



CERTIFICATION TEST REPORT

Report Number. : 13573777-E14V1

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

Model : A2481 (Parent Model, Full Test)
A2626, A2628, A2629, A2630 (Variant Models)

FCC ID : BCG-E3994A (Parent Model)
BCG-E3996A, BCG-E4029A, BCG-E4030A (Variant Models)

IC : 579C-E3994A (Parent Model)
579C-E3996A, 579C-E4029A, 579C-E4030A (Variant Models)

EUT Description : Smartphone

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-216 ISSUE 2
ISED RSS-GEN ISSUE 5 + A1 + A2

Date of Issue:

July 26, 2021

Prepared by:

UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538 U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888



Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	7/26/2021	Initial Issue	Frank Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
ONE APPLE PARK WAY
CUPERTINO, CA 95014,

EUT DESCRIPTION: Smartphone

MODEL: A2481 (Parent Model, Full Test)
A2626, A2628, A2629, A2630 (Variant Models)

BRAND: APPLE

FCC ID: BCG-E3994A (Parent Model)
BCG-E3996A, BCG-E4029A, BCG-E4030A (Variant Models)

IC ID: 579C-E3994A (Parent Model)
579C-E3996A, 579C-E4029A, 579C-E4030A, (Variant Models)

SERIAL NUMBER: D4MDFDQTX2

SAMPLE RECEIPT DATE: June 15, 2021

DATE TESTED: June 20, 2021 – July 2, 2021

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Complies
ISED RSS-216 Issue 2	Complies
ISED RSS-GEN Issue 5 + A1 + A2	Complies

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

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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

Approved & Released For
UL Verification Services Inc. By:



Frank Ibrahim
Staff Engineer
Consumer Technology Division
UL Verification Services Inc.

Prepared By:



Douglas Pavicich
Test Engineer
Consumer Technology Division
UL Verification Services Inc

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-216 Issue 2

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	US0104	2324A	208313
<input checked="" type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538	US0104	22541	208313
<input type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538	US0104	2324B	208313

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	UNCERTAINTY
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%.

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, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS, NFC and WPT. All models support at least one UICC based SIM. The second SIM is either an UICC based p-SIM (physical SIM) or e-SIM (electronic SIM). The device supports a built-in inductive charging transmitter and receiver. 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.

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

Parent Model: A2481; FCC ID: BCG-E3994A, IC ID: BCG-E3994A

Variant Models: A2626; FCC ID: BCG-E3996A, IC ID: 579C-E3996A
 A2628; FCC ID: BCG-E4029A, IC ID: 579C-E4029A
 A2629; FCC ID: BCG-E4030A, IC ID: 579C-E4030A
 A2630; FCC ID: BCG-E4030A, IC ID: 579C-E4030A

5.2. MAXIMUM E-FIELD and H-FIELD

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

Fundamental Frequency (KHz)	Mode	E field (300m distance) FCC (dBuV/m)	H field (3m distance) IC (dBuA/m)
360	Standby	-29.13	-2.29
	Operating	-17.48	8.44

5.3. WORST-CASE CONFIGURATION AND MODE

The EUT is a smartphone which connected to the AC/DC adapter via USB-C cable, and the inductive charging coil to charge WPT accessories (Load). For the entire radiated emissions test, the EUT was investigated on the following configuration during the test: 1. At its natural orientation with EUT set at center location on Load, 2. At its natural orientation with EUT including a case set at center location on load. The worst case was natural orientation with EUT including a case set at center location on load.

Mode	Descriptions
Standby	EUT with Case powered by AC/DC adapter
Operating	EUT with Case and Load powered by AC/DC adapter

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

The EUT was tested on standby and operation modes. During operational mode, EUT was tested with load.

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.

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT & PERIPHERALS

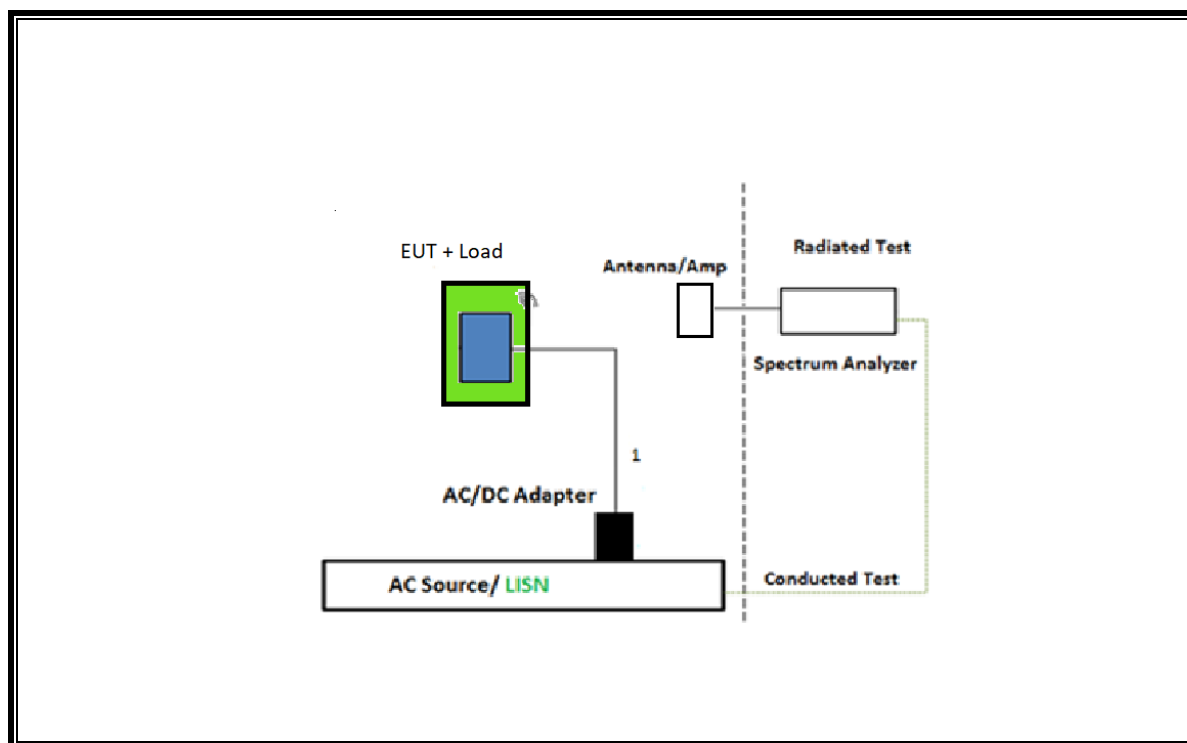
SUPPORT EQUIPMENT & PERIPHERALS LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC adapter	Apple	A2305	C4H748200RXH80MAY	DoC
WPT Accessory (Load)	Apple	A2384	DNDF66EN0NLJ	BCGA2384
WPT Accessory	Apple	Silicon Case	C03251PE1MAABKY0139	DoC

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	USBC	Un-shielded	1	5W Power Supply

TEST SETUP

OPERATING MODE PHONE WITH LOAD



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, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T757	11/12/2021	11/12/2020
Antenna, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T1616	12/02/2021	12/02/2020
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB	Sunol Sciences Crop.	JB1	T130	08/04/2021	08/04/2020
Amplifier, 9kHz to 1GHz, 32dB	Sonoma Instrument	310N	T834	07/14/2021	07/14/2020
Sniffer Probes	Electro Metrics	EM-6992	N/A	N/A	N/A
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A-544	T1210	01/26/2022	01/26/2021

AC Line Conducted					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	T1436	02/19/2022	02/19/2021
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2021	10/27/2020
LISN for Conducted Emissions	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	PRE0186446	01/20/2022	01/20/2021
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, April 14, 2021		
Conducted Software	UL	UL EMC	2021.4.21		

