


# TEST REPORT

Applicant Name : SolarEdge Technologies Ltd  
Address : 1 HaMada Street, Herzeliya 467335 Israel  
Report Number : SZ1240126-06326E-RF  
FCC ID: 2AGPT-ENET2  
IC: 20916-ENET2

## Test Standard (s)

FCC PART 15.247; RSS-GEN ISSUE 5, FEBRUARY 2021 AMENDMENT 2; RSS-247 ISSUE 3, AUGUST 2023

## Sample Description

Product Type: SolarEdge Energy Net  
Model No.: ENET2  
Multiple Model(s) No.: N/A  
Trade Mark: solaredge   
Date Received: 2024/01/26  
Issue Date: 2024/07/10

Test Result:

Pass<sup>▲</sup>

▲ In the configuration tested, the EUT complied with the standards above.

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Note: The information marked <sup>#</sup> is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

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DOCUMENT REVISION HISTORY

| Revision Number | Report Number       | Description of Revision | Date of Revision |
|-----------------|---------------------|-------------------------|------------------|
| 0               | SZ1240126-06326E-RF | Original Report         | 2024/07/10       |

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                                    |  |
|------------------------------------|--|
| HVIN                               | AP1547-SG-18, AP1547-SG-20, AP1547-SG-19, AP1547-SG-17, AP1547-SG-21                     |
| FVIN                               | V4   |
| Product                            | SolarEdge Energy Net   |
| Tested Model                       | ENET2  |
| Multiple Model(s)                  | N/A  |
| Frequency Range                    | 906-924MHz   |
| Transmit Power                     | 18.67dBm   |
| Modulation Technique               | OQPSK  |
| Antenna Specification <sup>#</sup> | AS4034-1/AS4035-1: 0dBi<br>AS4038-1: 2dBi (It is provided by the manufacturer)           |
| Voltage Range                      | DC 3.3V  |
| Sample serial number               | With UFL Connector: 27OT-2<br>With SMA Connector: 27OT-1<br>(Assigned by BACL, Shenzhen) |
| Sample/EUT Status                  | Good condition   |
| Adapter Information                | N/A  |

### Objective

This report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission's rules and RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247 Issue 3, August 2023 of the Innovation, Science and Economic Development Canada rules.

The tests were performed in order to determine Compliant with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules, and RSS-GEN, RSS-247.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247 Issue 3, August 2023.

And KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

## Measurement Uncertainty

| Parameter                             |                             | Uncertainty                             |
|---------------------------------------|-----------------------------|---|
| Occupied Channel Bandwidth            |                             | ±5%                                     |
| RF Frequency                          |                             | 213.55 Hz(k=2, 95% level of confidence) |
| RF output power, conducted            |                             | 0.72 dB(k=2, 95% level of confidence)   |
| Unwanted Emission, conducted          |                             | 1.75 dB(k=2, 95% level of confidence)   |
| AC Power Lines<br>Conducted Emissions | 9 kHz~150 KHz               | 3.94dB(k=2, 95% level of confidence)    |
|                                       | 150 kHz ~30MHz              | 3.84dB(k=2, 95% level of confidence)    |
| Radiated Emissions                    | 9kHz - 30MHz                | 3.30dB(k=2, 95% level of confidence)    |
|                                       | 30MHz~200MHz (Horizontal)   | 4.48dB(k=2, 95% level of confidence)    |
|                                       | 30MHz~200MHz (Vertical)     | 4.55dB(k=2, 95% level of confidence)    |
|                                       | 200MHz~1000MHz (Horizontal) | 4.85dB(k=2, 95% level of confidence)    |
|                                       | 200MHz~1000MHz (Vertical)   | 5.05dB(k=2, 95% level of confidence)    |
|                                       | 1GHz - 6GHz                 | 5.35dB(k=2, 95% level of confidence)    |
|                                       | 6GHz - 18GHz                | 5.44dB(k=2, 95% level of confidence)    |
|                                       | 18GHz - 40GHz               | 5.16dB(k=2, 95% level of confidence)    |
| Temperature                           |                             | ±1℃                                     |
| Humidity                              |                             | ±1%                                     |
| Supply voltages                       |                             | ±0.4%                                   |

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0023.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in engineering mode.

Channel List

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 1       | 906             | 6       | 916             |
| 2       | 908             | 7       | 918             |
| 3       | 910             | 8       | 920             |
| 4       | 912             | 9       | 922             |
| 5       | 914             | 10      | 924             |

EUT was test on channel 1, 5, 10.

Equipment Modifications

No modification was made to the EUT tested.

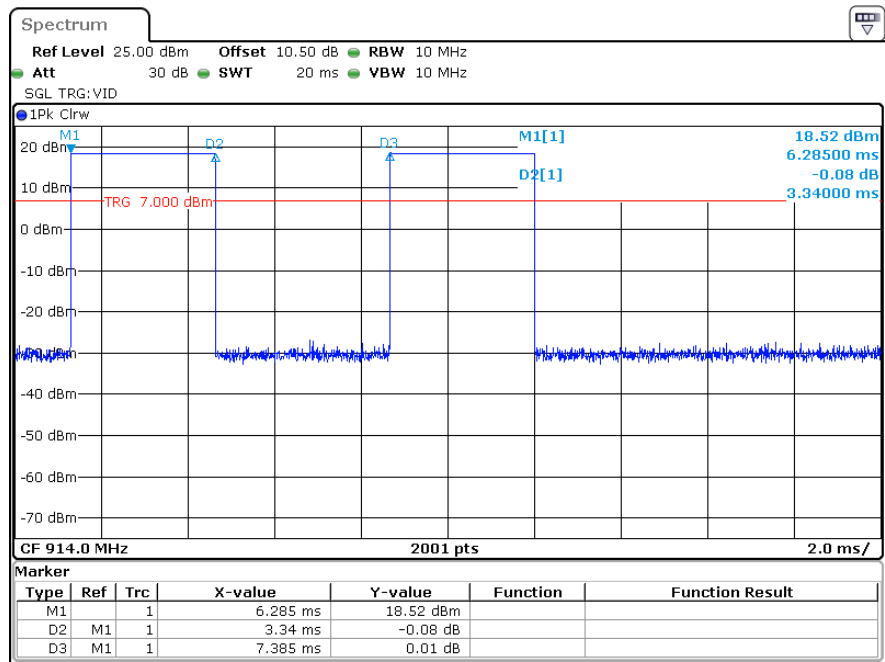
EUT Exercise Software

“SolarEdge Mercurymon.applicationg.exe #” exercise software was used and the power level is 20#. The software and power level was provided by the manufacturer.

Duty cycle

| Test Frequency (MHz) | Ton (ms) | Ton+off (ms) | Duty cycle (%) | 1/T (Hz) | VBW Setting (Hz) |
|----------------------|----------|--------------|----------------|----------|------------------|
| 914                  | 3.34     | /            | /              | 299      | 300              |

Test only was performed at the module with UFL Connector.



ProjectNo.:SZ1240126-06326E Tester:Bamboo Zhan  
Date: 25.APR.2024 15:49:26

Support Equipment List and Details

| Manufacturer | Description       | Model          | Serial Number |
|--------------|-------------------|----------------|---------------|
| TDK          | DC power supply   | Unknown        | Unknown       |
| Lenovo       | Notebook          | Lenovo G40-70m | YB08745628    |
| Unknown      | Serial port board | Unknown        | Unknown       |

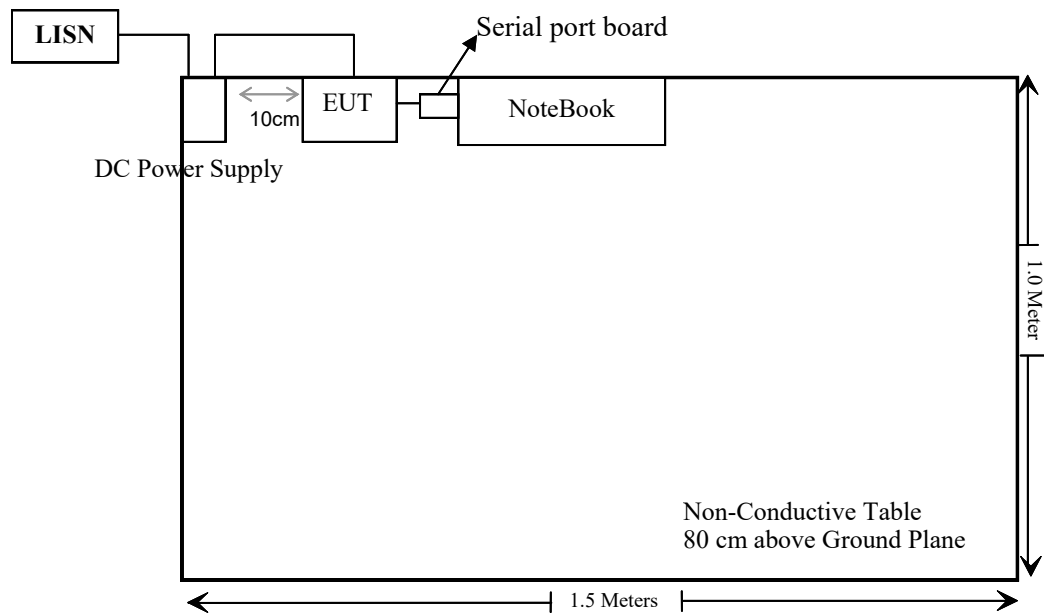
External I/O Cable

| Cable Description                | Length (m) | From Port | To              |
|----------------------------------|------------|-----------|-----------------|
| Un-shielding Detachable DC Cable | 1.0        | EUT       | DC Power supply |
| Un-shielding Detachable AC Cable | 1.5        | LISN      | DC Power supply |

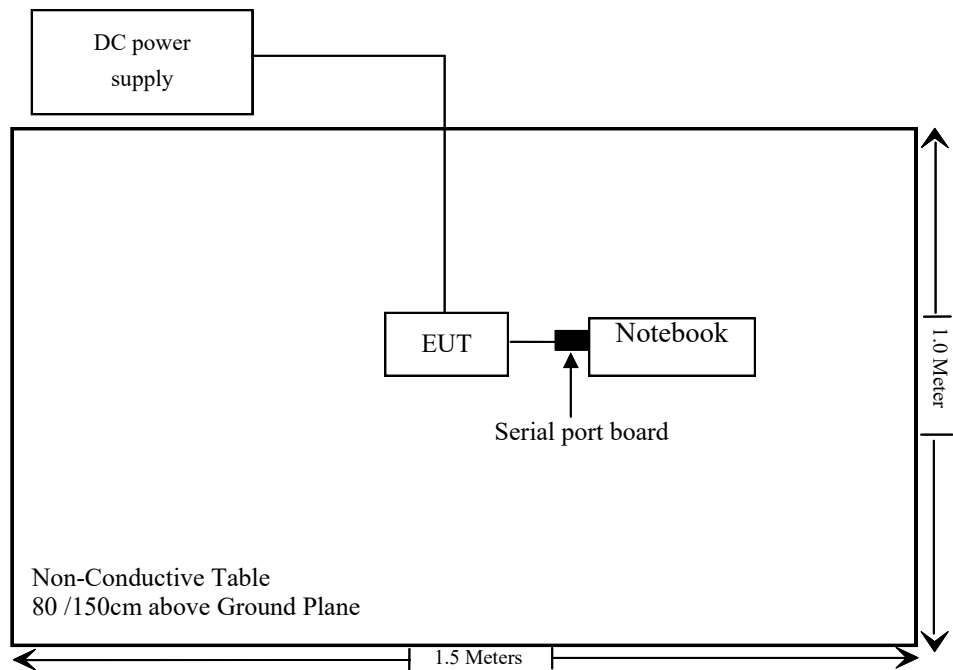


**Block Diagram of Test Setup**

For Conducted Emission:



For Radiate Emissions:



**SUMMARY OF TEST RESULTS**

| FCC Rules                                   | ISED Rules                        | Description of Test   | Result    |
|---|-----------------------------------|---|-----------|
| FCC §15.247 (i) & §1.1307 (b) (3) & §2.1091 | /                                 | MPE-Based Exemption   | Compliant |
| /   | RSS-102                           | Exemption Limits for Routine Evaluation<br>– RF Exposure Evaluation | Compliant |
| FCC §15.203                                 | RSS-Gen §6.8                      | Antenna Requirement   | Compliant |
| FCC §15.207(a)                              | RSS-Gen §8.8                      | AC Line Conducted Emissions   | Compliant |
| FCC §15.205, §15.209, §15.247(d)            | RSS-GEN § 8.10<br>& RSS-247 § 5.5 | Spurious Emissions  | Compliant |
| FCC §15.247 (a)(2)                          | RSS- Gen§6.7<br>RSS-247 § 5.2 (a) | 6 dB Emission Bandwidth & Occupied<br>Bandwidth                     | Compliant |
| FCC §15.247(b)(3)                           | RSS-247 § 5.4(d)                  | Maximum Conducted Output Power                                      | Compliant |
| FCC §15.247(d)                              | RSS-247 § 5.5                     | 100 kHz Bandwidth of Frequency Band<br>Edge                         | Compliant |
| FCC §15.247(e)                              | RSS-247 § 5.2 (b)                 | Power Spectral Density  | Compliant |

