



TEST REPORT

Report Number: 14523778-E8V2

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

Model : A2847 (Parent Model)
A3093, A3094, A3096 (Variant Model)

FCC ID : BCG-E8431A (Parent Model)
BCG-E8432A, BCG-E8433A, BCG-E8434A (Variant Model)

IC : 579C-E8431A (Parent Model)
579C-E8432A, 579C-E8433A, 579C-E8434A (Variant Model)

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 14, 2023

Prepared by:
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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	8/8/2023	Initial Issue	Chin Pang
V2	8/14/2023	Address TCB's questions on page 5 & 10	Chin Pang

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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: A2847 (Parent Model)
A3093, A3094, A3096 (VARIANT MODEL)

BRAND: APPLE

SERIAL NUMBER: G7F97X9XVT (RADIATED)
L3XVQ0CVF5, TM7LQ7XP37 (CONDUCTED)

SAMPLE RECEIPT DATE: MAY 16, 2023, JULY 13, 2023

DATE TESTED: MAY 18, 2023 – JULY 13, 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 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 INC. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL VERIFICATION 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:



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UL VERIFICATION INC..

Prepared By:



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Test Engineer
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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 type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
<input type="checkbox"/>	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
<input type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
<input checked="" 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, 802.15.4ab-NB and MSS technologies. The rechargeable battery is not user accessible.

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.

Parent Model: A2847, FCC ID: BCG-E8431A, IC ID: 579C-E8431A

Variant Model: A3093; FCC ID: BCG-E8432A, IC ID: 579C-E8432A
 A3094; FCC ID: BCG-E8433A, IC ID: 579C-E8433A
 A3096; FCC ID: BCG-E8434A, IC ID: 579C-E8434A

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	848	28.8
			Tag	848	28.57
			CE	848	28.02
Secondary	13.56	Type B	Reader	848	5.17
			Tag	848	7.36

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 Z (Portrait) 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 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 848 Kbps was determined to be the worst case and therefore Type B was selected for all final tests

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

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

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.

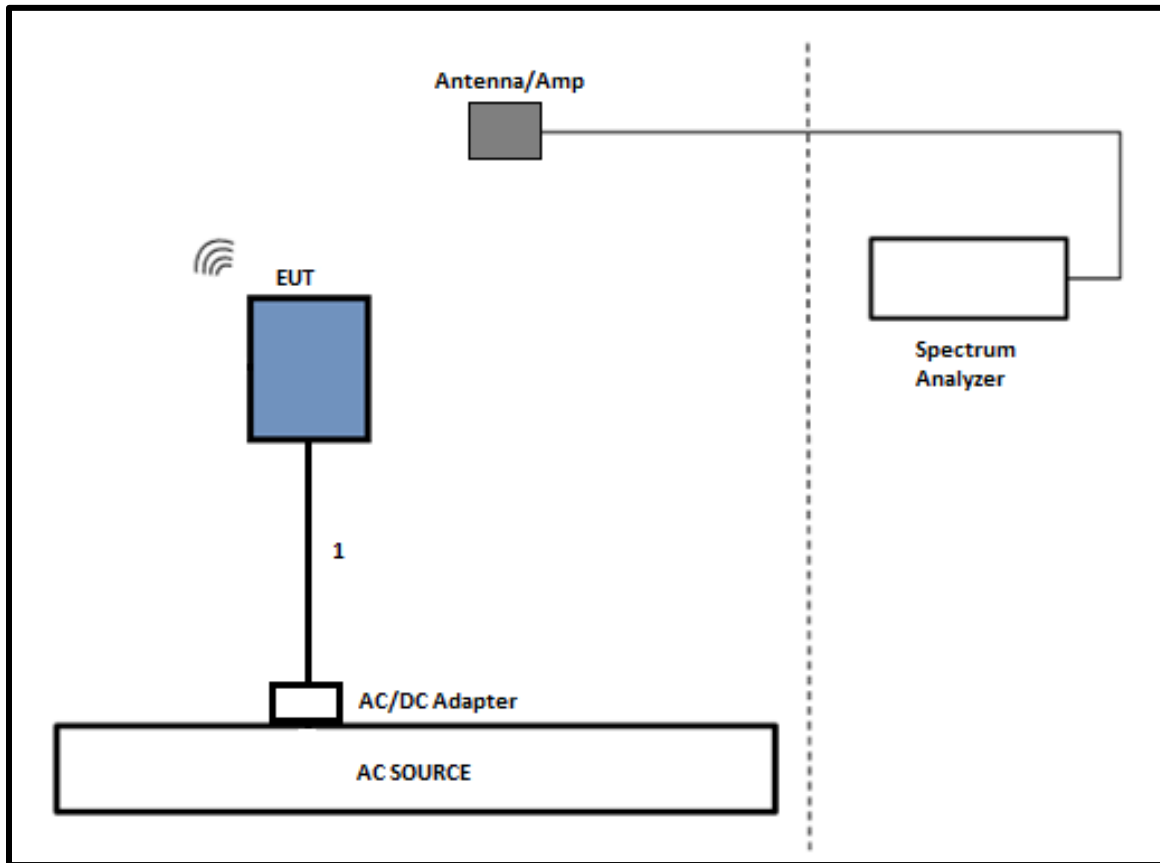
5.4. SUPPORT EQUIPMENT

SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number	FCC ID/ DoC	
Laptop		Apple	Macbook Pro	C02VD7SAHV22	BCGA1708	
Laptop AC/DC adapter		Liteon Technology	A1424	NSW25679	DoC	
EUT AC/DC adapter		Apple	A1720	C3D8417A7R93KVPA8	DoC	
I/O CABLES (RF RADIATED AND AC LINE CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	2	N/A

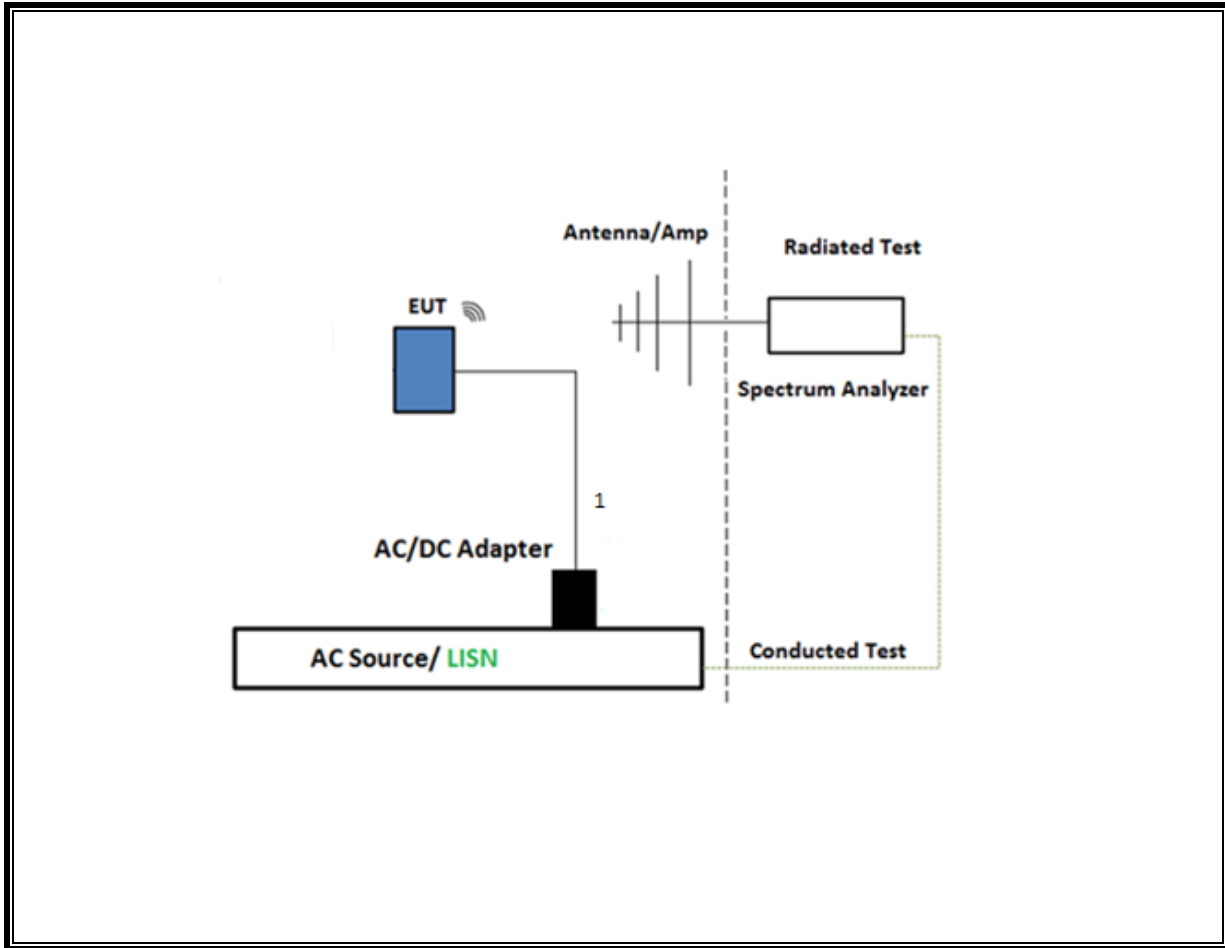
TEST SETUP

The EUT setup is shown as below. Test software exercised the radio card.

5.5. 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
*Antenna, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	170013	07/28/2023	07/28/2022
*Antenna, Passive Loop 100KHz - 30MHz	Electro-Metrics	EM-6872	170015	07/28/2023	07/28/2022
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	224378	10/27/2023	10/27/2022
Amplifier 9 KHz - 1 GHz	310N	SONOMA INSTRUMENT	224490	12/02/2023	12/02/2022
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201502	02/29/2024	02/29/2023
Environmental Chamber	Cincinnati Sub Zero - division of Weiss Technik	ZPHS-8-3.5- SCT/WC	89097	12/31/2023	12/31/2022
Spectrum Analyzer, PSA, 3Hz to 26.5GHz	Keysight Technologies Inc	E4440A	79602	02/29/2024	02/29/2023

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	175764	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, May 1 , 2023		
Conducted Software	UL	UL EMC	2020.8.16		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, Mar 3, 2023		

*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)
848	13.56	21.564	25.04

Type B (CE Mode)

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
848	13.56	21.605	25.28

TAG Mode

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
848	13.56	21.948	25.35

Secondary Antenna

Type B (Reader Mode)

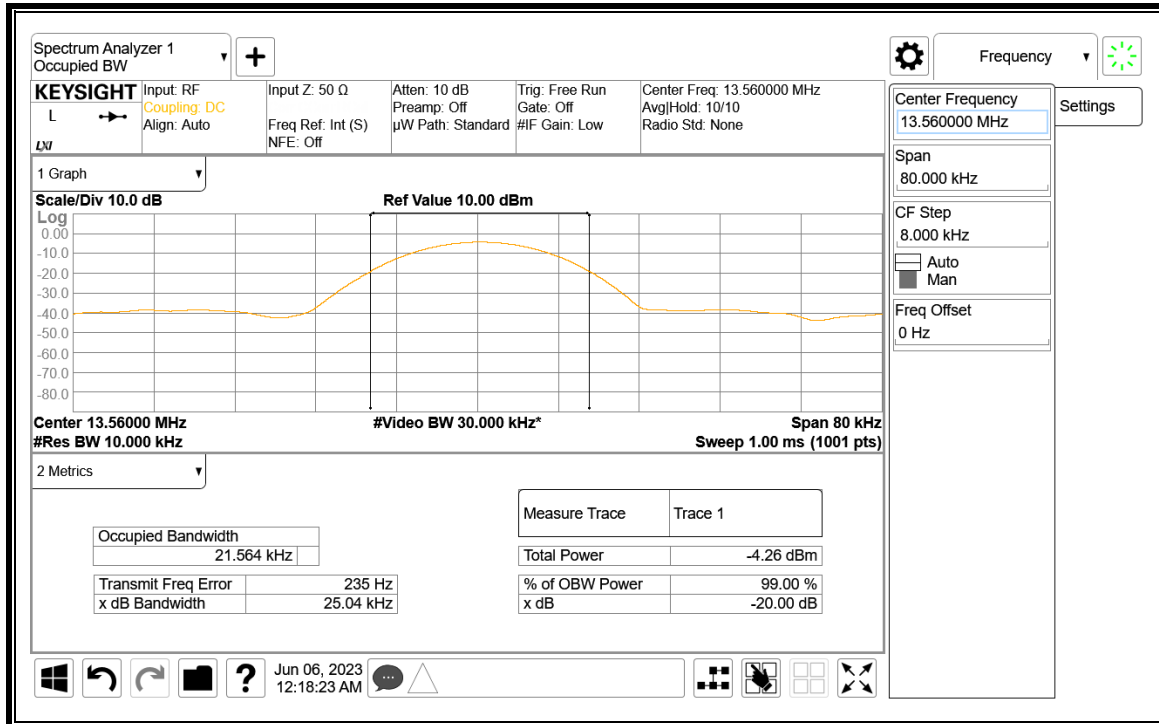
Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
848	13.56	21.473	24.93

TAG Mode

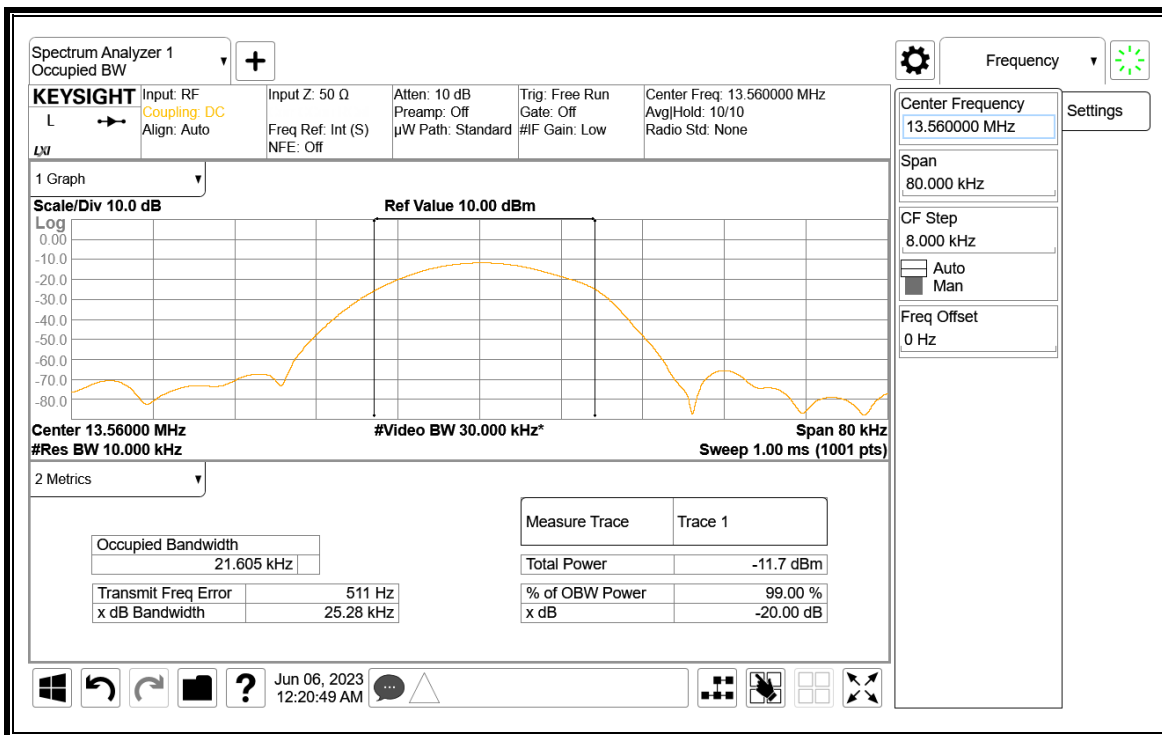
Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
848	13.56	21.623	25.11

7.1. PRIMARY ANTENNA

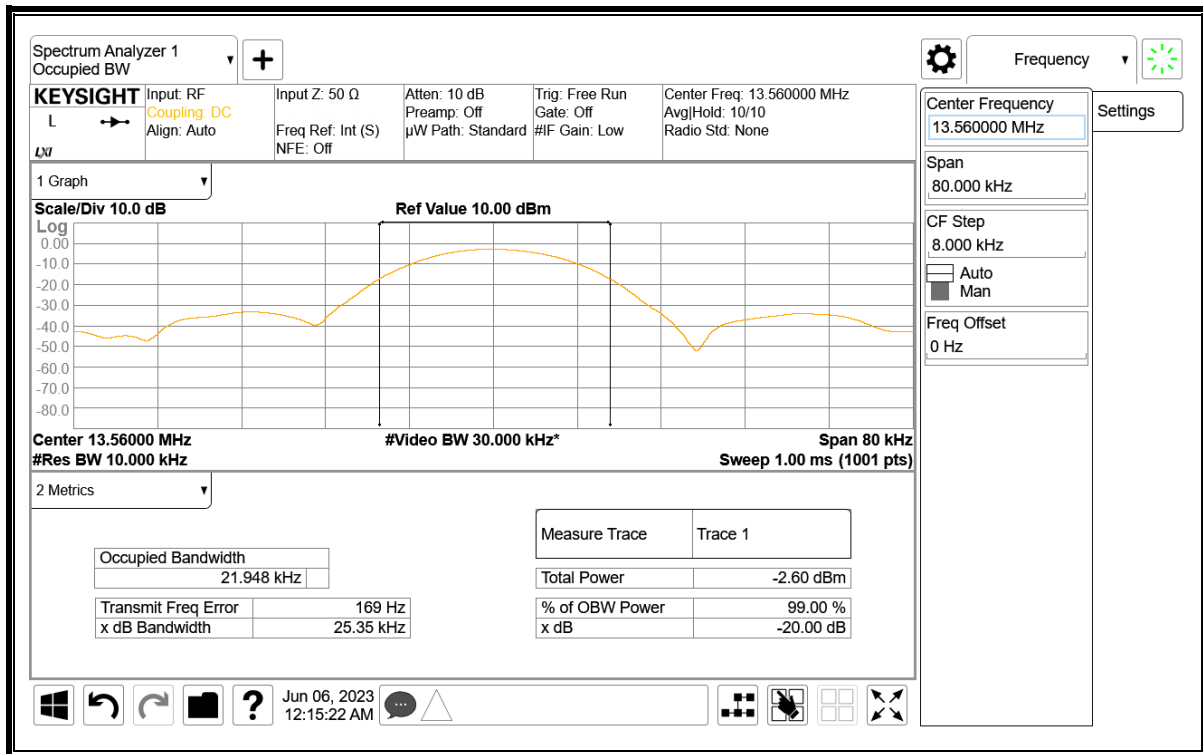
7.1.1. READER MODE, Type B 848 Kbps



7.1.2. CE MODE, Type B 848 Kbps



7.1.3. TAG MODE, Type B 848 Kbps

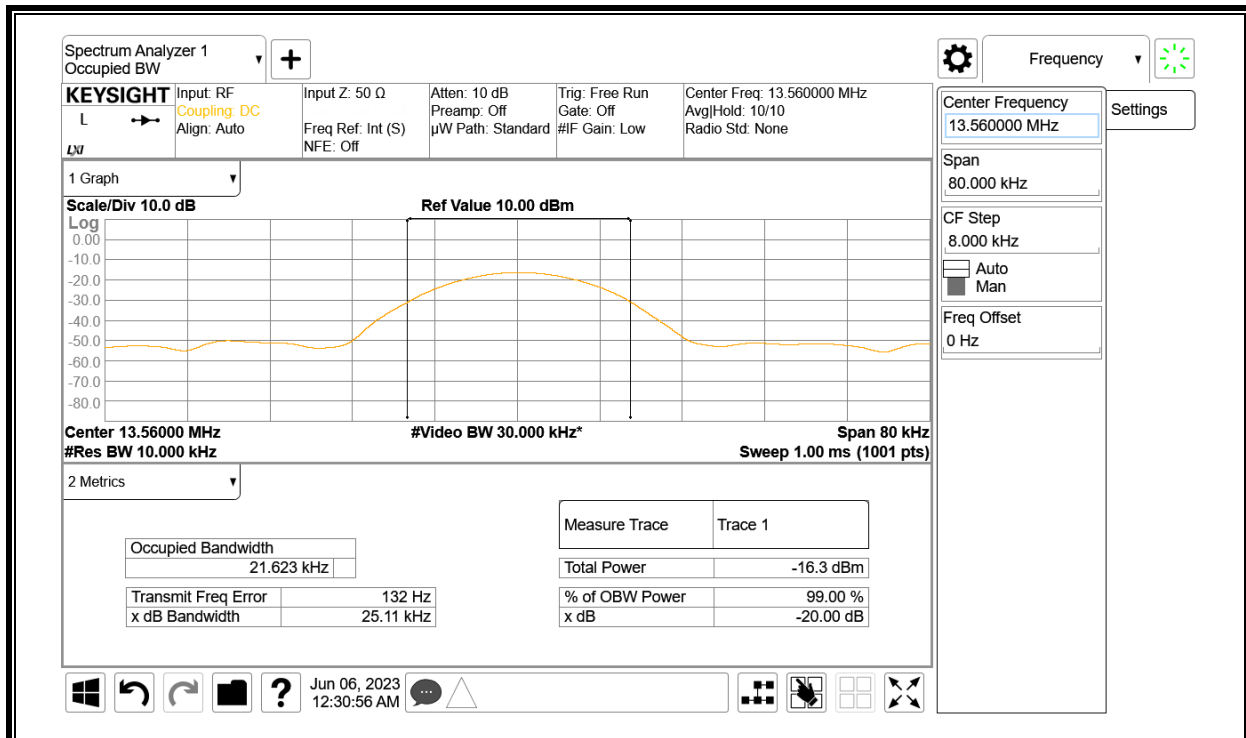


7.2. SECONDARY ANTENNA

7.2.1. READER MODE, Type B 848 Kbps



7.2.2. TAG MODE, Type B 848 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

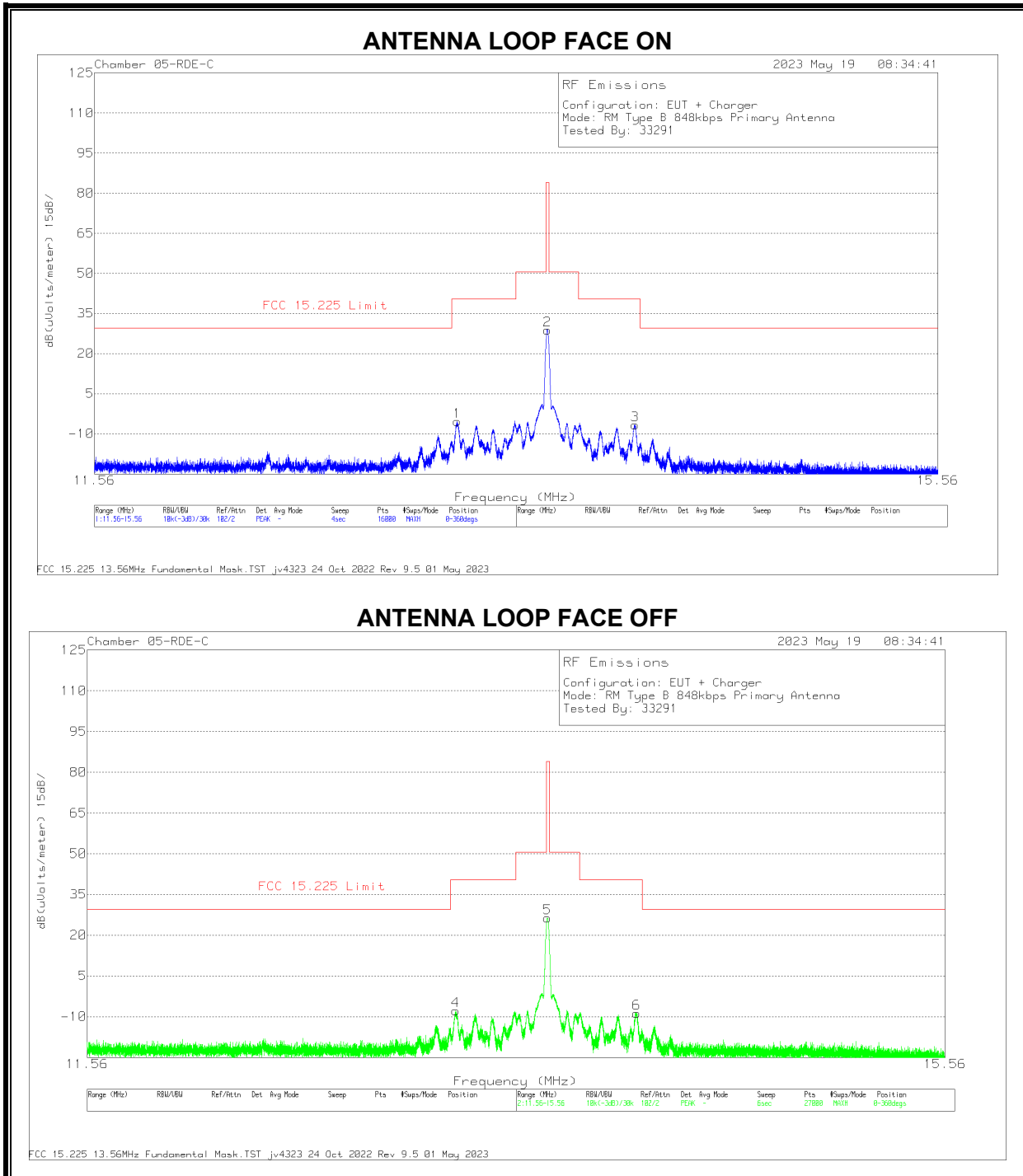
The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

