



HUAK TESTING

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FCC Test Report

**Test Report
On Behalf of
Shenzhen Ruichi Technology Co., Ltd
For
Wireless Mouse**

**Model No.: M1, M1E, M2, M2E, M3, M3E, M4, M4E, M5, M5E, M6, M6E, M7,
M7E, M8, M8E, M9, M9E**

FCC ID: 2A6LZ-M1

Prepared For: **Shenzhen Ruichi Technology Co., Ltd**
**A405, Jieshun Technology Center, No. 5, Guansheng 2nd Road, Luhu
Community, Guanhu Street, Longhua District, Shenzhen, China**

Prepared By: **Shenzhen HUAK Testing Technology Co., Ltd.**
**1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping,
Fuhai Street, Bao'an District, Shenzhen, Guangdong, China**

Date of Test: **June 09, 2025 ~ June 20, 2025**

Date of Report: **June 20, 2025**

Report Number: **HK2506093051-2E**

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Test Result Certification

Applicant's Name : Shenzhen Ruichi Technology Co., Ltd

Address : A405, Jieshun Technology Center, No. 5, Guansheng 2nd Road, Luhu Community, Guanhu Street, Longhua District, Shenzhen, China

Manufacturer's Name : Shenzhen Ruichi Technology Co., Ltd

Address : A405, Jieshun Technology Center, No. 5, Guansheng 2nd Road, Luhu Community, Guanhu Street, Longhua District, Shenzhen, China

Product Description

Trade Mark : TMKB, DIERYA, KEMOVE

Product Name : Wireless Mouse

Model and/or Type Reference : M1, M1E, M2, M2E, M3, M3E, M4, M4E, M5, M5E, M6, M6E, M7, M7E, M8, M8E, M9, M9E

FCC Rules and Regulations Part 15 Subpart C Section 15.249

Standards : **ANSI C63.10: 2020**

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Date of Test :

Date (s) of Performance of Tests : **June 09, 2025 ~ June 20, 2025**

Date of Issue : **June 20, 2025**

Test Result : **Pass**

Testing Engineer

Len Liao

(Len Liao)

Technical Manager

Sliver Wan

(Sliver Wan)

Authorized Signatory

Jason Zhou

(Jason Zhou)

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**** Modified History ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	June 20, 2025	Jason Zhou

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1. Test Summary

1.1 Test Procedures and Results

DESCRIPTION OF TEST	SECTION NUMBER	RESULT
AC CONDUCTED EMISSIONS TEST	15.207	PASS
RADIATED EMISSION TEST	15.249(a)/15.209	PASS
BAND EDGE	15.249(d)/15.205	PASS
OCCUPIED BANDWIDTH MEASUREMENT	15.215(c)	PASS
ANTENNA REQUIREMENT	15.203	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

1.2 Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

1.3 Measurement Uncertainty

Measurement Uncertainty

Conducted Emission Expanded Uncertainty

$$= 2.71 \text{dB, k=2}$$

Radiated emission expanded uncertainty(9kHz-30MHz)

$$= 3.90 \text{dB, k=2}$$

Radiated emission expanded uncertainty(30MHz-1000MHz)

$$= 3.90 \text{dB, } k=2$$

Radiated emission expanded uncertainty(Above 1GHz)

$$= 4.28 \text{dB, k=2}$$



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2. General Information

2.1 General Description of EUT

Equipment:	Wireless Mouse
Model Name:	M1
Series Model(s):	M1E, M2, M2E, M3, M3E, M4, M4E, M5, M5E, M6, M6E, M7, M7E, M8, M8E, M9, M9E
Model Difference:	All model's the function, software and electric circuit are the same, only with trade mark and product model named different. Test sample model: M1.
FCC ID:	2A6LZ-M1
Antenna Type:	PCB Antenna
Antenna Gain:	2.48dBi
Operation Frequency:	2402-2480MHz
Number of Channels:	40CH
Modulation Type:	GFSK
Power Source:	DC5V from Type-C or DC3.7V from Battery
Power Rating:	DC5V from Type-C or DC3.7V from Battery
Note:	<ol style="list-style-type: none"> 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.

