RF Exposure Evaluation

For

Shenzhen SEI Robotics Co., Ltd.

SEI900DEV

Test Model: IPA3352HDW

Additional Model No.: Please Refer to Page 6

Prepared for	:	Shenzhen SEI Robotics Co., Ltd.
Address	:	11th Floor, Kangtai Group Building, No. 222 Kefa Road, Science and Technology Park Community, Yuehai Street, Nanshan District, Shenzhen, China
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Date of receipt of test sample	:	May 14, 2025
Number of tested samples	:	2
Sample No.	:	A250427036-1, A250427036-2
Serial number	:	Prototype
Date of Test	:	May 14, 2025 ~ June 13, 2025
Date of Report	:	June 16, 2025

RF Exposure Evaluation	
Report Reference No. ..... :	**LCSA05145043EH**
Date of Issue..... :	June 16, 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..... :	11th Floor, Kangtai Group Building, No. 222 Kefa Road, Science and Technology Park Community, Yuehai Street, Nanshan District, Shenzhen, 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-215 A/0
TRF Originator..... :	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF..... :	Dated 2011-03
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Test Item Description..... :	**SEI900DEV**
Trade Mark..... :	EVO Fuse Lite
Test Model..... :	IPA3352HDW
Ratings..... :	Please Refer to Page 6
Result ..... :	**Pass**

Compiled by:	**Supervised by:**	**Approved by:**
Martin Lee	Jack Liu	Gavin Liang
Martin Lee/ Administrator	Jack Liu/ Technique principal	Gavin Liang/ Manager

RF Exposure Evaluation

Test Report No. : LCSA05145043EH	June 16, 2025 Date of issue

EUT.....	: SEI900DEV
Test Model.....	: IPA3352HDW
Applicant.....	**: Shenzhen SEI Robotics Co., Ltd.**
Address.....	: 11th Floor, Kangtai Group Building, No. 222 Kefa Road, Science and Technology Park Community, Yuehai Street, Nanshan District, Shenzhen, China
Telephone.....	: /
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Manufacturer.....	**: Shenzhen SEI Robotics Co., Ltd.**
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Telephone.....	: /
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Factory.....	**: Shenzhen SEI Robotics Co., Ltd.**
Address.....	: 11th Floor, Kangtai Group Building, No. 222 Kefa Road, Science and Technology Park Community, Yuehai Street, Nanshan District, Shenzhen, China
Telephone.....	: /
Fax.....	: /

Test Result	**Pass**

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	June 16, 2025	Initial Issue	---

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1. Product Information

EUT	:	SEI900DEV
Test Model	:	IPA3352HDW
Additional Model No.	:	SEI900DTV, SEI900D4TVL, SN5BSCX(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: 5.0V⎓1.0A For AC Adapter Input: 100-240V~, 50/60Hz, 0.15A Adapter Output: 5.0V⎓1.0A, 5.0W
Hardware Version	:	SMB.458.06
Software Version	:	V3443
Bluetooth	:	
Frequency Range	:	2402MHz~2480MHz
Channel Number	:	79 channels for Bluetooth V5.2(DSS) 40 channels for Bluetooth V5.2 (DTS)
Channel Spacing	:	1MHz for Bluetooth V5.2 (DSS) 2MHz for Bluetooth V5.2 (DTS)
Modulation Type	:	GFSK, π/4-DQPSK, 8-DPSK for Bluetooth V5.2(DSS) GFSK for Bluetooth V5.2 (DTS)
Bluetooth Version	:	V5.2
Antenna Description	:	Antenna1: PCB Antenna, 2.21dBi (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)
Antenna Description	:	Antenna1: PCB Antenna, 2.21dBi (max.) Antenna2: PCB Antenna, 3.22dBi (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)
Antenna Description	:	Antenna1: PCB Antenna, 5.68dBi (max.) Antenna2: PCB Antenna, 1.34dBi (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)
Antenna Description	:	Antenna1: PCB Antenna, 5.68dBi (max.) Antenna2: PCB Antenna, 1.34dBi (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)
Antenna Description	:	Antenna1: PCB Antenna, 5.68dBi (max.) Antenna2: PCB Antenna, 1.34dBi (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)
Antenna Description	:	Antenna1: PCB Antenna, 5.68dBi (max.) Antenna2: PCB Antenna, 1.34dBi (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/cm²)	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/cm²)	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

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
	PCB Antenna 1	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	Bluetooth/2.4GWIFI: 2.21dBi 5GWIFI: 5.68dBii	Antenna 1
	PCB Antenna 2	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 3.22dBi 5GWIFI: 1.34dBi	Antenna 2

