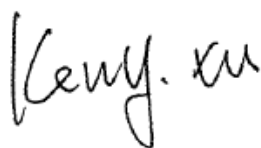


## TEST REPORT

**Application No.:** SZEM2008007554CR  
**Applicant:** DongGuan city JIESHUI electronic co., Ltd.  
**Address of Applicant:** No.152, LiYaTang Industrial Area, LinChun Village, TangXia Town, DongGuan, 523711, China  
**Manufacturer:** DongGuan city JIESHUI electronic co., Ltd.  
**Address of Manufacturer:** No.152, LiYaTang Industrial Area, LinChun Village, TangXia Town, DongGuan, 523711, China  
**Factory:** DongGuan city JIESHUI electronic co., Ltd.  
**Address of Factory:** No.152, LiYaTang Industrial Area, LinChun Village, TangXia Town, DongGuan, 523711, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Race Pro 10W Wireless Charger-(vent/dash)  
**Model No.:** JS-WQC-021, CY3287WLCCH, CY3288WLCCH ♣  
 ♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Trade mark:** JSE, CYGNETT  
**FCC ID:** 2AQAE-JSWQC021  
**Standard(s) :** 47 CFR Part 15, Subpart C  
**Date of Receipt:** 2020-08-05  
**Date of Test:** 2020-08-08 to 2020-08-22  
**Date of Issue:** 2020-08-28

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

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

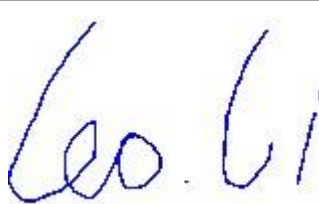


Keny Xu  
EMC Laboratory Manager



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)

| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 01              |         | 2020-08-28 |          | Original |
|                 |         |            |          |          |
|                 |         |            |          |          |

|                          |  |                                                                                     |  |
|--------------------------|--|-------------------------------------------------------------------------------------|--|
| Authorized for issue by: |  |                                                                                     |  |
|                          |  |    |  |
|                          |  | <hr/> Leo Li /Project Engineer                                                      |  |
|                          |  |  |  |
|                          |  | <hr/> Eric Fu /Reviewer                                                             |  |

## 2 Test Summary

| Radio Spectrum Technical Requirement |                           |        |                                  |        |
|--------------------------------------|---------------------------|--------|----------------------------------|--------|
| Item                                 | Standard                  | Method | Requirement                      | Result |
| Antenna Requirement                  | 47 CFR Part 15, Subpart C | 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 | ANSI C63.10 (2013) Section 6.9.2  | 47 CFR Part 15, Subpart C 15.215          | Pass   |
| Restricted Bands                | 47 CFR Part 15, Subpart C | ANSI C63.10 (2013) Section 6.10.5 | 47 CFR Part 15, Subpart C 15.205          | Pass   |
| Radiated Emissions (9kHz-30MHz) | 47 CFR Part 15, Subpart C | ANSI C63.10 (2013) Section 6.4    | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass   |
| Radiated Emissions (30MHz-1GHz) | 47 CFR Part 15, Subpart C | ANSI C63.10 (2013) Section 6.5    | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass   |

### Remark:

Model No.: JS-WQC-021, CY3287WLCCH, CY3288WLCCH

The model CY3287WLCCH was tested. Since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference as below:

| Model No.   | Brand name | Base type            |
|-------------|------------|----------------------|
| JS-WQC-021  | JSE        | Vent                 |
| CY3288WLCCH | CYGNETT    | Vent                 |
| CY3287WLCCH | CYGNETT    | Dashboard/windscreen |

### 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>5</b>  |
| 4.1 DETAILS OF E.U.T. ....                          | 5         |
| 4.2 DESCRIPTION OF SUPPORT UNITS .....              | 5         |
| 4.3 MEASUREMENT UNCERTAINTY .....                   | 5         |
| 4.4 TEST LOCATION.....                              | 6         |
| 4.5 TEST FACILITY.....                              | 6         |
| 4.6 DEVIATION FROM STANDARDS.....                   | 6         |
| 4.7 ABNORMALITIES FROM STANDARD CONDITIONS .....    | 6         |
| <b>5 EQUIPMENT LIST.....</b>                        | <b>7</b>  |
| <b>6 RADIO SPECTRUM TECHNICAL REQUIREMENT .....</b> | <b>9</b>  |
| 6.1 ANTENNA REQUIREMENT .....                       | 9         |
| 6.1.1 Test Requirement: .....                       | 9         |
| 6.1.2 Conclusion .....                              | 9         |
| <b>7 RADIO SPECTRUM MATTER TEST RESULTS.....</b>    | <b>10</b> |
| 7.1 20dB BANDWIDTH .....                            | 10        |
| 7.1.1 E.U.T. Operation .....                        | 10        |
| 7.1.2 Test Setup Diagram .....                      | 10        |
| 7.1.3 Measurement Procedure and Data.....           | 10        |
| 7.2 RESTRICTED BANDS .....                          | 12        |
| 7.2.1 E.U.T. Operation .....                        | 12        |
| 7.2.2 Test Setup Diagram .....                      | 12        |
| 7.2.3 Measurement Procedure and Data.....           | 12        |
| 7.3 RADIATED EMISSIONS (9KHZ-30MHZ) .....           | 14        |
| 7.3.1 E.U.T. Operation .....                        | 15        |
| 7.3.2 Test Setup Diagram .....                      | 15        |
| 7.3.3 Measurement Procedure and Data.....           | 15        |
| 7.4 RADIATED EMISSIONS (30MHZ-1GHZ) .....           | 18        |
| 7.4.1 E.U.T. Operation .....                        | 19        |
| 7.4.2 Test Setup Diagram .....                      | 19        |
| 7.4.3 Measurement Procedure and Data.....           | 20        |
| <b>8 PHOTOGRAPHS.....</b>                           | <b>24</b> |
| 8.1 TEST SETUP.....                                 | 24        |
| 8.2 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS).....    | 24        |



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) 83071443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch 检验测试部 EUT Laboratory

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.ssgroup.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

## 4 General Information

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

|                      |                                                                                               |
|----------------------|-----------------------------------------------------------------------------------------------|
| Power Supply:        | Input: DC 5V/2A; DC 9V/2A<br>Output: 5W(DC 5V/1A), 7.5W(DC 7.5V1A), 10W(DC 9V/1.12A)          |
| Cable:               | USB cable: 153cm unshielded                                                                   |
| Antenna Type:        | Loop Antenna                                                                                  |
| Modulation Type:     | Load Modulation                                                                               |
| Operation Frequency: | 111.378kHz to 151.603kHz                                                                      |
| Remark:              | Tests were conducted in all load modes and the worst case 10W (DC 9V/1.12A) is reported only. |

