MOTOROLA

ACCREDITED
Certificate No. 1449-01

CGISS EME Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

MPE Compliance Report

Date of Report:	December 10, 2004
Report Revision(s):	Rev. A
Device Manufacturer:	Motorola
Device Description:	iO200 module: 806-825 and 896-901MHz, 1:6, 1:3, 81:120, 1:12 TDMA; 64 QAM, 16 QAM & QPSK Modulation; 0.6 W Pulse average nominal; GPS capable
Classification:	Occupational/Controlled Exposure
FCC ID:	AZ489FT7011
Device Model:	FLF6011A
Responsible Engineer:	Stephen C. Whalen, Sr. EME Engineer
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12/10/04
Date Approved

REVISION HISTORY

Date	Revision	Comments
12/2/04	O	Original Release
12/10/04	A	iM200 was changed to iO200

MPE Analysis

The Motorola CGISS EME Laboratory has evaluated the iO200 model FLF6011A FCC ID AZ489FT7011 for RF Exposure Compliance. Due to the "component" nature of this product it is not possible to conduct EME testing because Motorola neither manufactures nor supplies the antenna(s) and host housing(s) that will be used in future systems integrations. Therefore this product will be evaluated as a mobile device per 47 CFR §1.1310 titled "Radio frequency radiation exposure limits", generally referred to as Maximum Permissible Exposure (MPE) limits. A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20cm is maintained between the body of the user and nearby persons and the antenna.

Although Motorola does not supply an antenna intended for use by the end user, a Systems Integrator Evaluation Board is available that includes a monopole antenna with a maximum gain of +1.4 dBi. The "Developer's Guide" for this product instructs the Systems Integrator to transmit only when the operator and nearby persons are at least 20 cm from the antenna.

Using OET Bulletin 65 formulas (listed below) the MPE of a radiating structure can be predicted when the distance, conducted power, and antenna gain, are known.

Details are as follows:

Model: FLF6011A
Frequency Range: 806-825 and 896-901MHz
Technology Duty Cycle: TDMA 1:6, 1:3 and 81:120
Maximum Power: 0.7 watts
Time averaged Power (P): Maximum sourced based time-averaged transmit power is 472mW in 81:120 mode.
MPE limit: 0.54mW/cm^2 at 806MHz (General Population MPE limit = f/1500)
Distance (R): 20cm
Antenna Gain (G): +7.3dBi maximum
EIRP: 2.54W maximum

The predicted RF Power Density based on the above information and OET Bulletin 65 is 0.51mW/cm^2 which is below the FCC General Population/Uncontrolled Limit of 0.54mW/cm^2. This result for a maximum antenna gain of +7.3 dBi also clearly demonstrates compliance for a +1.4 dBi antenna as used on the Systems Integrator Evaluation Board.

OET Bulletin 65 Edition 97-01 Section 2: Prediction Methods

Calculations can be made to predict RF field strength and power density levels around typical RF sources. For example, in the case of a single radiating antenna, a prediction for power density in the far-field of the antenna can be made by use of the general Equations (3) or (4) below. These equations are generally accurate in the far-field of an antenna but will over-predict power density in the near field, where they could be used for making a "worst case" or conservative prediction.

$$S = \frac{PG}{4\pi R^2} \qquad (3)$$

Where: S = power density (mW/cm^2)
P = power input to the antenna (mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (cm)

Or

$$S = \frac{EIRP}{4\pi R^2} \qquad (4)$$

Where: EIRP = equivalent (or effective) isotropically radiated power