



Shenzhen HTT Technology Co., Ltd.

TEST REPORT

47 CFR FCC Part 15 Subpart B (Class B)

Radio Frequency Devices – Unintentional Radiators – Limits and methods of measurement

ANSI C63.4: 2014

American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Report Reference No.: HTT202202346

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Date of issue: Mar.23,2022

Testing Laboratory Name: Shenzhen HTT Technology Co.,Ltd.

Address: 1F, Building B, Huafeng International Robotics Industrial Park, Hangcheng Road, Nanchang Community, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China

Applicant's name: LUANSHI HANSHENG PHOTOELECTRIC TECHNOLOGY CO.,LTD

Address: Chengdong Road, Yu'an Economic Development Zone, Lu'an City

Test specification:

Standard: 47 CFR FCC Part 15 Subpart B (Class B)
ANSI C63.4: 2014

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Equipment description: Laser level

Trade Mark: OMMO

Manufacturer: LUANSHI HANSHENG PHOTOELECTRIC TECHNOLOGY CO.,LTD

Model/Type reference: OM-023

List Model: OM-005, OM-051, OM-052, OM-063, OM-LL01,
OM-LL02, OM-LL03, OM-LL04, OM-LL05

Ratings: DC 3.7V/5200mAh Form Battery and DC 5V From External Circuit

Result: PASS

TEST REPORT

Equipment under Test : Laser level

Model /Type : OM-023

Listed Models : OM-005, OM-051, OM-052, OM-063, OM-LL01,
OM-LL02, OM-LL03, OM-LL04, OM-LL05

Applicant : **LUANSHI HANSHENG PHOTOELECTRIC TECHNOLOGY
CO.,LTD**

Address : Chengdong Road, Yu'an Economic Development Zone, Lu'an City

Manufacturer : **LUANSHI HANSHENG PHOTOELECTRIC TECHNOLOGY
CO.,LTD**

Address : Chengdong Road, Yu'an Economic Development Zone, Lu'an City

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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1. TEST STANDARDS

The tests were performed according to following standards:

[47 CFR FCC Part 15 Subpart B \(Class B\)](#) Radio Frequency Devices – Unintentional Radiators – Limits and methods of measurement

[ANSI C63.4: 2014](#) American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Mar.17,2022
Testing commenced on	:	Mar.17,2022
Testing concluded on	:	Mar.23,2022

2.2. Product Description

Product Name:	Laser level
Model/Type reference:	OM-023
Frequency Range:	433.92MHz
Power supply:	DC 3.7V/5200mAh Form Battery and DC 5V From External Circuit
Adapter information:	Model: CK19-5.1 Input:AC 100-240V 50/60Hz Output:DC 5V 1A

2.3. EUT operation mode

As the function of the EUT, test mode selected to test as below to conform this standard:

Operation mode	Description
Mode 1	Working mode
Mode 2	Charging mode

We tested all modes and recorded the worst case at the Mode 1.

Test item	Test mode
Conducted emission	Mode 1
Radiated emission	Mode 1

2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

Item	Name	Description	Model	Certificate	Note
1 ^{Note1}	/	/	/	/	/
2 ^{Note1}	/	/	/	/	/

Note1: This Auxiliary used during the test is provided by the test laboratory.

2.5. Modifications

No modifications were implemented to meet testing criteria

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen HTT Technology Co.,Ltd.

1F, Building B, Huafeng International Robotics Industrial Park, Hangcheng Road, Nanchang Community, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 779513 Designation Number: CN1319

Shenzhen HTT Technology Co.,Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6435.01

Shenzhen HTT Technology Co.,Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	20-25 ° C
Lative Humidity	40-55 %
Air Pressure	950-1050mbar

3.4. Test Description

Emission Measurement		
Radiated Emission	47 CFR FCC Part 15 Subpart B Class B ANSI C63.4 2014	PASS
Conducted Emission	47 CFR FCC Part 15 Subpart B Class B ANSI C63.4 2014	PASS

Remark:1. N/A means “not applicable”.

2.The measurement uncertainty is not included in the test result.

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1” and TR-100028-02 “Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 “ and is documented in the Shenzhen CTA Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen HTT Technology Co.,Ltd.

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.42dB	(1)
Radiated Emission	1~18GHz	4.06 dB	(1)
Conducted Disturbance	0.15~30MHz	2.23 dB	(1)

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

3.6. Equipments Used during the Test

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	EMI Test Receiver	Rohde&Schwar	ESCI7	HTT-E022	May 21 2021	May 20 2022
2	Spectrum Analyzer	Rohde&Schwar	FSP	HTT-E037	May 21 2021	May 20 2022
3	Coaxial Cable	ZDecl	ZT26-NJ-NJ-0.6M	HTT-E018	May 21 2021	May 20 2022
4	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-2M	HTT-E019	May 21 2021	May 20 2022
5	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-0.6M	HTT-E020	May 21 2021	May 20 2022
6	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-8.5M	HTT-E021	May 21 2021	May 20 2022
7	Composite logarithmic antenna	Schwarzbeck	VULB 9168	HTT-E017	Aug. 22 2021	Aug. 21 2022
8	Horn Antenna	Schwarzbeck	BBHA9120D	HTT-E016	Aug. 22 2021	Aug. 21 2022
9	Loop Antenna	Zhinan	ZN30900C	HTT-E039	Aug. 22 2021	Aug. 21 2022
10	Horn Antenna	Beijing Hangwei Dayang	OBH100400	HTT-E040	Aug. 22 2021	Aug. 21 2022
11	low frequency Amplifier	Sonoma Instrument	310	HTT-E015	May 21 2021	May 20 2022
12	high-frequency Amplifier	HP	8449B	HTT-E014	May 21 2021	May 20 2022
13	Variable frequency power supply	Shenzhen Anbiao Instrument Co., Ltd	ANB-10VA	HTT-082	May 21 2021	May 20 2022
14	EMI Test Receiver	Rohde & Schwarz	ESCS30	HTT-E004	May 21 2021	May 20 2022
15	Artificial Mains	Rohde & Schwarz	ESH3-Z5	HTT-E006	May 21 2021	May 20 2022
16	Artificial Mains	Rohde & Schwarz	ENV-216	HTT-E038	May 21 2021	May 20 2022
17	Cable Line	Robinson	Z302S-NJ-BNCJ-1.5M	HTT-E001	May 21 2021	May 20 2022
18	Attenuator	Robinson	6810.17A	HTT-E007	May 21 2021	May 20 2022
19	Variable frequency power supply	Shenzhen Yanghong Electric Co., Ltd	YF-650 (5KVA)	HTT-E032	May 21 2021	May 20 2022
20	Control Room	Shenzhen C.R.T technology co., LTD	8*4*3.5	HTT-E029	May 21 2021	May 20 2022
21	DC power supply	Agilent	E3632A	HTT-E023	May 21 2021	May 20 2022
22	EMI Test Receiver	Agilent	N9020A	HTT-E024	May 21 2021	May 20 2022
23	Analog signal generator	Agilent	N5181A	HTT-E025	May 21 2021	May 20 2022
24	Vector signal generator	Agilent	N5182A	HTT-E026	May 21 2021	May 20 2022
25	Power sensor	Keysight	U2021XA	HTT-E027	May 21 2021	May 20 2022
26	Temperature and humidity meter	Shenzhen Anbiao Instrument Co., Ltd	TH10R	HTT-074	May 21 2021	May 20 2022
27	Radiated Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A
28	Conducted Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A