### 4.2 Description of Support Units

| Description       | Manufacturer | Model No. | Serial No.       |
|-------------------|--------------|-----------|------------------|
| Car charger       | Xiaomi       | XM010A028 | REF. No.:SEA0732 |
| iPhone 8          | Apple        | A1863     | F4GVQ656JC6D     |
| SAMSUNG Galaxy S8 | SAMSUNG      | SM-G9500  | R28J9140LPB      |

### 4.3 Measurement Uncertainty

| No. | Item                            | Measurement Uncertainty         |
|-----|---------------------------------|---------------------------------|
| 1   | Radio Frequency                 | $\pm 7.25 \times 10^{-8}$       |
| 2   | Occupied Bandwidth              | $\pm 3\%$                       |
| 3   | Radiated Spurious emission test | $\pm 4.5\text{dB}$ (Below 1GHz) |
| 4   | Temperature test                | $\pm 1^\circ\text{C}$           |
| 5   | Humidity test                   | $\pm 3\%$                       |
| 6   | Supply voltages                 | $\pm 1.5\%$                     |
| 7   | Time                            | $\pm 3\%$                       |



#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### 4.5 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISCED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

#### 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)

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

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.ssgroup.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

## 5 Equipment List

| 20dB Bandwidth                       |                 |                 |              |            |              |
|--------------------------------------|-----------------|-----------------|--------------|------------|--------------|
| Equipment                            | Manufacturer    | Model No        | Inventory No | Cal Date   | Cal Due Date |
| Shielding Room                       | SAEMC           | MSR733          | SEM001-09    | 2019-06-13 | 2022-06-12   |
| DC Power Supply                      | Rohde & Schwarz | NGSM 32/10      | SEM011-04    | 2020-03-24 | 2021-03-23   |
| Spectrum Analyzer                    | Rohde & Schwarz | FSP             | SEM004-06    | 2019-09-24 | 2020-09-23   |
| Measurement Software                 | TST             | TST PASS V1.0.5 | N/A          | N/A        | N/A          |
| Coaxial Cable                        | SGS             | N/A             | SEM031-02    | 2020-07-10 | 2021-07-09   |
| Attenuator                           | Huber+Suhner    | 6620_SMA-50-1   | SEM021-09    | N/A        | N/A          |
| Signal Generator                     | KEYSIGHT        | N5173B          | SEM006-05    | 2019-09-24 | 2020-09-23   |
| Power Meter                          | Rohde & Schwarz | NRVS            | SEM014-02    | 2019-09-24 | 2020-09-23   |
| Electric and Magnetic Field Analyzer | Narda           | EHP-50F         | SEM022-05    | 2019-11-28 | 2020-11-27   |

| Restricted Bands                     |                 |                 |              |            |              |
|--------------------------------------|-----------------|-----------------|--------------|------------|--------------|
| Equipment                            | Manufacturer    | Model No        | Inventory No | Cal Date   | Cal Due Date |
| Shielding Room                       | SAEMC           | MSR733          | SEM001-09    | 2019-06-13 | 2022-06-12   |
| DC Power Supply                      | Rohde & Schwarz | NGSM 32/10      | SEM011-04    | 2020-03-24 | 2021-03-23   |
| Spectrum Analyzer                    | Rohde & Schwarz | FSP             | SEM004-06    | 2019-09-24 | 2020-09-23   |
| Measurement Software                 | TST             | TST PASS V1.0.5 | N/A          | N/A        | N/A          |
| Coaxial Cable                        | SGS             | N/A             | SEM031-02    | 2020-07-10 | 2021-07-09   |
| Attenuator                           | Huber+Suhner    | 6620_SMA-50-1   | SEM021-09    | N/A        | N/A          |
| Signal Generator                     | KEYSIGHT        | N5173B          | SEM006-05    | 2019-09-24 | 2020-09-23   |
| Power Meter                          | Rohde & Schwarz | NRVS            | SEM014-02    | 2019-09-24 | 2020-09-23   |
| Electric and Magnetic Field Analyzer | Narda           | EHP-50F         | SEM022-05    | 2019-11-28 | 2020-11-27   |



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) 83071443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch (SGS-CSTC Laboratory)

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

| Radiated Emissions (9kHz-30MHz) |                      |                 |              |            |              |
|---------------------------------|----------------------|-----------------|--------------|------------|--------------|
| Equipment                       | Manufacturer         | Model No        | Inventory No | Cal Date   | Cal Due Date |
| 10m Semi-Anechoic Chamber       | SAEMC                | FSAC1018        | SEM001-03    | 2018-03-31 | 2021-03-30   |
| Measurement Software            | AUDIX                | e3 V8.2014-6-27 | N/A          | N/A        | N/A          |
| Coaxial Cable                   | SGS                  | N/A             | SEM029-01    | 2020-07-10 | 2021-07-09   |
| MXE EMI receiver                | KEYSIGHT             | N9038A          | SEM004-16    | 2019-12-16 | 2020-12-15   |
| Trilog-Broadband Antenna        | Schwarzbeck          | VULB9168        | SEM003-18    | 2019-08-08 | 2022-08-07   |
| Pre-amplifier                   | Sonoma Instrument Co | 310N            | SEM005-04    | 2020-04-09 | 2021-04-08   |
| Active Loop Antenna             | ETS-Lindgren         | 6502            | SEM003-08    | 2020-08-14 | 2023-08-13   |

| Radiated Emissions (30MHz-1GHz) |                      |                 |              |            |              |
|---------------------------------|----------------------|-----------------|--------------|------------|--------------|
| Equipment                       | Manufacturer         | Model No        | Inventory No | Cal Date   | Cal Due Date |
| 10m Semi-Anechoic Chamber       | SAEMC                | FSAC1018        | SEM001-03    | 2018-03-31 | 2021-03-30   |
| Measurement Software            | AUDIX                | e3 V8.2014-6-27 | N/A          | N/A        | N/A          |
| Coaxial Cable                   | SGS                  | N/A             | SEM029-01    | 2020-07-10 | 2021-07-09   |
| MXE EMI receiver                | KEYSIGHT             | N9038A          | SEM004-16    | 2019-12-16 | 2020-12-15   |
| Trilog-Broadband Antenna        | Schwarzbeck          | VULB9168        | SEM003-18    | 2019-08-08 | 2022-08-07   |
| Pre-amplifier                   | Sonoma Instrument Co | 310N            | SEM005-04    | 2020-04-09 | 2021-04-08   |
| Active Loop Antenna             | ETS-Lindgren         | 6502            | SEM003-08    | 2020-08-14 | 2023-08-13   |

