

ENGINEERING EXHIBIT

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

Gray Television Licensee, LLC
WMJN-LD Huntsville, AL
Facility ID 10593
Ch. 32 15 kW Directional

Gray Television Licensee, LLC (“Gray”) is the licensee of digital Low Power Television station WMJN-LD, Channel 32, Facility ID 10593, Huntsville AL. WMJN-LD is licensed to operate at 15 kW effective radiated power (“ERP”) with a nondirectional antenna (file# 0000130267). *Gray* herein seeks a minor modification Construction Permit to relocate WMJN-LD and to utilize a directional antenna at increased antenna height.

The proposed facility will employ an existing broadband antenna that is side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1204889, located 36.2 km (22.5 miles) from the licensed site. No change to the overall structure height is proposed. The antenna supporting structure is utilized by *Gray*’s full-service television station WAFF (Facility ID 591, Huntsville AL). The broadband antenna was previously utilized by WAFF as an interim antenna in 2020 during WAFF’s transition to its reassignment channel (file# 0000105855).

The broadband antenna is a Dielectric model TFU-8WB-R C160 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 on Channel 32 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 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 20 percent antenna relative field in downward elevations (pattern data shows 20 percent or less relative field at angles 20 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 $0.1 \mu\text{W}/\text{cm}^2$, which is 0.03 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.

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 km cell size, and 1 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.

Engineering Exhibit
Gray Television Licensee, LLC (WMJN-LD)
(page 3 of 3)

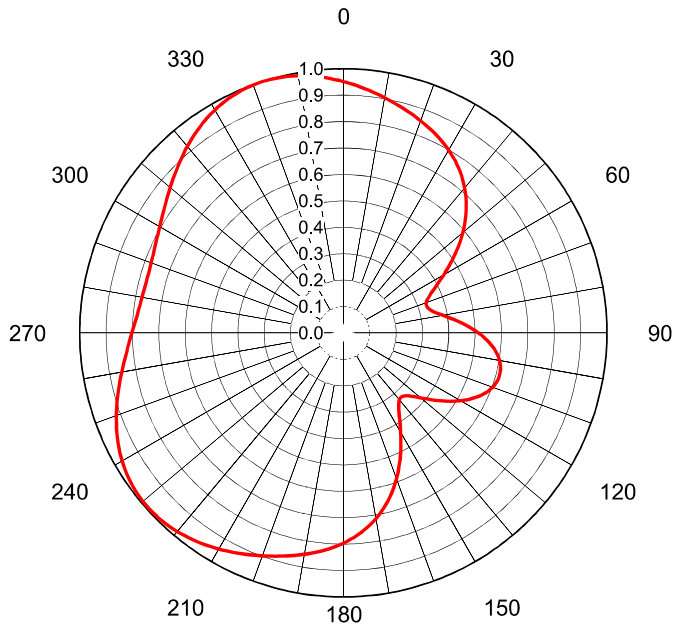


List of Attachments

Figure 1	Antenna Azimuthal Pattern
Figure 2	Coverage Contour Comparison
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Form 2100	Saved Version of Engineering Sections of FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	August 4, 2022	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



AZIMUTH PATTERN Horizontal Polarization

Proposal No. **20220429jmd**
Date **29-Apr-22**
Call Letters **WMJN-LD**
Channel **32**
Frequency **581 MHz**
Antenna Type **TFU-8WB-R C160**
Gain **1.68 (2.24dB)**
Calculated

