



CERTIFICATION TEST REPORT

Report Number. : 12938058-E1V3

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

Model : A2257

FCC ID : BCGA2257

IC : 579C-A2257

EUT Description : MAGNETIC CHARGING CABLE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-216 ISSUE 2

Date Of Issue:
August 26, 2019

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	8/21/2019	Initial Issue	Chin Pang
V2	8/23/2019	Addressed TCB question	Joe Vang
V3	8/26/2019	Update section 5.2	Chin Pang

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: MAGNETIC CHARGING CABLE

MODEL: A2257

SERIAL NUMBER: DLC9247012GMFR02R, DLC92470030MFQY2A

DATE TESTED: JULY 5, 2019 TO JULY 10, 2019

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Complies
ISED RSS-216 Issue 2, Annex B	Complies
ISED RSS-GEN Issue 5	Complies

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

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

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

Approved & Released For
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Prepared By:



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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, and FCC CFR 47 Part 15, RSS-GEN Issue 5 and RSS-216 Issue 2 January 2016.

3. FACILITIES AND ACCREDITATION

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

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

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
 $36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
 $36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$

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	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a magnetic charging cable which has a single inductive charging coil to charge Apple Watch. The charging frequency is 326.5 kHz, and the maximum power consumption is 5W in charging status.

5.2. MAXIMUM OUTPUT POWER

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)
326.5	Standby (Config 1)	-22.64	6.59
326.5	Operating (Config 2)	-21.74	7.42

5.3. SOFTWARE AND FIRMWARE

The firmware version installed in the EUT during testing was 9.3.0

5.4. WORST-CASE CONFIGURATION AND MODE

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

Config	Mode	Descriptions
1	Standby	EUT Alone powered by AC/DC adapter
2	Operating	EUT and Watch powered by AC/DC adapter

AC power line conducted emissions were also investigated on the following configurations.

Config	Mode	Descriptions
1	Standby	EUT Alone powered by AC/DC adapter
2	Operating	EUT and Watch powered by AC/DC adapter
3	Standby	EUT Alone powered by laptop
4	Operating	EUT and Watch powered by laptop

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

The EUT was tested as standby and operation modes. During operational mode, EUT was tested with two different sizes of watches, small and big of having similar mechanical structure.

For all radiated emissions tests, both small and big watches were investigated and no significant different in reading was found between both watches; the big watch was chosen to test as the worst case condition since it has max load overall, hence all final data for operational mode represents EUT with the big watch. During the charging process, the watch actively indicates the status of the charging process. Device being charged was at a state of 20 – 50% charged.

For below 30MHz testing, investigation was done on three antenna orientations: RX antenna Face-on, Face-off and horizontal (parallel to ground). The worst-case configurations were determined on RX antenna Face-on and Face-off; therefore, all final tests were performed using these two orientations.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 300 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788 D01.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT & PERIPHERALS

SUPPORT EQUIPMENT & PERIPHERALS LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC adapter	Apple	A1882	C4H748200PAH80MAR	N/A
Watch	Apple	A2095	D92YV016MWCD	BCG-A2095
Laptop	Apple	MacBook Pro	C02MSV7H03M	FCC DoC
Laptop Adapter	Apple	A1719	N/A	N/A

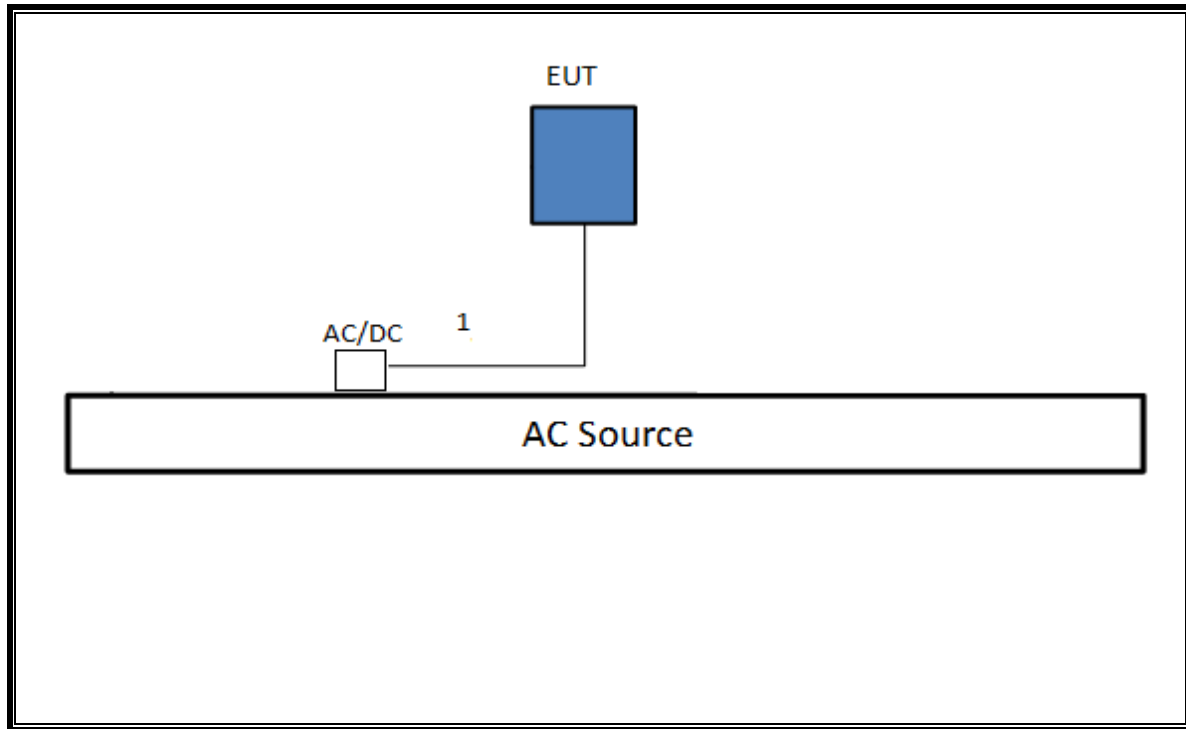
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	USB-C	Un-shielded	2	30W Power Supply
2	DC	1	USB-C	Un-shielded	3	60W Power Supply

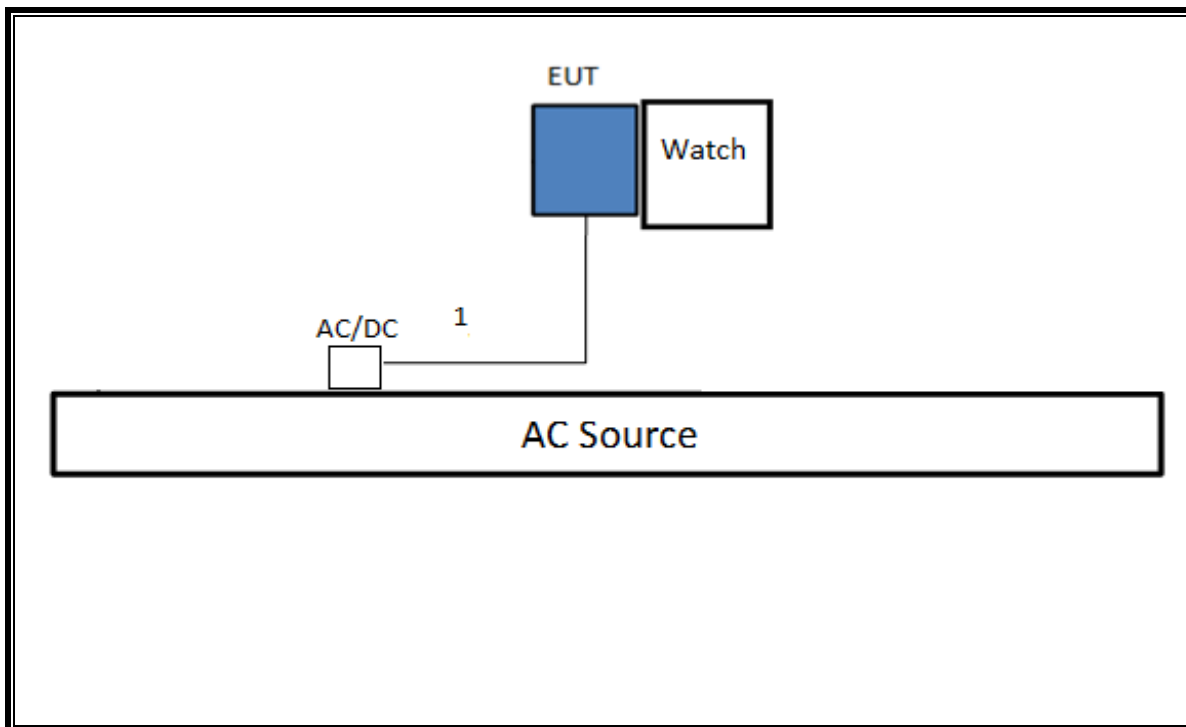
TEST SETUP

Please see the following configurations for the test setups. Configurations 1 and 2 indicate that the EUT is directly connected to an AC/DC adapter via USB cable. Configurations 3 and 4 indicate that the EUT is directly connected to a Host PC via USB cable.

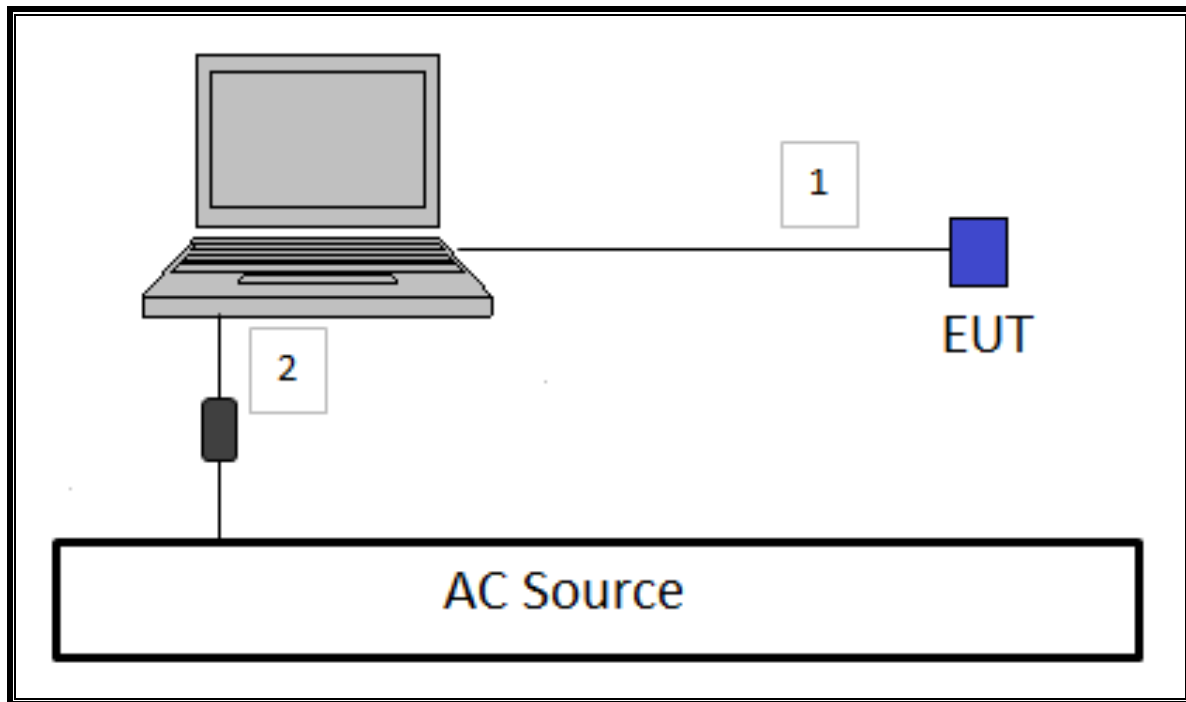
CONFIGURATION 1: STANDBY MODE



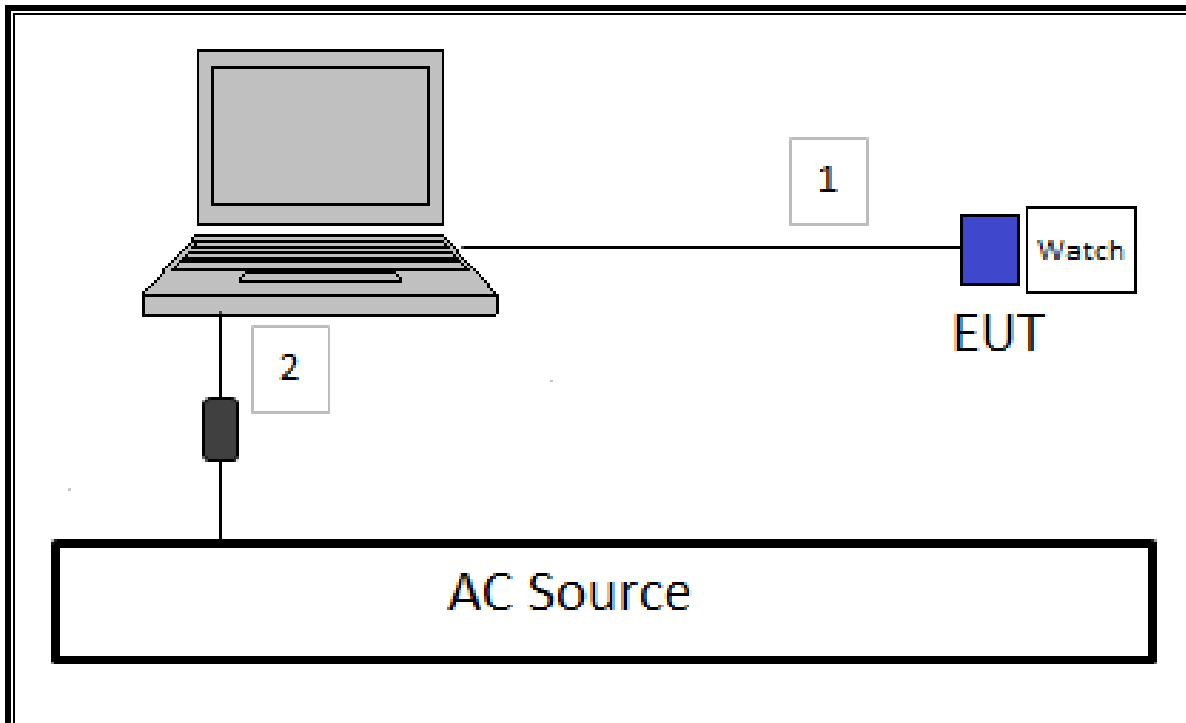
CONFIGURATION 2: OPERATING MODE WITH WATCH



CONFIGURATION 3: AC LINE SETUP: STANDBY MODE BY HOST PC VIA USB CABLE



CONFIGURATION 4: AC LINE SETUP: OPERATING MODE WITH WATCH BY HOST PC VIA USB CABLE



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	ID Num	Cal Due
Antenna, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T1616	10/18/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB	Sunol Sciences Crop.	JB3	T477	7/24/19
Amplifier, 10kHz to 1GHz, 32dB	Sonoma Instrument	310N	T834	6/01/2020
Sniffer Probes	Electro Metrics	EM-6992	N/A	N/A
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A-544	T1113	01/22/2020

AC Line Conducted				
EMI Test Receiver 9KHz-7GHz	Rohde & Schwarz	ESCI7	T1436	02/14/2020
Power Cable, Line Conducted Emissions	UL	PG1	T861	08/31/2019
LISN for Conducted Emissions CISPR-16	Fischer	50/250-25-2-01	T1310	01/24/2020
UL AUTOMATION SOFTWARE				
Radiated Software	UL	UL EMC	Ver 9.5, April 26, 2016	
Conducted Software	UL	UL EMC	Ver 5.4, October 13, 2016	
AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015	

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.

Note that when the EUT was in standby mode the only signal that comes out from the EUT was the intentional charging signal of 326.5kHz. On the other hand, when the EUT was in operational mode there were two signals. One of the intentional charging signal of 326.5kHz and the other one the control signal of 340kHz that controls the communication/charging status between EUT and the client device-the watch.

EUT SETUP

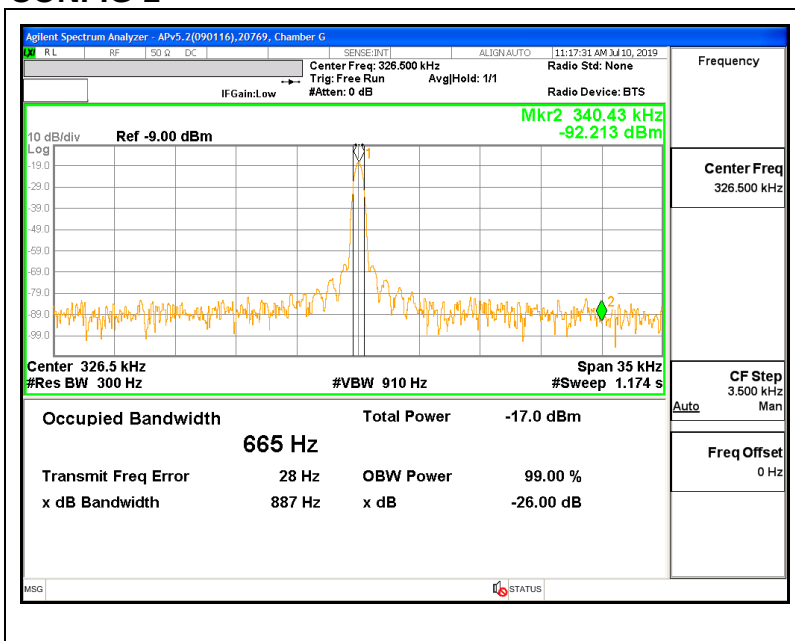
Configuration 1: Charger in standby mode, transmitting low duty cycle CW signal at 326.5kHz test.

Configuration 2: Charger in pairing mode with FSK modulation (-0/+15 kHz) which occurs over a very short period of time as soon as the watch is placed on the charger.

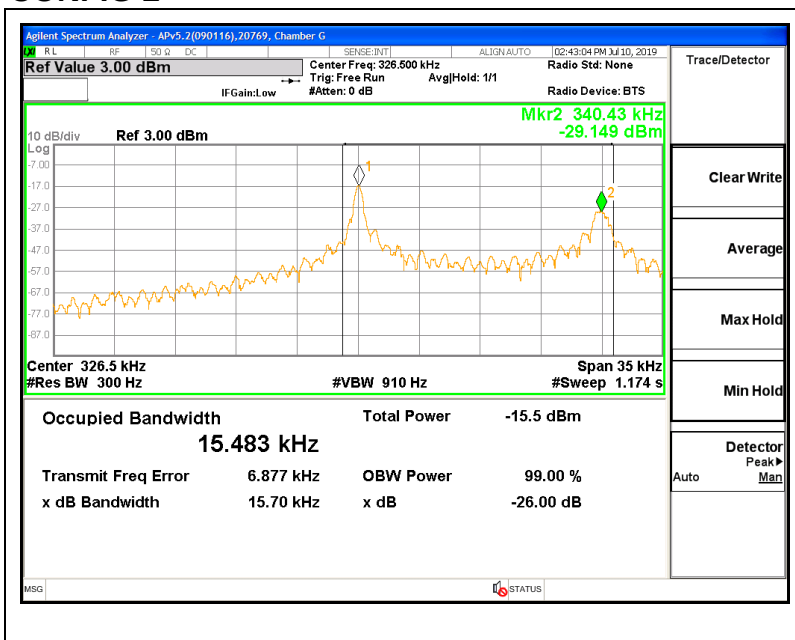
Configuration 3: Charger in charging mode with CW signal and duty cycle varied to control charge level via load modulation from watch.

RESULTS

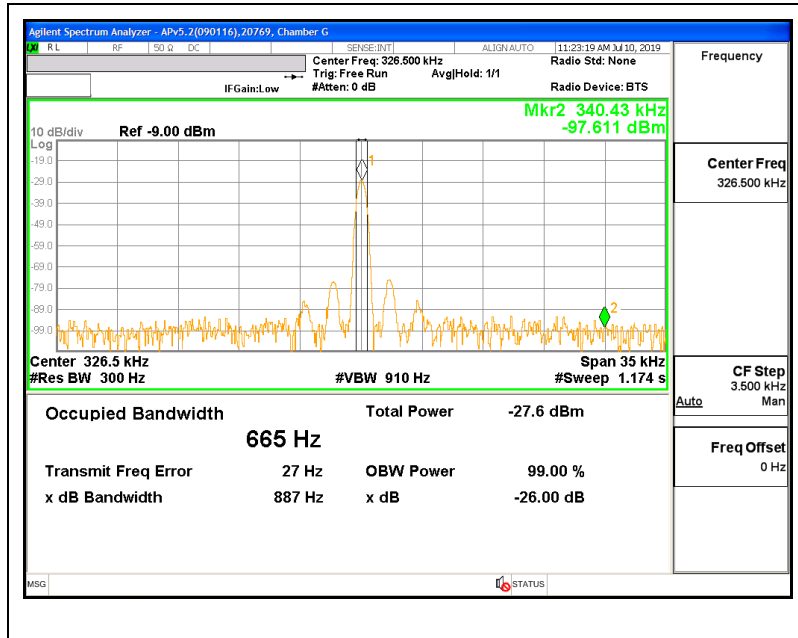
7.1.1. CONFIG 1



7.1.2. CONFIG 2



7.1.3. CONFIG 3



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.209 (a)

ICES-001 Section 6.2, 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.		

CISPR 11:04

Electromagnetic radiation disturbance limits for class B group 2 equipment measured on a test site

Frequency Range (MHz)	Magnetic Field Strength Limit Class B Group 2 @ 3m Distance (dBuA/m)
	Quasi-peak
0.009 - 0.070	69
0.070 - 0.1485	69 Decreasing Linearly with Logarithm of Frequency to 39
0.1485 - 4.0	39 Decreasing Linearly with Logarithm of Frequency to 3
4.0 - 30	3
The limits of this table apply to induction cooking appliances intended for commercial use and those for domestic use with a diagonal diameter of more than 1.6m. The measurements are performed at 3m distance with a 0.6 m loop antenna as described in 4.2.1 of CISPR 16-1-4. The antenna should be vertically installed, with the lower edge of the loop at 1m height above the floor.	

