



Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community,  
Fenghuang Street, Guangming District, Shenzhen, China

## 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. .... GRCTR210802002-02

FCC ID. .... 2A2X2T11

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Date of issue ..... Aug. 30, 2021

Testing Laboratory Name ..... Shenzhen GUOREN Certification Technology Service Co., Ltd.

Address ..... 101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

Applicant's name ..... Huizhou Beijia Electronic Technology Co.,Ltd.

Address ..... 4th Floor, Songshan Group Factory, Baishi Village, Qiuchang Street, Huiyang District, Huizhou City, Guangdong Province, China

#### Test specification:

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

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Test item description ..... Walkie talkie

Trade Mark ..... N/A

Manufacturer ..... Huizhou Beijia Electronic Technology Co.,Ltd.

Model/Type reference ..... T11

Listed Models ..... N/A

Ratings ..... DC 4.5V From Battery

Result ..... Pass

TEST REPORT

Equipment under Test : Walkie-Talkie

Model /Type : T11

Listed Models : N/A

**Applicant** : **Huizhou Beijia Electronic Technology Co.,Ltd.**

Address : 4th Floor, Songshan Group Factory, Baishi Village, Qiuchang Street, Huiyang District, Huizhou City, Guangdong Province, China

**Manufacturer** **Huizhou Beijia Electronic Technology Co.,Ltd.**

Address 4th Floor, Songshan Group Factory, Baishi Village, Qiuchang Street, Huiyang District, Huizhou City, Guangdong Province, China

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.

## Contents

<b>1.</b>	<b><u>TEST STANDARDS.....</u></b>	<b><u>4</u></b>
<b>2.</b>	<b><u>SUMMARY .....</u></b>	<b><u>5</u></b>
2.1.	General Remarks	5
2.2.	Product Description	5
2.3.	Equipment Under Test	5
2.4.	Description of Test Modes and Test Frequency	5
2.5.	EUT operation mode	6
2.6.	Block Diagram of Test Setup	6
2.7.	EUT configuration	6
<b>3.</b>	<b><u>TEST ENVIRONMENT .....</u></b>	<b><u>7</u></b>
3.1.	Address of the test laboratory	7
3.2.	Test Facility	7
3.3.	Environmental conditions	7
3.4.	Test Description	7
3.5.	Statement of the measurement uncertainty	8
3.6.	Equipments Used during the Test	9
<b>4.</b>	<b><u>TEST CONDITIONS AND RESULTS .....</u></b>	<b><u>10</u></b>
4.1.	Radiated Emission	10
4.2.	Conducted disturbance	14
4.3.	Radiation Spurious Emissions FOR RECEIVERS	15
4.4.	SANNING RECEIVERS AND FREQUENCY CONVERTERS USED WITH SANNING RECEIVERS.	19
<b>5.</b>	<b><u>THE TEST PHOTOS OF THE EUT .....</u></b>	<b><u>20</u></b>
<b>6.</b>	<b><u>EXTERNAL AND INTERNAL PHOTOS OF THE EUT .....</u></b>	<b><u>21</u></b>

## **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	:	Aug. 01, 2021
Testing commenced on	:	Aug. 01, 2021
Testing concluded on	:	Aug 30, 2021

### 2.2. Product Description

Name of EUT	Walkie talkie
Model Number	T11
Power Supply	DC 4.50V from battery
Frequency Range	FRS:462.5500MHz~462.7250MHz; FRS:462.5625MHz~462.7125MHz; FRS:467.5625MHz~467.7125MHz
Rate Power	0.5W
Modulation Type	FM
Channel Separation	12.5KHz
Antenna Type	Integral antenna
Antennal Gain	1.00dBi
Sample ID:	GRCTR210802002-02-1#(Engineer sample) GRCTR210802002-02 -2#(Normal sample)

### 2.3. Equipment Under Test

#### Power supply system utilised

Power supply voltage	:	<input type="radio"/> 120V / 60 Hz	<input type="radio"/> 230V / 50Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 4.50V

### 2.4. Description of Test Modes and Test Frequency

The EUT has been tested under typical operating condition. As, test modes selected as below by the technical parameters of the EUT:

Operation Mode No.	Modulation	Channel Separation	Condition	
	FM	12.5KHz	TX	RX
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

#### Frequency list

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	462.5625	12	467.6625
2	462.5875	13	467.6875
3	462.6125	14	467.7125
4	462.6375	15	462.5500
5	462.6625	16	462.5750
6	462.6875	17	462.6000
7	462.7125	18	462.6250
8	467.5625	19	462.6500
9	467.5875	20	462.6750
10	467.6125	21	462.7000
11	467.6375	22	462.7250

Note1: In section 15.31(m), regards to the operating frequency range less than 1MHz, only one point centered in the frequency range of operation selected to measure.

Note2: The line display in grey was the channel selected for test.

## 2.5. EUT operation mode

Operation mode	
Mode 1	Scanning mode
Mode 2	Scanning stopped/Receiving at CH4
Mode 3	Scanning stopped/Receiving at CH11
Mode 4	Scanning stopped/Receiving at CH19

1. ■ is operation mode.
2. Pre-scan above all test mode, found below test mode which it was worse case mode.

Test item	Test mode (Worse case mode)
Conducted emission	Mode 1
Radiated emission	Mode 1
Radioation Spurious Emissions for receivers	Mode 2
Scanning receivers and frequency converters used with scanning receivers	Mode 2, Mode3, Mode4

## 2.6. Block Diagram of Test Setup



## 2.7. EUT configuration

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

○ - supplied by the manufacturer

○ - Supplied by the lab

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### 3. TEST ENVIRONMENT

#### 3.1. Address of the test laboratory

Shenzhen GUOREN Certification Technology Service Co., Ltd.  
101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street,  
Guangming District, Shenzhen, China

#### 3.2. Test Facility

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

**FCC-Registration No.: 920798    Designation Number: CN1304**

Shenzhen GUOREN Certification Technology Service 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.: 6202.01**

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

**ISED#: 27264    CAB identifier: CN0115**

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed by Innovation, Science and Economic Development Canada 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:

Radiated Emission:

Temperature:	25 ° C
Humidity:	45 %
Atmospheric pressure:	950-1050mbar

#### 3.4. Test Description

Test item	FCC Rules	Result
Radiated Emission	47 CFR FCC Part 15.107	PASS
Conducted Disturbance	47 CFR FCC Part 15.109	N/A
Antenna Conducted Power for receivers	47 CFR FCC Part 15.111	PASS
Scanning receivers and frequency converters used with scanning receivers	47 CFR FCC Part 15.121(b)	PASS

Remark: N/A means "not applicable".

