

TEST REPORT

Report Number. : 14523772-E12V2

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

Model : A3105 (Full Test Model)
A3106, A3108 (Variant Models)

FCC ID : BCG-8440A (Full Test Model)
BCG-E8441A, BCG-E8442A (Variant Models)

IC : 579C-E8440A (Full Test Model)
579C-E8441A, 579C-E8442A (Variant Models)

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-210 ISSUE 10
ISED RSS-GEN ISSUE 5 + A1 + A2

Date of Issue:

August 05, 2023

Prepared by:

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	8/3/2023	Initial Issue	Chin Pang
V2	8/5/2023	Updated Model Number, FCC/IC IDs	Ben Dobbins

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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: A3105 (Parent Model)
A3106, A3108 (Variant Models)

BRAND: APPLE

FCC ID: BCG-E8440A
BCG-E8441A, BCG-E8442A (Variant Models)

IC: 579C-E8440A
579C-E8441A, 579C-E8442A (VARIANT MODELS)

SERIAL NUMBER: PW9FWW4G5P, DWP17WGX91

SAMPLE RECEIPT DATE: MAY 20, 2023

DATE TESTED: MAY 24 – JULY 14, 2023

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Complies
ISED RSS-210 Issue 10, 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.

Approved & Released For
UL Verification Services Inc. By:

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 10

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
<input type="checkbox"/>	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
<input checked="" type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
<input type="checkbox"/>	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
<input checked="" type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
<input type="checkbox"/>	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 Humidity	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)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

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.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

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, 5G, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS, NFC, NB UNII, 802.15.4, 802.15.4ab-NB and MSS technologies. The rechargeable battery is not user accessible.

The Model and FCC/IC ID covered by this report includes:

Full Test Model: A3105, FCC ID: BCG-E8440A, IC ID: 579C-E8440A

Variant Models: A3106, FCC ID: BCG-E8441A, IC ID: 579C-8441A
A3108, FCC ID: BCG-E8442A, IC ID: 579C-8442A

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	212	27.61
			Tag	212	27.5
			CE	212	26.64
Secondary	13.56	Type	Reader	212	3.58
			Tag	212	6.52

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 EUT has primary and secondary antennas and worst case was investigated on the primary antenna since it has the highest power.

The worst-case position of the EUT was investigated under two configurations: 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, Reader, and 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 212 Kbps was determined to be the worst case and therefore Type B 212 Kbps 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.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

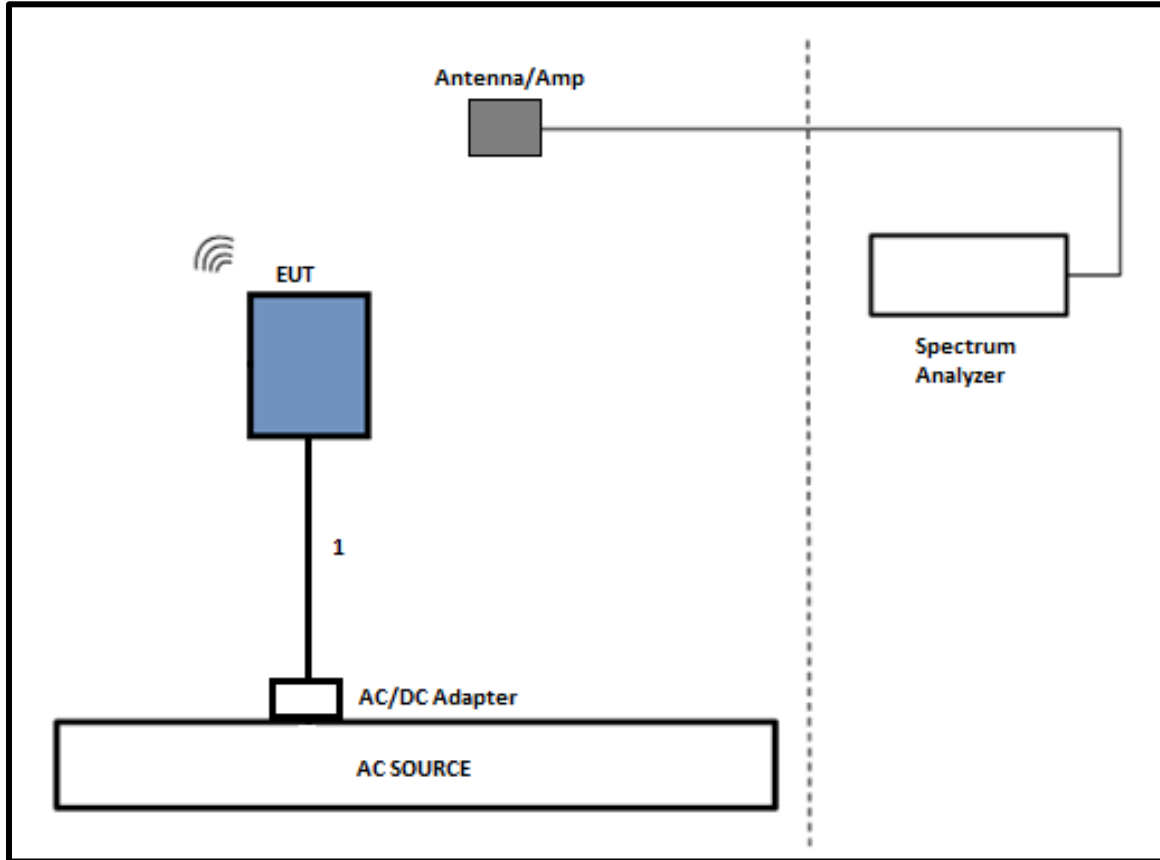
5.4. SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
EUT AC/DC adapter	Apple	A1720	C3D8417A7R93KVPA8	DoC

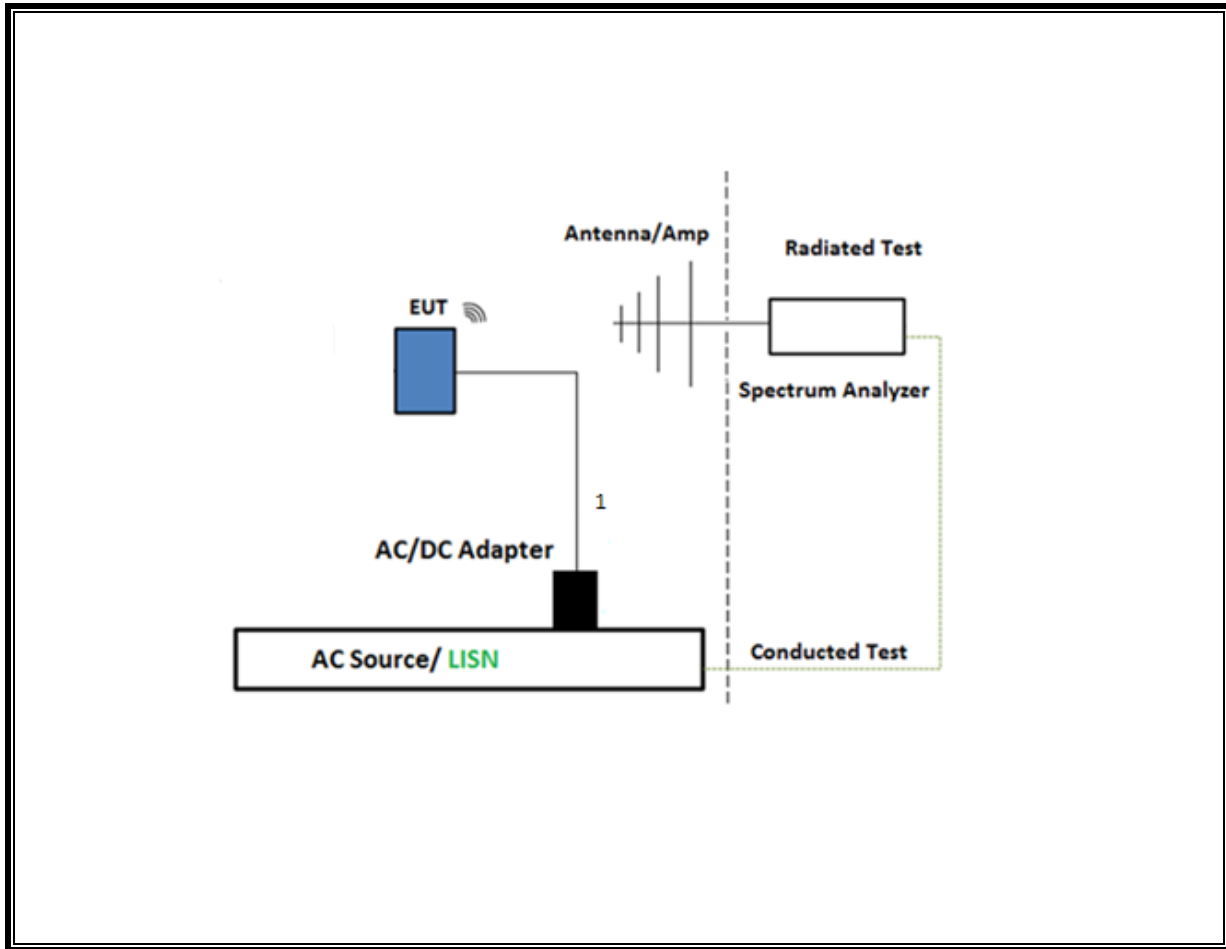
I/O CABLES

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

SETUP DIAGRAM FOR RADIATED TESTS



SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	231913	02/29/2024	02/22/2023
*Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	80508	06/08/2023	05/08/2022
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	89831	08/10/2023	08/10/2022
*Antenna, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	170013	07/28/2023	07/28/2022
*Antenna, Passive Loop 100KHz to 30MHz	ETS-Lindgren	EM-6872	170015	07/28/2023	07/28/2022
*Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A (MY55410147)	222071	07/16/2023	07/16/2022
EMI Test Receiver	Rohde & Schwarz	ESW44	169937	02/29/2024	02/29/2023
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T754	01/31/2024	06/08/2023

AC Line Conducted					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	93091	02/29/2024	02/29/2023
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01-480V	175765	01/31/2024	01/31/2023
*Transient Limiter	TE	TBFL1	207996	07/15/2023	07/15/2022
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, Mar 6, 2020		
Conducted Software	UL	UL EMC	2020.2.26		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, February 21, 2020		

*Testing is 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 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)
212	13.56	21.849	25.07

Type B (CE Mode)

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
212	13.56	21.478	24.94

TAG Mode

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
212	13.56	21.972	25.42

Secondary Antenna

Type B (Reader Mode)

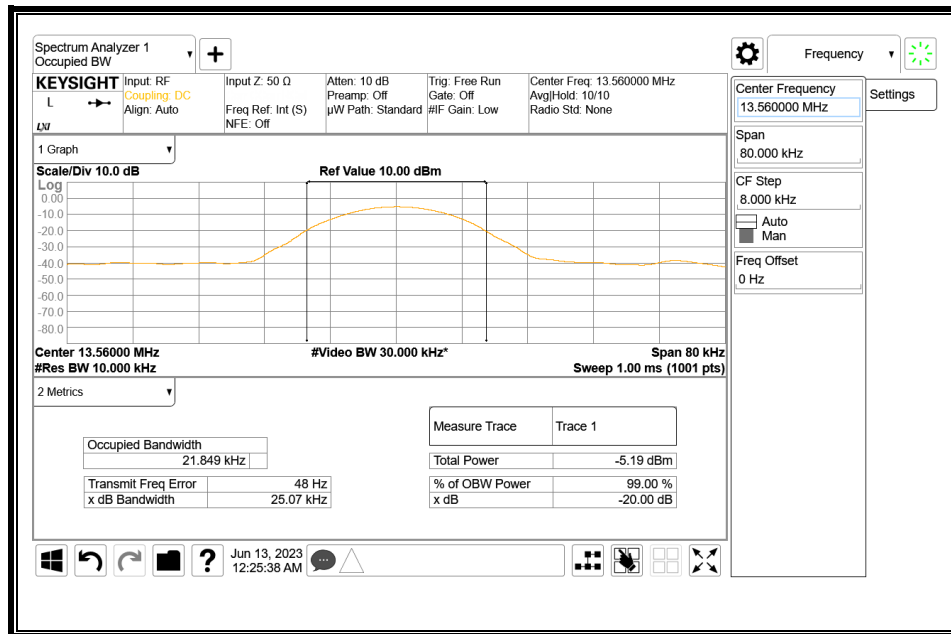
Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
212	13.56	21.860	25.05

TAG Mode

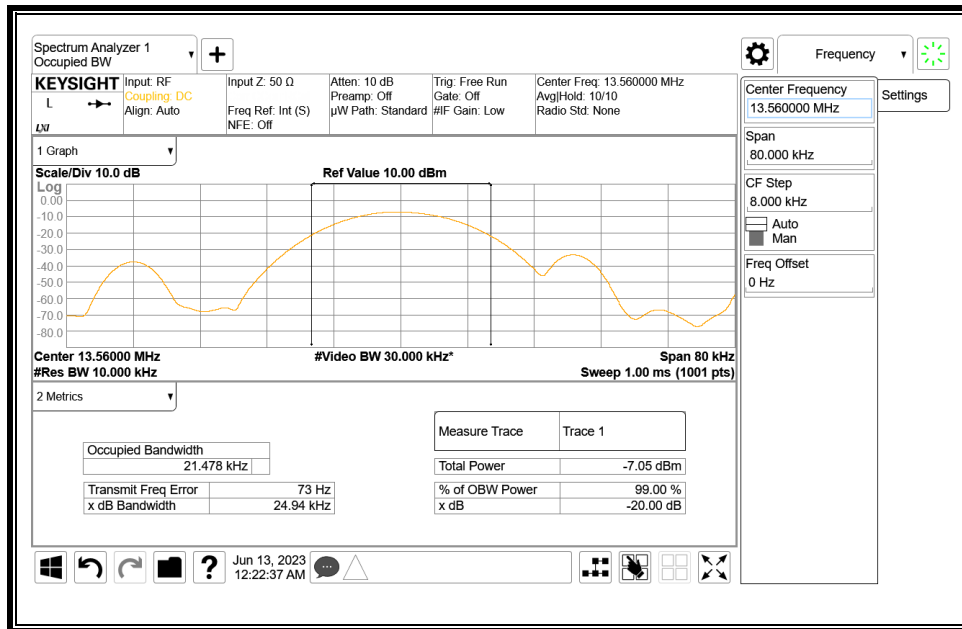
Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
212	13.56	22.128	25.59

7.1. PRIMARY ANTENNA

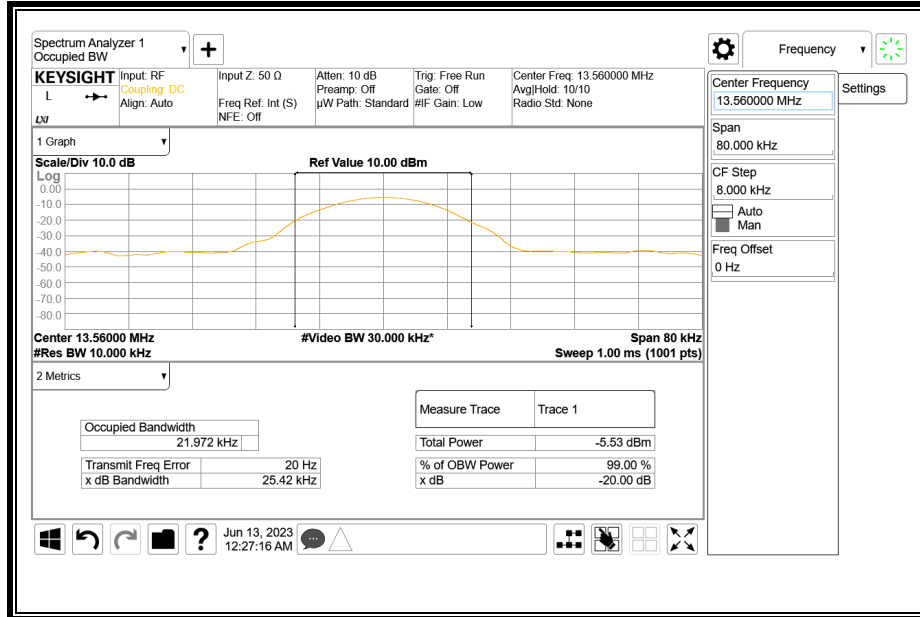
7.1.1. READER MODE, Type B 212 Kbps



7.1.2. CE MODE, Type B 212 Kbps

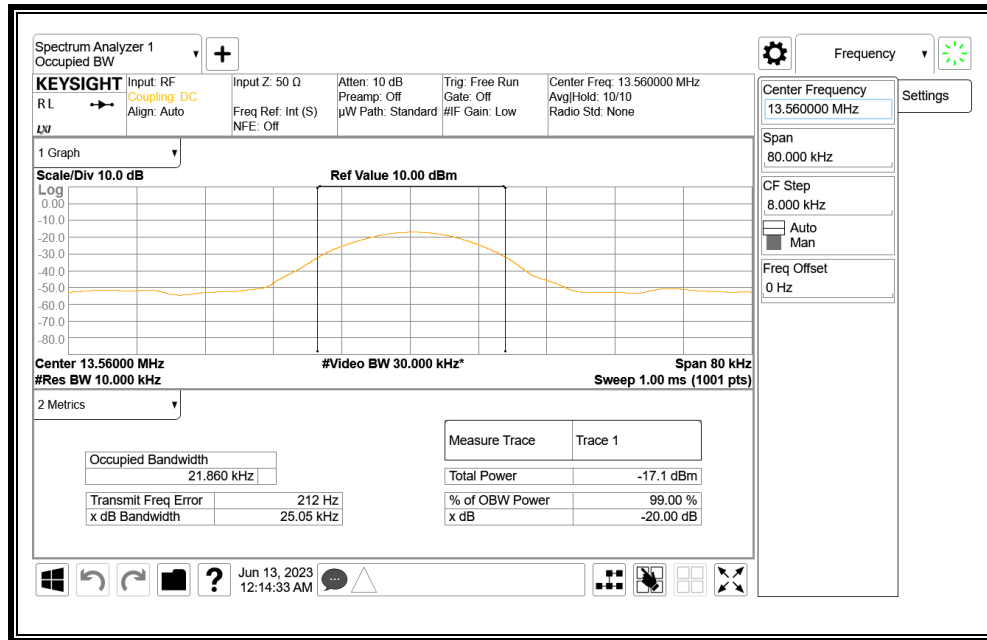


7.1.3. TAG MODE, Type B 212 Kbps

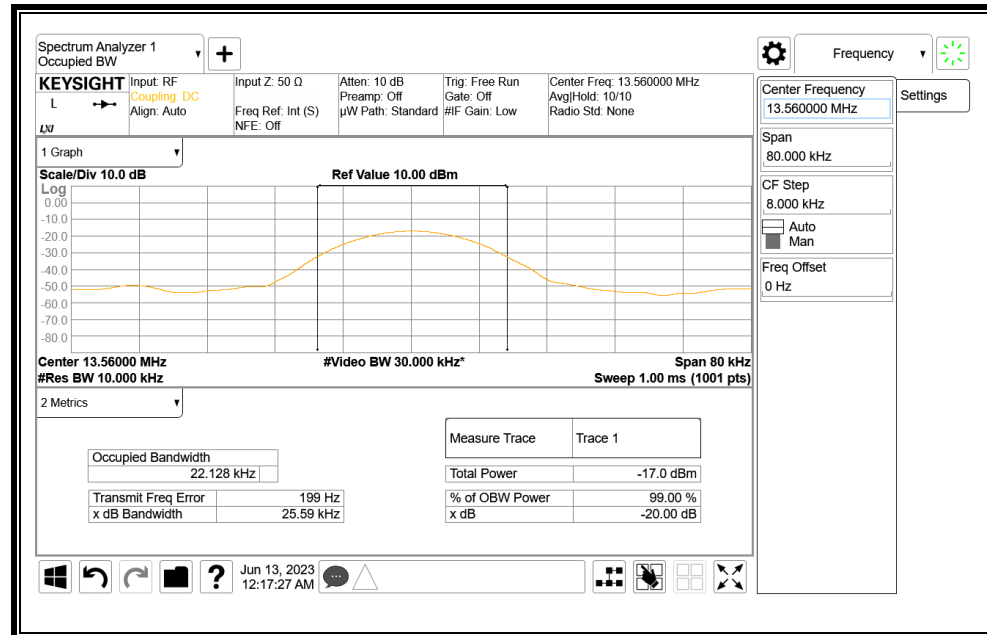


7.2. SECONDARY ANTENNA

7.2.1. READER MODE, Type B 212 Kbps



7.2.2. TAG MODE, Type B 212 Kbps



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)

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.

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

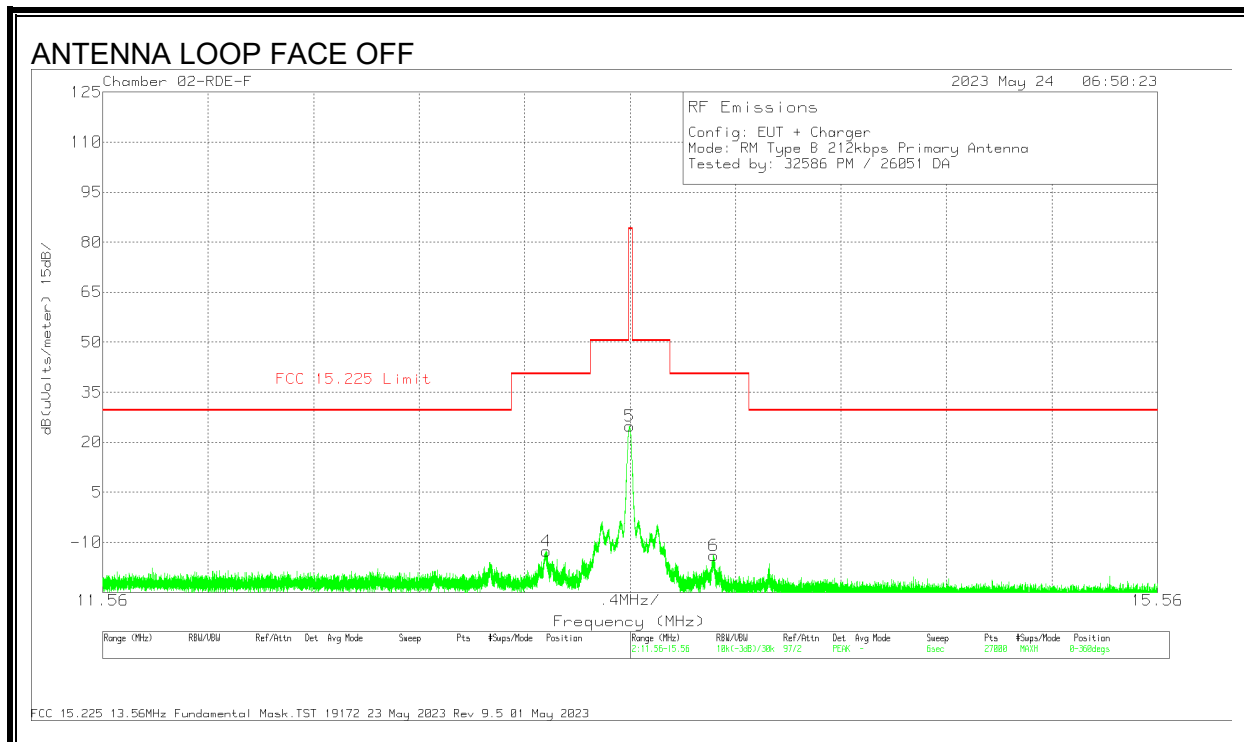
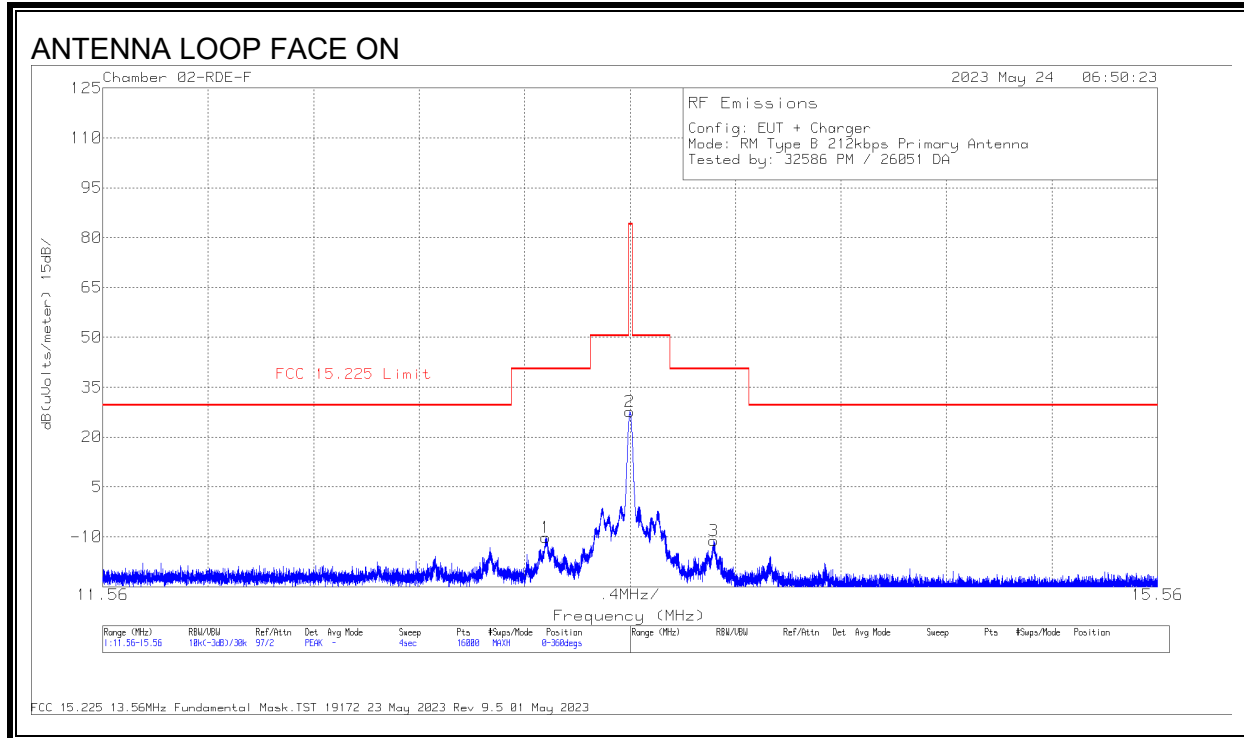
The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