6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	3.38
	39	2441	4.06
	78	2480	3.4
π/4DQPSK	0	2402	2.28
	39	2441	3.3
	78	2480	2.59
8DPSK	0	2402	2.36
	19	2441	3.34
	39	2480	2.73

[BT LE 1M]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-1.12
	19	2440	1.37
	39	2480	0.35

[BT LE 2M]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-1.16
	19	2440	1.29
	39	2480	0.22

[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11B	1	2412	17.72	17.23
	6	2437	18.01	17.69
	11	2462	17.8	17.21
11G	1	2412	17.29	17.74
	6	2437	17.59	17.26
	11	2462	17.39	17.02
11N20 SISO	1	2412	16.22	16.17
	6	2437	16.63	15.7
	11	2462	16.36	15.49
11N40 SISO	3	2422	15.34	15.65
	6	2437	15	14.62
	9	2452	14.89	15.37

[5.2G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	36	5180	18.11	17.39
	40	5200	18.32	17.22
	48	5240	17.36	16.05
11N20 SISO	36	5180	14.67	14.49
	40	5200	13.9	14.23
	48	5240	13.09	13.51
11N40 SISO	38	5190	16.59	16.33
	46	5230	15.39	14.97
11AC20 SISO	36	5180	14.36	14.5
	40	5200	13.89	14.22
	48	5240	13.11	14.45
11AC40 SISO	38	5190	16.36	16.34
	46	5230	15.37	14.82
11AC80 SISO	42	5210	16.13	15.85

[5.3G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
IEEE 802.11a	52	5260	17.85	17.14
	60	5280	17.78	17.98
	64	5320	18	18.2
IEEE 802.11n HT20	52	5260	13.1	14.08
	60	5280	13.44	14.21
	64	5320	13.77	14.87
IEEE 802.11n HT40	54	5270	15.93	17.74
	62	5310	15.19	18.27
IEEE 802.11ac VHT20	52	5260	13.36	15
	60	5280	13.7	14.87

	64	5320	13.74	14.88
IEEE 802.11ac VHT40	54	5270	14.35	16.87
	62	5310	14.93	17.33
IEEE 802.11ac VHT80	58	5290	15.9	16.51

5.5G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	100	5500	17.47	17.44
	116	5580	16.99	17.14
	140	5700	14.75	17.34
11N20 SISO	100	5500	13.57	15.39
	116	5580	13.69	15.26
	140	5700	13.52	15.45
11N40 SISO	102	5510	14.79	15.56
	110	5550	14.56	15.21
	134	5670	15.26	15.84
11AC20 SISO	100	5500	13.76	15.37
	116	5580	13.63	15.25
	140	5700	14.07	15.65
11AC40 SISO	102	5510	14.76	15.62
	110	5550	14.5	15.32
	134	5670	15.21	15.9
11AC80 SISO	106	5530	14.76	15.63
	122	5610	14.89	15.51

5.8G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	149	5745	16.31	17.69
	157	5785	15.48	17.04
	165	5825	15.8	17.47
11N20 SISO	149	5745	16.57	17.93
	157	5785	15.78	17.41
	165	5825	16.01	17.58
11N40 SISO	151	5755	16.11	17.32
	159	5795	15.39	16.55
11AC20 SISO	149	5745	16.56	18.04
	157	5785	15.69	17.28
	165	5825	16.01	17.36
11AC40 SISO	151	5755	16.07	16.4
	159	5795	15.36	15.63
11AC80 SISO	155	5775	15.45	15.75

7. Manufacturing Tolerance

[BT]

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	3.0	4.0	3.0
Tolerance ±(dB)	1.0	1.0	1.0
π/4DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	2.0	3.0	2.0
Tolerance ±(dB)	1.0	1.0	1.0
8DPSK (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	2.0	3.0	2.0
Tolerance ±(dB)	1.0	1.0	1.0

BT LE 1M (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	-1.0	1.0	0
Tolerance ± (dB)	1.0	1.0	1.0

BT LE 2M (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	-1.0	1.0	0
Tolerance ± (dB)	1.0	1.0	1.0

[2.4G WIFI Ant1]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	17.0	18.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	17.0	17.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	16.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	15.0	15.0	14.0
Tolerance ±(dB)	1.0	1.0	1.0

[2.4G WIFI Ant2]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	17.0	17.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	17.0	17.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	15.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	15.0	14.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0

[5.2G WIFI Ant1]

11A (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	18.0	18.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	14.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	16.0	15.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	14.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	16.0	15.0	
Tolerance ±(dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 42		
Target (dBm)	16.0		
Tolerance ±(dB)	1.0		

5.2G WIFI Ant2]

