

1 Maximum Permissible Exposure

1.1 Maximum Permissible Exposure

1.1.1 Limit of Maximum Permissible Exposure

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	1,842 / 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
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 ²)*	30
30-300	27.5	0.073	0.2	30
300-1,500			F/1500	30
1,500-100,000			1.0	30
Note 1: f = frequency in MHz ; *Plane-wave equivalent power density				
Note 2: For the applicable limit, see FCC 1.1310				

1.1.2 MPE Calculation Method

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

E = Electric field (V/m)

G = EUT Antenna numeric gain (numeric)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

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

P = RF output power (W)

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

1.1.3 Result of Maximum Permissible Exposure

RF General Information 5150~5250MHz						
Frequency Range (MHz)	IEEE Std. 802.11 Protocol	Ch. Frequency (MHz)	Channel Number	Number of Transmit Chains (N _{TX})	RF Output Power (dBm)	Co-location
5150-5250	a	5180-5240	36-48 [4]	1	17.35	No
5150-5250	n (HT20)	5180-5240	36-48 [4]	1	17.31	No
5150-5250	n (HT40)	5190-5230	38-46 [2]	1	17.25	No
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	1	17.25	No
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	1	17.26	No
5150-5250	ac (VHT80)	5210	42 [1]	1	16.78	No

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.

RF General Information 5725 MHz – 5850 MHz						
Frequency Range (MHz)	IEEE Std. 802.11 Protocol	Ch. Frequency (MHz)	Channel Number	Number of Transmit Chains (N _{TX})	RF Output Power (dBm)	Co-location
5725-5850	a	5745-5825	149-165 [5]	1	20.09	No
5725-5850	n(HT20)	5745-5825	149-165 [5]	1	20.13	No
5725-5850	n(HT40)	5755-5795	151-159 [2]	1	17.92	No
5725-5850	ac(VHT20)	5745-5825	149-165 [5]	1	20.54	No
5725-5850	ac(VHT40)	5755-5795	151-159 [2]	1	17.57	No
5725-5850	ac(VHT80)	5775	155 [1]	1	14.67	No

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.



Worst Maximum RF Output Power Result					
Exposure Environment		General Population / Uncontrolled Exposure			
Separation Distance (cm)		20			
Condition		RF Output Power (dBm)			
Modulation Mode	N _{TX}	RF Output Power (dBm)	DG (dBi)	EIRP Power	PD (S) (mW/cm ²)
11N-A	1	17.35	2.80	20.15	0.020
11N-VHT20	1	20.54	2.80	23.34	0.042
Maximum Permissible Exposure Limit (mW/cm ²)					1
Note 1: N _{TX} = Number of Transmit Chains					