**FCC 47 CFR PART 15 SUBPART C**
**ISED RSS-210 ISSUE 11**

# TEST REPORT

**FOR**

**WIRELESS THERMOSTAT**

**MODEL NUMBER: THX1200W5**

**FCC ID: HS9-THX1200WF01**
**IC: 573F-TH2X1200WF01**

**REPORT NUMBER: R15799203-E2**

**ISSUE DATE: 2025-06-18**

*Prepared for*
**RESIDEO**
**2 CORPORATE CENTER DR**
**MELVILLE, NY 11747 USA**

*Prepared by*
**UL LLC**
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CERT #0751.06

## Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| V1 | 2025-06-11 | Initial Issue | Henry Lindbo |
| V2 | 2025-06-18 | Misc. editorial update | Mike Antola |


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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Resideo
2 Corporate Center Dr
Melville, NY, USA

**EUT DESCRIPTION:** Wireless Thermostat

**MODEL:** THX1200W5

**SERIAL NUMBER:** 52591160000146

**SAMPLE RECEIPT DATE:** 2025-05-08

**DATES TESTED:** 2025-05-12 to 2025-05-28

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| CFR 47 Part 15 Subpart C | Complies |
| ISED RSS-210 Issue 11 Annex J | Complies |
| ISED RSS-GEN Issue 5 + A1 + A2 | Complies |

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released For
UL LLC By:

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UL LLC


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# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2020, FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC KDB 364244 D01, RSS-GEN Issue 5 + A1 + A2, and RSS-210 Issue 11.

This report contains data provided by the applicant which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

# 3. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, Cert. No. 751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

| | Address | ISED CABID | ISED Company Number | FCC Registration |
|---|---|---|---|---|
| ☐ | 12 Laboratory Drive<br>Research Triangle Park, NC 27709,<br>U.S.A. | US0067 | 2180C | 825374 |
| ☒ | 2800 Perimeter Dr., Suite B, Morrisville,<br>NC 27560, U.S.A. | | 27265 | |


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# 4. DECISION RULES AND MEASUREMENT UNCERTAINTY

## 4.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

## 4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

## 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

| PARAMETER | $U_{LAB}$ |
|---|---|
| Radio frequency | $3.5 \times 10^{-8}$ |
| All emission, radiated below 40GHz | 6 dB |
| All emissions, radiated above 40GHz | 3 dB |
| Temperature | 0.34 °C |
| Humidity | 2.83 % |
| DC and low frequency voltages | 0.57 % |

Uncertainty figures are valid to a confidence level of 95%.

## 4.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV



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# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

The EUT is a thermostat that contains Redlink (900MHz FHSS), 2.4/5GHz WLAN, BLE, and FMCW Radar radios. This test report covers the testing of the Radar component.

## 5.2. OUTPUT POWER

The antenna is integral thus radiated measurements are made. The EIRP was measured at the worst-case condition, thus the EIRP measurement conditions correspond to the maximum EUT antenna gain. Therefore, the maximum antenna gain is used to calculate the Conducted Peak Output Power.

The highest peak output power is 4.16 dBm (2.61 mW) EIRP.

## 5.3. MANUFACTURER'S DESCRIPTION OF AVAILABLE ANTENNAS

The EUT utilizes a 1 element TX and 3 element RX antenna array with a gain of 3.5 dBi.

## 5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 01.3024.0.

## 5.5. WORST-CASE CONFIGURATION AND MODE

Only one mode is supported by the radar, so all testing is done in that mode.


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# 6. DESCRIPTION OF TEST SETUP

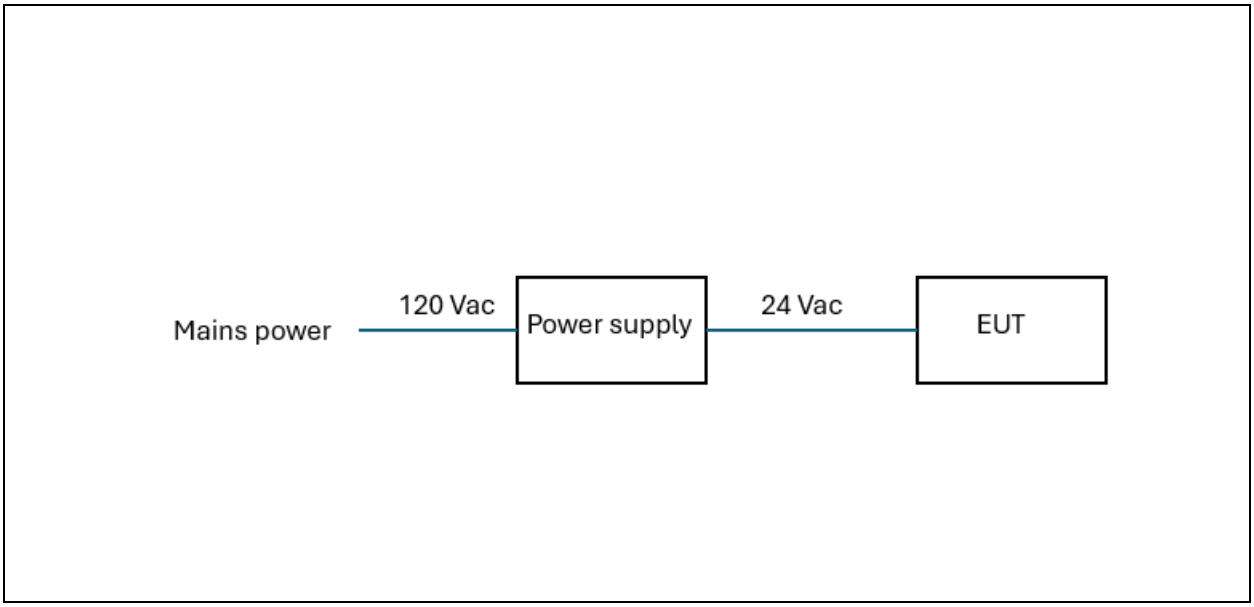
**SUPPORT EQUIPMENT**

| Support Equipment List | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** | **FCC ID** |
| AC power supply | TRIAD | WAU24-1000 | E245587 | NA |

**I/O CABLES**

| I/O Cable List | | | |
|---|---|---|---|
| **Cable No** | **Cable Type** | **Cable Length (m)** | **Remarks** |
| 1 | AC | <3 | Connects EUT to power supply |

**SETUP DIAGRAM FOR TESTS**





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# 7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

| Equip. ID | Description | Manufacturer/Brand | Model Number | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| | **0.009-30MHz** | | | | |
| 135144 | Active Loop Antenna | ETS-Lindgren | 6502 | 2024-10-02 | 2025-10-02 |
| | **30-1000 MHz** | | | | |
| 159203 | Hybrid Broadband Antenna | Sunol Sciences Corp. | JB3 | 2024-03-05 | 2026-03-05 |
| | **1-18 GHz** | | | | |
| 86408 | Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz | ETS Lindgren | 3117 | 2023-06-19 | 2025-06-19 |
| | **18-40 GHz** | | | | |
| 91186 | Horn Antenna, 18-26GHz | Antenna Research Associates | MWH-1826/B | 2024-05-16 | 2025-05-16 |
| | **Gain-Loss Chains** | | | | |
| 91975 | Gain-loss string: 0.009-30MHz | Various | Various | 2024-05-10 | 2025-05-31 |
| 91978 | Gain-loss string: 25-1000MHz | Various | Various | 2024-05-10 | 2025-05-31 |
| 91977 | Gain-loss string: 1-18GHz | Various | Various | 2024-07-17 | 2025-07-31 |
| 136042 | Gain-loss string: 18-40GHz | Various | Various | 2024-05-10 | 2025-05-31 |
| | **Receiver & Software** | | | | |
| 206496 | Spectrum Analyzer | Rohde & Schwarz | ESW44 | 2024-08-29 | 2025-08-29 |
| 72823 | Spectrum Analyzer | Agilent | E4446A | 2024-06-30 | 2025-06-30 |
| 81018 | Spectrum Analyzer | Agilent | E4446A | 2024-07-31 | 2025-07-31 |
| SOFTEMI | EMI Software | UL | Version 9.5 (18 Oct 2021) | | |
| | **Additional Equipment used** | | | | |
| 200540 | Environmental Meter | Fisher Scientific | 15-077-963 | 2023-07-19 | 2025-07-19 |

Note: All equipment was in calibration at the time of test.


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Test Equipment Used - mmWave Test Equipment (Morrisville – Chamber 3)

| Equip. ID | Description | Manufacturer/Brand | Model Number | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| | **18-40 GHz** | | | | |
| 204908 | Horn Antenna, 26.5-40GHz | Com Power | AH-640 | 2025-02-28 | 2026-02-28 |
| 240019 | 18-40GHz Amplifier | Amplical | AMP18G40-50 | 2025-04-24 | 2026-04-24 |
| | **40-50 GHz** | | | | |
| 206209 | Standard Gain Horn, 40-50GHz | Custom Microwave Inc. | HO22R | 2025-02-28 | 2026-02-28 |
| 205910 | Low Noise Amplifier | Eravant | SBL-3335033040-2222-E1 | 2025-04-25 | 2026-04-25 |
| 207949 | Band Pass Filter | Eravant | SWF-4510460-2F2F-B1 | 2025-04-25 | 2026-04-25 |
| | **50-75 GHz** | | | | |
| 206203 | Standard Gain Horn, 50-75GHz | Custom Microwave Inc. | HO15R | 2025-02-28 | 2026-02-28 |
| 206607 | WR15 Downconverter | VDI | WR15.0SAX-F | 2025-04-24 | 2026-04-24 |
| 170553 | WR15 Downconverter | OML | C15H1DC01 | 2024-09-12 | 2025-09-12 |
| | **75-110 GHz** | | | | |
| 206222 | Standard Gain Horn, 75-110GHz | Custom Microwave Inc. | HO10R | 2025-02-28 | 2026-02-28 |
| 207249 | WR10 Downconverter | VDI | WR10.0SAX-F | 2025-04-24 | 2026-04-24 |
| 205913 | Low Noise Amplifier | Eravant | SBL-7531142050-1010-E1 | 2025-04-28 | 2026-04-28 |
| | **110-170 GHz** | | | | |
| 206242 | Standard Gain Horn, 110-170GHz | Custom Microwave Inc. | HO6R | 2025-02-28 | 2026-02-28 |
| 206555 | WR6.5 Downconverter | VDI | WR6.5SAX-F | 2025-04-24 | 2026-04-24 |
| 205912 | Low Noise Amplifier | Eravant | SBL-1141741860-0606-E1 | 2025-05-01 | 2026-05-01 |
| | **170-260 GHz** | | | | |
| 206244 | Standard Gain Horn, 170-260GHz | Custom Microwave Inc. | HO4R | 2025-02-28 | 2026-02-28 |
| 206556 | WR4.3 Downconverter | VDI | WR4.3SAX-F | 2025-04-24 | 2026-04-24 |
| | **Receiver & Software** | | | | |
| 206459 | Spectrum Analyzer | Rohde & Schwarz | FSW50 | 2024-12-23 | 2025-12-23 |
| mmWave | mmWave Software | UL | V2022.7.29 | | |
| SOFTEMI | EMI Software | UL | Version 9.5 (04 Mar 2021) | | |
| | **Additional Equipment used** | | | | |
| 207161 | Signal Generator | Rohde and Schwarz | SMA100B | 2024-07-11 | 2025-07-11 |
| 80814 | Diode Detector, 0.01-33GHz | Agilent | 8474C | NA | NA |
| 239539 | Environmental Meter | Fisher Scientific | 15-077-963 | 2023-07-19 | 2025-07-19 |


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| Equip. ID | Description | Manufacturer/Brand | Model Number | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| 208201 | 350 MHz High-Definition Oscilloscope | Teledyne Lecroy | HDO6034A | 2025-01-13 | 2026-01-13 |
| 211004 | 200 MHz Low-Noise Voltage Amplifier | Femto | HVA-200M-40-B | NA | NA |

Test Equipment Used - Wireless Conducted Measurement Equipment

| Equipment ID | Description | Manufacturer | Model Number | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| | **Conducted Room 1** | | | | |
| 207726 | Temp/Humid Chamber | Thermotron | SM-32-8200 | 2025-01-15 | 2026-01-15 |
| 179892 | Environmental Meter | Fisher Scientific | 15-077-963 | 2024-08-12 | 2025-08-12 |
| 92852 | CW-AC Power Source | Ametek | CW2501 | NA | NA |
| 214284 | Spectrum Analyzer | Rohde & Schwarz | FSW50 | 2025-03-14 | 2026-03-14 |
| 206203 | Standard Gain Horn, 50-75GHz | Custom Microwave Inc. | HO15R | 2025-02-28 | 2026-02-28 |
| 170553 | WR15 Downconverter | OML | C15H1DC01 | 2024-09-12 | 2025-09-12 |
| 207161 | Signal Generator | Rohde and Schwarz | SMA100B | 2024-07-11 | 2025-07-11 |

Test Equipment Used – AC Line Conducted Measurement Equipment

| Equipment ID | Description | Manufacturer | Model Number | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| | **Conducted Room 1** | | | | |
| 72095 | LISN, 50-ohm/50-uH, 2-conductor, 25A | Fischer Custom Com. | FCC-LISN-50-25-2-01-550V | 2024-08-01 | 2025-08-01 |
| 75141 | EMI Test Receiver 9kHz-7GHz | Rohde & Schwarz | ESCI 7 | 2024-08-01 | 2025-08-01 |
| 52859 | Transient Limiter, 0.009-100MHz | Electro-Metrics | EM-7600 | 2025-04-17 | 2026-04-17 |
| 84681 | ANSI C63.4 1m extension cable. | UL | Per Annex B of ANSI C63.4 | 2025-04-17 | 2026-04-17 |

Note: All equipment was in calibration at the time of test.


