# TEST REPORT

## Report Number. : 14982479-E12V2

| | | |
|---|---|---|
| **Applicant** | : | APPLE INC.<br>1 APPLE PARK WAY<br>CUPERTINO, CA 95014, U.S.A |
| **Model** | : | A3084 (Parent Model)<br>A3295, A3296, A3297 (Variant Models) |
| **FCC ID** | : | BCG-E8684A (Parent Model)<br>BCG-E8685A, BCG-E8686A, BCG-E8687A (Variant Models) |
| **IC ID** | : | 579C-E8684A (Parent Model)<br>579C-E8685A, 579C-E8686A, 579C-E8687A (Variant Models) |
| **EUT Description** | : | SMARTPHONE |
| **Test Standard(s)** | : | FCC 47 CFR PART 15 SUBPART C<br>ISED RSS-210 ISSUE 11<br>ISED RSS-GEN ISSUE 5 + A1 + A2 |

**Date Of Issue:**
July 29, 2024

**Prepared by:**
UL Verification Services Inc.
47173 Benicia Street
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ACCREDITED
CERT #0751.05

Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| V1 | 2024/07/22 | Initial Issue | Chin Pang |
| V2 | 2024/07/29 | Address TCB's questions Section 8.3.2 , AC line | Chin Pang |

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UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

**EUT DESCRIPTION:** SMARTPHONE

**MODEL:** A3084 (Parent Model)
A3295, A3296, A3297 (Variant Models)

**BRAND:** APPLE

**SERIAL NUMBER:** M6W1TY47HM, KTQFPX406Q

**SAMPLE RECEIPT DATE:** 2024/06/05

**DATE TESTED:** 2024/06/07 – 2024/07/30

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| FCC PART 15 SUBPART C | Complies |
| ISED RSS-210 Issue 11, Annex B | Complies |
| ISED RSS-GEN Issue 5 + A1 + A2 | Complies |

UL Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.
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Approved & Released For
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UL Verification Services Inc.

Prepared By:

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# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15
- ANSI C63.10-2013
- KDB 414788 D01 Radiated Test Site v01r01
- RSS-GEN Issue 5 + A1 + A2
- RSS-210 Issue 11

# 3. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, 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 |
|---|---|---|---|---|
| ☐ | Building 1: 47173 Benicia Street, Fremont, CA 94538, USA | US0104 | 2324A | 550739 |
| ☐ | Building 2: 47266 Benicia Street, Fremont, CA 94538, USA | | | |
| ☒ | Building 3: 843 Auburn Court, Fremont, CA 94538 USA | | | |
| ☐ | Building 4: 47658 Kato Rd, Fremont, CA 94538 USA | | | |
| ☐ | Building 5: 47670 Kato Rd, Fremont, CA 94538 USA | | | |

# 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 (Spectrum Analyzer) | 141.16 Hz |
| Occupied Bandwidth | 1.2% |
| Temperature | ±0.57 % |
| Relative Huminity | 3.39 % |
| Worst Case Conducted Disturbance, 9KHz to 0.15 MHz | 3.78 dB |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz | 3.40 dB |
| Worst Case Radiated Disturbance, 9KHz to 30 MHz | 2.87 dB |
| Worst Case Radiated Disturbance, 30 to 1000 MHz | 6.01 dB |

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

# 5. EQUIPMENT UNDER TEST

## 5.1. EUT DESCRIPTION

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5GNR1, 5GNR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

## 5.2. MAXIMUM E-FIELD STRENGTH

The transmitter has a maximum peak radiated E-field strength as follows:

| Antenna | Frequency Range (MHz) | Mode | | kbps | E Field at 30m distance (dBuV/m) |
|---|---|---|---|---|---|
| Primary | 13.56 | Type B | Reader | 424 | 27.01 |
| | | | CE | 424 | 26.79 |
| | | | Tag | 424 | 27.05 |
| Secondary | 13.56 | Type B | Reader | 424 | 1.91 |
| | | Type B | Tag | 424 | 4.65 |

## 5.3. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated under three orthogonal orientations X (Flatbed), Y (Landscape), and Z (Portrait). The Y (Landscape) orientation was determined to be the worst-case orientation.

The worst case position of the EUT was investigated under three configurations: EUT only, EUT with power supply, EUT with earphones. The EUT with power supply configuration was determined to be worst-case configurations; therefore, all final tests were performed on the EUT with power supply.

In addition, Tag and Reader, tag with CE mode mode were investigated with Type A, B and F with data rates, such as 106kbp/s, 212kbp/s, 424kbp/s and 848kbp/s and ISO 15693 configuration to determine the worst case based on the highest power and spurious emissions. Type B 424kbp/s Reader mode was determined to be the worst case and therefore Type B was selected for all final tests.

For below 30MHz testing, investigation was done on three antenna orientations: RX antenna Face-on, Face-off and horizontal (parallel to ground). The worst-case configurations were determined on RX antenna Face-on and Face-off; therefore, all final tests were performed using these two orientations.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 meter open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

## 5.4. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| Support Equipment List | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** | **FCC ID** |
| laptop | Apple | Macbook Pro | C02P41RZG086 | FCC DoC |
| Laptop AC/DC adapter | Liteon Technology | PA-1450-BA1 | B123 | NA |
| EUT AC Adapter | Apple | A1385 | D292365CDYADHLHC3 | NA |
| Tag | infineon | NA | A803493D139C | NA |

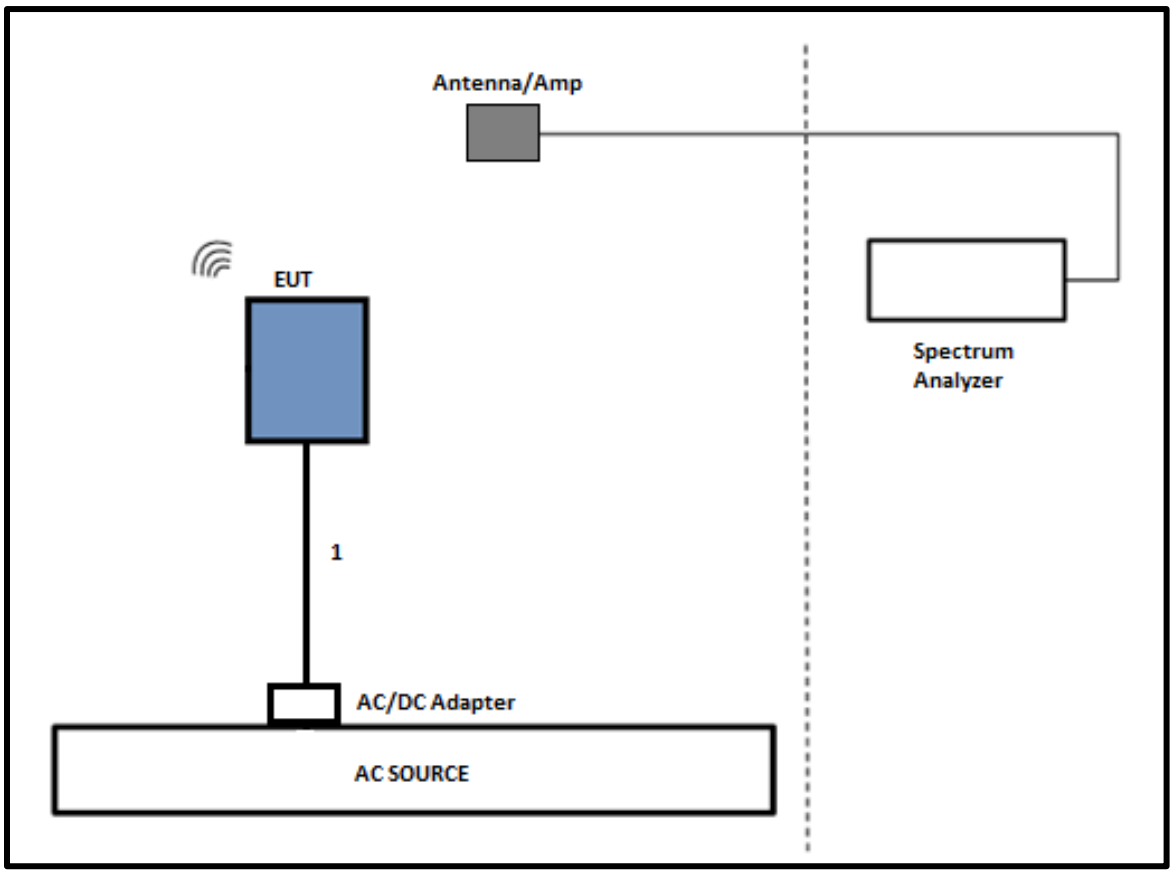
**I/O CABLES**

| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| **Cable No** | **Port** | **# of identical ports** | **Connector Type** | **Cable Type** | **Cable Length (m)** | **Remarks** |
| 1 | AC | 1 | AC | Un-Shielded | 1 | N/A |

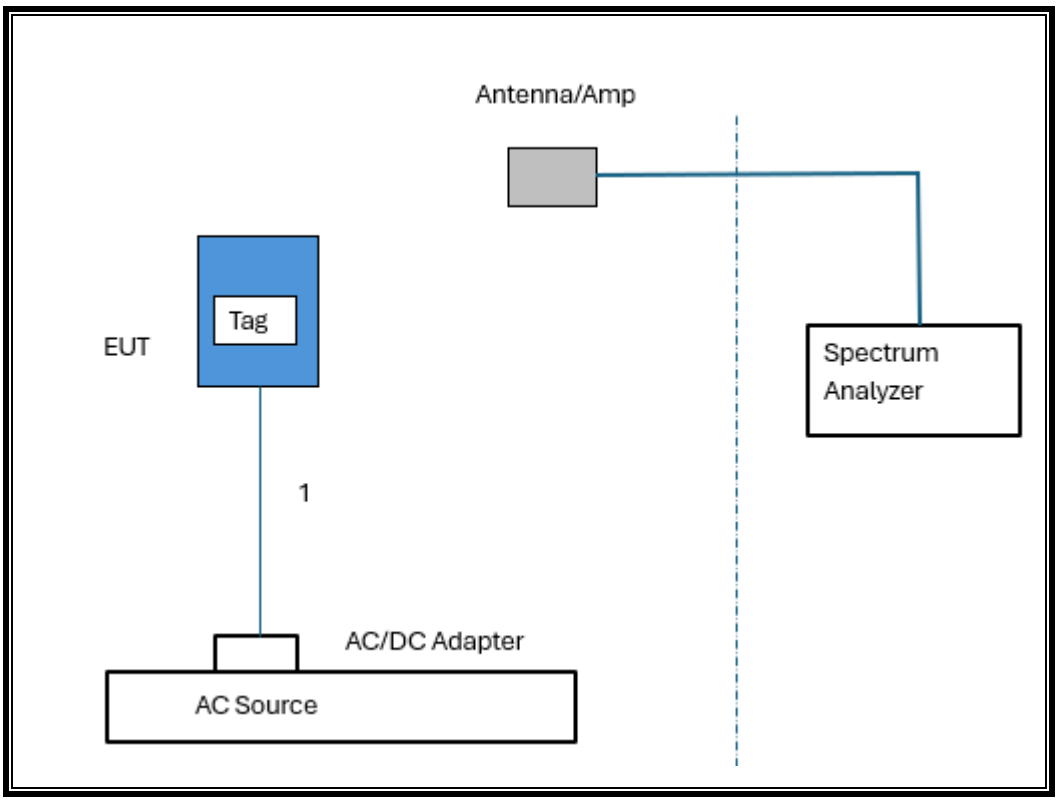
**TEST SETUP**

The EUT is installed in a host laptop computer during the tests. Test software exercised the radio card.

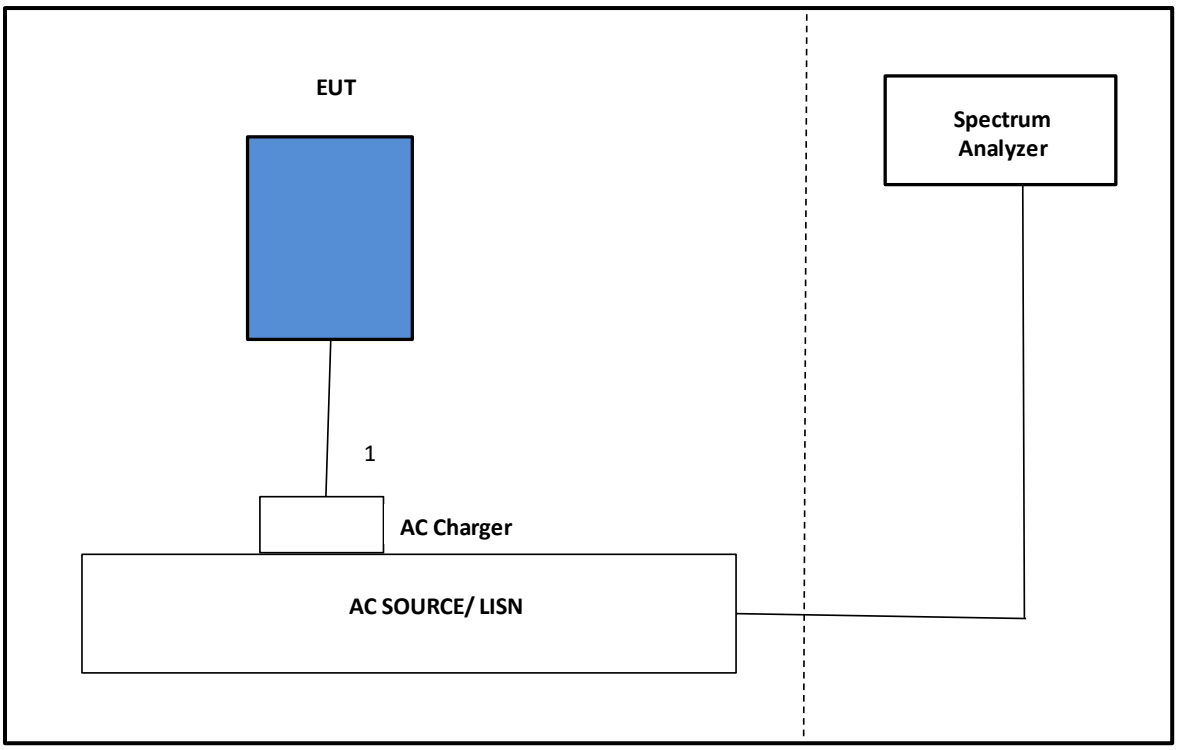
**SETUP DIAGRAM FOR RADIATED TESTS (CE and Reader Mode)**



**SETUP DIAGRAM FOR RADIATED TESTS (EUT with Tag Mode)**



**SETUP DIAGRAM FOR LINE CONDUCTED TESTS**



# 6. TEST AND MEASUREMENT EQUIPMENT

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

| TEST EQUIPMENT LIST | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **ID Num** | **Cal Due** |
| Spectrum Analyzer, PXA, 3Hz to 44GHz | Keysight Technologies Inc | N9030A | 80397 | 2025/01/25 |
| Antenna, Passive Loop 30Hz - 1MHz | ELECTRO-METRICS | EM-6871 | 219908 | 2024/09/30 |
| Antenna, Passive Loop 100kHz to 30MHz | ELECTRO-METRICS | EM-6872 | 219910 | 2025/05/31 |
| Antenna, BroadBand Hybrid, 30MHz to 3GHz | Sunol Sciences Corp. | JB3 | 232075 | 2025/04/30 |
| EMI Test Receiver | Rohde & Schwarz | ESW44 | 235670 | 2025/02/28 |
| Link File, @3m, 9kHz-1000MHz Hybrid Path Loss | UL-FR1 | Port 0 Factors | 211062 | 2025/03/31 |
| Chamber, Environmental | Cincinnati Sub Zero | ZPHS-8-3.5-SCT/WC | 82472 | 2025/01/31 |

| AC Line Conducted | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **ID Num** | **Cal Due** |
| EMI Test Receiver 9kHz-7GHz | Rohde & Schwarz | ESR | 93091 | 2025/02/28 |
| LISN for Conducted Emissions CISPR-16 | FISCHER CUSTOM COMMUNICATIONS | FCC-LISN-50/250-25-2-01-480V | 175765 | 2025/01/31 |
| Transient Limiter | TE | TBFL1 | 207996 | 2024/08/31 |

| UL AUTOMATION SOFTWARE | | | |
|---|---|---|---|
| Radiated Software | UL | UL EMC | Ver 9.5, May 1, 2023 |
| Conducted Software | UL | UL EMC | 2023.2.23 |
| AC Line Conducted Software | UL | UL EMC | Ver 9.5, Mar 3, 2023 |

# 7. OCCUPIED BANDWIDTH

**LIMITS**

None; for reporting purposes only.

**TEST PROCEDURE**

The transmitter output is connected to the spectrum analyzer. The RBW is set to 10kHz. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

Note: Because the measured signal is CW or CW-like adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW

**RESULTS**

**99% and 20dB BW**

**Primary Antenna**

**Type B (Reader Mode)**

| Mode kbps | Frequency (MHz) | 99% Bandwidth (kHz) | 20dB Bandwidth (kHz) |
|---|---|---|---|
| 424 | 13.56 | 23.495 | 25.63 |

**Type B (CE Mode)**

| Mode kbps | Frequency (MHz) | 99% Bandwidth (kHz) | 20dB Bandwidth (kHz) |
|---|---|---|---|
| 424 | 13.56 | 22.817 | 26.06 |

**Type B (Tag Mode)**

| Mode kbps | Frequency (MHz) | 99% Bandwidth (kHz) | 20dB Bandwidth (kHz) |
|---|---|---|---|
| 424 | 13.56 | 23.504 | 25.48 |

**Secondary Antenna**

**Type B (Reader Mode)**

| Mode Kbps | Frequency (MHz) | 99% Bandwidth (KHz) | 20dB Bandwidth (KHz) |
|---|---|---|---|
| 424 | 13.56 | 21.739 | 25.04 |

**Type B (Tag Mode)**

| Mode Kbps | Frequency (MHz) | 99% Bandwidth (KHz) | 20dB Bandwidth (KHz) |
|---|---|---|---|
| 424 | 13.56 | 21.769 | 25.08 |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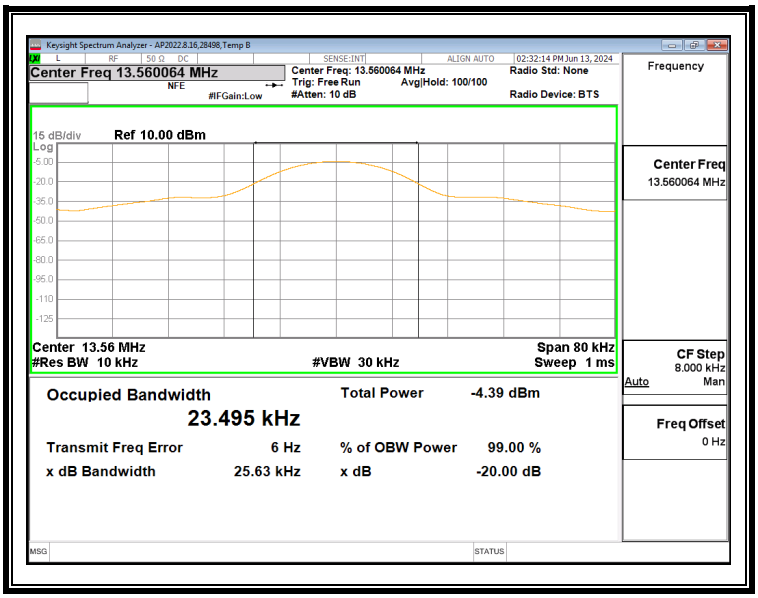
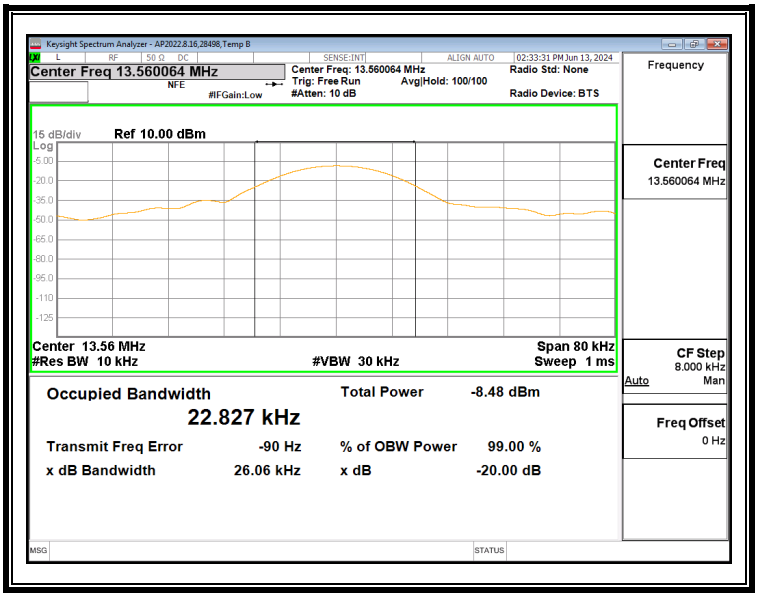
## 7.1. PRIMARY ANTENNA

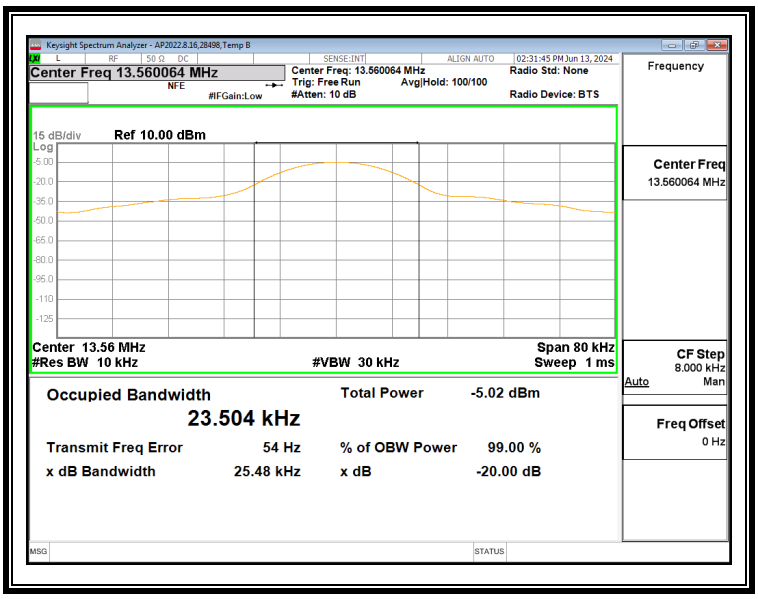
**Type B (Reader Mode), 424kbps**




**Type B (CE Mode), 424kbps**

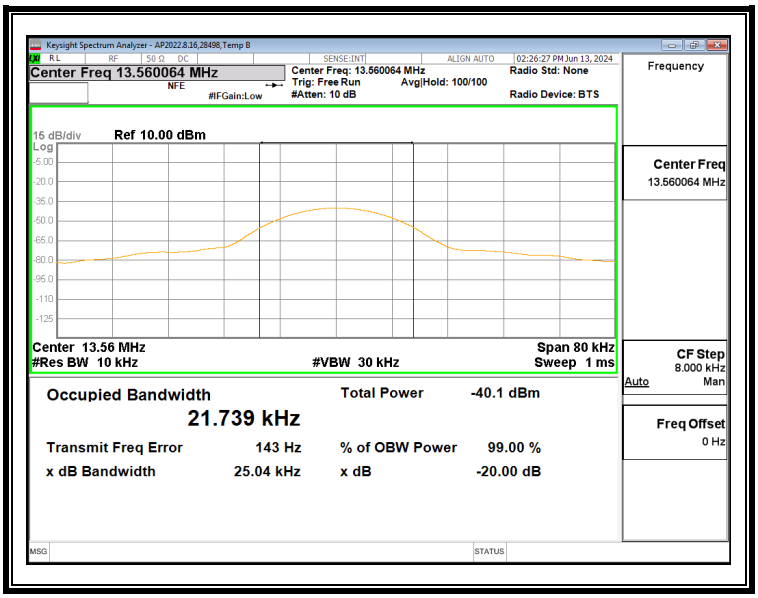


**Type B (Tag Mode), 424kbps**

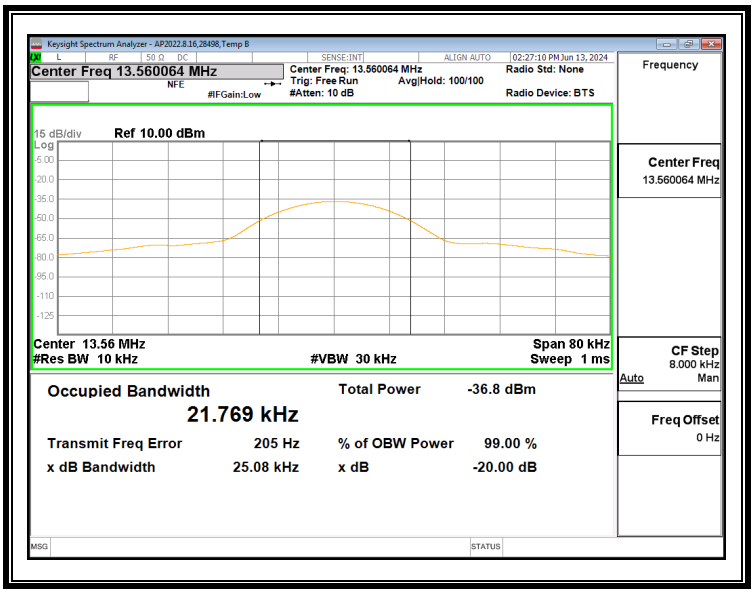


## 7.2. SECONDARY ANTENNA

**Type B (Reader Mode), 424kbps**




**Type B (Tag Mode), 424kbps**



# 8. RADIATED EMISSION TEST RESULTS

## 8.1. LIMITS AND PROCEDURE

**LIMIT**

§15.225
IC RSS-210, Annex B.6
IC RSS-GEN, Section 8.9 (Transmitter)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:
§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Limits for radiated disturbance of an intentional radiator | | |
|---|---|---|
| Frequency range (MHz) | Limits (μV/m) | Measurement Distance (m) |
| 0.009 – 0.490 | 2400 / F (kHz) | 300 |
| 0.490 – 1.705 | 24000 / F (kHz) | 30 |
| 1.705 – 30.0 | 30 | 30 |
| 30 – 88 | 100** | 3 |
| 88 - 216 | 150** | 3 |
| 216 – 960 | 200** | 3 |
| Above 960 | 500 | 3 |

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.
§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

In addition:

§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (e), The provisions in §§ 15.31, §§ 15.33 and §§ 15.35, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

**TEST PROCEDURE**

ANSI C63.10, 2013

The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 0.15 MHz to the 10$^{th}$ harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

