

# TEST REPORT

**Applicant:** EPIROC DIGITAL SAFETY SOLUTIONS SOUTH AFRICA (PTY) LTD

**Address of Applicant:** 51 Adriana Crescent, Gateway Business Park, Centurion, South Africa

**Manufacturer/Factory:** EPIROC DIGITAL SAFETY SOLUTIONS SOUTH AFRICA (PTY) LTD

**Address of Manufacturer/Factory:** 51 Adriana Crescent, Gateway Business Park, Centurion, South Africa

**Equipment Under Test (EUT)**

Product Name: Pulse660

Model No.: M-001-215-03-V2

**FCC ID:** 2BPRY-21503V2

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.249

**Date of sample receipt:** March 07, 2025

**Date of Test:** March 07, 2025-September 27, 2025

**Date of report issued:** September 27, 2025

**Test Result :** PASS \*

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

Authorized Signature:



Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.



## 2 Version

| Version No. | Date               | Description |
|-------------|--------------------|-------------|
| 00          | September 27, 2025 | Original    |
|             |                    |             |
|             |                    |             |
|             |                    |             |
|             |                    |             |

**Tested By:**

*Jaidev. Gai*

**Date:**

September 27, 2025

**Test Engineer**

**Prepared By:**

*Jasmit*

**Date:**

September 27, 2025

**Project Engineer**

**Check By:**

*Robinson*

**Date:**

September 27, 2025

**Reviewer**

### 3 Contents

|                                                      | Page |
|------------------------------------------------------|------|
| 1 COVER PAGE.....                                    | 1    |
| 2 VERSION .....                                      | 2    |
| 3 CONTENTS .....                                     | 3    |
| 4 TEST SUMMARY .....                                 | 4    |
| 4.1 MEASUREMENT UNCERTAINTY .....                    | 4    |
| 5 GENERAL INFORMATION.....                           | 5    |
| 5.1 GENERAL DESCRIPTION OF EUT .....                 | 5    |
| 5.2 TEST MODE .....                                  | 6    |
| 5.3 DESCRIPTION OF SUPPORT UNITS .....               | 6    |
| 5.4 DEVIATION FROM STANDARDS .....                   | 6    |
| 5.5 ABNORMALITIES FROM STANDARD CONDITIONS .....     | 6    |
| 5.6 TEST FACILITY.....                               | 7    |
| 5.7 TEST LOCATION .....                              | 7    |
| 5.8 ADDITIONAL INSTRUCTIONS.....                     | 7    |
| 6 TEST INSTRUMENTS LIST .....                        | 8    |
| 7 TEST RESULTS AND MEASUREMENT DATA.....             | 10   |
| 7.1 ANTENNA REQUIREMENT .....                        | 10   |
| 7.2 CONDUCTED EMISSIONS .....                        | 11   |
| 7.3 RADIATED EMISSION METHOD .....                   | 16   |
| 7.3.1 Field Strength of The Fundamental Signal ..... | 18   |
| 7.3.2 Spurious emissions and Band Edge.....          | 19   |
| 7.4 20dB OCCUPY BANDWIDTH .....                      | 27   |
| 8 TEST SETUP PHOTO .....                             | 28   |
| 9 EUT CONSTRUCTIONAL DETAILS .....                   | 28   |

## 4 Test Summary

| Test Item                                | Section in CFR 47     | Result |
|------------------------------------------|-----------------------|--------|
| Antenna requirement                      | 15.203                | Pass   |
| AC Power Line Conducted Emission         | 15.207                | Pass   |
| Field strength of the fundamental signal | 15.249 (a)            | Pass   |
| Spurious emissions                       | 15.249 (a) (d)/15.209 | Pass   |
| Band edge                                | 15.249 (d)/15.205     | Pass   |
| 20dB Occupied Bandwidth                  | 15.215 (c)            | Pass   |

Remarks:

1. Test according to ANSI C63.10: 2020.
2. Pass: The EUT complies with the essential requirements in the standard.

### 4.1 Measurement Uncertainty

| No. | Item                             | Measurement Uncertainty               |
|-----|----------------------------------|---------------------------------------|
| 1   | Radio Frequency                  | $\pm 7.25 \times 10^{-8}$             |
| 2   | Duty cycle                       | $\pm 0.37\%$                          |
| 3   | Occupied Bandwidth               | $\pm 3\%$                             |
| 4   | RF conducted power               | $\pm 0.75\text{dB}$                   |
| 5   | RF power density                 | $\pm 3\text{dB}$                      |
| 6   | Conducted Spurious emissions     | $\pm 2.58\text{dB}$                   |
| 7   | AC Power Line Conducted Emission | $\pm 3.44\text{dB}$ (0.15MHz ~ 30MHz) |
| 8   | Radiated Spurious emission test  | $\pm 3.1\text{dB}$ (9kHz-30MHz)       |
|     |                                  | $\pm 3.8039\text{dB}$ (30MHz-200MHz)  |
|     |                                  | $\pm 3.9679\text{dB}$ (200MHz-1GHz)   |
|     |                                  | $\pm 4.29\text{dB}$ (1GHz-18GHz)      |
|     |                                  | $\pm 3.30\text{dB}$ (18GHz-40GHz)     |
| 9   | Temperature test                 | $\pm 1^\circ\text{C}$                 |
| 10  | Humidity test                    | $\pm 3\%$                             |
| 11  | Time                             | $\pm 3\%$                             |

## 5 General Information

### 5.1 General Description of EUT

|                      |                                                 |
|----------------------|-------------------------------------------------|
| Product Name:        | Pulse660                                        |
| Model No.:           | M-001-215-03-V2                                 |
| S/N:                 | 001-215-03-V2-00003                             |
| Test sample(s) ID:   | GTS2025020168-1                                 |
| Sample(s) Status     | Engineered sample                               |
| Operation Frequency: | 915.3MHz (module:XBe)<br>915.98MHz (module:SRD) |
| Modulation type:     | GFSK                                            |
| Antenna Type:        | Stubby Antenna                                  |
| Antenna gain:        | 2.0dBi                                          |
| Power supply:        | DC 9V-32V                                       |

Disclaimer statement:

1. Antenna gain information provided by the customer, and the laboratory is not responsible for its authenticity.
2. The information in this section is provided by the applicant or manufacturer, GTS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

## 5.2 Test mode

|                   |                                                 |
|-------------------|-------------------------------------------------|
| Transmitting mode | Keep the EUT in continuously transmitting mode. |
|-------------------|-------------------------------------------------|

### Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report (Only show the worst case:Y axis) and defined as follows:

915.3MHz

| Axis                   | X     | Y     | Z     |
|------------------------|-------|-------|-------|
| Field Strength(dBuV/m) | 89.98 | 90.66 | 89.45 |

915.98MHz

| Axis                   | X     | Y     | Z     |
|------------------------|-------|-------|-------|
| Field Strength(dBuV/m) | 91.57 | 92.16 | 92.05 |

## 5.3 Description of Support Units

| Manufacturer | Description     | Model     | Serial Number |
|--------------|-----------------|-----------|---------------|
| GW           | DC POWER SUPPLY | GPR-6030D | EF924756      |

## 5.4 Deviation from Standards

|       |
|-------|
| None. |
|-------|

## 5.5 Abnormalities from Standard Conditions

|       |
|-------|
| None. |
|-------|

## 5.6 Test Facility

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

- **FCC—Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

- **ISED—Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

## 5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123- 128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

## 5.8 Additional Instructions

|                   |                                                   |
|-------------------|---------------------------------------------------|
| Test Software     | Continuously transmitter provided by manufacturer |
| Power level setup | Default                                           |

