

ENGINEERING EXHIBIT

Digital to Digital Replacement Television Translator Station Application for Minor Modification of Construction Permit

prepared for

Gray Television Licensee, LLC

WVIR-TV Charlottesville, VA

DTDRT Madison, VA

Facility ID 70309

Ch. 30 15 kW Directional

Gray Television Licensee, LLC (“Gray”) is the licensee of television station WVIR-TV, Channel 2, Charlottesville VA, Facility ID 70309. *Gray* is authorized by a Construction Permit (“CP” file# 0000130293) to construct a new digital-to-digital replacement translator (“DTDRT”) facility on Channel 30 for WVIR-TV to aid in serving communities in the region of Madison, Greene, Orange, Culpeper, and Louisa Counties Virginia. The DTDRT facility is authorized to operate at 15 kW effective radiated power (“ERP”) with a directional antenna centered 82.9 meters above ground level (“AGL”). It has been determined that other appurtenances on the tower obstruct the authorized antenna height. *Gray* herein seeks a modification of the CP to specify a slight increase of 4.0 meters in the authorized antenna height, to 86.9 meters AGL.

No change in site location, ERP, antenna, or directional antenna pattern is proposed. As with the current CP, the proposed facility will employ a new antenna system to be side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1026298. This tower structure is atop Clark Mountain and located 55.5 km from the WVIR-TV Channel 2 site. No change to the overall structure height is proposed.

The proposed ERP is 15 kW using a “full service” out of channel emission mask. The proposed antenna is a directional Dielectric model TLP-12W/VP-R having elliptical polarization (30 percent vertical power). The maximum horizontally polarized ERP is 15 kW and the maximum vertically polarized ERP is 4.5 kW. A plot of the directional antenna’s azimuthal pattern is supplied in Figure 1.

Figure 2 depicts the 51 dB μ coverage contour of the proposed DTDRT Channel 30 facility, which does not extend beyond the WVIR-TV pre-auction¹ Channel 32 protected service area. Considering the 4.0 meter increase in antenna height, the proposed DTDRT 51 dB μ coverage contour expands past that of the authorized DTDRT facility by only 0.2 km (not shown on Figure 2 for clarity). The use of the authorized DTDRT site and the negligible change in coverage contour complies with §74.787(b) for a minor modification of the CP.

Interference study per OET Bulletin 69² shows that the proposal complies with the FCC's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. The results, summarized in Table 1, show that any new interference does not exceed the FCC's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposed facility was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10) and 15 percent antenna relative field in downward elevations (pattern data shows 15 percent or less relative field at angles 15 to 90 degrees below the antenna), the calculated power density attributable to the proposed facility at locations near the transmitter site at a height of two meters above ground level is 2.0 μ W/cm², which is 0.5 percent of the general population / uncontrolled maximum permissible exposure limit. This is well 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.

¹WVIR-TV was reassigned from Channel 32 to Channel 2 in the *Incentive Auction Closing and Channel Reassignment Public Notice* ("CCRPN", DA 17-317, released April 13, 2017).

²FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 1 km cell size, and 1.0 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

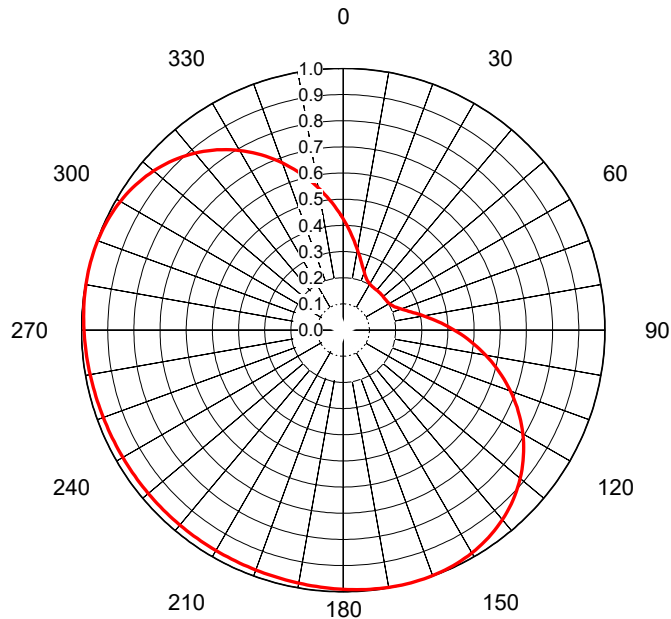
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