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2.2 Carrier Frequency of Channels

Description of Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470
7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454		
13	2428	27	2456		

2.3 Operation of EUT during Testing

Operating Mode

The mode is used: **Transmitting mode**

Low Channel: 2402MHz

Middle Channel: 2440M

High Channel: 2480MHz



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2.5 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Trade Mark	Model/Type No.	Specification	Note
1	Wireless Mouse	TMKB, DIERYA, KEMOVE	M1	N/A  HUAK TESTING	EUT
2	USB Cable	N/A	N/A	Length: 150cm	Accessory
3	Laptop	Lenovo	TP00096A	Input: DC 20V, 2.25~3.25A Output: 5VDC, 0.5A	Peripheral
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Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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2.5 Measurement Instruments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N.	R&S	ENV216	HKE-002	2025/02/19	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2025/02/19	1 Year
3	EMI Test Receiver	R&S	ESR	HKE-005	2025/02/19	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2025/02/19	1 Year
5	Spectrum analyzer	R&S	FSV3044	HKE-117	2025/02/19	1 Year
6	Spectrum analyzer	R&S	FSV3044	HKE-126	2025/02/19	1 Year
7	Preamplifier	EMCI	EMC051845S	HKE-006	2025/02/19	1 Year
8	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2025/02/19	1 Year
9	Preamplifier	A.H. Systems	SAS-574	HKE-182	2025/02/19	1 Year
10	6dB Attenuator	Pasternack	6db	HKE-184	2025/02/19	1 Year
11	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2025/02/19	1 Year
12	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2 Year
13	Loop Antenna	COM-POWER	AL-130R	HKE-014	2024/02/21	2 Year
14	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2 Year
15	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
16	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
17	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2025/02/19	1 Year
18	High pass filter unit	Tonscend	JS0806-F	HKE-055	2025/02/19	1 Year
19	Wireless Communication Test Set	R&S	CMU200	HKE-026	2025/02/19	1 Year
20	Wireless Communication Test Set	R&S	CMW500	HKE-027	2025/02/19	1 Year
21	High-low temperature chamber	Guangke	HT-80L	HKE-118	2025/06/09	1 Year
22	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2025/06/09	1 Year
23	RF Test Software	Tonscend	JS1120-3 Version 3.5.39	HKE-083	/	/
24	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2025/02/19	1 Year
25	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/

