

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

7.1.	Channel: 5
7.2.	Zone: <input type="radio"/> I <input checked="" type="radio"/> II <input type="radio"/> III
7.3.	Antenna Location Coordinates: (NAD 27) Latitude: Degrees 33 Minutes 28 Seconds 48 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 87 Minutes 25 Seconds 50 <input checked="" type="radio"/> West <input type="radio"/> East
7.4.	Antenna Structure Registration Number: 1033524 <input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA
7.5.	Antenna Location Site Elevation Above Mean Sea Level: 195.1 meters
7.6.	Overall Tower Height Above Ground Level: 610 meters
7.7.	Height of Radiation Center Above Ground Level: 563.9 meters
7.8.	Height of Radiation Center Above Average Terrain: 625.4 meters
7.9.	Maximum Effective Radiated Power (average): 8.6 kW
7.10.	Antenna Specifications: <input type="radio"/> Nondirectional <input checked="" type="radio"/> Directional a. Manufacturer DIE Model THA-S4-2/8-1-R b. Electrical Beam Tilt: 0.5 degrees <input type="checkbox"/> Not Applicable c. Mechanical Beam Tilt: degrees toward azimuth degrees True <input checked="" type="checkbox"/> Not Applicable d. Polarization: <input checked="" type="radio"/> Horizontal <input type="radio"/> Circular <input type="radio"/> Elliptical Directional Antenna Relative Field Values: Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0	0.785	10	0.823	20	0.881	30	0.956	40	0.974	50	0.954
60	0.880	70	0.906	80	0.986	90	0.986	100	0.906	110	0.880
120	0.954	130	0.974	140	0.956	150	0.881	160	0.823	170	0.785
180	0.696	190	0.548	200	0.446	210	0.468	220	0.473	230	0.470
240	0.440	250	0.453	260	0.493	270	0.493	280	0.453	290	0.440
300	0.470	310	0.473	320	0.468	330	0.446	340	0.548	350	0.696
Additional Azimuths		63	0.874	85	1.000	107	0.874				

8.	Please explain in detail the "extraordinary circumstances" which warrant temporary operations at variance from the Commission's Rules. In addition, please specify 1) the specific rules and/or policies from which the applicant seeks temporary relief; 2) how the public interest will be furthered by grant; and 3) the expected duration of the STA and the licensee's plan for restoration of licensed operation. If requesting variance with other than authorized technical facilities, please specify the exact facilities sought	[Exhibit 21]
9.	Anti-Drug Abuse Act Certification. Applicant certifies that neither applicant nor any party to the application is subject to denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862.	<input checked="" type="radio"/> Yes <input type="radio"/> No

I certify that I have prepared Engineering Data on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name RICHARD H. MERTZ	Relationship to Applicant (e.g., Consulting Engineer) CONSULTANT	
Signature	Date (mm/dd/yyyy) 08/17/2008	
Mailing Address CAVELL, MERTZ & ASSOCIATES, INC. 7839 ASHTON AVENUE		
City MANASSAS	State or Country (if foreign address) VA	Zip Code 20109 -
Telephone Number (No dashes or parentheses, include area code) 7033929090	E-Mail Address (if available) RMERTZ@CAVELLMERTZ.COM	

I hereby certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith. I acknowledge that all certifications and attached Exhibits are considered material representations.

Typed or Printed Name of Person Signing	Typed or Printed Title of Person Signing
Signature	Date (mm/dd/yyyy)

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Exhibits**Exhibit 21**

Description: WCFT-TV EXHIBIT 21 NATURE OF STA

APPLICANT REQUESTS A PHASED TRANSITION STA TO OPERATE ON ITS INTERIM DIGITAL CHANNEL WHILE IT COMPLETES CONSTRUCTION OF THE AUTHORIZED POST-TRANSITION FACILITY. EXHIBIT 21 CONTAINS THE ENGINEERING STATEMENT, TABLE I, AND FIGURES 1 AND 2.

Attachment 21

Description
WCFT-DT STA Exhibit 21

Engineering Statement
REQUEST FOR SPECIAL TEMPORARY AUTHORIZATION

prepared for
TV Alabama, Inc.
WCFT-TV Tuscaloosa, Alabama
Facility ID 21258
Ch. 5 8.6 kW (MAX-DA) 625.4 m

TV Alabama, Inc. (“*TV Alabama*”) is the licensee of analog station WCFT-TV, Channel 33, Tuscaloosa, Alabama (see BLCT-19961025KE) and the companion pre-transition digital station, WCFT-DT, Channel 5 (see BLCDDT-20040423AAA). *TV Alabama* is currently authorized to construct the final post-transition WCFT-TV digital facility on Channel 33 (see BPCDDT-20080509ABU¹). As explained in the most recent DTV Transition Update (see BDTUCT - 20080718APB), *TV Alabama* proposes to avail itself of the “phased transition” provisions contained in the Third Periodic Review² by remaining on its pre-transition digital allotment past the February 17, 2009 shut down of full-service analog television. Accordingly, the instant engineering statement has been prepared to support the request for a Special Temporary Authorization to continue operation on Channel 5.