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# 8. SUMMARY TABLE

| FCC Section | RSS Section | Test Description | Test Limit | Test Result |
|---|---|---|---|---|
| 15.255 (e) | RSS-210 J.3.3 d)<br>RSS-Gen 6.7 | Occupied Bandwidth<br>(6dB / 99%) | N/A | Complies |
| 15.255 (c) (2) (v) | RSS-210 J.3.2 a) | EIRP<br>FDS/Radar<br>(61.0-61.5GHz) | From 61-61.5GHz:<br>43 dBm<br>(Peak)<br><br>40 dBm<br>(Average)<br><br>From 57-71GHz, outside 61-61.5GHz:<br>13 dBm<br>(Peak)<br><br>10 dBm<br>(Average) | Complies |
| 15.255 (e) | RSS-210 J.4 (b),<br>J.4 (a) | Conducted Power<br>(non-FDS/Radar) | 500 mW<br>(Peak) | Complies |
| 15.255 (d) | RSS-210 J.4, J.5 | Spurious Emissions<br>< 40GHz | FCC 15.209<br>RSS-Gen | Complies |
| 15.255 (d) | RSS-210 J.4, J.5 | Spurious Emissions<br>40 – 200GHz | 90 pW/cm$^2$ | Complies |
| 15.255 (f) | RSS-210 J.6 | Frequency Stability | Within Band | Complies |
| 15.255 (h) | RSS-210 J.7 | Group installation | No Beam Forming /<br>Phase Locking | Complies |
| 15.207 | RSS-Gen 7.2 | AC Power<br>LineConducted<br>Emissions | FCC 15.207<br>RSS-Gen | Complies |


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# 9. APPLICABLE LIMITS AND TEST RESULTS

## 9.1. FAR-FIELD DISTANCE AND MEASUREMENT DISTANCE

The measurement distance is in the far field per formula $2D^2/\lambda$ where D is the largest dimension of the antenna.

For fundamental / band edge emissions, the largest far-field distance of either the EUT antenna or measurement antenna shall be used. In this case, the measurement antenna has the largest far-field distance. For above 18 GHz spurious emissions, the far-field distance shall be based on the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest EIRP reading on the receive spectrum analyzer.

| Frequency Range (GHz) | Wavelength (m) | Rx Antenna Diagonal dim. (m) | Far Field Distance (m) | Measurement Distance Used (m) |
|---|---|---|---|---|
| 40-50 | 0.0060 | 0.069 | 1.61 | 3.00 |
| 50-75 | 0.0040 | 0.046 | 1.05 | 3.00 |
| 75-110 | 0.0027 | 0.031 | 0.70 | 3.00 |
| 110-170 | 0.0018 | 0.02 | 0.46 | 3.00 |
| 170-200 | 0.0012 | 0.013 | 0.31 | 3.00 |

Radiated spurious emissions limits above 40 GHz are based on a 3-meter measurement distance. As such, testing from 40-200 GHz was performed at 3-meters.

In-band testing was performed at a 3-meter distance, which was still in the far-field based on the maximum EUT / measurement antenna dimension.

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst-case polarization/positioning. The worse-case orientation of the EUT was with the front fact facing the RX antenna, which was polarized vertically. Refer to test setup photos exhibit for details.


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## 9.2. DUTY CYCLE

**REQUIREMENT**

None; for reporting purposes only.

**TEST PROCEDURE**

The fundamental is measured using a Standard Gain Horn Antenna, Low Noise Amplifier and a Diode Detector connected to an Oscilloscope. Pulse widths, burst lengths, and periods are measured, then the duty cycle is calculated.

**RESULTS**

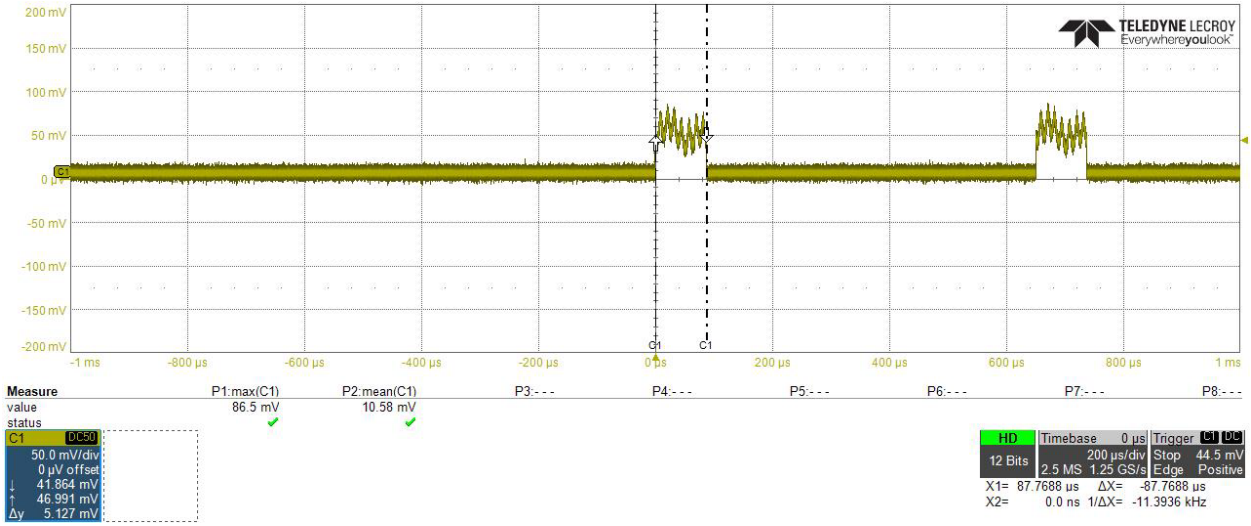
Duty cycle linear = On Time / Period
Duty cycle % = Duty cycle linear * 100

| Burst On Time (ms) | Burst Period (ms) | Chirp On Time (us) | Chirp Period (us) | total DC (%) |
|---|---|---|---|---|
| 10.520 | 40.050 | 87.769 | 648.532 | 3.555 |

**TESTED BY**

Employee IDs: 23854
Test Dates: 2025-05-12
Test Location: Chamber 3

Chirp On Time





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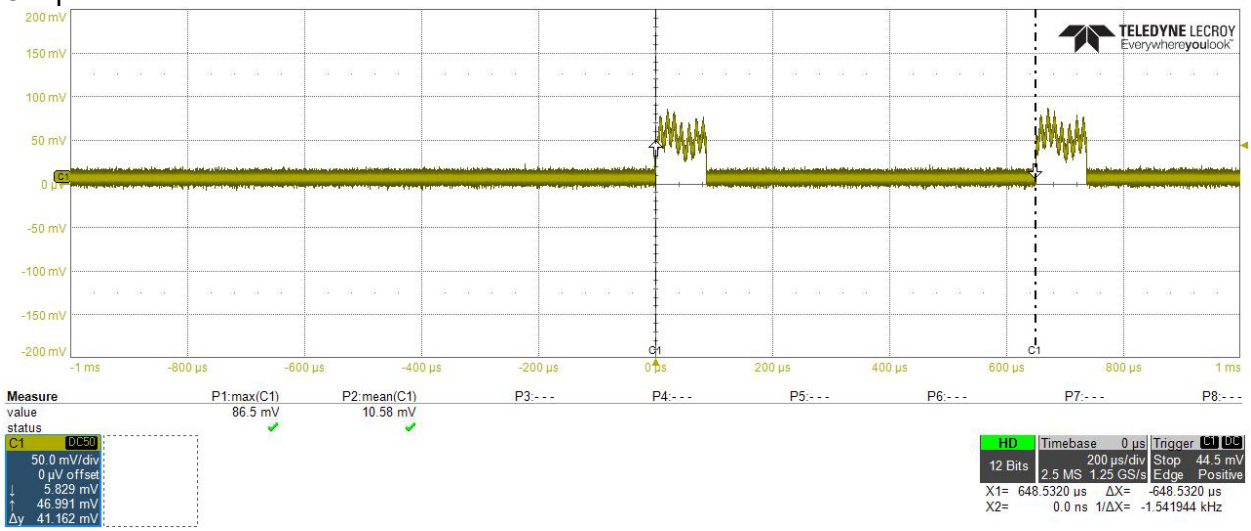
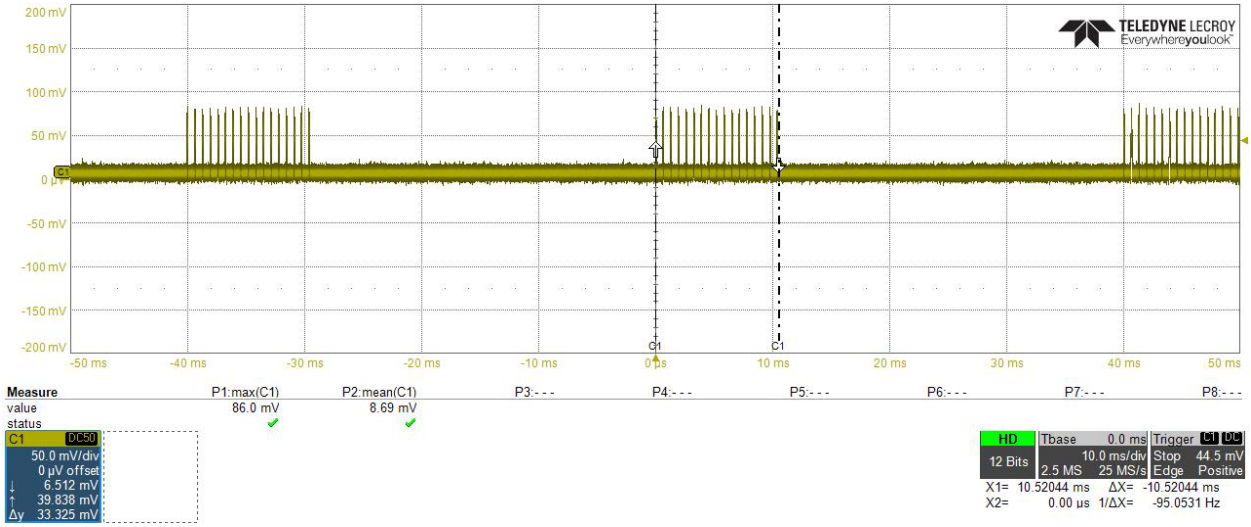
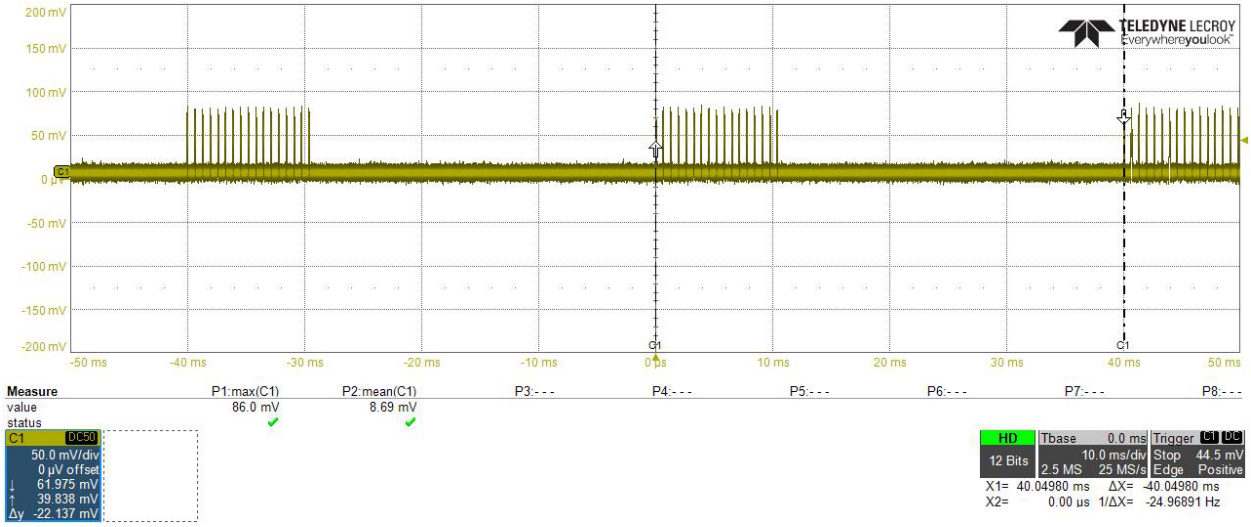
## Chirp Period




## Frame On Time




## Frame Period



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## 9.3. 99% BANDWIDTH

**REQUIREMENT**

§15.255 (e) (2) / RSS-210 Clause J.3.3 d)

Devices other than field disturbance sensors/radars with an emission bandwidth of less than 100 megahertz must limit their peak transmitter conducted output power to the product of 500 mW times their emission bandwidth divided by 100 megahertz. For the purposes of this paragraph, emission bandwidth is defined as the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kilohertz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation (*e.g.,* for frequency hopping devices).

