

**TECHNICAL STATEMENT
RE: CONSTRUCTION PERMIT CERTIFICATIONS
WVUA-CD 15 KW-ND 258.7 M AMSL CH. 23
TUSCALOOSA/NORTHPORT, ALABAMA**

INTRODUCTION

The Board of Trustees of the University of Alabama (the “Trustees”), the licensee of Class A television station WVUA-CD Channel 23, Facility ID No. 70429, seeks to update the station’s technical parameters to reflect corrections that have been made to the tower registration and also to cover the replacement of the station’s horizontally polarized nondirectional antenna with one that is elliptically polarized. No other technical modifications are specified and, thus, this application is eligible for processing as a minor modification.¹

All calculations, elevations and other technical data provided herein have been determined in accordance with the technical standards of the Federal Communications Commission (FCC), unless specifically stated otherwise

BROADCAST FACILITY

As stated above, the Trustees seek to update WVUA-CD’s technical parameters to reflect certain corrections that have been made to the ASR record associated with the station’s tower.² To begin with, the station’s antenna location is being updated to match the new geographical site coordinates of the registered tower, which involves a change of more than three seconds.³ The Trustees also seek to replace WVUA-CD’s horizontally polarized nondirectional antenna with a new nondirectional antenna that is elliptically polarized. The new antenna is an ERI Model

¹ See 47 CFR § 73.7572(a) – Processing of TV broadcast, Class A TV broadcast, low power TV, TV translators, and TV booster applications.

² WVUA-CD’s tower is associated with Antenna Structure Registration (ASR) No. 1065251.

³ WVUA-CD’s current station license (File No. 0000001646) specifies site coordinates that are different than the coordinates associated with ASR No. 1065251 by 6.3 seconds in latitude and 2.8 seconds in longitude. The licensed site elevation is also 1.8 meters lower than the ASR record.



ALP16L3-ESO-23-SP and it is designed such that the vertical effective radiated power (ERP) will not exceed 30 percent of the horizontal. The horizontal ERP will remain unchanged at 15 kW. The antenna radiation center height above ground level (AGL) will also remain unchanged at 138.0 meters. Because the modified tower registration includes a slightly higher site elevation, the antenna height above mean sea level (AMSL) is being adjusted appropriately to 258.7 meters. The station will continue to employ a stringent out-of-channel emission mask filter.

A detailed *TVStudy* analysis has been performed and the results indicate no interference check failures were found. A copy of the analysis summary is provided in [Figure 1](#). This analysis confirms that a grant of this application will not result in any new interference to other prior authorized stations in accordance with the requirements in 47 C.F.R. §§ 74.709, 74.793(e), 74.793(f), 74.793(g) and 74.793(h).⁴ The summary further reflects that the following analysis settings were used:

Study cell size:	1.0 kilometer
Profile point spacing:	0.5 kilometer

ENVIRONMENTAL IMPACT

The new antenna and added vertical power specified for WVUA-CD will not result in a significant environmental effect. As indicated above, the station's antenna is collocated on an existing FCC registered tower, which was constructed before March 16, 2001. Given that the replacement antenna will not result in a substantial increase in the size of the tower, the criteria outlined in 47 CFR § 1.1307(a) for certain types of facilities that may significantly affect the environment do not apply.⁵ With regard to the rules for limiting human exposure to radio-frequency (RF) energy in 47 CFR § 1.1307(b), the Applicant intends to operate the new television

⁴ *TVStudy* Program - Version 2.2.5 was utilized to evaluate this proposal based on the default Interference Check template normally used for application processing. The following analysis settings were used: cell size = 1.0 km; profile point spacing = 0.5 km.