## 6 Test Instruments list

| Radiated Emission: |                                     |                                |                       |               |                     |                         |
|--------------------|-------------------------------------|--------------------------------|-----------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment                      | Manufacturer                   | Model No.             | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | 3m Semi- Anechoic Chamber           | ZhongYu Electron               | 9.2(L)*6.2(W)* 6.4(H) | GTS250        | Apr. 11, 2025       | Apr. 10, 2026           |
| 2                  | Control Room                        | ZhongYu Electron               | 6.2(L)*2.5(W)* 2.4(H) | GTS251        | N/A                 | N/A                     |
| 3                  | EMI Test Receiver                   | Rohde & Schwarz                | ESU26                 | GTS203        | Apr. 12, 2025       | Apr. 11, 2026           |
| 4                  | BiConiLog Antenna                   | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9168              | GTS640        | Apr. 12, 2025       | Apr. 11, 2026           |
| 5                  | Double -ridged waveguide horn       | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA 9120 D           | GTS208        | Apr. 11, 2025       | Apr. 10, 2026           |
| 6                  | Wideband Radio Communication Tester | Rohde & Schwarz                | CMW500                | GTS575        | Jul. 01, 2025       | Jun. 30, 2026           |
| 7                  | Loop Antenna                        | ZHINAN                         | ZN30900A              | GTS534        | Nov.16, 2024        | Nov.15, 2025            |
| 8                  | Broadband Preamplifier              | SCHWARZBECK                    | BBV9718               | GTS535        | Apr. 11, 2025       | Apr. 10, 2026           |
| 9                  | Amplifier(1GHz-26.5GHz)             | HP                             | 8449B                 | GTS601        | Apr. 11, 2025       | Apr. 10, 2026           |
| 10                 | Horn Antenna (18GH-40GHz)           | Schwarzbeck                    | BBHA 9170             | GTS691        | Apr. 11, 2025       | Apr. 10, 2026           |
| 11                 | FSV·Signal Analyzer (10Hz-40GHz)    | Keysight                       | FSV-40-N              | GTS666        | Mar. 11, 2025       | Mar. 10, 2026           |
| 12                 | Amplifier                           | /                              | LNA-1000-30S          | GTS650        | Apr. 11, 2025       | Apr. 10, 2026           |
| 13                 | CDNE M2+M3-16A                      | HCT                            | 30MHz-300MHz          | GTS692        | Nov. 13, 2024       | Nov. 12, 2025           |
| 14                 | Wideband Amplifier                  | /                              | WDA-01004000-15P35    | GTS602        | Apr. 11, 2025       | Apr. 10, 2026           |
| 15                 | Thermo meter                        | JINCHUANG                      | GSP-8A                | GTS643        | Apr. 15, 2025       | Apr. 14, 2026           |
| 16                 | RE cable 1                          | GTS                            | N/A                   | GTS675        | Jul. 11, 2025       | Jul. 10, 2026           |
| 17                 | RE cable 2                          | GTS                            | N/A                   | GTS676        | Jul. 11, 2025       | Jul. 10, 2026           |
| 18                 | RE cable 3                          | GTS                            | N/A                   | GTS677        | Jul. 11, 2025       | Jul. 10, 2026           |
| 19                 | RE cable 4                          | GTS                            | N/A                   | GTS678        | Jul. 11, 2025       | Jul. 10, 2026           |
| 20                 | RE cable 5                          | GTS                            | N/A                   | GTS679        | Jul. 11, 2025       | Jul. 10, 2026           |
| 21                 | RE cable 6                          | GTS                            | N/A                   | GTS680        | Jul. 11, 2025       | Jul. 10, 2026           |
| 22                 | RE cable 7                          | GTS                            | N/A                   | GTS681        | Jul. 11, 2025       | Jul. 10, 2026           |
| 23                 | RE cable 8                          | GTS                            | N/A                   | GTS682        | Jul. 11, 2025       | Jul. 10, 2026           |
| 24                 | EMI Test Software                   | AUDIX                          | E3-6.100614a          | GTS725        | N/A                 | N/A                     |

| Conducted Emission |                      |                         |                      |               |                     |                         |
|--------------------|----------------------|-------------------------|----------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment       | Manufacturer            | Model No.            | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | Shielding Room       | ZhongYu Electron        | 7.3(L)x3.1(W)x2.9(H) | GTS252        | Jul. 12, 2022       | Jul. 11, 2027           |
| 2                  | EMI Test Receiver    | R&S                     | ESCI 7               | GTS552        | Apr. 12, 2025       | Apr. 11, 2026           |
| 3                  | LISN                 | ROHDE & SCHWARZ         | ENV216               | GTS226        | Apr. 11, 2025       | Apr. 10, 2026           |
| 4                  | Coaxial Cable        | GTS                     | N/A                  | GTS227        | N/A                 | N/A                     |
| 5                  | Thermo meter         | JINCHUANG               | GSP-8A               | GTS642        | Apr. 15, 2025       | Apr. 14, 2026           |
| 6                  | Absorbing clamp      | Elektronik-Feinmechanik | MDS21                | GTS229        | Apr. 12, 2025       | Apr. 11, 2026           |
| 7                  | ISN                  | SCHWARZBECK             | NTFM 8158            | GTS565        | Apr. 11, 2025       | Apr. 10, 2026           |
| 8                  | High voltage probe   | SCHWARZBECK             | TK9420               | GTS537        | Apr. 11, 2025       | Apr. 10, 2026           |
| 9                  | Antenna end assembly | Weinschel               | 1870A                | GTS560        | Apr. 11, 2025       | Apr. 10, 2026           |
| 10                 | EMI Test Software    | AUDIX                   | E3-6.100622          | GTS726        | N/A                 | N/A                     |
| 11                 | Current probe        | CYBERTEK                | EM5011               | GTS698        | Jan. 13, 2025       | Jan. 12, 2026           |

| RF Conducted Test: |                                                |              |                  |            |                     |                         |
|--------------------|------------------------------------------------|--------------|------------------|------------|---------------------|-------------------------|
| Item               | Test Equipment                                 | Manufacturer | Model No.        | Serial No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | MXA Signal Analyzer                            | Agilent      | N9020A           | GTS566     | Apr. 11, 2025       | Apr. 10, 2026           |
| 2                  | EMI Test Receiver                              | R&S          | ESCI 7           | GTS552     | Apr. 12, 2025       | Apr. 11, 2026           |
| 3                  | PSA Series Spectrum Analyzer                   | Agilent      | E4440A           | GTS536     | Apr. 11, 2025       | Apr. 10, 2026           |
| 4                  | MXG vector Signal Generator                    | Agilent      | N5182A           | GTS567     | Apr. 11, 2025       | Apr. 10, 2026           |
| 5                  | ESG Analog Signal Generator                    | Agilent      | E4428C           | GTS568     | Apr. 11, 2025       | Apr. 10, 2026           |
| 6                  | Wideband Power Meter                           | Keysight     | N1924A           | GTS673     | Apr. 11, 2025       | Apr. 10, 2026           |
| 7                  | USB RF Power Sensor                            | DARE         | RPR3006W         | GTS569     | Apr. 11, 2025       | Apr. 10, 2026           |
| 8                  | RF Switch Box                                  | Shongyi      | RFSW3003328      | GTS571     | Apr. 11, 2025       | Apr. 10, 2026           |
| 9                  | Programmable Constant Temp & Humi Test Chamber | WEWON        | WHTH-150L-40-880 | GTS572     | Apr. 11, 2025       | Apr. 10, 2026           |
| 10                 | Thermo meter                                   | JINCHUANG    | GSP-8A           | GTS641     | Apr. 15, 2025       | Apr. 14, 2026           |

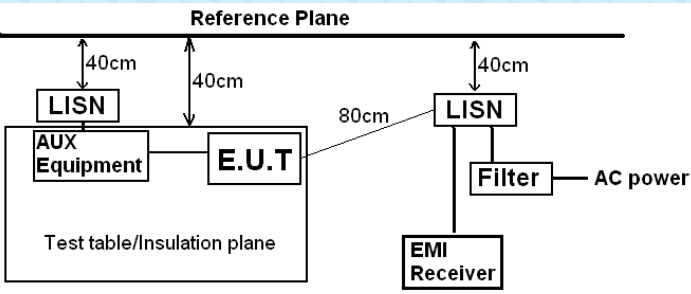
| General used equipment: |                |              |           |               |                     |                         |
|-------------------------|----------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item                    | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                       | Barometer      | KUMAO        | SF132     | GTS647        | Jul. 16, 2025       | Jul. 15, 2026           |

## 7 Test results and Measurement Data

### 7.1 Antenna requirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FCC Part15 C Section 15.203 |
| <b>15.203 requirement:</b><br>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. |                             |
| <b>EUT Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |
| The antenna is stubby Antenna, reference to the appendix II for details                                                                                                                                                                                                                                                                                                                                                                                                          |                             |

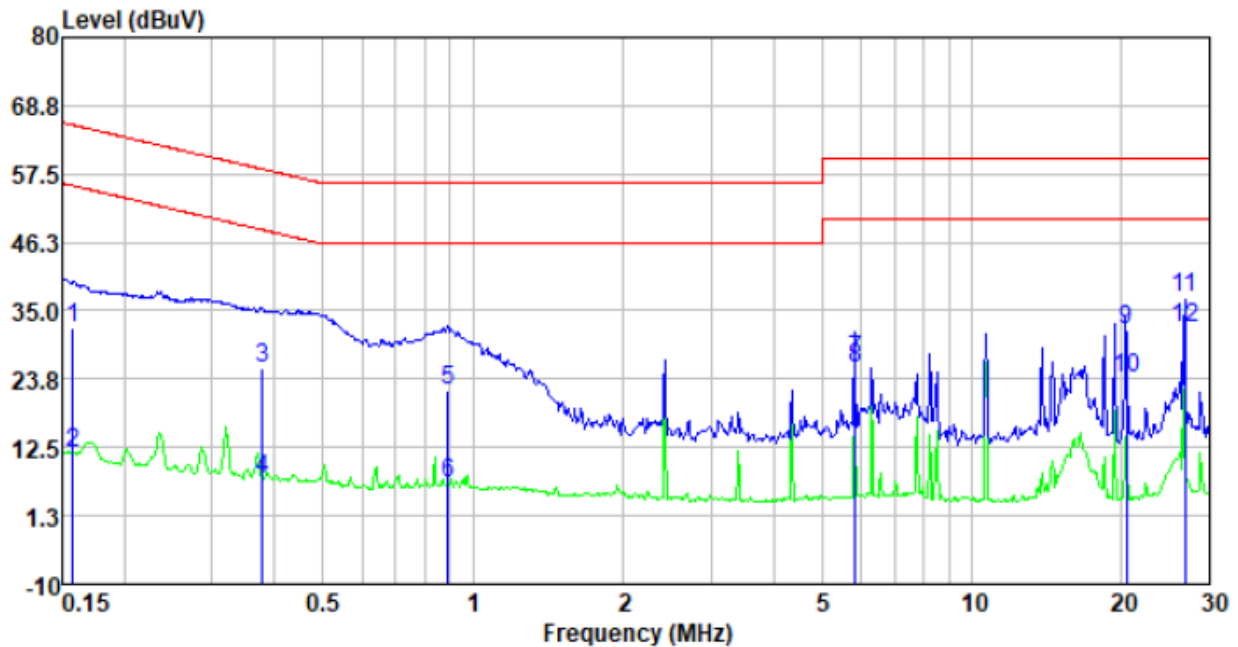
## 7.2 Conducted Emissions

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|-----|-----------|----------|
| Test Requirement:     | FCC Part15 C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |              |     |           |          |
| Test Method:          | ANSI C63.10:2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |          |
| Test Frequency Range: | 150KHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |          |
| Receiver setup:       | RBW=9KHz, VBW=30KHz, Sweep time=auto                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |              |     |           |          |
| Limit:                | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       | Limit (dBuV) |     |           |          |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | Quasi-peak   |     | Average   |          |
|                       | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       | 66 to 56*    |     | 56 to 46* |          |
|                       | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       | 56           |     | 46        |          |
|                       | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | 60           |     | 50        |          |
|                       | * Decreases with the logarithm of the frequency.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |          |
| Test setup:           | <div><p style="text-align: center;"><b>Reference Plane</b></p><p>Remark:<br/>E.U.T: Equipment Under Test<br/>LISN: Line Impedance Stabilization Network<br/>Test table height=0.8m</p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |          |
| Test procedure:       | <div><div>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</div><div>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</div><div>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</div></div> |       |              |     |           |          |
| Test Instruments:     | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |          |
| Test mode:            | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |          |
| Test environment:     | Temp.:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 25 °C | Humid.:      | 52% | Press.:   | 1012mbar |
| Test voltage:         | AC 120V 60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |              |     |           |          |
| Test results:         | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |              |     |           |          |

