

HUMAN EXPOSURE TO RADIOFREQUENCY (RF) ELECTROMAGNETIC FIELDS COMPLIANCE STATEMENT PREPARED BY WILLIAM T. GODFREY, JR., OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC. (KGA), CONSULTING ENGINEERS IN CONNECTION WITH A SPECIAL TEMPORARY AUTHORITY (STA) REQUESTING AN FM DIGITAL POWER INCREASE TO -10 DBC FOR THE GULF COAST COMMUNITY COLLEGE WKGC-FM CHANNEL 214 BROADCAST FACILITY, PANAMA CITY, FLORIDA.

Environmental Impact

The WKGC-FM Channel 214 Class C1 hybrid facility is predicted to have no significant environmental impact as defined in §1.1307 of the FCC Rules. The FM transmitter, transmission line and ten-bay ERI antenna system will produce an Effective Radiated Power (ERP) of 110 kW (100 kW analog + 10 kW digital). It was determined that the maximum lobe of radiation from the base of the tower will occur at approximately 79.9 feet (355.1-foot radial distance from the antenna center). At approximately 79.9 feet from the base of the tower, the depression angle of the main lobe will be approximately 77° below the horizontal. At that point, the relative field will be 0.279 and the power density six feet above the ground will be 0.0488 mW/cm². This equates to 4.88% of the Maximum Permissible Exposure (MPE) limits for Occupational/Controlled Exposure and 24.42% of the MPE limits for General Population/Uncontrolled Exposure authorized by the American National Standards Institute (ANSI). Since operation of the WKGC-FM Channel 214 hybrid facility will exceed 5.0% of the MPE limit for General Population/Uncontrolled Exposure at various points on the ground, WKGC-FM is considered a “contributor” to the RF exposure environment pursuant to OET Bulletin 65. Therefore, all broadcast antennas on the WKGC-FM tower must be analyzed and a composite study must be prepared to demonstrate that the total power density of all broadcast antennas mounted on the tower will not exceed 100% of the MPE allowable.

Other than the WKGC-FM antenna, there are no other broadcast antennas mounted and operational on the WKGC tower; however, the WKGC-FM antenna is mounted on the WKGC-AM tower. Therefore, the RF emissions from the WKGC-AM facility must also be considered in addition to the RF emissions from the WKGC-FM facility and together, must not exceed 100% of the MPE

allowable. The licensed WKGC-AM facility has no significant environmental impact as defined in §1.1307 of the FCC Rules. The AM transmitter, transmission line and antenna system produces an ERP of 5.0 kW daytime and 0.034 kW nighttime. The minimum distance from the base of the AM tower to the enclosed fence is 3.0 meters. Based on Section 1, Figure 4 of OET Bulletin 65, Supplement A for AM Radio Broadcast Stations, a distance of 3.0 meters equates to a Total Electric Field of 100 V/m. Since Figure 4 is an AM model based on an ERP of 1 kW for a 0.625 wavelength tower, the 100 V/m must be multiplied by the following: $1 \text{ kW} \times \sqrt{\text{ERP}} = 1 \text{ kW} \times \sqrt{5 \text{ kW}} = 2.24$. Therefore, 2.24 is multiplied by 100 V/m which equates to 223.6 V/m. Table 1 A of OET Bulletin 65, Supplement A depicts 614 V/m as the limit for General Population/Uncontrolled Exposure for frequencies ranging from 0.3 MHz to 3.0 GHz. Therefore, the percentage of exposure from the WKGC-AM facility is 36.4% (223.6/614.0).

In conclusion, the WKGC-FM hybrid facility is predicted to cause 24.42% of the MPE limits for General Population/Uncontrolled Exposure and the WKGC-AM facility is predicted to cause 36.4% of the MPE limits for General Population/Uncontrolled Exposure. Accordingly, the combined exposure from the WKGC-FM hybrid facility and the WKGC-AM facility is calculated to be 60.82% of the MPE limits for General Population/Uncontrolled Exposure which results in exposure levels well below the 100% MPE allowable threshold authorized by ANSI and the FCC. Therefore, it is safe to conclude that the emissions will be insignificant and well within the maximum allowable range.

If other antennas are placed on the tower in the future, the licensee will cooperate with those users by reducing or completely terminating the power to the antenna when maintenance workers are in danger from the electromagnetic radiation emanating from the antenna. It is also understood that additional antennas on the support structure could increase the overall RF exposure levels and it is the responsibility of each licensee to ensure that the total RF exposure resulting from the operation of all antennas on the support structure do not exceed the maximum permissible exposure level at any point on the ground.

Certification

This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics in 1993. As a Professional in the field of Telecommunications he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.


WILLIAM T. GODFREY, JR.
Engineering Associate

8 May, 2016