The facility proposed for the temporary post-transition operation is identical to that of the current WCFT-DT licensed facility with a reduction in effective radiated power to 8.6 kW. The following table provides a population comparison:

<u>Facility</u>	<u>File No. or Description</u>	<u>Interference-Free Service Population (2000 Census)</u>	<u>Percent Match</u>
Analog Ch. 33	BLCT-19961025KE (1997 analog baseline facility)	1,378,485	--
Digital Ch. 5	Proposed STA Facility (pre-transition digital licensed facility at reduced power)	1,320,827	95.8%

As shown above, the proposed post-transition STA operation will provide similar coverage as the current pre-transition digital operation. A reduction in effective radiated power for the temporary post-transition Channel 5 operation is necessary to limit interference to the Appendix B facility for WTVF(TV), Channel 5, Nashville, Tennessee.

¹ *TV Alabama* also has an application pending before the Commission, BMPCDDT-20080620AHJ, to maximize the station’s post-transition digital facility.

² See paragraphs 92 and 93, *Report and Order, Third Periodic Review of the Commission’s Rules and Policies Affecting the Conversion To Digital Television*, MB Docket No. 07-91, FCC 07-228, Released December 31, 2007.

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Also of note is 23.7 percent new interference to the Appendix B reference facility for WUOA(TV), Channel 6, Tuscaloosa, Alabama. WUOA(TV) originally elected Channel 23, its current analog channel, for its final digital channel. WUOA(TV) did not have a companion digital channel allotment since it was authorized after April 1997. Comments filed by WUOA in response to the 7th Report and Order³ requested an alternate channel. This request was granted in the MO&O of the 7th Report and Order⁴. At this time, there is no operating digital facility for WUOA's on Channel 6. The permittee of WUOA has filed for and has been granted a construction permit for a maximized digital facility (See BMPCDT-20080604ABL). The temporary digital post-transition operation proposed herein causes only 0.381 percent new interference to the WUOA Channel 6 digital construction permit facility. Accordingly, since there is no operational WUOA digital facility at this time, and since the WUOA construction permit facility, when constructed, will not receive interference in excess of the Commission's 0.5 percent new interference limit, it is respectfully requested that the Commission disregard the interference caused to the WUOA Appendix B reference facility.

As demonstrated in **Exhibit 21-Table I**, except as noted above, the proposed STA facility complies with the Commission's 0.5 percent new interference limit. The antenna for the proposed STA facility is the existing, installed Dielectric THA-S4-2/8-1-R antenna which is directional in the horizontal plane with 0.5° electrical beam tilt. **Exhibit 21-Figure 1** provides the antenna horizontal plane radiation pattern.

Exhibit 21-Figure 2 provides a map depicting the service contour of the proposed facility. Further, the map also provides the proposed facility's principal community coverage contour. As demonstrated therein, the principal community of Tuscaloosa, Alabama is predicted to receive the enhanced signal level as required in §73.625(a) of the Commission's Rules.

³ See *Seventh Report And Order and Eighth Further Notice of Proposed Rule Making, Advanced Television Systems and their Impact Upon the Existing Television Broadcast Service*, MB Docket No. 87-268, FCC 07-138, released August 6, 2007.

⁴ See *Memorandum Opinion And Order On Reconsideration of the Seventh Report and Order and Eighth Report And Order, Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, FCC 08-72, Released March 6, 2008

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The proposed WCFT-DT STA facility will utilize the licensed, installed side-mounted antenna on the existing WCFT support structure. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the Commission's Rules. No increase in overall structure height is proposed, thus no change in structure lighting or marking is anticipated. Thus, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's Rules.

The proposed operation was evaluated for human exposure to radiofrequency (RF) energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65"). The Channel 5 DTV antenna is situated such that its center of radiation is 563.9 meters above ground. An ERP of 8.6 kilowatts, horizontally polarized, will continue to be employed. A value of 100 percent relative field for the elevation pattern is used for this calculation. The "uncontrolled/general population" limit specified in §1.1310 for Channel 5 (center frequency 79 MHz) is 200 $\mu\text{W}/\text{cm}^2$.