List of Attachments

Figure 1	Antenna Azimuthal Pattern
Figure 2	Proposed Translator Contour
Table 1	TVStudy Analysis of Proposal
Form 2100	Saved Version of Engineering Sections of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	March 13, 2023	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



AZIMUTH PATTERN Horizontal Polarization

Proposal No. **20201104jmd**
Date **4-Nov-20**
Call Letters **WVIR-TV DTDRT**
Channel **30**
Frequency **569 MHz**
Antenna Type **TLP-12W/VP-R**
Gain **1.6 (2.05dB)**
Calculated

Pattern Number **TLP-W-30 Hpol**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.424	36	0.199	72	0.247	108	0.655	144	0.964	180	0.991	216	0.972	252	0.977	288	1.000
1	0.412	37	0.199	73	0.253	109	0.667	145	0.968	181	0.990	217	0.972	253	0.977	289	0.999
2	0.400	38	0.199	74	0.260	110	0.680	146	0.971	182	0.989	218	0.972	254	0.978	290	0.999
3	0.388	39	0.199	75	0.268	111	0.692	147	0.975	183	0.988	219	0.972	255	0.978	291	0.998
4	0.376	40	0.199	76	0.276	112	0.704	148	0.978	184	0.987	220	0.972	256	0.979	292	0.997
5	0.365	41	0.199	77	0.284	113	0.716	149	0.981	185	0.986	221	0.972	257	0.980	293	0.996
6	0.354	42	0.199	78	0.293	114	0.727	150	0.983	186	0.985	222	0.972	258	0.980	294	0.995
7	0.343	43	0.199	79	0.302	115	0.739	151	0.986	187	0.984	223	0.972	259	0.981	295	0.993
8	0.332	44	0.199	80	0.312	116	0.750	152	0.988	188	0.984	224	0.972	260	0.982	296	0.992
9	0.322	45	0.199	81	0.322	117	0.761	153	0.990	189	0.983	225	0.972	261	0.983	297	0.990
10	0.312	46	0.199	82	0.332	118	0.772	154	0.992	190	0.982	226	0.972	262	0.984	298	0.988
11	0.302	47	0.199	83	0.343	119	0.782	155	0.993	191	0.981	227	0.972	263	0.984	299	0.986
12	0.293	48	0.199	84	0.354	120	0.792	156	0.995	192	0.980	228	0.972	264	0.985	300	0.983
13	0.284	49	0.199	85	0.365	121	0.803	157	0.996	193	0.980	229	0.972	265	0.986	301	0.981
14	0.276	50	0.199	86	0.376	122	0.813	158	0.997	194	0.979	230	0.972	266	0.987	302	0.978
15	0.268	51	0.199	87	0.388	123	0.822	159	0.998	195	0.978	231	0.972	267	0.988	303	0.975
16	0.260	52	0.199	88	0.400	124	0.832	160	0.999	196	0.978	232	0.972	268	0.989	304	0.971
17	0.253	53	0.199	89	0.412	125	0.841	161	0.999	197	0.977	233	0.972	269	0.990	305	0.968
18	0.247	54	0.199	90	0.424	126	0.850	162	1.000	198	0.977	234	0.972	270	0.991	306	0.964
19	0.241	55	0.199	91	0.437	127	0.858	163	1.000	199	0.976	235	0.972	271	0.992	307	0.960
20	0.235	56	0.200	92	0.449	128	0.867	164	1.000	200	0.976	236	0.972	272	0.993	308	0.956
21	0.230	57	0.200	93	0.462	129	0.875	165	1.000	201	0.975	237	0.972	273	0.993	309	0.951
22	0.225	58	0.201	94	0.475	130	0.883	166	1.000	202	0.975	238	0.973	274	0.994	310	0.946
23	0.221	59	0.202	95	0.488	131	0.890	167	1.000	203	0.975	239	0.973	275	0.995	311	0.941
24	0.217	60	0.203	96	0.501	132	0.898	168	0.999	204	0.974	240	0.973	276	0.996	312	0.936
25	0.214	61	0.205	97	0.514	133	0.905	169	0.999	205	0.974	241	0.973	277	0.997	313	0.930
26	0.211	62	0.206	98	0.527	134	0.911	170	0.999	206	0.974	242	0.973	278	0.997	314	0.924
27	0.208	63	0.208	99	0.540	135	0.918	171	0.998	207	0.973	243	0.973	279	0.998	315	0.918
28	0.206	64	0.211	100	0.553	136	0.924	172	0.997	208	0.973	244	0.974	280	0.999	316	0.911
29	0.205	65	0.214	101	0.566	137	0.930	173	0.997	209	0.973	245	0.974	281	0.999	317	0.905
30	0.203	66	0.217	102	0.579	138	0.936	174	0.996	210	0.973	246	0.974	282	0.999	318	0.898
31	0.202	67	0.221	103	0.592	139	0.941	175	0.995	211	0.973	247	0.975	283	1.000	319	0.890
32	0.201	68	0.225	104	0.604	140	0.946	176	0.994	212	0.973	248	0.975	284	1.000	320	0.883
33	0.200	69	0.230	105	0.617	141	0.951	177	0.993	213	0.972	249	0.975	285	1.000	321	0.875
34	0.200	70	0.235	106	0.630	142	0.956	178	0.993	214	0.972	250	0.976	286	1.000	322	0.867
35	0.199	71	0.241	107	0.643	143	0.960	179	0.992	215	0.972	251	0.976	287	1.000	323	0.858

