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/ cm²)**	**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/ cm²)**	**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 (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$

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

E = Electric field (V/m)

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

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)**
5150-5250	a	5180-5240	36-48 [4]	3	24.22
5150-5250	n (HT20)	5180-5240	36-48 [4]	3	24.72
5150-5250	n (HT40)	5190-5230	38-46 [2]	3	27.47
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	3	24.65
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	3	27.48
5150-5250	ac (VHT80)	5210	42 [1]	3	18.93
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)**
5725-5850	a	5745-5825	149-165 [5]	3	25.87
5725-5850	n(HT20)	5745-5825	149-165 [5]	3	25.91
5725-5850	n(HT40)	5755-5795	151-159 [2]	3	28.33
5725-5850	ac(VHT20)	5745-5825	149-165 [5]	3	27.77
5725-5850	ac(VHT40)	5755-5795	151-159 [2]	3	28.03
5725-5850	ac(VHT80)	5775	155 [1]	3	17.28
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.					

RF General Information 2400 MHz – 2483.5 MHz					
Frequency Range (MHz)	**IEEE Std. 802.11 Protocol**	**Ch. Frequency (MHz)**	**Channel Number**	**Number of Transmit Chains (N_{TX})**	**RF Output Power (dBm)**
2400-2483.5	b	2412-2462	1-11 [11]	3	26.08
2400-2483.5	g	2412-2462	1-11 [11]	3	24.34
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	3	23.75
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	3	21.44
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/cm²)**
11N-HT40	3	28.33	4.85	33.18	0.414
11b	3	26.08	3.95	30.03	0.200
Co-location Total					0.614
Maximum Permissible Exposure Limit (mW/cm²)					1
Note 1: N_{TX} = Number of Transmit Chains					