



RF Exposure Evaluation

For

Shenzhen Ruiying Electronic Co., Ltd

Projector

Test Model: N5

Additional Model No.: Please Refer to Page 6

Prepared for : Shenzhen Ruiying Electronic Co., Ltd
Address : R204, Building A2, TangweiFuyuan Industrial, Fengtang Road, Fuhai Street, Baoan District, Shenzhen City, Guangdong, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : April 02, 2025
Number of tested samples : 2
Sample No. : A250401094-1, A250401094-2
Serial number : Prototype
Date of Test : April 02, 2025 ~ May 07, 2025
Date of Report : May 08, 2025



**RF Exposure Evaluation****Report Reference No. : LCSA03275079EH**

Date of Issue..... : May 08, 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, ChinaTesting Location/ Procedure..... : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □**Applicant's Name..... : Shenzhen Ruiying Electronic Co., Ltd**Address..... : R204, Building A2, TangweiFuyuan Industrial, Fengtang Road,
Fuhai Street, Baoan District, Shenzhen City, Guangdong, 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

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EUT Description..... : Projector

Trade Mark..... : N/A

Test Model : N5

Ratings..... : Input:100-240V~, 50/60Hz, 1.2A

Result : PASS**Compiled by:**

Jack Liu/Administrator

Supervised by:

Cary Luo/ Technique principal

Approved by:

Gavin Liang/ Manager



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RF Exposure Evaluation

Test Report No. :	LCSA03275079EH	<u>May 08, 2025</u> Date of issue
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EUT.....	: Projector
Test Model.....	: N5
Applicant.....	: Shenzhen Ruiying Electronic Co., Ltd
Address.....	: R204, Building A2, TangweiFuyuan Industrial, Fengtang Road, Fuhai Street, Baoan District, Shenzhen City, Guangdong, China
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: Shenzhen Ruiying Electronic Co., Ltd
Address.....	: R204, Building A2, TangweiFuyuan Industrial, Fengtang Road, Fuhai Street, Baoan District, Shenzhen City, Guangdong, China
Telephone.....	: /
Fax.....	: /
Factory.....	: Shenzhen Ruiying Electronic Co., Ltd
Address.....	: R204, Building A2, TangweiFuyuan Industrial, Fengtang Road, Fuhai Street, Baoan District, Shenzhen City, Guangdong, China
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.



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Revision History

Report Version	Issue Date	Revision Content	Revised By
000	May 08, 2025	Initial Issue	--





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1. Product Information

EUT	: Projector
Test Model	: N5
Additional Model No.	: V1, V2, V3, V5, V6, V7, V8, V9, V10, A1, A2, A3, A5, A6, A7, A8, A9, A10, A11, A12, A13, A15, N1, N2, N3, N6, N7, N8, N9, H1, H2, H3, H5, H6, H7, H8, H9, H10, T1, T2, T3, T5, T6, T7, T8, T9, T10, R1, R2, R3, R5, R6, R7, R8, R9, SN1, P1, P2, P3, P5, P6, P7, P8, P9, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S20, Y1, Y2, Y3, Y4, Y5, Y6, Y7, Y8, Y9, HQ2, HQ3, HQ4, HQ5, HQ8, Q1, Q2, Q3, Q5, Q6, Q7, Q8, Q1 Pro, M10, M11, M12, M15, M16, M17, M18, M19, M20, M21, M22, M23, M24, M25, M26, M27, M28, T4, G1, O1, Y3, P61, P65, KP1, KP1 PRO, KP1 PLUS, KP1 Mini, KP1 SE, KP3, KP4, IPP1, IPP1 Pro, IPP2, IPP2 Pro, SAIL1, SAIL3, SAIL3 Pro, SAIL5, SAIL5 Pro, RY100, RY200, RY300, RY500, RY600, RY700, RY800, RY900, O1, O2, O3, O5, O6, O7, O8, O9, P61, P61 Pro, P62 Pro, G1 Pro, K12s, P65
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Ratings	: Input:100-240V~, 50/60Hz, 1.2A
Hardware Version	: 2800-A92637
Software Version	: V5.02.28-110447
Bluetooth	:
Frequency Range	: 2402MHz~2480MHz
Channel Number	: 79 channels for Bluetooth V5.4 (DSS) 40 channels for Bluetooth V5.4 (DTS)
Channel Spacing	: 1MHz for Bluetooth V5.4 (DSS) 2MHz for Bluetooth V5.4 (DTS)
Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.4 (DSS) GFSK for Bluetooth V5.4 (DTS)
Bluetooth Version	: V5.4
Antenna Description	: Ant1: FPC Antenna, 4.01dBi(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: FPC Antenna, 4.01dBi(Max.) Ant2: FPC Antenna, 4.01dBi(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)
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: FPC Antenna, 3.4dBi(Max.) Ant2: FPC Antenna, 3.4dBi(Max.)
5.3G WLAN	:



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Frequency Range	: 5260MHz~5320MHz
Channel Number	: 4 Channels for 20MHz bandwidth(5260MHz~5320MHz) 2 channels for 40MHz bandwidth(5270MHz~5310MHz)
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: FPC Antenna, 3.4dBi(Max.) Ant2: FPC Antenna, 3.4dBi(Max.)
5.5G WLAN	
Frequency Range	: 5500MHz~5700MHz
Channel Number	: 11 Channels for 20MHz bandwidth(5500MHz~5700MHz) 5 Channels for 40MHz bandwidth(5510MHz~5670MHz)
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: FPC Antenna, 3.4dBi(Max.) Ant2: FPC Antenna, 3.4dBi(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)
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: FPC Antenna, 3.4dBi(Max.) Ant2: FPC Antenna, 3.4dBi(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.



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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	FPC Antenna	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	Bluetooth: 4.01dBi 2.4GWIFI: 4.01dBi 5.2GWIFI: 3.4dBi 5.3GWIFI: 3.4dBi 5.5GWIFI: 3.4dBi 5.8GWIFI: 3.4dBi	BT/WIFI Antenna 1
	FPC Antenna	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 4.01dBi 5.2GWIFI: 3.4dBi 5.3GWIFI: 3.4dBi 5.5GWIFI: 3.4dBi 5.8GWIFI: 3.4dBi	WIFI Antenna 2

6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-0.75
	39	2441	-0.51
	78	2480	-1.81
$\pi/4$ DQPSK	0	2402	-1.41
	39	2441	1.26
	78	2480	0.18
8DPSK	0	2402	-0.96
	19	2441	1.74
	39	2480	0.55

[BLE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE 1M	0	2402	-1.3
	19	2440	1.26
	39	2480	0.36
BLE 2M	0	2402	1.08
	19	2440	0.89
	39	2480	-0.16

[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11B	1	2412	15.22	15.52
	6	2437	14.84	14.73
	11	2462	14.93	14.74
11G	1	2412	13.89	13.75
	6	2437	12.84	12.72
	11	2462	13.19	12.98
11N20 SISO	1	2412	13.47	13.35
	6	2437	12.42	12.4
	11	2462	12.75	12.78
11N40 SISO	3	2422	13.7	12.63



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	6	2437	12.53	11.57
	9	2452	13.5	12.53
	1	2412	15.35	15.42
11AX20 SISO	6	2437	14.95	14.89
	11	2462	14.81	14.85
	3	2422	13.33	13.27
11AX40 SISO	6	2437	12.54	12.45
	9	2452	13.41	13.59

[5.2G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	36	5180	12.16	11.5
	40	5200	11.82	11.46
	48	5240	11.1	9.78
11N20 SISO	36	5180	12.88	11.75
	40	5200	12.52	11.6
	48	5240	11.89	9.89
11N40 SISO	38	5190	9.82	9.56
	46	5230	9.21	8
11AC20 SISO	36	5180	11.37	10.82
	40	5200	11.08	10.63
	48	5240	10.5	8.96
11AC40 SISO	38	5190	9.85	9.46
	46	5230	9.53	7.97
11AX20 SISO	36	5180	11.83	10.8
	40	5200	11.71	10.71
	48	5240	10.4	9.08
11AX40 SISO	38	5190	10.14	9.44
	46	5230	8.63	7.93

[5.3G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
IEEE 802.11a	52	5260	10.74	11.04
	60	5280	11.24	11.14
	64	5320	11.25	11.38
11N20 SISO	52	5260	11.15	11.25
	60	5280	11.34	11.69
	64	5320	11.93	12.05
11N40 SISO	54	5270	8.6	8.86
	62	5310	9.5	9.55
11AC20 SISO	52	5260	10.17	10.24
	60	5280	10.47	10.63
	64	5320	10.81	10.89
11AC40 SISO	54	5270	8.62	8.85
	62	5310	9.5	9.41
11AX20 SISO	52	5260	9.16	10.39
	60	5280	9.85	10.6
	64	5320	11.35	10.89
11AX40 SISO	54	5270	7.96	8.96
	62	5310	10.51	9.5



