



FCC TEST REPORT

For

Fujian EastWest Lifewit Technology Co., LTD

Wireless microphone

Test Model: T7106

Prepared for : Fujian EastWest Lifewit Technology Co., LTD
Address : Rm 1201-1205, Bld 18, 2nd Phase of Innovation Park, no.7,
Wulongjiang Mid-Ave, Fuzhou High-tech Zone, Fuzhou, Fujian
Province

Prepared by : 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
Tel : (+86)755-82591330
Fax : (+86)755-82591332
Web : www.LCS-cert.com
Mail : webmaster@LCS-cert.com

Date of receipt of test sample : October 08, 2022
Number of tested samples : 2
Sample No : A092722173-1, A092722173-2
Serial number : Prototype
Date of Test : October 08, 2022 ~ November 08, 2022
Date of Report : November 09, 2022



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity



FCC TEST REPORT
FCC CFR 47 PART 15 C(15.236)

Report Reference No. : LCSA092722173EA

Date of Issue : November 09, 2022

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 : Fujian EastWest Lifewit Technology Co., LTD

Address : Rm 1201-1205, Bld 18, 2nd Phase of Innovation Park, no.7, Wulongjiang Mid-Ave, Fuzhou High-tech Zone, Fuzhou, Fujian Province

Test Specification

Standard : FCC CFR 47 PART 15 C(15.236) / ANSI C63.10: 2013

Test Report Form No. : LCSEMC-1.0

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF : Dated 2019-03

Shenzhen LCS Compliance Testing Laboratory Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen LCS Compliance Testing Laboratory Ltd. is acknowledged as copyright owner and source of the material.

EUT Description. : Wireless microphone

Trade Mark : N/A

Test Model. : T7106

Ratings : DC 3.0V by 2*AAA Batteries

Result : Positive

Compiled by:

Li Huan signature

Li Huan/ Administrator

Supervised by:

Cary Luo signature

Cary Luo/ Technique principal

Approved by:

Gavin Liang signature

Gavin Liang/ Manager





FCC -- TEST REPORT

| | |
|--|---|
| Test Report No. : LCSA092722173EA | <u>November 09, 2022</u> Date of issue |
|--|---|

| | |
|--------------------------|---|
| Test Model..... | : T7106 |
| EUT..... | : Wireless microphone |
| Applicant..... | : Fujian EastWest Lifewit Technology Co., LTD |
| Address..... | : Rm 1201-1205, Bld 18, 2nd Phase of Innovation Park, no.7, Wulongjiang Mid-Ave, Fuzhou High-tech Zone, Fuzhou, Fujian Province |
| Telephone..... | : / |
| Fax..... | : / |
| Manufacturer..... | : Fujian EastWest Lifewit Technology Co., LTD |
| Address..... | : Rm 1201-1205, Bld 18, 2nd Phase of Innovation Park, no.7, Wulongjiang Mid-Ave, Fuzhou High-tech Zone, Fuzhou, Fujian Province |
| Telephone..... | : / |
| Fax..... | : / |
| Factory..... | : Guangzhou Jie Li Electron Co., Ltd. |
| Address..... | : No.5, Xinke Kejia Yuanxing Rd., Baiyun District, Guangzhou. |
| Telephone..... | : / |
| Fax..... | : / |

| | |
|--------------------|-----------------|
| Test Result | Positive |
|--------------------|-----------------|

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.





Revision History

| Revision | Issue Date | Revision Content | Revised By |
|----------|-------------------|------------------|------------|
| 000 | November 09, 2022 | Initial Issue | -- |
| | | | |
| | | | |





TABLE OF CONTENTS

- 1. GENERAL INFORMATION 6**
 - 1.1. DESCRIPTION OF DEVICE (EUT) 6
 - 1.2. HOST SYSTEM CONFIGURATION LIST AND DETAILS 6
 - 1.3. EXTERNAL I/O CABLE 6
 - 1.4. DESCRIPTION OF TEST FACILITY 6
 - 1.5. STATEMENT OF THE MEASUREMENT UNCERTAINTY 7
 - 1.6. MEASUREMENT UNCERTAINTY 7
 - 1.7. DESCRIPTION OF TEST MODES 7
- 2. TEST METHODOLOGY 8**
 - 2.1. EUT CONFIGURATION 8
 - 2.2. EUT EXERCISE 8
 - 2.3. GENERAL TEST PROCEDURES 8
- 3. SYSTEM TEST CONFIGURATION 9**
 - 3.1. JUSTIFICATION 9
 - 3.2. EUT EXERCISE SOFTWARE 9
 - 3.3. SPECIAL ACCESSORIES 9
 - 3.4. BLOCK DIAGRAM/SCHEMATICS 9
 - 3.5. EQUIPMENT MODIFICATIONS 9
 - 3.6. TEST SETUP 9
- 4. SUMMARY OF TEST RESULTS 10**
- 5. TEST RESULT 11**
 - 5.1 MAXIMUM RADIATED POWER 11
 - 5.2 PERMITTED RANGE OF OPERATING FREQUENCIES AND OCCUPIED CHANNEL BANDWIDTH 14
 - 5.3 FREQUENCY TOLERANCE 16
 - 5.4 NECESSARY BANDWIDTH 17
 - 5.5. SPURIOUS EMISSIONS 19
 - 5.6. AC POWER LINE CONDUCTED EMISSIONS (NOT APPLICABLE) 25
 - 5.7. ANTENNA REQUIREMENTS 26
- 6. LIST OF MEASURING EQUIPMENTS 27**
- 7. TEST SETUP PHOTOGRAPHS OF EUT 28**
- 8. EXTERIOR PHOTOGRAPHS OF THE EUT 28**
- 9. INTERIOR PHOTOGRAPHS OF THE EUT 28**





1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : Wireless microphone
 Test Model : T7106
 Power Supply : DC 3.0V by 2*AAA Batteries
 Hardware Version : V1.0-T1.0-200415/V3.0-T1.0-190903
 Software Version : U2

657.35MHz Transmitter

Frequency Range : 657.35MHz
 Channel Number : 1
 Modulation Type : FM
 Antenne Description : Internal antenna, 3dBi (Max.)

1.2. Host System Configuration List and Details

| Manufacturer | Description | Model | Serial Number | Certificate |
|--------------|-------------|-------|---------------|-------------|
| -- | -- | -- | -- | -- |

1.3. External I/O Cable

| I/O Port Description | Quantity | Cable |
|----------------------|----------|-------|
| -- | -- | -- |

1.4. Description of Test Facility

NVLAP Accreditation Code is 600167-0.
 FCC Designation Number is CN5024.
 Test Firm Registration Number: 254912
 CAB identifier is CN0071.
 CNAS Registration Number is L4595.
 Test Firm Registration Number: 254912.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.