RESULTS

8.2. PRIMARY ANTENNA FUNDAMENTAL & SPURIOUS EMISSION 0.15-30 MHz, EUT WITH AC/DC ADAPTER

8.2.1. READER MODE, Type B 212 Kbps

FUNDAMENTAL

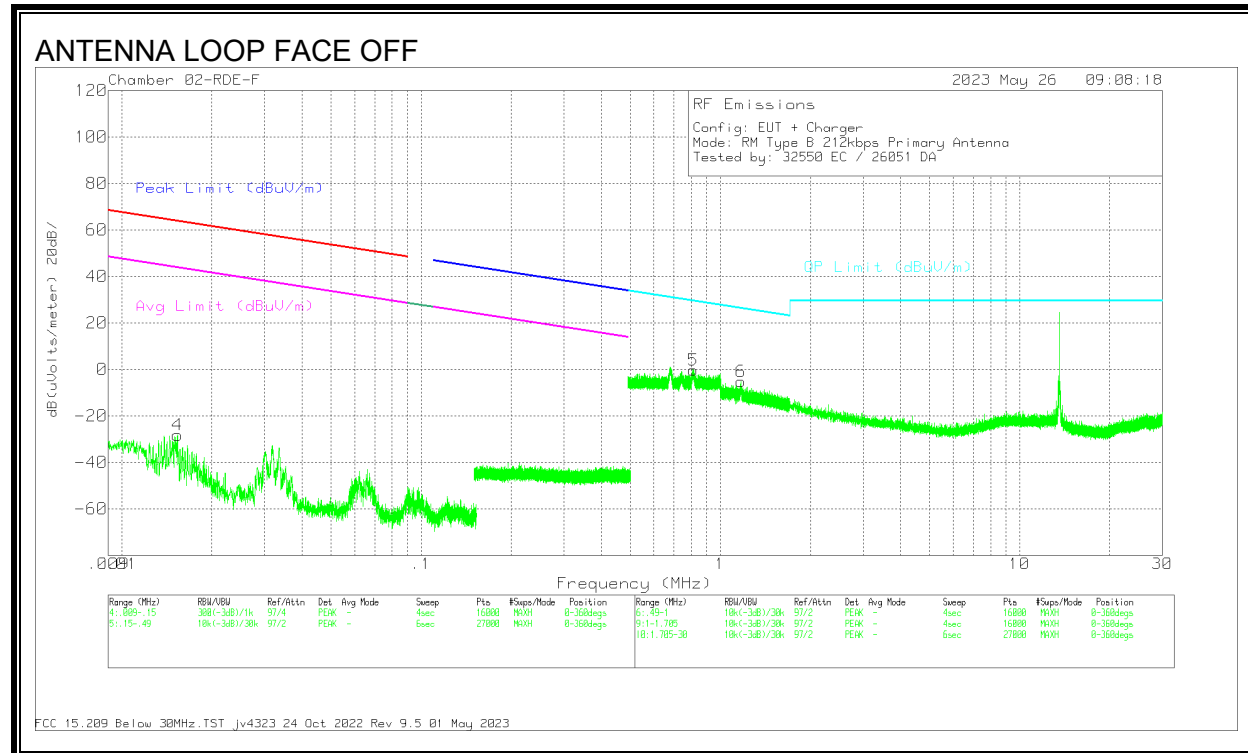
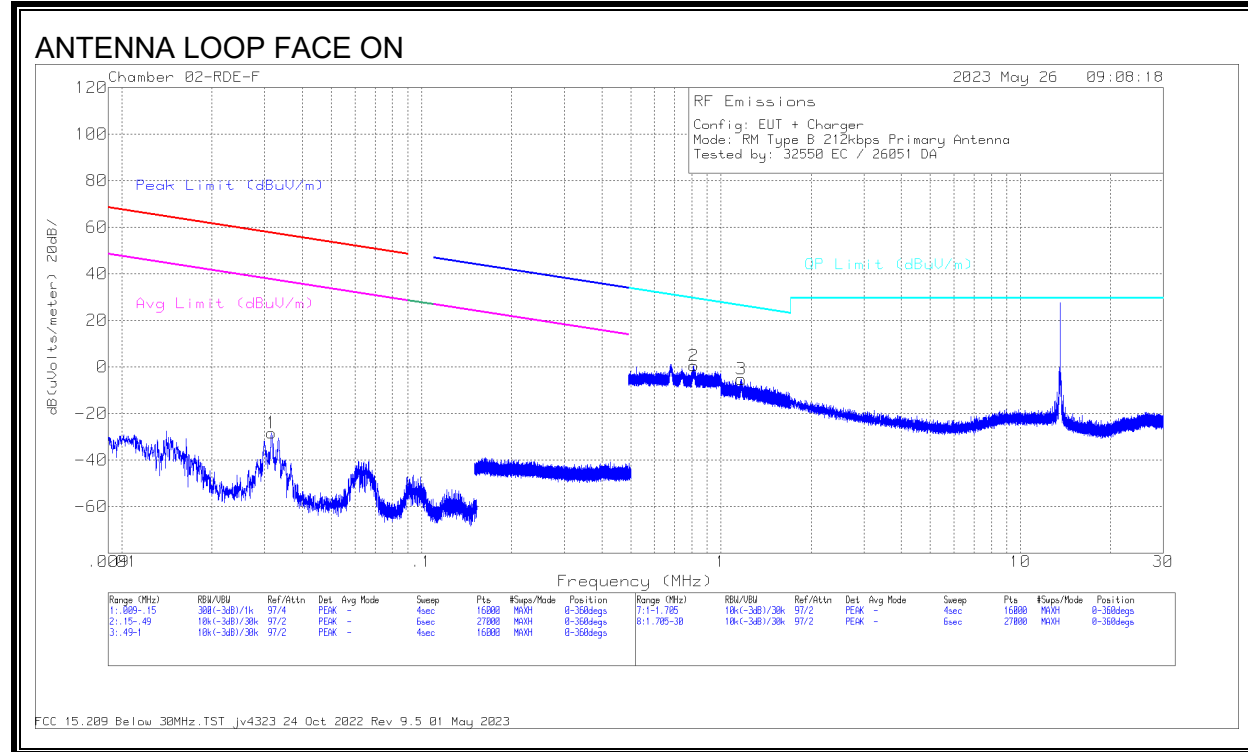


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
1	13.2408	27.78	Pk	34.2	-32.2	-40	-10.22	40.51	-50.73	0-360	Face-On
2	13.5598	65.71	Pk	34.1	-32.2	-40	27.61	84	-56.39	0-360	Face-On
3	13.8763	26.92	Pk	34.1	-32.1	-40	-11.08	40.51	-51.59	0-360	Face-On
4	13.2414	25.31	Pk	34.2	-32.2	-40	-12.69	40.51	-53.2	0-360	Face-Off
5	13.5583	62.88	Pk	34.1	-32.2	-40	24.78	84	-59.22	0-360	Face-Off
6	13.8761	24.11	Pk	34.1	-32.1	-40	-13.89	40.51	-54.4	0-360	Face-Off

Pk - Peak detector

SPURIOUS EMISSION 212Kbps



DATA

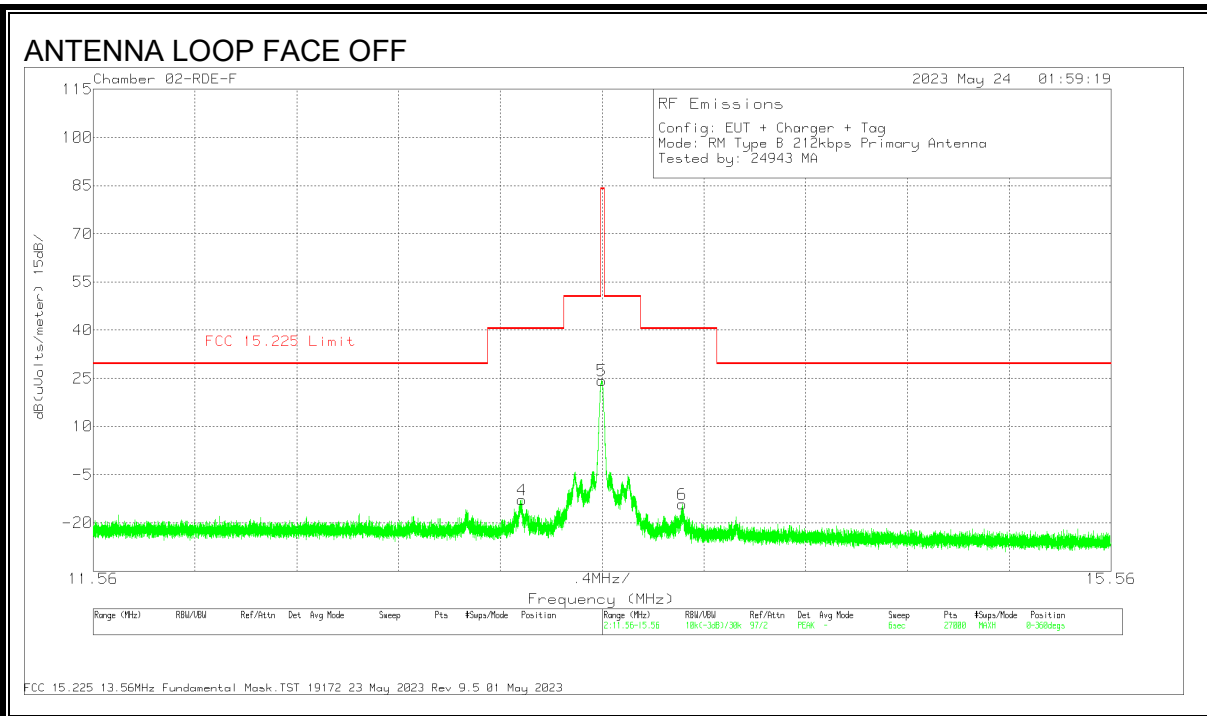
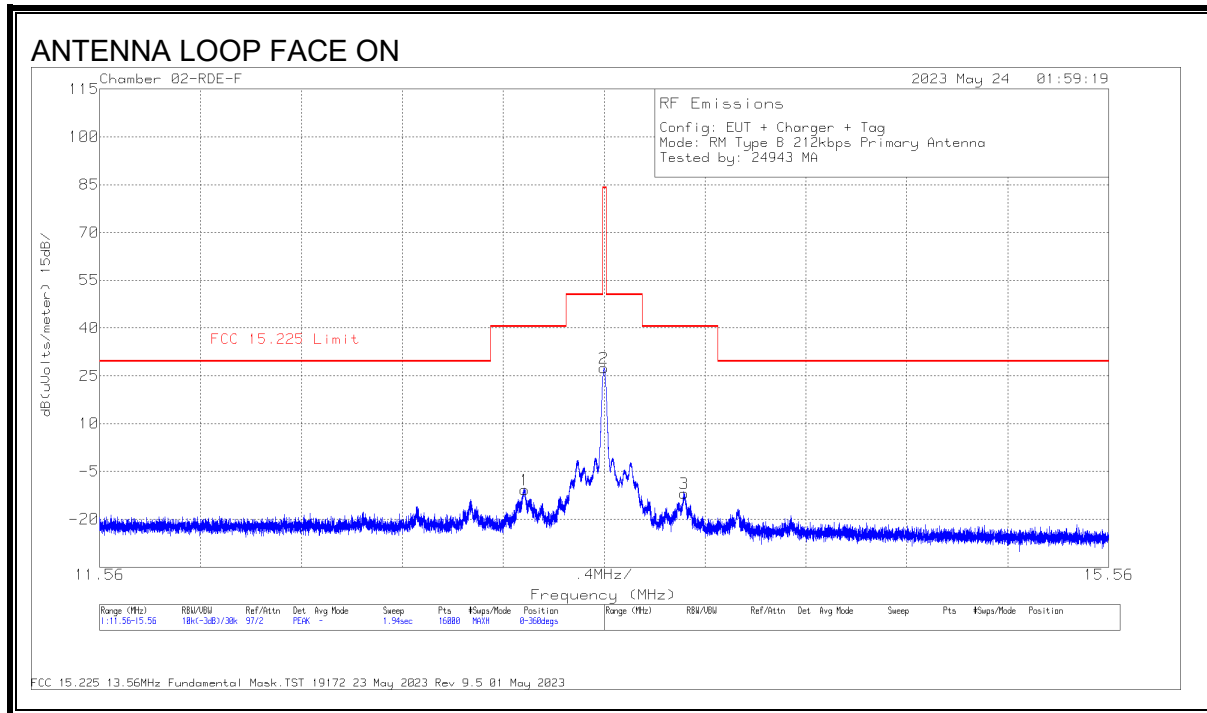
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0316	25.9	Pk	57.9	-32.2	-80	-28.4	57.6	-86	37.6	-66	0-360	Face-On
4	.0153	23.36	Pk	59.7	-31.3	-80	-28.24	63.87	-92.11	43.87	-72.11	0-360	Face-Off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.8121	16.58	Pk	56.4	-32.5	-40	.48	29.42	-28.94	0-360	Face-On
3	1.1697	21.21	Pk	45.9	-32.4	-40	-5.29	26.26	-31.55	0-360	Face-On
5	.8119	15.8	Pk	56.4	-32.5	-40	-.3	29.43	-29.73	0-360	Face-Off
6	1.1702	21.34	Pk	45.9	-32.4	-40	-5.16	26.26	-31.42	0-360	Face-Off

Pk - Peak detector

8.2.2. TAG MODE, Type B 212 Kbps

FUNDAMENTAL

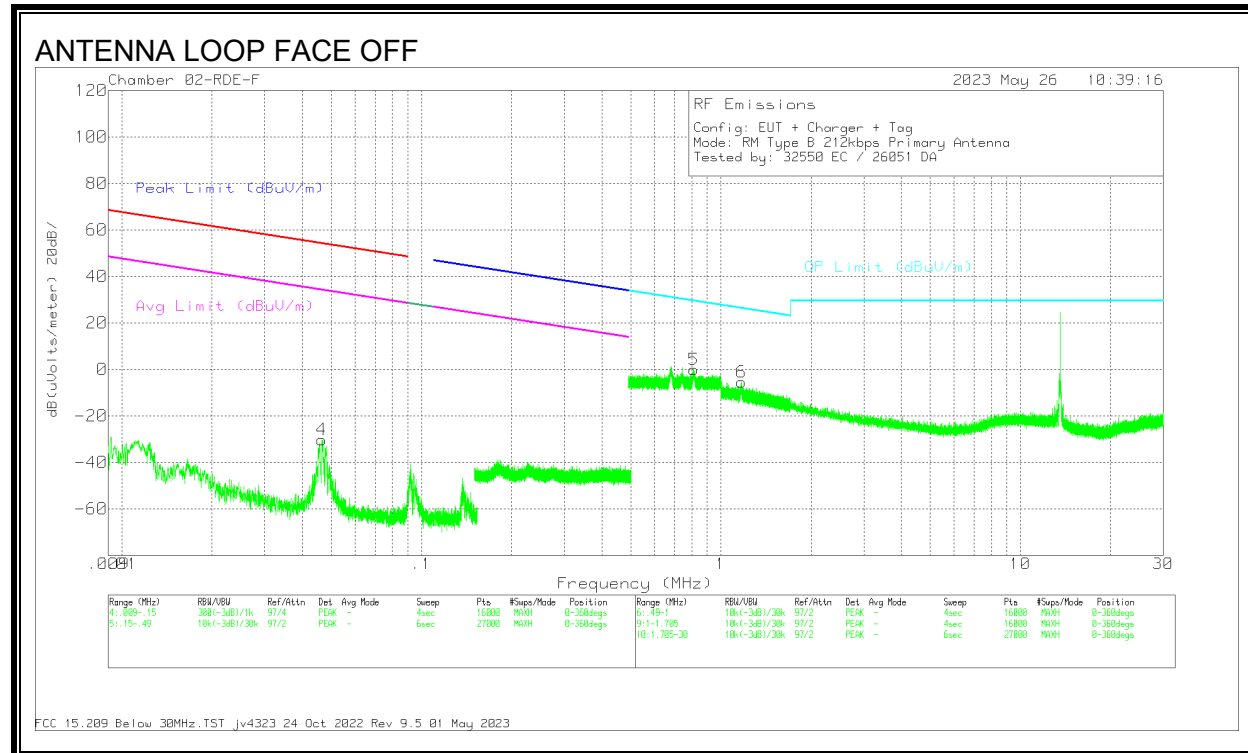
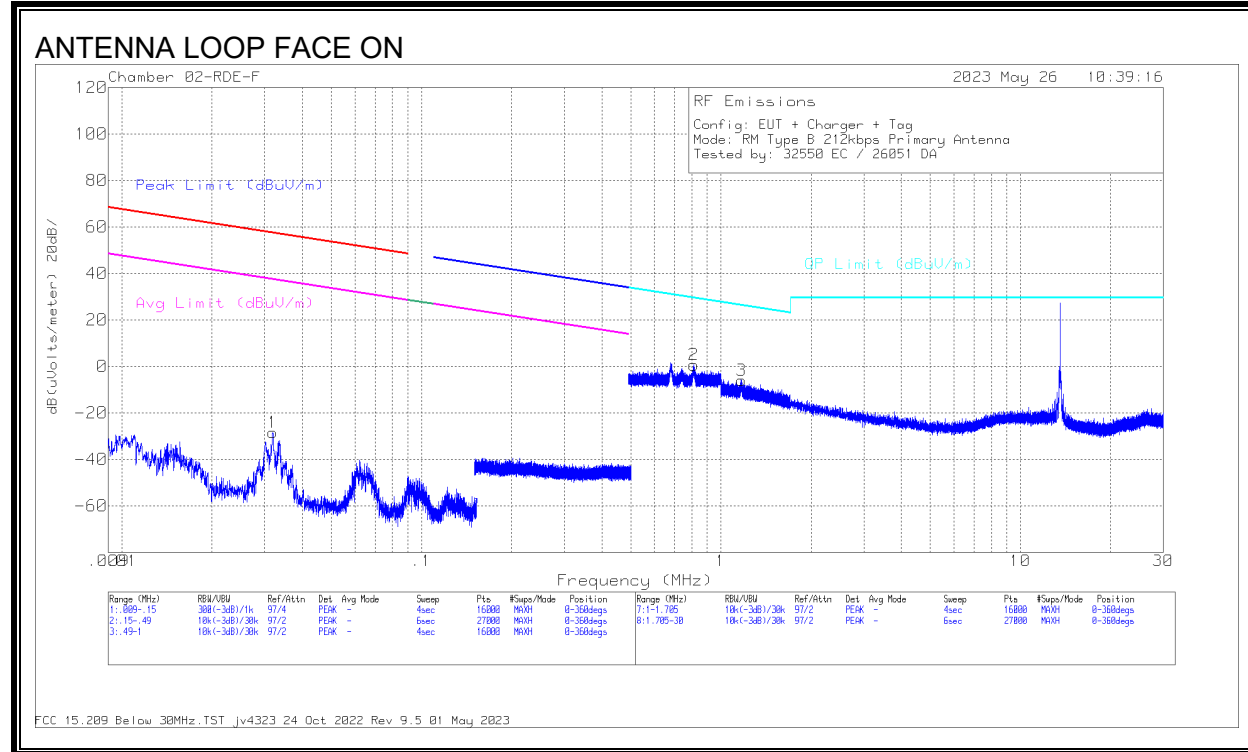


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)	Polarity
1	13.2448	27.28	Pk	34.2	-32.2	-40	-10.72	40.51	-51.23	0-360	Face-On
2	13.5595	65.6	Pk	34.1	-32.2	-40	27.5	84	-56.5	0-360	Face-On
3	13.8768	26.12	Pk	34.1	-32.1	-40	-11.88	40.51	-52.39	0-360	Face-On
4	13.2442	25.13	Pk	34.2	-32.2	-40	-12.87	40.51	-53.38	0-360	Face-Off
5	13.5576	62.44	Pk	34.1	-32.2	-40	24.34	84	-59.66	0-360	Face-Off
6	13.8744	23.86	Pk	34.1	-32.1	-40	-14.14	40.51	-54.65	0-360	Face-Off

Pk - Peak detector

SPURIOUS EMISSION 212Kbps



DATA

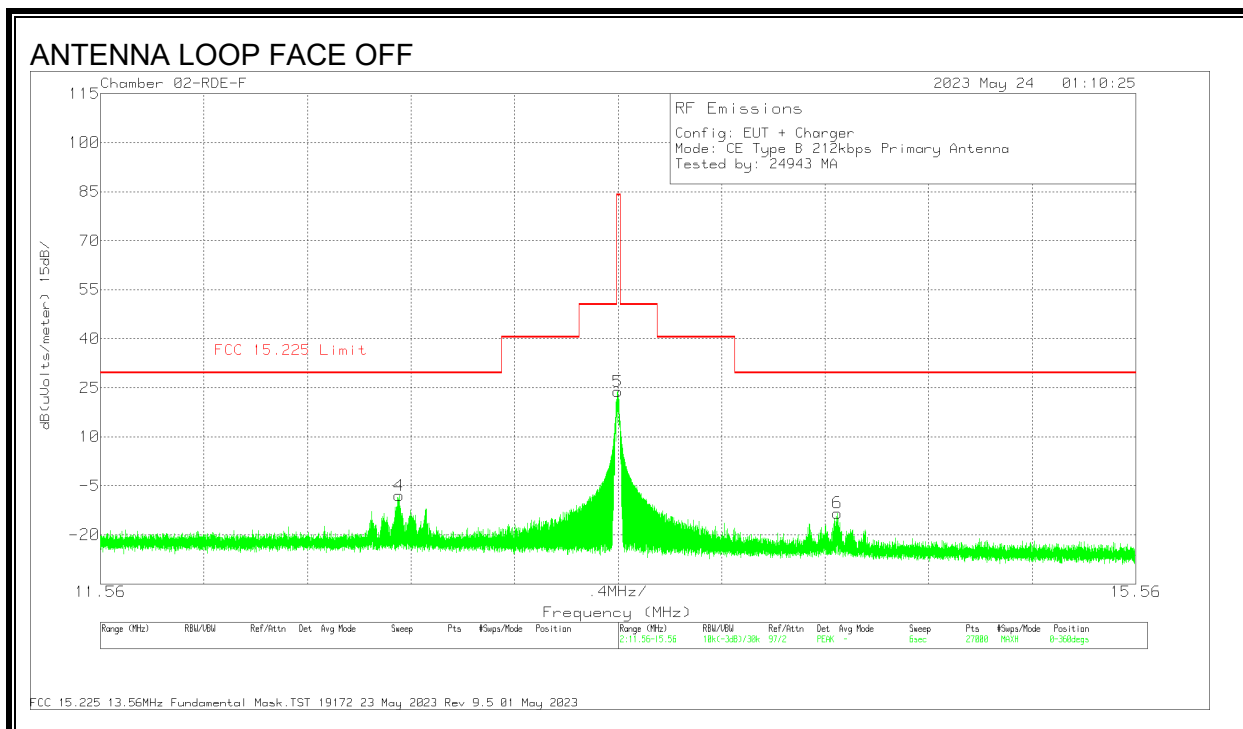
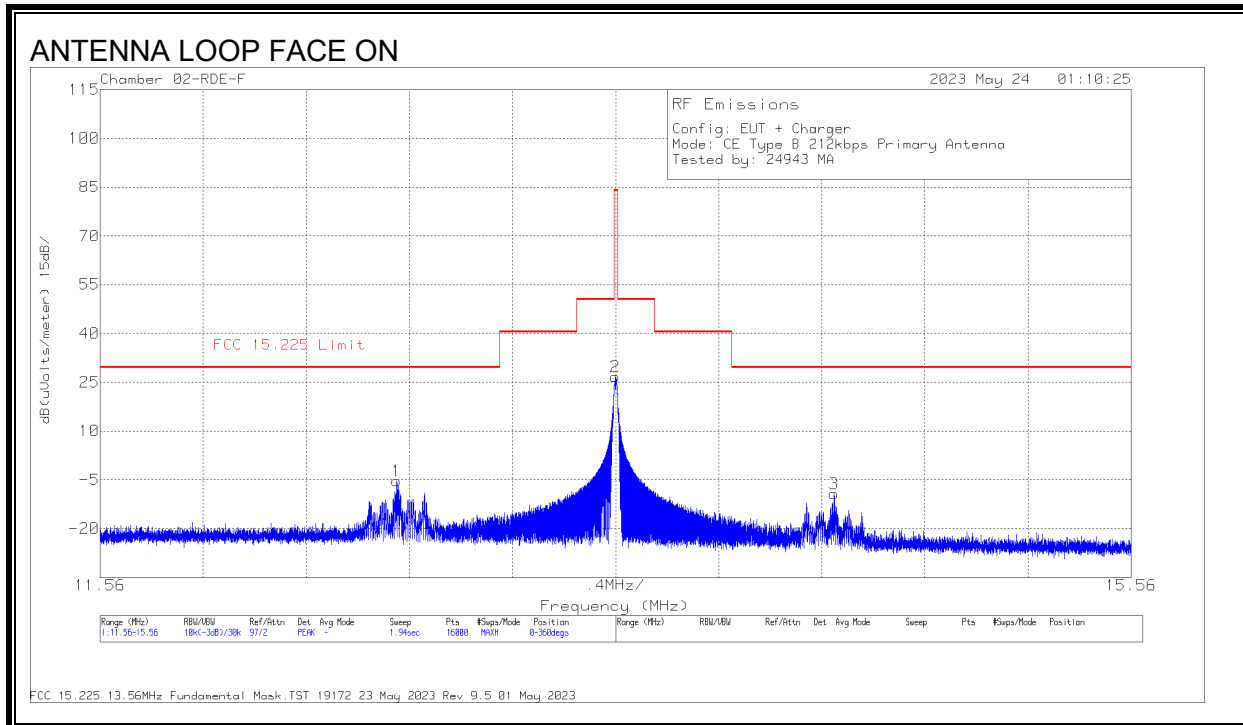
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp p (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0319	25.85	Pk	57.9	-32.2	-80	-28.45	57.52	-85.97	37.52	-65.97	0-360	Face-On
4	.0465	24.97	Pk	57.2	-32.4	-80	-30.23	54.24	-84.47	34.24	-64.47	0-360	Face-Off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.8121	16.77	Pk	56.4	-32.5	-40	.67	29.42	-28.75	0-360	Face-On
3	1.1707	20.46	Pk	45.9	-32.4	-40	-6.04	26.26	-32.3	0-360	Face-On
5	.8114	16.03	Pk	56.4	-32.5	-40	-.07	29.43	-29.5	0-360	Face-Off
6	1.1711	21.06	Pk	45.9	-32.4	-40	-5.44	26.25	-31.69	0-360	Face-Off