RESULTS

8.2. PRIMARY ANTENNA FUNDAMENTAL & SPURIOUS EMISSION 0.15-30 MHz

8.2.1. READER MODE, Type B 848 Kbps

FUNDAMENTAL

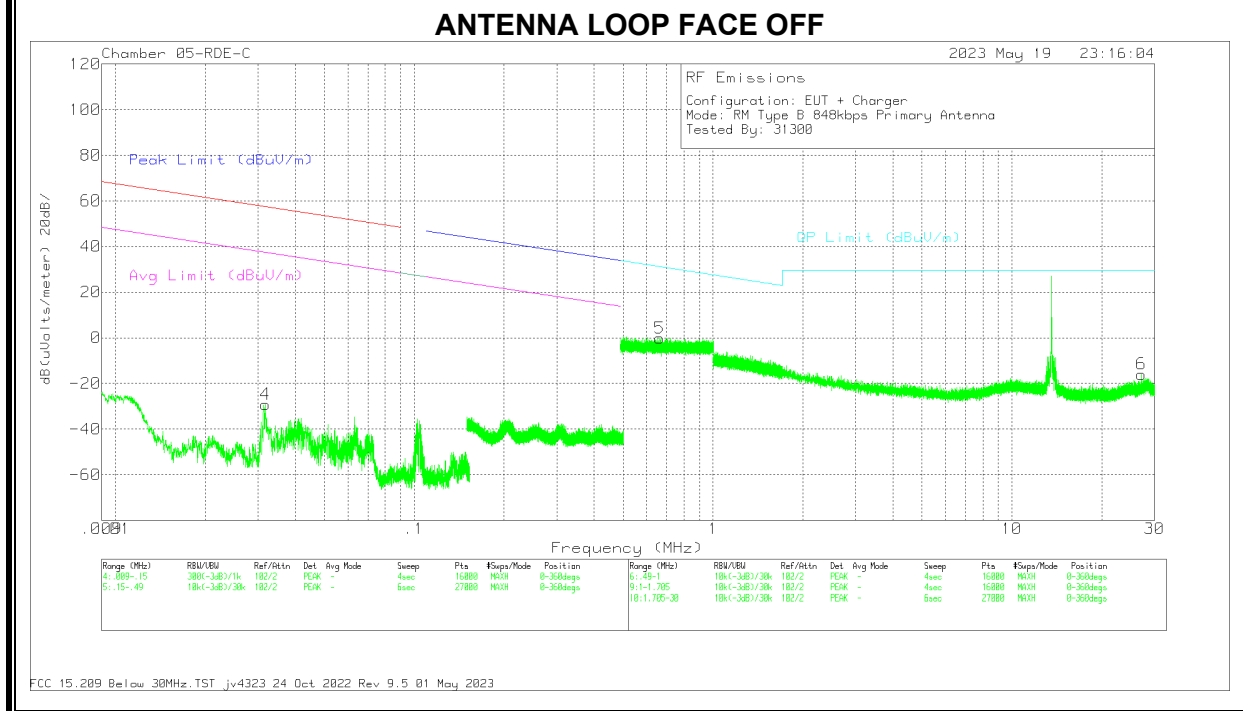
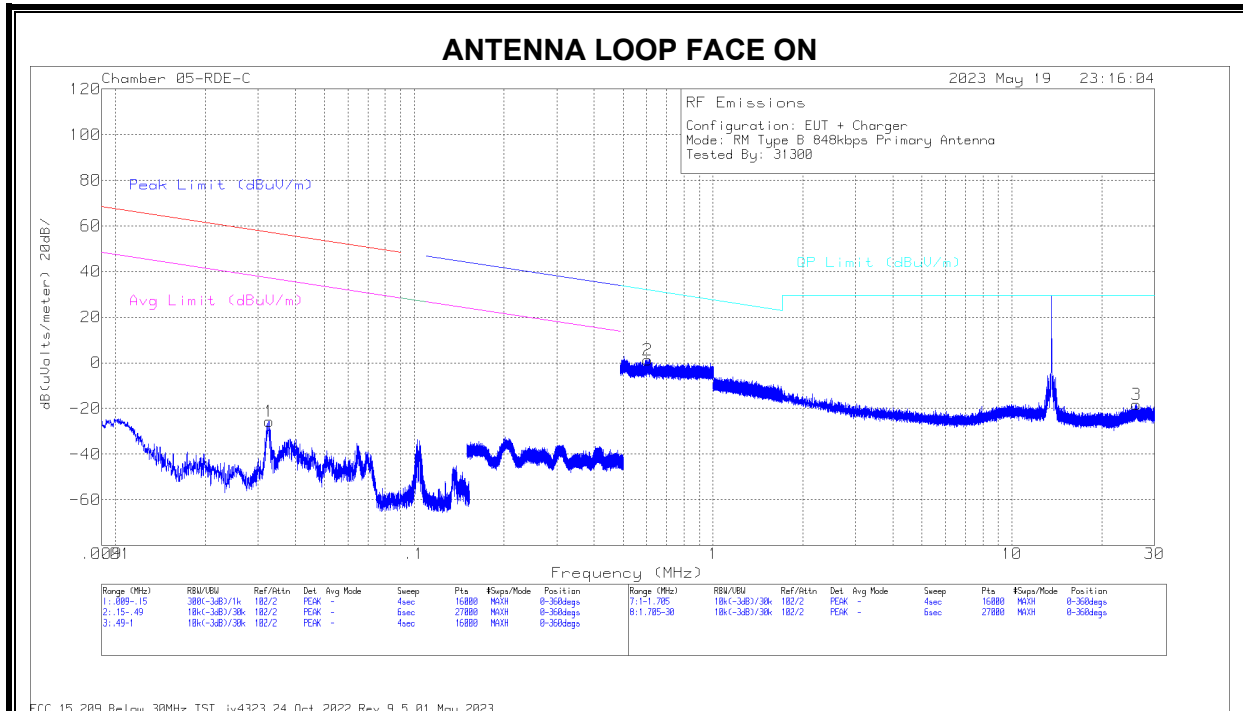


DATA

Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	Loop Antenna E(ACF) (dB/m)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading dBUV/m	FCC 15.225 Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
1	13.1358	32.09	Pk	34.3	-31.7	-40	-5.31	40.51	-45.82	0-360	Face-On
2	13.56	66.2	Pk	34.3	-31.7	-40	28.8	84	-55.2	0-360	Face-On
3	13.9848	30.89	Pk	34.2	-31.7	-40	-6.61	40.51	-47.12	0-360	Face-On
4	13.1344	29.56	Pk	34.3	-31.7	-40	-7.84	40.51	-48.35	0-360	Face-Off
5	13.5587	63.7	Pk	34.3	-31.7	-40	26.3	84	-57.7	0-360	Face-Off
6	13.9832	28.8	Pk	34.2	-31.7	-40	-8.7	40.51	-49.21	0-360	Face-Off

Pk - Peak detector

SPURIOUS EMISSION



DATA

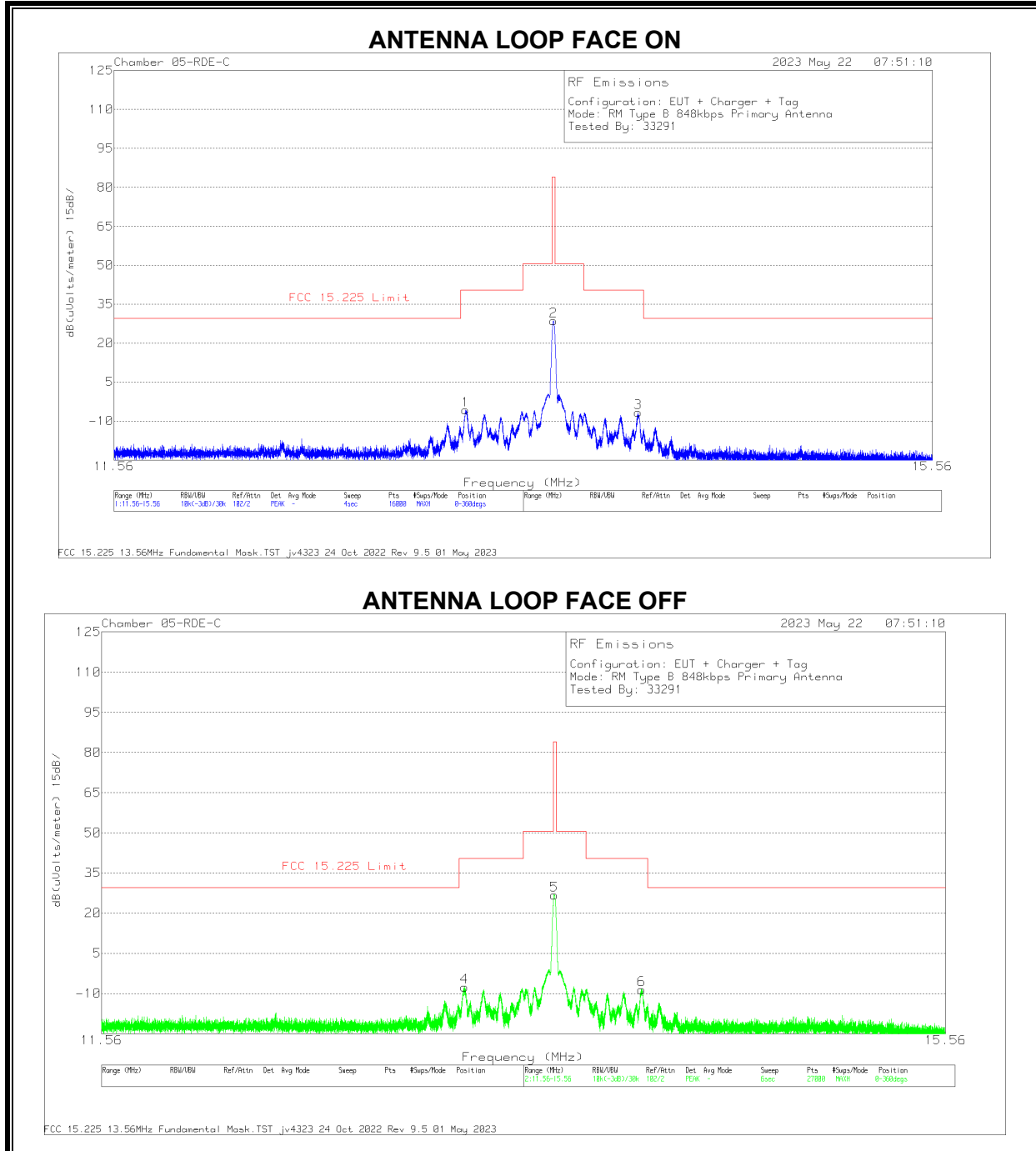
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0327	28.52	Pk	57.8	-31.9	-80	-25.58	57.3	-82.88	37.3	-62.88	0-360	Face-On
4	.0318	24.92	Pk	57.9	-31.9	-80	-29.08	57.53	-86.61	37.53	-66.61	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	.6055	17	Pk	56.3	-32	-40	1.3	31.97	-30.67	0-360	Face-On
3	26.0343	19.81	Pk	33.4	-31.5	-40	-18.29	29.5	-47.79	0-360	Face-On
5	.6632	15.65	Pk	56.3	-32	-40	-.05	31.18	-31.23	0-360	Face-Off
6	27.1232	22.2	Pk	33.5	-31.6	-40	-15.9	29.5	-45.4	0-360	Face-Off

Pk - Peak detector

8.2.2. TAG MODE, Type B 848 Kbps

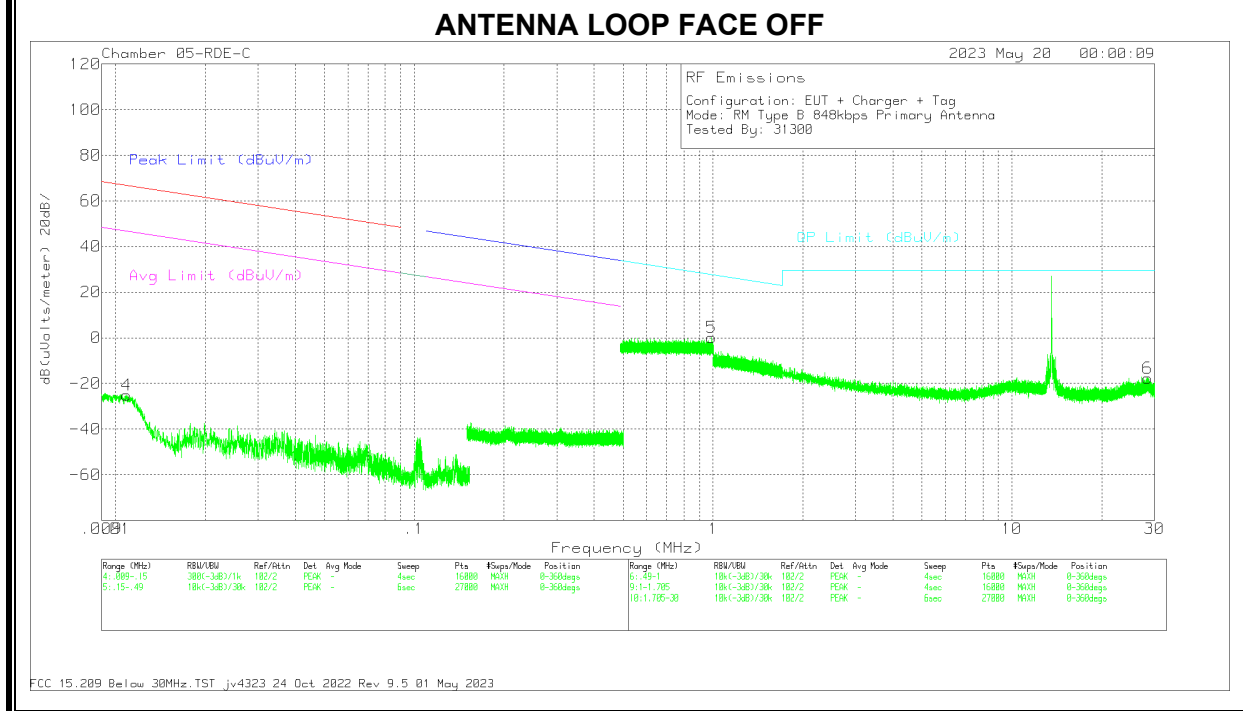
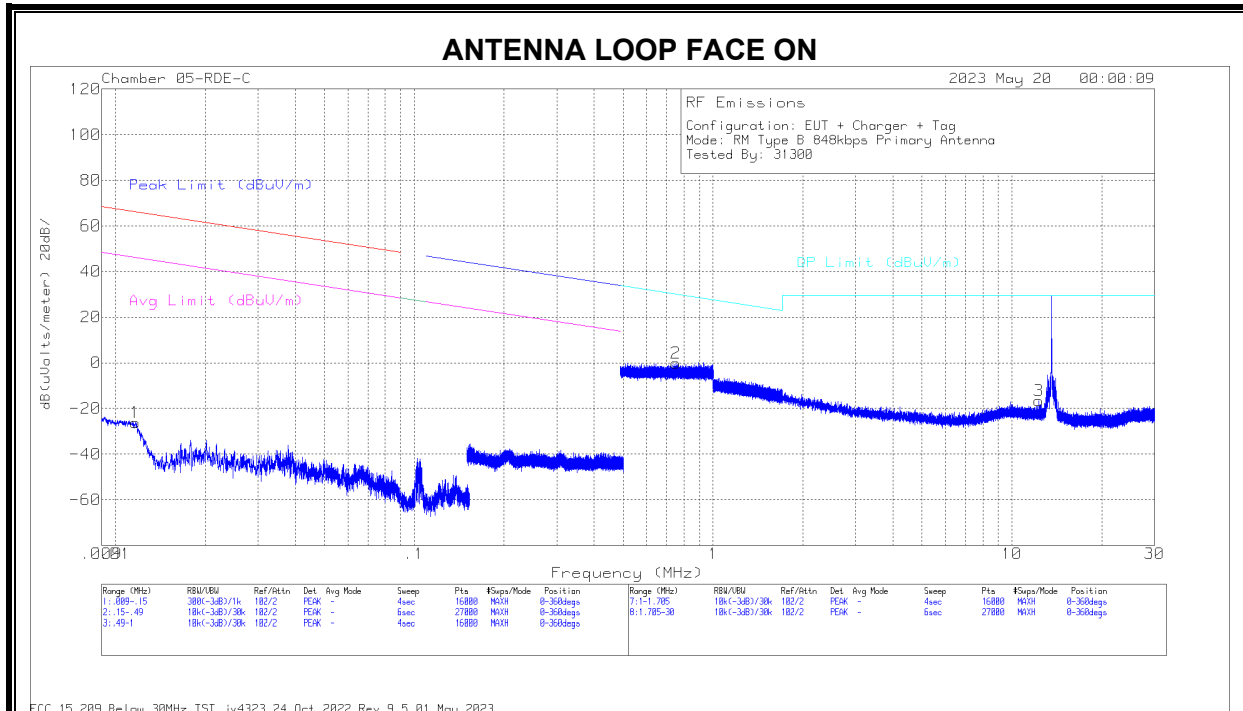
FUNDAMENTAL



DATA

Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	Loop Antenna E(ACF) dB/m	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading dBUV/m	FCC 15.225 Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
1	13.1345	31.69	Pk	34.3	-31.7	-40	-5.71	40.51	-46.22	0-360	Face-On
2	13.5603	65.97	Pk	34.3	-31.7	-40	28.57	84	-55.43	0-360	Face-On
3	13.9835	30.77	Pk	34.2	-31.7	-40	-6.73	40.51	-47.24	0-360	Face-On
4	13.1356	29.85	Pk	34.3	-31.7	-40	-7.55	40.51	-48.06	0-360	Face-Off
5	13.5577	64.19	Pk	34.3	-31.7	-40	26.79	84	-57.21	0-360	Face-Off
6	13.9817	28.92	Pk	34.2	-31.7	-40	-8.58	40.51	-49.09	0-360	Face-Off

Pk - Peak detector



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	.0117	24.41	Pk	60.2	-30.7	-80	-26.09	66.25	-92.34	46.25	-72.34	0-360	Face-On
4	.0109	25.22	Pk	60.3	-30.6	-80	-25.08	66.82	-91.9	46.82	-71.9	0-360	Face-Off

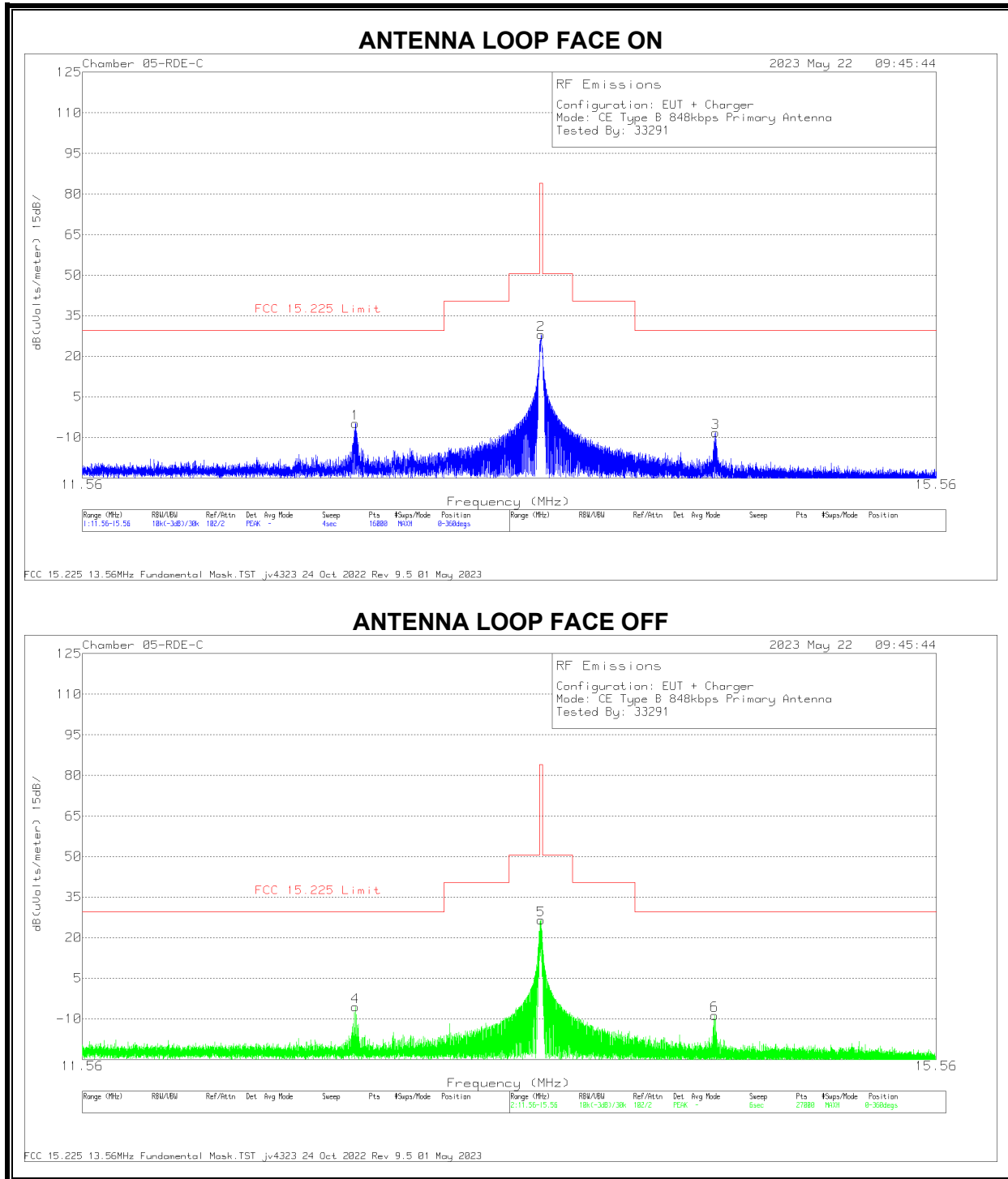
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.752	15.61	Pk	56.3	-32	-40	-.09	30.09	-30.18	0-360	Face-On
3	12.2877	20.55	Pk	34.5	-31.6	-40	-16.55	29.5	-46.05	0-360	Face-On
5	.9891	15.85	Pk	56.4	-32	-40	.25	27.72	-27.47	0-360	Face-Off
6	28.407	20.19	Pk	33.6	-31.6	-40	-17.81	29.5	-47.31	0-360	Face-Off

Pk - Peak detector

Note: Marker 5 and 6 are from Fundamental signals.

