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Technical Statement for Huntsville Television Acquisition Licensing LLC

DTV Maximization Construction Permit:

**WZDX-DT
Channel 41
Huntsville, AL**

License Application in File No. BLCDT-20050914AAR

Introduction

This Technical Statement provides the supplemental technical data and information required for an application on FCC Form 301 “Application for Construction Permit for Commercial Broadcast Station” by Huntsville Television Acquisition Licensing LLC (“Huntsville”) for its digital television facilities at Huntsville, AL. Huntsville seeks a construction permit to maximize the facility of its digital television station, Station WZDX-DT, on Channel 41. WZDX-DT holds an authorized construction permit in File Number BMPCDT-20020708AAU, and its application for a license to cover is in File Number BLCDT-20050914AAR. The current application seeks only to increase the power of the existing WZDX-DT facility. The antenna radiation center will remain at the same height, and the azimuth and elevation patterns will be unchanged. This Technical Statement addresses the additional information required by Section III-D – DTV Engineering of the Form 301 application.

Facility

The only change proposed by the current application is an increase in power from 400 kW to 700 kW ERP. The facility will continue to include the currently authorized top-

mounted community antenna on the existing tower. The proposed height above ground level to the center of radiation of the antenna will remain 276.3 meters. This level corresponds to a height above average terrain of 517.9 meters. Full specifications for the proposed facility are provided below in Figure 1. Since the location of the antenna on the tower and the location of the tower itself at the Monte Sano Mountain site are unchanged, no tower layout drawing or map of the site is included in this document. Similarly, since the antenna is unchanged, the pattern plots and tabulated data also are not included herewith. Complete specifications of the antenna system and its mounting were provided within the exhibits that accompanied the application for the current facilities in File Number BMPCDT-20020708AAU, and they remain unchanged. The contour map required by §73.625(b) is provided in Figure 2.

The combination of height above average terrain (HAAT) and effective radiated power (ERP) proposed for WZDX-DT exceeds the maximum facilities permitted for UHF DTV operations under §73.622(f)(8)(i) of the Commission's rules. It is allowed, however, under §73.622(f)(5), which permits the combination of HAAT and ERP "up to that needed to provide the same geographic coverage area as the largest station within their market." In the case of WZDX-DT, there is in the Huntsville market Station WHNT-DT on Channel 59, with HAAT of 514 m and ERP of 1 MW. According to the Commission's TVFMFS software, which was used in the computations, these parameters on Channel 59 result in an average predicted noise-limited contour (PNLC) distance of 111.9 km, using the dipole-factor-adjusted reception threshold value of 42.64 dBu. On Channel 41, with an HAAT of 517.9 m and using a dipole-factor-adjusted reception threshold value of 41.28 dBu, the same 111.9 km average PNLC contour distance is achieved with an ERP of 700 kW – the value requested in this application. Thus, the proposed facility matches the geographic coverage of the largest station within its market and is permissible under the rules.

Principal Community Coverage

As required by Section 73.625(a)(1), the DTV transmitter location must be chosen so as to put a minimum F(50,90) field strength of 48 dBu over the entire principal community to be served. Section 73.625(a)(2) further requires that "the location of the antenna must

be so chosen that there is not a major obstruction in the path over the principal community to be served.” As demonstrated by the 48-dBu contour on the coverage map of Figure 2, the transmitter location chosen, combined with the other characteristics of the transmission system, does deliver the minimum required field strength over the entire principal community to be served. Furthermore, a shadow study demonstrates that there is not a major obstruction in the path over Huntsville – the principal community.

Interference to Other Stations

Since the proposal is to increase the power of the station, new interference studies were conducted to determine that adequate protection would be provided to all stations within the distances prescribed by the FCC rules. A version of the Commission’s TV_Process program designed to evaluate post-transition interference was used to perform those studies. A summary of the studies is shown in Table 1. In the table, the channel, call sign, city of license, and application record number of each station studied are given in the left four columns. These are followed by the DTV baseline or Class A service contour population in the fifth column, the total population predicted to be impacted by interference with WZDX-DT assumed to be operating with the parameters included in the Table of Allotments (Appendix B) in the sixth column, and the number of scenarios studied for each station in the seventh column. In the two columns on the right, the populations predicted to be impacted by additional interference with use of the proposed facilities are shown alongside the percent changes in population impacted from the Table of Allotment values. The dashes shown on two rows indicate instances in which the TV_Process program reported that the “proposal causes no interference,” meaning that there were no cells in its initial culling study that indicated interference. Thus, in this case, no further examination was required, and the number of scenarios studied was zero. Similarly, there are seven rows containing plus signs, which indicate that the TV_Process program reported that the “proposed station is beyond the site to nearest cell evaluation distance,” meaning that not even an initial culling study was required. When multiple scenarios existed and TV_Process studied them, the worst-case population impact was selected for presentation in the table.

