RF Exposure Evaluation

For

ALOYS INC.

Formuler Z12 Ultra

Test Model: Z12 Ultra

Prepared for	:	ALOYS INC.
Address	:	6F, 4-5, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Prepared by	:	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
Tel	:	(+86)755-82591330
Fax	:	(+86)755-82591332
Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	May 16, 2025
Number of tested samples	:	2
Sample No.	:	A250509055-1, A250509055-2
Serial number	:	Prototype
Date of Test	:	May 16, 2025 ~ July 14, 2025
Date of Report	:	July 14, 2025

RF Exposure Evaluation

Report Reference No.	**:**	**LCSA05155084EI**
Date of Issue.....	:	July 14, 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.....	**:**	**ALOYS INC.**
Address.....	:	6F, 4-5, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
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

EUT Description.	**:**	**Formuler Z12 Ultra**
Trade Mark.....	:	Formuler
Test Model	:	Z12 Ultra
Ratings.....	:	Please Refer to Page 6
**Result ..... **	**:**	**PASS**

Compiled by:	Supervised by:	Approved by:
Vera Deng	Jack Liu	Gavin Liang
Vera Deng/ Administrator	Jack Liu / Technique principal	Gavin Liang/ Manager

RF Exposure Evaluation

Test Report No. : **LCSA05155084EI**	July 14, 2025 Date of issue

EUT.....	:	Formuler Z12 Ultra
Test Model.....	:	Z12 Ultra
Applicant.....	**:**	**ALOYS INC.**
Address.....	:	6F, 4-5, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Telephone.....	:	/
Fax.....	:	/
Manufacturer.....	**:**	**ALOYS INC.**
Address.....	:	6F, 4-5, Yanghyeon-ro 405beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
Telephone.....	:	/
Fax.....	:	/
Factory.....	**:**	**Sichuan Changhong Neonet Technologies Co.,Ltd.**
Address.....	:	G05 Factory Premises, Changhong Intelligent Display Terminal Industrial Park, 38, Xinping Avenue,High-tech District, Mianyang 621000, P. R. 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	July 14, 2025	Initial Issue	--

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Description **Page**

1. Product Information

EUT	:	Formuler Z12 Ultra
Description of product as it is marketed	:	Android Media Player
Test Model	:	Z12 Ultra
Ratings	:	Input: 12.0V⎓1.0A For AC Adapter: Input:100-240V~, 50/60Hz, 0.35A Max Output: 12.0V⎓1.0A
Hardware Version	:	JZ105
Software Version	:	12.1.1-r86005289239
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	:	Ant0: Internal Antenna, 1.54dBi (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: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	Ant1: Internal Antenna, 1.8dBi(Max.) Ant2: Internal Antenna, 1.7dBi(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: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	Ant1: Internal Antenna, 2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(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) IEEE 802.11ax: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	Ant1: Internal Antenna, 2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(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: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	Ant1: Internal Antenna, 2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(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: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	Ant1: Internal Antenna, 2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(Max.)

UNII Band 5	:	
Frequency Range	:	5955MHz~6415MHz
Channel Number	:	24channels for 20MHz bandwidth(5955MHz~6415MHz) 12 channels for 40MHz bandwidth(5965MHz~6405MHz) 6 channels for 80MHz bandwidth(5985-6385MHz)
Modulation Type	:	802.11a:OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM)
Antenna Description	:	Ant1: Internal Antenna,2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(Max.)
UNII Band 6	:	
Frequency Range	:	6435MHz~6515MHz
Channel Number	:	5 channels for 20MHz bandwidth(6435MHz~6515MHz) 2 channels for 40MHz bandwidth(6465MHz~6545MHz) 2 channels for 80MHz bandwidth(6465-6545MHz)
Modulation Type	:	802.11a:OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM)
Antenna Description	:	Ant1: Internal Antenna, 2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(Max.)
UNII Band 7	:	
Frequency Range	:	6535MHz~6855MHz
Channel Number	:	17 channels for 20MHz bandwidth(6535MHz~6855MHz) 9 channels for 40MHz bandwidth(6525MHz~6845MHz) 3 channels for 80MHz bandwidth(6625MHz-6785MHz)
Modulation Type	:	802.11a:OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM)
Antenna Description	:	Ant1: Internal Antenna, 2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(Max.)

