

## **ENGINEERING EXHIBIT**

### **Digital Low Power Television Station Application for Modification of Construction Permit**

prepared for

#### **Gray Television Licensee, LLC**

W30FA-D Jasper, FL

Facility ID 186188

Ch. 30 15 kW Directional

*Gray Television Licensee, LLC* (“Gray”) is the licensee of digital Low Power Television station W30FA-D, Channel 30, Facility ID 186188, Jasper FL. W30FA-D is licensed to operate at 0.3 kW effective radiated power (“ERP”) with a directional antenna (file# 0000194506, granted July 22, 2022). A minor modification Construction Permit (“CP” file# 0000218751) authorizes W30FA-D to relocate and to utilize a different directional antenna at increased ERP and height. *Gray* proposes herein to modify the CP to change the antenna model and to reduce the authorized antenna height by 0.6 meters.

As with the current CP, W30FA-D will employ an antenna to be side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1023721, located 46.4 km (28.8 miles) from the licensed site. No change to the overall structure height is proposed.

The proposed antenna is a Dielectric model DLP-12B having horizontal polarization. The proposed ERP is 15 kW 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 69<sup>1</sup> shows that the proposal complies with the FCC’s interference protection requirements toward all digital television, television translator, LPTV, and

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<sup>1</sup>FCC 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.

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 operation 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 considering 20 percent antenna relative field in downward elevations (antenna elevation pattern data shows 20 percent relative field or less for angles 10-90 degrees below the horizontal), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is  $7.3 \mu\text{W}/\text{cm}^2$ , which is 1.9 percent of the general population/uncontrolled maximum permitted exposure limit. 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.

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.

**Engineering Exhibit**  
**Gray Television Licensee, LLC (W30FA-D)**  
(page 3 of 3)

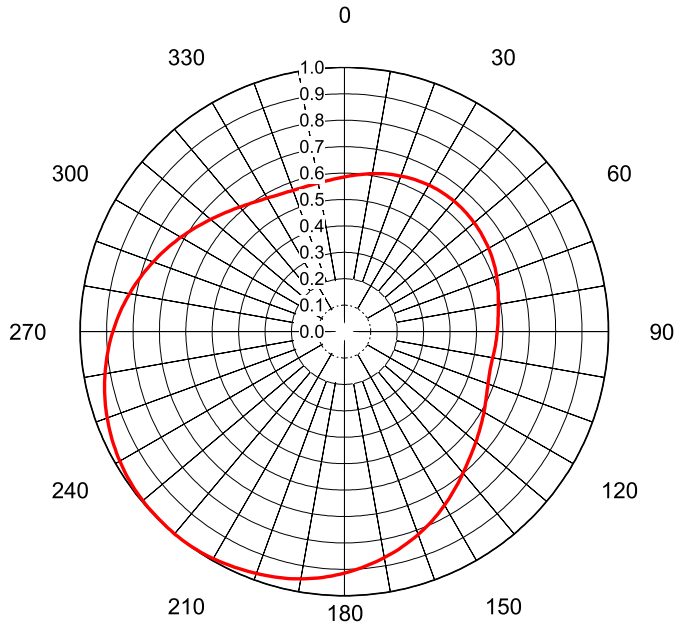


*List of Attachments*

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.	August 11, 2023	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



## AZIMUTH PATTERN Horizontal Polarization

Proposal No. **20230731JMD**  
Date **11-Aug-23**  
Call Letters **W30FA-D**  
Channel **30**  
Frequency **569 MHz**  
Antenna Type **DLP-12B**  
Gain **1.76 (2.45dB)**  
Calculated