Measurement data:

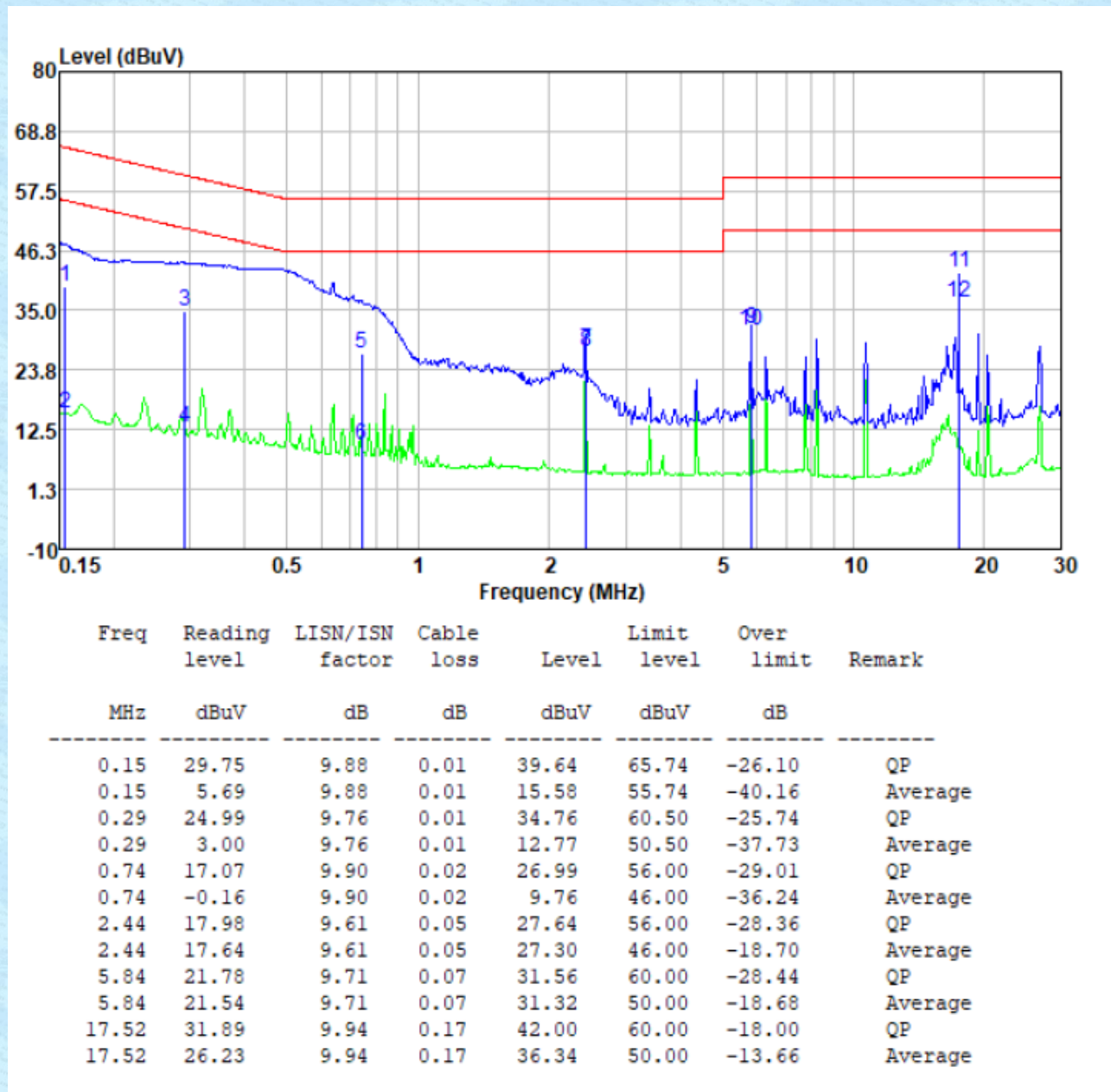
915.3MHz:

Line:



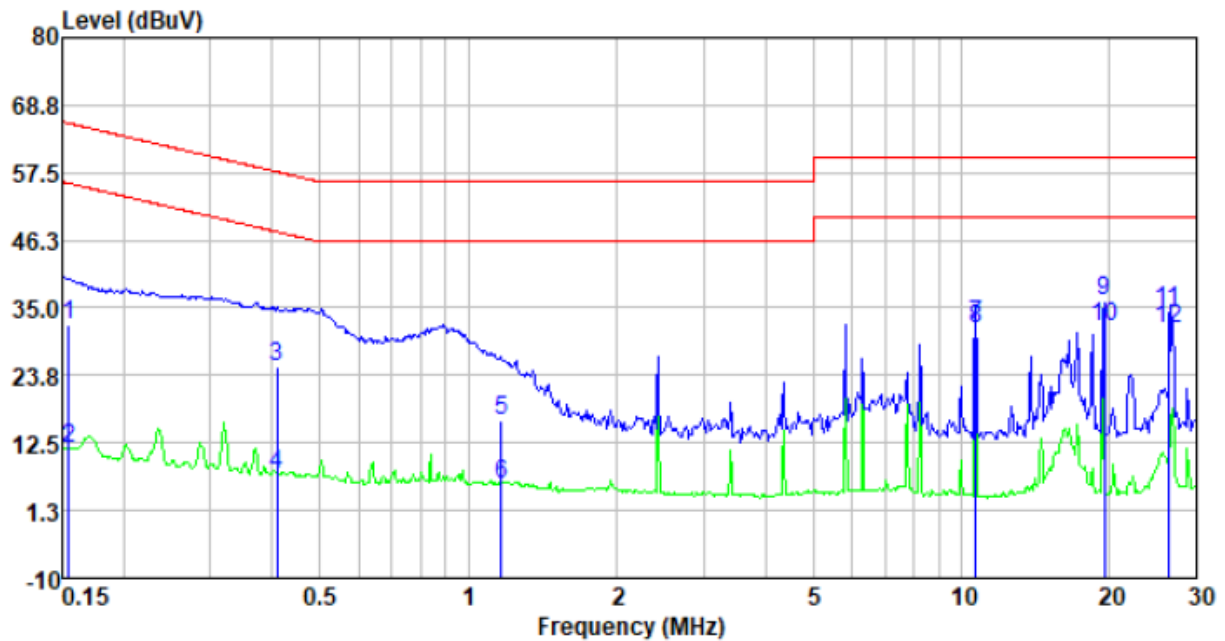
| Freq  | Reading | LISN/ISN | Cable | Level | Limit | Over   | Remark  |
|-------|---------|----------|-------|-------|-------|--------|---------|
| MHz   | dBuV    | factor   | loss  | dBuV  | dBuV  | limit  |         |
|       |         | dB       | dB    |       |       | dB     |         |
| 0.16  | 22.07   | 9.99     | 0.01  | 32.07 | 65.60 | -33.53 | QP      |
| 0.16  | 1.55    | 9.99     | 0.01  | 11.55 | 55.60 | -44.05 | Average |
| 0.38  | 15.95   | 9.61     | 0.01  | 25.57 | 58.34 | -32.77 | QP      |
| 0.38  | -2.25   | 9.61     | 0.01  | 7.37  | 48.34 | -40.97 | Average |
| 0.89  | 12.20   | 9.71     | 0.03  | 21.94 | 56.00 | -34.06 | QP      |
| 0.89  | -3.07   | 9.71     | 0.03  | 6.67  | 46.00 | -39.33 | Average |
| 5.84  | 17.04   | 9.75     | 0.07  | 26.86 | 60.00 | -33.14 | QP      |
| 5.84  | 15.81   | 9.75     | 0.07  | 25.63 | 50.00 | -24.37 | Average |
| 20.45 | 22.03   | 9.78     | 0.19  | 32.00 | 60.00 | -28.00 | QP      |
| 20.45 | 13.88   | 9.78     | 0.19  | 23.85 | 50.00 | -26.15 | Average |
| 26.77 | 27.01   | 10.07    | 0.20  | 37.28 | 60.00 | -22.72 | QP      |
| 26.77 | 21.89   | 10.07    | 0.20  | 32.16 | 50.00 | -17.84 | Average |

Neutral:



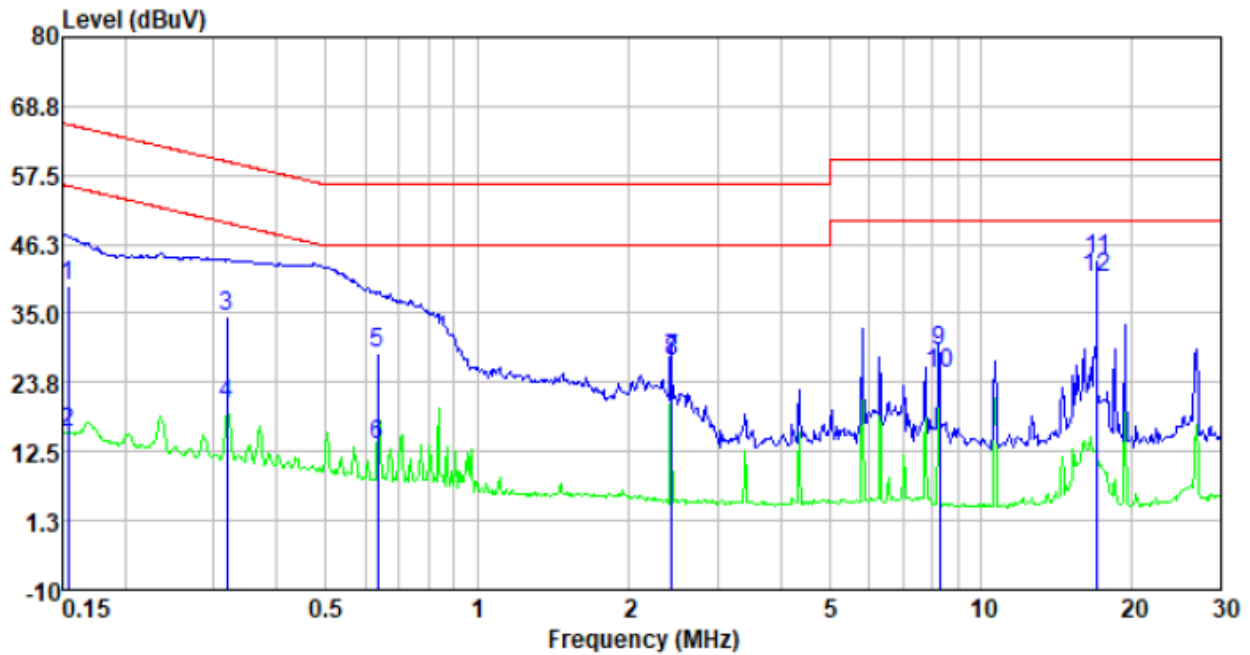
915.98MHz:

Line:



| Freq  | Reading | LISN/ISN | Cable | Level | Limit | Over   | Remark  |
|-------|---------|----------|-------|-------|-------|--------|---------|
| MHz   | dBuV    | factor   | loss  | dBuV  | dBuV  | limit  |         |
|       |         | dB       | dB    |       |       | dB     |         |
| 0.15  | 22.20   | 10.01    | 0.01  | 32.22 | 65.74 | -33.52 | QP      |
| 0.15  | 1.56    | 10.01    | 0.01  | 11.58 | 55.74 | -44.16 | Average |
| 0.41  | 15.60   | 9.64     | 0.01  | 25.25 | 57.68 | -32.43 | QP      |
| 0.41  | -2.40   | 9.64     | 0.01  | 7.25  | 47.68 | -40.43 | Average |
| 1.17  | 6.28    | 9.92     | 0.03  | 16.23 | 56.00 | -39.77 | QP      |
| 1.17  | -4.21   | 9.92     | 0.03  | 5.74  | 46.00 | -40.26 | Average |
| 10.71 | 22.43   | 9.75     | 0.12  | 32.30 | 60.00 | -27.70 | QP      |
| 10.71 | 21.79   | 9.75     | 0.12  | 31.66 | 50.00 | -18.34 | Average |
| 19.47 | 26.21   | 9.75     | 0.18  | 36.14 | 60.00 | -23.86 | QP      |
| 19.47 | 21.96   | 9.75     | 0.18  | 31.89 | 50.00 | -18.11 | Average |
| 26.28 | 24.13   | 10.05    | 0.20  | 34.38 | 60.00 | -25.62 | QP      |
| 26.28 | 21.38   | 10.05    | 0.20  | 31.63 | 50.00 | -18.37 | Average |

Neutral:

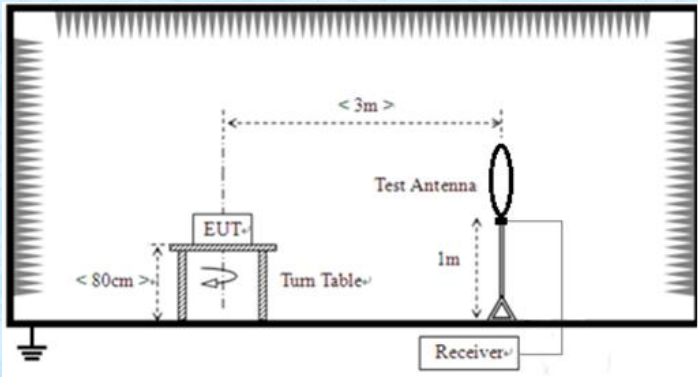


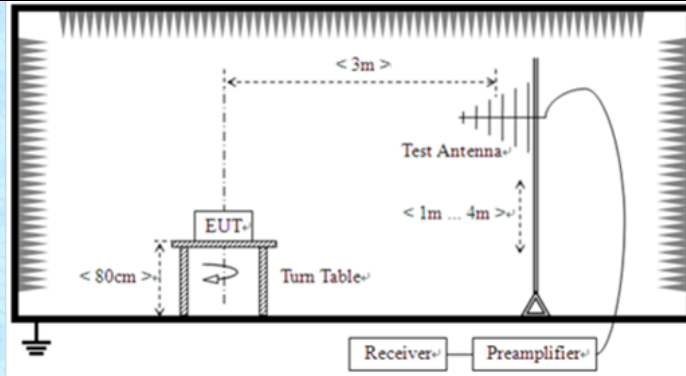
| Freq  | Reading | LISN/ISN | Cable | Level | Limit | Over   | Remark  |
|-------|---------|----------|-------|-------|-------|--------|---------|
| MHz   | dBuV    | dB       | dB    | dBuV  | dBuV  | dB     |         |
| 0.15  | 29.75   | 9.88     | 0.01  | 39.64 | 65.78 | -26.14 | QP      |
| 0.15  | 5.67    | 9.88     | 0.01  | 15.56 | 55.78 | -40.22 | Average |
| 0.32  | 24.73   | 9.79     | 0.01  | 34.53 | 59.75 | -25.22 | QP      |
| 0.32  | 10.29   | 9.79     | 0.01  | 20.09 | 49.75 | -29.66 | Average |
| 0.63  | 18.78   | 9.86     | 0.02  | 28.66 | 56.00 | -27.34 | QP      |
| 0.63  | 3.81    | 9.86     | 0.02  | 13.69 | 46.00 | -32.31 | Average |
| 2.43  | 17.75   | 9.61     | 0.05  | 27.41 | 56.00 | -28.59 | QP      |
| 2.43  | 17.53   | 9.61     | 0.05  | 27.19 | 46.00 | -18.81 | Average |
| 8.27  | 19.28   | 9.61     | 0.10  | 28.99 | 60.00 | -31.01 | QP      |
| 8.27  | 15.61   | 9.61     | 0.10  | 25.32 | 50.00 | -24.68 | Average |
| 17.04 | 33.72   | 9.97     | 0.17  | 43.86 | 60.00 | -16.14 | QP      |
| 17.04 | 30.69   | 9.97     | 0.17  | 40.83 | 50.00 | -9.17  | Average |

Notes:

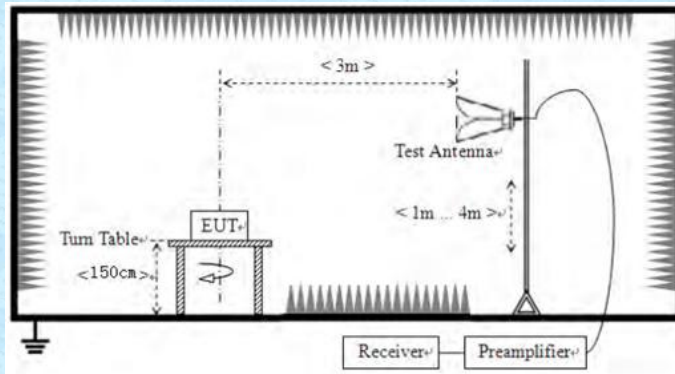
1. An initial pre-scan was performed on the line and neutral lines with peak detector.
  2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level = Receiver Read level + LISN Factor + Cable Loss