**TEST EQUIPMENT LIST**

| Manufacturer                   | Description                       | Model            | Serial Number          | Calibration Date | Calibration Due Date |
|--------------------------------|-----------------------------------|------------------|------------------------|------------------|----------------------|
| <b>Conducted Emission Test</b> |                                   |                  |                        |                  |                      |
| Rohde & Schwarz                | EMI Test Receiver                 | ESCI             | 101120                 | 2024/01/16       | 2025/01/15           |
| Rohde & Schwarz                | LISN                              | ENV216           | 101613                 | 2024/01/16       | 2025/01/15           |
| Rohde & Schwarz                | Transient Limiter                 | ESH3Z2           | DE25985                | 2023/08/03       | 2024/08/02           |
| Unknown                        | CE Cable                          | CE Cable         | UF A210B-1-0720-504504 | 2023/08/03       | 2024/08/02           |
| Audix                          | EMI Test software                 | E3               | 191218                 | NCR              | NCR                  |
| <b>Radiated Emission Test</b>  |                                   |                  |                        |                  |                      |
| R&S                            | EMI Test Receiver                 | ESR3             | 102455                 | 2024/01/16       | 2025/01/15           |
| Sonoma instrument              | Pre-amplifier                     | 310 N            | 186238                 | 2023/06/08       | 2024/06/07           |
| Sunol Sciences                 | Broadband Antenna                 | JB1              | A040904-1              | 2023/07/20       | 2024/07/19           |
| ETS                            | Passive Loop Antenna              | 6512             | 29604                  | 2023/07/07       | 2024/07/06           |
| Unknown                        | Cable                             | Chamber Cable 1  | F-03-EM236             | 2023/08/03       | 2024/08/02           |
| Unknown                        | Cable                             | Chamber Cable 4  | EC-007                 | 2023/08/03       | 2024/08/02           |
| Audix                          | EMI Test software                 | E3               | 19821b(V9)             | NCR              | NCR                  |
| Rohde & Schwarz                | Spectrum Analyzer                 | FSV40            | 101605                 | 2024/03/27       | 2025/03/26           |
| COM-POWER                      | Pre-amplifier                     | PA-122           | 181919                 | 2023/06/29       | 2024/06/28           |
| Schwarzbeck                    | Horn Antenna                      | BBHA9120D (1201) | 1143                   | 2023/07/26       | 2024/07/25           |
| Unknown                        | RF Cable                          | KMSE             | 0735                   | 2023/10/08       | 2024/10/07           |
| Unknown                        | RF Cable                          | UFA147           | 219661                 | 2023/10/08       | 2024/10/07           |
| JD                             | Filter Switch Unit                | DT7210FSU        | DQ77930                | NCR              | NCR                  |
| JD                             | Multiplex Switch Test Control Set | DT7220FSU        | DQ77926                | NCR              | NCR                  |
| Audix                          | EMI Test software                 | E3               | 191218(V9)             | NCR              | NCR                  |
| <b>RF Conducted Test</b>       |                                   |                  |                        |                  |                      |
| R&S                            | SPECTRUM ANALYZER                 | FSU26            | 200120                 | 2024/01/08       | 2025/01/07           |
| R&S                            | spectrum analyzer                 | FSV40            | 101942                 | 2023/12/18       | 2024/12/17           |
| Unknown                        | 10dB Attenuator                   | Unknown          | F-03-EM190             | 2023/07/04       | 2024/07/03           |
| ANRITSU                        | Microwave peak power sensor       | MA24418A         | 12622                  | 2023/08/08       | 2024/08/07           |
| instek                         | DC Power Supply                   | GPS-3030DD       | EM832096               | NCR              | NCR                  |
| Fluke                          | Digital Multimeter                | 287              | 19000011               | 2023/06/08       | 2024/06/07           |
| Unknown                        | RF Cable                          | 65475            | 01670515               | 2023/07/04       | 2024/07/03           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## FCC §15.247 (i) & §1.1307 (B) (3) & §2.1091- RF EXPOSURE

### Applicable Standard

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power. For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

| RF Source frequency (MHz) | Threshold ERP (watts) |
|---------------------------|-----------------------|
| 0.3-1.34                  | $1,920 R^2$ .         |
| 1.34-30                   | $3,450 R^2/f^2$ .     |
| 30-300                    | $3.83 R^2$ .          |
| 300-1,500                 | $0.0128 R^2 f$ .      |
| 1,500-100,000             | $19.2 R^2$ .          |

f = frequency in MHz;

R = minimum separation distance from the body of a nearby person (appropriate units, e.g., m);

### Result

For worst case:

| Mode  | Frequency (MHz) | Tune up conducted power <sup>#</sup> | Antenna Gain <sup>#</sup> |       | ERP   |       | Evaluation Distance (m) | ERP Limit (mW) |
|-------|-----------------|--------------------------------------|---------------------------|-------|-------|-------|-------------------------|----------------|
|       |                 | (dBm)                                | (dBi)                     | (dBd) | (dBm) | (mW)  |                         |                |
| OQPSK | 906-924         | 19.5                                 | 2                         | -0.15 | 19.35 | 86.10 | 0.2                     | 464            |

Note 1: The tune-up power and antenna gain was declared by the applicant.

Note 2: 0dBd=2.15dBi.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result: Compliant**

## RSS-102 § 2.5.2 –EXEMPTION LIMITS FOR ROUTINE EVALUATION-RF EXPOSURE EVALUATION

### Applicable Standard

According to RSS-102 § (2.5.2):

#### 2.5.2 Exemption Limits for Routine Evaluation — RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz<sup>6</sup> and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $22.48/f^{0.5}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 \times 10^{-2} f^{0.6834}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

### Calculated Data:

#### For worst case:

| Mode  | Frequency (MHz) | Maximum tune-up conducted power | Antenna Gain <sup>#</sup> | Maximum tune-up EIRP |        | Evaluation Distance (cm) | Limit (mW) |
|-------|-----------------|---------------------------------|---------------------------|----------------------|--------|--------------------------|------------|
|       |                 | (dBm)                           | (dBi)                     | (dBm)                | (mW)   |                          |            |
| OQPSK | 906-924         | 19.5                            | 2                         | 21.50                | 141.25 | 20                       | 1375       |

Note: The tune up conducted power and antenna gain was declared by the applicant.

To maintain compliance with the IC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

**Result:** The RF Exposure evaluation can be exempted.

## FCC §15.203& RSS-GEN §6.8 - ANTENNA REQUIREMENT

### Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- Antenna must be permanently attached to the unit.
- Antenna must use a unique type of connector to attach to the EUT.
- Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### Antenna Connector Construction

The EUT has one antenna arrangement which was permanently attached by an UFL Connector, and three external antennas with unique antenna connector, the detail information as follows, fulfill the requirement of this section. Please refer to the EUT photos.

| Antenna Connector             | Antenna Mode | Antenna Type | Antenna Gain <sup>#</sup> (dBi) | Impedance | Frequency Range (MHz) |
|-------------------------------|--------------|--------------|---------------------------------|-----------|-----------------------|
| UFL<br>(Permanently attached) | AS4035-1     | Coil         | 0                               | 50Ω       | 902-928               |
| SMA<br>(Unique type)          | AS4034-1     | Monopole     | 0                               | 50Ω       | 902-928               |
|                               | AS4035-1     | Coil         | 0                               | 50Ω       | 902-928               |
|                               | AS4038-1     | Dipole       | 2                               | 50Ω       | 902-928               |

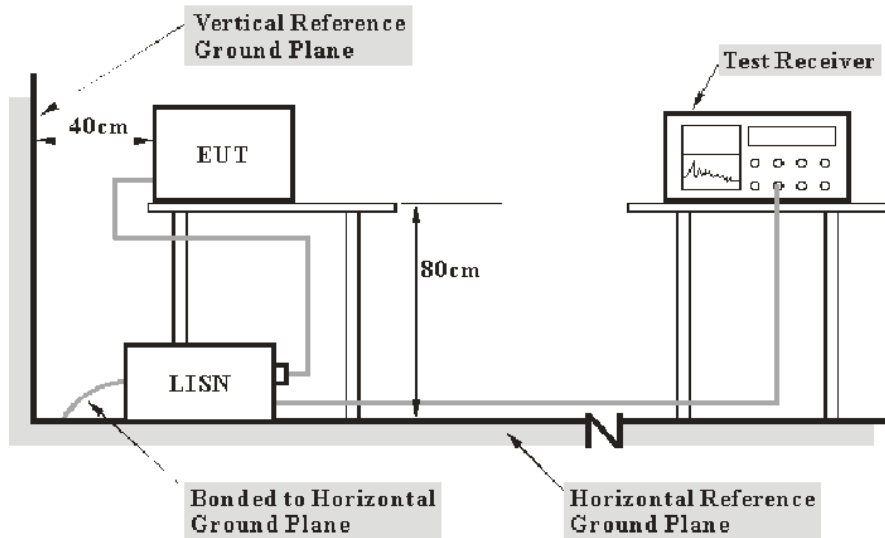
**Result:** Compliant.

## FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

### Applicable Standard

FCC§15.207

### EUT Setup



Note: 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range  | IF B/W |
|------------------|--------|
| 150 kHz – 30 MHz | 9 kHz  |

### Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

## Factor & Over Limit Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Over limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Read Level} + \text{Factor}\end{aligned}$$

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

## Test Data

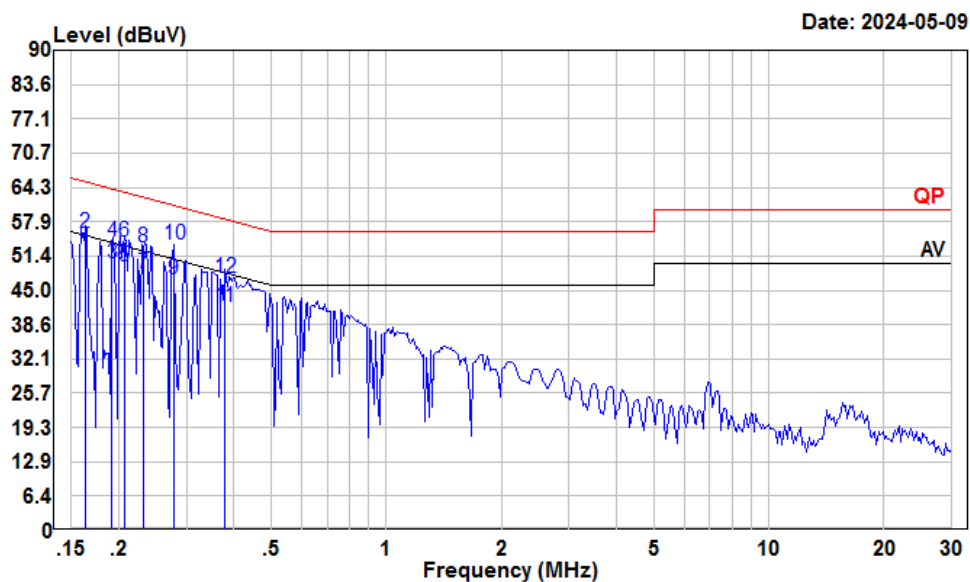
### Environmental Conditions

|                    |         |
|--------------------|---------|
| Temperature:       | 26 °C   |
| Relative Humidity: | 70 %    |
| ATM Pressure:      | 101 kPa |

*The testing was performed by Macy Shi on 2024-05-09.*

*EUT operation mode: Transmitting (Maximum output power mode, Low Channel)*



**With UFL Connector:****AC 120V/60 Hz, Line**

Condition: Line

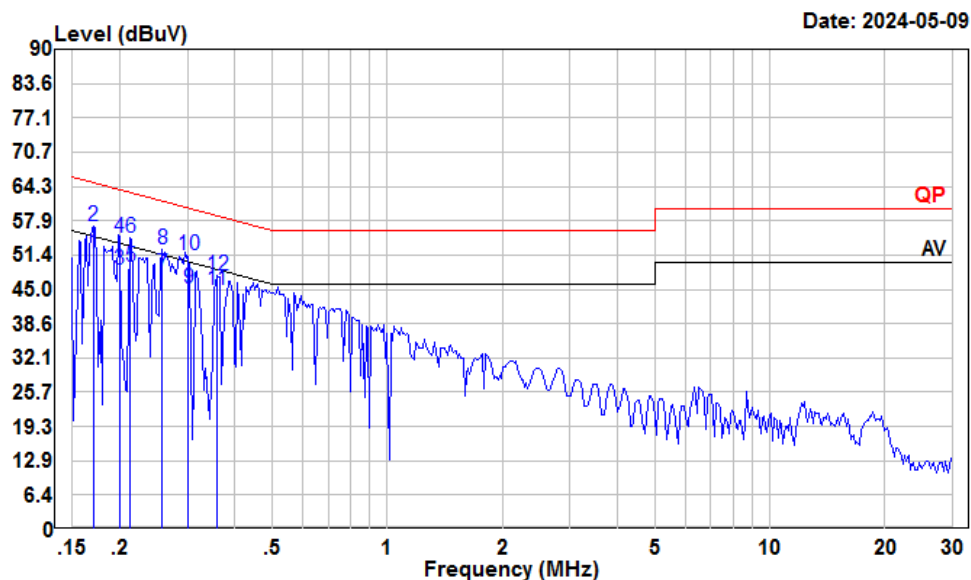
Project : SZ1240126-06326E-RF

Tester : Macy shi

Note : Lora DTS

|    | Freq | Read Level | Level | LISN Factor | Cable Loss | Limit Line | Over Limit | Remark  |
|----|------|------------|-------|-------------|------------|------------|------------|---------|
|    | MHz  | dBuV       | dBuV  | dB          | dB         | dBuV       | dB         |         |
| 1  | 0.16 | 31.69      | 52.24 | 10.40       | 10.15      | 55.30      | -3.06      | Average |
| 2  | 0.16 | 35.31      | 55.86 | 10.40       | 10.15      | 65.30      | -9.44      | QP      |
| 3  | 0.19 | 29.60      | 50.11 | 10.40       | 10.11      | 53.98      | -3.87      | Average |
| 4  | 0.19 | 33.56      | 54.07 | 10.40       | 10.11      | 63.98      | -9.91      | QP      |
| 5  | 0.21 | 29.09      | 49.58 | 10.39       | 10.10      | 53.36      | -3.78      | Average |
| 6  | 0.21 | 33.76      | 54.25 | 10.39       | 10.10      | 63.36      | -9.11      | QP      |
| 7  | 0.23 | 27.68      | 48.22 | 10.37       | 10.17      | 52.39      | -4.17      | Average |
| 8  | 0.23 | 32.37      | 52.91 | 10.37       | 10.17      | 62.39      | -9.48      | QP      |
| 9  | 0.28 | 26.68      | 47.17 | 10.33       | 10.16      | 50.90      | -3.73      | Average |
| 10 | 0.28 | 33.03      | 53.52 | 10.33       | 10.16      | 60.90      | -7.38      | QP      |
| 11 | 0.38 | 21.40      | 41.85 | 10.26       | 10.19      | 48.34      | -6.49      | Average |
| 12 | 0.38 | 26.74      | 47.19 | 10.26       | 10.19      | 58.34      | -11.15     | QP      |