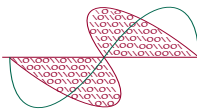
Pattern Number **WB-C160-32 Hpol**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.952	36	0.754	72	0.332	108	0.610	144	0.358	180	0.796	216	0.969	252	0.904	288	0.774	324	0.945
1	0.947	37	0.745	73	0.333	109	0.607	145	0.369	181	0.803	217	0.972	253	0.898	289	0.775	325	0.951
2	0.943	38	0.736	74	0.335	110	0.602	146	0.380	182	0.809	218	0.976	254	0.891	290	0.776	326	0.956
3	0.938	39	0.726	75	0.340	111	0.597	147	0.393	183	0.815	219	0.979	255	0.885	291	0.778	327	0.961
4	0.933	40	0.716	76	0.346	112	0.591	148	0.407	184	0.820	220	0.981	256	0.879	292	0.780	328	0.966
5	0.929	41	0.706	77	0.354	113	0.584	149	0.421	185	0.826	221	0.984	257	0.872	293	0.782	329	0.971
6	0.924	42	0.695	78	0.363	114	0.576	150	0.435	186	0.831	222	0.986	258	0.866	294	0.784	330	0.975
7	0.919	43	0.684	79	0.373	115	0.567	151	0.451	187	0.836	223	0.988	259	0.860	295	0.787	331	0.979
8	0.914	44	0.672	80	0.384	116	0.558	152	0.466	188	0.841	224	0.990	260	0.854	296	0.790	332	0.982
9	0.909	45	0.659	81	0.396	117	0.548	153	0.482	189	0.846	225	0.991	261	0.848	297	0.793	333	0.986
10	0.904	46	0.647	82	0.408	118	0.537	154	0.497	190	0.851	226	0.992	262	0.842	298	0.797	334	0.989
11	0.899	47	0.634	83	0.421	119	0.525	155	0.513	191	0.856	227	0.993	263	0.836	299	0.801	335	0.991
12	0.895	48	0.620	84	0.434	120	0.513	156	0.529	192	0.861	228	0.993	264	0.831	300	0.805	336	0.994
13	0.890	49	0.606	85	0.448	121	0.501	157	0.544	193	0.866	229	0.993	265	0.825	301	0.809	337	0.996
14	0.885	50	0.592	86	0.461	122	0.488	158	0.559	194	0.870	230	0.993	266	0.820	302	0.813	338	0.997
15	0.880	51	0.577	87	0.474	123	0.475	159	0.574	195	0.875	231	0.992	267	0.815	303	0.818	339	0.999
16	0.875	52	0.563	88	0.487	124	0.461	160	0.589	196	0.880	232	0.991	268	0.811	304	0.823	340	0.999
17	0.870	53	0.547	89	0.500	125	0.448	161	0.603	197	0.884	233	0.989	269	0.806	305	0.828	341	1.000
18	0.866	54	0.532	90	0.513	126	0.434	162	0.617	198	0.889	234	0.987	270	0.802	306	0.834	342	1.000
19	0.861	55	0.517	91	0.525	127	0.421	163	0.631	199	0.894	235	0.985	271	0.798	307	0.839	343	1.000
20	0.856	56	0.501	92	0.536	128	0.408	164	0.644	200	0.898	236	0.983	272	0.795	308	0.845	344	0.999
21	0.851	57	0.486	93	0.547	129	0.395	165	0.657	201	0.903	237	0.980	273	0.791	309	0.851	345	0.998
22	0.846	58	0.470	94	0.557	130	0.383	166	0.669	202	0.908	238	0.977	274	0.788	310	0.857	346	0.997
23	0.840	59	0.455	95	0.567	131	0.371	167	0.681	203	0.912	239	0.973	275	0.785	311	0.863	347	0.995
24	0.835	60	0.440	96	0.575	132	0.361	168	0.692	204	0.917	240	0.969	276	0.783	312	0.870	348	0.994
25	0.830	61	0.425	97	0.583	133	0.352	169	0.703	205	0.922	241	0.965	277	0.780	313	0.876	349	0.991
26	0.824	62	0.411	98	0.590	134	0.344	170	0.714	206	0.927	242	0.961	278	0.778	314	0.883	350	0.989
27	0.818	63	0.398	99	0.597	135	0.337	171	0.724	207	0.931	243	0.956	279	0.777	315	0.889	351	0.986
28	0.812	64	0.385	100	0.602	136	0.332	172	0.733	208	0.936	244	0.951	280	0.775	316	0.896	352	0.983
29	0.806	65	0.373	101	0.606	137	0.329	173	0.743	209	0.940	245	0.946	281	0.774	317	0.902	353	0.980
30	0.799	66	0.363	102	0.610	138	0.328	174	0.751	210	0.945	246	0.940	282	0.773	318	0.908	354	0.976
31	0.793	67	0.354	103	0.612	139	0.328	175	0.760	211	0.949	247	0.935	283	0.773	319	0.915	355	0.973
32	0.786	68	0.346	104	0.614	140	0.331	176	0.768	212	0.953	248	0.929	284	0.772	320	0.921	356	0.969
33	0.778	69	0.340	105	0.614	141	0.335	177	0.775	213	0.958	249	0.923	285	0.772	321	0.927	357	0.965
34	0.771	70	0.335	106	0.614	142	0.341	178	0.783	214	0.962	250	0.917	286	0.773	322	0.933	358	0.961
35	0.763	71	0.333	107	0.612	143	0.349	179	0.790	215	0.965	251	0.910	287	0.773	323	0.939	359	0.956