### 7.3 Radiated Emission Method

|                                                      |                                                                                                                                                                                                                                                                |            |                    |            |                  |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|------------|------------------|
| Test Requirement:                                    | FCC Part15 C Section 15.209, 15.205                                                                                                                                                                                                                            |            |                    |            |                  |
| Test Method:                                         | ANSI C63.10:2020                                                                                                                                                                                                                                               |            |                    |            |                  |
| Test Frequency Range:                                | 9kHz to 10GHz                                                                                                                                                                                                                                                  |            |                    |            |                  |
| Test site:                                           | Measurement Distance: 3m                                                                                                                                                                                                                                       |            |                    |            |                  |
| Receiver setup:                                      | Frequency                                                                                                                                                                                                                                                      | Detector   | RBW                | VBW        | Remark           |
|                                                      | 9kHz-150kHz                                                                                                                                                                                                                                                    | Quasi-peak | 200Hz              | 300Hz      | Quasi-peak Value |
|                                                      | 150kHz-30MHz                                                                                                                                                                                                                                                   | Quasi-peak | 9kHz               | 10kHz      | Quasi-peak Value |
|                                                      | 30MHz-1GHz                                                                                                                                                                                                                                                     | Quasi-peak | 120KHz             | 300KHz     | Quasi-peak Value |
|                                                      | Above 1GHz                                                                                                                                                                                                                                                     | Peak       | 1MHz               | 3MHz       | Peak Value       |
|                                                      |                                                                                                                                                                                                                                                                | Peak       | 1MHz               | 10Hz       | Average Value    |
| Limit:<br>(Field strength of the fundamental signal) | Frequency                                                                                                                                                                                                                                                      |            | Limit (dBuV/m @3m) |            | Remark           |
|                                                      | 902-928MHz                                                                                                                                                                                                                                                     |            | 94.00              |            | QP Value         |
| Limit:<br>(Spurious Emissions)                       | Frequency                                                                                                                                                                                                                                                      |            | Limit (uV/m)       |            | Remark           |
|                                                      | 0.009MHz-0.490MHz                                                                                                                                                                                                                                              |            | 2400/F(kHz) @300m  |            | Quasi-peak Value |
|                                                      | 0.490MHz-1.705MHz                                                                                                                                                                                                                                              |            | 24000/F(kHz) @30m  |            | Quasi-peak Value |
|                                                      | 1.705MHz-30.0MHz                                                                                                                                                                                                                                               |            | 30 @30m            |            | Quasi-peak Value |
|                                                      | 30MHz-88MHz                                                                                                                                                                                                                                                    |            | 100 @3m            |            | Quasi-peak Value |
|                                                      | 88MHz-216MHz                                                                                                                                                                                                                                                   |            | 150 @3m            |            | Quasi-peak Value |
|                                                      | 216MHz-960MHz                                                                                                                                                                                                                                                  |            | 200 @3m            |            | Quasi-peak Value |
|                                                      | 960MHz-1GHz                                                                                                                                                                                                                                                    |            | 500 @3m            |            | Quasi-peak Value |
|                                                      | Above 1GHz                                                                                                                                                                                                                                                     |            | 500 @3m            |            | Average Value    |
|                                                      |                                                                                                                                                                                                                                                                | 5000 @3m   |                    | Peak Value |                  |
| Limit:<br>(band edge)                                | Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation. |            |                    |            |                  |
| Test setup:                                          | <div>For radiated emissions from 9kHz to 30MHz</div> <div></div> <div>For radiated emissions from 30MHz to1GHz</div>                                                       |            |                    |            |                  |



For radiated emissions above 1GHz



Test Procedure:

1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. 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.

Test Instruments: Refer to section 6.0 for details

Test mode: Refer to section 5.2 for details

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

Test voltage: AC 120V 60Hz

Test results: Pass

**Measurement data:**
**7.3.1 Field Strength of The Fundamental Signal**
**915.3MHz**
**QP value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 915.30          | 92.76             | 23.22                 | 5.78            | 31.10                    | 90.66          | 94.00               | -3.34           | Vertical     |
| 915.30          | 90.69             | 23.22                 | 5.78            | 31.10                    | 88.59          | 94.00               | -5.41           | Horizontal   |

**915.98MHz**
**QP value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 915.98          | 92.06             | 23.22                 | 5.78            | 31.10                    | 89.96          | 94.00               | -4.04           | Vertical     |
| 915.98          | 94.20             | 23.22                 | 5.78            | 31.10                    | 92.10          | 94.00               | -1.90           | Horizontal   |

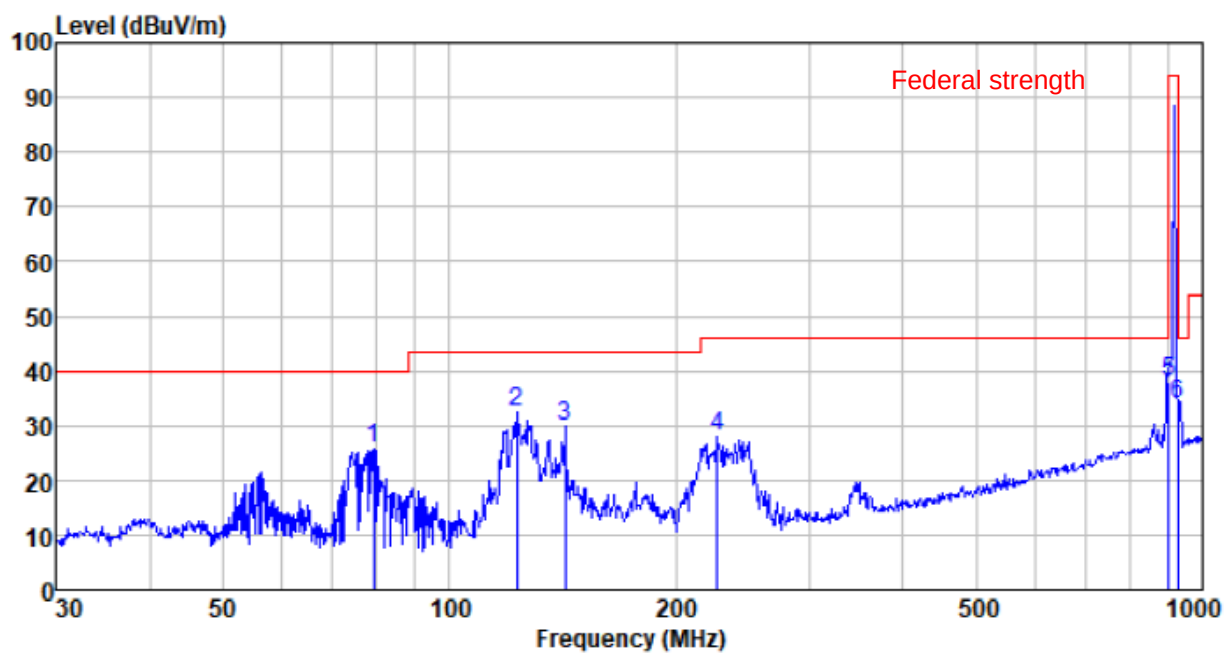
### 7.3.2 Spurious emissions and Band Edge

#### ■ Below 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

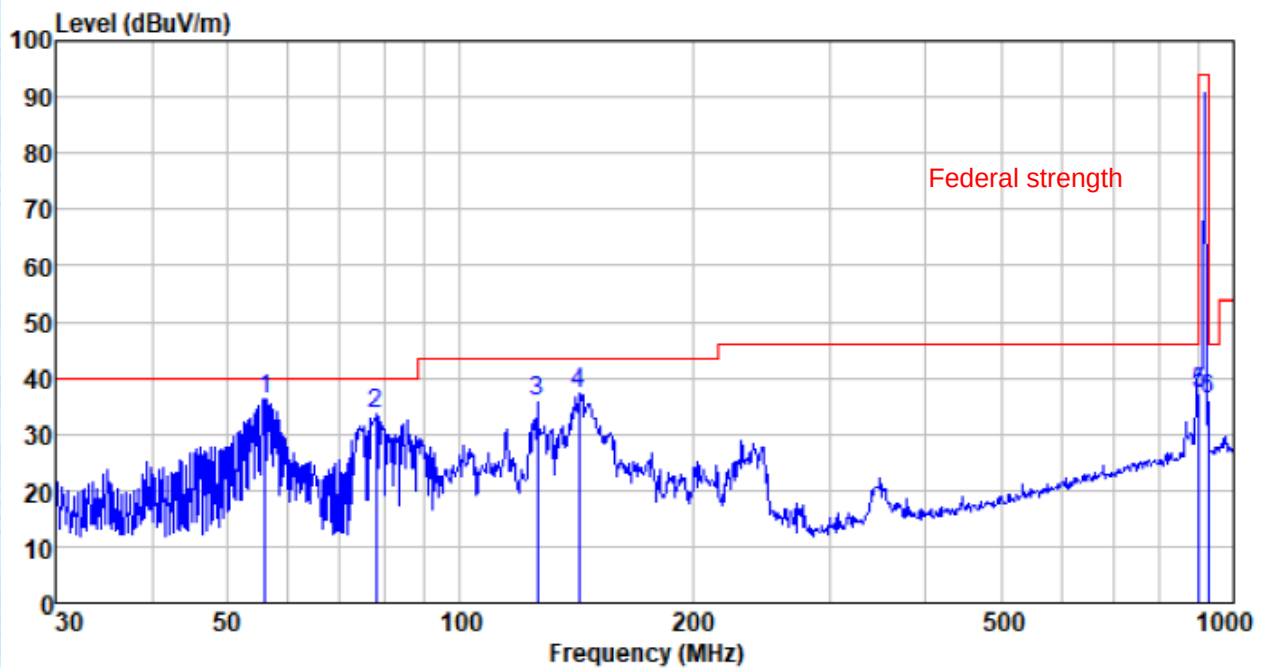
#### ■ Below 1GHz

|                 |          |               |            |
|-----------------|----------|---------------|------------|
| Test Frequency: | 915.3MHz | Polarization: | Horizontal |
|-----------------|----------|---------------|------------|