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 GUOREN Certification Technology Service 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 GUOREN Certification Technology Service Co., Ltd.:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24dB	(1)
Conducted Disturbance	0.15~30MHz	3.12dB	(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

Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	GRCTEE009	2020/11/3	2021/11/2
LISN	R&S	ENV216	GRCTEE010	2020/11/3	2021/11/2
EMI Test Receiver	R&S	ESPI	GRCTEE017	2020/11/3	2021/11/2
EMI Test Receiver	R&S	ESCI	GRCTEE008	2020/11/3	2021/11/2
Spectrum Analyzer	Agilent	N9020A	GRCTEE002	2020/11/3	2021/11/2
Spectrum Analyzer	R&S	FSP	GRCTEE003	2020/11/19	2021/11/18
Vector Signal generator	Agilent	N5181A	GRCTEE007	2020/11/3	2021/11/2
Analog Signal Generator	R&S	SML03	GRCTEE006	2020/11/3	2021/11/2
Universal Radio Communication	CMW500	R&S	GRCTEE001	2020/11/3	2021/11/2
Climate Chamber	QIYA	LCD-9530	GRCTES016	2020/11/1	2021/10/31
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	GRCTEE018	2020/10/25	2023/10/24
Horn Antenna	Schwarzbeck	BBHA 9120D	GRCTEE019	2020/10/25	2023/10/24
Loop Antenna	Zhinan	ZN30900C	GRCTEE020	2020/10/25	2023/10/24
Horn Antenna	Beijing Hangwei Dayang	OBH100400	GRCTEE049	2021/1/18	2024/1/17
Amplifier	Schwarzbeck	BBV 9745	GRCTEE021	2021/1/18	2022/1/17
Amplifier	Taiwan chengyi	EMC051845B	GRCTEE022	2020/11/19	2021/11/18
Temperature/Humidity Meter	Huaguan	HG-308	GRCTES037	2020/11/1	2021/10/31
Directional coupler	NARDA	4226-10	GRCTEE004	2020/11/3	2021/11/2
High-Pass Filter	XingBo	XBLBQ-GTA18	GRCTEE053	2020/11/3	2021/11/2
High-Pass Filter	XingBo	XBLBQ-GTA27	GRCTEE054	2020/11/3	2021/11/2
Automated filter bank	Tonscend	JS0806-F	GRCTEE055	2020/11/3	2021/11/2
EMI Test Software	ROHDE & SCHWARZ	ESK1-V1.71	GRCTEE060	N/A	N/A
EMI Test Software	Fera	EZ-EMC	GRCTEE061	N/A	N/A

Note: The Cal.Interval was one year.

## 4. TEST CONDITIONS AND RESULTS

### 4.1. Radiated Emission

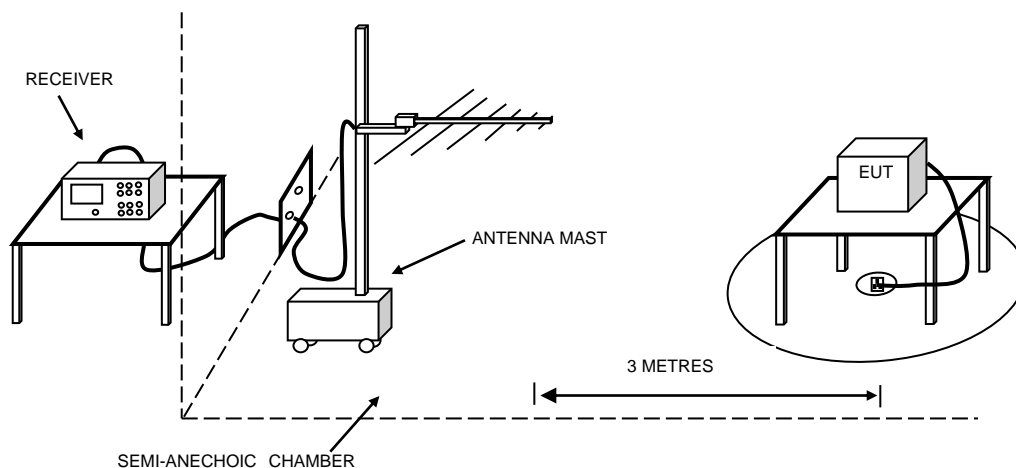
#### 4.1.1. LIMITS OF DISTURBANCE (Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB $\mu$ V/m)
30 ~ 88	3	40
88~216	3	43.5
216 ~ 960	3	46
960 ~1000	3	54

