

ENGINEERING EXHIBIT

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

prepared for

Gray Television Licensee, LLC

W33EV-D Valdosta, GA

Facility ID 186180

Ch. 33 15 kW Nondirectional

Gray Television Licensee, LLC (“Gray”) is the licensee of digital Low Power Television station W33EV-D, Channel 33, Facility ID 186180, Valdosta GA. W33EV-D is licensed to operate at 8 kW effective radiated power (“ERP”) with a directional antenna (file# 0000194524, granted July 22, 2022). *Gray* proposes herein a minor modification Construction Permit to relocate W33EV-D and to utilize a nondirectional antenna at increased ERP and height.

As proposed herein, W33EV-D will employ an antenna to be side-mounted on the tower structure associated with FCC Antenna Structure Registration number 1013490, located 47.7 km (29.7 miles) from the licensed site. No change to the overall structure height is proposed.

The proposed nondirectional antenna is a Dielectric model TLP-12A/VP-R 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. Figure 1 depicts the coverage contour of the proposed facility as well as that of the licensed facility, demonstrating compliance with §73.3572 for a minor change.

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

¹FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 (“OET-69”). This analysis employed the FCC’s current “TVStudy” software with the default application processing template settings, 1 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.

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 $2.0 \mu\text{W}/\text{cm}^2$, which is 0.5 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.

List of Attachments

Figure 1	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 15, 2023
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Figure 1
Coverage Contour Comparison
W33EV-D Valdosta, GA
Facility ID 186180
Ch. 33 15 kW Nondirectional