UNII Band 8	:	
Frequency Range	:	6895MHz~7115MHz
Channel Number	:	13 channels for 20MHz bandwidth(6895MHz~7115MHz) 6 channels for 40MHz bandwidth(6925MHz~7085MHz) 3 channels for 80MHz bandwidth(6945MHz~7025MHz)
Modulation Type	:	802.11a:OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM)
Antenna Description	:	Ant1: Internal Antenna, 2.2dBi(Max.) Ant2: Internal Antenna, 2.0dBi(Max.)

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

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

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 Antenna0	2400MHz ~ 2500MHz	Bluetooth: 1.54dBi	BT Antenna 0
	Internal Antenna1	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 1.8dBi 5.2GWIFI: 2.2dBi 5.3GWIFI: 2.2dBi 5.5GWIFI: 2.2dBi 5.8GWIFI: 2.2dBi	WIFI Antenna 1
Internal	Internal Antenna2	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 1.7dBi 5.2GWIFI: 2.0dBi 5.3GWIFI: 2.0dBi 5.5GWIFI: 2.0dBi 5.8GWIFI: 2.0dBi	WIFI Antenna 2

6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-1.23
	39	2441	-1.03
	78	2480	-1.83
π/4DQPSK	0	2402	0.86
	39	2441	1.06
	78	2480	-0.02
8DPSK	0	2402	1.28
	19	2441	1.48
	39	2480	0.39

[BLE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE 1M	0	2402	1.02
	19	2440	0.96
	39	2480	0.06

[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11B	1	2412	16.46	16.47
	6	2437	16.37	16.33
	11	2462	16.35	16.29
11G	1	2412	16.23	16.25
	6	2437	16.27	15.97
	11	2462	15.83	15.82
11N20 SISO	1	2412	16.45	16.46
	6	2437	15.93	16.73
	11	2462	16.74	16.71
11N40 SISO	3	2422	16.37	16.26
	6	2437	16.76	16.76
	9	2452	16.36	16.12
11AX20 SISO	1	2412	16.29	16.59
	6	2437	16.55	16.81
	11	2462	16.24	16.21
11AX40 SISO	3	2422	16.83	15.78
	6	2437	16.27	16.31
	9	2452	15.67	15.64

[5.2G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	36	5180	14.14	12.53
	40	5200	13.63	12.71
	48	5240	14.21	12.68
11N20 SISO	36	5180	13.44	12.39
	40	5200	13.5	12.52
	48	5240	13.55	12.53
11N40 SISO	38	5190	13.71	12.85
	46	5230	14.36	13.4
11AC20 SISO	36	5180	13.35	12.54
	40	5200	13.57	12.63
	48	5240	13.61	12.71
11AC40 SISO	38	5190	13.65	12.8
	46	5230	14.47	13.25
11AC80 SISO	42	5210	13.75	13.84
11AX20 SISO	36	5180	13.4	12.41
	40	5200	13.5	12.53
	48	5240	13.46	12.38
11AX40 SISO	38	5190	13.69	12.75
	46	5230	14.26	13.32
11AX80 SISO	42	5210	13.85	12.73

[5.3G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
IEEE 802.11a	52	5260	14.06	10.06
	60	5280	13.51	9.67
	64	5320	13.5	10.37
11N20 SISO	52	5260	13.77	9.78
	60	5280	13.45	9.14
	64	5320	13.35	10.29
11N40 SISO	54	5270	14.3	10.49
	62	5310	14.43	10.23
11AC20 SISO	52	5260	13.86	9.79
	60	5280	13.34	9.25
	64	5320	13.88	10.18
11AC40 SISO	54	5270	13.43	10.48
	62	5310	14.57	10.62
11AC80 SISO	58	5290	14.89	9.53
11AX20 SISO	52	5260	13.82	9.81
	60	5280	13.47	9.24
	64	5320	14.02	9.97
11AX40 SISO	54	5270	13.53	10.6
	62	5310	13.32	10.62
11AX80 SISO	58	5290	13.84	10.75

[5.5G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	100	5500	10.79	10.69
	116	5580	10.49	10.45
	140	5700	10.74	10.56
11N20 SISO	100	5500	10.67	10.64
	116	5580	10.34	11.37
	140	5700	11.23	10.6
11N40 SISO	102	5510	10.83	10.86
	110	5550	11.47	11.48
	134	5670	11.47	11.41
11AC20 SISO	100	5500	10.53	10.61
	116	5580	11.32	11.25
	140	5700	10.57	11.24
11AC40 SISO	102	5510	10.93	10.92
	110	5550	11.45	11.51
	134	5670	10.85	11.48
11AC80 SISO	106	5530	12.3	11.19
	122	5610	11.97	11.88
11AX20 SISO	100	5500	10.67	10.61
	116	5580	11.29	11.26
	140	5700	11.31	11.29
11AX40 SISO	102	5510	11.05	10.91
	110	5550	11.47	11.48
	134	5670	11.42	11.3
11AX80 SISO	106	5530	12.3	11.24
	122	5610	11.91	11.88