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



#### 4.1.3. TEST PROCEDURE

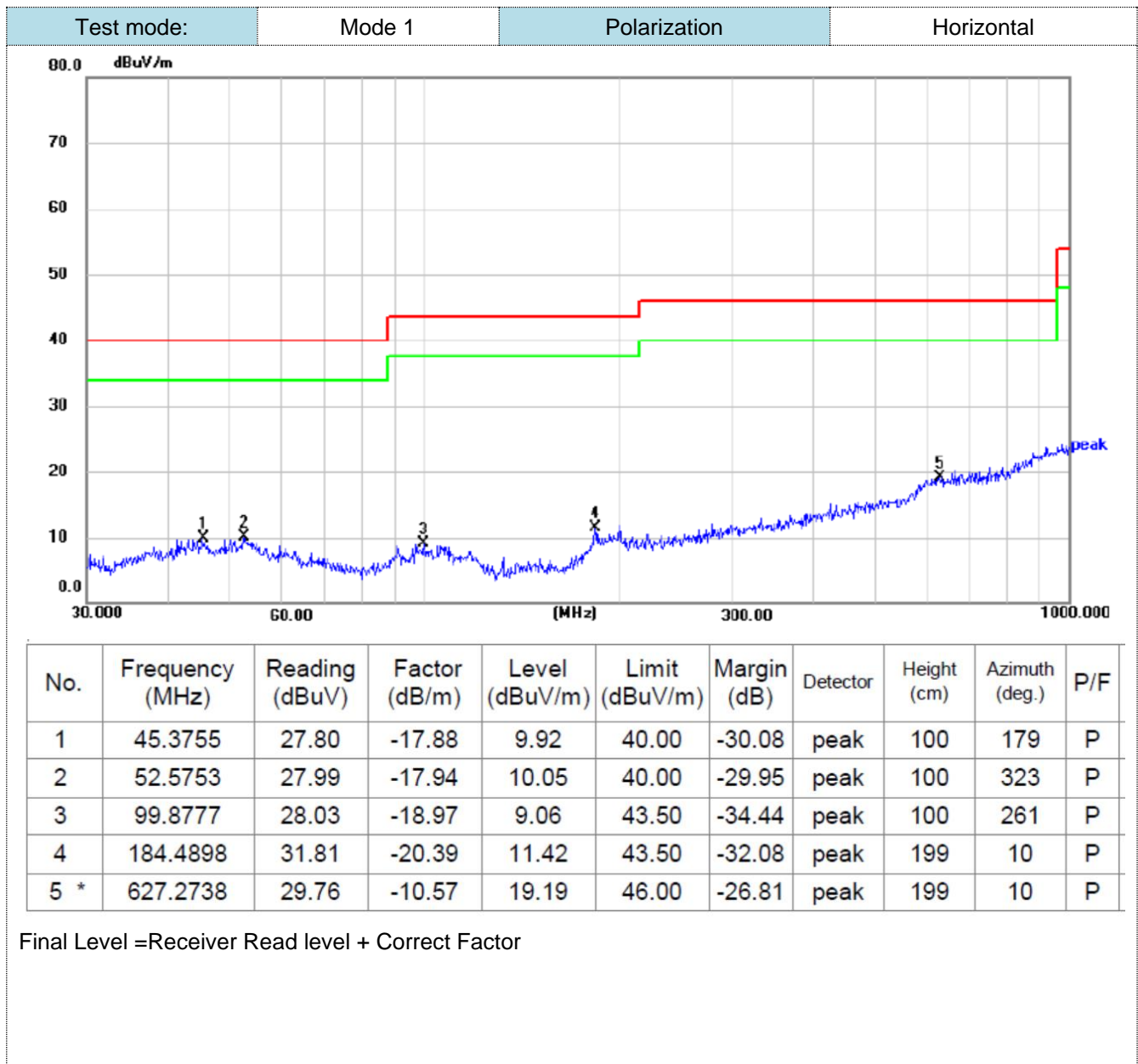
EUT is tested in Semi-Anechoic Chamber. EUT is placed on a nonmetal table which is 0.8 meter above a grounded turntable. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level. EUT is set 3 meters away from the center of receiving antenna. The antenna can move up 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.