## AC 120V/60 Hz, Neutral



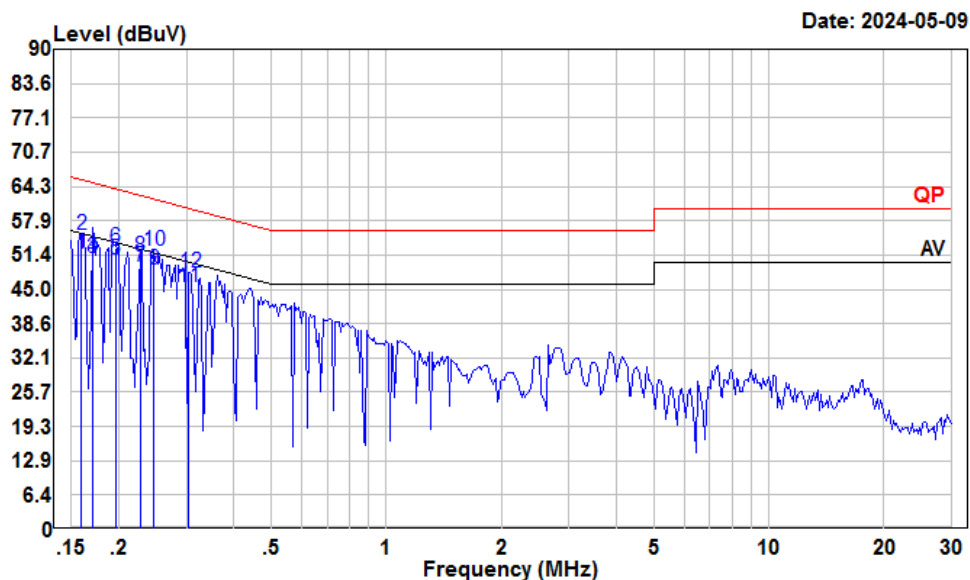
Condition: Neutral

Project : SZ1240126-06326E-RF

Tester : Macy shi

Note : Lora DTS

|    | Freq | Read Level | Level | LISN Factor | Cable Loss | Limit Line | Over Limit | Remark  |
|----|------|------------|-------|-------------|------------|------------|------------|---------|
|    | MHz  | dBuV       | dBuV  | dB          | dB         | dBuV       | dB         |         |
| 1  | 0.17 | 31.20      | 51.75 | 10.40       | 10.15      | 54.94      | -3.19      | Average |
| 2  | 0.17 | 36.26      | 56.81 | 10.40       | 10.15      | 64.94      | -8.13      | QP      |
| 3  | 0.20 | 28.19      | 48.68 | 10.40       | 10.09      | 53.62      | -4.94      | Average |
| 4  | 0.20 | 34.30      | 54.79 | 10.40       | 10.09      | 63.62      | -8.83      | QP      |
| 5  | 0.21 | 28.69      | 49.20 | 10.39       | 10.12      | 53.10      | -3.90      | Average |
| 6  | 0.21 | 34.16      | 54.67 | 10.39       | 10.12      | 63.10      | -8.43      | QP      |
| 7  | 0.26 | 27.25      | 47.79 | 10.34       | 10.20      | 51.51      | -3.72      | Average |
| 8  | 0.26 | 31.90      | 52.44 | 10.34       | 10.20      | 61.51      | -9.07      | QP      |
| 9  | 0.30 | 24.68      | 45.11 | 10.31       | 10.12      | 50.19      | -5.08      | Average |
| 10 | 0.30 | 30.92      | 51.35 | 10.31       | 10.12      | 60.19      | -8.84      | QP      |
| 11 | 0.36 | 24.30      | 44.74 | 10.27       | 10.17      | 48.78      | -4.04      | Average |
| 12 | 0.36 | 27.16      | 47.60 | 10.27       | 10.17      | 58.78      | -11.18     | QP      |

**With SMA Connector:****AC 120V/60 Hz, Line**

Condition: Line

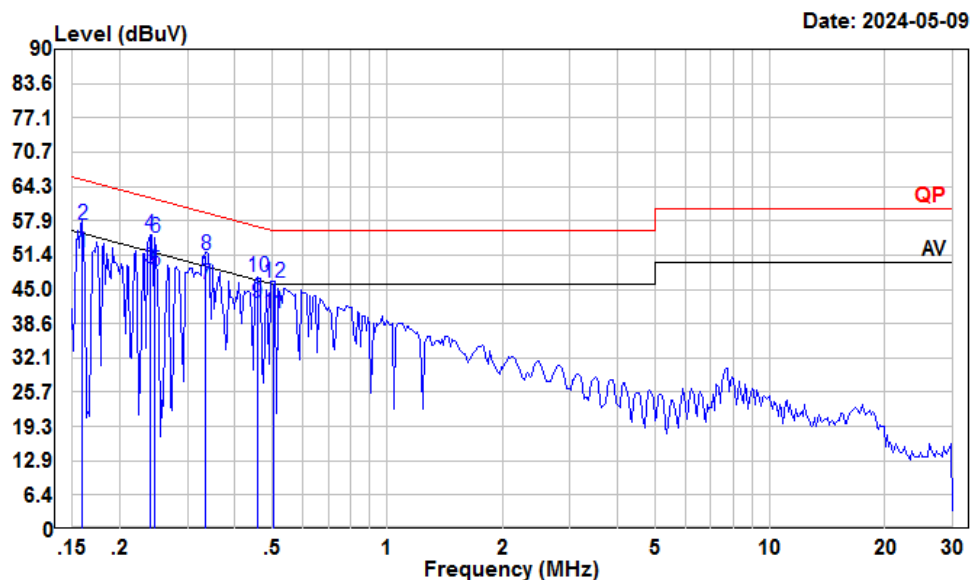
Project : SZ1240126-06326E-RF

Tester : Macy shi

Note : Lora DTS

|    | Freq | Read Level | Level | LISN Factor | Cable Loss | Limit Line | Over Limit | Remark  |
|----|------|------------|-------|-------------|------------|------------|------------|---------|
|    | MHz  | dBuV       | dBuV  | dB          | dB         | dBuV       | dB         |         |
| 1  | 0.16 | 31.08      | 51.63 | 10.40       | 10.15      | 55.47      | -3.84      | Average |
| 2  | 0.16 | 34.66      | 55.21 | 10.40       | 10.15      | 65.47      | -10.26     | QP      |
| 3  | 0.17 | 30.20      | 50.75 | 10.40       | 10.15      | 64.94      | -14.19     | Average |
| 4  | 0.17 | 30.20      | 50.75 | 10.40       | 10.15      | 64.94      | -14.19     | QP      |
| 5  | 0.20 | 30.01      | 50.51 | 10.40       | 10.10      | 53.80      | -3.29      | Average |
| 6  | 0.20 | 32.36      | 52.86 | 10.40       | 10.10      | 63.80      | -10.94     | QP      |
| 7  | 0.23 | 28.66      | 49.18 | 10.37       | 10.15      | 52.57      | -3.39      | Average |
| 8  | 0.23 | 30.72      | 51.24 | 10.37       | 10.15      | 62.57      | -11.33     | QP      |
| 9  | 0.25 | 28.11      | 48.66 | 10.35       | 10.20      | 51.86      | -3.20      | Average |
| 10 | 0.25 | 31.75      | 52.30 | 10.35       | 10.20      | 61.86      | -9.56      | QP      |
| 11 | 0.31 | 24.96      | 45.39 | 10.31       | 10.12      | 50.10      | -4.71      | Average |
| 12 | 0.31 | 27.60      | 48.03 | 10.31       | 10.12      | 60.10      | -12.07     | QP      |

## AC 120V/60 Hz, Neutral



Condition: Neutral

Project : SZ1240126-06326E-RF

Tester : Macy shi

Note : Lora DTS

|    | Freq | Read Level | Level Factor | LISN  | Cable Loss | Limit Line | Over Limit | Remark  |
|----|------|------------|--------------|-------|------------|------------|------------|---------|
|    | MHz  | dBuV       | dBuV         | dB    | dB         | dBuV       | dB         |         |
| 1  | 0.16 | 31.53      | 51.97        | 10.29 | 10.15      | 55.47      | -3.50      | Average |
| 2  | 0.16 | 36.61      | 57.05        | 10.29 | 10.15      | 65.47      | -8.42      | QP      |
| 3  | 0.24 | 28.21      | 49.03        | 10.64 | 10.18      | 52.13      | -3.10      | Average |
| 4  | 0.24 | 34.37      | 55.19        | 10.64 | 10.18      | 62.13      | -6.94      | QP      |
| 5  | 0.25 | 27.58      | 48.43        | 10.65 | 10.20      | 51.86      | -3.43      | Average |
| 6  | 0.25 | 33.72      | 54.57        | 10.65 | 10.20      | 61.86      | -7.29      | QP      |
| 7  | 0.34 | 25.21      | 46.07        | 10.71 | 10.15      | 49.31      | -3.24      | Average |
| 8  | 0.34 | 30.54      | 51.40        | 10.71 | 10.15      | 59.31      | -7.91      | QP      |
| 9  | 0.46 | 21.55      | 42.51        | 10.78 | 10.18      | 46.76      | -4.25      | Average |
| 10 | 0.46 | 26.29      | 47.25        | 10.78 | 10.18      | 56.76      | -9.51      | QP      |
| 11 | 0.50 | 19.54      | 40.49        | 10.80 | 10.15      | 46.00      | -5.51      | Average |
| 12 | 0.50 | 25.22      | 46.17        | 10.80 | 10.15      | 56.00      | -9.83      | QP      |

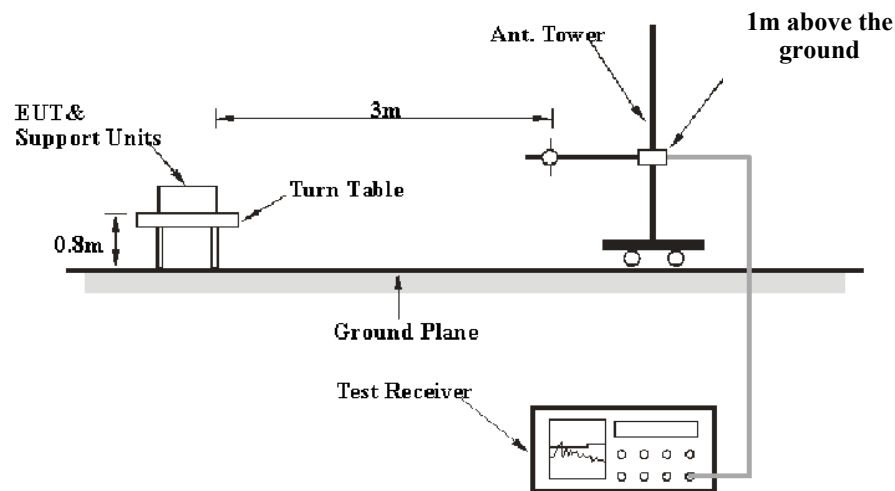
## FCC §15.209, §15.205 & §15.247(d) & RSS-GEN § 8.10 & RSS-247 § 5.5 - SPURIOUS EMISSIONS

### Applicable Standard

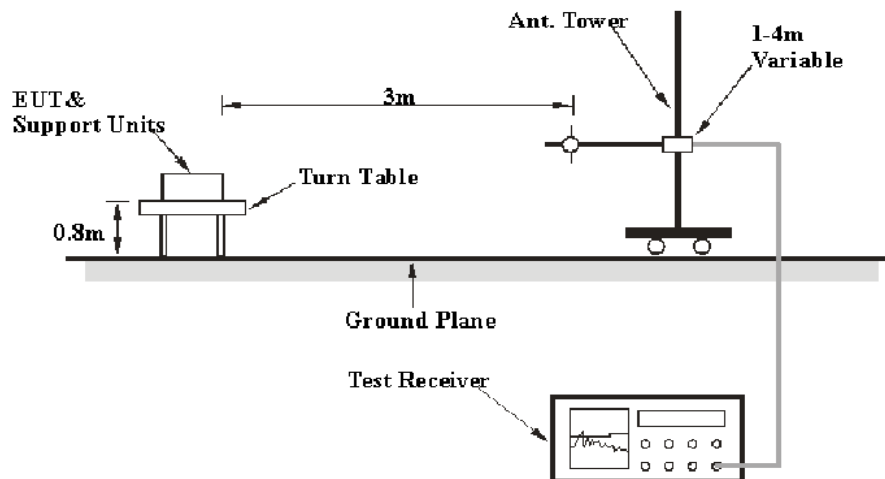
FCC §15.247 (d), §15.209, §15.205; RSS-GEN §8.10, RSS-247 § 5.5.

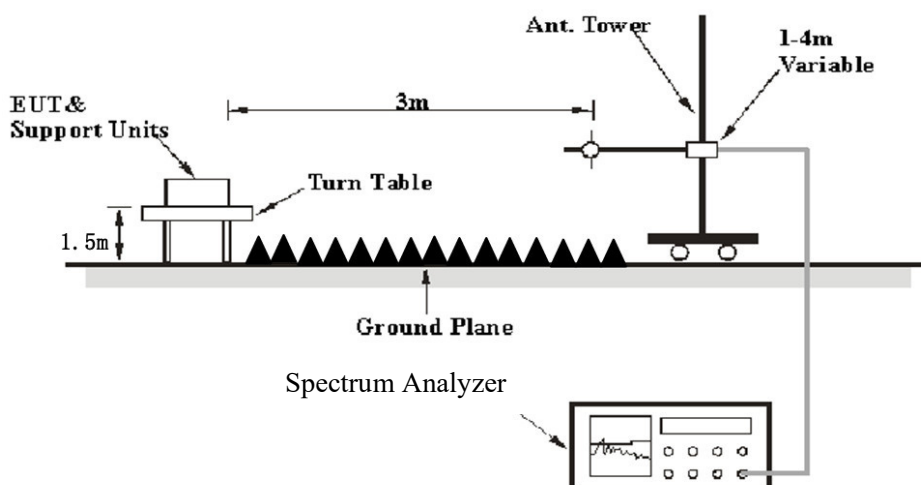
### EUT Setup

9 kHz-30MHz:



30MHz-1GHz:



**Above 1GHz:**

The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.247, RSS-Gen and RSS-247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

**EMI Test Receiver & Spectrum Analyzer Setup**

The system was investigated from 9 kHz to 10 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

**9 kHz-1GHz:**

| Frequency Range   | RBW     | Video B/W | IF B/W  | Measurement |
|-------------------|---------|-----------|---------|-------------|
| 9 kHz – 150 kHz   | /       | /         | 200 Hz  | QP          |
|                   | 300 Hz  | 1 kHz     | /       | PK          |
| 150 kHz – 30 MHz  | /       | /         | 9 kHz   | QP          |
|                   | 10 kHz  | 30 kHz    | /       | PK          |
| 30 MHz – 1000 MHz | /       | /         | 120 kHz | QP          |
|                   | 100 kHz | 300 kHz   | /       | PK          |

**1-10 GHz:**

| Measurement | Duty cycle | RBW  | Video B/W |
|-------------|------------|------|-----------|
| PK          | Any        | 1MHz | 3 MHz     |
| AV          | >98%       | 1MHz | 10 Hz     |
|             | <98%       | 1MHz | ≥1/Ton    |

Note: Ton is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

## Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in Quasi-peak detection mode except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, average detection modes for frequency bands 9–90 kHz and 110–490 kHz, peak and average detection modes for frequencies above 1 GHz.