Figure 1
Antenna Azimuthal Pattern
WMJN-LD Huntsville, AL
Facility ID 10593
Ch. 32 15 kW Directional

prepared for
Gray Television Licensee, LLC

August, 2022



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

Figure 2
Coverage Contour Comparison
WMJN-LD Huntsville, AL
Facility ID 10593
Ch. 32 15 kW Directional

prepared for
Gray Television Licensee, LLC

August, 2022

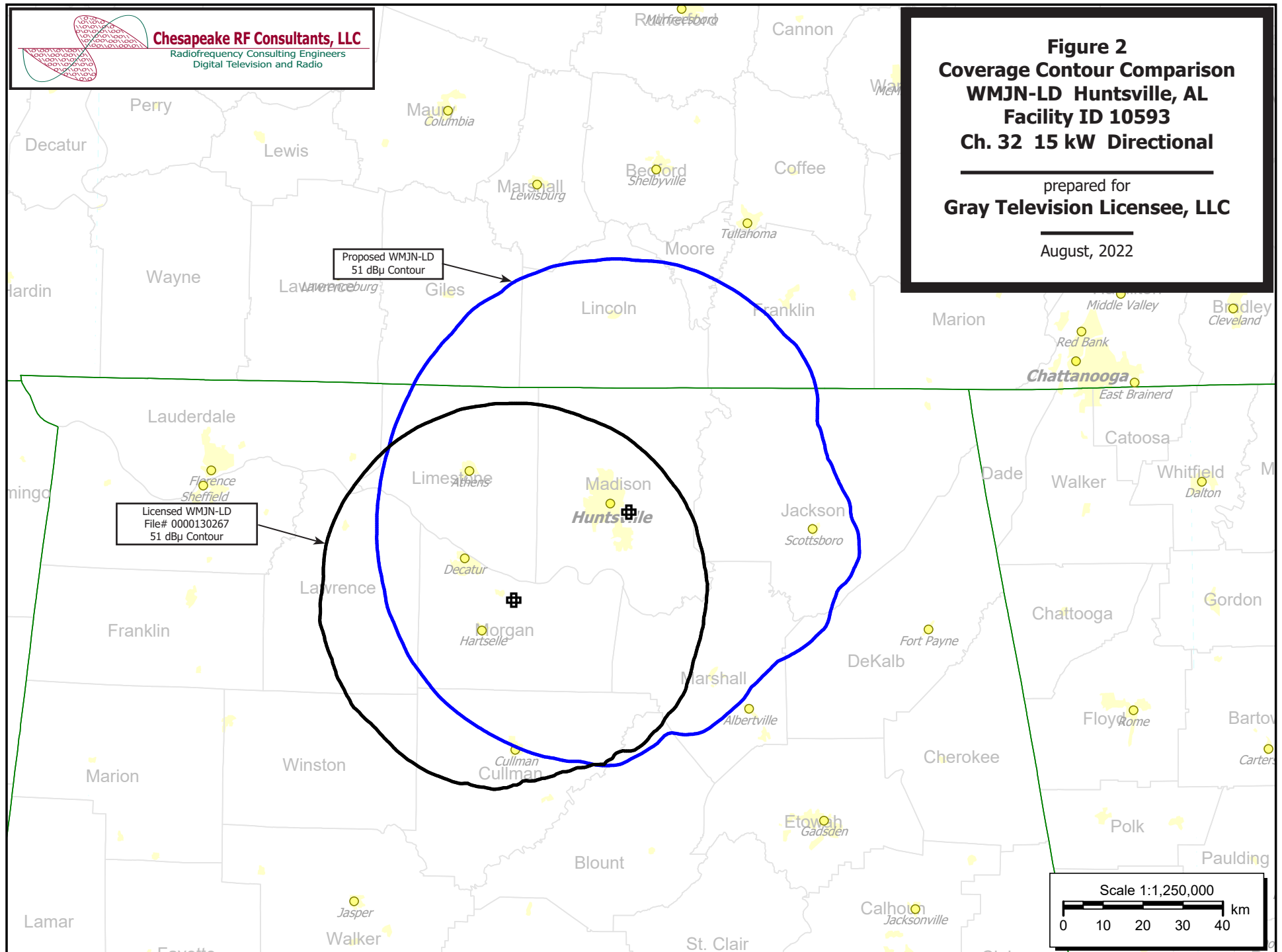


Table 1 WMJN-LD TVStudy Analysis of Proposal (page 1 of 4)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: WMJN-LD TFU-8WB_prop, Model: Longley-Rice
Start: 2022.08.04 14:48:19

Study created: 2022.08.04 14:48:19

Study build station data: LMS TV 2022-08-02

Proposal: WMJN-LD D32 LD APP Huntsville, AL
File number: WMJN-LD TFU-8WB
Facility ID: 10593
Station data: User record
Record ID: 4378
Country: U.S.

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

Search options:
Baseline record excluded if station has CP

Individual records excluded:
0000054790 DW50BO D32+ LD APP ASHVILLE, AL BLANK0000054790

Note: The Facility ID 31647 DW50BO license and its displacement Construction Permit were cancelled 08/10/2021

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WAXC-LD	D31	LD	LIC	ALEXANDER CITY, AL	BLDTL20110329ABN	203.6 km
No	WSFG-LD	D31	LD	LIC	BERRY, AL	BLANK0000176885	148.0
No	WPCH-TV	D31	DT	LIC	ATLANTA, GA	BLANK0000152274	225.3
No	WBXX-TV	D31	DT	LIC	CROSSVILLE, TN	BLANK0000081641	252.5
No	WWHL-LD	D31-	LD	LIC	Nashville, TN	BLANK0000144800	107.8
No	WWHL-LD	D31-	LD	CP	Nashville, TN	BLANK0000189309	150.8
No	WAXC-LD	D32	LD	CP	ALEXANDER CITY, AL	BDISDTL20120831ABQ	203.6
