



RF Exposure Evaluation

For

Shenzhen Sihaijialan Electronic Technology Co., Ltd.

WiFi Extender

Test Model: WL-NE3503

Additional Model No.: Please Refer to Page 6

Prepared for : Shenzhen Sihaijialan Electronic Technology Co., Ltd.
Address : 301, Building 2, Hongxin Industrial Park, No.1303, Guanguang Road,
XinlanCommunity, Guanlan Street, LonghuaDistrict, Shenzhen,
Guangdong, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : March 27, 2025
Number of tested samples : 2
Sample No. : A250326098-1, A250326098-2
Serial number : Prototype
Date of Test : March 27, 2025 ~ April 17, 2025
Date of Report : April 18, 2025





RF Exposure Evaluation	
Report Reference No.	LCSA02195118ED
Date of Issue	April 18, 2025
Testing Laboratory Name	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Testing Location/ Procedure	Full application of Harmonised standards ☒ Partial application of Harmonised standards ☐ Other standard testing method ☐
Applicant's Name	Shenzhen Sihaijialan Electronic Technology Co., Ltd.
Address	301, Building 2, Hongxin Industrial Park, No.1303, Guanguang Road, XinlanCommunity, Guanlan Street, LonghuaDistrict, Shenzhen, 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-215 A/0
TRF Originator	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	Dated 2011-03
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Test Item Description : WiFi Extender	
Trade Mark	N/A
Test Model	WL-NE3503
Ratings	Please Refer to Page 6
Result	PASS

Compiled by:

Ling Zhu/ Administrator

Supervised by:

Jack Liu/ Technique principal

Approved by:

Gavin Liang/ Manager





RF Exposure Evaluation

Test Report No. : LCSA02195118ED	<u>April 18, 2025</u> Date of issue
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EUT.....	: WiFi Extender
Test Model.....	: WL-NE3503
Applicant.....	: Shenzhen Sihaijialan Electronic Technology Co., Ltd.
Address.....	: 301, Building 2, Hongxin Industrial Park, No.1303, Guanguang Road, XinlanCommunity, Guanlan Street, LonghuaDistrict, Shenzhen, Guangdong, China
Telephone.....	: /
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Manufacturer.....	: Shenzhen Sihaijialan Electronic Technology Co., Ltd.
Address.....	: 301, Building 2, Hongxin Industrial Park, No.1303, Guanguang Road, XinlanCommunity, Guanlan Street, LonghuaDistrict, Shenzhen, Guangdong, China
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Factory.....	: Shenzhen Sihaijialan Electronic Technology Co., Ltd.
Address.....	: 301, Building 2, Hongxin Industrial Park, No.1303, Guanguang Road, XinlanCommunity, Guanlan Street, LonghuaDistrict, Shenzhen, 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	April 18, 2025	Initial Issue	---





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1. Product Information

EUT	: WiFi Extender
Test Model	: WL-NE3503
Additional Model No.	: WL-NE3505, WL-NE3506, WL-NE3601, WL-NE3602, WL-NE3603, WL-NE3604, NE3503
Model Declaration	: PCB board, structure and internal of these model(s) are the same, Only model NE3503 has a different color, So no additional models were tested
Ratings	: Input: 100-240V~, 50/60Hz, 200mA Max, 12W
Hardware Version	: /
Software Version	: /
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	: Antenna 1: External Antenna, 2.56dBi (max.) Antenna 2: External Antenna, 2.56dBi (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	: Antenna 1: External Antenna, 2.73dBi (max.) Antenna 2: External Antenna, 2.73dBi (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	: Antenna 1: External Antenna, 2.73dBi (max.) Antenna 2: External Antenna, 2.73dBi (max.)
Exposure category	: General population/uncontrolled environment





EUT Type : Production Unit

Device Type : Mobile Device

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





2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.

3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

4. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$



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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. Conducted Power

[2.4G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)	MIMO Conducted Power(dBm)
11B	1	2412	19.26	19.44	/
	6	2437	19.32	19.59	/
	11	2462	19.34	18.78	/
11G	1	2412	18.64	18.22	/
	6	2437	19.35	18.31	/
	11	2462	18.95	18.52	/
11N20 SISO	1	2412	14.89	14.07	17.51
	6	2437	14.94	14.12	17.56
	11	2462	14.56	14.3	17.44
11N40 SISO	3	2422	13.33	13.43	16.39
	6	2437	13.44	13.4	16.43
	9	2452	13.53	13.45	16.50

[5.2G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)	MIMO Conducted Power(dBm)
11A	36	5180	12.59	12.67	/
	40	5200	12.53	12.55	/
	48	5240	11.49	11.44	/
11N20 SISO	36	5180	11.6	11.51	14.57
	40	5200	11.43	11.48	14.47
	48	5240	10.36	10.32	13.35
11N40 SISO	38	5190	12.08	11.51	14.81
	46	5230	11.39	10.82	14.12
11AC20 SISO	36	5180	12.02	11.4	14.73
	40	5200	11.9	11.39	14.66
	48	5240	10.85	10.34	13.61
11AC40 SISO	38	5190	11.97	11.61	14.80
	46	5230	11.21	10.72	13.98
11AC80 SISO	42	5210	11.4	11.47	14.45





[5.8G WIFI]

Mode	Channel	Frequency (MHz)	Ant 1 Max Conducted Power(dBm)	Ant 2 Max Conducted Power(dBm)	MIMO Conducted Power(dBm)
11A	149	5745	12.66	12.55	/
	157	5785	11.61	11.6	/
	165	5825	13.05	13.01	/
11N20 SISO	149	5745	11.63	11.62	14.64
	157	5785	10.62	10.69	13.67
	165	5825	12.14	12.05	15.11
11N40 SISO	151	5755	11.11	11.17	14.15
	159	5795	10.61	10.62	13.63
11AC20 SISO	149	5745	11.55	11.54	14.56
	157	5785	10.71	10.56	13.65
	165	5825	12.1	11.92	15.02
11AC40 SISO	151	5755	10.99	11.15	14.08
	159	5795	10.7	11.51	14.13
11AC80 SISO	155	5775	11.3	11.33	14.33

6. Manufacturing Tolerance

[2.4G WIFI Ant1]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	19.0	19.0	19.0
Tolerance ±(dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	18.0	19.0	19.0
Tolerance ±(dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	14.0	14.0	14.0
Tolerance ±(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 ±(dB)	1.0	1.0	1.0





[2.4G WIFI Ant2]

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	19.0	19.0	18.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	18.0	18.0	18.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (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
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 MIMO]

11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	17.0	17.0	17.0
Tolerance $\pm$ (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 $\pm$ (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	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	12.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	12.0	11.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	11.0	11.0	





Tolerance $\pm$ (dB)	1.0	1.0
11AC80 (Average)		
Channel	Channel 42	
Target (dBm)	11.0	
Tolerance $\pm$ (dB)	1.0	

[5.2G WIFI Ant2]

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	10.0
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	10.0
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)	11.0		
Tolerance $\pm$ (dB)	1.0		

[5.2G WIFIMIMO]

11N20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	14.0	14.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	14.0	14.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	14.0	14.0	13.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 38	Channel 46	





Target (dBm)	14.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0
11AC80 (Average)		
Channel	Channel 42	
Target (dBm)	14.0	
Tolerance $\pm$ (dB)	1.0	

[5.8G WIFI Ant1]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	10.0	12.0
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)	10.0	11.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	10.0	10.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	11.0		
Tolerance $\pm$ (dB)	1.0		

[5.8G WIFI Ant2]

11A (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	13.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	10.0	12.0
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 ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 151		Channel 159
Target (dBm)	11.0		11.0
Tolerance ±(dB)	1.0		1.0
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	11.0		
Tolerance ±(dB)	1.0		

[5.8G WIFI MIMO]

11N20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	14.0	13.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0
11N40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	14.0	13.0	
Tolerance ±(dB)	1.0	1.0	
11AC20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	14.0	13.0	15.0
Tolerance ±(dB)	1.0	1.0	1.0
11AC40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	14.0	14.0	
Tolerance ±(dB)	1.0	1.0	
11AC80 (Average)			
Channel	Channel 155		
Target (dBm)	14.0		
Tolerance ±(dB)	1.0		





7. Measurement Results

7.1 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.