Pattern Number **TLP-B-30 Hpol**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.586	36	0.644	72	0.609	108	0.575	144	0.722	180	0.914	216	0.999	252	0.949	288	0.782
1	0.588	37	0.645	73	0.607	109	0.577	145	0.728	181	0.919	217	0.999	253	0.946	289	0.776
2	0.590	38	0.645	74	0.605	110	0.579	146	0.734	182	0.923	218	0.999	254	0.942	290	0.771
3	0.592	39	0.645	75	0.602	111	0.581	147	0.740	183	0.927	219	1.000	255	0.939	291	0.765
4	0.594	40	0.645	76	0.600	112	0.584	148	0.747	184	0.930	220	1.000	256	0.935	292	0.759
5	0.596	41	0.645	77	0.598	113	0.587	149	0.753	185	0.934	221	1.000	257	0.932	293	0.754
6	0.598	42	0.645	78	0.596	114	0.590	150	0.759	186	0.938	222	0.999	258	0.928	294	0.748
7	0.600	43	0.645	79	0.594	115	0.593	151	0.765	187	0.941	223	0.999	259	0.924	295	0.742
8	0.603	44	0.645	80	0.592	116	0.596	152	0.771	188	0.944	224	0.999	260	0.920	296	0.737
9	0.605	45	0.644	81	0.590	117	0.600	153	0.777	189	0.948	225	0.998	261	0.916	297	0.731
10	0.607	46	0.644	82	0.589	118	0.603	154	0.783	190	0.951	226	0.998	262	0.912	298	0.726
11	0.609	47	0.643	83	0.587	119	0.607	155	0.789	191	0.954	227	0.998	263	0.908	299	0.720
12	0.611	48	0.643	84	0.586	120	0.610	156	0.795	192	0.956	228	0.997	264	0.904	300	0.714
13	0.614	49	0.642	85	0.584	121	0.614	157	0.801	193	0.959	229	0.996	265	0.899	301	0.709
14	0.616	50	0.641	86	0.583	122	0.618	158	0.806	194	0.962	230	0.996	266	0.895	302	0.703
15	0.618	51	0.640	87	0.582	123	0.622	159	0.812	195	0.964	231	0.995	267	0.890	303	0.698
16	0.619	52	0.640	88	0.581	124	0.625	160	0.817	196	0.966	232	0.994	268	0.886	304	0.692
17	0.621	53	0.639	89	0.580	125	0.629	161	0.823	197	0.968	233	0.993	269	0.881	305	0.687
18	0.623	54	0.638	90	0.579	126	0.633	162	0.828	198	0.971	234	0.992	270	0.876	306	0.682
19	0.625	55	0.637	91	0.578	127	0.637	163	0.834	199	0.973	235	0.990	271	0.872	307	0.676
20	0.627	56	0.636	92	0.577	128	0.641	164	0.839	200	0.975	236	0.989	272	0.867	308	0.671
21	0.628	57	0.634	93	0.576	129	0.646	165	0.844	201	0.977	237	0.987	273	0.862	309	0.666
22	0.630	58	0.633	94	0.575	130	0.650	166	0.849	202	0.979	238	0.985	274	0.857	310	0.661
23	0.632	59	0.632	95	0.574	131	0.654	167	0.854	203	0.980	239	0.983	275	0.852	311	0.656
24	0.633	60	0.631	96	0.573	132	0.659	168	0.859	204	0.982	240	0.981	276	0.847	312	0.651
25	0.634	61	0.629	97	0.572	133	0.663	169	0.864	205	0.984	241	0.979	277	0.842	313	0.646
26	0.636	62	0.628	98	0.572	134	0.668	170	0.869	206	0.986	242	0.977	278	0.836	314	0.641
27	0.637	63	0.626	99	0.571	135	0.673	171	0.874	207	0.988	243	0.975	279	0.831	315	0.637
28	0.638	64	0.625	100	0.570	136	0.678	172	0.879	208	0.990	244	0.972	280	0.826	316	0.632
29	0.639	65	0.623	101	0.570	137	0.683	173	0.883	209	0.991	245	0.970	281	0.820	317	0.628
30	0.640	66	0.621	102	0.570	138	0.688	174	0.888	210	0.993	246	0.967	282	0.815	318	0.624
31	0.641	67	0.619	103	0.570	139	0.694	175	0.893	211	0.994	247	0.964	283	0.810	319	0.619
32	0.642	68	0.618	104	0.570	140	0.699	176	0.897	212	0.995	248	0.961	284	0.804	320	0.615
33	0.643	69	0.616	105	0.571	141	0.705	177	0.902	213	0.996	249	0.958	285	0.799	321	0.612
34	0.643	70	0.613	106	0.572	142	0.711	178	0.906	214	0.997	250	0.955	286	0.793	322	0.608
35	0.644	71	0.611	107	0.573	143	0.716	179	0.910	215	0.998	251	0.952	287	0.787	323	0.604

