

# **ENGINEERING REPORT**

**Requesting a Minor Modification to  
Construction Permit  
BPED-20020128ABK**

**for**

**WBLW(FM) – Gaylord, MI  
Channel 201 (88.1 MHz)**

**June, 2006**

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**Spacing Requirements** (none)

**Grandfathered Short-Spaced Requirements** (none)

**Contour Protection Requirements** (none)

### **TV Channel 6 Protection Requirements**

Exhibit 18.1 - Domestic Channel 6 Study for WCML-TV, Alpena, MI  
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## **RF Radiation Study Requirement**

Exhibit 22.1 - RF Radiation Study

(Exhibit Numbering is in response to FCC Online Form 340, Section VII)

## **DISCUSSION OF REPORT**

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This firm was retained to prepare the required engineering report in support of a minor Construction Permit modification and 30 meter ground elevation correction for BPED-20020128ABK for Non-Commercial FM station WBLW(FM), Gaylord, MI, Channel 201 88.1 MHz. Currently WBLW(FM) is licensed to operate with 3.0 kW at 39 meters HAAT under License BLED-20000606ACC. WBLW(FM) Construction Permit BPED-20020128ABK authorizes operation on CH201C3 with 3.0 kW at 226 meters HAAT or a COR of 116 meter AGL (556 meters AMSL) with a directional antenna. Ground elevation was specified erroneously as 440 meters AMSL. The Construction Permit specifies Antenna Structure Registration No. 1000437. Ground elevation on ASR 1000437 is listed correctly as 470 meters AMSL. This Construction Permit was reviewed and found to be valid by the Commission inclusive of this ground elevation error. A grant date of 03/23/2004 has been noted on the FCC CDBS database. Subsequently, the WBLW(FM) facility built with the antenna COR mounted 116 meters AGL per the Construction Permit specification. License to Cover application BLED-20050126AAA was then filed to cover this Construction Permit. The directional antenna mounting and proper orientation were noted in the Antenna Proof of Performance, Engineer's Affidavit and Surveyor's affidavit. WBLW(FM) was unaware of this error in ground elevation at the time of the license filing.

Upon recent studies performed for WBLW(FM), this error was brought to light. Immediate analysis of the allocation confirmed the 30 meter increase in ground elevation from 440 meters AMSL to 470 meters AMSL and associated COR height increase from 556 meters AMSL to 586 meters AMSL did not result in prohibited overlap at the 3.0 kW operating power. In fact, upon inspection of measured pattern from the recently filed directional antenna proof of performance, it has been determined the measured pattern may actually operate at 5.0 kW while fully protecting all facilities within the allocation. No physical changes to the WBLW(FM) facility need be made other than the resubmitting of the measured pattern as the new FCC standard pattern. The measured pattern, as originally submitted in the recent antenna proof of performance, will be identical to and therefore remain wholly within the new FCC standard pattern as well as will continue to meet the 2 dB per 10 degree requirements.

Therefore 5.0 kW is requested at 586 meters AMSL using the measured directional antenna contained here in. A voluntary processing hold of License Application BLED-20050126AAA is also requested until receipt of this Construction Permit Modification. At that time, the License to Cover Application will be amended to reflect the corrected and modified values.

As no physical changes to the antenna are proposed other than an increase in power from 3.0 kW to 5.0 kW, the antenna proof of performance remains valid. Outdated information within the antenna proof of performance pertaining to the original power level of 3.0 kW and the originally submitted FCC standard pattern have been addressed in **Exhibit(s) 15.3a** and **15.3b**. Information concerning the certification of the measurement procedures and the relative field calculations for the measured pattern remain unchanged. Consultation with the antenna manufacturer and data taken from the SWR™ website indicates the FM3V/2-DA antenna is rated for an input of 6.0 kW. Given the antenna gain of 3.782, the required input power for 5.0 kW ERP will be 1.322 kW, well below the rate antenna tolerance.