**RESULTS**

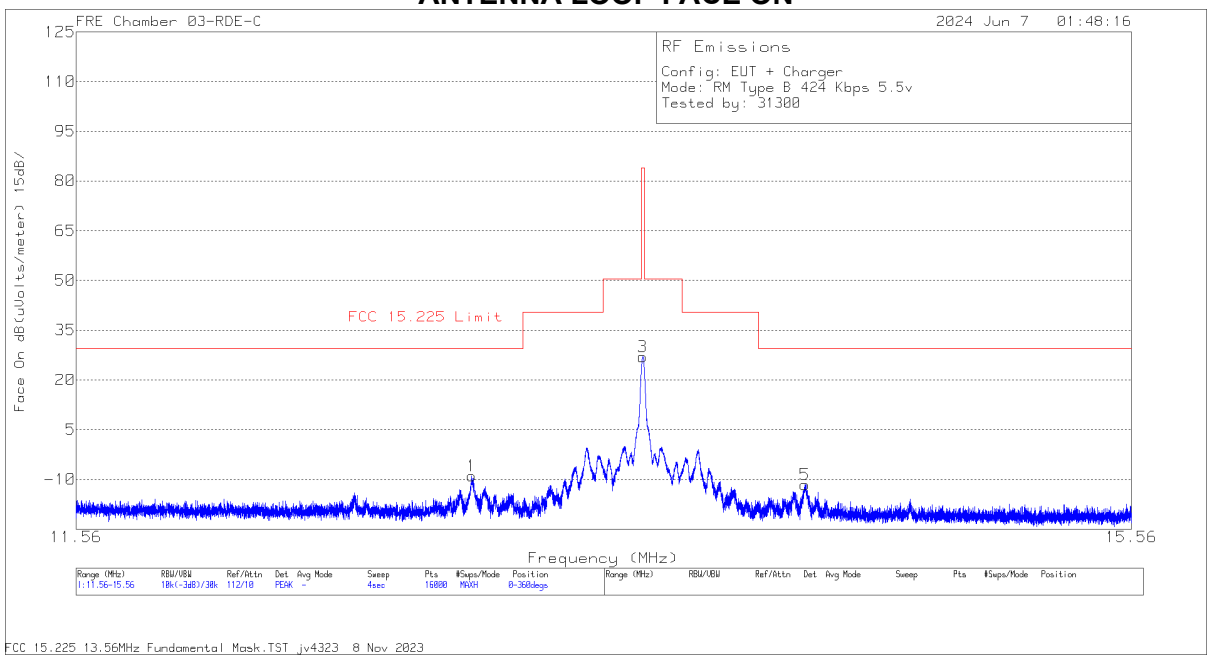
Note: The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as report in the table) using free space impedance of 377 Ohms. For example, the measurement at frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

# 8.2. PRIMARY ANTENNA FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 - 30 MHz), EUT WITH AC/DC ADAPTER

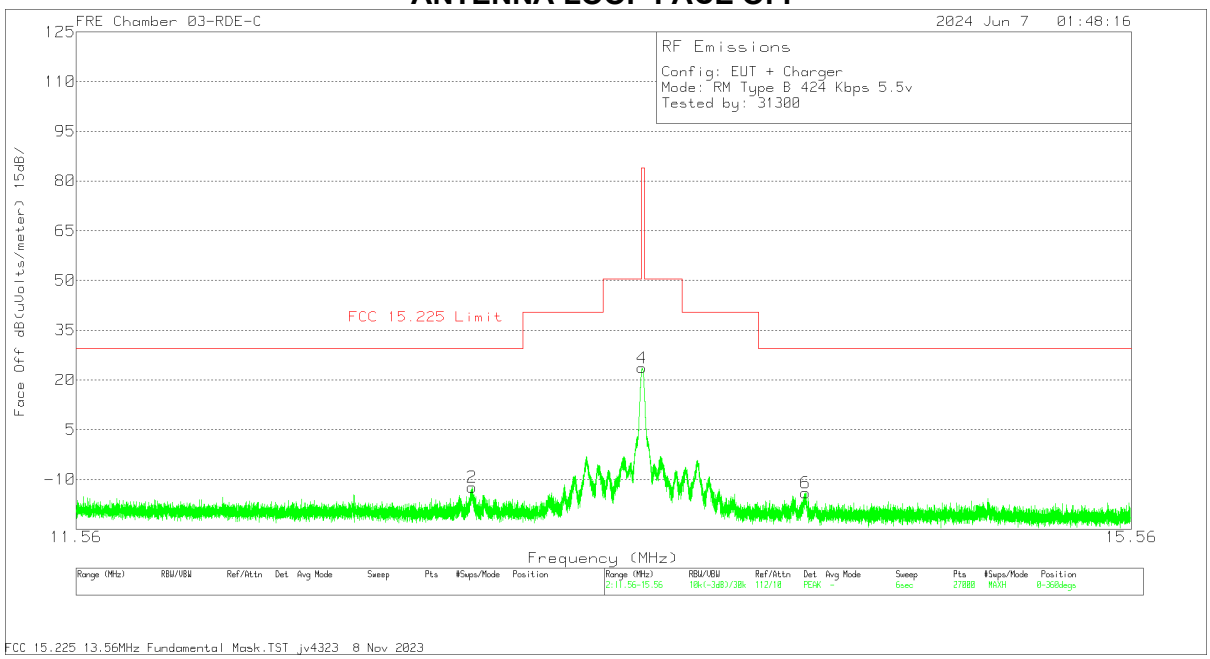
## 8.2.1. READER MODE, TYPE B 424kbps

**FUNDAMENTAL**

### ANTENNA LOOP FACE ON




### ANTENNA LOOP FACE OFF



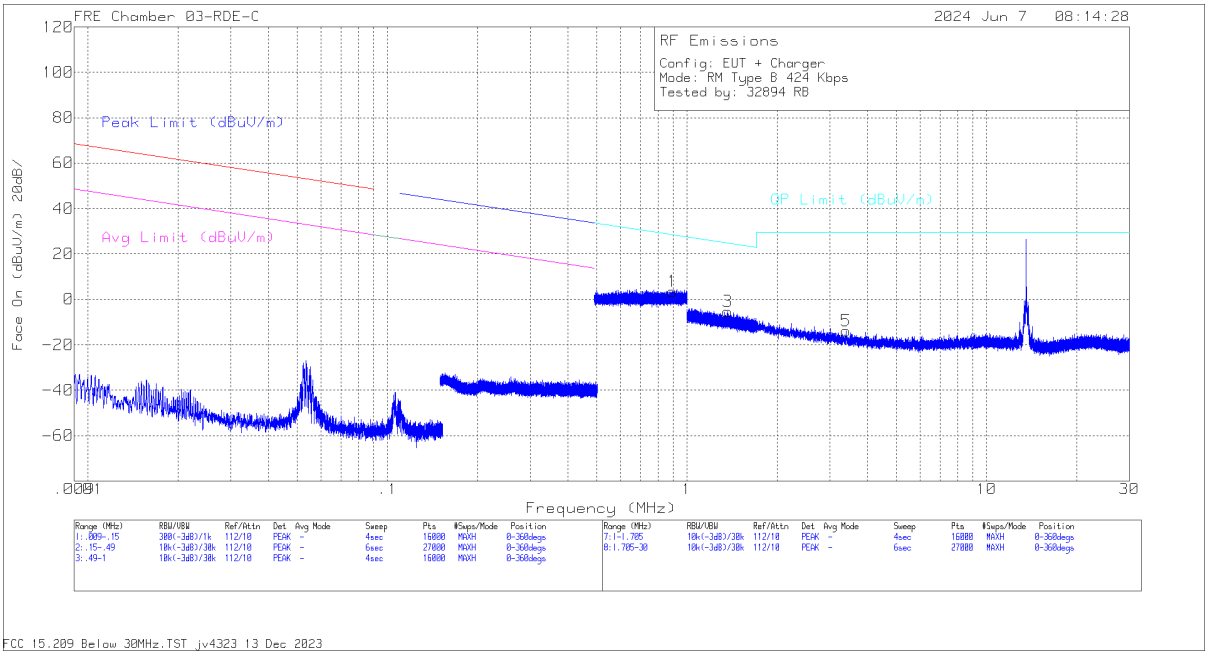
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading dBuV/m | FCC 15.225 Limit dBuV/m | PK Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.9223 | 28.76 | Pk | 34.4 | -32.1 | -40 | -8.94 | 29.54 | -38.48 | 0-360 | Face On |
| 2 | 12.9241 | 25.42 | Pk | 34.4 | -32.1 | -40 | -12.28 | 29.54 | -41.82 | 0-360 | Face Off |
| 3 | 13.56 | 64.91 | Pk | 34.3 | -32.2 | -40 | 27.01 | 84 | -56.99 | 0-360 | Face On |
| 4 | 13.5567 | 61.58 | Pk | 34.3 | -32.2 | -40 | 23.68 | 84 | -60.32 | 0-360 | Face Off |
| 5 | 14.1938 | 26.24 | Pk | 34.2 | -32 | -40 | -11.56 | 29.54 | -41.1 | 0-360 | Face On |
| 6 | 14.196 | 23.78 | Pk | 34.2 | -32 | -40 | -14.02 | 29.54 | -43.56 | 0-360 | Face Off |

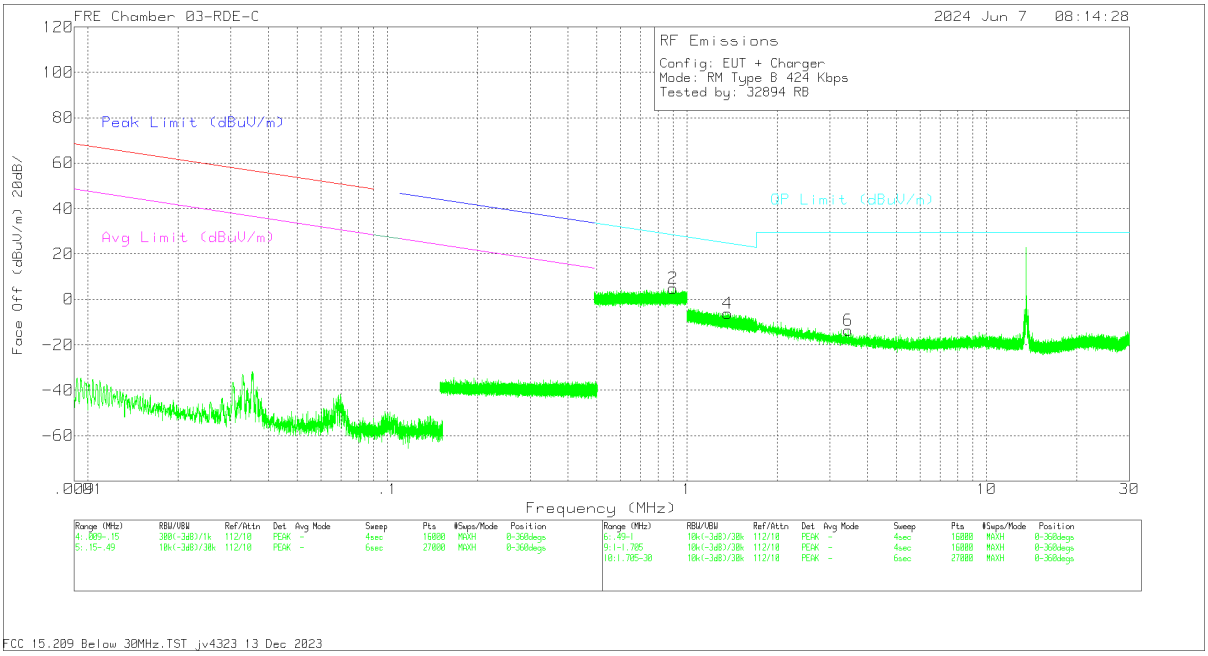
Pk - Peak detector

**SPURIOUS EMISSION**

## ANTENNA LOOP FACE ON




## ANTENNA LOOP FACE OFF



## DATA

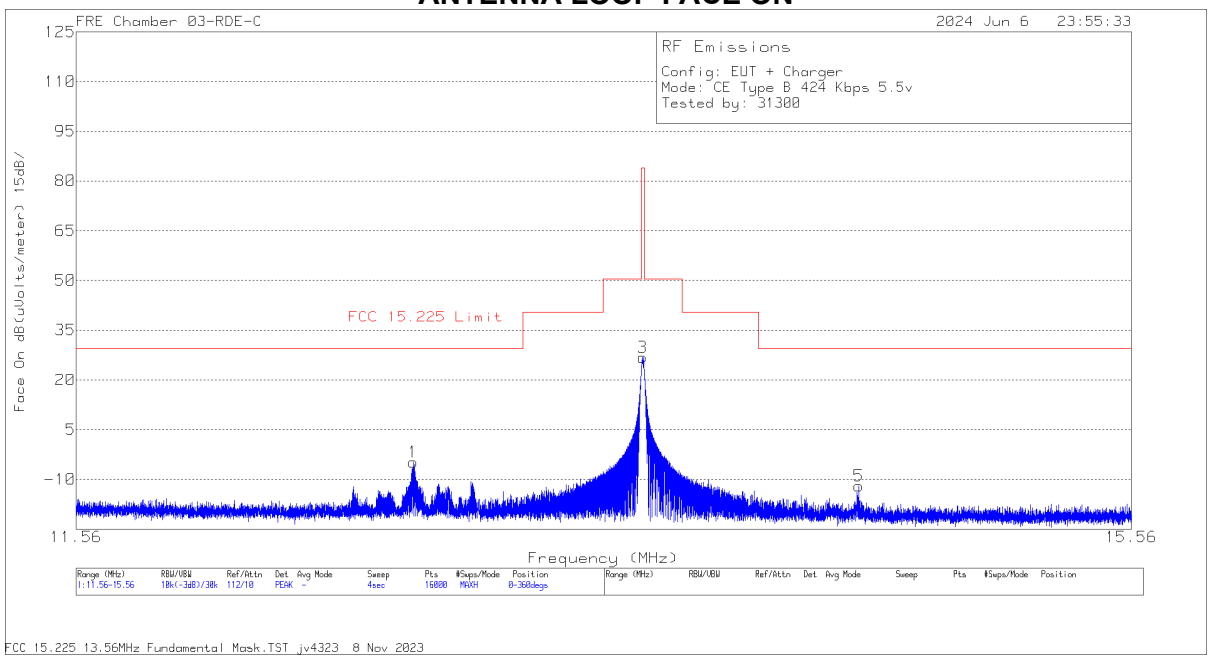
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna H(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading (dBuV/m) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .8958 | 19.52 | Pk | 56.5 | -32.6 | -40 | 3.42 | 28.57 | -25.15 | 0-360 | Face On |
| 2 | .9004 | 21.09 | Pk | 56.5 | -32.6 | -40 | 4.99 | 28.53 | -23.54 | 0-360 | Face Off |
| 3 | 1.3701 | 22.41 | Pk | 44.8 | -32.5 | -40 | -5.29 | 24.89 | -30.18 | 0-360 | Face On |
| 4 | 1.3651 | 21.61 | Pk | 44.8 | -32.5 | -40 | -6.09 | 24.93 | -31.02 | 0-360 | Face Off |
| 5 | 3.3933 | 20.41 | Pk | 38.1 | -32.4 | -40 | -13.89 | 29.5 | -43.39 | 0-360 | Face On |
| 6 | 3.4562 | 20.97 | Pk | 38 | -32.5 | -40 | -13.53 | 29.5 | -43.03 | 0-360 | Face Off |

Pk - Peak detector

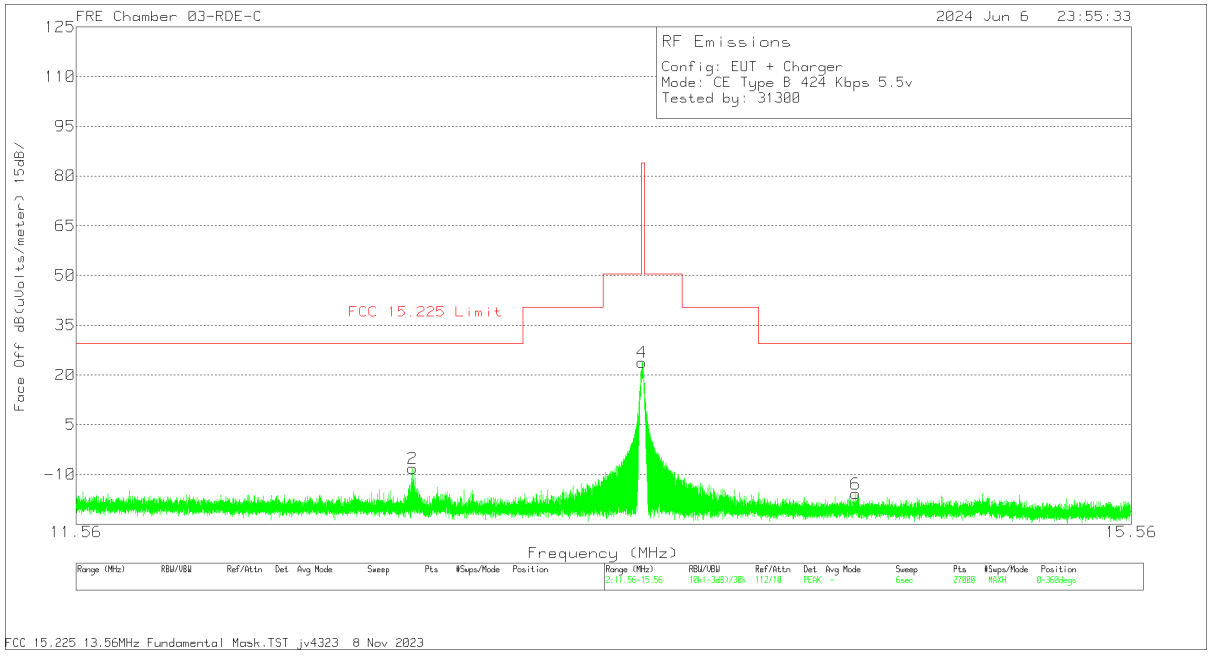
## 8.2.2. CE MODE, TYPE B 424kbps

**FUNDAMENTAL 424Kbps**

**ANTENNA LOOP FACE ON**




**ANTENNA LOOP FACE OFF**



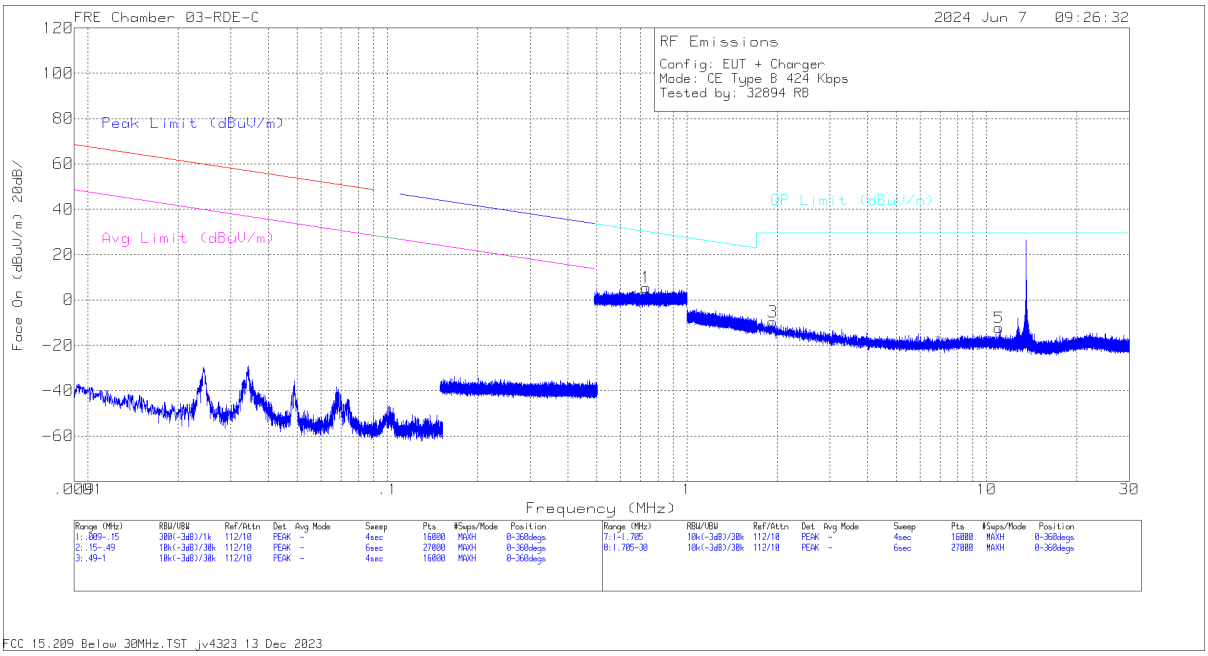
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading dBuV/m | FCC 15.225 Limit dBuV/m | PK Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.7115 | 32.77 | Pk | 34.5 | -32.1 | -40 | -4.83 | 29.54 | -34.37 | 0-360 | Face On |
| 2 | 12.7086 | 29.33 | Pk | 34.5 | -32.1 | -40 | -8.27 | 29.54 | -37.81 | 0-360 | Face Off |
| 3 | 13.56 | 64.69 | Pk | 34.3 | -32.2 | -40 | 26.79 | 84 | -57.21 | 0-360 | Face On |
| 4 | 13.5575 | 61.72 | Pk | 34.3 | -32.2 | -40 | 23.82 | 84 | -60.18 | 0-360 | Face Off |
| 5 | 14.4098 | 25.7 | Pk | 34.2 | -31.9 | -40 | -12 | 29.54 | -41.54 | 0-360 | Face On |
| 6 | 14.3981 | 21.84 | Pk | 34.2 | -31.9 | -40 | -15.86 | 29.54 | -45.4 | 0-360 | Face Off |

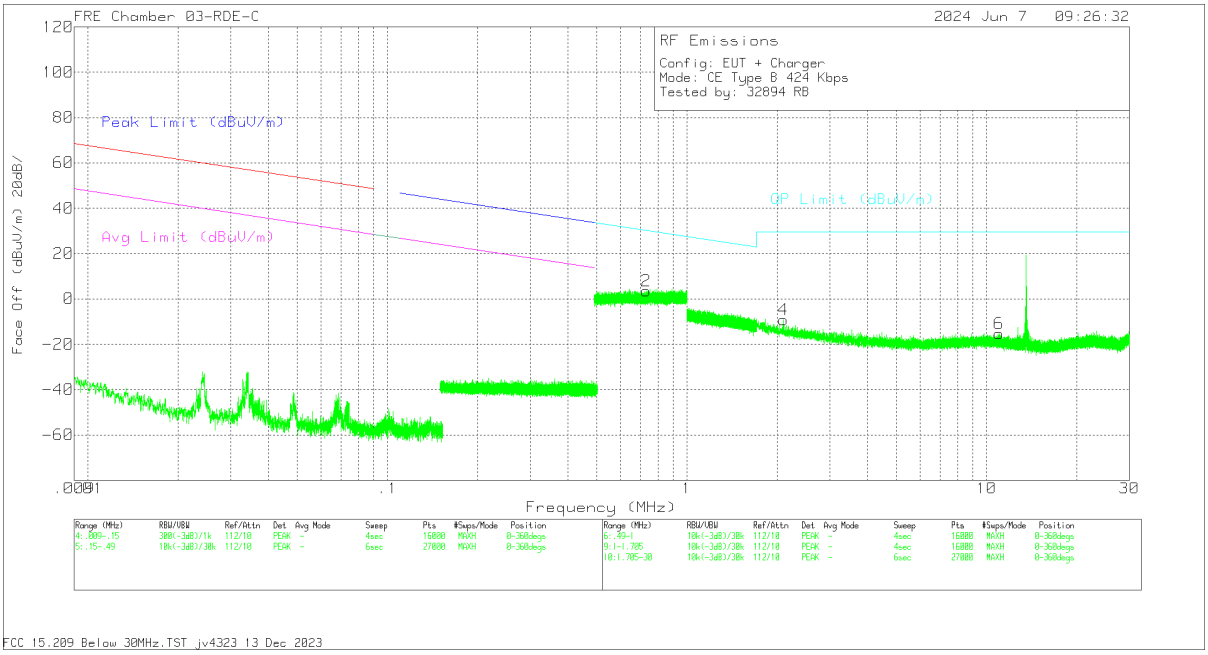
Pk - Peak detector

**SPURIOUS EMISSION 424kbps**

## ANTENNA LOOP FACE ON




## ANTENNA LOOP FACE OFF



## DATA

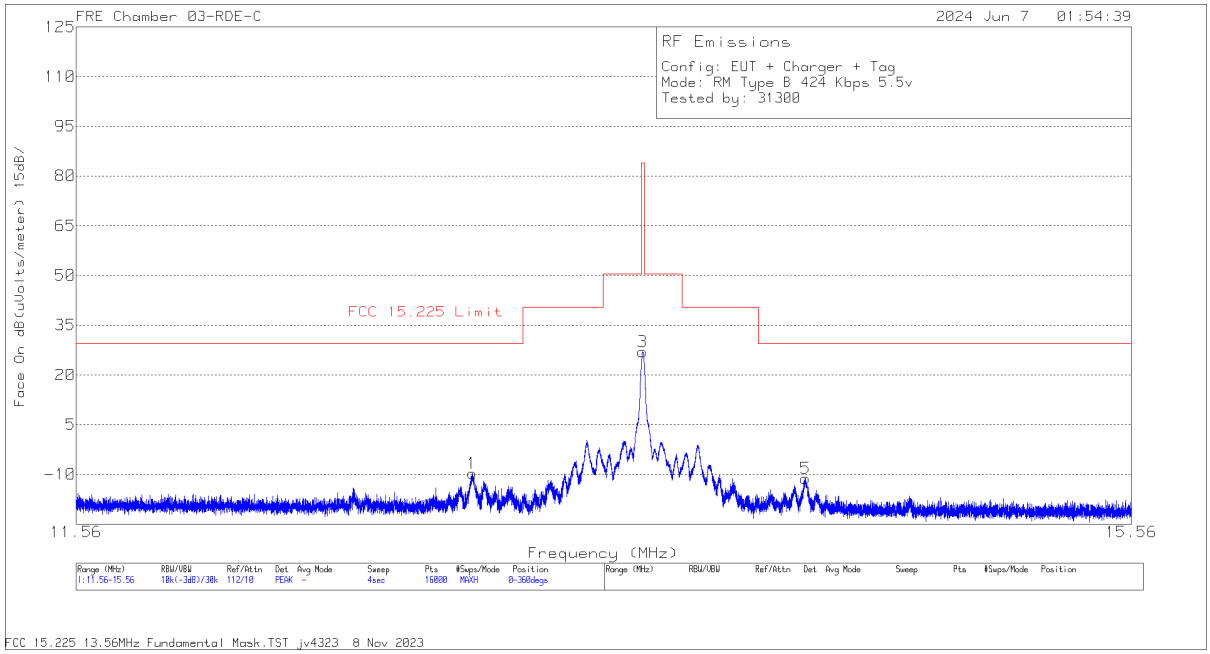
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading (dBuV/m) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .7308 | 21.58 | Pk | 56.4 | -32.6 | -40 | 5.38 | 30.34 | -24.96 | 0-360 | Face On |
| 2 | .7302 | 19.72 | Pk | 56.4 | -32.6 | -40 | 3.52 | 30.34 | -26.82 | 0-360 | Face Off |
| 3 | 1.9345 | 20.64 | Pk | 41.9 | -32.4 | -40 | -9.86 | 29.5 | -39.36 | 0-360 | Face On |
| 4 | 2.1001 | 22.14 | Pk | 41.2 | -32.6 | -40 | -9.26 | 29.5 | -38.76 | 0-360 | Face Off |
| 5 | 11.0217 | 25.14 | Pk | 34.8 | -32.3 | -40 | -12.36 | 29.5 | -41.86 | 0-360 | Face On |
| 6 | 11.0217 | 22.26 | Pk | 34.8 | -32.3 | -40 | -15.24 | 29.5 | -44.74 | 0-360 | Face Off |

Pk - Peak detector

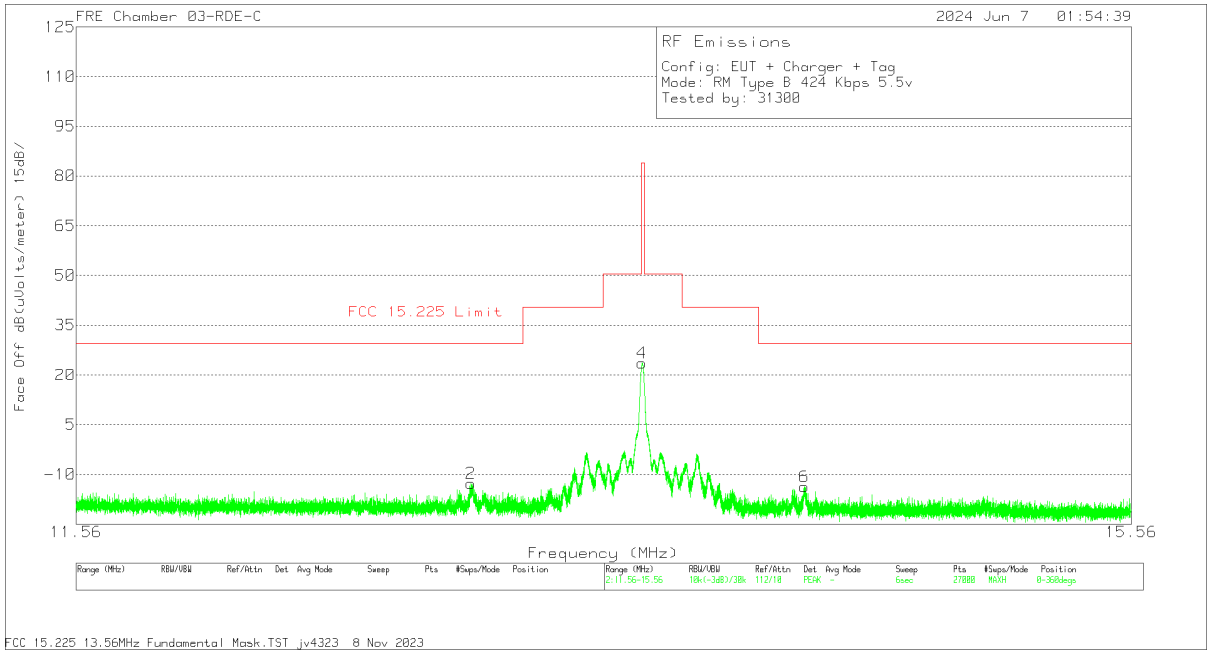
### 8.2.3. Tag MODE, Type B 424kbps

**FUNDAMENTAL 424Kbps**

**ANTENNA LOOP FACE ON**




**ANTENNA LOOP FACE OFF**



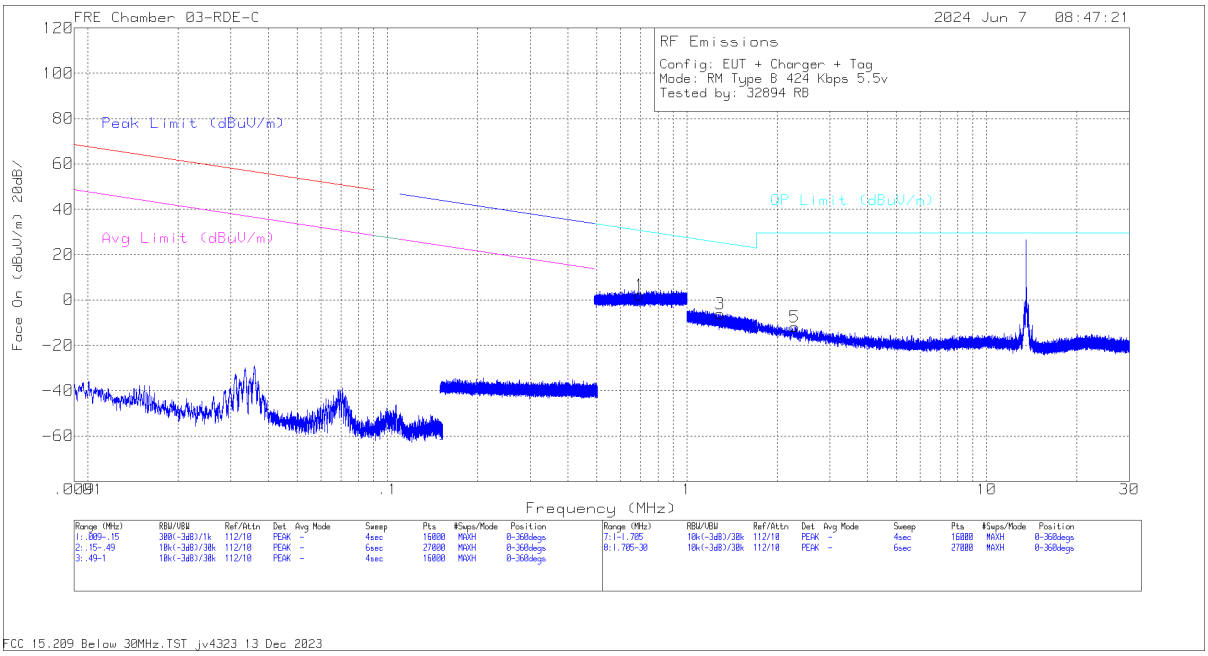
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading dBuV/m | FCC 15.225 Limit dBuV/m | PK Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.9245 | 27.97 | Pk | 34.4 | -32.1 | -40 | -9.73 | 29.54 | -39.27 | 0-360 | Face On |
| 2 | 12.9192 | 24.91 | Pk | 34.4 | -32.1 | -40 | -12.79 | 29.54 | -42.33 | 0-360 | Face Off |
| 3 | 13.5598 | 64.95 | Pk | 34.3 | -32.2 | -40 | 27.05 | 84 | -56.95 | 0-360 | Face On |
| 4 | 13.5564 | 61.46 | Pk | 34.3 | -32.2 | -40 | 23.56 | 84 | -60.44 | 0-360 | Face Off |
| 5 | 14.1963 | 26.56 | Pk | 34.2 | -32 | -40 | -11.24 | 29.54 | -40.78 | 0-360 | Face On |
| 6 | 14.1906 | 24.04 | Pk | 34.2 | -32 | -40 | -13.76 | 29.54 | -43.3 | 0-360 | Face Off |

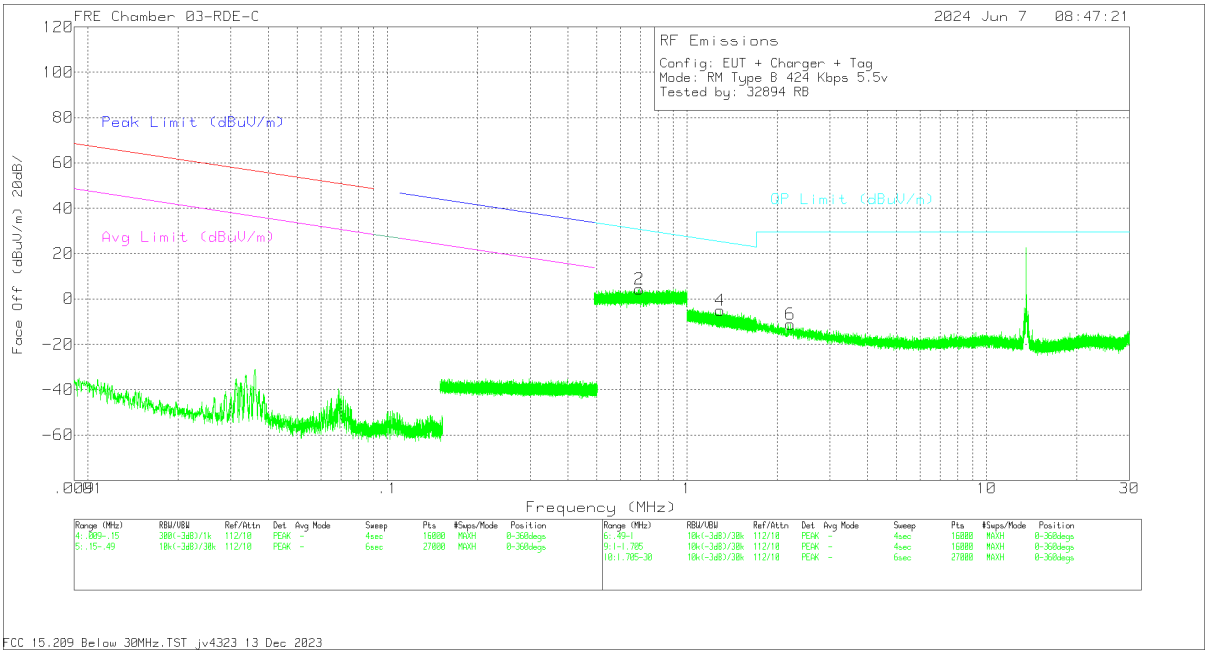
Pk - Peak detector

**SPURIOUS EMISSION 424kbps**

## ANTENNA LOOP FACE ON




## ANTENNA LOOP FACE OFF



## DATA

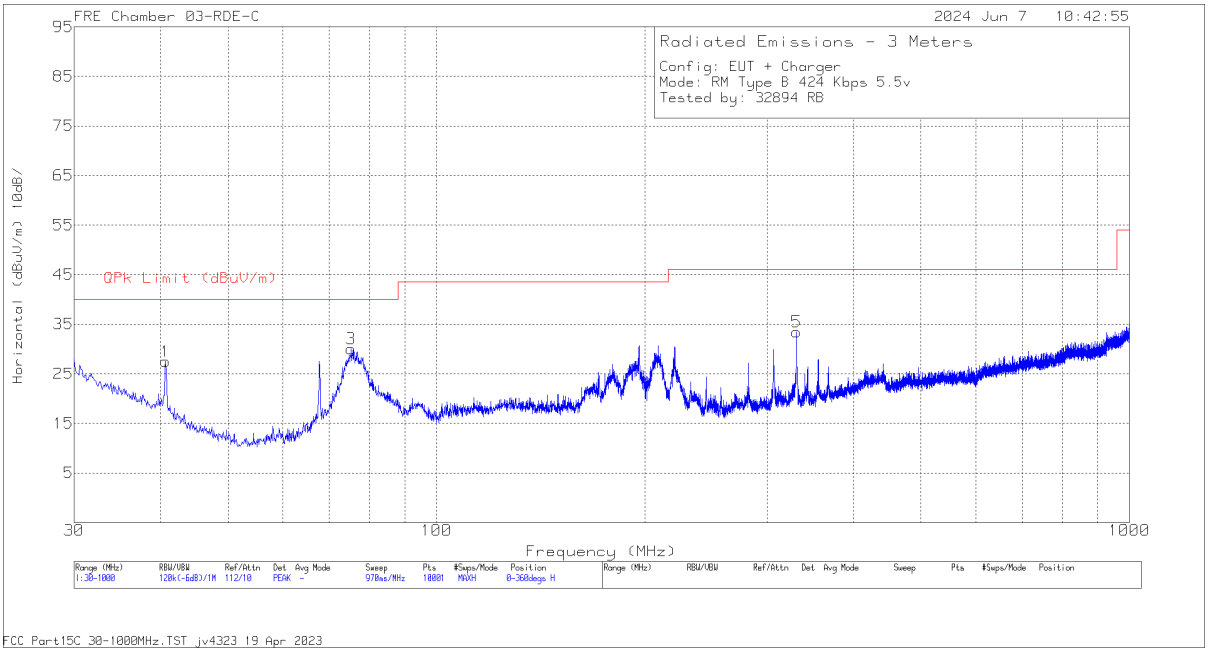
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading (dBuV/m) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .6949 | 18.49 | Pk | 56.4 | -32.8 | -40 | 2.09 | 30.77 | -28.68 | 0-360 | Face On |
| 2 | .6923 | 20.86 | Pk | 56.4 | -32.8 | -40 | 4.46 | 30.81 | -26.35 | 0-360 | Face Off |
| 3 | 1.2884 | 21.48 | Pk | 45.2 | -32.8 | -40 | -6.12 | 25.43 | -31.55 | 0-360 | Face On |
| 4 | 1.2912 | 22.62 | Pk | 45.2 | -32.8 | -40 | -4.98 | 25.41 | -30.39 | 0-360 | Face Off |
| 5 | 2.2877 | 19.95 | Pk | 40.7 | -32.5 | -40 | -11.85 | 29.5 | -41.35 | 0-360 | Face On |
| 6 | 2.2164 | 20.44 | Pk | 40.9 | -32.4 | -40 | -11.06 | 29.5 | -40.56 | 0-360 | Face Off |

Pk - Peak detector

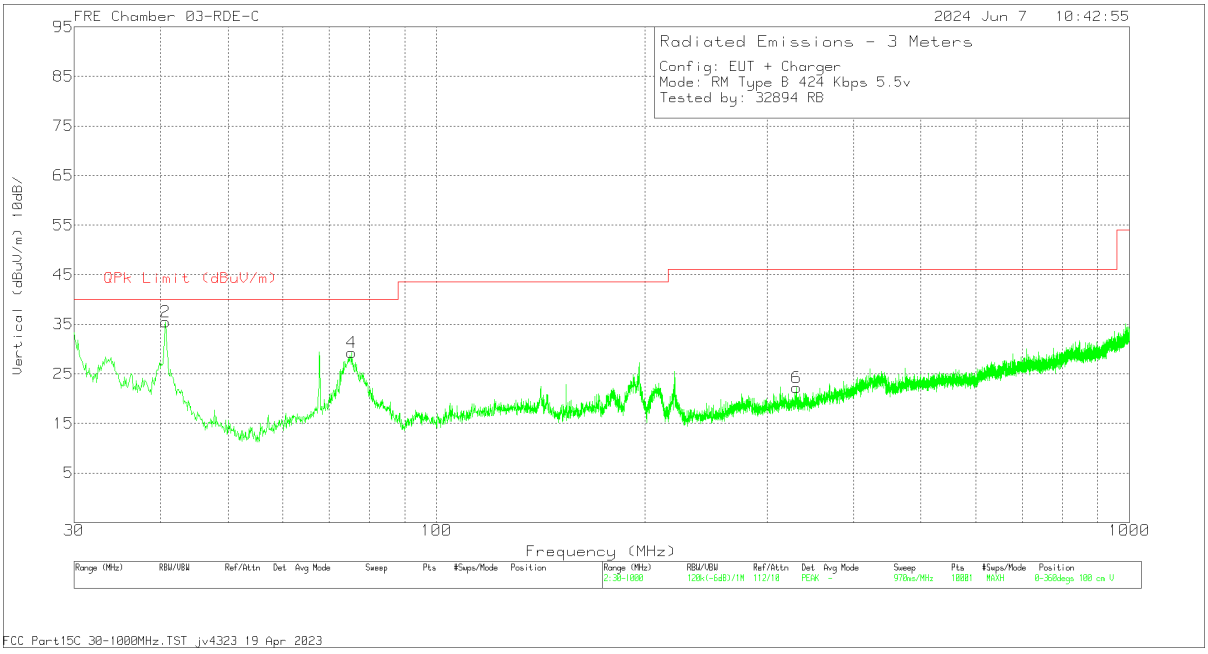
## 8.2.4. TX SPURIOUS EMISSION 30 TO 1000 MHz, EUT WITH AC/DC ADAPTER

**Type B (Reader Mode), SPURIOUS EMISSION 424kbps**

Horizontal




Vertical



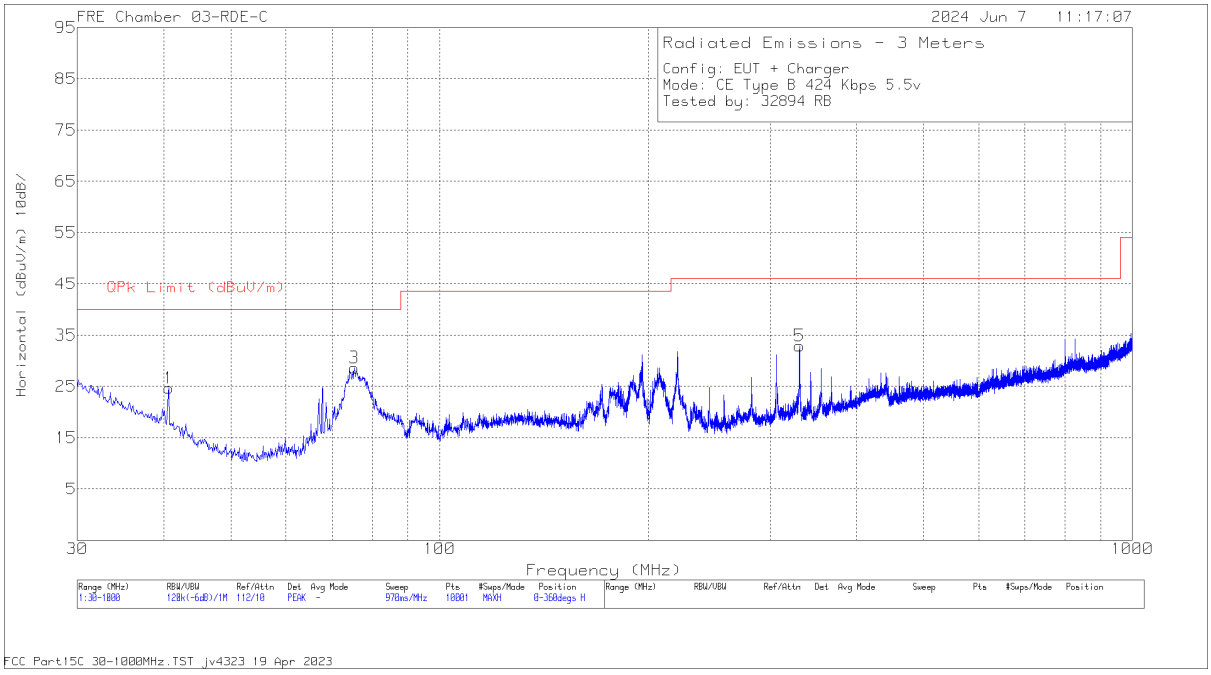
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | 232075 ACF (dB/m) | CBL AMP (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 40.67 | 39.36 | Pk | 19.4 | -31.3 | 27.46 | 40 | -12.54 | 0-360 | 199 | H |
| 2 | 40.67 | 47.39 | Pk | 19.4 | -31.3 | 35.49 | 40 | -4.51 | 0-360 | 100 | V |
| | 40.6816 | 46.04 | Qp | 19.4 | -31.3 | 34.14 | 40 | -5.86 | 293 | 107 | V |
| 3 | 75.299 | 47.15 | Pk | 13.9 | -31 | 30.05 | 40 | -9.95 | 0-360 | 298 | H |
| 4 | 75.493 | 46.35 | Pk | 13.9 | -31 | 29.25 | 40 | -10.75 | 0-360 | 100 | V |
| 5 | * 330.991 | 43.08 | Pk | 19.9 | -29.5 | 33.48 | 46.02 | -12.54 | 0-360 | 100 | H |
| 6 | * 330.894 | 31.85 | Pk | 19.9 | -29.5 | 22.25 | 46.02 | -23.77 | 0-360 | 100 | V |

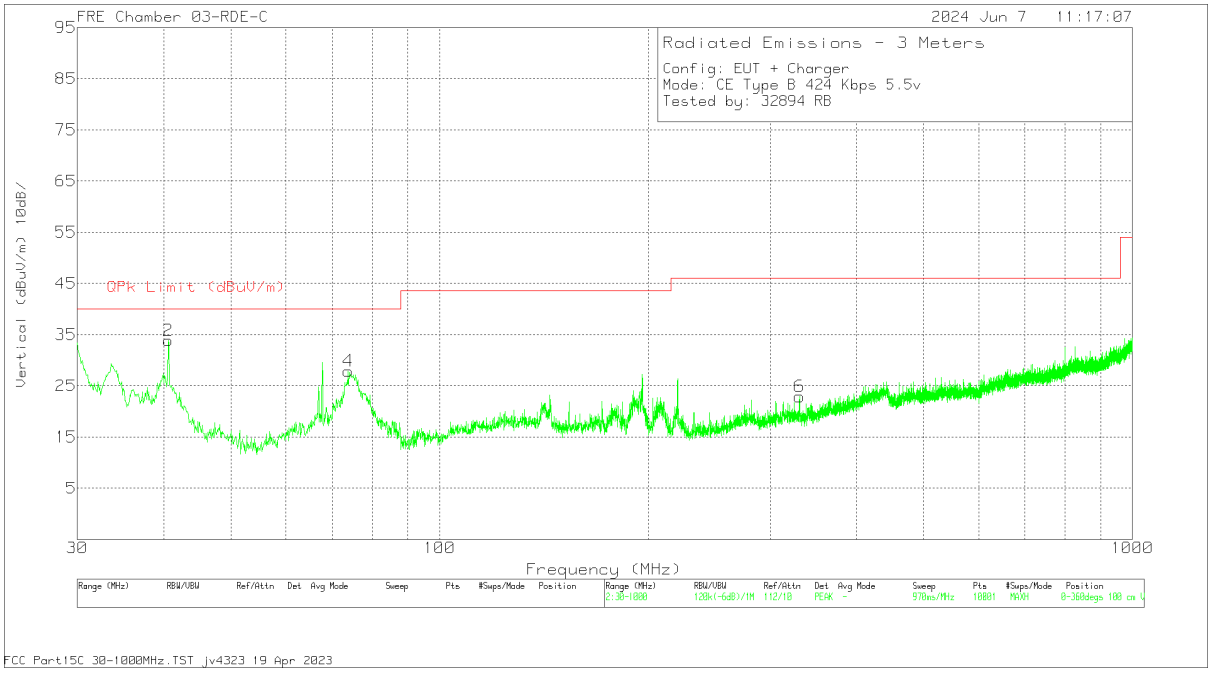
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Qp - Quasi-Peak detector

**Type B (CE Mode),SPURIOUS EMISSION 424kbps**

Horizontal




Vertical



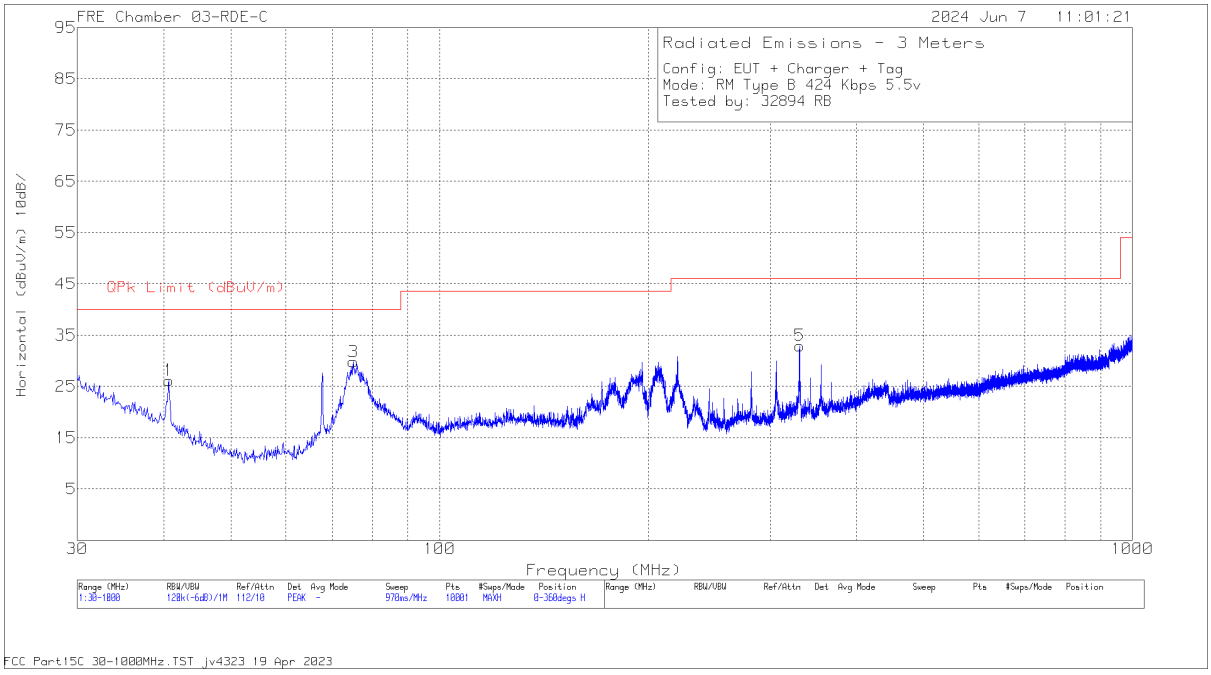
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | 232075 ACF (dB/m) | CBL AMP (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 40.67 | 36.55 | Pk | 19.4 | -31.3 | 24.65 | 40 | -15.35 | 0-360 | 299 | H |
| 2 | 40.573 | 45.64 | Pk | 19.5 | -31.3 | 33.84 | 40 | -6.16 | 0-360 | 100 | V |
| | 40.6722 | 42.76 | Qp | 19.4 | -31.3 | 30.86 | 40 | -9.14 | 326 | 172 | V |
| 3 | 75.299 | 45.7 | Pk | 13.9 | -31 | 28.6 | 40 | -11.4 | 0-360 | 299 | H |
| 4 | * 73.844 | 44.77 | Pk | 14 | -30.9 | 27.87 | 40 | -12.13 | 0-360 | 199 | V |
| 5 | * 330.894 | 42.5 | Pk | 19.9 | -29.5 | 32.9 | 46.02 | -13.12 | 0-360 | 100 | H |
| 6 | * 330.894 | 32.51 | Pk | 19.9 | -29.5 | 22.91 | 46.02 | -23.11 | 0-360 | 100 | V |

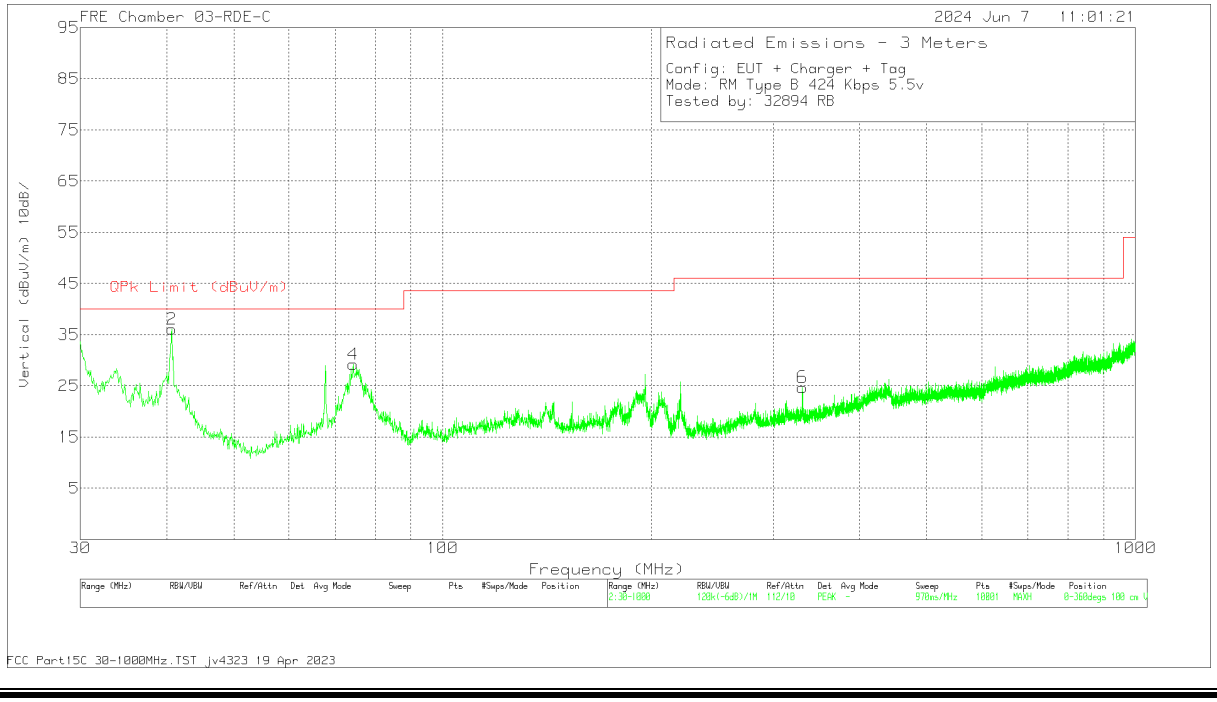
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Qp - Quasi-Peak detector

**Type B (Tag Mode),SPURIOUS EMISSION 424kbps**

Horizontal




Vertical



## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | 232075 ACF (dB/m) | CBL AMP (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 40.67 | 38.05 | Pk | 19.4 | -31.3 | 26.15 | 40 | -13.85 | 0-360 | 198 | H |
| 2 | 40.67 | 47.96 | Pk | 19.4 | -31.3 | 36.06 | 40 | -3.94 | 0-360 | 100 | V |
| | 40.6834 | 45.95 | Qp | 19.4 | -31.3 | 34.05 | 40 | -5.95 | 315 | 108 | V |
| 3 | * 75.105 | 47.02 | Pk | 13.9 | -31.1 | 29.82 | 40 | -10.18 | 0-360 | 398 | H |
| 4 | * 74.329 | 46.2 | Pk | 14 | -31 | 29.2 | 40 | -10.8 | 0-360 | 100 | V |
| 5 | * 330.991 | 42.55 | Pk | 19.9 | -29.5 | 32.95 | 46.02 | -13.07 | 0-360 | 99 | H |
| 6 | * 330.797 | 34.29 | Pk | 19.9 | -29.5 | 24.69 | 46.02 | -21.33 | 0-360 | 100 | V |

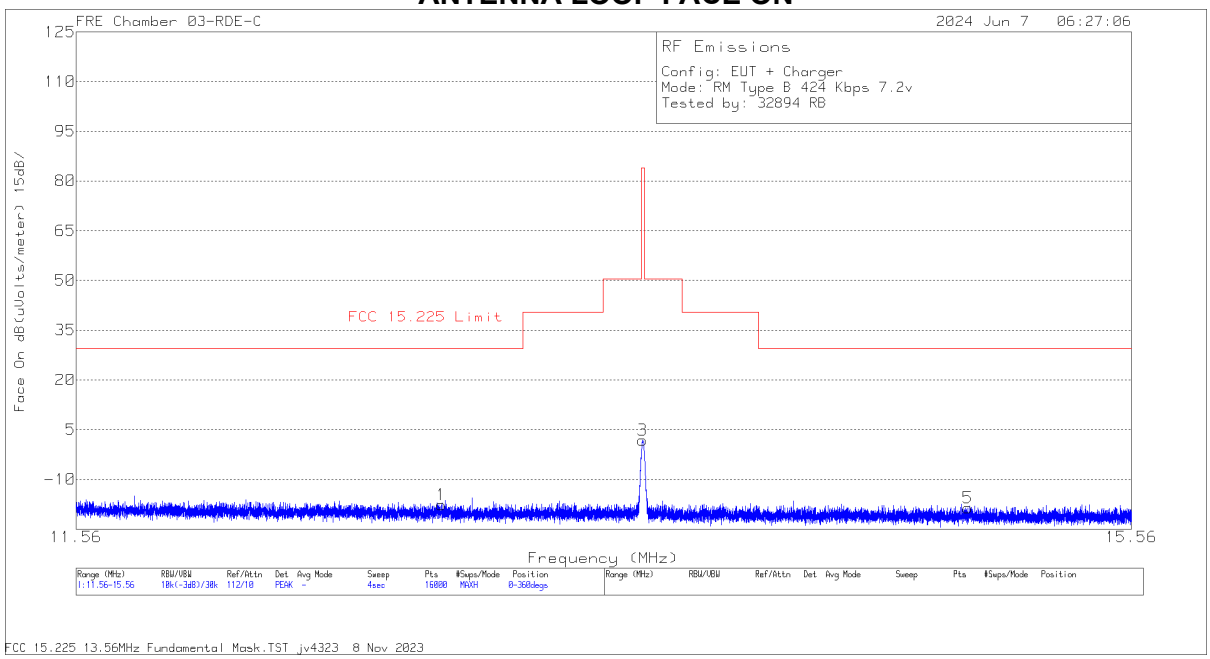
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Qp - Quasi-Peak detector

# 8.3. SECONDARY ANTENNA FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 - 30 MHz), EUT WITH AC/DC ADAPTER

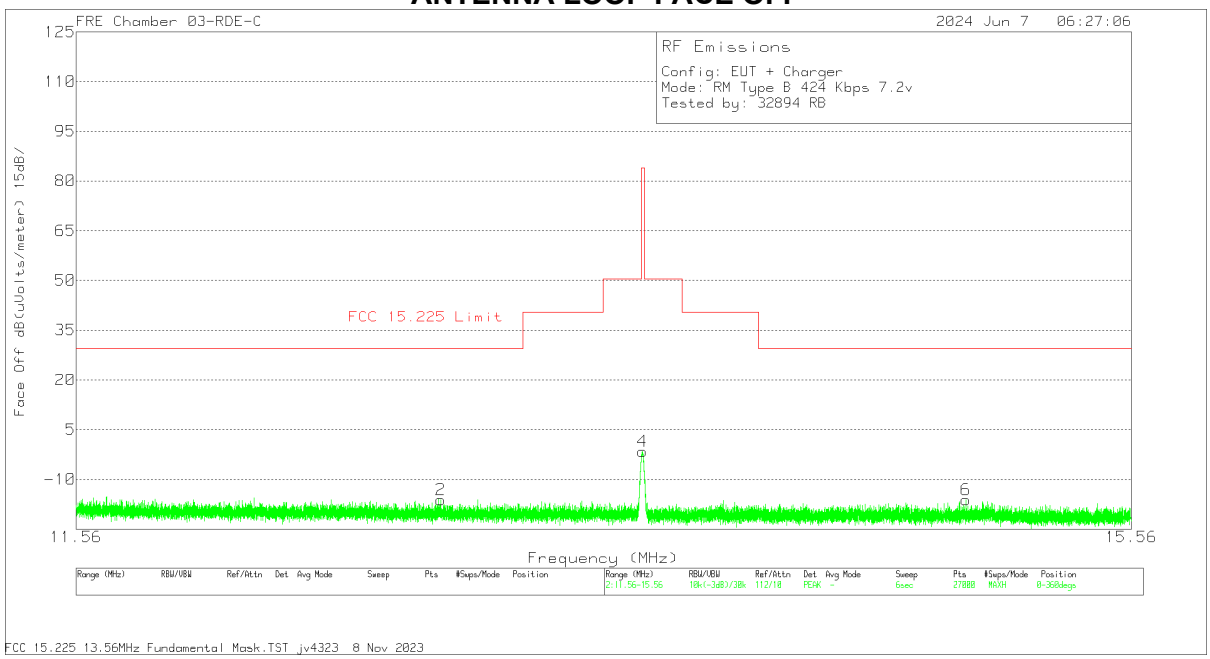
## 8.3.1. READER MODE, TYPE B 424kbps

**FUNDAMENTAL**

### ANTENNA LOOP FACE ON




### ANTENNA LOOP FACE OFF



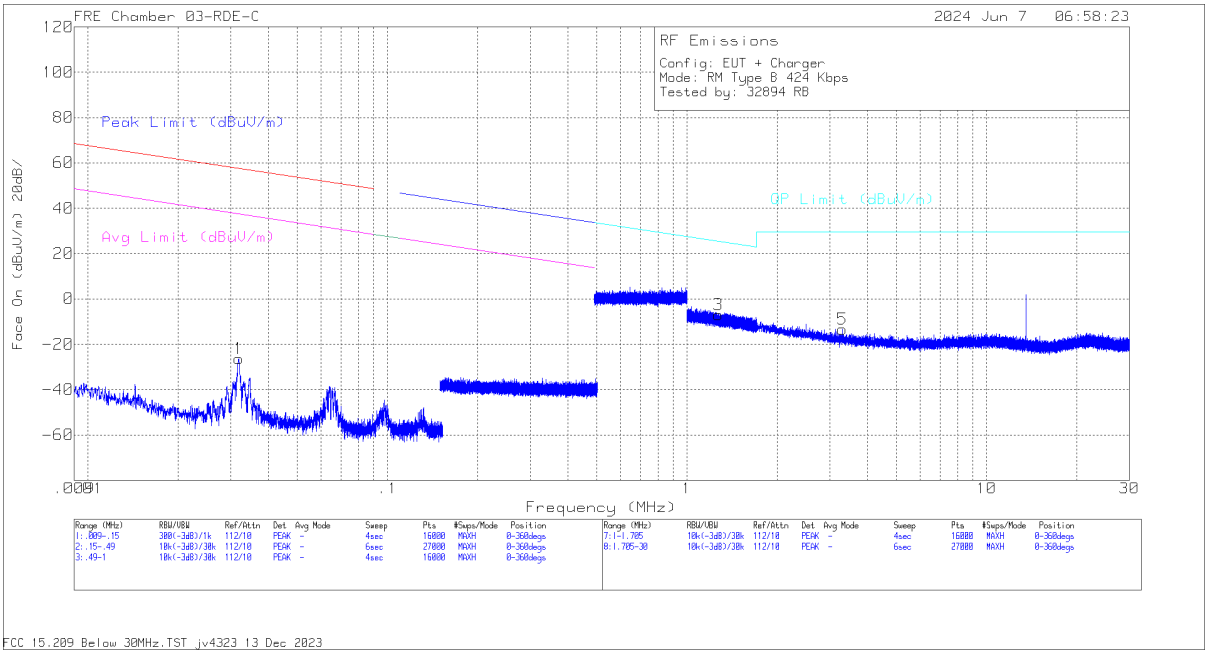
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading dBuV/m | FCC 15.225 Limit dBuV/m | PK Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.8123 | 19.81 | Pk | 34.4 | -31.9 | -40 | -17.69 | 29.54 | -47.23 | 0-360 | Face On |
| 2 | 12.8099 | 21.37 | Pk | 34.4 | -31.9 | -40 | -16.13 | 29.54 | -45.67 | 0-360 | Face Off |
| 3 | 13.5588 | 39.81 | Pk | 34.3 | -32.2 | -40 | 1.91 | 84 | -82.09 | 0-360 | Face On |
| 4 | 13.5584 | 36.32 | Pk | 34.3 | -32.2 | -40 | -1.58 | 84 | -85.58 | 0-360 | Face Off |
| 5 | 14.86 | 19.08 | Pk | 34.1 | -31.8 | -40 | -18.62 | 29.54 | -48.16 | 0-360 | Face On |
| 6 | 14.8527 | 21.5 | Pk | 34.1 | -31.8 | -40 | -16.2 | 29.54 | -45.74 | 0-360 | Face Off |

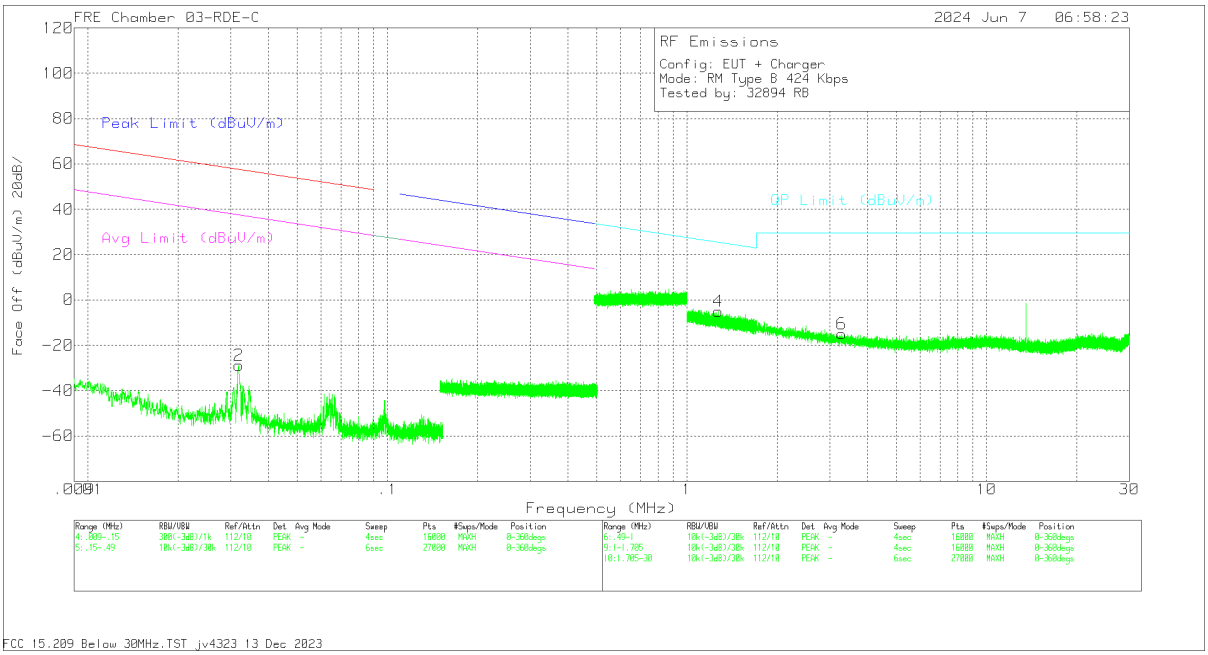
Pk - Peak detector

**SPURIOUS EMISSION**

## ANTENNA LOOP FACE ON




## ANTENNA LOOP FACE OFF



## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna H(ACF) dB/m | CBL AMP (dB) | Dist Corr 300m (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | Margin (dB) | Avg Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .0319 | 28.34 | Pk | 57.9 | -32.7 | -80 | -26.46 | 57.52 | -83.98 | 37.52 | -63.98 | 0-360 | Face-On |
| 2 | .0319 | 26.03 | Pk | 57.8 | -32.7 | -80 | -28.87 | 57.51 | -86.38 | 37.51 | -66.38 | 0-360 | Face-Off |

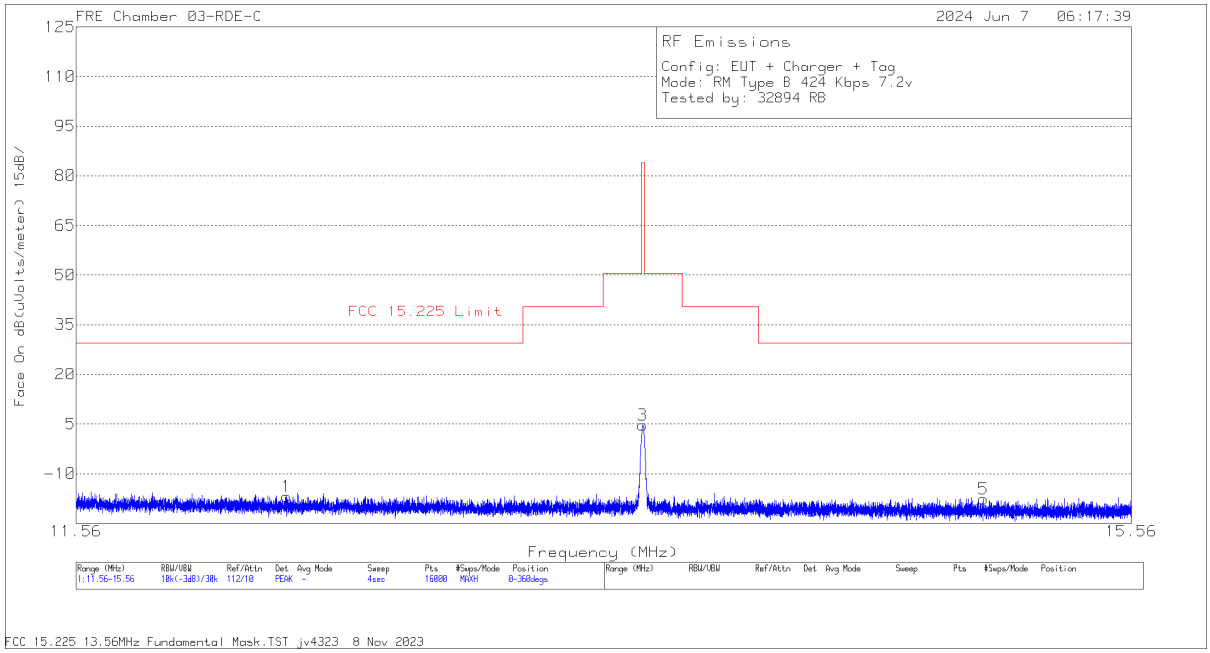
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading (dBuV/m) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1.2732 | 20.43 | Pk | 45.3 | -32.7 | -40 | -6.97 | 25.53 | -32.5 | 0-360 | Face-On |
| 4 | 1.2733 | 22.24 | Pk | 45.3 | -32.7 | -40 | -5.16 | 25.53 | -30.69 | 0-360 | Face-Off |
| 6 | 3.2896 | 19.1 | Pk | 38.3 | -32.3 | -40 | -14.9 | 29.5 | -44.4 | 0-360 | Face-off |
| 5 | 3.3022 | 20.62 | Pk | 38.3 | -32.3 | -40 | -13.38 | 29.5 | -42.88 | 0-360 | Face-On |

Pk - Peak detector

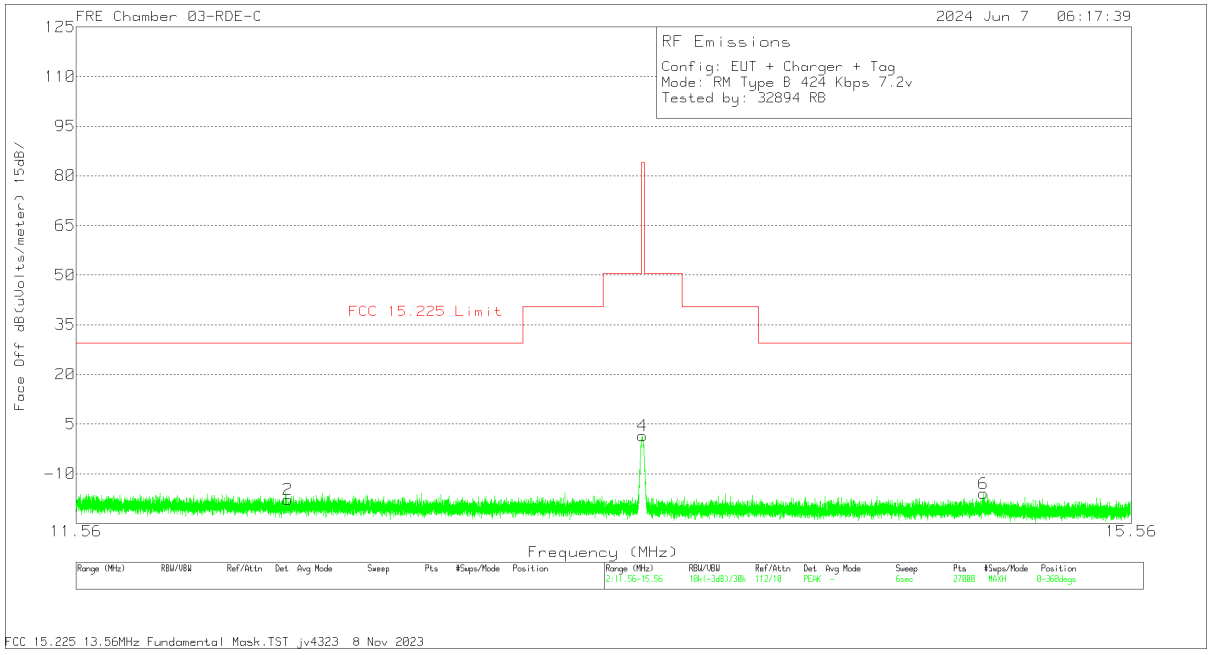
### 8.3.2. Tag MODE, TYPE B 424kbps

**FUNDAMENTAL**

**ANTENNA LOOP FACE ON**




**ANTENNA LOOP FACE OFF**



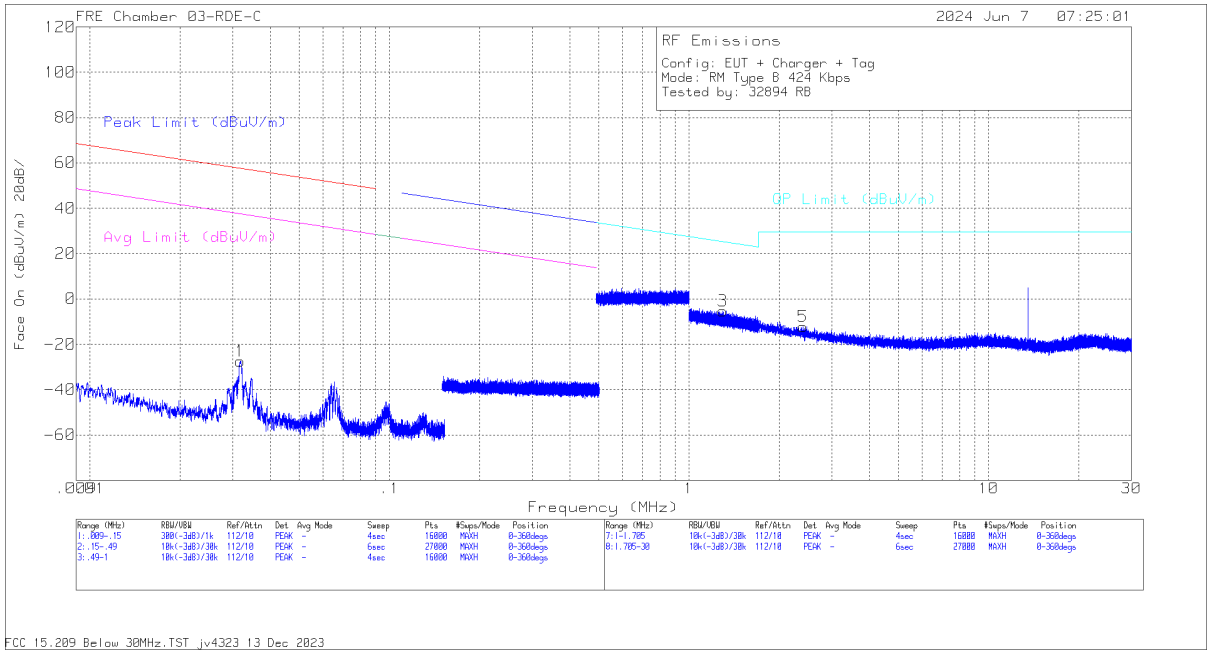
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading dBuV/m | FCC 15.225 Limit dBuV/m | PK Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12.2648 | 20.76 | Pk | 34.6 | -32.2 | -40 | -16.84 | 29.54 | -46.38 | 0-360 | Face On |
| 2 | 12.2692 | 19.77 | Pk | 34.6 | -32.2 | -40 | -17.83 | 29.54 | -47.37 | 0-360 | Face Off |
| 3 | 13.5595 | 42.55 | Pk | 34.3 | -32.2 | -40 | 4.65 | 84 | -79.35 | 0-360 | Face On |
| 4 | 13.5582 | 39.37 | Pk | 34.3 | -32.2 | -40 | 1.47 | 84 | -82.53 | 0-360 | Face Off |
| 5 | 14.924 | 20.2 | Pk | 34.1 | -31.9 | -40 | -17.6 | 29.54 | -47.14 | 0-360 | Face On |
| 6 | 14.9258 | 21.86 | Pk | 34.1 | -32 | -40 | -16.04 | 29.54 | -45.58 | 0-360 | Face Off |

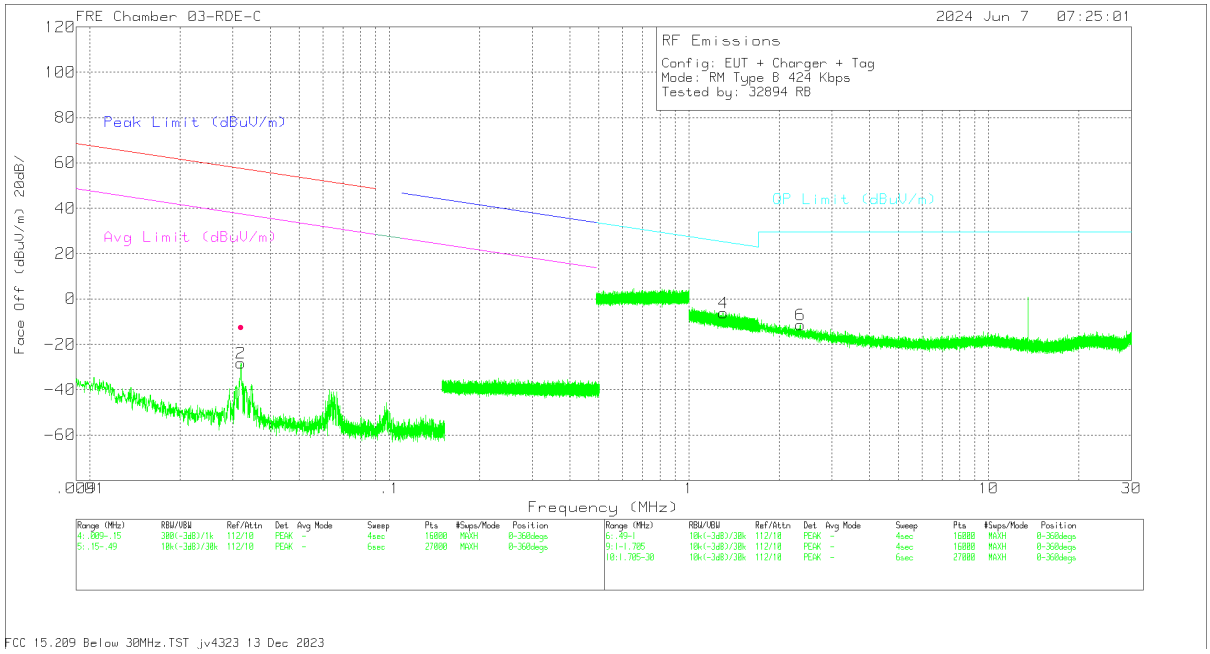
Pk - Peak detector

**SPURIOUS EMISSION**

## ANTENNA LOOP FACE ON




## ANTENNA LOOP FACE OFF



## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna H(ACF) dB/m | CBL AMP (dB) | Dist Corr 300m (dB) | Corrected Reading (dBuV/m) | Peak Limit (dBuV/m) | Margin (dB) | Avg Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .0318 | 27.28 | Pk | 57.9 | -32.7 | -80 | -27.52 | 57.53 | -85.05 | 37.53 | -65.05 | 0-360 | Face-On |
| 2 | .032 | 26.49 | Pk | 57.8 | -32.7 | -80 | -28.41 | 57.49 | -85.9 | 37.49 | -65.9 | 0-360 | Face-Off |

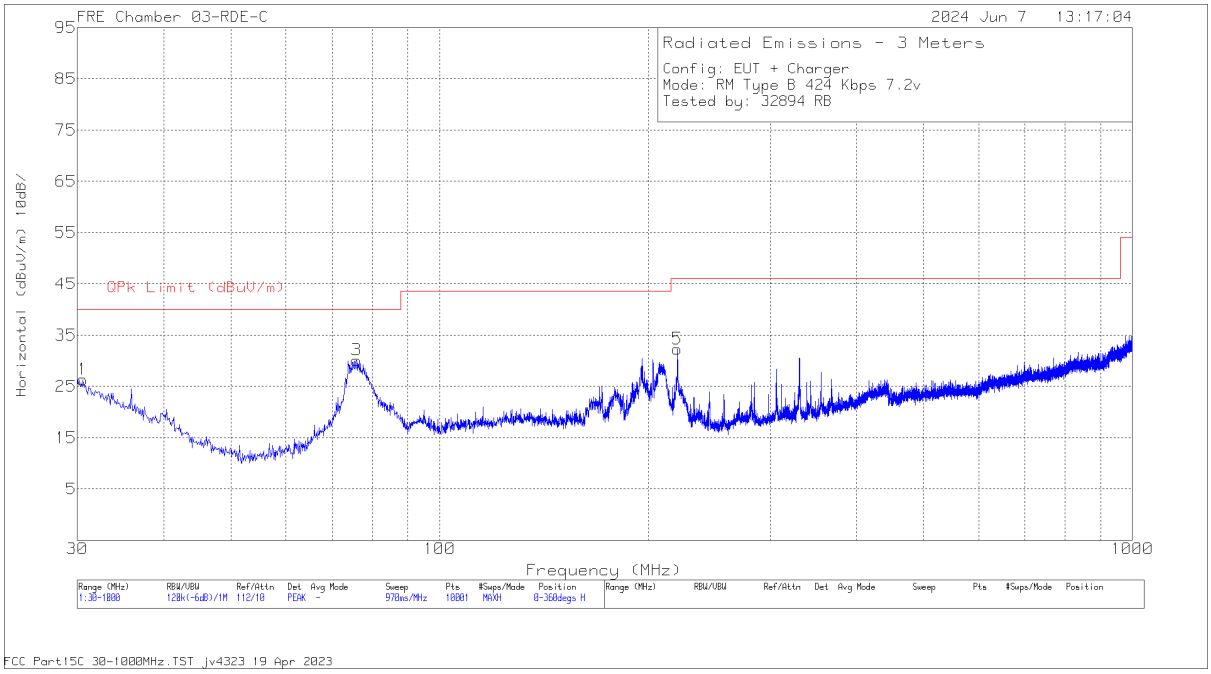
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna E(ACF) dB/m | CBL AMP (dB) | Dist Corr 30m (dB) 40Log | Corrected Reading (dBuV/m) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1.2982 | 22.4 | Pk | 45.2 | -32.9 | -40 | -5.3 | 25.36 | -30.66 | 0-360 | Face-On |
| 4 | 1.3043 | 21.41 | Pk | 45.2 | -32.9 | -40 | -6.29 | 25.32 | -31.61 | 0-360 | Face-Off |
| 6 | 2.3537 | 20.57 | Pk | 40.5 | -32.6 | -40 | -11.53 | 29.5 | -41.03 | 0-360 | Face-Off |
| 5 | 2.4061 | 19.79 | Pk | 40.4 | -32.5 | -40 | -12.31 | 29.5 | -41.81 | 0-360 | Face-On |

Pk - Peak detector

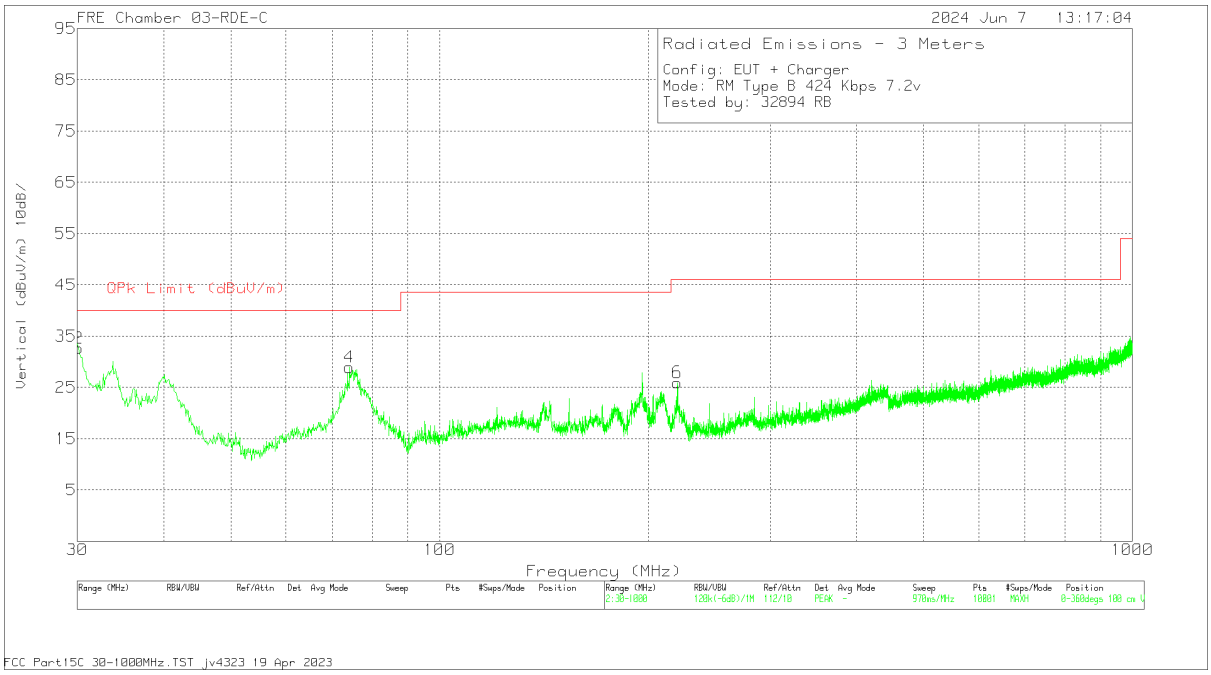
## 8.3.3. TX SPURIOUS EMISSION 30 TO 1000 MHz, EUT WITH AC/DC ADAPTER

**Type B (Reader Mode),SPURIOUS EMISSION 424kbps**

Horizontal




Vertical



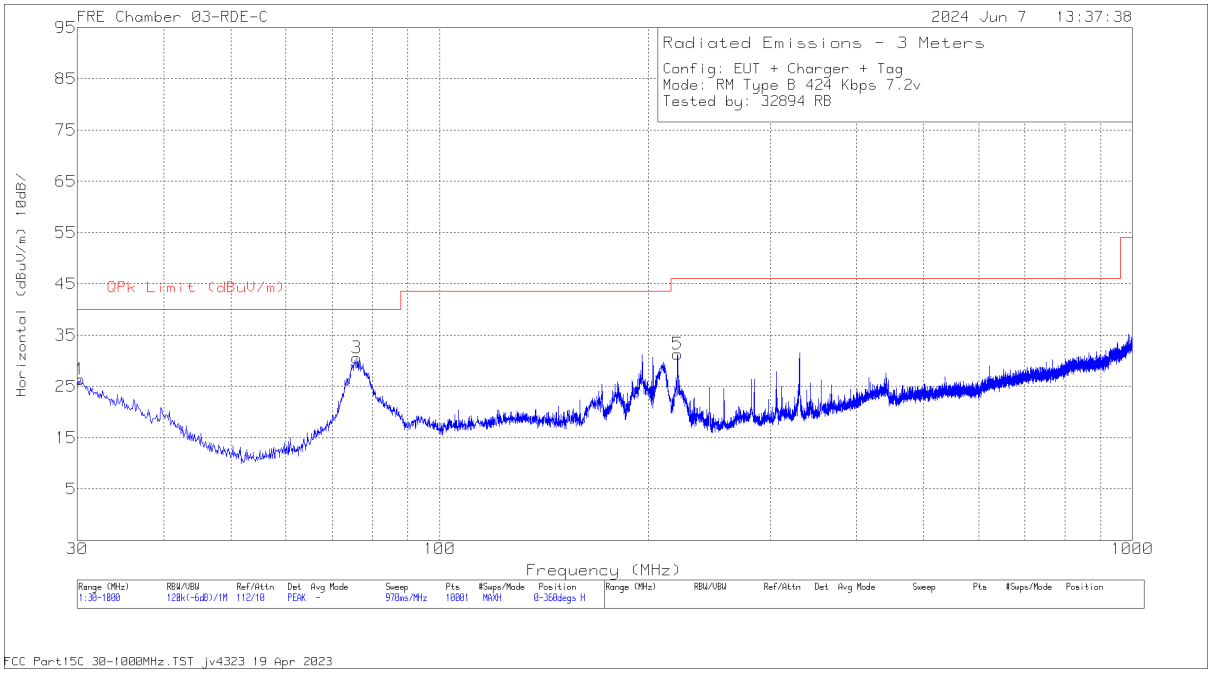
## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | 232075 ACF (dB/m) | CBL AMP (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.582 | 31.43 | Pk | 26.6 | -31.7 | 26.33 | 40 | -13.67 | 0-360 | 100 | H |
| 2 | 30.097 | 37.33 | Pk | 26.9 | -31.6 | 32.63 | 40 | -7.37 | 0-360 | 100 | V |
| 3 | 75.881 | 47.22 | Pk | 13.8 | -30.9 | 30.12 | 40 | -9.88 | 0-360 | 399 | H |
| 4 | * 74.135 | 45.83 | Pk | 14 | -30.9 | 28.93 | 40 | -11.07 | 0-360 | 100 | V |
| 5 | 220.508 | 45.7 | Pk | 16.6 | -30 | 32.3 | 46.02 | -13.72 | 0-360 | 100 | H |
| 6 | 220.508 | 39.32 | Pk | 16.6 | -30 | 25.92 | 46.02 | -20.1 | 0-360 | 199 | V |

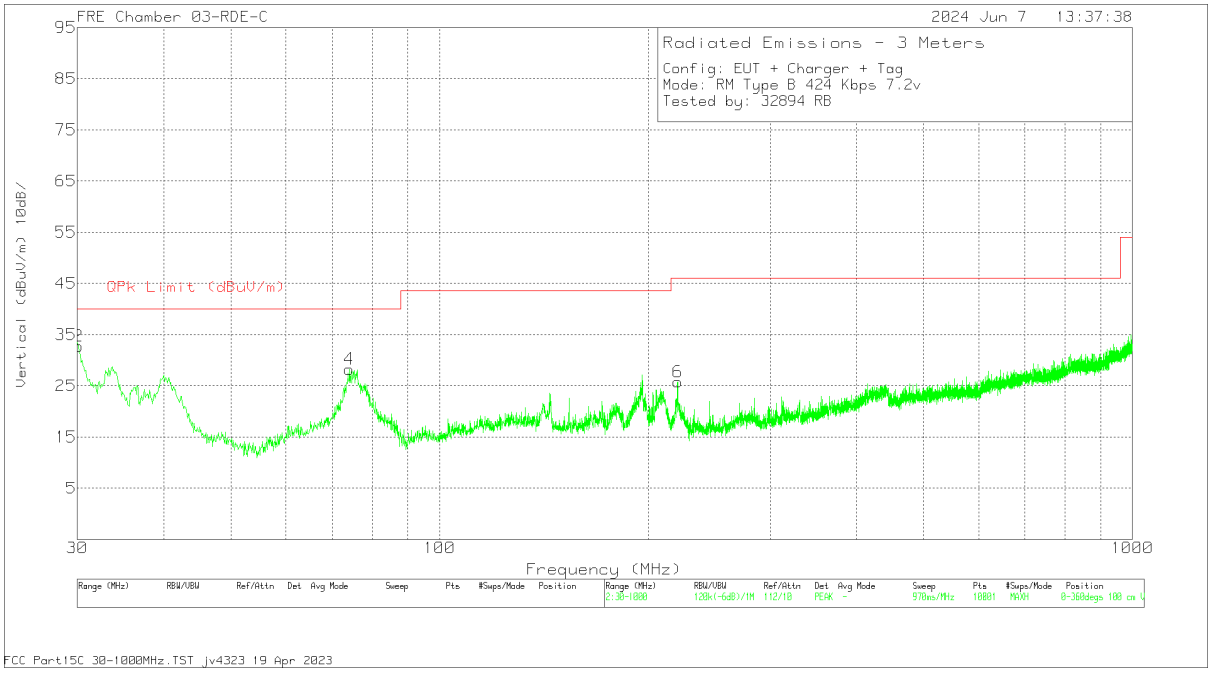
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector

**Type B (Reader Mode),SPURIOUS EMISSION 424kbps**

Horizontal




Vertical



## DATA

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | 232075 ACF (dB/m) | CBL AMP (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.291 | 31.29 | Pk | 26.8 | -31.7 | 26.39 | 40 | -13.61 | 0-360 | 99 | H |
| 2 | 30.097 | 37.43 | Pk | 26.9 | -31.6 | 32.73 | 40 | -7.27 | 0-360 | 100 | V |
| 3 | 75.978 | 47.68 | Pk | 13.8 | -30.9 | 30.58 | 40 | -9.42 | 0-360 | 298 | H |
| 4 | * 74.135 | 45.15 | Pk | 14 | -30.9 | 28.25 | 40 | -11.75 | 0-360 | 199 | V |
| 5 | 220.605 | 44.74 | Pk | 16.6 | -30 | 31.34 | 46.02 | -14.68 | 0-360 | 99 | H |
| 6 | 220.702 | 39.17 | Pk | 16.6 | -30 | 25.77 | 46.02 | -20.25 | 0-360 | 199 | V |

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

# 9. FREQUENCY STABILITY

**LIMIT**

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency, over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

IC RSS-210, Annex B.6
Carrier frequency stability shall be maintained to ±0.01% (±100 ppm).

**TEST PROCEDURE**

ANSI C63.10-2013 Clause 6.8

**RESULTS**

No non-compliance noted.

| | | | |
|---|---|---|---|
| **ID:** | 26051 | **Date:** | 2024/07/26 |

# 9.1. PRIMARY ANTENNA

## READER MODE, TYPE B 424Kbps

| Reference Frequency: EUT Channel 13.56 MHz @ 20°C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Limit: ± 100 ppm = 1.35600 KHz | | | | | | | | | | |
| Power Supply | Envir. Temp | Frequency Deviation Measureed with Time Elapse | | | | | | | | |
| (VAC) | (°C) | Startup (MHz) | Delta (ppm) | @ 2 mins (MHz) | Delta (ppm) | @ 5 mins (MHz) | Delta (ppm) | @ 10 mins (MHz) | Delta (ppm) | Limit (ppm) |
| | 50 | 13.5599727 | -4.056 | 13.5599791 | -4.528 | 13.5599885 | -5.221 | 13.5599974 | -5.877 | ± 100 |
| | 40 | 13.5599349 | -1.268 | 13.55993742 | -1.454 | 13.5599404 | -1.674 | 13.5599445 | -1.976 | ± 100 |
| | 30 | 13.5599191 | -0.103 | 13.55991981 | -0.155 | 13.5599205 | -0.206 | 13.5599213 | -0.265 | ± 100 |
| ***3.80*** | ***20*** | ***13.5599177*** | ***0.000*** | ***13.5599176*** | ***0.007*** | ***13.5599175*** | ***0.015*** | ***13.5599174*** | ***0.022*** | ***± 100*** |
| | 10 | 13.5599179 | -0.015 | 13.5599182 | -0.037 | 13.5599189 | -0.088 | 13.5599192 | -0.110 | ± 100 |
| | 0 | 13.5599256 | -0.582 | 13.5599267 | -0.664 | 13.5599282 | -0.774 | 13.5599302 | -0.922 | ± 100 |
| | -10 | 13.5599369 | -1.416 | 13.5599376 | -1.467 | 13.5599385 | -1.534 | 13.5599386 | -1.541 | ± 100 |
| | -20 | 13.5599394 | -1.600 | 13.5599398 | -1.630 | 13.5599391 | -1.578 | 13.5599384 | -1.526 | ± 100 |
| 3.23 | 20 | 13.5599179 | -0.015 | 13.5599177 | 0.000 | 13.5599178 | -0.007 | 13.5599178 | -0.007 | ± 100 |
| 4.37 | 20 | 13.5599174 | 0.022 | 13.5599173 | 0.030 | 13.5599174 | 0.022 | 13.5599173 | 0.030 | ± 100 |

## Tag MODE, TYPE B 424Kbps

| Reference Frequency: EUT Channel 13.56 MHz @ 20°C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Limit: ± 100 ppm = 1.35600 KHz | | | | | | | | | | |
| Power Supply | Envir. Temp | Frequency Deviation Measureed with Time Elapse | | | | | | | | |
| (VAC) | (°C) | Startup (MHz) | Delta (ppm) | @ 2 mins (MHz) | Delta (ppm) | @ 5 mins (MHz) | Delta (ppm) | @ 10 mins (MHz) | Delta (ppm) | Limit (ppm) |
| | 50 | 13.5599741 | -3.945 | 13.5599821 | -4.535 | 13.5599901 | -5.125 | 13.5600017 | -5.981 | ± 100 |
| | 40 | 13.5599325 | -0.877 | 13.5599358 | -1.121 | 13.5599393 | -1.379 | 13.5599439 | -1.718 | ± 100 |
| | 30 | 13.5599194 | 0.089 | 13.5599201 | 0.037 | 13.5599209 | -0.022 | 13.5599219 | -0.096 | ± 100 |
| ***3.80*** | ***20*** | ***13.5599206*** | ***0.000*** | ***13.5599202*** | ***0.030*** | ***13.5599199*** | ***0.052*** | ***13.5599193*** | ***0.096*** | ***± 100*** |
| | 10 | 13.5599192 | 0.104 | 13.5599185 | 0.155 | 13.5599191 | 0.111 | 13.5599201 | 0.037 | ± 100 |
| | 0 | 13.5599248 | -0.309 | 13.5599261 | -0.405 | 13.5599276 | -0.516 | 13.5599295 | -0.656 | ± 100 |
| | -10 | 13.5599361 | -1.143 | 13.5599371 | -1.217 | 13.5599381 | -1.290 | 13.5599391 | -1.364 | ± 100 |
| | -20 | 13.5599406 | -1.475 | 13.5599404 | -1.460 | 13.5599399 | -1.423 | 13.5599392 | -1.371 | ± 100 |
| 3.23 | 20 | 13.5599191 | 0.111 | 13.5599189 | 0.125 | 13.5599185 | 0.155 | 13.5599184 | 0.163 | ± 100 |
| 4.37 | 20 | 13.5599186 | 0.148 | 13.5599186 | 0.148 | 13.5599187 | 0.140 | 13.5599186 | 0.148 | ± 100 |

## CE MODE, TYPE B 424Kbps

| Limit: ± 100 ppm = 1.35600 KHz | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Power Supply | Envir. Temp | Frequency Deviation Measureed with Time Elapse | | | | | | | | |
| (VAC) | (°C) | Startup (MHz) | Delta (ppm) | @ 2 mins (MHz) | Delta (ppm) | @ 5 mins (MHz) | Delta (ppm) | @ 10 mins (MHz) | Delta (ppm) | Limit (ppm) |
| | 50 | 13.559883 | 8.260 | 13.560015 | -1.475 | 13.559895 | 7.375 | 13.559892 | 7.596 | ± 100 |
| | 40 | 13.559853 | 10.472 | 13.559934 | 4.499 | 13.559919 | 5.605 | 13.559988 | 0.516 | ± 100 |
| | 30 | 13.559871 | 9.145 | 13.559883 | 8.260 | 13.559889 | 7.817 | 13.559982 | 0.959 | ± 100 |
| ***3.80*** | ***20*** | ***13.559995*** | ***0.000*** | ***13.559799*** | ***14.454*** | ***13.559798*** | ***14.528*** | ***13.559785*** | ***15.487*** | ***± 100*** |
| | 10 | 13.559916 | 5.826 | 13.559931 | 4.720 | 13.559877 | 8.702 | 13.559973 | 1.622 | ± 100 |
| | 0 | 13.559919 | 5.605 | 13.560039 | -3.245 | 13.559766 | 16.888 | 13.559961 | 2.507 | ± 100 |
| | -10 | 13.55991 | 6.268 | 13.560111 | -8.555 | 13.559937 | 4.277 | 13.560006 | -0.811 | ± 100 |
| | -20 | 13.55991 | 6.268 | 13.559958 | 2.729 | 13.559919 | 5.605 | 13.560015 | -1.475 | ± 100 |
| 3.23 | 20 | 13.559925 | 5.162 | 13.559976 | 1.401 | 13.559922 | 5.383 | 13.559925 | 5.162 | ± 100 |
| 4.37 | 20 | 13.559991 | 0.295 | 13.559975 | 1.475 | 13.559913 | 6.047 | 13.559937 | 4.277 | ± 100 |

## 9.2. SECONDARY ANTENNA

### READER MODE, TYPE B 424Kbps

| Power Supply | Envir. Temp | Frequency Deviation Measureed with Time Elapse | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (VAC) | (°C) | Startup (MHz) | Delta (ppm) | @ 2 mins (MHz) | Delta (ppm) | @ 5 mins (MHz) | Delta (ppm) | @ 10 mins (MHz) | Delta (ppm) | Limit (ppm) |
| | 50 | 13.559922 | 3.982 | 13.559925 | 3.761 | 13.559928 | 3.540 | 13.559931 | 3.319 | ± 100 |
| | 40 | 13.559928 | 3.540 | 13.559925 | 3.761 | 13.559922 | 3.982 | 13.559922 | 3.982 | ± 100 |
| | 30 | 13.559952 | 1.770 | 13.559949 | 1.991 | 13.559946 | 2.212 | 13.55994 | 2.655 | ± 100 |
| ***3.80*** | ***20*** | ***13.559976*** | ***0.000*** | ***13.559973*** | ***0.221*** | ***13.55997*** | ***0.442*** | ***13.559967*** | ***0.664*** | ***± 100*** |
| | 10 | 13.559931 | 3.319 | 13.559937 | 2.876 | 13.559943 | 2.434 | 13.559958 | 1.327 | ± 100 |
| | 0 | 13.559988 | -0.885 | 13.559994 | -1.327 | 13.559996 | -1.475 | 13.560012 | -2.655 | ± 100 |
| | -10 | 13.560042 | -4.867 | 13.560048 | -5.310 | 13.560054 | -5.752 | 13.560063 | -6.416 | ± 100 |
| | -20 | 13.56009 | -8.407 | 13.560093 | -8.628 | 13.560099 | -9.071 | 13.560105 | -9.513 | ± 100 |
| 3.23 | 20 | 13.560027 | -3.761 | 13.560015 | -2.876 | 13.560006 | -2.212 | 13.560004 | -2.065 | ± 100 |
| 4.37 | 20 | 13.559991 | -1.106 | 13.559988 | -0.885 | 13.559985 | -0.664 | 13.559979 | -0.221 | ± 100 |

### TAG MODE, TYPE B 424Kbps

| Reference Frequency: EUT Channel 13.56 MHz @ 20°C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Limit: ± 100 ppm = 1.35600 KHz | | | | | | | | | | |
| Power Supply | Envir. Temp | Frequency Deviation Measureed with Time Elapse | | | | | | | | |
| (VAC) | (°C) | Startup (MHz) | Delta (ppm) | @ 2 mins (MHz) | Delta (ppm) | @ 5 mins (MHz) | Delta (ppm) | @ 10 mins (MHz) | Delta (ppm) | Limit (ppm) |
| | 50 | 13.559923 | 3.909 | 13.559926 | 3.687 | 13.559929 | 3.466 | 13.559937 | 2.876 | ± 100 |
| | 40 | 13.55992 | 4.130 | 13.559922 | 3.982 | 13.559921 | 4.056 | 13.559945 | 2.286 | ± 100 |
| | 30 | 13.559946 | 2.212 | 13.559941 | 2.581 | 13.559935 | 3.024 | 13.559935 | 3.024 | ± 100 |
| ***3.80*** | ***20*** | ***13.559976*** | ***0.000*** | ***13.559973*** | ***0.221*** | ***13.559975*** | ***0.074*** | ***13.559967*** | ***0.664*** | ***± 100*** |
| | 10 | 13.559982 | -0.442 | 13.559976 | 0.000 | 13.559982 | -0.442 | 13.559994 | -1.327 | ± 100 |
| | 0 | 13.560021 | -3.319 | 13.560028 | -3.835 | 13.560036 | -4.425 | 13.5600401 | -4.727 | ± 100 |
| | -10 | 13.560069 | -6.858 | 13.560075 | -7.301 | 13.560082 | -7.817 | 13.5600821 | -7.824 | ± 100 |
| | -20 | 13.560103 | -9.366 | 13.560111 | -9.956 | 13.560113 | -10.103 | 13.5601163 | -10.347 | ± 100 |
| 3.23 | 20 | 13.559958 | 1.327 | 13.559955 | 1.549 | 13.559955 | 1.549 | 13.5599207 | 4.078 | ± 100 |
| 4.37 | 20 | 13.559959 | 1.254 | 13.559962 | 1.032 | 13.559964 | 0.885 | 13.559963 | 0.959 | ± 100 |

# 10. AC MAINS LINE CONDUCTED EMISSIONS

**LIMITS**

§15.207
IC RSS-GEN, Section 8.8

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

| Frequency range (MHz) | Limits (dBμV) | |
|---|---|---|
| | 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:<br>1. The lower limit shall apply at the transition frequencies<br>2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. | | |

**TEST PROCEDURE**

ANSI C63.10:2013

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 NEUTRAL and HOT lines.

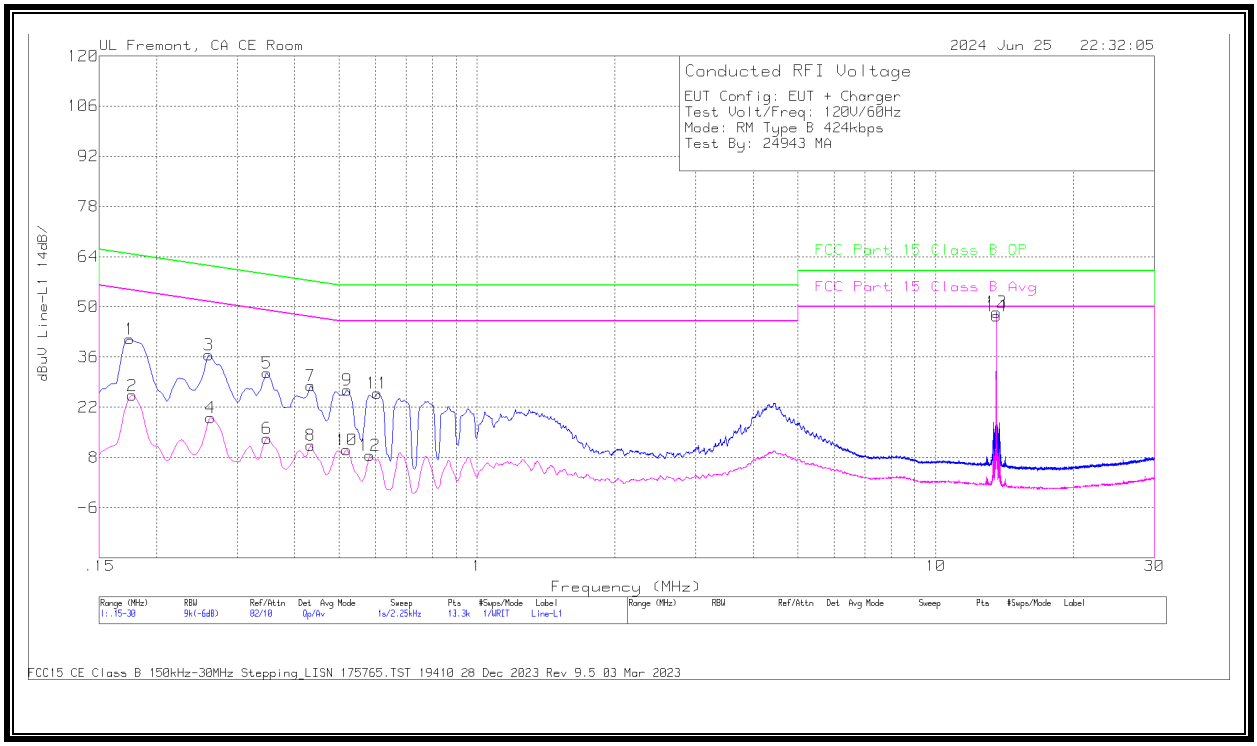
**RESULTS**

No non-compliance noted:

# 10.1. PRIMARY ANTENNA

## 10.1.1. READER MODE, NORMAL OPERATION

**LINE 1 RESULTS**

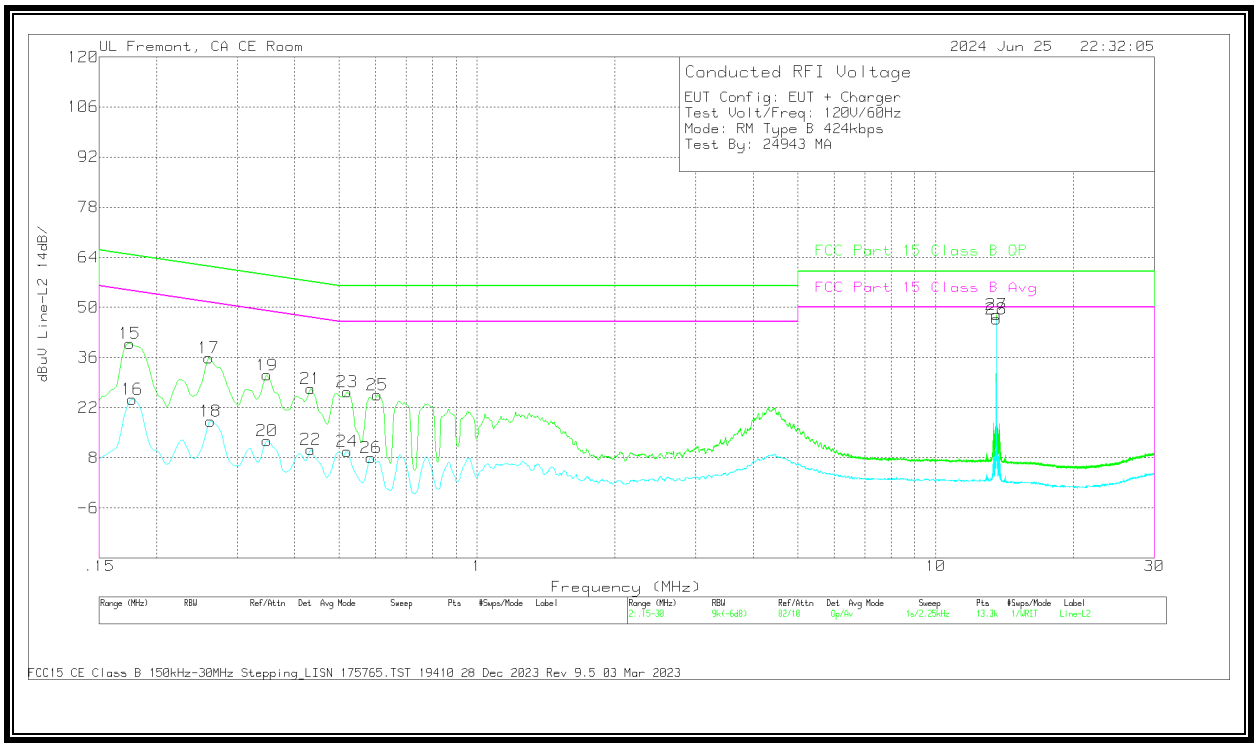



**Worst Emission**

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 2 | .177 | 15.69 | Av | .1 | .1 | 9.4 | 25.29 | - | - | 54.63 | -29.34 |
| 4 | .2625 | 9.68 | Av | 0 | 0 | 9.4 | 19.08 | - | - | 51.35 | -32.27 |
| 6 | .348 | 3.93 | Av | 0 | 0 | 9.4 | 13.33 | - | - | 49.01 | -35.68 |
| 8 | .4335 | 1.93 | Av | 0 | .1 | 9.3 | 11.33 | - | - | 47.19 | -35.86 |
| 10 | .5201 | .76 | Av | 0 | 0 | 9.3 | 10.06 | - | - | 46 | -35.94 |
| 12 | .5843 | -.91 | Av | 0 | 0 | 9.4 | 8.49 | - | - | 46 | -37.51 |
| 14 | 13.56 | 37.51 | Av | .1 | .3 | 9.5 | 47.41 | - | - | 50 | -2.59 |
| 1 | .1748 | 31.45 | Qp | .1 | 0 | 9.5 | 41.05 | 64.73 | -23.68 | - | - |
| 3 | .2603 | 27.17 | Qp | 0 | 0 | 9.4 | 36.57 | 61.42 | -24.85 | - | - |
| 5 | .348 | 22.19 | Qp | 0 | 0 | 9.4 | 31.59 | 59.01 | -27.42 | - | - |
| 7 | .4335 | 18.58 | Qp | 0 | .1 | 9.3 | 27.98 | 57.19 | -29.21 | - | - |
| 9 | .5213 | 17.43 | Qp | 0 | 0 | 9.3 | 26.73 | 56 | -29.27 | - | - |
| 11 | .6068 | 16.57 | Qp | 0 | 0 | 9.4 | 25.97 | 56 | -30.03 | - | - |
| 13 | 13.56 | 38.63 | Qp | .1 | .3 | 9.5 | 48.53 | 60 | -11.47 | - | - |

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following section 10.1.2 indicate that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

## LINE 2 RESULTS




## Worst Emission

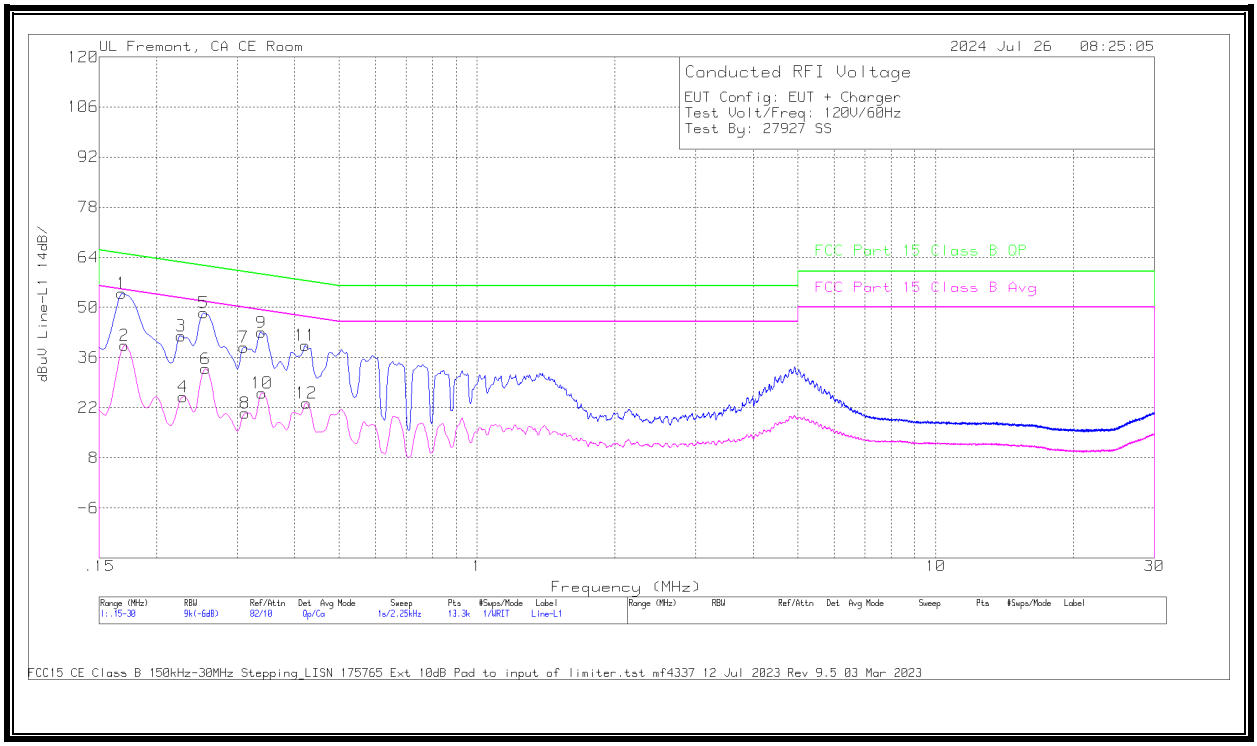
| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 16 | .177 | 14.83 | Av | 0 | .1 | 9.4 | 24.33 | - | - | 54.63 | -30.3 |
| 18 | .2625 | 8.83 | Av | 0 | 0 | 9.4 | 18.23 | - | - | 51.35 | -33.12 |
| 20 | .348 | 3.25 | Av | 0 | .1 | 9.4 | 12.75 | - | - | 49.01 | -36.26 |
| 22 | .4335 | .96 | Av | 0 | 0 | 9.3 | 10.26 | - | - | 47.19 | -36.93 |
| 24 | .5213 | .44 | Av | 0 | 0 | 9.3 | 9.74 | - | - | 46 | -36.26 |
| 26 | .5865 | -1.42 | Av | 0 | .1 | 9.4 | 8.08 | - | - | 46 | -37.92 |
| 28 | 13.56 | 36.96 | Av | .1 | .2 | 9.5 | 46.76 | - | - | 50 | -3.24 |
| 15 | .1748 | 30.46 | Qp | 0 | 0 | 9.5 | 39.96 | 64.73 | -24.77 | - | - |
| 17 | .2603 | 26.51 | Qp | 0 | 0 | 9.4 | 35.91 | 61.42 | -25.51 | - | - |
| 19 | .348 | 21.58 | Qp | 0 | .1 | 9.4 | 31.08 | 59.01 | -27.93 | - | - |
| 21 | .4335 | 18.03 | Qp | 0 | 0 | 9.3 | 27.33 | 57.19 | -29.86 | - | - |
| 23 | .5213 | 17.06 | Qp | 0 | 0 | 9.3 | 26.36 | 56 | -29.64 | - | - |
| 25 | .6068 | 16.05 | Qp | 0 | .1 | 9.4 | 25.55 | 56 | -30.45 | - | - |
| 27 | 13.56 | 38.17 | Qp | .1 | .2 | 9.5 | 47.97 | 60 | -12.03 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following section indicate that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

## NORMAL OPERATION WITH ANTENNA PORT TERMINATED

## LINE 1 RESULTS

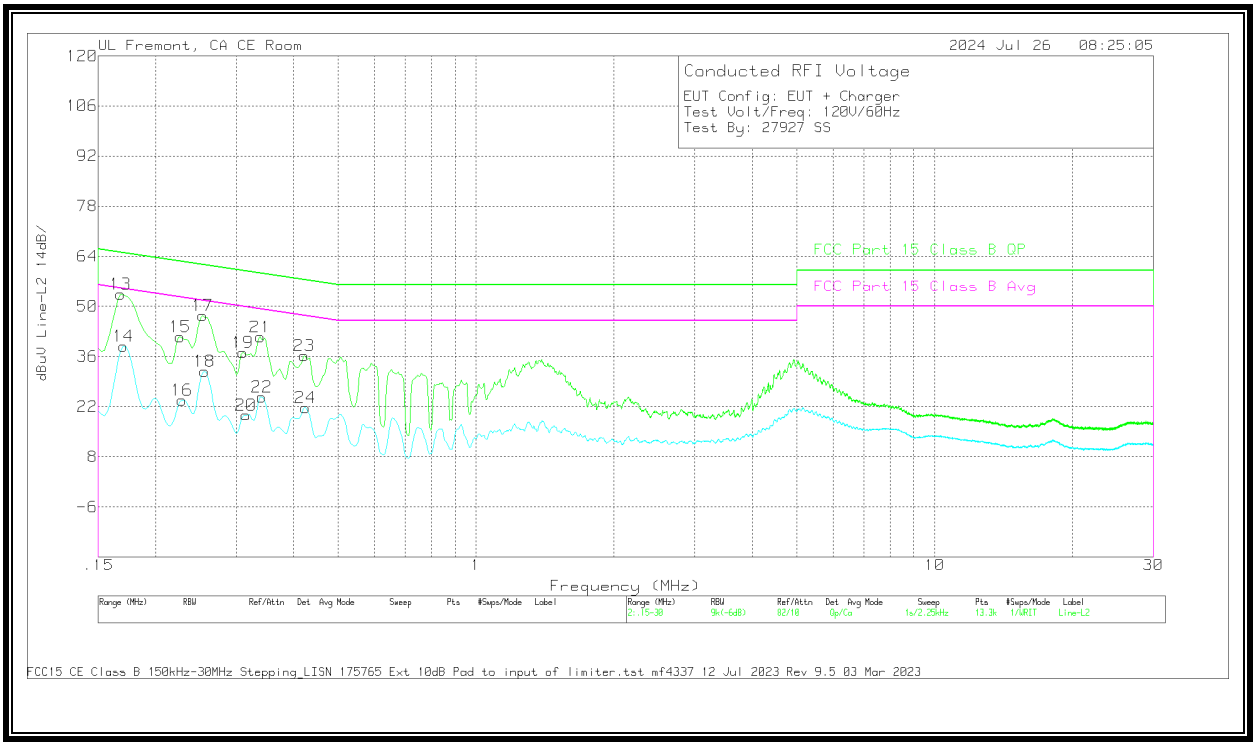



## Worst Emission

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | 10dB Atten (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av(CISPR) Margin (dB) |
| | | | | | | | | | | | | |
| 2 | .1703 | 19.79 | Ca | .1 | 0 | 9.5 | 10 | 39.39 | - | - | 54.95 | -15.56 |
| 4 | .2288 | 5.69 | Ca | 0 | 0 | 9.4 | 10 | 25.09 | - | - | 52.49 | -27.4 |
| 6 | .2558 | 13.43 | Ca | 0 | 0 | 9.4 | 10 | 32.83 | - | - | 51.57 | -18.74 |
| 8 | .312 | 1.04 | Ca | 0 | .1 | 9.4 | 10 | 20.54 | - | - | 49.92 | -29.38 |
| 10 | .3401 | 6.74 | Ca | 0 | 0 | 9.4 | 10 | 26.14 | - | - | 49.2 | -23.06 |
| 12 | .4245 | 3.84 | Ca | 0 | 0 | 9.4 | 10 | 23.24 | - | - | 47.36 | -24.12 |
| 1 | .168 | 34.4 | Qp | .1 | 0 | 9.5 | 10 | 54 | 65.06 | -11.06 | - | - |
| 3 | .2265 | 22.69 | Qp | 0 | 0 | 9.4 | 10 | 42.09 | 62.58 | -20.49 | - | - |
| 5 | .2535 | 29.06 | Qp | 0 | 0 | 9.4 | 10 | 48.46 | 61.64 | -13.18 | - | - |
| 7 | .3098 | 19.4 | Qp | 0 | .1 | 9.4 | 10 | 38.9 | 59.98 | -21.08 | - | - |
| 9 | .339 | 23.6 | Qp | 0 | 0 | 9.4 | 10 | 43 | 59.23 | -16.23 | - | - |
| 11 | .4223 | 19.93 | Qp | 0 | 0 | 9.4 | 10 | 39.33 | 57.4 | -18.07 | - | - |

Qp - Quasi-Peak detector
Ca - CISPR average detection

## LINE 2 RESULTS




## Worst Emission

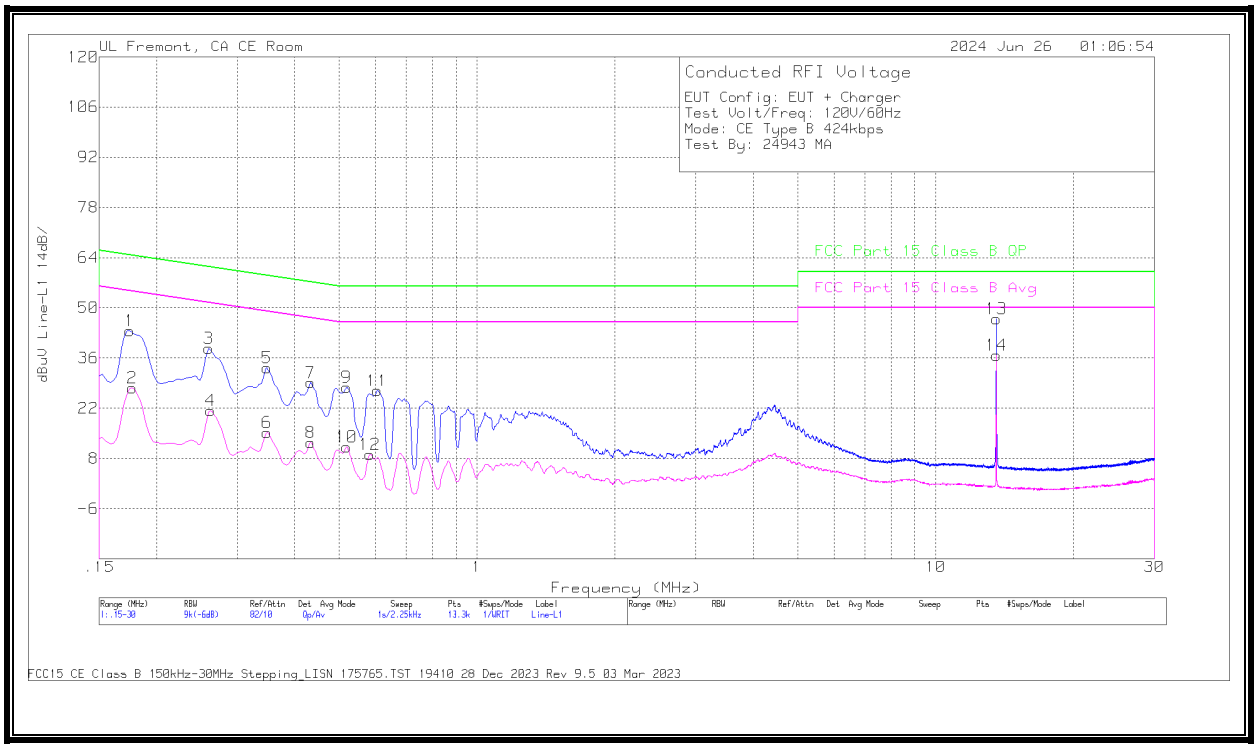
| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | 10dB Atten (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av(CISPR) Margin (dB) |
| | | | | | | | | | | | | |
| 14 | .1703 | 19.39 | Ca | 0 | 0 | 9.5 | 10 | 38.89 | - | - | 54.95 | -16.06 |
| 16 | .2288 | 4.38 | Ca | 0 | 0 | 9.4 | 10 | 23.78 | - | - | 52.49 | -28.71 |
| 18 | .2558 | 12.47 | Ca | 0 | 0 | 9.4 | 10 | 31.87 | - | - | 51.57 | -19.7 |
| 20 | .3154 | .17 | Ca | 0 | .1 | 9.4 | 10 | 19.67 | - | - | 49.83 | -30.16 |
| 22 | .3413 | 5.17 | Ca | 0 | .1 | 9.4 | 10 | 24.67 | - | - | 49.17 | -24.5 |
| 24 | .4245 | 2.23 | Ca | 0 | .1 | 9.4 | 10 | 21.73 | - | - | 47.36 | -25.63 |
| 13 | .168 | 33.78 | Qp | .1 | 0 | 9.5 | 10 | 53.38 | 65.06 | -11.68 | - | - |
| 15 | .2265 | 22.05 | Qp | 0 | 0 | 9.4 | 10 | 41.45 | 62.58 | -21.13 | - | - |
| 17 | .2535 | 28 | Qp | 0 | 0 | 9.4 | 10 | 47.4 | 61.64 | -14.24 | - | - |
| 19 | .3098 | 17.55 | Qp | 0 | .1 | 9.4 | 10 | 37.05 | 59.98 | -22.93 | - | - |
| 21 | .339 | 21.93 | Qp | 0 | .1 | 9.4 | 10 | 41.43 | 59.23 | -17.8 | - | - |
| 23 | .4223 | 16.72 | Qp | 0 | .1 | 9.4 | 10 | 36.22 | 57.4 | -21.18 | - | - |

Qp - Quasi-Peak detector
Ca - CISPR average detection

## 10.1.2. CE MODE, TYPE B, 424Kbps

**NORMAL OPERATION**

**LINE 1 RESULTS**



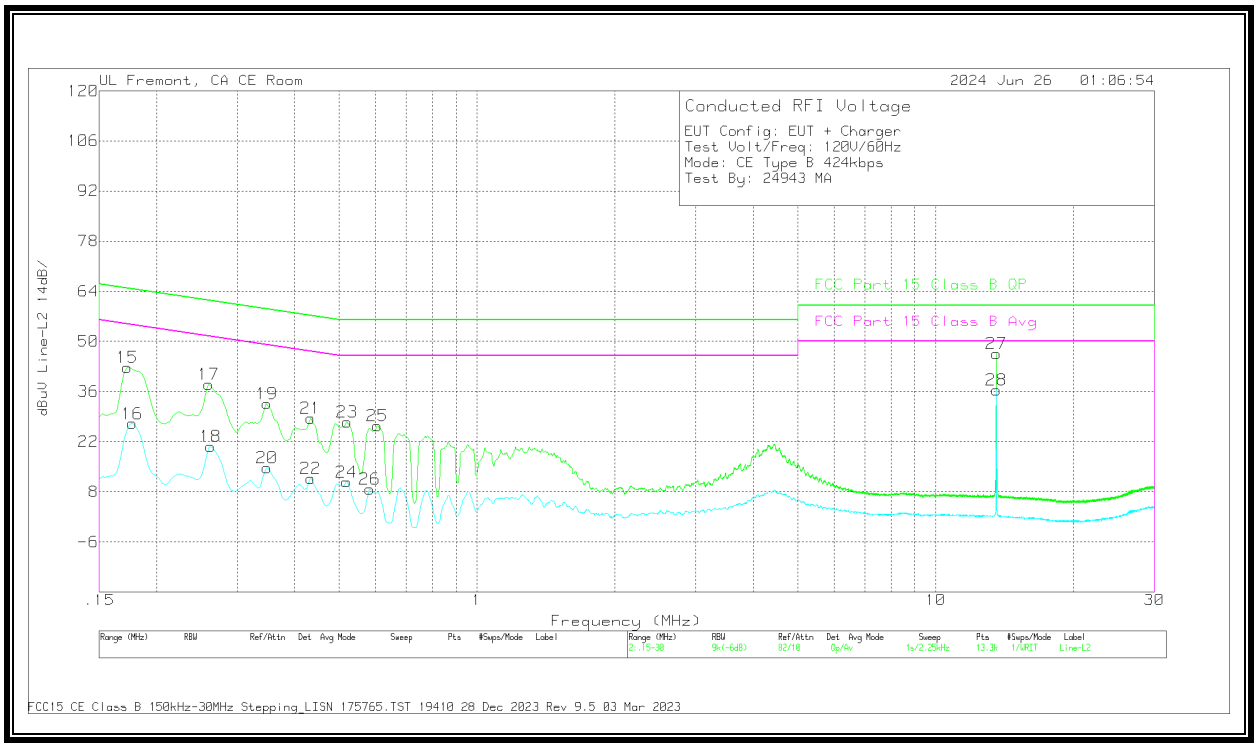

**Worst Emission**

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 2 | .177 | 18.09 | Av | .1 | .1 | 9.4 | 27.69 | - | - | 54.63 | -26.94 |
| 4 | .2625 | 11.88 | Av | 0 | 0 | 9.4 | 21.28 | - | - | 51.35 | -30.07 |
| 6 | .348 | 5.79 | Av | 0 | 0 | 9.4 | 15.19 | - | - | 49.01 | -33.82 |
| 8 | .4335 | 3.07 | Av | 0 | .1 | 9.3 | 12.47 | - | - | 47.19 | -34.72 |
| 10 | .519 | 1.9 | Av | 0 | 0 | 9.3 | 11.2 | - | - | 46 | -34.8 |
| 12 | .5843 | -.26 | Av | 0 | 0 | 9.4 | 9.14 | - | - | 46 | -36.86 |
| 14 | 13.56 | 26.81 | Av | .1 | .3 | 9.5 | 36.71 | - | - | 50 | -13.29 |
| 1 | .1748 | 33.98 | Qp | .1 | 0 | 9.5 | 43.58 | 64.73 | -21.15 | - | - |
| 3 | .2603 | 29.27 | Qp | 0 | 0 | 9.4 | 38.67 | 61.42 | -22.75 | - | - |
| 5 | .348 | 23.82 | Qp | 0 | 0 | 9.4 | 33.22 | 59.01 | -25.79 | - | - |
| 7 | .4335 | 19.74 | Qp | 0 | .1 | 9.3 | 29.14 | 57.19 | -28.05 | - | - |
| 9 | .5201 | 18.57 | Qp | 0 | 0 | 9.3 | 27.87 | 56 | -28.13 | - | - |
| 11 | .6068 | 17.47 | Qp | 0 | 0 | 9.4 | 26.87 | 56 | -29.13 | - | - |
| 13 | 13.56 | 37.08 | Qp | .1 | .3 | 9.5 | 46.98 | 60 | -13.02 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following section 10.2.2 indicate that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

## LINE 2 RESULTS




## Worst Emission

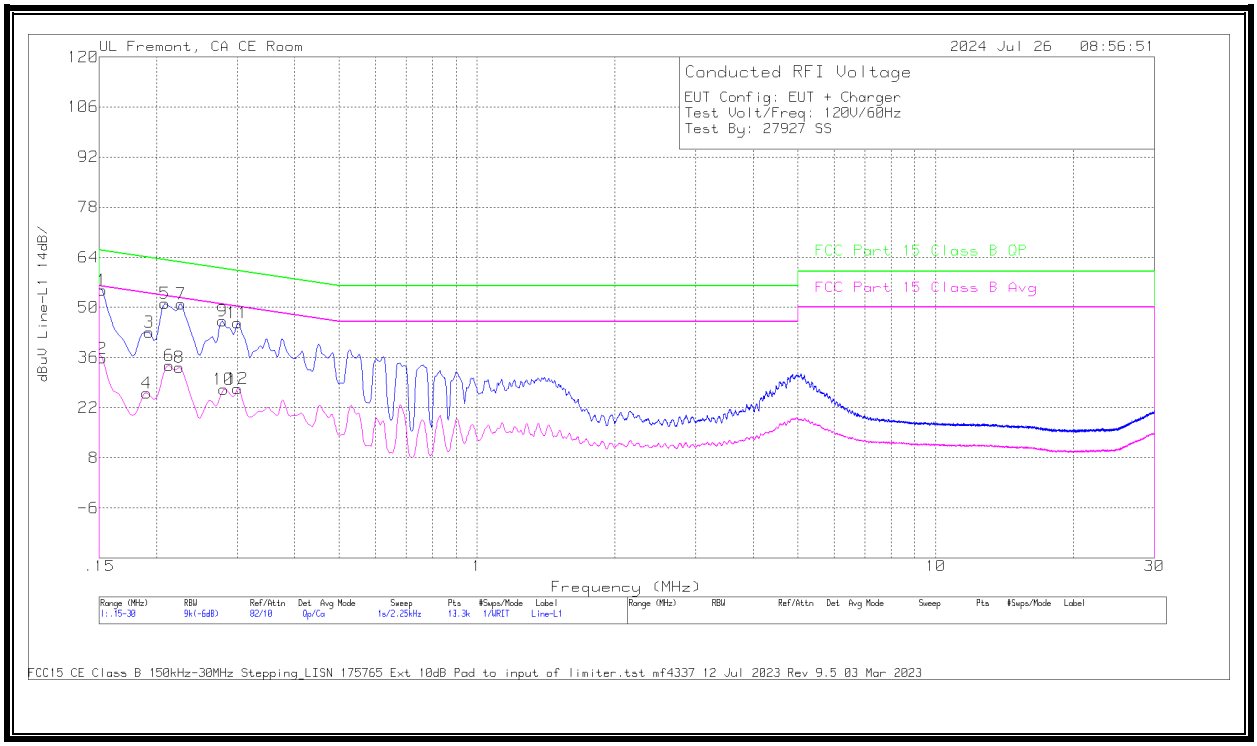
| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 16 | .177 | 17.54 | Av | 0 | .1 | 9.4 | 27.04 | - | - | 54.63 | -27.59 |
| 18 | .2625 | 11.24 | Av | 0 | 0 | 9.4 | 20.64 | - | - | 51.35 | -30.71 |
| 20 | .348 | 5.18 | Av | 0 | .1 | 9.4 | 14.68 | - | - | 49.01 | -34.33 |
| 22 | .4335 | 2.47 | Av | 0 | 0 | 9.3 | 11.77 | - | - | 47.19 | -35.42 |
| 24 | .5201 | 1.44 | Av | 0 | 0 | 9.3 | 10.74 | - | - | 46 | -35.26 |
| 26 | .5843 | -.75 | Av | 0 | .1 | 9.4 | 8.75 | - | - | 46 | -37.25 |
| 28 | 13.56 | 26.58 | Av | .1 | .2 | 9.5 | 36.38 | - | - | 50 | -13.62 |
| 15 | .1725 | 33.26 | Qp | 0 | 0 | 9.5 | 42.76 | 64.84 | -22.08 | - | - |
| 17 | .2603 | 28.59 | Qp | 0 | 0 | 9.4 | 37.99 | 61.42 | -23.43 | - | - |
| 19 | .348 | 23.14 | Qp | 0 | .1 | 9.4 | 32.64 | 59.01 | -26.37 | - | - |
| 21 | .4335 | 19.25 | Qp | 0 | 0 | 9.3 | 28.55 | 57.19 | -28.64 | - | - |
| 23 | .5213 | 18.12 | Qp | 0 | 0 | 9.3 | 27.42 | 56 | -28.58 | - | - |
| 25 | .6068 | 16.91 | Qp | 0 | .1 | 9.4 | 26.41 | 56 | -29.59 | - | - |
| 27 | 13.56 | 36.85 | Qp | .1 | .2 | 9.5 | 46.65 | 60 | -13.35 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following section 10.2.2 indicate that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

## NORMAL OPERATION WITH ANTENNA PORT TERMINATED

## LINE 1 RESULTS

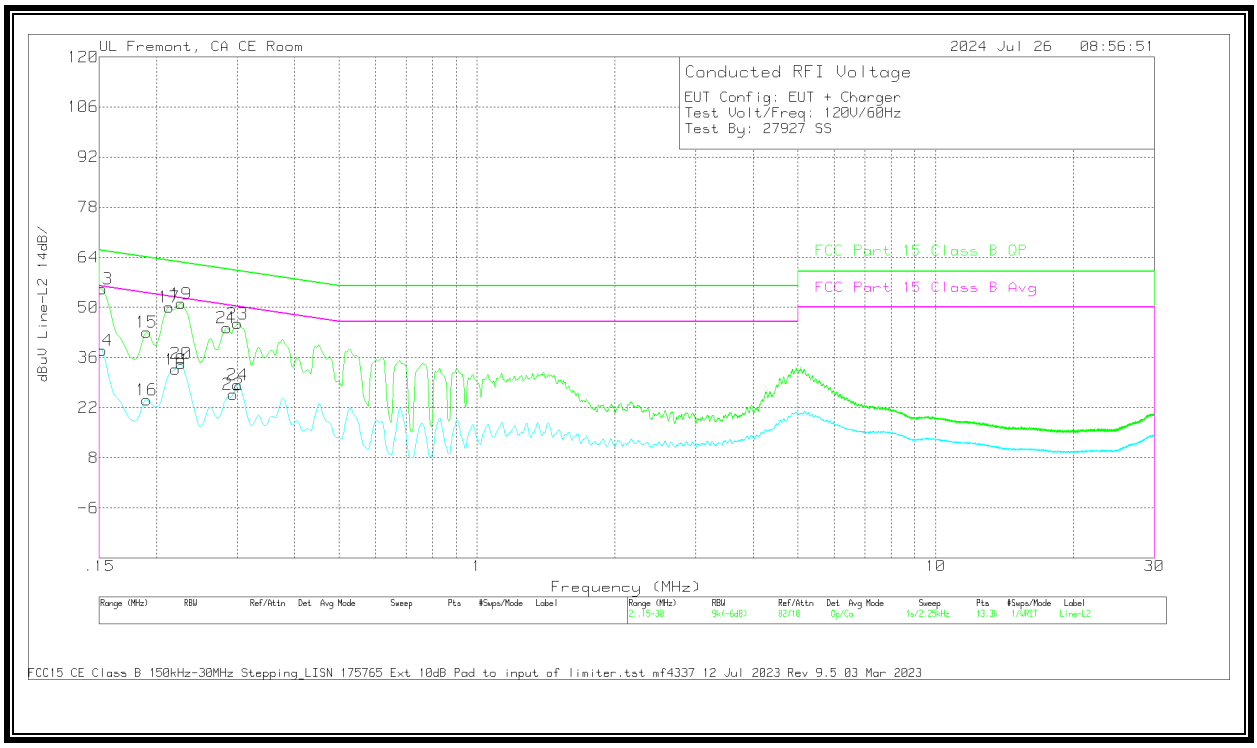



## Worst Emission

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | 10dB Atten (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av(CISPR) Margin (dB) |
| | | | | | | | | | | | | |
| 2 | .1523 | 16.2 | Ca | .1 | 0 | 9.5 | 10 | 35.8 | - | - | 55.88 | -20.08 |
| 4 | .1905 | 6.43 | Ca | .1 | .1 | 9.4 | 10 | 26.03 | - | - | 54.01 | -27.98 |
| 6 | .213 | 14.33 | Ca | 0 | .1 | 9.4 | 10 | 33.83 | - | - | 53.09 | -19.26 |
| 8 | .2243 | 13.71 | Ca | 0 | .1 | 9.4 | 10 | 33.21 | - | - | 52.66 | -19.45 |
| 10 | .2805 | 7.63 | Ca | 0 | .1 | 9.4 | 10 | 27.13 | - | - | 50.8 | -23.67 |
| 12 | .3008 | 7.75 | Ca | 0 | .1 | 9.4 | 10 | 27.25 | - | - | 50.22 | -22.97 |
| 1 | .1523 | 35.19 | Qp | .1 | 0 | 9.5 | 10 | 54.79 | 65.88 | -11.09 | - | - |
| 3 | .1928 | 23.44 | Qp | .1 | .1 | 9.4 | 10 | 43.04 | 63.92 | -20.88 | - | - |
| 5 | .2085 | 31.58 | Qp | 0 | .1 | 9.4 | 10 | 51.08 | 63.26 | -12.18 | - | - |
| 7 | .2265 | 31.61 | Qp | 0 | 0 | 9.4 | 10 | 51.01 | 62.58 | -11.57 | - | - |
| 9 | .2783 | 26.67 | Qp | 0 | .1 | 9.4 | 10 | 46.17 | 60.87 | -14.7 | - | - |
| 11 | .3008 | 26.19 | Qp | 0 | .1 | 9.4 | 10 | 45.69 | 60.22 | -14.53 | - | - |

Qp - Quasi-Peak detector
Ca - CISPR average detection

## LINE 2 RESULTS



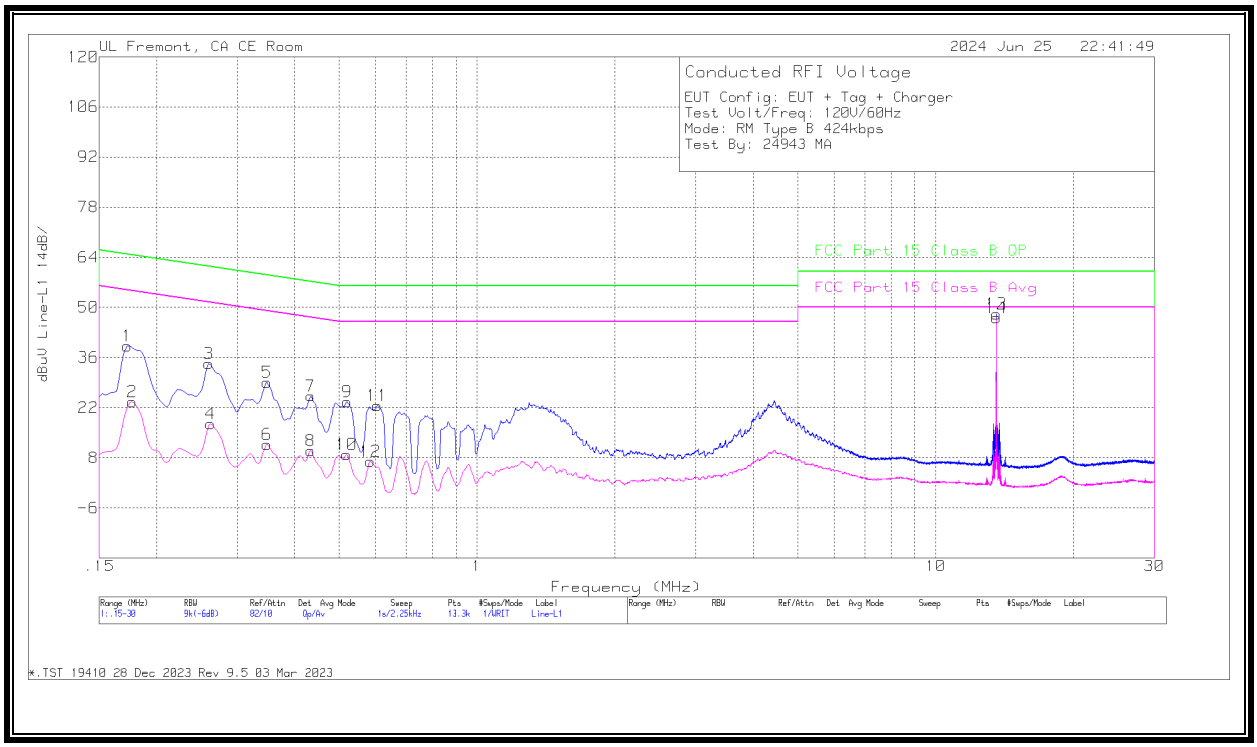

## Worst Emission

| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | 10dB Atten (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av(CISPR) Margin (dB) |
| | | | | | | | | | | | | |
| 14 | .1523 | 18.33 | Ca | .1 | 0 | 9.5 | 10 | 37.93 | - | - | 55.88 | -17.95 |
| 16 | .1905 | 4.69 | Ca | 0 | .1 | 9.4 | 10 | 24.19 | - | - | 54.01 | -29.82 |
| 18 | .2198 | 13.16 | Ca | 0 | .1 | 9.4 | 10 | 32.66 | - | - | 52.83 | -20.17 |
| 20 | .2265 | 14.98 | Ca | 0 | 0 | 9.4 | 10 | 34.38 | - | - | 52.58 | -18.2 |
| 22 | .294 | 6.24 | Ca | 0 | .1 | 9.4 | 10 | 25.74 | - | - | 50.41 | -24.67 |
| 24 | .3008 | 8.89 | Ca | 0 | .1 | 9.4 | 10 | 28.39 | - | - | 50.22 | -21.83 |
| 13 | .1523 | 35.52 | Qp | .1 | 0 | 9.5 | 10 | 55.12 | 65.88 | -10.76 | - | - |
| 15 | .1905 | 23.62 | Qp | 0 | .1 | 9.4 | 10 | 43.12 | 64.01 | -20.89 | - | - |
| 17 | .213 | 30.63 | Qp | 0 | .1 | 9.4 | 10 | 50.13 | 63.09 | -12.96 | - | - |
| 19 | .2265 | 31.65 | Qp | 0 | 0 | 9.4 | 10 | 51.05 | 62.58 | -11.53 | - | - |
| 21 | .285 | 24.78 | Qp | 0 | .1 | 9.4 | 10 | 44.28 | 60.67 | -16.39 | - | - |
| 23 | .3008 | 25.94 | Qp | 0 | .1 | 9.4 | 10 | 45.44 | 60.22 | -14.78 | - | - |

Qp - Quasi-Peak detector
Ca - CISPR average detection

## 10.1.3. TAG MODE, NORMAL OPERATION

**LINE 1 RESULTS**



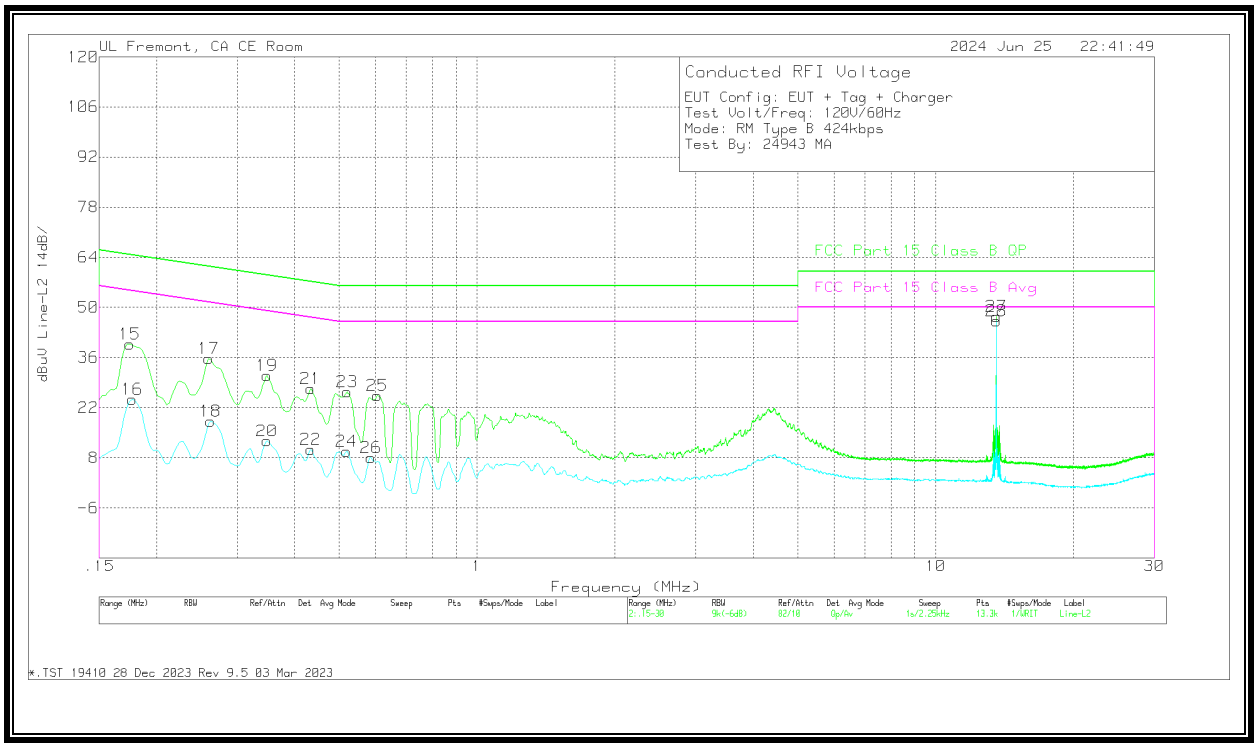

**Worst Emission**

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 2 | .177 | 14.01 | Av | .1 | .1 | 9.4 | 23.61 | - | - | 54.63 | -31.02 |
| 4 | .2625 | 8.14 | Av | 0 | 0 | 9.4 | 17.54 | - | - | 51.35 | -33.81 |
| 6 | .348 | 2.3 | Av | 0 | 0 | 9.4 | 11.7 | - | - | 49.01 | -37.31 |
| 8 | .4335 | .61 | Av | 0 | .1 | 9.3 | 10.01 | - | - | 47.19 | -37.18 |
| 10 | .519 | -.44 | Av | 0 | 0 | 9.3 | 8.86 | - | - | 46 | -37.14 |
| 12 | .5854 | -2.38 | Av | 0 | 0 | 9.4 | 7.02 | - | - | 46 | -38.98 |
| 14 | 13.56 | 37.16 | Av | .1 | .3 | 9.5 | 47.06 | - | - | 50 | -2.94 |
| 1 | .1725 | 29.64 | Qp | .1 | 0 | 9.5 | 39.24 | 64.84 | -25.6 | - | - |
| 3 | .2603 | 24.95 | Qp | 0 | 0 | 9.4 | 34.35 | 61.42 | -27.07 | - | - |
| 5 | .348 | 19.67 | Qp | 0 | 0 | 9.4 | 29.07 | 59.01 | -29.94 | - | - |
| 7 | .4335 | 15.88 | Qp | 0 | .1 | 9.3 | 25.28 | 57.19 | -31.91 | - | - |
| 9 | .5213 | 14.33 | Qp | 0 | 0 | 9.3 | 23.63 | 56 | -32.37 | - | - |
| 11 | .6068 | 13.14 | Qp | 0 | 0 | 9.4 | 22.54 | 56 | -33.46 | - | - |
| 13 | 13.56 | 38.3 | Qp | .1 | .3 | 9.5 | 48.2 | 60 | -11.8 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following section 10.1.2 indicate that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

## LINE 2 RESULTS




## Worst Emission

| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 16 | .177 | 14.76 | Av | 0 | .1 | 9.4 | 24.26 | - | - | 54.63 | -30.37 |
| 18 | .2625 | 8.76 | Av | 0 | 0 | 9.4 | 18.16 | - | - | 51.35 | -33.19 |
| 20 | .348 | 3.18 | Av | 0 | .1 | 9.4 | 12.68 | - | - | 49.01 | -36.33 |
| 22 | .4335 | .96 | Av | 0 | 0 | 9.3 | 10.26 | - | - | 47.19 | -36.93 |
| 24 | .5201 | .44 | Av | 0 | 0 | 9.3 | 9.74 | - | - | 46 | -36.26 |
| 26 | .5865 | -1.42 | Av | 0 | .1 | 9.4 | 8.08 | - | - | 46 | -37.92 |
| 28 | 13.56 | 36.43 | Av | .1 | .2 | 9.5 | 46.23 | - | - | 50 | -3.77 |
| 15 | .1748 | 30.25 | Qp | 0 | 0 | 9.5 | 39.75 | 64.73 | -24.98 | - | - |
| 17 | .2603 | 26.33 | Qp | 0 | 0 | 9.4 | 35.73 | 61.42 | -25.69 | - | - |
| 19 | .348 | 21.46 | Qp | 0 | .1 | 9.4 | 30.96 | 59.01 | -28.05 | - | - |
| 21 | .4335 | 17.95 | Qp | 0 | 0 | 9.3 | 27.25 | 57.19 | -29.94 | - | - |
| 23 | .5213 | 17.07 | Qp | 0 | 0 | 9.3 | 26.37 | 56 | -29.63 | - | - |
| 25 | .6068 | 15.85 | Qp | 0 | .1 | 9.4 | 25.35 | 56 | -30.65 | - | - |
| 27 | 13.56 | 37.63 | Qp | .1 | .2 | 9.5 | 47.43 | 60 | -12.57 | - | - |

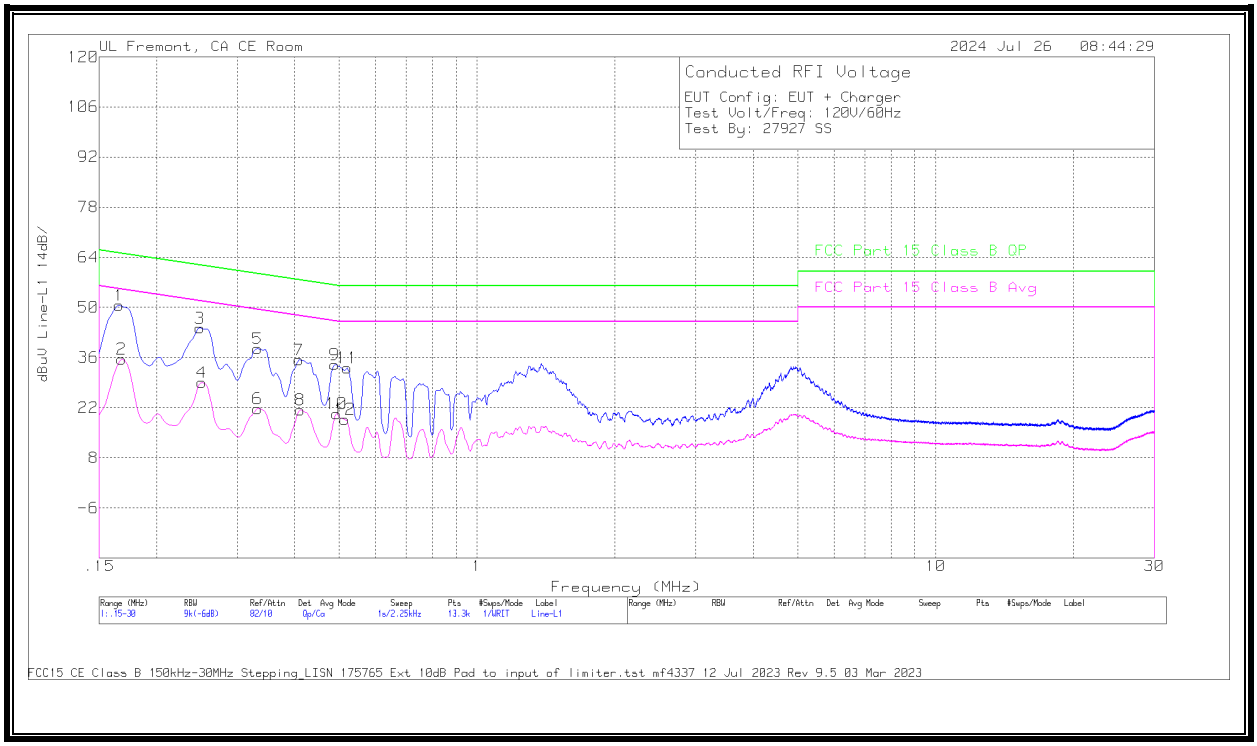
Qp - Quasi-Peak detector

Av - Average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following section indicate that when the antenna terminal is terminated the fundamental amplitude is lowering below the limit line.

## NORMAL OPERATION WITH ANTENNA PORT TERMINATED

## LINE 1 RESULTS

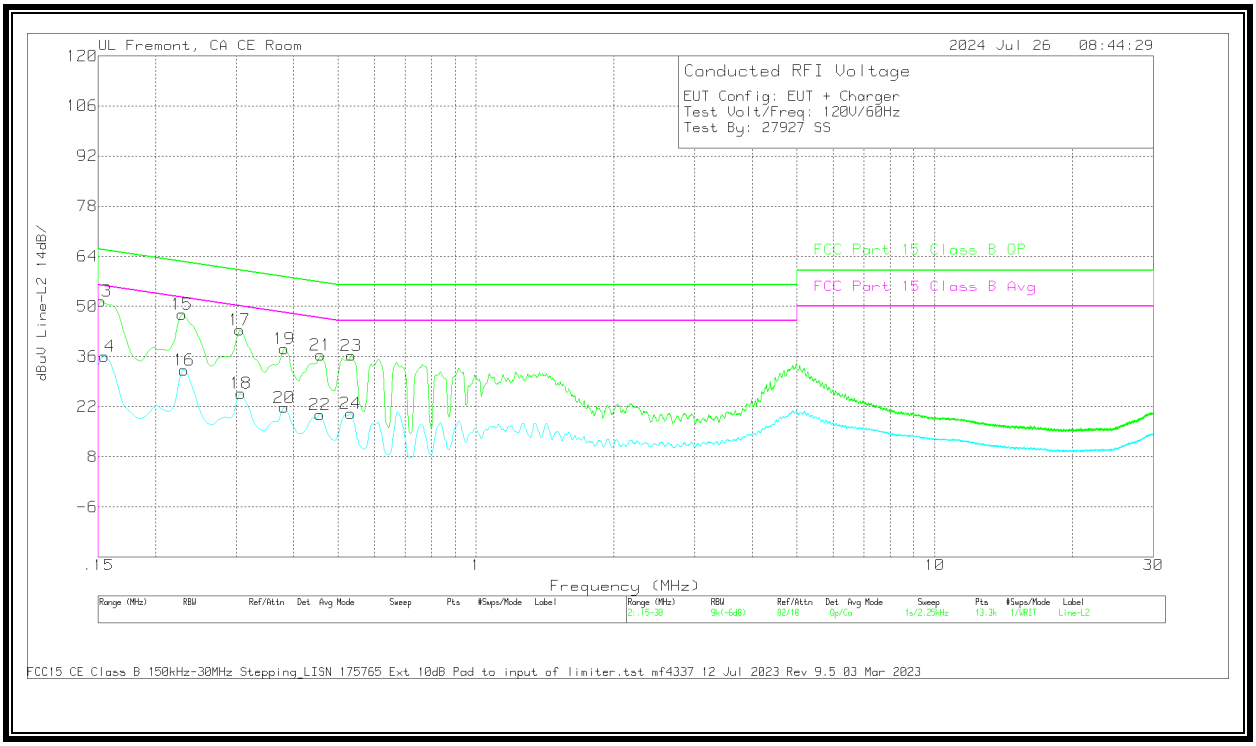



## Worst Emission

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | 10dB Atten (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av(CISPR) Margin (dB) |
| | | | | | | | | | | | | |
| 2 | .168 | 15.99 | Ca | .1 | 0 | 9.5 | 10 | 35.59 | - | - | 55.06 | -19.47 |
| 4 | .2513 | 9.58 | Ca | 0 | 0 | 9.4 | 10 | 28.98 | - | - | 51.72 | -22.74 |
| 6 | .3323 | 2.32 | Ca | 0 | 0 | 9.4 | 10 | 21.72 | - | - | 49.39 | -27.67 |
| 8 | .411 | 1.92 | Ca | 0 | 0 | 9.4 | 10 | 21.32 | - | - | 47.63 | -26.31 |
| 10 | .4943 | 1 | Ca | 0 | 0 | 9.3 | 10 | 20.3 | - | - | 46.1 | -25.8 |
| 12 | .5145 | -.61 | Ca | 0 | 0 | 9.3 | 10 | 18.69 | - | - | 46 | -27.31 |
| 1 | .1658 | 30.94 | Qp | .1 | 0 | 9.5 | 10 | 50.54 | 65.17 | -14.63 | - | - |
| 3 | .249 | 24.81 | Qp | 0 | 0 | 9.4 | 10 | 44.21 | 61.79 | -17.58 | - | - |
| 5 | .3323 | 19.04 | Qp | 0 | 0 | 9.4 | 10 | 38.44 | 59.39 | -20.95 | - | - |
| 7 | .4088 | 15.89 | Qp | 0 | 0 | 9.4 | 10 | 35.29 | 57.67 | -22.38 | - | - |
| 9 | .4898 | 14.74 | Qp | 0 | 0 | 9.3 | 10 | 34.04 | 56.17 | -22.13 | - | - |
| 11 | .5213 | 13.74 | Qp | 0 | 0 | 9.3 | 10 | 33.04 | 56 | -22.96 | - | - |

Qp - Quasi-Peak detector
Ca - CISPR average detection

## LINE 2 RESULTS




## Worst Emission

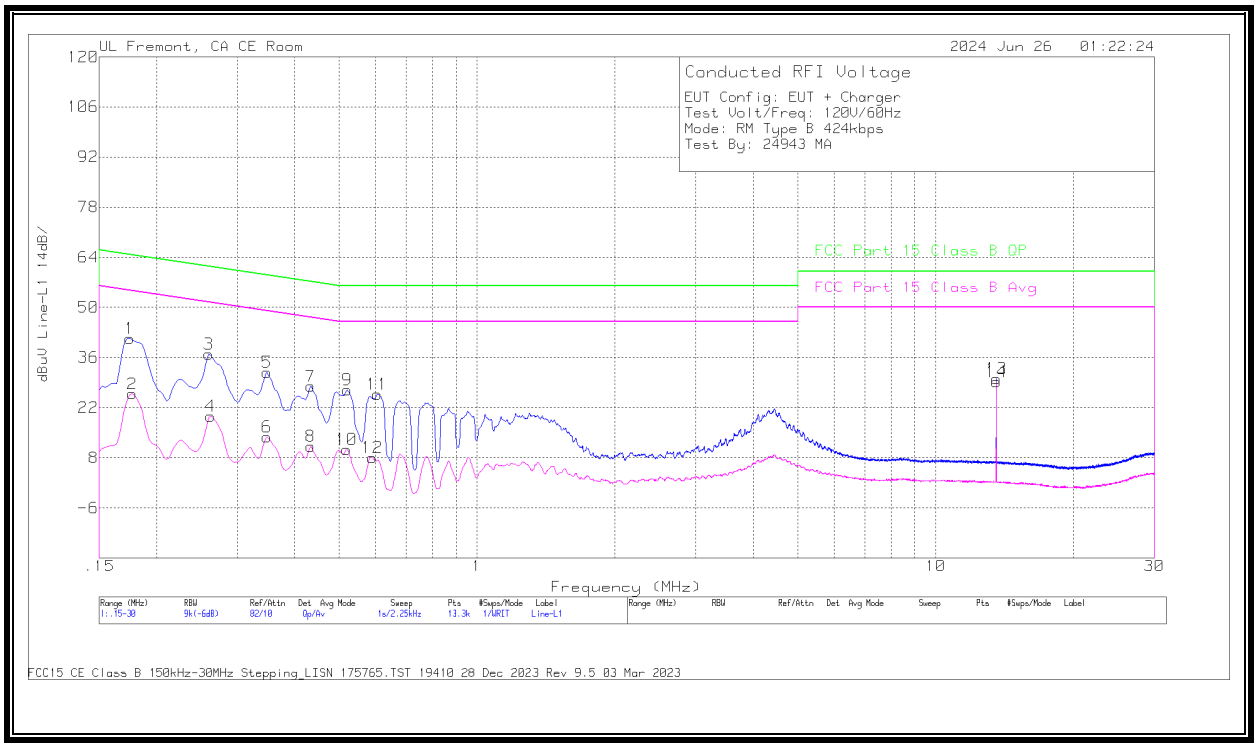
| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | 10dB Atten (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av(CISPR) Margin (dB) |
| | | | | | | | | | | | | |
| 14 | .1545 | 16.44 | Ca | .1 | 0 | 9.5 | 10 | 36.04 | - | - | 55.75 | -19.71 |
| 16 | .231 | 12.88 | Ca | 0 | 0 | 9.4 | 10 | 32.28 | - | - | 52.41 | -20.13 |
| 18 | .3075 | 6.24 | Ca | 0 | .1 | 9.4 | 10 | 25.74 | - | - | 50.04 | -24.3 |
| 20 | .3818 | 2.28 | Ca | 0 | .1 | 9.4 | 10 | 21.78 | - | - | 48.24 | -26.46 |
| 22 | .456 | .52 | Ca | 0 | 0 | 9.3 | 10 | 19.82 | - | - | 46.77 | -26.95 |
| 24 | .5325 | .78 | Ca | 0 | 0 | 9.3 | 10 | 20.08 | - | - | 46 | -25.92 |
| 13 | .1523 | 31.87 | Qp | .1 | 0 | 9.5 | 10 | 51.47 | 65.88 | -14.41 | - | - |
| 15 | .2288 | 28.42 | Qp | 0 | 0 | 9.4 | 10 | 47.82 | 62.49 | -14.67 | - | - |
| 17 | .3053 | 23.97 | Qp | 0 | .1 | 9.4 | 10 | 43.47 | 60.1 | -16.63 | - | - |
| 19 | .3818 | 18.74 | Qp | 0 | .1 | 9.4 | 10 | 38.24 | 58.24 | -20 | - | - |
| 21 | .4583 | 17.12 | Qp | 0 | 0 | 9.3 | 10 | 36.42 | 56.72 | -20.3 | - | - |
| 23 | .5348 | 17.02 | Qp | 0 | 0 | 9.3 | 10 | 36.32 | 56 | -19.68 | - | - |

Qp - Quasi-Peak detector
Ca - CISPR average detection

# 10.2. SECONDARY ANTENNA

## 10.2.1. READER MODE, NORMAL OPERATION

**LINE 1 RESULTS**

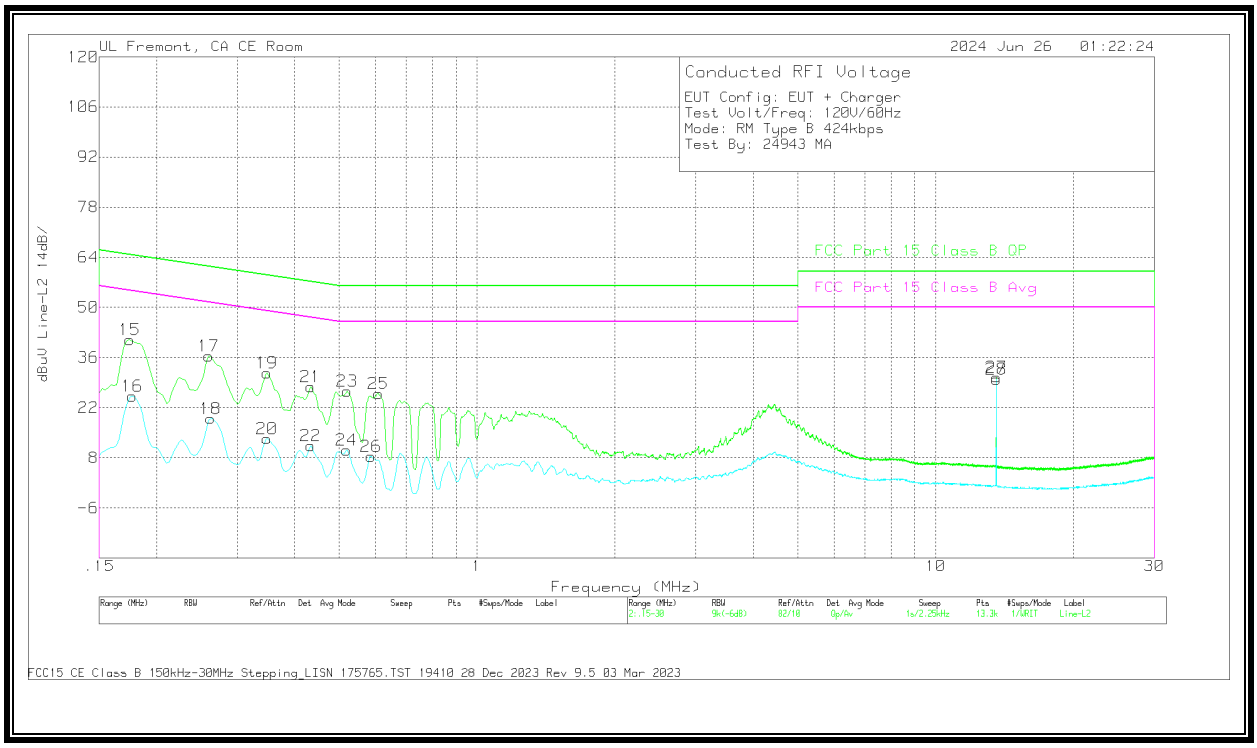



**Worst Emission**

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 2 | .177 | 16.22 | Av | .1 | .1 | 9.4 | 25.82 | - | - | 54.63 | -28.81 |
| 4 | .2625 | 10.23 | Av | 0 | 0 | 9.4 | 19.63 | - | - | 51.35 | -31.72 |
| 6 | .348 | 4.37 | Av | 0 | 0 | 9.4 | 13.77 | - | - | 49.01 | -35.24 |
| 8 | .4335 | 1.76 | Av | 0 | .1 | 9.3 | 11.16 | - | - | 47.19 | -36.03 |
| 10 | .5201 | 1.04 | Av | 0 | 0 | 9.3 | 10.34 | - | - | 46 | -35.66 |
| 12 | .591 | -1.37 | Av | 0 | 0 | 9.4 | 8.03 | - | - | 46 | -37.97 |
| 14 | 13.56 | 19.35 | Av | .1 | .3 | 9.5 | 29.25 | - | - | 50 | -20.75 |
| 1 | .1748 | 31.79 | Qp | .1 | 0 | 9.5 | 41.39 | 64.73 | -23.34 | - | - |
| 3 | .2603 | 27.52 | Qp | 0 | 0 | 9.4 | 36.92 | 61.42 | -24.5 | - | - |
| 5 | .348 | 22.4 | Qp | 0 | 0 | 9.4 | 31.8 | 59.01 | -27.21 | - | - |
| 7 | .4335 | 18.53 | Qp | 0 | .1 | 9.3 | 27.93 | 57.19 | -29.26 | - | - |
| 9 | .5213 | 17.61 | Qp | 0 | 0 | 9.3 | 26.91 | 56 | -29.09 | - | - |
| 11 | .6068 | 16.35 | Qp | 0 | 0 | 9.4 | 25.75 | 56 | -30.25 | - | - |
| 13 | 13.56 | 20.15 | Qp | .1 | .3 | 9.5 | 30.05 | 60 | -29.95 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

## LINE 2 RESULTS



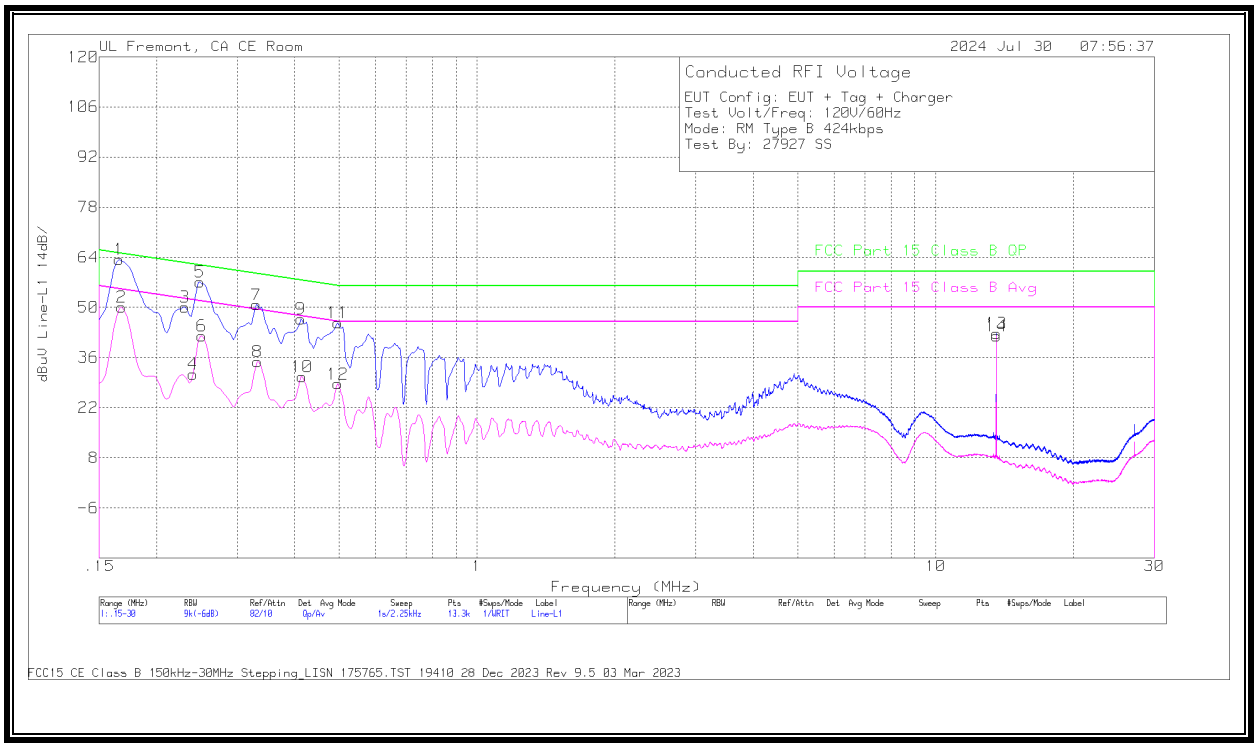

## Worst Emission

| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 16 | .177 | 15.68 | Av | 0 | .1 | 9.4 | 25.18 | - | - | 54.63 | -29.45 |
| 18 | .2625 | 9.57 | Av | 0 | 0 | 9.4 | 18.97 | - | - | 51.35 | -32.38 |
| 20 | .348 | 3.86 | Av | 0 | .1 | 9.4 | 13.36 | - | - | 49.01 | -35.65 |
| 22 | .4335 | 2 | Av | 0 | 0 | 9.3 | 11.3 | - | - | 47.19 | -35.89 |
| 24 | .5201 | .82 | Av | 0 | 0 | 9.3 | 10.12 | - | - | 46 | -35.88 |
| 26 | .5865 | -1.07 | Av | 0 | .1 | 9.4 | 8.43 | - | - | 46 | -37.57 |
| 28 | 13.56 | 20.17 | Av | .1 | .2 | 9.5 | 29.97 | - | - | 50 | -20.03 |
| 15 | .1748 | 31.43 | Qp | 0 | 0 | 9.5 | 40.93 | 64.73 | -23.8 | - | - |
| 17 | .2603 | 27.07 | Qp | 0 | 0 | 9.4 | 36.47 | 61.42 | -24.95 | - | - |
| 19 | .348 | 22.18 | Qp | 0 | .1 | 9.4 | 31.68 | 59.01 | -27.33 | - | - |
| 21 | .4335 | 18.52 | Qp | 0 | 0 | 9.3 | 27.82 | 57.19 | -29.37 | - | - |
| 23 | .5213 | 17.26 | Qp | 0 | 0 | 9.3 | 26.56 | 56 | -29.44 | - | - |
| 25 | .609 | 16.41 | Qp | 0 | .1 | 9.4 | 25.91 | 56 | -30.09 | - | - |
| 27 | 13.56 | 20.74 | Qp | .1 | .2 | 9.5 | 30.54 | 60 | -29.46 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

## 10.2.2. TAG MODE, NORMAL OPERATION

**LINE 1 RESULTS**

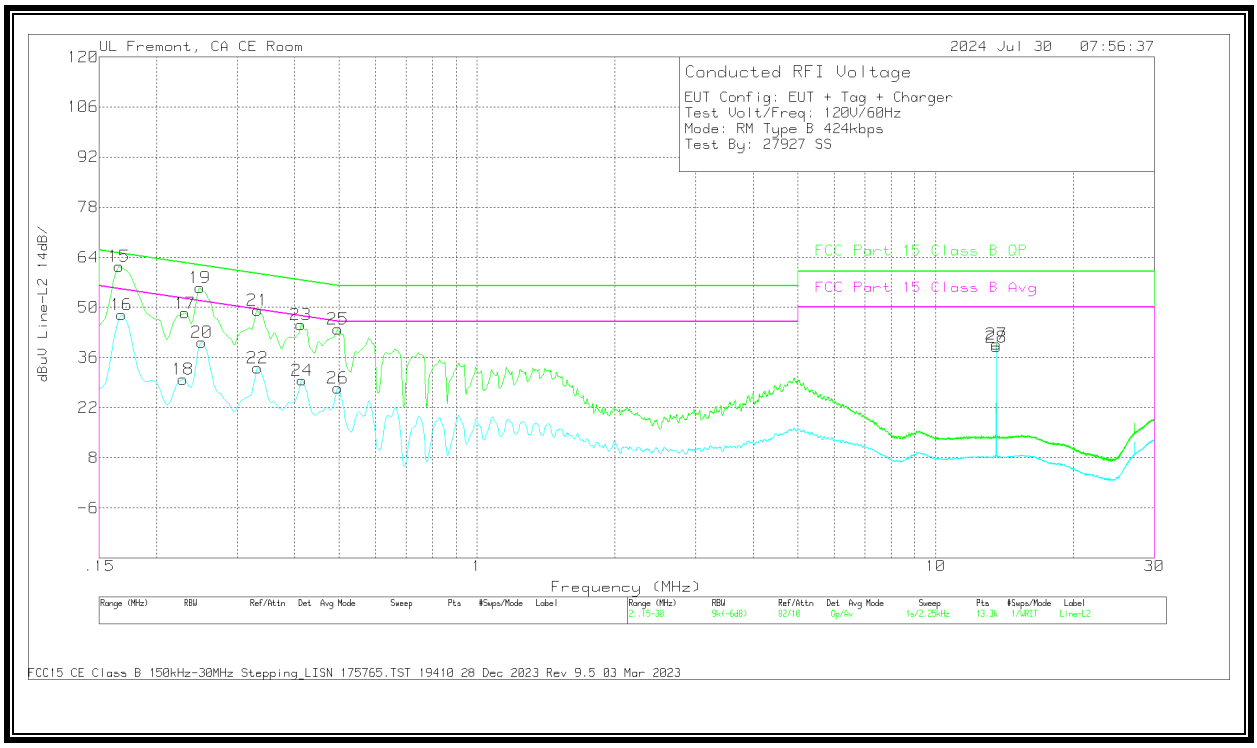



**Worst Emission**

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 2 | .168 | 40.48 | Av | .1 | 0 | 9.5 | 50.08 | - | - | 55.06 | -4.98 |
| 4 | .24 | 21.95 | Av | 0 | 0 | 9.4 | 31.35 | - | - | 52.1 | -20.75 |
| 6 | .2513 | 32.69 | Av | 0 | 0 | 9.4 | 42.09 | - | - | 51.72 | -9.63 |
| 8 | .3323 | 25.39 | Av | 0 | 0 | 9.4 | 34.79 | - | - | 49.39 | -14.6 |
| 10 | .4155 | 21.3 | Av | 0 | 0 | 9.4 | 30.7 | - | - | 47.54 | -16.84 |
| 12 | .4965 | 19.32 | Av | 0 | 0 | 9.3 | 28.62 | - | - | 46.06 | -17.44 |
| 14 | 13.56 | 32.13 | Av | .1 | .3 | 9.5 | 42.03 | - | - | 50 | -7.97 |
| 1 | .1658 | 53.76 | Qp | .1 | 0 | 9.5 | 63.36 | 65.17 | -1.81 | - | - |
| 3 | .231 | 40.72 | Qp | 0 | 0 | 9.4 | 50.12 | 62.41 | -12.29 | - | - |
| 5 | .249 | 47.77 | Qp | 0 | 0 | 9.4 | 57.17 | 61.79 | -4.62 | - | - |
| 7 | .33 | 41.31 | Qp | 0 | 0 | 9.4 | 50.71 | 59.45 | -8.74 | - | - |
| 9 | .4133 | 37.39 | Qp | 0 | 0 | 9.4 | 46.79 | 57.58 | -10.79 | - | - |
| 11 | .4965 | 36.35 | Qp | 0 | 0 | 9.3 | 45.65 | 56.06 | -10.41 | - | - |
| 13 | 13.56 | 32.89 | Qp | .1 | .3 | 9.5 | 42.79 | 60 | -17.21 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

## LINE 2 RESULTS




## Worst Emission

| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN (dB) | Cbl (dB) | Trns Limiter (dB) | Corrected Reading dBuV | FCC Part 15 Class B QP dBuV | QP Margin (dB) | FCC Part 15 Class B Avg dBuV | Av Margin (dB) |
| | | | | | | | | | | | |
| 16 | .168 | 38.36 | Av | .1 | 0 | 9.5 | 47.96 | - | - | 55.06 | -7.1 |
| 18 | .2288 | 20.51 | Av | 0 | 0 | 9.4 | 29.91 | - | - | 52.49 | -22.58 |
| 20 | .2513 | 30.9 | Av | 0 | 0 | 9.4 | 40.3 | - | - | 51.72 | -11.42 |
| 22 | .3323 | 23.66 | Av | 0 | .1 | 9.4 | 33.16 | - | - | 49.39 | -16.23 |
| 24 | .4155 | 20.16 | Av | 0 | .1 | 9.4 | 29.66 | - | - | 47.54 | -17.88 |
| 26 | .4976 | 18.19 | Av | 0 | 0 | 9.3 | 27.49 | - | - | 46.04 | -18.55 |
| 28 | 13.56 | 29.15 | Av | .1 | .2 | 9.5 | 38.95 | - | - | 50 | -11.05 |
| 15 | .1658 | 51.84 | Qp | .1 | 0 | 9.5 | 61.44 | 65.17 | -3.73 | - | - |
| 17 | .231 | 39.02 | Qp | 0 | 0 | 9.4 | 48.42 | 62.41 | -13.99 | - | - |
| 19 | .249 | 46.08 | Qp | 0 | 0 | 9.4 | 55.48 | 61.79 | -6.31 | - | - |
| 21 | .3323 | 39.78 | Qp | 0 | .1 | 9.4 | 49.28 | 59.39 | -10.11 | - | - |
| 23 | .4133 | 35.67 | Qp | 0 | .1 | 9.4 | 45.17 | 57.58 | -12.41 | - | - |
| 25 | .4965 | 34.61 | Qp | 0 | 0 | 9.3 | 43.91 | 56.06 | -12.15 | - | - |
| 27 | 13.56 | 29.99 | Qp | .1 | .2 | 9.5 | 39.79 | 60 | -20.21 | - | - |

Qp - Quasi-Peak detector
Av - Average detection

# 11. SETUP PHOTOS

Please refer to 14982479-EP1V1 for setup photos.

## END OF TEST REPORT