8.2.3. CE MODE, Type B 848 Kbps

FUNDAMENTAL

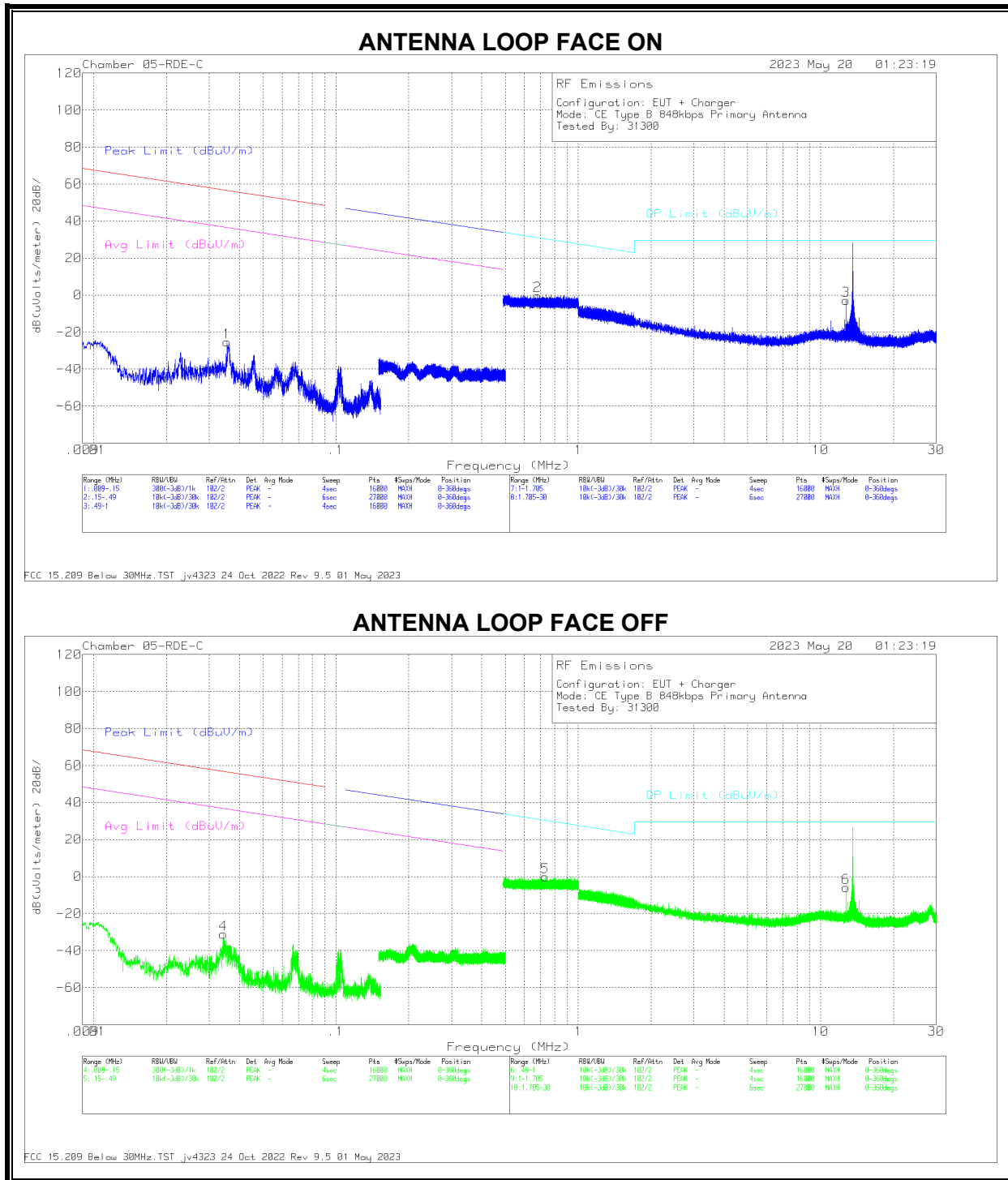


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	FCC 15.225 Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
1	12.7128	32.56	Pk	34.4	-31.8	-40	-4.84	29.54	-34.38	0-360	Face-On
2	13.5613	65.42	Pk	34.3	-31.7	-40	28.02	84	-55.98	0-360	Face-On
3	14.409	29.4	Pk	34.1	-31.7	-40	-8.2	29.54	-37.74	0-360	Face-On
4	12.7117	31.83	Pk	34.4	-31.8	-40	-5.57	29.54	-35.11	0-360	Face-Off
5	13.5593	63.86	Pk	34.3	-31.7	-40	26.46	84	-57.54	0-360	Face-Off
6	14.405	28.94	Pk	34.1	-31.7	-40	-8.66	29.54	-38.2	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 (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0356	28.91	Pk	57.6	-31.9	-80	-25.39	56.57	-81.96	36.57	-61.96	0-360	Face-On
4	.0343	22.99	Pk	57.7	-31.9	-80	-31.21	56.87	-88.08	36.87	-68.08	0-360	Face-Off

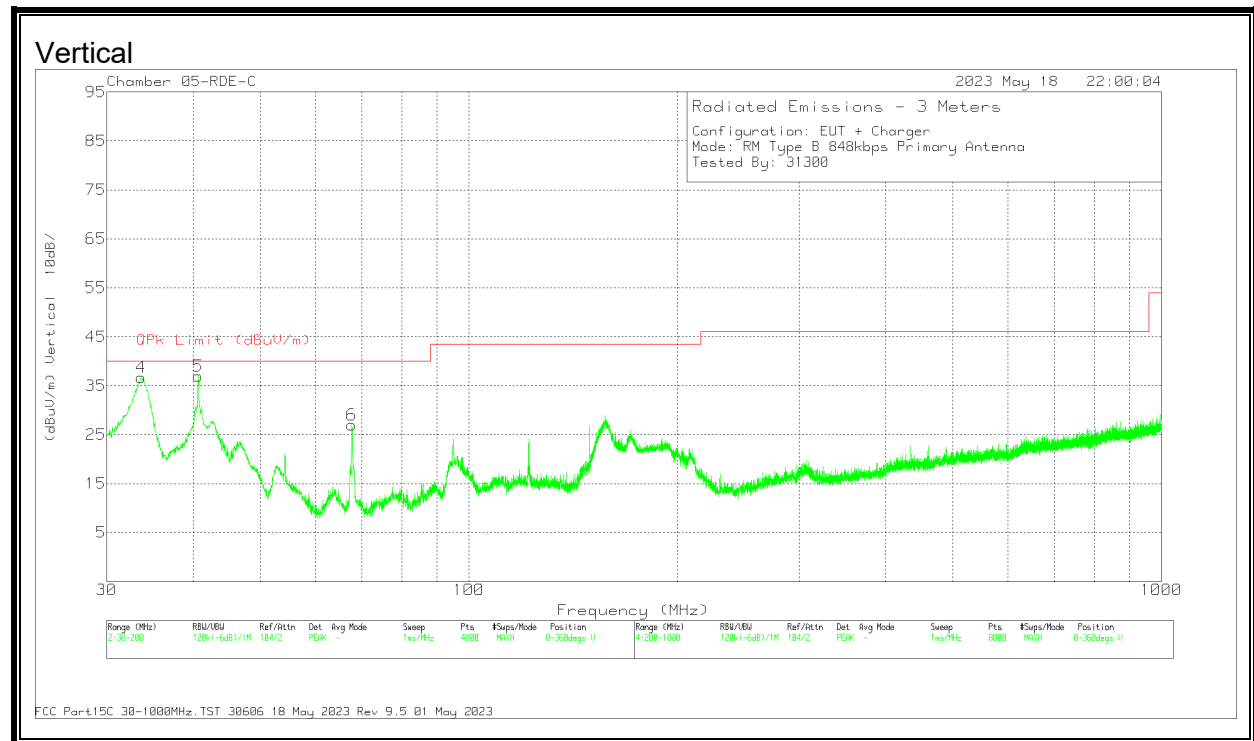
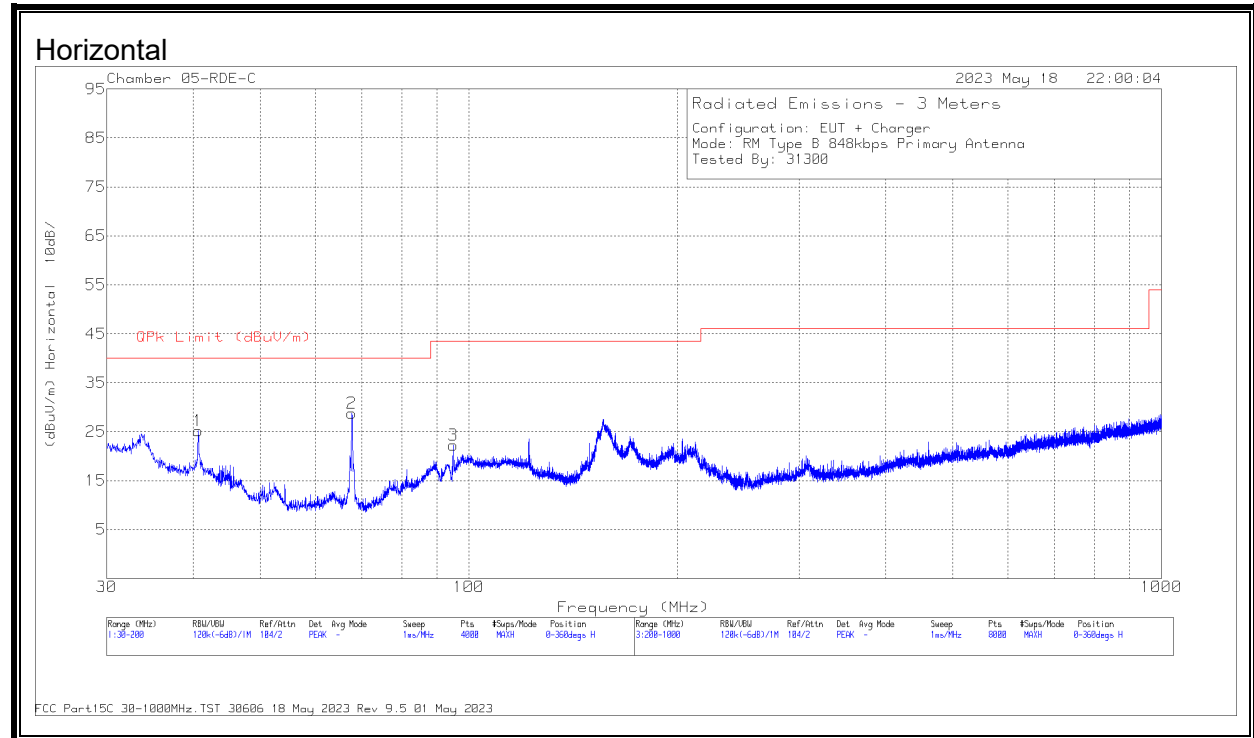
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.6785	15.44	Pk	56.3	-32	-40	-.26	30.98	-31.24	0-360	Face-On
3	12.7142	34.53	Pk	34.4	-31.8	-40	-2.87	29.5	-32.37	0-360	Face-On
5	.7286	15.59	Pk	56.3	-32	-40	-.11	30.36	-30.47	0-360	Face-Off
6	12.7101	31.39	Pk	34.4	-31.8	-40	-6.01	29.5	-35.51	0-360	Face-Off

Pk - Peak detector

8.3. PRIMARY ANTENNA TX SPURIOUS EMISSION 30-1000 MHz

8.3.1. READER MODE, Type B 848 Kbps

SPURIOUS EMISSION



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	40.6703	37.74	Pk	19	-31.5	25.24	40	-14.76	0-360	299	H
2	67.7923	45.94	Pk	14	-31.2	28.74	40	-11.26	0-360	299	H
3	94.9143	38.31	Pk	15.1	-31.2	22.21	43.52	-21.31	0-360	198	H
4	33.6134	43.89	Pk	24.2	-31.4	36.69	40	-3.31	0-360	102	V
5	40.6703	49.45	Pk	19	-31.5	36.95	40	-3.05	0-360	102	V
6	67.7923	44.19	Pk	14	-31.2	26.99	40	-13.01	0-360	102	V

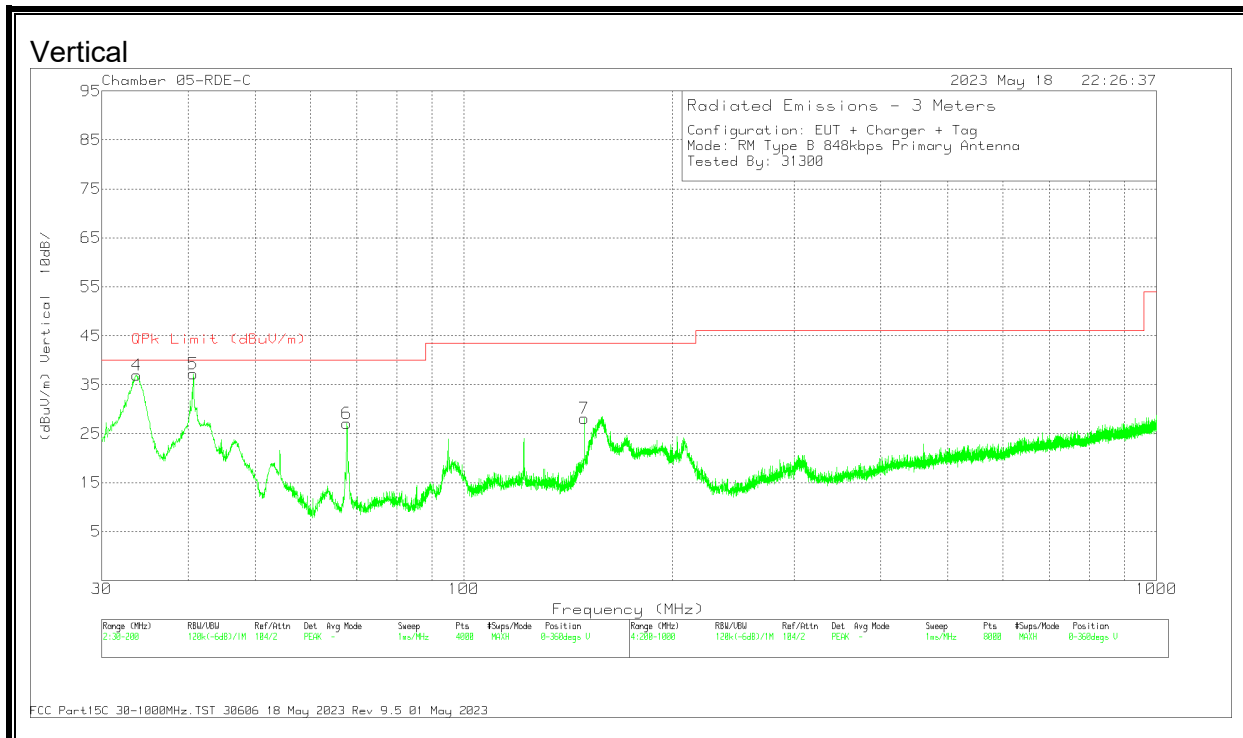
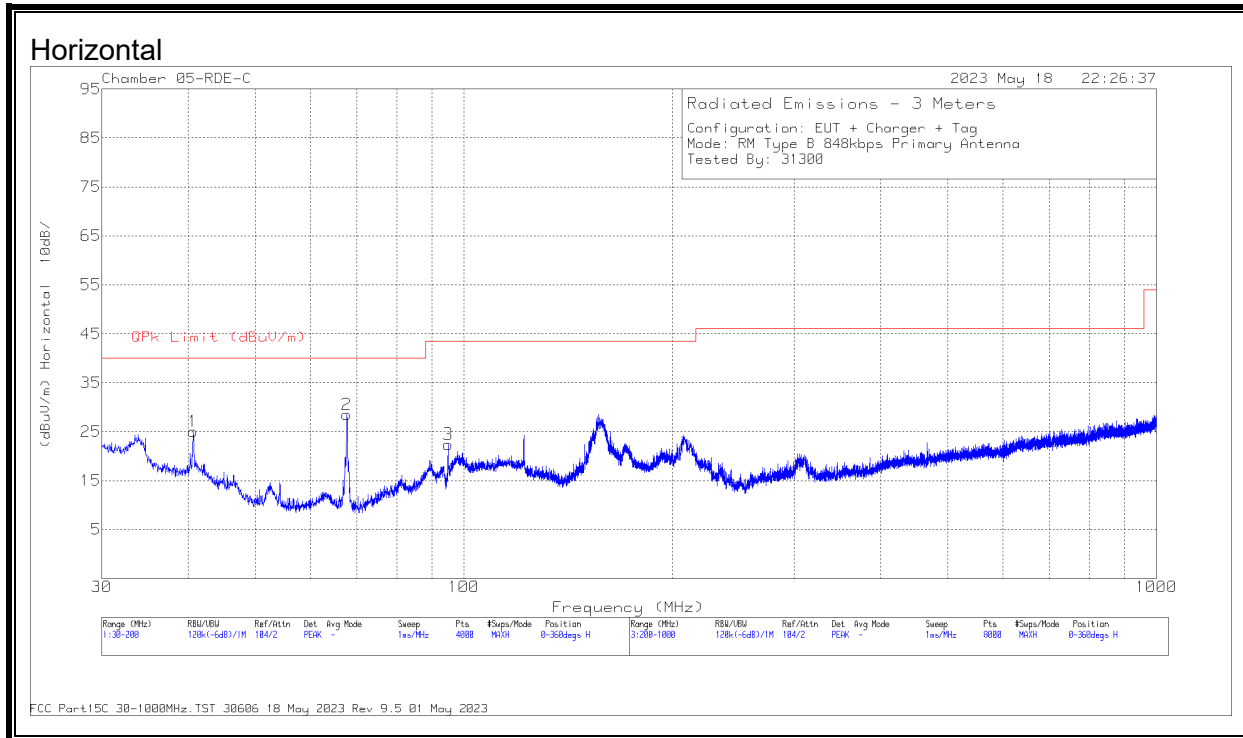
Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
33.9348	41.63	Qp	24	-31.4	34.23	40	-5.77	174	103	V
40.68	46.81	Qp	19	-31.5	34.31	40	-5.69	302	105	V

Pk - Peak detector

Qp - Quasi-Peak detector

8.3.2. TAG MODE, Type B 848 Kbps

SPURIOUS EMISSION



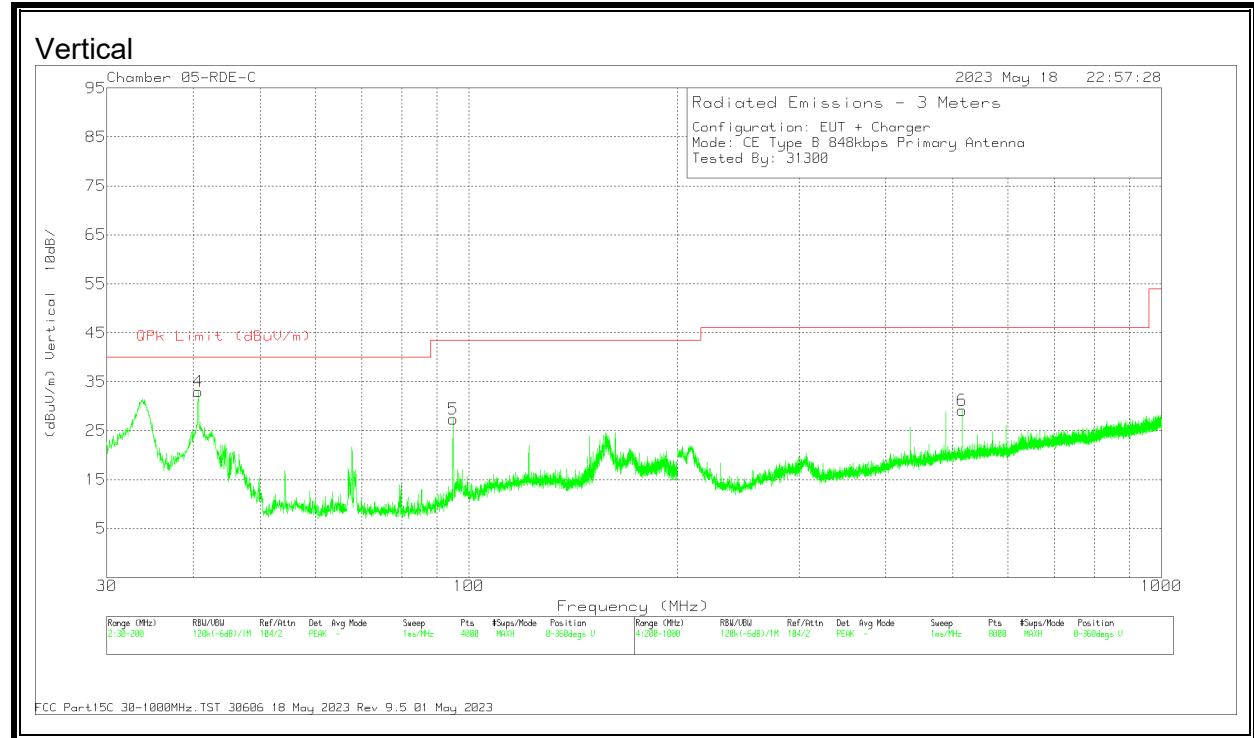
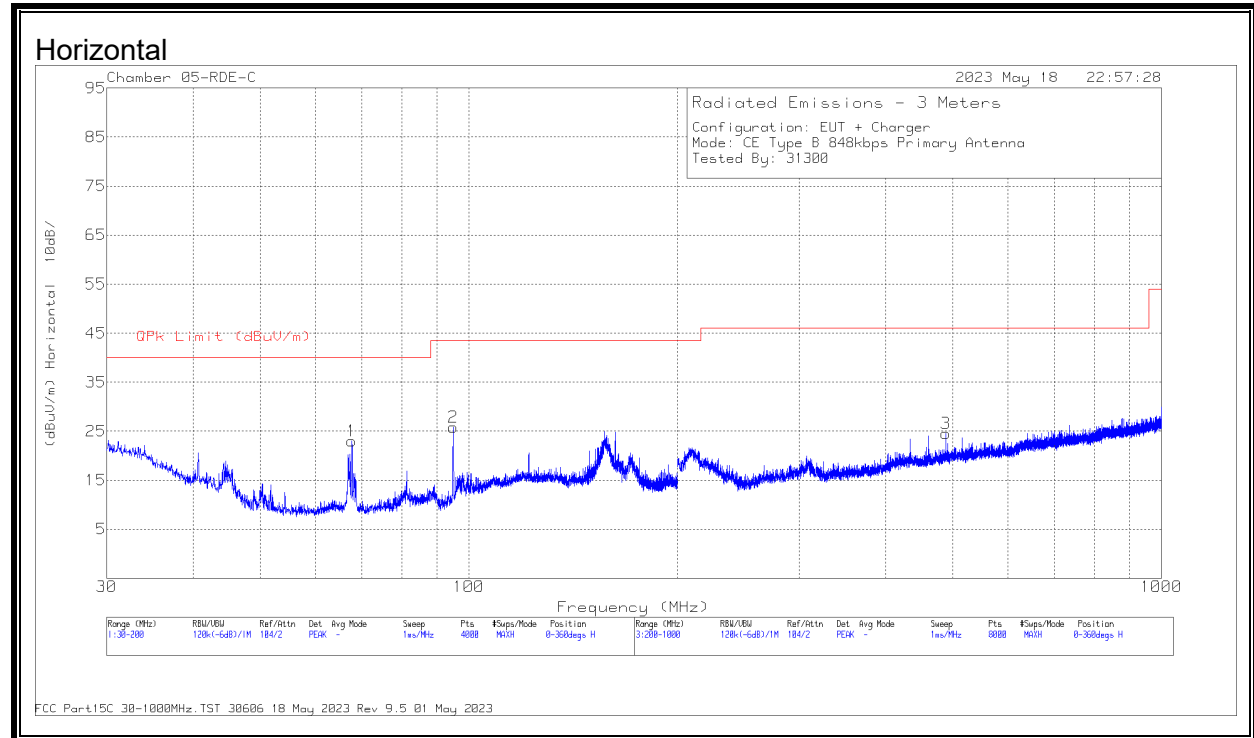
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	40.6703	37.51	Pk	19	-31.5	25.01	40	-14.99	0-360	398	H
2	67.7923	45.74	Pk	14	-31.2	28.54	40	-11.46	0-360	299	H
3	94.9143	38.53	Pk	15.1	-31.2	22.43	43.52	-21.09	0-360	198	H
4	33.6985	44.12	Pk	24.2	-31.4	36.92	40	-3.08	0-360	102	V
5	40.6703	49.71	Pk	19	-31.5	37.21	40	-2.79	0-360	102	V
6	67.7923	44.29	Pk	14	-31.2	27.09	40	-12.91	0-360	102	V
7	149.158	40.6	Pk	18.6	-31.1	28.1	43.52	-15.42	0-360	102	V

Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
33.7601	41.67	Qp	24.1	-31.4	34.37	40	-5.63	159	103	V
40.6884	47.22	Qp	19	-31.5	34.72	40	-5.28	287	103	V

Pk - Peak detector
 Qp - Quasi-Peak detector

8.3.3. CE MODE



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	67.7923	40.17	Pk	14	-31.2	22.97	40	-17.03	0-360	298	H
2	94.9143	41.9	Pk	15.1	-31.2	25.8	43.52	-17.72	0-360	198	H
3	488.137	30.95	Pk	23.7	-30.1	24.55	46.02	-21.47	0-360	102	H
4	40.6278	45.45	Pk	19	-31.5	32.95	40	-7.05	0-360	102	V
5	94.9143	43.42	Pk	15.1	-31.2	27.32	43.52	-16.2	0-360	102	V
6	515.241	35.49	Pk	23.7	-30	29.19	46.02	-16.83	0-360	102	V

Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
33.7134	33.8	Qp	24.2	-31.4	26.6	40	-13.4	83	108	V
40.6699	43.73	Qp	19	-31.5	31.23	40	-8.77	234	105	V