[5.8G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	149	5745	12.78	12.88
	157	5785	12.07	12.09
	165	5825	12.7	12.65
11N20 SISO	149	5745	12.58	12.58
	157	5785	11.85	11.97
	165	5825	12.53	12.74
11N40 SISO	151	5755	12.68	12.59
	159	5795	12.82	12.89
11AC20 SISO	149	5745	12.59	12.57
	157	5785	11.99	11.83
	165	5825	12.57	12.59
11AC40 SISO	151	5755	13.02	12.67
	159	5795	13.35	12.97
11AC80 SISO	155	5775	13.09	13.12
11AX20 SISO	149	5745	12.55	12.49
	157	5785	11.91	11.79
	165	5825	12.55	12.49
11AX40 SISO	151	5755	12.82	12.65
	159	5795	13.57	12.95
11AX80 SISO	155	5775	13.15	13.11

[6G WIFI]

Test Mode	Channel	Frequency[MHz]	Ant 1 Max EIRP Power(dBm)	Ant 2 Max EIRP Power(dBm)
11AX20SISO	1	5955	12.86	12.67
11AX20SISO	45	6175	13.84	13.79
11AX20SISO	93	6415	13.45	13.41
11AX40SISO	3	5965	13.21	13.18
11AX40SISO	43	6165	14.16	14.17
11AX40SISO	91	6405	13.85	13.74
11AX80SISO	7	5985	13.85	13.76
11AX80SISO	39	6145	14.07	14.40
11AX80SISO	87	6385	13.56	13.39
11AX20SISO	97	6435	14.21	14.26
11AX20SISO	105	6475	13.26	13.30
11AX20SISO	113	6515	13.20	13.19
11AX40SISO	99	6445	14.10	14.11
11AX40SISO	107	6485	13.30	13.26
11AX40SISO	115	6525	11.41	11.41
11AX80SISO	103	6465	13.62	12.75
11AX80SISO	109	6865	13.81	12.46
11AX20SISO	117	6535	13.34	13.37
11AX20SISO	149	6695	12.57	12.53
11AX20SISO	181	6855	13.78	13.76
11AX40SISO	123	6565	14.63	14.62
11AX40SISO	147	6685	13.44	13.52
11AX40SISO	179	6845	14.39	14.42
11AX40SISO	187	6885	13.69	12.78
11AX80SISO	135	6625	13.65	13.50
11AX80SISO	157	6705	13.45	12.66
11AX80SISO	167	6785	14.19	11.69
11AX80SISO	183	6865	13.81	13.81
11AX20SISO	189	6895	13.69	13.87
11AX20SISO	209	6995	14.03	13.98
11AX20SISO	233	7115	13.54	13.58
11AX40SISO	195	6925	13.91	14.01
11AX40SISO	203	6965	13.58	12.64
11AX40SISO	207	7085	13.51	12.57
11AX80SISO	199	6945	14.13	14.12
11AX80SISO	215	7025	14.04	14.02

7. Manufacturing Tolerance

[BT]

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

[BLE]

BLE 1M (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	1.0	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)	16.0	16.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	16.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	15.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	16.0	16.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	16.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	16.0	16.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0

[2.4G WIFI Ant2]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	16.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	15.0	15.0
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)	16.0	16.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	16.0	16.0	16.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	15.0	16.0	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)	14.0	13.0	14.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38		Channel 46
Target (dBm)	13.0		14.0
Tolerance ±(dB)	1.0		1.0
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38		Channel 46
Target (dBm)	13.0		14.0
Tolerance ±(dB)	1.0		1.0
11AC80 (Average)			

Channel	Channel 42		
Target (dBm)	13.0		
Tolerance ±(dB)	1.0		
11AX20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.0	13.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	13.0	14.0	
Tolerance ±(dB)	1.0	1.0	
11AX80 (Average)			
Channel	Channel 42		
Target (dBm)	13.0		
Tolerance ±(dB)	1.0		

[5.2G WIFI Ant2]