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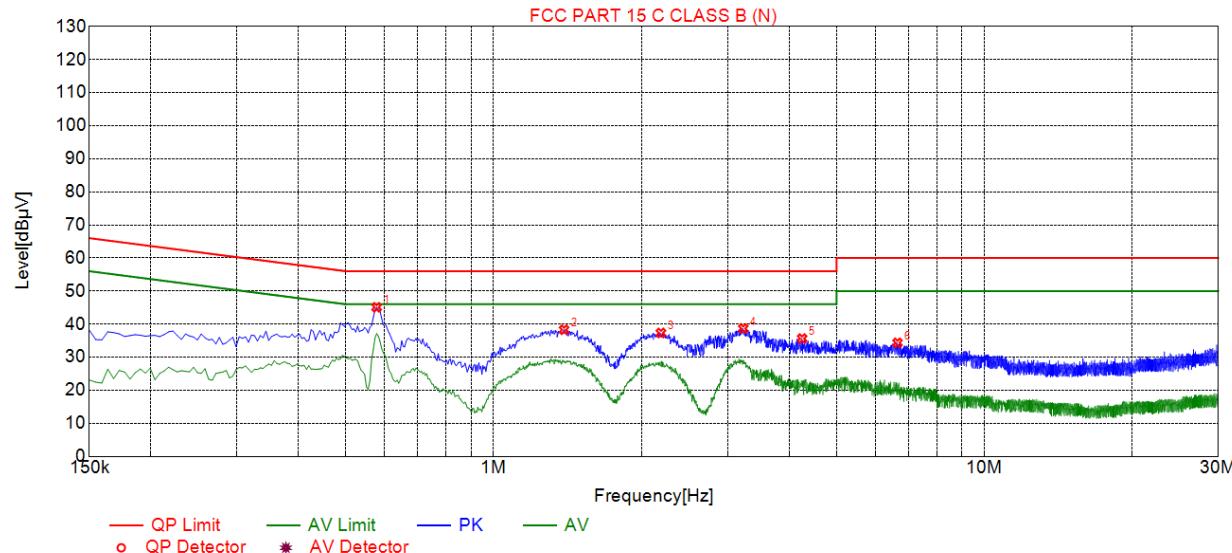
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Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dB μ V]	Factor [dB]	Limit [dB μ V]	Margin [dB]	Reading [dB μ V]	Detector	Type
1	0.5775	45.09	19.75	56.00	10.91	25.34	PK	N
2	1.3920	38.30	19.85	56.00	17.70	18.45	PK	N
3	2.1930	37.33	19.98	56.00	18.67	17.35	PK	N
4	3.2280	38.68	20.09	56.00	17.32	18.59	PK	N
5	4.2540	35.64	20.18	56.00	20.36	15.46	PK	N
6	6.6570	34.35	20.46	60.00	25.65	13.89	PK	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



4. Radiated Emission Test

4.1 Radiation Limit

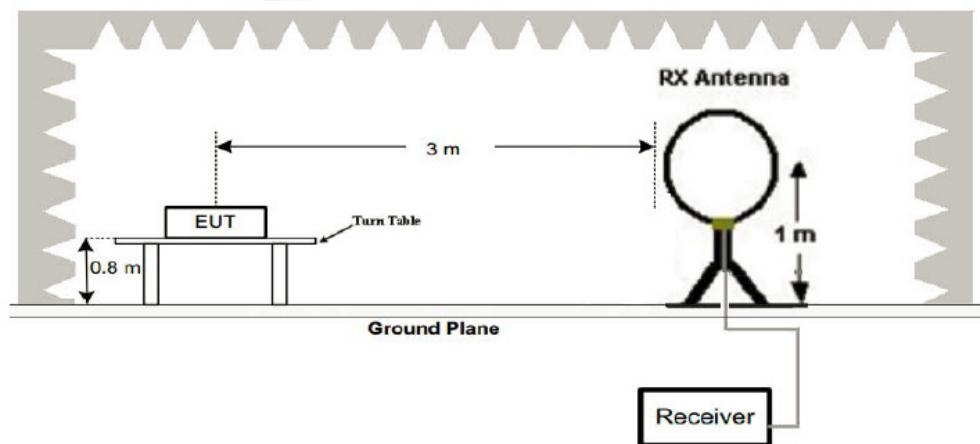
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
0.009-0.490	300	20log 2400/F (kHz)	2400/F (kHz)
0.490-1.705	30	20log 24000/F (kHz)	24000/F (kHz)
1.705-30	30	20log 30	30
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

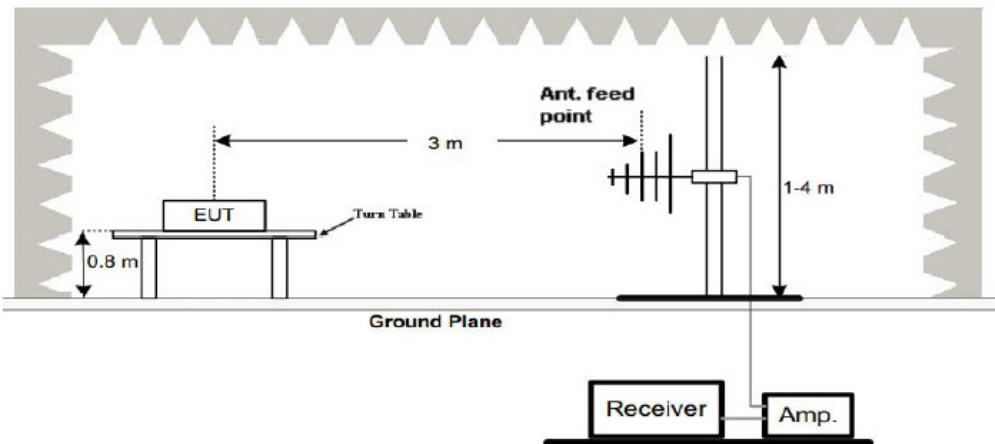
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

