



## TEST REPORT

**Application No.:** GZCR2205000639AT  
**Applicant:** SYBER SENSE IOT COMPANY LIMITED  
**Address of Applicant:** FLAT/RM 10 BLK A 16/F HI TECH INDUSTRIAL CENTRE 5-21 PAK TIN PAR STREET TSUEN WAN Hong Kong China  
**Manufacturer:** Rui chuang ke Digital Co., Limited  
**Address of Manufacturer:** 3/F, Building A, Hanhaida High-tech Park, DatianYang C District, Shiwei Community, Matian Street, Guangming New District, Shenzhen, China.  
**Factory:** Rui chuang ke Digital Co., Limited  
**Address of Factory:** 3/F, Building A, Hanhaida High-tech Park, DatianYang C District, Shiwei Community, Matian Street, Guangming New District, Shenzhen, China.  
**Equipment Under Test (EUT):**  
**EUT Name:** SS Flood Temperature Sensor(XPF01)  
**Model No.:** XPF01-E-1433-00  
**Trade Mark:** Syber Sense  
**Standard(s) :** 47 CFR Part 15, Subpart C 15.231  
**Date of Receipt:** 2022-05-18  
**Date of Test:** 2022-05-19 to 2022-05-25  
**Date of Issue:** 2022-05-31

**Test Result:**

**Pass\***

\* In the configuration tested, the EUT complied with the standards specified above.

*Kobe Jian*

Kobe Jian  
EMC Laboratory Manager



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch EMC Laboratory

No. 198 Kexu Road, Sciotech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgsgroup.com.cn  
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 01              |         | 2022-05-31 |          | Original |
|                 |         |            |          |          |
|                 |         |            |          |          |

|                         |  |                                                                                     |  |  |
|-------------------------|--|-------------------------------------------------------------------------------------|--|--|
| Authorized for issue by |  |                                                                                     |  |  |
|                         |  |  |  |  |
|                         |  | Curry Wu/Project Engineer                                                           |  |  |
|                         |  |  |  |  |
|                         |  | Ricky Liu/Reviewer                                                                  |  |  |

## 2 Test Summary

| Radio Spectrum Technical Requirement |                                  |        |                                  |        |
|--------------------------------------|----------------------------------|--------|----------------------------------|--------|
| Item                                 | Standard                         | Method | Requirement                      | Result |
| Antenna Requirement                  | 47 CFR Part 15, Subpart C 15.231 | N/A    | 47 CFR Part 15, Subpart C 15.203 | Pass   |

| Radio Spectrum Matter Part                           |                                  |                                        |                                              |        |
|------------------------------------------------------|----------------------------------|----------------------------------------|----------------------------------------------|--------|
| Item                                                 | Standard                         | Method                                 | Requirement                                  | Result |
| 20dB Bandwidth                                       | 47 CFR Part 15, Subpart C 15.231 | ANSI C63.10 (2013) Section 6.9         | 47 CFR Part 15, Subpart C 15.231(c)          | Pass   |
| Radiated Emissions (below 1GHz)                      |                                  | ANSI C63.10 (2013) Section 6.4&6.5&6.6 | 47 CFR Part 15C Section 15.231(b) and 15.209 | Pass   |
| Dwell Time (15.231(a))                               |                                  | ANSI C63.10 (2013) Section 7.5         | 47 CFR Part 15, Subpart C 15.231(a)          | Pass   |
| Field Strength of the Fundamental Signal (15.231(b)) |                                  | ANSI C63.10 (2013) Section 6.5         | 47 CFR Part 15, Subpart C 15.231(b)          | Pass   |
| Radiated Emissions (above 1GHz)                      |                                  | ANSI C63.10 (2013) Section 6.4&6.5&6.6 | 47 CFR Part 15C Section 15.231(b) and 15.209 | Pass   |

### Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

### 3 Contents

|                                                                | Page      |
|----------------------------------------------------------------|-----------|
| <b>1 Cover Page .....</b>                                      | <b>1</b>  |
| <b>2 Test Summary.....</b>                                     | <b>3</b>  |
| <b>3 Contents .....</b>                                        | <b>4</b>  |
| <b>4 General Information.....</b>                              | <b>6</b>  |
| 4.1 Details of E.U.T. ....                                     | 6         |
| 4.2 Description of Support Units.....                          | 6         |
| 4.3 Measurement Uncertainty .....                              | 7         |
| 4.4 Test Location .....                                        | 8         |
| 4.5 Test Facility.....                                         | 8         |
| 4.6 Deviation from Standards.....                              | 9         |
| 4.7 Abnormalities from Standard Conditions.....                | 9         |
| <b>5 Equipment List .....</b>                                  | <b>10</b> |
| <b>6 Radio Spectrum Technical Requirement.....</b>             | <b>12</b> |
| 6.1 Antenna Requirement .....                                  | 12        |
| 6.1.1 Test Requirement: .....                                  | 12        |
| 6.1.2 Conclusion .....                                         | 12        |
| <b>7 Radio Spectrum Matter Test Results.....</b>               | <b>13</b> |
| 7.1 20dB Bandwidth .....                                       | 13        |
| 7.1.1 E.U.T. Operation.....                                    | 13        |
| 7.1.2 Test Mode Description .....                              | 13        |
| 7.1.3 Test Setup Diagram .....                                 | 13        |
| 7.1.4 Measurement Procedure and Data.....                      | 14        |
| 7.2 Radiated Emissions (below 1GHz) .....                      | 15        |
| 7.2.1 E.U.T. Operation.....                                    | 16        |
| 7.2.2 Test Mode Description .....                              | 16        |
| 7.2.3 Test Setup Diagram .....                                 | 16        |
| 7.2.4 Measurement Procedure and Data.....                      | 17        |
| 7.3 Dwell Time (15.231(a)).....                                | 20        |
| 7.3.1 E.U.T. Operation.....                                    | 20        |
| 7.3.2 Test Mode Description .....                              | 20        |
| 7.3.3 Test Setup Diagram .....                                 | 20        |
| 7.3.4 Measurement Procedure and Data.....                      | 21        |
| 7.4 Field Strength of the Fundamental Signal (15.231(b)) ..... | 22        |
| 7.4.1 E.U.T. Operation.....                                    | 23        |
| 7.4.2 Test Mode Description .....                              | 23        |
| 7.4.3 Test Setup Diagram .....                                 | 23        |
| 7.4.4 Measurement Procedure and Data.....                      | 23        |
| 7.5 Radiated Emissions (above 1GHz) .....                      | 27        |
| 7.5.1 E.U.T. Operation.....                                    | 28        |
| 7.5.2 Test Mode Description .....                              | 28        |
| 7.5.3 Test Setup Diagram .....                                 | 28        |
| 7.5.4 Measurement Procedure and Data.....                      | 28        |

|          |                                                      |           |
|----------|------------------------------------------------------|-----------|
| <b>8</b> | <b>Test Setup Photo .....</b>                        | <b>31</b> |
| <b>9</b> | <b>EUT Constructional Details (EUT Photos) .....</b> | <b>31</b> |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## 4 General Information

### 4.1 Details of E.U.T.

Power Supply: 3V DC (3.0Vx1"CR2450" Size Battery)  
Operation Frequency: 433.95MHz  
Modulation Type: OOK  
Number of Channels: 1  
Antenna Gain: -3.5dBi  
Antenna Type: PIFA Antenna

### 4.2 Description of Support Units

| Description                                     | Manufacturer | Model No. | Serial No. |
|-------------------------------------------------|--------------|-----------|------------|
| --                                              | --           | --        | --         |
| The EUT has been tested as an independent unit. |              |           |            |

## 4.3 Measurement Uncertainty

| Test Item                                                                                                                                                                                                                                                                                                                                                                                                     | Measurement Uncertainty                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| 20dB Bandwidth                                                                                                                                                                                                                                                                                                                                                                                                | ±3%                                                                       |
| Radiated Emissions (below 1GHz)                                                                                                                                                                                                                                                                                                                                                                               | ±5.00dB (30MHz-1GHz; 3m);<br>±4.38dB (30MHz-1GHz; 10m)                    |
| Dwell Time (15.231(a))                                                                                                                                                                                                                                                                                                                                                                                        | ±3%                                                                       |
| Field Strength of the Fundamental Signal (15.231(b))                                                                                                                                                                                                                                                                                                                                                          | ±5.00dB (30MHz-1GHz; 3m);<br>±4.38dB (30MHz-1GHz; 10m)                    |
| Radiated Emissions (above 1GHz)                                                                                                                                                                                                                                                                                                                                                                               | ± 5.12dB (1GHz-6GHz);<br>± 5.38dB (6GHz-18GHz);<br>± 5.61dB (18GHz-40GHz) |
| <p>Remark:</p> <p>The <math>U_{lab}</math> (lab Uncertainty) is less than <math>U_{CISPR}</math> (CISPR Uncertainty), so the test results</p> <ul style="list-style-type: none"> <li>– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;</li> <li>– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.</li> </ul> |                                                                           |