For 9 kHz-30MHz, the report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground-parallel) unless the margin is greater than 20 dB.

All emissions under the average limit and under the noise floor have not recorded in the report.

## Factor & Over Limit/ Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit/Margin} &= \text{Level / Corrected Amplitude} - \text{Limit} \\ \text{Level / Corrected Amplitude} &= \text{Read Level} + \text{Factor}\end{aligned}$$

## Test Results Summary

According to the data in the following table, the EUT complied with the FCC 15.205, FCC 15.209, FCC 15.247, RSS-Gen and RSS-247.

## Test Data

### Environmental Conditions

|                    |            |
|--------------------|------------|
| Temperature:       | 23~25.6 °C |
| Relative Humidity: | 50~55 %    |
| ATM Pressure:      | 101 kPa    |

*The testing was performed by Warren Huang on 2024-03-07 for below 1GHz and Dylan Yang on 2024-04-18 for above 1GHz.*

*EUT operation mode: Transmitting*

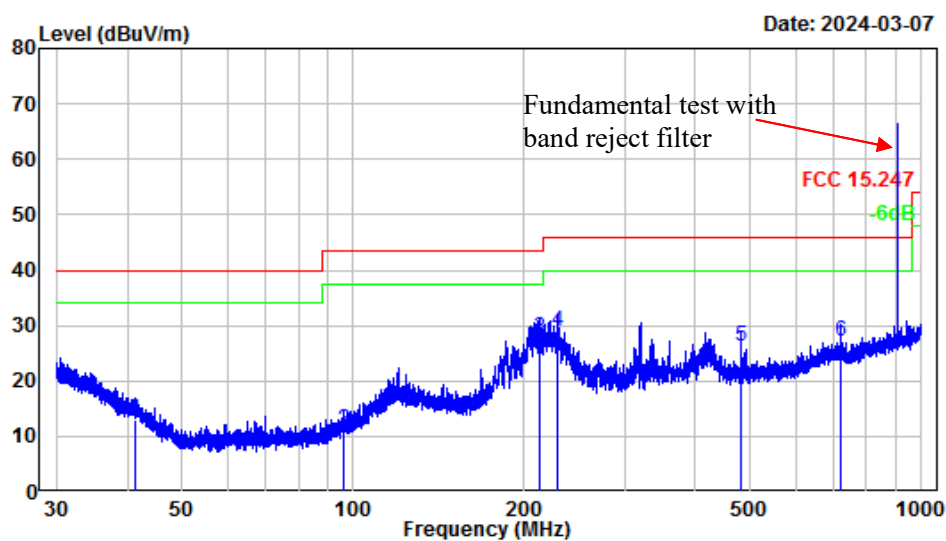
*Note: Pre-scan in the X, Y and Z axes of orientation, the worst case z-axis of orientation was recorded.*

**9 kHz-30MHz:** (Maximum output power mode, Low Channel)

The amplitude of spurious emissions attenuated more than 20 dB below the limit was not be recorded.

**30 MHz~1 GHz:**

**With UFL Connector:** (Maximum output power mode, Low Channel)

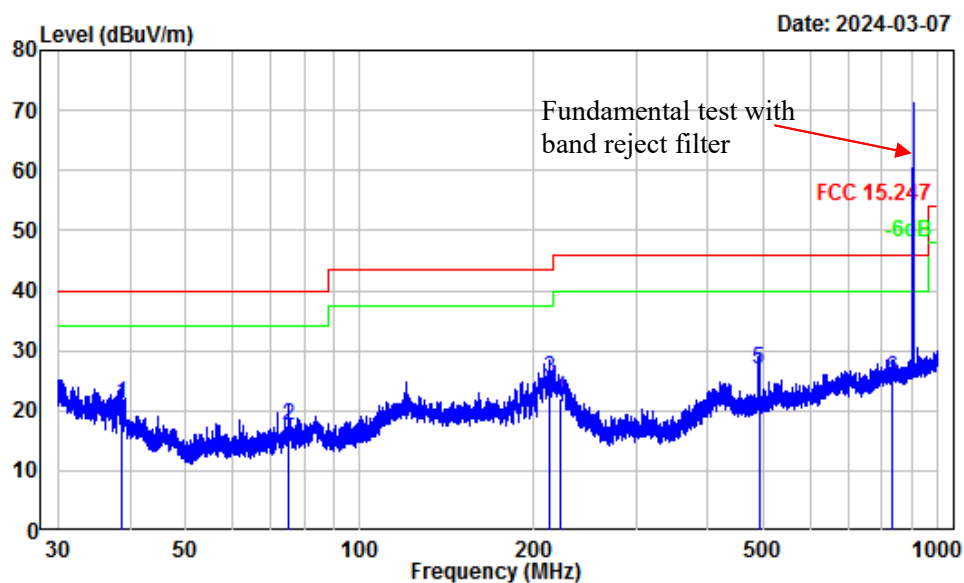
**Horizontal**

Site : chamber  
Condition : 3m Horizontal  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read Level |        | Limit Line | Over Limit | Remark |
|---|-------------|--------|------------|--------|------------|------------|--------|
|   | MHz         | dB/m   | dBuV       | dBuV/m | dBuV/m     | dB         |        |
| 1 | 41.33       | -11.24 | 24.21      | 12.97  | 40.00      | -27.03     | QP     |
| 2 | 96.06       | -14.84 | 25.91      | 11.07  | 43.50      | -32.43     | QP     |
| 3 | 213.30      | -11.25 | 39.15      | 27.90  | 43.50      | -15.60     | QP     |
| 4 | 229.29      | -11.51 | 40.48      | 28.97  | 46.00      | -17.03     | QP     |
| 5 | 480.11      | -5.28  | 31.41      | 26.13  | 46.00      | -19.87     | QP     |
| 6 | 722.04      | -1.58  | 28.61      | 27.03  | 46.00      | -18.97     | QP     |



## Vertical



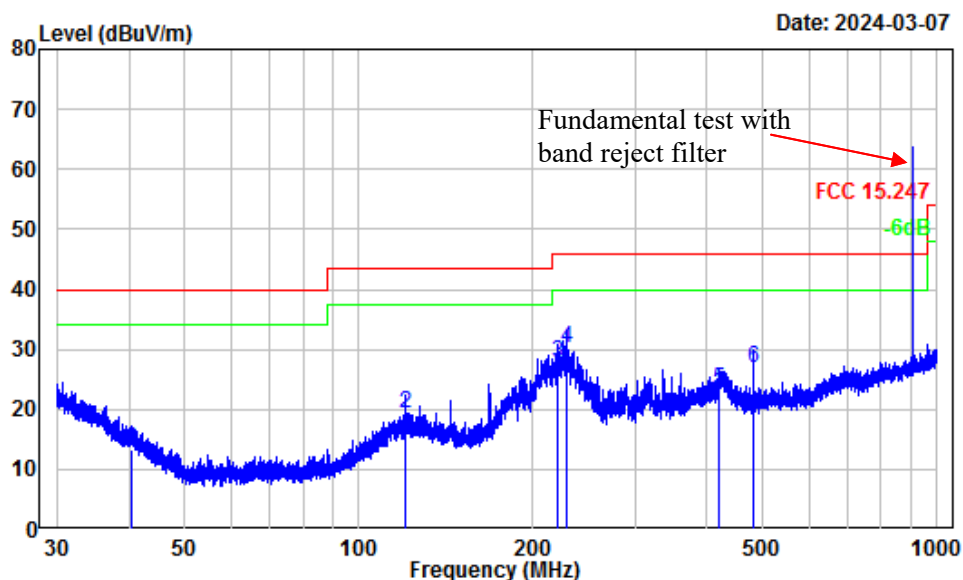
Site : chamber  
Condition : 3m Vertical  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read  |        | Limit  | Over   | Remark |
|---|-------------|--------|-------|--------|--------|--------|--------|
|   | MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 38.60       | -11.02 | 32.20 | 21.18  | 40.00  | -18.82 | QP     |
| 2 | 75.15       | -17.26 | 34.63 | 17.37  | 40.00  | -22.63 | QP     |
| 3 | 212.83      | -12.23 | 37.50 | 25.27  | 43.50  | -18.23 | QP     |
| 4 | 222.07      | -12.24 | 34.37 | 22.13  | 46.00  | -23.87 | QP     |
| 5 | 490.10      | -5.42  | 32.28 | 26.86  | 46.00  | -19.14 | QP     |
| 6 | 834.41      | -0.27  | 25.68 | 25.41  | 46.00  | -20.59 | QP     |

**With SMA Connector:** (Maximum output power mode, Low Channel)

**For ANT AS4034-1:**

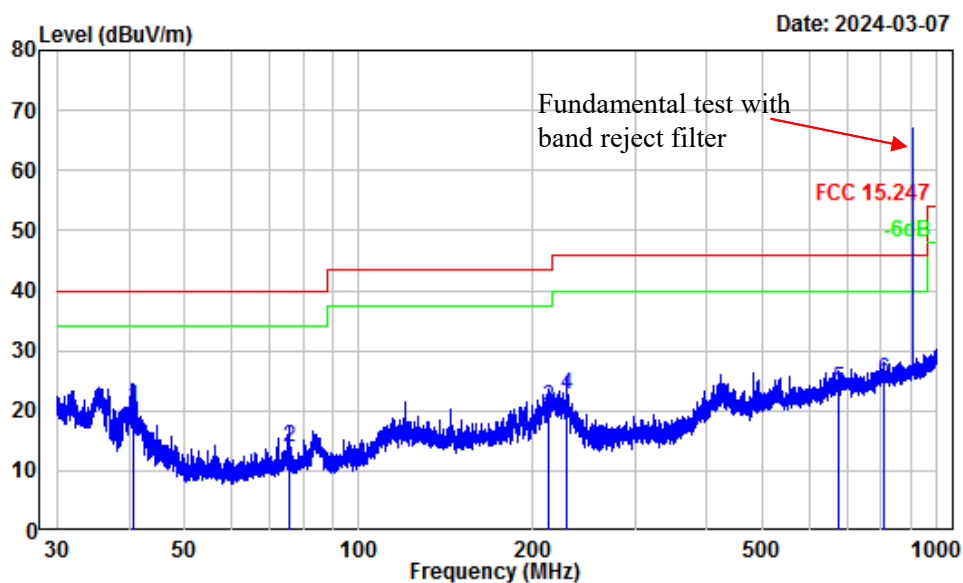
**Horizontal**



Site : chamber  
Condition : 3m Horizontal  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read  |        | Limit  | Over   | Remark |
|---|-------------|--------|-------|--------|--------|--------|--------|
|   | MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 40.36       | -10.62 | 23.86 | 13.24  | 40.00  | -26.76 | QP     |
| 2 | 120.01      | -10.35 | 29.80 | 19.45  | 43.50  | -24.05 | QP     |
| 3 | 221.00      | -11.37 | 39.15 | 27.78  | 46.00  | -18.22 | QP     |
| 4 | 229.29      | -11.51 | 41.63 | 30.12  | 46.00  | -15.88 | QP     |
| 5 | 418.37      | -6.72  | 30.05 | 23.33  | 46.00  | -22.67 | QP     |
| 6 | 480.11      | -5.28  | 32.24 | 26.96  | 46.00  | -19.04 | QP     |

## Vertical

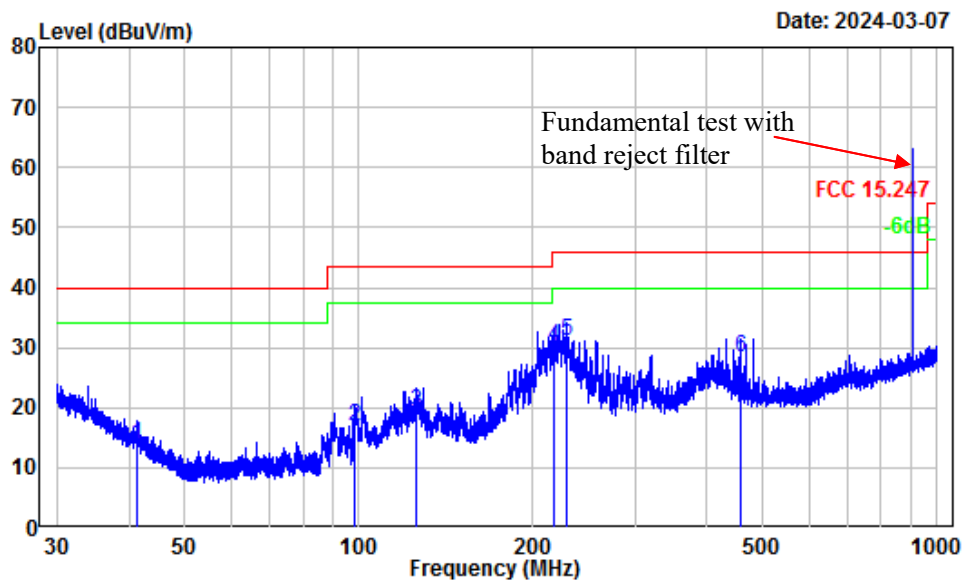


Site : chamber  
Condition : 3m Vertical  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read  |        | Limit  | Over   | Remark |
|---|-------------|--------|-------|--------|--------|--------|--------|
|   | MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 40.61       | -12.23 | 32.79 | 20.56  | 40.00  | -19.44 | QP     |
| 2 | 75.88       | -17.25 | 31.20 | 13.95  | 40.00  | -26.05 | QP     |
| 3 | 212.64      | -12.23 | 32.65 | 20.42  | 43.50  | -23.08 | QP     |
| 4 | 229.29      | -12.24 | 34.92 | 22.68  | 46.00  | -23.32 | QP     |
| 5 | 676.39      | -2.35  | 26.03 | 23.68  | 46.00  | -22.32 | QP     |
| 6 | 806.72      | -0.58  | 25.74 | 25.16  | 46.00  | -20.84 | QP     |

