

RF EXPOSURE EVALUATION

EUT Specification

EUT	Desktop server
Model Number	UT2, UT2A, UT2 Pro, UT2C, UT2 Max
FCC ID	2BGV2UT2
Antenna gain (Max)	BT/BLE: 0.14 2.4GWIFI: ANT1: 0.14dBi, ANT2: -0.08dBi 5GWIFI: ANT1: 0.26 dB, ANT2: 2.68dBi
Operation Frequency	BT/BLE:2402-2480MHz 2.4GWIFI:2412-2462MHz 5GWIFI: 802.11a/802.11ac20/802.11n(HT20)/802.11ax20: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11ac40/802.11n(HT40)/802.11ax40: 5190-5230MHz, 5270-5310MHz, 5510-5550MHz, 5755-5795MHz 802.11ac80/802.11ax80: 5210MHz, 5290MHz, 5530MHz 5775MHz
Input Rating	DC 3.85V from battery or 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: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π =3.1416

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

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and 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			
BT EDR	2402-2480	20	9.88	11	0.012589	0.002588	1	Yes
BT LE	2402-2480	20	-4.00	-3	0.00050	0.000103	1	Yes
2.4G WIFI(ANT1)	2412-2462	20	8.95	10	0.01000	0.002056	1	Yes
2.4G WIFI(ANT2)	2412-2462	20	14.68	16	0.03981	0.007779	1	Yes
5G WIFI B1(ANT1)	5180-5240	20	14.90	15	0.03162	0.006683	1	Yes
5G WIFI B1(ANT2)	5180-5240	20	15.75	17	0.05012	0.018491	1	Yes
5G WIFI B2(ANT1)	5260-5320	20	15.00	16	0.039811	0.008413	1	Yes
5G WIFI B2(ANT2)	5260-5320	20	15.17	16	0.03981	0.014688	1	Yes
5G WIFI B3(ANT1)	5500-5700	20	17.15	18	0.06310	0.013334	1	Yes
5G WIFI B3(ANT2)	5500-5700	20	12.85	14	0.02512	0.009267	1	Yes
5G WIFI B4(ANT1)	5745-5825	20	16.21	17	0.05012	0.010591	1	Yes
5G WIFI B4(ANT2)	5745-5825	20	14.95	16	0.03981	0.014688	1	Yes

BT Antenna Gain: max gain 0.14dBi, 1.03(numeric)
 2.4G WiFi Antenna 1 Gain: max gain 0.14dBi, 1.03(numeric)
 2.4G WiFi Antenna 2 Gain: max gain -0.08dBi, 0.98(numeric)
 5G WIFI Antenna 1 Gain: max gain 0.26dBi, 1.06(numeric)
 5G WIFI Antenna 2 Gain: max gain 2.68dBi, 1.85(numeric)

Maximum Simultaneous transmission MPE Ratios for 2.4GWIFI+BT:

Max MPE ratio _{WIFI}	Max MPE Ratio _{BT}	ΣMPE ratios	Limit	Result
0.007779	0.002588	0.010367	1	Pass
MPE= Limit of Power Density (S) (mW/cm ²)/ Limit of Power Density (S) (mW/cm ²) ratios				

Maximum Simultaneous transmission MPE Ratios for WIFI MIMO+BT:

Max MPE ratio _{WIFI}	Max MPE Ratio _{BT}	ΣMPE ratios	Limit	Result
0.010591+0.014688	0.002588	0.027867	1	Pass
MPE= Limit of Power Density (S) (mW/cm ²)/ Limit of Power Density (S) (mW/cm ²) ratios				

Signature:

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