Approved by OMB (Office of Management and Budget) 3060-0016
December 2014

Federal Communications Commission

(REFERENCE COPY - Not for submission)

Displacement for LPTV Station Application

File Number: **0000054344** | Submit Date: **05/22/2018** | Call Sign: **WMUB-LD** | Facility ID: **181177** | FRN: **0023596703**
State: **Georgia** | City: **WARNER ROBINS**
Service: **LPD** | Purpose: **Displacement BLDTL-20100924AAY** | Status: **Pending** | Status Date: **05/22/2018** | Filing Status: **Active**

General Information

Section	Question	Response
Attachments	Are attachments (other than associated schedules) being filed with this application?	Yes

Fees, Waivers, and Exemptions

Section	Question	Response
Waivers	Does this filing request a waiver of the Commission's rule(s)?	Yes
	Total number of rule sections involved in this waiver request:	1

Applicant Information

Applicant Name, Type, and Contact Information

Applicant	Address	Phone	Email	Applicant Type
THE CORPORATION OF MERCER UNIVERSITY Doing Business As: THE CORPORATION OF MERCER UNIVERSITY	1501 Mercer University Drive Macon, GA 31207 United States	+1 (478) 301-2771	SOLOMON_WG@MERCER.EDU	Private Not-for-Profit Educational Institution

Authorization Holder Name

☐ Check box if the Authorization Holder name is being updated because of the sale (or transfer of control) of the Authorization(s) to another party and for which proper Commission approval has not been received or proper notification provided.

Contact Representatives (2)

Contact Name	Address	Phone	Email	Contact Type
Margaret L. Miller Gray Miller Persh LLP	1200 New Hampshire Ave., NW Suite 410 Washington, DC 20036 United States	+1 (202) 776-2914	mmiller@graymillerpersh.com	Legal Representative
Ryan C Wilhour *Consulting Engineer* Kessler and Gehman Associates, Inc.	507 NW 60th ST STE D Gainesville, FL 32607 United States	+1 (352) 332-3157	ryan@kesslerandgehman.com	Technical Representative

Alien Ownership

Question	Response
1) Is the applicant a foreign government or the representative of any foreign government as specified in Section 310(a) of the Communications Act?	No
2) Is the applicant an alien or the representative of an alien? (Section 310(b)(1))	No
3) Is the applicant a corporation, or non-corporate entity, that is organized under the laws of any foreign government? (Section 310(b)(2))	No
4) Is the applicant an entity of which more than one-fifth of the capital stock, or other equity or voting interest, is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any entity organized under the laws of a foreign country? (Section 310(b)(3))	No
5) Is the applicant directly or indirectly controlled by any other entity of which more than one-fourth of the capital stock, or other equity or voting interest, is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any entity organized under the laws of a foreign country? (Section 310(b)(4))	No
6) Has the applicant received a declaratory ruling(s) under Section 310(b)(4) of the Communications Act?	
6a) Enter the citation of the applicable declaratory ruling by DA/FCC number, FCC Record citation, release date, or any other identifying information.	
7) Has there been any change in the applicant's foreign ownership since issuance of the declaratory ruling(s) cited in response to Question 6?	
7a) Enter the File or Docket Number of the Petition for Declaratory Ruling that the applicant has filed for its foreign ownership in connection with this application pursuant to Section 310(b)(4) of the Communications Act. It is not necessary to file a request for a foreign ownership declaratory ruling if the applicant attaches a showing that the requested authorization(s) is exempt from the provisions of Section 310(b)(4).	
8) Does the applicant certify that it is in compliance with the terms and conditions of the foreign ownership declaratory ruling(s) cited in response to Question 6?	
9) In connection with this application, is the applicant filing a foreign ownership Petition for Declaratory Ruling pursuant to Section 310(b)(4) of the Communications Act?	

Basic Qualifying Questions

Section	Question	Response
Revoked Application	Has the Applicant or any party to this application had any FCC station Authorization revoked or had any application for an initial, modification or renewal of FCC station Authorization denied by the Commission?	No
State or Federal Convictions	Has the Applicant or any party to this application, or any party directly or indirectly controlling the Applicant, ever been convicted of a felony by any state or federal court?	No

Channel and Facility Information

Section	Question	Response
Proposed Community of License	Facility ID	181177
	State	Georgia
	City	WARNER ROBINS
	LPD Channel	31

Antenna Location Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1045776
Coordinates (NAD83)	Latitude	32° 45' 52.0" N+
	Longitude	083° 33' 32.0" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	194.0 meters
	Support Structure Height	192.0 meters
	Ground Elevation (AMSL)	150.9 meters
Antenna Data	Height of Radiation Center Above Ground Level	182 meters
	Height of Radiation Center Above Mean Sea Level	332.9 meters
	Effective Radiated Power	15 kW

Antenna Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	No
	Antenna ID	1003674
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	DLP-8B
	Rotation	305 degrees
	Electrical Beam Tilt	1.5
	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	V_A (Authorized Value)	Degree	V_A (Authorized Value)	Degree	V_A (Authorized Value)	Degree	V_A (Authorized Value)
0	1.000	**90**	0.686	**180**	0.692	**270**	0.686
10	0.995	**100**	0.653	**190**	0.688	**280**	0.729
20	0.979	**110**	0.633	**200**	0.678	**290**	0.778
30	0.953	**120**	0.627	**210**	0.662	**300**	0.828
40	0.918	**130**	0.632	**220**	0.646	**310**	0.875
50	0.875	**140**	0.646	**230**	0.632	**320**	0.918
60	0.828	**150**	0.662	**240**	0.627	**330**	0.953
70	0.778	**160**	0.678	**250**	0.633	**340**	0.979
80	0.729	**170**	0.688	**260**	0.653	**350**	0.995

Additional Azimuths

Degree	V_A

Parties to the Application (0)

Information not provided.

Attributable Interest

Section	Question	Response
Equity and Financial Interests	Applicant certifies that equity and financial interests not set forth by the applicant parties are non-attributable.	
Other Authorizations	Does the applicant or any party to the application have an attributable interest in any other broadcast station(s).	