#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

#### 4.5 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.  
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

**4.6 Deviation from Standards**

None

**4.7 Abnormalities from Standard Conditions**

None



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing/inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## 5 Equipment List

| 20dB Bandwidth                  |                      |          |              |            |              |
|---------------------------------|----------------------|----------|--------------|------------|--------------|
| Equipment                       | Manufacturer         | Model No | Inventory No | Cal Date   | Cal Due Date |
| EXA Signal Analyzer(10Hz-44GHz) | Agilent Technologies | N9010A   | EMC2138      | 2021-09-16 | 2022-09-15   |
| 6dB Attenuator                  | HP                   | 8491A    | EMC2062      | 2022-04-14 | 2023-04-13   |
| MI CABLE                        | SGS-EMC              | 0.8M     | EMC2136      | 2021-11-01 | 2023-11-01   |

| Radiated Emissions (below 1GHz)          |                                |               |              |            |              |
|------------------------------------------|--------------------------------|---------------|--------------|------------|--------------|
| Equipment                                | Manufacturer                   | Model No      | Inventory No | Cal Date   | Cal Due Date |
| Chamber cable                            | HangTianXing                   | N/A           | EMC0542      | 2020-09-09 | 2022-09-08   |
| Trilog Broadband Antenna(25MHz-1GHz)-Lab | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB 9168     | SEM003-18    | 2022-02-22 | 2025-02-21   |
| Amplifier(9kHz-1.3GHz)                   | HP                             | 8447F         | EMC2065      | 2022-05-19 | 2023-05-18   |
| Active Loop Antenna-RED                  | ETS-Lindgren                   | 6502          | EMC2190      | 2022-04-06 | 2024-04-05   |
| 10m Semi-Anechoic Chamber                | ETS                            | N/A           | EMC0530      | 2019-10-20 | 2022-10-19   |
| Test Software E3                         | Audix                          | Ver.6.120110a | GZE100-61    | N/A        | N/A          |
| EMI Test Receiver(1Hz-8GHz)              | Rohde & Schwarz                | ESW8          | EMC2220      | 2021-05-26 | 2022-05-25   |

| Dwell Time (15.231(a))          |                      |          |              |            |              |
|---------------------------------|----------------------|----------|--------------|------------|--------------|
| Equipment                       | Manufacturer         | Model No | Inventory No | Cal Date   | Cal Due Date |
| EXA Signal Analyzer(10Hz-44GHz) | Agilent Technologies | N9010A   | EMC2138      | 2021-09-16 | 2022-09-15   |
| 6dB Attenuator                  | HP                   | 8491A    | EMC2062      | 2022-04-14 | 2023-04-13   |
| MI CABLE                        | SGS-EMC              | 0.8M     | EMC2136      | 2021-11-01 | 2023-11-01   |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

| Field Strength of the Fundamental Signal (15.231(b)) |                                |               |              |            |              |
|------------------------------------------------------|--------------------------------|---------------|--------------|------------|--------------|
| Equipment                                            | Manufacturer                   | Model No      | Inventory No | Cal Date   | Cal Due Date |
| Chamber cable                                        | HangTianXing                   | N/A           | EMC0542      | 2020-09-09 | 2022-09-08   |
| Trilog Broadband Antenna(25MHz-1GHz)-Lab             | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB 9168     | SEM003-18    | 2022-02-22 | 2025-02-21   |
| Amplifier(9kHz-1.3GHz)                               | HP                             | 8447F         | EMC2065      | 2022-05-19 | 2023-05-18   |
| Active Loop Antenna-RED                              | ETS-Lindgren                   | 6502          | EMC2190      | 2022-04-06 | 2024-04-05   |
| 10m Semi-Anechoic Chamber                            | ETS                            | N/A           | EMC0530      | 2019-10-20 | 2022-10-19   |
| Test Software E3                                     | Audix                          | Ver.6.120110a | GZE100-61    | N/A        | N/A          |
| EMI Test Receiver(1Hz-8GHz)                          | Rohde & Schwarz                | ESW8          | EMC2220      | 2021-05-26 | 2022-05-25   |

| Radiated Emissions (above 1GHz) |                                |               |              |            |              |
|---------------------------------|--------------------------------|---------------|--------------|------------|--------------|
| Equipment                       | Manufacturer                   | Model No      | Inventory No | Cal Date   | Cal Due Date |
| Chamber cable(Above 1GHz)       | Scoflex                        | KMKM-8.0m     | EMC0545      | 2020-09-09 | 2022-09-08   |
| Horn Antenna(1GHz-18GHz)        | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA 9120D    | EMC2026      | 2019-09-25 | 2022-09-24   |
| 1GHz-26.5 GHz Pre-Amplifier     | Agilent                        | 8449B         | EMC0521      | 2021-12-17 | 2022-12-16   |
| 966 Anechoic Chamber            | C.R.T                          | 9m x 6m x 6m  | EMC2142      | 2020-12-20 | 2023-12-19   |
| MXE EMI Receiver(10Hz-8.4GHz)   | Keysight                       | N9038A        | EMC2139      | 2021-11-01 | 2022-10-31   |
| EXA Signal Analyzer(10Hz-44GHz) | Keysight                       | N9010A        | EMC2138      | 2021-09-16 | 2022-09-15   |
| Test Software E3                | Audix                          | Ver.6.120110a | GZE100-61    | N/A        | N/A          |

| General used equipment |              |          |              |            |              |
|------------------------|--------------|----------|--------------|------------|--------------|
| Equipment              | Manufacturer | Model No | Inventory No | Cal Date   | Cal Due Date |
| DMM                    | Fluke        | 73       | EMC0006      | 2021-07-05 | 2022-07-05   |
| DMM                    | Fluke        | 73       | EMC0007      | 2021-07-05 | 2022-07-05   |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch EMC Laboratory

No.198 Kezhu Road, Sciotech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgs.com.cn  
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

#### 6.1.2 Conclusion

Standard Requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is -3.5 dBi.

Antenna location: Refer to internal photo.

## 7 Radio Spectrum Matter Test Results

### 7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.231(c)

Test Method: ANSI C63.10 (2013) Section 6.9

Limit:

| Frequency range(MHz) | Limit                                       |
|----------------------|---------------------------------------------|
| 70-900               | No wider than 0.25% of the center frequency |
| Above 900            | No wider than 0.5% of the center frequency  |

Remark: For this device, the limit is  $433.95\text{MHz} \times 0.25\% = 1.084875\text{MHz}$ 