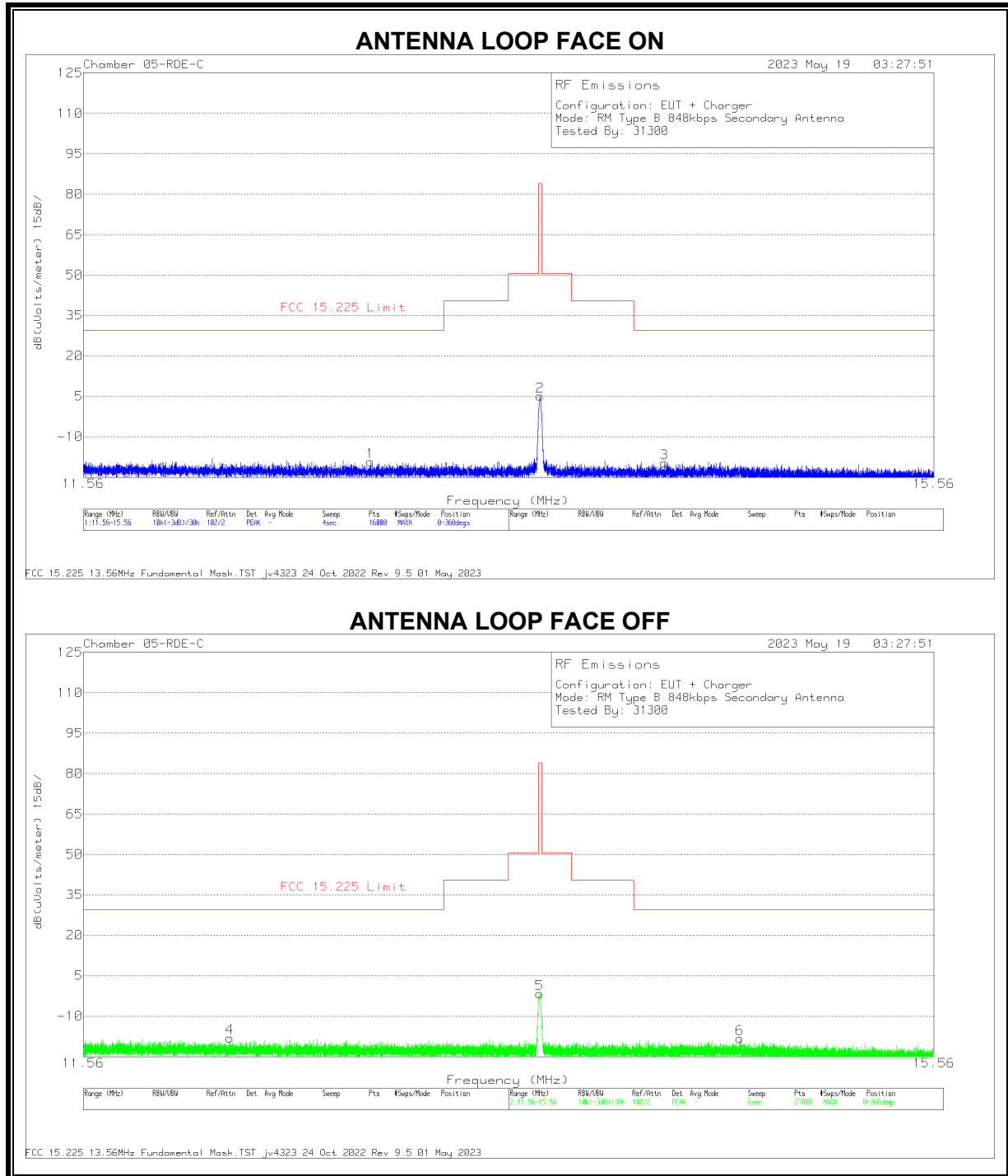
Pk - Peak detector

Qp - Quasi-Peak detector

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

8.1.1. READER MODE

FUNDAMENTAL

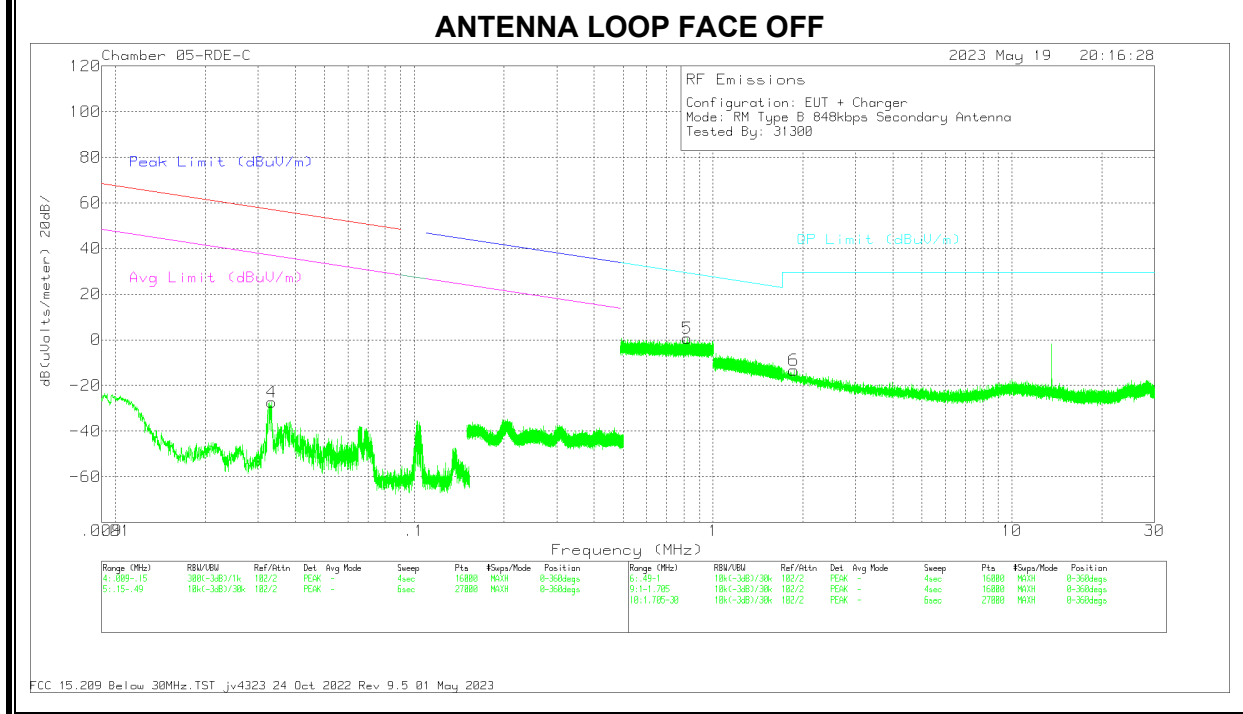
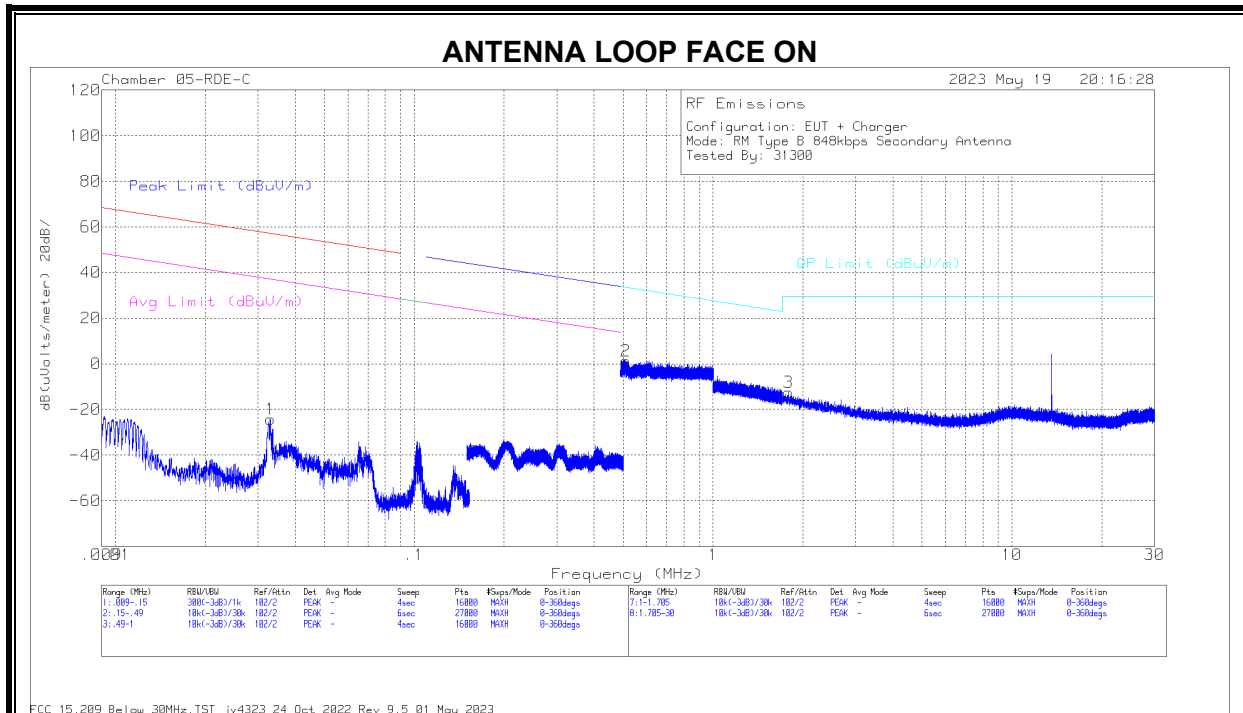


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
1	12.7793	18.1	Pk	34.4	-31.7	-40	-19.2	29.54	-48.74	0-360	Face-On
2	13.56	42.57	Pk	34.3	-31.7	-40	5.17	84	-78.83	0-360	Face-On
3	14.163	17.86	Pk	34.2	-31.7	-40	-19.64	29.54	-49.18	0-360	Face-On
4	12.1678	19.16	Pk	34.6	-31.8	-40	-18.04	29.54	-47.58	0-360	Face-Off
5	13.5582	35.74	Pk	34.3	-31.7	-40	-1.66	84	-85.66	0-360	Face-Off
6	14.541	19.22	Pk	34.1	-31.7	-40	-18.38	29.54	-47.92	0-360	Face-Off

Pk - Peak detector

SPURIOUS EMISSION



DATA

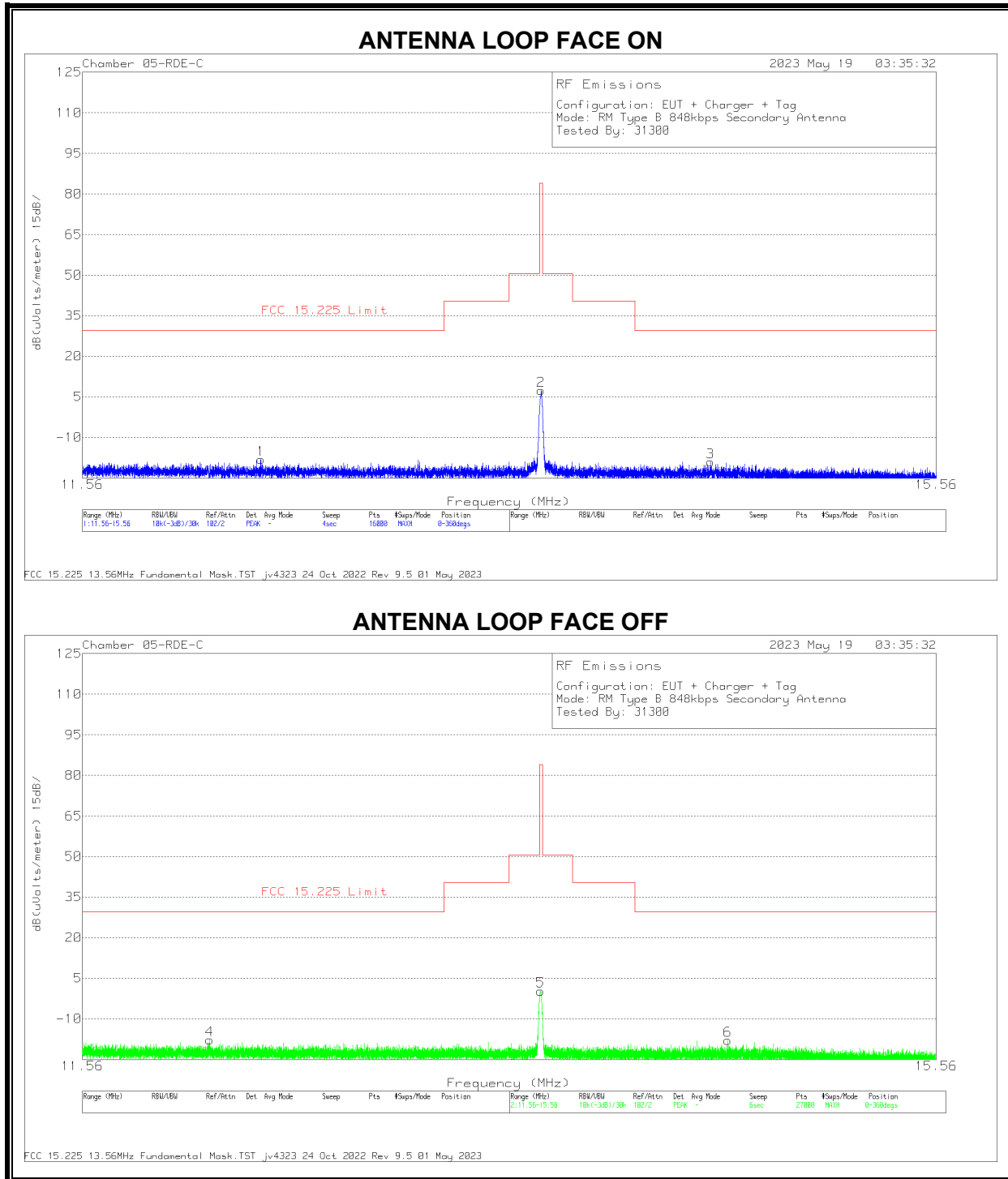
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.033	29.79	Pk	57.8	-31.9	-80	-24.31	57.22	-81.53	37.22	-61.53	0-360	Face-On
4	.0333	26.76	Pk	57.8	-31.9	-80	-27.34	57.12	-84.46	37.12	-64.46	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	.5119	17.12	Pk	56.2	-32.1	-40	1.22	33.42	-32.2	0-360	Face-On
3	1.7857	16.72	Pk	42.7	-32	-40	-12.58	29.5	-42.08	0-360	Face-On
5	.8182	16.2	Pk	56.4	-31.9	-40	.7	29.36	-28.66	0-360	Face-Off
6	1.8633	16.43	Pk	42.3	-31.9	-40	-13.17	29.5	-42.67	0-360	Face-Off

Pk - Peak detector

8.1.2. TAG MODE

FUNDAMENTAL



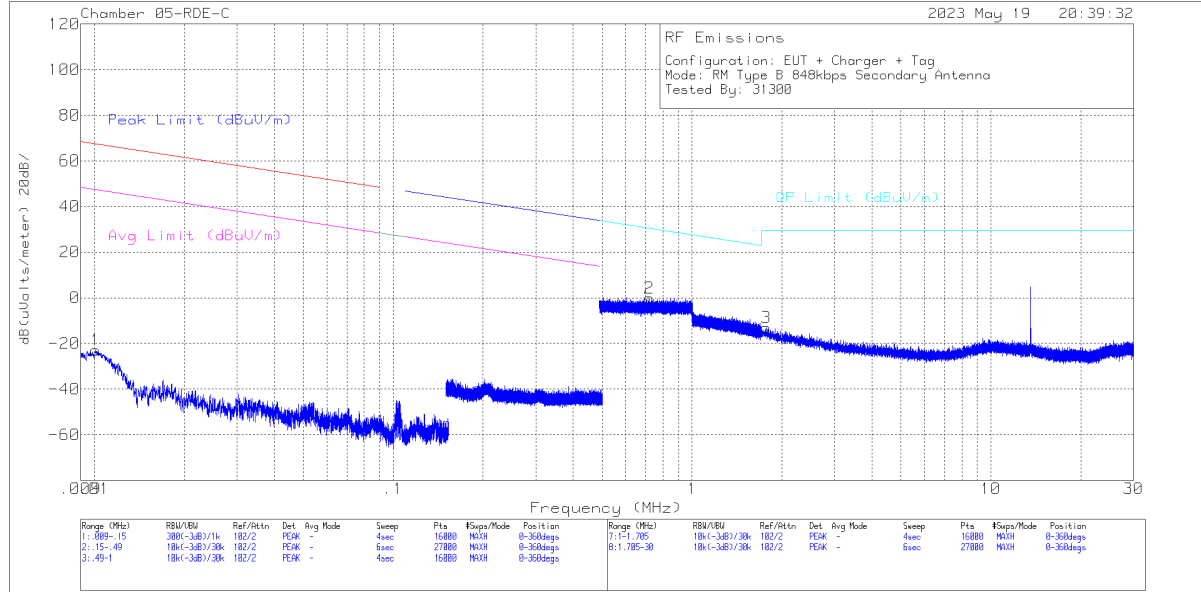
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Polarity
1	12.3	19.08	Pk	34.5	-31.7	-40	-18.12	29.54	-47.66	0-360	Face-On
2	13.56	44.76	Pk	34.3	-31.7	-40	7.36	84	-76.64	0-360	Face-On
3	14.3835	18.58	Pk	34.1	-31.7	-40	-19.02	29.54	-48.56	0-360	Face-On
4	12.0827	19.37	Pk	34.6	-31.7	-40	-17.73	29.54	-47.27	0-360	Face-Off
5	13.5579	37.75	Pk	34.3	-31.7	-40	.35	84	-83.65	0-360	Face-Off
6	14.4716	19.66	Pk	34.1	-31.7	-40	-17.94	29.54	-47.48	0-360	Face-Off

Pk - Peak detector

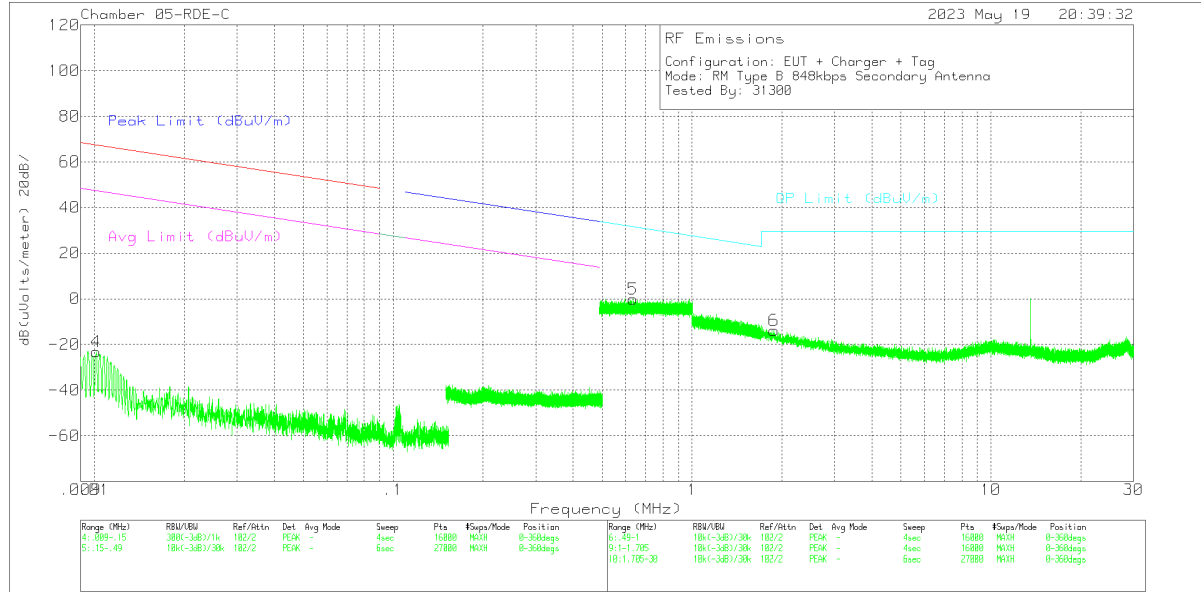
SPURIOUS EMISSION

ANTENNA LOOP FACE ON



FCC 15.209 Below 30MHz.TST jv4323 24 Oct 2022 Rev 9.5 01 May 2023

ANTENNA LOOP FACE OFF



FCC 15.209 Below 30MHz.TST jv4323 24 Oct 2022 Rev 9.5 01 May 2023

DATA

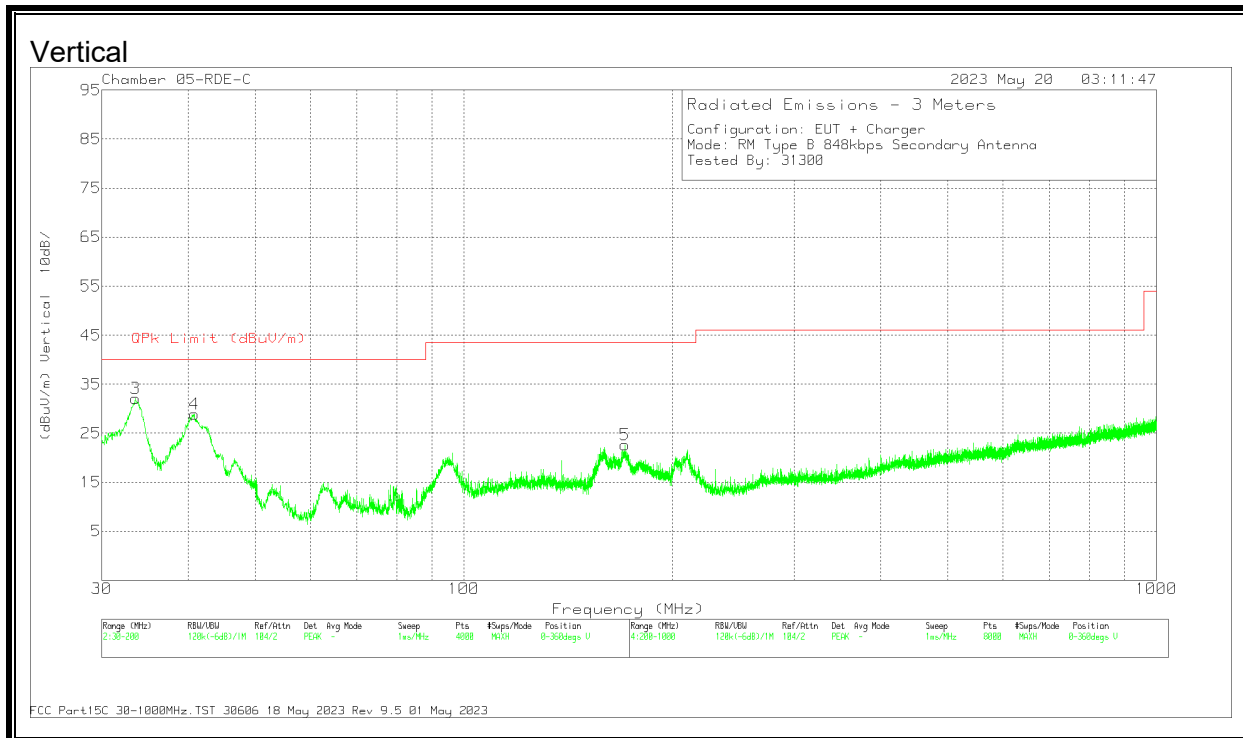
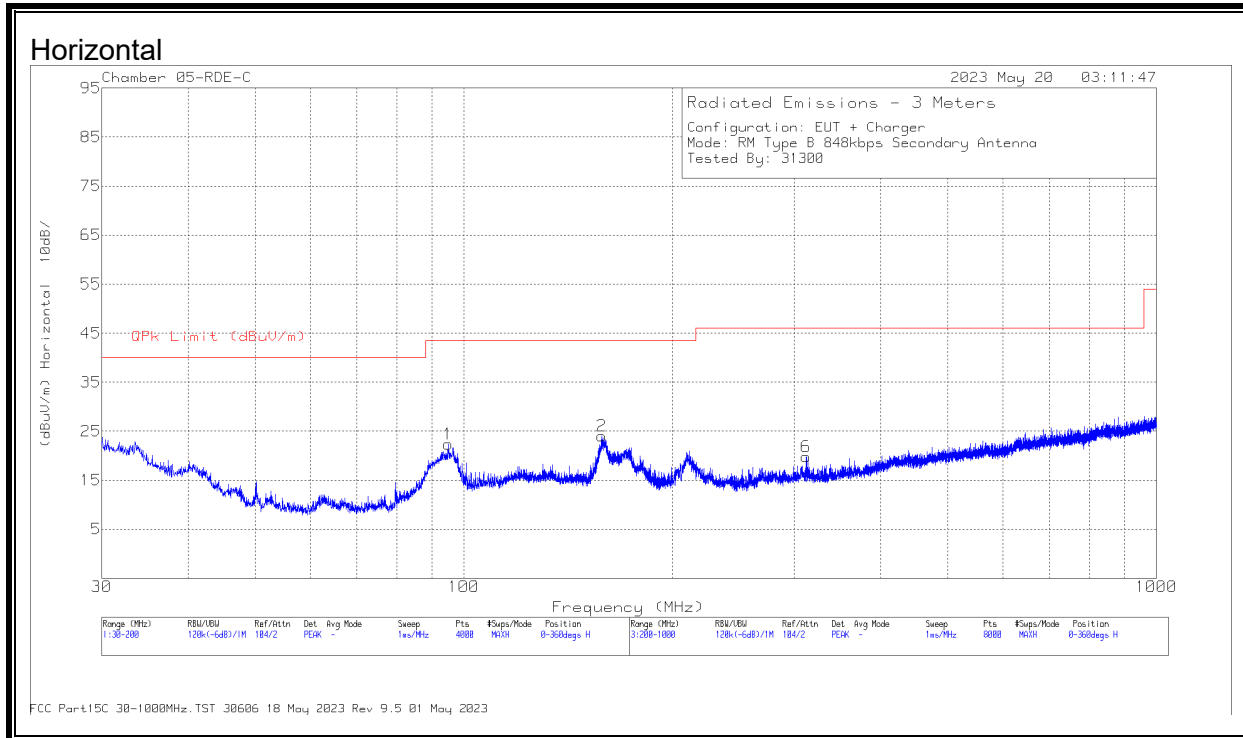
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF) (dB/m)	Cbl/Amp (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0101	27.25	Pk	60.4	-30.5	-80	-22.85	67.5	-90.35	47.5	-70.35	0-360	Face-On
4	.0102	27.02	Pk	60.4	-30.5	-80	-23.08	67.45	-90.53	47.45	-70.53	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	.7177	15.67	Pk	56.3	-32	-40	-.03	30.5	-30.53	0-360	Face-On
3	1.7679	16.24	Pk	42.8	-32	-40	-12.96	29.5	-42.46	0-360	Face-On
5	.6336	15.48	Pk	56.3	-32	-40	-.22	31.57	-31.79	0-360	Face-Off
6	1.8811	15.76	Pk	42.2	-31.9	-40	-13.94	29.5	-43.44	0-360	Face-Off