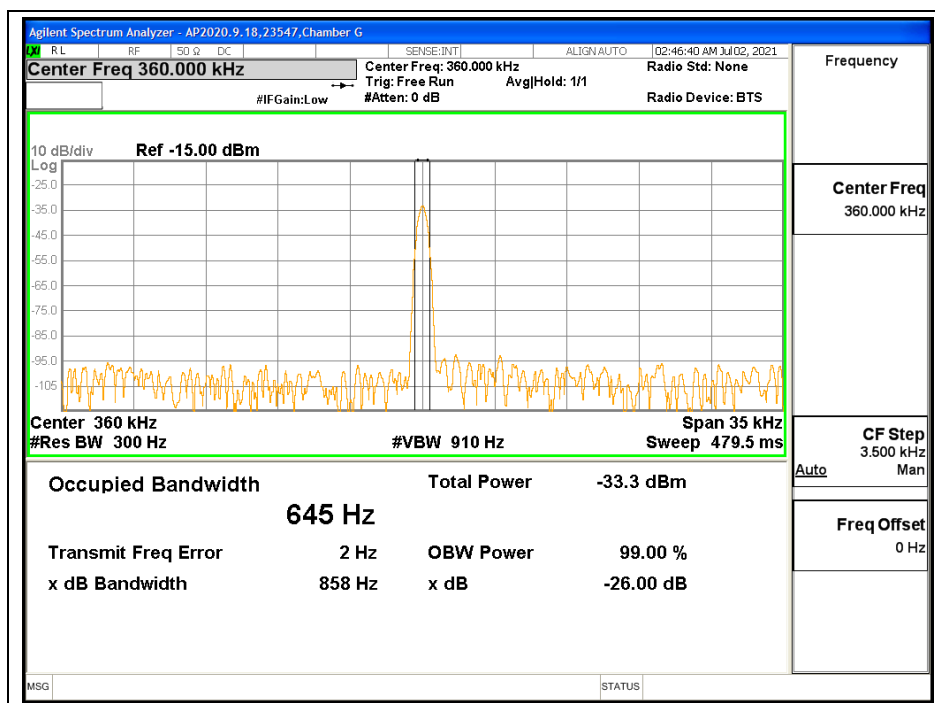
7. OCCUPIED BANDWIDTH

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 300Hz. 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-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



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.209 (a)

ICES-001 Section 3.3.4, IC RSS-216 6.2.2, and IC RSS-GEN Sections 8.9 and 8.10.

Frequency (MHz)	Field Strength (microvolts/meter)	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 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3
Note: The lower limit shall apply at the transition frequency.		

ICES-001 Issue 5 Table 2 & Table 4:

Table 2: Magnetic field strength radiated emission limits for induction cooking appliances

Frequency range (MHz)	Quasi-peak, at 3 m distance (dBμA/m)
0.009 – 0.07	69
0.07 – 0.15	69 to 39 *
0.15 – 30	39 to 7 *
* The limit level in dBμA/m decreases linearly with the logarithm of frequency.	

Table 4: Electric field strength radiated emission limits for induction cooking appliances

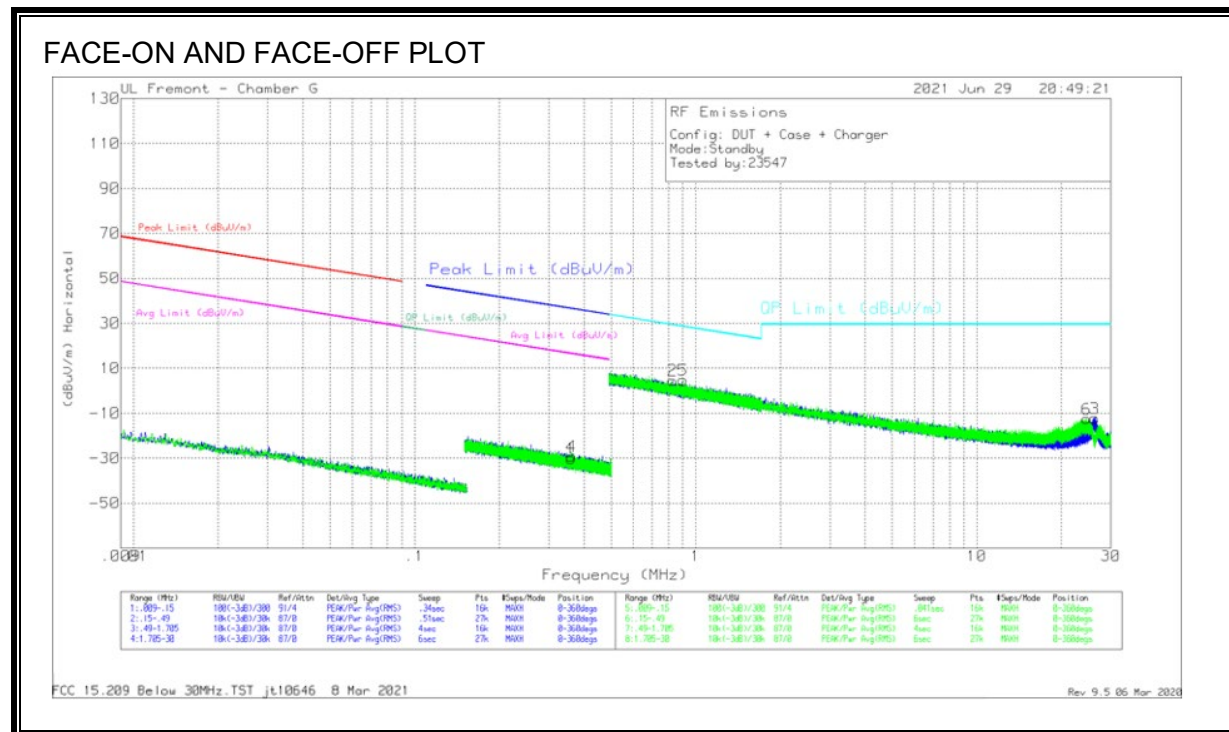
Frequency range (MHz)	OATS or SAC * 10 m measurement distance Quasi-peak (dBμV/m)	OATS or SAC * 3 m measurement distance Quasi-peak (dBμV/m)	FAR * 3 m measurement distance Quasi-peak (dBμV/m)
30 – 230	30	40	42 to 35**
230 – 1000	37	47	42
Note: The more stringent limit applies at the transition frequency. * OATS = open-area test site, SAC = semi-anechoic chamber, FAR = fully-anechoic room (see CSA C15.119). ** The limit level in dBμV/m decreases linearly with the logarithm of frequency.			

RESULTS

8.2.Standby

8.2.1. FCC TX FUNDAMENTAL & SPURIOUS EMISSIONS (9 kHz - 30 MHz)

Standby



Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Orientation
1	.36019	38.64	Pk	11.2	.1	-80	-30.06	36.48	-66.54	0-360	Face On
4	.36151	39.57	Pk	11.2	.1	-80	-29.13	36.45	-65.58	0-360	Face Off

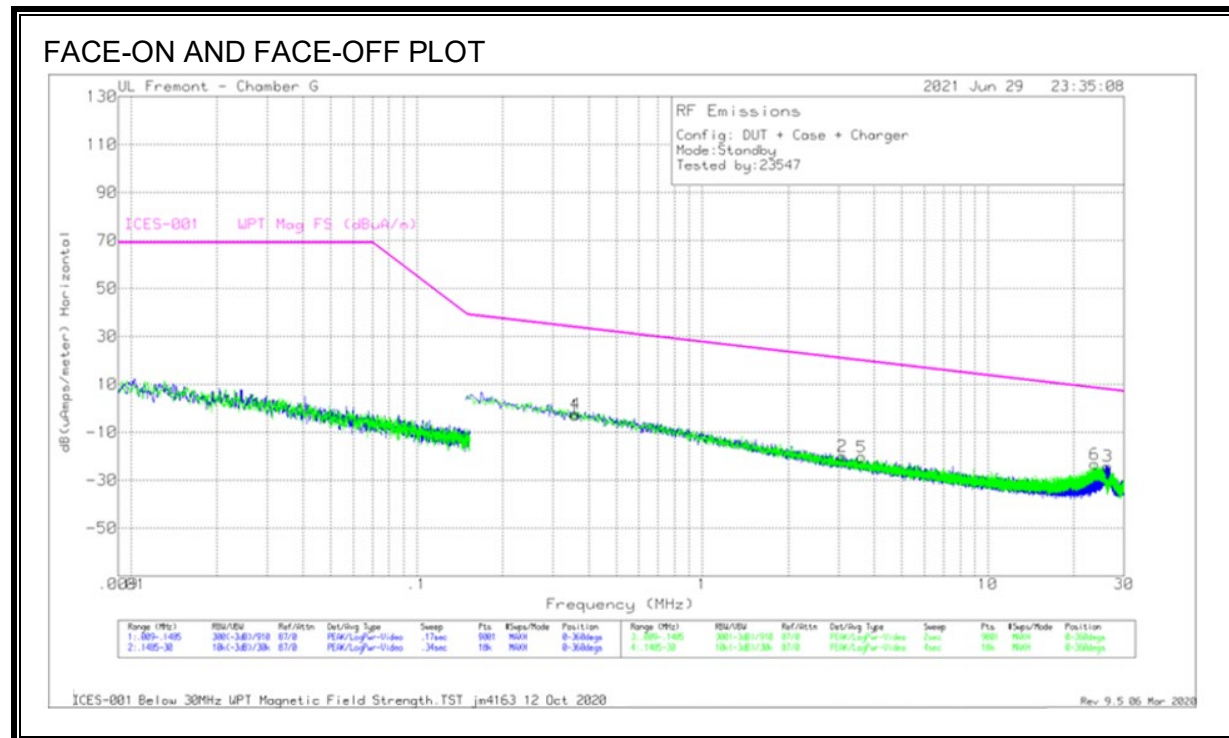
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 30m	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Orientation
2	.82919	33.28	Pk	11.3	.1	-40	4.68	29.24	-24.56	0-360	Face On
5	.9007	33.28	Pk	11.4	.1	-40	4.78	28.53	-23.75	0-360	Face Off
6	24.64153	17.36	Pk	9.4	.8	-40	-12.44	29.5	-41.94	0-360	Face Off
3	26.25126	17.92	Pk	9	.8	-40	-12.28	29.5	-41.78	0-360	Face On

