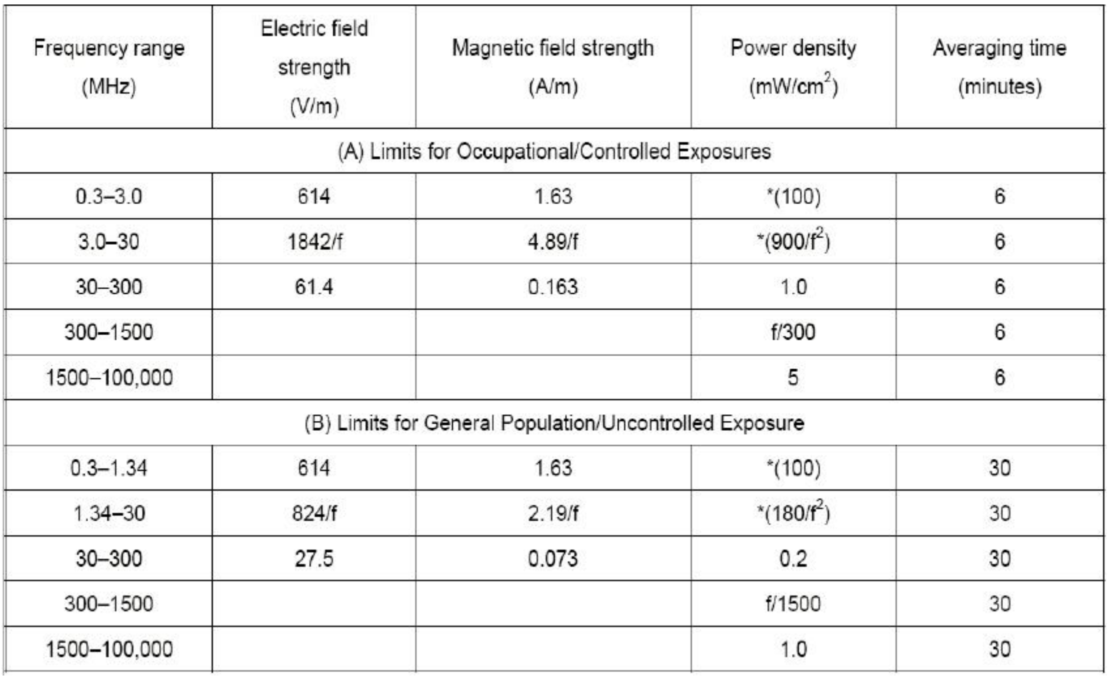
FCC RF Exposure

EUT Description: wooboobox
ModelNo.:Z4 BOX
FCC ID: 2A7G5-Z4BOX
Equipment type: fixed equipment

1. Limits

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
Formula: $Pd = (P_{out} * G)/(4 * \pi * r^2)$
Where :
Pd = power density in mW/cm^2,
Pout = output power to antenna in mW;
G = gain of antenna in linear scale,
π = 3.14;
R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2. 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.

2. Test Procedure

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

3. Test Result of RF Exposure Evaluation

TestMode	Channel (MHz)	Output power (dBm/ mW)	Power Density at R=20cm (mW/cm2)	Limit (mW/cm2)	Result
802.11a20	5180MHz	4.69/2.94	0.00074	1.0	Pass
802.11a20	5200MHz	3.50/2.23	0.00056	1.0	Pass
802.11a20	5240MHz	4.81/2.24	0.00056	1.0	Pass
802.11n20	5180MHz	4.81/2.24	0.00056	1.0	Pass
802.11n20	5200MHz	3.93/2.47	0.00062	1.0	Pass
802.11n20	5240MHz	4.54/2.84	0.00072	1.0	Pass
802.11ac20	5180MHz	3.77/2.38	0.00060	1.0	Pass
802.11 ac20	5200MHz	4.43/2.77	0.00070	1.0	Pass
802.11 ac20	5240MHz	4.97/3.14	0.00079	1.0	Pass

	Output power (dBm/ mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm^2)	Limit (mW/cm^2)	Result
GFSK 2402MHz	-3.591/0.437	1.0	0.0001	1.0	Pass
GFSK 2441MHz	-2.139/0.611	1.0	0.0002	1.0	Pass
GFSK 2480MHz	-1.68/0.679	1.0	0.0002	1.0	Pass

BT+WIFI simultaneous transmission:

Power Density=0.00079+0.0002=0.00081<1.0

Note:Antenna 1.0 Gain(dBi)