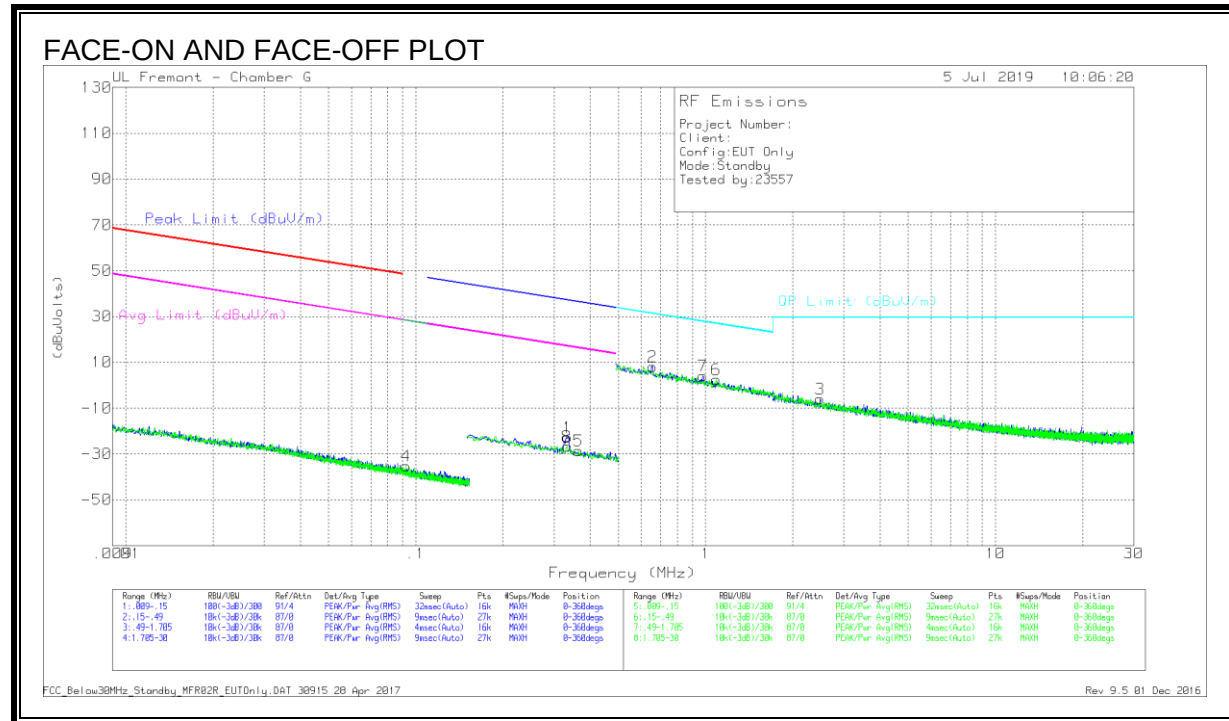
Frequency Range (MHz)	Electric Field Strength Limit Class B Group 2 @ 3m Distance (dBuV/m)	
	Quasi-peak	Average
30 – 80,872	40	35
80,872 – 81,848	60	55
81,848 – 134,786	40	35
134,786 – 136,414	60	55
136,414 – 230	40	35
230 – 1 000	47	42

RESULTS

8.2. STAINLESS STEEL WITH 0.3M CABLE

8.2.1. FCC TX FUNDAMENTAL AND SPURIOUS EMISSIONS FROM 9 kHz TO 30 MHz

STANDBY CONFIGURATION



DATA

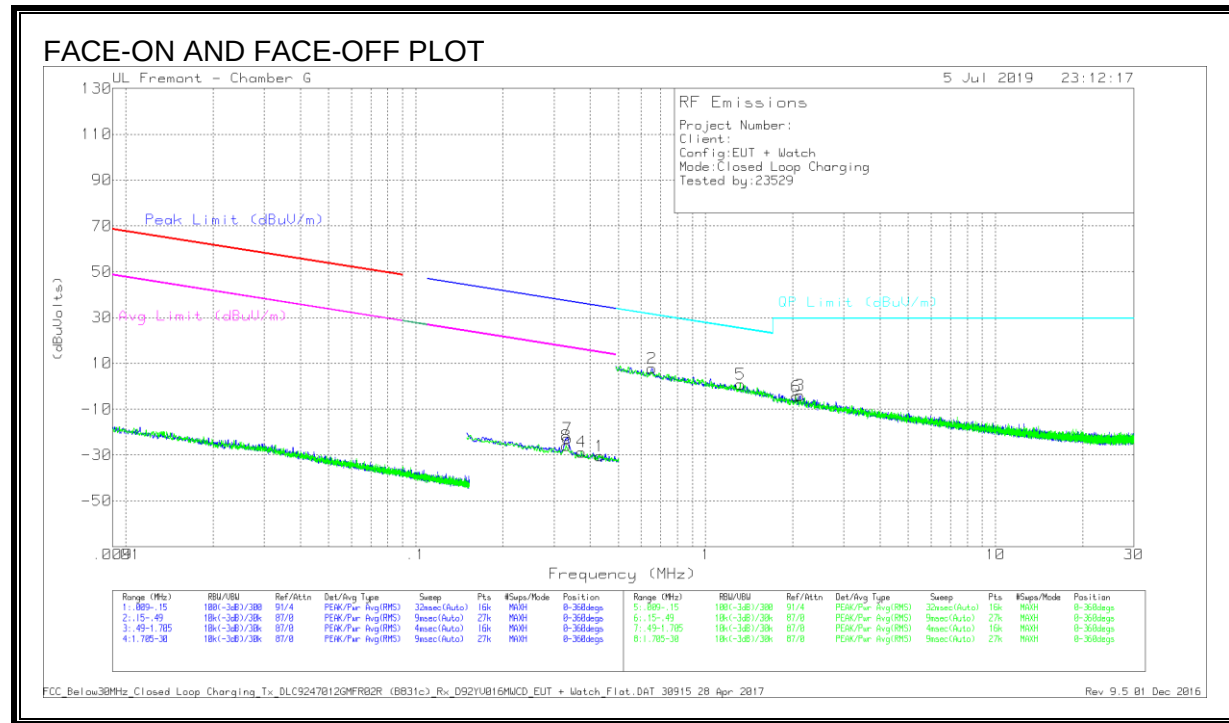
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
4	.09258	32.81	Pk	11.8	.1	-80	-35.29	28.26	-63.55	-	-	-	-	0-360
8	.33262	42.33	Pk	10.9	.1	-80	-26.67	-	-	37.17	-63.84	17.17	-43.84	0-360
1	.33428	46.29	Pk	10.9	.1	-80	-22.71	-	-	37.13	-59.84	17.13	-39.84	0-360
5	.36484	40.4	Pk	10.9	.1	-80	-28.6	-	-	36.37	-64.97	16.37	-44.97	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.65591	36.92	Pk	11	.1	-40	8.02	31.27	-23.25	0-360
7	.97955	32.81	Pk	11.3	.1	-40	4.21	27.8	-23.59	0-360
6	1.08884	31.07	Pk	11.3	.1	-40	2.47	26.88	-24.41	0-360
3	2.48576	22.43	Pk	11.3	.2	-40	-6.07	29.5	-35.57	0-360

Pk - Peak detector

OPERATING WITH WATCH



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
8	.33055	43.02	Pk	10.9	.1	-80	-25.98	37.23	-63.21	17.23	-43.21	0-360
7	.33406	46.21	Pk	10.9	.1	-80	-22.79	37.13	-59.92	17.13	-39.92	0-360
4	.37398	40.28	Pk	10.9	.1	-80	-28.72	36.15	-64.87	16.15	-44.87	0-360
1	.43184	38.45	Pk	11	.1	-80	-30.45	34.9	-65.35	14.9	-45.35	0-360

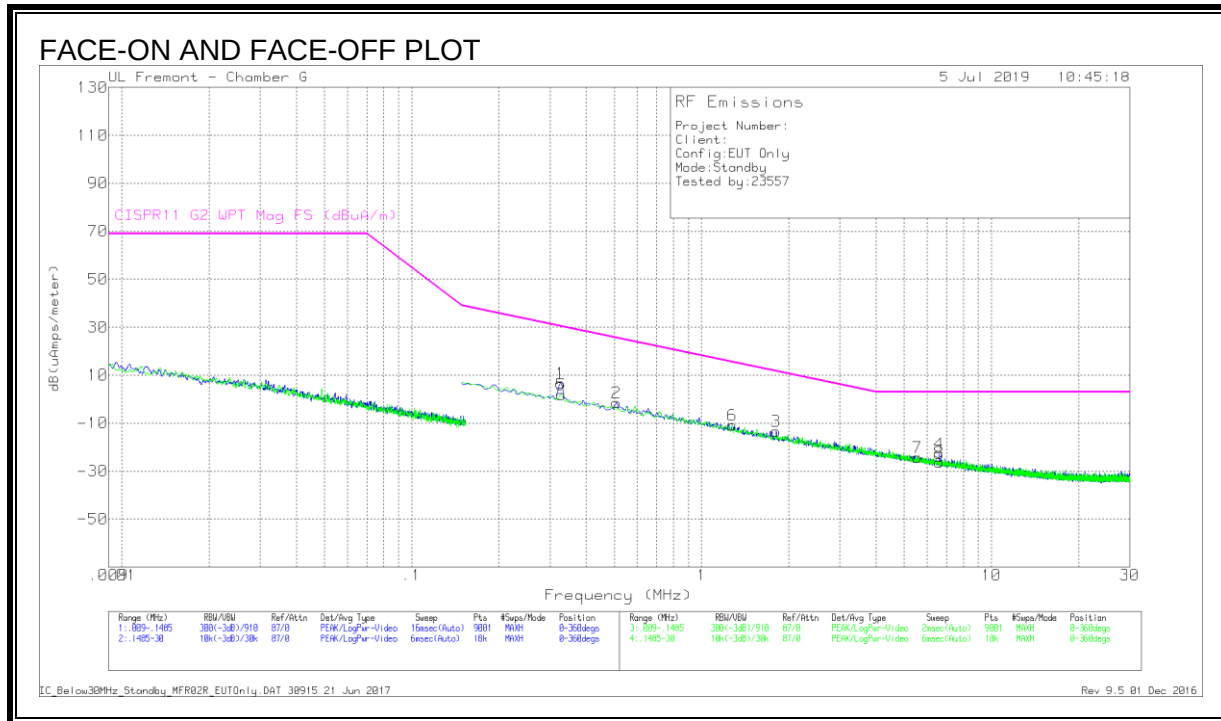
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.65275	36.61	Pk	11	.1	-40	7.71	31.32	-23.61	0-360
5	1.31787	29.44	Pk	11.3	.1	-40	.84	25.23	-24.39	0-360
6	2.05713	24.05	Pk	11.3	.2	-40	-4.45	29.5	-33.95	0-360
3	2.12053	24.5	Pk	11.3	.2	-40	-4	29.5	-33.5	0-360

Pk - Peak detector

8.2.2. IC / CISPR 11 TX FUNDAMENTAL AND SPURIOUS EMISSIONS FROM 9 kHz TO 30 MHz

STANDBY CONFIGURATION

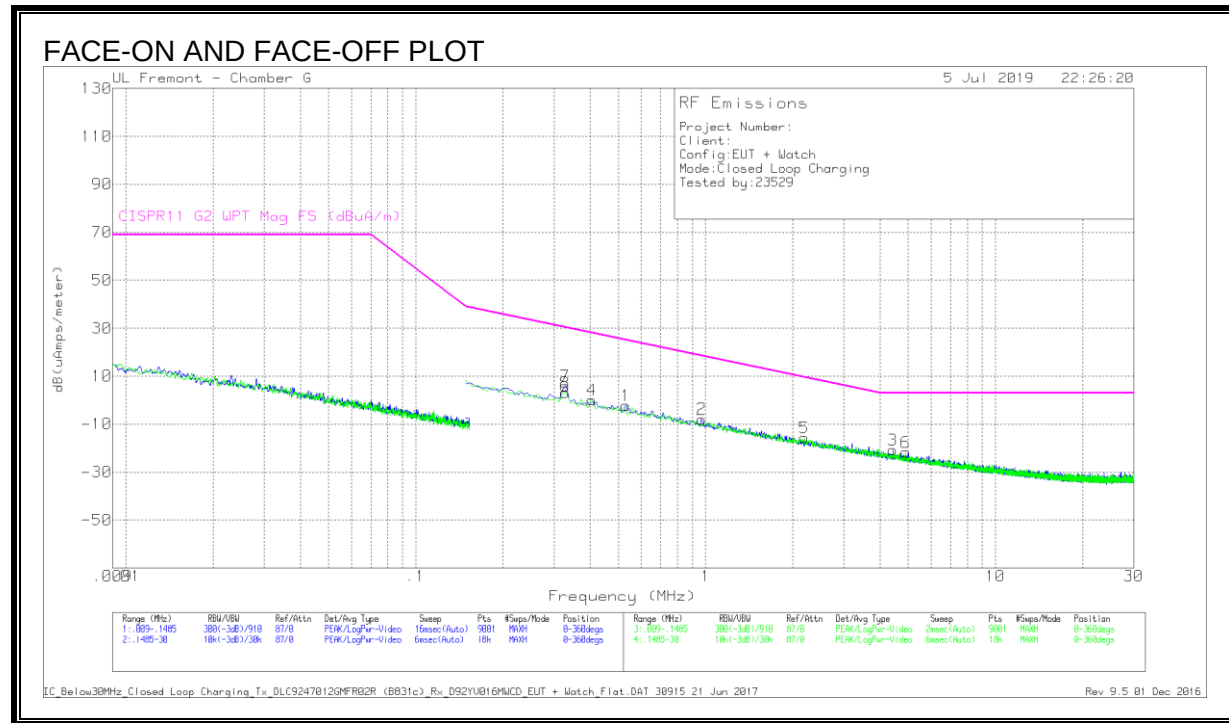


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Corrected Reading dB(uAmps/meter)	CISPR11 G2 WPT Mag FS (dBuA/m)	PK Margin (dB)	Azimuth (Degs)
1	.32591	46.99	Qp	-40.5	.1	6.59	30.41	-23.82	331
5	.32756	42.36	Qp	-40.5	.1	1.96	30.35	-28.39	320
2	.50829	38.96	Qp	-40.4	.1	-1.34	25.55	-26.89	193
6	1.27428	29.22	Qp	-40.2	.1	-10.88	15.5	-26.38	85
3	1.80982	26.8	Qp	-40.2	.1	-13.3	11.67	-24.97	109
7	5.54363	15.73	Qp	-40.3	.3	-24.27	3	-27.27	204
8	6.60973	13.72	Qp	-40.4	.3	-26.38	3	-29.38	54
4	6.61304	17.43	Qp	-40.4	.3	-22.67	3	-25.67	299

Qp - Quasi-Peak detector

OPERATING WITH WATCH



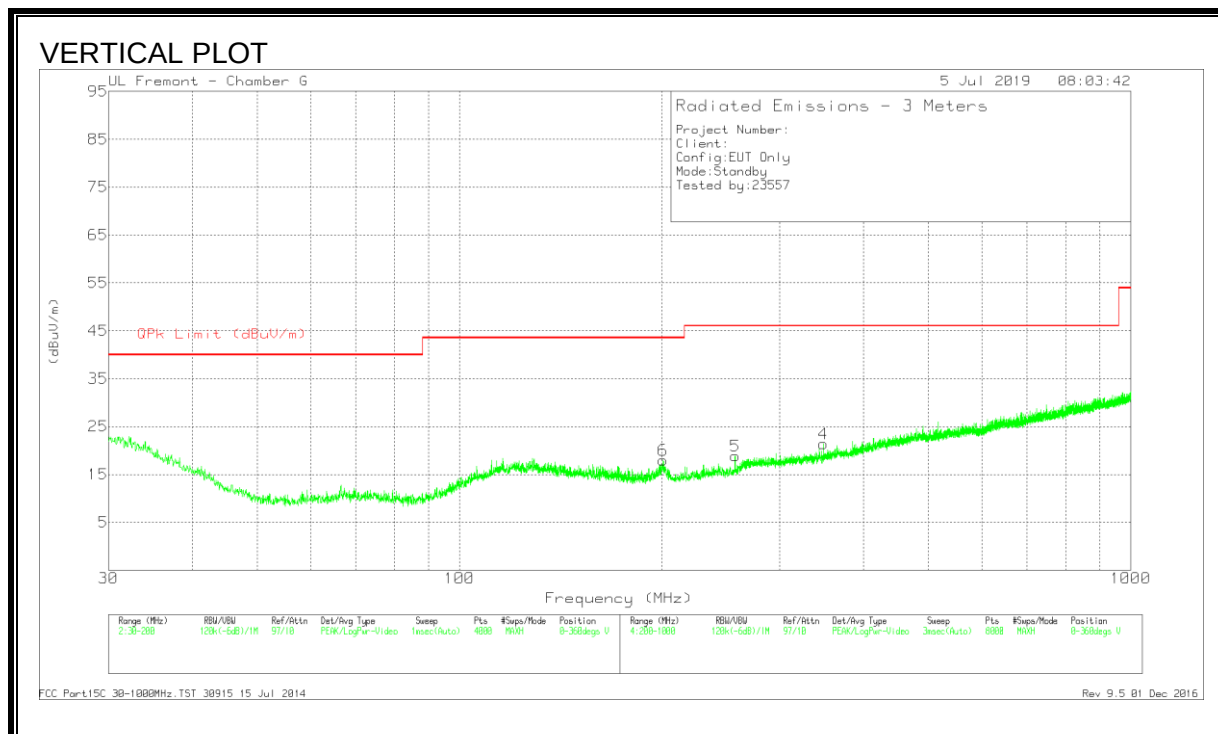
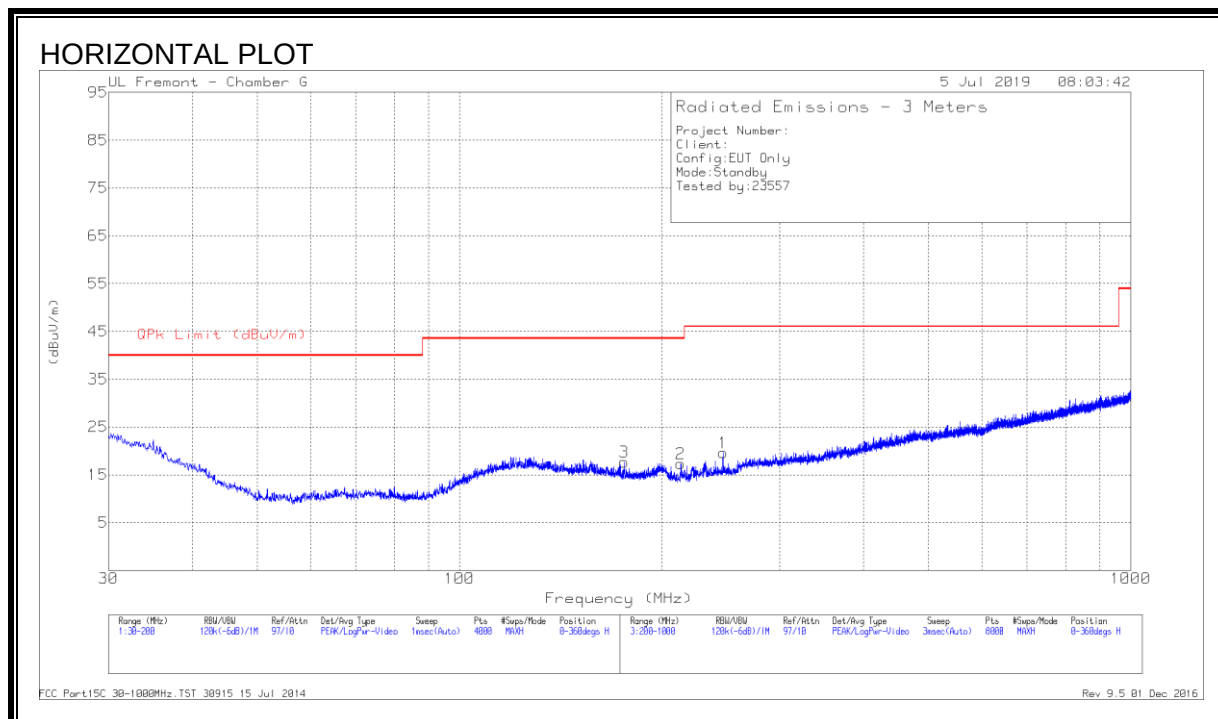
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Corrected Reading dB(uAmps/meter)	CISPR11 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)
7	.32756	46.32	PK	-40.5	.1	5.92	30.35	-24.43	0-360
8	.32756	43.48	PK	-40.5	.1	3.08	30.35	-27.27	0-360
4	.40549	40.7	PK	-40.6	.1	.2	28.02	-27.82	0-360
1	.5315	38.2	PK	-40.4	.1	-2.1	25.06	-27.16	0-360
2	.96838	32.29	PK	-40.3	.1	-7.91	18.5	-26.41	0-360
5	2.19199	24.27	PK	-40.2	.2	-15.73	9.57	-25.3	0-360
3	4.4278	19.26	PK	-40.1	.2	-20.64	3	-23.64	0-360
6	4.8995	18.25	PK	-40.2	.2	-21.75	3	-24.75	0-360

