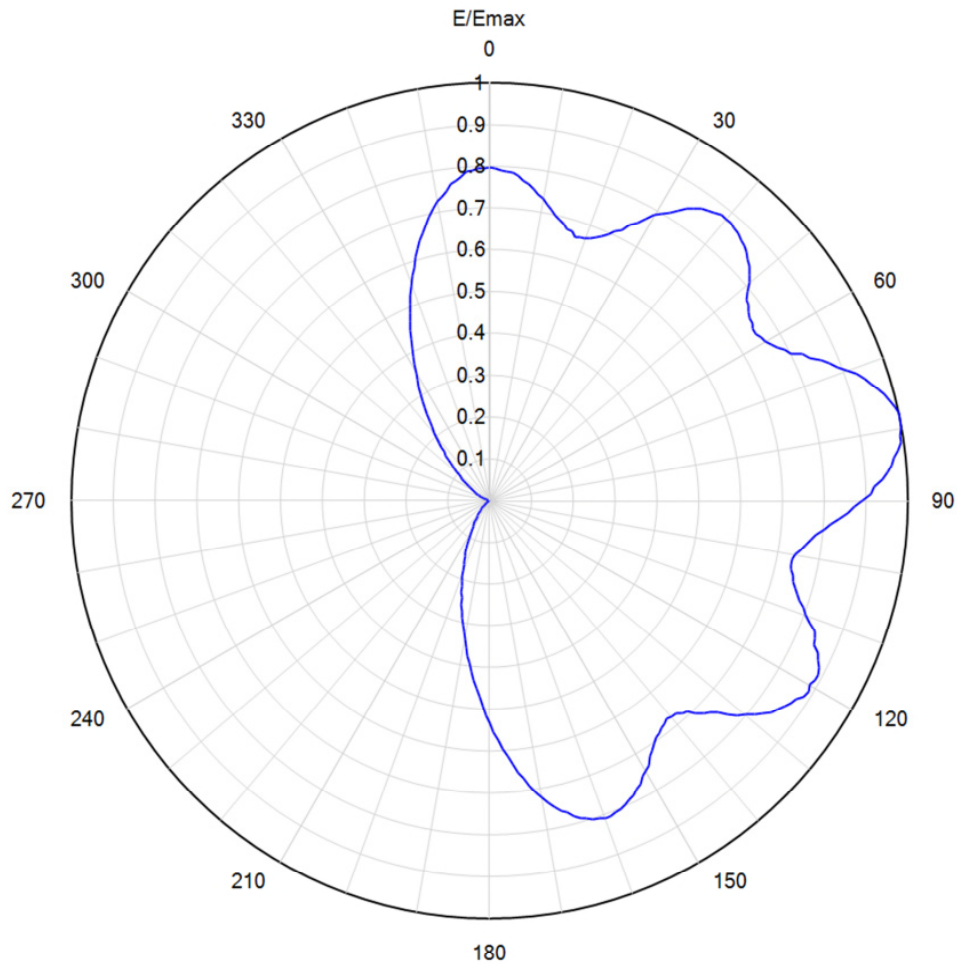
prepared for  
**Gray Television Licensee, LLC**

May, 2018





## Azimuth Pattern



Model: PEPSIL6C-SP-WHSV1

Location: Big Mountain

Customer: Gray Television

Date: January 31, 2018

Rotation Angle: 0 degrees

Note: Pattern Tolerance +/-5% of Emax

Polarization: Horizontal

Frequency: 557.00 MHz

Directivity:

Elevation Angle:

Horizontal Unit Pattern:

File = FINAL Azpattern @ 1.5 Depr no MBT-

**Figure 2**

**Antenna Azimuthal Pattern  
WHSV-TV Harrisonburg, VA  
New DTDRT Luray, VA  
Facility ID 4688  
Ch. 28 (digital) 15 kW**

prepared for  
**Gray Television Licensee, LLC**

May, 2018



**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
(page 1 of 5)



tvstudy v2.2.5 (4uoc83)  
Database: localhost, Study: WHSV-TV DRT-28 BigMtn RFS repack, Model: Longley-Rice  
Start: 2018.05.16 08:01:06