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

11AX80 (Average)	
Channel	Channel 42
Target (dBm)	12.0
Tolerance ±(dB)	1.0

[5.3G WIFI Ant1]

11A (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	14.0	13.0	13.0
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)	14.0		14.0
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)	13.0		14.0
Tolerance ± (dB)	1.0		1.0
11AC VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	14.0		
Tolerance ± (dB)	1.0		
11AX VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	13.0	13.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX VHT40 (Average)			
Channel	Channel 54		Channel 62
Target (dBm)	13.0		13.0
Tolerance ± (dB)	1.0		1.0
11AX VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	13.0		
Tolerance ± (dB)	1.0		

[5.3G WIFI Ant2]

11A (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	9.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0

11N HT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	9.0	9.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	10.0	10.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	9.0	9.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	10.0	10.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	9.0		
Tolerance ± (dB)	1.0		
11AX VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	9.0	9.0	9.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	10.0	10.0	
Tolerance ± (dB)	1.0	1.0	
11AX VHT80 (Average)			
Channel	Channel 58		
Target (dBm)	10.0		
Tolerance ± (dB)	1.0		

[5.5G WIFI Ant1]

11A (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	10.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	10.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140

Target (dBm)	10.0	11.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	11.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0

11AC VHT80 (Average)		
Channel	Channel 106	Channel 122
Target (dBm)	12.0	11.0
Tolerance ± (dB)	1.0	1.0

11AX VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	11.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0

11AX VHT80 (Average)		
Channel	Channel 106	Channel 122
Target (dBm)	12.0	11.0
Tolerance ± (dB)	1.0	1.0

[5.5G WIFI Ant2]

11A (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	10.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	11.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0

11AC VHT80 (Average)		
Channel	Channel 106	Channel 122
Target (dBm)	11.0	11.0
Tolerance ± (dB)	1.0	1.0

11AX VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0

11AX VHT80 (Average)		
Channel	Channel 106	Channel 122
Target (dBm)	11.0	11.0
Tolerance ± (dB)	1.0	1.0

[5.8G WIFI Ant1]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	12.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151		Channel 159
Target (dBm)	12.0		12.0
Tolerance ±(dB)	1.0		1.0
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channe151		Channel 159
Target (dBm)	13.0		13.0
Tolerance ±(dB)	1.0		1.0
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	13.0		
Tolerance ±(dB)	1.0		
11AX20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Average)			
Channel	Channe151		Channel 159
Target (dBm)	12.0		13.0
Tolerance ±(dB)	1.0		1.0
11AX80 (Average)			
Channel	Channel 155		
Target (dBm)	12.0		
Tolerance ±(dB)	1.0		

[5.8G WIFI Ant1]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	12.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151		Channel 159
Target (dBm)	12.0		12.0
Tolerance ±(dB)	1.0		1.0
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channe151		Channel 159
Target (dBm)	12.0		12.0
Tolerance ±(dB)	1.0		1.0
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	13.0		
Tolerance ±(dB)	1.0		
11AX20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Average)			
Channel	Channe151		Channel 159
Target (dBm)	12.0		12.0
Tolerance ±(dB)	1.0		1.0
11AX80 (Average)			
Channel	Channel 155		
Target (dBm)	12.0		
Tolerance ±(dB)	1.0		

[6G WIFI Ant1]

11AX 20(Average)			
Channel	Channel 1	Channel 45	Channel 93
Target (dBm)	12.0	13.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 40 (Average)			
Channel	Channel 3	Channel 43	Channel 91
Target (dBm)	13.0	14.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 80 (Average)			
Channel	Channel 7	Channel 39	Channel 87
Target (dBm)	14.0	13.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 20(Average)			
Channel	Channel 97	Channel 105	Channel 113
Target (dBm)	14.0	13.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 40 (Average)			
Channel	Channel 99	Channel 107	Channel 115
Target (dBm)	14.0	13.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 80 (Average)			
Channel	Channel 103	Channel 109	
Target (dBm)	13.0	13.0	
Tolerance ± (dB)	1.0	1.0	
11AX 20(Average)			
Channel	Channel 117	Channel 149	Channel 181
Target (dBm)	13.0	12.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 40 (Average)			
Channel	Channel 123	Channel 147	Channel 179	Channel 187
Target (dBm)	14.0	13.0	14.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0	1.0
11AX 80 (Average)				
Channel	Channel 135	Channel 151	Channel 167	Channel 183
Target (dBm)	13.0	13.0	14.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0	1.0
11AX 20(Average)				
Channel	Channel 189	Channel 209	Channel 233	
Target (dBm)	13.0	14.0	13.0	
Tolerance ± (dB)	1.0	1.0	1.0	
11AX 40 (Average)				
Channel	Channel 195	Channel 203	Channel 207	
Target (dBm)	13.0	13.0	13.0	
Tolerance ± (dB)	1.0	1.0	1.0	
11AX 80 (Average)				
Channel	Channel 199	Channel 215		

