



RF Exposure Evaluation

For

Shenzhen SEI Robotics Co., Ltd.

OTT Box

Test Model: SN6BTB5

Additional Model No.: SN6BTBX(X:A~Z)

Prepared for : Shenzhen SEI Robotics Co., Ltd.
Address : 11F, Kangtai Innovation Plaza Building A, No. 222 Kefa Road, Yue Hai
Sub-district, Nanshan District, Shenzhen, 518054, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : August 28, 2025
Number of tested samples : 2
Sample No. : A250827142-1, A250827142-2
Serial number : Prototype
Date of Test : August 28, 2025 ~ September 26, 2025
Date of Report : September 27, 2025



**RF Exposure Evaluation****Report Reference No.** : LCSA08285012EH**Date of Issue** : September 27, 2025**Testing Laboratory Name** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Address** : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China**Testing Location/ Procedure** : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □**Applicant's Name** : Shenzhen SEI Robotics Co., Ltd.**Address** : 11F, Kangtai Innovation Plaza Building A, No. 222 Kefa Road, Yue Hai Sub-district, Nanshan District, Shenzhen, 518054, China**Test Specification****Standard** : FCC KDB publication 447498 D01 General RF Exposure Guidance v06
FCC CFR 47 part1 1.1310
FCC CFR 47 part2 2.1091**Test Report Form No.** : TRF-4-E-214 A/0**TRF Originator** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Master TRF** : Dated 2011-03**Shenzhen LCS Compliance Testing Laboratory Ltd. All rights reserved.**

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EUT Description : OTT Box**Trade Mark** : Neon**Test Model** : SN6BTB5**Ratings** : Please Refer to Page 6**Result** : PASS**Compiled by:**

Jack Liu/Administrator

Supervised by:

Kevin Huang/ Technique principal

Approved by:

Gavin Liang / Manager





RF Exposure Evaluation

Test Report No. : LCSA08285012EH	<u>September 27, 2025</u> Date of issue
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EUT.....	: OTT Box
Test Model.....	: SN6BTB5
Applicant.....	: Shenzhen SEI Robotics Co., Ltd.
Address.....	: 11F, Kangtai Innovation Plaza Building A, No. 222 Kefa Road, Yue Hai Sub-district, Nanshan District, Shenzhen, 518054, China
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: Shenzhen SEI Robotics Co., Ltd.
Address.....	: 11F, Kangtai Innovation Plaza Building A, No. 222 Kefa Road, Yue Hai Sub-district, Nanshan District, Shenzhen, 518054, China
Telephone.....	: /
Fax.....	: /
Factory.....	: /
Address.....	: /
Telephone.....	: /
Fax.....	: /

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.





Revision History

Report Version	Issue Date	Revision Content	Revised By
000	September 27, 2025	Initial Issue	--





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1. Product Information

EUT	: OTT Box
Test Model	: SN6BTB5
Additional Model No.	: SN6BTBX(X:A~Z)
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Ratings	: Input: 12.0V $\pm$ 1.0A For AC Adapter: Input:100-240V~, 50/60Hz, 0.3A Max Output: 12.0V $\pm$ 1.0A 12.0W
Hardware Version	: SMB.438.06
Software Version	: V14.10.2626
Bluetooth	:
Frequency Range	: 2402MHz~2480MHz
Channel Number	: 79 channels for Bluetooth V5.3 (DSS) 40 channels for Bluetooth V5.3 (DTS)
Channel Spacing	: 1MHz for Bluetooth V5.3 (DSS) 2MHz for Bluetooth V5.3 (DTS)
Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.3 (DSS) GFSK for Bluetooth V5.3 (DTS)
Bluetooth Version	: V5.3
Antenna Description	: Internal Antenna, 5.44dBi (max.)
WIFI(2.4G Band)	:
Frequency Range	: 2412MHz~2462MHz
Channel Spacing	: 5MHz
Channel Number	: 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz)
Modulation Type	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM, OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant1: Internal Antenna, 4.82dBi(Max.) Ant2: Internal Antenna, 3.07dBi(Max.)
WIFI(5.2G Band)	:
Frequency Range	: 5180MHz~5240MHz
Channel Number	: 4 Channels for 20MHz bandwidth(5180MHz~5240MHz) 2 channels for 40MHz bandwidth(5190MHz~5230MHz) 1 channels for 80MHz bandwidth(5210MHz)
Modulation Type	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM, OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant1: Internal Antenna, 5.32dBi(Max.) Ant2: Internal Antenna, 7.34dBi(Max.)
WIFI(5.3G Band)	:
Frequency Range	: 5260MHz~5320MHz
Channel Number	: 4 Channels for 20MHz bandwidth(5260MHz~5320MHz) 2 channels for 40MHz bandwidth(5270MHz~5310MHz) 1 channels for 80MHz bandwidth(5290MHz)
Modulation Type	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)