4. TEST CONDITIONS AND RESULTS

4.1. EMISSION

4.1.1. LIMITS OF DISTURBANCE (CLASS B)

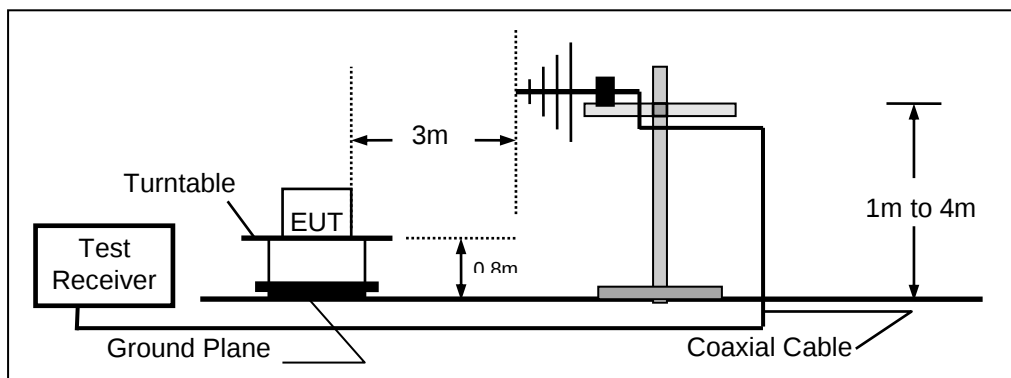
Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB μ V/m)
30 ~ 88	3	40
88~216	3	43.5
216 ~ 960	3	46
Above 960(AV)	3	54
Above 960(PK)	3	74

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

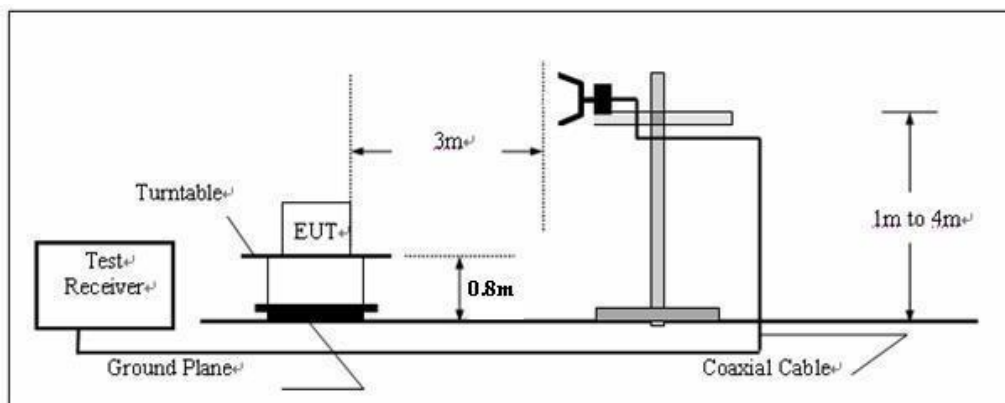
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

4.1.2. TEST CONFIGURATION

a) Radiated emission test set-up, frequency below 1000MHz:



b) Radiated emission test set-up, frequency above 1000MHz



4.1.3. TEST PROCEDURE

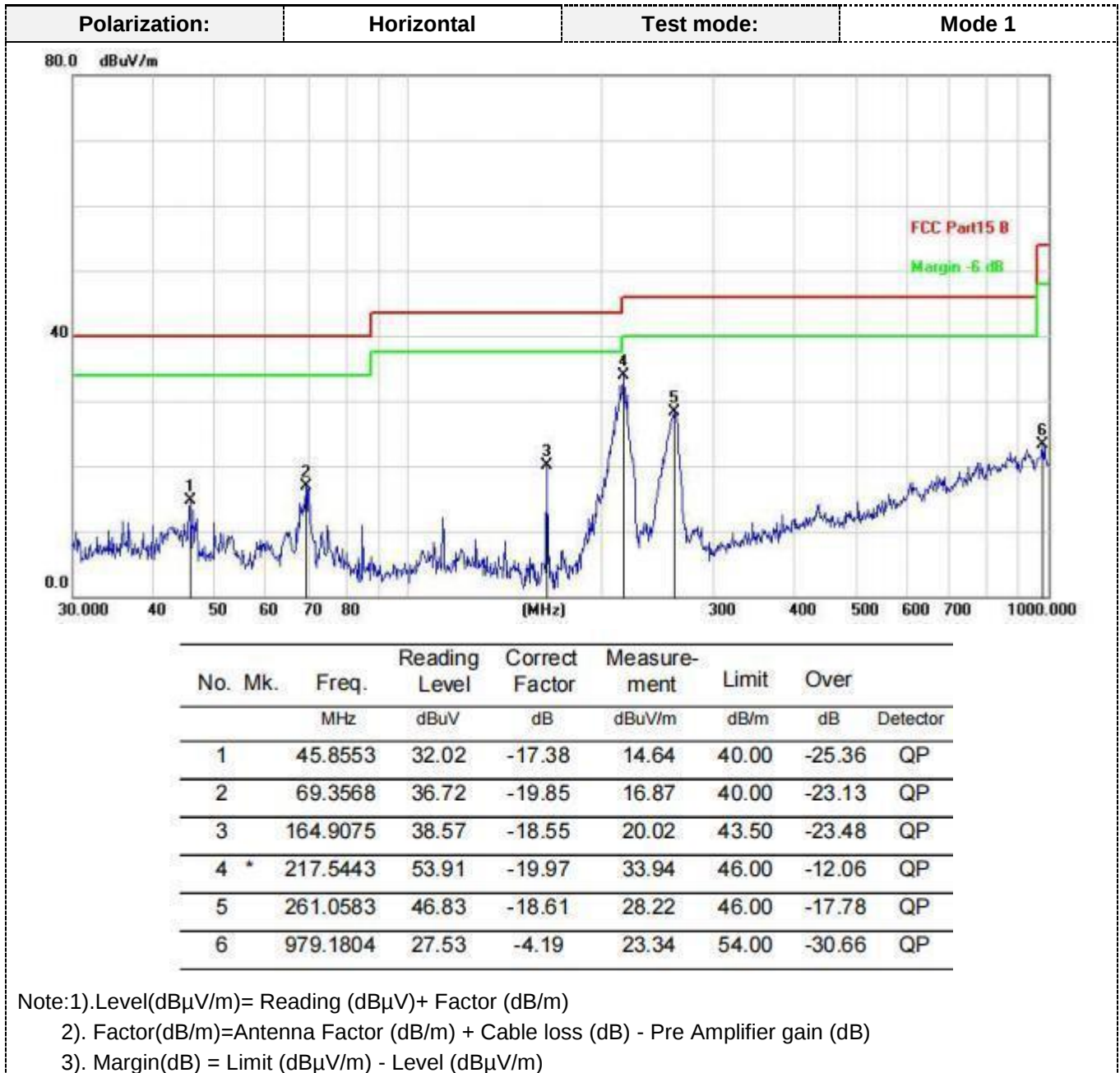
EUT is tested in Semi-Anechoic Chamber. EUT is placed on a nonmetal table which is 0.8 meter above a grounded turntable. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level. EUT is set 3 meters away from the center of receiving antenna. The antenna can move up and down from 1 to 4 meter to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set on the test.

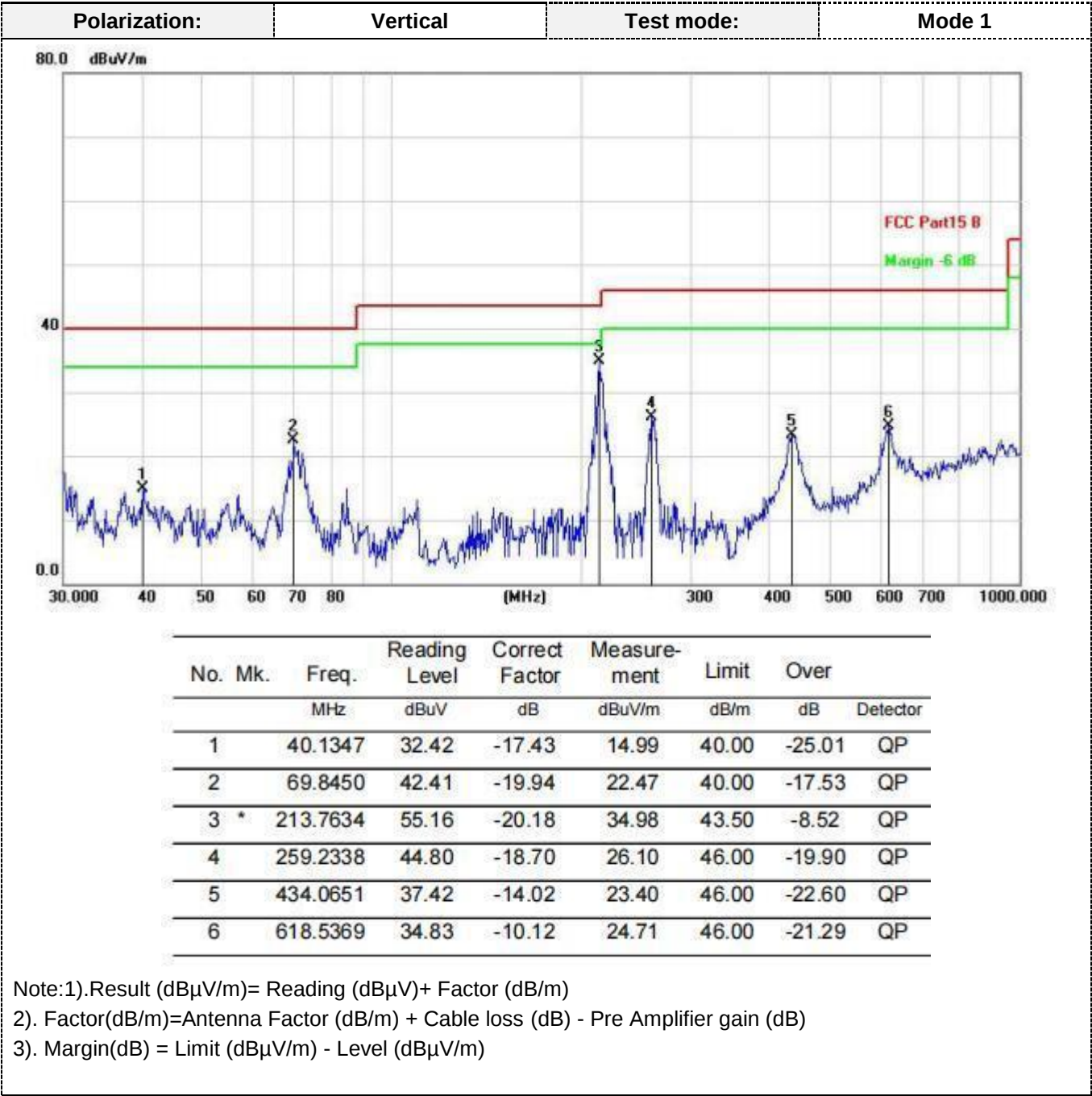
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
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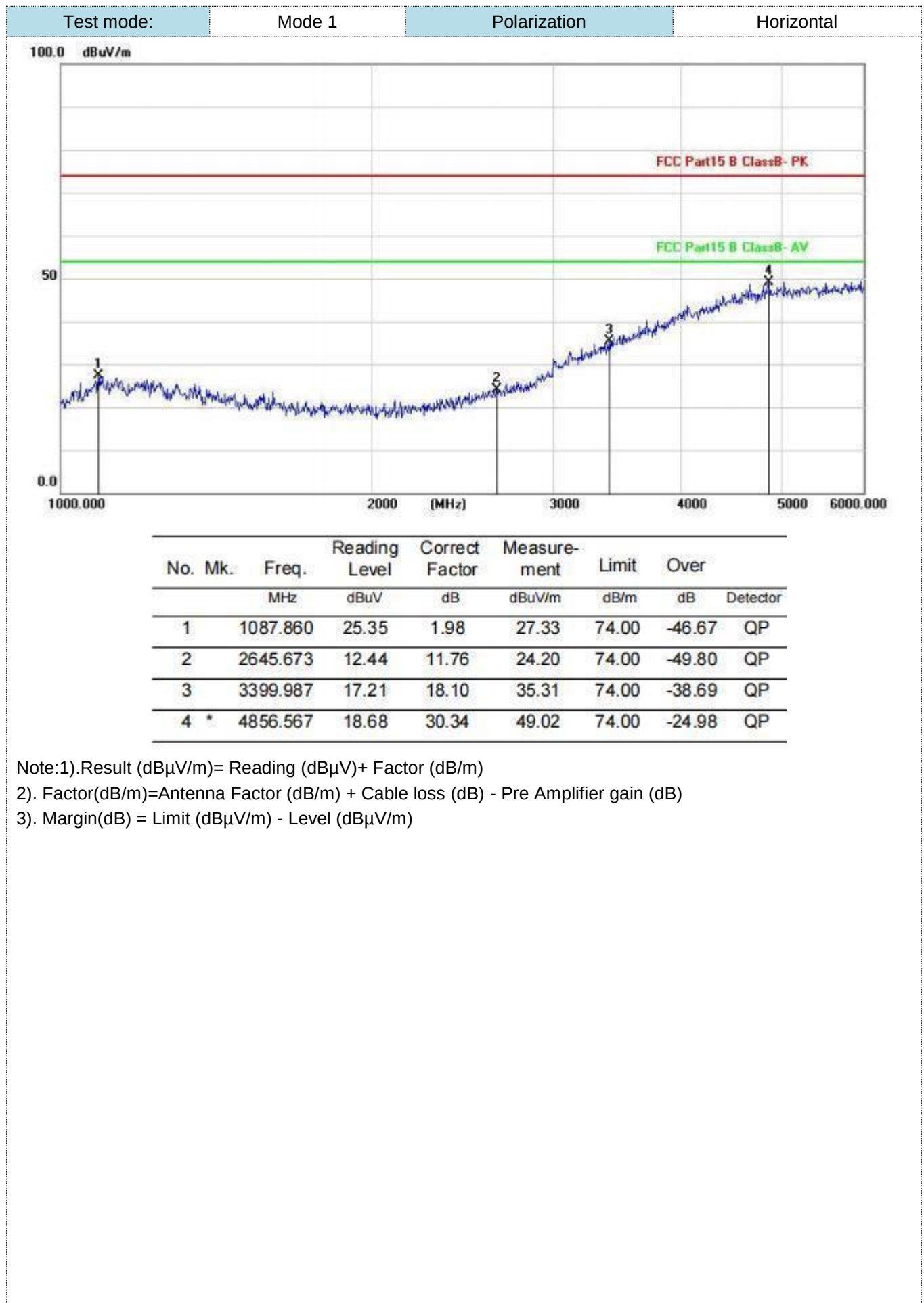
4.1.4. TEST RESULTS

