FCC ID:2BKKN-Y-002

Maximum Permissible Exposure (MPE)

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

MPE Calculation Method

$$E\ (V/m) = \frac{\sqrt{30 * P * G}}{d}$$

Power Density: *Pd* (W/m^2) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Average 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

$$Pd = \frac{30 * P * G}{377 * D^2}$$

From the 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.

GSM/LTE

GSM/LTE Antenna Type: PIFA Antenna
Antenna Gain: GSM 850: 0.3dBi; PCS 1900: 0.8dBi;
LTE: Band 2: 0.8 dBi, Band 4: 0.8dBi, Band 5: 0.3 dBi, Band 7: 1.0dBi, Band 66: 0.8dBi,

modulation	Max		Antenna		Evaluation result	Power density
	tune-up power		Gain		(mW/cm2)	(mW/cm2)
	(dBm)	(mW)	(dBi)	Numeric		
GSM850	30	1000.000	0.3	1.07	0.2132	0.558
GSM1900	28.5	707.946	0.8	1.20	0.1693	1
LTE Band 2	23	199.526	0.8	1.20	0.0477	1
LTE Band 4	24	251.189	0.8	1.20	0.0601	1
LTE Band 5	21.5	141.254	0.3	1.07	0.0301	0.55
LTE Band 7	22	158.489	1	1.26	0.0397	1
LTE Band 66	24	251.189	0.8	1.20	0.0601	1

Signature:
Date: 2024-8-14

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