Figure 1

Antenna Azimuthal Pattern
WVIR-TV Charlottesville, VA
DTDRT Madison, VA
Facility ID 70309
Ch. 30 15 kW Directional

prepared for
Gray Television Licensee, LLC

March, 2023



Figure 2
Proposed Translator Contour
WVIR-TV Charlottesville, VA
DTDRT Madison, VA
Facility ID 70309
Ch. 30 15 kW Directional

prepared for
Gray Television Licensee, LLC

March, 2023

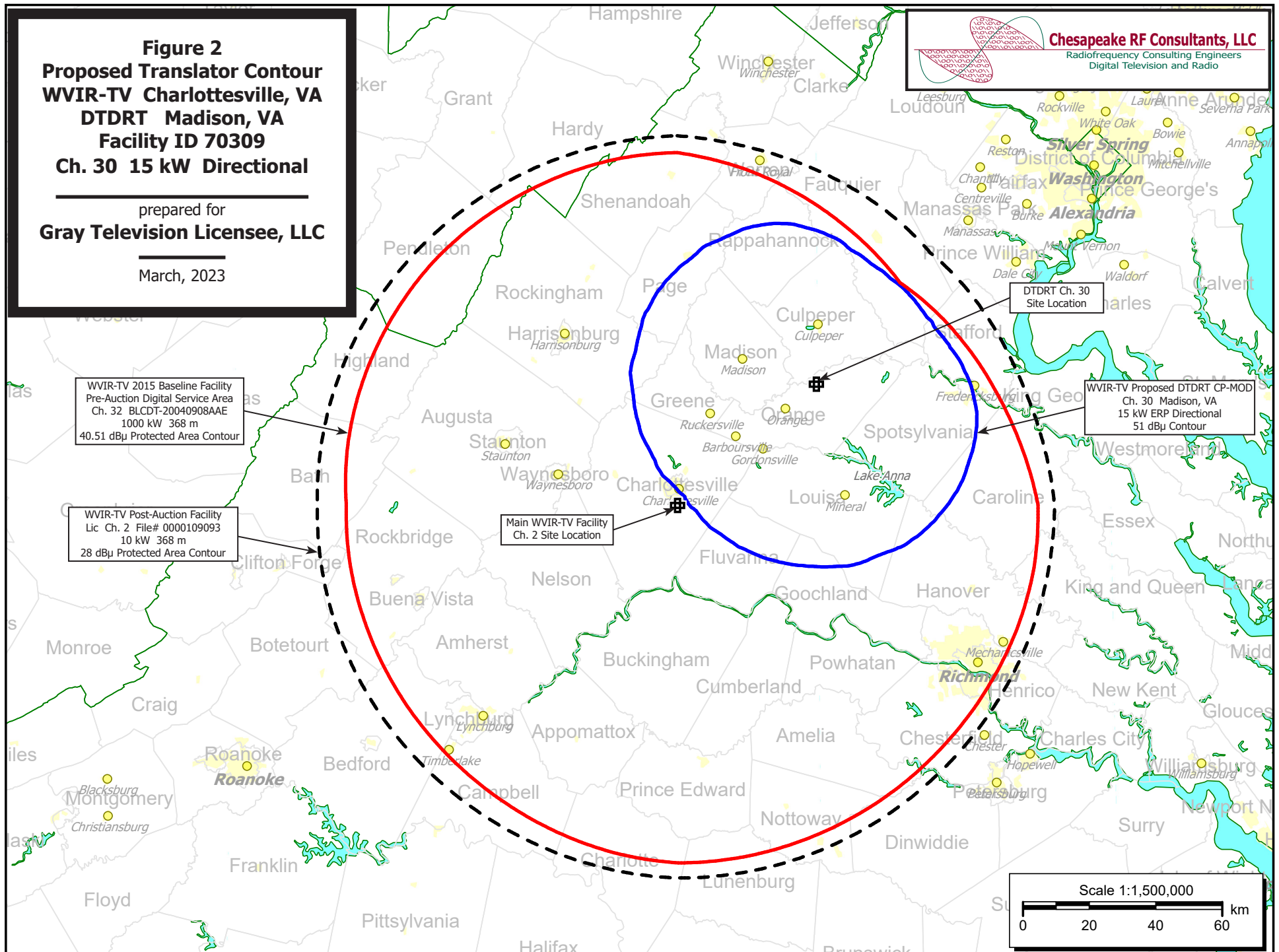


Table 1 WVIR-TV DTDRT TVStudy Analysis of Proposal (page 1 of 5)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: WVIR-TV 1026298 285ft, Model: Longley-Rice
Start: 2023.03.13 08:22:20

Study created: 2023.03.13 08:22:20

Study build station data: LMS TV 2023-03-13

Proposal: WVIR-TV D30 LD APP Madison, VA
File number: WVIR-TV 1026298 285ft
Facility ID: 70309
Station data: User record
Record ID: 4907
Country: U.S.