Construction Permit Certifications

Section	Question	Response
Post-Incentive Auction Expedited Processing	It will operate on the DTV channel for this station as established in the post-incentive auction channel reassignment public notice.	
	It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice.	
	It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice.	
	The antenna structure to be used by this facility has been registered by the Commission and will not require re-registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely affect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.	
Environmental Effect	Would a Commission grant of Authorization for this location be an action which may have a significant environmental effect? (See Section 1.1306 of 47 C.F.R.)	No
Broadcast Facility	The proposed facility complies with all of the following applicable rule sections. 47 C.F.R. Sections 74.709, 74.793 (e), 74.793(f), 74.793(g), 74.793(h)	Yes

Legal Certifications

Section	Question	Response
Character Issues	Applicant certifies that neither applicant nor any party to the application has or had any interest in, or connection with: (a) any broadcast application in any proceeding where character issues were left in unresolved or were resolved adversely against the applicant or party to the application; or (b) any pending broadcast application in which character issues have been raised.	
Adverse Findings	Has the Applicant or any party to this application had an adverse finding or an adverse final action taken by any court or administrative body in a civil or criminal proceeding brought under any law related to the following: any felony; mass media-related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination?	
Program Service Certification	Applicant certifies that it is cognizant of and will comply with its obligations as a Commission licensee to present a program service responsive to the issues of public concern facing the station's community of license and service area.	
Local Public Notice	Applicant certifies that it has or will comply with the public notice requirements of 47 C.F.R. Section 73.3580.	Yes
Equal Employment Opportunity (EEO)	If the applicant proposes to employ five or more full-time employees, applicant certifies that it is filing simultaneously with this application a Model EEO Program Report.	
Auction Authorization	If the application is being submitted to obtain a construction permit for which the applicant was the winning bidder in an auction, then the applicant certifies, pursuant to 47 C.F.R. Section 73.5005(a), that it has attached an exhibit containing the information required by 47 C.F.R. Sections 1.2107(d), 1.2110(i), 1.2112(a) and 1.2112(b), if applicable.	N/A
Rebroadcast Certification	(For Applicants proposing rebroadcasts that are not the licensee of the primary station) Applicant certifies that written authority has been obtained from the licensee of the station whose programs are to be retransmitted.	N/A

Certification

Section	Question	Response
General Certification Statements	The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by authorization or otherwise, and requests an Authorization in accordance with this application (See Section 304 of the Communications Act of 1934, as amended.).	
	The Applicant certifies that neither the Applicant nor any other party to the application is subject to a denial of Federal benefits pursuant to §5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. §862, because of a conviction for possession or distribution of a controlled substance. This certification does not apply to applications filed in services exempted under §1.2002(c) of the rules, 47 CFR . See §1. 2002(b) of the rules, 47 CFR §1.2002(b), for the definition of "party to the application" as used in this certification §1.2002 (c). The Applicant certifies that all statements made in this application and in the exhibits, attachments, or documents incorporated by reference are material, are part of this application, and are true, complete, correct, and made in good faith.	
Authorized Party to Sign	**FAILURE TO SIGN THIS APPLICATION MAY RESULT IN DISMISSAL OF THE APPLICATION AND FORFEITURE OF ANY FEES PAID** Upon grant of this application, the Authorization Holder may be subject to certain construction or coverage requirements. Failure to meet the construction or coverage requirements will result in automatic cancellation of the Authorization. Consult appropriate FCC regulations to determine the construction or coverage requirements that apply to the type of Authorization requested in this application. WILLFUL FALSE STATEMENTS MADE ON THIS FORM OR ANY ATTACHMENTS ARE PUNISHABLE BY FINE AND /OR IMPRISONMENT (U.S. Code, Title 18, §1001) AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, §312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, §503).	
	I certify that this application includes all required and relevant attachments.	Yes
	I declare, under penalty of perjury, that I am an authorized representative of the above-named applicant for the Authorization(s) specified above.	**James S. Netherton , PhD .** *Executive VP Admin and Finance* 05/22/2018

Attachments

File Name	Uploaded By	Attachment Type	Description
DLP-8B.pdf	Applicant	Antenna Technical Data	Antenna Technical Data
Refer to Construction Permit Certifications Attachment.txt	Applicant	Fees, Waivers and Exemptions	Refer to Construction Permit Certifications Attachment
WMUB-LD Engineering Narrative Allocation Study and RFR analysis.pdf	Applicant	Construction Permit Certifications	WMUB-LD Engineering Narrative Allocation Study and RFR analysis and wavier request

Kessler and Gehman Associates
Consultants • Broadcast • Wireless

DIGITAL TELEVISION TRANSLATOR POST TRANSITION CHANNEL DISPLACEMENT RELIEF APPLICATION FOR WMUB-LD FACILITY ID 181177

Warner Robins, GA

Prepared For:

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Prepared On:

April 25, 2018

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1.0 MINOR MODIFICATION CHANNEL DISPLACEMENT RELIEF ELIGIBILITY

The Corporation of Mercer University ("Mercer") is the licensee of a digital Low Power Television Translator Station having call sign WMUB-LD, Facility ID 181177. WMUB-LD is licensed to operate on channel 38 with an ERP of 15KW through an omni-directional antenna using a stringent Emission Mask. LPTV/translator stations that currently broadcast on channels (38-51) are automatically displaced because they are in the new 600 MHz band for mobile broadband service and thus WMUB-LD is clearly eligible to file for channel displacement relief in the April 10, 2018 through June 1, 2018 post-incentive auction special displacement window and is the purpose of the instant application.

Pursuant to 47 CFR Section 74.787(b) the instant application is considered a "minor" change because:

- The change in frequency is related to displacement relief as outlined above.
- There is no change in transmitting antenna location such that the protected contour resulting from the change does not overlap some portion of the protected contour of the authorized facilities of the existing station as illustrated in Appendix C.
- There is no change in transmitting antenna location greater than 30 miles (48km) from the reference coordinates of the existing station's antenna location.

2.0 STATION TRANSMITTER LOCATION AND ELEVATION

It is proposed to keep WMUB-LD at its licensed location on an existing tower as illustrated in Appendix A which has an FCC Antenna Structure Registration ("*ASR*") number of 1045776. The instant application does not propose to increase or modify the existing support structure and thus modification of the ASR is not necessary.