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[5.5G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	100	5500	10.75	11.99
	116	5580	11.05	11.12
	140	5700	11.02	12.7
11N20 SISO	100	5500	11.27	12.58
	116	5580	11.44	13.16
	140	5700	11.77	12.89
11N40 SISO	102	5510	9.78	10.48
	110	5550	9.58	10.25
	134	5670	10.52	10.46
11AC20 SISO	100	5500	10.28	12.56
	116	5580	10.38	13.1
	140	5700	10.3	12.88
11AC40 SISO	102	5510	10.02	10.03
	110	5550	9.73	10.38
	134	5670	10.48	10.52
11AX20 SISO	100	5500	13.01	9.64
	116	5580	12.7	10.3
	140	5700	12.47	9.83
11AX40 SISO	102	5510	11.78	9.35
	110	5550	11.49	9.67
	134	5670	11.47	9.33

[5.8G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	149	5745	12.33	12.27
	157	5785	11.55	11.12
	165	5825	11.64	11.41
11N20 SISO	149	5745	12.3	12.81
	157	5785	11.88	11.76
	165	5825	11.64	12.12
11N40 SISO	151	5755	10.54	11.55
	159	5795	9.87	10.41
11AC20 SISO	149	5745	11.62	11.92
	157	5785	11.44	10.85
	165	5825	11.45	11.2
11AC40 SISO	151	5755	10.56	11.52
	159	5795	9.77	10.39
11AX20 SISO	149	5745	12.73	11.89
	157	5785	12.23	10.91
	165	5825	12.57	11.17
11AX40 SISO	151	5755	12.8	11.47
	159	5795	9.25	10.41



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7. Manufacturing Tolerance

[BT]

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	0	0	-1.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
$\pi/4$ DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	-1.0	0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8DPSK (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[BLE]

BLE 1M (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	-1.0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
BLE 2M (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)	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)	13.0	12.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	13.0	12.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX20 (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
11AX40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9



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Target (dBm)	13.0	12.0	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)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	12.0	11.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX20 (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
11AX40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	13.0	12.0	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	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	12.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	9.0	9.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	



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Target (dBm)	9.0		9.0
Tolerance ±(dB)	1.0		1.0
11AX20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	10.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	10.0	8.0	
Tolerance ±(dB)	1.0	1.0	

[5.2G WIFI Ant2]

11A (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	11.0	11.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	9.0	8.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	10.0	10.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	9.0	7.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	10.0	10.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	9.0	7.0	
Tolerance $\pm$ (dB)	1.0	1.0	

[5.3G WIFI Ant1]

11A (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64



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Target (dBm)	11.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	8.0	9.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	10.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	8.0	9.0	
Tolerance ± (dB)	1.0	1.0	
11AX VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	9.0	9.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11AX VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	7.0	10.0	
Tolerance ± (dB)	1.0	1.0	

[5.3G WIFI Ant2]

11A (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	12.0
Tolerance ± (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	8.0	9.0	
Tolerance ± (dB)	1.0	1.0	
11AC VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	10.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0
11AC VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	8.0	9.0	
Tolerance ± (dB)	1.0	1.0	
11AX VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	10.0	10.0
Tolerance ± (dB)	1.0	1.0	1.0



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11AX VHT40 (Average)		
Channel	Channel 54	Channel 62
Target (dBm)	8.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0

[5.5G WIFI Ant1]

11A (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	9.0	9.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	10.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	9.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (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 $\pm$ (dB)	1.0	1.0	1.0

[5.5G WIFI Ant2]

11A (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	11.0	11.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N HT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	12.0	13.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC VHT20 (Average)			



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Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	12.0	13.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	10.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	9.0	10.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AX HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	9.0	9.0	9.0
Tolerance $\pm$ (dB)	1.0	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)	10.0	9.0	
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	Channel 151	Channel 159	
Target (dBm)	10.0	9.0	
Tolerance ±(dB)	1.0	1.0	
11AX20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	12.0	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	12.0	9.0	
Tolerance ±(dB)	1.0	1.0	



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[5.8G WIFI Ant2]

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	12.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	10.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance ±(dB)	1.0	1.0	
11AX20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	10.0	11.0
Tolerance ±(dB)	1.0	1.0	1.0
11AX40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance ±(dB)	1.0	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	4.01	2.5177	0.0006	1.0000
$\pi/4$ -DQPSK	2.0	1.5849	4.01	2.5177	0.0008	1.0000
8-DPSK	2.0	1.5849	4.01	2.5177	0.0008	1.0000

