LCIE SUD EST
Laboratoire de Moirans
Z.I. Centr'Alp
170, Rue de Chatagnon
38430 MOIRANS – FRANCE

FCCID: 2AHHK-EASERGYHU250

RF Exposure Information

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density

P = power input to the antenna

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

When all the antennas are at least 20cm away from the user's body (excluding hands and wrists during normal operation of the device), but individual antennas cannot be separated by more than 20cm from each other.

[Pd(1) / LPd(1)] + [Pd(2) / LPd(2)] + ….. + [Pd(n) / LPd(n)] < 1,

Where;
Pd(n) = Power density of n^{th} transmitter at 20cm
LPd(n) = Power density limit for the n^{th} transmitter

§ 1.1310 Radiofrequency radiation exposure limits.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

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In using this equipment, it is possible to have co location with GSM/GPRS modular FCCID: QIPPHS8-P:

FCC IDENTIFIER:	QIPPHS8-P
Name of Grantee:	Gemalto M2M GmbH
Equipment Class:	**PCS Licensed Transmitter**
Notes:	**GSM/GPRS/UMTS/HSPA Module**
Modular Type:	**Single Modular**

FCC Rule Parts	Frequency Range (MHZ)	Output Watts
22H	824.2 - 848.8	2.399
22H	824.2 - 848.8	1.072
22H	826.4 - 846.6	0.692
24E	1850.2 - 1909.8	1.122
24E	1850.2 - 1909.8	0.871
24E	1852.4 - 1907.6	0.676

To show compliance of co-location, see following calculations.

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Calculations:

For transmitter:	Wifi	
Frequency:	2412.00	MHz
Prediction distance:	20.00	cm (Portable:0.5cm / Mobile:20cm)
Output Power:	15.50	at the antenna terminal (dBm)
Antenna gain(typical):	2.27	(dBi)
MPE limit for uncontrolled exposure at prediction frequency:		1.00

Calculation:

Maximum peak output power at the antenna terminal:	15.50	(dBm)
Maximum peak output power at the antenna terminal:	35.48	(mW)
Antenna gain(typical):	2.27	(dBi)
Maximum antenna gain:	1.69	(numeric)
Prediction distance:	20.00	(cm)
Prediction frequency:	2412.00	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1.00	(mW/cm^2)

Power density at prediction frequency:	**0.012**	**(mW/cm^2)**

For transmitter:	GSM/GPRS	
Frequency:	824.20	MHz
Prediction distance:	20.00	cm (Portable:0.5cm / Mobile:20cm)
Output Power:	33.80	at the antenna terminal (dBm)
Antenna gain(typical):	0.00	(dBi)
MPE limit for uncontrolled exposure at prediction frequency:		1.00

Calculation:

Maximum peak output power at the antenna terminal:	33.80	(dBm)
Maximum peak output power at the antenna terminal:	2398.83	(mW)
Antenna gain(typical):	0.00	(dBi)
Maximum antenna gain:	1.00	(numeric)
Prediction distance:	20.00	(cm)
Prediction frequency:	824.20	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1.00	(mW/cm^2)

Power density at prediction frequency:	**0.48**	**(mW/cm^2)**

Calculation(ex) : **(Pd(2.4GHz) / LPd(2.4GHz)) + (Pd(FM) / LPd(FM)) = xxxxx mW/cm² <1**

Colocation:	**0.49**	<1

Conclusion:
The device complies with FCC's RF radiation exposure limit for general population as a **mobile** device **(d>20cm)** under the collocation conditions described above.