3.0 ALLOCATION ANALYSIS AND WAIVER REQUEST

Appendix B are the summarized results from TVStudy V2.2.5. As indicated the proposed facility is predicted to receive 2.49% aggregate inbound interference, which is acceptable to Mercer. Appendix B also demonstrates that the proposed facility is predicted to cause 73.50% interference to pre-transition station WDMA-CD Facility ID 21150, FCC File No.: BLDTA-20140602AAA.

Using TVStudy V2.2.5, all UHF channels were studied in detail far beyond the Channel Study data provided by the Commission released in Public Notice DA 18-124. It was determined that there are no channels available which could replicate the licensed WMUB-LD facility and comply with the provisions of 47 CFR Section 73.3700(g). TVStudy analysis has indicated that Channel 31 allows the best replication of the Channel 38 WMUB-LD licensed facility in the post transition period, even though some coverage area is lost as illustrated in Appendix C.

It is therefore respectfully requested to waive 47 CFR Section 73.3700(g)(2)(i) requiring protection to the pre-auction channel 31 WDMA-CD facility. Mercer understands and agrees to a condition that it will not begin transmitting on channel 31 prior to the discontinuation of WDMA-CD from using channel 31. Mercer also understands that if a conditionally granted WMUB-LD facility is to remain silent for a consecutive 12-month period prior to discontinuation of operation by WDMA-CD, the Commission will consider a request for extension or reinstatement pursuant to Section 312(g) of the Act and a request for waiver of the applicable Commission rule.

4.0 AM STATION PROXIMITY

No AM stations are located within 3.2 km of the proposed facility. Pursuant to 47 C.F.R. Section 1.30002(e), the construction or extension of an antenna-supporting structure shall be considered subject to the moment method analysis

and prior notification requirement; however, the instant application does not propose to extend the existing structure or build a new structure. Thus, the proposed facility is exempt from further AM analysis consideration.

5.0 INTERNATIONAL COORDINATION

The WMUB-LD transmitter site is 1496.6 km from the Mexican border and 993.6 km from the Canadian border and thus is not required to coordinate with foreign entities.

6.0 RADIO FREQUENCY RADIATION COMPLIANCE

A theoretical analysis has been conducted of the human exposure to radio frequency radiation ("RFR") using the calculation methodology described in OET Bulletin 65, Edition 97-01. The RFR analysis is conducted pursuant to the following methodology:

> Terrain[1] extraction is compiled from the proposed tower site to radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

> Starting from the origin the maximum calculated RFR value is determined among the 360 degree radials for each 0.001 mile increment, the value is

[1] Terrain extraction is based upon a 3 arc second point spacing terrain database.

then converted into a percentage of the maximum allowable general population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

The resulting RFR study in Appendix D demonstrates that the peak exposure is 0.02% of the most restrictive permissible exposure threshold. Pursuant to OET Bulletin 65 concerning multiple-user transmitter sites only those licensees whose transmitters produce power density levels greater than 5.0% of the exposure limit are considered significant contributors to RFR. Since the proposed operation is within 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR exposure. Thus, contributions to exposure from other RF sources in the vicinity of the proposed facility were not taken into account. The instant application is compliant with the FCC limits for human exposure to RF radiation and is excluded from further environmental processing since no changes are proposed to the tower structure in order to accommodate the proposed antenna.

A chain link fence encloses the support structure and the applicant will cooperate with any other users of the tower by reducing the power to the antenna or if necessary completely cutting it off to protect maintenance workers on the tower.

