ENGINEERING EXHIBIT

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

prepared for

Gray Television Licensee, LLC
WTMU-LD Montgomery, AL
Facility ID 182914
Ch. 29 15 kW Directional

Gray Television Licensee, LLC ("Gray") is the licensee of digital Low Power Television station WTMU-LD, Channel 29, Facility ID 182914, Montgomery AL. WTMU-LD is licensed to operate at 4.6 kW effective radiated power ("ERP") with a directional antenna (file# 0000212874). *Gray* herein seeks a minor modification Construction Permit to increase the ERP to 15 kW.

WTMU-LD will continue to employ its presently licensed directional antenna system which is side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1058223. No antenna or tower work is required to carry out this proposal.

The WTMU-LD antenna is a Dielectric model TLP-8B/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 51 dBµ coverage contour of the proposed and licensed facilities, demonstrating compliance with §73.3572 for a minor change. Since the proposed 51 dBµ contour encompasses that of the licensed facility, no service loss area will be created. Service improvement will result as the population within the 51 dBµ contour increases to 352,767 persons (2010 census), which is a 5.2 percent increase beyond the 335,261 persons within the licensed WTMU-LD facility's 51 dBµ contour.

Interference study per OET Bulletin 69[1] shows that the proposal complies with the FCC's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. FCC processing of this proposal is requested using a **1.0 km cell size and 0.2 km terrain profile increment**. 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 except for W30EL-D which does not present a conflict for the proposal.

The licensed W30EL-D facility (file# 0000195920, Ch. 30, Fac ID 185076, Montgomery AL) would receive 15.72 percent new interference, which exceeds the 2.0 percent limit towards LPTV stations. *Gray* has obtained consent from the licensee of W30EL-D to accept interference from the proposed WTMU-LD (attached separately). W30EL-D has an application pending (file# 0000215013) to increase power and antenna height. Interference to the W30EL-D application facility from the proposed WTMU-LD facility is 0.89 percent, which is within the 2.0 percent allowable limit. Accordingly, the proposal complies with §74.793 regarding interference protection to digital television, low power television, television translator, and Class A television facilities.

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 25 percent antenna relative field in downward elevations (pattern data shows less than 25 percent relative field at angles 10 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 8.6 $\mu W/cm^2$, which is 2.3 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

[1]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 0.2 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCCs implementation of TVStudy show excellent correlation.

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.

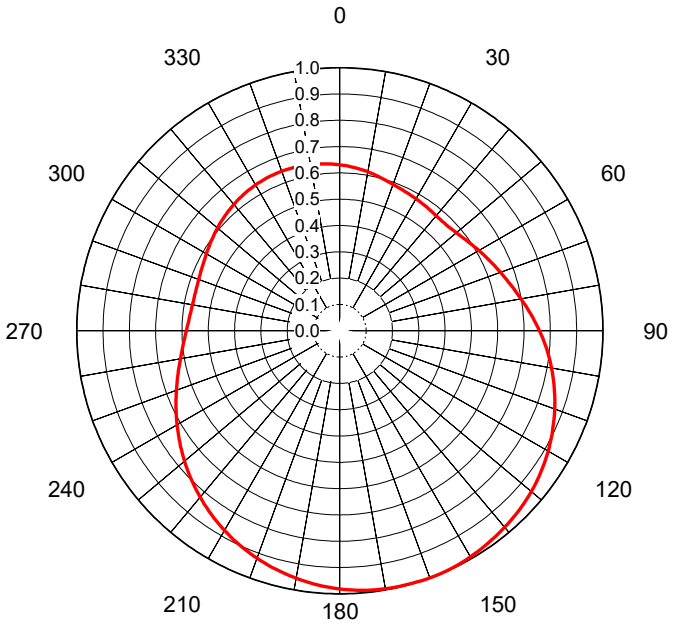
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power 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.

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. June 14, 2023
207 Old Dominion Road Yorktown, VA 23692 703-650-9600