§15.255 (c) (3) / RSS-210 Clause J.3.2 c)

For pulsed field disturbance sensors/radars operating in the 57-64 GHz band that have a maximum pulse duration of 6 ns, the average EIRP shall not exceed 13 dBm and the transmit duty cycle shall not exceed 10% during any 0.3 μs time window. In addition, the average integrated EIRP within the frequency band 61.5-64.0 GHz shall not exceed 5 dBm in any 0.3 μs time window. Peak emissions shall not exceed 20 dB above the maximum permitted average emission limit applicable to the equipment under test. The radar bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna.

§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.

**TEST PROCEDURE**

The spectrum analyzer and external mixer are set up to measure the radiated output of the transmitter. Refer to C63.10, Clause 9 for details.


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## RESULTS

| 99% Bandwidth (MHz) | F Low (GHz) | F High (GHz) |
|---|---|---|
| 493.894 | 61.002 | 61.496 |

## TESTED BY

Employee IDs: 23854
Test Dates: 2025-05-12
Test Location: Chamber 3

## 99% BANDWIDTH

10:02:12 AM 05/12/2025


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## 9.4. RADIATED POWER

**REQUIREMENT**

**FCC**

§15.255 (c) (2) (v) ***61.0-61.5 GHz:*** For field disturbance sensors/radars that occupy 500 MHz bandwidth or less that are contained wholly within the frequency band 61.0-61.5 GHz, the average power of any emission, measured during the transmit interval, shall not exceed 40 dBm, and the peak power of any emission shall not exceed 43 dBm. In addition, the average power of any emission outside of the 61.0-61.5 GHz band, measured during the transmit interval, but still within the 57-71 GHz band, shall not exceed 10 dBm, and the peak power of any emission shall not exceed 13 dBm.

**ISED**

RSS-210 Clause J.3.2

FDS devices operating in the 57-71 GHz band shall not exceed –10 dBm peak transmitter conducted output power and 10 dBm peak e.i.r.p. The following exceptions apply:

(a) FDS devices that occupy a bandwidth of 500 MHz or less and where this bandwidth is contained wholly within the frequency band 61.0-61.5 GHz shall comply with the following limits: the equipment shall not exceed 40 dBm average e.i.r.p. and 43 dBm peak e.i.r.p. in the 61.0-61.5 GHz band. In addition, the average and peak e.i.r.p. of any emission outside of the band 61.0-61.5 GHz, but still within the band 57-71 GHz, shall not exceed 10 dBm average e.i.r.p. and 13 dBm peak e.i.r.p.


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**TEST PROCEDURE**

ANSI C63.10-2020 Clause 9

The measured power level is converted to EIRP using ANSI C63.10 Eqs. (22) and (23):

Calculate the EIRP from the radiated measurement in the far-field using Equation (22):

$$EIRP = 21.98 - 20\log(\lambda) + 20\log(d_{Meas}) + P - G \quad (22)$$

where

| | |
|---|---|
| $EIRP$ | is the equivalent isotropic radiated power, in dBm |
| $\lambda$ | is the wavelength of the emission under investigation [300/$f$(MHz)], in m |
| $d_{Meas}$ | is the measurement distance, in m |
| $P$ | is the power measured at the output of the measurement antenna, in dBm |
| $G$ | is the gain of the measurement antenna, in dBi |

NOTE—The measured power P includes all applicable instrument correction factors up to the connection to the measurement antenna.

Calculate the EIRP from the conducted power using Equation (23):

$$EIRP = P_{Cond} + G_{EUT} \quad (23)$$

where

| | |
|---|---|
| $EIRP$ | is the equivalent isotropic radiated power, in dBm |
| $P_{Cond}$ | is the measured power at feedpoint of the EUT antenna, in dBm |
| $G_{EUT}$ | is the gain of the EUT radiating element (antenna), in dBi |

**FMCW CORRECTION FACTOR CALCULATION**

FMCW correction factor (equation L.1) is calculated using guidance from C63.10 2020 Annex L.

FMCW correction factor (Equation L.1) is calculated as follows:

$$\alpha = \frac{1}{\sqrt{1 + \left(\frac{2\ln(2)}{\pi}\right)^2 \left(\frac{BW_{Chirp}}{T_{Chirp} B^2}\right)^2}}$$

where

| | |
|---|---|
| α | is the reduction in amplitude |
| $BW_{Chirp}$ | is the FMCW Chirp Bandwidth |
| $T_{Chirp}$ | is the FMCW Chirp Time |
| $B$ | is the 3 dB IF Bandwidth = RBW |


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**FAR FIELD BOUNDARY CALCULATIONS**

The far-field boundary is given in ANSI C63.10-2020 Clause 9.1.4 as:

$R_{far\ field} = 2D^2 / \lambda$

where:

D = Largest Antenna Dimension, including the reflector, in meters
$\lambda$ = wavelength in meters

| Frequency (GHz) | L (m) | Lambda (m) | R (Far Field) (m) |
|---|---|---|---|
| 61.5 | 0.0065 | 0.0049 | 0.0173 |


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**RESULTS**

Peak Power of fundamental emission

| Measured Pk Power (dBm) | FMCW correction factor (dB) | Corrected Pk Power (dBm) | Pk Power Limit (dBm) | Limit Margin (dB) |
|---|---|---|---|---|
| -0.12 | -4.28 | 4.16 | 43 | -38.84 |

Average Power of fundamental emission

| Average Power (dBm) | Average Power Limit (dBm) | Limit Margin (dB) |
|---|---|---|
| -13.13 | 40 | -53.13 |

Peak Power within band but outside of 61.0 – 61.5 GHz

| Pk Power (dBm) | Pk Power Limit (dBm) | Limit Margin (dB) |
|---|---|---|
| -14.51 | 13 | -21.51 |

Average Power within band but outside of 61.0 – 61.5 GHz

| Pk Power (dBm) | Average Power Limit (dBm) | Limit Margin (dB) |
|---|---|---|
| -14.51 | 10 | -24.51 |

**TESTED BY**

Employee IDs: 23854
Test Dates: 2025-05-12
Test Location: Chamber 3


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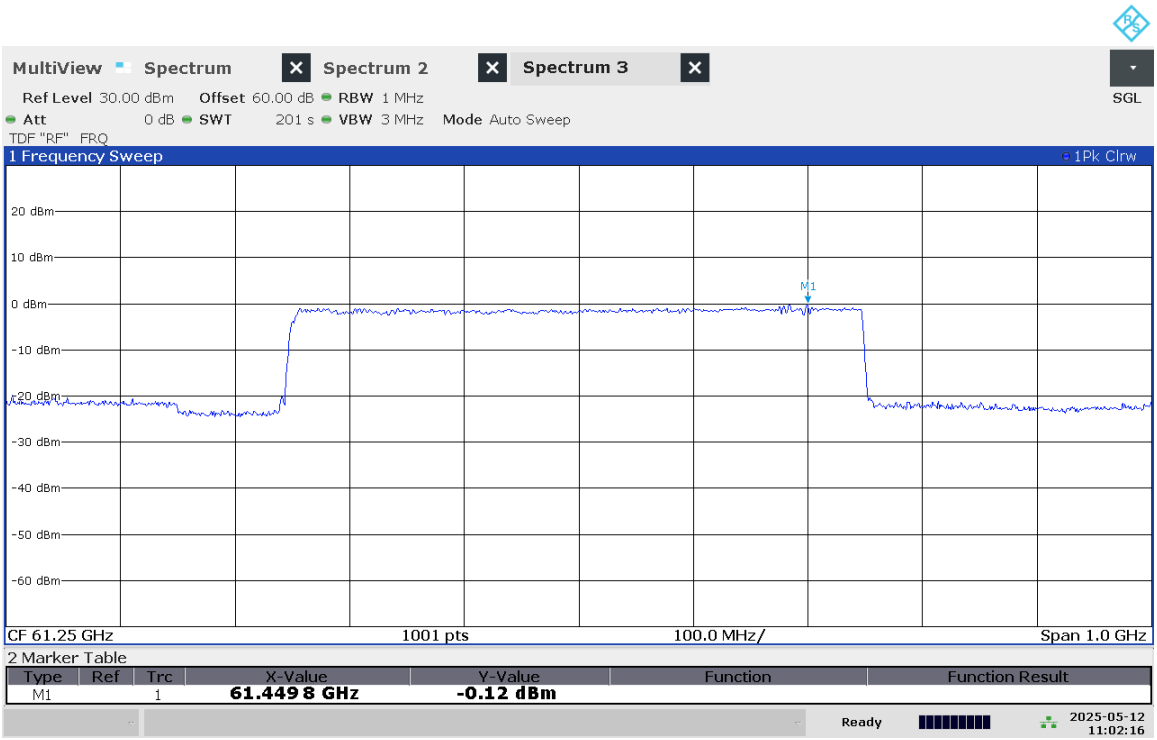
## RESULTS

Fundamental Emission Peak Power

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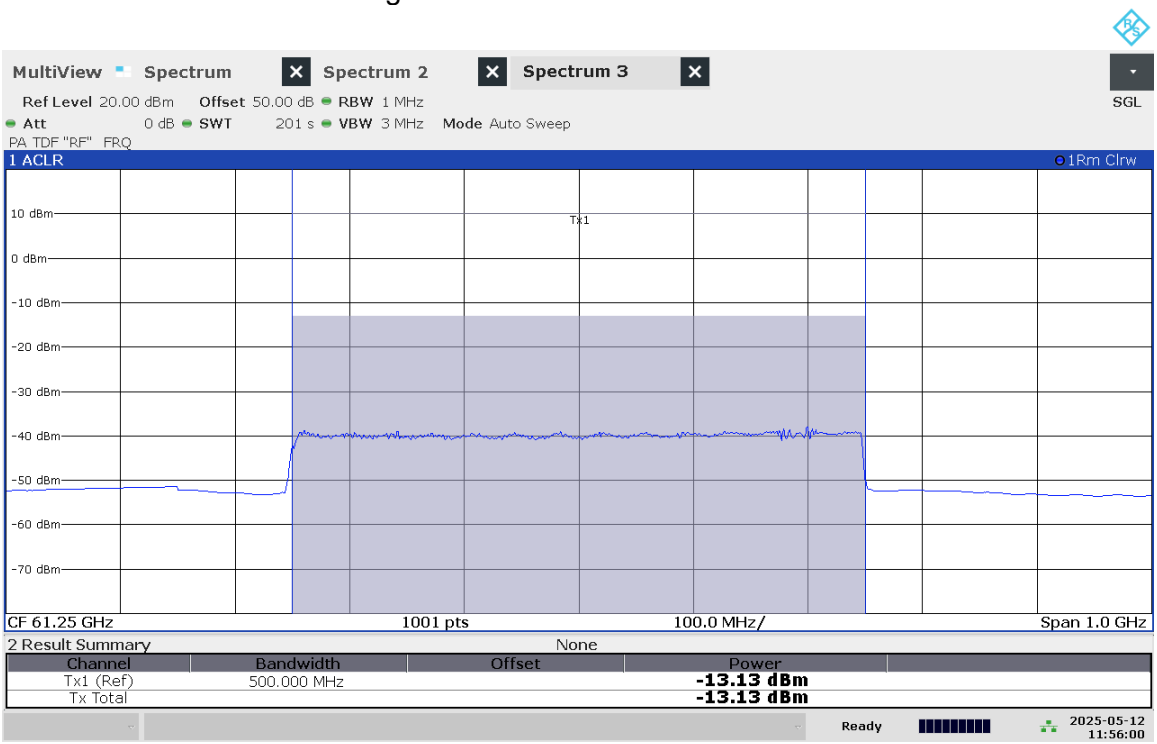
Fundamental Emission Average Power