Table 1 – WZDX-DT Interference Studies to Neighboring Stations Using FCC TV_Process Program

Chnl	Station	City	ARN	DTV Baseline / Service Pop	Appendix B Interference Population	Scen- arios	CP Mod Interference Population	% Change
38	W38BQ	Huntsville, AL	BLTTL-19971105IJ	—	—	—	—	—
38	W38BQ	Huntsville, AL	BSTA-20060929ABO	—	—	—	—	—
38	WBMG-LP	Moody, AL	BLTTL-19970804JG	+	+	+	+	+
39	WYHB-CA	Chattanooga, TN	BLTTL-19980824JC	+	+	+	+	+
40	WDSI-DT	Chattanooga, TN	BLCDDT-20051011ABS	882,393	2,928	12	4,091	0.1322
40	WDSI-DT	Chattanooga, TN	DTVPLN-DTVP1452	882,393	2,928	12	4,091	0.1322
41	WATC-DT	Atlanta, GA	BLEDT-20070912AAT	4,397,274	23,296	8	31,255	0.1820
41	WATC-DT	Atlanta, GA	DTVPLN-DTVP1466	4,397,274	23,296	8	31,255	0.1820
41	WKPD-DT	Paducah, KY	BLEDT-20020304ALI	239,392	176	6	186	0.0042
41	WKPD-DT	Paducah, KY	DTVPLN-DTVP1472	239,392	176	6	186	0.0042
41	WBUY-DT	Holly Springs, MS	BPCDDT-20080307ACA	1,277,270	1,123	2	2,172	0.0822
41	WBUY-DT	Holly Springs, MS	DTVPLN-DTVP1477	1,280,923	1,750	1	2,853	0.0862
41	WBUY-DT	Holly Springs, MS	BLCDDT-20060320AEN	1,280,923	1,750	1	2,853	0.0862
41	WETP-DT	Sneedville, TN	BLEDT-20050916AAX	1,697,108	18,477	16	20,446	0.1173
41	WETP-DT	Sneedville, TN	DTVPLN-DTVP1484	1,697,108	18,477	16	20,446	0.1173
42	WFLI-DT	Cleveland, TN	BLCDDT-20050808AGH	1,021,332	3,580	16	4,307	0.0714
42	WFLI-DT	Cleveland, TN	DTVPLN-DTVP1516	1,021,332	3,580	16	4,307	0.0714
43	WMNJ-LP	Decatur, AL	BLTTA-20020711AAH	+	+	+	+	+
43	WMNJ-LP	Somerville, AL	BSTA-20060201ACN	+	+	+	+	+
43	WDGA-CA	Dalton, GA	BLTTL-19919211IF	+	+	+	+	+
49	W49AY	Birmingham, AL	BLTTL-19920218JN	+	+	+	+	+
49	WDNN-CA	Dalton, GA	BLTTL-20020319ABG	+	+	+	+	+

Table 1 summarizes twenty-two cases involving thirteen stations implicated in the power increase of WZDX-DT and therefore requiring analysis. Nine cases show that analysis beyond the initial culling study was unnecessary. The remaining thirteen cases all report new predicted interference to populations smaller than the permitted 0.5 percent of the population not affected by terrain losses. Thus, there is no impermissible interference predicted for the proposed WZDX-DT facility with its effective radiated power increased to 700 kW.

Consideration of Class A Station

The Commission's Rules specify protection to be afforded by full service stations to LPTV stations that have achieved Class A status.¹ For purposes of this application, the Commission's TV_Process program was used to locate any Class A stations that might be impacted by the power increase of WZDX-DT. The TV_Process program discovered in the CDBS database contour overlaps only to two facilities of one Class A station located in Huntsville, AL. As shown in Table 1, further analysis of these facilities resulted in reports that the "proposal causes no interference" in both cases. Thus, there is no impermissible interference to Class A stations predicted for the proposed WZDX-DT facility with its effective radiated power increased to 700 kW.