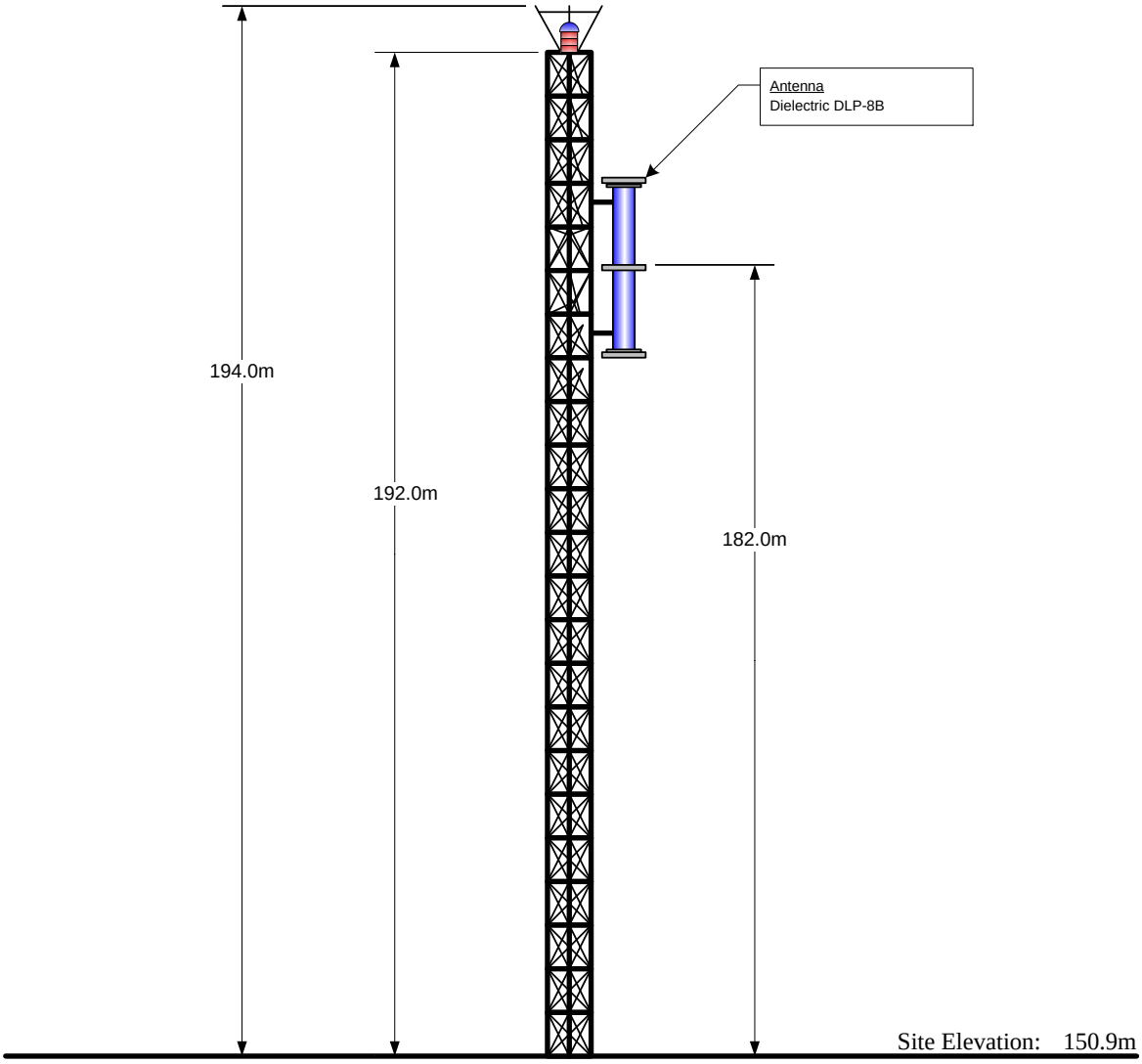
7.0 CERTIFICATION

The foregoing statement and the report regarding the engineering work are true and correct to the best of my knowledge. Executed April 25, 2018.

Kessler and Gehman Associates, Inc.

Ryan Wilhour
Consulting Engineer

APPENDIX A – Tower Elevation Diagram



Antenna CRAGL:	182.0 m
Antenna CRAMSL:	332.9 m
Antenna HAAT:	222.1 m

NAD 83 Coordinates:

N. Latitude:	32° 45' 52.0"
W. Longitude:	83° 33' 32.0"

FCC Tower Registration Number:	1045776
FAA Study Number	97-ASO-6564-OE

NOTE: NOT TO SCALE

APPENDIX B – TVStudy V2.2.5 Allocation Analysis

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Study created: 2018.04.25 09:16:44

Study build station data: LMS TV 2018-04-25

    Proposal: WMUB-LD D31 LD LIC WARNER ROBINS, GA
 File number: WMUB Channel 31
 Facility ID: 181177
Station data: User record
   Record ID: 3019
     Country: U.S.

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

Search options:
Non-U.S. records included

Stations potentially affected by proposal:
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IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	W30BD	N30z	TX	LIC	EUFAULA, AL	BLTTL19960628JF	178.3 km
No	WGIQ	D30	DT	CP	LOUISVILLE, AL	BLANK0000027851	211.2
No	WGIQ	D30	DT	BL	LOUISVILLE, AL	DTVBL710	211.2
Yes	WLGA	D30	DT	LIC	OPELIKA, AL	BLCDT20140827ABB	125.5
No	WTBS-LD	D30	LD	LIC	ATLANTA, GA	BLDTL20110105ABR	136.7
No	WAGT-CD	D30	DC	APP	AUGUSTA, GA	BLANK0000048939	175.8
Yes	WMGT-TV	D30	DT	CP	MACON, GA	BLANK0000026604	1.3
Yes	WMGT-TV	D30	DT	BL	MACON, GA	DTVBL43847	1.3
No	W30DW-D	D30	LD	LIC	TIFTON, GA	BLDTT20141124ARP	151.6
No	WYFF	D30	DT	CP	GREENVILLE, SC	BLANK0000034525	275.3
No	WYFF	D30	DT	BL	GREENVILLE, SC	DTVBL53905	275.3
No	WAXC-LD	D31	LD	LIC	ALEXANDER CITY, AL	BLDTL20110329ABN	223.5
No	WSFG-LD	D31	LD	APP	BERRY, AL	BLANK0000029418	386.4
No	W31EB-D	D31	LD	CP	MIDLAND CITY, AL	BNPDTL20100510ALJ	244.4
No	WNCF	D31	DT	LIC	MONTGOMERY, AL	BLANK0000001319	309.6
No	WPAN	D31	DT	BL	FORT WALTON BEACH, FL	DTVBL31570	417.9
No	NEW	D31	LD	APP	MADISON, FL	BNPDTL20090825AHL	260.4
No	WOGX	D31	DT	LIC	OCALA, FL	BLCDT20020730ABS	396.2
No	WSRE	D31	DT	LIC	PENSACOLA, FL	BLEDT20060621AAS	451.5
No	WDDM-LD	D31	LD	LIC	TALLAHASSEE, FL	BLANK0000001335	285.3
No	W31DS-D	D31	LD	CP	ASHBURN, GA	BNPDTL20100510ABE	114.0
Yes	WPCH-TV	D31	DT	CP	ATLANTA, GA	BLANK0000025264	136.7
Yes	WSB-TV	D31	LD	LIC	ATLANTA, GA	BLCDT20100429ADZ	131.3
Yes	WPCH-TV	D31	DT	BL	ATLANTA, GA	DTVBL64033	136.7
Yes	WFXG	D31	DT	LIC	AUGUSTA, GA	BLANK0000013467	176.2
Yes	WDMA-CD	D31	DC	LIC	MACON, GA	BLDTA20140602AAA	13.5
Yes	WPXA-TV	D31	DT	LIC	ROME, GA	BLANK0000001920	199.6
Yes	WSWG	D31	DT	CP	VALDOSTA, GA	BLANK0000034639	178.0
No	W31EE-D	D31	LD	CP	VALDOSTA, GA	BNPDTL20090825CAJ	218.8
Yes	WSWG	D31	DT	BL	VALDOSTA, GA	DTVBL28155	178.0
No	W31DH-D	D31	LD	LIC	FRANKLIN, ETC, NC	BLDTT20090615AAP	285.7
No	W31AZ-D	D31	LD	LIC	HENDERSONVILLE, NC	BLANK0000011016	294.3
No	W31AZ-D	N31-	TX	LIC	HENDERSONVILLE, NC	BLTTL19940525JJ	294.3
No	WUNU	D31	DT	LIC	LUMBERTON, NC	BLEDT20091113ABG	474.3
No	W31AN-D	D31	LD	LIC	MURPHY, NC	BLDTT20090615AAV	261.2
No	W31DI-D	D31	LD	LIC	SPRUCE PINE, NC	BLDTT20090506ABZ	371.1
No	WJNI-LD	D31	LD	LIC	NORTH CHARLESTON, SC	BLDTL20100916ADG	323.2
No	W31DY-D	D31	LD	CP	PICKENS, SC	BDCCDTT20120614AAI	264.1
No	WKTC	D31	DT	CP	SUMTER, SC	BLANK0000027544	299.6
No	WKTC	D31	DT	BL	SUMTER, SC	DTVBL40902	299.6
No	WBXX-TV	D31	DT	CP	CROSSVILLE, TN	BLANK0000025087	378.6
No	WBXX-TV	D31	DT	BL	CROSSVILLE, TN	DTVBL72971	378.6
No	WAXC-LD	D32	LD	CP	ALEXANDER CITY, AL	BDISDTL20120831ABQ	223.5
No	WSB-TV	D32	DT	CP	ATLANTA, GA	BLANK0000025134	133.9
No	WSB-TV	D32	DT	APP	ATLANTA, GA	BLANK0000034812	133.9
No	WSB-TV	D32	DT	BL	ATLANTA, GA	DTVBL23960	133.8