#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C

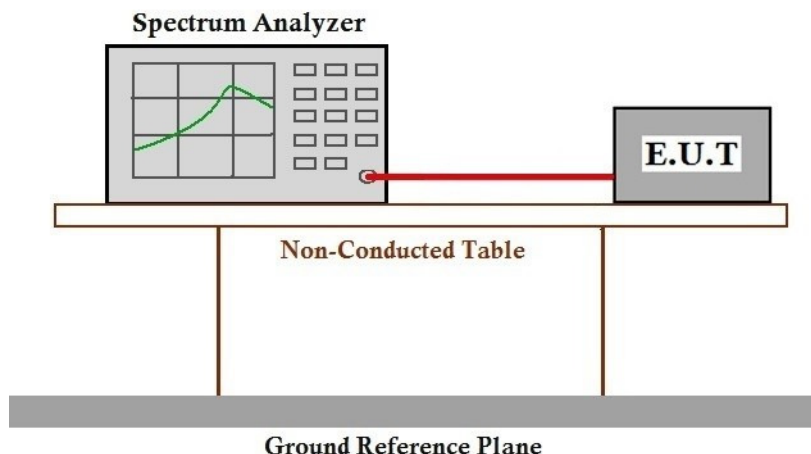
Humidity: 56.4 % RH

Atmospheric Pressure: 1003 mbar

#### 7.1.2 Test Mode Description

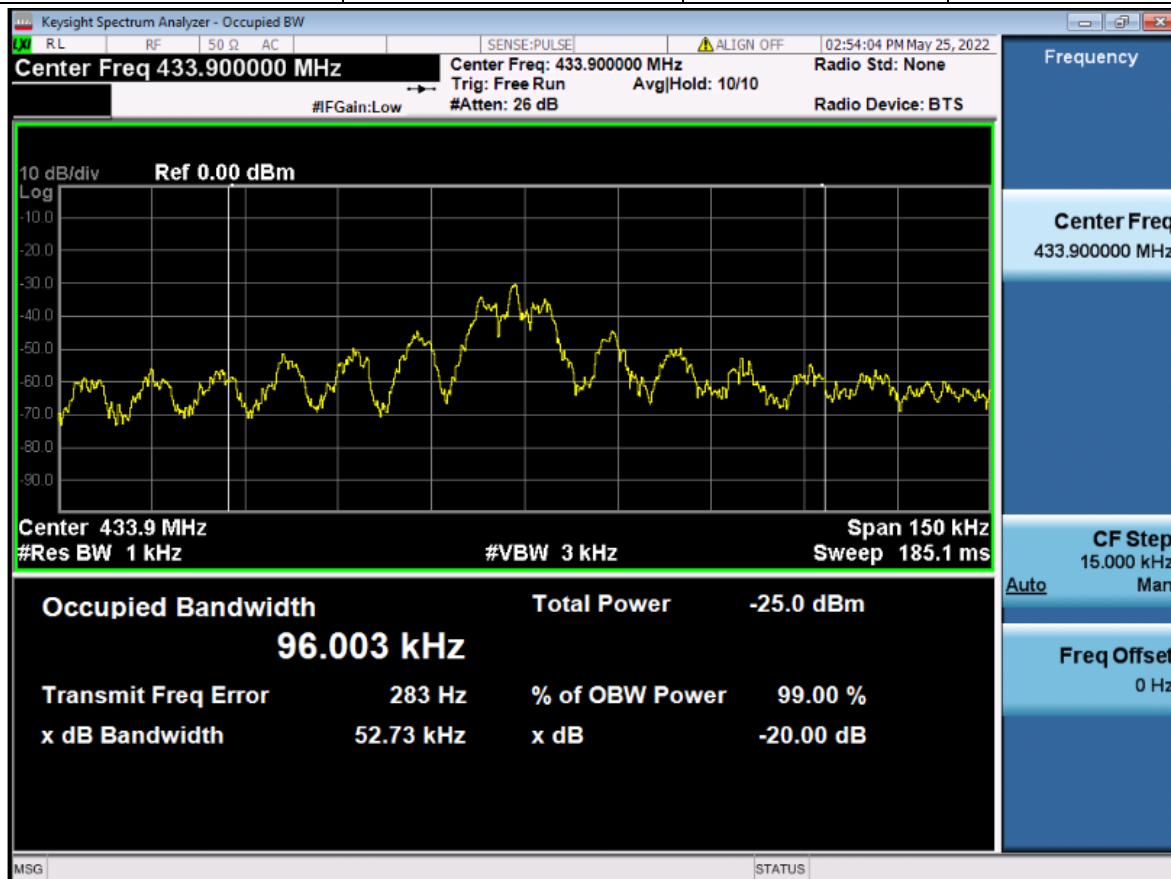
| Pre-scan /<br>Final test | Mode<br>Code | Description                                                                 |
|--------------------------|--------------|-----------------------------------------------------------------------------|
| Final test               | 00           | TX mode_Keep the EUT in continuously transmitting mode with OOK modulation. |

#### 7.1.3 Test Setup Diagram



### 7.1.4 Measurement Procedure and Data

| Test Channel | Bandwidth | Limit       | Verdict |
|--------------|-----------|-------------|---------|
| 433.95MHz    | 52.73kHz  | 1.084875MHz | PASS    |



**7.2 Radiated Emissions (below 1GHz)**

Test Requirement 47 CFR Part 15C Section 15.231(b) and 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&amp;6.5&amp;6.6

Measurement Distance: 3m

Limit:

For Restricted bands

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|----------------|----------------------------------|------------------------------|
| 0.009-0.490    | 2400/F(kHz)                      | 300                          |
| 0.490-1.705    | 24000/F(kHz)                     | 30                           |
| 1.705-30.0     | 30                               | 30                           |
| 30-88          | 100                              | 3                            |
| 88-216         | 150                              | 3                            |
| 216-960        | 200                              | 3                            |
| Above 960      | 500                              | 3                            |

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

For Other bands

| Fundamental Frequency MHz | Field Strength of Fundamental (dBμV/m @ 3 m)           | Field Strength of Harmonics and Spurious Emissions (dBμV/m @ 3 m) |
|---------------------------|--------------------------------------------------------|-------------------------------------------------------------------|
| 40.66 to 40.70            | 67.04                                                  | 47.04                                                             |
| 70 to 130                 | 61.94                                                  | 41.94                                                             |
| 130 to 174                | **61.94 to 71.48                                       | 41.94 to 51.48                                                    |
| 174 to 260                | 71.48                                                  | 51.48                                                             |
| 260 to 470                | **71.48 to 81.94                                       | 51.48 to 61.94                                                    |
| Above 470                 | 81.94                                                  | 61.94                                                             |
| <b>Detector:</b>          | Peak for pre-scan                                      |                                                                   |
|                           | QP for 30MHz to 1000 MHz: 120 kHz resolution bandwidth |                                                                   |
|                           | Peak for Above 1 GHz: 1 MHz resolution bandwidth       |                                                                   |

\*\* linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

for the band 130-174 MHz, uV/m at 3 meters =  $56.81818(F) - 6136.3636$ ;

for the band 260-470 MHz, uV/m at 3 meters =  $41.6667(F) - 7083.3333$ .

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

The fundamental frequency of the EUT is 433.95 MHz

The limit for average or QP field strength dBuV/m for the fundamental emission= 80.83 dBμV/m



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch, EMC Laboratory

No.198 Kezhu Road, Sciotech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgs.com.cn  
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuV/m for the spurious emission=60.83 dBuV/m. Spurious in the restricted bands must be less than 60.83 dBuV/m or 15.209, whichever limit permits a higher field strength.

### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

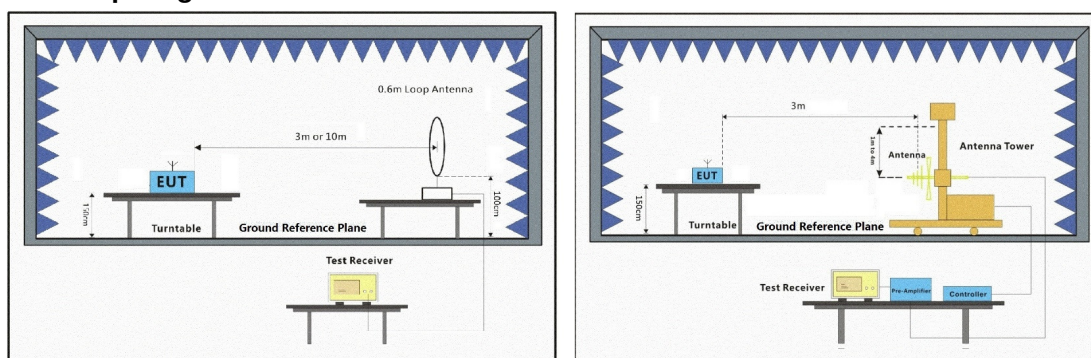
Humidity: 56.8 % RH

Atmospheric Pressure: 1003 mbar

### 7.2.2 Test Mode Description

| Pre-scan /<br>Final test | Mode<br>Code | Description                                                                 |
|--------------------------|--------------|-----------------------------------------------------------------------------|
| Final test               | 00           | TX mode_Keep the EUT in continuously transmitting mode with OOK modulation. |

### 7.2.3 Test Setup Diagram



### 7.2.4 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of Horizontal was shown in the report.

Measured Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

The average correction factor is computed by analyzing the on time in 100ms over one complete pulse train. Analysis of the remote transmitter on time in one complete pulse train, therefore the average value of fundamental frequency is: Average = Peak value + 20log (Duty cycle), where the duty factor is calculated from following formula:

$20\log(\text{Duty cycle}) = 20\log(19\%) = -14.42 \text{ dB}$

Here:

Duty cycle = Ton\_cum / Ton+off

Ton\_cum = 19.0ms

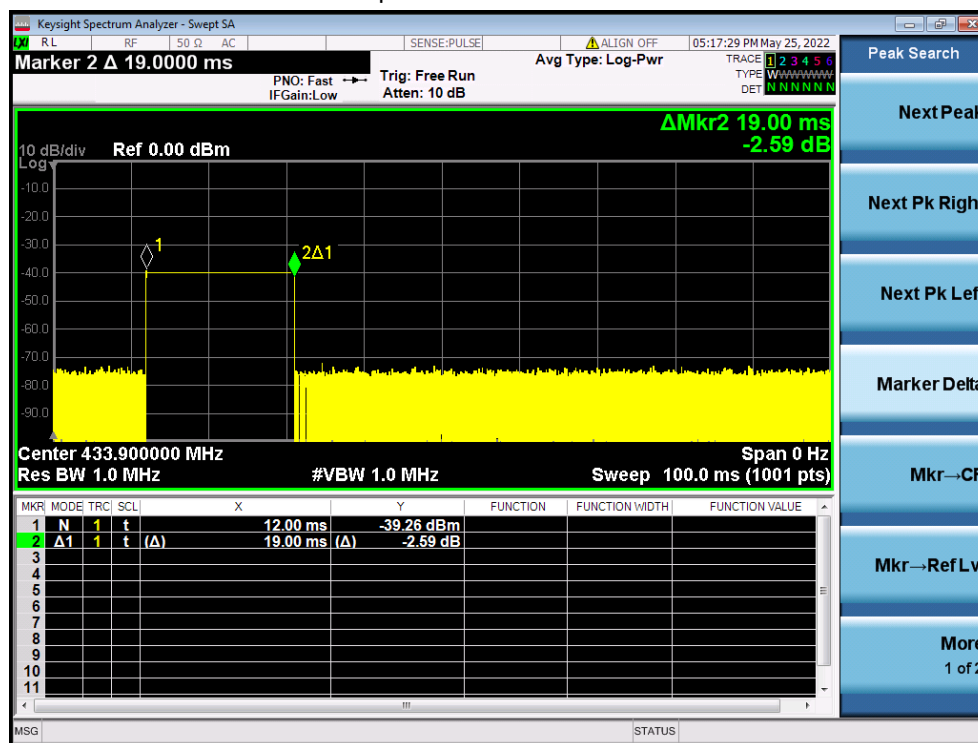
Ton+off = 100 ms

Duty cycle = 19.0 / 100 = 19%

Please refer to below plot for more details.