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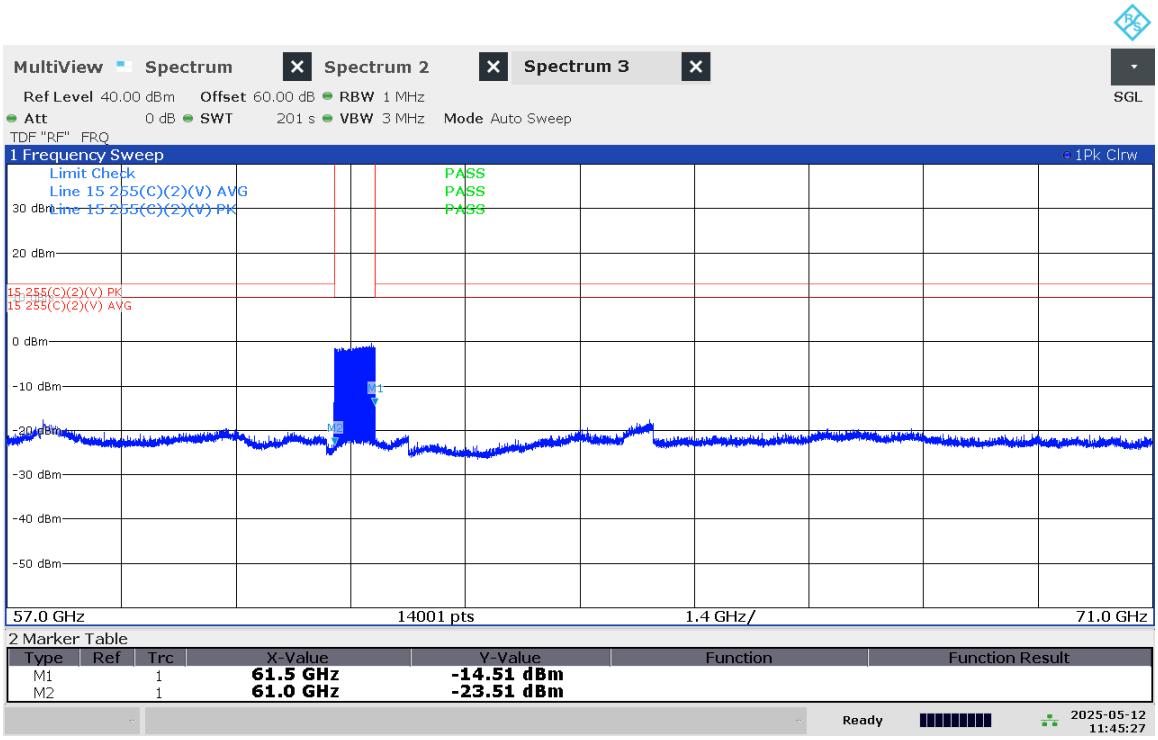
Peak and Average Power with 57.0-71.0 GHz but outside of 61.0-61.5 GHz

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## 9.5. CONDUCTED OUTPUT POWER

**REQUIREMENT**

**FCC**

§15.255 (e)

(1) Except as specified in paragraph (e)(2) of this section, the peak transmitter conducted output power of devices other than field disturbance sensors/radars shall not exceed 500 mW. Depending on the gain of the antenna, it may be necessary to operate the intentional radiator using a lower peak transmitter output power in order to comply with the EIRP limits specified in paragraph (c) of this section.

(2) Devices other than field disturbance sensors/radars with an emission bandwidth of less than 100 megahertz must limit their peak transmitter conducted output power to the product of 500 mW times their emission bandwidth divided by 100 megahertz. For the purposes of this paragraph, emission bandwidth is defined as the instantaneous frequency range occupied by a steady state radiated signal with modulation, outside which the radiated power spectral density never exceeds 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kilohertz resolution bandwidth spectrum analyzer. The center frequency must be stationary during the measurement interval, even if not stationary during normal operation (*e.g.,* for frequency hopping devices).

**ISED**

RSS-210 Clause J.3.3

c) Except as specified in J.3.3(d), the peak transmitter conducted output power shall not exceed 500 mW. Depending on the gain of the antenna, it may be necessary to operate the intentional radiator using a lower peak transmitter output power in order to comply with the e.i.r.p. limits specified in J.3.3(a) and J.3.3(b).

d) For devices with an emission bandwidth less than 100 MHz, the peak transmitter conducted output power (PTCOP) shall be less than or equal to the product of 500 mW times their emission bandwidth divided by 100 MHz. For the purpose of J.3.3(d), emission bandwidth is the instantaneous frequency range occupied by a steady radiated signal with modulation, outside which the radiated power spectral density is 6 dB below the maximum radiated power spectral density in the band, as measured with a 100 kHz resolution bandwidth. The centre frequency shall be stationary during the measurement interval, even if not stationary during normal operation (e.g. for frequency hopping devices).

**TEST PROCEDURE**

The maximum EUT antenna gain is subtracted from the Peak EIRP.


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**RESULTS**

| Peak Power (dBm) | EUT Antenna Gain (dB) | Conducted Power (dBm) | Conducted Power Limit (mW) | Conducted Power Limit (dBm) | Limit Margin (dB) |
|---|---|---|---|---|---|
| 4.16 | 3.50 | 0.66 | 500 | 27.00 | -26.34 |

**TESTED BY**

Employee IDs: 23854
Test Dates: 2025-05-12
Test Location: Chamber 3


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## 9.6. SPURIOUS EMISSIONS

**REQUIREMENT**

**FCC**

§15.255 (e)

(1) The power density of any emissions outside the 57-71 GHz band shall consist solely of spurious emissions.

(2) Radiated emissions below 40 GHz shall not exceed the general limits in § 15.209.

(3) Between 40 GHz and 200 GHz, the level of these emissions shall not exceed 90 pW/cm$^2$ at a distance of 3 meters.

(4) The levels of the spurious emissions shall not exceed the level of the fundamental emission.

**ISED**

RSS-210 Clause J.4

Any emissions outside the band 57-71 GHz shall consist solely of spurious emissions and shall not exceed:

(a) the fundamental emission levels

(b) the general field strength limits specified in RSS-Gen, *General Requirements for Compliance of Radio Apparatus*, for emissions below 40 GHz

(c) 90 pW/cm2 at a distance of 3 m for emissions between 40 GHz and 200 GHz

**TEST PROCEDURE - BELOW 40 GHz**

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1 GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.26 and set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range. Peak detection is used unless otherwise noted as quasi-peak or average.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements.


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For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements; as applicable for linear voltage averaging measurements.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

**TEST PROCEDURE – ABOVE 50 GHz**

ANSI C63.10-2020 Clause 9.10

External harmonic mixers are utilized.

The measurement distance is in the far field per formula $2D^2/\lambda$ where D is the larger dimension of the antenna.

| Frequency Range (GHz) | Wavelength (m) | Rx Antenna Diagonal dim. (m) | Far Field Distance (m) | Measurement Distance Used (m) |
|---|---|---|---|---|
| 40-50 | 0.0060 | 0.069 | 1.61 | 3.00 |
| 50-75 | 0.0040 | 0.046 | 1.05 | 3.00 |
| 75-110 | 0.0027 | 0.031 | 0.70 | 3.00 |
| 110-170 | 0.0018 | 0.02 | 0.46 | 3.00 |
| 170-200 | 0.0012 | 0.013 | 0.31 | 3.00 |

Radiated spurious emissions limits above 40 GHz are based on a 3-meter measurement distance. As such, testing from 40-170GHz was performed at 3-meters. Above 170GHz, testing was performed at a 0.5-meter distance and the data was corrected, accordingly, to the 3-meter limit.

The antenna is scanned around the entire perimeter surface of the EUT, in both horizontal and vertical polarizations.

A final test is made at any frequencies at which emissions are found. During this final scan, the antenna is kept no further from the EUT than the maximum distance calculated for each mixer band that yields a minimum system noise floor at least 6 dB below the spurious emissions limit.

The power is measured, the EIRP is calculated, then the extrapolated power density at a 3 meter distance is calculated.


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The 90 pW/cm$^2$ limit was converted to dBm by the following equation:

$10 * \log(\ 90\ [\ pW/cm^2\ ] * 100^2 * 10^{-12} * 4pi * (3m)^2\ *1000\ ) = -9.92$ dBm

**TESTED BY**

Employee IDs: 23854
Test Dates: 2025-05-12 to 2025-05-19
Test Location: Chamber 3, Chamber 2


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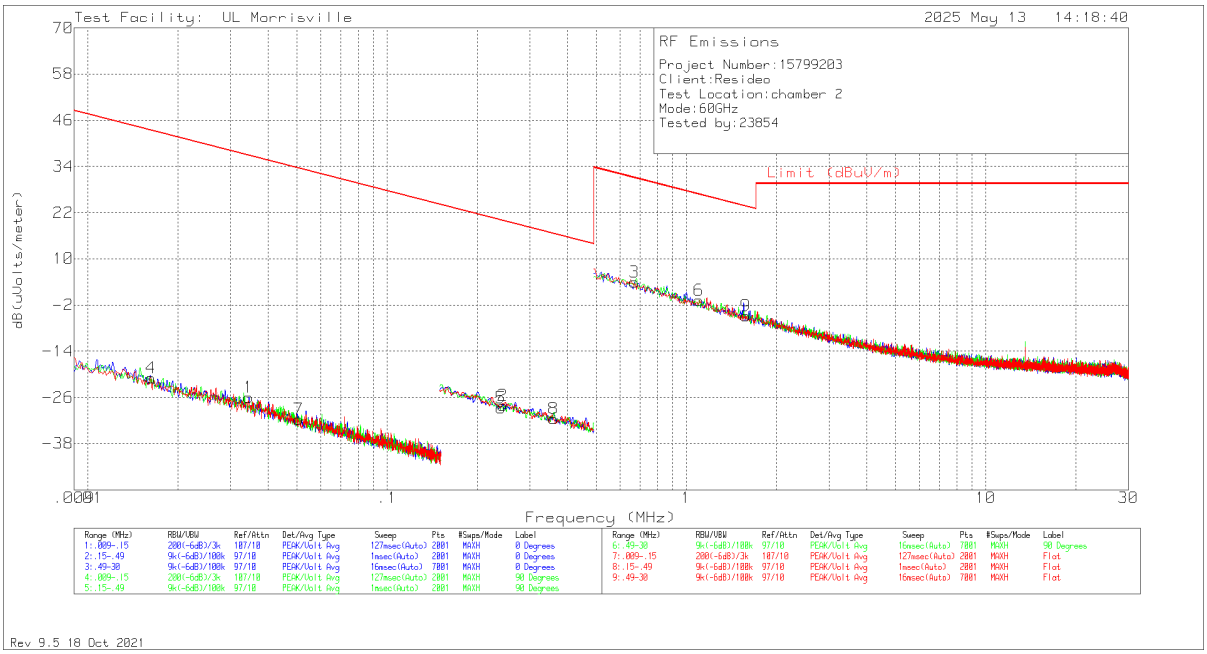
## SPURIOUS EMISSION 9 kHz TO 30 MHz (FCC)




| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | ANT (dB/m) | Gain/Loss (dB) | Dist. Corr. Factor (dB) | Corrected Reading dB(uVolts/meter) | Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Loop Angle |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | .01624 | 43.13 | Pk | 15.8 | .1 | -80 | -20.97 | 43.39 | -64.36 | 0-360 | 90 degs |
| 1 | .03449 | 41.11 | Pk | 12.8 | .1 | -80 | -25.99 | 36.85 | -62.84 | 0-360 | 0 degs |
| 7 | .05068 | 36.7 | Pk | 11.5 | .1 | -80 | -31.7 | 33.51 | -65.21 | 0-360 | Flat |
| 5 | .23993 | 40.27 | Pk | 10.9 | .1 | -80 | -28.73 | 20 | -48.73 | 0-360 | 90 degs |
| 2 | .24401 | 40.96 | Pk | 10.9 | .1 | -80 | -28.04 | 19.86 | -47.9 | 0-360 | 0 degs |
| 8 | .35927 | 37.53 | Pk | 10.9 | .1 | -80 | -31.47 | 16.5 | -47.97 | 0-360 | Flat |
| 3 | .67129 | 32.82 | Pk | 11 | .1 | -40 | 3.92 | 31.07 | -27.15 | 0-360 | 0 degs |
| 6 | 1.10132 | 28.05 | Pk | 11 | .2 | -40 | -.75 | 26.77 | -27.52 | 0-360 | 90 degs |
| 9 | 1.58194 | 23.85 | Pk | 11.1 | .2 | -40 | -4.85 | 23.62 | -28.47 | 0-360 | Flat |