| General used equipment          |                                           |          |              |            |              |
|---------------------------------|-------------------------------------------|----------|--------------|------------|--------------|
| Equipment                       | Manufacturer                              | Model No | Inventory No | Cal Date   | Cal Due Date |
| Humidity/ Temperature Indicator | Shanghai Meteorological Industry Factory  | ZJ1-2B   | SEM002-03    | 2019-09-26 | 2020-09-25   |
| Humidity/ Temperature Indicator | Shanghai Meteorological Industry Factory  | ZJ1-2B   | SEM002-04    | 2019-09-26 | 2020-09-25   |
| Humidity/ Temperature Indicator | Mingle                                    | N/A      | SEM002-08    | 2019-09-26 | 2020-09-25   |
| Barometer                       | Changchun Meteorological Industry Factory | DYM3     | SEM002-01    | 2020-04-07 | 2021-04-06   |



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)

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 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

#### 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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### 6.1.2 Conclusion

##### EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement.

## 7 Radio Spectrum Matter Test Results

### 7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215

Test Method: ANSI C63.10 (2013) Section 6.9.2

Limit:

For report reference only

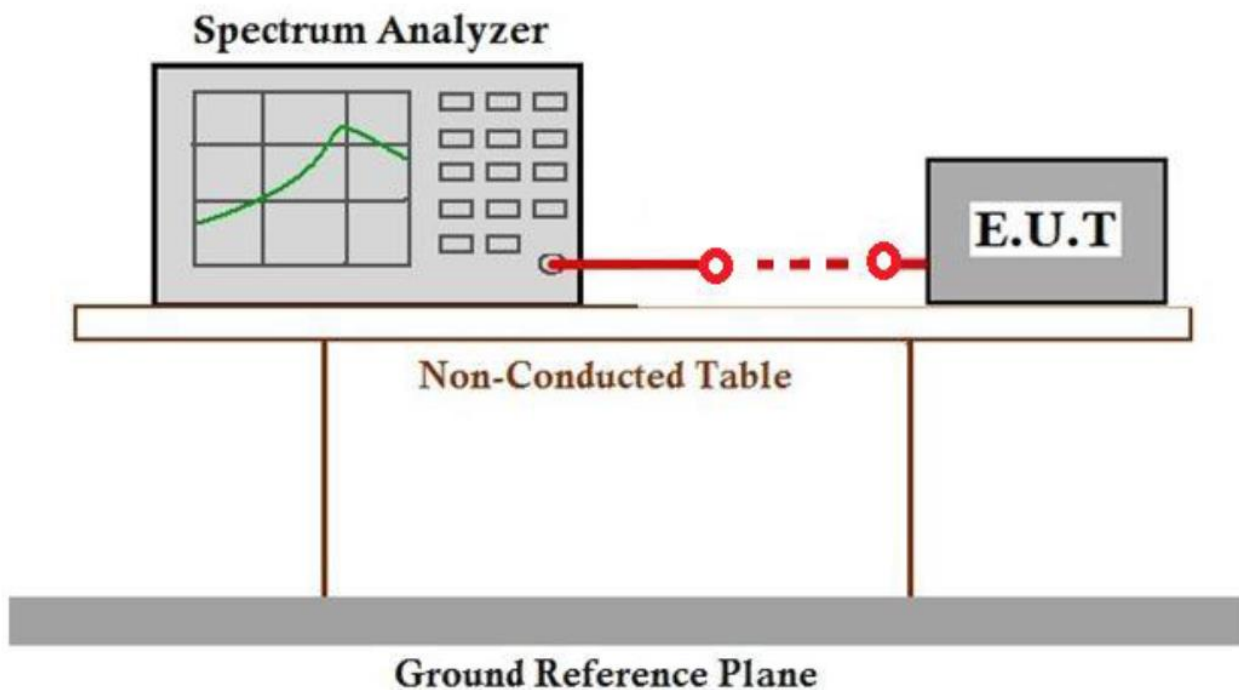
#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C Humidity: 46.2 % RH Atmospheric Pressure: 1010 mbar

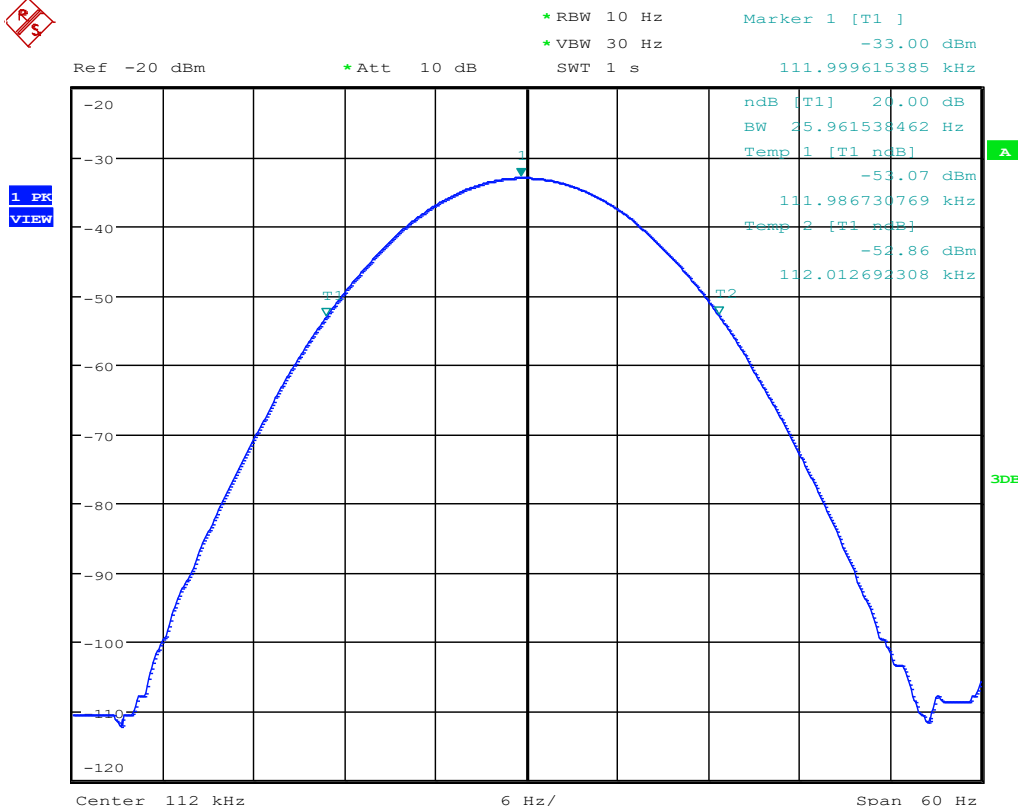
Test mode a: Charge mode\_Keep the EUT charging