## **DISCUSSION OF REPORT** (continued)

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Immediate program test authority is requested as it is believed all information pertinent to a directional antenna operation licensing application has been supplied herein.

The proposed site for the Class C2 operation meets all the contour protection requirements towards other stations in the allocation. A tabulation of the proposed protections to each of the other relevant stations is found in **Exhibit 15.1**. There are three (3) other facilities, existing or proposed, close enough to the transmitter site to require further study. FMCommander™ maps of the relevant protected and interference contours have been supplied as **Exhibit 15.2**. Contour overlap does exist with APP 201A, Manistique, MI, however as noted in **Exhibit 15.2**, this overlap falls completely over Lake Michigan and may therefore be disregarded. It is believed there is sufficient clearance to preclude the need for further study with respect to the other protected stations shown in the allocation study. The transmitter site is located within 320 km of the common border between the United States and Canada. Canadian protections have been included in **Exhibit(s) 15.1** to **15.2**. Tabulations for each contour employed will be supplied to the FCC upon request.

The transmitter site proposed in this application is within the affected radius of two (2) Channel 6 television stations, WCML, Alpena, MI and CBCE-D Little Current, ON, Canada. The additional studies dictated by §73.525 under such conditions are included as **Exhibit 18.1** to **18.2** of this report. Full protection is provided to each Channel 6 facility under the current Rules.

The proposed service contours have been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The plotted contours are found as **Exhibit 13.4** of this report. This exhibit shows the overall service that is provided by the 1.0 mV/m contour of the facility. The tabulation of the distances to the respective contours shown in this discussion is based on the use of the standard eight cardinal bearings, which were also used for the computation of the HAAT. However, the plotted contours shown in **Exhibit 13.4** are based on the use of a full 360 terrain radials. A more accurate NED 03 second database has been used for the calculation of all contours and figures in this application.

The antenna is currently mounted on an existing structure bearing Antenna Structure Registration Number 1000437. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 13.2**.

The remainder of the information in this report and exhibit numbering is responsive to the Rules of the Commission, and provides the data for FCC Form 340.

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1310 of the Commission's rules. **Exhibit 22.1** provides the details of the study that was made to demonstrate compliance. The facility is properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed.

## **DISCUSSION OF REPORT** (continued)

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*In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.*

**DISTANCES TO CONTOURS:** The table below shows the distances to the 1.0 mV/m contour from the proposed facility using an ERP of 5.0 kW at an HAAT of 260 meters. These distances have been calculated based on the FCC F(50-50) curves.

| N. Lat. = 45 10 12 W. Lng. = 84 45 04                  |       |       |        |       |       |       |
|--|-------|-------|--------|-------|-------|-------|
| HAAT and Distance to Contour - FCC Method - NED 03 SEC |       |       |        |       |       |       |
| Azi.   | AV EL | HAAT  | ERP kW | dBk   | Field | 60-F5 |
| 000  | 337.2 | 248.8 | 3.3784 | 5.29  | 0.822 | 37.68 |
| 045  | 301.3 | 284.7 | 1.5708 | 1.96  | 0.561 | 33.87 |
| 090  | 312.8 | 273.2 | 0.7144 | -1.46 | 0.378 | 27.57 |
| 135  | 361.0 | 225.0 | 0.6882 | -1.62 | 0.371 | 24.96 |
| 180  | 407.9 | 178.1 | 1.1472 | 0.60  | 0.479 | 25.17 |
| 225  | 371.3 | 214.7 | 3.3415 | 5.24  | 0.817 | 35.26 |
| 270  | 272.0 | 314.0 | 4.5792 | 6.61  | 0.957 | 44.00 |
| 315  | 248.0 | 338.0 | 4.6900 | 6.71  | 0.969 | 45.64 |
| Ave El= 326.43 M HAAT= 259.57 M AMSL= 586 M            |       |       |        |       |       |       |