Pk - Peak detector

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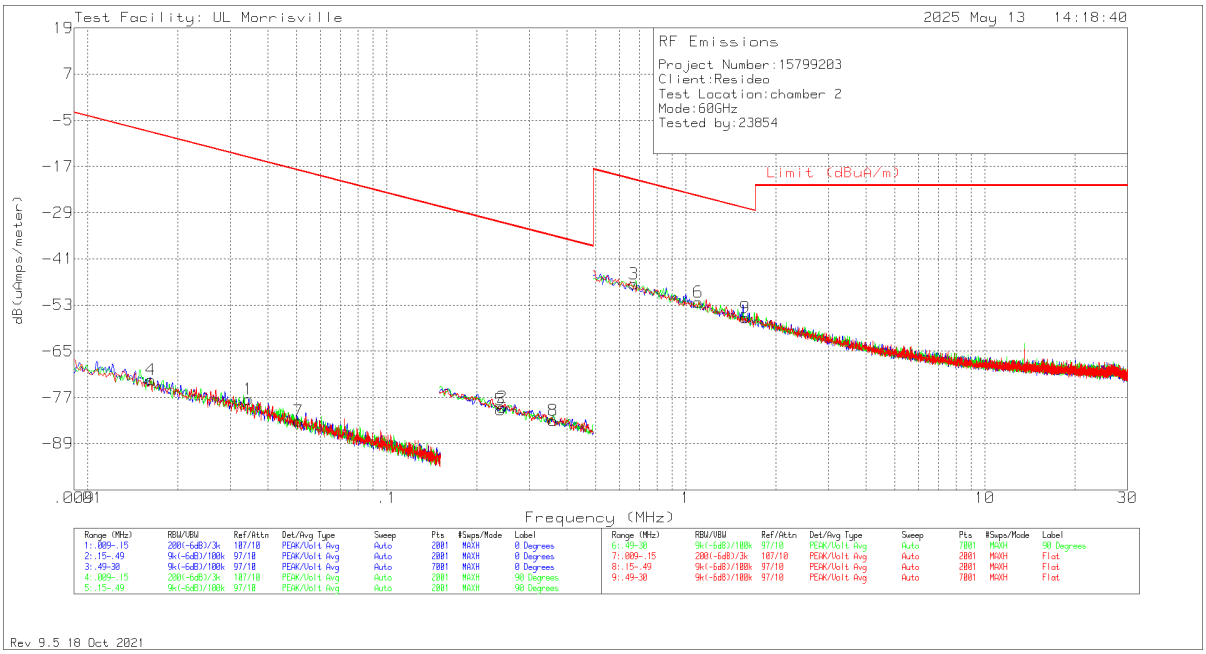
## SPURIOUS EMISSION 9 kHz TO 30 MHz (ISED)




| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | ANT (dB/m) | Gain/Loss (dB) | Dist. Corr. Factor (dB) | Corrected Reading dB(uAmps/meter) | Limit (dBuA/m) | Margin (dB) | Azimuth (Degs) | Loop Angle |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .03449 | 41.11 | Pk | -38.7 | .1 | -80 | -77.49 | -14.65 | -62.84 | 0-360 | 0 degs |
| 2 | .24401 | 40.96 | Pk | -40.6 | .1 | -80 | -79.54 | -31.64 | -47.9 | 0-360 | 0 degs |
| 3 | .67129 | 32.82 | Pk | -40.5 | .1 | -40 | -47.58 | -20.43 | -27.15 | 0-360 | 0 degs |
| 4 | .01624 | 43.13 | Pk | -35.7 | .1 | -80 | -72.47 | -8.11 | -64.36 | 0-360 | 90 degs |
| 5 | .23993 | 40.27 | Pk | -40.6 | .1 | -80 | -80.23 | -31.5 | -48.73 | 0-360 | 90 degs |
| 6 | 1.10132 | 28.05 | Pk | -40.5 | .2 | -40 | -52.25 | -24.73 | -27.52 | 0-360 | 90 degs |
| 7 | .05068 | 36.7 | Pk | -40 | .1 | -80 | -83.2 | -17.99 | -65.21 | 0-360 | Flat |
| 8 | .35927 | 37.53 | Pk | -40.6 | .1 | -80 | -82.97 | -35 | -47.97 | 0-360 | Flat |
| 9 | 1.58194 | 23.85 | Pk | -40.4 | .2 | -40 | -56.35 | -27.88 | -28.47 | 0-360 | Flat |

Pk - Peak detector



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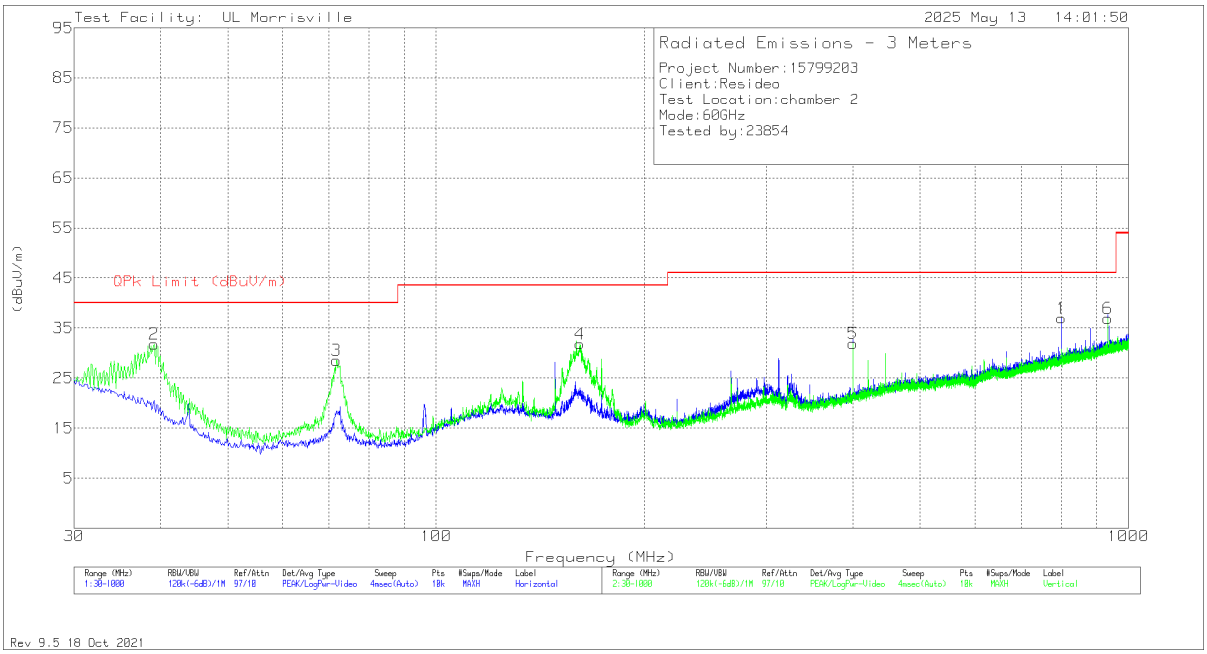
## SPURIOUS EMISSION 30 TO 1000 MHz




| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | 159203 (dB/m) | Gain/Loss (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 39.118 | 42.53 | Pk | 20.9 | -31.6 | 31.83 | 40 | -8.17 | 0-360 | 100 | V |
| 3 | 71.807 | 44.95 | Pk | 14.7 | -31.1 | 28.55 | 40 | -11.45 | 0-360 | 100 | V |
| 4 | 161.435 | 43.45 | Pk | 18.7 | -30.3 | 31.85 | 43.52 | -11.67 | 0-360 | 100 | V |
| 5 | 399.958 | 38.5 | Pk | 22.1 | -28.7 | 31.9 | 46.02 | -14.12 | 0-360 | 100 | V |
| 1 | 799.986 | 36.18 | Pk | 28 | -27.2 | 36.98 | 46.02 | -9.04 | 0-360 | 99 | H |
| 6 | 933.361 | 33.3 | Pk | 29.4 | -25.8 | 36.9 | 46.02 | -9.12 | 0-360 | 100 | V |

Pk - Peak detector



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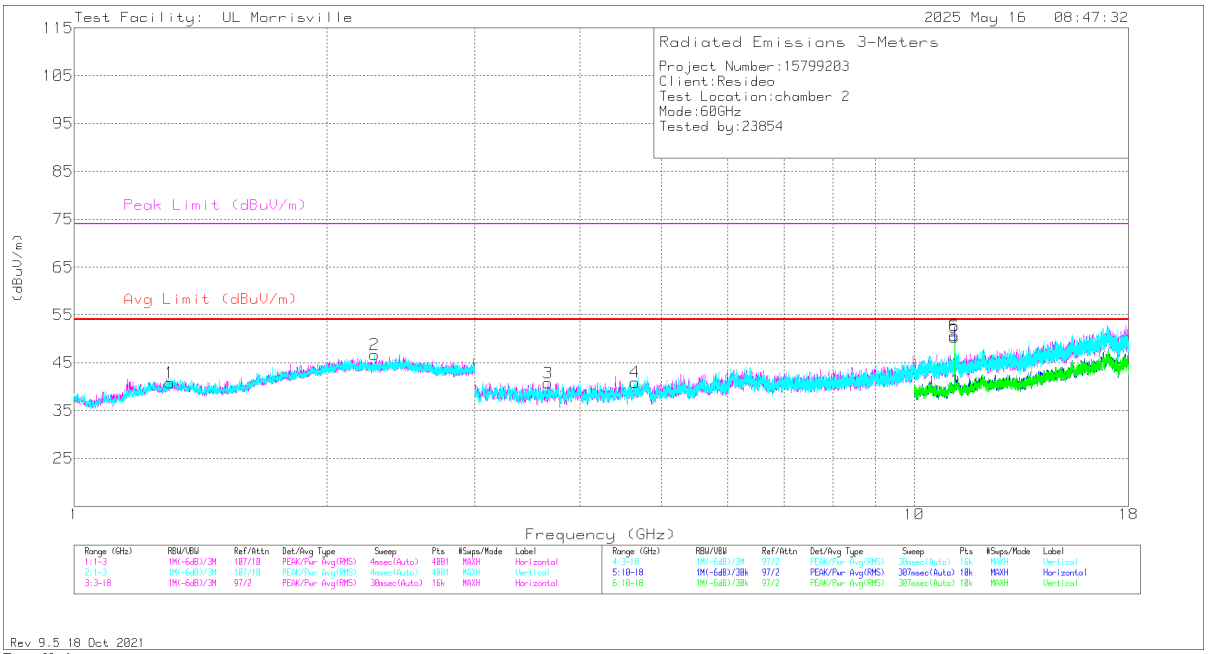
## SPURIOUS EMISSION 1 GHz TO 18 GHz




**Trace Markers**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 86408 (dB/m) | Gain/Loss (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 1.2995 | 34.62 | Pk | 29.4 | -23.2 | 40.82 | 54 | -13.18 | 74 | -33.18 | 0-360 | 200 | H |
| 2 | * 2.2775 | 37.75 | Pk | 32.1 | -23.2 | 46.65 | 54 | -7.35 | 74 | -27.35 | 0-360 | 200 | V |
| 3 | * 3.66469 | 52.03 | Pk | 33.1 | -44.4 | 40.73 | 54 | -13.27 | 74 | -33.27 | 0-360 | 200 | H |
| 5 | * 11.17329 | 67.53 | Pk | 37.8 | -39.2 | 66.13 | - | - | 74 | -7.87 | 86 | 168 | H |
| | * 11.17197 | 35.71 | Av | 37.8 | -39.2 | 34.31 | 54 | -19.69 | - | - | 86 | 168 | H |
| 4 | * 4.65094 | 50.94 | Pk | 34.1 | -44.1 | 40.94 | 54 | -13.06 | 74 | -33.06 | 0-360 | 200 | V |
| 6 | * 11.17289 | 62.03 | Pk | 37.8 | -39.2 | 60.63 | - | - | 74 | -13.37 | 4 | 101 | V |
| | * 11.17288 | 42.21 | Av | 37.8 | -39.2 | 40.81 | 54 | -13.19 | - | - | 4 | 101 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av - Average detection



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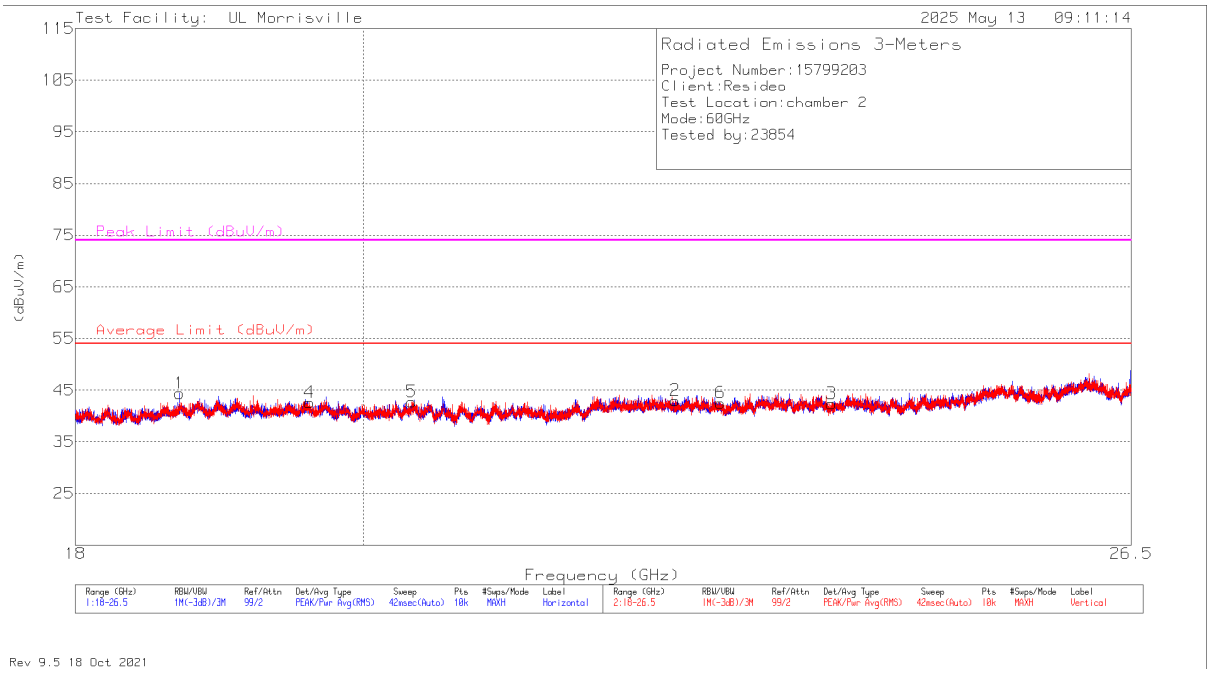
## SPURIOUS EMISSIONS 18 GHz TO 26.5 GHz




| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | 204704 (dB/m) | Gain/Loss (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | * 18.70033 | 49.38 | Pk | 33.1 | -38.1 | 44.38 | 54 | -9.62 | 74 | -29.62 | 0-360 | 101 | H |
| 2 | * 22.42296 | 46.66 | Pk | 34.1 | -37.8 | 42.96 | 54 | -11.04 | 74 | -31.04 | 0-360 | 299 | H |
| 3 | * 23.74458 | 45.29 | Pk | 34.5 | -37.4 | 42.39 | 54 | -11.61 | 74 | -31.61 | 0-360 | 199 | H |
| 4 | * 19.61144 | 47.71 | Pk | 33.2 | -38.3 | 42.61 | 54 | -11.39 | 74 | -31.39 | 0-360 | 251 | V |
| 5 | * 20.36106 | 46.94 | Pk | 33.6 | -37.8 | 42.74 | 54 | -11.26 | 74 | -31.26 | 0-360 | 299 | V |
| 6 | * 22.79692 | 46.02 | Pk | 34.1 | -37.6 | 42.52 | 54 | -11.48 | 74 | -31.48 | 0-360 | 150 | V |

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector



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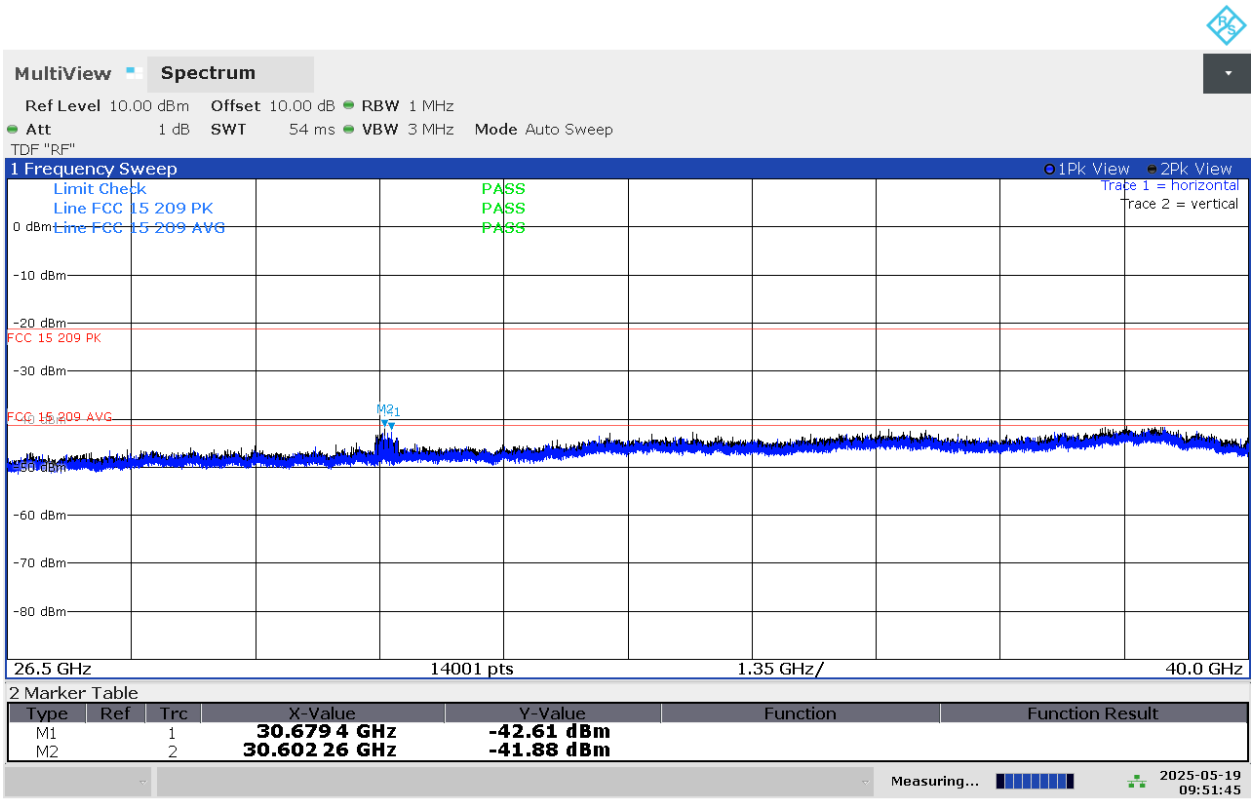
**SPURIOUS EMISSIONS 26.5 GHz TO 40 GHz**

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| Marker | Frequency (GHz) | Detector | Sweep Time (s) | Measured Value (dBm) | Limit (dBuV/m) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1 | 30.66640 | Pk | 201 | -43.13 | 74 | -21.25 | -21.88 |
| | 30.81430 | Avg | 201 | -57.38 | 54 | -41.25 | -16.13 |
| 2 | 30.51836 | Pk | 201 | -41.59 | 74 | -21.25 | -20.34 |
| | 30.81106 | Avg | 201 | -57.38 | 54 | -41.25 | -16.13 |

Note: Markers 1 and 2 in this range are treated as subharmonics of the fundamental emission and are therefore measured using the guidance in C63.10 Annex L


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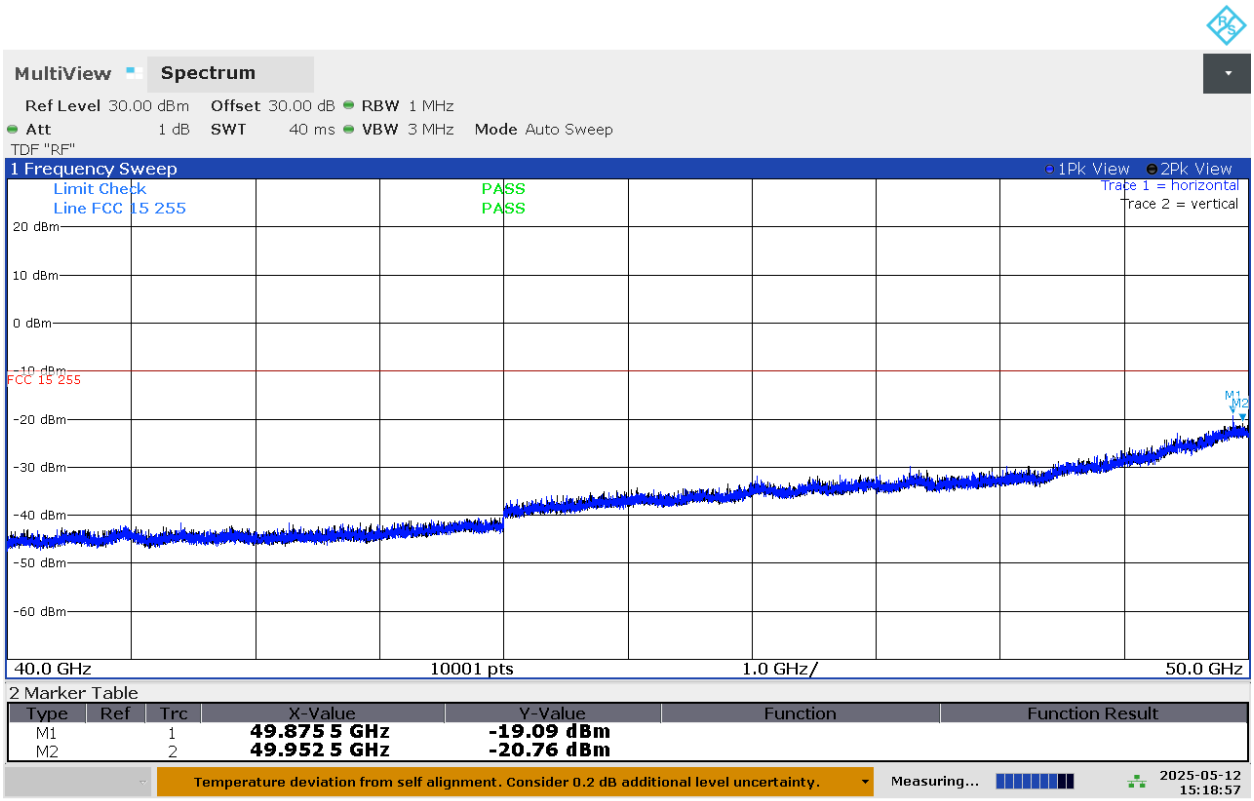
**SPURIOUS EMISSIONS 40 GHz TO 50 GHz**