Study created: 2018.05.16 08:00:20

Study build station data: LMS TV 2018-05-15

Proposal: WHSV-TV D28 LD APP Luray, VA  
File number: WHSV-TV DRT-28 BigMtn RFS  
Facility ID: 4688  
Station data: User record  
Record ID: 2095  
Country: U.S.  
Zone: I

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	WSVF-LP	N25+	TX	LIC	HARRISONBURG, VA	BLTTL20011107ABW	26.1 km
No	WMAR-TV	D27	DT	CP	BALTIMORE, MD	BLANK0000026796	189.7
No	WUNP-TV	D27	DT	CP	ROANOKE RAPIDS, NC	BLANK0000034416	266.2
No	WPCW	D27	LD	LIC	JEANNETTE, PA	BLCDT20120709AED	180.7
No	WTAE-TV	D27	DT	CP	PITTSBURGH, PA	BLANK0000034565	211.9
No	WPXR-TV	D27	DT	CP	ROANOKE, VA	BLANK0000034915	205.8
No	W28DD-D	D28	LD	LIC	LOUISA, KY	BLDTT20080919ABS	350.9
Yes	WFPT	D28	DT	CP	FREDERICK, MD	BLANK0000029876	135.6
No	WMYV	D28	DT	CP	GREENSBORO, NC	BLANK0000034498	321.6
No	WUNM-TV	D28	DT	CP	JACKSONVILLE, NC	BLANK0000034444	405.4
No	W28CJ-D	D28	LD	LIC	MANTEO, NC	BLDTL20150311AAM	402.7
No	W28EC-D	D28	LD	CP	NEW BERN, NC	BMPDTL20110502ACA	409.8
No	WSYX	D28	DT	CP	COLUMBUS, OH	BLANK0000027371	405.7
No	WCBZ-CD	D28	DC	LIC	Columbus, OH	BLANK0000044818	409.9
No	W28EO-D	D28	LD	CP	DUBOIS, PA	BNPDTL20100609AGI	320.2
No	WJET-TV	D28	DT	APP	ERIE, PA	BLANK0000029987	401.1
No	WJET-TV	D28	DT	CP	ERIE, PA	BLANK0000027719	401.1
No	WPCB-TV	D28	DT	CP	GREENSBURG, PA	BLANK0000034177	222.2
No	W52BO	D28	LD	CP	MEADVILLE, PA	BDISDTL20110829AAO	360.9
No	WCAU	D28	DT	CP	PHILADELPHIA, PA	BLANK0000034346	333.0
No	W28DP-D	D28	LD	LIC	POTTSVILLE, PA	BLDTT20091009ADU	310.7
No	WEMT	D28	DT	CP	GREENEVILLE, TN	BLANK0000034887	388.6
Yes	WRIC-TV	D28	DT	CP	PETERSBURG, VA	BLANK0000034784	150.9
No	WWBK-LD	D28	LD	LIC	RICHMOND, VA	BLANK0000001612	150.9
No	WWBK-LD	D28	LD	CP	RICHMOND, VA	BLANK0000004166	150.9
Yes	W28EM-D	D28	LD	CP	ROANOKE, VA	BDCCDTT20120710ABX	196.3
No	W28DR-D	D28	LD	LIC	CEDARVILLE, WV	BLDTT20130220AAB	176.8
Yes	WWPB	D29	DT	CP	HAGERSTOWN, MD	BLANK0000034108	129.9
No	WMDT	D29	DT	CP	SALISBURY, MD	BLANK0000027459	252.0
No	WWAT-CD	D29	DC	CP	CHARLEROI, PA	BLANK0000034569	205.3
No	WJAC-TV	D29	LD	LIC	JOHNSTOWN, PA	BLCDT20130416AAU	177.6
No	W29EO-D	D29	LD	CP	Charlottesville, VA	BLANK0000008299	58.7
No	WCVW	D29	DT	CP	RICHMOND, VA	BLANK0000034129	150.9
No	W29DH-D	D29	LD	LIC	MOOREFIELD, WV	BLDTT20120608ABZ	48.7