1.5. 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 CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS 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.

1.6. Measurement Uncertainty

| Test Item | Frequency Range | Uncertainty | Note |
|------------------------|-----------------|-------------|------|
| Radiation Uncertainty | 9KHz~30MHz | ±3.10dB | (1) |
| | 30MHz~200MHz | ±2.96dB | (1) |
| | 200MHz~1000MHz | ±3.10dB | (1) |
| | 1GHz~26.5GHz | ±3.80dB | (1) |
| | 26.5GHz~40GHz | ±3.90dB | (1) |
| Conduction Uncertainty | 150kHz~30MHz | ±1.63dB | (1) |
| Power disturbance | 30MHz~300MHz | ±1.60dB | (1) |

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

1.7. Description of Test Modes

The EUT has been tested under operating condition.

This test was performed with EUT in X, Y, Z position and the worst case was found when EUT in X position.

Worst-case mode and channel used for 9 KHz-1000 MHz radiated emissions was the mode and channel with the highest output power, that was determined to be TX mode.

***Note: Using a temporary antenna connector for the EUT when conducted measurements are performed.

| Channel List and Frequency | | | |
|----------------------------|----------------|---------|----------------|
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 1 | 657.35 | -- | -- |

| Mode of Operations | Transmitting Frequency (MHz) |
|---------------------------------------|------------------------------|
| FM | 657.35 |
| For AC Power Line Conducted Emissions | |
| Test Mode | N/A |
| For Radiated Emission | |
| Test Mode | TX Mode |





2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd.

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.205, 15.207, 15.209 and 15.236 under the FCC Rules Part 15 Subpart C.

2.3. General Test Procedures

2.3.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, expiatory radiated emission measurements were made according to the requirements in Section 6.3 of ANSI C63.10-2013.





3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous transmits condition.

3.2. EUT Exercise Software

N/A

3.3. Special Accessories

N/A

3.4. Block Diagram/Schematics

Please refer to the related document.

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.





4. SUMMARY OF TEST RESULTS

| Applied Standard: FCC Part 15 Subpart C | | | |
|---|---|-----------|--------|
| FCC Rules | Description of Test | Result | Remark |
| §15.236(d)(1) | Maximum Radiated Power | Compliant | Note 1 |
| §15.236(b), §15.236(f)(2) | Permitted range of operating frequencies and Occupied Channel Bandwidth | Compliant | Note 1 |
| §15.236(f)(3) | Frequency Tolerance | Compliant | Note 1 |
| §15.236(g) | Necessary bandwidth | Compliant | Note 1 |
| §15.236(g) | Spurious emissions | Compliant | Note 1 |
| §15.207(a) | AC Power Line Conducted Emissions | N/A | -- |
| §15.203 | Antenna Requirements | Compliant | Note 1 |

Remark:

Note 1 --- Test results inside test report.

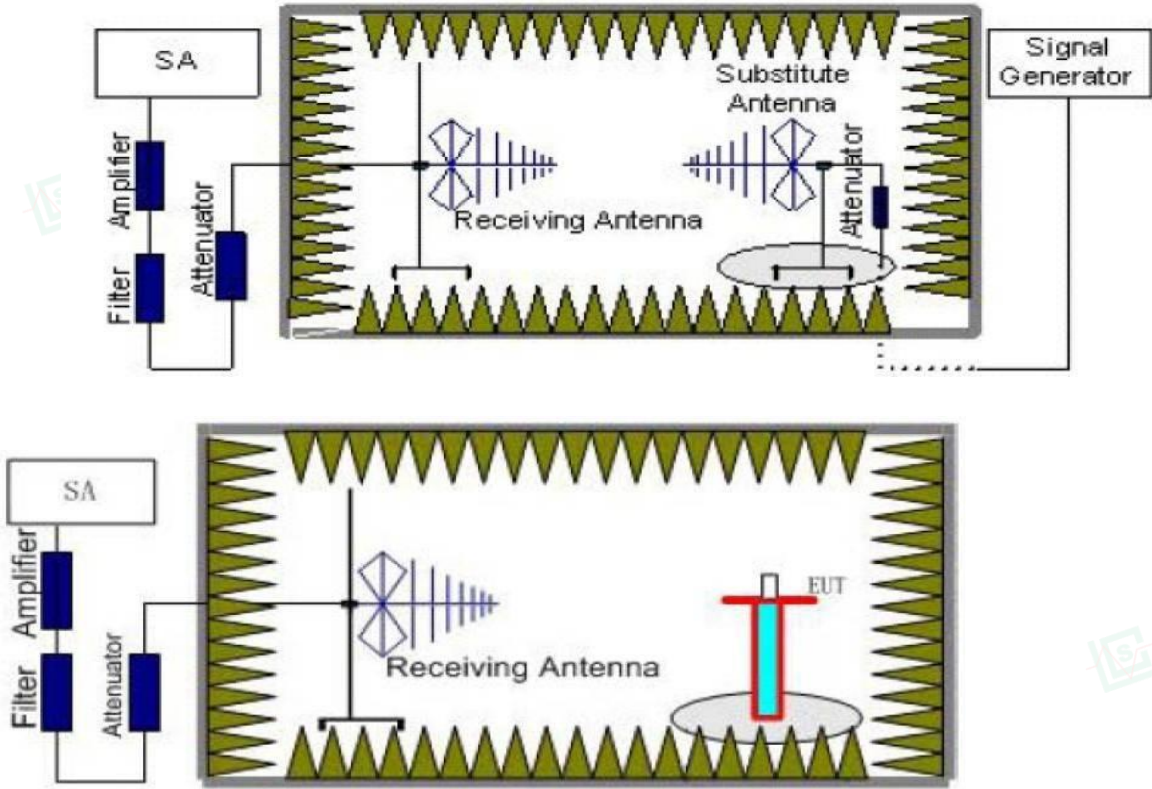




5. TEST RESULT

5.1 Maximum Radiated Power

5.1.1 Test Setup Layout



5.1.2. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.1.3 Limit

According to §15.236(d)(1), In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP. In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.





5.1.4 Test Procedure

EUT was placed on a 1.50 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 1.50 m. 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 transmit frequencies in three channels (High, Middle, Low) 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.

The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, And the maximum value of the receiver should be recorded as (P_r).

The EUT shall be 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.

A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{cl}), the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test.

The measurement results are obtained as described below:

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

This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$.