## For ANT AS4035-1

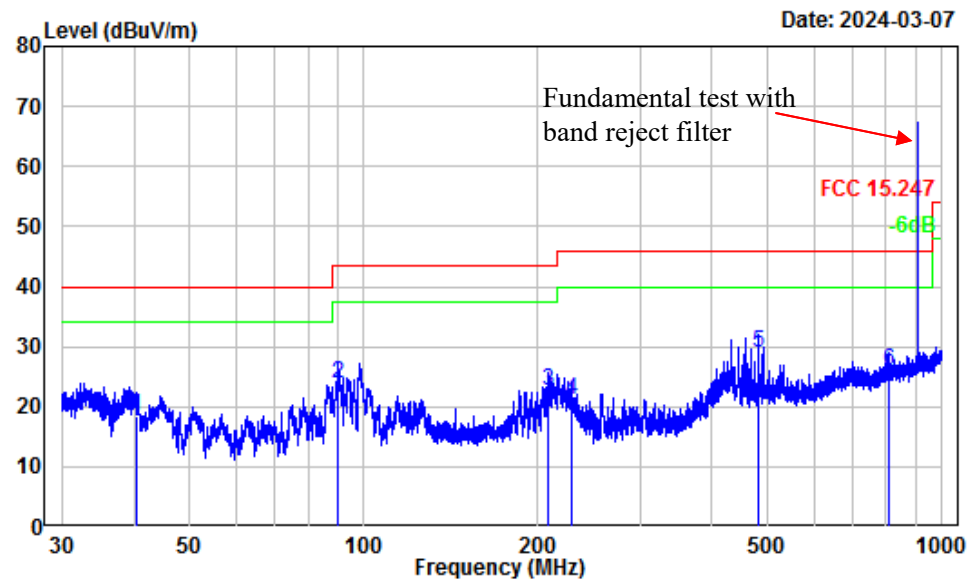
## Horizontal



Site : chamber  
Condition : 3m Horizontal  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read  |        | Limit  | Over   | Remark |
|---|-------------|--------|-------|--------|--------|--------|--------|
|   | MHz         | dB/m   | Level | Level  | Line   | Limit  |        |
|   |             |        | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 41.24       | -11.18 | 24.96 | 13.78  | 40.00  | -26.22 | QP     |
| 2 | 98.53       | -14.15 | 31.10 | 16.95  | 43.50  | -26.55 | QP     |
| 3 | 125.45      | -10.32 | 29.69 | 19.37  | 43.50  | -24.13 | QP     |
| 4 | 217.35      | -11.32 | 41.37 | 30.05  | 46.00  | -15.95 | QP     |
| 5 | 229.29      | -11.51 | 42.60 | 31.09  | 46.00  | -14.91 | QP     |
| 6 | 456.11      | -5.55  | 34.05 | 28.50  | 46.00  | -17.50 | QP     |

Vertical

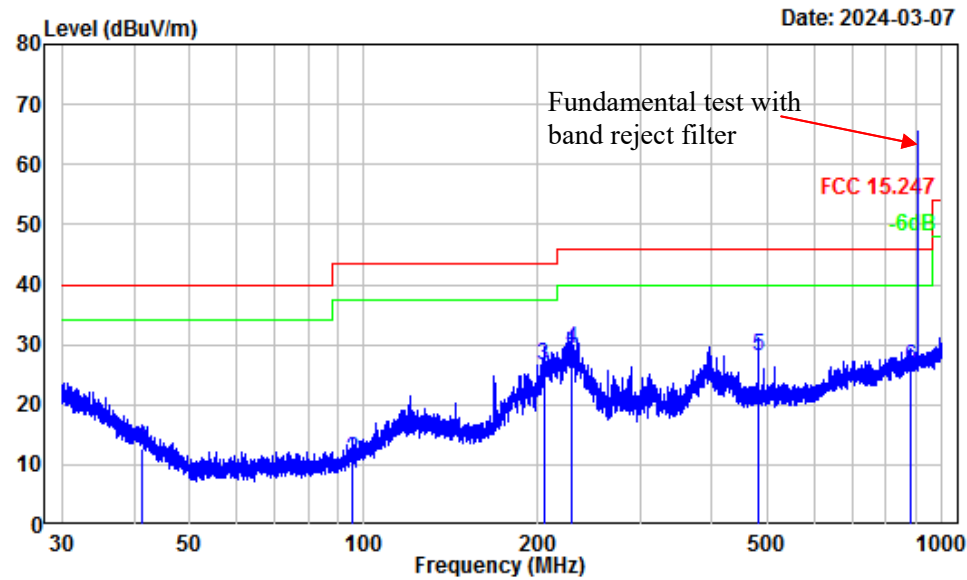


Site : chamber  
Condition : 3m Vertical  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read  |        | Limit  | Over   | Remark |
|---|-------------|--------|-------|--------|--------|--------|--------|
|   | MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 40.51       | -12.17 | 30.47 | 18.30  | 40.00  | -21.70 | QP     |
| 2 | 89.87       | -17.36 | 41.10 | 23.74  | 43.50  | -19.76 | QP     |
| 3 | 208.95      | -12.24 | 34.78 | 22.54  | 43.50  | -20.96 | QP     |
| 4 | 229.29      | -12.24 | 33.31 | 21.07  | 46.00  | -24.93 | QP     |
| 5 | 480.11      | -5.60  | 34.59 | 28.99  | 46.00  | -17.01 | QP     |
| 6 | 810.62      | -0.54  | 26.47 | 25.93  | 46.00  | -20.07 | QP     |

For ANT AS4038-1

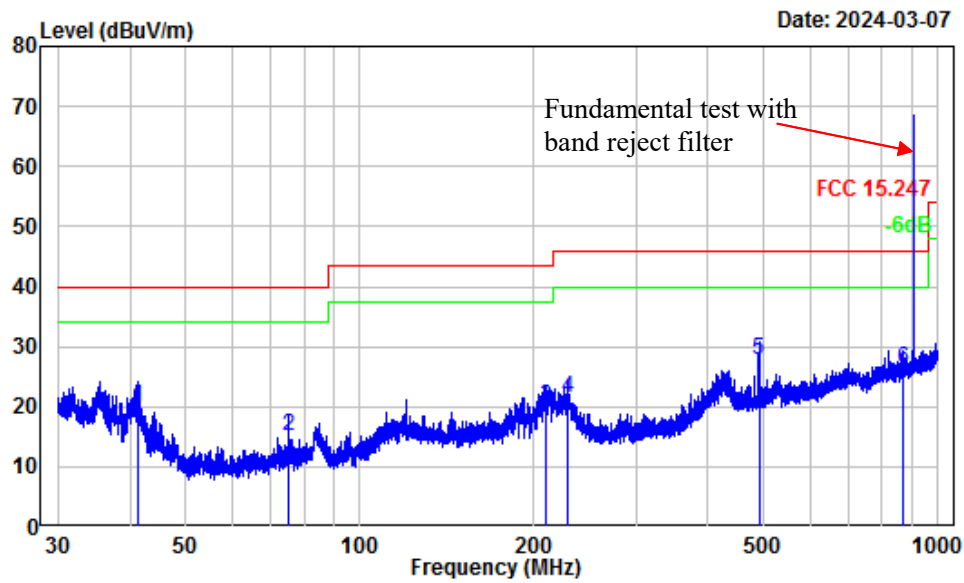
Horizontal



Site : chamber  
Condition : 3m Horizontal  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read  |        | Limit  | Over   | Remark |
|---|-------------|--------|-------|--------|--------|--------|--------|
|   | MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 41.24       | -11.18 | 23.76 | 12.58  | 40.00  | -27.42 | QP     |
| 2 | 95.64       | -14.97 | 25.96 | 10.99  | 43.50  | -32.51 | QP     |
| 3 | 204.51      | -11.10 | 37.61 | 26.51  | 43.50  | -16.99 | QP     |
| 4 | 229.19      | -11.50 | 40.81 | 29.31  | 46.00  | -16.69 | QP     |
| 5 | 480.11      | -5.28  | 33.39 | 28.11  | 46.00  | -17.89 | QP     |
| 6 | 882.57      | 0.73   | 25.40 | 26.13  | 46.00  | -19.87 | QP     |

Vertical



Site : chamber  
Condition : 3m Vertical  
Project Number: SZ1240126-06326E-RF  
Note : Lora DTS  
Tester : Warren Huang

|   | Freq Factor |        | Read  |        | Limit  | Over   | Remark |
|---|-------------|--------|-------|--------|--------|--------|--------|
|   | MHz         | dB/m   | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 41.19       | -12.56 | 32.56 | 20.00  | 40.00  | -20.00 | QP     |
| 2 | 75.45       | -17.25 | 32.23 | 14.98  | 40.00  | -25.02 | QP     |
| 3 | 209.13      | -12.24 | 32.31 | 20.07  | 43.50  | -23.43 | QP     |
| 4 | 229.29      | -12.24 | 33.64 | 21.40  | 46.00  | -24.60 | QP     |
| 5 | 490.10      | -5.42  | 33.20 | 27.78  | 46.00  | -18.22 | QP     |
| 6 | 870.27      | 0.18   | 26.14 | 26.32  | 46.00  | -19.68 | QP     |

**1 GHz - 10 GHz:**

| Frequency<br>(MHz)    | Receiver          |        | Polar<br>(H/V) | Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|-----------------------|-------------------|--------|----------------|------------------|------------------------------------|-------------------|----------------|
|                       | Reading<br>(dBμV) | PK/Ave |                |                  |                                    |                   |                |
| With UFL Connector    |                   |        |                |                  |                                    |                   |                |
| Low Channel 906MHz    |                   |        |                |                  |                                    |                   |                |
| 2718.00               | 62.56             | PK     | H              | -2.49            | 60.07                              | 74                | -13.93         |
| 2718.00               | 58.11             | AV     | H              | -2.49            | 55.62                              | 54                | 1.62           |
| 2718.00               | 56.61             | PK     | V              | -2.49            | 54.12                              | 74                | -19.88         |
| 2718.00               | 51.48             | AV     | V              | -2.49            | 48.99                              | 54                | -5.01          |
| 3624.00               | 63.57             | PK     | H              | -1.94            | 61.63                              | 74                | -12.37         |
| 3624.00               | 54.11             | AV     | H              | -1.94            | 52.17                              | 54                | -1.83          |
| 3624.00               | 60.59             | PK     | V              | -1.94            | 58.65                              | 74                | -15.35         |
| 3624.00               | 48.43             | AV     | V              | -1.94            | 46.49                              | 54                | -7.51          |
| Middle Channel 914MHz |                   |        |                |                  |                                    |                   |                |
| 2742.00               | 63.35             | PK     | H              | -2.49            | 60.86                              | 74                | -13.14         |
| 2742.00               | 50.93             | AV     | H              | -2.49            | 48.44                              | 54                | -5.56          |
| 2742.00               | 56.64             | PK     | V              | -2.49            | 54.15                              | 74                | -19.85         |
| 2742.00               | 50.27             | AV     | V              | -2.49            | 47.78                              | 54                | -6.22          |
| 3656.00               | 63.44             | PK     | H              | -1.84            | 61.60                              | 74                | -12.40         |
| 3656.00               | 53.25             | AV     | H              | -1.84            | 51.41                              | 54                | -2.59          |
| 3656.00               | 59.48             | PK     | V              | -1.84            | 57.64                              | 74                | -16.36         |
| 3656.00               | 52.76             | AV     | V              | -1.84            | 50.92                              | 54                | -3.08          |
| High Channel 924MHz   |                   |        |                |                  |                                    |                   |                |
| 2772.00               | 61.76             | PK     | H              | -2.46            | 59.30                              | 74                | -14.70         |
| 2772.00               | 54.07             | AV     | H              | -2.46            | 51.61                              | 54                | -2.39          |
| 2772.00               | 55.71             | PK     | V              | -2.46            | 53.25                              | 74                | -20.75         |
| 2772.00               | 47.55             | AV     | V              | -2.46            | 45.09                              | 54                | -8.91          |
| 3696.00               | 64.92             | PK     | H              | -1.74            | 63.18                              | 74                | -10.82         |
| 3696.00               | 49.26             | AV     | H              | -1.74            | 47.52                              | 54                | -6.48          |
| 3696.00               | 60.74             | PK     | V              | -1.74            | 59.00                              | 74                | -15.00         |
| 3696.00               | 46.59             | AV     | V              | -1.74            | 44.85                              | 54                | -9.15          |