Dielectric®



AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-71919**
Date	**13-Jul-22**
Call Letters	**W29FP**
Channel	**29**
Frequency	**563 MHz**
Antenna Type	**TLP-8B/VP**
Gain	**1.76 (2.45dB)** Calculated
Pattern Number	**TLP-B-29 Hpol**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.631	36	0.573	72	0.659	108	0.859	144	0.982	180	0.981	216	0.847	252	0.651	288	0.569	324	0.633
1	0.629	37	0.572	73	0.663	109	0.864	145	0.984	181	0.979	217	0.842	253	0.646	289	0.570	325	0.634
2	0.628	38	0.572	74	0.668	110	0.869	146	0.986	182	0.977	218	0.836	254	0.641	290	0.571	326	0.636
3	0.626	39	0.571	75	0.673	111	0.874	147	0.988	183	0.975	219	0.831	255	0.637	291	0.572	327	0.637
4	0.625	40	0.570	76	0.678	112	0.879	148	0.990	184	0.972	220	0.826	256	0.632	292	0.573	328	0.638
5	0.623	41	0.570	77	0.683	113	0.883	149	0.991	185	0.970	221	0.820	257	0.628	293	0.574	329	0.639
6	0.621	42	0.570	78	0.688	114	0.888	150	0.993	186	0.967	222	0.815	258	0.624	294	0.575	330	0.640
7	0.619	43	0.570	79	0.694	115	0.893	151	0.994	187	0.964	223	0.810	259	0.619	295	0.577	331	0.641
8	0.618	44	0.570	80	0.699	116	0.897	152	0.995	188	0.961	224	0.804	260	0.615	296	0.578	332	0.642
9	0.616	45	0.571	81	0.705	117	0.902	153	0.996	189	0.958	225	0.799	261	0.612	297	0.580	333	0.643
10	0.613	46	0.572	82	0.711	118	0.906	154	0.997	190	0.955	226	0.793	262	0.608	298	0.582	334	0.643
11	0.611	47	0.573	83	0.716	119	0.910	155	0.998	191	0.952	227	0.787	263	0.604	299	0.584	335	0.644
12	0.609	48	0.575	84	0.722	120	0.914	156	0.999	192	0.949	228	0.782	264	0.601	300	0.586	336	0.644
13	0.607	49	0.577	85	0.728	121	0.919	157	0.999	193	0.946	229	0.776	265	0.597	301	0.588	337	0.645
14	0.605	50	0.579	86	0.734	122	0.923	158	0.999	194	0.942	230	0.771	266	0.594	302	0.590	338	0.645
15	0.602	51	0.581	87	0.740	123	0.927	159	1.000	195	0.939	231	0.765	267	0.591	303	0.592	339	0.645
16	0.600	52	0.584	88	0.747	124	0.930	160	1.000	196	0.935	232	0.759	268	0.589	304	0.594	340	0.645
17	0.598	53	0.587	89	0.753	125	0.934	161	1.000	197	0.932	233	0.754	269	0.586	305	0.596	341	0.645
18	0.596	54	0.590	90	0.759	126	0.938	162	0.999	198	0.928	234	0.748	270	0.583	306	0.598	342	0.645
19	0.594	55	0.593	91	0.765	127	0.941	163	0.999	199	0.924	235	0.742	271	0.581	307	0.600	343	0.645
20	0.592	56	0.596	92	0.771	128	0.944	164	0.999	200	0.920	236	0.737	272	0.579	308	0.603	344	0.645
21	0.590	57	0.600	93	0.777	129	0.948	165	0.998	201	0.916	237	0.731	273	0.577	309	0.605	345	0.644
22	0.589	58	0.603	94	0.783	130	0.951	166	0.998	202	0.912	238	0.726	274	0.575	310	0.607	346	0.644
23	0.587	59	0.607	95	0.789	131	0.954	167	0.998	203	0.908	239	0.720	275	0.574	311	0.609	347	0.643
24	0.586	60	0.610	96	0.795	132	0.956	168	0.997	204	0.904	240	0.714	276	0.573	312	0.611	348	0.643
25	0.584	61	0.614	97	0.801	133	0.959	169	0.996	205	0.899	241	0.709	277	0.571	313	0.614	349	0.642
26	0.583	62	0.618	98	0.806	134	0.962	170	0.996	206	0.895	242	0.703	278	0.570	314	0.616	350	0.641
27	0.582	63	0.622	99	0.812	135	0.964	171	0.995	207	0.890	243	0.698	279	0.569	315	0.618	351	0.640
28	0.581	64	0.625	100	0.817	136	0.966	172	0.994	208	0.886	244	0.692	280	0.569	316	0.619	352	0.640
29	0.580	65	0.629	101	0.823	137	0.968	173	0.993	209	0.881	245	0.687	281	0.568	317	0.621	353	0.639
30	0.579	66	0.633	102	0.828	138	0.971	174	0.992	210	0.876	246	0.682	282	0.568	318	0.623	354	0.638
31	0.578	67	0.637	103	0.834	139	0.973	175	0.990	211	0.872	247	0.676	283	0.568	319	0.625	355	0.637
32	0.577	68	0.641	104	0.839	140	0.975	176	0.989	212	0.867	248	0.671	284	0.568	320	0.627	356	0.636
33	0.576	69	0.646	105	0.844	141	0.977	177	0.987	213	0.862	249	0.666	285	0.568	321	0.628	357	0.634
34	0.575	70	0.650	106	0.849	142	0.979	178	0.985	214	0.857	250	0.661	286	0.568	322	0.630	358	0.633
35	0.574	71	0.654	107	0.854	143	0.980	179	0.983	215	0.852	251	0.656	287	0.569	323	0.632	359	0.632