Target (dBm)	14.0	14.0
Tolerance ± (dB)	1.0	1.0

[6G WIFI Ant2]

11AX 20(Average)			
Channel	Channel 1	Channel 45	Channel 93
Target (dBm)	14.0	15.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 40 (Average)			
Channel	Channel 3	Channel 43	Channel 91
Target (dBm)	15.0	16.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 80 (Average)			
Channel	Channel 7	Channel 39	Channel 87
Target (dBm)	15.0	16.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 20(Average)			
Channel	Channel 97	Channel 105	Channel 113
Target (dBm)	16.0	15.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 40 (Average)			
Channel	Channel 99	Channel 107	Channel 115
Target (dBm)	16.0	15.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 80 (Average)			
Channel	Channel 103	Channel 109	
Target (dBm)	14.0	14.0	
Tolerance ± (dB)	1.0	1.0	
11AX 20(Average)			
Channel	Channel 117	Channel 149	Channel 181
Target (dBm)	15.0	14.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 40 (Average)			
Channel	Channel 123	Channel 147	Channel 179	Channel 187
Target (dBm)	16.0	15.0	16.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0	1.0
11AX 80 (Average)				
Channel	Channel 135	Channel 151	Channel 167	Channel 183
Target (dBm)	15.0	14.0	13.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0	1.0
11AX 20(Average)				
Channel	Channel 189	Channel 209	Channel 233	
Target (dBm)	15.0	16.0	15.0	
Tolerance ± (dB)	1.0	1.0	1.0	
11AX 40 (Average)				
Channel	Channel 195	Channel 203	Channel 207	

Target (dBm)	16.0	14.0	14.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX 80 (Average)			
Channel	Channel 199		Channel 215
Target (dBm)	16.0		16.0
Tolerance ± (dB)	1.0		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	0	1.0000	1.54	1.4256	0.0003	1.0000
π/4-DQPSK	2.0	1.5849	1.54	1.4256	0.0005	1.0000
8-DPSK	2.0	1.5849	1.54	1.4256	0.0005	1.0000

[BLE]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
BLE 1M	2.0	1.5849	1.54	1.4256	0.0005	1.0000

[2.4G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11b	17.0	50.1187	1.8	1.5136	0.0151	1.0000
IEEE 802.11g	17.0	50.1187	1.8	1.5136	0.0151	1.0000
IEEE 802.11n HT20	17.0	50.1187	1.8	1.5136	0.0151	1.0000
IEEE 802.11n HT40	17.0	50.1187	1.8	1.5136	0.0151	1.0000
IEEE 802.11ax VHT20	17.0	50.1187	1.8	1.5136	0.0151	1.0000
IEEE 802.11ax VHT40	17.0	50.1187	1.8	1.5136	0.0151	1.0000

[2.4G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11b	17.0	50.1187	1.7	1.4791	0.0147	1.0000
IEEE 802.11g	17.0	50.1187	1.7	1.4791	0.0147	1.0000
IEEE 802.11n HT20	17.0	50.1187	1.7	1.4791	0.0147	1.0000
IEEE 802.11n HT40	17.0	50.1187	1.7	1.4791	0.0147	1.0000
IEEE 802.11ax VHT20	17.0	50.1187	1.7	1.4791	0.0147	1.0000
IEEE 802.11ax VHT40	17.0	50.1187	1.7	1.4791	0.0147	1.0000

[5.2G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11n HT20	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11n HT40	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11ac VHT20	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11ac VHT40	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11ac VHT80	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11ax VHT20	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11ax VHT40	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11ax VHT80	14.0	25.1189	2.2	1.6596	0.0083	1.0000

[5.2G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11n HT20	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11n HT40	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ac VHT40	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ac VHT80	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ax VHT20	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ax VHT40	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ax VHT80	13.0	19.9526	2.0	1.5849	0.0063	1.0000

