



## Maximum Permissible Exposure Report

### 1. Product Information

FCC ID:	2AYEW-EDGE2
Product name	Single Board Computer
Test Model	IEC-EDGE2-0432
Additional Model No.	IEC-EDGE2-0216
Model Declaration	PCB board and structure of these model(s) are the same, only the memory is different. IEC-EDGE2-0432 is 4G LPDDR4 and 32G eMMC. IEC-EDGE2-0216 is 2G LPDDR4 and 16G eMMC. So no additional models were tested.
Power supply	DC 12V, 3A from Adapter
Operation frequency	2402MHz ~ 2480MHz 2412MHz ~ 2462MHz 5180-5240MHz 5745MHz-5825MHz
Antenna Type	Antenna0: External Antenna Antenna1: External Antenna
Antenna Gain	6.0dBi(Max)
Hardware version	EDGE2-V1.2.0
Software version	v1.0.6.2112070904
Channel Number	79 channels for Bluetooth V5.0(DSS) 40 channels for Bluetooth V5.0 (DTS) 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) 4 Channels for 20MHz bandwidth(5180MHz-5240MHz) 2 channels for 40MHz bandwidth(5190MHz~5230MHz) 1 channels for 80MHz bandwidth(5210MHz 5 channels for 20MHz bandwidth(5745MHz-5825MHz) 2 channels for 40MHz bandwidth(5755MHz~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Exposure category	General population/uncontrolled environment
EUT Type	Production Unit
Device Type	Mobile Devices



## 2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is  $\leq 1.0$ . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.



### 3. Limit

#### 3.1 Refer Evaluation Method

[ANSI C95.1-1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: Mobile Devices

#### 3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100)*	30
3.0 – 30	824/f	2.19/f	(180/f <sup>2</sup> )*	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

\*=Plane-wave equivalent power density

#### 4. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

#### 5. Antenna Information

ES-D4 can only use antennas certificated as follows provided by manufacturer;

Antenna type and antenna number	Operate frequency band	Maximum antenna gain	Notes
External Antenna 0	2400MHz ~ 2500MHz 5180-5240MHz 5745MHz-5825MHz	6.0dBi	BT&WiFi Antenna
External Antenna 1	2400MHz ~ 2500MHz 5180-5240MHz 5745MHz-5825MHz	6.0dBi	WiFi Antenna



## 6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	00	2402	2.83
	39	2441	7.8
	79	2480	9.48
$\pi/4$ -DQPSK	00	2402	5.67
	39	2441	10.97
	79	2480	11.91
8-DPSK	00	2402	6.06
	39	2441	11.37
	79	2480	12.16

[BT LE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	00	2402	3.23
	19	2440	7.8
	39	2480	9.56

[BT 2LE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	00	2402	3.64
	19	2440	7.99
	39	2480	9.67

[2.4G WLAN]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)	
			Ant 0	Ant 1
IEEE 802.11b	1	2412	15.79	13.40
	6	2437	15.84	13.43
	11	2462	15.56	13.41
IEEE 802.11g	1	2412	14.45	13.09
	6	2437	14.32	13.04
	11	2462	14.24	13.24
IEEE 802.11n HT20	1	2412	14.04	12.27
	6	2437	14.26	12.30
	11	2462	14.22	12.23
IEEE 802.11n HT40	3	2422	14.49	12.68
	6	2437	14.85	12.72
	9	2462	14.65	12.74

[2.4GWIFI Max Conducted Power] Ant 0+Ant 1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	1	2412	16.25
	6	2437	16.40
	11	2462	16.35
11N40 MIMO	3	2422	16.69
	6	2437	16.92
	9	2452	16.81



