

ENGINEERING REPORT

MINOR CHANGE APPLICATION

For the NCE-FM Facilities of

WIAB(FM) – Mackinaw City, MI
CH203C2 – 88.5 MHz
BLED-20030407ACF
(Facility ID: 89513)

Request for a Site Change;
Power Increase;
New Directional Antenna Pattern
& increase to Class C1 Parameters

March, 2015

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- Exhibit 16.4 - Tabulation of Operating Conditions
- Exhibit 16.5 - Present vs Proposed Contour Study

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- Exhibit 18.1 - Tabulation of Non-Commercial Allocation
- Exhibit 18.2 - Contour Protection Toward WBLW(FM) - Gaylord, MI
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- Exhibit 18.4 - Contour Protection Toward WIAA(FM) - Interlochen, MI
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- Exhibit 18.6 - Tabulation of Proposed Directional Antenna

Spacing Requirements	(none)
Grandfathered Short-Spaced Requirements	(none)
Contour Protection Requirements	(none)
TV Channel 6 Protection Requirements	(none)

RF Radiation Study Requirement

- Exhibit 24.1 - RF Study

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

Discussion of Report

This firm was retained to prepare the required engineering report in support of this Minor Change Application for the licensed facilities of WIAB(FM) - Mackinaw City, MI (Facility ID: 89513). Presently WIAB(FM) is licensed under BLED-20030407ACF to operate with Class C2 operating parameters of 20.0 kW at a COR of 338 meters AMSL. *(WIAB(FM) also holds granted Construction Permit BPED-20100707EAA, however, due to tower loading/lease issues prohibiting construction at the former tower site, this Permit will have expired by the time this Form 340 is accepted for filing.)* This Minor Change Application seeks Class C1 operating parameters of 50.0 kW at a COR of 471 meters AMSL from a new tower site location. The proposed operation will continue to serve the community of Mackinaw City, MI. A new directional antenna pattern will be employed.

The proposed site for the Class C1 operation meets all the contour protection requirements towards other domestic stations in the allocation with the exception of one (1) facility. A tabulation of the proposed protections to each of the other relevant stations is found in **Exhibit 18.1**. There are three (3) facilities, WBLW(FM) - Gaylord, MI; WTCY(FM) - Greilickville, MI; and WIAA(FM) - Interlochen, MI which are deemed close enough to require further study. Therefore, FMCommander™ maps and tabulations of the relevant protected and interference contours toward each of these facilities has been included in **Exhibit(s) 18.2** to **Exhibit(s) 18.4**. A Waiver of 47 C.F.R. §73.509 for *de minimis* Second Adjacent Channel Received Contour Overlap from WBLW(FM) - Gaylord, M (CH201C2) has been requested. Full protection will be afforded WBLW(FM) with the *de minimis* interference restricted solely to the proposed WIAB(FM) service area. A copy of the 47 C.F.R. §73.509 Second Adjacent Channel Received Contour Overlap Waiver Request has been included in **Exhibit 18.5**. It is believed there is sufficient clearance to preclude the need for further study with respect to the other domestic protected stations shown in the allocation study. Tabulations for each contour employed will be supplied to the FCC upon request.

The transmitter site is located within 320 km of the common border between the United States and Canada. Full protection will be afforded all Canadian facilities as noted in **Exhibit 18.1**. The Transmitter site is also located within the affected radius of multiple Canadian Channel 6 Television Vacant Allotments. Full protection will be afforded each TV-6 Allotment as noted in **Exhibit 18.1**. Additional Canadian protection showings will be provided upon request.

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 service contour is found as **Exhibit 16.5** of this report. This exhibit shows the overall service 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 contour shown in **Exhibit 16.4** is based on the use of a full 360 terrain radials and the USGS 03 Second Terrain Database.

The antenna will be mounted on a new 136.8 meter AGL tower to be constructed. TOWAIR has been consulted and the proposed tower requires Antenna Structure Registration. The FAA will be notified of the proposed new tower construction and ASR filed after receipt of FAA "Determination of No Hazard". A copy of USGS topographic mapping of the proposed site has been included in **Exhibit 16.1**. An FAA-1A Site Survey for the proposed site has already been undertaken and included in **Exhibit 16.2**. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 16.3**.

Discussion of Report (continued)

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 is within the uncontrolled limits as noted in the supplied **Exhibit 24.1** study. The RF radiation will not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1310 of the Commission's rules. The facility will be properly marked with signs, and entry will be 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.

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 50.0 kW at an HAAT of 239 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 453407 W. Lng. = 850235						
HAAT and Distance to Contour,						
FCC, FM 2-10 Mi, 51 pts Method - USGS 03 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	198.1	272.9	50.0000	16.99	1.000	63.29
045	245.2	225.8	50.0000	16.99	1.000	59.58
090	245.2	225.8	50.0000	16.99	1.000	59.58
135	284.9	186.1	50.0000	16.99	1.000	56.14
180	291.8	179.2	41.8613	16.22	0.915	53.94
225	208.7	262.3	10.6953	10.29	0.462	48.10
270	193.6	277.4	50.0000	16.99	1.000	63.64
315	191.8	279.2	50.0000	16.99	1.000	63.78
Ave El= 232.40 M HAAT= 238.60 M AMSL= 471 M						