



# FCC TEST REPORT

**Test report****On Behalf of****shen zhen shi tian shi dian zi shang wu you xian gong si****For****Bluetooth +2.4G dual-mode wireless mouse****Model No.: DZK01, See page 7 for series models****FCC ID: 2BEPP-DZK01**

**Prepared for :** **shen zhen shi tian shi dian zi shang wu you xian gong si**  
**shen zhen shi long gang qu bu long lu 369hao dong hai wang gong ye qu Ezuo**  
**201-204**

**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:** **Jan. 15, 2024 ~ Jan. 24, 2024**

**Date of Report:** **Jan. 24, 2024**

**Report Number:** **HK2401150272-3E**



## TEST RESULT CERTIFICATION

**Applicant's name** ..... : shen zhen shi tian shi dian zi shang wu you xian gong si  
Address ..... : shen zhen shi long gang qu bu long lu 369hao dong hai wang gong ye qu Ezuo 201-204

**Manufacturer's Name** ..... : shen zhen shi tian shi dian zi shang wu you xian gong si  
Address ..... : shen zhen shi long gang qu bu long lu 369hao dong hai wang gong ye qu Ezuo 201-204

### Product description

Trade Mark ..... : N/A  
Product name ..... : Bluetooth +2.4G dual-mode wireless mouse  
Model and/or type reference ..... : DZK01, See page 7 for series models

**Standards** ..... : FCC Rules and Regulations Part 15 Subpart C Section 15.249  
ANSI C63.10: 2013

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**Date of Test** ..... :

Date (s) of performance of tests ..... : **Jan. 15, 2024 ~ Jan. 24, 2024**

Date of Issue ..... : **Jan. 24, 2024**

Test Result ..... : **Pass**

Testing Engineer : Len Liao

(Len Liao)

Technical Manager : Sliver Wan

(Sliver Wan)

Authorized Signatory : Jason Zhou

(Jason Zhou)



	<b>Table of Contents</b>	<b>Page</b>
<b>1 . TEST SUMMARY</b>		<b>5</b>
<b>2 . GENERAL INFORMATION</b>		<b>6</b>
2.1 General Description of EUT		6
2.2 Carrier Frequency of Channels		7
2.3 Operation of EUT during testing		7
2.4 Description of Test Setup		8
2.5 Description of Support Units		9
2.6 Measurement Instruments List		10
<b>3 . CONDUCTED EMISSIONS TEST</b>		<b>11</b>
3.1 Conducted Power Line Emission Limit		11
3.2 Test Setup		11
3.3 Test Procedure		11
3.4 Test Result		12
<b>4 RADIATED EMISSION TEST</b>		<b>13</b>
4.1 Radiation Limit		13
4.2 Test Setup		13
4.3 Test Procedure		14
4.4 Test Result		14
<b>5 BAND EDGE</b>		<b>20</b>
5.1 Limits		20
5.2 Test Procedure		20
5.3 Test Result		21
<b>6 OCCUPIED BANDWIDTH MEASUREMENT</b>		<b>23</b>
6.1 Test Setup		23
6.2 Test Procedure		23
6.3 Measurement Equipment Used		23
6.4 Test Result		23
<b>7 ANTENNA REQUIREMENT</b>		<b>25</b>
<b>8 PHOTOGRAPH OF TEST</b>		<b>26</b>
8.1 Radiated Emission		26
<b>9 PHOTOS OF THE EUT</b>		<b>27</b>

**\*\* Modified History \*\***

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Jan. 24, 2024	Jason Zhou

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## 1. TEST SUMMARY

### 1.1 Test Procedures And Results

DESCRIPTION OF TEST		RESULT
CONDUCTED EMISSIONS TEST	§ 15.207	N/A
RADIATED EMISSION TEST	§ 15.249 (a) / §15.209	COMPLIANT
BAND EDGE	§ 15.249 (d) / §15.209	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	§ 15.215 (c)	COMPLIANT
ANTENNA REQUIREMENT	§ 15.203	COMPLIANT

### 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

Testing Laboratory Authorization :

A2LA Accreditation Code is 4781.01.

FCC Designation Number is CN1229.

Canada IC CAB identifier is CN0045.

CNAS Registration Number is L9589.

### 1.3 Measurement Uncertainty

Conducted Emission Expanded Uncertainty	= 2.23dB, k=2
Radiated emission expanded uncertainty(9kHz-30MHz)	= 3.08dB, k=2
Radiated emission expanded uncertainty(30MHz-1000MHz)	= 4.42dB, k=2
Radiated emission expanded uncertainty(Above 1GHz)	= 4.06dB, k=2



## 2. GENERAL INFORMATION

### 2.1 General Description of EUT

Equipment	Bluetooth +2.4G dual-mode wireless mouse
Model Name	DZK01
Serial Model	DZK02, DZK03, DZK04, DZK05, DZK06, DZK07, DZK08, DZK09, DZK10, DZK11, DZK12, DZK13, DZK14, DZK15, DZK16, DZK17, DZK18, DZK19, DZK20
Model Difference	All model's the function, software and electric circuit are the same, only with model named different. Test sample model: DZK01.
FCC ID	2BEPP-DZK01
Antenna Type	PCB Antenna
Antenna Gain	2.34dBi
Equipment	Bluetooth +2.4G dual-mode wireless mouse
Operation frequency	2402MHz~2479MHz
Number of Channels	40CH
Modulation Type	GFSK
Power Source	DC 3V from Battery
Power Rating	DC 3V from Battery
Firmware Version	V2.0
Hardware Version	V2.0

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## 2.2 Carrier Frequency of Channels

Description of Channel:							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2402	11	2422	21	2442	31	2462
2	2404	12	2424	22	2444	32	2464
3	2406	13	2426	23	2446	33	2466
4	2408	14	2428	24	2448	34	2468
5	2410	15	2430	25	2450	35	2470
6	2412	16	2432	26	2452	36	2472
7	2414	17	2434	27	2454	37	2474
8	2416	18	2436	28	2456	38	2476
9	2418	19	2438	29	2458	39	2478
10	2420	20	2440	30	2460	40	2479

## 2.3 Operation of EUT during testing

## Operating Mode

The mode is used: **Transmitting mode**

Channel1: 2402MHz

Channel20: 2440MHz

Channel40: 2479MHz



## 2.4 Description of Test Setup

O Operation of EUT during below 1GHz radiation testing:



Operation of EUT during above 1GHz radiation testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The worst case is X position



## 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	Mfr/Brand	Model/Type No.	Specification	Note
1	Bluetooth +2.4G dual-mode wireless mouse	N/A	DZK01	N/A	EUT
2	Laptop	Lenovo	Thinkpad E450	Input: 20V 2.25A/3.25A	Peripheral

**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.



## 2.6 Measurement Instruments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Feb. 17, 2023	1 Year
2.	Receiver	R&S	ESR-7	HKE-010	Feb. 17, 2023	1 Year
3.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Feb. 17, 2023	1 Year
4.	Spectrum analyzer	R&S	FSP40	HKE-025	Feb. 17, 2023	1 Year
5.	Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	1 Year
6.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Feb. 17, 2023	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESCI 7	HKE-010	Feb. 17, 2023	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Feb. 17, 2023	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Feb. 17, 2023	1 Year
10.	Horn Antenna	Schwarzbeck	9120D	HKE-013	Feb. 17, 2023	1 Year
11.	Pre-amplifier	EMCI	EMC051845S E	HKE-015	Feb. 17, 2023	1 Year
12.	Pre-amplifier	Agilent	83051A	HKE-016	Feb. 17, 2023	1 Year
13.	EMI Test Software EZ-EMC	Tonscend	JY3120-B Version	HKE-083	N/A	N/A
14.	Power Sensor	Agilent	E9300A	HKE-086	Feb. 17, 2023	1 Year
15.	Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	1 Year
16.	Signal generator	Agilent	N5182A	HKE-029	Feb. 17, 2023	1 Year
17.	Signal Generator	Agilent	83630A	HKE-028	Feb. 17, 2023	1 Year
18.	Shielded room	Shiel Hong	4*3*3	HKE-039	Dec. 09, 2021	3 Year
19.	High gain antenna	Schwarzbeck	LB-180400KF	HKE-054	Feb. 17, 2023	1 Year
20.	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	Feb. 17, 2023	1 Year

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### 3. CONDUCTED EMISSIONS TEST

#### 3.1 Conducted Power Line Emission Limit

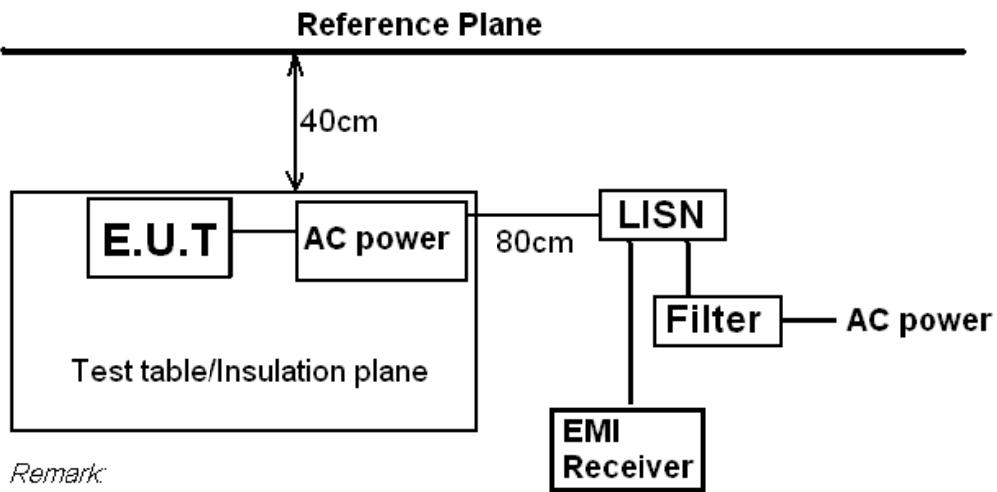
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dB $\mu$ V)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

\* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

#### 3.2 Test Setup



Remark:

E.U.T: Equipment Under Test

LISN: Line Impedance Stabilization Network

Test table height=0.8m

#### 3.3 Test Procedure

- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.



### 3.4 Test Result

Not applicable

Note: EUT powers supply by DC Power, so this test item not applicable.



## 4 RADIATED EMISSION TEST

### 4.1 Radiation Limit

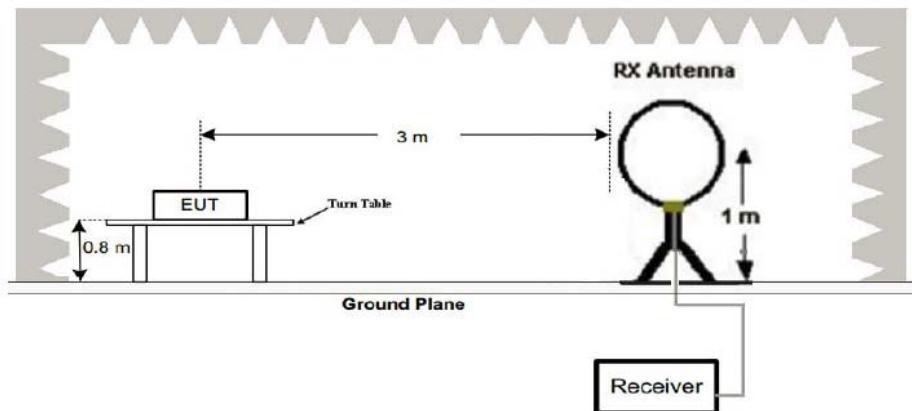
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dB $\mu$ V/m)	Radiated ( $\mu$ V/m)
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

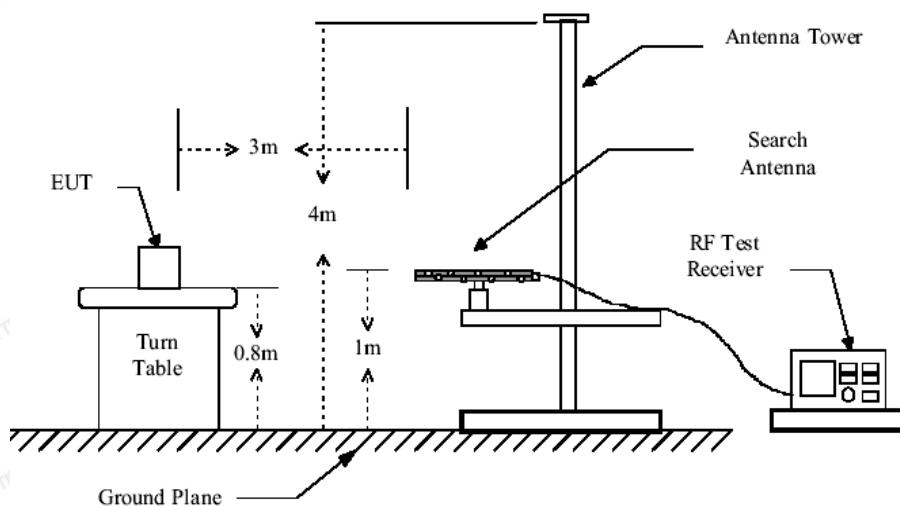
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

### 4.2 Test Setup

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

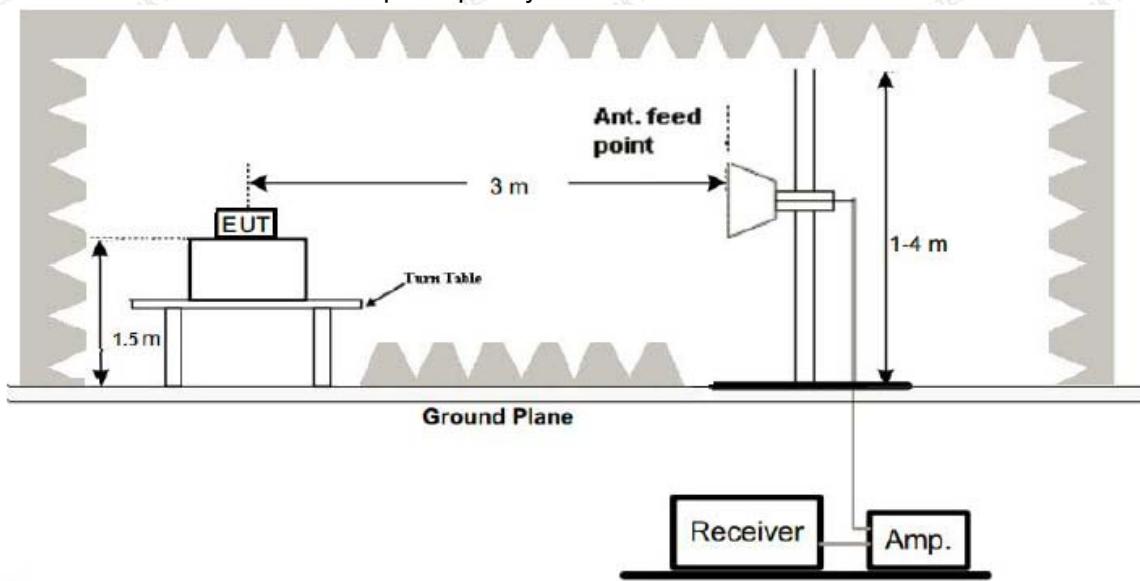


#### (2) Radiated Emission Test-Up Frequency 30MHz~1GHz





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



## 4.3 Test Procedure

1. 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.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. 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.

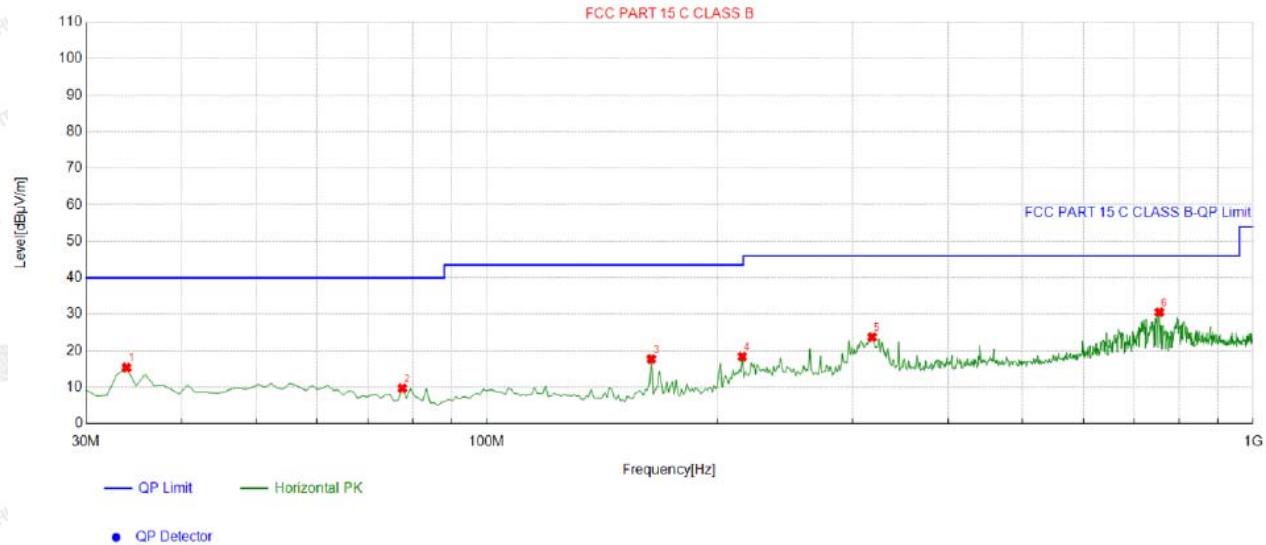
## 4.4 Test Result

PASS



## Below 1GHz Test Results:

Antenna polarity: H

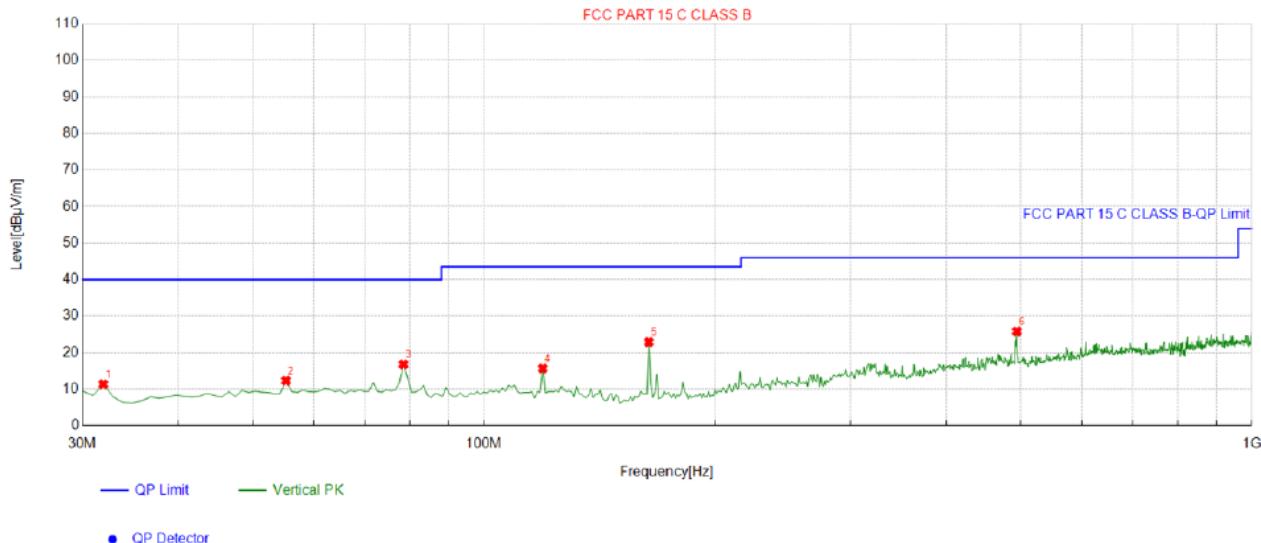


Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	33.883884	-16.38	31.75	15.37	40.00	24.63	100	116	Horizontal
2	77.577578	-17.16	26.88	9.72	40.00	30.28	100	332	Horizontal
3	163.99399	-17.19	34.89	17.70	43.50	25.80	100	138	Horizontal
4	215.45545	-14.42	32.82	18.40	43.50	25.10	100	173	Horizontal
5	318.37837	-11.71	35.44	23.73	46.00	22.27	100	272	Horizontal
6	754.34434	-2.87	33.42	30.55	46.00	15.45	100	124	Horizontal

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



Antenna polarity: V



#### Suspected List

NO.	Freq. [MHz]	Factor [dB]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.941942	-16.66	28.02	11.36	40.00	28.64	100	245	Vertical
2	55.245245	-14.32	26.65	12.33	40.00	27.67	100	310	Vertical
3	78.548549	-17.29	34.09	16.80	40.00	23.20	100	329	Vertical
4	119.32932	-15.50	31.16	15.66	43.50	27.84	100	132	Vertical
5	163.99399	-17.19	40.06	22.87	43.50	20.63	100	198	Vertical
6	494.12412	-7.29	33.11	25.82	46.00	20.18	100	146	Vertical

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

#### Remark:

- (1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- (2) \* 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.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.



## Above 1 GHz Test Results:

## CH Middle (2402MHz)

## Horizontal:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2402	102.32	-5.71	96.61	114	-17.39	peak
2402	84.15	-5.71	78.44	94	-15.56	AVG
4804	56.36	-3.51	52.85	74	-21.15	peak
4804	42.15	-3.51	38.64	54	-15.36	AVG
7206	56.32	-0.82	55.5	74	-18.5	peak
7206	37.98	-0.82	37.16	54	-16.84	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2402	101.45	-5.71	95.74	114	-18.26	peak
2402	78.87	-5.71	73.16	94	-20.84	AVG
4804	57.41	-3.51	53.9	74	-20.1	peak
4804	35.62	-3.51	32.11	54	-21.89	AVG
7206	54.88	-0.82	54.06	74	-19.94	peak
7206	37.41	-0.82	36.59	54	-17.41	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



## CH Middle (2440MHz)

## Horizontal:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2440	98.72	-5.71	93.01	114	-20.99	
2440	79.16	-5.71	73.45	94	-20.55	AVG
4880	54.62	-3.51	51.11	74	-22.89	peak
4880	32.55	-3.51	29.04	54	-24.96	AVG
7320	45.15	-0.82	44.33	74	-29.67	peak
7320	32.32	-0.82	31.5	54	-22.5	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2440	99.17	-5.71	93.46	114	-20.54	
2440	78.32	-5.71	72.61	94	-21.39	AVG
4880	56.65	-3.51	53.14	74	-20.86	peak
4880	36.99	-3.51	33.48	54	-20.52	AVG
7320	49.02	-0.82	48.2	74	-25.8	peak
7320	38.25	-0.82	37.43	54	-16.57	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



## CH High (2475MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2479	98.26	-5.65	92.61	114	-21.39	peak
2479	78.99	-5.65	73.34	94	-20.66	AVG
4958	54.16	-3.43	50.73	74	-23.27	peak
4958	34.16	-3.43	30.73	54	-23.27	AVG
7437	48.29	-0.75	47.54	74	-26.46	peak
7437	32.02	-0.75	31.27	54	-22.73	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2479	98.17	-5.65	92.52	114	-21.48	peak
2479	79.14	-5.65	73.49	94	-20.51	AVG
4958	52.36	-3.43	48.93	74	-25.07	peak
4958	36.25	-3.43	32.82	54	-21.18	AVG
7437	52.41	-0.75	51.66	74	-22.34	peak
7437	33.10	-0.75	32.35	54	-21.65	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## 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 $\mu$ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB $\mu$ V/m(PK Value) <54 dB $\mu$ V/m(AV Limit), the Average Detected not need to completed.



## 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.



## 5.3 Test Result

**PASS****Radiated Band Edge Test:**

Operation Mode: TX CH Low (2402MHz)

Horizontal (Worst case)

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB $\mu$ V)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)	
2310	57.41	-5.81	51.6	74	-22.4	peak
2310	/	-5.81	/	54	/	AVG
2390	56.92	-5.84	51.08	74	-22.92	peak
2390	/	-5.84	/	54	/	AVG
2400	56.38	-5.84	50.54	74	-23.46	peak
2400	/	-5.84	/	54	/	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB $\mu$ V)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)	
2310	58.71	-5.81	52.9	74	-21.1	peak
2310	/	-5.81	/	54	/	AVG
2390	57.41	-5.84	51.57	74	-22.43	peak
2390	/	-5.84	/	54	/	AVG
2400	58.92	-5.84	53.08	74	-20.92	peak
2400	/	-5.84	/	54	/	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Operation Mode: TX CH High (2479MHz)

Horizontal (Worst case)

Frequency (MHz)	Reading Result (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2483.50	56.02	-5.65	50.37	74	-23.63	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	54.57	-5.65	48.92	74	-25.08	peak
2500.00	/	-5.65	/	54	/	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB $\mu$ V)	Factor (dB)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector Type
2483.50	56.32	-5.65	50.67	74	-23.33	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	57.41	-5.65	51.76	74	-22.24	peak
2500.00	/	-5.65	/	54	/	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



## 6 OCCUPIED BANDWIDTH MEASUREMENT

### 6.1 Test Setup

Same as Radiated Emission Measurement

### 6.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on ANSI C63.10 section 6.9.2: RBW= 15KHz. VBW= 47KHz, Span=3MHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

### 6.3 Measurement Equipment Used

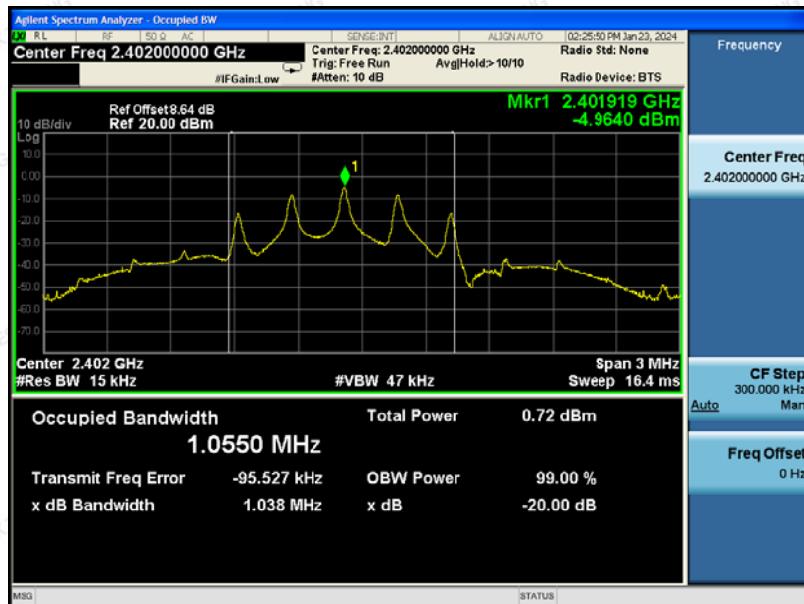
Same as Radiated Emission Measurement

### 6.4 Test Result

**PASS**

Frequency	20dB Bandwidth (MHz)	Result
2402 MHz	1.038	<b>PASS</b>
2440 MHz	1.039	
2479 MHz	1.039	

CH: 2402MHz



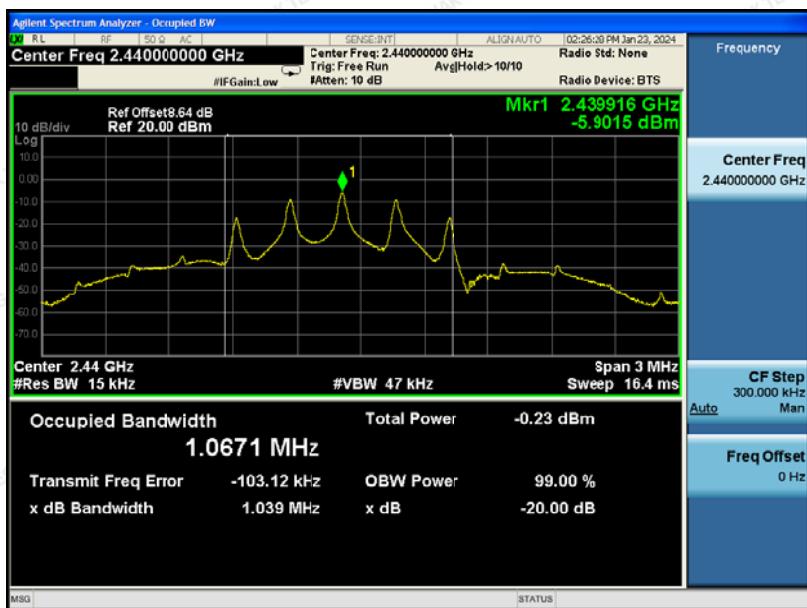
The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : [service@cer-mark.com](mailto:service@cer-mark.com)

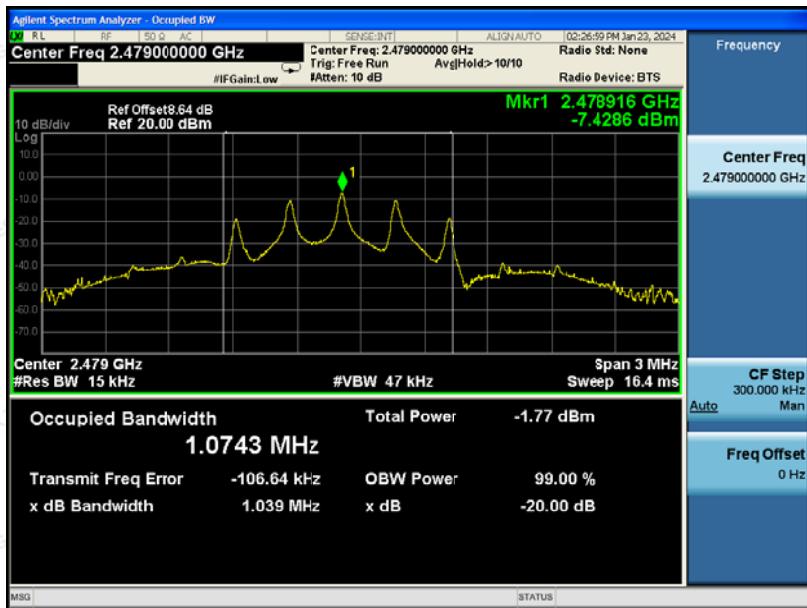
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