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	WWPB	D29	DT	LIC	HAGERSTOWN, MD	BLANK0000114259	149.0 km
No	WMDT	D29	DT	LIC	SALISBURY, MD	BLANK0000125726	198.7
No	WDWA-LD	D29	LD	CP	Damascus, VA	BLANK0000112251	122.2
Yes	WCVW	D29	DT	LIC	RICHMOND, VA	BLANK0000186570	95.5
No	W29DH-D	D29	LD	LIC	MOOREFIELD, WV	BLD TT20120608ABZ	108.4
Yes	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK0000133452	106.3
No	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044	471.7
No	W30EF-D	D30	LD	LIC	JEFFERSON, NC	BLANK0000107212	370.1
No	WAXN-TV	D30	LD	LIC	KANNAPOLIS, NC	BLANK0000119096	381.7
No	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK0000114990	401.4
No	W30DN-D	D30	LD	LIC	MANTEO, NC	BLD TL20150311AAK	342.7
No	WHIG-CD	D30	DC	LIC	ROCKY MOUNT, NC	BLANK0000180530	268.3
No	WHIG-CD	D30	DC	CP	ROCKY MOUNT, NC	BLANK0000186196	268.5
No	WYDC	D30	DT	LIC	CORNING, NY	BLANK0000086927	433.0
No	WNJJ-LD	D30	LD	CP	NEW YORK, NY	BLANK0000200277	419.4
No	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049	387.5
No	WCZS-LD	D30	LD	LIC	CHAMBERSBURG, PA	BLANK0000141136	194.0
No	WPCW	D30	LD	LIC	JEANNETTE, PA	BLANK0000064153	229.3
No	W30EB-D	D30	LD	LIC	KINGSTON, PA	BLANK0000150592	379.6
No	KYW-TV	D30	DT	LIC	PHILADELPHIA, PA	BLANK0000129344	306.0
No	WBPA-LD	N30+	TX	LIC	PITTSBURGH, PA	BLANK0000007299	292.7
No	WPTG-CD	D30	DC	LIC	Pittsburgh, PA	BLANK0000129480	291.0
No	W30EI-D	D30z	LD	LIC	SHARON, PA	BLANK0000107600	385.8
Yes	WSVW-LD	D30	LD	LIC	HARRISONBURG, VA	BLANK0000120244	67.4
Yes	WFWG-LD	D30	LD	LIC	RICHMOND, VA	BLANK0000080886	95.5
Yes	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000199694	226.2
No	W30CO-D	D30	LD	LIC	WHEELING, WV	BLD TT20100112AAM	306.5
No	WETA-TV	D31	DT	LIC	WASHINGTON, DC	BLANK0000120146	107.2
No	WETA-TV	D31	LD	CP	WASHINGTON, DC	BDRTEDT20090811ACE	104.3
No	WATM-TV	D31	DT	LIC	ALTOONA, PA	BLANK0000105303	253.7
No	WLHY-LD	D31	LD	LIC	Lebanon - Harrisburg, PA	BLANK0000197629	215.4
Yes	WAHU-LD	D31	LD	LIC	CROZET, VA	BLANK0000177047	55.3
No	WHRO-TV	D31	DT	LIC	HAMPTON-NORFOLK, VA	BLANK0000120642	212.9
No	WOAY-TV	D31	DT	LIC	OAK HILL, WV	BLANK0000096583	277.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D30