Pk - Peak detector

8.2.3. CE MODE, Type B 212 Kbps

FUNDAMENTAL

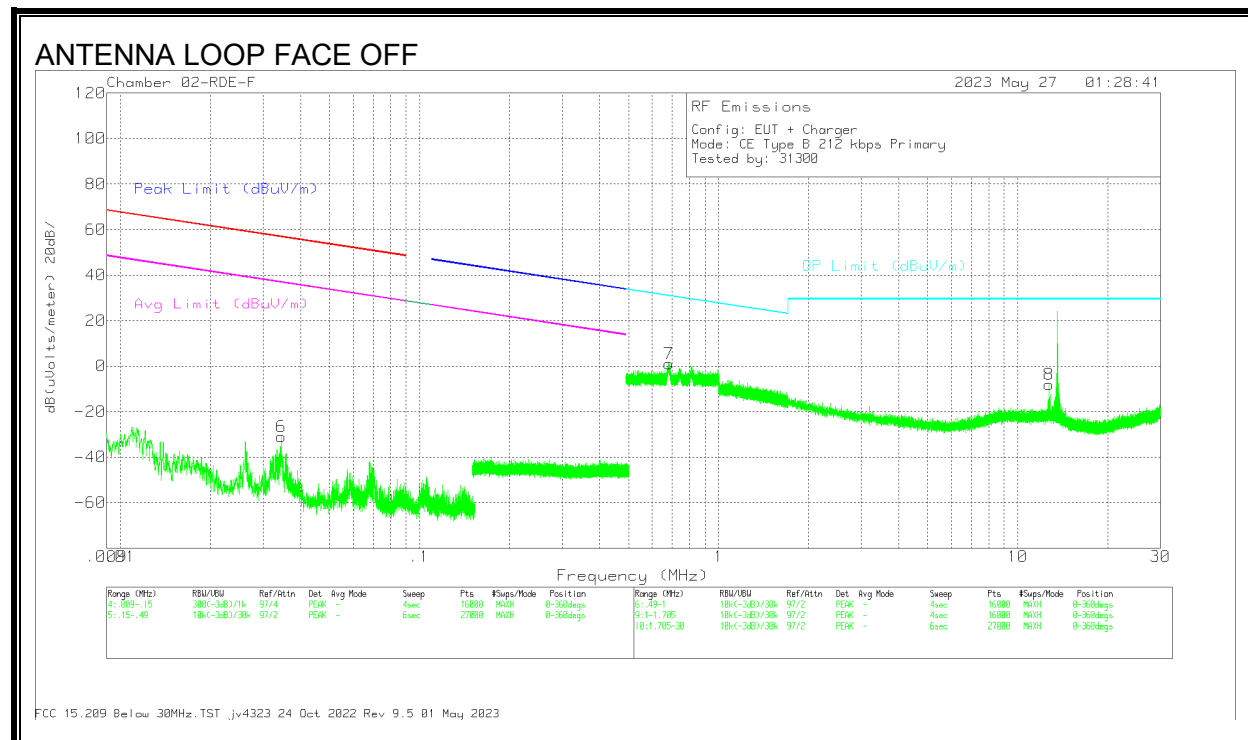
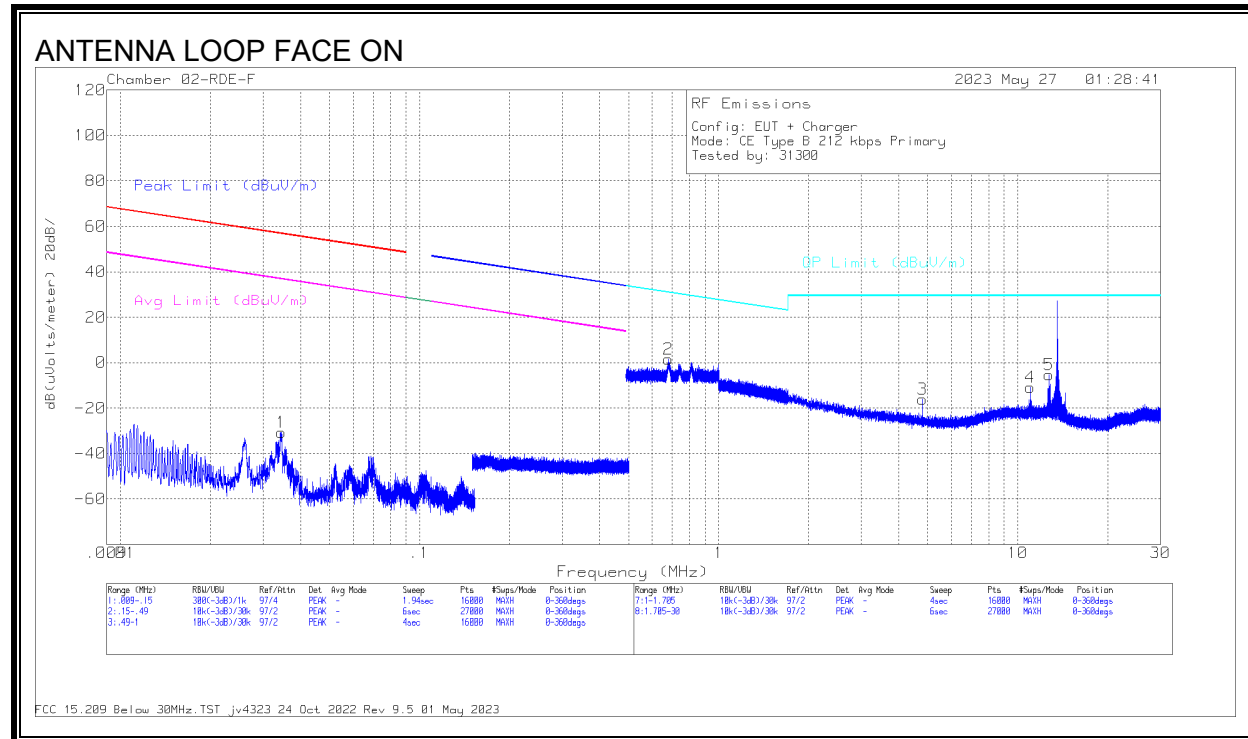


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)	Polarity
1	12.7113	32.57	Pk	34.3	-32.2	-40	-5.33	29.54	-34.87	0-360	Face-On
2	13.5598	64.74	Pk	34.1	-32.2	-40	26.64	84	-57.36	0-360	Face-On
3	14.408	28.92	Pk	34	-32.2	-40	-9.28	29.54	-38.82	0-360	Face-On
4	12.7137	30.02	Pk	34.3	-32.2	-40	-7.88	29.54	-37.42	0-360	Face-Off
5	13.558	61.99	Pk	34.1	-32.2	-40	23.89	84	-60.11	0-360	Face-Off
6	14.4072	24.87	Pk	34	-32.2	-40	-13.33	29.54	-42.87	0-360	Face-Off

Pk - Peak detector

SPURIOUS EMISSION 212 Kbps (polarity information needed after re-exporting)



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(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	.0346	23.84	Pk	57.7	-32.3	-80	-30.76	56.81	-87.57	36.81	-67.57	0-360	Face-On
6	.0345	23.69	Pk	57.7	-32.3	-80	-30.91	56.82	-87.73	36.82	-67.73	0-360	Face-Off

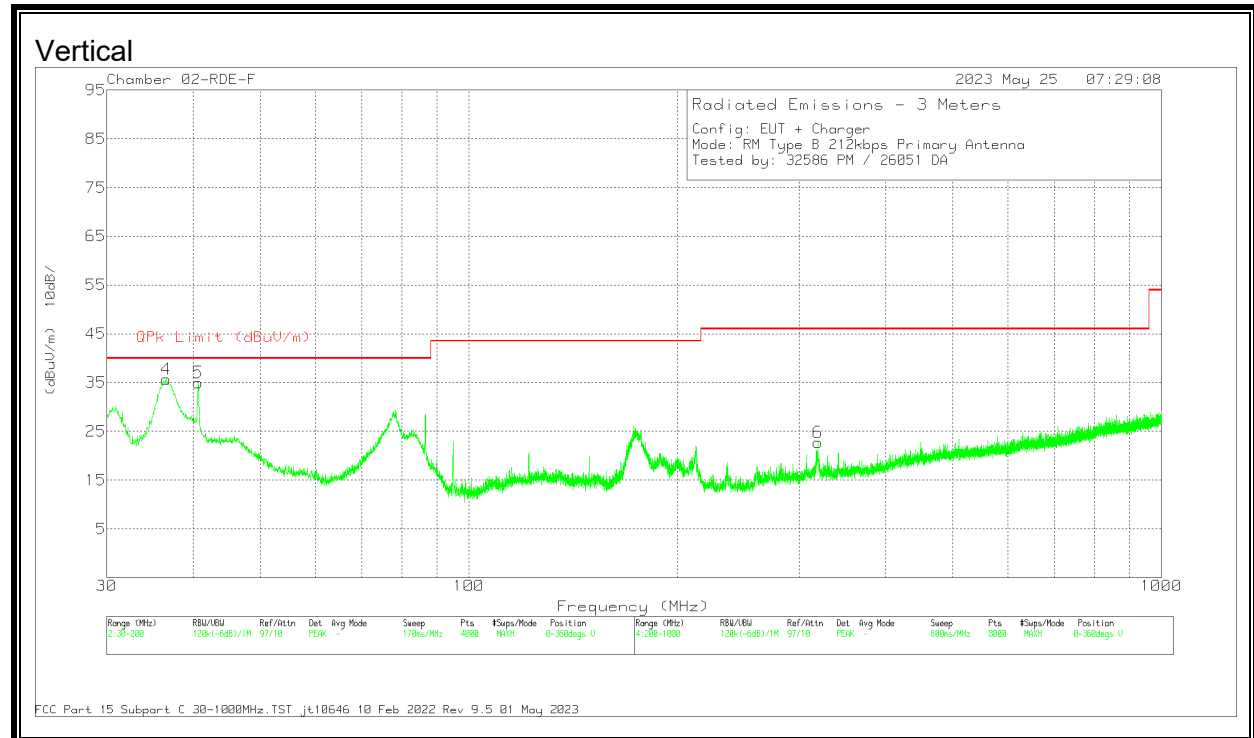
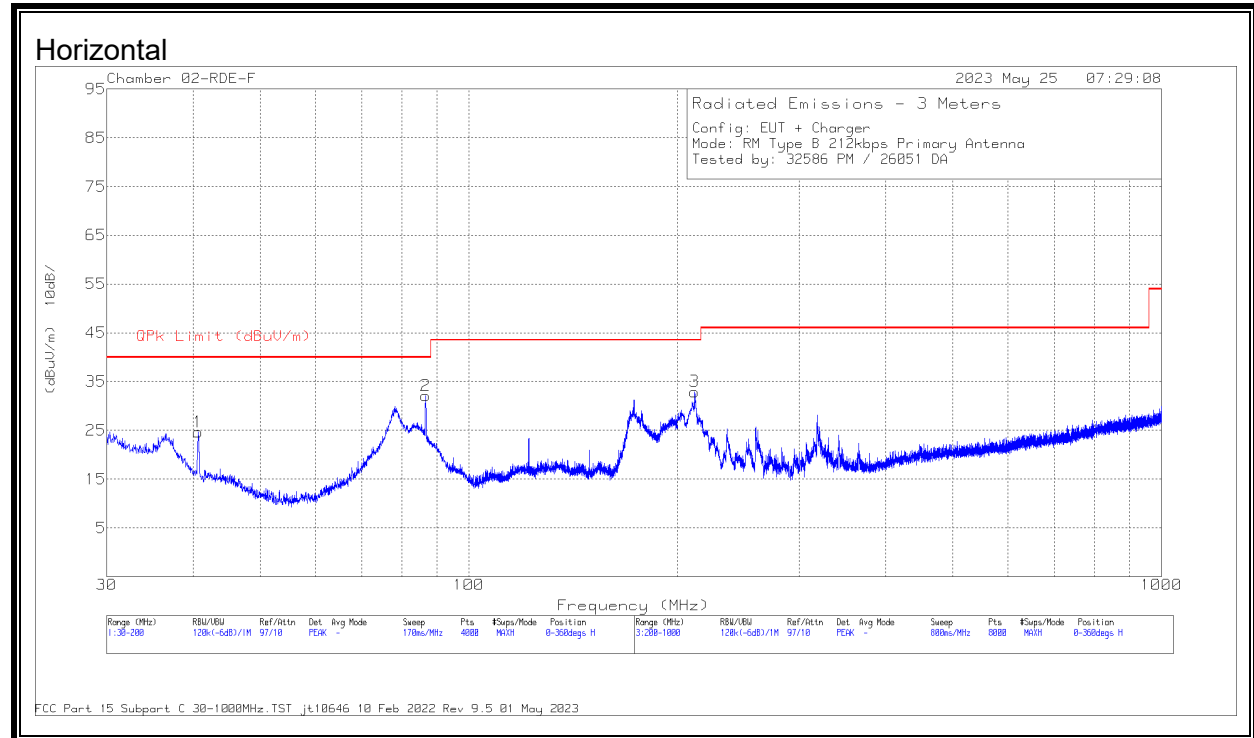
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.678	17.7	Pk	56.3	-32.5	-40	1.5	30.99	-29.49	0-360	Face-On
3	4.8039	19.94	Pk	36.3	-32.4	-40	-16.16	29.5	-45.66	0-360	Face-On
4	11.0186	26.62	Pk	34.7	-32.2	-40	-10.88	29.5	-40.38	0-360	Face-On
5	12.7132	32.58	Pk	34.4	-32.2	-40	-5.22	29.5	-34.72	0-360	Face-On
7	.6822	17.21	Pk	56.3	-32.5	-40	1.01	30.93	-29.92	0-360	Face-Off
8	12.7111	29.63	Pk	34.4	-32.2	-40	-8.17	29.5	-37.67	0-360	Face-Off

Pk - Peak detector

8.3. PRIMARY ANTENNA TX SPURIOUS EMISSION 30-1000 MHz

8.3.1. READER MODE, Type B 212 Kbps

SPURIOUS EMISSION



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB)	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	40.6703	37.04	Pk	18.9	-31.3	24.64	40	-15.36	0-360	399	H
2	86.5821	49.76	Pk	13.3	-31	32.06	40	-7.94	0-360	298	H
3	211.902	47.24	Pk	16.1	-30.4	32.94	43.52	-10.58	0-360	199	H
4	36.5467	44.99	Pk	22	-31.3	35.69	40	-4.31	0-360	100	V
5	40.6703	47.39	Pk	18.9	-31.3	34.99	40	-5.01	0-360	100	V
6	319.216	33.17	Pk	19.6	-30	22.77	46.02	-23.25	0-360	199	V

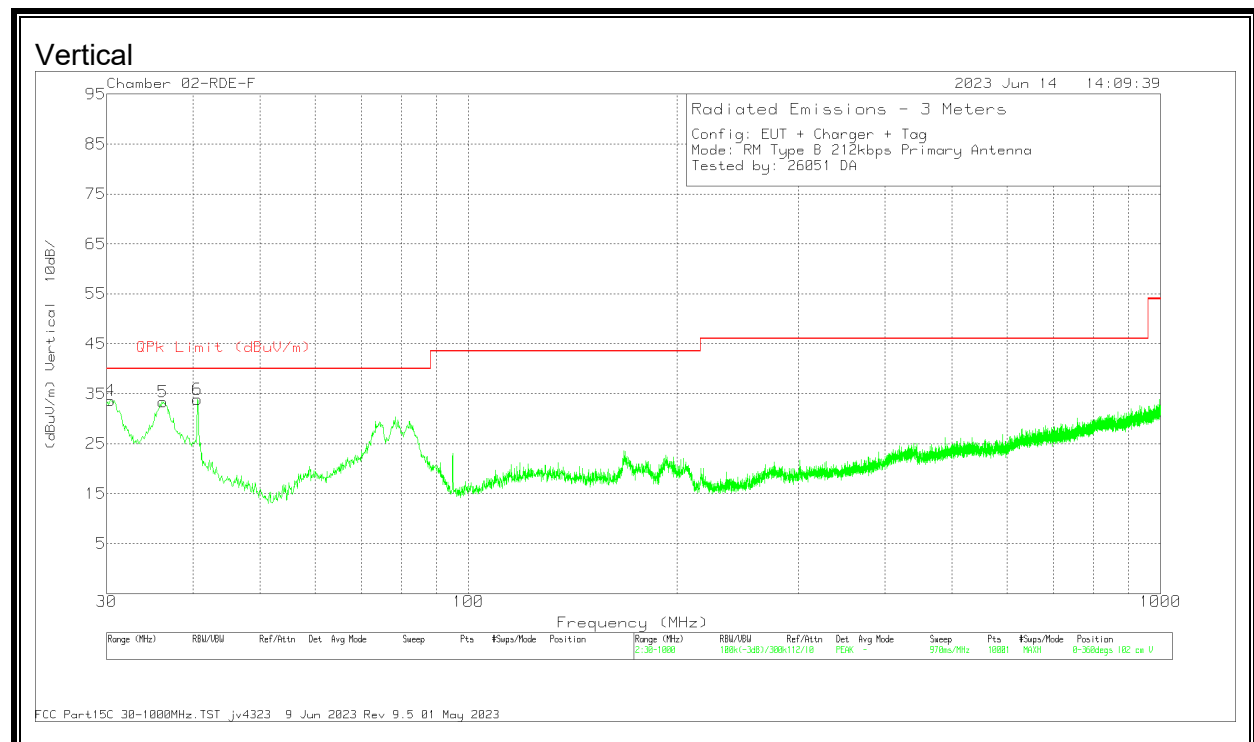
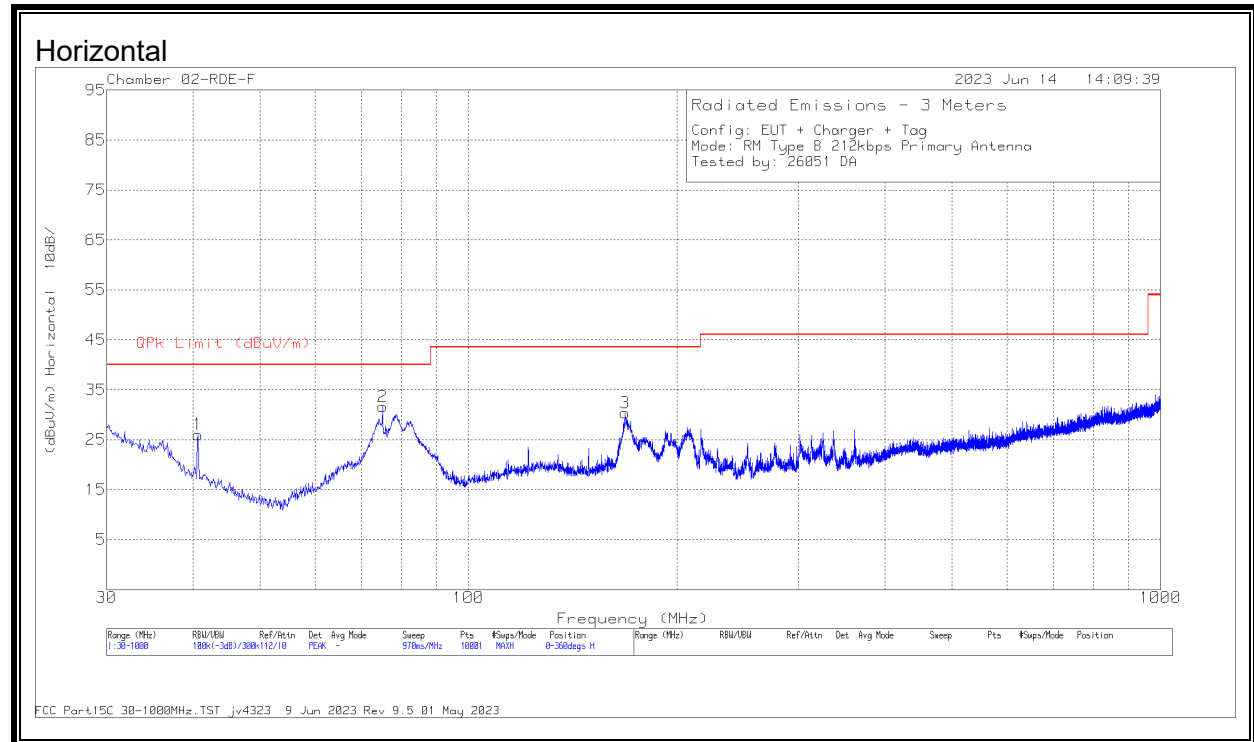
Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB)	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
36.7744	39.47	Qp	21.8	-31.3	29.97	40	-10.03	326	113	V
40.676	45.8	Qp	18.9	-31.3	33.4	40	-6.6	34	100	V

Pk - Peak detector
 Qp - Quasi-Peak detector

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8.3.2. TAG MODE, Type B 212 Kbps

SPURIOUS EMISSION



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB)	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	40.67	38.42	Pk	18.9	-31.3	26.02	40	-13.98	0-360	398	H
2	75.105	48.91	Pk	13.8	-31.1	31.61	40	-8.39	0-360	199	H
3	168.516	43.36	Pk	17.5	-30.5	30.36	43.52	-13.16	0-360	102	H
4	30.388	38.37	Pk	26.6	-31.3	33.67	40	-6.33	0-360	102	V
	30.65	35.26	Qp	26.4	-31.3	30.36	40	-9.64	359	102	V
5	36.208	42.35	Pk	22.3	-31.3	33.35	40	-6.65	0-360	102	V
	36.5646	36.78	Qp	22	-31.3	27.48	40	-12.52	20	102	V
6	40.573	46.33	Pk	18.9	-31.3	33.93	40	-6.07	0-360	102	V
	40.6903	45.38	Qp	18.9	-31.3	32.98	40	-7.02	66	111	V

Pk - Peak detector

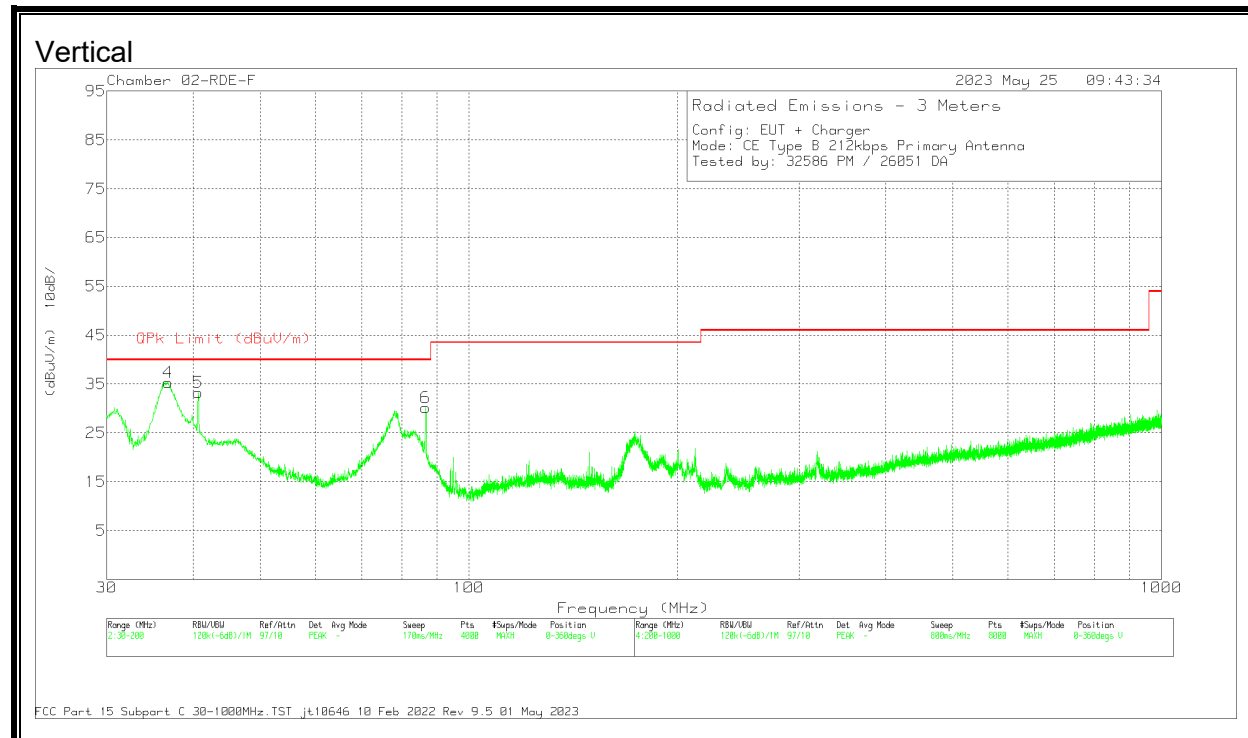
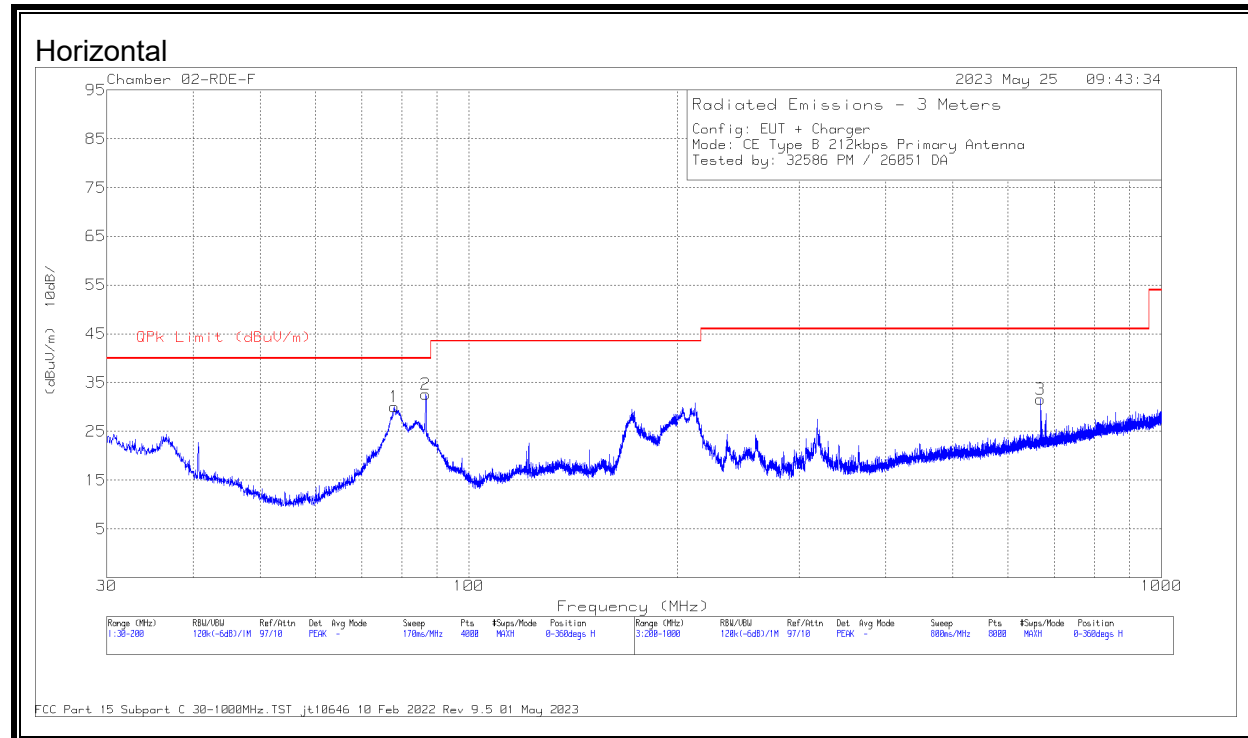
Qp - Quasi-Peak detector

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8.3.3. CE MODE, Type B 212 Kbps

SPURIOUS EMISSION



DATA

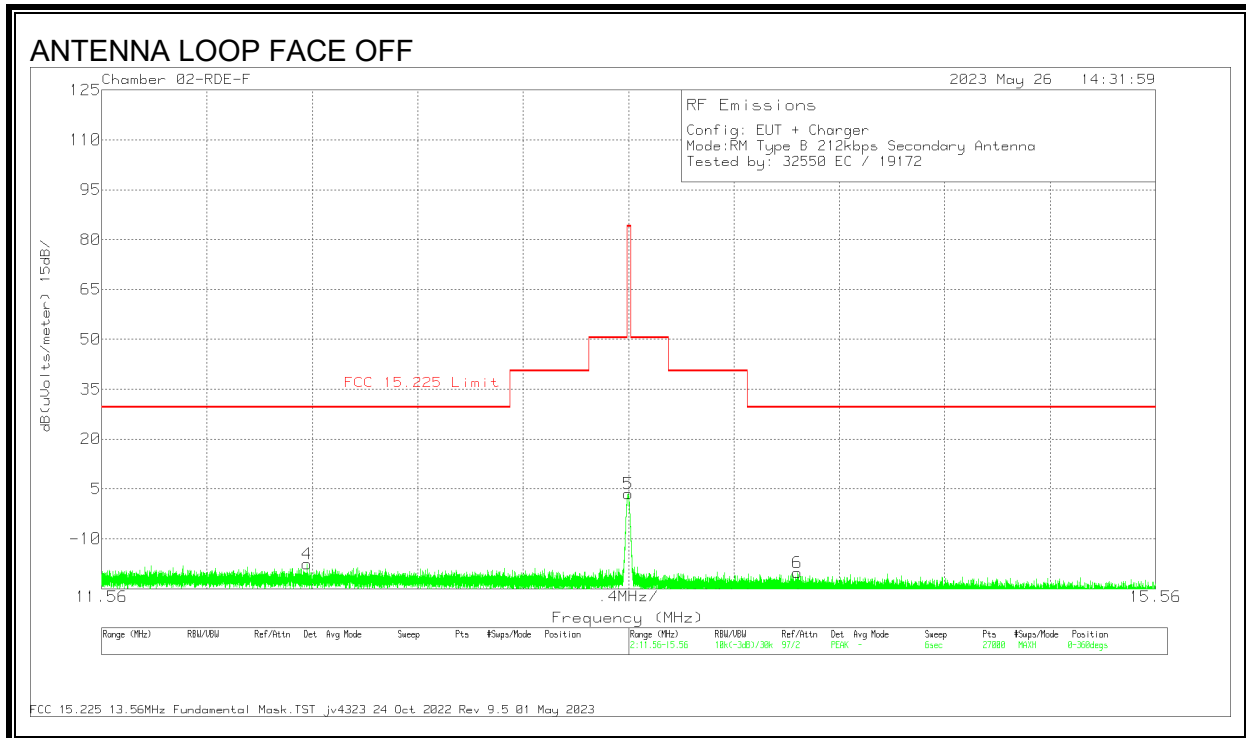
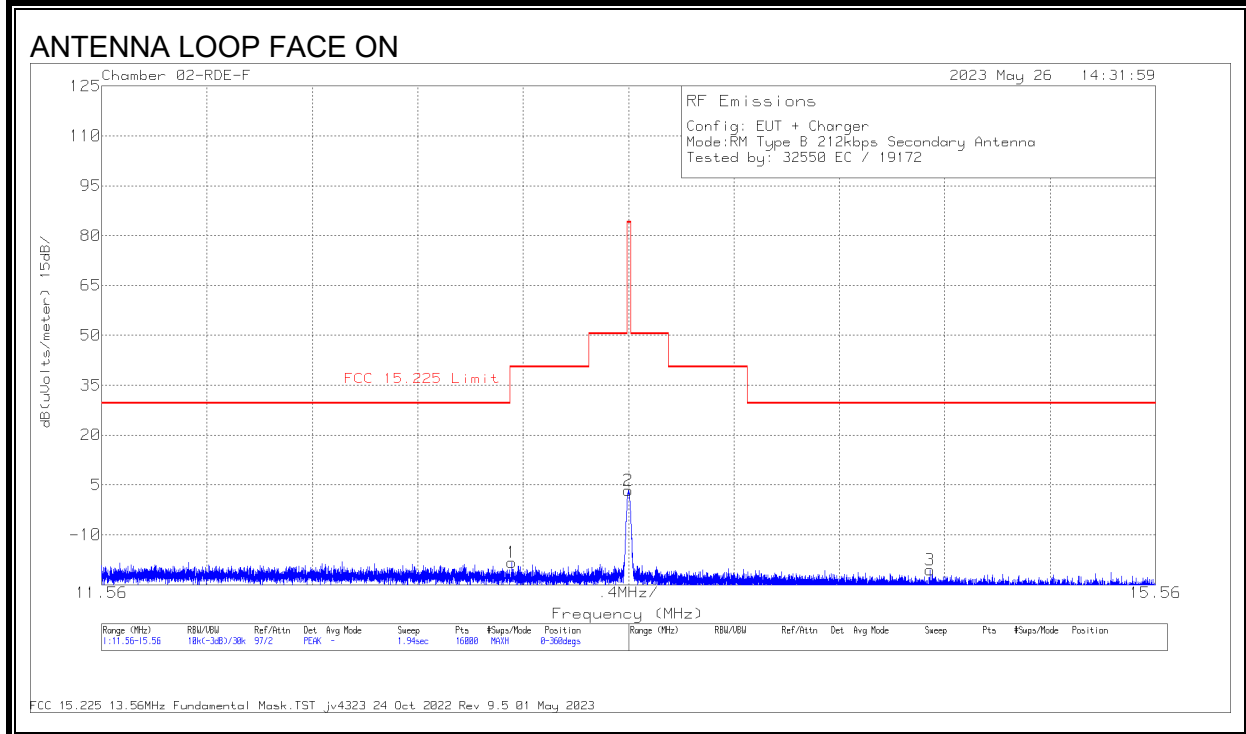
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB)	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	77.9949	47.39	Pk	13.6	-31	29.99	40	-10.01	0-360	199	H
2	86.6672	50.27	Pk	13.3	-31	32.57	40	-7.43	0-360	199	H
	86.5591	47.05	Qp	13.3	-31	29.35	40	-10.65	37	229	H
3	668.561	35.25	Pk	25.3	-29	31.55	46.02	-14.47	0-360	298	H
4	36.8018	44.83	Pk	21.8	-31.3	35.33	40	-4.67	0-360	100	V
	36.6807	40.12	Qp	21.9	-31.3	30.72	40	-9.28	317	100	V
5	40.6703	45.68	Pk	18.9	-31.3	33.28	40	-6.72	0-360	100	V
6	86.6247	47.83	Pk	13.3	-31	30.13	40	-9.87	0-360	100	V
	40.6848	43.5	Qp	18.9	-31.3	31.1	40	-8.9	30	102	V

Pk - Peak detector
 Qp - Quasi-Peak detector

8.4. SECONDARY ANTENNA FUNDAMENTAL & SPURIOUS EMISSION 0.15-30 MHz

8.4.1. READER MODE, Type B 212 Kbps

FUNDAMENTAL

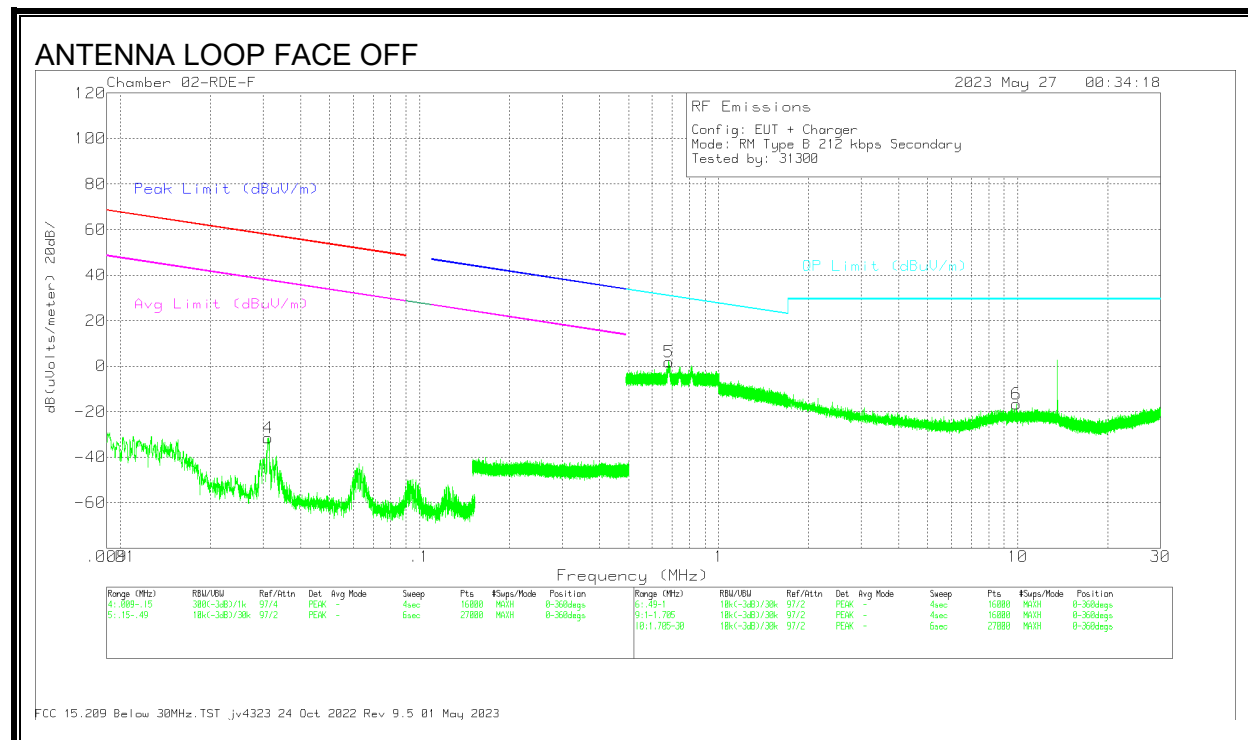
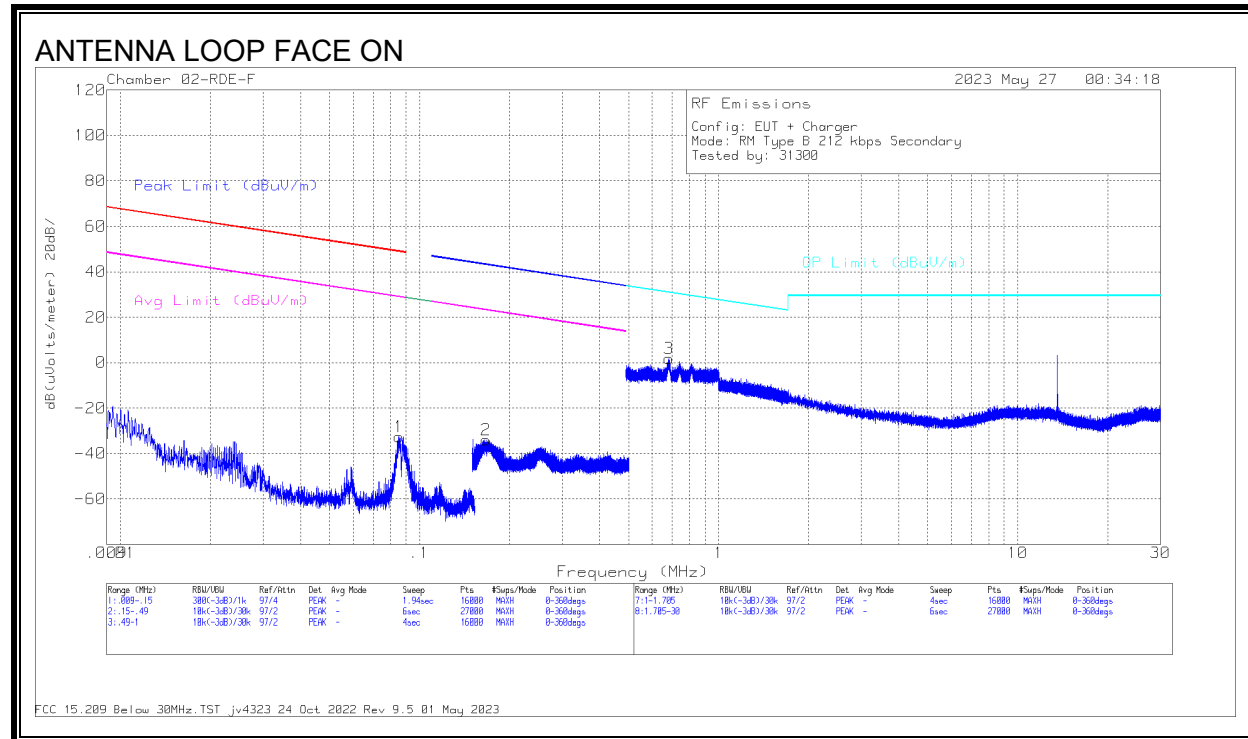


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)	Polarity
1	13.117	19.53	Pk	34.3	-32.2	-40	-18.37	40.51	-58.88	0-360	Face-On
2	13.559	41.31	Pk	34.3	-32.2	-40	3.41	84	-80.59	0-360	Face-On
3	14.705	17.54	Pk	34.1	-32.2	-40	-20.56	29.54	-50.1	0-360	Face-On
4	12.3392	20.17	Pk	34.5	-32.2	-40	-17.53	29.54	-47.07	0-360	Face-Off
5	13.5577	41.48	Pk	34.3	-32.2	-40	3.58	84	-80.42	0-360	Face-Off
6	14.2015	17.65	Pk	34.2	-32.1	-40	-20.25	29.54	-49.79	0-360	Face-Off

Pk - Peak detector

SPURIOUS EMISSION



DATA

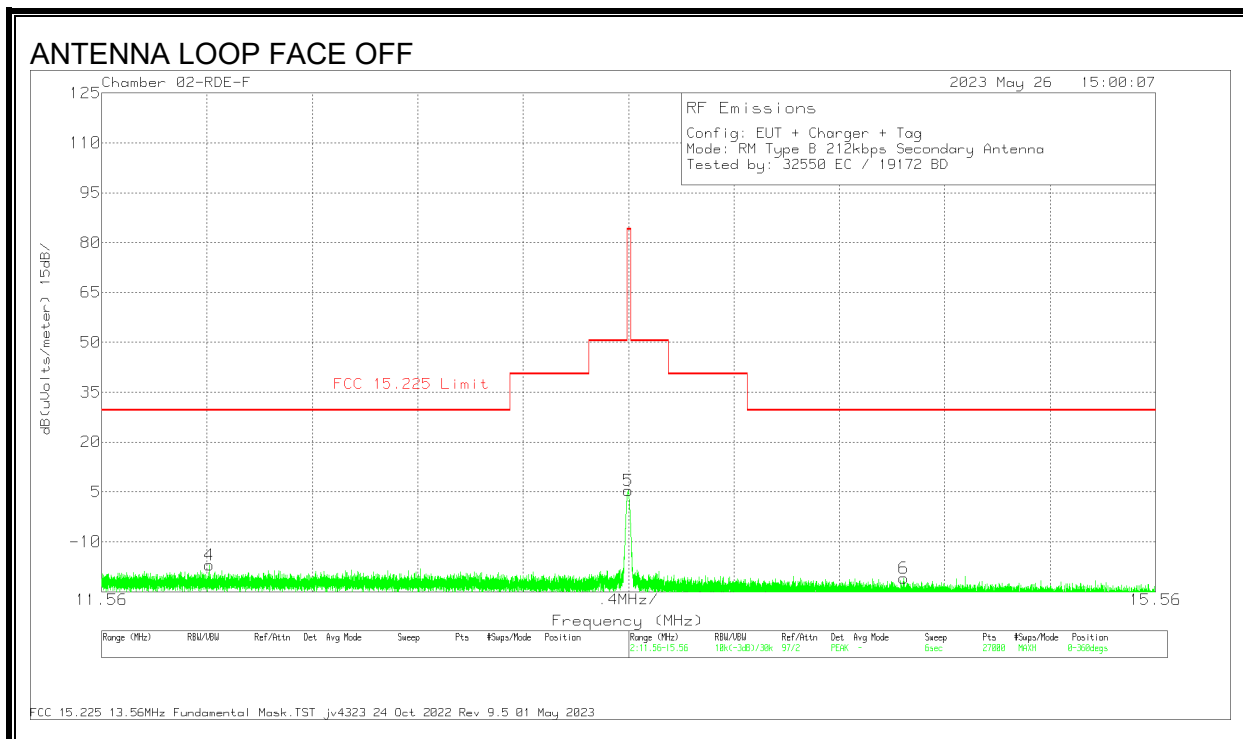
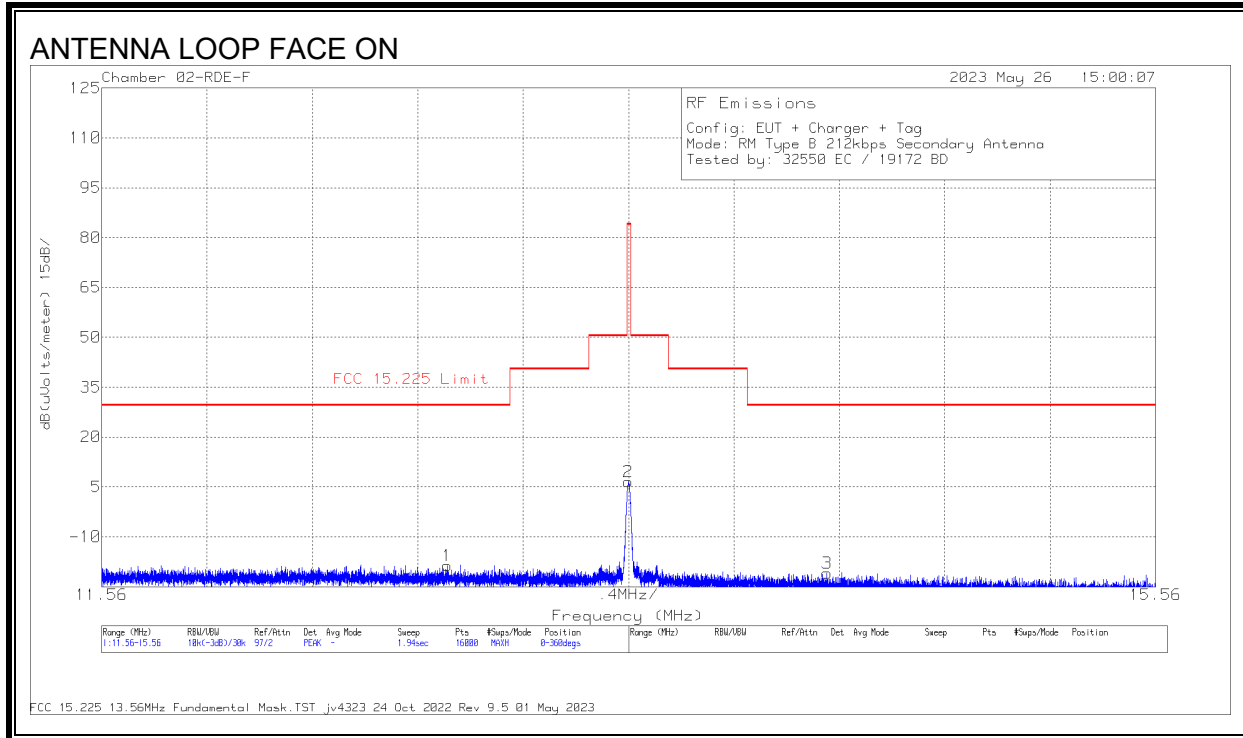
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 300m (dB)	Corrected Reading dB(uVolts/meter)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0854	23.97	Pk	55.9	-32.5	-80	-32.63	48.96	-81.59	28.96	-61.59	0-360	Face-On
2	.1673	22.21	Pk	56.2	-32.5	-80	-34.09	43.15	-77.24	23.15	-57.24	0-360	Face-On
4	.0312	22.61	Pk	58	-32.2	-80	-31.59	57.7	-89.29	37.7	-69.29	0-360	Face-Off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading dB(uVolts/meter)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
3	.6816	18.08	Pk	56.3	-32.5	-40	1.88	30.94	-29.06	0-360	Face-On
5	.6809	18.12	Pk	56.3	-32.5	-40	1.92	30.95	-29.03	0-360	Face-Off
6	9.8867	20.73	Pk	34.8	-32.2	-40	-16.67	29.5	-46.17	0-360	Face-Off

Pk - Peak detector

8.4.2. TAG MODE, Type B 212 Kbps

FUNDAMENTAL

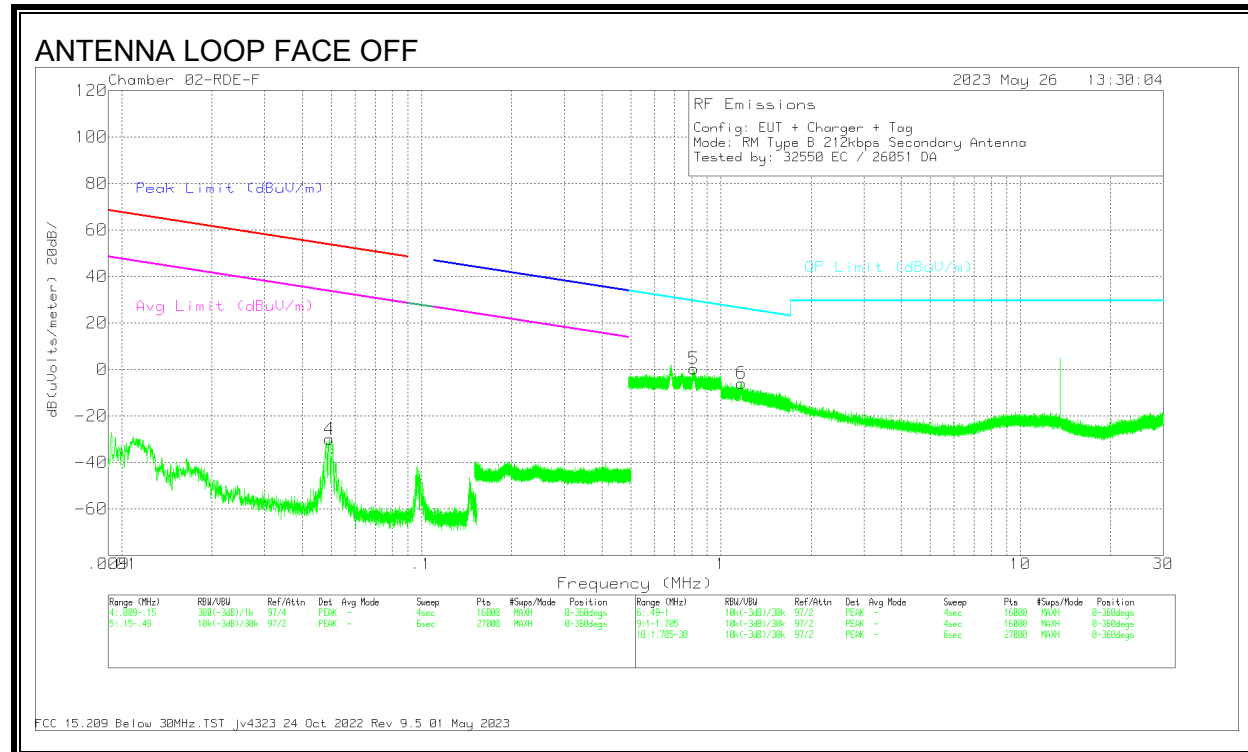
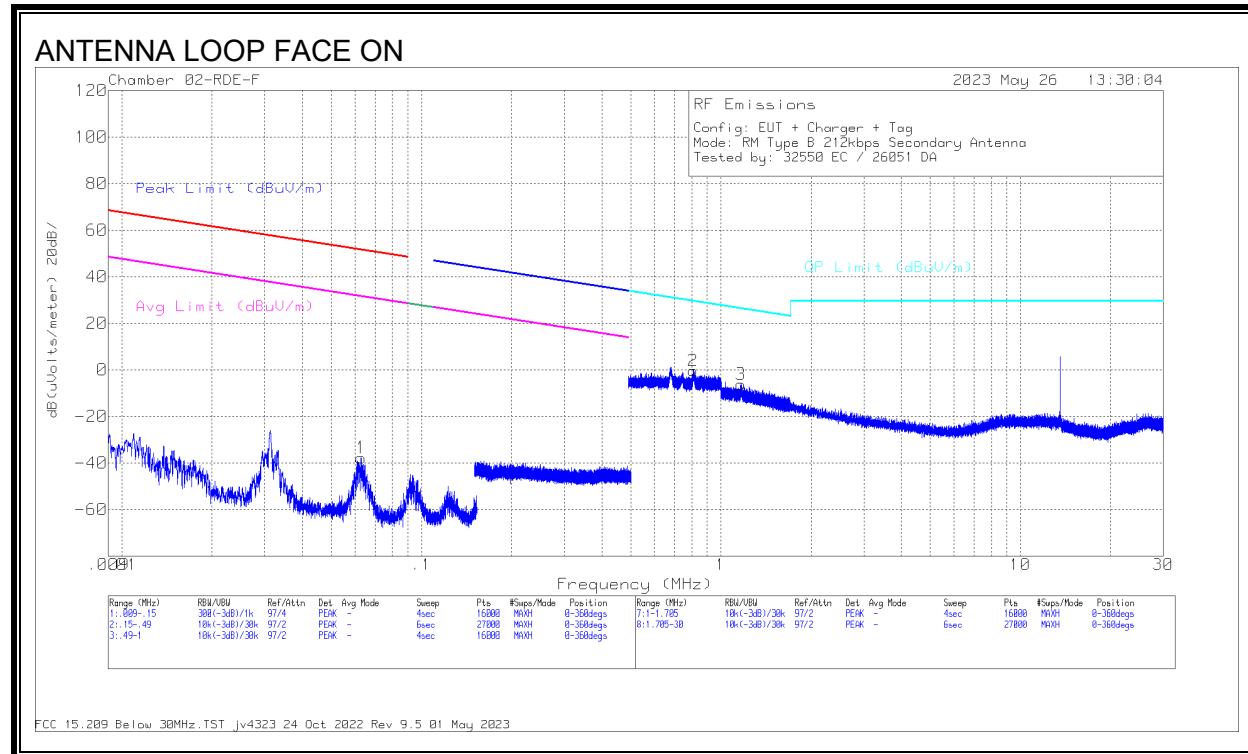