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	IEEE 802.11ax: OFDM, OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant1: Internal Antenna, 5.32dBi(Max.) Ant2: Internal Antenna, 7.34dBi(Max.)
WIFI(5.5G Band)	:
Frequency Range	: 5500MHz~5700MHz
Channel Number	: 11 Channels for 20MHz bandwidth(5500MHz~5700MHz) 5 Channels for 40MHz bandwidth(5510MHz~5670MHz) 2 Channels for 80MHz bandwidth(5530MHz, 5610MHz)
Modulation Type	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM, OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant1: Internal Antenna, 5.32dBi(Max.) Ant2: Internal Antenna, 7.34dBi(Max.)
WIFI(5.8G Band)	:
Frequency Range	: 5745MHz~5825MHz
Channel Number	: 5 channels for 20MHz bandwidth(5745MHz~5825MHz) 2 channels for 40MHz bandwidth(5755MHz~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Modulation Type	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM, OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant1: Internal Antenna, 5.32dBi(Max.) Ant2: Internal Antenna, 7.34dBi(Max.)
Exposure category	: General population/uncontrolled environment
EUT Type	: Production Unit
Device Type	: Mobile Device

Note: For a more detailed antenna description, please refer to the antenna specifications or the antenna report provided by the customer.

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 ≤ 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 C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz 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 ²)	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 ²)*	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 ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 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

*=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



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5. Antenna Information

EUT can only use antennas certificated as follows provided by manufacturer;

Internal/ External Identification	Antenna type and antenna number	Operate frequency band	Maximum antenna gain	Notes
Internal	Internal Antenna	2400MHz ~ 2500MHz	Bluetooth: 5.44dBi	Bluetooth Antenna
	Internal Antenna 1	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 4.82dBi 5.2GWIFI: 5.32dBi 5.8GWIFI: 5.32dBi	WIFI Antenna
	Internal Antenna 2	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 3.07dBi 5.2GWIFI: 7.34dBi 5.8GWIFI: 7.34dBi	WIFI Antenna

6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-1.47
	39	2441	-0.93
	79	2480	-1.88
$\pi/4$ -DQPSK	0	2402	0.72
	39	2441	0.9
	79	2480	-0.1
8-DPSK	0	2402	1.07
	39	2441	1.4
	79	2480	0.3

[BLE 1M]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE_1M	0	2402	1.55
	19	2440	0.76
	39	2480	-0.2

[BLE 2M]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE_1M	0	2402	1.4
	19	2440	0.56
	39	2480	-0.39

[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Ant1 Max Conducted Power(dBm)	Ant2 Max Conducted Power(dBm)
11B	1	2412	14.72	15.5
	6	2437	14.11	14.82
	11	2462	14.23	14.79



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11G	1	2412	14.79	14.38
	6	2437	13.98	14.88
	11	2462	14.11	14.84
11N20 SISO	1	2412	12.92	13.68
	6	2437	11.64	13.06
	11	2462	13.27	13.81
11N40 SISO	3	2422	13.48	12.88
	6	2437	13.66	13.24
	9	2452	13.19	12.6
11AX20 SISO	1	2412	13.77	14.45
	6	2437	13.98	13.59
	11	2462	13.21	13.77
11AX40 SISO	3	2422	13.32	13.84
	6	2437	13.3	13.83
	9	2452	13.99	13.65

[5.2G WIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant1 Max Conducted Power(dBm)	Ant2 Max Conducted Power(dBm)
11A	36	5180	12.87	12.2
	40	5200	13.09	11.88
	48	5240	12.15	11.96
11N20 SISO	36	5180	11.69	11.51
	40	5200	11.51	11.4
	48	5240	11.62	11.56
11N40 SISO	38	5190	12.3	11.75
	46	5230	11.57	11.05
11AC20 SISO	36	5180	12.15	11.49
	40	5200	11.73	11.38
	48	5240	11.64	12.04
11AC40 SISO	38	5190	11.26	11.78
	46	5230	11.69	10.92
11AC80 SISO	42	5210	11.79	10.97
11AX20 SISO	36	5180	11.45	11.47
	40	5200	12.2	11.81
	48	5240	11.56	11.92
11AX40 SISO	38	5190	11.2	11.75
	46	5230	11.59	10.47
11AX80 SISO	42	5210	11.74	10.86