5.1.5 Test Results

| Temperature | 23.8°C | Humidity | 54.2% | | | | |
|---------------|----------|-----------------|-----------|------------|------------------|-------------------|---------|
| Test Engineer | Ling Zhu | Configurations | TX | | | | |
| Test Mode | Channel | Frequency (MHz) | PMea(dBm) | Factor(dB) | EIRP Power (dBm) | Limits EIRP [dBm] | Verdict |
| FM | 1 | 657.35 | 2.569 | 4.56 | 7.129 | 17.00 | Pass |

Remark:

1. $EIRP = P_{Mea}(dBm) + Factor$
2. $Factor = P_{Ag}(dB) + G_a(dBi) - P_{cl}(dB)$
3. $ERP = EIRP - 2.15dBi$ as EIRP by subtracting the gain of the dipole.
4. $Margin = Emission\ Level - Limit$
5. We test the H direction and V direction recorded worst case.





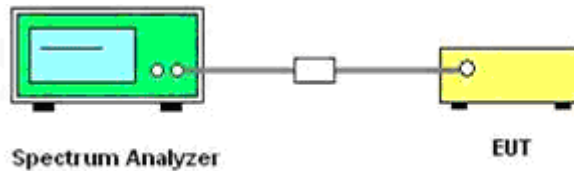
5.2 Permitted range of operating frequencies and Occupied Channel Bandwidth

5.2.1 Limit

According to §15.236(b), Operation under this section is limited to wireless microphones as defined in this section (§15.236 Operation of wireless microphones in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-698 MHz).

According to §15.236(f)(2), One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz.

5.2.2 Block Diagram of Test Setup



5.2.3 Test Procedure

The transmitter output is connected to the spectrum.

5.2.4 Test Results

| | | | |
|---------------|----------|----------------|-------|
| Temperature | 23.8°C | Humidity | 54.2% |
| Test Engineer | Ling Zhu | Configurations | TX |

99% Bandwidth

| TestMode | Channel | Frequency(MHz) | 99%Bandwidth(KHz) | Limits(KHz) | Verdict |
|----------|---------|----------------|-------------------|-------------|---------|
| FM | 1 | 657.35 | 137.77 | 200 | PASS |

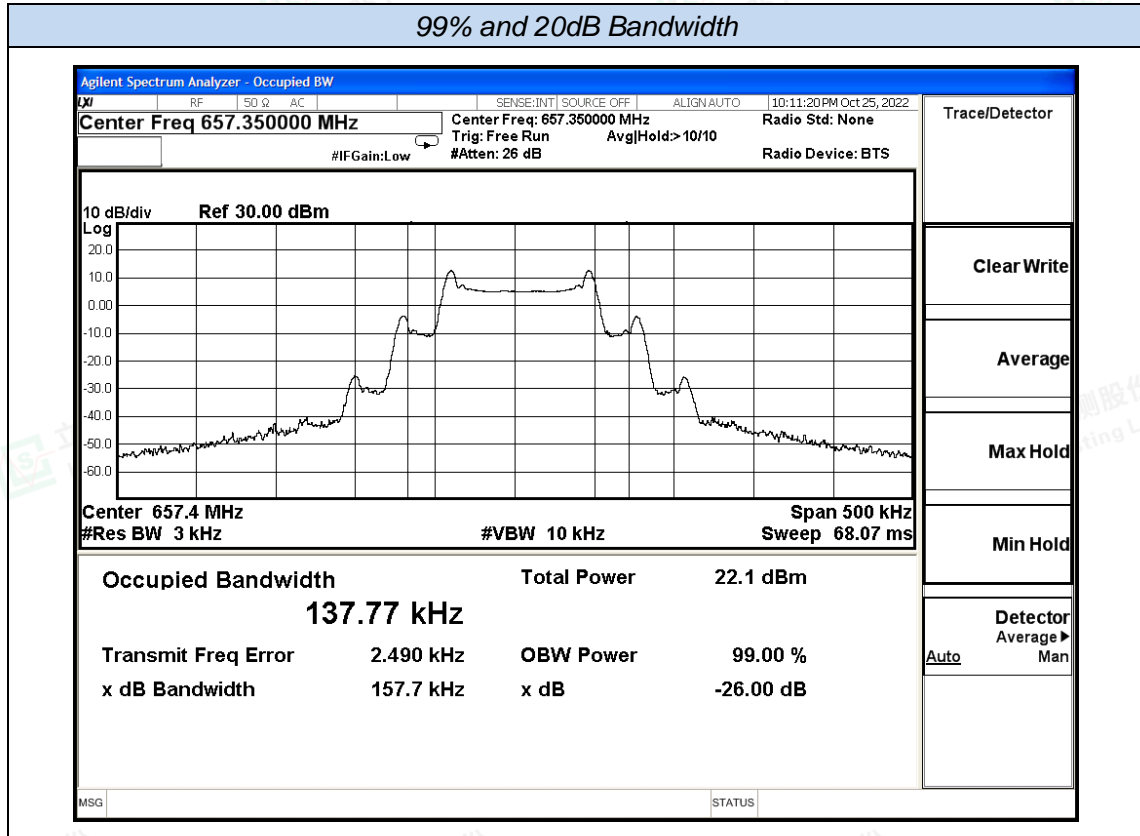
Permitted range of operating frequencies

| TestMode | Channel | Frequency(MHz) | Flower (MHz) | Fupper (MHz) | Limit (MHz) | Verdict |
|----------|---------|----------------|--------------|--------------|-------------|---------|
| FM | 1 | 657.35 | 656.68 | 657.89 | 614-698 MHz | PASS |





99% and 20dB Bandwidth



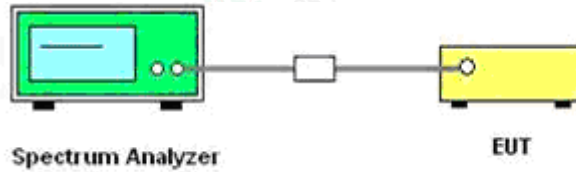


5.3 Frequency Tolerance

5.3.1 Limit

According to §15.236(f)(3), the frequency tolerance of the carrier signal shall be maintained within ±0.005% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

5.3.2 Block Diagram of Test Setup



5.3.3 Test Procedure

The transmitter output is connected to the spectrum.

5.3.4 Test Results

| | | | |
|---------------|----------|----------------|-------|
| Temperature | 23.8°C | Humidity | 54.2% |
| Test Engineer | Ling Zhu | Configurations | TX |

| Mode | Temperature (°C) | Voltage | Frequency (MHz) | Measured (MHz) | Tolerance (KHz) | Result (%) | Limit (%) |
|------|------------------|---------|-----------------|----------------|-----------------|------------|-----------|
| FM | -30 | 3V | 657.35 | 657.352 | 2.00 | 0.000304 | ±0.005 |
| FM | -20 | 3V | 657.35 | 657.354 | 4.00 | 0.000609 | ±0.005 |
| FM | -10 | 3V | 657.35 | 657.354 | 4.00 | 0.000609 | ±0.005 |
| FM | 0 | 3V | 657.35 | 657.353 | 3.00 | 0.000456 | ±0.005 |
| FM | 10 | 3V | 657.35 | 657.354 | 4.00 | 0.000609 | ±0.005 |
| FM | 20 | 3V | 657.35 | 657.352 | 2.00 | 0.000304 | ±0.005 |
| FM | 30 | 3V | 657.35 | 657.354 | 4.00 | 0.000609 | ±0.005 |
| FM | 40 | 3V | 657.35 | 657.353 | 3.00 | 0.000456 | ±0.005 |
| FM | 50 | 3V | 657.35 | 657.355 | 5.00 | 0.000761 | ±0.005 |
| FM | 20 | 2.55V | 657.35 | 657.354 | 4.00 | 0.000609 | ±0.005 |
| | | 3.45V | 657.35 | 657.352 | 2.00 | 0.000304 | ±0.005 |





5.4 Necessary bandwidth

5.4.1 Limit

According to §15.236(g), emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement.

According to §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08):

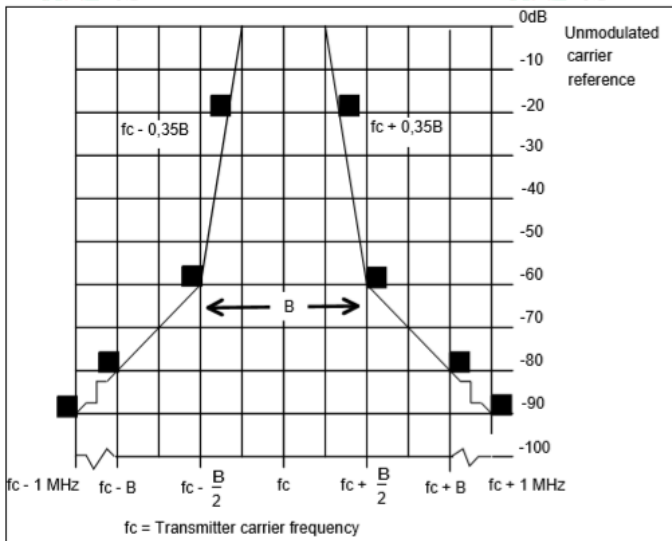


Figure 3: Spectrum mask for analogue systems in all bands

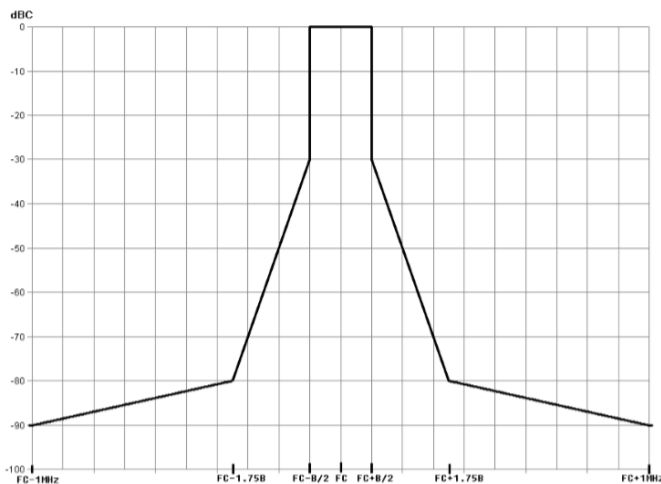


Figure 4: Spectrum mask for digital systems below 1 GHz

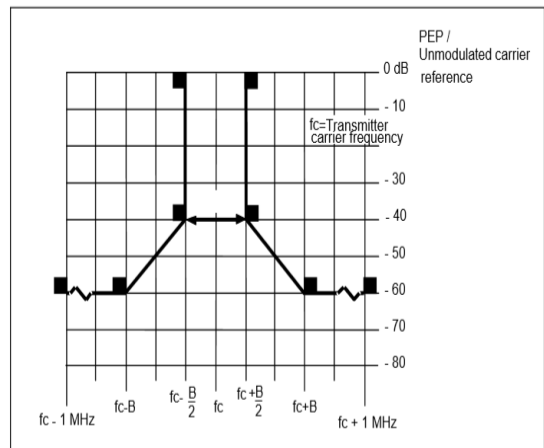
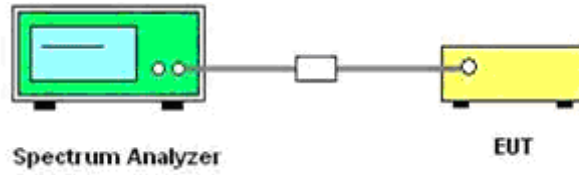


Figure 5: Spectral mask for digital systems above 1 GHz, normalized to channel bandwidth B





5.4.2 Block Diagram of Test Setup



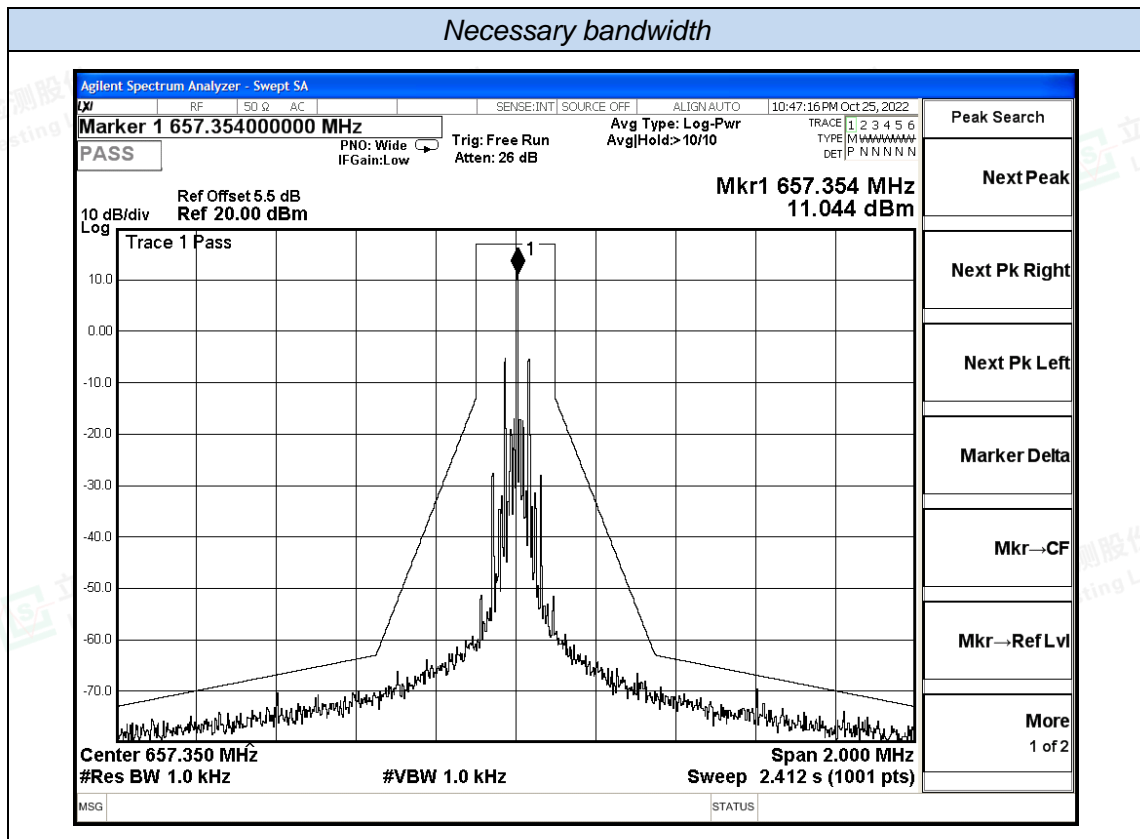
5.4.3 Test Procedure

The transmitter output is connected to the spectrum.

5.4.4 Test Results

| | | | |
|---------------|----------|----------------|-------|
| Temperature | 23.8°C | Humidity | 54.2% |
| Test Engineer | Ling Zhu | Configurations | TX |

Necessary bandwidth





5.5. Spurious emissions

5.5.1. Standard Applicable

- 1). According to §15.236 (g): Emissions outside of the band from one megahertz below to one megahertz above the carrier frequency shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

Table 3: Limits for spurious emissions

| State | Frequency | | |
|-----------|---|--------------------------------------|--------------------------------|
| | 47 MHz to 74 MHz 87,5 MHz to 137 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz | Other Frequencies below 1 000 MHz | Frequencies above 1 000 MHz |
| Operation | 4 nW | 250 nW | 1 µW |
| Standby | 2 nW | 2 nW | 20 nW |

5.5.2 Measuring Instruments and Setting

The term measuring receiver refers to either a selective voltmeter or a spectrum analyser. The bandwidth of the measuring receiver is given in table 4.

Table 4

| Frequency being measured | Measuring receiver bandwidth |
|--------------------------|------------------------------|
| 25 MHz to 30 MHz | 9 kHz to 10 kHz |
| 30 MHz to 1 000 MHz | 100 kHz to 120 kHz |
| > 1 000 MHz | 1 MHz |

5.5.3. Test Procedures

EUT was placed on a 1.50 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 1.50 m. 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 transmit frequencies in three channels (High, Middle, Low) 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.

The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, And the maximum value of the receiver should be recorded as (P_r).

The EUT shall be replaced by a substitution antenna. In the chamber, a 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.

An amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{cl}), the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test.

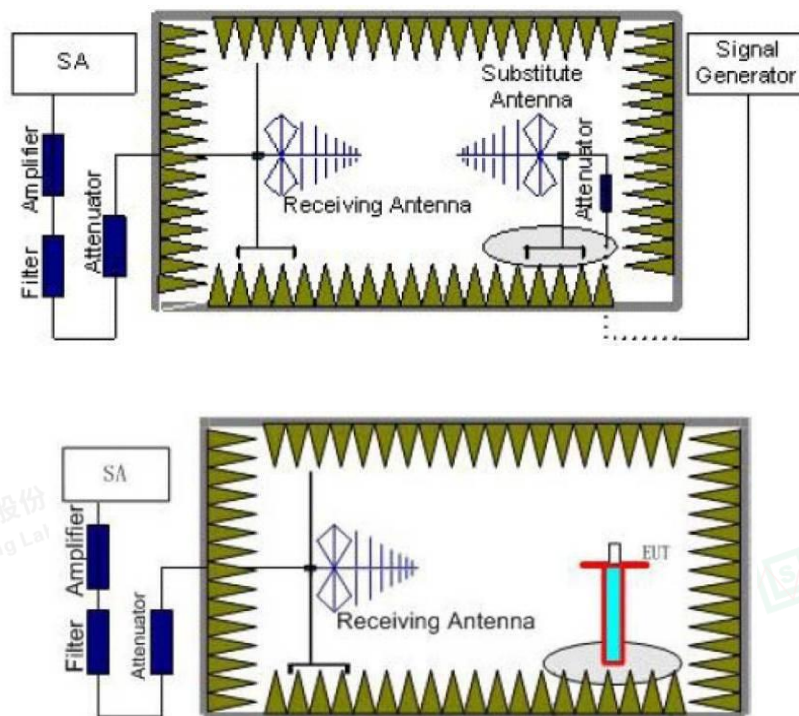
The measurement results are obtained as described below:

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

This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$.

5.5.4. Test Setup Layout



5.5.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



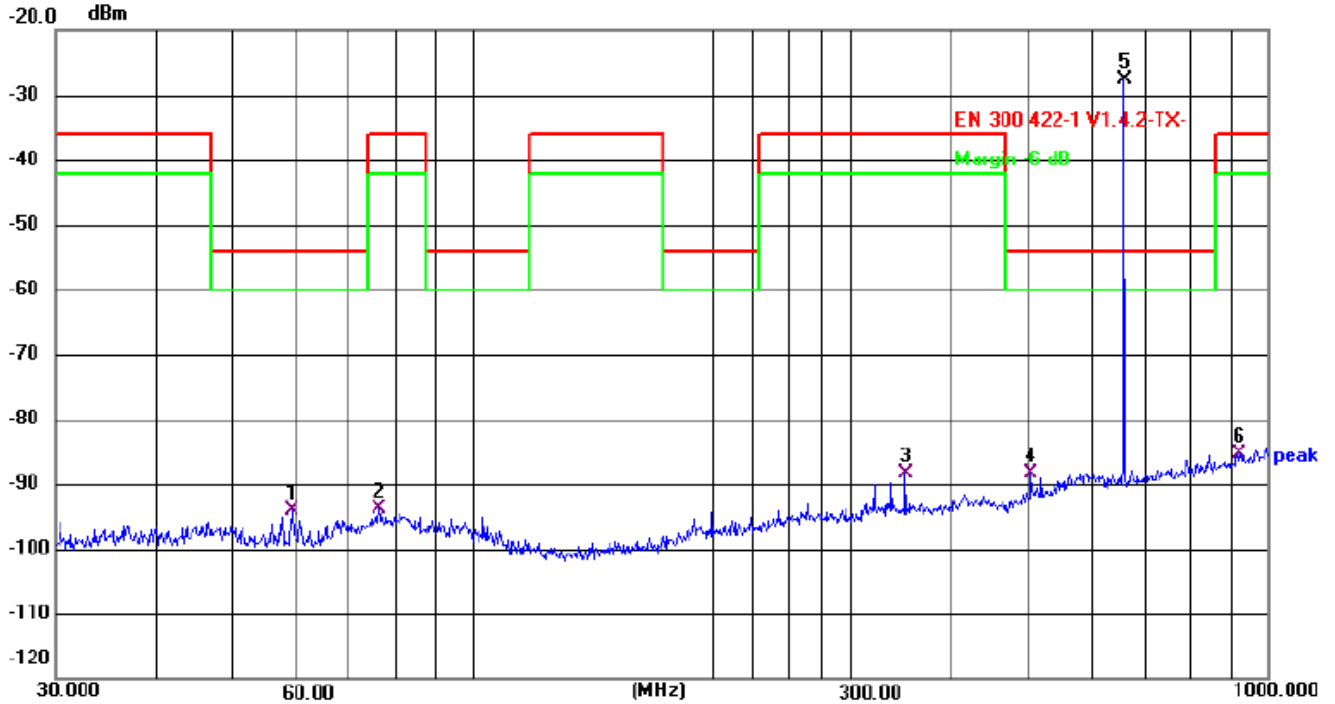


5.4.4 Test Results

When the EUT is started up, it is in the Operation Mode and has no Standby Mode.

| | | | |
|---------------|----------|----------------|-------|
| Temperature | 23.9°C | Humidity | 52.2% |
| Test Engineer | Ling Zhu | Configurations | TX |

Horizontal

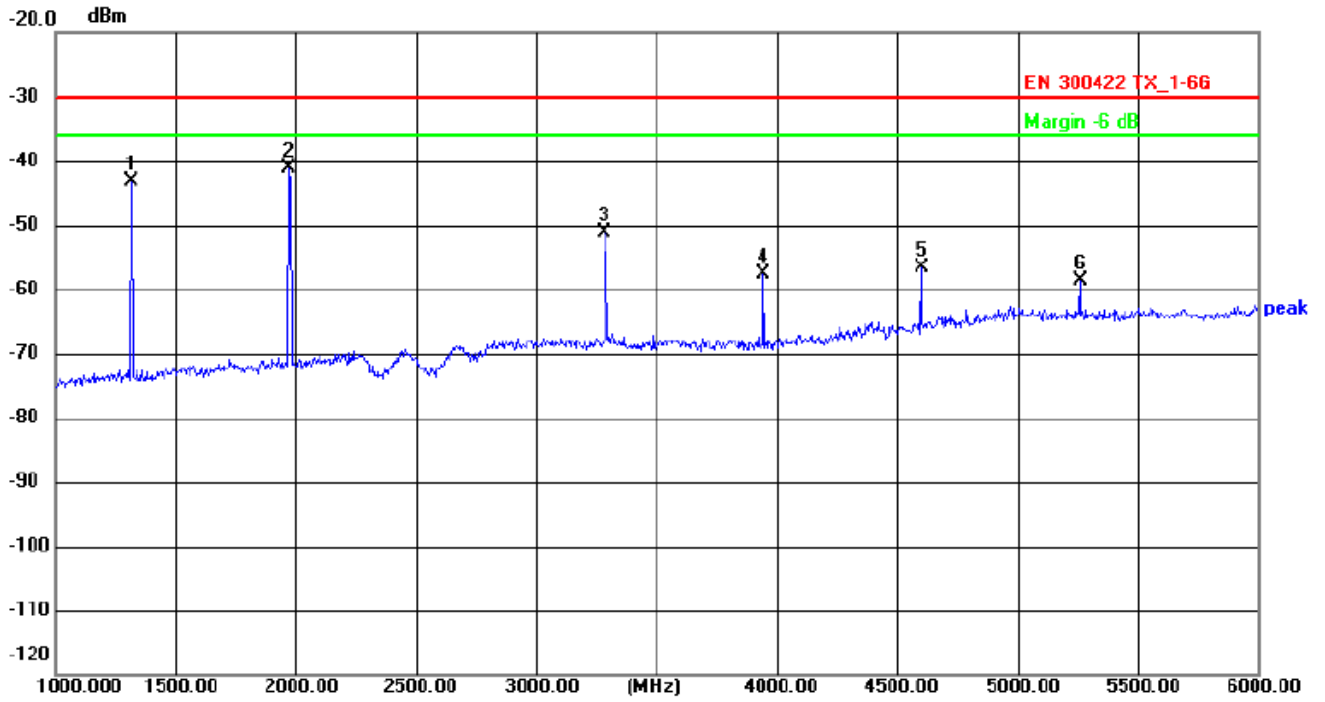


| No. | Frequency (MHz) | Reading (dBm) | Factor (dB) | Level (dBm) | Limit (dBm) | Margin (dB) | Detector |
|-----|-----------------|---------------|-------------|-------------|-------------|-------------|----------|
| 1 | 59.4405 | -75.34 | -18.75 | -94.09 | -54.00 | -40.09 | QP |
| 2 | 76.5119 | -74.13 | -19.74 | -93.87 | -36.00 | -57.87 | QP |
| 3 | 350.4767 | -73.59 | -14.87 | -88.46 | -36.00 | -52.46 | QP |
| 4 | 504.7062 | -75.18 | -13.07 | -88.25 | -54.00 | -34.25 | QP |
| 5 | 658.8361 | -16.60 | -11.04 | -27.64 | -54.00 | 26.36 | peak |
| 6 | 919.2865 | -77.31 | -8.02 | -85.33 | -36.00 | -49.33 | QP |





Horizontal

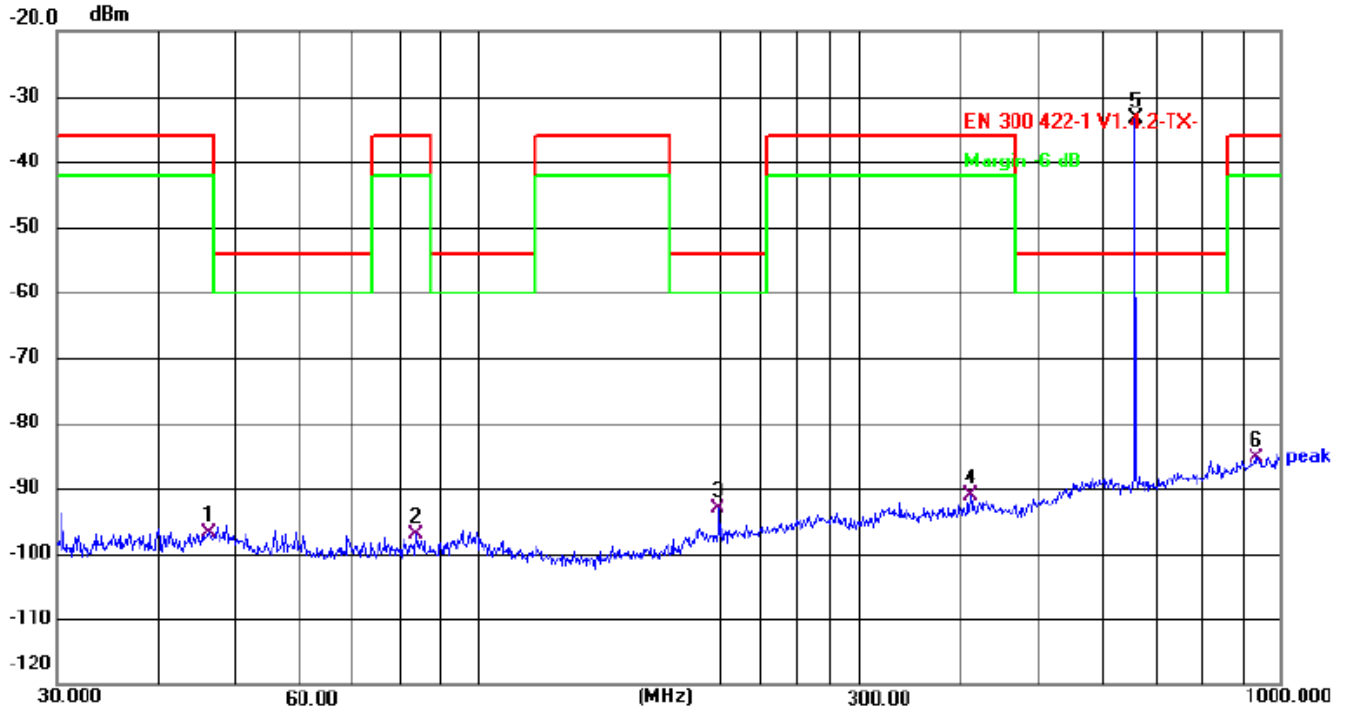


| No. | Frequency (MHz) | Reading (dBm) | Factor (dB) | Level (dBm) | Limit (dBm) | Margin (dB) | Detector |
|-----|-----------------|---------------|-------------|-------------|-------------|-------------|----------|
| 1 | 1315.000 | -27.87 | -15.24 | -43.11 | -30.00 | -13.11 | peak |
| 2 | 1970.000 | -27.78 | -13.26 | -41.04 | -30.00 | -11.04 | peak |
| 3 | 3285.000 | -41.51 | -9.49 | -51.00 | -30.00 | -21.00 | peak |
| 4 | 3945.000 | -48.91 | -8.64 | -57.55 | -30.00 | -27.55 | peak |
| 5 | 4600.000 | -50.59 | -6.09 | -56.68 | -30.00 | -26.68 | peak |
| 6 | 5260.000 | -54.95 | -3.65 | -58.60 | -30.00 | -28.60 | peak |





Vertical



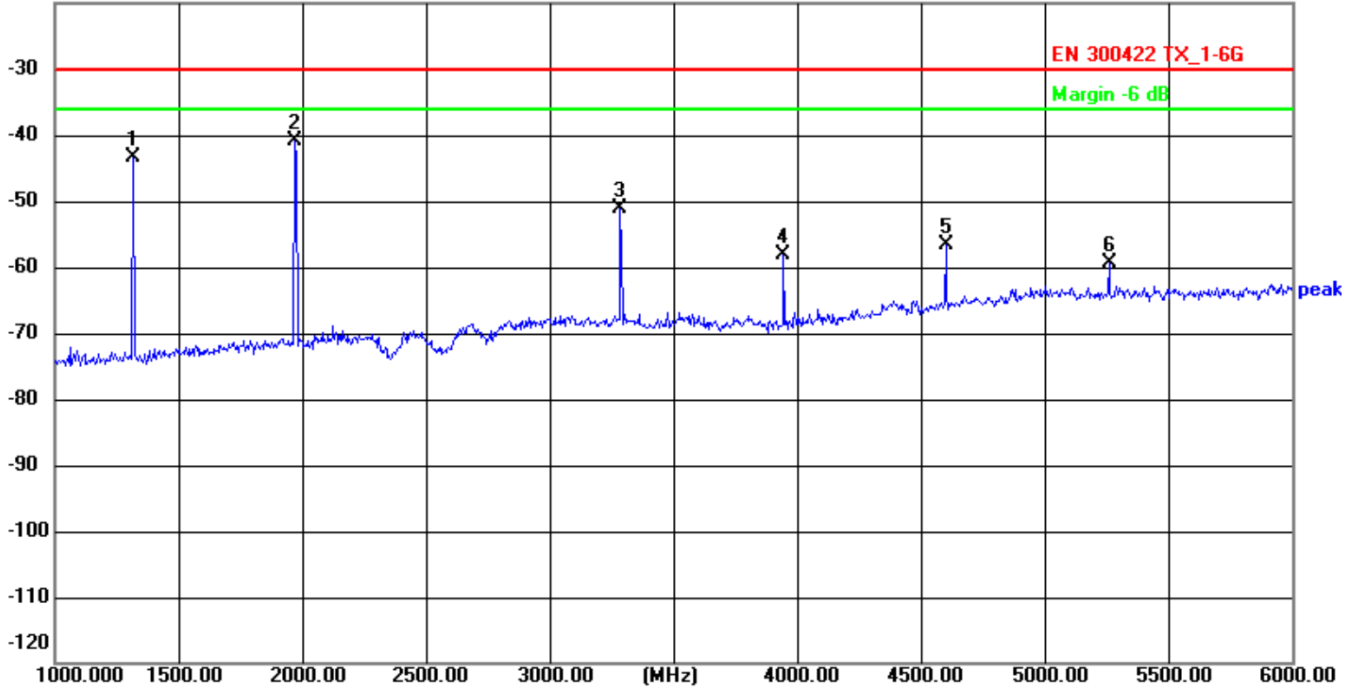
| No. | Frequency (MHz) | Reading (dBm) | Factor (dB) | Level (dBm) | Limit (dBm) | Margin (dB) | Detector |
|-----|-----------------|---------------|-------------|-------------|-------------|-------------|----------|
| 1 | 46.5030 | -79.83 | -16.94 | -96.77 | -36.00 | -60.77 | QP |
| 2 | 84.1100 | -77.73 | -19.47 | -97.20 | -36.00 | -61.20 | QP |
| 3 | 199.9855 | -75.80 | -17.39 | -93.19 | -54.00 | -39.19 | QP |
| 4 | 411.8240 | -76.76 | -14.42 | -91.18 | -36.00 | -55.18 | QP |
| 5 | 658.8361 | -22.32 | -11.04 | -33.36 | -54.00 | 20.64 | peak |
| 6 | 932.2715 | -77.27 | -8.00 | -85.27 | -36.00 | -49.27 | QP |