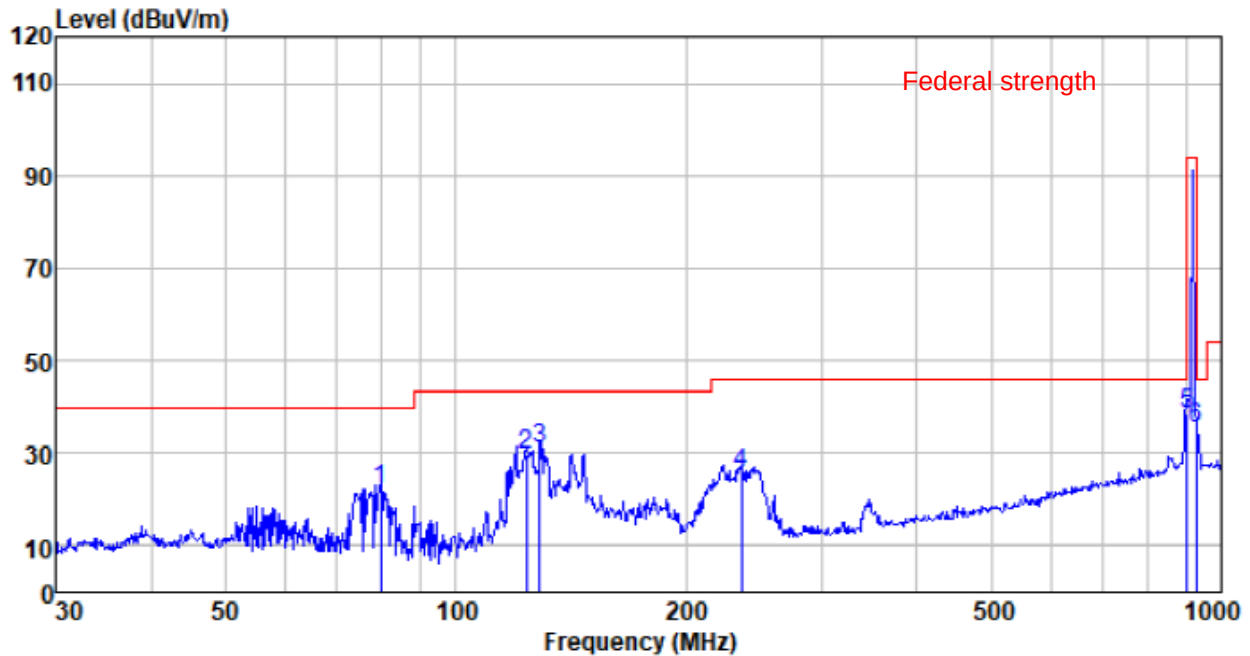
| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV/m | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|-----------------|--------------------------|---------------------|--------|
| 79.243      | 46.60                    | 9.88                      | 1.65                | 32.42                  | 25.71           | 40.00                    | -14.29              | QP     |
| 122.834     | 50.35                    | 12.52                     | 2.20                | 32.48                  | 32.59           | 43.50                    | -10.91              | QP     |
| 142.324     | 46.09                    | 13.93                     | 2.40                | 32.46                  | 29.96           | 43.50                    | -13.54              | QP     |
| 226.894     | 47.86                    | 9.48                      | 3.03                | 32.37                  | 28.00           | 46.00                    | -18.00              | QP     |
| 902.000     | 40.09                    | 23.10                     | 5.74                | 31.10                  | 37.83           | 46.00                    | -8.17               | QP     |
| 928.000     | 35.95                    | 23.36                     | 5.81                | 31.10                  | 34.02           | 46.00                    | -11.98              | QP     |

|                 |          |               |          |
|-----------------|----------|---------------|----------|
| Test Frequency: | 915.3MHz | Polarization: | Vertical |
|-----------------|----------|---------------|----------|



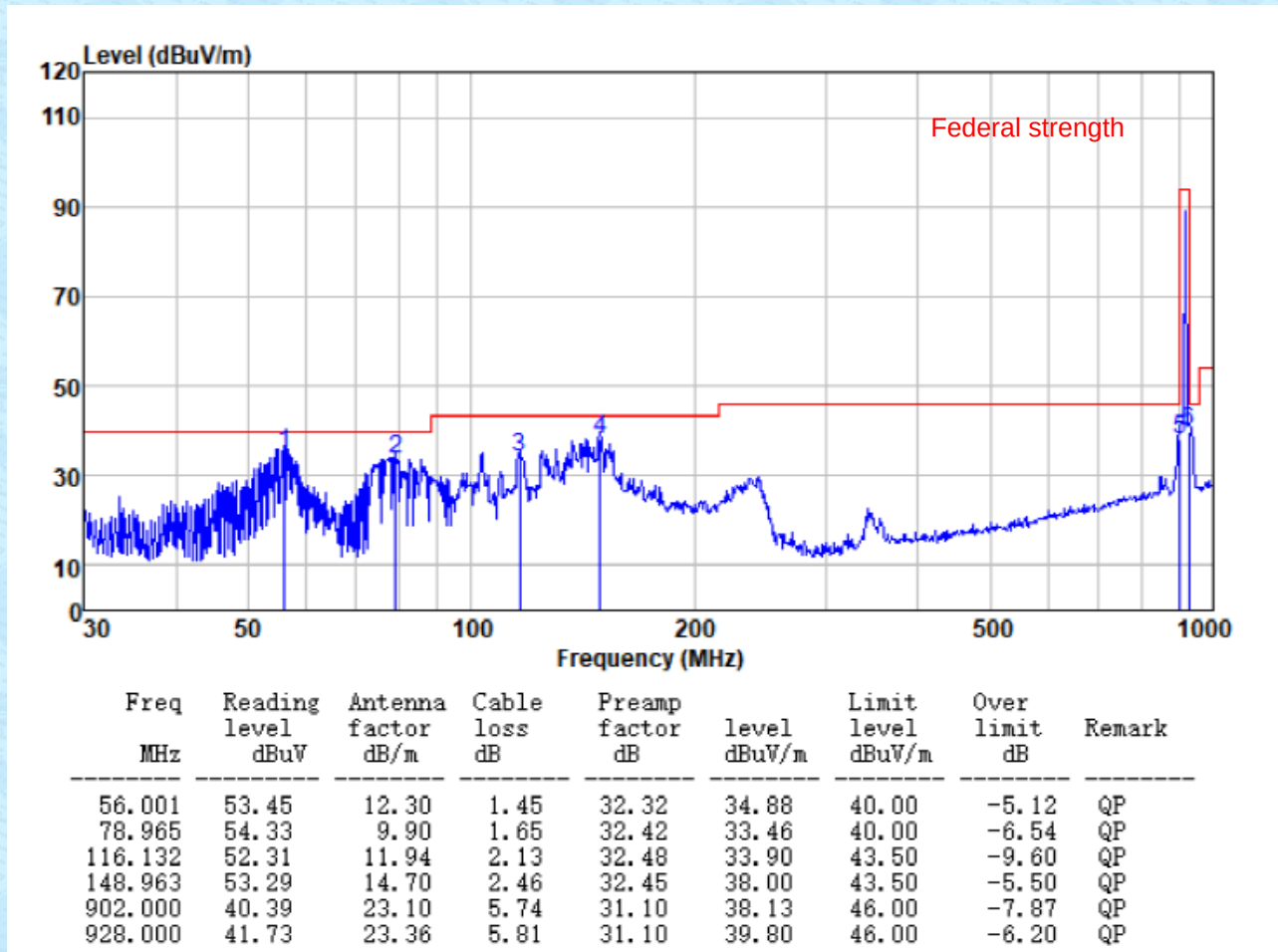
| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV/m | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|-----------------|--------------------------|---------------------|--------|
| 56.001      | 54.81                    | 12.30                     | 1.45                | 32.32                  | 36.24           | 40.00                    | -3.76               | QP     |
| 77.865      | 54.39                    | 10.01                     | 1.65                | 32.41                  | 33.64           | 40.00                    | -6.36               | QP     |
| 125.886     | 53.51                    | 12.59                     | 2.24                | 32.47                  | 35.87           | 43.50                    | -7.63               | QP     |
| 142.324     | 53.55                    | 13.93                     | 2.40                | 32.46                  | 37.42           | 43.50                    | -6.08               | QP     |
| 902.000     | 39.35                    | 23.10                     | 5.74                | 31.10                  | 37.09           | 46.00                    | -8.91               | QP     |
| 928.000     | 37.92                    | 23.36                     | 5.81                | 31.10                  | 35.99           | 46.00                    | -10.01              | QP     |

|                 |           |               |            |
|-----------------|-----------|---------------|------------|
| Test Frequency: | 915.98MHz | Polarization: | Horizontal |
|-----------------|-----------|---------------|------------|



