

ENGINEERING EXHIBIT

Digital Low Power Television Station Application for Minor Modification of Licensed Facility prepared for

Gray Television Licensee, LLC
W28FG-D Cleveland-Akron-Canton, OH
Facility ID 184642
Ch. 28 15 kW Directional

Gray Television Licensee, LLC (“Gray”) is the licensee of digital Low Power Television station W28FG-D, Channel 28, Facility ID 184642, Cleveland-Akron-Canton OH. W28FG-D is licensed to operate at 0.2 kW effective radiated power (“ERP”) with a directional antenna (file# 0000196964, granted August 5, 2022). *Gray* herein seeks a minor modification Construction Permit to relocate W28FG-D and to utilize a different directional antenna at increased power and height.

The proposed facility will employ a new antenna to be side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1047963, located 42.0 km (26.1 miles) from the licensed site. No change to the overall structure height is proposed.

The proposed antenna is a Dielectric model TLP-6D/VP having elliptical polarization. The proposed ERP is 15 kW horizontally polarized and 4.5 kW vertically polarized using a “full service” out of channel emission mask. A plot of the directional antenna’s azimuthal pattern is supplied in Figure 1. Figure 2 depicts the coverage contour of the proposed facility as well as that of the licensed facility, demonstrating compliance with §73.3572 for a minor change.

Interference study per OET Bulletin 69¹ shows that the proposal complies with the FCC’s interference protection requirements toward all digital television, television translator, LPTV, and

¹FCC 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, 1.0 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

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 30 percent antenna relative field in downward elevations (pattern data shows 30 percent or less relative field at angles 10 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 $1.1 \mu\text{W}/\text{cm}^2$, which is 0.3 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.

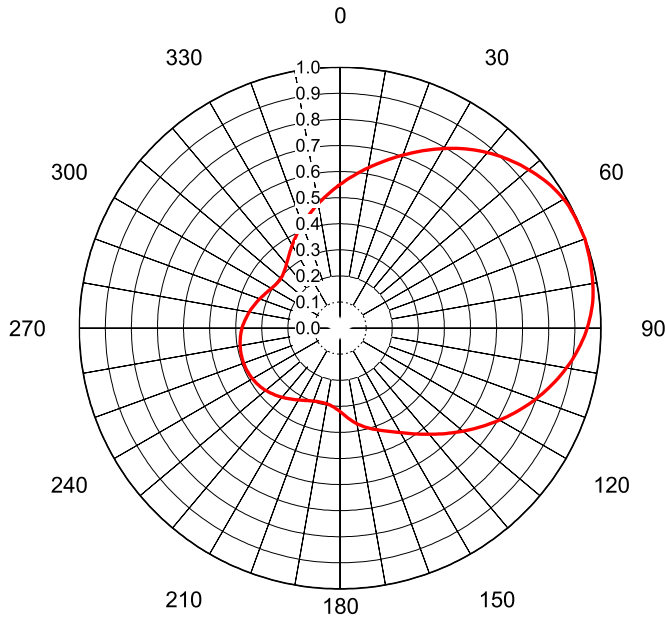
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power 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	Coverage Contour Comparison
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.	December 18, 2023	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



AZIMUTH PATTERN Horizontal Polarization

Proposal No. **20231218jmd**
Date **18-Dec-23**
Call Letters **W28FG-D**
Channel **28**
Frequency **557 MHz**
Antenna Type **TLP-6D/VP**
Gain **2.83 (4.52dB)**
Calculated