OET-65's formula for television transmitting antennas is based on the NTSC transmission standards, where the average power is normally much less than the peak power. For DTV facilities, the peak-to-average ratio is different than the NTSC ratio. The DTV ERP figure herein refers to the *average* power level. The formula used for calculating DTV signal density in this analysis is essentially the same as equation (9) in OET-65.

$$S = [(33.4098) (F)^2 (ERP)] / D^2$$

Where:

S	=	power density in microwatts/cm ²
ERP	=	total (average) ERP in Watts
F	=	relative field factor
D	=	distance in meters

Using this formula, the proposed facility would contribute a power density of 0.9 $\mu\text{W}/\text{cm}^2$ at two meters above ground level near antenna support structure, or 0.45 percent of the general population/uncontrolled limit. At ground level locations away from the base of the

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tower, the calculated RF power density is even lower, due to the increasing distance from the transmitting antenna.

§1.1307(b)(3) states that facilities contributing less than five percent of the exposure limit at locations with multiple transmitters are categorically excluded from responsibility for taking any corrective action. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be considered independently from this proposal. Accordingly, it is believed that the impact of the proposed operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

As demonstrated herein, excessive levels of RF energy attributable to the instant proposal are not caused at publicly accessible areas at ground level near the antenna supporting structure. Consequently, members of the general public are not exposed to RF levels in excess of the Commission's guidelines. Nevertheless, tower access will continue to be restricted and controlled through the use of a locked fence. Additionally, appropriate RF exposure warning signs will continue to be posted.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure does not occur in areas at ground level. A site exposure policy will continue to be employed protecting maintenance workers from excessive exposure when work must be performed on the tower in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines will be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with any pertinent stations.

Engineering Statement
REQUEST FOR SPECIAL TEMPORARY AUTHORIZATION
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Based on the preceding, it is believed that the instant proposal may be categorically excluded from environmental processing under Section 1.1306 of the Rules, hence preparation of an Environmental Assessment is not required.

Certification

The undersigned hereby certifies that the foregoing statement and exhibits were prepared by him or under his direction, and that it is true and correct to the best of his knowledge and belief. Mr. Mertz is a principal in the firm of *Cavell, Mertz & Associates, Inc.*, holds a Bachelor of Science degree from Oglethorpe University, and has submitted numerous engineering exhibits to the Federal Communications Commission. His qualifications are a matter of record with that agency.



Richard H. Mertz
August 17, 2008

Cavell, Mertz & Associates, Inc.
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703-392-9090

Attachments

Exhibit 21-Table I	Interference Study Results
Exhibit 21-Figure 1	Antenna Horizontal Plane Radiation Pattern
Exhibit 21-Figure 2	Predicted Coverage Contours

Exhibit 21 - Table I
INTERFERENCE STUDY RESULTS

prepared for
TV Alabama, Inc.
 WCFT-TV Tuscaloosa, AL

Facility Id: 21258
 Ch. 5 8.6 kW (MAX-DA) 625.4 m

<u>Channel</u>	<u>Affected Station</u>	<u>City, State</u>	<u>File Number</u>	<u>7th R&O Table Baseline (2000 Census)</u>	<u>Calculated Baseline (2000 Census)</u>	<u>Interference Population without Proposal (2000 Census)</u>	<u>Interference Population with Proposal (2000 Census)</u>	<u>New Interference</u>	
								<u>Population</u>	<u>Percentage</u>
5	WJJN-LP	Dothan, AL	BPTVA-20020730AAL				---	No Interference	---
5	WJJN-LP	Dothan, AL	BLTTL-19991223ABR				---	No Interference	---
5	WBXM-CA	Montgomery, AL	BLTVA-20050425ABN				---	No Interference	---
5	WMC-TV(TV)	Memphis, TN	BMPCDT-20080619AJS	1,600,000	1,890,401	29,235	29,786	551	0.029 %
5	WMC-TV(TV)	Memphis, TN	Reference	1,600,000	1,658,151	18,741	20,486	1,745	0.105 %
5	WMC-TV(TV)	Memphis, TN	BPCDT-20080327AFN	1,600,000	1,601,616	13,501	15,791	2,290	0.143 %
5	WTVF(TV)	Nashville, TN	BMPCDT-20080619AFB	2,087,000	2,240,430	15,331	25,235	9,904	0.442 %
5	WTVF(TV)	Nashville, TN	Reference	2,087,000	2,087,892	5,054	15,224	10,170	0.487 %
5	WTVF(TV)	Nashville, TN	BPCDT-20080229ACK	2,087,000	2,101,968	4,790	13,404	8,614	0.410 %
6	WUOA(TV)	Tuscaloosa, AL	BMPCDT-20080604ABL	595,000	2,003,299	26,303	33,928	7,625	0.381 %
6	WUOA(TV)	Tuscaloosa, AL	Reference	595,000	595,117	0	141,047	141,047	23.701 % ¹

¹ See Engineering Statement for explanation of interference to the WUOA reference allotment.