(1) Radiated Emission Test-Up Frequency Below 30MHz



(2) Radiated Emission Test-Up Frequency 30MHz~1GHz





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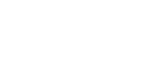
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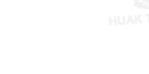
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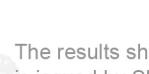
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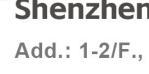
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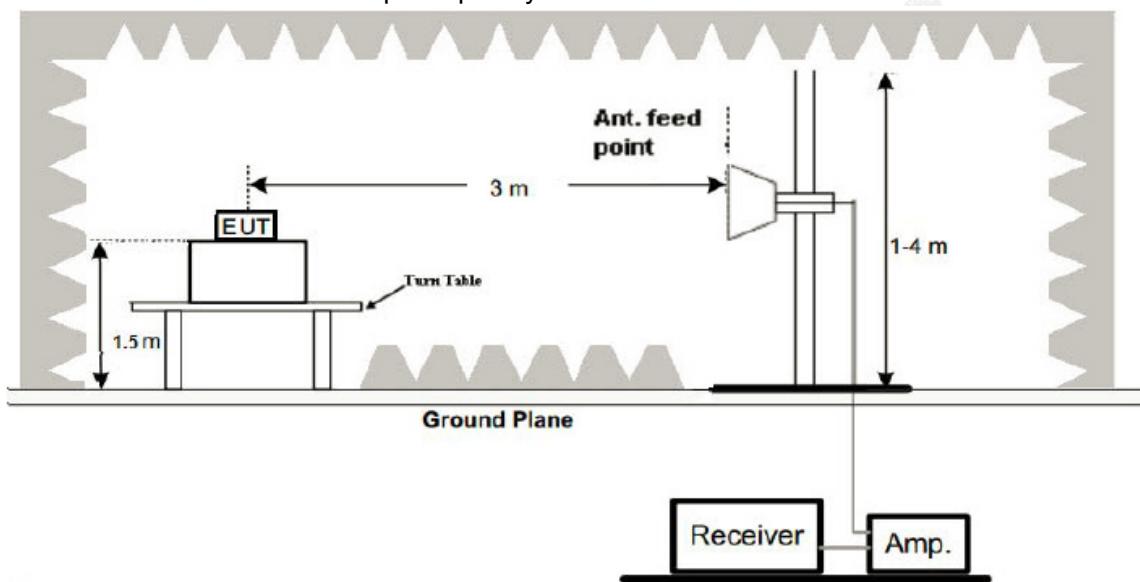


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(3) Radiated Emission Test-Up Frequency Above 1GHz



4.3 Test Procedure

- Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
- The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until the measurements for all frequencies are complete.
- The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note:

For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 Test Result

PASS

All the test modes completed for test. The worst case of Radiated Emission is CH LOW; the test data of this mode was reported.