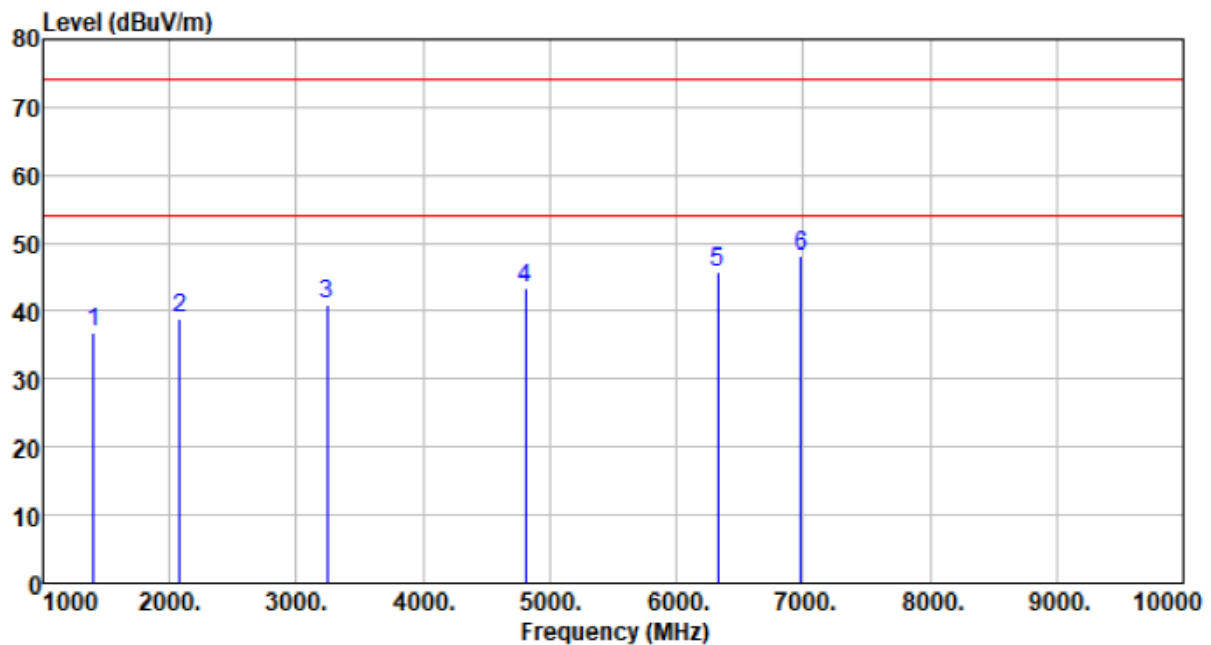
| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV/m | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|-----------------|--------------------------|---------------------|--------|
| 79.800      | 43.20                    | 9.82                      | 1.65                | 32.42                  | 22.25           | 40.00                    | -17.75              | QP     |
| 123.699     | 47.23                    | 12.64                     | 2.21                | 32.48                  | 29.60           | 43.50                    | -13.90              | QP     |
| 128.563     | 48.03                    | 13.06                     | 2.26                | 32.47                  | 30.88           | 43.50                    | -12.62              | QP     |
| 235.816     | 44.99                    | 9.83                      | 3.08                | 32.36                  | 25.54           | 46.00                    | -20.46              | QP     |
| 902.000     | 40.87                    | 23.10                     | 5.74                | 31.10                  | 38.61           | 46.00                    | -7.39               | QP     |
| 928.000     | 37.56                    | 23.36                     | 5.81                | 31.10                  | 35.63           | 46.00                    | -10.37              | QP     |

|                 |           |               |          |
|-----------------|-----------|---------------|----------|
| Test Frequency: | 915.98MHz | Polarization: | Vertical |
|-----------------|-----------|---------------|----------|



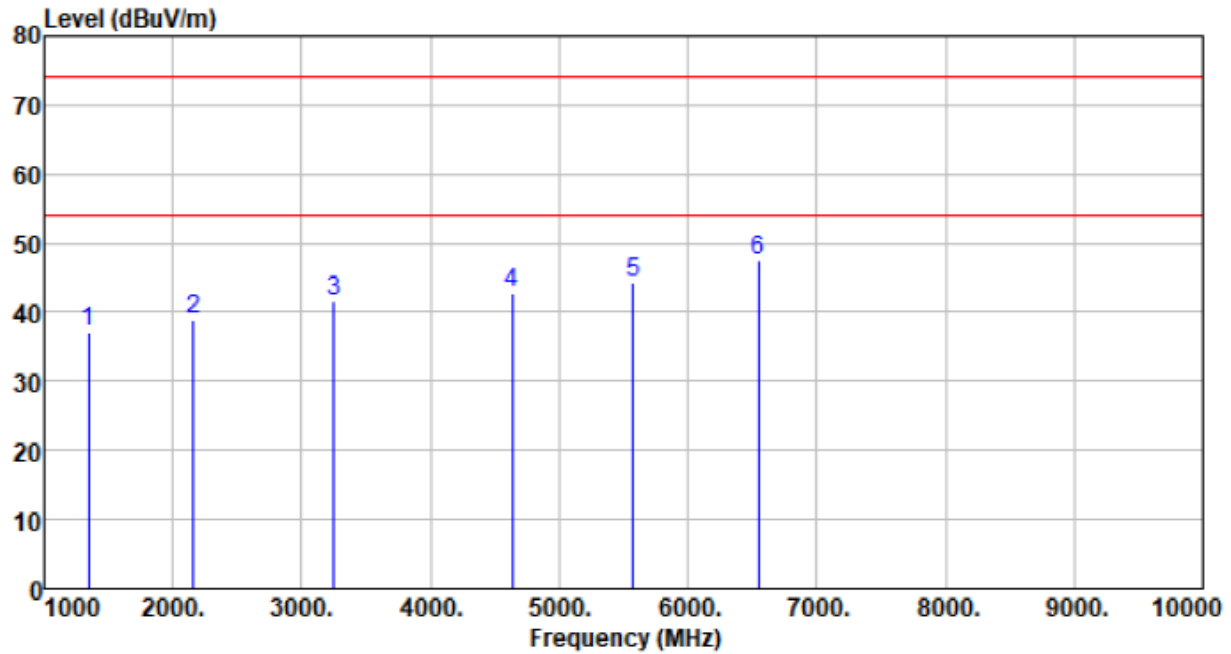
■ Above 1GHz

|                 |          |               |            |
|-----------------|----------|---------------|------------|
| Test Frequency: | 915.3MHz | Polarization: | Horizontal |
|-----------------|----------|---------------|------------|



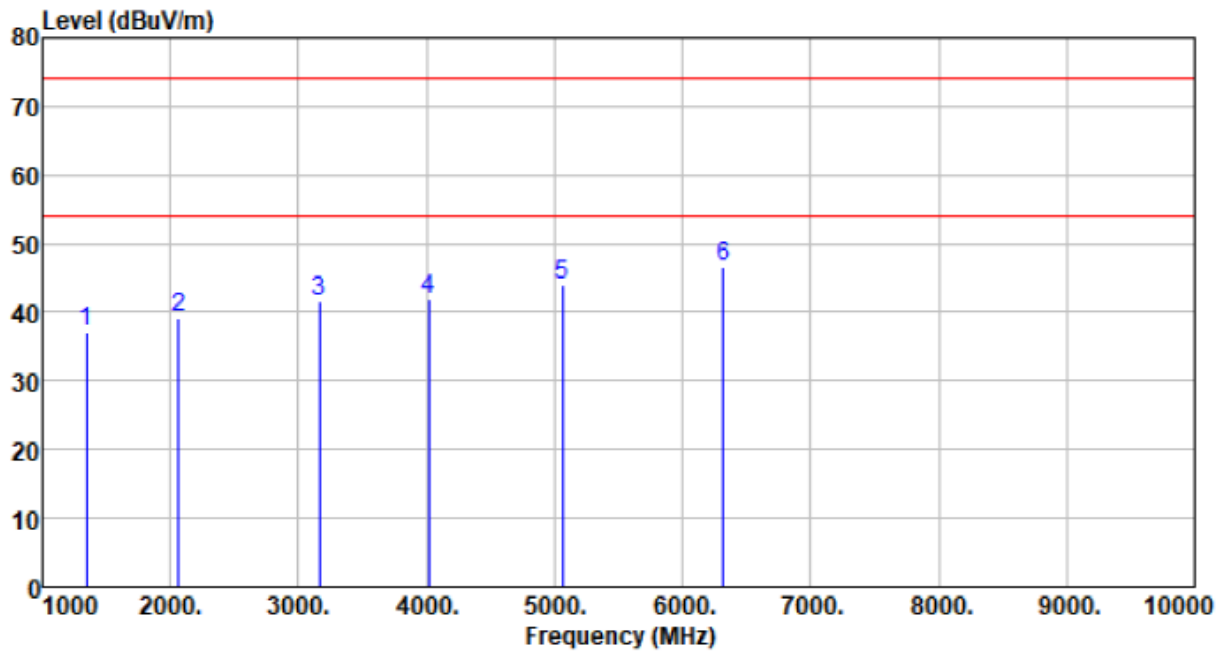
| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV/m | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|-----------------|--------------------------|---------------------|--------|
| 1396.000    | 47.88                    | 25.01                     | 3.75                | 39.85                  | 36.79           | 74.00                    | -37.21              | Peak   |
| 2080.000    | 46.74                    | 26.52                     | 4.21                | 38.59                  | 38.88           | 74.00                    | -35.12              | Peak   |
| 3241.000    | 46.01                    | 29.08                     | 4.85                | 38.86                  | 41.08           | 74.00                    | -32.92              | Peak   |
| 4807.000    | 43.87                    | 32.01                     | 6.01                | 38.54                  | 43.35           | 74.00                    | -30.65              | Peak   |
| 6328.000    | 43.15                    | 34.16                     | 7.39                | 38.93                  | 45.77           | 74.00                    | -28.23              | Peak   |
| 6985.000    | 43.25                    | 36.07                     | 7.77                | 39.00                  | 48.09           | 74.00                    | -25.91              | Peak   |

|                 |          |               |          |
|-----------------|----------|---------------|----------|
| Test Frequency: | 915.3MHz | Polarization: | Vertical |
|-----------------|----------|---------------|----------|



