



RF Exposure Evaluation

For

AtGames of America Inc.

Legends Pinball HDP

Test Model: HA9919A

Additional Model No.: Please Refer to Page 6

Prepared for : AtGames of America Inc.
Address : 2228 E Maple Ave, El Segundo, CA, 90245, USA

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : July 01, 2025
Number of tested samples : 2
Sample No. : A250521140-1, A250521140-2
Serial number : Prototype
Date of Test : July 01, 2025 ~ July 04, 2025
Date of Report : July 07, 2025



**FCC TEST REPORT**
FCC CFR 47 PART 15 E (15.407)**Report Reference No.** : **LCSA05215304EF**

Date of Issue..... : July 07, 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**..... : **AtGames of America Inc.**

Address..... : 2228 E Maple Ave, El Segundo, CA, 90245, USA

Test SpecificationStandard : 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-118 A/0

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF : Dated 2011-03

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EUT Description..... : **Legends Pinball HDP**

Trade Mark..... : AtGames

Test Model : HA9919A

Ratings..... : Please Refer to Page 6

Result : **PASS****Compiled by:**

Jack Liu/Administrator

Supervised by:

Cary Luo/ Technique principal

Approved by:

Gavin Liang/ Manager





RF Exposure Evaluation

Test Report No. :	LCSA05215304EF	<u>July 07, 2025</u> Date of issue
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EUT.....	: Legends Pinball HDP
Test Model.....	: HA9919A
Applicant.....	: AtGames of America Inc.
Address.....	: 2228 E Maple Ave, El Segundo, CA, 90245, USA
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: AtGames of America Inc.
Address.....	: 2228 E Maple Ave, El Segundo, CA, 90245, USA
Telephone.....	: /
Fax.....	: /
Factory.....	: /
Address.....	: /
Telephone.....	: /
Fax.....	: /

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

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





Revision History

Report Version	Issue Date	Revision Content	Revised By
000	July 07, 2025	Initial Issue	---





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1. Product Information

EUT	: Legends Pinball HDP
Test Model	: HA9919A
Additional Model No.	: See Model List
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Ratings	: Input: AC 110-240V, 50/60Hz, 1.2A
Hardware Version	: /
Software Version	: /
Bluetooth	:
Frequency Range	: 2402MHz~2480MHz
Channel Number	: 79 channels for Bluetooth V5.1 (DSS) 40 channels for Bluetooth V5.1 (DTS)
Channel Spacing	: 1MHz for Bluetooth V5.1 (DSS) 2MHz for Bluetooth V5.1 (DTS)
Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.1 (DSS) GFSK for Bluetooth V5.1 (DTS)
Bluetooth Version	: V5.1
Antenna Description	: Internal Antenna, 2.0dBi(Max.)
WIFI(2.4G Band)	:
Frequency Range	: 2412MHz~2462MHz
Channel Number	: 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz)
Channel Spacing	: 5MHz
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	: Ant1: Internal Antenna, 2.0dBi(Max.) Ant2: Internal Antenna, 2.0dBi(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	: Ant1: Internal Antenna, 2.0dBi(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)
Antenna Description	: Ant1: Internal Antenna, 2.0dBi(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.





Model List:

HA9919	HA9919A	HA9919B	HA9919C	HA9919D	HA9919E
HA9940	HA9940A	HA9940B	HA9940C	HA9940D	HA9940E
HA9960	HA9960A	HA9960B	HA9960C	HA9960D	HA9960E
HA9970	HA9970A	HA9970B	HA9970C	HA9970D	HA9970E
HA9980	HA9980A	HA9980B	HA9980C	HA9980D	HA9980E
HA9990	HA9990A	HA9990B	HA9990C	HA9990D	HA9990E
HA9900	HA9900A	HA9900B	HA9900C	HA9900D	HA9900E
HA9901	HA9901A	HA9901B	HA9901C	HA9901D	HA9901E
HA9902	HA9902A	HA9902B	HA9902C	HA9902D	HA9902E
HA9903	HA9903A	HA9903B	HA9903C	HA9903D	HA9903E
HA9904	HA9904A	HA9904B	HA9904C	HA9904D	HA9904E
HA9905	HA9905A	HA9905B	HA9905C	HA9905D	HA9905E
HA9906	HA9906A	HA9906B	HA9906C	HA9906D	HA9906E
HA9907	HA9907A	HA9907B	HA9907C	HA9907D	HA9907E
HA9908	HA9908A	HA9908B	HA9908C	HA9908D	HA9908E
HA9909	HA9909A	HA9909B	HA9909C	HA9909D	HA9909E
HA9910	HA9910A	HA9910B	HA9910C	HA9910D	HA9910E
HA9911	HA9911A	HA9911B	HA9911C	HA9911D	HA9911E
HA9912	HA9912A	HA9912B	HA9912C	HA9912D	HA9912E
HA9913	HA9913A	HA9913B	HA9913C	HA9913D	HA9913E
HA9914	HA9914A	HA9914B	HA9914C	HA9914D	HA9914E
HA9915	HA9915A	HA9915B	HA9915C	HA9915D	HA9915E
HA9916	HA9916A	HA9916B	HA9916C	HA9916D	HA9916E
HA9917	HA9917A	HA9917B	HA9917C	HA9917D	HA9917E
HA9918	HA9918A	HA9918B	HA9918C	HA9918D	HA9918E





