RF EXPOSURE EVALUATION

EUT Specification

EUT	AC1200 Gigabit Whole Home Mesh WiFi System
Test No.:	D-MAC3
FCC ID	2BLJV-R-W52410
Antenna gain (Max)	2.4GWIFI： ANT1: 4.85dBi, ANT2: 4.85dBi 5GWIFI： ANT1: 5.05dB, ANT2: 5.05dBi
Operation Frequency	2.4GWIFI:2412-2462MHz 5GWIFI: 802.11a/802.11ac20/802.11n(HT20): 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11ac40/802.11n(HT40): 5190-5230MHz, 5270-5310MHz, 5510-5550MHz, 5755-5795MHz 802.11ac80: 5210MHz, 5290MHz, 5530MHz 5775MHz
Input Rating	DC 12V from adapter

Test Requirement:

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)

KDB Test Methodology: KDB 447498 D01v06

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm^2)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	**--**	**--**	**F/300**	**6**
1500-100000	**--**	**--**	**5**	**6**
(B) Limits for General Population/Uncontrol Exposures				
300-1500	**--**	**--**	**F/1500**	**6**
1500-100000	**--**	**--**	**1**	**30**

11.1 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= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1416

R= distance between observation point and center of the radiator in cm=20cm

Pd the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

Mode	Frequency (MHz)	Prediction distance (cm)	RF output power(Max) (dBm)	Tune-up power (Max)		MPE (mW/cm^2)	Limit (mW/cm^2)	SAR Test Exclusion
				dBm	W			
2.4G WIFI(ANT1)	2412-2462	20	16.17	17	0.050119	0.030475	1	Yes
2.4G WIFI(ANT2)	2412-2462	20	12.96	14	0.025119	0.015274	1	Yes
5G WIFI B1(ANT1)	5180-5240	20	13.00	14	0.025119	0.015994	1	Yes
5G WIFI B1(ANT2)	5180-5240	20	12.64	14	0.025119	0.015994	1	Yes
5G WIFI B2(ANT1)	5260-5320	20	13.49	14	0.025119	0.015994	1	Yes
5G WIFI B2(ANT2)	5260-5320	20	13.36	14	0.025119	0.015994	1	Yes
5G WIFI B3(ANT1)	5500-5700	20	11.73	13	0.019953	0.012704	1	Yes
5G WIFI B3(ANT2)	5500-5700	20	11.41	12	0.015849	0.010091	1	Yes
5G WIFI B4(ANT1)	5745-5825	20	10.23	11	0.012589	0.008016	1	Yes
5G WIFI B4(ANT2)	5745-5825	20	10.44	11	0.012589	0.008016	1	Yes

Maximum Simultaneous transmission MPE Ratios for 2.4GWIFI+5GWIFI:

Max MPE ratio $_{2.4GWIFI}$	Max MPE Ratio $_{5GWIFI}$	∑MPE ratios	Limit	Result
0.030475	0.015994	0.046469	1	Pass
MPE= Limit of Power Density (S) (mW/cm2)/ Limit of Power Density (S) (mW/cm2) ratios				

Signature:

Stone Tang

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