Pattern Number **TLP-D-28 Hpol**

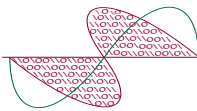
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.550	36	0.847	72	0.997	108	0.815	144	0.502	180	0.320	216	0.335	252	0.393	288	0.333
1	0.557	37	0.855	73	0.995	109	0.806	145	0.495	181	0.316	217	0.338	253	0.393	289	0.330
2	0.565	38	0.863	74	0.994	110	0.798	146	0.488	182	0.312	218	0.340	254	0.393	290	0.328
3	0.572	39	0.871	75	0.992	111	0.789	147	0.482	183	0.309	219	0.343	255	0.392	291	0.325
4	0.579	40	0.879	76	0.991	112	0.780	148	0.475	184	0.306	220	0.346	256	0.392	292	0.322
5	0.586	41	0.886	77	0.989	113	0.770	149	0.469	185	0.303	221	0.349	257	0.391	293	0.320
6	0.594	42	0.893	78	0.988	114	0.761	150	0.463	186	0.301	222	0.352	258	0.390	294	0.317
7	0.601	43	0.901	79	0.986	115	0.752	151	0.457	187	0.299	223	0.354	259	0.390	295	0.315
8	0.609	44	0.907	80	0.984	116	0.743	152	0.452	188	0.297	224	0.357	260	0.389	296	0.313
9	0.616	45	0.914	81	0.982	117	0.734	153	0.446	189	0.296	225	0.360	261	0.388	297	0.310
10	0.624	46	0.920	82	0.980	118	0.725	154	0.441	190	0.295	226	0.362	262	0.387	298	0.308
11	0.632	47	0.927	83	0.977	119	0.715	155	0.436	191	0.294	227	0.365	263	0.386	299	0.306
12	0.640	48	0.933	84	0.974	120	0.706	156	0.432	192	0.294	228	0.367	264	0.385	300	0.304
13	0.648	49	0.939	85	0.970	121	0.697	157	0.427	193	0.293	229	0.370	265	0.383	301	0.302
14	0.656	50	0.944	86	0.966	122	0.688	158	0.423	194	0.293	230	0.372	266	0.382	302	0.301
15	0.664	51	0.950	87	0.962	123	0.678	159	0.419	195	0.294	231	0.374	267	0.380	303	0.299
16	0.672	52	0.956	88	0.958	124	0.669	160	0.415	196	0.294	232	0.376	268	0.379	304	0.298
17	0.680	53	0.961	89	0.953	125	0.660	161	0.411	197	0.295	233	0.378	269	0.377	305	0.297
18	0.689	54	0.966	90	0.948	126	0.651	162	0.407	198	0.296	234	0.380	270	0.375	306	0.296
19	0.697	55	0.971	91	0.942	127	0.642	163	0.403	199	0.297	235	0.381	271	0.374	307	0.296
20	0.706	56	0.976	92	0.936	128	0.633	164	0.399	200	0.298	236	0.383	272	0.372	308	0.296
21	0.714	57	0.980	93	0.930	129	0.624	165	0.395	201	0.299	237	0.384	273	0.370	309	0.296
22	0.723	58	0.984	94	0.924	130	0.615	166	0.391	202	0.301	238	0.386	274	0.368	310	0.296
23	0.732	59	0.987	95	0.918	131	0.606	167	0.386	203	0.303	239	0.387	275	0.365	311	0.297
24	0.741	60	0.990	96	0.911	132	0.597	168	0.382	204	0.305	240	0.388	276	0.363	312	0.298
25	0.750	61	0.992	97	0.904	133	0.589	169	0.377	205	0.307	241	0.389	277	0.361	313	0.300
26	0.759	62	0.994	98	0.896	134	0.580	170	0.372	206	0.309	242	0.390	278	0.358	314	0.302
27	0.768	63	0.995	99	0.889	135	0.572	171	0.367	207	0.311	243	0.391	279	0.356	315	0.304
28	0.777	64	0.996	100	0.881	136	0.564	172	0.362	208	0.313	244	0.391	280	0.353	316	0.307
29	0.786	65	0.996	101	0.874	137	0.555	173	0.356	209	0.316	245	0.392	281	0.351	317	0.310
30	0.795	66	0.997	102	0.866	138	0.547	174	0.351	210	0.318	246	0.392	282	0.348	318	0.313
31	0.804	67	0.997	103	0.858	139	0.539	175	0.345	211	0.321	247	0.393	283	0.346	319	0.316
32	0.812	68	0.998	104	0.849	140	0.532	176	0.340	212	0.324	248	0.393	284	0.343	320	0.320
33	0.821	69	0.998	105	0.841	141	0.524	177	0.335	213	0.326	249	0.393	285	0.341	321	0.324
34	0.830	70	1.000	106	0.832	142	0.516	178	0.330	214	0.329	250	0.393	286	0.338	322	0.328
35	0.838	71	0.998	107	0.824	143	0.509	179	0.325	215	0.332	251	0.393	287	0.335	323	0.332



Figure 1
Antenna Azimuthal Pattern
W28FG-D Cleveland-Akron-Canton, OH
Facility ID 184642
Ch. 28 15 kW Directional

prepared for
Gray Television Licensee, LLC

December, 2023



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 2
Coverage Contour Comparison
W28FG-D Cleveland-Akron-Canton, OH
Facility ID 184642
Ch. 28 15 kW Directional

