U.S. Technologies, Inc .   Test Report, FCC Part 24E and Part
                                                            22H

Report Number: 06-0008   Issue Date: April 18, 2006
Customer: Sicom test s.r.l.
Model: GE863-QUAD / GE863-QUAD-PY Modular Transmitter

RF EXPOSURE

5.1 RF Safety Requirements to 2.1091 for Mobile Transmitters

Telit, Inc. calculated the MPE emission values for a GE863 with a maximum power density when using a 3 dBi antenna for fixed and mobile applications.
They used the formula shown in OET Bulletin 65 and calculated the minimum distance between antenna and unsuspecting user as 20 cm for both applications.

Power Output

The EUT's maximum expected output power as shown in Section 2.6 was

824 MHz to 850 MHz Range

Frequency of Fundamental (MHz)	Measurement (dBm)	Measurement (Watt)
824.09	31.12	1.294
835.92	30.29	1.069
848.70	29.99	0.997

The maximum EIRP expected for all installations is with a +3dBi gain antenna. This would yield a maximum EIRP of 31.12 dBm + 3 dBi = +34.12 dBm.

Therefore the maximum radiated output power (EIRP) is :

Antilog(34.12 dBm/10) = 2582 mW

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MPE Calculations

The limits for this unit (uncontrolled exposure) are 0.55 mW/cm^2. Taking the RF Denisty Field Equation:

$$S = (EIRP \text{ in mW})/(4\pi R^2)$$

Where   R = 20 cm
and   EIRP = 2582 mW

and π = 3.14159

$$S = 2582/4\pi 20^2$$

$$S = 2582/5026.55$$

$$S = 0.51 \text{ mW/cm}^2$$

All manual instructions will specify 20 cm all installations.

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1850 MHz to 1910 MHz Range

Frequency of Fundamental (MHz)	Measurement (dBm)	Measurement (Watt)
1.85013	28.54	0.714
1.87990	26.37	0.433
1.90980	27.68	0.586

The maximum EIRP expected for all installations is with a +3dBi gain antenna. This would yield a maximum EIRP of 28.54 dBm + 3 dBi = +31.54 dBm.

Therefore the maximum radiated output power (EIRP) is :

Antilog(30.68 dBm/10) = 1426 mW

MPE Calculations

The limits for this unit (uncontrolled exposure) are 1.0 mW/cm^2. Taking the RF Denisty Field Equation:

$S = (EIRP\ in\ mW)/(4\pi R^2)$

Where   R = 20 cm
and   EIRP = 21172 mW
and π = 3.14159

$S = 1426/4\pi 20^2$

$S = 1426/5026.55$

$S = 0.28\ mW/cm^2$

All manual instructions will specify 20 cm all installations.

5.2 RF Safety Requirements to 2.1091 (d) for Mobile Transmitters

Maximum output power is 34.12 dBm. (824.09 MHz)

Thje unit features GPRS Class 10 (2 up, 4 down) as described on page 4 of the Technical manual.

With a total time averaging of 8 packets, the 2 packet upload yields a duty cycle of 2/8 = .25 or 25%.

Using the formula for duty cycle correction = 10 log (0.25) = -6dB, the ERP is calculated as follows:

ERP = Antilog ((34.12 – 6 – 2.14)/10)

ERP = Antilog (2.598)

ERP = 0.396 W

The maximum allowed exposure is 1.5 Watts, therefore, this unit meets the requirements of <1,5 GHZ.

Maximum output power is 31.54 dBm. (1850.13 MHz)

Thje unit features GPRS Class 10 (2 up, 4 down) as described on page 4 of the Technical manual.

With a total time averaging of 8 packets, the 2 packet upload yields a duty cycle of 2/8 = .25 or 25%.

Using the formula for duty cycle correction = 10 log (0.25) = -6dB, the ERP is calculated as follows:

ERP = Antilog ((31.54 – 6 – 2.14)/10)

ERP = Antilog (2.34)

ERP = 0.219 W

The maximum allowed exposure is 3 Watts, therefore, this unit meets the requirements of >1,5 GHZ.