



FCC Radio Test Report

Applicant : Relay, Inc.
Equipment : Relay
Brand Name : RelayM
Model Name : RY2267
FCC ID : 2AMBHRY2267
Standard : 47 CFR FCC Part 15.519
Test Date(S) : Jan. 15, 2025 ~ Feb. 19, 2025

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**



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History of this test report

| Report No. | Version | Description | Issued Date |
|------------|---------|--|---------------|
| FR250505H | 01 | Initial issue of report | Feb. 24, 2025 |
| FR250505H | 02 | Added the marker and remark on the ch09 Plot2 on the page 19. This report is an updated version, replacing the report issued on Feb. 24, 2025 | Mar. 13, 2025 |
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Summary of Test Result

| Report Clause | Ref. Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|---------------|-------------------------|--|--------------------|--|
| 1.4 | 15.203 15.519(a)(2) | Antenna Requirement | PASS | 15.203 |
| 3.1 | 15.207 | AC Power-line Conducted Emissions | PASS | 15.207 |
| 3.2 | 15.519(b) | UWB Bandwidth | PASS | ≥ 500MHz |
| 3.3 | 15.519(a)(1) | Technical requirements for Hand Held UWB systems | PASS | 15.519(a)(1) |
| 3.4 | 15.519(e) | Peak Emissions within a 50 MHz Bandwidth | PASS | ≤ 0 dBm/50MHz |
| 3.5 | 15.519(c) /15.519(d) | Radiated Emissions | PASS | UWB Emissions: 15.519(c) GPS Emissions: 15.519(d) Digital Emissions: 15.209 |

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Relay, Inc.

2230 Bandmate Way, Suite 500, Raleigh, NC 27607, USA

1.2 Manufacturer

Relay, Inc.

2230 Bandmate Way, Suite 500, Raleigh, NC 27607, USA

1.3 Product Feature of Equipment Under Test

| Product Feature | |
|-----------------|---|
| Equipment | Relay |
| Brand Name | RelayM |
| Model Name | RY2267 |
| FCC ID | 2AMBHRY2267 |
| IMEI Code / SN | Conduction: 990007540010797/990007540010789 Radiation: 0010805 |
| HW Version | v01 |
| EUT Stage | Identical Prototype |

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

| Standards-related Product Specification | |
|---|--|
| Channel Number & Tx/Rx Frequency Range | CH09: 7987.2 MHz |
| Antenna Type | <Ant. 5> : PIFA Antenna <Ant. 6> : PIFA Antenna |
| UWB category | hand held device |
| Antenna Gain | <ANT6>: <CH09> : 4.5 dBi |
| Type of Modulation | BPM-BPSK |

Note: Ant.5 is Rx only.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Type of EUT

| Operational Condition | |
|-------------------------------------|---|
| EUT Power Type | From Battery |
| Type of EUT | |
| <input checked="" type="checkbox"/> | Stand-alone |
| <input type="checkbox"/> | Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ... |
| <input type="checkbox"/> | Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ... |
| <input type="checkbox"/> | Other: |

1.7 Testing Location Information

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

| | | | |
|---------------------------|--|----------------------------|---------------------------------------|
| Test Firm | Sporton International Inc. (Kunshan) | | |
| Test Site Location | No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 | | |
| Test Site No. | Sporton Site No. | FCC Designation No. | FCC Test Firm Registration No. |
| | CO01-KS 03CH06-KS | CN1257 | 314309 |

| Test Condition | Test Site No. | Test Engineer | Test Environment | Test Date |
|----------------|---------------|---------------|----------------------------|---------------------------------|
| Radiated | 03CH06-KS | Levi Zhao | 22 ~ 23 °C 41 ~ 42 % | Jan. 15, 2025~ Feb. 09, 2025 |
| Conduction | CO01-KS | Amos Zhang | 25.3 ~ 26.2°C 38 ~ 40 % | Feb. 05, 2025 |

1.8 Test Software

| Item | Site | Manufacture | Name | Version |
|------|-----------|-------------|------|---------------|
| 1. | 03CH06-KS | AUDIX | E3 | 6.2009-8-24al |
| 2. | CO01-KS | AUDIX | E3 | 6.2009-8-24 |



1.9 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15F
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ FCC KDB 393764 D01 v02
- ♦ FCC KDB 412172 D01 v01r01






2 Test Configuration of EUT

2.1 Test Mode

| Test Configuration | | | | | |
|--------------------|-----|-------------|---------------|-------------|---------------|
| Mode | Ant | UWB Channel | preamble_cidx | rx_sts_mode | packet_length |
| Mode 1 | 6 | 9 | 10 | SP 0 | 4 |
| Mode 2 | 6 | 9 | 10 | SP 0 | 127 |
| Mode 3 | 6 | 9 | 10 | SP 1 | 4 |
| Mode 4 | 6 | 9 | 10 | SP 1 | 127 |
| Mode 5 | 6 | 9 | 10 | SP 3 | 0 |
| Mode 6 | 6 | 9 | 27 | SP 0 | 4095 |
| Mode 7 | 6 | 9 | 27 | SP 1 | 4095 |
| Mode 8 | 6 | 9 | 27 | SP 3 | 0 |

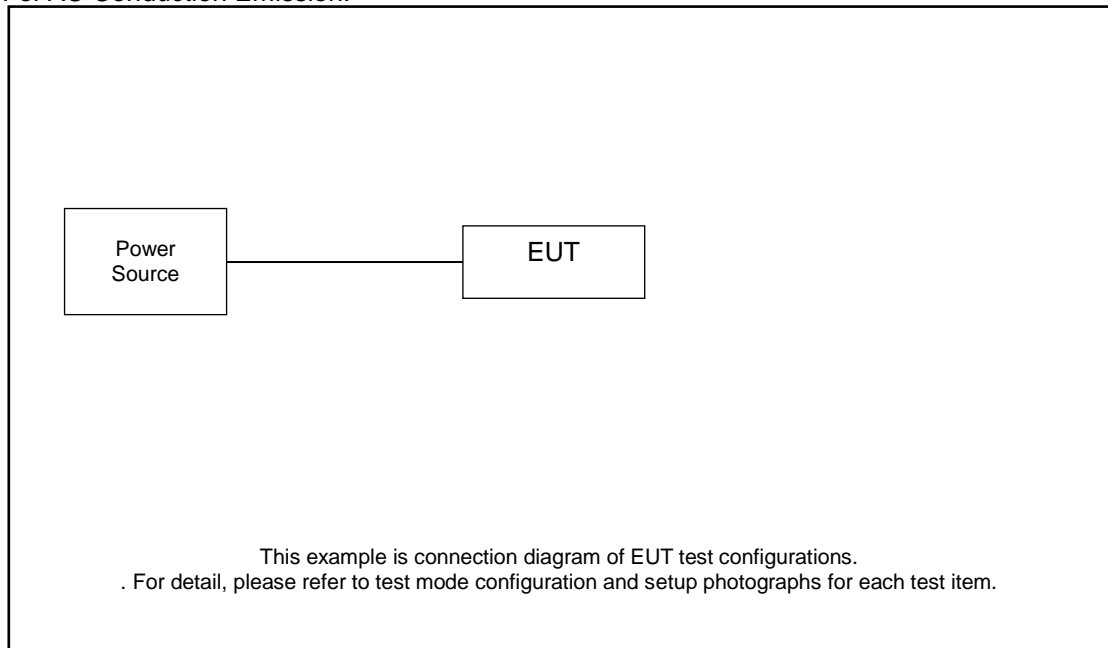
2.2 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests | |
|---|---|
| Tests Item | AC power-line conducted emissions |
| Condition | AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz |
| Operating Mode | CTX |
| 1 | Standalone mode |

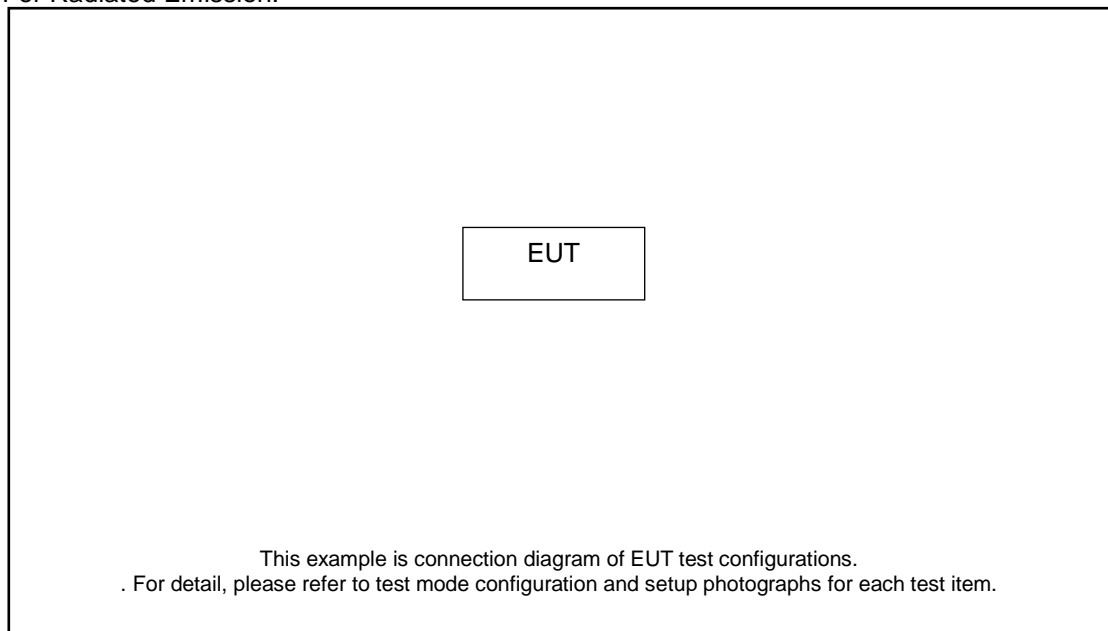
| The Worst Case Mode for Following Conformance Tests | | | |
|--|---|---|---|
| Tests Item | UWB Bandwidth, Peak Emissions within a 50 MHz Bandwidth, Radiated Emissions | | |
| Test Condition | Radiated measurement | | |
| Operating Mode | CTX | | |
| 1 | Standalone mode | | |
| Mode 1 configuration was tested and found to be the worst case and measured during the test. | | | |
| Operating Mode > 1GHz | CTX | | |
| Orthogonal Planes of EUT | X Plane | Y Plane | Z Plane |
| |  |  |  |
| Worst Planes of EUT | | | V |
| Remark: 1. The measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find Z plane as worst plane and recorded in this report. | | | |

2.3 Test Setup Diagram

For AC Conduction Emission:



For Radiated Emission:



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

| AC Power-line Conducted Emissions Limit | | |
|---|------------|-----------|
| Frequency Emission (MHz) | Quasi-Peak | Average |
| 0.15-0.5 | 66 - 56 * | 56 - 46 * |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

Note 1: * Decreases with the logarithm of the frequency.

