CERTIFICATION TEST REPORT

Report Number. : 13371062-E1V3

Applicant	:	APPLE INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A
Model	:	A2458
FCC ID	:	BCGA2458
IC	:	579C-A2458
EUT Description	:	TWO COIL CHARGER
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C INDUSTRY CANADA RSS-210 ISSUE 10

Date Of Issue:
October 22, 2020

Prepared by:
UL Verification Services Inc.
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Fremont, CA 94538 U.S.A.
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NVLAP TESTING

NVLAP Lab code: 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/16/2020	Initial Issue	Chin Pang
V2	10/19/2020	Address TCB's Questions	Chin Pang
V3	10/22/2020	Address TCB's Questions	Chin Pang

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: TWO COIL CHARGER

MODEL: A2458

SERIAL NUMBER: DLCCM0CCQ4G2

DATE TESTED: SEPTEMBER 09, 2020 to OCTOBER 22, 2020

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

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

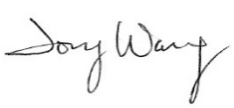
The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. 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 NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:

Chin Pang
Senior Engineer
Consumer Technology Division
UL Verification Services Inc.

Prepared By:



Tony Wang
Test Engineer
Consumer Technology Division
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, 414788 D01 Radiated Test Site v01r01, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 5, and RSS-210 Issue 10.

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd.
☐ Chamber A (IC:2324B-1)	☐ Chamber D (IC:22541-1)	☐ Chamber I (IC: 2324A-5)
☐ Chamber B (IC:2324B-2)	☐ Chamber E (IC:22541-2)	☐ Chamber J (IC: 2324A-6)
☐ Chamber C (IC:2324B-3)	☐ Chamber F (IC:22541-3)	☐ Chamber K (IC: 2324A-1)
	☐ Chamber G (IC:22541-4)	☐ Chamber L (IC: 2324A-3)
	☒ Chamber H (IC:22541-5)	☐ Chamber M (IC: 2324A-2)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code: 2324A.

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

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

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

4.2. DECISION RULES

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U_{Lab}
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance Loop, 9KHz to 30 MHz	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB
Worst Case Occupied Bandwidth	0.09dB / 2.00%

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a magnetic charger with two-coil charging mat designed to be capable of inductively charging up to two client devices at once. One coil is used for charging an iPhone or an AirPods Case while another coil is used for charging an Apple Watch. The charging function operates at 326.5kHz, 127.7kHz, and 360kHz. It supports charging at 5W, 7.5W, and 15W power and NFC Tag mode operation. There is no internal battery.

5.2. MAXIMUM E-FIELD STRENGTH

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

EUT Position	Frequency Range (MHz)	Mode	Kbps	E Field at 30m distance (dBuV/m)
Flat	13.56	Tag	53	18.36

5.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was v11.

5.4. WORST-CASE CONFIGURATION AND MODE

The EUT is a dual frequency magnetic charger enclosed in a stainless steel case. For the entire radiated emissions test, the EUT was investigated on the following configuration during the test at its natural orientation.

Both EUT flat and folded position were investigated to find the worst case, and flat position was determined to be the worst case. Therefore, all final test was performed using Flat position.

Mode	Descriptions
Operating	EUT powered by AC/DC adapter with phone by host PC via USB cable

For below 30MHz & 1GHz tests EUT was connected to AC power adapter as the worst case, the worst-case configuration reported was tested with EUT and phone. For AC line conducted emission, test was investigated with AC power adapter.

The EUT was tested as operation modes. during operational mode, EUT was tested with wireless phone.

For all radiated emissions tests, all final data for operational mode represents EUT with phone. during the Near Field Communication (NFC) process, the phone actively indicates the status of the NFC process from laptop that was connected to phone.

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 300 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788 D01.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC/DC adapter	Apple	A1882	C4H748200RXH80MAY	DoC
Phone	Apple	A2172	G6TD200304FR	BCG-E3542A

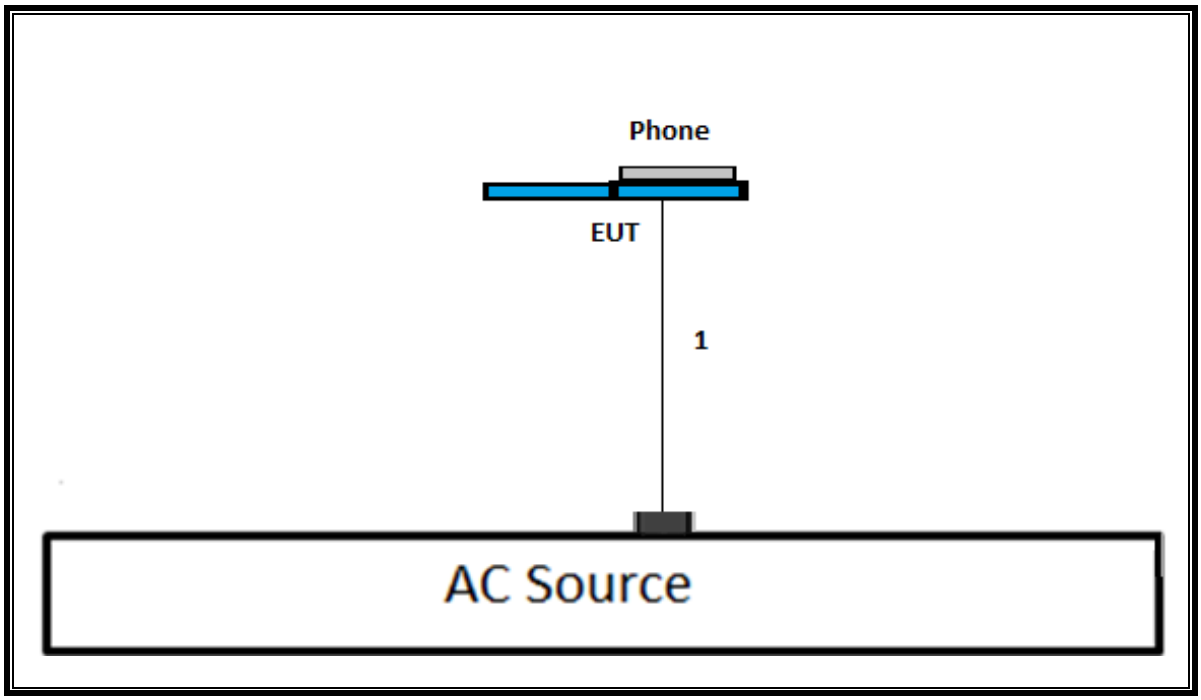
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC	1	USB-C	Un-shielded	1	30W Power Supply
2	DC	1	Magnetic 5 pin	Un-shielded	3	60W Power Supply
3	USB	1	Lightening	Un-shielded	1	Communication