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

Figure 1
Antenna Azimuthal Pattern
WTMU-LD Montgomery, AL
Facility ID 182914
Ch. 29 15 kW Directional

prepared for
Gray Television Licensee, LLC

June, 2023

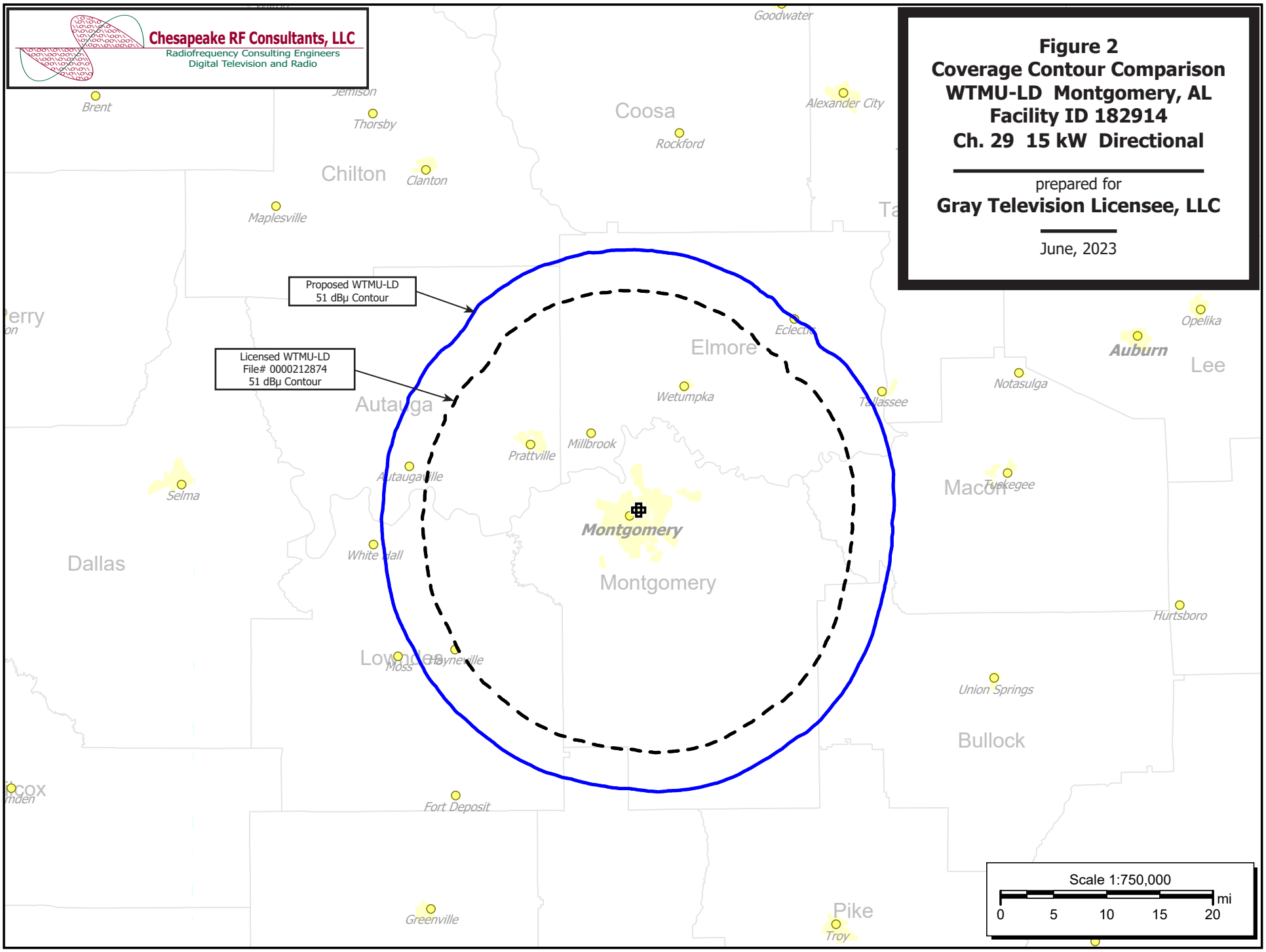

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 2
Coverage Contour Comparison
WTMU-LD Montgomery, AL
Facility ID 182914
Ch. 29 15 kW Directional
prepared for
Gray Television Licensee, LLC
June, 2023
Proposed WTMU-LD
51 dBµ Contour
Licensed WTMU-LD
File# 0000212874
51 dBµ Contour
Goodwater
Alexander City
Coosa
Rockford
Brent
Jemison
Thorsby
Chilton
Clanton
Maplesville
Elmore
Eclectic
Wetumpka
Tallassee
Opelika
Auburn
Lee
Notasulga
Prattville
Millbrook
Autaugaville
Selma
Montgomery
Macon
Tuskegee
White Hall
Dallas
Hurtsboro
Lowndes
Moss
Hayneville
Union Springs
Bullock
Fort Deposit
Greenville
Pike
Troy
Scale 1:750,000
0 5 10 15 20 mi

Table 1 WTMU-LD TVStudy Analysis of Proposal

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

tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: WTMU-LD 15kW 1.0-0.2, Model: Longley-Rice
Start: 2023.06.13 10:33:49