[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	20.0	100.0000	2.56	1.8030	0.0359	1.0000
IEEE 802.11g	20.0	100.0000	2.56	1.8030	0.0359	1.0000
IEEE 802.11n HT20	15.0	31.6228	2.56	1.8030	0.0113	1.0000
IEEE 802.11n HT40	14.0	25.1189	2.56	1.8030	0.0090	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	20.0	100.0000	2.56	1.8030	0.0359	1.0000
IEEE 802.11g	19.0	79.4328	2.56	1.8030	0.0285	1.0000
IEEE 802.11n HT20	15.0	31.6228	2.56	1.8030	0.0113	1.0000
IEEE 802.11n HT40	14.0	25.1189	2.56	1.8030	0.0090	1.0000

[2.4G WIFI MIMO]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11n HT20	18.0	63.0957	2.56	1.8030	0.0226	1.0000
IEEE 802.11n HT40	17.0	50.1187	2.56	1.8030	0.0180	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	2.73	1.8750	0.0074	1.0000
IEEE 802.11n HT20	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11n HT40	13.0	19.9526	2.73	1.8750	0.0074	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	2.73	1.8750	0.0074	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	2.73	1.8750	0.0059	1.0000





[5.2G WIFI Ant2]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	2.73	1.8750	0.0074	1.0000
IEEE 802.11n HT20	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11n HT40	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	2.73	1.8750	0.0059	1.0000

[5.2G WIFI MIMO]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11n HT20	15.0	31.6228	2.73	1.8750	0.0118	1.0000
IEEE 802.11n HT40	15.0	31.6228	2.73	1.8750	0.0118	1.0000
IEEE 802.11ac VHT20	15.0	31.6228	2.73	1.8750	0.0118	1.0000
IEEE 802.11ac VHT40	15.0	31.6228	2.73	1.8750	0.0118	1.0000
IEEE 802.11ac VHT80	15.0	31.6228	2.73	1.8750	0.0118	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	2.73	1.8750	0.0094	1.0000
IEEE 802.11n HT20	13.0	19.9526	2.73	1.8750	0.0074	1.0000
IEEE 802.11n HT40	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	2.73	1.8750	0.0074	1.0000
IEEE 802.11ac VHT40	11.0	12.5893	2.73	1.8750	0.0047	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	2.73	1.8750	0.0059	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	2.73	1.8750	0.0094	1.0000
IEEE 802.11n HT20	13.0	19.9526	2.73	1.8750	0.0074	1.0000
IEEE 802.11n HT40	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	2.73	1.8750	0.0059	1.0000
IEEE 802.11ac VHT80	12.0	15.8489	2.73	1.8750	0.0059	1.0000





[5.8G WIFI MIMMO]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11n HT20	16.0	39.8107	2.73	1.8750	0.0149	1.0000
IEEE 802.11n HT40	15.0	31.6228	2.73	1.8750	0.0118	1.0000
IEEE 802.11ac VHT20	15.0	31.6228	2.73	1.8750	0.0118	1.0000
IEEE 802.11ac VHT40	15.0	31.6228	2.73	1.8750	0.0118	1.0000
IEEE 802.11ac VHT80	15.0	31.6228	2.73	1.8750	0.0118	1.0000

Remark:

1. Output power including turn-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.

7.2 Simultaneous Transmission MPE Evaluation

The EUT equipped with two 2.4GWIFI antenna,another two 5GWIFI antenna. 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>

MAX				$\sum$ MPE ratios	Limit	Results
2.4GWIFI Ant1	2.4GWIFI Ant2	5GWIFI Ant1	5GWIFI Ant2			
0.0359	0.0359	0.0094	0.0094	0.0906	1.0	Pass

MAX		$\sum$ MPE ratios	Limit	Results
2.4GWIFI MINO	5GWIFI MIMO			
0.0226	0.0149	0.0375	1.0	Pass

Remark:

1. Output power including tune-up tolerance;
2. 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 = $PG/4\pi R^2$

8. Conclusion

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

9. Measurement Uncertainty

2.4GWIFI/5GWIFI:

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

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

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



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