



FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

Wireless Charger

MODEL NUMBER: RWC826USB

REPORT NUMBER: R11447116-E3

FCC ID: YV8-RWC826USB

ISSUE DATE: 2017-05-12

Prepared for
Pass & Seymour
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NVLAP LAB CODE 200246-0

Revision History

Ver.	Issue Date	Revisions	Revised By
1	2017-05-12	Initial Issue	Richard Jankovics

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Pass & Seymour
50 Boyd Avenue
Syracuse, NY 13209 USA

EUT DESCRIPTION: Wireless Charger

MODEL: RWC826USB

SERIAL NUMBER: Sample # 11

DATE TESTED: 12/12/2016, 12/18/2016, 02/20-02/22/2017, 02/27-03/03/2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

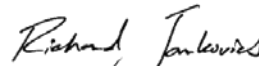
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC 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, or any agency of the US Government.

Approved & Released
For UL LLC By:

Prepared By:



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WiSE Engineer
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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, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., Research Triangle Park, NC 27709, USA and 2800 Suite B, Perimeter Park Drive, Morrisville, NC 27560.

12 Laboratory Dr., RTP, NC 27709	
☐	Chamber A
☐	Chamber C

2800 Suite B Perimeter Park Dr., Morrisville, NC 27560	
☐	Chamber NORTH
☒	Chamber SOUTH

The onsite chambers are covered under Industry Canada company address code 2180C with site numbers 2180C -1 through 2180C-4, respectively.

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at <http://www.nist.gov/nvlap/>.

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

Sample Calculations

Radiated Field Strength and Conducted Emissions data contained within this report is calculated on the following basis:

Field Strength (dBuV/m) = Meter Reading (dBuV) + AF (dB/m) - Gain (dB) + Cable Loss (dB)

Conducted Voltage (dBuV) = Meter Reading (dBuV) + Cable Loss (dB) + LISN IL (dB)

Conducted Current (dBuA) = Meter Reading (dBuV) + Cable Loss (dB) - Transducer Factor (dBohms)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
RF output power, conducted	±0.45 dB
Power Spectral Density, conducted	±1.50 dB
Unwanted Emissions, conducted	±2.94 dB
All emissions, Radiated	±5.36 dB
Conducted Emissions (0.150 – 30MHz)	±3.65 dB
Temperature	±0.07 °C
Humidity	±2.26 %
DC and Low Frequency Voltages	±1.27 %

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Wireless Qi Charger with dual identical charging coils (used for alignment, only one coil active at a time), one USB 5V output (maximum 0.5 A), and a dual 120V outlet. Device is installed in a standard wall-mount orientation for testing.

5.2. MAXIMUM OUTPUT E-FIELD

The transmitter has a maximum peak radiated output as follows:

Frequency Range (MHz)	Mode	Output Field Strength dBuV/m	Measurement Distance (meters)
0.110-0.205	Standby	87.87	3.00

The maximum output field strength is recorded at 3m distance.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The wireless Qi charger uses two identical loop antennas. The antennas are positioned offset to accommodate the different locations of the loop antennas within the target charging device. Only one antenna is active at a time, determined by whichever antenna best couples with the target device's loop antenna.

5.4. FIRMWARE

Firmware installed on sample: Rev 0.9.

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT was oriented in a standard wall-mount orientation and was placed on an 80cm-high non-conductive table along with its associated peripherals

The following modes were investigated with the Qi charger under the following conditions:

- Qi client at 0%-charge state.
- Qi client at 50% charge state.
- Qi client at 100% charge state.
- Standby (No Qi client on charging pad.)

From the stand-point of the fundamental, the worst-case mode was Standby.

5.6. MODIFICATIONS

Original testing performed on sample with older firmware, older PCB layout, and no toroid on mains feed to the 5V supply. All testing was performed on the latest version of the RWC826USB running firmware Rev 0.9 and with the toroid on the mains feed to the 5V supply.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Qi Client	Samsung	SM-G930U (Galaxy S7)	R58HA07593X	A3LSMG930US
USB Device	Sony	NA	NA	NA

