RF Exposure Calculation

Applicant: Trimble Navigation Ltd
FCC ID: JUPCCKGG8519

The internal / external antennas used for this mobile transmitter must provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

A safety statement concerning minimum separation distances from enclosure of the **CrossCheck GSM/GPRS 850/1900** will be integrated in the user's manual to provide end-users with transmitter operating conditions for satisfying RF exposure compliance.

The appropriate Max radiated power ERP and EIRP can be drawn from the test report no. G0M20311-8361-P-2224.

For transmitter operating in the 824-890 Mhz range, paragraph 1.1310 Table 1 limits maximum permissible exposure (MPE) to f/1500 mW/cm² for uncontrolled environments and f/300 mW/cm² for controlled environments.

For transmitter operating in the 1850-1990 Mhz range, paragraph 1.1310 Table 1 limits maximum permissible exposure (MPE) to 1.0 mW/cm² for uncontrolled environments and 5.0 mW/cm² for controlled environments.

The far field on-axis power flux density (W/m²) is calculated using the following formula:

$S = EIRP / 4 \pi r^2 = ERP*1.64 / 4 \pi r^2$

S = Power density (mW/cm²)
ERP = effective radiated power (mW)
EIRP = isotropically radiated power (mW)
r = Distance in cm

Calculations

Cellular Band 824-890 MHz – Limit 0.549 / 2.746
Maximum ERP = 24.56dbm = 0.286 W;

$S = 286mW*1.64 / (4 \pi 20^2 cm^2) = 0{,}093\ mW/cm^2 < 0.549\ mW/cm^2$

PCS Band 1850-1990 MHz - Limit 1.0 / 5.0
Maximum EIRP = 25.98dbm = 0.396 W;

$S = 398mW / (4 \pi 20^2 cm^2) = 0{,}079\ mW/cm^2 < 1.0\ mW/cm^2$

Kurt Damm
Head of Radio Communication