TEST SETUP

The EUT is directly connected to an AC/DC adapter via USB-C cable and magnetic connect to phone on top of EUT.

OPERATING MODE WITH PHONE



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
Antenna, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T1616	10/28/2020	10/28/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	T185	04/15/2021	04/15/2020
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T286	07/22/2021	07/22/2020
Sniffer Probes	Electro Metrics	EM-6992	N/A	N/A	N/A
Environmental Chamber	Cincinnati Sub-Zero	ZPHS-8-3.5-SCT/WC	T754	12/22/2020	12/22/2019
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A-544	T342	01/23/2021	01/23/2020

AC Line Conducted					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	T1436	02/20/2021	02/20/2020
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2020	10/27/2019
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	PRE0186446	01/23/2021	01/23/2020
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		

7. OCCUPIED BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

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

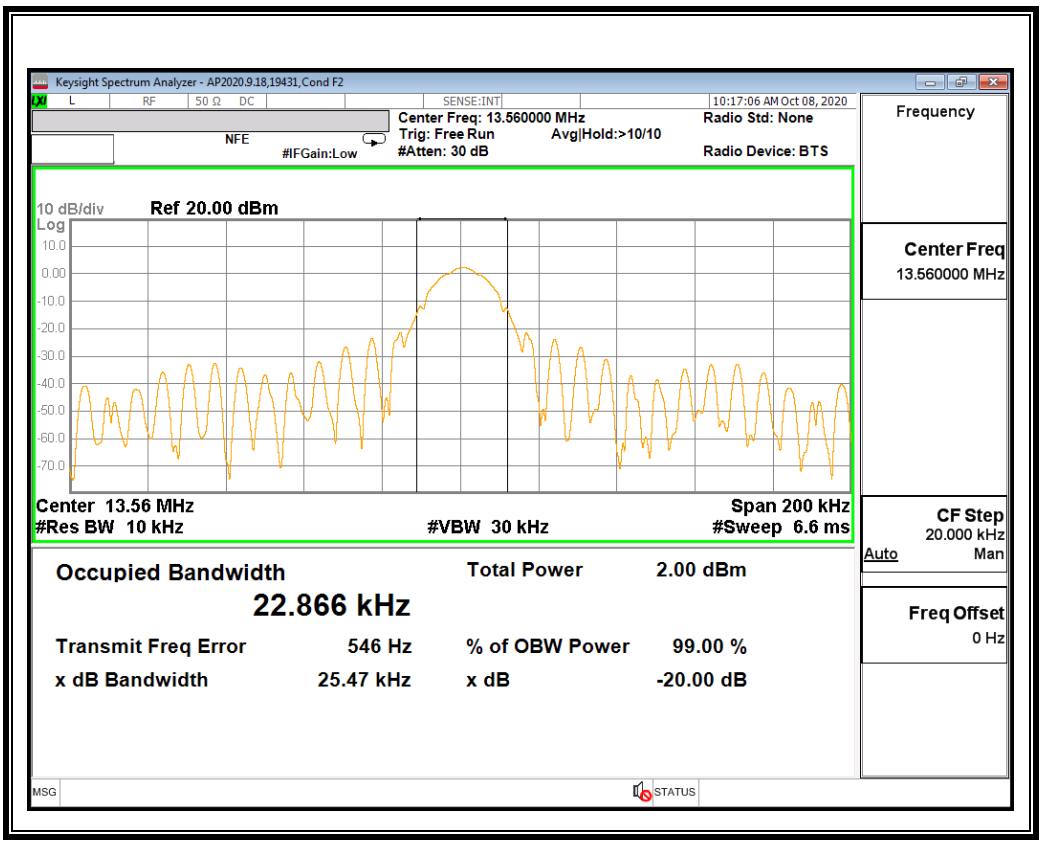
Note: Because the measured signal is CW or CW like, adjusting the RBW per C63.10 would not be practical. Measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

RESULTS

99% and 20dB BW

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
53	13.56	22.866	25.47

Tag Mode



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

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

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

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

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

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

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

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

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

In addition:

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

§15.209 (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

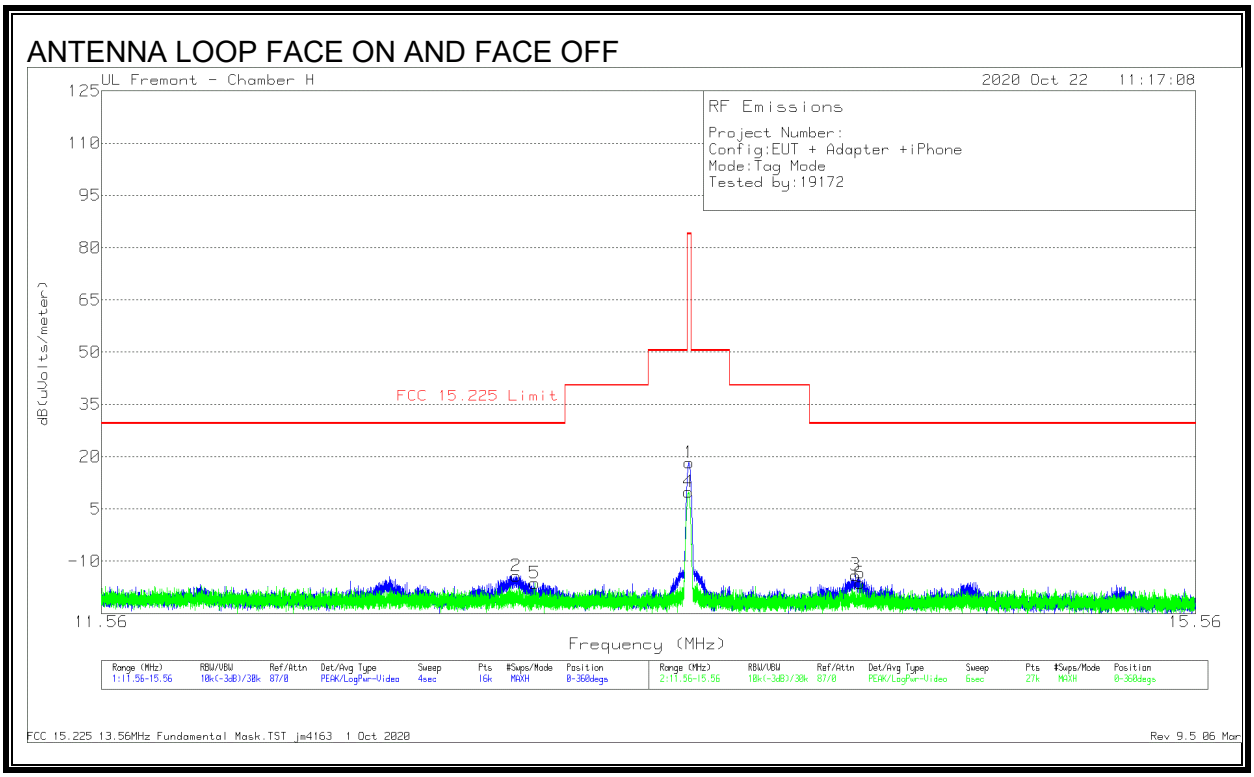
The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

RESULTS

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

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

Tag Mode, Fundamental



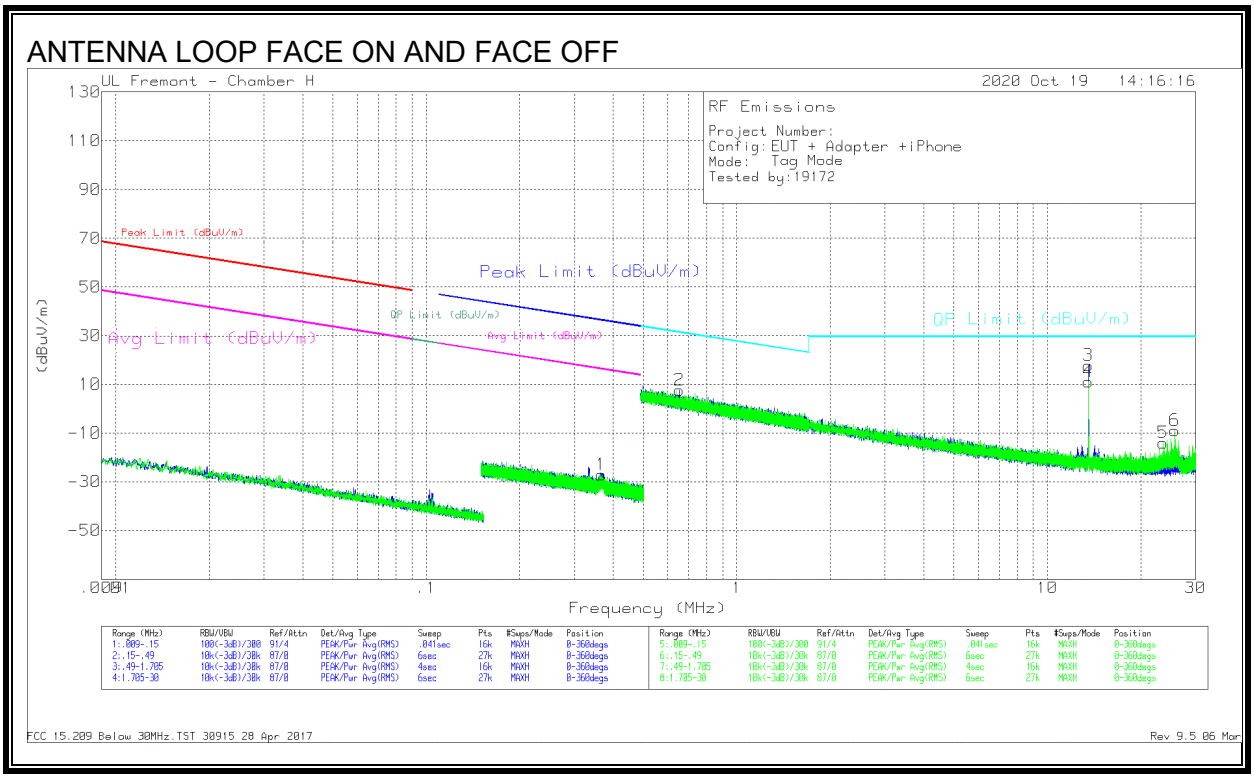
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading dB(uVolts/ meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)
2	12.93925	14.66	Pk	10.8	.4	-40	-14.14	29.54	-43.68	0-360
5	13.00344	12.44	Pk	10.8	.4	-40	-16.36	29.54	-45.9	0-360
4	13.55889	38.84	Pk	10.7	.4	-40	9.94	84	-74.06	0-360
1	13.55975	47.26	Pk	10.7	.4	-40	18.36	84	-65.64	0-360
3	14.18725	14.95	Pk	10.7	.4	-40	-13.95	29.54	-43.49	0-360
6	14.20461	12.69	Pk	10.7	.4	-40	-16.21	29.54	-45.75	0-360