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



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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 Antenna	2400MHz ~ 2500MHz	Bluetooth: 2.0dBi	Bluetooth Antenna
	Internal Antenna 1	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 2.0dBi 5.2GWIFI: 2.0dBi 5.8GWIFI: 2.0dBi	WIFI Antenna
	Internal Antenna 2	2400MHz ~ 2500MHz 5000MHz ~ 6000MHz	2.4GWIFI: 2.0dBi 5.2GWIFI: 2.0dBi 5.8GWIFI: 2.0dBi	WIFI Antenna

6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	-0.9
	39	2441	-0.92
	78	2480	-1.67
$\pi/4$ DQPSK	0	2402	0.84
	39	2441	1.08
	78	2480	0.05
8DPSK	0	2402	1.19
	19	2441	1.49
	39	2480	0.38

[BLE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE 1M	0	2402	0.43
	19	2440	0.77
	39	2480	-0.17





[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11B	1	2412	15.3	15.18
	6	2437	14.57	14.22
	11	2462	14.59	14.49
11G	1	2412	14.53	14.3
	6	2437	13.78	14.57
	11	2462	13.91	14.94
11N20 SISO	1	2412	14.04	13.82
	6	2437	13.16	12.89
	11	2462	13.3	13.23
11N40 SISO	3	2422	13.5	13.59
	6	2437	13.37	13.46
	9	2452	13.27	13.28

[5.2G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	36	5180	12.76	13.36
	40	5200	12.9	13
	48	5240	11.91	11.5
11N20 SISO	36	5180	11.62	11.01
	40	5200	11.32	12.15
	48	5240	11.51	11.39
11N40 SISO	38	5190	11.38	11.07
	46	5230	10.52	10.44
11AC20 SISO	36	5180	11.68	11.37
	40	5200	11.33	10.93
	48	5240	11.52	11.32
11AC40 SISO	38	5190	11.28	11.06
	46	5230	10.49	10.38
11AC80 SISO	42	5210	10.93	10.46

[5.8G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)
11A	149	5745	13.04	13.04
	157	5785	12.43	12.47
	165	5825	12.7	12.74
11N20 SISO	149	5745	11.4	11.68
	157	5785	10.93	11.09
	165	5825	11.13	11.15
11N40 SISO	151	5755	11.15	11.6
	159	5795	10.52	10.66
11AC20 SISO	149	5745	11.45	11.33
	157	5785	10.92	11.23
	165	5825	11.11	11.3
11AC40 SISO	151	5755	11.1	11.37
	159	5795	10.46	10.61
11AC80 SISO	155	5775	10.5	10.69



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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)	0	1.0	0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8DPSK (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]

BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	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)	14.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0





[2.4G WIFI Ant2]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	15.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (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
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	13.0	13.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[5.2G WIFI Ant1]

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





[5.2G WIFI Ant2]

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

[5.8G WIFI Ant1]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	10.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	10.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	



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11AC80 (Average)	
Channel	Channel 155
Target (dBm)	10.0
Tolerance $\pm$ (dB)	1.0

[5.8G WIFI Ant2]			
11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	13.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	11.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	10.0		
Tolerance $\pm$ (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, $r=20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

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	2.0	1.5849	0.0004	1.0000
$\pi/4$ -DQPSK	2.0	1.5849	2.0	1.5849	0.0005	1.0000
8-DPSK	1.0	1.2589	2.0	1.5849	0.0004	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	1.0	1.2589	2.0	1.5849	0.0004	1.0000

[2.4G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	16.0	39.8107	2.0	1.5849	0.0126	1.0000
IEEE 802.11g	15.0	31.6228	2.0	1.5849	0.0100	1.0000
IEEE 802.11n HT20	15.0	31.6228	2.0	1.5849	0.0100	1.0000
IEEE 802.11n HT40	14.0	25.1189	2.0	1.5849	0.0079	1.0000

[2.4G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	16.0	39.8107	2.0	1.5849	0.0126	1.0000
IEEE 802.11g	15.0	31.6228	2.0	1.5849	0.0100	1.0000
IEEE 802.11n HT20	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11n HT40	14.0	25.1189	2.0	1.5849	0.0079	1.0000

[5.2G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	2.0	1.5849	0.0063	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	11.0	12.5893	2.0	1.5849	0.0040	1.0000

[5.2G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11n HT20	13.0	19.9526	2.0	1.5849	0.0063	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	11.0	12.5893	2.0	1.5849	0.0040	1.0000





[5.8G WIFI Ant1]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	14.0	25.1189	2.0	1.5849	0.0079	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	11.0	12.5893	2.0	1.5849	0.0040	1.0000

[5.8G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	14.0	25.1189	2.0	1.5849	0.0079	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	11.0	12.5893	2.0	1.5849	0.0040	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 and one 2.4GWLAN&5.2G WLAN5.8G WLAN, another one 2.4GWLAN&5.2G WLAN&5.8G WLAN, so need consider simultaneous transmission;

Simultaneous transmission MPE

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

$\sum \sum$ of MPE ratios ≤ 1.0

<the worst simultaneous transmission operations result-BT+2.4GWIFI>

BT-Ant	2.4GWIFI-Ant 1	2.4GWIFI-Ant 2	$\sum$ MPE ratios	Limit	Results
0.0005	0.0100	0.0079	0.0184	1.0	Pass

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

BT-Ant	5GWIFI-Ant 1	5GWIFI-Ant 2	$\sum$ MPE ratios	Limit	Results
0.0005	0.0050	0.0063	0.0118	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 can 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/2.4GWLAN/5.2G WLAN/5.8G WLAN:

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-----