[5.3G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11n HT20	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11n HT40	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11ac VHT20	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11ac VHT40	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11ac VHT80	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11ax VHT20	15.0	31.6228	2.2	1.6596	0.0104	1.0000
IEEE 802.11ax VHT40	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11ax VHT80	14.0	25.1189	2.2	1.6596	0.0083	1.0000

[5.3G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	11.0	12.5893	2.0	1.5849	0.0040	1.0000
IEEE 802.11n HT20	11.0	12.5893	2.0	1.5849	0.0040	1.0000
IEEE 802.11n HT40	11.0	12.5893	2.0	1.5849	0.0040	1.0000
IEEE 802.11ac VHT20	11.0	12.5893	2.0	1.5849	0.0040	1.0000
IEEE 802.11ac VHT40	11.0	12.5893	2.0	1.5849	0.0032	1.0000
IEEE 802.11ac VHT80	10.0	10.0000	2.0	1.5849	0.0032	1.0000
IEEE 802.11ax VHT20	10.0	10.0000	2.0	1.5849	0.0040	1.0000
IEEE 802.11ax VHT40	11.0	12.5893	2.0	1.5849	0.0040	1.0000
IEEE 802.11ax VHT80	11.0	12.5893	2.0	1.5849	0.0040	1.0000

[5.5G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	11.0	12.5893	2.2	1.6596	0.0042	1.0000
IEEE 802.11n HT20	12.0	15.8489	2.2	1.6596	0.0052	1.0000
IEEE 802.11n HT40	12.0	15.8489	2.2	1.6596	0.0052	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	2.2	1.6596	0.0052	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	2.2	1.6596	0.0052	1.0000
IEEE 802.11ac VHT80	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11ax VHT20	12.0	15.8489	2.2	1.6596	0.0052	1.0000
IEEE 802.11ax VHT40	12.0	15.8489	2.2	1.6596	0.0052	1.0000
IEEE 802.11ax VHT80	13.0	19.9526	2.2	1.6596	0.0066	1.0000

[5.5G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	11.0	12.5893	2.0	1.5849	0.0040	1.0000
IEEE 802.11n HT20	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11n HT40	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ax VHT20	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ax VHT40	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ax VHT80	12.0	15.8489	2.0	1.5849	0.0050	1.0000

[5.8G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11n HT20	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11n HT40	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11ac VHT40	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11ac VHT80	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11ax VHT20	13.0	19.9526	2.2	1.6596	0.0066	1.0000
IEEE 802.11ax VHT40	14.0	25.1189	2.2	1.6596	0.0083	1.0000
IEEE 802.11ax VHT80	13.0	19.9526	2.2	1.6596	0.0066	1.0000

[5.8G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11n HT20	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11n HT40	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ac VHT40	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ac VHT80	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ax VHT20	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ax VHT40	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ax VHT80	13.0	19.9526	2.0	1.5849	0.0063	1.0000

[6G WIFI Ant 1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11ax VHT20	17.0	50.1187	2.2	1.6596	0.0166	1.0000
IEEE 802.11ax VHT40	17.0	50.1187	2.2	1.6596	0.0166	1.0000
IEEE 802.11ax VHT80	17.0	50.1187	2.2	1.6596	0.0166	

[6G WIFI Ant 2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm2)	MPE Limits (mW/cm2)
	dBm	mW				
IEEE 802.11ax VHT20	17.0	50.1187	2.0	1.5849	0.0158	1.0000
IEEE 802.11ax VHT40	17.0	50.1187	2.0	1.5849	0.0158	1.0000
IEEE 802.11ax VHT80	17.0	50.1187	2.0	1.5849	0.0158	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.

8.2 Simultaneous Transmission MPE Evaluation

The sample support one BT&BLE antenna and two 2.4GWIFI/5GWIFI/6GWIFI antenna, so need consider simultaneous transmission;
According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;
∑∑of MPE ratios ≤ 1.0

Simultaneous Transmission					
Ant0 MAX MPE ratios	Ant1 MAX MPE ratios	Ant2 MAX MPE ratios	MPE ratios ∑ MPE ratios	Limit	Results
0.0005	0.0166	0.0158	0.0329	1.0	Pass

Remark:
1. Output power including turn-up tolerance;
2. BT/BLE/2.4G WIFI output power is burst peak power;
3. 5G/ output power is burst average power;
4. 6G WIFI output power is EIRP power;
6. MPE evaluate distance is 20cm from user manual provide by manufacturer;
7. MPE values = $PG/4\pi R^2$

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/6GWIFI:

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----------