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No   W32DU-D   D32        LD  CP      Columbus, GA             BLANK0000009479         159.3
No   W32DU-D   D32        LD  LIC     Columbus, GA             BLDTL20140226AGL        156.6
Yes  WPGA-TV   D32        DT  LIC     PERRY, GA                BLCDT20071213AAD          1.5
No   WJWJ-TV   D32        DT  CP      BEAUFORT, SC             BLANK0000025030         269.1
No   WJWJ-TV   D32        DT  BL      BEAUFORT, SC             DTVBL61007              269.1
No   WDYH-LD   D32        LD  APP     Columbia, SC             BLANK0000051602         176.1

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

    Channel: D31
       Mask: Full Service
   Latitude:  32 45 52.00 N (NAD83)
  Longitude:  83 33 32.00 W
Height AMSL: 332.9 m
       HAAT: 222.1 m
   Peak ERP: 15.0 kW
    Antenna: Dielectric DLP-8B 305.0 deg
Elev Pattrn: Generic
  Elec Tilt: 1.50

50.4 dBu contour:
Azimuth      ERP       HAAT   Distance
  0.0 deg   10.9 kW   203.9 m   49.1 km
 45.0       6.40      206.6     46.5
 90.0       6.42      195.0     45.9
135.0       7.10      212.0     47.3
180.0       5.94      250.1     48.5
225.0       7.97      239.7     49.5
270.0       13.1      248.3     52.5
315.0       14.9      221.4     51.6

Distance to Canadian border: 993.6 km

Distance to Mexican border: 1496.6 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 318.8 degrees   Distance: 163.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 299.1 degrees   Distance: 2095.7 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%