prepared for
Gray Television Licensee, LLC

December, 2023

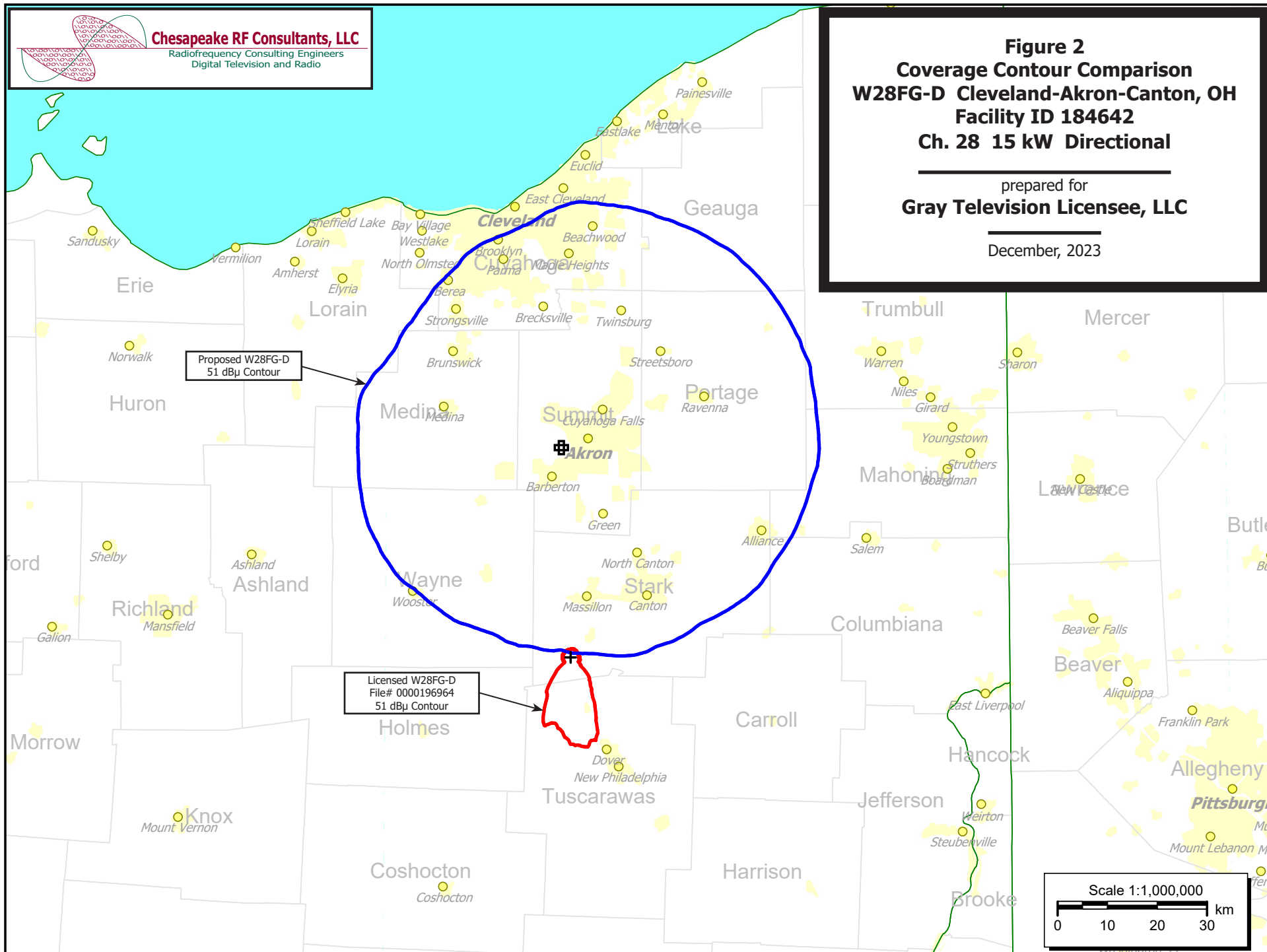


Table 1 W28FG-D TVStudy Analysis of Proposal (page 1 of 8)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: W28FG-D 1047963 762ft_TLP-D, Model: Longley-Rice
Start: 2023.12.18 15:18:43

Study created: 2023.12.18 15:18:42

Study build station data: LMS TV 2023-12-18

Proposal: W28FG-D D28 LD APP CLEVELAND-AKRON-CANT, OH
File number: W28FG-D 1047963 762ft_TLP-D
Facility ID: 184642
Station data: User record
Record ID: 230
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	WADL	D27	DT	LIC	MOUNT CLEMENS, MI	BLANK0000111708	197.7 km
Yes	WOCV-CD	D27	DC	LIC	CLEVELAND, OH	BLANK0000202416	36.7
No	WTTE	D27	DT	LIC	COLUMBUS, OH	BLANK0000129745	174.6
No	WPNM-LD	D27z	LD	LIC	LIEPSIC, OH	BLANK0000090626	194.8
No	W27DG-D	D27	LD	LIC	MILLERSBURG, OH	BLANK0000168187	36.3
No	WQLN	D27	DT	LIC	ERIE, PA	BLANK0000083708	166.6
No	WTAE-TV	D27	DT	LIC	PITTSBURGH, PA	BLANK0000112576	173.5
No	WTAE-TV	D27	DT	CP	PITTSBURGH, PA	BLANK0000127499	173.5
No	WIPX-TV	D28	DT	LIC	BLOOMINGTON, IN	BLANK0000106045	429.0
No	WMYS-LD	D28	LD	LIC	SOUTH BEND, IN	BLANK0000086895	388.9
No	WLEX-TV	D28	DT	CP	LEXINGTON, KY	BLANK0000157703	414.1
No	WLEX-TV	D28	DT	LIC	LEXINGTON, KY	BLANK0000087372	414.1
No	WFPT	D28	DT	LIC	FREDERICK, MD	BLANK0000160164	414.4
No	WSYM-TV	D28	DT	LIC	LANSING, MI	BLANK0000177429	298.4
No	WSYM-TV	D28	DT	CP	LANSING, MI	BLANK0000181141	298.4
No	WLPC-LD	D28	LD	LIC	Redford, MI	BLANK0000112211	185.9
No	WLPC-LD	D28	LD	CP	Redford, MI	BLANK0000214854	202.5
No	WUHF	D28	DT	LIC	ROCHESTER, NY	BLANK0000211751	402.0
No	WBQC-LD	D28	LD	LIC	CINCINNATI, OH	BLANK0000088128	328.5
Yes	WSYX	D28	DT	LIC	COLUMBUS, OH	BLANK0000129744	174.6
Yes	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	166.2
Yes	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894	169.1
No	WJAC-TV	D28	LD	LIC	JOHNSTOWN, PA	BLANK0000202616	262.8
No	WHSV-TV	D28	LD	LIC	HARRISONBURG, VA	BLANK0000196197	372.0
No	W28DR-D	D28	LD	LIC	CEDARVILLE, WV	BLDTT20130220AAB	271.2
No	W28EX-D	D28	LD	LIC	CLARKSBURG, WV	BLANK0000160515	226.9
No	W28EX-D	D28	LD	CP	CLARKSBURG, WV	BLANK0000162188	221.5
No	W28FC-D	D28	LD	LIC	ROANOKE, WV	BLANK0000197393	222.5
Yes	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	59.1
No	WGTE-TV	D29	DT	LIC	TOLEDO, OH	BLEDT20031110AKO	167.7
No	WOOH-LD	D29	LD	LIC	ZANESVILLE, OH	BLANK0000193625	179.3
No	WWAT-CD	D29	DC	LIC	CHARLEROI, PA	BLANK0000101490	171.5
No	WWAT-CD	D29	DC	CP	CHARLEROI, PA	BLANK0000155811	152.7
No	WIIC-LD	N29+	TX	LIC	PITTSBURGH, PA	BLTTL19981230JB	152.7
No	WRAP-LD	N32-	TX	LIC	CLEVELAND, OH	BLTTL20110902ABQ	46.4

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D28
Mask: Full Service
Latitude: 41 3 52.70 N (NAD83)
Longitude: 81 34 58.30 W
Height AMSL: 564.2 m
HAAT: 0.0 m
Peak ERP: 15.0 kW

Table 1 W28FG-D TVStudy Analysis of Proposal
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Antenna: DIE TLP-D 70.0 deg
Elev Pattn: Generic
Elec Tilt: 1.00