Pk - Peak detector

8.2.2. IC/ ICES-001 TX FUNDAMENTAL & SPURIOUS EMISSIONS (9 kHz - 30 MHz)

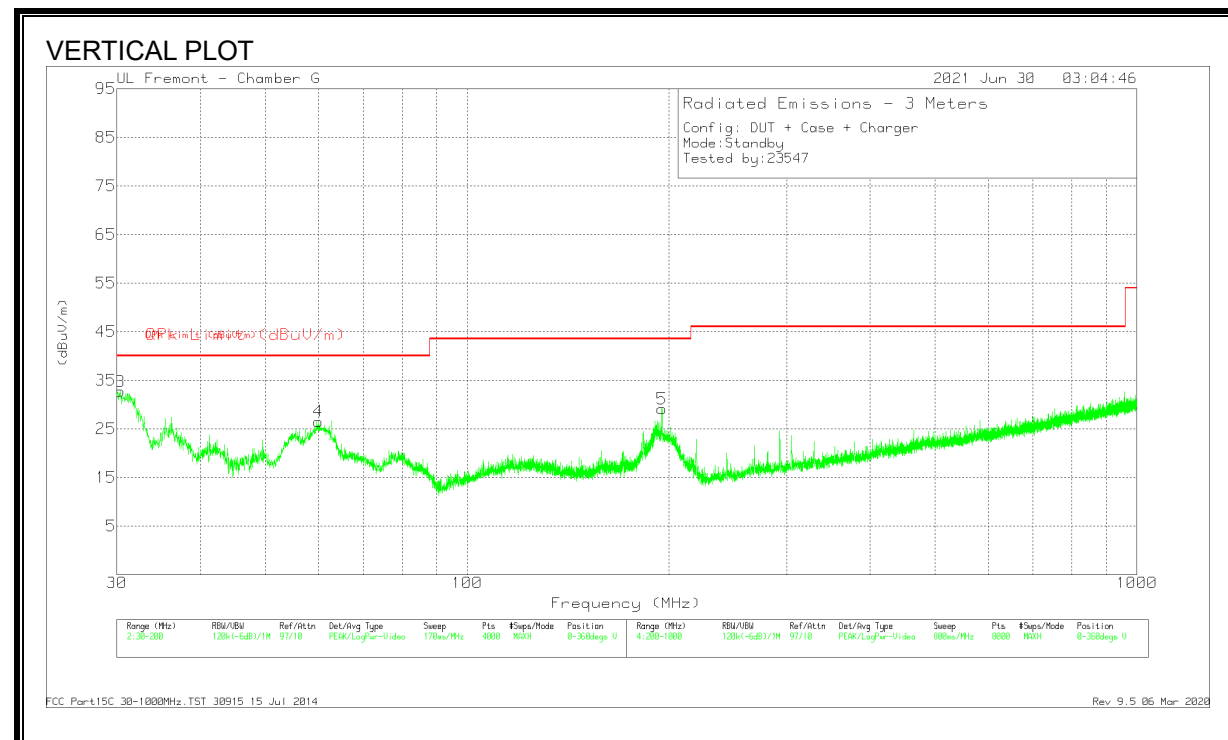
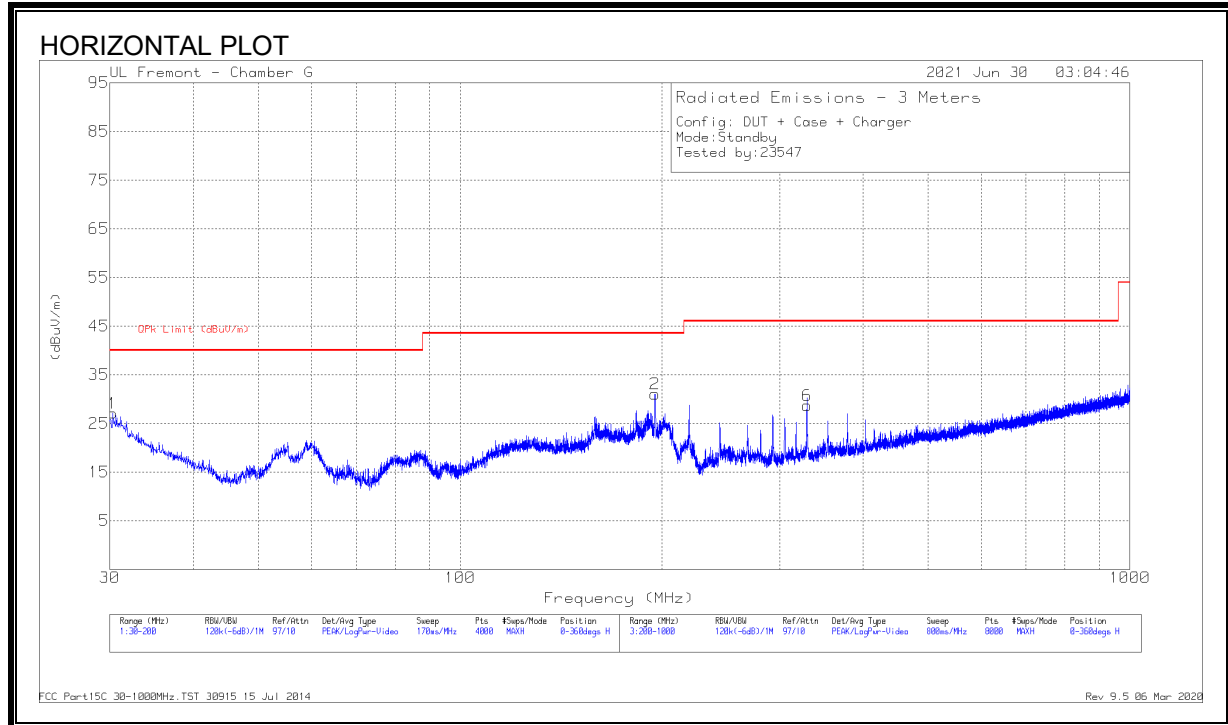
Standby



Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Corrected Reading dB(uAmps/meter)	ICES-001 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)	Antenna Orientation
1	.35907	37.23	Pk	-40.3	.1	-2.97	33.73	-36.7	0-360	Face On
4	.36072	37.91	Pk	-40.3	.1	-2.29	33.7	-35.99	0-360	Face Off
2	3.09145	19.9	Pk	-40.1	.2	-20	20.73	-40.73	0-360	Face On
5	3.60709	19.32	Pk	-40	.3	-20.38	19.79	-40.17	0-360	Face Off
6	23.62412	17.92	Pk	-41.9	.7	-23.28	8.44	-31.72	0-360	Face Off
3	26.26532	17.43	Pk	-42.4	.8	-24.17	7.8	-31.97	0-360	Face On