11A (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	17.0	17.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	14.0	14.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	16.0	14.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	14.0	14.0	14.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	16.0	14.0	
Tolerance ±(dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 42		
Target (dBm)	15.0		
Tolerance ±(dB)	1.0		

[5.3G WIFI Ant1]

11A (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	17.0	17.0	18.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	13.0	13.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	15.0	15.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	13.0	13.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	14.0	14.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT80 (Average)			
Channel	Channel 58		

Target (dBm)	15.0
Tolerance ± (dB)	1.0

[5.3G WIFI Ant2]

11A (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	17.0	17.0	18.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	14.0	14.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	17.0	18.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	15.0	14.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	16.0	17.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	16.0		
Tolerance ± (dB)	1.0		

[5.5G WIFI Ant1]

11A (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	17.0	16.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	13.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	14.0	14.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	13.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	14.0	14.0	15.0

Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT80 (Average)			
Channel	Channel 106	Channel 122	
Target (dBm)	14.0	14.0	
Tolerance ± (dB)	1.0	1.0	

[5.5G WIFI Ant2]

11A (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	17.0	16.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	13.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	14.0	14.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	13.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	14.0	14.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT80 (Average)			
Channel	Channel 106	Channel 122	
Target (dBm)	14.0	14.0	
Tolerance ± (dB)	1.0	1.0	

[5.8G WIFI Ant1]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	16.0	15.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	16.0	15.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	16.0	15.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	16.0	15.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0

11AC40 (Average)		
Channel	Channe151	Channel 159
Target (dBm)	16.0	15.0
Tolerance ±(dB)	1.0	1.0
11AC80 (Average)		
Channel	Channel 155	
Target (dBm)	15.0	
Tolerance ±(dB)	1.0	

[5.8G WIFI Ant2]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	17.0	17.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	17.0	17.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	17.0	16.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	18.0	17.0	17.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channe151	Channel 159	
Target (dBm)	16.0	15.0	
Tolerance ±(dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	15.0		
Tolerance ±(dB)	1.0		

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 =20cm, 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/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
GFSK	5.0	3.1623	2.21	1.6634	0.0010	1.0000
π/4-DQPSK	4.0	2.5119	2.21	1.6634	0.0008	1.0000
8-DPSK	4.0	2.5119	2.21	1.6634	0.0008	1.0000

[BT LE]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
BT LE 1M	2.0	1.5849	2.21	1.6634	0.0005	1.0000
BT LE 2M	2.0	1.5849	2.21	1.6634	0.0005	1.0000

[2.4G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11b	19.0	79.4328	2.21	1.6634	0.0263	1.0000
IEEE 802.11g	18.0	63.0957	2.21	1.6634	0.0209	1.0000
IEEE 802.11n HT20	17.0	50.1187	2.21	1.6634	0.0166	1.0000
IEEE 802.11n HT40	16.0	39.8107	2.21	1.6634	0.0132	1.0000

[2.4G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11b	18.0	63.0957	3.22	2.0989	0.0332	1.0000
IEEE 802.11g	18.0	63.0957	3.22	2.0989	0.0263	1.0000
IEEE 802.11n HT20	17.0	50.1187	3.22	2.0989	0.0209	1.0000
IEEE 802.11n HT40	16.0	39.8107	3.22	2.0989	0.0166	1.0000

[5.2G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	19.0	79.4328	5.68	3.6983	0.0584	1.0000
IEEE 802.11n HT20	15.0	31.6228	5.68	3.6983	0.0233	1.0000
IEEE 802.11n HT40	17.0	50.1187	5.68	3.6983	0.0369	1.0000
IEEE 802.11ac VHT20	15.0	31.6228	5.68	3.6983	0.0233	1.0000
IEEE 802.11ac VHT40	17.0	50.1187	5.68	3.6983	0.0369	1.0000
IEEE 802.11ac VHT80	17.0	50.1187	5.68	3.6983	0.0369	1.0000

[5.2G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	18.0	63.0957	1.34	1.3614	0.0171	1.0000
IEEE 802.11n HT20	15.0	31.6228	1.34	1.3614	0.0086	1.0000
IEEE 802.11n HT40	17.0	50.1187	1.34	1.3614	0.0136	1.0000
IEEE 802.11ac VHT20	15.0	31.6228	1.34	1.3614	0.0086	1.0000
IEEE 802.11ac VHT40	17.0	50.1187	1.34	1.3614	0.0136	1.0000
IEEE 802.11ac VHT80	16.0	39.8107	1.34	1.3614	0.0108	1.0000

[5.3G WIFI Ant1]