50.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	4.54 kW	289.0 m	49.5 km
45.0	12.5	255.9	53.0
90.0	13.5	241.4	52.6
135.0	4.93	240.1	47.4
180.0	1.54	244.7	41.5
225.0	1.93	228.0	41.8
270.0	2.11	218.9	41.8
315.0	1.42	238.2	40.7

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 245 m

**Proposal 25.14 dBu contour crosses Canadian border, coordination required
Distance to Canadian border: 96.1 km

Distance to Mexican border: 2176.6 km

Conditions at FCC monitoring station: Allegan MI
Bearing: 296.8 degrees Distance: 400.5 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 274.9 degrees Distance: 1991.5 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 BLANK0000202416 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WOCV-CD	D27	DC	LIC	CLEVELAND, OH	BLANK0000202416	
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	36.7 km
	WADL	D27	DT	LIC	MOUNT CLEMENS, MI	BLANK0000111708	163.2
	WTTE	D27	DT	LIC	COLUMBUS, OH	BLANK0000129745	195.8
	WQLN	D27	DT	LIC	ERIE, PA	BLANK0000083708	153.8
	WTAE-TV	D27	DT	LIC	PITTSBURGH, PA	BLANK0000112576	200.9

	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	10486.8	2,789,204	10327.0	2,777,745	9860.1 2,727,955	9823.2 2,716,229	0.37 0.43
	26.0	0	26.0	0	26.0 0	26.0 0	0.00 0.00
(in Canada)							

Undesired				Total IX	Unique IX, before	Unique IX, after	
W28FG-D D28 LD APP		41.8		12,388		36.8 11,726	
WADL D27 DT LIC		4.0		178	0.0 0	0.0 0	
WTTE D27 DT LIC		113.3		9,831	33.0 4,545	31.0 4,123	
WQLN D27 DT LIC		396.8		43,660	275.1 35,834	275.1 35,834	
WTAE-TV D27 DT LIC		126.8		5,553	22.1 1,071	20.1 980	

Interference to BLANK0000202416 LIC scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WOCV-CD	D27	DC	LIC	CLEVELAND, OH	BLANK0000202416	
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	36.7 km
	WADL	D27	DT	LIC	MOUNT CLEMENS, MI	BLANK0000111708	163.2
	WTTE	D27	DT	LIC	COLUMBUS, OH	BLANK0000129745	195.8
	WQLN	D27	DT	LIC	ERIE, PA	BLANK0000083708	153.8

Table 1 W28FG-D TVStudy Analysis of Proposal
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WTAE-TV	D27	DT	CP	PITTSBURGH, PA	BLANK0000127499	200.9
Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
10486.8 2,789,204	10327.0	2,777,745	9848.0	2,726,939	9813.2 2,715,355	0.35 0.42
26.0 0	26.0	0	26.0	0	26.0 0	0.00 0.00
(in Canada)						

Undesired	Total IX		Unique IX, before		Unique IX, after	
W28FG-D D28 LD APP	41.8	12,388			34.9	11,584
WADL D27 DT LIC	4.0	178	0.0	0	0.0	0
WTTE D27 DT LIC	113.3	9,831	33.0	4,545	31.0	4,123
WQLN D27 DT LIC	396.8	43,660	268.1	35,261	268.1	35,261
WTAE-TV D27 DT CP	148.8	7,213	34.1	2,087	30.2	1,854

Interference to BLANK0000129744 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance		
Desired:	WSYX	D28	DT	LIC	COLUMBUS, OH	BLANK0000129744			
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	174.6 km		
	WIPX-TV	D28	DT	LIC	BLOOMINGTON, IN	BLANK0000106045	274.0		
	WLEX-TV	D28	DT	CP	LEXINGTON, KY	BLANK0000157703	242.5		
	WSYM-TV	D28	DT	LIC	LANSING, MI	BLANK0000177429	312.5		
	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	340.5		
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894	279.8		
	Service area	Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
26824.5	2,636,301	25986.7	2,590,788	25410.6	2,544,181	25399.6	2,544,010	0.04	0.01

Undesired	Total IX		Unique IX, before		Unique IX, after	
W28FG-D D28 LD APP	26.9	1,047			11.0	171
WIPX-TV D28 DT LIC	186.2	22,735	30.1	3,775	30.1	3,775
WLEX-TV D28 DT CP	282.1	27,631	146.0	8,937	146.0	8,937
WSYM-TV D28 DT LIC	126.9	7,486	53.9	3,563	53.9	3,563
WJET-TV D28 DT LIC	40.0	1,217	8.0	302	6.0	232
WPCB-TV D28 DT LIC	178.0	10,608	132.1	9,190	128.1	9,082

Interference to BLANK0000129744 LIC scenario 2

Desired:	Call WSYX	Chan D28	Svc DT	Status LIC	City, State COLUMBUS, OH	File Number BLANK0000129744	Distance		
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	174.6 km		
	WIPX-TV	D28	DT	LIC	BLOOMINGTON, IN	BLANK0000106045	274.0		
	WLEX-TV	D28	DT	CP	LEXINGTON, KY	BLANK0000157703	242.5		
	WSYM-TV	D28	DT	CP	LANSING, MI	BLANK0000181141	312.5		
	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	340.5		
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894	279.8		
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
26824.5	2,636,301	25986.7	2,590,788	25367.7	2,542,885	25356.7	2,542,714	0.04	0.01

Undesired	Total IX		Unique IX, before		Unique IX, after	
W28FG-D D28 LD APP	26.9	1,047			11.0	171
WIPX-TV D28 DT LIC	186.2	22,735	28.1	3,757	28.1	3,757
WLEX-TV D28 DT CP	282.1	27,631	146.0	8,937	146.0	8,937
WSYM-TV D28 DT CP	183.8	9,487	96.8	4,859	96.8	4,859
WJET-TV D28 DT LIC	40.0	1,217	8.0	302	6.0	232
WPCB-TV D28 DT LIC	178.0	10,608	131.1	9,190	127.1	9,082