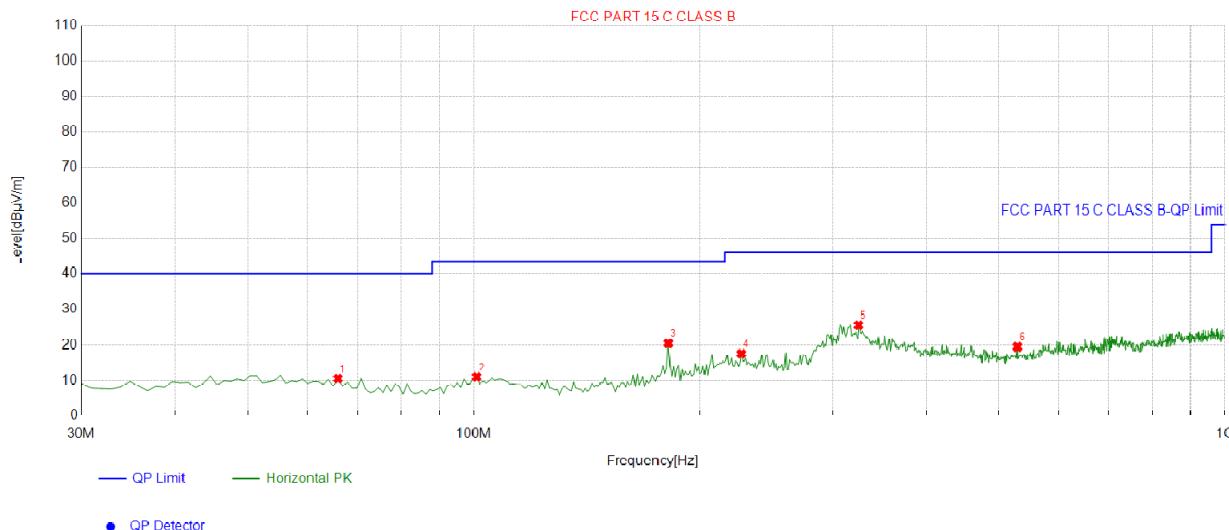
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Below 1GHz Test Results:

Antenna polarity: H



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	65.9259	-15.95	26.54	10.59	40.00	29.41	100	290	Horizontal
2	100.8809	-14.60	25.67	11.07	43.50	32.43	100	38	Horizontal
3	181.4715	-16.13	36.57	20.44	43.50	23.06	100	81	Horizontal
4	227.1071	-13.92	31.54	17.62	46.00	28.38	100	81	Horizontal
5	325.1752	-11.00	36.54	25.54	46.00	20.46	100	250	Horizontal
6	529.0791	-7.22	26.72	19.50	46.00	26.50	100	174	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level;

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Above 1 GHz Test Results**CH Low (2402MHz)****Horizontal:**

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2402	101.15	-5.84	95.31	114	18.69	peak
2402	85.96	-5.84	80.12	94	13.88	AVG
4804	53.88	-3.64	50.24	74	23.76	peak
4804	39.51	-3.64	35.87	54	18.13	AVG
7206	53.24	-0.95	52.29	74	21.71	peak
7206	39.81	-0.95	38.86	54	15.14	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2402	101.87	-5.84	96.03	114	17.97	peak
2402	80.25	-5.84	74.41	94	19.59	AVG
4804	53.12	-3.64	49.48	74	24.52	peak
4804	41.66	-3.64	38.02	54	15.98	AVG
7206	48.73	-0.95	47.78	74	26.22	peak
7206	41.24	-0.95	40.29	54	13.71	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

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CH Middle (2440MHz)

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Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2440	105.29	-5.71	99.58	114	14.42	peak
2440	76.28	-5.71	70.57	94	23.43	AVG
4880	54.22	-3.51	50.71	74	23.29	peak
4880	43.16	-3.51	39.65	54	14.35	AVG
7320	51.29	-0.82	50.47	74	23.53	peak
7320	43.25	-0.82	42.43	54	11.57	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2440	105.27	-5.71	99.56	114	14.44	peak
2440	83.12	-5.71	77.41	94	16.59	AVG
4880	56.74	-3.51	53.23	74	20.77	peak
4880	43.29	-3.51	39.78	54	14.22	AVG
7320	54.28	-0.82	53.46	74	20.54	peak
7320	42.13	-0.82	41.31	54	12.69	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

