

Memorandum

To: FCC Examiner/Engineer
From: Phillip Inglis, Cetecom bvba/Agent for Wavecom
Date: 05/13/2001
Re: FCC ID:O9EWMOD2B-G0919

This is a supplement to address additional issues related to the pending application for the referenced FCC ID:O9EWMOD2B-G0919, related to RF exposure requirements for FCC certification.

This device 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 851 milliwatts as measured during an interval of transmission. Sections 6 and 7 of the revised and filed users manual described as "Users Manual with Addendum" 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/cm^2 . With 0.873 watts output and 7 dBi gain antenna for fixed applications (numerical ratio = 5) this system produces a maximum power density of $0.868 \text{ mWatts/cm}^2$ 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. Thus the $0.868 \text{ mWatts/cm}^2$ is further reduced by this ratio or it is equivalent to $0.109 \text{ mWatts/cm}^2$. 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. This analysis is based on conducted measured power.

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

May 13, 2001

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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