



CERTIFICATION TEST REPORT

Report Number. : 13018973-E7V2

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA. 95014, U.S.A.

Model : A2275, A2297, A2298

FCC ID : BCG-E3500A

IC : 579C-E3500A

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 10

Date Of Issue:
March 20, 2020

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Revision History

| Rev. | Issue Date | Revisions | Revised By |
|------|------------|-----------------------|-------------|
| V1 | 2/10/2020 | Initial Issue | Tony Wang |
| V2 | 3/20/2020 | Address TCB Questions | Chris Xiong |

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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: A2275, A2297, A2298

SERIAL NUMBER: FFMZF01VP3C0

DATE TESTED: OCTOBER 14 – NOVEMBER 14, 2019

| APPLICABLE STANDARDS | |
|--------------------------------|--------------|
| STANDARD | TEST RESULTS |
| FCC PART 15 SUBPART C | Complies |
| ISED RSS-210 Issue 10, Annex B | Complies |
| ISED RSS-GEN Issue 5 | Complies |

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

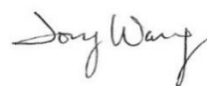
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. 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 NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
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UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 5, and RSS-210 Issue 10.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 47173 Benicia Street | 47266 Benicia Street | 47658 Kato Rd. |
|--|--|--|
| <input type="checkbox"/> Chamber A (IC:2324B-1) | <input type="checkbox"/> Chamber D (IC:22541-1) | <input type="checkbox"/> Chamber I (IC: 2324A-5) |
| <input checked="" type="checkbox"/> Chamber B (IC:2324B-2) | <input type="checkbox"/> Chamber E (IC:22541-2) | <input type="checkbox"/> Chamber J (IC: 2324A-6) |
| <input type="checkbox"/> Chamber C (IC:2324B-3) | <input checked="" type="checkbox"/> Chamber F (IC:22541-3) | <input type="checkbox"/> Chamber K (IC: 2324A-1) |
| | <input checked="" type="checkbox"/> Chamber G (IC:22541-4) | <input type="checkbox"/> Chamber L (IC: 2324A-3) |
| | <input type="checkbox"/> Chamber H (IC:22541-5) | <input type="checkbox"/> Chamber M (IC: 2324A-2) |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

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} |
|---|------------------|
| Worst Case Conducted Disturbance, 9KHz to 0.15 MHz | 3.39 dB |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz | 3.07 dB |
| Worst Case Radiated Disturbance, 9KHz to 30 MHz | 2.52 dB |
| Worst Case Radiated Disturbance, 30 to 1000 MHz | 4.88 dB |
| Worst Case Radiated Disturbance, 1000 to 18000 MHz | 4.24 dB |
| Worst Case Radiated Disturbance, 18000 to 26000 MHz | 4.37 dB |
| Worst Case Radiated Disturbance, 26000 to 40000 MHz | 5.17 dB |

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The Apple iPhone, is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, TD-SCDMA, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, GPS and NFC. All models support at least one UICC based SIM. The second SIM, if present, is either UICC based, electronic SIM (e-SIM), or second SIM is not present. The device has a built-in inductive charging receiver which is not user accessible. The rechargeable battery is not user accessible.

5.2. DIFFERENCE IN MODEL NUMBER

Models A2297 and A2298 are electronically identical to Model A2275. The three model numbers are allocated for marketing and logistic purposes only. Model A2275 was used to perform all final tests.

5.3. MAXIMUM OUTPUT POWER

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

| Frequency Range (MHz) | Mode | | Kbps | E Field at 30m distance (dBuV/m) |
|--------------------------|--------|--------|------|-------------------------------------|
| 13.56 | Type A | Reader | 848 | 26.38 |
| | | CE | 848 | 24.99 |

5.4. WORST-CASE CONFIGURATION AND MODE

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

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

In addition, EUT with Tag and without Tag was investigated with Type A, B and F with CE mode and Reader mode data rates and ISO 15693 configuration to determine the worst case based on the highest power and spurious emissions. Type A without Tag was determined to be the worst case and therefore Type A 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 m 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.

5.5. 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 |

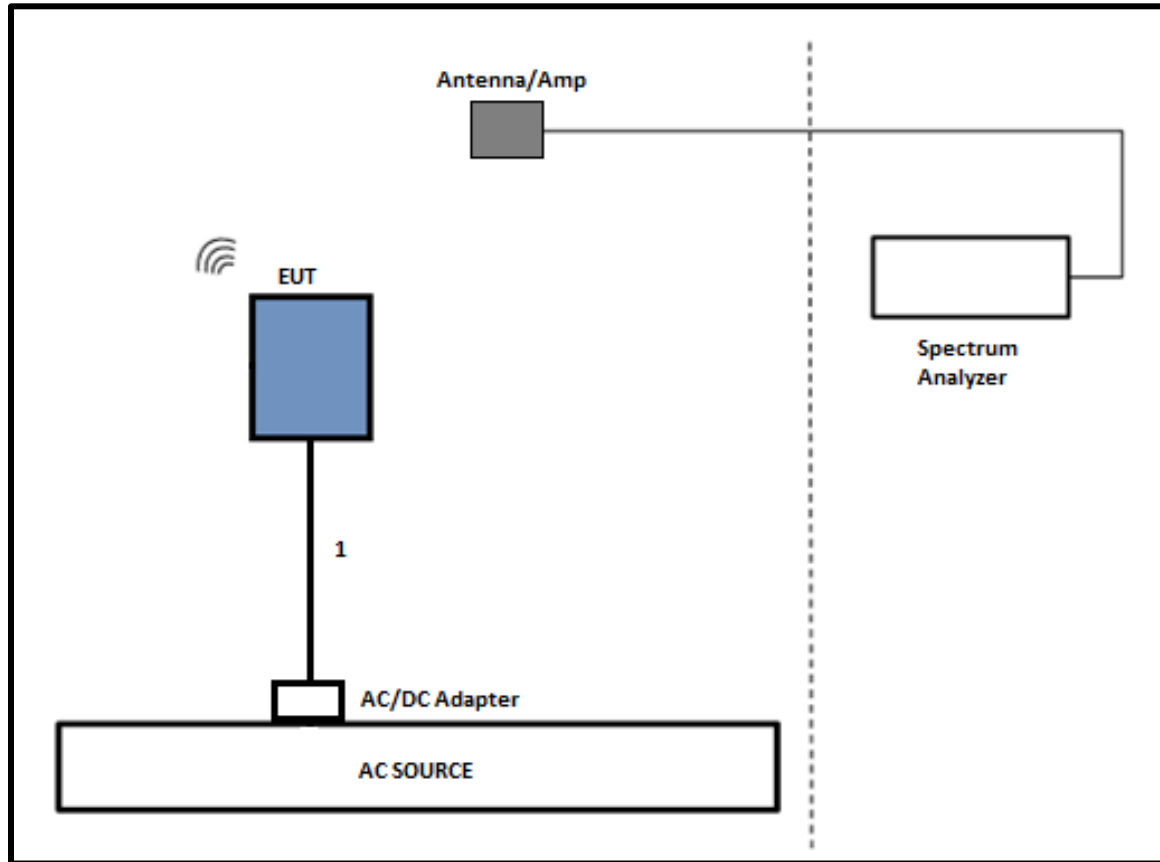
I/O CABLES

| 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 |

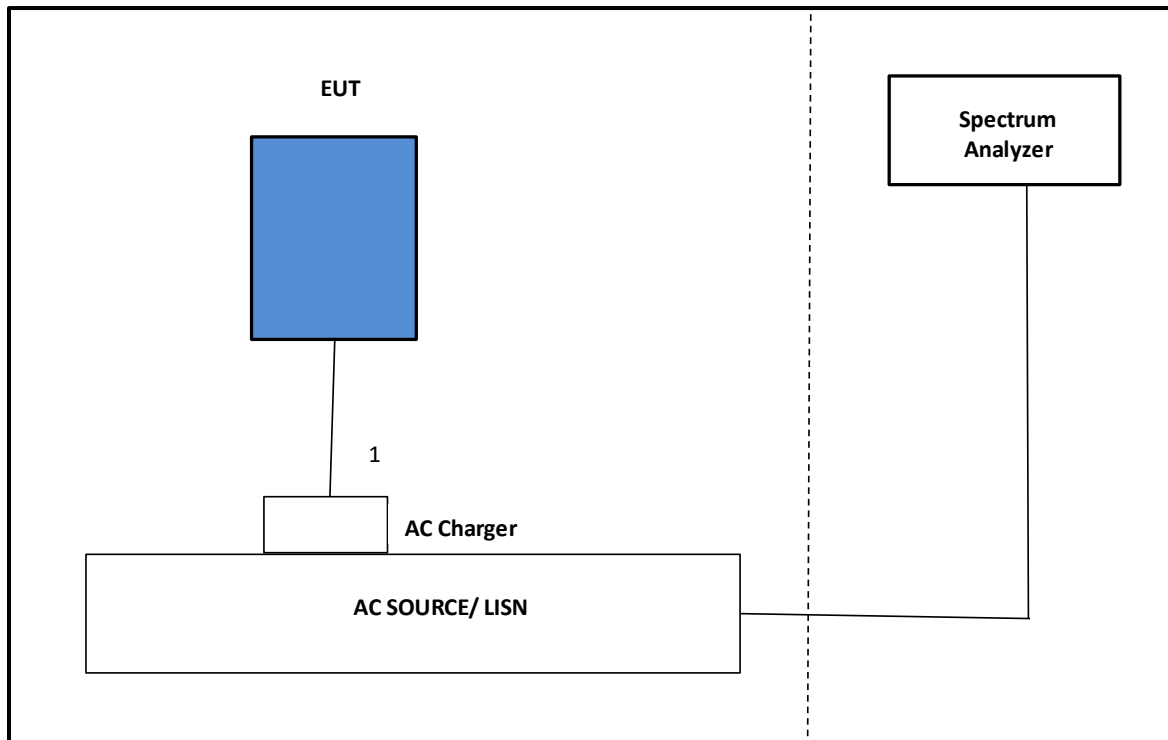
TEST SETUP

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

SETUP DIAGRAM FOR RADIATED TESTS



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:

| Description | Manufacturer | Model | ID Num | Cal Due |
|---|---------------------------------|-------------------|---------------------------|------------|
| Antenna, Broadband Hybrid, 30MHz to 2000MHz | Sunol Sciences | JB1 | T407 | 05/11/2020 |
| Amplifier, 10KHz to 1GHz, 32dB | Sonoma | 310N | T173 | 06/06/2020 |
| *Spectrum Analyzer, PSA, 3Hz to 44GHz | Agilent (Keysight) Technologies | E4446A | T123 | 01/28/2020 |
| Chamber, Environmental | Cincinnati Sub Zero | ZPHS-8-3.5-SCT/WC | T754 | 07/28/2020 |
| Antenna, Active Loop 9KHz to 30MHz | EMCO | 6502 | T35 | 06/06/2020 |
| *Spectrum Analyzer, PXA, 3Hz to 44GHz | Agilent (Keysight) Technologies | N9030A | T342 | 01/23/2020 |
| *Spectrum Analyzer, PXA, 3Hz to 44GHz | Agilent (Keysight) Technologies | N9030A | T1454 | 01/23/2020 |
| *Spectrum Analyzer, PXA, 3Hz to 44GHz | Agilent (Keysight) Technologies | N9030A | T1210 | 02/27/2020 |
| AC Line Conducted | | | | |
| *EMI Test Receiver 9KHz-7GHz | Rohde & Schwarz | ESCI7 | T1436 | 02/14/2020 |
| *Power Cable, Line Conducted Emissions | UL | PG1 | T861 | 11/12/2019 |
| *LISN for Conducted Emissions CISPR-16 | Fischer | 50/250-25-2-01 | T1310 | 01/24/2020 |
| UL AUTOMATION SOFTWARE | | | | |
| Radiated Software | UL | UL EMC | Ver 9.5, April 26, 2016 | |
| Conducted Software | UL | UL EMC | Ver 5.4, October 13, 2016 | |
| AC Line Conducted Software | UL | UL EMC | Ver 9.5, May 26, 2015 | |

*Testing was completed before equipment expiration date.