Study created: 2023.06.13 10:33:49

Study build station data: LMS TV 2023-06-12

Proposal: WTMU-LD D29 LD APP MONTGOMERY, AL
File number: WTMU-LD 15kW
Facility ID: 182914
Station data: User record
Record ID: 11
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	DDW15AZ	N15-	TX	APP	ALABASTER, AL	BLTTL19940809IB	106.4 km
No	DWKNI-LP	N25-	TX	APP	ANDALUSIA, AL	BLTTL20050131AAD	111.4
No	WUOA-LD	D28	LD	LIC	BIRMINGHAM, AL	BLANK0000203348	132.6
No	WMCF-TV	D28	DT	LIC	MONTGOMERY, AL	BLANK0000107502	8.9
No	WUDX-LD	D28	LD	LIC	TUSCALOOSA, AL	BLANK0000177474	213.8
No	WFSG	D28	DT	LIC	PANAMA CITY, FL	BLANK0000064507	225.7
No	WMAW-TV	D28	DT	LIC	MERIDIAN, MS	BLANK0000106235	265.2
Yes	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	132.8
Yes	WQMK-LD	D29	LD	LIC	CUSSETA, AL	BLANK0000143981	101.7
No	W29FJ-D	D29	LD	LIC	DOTHAN, AL	BLANK0000194772	136.4
Yes	WFBD	D29	DD	CP	DESTIN, FL	BLANK0000182313	181.3
Yes	WFBD	D29	DD	APP	DESTIN, FL	BLANK0000216432	181.3
No	WGFL	D29	DT	LIC	HIGH SPRINGS, FL	BLANK0000100460	467.0
No	W29FN-D	D29	LD	CP	PANAMA CITY, FL	BLANK0000216428	248.3
No	W29FN-D	D29	LD	LIC	PANAMA CITY, FL	BLANK0000212359	248.3
No	W29FO-D	D29	LD	LIC	TALLAHASSEE, FL	BLANK0000215012	288.9
No	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	256.5
No	W29DN-D	D29	LD	LIC	ATHENS, GA	BLANK0000179566	320.9
No	WYGA-CD	D29	DC	LIC	ATLANTA, GA	BLANK0000200786	235.3
No	WDZC-LD	D29	LD	LIC	AUGUSTA, GA	BLANK0000199567	374.0
No	W29FD-D	D29	LD	LIC	COLUMBUS, GA	BLANK0000095112	140.4
No	WJDO-LD	D29	LD	LIC	MACON, GA	BLANK0000186474	258.7
No	WVUE-DT	D29	DT	CP	NEW ORLEANS, LA	BLANK0000127677	440.2
No	WVUE-DT	D29	DT	LIC	NEW ORLEANS, LA	BLANK0000203686	440.2
No	W29EY-D	D29	LD	LIC	COLUMBIA, MS	BLANK0000125050	356.9
No	W29DE-D	D29	LD	LIC	HAYESVILLE, NC	BLANK0000138231	368.0
No	WTCI	D29	DT	LIC	CHATTANOOGA, TN	BLANK0000001535	328.2
No	WKOP-TV	D29	DT	LIC	KNOXVILLE, TN	BLANK0000081273	455.9
No	W29FR-D	D29	LD	LIC	LEBANON-NASHVILLE, TN	BLANK0000154284	420.1
No	WFET-LD	D29	LD	LIC	LEWISBURG, TN	BLANK0000213551	366.5
No	WKNO	D29	DT	LIC	MEMPHIS, TN	BLEDT20060627ABE	449.7
No	WIAT	D30	DT	LIC	BIRMINGHAM, AL	BLANK0000198139	132.5
No	WGIQ	D30	DT	LIC	LOUISVILLE, AL	BLANK0000067031	108.4
No	WEIQ	D30	DT	LIC	MOBILE, AL	BLANK0000111746	244.0
Yes	W30EL-D	D30	LD	LIC	MONTGOMERY, AL	BLANK0000195920	5.9
Yes	W30EL-D	D30	LD	APP	MONTGOMERY, AL	BLANK0000215013	5.9
No	WXVK-LD	N30z	TX	LIC	Columbus, GA	BLTTL19960628JF	117.6
No	WMGT-TV	D30	DT	LIC	MACON, GA	BLANK0000075816	258.5

No non-directional AM stations found within 0.8 km

Directional AM stations within 3.2 km:
WXVI 1600 L DA2 D MONTGOMERY, AL BL19790601AA
WXVI 1600 L DA2 N MONTGOMERY, AL BL19790601AA

Record parameters as studied:

Channel: D29
Mask: Full Service

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   Latitude:  32 22 27.80 N (NAD83)
  Longitude:  86 17  8.00 W
Height AMSL: 160.9 m
       HAAT: 0.0 m
   Peak ERP: 15.0 kW
    Antenna: Dielectric-TLP-8B/VP (ID 1010575) 160.0 deg
Elev Pattrn: Generic
  Elec Tilt: 0.50