| Frequency<br>(MHz)              | Receiver          |        | Polar<br>(H/V) | Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|---------------------------------|-------------------|--------|----------------|------------------|------------------------------------|-------------------|----------------|
|                                 | Reading<br>(dBμV) | PK/Ave |                |                  |                                    |                   |                |
| With SMA Connector_ANT AS4034-1 |                   |        |                |                  |                                    |                   |                |
| Low Channel 906MHz              |                   |        |                |                  |                                    |                   |                |
| 2718.00                         | 58.97             | PK     | H              | -2.49            | 56.48                              | 74                | -17.52         |
| 2718.00                         | 52.44             | AV     | H              | -2.49            | 49.95                              | 54                | -4.05          |
| 2718.00                         | 59.72             | PK     | V              | -2.49            | 57.23                              | 74                | -16.77         |
| 2718.00                         | 53.46             | AV     | V              | -2.49            | 50.97                              | 54                | -3.03          |
| 3624.00                         | 53.93             | PK     | H              | -1.94            | 51.99                              | 74                | -22.01         |
| 3624.00                         | 42.79             | AV     | H              | -1.94            | 40.85                              | 54                | -13.15         |
| 3624.00                         | 57.92             | PK     | V              | -1.94            | 55.98                              | 74                | -18.02         |
| 3624.00                         | 45.23             | AV     | V              | -1.94            | 43.29                              | 54                | -10.71         |
| Middle Channel 914MHz           |                   |        |                |                  |                                    |                   |                |
| 2742.00                         | 60.06             | PK     | H              | -2.49            | 57.57                              | 74                | -16.43         |
| 2742.00                         | 51.21             | AV     | H              | -2.49            | 48.72                              | 54                | -5.28          |
| 2742.00                         | 55.85             | PK     | V              | -2.49            | 53.36                              | 74                | -20.64         |
| 2742.00                         | 50.62             | AV     | V              | -2.49            | 48.13                              | 54                | -5.87          |
| 3656.00                         | 52.94             | PK     | H              | -1.84            | 51.10                              | 74                | -22.90         |
| 3656.00                         | 44.35             | AV     | H              | -1.84            | 42.51                              | 54                | -11.49         |
| 3656.00                         | 57.52             | PK     | V              | -1.84            | 55.68                              | 74                | -18.32         |
| 3656.00                         | 45.74             | AV     | V              | -1.84            | 43.90                              | 54                | -10.10         |
| High Channel 924MHz             |                   |        |                |                  |                                    |                   |                |
| 2772.00                         | 51.88             | PK     | H              | -2.46            | 49.42                              | 74                | -24.58         |
| 2772.00                         | 42.54             | AV     | H              | -2.46            | 40.08                              | 54                | -13.92         |
| 2772.00                         | 52.96             | PK     | V              | -2.46            | 50.50                              | 74                | -23.50         |
| 2772.00                         | 44.22             | AV     | V              | -2.46            | 41.76                              | 54                | -12.24         |
| 3696.00                         | 55.22             | PK     | H              | -1.74            | 53.48                              | 74                | -20.52         |
| 3696.00                         | 44.71             | AV     | H              | -1.74            | 42.97                              | 54                | -11.03         |
| 3696.00                         | 57.25             | PK     | V              | -1.74            | 55.51                              | 74                | -18.49         |
| 3696.00                         | 45.88             | AV     | V              | -1.74            | 44.14                              | 54                | -9.86          |

| Frequency<br>(MHz)               | Receiver          |        | Polar<br>(H/V) | Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|----------------------------------|-------------------|--------|----------------|------------------|------------------------------------|-------------------|----------------|
|                                  | Reading<br>(dBμV) | PK/Ave |                |                  |                                    |                   |                |
| With SMA Connector_ ANT AS4035-1 |                   |        |                |                  |                                    |                   |                |
| Low Channel 906MHz               |                   |        |                |                  |                                    |                   |                |
| 2718.00                          | 60.67             | PK     | H              | -2.49            | 58.18                              | 74                | -15.82         |
| 2718.00                          | 54.78             | AV     | H              | -2.49            | 52.29                              | 54                | -1.71          |
| 2718.00                          | 56.38             | PK     | V              | -2.49            | 53.89                              | 74                | -20.11         |
| 2718.00                          | 49.19             | AV     | V              | -2.49            | 46.70                              | 54                | -7.30          |
| 3624.00                          | 53.82             | PK     | H              | -1.94            | 51.88                              | 74                | -22.12         |
| 3624.00                          | 43.56             | AV     | H              | -1.94            | 41.62                              | 54                | -12.38         |
| 3624.00                          | 53.88             | PK     | V              | -1.94            | 51.94                              | 74                | -22.06         |
| 3624.00                          | 43.53             | AV     | V              | -1.94            | 41.59                              | 54                | -12.41         |
| Middle Channel 914MHz            |                   |        |                |                  |                                    |                   |                |
| 2742.00                          | 59.95             | PK     | H              | -2.49            | 57.46                              | 74                | -16.54         |
| 2742.00                          | 50.34             | AV     | H              | -2.49            | 47.85                              | 54                | -6.15          |
| 2742.00                          | 55.74             | PK     | V              | -2.49            | 53.25                              | 74                | -20.75         |
| 2742.00                          | 50.05             | AV     | V              | -2.49            | 47.56                              | 54                | -6.44          |
| 3656.00                          | 52.00             | PK     | H              | -1.84            | 50.16                              | 74                | -23.84         |
| 3656.00                          | 44.18             | AV     | H              | -1.84            | 42.34                              | 54                | -11.66         |
| 3656.00                          | 57.22             | PK     | V              | -1.84            | 55.38                              | 74                | -18.62         |
| 3656.00                          | 45.06             | AV     | V              | -1.84            | 43.22                              | 54                | -10.78         |
| High Channel 924MHz              |                   |        |                |                  |                                    |                   |                |
| 2772.00                          | 57.75             | PK     | H              | -2.46            | 55.29                              | 74                | -18.71         |
| 2772.00                          | 50.98             | AV     | H              | -2.46            | 48.52                              | 54                | -5.48          |
| 2772.00                          | 53.28             | PK     | V              | -2.46            | 50.82                              | 74                | -23.18         |
| 2772.00                          | 46.76             | AV     | V              | -2.46            | 44.30                              | 54                | -9.70          |
| 3696.00                          | 54.87             | PK     | H              | -1.74            | 53.13                              | 74                | -20.87         |
| 3696.00                          | 43.62             | AV     | H              | -1.74            | 41.88                              | 54                | -12.12         |
| 3696.00                          | 55.59             | PK     | V              | -1.74            | 53.85                              | 74                | -20.15         |
| 3696.00                          | 44.29             | AV     | V              | -1.74            | 42.55                              | 54                | -11.45         |

| Frequency<br>(MHz)              | Receiver          |        | Polar<br>(H/V) | Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|---------------------------------|-------------------|--------|----------------|------------------|------------------------------------|-------------------|----------------|
|                                 | Reading<br>(dBμV) | PK/Ave |                |                  |                                    |                   |                |
| With SMA Connector_ANT AS4038-1 |                   |        |                |                  |                                    |                   |                |
| Low Channel 906MHz              |                   |        |                |                  |                                    |                   |                |
| 2718.00                         | 54.44             | PK     | H              | -2.49            | 51.95                              | 74                | -22.05         |
| 2718.00                         | 48.66             | AV     | H              | -2.49            | 46.17                              | 54                | -7.83          |
| 2718.00                         | 54.51             | PK     | V              | -2.49            | 52.02                              | 74                | -21.98         |
| 2718.00                         | 49.21             | AV     | V              | -2.49            | 46.72                              | 54                | -7.28          |
| 3624.00                         | 52.65             | PK     | H              | -1.94            | 50.71                              | 74                | -23.29         |
| 3624.00                         | 41.88             | AV     | H              | -1.94            | 39.94                              | 54                | -14.06         |
| 3624.00                         | 58.45             | PK     | V              | -1.94            | 56.51                              | 74                | -17.49         |
| 3624.00                         | 47.95             | AV     | V              | -1.94            | 46.01                              | 54                | -7.99          |
| Middle Channel 914MHz           |                   |        |                |                  |                                    |                   |                |
| 2742.00                         | 52.11             | PK     | H              | -2.49            | 49.62                              | 74                | -24.38         |
| 2742.00                         | 44.23             | AV     | H              | -2.49            | 41.74                              | 54                | -12.26         |
| 2742.00                         | 52.49             | PK     | V              | -2.49            | 50.00                              | 74                | -24.00         |
| 2742.00                         | 44.66             | AV     | V              | -2.49            | 42.17                              | 54                | -11.83         |
| 3656.00                         | 54.77             | PK     | H              | -1.84            | 52.93                              | 74                | -21.07         |
| 3656.00                         | 42.33             | AV     | H              | -1.84            | 40.49                              | 54                | -13.51         |
| 3656.00                         | 58.11             | PK     | V              | -1.84            | 56.27                              | 74                | -17.73         |
| 3656.00                         | 46.91             | AV     | V              | -1.84            | 45.07                              | 54                | -8.93          |
| High Channel 924MHz             |                   |        |                |                  |                                    |                   |                |
| 2772.00                         | 51.14             | PK     | H              | -2.46            | 48.68                              | 74                | -25.32         |
| 2772.00                         | 43.11             | AV     | H              | -2.46            | 40.65                              | 54                | -13.35         |
| 2772.00                         | 52.76             | PK     | V              | -2.46            | 50.30                              | 74                | -23.70         |
| 2772.00                         | 45.35             | AV     | V              | -2.46            | 42.89                              | 54                | -11.11         |
| 3696.00                         | 53.82             | PK     | H              | -1.74            | 52.08                              | 74                | -21.92         |
| 3696.00                         | 43.94             | AV     | H              | -1.74            | 42.20                              | 54                | -11.80         |
| 3696.00                         | 56.87             | PK     | V              | -1.74            | 55.13                              | 74                | -18.87         |
| 3696.00                         | 48.17             | AV     | V              | -1.74            | 46.43                              | 54                | -7.57          |