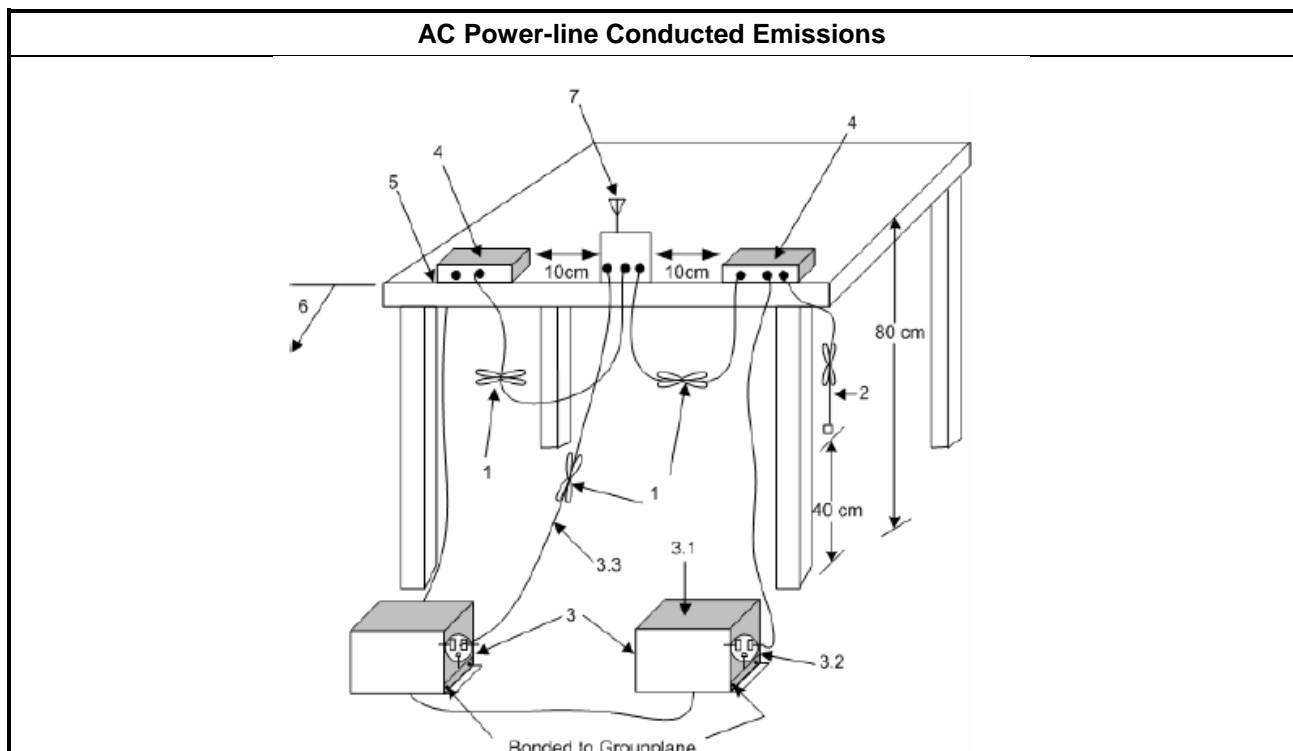
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

| Test Method | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions. |

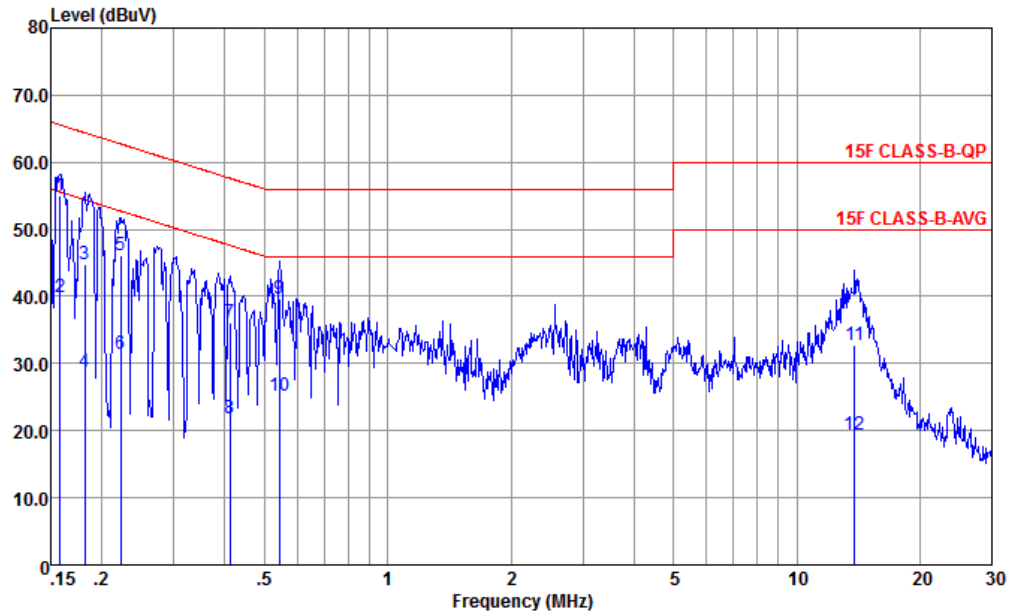
3.1.4 Test Setup





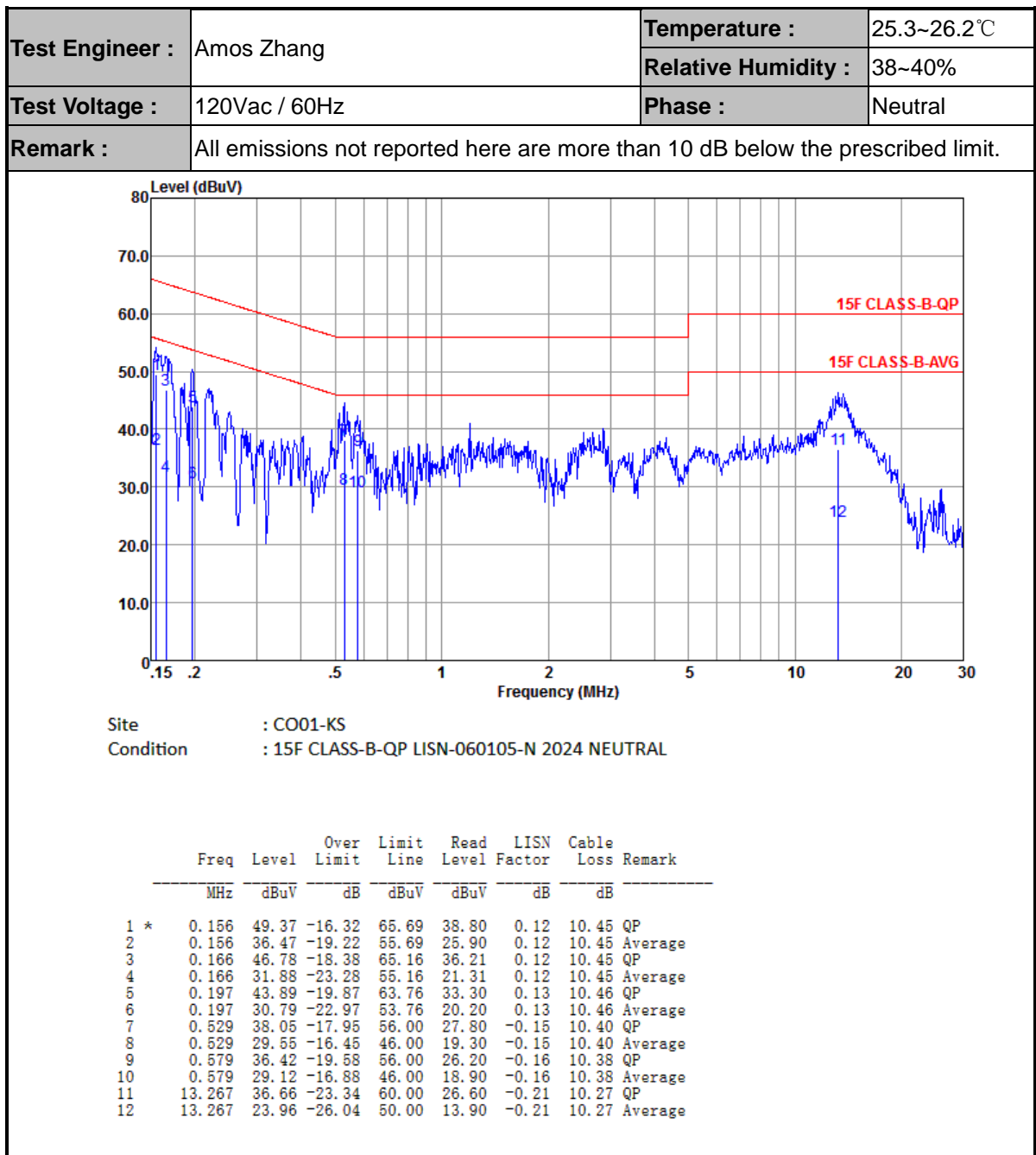
3.1.5 Test Result

| | | | |
|-----------------|---|---------------------|------------|
| Test Engineer : | Amos Zhang | Temperature : | 25.3~26.2℃ |
| | | Relative Humidity : | 38~40% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Line |
| Remark : | All emissions not reported here are more than 10 dB below the prescribed limit. | | |



Site : CO01-KS
Condition : 15F CLASS-B-QP LISN-060105-L 2024 LINE

| | Freq | Level | Over | Limit | Read | LISN | Cable | |
|-----|--------|-------|--------|-------|-------|--------|-------|---------|
| | MHz | dBuV | Limit | Line | Level | Factor | Loss | Remark |
| | | | dB | dBuV | dBuV | dB | dB | |
| 1 * | 0.158 | 55.06 | -10.50 | 65.56 | 44.50 | 0.11 | 10.45 | QP |
| 2 | 0.158 | 39.86 | -15.70 | 55.56 | 29.30 | 0.11 | 10.45 | Average |
| 3 | 0.182 | 44.75 | -19.67 | 64.42 | 34.20 | 0.09 | 10.46 | QP |
| 4 | 0.182 | 28.75 | -25.67 | 54.42 | 18.20 | 0.09 | 10.46 | Average |
| 5 | 0.222 | 46.15 | -16.59 | 62.74 | 35.61 | 0.08 | 10.46 | QP |
| 6 | 0.222 | 31.45 | -21.29 | 52.74 | 20.91 | 0.08 | 10.46 | Average |
| 7 | 0.410 | 36.05 | -21.59 | 57.64 | 25.60 | -0.03 | 10.48 | QP |
| 8 | 0.410 | 21.75 | -25.89 | 47.64 | 11.30 | -0.03 | 10.48 | Average |
| 9 | 0.544 | 39.77 | -16.23 | 56.00 | 29.50 | -0.12 | 10.39 | QP |
| 10 | 0.544 | 25.17 | -20.83 | 46.00 | 14.90 | -0.12 | 10.39 | Average |
| 11 | 13.841 | 32.68 | -27.32 | 60.00 | 22.60 | -0.19 | 10.27 | QP |
| 12 | 13.841 | 19.38 | -30.62 | 50.00 | 9.30 | -0.19 | 10.27 | Average |



Note:

1. $\text{Level(dB}\mu\text{V)} = \text{Read Level(dB}\mu\text{V)} + \text{LISN Factor(dB)} + \text{Cable Loss(dB)}$
2. $\text{Over Limit(dB)} = \text{Level(dB}\mu\text{V)} - \text{Limit Line(dB}\mu\text{V)}$

3.2 UWB bandwidth

3.2.1 UWB bandwidth Limit

| UWB bandwidth Limit | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | UWB bandwidth ≥ 500 MHz or Fractional bandwidth ≥ 0.2 ; Fractional bandwidth = $2(f_H - f_L) / (f_H + f_L)$ |

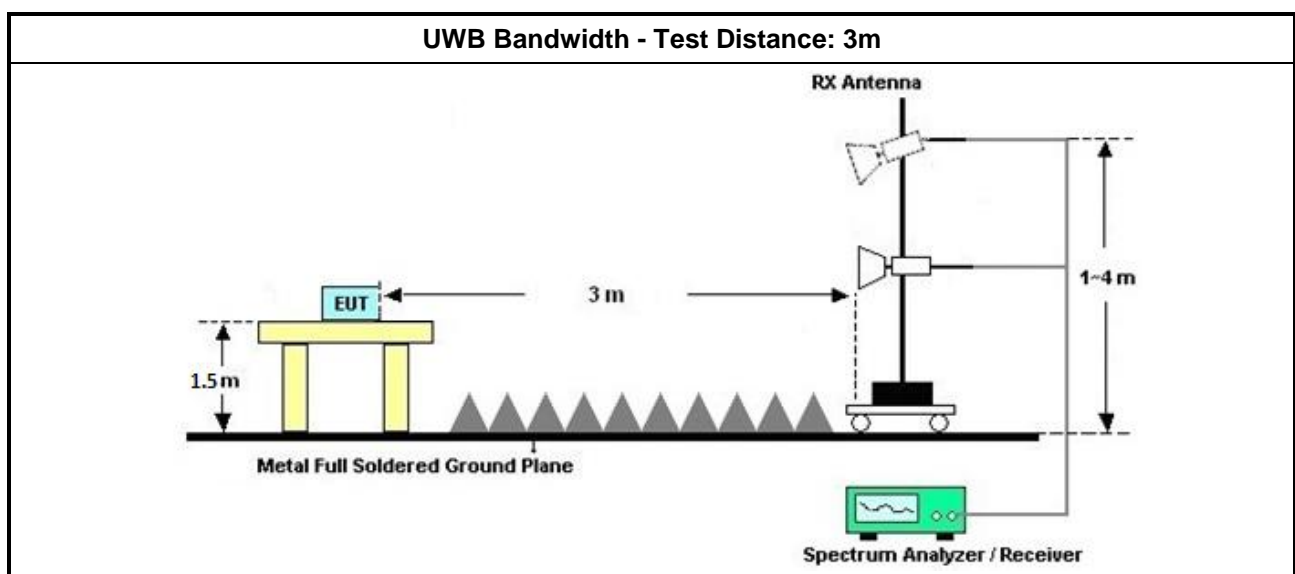
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

| Test Method | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | For the UWB bandwidth shall be measured using one of the options below: |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.3 and clause 10.1 for UWB bandwidth testing. |