Pk - Peak detector

8.2.3. FCC TX SPURIOUS EMISSION (30 - 1000 MHz)**Standby**

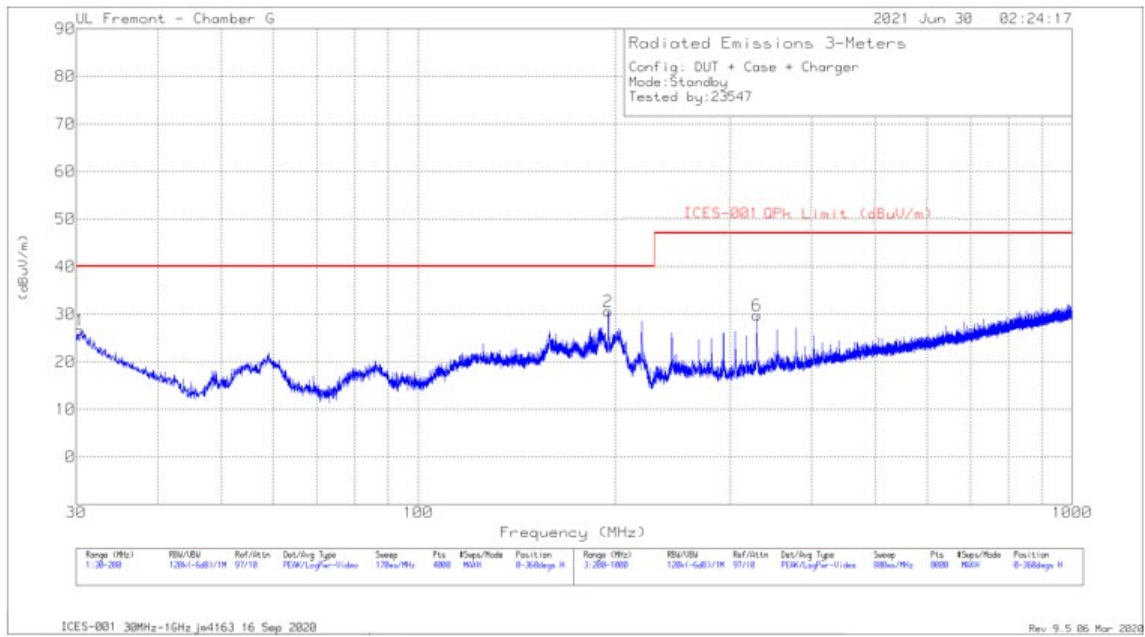
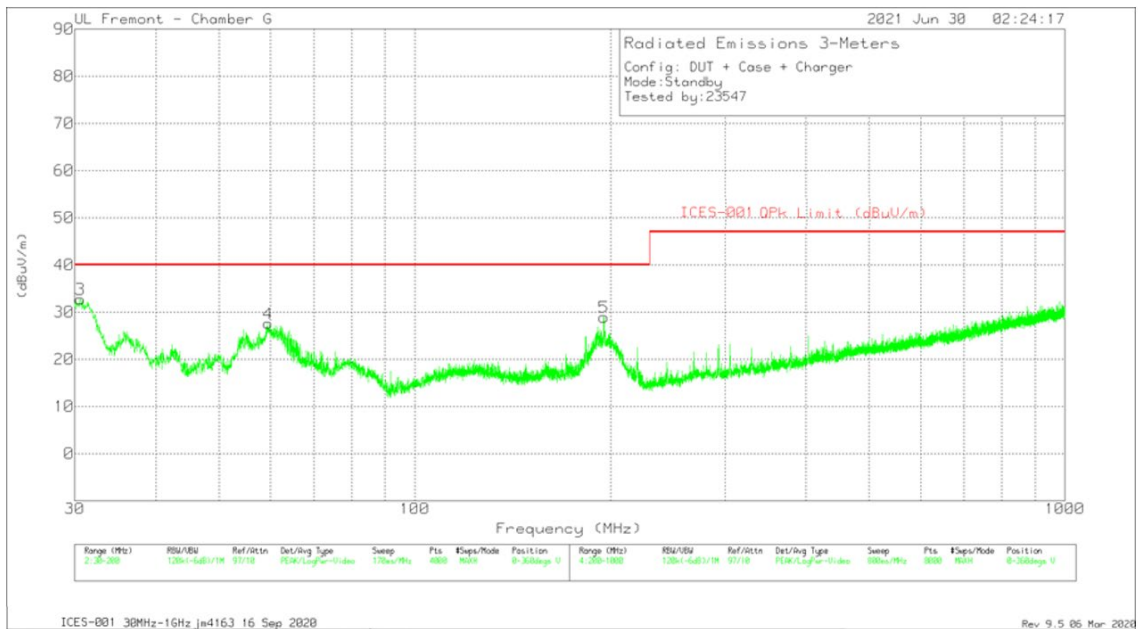
Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AFT130 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 329.8083	37.22	Qp	20.5	-28.9	28.82	46.02	-17.2	195	100	H
	* 329.7267	41.9	Pk	20.5	-28.9	33.5	46.02	-12.52	195	100	H
1	30.501	26.03	Qp	27.5	-31.3	22.23	40	-17.77	274	265	H
3	31.227	32.05	Qp	26.9	-31.3	27.65	40	-12.35	290	126	V
4	59.8443	39.99	Qp	13.5	-31	22.49	40	-17.51	25	105	V
5	195.3183	37.25	Qp	18.5	-29.8	25.95	43.52	-17.57	80	168	V
2	195.4078	40.17	Qp	18.5	-29.8	28.87	43.52	-14.65	301	149	H

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

Pk - Peak detector

Qp - Quasi-Peak detector

8.2.4. IC/ ICES-001 TX SPURIOUS EMISSION (30 - 1000 MHz)**Standby****HORIZONTAL PLOT****VERTICAL PLOT**

Radiated Emissions

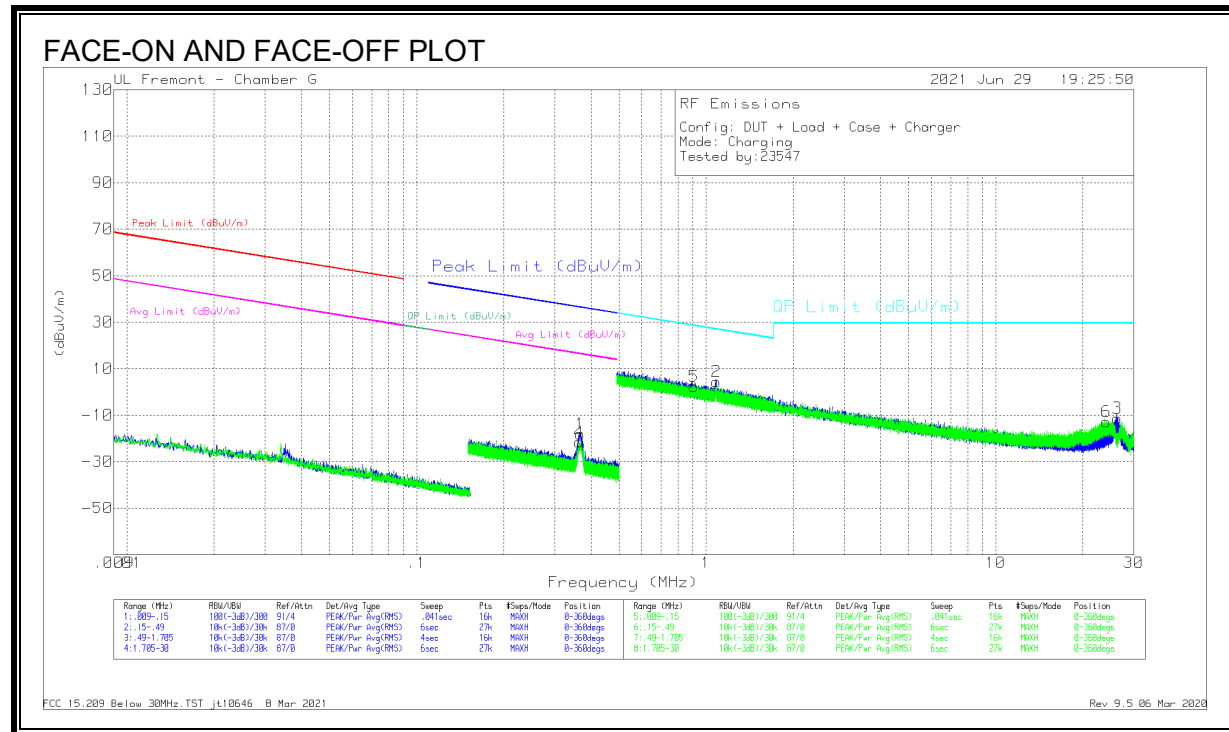
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AFT130 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	ICSE-001 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.984	24.92	Qp	27.1	-31.3	20.72	40	-19.28	210	196	H
3	31.299	32.29	Qp	26.9	-31.3	27.89	40	-12.11	5	115	V
4	59.4516	40.25	Qp	13.4	-31	22.65	40	-17.35	15	100	V
5	195.3671	38.39	Qp	18.5	-29.8	27.09	40	-12.91	71	141	V
2	195.4908	41.25	Qp	18.5	-29.8	29.95	40	-10.05	325	115	H
6	329.8679	36.85	Qp	20.5	-28.9	28.45	47	-18.55	192	108	H

Qp - Quasi-Peak detector

8.3.EUT With Load

8.3.1. FCC TX FUNDAMENTAL & SPURIOUS EMISSIONS (9 kHz - 30 MHz)

OPERATING WITH LOAD



Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Orientation
4	.35912	43.51	Av	11.2	.1	-80	-25.19	-	-	16.5	-41.69	302	Face Off
	.35964	46.97	Pk	11.2	.1	-80	-21.73	36.49	-58.22	-	-	302	
1	.35977	49.15	Av	11.2	.1	-80	-19.55	-	-	16.49	-36.04	221	Face On
	.36082	51.22	Pk	11.2	.1	-80	-17.48	36.46	-53.94	-	-	221	