International Coordination

The WZDX-DT transmitter site is within neither the Canadian nor the Mexican coordination zone. Thus, no coordination with either country is required for this application.

Environmental Impact / Radio Frequency Radiation

The antenna already is installed on an existing tower at an existing transmitter site that is shared with the transmitters of other stations. Therefore, none of the conditions of significant environmental effect specified in §1.1307(a) that would trigger the requirement for an Environmental Assessment (EA) exist.

¹ Section 73.623(c)(5), *Minimum technical criteria for modification of DTV allotments included in the initial DTV Table of Allotments and for applications filed pursuant to this section.*

With respect to Radio Frequency Radiation (RFR), the Maximum Permissible Exposure (MPE) limits in §1.1310 for both General Population/Uncontrolled Exposure and Occupational/Controlled Exposure are computed not to be exceeded in the area surrounding the tower, as determined using methods of OET Bulletin Number 65 and Supplement A thereto (Edition 97-01). In fact, the maximum exposure in the area surrounding the tower is calculated to be less than 0.05 percent of the General Population/ Uncontrolled MPE and less than 0.01 percent of the Occupational/Controlled MPE.

Given that the predicted levels of RFR are below 5 percent of the MPE for the General Population/Uncontrolled Exposure situation, the proposed facility is categorically excluded from requirements for the making of measurements to confirm the radiation levels in the region around the tower and for the submission of a detailed RF exposure analysis of the site. Nevertheless, Huntsville recognizes its responsibility for the safety and health of employees and contractors when exposed to RF radiation conditions. Moreover, since the site of the proposed facility is used in conjunction with other stations, Huntsville undertakes to work cooperatively with the other spectrum users in the area to assure protection to workers when they must enter into areas with high radiation levels, such as when necessary to work on antennas and towers. Steps to be taken will include measurements and monitoring as well as power reductions or turning off the transmitter if necessary to ensure a safe working environment.

Notifications

The site at Monte Sano Mountain is not in proximity to any of the government radio astronomy installations named in Section 73.1030, nor is it proximate to any of the named radio receiving locations. The nearest FCC monitoring station, furthermore, is over 190 km distant. Thus, none of the notifications mandated or recommended by Section 73.1030 is required in this instance.

Summary

The increase in effective radiated power of the WZDX-DT facility to 700 kW has been shown not to exceed the service area of the largest facility in the market and also has

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been shown not to produce impermissible interference to any other station. Furthermore, the station is not in an international coordination zone. As a result, the WZDX-DT application for a construction permit to increase its power to 700 kW ERP post transition should be immediately grantable.

**Figure 1 — Technical Specifications — Proposed WZDX-DT Facility
Channel 41 — Huntsville, AL**

Frequency

Channel	41
Frequency Band	632 – 638 MHz
Center Frequency	635 MHz

Location

Site	1000 Monte Sano Blvd, Huntsville, AL
Geographic Coordinates (NAD27)	34° 44' 12.0" N 86° 31' 59.0" W
Tower Registration (FAA Study Number)	1041008 (2007-ASO-2486-OE)

Elevation

Elevation of site above mean sea level	473.1 m
Overall height of tower above site elevation	305.4 m
Overall height of tower above mean sea level	778.5 m
Height of antenna radiation center above site elevation	276.3 m
Elevation of average terrain (45-degree spaced radials, 3.2-16.1 km)	230.8 m
Height of antenna radiation center above mean sea level	748.7 m
Height of antenna radiation center above average terrain (HAAT)	517.9 m

Antenna

Manufacturer	Dielectric
Model	TUD-S5B-14/70H-1-T
Description	Top-Mounted, Corporate Feed, Panel Array
Orientation (direction of primary axis of azimuth pattern)	270 degrees true
Electrical beamtilt	0.8°
Mechanical beamtilt	None
Polarization	Horizontal
Gain (in horizontal plane – 0° depression)	17.12 (12.36 dB)
Gain (peak of beam – 0.8° depression)	45.76 (16.60 dB)