CH: 2440MHz



CH: 2479MHz



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



## 7 ANTENNA REQUIREMENT

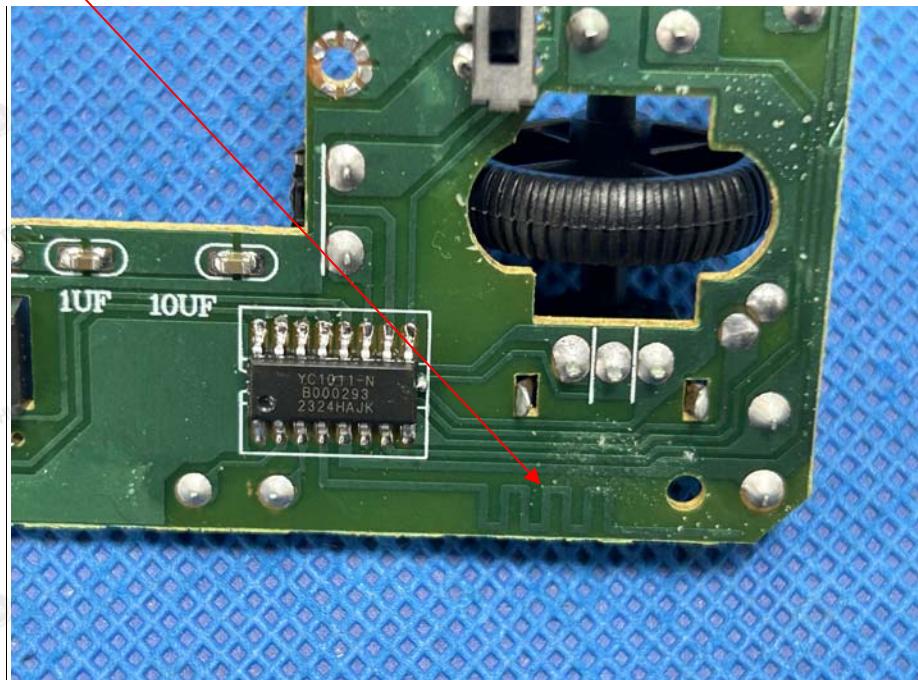
### Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### Antenna Connected Construction

The antenna used in this product is a PCB Antenna which permanently attached. It conforms to the standard requirements, The directional gains of antenna used for transmitting is 2.34dBi.

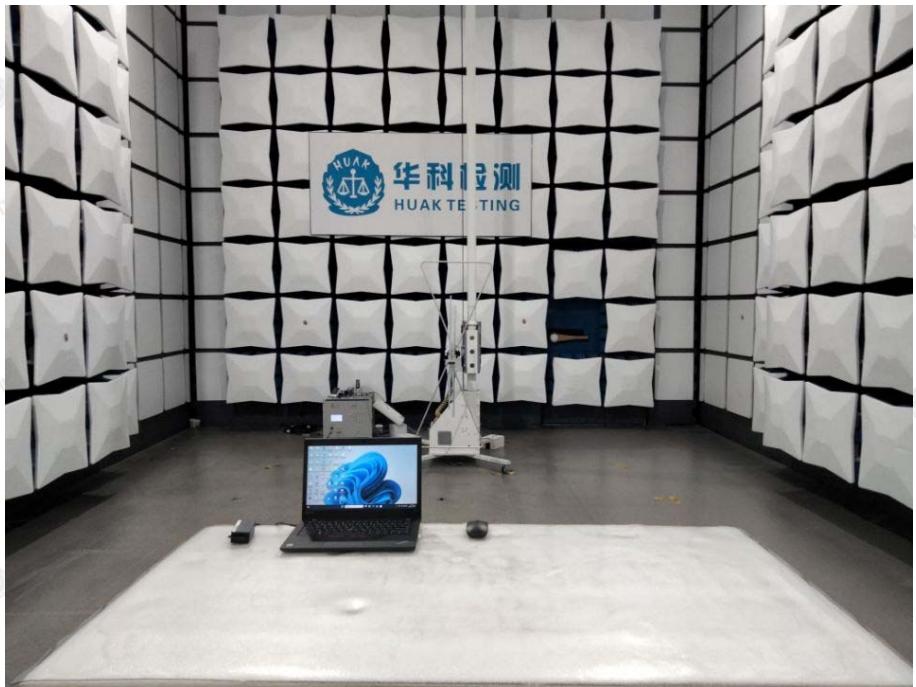
ANTENNA





## 8 PHOTOGRAPH OF TEST

### 8.1 Radiated Emission



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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-----