50.2 dBu contour:
Azimuth      ERP       HAAT   Distance
  0.0 deg   5.97 kW   110.5 m   40.1 km
 45.0       4.95      103.4     38.5
 90.0       8.64       87.2     39.3
135.0       13.9       91.4     42.2
180.0       14.4       96.2     43.0
225.0       9.56      102.1     41.6
270.0       5.10      112.2     39.5
315.0       5.71       99.9     38.8

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m   Computed HAAT: 100 m

Distance to Canadian border: 1082.0 km

Distance to Mexican border: 1252.6 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 40.9 degrees   Distance: 220.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 302.3 degrees   Distance: 1898.0 km


Study cell size: 1.00 km
Profile point spacing: 0.20 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 BLANK0000192788 LIC scenario 1

             Call      Chan  Svc Status  City, State              File Number             Distance
Desired:     WBRC      D29   DT  LIC     BIRMINGHAM, AL           BLANK0000192788

Undesireds:  WTMU-LD   D29   LD  APP     MONTGOMERY, AL           WTMU-LD  15kW           132.8 km
             WMCF-TV   D28   DT  LIC     MONTGOMERY, AL           BLANK0000107502         133.0
             WFBD      D29   DD  CP      DESTIN, FL               BLANK0000182313         289.8
             WFXL      D29   DT  CP      ALBANY, GA               BLANK0000150485         365.3
             WYGA-CD   D29   DC  LIC     ATLANTA, GA              BLANK0000200786         227.6
             WKOP-TV   D29   DT  LIC     KNOXVILLE, TN            BLANK0000081273         380.9
             WKNO      D29   DT  LIC     MEMPHIS, TN              BLEDT20060627ABE        333.6
             WIAT      D30   DT  LIC     BIRMINGHAM, AL           BLANK0000198139           0.8

        Service area        Terrain-limited       IX-free, before        IX-free, after    Percent New IX
 35203.0   1,883,707   33575.3   1,834,738   33115.6   1,823,694   32655.6   1,818,009     1.39     0.31

Undesired                          Total IX     Unique IX, before      Unique IX, after
WTMU-LD D29 LD APP       642.1       10,416                            460.0       5,685
WMCF-TV D28 DT LIC       141.2        3,853     133.2       3,593      15.0         152
WFBD D29 DD CP           107.1          666      86.1         292      66.1         208
WFXL D29 DT CP            72.8        1,924      41.9       1,082      22.9         691
WYGA-CD D29 DC LIC        21.9          797       8.0         143       8.0         143
WKOP-TV D29 DT LIC         9.0        1,010       9.0       1,010       8.0       1,010
WKNO D29 DT LIC           87.0        2,003      86.0       1,955      86.0       1,955
WIAT D30 DT LIC           61.6        1,941      61.6       1,941      61.6       1,941

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Interference to BLANK0000192788 LIC scenario 2
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Table 1 WTMU-LD TVStudy Analysis of Proposal

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	132.8 km
	WMCF-TV	D28	DT	LIC	MONTGOMERY, AL	BLANK0000107502	133.0
	WFBD	D29	DD	APP	DESTIN, FL	BLANK0000216432	289.8
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	365.3
	WYGA-CD	D29	DC	LIC	ATLANTA, GA	BLANK0000200786	227.6
	WKOP-TV	D29	DT	LIC	KNOXVILLE, TN	BLANK0000081273	380.9
	WKNO	D29	DT	LIC	MEMPHIS, TN	BLEDT20060627ABE	333.6
	WIAT	D30	DT	LIC	BIRMINGHAM, AL	BLANK0000198139	0.8

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
35203.0	1,883,707	33575.3	1,834,738	33115.6	1,823,694	32655.6	1,818,009	1.39	0.31

Undesired		Total IX	Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	642.1	10,416			460.0	5,685
WMCF-TV D28 DT LIC	141.2	3,853	133.2	3,593	15.0	152
WFBD D29 DD APP	107.1	666	86.1	292	66.1	208
WFXL D29 DT CP	72.8	1,924	41.9	1,082	22.9	691
WYGA-CD D29 DC LIC	21.9	797	8.0	143	8.0	143
WKOP-TV D29 DT LIC	9.0	1,010	9.0	1,010	8.0	1,010
WKNO D29 DT LIC	87.0	2,003	86.0	1,955	86.0	1,955
WIAT D30 DT LIC	61.6	1,941	61.6	1,941	61.6	1,941

Interference to BLANK0000143981 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WQMK-LD	D29	LD	LIC	CUSSETA, AL	BLANK0000143981	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	101.7 km
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	162.9
	WFBD	D29	DD	CP	DESTIN, FL	BLANK0000182313	266.6
	W29FN-D	D29	LD	CP	PANAMA CITY, FL	BLANK0000216428	288.3
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	206.9
	WYGA-CD	D29	DC	LIC	ATLANTA, GA	BLANK0000200786	141.0
	W29FD-D	D29	LD	LIC	COLUMBUS, GA	BLANK0000095112	66.5
	W30EL-D	D30	LD	LIC	MONTGOMERY, AL	BLANK0000195920	107.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
3505.9	191,717	3393.7	189,253	3101.9	181,865	3079.8	180,789	0.71	0.59

