

FCC RF Exposure

EUT Description: Wireless Adapter

ModelNo.:A18

Series Model:A15,A19,A21,A22,A23,A24,A25,A26,A27,A28,A29, A30

FCC ID: 2BF6T-A18

Equipment type: mobile plant

Test procedures according to the technical standards: KDB 447498 D01 V06 and FCC 2.1091.

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: $Pd = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where :

Pd = power density in mW/cm²,

Pout = output power to antenna in mW;

G = gain of antenna in linear scale,

$\pi = 3.14$;

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

Pd is 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 WIFI

Modulation mode	Output power (dBm)	Output power (mW)	Antenna Gain (dBi)	Antenna gain numeric	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
U-NII-1 802.11a	6.35	4.3152	-0.42	0.91	0.00078161	1.0	Pass
U-NII-1 802.11n(HT20)	6.30	4.2658	-0.42	0.91	0.0007726	1.0	Pass
U-NII-1 802.11n(HT40)	7.25	5.3088	-0.42	0.91	0.0009615	1.0	Pass
U-NII-1 802.11ac(HT20)	6.31	4.2756	-0.42	0.91	0.0007744	1.0	Pass
U-NII-1 802.11ac(HT40)	7.28	5.3456	-0.42	0.91	0.0009682	1.0	Pass
U-NII-1 802.11ac(HT80)	2.27	1.6866	-0.42	0.91	0.0003054	1.0	Pass
U-NII-3 802.11a	13.07	20.2768	-0.42	0.91	0.0036727	1.0	Pass
U-NII-3 802.11n(HT20)	13.24	21.0863	-0.42	0.91	0.0038193	1.0	Pass
U-NII-3 802.11n(HT40)	7.65	5.8210	-0.42	0.91	0.0010543	1.0	Pass
U-NII-3 802.11ac(HT20)	13.09	20.3704	-0.42	0.91	0.0036897	1.0	Pass
U-NII-3 802.11ac(HT40)	7.58	5.7280	-0.42	0.91	0.0010375	1.0	Pass
U-NII-3 802.11ac(HT80)	10.79	11.995	-0.42	0.91	0.0021726	1.0	Pass

BT

Frequency(MHz)	Output power (dBm)	Output power (mW)	Antenna Gain (dBi)	Antenna gain numeric	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
2402	3.80	2.398	0.02	1.0	0.0004773	1.0	Pass
2440	3.72	2.355	0.02	1.0	0.0004687	1.0	Pass
2480	3.70	2.344	0.02	1.0	0.0004665	1.0	Pass

$$\text{WIF+BT: } 0.0038193 + 0.0004773 = 0.0037193 < 1$$