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*Consultants in Electronic Media Technology/Management*

**Technical Statement for  
GM Chippewa Falls Licensing LLC  
DTV Maximization Construction Permit:  
WEUX-DT  
Channel 49  
Chippewa Falls, WI  
Construction Permit in File No. BMPCDT-20071016AAW**

### ***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 GM Chippewa Falls Licensing LLC (“Chippewa Falls”) for its digital television facilities at Chippewa Falls, WI. Chippewa Falls seeks a construction permit to maximize the facility of its digital television station, Station WEUX-DT, on Channel 49. WEUX-DT holds an authorized construction permit in File Number BMPCDT-20071016AAW. The current application seeks only to increase the post-transition power of the WEUX-DT facility currently under construction. 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 780 kW to 1000 kW ERP. The facility will continue to include the currently authorized top-mounted antenna on the existing tower. The proposed height above ground level to the center of radiation of the antenna will remain 144 meters. This level corresponds to a

height above average terrain of 223 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 Colfax, WI site are unchanged, no tower layout drawing or map of the site is included in this document. Similarly, since the antenna will be 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 in File Number BMPCDT-20071016AAW for the facilities currently under construction, 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 WEUX-DT does not exceed the maximum facilities permitted for UHF DTV operations under §73.622(f)(8)(i) of the Commission's rules and, thus, 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, will 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 Chippewa Falls – 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 WEUX-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 these cases, no further examination was required, and the number of scenarios studied was zero. Similarly, there are two 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.

Table 1 summarizes four cases involving two stations implicated in the power increase of WEUX-DT and therefore requiring analysis. All show that analysis beyond the initial culling study was unnecessary. Thus, there is no impermissible interference predicted for the proposed WEUX-DT facility with its effective radiated power increased to 1000 kW.

### ***Consideration of Class A Station***

The Commission’s Rules specify protection to be afforded by full service DTV stations to analog and digital LPTV stations that have achieved Class A status.<sup>1</sup> 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 WEUX-DT. The TV\_Process program discovered in the CDBS database neither contour overlaps to facilities of any Class A stations, nor stations to which it determined that further analyses was needed. Thus, there is no impermissible interference to Class A stations predicted for the proposed WEUX-DT facility with its effective radiated power increased to 1000 kW.

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<sup>1</sup> 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.*

**Table 1 – WEUX-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
49	KLJB-DT	Davenport, IA	BLCDT-20050713ADL	+	+	+	+	+
49	KLJB-DT	Davenport, IA	DTVPLN-DTVP1738	+	+	+	+	+
50	WFXS-DT	Wittenberg, WI	BPCDT-20080314AEJ	—	—	—	—	—
50	WFXS-DT	Wittenberg, WI	DTVPLN-DTVP1783	—	—	—	—	—

### ***International Coordination***

The WEUX-DT transmitter site is within the Canadian coordination zone. Thus, coordination with Canada is likely to be required for this application. The nearest point on the border with Canada is 343.4 km from the WEUX-DT transmitter. Per the Letter of Understanding (LOU) between the United States and Canada, this distance exceeds the minimum required separation distances for all cases of adjacent channels in the two countries, and it exceeds most of the minimum required separation distances for all but a few cases of co-channel operation – the greatest required co-channel separation required by the LOU being 386 km.

The only Canadian province within 386 km of the border with the US is Ontario. In the table of allotments in the LOU, there are four assignments on Channel 49 within Ontario that could potentially be within the minimum separation distance. These assignments are all for digital operations and are located in Deseronto, Kitchener, Red Lake, and Thunder Bay. The nearest of these to the WEUX-DT transmitter is the station in Thunder Bay (CKPR-TV), which is over 440 km distant – significantly exceeding the minimum required separation distance. Given these circumstances, coordination of the WEUX-DT increase in power, while necessary, should be a formality, with no issues to resolve.

### ***Environmental Impact / Radio Frequency Radiation***

By the time the power increase requested herein is implemented, the antenna already will have been installed on an existing tower at an existing transmitter site. 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 for this application.

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 0.21 percent of the General

Population/ Uncontrolled MPE and less than 0.05 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, Chippewa Falls recognizes its responsibility for the safety and health of employees and contractors when exposed to RF radiation conditions. It undertakes 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 Colfax 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 525 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 WEUX-DT facility to 1000 kW has been shown to fall within the maximum value permitted by the Commission's rules and also has been shown not to produce impermissible interference to any other station. The station is in the international coordination zone with Canada but exceeds the minimum required separation distance from all Canadian stations. As a result, the WEUX-DT application for a construction permit to increase its power to 1000 kW ERP post transition should be grantable as soon as the formalities of coordination with Canada are completed.

