



CERTIFICATION TEST REPORT

Report Number. : 14040866-E14V3

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

Model : A2651 (Parent Model, Full Test)
A2893, A2894, A2895, A2896 (Variant Models)

FCC ID : BCG-E8141A (Parent Model)
BCG-E8154A, BCG-E8155A, BCG-E8156A (Variant Models)

IC : 579C-E8141A (Parent Model)
579C-E8154A, 579C-E8155A, 579C-E8156A (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:
August 10, 2022

Prepared by:
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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	7/18/2022	Initial Issue	Tony Li
V2	8/08/2022	Address TCB questions by updating radiated plot's unit of measurement labels and limit labels.	Francisco Guarnero
V3	8/10/2022	Address TCB's questions on section 8.2, 8.3	Chin Pang

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: Smartphone

MODEL: A2651 (Parent Model)
A2893, A2894, A2895, A2896 (Variant Models)

BRAND: APPLE

FCC ID: BCG-E8141A (PARENT MODEL)
BCG-E8154A, BCG-E8155A, BCG-E8156A (VARIANT MODELS)

IC ID: 579C-E8141A (PARENT MODEL)
579C-E8154A, 579C-E8155A, 579C-E8156A (VARIANT MODELS)

SERIAL NUMBER: JHXP7PXL52

SAMPLE RECEIPT DATE: MAY 23, 2022

DATE TESTED: MAY 25 -JUNE 21, 2022

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:



Chin Pang
Senior Lab Engineer
Consumer Technology Division
UL LLC.

Prepared By:



Tony Li
Test Engineer
Consumer Technology Division
UL LLC.

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 LLC. 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
☐	Building 1: 47173 Benicia Street, Fremont, CA 94538	US0104	2324A	550739
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538	US0104	22541	550739
☐	Building 4: 47658 Kato Rd, Fremont, CA 94538	US0104	2324B	550739

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, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS, NFC and MSS. All models except reference model 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 Model and FCC/IC ID covered by this report includes:

Parent Model: A2651, FCC ID: BCG-E8141A, IC ID: 579C-E8141A

Variant Models: A2893; FCC ID: BCG-E8154A, IC ID: 579C-E8154A
 A2894; FCC ID: BCG-E8155A, IC ID: 579C-E8155A
 A2895 & A2896; FCC ID: BCG-E8156A, IC ID: 579C-E8156A

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	-43.79	-13.09
	Operating	-22.3	6.97

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

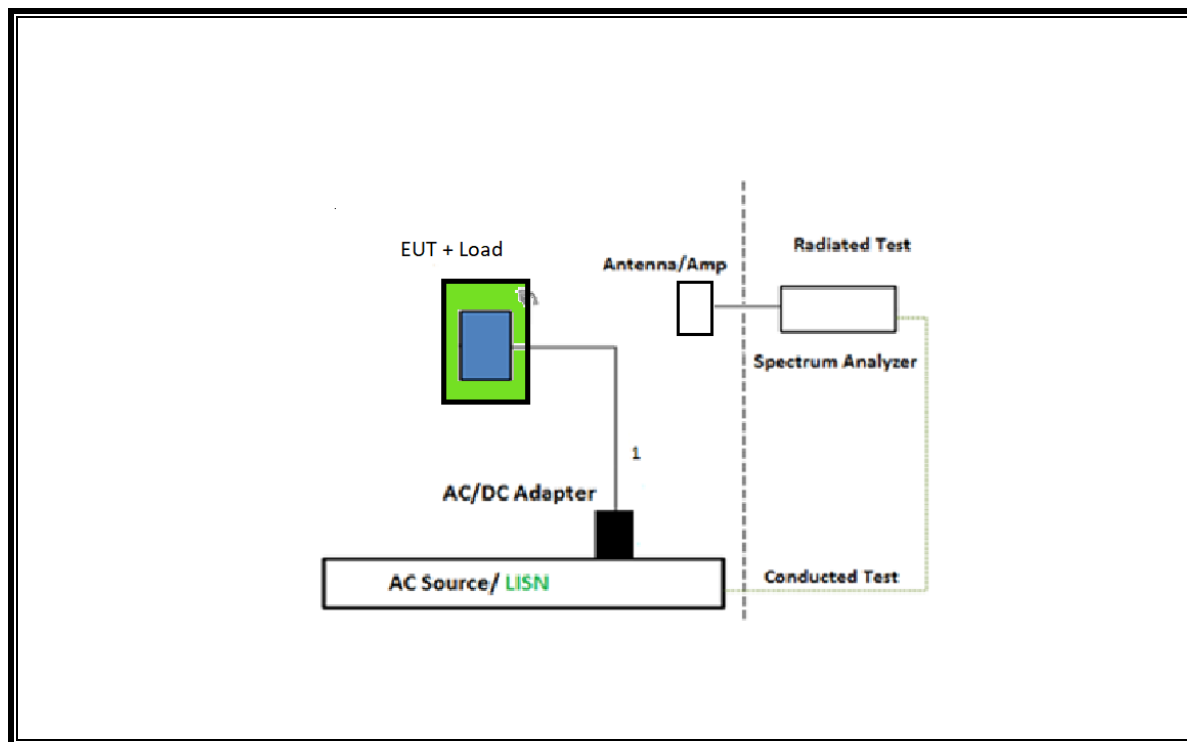
SUPPORT EQUIPMENT & PERIPHERALS LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC adapter	Apple	A2305	C4H748200RXH80MAY	DoC
WPT Accessory (Load)	Apple	A2384	DNDF66EN0NLJ	BCGA2384
WPT Accessory	Apple	Silicon Case	C03241PE0MACDKZ0133	DoC

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, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	PRE0179465	07/29/2022	07/29/2021
Antenna, Passive Loop 100KHz to 30MHz	ETS-Lindgren	EM-6872	PRE0179467	07/29/2022	07/29/2021
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB	Sunol Sciences Crop.	JB1	80714	08/20/2022	08/20/2021
Amplifier, 9kHz to 1GHz, 32dB	Sonoma Instrument	310N	84489	07/20/2022	07/20/2021
Sniffer Probes	Electro Metrics	EM-6992	N/A	N/A	N/A
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A-544	85313	01/30/2023	01/30/2022

AC Line Conducted					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	93091	02/21/2023	02/21/2022
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2022	10/27/2021
LISN for Conducted Emissions	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	175765	01/26/2023	01/26/2022
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, 21 Jan 2022		
Conducted Software	UL	UL EMC	Ver 9.5, 21 Jan 2022		

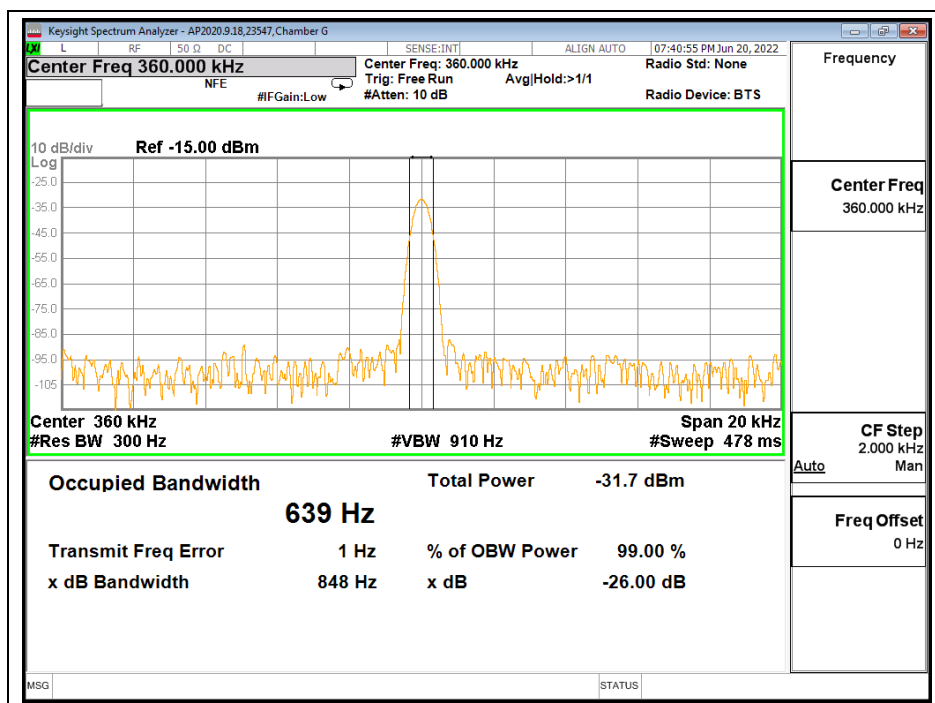
7. OCCUPIED BANDWIDTH

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

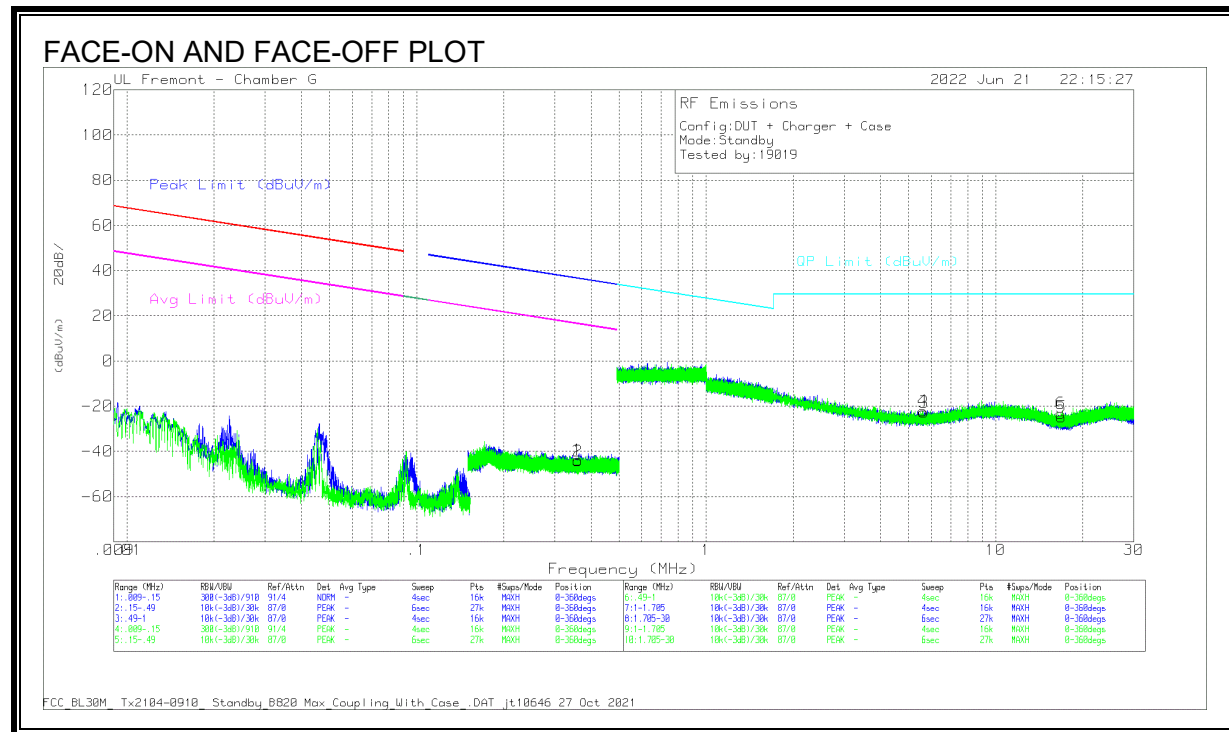
Frequency range (MHz)	OATS or SAC * 10 m measurement distance Quasi-peak (dBμV/m)	OATS or SAC * 3 m measurement distance Quasi-peak (dBμV/m)	FAR * 3 m measurement distance Quasi-peak (dBμV/m)
30 – 230	30	40	42 to 35**
230 – 1000	37	47	42
Note: The more stringent limit applies at the transition frequency. * OATS = open-area test site, SAC = semi-anechoic chamber, FAR = fully-anechoic room (see CSA CISPR 11:19). ** 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



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables w/T834 (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	.3601	12.01	Pk	56.2	-32	-80	-43.79	36.48	-80.27	16.48	-60.27	0-360	Face-On
2	.3602	11.55	Pk	56.2	-32	-80	-44.25	36.48	-80.73	16.48	-60.73	0-360	Face-Off

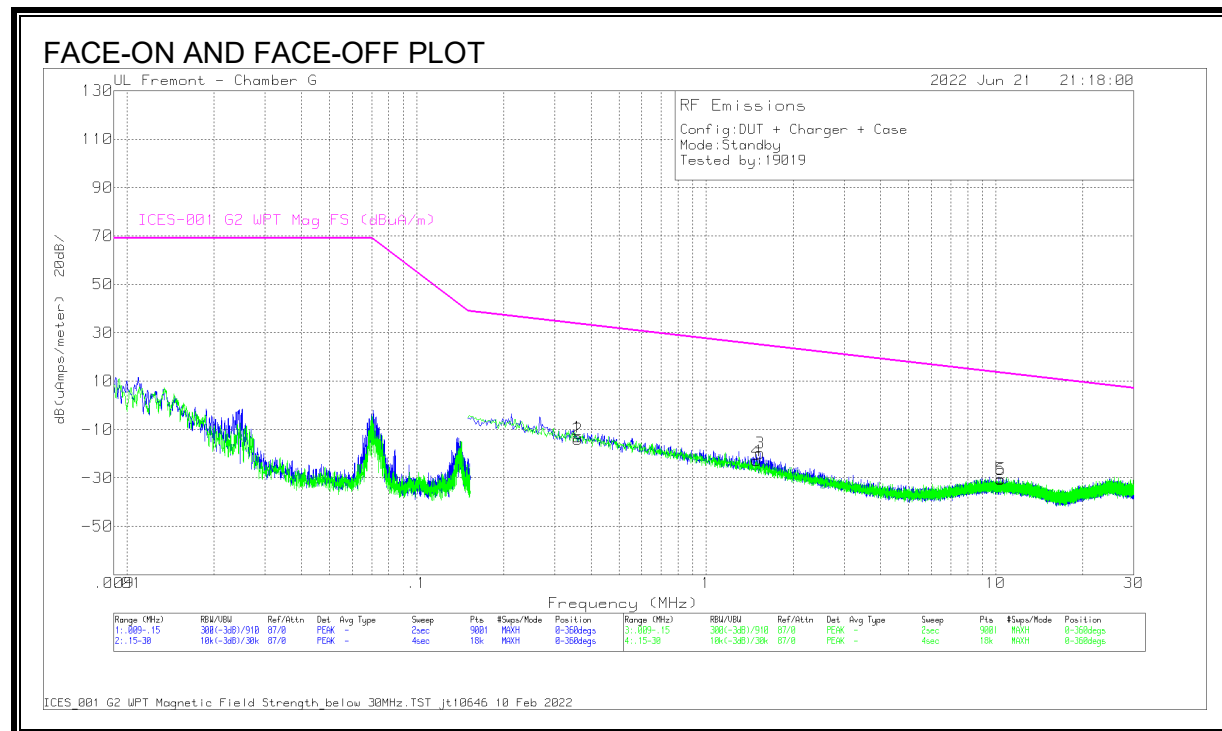
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables w/T834 (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
4	5.6172	14.02	Pk	35.7	-31.8	-40	-22.08	29.5	-51.58	0-360	Face-Off
3	5.6518	13.43	Pk	35.6	-31.7	-40	-22.67	29.5	-52.17	0-360	Face-On
6	16.8056	14.18	Pk	34.2	-31.5	-40	-23.12	29.5	-52.62	0-360	Face-Off
5	16.8916	12.47	PK	34.2	-31.5	-40	-24.83	29.5	-54.33	0-360	Face-On

Pk - Peak detector

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

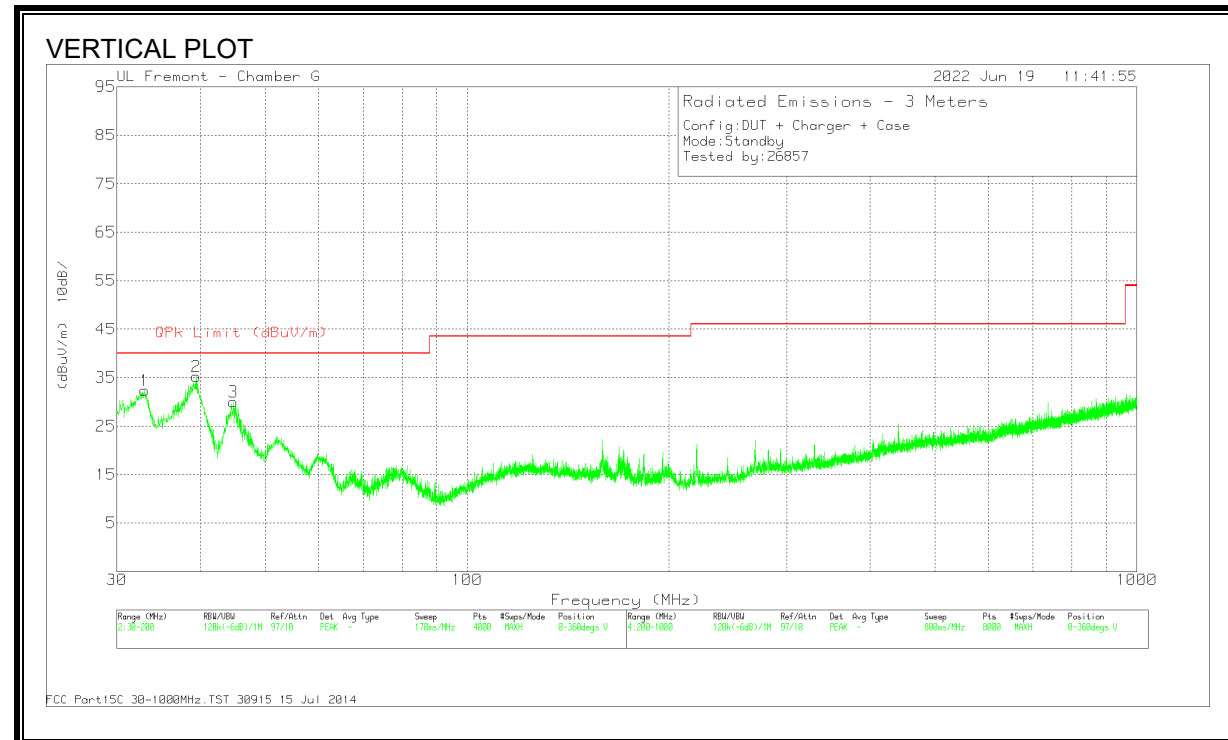
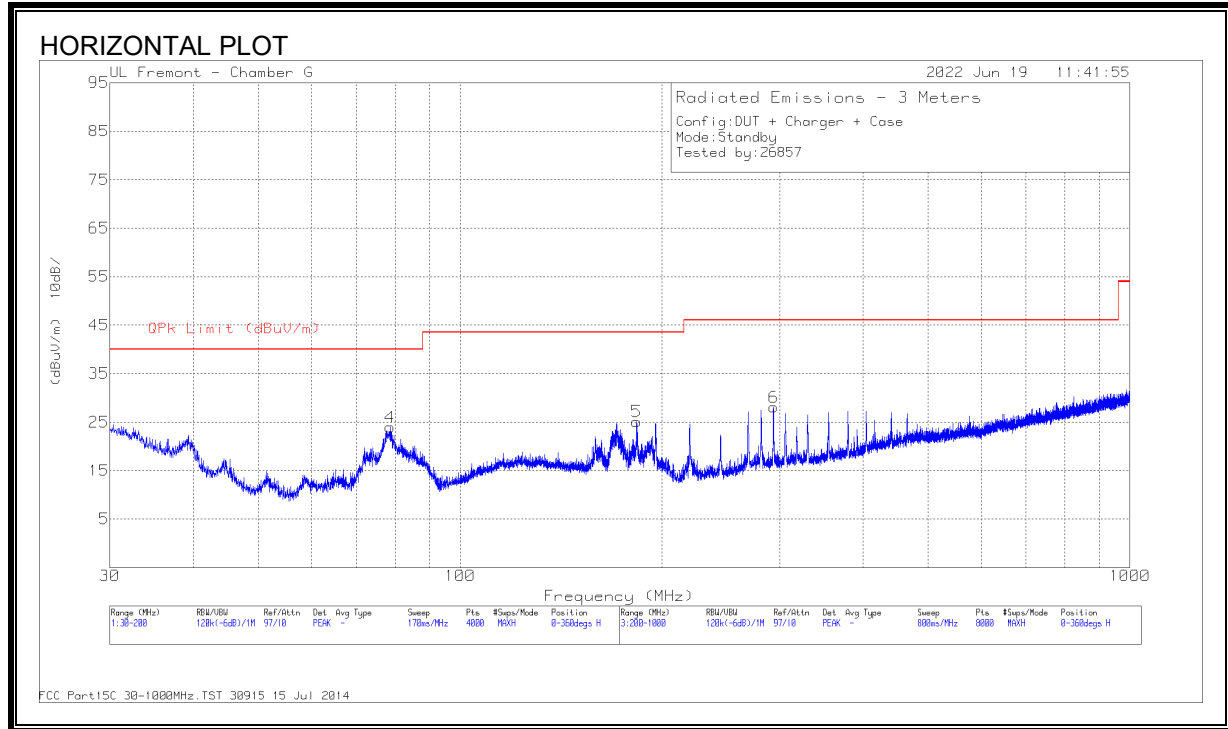
Standby



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables w/T834 (dB)	Corrected Reading (dBuA/m)	ICES-001 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.3606	15.41	Pk	3.5	-32	-13.09	33.7	-46.79	0-360	Face-On
2	.3606	14.46	Pk	3.5	-32	-14.04	33.7	-47.74	0-360	Face-Off
4	1.4963	16.2	Pk	-7.2	-31.9	-22.9	25.11	-48.01	0-360	Face-Off
3	1.5344	19.62	Pk	-7.4	-31.9	-19.68	24.96	-44.64	0-360	Face-On
6	10.4047	17.51	Pk	-16.6	-31.6	-30.69	13.4	-44.09	0-360	Face-Off
5	10.413	17.87	Pk	-16.6	-31.6	-30.33	13.39	-43.72	0-360	Face-On

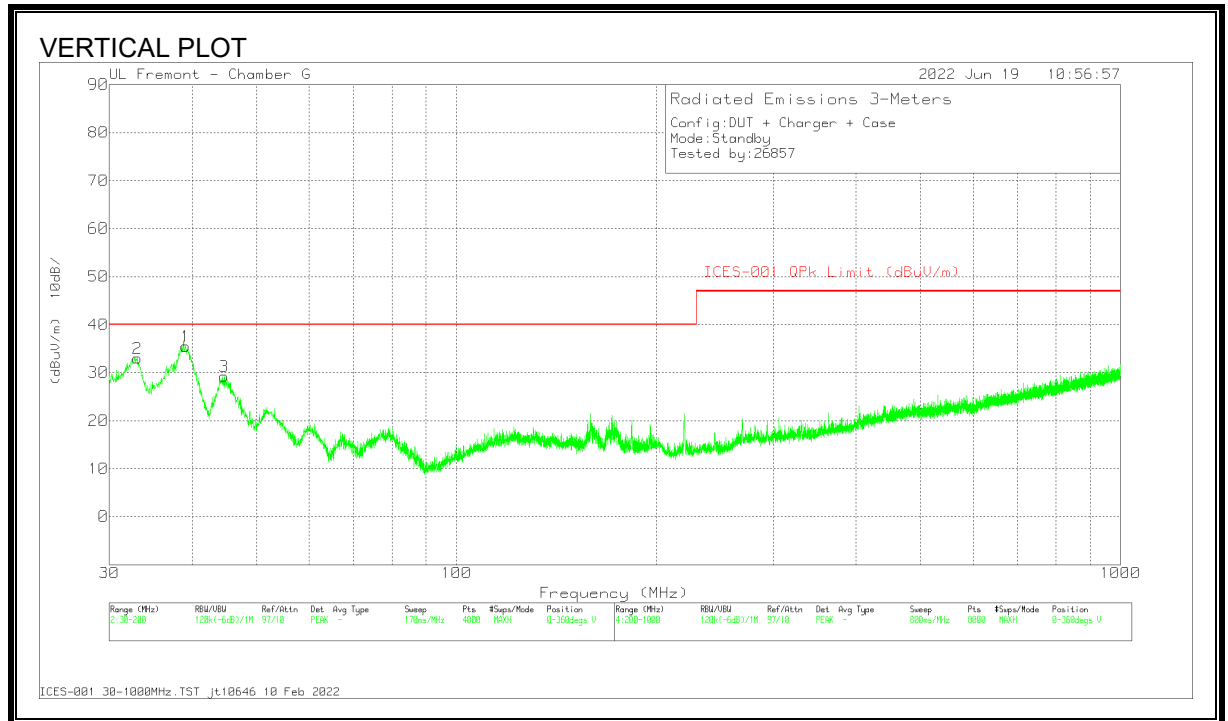
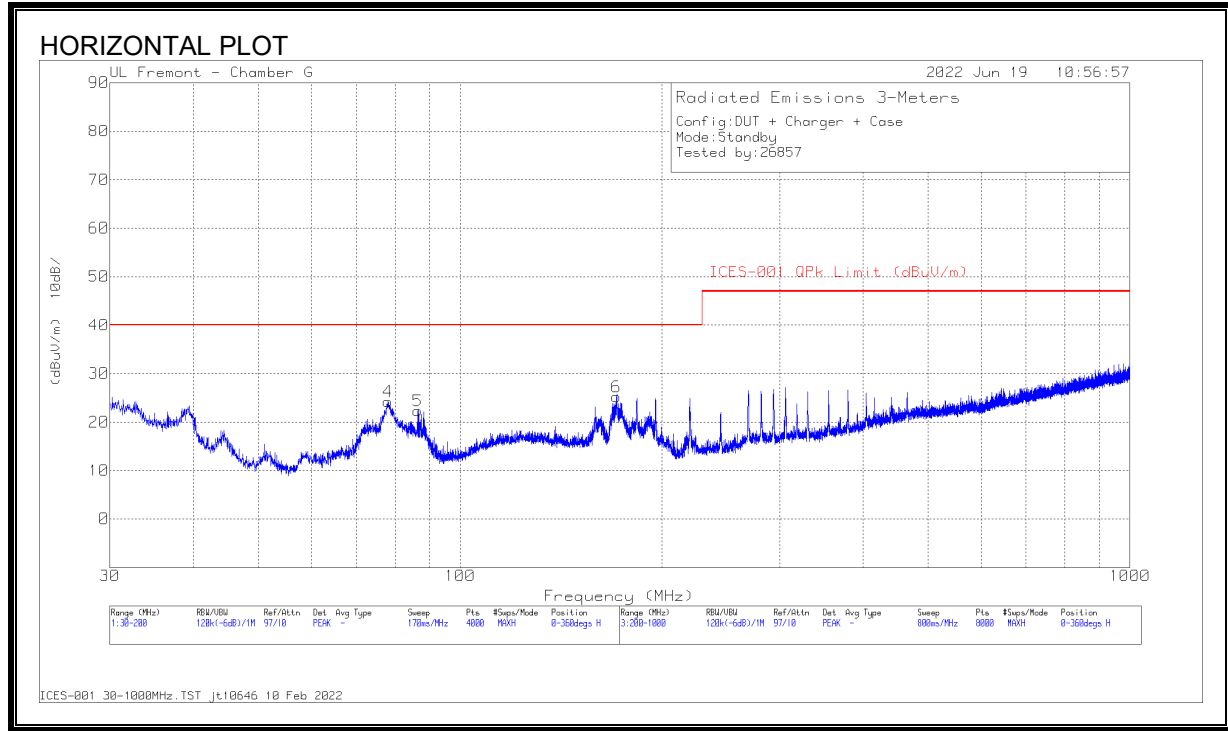
Pk - Peak detector

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

DATA

Frequency (MHz)	Meter Reading (dBuV)	Det	AF 80714 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
32.8743	34.31	Qp	25.1	-31.3	28.11	40	-11.89	185	103	V
38.9184	39.42	Qp	20.5	-31.2	28.72	40	-11.28	333	128	V
44.1938	37.75	Qp	16.7	-31.1	23.35	40	-16.65	59	172	V
78.3246	33.37	Qp	13.5	-30.8	16.07	40	-23.93	152	242	H
183.604	36.51	Qp	17.2	-29.9	23.81	43.52	-19.71	4	126	H
293.725	36.1	Qp	19.1	-29.2	26	46.02	-20.02	9	102	H

Qp - Quasi-Peak detector

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

DATA

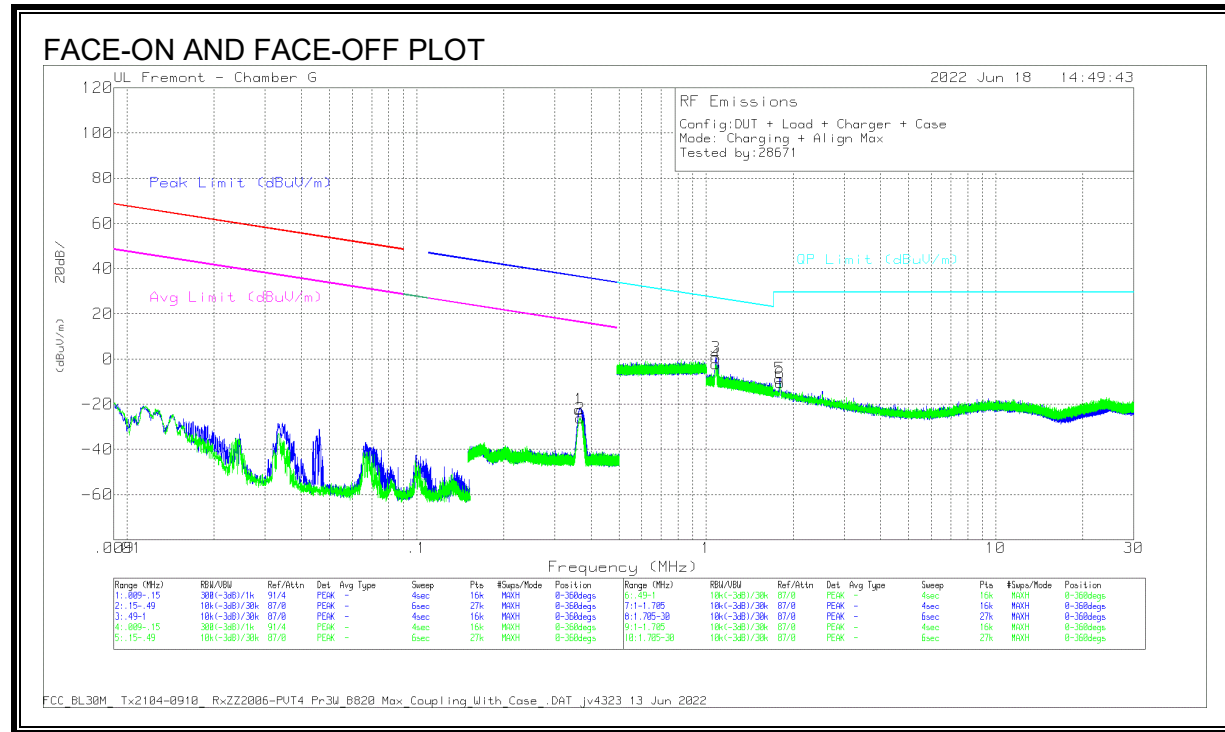
Frequency (MHz)	Meter Reading (dBuV)	Det	AF 80714 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	ICES-001 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
32.8628	34.06	Qp	25.1	-31.3	27.86	40	-12.14	213	114	V
39.0224	40.83	Qp	20.4	-31.2	30.03	40	-9.97	316	111	V
44.5168	39.46	Qp	16.4	-31.1	24.76	40	-15.24	17	103	V
78.1989	34.77	Qp	13.5	-30.8	17.47	40	-22.53	96	352	H
82.5931	30.75	Qp	13.2	-30.7	13.25	40	-26.75	141	276	H
171.298	36.21	Qp	17.7	-30	23.91	40	-16.09	352	190	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



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables w/T834 (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	.3642	33.5	Pk	56.2	-32	-80	-22.3	36.38	-58.68	16.38	-38.68	0-360	Face-On
2	.3673	29.59	Pk	56.2	-32	-80	-26.21	36.31	-62.52	16.31	-42.52	0-360	Face-Off

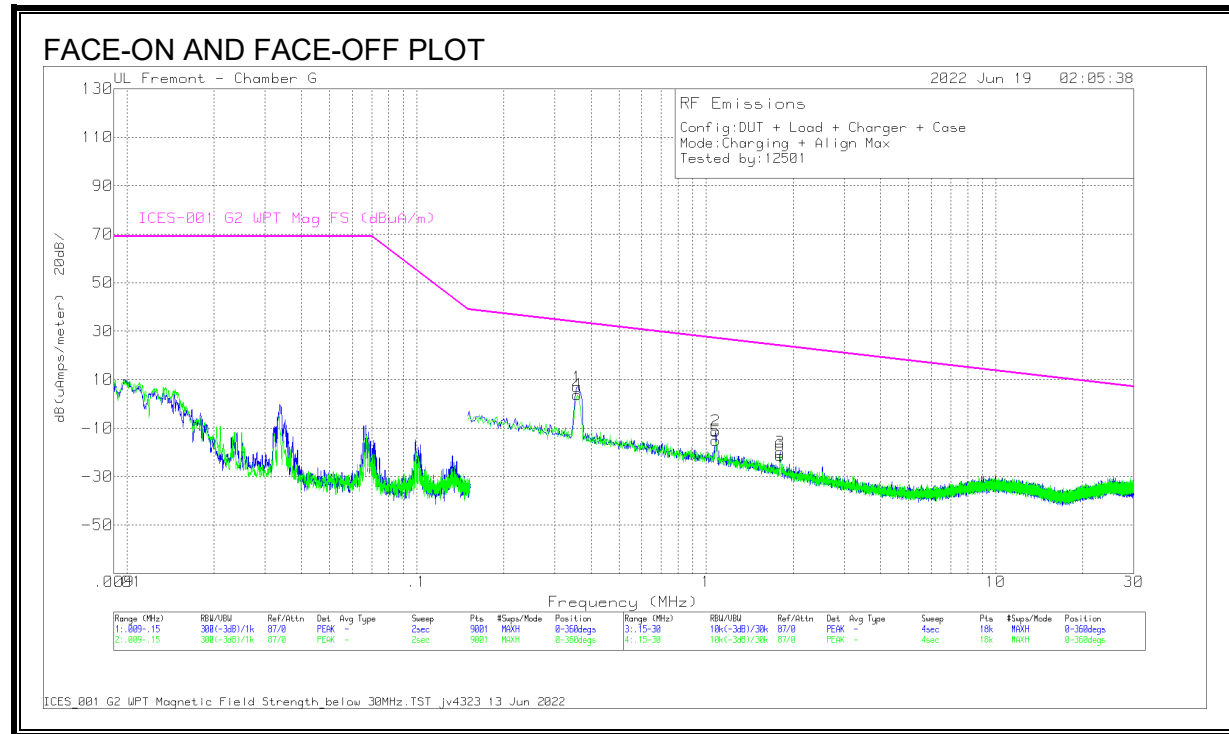
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables w/T834 (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
3	1.0808	26.12	Pk	46.5	-32	-40	.62	26.95	-26.33	0-360	Face-On
4	1.0808	23.4	Pk	46.3	-32	-40	-2.3	26.95	-29.25	0-360	Face-Off
5	1.7951	20.73	Pk	42.6	-31.9	-40	-8.57	29.5	-38.07	0-360	Face-On
6	1.8046	18.78	Pk	42.5	-31.9	-40	-10.62	29.5	-40.12	0-360	Face-Off

Pk - Peak detector

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

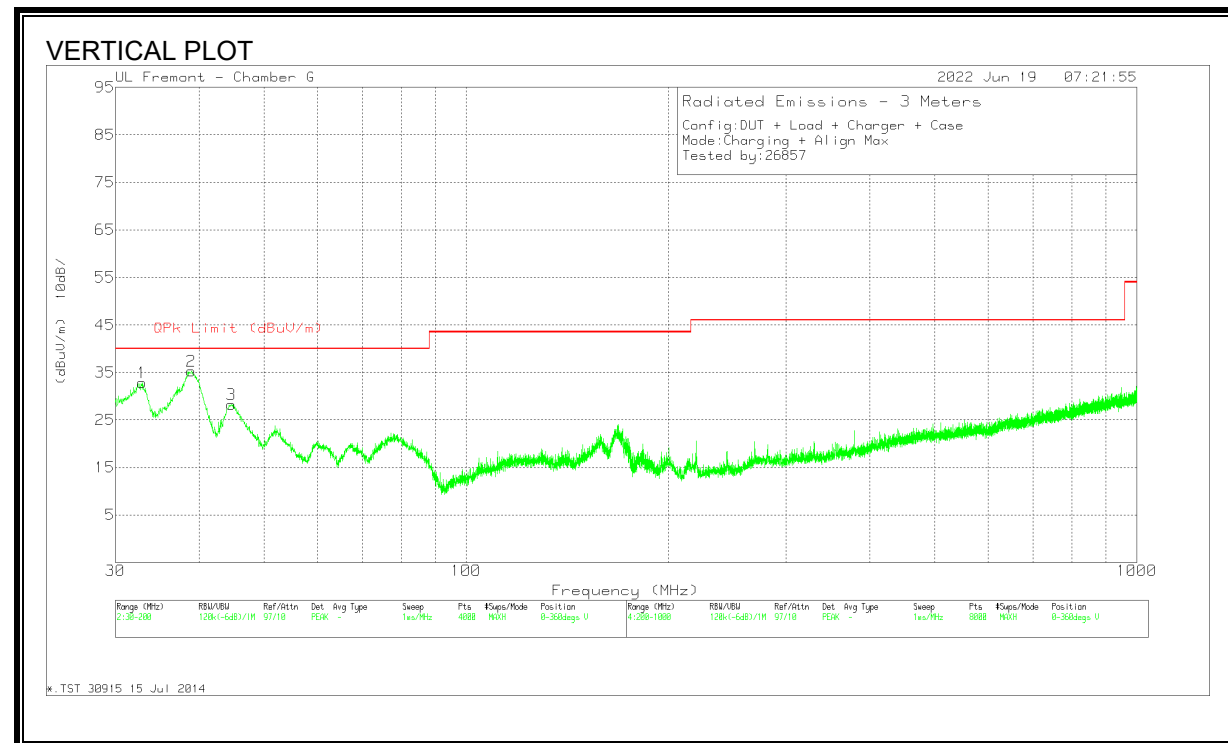
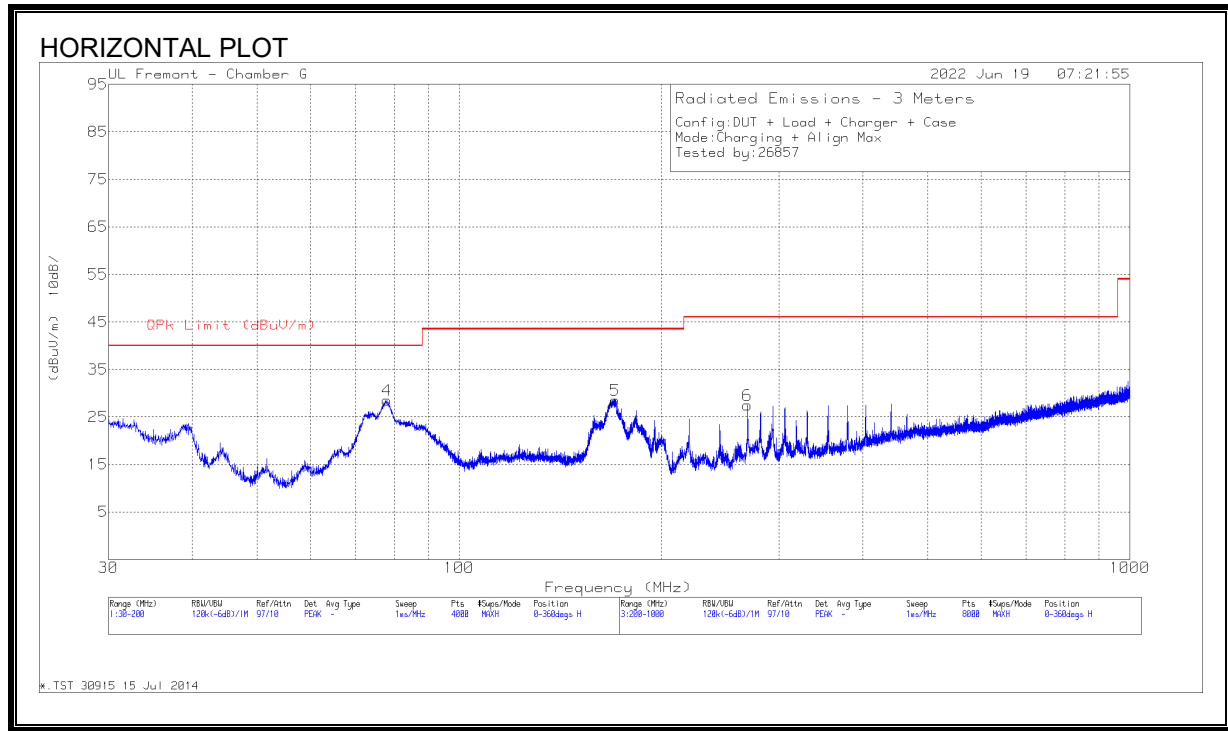
OPERATING WITH LOAD



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables w/T834 (dB)	Corrected Reading (dBuA/m)	ICES-001 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.3589	35.37	Pk	3.6	-32	6.97	33.73	-26.76	0-360	Face-On
4	.3589	32.25	Pk	3.6	-32	3.85	33.73	-29.88	0-360	Face-Off
2	1.0785	25.68	Pk	-4.9	-32	-11.22	27.09	-38.31	0-360	Face-On
5	1.0785	21.84	Pk	-4.9	-32	-15.06	27.09	-42.15	0-360	Face-Off
3	1.7997	20.66	Pk	-8.7	-31.9	-19.94	23.99	-43.93	0-360	Face-On
6	1.8047	19.42	Pk	-8.8	-31.9	-21.28	23.98	-45.26	0-360	Face-Off

Pk - Peak detector

8.3.3. FCC TX SPURIOUS EMISSION (30 - 1000 MHz)**OPERATING WITH LOAD**

DATA

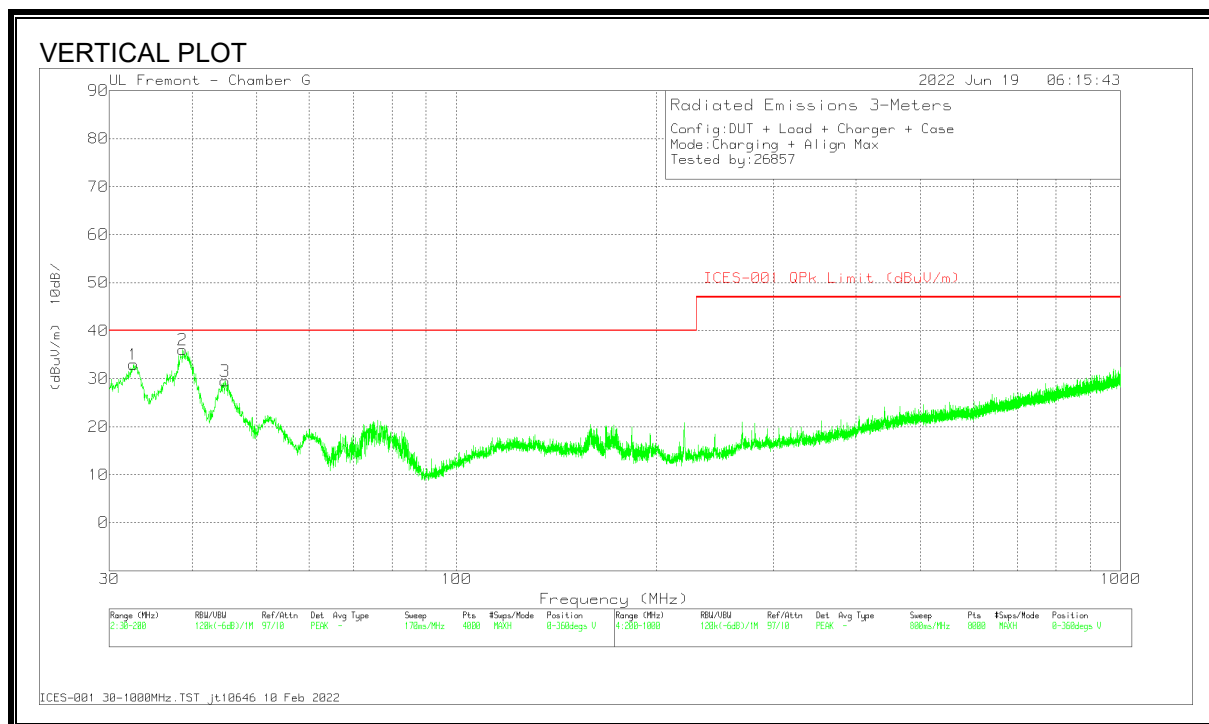
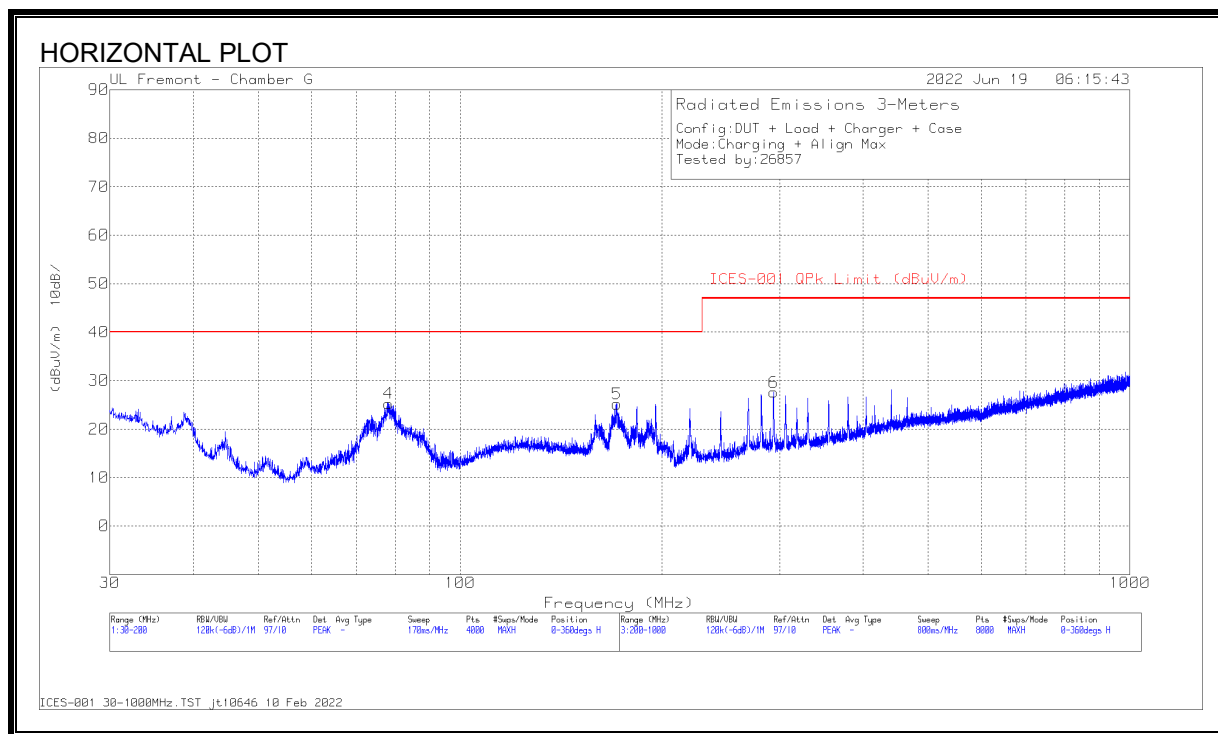
Frequency (MHz)	Meter Reading (dBuV)	Det	AF 80714 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 171.273	35.32	Qp	17.7	-30	23.02	43.52	-20.5	358	142	H
* 269.447	36.27	Qp	18.9	-29.3	25.87	46.02	-20.15	19	120	H
32.6802	33.73	Qp	25.2	-31.3	27.63	40	-12.37	293	100	V
39.5693	38.43	Qp	20	-31.2	27.23	40	-12.77	322	137	V
44.6623	39.81	Qp	16.3	-31.1	25.01	40	-14.99	345	100	V
78.2614	37.83	Qp	13.5	-30.8	20.53	40	-19.47	303	292	H

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

Qp - Quasi-Peak detector

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

OPERATING WITH LOAD



DATA

Frequency (MHz)	Meter Reading (dBuV)	Det	AF 80714 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	ICES-001 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
32.9597	34.29	Qp	25	-31.3	27.99	40	-12.01	230	117	V
39.3118	40.85	Qp	20.2	-31.2	29.85	40	-10.15	275	105	V
44.2163	37.78	Qp	16.6	-31.1	23.28	40	-16.72	239	103	V
78.06	39.24	Qp	13.5	-30.8	21.94	40	-18.06	347	354	H
171.213	34.73	Qp	17.7	-30	22.43	40	-17.57	1	175	H
281.616	35.58	Qp	19.2	-29.2	25.58	47	-21.42	19	102	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.

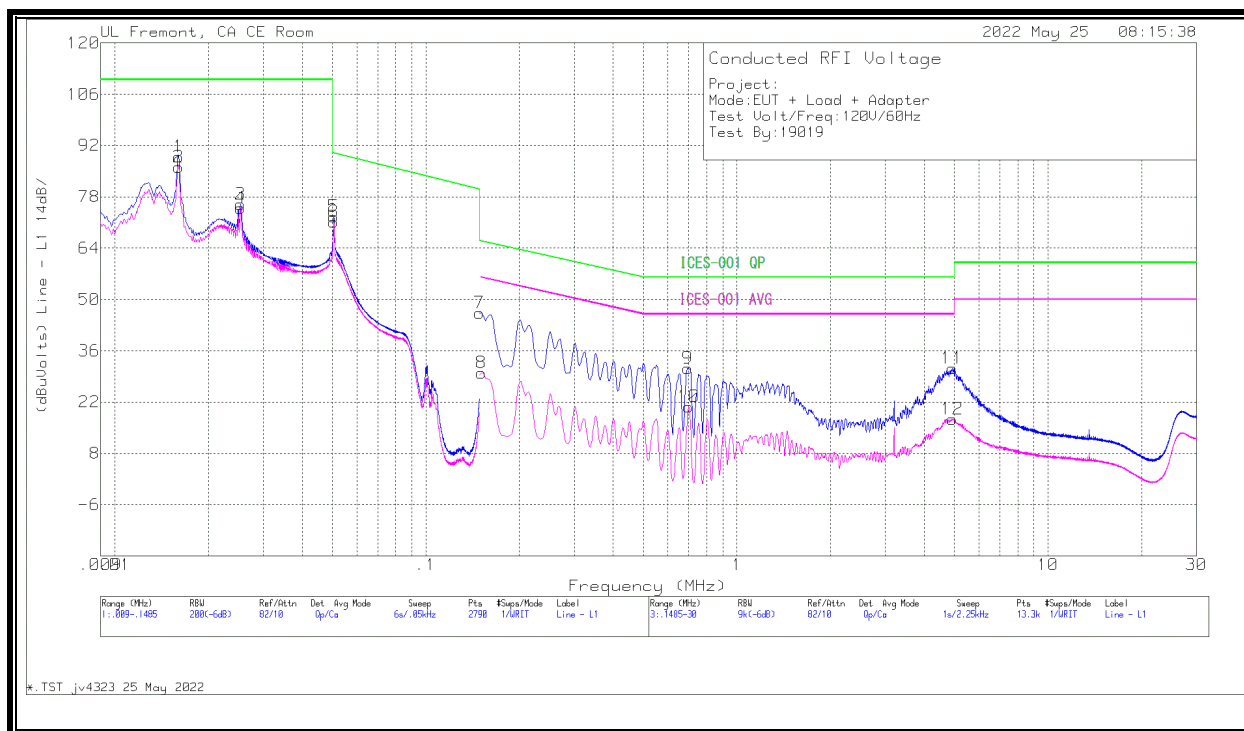
RESULTS

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



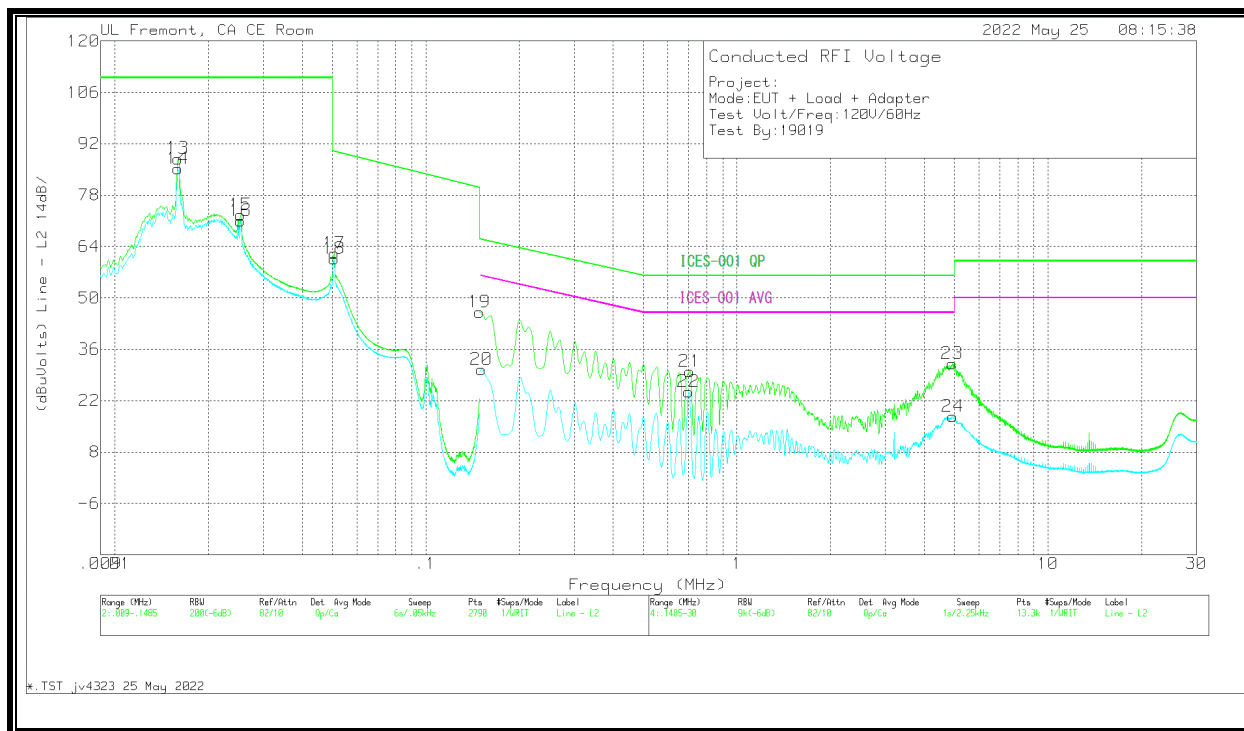
WORST EMISSIONS

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

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
2	.0161	71.16	Ca	2.7	0	12.3	86.16	-	-	-	-
4	.0253	61.4	Ca	1.5	0	12	74.9	-	-	-	-
6	.0506	59.53	Ca	.4	0	11.2	71.13	-	-	-	-
1	.0161	74.01	Qp	2.7	0	12.3	89.01	110	-20.99	-	-
3	.0253	62.45	Qp	1.5	0	12	75.95	110	-34.05	-	-
5	.0506	60.94	Qp	.4	0	11.2	72.54	89.89	-17.35	-	-

Range 3: Line - L1 .1485 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
8	.1508	20.52	Ca	.1	0	9.4	30.02	-	-	55.96	-25.94
10	.6998	11.35	Ca	0	.1	9.3	20.75	-	-	46	-25.25
12	4.9219	7.99	Ca	0	.1	9.3	17.39	-	-	46	-28.61
7	.1485	36.84	Qp	.1	0	9.4	46.34	66	-19.66	-	-
9	.6953	21.87	Qp	0	.1	9.3	31.27	56	-24.73	-	-
11	4.9185	21.79	Qp	0	.1	9.3	31.19	56	-24.81	-	-

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

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
14	.016	70.4	Ca	2.5	0	12.3	85.2	-	-	-	-
16	.0253	57.59	Ca	1.4	0	12	70.99	-	-	-	-
18	.0507	49.21	Ca	.3	0	11.2	60.71	-	-	-	-
13	.016	73.17	Qp	2.5	0	12.3	87.97	110	-22.03	-	-
15	.0254	59.12	Qp	1.4	0	12	72.52	110	-37.48	-	-
17	.0507	50.63	Qp	.3	0	11.2	62.13	89.87	-27.74	-	-

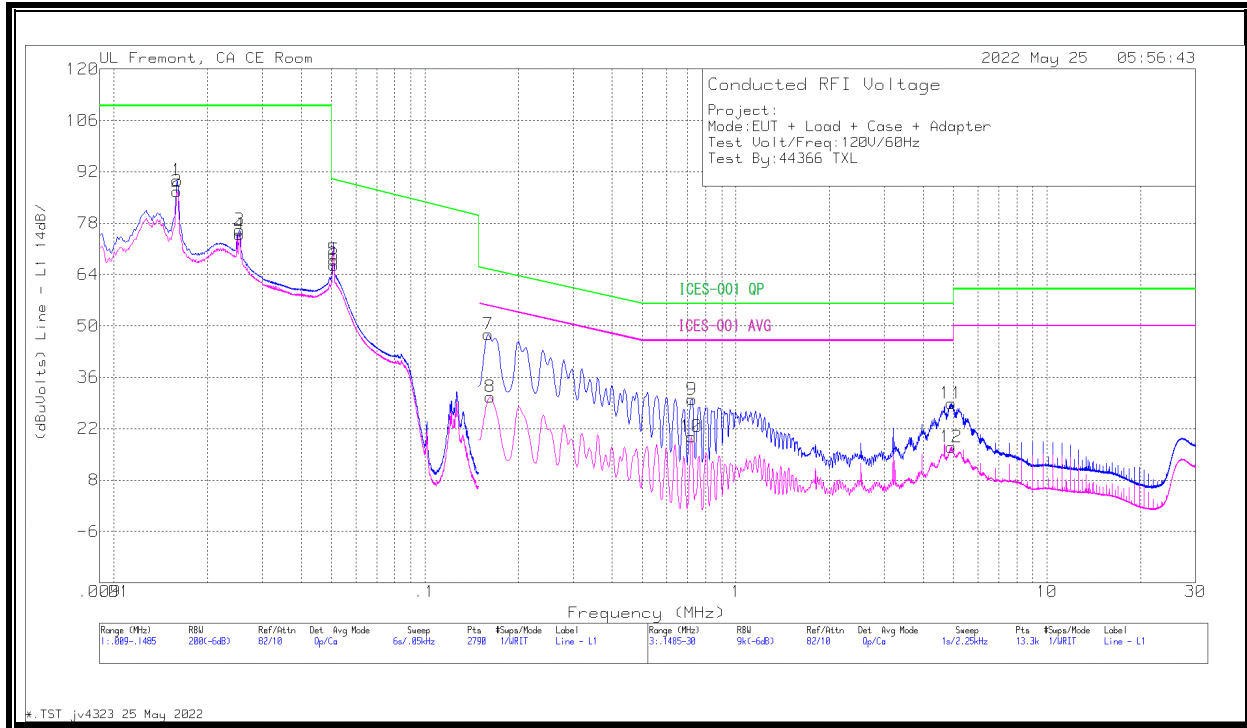
Range 4: Line - L2 .1485 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
20	.1508	20.91	Ca	.1	0	9.4	30.41	-	-	55.96	-25.55
22	.6998	15.05	Ca	0	.1	9.3	24.45	-	-	46	-21.55
24	4.9343	8.21	Ca	0	.1	9.3	17.61	-	-	46	-28.39
19	.1485	36.63	Qp	.1	0	9.4	46.13	66	-19.87	-	-
21	.7065	20.49	Qp	0	.1	9.3	29.89	56	-26.11	-	-
23	4.9275	22.74	Qp	0	.1	9.3	32.14	56	-23.86	-	-

9.2. EUT With Load

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

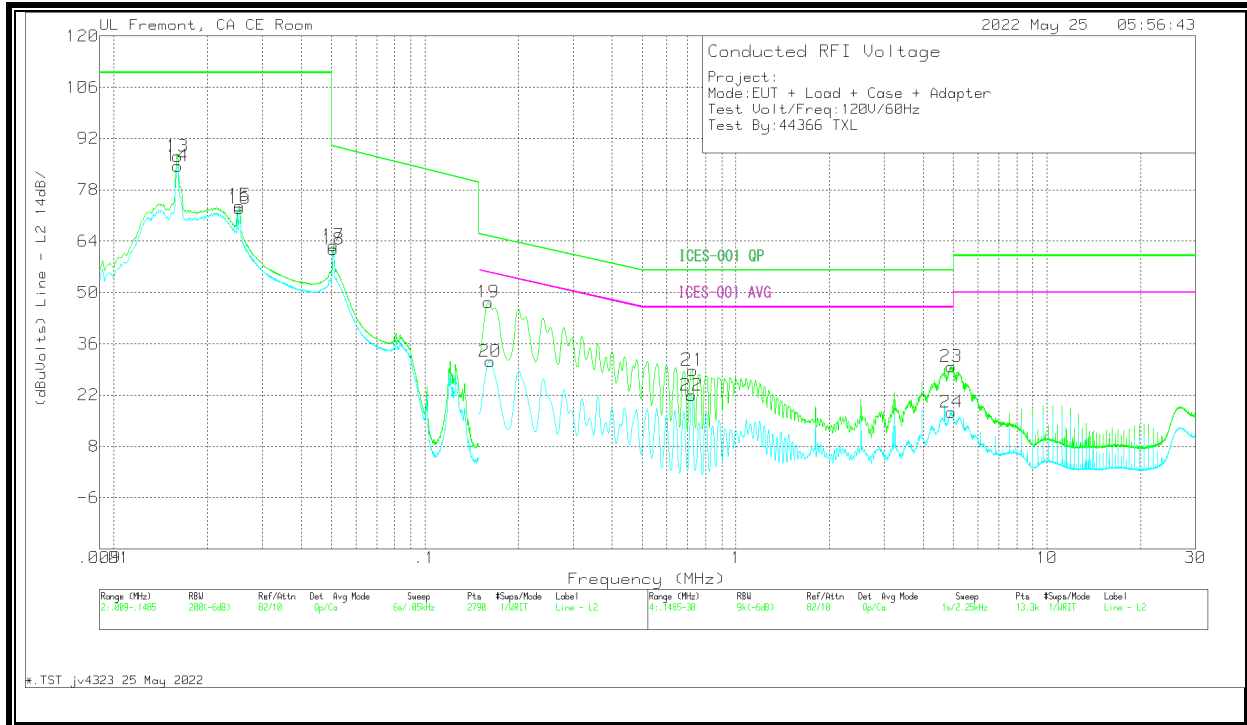
LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line - L1 .009 - .1485MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
2	.016	71.48	Ca	2.8	0	12.3	86.58	-	-	-	-
4	.0253	61.34	Ca	1.5	0	12	74.84	-	-	-	-
6	.051	55.05	Ca	.3	0	11.2	66.55	-	-	-	-
1	.016	74.5	Qp	2.8	0	12.3	89.6	110	-20.4	-	-
3	.0254	62.61	Qp	1.5	0	12	76.11	110	-33.89	-	-
5	.051	56.51	Qp	.3	0	11.2	68.01	89.82	-21.81	-	-

Range 3: Line - L1 .1485 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
8	.162	21.1	Ca	.1	0	9.4	30.6	-	-	55.36	-24.76
10	.7178	10.36	Ca	0	.1	9.3	19.76	-	-	46	-26.24
12	4.9309	7.53	Ca	0	.1	9.3	16.93	-	-	46	-29.07
7	.1598	38.24	Qp	.1	0	9.4	47.74	65.4	-17.66	-	-
9	.7223	20.63	Qp	0	.1	9.3	30.03	56	-25.97	-	-
11	4.932	19.41	Qp	0	.1	9.3	28.81	56	-27.19	-	-

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

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
14	.0161	69.7	Ca	2.5	0	12.3	84.5	-	-	-	-
16	.0253	59.57	Ca	1.4	0	12	72.97	-	-	-	-
18	.0509	50.26	Ca	.3	0	11.2	61.76	-	-	-	-
13	.0161	72.45	Qp	2.5	0	12.3	87.25	110	-22.75	-	-
15	.0253	60.35	Qp	1.4	0	12	73.75	110	-36.25	-	-
17	.0509	51.4	Qp	.3	0	11.2	62.9	89.85	-26.95	-	-

Range 4: Line - L2 .1485 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	175765 LISN L1 (dB)	C1&C3 cable (dB)	TekBox Limiter TBFL1 Model 207 (dB)	Corrected Reading (dBuVolts)	ICES-001 QP (dBuVolts)	Margin (dB)	ICES-001 Avg (dBuVolts)	Margin (dB)
20	.162	21.71	Ca	.1	0	9.4	31.21	-	-	55.36	-24.15
22	.7178	12.56	Ca	0	.1	9.3	21.96	-	-	46	-24.04
24	4.932	7.98	Ca	0	.1	9.3	17.38	-	-	46	-28.62
19	.1598	37.82	Qp	.1	0	9.4	47.32	65.4	-18.08	-	-
21	.7245	19.39	Qp	0	.1	9.3	28.79	56	-27.21	-	-
23	4.9286	20.34	Qp	0	.1	9.3	29.74	56	-26.26	-	-

Qp - Quasi-Peak detector

Ca - CISPR average detection

10. SETUP PHOTOS

Please refer to 14040866-EP1V1 for setup photos

END OF TEST REPORT