Passed

Please refer to the below test data:





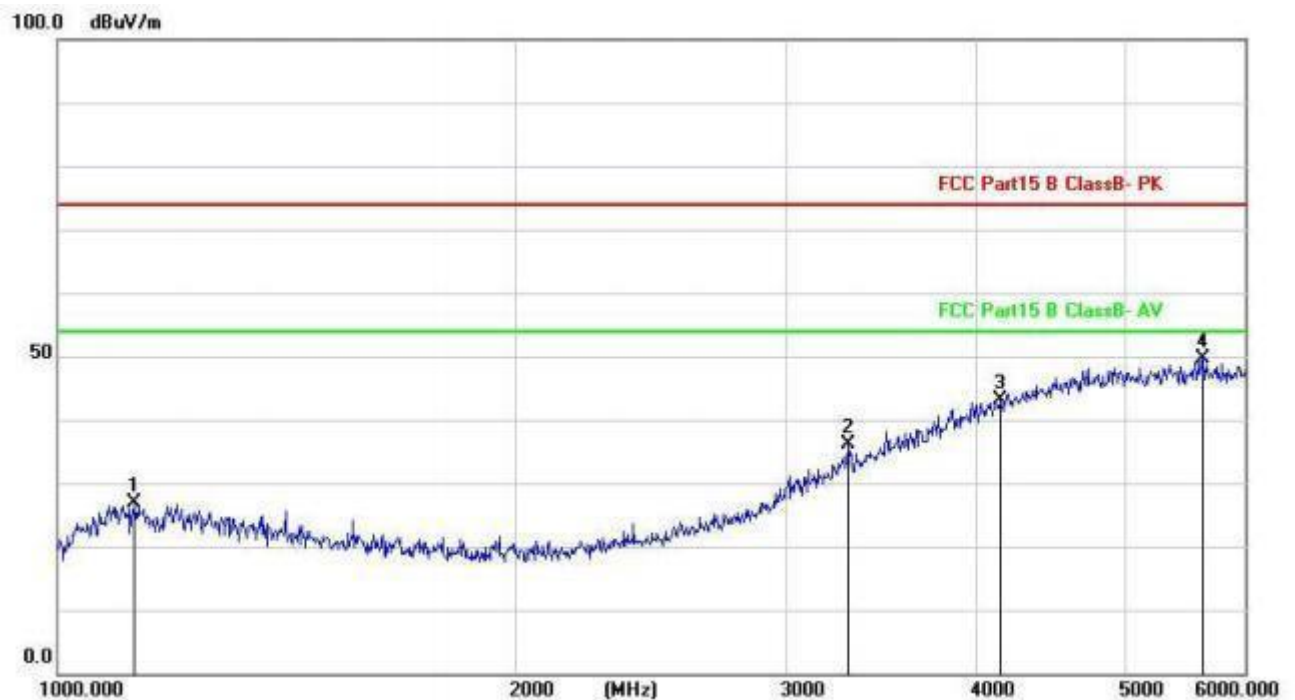


Test mode:

Mode 1

Polarization

Vertical



No.	Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measure- ment dBμV/m	Limit dB/m	Over dB	Detector
1		1123.517	24.90	2.01	26.91	74.00	-47.09	QP
2		3297.985	18.91	17.24	36.15	74.00	-37.85	QP
3		4148.127	18.81	24.39	43.20	74.00	-30.80	QP
4	*	5635.286	17.43	32.10	49.53	74.00	-24.47	QP

Note:1).Result (dBμV/m)= Reading (dBμV)+ Factor (dB/m)

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)

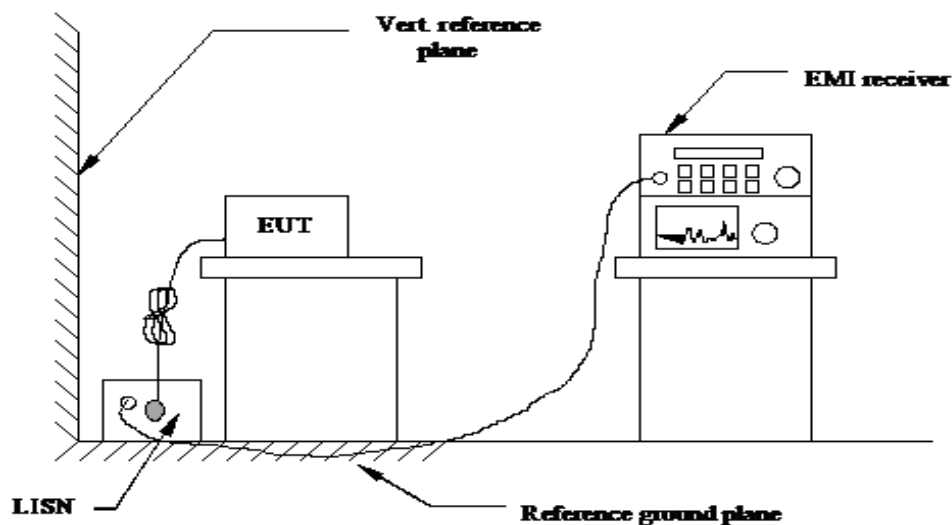
4.2. Conducted Emission

4.2.1. LIMITS OF DISTURBANCE (CLASS B)

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.000	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

4.2.2. TEST CONFIGURATION



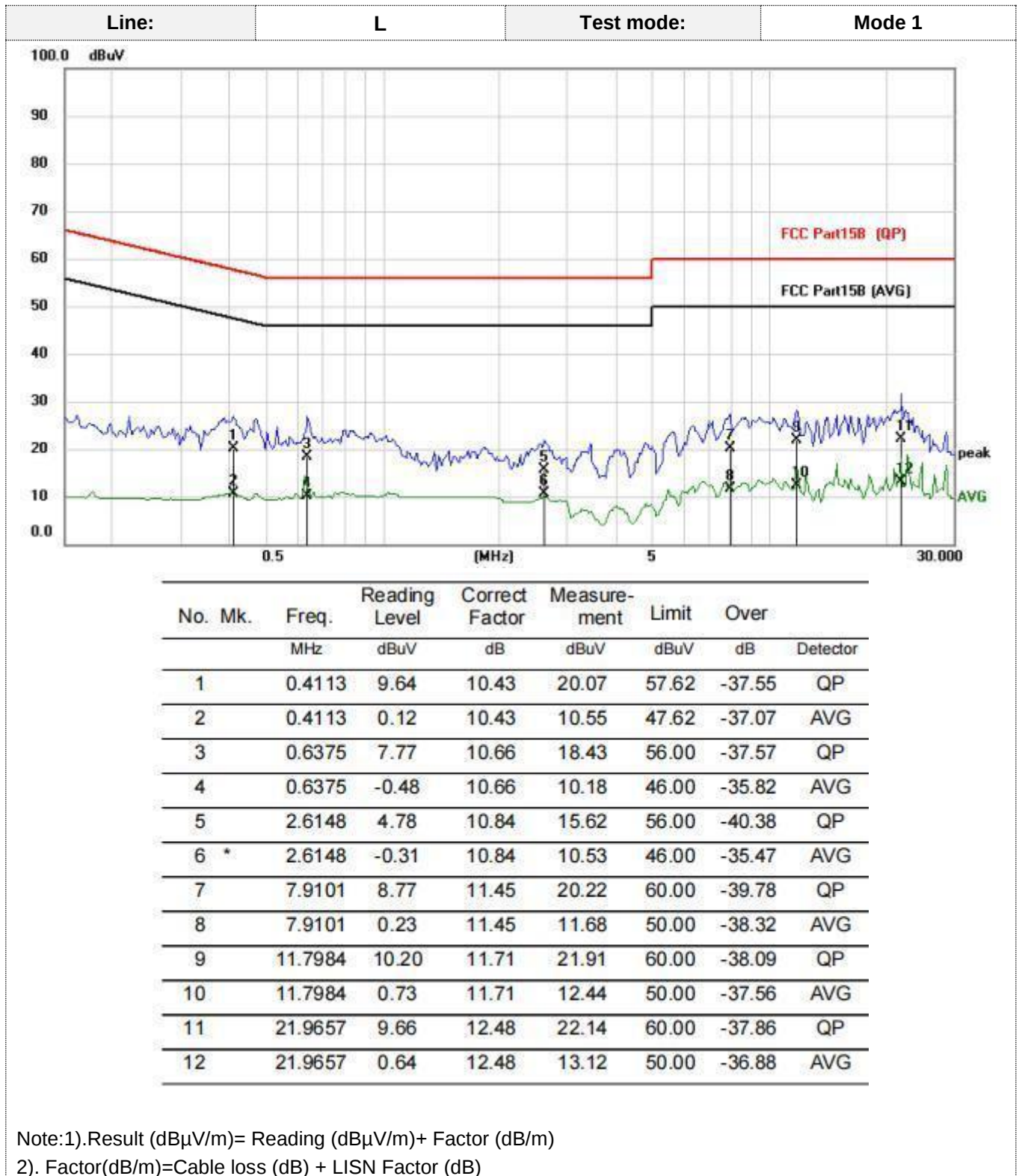
4.2.3. TEST PROCEDURE

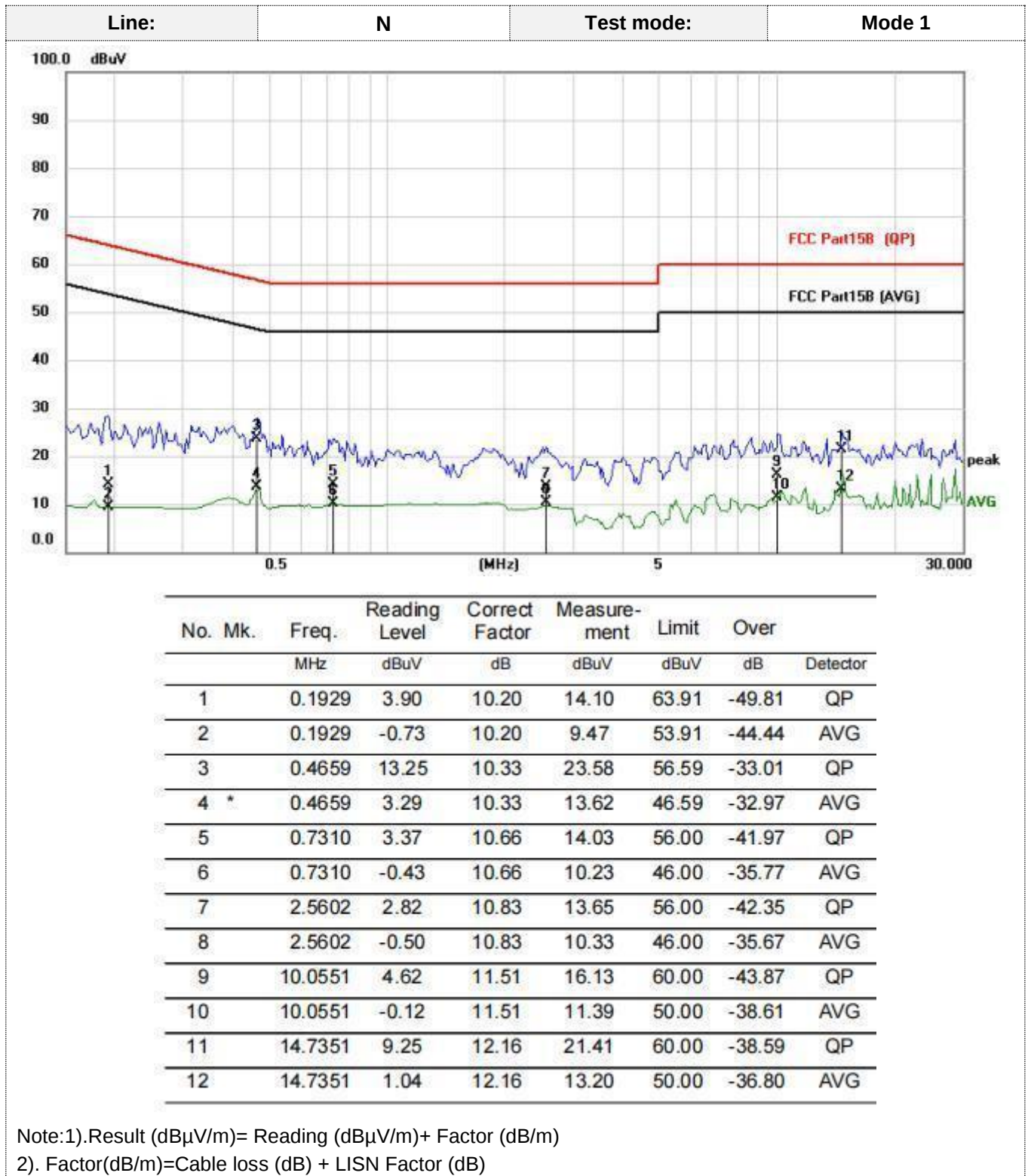
EUT is placed on a nonmetal table which is 0.8 meter (or 0.1 meter for floor-stood equipments) above the grounded reference plane. Connect the power line of the EUT to the LISN. Voltage of the power supply is varied over a range of 0.9 to 1.1 times of the rated voltage in order to check whether the level of disturbance varies considerably with the supply voltage at the selected frequency about 160KHz. Perform an initial measurement on each line with peak detector to identify the frequencies where the maximum disturbances may occur. Then measure and record the maximum disturbances with quasi-peak and average detector.

Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
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4.2.4. TEST RESULTS