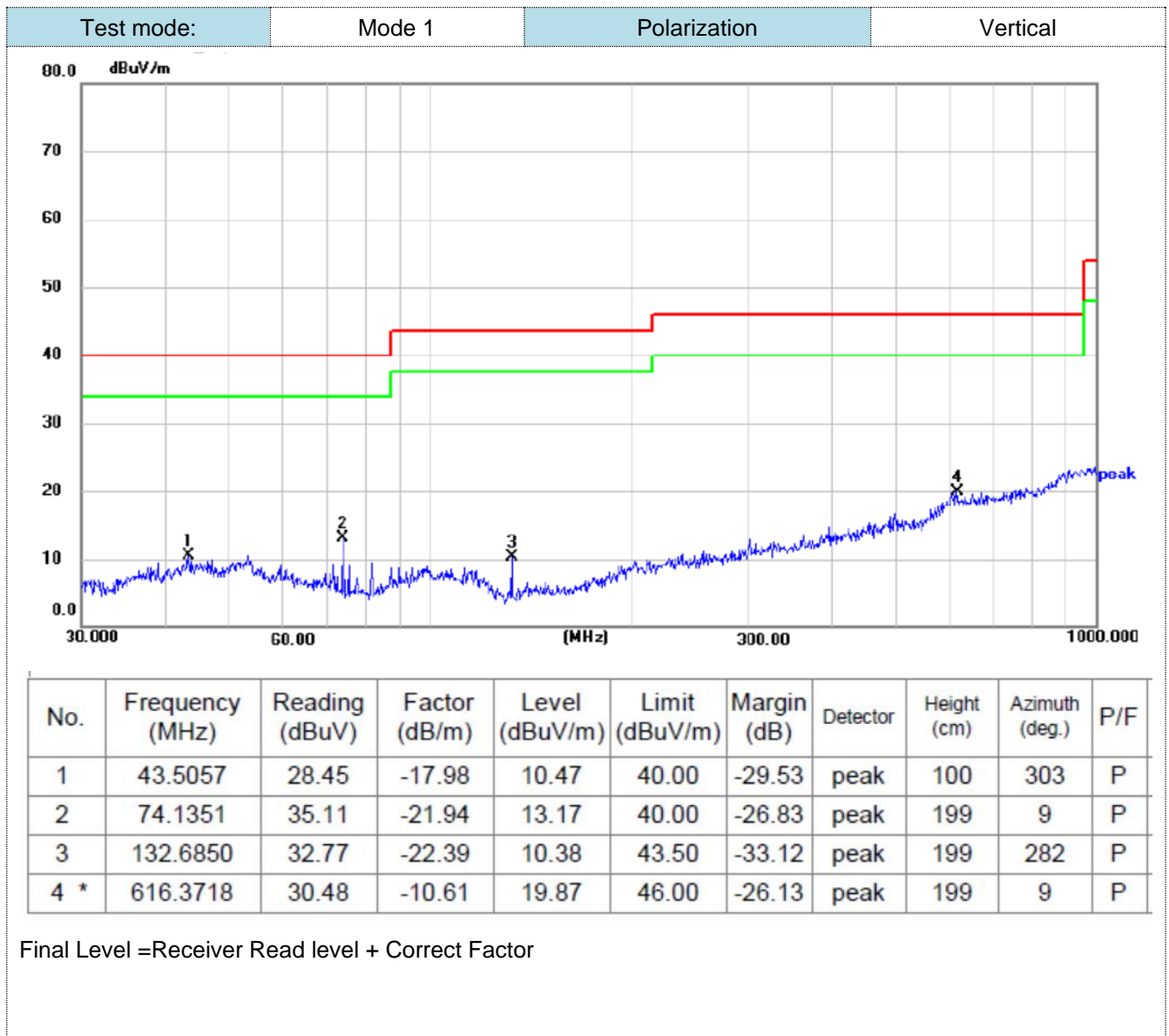
#### 4.1.4. CLIMATIC CONDITIONS

- ambient temperature : 24 °C
- relative humidity: 48%
- atmospheric pressure: 960 mbar

#### 4.1.5. TEST RESULTS

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa





Test mode:		Mode 1		Polarization		Horizontal	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
1152.16	63.45	-3.64	59.81	74	-14.19	peak	
1152.16	45.57	-3.64	41.93	54	-12.07	AVG	
3708.31	58.32	-0.95	57.37	74	-16.63	peak	
3708.31	44.95	-0.95	44	54	-10	AVG	
---	---	---	---	---	---	---	
---	---	---	---	---	---	---	
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

Test mode:		Mode 1	Polarization		Vertical	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1152.16	61.85	-3.64	58.21	74	-15.79	peak
1152.16	46.73	-3.64	43.09	54	-10.91	AVG
3708.31	57.49	-0.95	56.54	74	-17.46	peak
3708.31	43.67	-0.95	42.72	54	-11.28	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Notes:

1). Measuring frequencies from 9 KHz~5<sup>th</sup> harmonic

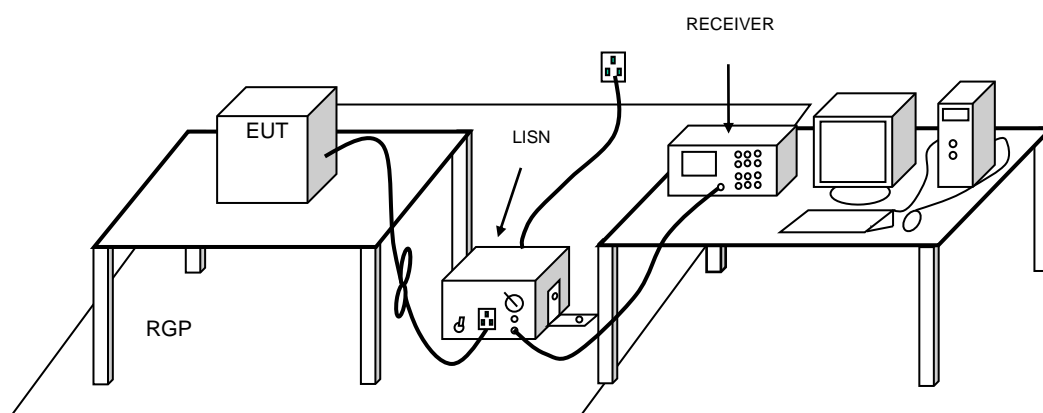
## 4.2. Conducted disturbance

### 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.

### 4.2.4. CLIMATIC CONDITIONS

- ambient temperature : 25 °C
- relative humidity: 52%
- atmospheric pressure: 960 mbar

### 4.2.5. TEST RESULTS

**Note :** The EUT is powered by Battery, So this test item is not applicable for the EUT.

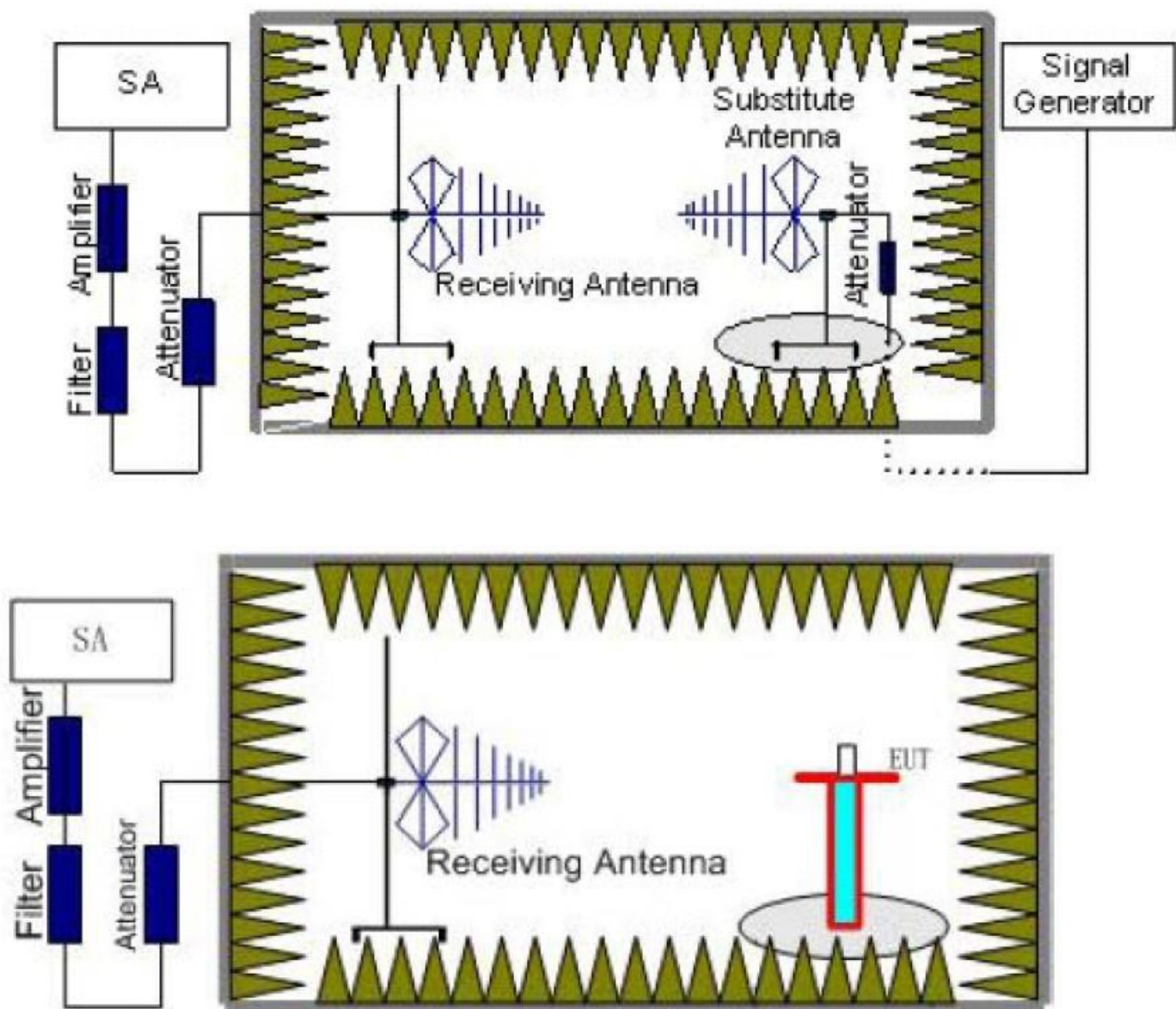
### 4.3. Radiation Spurious Emissions FOR RECEIVERS

#### 4.3.1. LIMITS

The antenna power of the receiver as defined in §15.111 shall not exceed the values given in the following tables

Frequency Range	9 KHz to 2GHz
Limit	2.0 nW (-57 dBm )

#### 4.3.2. TEST CONFIGURATION



#### 4.3.3. TEST PROCEDURE

- EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all test transmit frequencies were measured with peak detector.
- A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same

power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.

- c. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum 100 kHz below 1GHz and 1MHz above 1GHz, Sweep from 30MHz to the 10th harmonic of the fundamental frequency; and recorded the level of the concerned spurious emission point as ( $P_r$ ).
- d. The EUT then replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization. The measurement results are obtained as described below:

$$\text{Power}_{(EIRP)} = P_{Mea} - P_{cl} + G_a$$

Where;

$P_{Mea}$  is the recorded signal generator level

$P_{cl}$  is the cable loss connect between instruments

$G_a$  Substitution Antenna Gain

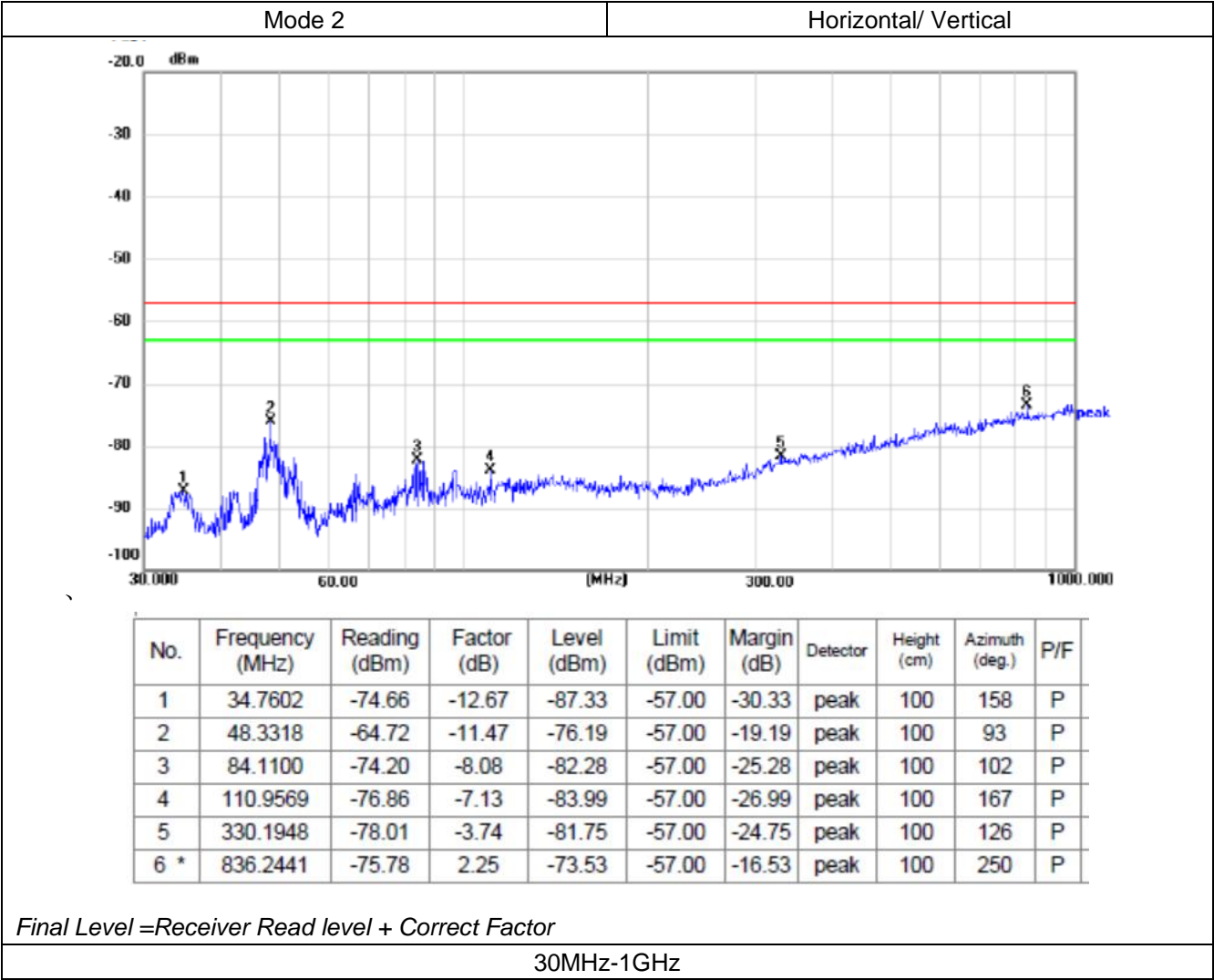
- e. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- f. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dBi}$ .
- g. Test site anechoic chamber refer to ANSI C63.