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D28  
Mask: Full Service  
Latitude: 38 36 5.00 N (NAD83)  
Longitude: 78 37 56.00 W  
Height AMSL: 997.0 m  
HAAT: 0.0 m  
Peak ERP: 15.0 kW  
Antenna: PEPSIL6C-SP-WHSV1 0.0 deg  
Elev Pattn: Generic  
Tilts: elec 1.25, mech 2.00 @ 80.0 deg

**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
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50.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	9.53 kW	687.2 m	67.9 km
45.0	10.7	676.4	68.4
90.0	11.9	703.0	69.7
135.0	8.14	536.8	62.9
180.0	4.29	690.1	62.6
225.0	0.011	575.1	24.2
270.0	0.000	654.3	2.6
315.0	0.322	656.8	45.2

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m Computed HAAT: 647 m

Distance to Canadian border: 438.9 km

Distance to Mexican border: 2211.4 km

Conditions at FCC monitoring station: Laurel MD  
Bearing: 67.6 degrees Distance: 168.8 km

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

Conditions at Table Mountain receiving zone:  
Bearing: 282.8 degrees Distance: 2282.8 km

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 BLANK0000029876 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WFPT	D28	DT	CP	FREDERICK, MD	BLANK0000029876	
Undesireds:	WHSV-TV	D28	LD	APP	Luray, VA	WHSV-TV DRT-28 BigMtn	135.6 km
	WMAR-TV	D27	DT	CP	BALTIMORE, MD	BLANK0000026796	57.5
	WPCB-TV	D28	DT	CP	GREENSBURG, PA	BLANK0000034177	245.5
	WCAU	D28	DT	CP	PHILADELPHIA, PA	BLANK0000034346	197.7
	WRIC-TV	D28	DT	CP	PETERSBURG, VA	BLANK0000034784	195.9
	WWPB	D29	DT	CP	HAGERSTOWN, MD	BLANK0000034108	71.3
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	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
11101.3	5,845,160	9780.4	5,467,361	7574.8	3,825,750	7545.9 3,823,513	0.38 0.06
Undesired	Total IX		Unique IX, before		Unique IX, after		
WHSV-TV D28 LD APP	167.0	67,149			28.8	2,237	
WMAR-TV D27 DT CP	1234.2	1,094,839	738.5	535,299	736.5	535,299	
WPCB-TV D28 DT CP	16.9	5,224	0.0	0	0.0	0	
WCAU D28 DT CP	900.4	597,016	279.8	42,909	274.8	42,811	
WRIC-TV D28 DT CP	947.3	890,461	394.3	397,833	369.4	393,479	
WWPB D29 DT CP	120.9	13,044	51.5	5,704	28.7	1,917	

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Interference to BLANK0000034784 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WRIC-TV	D28	DT	CP	PETERSBURG, VA	BLANK0000034784	
Undesireds:	WHSV-TV	D28	LD	APP	Luray, VA	WHSV-TV DRT-28 BigMtn	150.9 km
	WUNP-TV	D27	DT	CP	ROANOKE RAPIDS, NC	BLANK0000034416	137.3
	WJGN-CD	D27	DC	CP	CHESAPEAKE, VA	BLANK0000025319	132.1
	WFPT	D28	DT	CP	FREDERICK, MD	BLANK0000029876	195.9
	WMYV	D28	DT	CP	GREENSBORO, NC	BLANK0000034498	269.6
	WUNM-TV	D28	DT	CP	JACKSONVILLE, NC	BLANK0000034444	268.7
	WCAU	D28	DT	CP	PHILADELPHIA, PA	BLANK0000034346	347.8