[BLE]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
BLE 1M	2.0	1.5849	4.01	2.5177	0.0008	1.0000
BLE 2M	2.0	1.5849	4.01	2.5177	0.0008	1.0000

[2.4G 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 802.11b	16.0	39.8107	4.01	2.5177	0.0200	1.0000
IEEE 802.11g	14.0	25.1189	4.01	2.5177	0.0126	1.0000
IEEE 802.11n HT20	14.0	25.1189	4.01	2.5177	0.0126	1.0000
IEEE 802.11n HT40	14.0	25.1189	4.01	2.5177	0.0126	1.0000
IEEE 802.11ax VHT20	16.0	39.8107	4.01	2.5177	0.0200	1.0000
IEEE 802.11ax VHT40	14.0	25.1189	4.01	2.5177	0.0126	1.0000

[2.4G 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 802.11b	16.0	39.8107	4.01	2.5177	0.0200	1.0000
IEEE 802.11g	14.0	25.1189	4.01	2.5177	0.0126	1.0000
IEEE 802.11n HT20	14.0	25.1189	4.01	2.5177	0.0126	1.0000
IEEE 802.11n HT40	13.0	19.9526	4.01	2.5177	0.0100	1.0000
IEEE 802.11ax VHT20	16.0	39.8107	4.01	2.5177	0.0200	1.0000
IEEE 802.11ax VHT40	14.0	25.1189	4.01	2.5177	0.0126	1.0000

[5.2G 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	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT20	13.0	19.9526	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ac VHT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ax VHT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ax VHT40	11.0	12.5893	3.4	2.1878	0.0055	1.0000



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[5.2G 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	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11n HT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11n HT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ac VHT20	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ac VHT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ax VHT20	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ax VHT40	10.0	10.0000	3.4	2.1878	0.0044	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	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11n HT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11n HT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ac VHT20	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ac VHT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ax VHT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ax VHT40	11.0	12.5893	3.4	2.1878	0.0055	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	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11n HT20	13.0	19.9526	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ac VHT20	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ac VHT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000
IEEE 802.11ax VHT20	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ax VHT40	10.0	10.0000	3.4	2.1878	0.0044	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	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11n HT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11n HT40	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ac VHT20	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ac VHT40	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ax VHT20	14.0	25.1189	3.4	2.1878	0.0109	1.0000
IEEE 802.11ax VHT40	12.0	15.8489	3.4	2.1878	0.0069	1.0000

[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	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT20	14.0	25.1189	3.4	2.1878	0.0109	1.0000
IEEE 802.11n HT40	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ac VHT20	14.0	25.1189	3.4	2.1878	0.0109	1.0000
IEEE 802.11ac VHT40	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ax VHT20	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ax VHT40	10.0	10.0000	3.4	2.1878	0.0044	1.0000



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[5.8G 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	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT20	13.0	19.9526	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT40	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ac VHT40	11.0	12.5893	3.4	2.1878	0.0055	1.0000
IEEE 802.11ax VHT20	13.0	19.9526	3.4	2.1878	0.0087	1.0000
IEEE 802.11ax VHT40	13.0	19.9526	3.4	2.1878	0.0087	1.0000

[5.8G 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	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT20	13.0	19.9526	3.4	2.1878	0.0087	1.0000
IEEE 802.11n HT40	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ax VHT20	12.0	15.8489	3.4	2.1878	0.0069	1.0000
IEEE 802.11ax VHT40	12.0	15.8489	3.4	2.1878	0.0069	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&2.4G WLAN&5.2G WLAN&5.3G WLAN &5.5G WLAN &5.8G WLAN, another one BT&BLE&2.4G WLAN&5.2G WLAN&5.3G WLAN &5.5G WLAN &5.8G WLAN, so need consider simultaneous transmission;

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

$\sum$ of MPE ratios ≤ 1.0

<the worst simultaneous transmission operations result- 2.4GWIFI>

2.4GWIFI-Ant 1	2.4GWIFI-Ant 2	$\sum$ MPE ratios	Limit	Results
0.0200	0.0200	0.0400	1.0	Pass

<the worst simultaneous transmission operations result- 5GWIFI>

5GWIFI-Ant 1	5GWIFI-Ant 2	$\sum$ MPE ratios	Limit	Results
0.0069	0.0109	0.0178	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 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.



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Scan code to check authenticity



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	±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-----