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CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2480	104.78	-5.65	99.13	114	14.87	peak
2480	82.31	-5.65	76.66	94	17.34	AVG
4960	54.09	-3.43	50.66	74	23.34	peak
4960	43.25	-3.43	39.82	54	14.18	AVG
7440	53.12	-0.75	52.37	74	21.63	peak
7440	42.97	-0.75	42.22	54	11.78	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2480	105.27	-5.65	99.62	114	14.38	peak
2480	82.18	-5.65	76.53	94	17.47	AVG
4960	53.44	-3.43	50.01	74	23.99	peak
4960	45.16	-3.43	41.73	54	12.27	AVG
7440	53.19	-0.75	52.44	74	21.56	peak
7440	43.28	-0.75	42.53	54	11.47	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency; "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dB μ V/m(PK Value) < 93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) < 54 dB μ V/m(AV Limit), the Average Detected not need to completed.
- (7) All modes of operation were investigated and the worst-case emissions are reported.



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5. Band Edge

5.1 Limits

FCC PART 15.249(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 1MHz and VBM to 3MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength. The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 1MHz and VBW to 3MHz, to measure the conducted peak band edge.



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5.3 Test Result

PASS

Radiated Band Edge Test:

Operation Mode: TX CH Low (2402MHz)

Horizontal (Worst case):

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	55.09	-5.81	49.28	74	24.72	peak
2310	/	-5.81	/	54	/	AVG
2390	54.83	-5.84	48.99	74	25.01	peak
2390	/	-5.84	/	54	/	AVG
2400	53.12	-5.84	47.28	74	26.72	peak
2400	/	-5.84	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

Vertical:

Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	58.14	-5.81	52.33	74	21.67	peak
2310	/	-5.81	/	54	/	AVG
2390	54.26	-5.84	48.42	74	25.58	peak
2390	/	-5.84	/	54	/	AVG
2400	53.33	-5.84	47.49	74	26.51	peak
2400	/	-5.84	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor;
Margin = Limit - Level.

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Operation Mode: TX CH High (2480MHz)

Horizontal (Worst case):

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	54.18	-5.65	48.53	74	25.47	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	54.26	-5.65	48.61	74	25.39	peak
2500.00	/	-5.65	/	54	/	AVG

Remark: Factor = Cable loss + Antenna factor + Attenuator - Preamplifier; Level = Reading + Factor; Margin = Limit - Level

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	53.74	-5.65	48.09	74	25.91	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	54.09	-5.65	48.44	74	25.56	peak
2500.00	/	-5.65	/	54	/	AVG

Remark:

1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
2. In restricted bands of operation, the spurious emissions below the permissible value more than 20dB.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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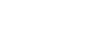
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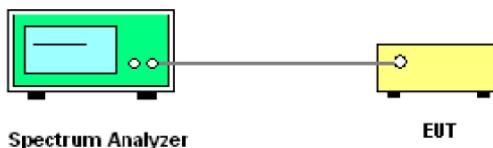


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6. Occupied Bandwidth Measurement

6.1 Test Setup



6.2 Test Procedure

1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.
Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a Transmitting channel;
RBW=1% to 5% of the Occupied Bandwidth; VBW=3RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
4. Measure and record the results in the test report.

6.3 Test Result

PASS

Frequency	20dB Bandwidth (MHz)	Result
2402 MHz	1.869	PASS
2440 MHz	1.883	PASS
2480 MHz	1.892	PASS

