RF EXPOSURE EVALUATION

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/m²) = $\frac{E^2}{377}$

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.

MAX OUTPUT POWER

WIFI:

TX 802.11b Mode			
Test Channe	Frequency	MaximumPeak Conducted Output Power	LIMIT
	(MHz)	(dBm)	dBm
CH01	2412	17.1	30
CH06	2437	17.46	30
CH11	2462	17.31	30
TX 802.11g Mode			
CH01	2412	14.33	30
CH06	2437	15.11	30
CH11	2462	14.76	30
TX 802.11n20 Mode			
CH01	2412	14.49	30
CH06	2437	14.78	30
CH11	2462	14.65	30
TX 802.11n40 Mode			
CH03	2422	14.93	30
CH06	2437	15.03	30
CH09	2452	15.01	30

Measurement Result

Operation Frequency: WIFI: 2412-2462MHz for 802.11b/g/11n(HT20);
2422-2452MHz for 802.11n(HT40)
Power density limited: 1mW/ cm^2
Antenna Type: FPCB Antenna
Antenna gain: 3dBi
R=20cm
WIFI:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
				tune-up power		Gain			
				(dBm)	(mW)	(dBi)	Numeric		
2412	802.11b	17.1	17±1	18	63.096	3.00	2.00	0.0250	1
2437		17.46	17±1	18	63.096	3.00	2.00	0.0250	1
2462		17.31	17±1	18	63.096	3.00	2.00	0.0250	1
2412	802.11g	14.33	15±1	16	39.811	3.00	2.00	0.0158	1
2437		15.11	15±1	16	39.811	3.00	2.00	0.0158	1
2462		14.76	15±1	16	39.811	3.00	2.00	0.0158	1
2412	802.11n HT20	14.49	15±1	16	39.811	3.00	2.00	0.0158	1
2437		14.78	15±1	16	39.811	3.00	2.00	0.0158	1
2462		14.65	15±1	16	39.811	3.00	2.00	0.0158	1
2422	802.11n HT40	14.93	15±1	16	39.811	3.00	2.00	0.0158	1
2437		15.03	15±1	16	39.811	3.00	2.00	0.0158	1
2452		15.01	15±1	16	39.811	3.00	2.00	0.0158	1

Conclusion:
For the max result : 0.0250≤ 1.0 for Max Power Density, compliance RF exposure.