3.2.4 Test Setup



**3.2.5 Test Result of UWB Bandwidth**

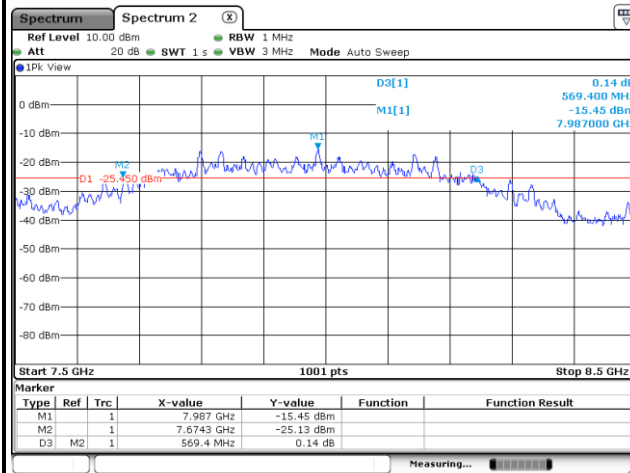
| Mode | ANT | Channel | preamble_cidx | rx_sts_mode | packet_length | Bandwidth(MHz) | Limit(MHz) | Result | Pol(H/V) |
|--------|-----|---------|---------------|-------------|---------------|----------------|------------|--------|----------|
| Mode 1 | 6 | 9 | 10 | SP 0 | 4 | 569.4 | ≥500 | Pass | H |
| Mode 2 | 6 | 9 | 10 | SP 0 | 127 | 601.4 | ≥500 | Pass | H |
| Mode 3 | 6 | 9 | 10 | SP 1 | 4 | 567.4 | ≥500 | Pass | H |
| Mode 4 | 6 | 9 | 10 | SP 1 | 127 | 569.4 | ≥500 | Pass | H |
| Mode 5 | 6 | 9 | 10 | SP 3 | 0 | 571.4 | ≥500 | Pass | H |
| Mode 6 | 6 | 9 | 27 | SP 0 | 4095 | 540.5 | ≥500 | Pass | H |
| Mode 7 | 6 | 9 | 27 | SP 1 | 4095 | 540.5 | ≥500 | Pass | H |
| Mode 8 | 6 | 9 | 27 | SP 3 | 0 | 559.4 | ≥500 | Pass | H |



<Ant.6>

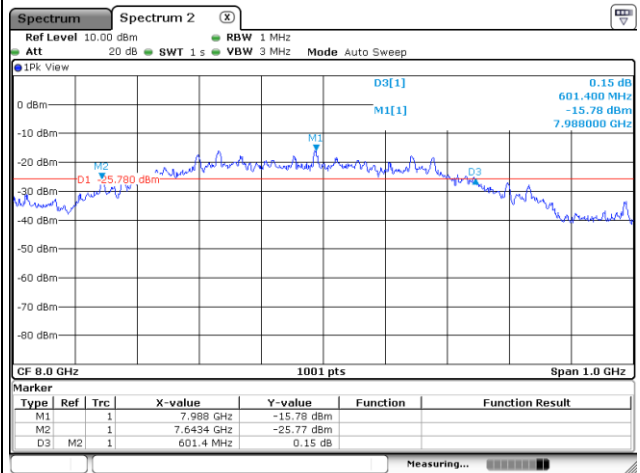
CH09 Bandwidth Plots

Mode 1: cidx-10_sts-0_packet length-4



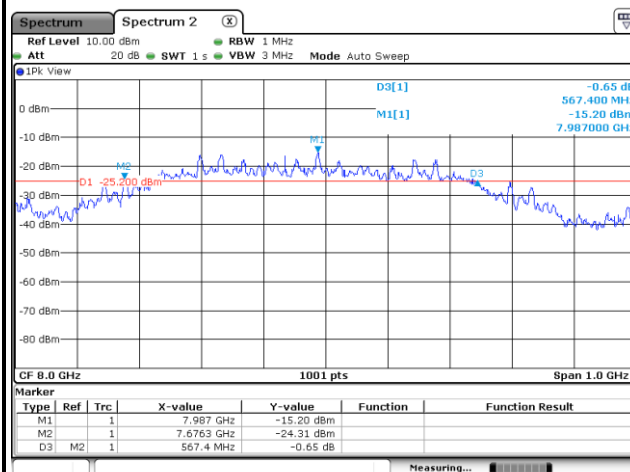
Date: 17.JAN.2025 10:11:50

Mode 2: cidx-10_sts-0_packet length-127



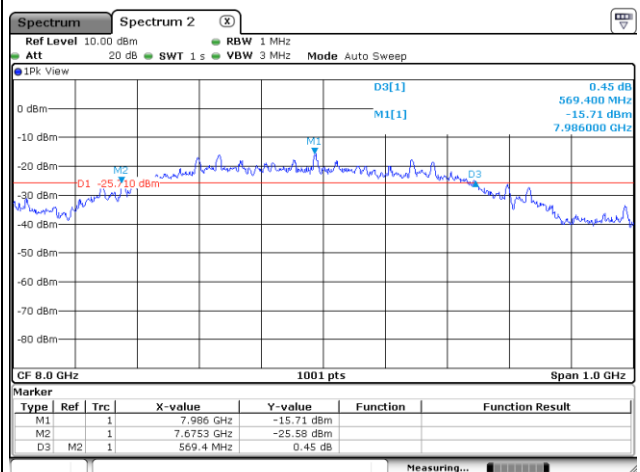
Date: 17.JAN.2025 10:30:17

Mode 3: cidx-10_sts-1_packet length-4



Date: 17.JAN.2025 11:03:25

Mode 4: cidx-10_sts-1_packet length-127

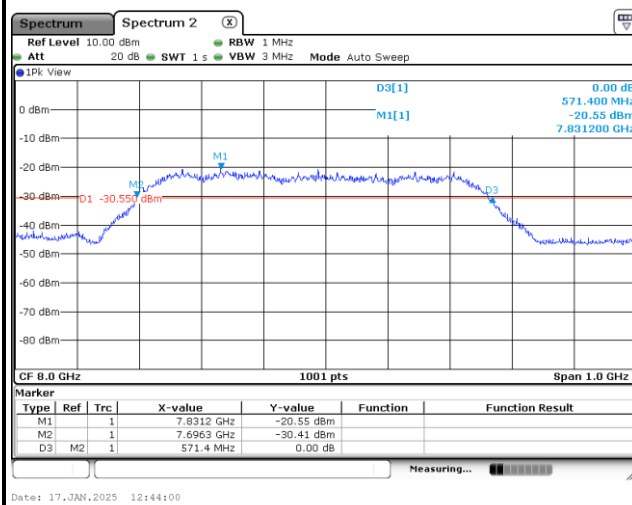


Date: 17.JAN.2025 11:19:15

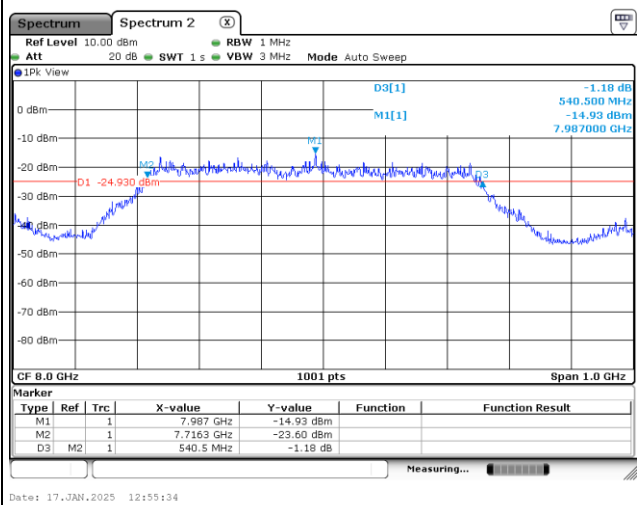


CH09 Bandwidth Plots

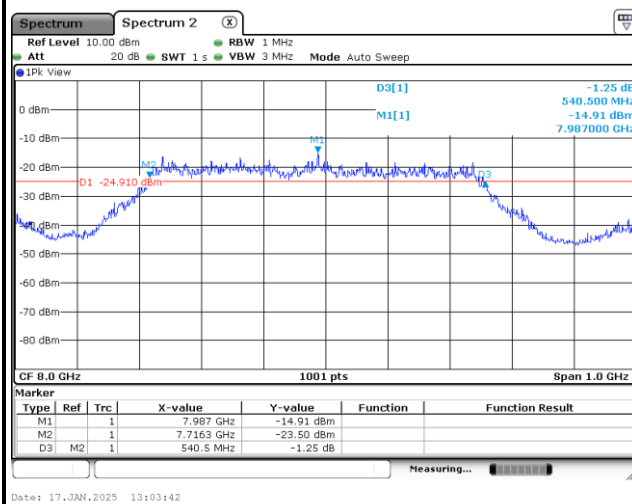
Mode 5: cidx-10_sts-3_packet length-0



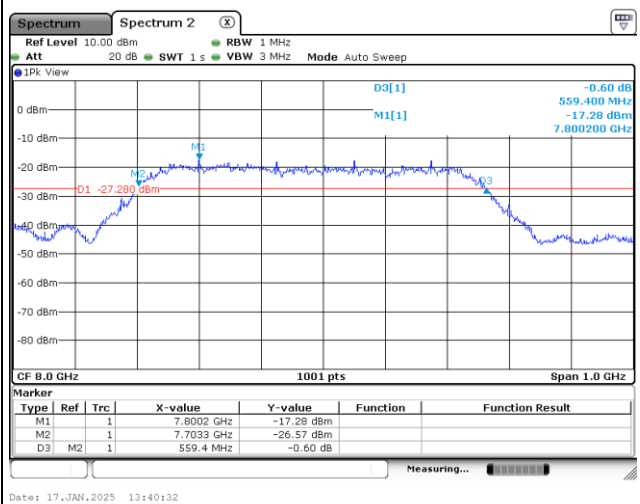
Mode 6: cidx-27_sts-0_packet length-4095



Mode 7: cidx-27_sts-1_packet length-4095



Mode 8: cidx-27_sts-3_packet length-0



3.3 Technical requirements for hand held UWB systems

3.3.1 Technical Requirements for transmission Limit

FCC 15.519(a) (1) A UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting.

3.3.2 Measuring Instruments

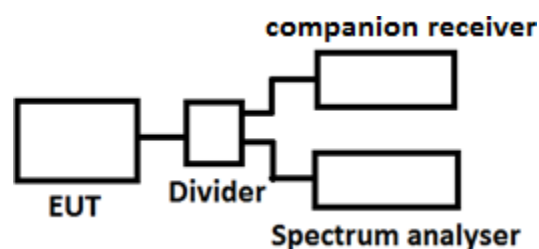
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedure

Follow the test step as below:

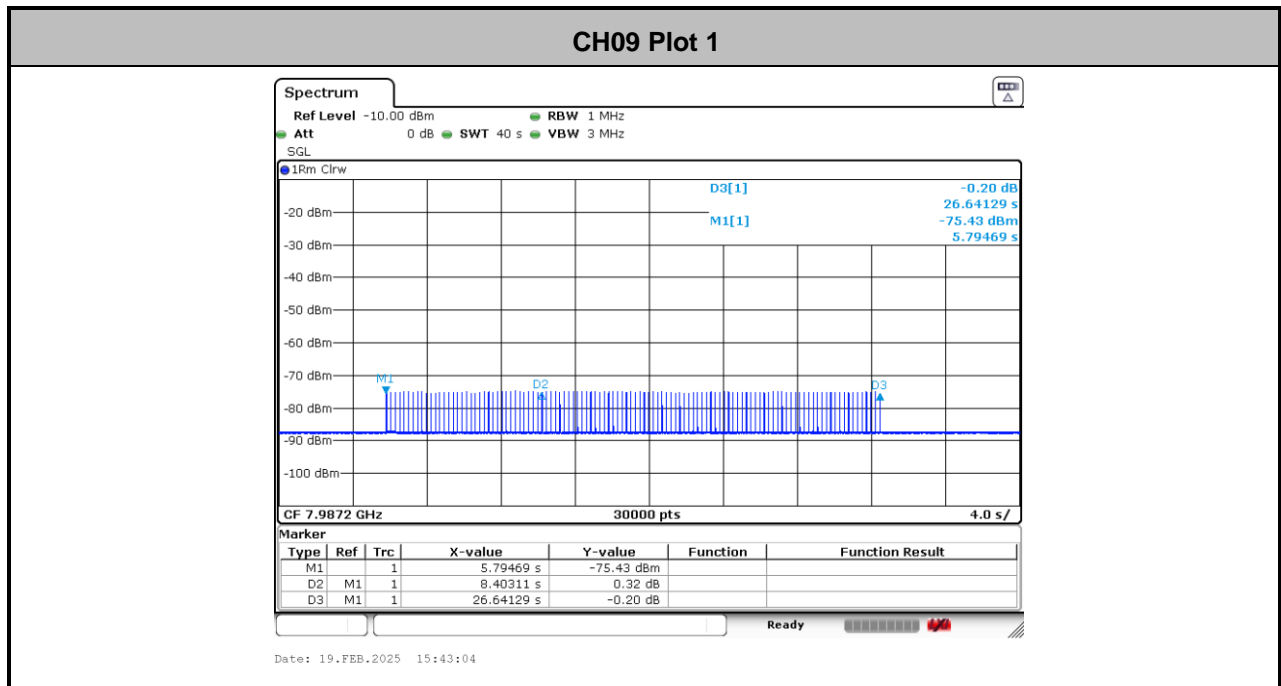
1. Turn on both EUT and companion receiver.
2. Set the EUT to TX mode, and EUT starts polling.
3. Set the companion receiver to associate EUT and EUT starts to transmit.
4. Disable the TX function of EUT.
5. Check if EUT stop transmitting once step 4 is made. (see plot 1 in clause 3.3.5)
6. Turn off both EUT and companion receiver.
7. Repeat step 1 to step 3.
8. Disable the RX function of the companion receiver to disassociate the EUT.
9. Check if EUT stop transmitting once step 8 is made. (see plot 2 in clause 3.3.5)

3.3.4 Test Setup





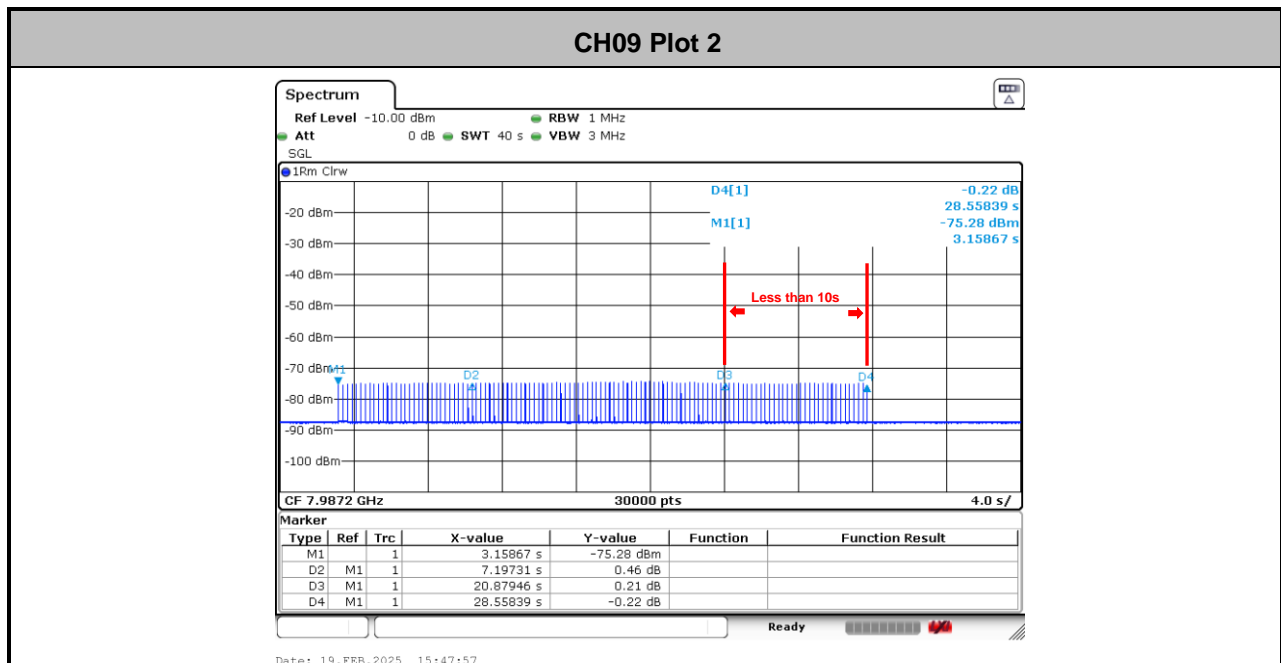
3.3.5 Test Result



M1: Set the EUT to TX mode, and EUT starts polling.

D2: Set the companion receiver to associate EUT and EUT starts to transmit.

D3: Disable the TX function of EUT.



M1: Set the EUT to TX mode, and EUT starts polling.

D2: Set the companion receiver to associate EUT and EUT starts to transmit.

D3: RX function of the companion receiver is disabled. EUT disassociates the companion receiver and stops transmitting, but continues polling until D4 stop polling.

3.4 Peak Power Measurement

3.4.1 Peak Power Measurement Limit

| Peak Power Measurement Limit |
|----------------------------------|
| $P_{eirr} = 0 \text{ dBm/50MHz}$ |

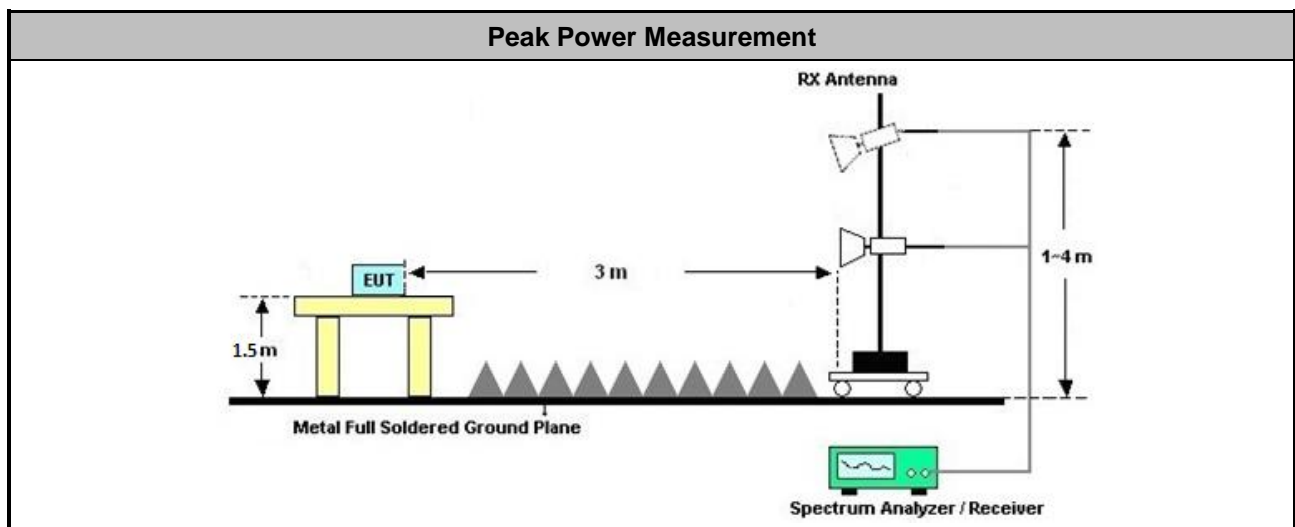
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

| Test Method | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Peak Power Measurement |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.1 for radiated measurement procedure testing. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.2 for measurement distance is 3m |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.5 for peak detector procedure testing |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.6 for bandwidth conversion of peak power |
| <input checked="" type="checkbox"/> | Frequency of max peak power is pre-located: The span bandwidth is continuously reduced to find the worst frequency. Once the worst frequency is found, the setting of spectrum analyzer is set as below: <ul style="list-style-type: none"> Central frequency: Worst frequency point Span: Zero span RBW: 40MHz VBW: 40MHz Detector: Peak detector Trace: Max hold |

3.4.4 Test Setup



3.4.5 Test Result of Peak Power Measurement

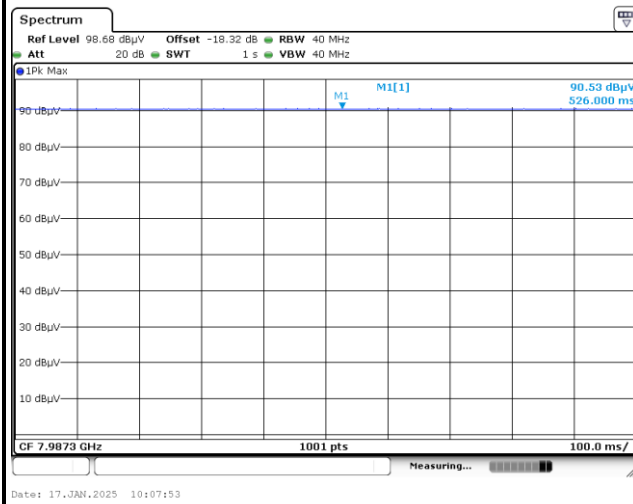
| Peak Measurement Result | | | | | | | | | |
|--|-----|-------------|------------------|-----------------------------|----------------------------------|-----------------------------------|-------------|--------|-----------|
| Mode | Ant | Freq. (MHz) | E-Field (dBuV/m) | ERIP _{40MHz} (dBm) | ERIP _{50MHz} Limit(dBm) | EIRP _{40MHz} Limit (dBm) | Margin [dB] | Result | Pol [H/V] |
| 1 | 6 | 7987.3 | 90.53 | -4.67 | 0 | -1.94 | -2.73 | Pass | H |
| 2 | 6 | 7988.251 | 90.81 | -4.39 | 0 | -1.94 | -2.45 | Pass | H |
| 3 | 6 | 7987.2 | 90.72 | -4.48 | 0 | -1.94 | -2.54 | Pass | H |
| 4 | 6 | 7986.102 | 90.91 | -4.29 | 0 | -1.94 | -2.35 | Pass | H |
| 5 | 6 | 7987 | 81.54 | -13.66 | 0 | -1.94 | -11.72 | Pass | H |
| 6 | 6 | 7987.2 | 87.47 | -7.73 | 0 | -1.94 | -5.79 | Pass | H |
| 7 | 6 | 7987.151 | 87.41 | -7.79 | 0 | -1.94 | -5.85 | Pass | H |
| 8 | 6 | 7987 | 83.92 | -11.28 | 0 | -1.94 | -9.34 | Pass | H |
| Note 1: EIRP [dBm] = E-Field [dBuV/m] - 95.2; Note 2: Bandwidth Correction Factor (BWCF) = 20 log (40MHz/50MHz). Note 3: EIRP _{40MHz} Limit = EIRP _{50MHz} Limit + BWCF, FCC Part 15.521(g). Note 4: Measurement worst emissions of receive antenna polarization. | | | | | | | | | |



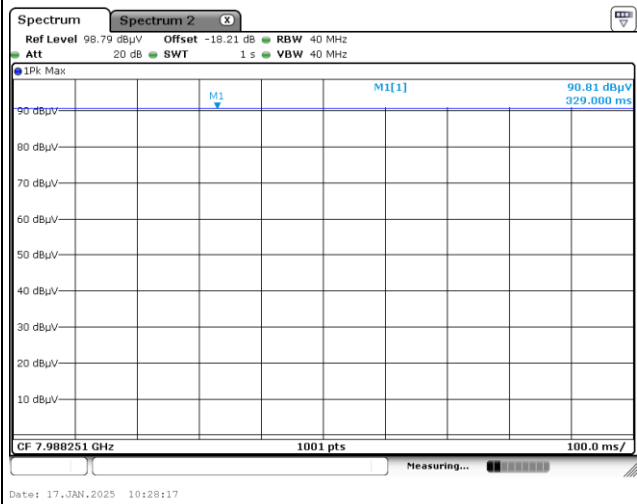
<Ant.6>

CH09 Peak Power Measurement Plots

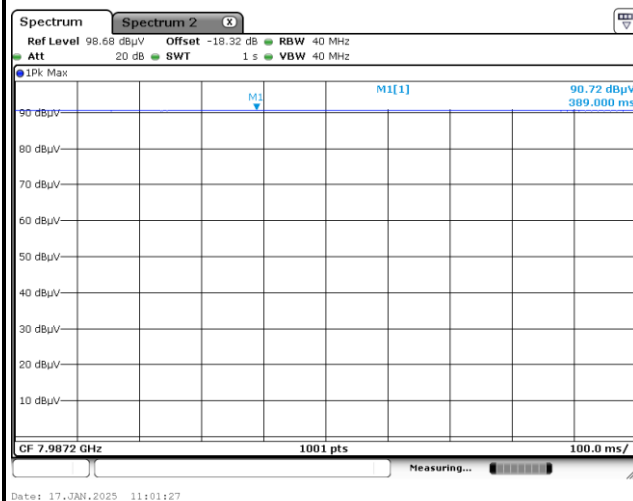
Mode 1: cidx-10_sts-0_packet length-4



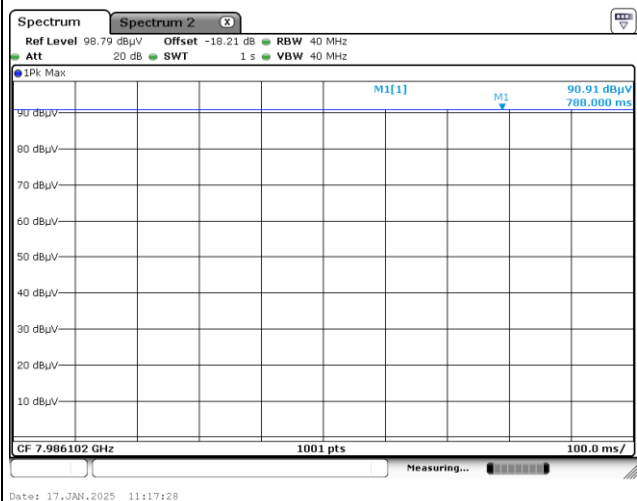
Mode 2: cidx-10_sts-0_packet length-127



Mode 3: cidx-10_sts-1_packet length-4



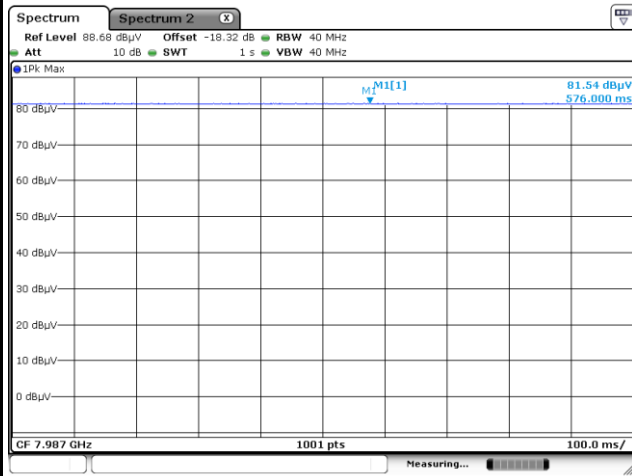
Mode 4: cidx-10_sts-1_packet length-127





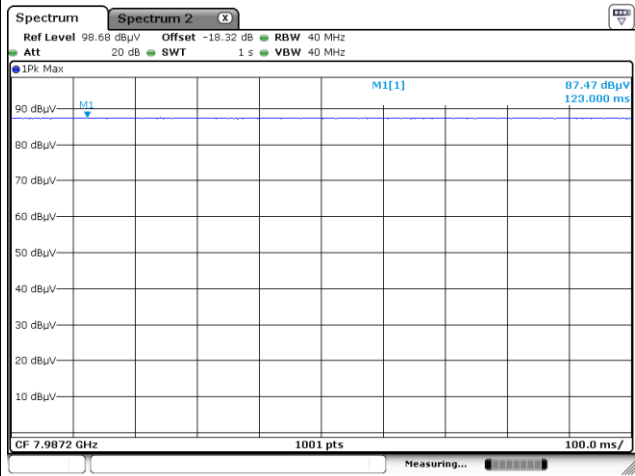
CH09 Peak Power Measurement Plots

Mode 5: cidx-10_sts-3_packet length-0



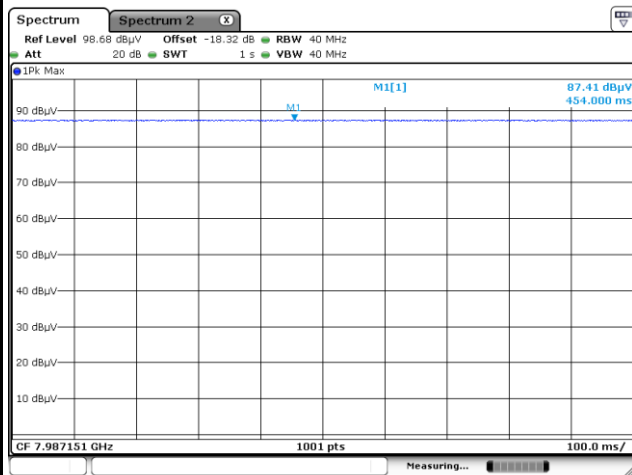
Date: 17.JAN.2025 11:30:12

Mode 6: cidx-27_sts-0_packet length-4095



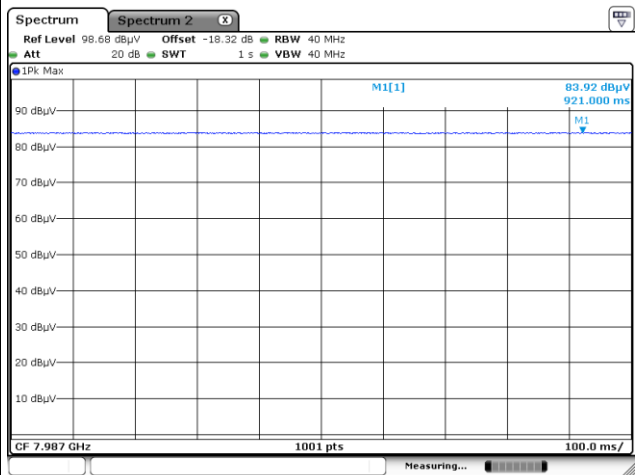
Date: 17.JAN.2025 12:53:12

Mode 7: cidx-27_sts-1_packet length-4095



Date: 17.JAN.2025 13:01:49

Mode 8: cidx-27_sts-3_packet length-0



Date: 17.JAN.2025 13:38:04

3.5 Radiated Emissions

3.5.1 Radiated Emissions Limit

| Radiated Emissions below 960MHz and Emissions from Digital Circuitry Limit | | | |
|--|-----------------------|-------------------------|----------------------|
| Frequency Range (MHz) | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) |
| 0.009~0.490 | 2400/F(kHz) | 48.5 - 13.8 | 300 |
| 0.490~1.705 | 24000/F(kHz) | 33.8 - 23 | 30 |
| 1.705~30.0 | 30 | 29 | 30 |
| 30~88 | 100 | 40 | 3 |
| 88~216 | 150 | 43.5 | 3 |
| 216~960 | 200 | 46 | 3 |
| Above 960 | 500 | 54 | 3 |

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

| Radiated Emissions above 960MHz Limit | | |
|---------------------------------------|------------|-------------------|
| Frequency Range (MHz) | EIRP (dBm) | EIRP (dBuV/m @3m) |
| 960-1610 | -75.3 | 19.9 |
| 1610-1990 | -63.3 | 31.9 |
| 1990-3100 | -61.3 | 33.9 |
| 3100-10600 | -41.3 | 53.9 |
| Above 10600 | -61.3 | 33.9 |

| Radiated Emissions in GPS Bands Limit | | |
|---------------------------------------|------------|-------------------|
| Frequency Range (MHz) | EIRP (dBm) | EIRP (dBuV/m @3m) |
| 1164-1240 | -85.3 | 9.90 |
| 1559-1610 | -85.3 | 9.90 |

Note: $E \text{ (dBuV/m)} = EIRP \text{ (dBm)} + 95.20$, example, $E \text{ (dBuV/m)} = -85.3 + 95.20 = 9.90 \text{ dBuV/m}$.



3.5.2 Measuring Instruments

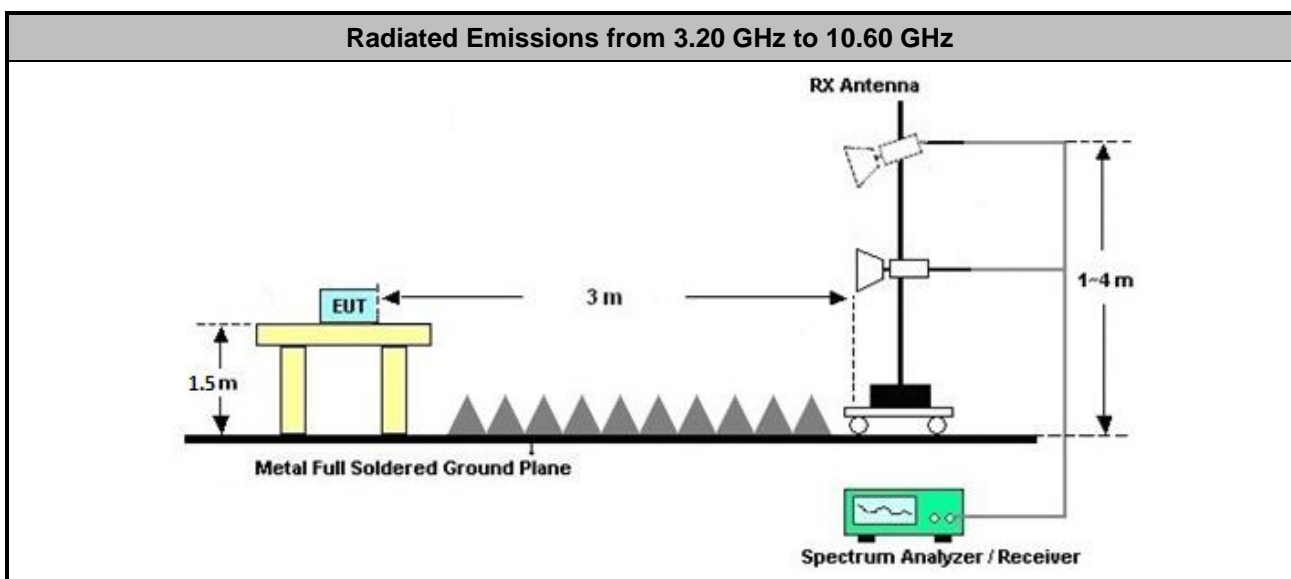
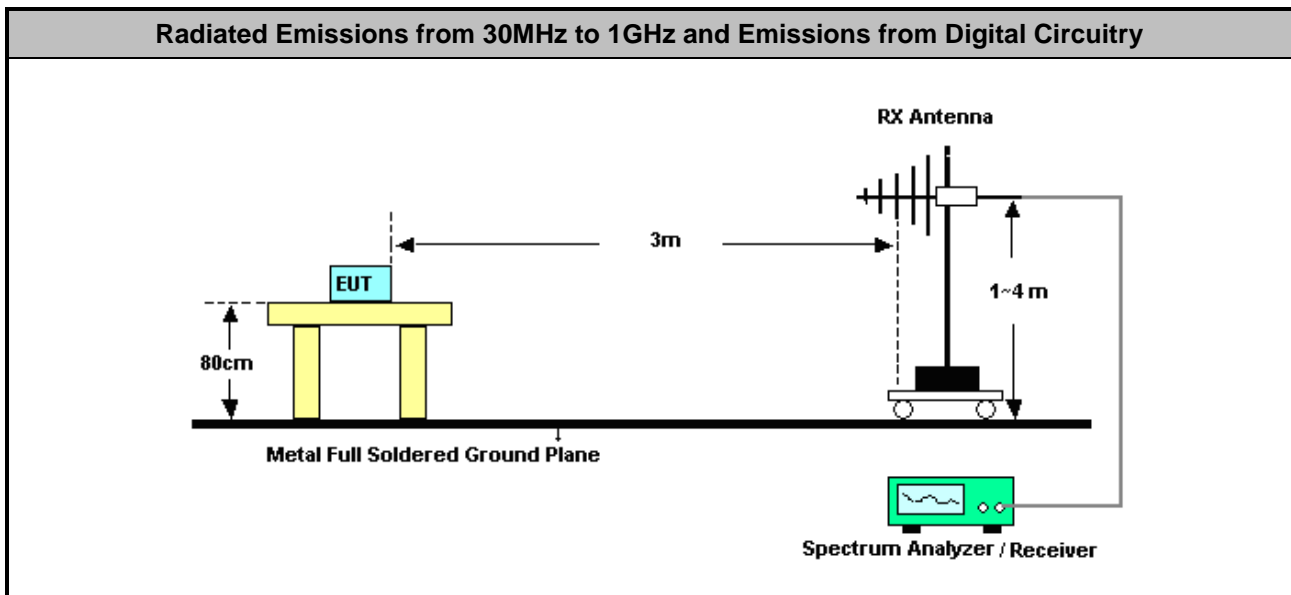
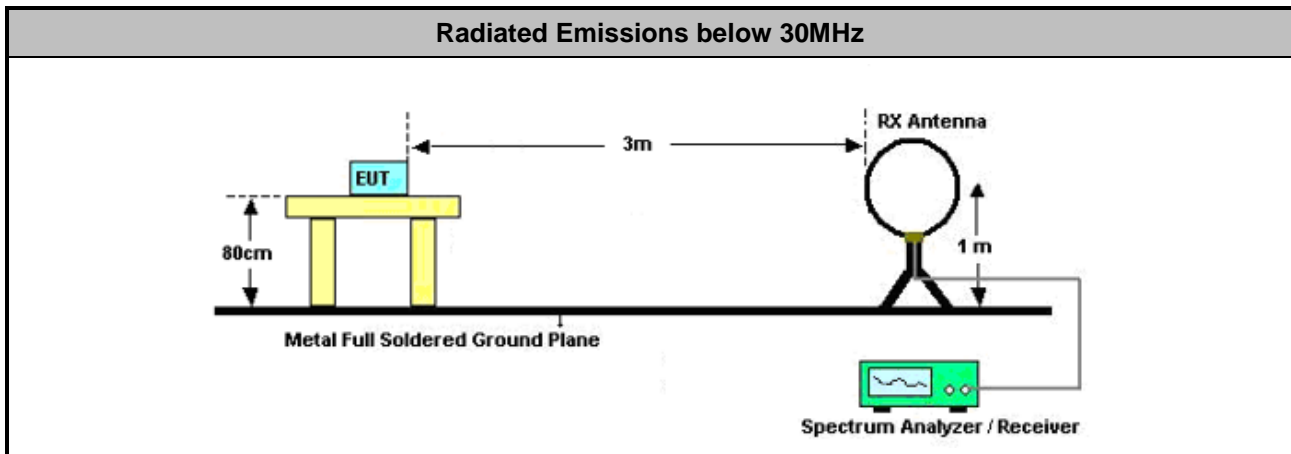
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