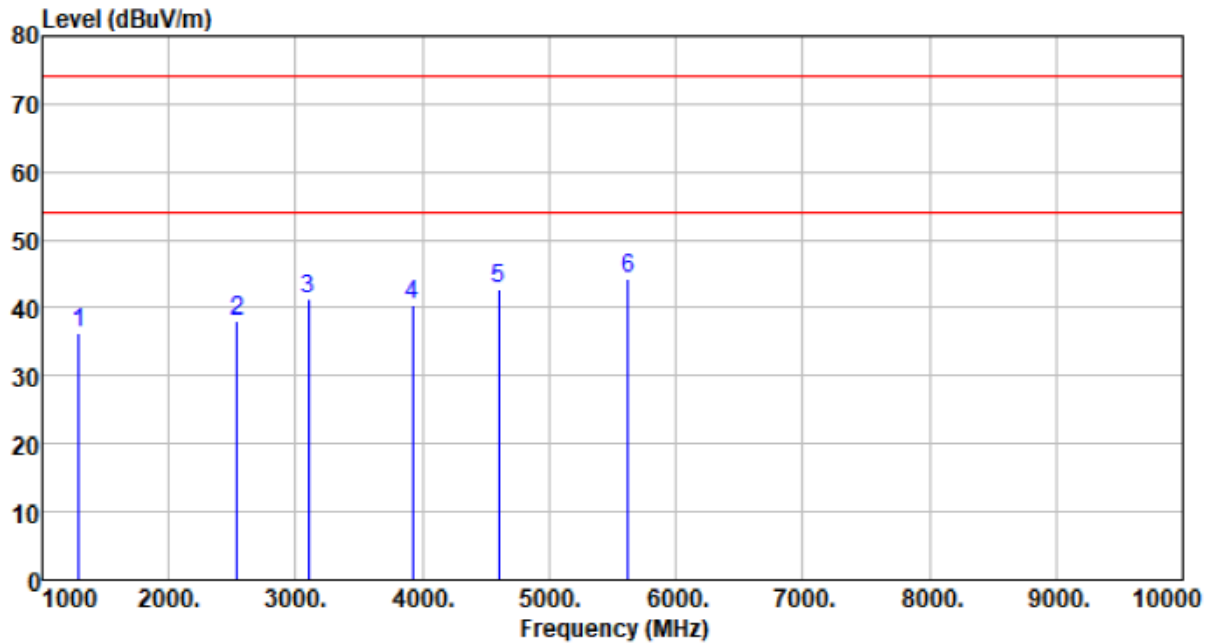
| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV/m | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|-----------------|--------------------------|---------------------|--------|
| 1342.000    | 48.44                    | 25.10                     | 3.63                | 39.98                  | 37.19           | 74.00                    | -36.81              | Peak   |
| 2161.000    | 46.83                    | 26.72                     | 4.12                | 38.79                  | 38.88           | 74.00                    | -35.12              | Peak   |
| 3250.000    | 46.63                    | 29.10                     | 4.86                | 38.85                  | 41.74           | 74.00                    | -32.26              | Peak   |
| 4636.000    | 43.56                    | 31.77                     | 5.93                | 38.57                  | 42.69           | 74.00                    | -31.31              | Peak   |
| 5572.000    | 43.36                    | 32.94                     | 6.49                | 38.64                  | 44.15           | 74.00                    | -29.85              | Peak   |
| 6544.000    | 44.24                    | 34.88                     | 7.46                | 38.95                  | 47.63           | 74.00                    | -26.37              | Peak   |

|                 |           |               |            |
|-----------------|-----------|---------------|------------|
| Test Frequency: | 915.98MHz | Polarization: | Horizontal |
|-----------------|-----------|---------------|------------|



| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV/m | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|-----------------|--------------------------|---------------------|--------|
| 1342.000    | 48.30                    | 25.10                     | 3.63                | 39.98                  | 37.05           | 74.00                    | -36.95              | Peak   |
| 2062.000    | 47.04                    | 26.45                     | 4.23                | 38.55                  | 39.17           | 74.00                    | -34.83              | Peak   |
| 3160.000    | 46.65                    | 29.00                     | 4.76                | 38.90                  | 41.51           | 74.00                    | -32.49              | Peak   |
| 4015.000    | 44.80                    | 30.33                     | 5.11                | 38.31                  | 41.93           | 74.00                    | -32.07              | Peak   |
| 5059.000    | 44.01                    | 32.30                     | 6.11                | 38.51                  | 43.91           | 74.00                    | -30.09              | Peak   |
| 6319.000    | 44.02                    | 34.14                     | 7.39                | 38.93                  | 46.62           | 74.00                    | -27.38              | Peak   |

|                 |           |               |          |
|-----------------|-----------|---------------|----------|
| Test Frequency: | 915.98MHz | Polarization: | Vertical |
|-----------------|-----------|---------------|----------|

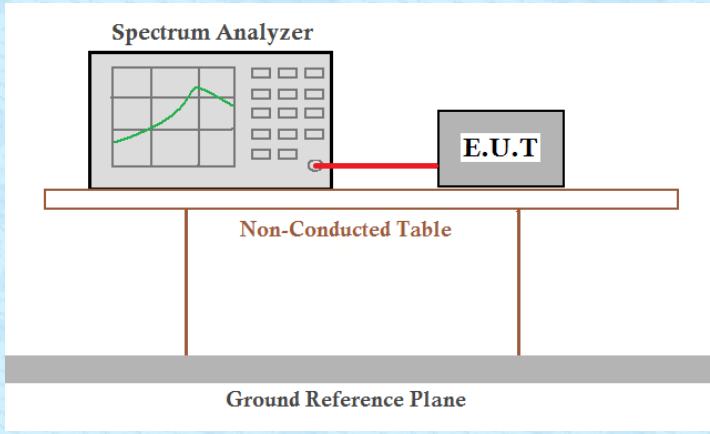


| Freq<br>MHz | Reading<br>level<br>dBuV | Antenna<br>factor<br>dB/m | Cable<br>loss<br>dB | Preamp<br>factor<br>dB | level<br>dBuV/m | Limit<br>level<br>dBuV/m | Over<br>limit<br>dB | Remark |
|-------------|--------------------------|---------------------------|---------------------|------------------------|-----------------|--------------------------|---------------------|--------|
| 1288.000    | 47.86                    | 25.12                     | 3.51                | 40.11                  | 36.38           | 74.00                    | -37.62              | Peak   |
| 2539.000    | 46.27                    | 27.46                     | 4.01                | 39.55                  | 38.19           | 74.00                    | -35.81              | Peak   |
| 3097.000    | 46.66                    | 28.89                     | 4.71                | 38.94                  | 41.32           | 74.00                    | -32.68              | Peak   |
| 3925.000    | 43.49                    | 30.15                     | 5.09                | 38.36                  | 40.37           | 74.00                    | -33.63              | Peak   |
| 4600.000    | 43.87                    | 31.70                     | 5.91                | 38.58                  | 42.90           | 74.00                    | -31.10              | Peak   |
| 5626.000    | 43.37                    | 33.05                     | 6.55                | 38.68                  | 44.29           | 74.00                    | -29.71              | Peak   |

Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

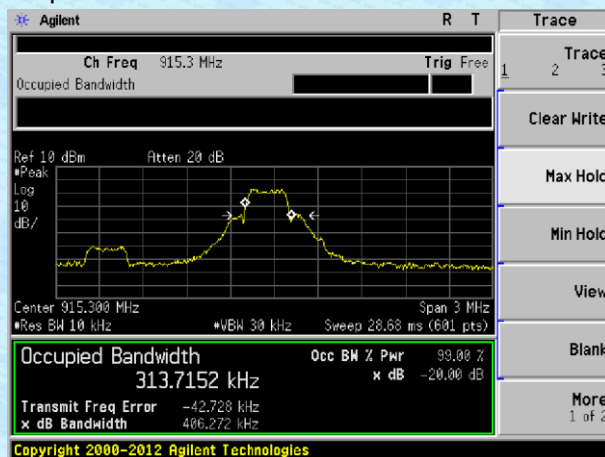
## 7.4 20dB Occupy Bandwidth

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.249/15.215                                                 |
| Test Method:      | ANSI C63.10:2020                                                                   |
| Limit:            | Operation Frequency range 902MHz~928MHz                                            |
| Test setup:       |  |
| Test Instruments: | Refer to section 6.0 for details                                                   |
| Test mode:        | Refer to section 5.2 for details                                                   |
| Test results:     | Pass                                                                               |

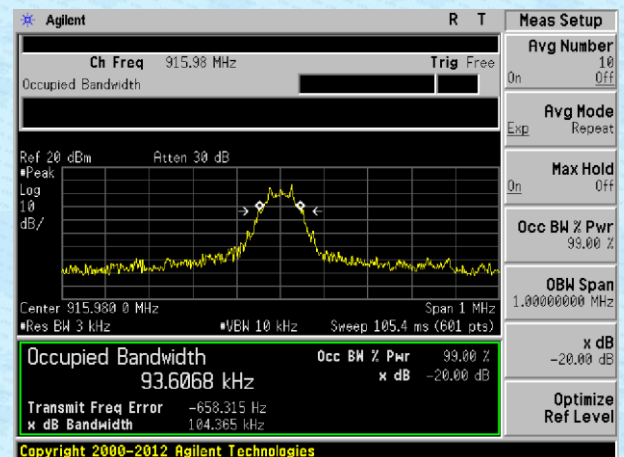
## Measurement Data

| Test Frequency | 20dB bandwidth(kHz) | Result |
|----------------|---------------------|--------|
| 915.3MHz       | 406.272             | Pass   |
| 915.98MHz      | 104.365             | Pass   |

Test plot as follows:



915.3MHz



915.98MHz

## 8 Test Setup Photo

Reference to the **appendix I** for details.

## 9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----