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading dB(uVolts/m eter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)	Polarity
1	12.8723	19.04	Pk	34.4	-32.1	-40	-18.66	29.54	-48.2	0-360	Face-On
2	13.5593	44.42	Pk	34.3	-32.2	-40	6.52	84	-77.48	0-360	Face-On
3	14.3133	17.16	Pk	34.1	-32.2	-40	-20.94	29.54	-50.48	0-360	Face-On
4	11.9674	20.69	Pk	34.6	-32.2	-40	-16.91	29.54	-46.45	0-360	Face-Off
5	13.5582	43.27	Pk	34.3	-32.2	-40	5.37	84	-78.63	0-360	Face-Off
6	14.6042	17.21	Pk	34.1	-32.2	-40	-20.89	29.54	-50.43	0-360	Face-Off

Pk - Peak detector

SPURIOUS EMISSION



DATA

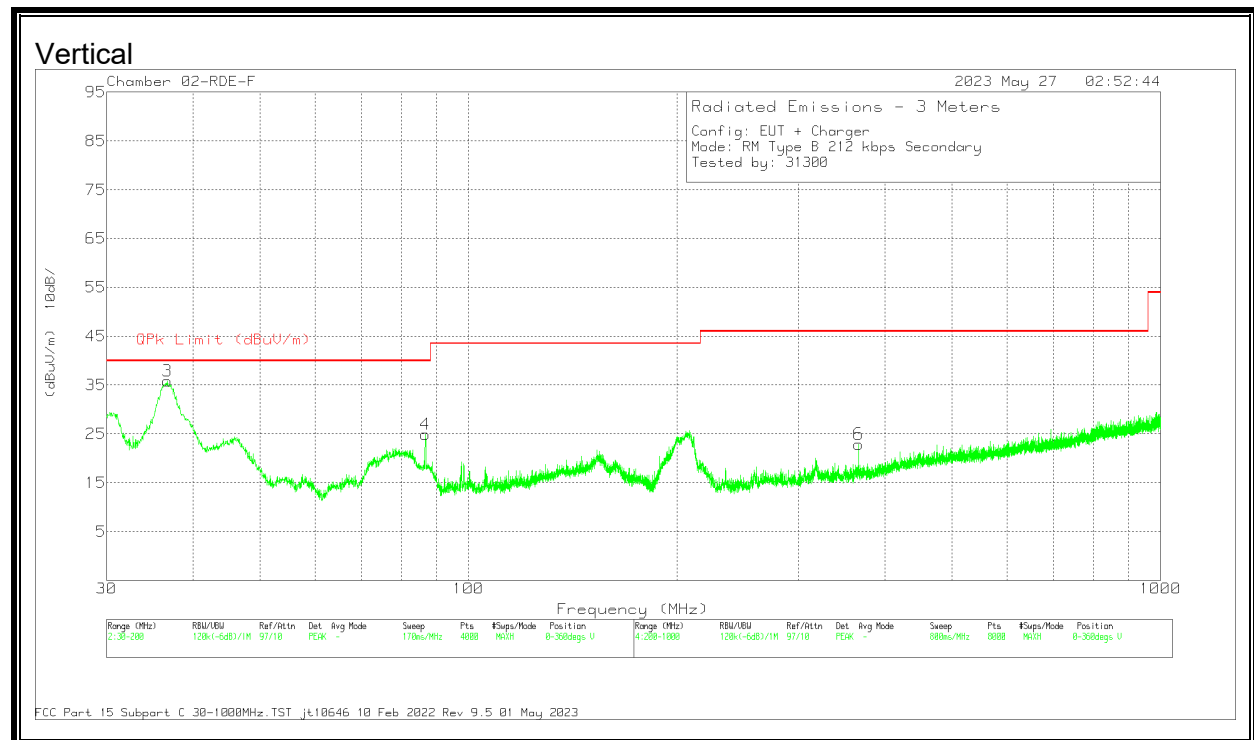
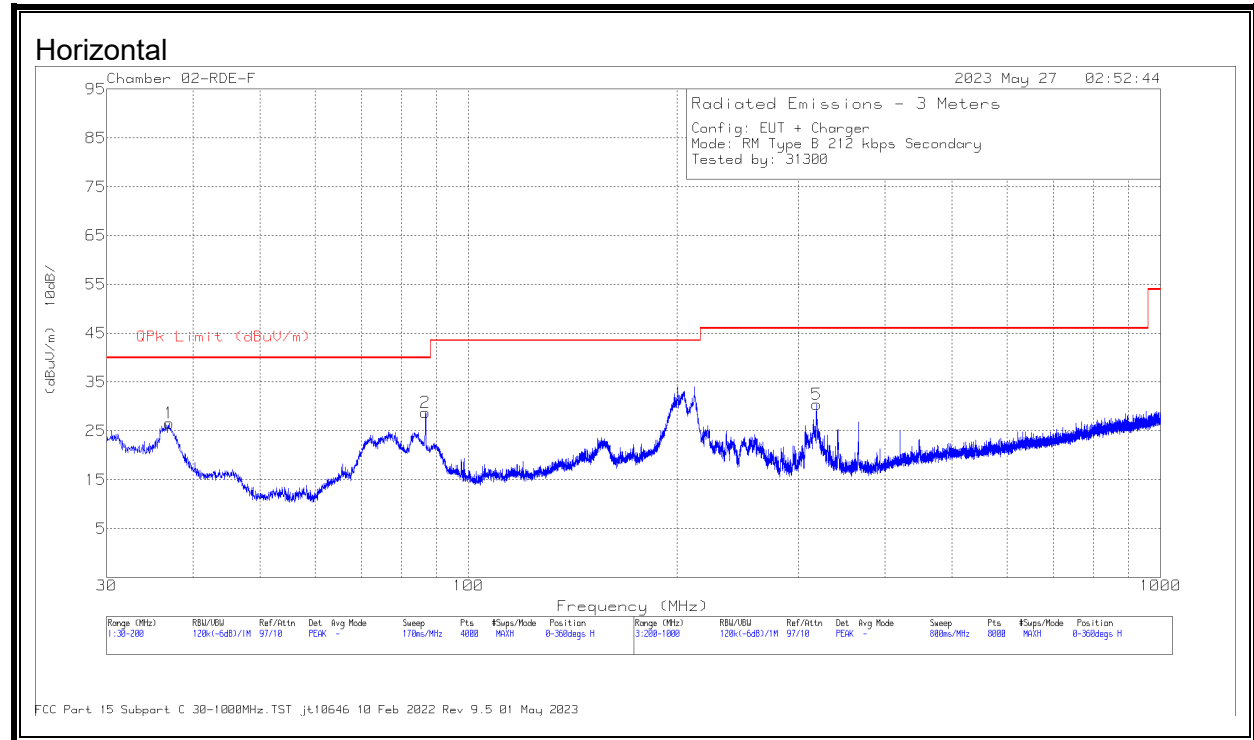
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0629	18.45	Pk	56.2	-32.5	-80	-37.85	51.62	-89.47	31.62	-69.47	0-360	Face-On
4	.0493	25.21	Pk	57.2	-32.4	-80	-29.99	53.73	-83.72	33.73	-63.72	0-360	Face-Off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.809	15.79	Pk	56.4	-32.5	-40	-.31	29.46	-29.77	0-360	Face-On
3	1.1682	20.26	Pk	45.9	-32.4	-40	-6.24	26.27	-32.51	0-360	Face-On
5	.8118	16.36	Pk	56.4	-32.5	-40	.26	29.43	-29.17	0-360	Face-Off
6	1.1713	20.62	Pk	45.9	-32.4	-40	-5.88	26.25	-32.13	0-360	Face-Off

Pk - Peak detector

8.5. SECONDARY ANTENNA TX SPURIOUS EMISSION 30-1000 MHz

8.5.1. READER MODE, Type B 212 Kbps



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB)	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	36.9293	36.15	Pk	21.7	-31.3	26.55	40	-13.45	0-360	199	H
2	86.6672	46.49	Pk	13.3	-31	28.79	40	-11.21	0-360	199	H
3	36.6742	45.18	Pk	21.9	-31.3	35.78	40	-4.22	0-360	100	V
	36.4869	39.82	Qp	22	-31.3	30.52	40	-9.48	329	100	V
4	86.6672	42.6	Pk	13.3	-31	24.9	40	-15.1	0-360	100	V
5	318.315	40.78	Pk	19.6	-30	30.38	46.02	-15.64	0-360	99	H
6	366.122	32.22	Pk	20.5	-29.8	22.92	46.02	-23.1	0-360	98	V

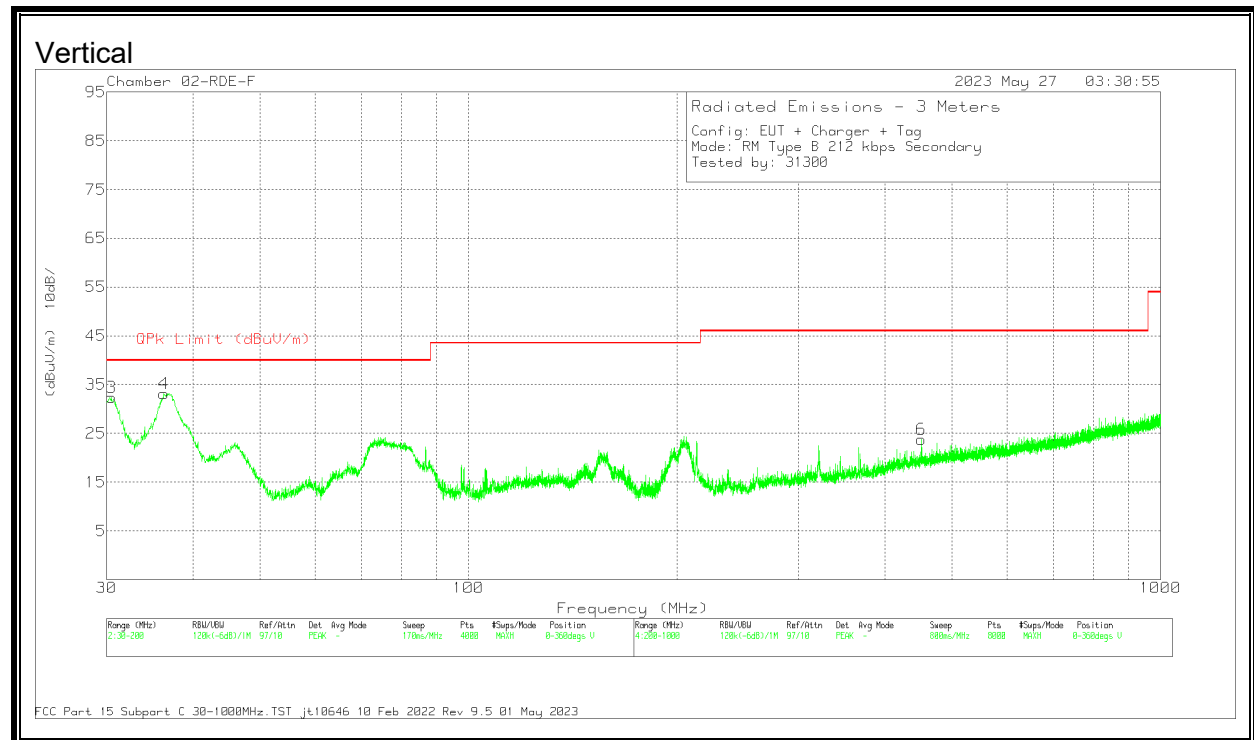
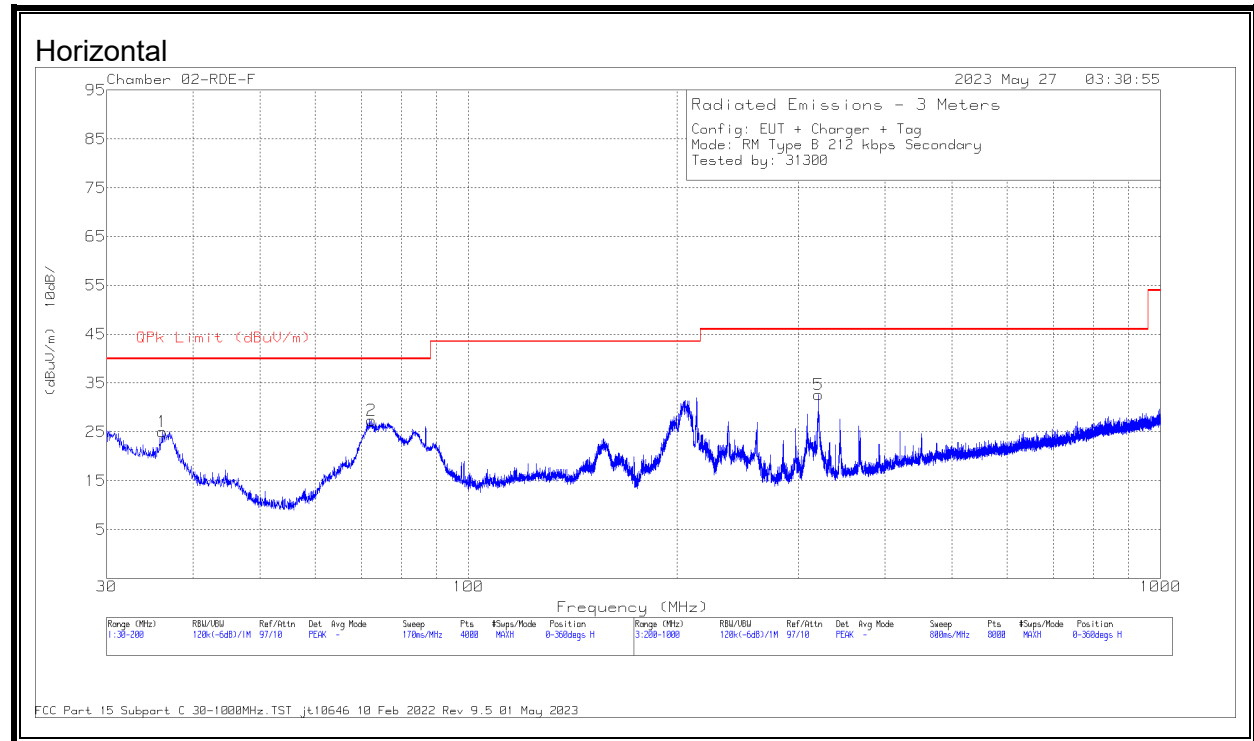
Pk - Peak detector

Qp - Quasi-Peak detector

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8.5.2. TAG MODE, Type B 212 Kbps



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB)	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	36.0791	33.92	Pk	22.4	-31.3	25.02	40	-14.98	0-360	198	H
2	72.3835	44.6	Pk	13.9	-31.1	27.4	40	-12.6	0-360	198	H
3	30.4676	37.17	Pk	26.5	-31.3	32.37	40	-7.63	0-360	100	V
	30.2177	33.45	Qp	26.7	-31.3	28.85	40	-11.15	278	106	V
4	36.2916	42.28	Pk	22.2	-31.3	33.18	40	-6.82	0-360	100	V
	37.083	40.14	Qp	21.6	-31.3	30.44	40	-9.56	291	108	V
5	320.816	42.99	Pk	19.6	-30	32.59	46.02	-13.43	0-360	99	H
6	451.233	30.64	Pk	22.6	-29.5	23.74	46.02	-22.28	0-360	103	V

Pk - Peak detector

Qp - Quasi-Peak detector

FCC Part 15 Subpart C 30-1000MHz.TST 19172 25 Jan 2023

Rev 9.5 18 Jan 2023

9. 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:	27342	Date:	07/11-13/2023
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9.1. PRIMARY ANTENNA

9.1.1. READER MODE, Type B 212 Kbps

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	13.559954	2.434	13.559952	2.581	13.559949	2.802	13.559957	2.212	± 100
	40	13.559955	2.360	13.559957	2.212	13.559961	1.917	13.559958	2.139	± 100
	30	13.559947	2.950	13.559945	3.097	13.559948	2.876	13.559951	2.655	± 100
	20	13.559987	0.000	13.559981	0.442	13.559979	0.590	13.559983	0.295	± 100
	10	13.559981	0.442	13.559987	0.000	13.559975	0.885	13.559979	0.590	± 100
	0	13.55998	0.516	13.559981	0.442	13.559989	-0.147	13.559975	0.885	± 100
	-10	13.560015	-2.065	13.560022	-2.581	13.560016	-2.139	13.560021	-2.507	± 100
	-20	13.560029	-3.097	13.560015	-2.065	13.560012	-1.844	13.560015	-2.065	± 100
3.23	20	13.559964	1.696	13.559975	0.885	13.559961	1.917	13.559969	1.327	± 100
4.37	20	13.559969	1.327	13.559987	0.000	13.559991	-0.295	13.559994	-0.516	± 100

9.1.2. TAG MODE

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	13.559926	3.835	13.559937	3.024	13.559941	2.729	13.559937	3.024	± 100
	40	13.559931	3.466	13.559942	2.655	13.559939	2.876	13.559927	3.761	± 100
	30	13.559928	3.687	13.559935	3.171	13.559941	2.729	13.559951	1.991	± 100
	20	13.559978	0.000	13.559975	0.221	13.559971	0.516	13.559981	-0.221	± 100
	10	13.559957	1.549	13.559987	-0.664	13.559991	-0.959	13.559939	2.876	± 100
	0	13.559956	1.622	13.559965	0.959	13.559957	1.549	13.559981	-0.221	± 100
	-10	13.559944	2.507	13.559962	1.180	13.559987	-0.664	13.559981	-0.221	± 100
	-20	13.559943	2.581	13.559948	2.212	13.559951	1.991	13.559928	3.687	± 100
3.23	20	13.559948	2.212	13.559921	4.204	13.559943	2.581	13.559935	3.171	± 100
4.37	20	13.559953	1.844	13.559926	3.835	13.559935	3.171	13.559941	2.729	± 100

9.1.3. CE MODE, Type B 212 Kbps

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	13.559943	2.655	13.559951	2.065	13.559936	3.171	13.559941	2.802	± 100
	40	13.559935	3.245	13.559941	2.802	13.559946	2.434	13.559952	1.991	± 100
	30	13.559959	1.475	13.559961	1.327	13.559965	1.032	13.559967	0.885	± 100
	20	13.559979	0.000	13.559982	-0.221	13.559981	-0.147	13.559969	0.737	± 100
	10	13.559985	-0.442	13.559989	-0.737	13.559979	0.000	13.559984	-0.369	± 100
	0	13.559987	-0.590	13.559969	0.737	13.559979	0.000	13.559981	-0.147	± 100
	-10	13.560011	-2.360	13.560009	-2.212	13.560009	-2.212	13.560018	-2.876	± 100
	-20	13.560013	-2.507	13.560008	-1.608	13.5600005	-1.586	13.560017	-2.802	± 100
3.23	20	13.559964	1.106	13.559979	0.000	13.559965	1.032	13.559987	-0.590	± 100
4.37	20	13.559975	0.295	13.559972	0.516	13.559981	-0.147	13.559993	-1.032	± 100

9.2. SECONDARY ANTENNA

9.2.1. READER MODE, Type B 212 Kbps

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	13.559887	-0.442	13.559876	0.369	13.559879	0.147	13.559871	0.737	± 100
	40	13.559885	-0.295	13.559887	-0.442	13.559874	0.516	13.559889	-0.590	± 100
	30	13.559869	0.885	13.559885	-0.295	13.559886	-0.369	13.559879	0.147	± 100
	20	13.559881	0.000	13.559884	-0.221	13.559887	-0.442	13.559885	-0.295	± 100
	10	13.559887	-0.442	13.559898	-1.254	13.559891	-0.737	13.559878	0.221	± 100
	0	13.559889	-0.590	13.559887	-0.442	13.559889	-0.590	13.559881	0.000	± 100
	-10	13.559891	-0.737	13.559897	-1.180	13.559891	-0.737	13.559895	-1.032	± 100
	-20	13.559899	-0.664	13.559897	-1.180	13.559895	-1.032	13.559897	-1.180	± 100
3.23	20	13.559871	0.737	13.559887	-0.442	13.559899	-1.327	13.559891	-0.737	± 100
4.37	20	13.559889	-0.590	13.559881	0.000	13.559889	-0.590	13.559887	-0.442	± 100

9.2.2. TAG MODE, Type B 212 Kbps

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	13.559955	2.212	13.559965	1.475	13.559963	1.622	13.559965	1.475	± 100
	40	13.559975	0.737	13.559961	1.770	13.559981	0.295	13.559979	0.442	± 100
	30	13.559943	3.097	13.559954	2.286	13.559957	2.065	13.559961	1.770	± 100
	20	13.559985	0.000	13.559987	-0.147	13.559978	0.516	13.559982	0.221	± 100
	10	13.559965	1.475	13.559968	1.254	13.559977	0.590	13.559981	0.295	± 100
	0	13.559965	1.475	13.559979	0.442	13.559987	-0.147	13.559993	-0.590	± 100
	-10	13.559965	1.475	13.559981	0.295	13.559972	0.959	13.559967	1.327	± 100
	-20	13.559937	3.540	13.559961	1.770	13.559965	1.475	13.559967	1.327	± 100
3.23	20	13.559988	-0.221	13.559991	-0.442	13.559959	1.917	13.559967	1.327	± 100
4.37	20	13.559965	1.475	13.559971	1.032	13.559981	0.295	13.559987	-0.147	± 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:
 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

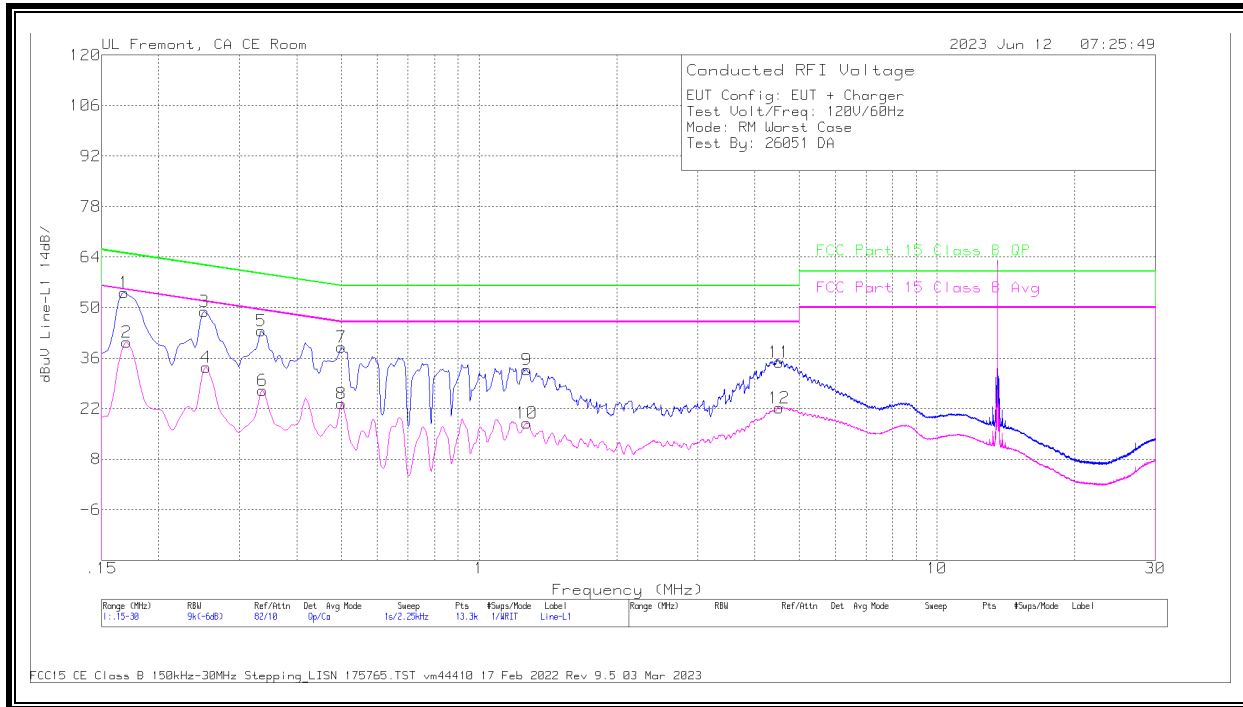
RESULTS

No non-compliance noted:

10.1. PRIMARY ANTENNA

10.1.1. READER MODE, Type B 212 Kbps, with Antenna

LINE 1 RESULTS



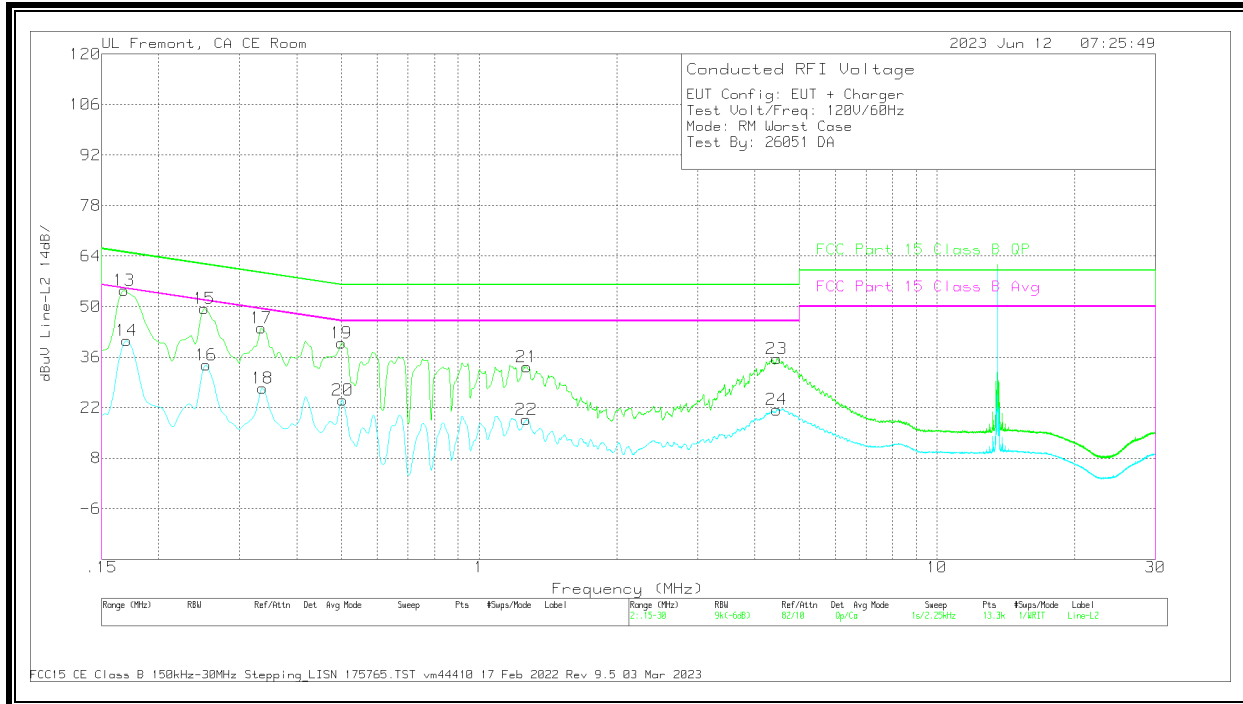
Worst Emission

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBUV	FCC Part 15 Class B QP dBUV	QP Margin (dB)	FCC Part 15 Class B Avg dBUV	Av(CISPR)M argin (dB)
1	.168	44.77	Qp	0	0	9.4	54.17	65.06	-10.89	-	-
2	.1703	30.99	Ca	0	0	9.4	40.39	-	-	54.95	-14.56
3	.2513	39.64	Qp	0	0	9.3	48.94	61.72	-12.78	-	-
4	.2535	24.15	Ca	0	0	9.3	33.45	-	-	51.64	-18.19
5	.3345	34.19	Qp	0	0	9.3	43.49	59.34	-15.85	-	-
6	.3368	17.72	Ca	0	0	9.3	27.02	-	-	49.28	-22.26
7	.501	29.7	Qp	0	.1	9.3	39.1	56	-16.9	-	-
8	.501	14.03	Ca	0	.1	9.3	23.43	-	-	46	-22.57
9	1.2705	23.44	Qp	0	.1	9.3	32.84	56	-23.16	-	-
10	1.2705	8.63	Ca	0	.1	9.3	18.03	-	-	46	-27.97
11	4.5173	25.53	Qp	0	.1	9.3	34.93	56	-21.07	-	-
12	4.5173	12.73	Ca	0	.1	9.3	22.13	-	-	46	-23.87

Qp - Quasi-Peak detector
 Ca - CISPR 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.

LINE 2 RESULTS



Worst Emission

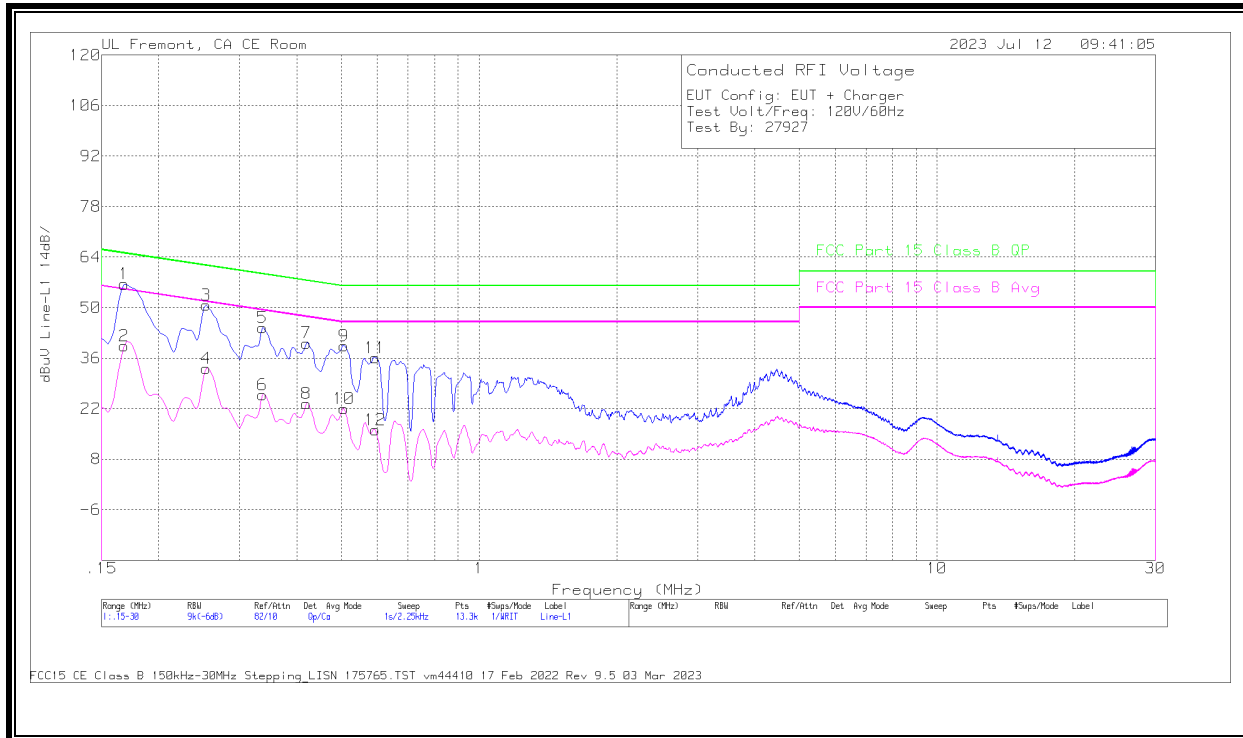
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBUV	QP Margin (dB)	FCC Part 15 Class B Avg dBUV	Av(CISPR)M argin (dB)
13	.168	45.04	Qp	0	0	9.4	54.44	65.06	-10.62	-	-
14	.1703	31.19	Ca	0	0	9.4	40.59	-	-	54.95	-14.36
15	.2513	40.15	Qp	0	0	9.3	49.45	61.72	-12.27	-	-
16	.2535	24.47	Ca	0	0	9.3	33.77	-	-	51.64	-17.87
17	.3345	34.74	Qp	0	0	9.3	44.04	59.34	-15.3	-	-
18	.3368	18.18	Ca	0	0	9.3	27.48	-	-	49.28	-21.8
19	.501	30.57	Qp	0	.1	9.3	39.97	56	-16.03	-	-
20	.5033	14.77	Ca	0	.1	9.3	24.17	-	-	46	-21.83
21	1.2705	23.98	Qp	0	.1	9.3	33.38	56	-22.62	-	-
22	1.2694	9.26	Ca	0	.1	9.3	18.66	-	-	46	-27.34
23	4.4678	26.21	Qp	0	.1	9.3	35.61	56	-20.39	-	-
24	4.47	12.01	Ca	0	.1	9.3	21.41	-	-	46	-24.59

Qp - Quasi-Peak detector
 Ca - CISPR average detection

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

10.1.2. READER MODE, Type B 212 Kbps, Antenna Port Terminated

LINE 1 RESULTS



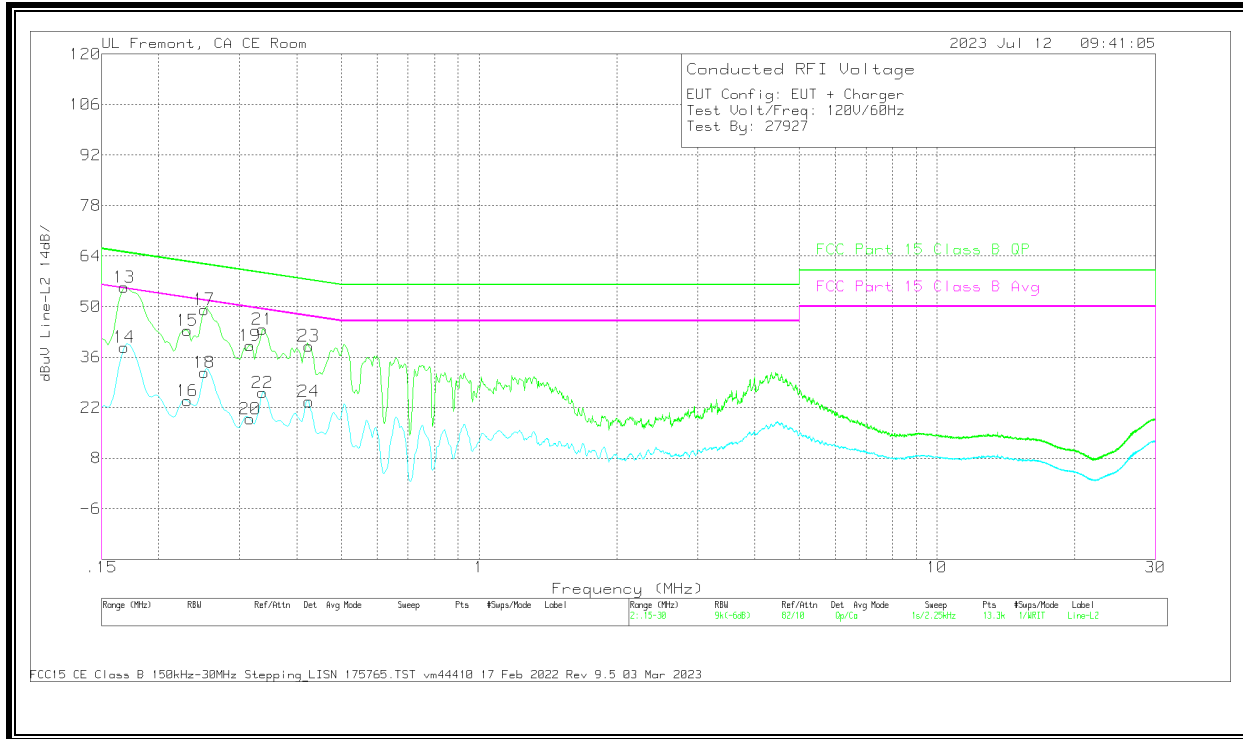
Worst Emission

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
2	.168	29.99	Ca	0	0	9.4	39.39	-	-	55.06	-15.67
4	.2535	23.78	Ca	0	0	9.3	33.08	-	-	51.64	-18.56
6	.3368	16.57	Ca	0	0	9.3	25.87	-	-	49.28	-23.41
8	.42	14.03	Ca	0	.1	9.3	23.43	-	-	47.45	-24.02
10	.5078	12.59	Ca	0	.1	9.3	21.99	-	-	46	-24.01
12	.5933	6.71	Ca	0	.1	9.3	16.11	-	-	46	-29.89
1	.168	47.12	Qp	0	0	9.4	56.52	65.06	-8.54	-	-
3	.2535	41.36	Qp	0	0	9.3	50.66	61.64	-10.98	-	-
5	.3368	35.1	Qp	0	0	9.3	44.4	59.28	-14.88	-	-
7	.42	30.78	Qp	0	.1	9.3	40.18	57.45	-17.27	-	-
9	.5078	30.02	Qp	0	.1	9.3	39.42	56	-16.58	-	-
11	.5933	26.68	Qp	0	.1	9.3	36.08	56	-19.92	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



Worst Emission

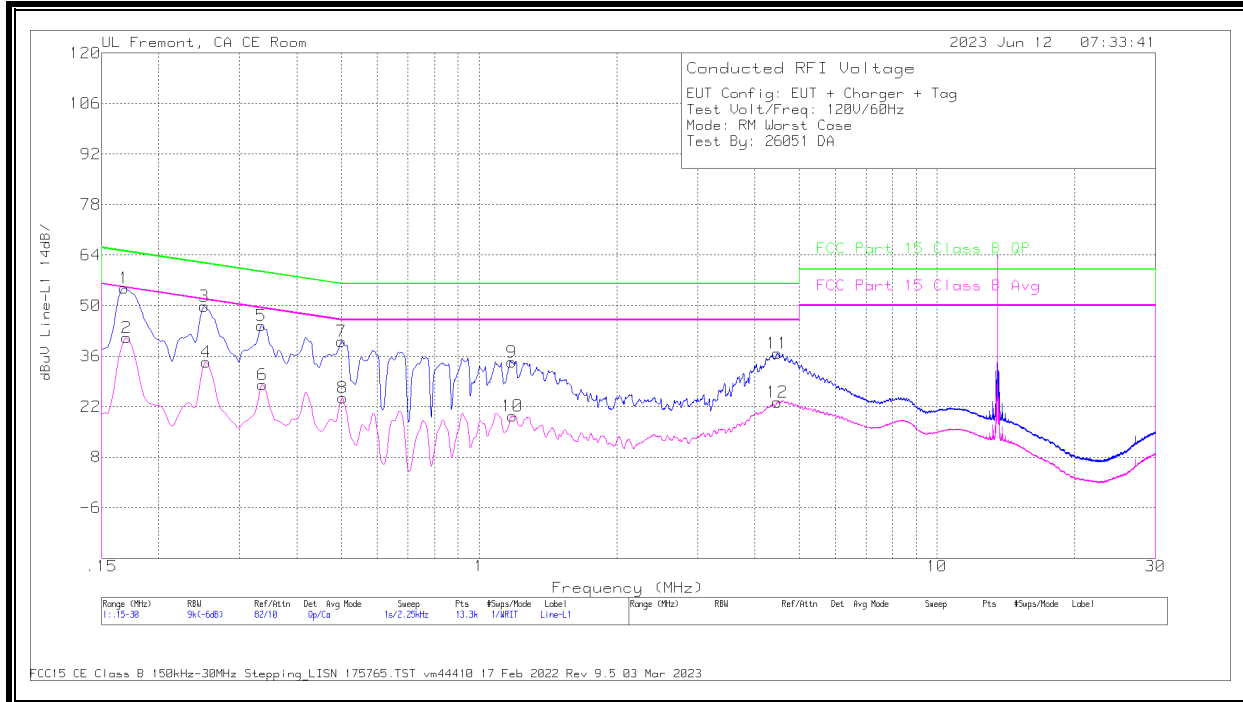
Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBUV	QP Margin (dB)	FCC Part 15 Class B Avg dBUV	Av(CISPR)M argin (dB)
14	.168	29.38	Ca	0	0	9.4	38.78	-	-	55.06	-16.28
16	.231	14.56	Ca	0	0	9.3	23.86	-	-	52.41	-28.55
18	.2513	22.41	Ca	0	0	9.3	31.71	-	-	51.72	-20.01
20	.3165	9.66	Ca	0	0	9.3	18.96	-	-	49.8	-30.84
22	.3368	16.86	Ca	0	0	9.3	26.16	-	-	49.28	-23.12
24	.4245	14.27	Ca	0	.1	9.3	23.67	-	-	47.36	-23.69
13	.168	45.94	Qp	0	0	9.4	55.34	65.06	-9.72	-	-
15	.231	34.1	Qp	0	0	9.3	43.4	62.41	-19.01	-	-
17	.2513	39.91	Qp	0	0	9.3	49.21	61.72	-12.51	-	-
19	.3165	29.89	Qp	0	0	9.3	39.19	59.8	-20.61	-	-
21	.3368	34.37	Qp	0	0	9.3	43.67	59.28	-15.61	-	-
23	.4245	29.73	Qp	0	.1	9.3	39.13	57.36	-18.23	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

10.1.3. TAG MODE, Type B 212 Kbps, with Antenna

LINE 1 RESULTS



Worst Emission

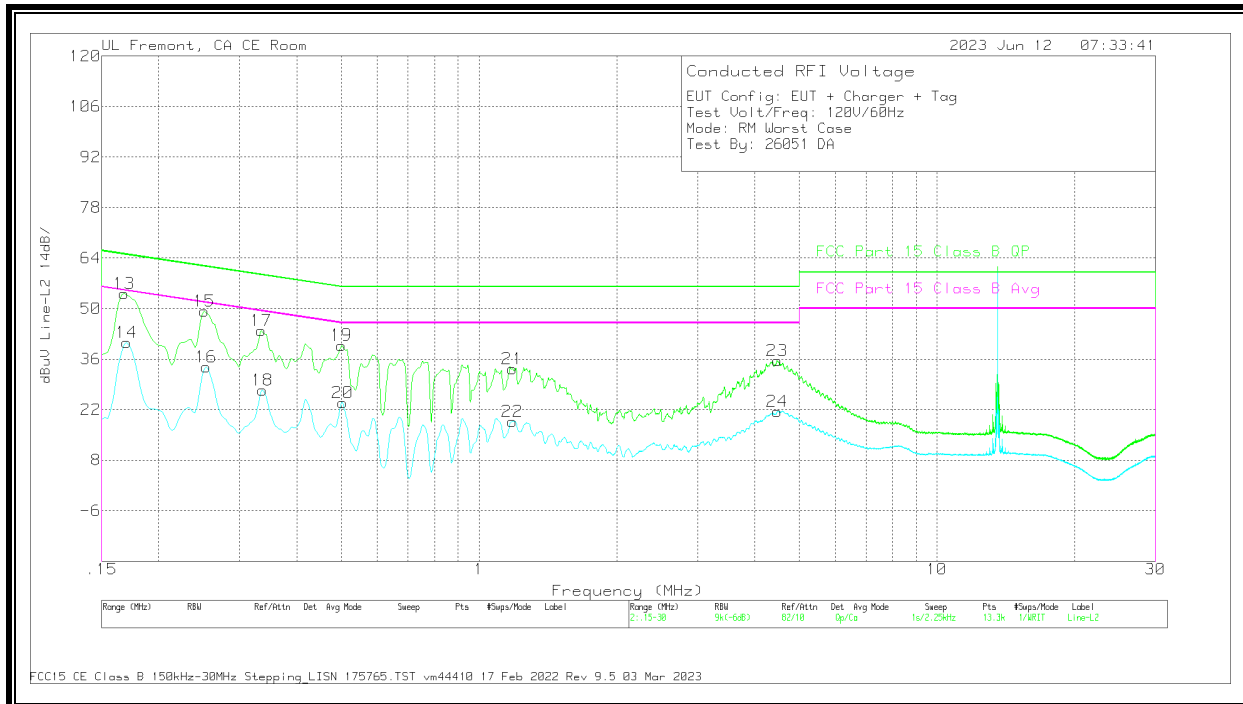
Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Aw(CISPR)M argin (dB)
1	.168	45.47	Qp	0	0	9.4	54.87	65.06	-10.19	-	-
2	.1703	31.76	Ca	0	0	9.4	41.16	-	-	54.95	-13.79
3	.2513	40.51	Qp	0	0	9.3	49.81	61.72	-11.91	-	-
4	.2535	25.1	Ca	0	0	9.3	34.4	-	-	51.64	-17.24
5	.3345	35.17	Qp	0	0	9.3	44.47	59.34	-14.87	-	-
6	.3368	18.8	Ca	0	0	9.3	28.1	-	-	49.28	-21.18
7	.501	30.73	Qp	0	.1	9.3	40.13	56	-15.87	-	-
8	.5033	15.02	Ca	0	.1	9.3	24.42	-	-	46	-21.58
9	1.1805	24.89	Qp	0	.1	9.3	34.29	56	-21.71	-	-
10	1.1828	10	Ca	0	.1	9.3	19.4	-	-	46	-26.6
11	4.479	27.45	Qp	0	.1	9.3	36.85	56	-19.15	-	-
12	4.4835	13.76	Ca	0	.1	9.3	23.16	-	-	46	-22.84

Qp - Quasi-Peak detector

Ca - CISPR 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.

LINE 2 RESULTS



Worst Emission

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path dBloss	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
13	.168	44.76	Qp	0	0	9.4	54.16	65.06	-10.9	-	-
14	.1703	31.14	Ca	0	0	9.4	40.54	-	-	54.95	-14.41
15	.2513	39.93	Qp	0	0	9.3	49.23	61.72	-12.49	-	-
16	.2535	24.47	Ca	0	0	9.3	33.77	-	-	51.64	-17.87
17	.3345	34.55	Qp	0	0	9.3	43.85	59.34	-15.49	-	-
18	.3368	18.16	Ca	0	0	9.3	27.46	-	-	49.28	-21.82
19	.501	30.43	Qp	0	.1	9.3	39.83	56	-16.17	-	-
20	.5033	14.6	Ca	0	.1	9.3	24	-	-	46	-22
21	1.1816	23.94	Qp	0	.1	9.3	33.34	56	-22.66	-	-
22	1.1828	9.37	Ca	0	.1	9.3	18.77	-	-	46	-27.23
23	4.479	26.19	Qp	0	.1	9.3	35.59	56	-20.41	-	-
24	4.479	12.02	Ca	0	.1	9.3	21.42	-	-	46	-24.58

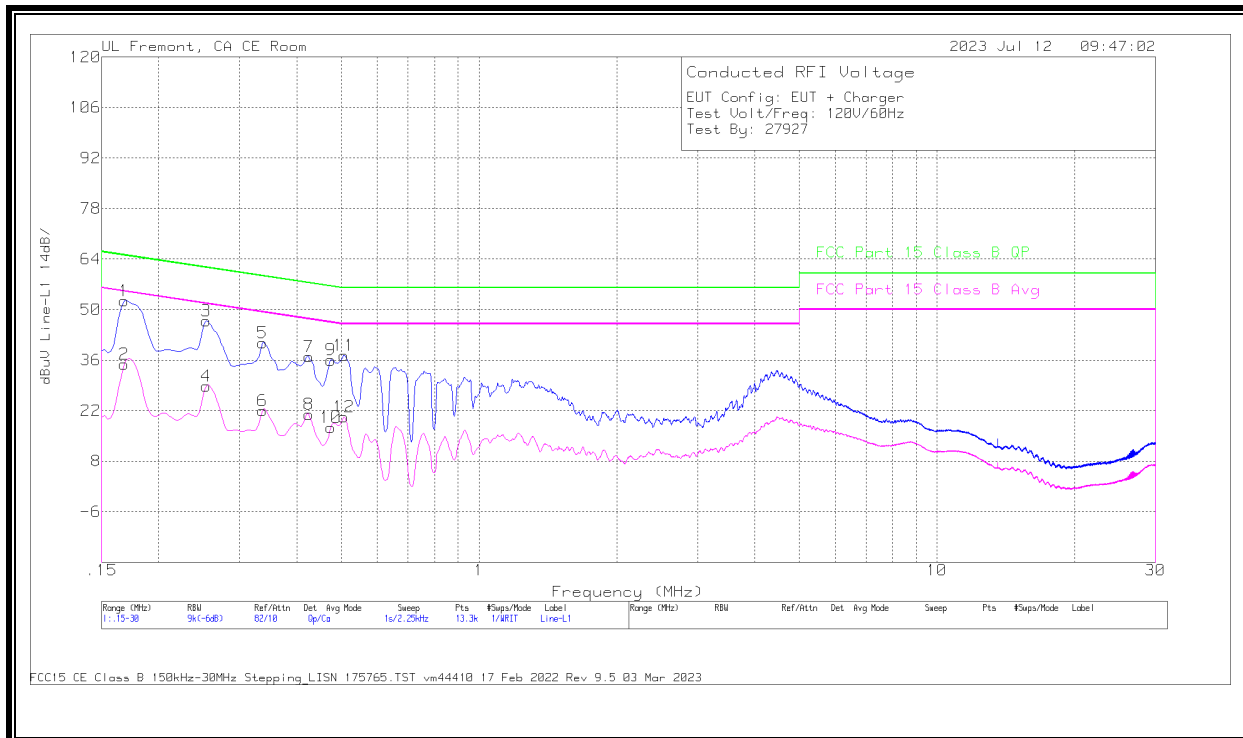
Qp - Quasi-Peak detector

Ca - CISPR average detection

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

10.1.4. TAG MODE, Type B 212 Kbps, Antenna Port Terminated

LINE 1 RESULTS



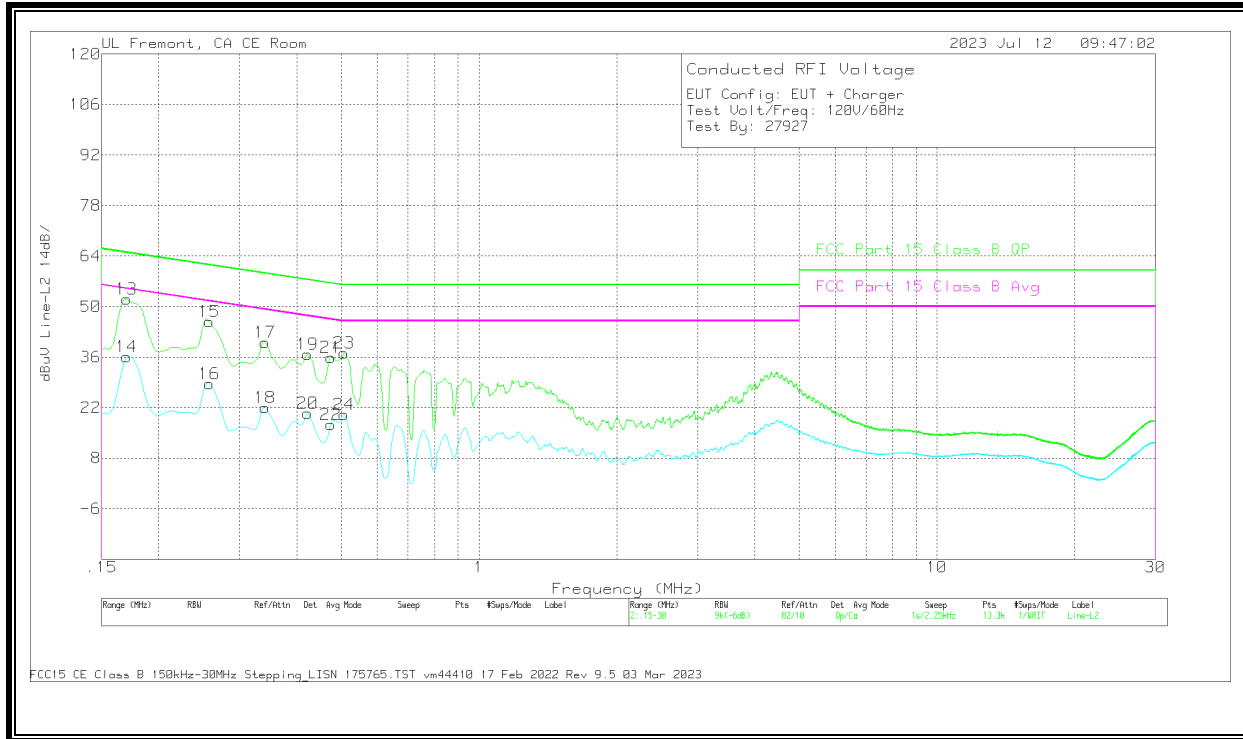
Worst Emission

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
2	.168	25.41	Ca	0	0	9.4	34.81	-	-	55.06	-20.25
4	.2535	19.5	Ca	0	0	9.3	28.8	-	-	51.64	-22.84
6	.3368	12.79	Ca	0	0	9.3	22.09	-	-	49.28	-27.19
8	.4245	11.56	Ca	0	.1	9.3	20.96	-	-	47.36	-26.4
10	.474	8	Ca	0	.1	9.3	17.4	-	-	46.44	-29.04
12	.5078	10.88	Ca	0	.1	9.3	20.28	-	-	46	-25.72
1	.168	43.04	Qp	0	0	9.4	52.44	65.06	-12.62	-	-
3	.2535	37.64	Qp	0	0	9.3	46.94	61.64	-14.7	-	-
5	.3368	31.49	Qp	0	0	9.3	40.79	59.28	-18.49	-	-
7	.4245	27.57	Qp	0	.1	9.3	36.97	57.36	-20.39	-	-
9	.474	26.61	Qp	0	.1	9.3	36.01	56.44	-20.43	-	-
11	.5078	27.94	Qp	0	.1	9.3	37.34	56	-18.66	-	-