Pk - Peak detector

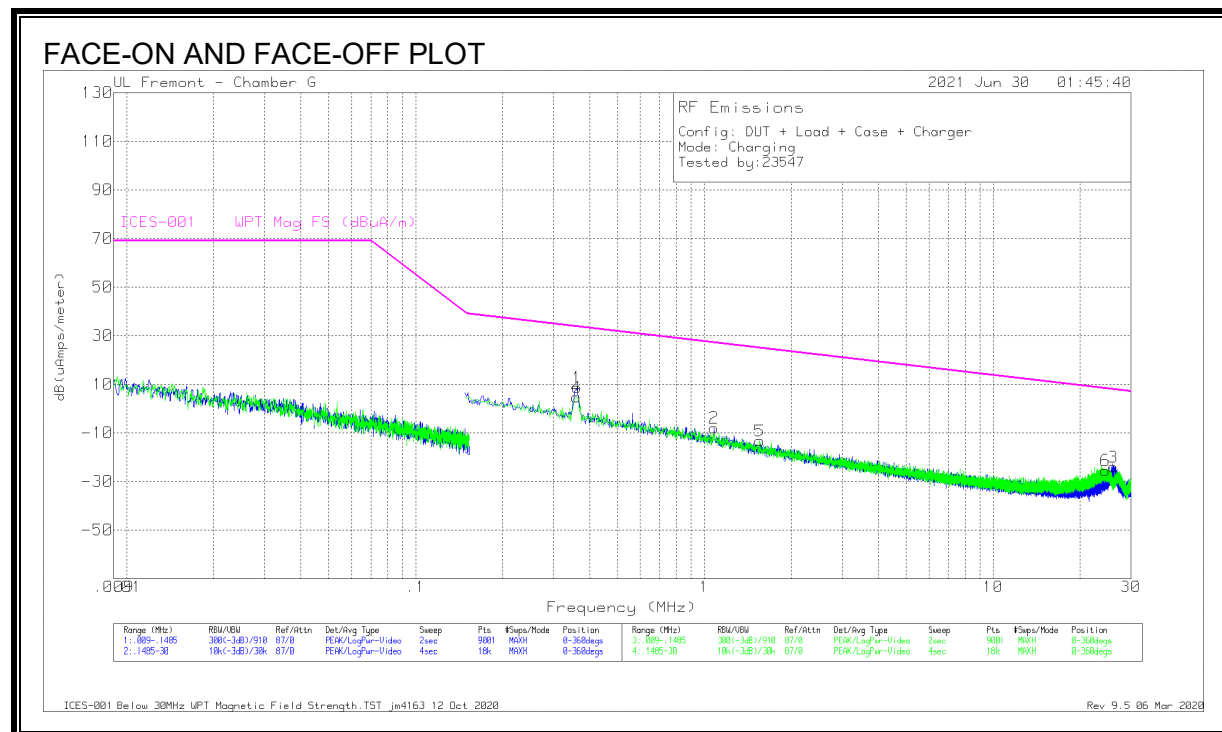
Av - Average detection

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 30m	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Orientation
5	.90578	24.79	Qp	11.4	.1	-40	-3.71	28.48	-32.19	252	Face Off
2	1.07991	31.48	Qp	11.5	.2	-40	3.18	26.96	-23.78	207	Face On
6	24.141	11.91	Qp	9.5	.8	-40	-17.79	29.5	-47.29	5	Face Off
3	26.3234	14.05	Qp	9	.8	-40	-16.15	29.5	-45.65	313	Face On

Qp - Quasi-Peak detector

8.3.2. IC/ ICES-001 TX FUNDAMENTAL & SPURIOUS EMISSIONS (9 kHz - 30 MHz)

OPERATING WITH LOAD



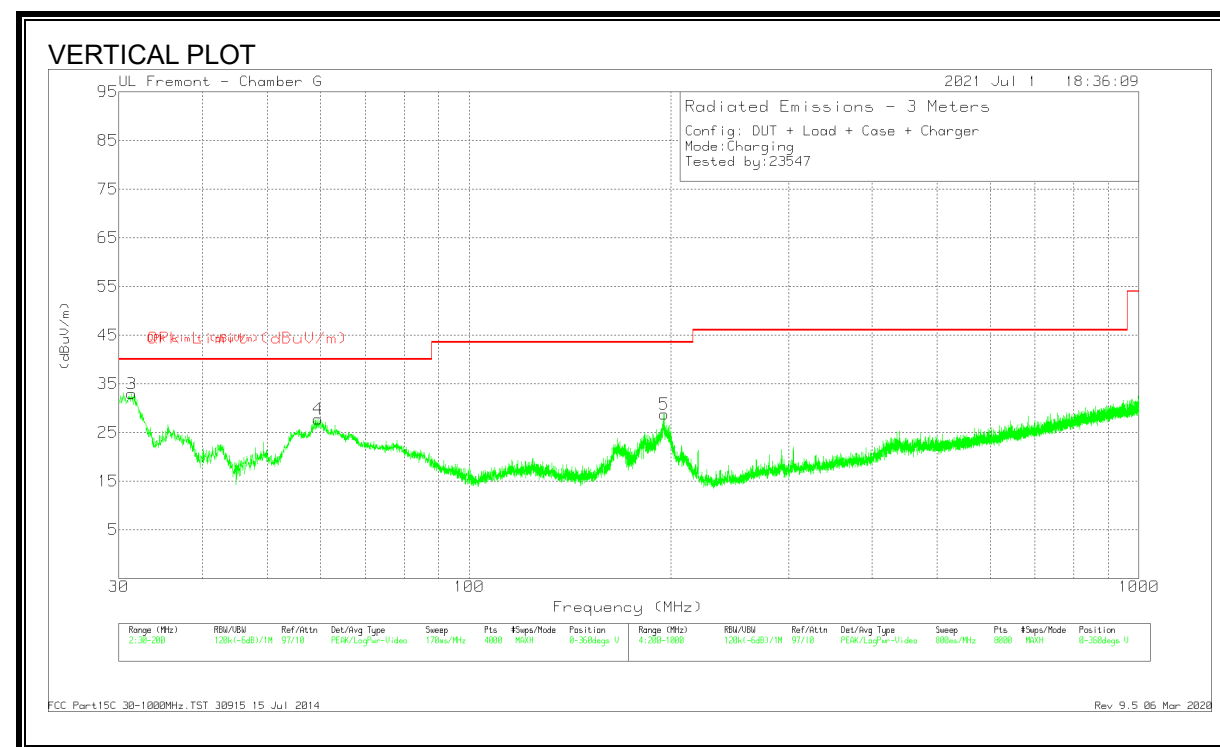
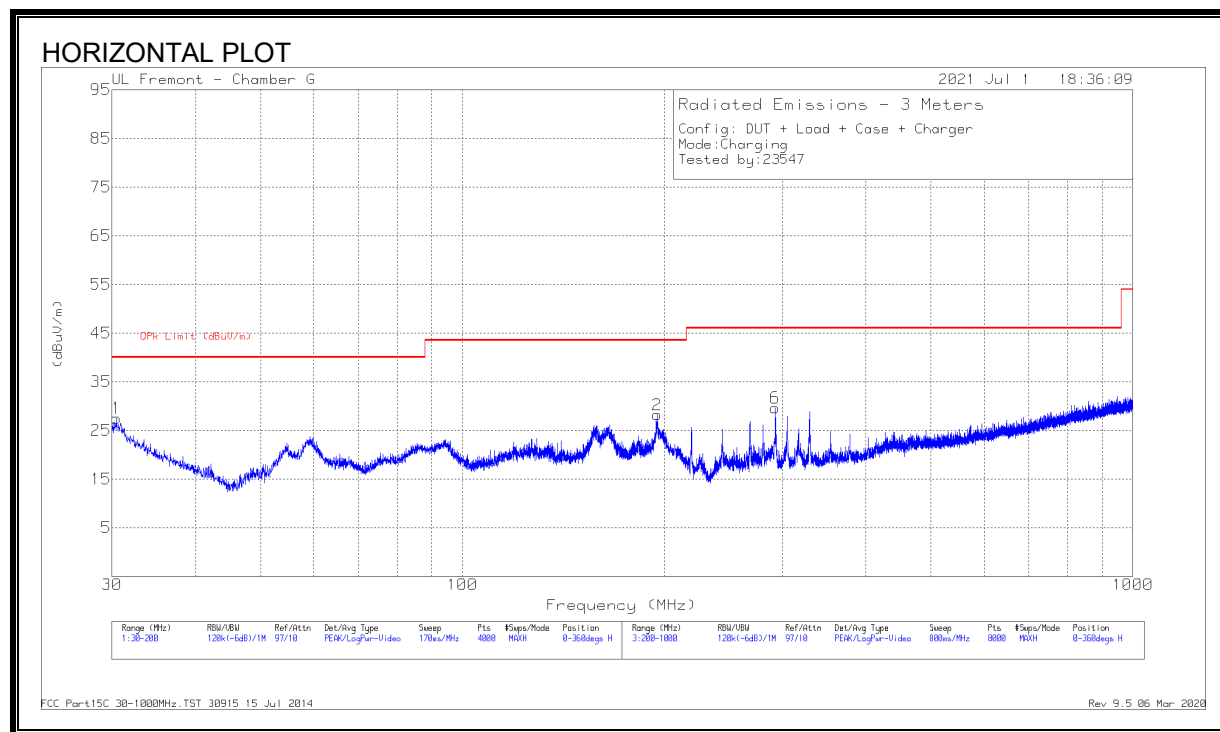
Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Corrected Reading dB(uAmps/meter)	ICES-001 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)	Antenna Orientation
1	.35956	48.64	Qp	-40.3	.1	8.44	33.72	-25.28	235	Face On
4	.36013	44.65	Qp	-40.3	.1	4.45	33.71	-29.26	5	Face Off
2	1.07789	29.82	Qp	-40	.2	-9.98	27.09	-37.07	245	Face On
5	1.56784	19.81	Qp	-40.1	.2	-20.09	24.83	-44.92	153	Face Off
6	24.4728	11.94	Qp	-42	.8	-29.26	8.23	-37.49	10	Face Off
3	26.0337	13.89	Qp	-42.3	.8	-27.61	7.86	-35.47	309	Face On