## [5.2GWIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant 0 Max Conducted Power(dBm)	Ant 1 Max Conducted Power(dBm)
11A	36	5180	10.87	12.26
	40	5200	10.96	10.65
	48	5240	10.38	10.24
11N20 SISO	36	5180	10.89	11.84
	40	5200	10.65	10.33
	48	5240	10.49	9.68
11N40 SISO	38	5190	11.15	11.67
	46	5230	10.76	10.39
11AC20 SISO	36	5180	13.17	13.73
	40	5200	12.71	12.48
	48	5240	12.41	11.81
11AC40 SISO	38	5190	12.36	12.63
	46	5230	11.99	11.59
11AC80 SISO	42	5210	11.88	11.97
11AX20 SISO	36	5180	11.12	11.13
	40	5200	11.44	11.49
	48	5240	10.89	10.88
11AX40 SISO	38	5190	10.83	10.93
	46	5230	10.76	10.80
11AX80 SISO	42	5210	10.77	10.84

## [5.2GWIFI Max Conducted Power] Ant 0+Ant 1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	36	5180	14.40
	40	5200	13.50
	48	5240	13.11
11N40 MIMO	38	5190	14.43
	46	5230	13.59
11AC20 MIMO	36	5180	16.47
	40	5200	15.61
	48	5240	15.13
11AC40 MIMO	38	5190	15.51
	46	5230	14.80
11AC80 MIMO	42	5210	14.94
11AX20 MIMO	36	5180	14.14
	40	5200	14.48
	48	5240	13.90
11AX40 MIMO	38	5190	13.89
	46	5230	13.79
11AX80 MIMO	42	5210	13.82



[5.8WIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant 0 Max Conducted Power(dBm)	Ant 1 Max Conducted Power(dBm)
11A	149	5745	14.28	13.74
	157	5785	14.65	13.67
	165	5825	14.60	12.74
11N20 SISO	149	5745	13.64	12.71
	157	5785	13.81	12.65
	165	5825	13.75	12.70
11N40 SISO	151	5755	13.05	12.74
	159	5795	13.77	12.57
11AC20 SISO	149	5745	15.08	14.86
	157	5785	15.26	14.64
	165	5825	15.86	13.68
11AC40 SISO	151	5755	14.61	13.29
	159	5795	15.13	12.91
11AC80 SISO	155	5775	15.35	13.66
11AX20 SISO	149	5745	13.82	14.68
	157	5785	14.81	14.55
	165	5825	14.42	14.02
11AX40 SISO	151	5755	13.77	13.54
	159	5795	14.55	13.09
11AX80 SISO	155	5775	14.61	14.04

[5.8WIFI Max Conducted Power]Ant 0+Ant 1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	149	5745	16.21
	157	5785	16.28
	165	5825	16.27
11N40 MIMO	151	5755	15.91
	159	5795	16.22
11AC20 MIMO	149	5745	17.98
	157	5785	17.97
	165	5825	17.92
11AC40 MIMO	151	5755	17.01
	159	5795	17.17
11AC80 MIMO	155	5775	17.60
11AX20 MIMO	149	5745	17.28
	157	5785	17.69
	165	5825	17.23
11AX40 MIMO	151	5755	16.67
	159	5795	16.89
11AX80 MIMO	155	5775	17.34



## 7. Measurement Results

GFSK(Peak)			
Channel	Channel 00	Channel 39	Channel 78
Target (dBm)	2.0	7.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
$\pi/4$ -DQPSK(Peak)			
Channel	Channel 00	Channel 39	Channel 78
Target (dBm)	5.0	10.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8-DPSK(Peak)			
Channel	Channel 00	Channel 39	Channel 78
Target (dBm)	6.0	11.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

BT LE(Peak)			
Channel	Channel 00	Channel 19	Channel 39
Target (dBm)	3.0	7.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

BT 2LE(Peak)			
Channel	Channel 00	Channel 19	Channel 39
Target (dBm)	3.0	7.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

### 2.4GWIFI\_ANTO

11B			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



## 2.4GWIFI\_ANT1

11B			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	12.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	12.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