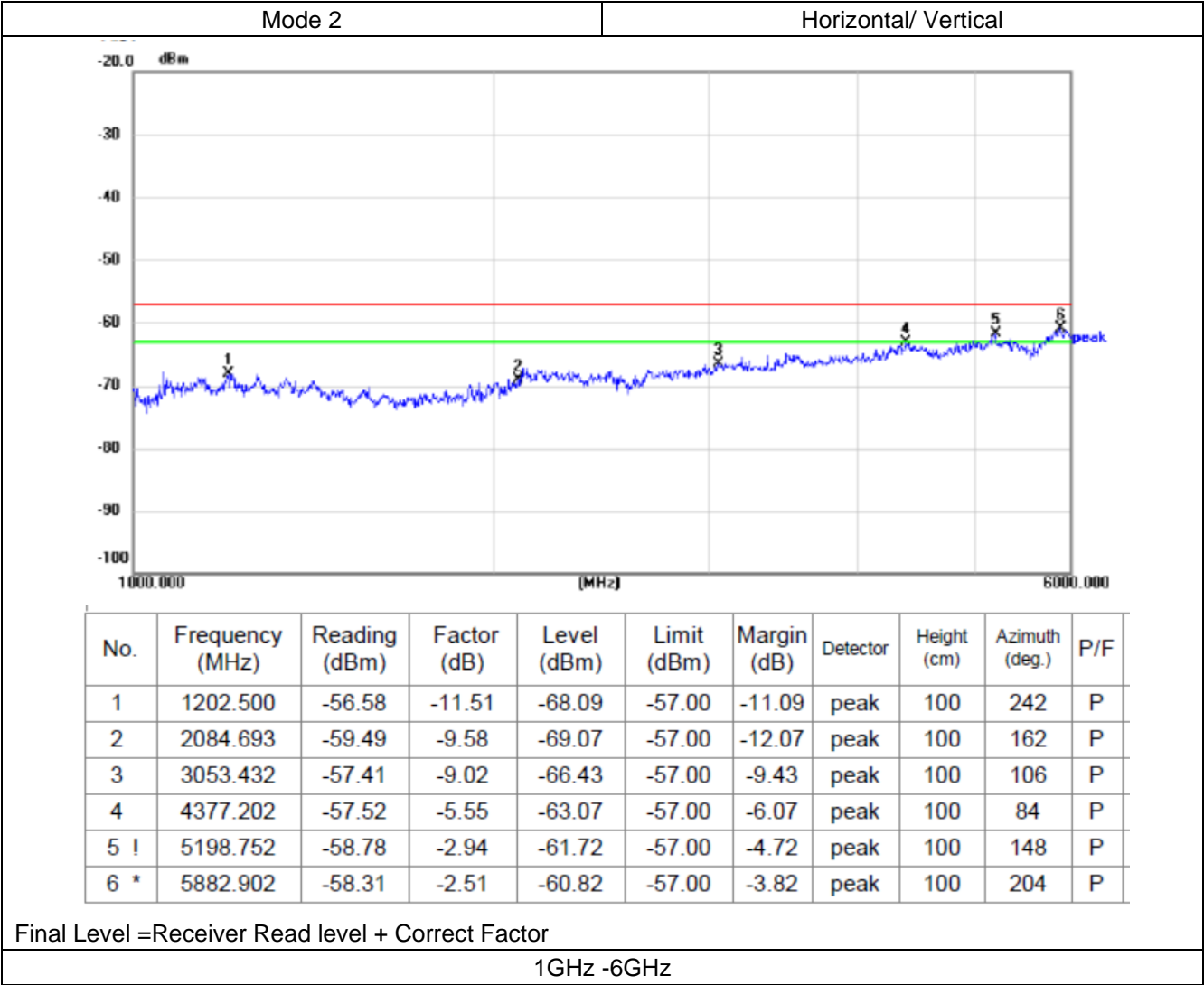
#### 4.3.4. CLIMATIC CONDITIONS

- ambient temperature : 25 °C
- relative humidity: 52%
- atmospheric pressure: 960 mbar