⁵ See 47 CFR Part 1, App. B, § III.A. An antenna may be mounted on an existing tower constructed on or before March 16, 2001 without such collocation being reviewed through the Section 106 process set forth in the NPA, unless (1) the mounting of the new antenna will result in a substantial increase in the size of the tower as defined in Stipulation I.E.; (2) the tower has been determined by the FCC to have an adverse effect on one or more historic properties; (3) the tower is the subject of a pending environmental review or related proceeding before the FCC involving compliance with Section 106; or, (4) the tower owner has received written or electronic notification that the FCC is in receipt of a complaint from that the collocation has an adverse effect on one or more historic properties.



broadcast antenna in full compliance with those guidelines as described in more detail below. The following technical parameters are specified:

Frequency:	524 - 530 MHz (UHF Channel 23)
Effective Radiated Power:	15 kW (H); 4.5 (V)
Antenna Type:	ERI Model ALP16L3-ESO-23-SP
Antenna Polarization:	Elliptical
Antenna Height:	138.0 meters AGL
Location coordinates:	33-09-29.7 NL, 87-30-56.8 WL (NAD83)
Site elevation:	120.7 meters AMSL
Overall tower height:	152.4 meters AGL
FCC ASRN:	1065251, Constructed in 1984

Using the methodology for predicting power density levels for television broadcast antennas outlined in OET-65, the above parameters are calculated to produce a maximum power density of 3.17 $\mu\text{W}/\text{cm}^2$ at points 2 meters above ground (approximate human head height).⁶ This power density calculation was derived from OET-65 Equation 10, which is shown below.

$$S = \frac{33.4 (F^2) ERP}{R^2}$$

Where: S = power density in $\mu\text{W}/\text{cm}^2$

F = relative field factor

ERP = power in watts

R = distance in meters

A relative field factor of 0.3 was used for the above power density calculation, which is the highest value for the new antenna at angles greater than 10 degrees below the horizontal. The maximum exposure limits applicable to Channel 23, as determined in accordance with 47 CFR § 1.1310 for uncontrolled and controlled situations, are 349 $\mu\text{W}/\text{cm}^2$ and 1,747 $\mu\text{W}/\text{cm}^2$ respectively. Because the worst-case exposure level determined for the proposed facility is not more than 5 percent of those guidelines and considering the requirements for signage and access control will be implemented as appropriate for compliance with the new rules adopted in the RF Report and Order, no further showing of compliance with the RF exposure rules is

⁶ FCC Office of Engineering and Technology, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, OET Bulletin 65, Edition 97-01 (1997) (OET-65).



necessary.⁷ For all the reasons stated above, this minor change application has been found to comply with the criteria in 47 CFR § 1.1307(a) and (b) and thus further environmental processing is not required in accordance with 47 CFR § 1.1306.

Respectfully submitted,

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October 6, 2022

Attachments
Figure 1 – *TVStudy* Analysis Summary

⁷ *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields; Reassessment of Federal Communications Commission Radiofrequency Exposure Limits and Policies*, ET Docket No. 19-226, Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order, 34 FCC Rcd 11687 (2019) (RF Report and Order).

FIGURE 1 Analysis Results Summary TVStudy Version 2.2.5.

Study created: 2022.10.06 19:09:28

Study build station data: LMS TV 2022-10-06

Proposal: WVUA-CD D23 DC APP TUSCALOOSA/NORTHPORT, AL
File number: WVUA-CD LIC-MOD20221006
Facility ID: 70429
Station data: User record
Record ID: 836
Country: U.S.

Build options:
Protect LPTV records from Class A

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	BLTTL199408091B	68.4 km
No	WFIQ	D22	DT	LIC	FLORENCE, AL	BLEDT20060718ACG	159.7
No	WCOV-TV	D22	DT	LIC	MONTGOMERY, AL	BLANK0000115937	182.7
Yes	WSWH-LD	D22	LD	LIC	TUSCALOOSA, AL	BLANK0000074562	75.2
No	WEEL-LD	D22	LD	LIC	TUSCALOOSA, AL	BLANK0000195989	53.8
No	WHLT	D22	DT	LIC	HATTIESBURG, MS	BLANK0000068599	253.2
No	W22EP-D	D22	LD	LIC	STARKVILLE, MS	BLANK0000196014	120.6
No	WRGX-LD	D23	LD	LIC	DOTHAN, AL	BLDTL20130531ATB	299.7
Yes	WDPM-DT	D23	DT	LIC	MOBILE, AL	BLCDT20090420AAD	283.2
No	WQAP-LD	D23	LD	LIC	MONTGOMERY, AL	BLANK0000115788	130.4
Yes	WOIL-CD	D23	DC	LIC	TALLADEGA, AL	BLANK0000110450	124.8
No	W23FN-D	D23	LD	LIC	ALBANY, GA	BLANK0000194770	368.9
No	WZVC-LD	D23	LD	CP	ATHENS, GA	BLANK0000185000	407.1
No	W23EV-D	D23	LD	LIC	CARROLLTON, GA	BLANK0000125385	236.2
No	WAUA-LD	D23	LD	LIC	COLUMBUS, GA	BLANK0000189629	243.5
No	WKTB-CD	D23	DC	LIC	NORCROSS, GA	BLANK0000081811	318.4
No	WPGA-TV	D23	DT	LIC	PERRY, GA	BLANK0000116580	371.9
No	WKPD	D23	DT	LIC	PADUCAH, KY	BLANK0000087419	449.9
No	WLAE-TV	D23	DT	LIC	NEW ORLEANS, LA	BLANK0000087542	421.7
No	WHPM-LD	D23	LD	LIC	HATTIESBURG, MS	BLDTL20111201MCO	272.3
No	WWJX	D23	DT	LIC	JACKSON, MS	BLCDT20110824ABD	291.5
Yes	W23FD-D	D23	LD	LIC	STARKVILLE, MS	BLANK0000196015	120.6
No	WFLJ-TV	D23	DT	LIC	CLEVELAND, TN	BLANK0000093785	300.6
No	WTWV	D23	DT	LIC	MEMPHIS, TN	BLANK0000048888	311.0
No	WJDE-CD	D23	DC	LIC	NASHVILLE, TN	BLANK0000096454	349.0
Yes	WTBM-CD	D24	DC	LIC	BIRMINGHAM, AL	BLANK0000001638	75.2
Yes	WTBM-CD	D24	DC	CP	BIRMINGHAM, AL	BLANK0000198234	76.0
No	WHIQ	D24	DT	LIC	HUNTSVILLE, AL	BLANK0000004828	197.6
No	WXTX	D24	DT	LIC	COLUMBUS, GA	BLANK0000064021	258.2

No	W24EP-D	D24	DC	LIC	FULTON, MS	BLANK0000063965	121.4
Yes	WMDN	D24	DT	CP	MERIDIAN, MS	BLANK0000035927	143.6
No	WMDN	D24	DT	LIC	MERIDIAN, MS	BLCDT20090304ADW	143.6
No	WILMS-LD	N25z	TX	LIC	COLUMBUS, MS	BLTT20031126A01	92.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D23
Mask: Stringent
Latitude: 33 9 29.70 N (NAD83)
Longitude: 87 30 56.80 W
Height AMSL: 258.7 m
HAAT: 0.0 m
Peak ERP: 15.0 kW
Antenna: Omnidirectional
Elev Pattn: Generic
Elec Tilt: 0.75

49.7 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.0 kW	181.0 m	50.3 km
45.0	15.0	149.8	48.3
90.0	15.0	148.3	48.2
135.0	15.0	166.2	49.4
180.0	15.0	172.9	49.8
225.0	15.0	211.3	52.0
270.0	15.0	216.3	52.3
315.0	15.0	202.1	51.5

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 181 m

Distance to Canadian border: 1038.1 km

Distance to Mexican border: 1209.2 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 72.4 degrees Distance: 270.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 301.2 degrees Distance: 1754.4 km

Study cell size: 1.00 km
Profile point spacing: 0.50 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Proposal causes no interference to BLANK0000074562 LIC
Proposal causes 0.00% interference to BLCDT20090420AAD LIC scenario 1
Proposal causes no interference to BLANK0000110450 LIC
Proposal causes no interference to BLANK0000196015 LIC
Proposal causes no interference to BLANK0000001638 LIC
Proposal causes no interference to BLANK0000198234 CP
Proposal causes no interference to BLANK0000035927 CP

----- Below is IX received by proposal WVUA-CD LIC-MOD2022100 -----

Proposal receives 0.36% interference from scenario 1
No IX check failures found.