Pk - Peak detector

8.2. SECONDARY ANTENNA TX SPURIOUS EMISSION 30-1000 MHz

8.2.1. READER MODE

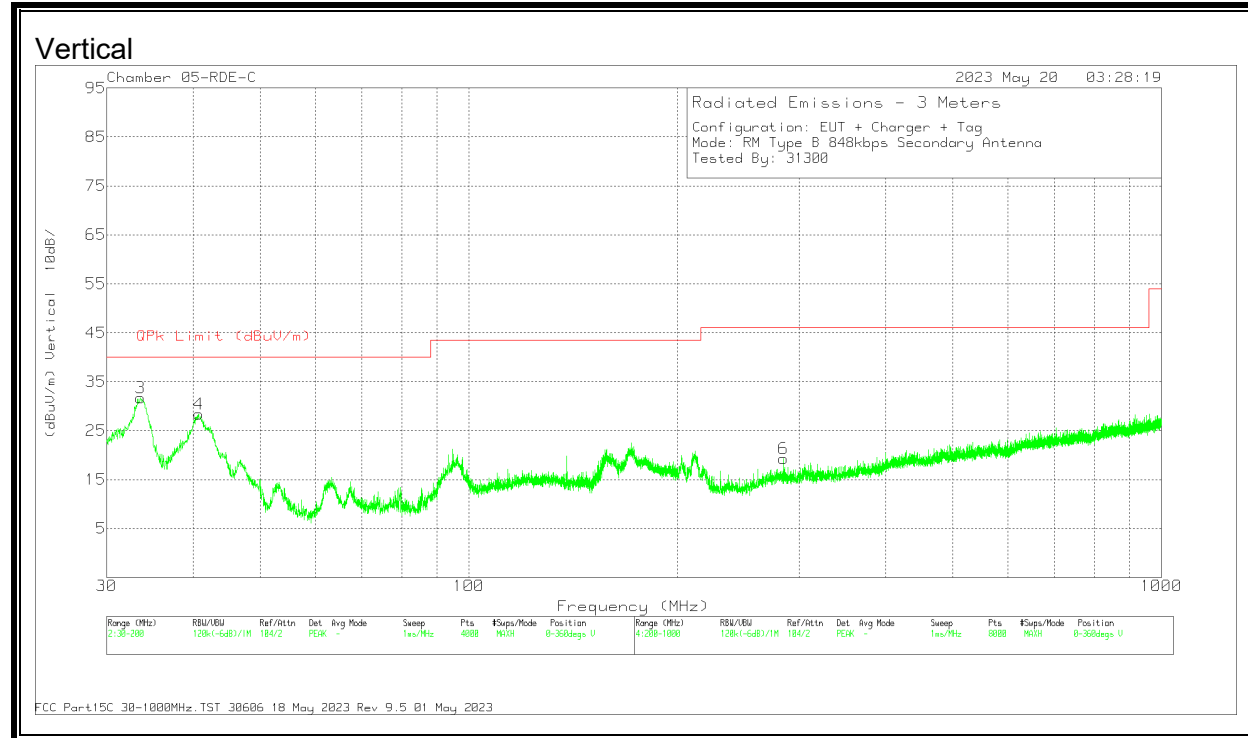
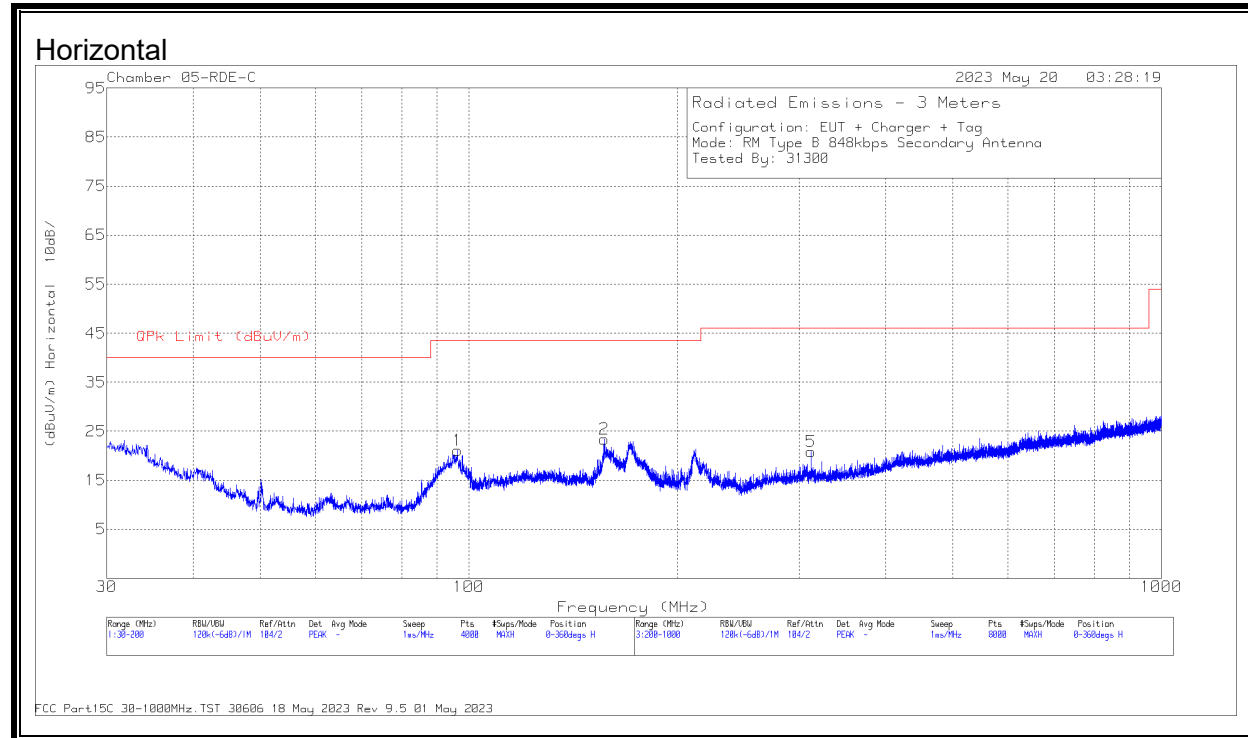


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	94.9143	38.49	Pk	15.1	-31.2	22.39	43.52	-21.13	0-360	198	H
2	158.171	36.41	Pk	18.4	-30.8	24.01	43.52	-19.51	0-360	198	H
3	33.5709	39.16	Pk	24.3	-31.4	32.06	40	-7.94	0-360	102	V
4	40.7978	41.48	Pk	18.9	-31.5	28.88	40	-11.12	0-360	102	V
5	170.966	35.6	Pk	17.8	-30.8	22.6	43.52	-20.92	0-360	102	V
6	311.815	30.56	Pk	19.7	-30.4	19.86	46.02	-26.16	0-360	102	H

Pk - Peak detector

8.2.2. TAG MODE



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB) 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	96.3172	36.75	Pk	15.5	-31.1	21.15	43.52	-22.37	0-360	198	H
2	156.98	35.76	Pk	18.4	-30.8	23.36	43.52	-20.16	0-360	198	H
3	33.5709	38.86	Pk	24.3	-31.4	31.76	40	-8.24	0-360	102	V
4	40.7128	40.83	Pk	19	-31.5	28.33	40	-11.67	0-360	102	V
5	311.815	31.56	Pk	19.7	-30.4	20.86	46.02	-25.16	0-360	102	H
6	284.911	30.63	Pk	19.2	-30.5	19.33	46.02	-26.69	0-360	198	V

Pk - Peak detector

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:	30606	Date:	07/11/2023
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9.1. PRIMARY ANTENNA

9.1.1. READER 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	13.559979	2.876	13.56	1.327	13.560015	0.221	13.560033	-1.106	± 100
	40	13.559991	1.991	13.559979	2.876	13.559985	2.434	13.559991	1.991	± 100
	30	13.560006	0.885	13.559985	2.434	13.559979	2.876	13.559979	2.876	± 100
	20	13.560018	0.000	13.55997	3.540	13.559985	2.434	13.559982	2.655	± 100
	10	13.560006	0.885	13.559988	2.212	13.559988	2.212	13.559988	2.212	± 100
	0	13.560063	-3.319	13.560021	-0.221	13.560018	0.000	13.560021	-0.221	± 100
	-10	13.560093	-5.531	13.560057	-2.876	13.560051	-2.434	13.560054	-2.655	± 100
	-20	13.560105	-6.416	13.560084	-4.867	13.560078	-4.425	13.560081	-4.646	± 100
3.23	20	13.560039	-1.549	13.560015	0.221	13.560003	1.106	13.559991	1.991	± 100
4.37	20	13.560024	-0.442	13.559991	1.991	13.559988	2.212	13.559985	2.434	± 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	13.559976	1.549	13.559984	0.959	13.560012	-1.106	13.56003	-2.434	± 100
	40	13.559994	0.221	13.559976	1.549	13.559982	1.106	13.559988	0.664	± 100
	30	13.560006	-0.664	13.559979	1.327	13.559976	1.549	13.559976	1.549	± 100
	20	13.559997	0.000	13.559985	0.885	13.559982	1.106	13.559979	1.327	± 100
	10	13.560018	-1.549	13.559985	0.885	13.559982	1.106	13.559985	0.885	± 100
	0	13.560048	-3.761	13.560012	-1.106	13.560009	-0.885	13.560012	-1.106	± 100
	-10	13.560078	-5.973	13.560048	-3.761	13.560045	-3.540	13.560045	-3.540	± 100
	-20	13.560096	-7.301	13.560081	-6.195	13.560075	-5.752	13.560075	-5.752	± 100
3.23	20	13.560075	-5.752	13.560024	-1.991	13.560003	-0.442	13.559991	0.442	± 100
4.37	20	13.560009	-0.885	13.559994	0.221	13.559988	0.664	13.559985	0.885	± 100

9.1.3. CE 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	13.559988	1.549	13.559937	5.310	13.559973	2.655	13.560048	-2.876	± 100
	40	13.559955	3.982	13.560021	-0.885	13.56	0.664	13.559979	2.212	± 100
	30	13.560027	-1.327	13.560009	0.000	13.559985	1.770	13.559988	1.549	± 100
	20	13.560009	0.000	13.559967	3.097	13.560057	-3.540	13.560006	0.221	± 100
	10	13.559958	3.761	13.560054	-3.319	13.559916	6.858	13.560027	-1.327	± 100
	0	13.560045	-2.655	13.560048	-2.876	13.560072	-4.646	13.560018	-0.664	± 100
	-10	13.560138	-9.513	13.560114	-7.743	13.56009	-5.973	13.560108	-7.301	± 100
	-20	13.560096	-6.416	13.560006	0.221	13.560135	-9.292	13.560141	-9.735	± 100
3.23	20	13.559952	4.204	13.560009	0.000	13.559991	1.327	13.560006	0.221	± 100
4.37	20	13.560015	-0.442	13.560018	-0.664	13.560018	-0.664	13.560054	-3.319	± 100

9.2. SECONDARY ANTENNA

9.2.1. READER 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	13.559962	-1.695	13.559967	-2.082	13.559970	-2.251	13.559972	-2.403	± 100
	40	13.559931	0.575	13.559932	0.530	13.559932	0.515	13.559932	0.486	± 100
	30	13.559928	0.840	13.559927	0.855	13.559927	0.887	13.55993	0.899	± 100
	20	13.559939	0.000	13.559941	-0.147	13.559943	-0.295	13.559945	-0.442	± 100
	10	13.559940	-0.074	13.559945	-0.474	13.559947	-0.574	13.559948	-0.657	± 100
	0	13.559959	-1.473	13.559967	-2.056	13.559968	-2.144	13.559969	-2.206	± 100
	-10	13.559985	-3.405	13.559996	-4.187	13.560002	-4.640	13.560000	-4.534	± 100
	-20	13.560024	-6.238	13.560026	-6.431	13.560033	-6.911	13.560034	-7.040	± 100
3.23	20	13.559944	-0.369	13.559943	-0.295	13.559944	-0.350	13.559943	-0.320	± 100
4.37	20	13.559944	-0.352	13.559944	-0.350	13.559944	-0.345	13.559944	-0.337	± 100

9.2.2. 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	13.55995494	-1.322	13.55995817	-1.560	13.55996077	-1.751	13.55996755	-2.251	± 100
	40	13.55992617	0.800	13.55992723	0.722	13.55992882	0.605	13.55992987	0.527	± 100
	30	13.55993103	0.442	13.55992952	0.553	13.55992717	0.727	13.55992645	0.780	± 100
	20	13.55993702	0.000	13.55993804	-0.075	13.55993844	-0.105	13.55993845	-0.105	± 100
	10	13.55992817	0.653	13.55992999	0.518	13.55993281	0.311	13.55993852	-0.110	± 100
	0	13.5599624	-1.872	13.55996513	-2.073	13.55992714	0.729	13.55997571	-2.853	± 100
	-10	13.56001419	-5.690	13.56002417	-6.427	13.56002711	-6.643	13.56002933	-6.808	± 100
	-20	13.56004784	-8.173	13.56005132	-8.429	13.5600547	-8.678	13.56005691	-8.841	± 100
3.23	20	13.55993801	-0.073	13.55993775	-0.054	13.55993761	-0.043	13.55993749	-0.034	± 100
4.37	20	13.55993833	-0.097	13.55993845	-0.105	13.55993846	-0.106	13.55993847	-0.107	± 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 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

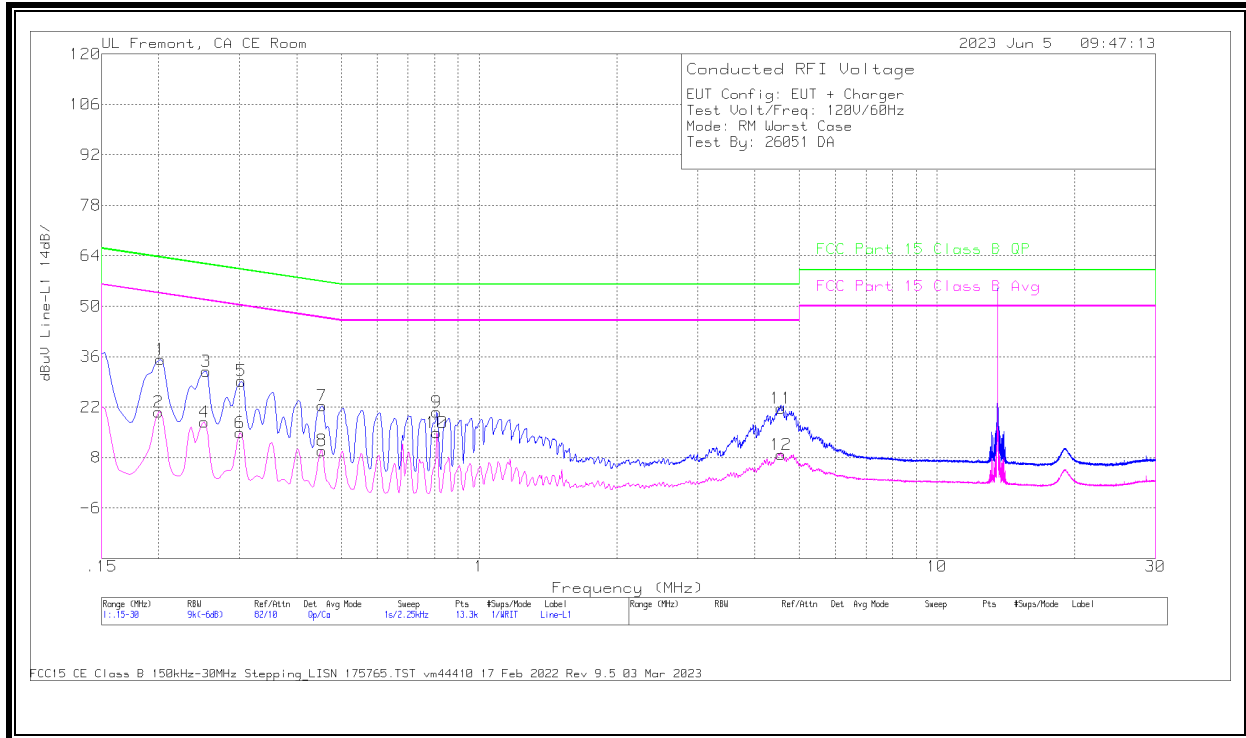
RESULTS

No non-compliance noted:

10.1. PRIMARY ANTENNA

10.1.1. READER MODE WITH ANTENNA

LINE 1 RESULTS



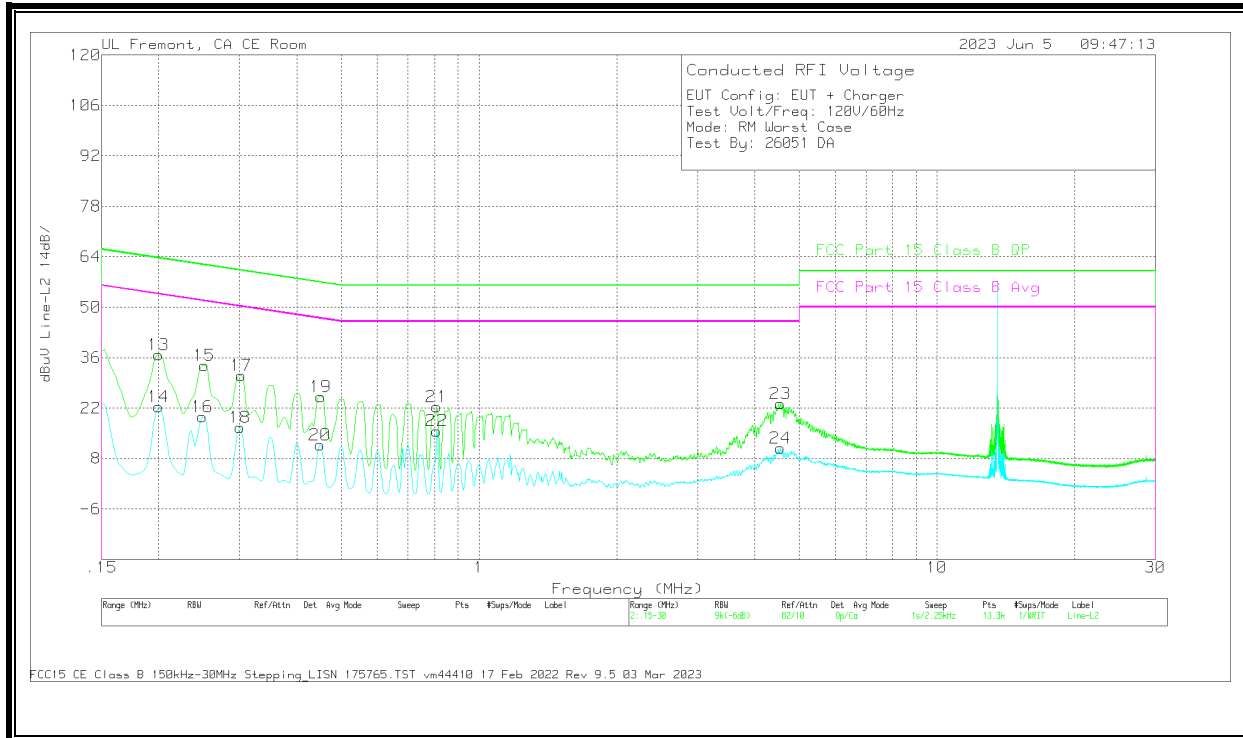
Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)M argin (dB)
1	.2018	25.87	Qp	0	0	9.4	35.27	63.54	-28.27	-	-
2	.1995	11.28	Ca	0	0	9.4	20.68	-	-	53.63	-32.95
3	.2535	22.7	Qp	0	0	9.3	32	61.64	-29.64	-	-
4	.2513	8.53	Ca	0	0	9.3	17.83	-	-	51.72	-33.89
5	.303	19.93	Qp	0	0	9.3	29.23	60.16	-30.93	-	-
6	.3008	5.62	Ca	0	0	9.3	14.92	-	-	50.22	-35.3
7	.4538	12.89	Qp	0	.1	9.3	22.29	56.81	-34.52	-	-
8	.4538	.53	Ca	0	.1	9.3	9.93	-	-	46.81	-36.88
9	.8093	11.19	Qp	0	.1	9.3	20.59	56	-35.41	-	-
10	.8093	5.51	Ca	0	.1	9.3	14.91	-	-	46	-31.09
11	4.5713	12.24	Qp	0	.1	9.3	21.64	56	-34.36	-	-
12	4.5713	-59	Ca	0	.1	9.3	8.81	-	-	46	-37.19