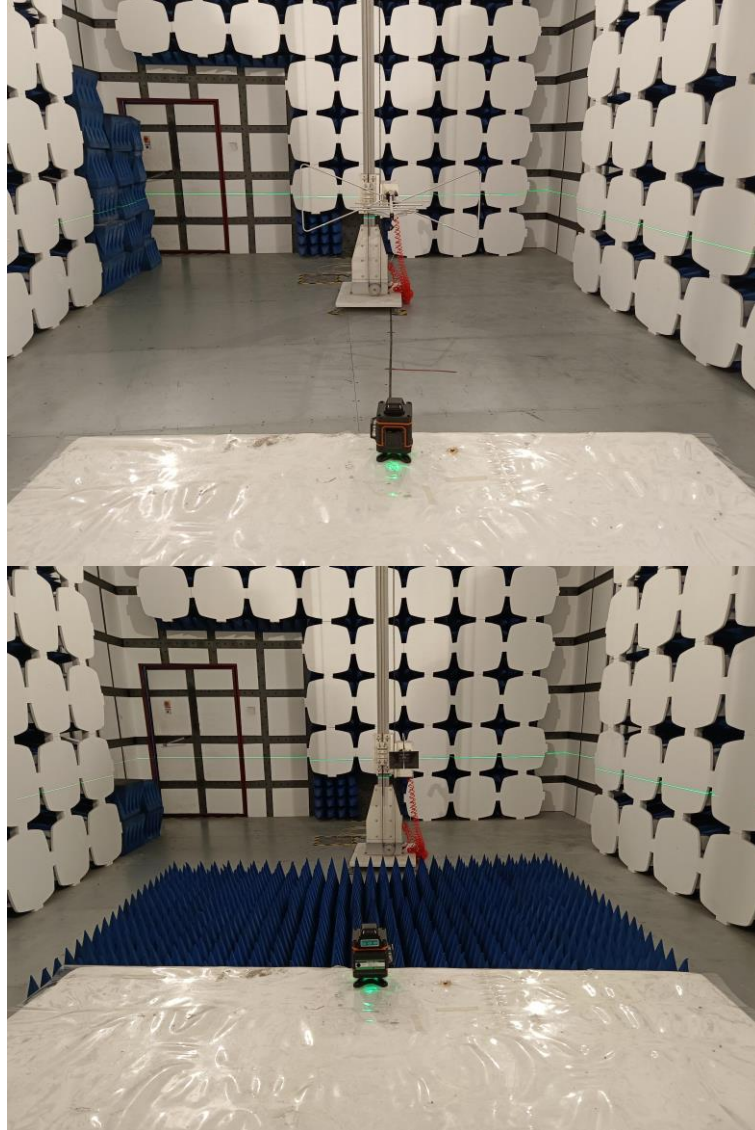
Passed





5. Test Set-up Photos of the EUT

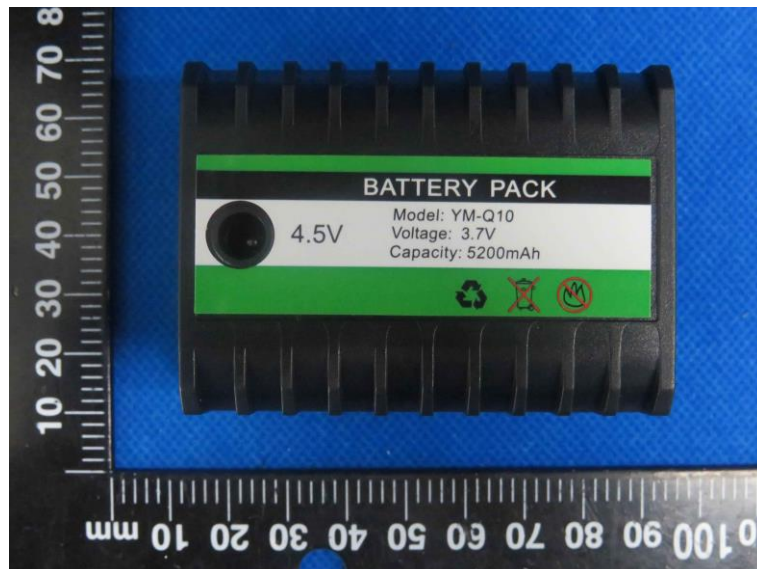
Radiated Emission

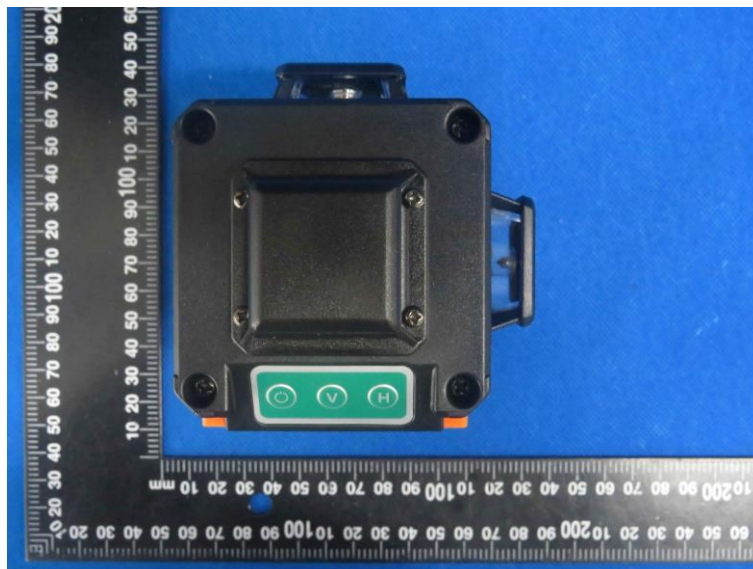


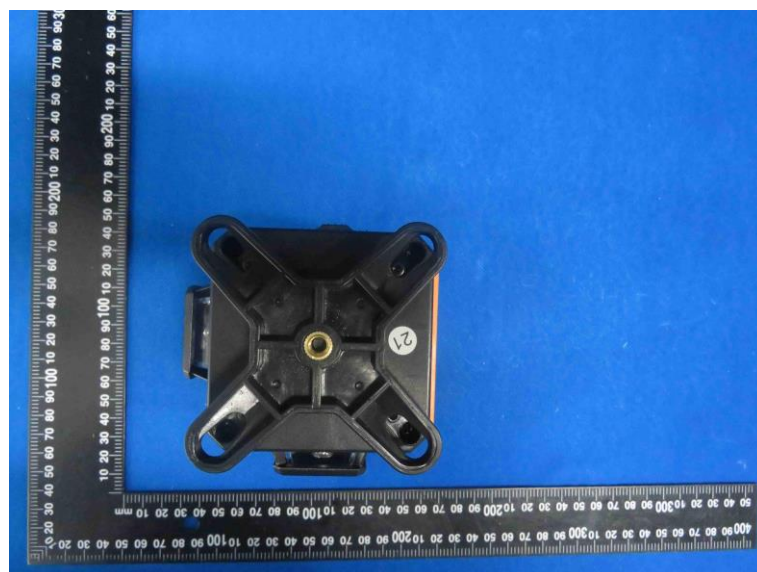
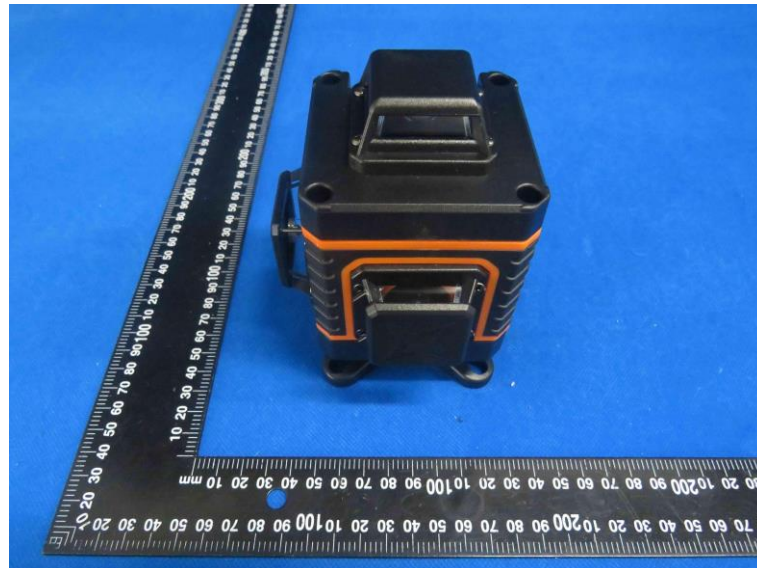
Conducted Disturbance