Interference to BLANK0000129744 LIC scenario 3

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WSYX	D28	DT	LIC	COLUMBUS, OH	BLANK0000129744	
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	174.6 km
	WIPX-TV	D28	DT	LIC	BLOOMINGTON, IN	BLANK0000106045	274.0
	WLEX-TV	D28	DT	LIC	LEXINGTON, KY	BLANK0000087372	242.5
	WSYM-TV	D28	DT	LIC	LANSING, MI	BLANK0000177429	312.5
	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	340.5

Table 1 W28FG-D TVStudy Analysis of Proposal
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WPCB-TV				D28	DT	LIC	GREENSBURG, PA		BLANK0000079894		279.8	
Service area				Terrain-limited		IX-free, before		IX-free, after		Percent New IX		
26824.5 2,636,301				25986.7 2,590,788		25495.0 2,549,285		25484.1 2,549,114		0.04 0.01		
Undesired				Total IX		Unique IX, before		Unique IX, after				
W28FG-D D28 LD APP				26.9 1,047				11.0 171				
WIPX-TV D28 DT LIC				186.2 22,735		76.2 14,397		76.2 14,397				
WLEX-TV D28 DT LIC				130.6 9,590		61.6 3,833		61.6 3,833				
WSYM-TV D28 DT LIC				126.9 7,486		53.9 3,563		53.9 3,563				
WJET-TV D28 DT LIC				40.0 1,217		8.0 302		6.0 232				
WPCB-TV D28 DT LIC				178.0 10,608		139.1 9,969		135.1 9,861				

Interference to BLANK0000129744 LIC scenario 4												
Desired:		Call	Chan	Svc	Status	City, State		File Number		Distance		
		WSYX	D28	DT	LIC	COLUMBUS, OH		BLANK0000129744				
Undesireds:		W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH		W28FG-D 1047963	762ft_	174.6 km		
		WIPX-TV	D28	DT	LIC	BLOOMINGTON, IN		BLANK0000106045		274.0		
		WLEX-TV	D28	DT	LIC	LEXINGTON, KY		BLANK0000087372		242.5		
		WSYM-TV	D28	DT	CP	LANSING, MI		BLANK0000181141		312.5		
		WJET-TV	D28	DT	LIC	ERIE, PA		BLANK0000080704		340.5		
		WPCB-TV	D28	DT	LIC	GREENSBURG, PA		BLANK0000079894		279.8		
Service area				Terrain-limited		IX-free, before		IX-free, after		Percent New IX		
26824.5 2,636,301				25986.7 2,590,788		25452.1 2,547,989		25441.2 2,547,818		0.04 0.01		
Undesired				Total IX		Unique IX, before		Unique IX, after				
W28FG-D D28 LD APP				26.9 1,047				11.0 171				
WIPX-TV D28 DT LIC				186.2 22,735		72.2 14,374		72.2 14,374				
WLEX-TV D28 DT LIC				130.6 9,590		61.6 3,833		61.6 3,833				
WSYM-TV D28 DT CP				183.8 9,487		96.8 4,859		96.8 4,859				
WJET-TV D28 DT LIC				40.0 1,217		8.0 302		6.0 232				
WPCB-TV D28 DT LIC				178.0 10,608		138.1 9,969		134.1 9,861				

Interference to BLANK0000080704 LIC scenario 1												
Desired:		Call	Chan	Svc	Status	City, State		File Number		Distance		
		WJET-TV	D28	DT	LIC	ERIE, PA		BLANK0000080704				
Undesireds:		W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH		W28FG-D 1047963	762ft_	166.2 km		
		WSYM-TV	D28	DT	LIC	LANSING, MI		BLANK0000177429		380.0		
		WUHF	D28	DT	LIC	ROCHESTER, NY		BLANK0000211751		236.9		
		WSYX	D28	DT	LIC	COLUMBUS, OH		BLANK0000129744		340.5		
		WPCB-TV	D28	DT	LIC	GREENSBURG, PA		BLANK0000079894		184.7		
		WNEO	D29	DT	LIC	ALLIANCE, OH		BLANK0000120667		144.2		
Service area				Terrain-limited		IX-free, before		IX-free, after		Percent New IX		
18925.3 746,895				18376.8 717,492		17963.4 706,466		17855.9 703,578		0.60 0.41		
4374.2 7,821				4374.2 7,821		4373.2 7,821		4373.2 7,821		0.00 0.00		
(in Canada)												
Undesired				Total IX		Unique IX, before		Unique IX, after				
W28FG-D D28 LD APP				231.3 5,495				107.6 2,888				
WUHF D28 DT LIC				29.0 769		20.1 167		19.1 157				
WSYX D28 DT LIC				17.1 483		0.0 0		0.0 0				
WPCB-TV D28 DT LIC				383.2 10,749		319.9 8,820		258.5 7,373				
WPCB-TV D28 DT LIC				1.0 0		1.0 0		1.0 0		(in Canada)		
WNEO D29 DT LIC				57.4 1,143		9.1 90		1.0 28				

Interference to BLANK0000079894 LIC scenario 1												
Desired:		Call	Chan	Svc	Status	City, State		File Number		Distance		
		WPCB-TV	D28	DT	LIC	GREENSBURG, PA		BLANK0000079894				
Undesireds:		W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH		W28FG-D 1047963	762ft_	169.1 km		
		WTAE-TV	D27	DT	LIC	PITTSBURGH, PA		BLANK0000112576		12.6		
		WSYX	D28	DT	LIC	COLUMBUS, OH		BLANK0000129744		279.8		
		WJET-TV	D28	DT	LIC	ERIE, PA		BLANK0000080704		184.7		