Mask: Full Service
Latitude: 38 18 39.00 N (NAD83)
Longitude: 78 0 12.30 W
Height AMSL: 413.6 m
HAAT: 0.0 m
Peak ERP: 15.0 kW
Antenna: Dielectric-TLP-12W/VP-R (ID 1007735) 225.0 deg

Table 1 WVIR-TV DTDRT TVStudy Analysis of Proposal
(page 2 of 5)



Elev Pattn: Generic
Elec Tilt: 1.00

50.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	2.73 kW	301.6 m	47.2 km
45.0	0.594	320.5	39.6
90.0	2.73	298.1	47.0
135.0	12.6	282.7	54.4
180.0	14.7	288.8	55.5
225.0	14.2	252.4	53.3
270.0	14.7	301.0	56.2
315.0	12.6	281.4	54.3

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 291 m

Distance to Canadian border: 486.6 km

Distance to Mexican border: 2239.6 km

Conditions at FCC monitoring station: Laurel MD
Bearing: 46.8 degrees Distance: 139.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 283.6 degrees Distance: 2343.4 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%

Interference to BLANK0000186570 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WCVW	D29	DT	LIC	RICHMOND, VA	BLANK0000186570	
Undesireds:	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft	95.5 km
	WRIC-TV	D28	DT	LIC	PETERSBURG, VA	BLANK0000186787	0.0
	WWPB	D29	DT	LIC	HAGERSTOWN, MD	BLANK0000114259	239.8
	WMDT	D29	DT	LIC	SALISBURY, MD	BLANK0000125726	196.9
	WUND-TV	D29	DT	LIC	EDENTON, NC	BLANK0000132286	211.3
	WSFX-TV	D29	DT	LIC	WILMINGTON, NC	BLANK0000111706	379.5
	WXLV-TV	D29	DT	LIC	WINSTON-SALEM, NC	BLANK0000158591	269.6
	WWAT-CD	D29	DC	LIC	CHARLEROI, PA	BLANK0000101490	356.0
	WHIG-CD	D30	DC	LIC	ROCKY MOUNT, NC	BLANK0000180530	179.6

	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	21695.6 1,509,873	21646.1	1,509,681	20974.1	1,493,533	20954.9 1,493,416	0.09 0.01
Undesired			Total IX		Unique IX, before		Unique IX, after
WVIR-TV D30 LD APP			55.4	810			19.1 117
WRIC-TV D28 DT LIC			96.7	2,648	96.7	2,648	96.7 2,648
WWPB D29 DT LIC			198.6	5,141	116.9	1,681	111.9 1,539
WMDT D29 DT LIC			85.9	2,031	34.4	438	34.4 438
WUND-TV D29 DT LIC			391.8	9,974	311.2	5,484	292.1 5,332
WXLV-TV D29 DT LIC			26.0	1,401	12.1	1,224	12.1 1,224