EXHIBIT 21 - FIGURE 1
ANTENNA HORIZONTAL PLANE RADIATION PATTERN

prepared August 2008 for
TV Alabama, Inc.
WCFT-DT Tuscaloosa, Alabama
Facility ID: 21258
Ch. 5 8.6 kW (MAX-DA) 625.4 m

Cavell, Mertz & Associates, Inc.
Manassas, Virginia

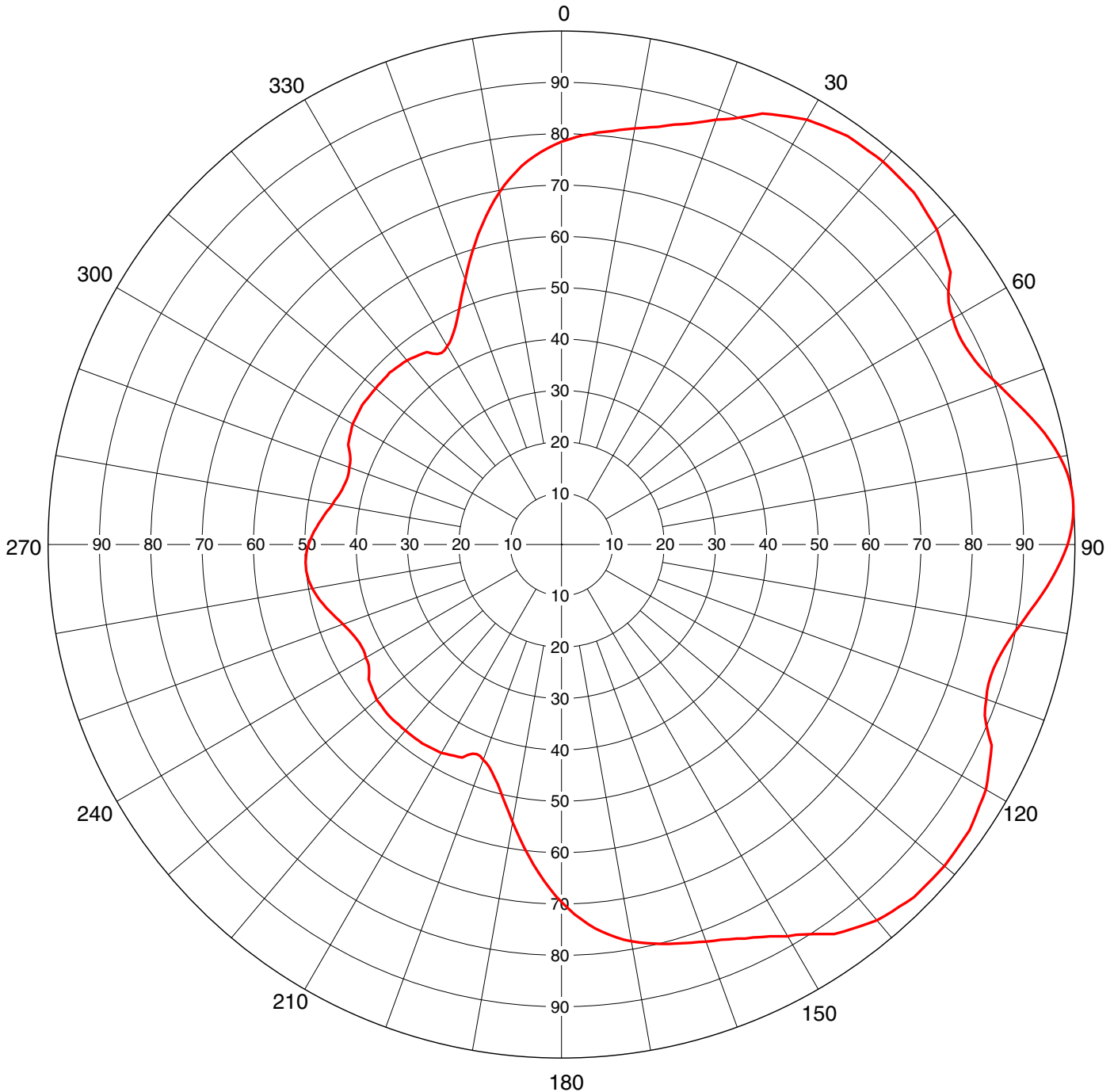
AZIMUTH PATTERN

Gain
Calculated / Measured

1.90 (2.79 dB)
Calculated

Frequency
Drawing #

79 MHz
THA-S4



Remarks:

