FCC ID:2AEK8-F83

RF EXPOSURE EVALUATION

Limits

KDB 447498 D01 General RF Exposure Guidance v06 and part 2.1091.

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 Exposures				
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
1500–100,000			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
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz

Friis transmission formula: **$Pd = (Pout*G)/(4*pi*r^2)$**

Where

Pd = power density in mW/cm^2, **Pout** = output power to antenna in mW;

G = gain of antenna in linear scale, **Pi** = 3.1416;

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

Pd id the limit of MPE, 1 mW/cm^2. 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 r where the MPE limit is reached.

Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

Test Result of RF Exposure Evaluation

BT								
Mode	Frequency (MHz)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Power Density at R=20cm (mW/cm^2)	Limit (mW/cm^2)	Result
GFSK	2441	-2.467	-3±1	-2	0.63	0.000187	1.0	PASS
π/4-DQPSK	2441	-3.522	-4±1	-3	0.50	0.000149	1.0	PASS
8-DPSK	2441	-3.357	-4±1	-3	0.50	0.000149	1.0	PASS
Note: Antenna Gain = 1.73dBi								

2.4G WLAN								
Mode	Frequency (MHz)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Power Density at R=20cm (mW/cm^2)	Limit (mW/cm^2)	Result
802.11b	2437	3.018	3±1	4	2.51	0.000744	1.0	PASS
802.11g	2462	2.951	2±1	3	2.00	0.000591	1.0	PASS
802.11n20	2412	2.379	2±1	3	2.00	0.000591	1.0	PASS
802.11n40	2422	2.577	2±1	3	2.00	0.000591	1.0	PASS
Note: Antenna Gain = 1.73dBi								

5.2G RLAN								
Mode	Frequency (MHz)	Output power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Power Density at R=20cm (mW/cm^2)	Limit (mW/cm^2)	Result
802.11a	5180	1.257	1±1	2	1.58	0.000727	1.0	PASS
802.11n20	5180	1.348	1±1	2	1.58	0.000727	1.0	PASS
802.11n40	5190	0.467	0±1	1	1.26	0.000579	1.0	PASS
Note: Antenna Gain = 3.64dBi								

Note: The device can not transmit with 2.4G WLAN and 5.2G RLAN and BT simultaneously.