Pk - Peak detector

FCC 15.225 13.56MHz Fundamental Mask.TST jm4163 1 Oct 2020
Rev 9.5 06 Mar 2020

SPURIOUS EMISSION (dBuV/m)



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.36624	41.93	Pk	10.9	.1	-80	-27.07	36.33	-63.4	16.33	-43.4	0-360

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.6518	36.62	Pk	10.8	.1	-40	7.52	31.33	-23.81	0-360
4	13.55788	40.69	Pk	10	.4	-40	11.09	29.5	-18.41	0-360
3	13.55945	47.38	Pk	10	.4	-40	17.78	29.5	-11.72	0-360
5	23.5799	16.18	Pk	9.4	.5	-40	-13.92	29.5	-43.42	0-360
6	25.74088	21.26	Pk	9.1	.6	-40	-9.04	29.5	-38.54	0-360

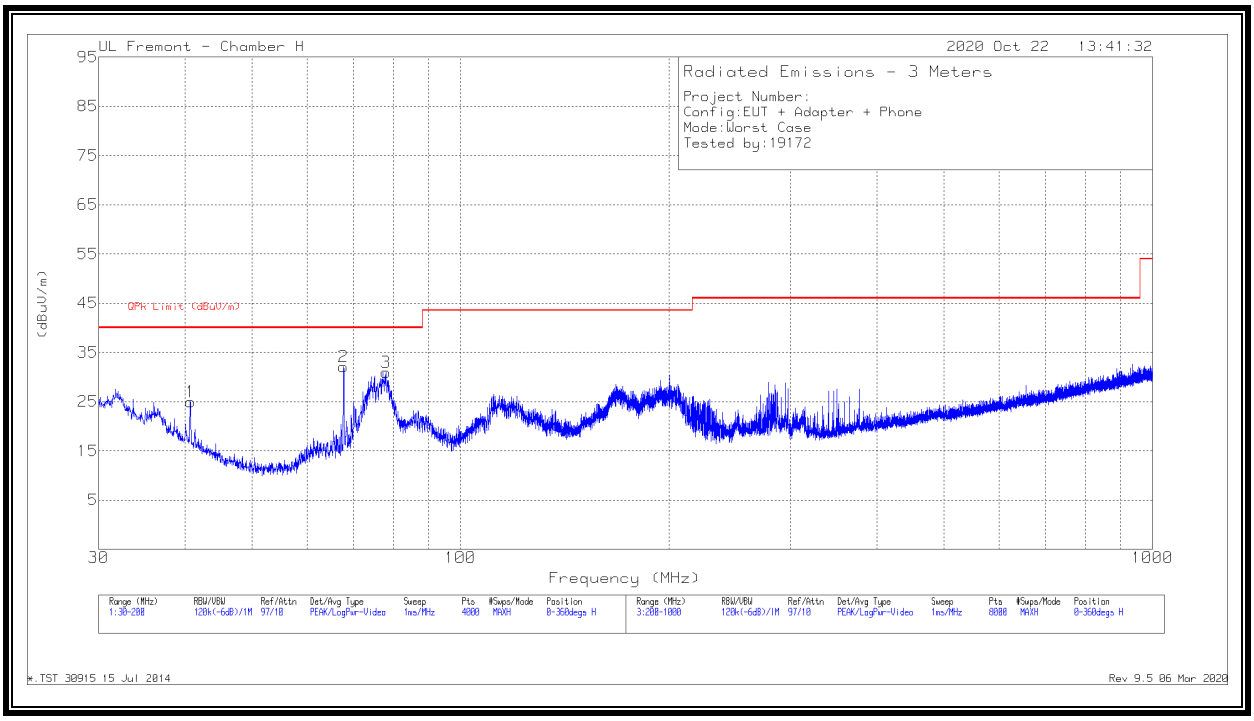
FCC 15.209 Below 30MHz.TST 30915 28 Apr 2017
Rev 9.5 06 Mar 2020

