

Federal Communication Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
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Attention: Reviewing Engineer

The Integra M2113A integrated GSM modem is designed and intended for mobile applications only. However, RF exposure compliance has been addressed for fixed applications in addition to mobile applications. Included in the users manual are definitions for fixed and portable applications and limitations on antenna gain as appropriate for each application to insure that end users and OEMs have been provided necessary information to permit them to avoid exceeding the RF exposure guidelines as provided in the Commission's Rules.

This information includes the following: 20 cm separation between the body and the antenna must be maintained, use in portable applications is prohibited for mobile applications the maximum antenna gain is 3 dBi, and for fixed applications the maximum antenna gain is 7 dBi.

The factory tuning procedure ensures that the transmitter output power does not exceed 1 watt. Measured maximum for the unit tested was 712 milliwatts as measured during an interval of transmission. Sections 13 and 14 of the filed users manual address the various warnings and provide instructions to users and OEMs in order to make all parties aware of their responsibilities. Following the provided installation and operating requirements will ensure compliance with the MPE limits, regardless of application.

Regarding MPE limits, GPUC environment limits maximum exposure to 1 mW/cm². With 0.712 watts output and 7 dBi gain antenna this system produces a maximum power density of 0.711 mW/cm² at a distance of 20 cm. Calculations are based on standard formula for calculating field strength at a distance and converting to power density using free space impedance. Further, the device uses the GSM protocol which is a TDD format ratio of 1/8 in GSM mode and 2/8 in GPRS mode. Thus the 0.711 mWatts/cm² is further reduced by this ratio or it is equivalent to 0.178 mW/cm² for GPRS mode.

If calculated with the max power possible of 1 W the values are 0.997 mW/cm² using the same TDD ratio for GPRS mode of 2/8 the actual maximum is 0.249 mW/cm².

Since compliance is shown for the worst case condition for the unintended application in a fixed application, compliance with MPE requirements for the mobile application with a maximum antenna gain of 3 dBi is assured under all conditions.

Again, instructions to insure compliance with RF exposure requirements are provided for both the user and OEMs. These instructions will permit OEMs to provide the necessary information to the end users of their products in order to insure the end user is not exposed to electromagnetic radiation that exceeds the FCC limits.

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