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Maximum Permissible Exposure

1 Applicable standard

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/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	($900/f^2$)*	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	($180/f^2$)*	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

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

Test CH (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
Low CH: 903.00	3.1623	28.90	776.247	0.602[4)]	0.48834[1)]	
Middle CH: 915.00	3.1623	28.70	741.310	0.610[5)]	0.46636[2)]	
High CH: 927.00	3.1623	27.93	620.869	0.618[6)]	0.39059[3)]	

Note: 1.Antenna gain: 5dBi (3.1623)

2. 1) Limit of Power density S (mW/cm^2) for uncontrolled area at 903.000
S=f (MHz)/1500=903.00/1500=0.602

2) Limit of Power density S (mW/cm^2) for uncontrolled area at 915.00
S=f (MHz)/1500=915.00/1500=0.610

3) Limit of Power density S (mW/cm^2) for uncontrolled area at 927.00
S=f (MHz)/1500=927.00/1500=0.618

3. 4) Power density S (mW/cm^2) for uncontrolled area at 903.00
S= (30*P*G)/ (377*d^2) = (30*776.247Mw*3.1623)/ (377*20cm^2) =0.48834

5) Power density S (mW/cm^2) for uncontrolled area at 915.00
S= (30*P*G)/ (377*d^2) = (30*741.310Mw*3.1623)/ (377*20cm^2) =0.46636

6) Power density S (mW/cm^2) for uncontrolled area at 927.00
S= (30*P*G)/ (377*d^2) = (30*620.869Mw*3.1623)/ (377*20cm^2) =0.39059