**IX check failure to BLDTA20140602AAA LIC scenario 1, 73.50% interference caused

---- Below is IX received by proposal WMUB Channel 31 ----

Proposal receives 2.49% interference from scenario 1
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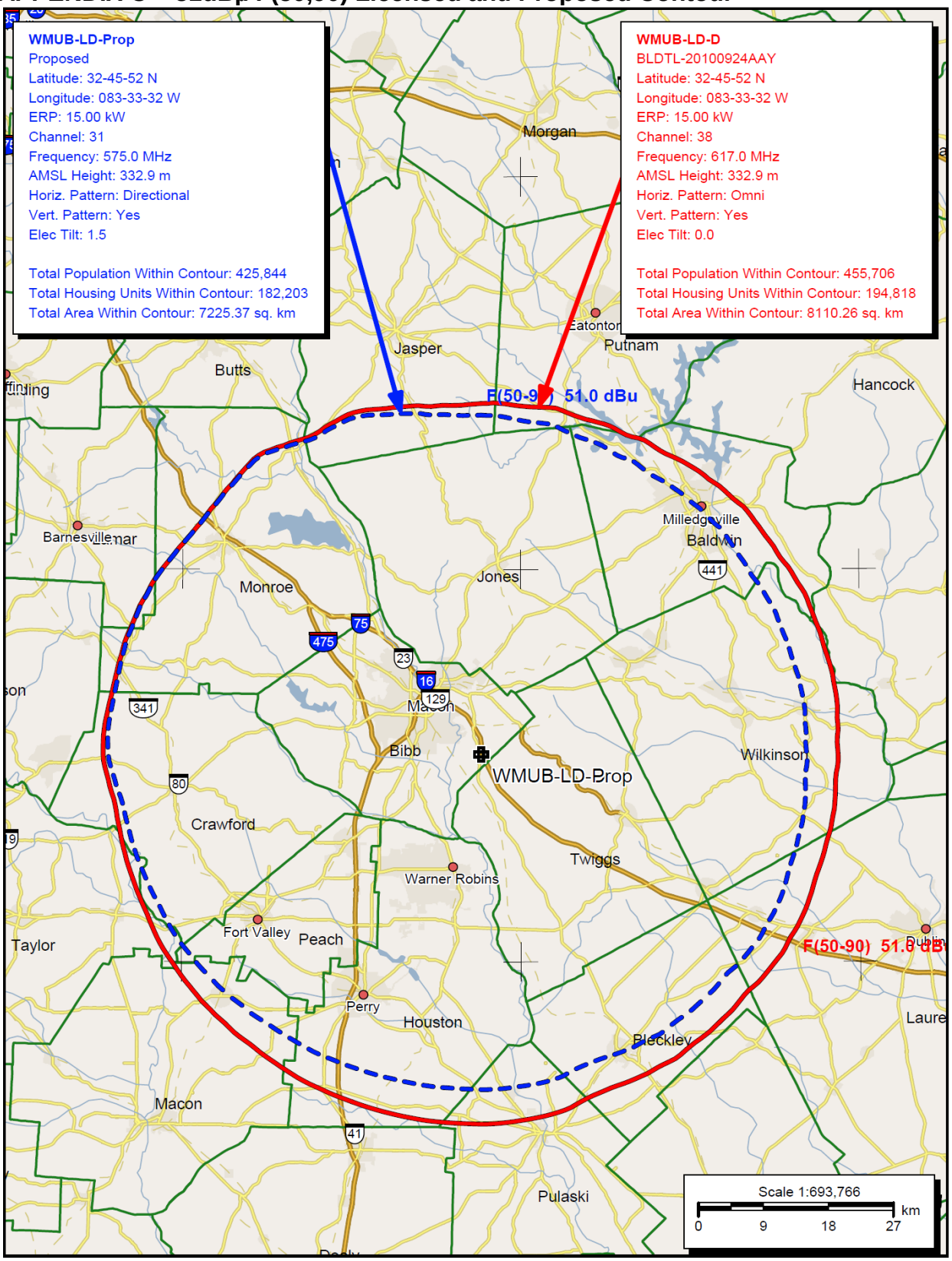
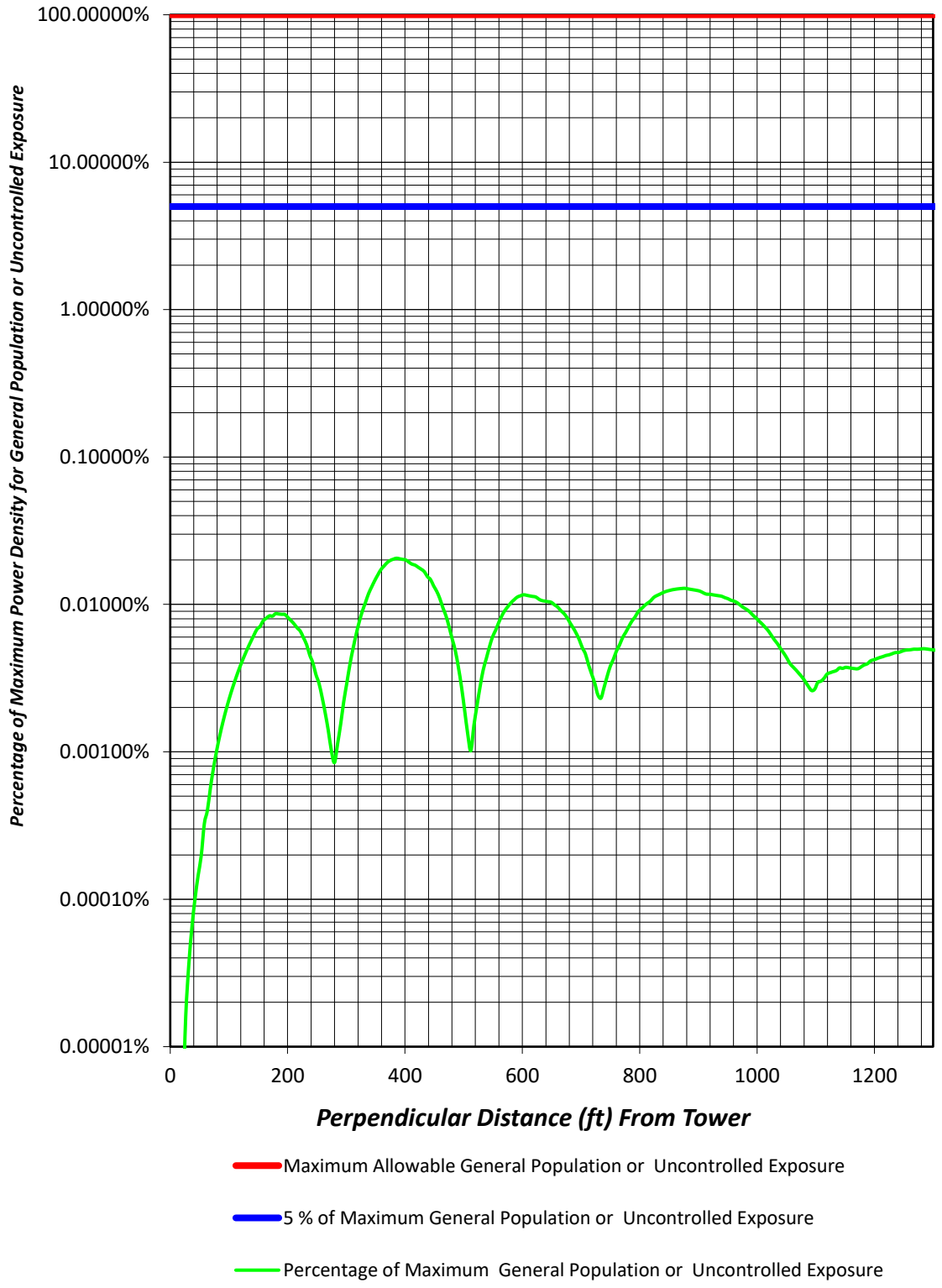
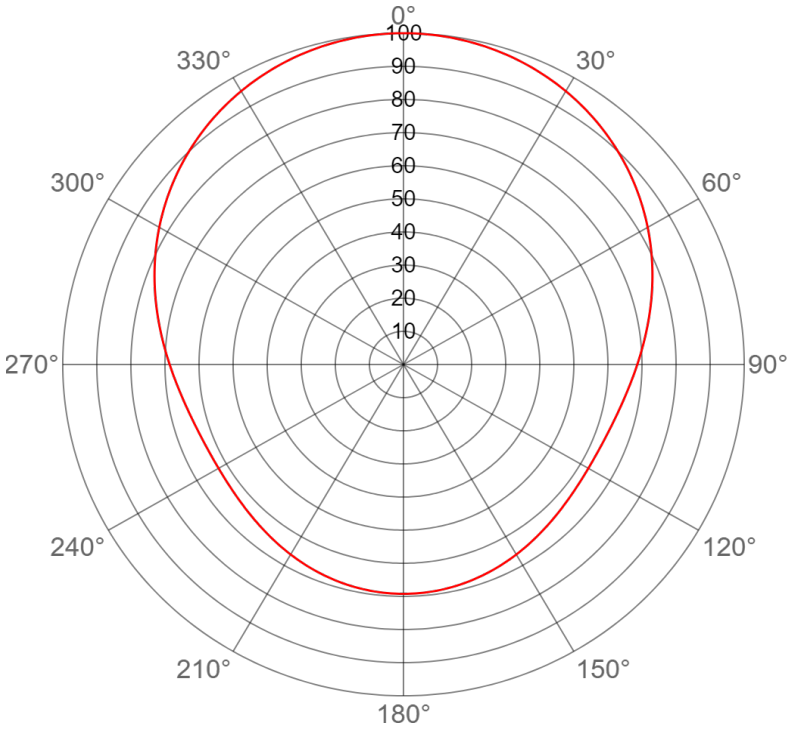
APPENDIX C – 51dBμ F(50,90) Licensed and Proposed Contour