Power

Effective radiated power (ERP) (main beam – 0.8° depression)	700 kW
Effective radiated power (ERP) (toward avg. radio horizon – 0.630° dn.)	661.3 kW
Effective radiated power (ERP) (horizontal plane)	261.9 kW

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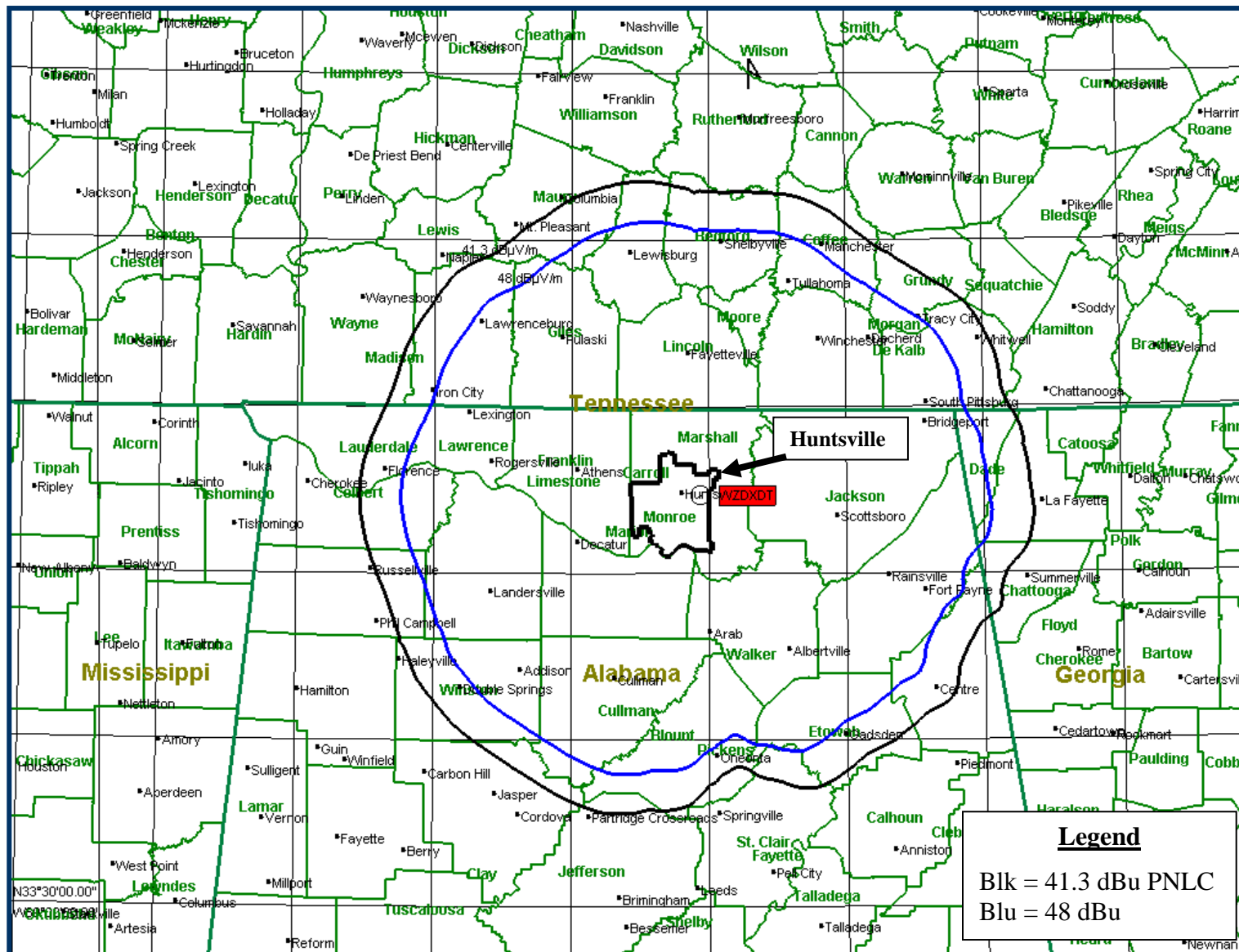


Figure 2 — 41.3 dBu Noise Limited and 48 dBu Principal Community Contours of Proposed WZDX-DT Facility