CH00: 2402MHz



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CH19: 2440MHz



CH39: 2480MHz



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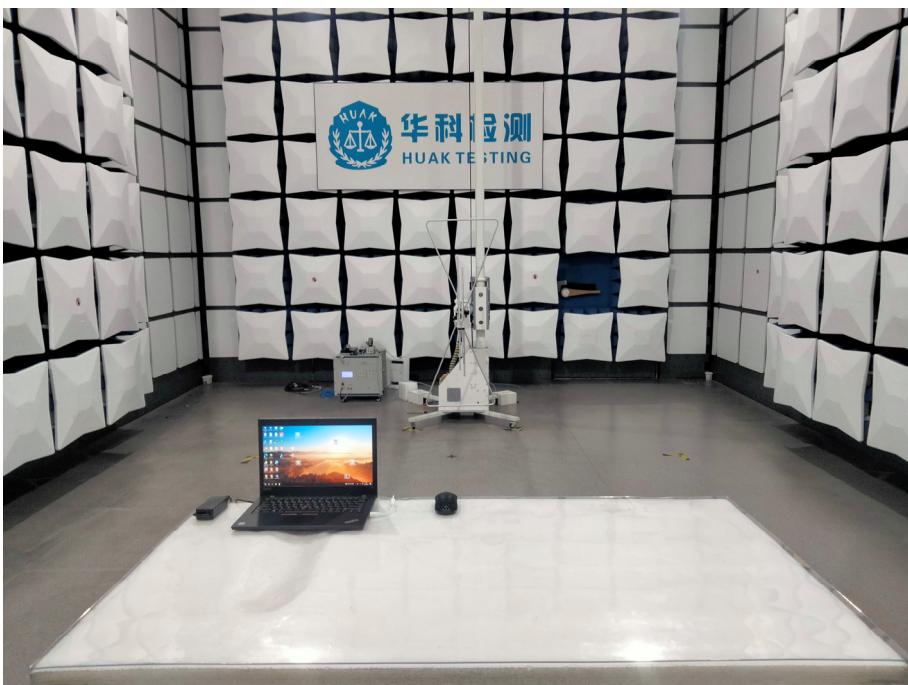
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8. Photographs of Test

Radiated Emission



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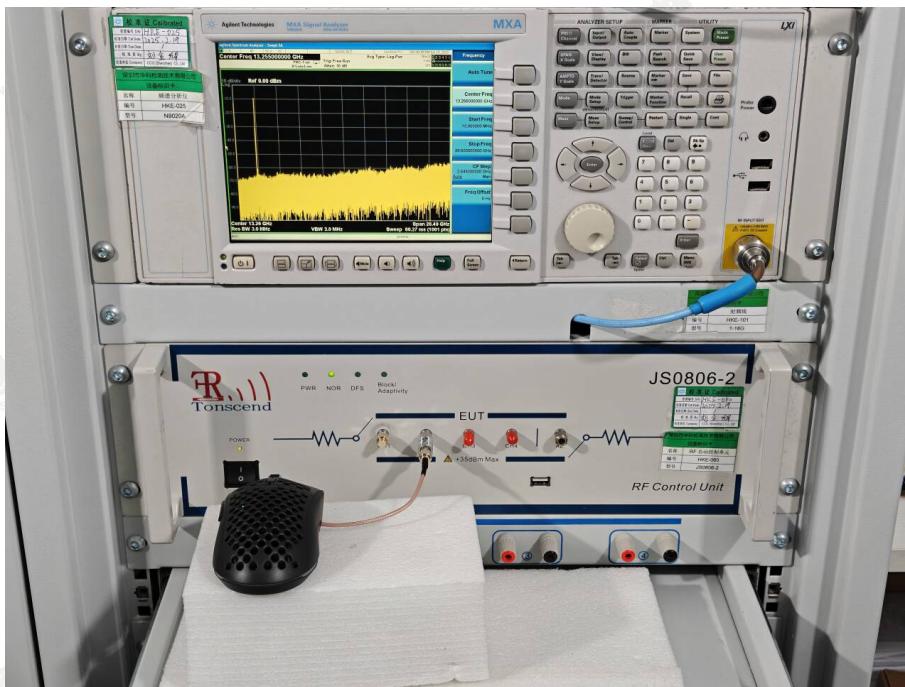
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AC Conducted Emission



