

FCC §15.247 (i), §2.1091 – RF Exposure

FCC ID: 2AC33S4-GSM

Applied procedures / limit

According to FCC §15.247(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

Note: f is frequency in MHz

* = Power density limit is applicable at frequencies greater than 100 MHz

Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz

* = Plane-wave equivalent power density

MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to 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

TEST RESULTS

Mode	Frequency (MHz)	Maximum Burst-Average Output Power
GSM850	824.2	32.42
	836.6	32.41
	848.8	32.32
GPRS850 (1 Slot)	824.2	32.41
	836.6	32.12
	848.8	32.25
GPRS850 (2 Slot)	824.2	31.52
	836.6	31.41
	848.8	31.62
GPRS850 (3 Slot)	824.2	30.34
	836.6	29.42
	848.8	29.34
GPRS850 (4 Slot)	824.2	29.28
	836.6	28.74
	848.8	28.53

Mode	Frequency (MHz)	Maximum Burst-Average Output Power
GSM1900	1850.2	29.21
	1880	28.54
	1909.8	28.36
GPRS1900 (1 Slot)	1850.2	29.42
	1880	29.43
	1909.8	28.52
GPRS1900 (2 Slot)	1850.2	28.45
	1880	28.51
	1909.8	28.44
GPRS1900 (3 Slot)	1850.2	26.54
	1880	26.52
	1909.8	26.61
GPRS1900 (4 Slot)	1850.2	25.66
	1880	25.62
	1909.8	25.55

Mode	Maximum output power (dBm)	Maximum output power (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)	Limit of Power Density (S) (mW/ cm ²)	Result
GSM850	33	1995.26	0.5dBi(1.01)	0.4009	0.549	Pass
GPRS850	33	1995.26	0.5dBi(1.01)	0.4009	0.549	Pass
GSM1900	30	1000.00	0.5dBi(1.01)	0.2009	1	Pass
GPRS1900	30	1000.00	0.5dBi(1.01)	0.2009	1	Pass