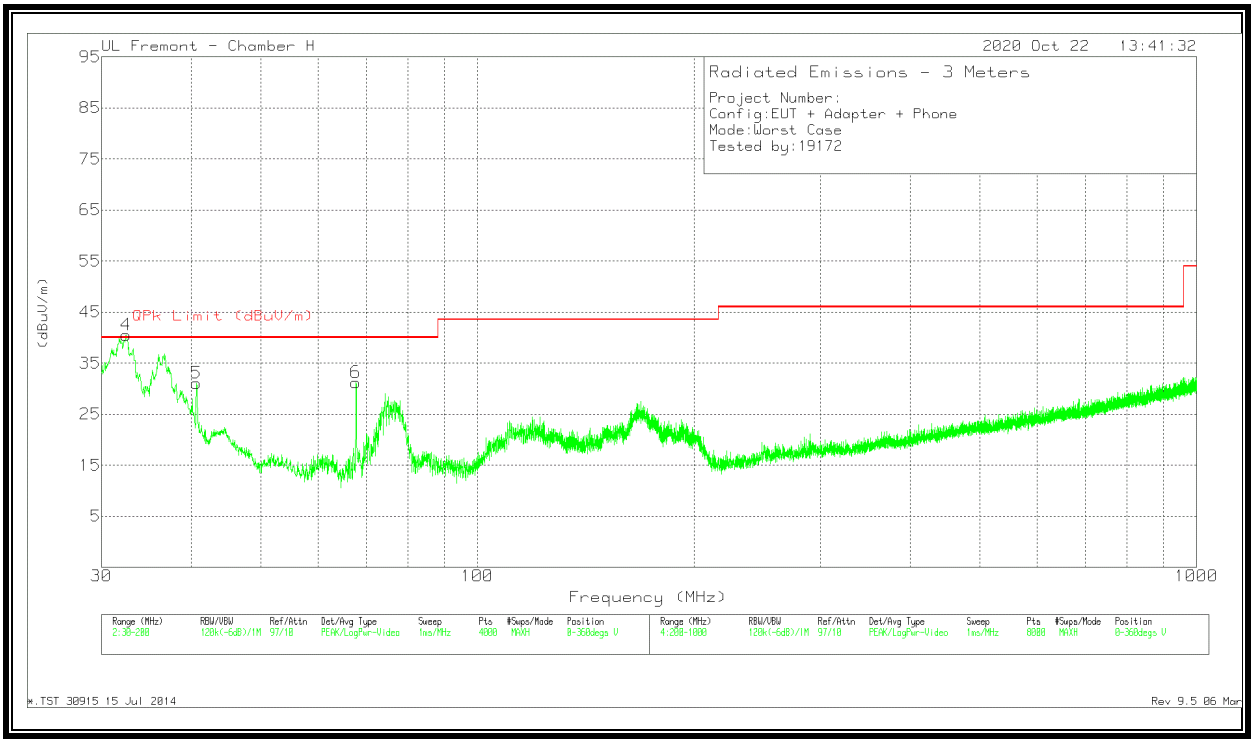
Pk - Peak detector

Note: Marker 3 and 4 are the fundamental signal

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

SPURIOUS EMISSION 53Kbps





DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	77.995	29.97	Qp	18.9	-30.3	18.57	43.52	-24.95	345	275	H
4	32.1354	31.57	Qp	26.5	-31.2	26.87	40	-13.13	327	111	V
1	40.6773	35.93	Qp	19.9	-31.1	24.73	40	-15.27	71	245	H
5	40.6818	40.72	Qp	19.9	-31.1	29.52	40	-10.48	251	103	V
6	67.7933	47.72	Qp	14.2	-30.8	31.12	40	-8.88	68	257	V
2	67.8048	48.72	Qp	14.2	-30.8	32.12	40	-7.88	102	221	H

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

*.TST 30915 15 Jul 2014
Rev 9.5 06 Mar 2020

9. FREQUENCY STABILITY

LIMIT

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

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

TEST PROCEDURE

ANSI C63.10-2013 Clause 6.8

RESULTS

No non-compliance noted.

ID:	38602	Date:	09/9/2020

TAG MODE 53KHz

Reference Frequency: EUT Channel 13.56 MHz @ 20ºC										
Limit: ± 100 ppm = 1.35600 KHz										
Power Supply	Envir. Temp	Frequency Deviation Measureed with Time Elapse								
(Vdc)	(ºC)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
	50	13.5597134	49.472	13.5599673	30.744	13.5598312	40.786	13.5600494	24.694	± 100
	40	13.5599183	34.363	13.5600609	23.846	13.5599570	31.506	13.5596099	57.102	± 100
	30	13.5597829	44.349	13.5601627	16.334	13.5599863	29.342	13.5601643	16.215	± 100
3.80	***20***	***13.5603842***	***0.000***	***13.5599225***	***34.053***	***13.5598940***	***36.150***	***13.5594533***	***68.654***	***± 100***
	10	13.5601358	18.320	13.5597376	47.685	13.5598886	36.549	13.5601230	19.266	± 100
	0	13.5599227	34.032	13.5600176	27.035	13.5598545	39.066	13.5602314	11.270	± 100
	-10	13.5598741	37.619	13.5597654	45.635	13.5597541	46.467	13.5601128	20.016	± 100
	-20	13.5598065	42.607	13.5598825	36.997	13.5601113	20.130	13.5599226	34.043	± 100
3.23	20	13.5599849	29.449	13.5600370	25.606	13.5598313	40.778	13.5599501	32.014	± 100
4.37	20	13.5600023	28.164	13.5599957	28.653	13.5599294	33.540	13.5598029	42.873	± 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