03:18:57 PM 05/12/2025



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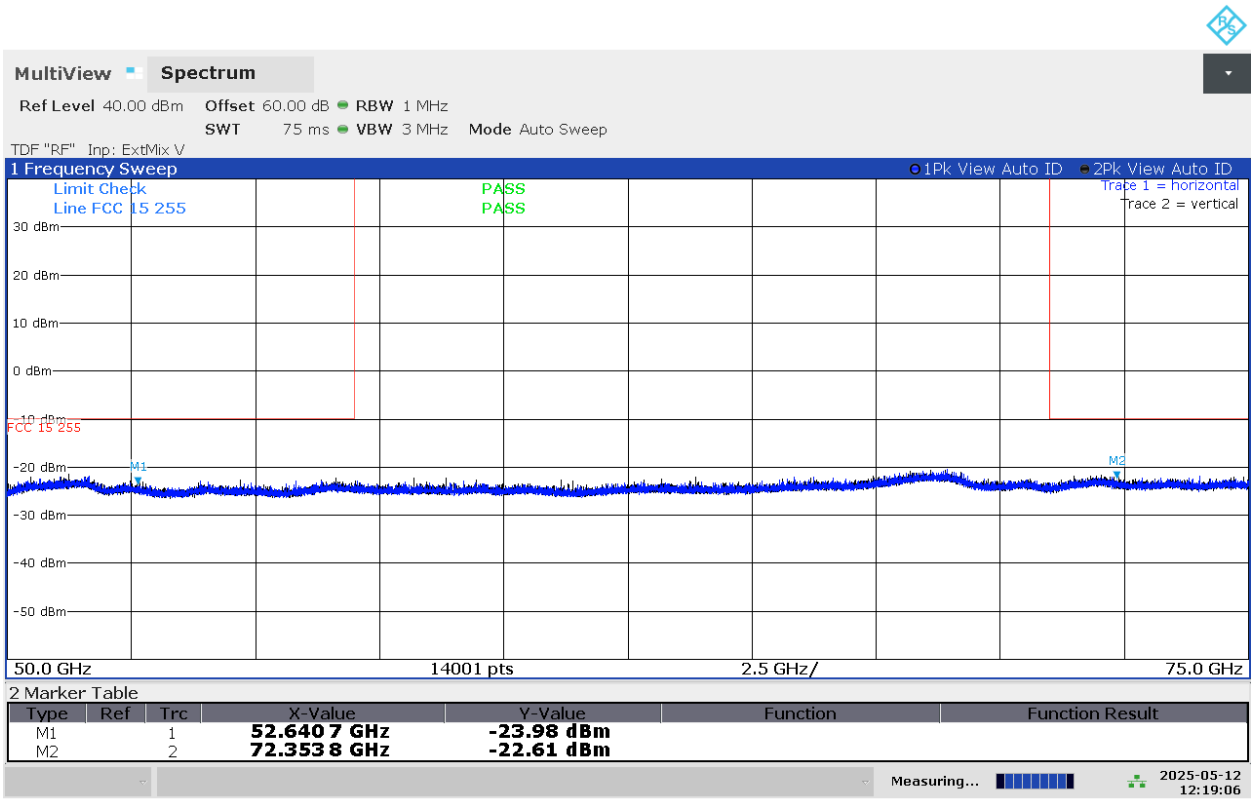
**SPURIOUS EMISSIONS 50 GHz TO 75 GHz**




12:19:06 PM 05/12/2025



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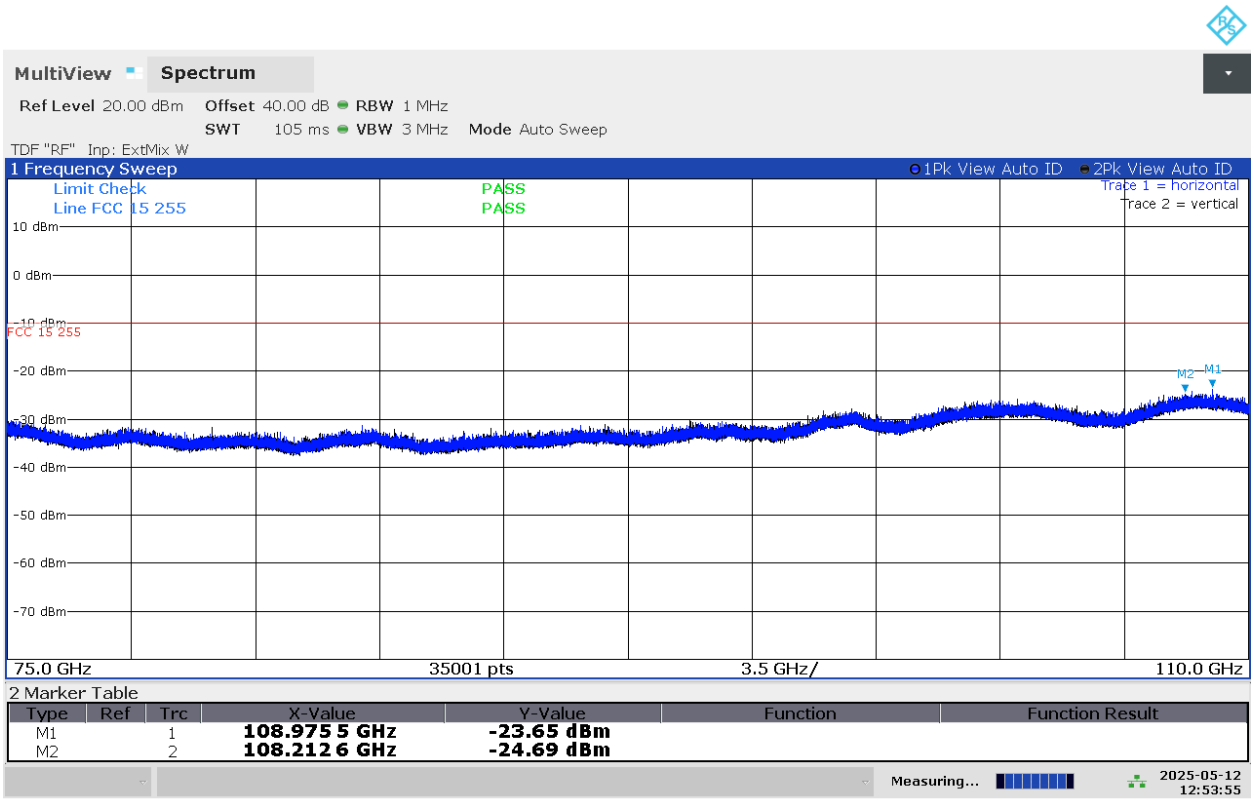
**SPURIOUS EMISSIONS 75 GHz TO 110 GHz**




12:53:55 PM 05/12/2025



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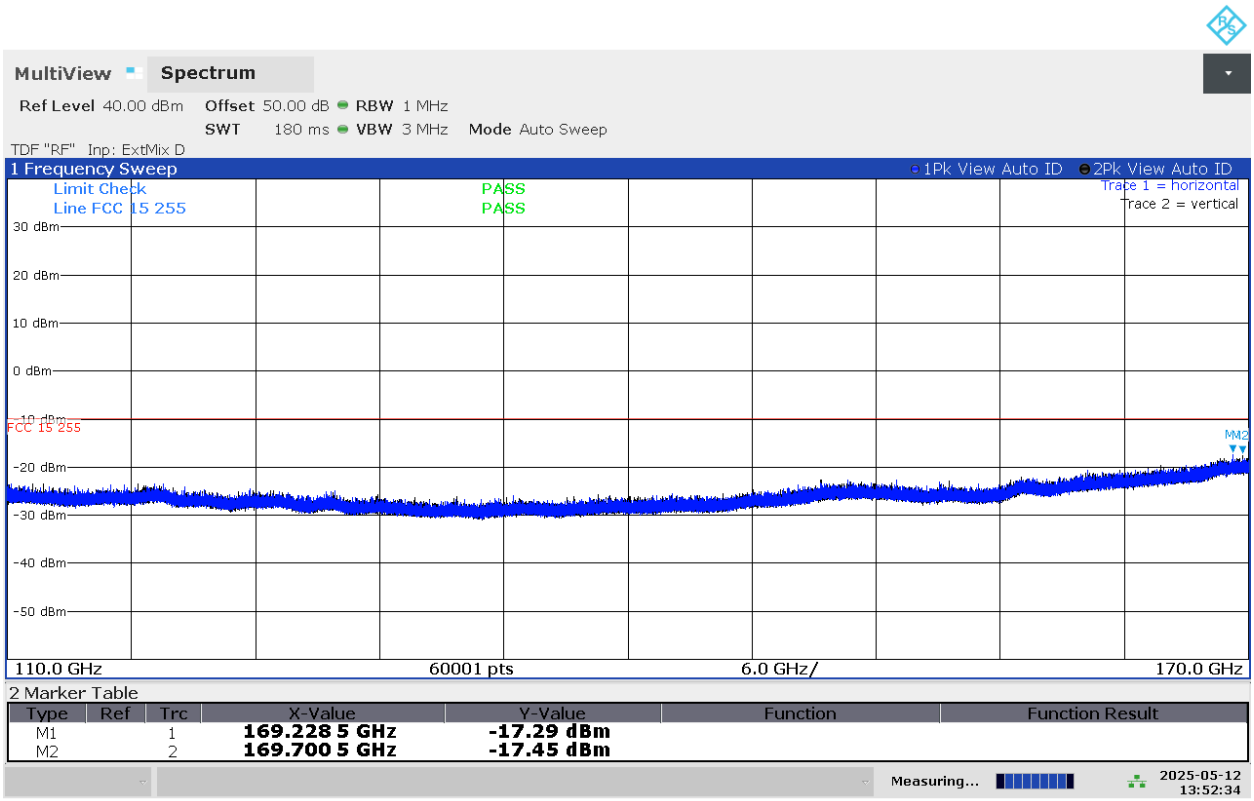
**SPURIOUS EMISSIONS 110 GHz TO 170 GHz**




01:52:34 PM 05/12/2025



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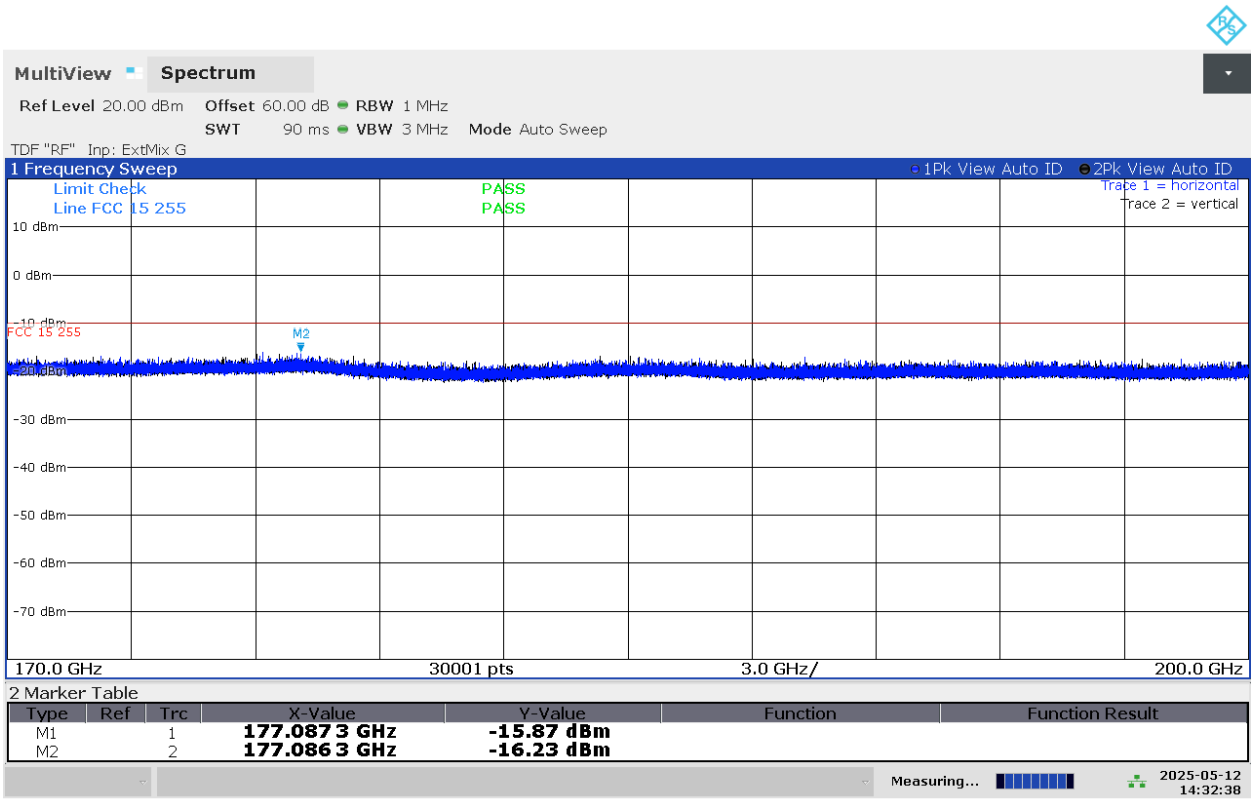
**SPURIOUS EMISSIONS 170 GHz TO 200 GHz**




02:32:38 PM 05/12/2025



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## 9.7. RECEIVER SPURIOUS EMISSIONS

**REQUIREMENT**

The Rx spurious emission limits are the same as the Tx spurious emission limits. All emissions were measured with the transmitters and receivers operating simultaneously. The receiver spurious performance is documented by the transmit spurious results above.


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## 9.8. AC MAINS LINE CONDUCTED EMISSIONS

**REQUIREMENT**

§15.207
RSS-GEN, Section 7.2

| Frequency range | Limits (dBµV) | |
|---|---|---|
| (MHz) | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

Notes:
1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

**TEST PROCEDURE**

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both lines.