**Figure 1 — Technical Specifications — Proposed WEUX-DT Facility  
Channel 49 — Chippewa Falls, IA**

**Frequency**

Channel	49
Frequency Band	680 – 686 MHz
Center Frequency	683 MHz

**Location**

Site	Colfax, WI
Geographic Coordinates (NAD27)	44° 57' 24.0" N 91° 40' 03.0" W
Tower Registration (FAA Study Number)	1035248 (1997-AGL-5382-OE)

**Elevation**

Elevation of site above mean sea level	385.0 m
Overall height of tower above site elevation	152.0 m
Overall height of tower above mean sea level	537.0 m
Height of antenna radiation center above site elevation	144.0 m
Elevation of average terrain (45-degree spaced radials, 3.2-16.1 km)	305.9 m
Height of antenna radiation center above mean sea level	529.0 m
Height of antenna radiation center above average terrain (HAAT)	223.1 m

**Antenna**

Manufacturer	Dielectric
Model	TFU-29ETT-R 4C160 DC N48 D49
Description	Top-Mounted UHF Slotted Coaxial
Orientation (direction of primary axis of azimuth pattern)	90 degrees true
Electrical beamtilt	0.7°
Mechanical beamtilt	None
Polarization	Horizontal
Gain (in horizontal plane – 0° depression)	26.40 (14.22 dB)
Gain (peak of beam – 0.7° depression)	40.00 (16.02 dB)

**Power**

Effective radiated power (ERP) (main beam – 0.7° depression)	1000 kW
Effective radiated power (ERP) (toward avg. radio horizon – 0.414° dn.)	966.0 kW
Effective radiated power (ERP) (horizontal plane)	660.1 kW

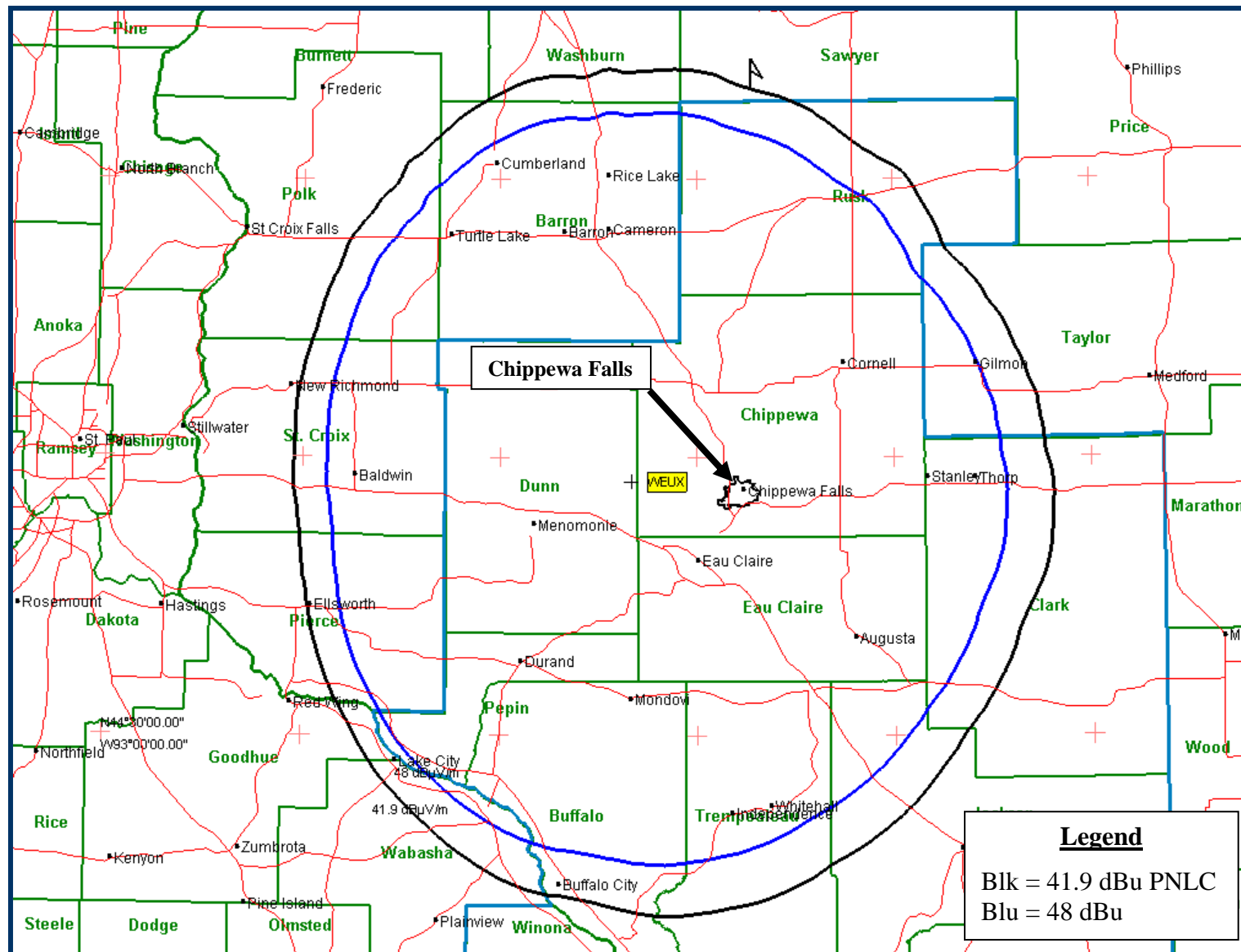


Figure 2 — 41.9 dBU Noise Limited and 48 dBU Principal Community Contours of Proposed WEUX-DT Facility