**Note:**

Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

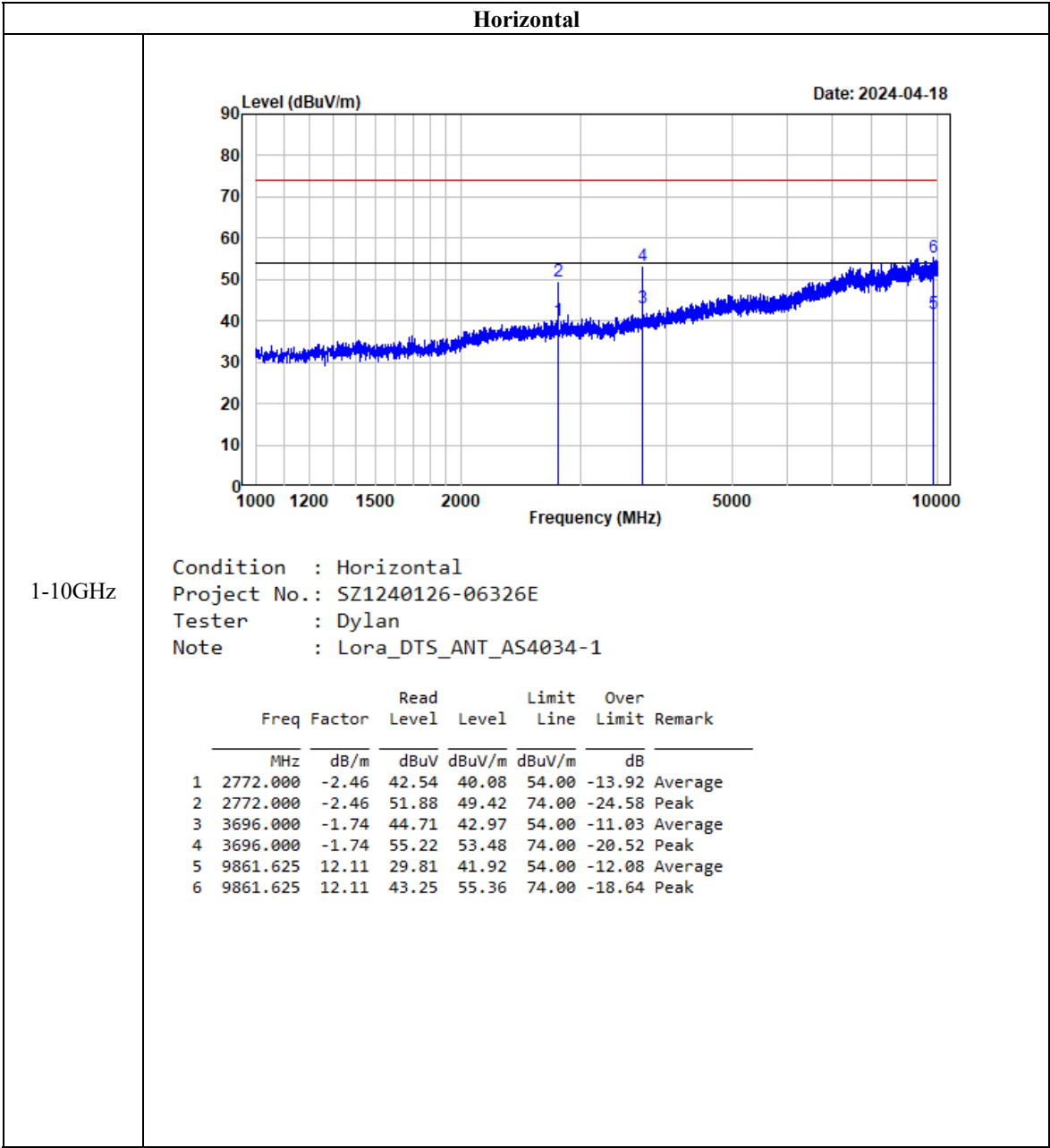
Corrected Amplitude = Factor + Reading

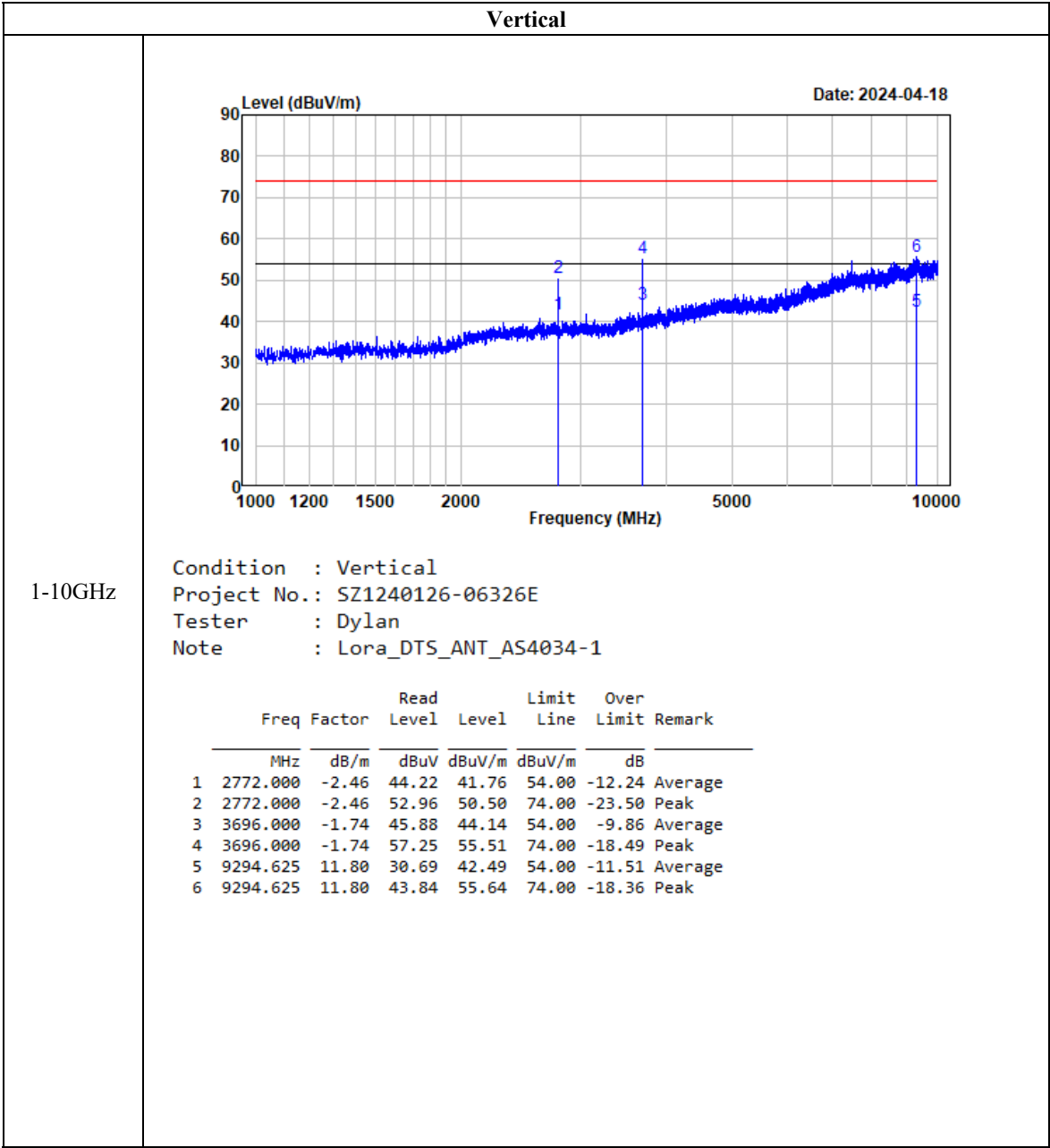
Margin = Corrected. Amplitude - Limit

The other spurious emission which is in the noise floor level was not recorded.

Test plots for example as below:

Listed with the harmonic test plot: *With SMA Connector\_ANT AS4034-1, High Channel*





## **FCC §15.247(a) (2), RSS-GEN § 6.7 & RSS-247 § 5.2 (a) – 6 dB EMISSION BANDWIDTH & OCCUPIED BANDWIDTH**

### **Applicable Standard**

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

According to RSS-247 §5.2 a)

The minimum 6 dB bandwidth shall be 500 kHz.

According to RSS-Gen §6.7

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the “x dB bandwidth” is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated x dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

The following conditions shall be observed for measuring the occupied bandwidth and x dB bandwidth:

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

## Test Procedure

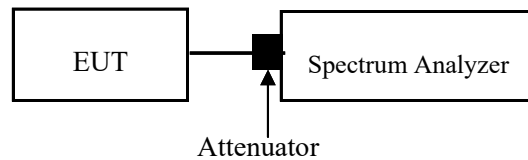
Test Method: ANSI C63.10-2013 Clause 11.8.1 & Clause 6.9.3

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

99% Occupied bandwidth test:

Use Occupied bandwidth test function, measure the 99% Occupied bandwidth.

Repeat above procedures until all frequencies measured were complete.



## Test Data

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 24 °C     |
| Relative Humidity: | 48 %      |
| ATM Pressure:      | 101.0 kPa |

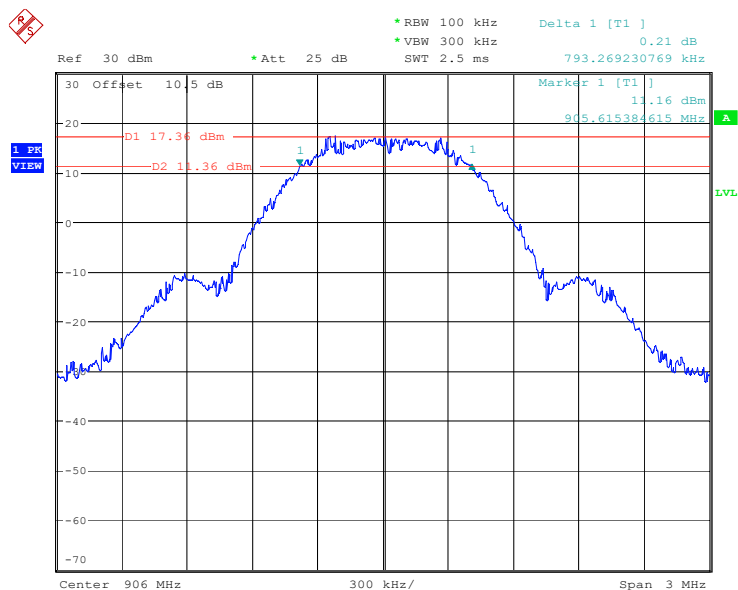
*The testing was performed by Hanic Pan on 2024-04-02.*

*EUT operation mode: Transmitting*

**Test Result: Compliant.** Please refer to following table and plots.

| Test Channel  | Test Frequency (MHz) | Occupied Bandwidth (MHz) | 6 dB Bandwidth (MHz) | Limit (MHz) |
|---|----------------------|--------------------------|----------------------|-------------|
| Lowest  | 906                  | 1.115                    | 0.793                | ≥0.5        |
| Middle  | 914                  | 1.115                    | 0.784                | ≥0.5        |
| Highest   | 924                  | 1.115                    | 0.779                | ≥0.5        |
| Test only was performed at the module with UFL Connector. |                      |                          |                      |             |

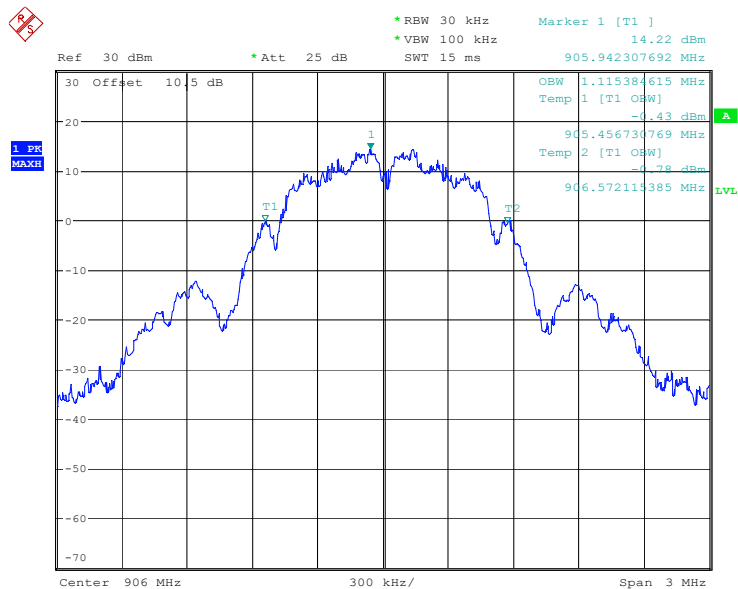
## 6 dB Emission Bandwidth, Low Channel



ProjectNo.:SZ1240126-06326E Tester:Hanic Pan

Date: 2.APR.2024 16:21:04

## Occupied Bandwidth, Low Channel

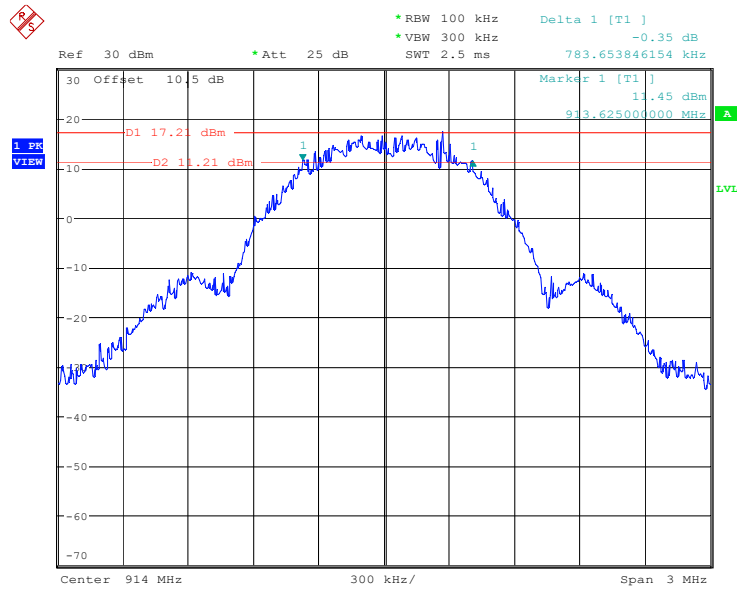


ProjectNo.:SZ1240126-06326E Tester:Hanic Pan

Date: 2.APR.2024 16:30:17



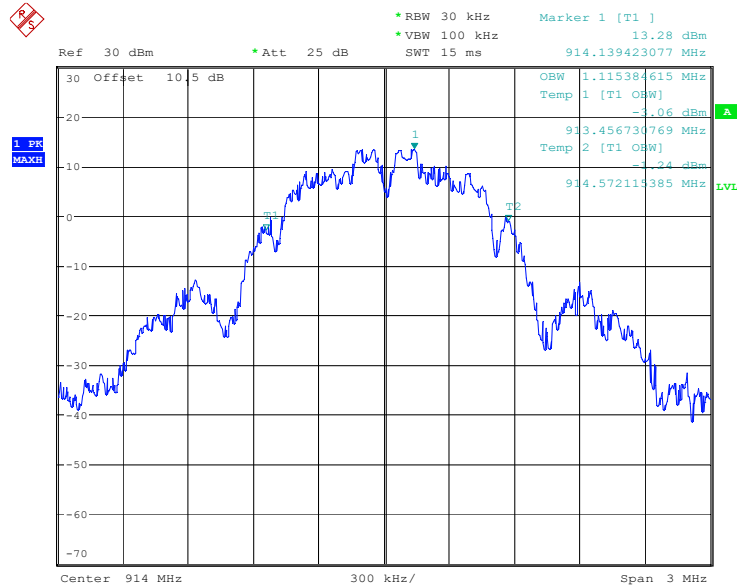
### 6 dB Emission Bandwidth, Middle Channel



ProjectNo.:SZ1240126-06326E Tester:Hanic Pan

Date: 2.APR.2024 19:31:48

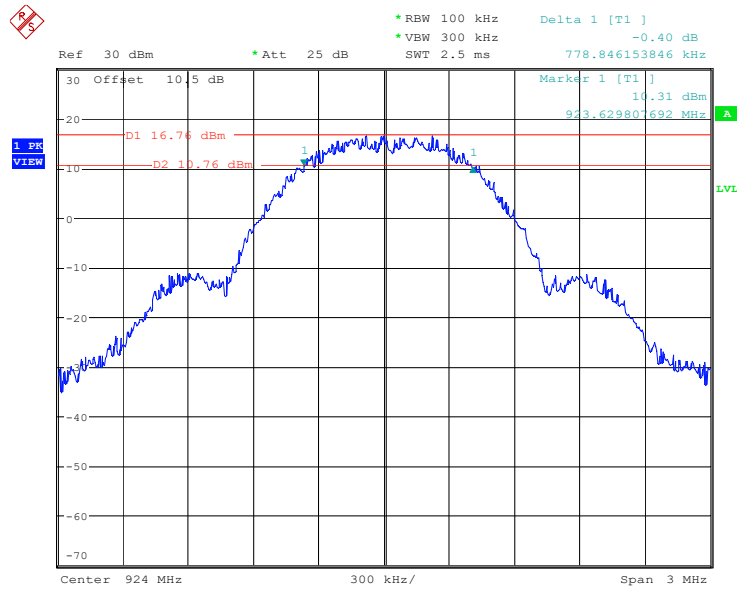
### Occupied Bandwidth, Middle Channel



ProjectNo.:SZ1240126-06326E Tester:Hanic Pan

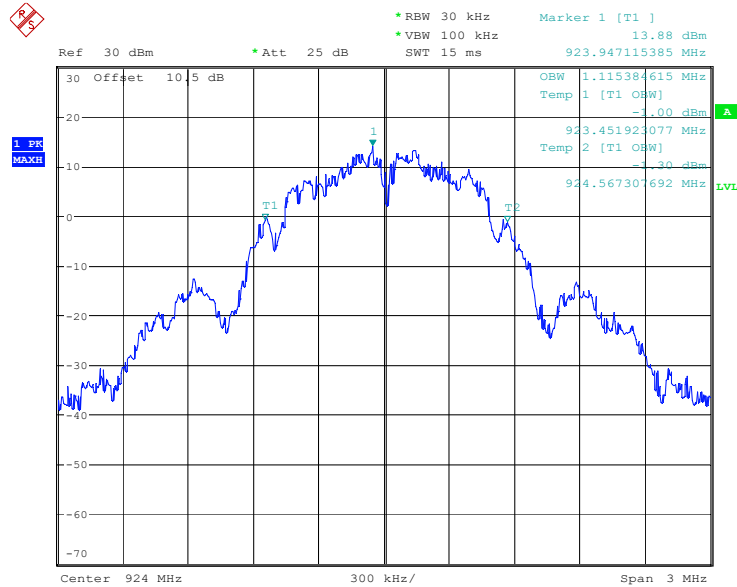
Date: 2.APR.2024 19:33:47

### 6 dB Emission Bandwidth, High Channel



ProjectNo.:SZ1240126-06326E    Tester:Hanic Pan  
 Date: 2.APR.2024    17:24:29

### Occupied Bandwidth, High Channel



ProjectNo.:SZ1240126-06326E    Tester:Hanic Pan  
 Date: 2.APR.2024    17:29:28

## FCC §15.247(b) (3), RSS-247 §5.4 (d) - MAXIMUM CONDUCTED OUTPUT POWER

### Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

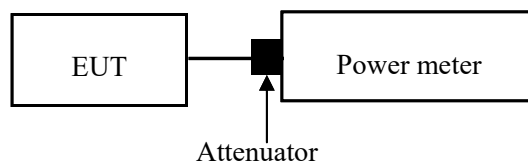
According to RSS-247§5.4 d) For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section 5.4(e), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

### Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.9.2.3.2

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



Test Data

Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 24 °C     |
| Relative Humidity: | 48 %      |
| ATM Pressure:      | 101.0 kPa |

The testing was performed by Hanic Pan from 2024-04-02 to 2024-04-03.

