

TECHNICAL STATEMENT

WCMX AM, 1000 kHz (Facility Id: 54850), Leominster, MA
March 9, 2023

The 302-AM form and associated material were prepared by Horizon Christian Fellowship (HCF), licensee of AM radio station WCMX, 1000 kHz, Leominster, Massachusetts. HCF requests on FCC form 302-AM to change the licensed AM impedance from 82 ohms at the slant wire antenna feed point to 50 ohms resistance at the ATU input instead.

HCF also herein submits an application to return WCMX to direct measurement of power following the upgrade work of T-Mobile. T-Mobile has removed 3 antennas, 6 coax cables, one hybrid cable and 3 radios. They have added 3 antennas, 3 radios and 2 hybrid cables along with the necessary hardware.

The electrical characteristics of the WCMX tower have changed due to the T-Mobile modifications. As such, it was necessary to conduct an impedance check of the tower and re-establish the antenna operating impedance. In addition, the antenna current measurement point is changing to the transmitter side of the antenna matching circuit. There are no other changes to the currently licensed operation of WCMX.

AM Impedance Measurements

As required by the FCC rules (see Appendix A §1.30003 (a) and (c)), the AM feed point impedance was checked following completion of the T-Mobile modifications. This process is used to identify issues with the T-Mobile installation that could change the FCC licensed resistance values and possibly trigger a need to re-license WCMX with a new value of feed point resistance that would conform with the current FCC rules to determine operating power by the Direct Method.

The AM impedance measurements were conducted on 2/6/2023 by Mr. Philip Harris of Sitesafe with Mr. John Costa in assistance from WCMX. This measurement was taken at the J-Plug provided in the antenna tuning unit (ATU) input using a Delta Electronics Operating Impedance Bridge model OIB-3 serial number 862. Since this is directly in line with the RF Ammeter sample transformer which determines operating power, this meets FCC requirements. Formula: Current in Amperes squared times the resistance in Ohms equals power in Watts.

The measured values on the Delta OIB-3 were: Resistance: 50.0 Ohms and Reactance J 0 Ohms

AFFIDAVIT AND QUALIFICATIONS OF JOHN COSTA

I am an employee of Horizon Christian Fellowship and have been asked to prepare this technical exhibit. I certify that I am an experienced broadcast engineer and am familiar in all aspects of FCC regulations with regards to this project. I am a graduate of Wentworth Institute of Technology, Boston, MA and have been active in radio broadcast since 1996.

All the statements contained within technical statement are true and accurate to the best of my knowledge.



John Costa
Broadcast Engineer for Horizon Christian Fellowship

3/9/2023

Date