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

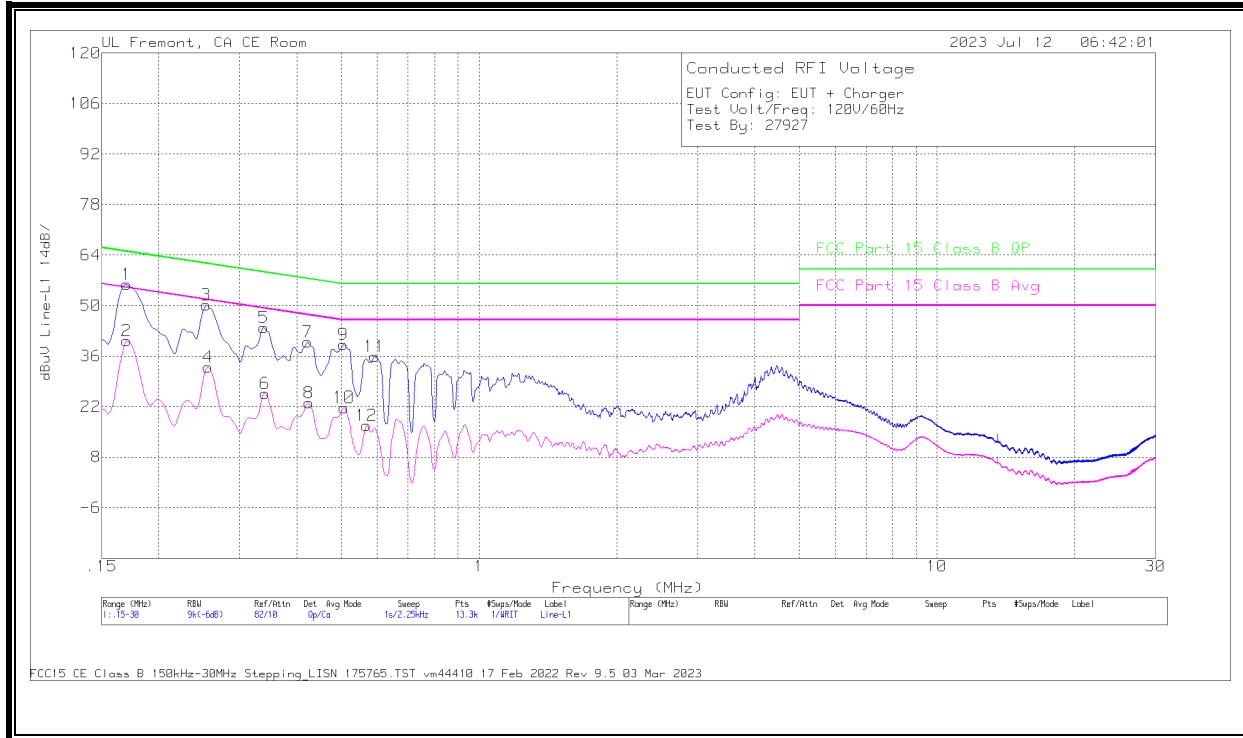
Range 2: Line-L2 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)	
13	.1995	27.36	Qp	0	0	9.4	36.76	63.63	-26.87	-	-	
14	.1995	12.92	Ca	0	0	9.4	22.32	-	-	53.63	-31.31	
15	.2513	24.52	Qp	0	0	9.3	33.82	61.72	-27.9	-	-	
16	.249	10.24	Ca	0	0	9.3	19.54	-	-	51.79	-32.25	
17	.303	21.73	Qp	0	0	9.3	31.03	60.16	-29.13	-	-	
18	.3008	7.33	Ca	0	0	9.3	16.63	-	-	50.22	-33.59	
19	.4515	15.77	Qp	0	.1	9.3	25.17	56.85	-31.68	-	-	
20	.4493	2.39	Ca	0	.1	9.3	11.79	-	-	46.89	-35.1	
21	.8093	12.92	Qp	0	.1	9.3	22.32	56	-33.68	-	-	
22	.8093	6.27	Ca	0	.1	9.3	15.67	-	-	46	-30.33	
23	4.5555	13.89	Qp	0	.1	9.3	23.29	56	-32.71	-	-	
24	4.551	1.45	Ca	0	.1	9.3	10.85	-	-	46	-35.15	

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 ANTENNA PORT TERMINATED

LINE 1 RESULTS

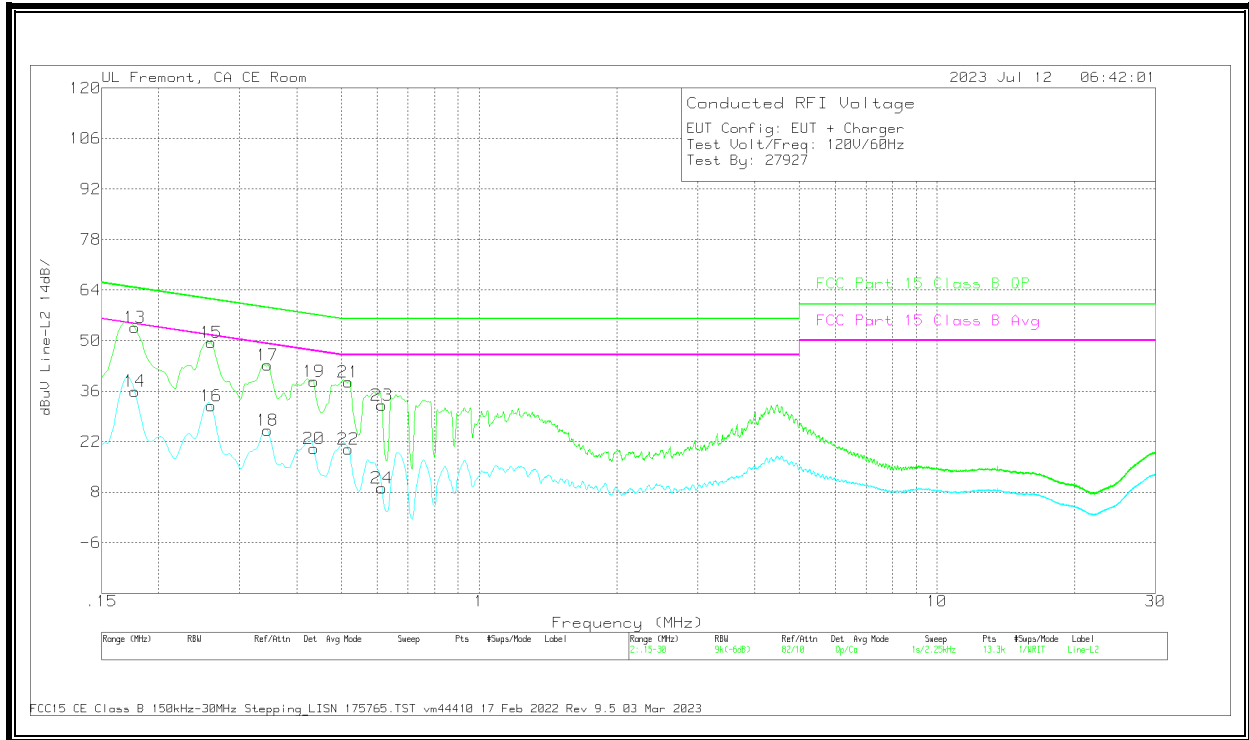


Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)
1	.1703	46.45	Qp	0	0	9.4	55.85	64.95	-9.1	-	-
2	.1703	30.79	Ca	0	0	9.4	40.19	-	-	54.95	-14.76
3	.2535	40.83	Qp	0	0	9.3	50.13	61.64	-11.51	-	-
4	.2558	23.72	Ca	0	0	9.3	33.02	-	-	51.57	-18.55
5	.339	34.69	Qp	0	0	9.3	43.99	59.23	-15.24	-	-
6	.3413	16.34	Ca	0	.1	9.3	25.74	-	-	49.17	-23.43
7	.4223	30.52	Qp	0	.1	9.3	39.92	57.4	-17.48	-	-
8	.4245	13.73	Ca	0	.1	9.3	23.13	-	-	47.36	-24.23
9	.5055	29.84	Qp	0	.1	9.3	39.24	56	-16.76	-	-
10	.5078	12.35	Ca	0	.1	9.3	21.75	-	-	46	-24.25
11	.591	26.58	Qp	0	.1	9.3	35.98	56	-20.02	-	-
12	.5685	7.32	Ca	0	.1	9.3	16.72	-	-	46	-29.28

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



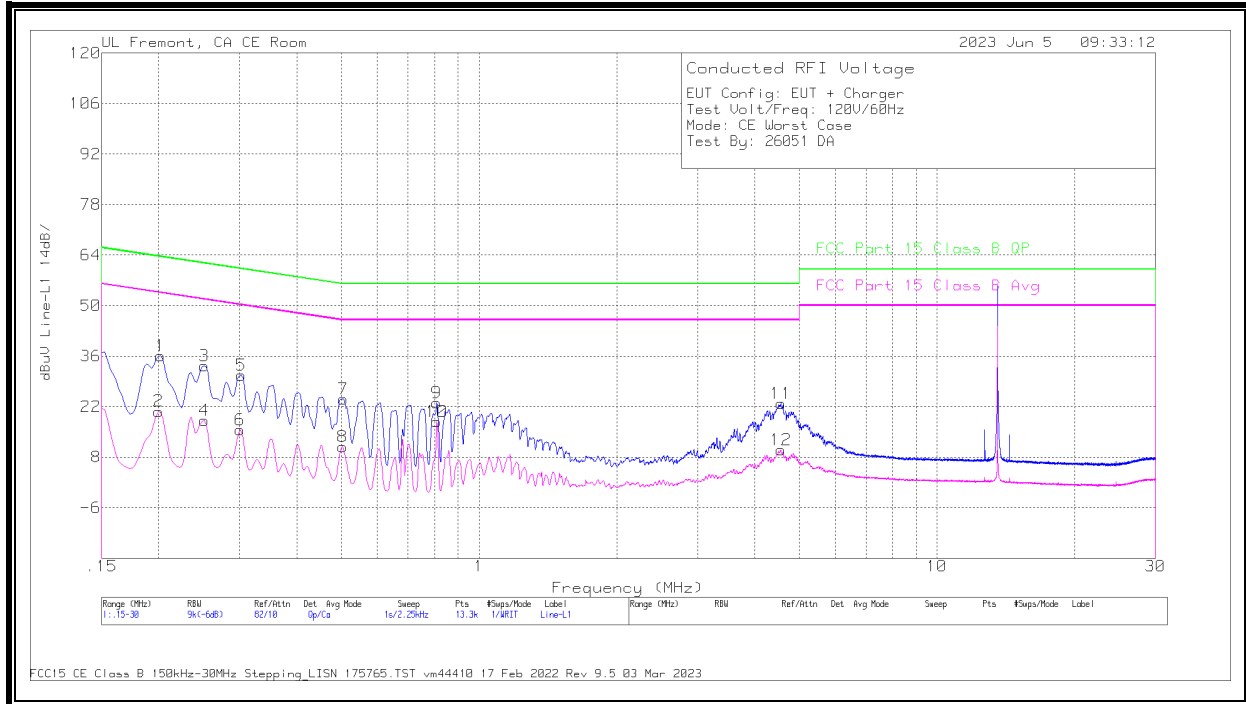
Worst Emission

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)
13	.177	44.21	Qp	0	0	9.4	53.61	64.63	-11.02	-	-
14	.177	26.6	Ca	0	0	9.4	36	-	-	54.63	-18.63
15	.2603	40.24	Qp	0	0	9.3	49.54	61.42	-11.88	-	-
16	.2603	22.63	Ca	0	0	9.3	31.93	-	-	51.42	-19.49
17	.3458	33.96	Qp	0	0	9.3	43.26	59.06	-15.8	-	-
18	.3458	15.83	Ca	0	0	9.3	25.13	-	-	49.06	-23.93
19	.4358	29.29	Qp	0	.1	9.3	38.69	57.14	-18.45	-	-
20	.4358	10.64	Ca	0	.1	9.3	20.04	-	-	47.14	-27.1
21	.519	29.11	Qp	0	.1	9.3	38.51	56	-17.49	-	-
22	.519	10.58	Ca	0	.1	9.3	19.98	-	-	46	-26.02
23	.6135	22.69	Qp	0	.1	9.3	32.09	56	-23.91	-	-
24	.6135	-17	Ca	0	.1	9.3	9.23	-	-	46	-36.77

Qp - Quasi-Peak detector
 Ca - CISPR average detection

10.1.3. CE MODE WITH ANTENNA

LINE 1 RESULTS



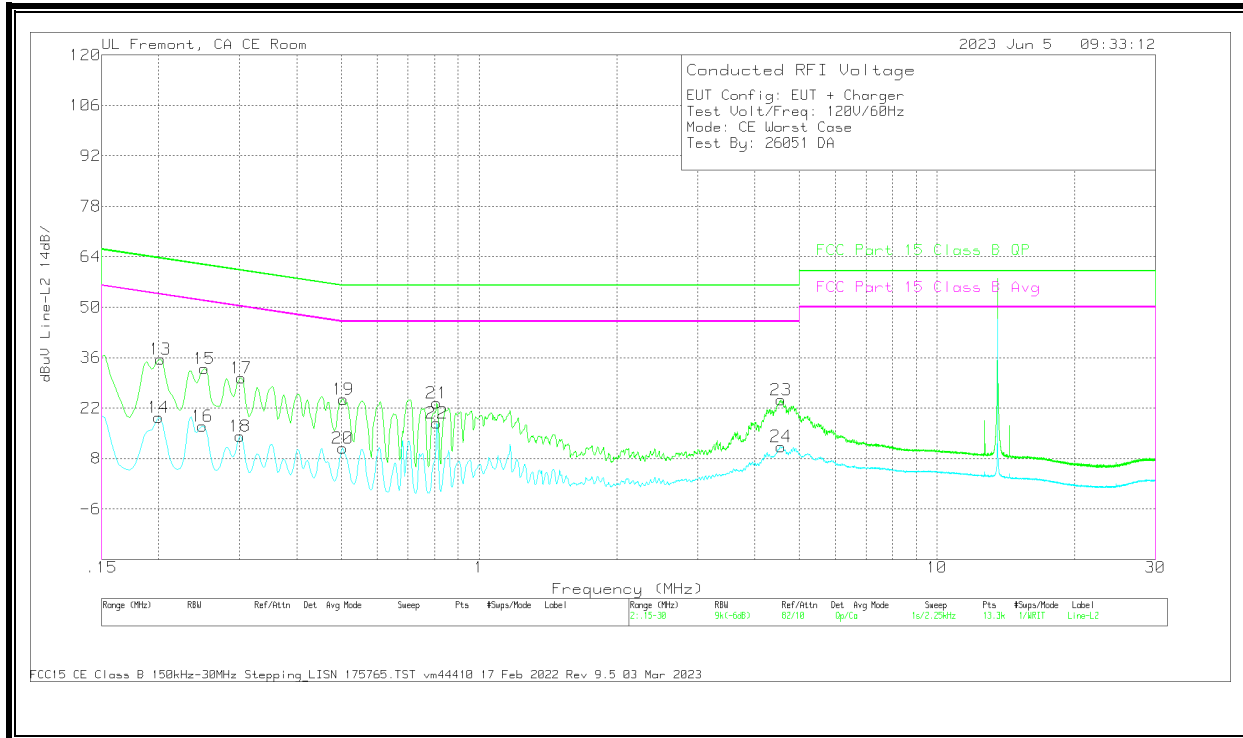
Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)
1	.2018	26.62	Qp	0	0	9.4	36.02	63.54	-27.52	-	-
2	.1995	11.31	Ca	0	0	9.4	20.71	-	-	53.63	-32.92
3	.2513	23.96	Qp	0	0	9.3	33.26	61.72	-28.46	-	-
4	.2513	8.85	Ca	0	0	9.3	18.15	-	-	51.72	-33.57
5	.303	21.36	Qp	0	0	9.3	30.66	60.16	-29.5	-	-
6	.3008	6.28	Ca	0	0	9.3	15.58	-	-	50.22	-34.64
7	.5055	14.77	Qp	0	.1	9.3	24.17	56	-31.83	-	-
8	.5033	1.54	Ca	0	.1	9.3	10.94	-	-	46	-35.06
9	.8093	13.65	Qp	0	.1	9.3	23.05	56	-32.95	-	-
10	.8093	8.39	Ca	0	.1	9.3	17.79	-	-	46	-28.21
11	4.56	13.51	Qp	0	.1	9.3	22.91	56	-33.09	-	-
12	4.56	.55	Ca	0	.1	9.3	9.95	-	-	46	-36.05

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

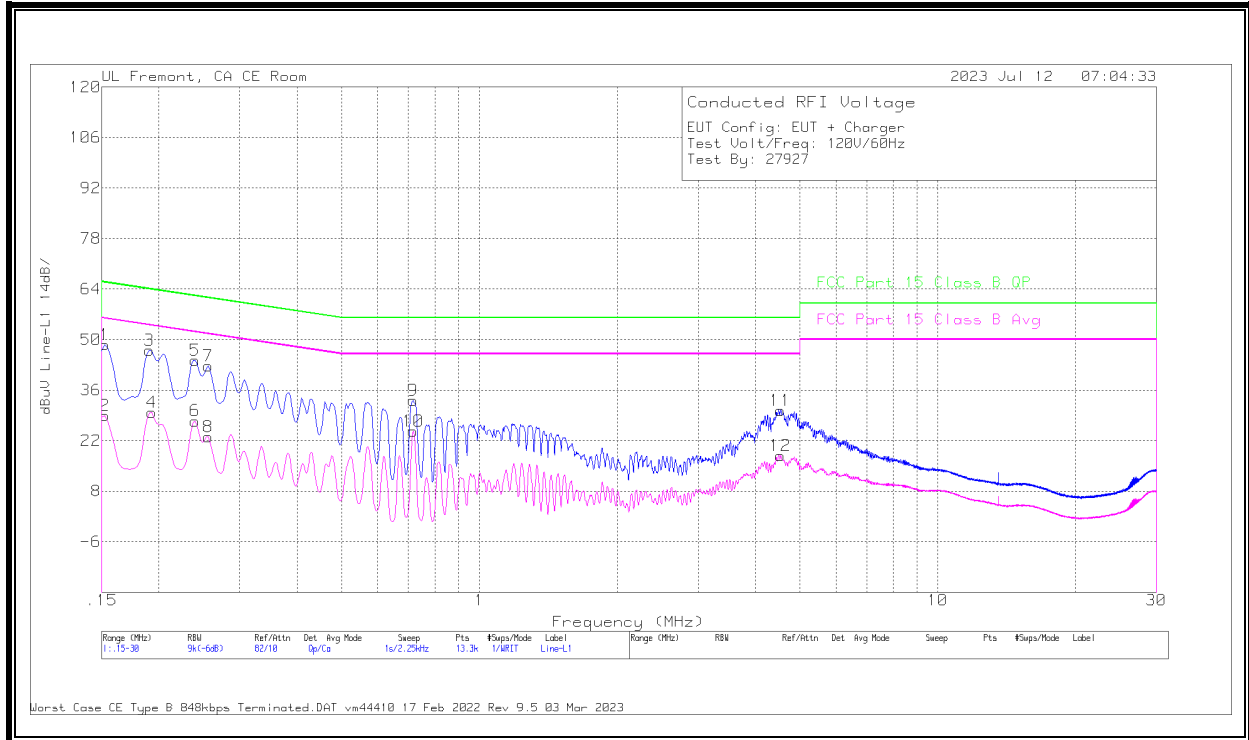
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
13	.2018	26.25	Qp	0	0	9.4	35.65	63.54	-27.89	-	-
14	.1995	9.93	Ca	0	0	9.4	19.33	-	-	53.63	-34.3
15	.2513	23.64	Qp	0	0	9.3	32.94	61.72	-28.78	-	-
16	.249	7.61	Ca	0	0	9.3	16.91	-	-	51.79	-34.88
17	.303	21.13	Qp	0	0	9.3	30.43	60.16	-29.73	-	-
18	.3008	4.91	Ca	0	0	9.3	14.21	-	-	50.22	-36.01
19	.5055	15.11	Qp	0	.1	9.3	24.51	56	-31.49	-	-
20	.5033	1.44	Ca	0	.1	9.3	10.84	-	-	46	-35.16
21	.8093	14.05	Qp	0	.1	9.3	23.45	56	-32.55	-	-
22	.8093	8.46	Ca	0	.1	9.3	17.86	-	-	46	-28.14
23	4.569	14.87	Qp	0	.1	9.3	24.27	56	-31.73	-	-
24	4.56	1.92	Ca	0	.1	9.3	11.32	-	-	46	-34.68

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.

10.1.4. CE MODE ANTENNA PORT TERMINATED

LINE 1 RESULTS

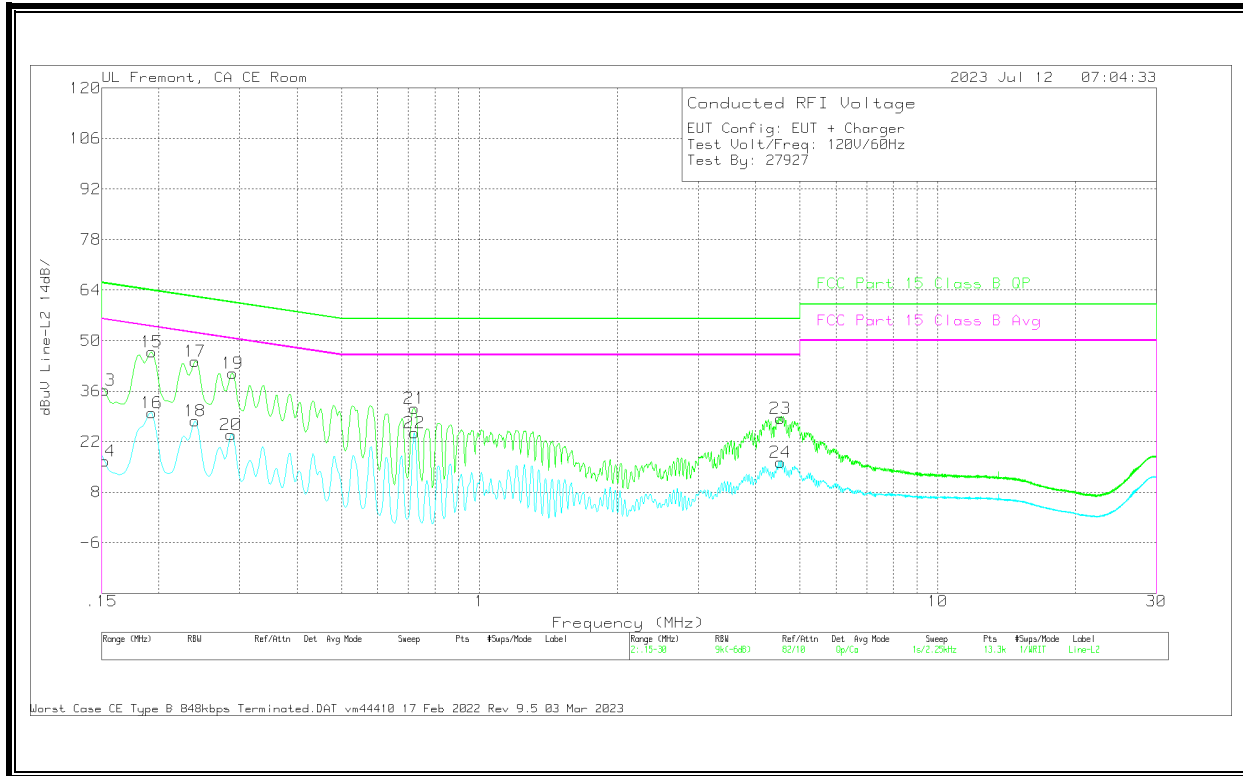


Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)
1	.1523	39.14	Qp	0	0	9.4	48.54	65.88	-17.34	-	-
2	.1523	19.63	Ca	0	0	9.4	29.03	-	-	55.88	-26.85
3	.1905	37.71	Qp	0	0	9.4	47.11	64.01	-16.9	-	-
4	.1928	20.42	Ca	0	0	9.4	29.82	-	-	53.92	-24.1
5	.24	35.01	Qp	0	0	9.3	44.31	62.1	-17.79	-	-
6	.24	18.19	Ca	0	0	9.3	27.49	-	-	52.1	-24.61
7	.2558	33.4	Qp	0	0	9.3	42.7	61.57	-18.87	-	-
8	.2558	13.81	Ca	0	0	9.3	23.11	-	-	51.57	-28.46
9	.717	23.78	Qp	0	.1	9.3	33.18	56	-22.82	-	-
10	.717	15.28	Ca	0	.1	9.3	24.68	-	-	46	-21.32
11	4.542	20.95	Qp	0	.1	9.3	30.35	56	-25.65	-	-
12	4.542	8.46	Ca	0	.1	9.3	17.86	-	-	46	-28.14

