

ENGINEERING REPORT

MINOR CONSTRUCTION PERMIT APPLICATION

For the FM Facilities of

**WMUK(FM) – Kalamazoo, MI
CH271B – 102.1 MHz
Facility ID No. 71874**

License No.
BLH-5990

July, 2013

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- Exhibit 35.1 - RF Radiation Study

(Exhibit Numbering is in response to FCC Online Form 301, Section III-B)

DISCUSSION OF REPORT

This firm was retained to prepare the required engineering report in support of this Minor Construction Permit Application for WMUK(FM) – Kalamazoo, MI (Facility ID No. 71874). Presently WMUK(FM) operates under a 1973 License, BLH-5990, with 50 kW ERP (H&V) at 410 meters AMSL. A Michigan Association of Broadcasters station inspection found a minor error in coordinates and a discrepancy in Center of Radiation heights. The correction will have WMUK(FM) operating at 49 kW ERP at 414 meters AMSL.

The antenna is mounted on an existing tower bearing Antenna Structure Registration number 1004412. A copy of the existing ASR has been included in **Exhibit 27.1**. A copy of a topographical map showing the existing site has been included in **Exhibit 27.2**. A copy of an aerial photograph showing the existing site has been included in **Exhibit 27.3**. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 27.4**. As this proposal will not increase the overall tower height, it is believed the FAA need not be notified.

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 27.6** of this report. This exhibit shows the 3.16 mV/m contour which serves the community of license, and the overall service provided by the 1.0 mV/m contour of the facility. The plotted contours shown in **Exhibit 27.6**, are based on the use of a full 360 terrain radials. The applicant would like to note the use of the NED 03 SEC terrain database for all allocation, contour and HAAT calculations contained here-in.

Since there is only a 2 second change in the latitude in the coordinates of WMUK, no allocations study was made as it was assumed that the change was *de minimis*.

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 Online Form 301, Section III-B.

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 §1.1307(b)(3) of the Commission's rules concerning RF contributors of less than 5%. **Exhibit 35.1** 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)

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 3.16 mV/m and 1.0 mV/m contours from the proposed facility using an ERP of 49 kW at an HAAT of 151 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 422501.0 W. Lng. = 853155.0							
HAAT and Distance to Contour,							
3-16 km, 51 pts Method - NED 03 SEC							
WMUK, Western Michigan University							
Azi.	AV EL	HAAT	ERP kW	dBk	Field	70-F5	60-F5
000	265.9	148.1	49.0000	16.90	1.000	32.23	51.76
045	288.1	125.9	49.0000	16.90	1.000	29.91	48.65
090	278.5	135.5	49.0000	16.90	1.000	30.87	50.01
135	274.1	139.9	49.0000	16.90	1.000	31.34	50.64
180	259.4	154.6	49.0000	16.90	1.000	32.96	52.62
225	268.0	146.0	49.0000	16.90	1.000	32.00	51.47
270	227.8	186.2	49.0000	16.90	1.000	36.05	55.96
315	245.1	168.9	49.0000	16.90	1.000	34.48	54.31
Ave El= 263.37 M HAAT= 150.63 M AMSL= 414 M							