STATEMENT ON EXPOSURE TO ELECTROMAGNETIC FIELDS

EQUIPMENT

Type of equipment:	Remote terminal unit with 3G connectivity
Brand name:	Creowave
Type / Model:	R7-101, R7-102
Manufacturer:	Creowave Oy
By request of:	Creowave Oy

STANDARD

47 CFR §2.1091, 47 CFR §1.1307, 47 CFR §1.1310
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CALCULATIONS

Power density calculation is as follows:

$$S = \frac{EIRP}{4\pi \times r^2}$$

Manufacturer's installation guide states that minimum distance between antennas and user is 50 cm.

Highest Measured output power for ZigBee is 19.18 dBm.
Antenna Gain 5 dBi
S = (261,8 mW) / (4π*50cm^2) = 0.0083 mW / cm^2
For three ZigBee transmitter simultaneous operation S = 0.025 mW / cm^2

Highest measured output power for GSM /3G is

GSM and EDGE modes
824.2 - 848.8 MHz 31.92 dBm
1850.4 - 1909.8 MHz 27.21 dBm

WCDMA mode
826.4 - 846.6 MHz 21.92dBm
1852.4 - 1907.6 MHz 20.74dBm

Antenna Gain 4 dBi @ 850 MHz 5 dBi @ 1900 MHz

Power density:
S GSM 850 = (3908.4 mW) / (4π*50cm^2) = 0.1244mW / cm^2
S GSM 1900 = (1663.4 mW) / (4π*50cm^2) =0.0529 mW / cm^2

S WCDMA 850 = (390.8mW) / (4π*50cm^2) = 0.0124 mW / cm^2
S WCDMA 1900 = (375.0mW) / (4π*50cm^2) = 0.0119 mW / cm^2

Limit for General Population/Uncontrolled Exposure according to §1.1310 for power density between 1500 – 100 000 MHz is 1mW / cm^2 and f(MHz)/1500 mW / cm^2 between 300 – 1500 MHz.

RSS-102 table 4 field strength limit for general public environment between 300 – 6000 MHz is $0.02619\ f(\text{MHz})^{0.6834}$.

Limits CFR 47 §1.1310
Limit 1 at 824.2 MHz = 0.549 mW / cm^2
Limit 2 at 1900 and 2450 MHz is = 1mW / cm^2

Limits RSS-102 table 4
Limit 1 at 824.2 MHZ = 5.49 W / m^2
Limit 2 at 1900 MHz = 4.47 W / m^2
Limit 3 2450 is = 5.42 W / m^2

Simultaneous transmission conditions: $MPE_1 / limit_1 + MPE_2 / limit_2 + MPE_n / limit_n < 1$

3 x ZigBee + GSM 850 = 3 x 0.0083/1 + 0.1244/0.549 = 0.251
= 3 x (0.083/5.42) + 1.244/5.49 = 0.273

3 x ZigBee + GSM 1900 = 3 x 0.0083/1 + 0.0529/1 = 0.078
= 3 x (0.083/5.42) + 0.529/4.47 = 0.164

EUT complies without testing.

Intertek Semko AB, Radio& EMC

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