[5.3G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	52	5260	12.37	12.68



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	60	5280	12.5	12.82
	64	5320	12.3	13.17
	52	5260	11.49	11.93
11N20 SISO	60	5280	11.64	11.31
	64	5320	11.65	11.69
	54	5270	10.91	11.73
11N40 SISO	62	5310	11.55	11.48
	52	5260	11.52	10.9
11AC20 SISO	60	5280	12.15	11.24
	64	5320	11.69	11.57
	54	5270	10.87	11.71
11AC40 SISO	62	5310	11.39	11.26
	58	5290	11.61	11.31
11AC80 SISO	52	5260	11.49	10.86
11AX20 SISO	60	5280	11.57	11.35
	64	5320	11.73	11.55
	54	5270	10.86	11.71
11AX40 SISO	62	5310	11.55	11.47
	58	5290	11.59	11.3
11AX80 SISO				

[5.5G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	100	5500	13.00	12.73
	116	5580	12.24	12.91
	140	5700	12.22	12.97
11N20 SISO	100	5500	11.53	12.16
	116	5580	11.61	11.30
	140	5700	11.62	11.43
11N40 SISO	102	5510	11.19	10.74
	110	5550	11.91	10.64
	134	5670	11.66	11.43
11AC20 SISO	100	5500	11.53	11.14
	116	5580	11.52	11.36
	140	5700	11.59	11.42
11AC40 SISO	102	5510	11.18	10.79
	110	5550	11.86	10.62
	134	5670	11.63	11.38
11AC80 SISO	106	5530	10.87	10.82
	122	5610	11.05	10.88
11AX20 SISO	100	5500	11.55	11.14
	116	5580	11.56	11.40
	140	5700	11.58	11.40
11AX40 SISO	102	5510	11.18	10.68



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11AX80 SISO	110	5550	11.80	10.61
	134	5670	11.66	11.40
	106	5530	11.98	10.83
	122	5610	11.18	10.94

[5.8G WIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant1 Max Conducted Power(dBm)	Ant2 Max Conducted Power(dBm)
11A	149	5745	12.54	12.39
	157	5785	11.87	12.14
	165	5825	11.99	12.23
11N20 SISO	149	5745	12.09	11.24
	157	5785	11.70	11.49
	165	5825	11.89	11.59
11N40 SISO	151	5755	12.06	10.31
	159	5795	11.28	10.62
11AC20 SISO	149	5745	11.44	12.11
	157	5785	11.69	11.50
	165	5825	11.90	11.55
11AC40 SISO	151	5755	12.06	11.80
	159	5795	11.28	10.97
11AC80 SISO	155	5775	10.74	11.00
11AX20 SISO	149	5745	11.45	12.12
	157	5785	11.67	11.46
	165	5825	11.90	11.60
11AX40 SISO	151	5755	12.04	11.76
	159	5795	11.20	10.95
11AX80 SISO	155	5775	10.72	11.10

7. Manufacturing Tolerance

[BT]

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	-1.0	0	-1.0
Tolerance ±(dB)	1.0	1.0	1.0
π/4DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	0	0	0
Tolerance ±(dB)	1.0	1.0	1.0
8DPSK (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	1.0	1.0	0
Tolerance ±(dB)	1.0	1.0	1.0



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[BLE 1M]

BT LE (Peak)

Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	1.0	0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[BLE 2M]

BT LE (Peak)

Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	1.0	0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[2.4G WIFI Ant1]

11B (Peak)

Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11G (Peak)

Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	13.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11N20(Peak)

Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	12.0	11.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11N40(Peak)

Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11AX20(Peak)

Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11AX40(Peak)

Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[2.4G WIFI Ant2]

11B (Peak)

Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	15.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11G (Peak)

Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



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11N20(Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40(Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	12.0	13.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX20(Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40(Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[5.2G WIFI Ant1]

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



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Target (dBm)	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0
11AX80(Average)		
Channel	Channel 42	
Target (dBm)	11.0	
Tolerance $\pm$ (dB)	1.0	

