

# SGS-CSTC Standards Technical Services Co., Ltd.

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# **RF Exposure Compliance Requirement**

## 1. Standard requirement

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

# (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/cm²)	Averaging Times  E  <sup>2</sup> , H  <sup>2</sup> 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 <sup>2</sup> )	Averaging Times  E  <sup>2</sup> , H  <sup>2</sup> 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			1.0	30	

Note: f=frequency in MHz; \*Plane-wave equivalent power density

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### 2. MPE Calculation Method

 $E (V/m) = (30^{*}P^{*}G)^{0.5}/d$  Power Density:  $Pd(W/m^{2}) = E^{2}/377$ 

E=Electric Field (V/m)

P=Peak RF output Power (W)

G=EUT Antenna numeric gain (numeric)

d= Separation distance between radiator and human body (m)

The formula can be changed to

 $Pd = (30*P*G)/(377*d^2)$ 

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

### 3. Calculated Result and Limit

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2402	1.585	3.70	2.344	0.00074	1	Complies
2442	1.585	3.85	2.427	0.00077	1	Complies
2480	1.585	3.68	2.333	0.00074	1	Complies

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