Interference to BLANK0000133452 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK0000133452	
Undesireds:	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft	106.3 km
	WHIG-CD	D30	DC	LIC	ROCKY MOUNT, NC	BLANK0000180530	343.2
	KYW-TV	D30	DT	LIC	PHILADELPHIA, PA	BLANK0000129344	199.7

Table 1 WVIR-TV DTDRT TVStudy Analysis of Proposal
(page 3 of 5)



WETA-TV	D31	DT	LIC	WASHINGTON, DC	BLANK0000120146	1.1
Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
8913.8 5,821,843	8796.6	5,798,785	7081.3	4,918,220	7058.2 4,915,892	0.33 0.05
Undesired	Total IX		Unique IX, before		Unique IX, after	
WVIR-TV D30 LD APP	79.0	21,050			23.0 2,328	
KYW-TV D30 DT LIC	109.6	52,460	37.8	22,106	35.8 21,848	
WETA-TV D31 DT LIC	1677.5	858,459	1605.7	828,105	1574.7 816,094	

Interference to BLANK0000120244 LIC scenario 1						
Desired:	Call	Chan	Svc	Status	City, State	File Number
	WVSW-LD	D30	LD	LIC	HARRISONBURG, VA	BLANK0000120244
Undesireds:	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft
	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK0000133452
	WHIG-CD	D30	DC	LIC	ROCKY MOUNT, NC	BLANK0000180530
	WCZS-LD	D30	LD	LIC	CHAMBERSBURG, PA	BLANK0000141136
	WFWG-LD	D30	LD	LIC	RICHMOND, VA	BLANK0000080886
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000199694
	WAHU-LD	D31	LD	LIC	CROZET, VA	BLANK0000177047
Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
11468.2 489,345	7309.2	296,735	7151.4	294,092	7092.1 293,729	0.83 0.12
Undesired	Total IX		Unique IX, before		Unique IX, after	
WVIR-TV D30 LD APP	84.5	363			59.4 363	
WIAV-CD D30 DC LIC	13.0	0	9.0	0	3.0 0	
WCZS-LD D30 LD LIC	4.0	0	1.0	0	1.0 0	
WFWG-LD D30 LD LIC	18.1	1,004	9.1	0	3.0 0	
WDBJ D30 DT LIC	136.7	1,640	124.6	1,639	119.6 1,639	
WAHU-LD D31 LD LIC	2.0	1,003	0.0	0	0.0 0	

Interference to BLANK0000080886 LIC scenario 1						
Desired:	Call	Chan	Svc	Status	City, State	File Number
	WFWG-LD	D30	LD	LIC	RICHMOND, VA	BLANK0000080886
Undesireds:	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft
	WCVW	D29	DT	LIC	RICHMOND, VA	BLANK0000186570
	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK0000133452
	WHIG-CD	D30	DC	LIC	ROCKY MOUNT, NC	BLANK0000180530
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000199694
Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
8105.9 1,151,754	8095.8	1,151,715	7956.5	1,149,785	7490.3 1,138,093	5.86 1.02
Undesired	Total IX		Unique IX, before		Unique IX, after	
WVIR-TV D30 LD APP	509.8	12,211			466.2 11,692	
WCVW D29 DT LIC	89.7	1,643	84.7	1,525	62.4 1,269	
WIAV-CD D30 DC LIC	1.0	7	0.0	0	0.0 0	
WDBJ D30 DT LIC	54.6	405	48.5	280	29.3 24	

Interference to BLANK0000199694 LIC scenario 1						
Desired:	Call	Chan	Svc	Status	City, State	File Number
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000199694
Undesireds:	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft
	WXLV-TV	D29	DT	LIC	WINSTON-SALEM, NC	BLANK0000158591
	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000167887
	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK0000133452
	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044
	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK0000114990
	WHIG-CD	D30	DC	LIC	ROCKY MOUNT, NC	BLANK0000180530
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049
	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000190317
	WGHP	D31	DT	LIC	HIGH POINT, NC	BLANK0000158670
	WOAY-TV	D31	DT	LIC	OAK HILL, WV	BLANK0000096583