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. Measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

RESULTS

| | | | |
|------------|-------|--------------|------------|
| ID: | 38602 | Date: | 10/18/2019 |
|------------|-------|--------------|------------|

99% and 20dB BW

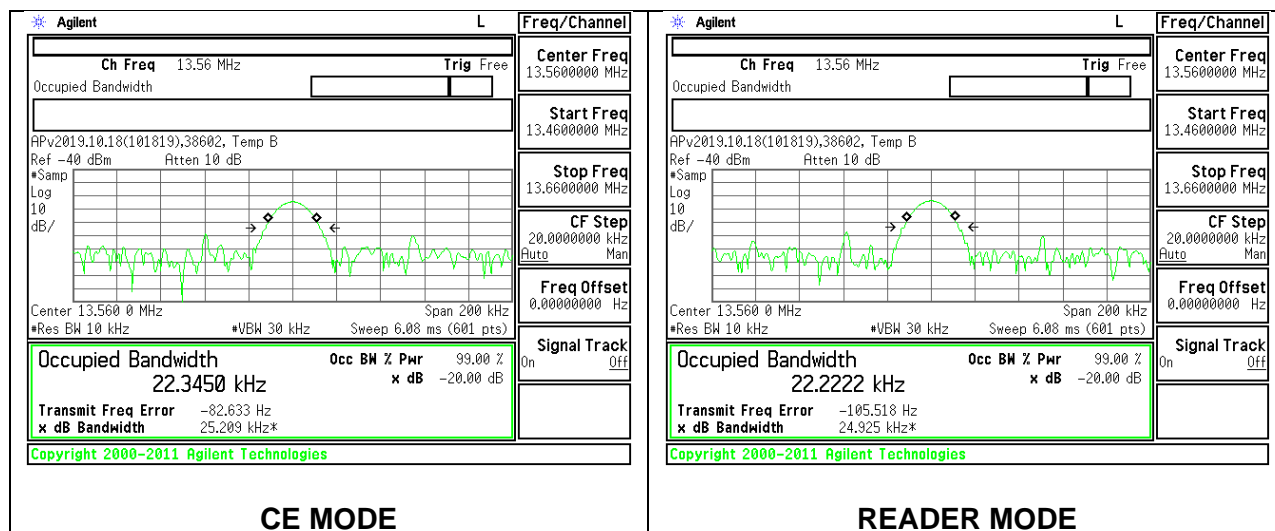
CE Mode

| Mode Kbps | Frequency (MHz) | 99% Bandwidth (KHz) | 20dB Bandwidth (KHz) |
|----------------------|----------------------------|--------------------------------|---------------------------------|
| 848 | 13.56 | 22.3450 | 25.209 |

Reader Mode

| Mode Kbps | Frequency (MHz) | 99% Bandwidth (KHz) | 20dB Bandwidth (KHz) |
|----------------------|----------------------------|--------------------------------|---------------------------------|
| 848 | 13.56 | 22.2222 | 24.925 |

Type A 848Kbps



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 field 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 (d) The provisions in §§ 15.225, 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

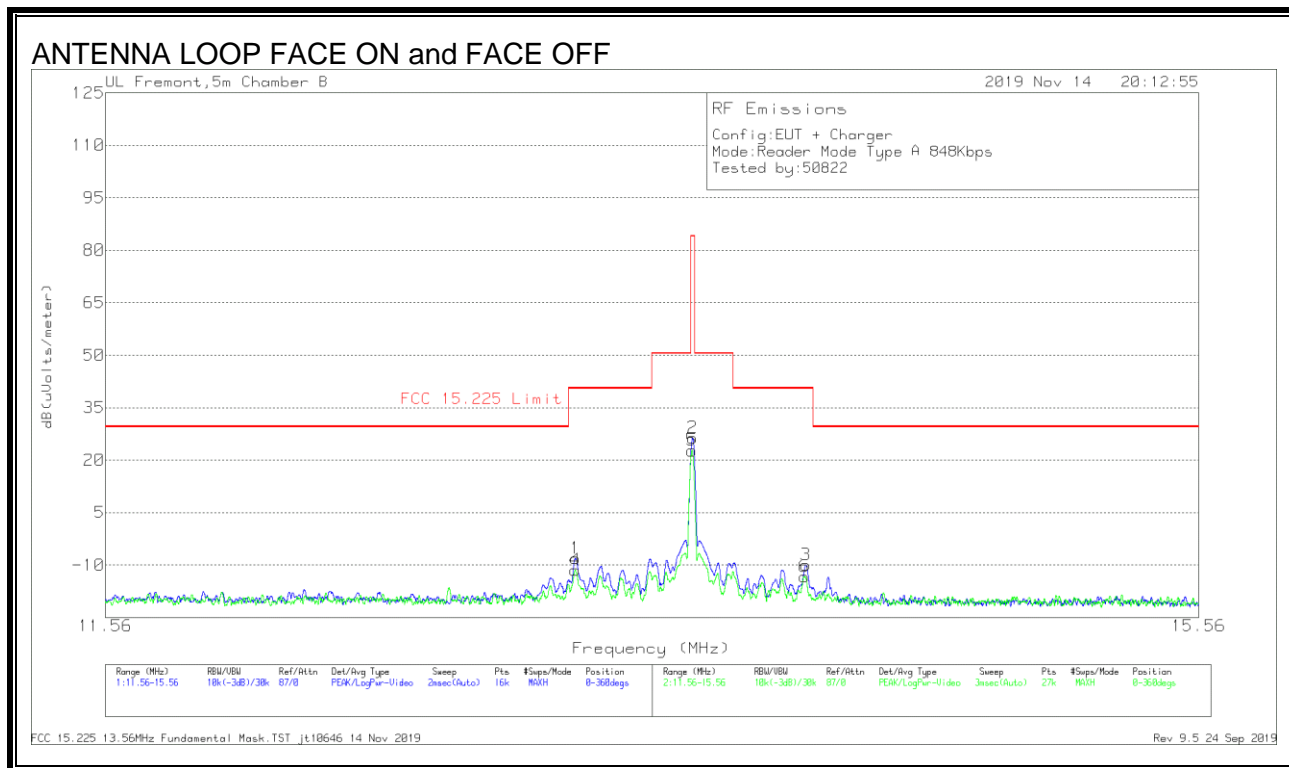
The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

RESULTS

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

8.2.1. READER MODE

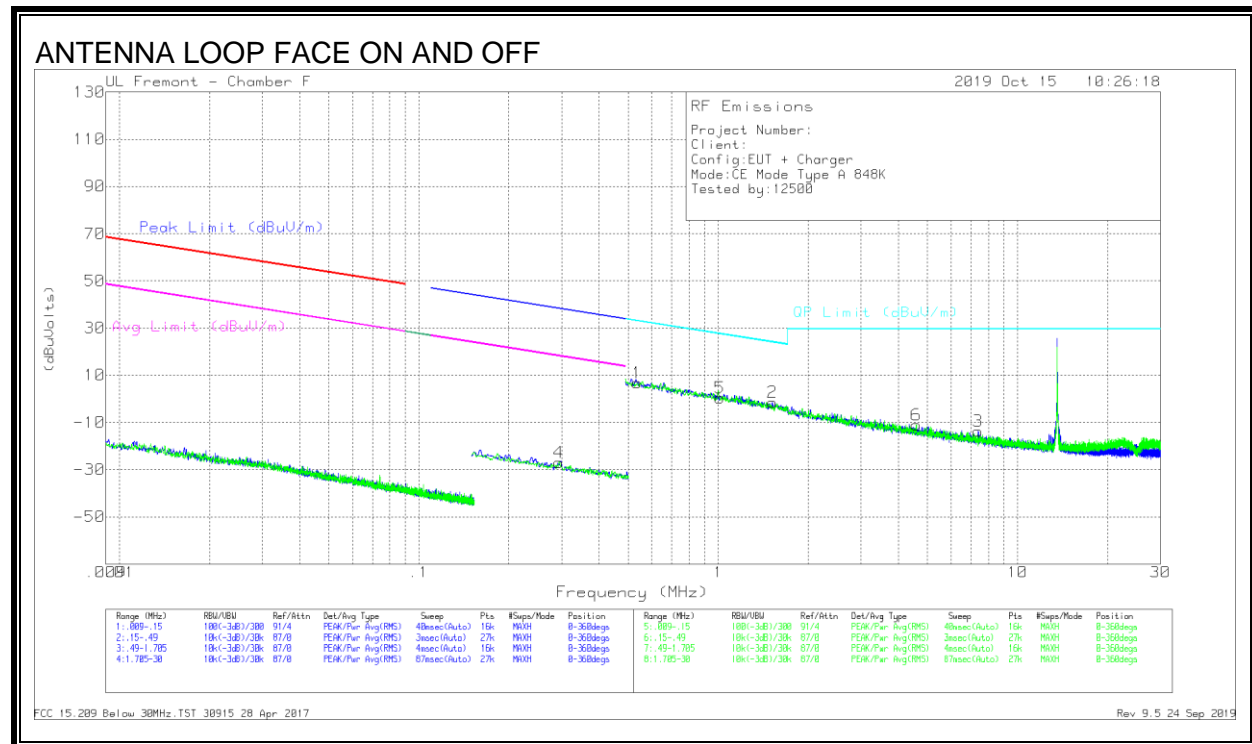
FUNDAMENTAL 848Kbps



| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna (dBm) | Cables (dB) | Dist Corr (dB) 40Log | Corrected Reading dB(uVolts/meter) | FCC 15.225 Limit | PK Margin (dB) | Azimuth (Degs) |
|--------|-----------------|----------------------|-----|--------------------|-------------|----------------------|------------------------------------|------------------|----------------|----------------|
| 4 | 13.1345 | 17.32 | Pk | 10.7 | .5 | -40 | -11.48 | 40.51 | -51.99 | 0-360 |
| 1 | 13.13463 | 20.66 | Pk | 10.7 | .5 | -40 | -8.14 | 40.51 | -48.65 | 0-360 |
| 5 | 13.55807 | 51.62 | Pk | 10.6 | .5 | -40 | 22.72 | 84 | -61.28 | 0-360 |
| 2 | 13.55988 | 55.28 | Pk | 10.6 | .5 | -40 | 26.38 | 84 | -57.62 | 0-360 |
| 6 | 13.97795 | 15.65 | Pk | 10.6 | .5 | -40 | -13.25 | 40.51 | -53.76 | 0-360 |
| 3 | 13.98413 | 18.92 | Pk | 10.6 | .5 | -40 | -9.98 | 40.51 | -50.49 | 0-360 |

Pk - Peak detector

SPURIOUS EMISSION 848Kbps



Trace Markers

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna (dBm) | Cables (dB) | Dist Corr 300m | Corrected Reading (dBuVolts) | Peak Limit (dBuV/m) | Margin (dB) | Avg Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) |
|--------|-----------------|----------------------|-----|--------------------|-------------|----------------|------------------------------|---------------------|-------------|--------------------|-------------|----------------|
| 4 | .29377 | 42.12 | Pk | 10.9 | .1 | -80 | -26.88 | 38.25 | -65.13 | 18.25 | -45.13 | 0-360 |

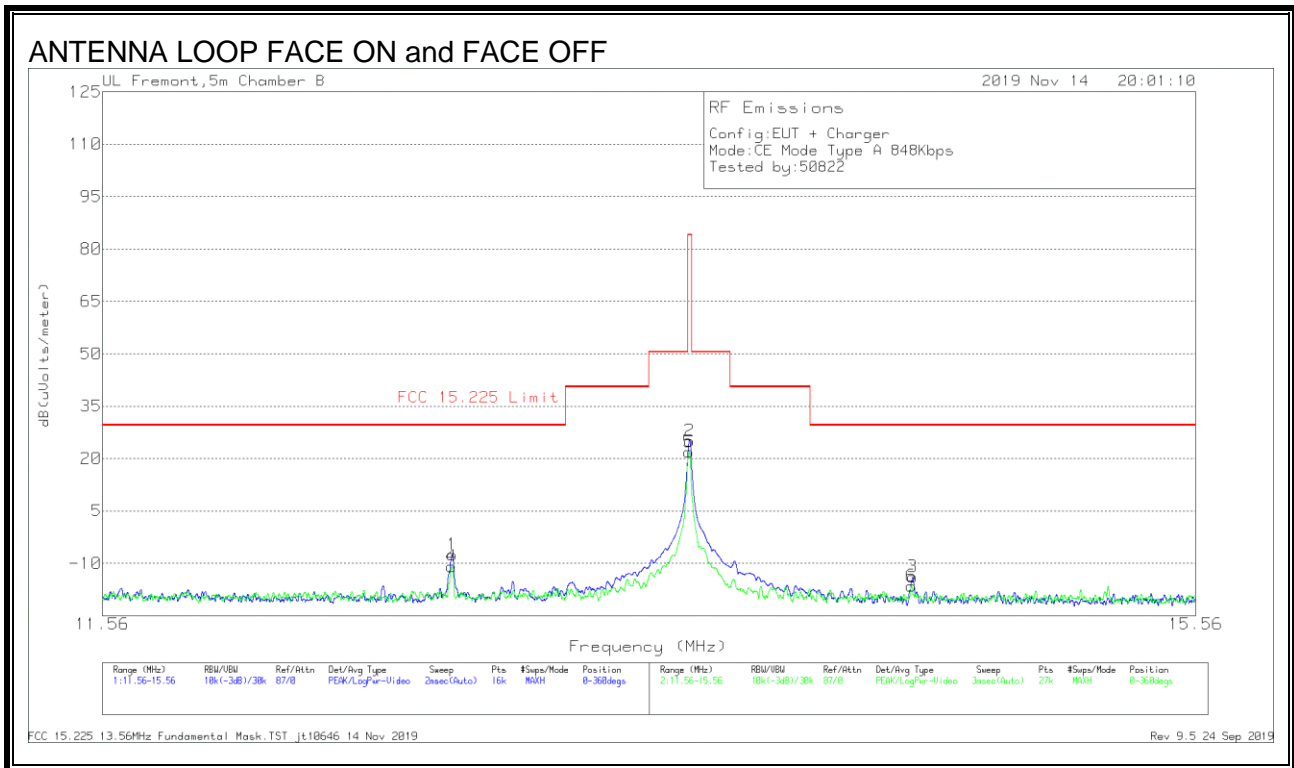
Pk - Peak detector

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna (dBm) | Cables (dB) | Dist Corr (dB) 40Log | Corrected Reading (dBuVolts) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) |
|--------|-----------------|----------------------|-----|--------------------|-------------|----------------------|------------------------------|-------------------|-------------|----------------|
| 1 | .53526 | 35.67 | Pk | 11.1 | .1 | -40 | 6.87 | 33.03 | -26.16 | 0-360 |
| 2 | 1.51619 | 27.11 | Pk | 11.3 | .1 | -40 | -1.49 | 24.02 | -25.51 | 0-360 |
| 3 | 7.39354 | 15.07 | Pk | 11 | .3 | -40 | -13.63 | 29.5 | -43.13 | 0-360 |
| 5 | 1.01159 | 28.94 | Pk | 11.3 | .1 | -40 | .34 | 27.52 | -27.18 | 0-360 |
| 6 | 4.5891 | 17.4 | Pk | 11.3 | .2 | -40 | -11.1 | 29.5 | -40.6 | 0-360 |

Pk - Peak detector

8.2.2. CE MODE

FUNDAMENTAL 848Kbps



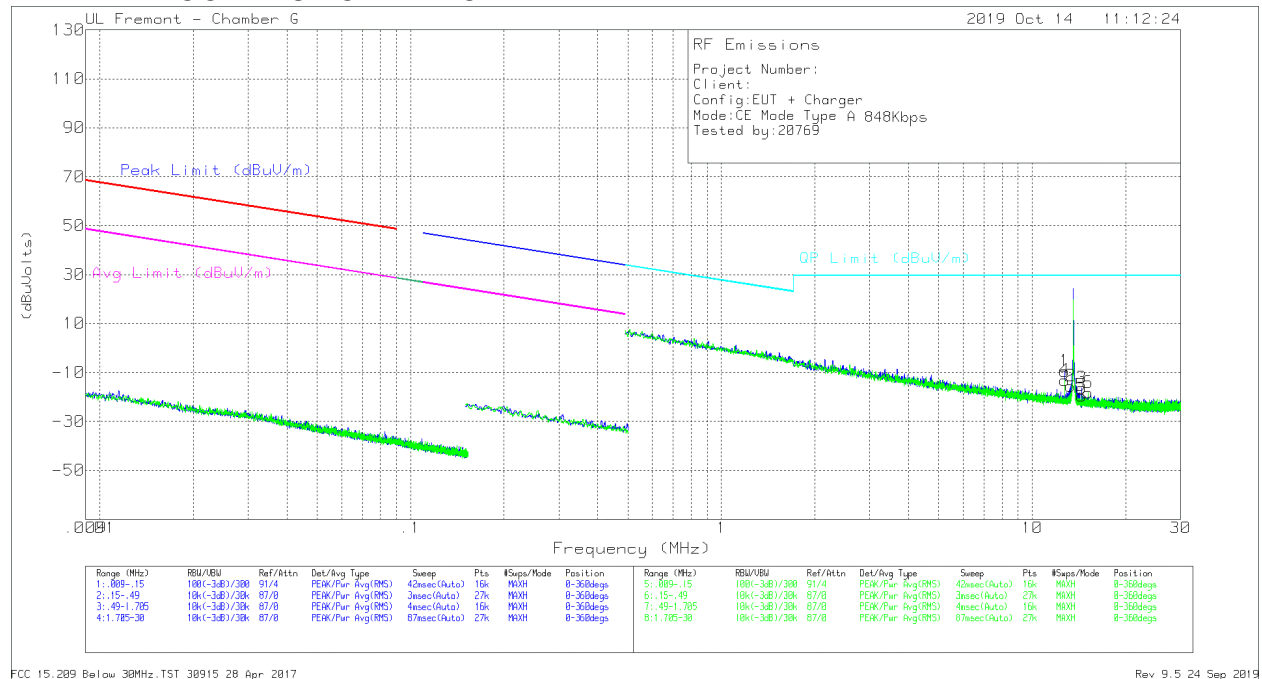
Trace Markers

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna (dBm) | Cables (dB) | Dist Corr (dB) 40Log | Corrected Reading dB(uVolts/meter) | FCC 15.225 Limit | PK Margin (dB) | Azimuth (Degs) |
|--------|-----------------|----------------------|-----|--------------------|-------------|----------------------|------------------------------------|------------------|----------------|----------------|
| 4 | 12.71107 | 17.88 | Pk | 10.7 | .5 | -40 | -10.92 | 29.54 | -40.46 | 0-360 |
| 1 | 12.71213 | 21.26 | Pk | 10.7 | .5 | -40 | -7.54 | 29.54 | -37.08 | 0-360 |
| 5 | 13.55807 | 50.77 | Pk | 10.6 | .5 | -40 | 21.87 | 84 | -62.13 | 0-360 |
| 2 | 13.5615 | 53.89 | Pk | 10.6 | .5 | -40 | 24.99 | 84 | -59.01 | 0-360 |
| 6 | 14.4036 | 12.36 | Pk | 10.6 | .5 | -40 | -16.54 | 29.54 | -46.08 | 0-360 |
| 3 | 14.40813 | 14.96 | Pk | 10.6 | .5 | -40 | -13.94 | 29.54 | -43.48 | 0-360 |

Pk - Peak detector

SPURIOUS EMISSION 848Kbps

ANTENNA LOOP FACE ON AND OFF



Trace Markers

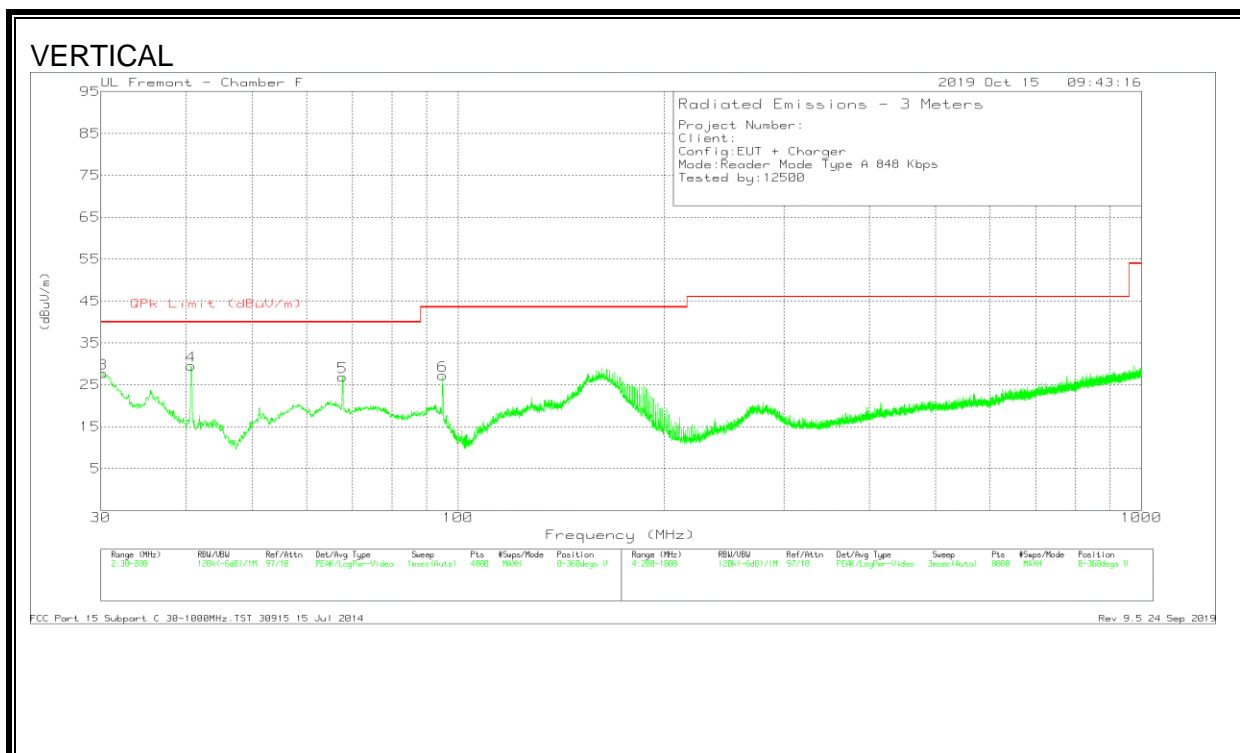
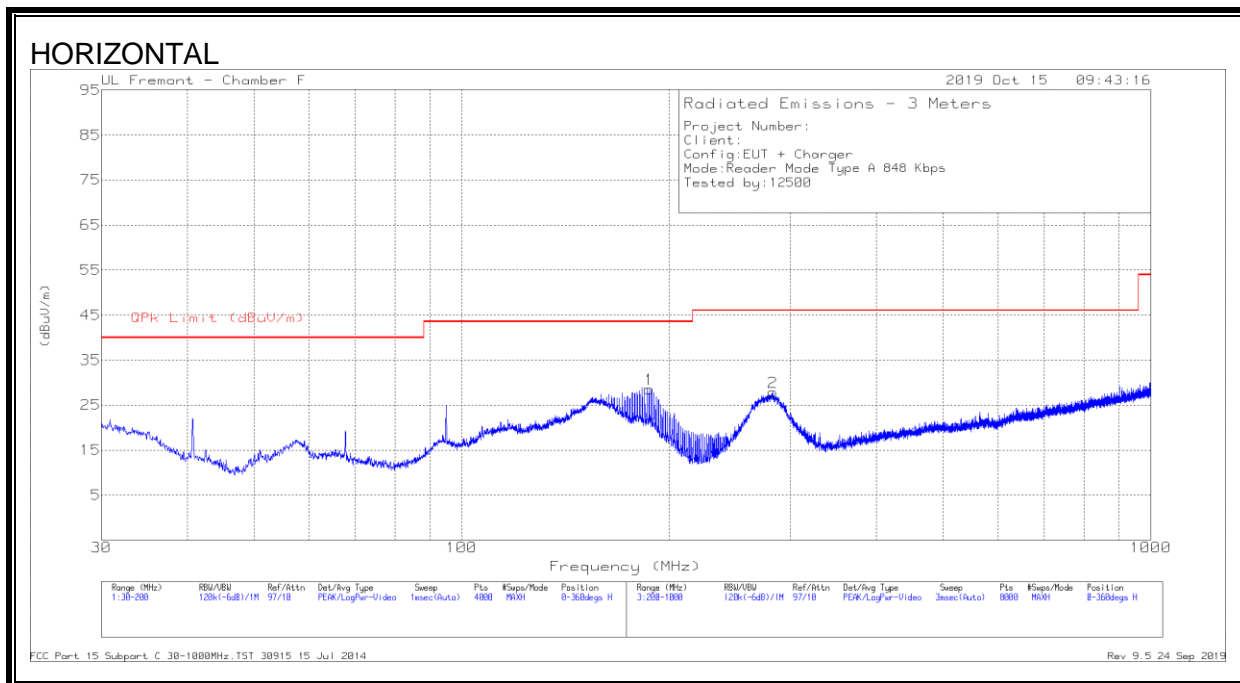
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna (dBm) | Cables (dB) | Dist Corr 30m | Corrected Reading (dBuVolts) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) |
|--------|-----------------|----------------------|-----|--------------------|-------------|---------------|------------------------------|-------------------|-------------|----------------|
| 4 | 12.70271 | 12.93 | Pk | 10.7 | .4 | -40 | -15.97 | 29.5 | -45.47 | 0-360 |
| 1 | 12.71267 | 17.98 | Pk | 10.7 | .4 | -40 | -10.92 | 29.5 | -40.42 | 0-360 |
| 5 | 13.19737 | 10.73 | Pk | 10.7 | .4 | -40 | -18.17 | 29.5 | -47.67 | 0-360 |
| 2 | 13.31684 | 13.95 | Pk | 10.7 | .4 | -40 | -14.95 | 29.5 | -44.45 | 0-360 |
| 3 | 14.40728 | 11.85 | Pk | 10.6 | .4 | -40 | -17.15 | 29.5 | -46.65 | 0-360 |
| 6 | 15.38088 | 10.54 | Pk | 10.6 | .4 | -40 | -18.46 | 29.5 | -47.96 | 0-360 |

Pk - Peak detector

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

8.3.1. READER MODE

SPURIOUS EMISSION 848Kbps



Radiated Emissions

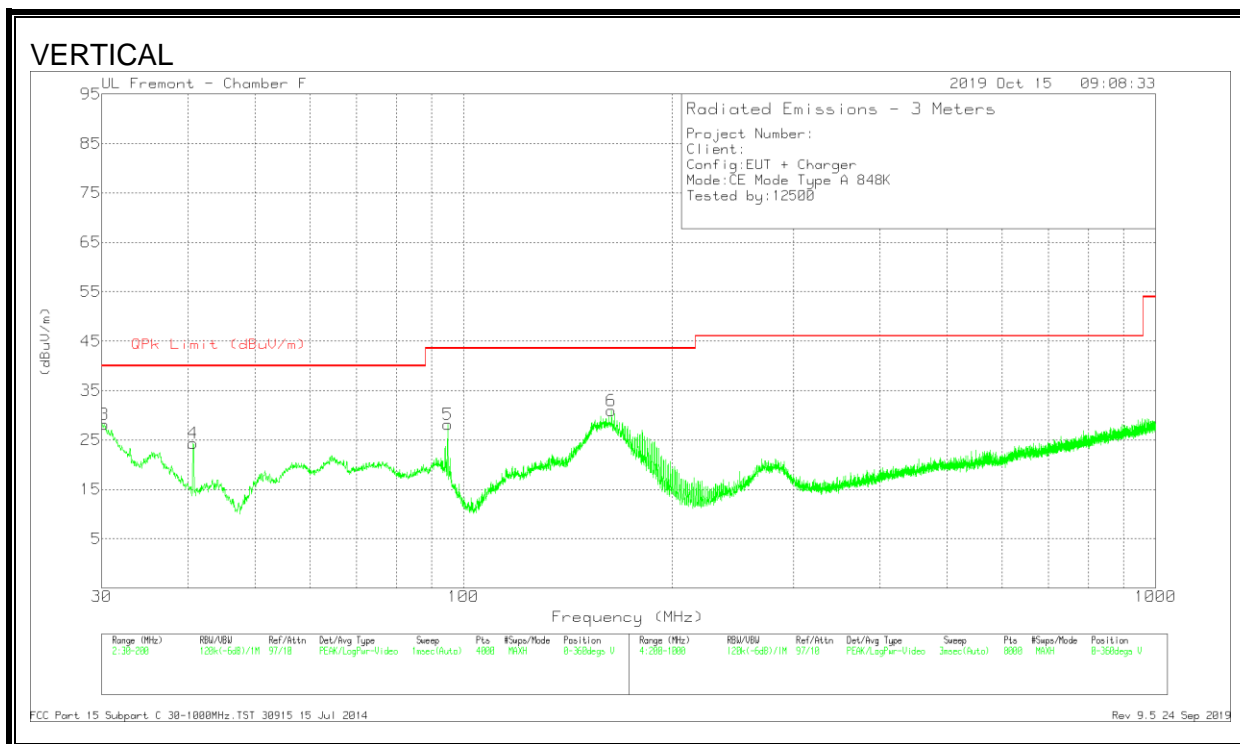
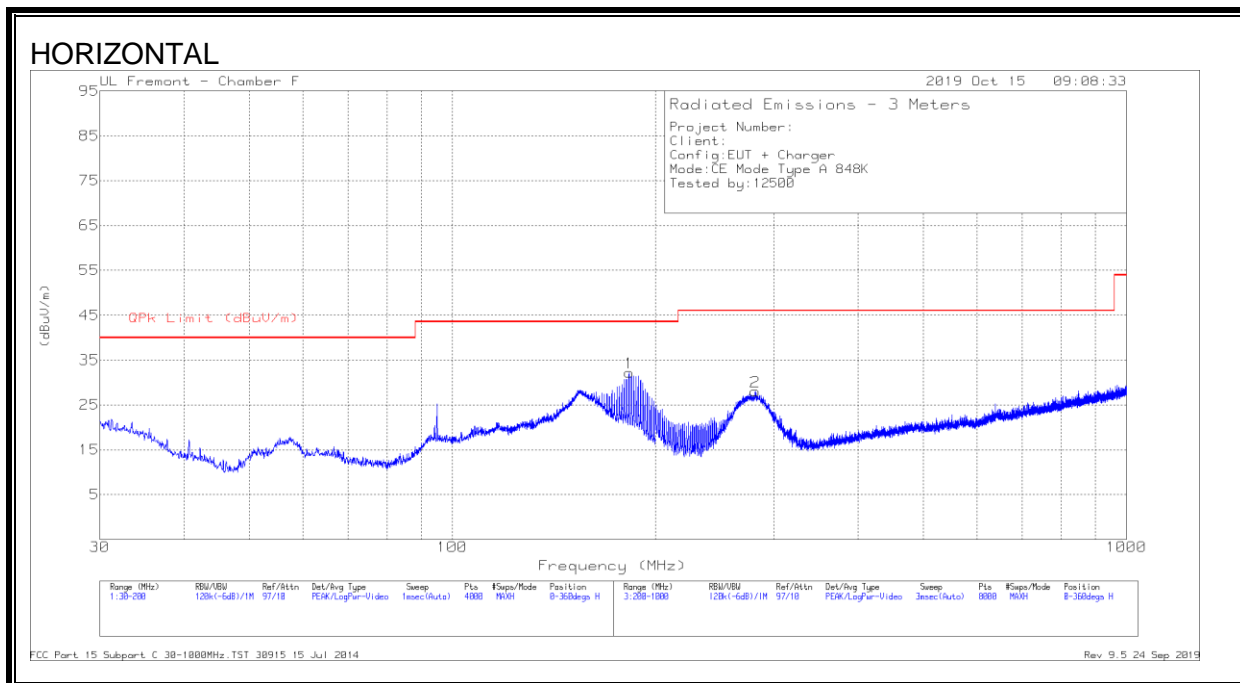
| Frequency (MHz) | Meter Reading (dBuV) | Det | AF T407 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|-----|----------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 187.1995 | 41.17 | Qp | 15.1 | -30.6 | 25.67 | 43.52 | -17.85 | 161 | 182 | H |
| 30.0627 | 30.93 | Qp | 25.3 | -31.9 | 24.33 | 40 | -15.67 | 182 | 100 | V |
| 40.6669 | 42.8 | Qp | 17.3 | -31.8 | 28.3 | 40 | -11.7 | 113 | 112 | V |
| 67.8019 | 44.86 | Qp | 12.1 | -31.5 | 25.46 | 40 | -14.54 | 80 | 104 | V |
| 94.9282 | 44.86 | Qp | 12.9 | -31.2 | 26.56 | 43.52 | -16.96 | 300 | 103 | V |
| * 282.8292 | 36.61 | Qp | 17.3 | -29.9 | 24.01 | 46.02 | -22.01 | 56 | 100 | H |

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

Qp - Quasi-Peak detector

8.3.2. CE MODE

SPURIOUS EMISSION 848Kbps



Radiated Emissions

| Frequency (MHz) | Meter Reading (dBuV) | Det | AF T407 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|-----|----------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 182.7886 | 43.66 | Qp | 15.1 | -30.6 | 28.16 | 43.52 | -15.36 | 164 | 193 | H |
| 30.181 | 30.99 | Qp | 25.2 | -31.9 | 24.29 | 40 | -15.71 | 100 | 102 | V |
| 40.6775 | 37.44 | Qp | 17.3 | -31.8 | 22.94 | 40 | -17.06 | 283 | 111 | V |
| 94.9095 | 45.13 | Qp | 12.9 | -31.2 | 26.83 | 43.52 | -16.69 | 57 | 110 | V |
| * 163.6728 | 38.78 | Qp | 16 | -30.8 | 23.98 | 43.52 | -19.54 | 105 | 118 | V |
| * 281.4644 | 36.82 | Qp | 17.3 | -29.9 | 24.22 | 46.02 | -21.8 | 54 | 100 | H |

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

Qp - Quasi-Peak detector

8.4. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ 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 $\pm 0.01\%$ (± 100 ppm).

TEST PROCEDURE

ANSI C63.10-2013 Clause 6.8

RESULTS

No non-compliance noted.

| | | | |
|------------|-------|--------------|------------|
| ID: | 38602 | Date: | 10/30/2019 |
|------------|-------|--------------|------------|

8.4.1. READER MODE

TYPE A 848Kbps

| Reference Frequency: EUT Channel 13.56 MHz @ 20°C | | | | | | | | | | |
|---|-------------|---|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-----------------------------|
| Limit: ± 100 ppm = 1.35600 KHz | | | | | | | | | | |
| Power Supply | Envir. Temp | Frequency Deviation Measured 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) |
| 3.80 | 50 | 13.5598312 | 4.020 | 13.5598341 | 3.807 | 13.5598384 | 3.490 | 13.5598448 | 3.017 | ± 100 |
| | 40 | 13.5598304 | 4.080 | 13.5598277 | 4.278 | 13.5598255 | 4.441 | 13.5598242 | 4.535 | ± 100 |
| | 30 | 13.5598744 | 0.836 | 13.5598668 | 1.395 | 13.5598580 | 2.041 | 13.5598478 | 2.793 | ± 100 |
| | 20 | 13.5598857 | 0.000 | 13.5598834 | 0.167 | 13.5598806 | 0.380 | 13.5598780 | 0.571 | ± 100 |
| | 10 | 13.5598951 | -0.694 | 13.5599016 | -1.175 | 13.5599087 | -1.696 | 13.5599157 | -2.212 | ± 100 |
| | 0 | 13.5599430 | -4.228 | 13.5599521 | -4.900 | 13.5599616 | -5.596 | 13.5599703 | -6.241 | ± 100 |
| | -10 | 13.5600014 | -8.532 | 13.5600080 | -9.021 | 13.5600141 | -9.466 | 13.5600160 | -9.611 | ± 100 |
| | -20 | 13.5600307 | -10.691 | 13.5600422 | -11.544 | 13.5600547 | -12.461 | 13.5600679 | -13.435 | ± 100 |
| 3.23 | 20 | 13.5597520 | 9.861 | 13.5593322 | 40.819 | 13.5596064 | 20.598 | 13.5599701 | -6.224 | ± 100 |
| 4.37 | 20 | 13.5595700 | 23.282 | 13.5597567 | 9.514 | 13.5595061 | 27.995 | 13.5590325 | 62.921 | ± 100 |

8.4.2. CE MODE

TYPE A 848Kbps

| Reference Frequency: EUT Channel 13.56 MHz @ 20°C | | | | | | | | | | |
|---|-------------|---|--------------|-------------------|--------------|-------------------|---------------|-------------------|--------------|-------------|
| Limit: ± 100 ppm = 1.35600 KHz | | | | | | | | | | |
| Power Supply | Envir. Temp | Frequency Deviation Measured 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) |
| 3.80 | 50 | 13.5603407 | -20.876 | 13.5602804 | -16.424 | 13.5604325 | -27.648 | 13.5602551 | -14.559 | ± 100 |
| | 40 | 13.5602619 | -15.061 | 13.5600919 | -2.524 | 13.5597025 | 26.190 | 13.5601289 | -5.252 | ± 100 |
| | 30 | 13.5598870 | 12.587 | 13.5596787 | 27.946 | 13.5599102 | 10.876 | 13.5597882 | 19.874 | ± 100 |
| | 20 | 13.5600576 | 0.000 | 13.5600085 | 3.628 | 13.5601749 | -8.646 | 13.5600573 | 0.023 | ± 100 |
| | 10 | 13.5600998 | -3.112 | 13.5597002 | 26.360 | 13.5597002 | 26.360 | 13.5599464 | 8.208 | ± 100 |
| | 0 | 13.5600360 | 1.595 | 13.5596978 | 26.535 | 13.5600804 | -1.681 | 13.5597124 | 25.458 | ± 100 |
| | -10 | 13.5601020 | 10.281 | 13.5599887 | 5.081 | 13.5602818 | -16.533 | 13.5596423 | 30.632 | ± 100 |
| | -20 | 13.5596830 | 27.628 | 13.5596693 | 28.640 | 13.5593880 | 49.387 | 13.5593137 | 54.861 | ± 100 |
| | | | | | | | | | | |
| 3.23 | 20 | 13.5595735 | 35.704 | 13.5598214 | 17.422 | 13.5592042 | 62.938 | 13.5599768 | 5.962 | ± 100 |
| 4.37 | 20 | 13.5596604 | 29.295 | 13.5599893 | 5.040 | 13.5591785 | 64.834 | 13.5592752 | 57.702 | ± 100 |

9. 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 50 μ H/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 (dB μ V) | |
|--|---------------------|----------|
| | 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

ANSI C63.10:2013

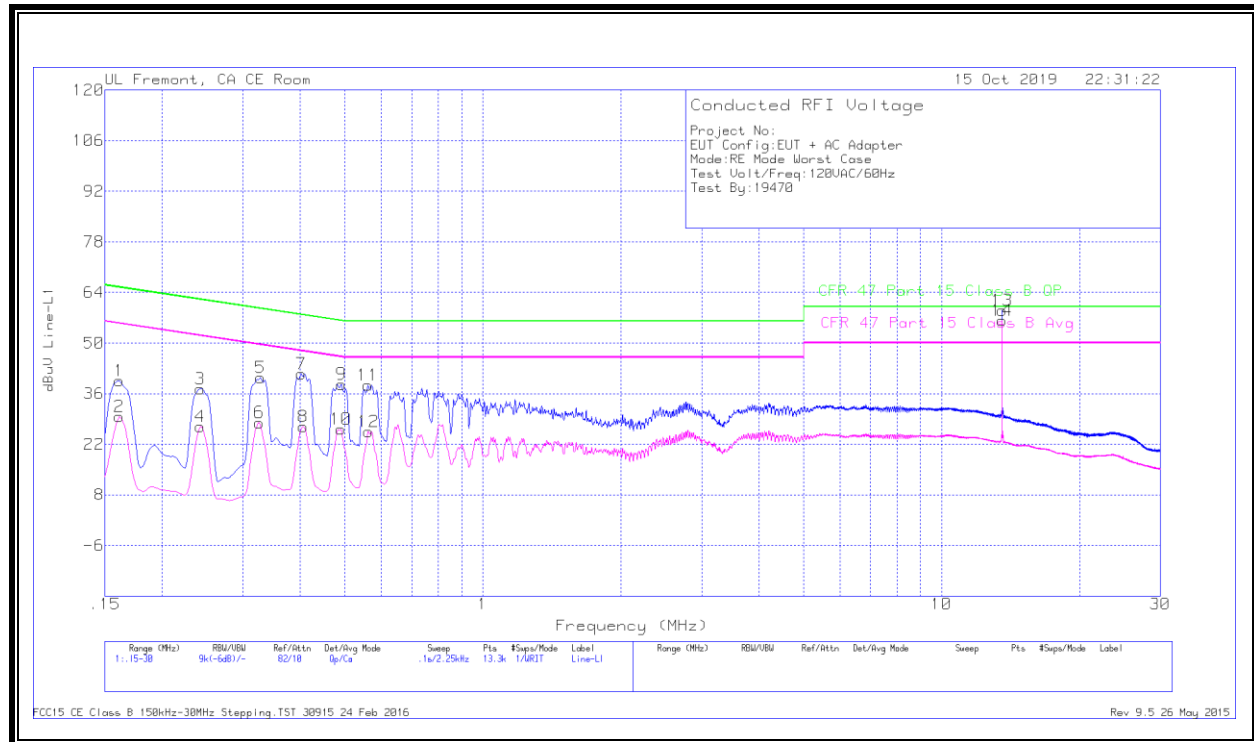
RESULTS

No non-compliance noted:

9.1. READER MODE

9.1.1. NORMAL OPERATION

LINE 1 RESULTS



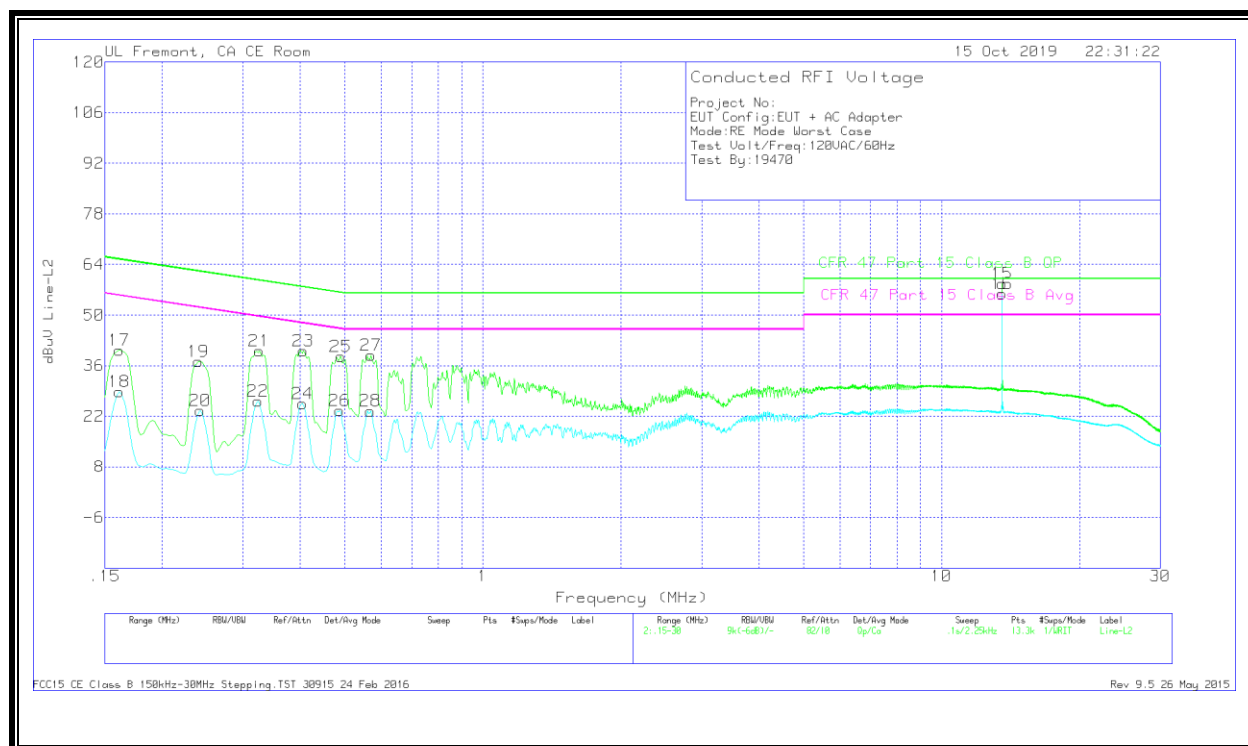
Worst Emission

| Range 1: Line-L1 15 - 30MHz | | | | | | | | | | | |
|-----------------------------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|----------------|----------------------------|----------------------|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L1 | LC Cables C1&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 1 | .16125 | 29.44 | Qp | .1 | 0 | 10.1 | 39.64 | 65.4 | -25.76 | - | - |
| 2 | .16125 | 19.5 | Ca | .1 | 0 | 10.1 | 29.7 | - | - | 55.4 | -25.7 |
| 3 | .24225 | 27.28 | Qp | 0 | 0 | 10.1 | 37.38 | 62.02 | -24.64 | - | - |
| 4 | .24225 | 16.77 | Ca | 0 | 0 | 10.1 | 26.87 | - | - | 52.02 | -25.15 |
| 5 | .32775 | 30.3 | Qp | 0 | 0 | 10.1 | 40.4 | 59.51 | -19.11 | - | - |
| 6 | .3255 | 17.91 | Ca | 0 | 0 | 10.1 | 28.01 | - | - | 49.57 | -21.56 |
| 7 | .402 | 31.33 | Qp | 0 | 0 | 10.1 | 41.43 | 57.81 | -16.38 | - | - |
| 8 | .4065 | 16.75 | Ca | 0 | 0 | 10.1 | 26.85 | - | - | 47.72 | -20.87 |
| 9 | .492 | 28.51 | Qp | 0 | 0 | 10.1 | 38.61 | 56.13 | -17.52 | - | - |
| 10 | .48975 | 16.1 | Ca | 0 | 0 | 10.1 | 26.2 | - | - | 46.17 | -19.97 |
| 11 | .56175 | 28.23 | Qp | 0 | 0 | 10.1 | 38.33 | 56 | -17.67 | - | - |
| 12 | .564 | 15.45 | Ca | 0 | 0 | 10.1 | 25.55 | - | - | 46 | -20.45 |
| 13 | 13.56 | 48.55 | Qp | .1 | .2 | 10.2 | 59.05 | 60 | -.95 | - | - |
| 14 | 13.56 | 45.78 | Ca | .1 | .2 | 10.2 | 56.28 | - | - | 50 | 6.28 |

Qp - Quasi-Peak detector
Ca - CISPR average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following Section 9.2.2 indicate that when the antenna terminal is terminated, the fundamental amplitude is lowered below the limit line.

LINE 2 RESULTS



Worst Emission

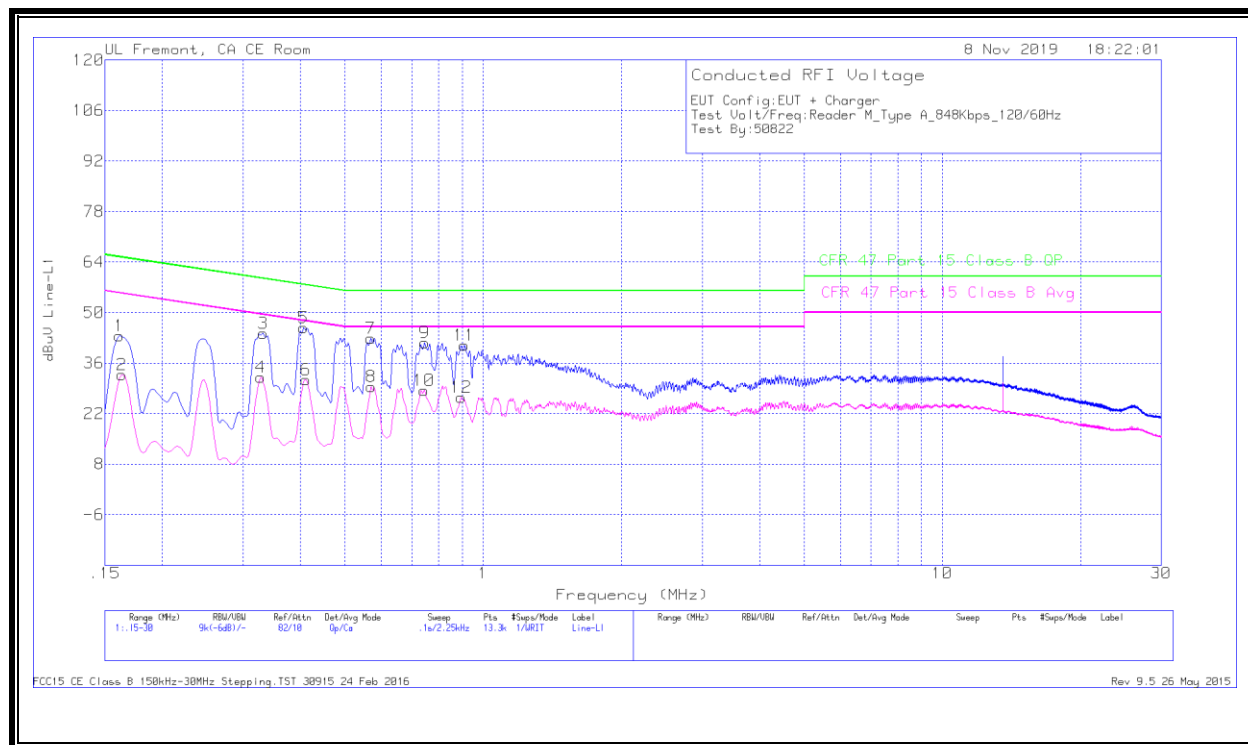
| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | |
|------------------------------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|----------------|----------------------------|----------------------|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L2 | LC Cables C2&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 15 | 13.56 | 48.11 | Qp | .1 | .2 | 10.2 | 58.61 | 60 | -1.39 | - | - |
| 16 | 13.56 | 45.34 | Ca | .1 | .2 | 10.2 | 55.84 | - | - | 50 | 5.84 |
| 17 | .16125 | 30.09 | Qp | .1 | 0 | 10.1 | 40.29 | 65.4 | -25.11 | - | - |
| 18 | .16125 | 18.64 | Ca | .1 | 0 | 10.1 | 28.84 | - | - | 55.4 | -26.56 |
| 19 | .24 | 27.08 | Qp | 0 | 0 | 10.1 | 37.18 | 62.1 | -24.92 | - | - |
| 20 | .24225 | 13.4 | Ca | 0 | 0 | 10.1 | 23.5 | - | - | 52.02 | -28.52 |
| 21 | .3255 | 30.07 | Qp | 0 | 0 | 10.1 | 40.17 | 59.57 | -19.4 | - | - |
| 22 | .32325 | 16.12 | Ca | 0 | 0 | 10.1 | 26.22 | - | - | 49.62 | -23.4 |
| 23 | .4065 | 29.94 | Qp | 0 | 0 | 10.1 | 40.04 | 57.72 | -17.68 | - | - |
| 24 | .40425 | 15.31 | Ca | 0 | 0 | 10.1 | 25.41 | - | - | 47.77 | -22.36 |
| 25 | .48975 | 28.48 | Qp | 0 | 0 | 10.1 | 38.58 | 56.17 | -17.59 | - | - |
| 26 | .4875 | 13.43 | Ca | 0 | 0 | 10.1 | 23.53 | - | - | 46.21 | -22.68 |
| 27 | .57075 | 28.85 | Qp | 0 | 0 | 10.1 | 38.95 | 56 | -17.05 | - | - |
| 28 | .5685 | 13.39 | Ca | 0 | 0 | 10.1 | 23.49 | - | - | 46 | -22.51 |

Qp - Quasi-Peak detector
Ca - CISPR average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following Section 9.2.2 indicate that when the antenna terminal is terminated, the fundamental amplitude is lowered below the limit line.

9.1.2. NORMAL OPERATION WITH ANTENNA PORT TERMINATED

LINE 1 RESULTS

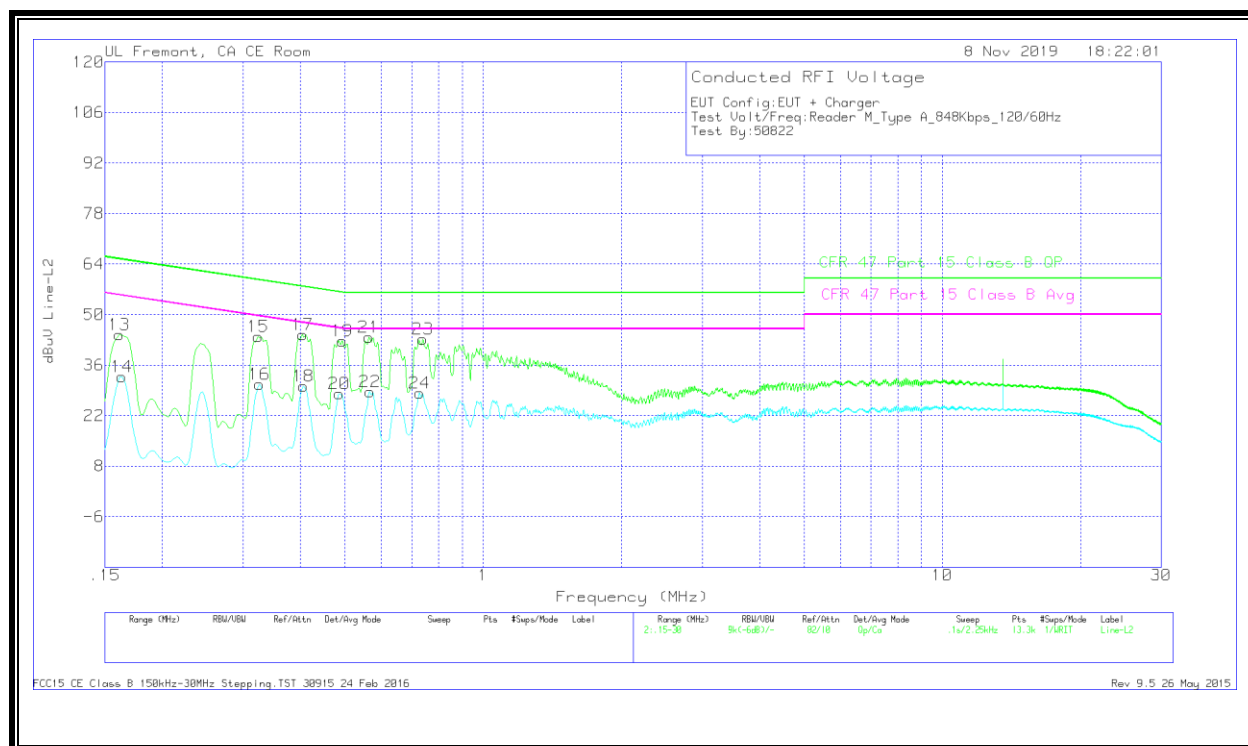


Worst Emission

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|------------------------------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|----------------|----------------------------|----------------------|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L1 | LC Cables C1&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 1 | .16125 | 33.36 | Qp | .1 | 0 | 10.1 | 43.56 | 65.4 | -21.84 | - | - |
| 2 | .1635 | 22.66 | Ca | .1 | 0 | 10.1 | 32.86 | - | - | 55.28 | -22.42 |
| 3 | .33225 | 34.16 | Qp | 0 | 0 | 10.1 | 44.26 | 59.39 | -15.13 | - | - |
| 4 | .32775 | 22 | Ca | 0 | 0 | 10.1 | 32.1 | - | - | 49.51 | -17.41 |
| 5 | .4065 | 35.72 | Qp | 0 | 0 | 10.1 | 45.82 | 57.72 | -11.9 | - | - |
| 6 | .411 | 21.3 | Ca | 0 | 0 | 10.1 | 31.4 | - | - | 47.63 | -16.23 |
| 7 | .5685 | 32.8 | Qp | 0 | 0 | 10.1 | 42.9 | 56 | -13.1 | - | - |
| 8 | .57075 | 19.35 | Ca | 0 | 0 | 10.1 | 29.45 | - | - | 46 | -16.55 |
| 9 | .74625 | 31.61 | Qp | 0 | 0 | 10.1 | 41.71 | 56 | -14.29 | - | - |
| 10 | .744 | 18.4 | Ca | 0 | 0 | 10.1 | 28.5 | - | - | 46 | -17.5 |
| 11 | .9105 | 30.91 | Qp | 0 | 0 | 10.1 | 41.01 | 56 | -14.99 | - | - |
| 12 | .89475 | 16.48 | Ca | 0 | 0 | 10.1 | 26.58 | - | - | 46 | -19.42 |

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 L2 | LC Cables C2&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 13 | .16125 | 34.17 | Qp | .1 | 0 | 10.1 | 44.37 | 65.4 | -21.03 | - | - |
| 14 | .1635 | 22.63 | Ca | .1 | 0 | 10.1 | 32.83 | - | - | 55.28 | -22.45 |
| 15 | .32325 | 33.77 | Qp | 0 | 0 | 10.1 | 43.87 | 59.62 | -15.75 | - | - |
| 16 | .3255 | 20.66 | Ca | 0 | 0 | 10.1 | 30.76 | - | - | 49.57 | -18.81 |
| 17 | .40425 | 34.39 | Qp | 0 | 0 | 10.1 | 44.49 | 57.77 | -13.28 | - | - |
| 18 | .4065 | 20.06 | Ca | 0 | 0 | 10.1 | 30.16 | - | - | 47.72 | -17.56 |
| 19 | .49425 | 32.61 | Qp | 0 | 0 | 10.1 | 42.71 | 56.1 | -13.39 | - | - |
| 20 | .48525 | 18.01 | Ca | 0 | 0 | 10.1 | 28.11 | - | - | 46.25 | -18.14 |
| 21 | .564 | 33.59 | Qp | 0 | 0 | 10.1 | 43.69 | 56 | -12.31 | - | - |
| 22 | .56625 | 18.55 | Ca | 0 | 0 | 10.1 | 28.65 | - | - | 46 | -17.35 |
| 23 | .7395 | 33.13 | Qp | 0 | 0 | 10.1 | 43.23 | 56 | -12.77 | - | - |
| 24 | .72825 | 18.13 | Ca | 0 | 0 | 10.1 | 28.23 | - | - | 46 | -17.77 |

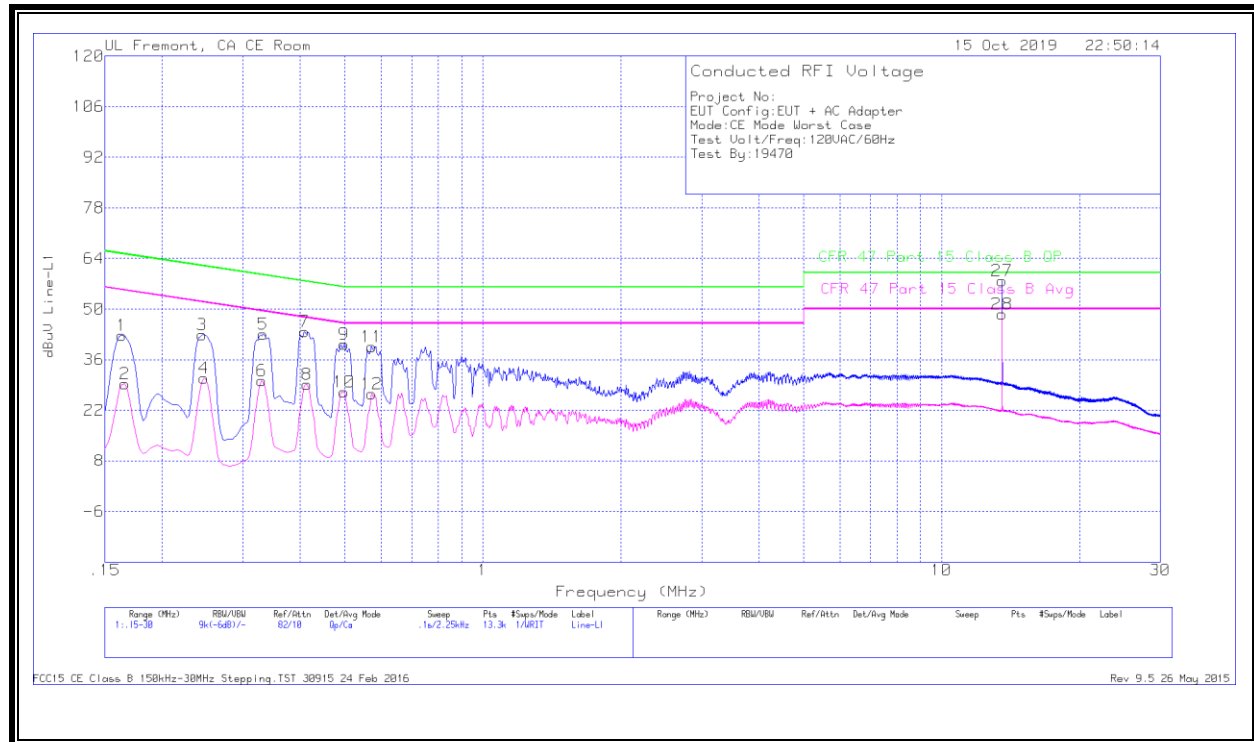
Qp - Quasi-Peak detector

Ca - CISPR average detection

9.2. CE MODE

9.2.1. NORMAL OPERATION, 848Kbps

LINE 1 RESULTS



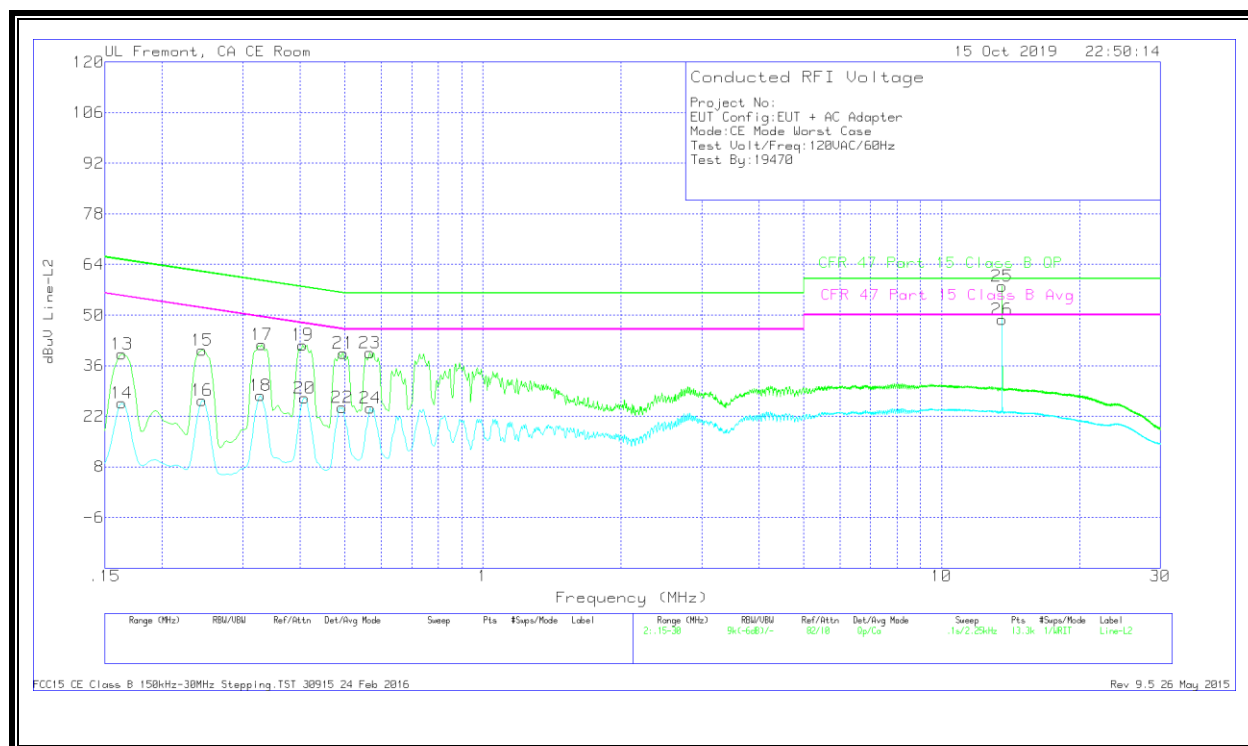
Worst Emission

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|------------------------------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|----------------|----------------------------|----------------------|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L1 | LC Cables C1&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 1 | .1635 | 32.44 | Qp | .1 | 0 | 10.1 | 42.64 | 65.28 | -22.64 | - | - |
| 2 | .16575 | 19.05 | Ca | .1 | 0 | 10.1 | 29.25 | - | - | 55.17 | -25.92 |
| 3 | .2445 | 32.79 | Qp | 0 | 0 | 10.1 | 42.89 | 61.94 | -19.05 | - | - |
| 4 | .24675 | 20.83 | Ca | 0 | 0 | 10.1 | 30.93 | - | - | 51.87 | -20.94 |
| 5 | .33225 | 32.9 | Qp | 0 | 0 | 10.1 | 43 | 59.39 | -16.39 | - | - |
| 6 | .33 | 20.1 | Ca | 0 | 0 | 10.1 | 30.2 | - | - | 49.45 | -19.25 |
| 7 | .40875 | 33.72 | Qp | 0 | 0 | 10.1 | 43.82 | 57.67 | -13.85 | - | - |
| 8 | .41325 | 19.01 | Ca | 0 | 0 | 10.1 | 29.11 | - | - | 47.58 | -18.47 |
| 9 | .49875 | 30.15 | Qp | 0 | 0 | 10.1 | 40.25 | 56.02 | -15.77 | - | - |
| 10 | .49875 | 16.99 | Ca | 0 | 0 | 10.1 | 27.09 | - | - | 46.02 | -18.93 |
| 11 | .573 | 29.52 | Qp | 0 | 0 | 10.1 | 39.62 | 56 | -16.38 | - | - |
| 12 | .573 | 16.36 | Ca | 0 | 0 | 10.1 | 26.46 | - | - | 46 | -19.54 |
| 27 | 13.56 | 47.32 | Qp | .1 | .2 | 10.2 | 57.82 | 60 | -2.18 | - | - |
| 28 | 13.56 | 38.03 | Ca | .1 | .2 | 10.2 | 48.53 | - | - | 50 | -1.47 |

Qp - Quasi-Peak detector
Ca - CISPR average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following Section 9.1.2 indicate that when the antenna terminal is terminated, the fundamental amplitude is lowered below the limit line.

LINE 2 RESULTS



Worst Emission

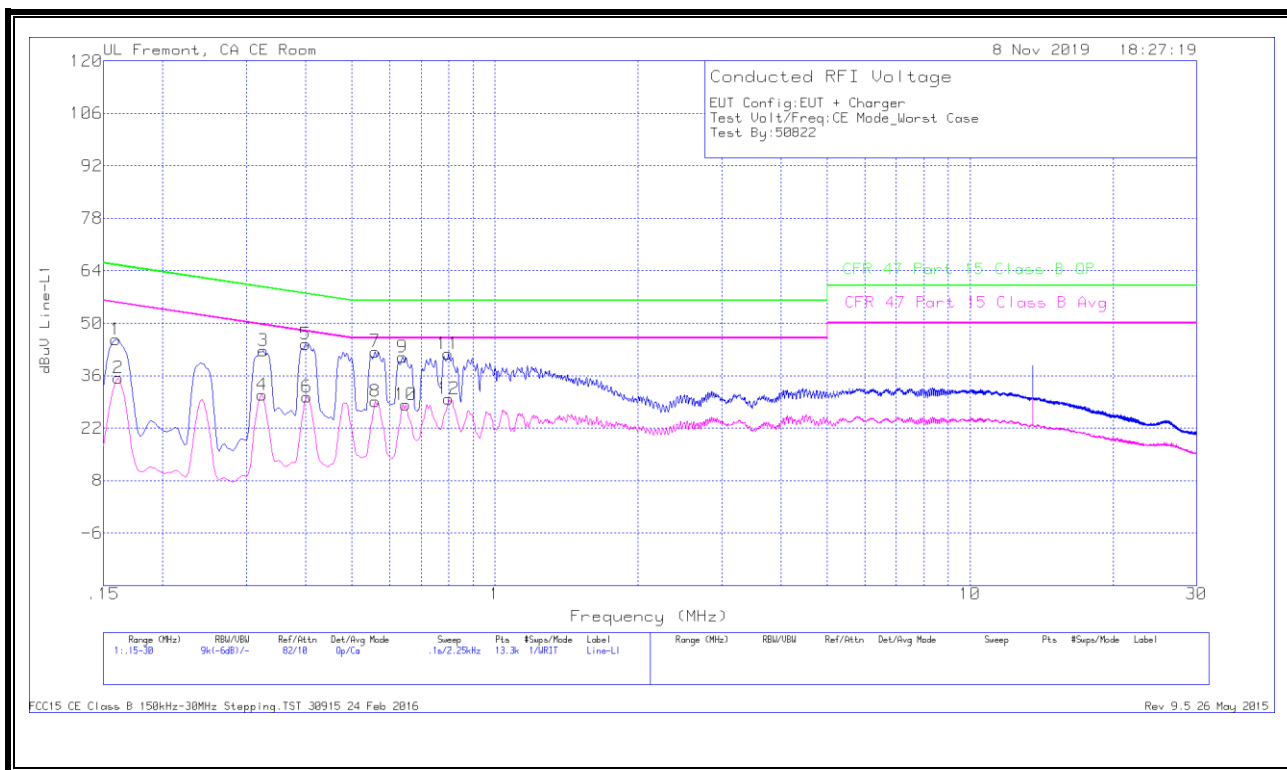
| Range 2: Line-L2 .15 - 30MHz | | | | | | | | | | | |
|------------------------------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|----------------|----------------------------|----------------------|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L2 | LC Cables C2&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 13 | .1635 | 28.95 | Qp | .1 | 0 | 10.1 | 39.15 | 65.28 | -26.13 | - | - |
| 14 | .1635 | 15.53 | Ca | .1 | 0 | 10.1 | 25.73 | - | - | 55.28 | -29.55 |
| 15 | .2445 | 30.11 | Qp | 0 | 0 | 10.1 | 40.21 | 61.94 | -21.73 | - | - |
| 16 | .2445 | 16.34 | Ca | 0 | 0 | 10.1 | 26.44 | - | - | 51.94 | -25.5 |
| 17 | .33 | 31.65 | Qp | 0 | 0 | 10.1 | 41.75 | 59.45 | -17.7 | - | - |
| 18 | .32775 | 17.61 | Ca | 0 | 0 | 10.1 | 27.71 | - | - | 49.51 | -21.8 |
| 19 | .40425 | 31.64 | Qp | 0 | 0 | 10.1 | 41.74 | 57.77 | -16.03 | - | - |
| 20 | .40875 | 16.92 | Ca | 0 | 0 | 10.1 | 27.02 | - | - | 47.67 | -20.65 |
| 21 | .4965 | 29.38 | Qp | 0 | 0 | 10.1 | 39.48 | 56.06 | -16.58 | - | - |
| 22 | .49425 | 14.37 | Ca | 0 | 0 | 10.1 | 24.47 | - | - | 46.1 | -21.63 |
| 23 | .56625 | 29.48 | Qp | 0 | 0 | 10.1 | 39.58 | 56 | -16.42 | - | - |
| 24 | .5685 | 14.2 | Ca | 0 | 0 | 10.1 | 24.3 | - | - | 46 | -21.7 |
| 25 | 13.56 | 47.49 | Qp | .1 | .2 | 10.2 | 57.99 | 60 | -2.01 | - | - |
| 26 | 13.56 | 38.22 | Ca | .1 | .2 | 10.2 | 48.72 | - | - | 50 | -1.28 |

Qp - Quasi-Peak detector
Ca - CISPR average detection

Note: 13.56MHz is a fundamental frequency of the EUT. Data under the following Section 9.1.2 indicate that when the antenna terminal is terminated, the fundamental amplitude is lowered below the limit line.

9.2.2. NORMAL OPERATION WITH ANTENNA PORT TERMINATED, 848Kbps

LINE 1 RESULTS



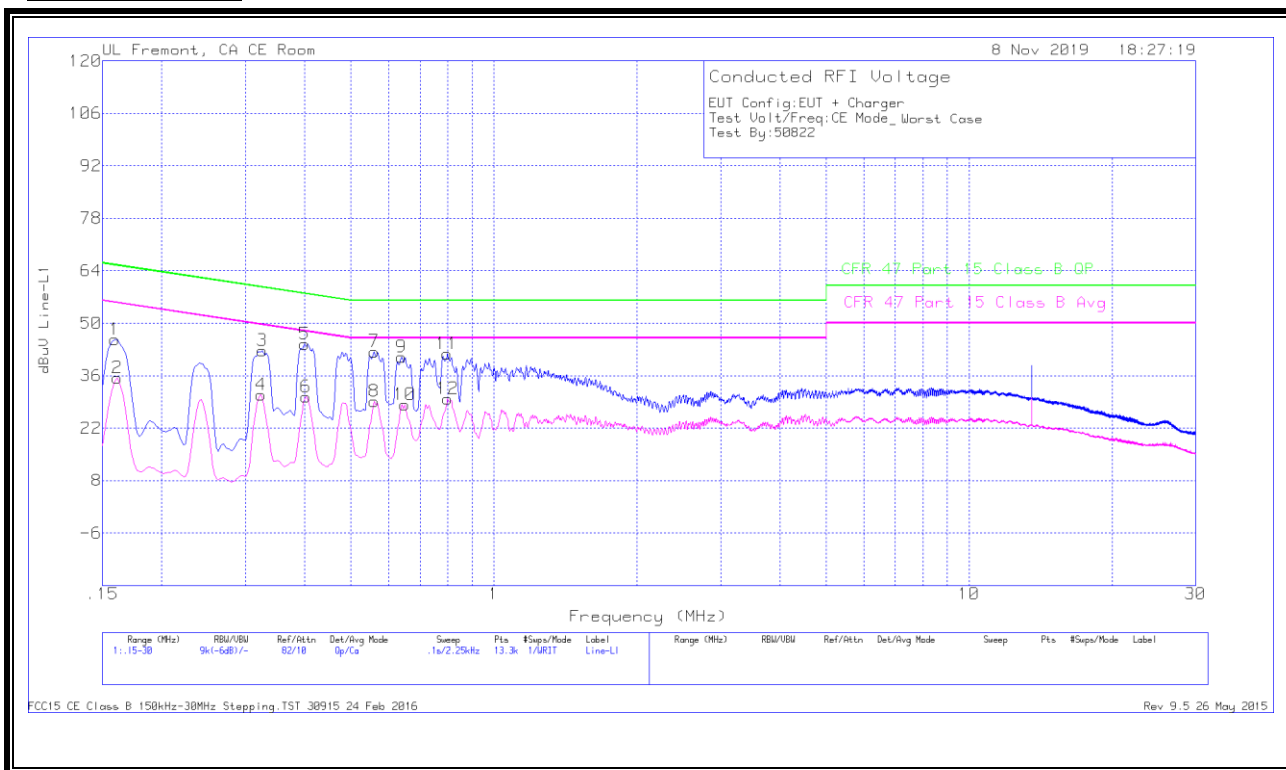
Worst Emission

| Range 1: Line-L1 .15 - 30MHz | | | | | | | | | | | |
|------------------------------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|----------------|----------------------------|----------------------|
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L1 | LC Cables C1&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 1 | .159 | 35.48 | Qp | .1 | 0 | 10.1 | 45.68 | 65.52 | -19.84 | - | - |
| 2 | .16125 | 25.2 | Ca | .1 | 0 | 10.1 | 35.4 | - | - | 55.4 | -20 |
| 3 | .3255 | 32.63 | Qp | 0 | 0 | 10.1 | 42.73 | 59.57 | -16.84 | - | - |
| 4 | .32325 | 20.71 | Ca | 0 | 0 | 10.1 | 30.81 | - | - | 49.62 | -18.81 |
| 5 | .39975 | 34.41 | Qp | 0 | 0 | 10.1 | 44.51 | 57.86 | -13.35 | - | - |
| 6 | .402 | 20.18 | Ca | 0 | 0 | 10.1 | 30.28 | - | - | 47.81 | -17.53 |
| 7 | .5595 | 32.33 | Qp | 0 | 0 | 10.1 | 42.43 | 56 | -13.57 | - | - |
| 8 | .5595 | 19.03 | Ca | 0 | 0 | 10.1 | 29.13 | - | - | 46 | -16.87 |
| 9 | .63825 | 30.88 | Qp | 0 | 0 | 10.1 | 40.98 | 56 | -15.02 | - | - |
| 10 | .6495 | 18.19 | Ca | 0 | 0 | 10.1 | 28.29 | - | - | 46 | -17.71 |
| 11 | .798 | 31.71 | Qp | 0 | 0 | 10.1 | 41.81 | 56 | -14.19 | - | - |
| 12 | .80025 | 19.77 | Ca | 0 | 0 | 10.1 | 29.87 | - | - | 46 | -16.13 |

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 L2 | LC Cables C2&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | QP Margin (dB) | CFR 47 Part 15 Class B Avg | Av(CISPR)Margin (dB) |
| 13 | .16125 | 35.21 | Qp | .1 | 0 | 10.1 | 45.41 | 65.4 | -19.99 | - | - |
| 14 | .16125 | 23.9 | Ca | .1 | 0 | 10.1 | 34.1 | - | - | 55.4 | -21.3 |
| 15 | .31875 | 32.83 | Qp | 0 | 0 | 10.1 | 42.93 | 59.74 | -16.81 | - | - |
| 16 | .321 | 19.97 | Ca | 0 | 0 | 10.1 | 30.07 | - | - | 49.68 | -19.61 |
| 17 | .3975 | 33.41 | Qp | 0 | 0 | 10.1 | 43.51 | 57.91 | -14.4 | - | - |
| 18 | .402 | 19.26 | Ca | 0 | 0 | 10.1 | 29.36 | - | - | 47.81 | -18.45 |
| 19 | .55725 | 33.31 | Qp | 0 | 0 | 10.1 | 43.41 | 56 | -12.59 | - | - |
| 20 | .55725 | 18.25 | Ca | 0 | 0 | 10.1 | 28.35 | - | - | 46 | -17.65 |
| 21 | .7305 | 32.88 | Qp | 0 | 0 | 10.1 | 42.98 | 56 | -13.02 | - | - |
| 22 | .717 | 18.08 | Ca | 0 | 0 | 10.1 | 28.18 | - | - | 46 | -17.82 |
| 23 | .8745 | 31.48 | Qp | 0 | 0 | 10.1 | 41.58 | 56 | -14.42 | - | - |
| 24 | .87675 | 16.32 | Ca | 0 | 0 | 10.1 | 26.42 | - | - | 46 | -19.58 |

Qp - Quasi-Peak detector
Ca - CISPR average detection

10. SETUP PHOTOS

Please refer to 13018973-EP1V1 for setup photos

END OF TEST REPORT