APPENDIX D – Far Field Exposure to RF Emissions





Horizontal Polarization
AZIMUTH PATTERN

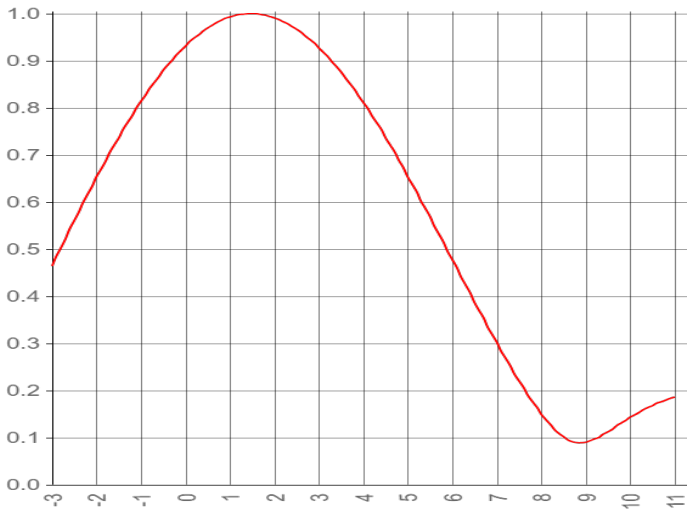
Exhibit No.	
Date	**24 Apr 2018**
Call Letters	**WMUB-LD**
Channel	**31**
Antenna Type	**DLP-8B**
Location	**Warner Robins, GA**
Customer	**The Corporation Of Mercer University**
Gain	**1.7 (2.30 dB)**
	Calculated
Drawing #	**b-pattern**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.933	72	0.768	108	0.636	144	0.652	180	0.692	216	0.652	252	0.636	288	0.768	324	0.933
1	1.000	37	0.929	73	0.763	109	0.635	145	0.654	181	0.692	217	0.650	253	0.638	289	0.773	325	0.936
2	1.000	38	0.925	74	0.758	110	0.633	146	0.655	182	0.692	218	0.649	254	0.639	290	0.778	326	0.940
3	0.999	39	0.922	75	0.753	111	0.632	147	0.657	183	0.692	219	0.647	255	0.641	291	0.783	327	0.943
4	0.999	40	0.918	76	0.748	112	0.631	148	0.659	184	0.692	220	0.646	256	0.643	292	0.788	328	0.946
5	0.999	41	0.914	77	0.743	113	0.630	149	0.661	185	0.691	221	0.644	257	0.646	293	0.793	329	0.950
6	0.998	42	0.910	78	0.738	114	0.629	150	0.662	186	0.691	222	0.642	258	0.648	294	0.798	330	0.953
7	0.997	43	0.906	79	0.734	115	0.628	151	0.664	187	0.690	223	0.641	259	0.651	295	0.803	331	0.956
8	0.997	44	0.902	80	0.729	116	0.628	152	0.666	188	0.690	224	0.639	260	0.653	296	0.808	332	0.959
9	0.996	45	0.897	81	0.724	117	0.627	153	0.667	189	0.689	225	0.638	261	0.656	297	0.813	333	0.962
10	0.995	46	0.893	82	0.720	118	0.627	154	0.669	190	0.689	226	0.637	262	0.659	298	0.818	334	0.964
11	0.993	47	0.889	83	0.715	119	0.627	155	0.670	191	0.688	227	0.635	263	0.662	299	0.823	335	0.967
12	0.992	48	0.884	84	0.711	120	0.627	156	0.672	192	0.687	228	0.634	264	0.665	300	0.828	336	0.970
13	0.991	49	0.880	85	0.707	121	0.627	157	0.673	193	0.686	229	0.633	265	0.668	301	0.833	337	0.972
14	0.990	50	0.875	86	0.702	122	0.627	158	0.675	194	0.685	230	0.632	266	0.672	302	0.837	338	0.974
15	0.988	51	0.871	87	0.698	123	0.627	159	0.676	195	0.684	231	0.631	267	0.675	303	0.842	339	0.977
16	0.986	52	0.866	88	0.694	124	0.628	160	0.678	196	0.683	232	0.630	268	0.679	304	0.847	340	0.979
17	0.985	53	0.861	89	0.690	125	0.628	161	0.679	197	0.682	233	0.629	269	0.682	305	0.852	341	0.981
18	0.983	54	0.857	90	0.686	126	0.629	162	0.680	198	0.680	234	0.629	270	0.686	306	0.857	342	0.983
19	0.981	55	0.852	91	0.682	127	0.629	163	0.682	199	0.679	235	0.628	271	0.690	307	0.861	343	0.985
20	0.979	56	0.847	92	0.679	128	0.630	164	0.683	200	0.678	236	0.628	272	0.694	308	0.866	344	0.986
21	0.977	57	0.842	93	0.675	129	0.631	165	0.684	201	0.676	237	0.627	273	0.698	309	0.871	345	0.988
22	0.974	58	0.837	94	0.672	130	0.632	166	0.685	202	0.675	238	0.627	274	0.702	310	0.875	346	0.990
23	0.972	59	0.833	95	0.668	131	0.633	167	0.686	203	0.673	239	0.627	275	0.707	311	0.880	347	0.991
24	0.970	60	0.828	96	0.665	132	0.634	168	0.687	204	0.672	240	0.627	276	0.711	312	0.884	348	0.992
25	0.967	61	0.823	97	0.662	133	0.635	169	0.688	205	0.670	241	0.627	277	0.715	313	0.889	349	0.993
26	0.964	62	0.818	98	0.659	134	0.637	170	0.689	206	0.669	242	0.627	278	0.720	314	0.893	350	0.995
27	0.962	63	0.813	99	0.656	135	0.638	171	0.689	207	0.667	243	0.627	279	0.724	315	0.897	351	0.996
28	0.959	64	0.808	100	0.653	136	0.639	172	0.690	208	0.666	244	0.628	280	0.729	316	0.902	352	0.997
29	0.956	65	0.803	101	0.651	137	0.641	173	0.690	209	0.664	245	0.628	281	0.734	317	0.906	353	0.997
30	0.953	66	0.798	102	0.648	138	0.642	174	0.691	210	0.662	246	0.629	282	0.738	318	0.910	354	0.998
31	0.950	67	0.793	103	0.646	139	0.644	175	0.691	211	0.661	247	0.630	283	0.743	319	0.914	355	0.999
32	0.946	68	0.788	104	0.643	140	0.646	176	0.692	212	0.659	248	0.631	284	0.748	320	0.918	356	0.999
33	0.943	69	0.783	105	0.641	141	0.647	177	0.692	213	0.657	249	0.632	285	0.753	321	0.922	357	0.999
34	0.940	70	0.778	106	0.639	142	0.649	178	0.692	214	0.655	250	0.633	286	0.758	322	0.925	358	1.000
35	0.936	71	0.773	107	0.638	143	0.650	179	0.692	215	0.654	251	0.635	287	0.763	323	0.929	359	1.000