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



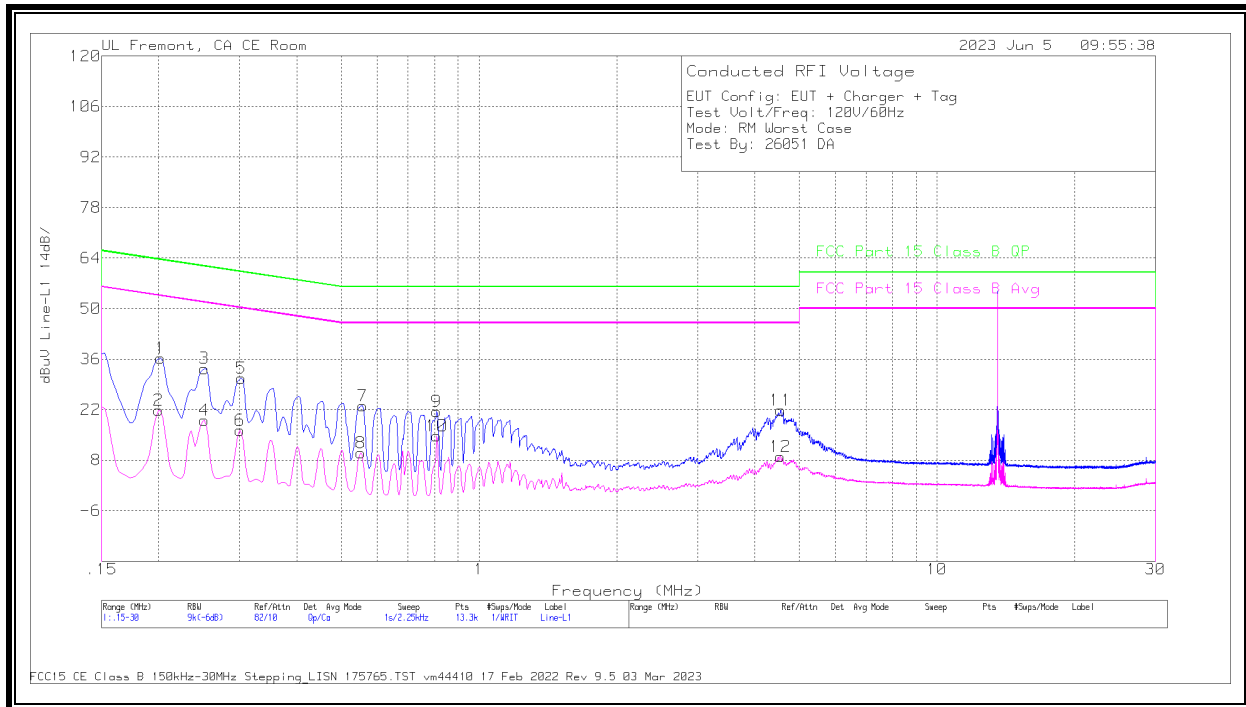
Worst Emission

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)
13	.1523	26.83	Qp	0	0	9.4	36.23	65.88	-29.65	-	-
14	.1523	7.27	Ca	0	0	9.4	16.67	-	-	55.88	-39.21
15	.1928	37.53	Qp	0	0	9.4	46.93	63.92	-16.99	-	-
16	.1928	20.54	Ca	0	0	9.4	29.94	-	-	53.92	-23.98
17	.24	35	Qp	0	0	9.3	44.3	62.1	-17.8	-	-
18	.24	18.47	Ca	0	0	9.3	27.77	-	-	52.1	-24.33
19	.2895	31.67	Qp	0	0	9.3	40.97	60.54	-19.57	-	-
20	.2873	14.63	Ca	0	0	9.3	23.93	-	-	50.6	-26.67
21	.7215	21.81	Qp	0	.1	9.3	31.21	56	-24.79	-	-
22	.7215	14.97	Ca	0	.1	9.3	24.37	-	-	46	-21.63
23	4.542	19.01	Qp	0	.1	9.3	28.41	56	-27.59	-	-
24	4.542	6.82	Ca	0	.1	9.3	16.22	-	-	46	-29.78

Qp - Quasi-Peak detector
Ca - CISPR average detection

10.1.5. TAG MODE WITH ANTENNA

LINE 1 RESULTS



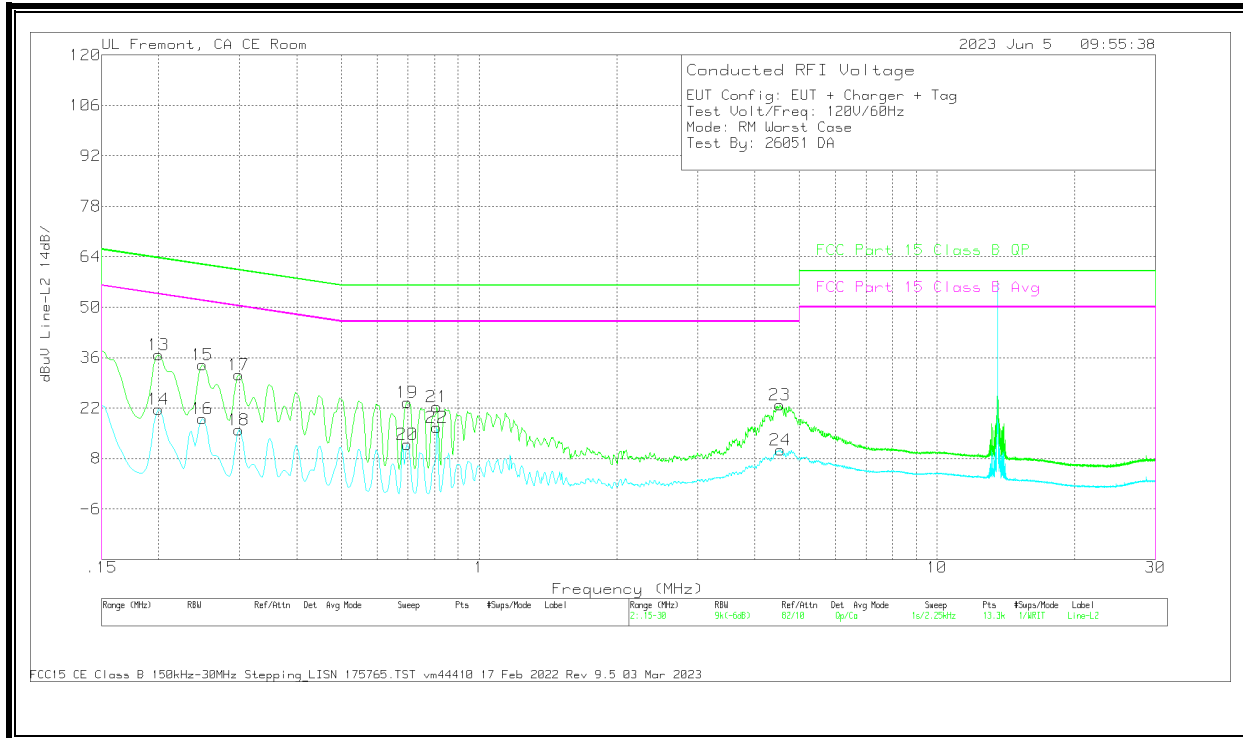
Worst Emission

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_L1SN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)
1	.2018	26.88	Qp	0	0	9.4	36.28	63.54	-27.26	-	-
2	.1995	12.37	Ca	0	0	9.4	21.77	-	-	53.63	-31.86
3	.2513	24.1	Qp	0	0	9.3	33.4	61.72	-28.32	-	-
4	.2513	9.7	Ca	0	0	9.3	19	-	-	51.72	-32.72
5	.303	21.45	Qp	0	0	9.3	30.75	60.16	-29.41	-	-
6	.3008	7.02	Ca	0	0	9.3	16.32	-	-	50.22	-33.9
7	.5573	13.69	Qp	0	.1	9.3	23.09	56	-32.91	-	-
8	.5528	.63	Ca	0	.1	9.3	10.03	-	-	46	-35.97
9	.8093	12.16	Qp	0	.1	9.3	21.56	56	-34.44	-	-
10	.8093	5.31	Ca	0	.1	9.3	14.71	-	-	46	-31.29
11	4.5578	12.47	Qp	0	.1	9.3	21.87	56	-34.13	-	-
12	4.5555	-.37	Ca	0	.1	9.3	9.03	-	-	46	-36.97

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

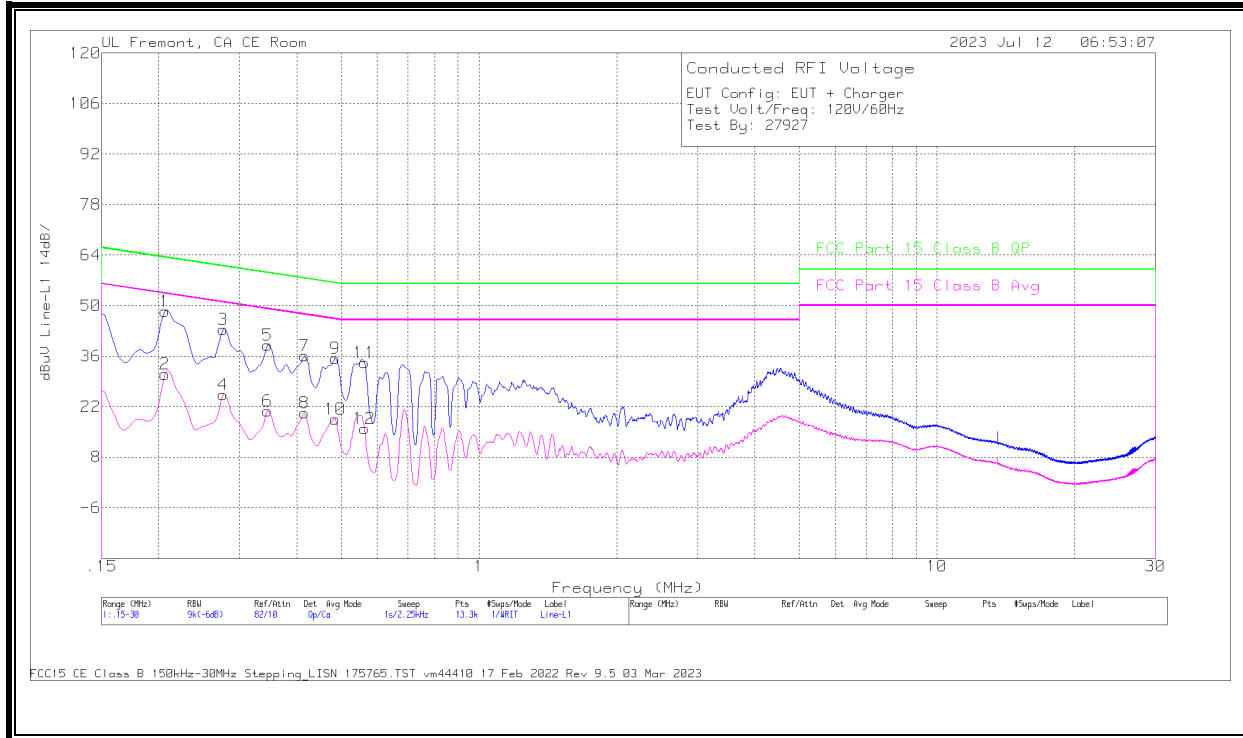
Range 2: Line-L2 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)	
13	.1995	27.38	Qp	0	0	9.4	36.78	63.63	-26.85	-	-	
14	.1995	12.26	Ca	0	0	9.4	21.66	-	-	53.63	-31.97	
15	.249	24.67	Qp	0	0	9.3	33.97	61.79	-27.82	-	-	
16	.249	9.73	Ca	0	0	9.3	19.03	-	-	51.79	-32.76	
17	.2985	21.91	Qp	0	0	9.3	31.21	60.28	-29.07	-	-	
18	.2985	6.63	Ca	0	0	9.3	15.93	-	-	50.28	-34.35	
19	.6968	14.12	Qp	0	.1	9.3	23.52	56	-32.48	-	-	
20	.6968	2.55	Ca	0	.1	9.3	11.95	-	-	46	-34.05	
21	.8093	12.94	Qp	0	.1	9.3	22.34	56	-33.66	-	-	
22	.8093	7.23	Ca	0	.1	9.3	16.63	-	-	46	-29.37	
23	4.5409	13.41	Qp	0	.1	9.3	22.81	56	-33.19	-	-	
24	4.5488	1.02	Ca	0	.1	9.3	10.42	-	-	46	-35.58	

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 amplitude is lowering below the limit line.

10.1.6. TAG MODE ANTENNA PORT TERMINATED

LINE 1 RESULTS

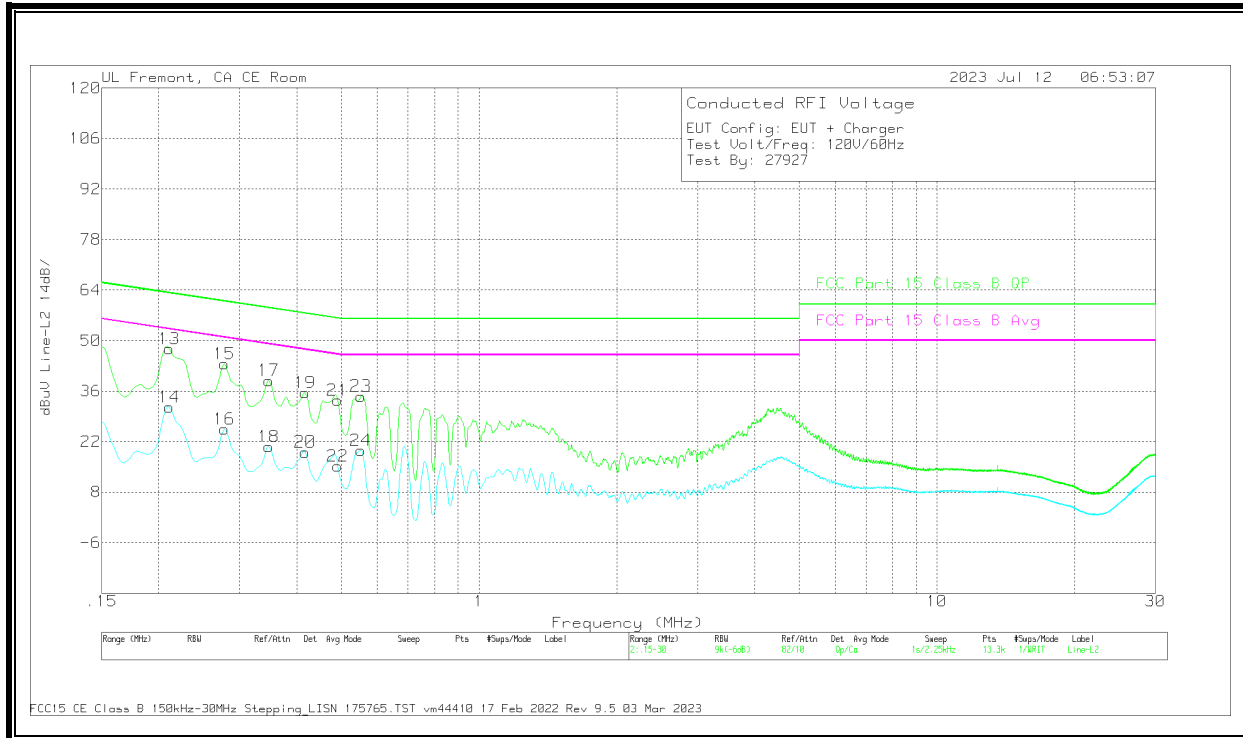


Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)
1	.2063	38.98	Qp	0	0	9.4	48.38	63.35	-14.97	-	-
2	.2063	21.57	Ca	0	0	9.4	30.97	-	-	53.35	-22.38
3	.276	34.12	Qp	0	0	9.3	43.42	60.94	-17.52	-	-
4	.276	16	Ca	0	0	9.3	25.3	-	-	50.94	-25.64
5	.3458	29.69	Qp	0	.1	9.3	39.09	59.06	-19.97	-	-
6	.3458	11.41	Ca	0	.1	9.3	20.81	-	-	49.06	-28.25
7	.4155	26.65	Qp	0	.1	9.3	36.05	57.54	-21.49	-	-
8	.4155	10.94	Ca	0	.1	9.3	20.34	-	-	47.54	-27.2
9	.4853	26.02	Qp	0	.1	9.3	35.42	56.25	-20.83	-	-
10	.4853	9.08	Ca	0	.1	9.3	18.48	-	-	46.25	-27.77
11	.5618	24.76	Qp	0	.1	9.3	34.16	56	-21.84	-	-
12	.5618	6.45	Ca	0	.1	9.3	15.85	-	-	46	-30.15

Qp - Quasi-Peak detector
 Ca - CISPR average detection

LINE 2 RESULTS



Worst Emission

Range 2: Line-L2 .15 - 30MHz

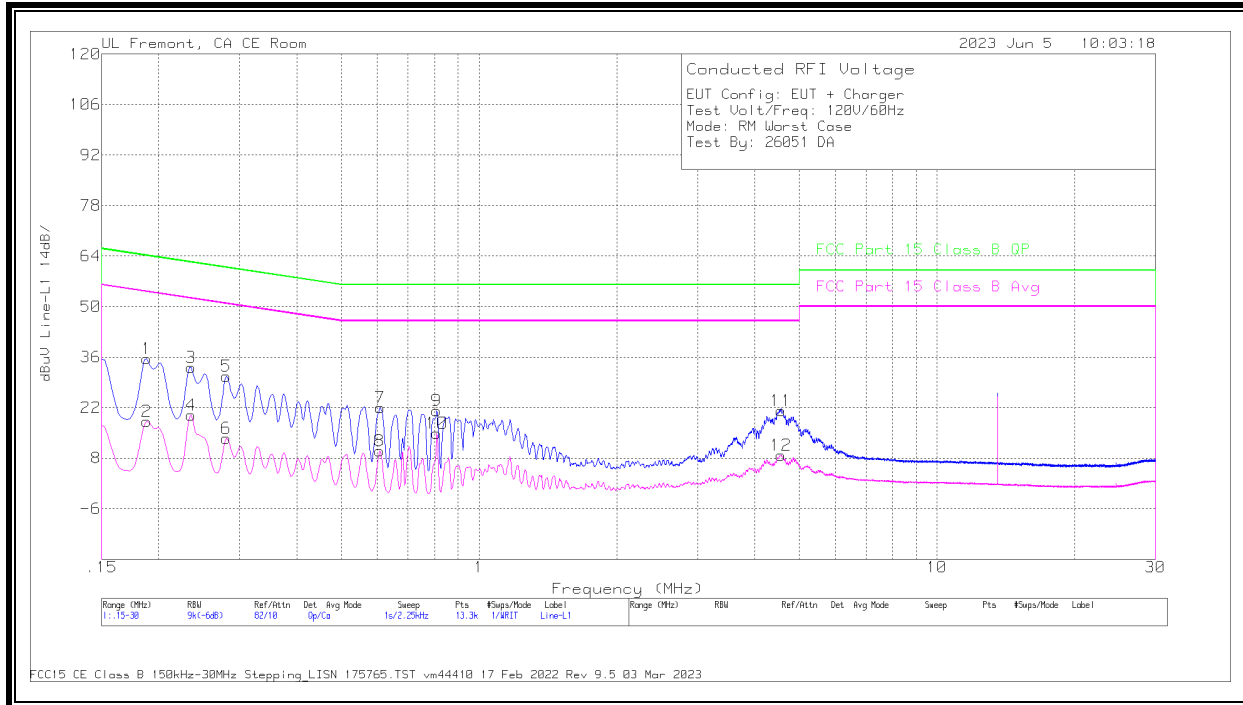
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
13	.2108	38.34	Qp	0	0	9.4	47.74	63.18	-15.44	-	-
14	.2108	22.21	Ca	0	0	9.4	31.61	-	-	53.18	-21.57
15	.2783	34.23	Qp	0	0	9.3	43.53	60.87	-17.34	-	-
16	.2783	16.2	Ca	0	0	9.3	25.5	-	-	50.87	-25.37
17	.348	29.66	Qp	0	0	9.3	38.96	59.01	-20.05	-	-
18	.348	11.32	Ca	0	0	9.3	20.62	-	-	49.01	-28.39
19	.4178	26.12	Qp	0	.1	9.3	35.52	57.49	-21.97	-	-
20	.4178	9.74	Ca	0	.1	9.3	19.14	-	-	47.49	-28.35
21	.492	24.04	Qp	0	.1	9.3	33.44	56.13	-22.69	-	-
22	.492	5.8	Ca	0	.1	9.3	15.2	-	-	46.13	-30.93
23	.5528	25.21	Qp	0	.1	9.3	34.61	56	-21.39	-	-
24	.5528	10.2	Ca	0	.1	9.3	19.6	-	-	46	-26.4

Qp - Quasi-Peak detector
Ca - CISPR average detection

10.2. SECONDARY ANTENNA

10.2.1. READER MODE WITH ANTENNA

LINE 1 RESULTS



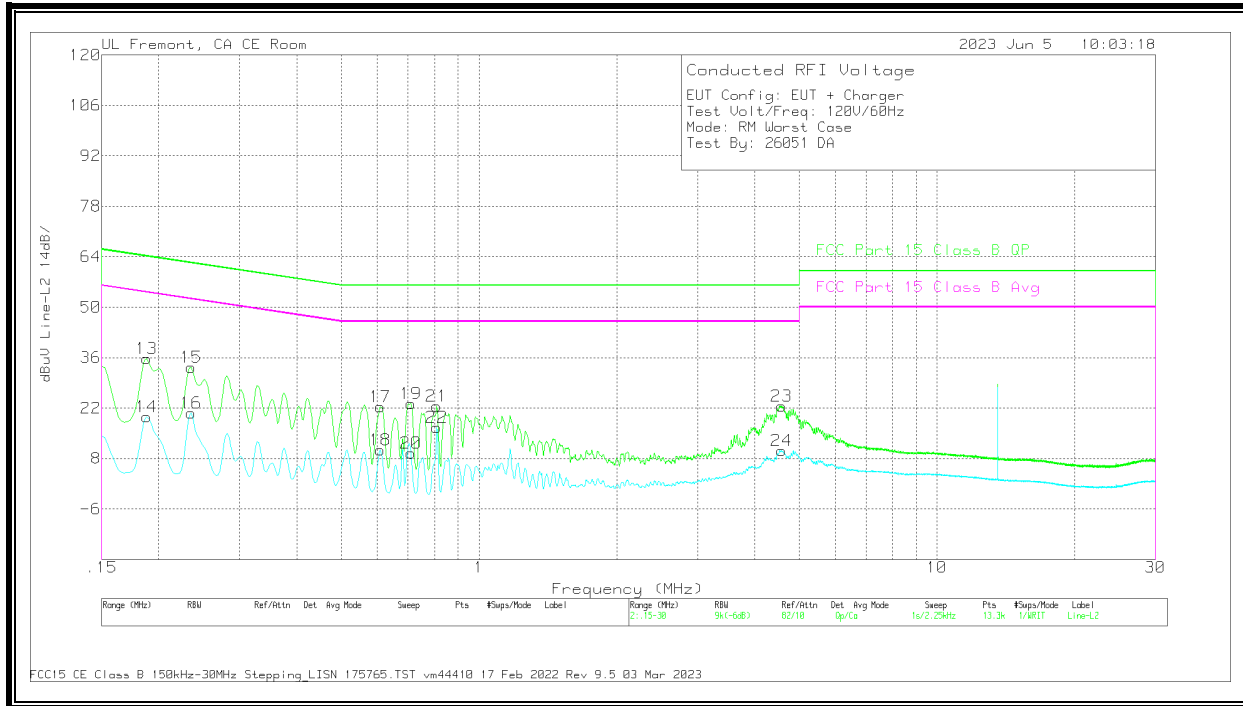
Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)
1	.1883	26.15	Qp	0	0	9.4	35.55	64.11	-28.56	-	-
2	.1883	8.82	Ca	0	0	9.4	18.22	-	-	54.11	-35.89
3	.2355	23.85	Qp	0	0	9.3	33.15	62.25	-29.1	-	-
4	.2355	10.57	Ca	0	0	9.3	19.87	-	-	52.25	-32.38
5	.2805	21.46	Qp	0	0	9.3	30.76	60.8	-30.04	-	-
6	.2805	4.12	Ca	0	0	9.3	13.42	-	-	50.8	-37.38
7	.609	12.65	Qp	0	.1	9.3	22.05	56	-33.95	-	-
8	.6068	.59	Ca	0	.1	9.3	9.99	-	-	46	-36.01
9	.8093	11.73	Qp	0	.1	9.3	21.13	56	-34.87	-	-
10	.8093	5.47	Ca	0	.1	9.3	14.87	-	-	46	-31.13
11	4.5713	11.81	Qp	0	.1	9.3	21.21	56	-34.79	-	-
12	4.5701	-.61	Ca	0	.1	9.3	8.79	-	-	46	-37.21