Table 1 W28FG-D TVStudy Analysis of Proposal
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	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	111.1			
	WWAT-CD	D29	DC	LIC	CHARLEROI, PA	BLANK0000101490	32.0			
	Service area			Terrain-limited	IX-free, before	IX-free, after		Percent New IX		
22139.9	2,933,371	20509.1		2,819,579	19095.8	2,738,617	19085.8	2,738,273	0.05	0.01
Undesired				Total IX	Unique IX, before	Unique IX, after				
W28FG-D	D28	LD	APP	74.0	4,889	10.0	344			
WTAE-TV	D27	DT	LIC	330.1	25,405	266.9	23,094	266.9	23,094	
WSYX	D28	DT	LIC	124.1	9,175	49.1	2,772	47.1	2,433	
WJET-TV	D28	DT	LIC	898.1	43,502	743.1	34,694	719.0	33,982	
WNEO	D29	DT	LIC	228.7	13,906	154.0	8,307	148.1	8,118	
WWAT-CD	D29	DC	LIC	43.2	2,006	20.1	618	20.1	618	

Interference to BLANK0000079894 LIC scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance		
Desired:	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894			
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	169.1 km		
	WTAE-TV	D27	DT	CP	PITTSBURGH, PA	BLANK0000127499	12.6		
	WSYX	D28	DT	LIC	COLUMBUS, OH	BLANK0000129744	279.8		
	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	184.7		
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	111.1		
	WWAT-CD	D29	DC	LIC	CHARLEROI, PA	BLANK0000101490	32.0		
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
22139.9	2,933,371	20509.1	2,819,579	19056.7	2,736,492	19046.7	2,736,148	0.05	0.01
Undesired		Total IX		Unique IX, before		Unique IX, after			
	W28FG-D	D28 LD APP	74.0	4,889			10.0	344	
	WTAE-TV	D27 DT CP	373.2	27,702	306.0	25,219	306.0	25,219	
	WSYX	D28 DT LIC	124.1	9,175	49.1	2,772	47.1	2,433	
	WJET-TV	D28 DT LIC	898.1	43,502	740.1	34,522	716.1	33,810	
	WNEO	D29 DT LIC	228.7	13,906	154.0	8,307	148.1	8,118	
	WWAT-CD	D29 DC LIC	43.2	2,006	20.1	618	20.1	618	

Interference to BLANK0000079894 LIC scenario 3

	Call	Chan	Svc	Status	City, State	File Number	Distance		
Desired:	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894			
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	169.1 km		
	WTAE-TV	D27	DT	LIC	PITTSBURGH, PA	BLANK0000112576	12.6		
	WSYX	D28	DT	LIC	COLUMBUS, OH	BLANK0000129744	279.8		
	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	184.7		
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	111.1		
	WWAT-CD	D29	DC	CP	CHARLEROI, PA	BLANK0000155811	16.5		
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
22139.9	2,933,371	20509.1	2,819,579	19115.9	2,739,235	19105.9	2,738,891	0.05	0.01

Interference to BLANK0000079894 LIC scenario 4

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894	
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	169.1 km
	WTAE-TV	D27	DT	CP	PITTSBURGH, PA	BLANK0000127499	12.6
	WSYX	D28	DT	LIC	COLUMBUS, OH	BLANK0000129744	279.8
	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	184.7
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	111.1

Table 1 W28FG-D TVStudy Analysis of Proposal
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WWAT-CD	D29	DC	CP	CHARLEROI, PA	BLANK0000155811	16.5		
Service area	Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
22139.9	2,933,371	20509.1	2,819,579	19076.8	2,737,110	19066.8	2,736,766	0.05 0.01
Undesired	Total IX		Unique IX, before		Unique IX, after			
W28FG-D D28 LD APP	74.0	4,889			10.0	344		
WTAE-TV D27 DT CP	373.2	27,702	321.1	26,515	321.1	26,515		
WSYX D28 DT LIC	124.1	9,175	50.1	2,772	48.1	2,433		
WJET-TV D28 DT LIC	898.1	43,502	742.2	34,521	718.1	33,809		
WNEO D29 DT LIC	228.7	13,906	154.0	8,307	148.1	8,118		
WWAT-CD D29 DC CP	3.0	25	0.0	0	0.0	0		

Interference to BLANK0000120667 LIC scenario 1								
Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance	
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667		
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963	762ft_	59.1 km
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894		111.1
	WWPB	D29	DT	LIC	HAGERSTOWN, MD	BLANK0000114259		285.7
	WPTO	D29	DT	LIC	OXFORD, OH	BLANK0000214011		365.6
	WGTE-TV	D29	DT	LIC	TOLEDO, OH	BLEDT20031110AKO		226.5
	WWAT-CD	D29	DC	LIC	CHARLEROI, PA	BLANK0000101490		117.4
	WQMY	D29	DT	LIC	WILLIAMSPORT, PA	BLCDT20090223ABU		319.4
	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000167887		290.4
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049		141.7
	WPTG-CD	D30	DC	LIC	Pittsburgh, PA	BLANK0000129480		94.8
Service area	Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
22282.9	3,362,358	21898.2	3,263,740	21289.7	3,066,116	21248.3	3,054,085	0.19 0.39
Undesired	Total IX		Unique IX, before		Unique IX, after			
W28FG-D D28 LD APP	49.4	14,873			41.4	12,031		
WPCB-TV D28 DT LIC	84.7	22,505	17.9	5,647	17.9	5,647		
WWPB D29 DT LIC	26.9	3,242	6.0	97	6.0	97		
WPTO D29 DT LIC	2.0	0	0.0	0	0.0	0		
WGTE-TV D29 DT LIC	122.7	121,417	100.6	104,245	98.6	101,992		
WWAT-CD D29 DC LIC	406.0	79,647	305.2	46,027	303.1	45,696		
WCHS-TV D29 DT LIC	77.0	3,001	52.0	1,735	52.0	1,735		
WHIZ-TV D30 DT LIC	2.0	4	0.0	0	0.0	0		
WPTG-CD D30 DC LIC	43.9	13,706	6.0	2,246	6.0	2,246		