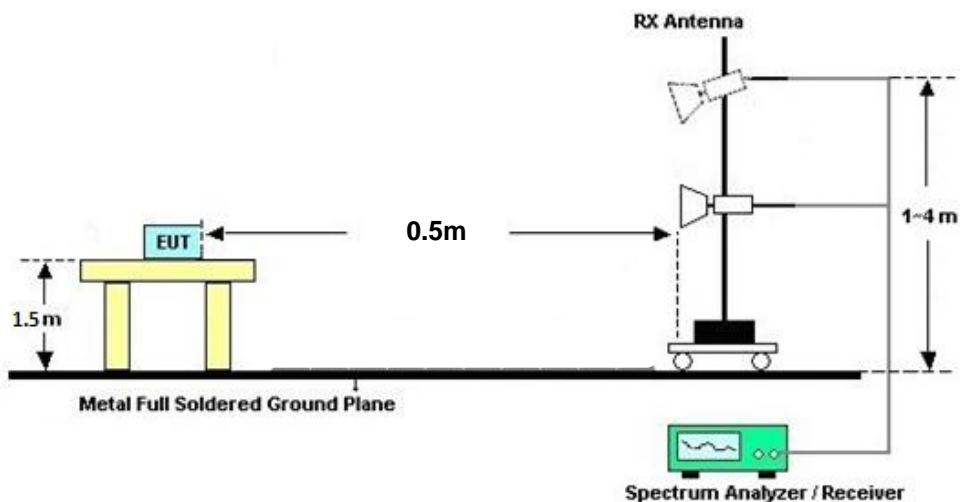
| Test Method for Radiated Emissions above 960MHz | |
|---|--|
| <input checked="" type="checkbox"/> | Radiated Emissions above 960MHz |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.1 for radiated measurement procedure testing. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.2 for measurement distance is 3m. In some cases, it may be necessary to measure the radiated UWB emissions at a closer distance to obtain enough signal and margin to overcome the measurement system noise floor. Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB) |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.4 for rms detector procedure testing. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.7 for evaluating AVG-PSD (RBW=1MHz). |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.10 for evaluating AVG-PSD in GPS Band (RBW≥1kHz). |
| <input checked="" type="checkbox"/> | For radiated measurement. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.8 following eirp can be used radiated test configuration. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 10.3.9 following eirp can be directly determined using the field strength. |

| Test Method for Radiated Emissions below 960MHz and Emissions from Digital Circuitry | |
|--|---|
| <input checked="" type="checkbox"/> | Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements) for above 30MHz-960MHz; 40dB/decade for frequency below 30MHz. |
| <input checked="" type="checkbox"/> | For the transmitter unwanted emissions shall be measured using following options below: |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.1.4 Detector functions and selection of bandwidth |
| <input type="checkbox"/> | Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle). |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit. |
| <input checked="" type="checkbox"/> | For radiated measurement. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 0.5m or 1m or 3m. |
| <input checked="" type="checkbox"/> | If the noise floor can't meet the limit, the test distance will be shorten and described in the report. |
| <input checked="" type="checkbox"/> | Any unwanted emissions level shall not exceed the fundamental emission level. |

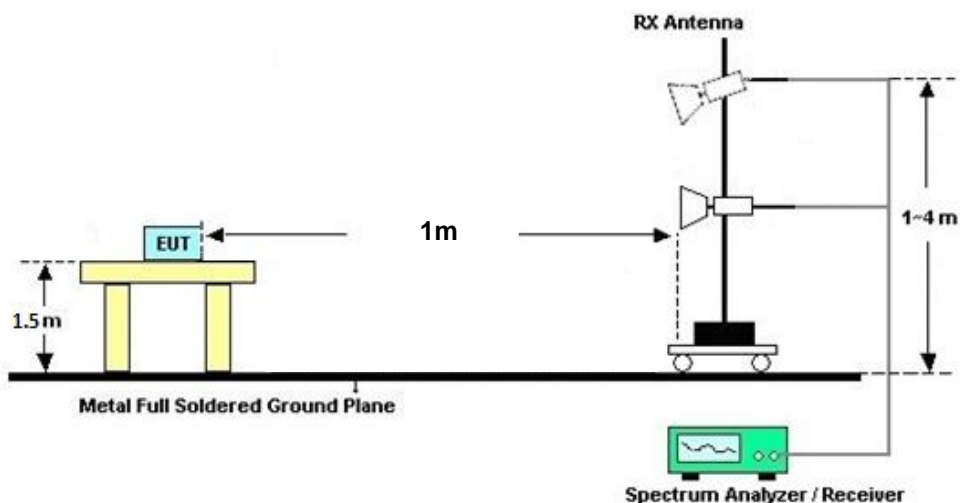
3.5.4 Test Setup



Radiated Emissions from 0.96GHz to 1.164 GHz, 1.24GHz to 1.559 GHz and 10.60 GHz to 18GHz



Radiated Emissions 1.164 GHz to 1.24GHz, 1.559 GHz to 1.61GHz, 1.61 GHz to 3.2GHz and above 18GHz



Note 1: Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

Note 2: If test distance other than 3m is used, the used test distance will be recorded in test result.

3.5.5 Radiated Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

There is adequate comparison measurement of both open-field test site and alternative test site -semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

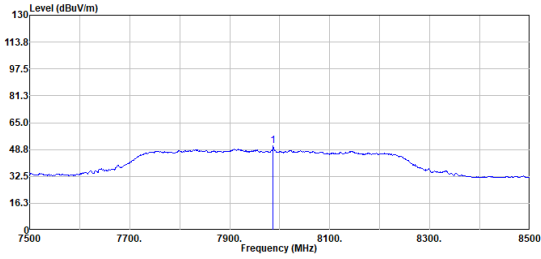
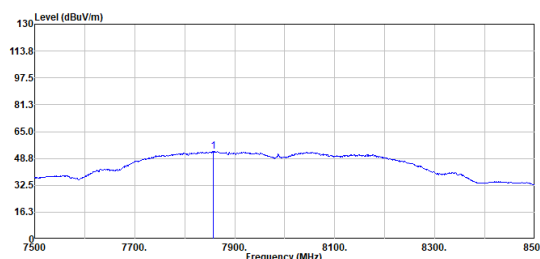
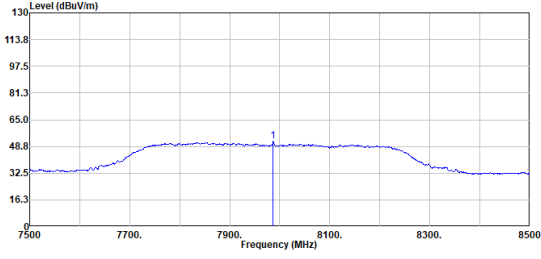
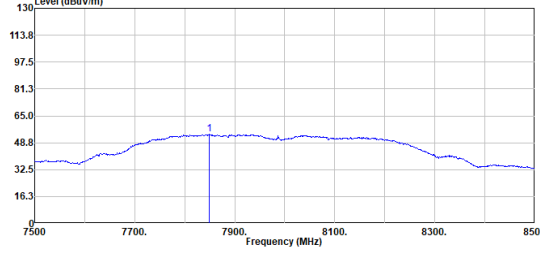
**3.5.6 Radiated Emissions (Fundamental)**

| Test mode | Ant | Frequency (MHz) | Emission Level (dBuV/m) | Emission Limit (dBm/MHz) | Emission Limit (dBuV/m) | Margin (dB) | Result | Pol (H/V) |
|-----------|-----|-----------------|-------------------------|--------------------------|-------------------------|-------------|--------|-----------|
| 1 | 6 | 7987 | 51.11 | -41.3 | 53.9 | -2.79 | Pass | V |
| 2 | 6 | 7857 | 53.02 | -41.3 | 53.9 | -0.88 | Pass | V |
| 3 | 6 | 7987 | 52.16 | -41.3 | 53.9 | -1.74 | Pass | V |
| 4 | 6 | 7849 | 53.72 | -41.3 | 53.9 | -0.18 | Pass | V |
| 5 | 6 | 7987 | 51.4 | -41.3 | 53.9 | -2.5 | Pass | V |
| 6 | 6 | 7987 | 52.19 | -41.3 | 53.9 | -1.71 | Pass | V |
| 7 | 6 | 7987 | 52.23 | -41.3 | 53.9 | -1.67 | Pass | V |
| 8 | 6 | 7987 | 52.25 | -41.3 | 53.9 | -1.65 | Pass | V |

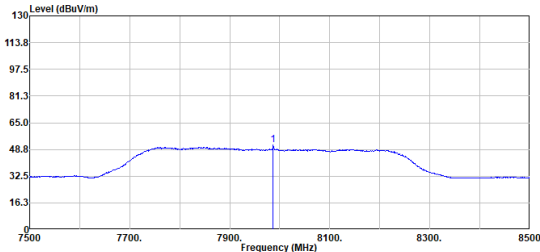
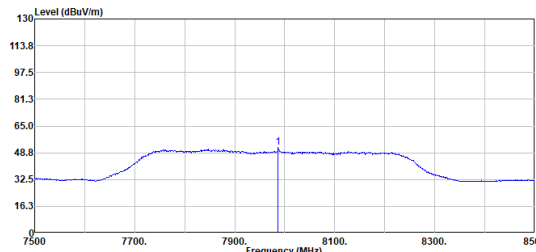
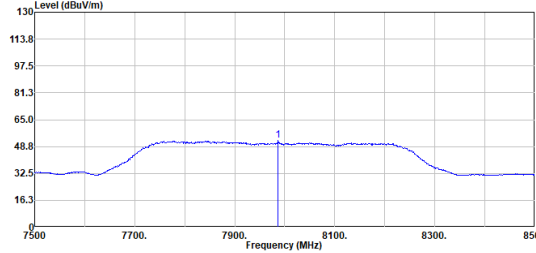
Note: E (dBuV/m) Limit= EIRP (dBm) Limit + 95.2 = -41.3 + 95.2 = 53.9 dBuV/m.