EUT operation mode: Transmitting

**Test Result: Compliant.** Please refer to following table and plots.

With UFL Connector:

| Channel | Frequency (MHz) | Maximum AVG Conducted Output Power (dBm) | Limit (dBm) | Maximum EIRP (dBm) | Limit (dBm) |
|---------|-----------------|--|-------------|--------------------|-------------|
| Lowest  | 906             | 18.67                                    | ≤30         | 18.67              | ≤36         |
| Middle  | 914             | 18.39                                    | ≤30         | 18.39              | ≤36         |
| Highest | 924             | 18.18                                    | ≤30         | 18.18              | ≤36         |

With SMA Connector:

| Channel | Frequency (MHz) | Maximum AVG Conducted Output Power (dBm) | Limit (dBm) | Maximum EIRP (dBm) | Limit (dBm) |
|---------|-----------------|--|-------------|--------------------|-------------|
| Lowest  | 906             | 17.96                                    | ≤30         | 19.96              | ≤36         |
| Middle  | 914             | 17.77                                    | ≤30         | 19.77              | ≤36         |
| Highest | 924             | 17.64                                    | ≤30         | 19.64              | ≤36         |

## FCC §15.247(d) & RSS-247 §5.5 – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

### Applicable Standard

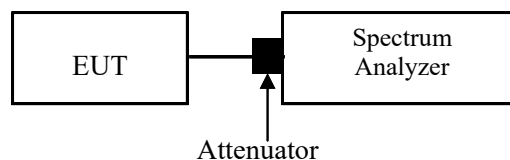
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required

### Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.11

1. Set the RBW =100 kHz.
  2. Set the VBW  $\geq 3 \times$  RBW.
  3. Detector = peak
  4. Sweep time = auto couple.
  5. Trace mode=max hold
  6. All trace to fully stabilize
  7. Use the peak marker function to determine the maximum amplitude level.
- Ensure that amplitude of all unwanted emissions outside of the authorized frequency band(excluding restricted frequency bands) is attenuated by at least the minimum requirement specified in 11.11.  
Report the three highest emissions relative to the limit.



Test Data

Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 26 °C     |
| Relative Humidity: | 52 %      |
| ATM Pressure:      | 101.0 kPa |

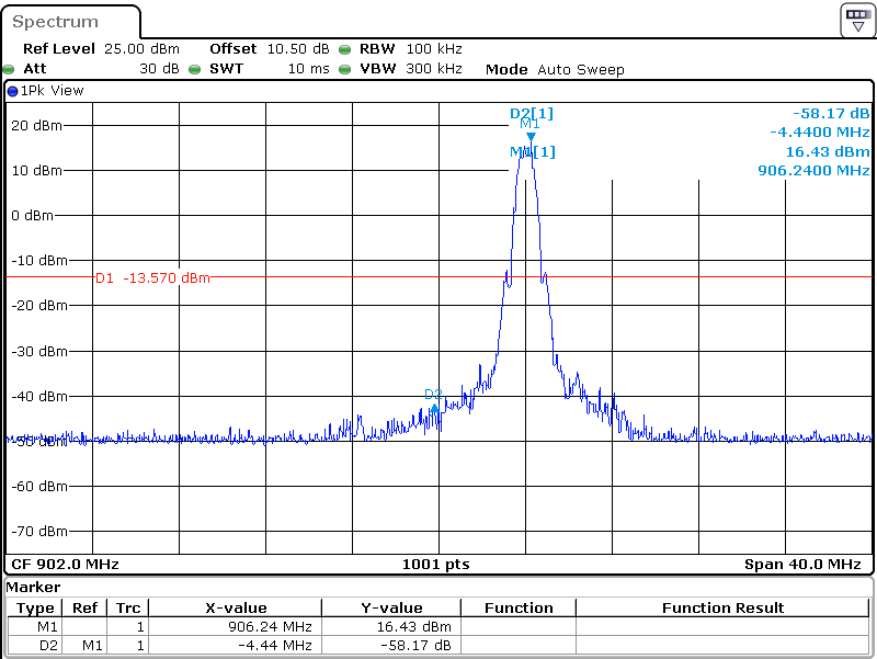
*The testing was performed by Hanic Pan on 2024-04-25.*

*EUT operation mode: Transmitting*

***Test Result: Compliant.*** Please refer to following table and plots.

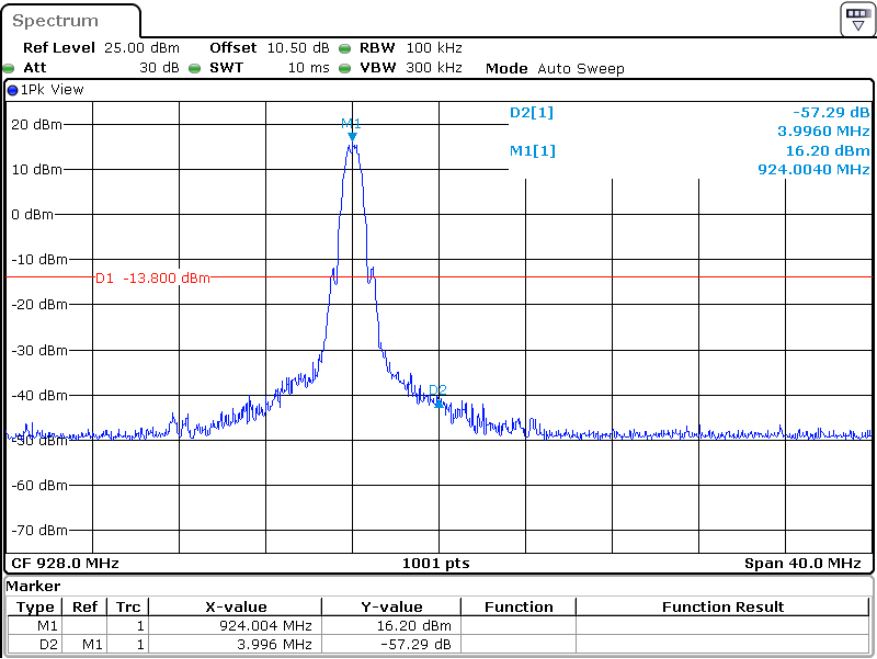
*Note: Test only was performed at the module with UFL Connector.*

Low Channel



ProjectNo.:SZ1240126-06326E Tester:Bamboo Zhan  
Date: 25.APR.2024 15:31:43

High Channel



ProjectNo.:SZ1240126-06326E Tester:Bamboo Zhan  
Date: 25.APR.2024 15:55:40

## FCC §15.247(e) , RSS-247 §5.2 (b) - POWER SPECTRAL DENSITY

### Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

According to RSS-247 §5.2 b):

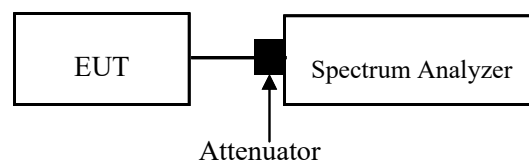
- b) The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

### Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.10.7 Method AVGPSD-3

Use this procedure when the maximum average conducted output power in the fundamental emission is used to demonstrate compliance.

1. Set the instrument span to a minimum of 1.5 times the OBW.
2. Set sweep trigger to “free run.”
3. Set the RBW to:  $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$ .
4. Set the VBW  $\geq 3 \times \text{RBW}$ .
5. Ensure that the number of measurement points in the sweep  $\geq [2 \times \text{span} / \text{RBW}]$ .
6. Sweep time  $\leq (\text{number of points in sweep}) \times T$ , where  $T$  is defined in ANSI C63.10-2013 11.6.
7. Detector = RMS (power averaging)..
8. Trace mode = max hold..
9. Allow max hold to run for at least 60 s or longer as needed to allow the trace to stabilize.
10. Use the peak marker function to determine the maximum amplitude level.
11. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.





Test Data

Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 24 °C     |
| Relative Humidity: | 48 %      |
| ATM Pressure:      | 101.0 kPa |

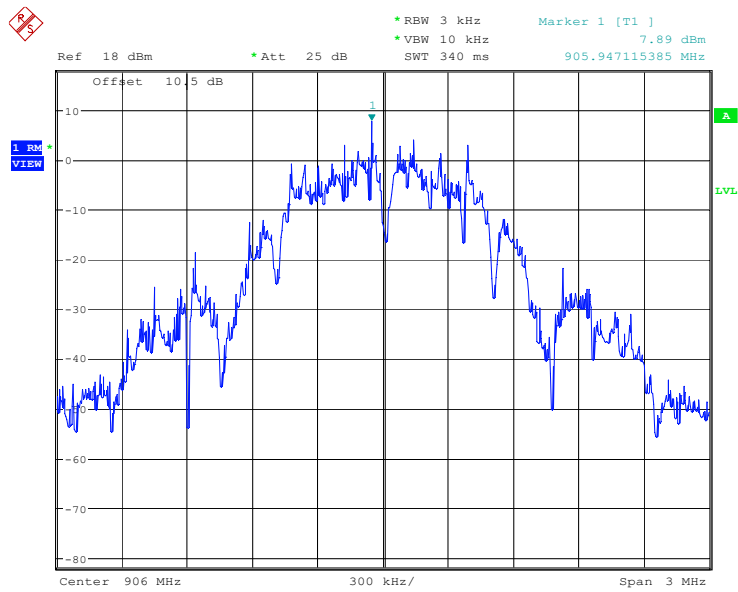
*The testing was performed by Hanic Pan on 2024-04-02.*

*EUT operation mode: Transmitting*

**Test Result: Compliant.** Please refer to following table and plots.

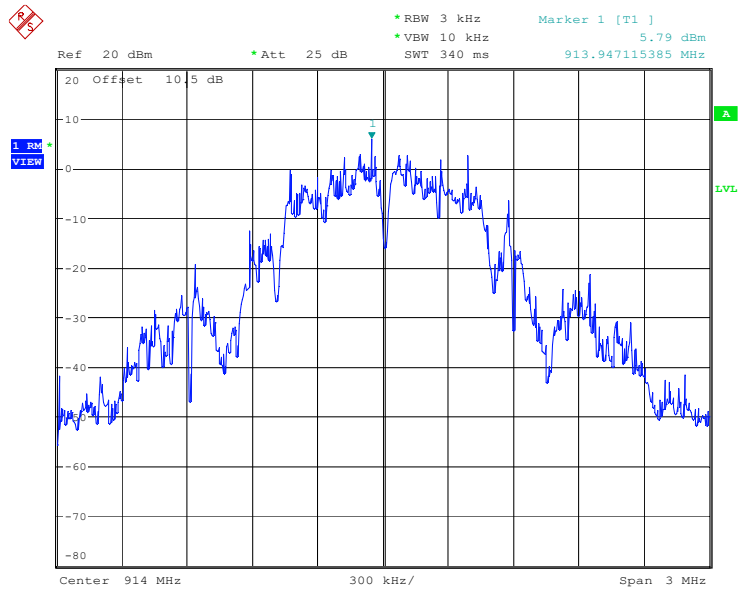
| Channel   | Frequency<br>(MHz) | PSD<br>(dBm/3kHz) | Limit<br>(dBm/3kHz) |
|---|--------------------|-------------------|---------------------|
| Lowest  | 906                | 7.89              | ≤8.00               |
| Middle  | 914                | 5.79              | ≤8.00               |
| Highest   | 924                | 4.91              | ≤8.00               |
| Test only was performed at the module with UFL Connector. |                    |                   |                     |

Low Channel



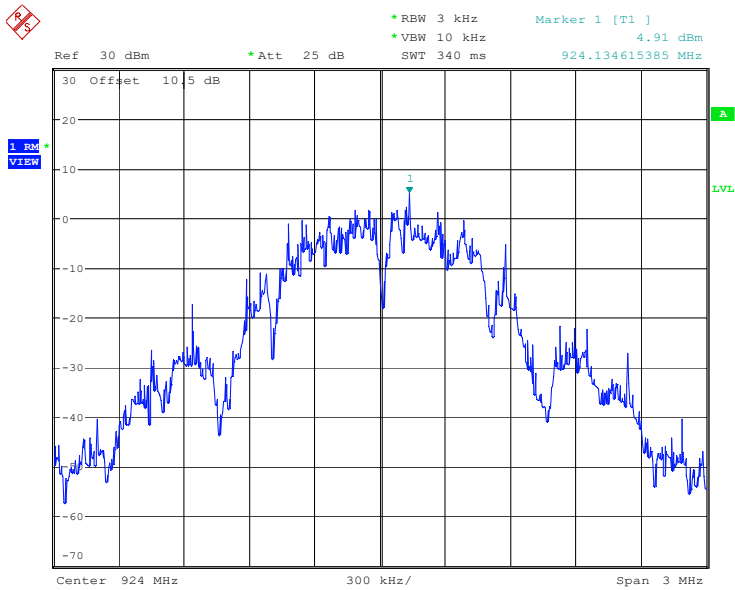
ProjectNo.:SZ1240126-06326E    Tester:Hanic Pan  
Date: 2.APR.2024    16:16:35

Middle Channel



ProjectNo.:SZ1240126-06326E    Tester:Hanic Pan  
Date: 2.APR.2024    19:29:03

High Channel



ProjectNo.:SZ1240126-06326E Tester:Hanic Pan  
Date: 2.APR.2024 17:42:04

## **EUT PHOTOGRAPHS**

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Please refer to the attachment SZ1240126-06326E-RF External photo and SZ1240126-06326E-RF Internal photo.

## TEST SETUP PHOTOGRAPHS

Please refer to the attachment SZ1240126-06326E-RF Test Setup photo.

\*\*\*\*\* **END OF REPORT** \*\*\*\*\*