#### 7.1.2 Test Setup Diagram



#### 7.1.3 Measurement Procedure and Data

| Test Frequency(KHz) | 20dB bandwidth (KHz) | Limit (KHz) | Results |
|---------------------|----------------------|-------------|---------|
| 112.00              | 0.026                | N/A         | Pass    |



## 7.2 Restricted Bands

Test Requirement 47 CFR Part 15, Subpart C 15.205  
Test Method: ANSI C63.10 (2013) Section 6.10.5  
Limit:

The fundamental wave can not fall in the restricted band 90KHz-110KHz

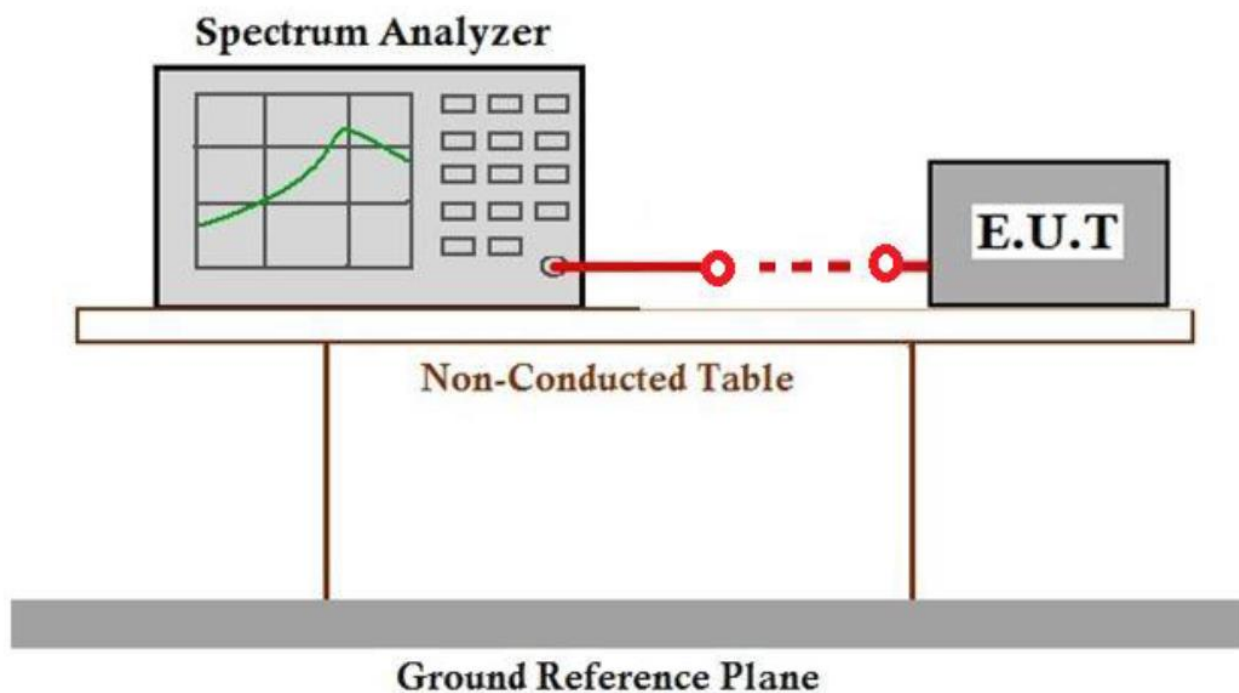
### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C Humidity: 46.2 % RH Atmospheric Pressure: 1010 mbar