Radiated emission below 30MHz

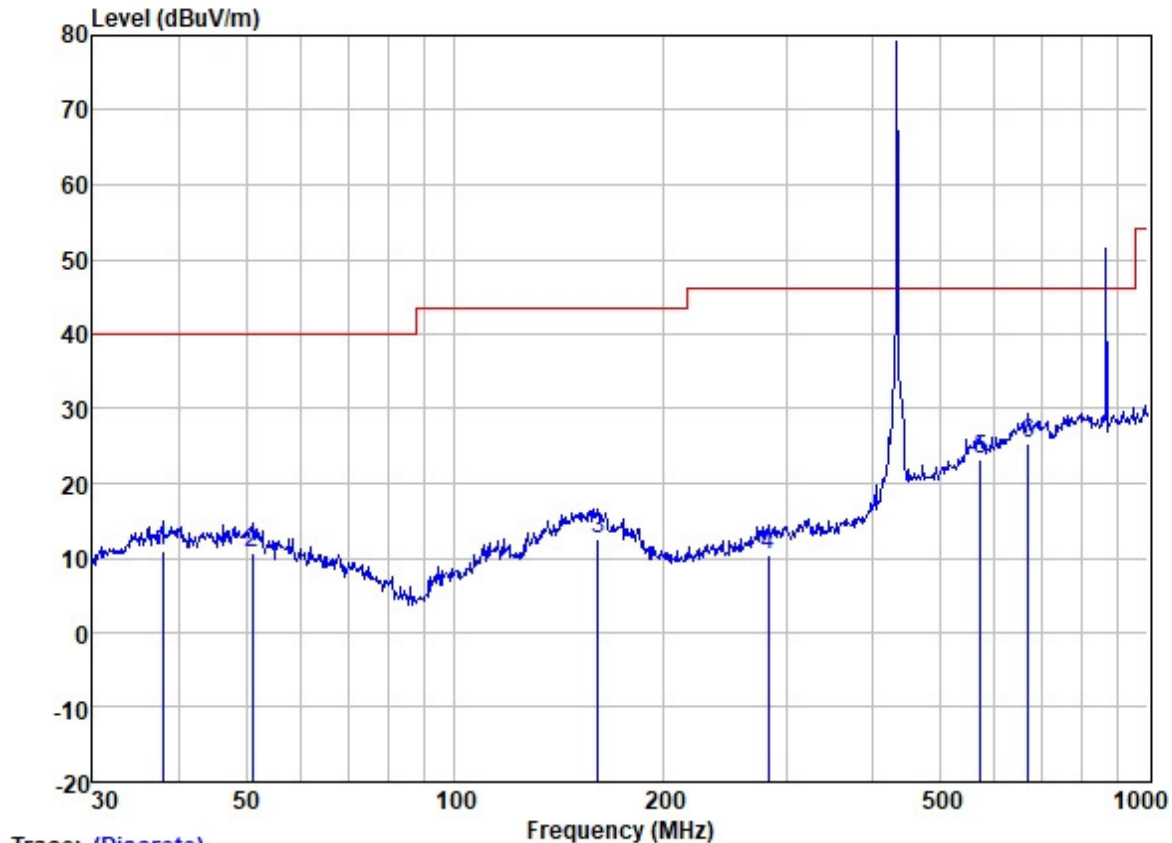
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.



**Radiated emission below 30MHz**

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Test Mode: 00; Polarity: Horizontal

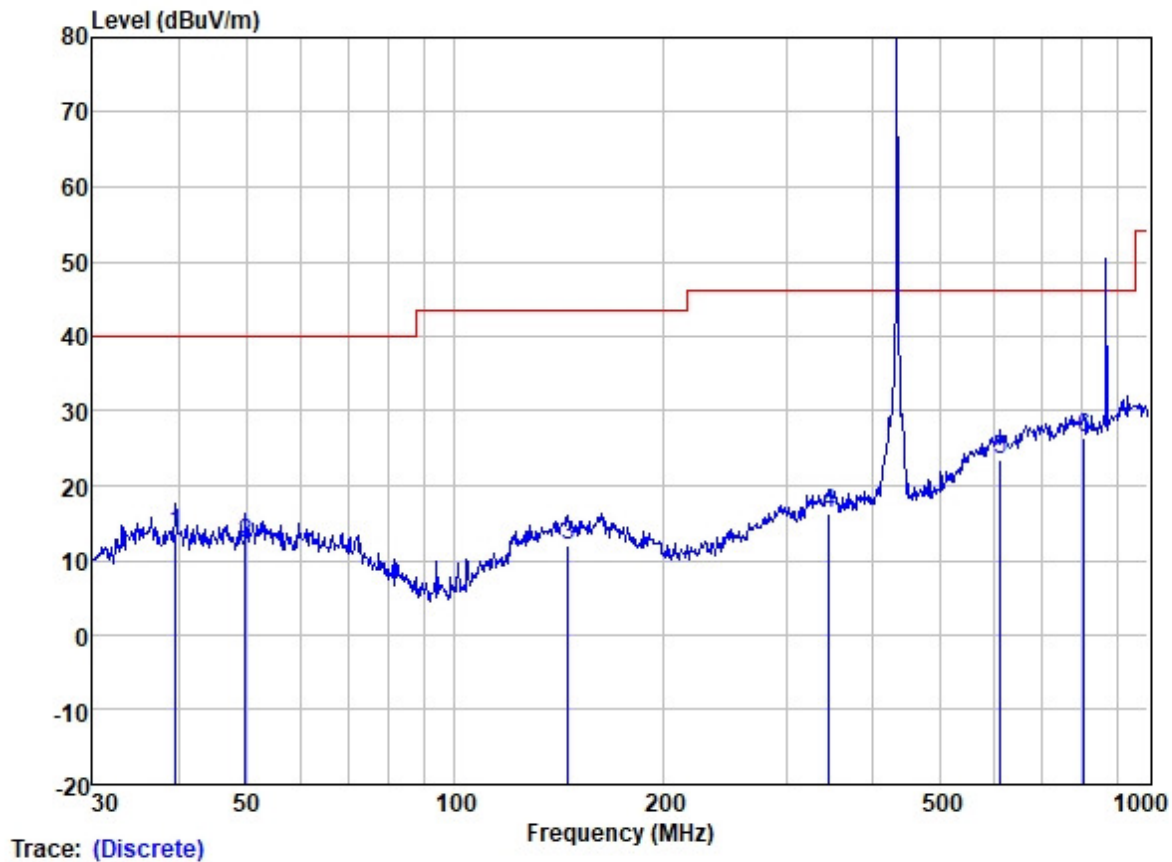


Trace: (Discrete)

Site : SGS  
Job :  
Model :  
Power :  
Test Mode :

|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamplifier Factor | Measured Level | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------------|----------------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB                  | dBuV/m         | dBuV/m     | dB         |            |        |
| 1 | 37.812  | 24.16      | 12.80          | 1.09       | 27.10               | 10.95          | 40.00      | -29.05     | HORIZONTAL | QP     |
| 2 | 50.942  | 22.99      | 13.60          | 1.15       | 27.10               | 10.64          | 40.00      | -29.36     | HORIZONTAL | QP     |
| 3 | 160.909 | 23.69      | 13.29          | 2.34       | 26.67               | 12.65          | 43.50      | -30.85     | HORIZONTAL | QP     |
| 4 | 282.985 | 21.11      | 12.80          | 3.10       | 26.51               | 10.50          | 46.00      | -35.50     | HORIZONTAL | QP     |
| 5 | 572.614 | 27.43      | 18.94          | 4.98       | 28.14               | 23.21          | 46.00      | -22.79     | HORIZONTAL | QP     |
| 6 | 670.489 | 27.37      | 20.56          | 5.65       | 28.12               | 25.46          | 46.00      | -20.54     | HORIZONTAL | QP     |