No	WAAO-LD	D32	LD	LIC	ANDALUSIA, AL	BLANK0000155416	374.7
Yes	WBMA-LD	D32	LD	LIC	BIRMINGHAM, AL	BLANK0000120220	144.7
No	W32FJ-D	D32	LD	LIC	MONTGOMERY, AL	BLANK0000195923	260.7
No	W32FJ-D	D32	LD	CP	MONTGOMERY, AL	BLANK0000194235	260.7
No	W32EQ-D	D32	LD	LIC	TUSCALOOSA, AL	BLANK0000177226	229.3
Yes	WSB-TV	D32	DT	LIC	ATLANTA, GA	BLANK0000153268	225.7
No	W32FV-D	D32	LD	LIC	COLUMBUS, GA	BLANK0000180159	293.3
No	W32FE-D	D32	LD	LIC	HARTWELL & ROYSTON, GA	BLANK0000153394	332.5
No	W32FN-D	D32	LD	LIC	MACON, GA	BLANK0000179563	351.0
No	W32FR-D	D32	LD	CP	EVANSVILLE, IN	BNPDTL20090825AZT	356.3
No	WDRB	D32	DT	LIC	LOUISVILLE, KY	BLANK0000087865	409.1
No	KFVS-TV	D32	DT	CP	CAPE GIRARDEAU, MO	BLANK0000150355	403.0
No	WABG-TV	D32	DT	LIC	GREENWOOD, MS	BLCDT20051024ABR	397.7
No	W32FI-D	D32	LD	LIC	BREVARD, NC	BLANK0000074959	355.1
No	W32EV-D	D32	DC	LIC	ADAMSVILLE, TN	BLANK0000121663	176.0
Yes	WNPX-TV	D32	DT	LIC	FRANKLIN, TN	BLANK0000087615	202.3
No	WANF-LD	D32	LD	CP	JACKSON, TN	BLANK0000184303	307.9
No	WANF-LD	D32	LD	LIC	JACKSON, TN	BLANK0000179060	274.0
No	WKPT-TV	D32	DT	LIC	KINGSPORT, TN	BLANK0000070485	441.1
No	DDWEEE-LP	N32+	TX	APP	KNOXVILLE, TN	BPTTL20120508ADS	273.9
No	DDWEEE-LP	N32+	TX	APP	KNOXVILLE, TN	BLTT19980717JA	266.9
No	DDWEEE-LP	D32	LD	APP	KNOXVILLE, TN	BMPDTA20120605AAP	273.9
No	WQEO-LD	D32	LD	LIC	Memphis, TN	BLANK0000098540	301.8
No	WPXH-TV	D33	DT	LIC	HOOVER, AL	BLANK0000105366	138.6
No	WIRE-CD	D33	DC	LIC	ATLANTA, GA	BLANK0000130086	226.9
No	WPDP-CD	D33-	DC	LIC	CLEVELAND, TN	BLANK0000081661	180.6
Yes	WPGD-TV	D33	DT	LIC	HENDERSONVILLE, TN	BMLCDT20131125BGF	174.7
No	W33EB-D	D33	LD	LIC	OLIVE HILL, TN	BLANK0000152237	149.3