RF Conducted Emission



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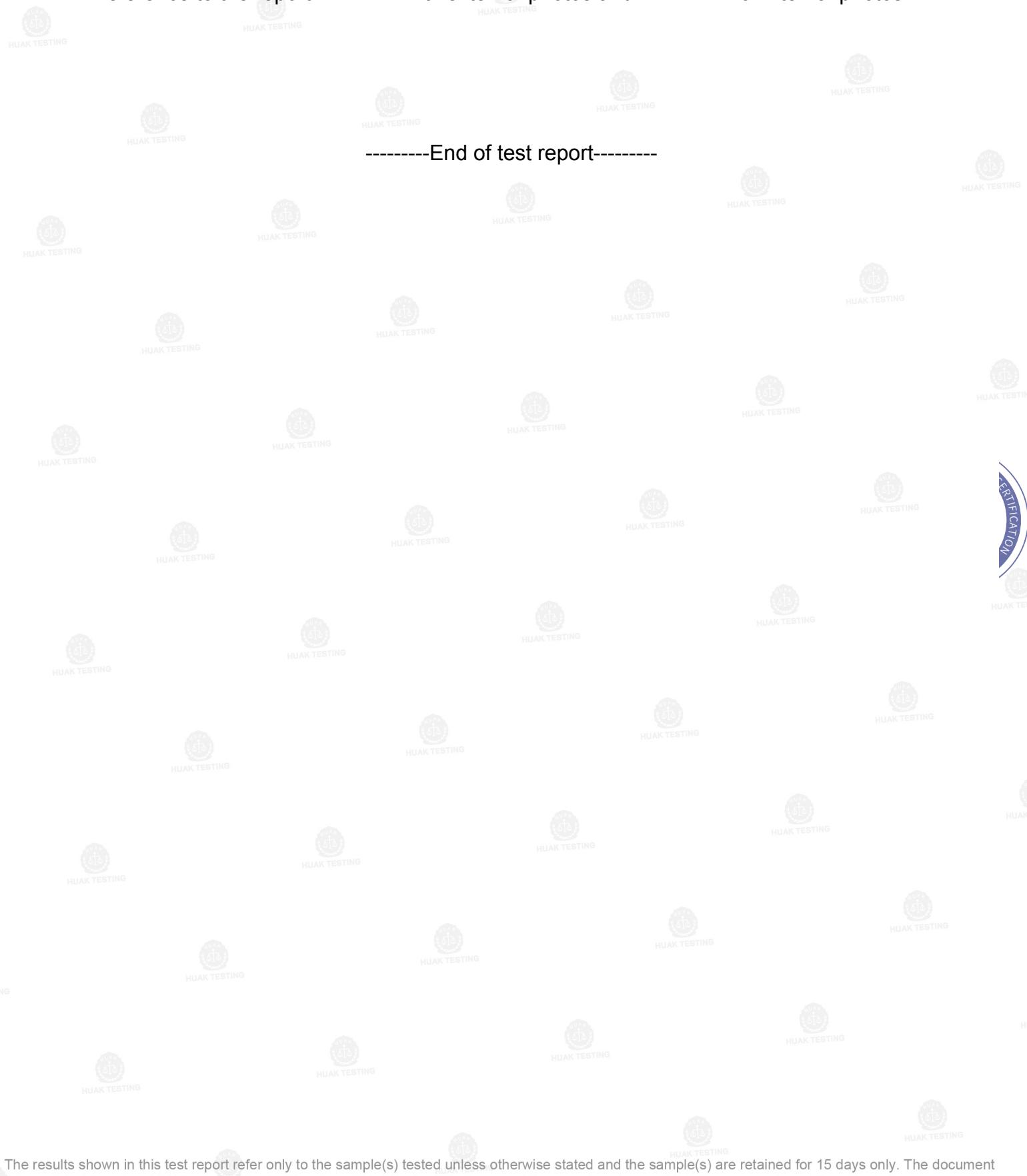
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9. Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos.

-----End of test report-----



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