

TEST REPORT

Report Number : 15412979-E1V2

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

Model : A3250

FCC ID : BCGA3250

IC : 579C-A3250

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: A3250

FCC ID: BCGA3250

IC ID: 579C-A3250

BRAND: APPLE

SERIAL NUMBER: HXV0QJ91NF

SAMPLE RECEIPT DATE: 2024/04/16

DATE TESTED: 2024/06/16 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:



Chin Pang
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	-5.04	19.76
360		-16.05	15.81
--	Standby	-43.95	-13.70

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.

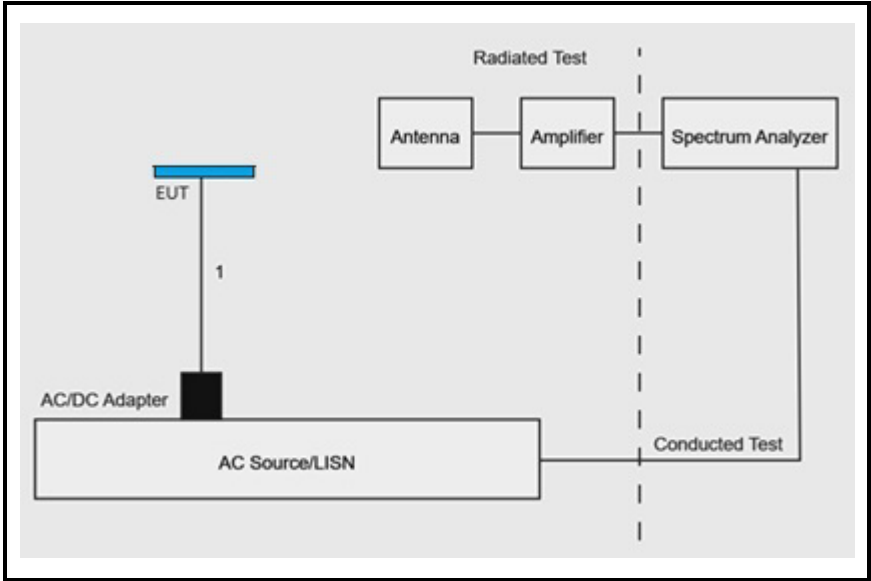
For below 30MHz testing, investigation was done on three antenna orientations: RX antenna Face-On, Face-Off and Horizontal (parallel to ground). The measurement distance is set at 3m from Antenna to Equipment under test for both FCC part 15 and ISED RSS-216. The worst-case configurations were determined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

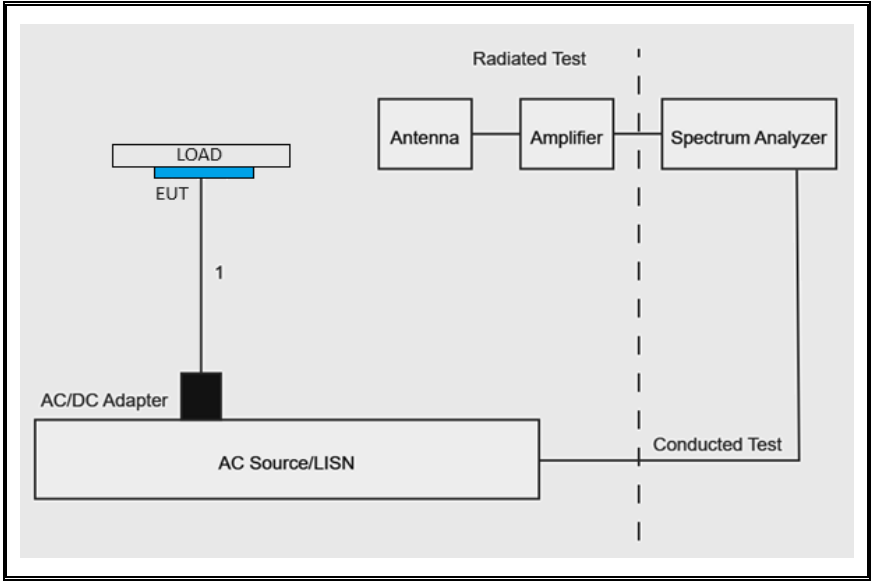
5.4. DESCRIPTION OF TEST SETUP

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	D9WDN656G6	N/A
Load #2	Apple	N/A	MTGHY0Y3DH	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.

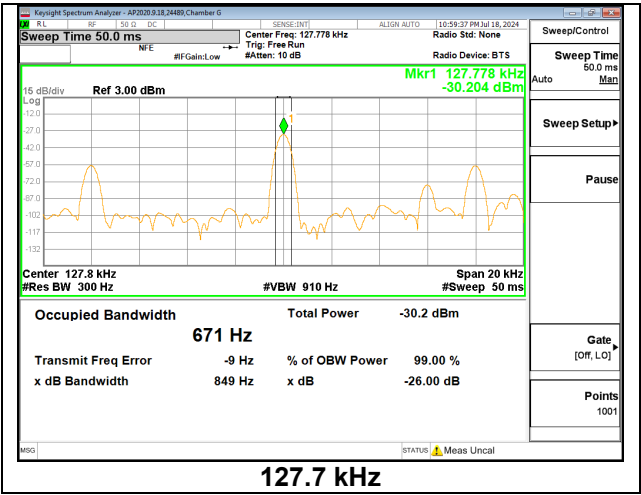
Note: Because the measured signal is CW-like, adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

RESULTS

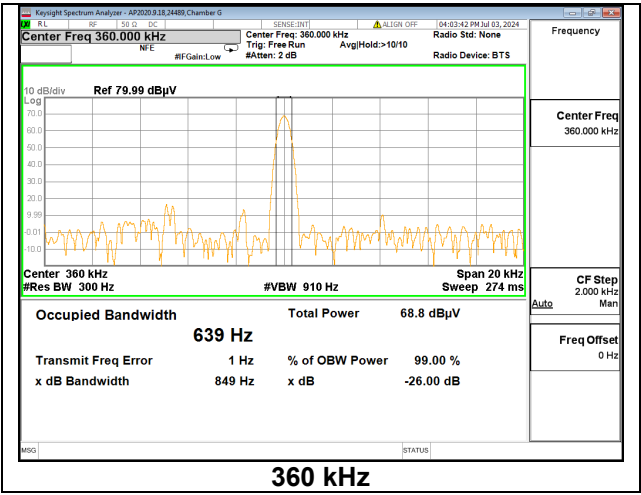
Configuration 1: Charger with Load #1 in operating mode, transmitting at 127.7 kHz

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.	

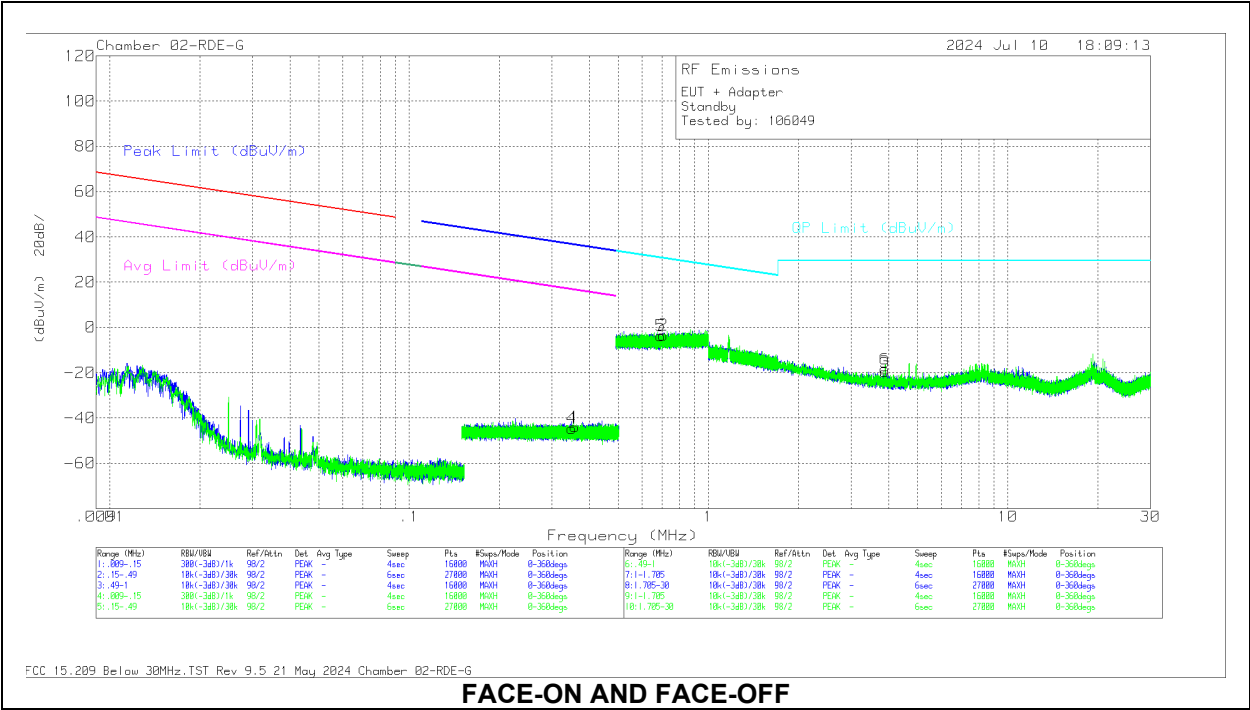
Table 4: Electric field strength radiated emission limits for induction cooking appliances

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)



DATA

Trace Markers

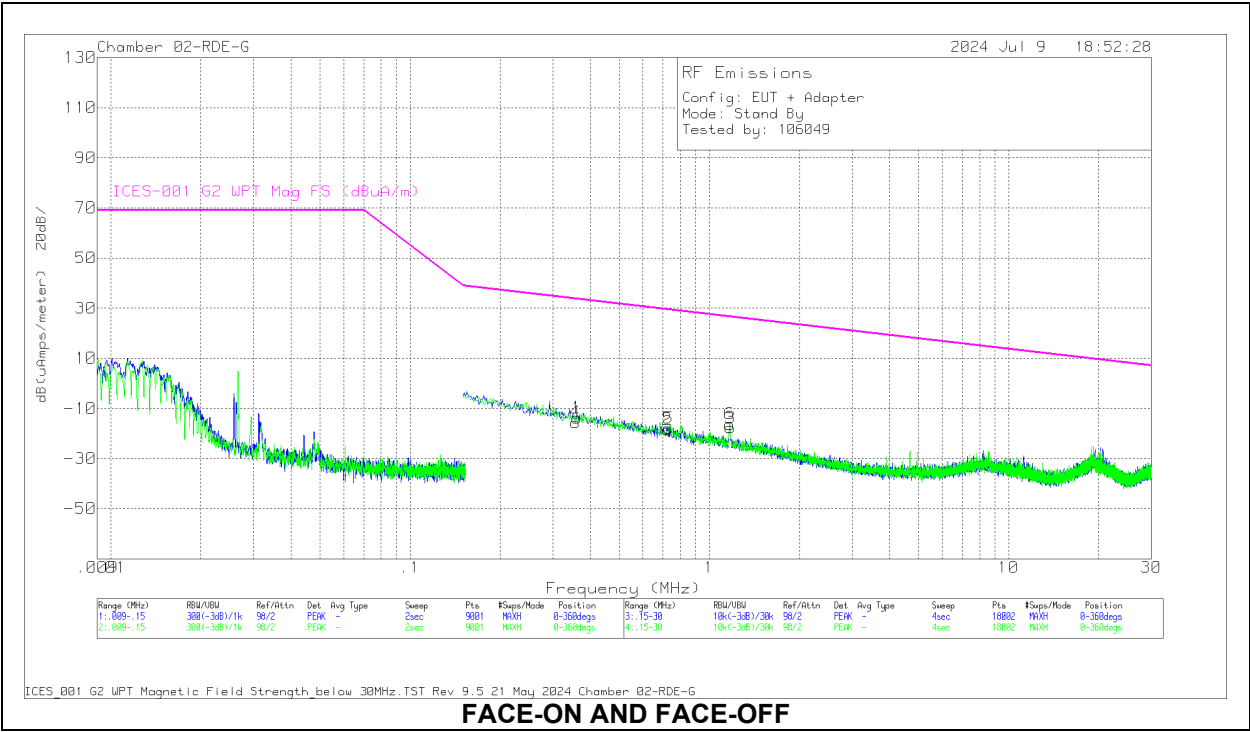
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
4	.3497	11.49	Pk	56	-32	-80	-44.51	36.74	-81.25	16.74	-61.25	0-360	Face off
1	.3585	12.05	Pk	56	-32	-80	-43.95	36.52	-80.47	16.52	-60.47	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
5	.6937	12.08	Pk	56.1	-31.9	-40	-3.72	30.79	-34.51	0-360	Face off
2	.7065	12.33	Pk	56.1	-31.9	-40	-3.47	30.63	-34.1	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
6	3.8974	16.05	Pk	37.3	-31.8	-40	-18.45	29.5	-47.95	0-360	Face off
3	3.8985	14.91	Pk	37.3	-31.8	-40	-19.59	29.5	-49.09	0-360	Face on

Pk - Peak detector

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

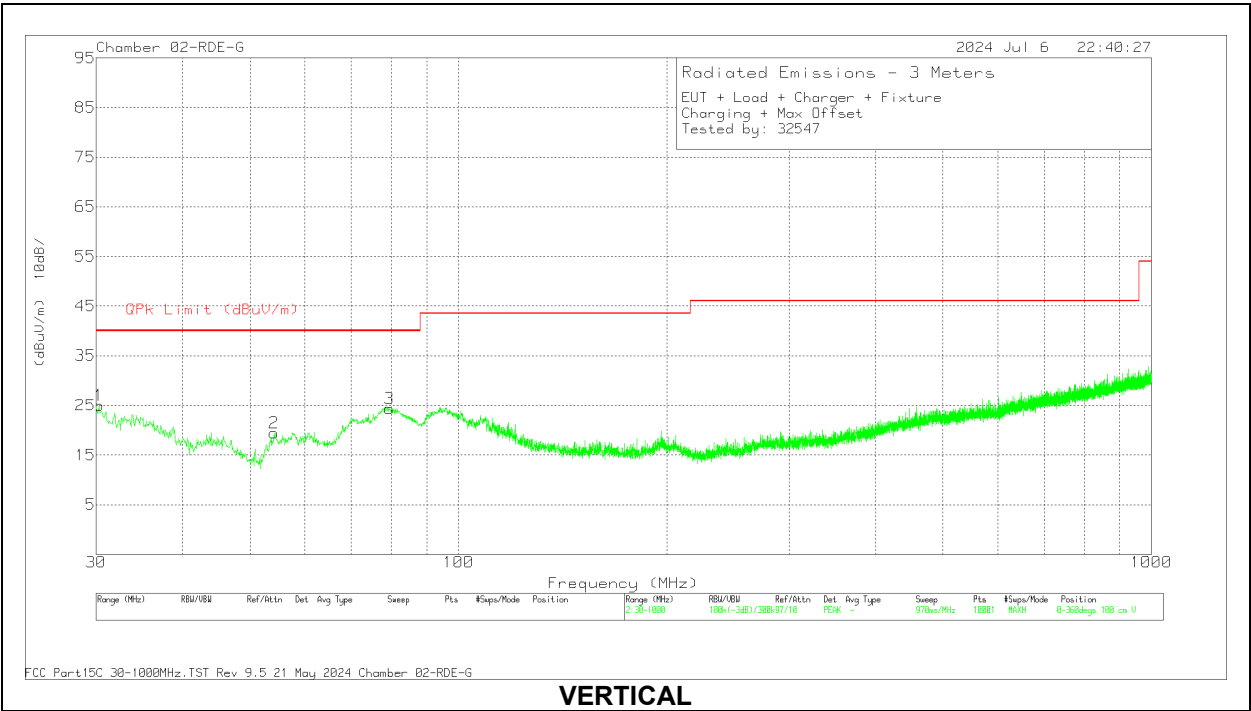
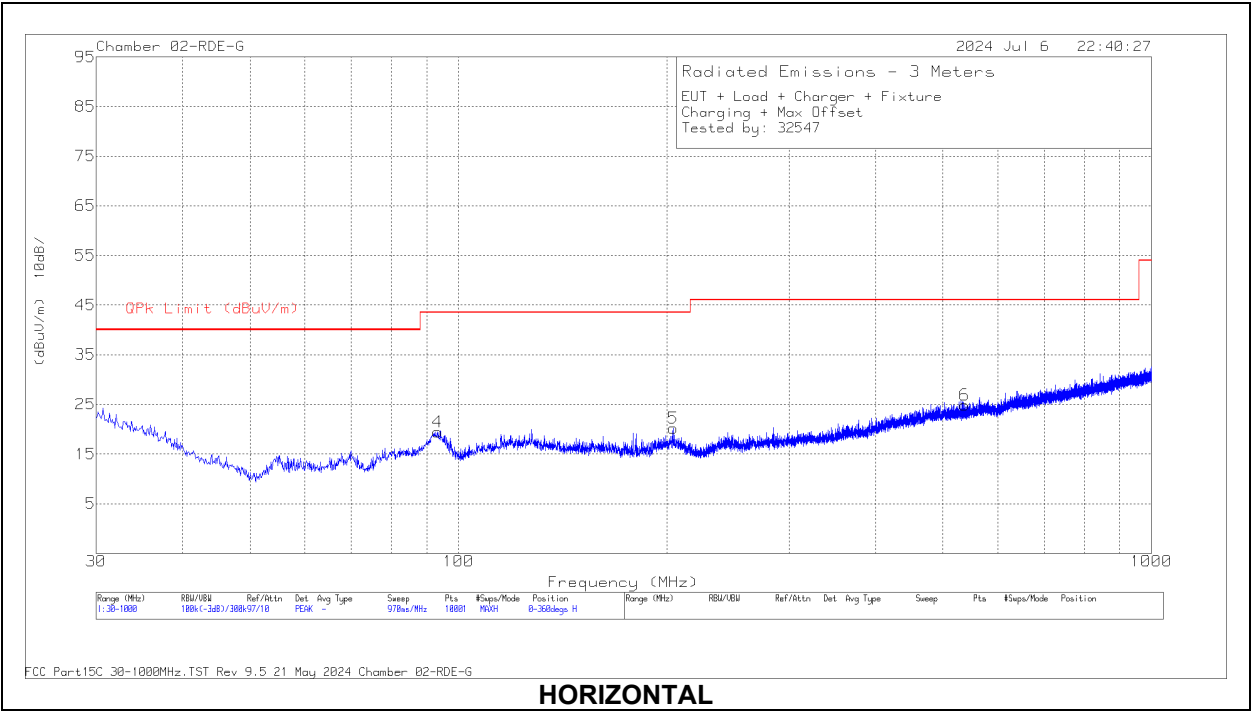


DATA

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	13.21	Pk	3.4	-32.1	-15.49	33.76	-49.25	0-360	Face off
1	.3606	15	Pk	3.4	-32.1	-13.7	33.7	-47.4	0-360	Face on
2	.7237	15.96	Pk	-2.3	-32	-18.34	29.5	-47.84	0-360	Face on
5	.7303	16.5	Pk	-2.4	-32	-17.9	29.44	-47.34	0-360	Face off
6	1.1697	21.36	Pk	-5.6	-32	-16.24	26.6	-42.84	0-360	Face off
3	1.1746	19.98	Pk	-5.6	-32	-17.62	26.57	-44.19	0-360	Face on

Pk - Peak detector

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

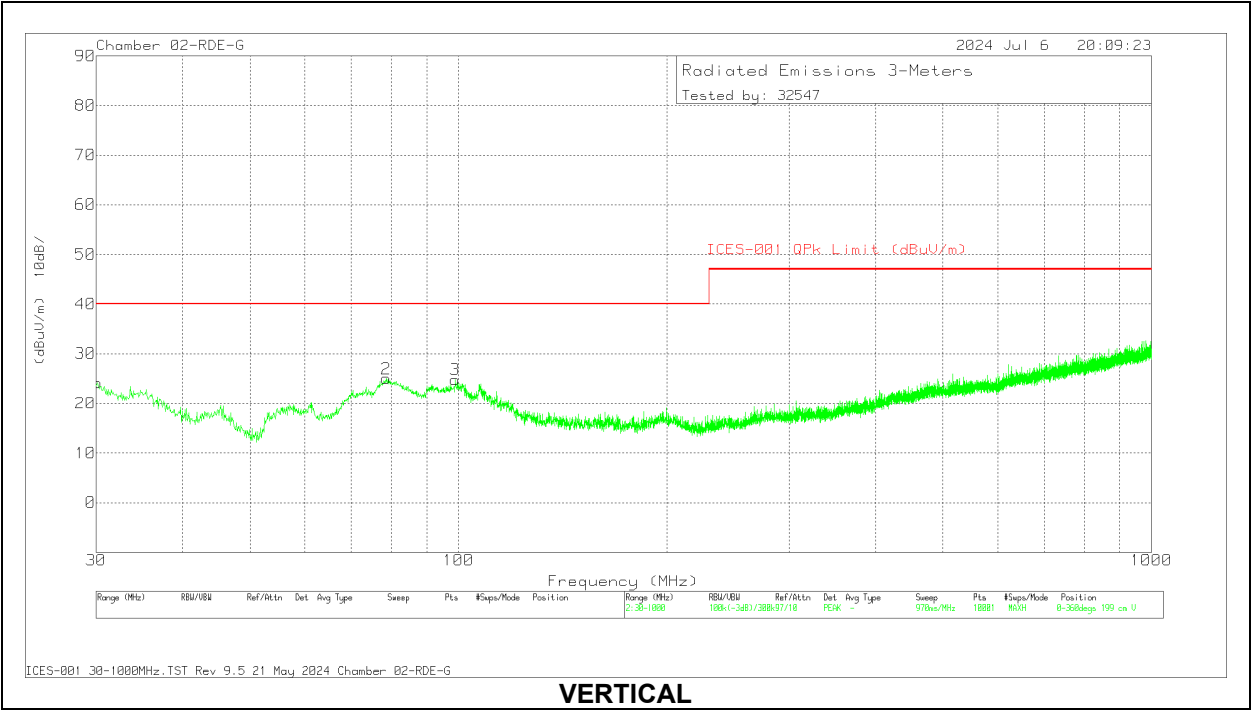
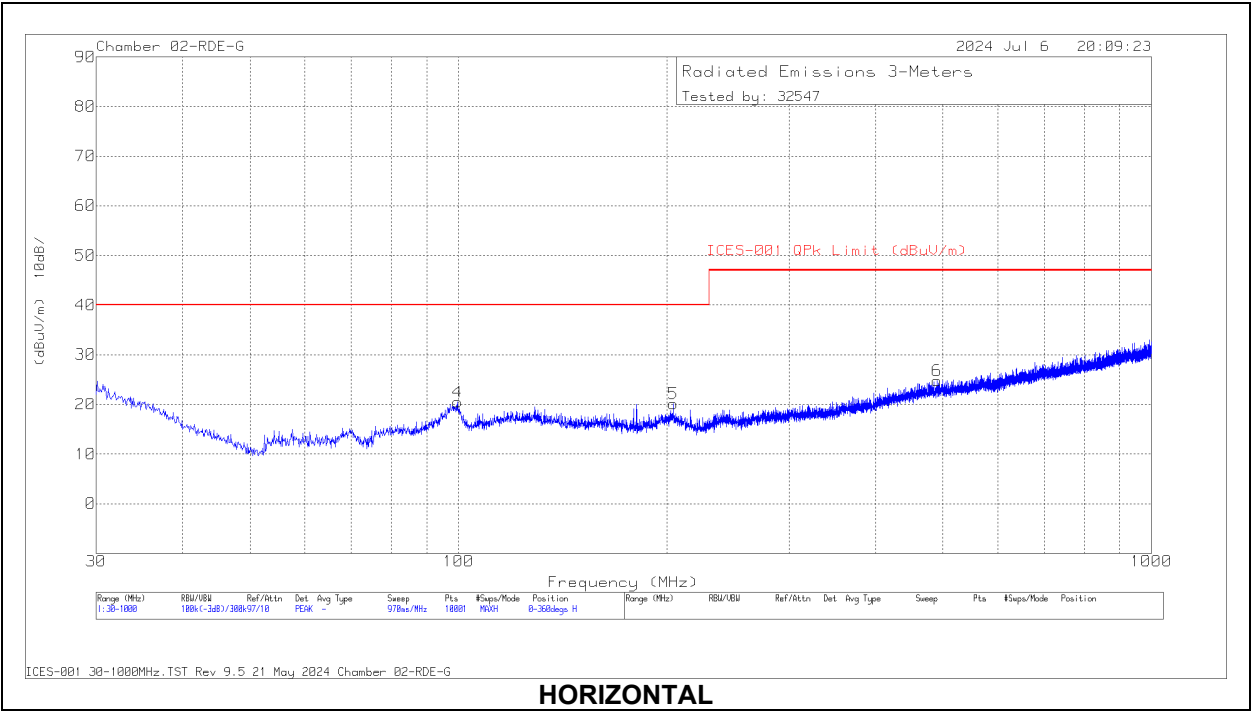


DATA

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	31.0051	21.96	Qp	25.5	-31	16.46	40	-23.54	199	133	V
2	56.388	31.92	Qp	13.1	-30.7	14.32	40	-25.68	331	113	V
3	79.056	37.77	Qp	13.5	-30.4	20.87	40	-19.13	313	106	V
4	92.116	31.2	Qp	14.3	-30.3	15.2	43.52	-28.32	343	175	H
5	203.653	28.23	Qp	17.4	-29.3	16.33	43.52	-27.19	208	185	H
6	537.857	20.2	Qp	23.8	-27.4	16.6	46.02	-29.42	8	212	H

Qp - Quasi-Peak detector

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



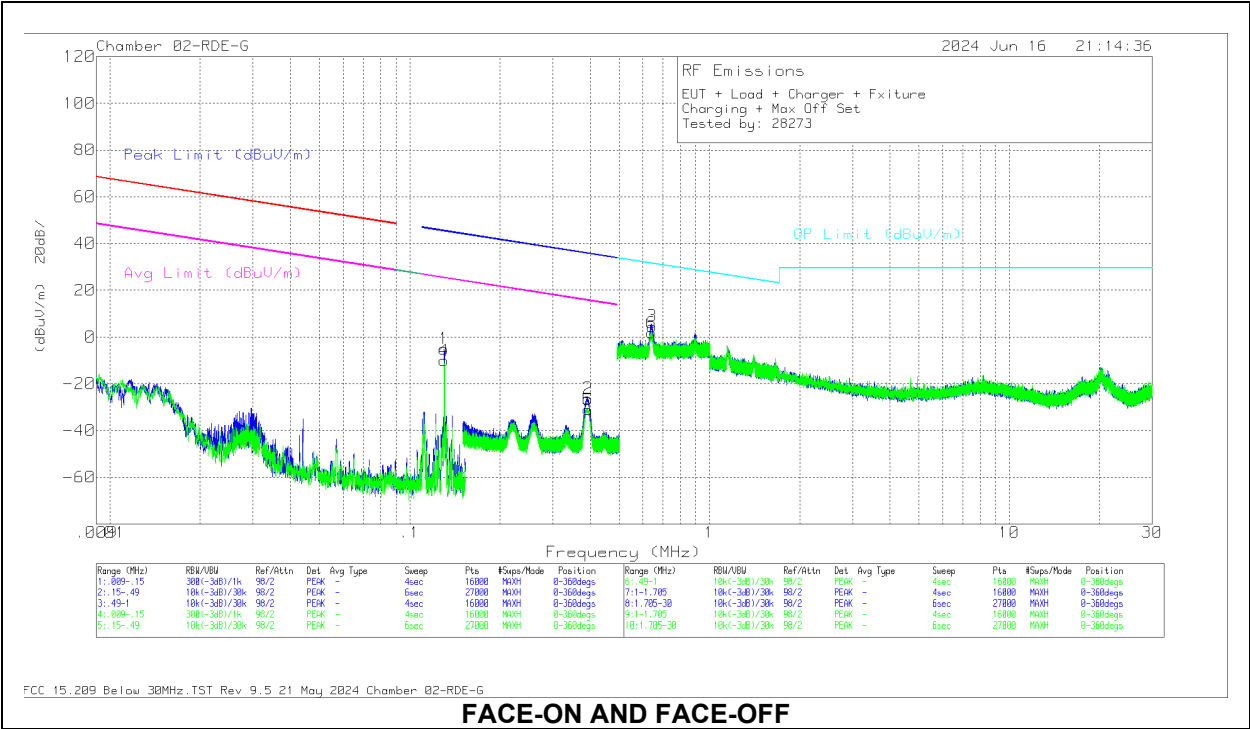
DATA

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	30.081	23.06	Qp	26.3	-31.1	18.26	40	-21.74	314	101	V
2	78.432	37.87	Qp	13.6	-30.4	21.07	40	-18.93	307	106	V
3	96.135	34.63	Qp	15.3	-30.2	19.73	40	-20.27	291	105	V
4	97.576	29.19	Qp	15.7	-30.2	14.69	40	-25.31	0	176	H
5	204.337	25.86	Qp	17.2	-29.3	13.76	40	-26.24	331	121	H
6	492.076	20.22	Qp	23.5	-27.6	16.12	47	-30.88	168	360	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)



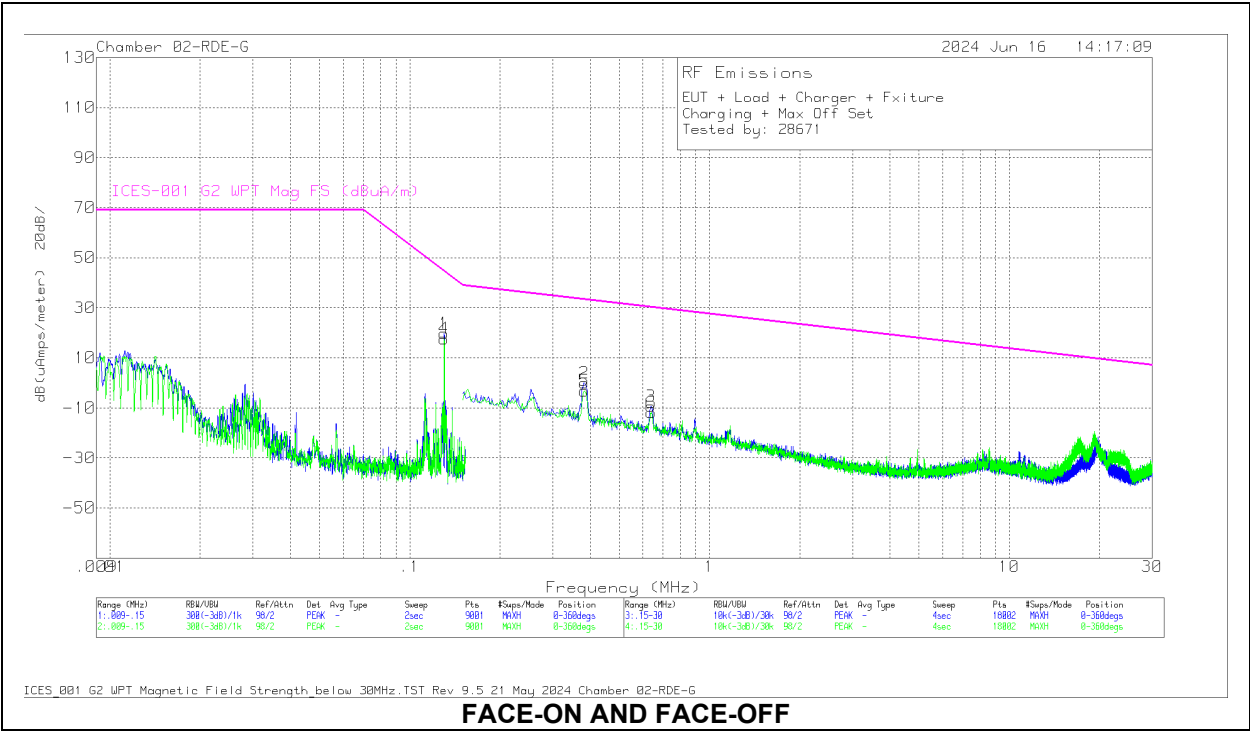
DATA

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	.1303	51.36	Pk	55.6	-32	-80	-5.04	45.33	-50.37	25.33	-30.37	0-360	Face on
4	.1303	46.32	Pk	55.6	-32	-80	-10.08	45.33	-55.41	25.33	-35.41	0-360	Face off
2	.3936	29.57	Pk	56	-32	-80	-26.43	35.71	-62.14	15.71	-42.14	0-360	Face on
5	.3938	24.97	Pk	56	-32	-80	-31.03	35.7	-66.73	15.7	-46.73	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
6	.6397	17.56	Pk	56.1	-31.9	-40	1.76	31.49	-29.73	0-360	Face off
3	.6436	20.42	Pk	56.1	-31.9	-40	4.62	31.44	-26.82	0-360	Face on

Pk - Peak detector

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



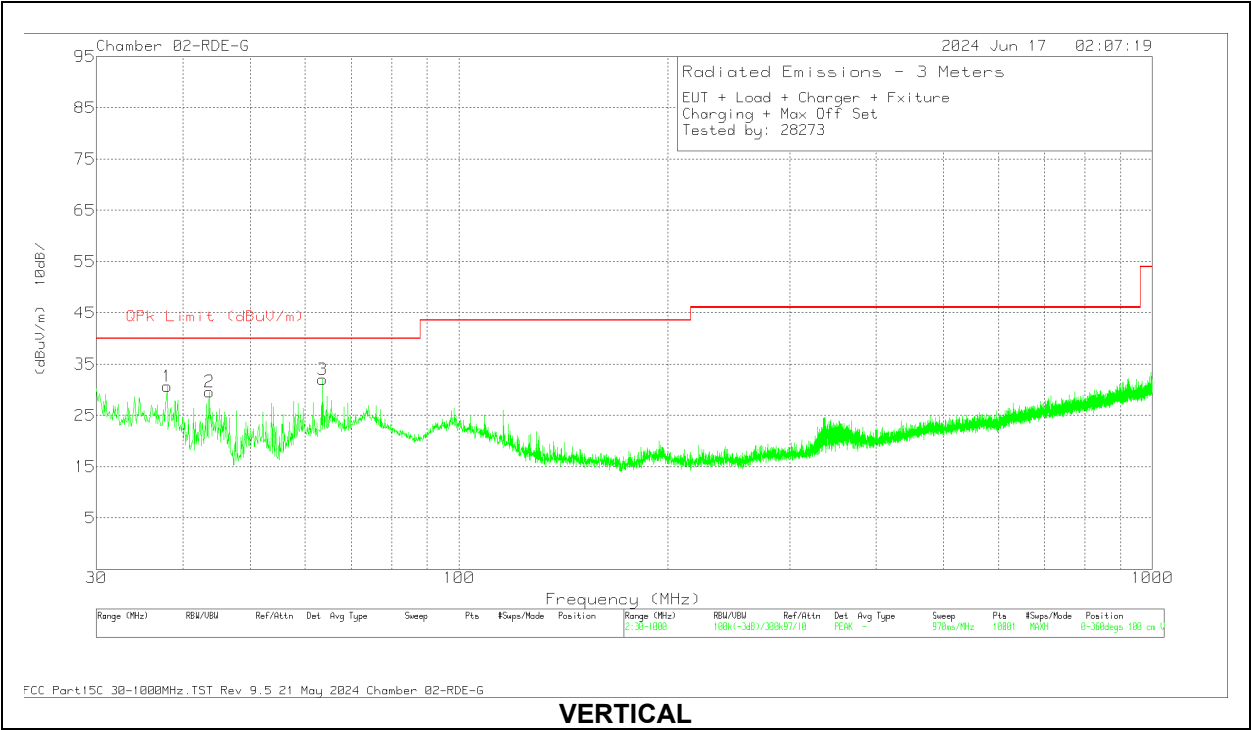
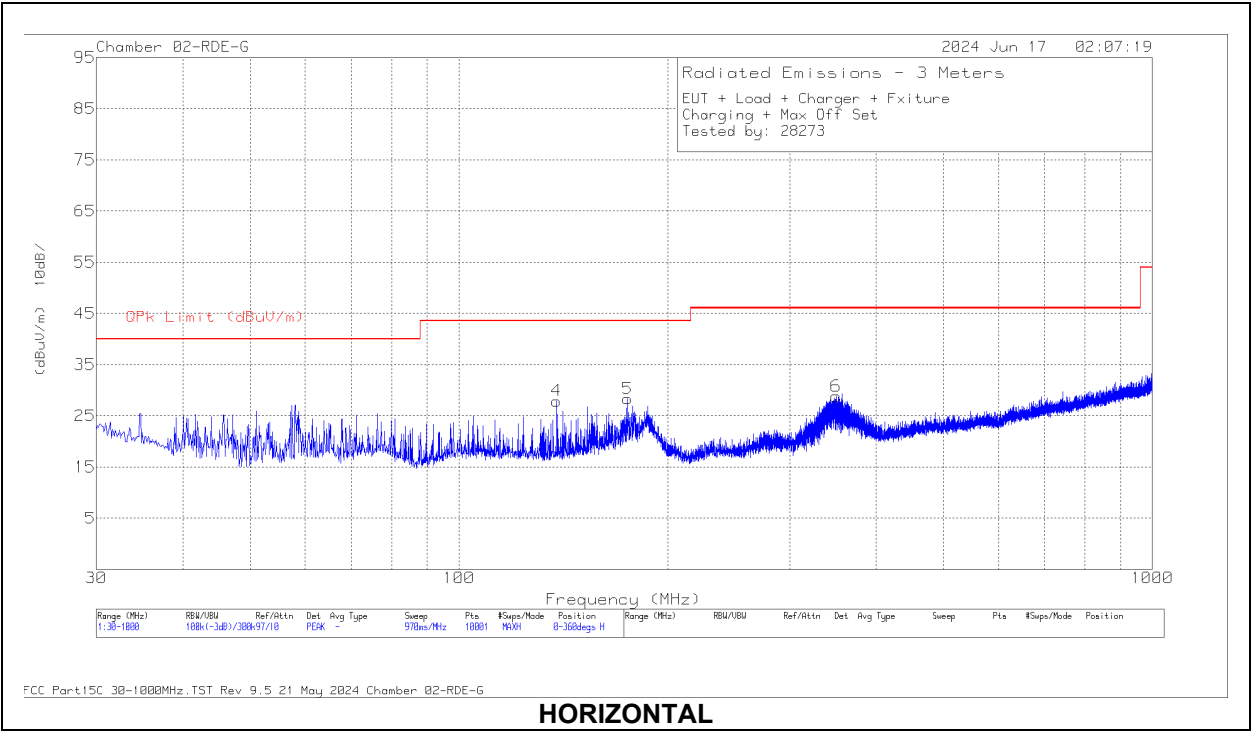
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Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna H ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Corrected Reading dB(uAmps/meter)	ICES-001 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.1303	47.66	Pk	4.1	-32	19.76	44.54	-24.78	0-360	Face on
4	.1303	45.58	Pk	4.1	-32	17.68	44.55	-26.87	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	.3821	29.21	Pk	2.8	-32.1	-.09	33.35	-33.44	0-360	Face on
5	.3821	26.14	Pk	2.8	-32.1	-3.16	33.35	-36.51	0-360	Face off
3	.6375	23.94	Pk	-1.2	-32.1	-9.36	30.26	-39.62	0-360	Face on
6	.6391	21.51	Pk	-1.3	-32.1	-11.89	30.25	-42.14	0-360	Face off

Pk - Peak detector

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

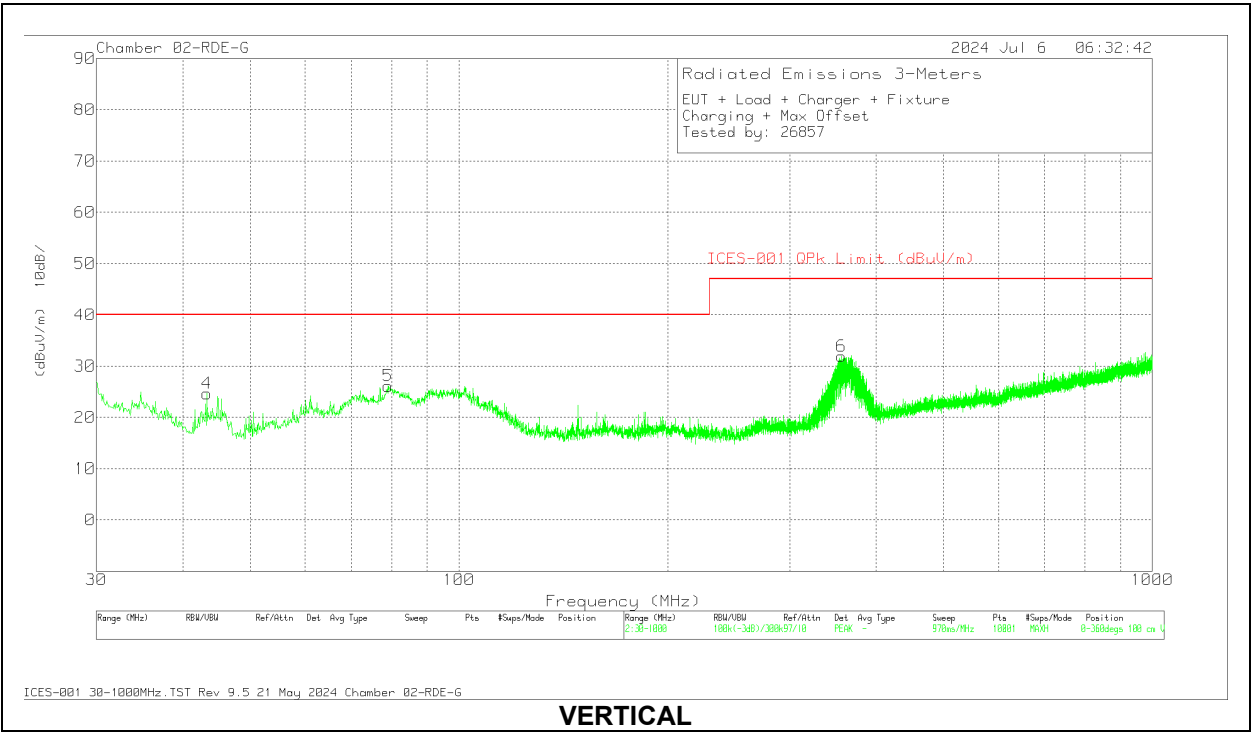
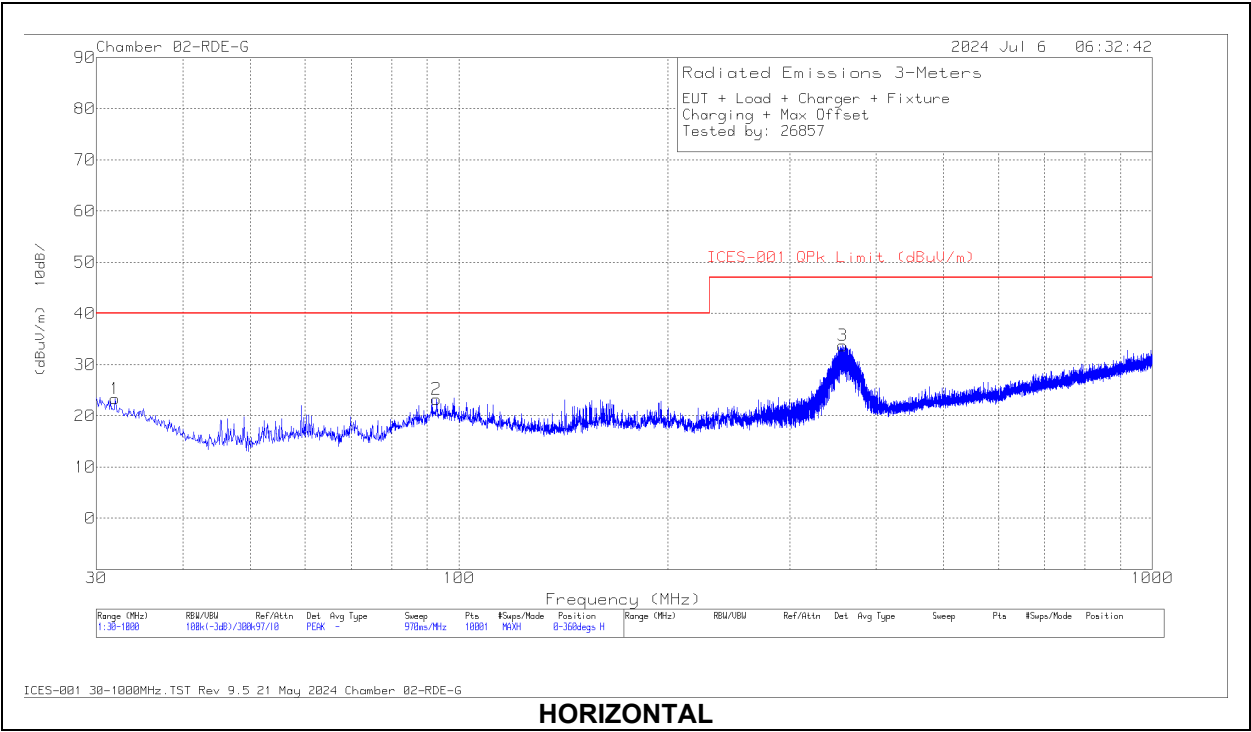


DATA

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	39.182	29.9	Qp	20.1	-30.9	19.1	40	-20.9	109	105	V
2	44.853	32.74	Qp	16.3	-30.8	18.24	40	-21.76	75	131	V
3	59.104	37.76	Qp	13.2	-30.6	20.36	40	-19.64	92	126	V
4	140.389	24.95	Qp	19	-29.8	14.15	43.52	-29.37	167	178	H
5	188.656	33.45	Qp	17.2	-29.4	21.25	43.52	-22.27	131	194	H
6	344.19	34.47	Qp	19.9	-28.4	25.97	46.02	-20.05	355	115	H

Qp - Quasi-Peak detector

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



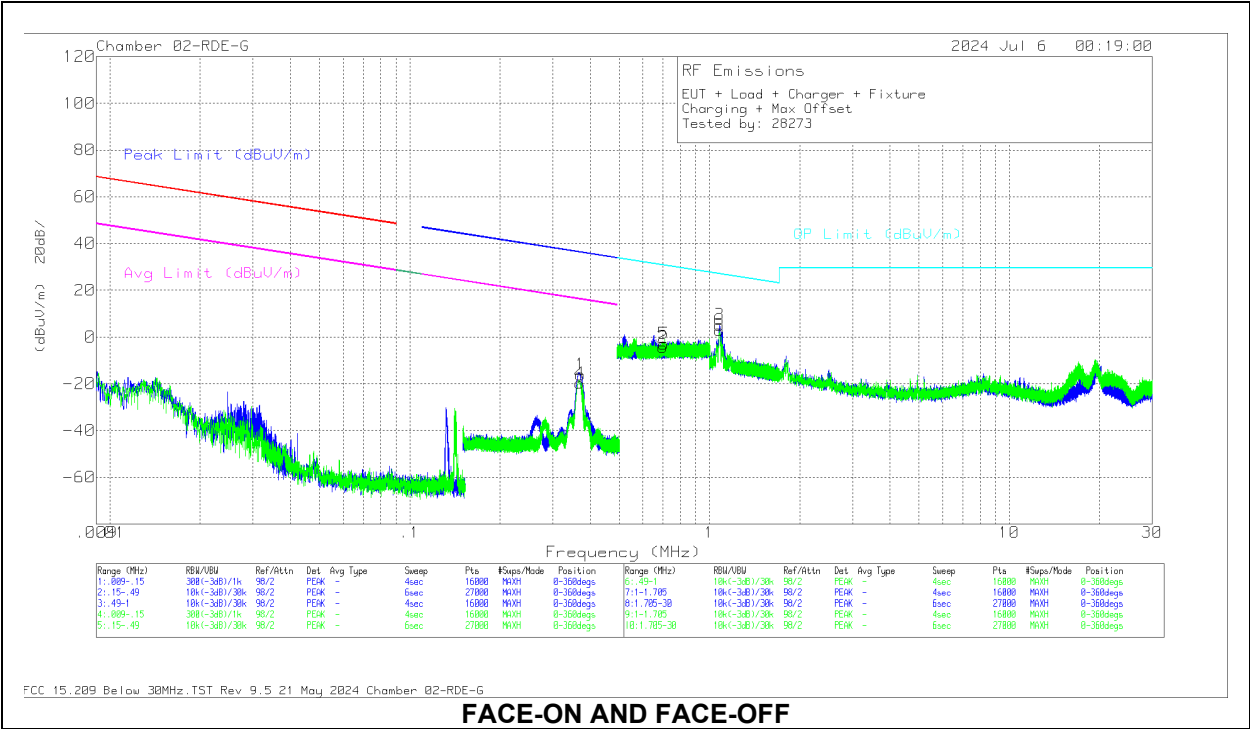
DATA

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	30.41	21.45	Qp	26	-31	16.45	40	-23.55	335	135	H
2	91.053	34.08	Qp	14.1	-30.3	17.88	40	-22.12	150	329	H
3	358.622	40.24	Qp	20.5	-28.2	32.54	47	-14.46	15	101	H
4	45.289	31.98	Qp	16	-30.8	17.18	40	-22.82	91	102	V
5	81.255	38.38	Qp	13.4	-30.4	21.38	40	-18.62	39	112	V
6	357.928	38.61	Qp	20.5	-28.2	30.91	47	-16.09	74	119	V

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)



DATA

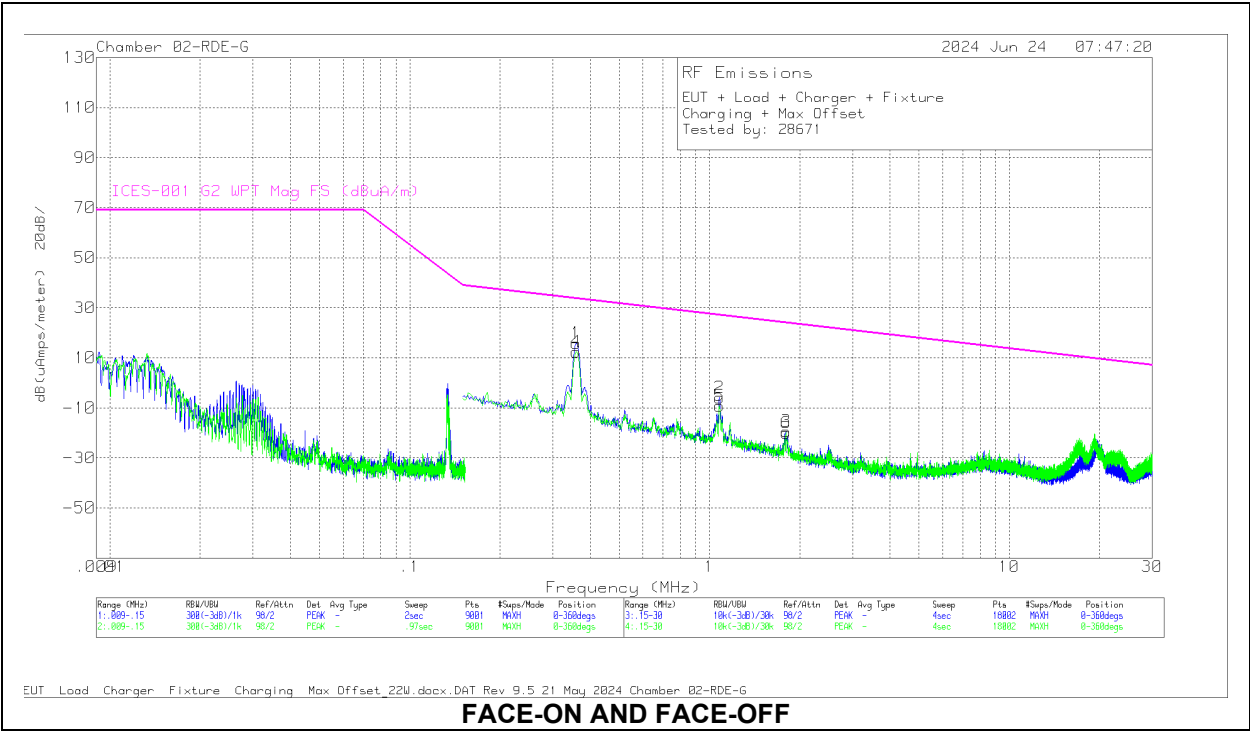
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E ACF (dB/m)	Loop Path 30Hz-1MHz (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
4	.3699	36.21	Pk	56	-32	-80	-19.79	36.25	-56.04	16.25	-36.04	0-360	Face off
1	.3713	39.95	Pk	56	-32	-80	-16.05	36.21	-52.26	16.21	-32.26	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	.699	11.51	Pk	56.1	-31.9	-40	-4.29	30.72	-35.01	0-360	Face on
5	.7043	12.89	Pk	56.1	-31.9	-40	-2.91	30.66	-33.57	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
3	1.0792	30.82	Pk	46.4	-32	-40	5.22	26.96	-21.74	0-360	Face on
6	1.0804	28.6	Pk	46.4	-32	-40	3	26.95	-23.95	0-360	Face off

Pk - Peak detector

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

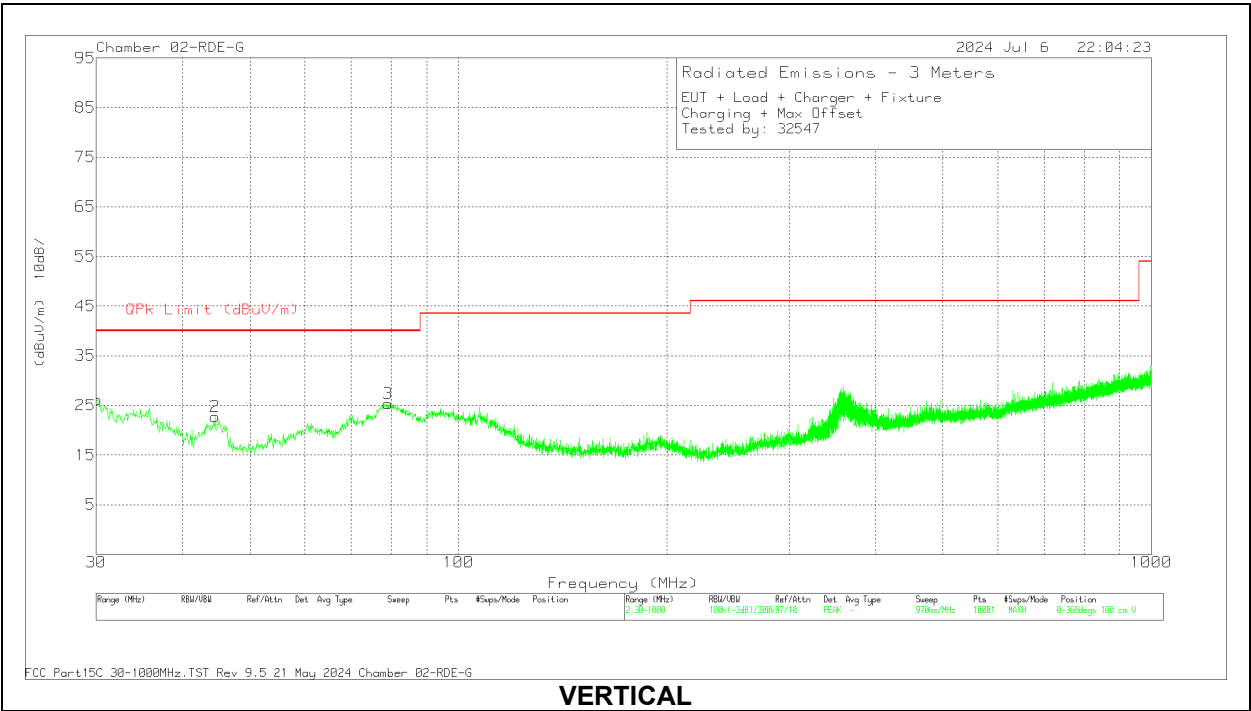
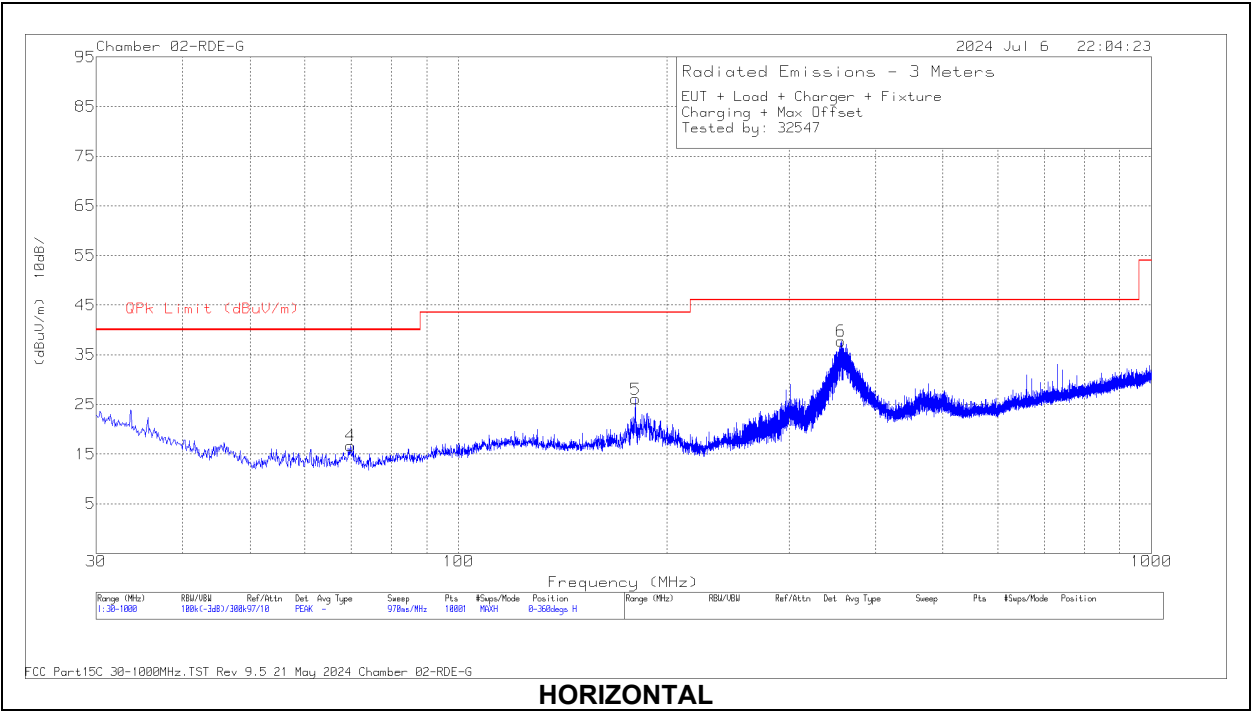


DATA

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	44.51	Pk	3.4	-32.1	15.81	33.73	-17.92	0-360	Face on
4	.3589	41.15	Pk	3.4	-32.1	12.45	33.73	-21.28	0-360	Face off
2	1.0785	31.21	Pk	-5.1	-32	-5.89	27.09	-32.98	0-360	Face on
5	1.0785	27.93	Pk	-5.1	-32	-9.17	27.09	-36.26	0-360	Face off
3	1.7997	21.51	Pk	-8.9	-31.9	-19.29	23.99	-43.28	0-360	Face on
6	1.7997	20.87	Pk	-8.9	-31.9	-19.93	23.99	-43.92	0-360	Face off

Pk - Peak detector

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

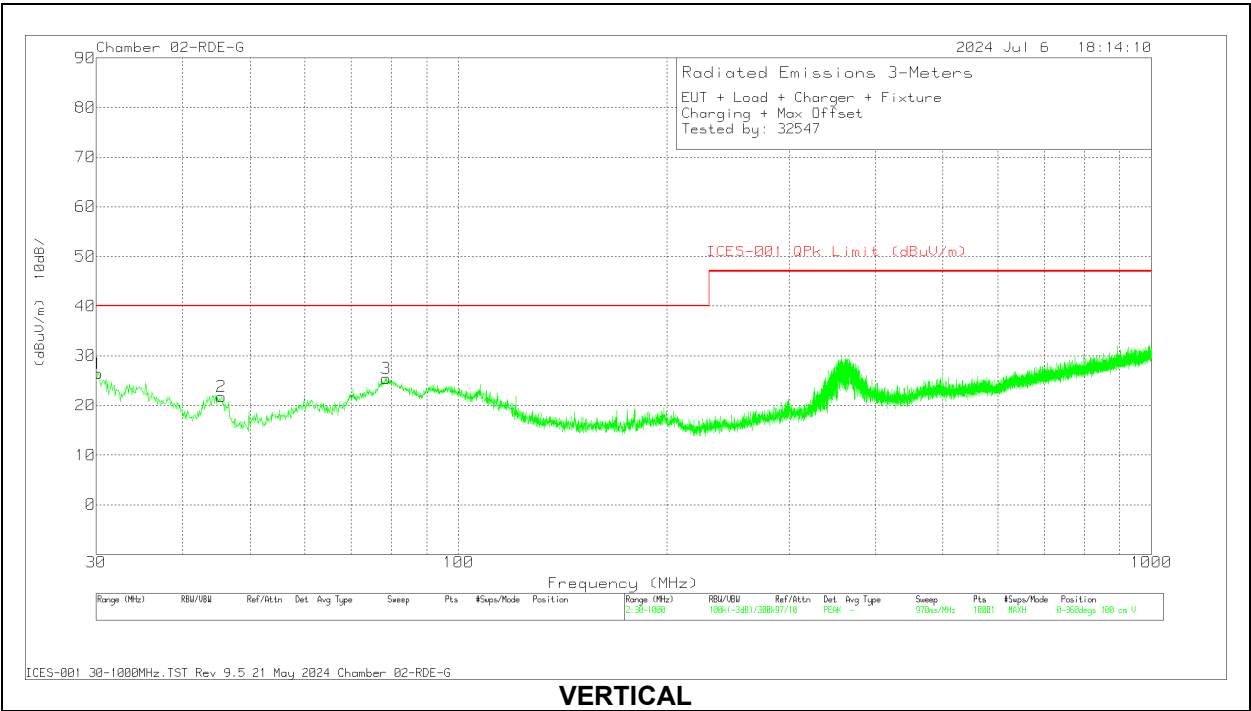
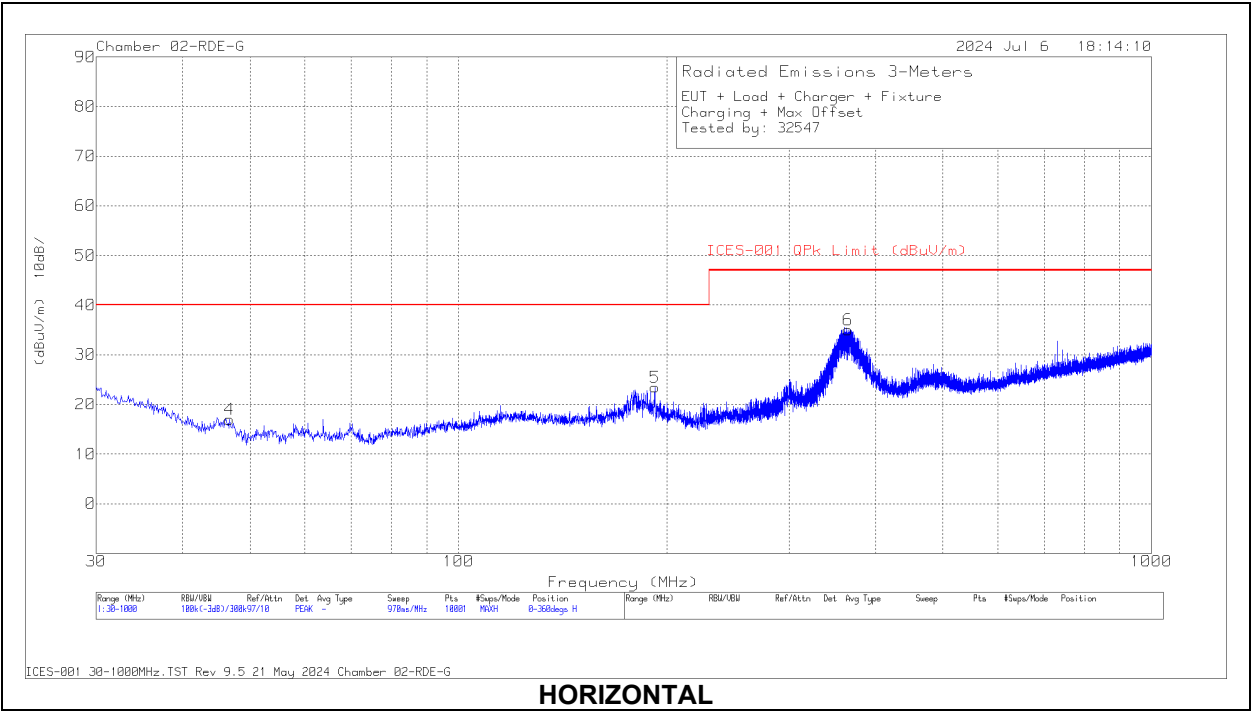


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	204044 ACF (dB/m)	Hybrid Path 30MHz-1000MHz (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.3778	26.12	Qp	26.1	-31	21.22	40	-18.78	358	101	V
2	45.62	32.94	Qp	15.8	-30.8	17.94	40	-22.06	146	101	V
4	67.807	25.31	Qp	13.8	-30.5	8.61	40	-31.39	16	375	H
3	78.062	38.47	Qp	13.6	-30.4	21.67	40	-18.33	303	103	V
5	180.232	30.85	Qp	17.1	-29.5	18.45	43.52	-25.07	89	181	H
6	357.092	42.75	Qp	20.4	-28.2	34.95	46.02	-11.07	145	100	H

Qp - Quasi-Peak detector

8.3.4. 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	30.2337	25.02	Qp	26.2	-31	20.22	40	-19.78	90	102	V
2	44.824	32.78	Qp	16.3	-30.8	18.28	40	-21.72	124	100	V
4	47.076	27.99	Qp	15.1	-30.8	12.29	40	-27.71	232	348	H
3	79.323	38.46	Qp	13.5	-30.4	21.56	40	-18.44	326	106	V
5	191.935	28.94	Qp	17.5	-29.4	17.04	40	-22.96	102	125	H
6	365.3	40.14	Qp	20.7	-28.2	32.64	47	-14.36	344	105	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



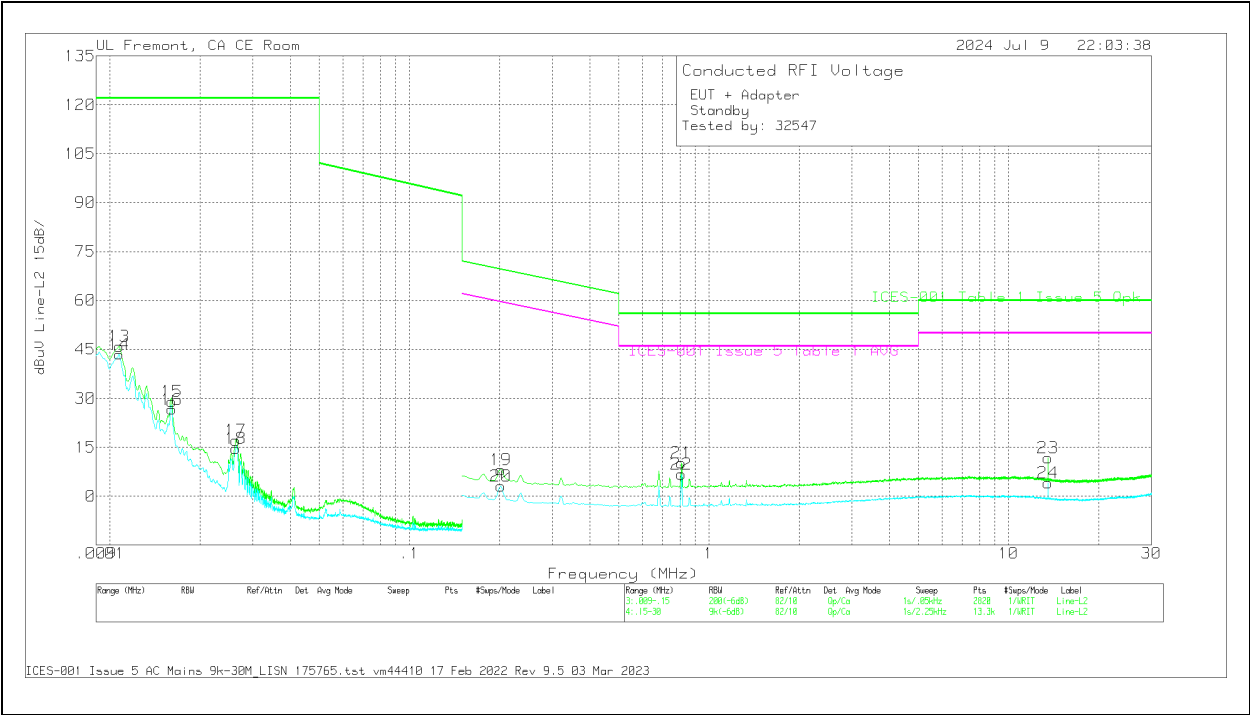
DATA

Range 1: Line-L1 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	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	.0107	27	Ca	4.3	-.3	12.4	43.4	-	-	-	-
4	.016	13.59	Ca	2.4	-.1	11.5	27.39	-	-	-	-
6	.0261	.37	Ca	1.1	.1	10.8	12.37	-	-	-	-
1	.0107	29.44	Qp	4.3	-.3	12.4	45.84	122	-76.16	-	-
3	.016	15.85	Qp	2.4	-.1	11.5	29.65	122	-92.35	-	-
5	.0261	2.7	Qp	1.1	.1	10.8	14.7	122	-107.3	-	-

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	.2018	-6.43	Ca	0	.1	9.4	3.07	-	-	59.54	-56.47
10	.8093	-3.06	Ca	0	.1	9.3	6.34	-	-	46	-39.66
12	13.56	-7.43	Ca	.1	.3	9.5	2.47	-	-	50	-47.53
7	.2018	-1.59	Qp	0	.1	9.4	7.91	69.54	-61.63	-	-
9	.8093	.49	Qp	0	.1	9.3	9.89	56	-46.11	-	-
11	13.56	-1.08	Qp	.1	.3	9.5	8.82	60	-51.18	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



DATA

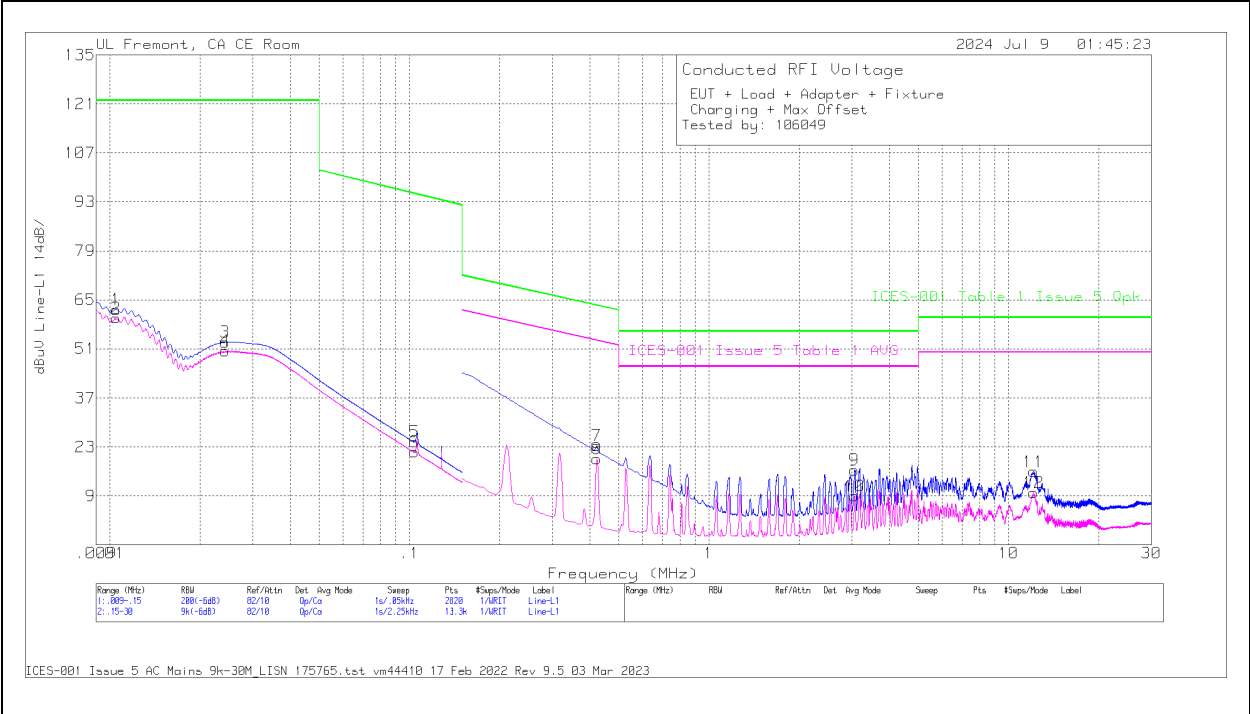
Range 3: Line-L2 .009 - .15MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	ICES-001 Table 1 Issue 5 Qpk (dBuV)	Margin (dB)	ICES-001 Issue 5 Table 1 AVG (dBuV)	Margin (dB)
14	.0108	26.73	Ca	4.3	.1	12.4	43.53	-	-	-	-
16	.0161	12.84	Ca	2.3	0	11.5	26.64	-	-	-	-
18	.0263	2.75	Ca	1	.1	10.8	14.65	-	-	-	-
13	.0108	29.12	Qp	4.3	.1	12.4	45.92	122	-76.08	-	-
15	.0161	15.17	Qp	2.3	0	11.5	28.97	122	-93.03	-	-
17	.0263	5.31	Qp	1	.1	10.8	17.21	122	-104.79	-	-

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	.2018	-6.43	Ca	0	.1	9.4	3.07	-	-	59.54	-56.47
22	.8093	-2.47	Ca	0	0	9.3	6.83	-	-	46	-39.17
24	13.56	-5.68	Ca	.1	.2	9.5	4.12	-	-	50	-45.88
19	.2018	-1.39	Qp	0	.1	9.4	8.11	69.54	-61.43	-	-
21	.8093	.98	Qp	0	0	9.3	10.28	56	-45.72	-	-
23	13.56	1.91	Qp	.1	.2	9.5	11.71	60	-48.29	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

9.2. CONFIGURATION 2: OPERATING MODE (LOAD #1)

LINE 1 RESULTS

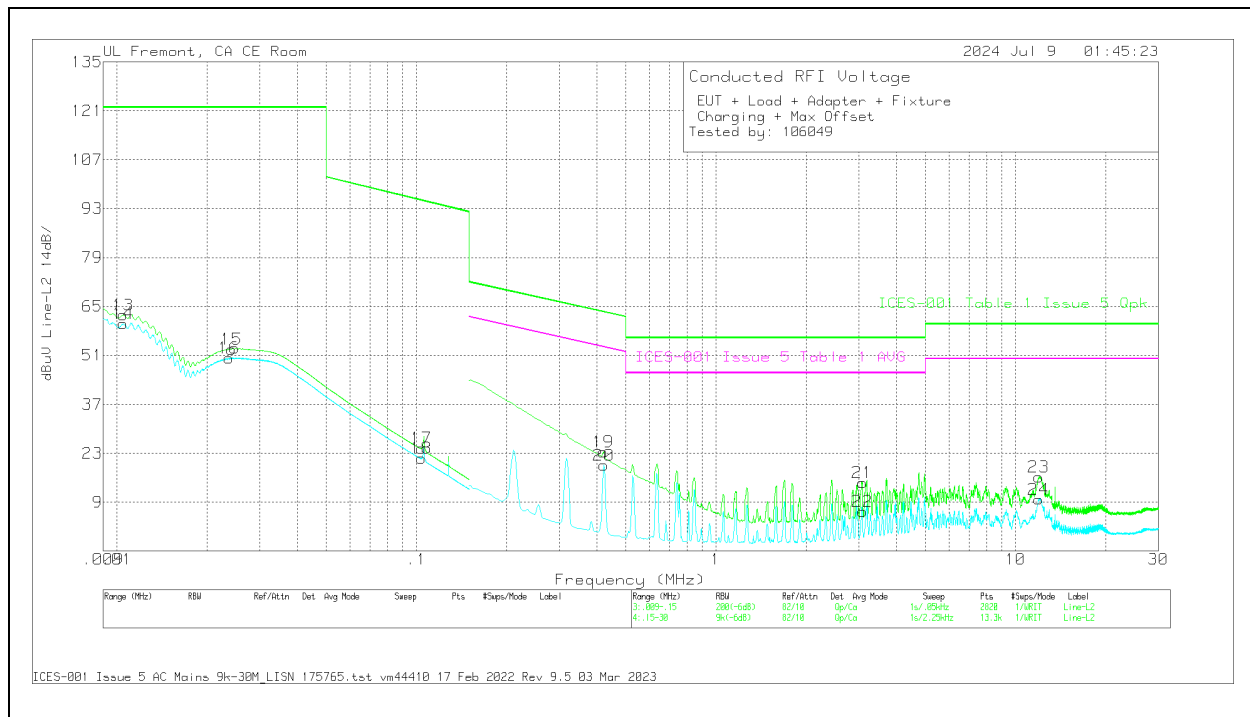


DATA

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	.0105	43.34	Ca	4.4	-.3	12.4	59.84	-	-	-	-
4	.0243	38.38	Ca	1.2	0	10.8	50.38	-	-	-	-
6	.1038	11.95	Ca	.1	0	9.6	21.65	-	-	-	-
1	.0105	45.76	Qp	4.4	-.3	12.4	62.26	122	-59.74	-	-
3	.0243	40.96	Qp	1.2	0	10.8	52.96	122	-69.04	-	-
5	.1039	14.8	Qp	.1	0	9.6	24.5	95.35	-70.85	-	-

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	.4223	10.21	Ca	0	0	9.4	19.61	-	-	53.4	-33.79
10	3.0638	-.53	Ca	0	.1	9.4	8.97	-	-	46	-37.03
12	12.1313	.1	Ca	.1	.3	9.4	9.9	-	-	50	-40.1
7	.4223	14.02	Qp	0	0	9.4	23.42	63.4	-39.98	-	-
9	3.0638	6.93	Qp	0	.1	9.4	16.43	56	-39.57	-	-
11	12.1313	6.15	Qp	.1	.3	9.4	15.95	60	-44.05	-	-

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	.0105	43.22	Ca	4.4	.1	12.4	60.12	-	-	-	-
16	.0237	38.19	Ca	1.3	0	10.8	50.29	-	-	-	-
18	.1039	11.89	Ca	.1	0	9.6	21.59	-	-	-	-
13	.0105	45.65	Qp	4.4	.1	12.4	62.55	122	-59.45	-	-
15	.0242	40.84	Qp	1.2	0	10.8	52.84	122	-69.16	-	-
17	.1038	14.8	Qp	.1	0	9.6	24.5	95.35	-70.85	-	-

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	.4223	10.05	Ca	0	.1	9.4	19.55	-	-	53.4	-33.85
22	3.0795	-3.13	Ca	0	.1	9.4	6.37	-	-	46	-39.63
24	11.9378	.15	Ca	.1	.2	9.4	9.85	-	-	50	-40.15
19	.42	13.91	Qp	0	.1	9.4	23.41	63.45	-40.04	-	-
21	3.0795	5.12	Qp	0	.1	9.4	14.62	56	-41.38	-	-
23	11.9715	6.47	Qp	.1	.2	9.4	16.17	60	-43.83	-	-

Qp - Quasi-Peak detector

Ca - CISPR average detection

9.3. CONFIGURATION 3: OPERATING MODE (LOAD #2)

LINE 1 RESULTS



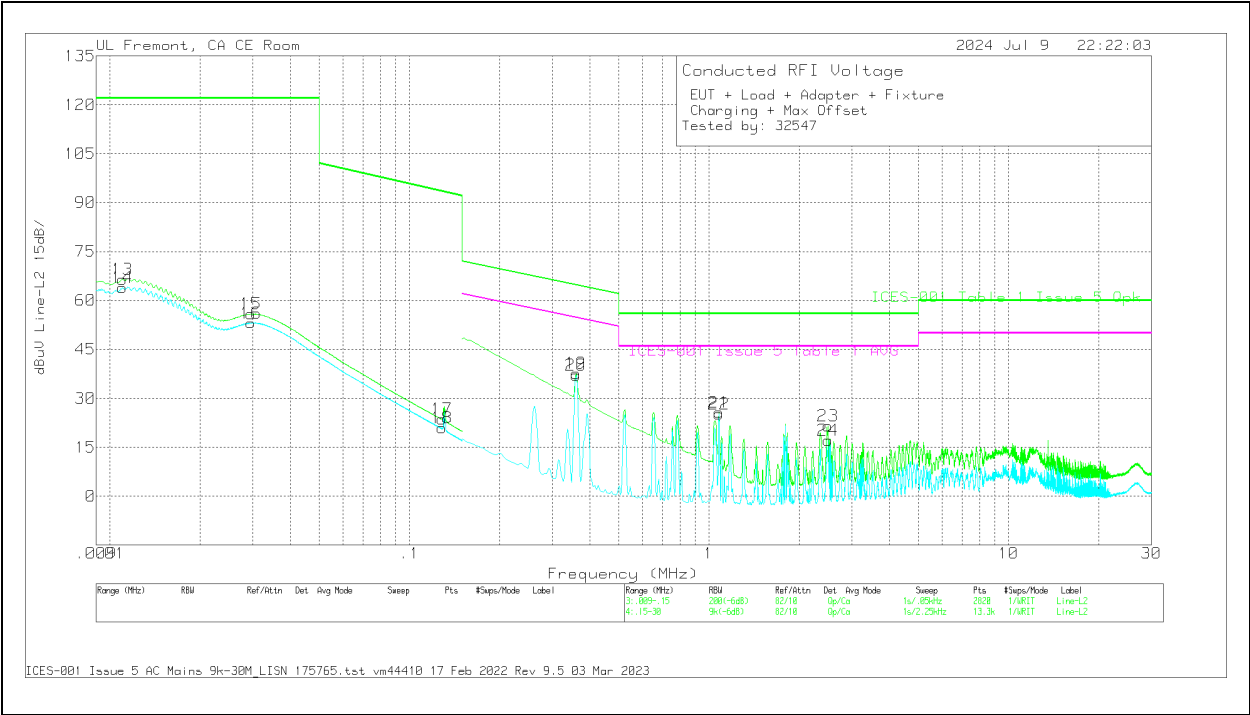
DATA

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	.0114	47.67	Ca	4	-.3	12.3	63.67	-	-	-	-
4	.0307	41.61	Ca	.8	.1	10.7	53.21	-	-	-	-
6	.13	15.8	Ca	.1	.1	9.5	25.5	-	-	-	-
1	.0114	50.21	Qp	4	-.3	12.3	66.21	122	-55.79	-	-
3	.0306	44.21	Qp	.8	.1	10.7	55.81	122	-66.19	-	-
5	.13	18.14	Qp	.1	.1	9.5	27.84	93.31	-65.47	-	-

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	25.47	Ca	0	0	9.4	34.87	-	-	54.75	-19.88
10	1.0793	13.75	Ca	0	.1	9.4	23.25	-	-	46	-22.75
12	2.4968	9.49	Ca	0	.1	9.3	18.89	-	-	46	-27.11
7	.3593	26.18	Qp	0	0	9.4	35.58	64.75	-29.17	-	-
9	1.0793	14.31	Qp	0	.1	9.4	23.81	56	-32.19	-	-
11	2.4743	12	Qp	0	.1	9.4	21.5	56	-34.5	-	-

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	.011	47.43	Ca	4.2	.1	12.3	64.03	-	-	-	-
16	.0296	41.43	Ca	.9	.1	10.7	53.13	-	-	-	-
18	.1287	11.23	Ca	.1	.1	9.5	20.93	-	-	-	-
13	.011	49.84	Qp	4.2	.1	12.3	66.44	122	-55.56	-	-
15	.0296	44.15	Qp	.9	.1	10.7	55.85	122	-66.15	-	-
17	.1282	14.02	Qp	.1	.1	9.5	23.72	93.43	-69.71	-	-

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	27.67	Ca	0	.1	9.4	37.17	-	-	54.75	-17.58
22	1.0793	15.76	Ca	0	.1	9.4	25.26	-	-	46	-20.74
24	2.4968	7.72	Ca	0	.1	9.3	17.12	-	-	46	-28.88
19	.3593	28.19	Qp	0	.1	9.4	37.69	64.75	-27.06	-	-
21	1.0793	16.19	Qp	0	.1	9.4	25.69	56	-30.31	-	-
23	2.4968	12.1	Qp	0	.1	9.3	21.5	56	-34.5	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

10. SETUP PHOTOS

Please refer to 15412979-EP1V1 for setup photos.

END OF TEST REPORT