RF exposure

FCC ID : 2A9KPNU110SE

According to FCC part 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 (㎒)	Electric field strength(V/m)	Magnetic field strength (A/m)	Power density (㎽/㎠)	Average time
(A) Limits for Occupational / Control Exposures				
300 – 1 500	--	--	f/300	6
1 500 - 100000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300 – 1 500	--	--	f/1500	6
1 500 – 100 000	--	--	1	30

f= frequency in ㎒

Friis transmission formula: $Pd = (Pout \times G)/(4 \times pi \times R^2)$

Where,

Pd = power density in ㎽/㎠

Pout = output power to antenna in ㎽

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd the limit of MPE, 1 ㎽/㎠. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Results

2.4 ㎓

Operation mode	Frequency (㎒)	Maximum Average output power (dBm)	Antenna gain (dBi)	Power density at 20 ㎝(㎽/㎠)	Limit (㎽/㎠)
BDR (1 Mbps)	2 402 ㎒ ~ 2 480 ㎒	6.5	3.0	0.001 77	1
EDR (2 Mbps)		5.5		0.001 41	
EDR (3 Mbps)		5.5		0.001 41	
LE (1 Mbps)		-3.5		0.000 18	
802.11b	2 412 ㎒ ~ 2 462 ㎒	13.5		0.008 89	
802.11g		11.5		0.005 61	
802.11n_HT20		10.5		0.004 45	
802.11n_HT40	2 422 ㎒ ~ 2 452 ㎒	3.0		0.000 79	

UNII-1

Operation mode	Frequency (㎒)	Maximum Average output power (dBm)	Antenna gain (dBi)	Power density at 20 ㎝(㎽/㎠)	Limit (㎽/㎠)
802.11a	5 180 ㎒ ~ 5 240 ㎒	12.0	3.3	0.006 74	1
802.11n_HT20		12.0		0.006 74	
802.11n_HT40	5 190 ㎒ ~ 5 230 ㎒	12.0		0.006 74	

UNII-2A

Operation mode	Frequency (㎒)	Maximum Average output power (dBm)	Antenna gain (dBi)	Power density at 20 ㎝(㎽/㎠)	Limit (㎽/㎠)
802.11a	5 260 ㎒ ~ 5 320 ㎒	11.5	3.3	0.006 01	1
802.11n_HT20		11.5		0.006 01	
802.11n_HT40	5 270 ㎒ ~ 5 310 ㎒	13.0		0.008 49	

UNII-2C

Operation mode	Frequency (㎒)	Maximum Average output power (dBm)	Antenna gain (dBi)	Power density at 20 ㎝(㎽/㎠)	Limit (㎽/㎠)
802.11a	5 500 ㎒ ~ 5 720 ㎒	12.0	3.3	0.006 74	1
802.11n_HT20		12.0		0.006 74	
802.11n_HT40	5 510 ㎒ ~ 5 710 ㎒	13.0		0.008 49	

UNII-3

Operation mode	Frequency (㎒)	Maximum Average output power (dBm)	Antenna gain (dBi)	Power density at 20 ㎝(㎽/㎠)	Limit (㎽/㎠)
802.11a	5 745 ㎒ ~ 5 825 ㎒	11.5	3.3	0.006 01	1
802.11n_HT20		11.5		0.006 01	
802.11n_HT40	5 755 ㎒ ~ 5 795 ㎒	13.0		0.008 49	