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

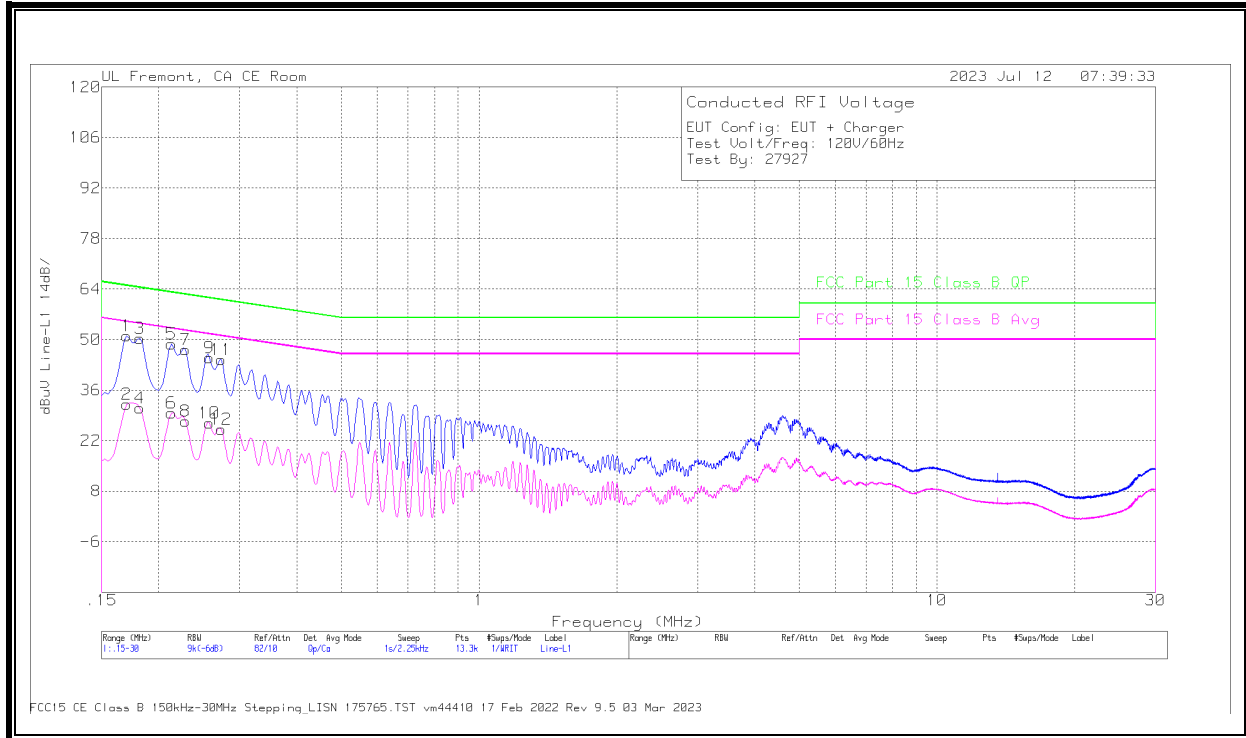
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
13	.1883	26.28	Qp	0	0	9.4	35.68	64.11	-28.43	-	-
14	.1883	10.2	Ca	0	0	9.4	19.6	-	-	54.11	-34.51
15	.2355	24.04	Qp	0	0	9.3	33.34	62.25	-28.91	-	-
16	.2355	11.38	Ca	0	0	9.3	20.68	-	-	52.25	-31.57
17	.609	13.03	Qp	0	.1	9.3	22.43	56	-33.57	-	-
18	.609	.96	Ca	0	.1	9.3	10.36	-	-	46	-35.64
19	.7103	13.78	Qp	0	.1	9.3	23.18	56	-32.82	-	-
20	.7103	.14	Ca	0	.1	9.3	9.54	-	-	46	-36.46
21	.8093	13.14	Qp	0	.1	9.3	22.54	56	-33.46	-	-
22	.8093	7.2	Ca	0	.1	9.3	16.6	-	-	46	-29.4
23	4.5758	13.07	Qp	0	.1	9.3	22.47	56	-33.53	-	-
24	4.5758	.87	Ca	0	.1	9.3	10.27	-	-	46	-35.73

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 ANTENNA PORT TERMINATED

LINE 1 RESULTS

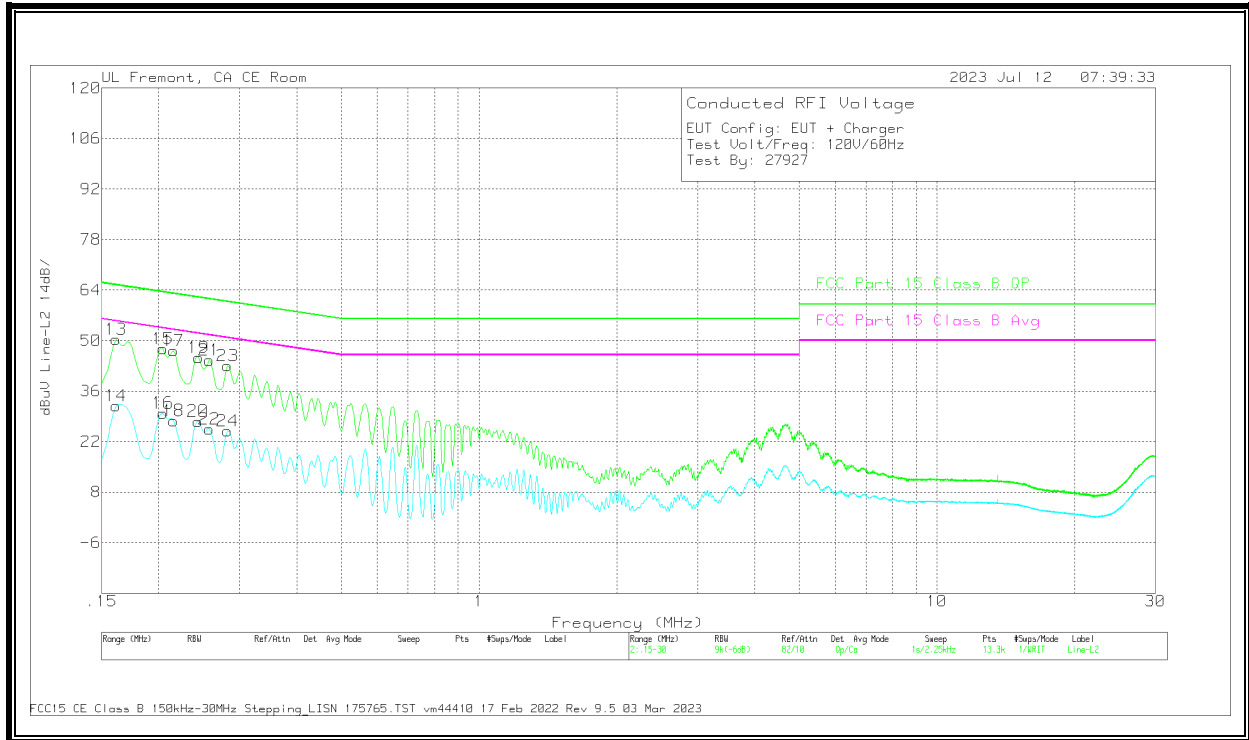


Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)
1	.1703	41.71	Qp	0	0	9.4	51.11	64.95	-13.84	-	-
2	.1703	22.67	Ca	0	0	9.4	32.07	-	-	54.95	-22.88
3	.1815	40.94	Qp	0	0	9.4	50.34	64.42	-14.08	-	-
4	.1815	21.66	Ca	0	0	9.4	31.06	-	-	54.42	-23.36
5	.213	39.32	Qp	0	0	9.4	48.72	63.09	-14.37	-	-
6	.213	20.28	Ca	0	0	9.4	29.68	-	-	53.09	-23.41
7	.2288	37.85	Qp	0	0	9.3	47.15	62.49	-15.34	-	-
8	.2288	18.18	Ca	0	0	9.3	27.48	-	-	52.49	-25.01
9	.258	35.68	Qp	0	0	9.3	44.98	61.5	-16.52	-	-
10	.258	17.57	Ca	0	0	9.3	26.87	-	-	51.5	-24.63
11	.2738	35.15	Qp	0	0	9.3	44.45	61	-16.55	-	-
12	.2738	15.83	Ca	0	0	9.3	25.13	-	-	51	-25.87

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



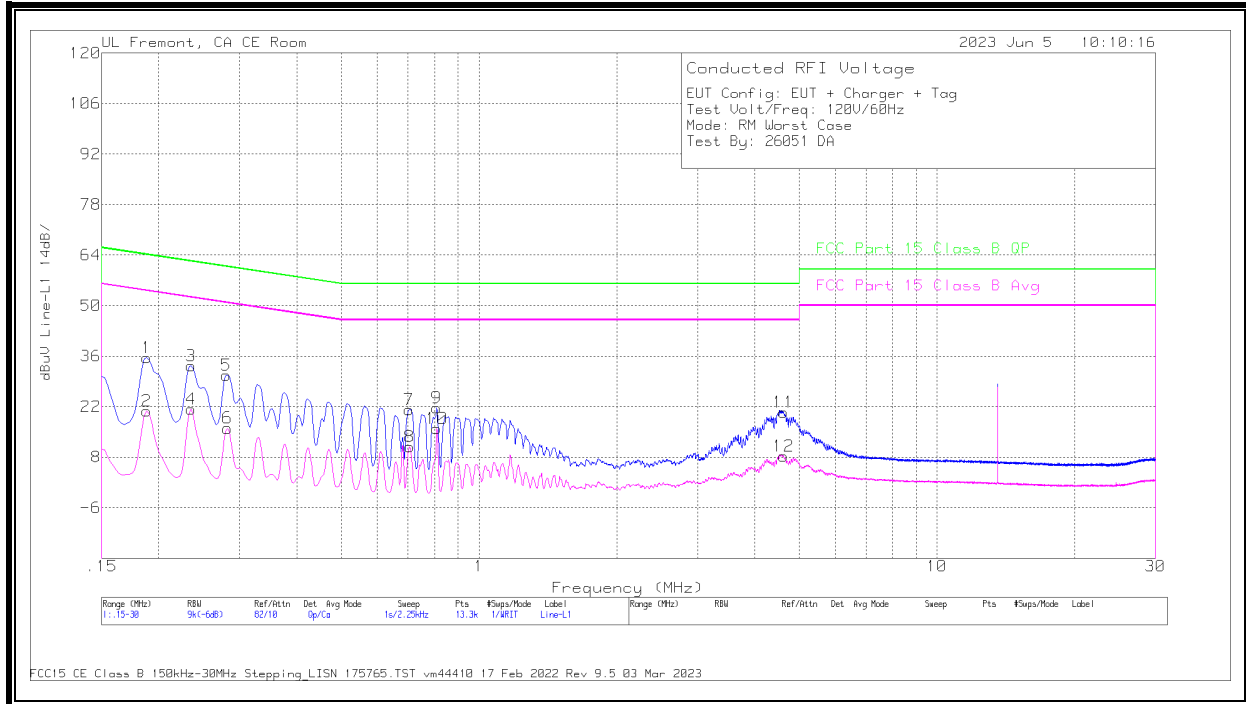
Worst Emission

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)
13	.1613	40.87	Qp	0	0	9.4	50.27	65.4	-15.13	-	-
14	.1613	22.51	Ca	0	0	9.4	31.91	-	-	55.4	-23.49
15	.204	38.32	Qp	0	0	9.4	47.72	63.45	-15.73	-	-
16	.204	20.52	Ca	0	0	9.4	29.92	-	-	53.45	-23.53
17	.2153	37.88	Qp	0	0	9.3	47.18	63	-15.82	-	-
18	.2153	18.53	Ca	0	0	9.3	27.83	-	-	53	-25.17
19	.2445	36.04	Qp	0	0	9.3	45.34	61.94	-16.6	-	-
20	.2434	18.36	Ca	0	0	9.3	27.66	-	-	51.98	-24.32
21	.258	35.23	Qp	0	0	9.3	44.53	61.5	-16.97	-	-
22	.258	16.23	Ca	0	0	9.3	25.53	-	-	51.5	-25.97
23	.2828	33.78	Qp	0	0	9.3	43.08	60.73	-17.65	-	-
24	.2828	15.73	Ca	0	0	9.3	25.03	-	-	50.73	-25.7

Qp - Quasi-Peak detector
 Ca - CISPR average detection

10.2.3. TAG MODE WITH ANTENNA

LINE 1 RESULTS



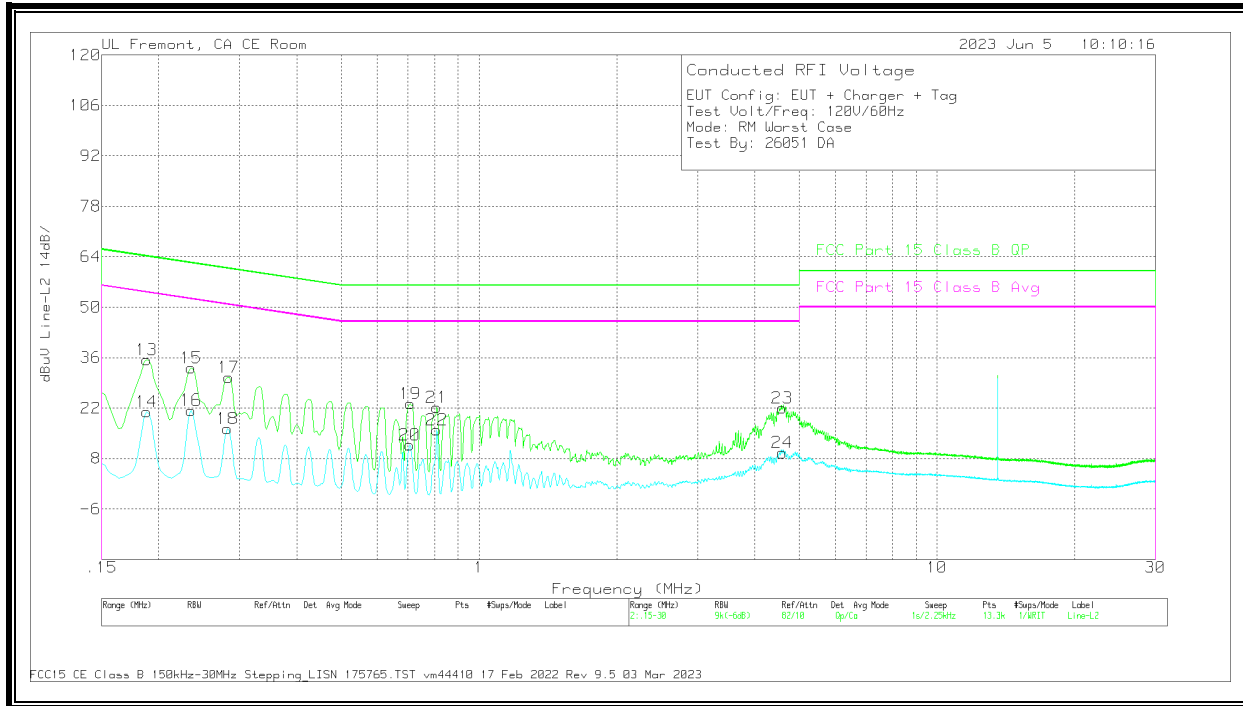
Worst Emission

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	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)	
1	.1883	26.24	Qp	0	0	9.4	35.64	64.11	-28.47	-	-	
2	.1883	11.38	Ca	0	0	9.4	20.78	-	-	54.11	-33.33	
3	.2355	24.04	Qp	0	0	9.3	33.34	62.25	-28.91	-	-	
4	.2355	12.01	Ca	0	0	9.3	21.31	-	-	52.25	-30.94	
5	.2805	21.44	Qp	0	0	9.3	30.74	60.8	-30.06	-	-	
6	.2828	6.72	Ca	0	0	9.3	16.02	-	-	50.73	-34.71	
7	.7035	11.75	Qp	0	.1	9.3	21.15	56	-34.85	-	-	
8	.7058	1.48	Ca	0	.1	9.3	10.88	-	-	46	-35.12	
9	.8093	12.23	Qp	0	.1	9.3	21.63	56	-34.37	-	-	
10	.8093	6.59	Ca	0	.1	9.3	15.99	-	-	46	-30.01	
11	4.6253	10.99	Qp	0	.1	9.3	20.39	56	-35.61	-	-	
12	4.6185	-1.13	Ca	0	.1	9.3	8.27	-	-	46	-37.73	

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

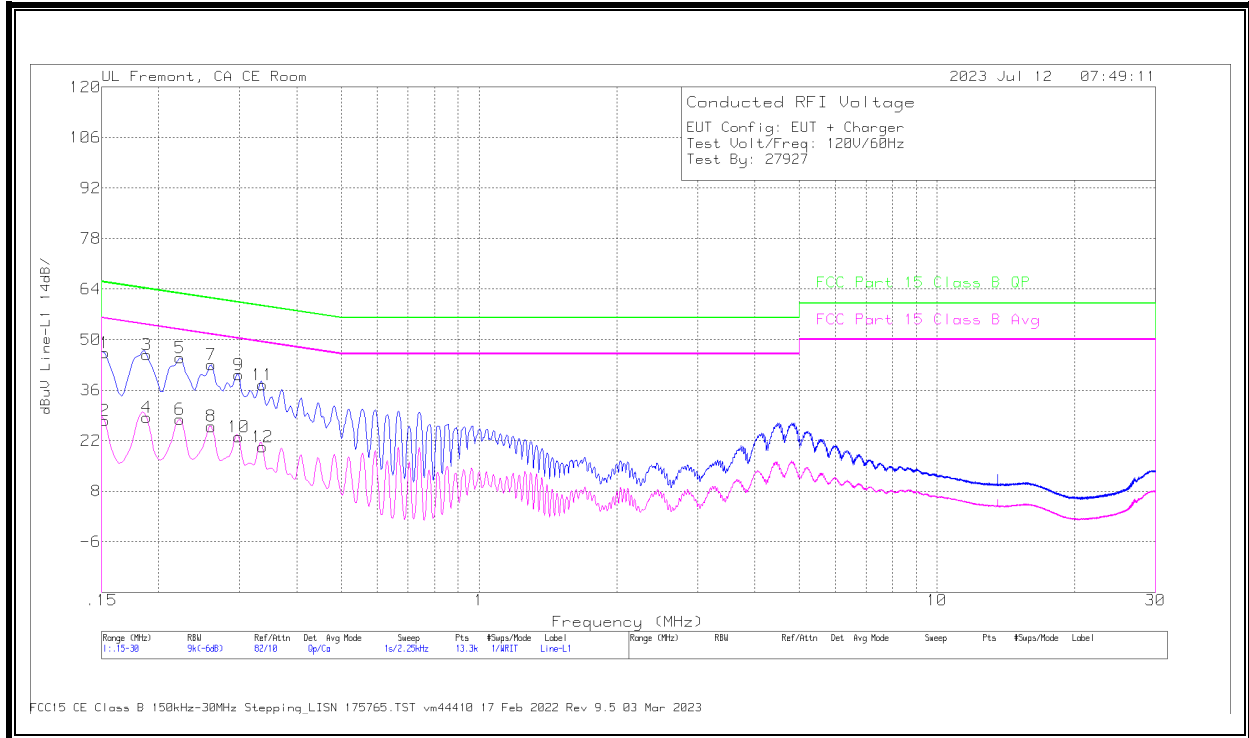
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
13	.1883	25.95	Qp	0	0	9.4	35.35	64.11	-28.76	-	-
14	.1883	11.58	Ca	0	0	9.4	20.98	-	-	54.11	-33.13
15	.2355	23.79	Qp	0	0	9.3	33.09	62.25	-29.16	-	-
16	.2355	12.1	Ca	0	0	9.3	21.4	-	-	52.25	-30.85
17	.2839	21.3	Qp	0	0	9.3	30.6	60.7	-30.1	-	-
18	.2828	7	Ca	0	0	9.3	16.3	-	-	50.73	-34.43
19	.708	13.78	Qp	0	.1	9.3	23.18	56	-32.82	-	-
20	.7058	2.36	Ca	0	.1	9.3	11.76	-	-	46	-34.24
21	.8093	12.84	Qp	0	.1	9.3	22.24	56	-33.76	-	-
22	.8093	6.54	Ca	0	.1	9.3	15.94	-	-	46	-30.06
23	4.5983	12.55	Qp	0	.1	9.3	21.95	56	-34.05	-	-
24	4.5983	.19	Ca	0	.1	9.3	9.59	-	-	46	-36.41

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 ANTENNA PORT TERMINATED

LINE 1 RESULTS

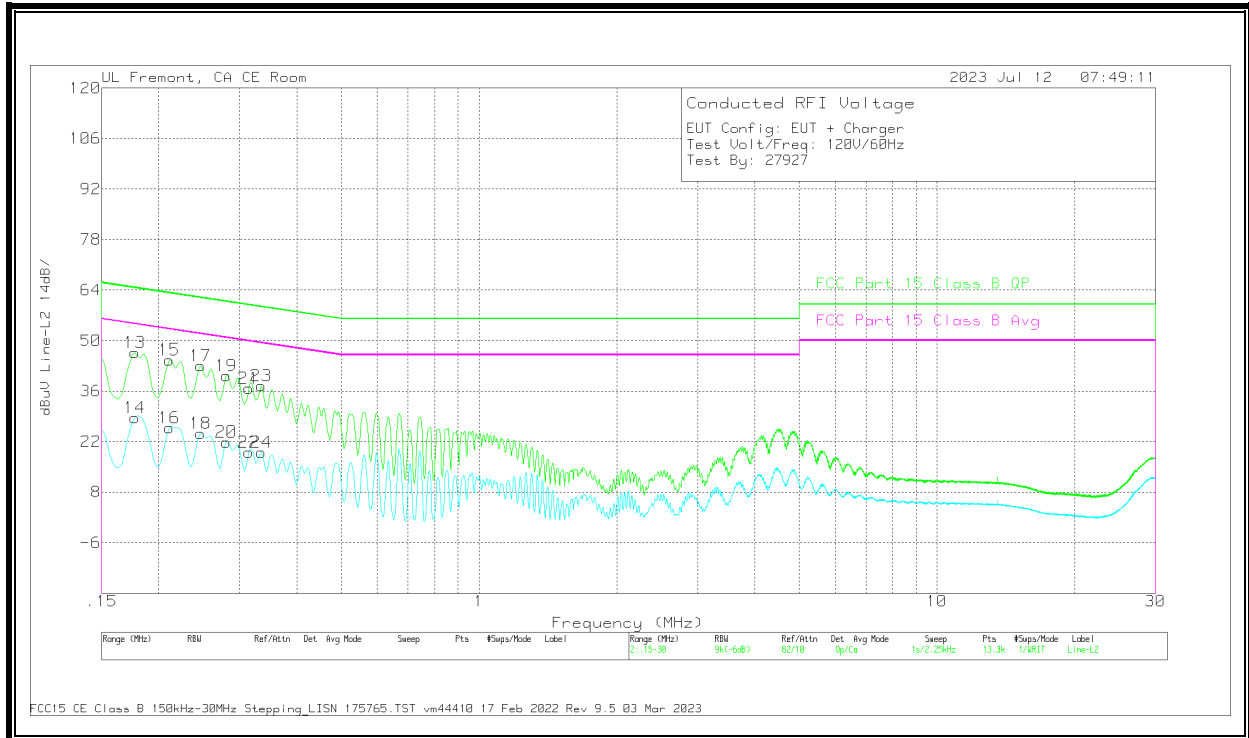


Worst Emission

Range 1: Line-L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_L1SN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	CISPR 32 Class B QP dBuV	Margin (dB)	CISPR 32 Class B Avg dBuV	Av(CISPR)Margin (dB)	
1	.1523	36.96	Qp	0	0	9.4	46.36	65.88	-19.52	-	-	
2	.1523	18.15	Ca	0	0	9.4	27.55	-	-	55.88	-28.33	
3	.1883	36.35	Qp	0	0	9.4	45.75	64.11	-18.36	-	-	
4	.1883	19.02	Ca	0	0	9.4	28.42	-	-	54.11	-25.69	
5	.222	35.71	Qp	0	0	9.3	45.01	62.74	-17.73	-	-	
6	.222	18.59	Ca	0	0	9.3	27.89	-	-	52.74	-24.85	
7	.2603	33.72	Qp	0	0	9.3	43.02	61.42	-18.4	-	-	
8	.2603	16.63	Ca	0	0	9.3	25.93	-	-	51.42	-25.49	
9	.2985	31.04	Qp	0	0	9.3	40.34	60.28	-19.94	-	-	
10	.2985	13.78	Ca	0	0	9.3	23.08	-	-	50.28	-27.2	
11	.3368	28.17	Qp	0	0	9.3	37.47	59.28	-21.81	-	-	
12	.3368	11.02	Ca	0	0	9.3	20.32	-	-	49.28	-28.96	

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



Worst Emission

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	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	.177	37.3	Qp	0	0	9.4	46.7	64.63	-17.93	-	-
14	.177	19.19	Ca	0	0	9.4	28.59	-	-	54.63	-26.04
15	.2108	35.29	Qp	0	0	9.4	44.69	63.18	-18.49	-	-
16	.2108	16.44	Ca	0	0	9.4	25.84	-	-	53.18	-27.34
17	.2468	33.68	Qp	0	0	9.3	42.98	61.87	-18.89	-	-
18	.2468	15.04	Ca	0	0	9.3	24.34	-	-	51.87	-27.53
19	.2805	31.03	Qp	0	0	9.3	40.33	60.8	-20.47	-	-
20	.2805	12.62	Ca	0	0	9.3	21.92	-	-	50.8	-28.88
21	.3143	27.55	Qp	0	0	9.3	36.85	59.86	-23.01	-	-
22	.3143	9.75	Ca	0	0	9.3	19.05	-	-	49.86	-30.81
23	.3345	28.23	Qp	0	0	9.3	37.53	59.34	-21.81	-	-
24	.3345	9.68	Ca	0	0	9.3	18.98	-	-	49.34	-30.36

Qp - Quasi-Peak detector
 Ca - CISPR average detection

11. SETUP PHOTOS

Please refer to 14523778-EP1V1 for setup photos.

END OF TEST REPORT