## 5.2GWIFI\_ANT 0

11A			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	10.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	10.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40			
Channel	Channel 38	Channel 46	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40			
Channel	Channel 38	Channel 46	
Target (dBm)	12.0	12.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80			
Channel	Channel 42		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		
11AX20			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40			
Channel	Channel 38	Channel 46	
Target (dBm)	10.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX80			
Channel	Channel 42		
Target (dBm)	10.0		
Tolerance $\pm$ (dB)	1.0		





5.2GWIFI_ANT 1			
11A			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40			
Channel	Channel 38	Channel 46	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40			
Channel	Channel 38	Channel 46	
Target (dBm)	12.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80			
Channel	Channel 42		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		
11AX20			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40			
Channel	Channel 38	Channel 46	
Target (dBm)	10.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX80			
Channel	Channel 42		
Target (dBm)	10.0		
Tolerance $\pm$ (dB)	1.0		



## 5.8GWIFI\_ANT0

11A			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40			
Channel	Channel 151	Channel 159	
Target (dBm)	13.0	13.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	15.0	15.0	15.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40			
Channel	Channel 151	Channel 159	
Target (dBm)	14.0	15.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80			
Channel	Channel 155		
Target (dBm)	15.0		
Tolerance $\pm$ (dB)	1.0		
11AX20			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	13.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40			
Channel	Channel 151	Channel 159	
Target (dBm)	13.0	14.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX80			
Channel	Channel 155		
Target (dBm)	14.0		
Tolerance $\pm$ (dB)	1.0		

## 5.8GWIFI\_ANT1

11A			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	13.0	13.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40			
Channel	Channel 151	Channel 159	
Target (dBm)	12.0	12.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	14.0	14.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



11AC40			
Channel	Channel 151		Channel 159
Target (dBm)	13.0		12.0
Tolerance ±(dB)	1.0		1.0
11AC80			
Channel	Channel 155		
Target (dBm)	13.0		
Tolerance ±(dB)	1.0		
11AX20			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	14.0	14.0	14.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40			
Channel	Channel 151		Channel 159
Target (dBm)	13.0		13.0
Tolerance ±(dB)	1.0		1.0
11AX80			
Channel	Channel 155		
Target (dBm)	14.0		
Tolerance ±(dB)	1.0		



## 8. Evaluation Results

### 8.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance,  $r=20\text{cm}$ , as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

#### BT

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
GFSK	10.0	10.00	6.0	3.98	0.0079	1.0000
$\pi/4$ -DQPSK	12.0	15.85	6.0	3.98	0.0126	1.0000
8-DPSK	13.0	19.95	6.0	3.98	0.0158	1.0000

#### BT LE

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
BT LE	10.0	10.00	6.0	3.98	0.0079	1.0000
BT 2LE	10.0	10.00	6.0	3.98	0.0079	1.0000

#### 2.4GWIFI

Band/Mode	RF output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
802.11b (ANT0)	16.0	39.81	6.0	3.98	0.0315	1.0000
802.11g (ANT0)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11n20 (ANT0)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11n40 (ANT0)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11b (ANT1)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11g (ANT1)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11n20 (ANT1)	13.0	19.95	6.0	3.98	0.0158	1.0000
802.11n40 (ANT1)	13.0	19.95	6.0	3.98	0.0158	1.0000