Undesired		Total IX	Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	55.2	1,462			22.1	1,076
WBRC D29 DT LIC	80.2	1,482	23.1	363	19.0	297
WFXL D29 DT CP	80.2	1,512	5.0	73	5.0	73
WYGA-CD D29 DC LIC	5.0	0	0.0	0	0.0	0
W29FD-D D29 LD LIC	257.7	6,919	167.4	5,315	157.4	5,245

Interference to BLANK0000182313 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WFBD	D29	DD	CP	DESTIN, FL	BLANK0000182313	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	181.3 km
	WFSG	D28	DT	LIC	PANAMA CITY, FL	BLANK0000064507	125.4
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	289.8
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	310.6
	WVUE-DT	D29	DT	CP	NEW ORLEANS, LA	BLANK0000127677	293.6
	WEIQ	D30	DT	LIC	MOBILE, AL	BLANK0000111746	81.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
27997.7	1,084,308	27808.9	1,083,656	26078.7	958,321	26076.6	958,321	0.01	0.00

Undesired		Total IX	Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	19.2	54			2.0	0
WFSG D28 DT LIC	180.9	2,640	179.9	2,545	179.9	2,545
WBRC D29 DT LIC	88.2	214	69.9	158	53.7	104
WFXL D29 DT CP	73.9	1,048	68.8	952	68.8	952
WVUE-DT D29 DT CP	81.9	724	21.2	147	21.2	147

WEIQ D30 DT LIC	1377.2	121,382	1324.6	120,860	1324.6	120,860					

Interference to BLANK0000182313 CP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WFBD	D29	DD	CP	DESTIN, FL	BLANK0000182313	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	181.3 km
	WFSG	D28	DT	LIC	PANAMA CITY, FL	BLANK0000064507	125.4
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	289.8
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	310.6
	WVUE-DT	D29	DT	LIC	NEW ORLEANS, LA	BLANK0000203686	293.6
	WEIQ	D30	DT	LIC	MOBILE, AL	BLANK0000111746	81.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
27997.7	1,084,308	27808.9	1,083,656	26079.7	958,321	26077.7	958,321	0.01	0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	19.2	54			2.0	0
WFSG D28 DT LIC	180.9	2,640	179.9	2,545	179.9	2,545
WBRC D29 DT LIC	88.2	214	69.9	158	53.7	104
WFXL D29 DT CP	73.9	1,048	68.8	952	68.8	952
WVUE-DT D29 DT LIC	76.8	706	20.2	147	20.2	147
WEIQ D30 DT LIC	1377.2	121,382	1328.7	120,878	1328.7	120,878

Interference to BLANK0000216432 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WFBD	D29	DD	APP	DESTIN, FL	BLANK0000216432	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	181.3 km
	WFSG	D28	DT	LIC	PANAMA CITY, FL	BLANK0000064507	125.4
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	289.8
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	310.6
	WVUE-DT	D29	DT	CP	NEW ORLEANS, LA	BLANK0000127677	293.6
	WEIQ	D30	DT	LIC	MOBILE, AL	BLANK0000111746	81.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
28162.5	1,090,672	27980.8	1,090,020	26362.3	946,004	26360.3	946,004	0.01	0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	19.2	54			2.0	0
WFSG D28 DT LIC	180.9	2,640	179.9	2,545	179.9	2,545
WBRC D29 DT LIC	89.2	216	70.9	158	54.7	104
WFXL D29 DT CP	73.9	1,048	68.8	952	68.8	952
WVUE-DT D29 DT CP	71.8	226	17.2	106	17.2	106
WEIQ D30 DT LIC	1269.5	140,104	1221.0	140,039	1221.0	140,039

Interference to BLANK0000216432 APP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WFBD	D29	DD	APP	DESTIN, FL	BLANK0000216432	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	181.3 km
	WFSG	D28	DT	LIC	PANAMA CITY, FL	BLANK0000064507	125.4
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	289.8
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	310.6
	WVUE-DT	D29	DT	LIC	NEW ORLEANS, LA	BLANK0000203686	293.6
	WEIQ	D30	DT	LIC	MOBILE, AL	BLANK0000111746	81.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
28162.5	1,090,672	27980.8	1,090,020	26363.3	946,055	26361.3	946,055	0.01	0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	19.2	54			2.0	0
WFSG D28 DT LIC	180.9	2,640	179.9	2,545	179.9	2,545
WBRC D29 DT LIC	89.2	216	70.9	158	54.7	104
WFXL D29 DT CP	73.9	1,048	68.8	952	68.8	952
WVUE-DT D29 DT LIC	69.8	175	16.2	55	16.2	55
WEIQ D30 DT LIC	1269.5	140,104	1222.0	140,039	1222.0	140,039