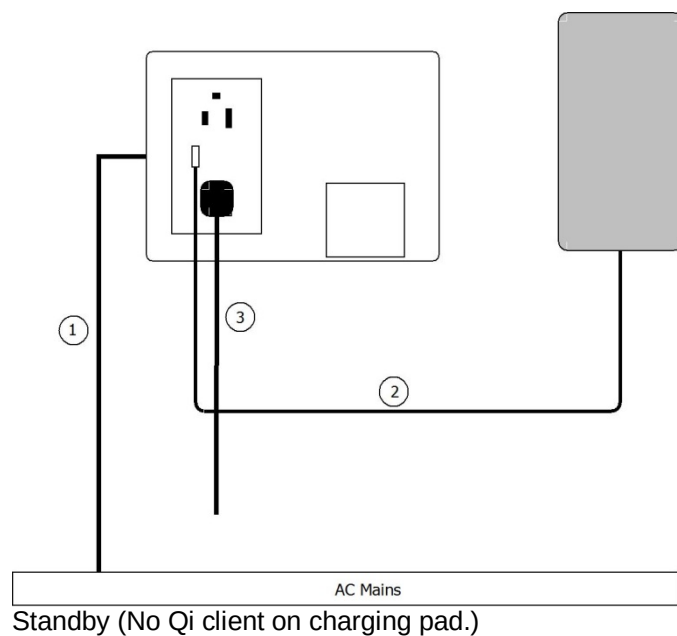
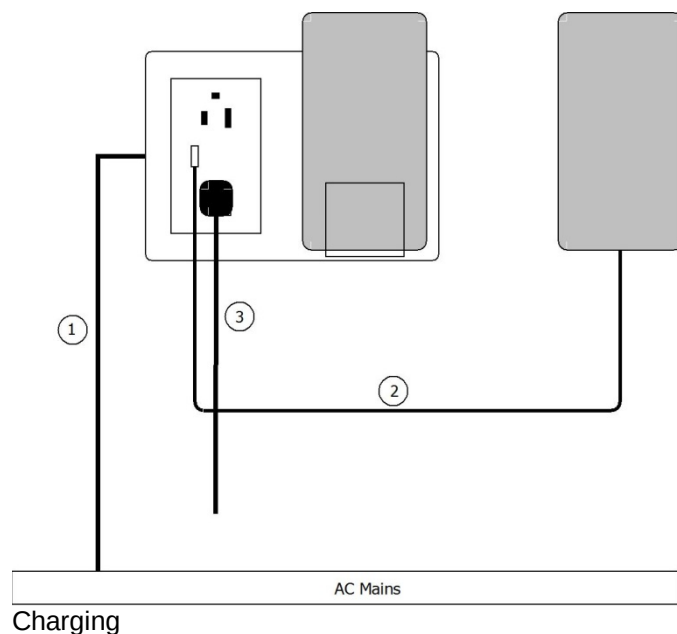
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC In	1	Screw terminal	Unshielded	1	3C/18AWG
2	USB Charging Port	1	USB Type A	Shielded	1	
3	AC Out	2	NEMA 5-15R	Unshielded	1	3C/18AWG

TEST SETUP

The EUT was oriented in a standard wall-mount orientation and was placed on an 80cm-high non-conductive table. A phone was installed on the Qi charging pad, and a phone was connected to the USB charging port. A 1m, unterminated power cord was connected to one of the AC wall outlets.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - South Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2016-12-28	2017-12-31
AT0074	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2016-06-07	2017-06-30
S-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2016-10-04	2017-10-04
S-SAC02	Gain-loss string: 30-1000MHz	Various	Various	2016-06-26	2017-06-30
SA0025	Spectrum Analyzer	Agilent	N9030A	2016-03-17	2017-03-31
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL077	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3476-240	2016-06-15	2017-06-30
HI0081	Environmental Meter	Springfield	91905	2016-04-26	2017-04-26
LISN003	LISN, 50-ohm/50-uH, 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50-25-2-01-550V	2016-08-24	2017-08-24
PRE0101521 (75141)	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2016-08-23	2017-08-23
TL001	Transient Limiter, 0.009-30MHz	Com-Power	LIT-930A	2016-06-09	2017-06-30
PS215	AC Power Source	Elgar	CW2501M (s/n 1523A02397)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
MM0167	Multi-meter	Agilent	U1232A	2016-10-07	2017-10-31

7. 20 dB Bandwidth

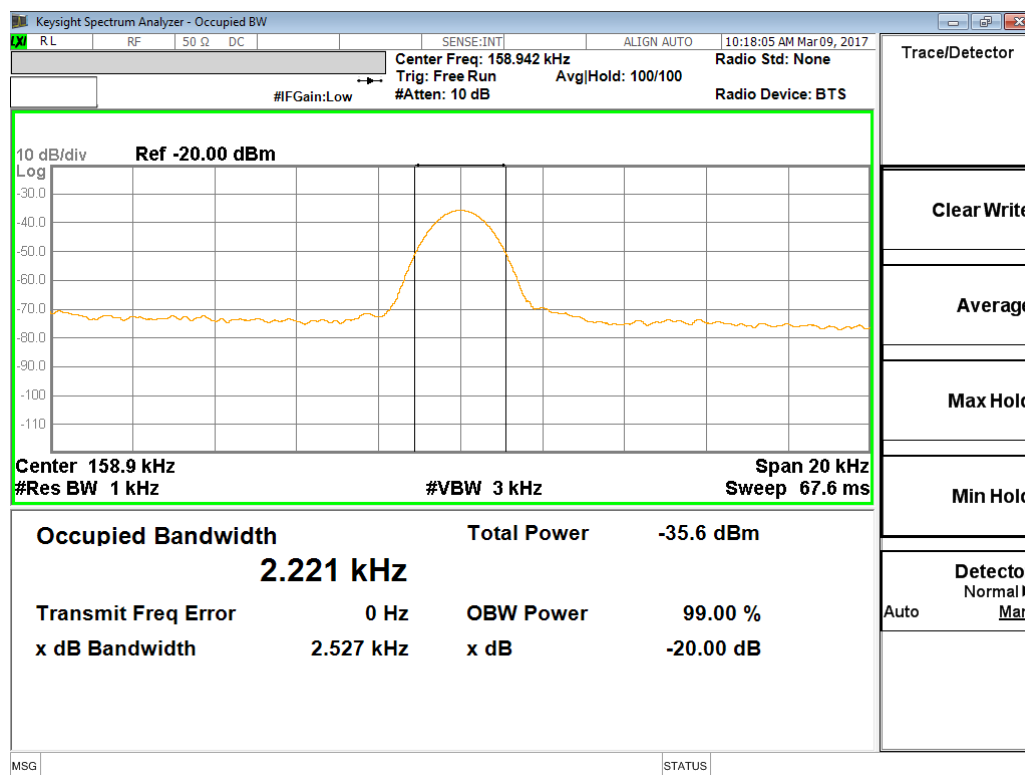
LIMITS

None; for reporting purposes only.