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D32
Mask: Full Service
Latitude: 34 42 39.30 N (NAD83)

Table 1 WMJN-LD TVStudy Analysis of Proposal
(page 2 of 4)



Longitude: 86 32 7.00 W
Height AMSL: 743.5 m
HAAT: 0.0 m
Peak ERP: 15.0 kW
Antenna: DIE TFU-WB-C160 Ch-32 AZ 285.0 deg
Elev Pattn: Generic
Elec Tilt: 1.05

50.5 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	13.6 kW	481.0 m	63.9 km
45.0	6.51	491.5	59.7
90.0	3.86	477.6	56.1
135.0	1.70	552.3	53.3
180.0	9.43	514.9	62.6
225.0	14.7	565.4	66.9
270.0	9.72	546.9	63.7
315.0	11.9	501.4	63.7

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 516 m

Distance to Canadian border: 844.1 km

Distance to Mexican border: 1389.7 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 119.0 degrees Distance: 191.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 295.6 degrees Distance: 1751.9 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 BLANK0000120220 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance		
	WBMA-LD	D32	LD	LIC	BIRMINGHAM, AL	BLANK0000120220			
Undesireds:	WMJN-LD	D32	LD	APP	Huntsville, AL	WMJN-LD TFU-8WB	144.7 km		
	WAXC-LD	D31	LD	LIC	ALEXANDER CITY, AL	BLDTL20110329ABN	103.4		
	W32FJ-D	D32	LD	LIC	MONTGOMERY, AL	BLANK0000195923	129.0		
	W32EQ-D	D32	LD	LIC	TUSCALOOSA, AL	BLANK0000177226	118.3		
	WSB-TV	D32	DT	LIC	ATLANTA, GA	BLANK0000153268	236.2		
	WPXH-TV	D33	DT	LIC	HOOVER, AL	BLANK0000105366	8.7		
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
5522.2		854,375		5006.7		824,050		4363.5	
						692,205		4357.6	
								691,901	
								0.14	
								0.04	
Undesired		Total IX		Unique IX, before		Unique IX, after			
WMJN-LD D32 LD APP		7.9		444		5.9		304	
W32EQ-D D32 LD LIC		3.0		0		1.0		0	
WSB-TV D32 DT LIC		22.8		2,479		10.9		98	
WPXH-TV D33 DT LIC		631.3		131,747		617.4		129,366	