Test Mode: 00; Polarity: Vertical



Site : SGS  
Job :  
Model :  
Power :  
Test Mode :

|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Measured Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------|----------------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m         | dBuV/m     | dB         |           |        |
| 1 | 39.576  | 26.64      | 12.99          | 1.10       | 27.10         | 13.63          | 40.00      | -26.37     | VERTICAL  | QP     |
| 2 | 49.881  | 24.47      | 13.63          | 1.14       | 27.10         | 12.14          | 40.00      | -27.86     | VERTICAL  | QP     |
| 3 | 145.351 | 23.33      | 13.20          | 2.18       | 26.75         | 11.96          | 43.50      | -31.54     | VERTICAL  | QP     |
| 4 | 346.809 | 25.43      | 14.19          | 3.59       | 26.85         | 16.36          | 46.00      | -29.64     | VERTICAL  | QP     |
| 5 | 612.064 | 26.34      | 20.03          | 5.23       | 28.19         | 23.41          | 46.00      | -22.59     | VERTICAL  | QP     |
| 6 | 807.429 | 25.64      | 22.55          | 6.23       | 27.89         | 26.53          | 46.00      | -19.47     | VERTICAL  | QP     |

**7.3 Dwell Time (15.231(a))**

Test Requirement 47 CFR Part 15, Subpart C 15.231(a)

Test Method: ANSI C63.10 (2013) Section 7.5

Limit:

| Device type                                                                                                  | Limit                                                                                                |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Manually operated transmitter                                                                                | The switch automatically deactivate the transmitter within not more than 5 seconds of being released |
| Automatically activated transmitter                                                                          | Cease transmission within 5 seconds after activation                                                 |
| Periodic transmissions to determine system integrity of transmitters used in security or safety applications | The total transmission time does not exceed 2 seconds per hour                                       |

**7.3.1 E.U.T. Operation**

Operating Environment:

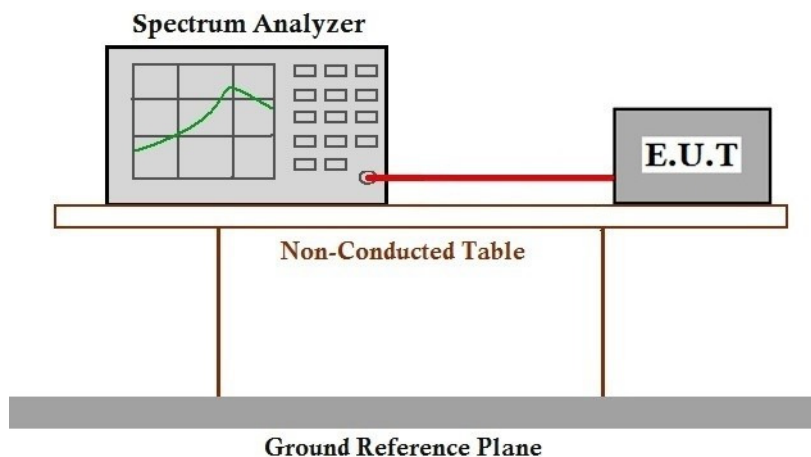
Temperature: 23.2 °C

Humidity: 56.9 % RH

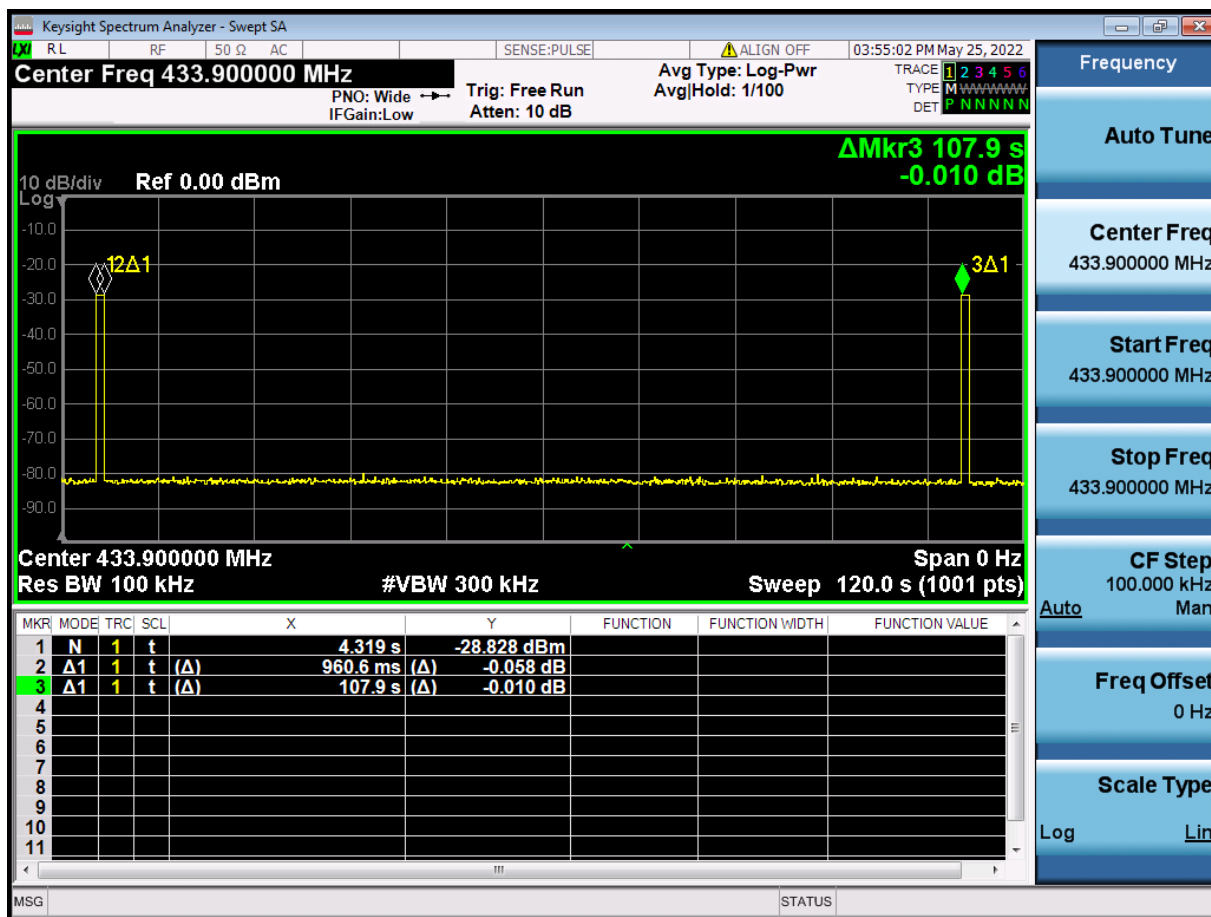
Atmospheric Pressure: 1003 mbar

**7.3.2 Test Mode Description**

| Pre-scan /<br>Final test | Mode<br>Code | Description                                                                 |
|--------------------------|--------------|-----------------------------------------------------------------------------|
| Final test               | 00           | TX mode_Keep the EUT in continuously transmitting mode with OOK modulation. |

**7.3.3 Test Setup Diagram**

### 7.3.4 Measurement Procedure and Data



Remark: Mark 3-Mark 1=107.9s-4.319s=103.581s>5s



## 7.4 Field Strength of the Fundamental Signal (15.231(b))

Test Requirement 47 CFR Part 15, Subpart C 15.231(b)

Test Method: ANSI C63.10 (2013) Section 6.5

Measurement Distance: 3m

Limit:

| Fundamental Frequency MHz | Field Strength of Fundamental (dBμV/m @ 3 m)           | Field Strength of Harmonics and Spurious Emissions (dBμV/m @ 3 m) |
|---------------------------|--------------------------------------------------------|-------------------------------------------------------------------|
| 40.66 to 40.70            | 67.04                                                  | 47.04                                                             |
| 70 to 130                 | 61.94                                                  | 41.94                                                             |
| 130 to 174                | **61.94 to 71.48                                       | **41.94 to 51.48                                                  |
| 174 to 260                | 71.48                                                  | 51.48                                                             |
| 260 to 470                | **71.48 to 81.94                                       | **51.48 to 61.94                                                  |
| Above 470                 | 81.94                                                  | 61.94                                                             |
| <b>Detector:</b>          | Peak for pre-scan                                      |                                                                   |
|                           | QP for 30MHz to 1000 MHz: 120 kHz resolution bandwidth |                                                                   |
|                           | Peak for Above 1 GHz: 1 MHz resolution bandwidth       |                                                                   |

\*\* linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

for the band 130-174 MHz, uV/m at 3 meters = 56.81818(F) - 6136.3636;

for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F) - 7083.3333.

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

The fundamental frequency of the EUT is 433.95 MHz

The limit for average or QP field strength dBuV/m for the fundamental emission= 80.83 dBμV/m

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuV/m for the spurious emission=60.83 dBuV/m. Spurious in the restricted bands must be less than 60.83 dBuV/m or 15.209, whichever limit permits a higher field strength.

#### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

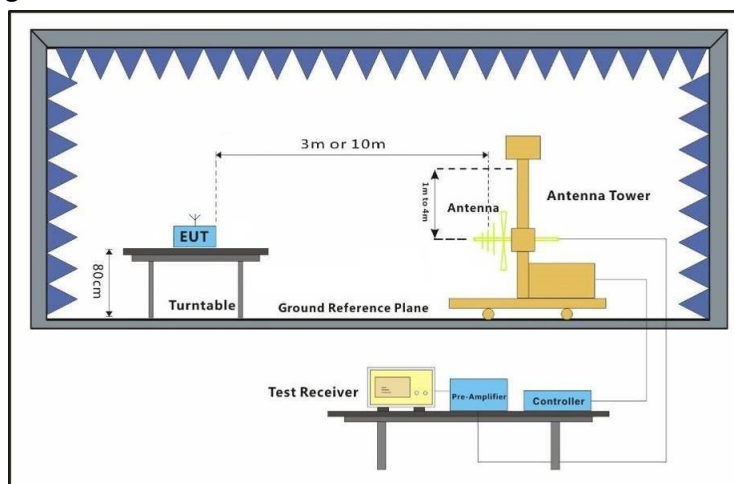
Humidity: 56.8 % RH

Atmospheric Pressure: 1003 mbar

#### 7.4.2 Test Mode Description

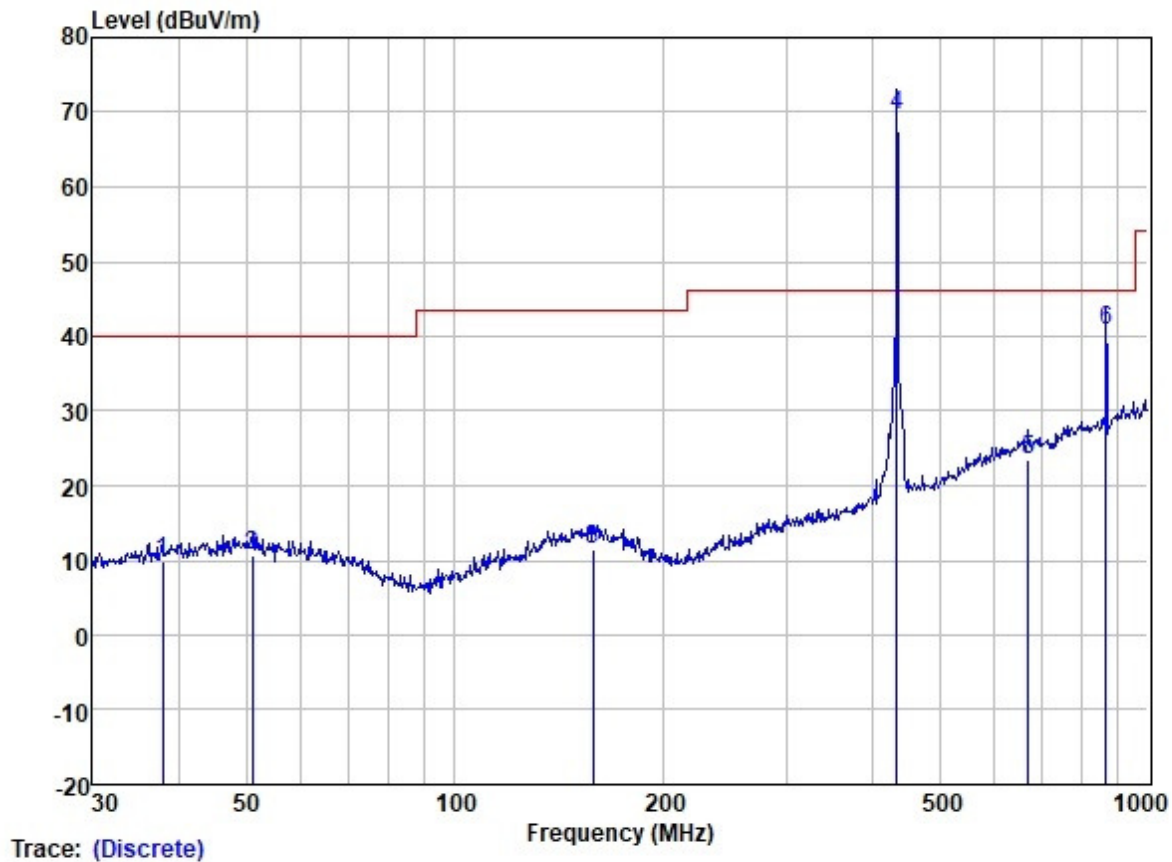
| Pre-scan /<br>Final test | Mode<br>Code | Description                                                                 |
|--------------------------|--------------|-----------------------------------------------------------------------------|
| Final test               | 00           | TX mode_Keep the EUT in continuously transmitting mode with OOK modulation. |

#### 7.4.3 Test Setup Diagram



#### 7.4.4 Measurement Procedure and Data

Test Mode: 00; Polarity: Horizontal

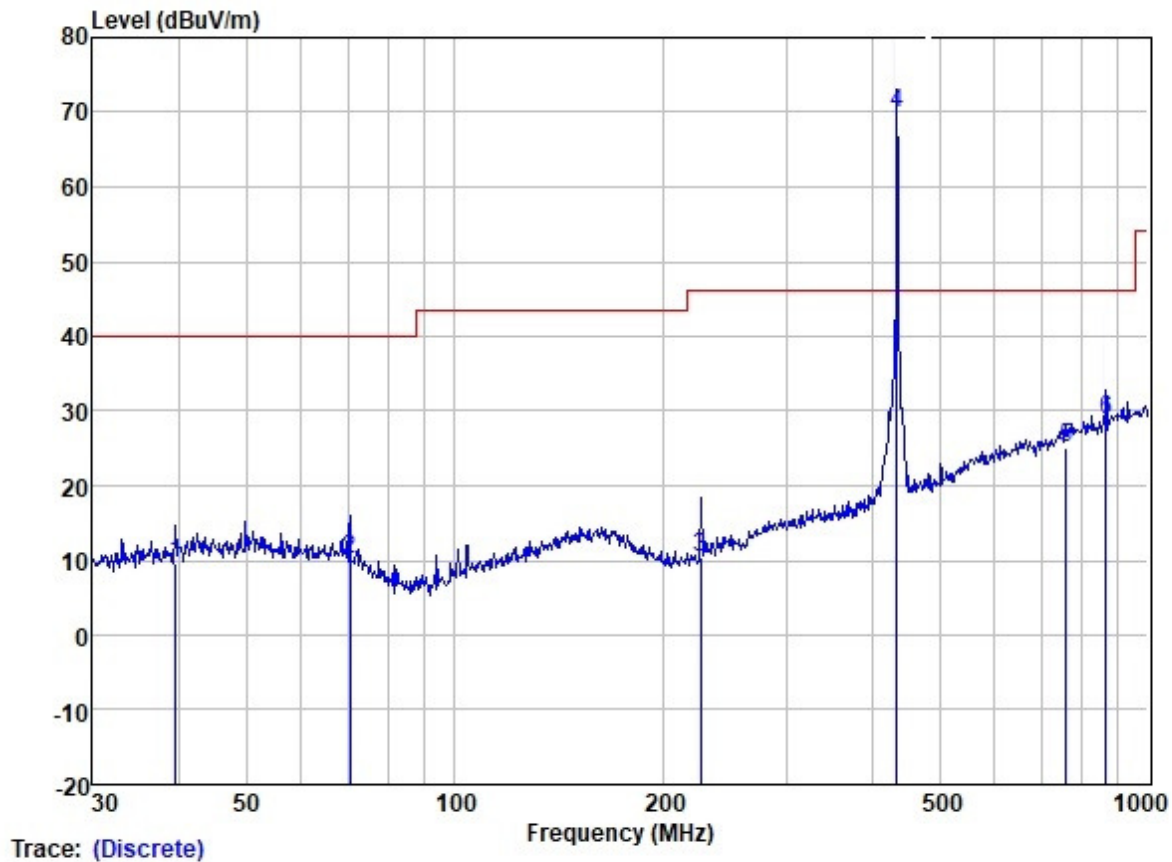


Trace: (Discrete)

Site : SGS  
Job :  
Model :  
Power :  
Test Mode :

|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Measured Level | Limit Line | Over Limit | Pol/Phase  | Remark |
|---|---------|------------|----------------|------------|---------------|----------------|------------|------------|------------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m         | dBuV/m     | dB         |            |        |
| 1 | 37.812  | 23.16      | 12.80          | 1.09       | 27.10         | 9.95           | 40.00      | -30.05     | HORIZONTAL | QP     |
| 2 | 50.942  | 22.99      | 13.60          | 1.15       | 27.10         | 10.64          | 40.00      | -29.36     | HORIZONTAL | QP     |
| 3 | 158.112 | 22.43      | 13.37          | 2.31       | 26.68         | 11.43          | 43.50      | -32.07     | HORIZONTAL | QP     |
| 4 | 433.900 | 77.04      | 16.45          | 4.09       | 27.41         | 70.17          | 46.00      | 24.17      | HORIZONTAL | QP     |
| 5 | 670.489 | 25.37      | 20.56          | 5.65       | 28.12         | 23.46          | 46.00      | -22.54     | HORIZONTAL | QP     |
| 6 | 869.130 | 41.23      | 22.30          | 6.71       | 27.75         | 42.49          | 46.00      | -3.51      | HORIZONTAL | QP     |