Frequency (kHz)	99% Bandwidth (kHz)
158.9	2.527

Test Performed: Mark Nolting
Test Date: 2017-03-09

20dB BANDWIDTH



8. RADIATED EMISSION TEST RESULTS

LIMITS

FCC §15.209 (a)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)	Limit dBuV/m
0.009–0.490	2400/F(kHz)	300	128.5 – 93.8 @3m
0.490–1.705	24000/F(kHz)	30	73.8 – 63.0 @ 3m
1.705–30.0	30	30	69.5 – 69.5 @ 3m
30–88	100	3	40.0 @ 3m
88 to 216	150	3	43.5 @ 3m
216 to 960	200	3	46.0 @ 3m
Above 960 MHz	500	3	54.0 @ 3m
Note: The lower limit shall apply at the transition frequency.			

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz measurements. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements for the 30-1000 MHz range, 9 kHz for peak detection measurements or 9 kHz for quasi-peak detection measurements for the 0.15-30 MHz range and 200 Hz for peak detection measurements or 200 Hz for quasi-peak detection measurements for the 9 to 150 kHz range. Peak detection is used unless otherwise noted as quasi-peak.

The spectrum from 9kHz to 1 GHz is investigated with the device operating as described in the “TEST CONFIGURATION AND MODE” section of this report.

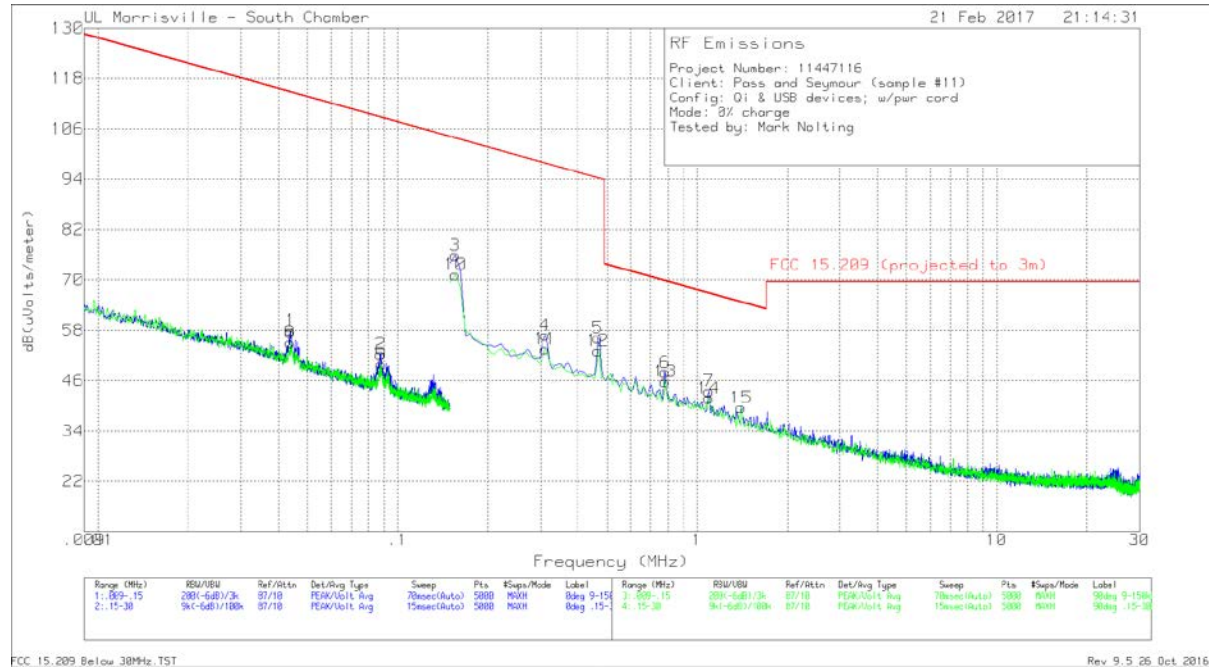
RESULTS

RADIATED EMISSIONS 0.009-30MHz

Note: All measurements were made at a test distance of 3 m. The limits in the plots and tabular data are the FCC/IC limits extrapolated from the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to the measurement distance to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were $40 \cdot \log(\text{specification distance} / \text{test distance})$ per FCC 15.31 (f) (2).

Although these tests were performed at a test site other than an open area test site, adequate comparison measurements were confirmed against an 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 937606.