Test mode a: Charge mode\_Keep the EUT charging

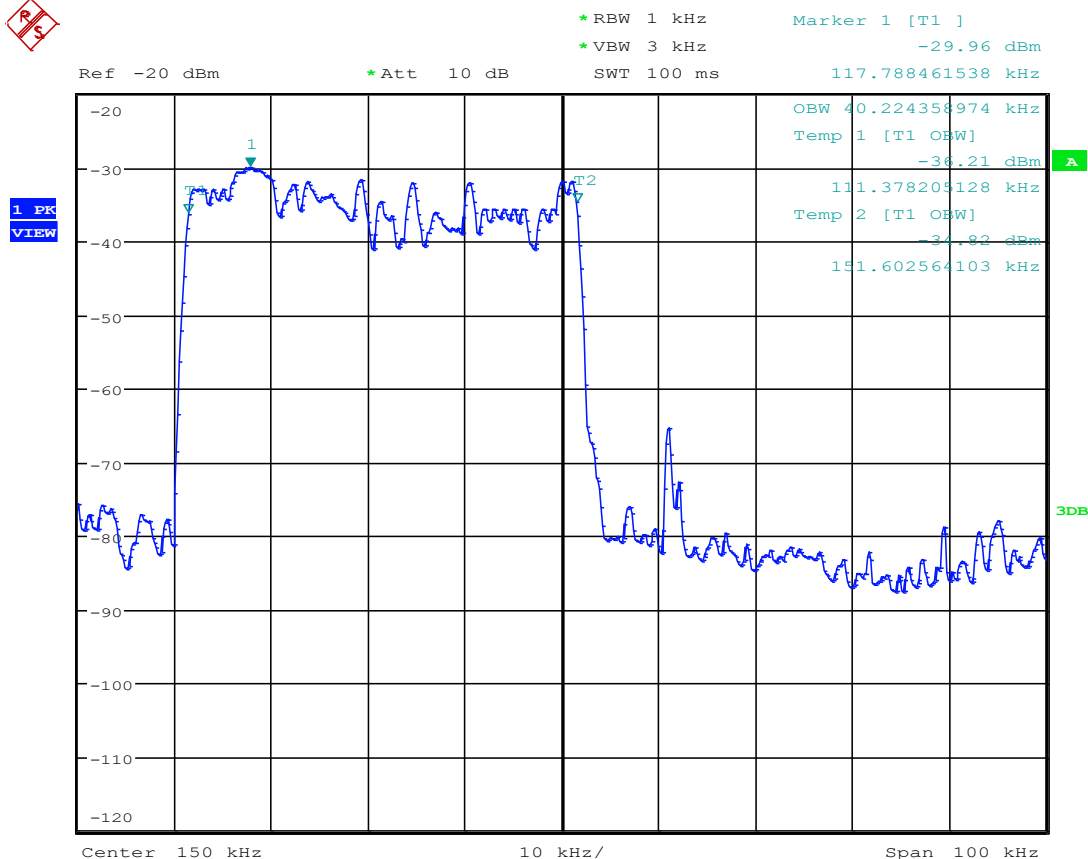
### 7.2.2 Test Setup Diagram



### 7.2.3 Measurement Procedure and Data







According the test data above, the fundamental wave is not fall in the restricted band 90KHz-110KHz, the field strength also meet the 15.209 requirement, please refer to clause 7.3.



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) 83071443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

### 7.3 Radiated Emissions (9kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4

Measurement Distance: 3m

Limit:

| 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                           |

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. 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.

If field strength is measured at only a single point, then that point shall be at the radial from the EUT that produces the maximum emission at the frequency being measured, as described in 5.4. If that point is closer to the EUT than  $\lambda/2\pi$  and the limit distance is greater than  $\lambda/2\pi$ , the measurement shall be extrapolated to the limit distance by conservatively presuming that the field strength decreases at a 40 dB/decade of distance rate to the  $\lambda/2\pi$  distance, and at a 20 dB/decade of distance rate beyond  $\lambda/2\pi$ . This shall be accomplished using Equation (2):

$$FS_{(10m)} = FS_{(30/300m)} + 40\log\{d_{(near\ field)}/d_{(10m)}\} + 20\log\{d_{(30/300m)}/d_{(near\ field)}\} \quad (2)$$

If the single point measured is at a distance greater than  $\lambda/2\pi$ , then extrapolation to the limit distance shall be calculated using Equation (3):

$$FS_{(10m)} = FS_{(30/300m)} + 20\log\{d_{(30/300m)}/d_{(10m)}\} \quad (3)$$

If both the single point and the limit distance are equal to or closer to the EUT than  $\lambda/2\pi$ , then extrapolation to the limit distance shall be calculated using Equation (4):

$$FS_{(10m)} = FS_{(30/300m)} + 40\log\{d_{(30/300m)}/d_{(10m)}\} \quad (4)$$

Remark:

$$d_{near\ field} = 47.77 / f_{MHz}$$

where  $f_{MHz}$  is the frequency of the emission being measured in MHz.



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

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

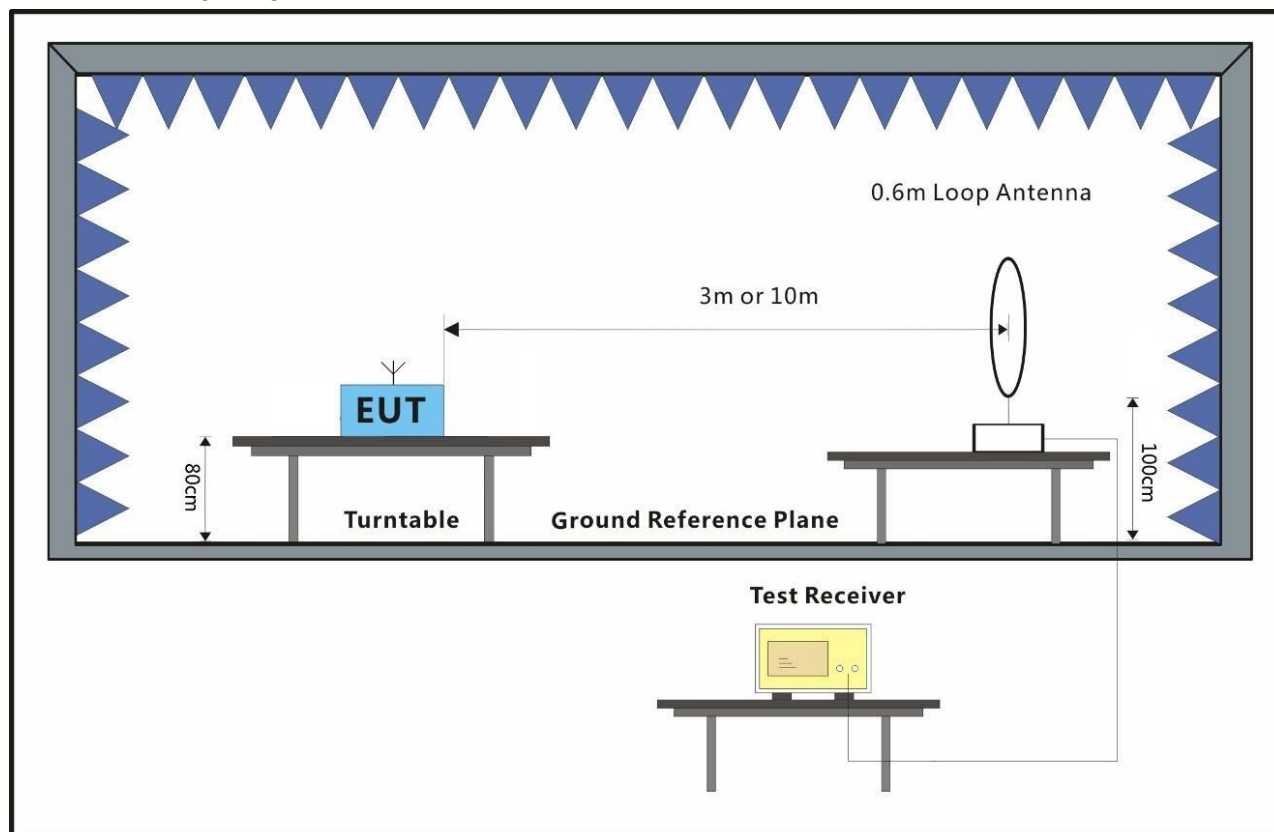
### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 54.7 % RH Atmospheric Pressure: 1010 mbar