**Figure 1**  
**Antenna Azimuthal Pattern**  
**W30FA-D Jasper, FL**  
**Facility ID 186188**  
**Ch. 30 15 kW Directional**

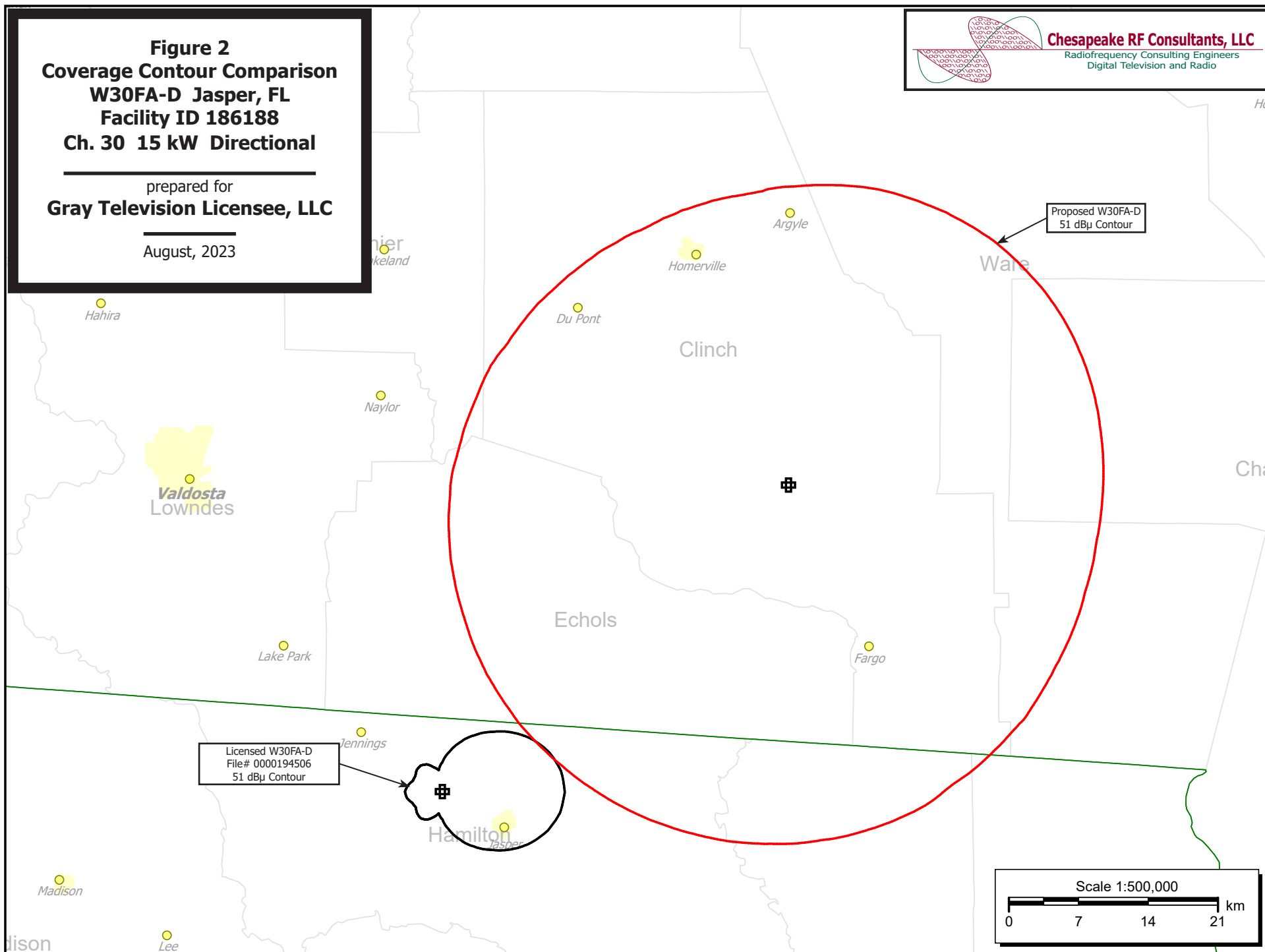
prepared for  
**Gray Television Licensee, LLC**

August, 2023

**Figure 2**  
**Coverage Contour Comparison**  
**W30FA-D Jasper, FL**  
**Facility ID 186188**  
**Ch. 30 15 kW Directional**

prepared for  
**Gray Television Licensee, LLC**

August, 2023



# **Table 1 W30FA-D TVStudy Analysis of Proposal** (page 1 of 3)



tvstudy v2.2.5 (4uoc83)  
Database: localhost, Study: W30FA-D 1023721 178ft, Model: Longley-Rice  
Start: 2023.08.11 14:46:45

Study created: 2023.08.11 14:46:45

Study build station data: LMS TV 2023-08-10

Proposal: W30FA-D D30 LD APP JASPER, FL  
File number: W30FA-D 1023721 178ft  
Facility ID: 186188  
Station data: User record  
Record ID: 64  
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	DW23AQ	N23-	TX	APP	LAKE CITY, FL	BLTT19931215JE	74.3 km
No	WWRJ-LD	N27-	TX	LIC	JACKSONVILLE, FL	BLTTL20140115AAF	107.7
No	WTBZ-LD	N29z	TX	LIC	GAINESVILLE, FL	BLTTL20050907ABX	157.0
No	WGFL	D29	DT	LIC	HIGH SPRINGS, FL	BLANK00000100460	133.3
No	WQXT-CD	D29	DC	LIC	ST. AUGUSTINE, FL	BLANK0000098976	159.2
No	W29FO-D	D29	LD	LIC	TALLAHASSEE, FL	BLANK00000215012	127.3
No	WFXL	D29	DT	CP	ALBANY, GA	BLANK00000150485	128.2
No	WGIQ	D30	DT	LIC	LOUISVILLE, AL	BLANK0000067031	282.3
No	W30EL-D	D30	LD	APP	MONTGOMERY, AL	BLANK00000215013	389.8
No	WEFS	D30	DT	LIC	COCOA, FL	BLEDT20130801ABM	290.4
No	W30EE-D	D30	LD	LIC	JACKSONVILLE, FL	BLANK0000090922	110.1
No	W30EM-D	D30	LD	LIC	OCALA, FL	BLANK00000179329	160.5
No	DDW45DJ-D	D30	LD	APP	PANAMA CITY, FL	BLANK00000123144	308.5
No	WVUP-CD	D30	DC	LIC	TALLAHASSEE, FL	BLANK00000120620	151.0
No	WRMD-CD	D30	DC	LIC	TAMPA, FL	BLANK00000091495	333.3
No	WVWW-LD	D30	LD	CP	Vero Beach, FL	BLANK00000216354	420.1
No	WVWW-LD	D30	LD	LIC	Vero Beach, FL	BLANK00000113947	420.4
No	W30EU-D	D30	LD	CP	ALBANY, GA	BLANK00000210393	170.3
No	W30EU-D	D30	LD	LIC	ALBANY, GA	BLANK00000218051	170.3
No	WBUD-LD	D30	LD	LIC	Atlanta, GA	BLANK00000140550	367.2
No	WAGT-CD	D30	DC	LIC	AUGUSTA, GA	BLANK00000063630	296.7
No	WXVK-LD	N30z	TX	LIC	Columbus, GA	BLTTL19960628JF	267.1
No	WMGT-TV	D30	DT	LIC	MACON, GA	BLANK00000075816	230.8
Yes	WVCZ-LD	D30	LD	LIC	VALDOSTA, GA	BLANK00000198005	64.7
Yes	WVCZ-LD	D30	LD	APP	VALDOSTA, GA	BLANK00000207149	64.4
No	WLOW-LD	D30	LD	CP	Charleston, SC	BLANK00000157610	339.6
No	WLOW-LD	D30	LD	LIC	Charleston, SC	BLANK00000207324	339.6
No	WLOW-LD	D30	LD	LIC	Charleston, SC	BLANK00000118486	314.1
No	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK00000190317	476.2
No	W30CV-D	D30	DC	LIC	HILTON HEAD ISLAND, SC	BLANK00000194091	230.6
No	WODH-LD	D31	LD	LIC	Jacksonville, FL	BLANK00000108060	120.7
No	WOGX	D31	DT	LIC	OCALA, FL	BLCDT20020730ABS	166.1
No	W31FE-D	D31+	LD	CP	Savannah, GA	BLANK00000190106	177.6
No	WSWG	D31	DT	LIC	VALDOSTA, GA	BLANK00000063722	78.1
No	WSWG	D31	DT	APP	VALDOSTA, GA	BLANK00000149841	78.1

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: 30 49 39.40 N (NAD83)  
Longitude: 82 39 2.20 W  
Height AMSL: 96.0 m  
HAAT: 0.0 m  
Peak ERP: 15.0 kW

**Table 1 W30FA-D TVStudy Analysis of Proposal**  
(page 2 of 3)



Antenna: DIE TLP-B 220.0 deg  
Elev Pattn: Generic  
Elec Tilt: 1.00

50.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	5.15 kW	51.2 m	30.8 km
45.0	6.20	56.5	32.8
90.0	5.03	59.3	32.3
135.0	6.82	60.2	34.0
180.0	12.5	58.1	36.5
225.0	14.9	54.8	36.7
270.0	11.5	51.0	34.6
315.0	6.11	49.5	31.2

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m Computed HAAT: 55 m

Distance to Canadian border: 1205.9 km

Distance to Mexican border: 1494.7 km

Conditions at FCC monitoring station: Powder Springs GA  
Bearing: 330.6 degrees Distance: 389.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 303.1 degrees Distance: 2280.5 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%

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Interference to BLANK0000198005 LIC scenario 1

Desired:	Call WVCZ-LD	Chan D30	Svc LD	Status LIC	City, State VALDOSTA, GA	File Number BLANK0000198005	Distance		
Undesireds:	W30FA-D	D30	LD	APP	JASPER, FL	W30FA-D 1023721 178ft	64.7 km		
	WVUP-CD	D30	DC	LIC	TALLAHASSEE, FL	BLANK0000120620	88.5		
	W30EU-D	D30	LD	CP	ALBANY, GA	BLANK0000210393	118.9		
	WSWG	D31	DT	LIC	VALDOSTA, GA	BLANK0000063722	37.5		
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX		
109.3	50,157	109.3	50,157	98.1	39,309	97.1	39,309	1.04	0.00
Undesired				Total IX	Unique IX, before	Unique IX, after			
W30FA-D	D30	LD	APP	1.0	0	1.0	0		
WVUP-CD	D30	DC	LIC	11.2	10,848	11.2	10,848		

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Interference to BLANK0000207149 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WVCZ-LD	D30	LD	APP	VALDOSTA, GA	BLANK0000207149	
Undesireds:	W30FA-D	D30	LD	APP	JASPER, FL	W30FA-D 1023721 178ft	64.4 km
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	64.7
	W30EL-D	D30	LD	LIC	MONTGOMERY, AL	BLANK0000195920	325.8
	W30EU-D	D30	LD	CP	ALBANY, GA	BLANK0000210393	105.9
	WSWG	D31	DT	LIC	VALDOSTA, GA	BLANK0000063722	14.5
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
2798.2	71,183	2798.2	71,183	2672.0	67,497	2589.3 66,830	3.09 0.99
Undesired				Total IX	Unique IX, before	Unique IX, after	
W30FA-D	D30 LD APP	84.6	694		82.6 667		