Qp - Quasi-Peak detector

8.3.3. FCC TX SPURIOUS EMISSION (30 - 1000 MHz)

OPERATING WITH LOAD



Radiated Emissions

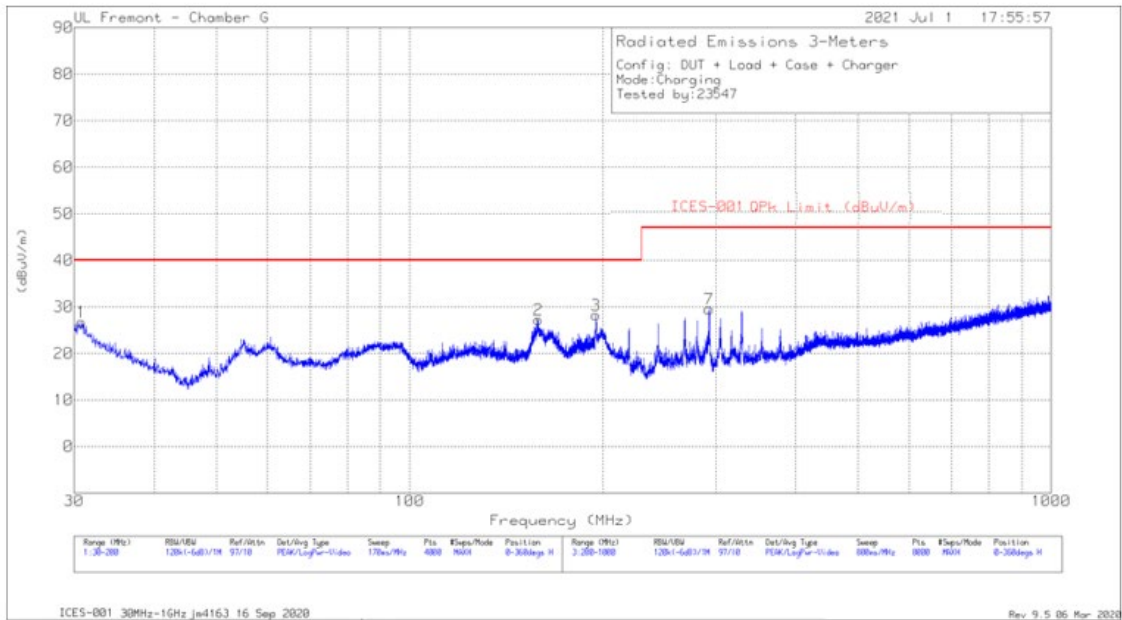
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AFT130 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.9169	25.74	Qp	27.2	-31.3	21.64	40	-18.36	234	350	H
3	31.25	33.43	Qp	26.9	-31.3	29.03	40	-10.97	9	101	V
4	59.7241	42.07	Qp	13.5	-31	24.57	40	-15.43	353	103	V
5	195.2378	37.49	Qp	18.4	-29.8	26.09	43.52	-17.43	166	134	V
2	195.3288	39.4	Qp	18.5	-29.8	28.1	43.52	-15.42	122	166	H
6	293.1711	36.48	Qp	19.7	-29.2	26.98	46.02	-19.04	347	109	H

Qp - Quasi-Peak detector

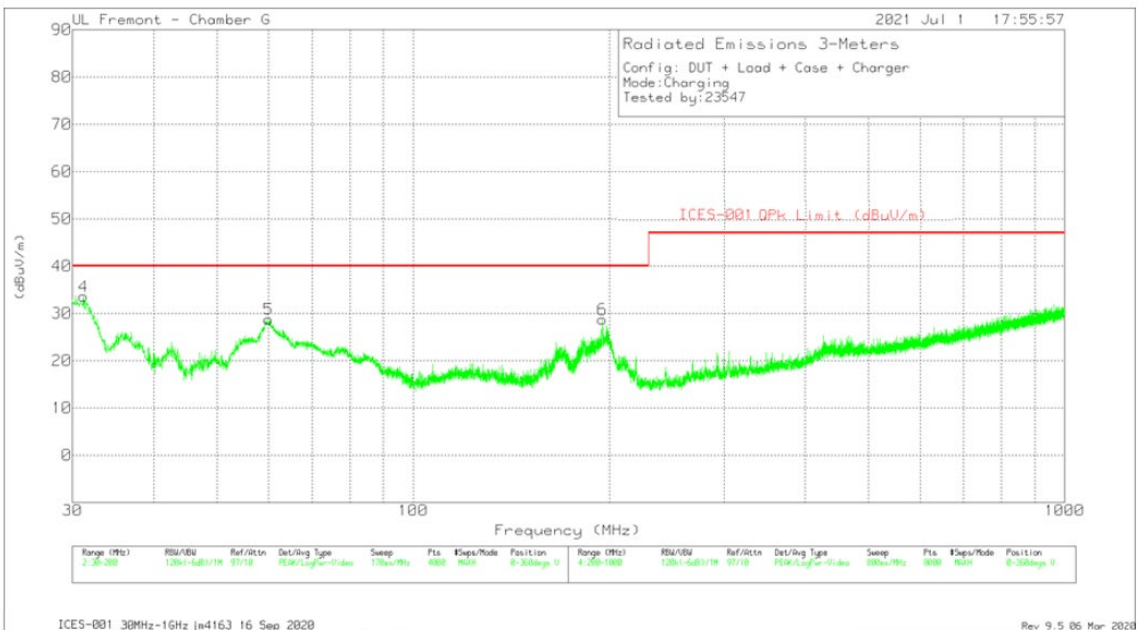
8.3.4. IC/ ICES-001 TX SPURIOUS EMISSION (30 - 1000 MHz)

OPERATING WITH LOAD

HORIZONTAL PLOT



VERTICAL PLOT



Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AFT130 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	ICES-001 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.8769	26.23	Qp	27.2	-31.3	22.13	40	-17.87	284	182	H
4	31.4285	33.3	Qp	26.8	-31.3	28.8	40	-11.2	352	101	V
5	59.4063	41.94	Qp	13.4	-31	24.34	40	-15.66	24	111	V
2	158.6733	36.34	Qp	18.6	-30.1	24.84	40	-15.16	118	184	H
6	195.2168	37.54	Qp	18.4	-29.8	26.14	40	-13.86	157	101	V
3	195.3008	39.27	Qp	18.5	-29.8	27.97	40	-12.03	133	168	H
7	293.0041	36.52	Qp	19.7	-29.2	27.02	47	-19.98	354	108	H

Qp - Quasi-Peak detector

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

ICES-001 Issue 5 Table 1:

Table 1: Conducted emission limits for induction cooking appliances (AC mains terminals)

Frequency range (MHz)	Appliances rated 100 V, without an earth connection Quasi-peak (dB μ V)	Appliances rated 100 V, without an earth connection Average (dB μ V)	All other appliances Quasi-peak (dB μ V)	All other appliances Average (dB μ V)
0.009 – 0.05	122	—	110	—
0.05 – 0.15	102 to 92 *	—	90 to 80 *	—
0.15 – 0.5	72 to 62 *	62 to 52 *	66 to 56 *	56 to 46 *
0.5 – 5	56	46	56	46
5 – 30	60	50	60	50
Note: The more stringent limit applies at transition frequencies. * The limit level in dB μ V decreases linearly with the logarithm of frequency.				