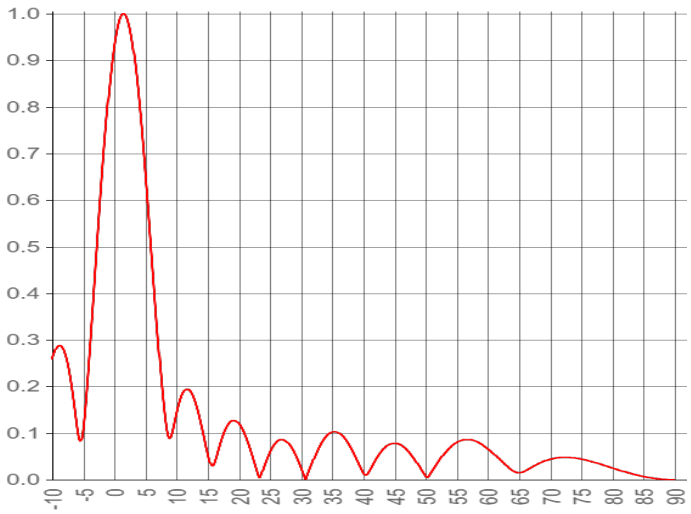
ELEVATION PATTERN

Exhibit No.	
Date	**24 Apr 2018**
Call Letters	**WMUB-LD**
Channel	**31**
Antenna Type	**DLP-8B**
Location	**Warner Robins, GA**
Customer	**The Corporation Of Mercer University**

RMS Gain at Main Lobe	**8.0 (9.03 dB)**	Beam Tilt	**1.5 Degrees**
RMS Gain at Horizontal	**6.9 (8.42 dB)**	Drawing #	
	Calculated		



Degrees below horizontal



Degrees below horizontal

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10	0.258	10	0.143	30	0.025	50	0.007	70	0.044
-9	0.287	11	0.186	31	0.010	51	0.018	71	0.047
-8	0.273	12	0.193	32	0.044	52	0.038	72	0.048
-7	0.213	13	0.166	33	0.073	53	0.056	73	0.048
-6	0.117	14	0.115	34	0.093	54	0.070	74	0.047
-5	0.111	15	0.056	35	0.102	55	0.080	75	0.044
-4	0.271	16	0.034	36	0.101	56	0.085	76	0.041
-3	0.464	17	0.078	37	0.088	57	0.086	77	0.038
-2	0.652	18	0.112	38	0.068	58	0.083	78	0.034
-1	0.814	19	0.127	39	0.041	59	0.076	79	0.029
0	0.932	20	0.120	40	0.015	60	0.066	80	0.025
1	0.993	21	0.095	41	0.020	61	0.055	81	0.021
2	0.991	22	0.058	42	0.044	62	0.042	82	0.017
3	0.928	23	0.015	43	0.063	63	0.030	83	0.013
4	0.811	24	0.027	44	0.074	64	0.019	84	0.010
5	0.655	25	0.060	45	0.078	65	0.015	85	0.007
6	0.478	26	0.080	46	0.075	66	0.019	86	0.004
7	0.301	27	0.086	47	0.064	67	0.027	87	0.003
8	0.150	28	0.077	48	0.048	68	0.034	88	0.001
9	0.090	29	0.055	49	0.028	69	0.040	89	0.000

System Summary

Exhibit No.	
Date	**24 Apr 2018**
Call Letters	**WMUB-LD**
Channel	**31**
Antenna Type	**DLP-8B**
Location	**Warner Robins, GA**
Customer	**The Corporation Of Mercer University**

Antenna

ERP:	15.0 kW (11.76 dBk)
Peak Gain*:	13.6 (11.34 dB)

Antenna Input Power:

1.1 kW

Transmission Line

Type:	Flexline Air		
Size:	2-1/4"		
Impedance:	50 ohm		
Length:	660 ft (201.2 m)	Attenuation:	2.9 dB
		Efficiency:	51.85 %

Transmitter Output

2.1 kW (3.28 dBk)

* Gain is with respect to half wave dipole.

Mechanicals

Exhibit No.	
Date	**24 Apr 2018**
Call Letters	**WMUB-LD**
Channel	**31**
Antenna Type	**DLP-8B**
Location	**Warner Robins, GA**
Customer	**The Corporation Of Mercer University**

Preliminary Specifications

Side Mounted

Mechanical Specification without ice TIA-222-G

Basic Wind Speed	90 mph

Mechanical Specification with ice TIA-222-G

Ice Design:	0.5 in.
Basic Wind Speed	40 mph
Structure Class	II
Exposure Category	C
Topography Category	1

Mechanical Specifications		**without ice**	**with ice**
Height less Lightning Protector	(H2)	15.9 ft (4.9 m)	
Center of Radiation	(H3)	9.0 ft (2.7 m)	
Effective Projected Area	(EPA)s	8.4 ft² (2.5 m²)	16.4 ft² (5.0 m²)
Weight	W	60.0 lbs	180.3 lbs