Interference to BLANK0000120667 LIC scenario 2								
Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance	
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667		
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963	762ft_	59.1 km
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894		111.1
	WWPB	D29	DT	LIC	HAGERSTOWN, MD	BLANK0000114259		285.7
	WPTO	D29	DT	LIC	OXFORD, OH	BLANK0000214011		365.6
	WGTE-TV	D29	DT	LIC	TOLEDO, OH	BLEDT20031110AKO		226.5
	WWAT-CD	D29	DC	CP	CHARLEROI, PA	BLANK0000155811		94.8
	WQMY	D29	DT	LIC	WILLIAMSPORT, PA	BLCDT20090223ABU		319.4
	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000167887		290.4
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049		141.7
	WPTG-CD	D30	DC	LIC	Pittsburgh, PA	BLANK0000129480		94.8
Service area	Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
22282.9	3,362,358	21898.2	3,263,740	21325.4	3,078,630	21282.0	3,066,268	0.20 0.40
Undesired	Total IX		Unique IX, before		Unique IX, after			
W28FG-D D28 LD APP	49.4	14,873			43.4	12,362		
WPCB-TV D28 DT LIC	84.7	22,505	12.0	2,141	12.0	2,141		
WWPB D29 DT LIC	26.9	3,242	7.0	160	7.0	160		
WPTO D29 DT LIC	2.0	0	0.0	0	0.0	0		
WGTE-TV D29 DT LIC	122.7	121,417	116.7	121,254	112.7	118,828		
WWAT-CD D29 DC CP	374.1	59,195	269.4	33,513	269.4	33,513		
WCHS-TV D29 DT LIC	77.0	3,001	50.0	1,784	50.0	1,784		
WHIZ-TV D30 DT LIC	2.0	4	0.0	0	0.0	0		

Table 1 W28FG-D TVStudy Analysis of Proposal
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WPTG-CD D30 DC LIC 43.9 13,706 0.0 0 0.0 0

Interference to BLANK0000120667 LIC scenario 3

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	59.1 km
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894	111.1
	WWPB	D29	DT	LIC	HAGERSTOWN, MD	BLANK0000114259	285.7
	WPTO	D29	DT	LIC	OXFORD, OH	BLANK0000214011	365.6
	WGTE-TV	D29	DT	LIC	TOLEDO, OH	BLEDT20031110AKO	226.5
	WWAT-CD	D29	DC	LIC	CHARLEROI, PA	BLANK0000101490	117.4
	WQMY	D29	DT	CP	WILLIAMSPORT, PA	BLANK0000035754	319.4
	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000167887	290.4
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049	141.7
	WPTG-CD	D30	DC	LIC	Pittsburgh, PA	BLANK0000129480	94.8
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
22282.9 3,362,358		21898.2 3,263,740		21289.7 3,066,116		21248.3 3,054,085	0.19 0.39
Undesired	Total IX		Unique IX, before		Unique IX, after		
W28FG-D D28 LD APP	49.4	14,873			41.4	12,031	
WPCB-TV D28 DT LIC	84.7	22,505	17.9	5,647	17.9	5,647	
WWPB D29 DT LIC	26.9	3,242	6.0	97	6.0	97	
WPTO D29 DT LIC	2.0	0	0.0	0	0.0	0	
WGTE-TV D29 DT LIC	122.7	121,417	100.6	104,245	98.6	101,992	
WWAT-CD D29 DC LIC	406.0	79,647	305.2	46,027	303.1	45,696	
WQMY D29 DT CP	1.0	376	0.0	0	0.0	0	
WCHS-TV D29 DT LIC	77.0	3,001	52.0	1,735	52.0	1,735	
WHIZ-TV D30 DT LIC	2.0	4	0.0	0	0.0	0	
WPTG-CD D30 DC LIC	43.9	13,706	6.0	2,246	6.0	2,246	

Interference to BLANK0000120667 LIC scenario 4

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	
Undesireds:	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	59.1 km
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894	111.1
	WWPB	D29	DT	LIC	HAGERSTOWN, MD	BLANK0000114259	285.7
	WPTO	D29	DT	LIC	OXFORD, OH	BLANK0000214011	365.6
	WGTE-TV	D29	DT	LIC	TOLEDO, OH	BLEDT20031110AKO	226.5
	WWAT-CD	D29	DC	CP	CHARLEROI, PA	BLANK0000155811	94.8
	WQMY	D29	DT	CP	WILLIAMSPORT, PA	BLANK0000035754	319.4
	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000167887	290.4
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049	141.7
	WPTG-CD	D30	DC	LIC	Pittsburgh, PA	BLANK0000129480	94.8
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
22282.9 3,362,358		21898.2 3,263,740		21325.4 3,078,630		21282.0 3,066,268	0.20 0.40
Undesired	Total IX		Unique IX, before		Unique IX, after		
W28FG-D D28 LD APP	49.4	14,873			43.4	12,362	
WPCB-TV D28 DT LIC	84.7	22,505	12.0	2,141	12.0	2,141	
WWPB D29 DT LIC	26.9	3,242	7.0	160	7.0	160	
WPTO D29 DT LIC	2.0	0	0.0	0	0.0	0	
WGTE-TV D29 DT LIC	122.7	121,417	116.7	121,254	112.7	118,828	
WWAT-CD D29 DC CP	374.1	59,195	269.4	33,513	269.4	33,513	
WQMY D29 DT CP	1.0	376	0.0	0	0.0	0	
WCHS-TV D29 DT LIC	77.0	3,001	50.0	1,784	50.0	1,784	
WHIZ-TV D30 DT LIC	2.0	4	0.0	0	0.0	0	
WPTG-CD D30 DC LIC	43.9	13,706	0.0	0	0.0	0	