Table 1 WVIR-TV DTDRT TVStudy Analysis of Proposal
(page 4 of 5)



Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
46731.6 1,625,661	40790.2 1,436,130	39743.7 1,396,146	39675.8 1,395,425	0.17 0.05
Undesired	Total IX	Unique IX, before	Unique IX, after	
WVIR-TV D30 LD APP	77.0 817		67.9 721	
WXLV-TV D29 DT LIC	312.0 15,541	146.9 5,856	146.9 5,856	
WCHS-TV D29 DT LIC	16.2 138	2.0 29	2.0 29	
WIAV-CD D30 DC LIC	12.1 108	12.1 108	3.0 12	
WKMR D30 DT LIC	103.9 2,292	69.5 487	69.5 487	
WUNU D30 DT LIC	338.9 13,035	109.5 1,944	109.5 1,944	
WHIZ-TV D30 DT LIC	49.5 3,508	16.1 58	16.1 58	
WYFF D30 DT LIC	408.4 17,431	194.1 8,319	194.1 8,319	
WGHP D31 DT LIC	108.7 6,789	8.1 263	8.1 263	
WOAY-TV D31 DT LIC	184.2 7,983	141.7 4,467	141.7 4,467	

Interference to BLANK0000199694 LIC scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000199694	
Undesireds:	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft	226.2 km
	WXLV-TV	D29	DT	LIC	WINSTON-SALEM, NC	BLANK0000158591	150.5
	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000167887	204.2
	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK0000133452	331.6
	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044	305.9
	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK0000114990	284.6
	WHIG-CD	D30	DC	CP	ROCKY MOUNT, NC	BLANK0000186196	256.3
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049	342.8
	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000190317	319.3
	WGHP	D31	DT	LIC	HIGH POINT, NC	BLANK0000158670	156.2
	WOAY-TV	D31	DT	LIC	OAK HILL, WV	BLANK0000096583	121.9

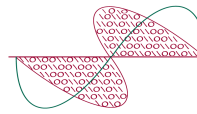
Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
46731.6 1,625,661	40790.2 1,436,130	39742.7 1,396,146	39674.8 1,395,425	0.17 0.05
Undesired	Total IX	Unique IX, before	Unique IX, after	
WVIR-TV D30 LD APP	77.0 817		67.9 721	
WXLV-TV D29 DT LIC	312.0 15,541	146.9 5,856	146.9 5,856	
WCHS-TV D29 DT LIC	16.2 138	2.0 29	2.0 29	
WIAV-CD D30 DC LIC	12.1 108	12.1 108	3.0 12	
WKMR D30 DT LIC	103.9 2,292	69.5 487	69.5 487	
WUNU D30 DT LIC	338.9 13,035	108.5 1,936	108.5 1,936	
WHIG-CD D30 DC CP	2.0 8	1.0 0	1.0 0	
WHIZ-TV D30 DT LIC	49.5 3,508	16.1 58	16.1 58	
WYFF D30 DT LIC	408.4 17,431	194.1 8,319	194.1 8,319	
WGHP D31 DT LIC	108.7 6,789	8.1 263	8.1 263	
WOAY-TV D31 DT LIC	184.2 7,983	141.7 4,467	141.7 4,467	

Interference to BLANK0000177047 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WAHU-LD	D31	LD	LIC	CROZET, VA	BLANK0000177047	
Undesireds:	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft	55.3 km
	WSVW-LD	D30	LD	LIC	HARRISONBURG, VA	BLANK0000120244	52.0
	WETA-TV	D31	DT	LIC	WASHINGTON, DC	BLANK0000120146	162.5
	WETA-TV	D31	LD	CP	WASHINGTON, DC	BDRTEDT20090811ACE	156.5
	WGHP	D31	DT	LIC	HIGH POINT, NC	BLANK0000158670	270.0
	WJOS-LD	D31	LD	CP	POMEROY, OH	BLANK0000054745	329.5
	WHRO-TV	D31	DT	LIC	HAMPTON-NORFOLK, VA	BLANK0000120642	218.1
	WCAV	D32	DT	LIC	CHARLOTTESVILLE, VA	BLANK0000092578	0.0