<Ant.6>

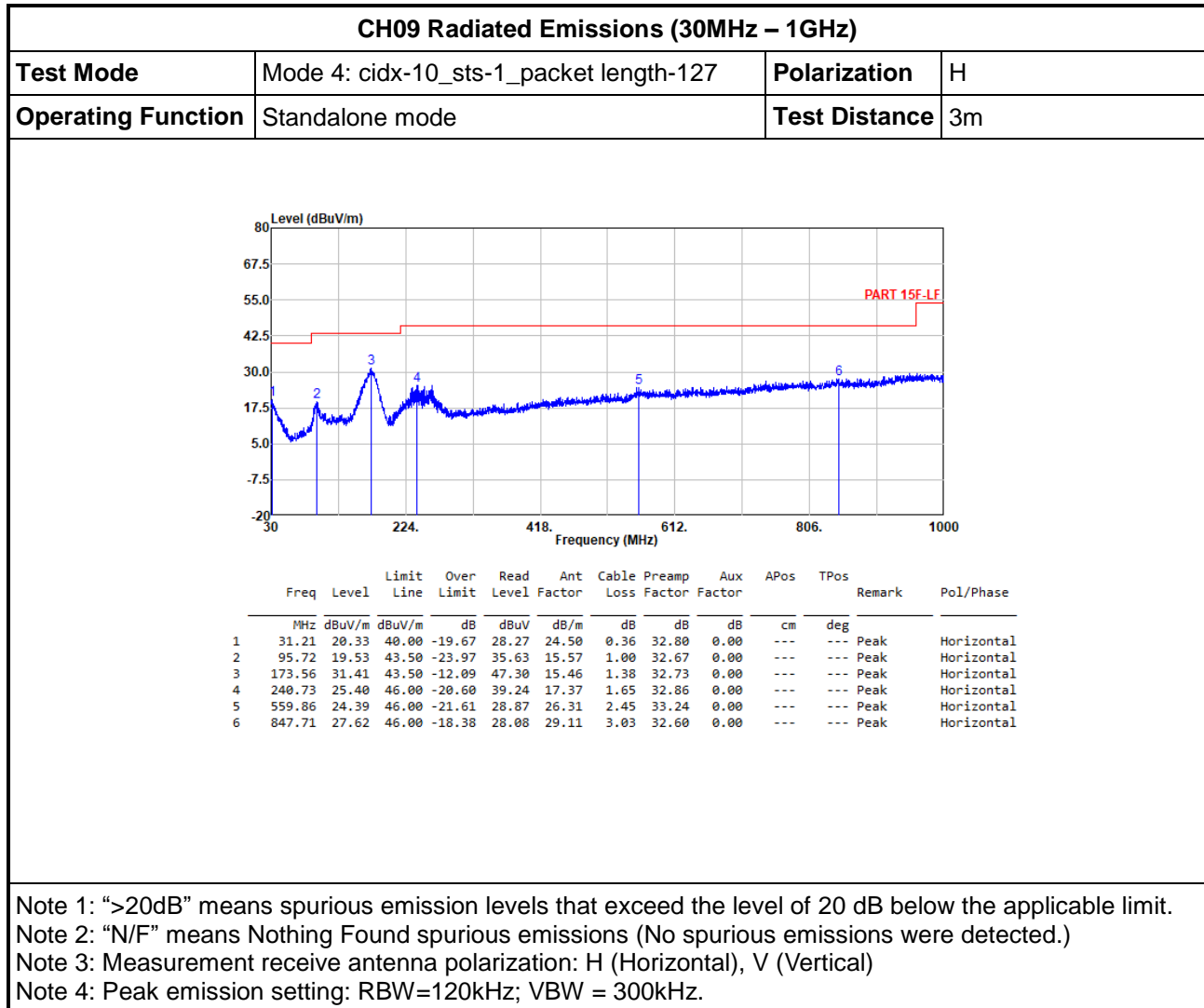
| CH09 Radiated Emissions (Fundamental) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|--------|-------|-------|---|---------------|--------|------|------|------|---------|-----------|-----|------|------|--------|-----------|-----|--------|--------|----|------|------|----|----|----|----|-----|--|--|-----------|-------|-------|-------|-------|-------|-------|-------|------|-----|-----|---------|----------|---|--|--|--|--|--|--|--|------|-------|-------|------|------|-----|-------|--------|-----|------|------|--------|-----------|-----|--------|--------|----|------|------|----|----|----|----|-----|--|--|-----------|-------|-------|-------|-------|-------|-------|-------|------|-----|-----|---------|----------|
| Operating Function | Standalone mode | | | | | Polarization | | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | Test Distance | | 3m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mode 1: cidx-10_sts-0_packet length-4 | | | | | Mode 2: cidx-10_sts-0_packet length-127 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  <table><tr><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th><th></th></tr><tr><td>1 7987.00</td><td>51.11</td><td>-----</td><td>-----</td><td>69.43</td><td>35.83</td><td>12.41</td><td>66.56</td><td>0.00</td><td>261</td><td>184</td><td>Average</td><td>Vertical</td></tr></table> | | | | | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | 1 7987.00 | 51.11 | ----- | ----- | 69.43 | 35.83 | 12.41 | 66.56 | 0.00 | 261 | 184 | Average | Vertical |  <table><tr><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th><th></th></tr><tr><td>1 7857.00</td><td>53.02</td><td>-----</td><td>-----</td><td>71.23</td><td>35.90</td><td>12.23</td><td>66.34</td><td>0.00</td><td>273</td><td>185</td><td>Average</td><td>Vertical</td></tr></table> | | | | | | | | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | 1 7857.00 | 53.02 | ----- | ----- | 71.23 | 35.90 | 12.23 | 66.34 | 0.00 | 273 | 185 | Average | Vertical |
| Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 7987.00 | 51.11 | ----- | ----- | 69.43 | 35.83 | 12.41 | 66.56 | 0.00 | 261 | 184 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 7857.00 | 53.02 | ----- | ----- | 71.23 | 35.90 | 12.23 | 66.34 | 0.00 | 273 | 185 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mode 3: cidx-10_sts-1_packet length-4 | | | | | Mode 4: cidx-10_sts-1_packet length-127 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  <table><tr><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th><th></th></tr><tr><td>1 7987.00</td><td>52.16</td><td>-----</td><td>-----</td><td>70.48</td><td>35.83</td><td>12.41</td><td>66.56</td><td>0.00</td><td>254</td><td>176</td><td>Average</td><td>Vertical</td></tr></table> | | | | | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | 1 7987.00 | 52.16 | ----- | ----- | 70.48 | 35.83 | 12.41 | 66.56 | 0.00 | 254 | 176 | Average | Vertical |  <table><tr><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th><th></th></tr><tr><td>1 7849.00</td><td>53.72</td><td>-----</td><td>-----</td><td>71.93</td><td>35.90</td><td>12.22</td><td>66.33</td><td>0.00</td><td>254</td><td>176</td><td>Average</td><td>Vertical</td></tr></table> | | | | | | | | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | 1 7849.00 | 53.72 | ----- | ----- | 71.93 | 35.90 | 12.22 | 66.33 | 0.00 | 254 | 176 | Average | Vertical |
| Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 7987.00 | 52.16 | ----- | ----- | 70.48 | 35.83 | 12.41 | 66.56 | 0.00 | 254 | 176 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 7849.00 | 53.72 | ----- | ----- | 71.93 | 35.90 | 12.22 | 66.33 | 0.00 | 254 | 176 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



| CH09 Radiated Emissions (Fundamental) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------|--------|--------|-------|-------|-------|--|--------|-------|-------|---------------|---------|-----------|-------|--------|-----|------|------|--------|-----------|--|-----|--------|--------|----|------|------|----|----|----|----|-----|--|--|---|---------|-------|-------|-------|-------|-------|-------|-------|------|-----|-----|---------|----------|--|--|--|--|--|--|--|--|------|-------|-------|------|------|-----|-------|--------|-----|------|------|--------|-----------|--|-----|--------|--------|----|------|------|----|----|----|----|-----|--|--|---|---------|-------|-------|-------|-------|-------|-------|-------|------|-----|-----|---------|----------|
| Operating Function | Standalone mode | | | | | | | | | | Polarization | | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | Test Distance | | 3m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mode 5: cidx-10_sts-3_packet length-0 | | | | | | | Mode 6: cidx-27_sts-0_packet length-4095 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 7987.00 | 51.40 | ----- | ----- | 69.72 | 35.83 | 12.41 | 66.56 | 0.00 | 264 | 181 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 7987.00 | 52.19 | ----- | ----- | 70.51 | 35.83 | 12.41 | 66.56 | 0.00 | 264 | 181 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mode 7: cidx-27_sts-1_packet length-4095 | | | | | | | Mode 8: cidx-27_sts-3_packet length-0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 7987.00 | 52.23 | ----- | ----- | 70.55 | 35.83 | 12.41 | 66.56 | 0.00 | 264 | 181 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 7987.00 | 52.25 | ----- | ----- | 70.57 | 35.83 | 12.41 | 66.56 | 0.00 | 264 | 181 | Average | Vertical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3.5.7 Radiated Emissions (30MHz – 1GHz)

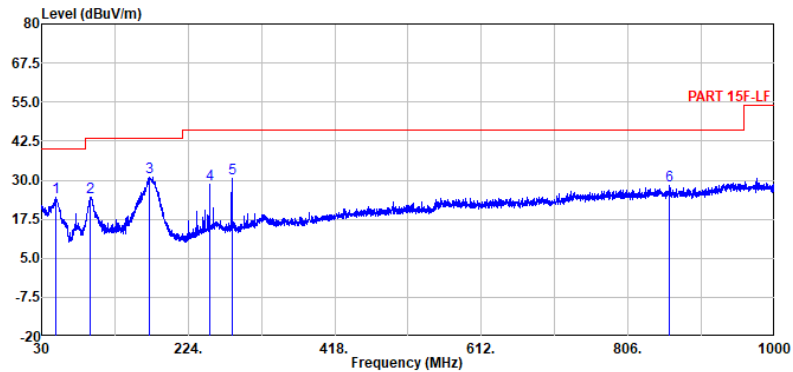
<Ant. 6>





CH09 Radiated Emissions (30MHz – 1GHz)

| | | | |
|--------------------|---|---------------|----|
| Test Mode | Mode 4: cidx-10_sts-1_packet length-127 | Polarization | V |
| Operating Function | Standalone mode | Test Distance | 3m |



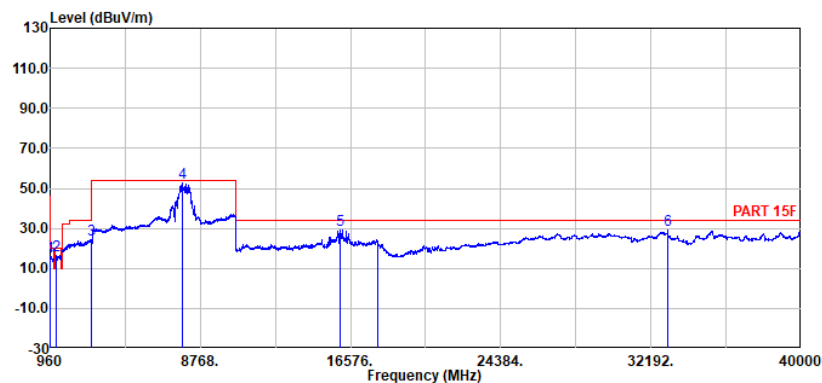
| | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase |
|---|--------|--------|--------|--------|-------|-------|-------|--------|------|------|------|--------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | |
| 1 | 48.92 | 24.42 | 40.00 | -15.58 | 41.68 | 14.89 | 0.60 | 32.75 | 0.00 | --- | --- | Peak | Vertical |
| 2 | 94.99 | 24.50 | 43.50 | -19.00 | 40.69 | 15.48 | 1.00 | 32.67 | 0.00 | --- | --- | Peak | Vertical |
| 3 | 173.32 | 30.94 | 43.50 | -12.56 | 46.81 | 15.48 | 1.38 | 32.73 | 0.00 | --- | --- | Peak | Vertical |
| 4 | 252.37 | 28.65 | 46.00 | -17.35 | 41.05 | 18.83 | 1.66 | 32.89 | 0.00 | --- | --- | Peak | Vertical |
| 5 | 281.72 | 30.54 | 46.00 | -15.46 | 42.84 | 18.79 | 1.76 | 32.85 | 0.00 | --- | --- | Peak | Vertical |
| 6 | 861.29 | 28.12 | 46.00 | -17.88 | 28.76 | 28.83 | 3.05 | 32.52 | 0.00 | --- | --- | Peak | Vertical |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.