Test mode a: Charge mode\_Keep the EUT charging

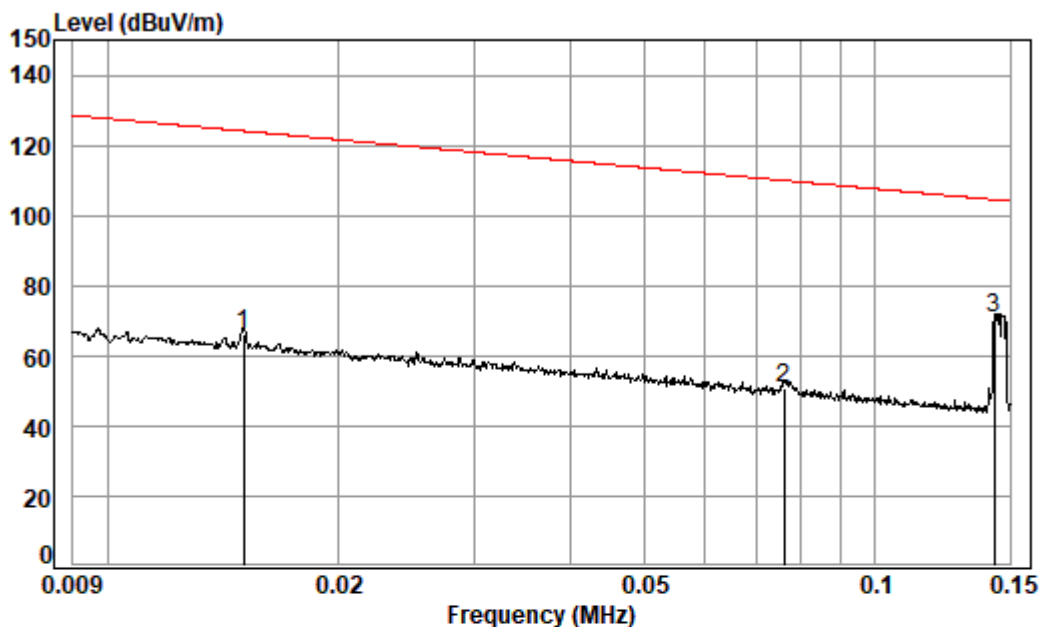
### 7.3.2 Test Setup Diagram



### 7.3.3 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 vertical was shown in the report.

Mode a:



Condition: 3m

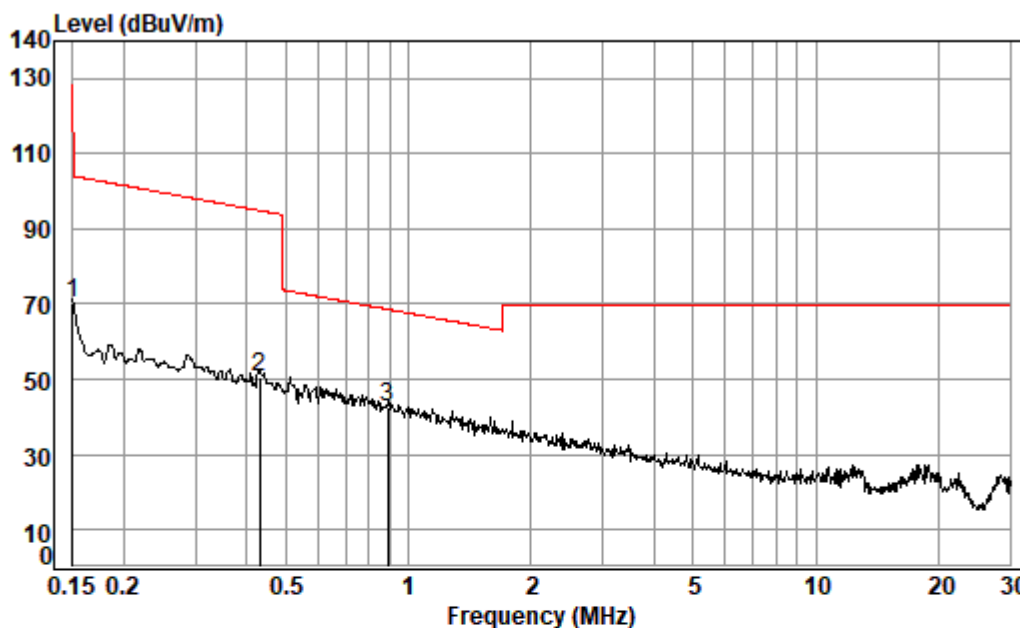
Job No. : 07554CR

Test Mode: a

|      | Ant Freq | Preamp Factor | Cable Factor | Cable Loss | Read Level | Limit Level | Limit Line | Over Limit | Remark  |
|------|----------|---------------|--------------|------------|------------|-------------|------------|------------|---------|
|      | MHz      | dB/m          | dB           | dB         | dBuV       | dBuV/m      | dBuV/m     | dB         |         |
| 1    | 0.015    | 18.61         | 30.91        | 0.32       | 78.12      | 66.14       | 124.07     | -57.93     | Average |
| 2    | 0.076    | 14.14         | 32.01        | 0.01       | 68.76      | 50.90       | 109.97     | -59.07     | Average |
| 3 pp | 0.143    | 13.95         | 32.20        | 0.02       | 89.01      | 70.78       | 104.50     | -33.72     | Average |







Condition: 3m

Job No. : 07554CR

Test Mode: a

|      |       | Ant    | Preamp | Cable | Read  | Limit  | Over   |                |
|------|-------|--------|--------|-------|-------|--------|--------|----------------|
|      | Freq  | Factor | Factor | Loss  | Level | Line   | Limit  | Remark         |
|      | MHz   | dB/m   | dB     | dB    | dBuV  | dBuV/m | dBuV/m | dB             |
| 1 av | 0.150 | 13.94  | 32.20  | 0.02  | 88.68 | 70.44  | 104.08 | -33.64 Average |
| 2    | 0.431 | 13.80  | 32.24  | 0.05  | 69.05 | 50.66  | 94.92  | -44.26 Average |
| 3 pp | 0.890 | 13.80  | 32.27  | 0.11  | 60.72 | 42.36  | 68.62  | -26.26 QP      |



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.  
Shenzhen Branch (SGS-CSTC Laboratory)

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

#### 7.4 Radiated Emissions (30MHz-1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

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

Measurement Distance: 10m

Limit:

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|----------------|----------------------------------|------------------------------|
| 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 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.



SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch (EMC Laboratory)

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) 83071443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

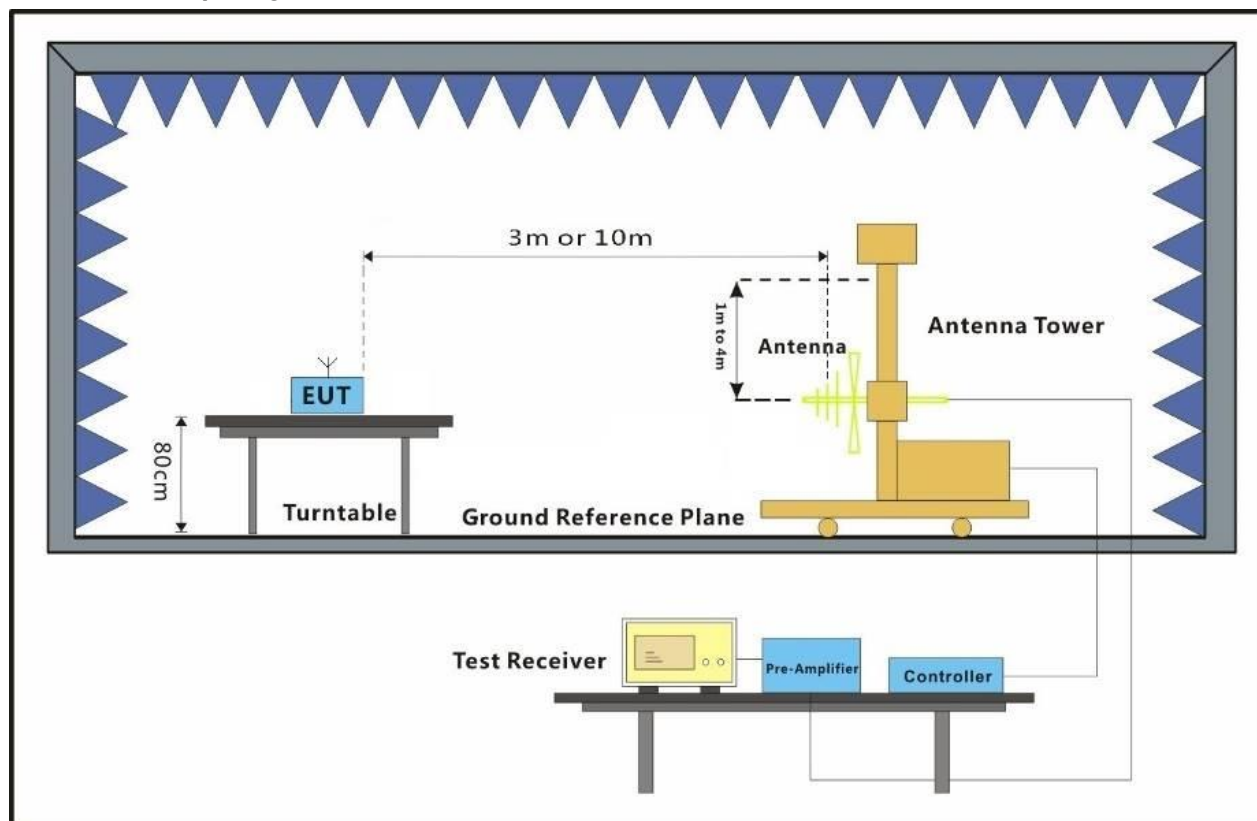
## 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 24.1 °C Humidity: 55.8 % RH Atmospheric Pressure: 1010 mbar

Test mode a: Charge mode\_Keep the EUT charging

## 7.4.2 Test Setup Diagram



### 7.4.3 Measurement Procedure and Data

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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.

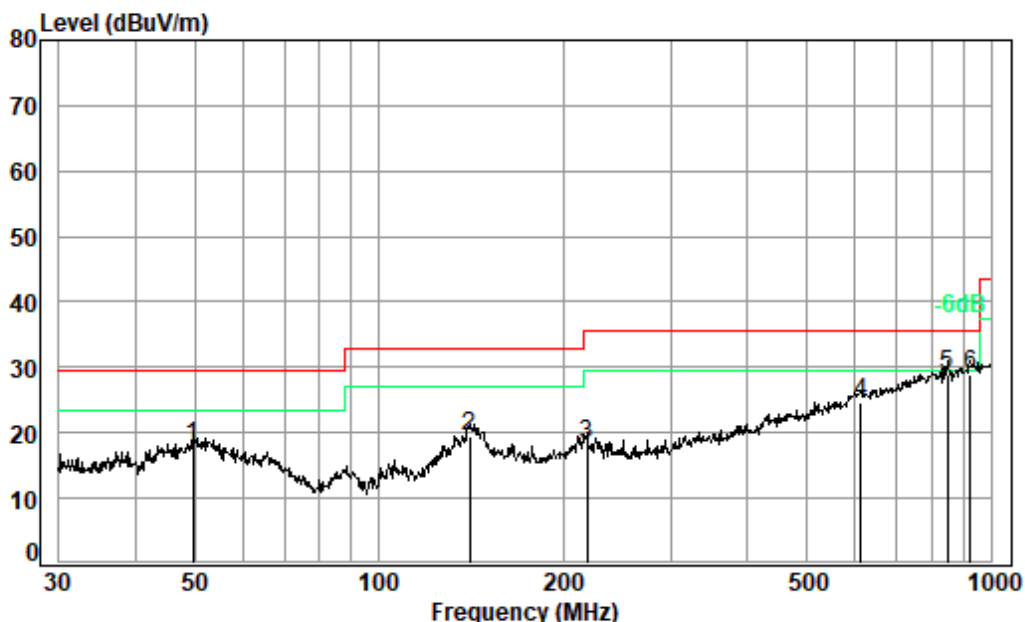
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 83071443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

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

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.ssgroup.com.cn  
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com