Interference to BLANK0000153268 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WSB-TV	D32	DT	LIC	ATLANTA, GA	BLANK0000153268	
Undesireds:	WMJN-LD	D32	LD	APP	Huntsville, AL	WMJN-LD TFU-8WB	225.7 km
	WPCH-TV	D31	DT	LIC	ATLANTA, GA	BLANK0000152274	5.2
	WFSU-TV	D32	DT	LIC	TALLAHASSEE, FL	BLDET20030730ACW	379.3

Table 1 WMJN-LD TV Study Analysis of Proposal
(page 3 of 4)



WAXN-TV	D32	DT	LIC	KANNAPOLIS, NC	BLANK0000146859	372.1
WNPX-TV	D32	DT	LIC	FRANKLIN, TN	BLANK0000087615	372.7
WIRE-CD	D33	DC	LIC	ATLANTA, GA	BLANK0000130086	2.2
WGNM	D33	DT	LIC	MACON, GA	BLANK0000113679	133.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
30398.3 5,898,752	29101.7 5,826,553	28694.1 5,805,101	28688.1 5,804,730	0.02 0.01

Undesired	Total IX	Unique IX, before	Unique IX, after
WMJN-LD D32 LD APP	6.0 371	6.0 371	6.0 371
WPCH-TV D31 DT LIC	140.0 14,704	135.0 14,327	135.0 14,327
WFSU-TV D32 DT LIC	25.0 1,269	24.0 1,269	24.0 1,269
WAXN-TV D32 DT LIC	3.0 15	3.0 15	3.0 15
WNPX-TV D32 DT LIC	23.1 825	22.1 825	22.1 825
WIRE-CD D33 DC LIC	12.0 506	10.0 129	10.0 129
WGNM D33 DT LIC	210.5 4,510	207.5 4,510	207.5 4,510

Interference to BLANK0000087615 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WNPX-TV	D32	DT	LIC	FRANKLIN, TN	BLANK0000087615	
Undesireds:	WMJN-LD	D32	LD	APP	Huntsville, AL	WMJN-LD TFU-8WB	202.3 km
	WKMA-TV	D31	DT	LIC	MADISONVILLE, KY	BLANK0000087442	104.0
	WSB-TV	D32	DT	LIC	ATLANTA, GA	BLANK0000153268	372.7
	WDRB	D32	DT	LIC	LOUISVILLE, KY	BLANK0000087865	215.8
	KFVS-TV	D32	DT	CP	CAPE GIRARDEAU, MO	BLANK0000150355	269.5
	W32EV-D	D32	DC	LIC	ADAMSVILLE, TN	BLANK0000121663	208.3
	WPGD-TV	D33	DT	LIC	HENDERSONVILLE, TN	BMLCDT20131125BGF	30.3

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
26051.9 2,083,810	25512.9 2,071,524	22739.3 1,884,295	22682.8 1,882,606	0.25 0.09

Undesired	Total IX	Unique IX, before	Unique IX, after
WMJN-LD D32 LD APP	202.7 15,026	56.5 1,689	56.5 1,689
WKMA-TV D31 DT LIC	105.8 1,011	16.0 305	16.0 305
WSB-TV D32 DT LIC	11.0 184	0.0 0	0.0 0
WDRB D32 DT LIC	801.2 15,434	555.5 9,354	549.5 9,253
KFVS-TV D32 DT CP	221.5 7,232	55.2 3,787	55.2 3,787
W32EV-D D32 DC LIC	17.1 390	4.0 268	0.0 0
WPGD-TV D33 DT LIC	1981.0 172,043	1844.1 166,973	1741.0 156,181

Interference to BMLCDT20131125BGF LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WPGD-TV	D33	DT	LIC	HENDERSONVILLE, TN	BMLCDT20131125BGF	
Undesireds:	WMJN-LD	D32	LD	APP	Huntsville, AL	WMJN-LD TFU-8WB	174.7 km
	WNPX-TV	D32	DT	LIC	FRANKLIN, TN	BLANK0000087615	30.3
	WPXH-TV	D33	DT	LIC	HOOVER, AL	BLANK0000105366	309.5
	WTIU	D33	DT	LIC	BLOOMINGTON, IN	BLANK0000087599	320.5
	WKHA	D33	DT	LIC	HAZARD, KY	BLANK0000075043	337.4
	WPDP-CD	D33-	DC	LIC	CLEVELAND, TN	BLANK0000081661	233.1
	WPXX-TV	D33	DT	LIC	MEMPHIS, TN	BLANK0000063435	296.6
	W34EY-D	D34	DC	LIC	HUNTSVILLE, AL	BLANK0000069366	171.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
36683.0 2,354,986	35315.2 2,341,459	34576.4 2,327,413	34576.4 2,327,413	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
WMJN-LD D32 LD APP	1.0 0	0.0 0	0.0 0
WNPX-TV D32 DT LIC	401.5 8,993	395.4 8,974	395.4 8,974
WPXH-TV D33 DT LIC	61.7 1,182	36.9 812	35.9 812
WTIU D33 DT LIC	52.9 762	46.9 743	46.9 743
WKHA D33 DT LIC	5.0 5	3.0 5	3.0 5
WPDP-CD D33- DC LIC	6.1 0	5.1 0	5.1 0
WPXX-TV D33 DT LIC	243.5 3,493	218.7 3,123	218.7 3,123
W34EY-D D34 DC LIC	3.0 63	0.0 0	0.0 0

Interference to proposal scenario 1

Table 1 WMJN-LD TVStudy Analysis of Proposal
(page 4 of 4)



	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WMJN-LD	D32	LD	APP	Huntsville, AL	WMJN-LD TFU-8WB	
Undesireds:	WWHL-LD	D31-	LD	LIC	Nashville, TN	BLANK0000144800	107.8 km
	WBMA-LD	D32	LD	LIC	BIRMINGHAM, AL	BLANK0000120220	144.7
	W32FJ-D	D32	LD	LIC	MONTGOMERY, AL	BLANK0000195923	260.7
	WSB-TV	D32	DT	LIC	ATLANTA, GA	BLANK0000153268	225.7
	WNPX-TV	D32	DT	LIC	FRANKLIN, TN	BLANK0000087615	202.3
	WANF-LD	D32	LD	CP	JACKSON, TN	BLANK0000184303	307.9
	DDWEEE-LP	N32+	TX	APP	KNOXVILLE, TN	BPTTL20120508ADS	273.9
	Service area	Terrain-limited		IX-free		Percent IX	
11834.4	718,493	10669.9	692,388	10497.0	686,345	1.62	0.87
Undesired				Total IX	Unique IX	Prcnt Unique IX	
WBMA-LD D32 LD LIC				61.5 2,561 48.4	2,240	0.45	0.32
WSB-TV D32 DT LIC				37.1 373 19.1	96	0.18	0.01
WNPX-TV D32 DT LIC				104.4 3,707 77.2	3,109	0.72	0.45

**Channel and
Facility
Information**

Section	Question	Response
Facility ID	10593	
State	Alabama	
City	Huntsville	
LPD Channel	32	

**Antenna Location
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1204889
Coordinates (NAD83)	Latitude	34 ° 42' 39.3" N+
	Longitude	086 ° 32' 07.0" W-
	Structure Type	GTOWER-Guyed Structure Used for Communication Purposes
	Overall Structure Height	460.1 meters
	Support Structure Height	447.1 meters
	Ground Elevation (AMSL)	351.2 meters
Antenna Data	Height of Radiation Center Above Ground Level	392.3 meters
	Height of Radiation Center Above Mean Sea Level	743.5 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	TFU-8WB-R C160
	Rotation	285 degrees
	Electrical Beam Tilt	1.05
	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	0.772	90	0.880	180	0.614	270	0.875
10	0.787	100	0.830	190	0.567	280	0.922
20	0.828	110	0.763	200	0.448	290	0.965
30	0.889	120	0.659	210	0.337	300	0.991
40	0.951	130	0.517	220	0.369	310	0.985
50	0.992	140	0.374	230	0.513	320	0.946
60	0.998	150	0.340	240	0.657	330	0.885
70	0.973	160	0.448	250	0.760	340	0.825
80	0.929	170	0.567	260	0.826	350	0.785

Additional Azimuths

Degree	V _A
57	1.000
303	0.993