[5.2G WIFI Ant2]			
11A(Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20(Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40(Average)			
Channel	Channel 38		Channel 46
Target (dBm)	11.0		11.0
Tolerance ±(dB)	1.0		1.0
11AC20(Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40(Average)			
Channel	Channe 38		Channel 46
Target (dBm)	11.0		10.0
Tolerance ±(dB)	1.0		1.0
11AC80(Average)			
Channel	Channel 42		
Target (dBm)	10.0		
Tolerance ±(dB)	1.0		
11AX20(Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40(Average)			
Channel	Channe 38		Channel 46
Target (dBm)	11.0		10.0
Tolerance ±(dB)	1.0		1.0
11AX80(Average)			
Channel	Channel 42		
Target (dBm)	10.0		
Tolerance ±(dB)	1.0		



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[5.3G WIFI Ant 1]

11A (AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	12.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20(AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40(AVG)			
Channel	Channel 54	Channel 62	
Target (dBm)	10.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20(AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	12.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40(AVG)			
Channel	Channel 54	Channel 62	
Target (dBm)	10.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		
11AX20(AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40(AVG)			
Channel	Channel 54	Channel 62	
Target (dBm)	10.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		



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[5.3G WIFI Ant 2]

11A (AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	12.0	12.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20(AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40(AVG)			
Channel	Channel 54	Channel 62	
Target (dBm)	11.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20(AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40(AVG)			
Channel	Channel 54	Channel 62	
Target (dBm)	11.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		
11AX20(AVG)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40(AVG)			
Channel	Channel 54	Channel 62	
Target (dBm)	11.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		

[5.5G WIFI Ant 1]

11A (AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20(AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



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11N40(AVG)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC20(AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40(AVG)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC VHT80 (Average)			
Channel	Channel 106	Channel 122	
Target (dBm)	10.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX20(AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40(AVG)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX VHT80 (Average)			
Channel	Channel 106	Channel 122	
Target (dBm)	11.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	

[5.5G WIFI Ant 2]

11A (AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	12.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20(AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	12.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40(AVG)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	10.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC20(AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40(AVG)			
Channel	Channel 102	Channel 110	Channel 134



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Target (dBm)	10.0	10.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC VHT80 (Average)			
Channel	Channel 106	Channel 122	
Target (dBm)	10.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX20(AVG)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40(AVG)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	10.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX VHT80 (Average)			
Channel	Channel 106	Channel 122	
Target (dBm)	10.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	

[5.8G WIFI Ant1]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20(Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40(Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	12.0	11.0	
Tolerance ±(dB)	1.0	1.0	
11AC20(Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	11.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40(Average)			
Channel	Channe151	Channel 159	
Target (dBm)	12.0	11.0	
Tolerance ±(dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	10.0		
Tolerance ±(dB)	1.0		
11AX20(Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	11.0	11.0



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Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40(Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	12.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX80 (Average)			
Channel	Channel 155		
Target (dBm)	10.0		
Tolerance $\pm$ (dB)	1.0		

[5.8G WIFI Ant2]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20(Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40(Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	10.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20(Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40(Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		
11AX20(Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX40(Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AX80 (Average)			
Channel	Channel 155		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		



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8. Measurement 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 ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GFSK	1.0	1.2589	5.44	3.4995	0.0009	1.0000
$\pi/4$ -DQPSK	1.0	1.2589	5.44	3.4995	0.0009	1.0000
8-DPSK	2.0	1.5849	5.44	3.4995	0.0011	1.0000

[BT LE]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
BT LE	2.0	1.5849	5.44	3.4995	0.0011	1.0000
BT 2LE	2.0	1.5849	5.44	3.4995	0.0011	1.0000

[2.4G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	15.0	31.6228	4.82	3.0339	0.0191	1.0000
IEEE 802.11g	15.0	31.6228	4.82	3.0339	0.0191	1.0000
IEEE 802.11n HT20	14.0	25.1189	4.82	3.0339	0.0152	1.0000
IEEE 802.11n HT40	14.0	25.1189	4.82	3.0339	0.0152	1.0000
IEEE 802.11ax HEW20	14.0	25.1189	4.82	3.0339	0.0152	1.0000
IEEE 802.11ax HEW40	14.0	25.1189	4.82	3.0339	0.0152	1.0000

[2.4G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	16.0	39.8107	3.07	2.0277	0.0161	1.0000
IEEE 802.11g	15.0	31.6228	3.07	2.0277	0.0128	1.0000
IEEE 802.11n HT20	14.0	25.1189	3.07	2.0277	0.0101	1.0000
IEEE 802.11n HT40	14.0	25.1189	3.07	2.0277	0.0101	1.0000
IEEE 802.11ax HEW20	15.0	31.6228	3.07	2.0277	0.0128	1.0000
IEEE 802.11ax HEW40	14.0	25.1189	3.07	2.0277	0.0101	1.0000