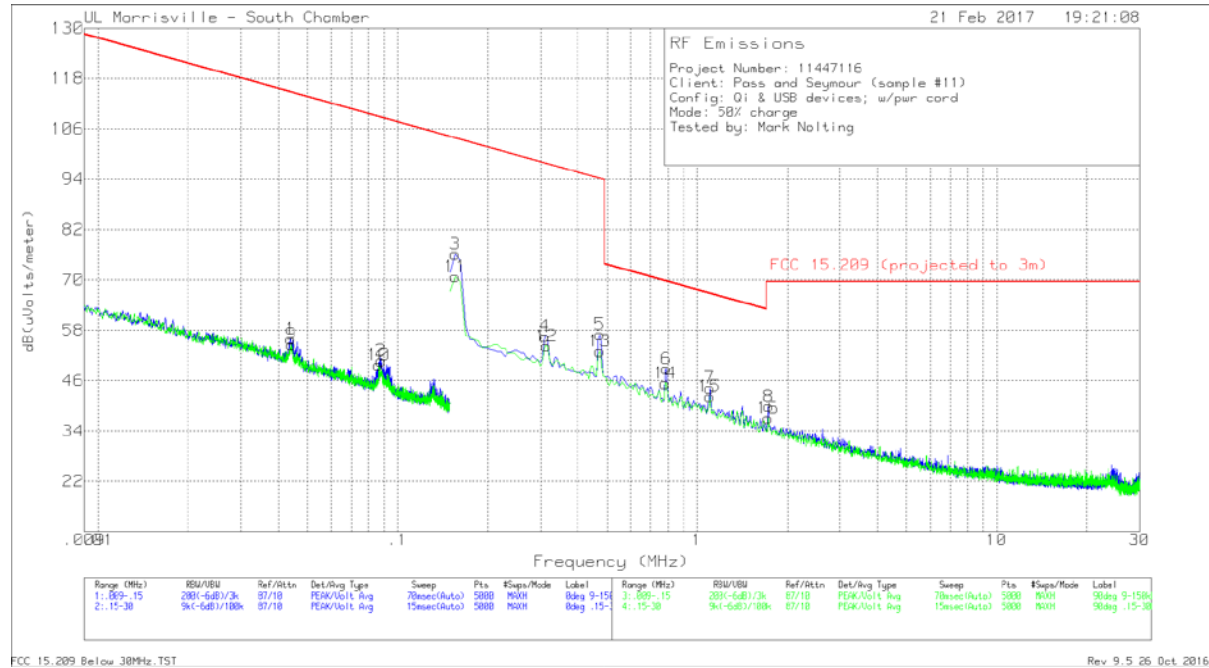
Qi Client @ 0% Charge



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 AF (dB/m)	Cbl (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 (projected to 3m)	Margin (dB)	Azimuth (Degs)
Loop antenna @ 0-degrees.									
1	.04383	45.81	Pk	12.1	.1	58.01	114.77	-56.76	0-360
2	.08785	41.04	Pk	11.2	.1	52.34	108.73	-56.39	0-360
3	.15541	65.47	Pk	10.7	.1	76.27	103.77	-27.5	186
4	.31122	46.1	Pk	10.6	.1	56.8	97.74	-40.94	0-360
5	.46646	45.4	Pk	10.7	.1	56.2	94.23	-38.03	0-360
6	.78293	37.16	Pk	10.7	.1	47.96	69.73	-21.77	0-360
7	1.09342	32.32	Pk	11	.2	43.52	66.83	-23.31	0-360
8	.04366	42.88	Pk	12.1	.1	55.08	114.8	-59.72	0-360
Loop antenna @90-degrees.									
9	.0883	38.63	Pk	11.2	.1	49.93	108.69	-58.76	0-360
10	.15649	60.88	Pk	10.7	.1	71.68	103.71	-32.03	103
11	.31122	42.89	Pk	10.6	.1	53.59	97.74	-44.15	0-360
12	.46646	42.31	Pk	10.7	.1	53.11	94.23	-41.12	0-360
13	.78293	35.03	Pk	10.7	.1	45.83	69.73	-23.9	0-360
14	1.09342	30.64	Pk	11	.2	41.84	66.83	-24.99	0-360
15	1.40391	28.38	Pk	11	.2	39.58	64.66	-25.08	0-360

Pk - Peak detector

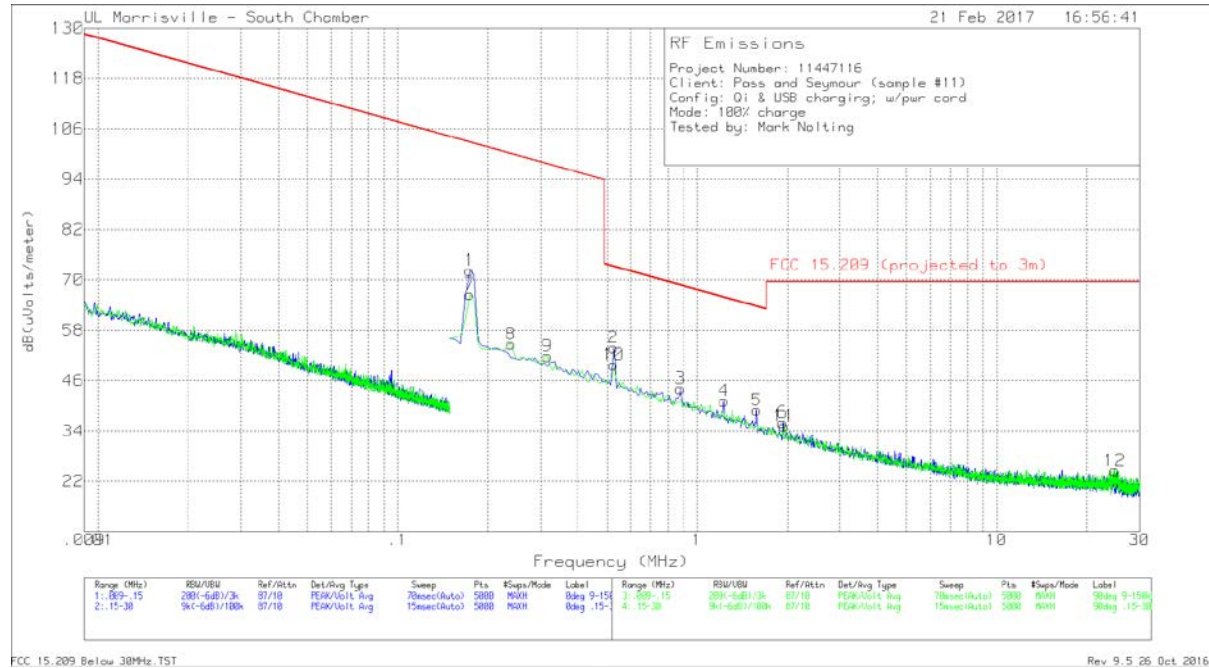
Qi Client @ 50% Charge



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 AF (dB/m)	Cbl (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 (projected to 3m)	Margin (dB)	Azimuth (Degs)
Loop antenna @ 0-degrees.									
1	.04397	43.86	Pk	12	.1	55.96	114.74	-58.78	0-360
2	.0881	39.47	Pk	11.2	.1	50.77	108.7	-57.93	0-360
3	.15726	65.51	Pk	10.7	.1	76.31	103.67	-27.36	172
4	.31122	45.88	Pk	10.6	.1	56.58	97.74	-41.16	0-360
5	.47243	46.21	Pk	10.7	.1	57.01	94.12	-37.11	0-360
6	.7889	38.06	Pk	10.7	.1	48.86	69.66	-20.8	0-360
7	1.09939	33.06	Pk	11	.2	44.26	66.78	-22.52	0-360
8	1.73232	28.7	Pk	11	.2	39.9	69.54	-29.64	0-360
Loop antenna @ 90-degrees.									
9	.0442	42.55	Pk	12	.1	54.65	114.7	-60.05	0-360
10	.08653	38.42	Pk	11.2	.1	49.72	108.86	-59.14	0-360
11	.15737	60.8	Pk	10.7	.1	71.6	103.67	-32.07	94
12	.3142	43.59	Pk	10.6	.1	54.29	97.66	-43.37	0-360
13	.47243	42.23	Pk	10.7	.1	53.03	94.12	-41.09	0-360
14	.78293	34.58	Pk	10.7	.1	45.38	69.73	-24.35	0-360
15	1.09939	31.07	Pk	11	.2	42.27	66.78	-24.51	0-360
16	1.72634	25.88	Pk	11	.2	37.08	69.54	-32.46	0-360

Pk - Peak detector

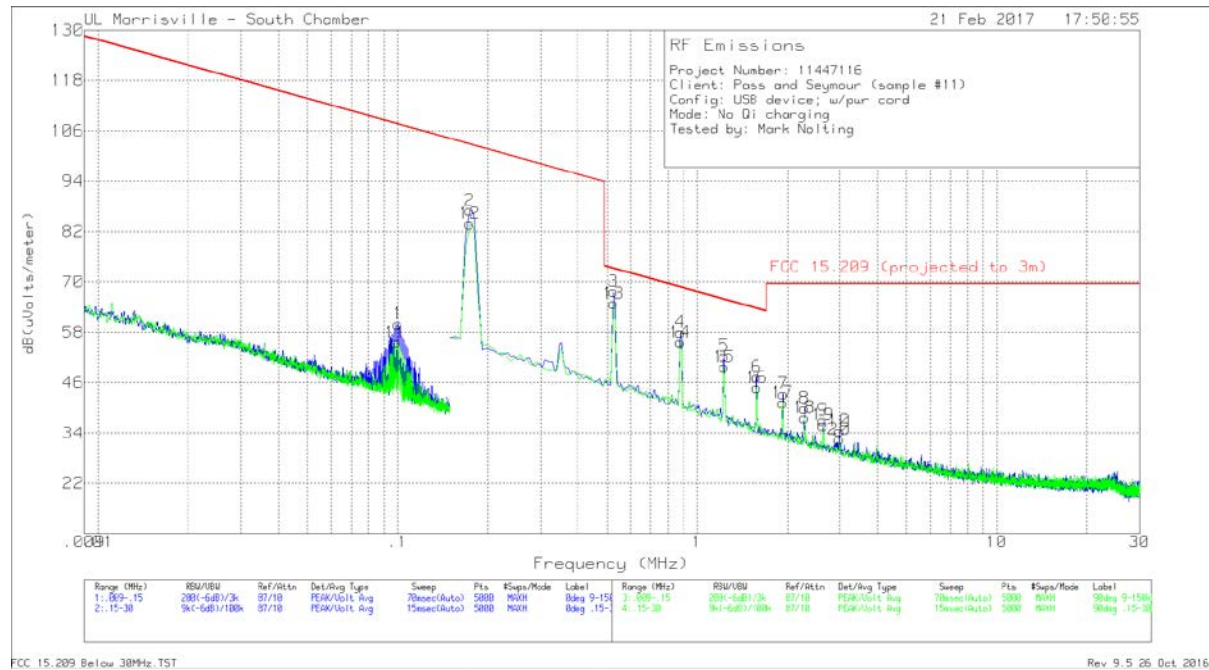
Qi Client @ 100% Charge



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 AF (dB/m)	Cbl (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 (projected to 3m)	Margin (dB)	Azimuth (Degs)
Loop antenna @ 0-degrees.									
1	.17579	62.51	Pk	10.7	.1	73.31	102.7	-29.39	185
2	.52617	43	Pk	10.8	.1	53.9	73.18	-19.28	0-360
3	.87846	33.23	Pk	10.8	.1	44.13	68.73	-24.6	0-360
4	1.23075	29.99	Pk	11	.2	41.19	65.8	-24.61	0-360
5	1.58304	27.77	Pk	11	.2	38.97	63.61	-24.64	0-360
6	1.92936	24.84	Pk	11	.2	36.04	69.54	-33.5	0-360
Loop antenna @ 90-degrees.									
7	.17579	57.55	Pk	10.7	.1	68.35	102.7	-34.35	102
8	.23957	43.93	Pk	10.7	.1	54.73	100.02	-45.29	0-360
9	.31719	41.12	Pk	10.6	.1	51.82	97.58	-45.76	0-360
10	.52617	38.93	Pk	10.8	.1	49.83	73.18	-23.35	0-360
11	1.94727	24.05	Pk	11	.2	35.25	69.54	-34.29	0-360
12	24.79232	14.63	Pk	9.1	.8	24.53	69.54	-45.01	0-360

Pk - Peak detector

Standby (No Qi client on charging pad.)