Test Mode: 00; Polarity: Vertical



Site : SGS  
Job :  
Model :  
Power :  
Test Mode :

|   | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Measured Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---------|------------|----------------|------------|---------------|----------------|------------|------------|-----------|--------|
|   | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m         | dBuV/m     | dB         |           |        |
| 1 | 39.576  | 22.64      | 12.99          | 1.10       | 27.10         | 9.63           | 40.00      | -30.37     | VERTICAL  | QP     |
| 2 | 70.584  | 24.55      | 11.20          | 1.41       | 27.05         | 10.11          | 40.00      | -29.89     | VERTICAL  | QP     |
| 3 | 226.099 | 24.34      | 9.94           | 2.69       | 26.58         | 10.39          | 46.00      | -35.61     | VERTICAL  | QP     |
| 4 | 433.900 | 76.65      | 16.45          | 4.09       | 27.41         | 69.78          | 46.00      | 23.78      | VERTICAL  | QP     |
| 5 | 760.704 | 25.11      | 22.03          | 6.01       | 27.97         | 25.18          | 46.00      | -20.82     | VERTICAL  | QP     |
| 6 | 869.130 | 27.54      | 22.30          | 6.71       | 27.75         | 28.80          | 46.00      | -17.20     | VERTICAL  | QP     |

**Peak value:**

| Frequency (MHz) | Cable Loss (dB) | Antenna Factor (dB/m) | Preamplifier Factor (dB) | Read Level (dBuV) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-----------------|-----------------------|--------------------------|-------------------|----------------|---------------------|-----------------|--------------|
| 433.95          | 4.09            | 16.45                 | 27.41                    | 77.04             | 70.17          | 100.83              | -30.66          | Horizontal   |
| 433.95          | 4.09            | 16.45                 | 27.41                    | 41.23             | 42.49          | 100.83              | -58.34          | Vertical     |
| 867.90          | 6.71            | 22.30                 | 27.75                    | 76.65             | 69.78          | 80.83               | -11.05          | Horizontal   |
| 867.90          | 6.71            | 22.30                 | 27.75                    | 27.54             | 28.80          | 80.83               | -52.03          | Vertical     |

**Average value:**

| Frequency (MHz) | Average correction factor | Peak Level (dBuV/m) | Average Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|---------------------------|---------------------|------------------------|---------------------|-----------------|--------------|
| 433.95          | -14.42                    | 70.17               | 55.75                  | 80.83               | -25.08          | Horizontal   |
| 433.95          | -14.42                    | 42.49               | 28.07                  | 80.83               | -52.76          | Vertical     |
| 867.90          | -14.42                    | 69.78               | 55.36                  | 60.83               | -5.47           | Horizontal   |
| 867.90          | -14.42                    | 28.80               | 14.38                  | 60.83               | -46.45          | Vertical     |

Note: The Average correction factor calculation please refer to Clause 7.2.4



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

**7.5 Radiated Emissions (above 1GHz)**

Test Requirement 47 CFR Part 15C Section 15.231(b) and 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&amp;6.5&amp;6.6

Measurement Distance: 3m

Limit:

For Restricted bands

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|----------------|----------------------------------|------------------------------|
| 0.009-0.490    | 2400/F(kHz)                      | 300                          |
| 0.490-1.705    | 24000/F(kHz)                     | 30                           |
| 1.705-30.0     | 30                               | 30                           |
| 30-88          | 100                              | 3                            |
| 88-216         | 150                              | 3                            |
| 216-960        | 200                              | 3                            |
| Above 960      | 500                              | 3                            |

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

For Other bands

| Fundamental Frequency MHz | Field Strength of Fundamental (dBμV/m @ 3 m)           | Field Strength of Harmonics and Spurious Emissions (dBμV/m @ 3 m) |
|---------------------------|--------------------------------------------------------|-------------------------------------------------------------------|
| 40.66 to 40.70            | 67.04                                                  | 47.04                                                             |
| 70 to 130                 | 61.94                                                  | 41.94                                                             |
| 130 to 174                | **61.94 to 71.48                                       | 41.94 to 51.48                                                    |
| 174 to 260                | 71.48                                                  | 51.48                                                             |
| 260 to 470                | **71.48 to 81.94                                       | 51.48 to 61.94                                                    |
| Above 470                 | 81.94                                                  | 61.94                                                             |
| <b>Detector:</b>          | Peak for pre-scan                                      |                                                                   |
|                           | QP for 30MHz to 1000 MHz: 120 kHz resolution bandwidth |                                                                   |
|                           | Peak for Above 1 GHz: 1 MHz resolution bandwidth       |                                                                   |

\*\* linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

for the band 130-174 MHz,  $\mu\text{V/m}$  at 3 meters =  $56.81818(F) - 6136.3636$ ;

for the band 260-470 MHz,  $\mu\text{V/m}$  at 3 meters =  $41.6667(F) - 7083.3333$ .

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

The fundamental frequency of the EUT is 433.95 MHz

The limit for average or QP field strength dBμV/m for the fundamental emission= 80.83 dBμV/m



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch EMC Laboratory

No.198 Kezhu Road, Sciotech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgsgroup.com.cn  
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuV/m for the spurious emission=60.83 dBuV/m. Spurious in the restricted bands must be less than 60.83 dBuV/m or 15.209, whichever limit permits a higher field strength.

### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 23.2 °C

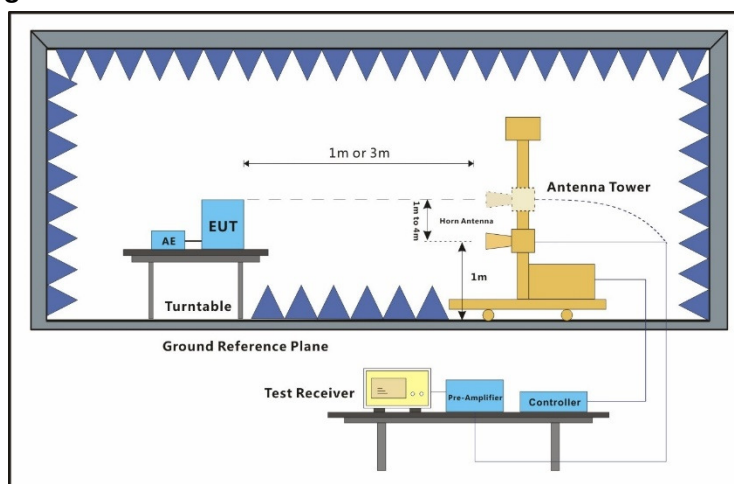
Humidity: 56.1 % RH

Atmospheric Pressure: 1003 mbar

### 7.5.2 Test Mode Description

| Pre-scan /<br>Final test | Mode<br>Code | Description                                                                 |
|--------------------------|--------------|-----------------------------------------------------------------------------|
| Final test               | 00           | TX mode_Keep the EUT in continuously transmitting mode with OOK modulation. |

### 7.5.3 Test Setup Diagram

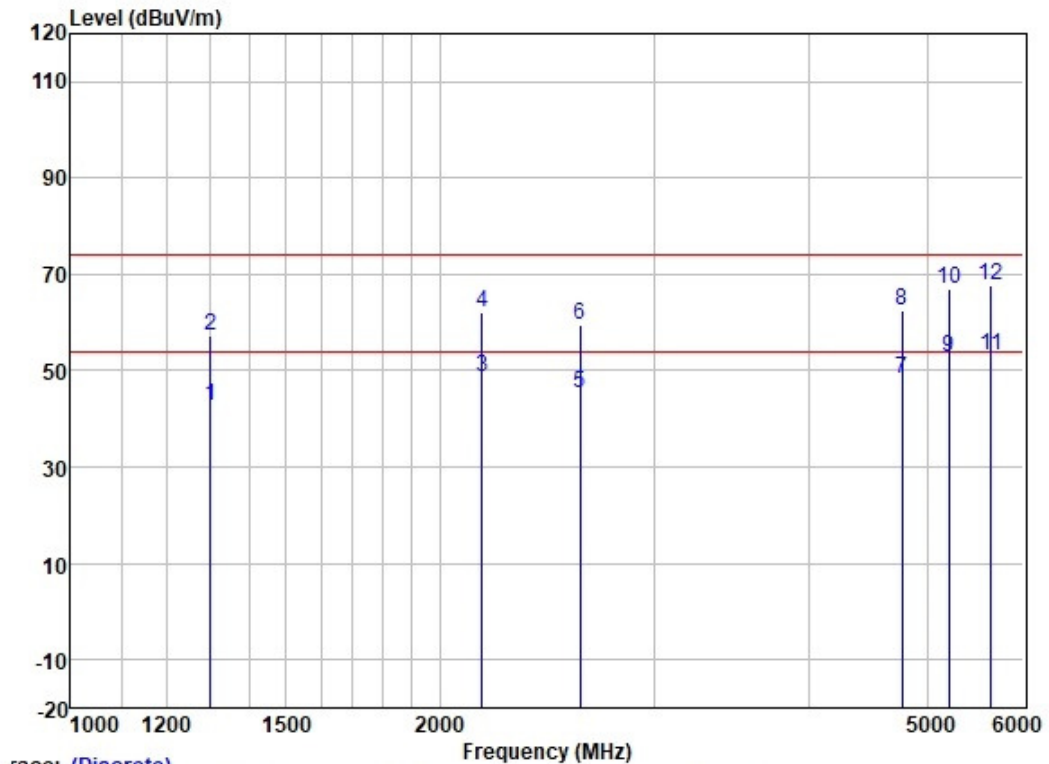


### 7.5.4 Measurement Procedure and Data

Measured Level  $L = \text{Read Level} + \text{Antenna Factor} + \text{Cable Loss} - \text{Preamp Factor}$

The average correction factor is computed by analyzing the on time in 100ms over one complete pulse train. Analysis of the remote transmitter on time in one complete pulse train, therefore the average value of fundamental frequency is: Average = Peak value + 20log (Duty cycle), where the duty factor is -14.42dB, please refer to Section 7.2.4 for more details.

