

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Standard Applicable

According to § 1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) 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 Times 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
1500-100000	/	/	5	6

(b) 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 Times 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
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density

1.2 MPE Calculation Method

$$S = (30 * P * G) / (377 * R^2)$$

S = power density (in appropriate units, e.g., mw/cm²)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator,
the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.3 MPE Calculation Result

Product Description: RADIOSECURE SLM

Model No.: RS-SLM-324x

FCC ID: CO8-30076009

Device Category: Mobile Device

Antenna-to-tissue separation: ≥ 20 cm

According to the KDB-447498, the following RF exposure evaluation shall demonstrate RF exposure compliance.

For Cellular Band (GSM850)

Tx Freq.	Power	Power	Gain	Gain	Mobile	S	Limit	Result
MHz	dBm	mW	dBi	Num	cm	mW/cm ²	mW/cm ²	
GSM								
824.2	32.95	1972.42	0.5	1.12	20.00	0.4403	0.55	PASS
836.6	32.92	1958.84	0.5	1.12	20.00	0.4372	0.56	PASS
848.8	32.88	1940.89	0.5	1.12	20.00	0.4332	0.57	PASS
GPRS								
824.2	32.61	1823.90	0.5	1.12	20.00	0.4071	0.55	PASS
836.6	32.72	1870.68	0.5	1.12	20.00	0.4176	0.56	PASS
848.8	32.75	1883.65	0.5	1.12	20.00	0.4205	0.57	PASS

For PCS Band (GSM1900)

Tx Freq.	Power	Power	Gain	Gain	Mobile	S	Limit	Result
MHz	dBm	mW	dBi	Num	cm	mW/cm ²	mW/cm ²	
GSM								
1850.2	29.69	931.11	1.3	1.35	20.00	0.2499	1.00	PASS
1880.0	29.66	924.70	1.3	1.35	20.00	0.2482	1.00	PASS
1909.8	29.19	829.85	1.3	1.35	20.00	0.2227	1.00	PASS
GPRS								
1850.2	29.45	881.05	1.3	1.35	20.00	0.2364	1.00	PASS
1880.0	29.28	847.23	1.3	1.35	20.00	0.2274	1.00	PASS
1909.8	29.25	841.40	1.3	1.35	20.00	0.2258	1.00	PASS

RF 2.4GHz Mode:

Maximum field strength of fundamental: 87.5dBuV/m at 3m distance

The transmitter has a very low power in the 2.4GHz mode, fulfilled the RF exposure requirement.

So the antenna of this device must be installed to provide a separation distance of at least 20 cm from all persons, to ensure satisfy the requirement of the RF Exposure.