**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
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Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
33426.0	2,052,265	32860.3	1,996,684	32269.5	1,972,712	32251.3	1,971,183	0.06	0.08
Undesired		Total IX		Unique IX, before		Unique IX, after			
WHSV-TV D28 LD APP		38.3	10,956			18.2	1,529		
WUNP-TV D27 DT CP		171.6	1,546	145.5	938	145.5	938		
WJGN-CD D27 DC CP		43.9	1,983	43.9	1,983	43.9	1,983		
WFPT D28 DT CP		82.4	1,934	39.2	1,650	36.2	1,510		
WMYV D28 DT CP		228.4	16,600	192.4	16,051	182.3	6,832		
WUNM-TV D28 DT CP		49.1	669	7.0	0	7.0	0		
WCAU D28 DT CP		117.7	2,669	74.5	2,385	72.5	2,348		

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Interference to BDCCDTT20120710ABX CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	W28EM-D	D28	LD	CP	ROANOKE, VA	BDCCDTT20120710ABX	
Undesireds:	WHSV-TV	D28	LD	APP	Luray, VA	WHSV-TV DRT-28 BigMtn	196.3 km
	WPXR-TV	D27	DT	CP	ROANOKE, VA	BLANK0000034915	10.6
	WMYV	D28	DT	CP	GREENSBORO, NC	BLANK0000034498	153.0
	WEMT	D28	DT	CP	GREENEVILLE, TN	BLANK0000034887	202.9
	WRIC-TV	D28	DT	CP	PETERSBURG, VA	BLANK0000034784	218.3
	WWBK-LD	D28	LD	LIC	RICHMOND, VA	BLANK0000001612	218.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
7019.6	414,883	4824.0	347,402	3799.3	311,848	3799.3	311,848	0.00	0.00
Undesired		Total IX		Unique IX, before		Unique IX, after			
WHSV-TV D28 LD APP		1.0	0			0.0	0		
WPXR-TV D27 DT CP		882.4	29,616	626.6	21,432	626.6	21,432		
WMYV D28 DT CP		302.9	9,275	81.3	2,602	81.3	2,602		
WEMT D28 DT CP		28.4	886	3.1	586	2.0	586		
WRIC-TV D28 DT CP		158.1	6,529	31.0	2,318	31.0	2,318		

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Interference to BDCCDTT20120710ABX CP scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	W28EM-D	D28	LD	CP	ROANOKE, VA	BDCCDTT20120710ABX	
Undesireds:	WHSV-TV	D28	LD	APP	Luray, VA	WHSV-TV DRT-28 BigMtn	196.3 km
	WPXR-TV	D27	DT	CP	ROANOKE, VA	BLANK0000034915	10.6
	WMYV	D28	DT	CP	GREENSBORO, NC	BLANK0000034498	153.0
	WEMT	D28	DT	CP	GREENEVILLE, TN	BLANK0000034887	202.9
	WRIC-TV	D28	DT	CP	PETERSBURG, VA	BLANK0000034784	218.3
	WWBK-LD	D28	LD	CP	RICHMOND, VA	BLANK0000004166	218.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
7019.6	414,883	4824.0	347,402	3799.3	311,848	3799.3	311,848	0.00	0.00
Undesired		Total IX		Unique IX, before		Unique IX, after			
WHSV-TV D28 LD APP		1.0	0			0.0	0		
WPXR-TV D27 DT CP		882.4	29,616	626.6	21,432	626.6	21,432		
WMYV D28 DT CP		302.9	9,275	81.3	2,602	81.3	2,602		
WEMT D28 DT CP		28.4	886	3.1	586	2.0	586		
WRIC-TV D28 DT CP		158.1	6,529	31.0	2,318	31.0	2,318		
WWBK-LD D28 LD CP		1.0	0	0.0	0	0.0	0		