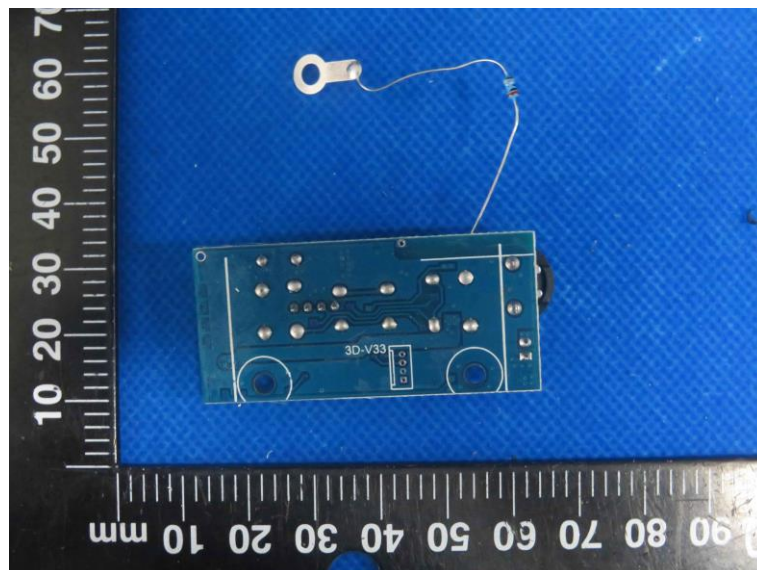
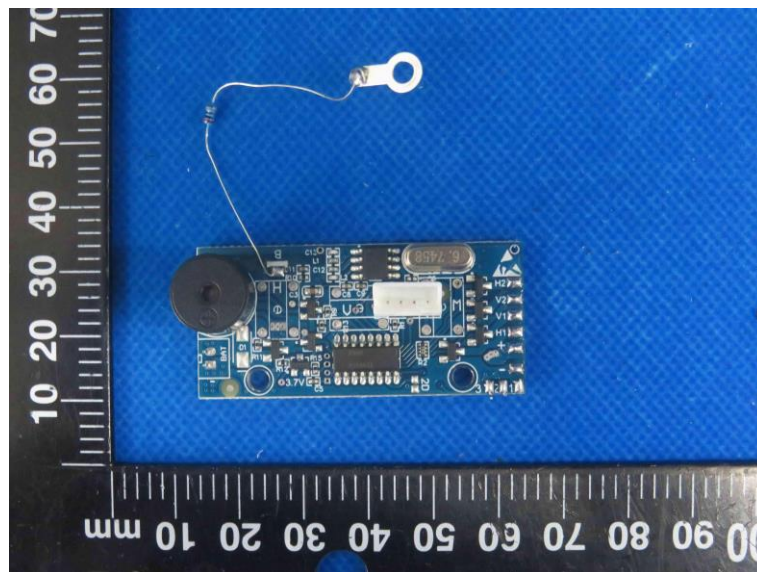
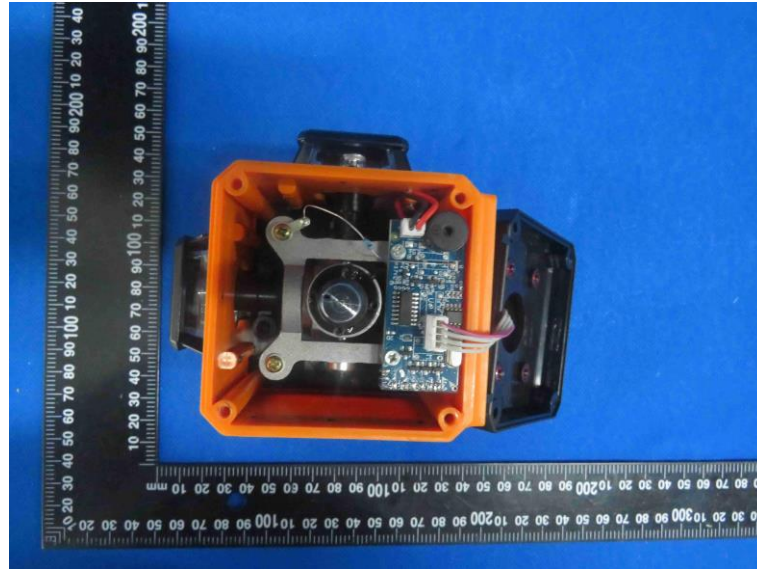


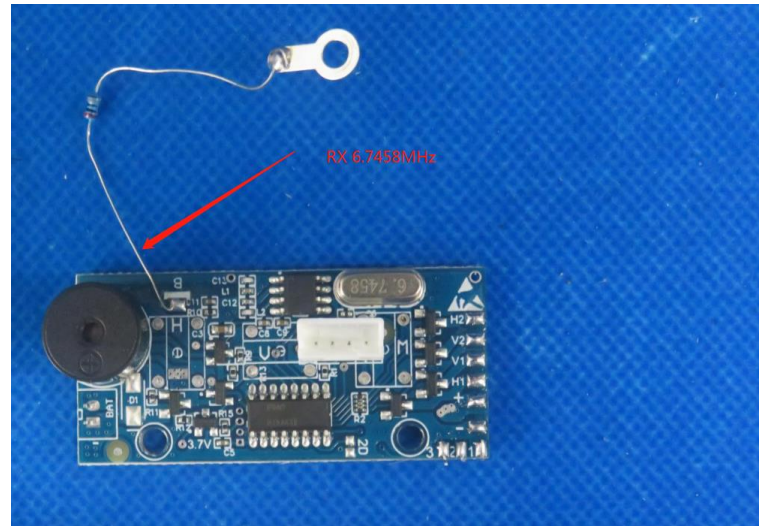
6. External and Internal Photos of the EUT











*****End of Report*****