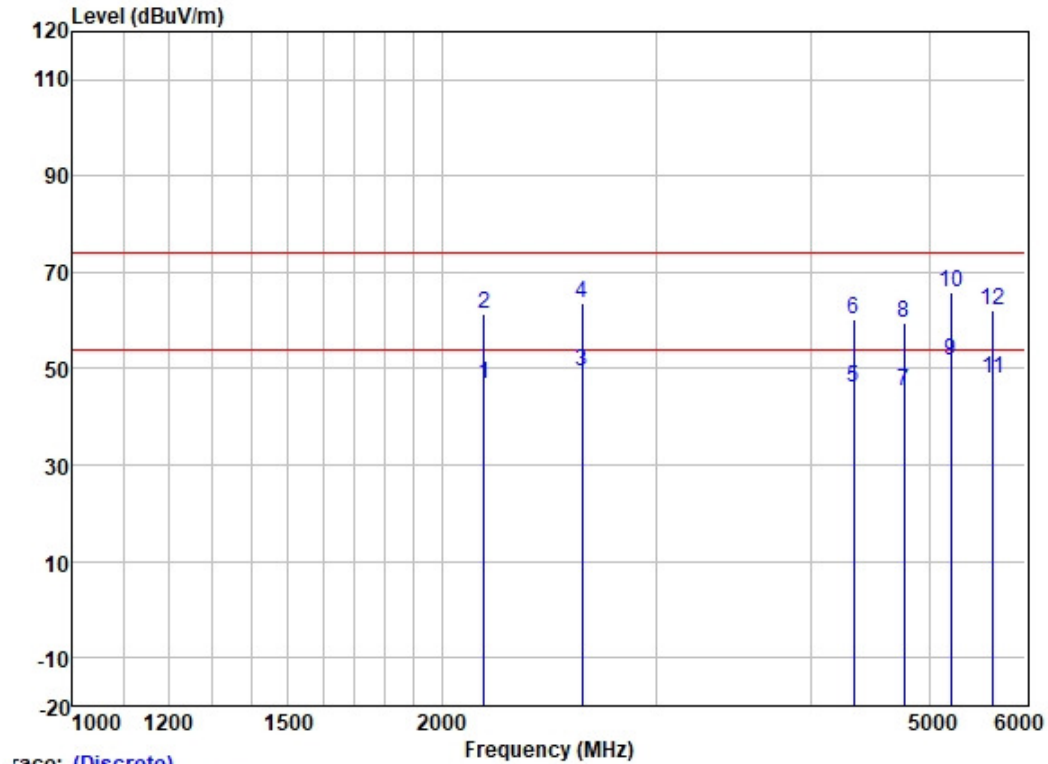
Test Mode: 00; Polarity: Horizontal



Trace: (Discrete)

|    | Freq     | ReadAntenna | Cable  | Preamp | Level  | Limit  | Over   | Pol/Phase | Remark             |
|----|----------|-------------|--------|--------|--------|--------|--------|-----------|--------------------|
|    | MHz      | Level       | Factor | Loss   | Factor | Line   | Limit  |           |                    |
|    | MHz      | dBuV        | dB/m   | dB     | dB     | dBuV/m | dBuV/m | dB        |                    |
| 1  | 1301.332 | 53.23       | 25.20  | 2.60   | 38.31  | 42.72  | 54.00  | -11.28    | HORIZONTAL Average |
| 2  | 1301.332 | 67.65       | 25.20  | 2.60   | 38.31  | 57.14  | 74.00  | -16.86    | HORIZONTAL Peak    |
| 3  | 2168.510 | 56.77       | 26.49  | 3.19   | 37.66  | 48.79  | 54.00  | -5.21     | HORIZONTAL Average |
| 4  | 2168.510 | 71.19       | 26.49  | 3.19   | 37.66  | 63.21  | 74.00  | -10.79    | HORIZONTAL Peak    |
| 5  | 2603.351 | 51.63       | 27.63  | 3.50   | 37.52  | 45.24  | 54.00  | -8.76     | HORIZONTAL Average |
| 6  | 2603.351 | 66.05       | 27.63  | 3.50   | 37.52  | 59.66  | 74.00  | -14.34    | HORIZONTAL Peak    |
| 7  | 4770.324 | 48.32       | 31.36  | 5.40   | 36.83  | 48.25  | 54.00  | -5.75     | HORIZONTAL Average |
| 8  | 4770.324 | 62.74       | 31.36  | 5.40   | 36.83  | 62.67  | 74.00  | -11.33    | HORIZONTAL Peak    |
| 9  | 5208.076 | 52.23       | 31.74  | 5.65   | 36.87  | 52.75  | 54.00  | -1.25     | HORIZONTAL Average |
| 10 | 5208.076 | 66.65       | 31.74  | 5.65   | 36.87  | 67.17  | 74.00  | -6.83     | HORIZONTAL Peak    |
| 11 | 5645.392 | 51.84       | 31.95  | 6.35   | 36.89  | 53.25  | 54.00  | -0.75     | HORIZONTAL Average |
| 12 | 5645.392 | 66.26       | 31.95  | 6.35   | 36.89  | 67.67  | 74.00  | -6.33     | HORIZONTAL Peak    |

Test Mode: 00; Polarity: Vertical



|    | Freq     | ReadAntenna | Cable  | Preamp |        | Limit  | Over   |        |           |         |
|----|----------|-------------|--------|--------|--------|--------|--------|--------|-----------|---------|
|    | MHz      | Level       | Factor | Loss   | Factor | Level  | Line   | Limit  | Pol/Phase | Remark  |
|    | MHz      | dBuV        | dB/m   | dB     | dB     | dBuV/m | dBuV/m | dB     |           |         |
| 1  | 2168.510 | 54.85       | 26.49  | 3.19   | 37.66  | 46.87  | 54.00  | -7.13  | VERTICAL  | Average |
| 2  | 2168.510 | 69.27       | 26.49  | 3.19   | 37.66  | 61.29  | 74.00  | -12.71 | VERTICAL  | Peak    |
| 3  | 2603.351 | 55.72       | 27.63  | 3.50   | 37.52  | 49.33  | 54.00  | -4.67  | VERTICAL  | Average |
| 4  | 2603.351 | 70.15       | 27.63  | 3.50   | 37.52  | 63.76  | 74.00  | -10.24 | VERTICAL  | Peak    |
| 5  | 4338.163 | 47.55       | 30.57  | 4.67   | 36.81  | 45.98  | 54.00  | -8.02  | VERTICAL  | Average |
| 6  | 4338.163 | 61.97       | 30.57  | 4.67   | 36.81  | 60.40  | 74.00  | -13.60 | VERTICAL  | Peak    |
| 7  | 4770.324 | 45.31       | 31.36  | 5.40   | 36.83  | 45.24  | 54.00  | -8.76  | VERTICAL  | Average |
| 8  | 4770.324 | 59.73       | 31.36  | 5.40   | 36.83  | 59.66  | 74.00  | -14.34 | VERTICAL  | Peak    |
| 9  | 5208.076 | 51.05       | 31.74  | 5.65   | 36.87  | 51.57  | 54.00  | -2.43  | VERTICAL  | Average |
| 10 | 5208.076 | 65.48       | 31.74  | 5.65   | 36.87  | 66.00  | 74.00  | -8.00  | VERTICAL  | Peak    |
| 11 | 5645.392 | 46.41       | 31.95  | 6.35   | 36.89  | 47.82  | 54.00  | -6.18  | VERTICAL  | Average |
| 12 | 5645.392 | 60.83       | 31.95  | 6.35   | 36.89  | 62.24  | 74.00  | -11.76 | VERTICAL  | Peak    |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## 8 Test Setup Photo

Refer to Appendix - Test Setup Photo for GZCR2205000639AT

## 9 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for GZCR2205000639AT

- End of the Report -