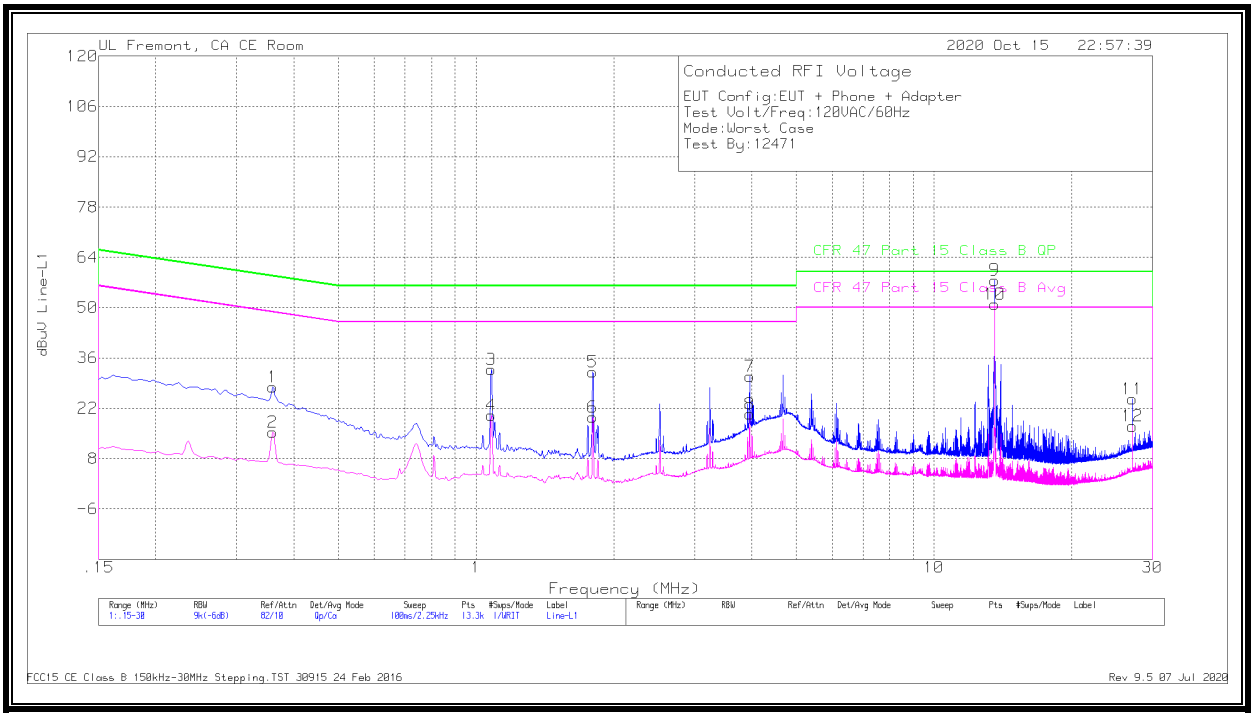
ANSI C63.10:2013

RESULTS

No non-compliance noted:

10.1. FLAT POSITION, NORMAL OPERATION, 53Kbps

LINE 1 RESULTS



Worst Emission

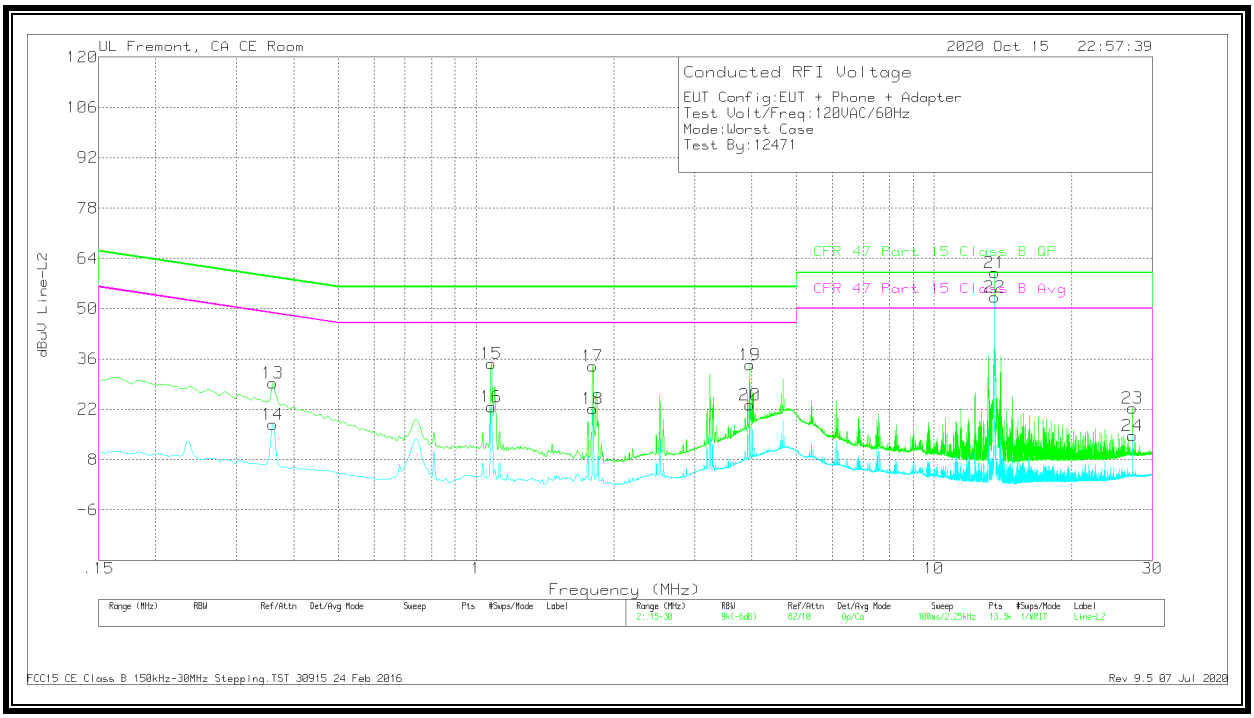
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.35925	17.76	Qp	0	0	10.1	27.86	58.75	-30.89	-	-
2	.35925	5.23	Ca	0	0	10.1	15.33	-	-	48.75	-33.42
3	1.07925	22.62	Qp	0	.1	10.1	32.82	56	-23.18	-	-
4	1.07925	9.86	Ca	0	.1	10.1	20.06	-	-	46	-25.94
5	1.79925	21.84	Qp	0	.1	10.1	32.04	56	-23.96	-	-
6	1.79925	9.37	Ca	0	.1	10.1	19.57	-	-	46	-26.43
7	3.95925	20.61	Qp	0	.1	10.2	30.91	56	-25.09	-	-
8	3.95925	10.16	Ca	0	.1	10.2	20.46	-	-	46	-25.54
9	13.56	47.17	Qp	.1	.2	10.2	57.67	60	-2.33	-	-
10	13.56	40.45	Ca	.1	.2	10.2	50.95	-	-	**50**	**.95**
11	27.12075	13.66	Qp	0	.4	10.5	24.56	60	-35.44	-	-
12	27.12075	6.12	Ca	0	.4	10.5	17.02	-	-	50	-32.98

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

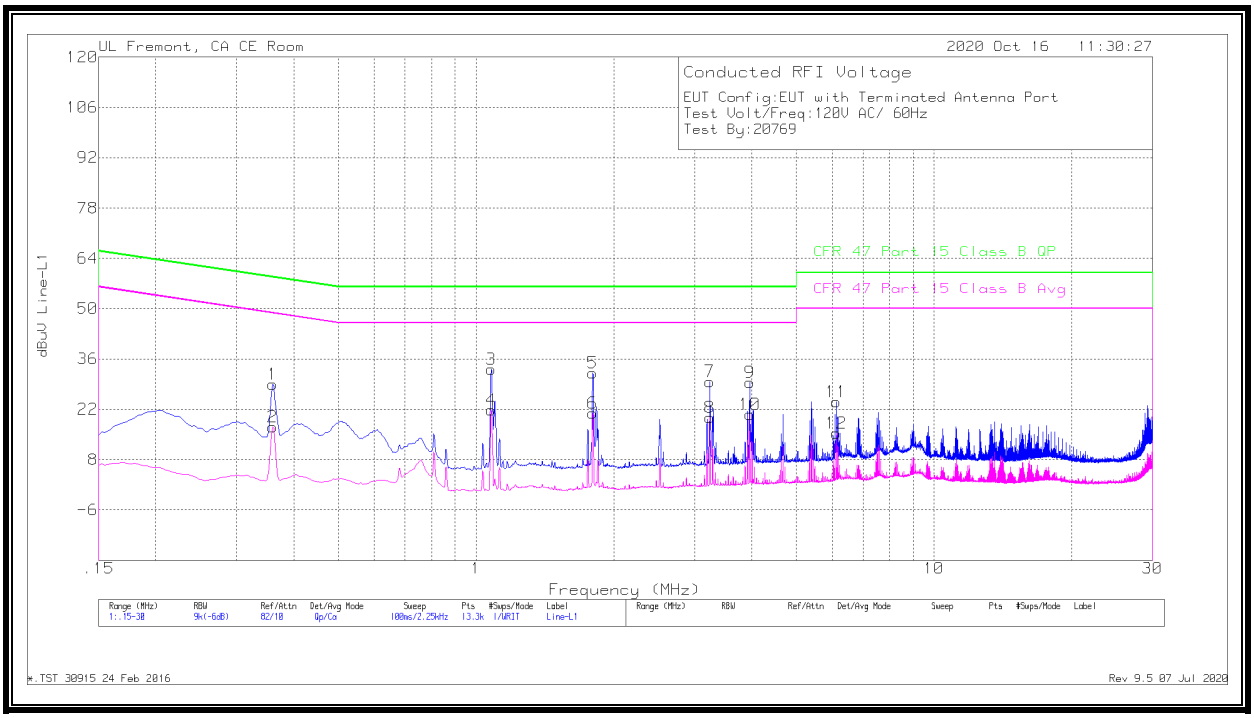
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
13	.35925	19.27	Qp	0	0	10.1	29.37	58.75	-29.38	-	-
14	.35925	7.65	Ca	0	0	10.1	17.75	-	-	48.75	-31
15	1.07925	24.58	Qp	0	.1	10.1	34.78	56	-21.22	-	-
16	1.07925	12.47	Ca	0	.1	10.1	22.67	-	-	46	-23.33
17	1.79925	23.85	Qp	0	.1	10.1	34.05	56	-21.95	-	-
18	1.79925	11.93	Ca	0	.1	10.1	22.13	-	-	46	-23.87
19	3.95925	24.11	Qp	0	.1	10.2	34.41	56	-21.59	-	-
20	3.95925	12.95	Ca	0	.1	10.2	23.25	-	-	46	-22.75
21	13.56	49.58	Qp	.1	.2	10.2	60.08	**60**	**.08**	-	-
22	13.56	42.79	Ca	.1	.2	10.2	53.29	-	-	**50**	**3.29**
23	27.12075	11.34	Qp	.1	.4	10.5	22.34	60	-37.66	-	-
24	27.12075	3.71	Ca	.1	.4	10.5	14.71	-	-	50	-35.29

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.