Band/Mode	RF output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	19.0	79.4328	5.68	3.6983	0.0584	1.0000
IEEE 802.11n HT20	14.0	25.1189	5.68	3.6983	0.0185	1.0000
IEEE 802.11n HT40	16.0	39.8107	5.68	3.6983	0.0293	1.0000
IEEE 802.11ac VHT20	14.0	25.1189	5.68	3.6983	0.0185	1.0000
IEEE 802.11ac VHT40	15.0	31.6228	5.68	3.6983	0.0233	1.0000
IEEE 802.11ac VHT80	16.0	39.8107	5.68	3.6983	0.0293	1.0000

[5.3G WIFI Ant2]

Band/Mode	RF output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	19.0	79.4328	1.34	1.3614	0.0215	1.0000
IEEE 802.11n HT20	15.0	31.6228	1.34	1.3614	0.0086	1.0000
IEEE 802.11n HT40	19.0	199.5262	1.34	1.3614	0.0215	1.0000
IEEE 802.11ac VHT20	16.0	39.8107	1.34	1.3614	0.0108	1.0000
IEEE 802.11ac VHT40	18.0	63.0957	1.34	1.3614	0.0171	1.0000
IEEE 802.11ac VHT80	17.0	50.1187	1.34	1.3614	0.0136	1.0000

[5.5G WIFI Ant1]

Band/Mode	RF output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	18.0	63.0957	5.68	3.6983	0.0464	1.0000
IEEE 802.11n HT20	14.0	25.1189	5.68	3.6983	0.0185	1.0000
IEEE 802.11n HT40	16.0	39.8107	5.68	3.6983	0.0293	1.0000
IEEE 802.11ac VHT20	15.0	31.6228	5.68	3.6983	0.0233	1.0000
IEEE 802.11ac VHT40	16.0	39.8107	5.68	3.6983	0.0293	1.0000
IEEE 802.11ac VHT80	15.0	31.6228	5.68	3.6983	0.0233	1.0000

[5.5G WIFI Ant2]

Band/Mode	RF output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	18.0	63.0957	1.34	1.3614	0.0171	1.0000
IEEE 802.11n HT20	16.0	39.8107	1.34	1.3614	0.0108	1.0000
IEEE 802.11n HT40	16.0	39.8107	1.34	1.3614	0.0108	1.0000
IEEE 802.11ac VHT20	16.0	39.8107	1.34	1.3614	0.0108	1.0000
IEEE 802.11ac VHT40	16.0	39.8107	1.34	1.3614	0.0108	1.0000
IEEE 802.11ac VHT80	16.0	39.8107	1.34	1.3614	0.0108	1.0000

[5.8G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	17.0	50.1187	5.68	3.6983	0.0369	1.0000
IEEE 802.11n HT20	17.0	50.1187	5.68	3.6983	0.0369	1.0000
IEEE 802.11n HT40	17.0	50.1187	5.68	3.6983	0.0369	1.0000
IEEE 802.11ac VHT20	17.0	50.1187	5.68	3.6983	0.0369	1.0000
IEEE 802.11ac VHT40	17.0	50.1187	5.68	3.6983	0.0369	1.0000
IEEE 802.11ac VHT80	16.0	39.8107	5.68	3.6983	0.0293	1.0000

[5.8G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	18.0	63.0957	1.34	1.3614	0.0171	1.0000
IEEE 802.11n HT20	18.0	63.0957	1.34	1.3614	0.0171	1.0000
IEEE 802.11n HT40	18.0	63.0957	1.34	1.3614	0.0171	1.0000
IEEE 802.11ac VHT20	19.0	79.4328	1.34	1.3614	0.0215	1.0000
IEEE 802.11ac VHT40	17.0	50.1187	1.34	1.3614	0.0136	1.0000
IEEE 802.11ac VHT80	16.0	39.8107	1.34	1.3614	0.0108	1.0000

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

8.2 Simultaneous Transmission MPE Evaluation

The sample support one BT&BLE, 2.4GWLAN and 5G WLAN, another one 2.4GWLAN&5G WLAN, so need consider simultaneous transmission;
Simultaneous transmission MPE
According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;
∑∑of MPE ratios ≤ 1.0

<the worst simultaneous transmission operations result-2.4GWIFI>

2.4GWIFI-Ant 1	2.4GWIFI-Ant 2	∑ MPE ratios	Limit	Results
0.0166	0.0209	0.0375	1.0	Pass

<the worst simultaneous transmission operations result-BT+5GWIFI>

BT-Ant 1	5GWIFI-Ant 1	5GWIFI-Ant 2	∑ MPE ratios	Limit	Results
0.0010	0.0369	0.0215	0.0594	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. Both Bluetooth and WIFI cannot be transmitter simultaneously.

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/5GWIFI:

Test Item		Frequency Range	Uncertainty	Note
Output power	:	1GHz-40GHz	±0.57dB	(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----------