prepared for
Gray Television Licensee, LLC

June, 2023

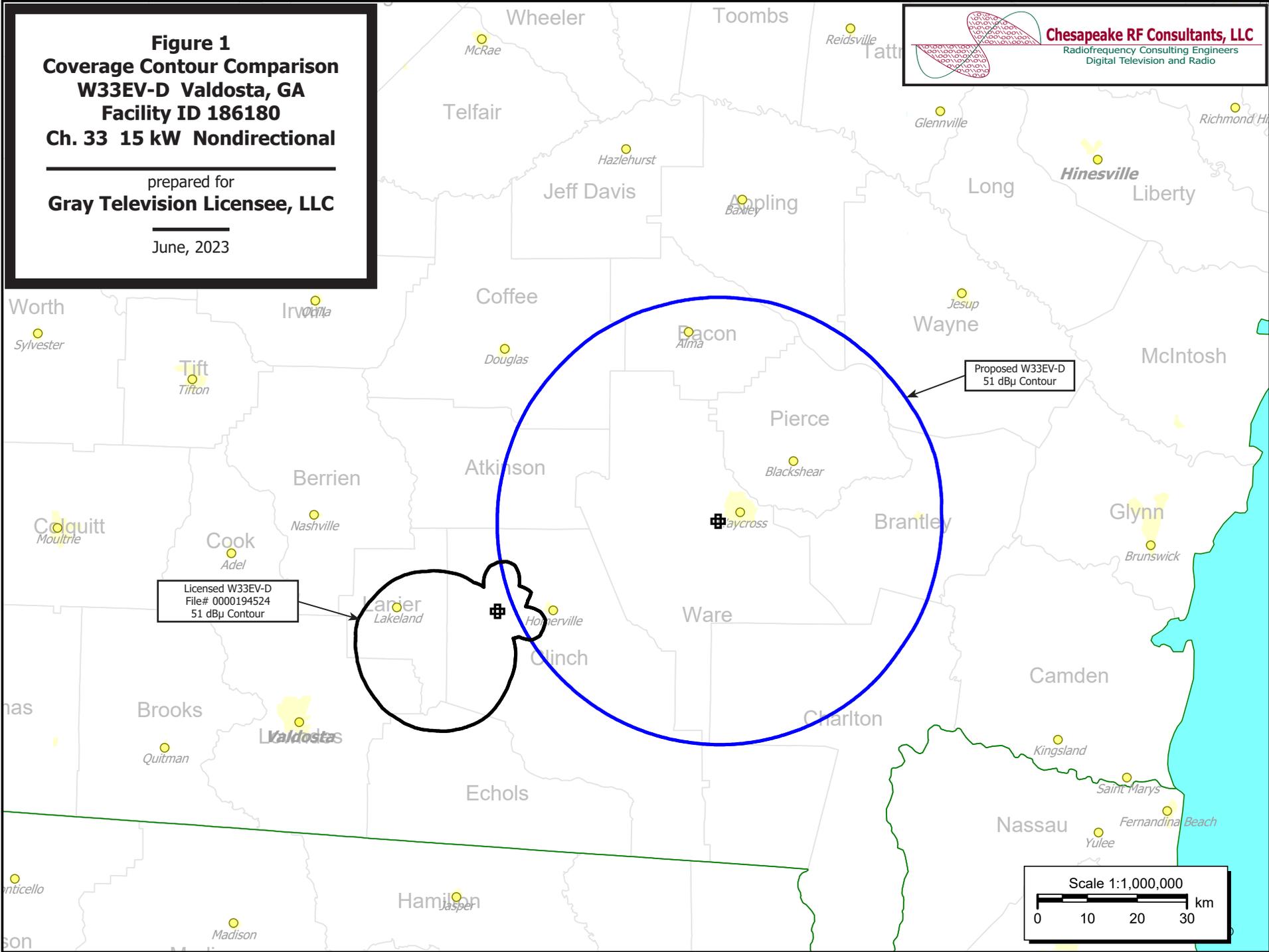


Table 1 W33EV-D TVStudy Analysis of Proposal
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tvstudy v2.2.5 (4uoc83)
 Database: localhost, Study: W33EV-D 1013490 385ft, Model: Longley-Rice
 Start: 2023.06.14 16:35:16

Study created: 2023.06.14 16:35:16

Study build station data: LMS TV 2023-06-14

Proposal: W33EV-D D33 LD APP VALDOSTA, GA
 File number: W33EV-D 1013490 385ft
 Facility ID: 186180
 Station data: User record
 Record ID: 14
 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	WACX-LD	D32	LD	LIC	ALACHUA, ETC., FL	BLANK0000120906	175.0 km
No	W5OCO	D32-	LD	CP	JACKSONVILLE, FL	BLANK0000149468	129.7
No	WFSU-TV	D32	DT	LIC	TALLAHASSEE, FL	BLEDT20030730ACW	230.7
No	W32FK-D	D32	LD	LIC	VALDOSTA, GA	BLANK0000196007	77.8
No	W32FK-D	D32	LD	APP	VALDOSTA, GA	BLANK0000202093	77.8
No	WJWJ-TV	D32	DT	LIC	BEAUFORT, SC	BLANK0000100564	233.7
No	WFRZ-LD	D33	LD	LIC	MONTGOMERY, AL	BLANK0000081666	382.8
No	WDFX-TV	D33	DT	LIC	OZARK, AL	BLANK0000207078	305.4
No	WXCK-LD	D33	LD	LIC	CHIEFLAND, FL	BLANK0000151345	195.8
No	WXCK-LD	N33	TX	LIC	CHIEFLAND, FL	BLTTL199604151C	195.8
No	WUJF-LD	D33	LD	LIC	JACKSONVILLE, FL	BLANK0000164521	129.9
No	W33EN-D	D33	LD	CP	MADISON, FL	BNPDTL20090825AHE	139.9
No	WOFL	D33	DT	LIC	ORLANDO, FL	BLANK0000216446	314.8
No	WPCT	D33	DT	LIC	PANAMA CITY BEACH, FL	BLANK0000062892	342.1
No	WNXG-LD	D33	LD	LIC	TALLAHASSEE, FL	BLANK0000129630	185.3
No	WGCT-LD	D33	LD	LIC	Tampa, FL	BLANK0000059159	372.5
No	W33EU-D	D33	LD	LIC	ATHENS, GA	BLANK0000197450	325.0
No	WIRE-CD	D33	DC	LIC	ATLANTA, GA	BLANK0000130086	337.5
No	W33ER-D	D33	LD	CP	AUGUSTA, GA	BLANK0000212489	259.9
No	W33ER-D	D33	LD	LIC	AUGUSTA, GA	BLANK0000194479	240.7
No	WCAC-LD	D33	LD	LIC	LAGRANGE, GA	BLDTL20130411AAA	322.0
No	WGNM	D33	DT	LIC	MACON, GA	BLANK0000113679	205.6
No	WDID-LD	D33	LD	LIC	SAVANNAH, GA	BLANK0000106516	143.0
No	WTSG-LD	D33	LD	LIC	Tifton, GA	BLANK0000202617	139.6
No	WRLK-TV	D33	DT	LIC	COLUMBIA, SC	BLANK0000111852	352.4
No	WNGS-LD	D33	LD	LIC	GREENVILLE, SC	BLANK0000059653	416.1
No	WBXJ-CD	D34	DC	LIC	JACKSONVILLE, ETC., FL	BLANK0000108581	129.9
No	W34FW-D	D34	LD	LIC	JASPER, FL	BLANK0000198529	125.6
No	WSST-TV	D34	DT	LIC	CORDELE, GA	BLANK0000064103	153.9
No	W34FX-D	D34	LD	LIC	MONTROSE, GA	BLANK0000194505	140.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D33
 Mask: Full Service
 Latitude: 31 11 49.70 N (NAD83)
 Longitude: 82 24 2.40 W
 Height AMSL: 160.0 m
 HAAT: 0.0 m
 Peak ERP: 15.0 kW
 Antenna: Omnidirectional
 Elec Pattn: Generic
 Elec Tilt: 0.50

50.6 dBu contour:

Table 1 W33EV-D TVStudy Analysis of Proposal
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Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	121.7 m	45.2 km
45.0	15.0	121.7	45.2
90.0	15.0	120.2	45.1
135.0	15.0	119.5	45.1
180.0	15.0	118.9	45.0
225.0	15.0	116.3	44.8
270.0	15.0	113.4	44.6
315.0	15.0	116.2	44.8

Database HAAT does not agree with computed HAAT
 Database HAAT: 0 m Computed HAAT: 119 m

Distance to Canadian border: 1164.8 km

Distance to Mexican border: 1530.1 km

Conditions at FCC monitoring station: Powder Springs GA
 Bearing: 324.3 degrees Distance: 367.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
 Bearing: 302.1 degrees Distance: 2278.4 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 proposal scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance	
	W33EV-D	D33	LD	APP	VALDOSTA, GA	W33EV-D 1013490	385ft	
Undesireds:	W32FK-D	D32	LD	LIC	VALDOSTA, GA	BLANK0000196007	77.8 km	
	WXCK-LD	D33	LD	LIC	CHIEFLAND, FL	BLANK0000151345	195.8	
	WUJF-LD	D33	LD	LIC	JACKSONVILLE, FL	BLANK0000164521	129.9	
	W33ER-D	D33	LD	CP	AUGUSTA, GA	BLANK0000212489	259.9	
	Service area		Terrain-limited		IX-free	Percent IX		
	6373.6	90,998	6373.6	90,998	6371.6	90,998	0.03 0.00	
Undesired				Total IX		Unique IX	Prcnt Unique IX	
WUJF-LD	D33	LD	LIC	2.0	0	2.0	0	0.03 0.00

**Channel and
Facility
Information**

Section	Question	Response
Facility ID	186180	
State	Georgia	
City	VALDOSTA	
LPD Channel	33	

**Antenna Location
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1013490
Coordinates (NAD83)	Latitude	31° 11' 49.7" N+
	Longitude	082° 24' 02.4" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	124.9 meters
	Support Structure Height	121.9 meters
	Ground Elevation (AMSL)	42.7 meters
Antenna Data	Height of Radiation Center Above Ground Level	117.3 meters
	Height of Radiation Center Above Mean Sea Level	160.0 meters
	Effective Radiated Power	15 kW

**Antenna
Technical Data**

Section	Question	Response
Antenna Type	Antenna Type	Non-Directional
	Do you have an Antenna ID?	
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	Dielectric
	Model	TLP-12A/VP-R
	Rotation	
	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