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

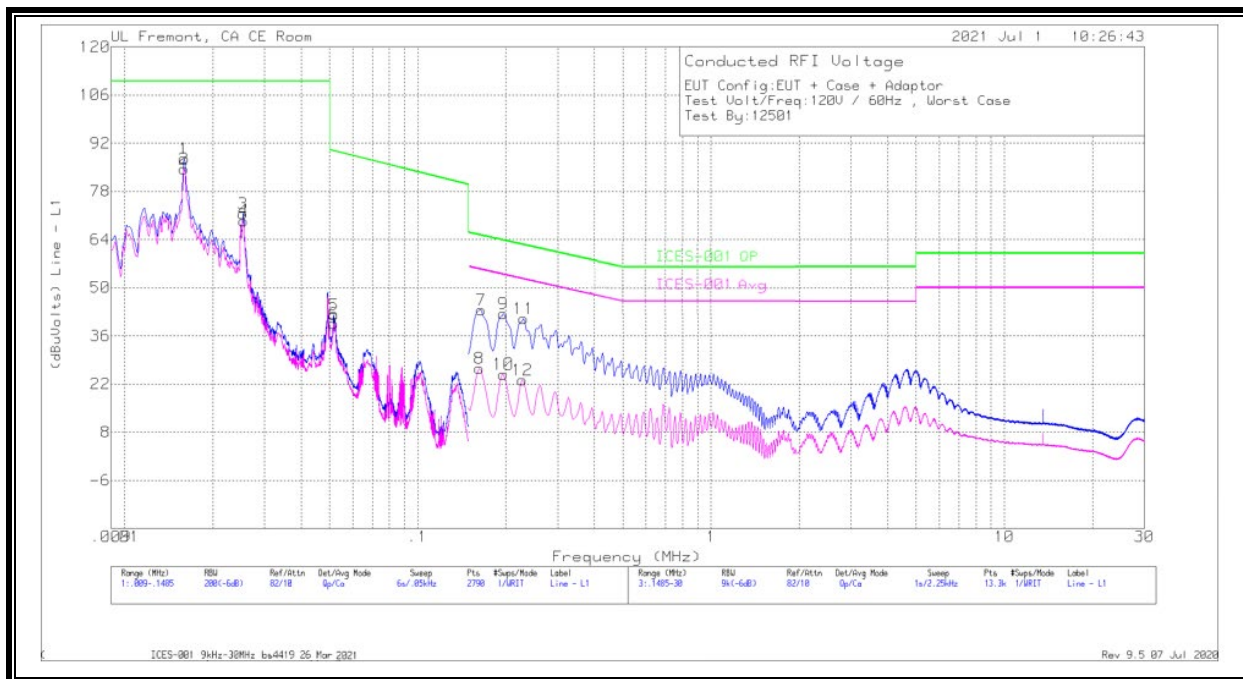
RESULTS

Note: The limits on the plots from 150kHz – 30MHz cover both ICES-001 and FCC Part 15.207.

9.1. Standby

9.1.1. STANDBY MODE POWERED BY AC/DC ADAPTER

LINE 1 RESULTS



Range 1: Line - L1 .009 - .1485MHz

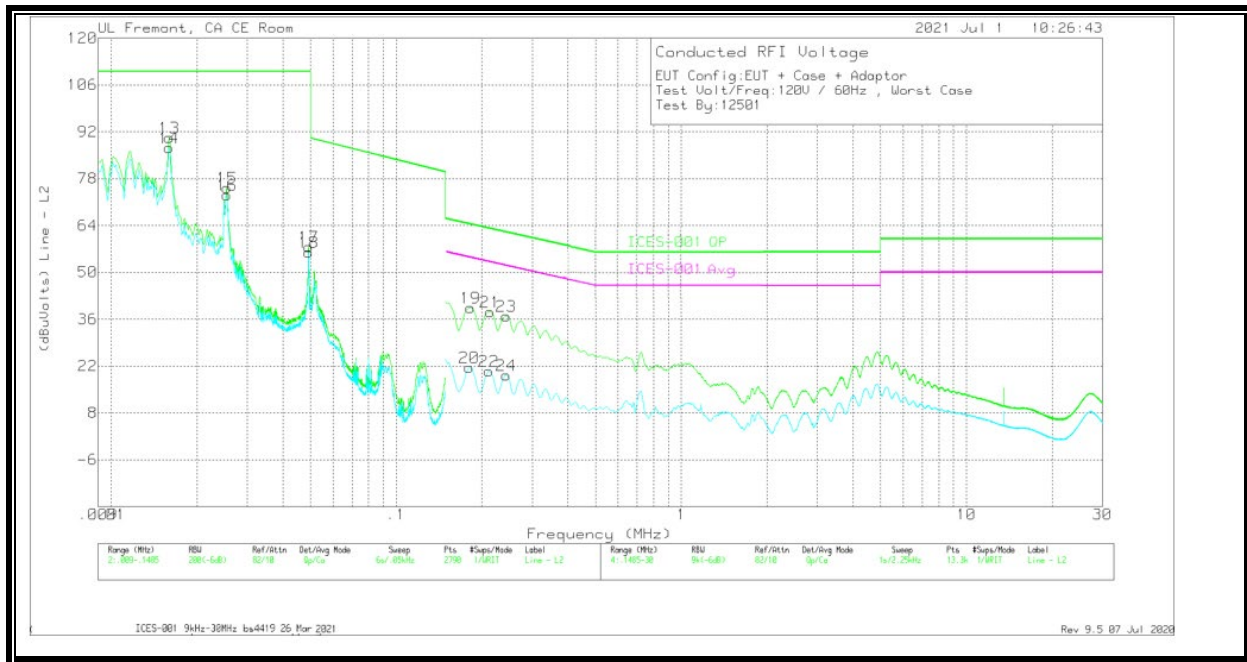
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 LISN09(IL L1) r	LC Cables C1&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBuVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
1	.016	72.89	Qp	2.4	0	12.3	87.59	110	-22.41	-	-
2	.01595	69.81	Ca	2.4	0	12.3	84.51	-	-	-	-
3	.0254	58.49	Qp	1.1	0	12	71.59	110	-38.41	-	-
4	.02545	56.37	Ca	1.1	0	12	69.47	-	-	-	-
5	.0517	30.61	Qp	.3	0	11.2	42.11	89.69	-47.58	-	-
6	.0517	28.03	Ca	.3	0	11.2	39.53	-	-	-	-

Range 3: Line - L1 .1485 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 LISN09(IL L1) r	LC Cables C1&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBuVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
7	.16425	34.16	Qp	0	0	9.4	43.56	65.17	-21.61	-	-
8	.162	17.2	Ca	0	0	9.4	26.6	-	-	55.36	-28.76
9	.19575	33.13	Qp	0	0	9.3	42.43	63.72	-21.29	-	-
10	.19575	15.57	Ca	0	0	9.3	24.87	-	-	53.79	-28.92
11	.2295	31.7	Qp	0	0	9.3	41	62.41	-21.41	-	-
12	.22725	13.87	Ca	0	0	9.3	23.17	-	-	52.55	-29.38

Qp - Quasi-Peak detector

Ca - Average detection

Line 2 Results**Range 2: Line - L2 .009 - .1485MHz**

Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	PRE0186446 LISN10(IL L2) r	LC Cables C2&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBUVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
13	.016	75.51	Qp	2.4	0	12.3	90.21	110	-19.79	-	-
14	.01595	72.52	Ca	2.4	0	12.3	87.22	-	-	-	-
15	.02545	62.1	Qp	1.1	0	12	75.2	110	-34.8	-	-
16	.02545	60.02	Ca	1.1	0	12	73.12	-	-	-	-
17	.0492	45.97	Qp	.3	0	11.3	57.57	110	-52.43	-	-
18	.04925	44.48	Ca	.3	0	11.3	56.08	-	-	-	-

Range 4: Line - L2 .1485 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	PRE0186446 LISN10(IL L2) r	LC Cables C2&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBUVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
19	.18225	30	Qp	0	0	9.4	39.4	64.31	-24.91	-	-
20	.18	12.19	Ca	0	0	9.4	21.59	-	-	54.49	-32.9
21	.21375	28.92	Qp	0	0	9.3	38.22	63	-24.78	-	-
22	.2115	11.28	Ca	0	0	9.3	20.58	-	-	53.15	-32.57
23	.243	27.6	Qp	0	0	9.3	36.9	61.94	-25.04	-	-
24	.243	10.03	Ca	0	0	9.3	19.33	-	-	51.99	-32.66