#### 4.3.5. TEST RESULTS





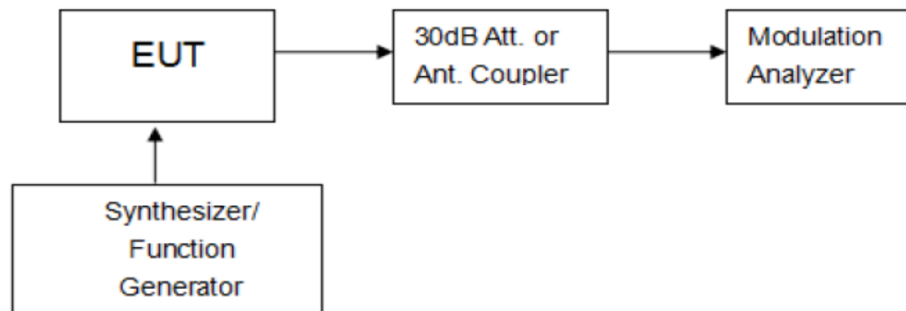


#### 4.4. SANNING RECEIVERS AND FREQUENCY CONVERTERS USED WITH SANNING RECEIVERS.

##### 4.4.1. LIMITS

Except as provided in paragraph (c) of this section, scanning receivers shall reject any signals from the Cellular Radiotelephone Service frequency bands that are 38 dB or lower based upon a 12 dB SINAD measurement, which is considered the threshold where a signal can be clearly discerned from any interference that may be present.

##### 4.4.2. TEST CONFIGURATION



##### 4.4.3. TEST PROCEDURE

Please review the FCC Part 15.121 b section requirements to meet the testing process

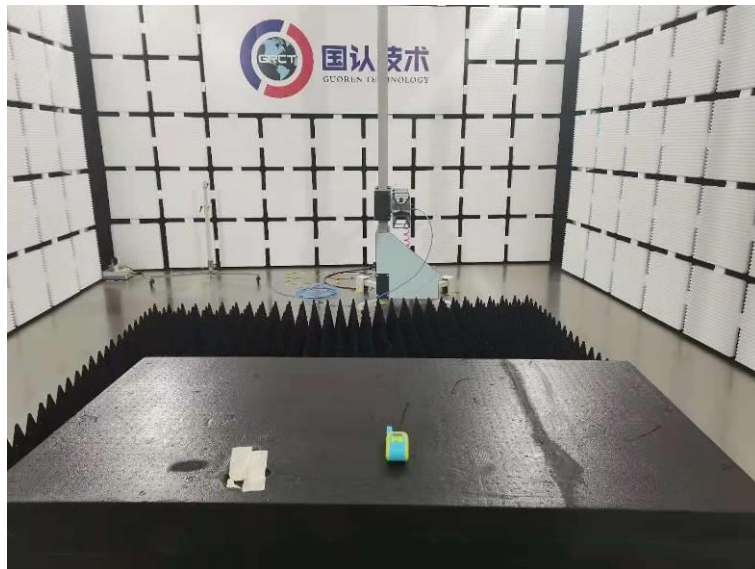
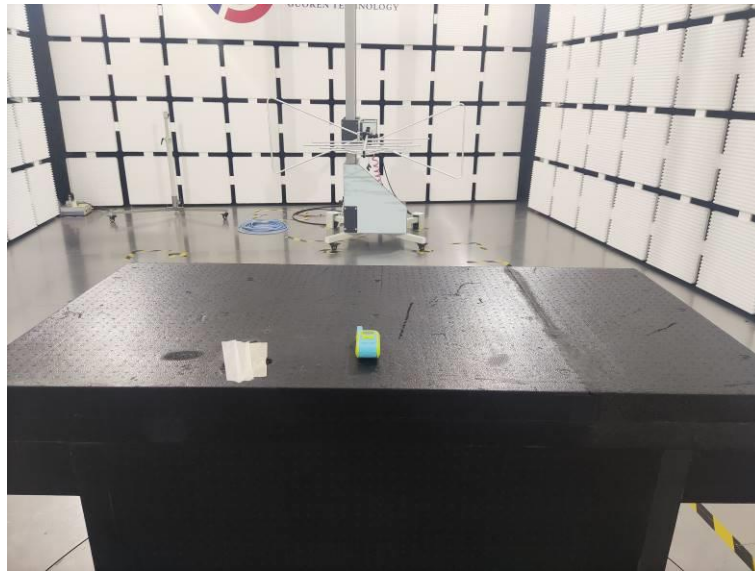
##### 4.4.4. CLIMATIC CONDITIONS

- ambient temperature : 25 °C
- relative humidity: 52%
- atmospheric pressure: 960 mbar

##### 4.4.5. TEST RESULTS

Modulation	Channel	Measurement Result (dB)	Limit(dB)	Result
FM	CH4	43	>38	Pass
	CH11	45	>38	Pass
	CH19	42	>38	Pass

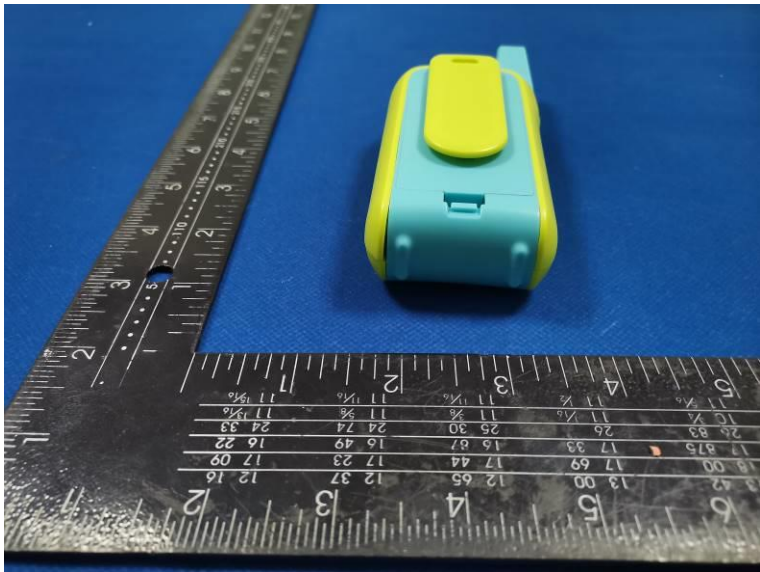
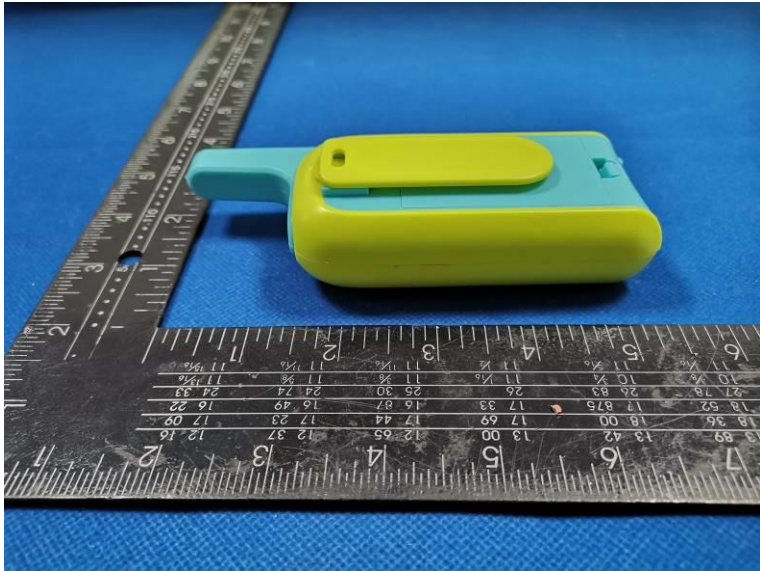
## **5. The Test Photos of the EUT**