CH09 Radiated Emissions (960MHz – 40GHz)

| | | | |
|--------------------|---|--------------|---|
| Test Mode | Mode 4: cidx-10_sts-1_packet length-127 | Polarization | V |
| Operating Function | Standalone mode | | |
| Test Distance | 960 ~1164 MHz: 0.5m 1164 ~ 1240 MHz: 1m 1240 ~ 1559 MHz: 0.5m 1559 ~ 1610 MHz: 1m 1610 ~ 3200 MHz: 1m 3200 ~ 10600 MHz: 3m 10600 ~ 18000 MHz: 0.5m 18000 ~ 40000 MHz: 1m | | |



| | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase |
|---|----------|--------|--------|--------|-------|-------|-------|--------|--------|------|------|---------|-----------|
| | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | |
| 1 | 975.50 | 16.18 | 19.90 | -3.72 | 63.10 | 29.00 | 4.25 | 64.61 | -15.56 | --- | --- | Average | Vertical |
| 2 | 1275.73 | 16.67 | 19.90 | -3.23 | 63.68 | 28.55 | 4.79 | 64.79 | -15.56 | --- | --- | Average | Vertical |
| 3 | 3106.19 | 24.36 | 53.90 | -29.54 | 58.75 | 32.80 | 7.53 | 65.18 | -9.54 | --- | --- | Average | Vertical |
| 4 | 7832.40 | 52.72 | 53.90 | -1.18 | 70.93 | 35.90 | 12.19 | 66.30 | 0.00 | --- | --- | Average | Vertical |
| 5 | 16016.80 | 29.22 | 33.90 | -4.68 | 50.40 | 41.07 | 17.76 | 64.45 | -15.56 | --- | --- | Average | Vertical |
| 6 | 33070.00 | 29.09 | 33.90 | -4.81 | 25.67 | 37.29 | 30.59 | 54.92 | -9.54 | --- | --- | Average | Vertical |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.

Note 5: Average emission setting in GPS bands: RBW=1kHz; VBW=3kHz.

Note 6:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
Example: Distance extrapolation factor = $20 \log (0.5\text{m}/3\text{m}) = -15.56$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Distance Factor (Aux Factor) (dB) = Level (dBuV/m)

3.5.9 Radiated Emissions (1164MHz – 1240MHz)

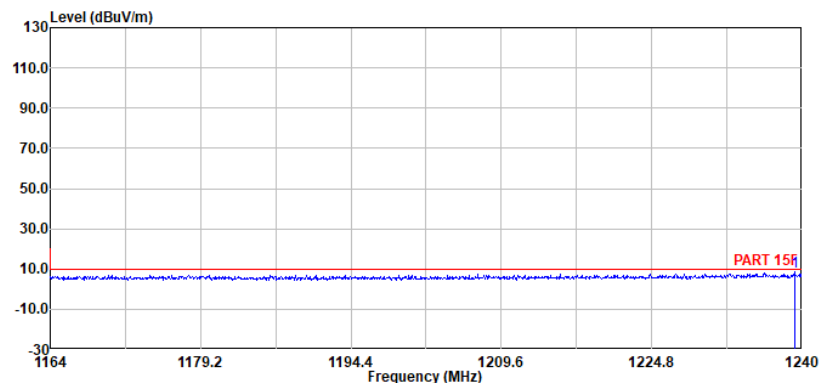
<Ant.6>

| CH09 Radiated Emissions (1164MHz – 1240MHz) | | | | | | | | | | | | |
|--|---|--|--|--|--|--|--|---------------|--|----|--|--|
| Test Mode | Mode 4: cidx-10_sts-1_packet length-127 | | | | | | | Polarization | | H | | |
| Operating Function | Standalone mode | | | | | | | Test Distance | | 1m | | |
| <div><div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><di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| | | | | | | | | | | | |



CH09 Radiated Emissions (1164MHz – 1240MHz)

| | | | |
|--------------------|---|---------------|----|
| Test Mode | Mode 4: cidx-10_sts-1_packet length-127 | Polarization | V |
| Operating Function | Standalone mode | Test Distance | 1m |



| Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase |
|-----------|--------|--------|-------|-------|-------|-------|--------|-------|------|------|---------|-----------|
| MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | |
| 1 1239.24 | 8.35 | 9.90 | -1.55 | 48.24 | 28.31 | 4.83 | 63.49 | -9.54 | --- | --- | Average | Vertical |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
Example: Distance extrapolation factor = $20 \log (1\text{m}/3\text{m}) = -9.54$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Distance Factor (Aux Factor) (dB) = Level (dBuV/m)



3.5.10 Radiated Emissions (1559MHz – 1610MHz)

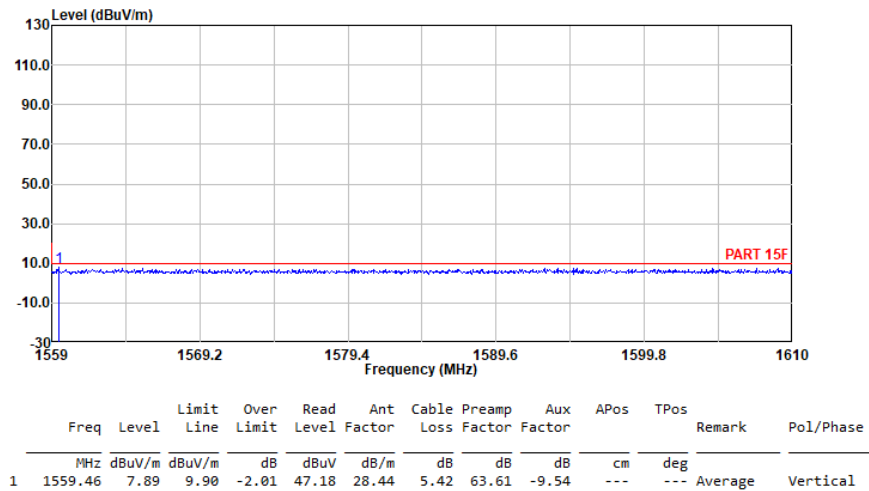
<Ant.6>

| CH09 Radiated Emissions (1559MHz – 1610MHz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--------|-------|-------|-------|-------|--------|---------------|------|------|---------|------------|------|-------|-------|------|------|-----|-------|--------|-----|------|------|--------|-----------|-----|--------|--------|----|------|------|----|----|----|----|-----|--|--|-----------|------|------|-------|-------|-------|------|-------|-------|-----|-----|---------|------------|
| Test Mode | Mode 4: cidx-10_sts-1_packet length-127 | | | | | | | Polarization | | H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating Function | Standalone mode | | | | | | | Test Distance | | 1m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>Level (dBuV/m)</div><div><div>Frequency (MHz)</div></div><div><table><tr><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th><th></th></tr><tr><td>1 1598.78</td><td>7.94</td><td>9.90</td><td>-1.96</td><td>47.01</td><td>28.60</td><td>5.49</td><td>63.62</td><td>-9.54</td><td>---</td><td>---</td><td>Average</td><td>Horizontal</td></tr></table></div></div></div> | | | | | | | | | | | | | Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | 1 1598.78 | 7.94 | 9.90 | -1.96 | 47.01 | 28.60 | 5.49 | 63.62 | -9.54 | --- | --- | Average | Horizontal |
| Freq | Level | Limit | Over | Read | Ant | Cable | Preamp | Aux | APos | TPos | Remark | Pol/Phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MHz | dBuV/m | dBuV/m | dB | dBuV | dB/m | dB | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 1598.78 | 7.94 | 9.90 | -1.96 | 47.01 | 28.60 | 5.49 | 63.62 | -9.54 | --- | --- | Average | Horizontal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div>Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.</div><div>Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)</div><div>Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)</div><div>Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.</div><div>Note 5:</div><div><div><div>Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)</div><div>Example: Distance extrapolation factor = 20log (1m/3m) = -9.54 (dB)</div></div><div><div>Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Distance Factor (Aux Factor) (dB) = Level (dBuV/m)</div></div></div></div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



CH09 Radiated Emissions (1559MHz – 1610MHz)

| | | | |
|--------------------|---|---------------|----|
| Test Mode | Mode 4: cidx-10_sts-1_packet length-127 | Polarization | V |
| Operating Function | Standalone mode | Test Distance | 1m |



Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
Example: Distance extrapolation factor = $20 \log (1\text{m}/3\text{m}) = -9.54$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Distance Factor (Aux Factor) (dB) = Level (dBuV/m)



4 Test Equipment and Calibration Data

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|-----------------------------------|--------------|-----------|--------------|-------------------------|------------------|-----------------------------|---------------|-----------------------|
| EMI Test Receiver | Keysight | N9038A | MY56400023 | 3Hz~8.5GHz;Max 30dBm | Jan. 02, 2025 | Jan. 15, 2025~Feb. 19, 2025 | Jan. 01, 2026 | Radiation (03CH06-KS) |
| EXA Spectrum Analyzer | Keysight | N9010B | MY57471084 | 10Hz~44GHz | Jul. 04, 2024 | Jan. 15, 2025~Feb. 19, 2025 | Jul. 03, 2025 | Radiation (03CH06-KS) |
| Loop Antenna | R&S | HFH2-Z2E | 101125 | 9kHz~30MHz | Sep. 08, 2024 | Jan. 15, 2025~Feb. 19, 2025 | Sep. 07, 2025 | Radiation (03CH06-KS) |
| Bilog Antenna | TeseQ | CBL6111D | 59913 | 30MHz~1GHz | Sep. 03, 2024 | Jan. 15, 2025~Feb. 19, 2025 | Sep. 02, 2025 | Radiation (03CH06-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117 | 00218652 | 1GHz~18GHz | Apr. 11, 2024 | Jan. 15, 2025~Feb. 19, 2025 | Apr. 10, 2025 | Radiation (03CH06-KS) |
| SHF-EHF Horn | Com-power | AH-840 | 101116 | 18GHz~40GHz | Oct. 22, 2024 | Jan. 15, 2025~Feb. 19, 2025 | Oct. 21, 2025 | Radiation (03CH06-KS) |
| Amplifier | SONOMA | 310N | 380827 | 9KHz ~1GHZ | Jul. 04, 2024 | Jan. 15, 2025~Feb. 19, 2025 | Jul. 03, 2025 | Radiation (03CH06-KS) |
| Amplifier | EM | EM18G40GA | 060728 | 18~40GHz | Jan. 03, 2025 | Jan. 15, 2025~Feb. 19, 2025 | Jan. 02, 2026 | Radiation (03CH06-KS) |
| high gain Amplifier | EM | EM01G18GA | 060845 | 1Ghz~18Ghz | Jan. 03, 2025 | Jan. 15, 2025~Feb. 19, 2025 | Jan. 02, 2026 | Radiation (03CH06-KS) |
| Amplifier | Keysight | 83017A | MY57280119 | 500MHz~26.5GHz | Oct. 09, 2024 | Jan. 15, 2025~Feb. 19, 2025 | Oct. 08, 2025 | Radiation (03CH06-KS) |
| AC Power Source | Chroma | 61601 | F104090004 | N/A | NCR | Jan. 15, 2025~Feb. 19, 2025 | NCR | Radiation (03CH06-KS) |
| Turn Table | ChamPro | EM 1000-T | 060762-T | 0~360 degree | NCR | Jan. 15, 2025~Feb. 19, 2025 | NCR | Radiation (03CH06-KS) |
| Antenna Mast | ChamPro | EM 1000-A | 060762-A | 1 m~4 m | NCR | Jan. 15, 2025~Feb. 19, 2025 | NCR | Radiation (03CH06-KS) |
| EMI Receiver | R&S | ESCI7 | 100768 | 9kHz~7GHz; | Apr. 18, 2024 | Feb. 05, 2025 | Apr. 17, 2025 | Conduction (CO01-KS) |
| AC LISN (for auxiliary equipment) | MessTec | AN3016 | 060103 | 9kHz~30MHz | Aug. 20, 2024 | Feb. 05, 2025 | Aug. 19, 2025 | Conduction (CO01-KS) |
| AC LISN | MessTec | AN3016 | 060105 | 9kHz~30MHz | Apr. 18, 2024 | Feb. 05, 2025 | Apr. 17, 2025 | Conduction (CO01-KS) |
| AC Power Source | Chroma | 61602 | ABP000000811 | AC 0V~300V, 45Hz~1000Hz | Oct. 09, 2024 | Feb. 05, 2025 | Oct. 08, 2025 | Conduction (CO01-KS) |

NCR: No Calibration Required.

5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of AC Conducted Emission Measurement (0.15 MHz ~ 30 MHz)

| | |
|---|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 2.84dB |
|---|--------|

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

| | |
|---|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 3.3 dB |
|---|--------|

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

| | |
|---|---------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 6.06 dB |
|---|---------|

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

| | |
|---|---------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 5.18 dB |
|---|---------|

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

| | |
|---|---------|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$) | 5.38 dB |
|---|---------|

----- THE END -----