Vertical

-20.0 dBm



| No. | Frequency (MHz) | Reading (dBm) | Factor (dB) | Level (dBm) | Limit (dBm) | Margin (dB) | Detector |
|-----|-----------------|---------------|-------------|-------------|-------------|-------------|----------|
| 1 | 1315.000 | -28.08 | -15.24 | -43.32 | -30.00 | -13.32 | peak |
| 2 | 1970.000 | -27.65 | -13.26 | -40.91 | -30.00 | -10.91 | peak |
| 3 | 3285.000 | -41.70 | -9.49 | -51.19 | -30.00 | -21.19 | peak |
| 4 | 3945.000 | -49.36 | -8.64 | -58.00 | -30.00 | -28.00 | peak |
| 5 | 4600.000 | -50.46 | -6.09 | -56.55 | -30.00 | -26.55 | peak |
| 6 | 5260.000 | -55.62 | -3.65 | -59.27 | -30.00 | -29.27 | peak |

Remark:

1. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + P_{Ag}(dB) + G_a(dBi)$
2. $ERP = EIRP - 2.15dBi$ as EIRP by subtracting the gain of the dipole.
3. $Margin = Emission\ Level - Limit$
4. We test the H direction and V direction recorded worst case.



5.6. AC Power Line Conducted Emissions (Not Applicable)

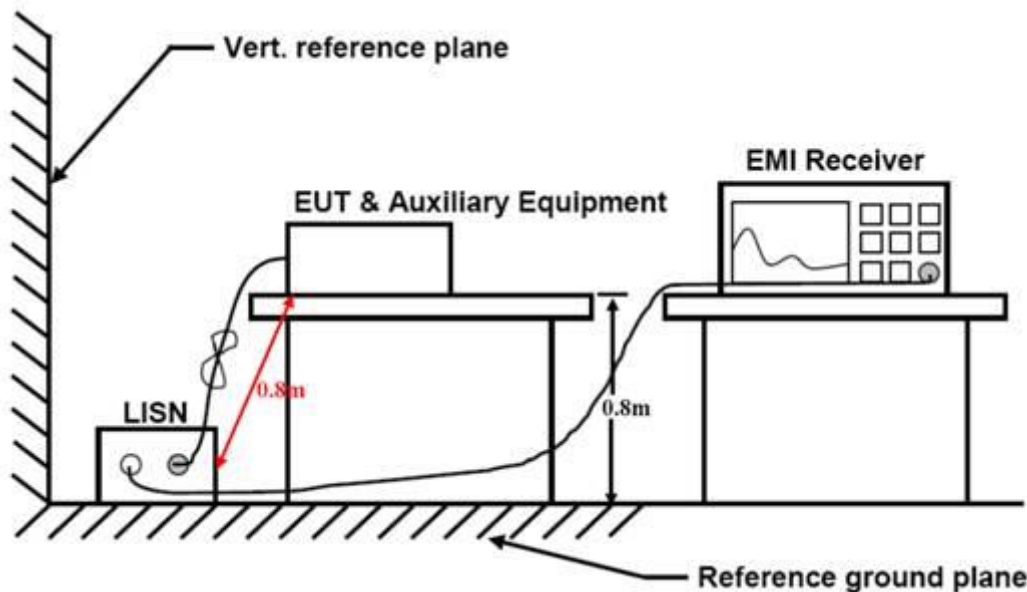
5.6.1 Standard Applicable

According to §15.207 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range are listed as follows:

| Frequency Range (MHz) | Limits (dBµV) | |
|-----------------------|---------------|----------|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

* Decreasing linearly with the logarithm of the frequency

5.6.2 Block Diagram of Test Setup



5.6.3 Test Results

Not Applicable!!

The device was powered by AA battery!





5.7. Antenna Requirements

5.7.1 Standard Applicable

According to antenna requirement of §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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be re-placed by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

And according to §15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

5.7.2 Antenna Connected Construction

5.7.2.1. Standard Applicable

According to § 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.

5.7.2.2. Antenna Connector Construction

The directional gains of antenna used for transmitting is 3dBi (Max.), and the antenna is an Internal Antenna connect to PCB board and no consideration of replacement. Please see EUT photo for details.

5.7.2.3. Results: Compliance.





6. LIST OF MEASURING EQUIPMENTS

| Item | Equipment | Manufacturer | Model No. | Serial No. | Cal Date | Due Date |
|------|--------------------------------|-------------------|-------------|---------------------|------------|------------|
| 1 | MXA Signal Analyzer | Agilent | N9020A | MY49100060 | 2021-11-15 | 2022-11-14 |
| 2 | DC Power Supply | Agilent | E3642A | N/A | 2021-11-15 | 2022-11-14 |
| 3 | Temperature & Humidity Chamber | GUANGZHOU GOGNWEN | GDS-100 | 70932 | 2022-10-06 | 2023-10-05 |
| 4 | EMI Test Software | AUDIX | E3 | / | N/A | N/A |
| 5 | 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M | 03CH03-HY | 2022-06-16 | 2023-06-15 |
| 6 | Positioning Controller | Max-Full | MF7802BS | MF780208586 | N/A | N/A |
| 7 | Active Loop Antenna | SCHWARZBECK | FMZB 1519B | 00005 | 2021-08-29 | 2024-08-28 |
| 8 | By-log Antenna | SCHWARZBECK | VULB9163 | 9163-470 | 2021-09-12 | 2024-09-11 |
| 9 | Horn Antenna | SCHWARZBECK | BBHA 9120D | 9120D-1925 | 2021-09-05 | 2024-09-04 |
| 10 | EMI Test Receiver | R&S | ESR 7 | 101181 | 2022-06-16 | 2023-06-15 |
| 11 | RS SPECTRUM ANALYZER | R&S | FSP40 | 100503 | 2021-11-16 | 2022-11-15 |
| 12 | Broadband Preamplifier | / | BP-01M18G | P190501 | 2022-06-16 | 2023-06-15 |
| 13 | EMI Test Receiver | R&S | ESPI | 101940 | 2022-08-17 | 2023-08-16 |
| 14 | Artificial Mains | R&S | ENV216 | 101288 | 2022-06-16 | 2023-06-15 |
| 15 | 10dB Attenuator | SCHWARZBECK | MTS-IMP-136 | 261115-001-003 2 | 2022-06-16 | 2023-06-15 |
| 16 | EMI Test Software | Farad | EZ | / | N/A | N/A |





7. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

8. EXTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for External Photos of the EUT.

9. INTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for Internal Photos of the EUT.

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