Pk - Peak detector

8.2.3. FCC TX SPURIOUS EMISSION 30 TO 1000 MHz

STANDBY CONFIGURATION



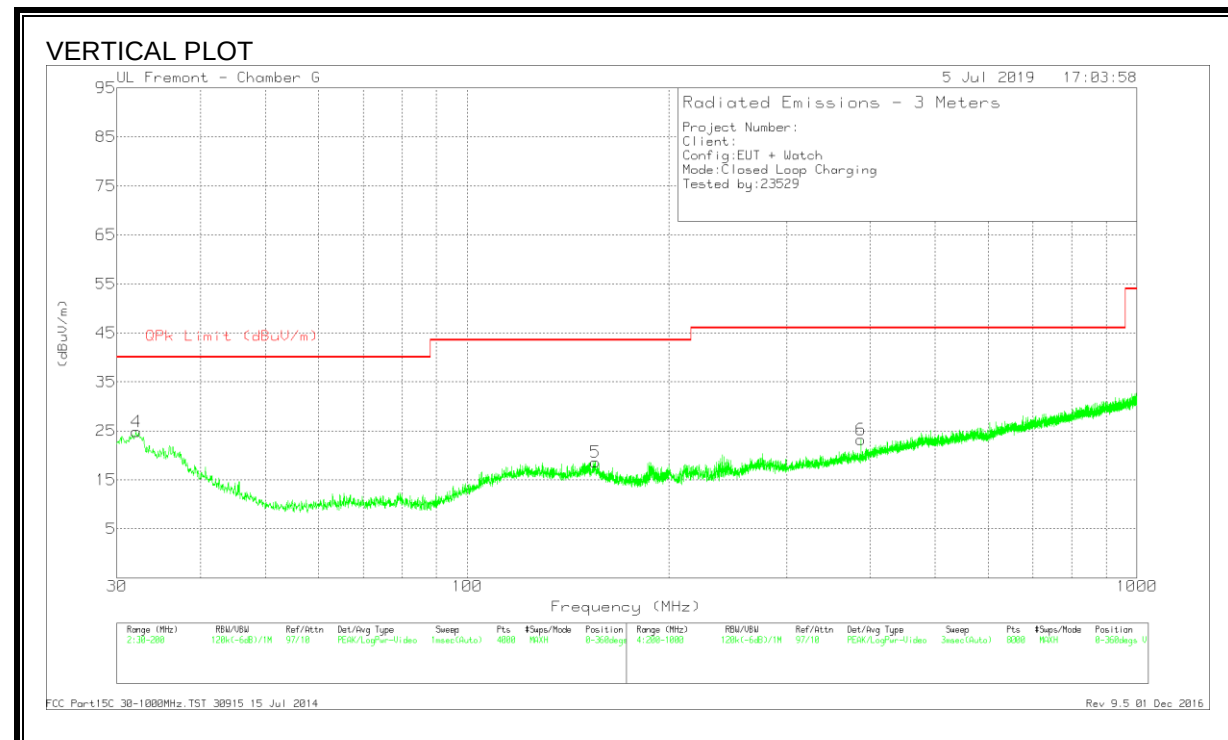
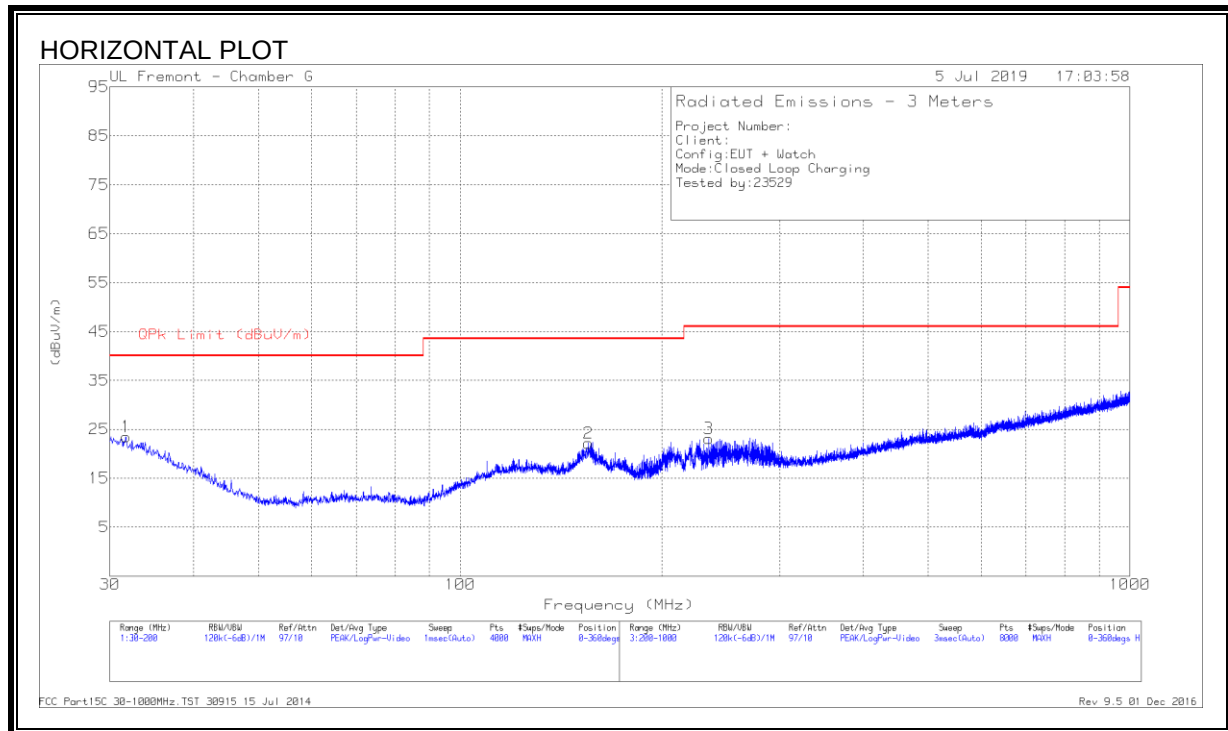
DATA

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 246.8509	22.77	Qp	17.4	-29.2	10.97	46.02	-35.05	48	122	H
* 257.4701	22.32	Qp	17.6	-29.2	10.72	46.02	-35.3	294	301	V
176.0088	26.17	Qp	17.2	-29.8	13.57	43.52	-29.95	337	207	H
201.1796	22.57	Qp	18.3	-29.6	11.27	43.52	-32.25	75	375	V
213.8237	22.9	Qp	16.3	-29.5	9.7	43.52	-33.82	171	100	H
348.7643	22.12	Qp	20.2	-28.6	13.72	46.02	-32.3	80	102	V

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

Qp - Quasi-Peak detector

OPERATING WITH WATCH



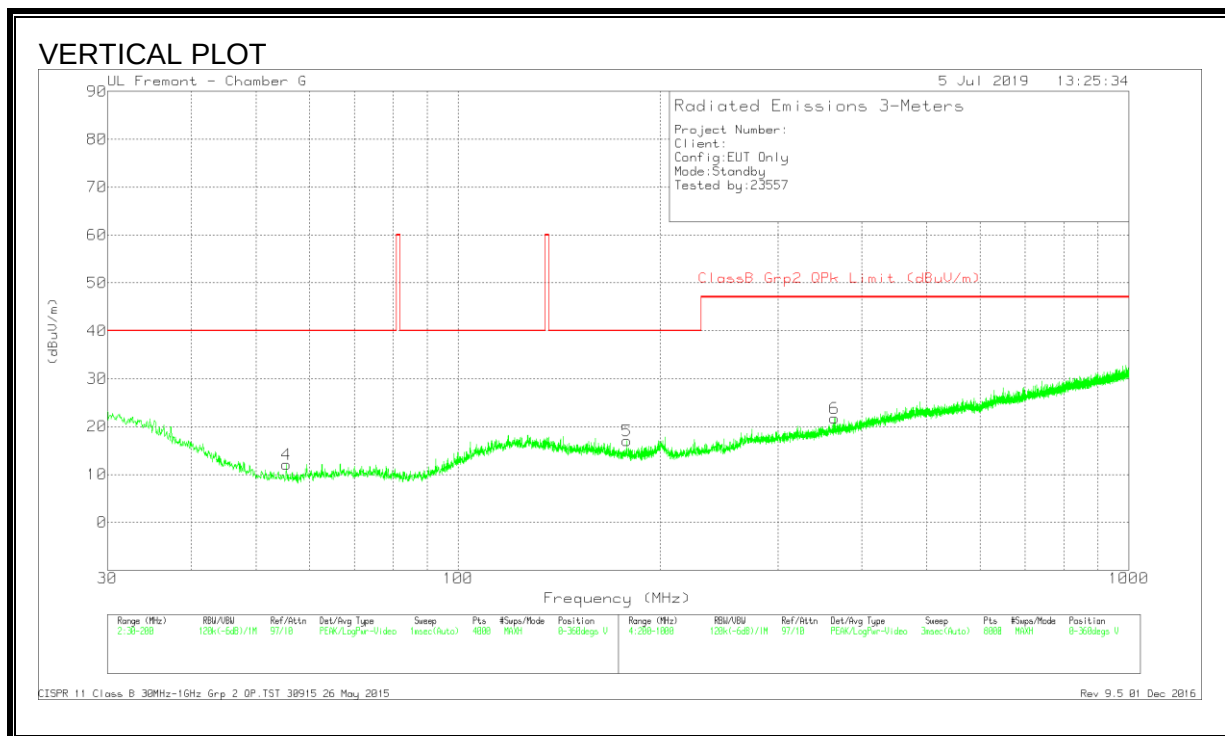
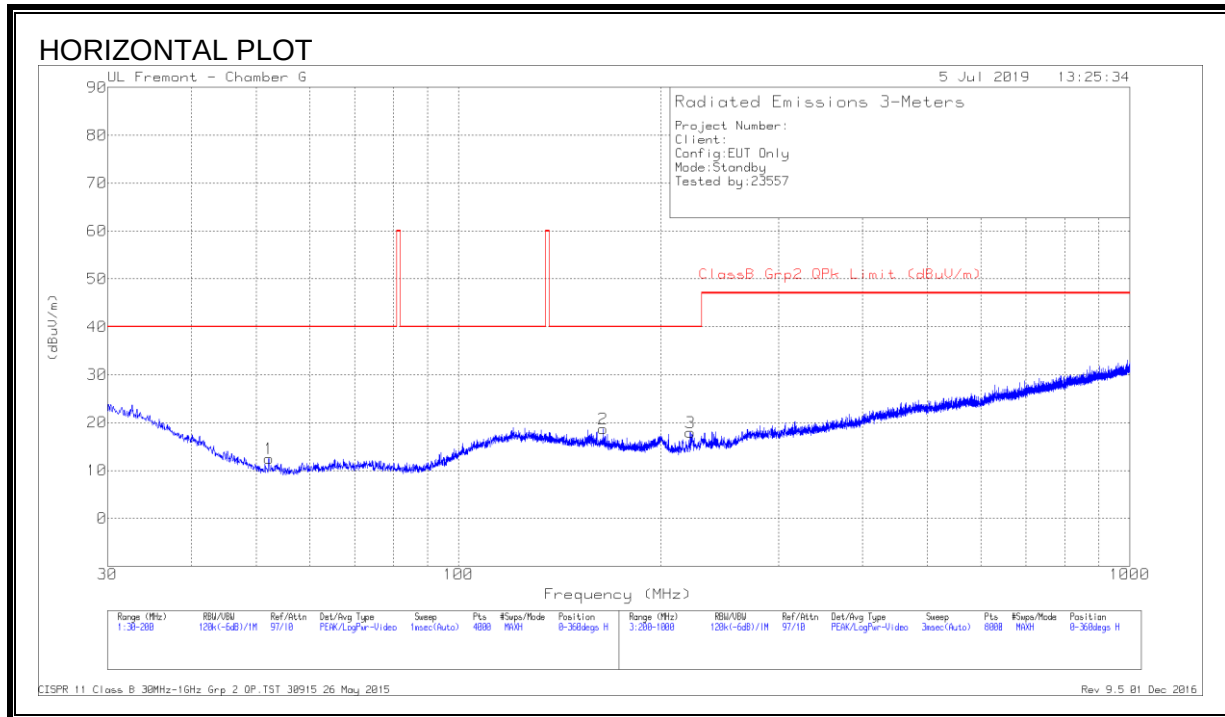
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.8727	22.92	Qp	25.4	-31.2	17.12	40	-22.88	145	141	H
4	31.926	23.9	Qp	25.3	-31.2	18	40	-22	7	111	V
2	155.425	26.68	Qp	18.2	-29.9	14.98	43.52	-28.54	189	109	V
5	155.451	27.91	Qp	18.2	-29.9	16.21	43.52	-27.31	25	182	H
3	235.0883	29.6	Qp	17.2	-29.3	17.5	46.02	-28.52	168	131	H
6	387.1697	22.24	Qp	21	-28.5	14.74	46.02	-31.28	249	307	V

Qp - Quasi-Peak detector

8.2.4. IC / CISPR 11 TX SPURIOUS EMISSION 30 TO 1000 MHz

STANDBY CONFIGURATION

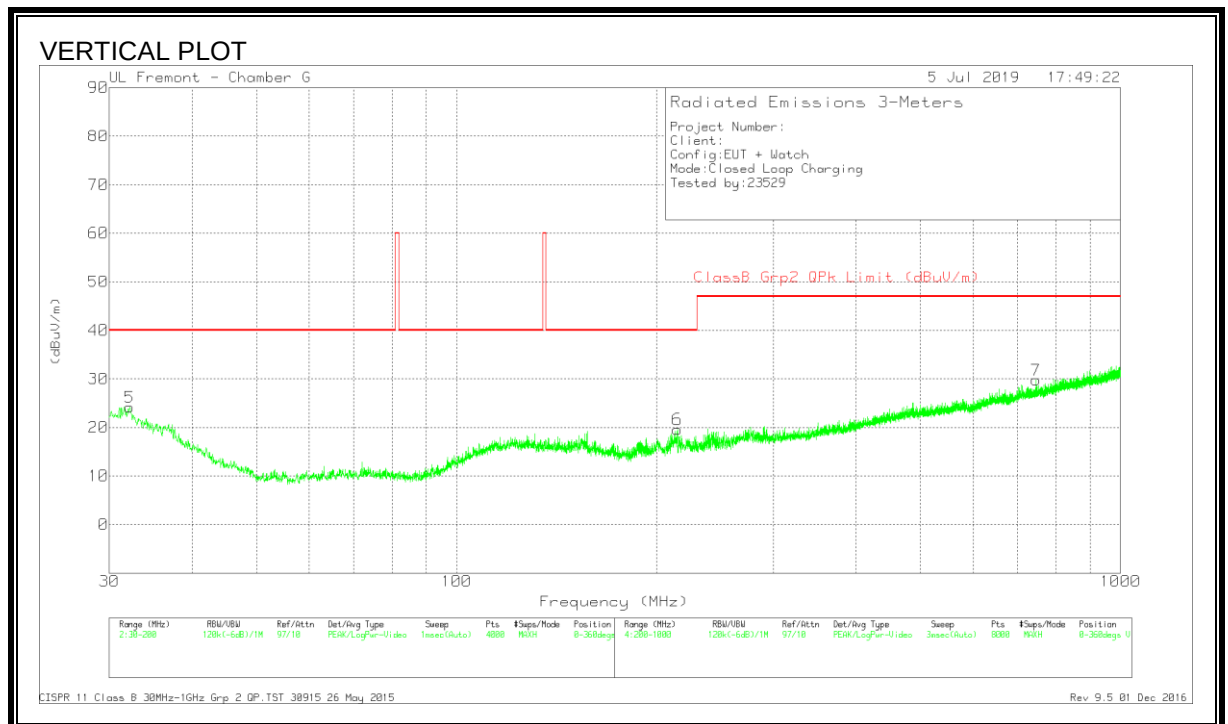
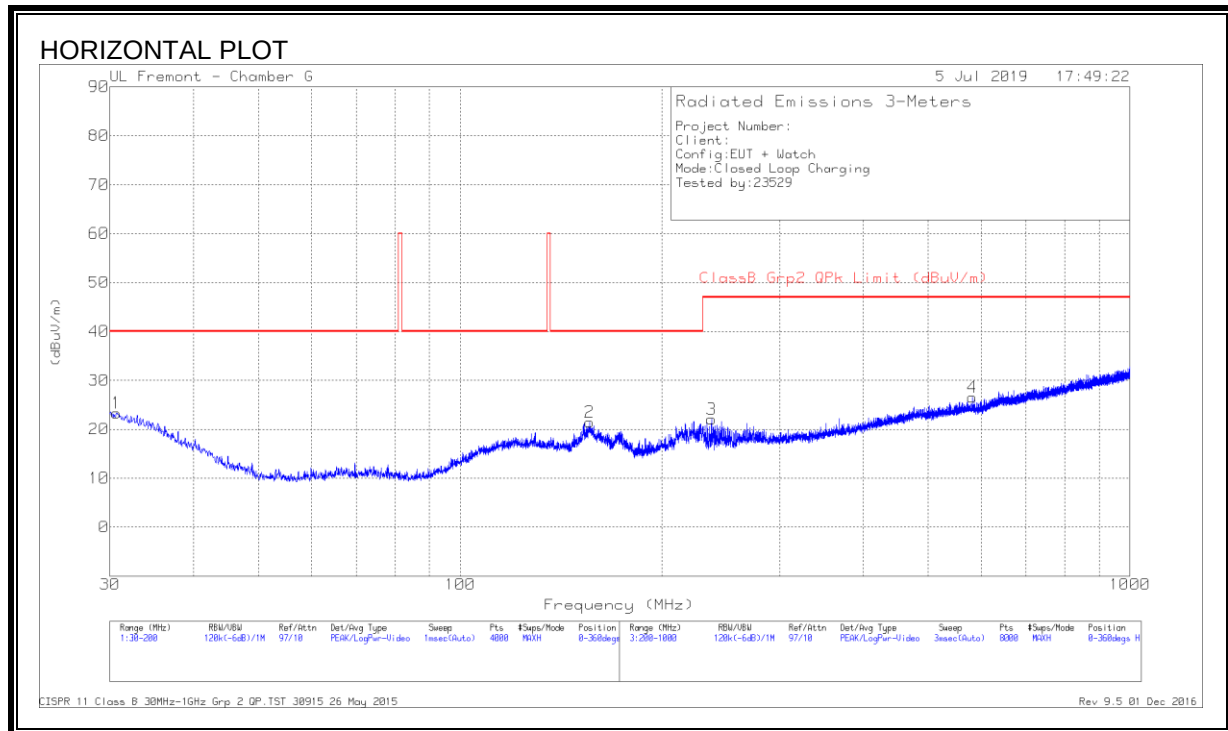


DATA

Markers	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	ClassB Grp2 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	52.3731	23.06	Qp	13.3	-30.9	5.46	40	-34.54	264	216	H
4	55.7027	22.88	Qp	13.1	-30.9	5.08	40	-34.92	316	228	V
2	164.2946	22.9	Qp	17.9	-29.9	10.9	40	-29.1	227	282	H
5	178.4619	23.03	Qp	17.1	-29.7	10.43	40	-29.57	276	343	V
3	221.6606	23	Qp	16.6	-29.4	10.2	40	-29.8	147	105	H
6	364.5177	22.05	Qp	20.7	-28.5	14.25	47	-32.75	34	293	V

Qp - Quasi-Peak detector

OPERATING WITH WATCH



DATA

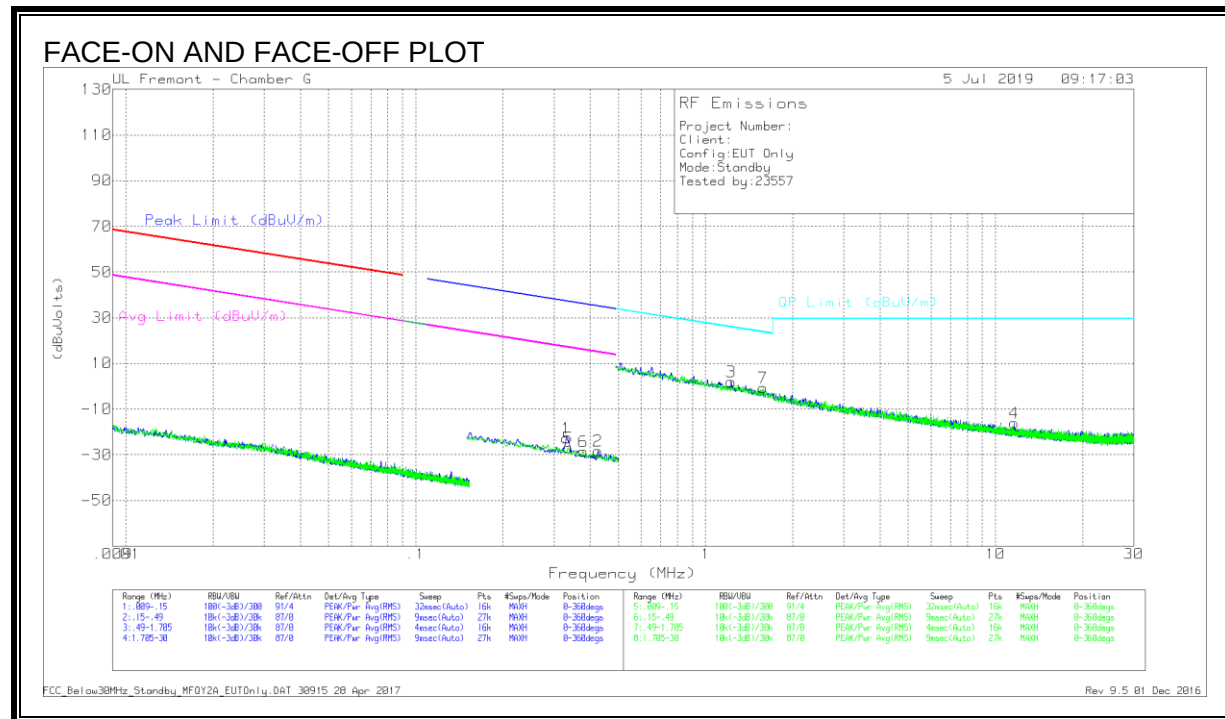
Marker	Frequenc y (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Correcte d Reading (dBuV/m)	ClassB Grp2 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.6932	22.86	Qp	26.4	-31.2	18.06	40	-21.94	336	240	H
5	32.2696	24.77	Qp	25.1	-31.2	18.67	40	-21.33	299	108	V
2	156.2758	28.41	Qp	18.2	-29.9	16.71	40	-23.29	46	181	H
6	215.1578	26.94	Qp	16.4	-29.5	13.84	40	-26.16	13	113	V
3	237.4059	29.41	Qp	17.3	-29.4	17.31	47	-29.69	241	132	H
4	582.4966	22.2	Qp	24.5	-27.6	19.1	47	-27.9	100	320	H
7	746.083	22.45	Qp	26.5	-27.1	21.85	47	-25.15	85	240	V

Qp - Quasi-Peak detector

8.3. STAINLESS STEEL WITH 1M CABLE

8.3.1. FCC TX FUNDAMENTAL AND SPURIOUS EMISSIONS FROM 9 kHz TO 30 MHz

STANDBY CONFIGURATION



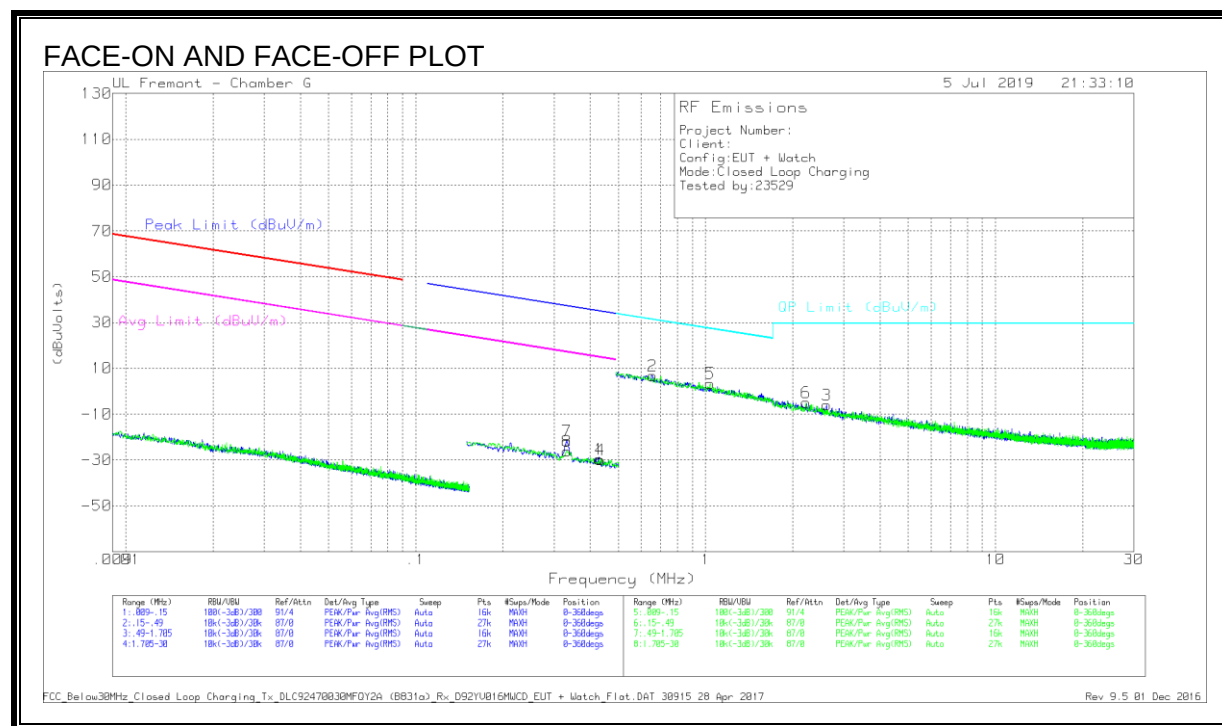
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.33108	46.36	Pk	10.9	.1	-80	-22.64	37.21	-59.85	17.21	-39.85	0-360
5	.33576	41.99	Pk	10.9	.1	-80	-27.01	37.09	-64.1	17.09	-44.1	0-360
6	.37864	40.34	Pk	10.9	.1	-80	-28.66	36.04	-64.7	16.04	-44.7	0-360
2	.42537	40.53	Pk	11	.1	-80	-28.37	35.03	-63.4	15.03	-43.4	0-360

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	1.22492	30.58	Pk	11.3	.1	-40	1.98	25.86	-23.88	0-360
7	1.57817	27.84	Pk	11.3	.1	-40	-.76	23.67	-24.43	0-360
4	11.61908	12.76	Pk	10.7	.4	-40	-16.14	29.5	-45.64	0-360

Pk - Peak detector

OPERATING WITH WATCH



DATA

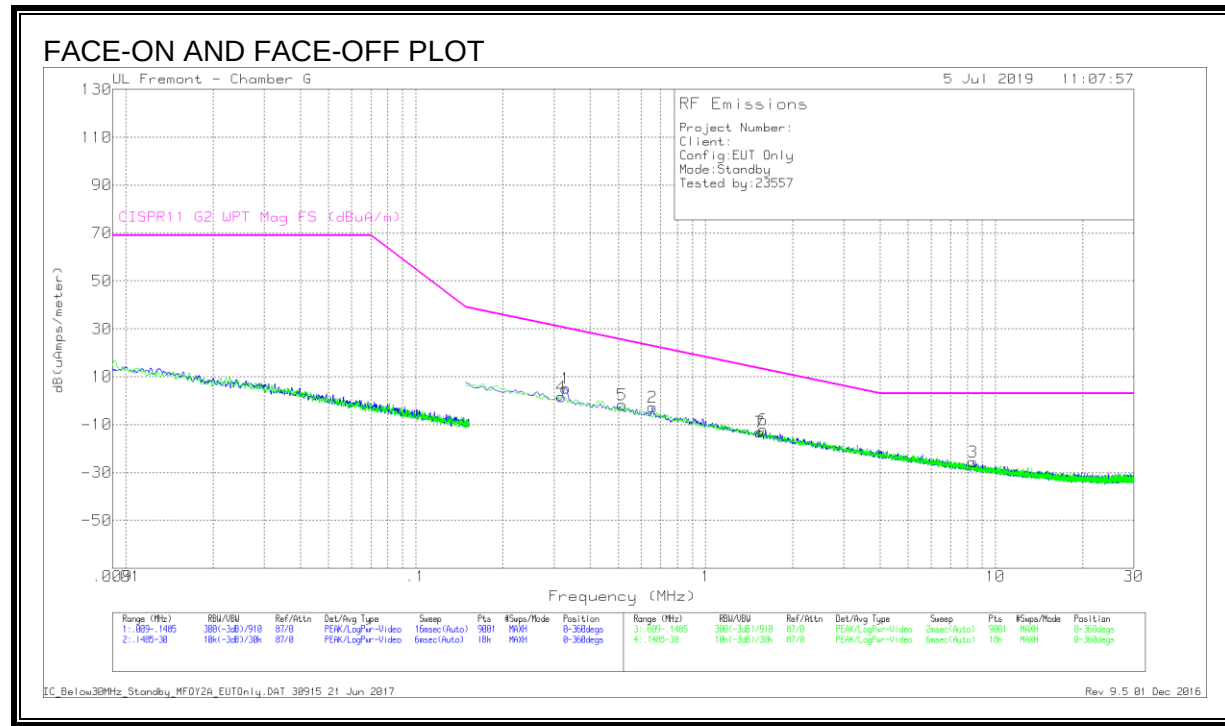
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
7	.33186	47.26	Pk	10.9	.1	-80	-21.74	37.19	-58.93	17.19	-38.93	0-360
8	.33262	42.86	Pk	10.9	.1	-80	-26.14	37.17	-63.31	17.17	-43.31	0-360
1	.4297	39.22	Pk	11	.1	-80	-29.68	34.94	-64.62	14.94	-44.62	0-360
4	.43364	39.1	Pk	11	.1	-80	-29.8	34.86	-64.66	14.86	-44.66	0-360

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.65477	35.71	Pk	11	.1	-40	6.81	31.29	-24.48	0-360
5	1.03739	32.03	Pk	11.3	.1	-40	3.43	27.3	-23.87	0-360
6	2.22009	23.67	Pk	11.3	.2	-40	-4.83	29.5	-34.33	0-360
3	2.61466	22.52	Pk	11.3	.2	-40	-5.98	29.5	-35.48	0-360

Pk - Peak detector

8.3.2. IC / CISPR 11 TX FUNDAMENTAL AND SPURIOUS EMISSIONS FROM 9 kHz TO 30 MHz

STANDBY CONFIGURATION

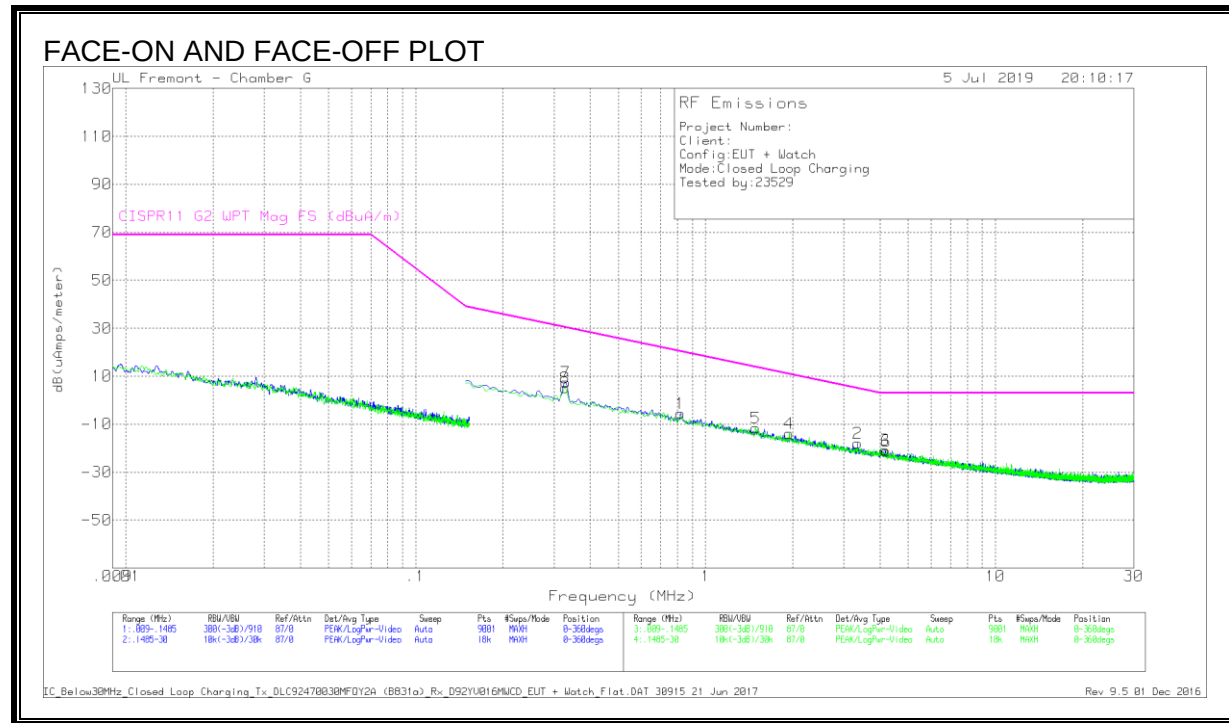


DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Corrected Reading dB(uAmps/meter)	CISPR11 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)
3	* 8.38047	14.71	Qp	-40.6	.3	-25.59	3	-28.59	255
4	.31845	41.92	Qp	-40.5	.1	1.52	30.66	-29.14	193
1	.32922	45.63	Qp	-40.5	.1	5.23	30.3	-25.07	29
5	.51658	38.53	Qp	-40.4	.1	-1.77	25.37	-27.14	345
2	.65585	37.54	Qp	-40.4	.1	-2.76	22.76	-25.52	216
7	1.53956	27.08	Qp	-40.2	.1	-13.02	13.44	-26.46	204
6	1.57935	27.94	Qp	-40.2	.1	-12.16	13.16	-25.32	357

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

OPERATING WITH WATCH



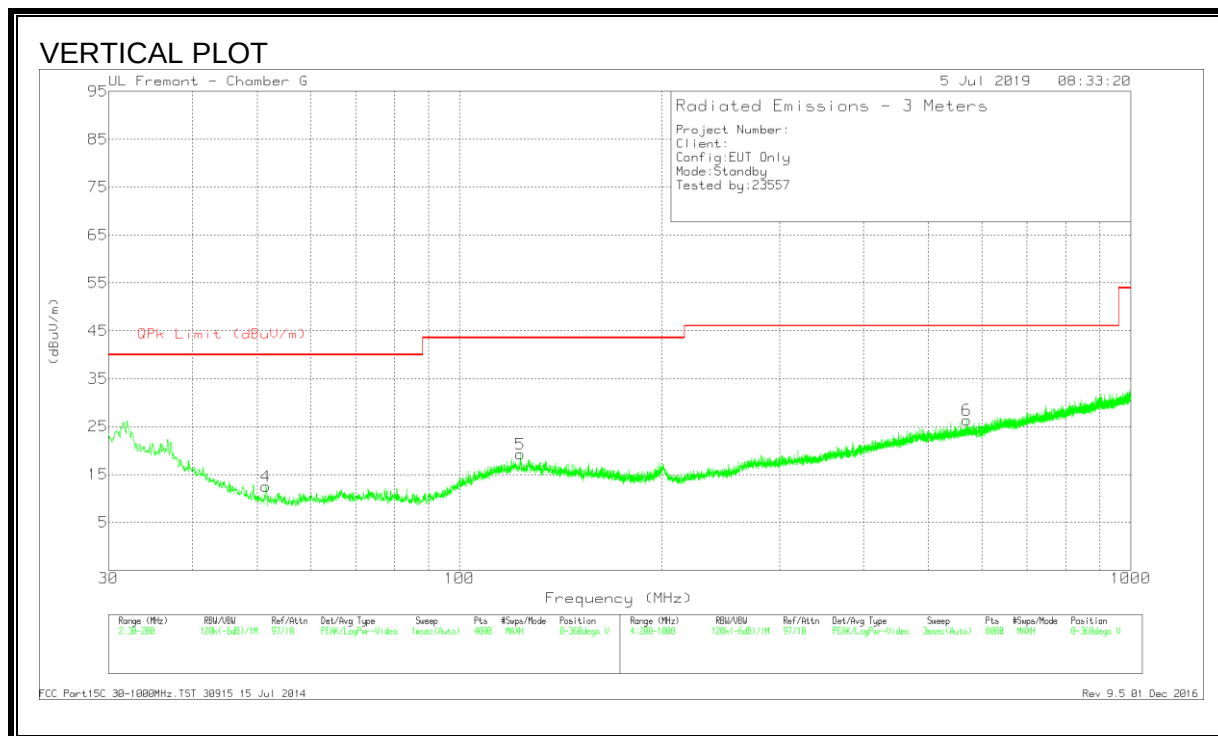
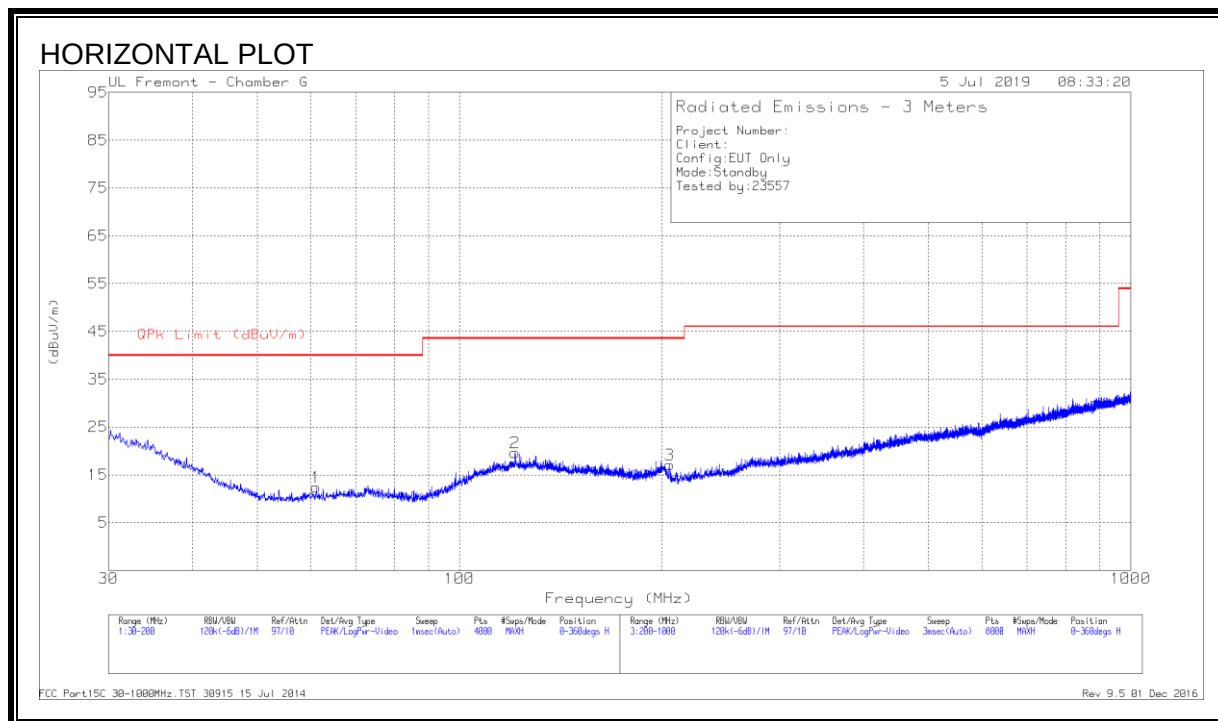
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cables (dB)	Corrected Reading dB(uAmps/meter)	CISPR11 G2 WPT Mag FS (dBuA/m)	Margin (dB)	Azimuth (Degs)
8	.32756	45.51	PK	-40.5	.1	5.11	30.35	-25.24	0-360
7	.32922	47.82	PK	-40.5	.1	7.42	30.3	-22.88	0-360
1	.81999	34.79	PK	-40.5	.1	-5.61	20.32	-25.93	0-360
5	1.48651	28.57	PK	-40.2	.1	-11.53	13.82	-25.35	0-360
4	1.94494	26.18	PK	-40.2	.2	-13.82	10.88	-24.7	0-360
2	3.34678	21.95	PK	-40.1	.2	-17.95	4.95	-22.9	0-360
3	4.16335	19.25	PK	-40.1	.2	-20.65	3	-23.65	0-360
6	4.20231	18.78	PK	-40.1	.2	-21.12	3	-24.12	0-360

Pk - Peak detector

8.3.3. FCC TX SPURIOUS EMISSION 30 TO 1000 MHz

STANDBY CONFIGURATION

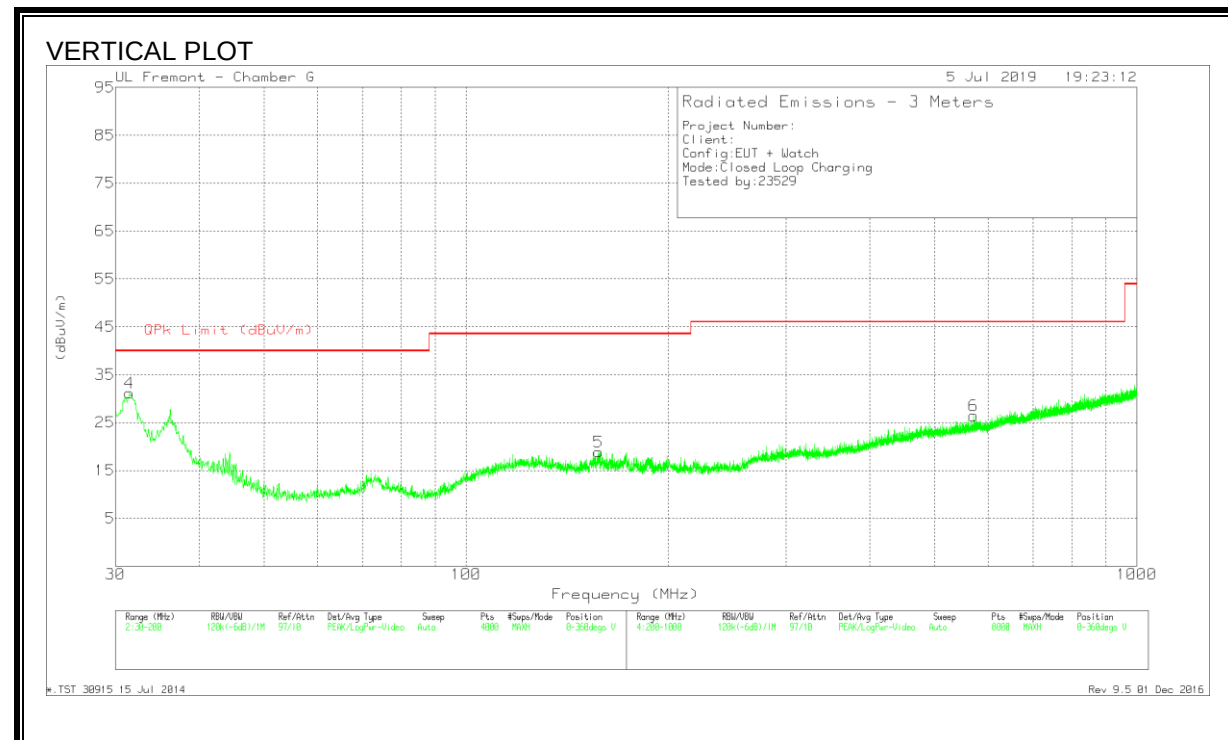
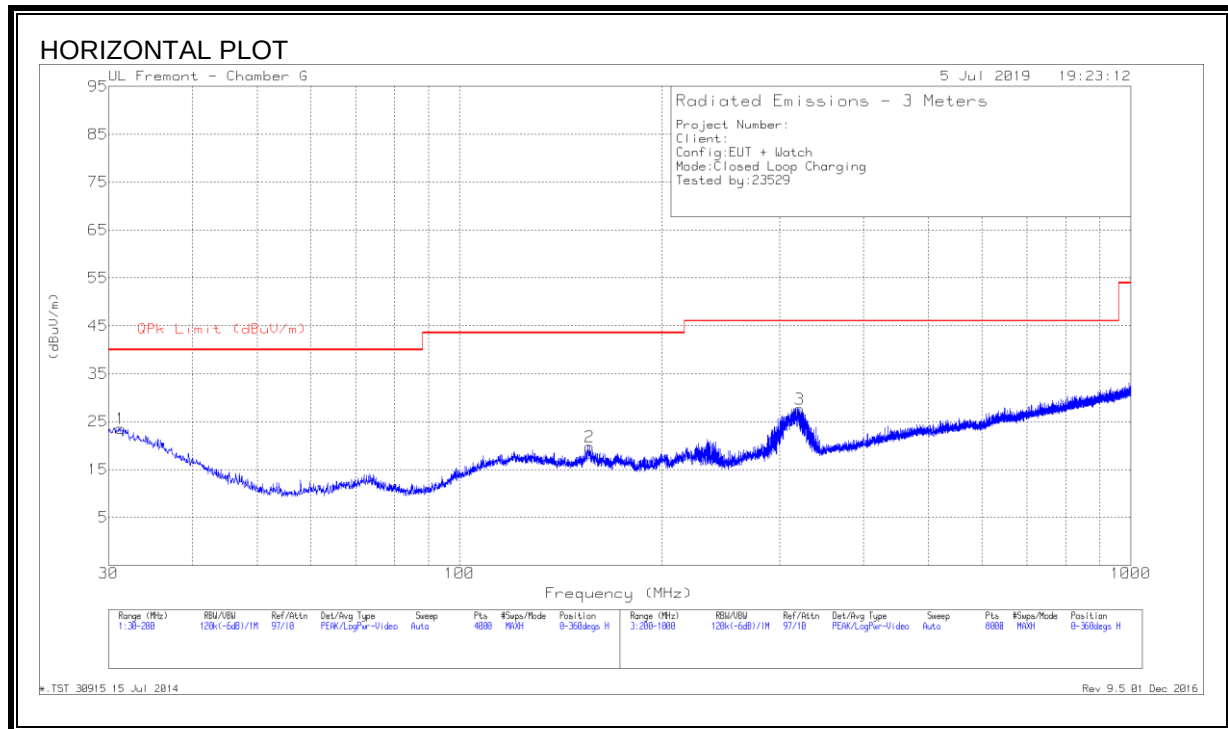


DATA

Markers	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 121.2345	23.04	Qp	19.6	-30.2	12.44	43.52	-31.08	125	320	H
4	* 123.2803	22.73	Qp	19.7	-30.2	12.23	43.52	-31.29	183	107	V
5	51.3447	22.81	Qp	13.4	-30.9	5.31	40	-34.69	10	375	V
1	61.1337	23.12	Qp	13.5	-30.8	5.82	40	-34.18	313	170	H
3	205.5879	22.65	Qp	16.6	-29.5	9.75	43.52	-33.77	106	102	H
6	569.2624	22.12	Qp	24.5	-27.7	18.92	46.02	-27.1	263	178	V

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

OPERATING WITH WATCH



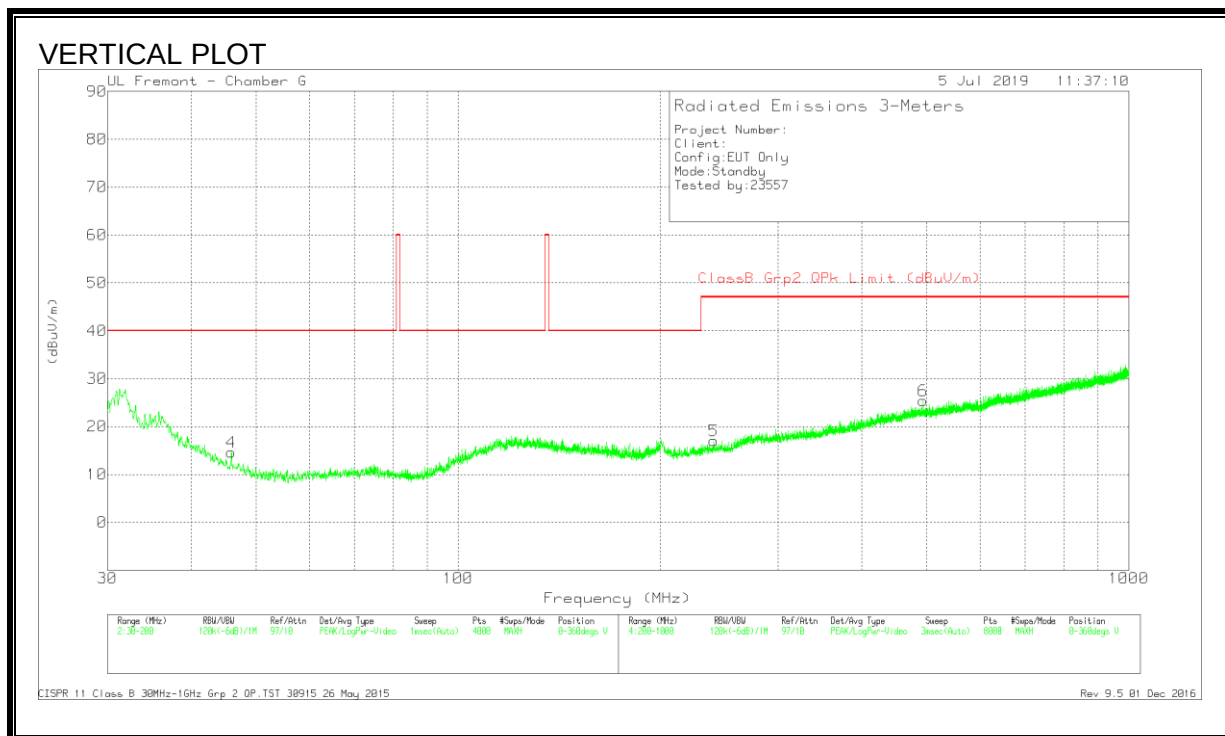
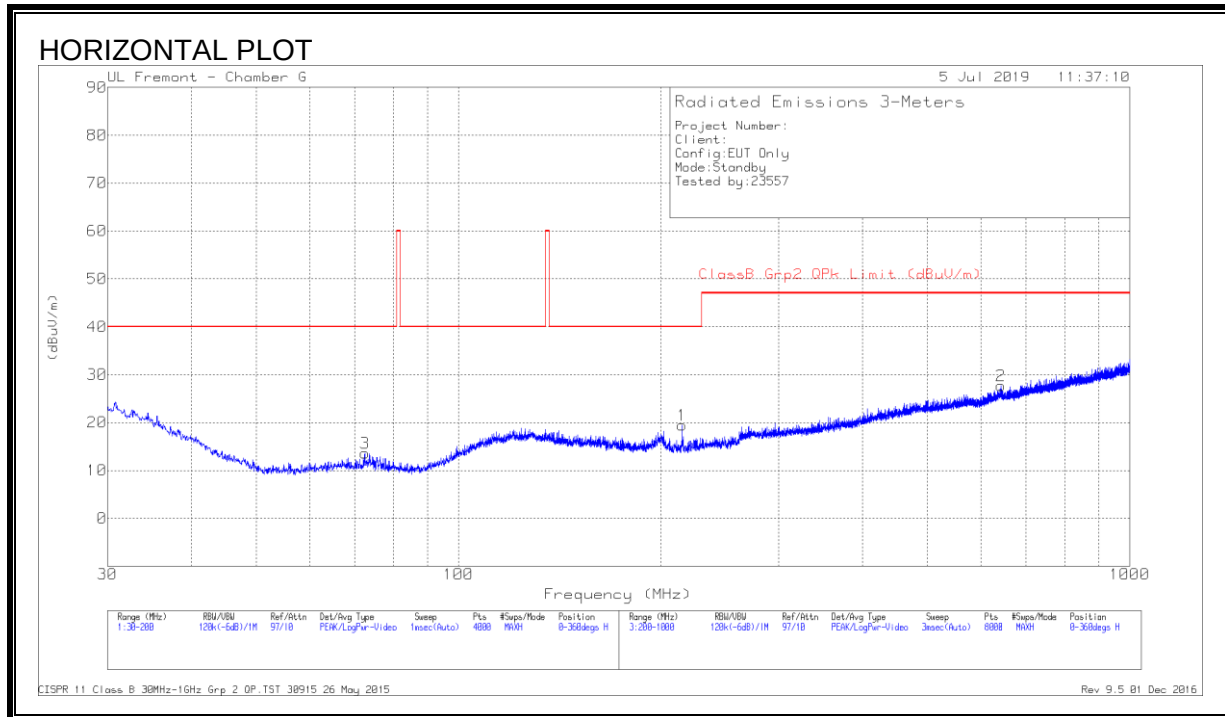
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.3372	23.99	Qp	26	-31.2	18.79	40	-21.21	14	173	H
4	31.653	32.33	Qp	25.6	-31.2	26.73	40	-13.27	23	102	V
2	156.403	26.77	Qp	18.2	-29.9	15.07	43.52	-28.45	198	160	H
5	157.7368	24.85	Qp	18.1	-30	12.95	43.52	-30.57	178	125	V
3	320.9749	28.85	Qp	19.8	-28.8	19.85	46.02	-26.17	134	129	H
6	570.4492	22.33	Qp	24.5	-27.7	19.13	46.02	-26.89	206	301	V

Qp - Quasi-Peak detector

8.3.4. IC / CISPR 11 TX SPURIOUS EMISSION 30 TO 1000 MHz

STANDBY CONFIGURATION

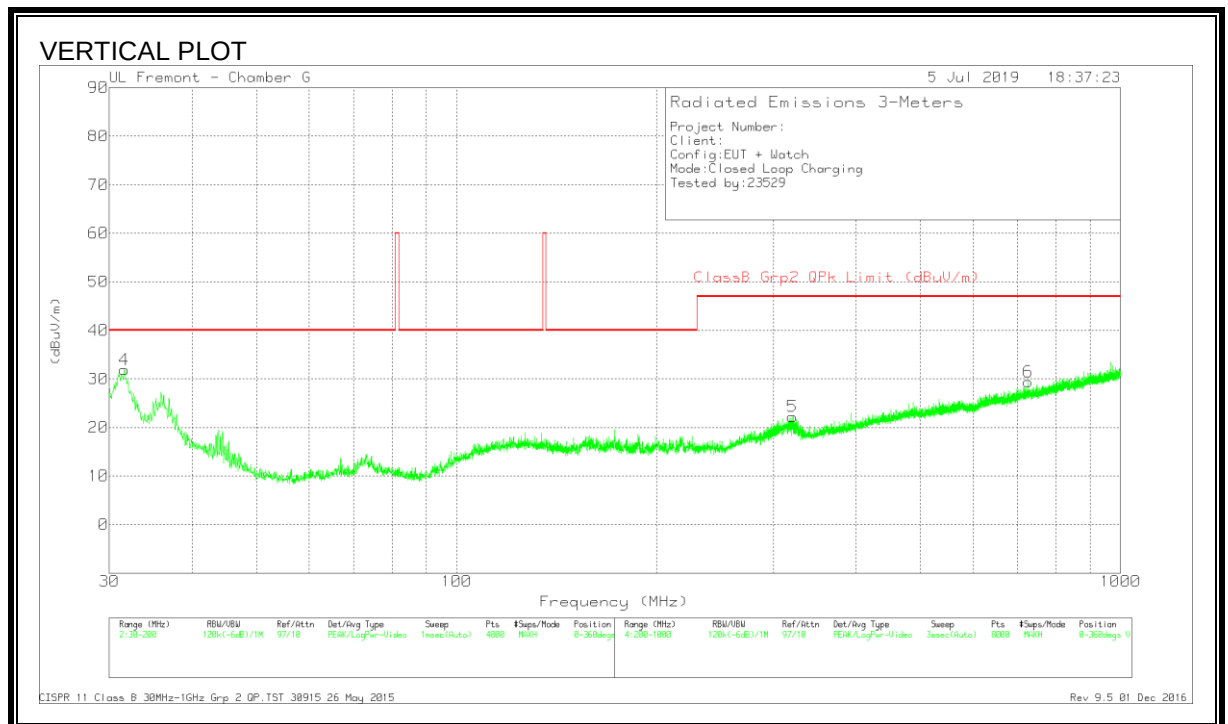
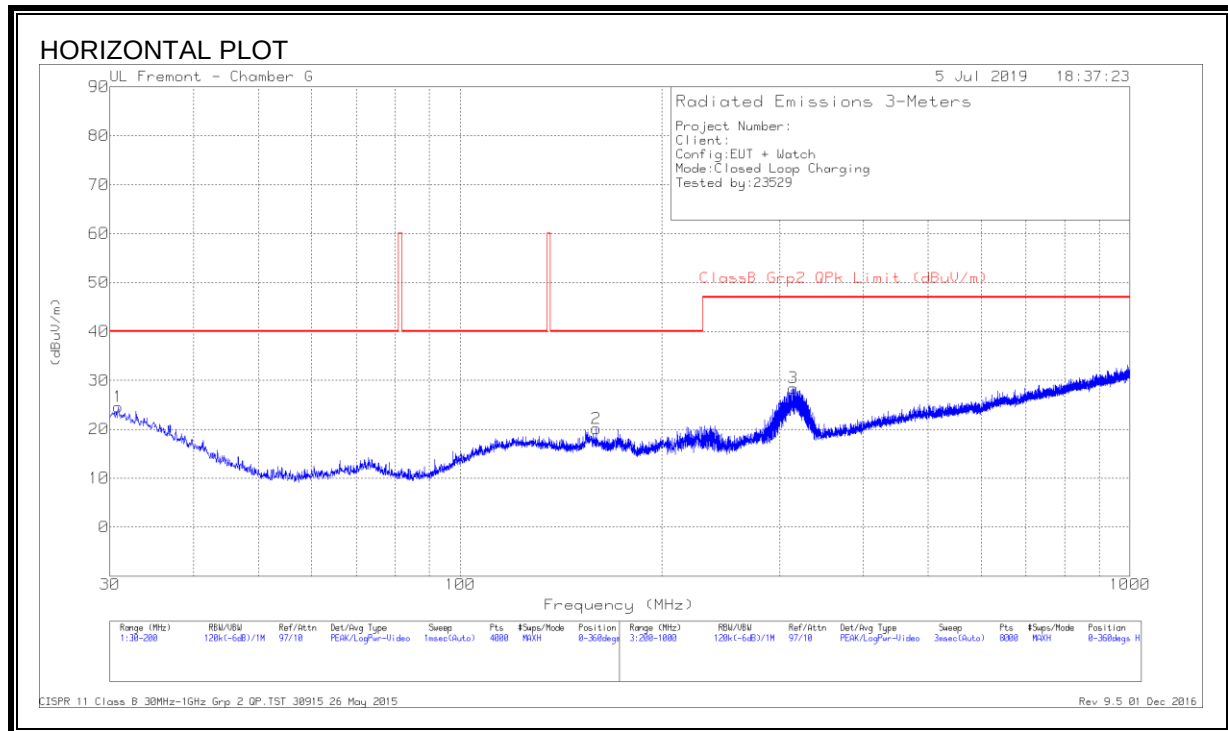


DATA

Markers	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	ClassB Grp2 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	72.295	23.23	Qp	13.9	-30.7	6.43	40	-33.57	29	100	H
3	46.0033	23.11	Qp	15.5	-31	7.61	40	-32.39	336	196	V
1	215.1631	23.27	Qp	16.4	-29.5	10.17	40	-29.83	218	143	H
5	642.7927	22.14	Qp	25.7	-27.3	20.54	47	-26.46	101	357	H
6	240.512	22.48	Qp	17.4	-29.3	10.58	47	-36.42	188	121	V
2	493.4691	22.39	Qp	23.5	-27.9	17.99	47	-29.01	207	200	V

Qp - Quasi-Peak detector

OPERATING WITH WATCH



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	ClassB Grp2 QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.9978	23.35	Qp	26.4	-31.2	18.55	40	-21.45	7	269	H
4	159.4196	24.75	Qp	18.1	-29.9	12.95	40	-27.05	222	186	H
2	31.6778	31.77	Qp	25.6	-31.2	26.17	40	-13.83	24	104	V
3	314.4523	34.72	Qp	19.7	-28.8	25.62	47	-21.38	140	103	H
5	320.6282	25.34	Qp	19.8	-28.8	16.34	47	-30.66	235	131	V
6	725.8194	22.31	Qp	26.4	-27	21.71	47	-25.29	214	364	V

Qp - Quasi-Peak detector

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

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.

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.

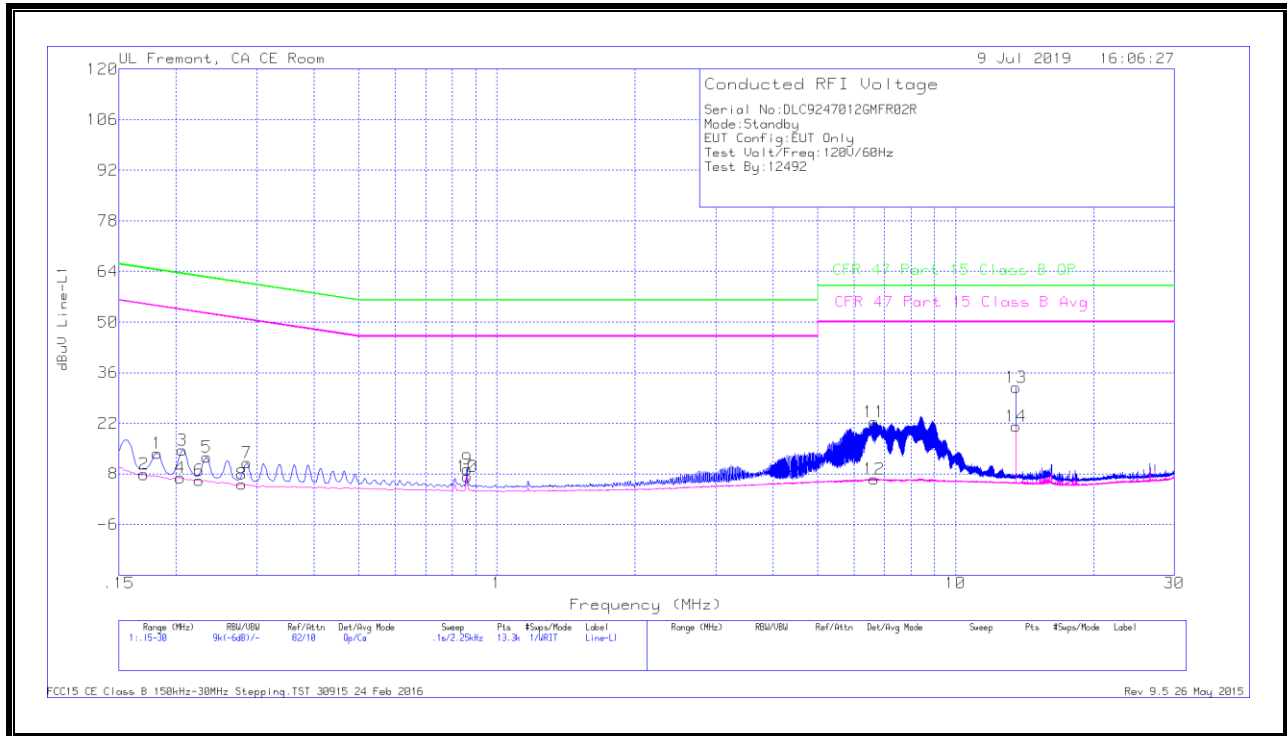
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