10.2. NORMAL OPERATION WITH ANTENNA PORT TERMINATED, 53Kbps

LINE 1 RESULTS



Worst Emission

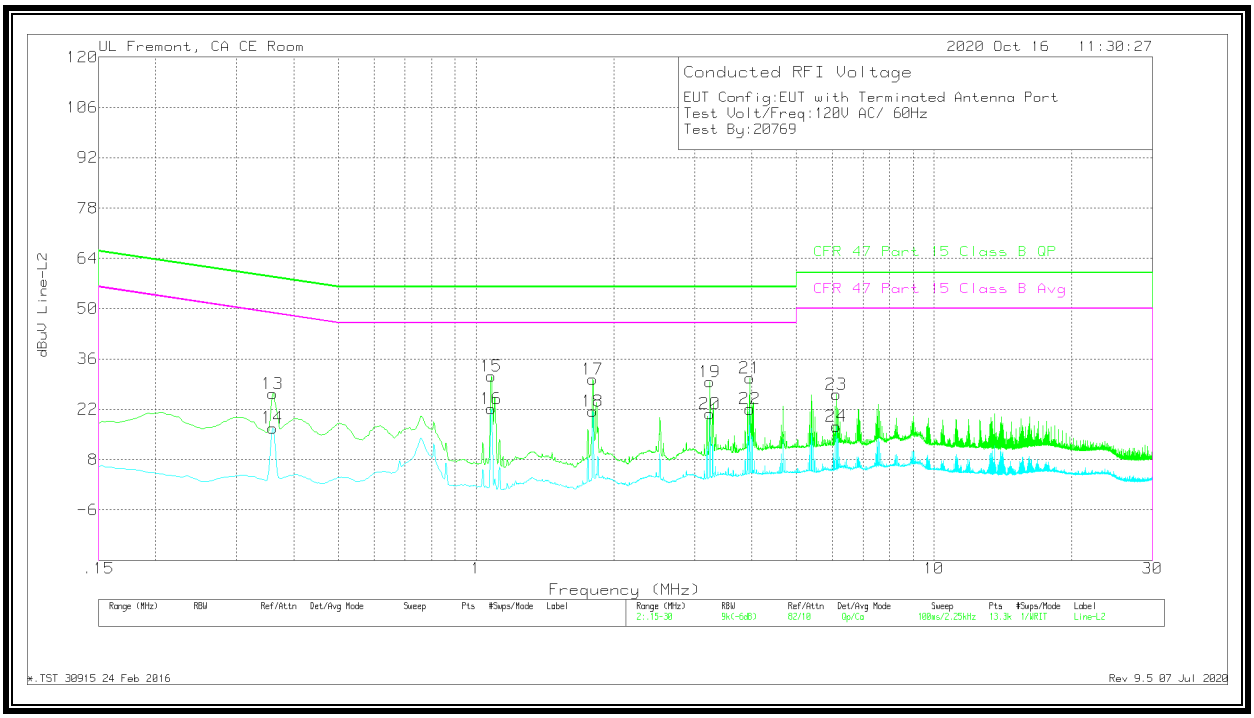
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.35925	18.87	Qp	0	0	10.1	28.97	58.75	-29.78	-	-
2	.35925	6.94	Ca	0	0	10.1	17.04	-	-	48.75	-31.71
3	1.07925	22.9	Qp	0	.1	10.1	33.1	56	-22.9	-	-
4	1.07925	11.64	Ca	0	.1	10.1	21.84	-	-	46	-24.16
5	1.79925	21.98	Qp	0	.1	10.1	32.18	56	-23.82	-	-
6	1.79925	10.79	Ca	0	.1	10.1	20.99	-	-	46	-25.01
7	3.23925	19.45	Qp	0	.1	10.2	29.75	56	-26.25	-	-
8	3.23925	9.42	Ca	0	.1	10.2	19.72	-	-	46	-26.28
9	3.95925	19.14	Qp	0	.1	10.2	29.44	56	-26.56	-	-
10	3.95925	10.29	Ca	0	.1	10.2	20.59	-	-	46	-25.41
11	6.11925	13.61	Qp	0	.2	10.2	24.01	60	-35.99	-	-
12	6.11925	4.99	Ca	0	.2	10.2	15.39	-	-	50	-34.61

Qp - Quasi-Peak detector
Ca - CISPR average detection

*.TST 30915 24 Feb 2016
Rev 9.5 07 Jul 2020

LINE 2 RESULTS



Worst Emission

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
13	.35925	16.31	Qp	0	0	10.1	26.41	58.75	-32.34	-	-
14	.35925	6.74	Ca	0	0	10.1	16.84	-	-	48.75	-31.91
15	1.07925	21.04	Qp	0	.1	10.1	31.24	56	-24.76	-	-
16	1.07925	12.04	Ca	0	.1	10.1	22.24	-	-	46	-23.76
17	1.79925	20.15	Qp	0	.1	10.1	30.35	56	-25.65	-	-
18	1.79925	11.31	Ca	0	.1	10.1	21.51	-	-	46	-24.49
19	3.23925	19.42	Qp	0	.1	10.2	29.72	56	-26.28	-	-
20	3.23925	10.46	Ca	0	.1	10.2	20.76	-	-	46	-25.24
21	3.95925	20.48	Qp	0	.1	10.2	30.78	56	-25.22	-	-
22	3.95925	11.78	Ca	0	.1	10.2	22.08	-	-	46	-23.92
23	6.11925	15.74	Qp	0	.2	10.2	26.14	60	-33.86	-	-
24	6.11925	6.88	Ca	0	.2	10.2	17.28	-	-	50	-32.72

Qp - Quasi-Peak detector
Ca - CISPR average detection

*.TST 30915 24 Feb 2016
Rev 9.5 07 Jul 2020

11. SETUP PHOTOS

Please refer to 13371062-EP1V1 for setup photos

END OF TEST REPORT