Mode:a; Polarization:Horizontal



Condition: 10m HORIZONTAL

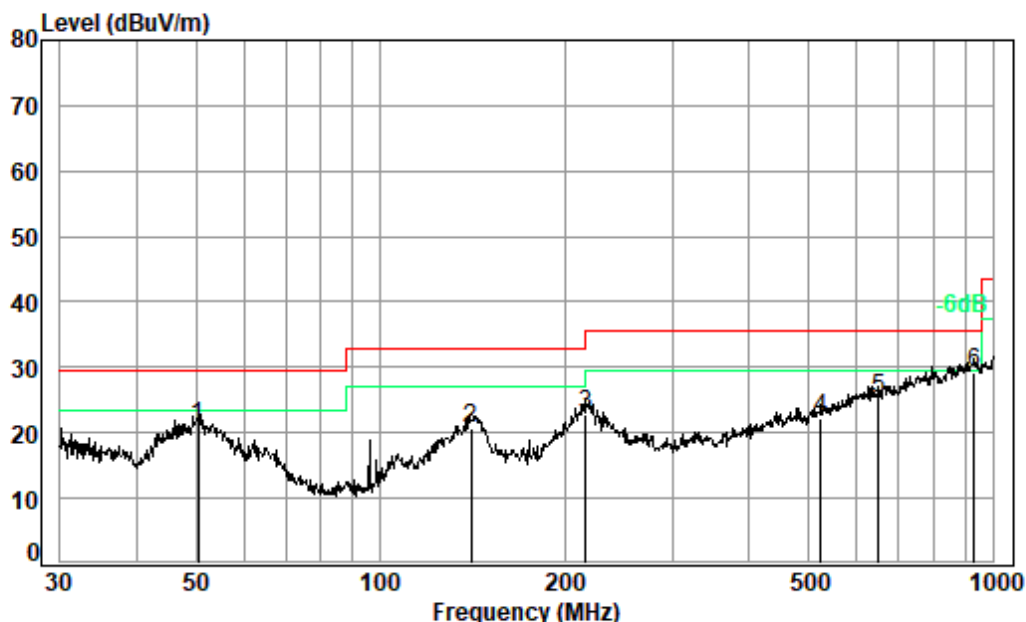
Job No. : 07554CR

Test Mode: a

|      | Ant<br>Freq | Cable<br>Factor | Preamp<br>Loss | Factor | Read<br>Level | Level  | Limit<br>Line | Over<br>Limit | Remark |
|------|-------------|-----------------|----------------|--------|---------------|--------|---------------|---------------|--------|
|      | MHz         | dB/m            | dB             | dB     | dBuV          | dBuV/m | dBuV/m        | dB            |        |
| 1    | 49.707      | 20.29           | 0.99           | 32.46  | 29.15         | 17.97  | 29.50         | -11.53        | QP     |
| 2    | 140.835     | 19.74           | 1.44           | 32.30  | 30.54         | 19.42  | 33.00         | -13.58        | QP     |
| 3    | 219.075     | 16.00           | 1.75           | 32.29  | 32.74         | 18.20  | 35.60         | -17.40        | QP     |
| 4    | 612.064     | 26.46           | 3.17           | 32.06  | 27.02         | 24.59  | 35.60         | -11.01        | QP     |
| 5    | 848.056     | 28.68           | 3.40           | 31.72  | 28.51         | 28.87  | 35.60         | -6.73         | QP     |
| 6 pp | 925.756     | 29.80           | 3.45           | 31.38  | 27.14         | 29.01  | 35.60         | -6.59         | QP     |



Mode:a; Polarization:Vertical



Condition: 10m VERTICAL

Job No. : 07554CR

Test Mode: a

|      | Ant<br>Freq | Cable<br>Factor | Preamp<br>Loss | Read<br>Factor | Level | Level  | Limit  | Over   | Remark |
|------|-------------|-----------------|----------------|----------------|-------|--------|--------|--------|--------|
|      | MHz         | dB/m            | dB             | dB             | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1    | 50.409      | 20.22           | 0.99           | 32.46          | 32.12 | 20.87  | 29.50  | -8.63  | QP     |
| 2    | 140.835     | 19.74           | 1.44           | 32.30          | 31.92 | 20.80  | 33.00  | -12.20 | QP     |
| 3    | 216.783     | 16.00           | 1.74           | 32.29          | 37.35 | 22.80  | 35.60  | -12.80 | QP     |
| 4    | 524.554     | 24.35           | 3.04           | 32.35          | 27.27 | 22.31  | 35.60  | -13.29 | QP     |
| 5    | 649.660     | 26.49           | 3.20           | 32.14          | 27.56 | 25.11  | 35.60  | -10.49 | QP     |
| 6 pp | 932.272     | 29.80           | 3.46           | 31.35          | 27.43 | 29.34  | 35.60  | -6.26  | QP     |

The test was performed at a 10m test site. According to below formulate and the test data at 10m test distance,

$$L_3 / L_{10} = D_{10} / D_3$$

Note:

$L_3$ : Level @ 3m distance. Unit:  $\mu\text{V/m}$ ;

$L_{10}$ : Level @ 10m distance. Unit:  $\mu\text{V/m}$ ;

$D_3$ : 3m distance. Unit: m

$D_{10}$ : 10m distance. Unit: m

The level at 3m test distance is below:

| Frequency (MHz) | Level @ 10m (dBuV/m) | Level @ 10m ( $\mu\text{V/m}$ ) | Level @ 3m ( $\mu\text{V/m}$ ) | Level @ 3m (dBuV/m) | Limit @ 3m (dBuV/m) | Margin (dB) | Ant. Polarization |
|-----------------|----------------------|---------------------------------|--------------------------------|---------------------|---------------------|-------------|-------------------|
| 50.41           | 20.87                | 11.05                           | 36.85                          | 31.33               | 40.00               | -8.67       | V                 |
| 140.84          | 20.80                | 10.96                           | 36.55                          | 31.26               | 43.50               | -12.24      | V                 |
| 216.78          | 22.80                | 13.80                           | 46.01                          | 33.26               | 46.00               | -12.74      | V                 |
| 524.55          | 22.31                | 13.05                           | 43.49                          | 32.77               | 46.00               | -13.23      | V                 |
| 649.66          | 25.11                | 18.01                           | 60.03                          | 35.57               | 46.00               | -10.43      | V                 |
| 932.27          | 29.34                | 29.31                           | 97.70                          | 39.80               | 46.00               | -6.20       | V                 |
| 49.71           | 17.97                | 7.92                            | 26.39                          | 28.43               | 40.00               | -11.57      | H                 |
| 140.84          | 19.42                | 9.35                            | 31.18                          | 29.88               | 43.50               | -13.62      | H                 |
| 219.08          | 18.20                | 8.13                            | 27.09                          | 28.66               | 46.00               | -17.34      | H                 |
| 612.06          | 24.59                | 16.96                           | 56.54                          | 35.05               | 46.00               | -10.95      | H                 |
| 848.06          | 28.87                | 27.77                           | 92.55                          | 39.33               | 46.00               | -6.67       | H                 |
| 925.76          | 29.01                | 28.22                           | 94.05                          | 39.47               | 46.00               | -6.53       | H                 |

## 8 Photographs

### 8.1 Test Setup

Please refer to setup photo.

### 8.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -