

TEST REPORT

Report Number : 15265186-E1V2

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

Model : A2580

FCC ID : BCGA2580

IC : 579C-A2580

EUT Description : WIRELESS CHARGER

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:
2024/07/23

Prepared by:
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REPORT REVISION HISTORY

Rev.		Issue Date		Revisions		Revised By
V1		2024/07/21		Initial Issue		Chris Xiong
V2		2024/07/23		Address TCB's questions		Chin Pang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:

APPLE, INC.
ONE APPLE PARK WAY
CUPERTINO, CA 95014

EUT DESCRIPTION:

WIRELESS CHARGER

MODEL:

A2580

FCC ID:

BCGA2580

IC ID:

579C-A2580

BRAND:

APPLE

SERIAL NUMBER:

J7QK4LGXC3

SAMPLE RECEIPT DATE:

2024/04/16

DATE TESTED:

2024/06/04 TO 2024/07/18

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:



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Senior Lab Engineer
Consumer Technology Division
UL Verification Services Inc

Prepared By:



Chris Xiong
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
☐	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☐	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
☐	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	UNCERTAINTY
Occupied Bandwidth	1.20%
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 EUT is a magnetic charger which inductively charge other wireless charging devices. The charging function operates at 127.7kHz and 360kHz. The charger supports passive NFC tag operation

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 (dBµV/m)	H-field (3m distance) IC (dBµA/m)
127.7	Operating	-5.84	20.96
360		-15.66	17.05
--	Standby	-45.02	-12.19

5.3. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated at its natural orientation on a plastic fixture with a Load set at the center and at its natural orientation on a plastic fixture with a Load set at max offset from center. It was determined that the worst case configuration was EUT at its natural orientation on a plastic fixture with a Load set at max offset from center of EUT.

The EUT was tested on standby and operation modes. During operational mode, EUT was tested with Load. The EUT was tested with the following configurations: at max power listed in technical description.

CONFIGURATION	MODE	DESCRIPTION
1	Standby	EUT powered by AC/DC adapter via USB-C Connector
2	Operating (LOAD #1) • EUT w/ 127.7 kHz Fundamental	EUT powered by AC/DC Adapter via USB-C connector with a Load at charging mode
3	Operating (LOAD #2) • EUT w/ 360 kHz Fundamental	EUT powered by AC/DC Adapter via USB-C connector with a Load at charging mode

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

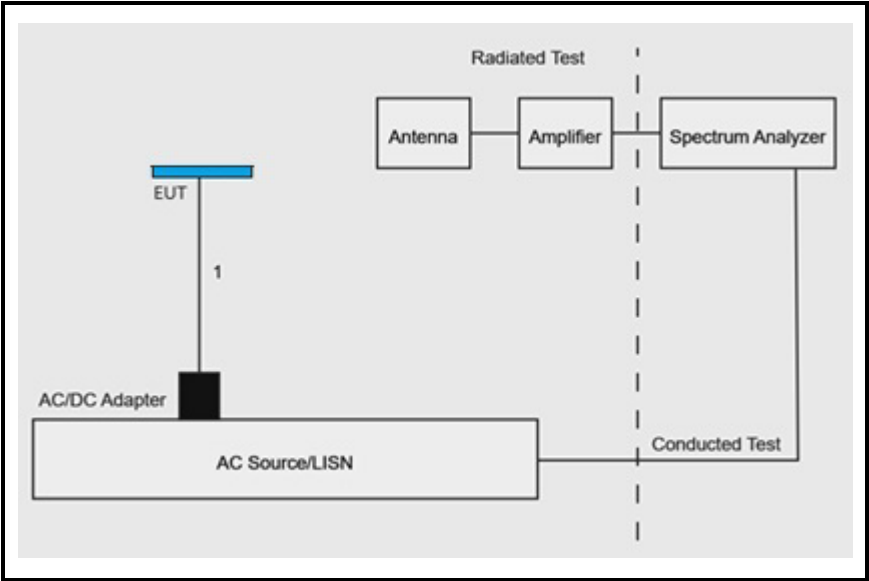
For below 30MHz testing, investigation was done on three antenna orientations: RX antenna Face-On, Face-Off and Horizontal (parallel to ground). The measurement distance is set at 3m from Antenna to Equipment under test for both FCC part 15 and ISED RSS-216. The worst-case configurations were determined 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.

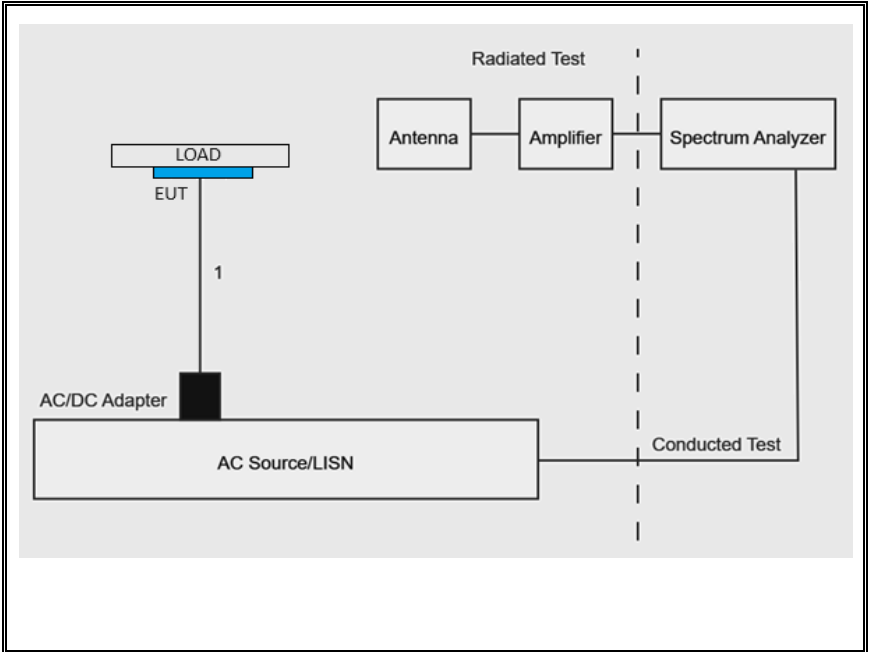
5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT & PERIPHERALS LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC adapter	Apple	N/A	C4H949306BVL4YQAQ	N/A
Load #1	Apple	N/A	QQ261YHP7L	N/A
Load #2	Apple	N/A	DF9ML76VVV	N/A

STANDBY MODE SETUP



OPERATING MODE SETUP



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc.	N9030A	85213	2025/02/28	2024/02/28
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	204044	2025/02/29	2024/02/29
Antenna, Passive Loop 30Hz – 1MHz	Electro-Metrics	EM-6871	170014	2024/08/31	2023/08/31
Antenna, Passive Loop 100kHz – 30MHz	Electro-Metrics	EM-6872	170016	2024/08/31	2023/08/31
Link File, @3m, 9kHz-1000MHz Hybrid Path Loss	UL-FR1	Port 0 Factors	232001	2025/02/28	2024/02/28
Sniffer Probe	Electro Metrics	EM-6992	N/A	N/A	N/A

AC Line Conducted					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
EMI TEST RECEIVER 9kHz - 3.6GHz	Rohde & Schwarz	ESR	171646	2025/02/28	2024/02/28
LISN for Conducted Emissions	Fischer Custom Communications, Inc	FCC-LISN-50/250-25-2-01-480V	175765	2025/01/31	2024/01/31
Transient Limiter	TE	TBFL1	207996	2024/08/31	2023/08/31

UL AUTOMATION SOFTWARE			
Radiated Software	UL	UL EMC	Ver 9.5, 21 May 2024
Conducted Software	UL	UL EMC	2024.2.23
AC Line Conducted Software	UL	UL EMC	Ver 9.5, 03 Mar 2023

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.

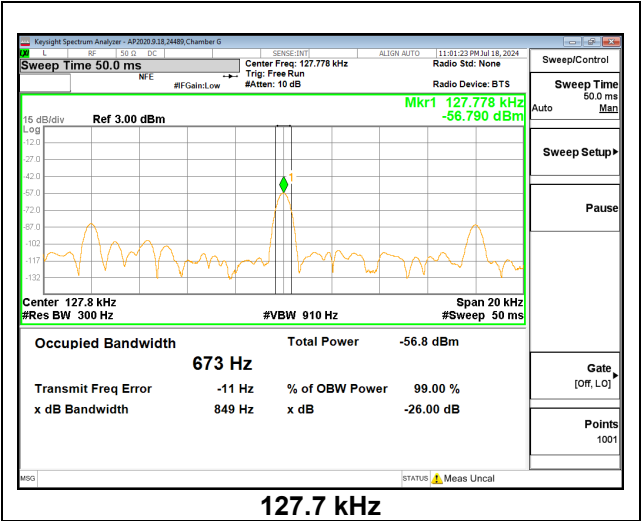
Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

RESULTS

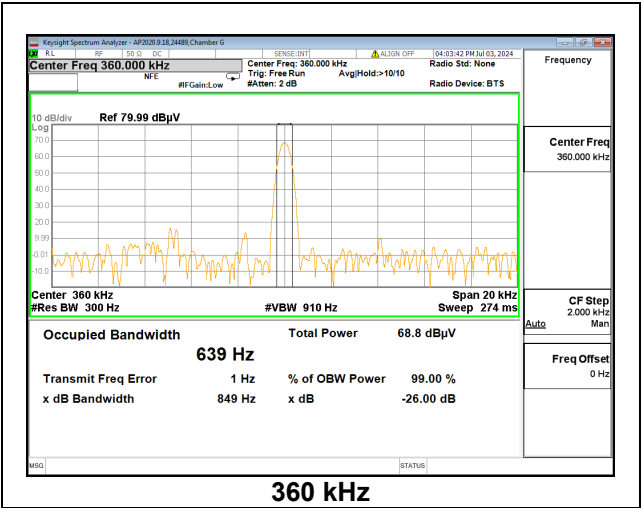
Configuration 1: Charger with Load #1 in operating mode, transmitting at 127.7 kHz

Configuration 2: Charger with Load #2 in operating mode, transmitting at 360 kHz

CONFIGURATION 1



CONFIGURATION 2



8. RADIATED EMISSION TEST RESULTS

LIMITS

FCC §15.209 (a) (d)

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)	Quai-Peak, at 3m 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.	

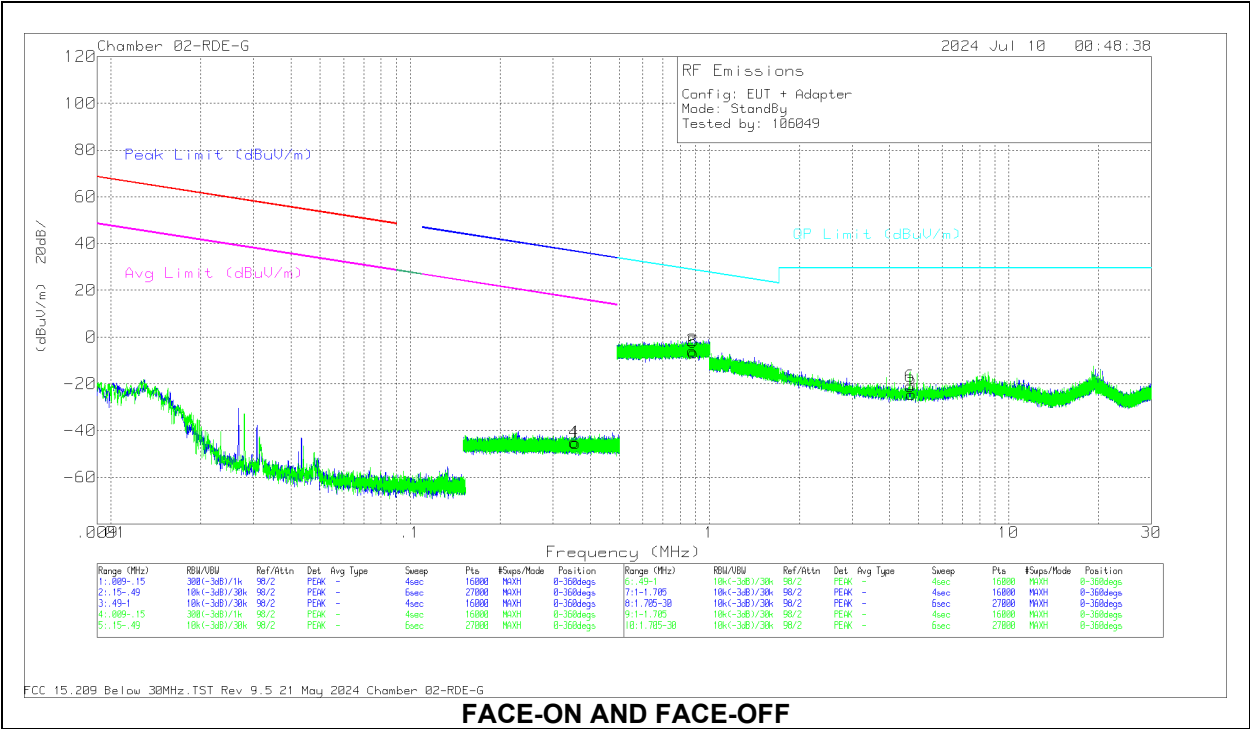
Table 4: Electric field strength radiated emission limits for induction cooking appliances

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

8.1. CONFIGURATION 1: STANDBY MODE

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



FACE-ON AND FACE-OFF

DATA

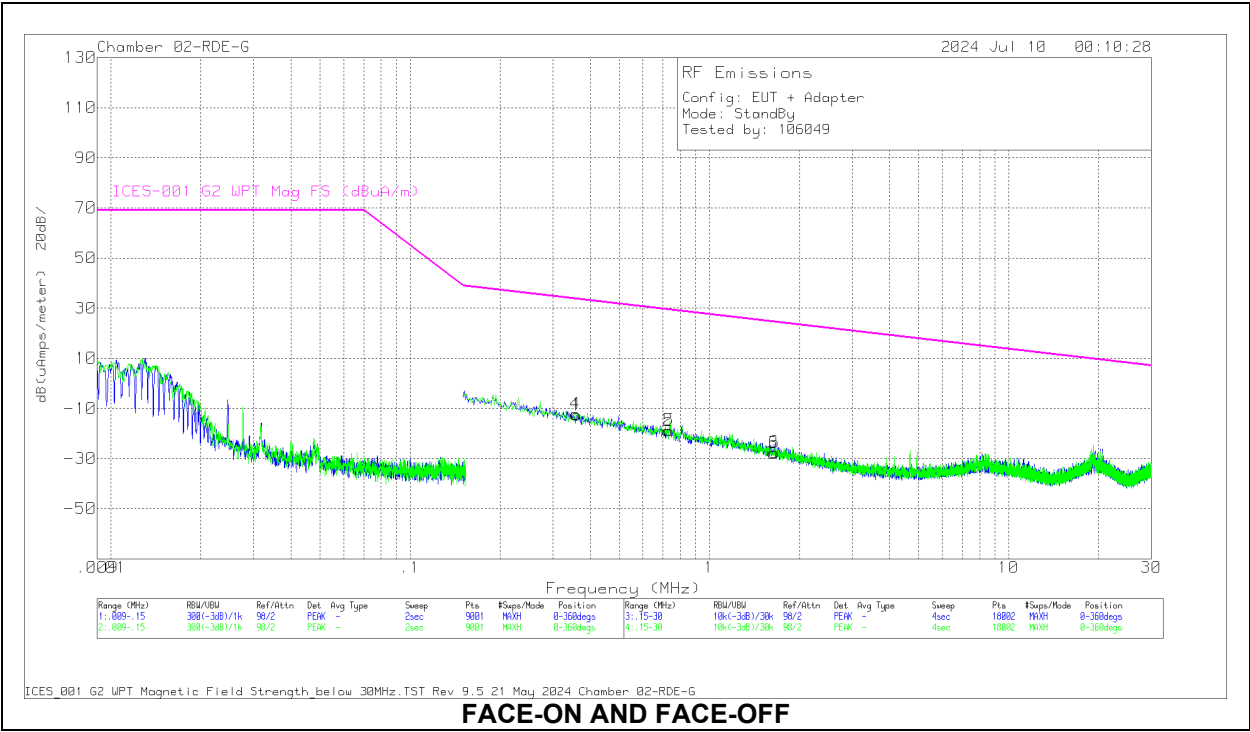
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF) (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
4	.3537	10.98	Pk	56	-32	-80	-45.02	36.64	-81.66	16.64	-61.66	0-360	Face Off
1	.3571	10.62	Pk	56	-32	-80	-45.38	36.55	-81.93	16.55	-61.93	0-360	Face On

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF) (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.8771	9.93	Pk	56.1	-31.9	-40	-5.87	28.76	-34.63	0-360	Face On
5	.8856	9.14	Pk	56.1	-31.9	-40	-6.66	28.67	-35.33	0-360	Face Off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (ACF) (dB/m)	Loop Path 100kHz-30MHz (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
6	4.6897	14.32	Pk	36.3	-31.7	-40	-21.08	29.5	-50.58	0-360	Face Off
3	4.7348	10.84	Pk	36.3	-31.7	-40	-24.56	29.5	-54.06	0-360	Face On

Pk - Peak detector

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

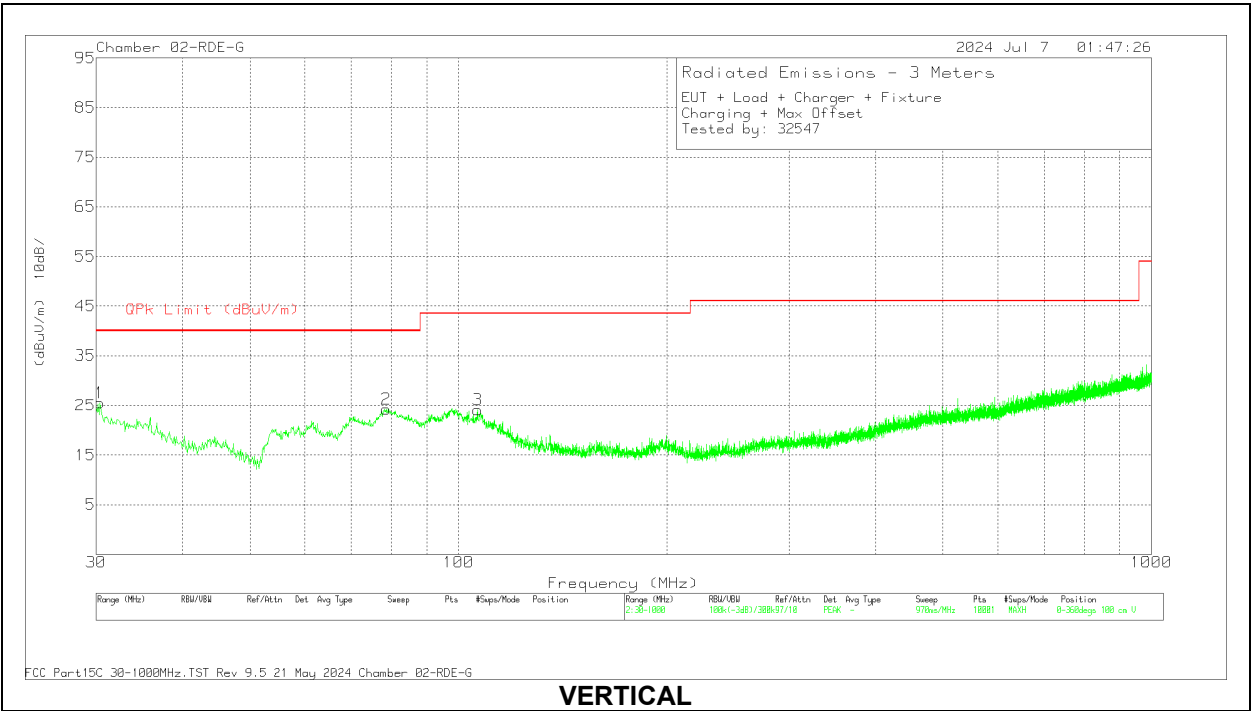
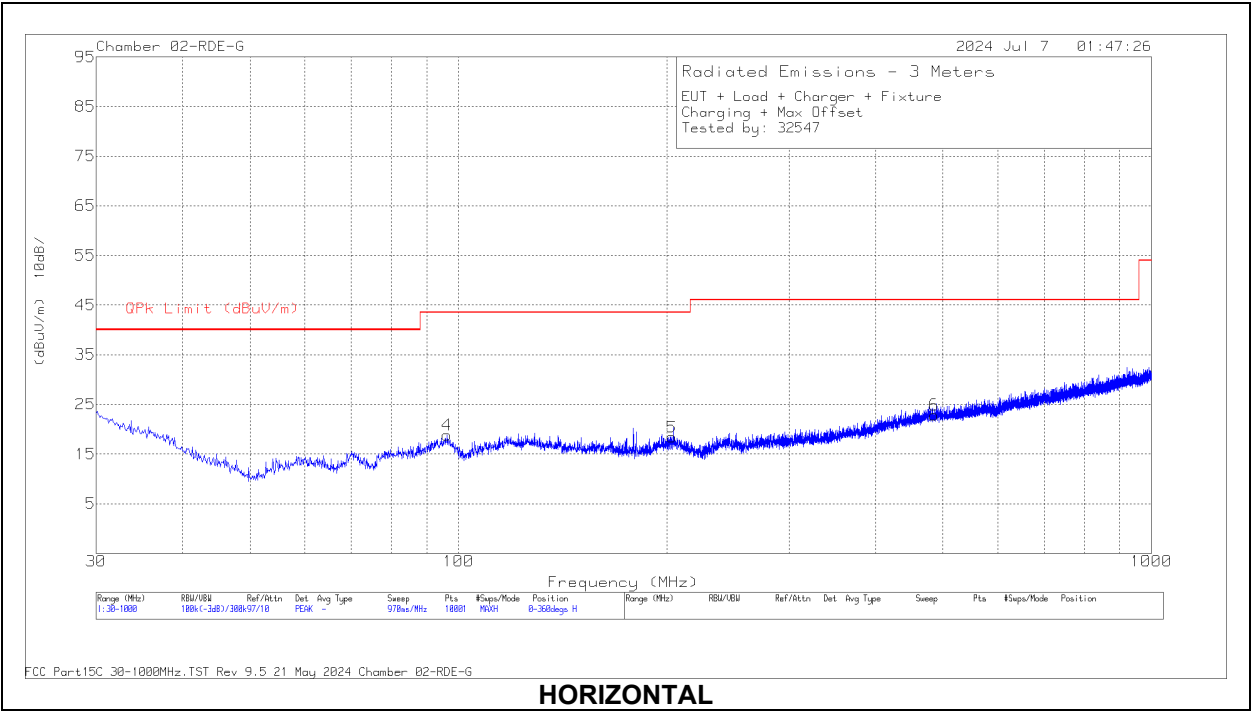


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna H (ACF) (dB/m)	Loop Path 100kHz-30MHz (dB)	Corrected Reading dB(uAmps/meter)	ICES-001 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)	Polarity
4	.3573	16.51	Pk	3.4	-32.1	-12.19	33.76	-45.95	0-360	Face off
1	.3606	16.18	Pk	3.4	-32.1	-12.52	33.7	-46.22	0-360	Face On
2	.727	15.61	Pk	-2.4	-32	-18.79	29.47	-48.26	0-360	Face On
5	.7336	15.67	Pk	-2.4	-32	-18.73	29.41	-48.14	0-360	Face off
3	1.6372	12.26	Pk	-8.1	-31.9	-27.74	24.56	-52.3	0-360	Face On
6	1.6522	12.57	Pk	-8.2	-31.9	-27.53	24.51	-52.04	0-360	Face off

Pk - Peak detector

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



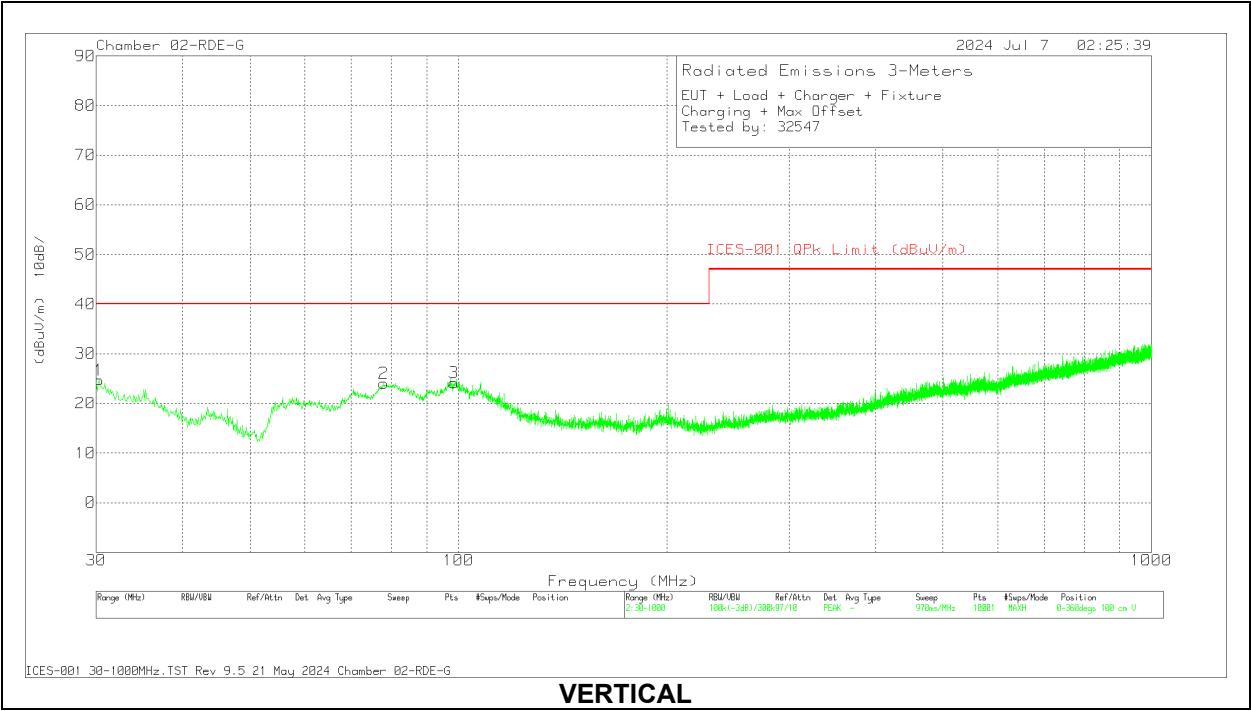
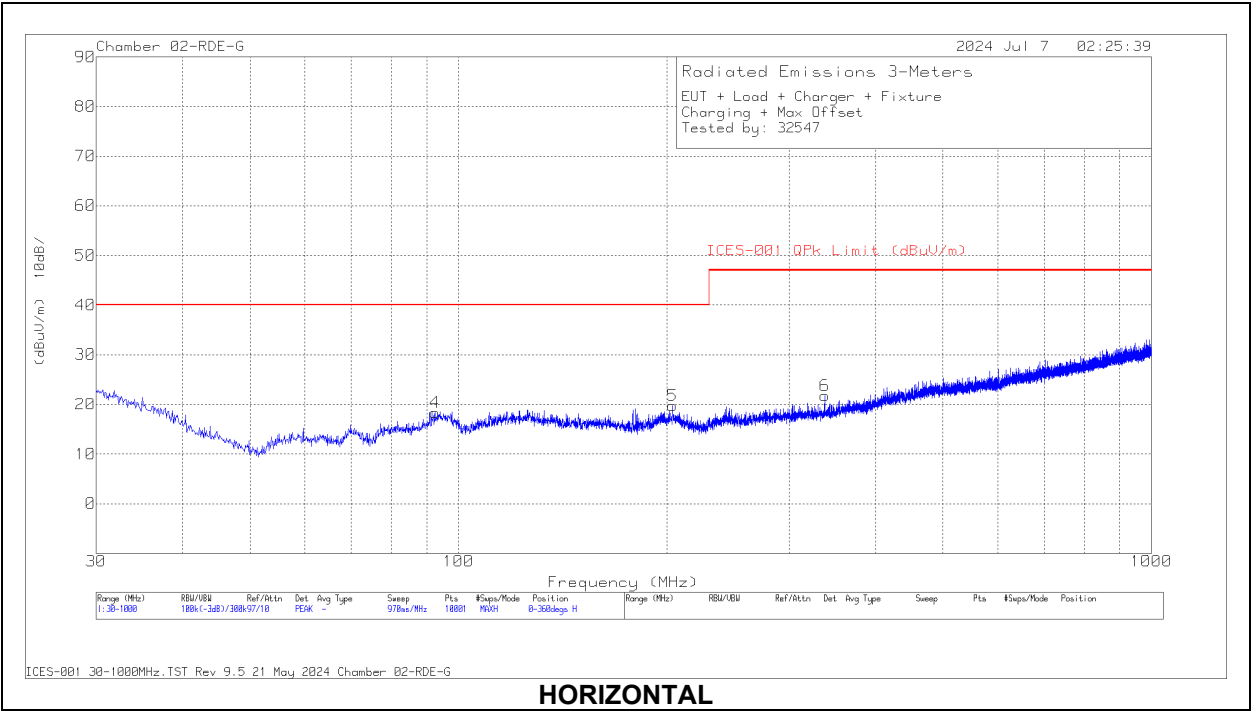
DATA

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	204044 ACF (dB/m)	Hybrid Path 30MHz-1000MHz	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.5541	23.43	Qp	25.9	-31	18.33	40	-21.67	153	122	V
2	78.389	37.16	Qp	13.6	-30.4	20.36	40	-19.64	314	104	V
4	94.517	27.03	Qp	14.9	-30.2	11.73	43.52	-31.79	353	103	H
3	107.565	30.93	Qp	18.3	-30.1	19.13	43.52	-24.39	325	100	V
5	203.675	28.76	Qp	17.4	-29.3	16.86	43.52	-26.66	181	103	H
6	488.525	20.06	Qp	23.5	-27.6	15.96	46.02	-30.06	286	262	H

Qp - Quasi-Peak detector

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



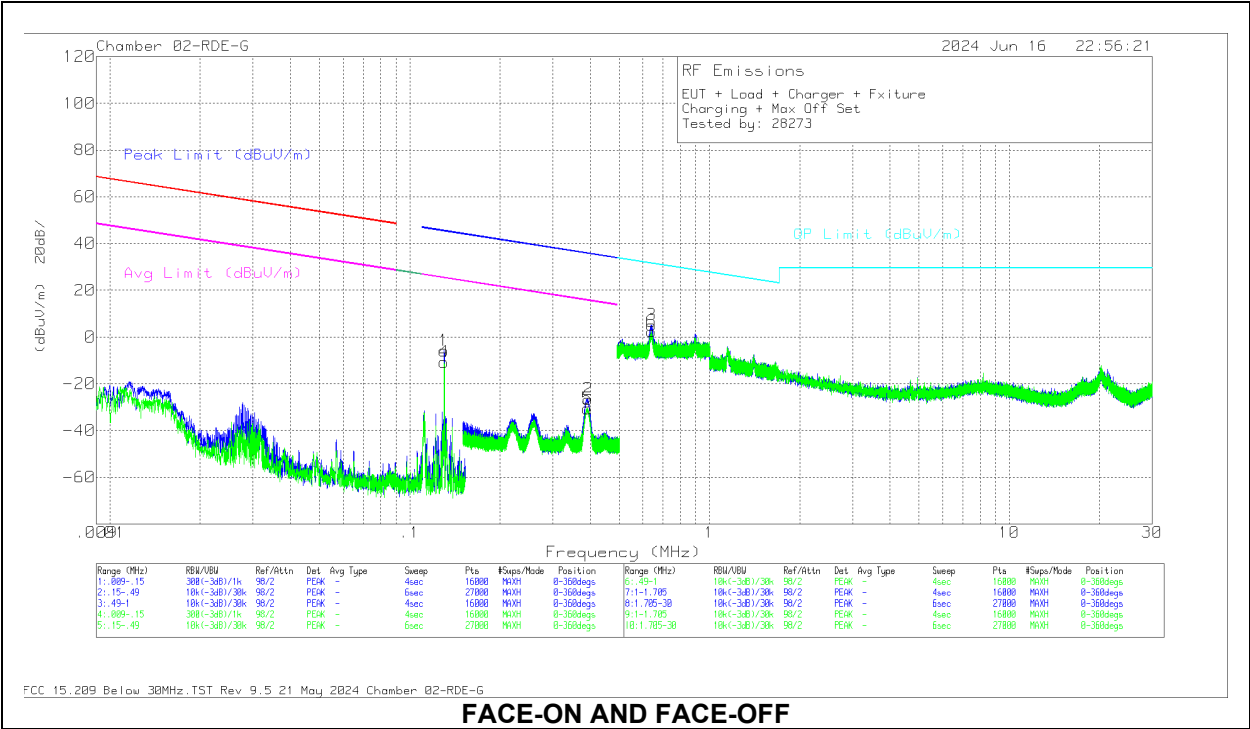
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	204044 ACF (dB/m)	Hybrid Path 30MHz-1000MHz (dB)	Corrected Reading (dBuV/m)	ICES-001 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.1568	22.26	Qp	25.4	-31	16.66	40	-23.34	156	232	V
2	79.31	37.3	Qp	13.5	-30.4	20.4	40	-19.6	323	100	V
4	92.62	27.83	Qp	14.4	-30.3	11.93	40	-28.07	312	103	H
3	97.641	34.38	Qp	15.7	-30.2	19.88	40	-20.12	321	114	V
5	203.552	28.18	Qp	17.4	-29.3	16.28	40	-23.72	36	101	H
6	336.607	20.21	Qp	19.8	-28.4	11.61	47	-35.39	102	129	H

Qp - Quasi-Peak detector

8.2. CONFIGURATION 2: OPERATING MODE W/ LOAD #1

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



FACE-ON AND FACE-OFF

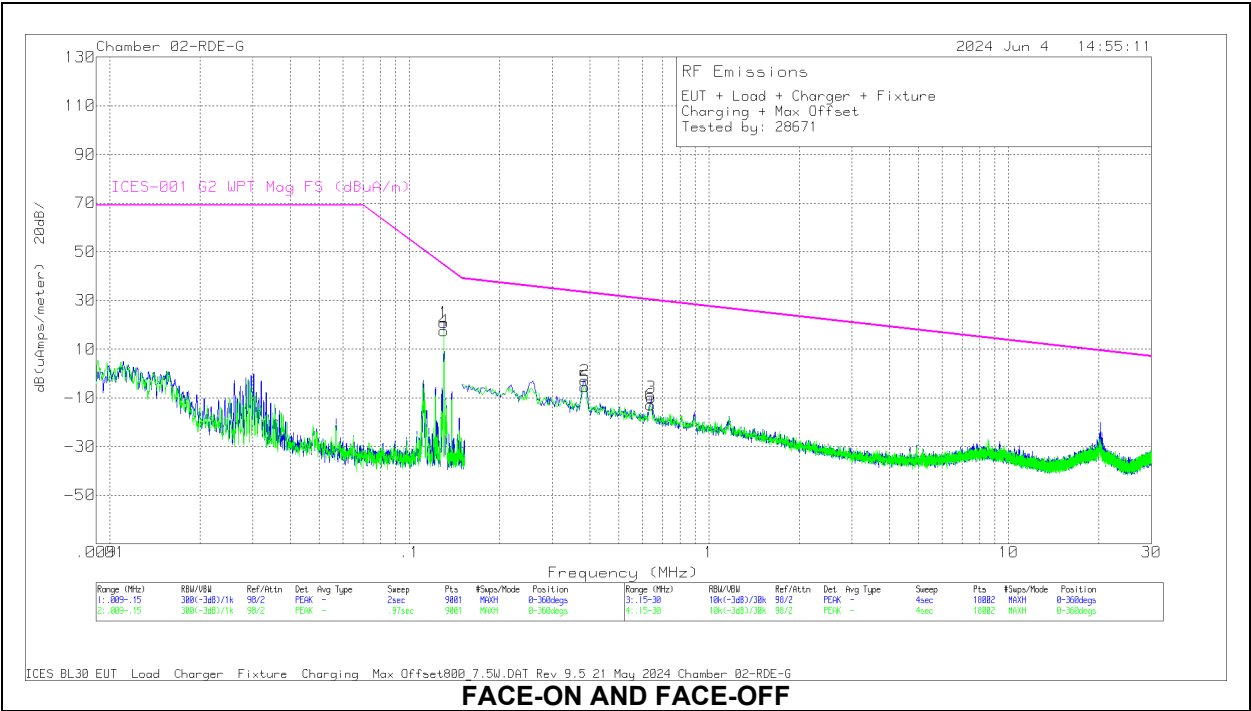
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Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.1303	50.56	Pk	55.6	-32	-80	-5.84	45.33	-51.17	25.33	-31.17	0-360	Face on
4	.1303	45.71	Pk	55.6	-32	-80	-10.69	45.33	-56.02	25.33	-36.02	0-360	Face off
5	.3911	25.41	Pk	56	-32	-80	-30.59	35.76	-66.35	15.76	-46.35	0-360	Face off
2	.393	29.34	Pk	56	-32	-80	-26.66	35.72	-62.38	15.72	-42.38	0-360	Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
3	.6403	20.98	Pk	56.1	-31.9	-40	5.18	31.48	-26.3	0-360	Face on
6	.6416	18.23	Pk	56.1	-31.9	-40	2.43	31.47	-29.04	0-360	Face off

Pk - Peak detector

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



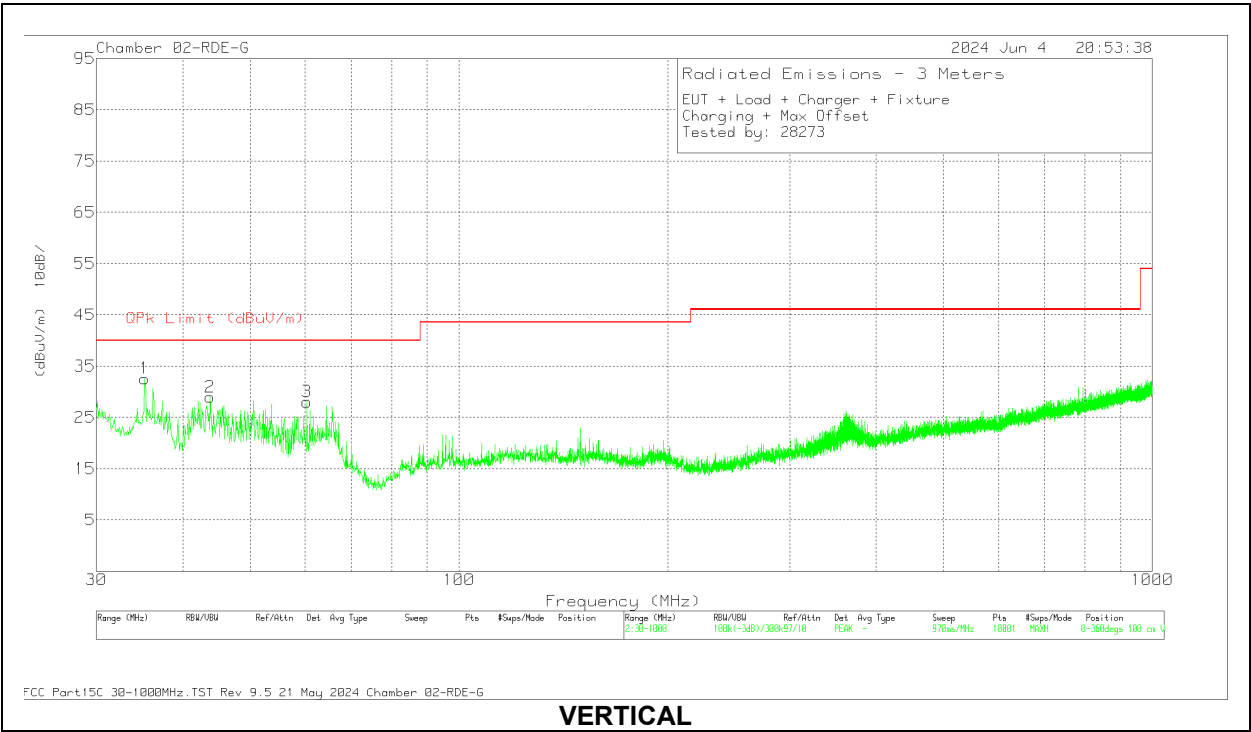
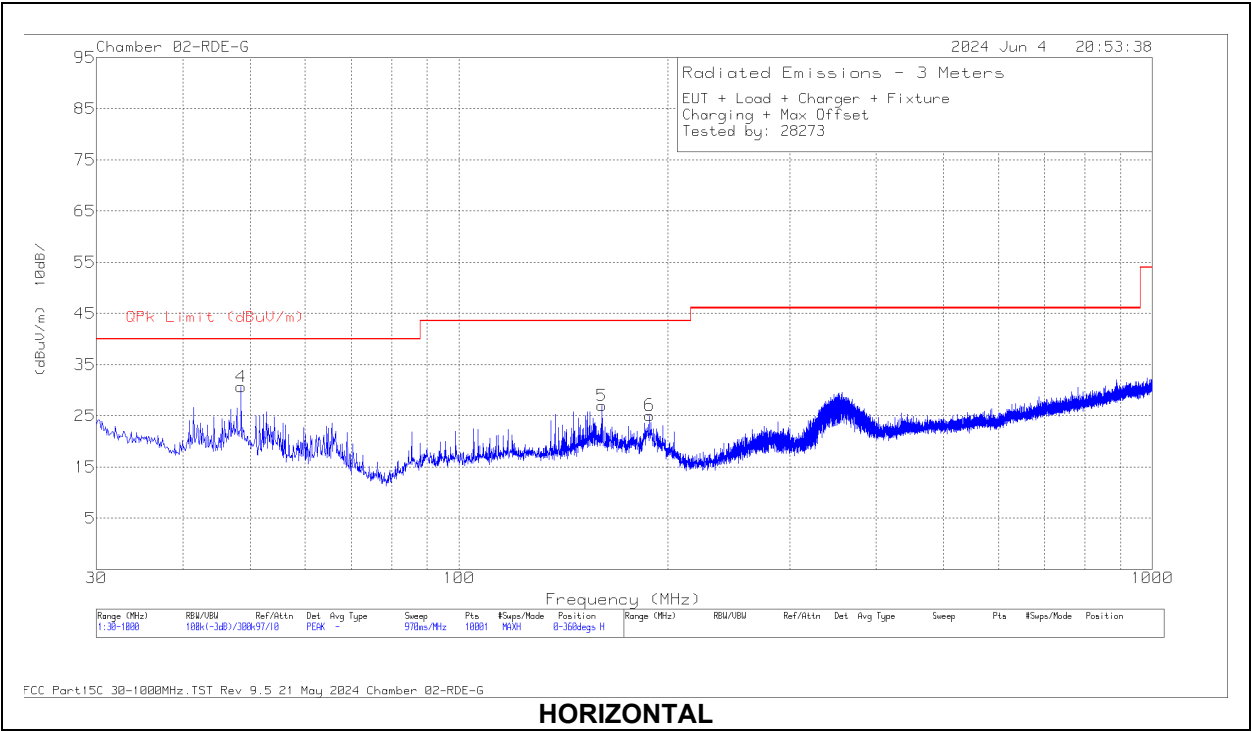
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Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	Loop Antenna H ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Corrected Reading dB(uAmps/meter)	ICES-001 G2 WPT Mag FS (dBUA/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.1303	48.86	Pk	4.1	-32	20.96	44.54	-23.58	0-360	Face on
4	.1303	45.43	Pk	4.1	-32	17.53	44.54	-27.01	0-360	Face off

Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	Loop Antenna H ACF (dB/m)	Loop Path 100kHz-30MHz (dB)	Corrected Reading dB(uAmps/meter)	ICES-001 G2 WPT Mag FS (dBUA/m)	Margin (dB)	Azimuth (Degs)	Polarity
2	.3854	26.44	Pk	2.7	-32.1	-2.96	33.3	-36.26	0-360	Face on
5	.3854	24.06	Pk	2.7	-32.1	-5.34	33.3	-38.64	0-360	Face off
6	.6391	20.41	Pk	-1.3	-32.1	-12.99	30.25	-43.24	0-360	Face off
3	.6424	23.58	Pk	-1.3	-32.1	-9.82	30.21	-40.03	0-360	Face on

Pk - Peak detector

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

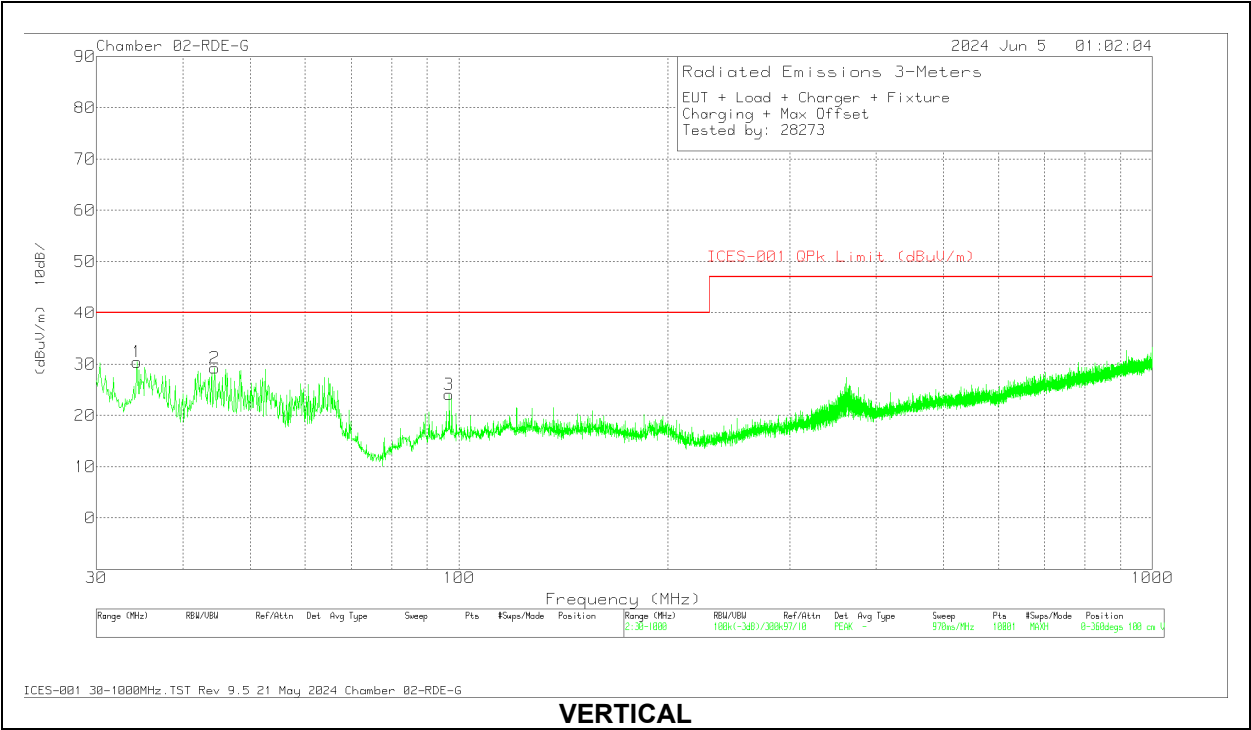
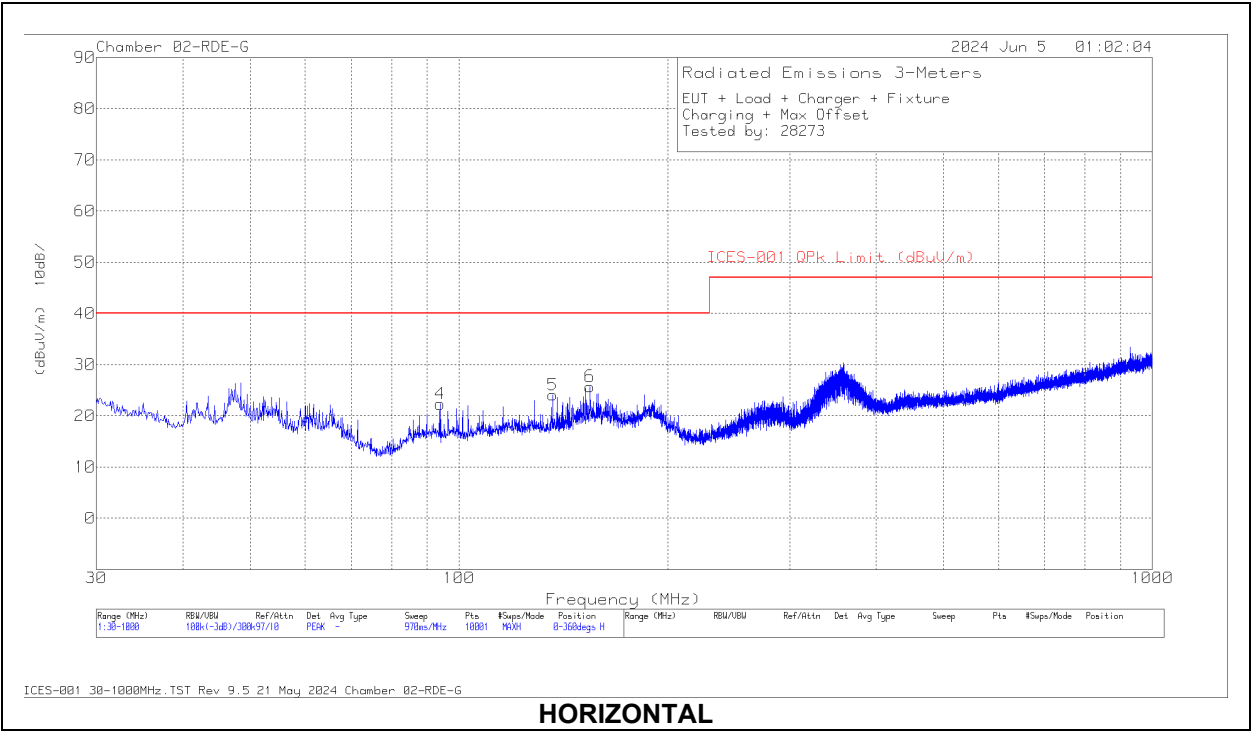


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	204044 ACF (dB/m)	Hybrid Path 30MHz-1000MHz (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	35.847	30.36	Qp	22.5	-31	21.86	40	-18.14	341	100	V
2	46.0917	34.26	Qp	15.6	-30.8	19.06	40	-20.94	320	142	V
4	46.8566	35.65	Qp	15.2	-30.8	20.05	40	-19.95	241	269	H
3	61.483	35.68	Qp	13.4	-30.6	18.48	40	-21.52	84	100	V
5	154.147	29.84	Qp	18.3	-29.7	18.44	43.52	-25.08	137	164	H
6	188.442	31.88	Qp	17.2	-29.4	19.68	43.52	-23.84	101	177	H

Qp - Quasi-Peak detector

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



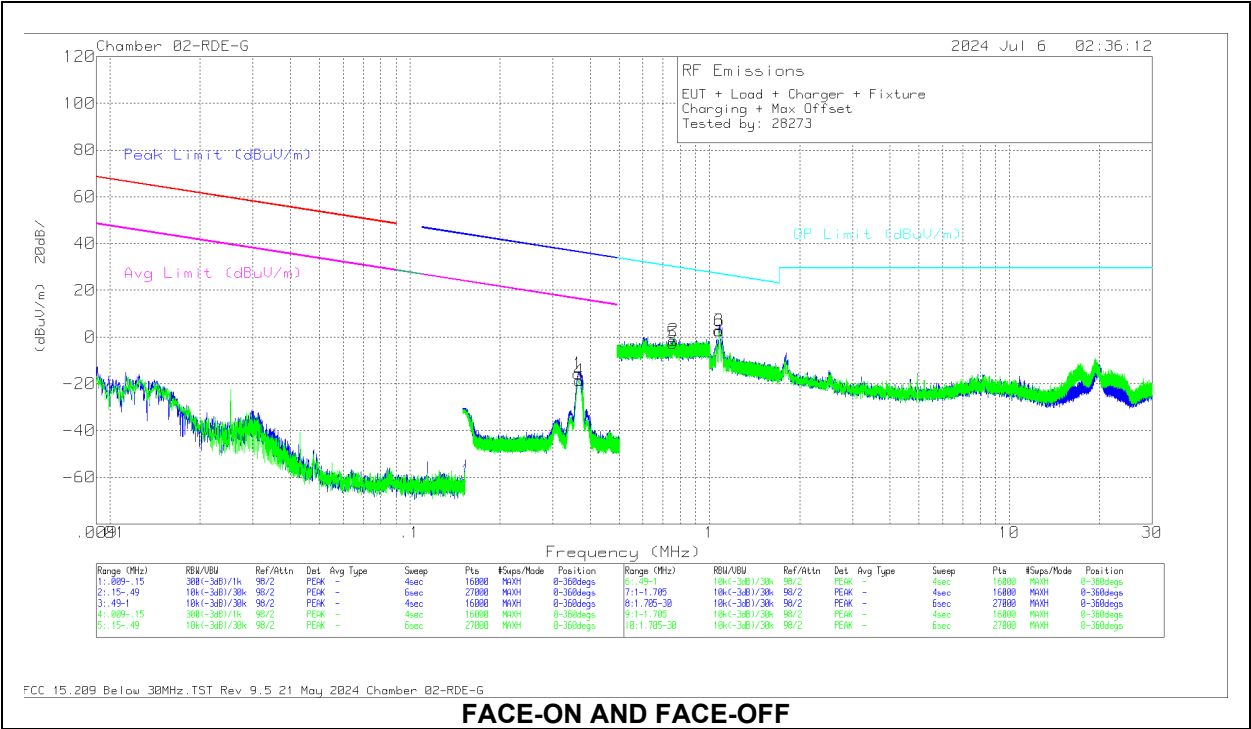
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	204044 ACF (dB/m)	Hybrid Path 30MHz-1000MHz (dB)	Corrected Reading (dBuV/m)	ICES-001 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	36.0344	30.19	Qp	22.4	-31	21.59	40	-18.41	27	100	V
2	44.8534	32.82	Qp	16.3	-30.8	18.32	40	-21.68	260	104	V
4	88.6526	31.12	Qp	13.7	-30.3	14.52	40	-25.48	127	277	H
3	94.673	27.41	Qp	14.9	-30.3	12.01	40	-27.99	81	101	V
5	143.634	26.05	Qp	18.7	-29.8	14.95	40	-25.05	152	138	H
6	155.883	30.08	Qp	18.3	-29.7	18.68	40	-21.32	142	176	H

Qp - Quasi-Peak detector

8.3. CONFIGURATION 3: OPERATING MODE W/ LOAD #2

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



FACE-ON AND FACE-OFF

DATA

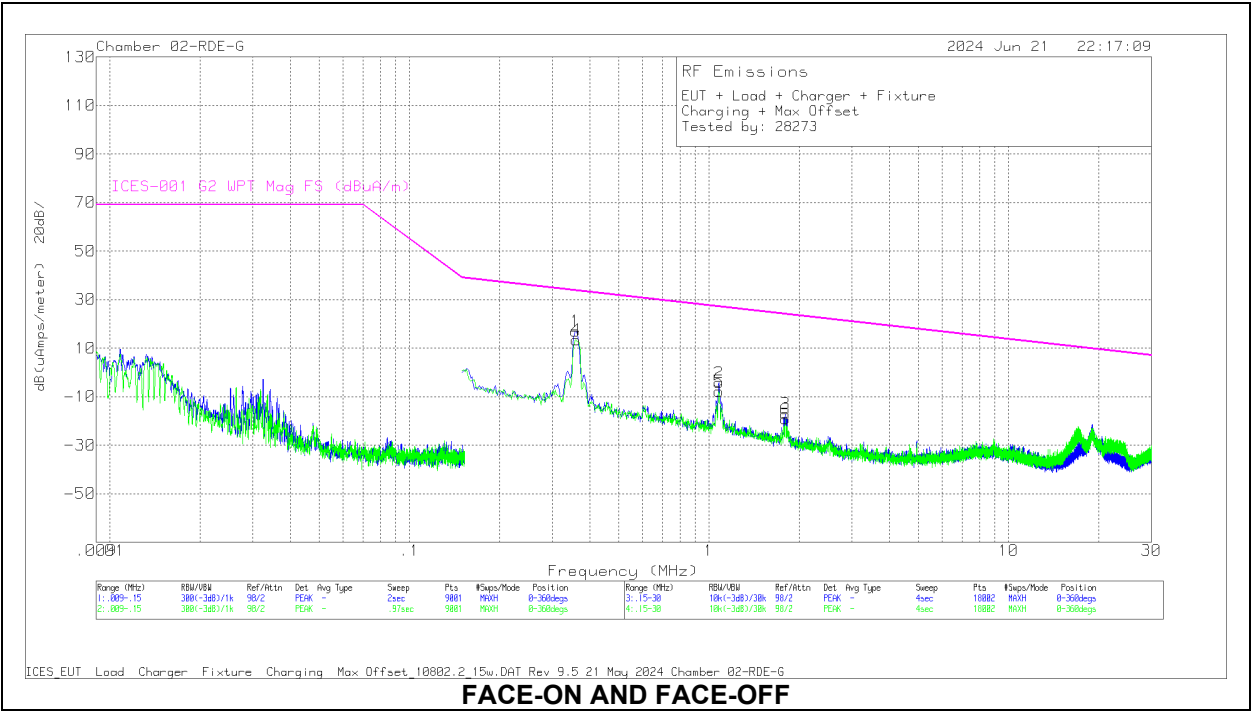
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.3649	40.34	Pk	56	-32	-80	-15.66	36.36	-52.02	16.36	-32.02	0-360	Face on
4	.3673	37.39	Pk	56	-32	-80	-18.61	36.31	-54.92	16.31	-34.92	0-360	Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
5	.7547	13.23	Pk	56.1	-31.9	-40	-2.57	30.06	-32.63	0-360	Face off
2	.7588	14.46	Pk	56.1	-31.9	-40	-1.34	30.01	-31.35	0-360	Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E ACF (dB/m)	Loop Path 100kHz-30MHz (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
3	1.0748	28.41	Pk	46.4	-32	-40	2.81	27	-24.19	0-360	Face on
6	1.08	28.3	Pk	46.4	-32	-40	2.7	26.96	-24.26	0-360	Face off

Pk - Peak detector

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

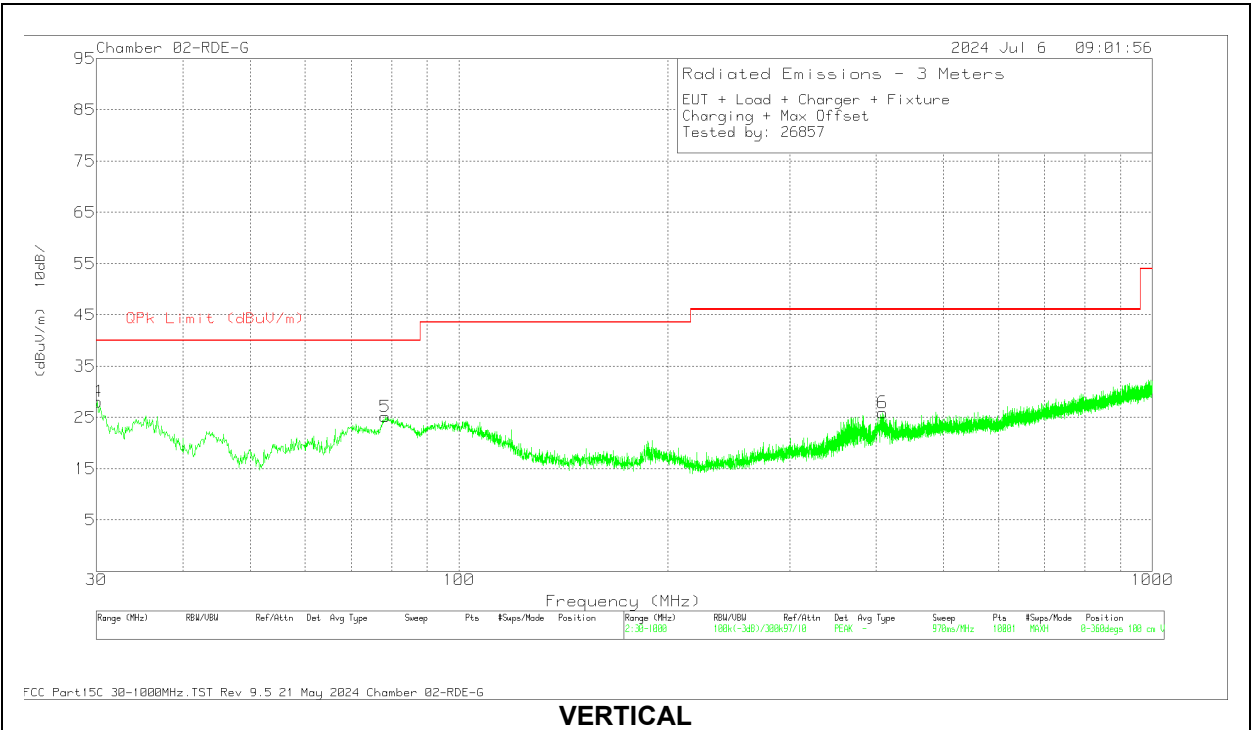
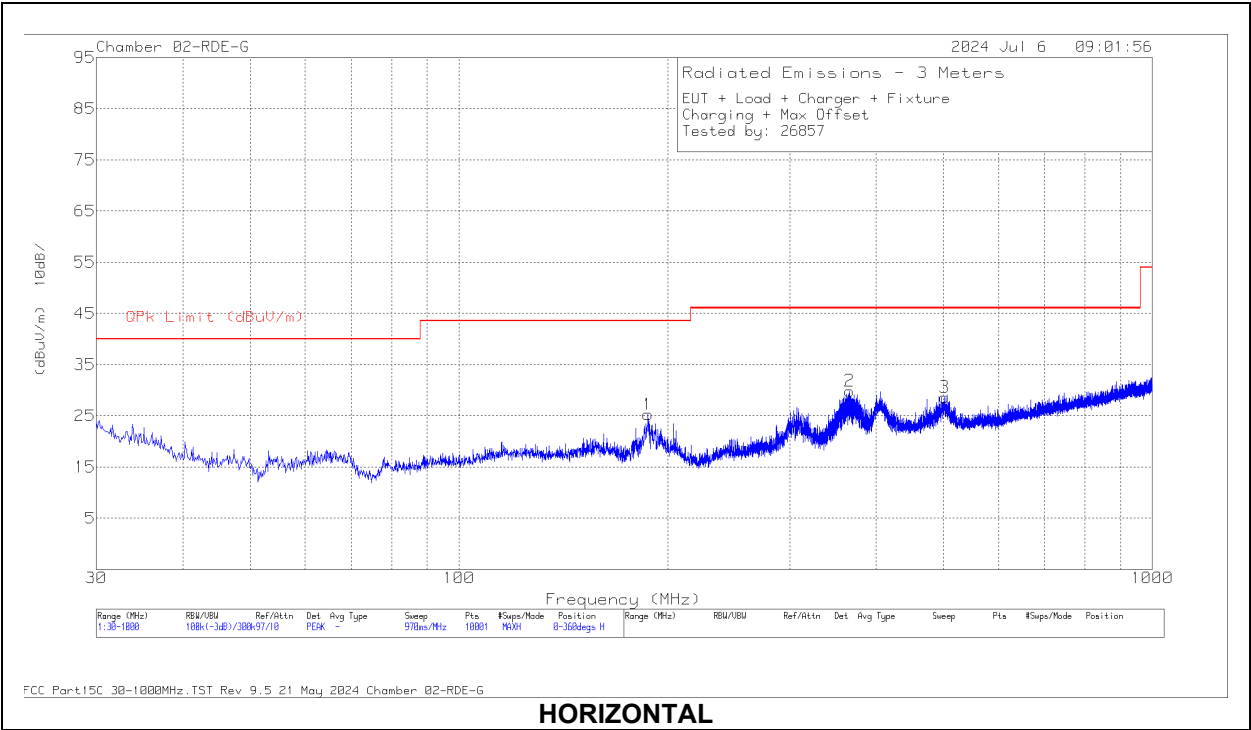


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna H ACF (dB/m)	Loop Path 100kHz-30MHz (dB)	Corrected Reading dB(uAmps/meter)	ICES-001 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.3589	45.75	Pk	3.4	-32.1	17.05	33.73	-16.68	0-360	Face on
4	.3606	42.17	Pk	3.4	-32.1	13.47	33.7	-20.23	0-360	Face off
2	1.0785	32.86	Pk	-5.1	-32	-4.24	27.09	-31.33	0-360	Face on
5	1.0801	29.44	Pk	-5.1	-32	-7.66	27.08	-34.74	0-360	Face off
3	1.7981	23.72	Pk	-8.9	-31.9	-17.08	24	-41.08	0-360	Face on
6	1.7997	21.59	Pk	-8.9	-31.9	-19.21	23.99	-43.2	0-360	Face off

Pk - Peak detector

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

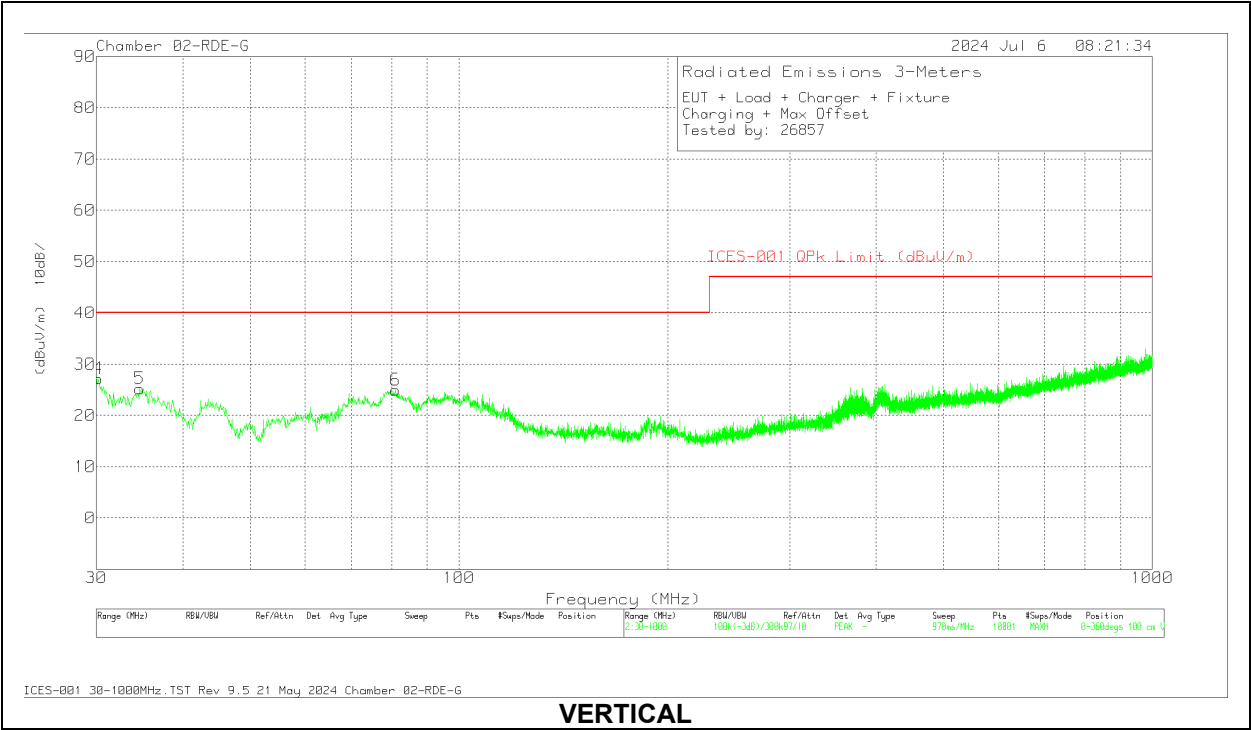
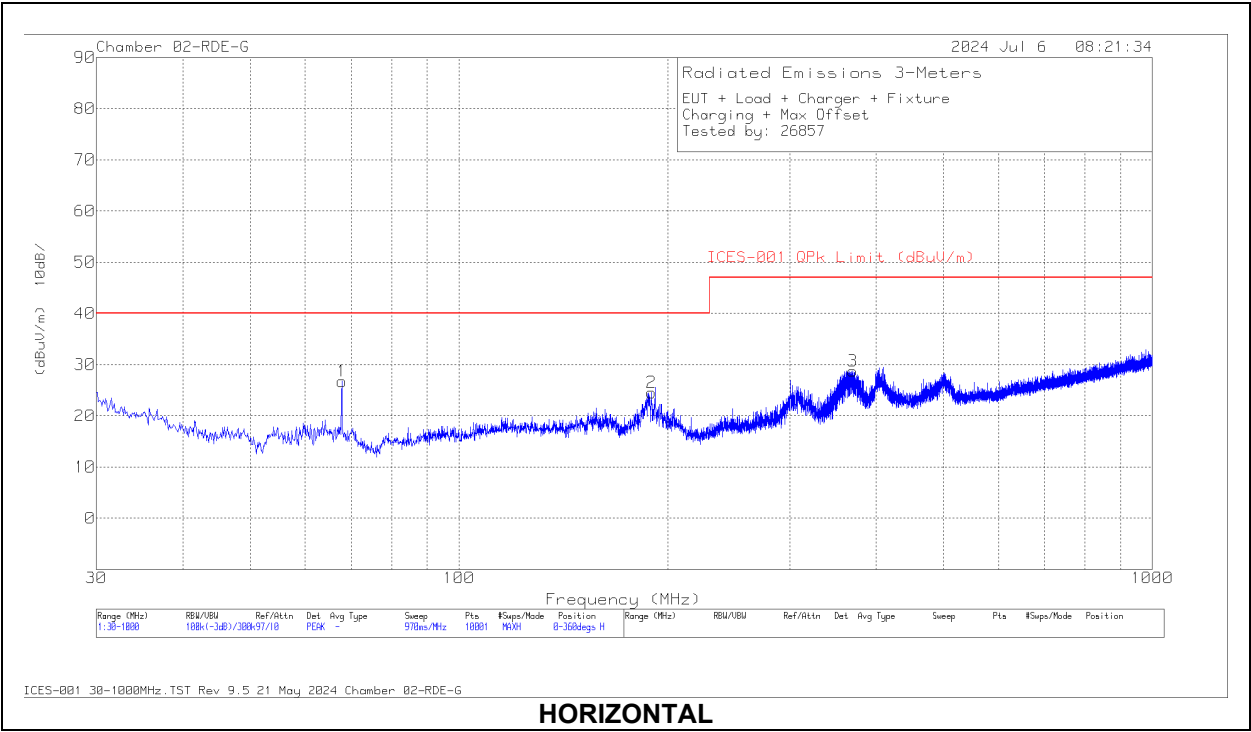


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	204044 ACF (dB/m)	Hybrid Path 30MHz-1000MHz (d/B)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Deps)	Height (cm)	Polarity
3	* 407.784	25.81	Qp	21.8	-27.9	19.71	46.02	-26.31	2	227	V
1	30.1063	26.73	Qp	26.3	-31.1	21.93	40	-18.07	338	102	V
2	78.286	37.48	Qp	13.6	-30.4	20.68	40	-19.32	273	120	V
4	188.126	31.41	Qp	17.2	-29.4	19.21	43.52	-24.31	114	100	H
5	363.977	33.56	Qp	20.7	-28.2	26.06	46.02	-19.96	348	104	H
6	500.612	27.01	Qp	23.6	-27.5	23.11	46.02	-22.91	193	174	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)



DATA

Radiated Emissions

Markers	Frequency (MHz)	Meter Reading (dBuV)	Det	204044 ACF (dB/m)	Hybrid Path 30MHz-1000MHz (d/B)	Corrected Reading (dBuV/m)	ICES-001 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.7027	26.62	Qp	25.8	-31	21.42	40	-18.58	14	104	V
2	35.811	27.88	Qp	22.5	-31	19.38	40	-20.62	348	100	V
4	67.515	29.83	Qp	13.8	-30.5	13.13	40	-26.87	41	309	H
3	78.5405	37.9	Qp	13.5	-30.4	21	40	-19	11	100	V
5	191.745	31.2	Qp	17.5	-29.4	19.3	40	-20.7	114	100	H
6	366.865	34.04	Qp	20.7	-28.2	26.54	47	-20.46	344	110	H

Qp - Quasi-Peak detector

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	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 100V, without an earth connection Quasi-peak (dBμV)	Appliances rated 100V, without an earth connection Average (dBμV)	All other appliances Quasi-peak (dBμV)	All other appliances Average (dBμV)
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 dBμV 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 200Hz, from 9kHz to 150kHz, resolution bandwidth of 9kHz from 150kHz to 30MHz. 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. CONFIGURATION 1: STANDBY MODE

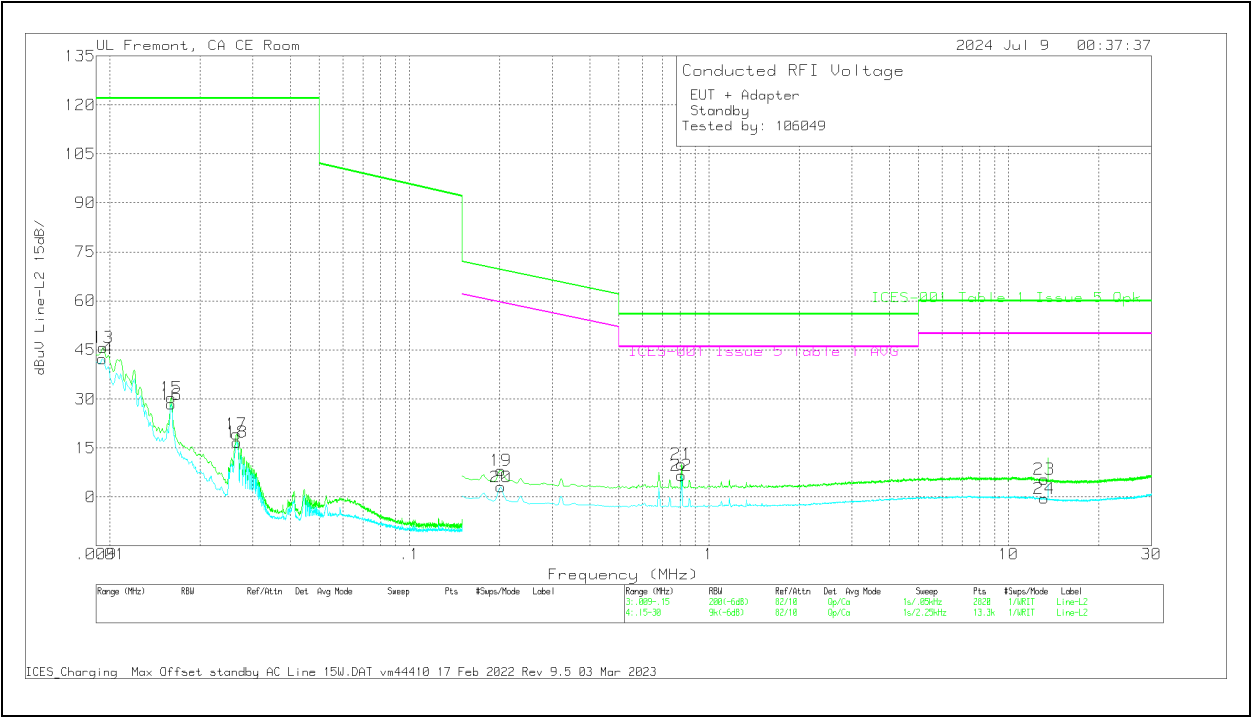
LINE 1 RESULTS



DATA

Range 1: Line-L1 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	LISN (dB)	Cbl (dB)	Tms Limiter (dB)	Corrected Reading dBUV	ICES-001 Table 1 Issue 5 Qpk dBUV	Margin (dB)	ICES-001 Issue 5 Table 1 AVG dBUV	Margin (dB)
2	.0094	21.83	Ca	4.8	-.1	14.6	41.13	-	-	-	-
4	.016	11.3	Ca	2.4	-.1	11.5	25.1	-	-	-	-
6	.0266	-68	Ca	1.1	.1	10.8	11.32	-	-	-	-
1	.0095	24.56	Qp	4.8	-.1	14.4	43.66	122	-78.34	-	-
3	.016	13.82	Qp	2.4	-.1	11.5	27.62	122	-94.38	-	-
5	.0266	1.59	Qp	1.1	.1	10.8	13.59	122	-108.41	-	-
Range 2: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	LISN (dB)	Cbl (dB)	Tms Limiter (dB)	Corrected Reading dBUV	ICES-001 Table 1 Issue 5 Qpk dBUV	Margin (dB)	ICES-001 Issue 5 Table 1 AVG dBUV	Margin (dB)
8	.2018	-6.37	Ca	0	.1	9.4	3.13	-	-	59.54	-56.41
10	.8093	-2.94	Ca	0	.1	9.3	6.46	-	-	46	-39.54
12	13.56	-7.48	Ca	.1	.3	9.5	2.42	-	-	50	-47.58
7	.2018	-1.56	Qp	0	.1	9.4	7.94	69.54	-61.6	-	-
9	.8093	1.06	Qp	0	.1	9.3	10.46	56	-45.54	-	-
11	13.56	-7.6	Qp	.1	.3	9.5	9.14	60	-50.86	-	-

LINE 2 RESULTS



DATA

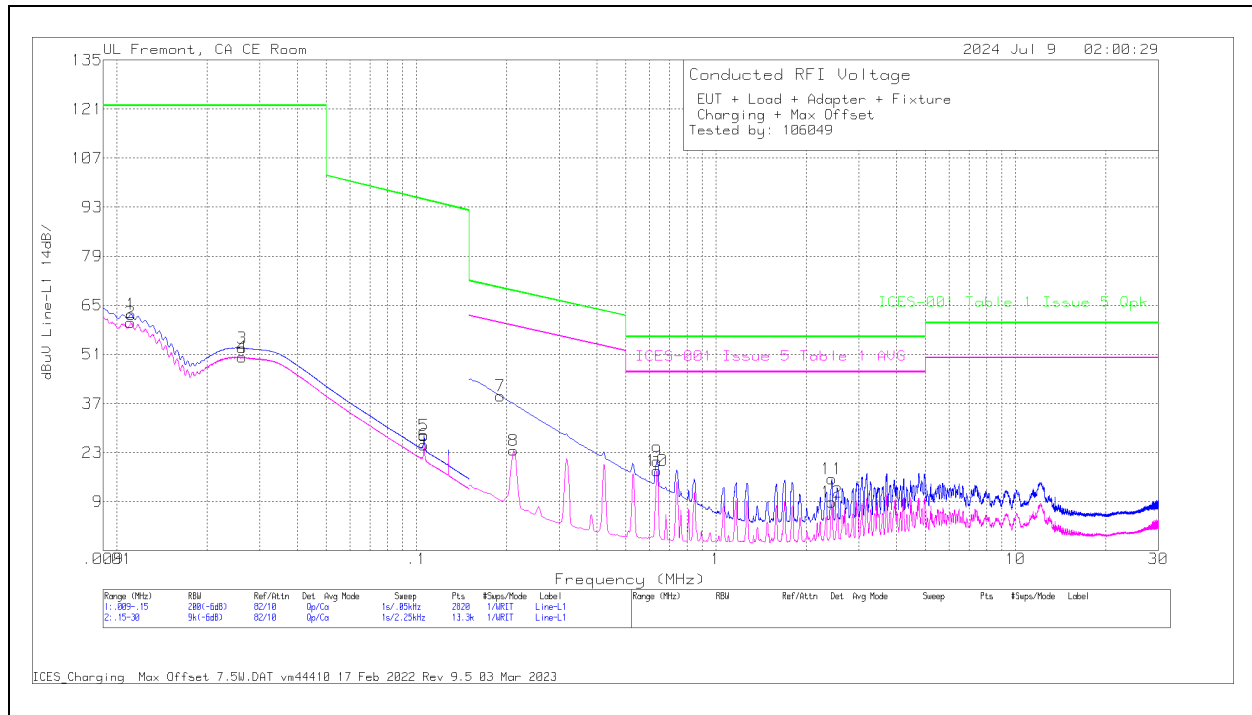
Range 3: Line-L2 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trms Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
14	.0095	22.93	Ca	4.9	0	14.4	42.23	-	-	-	-
16	.0161	14.47	Ca	2.4	0	11.5	28.37	-	-	-	-
18	.0266	4.89	Ca	1	.1	10.8	16.79	-	-	-	-
13	.0095	26.48	Qp	4.8	.1	14.3	45.68	122	-76.32	-	-
15	.016	16.53	Qp	2.4	0	11.5	30.43	122	-91.57	-	-
17	.0265	7.3	Qp	1	.1	10.8	19.2	122	-102.8	-	-

Range 4: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trms Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
20	.2018	-6.45	Ca	0	.1	9.4	3.05	-	-	59.54	-56.49
22	.8093	-2.74	Ca	0	0	9.3	6.56	-	-	46	-39.44
24	13.173	-10.13	Ca	.1	.2	9.4	-43	-	-	50	-50.43
19	.2018	-1.42	Qp	0	.1	9.4	8.08	69.54	-61.46	-	-
21	.8093	.75	Qp	0	0	9.3	10.05	56	-45.95	-	-
23	13.182	-4.28	Qp	.1	.2	9.4	5.42	60	-54.58	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

9.2. CONFIGURATION 2: OPERATING MODE W/ LOAD #1

LINE 1 RESULTS



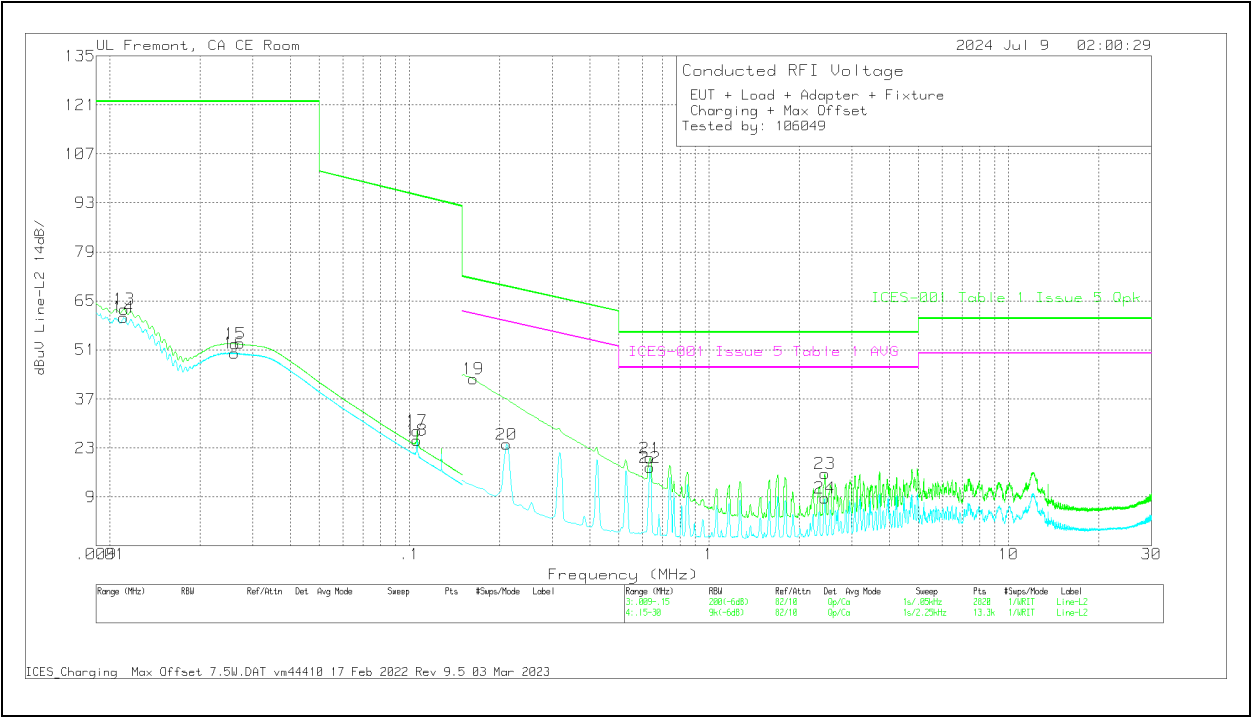
DATA

Range 1: Line-L1 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
2	.0111	43.97	Ca	4.1	-.3	12.3	60.07	-	-	-	-
4	.0262	38.24	Ca	1.1	.1	10.8	50.24	-	-	-	-
6	.1061	15.5	Ca	.1	.1	9.5	25.2	-	-	-	-
1	.0112	46.33	Qp	4.1	-.3	12.3	62.43	122	-59.57	-	-
3	.0262	40.85	Qp	1.1	.1	10.8	52.85	122	-69.15	-	-
5	.106	18.21	Qp	.1	.1	9.5	27.91	95.16	-67.25	-	-

Range 2: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
8	.2108	14.15	Ca	0	.1	9.4	23.65	-	-	59.18	-35.53
10	.636	8.32	Ca	0	.1	9.4	17.82	-	-	46	-28.18
12	2.436	-.6	Ca	0	.1	9.4	8.9	-	-	46	-37.1
7	.1905	29.52	Qp	.1	.1	9.4	39.12	70.01	-30.89	-	-
9	.636	10.96	Qp	0	.1	9.4	20.46	56	-35.54	-	-
11	2.436	5.95	Qp	0	.1	9.4	15.45	56	-40.55	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



DATA

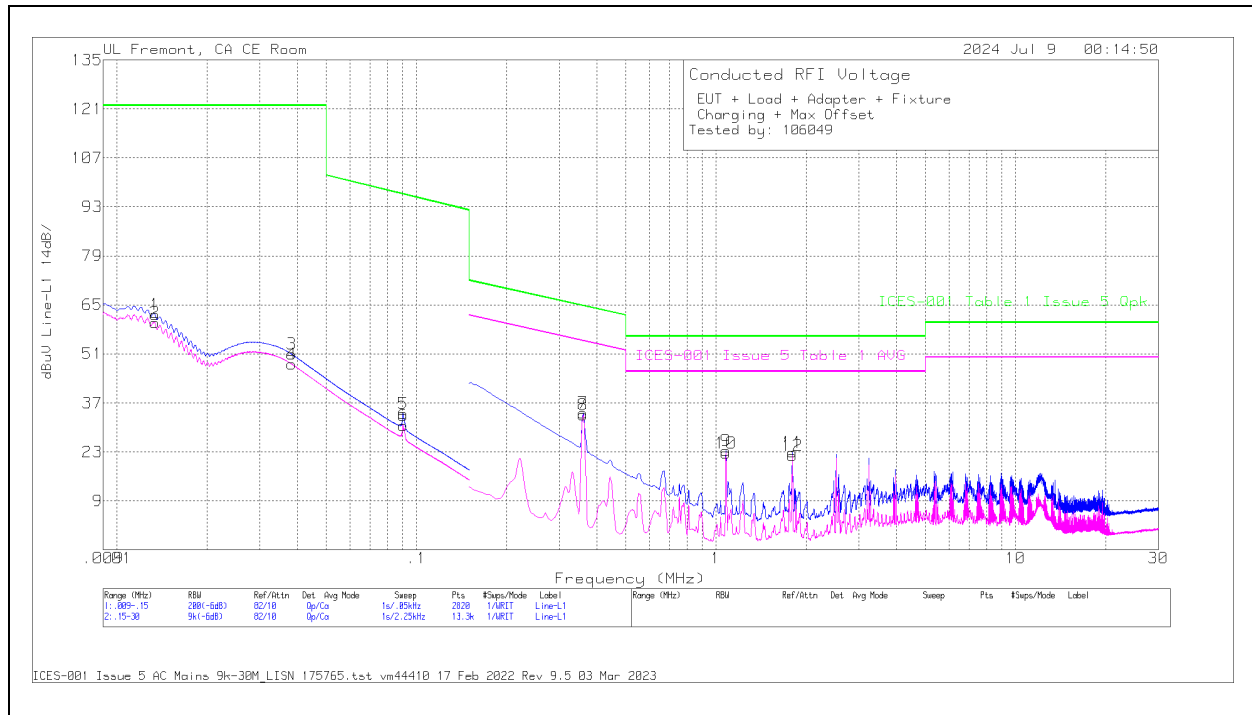
Range 3: Line-L2 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
14	.0111	43.71	Ca	4.2	.1	12.3	60.31	-	-	-	-
16	.0261	38.15	Ca	1.1	.1	10.8	50.15	-	-	-	-
18	.1061	15.53	Ca	.1	.1	9.5	25.23	-	-	-	-
13	.0112	46.05	Qp	4.2	.1	12.3	62.65	122	-59.35	-	-
15	.0263	40.86	Qp	1	.1	10.8	52.76	122	-69.24	-	-
17	.1061	18.16	Qp	.1	.1	9.5	27.86	95.15	-67.29	-	-

Range 4: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
20	.2108	14.52	Ca	0	.1	9.4	24.02	-	-	59.18	-35.16
22	.636	7.89	Ca	0	.1	9.4	17.39	-	-	46	-28.61
24	2.436	-7.8	Ca	0	.1	9.4	8.72	-	-	46	-37.28
19	.1635	33.08	Qp	.1	0	9.5	42.68	71.28	-28.6	-	-
21	.636	10.58	Qp	0	.1	9.4	20.08	56	-35.92	-	-
23	2.436	6.2	Qp	0	.1	9.4	15.7	56	-40.3	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

9.3. CONFIGURATION 3: OPERATING MODE W/ LOAD #2

LINE 1 RESULTS



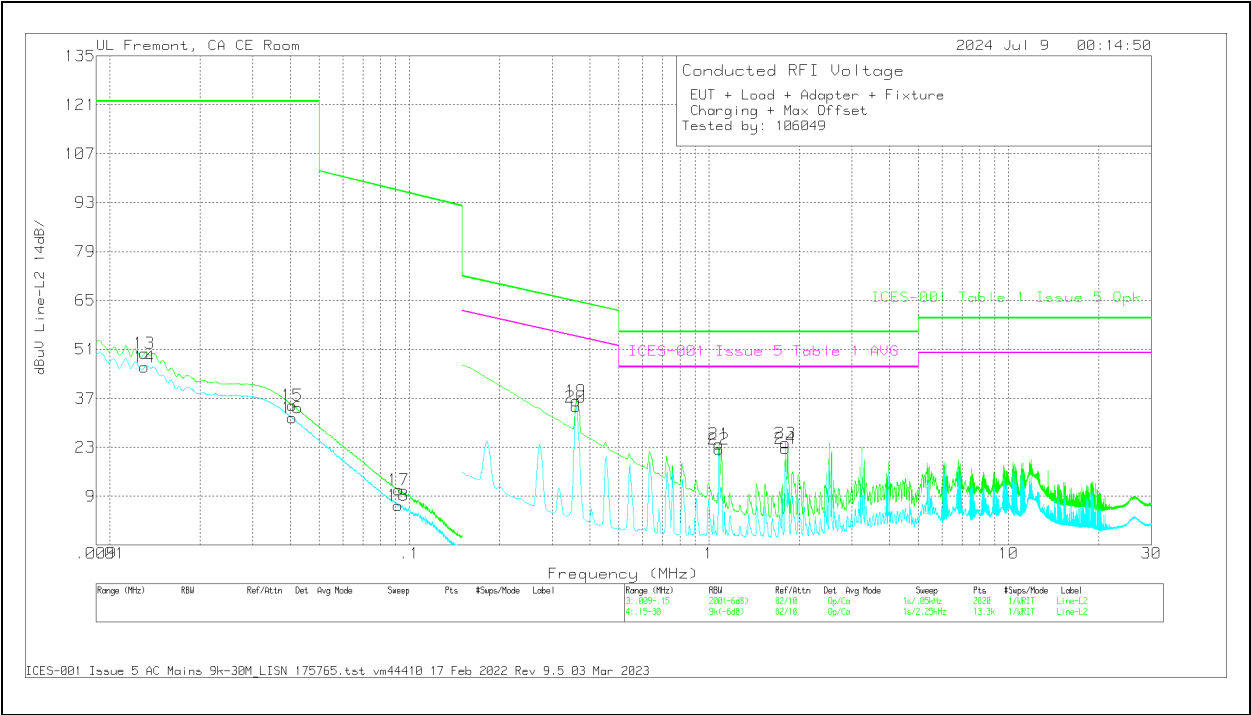
DATA

Range 1: Line-L1 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
2	.0134	44.89	Ca	3.2	-.2	12	59.89	-	-	-	-
4	.0383	37.15	Ca	.6	0	10.4	48.15	-	-	-	-
6	.0903	20.63	Ca	.2	.1	9.6	30.53	-	-	-	-
1	.0134	47.23	Qp	3.2	-.2	12	62.23	122	-59.77	-	-
3	.0383	39.96	Qp	.6	0	10.4	50.96	122	-71.04	-	-
5	.0903	24.02	Qp	.2	.1	9.6	33.92	96.62	-62.7	-	-

Range 2: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
8	.3593	24.24	Ca	0	0	9.4	33.64	-	-	54.75	-21.11
10	1.0793	13.24	Ca	0	.1	9.4	22.74	-	-	46	-23.26
12	1.7993	12.51	Ca	0	.1	9.4	22.01	-	-	46	-23.99
7	.3593	24.74	Qp	0	0	9.4	34.14	64.75	-30.61	-	-
9	1.0793	13.92	Qp	0	.1	9.4	23.42	56	-32.58	-	-
11	1.7993	13.43	Qp	0	.1	9.4	22.93	56	-33.07	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



DATA

Range 3: Line-L2 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
14	.0131	30.4	Ca	3.4	.1	12	45.9	-	-	-	-
16	.0406	20.59	Ca	.5	0	10.3	31.39	-	-	-	-
18	.0917	-3.32	Ca	.1	0	9.6	6.38	-	-	-	-
13	.0131	34.43	Qp	3.4	.1	12	49.93	122	-72.07	-	-
15	.0406	24.3	Qp	.5	0	10.3	35.1	122	-86.9	-	-
17	.092	1.14	Qp	.1	0	9.6	10.84	96.45	-85.61	-	-

Range 4: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
20	.3593	25.08	Ca	0	.1	9.4	34.58	-	-	54.75	-20.17
22	1.0793	13	Ca	0	.1	9.4	22.5	-	-	46	-23.5
24	1.7993	13.22	Ca	0	.1	9.4	22.72	-	-	46	-23.28
19	.3593	26.83	Qp	0	.1	9.4	36.33	64.75	-28.42	-	-
21	1.0793	14.42	Qp	0	.1	9.4	23.92	56	-32.08	-	-
23	1.7993	14.71	Qp	0	.1	9.4	24.21	56	-31.79	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

10. SETUP PHOTOS

Please refer to 15265186-EP1V1 for setup photos.

END OF TEST REPORT