Interference to proposal scenario 1
17.77% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	W28FG-D	D28	LD	APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963 762ft_	

Table 1 W28FG-D TVStudy Analysis of Proposal
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Undesireds:	WOCV-CD	D27	DC	LIC	CLEVELAND, OH	BLANK0000202416	36.7 km
	W27DG-D	D27	LD	LIC	MILLERSBURG, OH	BLANK0000168187	36.3
	WSYM-TV	D28	DT	LIC	LANSING, MI	BLANK0000177429	298.4
	WLPC-LD	D28	LD	LIC	Redford, MI	BLANK0000112211	185.9
	WSYX	D28	DT	LIC	COLUMBUS, OH	BLANK0000129744	174.6
	WJET-TV	D28	DT	LIC	ERIE, PA	BLANK0000080704	166.2
	WPCB-TV	D28	DT	LIC	GREENSBURG, PA	BLANK0000079894	169.1
	W28EX-D	D28	LD	LIC	CLARKSBURG, WV	BLANK0000160515	226.9
	WNEO	D29	DT	LIC	ALLIANCE, OH	BLANK0000120667	59.1

Service area	Terrain-limited	IX-free	Percent IX
6739.8 2,059,763	6492.6 1,892,211	5425.8 1,555,876	16.43 17.77

Undesired	Total IX	Unique IX	Prcnt Unique IX
WOCV-CD D27 DC LIC	410.0 291,418	301.2 230,331	4.64 12.17
W27DG-D D27 LD LIC	44.6 3,350	11.9 641	0.18 0.03
WSYM-TV D28 DT LIC	2.0 24	0.0 0	0.00 0.00
WSYX D28 DT LIC	187.4 49,645	8.0 351	0.12 0.02
WJET-TV D28 DT LIC	409.7 69,317	99.2 7,082	1.53 0.37
WPCB-TV D28 DT LIC	187.4 39,707	26.2 770	0.40 0.04
WNEO D29 DT LIC	455.2 29,480	220.5 14,596	3.40 0.77

Interference to proposal scenario 2
17.77% interference received

Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W28FG-D	D28	LD APP	CLEVELAND-AKRON-CANT, OH	W28FG-D 1047963	762ft_
Undesireds:	WOCV-CD	D27	DC LIC	CLEVELAND, OH	BLANK0000202416	36.7 km
	W27DG-D	D27	LD LIC	MILLERSBURG, OH	BLANK0000168187	36.3
	WSYM-TV	D28	DT CP	LANSING, MI	BLANK0000181141	298.4
	WLPC-LD	D28	LD LIC	Redford, MI	BLANK0000112211	185.9
	WSYX	D28	DT LIC	COLUMBUS, OH	BLANK0000129744	174.6
	WJET-TV	D28	DT LIC	ERIE, PA	BLANK0000080704	166.2
	WPCB-TV	D28	DT LIC	GREENSBURG, PA	BLANK0000079894	169.1
	W28EX-D	D28	LD LIC	CLARKSBURG, WV	BLANK0000160515	226.9
	WNEO	D29	DT LIC	ALLIANCE, OH	BLANK0000120667	59.1

Service area	Terrain-limited	IX-free	Percent IX
6739.8 2,059,763	6492.6 1,892,211	5425.8 1,555,876	16.43 17.77

Undesired	Total IX	Unique IX	Prcnt Unique IX
WOCV-CD D27 DC LIC	410.0 291,418	301.2 230,331	4.64 12.17
W27DG-D D27 LD LIC	44.6 3,350	11.9 641	0.18 0.03
WSYM-TV D28 DT CP	8.1 2,397	0.0 0	0.00 0.00
WSYX D28 DT LIC	187.4 49,645	8.0 351	0.12 0.02
WJET-TV D28 DT LIC	409.7 69,317	99.2 7,082	1.53 0.37
WPCB-TV D28 DT LIC	187.4 39,707	26.2 770	0.40 0.04
WNEO D29 DT LIC	455.2 29,480	220.5 14,596	3.40 0.77

**Channel and
Facility
Information**

Section	Question	Response
Facility ID	184642	
State	Ohio	
City	Cleveland-Akron-Canton	
LPD Channel	28	

**Antenna Location
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1047963
Coordinates (NAD83)	Latitude	41° 03' 52.7" N+
	Longitude	081° 34' 58.3" W-
	Structure Type	GTOWER-Guyed Structure Used for Communication Purposes
	Overall Structure Height	292.3 meters
	Support Structure Height	271.6 meters
	Ground Elevation (AMSL)	331.9 meters
Antenna Data	Height of Radiation Center Above Ground Level	232.3 meters
	Height of Radiation Center Above Mean Sea Level	564.2 meters
	Effective Radiated Power	15 kW

Antenna
Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	No
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	TLP-6B/VP
	Rotation	70 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	1.000	90	0.415	180	0.393	270	0.423
10	0.984	100	0.372	190	0.389	280	0.484
20	0.948	110	0.320	200	0.375	290	0.550
30	0.881	120	0.295	210	0.353	300	0.624
40	0.798	130	0.298	220	0.328	310	0.706
50	0.706	140	0.318	230	0.304	320	0.795
60	0.615	150	0.346	240	0.296	330	0.879
70	0.532	160	0.372	250	0.320	340	0.944
80	0.463	170	0.388	260	0.367	350	0.990

Additional Azimuths

Degree	V _A
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