Table 1 WTMU-LD TVStudy Analysis of Proposal

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

Interference to BLANK0000195920 LIC scenario 1
**IX: 15.72% interference caused

W30EL-D is accepting 15.72% interference --- see text

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W30EL-D	D30	LD	LIC	MONTGOMERY, AL	BLANK0000195920	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	5.9 km
	WIAT	D30	DT	LIC	BIRMINGHAM, AL	BLANK0000198139	130.9
	WGIQ	D30	DT	LIC	LOUISVILLE, AL	BLANK0000067031	112.6
	WEIQ	D30	DT	LIC	MOBILE, AL	BLANK0000111746	239.9
	W30ES-D	D30	LD	LIC	COLUMBUS, MS	BLANK0000196017	230.0
	WNCF	D31	DT	LIC	MONTGOMERY, AL	BLANK0000001319	47.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX
87.4	67,788	85.4	67,782	31.2	23,768	28.1	20,031	9.68 15.72

Undesired	Total IX		Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	39.2	37,601			3.0	3,737
WIAT D30 DT LIC	9.0	4,623	0.0	0	0.0	0
WGIQ D30 DT LIC	8.0	6,017	0.0	0	0.0	0
WEIQ D30 DT LIC	1.0	1,106	1.0	1,106	0.0	0
WNCF D31 DT LIC	53.3	42,908	39.2	33,111	18.1	10,150

Interference to BLANK0000215013 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	W30EL-D	D30	LD	APP	MONTGOMERY, AL	BLANK0000215013	
Undesireds:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	5.9 km
	WIAT	D30	DT	LIC	BIRMINGHAM, AL	BLANK0000198139	130.9
	WGIQ	D30	DT	LIC	LOUISVILLE, AL	BLANK0000067031	112.6
	WEIQ	D30	DT	LIC	MOBILE, AL	BLANK0000111746	239.9
	W30ES-D	D30	LD	LIC	COLUMBUS, MS	BLANK0000196017	230.0
	WNCF	D31	DT	LIC	MONTGOMERY, AL	BLANK0000001319	47.3

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
2979.2	330,396	2943.0	330,175	2678.7	319,796	2674.7	316,935	0.15	0.89

Undesired	Total IX		Unique IX, before		Unique IX, after	
WTMU-LD D29 LD APP	17.1	4,978			4.0	2,861
WIAT D30 DT LIC	11.0	197	6.0	196	6.0	196
WGIQ D30 DT LIC	10.0	831	4.0	787	4.0	787
WEIQ D30 DT LIC	2.0	157	1.0	157	1.0	157
WNCF D31 DT LIC	252.2	9,238	243.2	9,195	230.1	7,078

Interference to proposal scenario 1
3.32% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	
Undesireds:	WMCF-TV	D28	DT	LIC	MONTGOMERY, AL	BLANK0000107502	8.9 km
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	132.8
	WQMK-LD	D29	LD	LIC	CUSSETA, AL	BLANK0000143981	101.7
	WFBD	D29	DD	CP	DESTIN, FL	BLANK0000182313	181.3
	W29FN-D	D29	LD	CP	PANAMA CITY, FL	BLANK0000216428	248.3
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	256.5
	W29FD-D	D29	LD	LIC	COLUMBUS, GA	BLANK0000095112	140.4
	W30EL-D	D30	LD	LIC	MONTGOMERY, AL	BLANK0000195920	5.9

Service area		Terrain-limited		IX-free		Percent IX	
5164.6	355,061	5061.2	353,651	4210.4	341,920	16.81	3.32

Undesired	Total IX		Unique IX		Prcnt Unique IX	
WMCF-TV D28 DT LIC	705.0	10,413	621.7	8,744	12.28	2.47
WBRC D29 DT LIC	219.1	2,710	121.7	1,116	2.40	0.32
WQMK-LD D29 LD LIC	17.1	4	0.0	0	0.00	0.00
WFBD D29 DD CP	26.1	310	1.0	57	0.02	0.02

WFXL D29 DT CP	7.0	78	2.0	0	0.04	0.00
W29FD-D D29 LD LIC	4.0	167	1.0	0	0.02	0.00

Interference to proposal scenario 2
**MX: 3.32% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	
Undesireds:	WMCF-TV	D28	DT	LIC	MONTGOMERY, AL	BLANK0000107502	8.9 km
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	132.8
	WQMK-LD	D29	LD	LIC	CUSSETA, AL	BLANK0000143981	101.7
	WFBD	D29	DD	CP	DESTIN, FL	BLANK0000182313	181.3
	W29FN-D	D29	LD	CP	PANAMA CITY, FL	BLANK0000216428	248.3
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	256.5
	W29FD-D	D29	LD	LIC	COLUMBUS, GA	BLANK0000095112	140.4
	W30EL-D	D30	LD	APP	MONTGOMERY, AL	BLANK0000215013	5.9