9.1. STAINLESS STEEL WITH 0.3M CABLE

9.1.1. STANDBY MODE POWERED BY AC/DC ADAPTER

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

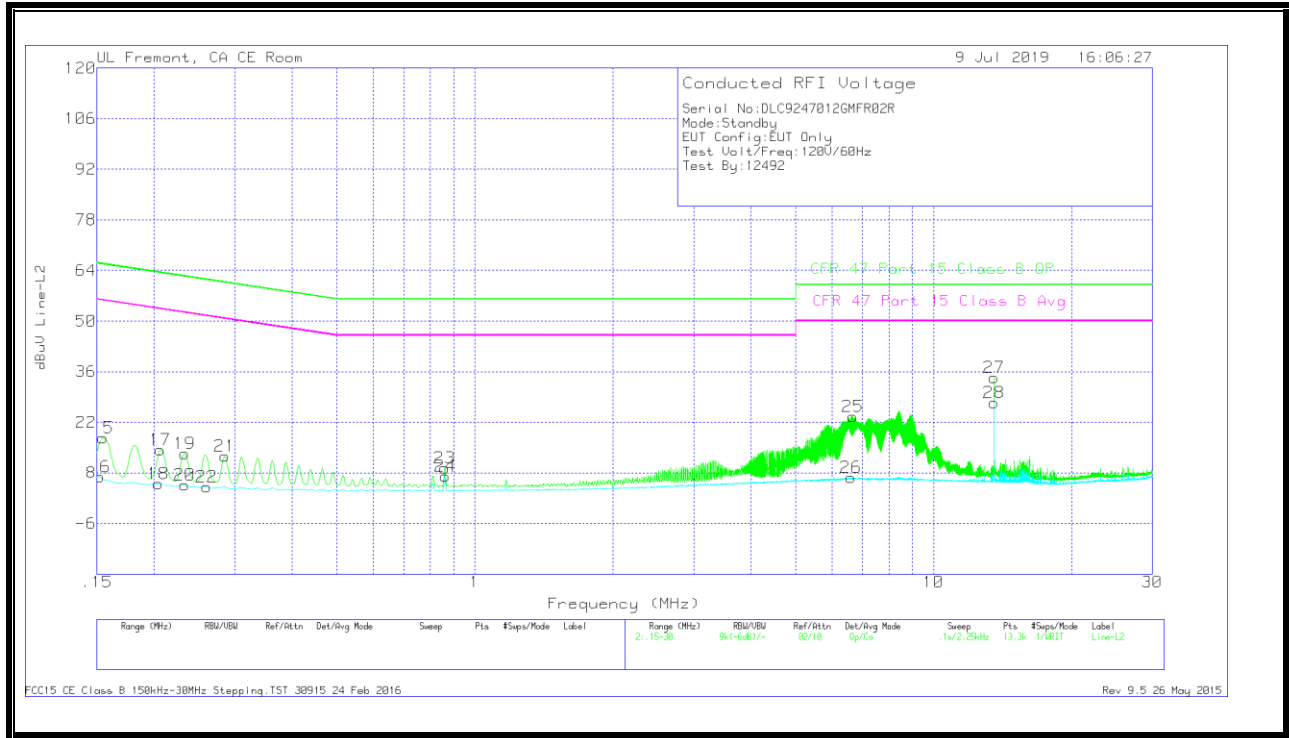
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.1815	3.61	Qp	0	0	10.1	13.71	64.42	-50.71	-	-
2	.17025	-2.25	Ca	0	0	10.1	7.85	-	-	54.95	-47.1
3	.20625	4.47	Qp	0	0	10.1	14.57	63.35	-48.78	-	-
4	.204	-3.15	Ca	0	0	10.1	6.95	-	-	53.45	-46.5
5	.23325	2.46	Qp	0	0	10.1	12.56	62.33	-49.77	-	-
6	.22425	-3.9	Ca	0	0	10.1	6.2	-	-	52.66	-46.46
7	.285	.9	Qp	0	0	10.1	11	60.67	-49.67	-	-
8	.27825	-4.97	Ca	0	0	10.1	5.13	-	-	50.87	-45.74
9	.861	-7.78	Qp	0	0	10.1	9.32	56	-46.68	-	-
10	.861	-2.91	Ca	0	0	10.1	7.19	-	-	46	-38.81
11	6.6525	11.88	Qp	0	.2	10.2	22.28	60	-37.72	-	-
12	6.6525	-3.87	Ca	0	.2	10.2	6.53	-	-	50	-43.47
*13	13.56	21.41	Qp	.1	.2	10.2	31.91	60	-28.09	-	-
*14	13.56	10.61	Ca	.1	.2	10.2	21.11	-	-	50	-28.89

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.1545	7.4	Qp	.1	0	10.1	17.6	65.75	-48.15	-	-
16	.15225	-3.33	Ca	.1	0	10.1	6.87	-	-	55.88	-49.01
17	.20625	4.19	Qp	0	0	10.1	14.29	63.35	-49.06	-	-
18	.204	-5.08	Ca	0	0	10.1	5.02	-	-	53.45	-48.43
19	.23325	3.27	Qp	0	0	10.1	13.37	62.33	-48.96	-	-
20	.23325	-5.47	Ca	0	0	10.1	4.63	-	-	52.33	-47.7
21	.285	2.45	Qp	0	0	10.1	12.55	60.67	-48.12	-	-
22	.26025	-5.94	Ca	0	0	10.1	4.16	-	-	51.42	-47.26
23	.85875	-.74	Qp	0	0	10.1	9.36	56	-46.64	-	-
24	.861	-2.98	Ca	0	0	10.1	7.12	-	-	46	-38.88
25	6.67725	13.1	Qp	0	.2	10.2	23.5	60	-36.5	-	-
26	6.60075	-3.76	Ca	0	.2	10.2	6.64	-	-	50	-43.36
*27	13.56	23.79	Qp	.1	.2	10.2	34.29	60	-25.71	-	-
*28	13.56	16.97	Ca	.1	.2	10.2	27.47	-	-	50	-22.53

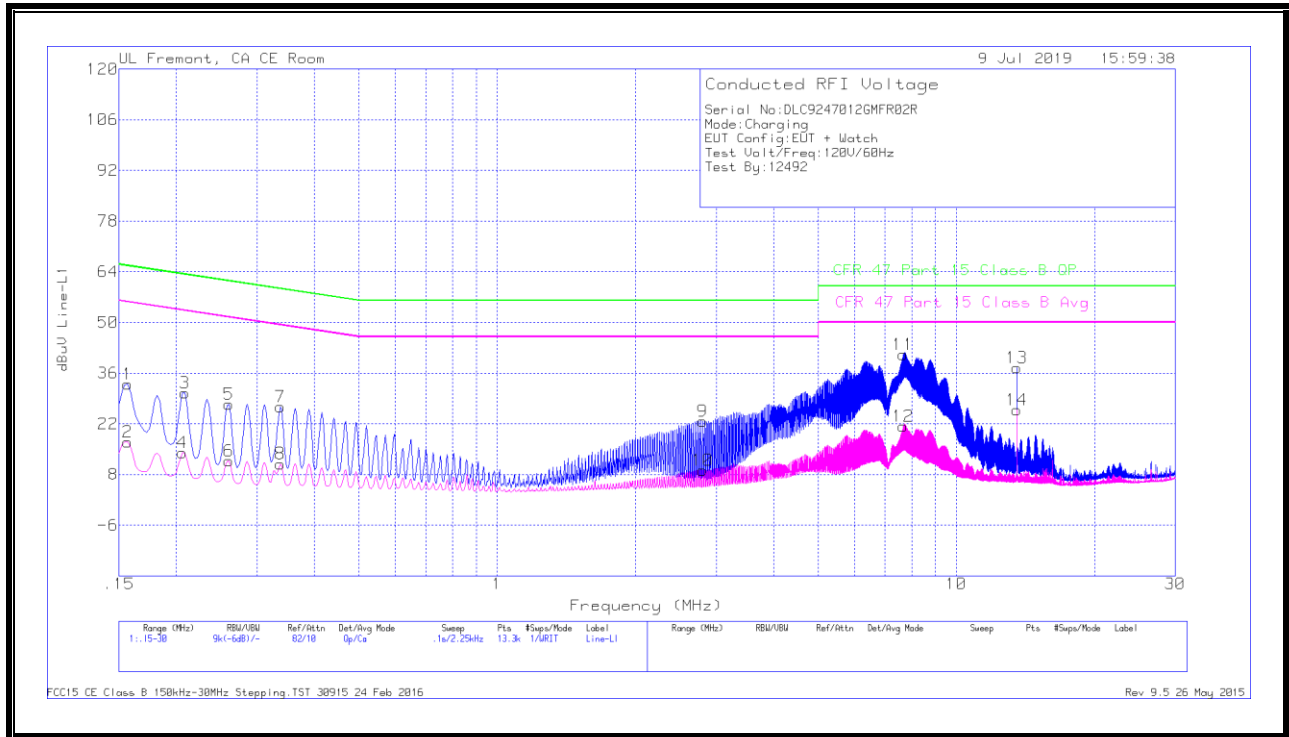
Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device

9.1.2. OPERATING MODE WITH WATCH POWERED BY AC/DC ADAPTER

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

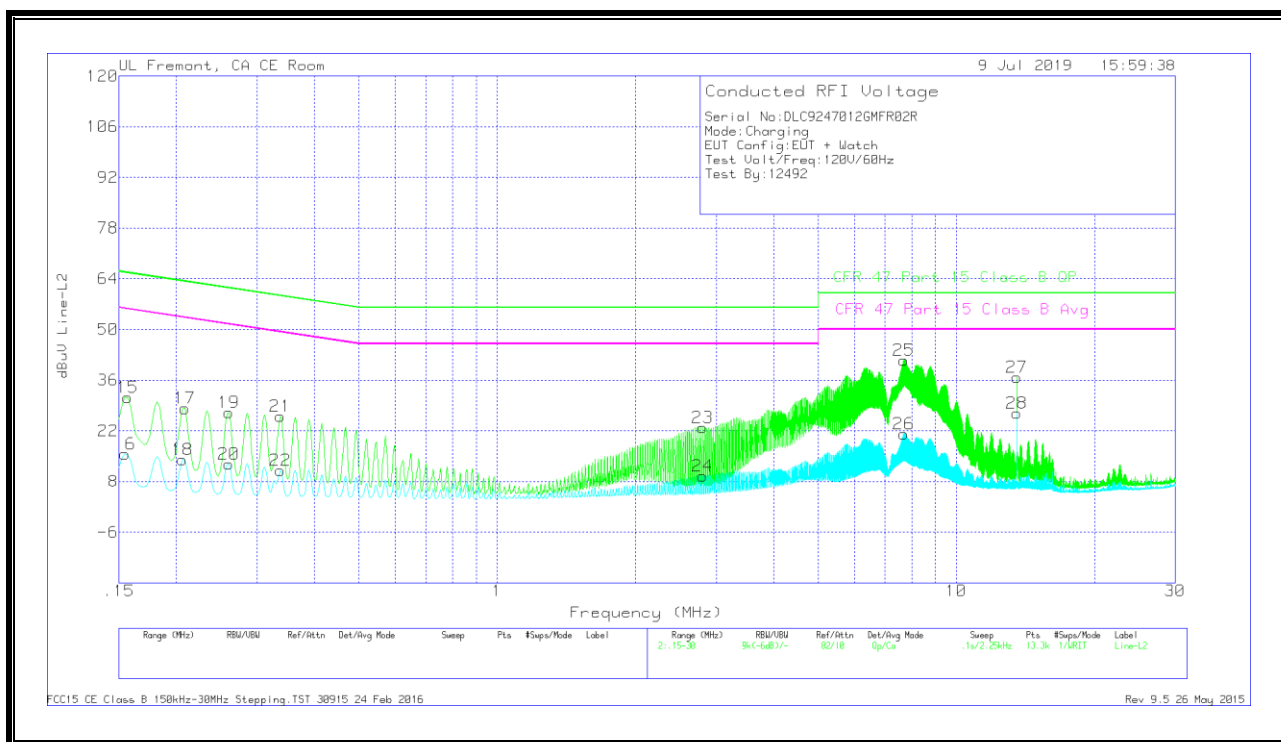
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.15675	22.76	Qp	.1	0	10.1	32.96	65.63	-32.67	-	-
2	.15675	6.75	Ca	.1	0	10.1	16.95	-	-	55.63	-38.68
3	.2085	20.44	Qp	0	0	10.1	30.54	63.26	-32.72	-	-
4	.20625	3.9	Ca	0	0	10.1	14	-	-	53.35	-39.35
5	.26025	17.26	Qp	0	0	10.1	27.36	61.42	-34.06	-	-
6	.26025	1.7	Ca	0	0	10.1	11.8	-	-	51.42	-39.62
7	.33675	16.6	Qp	0	0	10.1	26.7	59.28	-32.58	-	-
8	.33675	.87	Ca	0	0	10.1	10.97	-	-	49.28	-38.31
9	2.8005	12.44	Qp	0	.1	10.1	22.64	56	-33.36	-	-
10	2.80275	-1.03	Ca	0	.1	10.1	9.17	-	-	46	-36.83
11	7.6515	30.71	Qp	0	.2	10.2	41.11	60	-18.89	-	-
12	7.6515	10.9	Ca	0	.2	10.2	21.3	-	-	50	-28.7
*13	13.56	27.04	Qp	.1	.2	10.2	37.54	60	-22.46	-	-
*14	13.56	15.31	Ca	.1	.2	10.2	25.81	-	-	50	-24.19

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.15675	21.02	Qp	.1	0	10.1	31.22	65.63	-34.41	-	-
16	.1545	5.36	Ca	.1	0	10.1	15.56	-	-	55.75	-40.19
17	.2085	18.09	Qp	0	0	10.1	28.19	63.26	-35.07	-	-
18	.20625	3.96	Ca	0	0	10.1	14.06	-	-	53.35	-39.29
19	.26025	16.93	Qp	0	0	10.1	27.03	61.42	-34.39	-	-
20	.26025	2.76	Ca	0	0	10.1	12.86	-	-	51.42	-38.56
21	.33675	15.89	Qp	0	0	10.1	25.99	59.28	-33.29	-	-
22	.33675	1.01	Ca	0	0	10.1	11.11	-	-	49.28	-38.17
23	2.8005	12.64	Qp	0	.1	10.1	22.84	56	-33.16	-	-
24	2.80275	-72	Ca	0	.1	10.1	9.48	-	-	46	-36.52
25	7.6785	31.04	Qp	0	.2	10.2	41.44	60	-18.56	-	-
26	7.6785	10.75	Ca	0	.2	10.2	21.15	-	-	50	-28.85
*27	13.56	26.22	Qp	.1	.2	10.2	36.72	60	-23.28	-	-
*28	13.56	16.36	Ca	.1	.2	10.2	26.86	-	-	50	-23.14

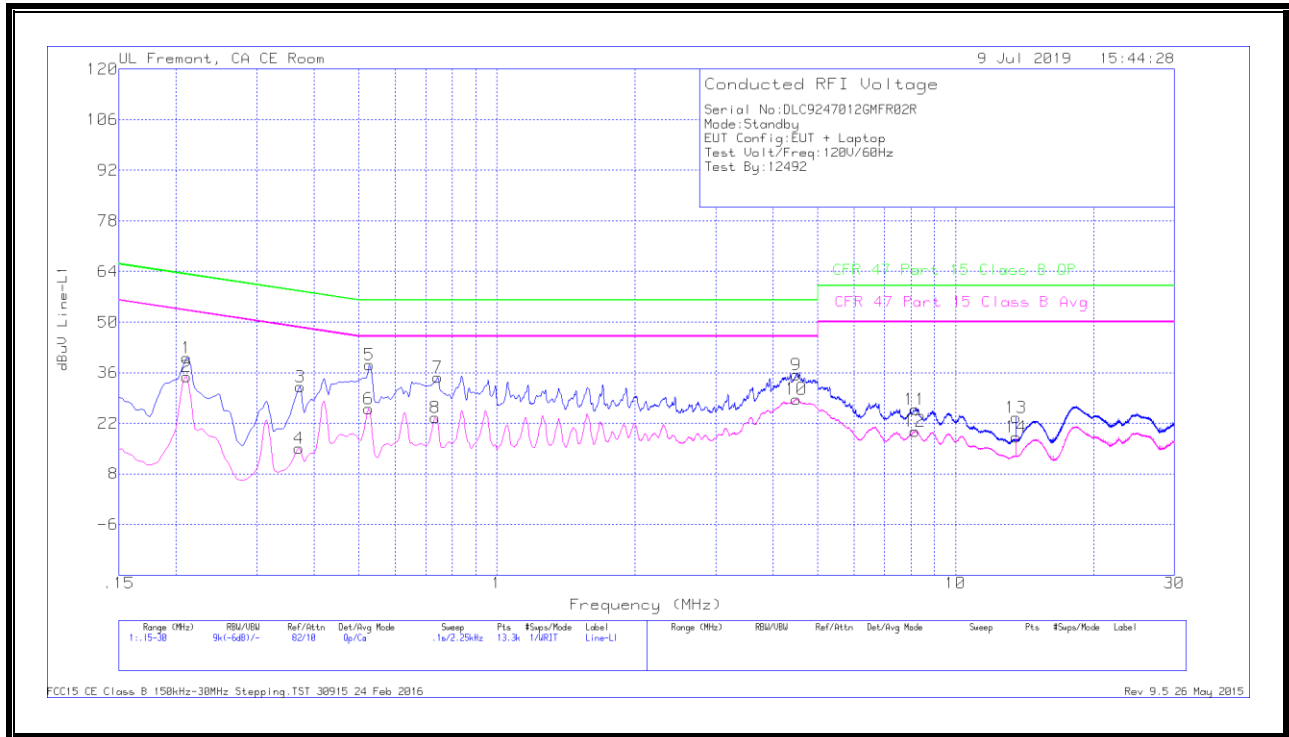
Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

9.1.3. STANDBY MODE POWERED BY HOST PC VIA USB CABLE

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

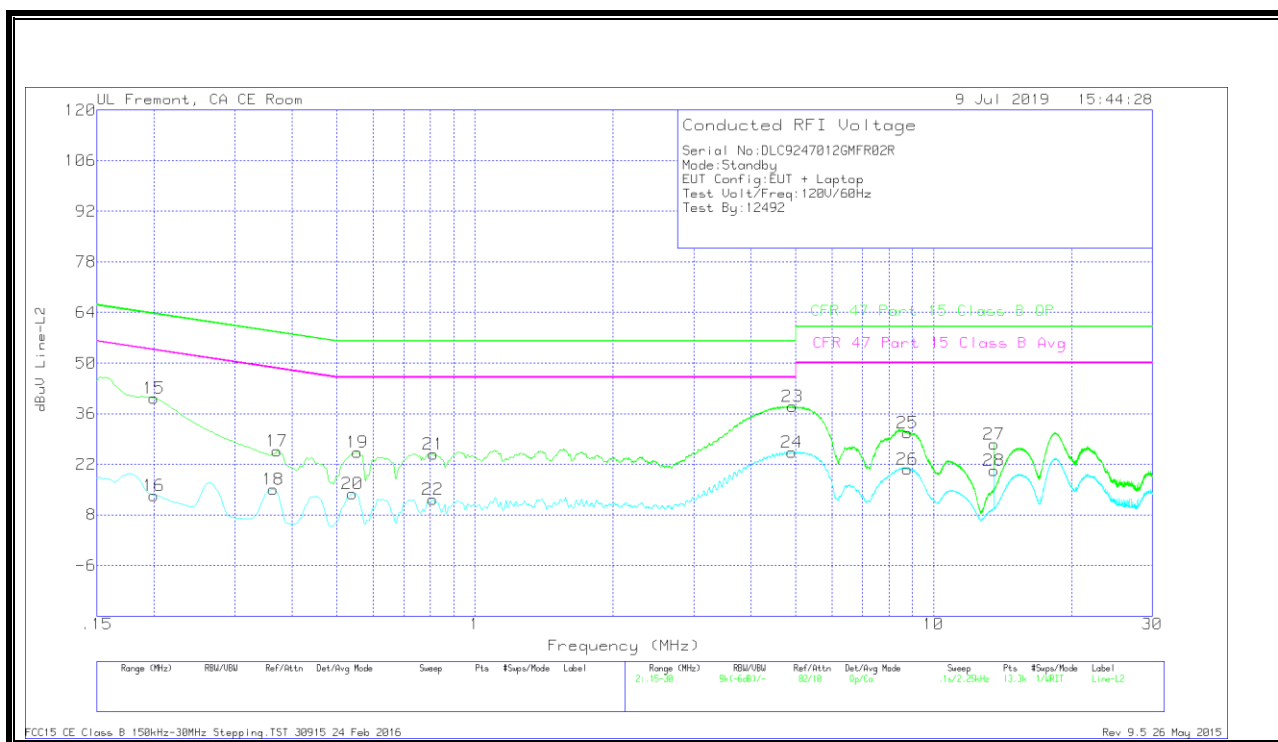
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.21075	29.95	Qp	0	0	10.1	40.05	63.18	-23.13	-	-
2	.21075	24.74	Ca	0	0	10.1	34.84	-	-	53.18	-18.34
3	.37275	22.07	Qp	0	0	10.1	32.17	58.44	-26.27	-	-
4	.3705	5.04	Ca	0	0	10.1	15.14	-	-	48.49	-33.35
5	.528	28.04	Qp	0	0	10.1	38.14	56	-17.86	-	-
6	.52575	15.97	Ca	0	0	10.1	26.07	-	-	46	-19.93
7	.744	24.57	Qp	0	0	10.1	34.67	56	-21.33	-	-
8	.735	13.49	Ca	0	0	10.1	23.59	-	-	46	-22.41
9	4.49475	25.19	Qp	0	.1	10.1	35.39	56	-20.61	-	-
10	4.49363	18.5	Ca	0	.1	10.1	28.7	-	-	46	-17.3
11	8.1555	15.48	Qp	0	.2	10.2	25.88	60	-34.12	-	-
12	8.16338	9.44	Ca	0	.2	10.2	19.84	-	-	50	-30.16
*13	13.56	13.04	Qp	.1	.2	10.2	23.54	60	-36.46	-	-
*14	13.56	7.64	Ca	.1	.2	10.2	18.14	-	-	50	-31.86

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.1995	30.13	Qp	0	0	10.1	40.23	63.63	-23.4	-	-
16	.1995	3.3	Ca	0	0	10.1	13.4	-	-	53.63	-40.23
17	.3705	15.61	Qp	0	0	10.1	25.71	58.49	-32.78	-	-
18	.36375	4.94	Ca	0	0	10.1	15.04	-	-	48.64	-33.6
19	.555	15.16	Qp	0	0	10.1	25.26	56	-30.74	-	-
20	.5415	3.75	Ca	0	0	10.1	13.85	-	-	46	-32.15
21	.8115	14.72	Qp	0	0	10.1	24.82	56	-31.18	-	-
22	.80925	2.2	Ca	0	0	10.1	12.3	-	-	46	-33.7
23	4.92675	27.77	Qp	0	.1	10.1	37.97	56	-18.03	-	-
24	4.91663	15.14	Ca	0	.1	10.1	25.34	-	-	46	-20.66
25	8.76975	20.3	Qp	0	.2	10.2	30.7	60	-29.3	-	-
26	8.77425	10.29	Ca	0	.2	10.2	20.69	-	-	50	-29.31
*27	13.56	17.15	Qp	.1	.2	10.2	27.65	60	-32.35	-	-
*28	13.56	9.77	Ca	.1	.2	10.2	20.27	-	-	50	-29.73

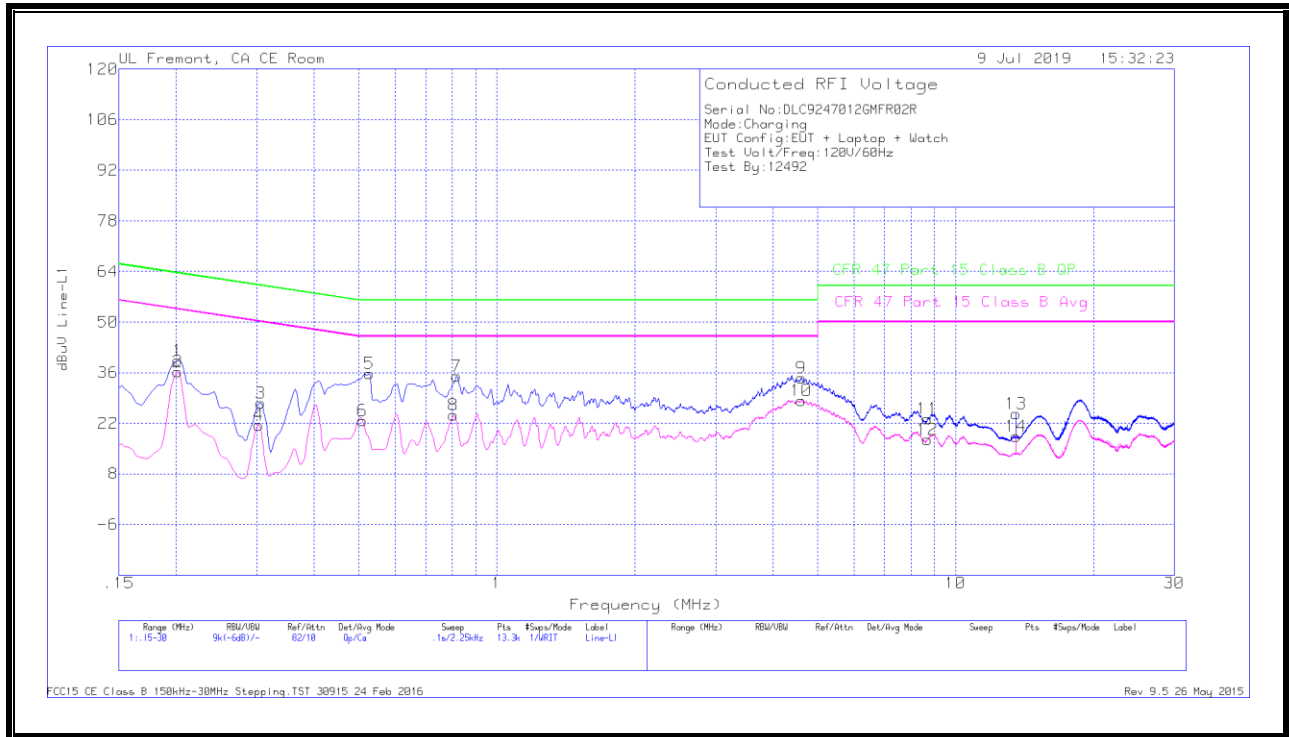
Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

9.1.4. OPERATING MODE POWERED BY HOST PC VIA USB CABLE

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

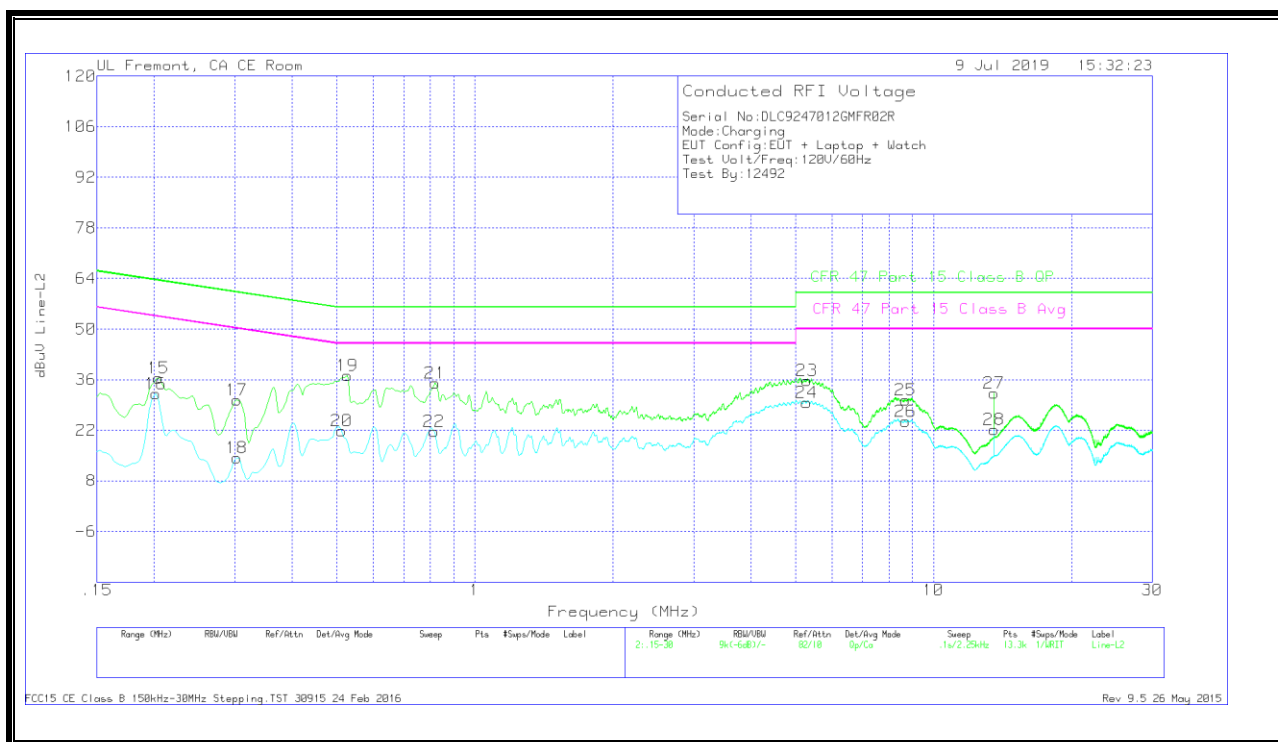
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.20175	29.35	Qp	0	0	10.1	39.45	63.54	-24.09	-	-
2	.20175	26.22	Ca	0	0	10.1	36.32	-	-	53.54	-17.22
3	.30525	17.48	Qp	0	0	10.1	27.58	60.1	-32.52	-	-
4	.303	11.45	Ca	0	0	10.1	21.55	-	-	50.16	-28.61
5	.528	25.71	Qp	0	0	10.1	35.81	56	-20.19	-	-
6	.51	12.59	Ca	0	0	10.1	22.69	-	-	46	-23.31
7	.81825	24.97	Qp	0	0	10.1	35.07	56	-20.93	-	-
8	.80475	14.15	Ca	0	0	10.1	24.25	-	-	46	-21.75
9	4.605	24.27	Qp	0	.1	10.1	34.47	56	-21.53	-	-
10	4.60725	18.09	Ca	0	.1	10.1	28.29	-	-	46	-17.71
11	8.69663	12.81	Qp	0	.2	10.2	23.21	60	-36.79	-	-
12	8.6955	7.14	Ca	0	.2	10.2	17.54	-	-	50	-32.46
*13	13.56	14.06	Qp	.1	.2	10.2	24.56	60	-35.44	-	-
*14	13.56	7.92	Ca	.1	.2	10.2	18.42	-	-	50	-31.58

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.204	26.32	Qp	0	0	10.1	36.42	63.45	-27.03	-	-
16	.20175	21.97	Ca	0	0	10.1	32.07	-	-	53.54	-21.47
17	.303	20.27	Qp	0	0	10.1	30.37	60.16	-29.79	-	-
18	.303	4.24	Ca	0	0	10.1	14.34	-	-	50.16	-35.82
19	.528	26.96	Qp	0	0	10.1	37.06	56	-18.94	-	-
20	.51225	11.79	Ca	0	0	10.1	21.89	-	-	46	-24.11
21	.8205	24.99	Qp	0	0	10.1	35.09	56	-20.91	-	-
22	.81375	11.5	Ca	0	0	10.1	21.6	-	-	46	-24.4
23	5.29125	25.58	Qp	0	.1	10.1	35.78	60	-24.22	-	-
24	5.289	19.52	Ca	0	.1	10.1	29.72	-	-	50	-20.28
25	8.7	20	Qp	0	.2	10.2	30.4	60	-29.6	-	-
26	8.68875	14.04	Ca	0	.2	10.2	24.44	-	-	50	-25.56
*27	13.56	21.79	Qp	.1	.2	10.2	32.29	60	-27.71	-	-
*28	13.56	11.69	Ca	.1	.2	10.2	22.19	-	-	50	-27.81

Qp - Quasi-Peak detector

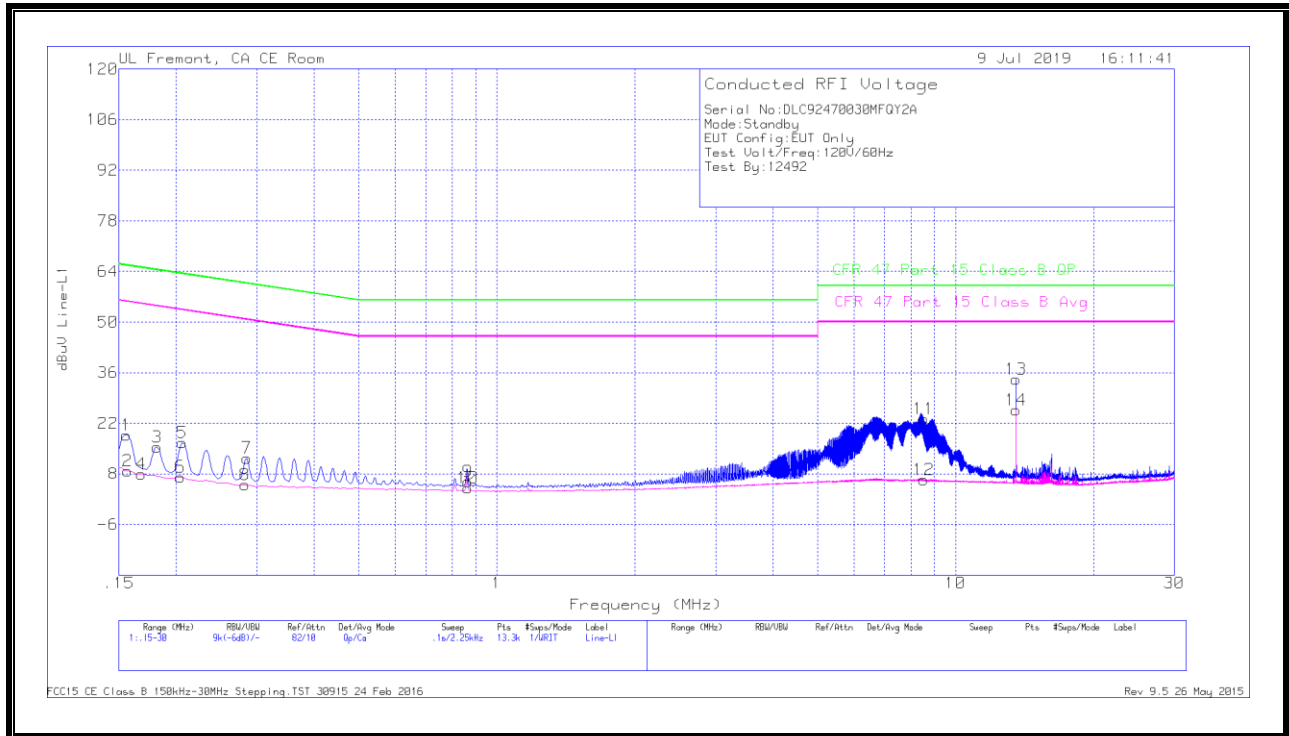
Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

9.2. STAINLESS STEEL WITH 1M CABLE

9.2.1. STANDBY MODE POWERED BY AC/DC ADAPTER

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

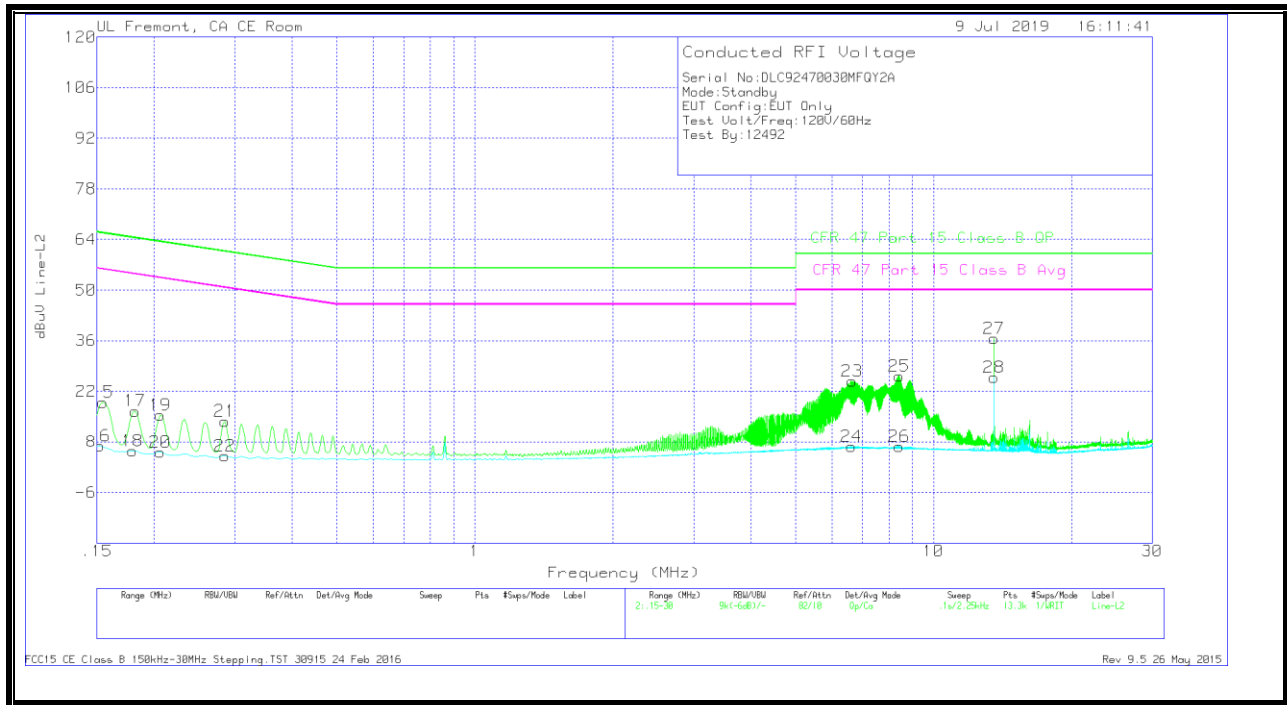
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.15563	8.58	Qp	.1	0	10.1	18.78	65.69	-46.91	-	-
2	.15675	-1.41	Ca	.1	0	10.1	8.79	-	-	55.63	-46.84
3	.1815	5.24	Qp	0	0	10.1	15.34	64.42	-49.08	-	-
4	.168	-2.26	Ca	.1	0	10.1	7.94	-	-	55.06	-47.12
5	.20625	6.57	Qp	0	0	10.1	16.67	63.35	-46.68	-	-
6	.204	-2.95	Ca	0	0	10.1	7.15	-	-	53.45	-46.3
7	.285	2.26	Qp	0	0	10.1	12.36	60.67	-48.31	-	-
8	.28275	-5.15	Ca	0	0	10.1	4.95	-	-	50.73	-45.78
9	.8655	-4.3	Qp	0	0	10.1	5.8	56	-50.2	-	-
10	.8655	-5.95	Ca	0	0	10.1	4.15	-	-	46	-41.85
11	8.53125	12.78	Qp	0	.2	10.2	23.18	60	-36.82	-	-
12	8.53125	-4.03	Ca	0	.2	10.2	6.37	-	-	50	-43.63
*13	13.56	23.62	Qp	.1	.2	10.2	34.12	60	-25.88	-	-
*14	13.56	15.19	Ca	.1	.2	10.2	25.69	-	-	50	-24.31

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.1545	8.77	Qp	.1	0	10.1	18.97	65.75	-46.78	-	-
16	.15225	-3.23	Ca	.1	0	10.1	6.97	-	-	55.88	-48.91
17	.1815	6.44	Qp	0	0	10.1	16.54	64.42	-47.88	-	-
18	.17925	-4.52	Ca	0	0	10.1	5.58	-	-	54.52	-48.94
19	.20625	5.28	Qp	0	0	10.1	15.38	63.35	-47.97	-	-
20	.20625	-4.9	Ca	0	0	10.1	5.2	-	-	53.35	-48.15
21	.285	3.65	Qp	0	0	10.1	13.75	60.67	-46.92	-	-
22	.285	-5.97	Ca	0	0	10.1	4.13	-	-	50.67	-46.54
23	6.6525	14.43	Qp	0	.2	10.2	24.83	60	-35.17	-	-
24	6.62775	-3.69	Ca	0	.2	10.2	6.71	-	-	50	-43.29
25	8.42775	15.79	Qp	0	.2	10.2	26.19	60	-33.81	-	-
26	8.42775	-3.69	Ca	0	.2	10.2	6.71	-	-	50	-43.29
*27	13.56	26.12	Qp	.1	.2	10.2	36.62	60	-23.38	-	-
*28	13.56	15.37	Ca	.1	.2	10.2	25.87	-	-	50	-24.13

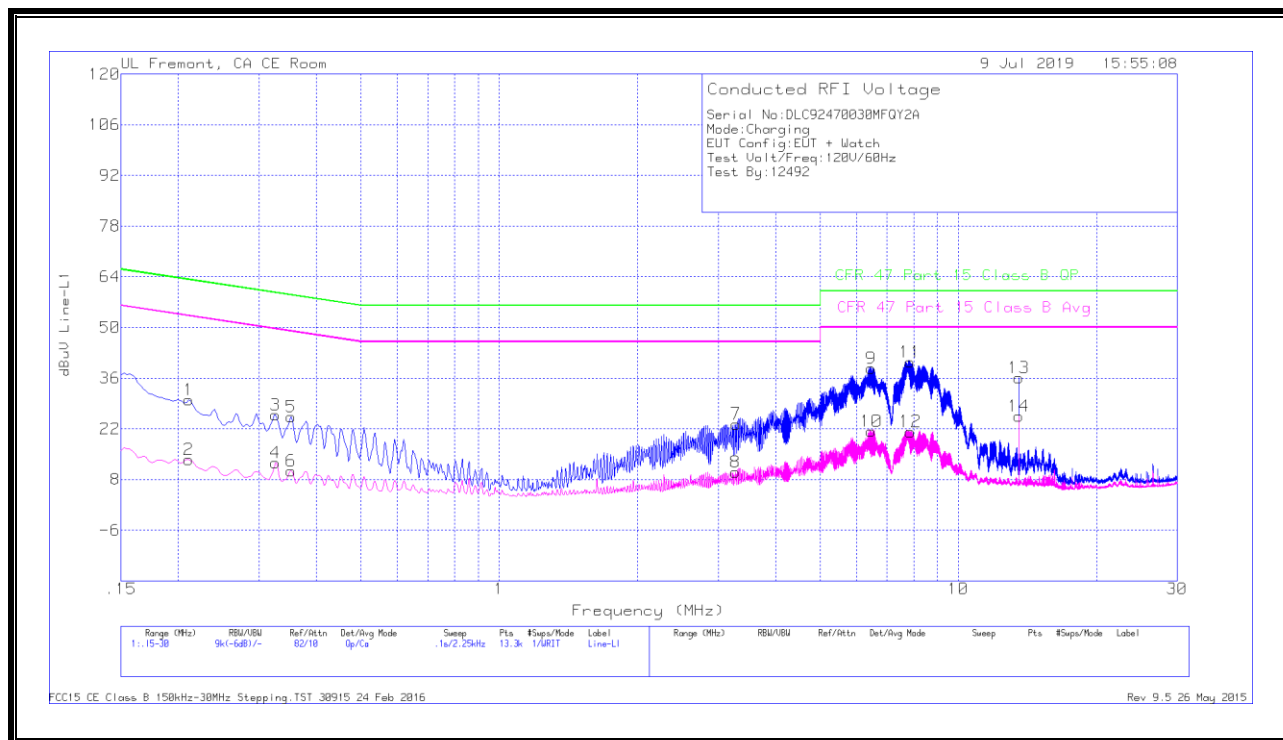
Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