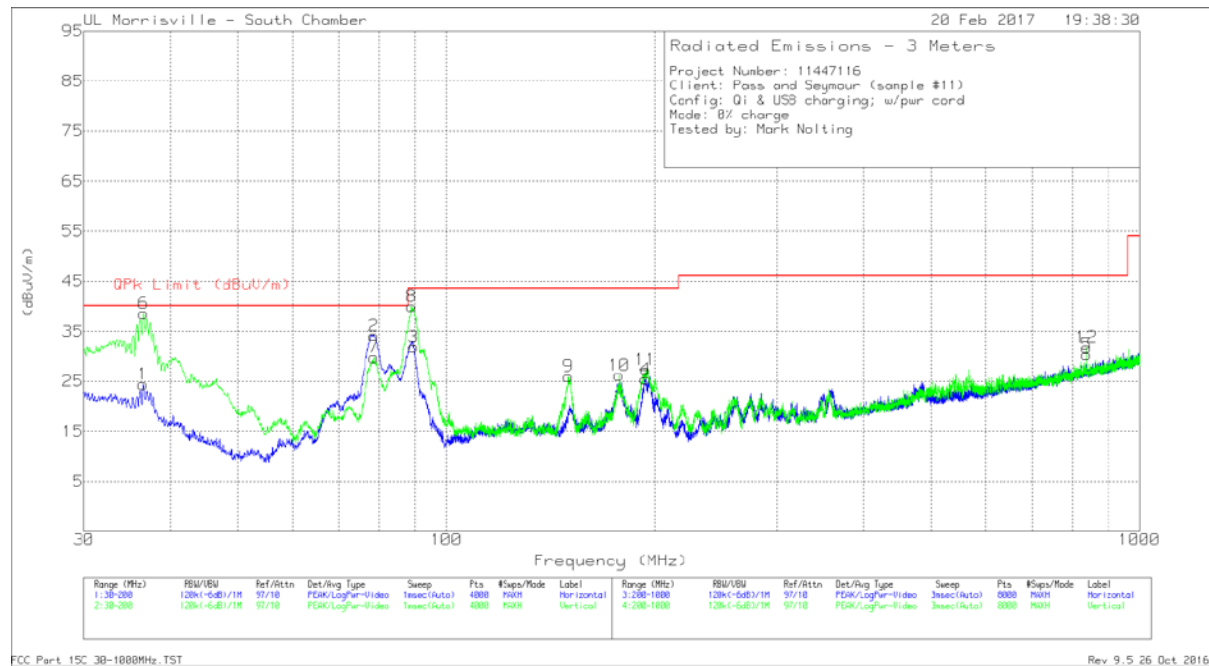


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 AF (dB/m)	Cbl (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 (projected to 3m)	Margin (dB)	Azimuth (Degs)
Loop antenna @ 0-degrees.									
1	.10034	49.11	Pk	10.8	.1	60.01	107.58	-47.57	0-360
2	.17583	77.07	Pk	10.7	.1	87.87	102.7	-14.83	187
3	.52753	57.55	Pk	10.8	.1	68.45	73.16	-4.71	179
4	.87846	47.15	Pk	10.8	.1	58.05	68.73	-10.68	0-360
5	1.23075	41.16	Pk	11	.2	52.36	65.8	-13.44	0-360
6	1.58304	36.21	Pk	11	.2	47.41	63.61	-16.2	0-360
7	1.93533	32.2	Pk	11	.2	43.4	69.54	-26.14	0-360
8	2.28165	28.74	Pk	11	.2	39.94	69.54	-29.6	0-360
9	2.63394	25.68	Pk	11.1	.3	37.08	69.54	-32.46	0-360
10	2.98623	23.15	Pk	11.1	.3	34.55	69.54	-34.99	0-360
Loop antenna @ 0-degrees.									
11	.09838	44.63	Pk	10.9	.1	55.63	107.75	-52.12	0-360
12	.17583	73.1	Pk	10.7	.1	83.9	102.7	-18.8	108
13	.52753	54.23	Pk	10.8	.1	65.13	73.16	-8.03	106
14	.87846	44.75	Pk	10.8	.1	55.65	68.73	-13.08	0-360
15	1.23075	38.59	Pk	11	.2	49.79	65.8	-16.01	0-360
16	1.58304	33.64	Pk	11	.2	44.84	63.61	-18.77	0-360
17	1.92936	30.06	Pk	11	.2	41.26	69.54	-28.28	0-360
18	2.28165	26.49	Pk	11	.2	37.69	69.54	-31.85	0-360
19	2.63394	24.53	Pk	11.1	.3	35.93	69.54	-33.61	0-360
20	2.98623	21.12	Pk	11.1	.3	32.52	69.54	-37.02	0-360