#### 5.2GWIFI

Band/Mode	RF output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
802.11A (ANT0)	11.0	12.59	6.0	3.98	0.0100	1.0000
802.11N20 (ANT0)	11.0	12.59	6.0	3.98	0.0100	1.0000
802.11N40 (ANT0)	12.0	15.85	6.0	3.98	0.0126	1.0000
802.11AC20 (ANT0)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11AC40 (ANT0)	13.0	19.95	6.0	3.98	0.0158	1.0000
802.11AC80 (ANT0)	12.0	15.85	6.0	3.98	0.0126	1.0000
802.11AX20 (ANT0)	12.0	15.85	6.0	3.98	0.0126	1.0000
802.11AX40 (ANT0)	11.0	12.59	6.0	3.98	0.0100	1.0000
802.11AX80 (ANT0)	11.0	12.59	6.0	3.98	0.0100	1.0000
802.11A (ANT1)	13.0	19.95	6.0	3.98	0.0158	1.0000
802.11N20 (ANT1)	12.0	15.85	6.0	3.98	0.0126	1.0000
802.11N40 (ANT1)	12.0	15.85	6.0	3.98	0.0126	1.0000
802.11AC20 (ANT1)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11AC40 (ANT1)	13.0	19.95	6.0	3.98	0.0158	1.0000
802.11AC80 (ANT1)	12.0	15.85	6.0	3.98	0.0126	1.0000
802.11AX20 (ANT1)	12.0	15.85	6.0	3.98	0.0126	1.0000
802.11AX40 (ANT1)	11.0	12.59	6.0	3.98	0.0100	1.0000
802.11AX80 (ANT1)	11.0	12.59	6.0	3.98	0.0100	1.0000



## 5.8GWIFI

Band/Mode	RF output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm <sup>2</sup> )	MPE Limits (mW/cm <sup>2</sup> )
	dBm	mW				
802.11A (ANT0)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11N20 (ANT0)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11N40 (ANT0)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11AC20 (ANT0)	16.0	39.81	6.0	3.98	0.0315	1.0000
802.11AC40 (ANT0)	16.0	39.81	6.0	3.98	0.0315	1.0000
802.11AC80 (ANT0)	16.0	39.81	6.0	3.98	0.0315	1.0000
802.11AX20 (ANT0)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11AX40 (ANT0)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11AX80 (ANT0)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11A (ANT1)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11N20 (ANT1)	13.0	19.95	6.0	3.98	0.0158	1.0000
802.11N40 (ANT1)	13.0	19.95	6.0	3.98	0.0158	1.0000
802.11AC20 (ANT1)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11AC40 (ANT1)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11AC80 (ANT1)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11AX20 (ANT1)	15.0	31.62	6.0	3.98	0.0250	1.0000
802.11AX40 (ANT1)	14.0	25.12	6.0	3.98	0.0199	1.0000
802.11AX80 (ANT1)	15.0	31.62	6.0	3.98	0.0250	1.0000

**8.2 Simultaneous Transmission MPE**

The sample support one BT&2.4GWLAN&5.2G WLAN&5.8G WLAN, another one 2.4GWLAN&5.2G WLAN&5.8G WLAN, so need consider simultaneous transmission;

Simultaneous transmission MPE

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$\Sigma$ of MPE ratios  $\leq 1.0$

Mode	MPE1 (mW/cm <sup>2</sup> )	MPE2 (mW/cm <sup>2</sup> )	$\Sigma$ MPE ratios	Limit	Results
BT(ANT0)+2.4GWIFI(ANT1)	0.0158	0.0315	0.0473	1.0	PASS
BT(ANT0)+5.2GWIFI(ANT1)	0.0158	0.0199	0.0357	1.0	PASS
BT(ANT0)+5.8GWIFI(ANT1)	0.0158	0.0315	0.0473	1.0	PASS
BLE(ANT0)+2.4GWIFI(ANT1)	0.0079	0.0315	0.0394	1.0	PASS
BLE(ANT0)+5.2GWIFI(ANT1)	0.0079	0.0199	0.0278	1.0	PASS
BLE(ANT0)+5.8GWIFI(ANT1)	0.0079	0.0315	0.0394	1.0	PASS
2.4G WIFI(MIMO)	0.0250	0.0158	0.0408	1.0	PASS
5.2G WIFI(MIMO)	0.0199	0.0199	0.0398	1.0	PASS
5.8G WIFI(MIMO)	0.0315	0.0250	0.0565	1.0	PASS

Remark:

1. Output power including turn-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer;
3.  $MPE\ values = PG/4\pi R^2$
4. The 2.4G WIFI and 5G WIFI can't transmit at the same time. The 802.11N/AC/AX mode can transmit on MIMO mode.

**9. Conclusion**

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----THE END OF REPORT-----