Qp - Quasi-Peak detector
 Ca - CISPR average detection

LINE 2 RESULTS



Worst Emission

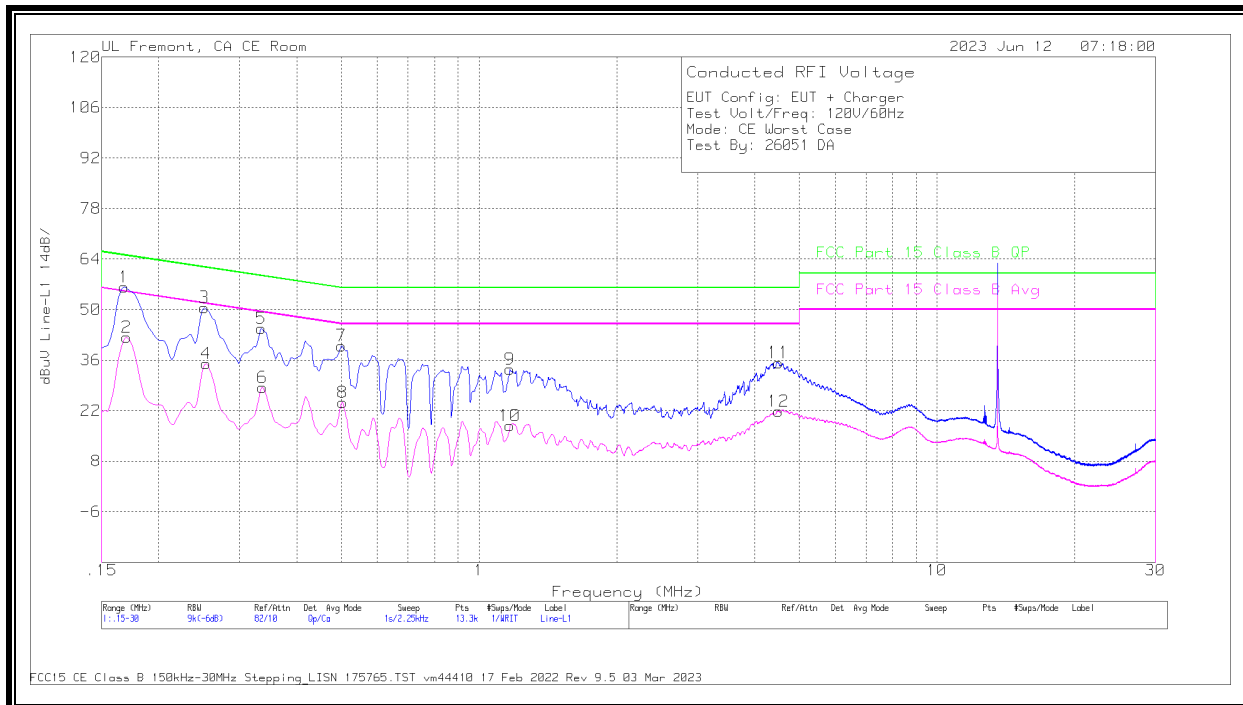
Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
14	.1703	26.68	Ca	0	0	9.4	36.08	-	-	54.95	-18.87
16	.258	19.38	Ca	0	0	9.3	28.68	-	-	51.5	-22.82
18	.3413	12.79	Ca	0	0	9.3	22.09	-	-	49.17	-27.08
20	.4223	11.06	Ca	0	.1	9.3	20.46	-	-	47.4	-26.94
22	.474	7.91	Ca	0	.1	9.3	17.31	-	-	46.44	-29.13
24	.5078	10.64	Ca	0	.1	9.3	20.04	-	-	46	-25.96
13	.1703	42.72	Qp	0	0	9.4	52.12	64.95	-12.83	-	-
15	.258	36.46	Qp	0	0	9.3	45.76	61.5	-15.74	-	-
17	.3413	30.76	Qp	0	0	9.3	40.06	59.17	-19.11	-	-
19	.4223	27.39	Qp	0	.1	9.3	36.79	57.4	-20.61	-	-
21	.474	26.47	Qp	0	.1	9.3	35.87	56.44	-20.57	-	-
23	.5078	27.67	Qp	0	.1	9.3	37.07	56	-18.93	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

10.1.5. CE MODE, Type B 212 Kbps, with Antenna

LINE 1 RESULTS



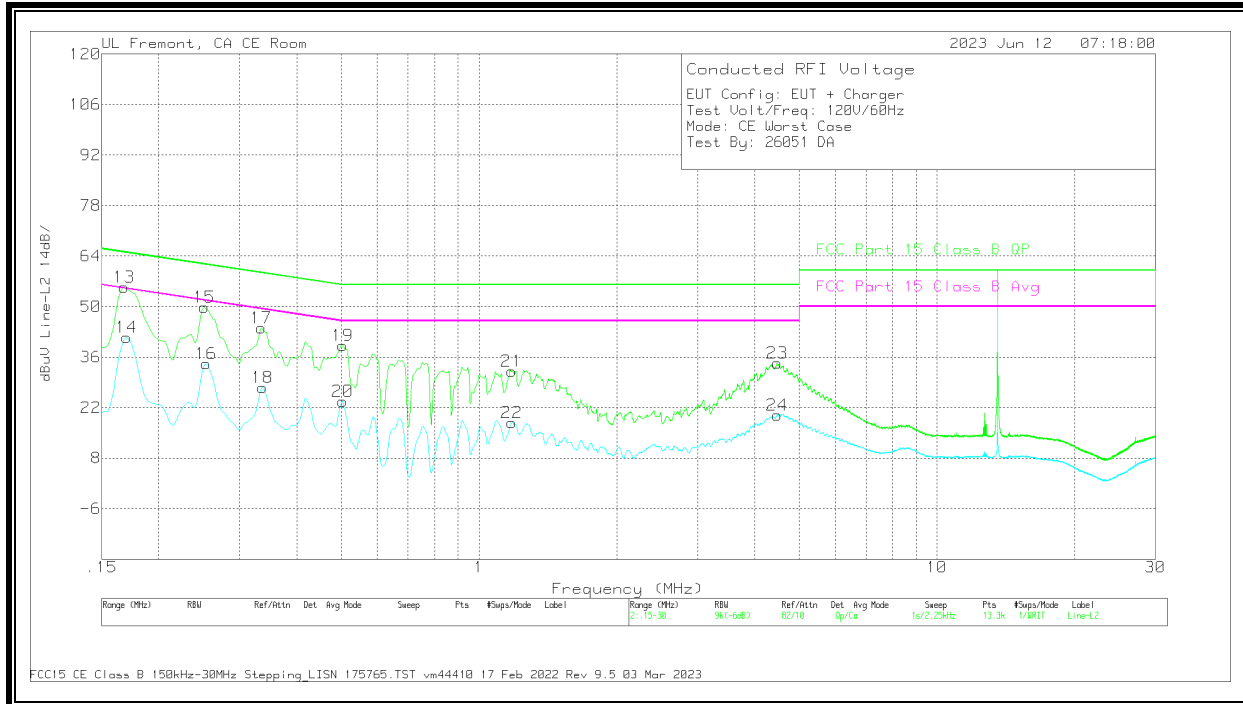
Worst Emission

Range 1: Line-L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)	
1	.168	46.81	Qp	0	0	9.4	56.21	65.06	-8.85	-	-	
2	.1703	33	Ca	0	0	9.4	42.4	-	-	54.95	-12.55	
3	.2513	41.3	Qp	0	0	9.3	50.6	61.72	-11.12	-	-	
4	.2535	25.78	Ca	0	0	9.3	35.08	-	-	51.64	-16.56	
5	.3345	35.53	Qp	0	0	9.3	44.83	59.34	-14.51	-	-	
6	.3368	19.13	Ca	0	0	9.3	28.43	-	-	49.28	-20.85	
7	.501	30.6	Qp	0	.1	9.3	40	56	-16	-	-	
8	.5033	14.82	Ca	0	.1	9.3	24.22	-	-	46	-21.78	
9	1.1693	24.14	Qp	0	.1	9.3	33.54	56	-22.46	-	-	
10	1.1693	8.4	Ca	0	.1	9.3	17.8	-	-	46	-28.2	
11	4.5105	25.91	Qp	0	.1	9.3	35.31	56	-20.69	-	-	
12	4.5105	12.51	Ca	0	.1	9.3	21.91	-	-	46	-24.09	

Qp - Quasi-Peak detector
Ca - CISPR average detection

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

LINE 2 RESULTS



Worst Emission

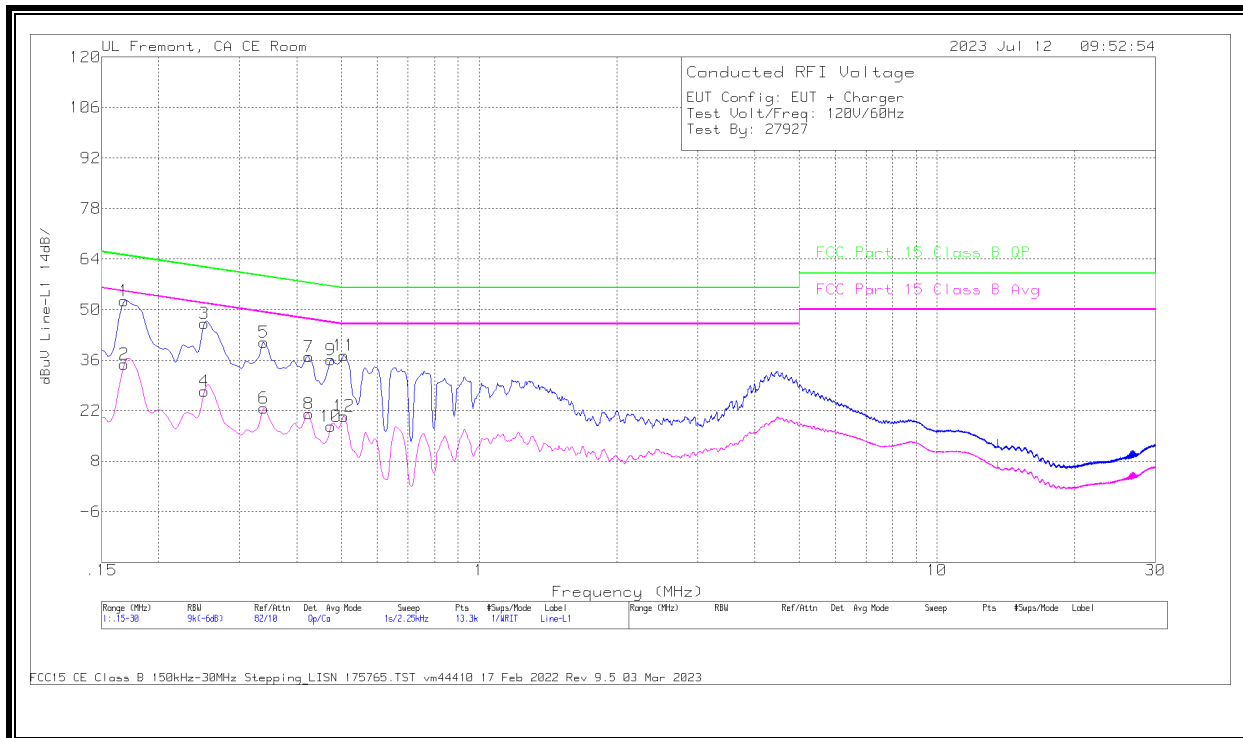
Range 2: Line-L2 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)	
13	.168	45.92	Qp	0	0	9.4	55.32	65.06	-9.74	-	-	
14	.1703	32.11	Ca	0	0	9.4	41.51	-	-	54.95	-13.44	
15	.2513	40.52	Qp	0	0	9.3	49.82	61.72	-11.9	-	-	
16	.2535	24.91	Ca	0	0	9.3	34.21	-	-	51.64	-17.43	
17	.3345	34.77	Qp	0	0	9.3	44.07	59.34	-15.27	-	-	
18	.3368	18.3	Ca	0	0	9.3	27.6	-	-	49.28	-21.68	
19	.5033	29.9	Qp	0	.1	9.3	39.3	56	-16.7	-	-	
20	.5033	14.31	Ca	0	.1	9.3	23.71	-	-	46	-22.29	
21	1.1805	22.76	Qp	0	.1	9.3	32.16	56	-23.84	-	-	
22	1.1805	8.44	Ca	0	.1	9.3	17.84	-	-	46	-28.16	
23	4.4813	25.01	Qp	0	.1	9.3	34.41	56	-21.59	-	-	
24	4.4801	10.6	Ca	0	.1	9.3	20	-	-	46	-26	

Qp - Quasi-Peak detector
 Ca - CISPR average detection

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

10.1.6. CE MODE, Type B 212 Kbps, Antenna Port Terminated

LINE 1 RESULTS



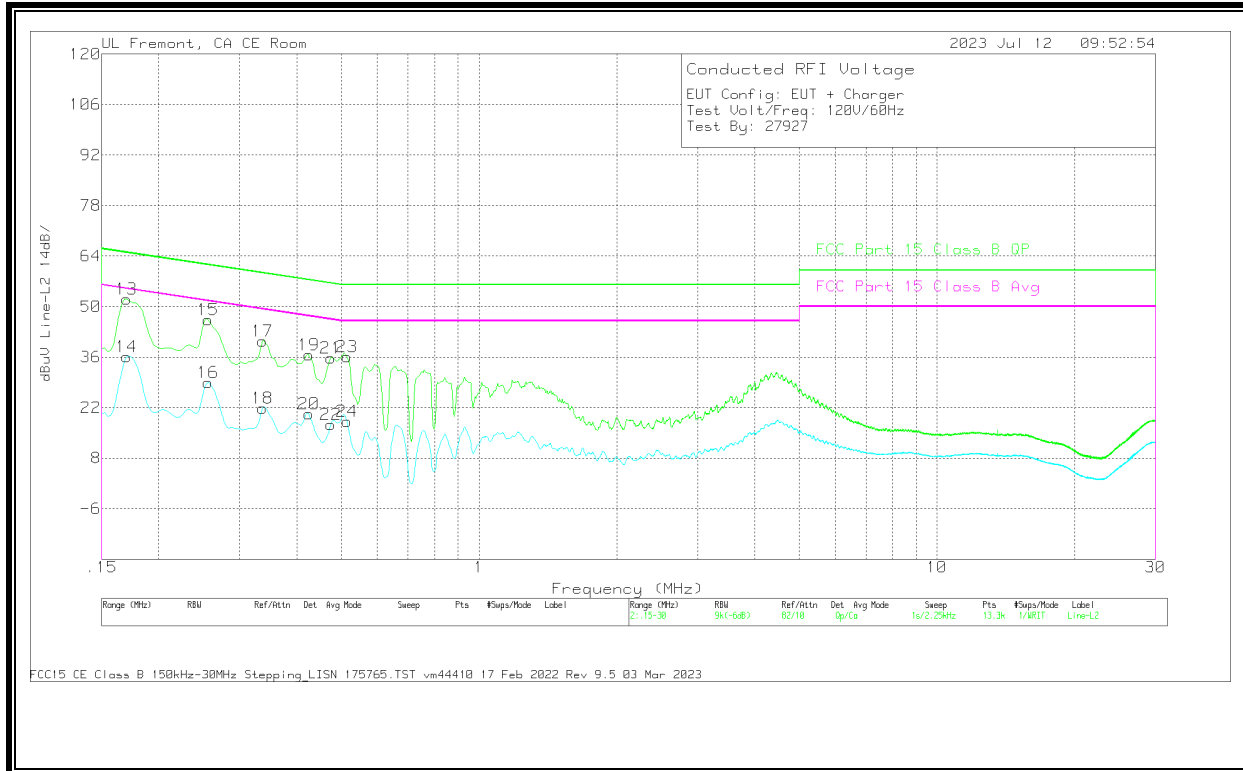
Worst Emission

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
2	.168	25.48	Ca	0	0	9.4	34.88	-	-	55.06	-20.18
4	.2513	18.1	Ca	0	0	9.3	27.4	-	-	51.72	-24.32
6	.339	13.4	Ca	0	0	9.3	22.7	-	-	49.23	-26.53
8	.4245	11.67	Ca	0	.1	9.3	21.07	-	-	47.36	-26.29
10	.474	8.28	Ca	0	.1	9.3	17.68	-	-	46.44	-28.76
12	.5078	11.13	Ca	0	.1	9.3	20.53	-	-	46	-25.47
1	.168	43.04	Qp	0	0	9.4	52.44	65.06	-12.62	-	-
3	.2513	36.84	Qp	0	0	9.3	46.14	61.72	-15.58	-	-
5	.339	31.69	Qp	0	0	9.3	40.99	59.23	-18.24	-	-
7	.4245	27.5	Qp	0	.1	9.3	36.9	57.36	-20.46	-	-
9	.474	26.66	Qp	0	.1	9.3	36.06	56.44	-20.38	-	-
11	.5078	27.94	Qp	0	.1	9.3	37.34	56	-18.66	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



Worst Emission

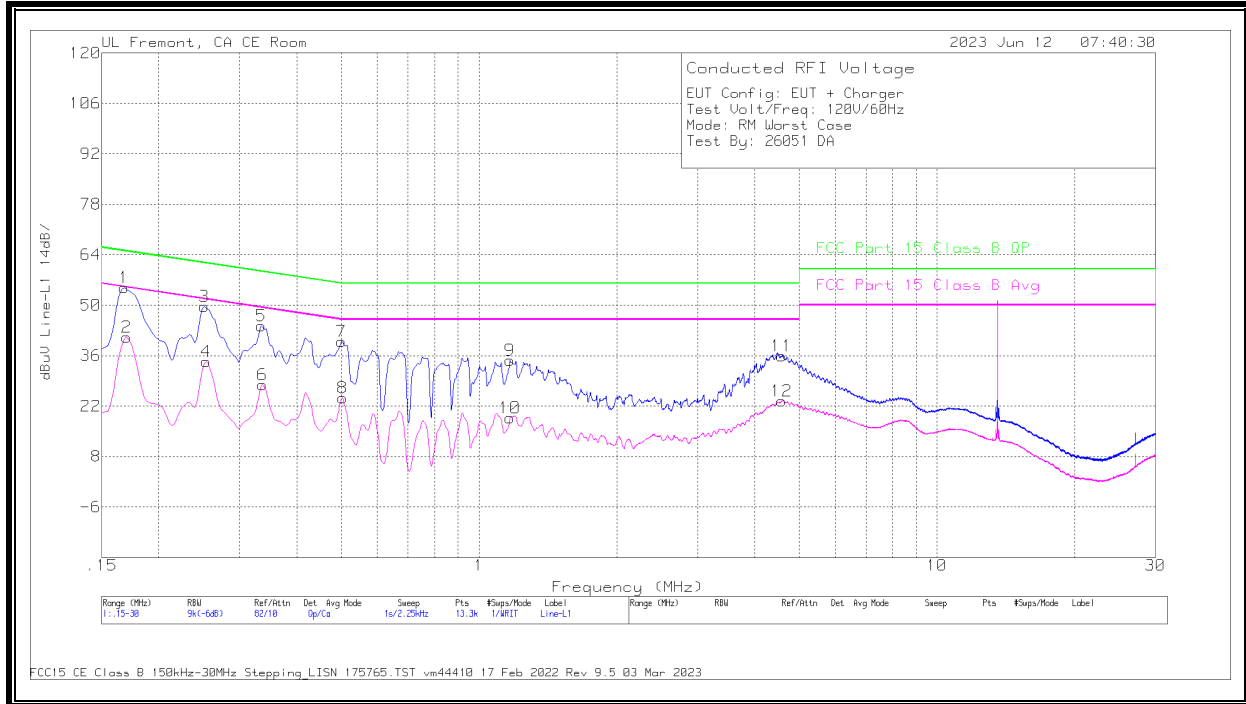
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dBdBuV	Corrected Reading dBuV	FCC Part 15 Class B QP dBuVdBuV	QP Margin (dB)	FCC Part 15 Class B Avg	Av(CISPR)M argin (dB)
14	.1703	26.73	Ca	0	0	9.4	36.13	-	-	54.95	-18.82
16	.2558	19.71	Ca	0	0	9.3	29.01	-	-	51.57	-22.56
18	.3368	12.54	Ca	0	0	9.3	21.84	-	-	49.28	-27.44
20	.4245	10.9	Ca	0	.1	9.3	20.3	-	-	47.36	-27.06
22	.474	7.87	Ca	0	.1	9.3	17.27	-	-	46.44	-29.17
24	.5145	8.79	Ca	0	.1	9.3	18.19	-	-	46	-27.81
13	.1703	42.73	Qp	0	0	9.4	52.13	64.95	-12.82	-	-
15	.2558	37.08	Qp	0	0	9.3	46.38	61.57	-15.19	-	-
17	.3368	31.1	Qp	0	0	9.3	40.4	59.28	-18.88	-	-
19	.4245	27.14	Qp	0	.1	9.3	36.54	57.36	-20.82	-	-
21	.474	26.31	Qp	0	.1	9.3	35.71	56.44	-20.73	-	-
23	.5145	26.66	Qp	0	.1	9.3	36.06	56	-19.94	-	-

Qp - Quasi-Peak detector
 Ca - CISPR average detection

10.2. SECONDARY ANTENNA

10.2.1. READER MODE, Type B 212 Kbps, with Antenna

LINE 1 RESULTS



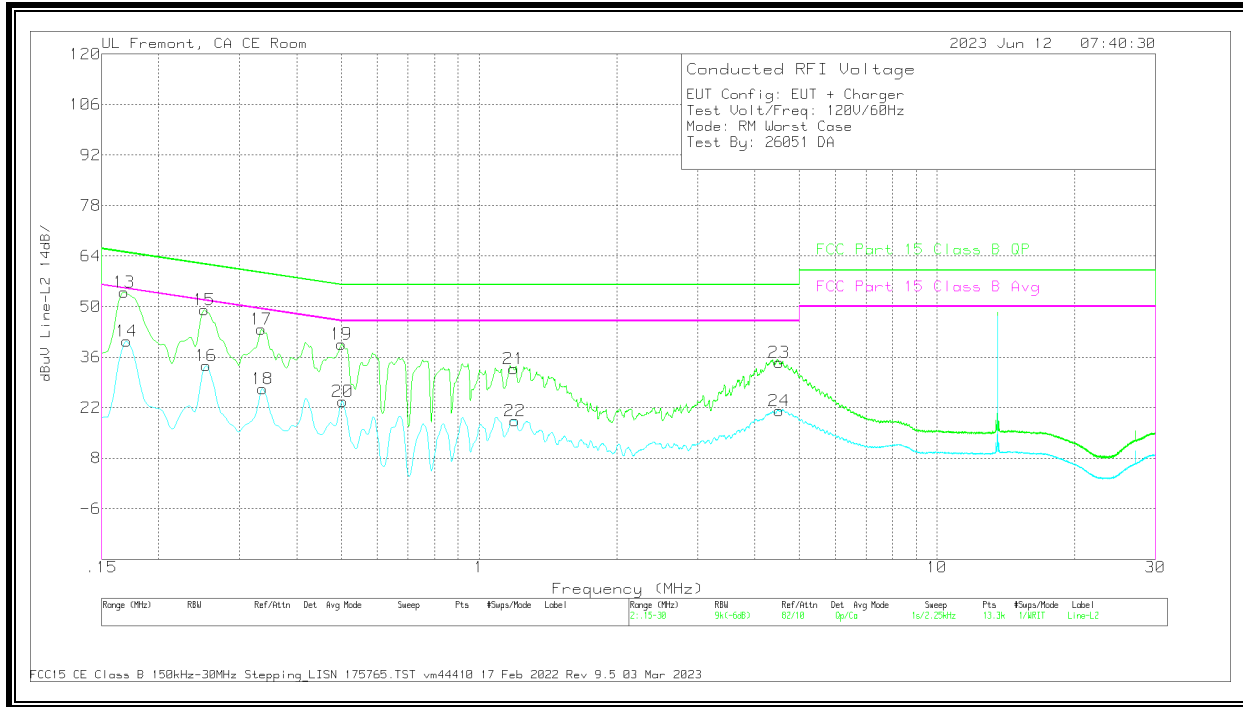
Worst Emission

Range 1: Line-L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)	
1	0.168	45.39	Qp	0	0	9.4	54.79	65.06	-10.27	-	-	
2	0.1703	31.67	Ca	0	0	9.4	41.07	-	-	54.95	-13.88	
3	0.2513	40.36	Qp	0	0	9.3	49.66	61.72	-12.06	-	-	
4	0.2535	24.98	Ca	0	0	9.3	34.28	-	-	51.64	-17.36	
5	0.3345	35	Qp	0	0	9.3	44.3	59.34	-15.04	-	-	
6	0.3368	18.6	Ca	0	0	9.3	27.9	-	-	49.28	-21.38	
7	0.501	30.59	Qp	0	0.1	9.3	39.99	56	-16.01	-	-	
8	0.5033	14.82	Ca	0	0.1	9.3	24.22	-	-	46	-21.78	
9	1.1693	25.3	Qp	0	0.1	9.3	34.7	56	-21.3	-	-	
10	1.1693	9.29	Ca	0	0.1	9.3	18.69	-	-	46	-27.31	
11	4.5803	26.58	Qp	0	0.1	9.3	35.98	56	-20.02	-	-	
12	4.5825	14.04	Ca	0	0.1	9.3	23.44	-	-	46	-22.56	