**Table 1 W30FA-D TVStudy Analysis of Proposal**  
(page 3 of 3)



WFXL D29 DT CP	6.1	7	1.0	7	1.0	7
WSWG D31 DT LIC	125.2	3,679	120.1	3,679	118.0	3,652

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Interference to BLANK0000207149 APP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WVCZ-LD	D30	LD	APP	VALDOSTA, GA	BLANK0000207149	
Undesireds:	W30FA-D	D30	LD	APP	JASPER, FL	W30FA-D 1023721	178ft
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	64.4 km
	W30EL-D	D30	LD	LIC	MONTGOMERY, AL	BLANK0000195920	64.7
	W30EU-D	D30	LD	CP	ALBANY, GA	BLANK0000210393	325.8
	WSWG	D31	DT	APP	VALDOSTA, GA	BLANK0000149841	105.9
							14.5

	Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
	2798.2	71,183	2798.2	67,497	3.09
			2672.0	66,830	0.99

Undesired	Total IX	Unique IX, before	Unique IX, after
W30FA-D D30 LD APP	84.6	694	82.6
WFXL D29 DT CP	6.1	7	667
WSWG D31 DT APP	125.2	3,679	1.0
			7
			3,652

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Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W30FA-D	D30	LD	APP	JASPER, FL	W30FA-D 1023721	178ft
Undesireds:	W30EU-D	D30	LD	CP	ALBANY, GA	BLANK0000210393	170.3 km
	WVCZ-LD	D30	LD	LIC	VALDOSTA, GA	BLANK0000198005	64.7
	WSWG	D31	DT	LIC	VALDOSTA, GA	BLANK0000063722	78.1

	Service area	Terrain-limited	IX-free	Percent IX
	3566.0	6,883	3566.0	6,883
			0.00	0.00

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Interference to proposal scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W30FA-D	D30	LD	APP	JASPER, FL	W30FA-D 1023721	178ft
Undesireds:	W30EU-D	D30	LD	CP	ALBANY, GA	BLANK0000210393	170.3 km
	WVCZ-LD	D30	LD	APP	VALDOSTA, GA	BLANK0000207149	64.4
	WSWG	D31	DT	LIC	VALDOSTA, GA	BLANK0000063722	78.1

	Service area	Terrain-limited	IX-free	Percent IX
	3566.0	6,883	3566.0	6,883
			3525.1	1.14
			6,837	0.67

Undesired	Total IX	Unique IX	Prcnt Unique IX
WVCZ-LD D30 LD APP	40.8	46	1.14
		40.8	0.67
		46	



**Channel and  
Facility  
Information**

Section	Question	Response
Facility ID	186188	
State	Florida	
City	JASPER	
LPD Channel	30	

Antenna Location  
Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1023721
Coordinates (NAD83)	Latitude	30° 49' 39.4" N+
	Longitude	082° 39' 02.2" W-
	Structure Type	LTOWER-Lattice Tower
	Overall Structure Height	70.7 meters
	Support Structure Height	64.0 meters
	Ground Elevation (AMSL)	41.7 meters
Antenna Data	Height of Radiation Center Above Ground Level	54.3 meters
	Height of Radiation Center Above Mean Sea Level	96.0 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	DLP-12B
	Rotation	220 degrees
	Electrical Beam Tilt	1.0
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Horizontal
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	0.661	180	0.645	270	0.650
10	0.996	100	0.615	190	0.641	280	0.699
20	0.981	110	0.583	200	0.631	290	0.759
30	0.955	120	0.569	210	0.613	300	0.817
40	0.920	130	0.571	220	0.592	310	0.869
50	0.876	140	0.586	230	0.579	320	0.914
60	0.826	150	0.607	240	0.570	330	0.951
70	0.771	160	0.627	250	0.579	340	0.975
80	0.714	170	0.640	260	0.610	350	0.993

Additional Azimuths

Degree	V <sub>A</sub>
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