**TESTED BY**

Employee IDs: 104463/85502
Test Dates: 2025-05-28
Test Location: COND1


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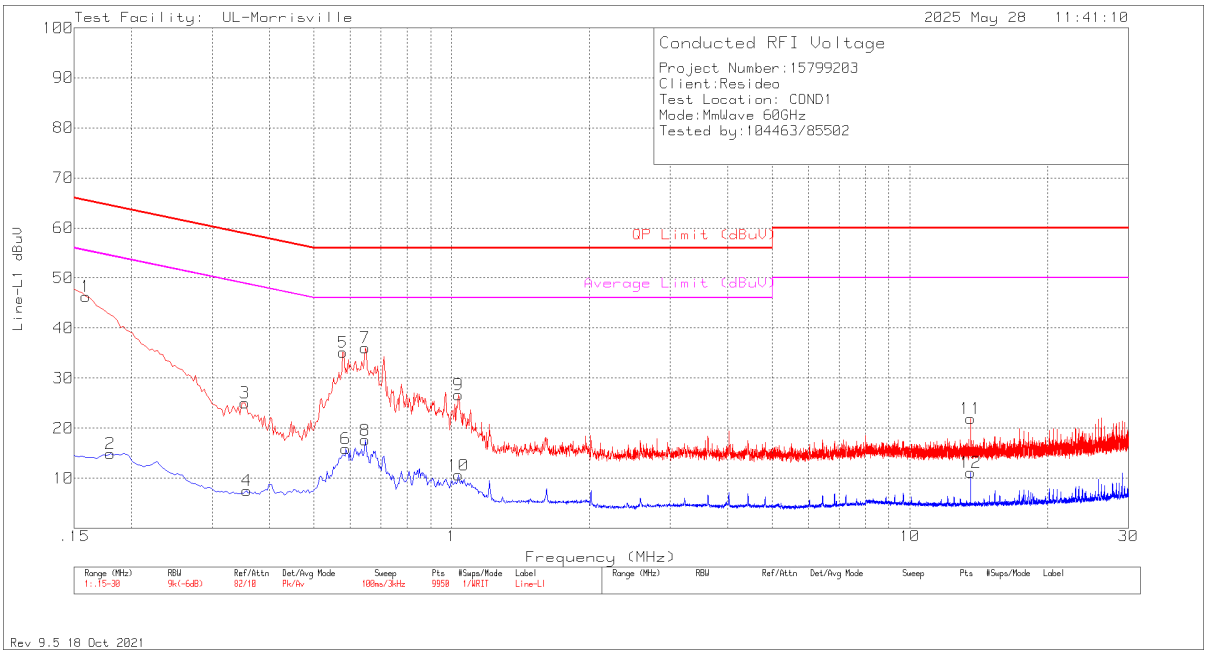
## LINE 1 RESULTS




| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN VDF (dB) | Cbl/Limiter (dB) | Corrected Reading dBuV | QP Limit (dBuV) | Margin (dB) | Average Limit (dBuV) | Margin (dB) |
| | | | | | | | | | | |
| 1 | .159 | 36.38 | Pk | .2 | 9.7 | 46.28 | 65.52 | -19.24 | - | - |
| 2 | .18 | 4.94 | Av | .2 | 9.7 | 14.84 | - | - | 54.49 | -39.65 |
| 3 | .354 | 15.25 | Pk | .1 | 9.7 | 25.05 | 58.87 | -33.82 | - | - |
| 4 | .357 | -2.32 | Av | .1 | 9.7 | 7.48 | - | - | 48.8 | -41.32 |
| 5 | .579 | 25.41 | Pk | 0 | 9.7 | 35.11 | 56 | -20.89 | - | - |
| 6 | .588 | 6.16 | Av | 0 | 9.7 | 15.86 | - | - | 46 | -30.14 |
| 7 | .648 | 26.31 | Pk | 0 | 9.7 | 36.01 | 56 | -19.99 | - | - |
| 8 | .648 | 7.88 | Av | 0 | 9.7 | 17.58 | - | - | 46 | -28.42 |
| 9 | 1.035 | 16.97 | Pk | 0 | 9.7 | 26.67 | 56 | -29.33 | - | - |
| 10 | 1.035 | .88 | Av | 0 | 9.7 | 10.58 | - | - | 46 | -35.42 |
| 11 | 13.563 | 12.05 | Pk | .1 | 9.7 | 21.85 | 60 | -38.15 | - | - |
| 12 | 13.563 | 1.38 | Av | .1 | 9.7 | 11.18 | - | - | 50 | -38.82 |

Pk - Peak detector
Av - Average detection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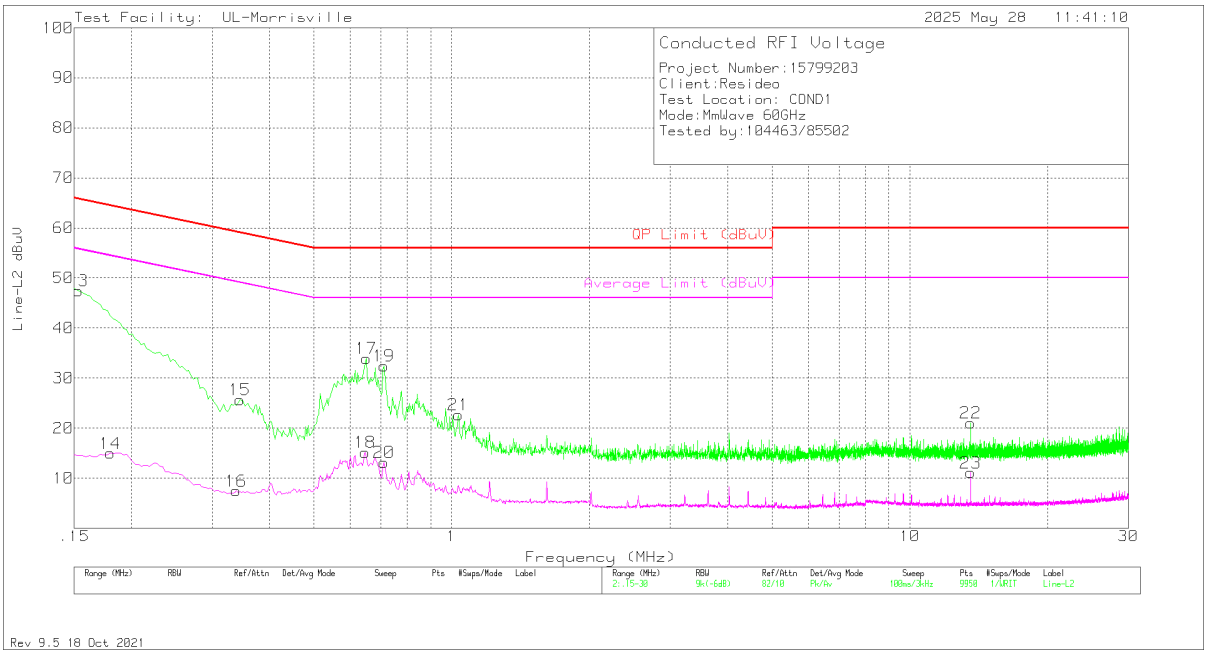
## LINE 2 RESULTS




| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN VDF (dB) | Cbl/Limiter (dB) | Corrected Reading dBuV | QP Limit (dBuV) | Margin (dB) | Average Limit (dBuV) | Margin (dB) |
| | | | | | | | | | | |
| 13 | .153 | 37.58 | Pk | .2 | 9.7 | 47.48 | 65.84 | -18.36 | - | - |
| 14 | .18 | 5.05 | Av | .2 | 9.7 | 14.95 | - | - | 54.49 | -39.54 |
| 16 | .339 | -2.36 | Av | .1 | 9.7 | 7.44 | - | - | 49.23 | -41.79 |
| 15 | .345 | 15.86 | Pk | .1 | 9.7 | 25.66 | 59.08 | -33.42 | - | - |
| 18 | .648 | 5.42 | Av | 0 | 9.7 | 15.12 | - | - | 46 | -30.88 |
| 17 | .651 | 24.24 | Pk | 0 | 9.7 | 33.94 | 56 | -22.06 | - | - |
| 19 | .711 | 22.74 | Pk | 0 | 9.7 | 32.44 | 56 | -23.56 | - | - |
| 20 | .711 | 3.44 | Av | 0 | 9.7 | 13.14 | - | - | 46 | -32.86 |
| 21 | 1.035 | 12.93 | Pk | 0 | 9.7 | 22.63 | 56 | -33.37 | - | - |
| 22 | 13.563 | 11.24 | Pk | .1 | 9.7 | 21.04 | 60 | -38.96 | - | - |
| 23 | 13.563 | 1.27 | Av | .1 | 9.7 | 11.07 | - | - | 50 | -38.93 |

Pk - Peak detector
Av - Average detection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## 9.9. FREQUENCY STABILITY

**REQUIREMENT**

**FCC**

§15.255 (f)
Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation. Equipment is presumed to operate over the temperature range −20 to + 50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise.

**ISED**

RSS-210 Clause J.6
Fundamental emissions shall be contained within the frequency bands specified in this annex during all conditions of operation when tested at the temperature and voltage variations specified for the frequency stability measurement in RSS-Gen.

**TEST PROCEDURE**

ANSI C63.10-2020 Clause 9.5
The radio module is placed in an environmental chamber, with power furnished by an adjustable source. The carrier frequency is counted at each condition and compared with the reference condition.

**RESULTS**

| Temperature (°C) | Input Voltage (Vac) | 99% OBW Upper Frequency (GHz) @ 0 Minutes | 99% OBW Lower Frequency (GHz) @ 0 Minutes | 99% OBW Upper Frequency (GHz) @ 2 Minutes | 99% OBW Lower Frequency (GHz) @ 2 Minutes | 99% OBW Upper Frequency (GHz) @ 5 Minutes | 99% OBW Lower Frequency (GHz) @ 5 Minutes | 99% OBW Upper Frequency (GHz) @ 10 Minutes | 99% OBW Lower Frequency (GHz) @ 10 Minutes | Upper Frequency Limit (GHz) | Lower Frequency limit (GHz) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -20 | 120 | 61.002627 | 61.496898 | 61.002878 | 61.496803 | 61.002686 | 61.496803 | 61.002867 | 61.496785 | 61.0 | 61.5 |
| -10 | 120 | 61.002799 | 61.496803 | 61.002626 | 61.496815 | 61.002787 | 61.496805 | 61.002679 | 61.496869 | 61.0 | 61.5 |
| 0 | 120 | 61.002362 | 61.496845 | 61.002504 | 61.496887 | 61.002983 | 61.496695 | 61.002677 | 61.496799 | 61.0 | 61.5 |
| 10 | 120 | 61.002570 | 61.495489 | 61.002444 | 61.496524 | 61.002573 | 61.496321 | 61.002734 | 61.496613 | 61.0 | 61.5 |
| 20 | 120 | 61.002179 | 61.496203 | - | - | - | - | - | - | 61.0 | 61.5 |
| 20 | 102 | 61.001905 | 61.496238 | - | - | - | - | - | - | 61.0 | 61.5 |
| 20 | 138 | 61.002051 | 61.496330 | - | - | - | - | - | - | 61.0 | 61.5 |
| 30 | 120 | 61.002481 | 61.496368 | 61.002270 | 61.496607 | 61.002139 | 61.496388 | 61.002003 | 61.496488 | 61.0 | 61.5 |
| 40 | 120 | 61.002089 | 61.496388 | 61.001930 | 61.496205 | 61.002102 | 61.496345 | 61.001882 | 61.496429 | 61.0 | 61.5 |
| 50 | 120 | 61.002036 | 61.496319 | 61.002064 | 61.496300 | 61.001503 | 61.496338 | 61.001985 | 61.496306 | 61.0 | 61.5 |

**TESTED BY**

Employee IDs: 23854
Test Dates: 2025-05-14
Test Location: Conducted 1


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## 9.10. GROUP INSTALLATION

**REQUIREMENT**

**FCC**

§15.255 (h)

Any transmitter that has received the necessary FCC equipment authorization under the rules of this chapter may be mounted in a group installation for simultaneous operation with one or more other transmitter(s) that have received the necessary FCC equipment authorization, without any additional equipment authorization. However, no transmitter operating under the provisions of this section may be equipped with external phase-locking inputs that permit beam-forming arrays to be realized.

**ISED**

RSS-210 Clause J.7

Any transmitter that is certified under this annex may be mounted in a group installation for simultaneous operation with one or more certified transmitters, without any additional equipment authorization. However, no transmitter operating under the provisions of this annex shall be equipped with external phase-locking inputs that permit beam-forming arrays to be realized.

**RESULTS**

The EUT does not have any external phase locking inputs for beam forming.


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# 10. SETUP PHOTOS

Please refer to report R15799203-EP1 for setup photos.

# END OF TEST REPORT


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