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
10357.5 395,156	8535.4 285,975	8200.3 279,244	8195.3 279,221	0.06 0.01
Undesired	Total IX	Unique IX, before	Unique IX, after	
WVIR-TV D30 LD APP	38.2 2,191		5.0 23	
WSVW-LD D30 LD LIC	1.0 0	0.0 0	0.0 0	
WETA-TV D31 DT LIC	271.4 5,823	217.9 3,498	196.8 2,896	
WETA-TV D31 LD CP	1.0 0	0.0 0	0.0 0	

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



WGHP D31 DT LIC	21.2	388	2.0	0	2.0	0
WHRO-TV D31 DT LIC	67.6	2,305	21.2	196	19.2	63
WCAV D32 DT LIC	44.5	822	38.4	639	38.4	639

Interference to proposal scenario 1
7.93% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WVIR-TV	D30	LD	APP	Madison, VA	WVIR-TV 1026298 285ft	
Undesireds:	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK0000133452	106.3 km
	WHIG-CD	D30	DC	LIC	ROCKY MOUNT, NC	BLANK0000180530	268.3
	WCZS-LD	D30	LD	LIC	CHAMBERSBURG, PA	BLANK0000141136	194.0
	WSVW-LD	D30	LD	LIC	HARRISONBURG, VA	BLANK0000120244	67.4
	WFWG-LD	D30	LD	LIC	RICHMOND, VA	BLANK0000080886	95.5
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000199694	226.2
	WAHU-LD	D31	LD	LIC	CROZET, VA	BLANK0000177047	55.3

Service area		Terrain-limited		IX-free		Percent IX	
8247.2	456,255	7840.8	424,242	7308.2	390,594	6.79	7.93
Undesired		Total IX		Unique IX		Prct Unique IX	
WIAV-CD	D30 DC LIC	82.4	19,406	40.1	12,784	0.51	3.01
WCZS-LD	D30 LD LIC	1.0	90	0.0	0	0.00	0.00
WSVW-LD	D30 LD LIC	45.2	140	30.1	5	0.38	0.00
WFWG-LD	D30 LD LIC	418.0	13,312	379.8	11,912	4.84	2.81
WDBJ	D30 DT LIC	22.2	378	5.0	58	0.06	0.01
WAHU-LD	D31 LD LIC	38.3	7,383	16.1	2,165	0.21	0.51

**Channel and
Facility
Information**

Section	Question	Response
Proposed Community of License	Facility ID	70309
	State	Virginia
	City	Madison
	DRT Channel	30
	Designated Market Area	Charlottesville

Antenna Location
Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1026298
Coordinates (NAD83)	Latitude	38° 18' 39.0" N+
	Longitude	078° 00' 12.3" W-
	Structure Type	LTOWER-Lattice Tower
	Overall Structure Height	117.3 meters
	Support Structure Height	110.9 meters
	Ground Elevation (AMSL)	326.7 meters
Antenna Data	Height of Radiation Center Above Ground Level	86.9 meters
	Height of Radiation Center Above Mean Sea Level	413.6 meters
	Effective Radiated Power	15 kW

Antenna
Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	Yes
	Antenna ID	1007735
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	TLP-12W/VP-R
	Rotation	225 degrees
	Electrical Beam Tilt	1.0
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Elliptical
Elevation Radiation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	
	Out-of-Channel Emission Mask:	Full Service

Directional Antenna Relative Field Values (Pre-rotated Pattern)

Degree	Value	Degree	Value	Degree	Value	Degree	Value
0	0.972	90	0.918	180	0.199	270	0.918
10	0.972	100	0.841	190	0.199	280	0.968
20	0.974	110	0.739	200	0.214	290	0.993
30	0.978	120	0.617	210	0.268	300	1.000
40	0.986	130	0.488	220	0.365	310	0.995
50	0.995	140	0.365	230	0.488	320	0.986
60	1.000	150	0.268	240	0.617	330	0.978
70	0.993	160	0.214	250	0.739	340	0.974
80	0.968	170	0.199	260	0.841	350	0.972

Additional Azimuths

Degree	V _A
--------	----------------