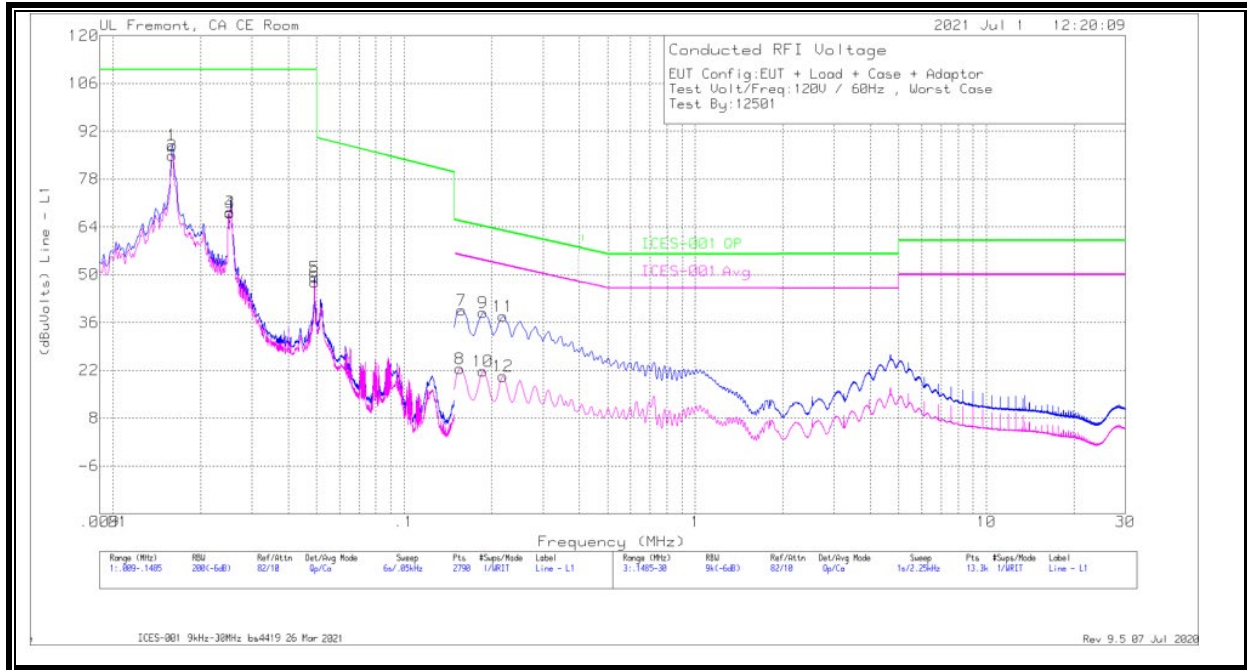
Qp - Quasi-Peak detector

Ca - CISPR average detection

9.2. EUT With Load

9.2.1. OPERATING MODE WITH LOAD POWERED BY AC/DC ADAPTER

LINE 1 RESULTS



Range 1: Line - L1 .009 - .1485MHz

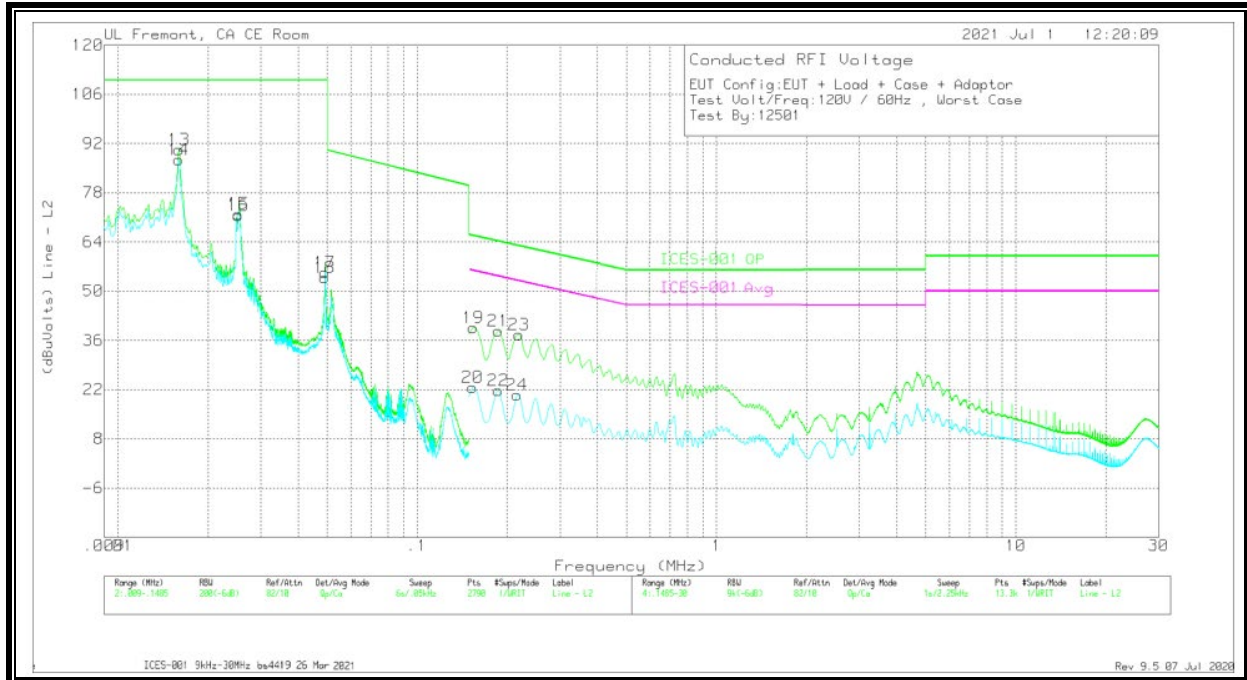
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 LISN09(IL L1) r	LC Cables C1&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBuVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
1	.016	73.3	Qp	2.4	0	12.3	88	110	-22	-	-
2	.01595	70.17	Ca	2.4	0	12.3	84.87	-	-	-	-
3	.02525	55.28	Qp	1.1	0	12	68.88	110	-41.62	-	-
4	.02525	54.99	Ca	1.1	0	12	68.09	-	-	-	-
5	.0492	37.46	Qp	.4	0	11.3	49.16	110	-60.84	-	-
6	.04925	36.1	Ca	.4	0	11.3	47.8	-	-	-	-

Range 3: Line - L1 .1485 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 LISN09(IL L1) r	LC Cables C1&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBuVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
7	.1575	30.11	Qp	.1	0	9.4	39.61	65.52	-25.91	-	-
8	.15525	12.98	Ca	.1	0	9.4	22.48	-	-	55.71	-33.23
9	.18675	29.42	Qp	0	0	9.4	38.82	64.11	-25.29	-	-
10	.18675	12.4	Ca	0	0	9.4	21.8	-	-	54.18	-32.38
11	.21825	28.48	Qp	0	0	9.3	37.78	62.83	-25.05	-	-
12	.21825	10.94	Ca	0	0	9.3	20.24	-	-	52.89	-32.65

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS**Range 2: Line - L2 .009 - .1485MHz**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 LISN10(IL L2) r	LC Cables C2&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBuVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
13	.016	75.6	Qp	2.4	0	12.3	90.3	110	-19.7	-	-
14	.01595	72.62	Ca	2.4	0	12.3	87.32	-	-	-	-
15	.02525	58.87	Qp	1.1	0	12	71.97	110	-38.03	-	-
16	.02525	58.37	Ca	1.1	0	12	71.47	-	-	-	-
17	.0491	43.7	Qp	.3	0	11.3	55.3	110	-54.7	-	-
18	.0491	42.32	Ca	.3	0	11.3	53.92	-	-	-	-

Range 4: Line - L2 .1485 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 LISN10(IL L2) r	LC Cables C2&C3 dB	TekBox Limiter TBFL1 Model 207	Corrected Reading (dBuVolts)	ICES-001 Class QP	Margin (dB)	ICES-001 Class B Avg	Margin (dB)
19	.15413	30.19	Qp	0	0	9.4	39.59	65.69	-26.1	-	-
20	.153	13.18	Ca	0	0	9.4	22.58	-	-	55.84	-33.26
21	.18675	29.28	Qp	0	0	9.4	38.68	64.11	-25.43	-	-
22	.18675	12.38	Ca	0	0	9.4	21.78	-	-	54.18	-32.4
23	.21825	28.39	Qp	0	0	9.3	37.69	62.83	-25.14	-	-
24	.216	11.19	Ca	0	0	9.3	20.49	-	-	52.97	-32.48

Qp - Quasi-Peak detector

Ca - Average detection

10. SETUP PHOTOS

Please refer to 13573777-EP1V1 for setup photos

END OF TEST REPORT