Pk - Peak detector

RADIATED EMISSIONS 30-1000MHz

Qi Client @ 0% Charge

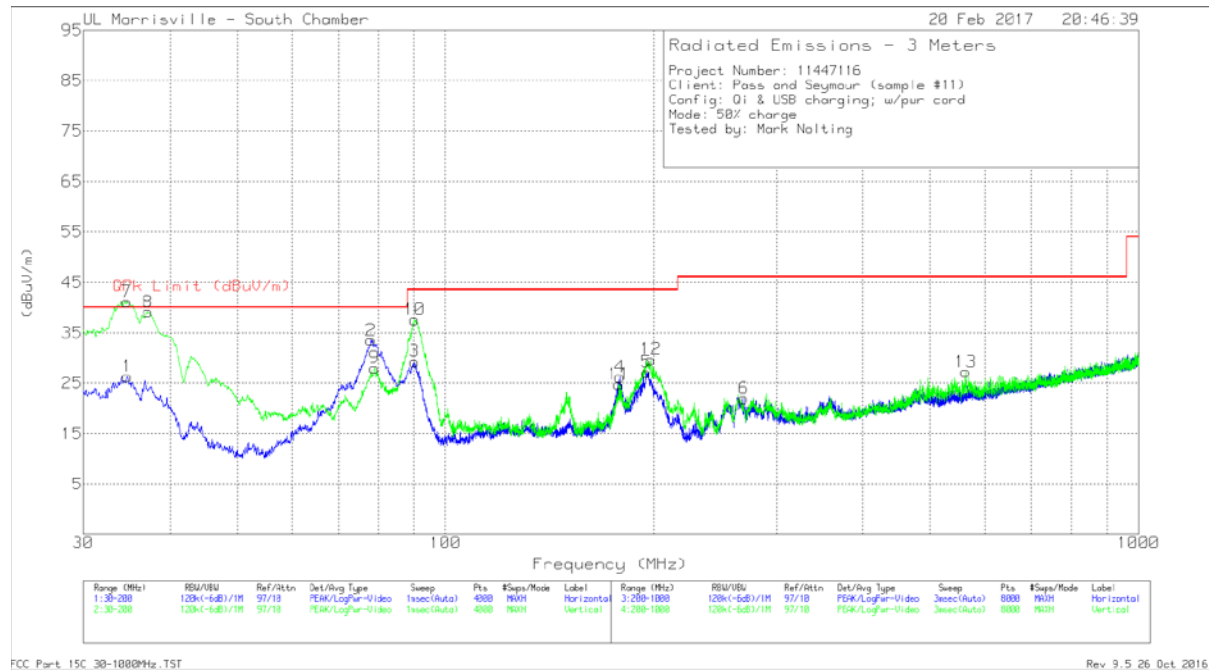


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0074 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	36.5042	35.1	Pk	21	-31.7	24.4	40	-15.6	0-360	399	H
2	78.8057	51.13	Qp	12.1	-31.3	31.93	40	-8.07	140	234	H
3	89.6854	51.25	Pk	11.7	-31.1	31.85	43.52	-11.67	0-360	198	H
4	193.6248	39.42	Pk	16.3	-30.3	25.42	43.52	-18.1	0-360	101	H
5	838.9831	31.68	Pk	26.4	-27.7	30.38	46.02	-15.64	0-360	398	H
6	36.4997	45.11	Qp	21	-31.7	34.41	40	-5.59	316	100	V
7	78.7176	49	Pk	12.1	-31.3	29.8	40	-10.2	0-360	102	V
8	89.8578	55.35	Qp	11.7	-31.1	35.95	43.52	-7.57	276	100	V
9	150.0511	39.71	Pk	16.9	-30.6	26.01	43.52	-17.51	0-360	102	V
10	177.5132	40.88	Pk	15.7	-30.4	26.18	43.52	-17.34	0-360	102	V
11	193.6674	41.35	Pk	16.3	-30.3	27.35	43.52	-16.17	0-360	102	V
12	838.583	33.08	Pk	26.4	-27.7	31.78	46.02	-14.24	0-360	102	V