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Interference to BLANK0000034108 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WWPB	D29	DT	CP	HAGERSTOWN, MD	BLANK0000034108	
Undesireds:	WHSV-TV	D28	LD	APP	Luray, VA	WHSV-TV DRT-28 BigMtn	129.9 km
	WFPT	D28	DT	CP	FREDERICK, MD	BLANK0000029876	71.3
	WMDT	D29	DT	CP	SALISBURY, MD	BLANK0000027459	231.3
	WNEO	D29	DT	CP	ALLIANCE, OH	BLANK0000034304	285.7
	WWAT-CD	D29	DC	CP	CHARLEROI, PA	BLANK0000034569	178.1
	WQMY	D29	DT	LIC	WILLIAMSPORT, PA	BLCDT20090223ABU	186.6
	WCVW	D29	DT	CP	RICHMOND, VA	BLANK0000034129	239.8
	WCHS-TV	D29	DT	CP	CHARLESTON, WV	BLANK0000034592	366.6

**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
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WIAV-CD		D30	DC	CP	WASHINGTON, DC		BLANK0000029340		110.0	
WDCO-CD		D30	DC	CP	WOODSTOCK, VA		BLANK0000027758		89.7	
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX		
28943.3	3,193,594	24077.7	2,806,130	22487.0	2,225,714	22482.0	2,225,712	0.02	0.00	
Undesired		Total IX		Unique IX, before		Unique IX, after				
WHSV-TV	D28 LD APP	5.0	2			5.0	2			
WFPT	D28 DT CP	873.0	418,265	521.4	195,911	521.4	195,911			
WMDT	D29 DT CP	203.8	76,498	27.9	2,521	27.9	2,521			
WNEO	D29 DT CP	112.4	2,014	62.2	776	62.2	776			
WWAT-CD	D29 DC CP	55.2	931	8.0	5	8.0	5			
WQMY	D29 DT LIC	15.0	306	9.0	68	9.0	68			
WCVW	D29 DT CP	535.6	174,600	201.7	24,599	201.7	24,599			
WCHS-TV	D29 DT CP	5.0	95	2.0	12	2.0	12			
WIAV-CD	D30 DC CP	354.2	316,973	101.6	84,015	101.6	84,015			
WDCO-CD	D30 DC CP	174.5	4,343	125.6	3,443	125.6	3,443			
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Interference to BLANK0000034108 CP scenario 2										
Desired:	Call	Chan	Svc	Status	City, State		File Number		Distance	
	WWPB	D29	DT	CP	HAGERSTOWN, MD		BLANK0000034108			
Undesireds:	WHSV-TV	D28	LD	APP	Luray, VA		WHSV-TV DRT-28 BigMtn		129.9 km	
	WFPT	D28	DT	CP	FREDERICK, MD		BLANK0000029876		71.3	
	WMDT	D29	DT	CP	SALISBURY, MD		BLANK0000027459		231.3	
	WNEO	D29	DT	CP	ALLIANCE, OH		BLANK0000034304		285.7	
	WWAT-CD	D29	DC	CP	CHARLEROI, PA		BLANK0000034569		178.1	
	WQMY	D29	DT	APP	WILLIAMSPORT, PA		BLANK0000035754		186.6	
	WCVW	D29	DT	CP	RICHMOND, VA		BLANK0000034129		239.8	
	WCHS-TV	D29	DT	CP	CHARLESTON, WV		BLANK0000034592		366.6	
	WIAV-CD	D30	DC	CP	WASHINGTON, DC		BLANK0000029340		110.0	
	WDCO-CD	D30	DC	CP	WOODSTOCK, VA		BLANK0000027758		89.7	
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Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX		
28943.3	3,193,594	24077.7	2,806,130	22404.2	2,224,033	22399.2	2,224,031	0.02	0.00	
Undesired		Total IX		Unique IX, before		Unique IX, after				
WHSV-TV	D28 LD APP	5.0	2			5.0	2			
WFPT	D28 DT CP	873.0	418,265	521.4	195,911	521.4	195,911			
WMDT	D29 DT CP	203.8	76,498	26.9	2,521	26.9	2,521			
WNEO	D29 DT CP	112.4	2,014	47.2	602	47.2	602			
WWAT-CD	D29 DC CP	55.2	931	6.0	5	6.0	5			
WQMY	D29 DT APP	123.8	2,216	91.8	1,749	91.8	1,749			
WCVW	D29 DT CP	535.6	174,600	199.6	24,593	199.6	24,593			
WCHS-TV	D29 DT CP	5.0	95	2.0	12	2.0	12			
WIAV-CD	D30 DC CP	354.2	316,973	101.6	84,015	101.6	84,015			
WDCO-CD	D30 DC CP	174.5	4,343	125.6	3,443	125.6	3,443			
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Interference to proposal scenario 1										
Desired:	Call	Chan	Svc	Status	City, State		File Number		Distance	
	WHSV-TV	D28	LD	APP	Luray, VA		WHSV-TV DRT-28 BigMtn			
Undesireds:	WFPT	D28	DT	CP	FREDERICK, MD		BLANK0000029876		135.6 km	
	WCAU	D28	DT	CP	PHILADELPHIA, PA		BLANK0000034346		333.0	
	WRIC-TV	D28	DT	CP	PETERSBURG, VA		BLANK0000034784		150.9	
	WWBK-LD	D28	LD	LIC	RICHMOND, VA		BLANK0000001612		150.9	
	WWPB	D29	DT	CP	HAGERSTOWN, MD		BLANK0000034108		129.9	
	W29DH-D	D29	LD	LIC	MOOREFIELD, WV		BLDTT20120608ABZ		48.7	
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Service area		Terrain-limited		IX-free		Percent IX				
9288.2	349,322	4528.6	110,875	4388.6	109,880	3.09	0.90			
Undesired		Total IX		Unique IX		Prcnt Unique IX				
WFPT	D28 DT CP	11.0	358	3.0	352	0.07	0.32			
WCAU	D28 DT CP	2.0	0	0.0	0	0.00	0.00			
WRIC-TV	D28 DT CP	125.0	494	104.1	224	2.30	0.20			
WWBK-LD	D28 LD LIC	5.0	0	0.0	0	0.00	0.00			
WWPB	D29 DT CP	22.9	413	11.0	149	0.24	0.13			
W29DH-D	D29 LD LIC	2.0	0	0.0	0	0.00	0.00			