Qp - Quasi-Peak detector
Ca - CISPR average detection

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

LINE 2 RESULTS



Worst Emission

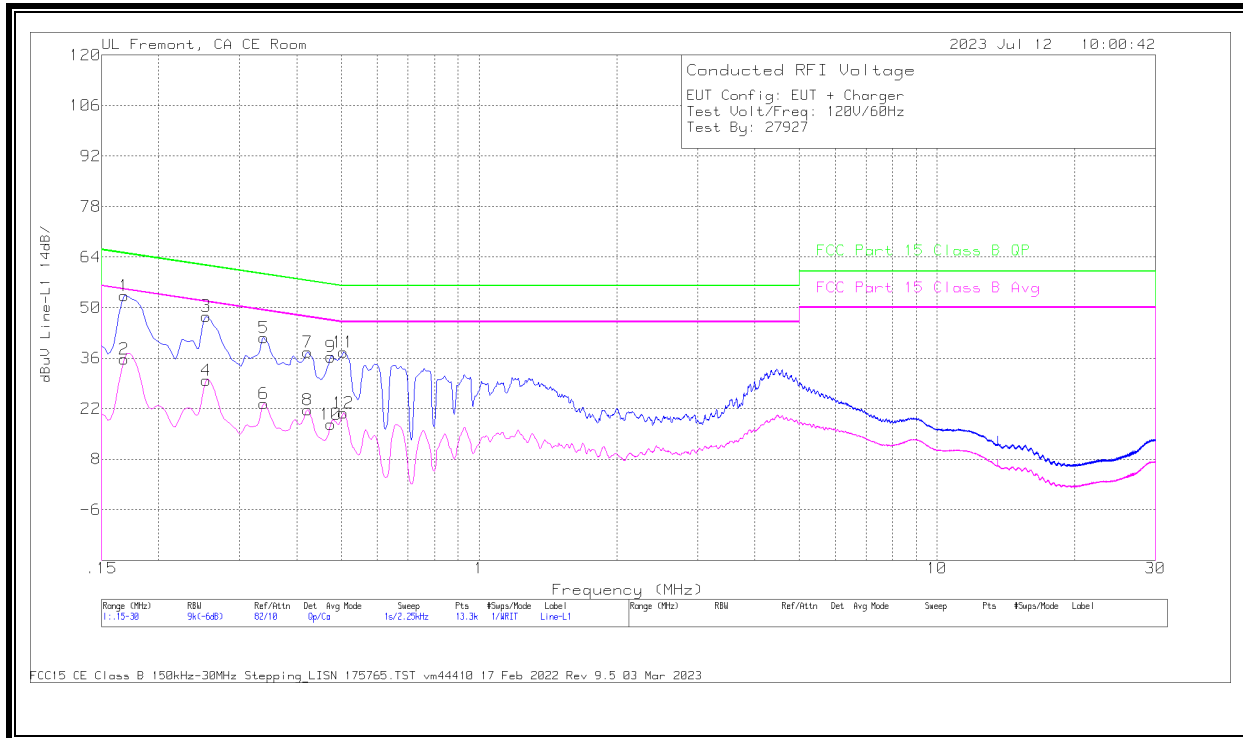
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBUV	QP Margin (dB)	FCC Part 15 Class B Avg dBUV	Av(CISPR)M argin (dB)
13	0.168	44.67	Qp	0	0	9.4	54.07	65.06	-10.99	-	-
14	0.1703	30.98	Ca	0	0	9.4	40.38	-	-	54.95	-14.57
15	0.2513	39.8	Qp	0	0	9.3	49.1	61.72	-12.62	-	-
16	0.2535	24.28	Ca	0	0	9.3	33.58	-	-	51.64	-18.06
17	0.3345	34.39	Qp	0	0	9.3	43.69	59.34	-15.65	-	-
18	0.3368	17.99	Ca	0	0	9.3	27.29	-	-	49.28	-21.99
19	0.501	30.25	Qp	0	0.1	9.3	39.65	56	-16.35	-	-
20	0.5033	14.39	Ca	0	0.1	9.3	23.79	-	-	46	-22.21
21	1.1895	23.35	Qp	0	0.1	9.3	32.75	56	-23.25	-	-
22	1.1985	9.04	Ca	0	0.1	9.3	18.44	-	-	46	-27.56
23	4.5195	25.18	Qp	0	0.1	9.3	34.58	56	-21.42	-	-
24	4.5173	11.77	Ca	0	0.1	9.3	21.17	-	-	46	-24.83

Qp - Quasi-Peak detector
 Ca - CISPR average detection

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

10.2.2. READER MODE, Type B 212 Kbps, Antenna Port Terminated

LINE 1 RESULTS



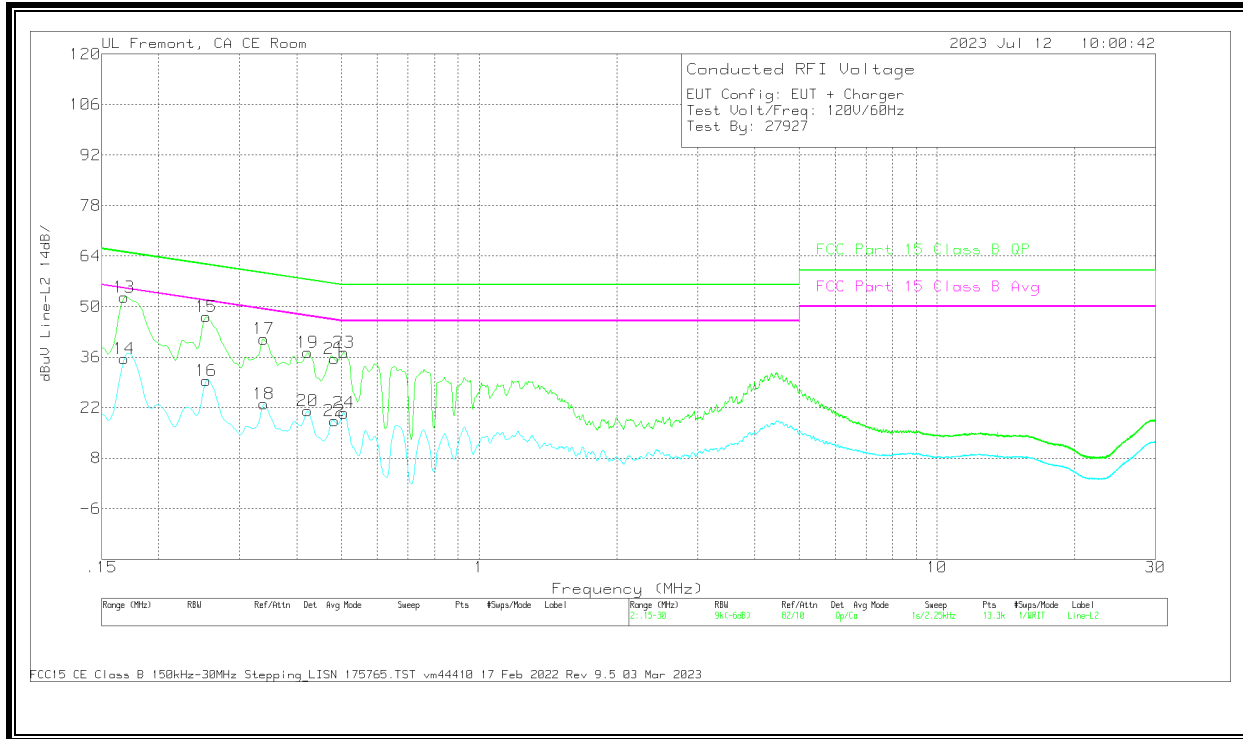
Worst Emission

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
2	.168	26.39	Ca	0	0	9.4	35.79	-	-	55.06	-19.27
4	.2535	20.49	Ca	0	0	9.3	29.79	-	-	51.64	-21.85
6	.339	14.14	Ca	0	0	9.3	23.44	-	-	49.23	-25.79
8	.4223	12.26	Ca	0	.1	9.3	21.66	-	-	47.4	-25.74
10	.474	8.33	Ca	0	.1	9.3	17.73	-	-	46.44	-28.71
12	.5055	11.36	Ca	0	.1	9.3	20.76	-	-	46	-25.24
1	.168	43.83	Qp	0	0	9.4	53.23	65.06	-11.83	-	-
3	.2535	38.35	Qp	0	0	9.3	47.65	61.64	-13.99	-	-
5	.339	32.34	Qp	0	0	9.3	41.64	59.23	-17.59	-	-
7	.4223	28.33	Qp	0	.1	9.3	37.73	57.4	-19.67	-	-
9	.474	26.96	Qp	0	.1	9.3	36.36	56.44	-20.08	-	-
11	.5055	28.19	Qp	0	.1	9.3	37.59	56	-18.41	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



Worst Emission

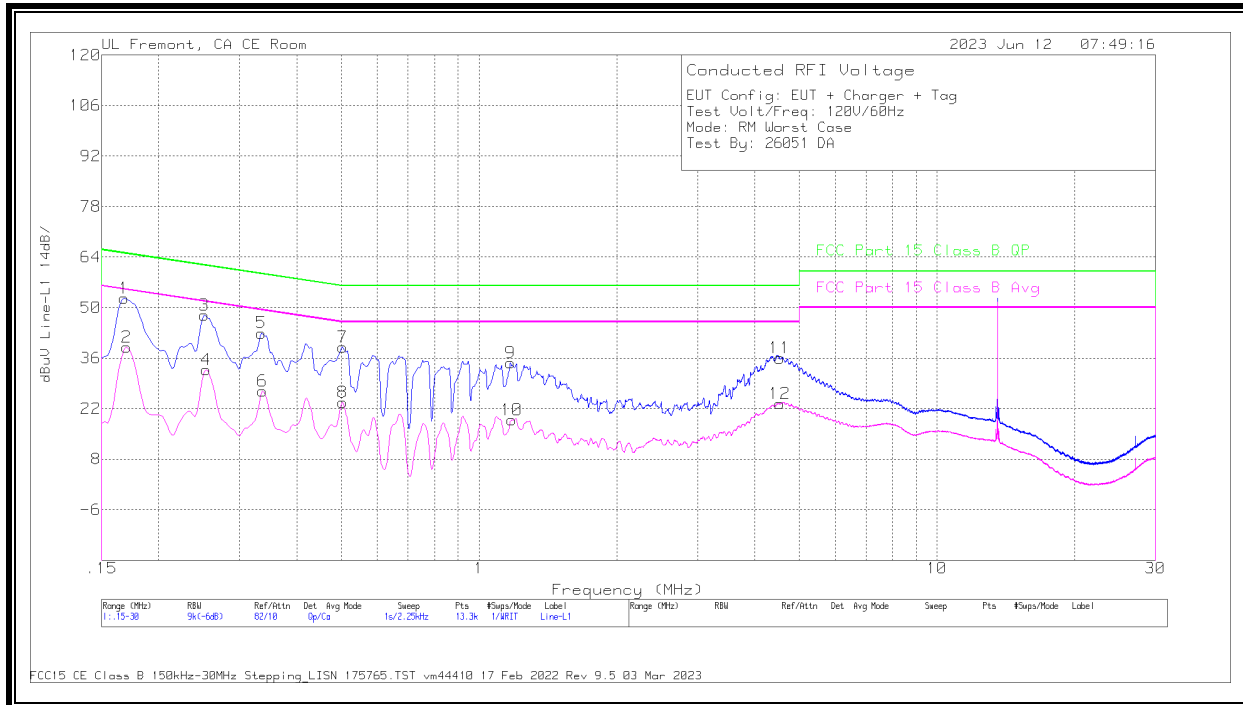
Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBUV	QP Margin (dB)	FCC Part 15 Class B Avg dBUV	Av(CISPR)M argin (dB)
14	.168	26.13	Ca	0	0	9.4	35.53	-	-	55.06	-19.53
16	.2535	20.14	Ca	0	0	9.3	29.44	-	-	51.64	-22.2
18	.339	13.68	Ca	0	0	9.3	22.98	-	-	49.23	-26.25
20	.4223	11.68	Ca	0	.1	9.3	21.08	-	-	47.4	-26.32
22	.483	8.91	Ca	0	.1	9.3	18.31	-	-	46.29	-27.98
24	.5078	11.14	Ca	0	.1	9.3	20.54	-	-	46	-25.46
13	.168	43.28	Qp	0	0	9.4	52.68	65.06	-12.38	-	-
15	.2535	37.89	Qp	0	0	9.3	47.19	61.64	-14.45	-	-
17	.339	31.75	Qp	0	0	9.3	41.05	59.23	-18.18	-	-
19	.4223	27.84	Qp	0	.1	9.3	37.24	57.4	-20.16	-	-
21	.483	26.13	Qp	0	.1	9.3	35.53	56.29	-20.76	-	-
23	.5078	27.89	Qp	0	.1	9.3	37.29	56	-18.71	-	-

Qp - Quasi-Peak detector
 Ca - CISPR average detection

10.2.3. TAG MODE, Type B 212 Kbps, with Antenna

LINE 1 RESULTS

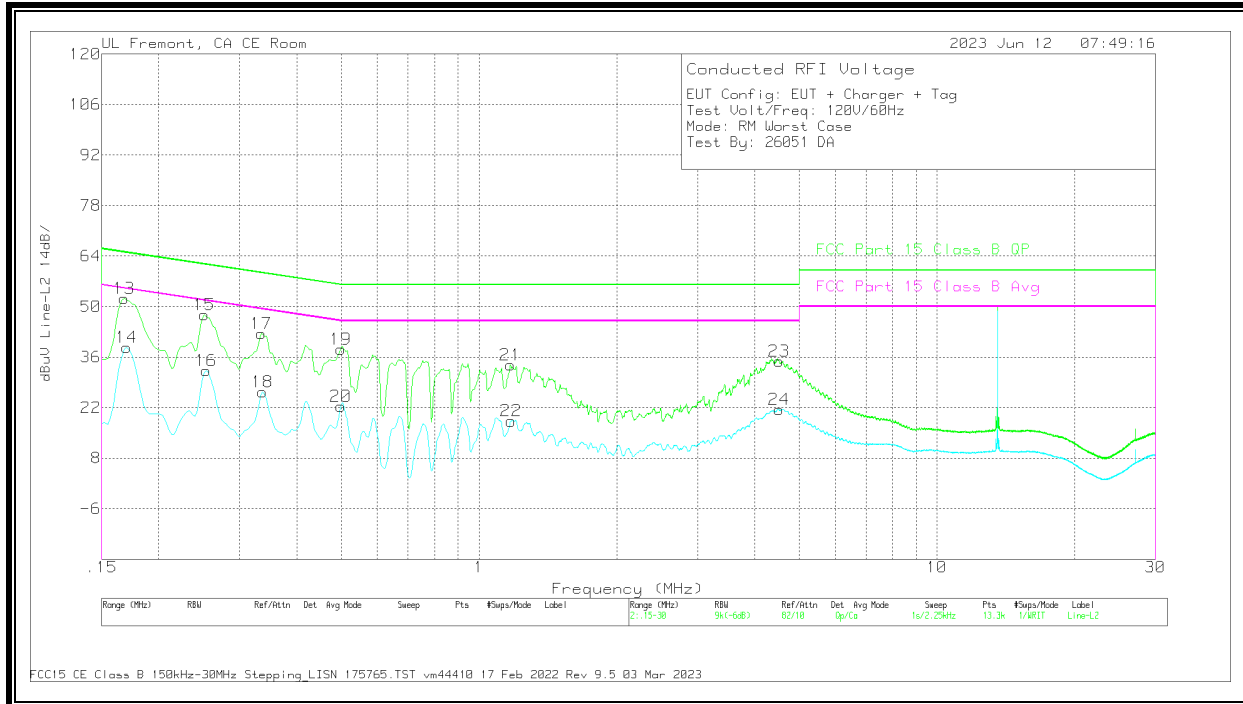


Worst Emission

Range 1: Line-L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)	
1	0.168	43.28	Qp	0	0	9.4	52.68	65.06	-12.38	-	-	
2	0.1703	29.71	Ca	0	0	9.4	39.11	-	-	54.95	-15.84	
3	0.2513	38.64	Qp	0	0	9.3	47.94	61.72	-13.78	-	-	
4	0.2535	23.53	Ca	0	0	9.3	32.83	-	-	51.64	-18.81	
5	0.3345	33.66	Qp	0	0	9.3	42.96	59.34	-16.38	-	-	
6	0.3368	17.54	Ca	0	0	9.3	26.84	-	-	49.28	-22.44	
7	0.5033	29.61	Qp	0	0.1	9.3	39.01	56	-16.99	-	-	
8	0.5033	14.28	Ca	0	0.1	9.3	23.68	-	-	46	-22.32	
9	1.1715	25.29	Qp	0	0.1	9.3	34.69	56	-21.31	-	-	
10	1.1805	9.45	Ca	0	0.1	9.3	18.85	-	-	46	-27.15	
11	4.533	26.61	Qp	0	0.1	9.3	36.01	56	-19.99	-	-	
12	4.5353	13.97	Ca	0	0.1	9.3	23.37	-	-	46	-22.63	

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

LINE 2 RESULTS



Worst Emission

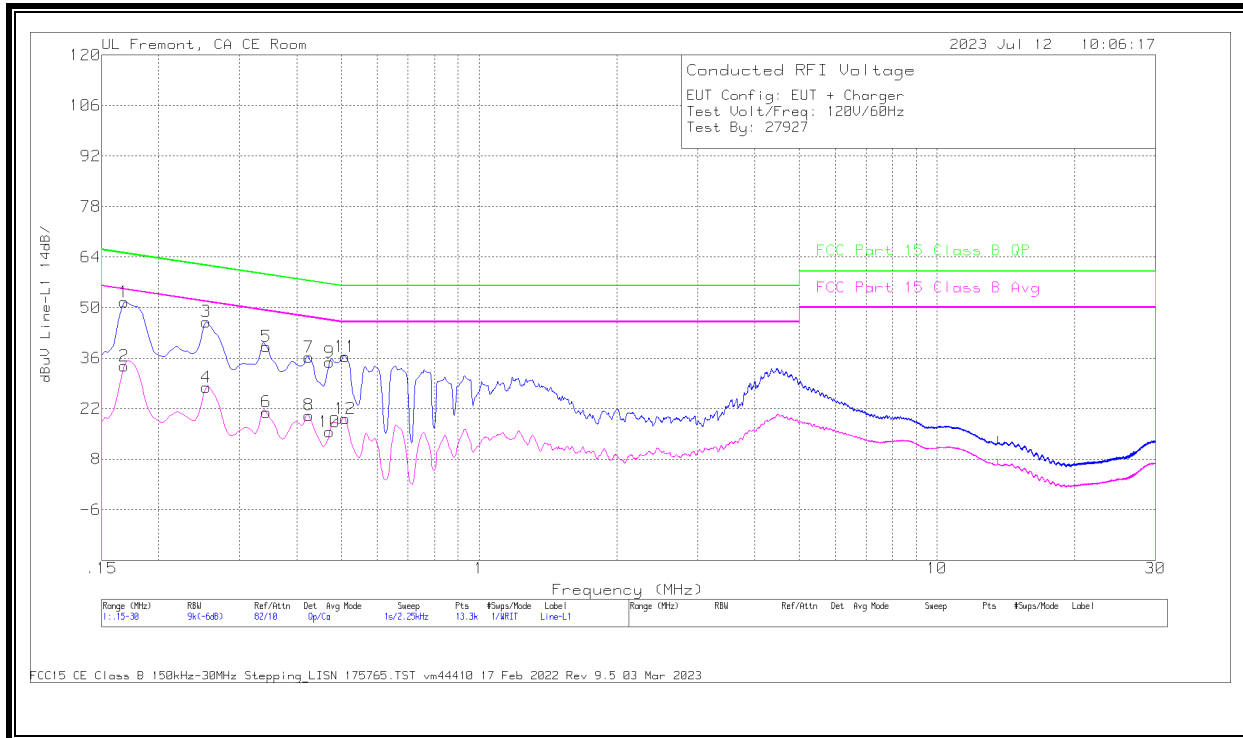
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
13	0.168	42.83	Qp	0	0	9.4	52.23	65.06	-12.83	-	-
14	0.1703	29.35	Ca	0	0	9.4	38.75	-	-	54.95	-16.2
15	0.2513	38.39	Qp	0	0	9.3	47.69	61.72	-14.03	-	-
16	0.2535	23.03	Ca	0	0	9.3	32.33	-	-	51.64	-19.31
17	0.3345	33.28	Qp	0	0	9.3	42.58	59.34	-16.76	-	-
18	0.3368	16.98	Ca	0	0	9.3	26.28	-	-	49.28	-23
19	0.4988	28.84	Qp	0	0.1	9.3	38.24	56.02	-17.78	-	-
20	0.4988	12.89	Ca	0	0.1	9.3	22.29	-	-	46.02	-23.73
21	1.1715	24.38	Qp	0	0.1	9.3	33.78	56	-22.22	-	-
22	1.176	8.88	Ca	0	0.1	9.3	18.28	-	-	46	-27.72
23	4.5184	25.44	Qp	0	0.1	9.3	34.84	56	-21.16	-	-
24	4.5173	12.05	Ca	0	0.1	9.3	21.45	-	-	46	-24.55

Qp - Quasi-Peak detector
 Ca - CISPR average detection

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

10.2.4. TAG MODE Type B 212 Kbps, Antenna Port Terminated

LINE 1 RESULTS

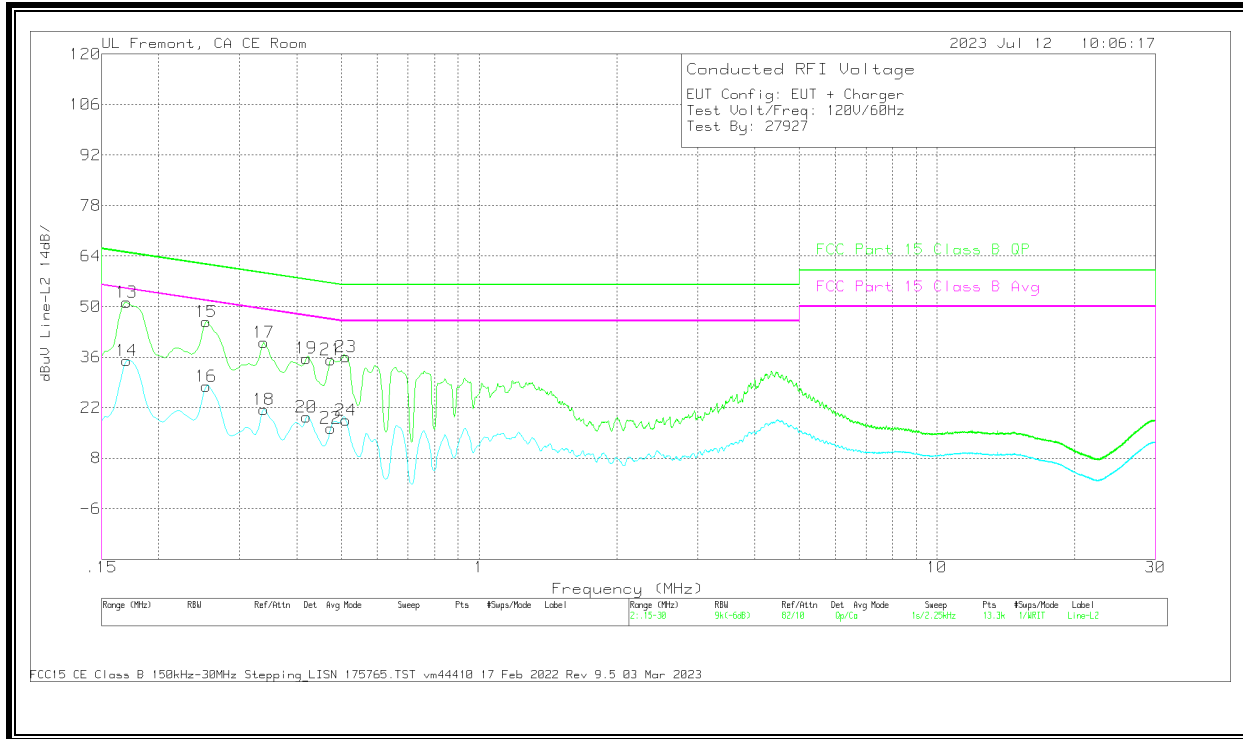


Worst Emission

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
2	.168	24.43	Ca	0	0	9.4	33.83	-	-	55.06	-21.23
4	.2535	18.69	Ca	0	0	9.3	27.99	-	-	51.64	-23.65
6	.3435	11.66	Ca	0	.1	9.3	21.06	-	-	49.12	-28.06
8	.4245	10.79	Ca	0	.1	9.3	20.19	-	-	47.36	-27.17
10	.4718	6.23	Ca	0	.1	9.3	15.63	-	-	46.48	-30.85
12	.51	9.82	Ca	0	.1	9.3	19.22	-	-	46	-26.78
1	.168	42.09	Qp	0	0	9.4	51.49	65.06	-13.57	-	-
3	.2535	36.79	Qp	0	0	9.3	46.09	61.64	-15.55	-	-
5	.3435	29.84	Qp	0	.1	9.3	39.24	59.12	-19.88	-	-
7	.4245	26.92	Qp	0	.1	9.3	36.32	57.36	-21.04	-	-
9	.4718	25.41	Qp	0	.1	9.3	34.81	56.48	-21.67	-	-
11	.51	27.11	Qp	0	.1	9.3	36.51	56	-19.49	-	-

LINE 2 RESULTS



Worst Emission

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
14	.1703	25.67	Ca	0	0	9.4	35.07	-	-	54.95	-19.88
16	.2535	18.57	Ca	0	0	9.3	27.87	-	-	51.64	-23.77
18	.339	12.22	Ca	0	0	9.3	21.52	-	-	49.23	-27.71
20	.42	9.93	Ca	0	.1	9.3	19.33	-	-	47.45	-28.12
22	.474	6.96	Ca	0	.1	9.3	16.36	-	-	46.44	-30.08
24	.5123	9.14	Ca	0	.1	9.3	18.54	-	-	46	-27.46
13	.1703	41.83	Qp	0	0	9.4	51.23	64.95	-13.72	-	-
15	.2535	36.58	Qp	0	0	9.3	45.88	61.64	-15.76	-	-
17	.339	30.72	Qp	0	0	9.3	40.02	59.23	-19.21	-	-
19	.42	26.26	Qp	0	.1	9.3	35.66	57.45	-21.79	-	-
21	.474	25.91	Qp	0	.1	9.3	35.31	56.44	-21.13	-	-
23	.5123	26.74	Qp	0	.1	9.3	36.14	56	-19.86	-	-

Qp - Quasi-Peak detector
 Ca - CISPR average detection

11. SETUP PHOTOS

Please refer to 14523772-EP1V1 for setup photos.

END OF TEST REPORT