Service area		Terrain-limited		IX-free		Percent IX	
5164.6	355,061	5061.2	353,651	4210.4	341,920	16.81	3.32

Undesired	Total IX		Unique IX		Prcnt Unique IX	
WMCF-TV D28 DT LIC	705.0	10,413	619.7	8,647	12.24	2.45
WBRC D29 DT LIC	219.1	2,710	121.7	1,116	2.40	0.32
WQMK-LD D29 LD LIC	17.1	4	0.0	0	0.00	0.00
WFBD D29 DD CP	26.1	310	1.0	57	0.02	0.02
WFXL D29 DT CP	7.0	78	2.0	0	0.04	0.00
W29FD-D D29 LD LIC	4.0	167	1.0	0	0.02	0.00
W30EL-D D30 LD APP	3.0	160	0.0	0	0.00	0.00

Interference to proposal scenario 3
**MX: 3.32% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	
Undesireds:	WMCF-TV	D28	DT	LIC	MONTGOMERY, AL	BLANK0000107502	8.9 km
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	132.8
	WQMK-LD	D29	LD	LIC	CUSSETA, AL	BLANK0000143981	101.7
	WFBD	D29	DD	APP	DESTIN, FL	BLANK0000216432	181.3
	W29FN-D	D29	LD	CP	PANAMA CITY, FL	BLANK0000216428	248.3
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	256.5
	W29FD-D	D29	LD	LIC	COLUMBUS, GA	BLANK0000095112	140.4
	W30EL-D	D30	LD	LIC	MONTGOMERY, AL	BLANK0000195920	5.9

Service area		Terrain-limited		IX-free		Percent IX	
5164.6	355,061	5061.2	353,651	4210.4	341,920	16.81	3.32

Undesired	Total IX		Unique IX		Prcnt Unique IX	
WMCF-TV D28 DT LIC	705.0	10,413	621.7	8,744	12.28	2.47
WBRC D29 DT LIC	219.1	2,710	121.7	1,116	2.40	0.32
WQMK-LD D29 LD LIC	17.1	4	0.0	0	0.00	0.00
WFBD D29 DD APP	26.1	310	1.0	57	0.02	0.02
WFXL D29 DT CP	7.0	78	2.0	0	0.04	0.00
W29FD-D D29 LD LIC	4.0	167	1.0	0	0.02	0.00

Interference to proposal scenario 4
**MX: 3.32% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WTMU-LD	D29	LD	APP	MONTGOMERY, AL	WTMU-LD 15kW	
Undesireds:	WMCF-TV	D28	DT	LIC	MONTGOMERY, AL	BLANK0000107502	8.9 km
	WBRC	D29	DT	LIC	BIRMINGHAM, AL	BLANK0000192788	132.8
	WQMK-LD	D29	LD	LIC	CUSSETA, AL	BLANK0000143981	101.7
	WFBD	D29	DD	APP	DESTIN, FL	BLANK0000216432	181.3
	W29FN-D	D29	LD	CP	PANAMA CITY, FL	BLANK0000216428	248.3
	WFXL	D29	DT	CP	ALBANY, GA	BLANK0000150485	256.5
	W29FD-D	D29	LD	LIC	COLUMBUS, GA	BLANK0000095112	140.4
	W30EL-D	D30	LD	APP	MONTGOMERY, AL	BLANK0000215013	5.9

Table 1 WTMU-LD TVStudy Analysis of Proposal

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

Service area		Terrain-limited		IX-free		Percent IX	
5164.6	355,061	5061.2	353,651	4210.4	341,920	16.81	3.32

Undesired		Total IX		Unique IX		Prcnt Unique IX	
WMCF-TV D28 DT LIC	705.0	10,413	619.7	8,647		12.24	2.45
WBRC D29 DT LIC	219.1	2,710	121.7	1,116		2.40	0.32
WQMK-LD D29 LD LIC	17.1	4	0.0	0		0.00	0.00
WFBD D29 DD APP	26.1	310	1.0	57		0.02	0.02
WFXL D29 DT CP	7.0	78	2.0	0		0.04	0.00
W29FD-D D29 LD LIC	4.0	167	1.0	0		0.02	0.00
W30EL-D D30 LD APP	3.0	160	0.0	0		0.00	0.00

Channel and Facility Information

Section	Question	Response
Facility ID	182914	
State	Alabama	
City	MONTGOMERY	
LPD Channel	29	

Antenna Location Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1058223
Coordinates (NAD83)	Latitude	32° 22' 27.8" N+
	Longitude	086° 17' 08.0" W-
	Structure Type	LTOWER-Lattice Tower
	Overall Structure Height	74.4 meters
	Support Structure Height	71.0 meters
	Ground Elevation (AMSL)	90.2 meters
Antenna Data	Height of Radiation Center Above Ground Level	70.7 meters
	Height of Radiation Center Above Mean Sea Level	160.9 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	1010575
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	TLP-8B/VP
	Rotation	160 degrees
	Electrical Beam Tilt	0.5
	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**	0.661	**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_A