9.2.2. OPERATING MODE WITH WATCH POWERED BY AC/DC ADAPTER

LINE 1 RESULTS



WORST EMISSIONS

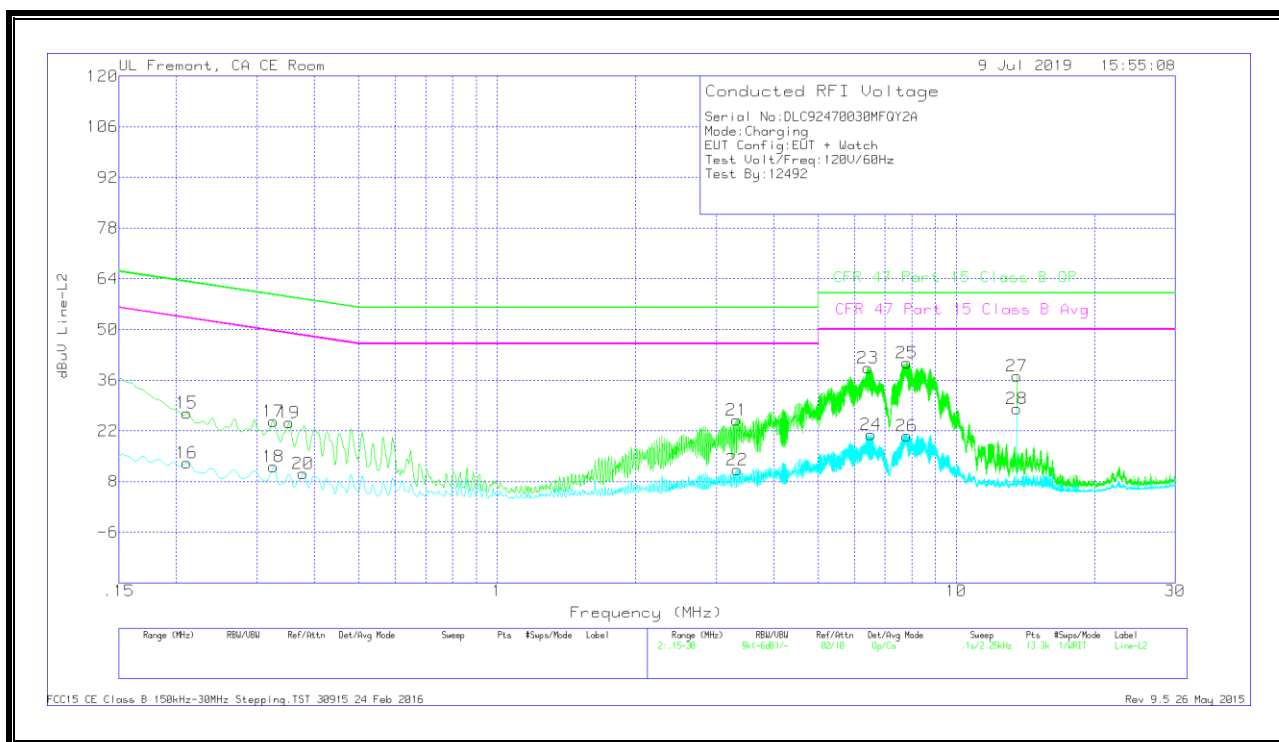
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.21075	19.98	Qp	0	0	10.1	30.08	63.18	-33.1	-	-
2	.21075	3.41	Ca	0	0	10.1	13.51	-	-	53.18	-39.67
3	.3255	15.76	Qp	0	0	10.1	25.86	59.57	-33.71	-	-
4	.3255	2.48	Ca	0	0	10.1	12.58	-	-	49.57	-36.99
5	.3525	15.17	Qp	0	0	10.1	25.27	58.9	-33.63	-	-
6	.3525	.23	Ca	0	0	10.1	10.33	-	-	48.9	-38.57
7	3.2775	13.11	Qp	0	.1	10.1	23.31	56	-32.69	-	-
8	3.273	-.11	Ca	0	.1	10.1	10.09	-	-	46	-35.91
9	6.47025	28.37	Qp	0	.2	10.2	38.77	60	-21.23	-	-
10	6.47025	10.89	Ca	0	.2	10.2	21.29	-	-	50	-28.71
11	7.86525	30.05	Qp	0	.2	10.2	40.45	60	-19.55	-	-
12	7.8675	10.83	Ca	0	.2	10.2	21.23	-	-	50	-28.77
*13	13.56	25.55	Qp	.1	.2	10.2	36.05	60	-23.95	-	-
*14	13.56	14.96	Ca	.1	.2	10.2	25.46	-	-	50	-24.54

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

LINE 2 RESULTS



WORST EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.21075	16.86	Qp	0	0	10.1	26.96	63.18	-36.22	-	-
16	.21075	3.01	Ca	0	0	10.1	13.11	-	-	53.18	-40.07
17	.3255	14.58	Qp	0	0	10.1	24.68	59.57	-34.89	-	-
18	.3255	2.02	Ca	0	0	10.1	12.12	-	-	49.57	-37.45
19	.3525	14.22	Qp	0	0	10.1	24.32	58.9	-34.58	-	-
20	.37725	.12	Ca	0	0	10.1	10.22	-	-	48.34	-38.12
21	3.327	14.84	Qp	0	.1	10.1	25.04	56	-30.96	-	-
22	3.32925	.98	Ca	0	.1	10.1	11.18	-	-	46	-34.82
23	6.41175	29.02	Qp	0	.2	10.2	39.42	60	-20.58	-	-
24	6.5265	10.63	Ca	0	.2	10.2	21.03	-	-	50	-28.97
25	7.80675	30.43	Qp	0	.2	10.2	40.83	60	-19.17	-	-
26	7.809	10.21	Ca	0	.2	10.2	20.61	-	-	50	-29.39
*27	13.56	26.68	Qp	.1	.2	10.2	37.18	60	-22.82	-	-
*28	13.56	17.58	Ca	.1	.2	10.2	28.08	-	-	50	-21.92

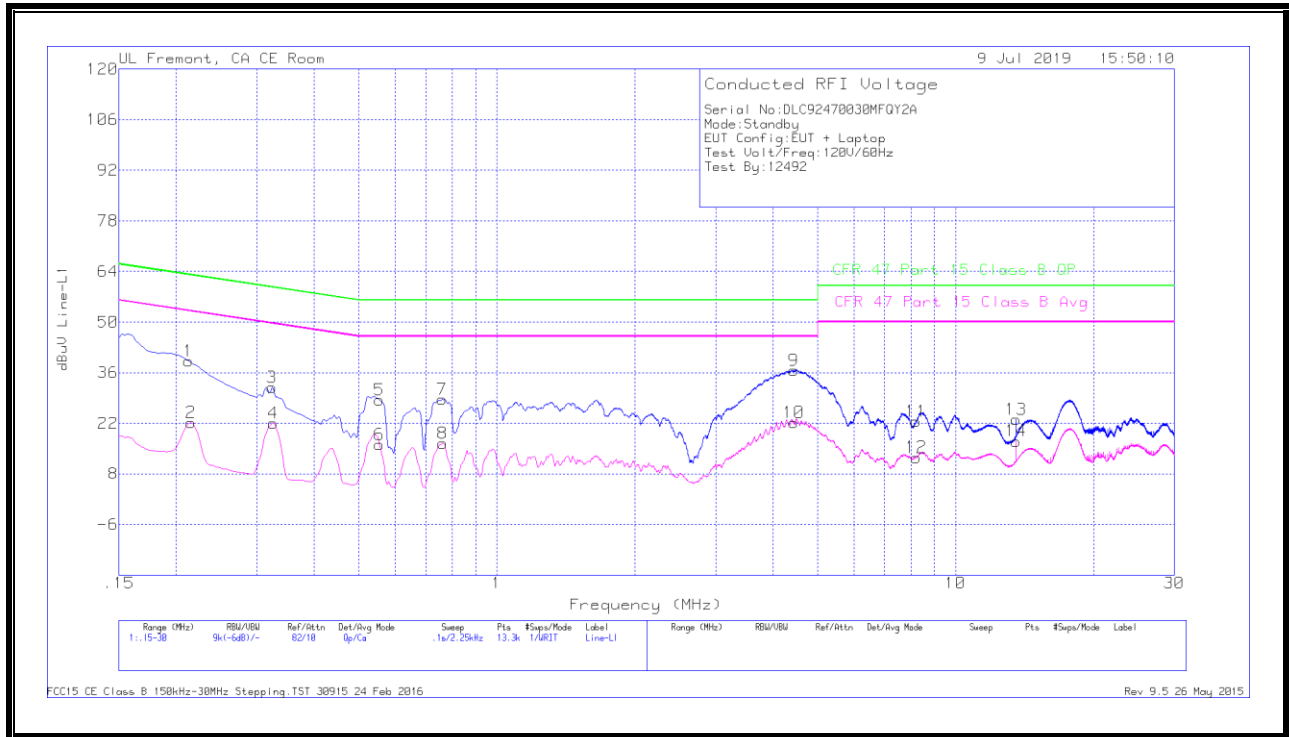
Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

9.2.3. STANDBY MODE POWERED BY HOST PC VIA USB CABLE

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

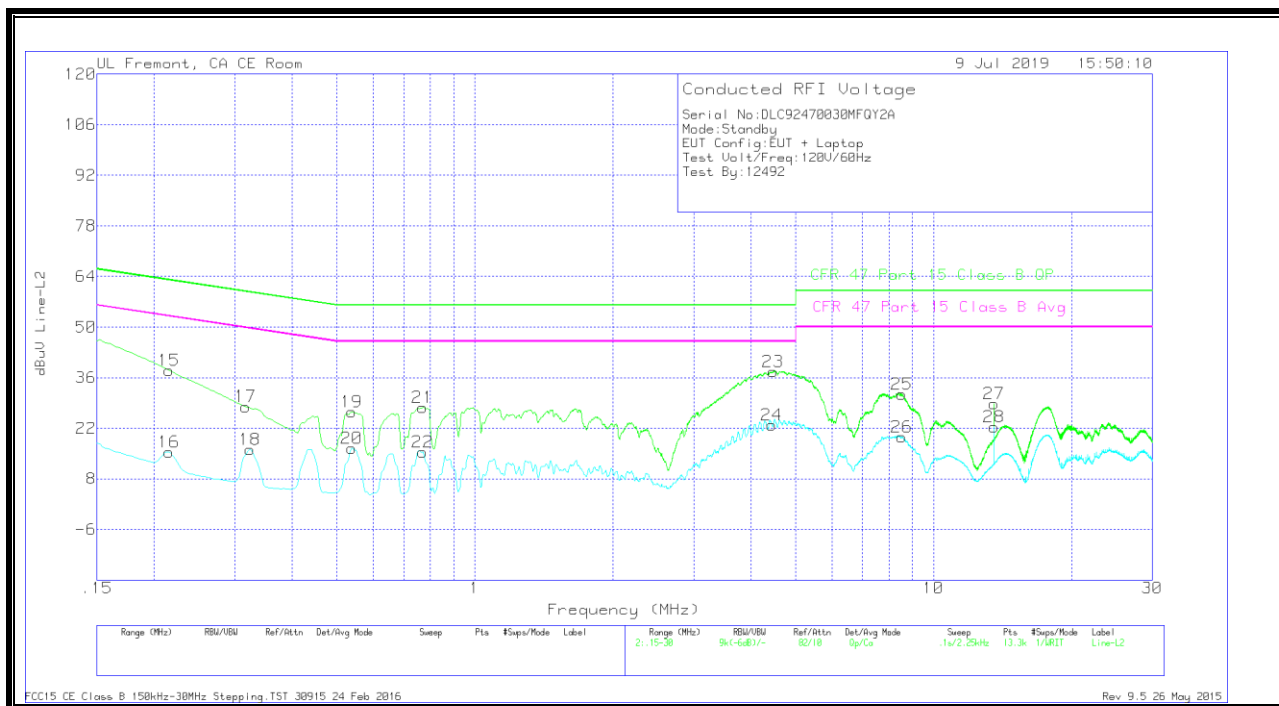
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.213	29.12	Qp	0	0	10.1	39.22	63.09	-23.87	-	-
2	.21525	12.1	Ca	0	0	10.1	22.2	-	-	53	-30.8
3	.32325	21.75	Qp	0	0	10.1	31.85	59.62	-27.77	-	-
4	.3255	11.99	Ca	0	0	10.1	22.09	-	-	49.57	-27.48
5	.555	18.33	Qp	0	0	10.1	28.43	56	-27.57	-	-
6	.555	5.93	Ca	0	0	10.1	16.03	-	-	46	-29.97
7	.75975	18.52	Qp	0	0	10.1	28.62	56	-27.38	-	-
8	.762	6.32	Ca	0	0	10.1	16.42	-	-	46	-29.58
9	4.44525	26.39	Qp	0	.1	10.1	36.59	56	-19.41	-	-
10	4.44525	12.02	Ca	0	.1	10.1	22.22	-	-	46	-23.78
11	8.20725	12.2	Qp	0	.2	10.2	22.6	60	-37.4	-	-
12	8.19825	2.14	Ca	0	.2	10.2	12.54	-	-	50	-37.46
*13	13.56	12.59	Qp	.1	.2	10.2	23.09	60	-36.91	-	-
*14	13.56	6.56	Ca	.1	.2	10.2	17.06	-	-	50	-32.94

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.21525	27.98	Qp	0	0	10.1	38.08	63	-24.92	-	-
16	.21525	5.34	Ca	0	0	10.1	15.44	-	-	53	-37.56
17	.3165	17.91	Qp	0	0	10.1	28.01	59.8	-31.79	-	-
18	.32325	6.07	Ca	0	0	10.1	16.17	-	-	49.62	-33.45
19	.53925	16.44	Qp	0	0	10.1	26.54	56	-29.46	-	-
20	.53925	6.34	Ca	0	0	10.1	16.44	-	-	46	-29.56
21	.76875	17.65	Qp	0	0	10.1	27.75	56	-28.25	-	-
22	.76875	5.36	Ca	0	0	10.1	15.46	-	-	46	-30.54
23	4.4655	27.4	Qp	0	.1	10.1	37.6	56	-18.4	-	-
24	4.443	12.65	Ca	0	.1	10.1	22.85	-	-	46	-23.15
25	8.51438	21	Qp	0	.2	10.2	31.4	60	-28.6	-	-
26	8.529	9.15	Ca	0	.2	10.2	19.55	-	-	50	-30.45
*27	13.56	18.33	Qp	.1	.2	10.2	28.83	60	-31.17	-	-
*28	13.56	11.94	Ca	.1	.2	10.2	22.44	-	-	50	-27.56

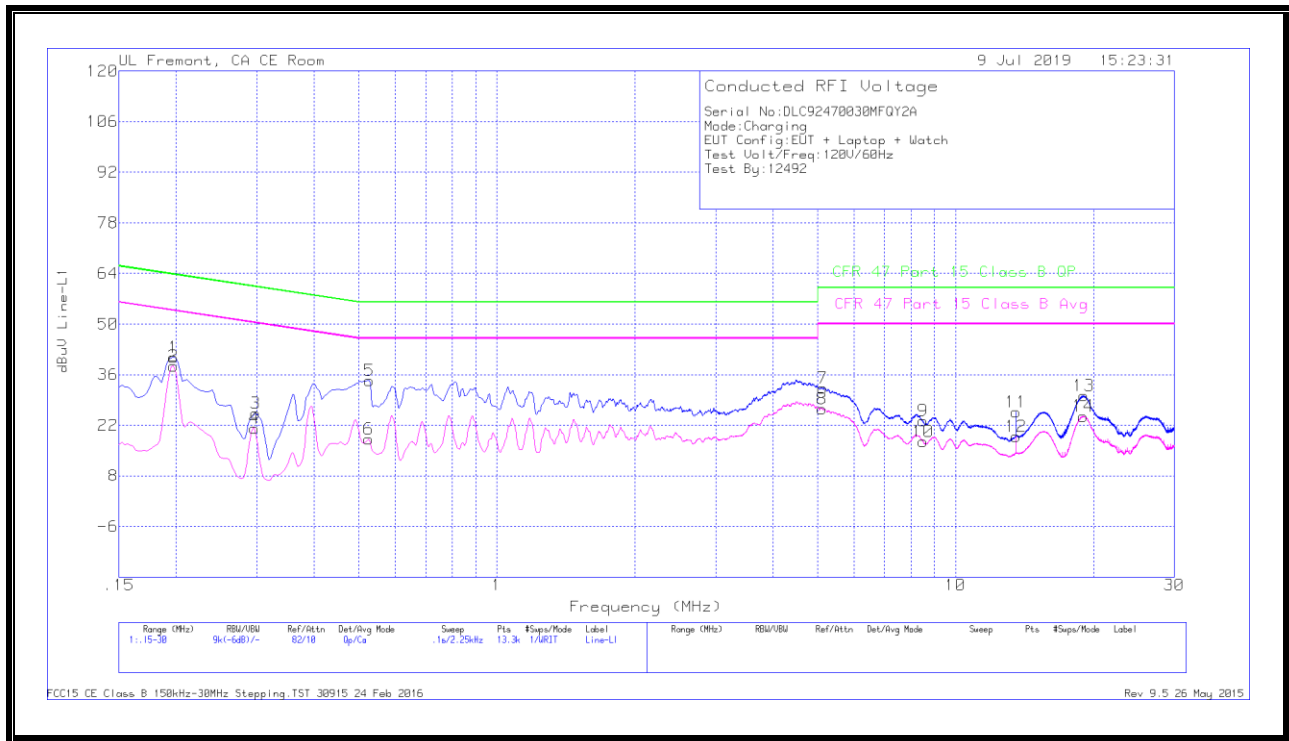
Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID Signal. Not from device

9.2.4. OPERATING MODE WITH WATCH POWERED BY HOST PC VIA USB CABLE

LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

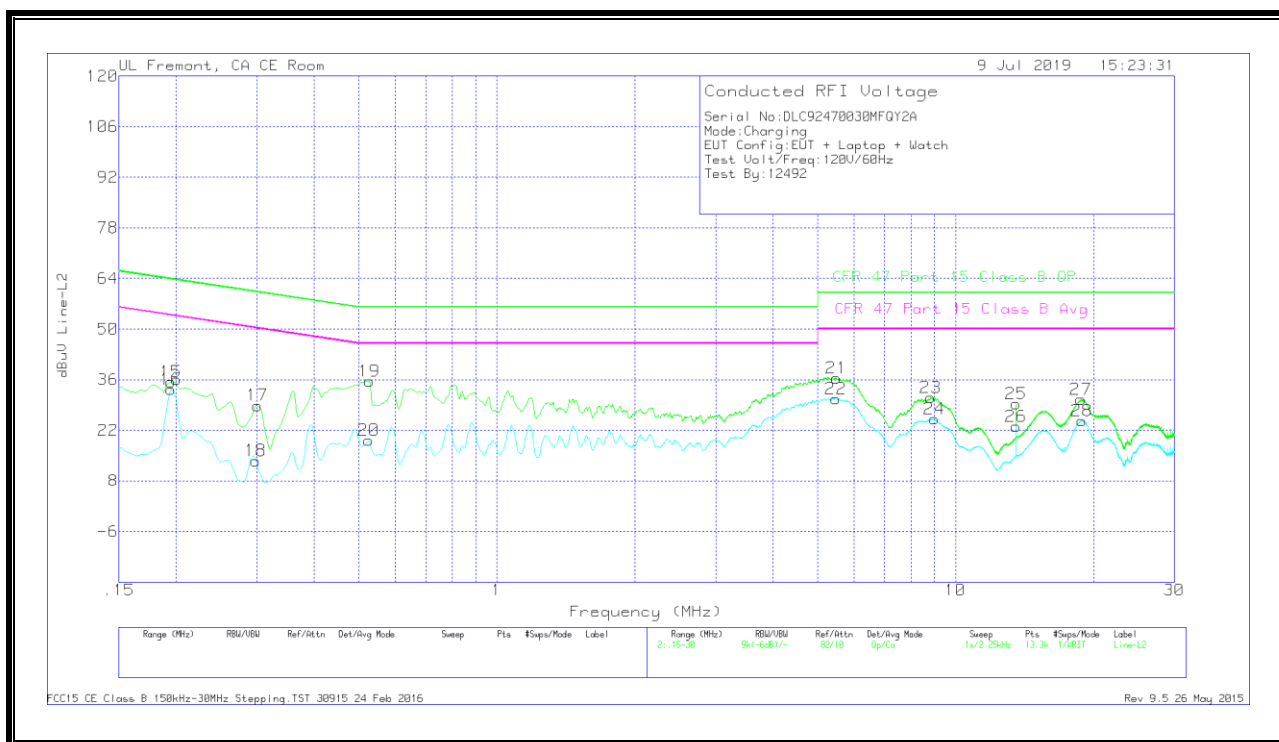
Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBUV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.19725	30.66	Qp	0	0	10.1	40.76	63.73	-22.97	-	-
2	.19725	28.3	Ca	0	0	10.1	38.4	-	-	53.73	-15.33
3	.2985	15.22	Qp	0	0	10.1	25.32	60.28	-34.96	-	-
4	.29625	10.98	Ca	0	0	10.1	21.08	-	-	50.35	-29.27
5	.528	24.33	Qp	0	0	10.1	34.43	56	-21.57	-	-
6	.52575	8.03	Ca	0	0	10.1	18.13	-	-	46	-27.87
7	5.1315	22.03	Qp	0	.1	10.1	32.23	60	-27.77	-	-
8	5.1225	16.36	Ca	0	.1	10.1	26.56	-	-	50	-23.44
9	8.4885	12.88	Qp	0	.2	10.2	23.28	60	-36.72	-	-
10	8.4885	7.17	Ca	0	.2	10.2	17.57	-	-	50	-32.43
*11	13.56	15.11	Qp	.1	.2	10.2	25.61	60	-34.39	-	-
*12	13.56	8.34	Ca	.1	.2	10.2	18.84	-	-	50	-31.16
13	19.041	19.46	Qp	.1	.3	10.3	30.16	60	-29.84	-	-
14	18.9712	13.83	Ca	.1	.3	10.3	24.53	-	-	50	-25.47

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.195	25.3	Qp	0	0	10.1	35.4	63.82	-28.42	-	-
16	.195	23.27	Ca	0	0	10.1	33.37	-	-	53.82	-20.45
17	.30075	18.78	Qp	0	0	10.1	28.88	60.22	-31.34	-	-
18	.2985	3.48	Ca	0	0	10.1	13.58	-	-	50.28	-36.7
19	.528	25.41	Qp	0	0	10.1	35.51	56	-20.49	-	-
20	.52575	9.08	Ca	0	0	10.1	19.18	-	-	46	-26.82
21	5.49825	26.3	Qp	0	.1	10.1	36.5	60	-23.5	-	-
22	5.4825	20.58	Ca	0	.1	10.1	30.78	-	-	50	-19.22
23	8.83275	20.69	Qp	0	.2	10.2	31.09	60	-28.91	-	-
24	9.00038	14.72	Ca	0	.2	10.2	25.12	-	-	50	-24.88
*25	13.56	18.86	Qp	.1	.2	10.2	29.36	60	-30.64	-	-
*26	13.56	12.51	Ca	.1	.2	10.2	23.01	-	-	50	-26.99
27	18.77775	19.86	Qp	.1	.3	10.3	30.56	60	-29.44	-	-
28	18.87675	13.95	Ca	.1	.3	10.3	24.65	-	-	50	-25.35

Qp - Quasi-Peak detector

Ca - CISPR average detection

*Indicates UL RFID signal. Not from device.

10. SETUP PHOTOS

Please refer to 12938058-EP1V1 for setup photos

END OF TEST REPORT