[5.2G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	14.0	25.1189	5.32	3.4041	0.0170	1.0000
IEEE 802.11n HT20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11n HT40	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW20	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11ax HEW40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW80	12.0	15.8489	5.32	3.4041	0.0107	1.0000





[5.2G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	7.34	5.4200	0.0215	1.0000
IEEE 802.11n HT20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11n HT40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	7.34	5.4200	0.0215	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT80	11.0	12.5893	7.34	5.4200	0.0136	1.0000
IEEE 802.11ax HEW20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW80	11.0	12.5893	7.34	5.4200	0.0136	1.0000

[5.3G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11n HT20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11n HT40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW80	12.0	15.8489	5.32	3.4041	0.0107	1.0000

[5.3G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	14.0	25.1189	7.34	5.4200	0.0271	1.0000
IEEE 802.11n HT20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11n HT40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW80	12.0	15.8489	7.34	5.4200	0.0171	1.0000

[5.5G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	14.0	25.1189	5.32	3.4041	0.0170	1.0000
IEEE 802.11n HT20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11n HT40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW40	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW80	12.0	15.8489	5.32	3.4041	0.0107	1.0000



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[5.5G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	7.34	5.4200	0.0215	1.0000
IEEE 802.11n HT20	13.0	19.9526	7.34	5.4200	0.0215	1.0000
IEEE 802.11n HT40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT80	11.0	12.5893	7.34	5.4200	0.0136	1.0000
IEEE 802.11ax HEW20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW80	11.0	12.5893	7.34	5.4200	0.0136	1.0000

[5.8G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11n HT20	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11n HT40	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ac VHT40	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11ac VHT80	11.0	12.5893	5.32	3.4041	0.0085	1.0000
IEEE 802.11ax HEW20	12.0	15.8489	5.32	3.4041	0.0107	1.0000
IEEE 802.11ax HEW40	13.0	19.9526	5.32	3.4041	0.0135	1.0000
IEEE 802.11ax HEW80	11.0	12.5893	5.32	3.4041	0.0085	1.0000

[5.8G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	7.34	5.4200	0.0215	1.0000
IEEE 802.11n HT20	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11n HT40	11.0	12.5893	7.34	5.4200	0.0136	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	7.34	5.4200	0.0215	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW20	13.0	19.9526	7.34	5.4200	0.0215	1.0000
IEEE 802.11ax HEW40	12.0	15.8489	7.34	5.4200	0.0171	1.0000
IEEE 802.11ax HEW80	12.0	15.8489	7.34	5.4200	0.0171	1.0000

Remark:

1. Output power including tune-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.



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8.2 Simultaneous Transmission MPE Evaluation

The sample support one BT&BLE and one 2.4G WLAN&5.2G WLAN&5.8G WLAN, another one 2.4G WLAN&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;

$\sum \sum$ of MPE ratios ≤ 1.0

<the worst simultaneous transmission operations result-2.4GWIFI>

Bluetooth Antenna Max MPE ratios	2.4GWIFI-Ant 1	2.4GWIFI-Ant 2	$\sum$ MPE ratios	Limit	Results
0.0011	0.0152	0.0128	0.0291	1.0	Pass

<the worst simultaneous transmission operations result-5GWIFI>

Bluetooth Antenna Max MPE ratios	5GWIFI-Ant 1	5GWIFI-Ant 2	$\sum$ MPE ratios	Limit	Results
0.0011	0.0135	0.0215	0.0361	1.0	Pass

Remark:

1. Output power including tune-up tolerance;
2. BT/BLE/2.4G WIFI output power is burst peak power;
3. 5G WIFI output power is burst average power;
4. MPE evaluate distance is 20cm from user manual provide by manufacturer;
5. $MPE\ values = PG/4\pi R^2$
6. 2.4GWIFI and 5GWIFI cannot be transmitted at the same time

9. Conclusion

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

10. Description of Test Facility

NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.
CNAS Registration Number is L4595.
Test Firm Registration Number: 254912.

11. Measurement Uncertainty

BT/BLE/2.4GWIFI/5.2GWIFI/5.3GWIFI/5.5GWIFI/5.8GWIFI:

Test Item	Frequency Range	Uncertainty	Note
Output power	1GHz-40GHz	$\pm 0.57\text{dB}$	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

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