**Table 1 WHSV-TV DTDRT TVStudy Analysis of Proposal**  
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Interference to proposal scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WHSV-TV	D28	LD	APP	Luray, VA	WHSV-TV DRT-28 BigMtn	
Undesireds:	WFPT	D28	DT	CP	FREDERICK, MD	BLANK00000029876	135.6 km
	WCAU	D28	DT	CP	PHILADELPHIA, PA	BLANK00000034346	333.0
	WRIC-TV	D28	DT	CP	PETERSBURG, VA	BLANK00000034784	150.9
	WWBK-LD	D28	LD	CP	RICHMOND, VA	BLANK0000004166	150.9
	WWPB	D29	DT	CP	HAGERSTOWN, MD	BLANK00000034108	129.9
	W29DH-D	D29	LD	LIC	MOOREFIELD, WV	BLD TT20120608ABZ	48.7
Service area		Terrain-limited		IX-free		Percent IX	
9288.2	349,322	4528.6	110,875	4388.6	109,880	3.09	0.90
Undesired		Total IX		Unique IX		Prcnt Unique IX	
WFPT D28 DT CP		11.0	358	3.0	352	0.07	0.32
WCAU D28 DT CP		2.0	0	0.0	0	0.00	0.00
WRIC-TV D28 DT CP		125.0	494	94.1	203	2.08	0.18
WWBK-LD D28 LD CP		20.0	285	0.0	0	0.00	0.00
WWPB D29 DT CP		22.9	413	11.0	149	0.24	0.13
W29DH-D D29 LD LIC		2.0	0	0.0	0	0.00	0.00