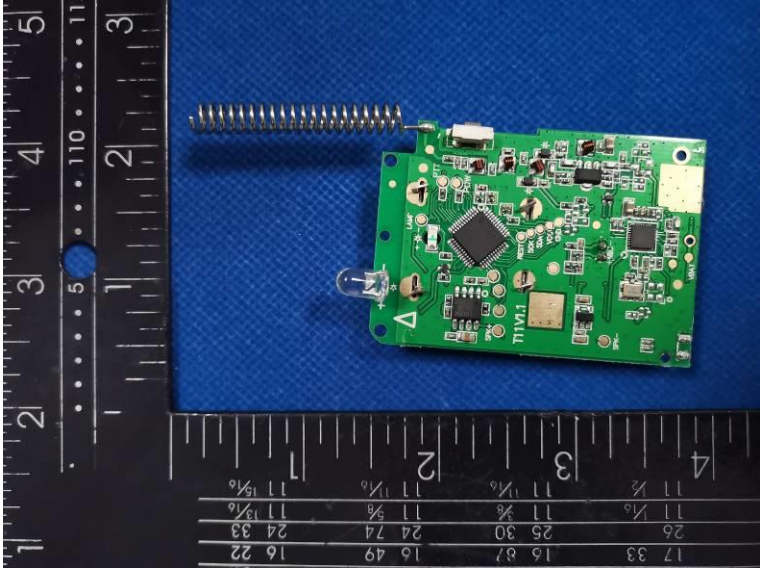
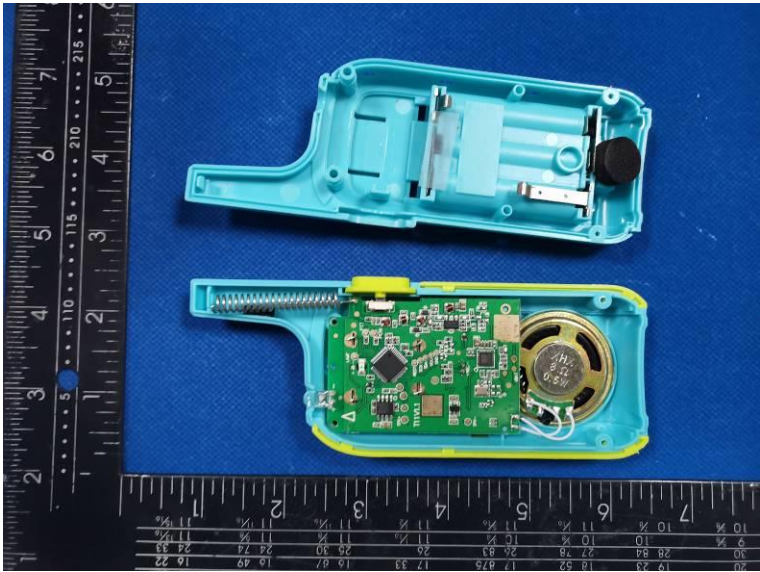


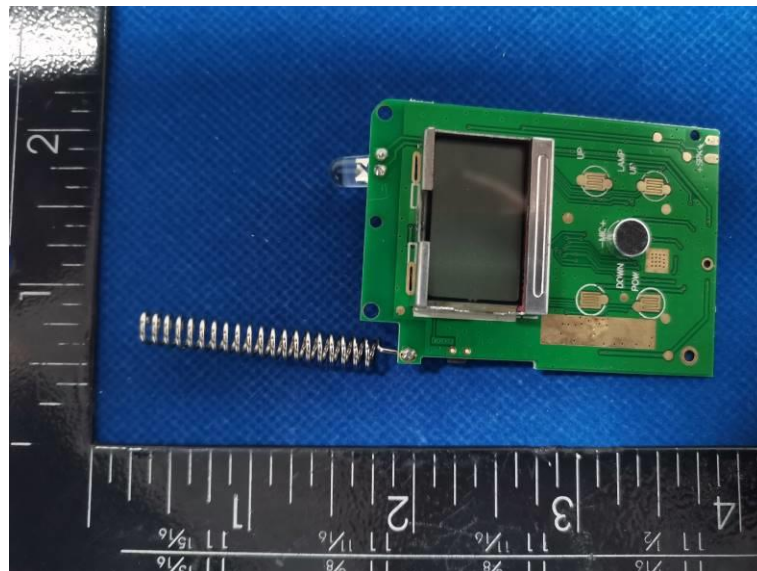
6. External and Internal Photos of the EUT











.....End of Report.....