Pk - Peak detector

Qp - Quasi-Peak detector

Qi Client @ 50% Charge

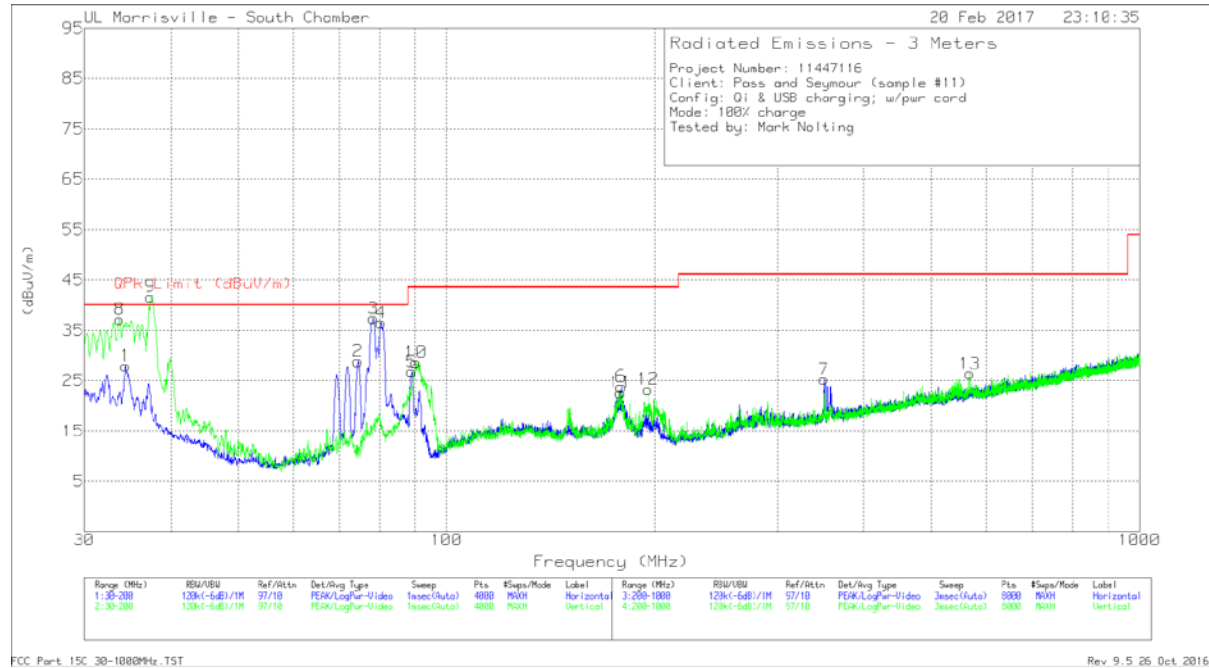


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0074 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	34.7612	35.64	Pk	22.4	-31.7	26.34	40	-13.66	0-360	398	H
2	77.9949	52.51	Pk	12.2	-31.2	33.51	40	-6.49	0-360	199	H
3	90.2168	48.74	Pk	11.7	-31.1	29.34	43.52	-14.18	0-360	398	H
4	178.5759	41.04	Pk	15.6	-30.4	26.24	43.52	-17.28	0-360	199	H
5	194.9002	41.01	Pk	16.5	-30.3	27.21	43.52	-16.31	0-360	102	H
6	269.409	33.99	Pk	17.8	-29.8	21.99	46.02	-24.03	0-360	102	H
7	34.6862	47.46	Qp	22.5	-31.7	38.26	40	-1.74	341	102	V
8	37.64	46.81	Qp	20.2	-31.7	35.31	40	-4.69	13	100	V
9	78.9727	47.18	Pk	12.1	-31.2	28.08	40	-11.92	0-360	101	V
10	90.9201	52.95	Qp	11.8	-31.1	33.65	43.52	-9.87	273	100	V
11	177.9383	39.5	Pk	15.7	-30.4	24.8	43.52	-18.72	0-360	101	V
12	197.7484	42.81	Pk	17.1	-30.2	29.71	43.52	-13.81	0-360	101	V
13	562.7472	32.96	Pk	23	-28.7	27.26	46.02	-18.76	0-360	102	V

Pk - Peak detector

Qp - Quasi-Peak detector

Qi Client @ 100% Charge

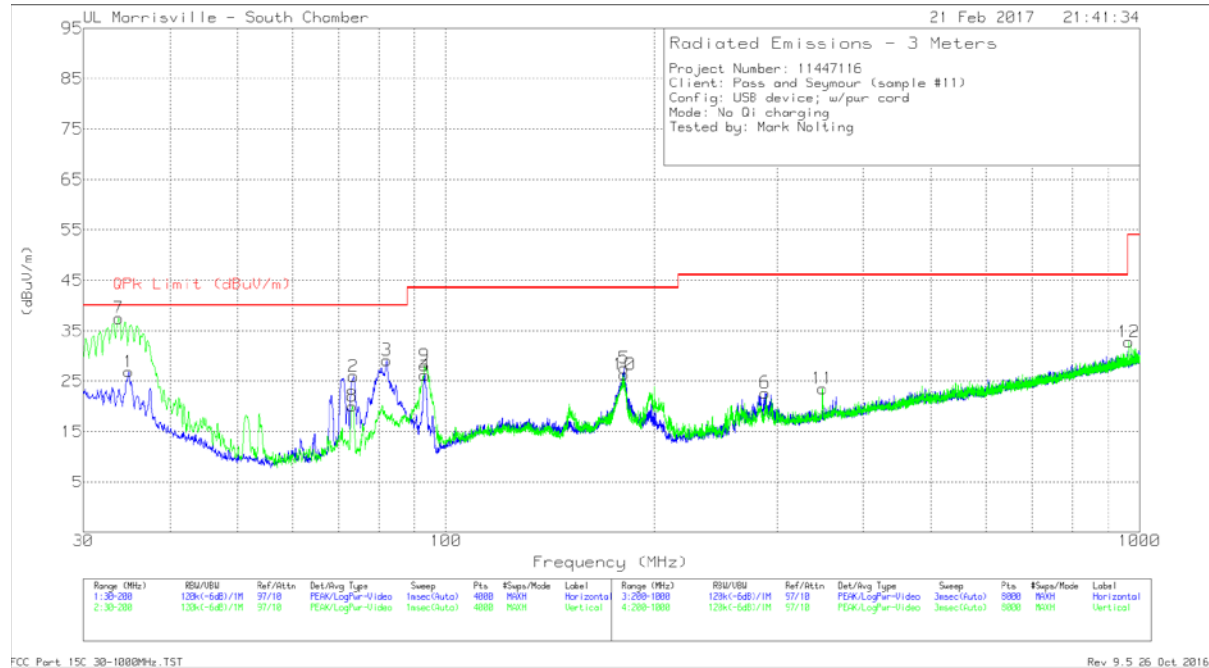


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0074 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	34.4211	36.95	Pk	22.7	-31.7	27.95	40	-12.05	0-360	100	H
2	74.4665	47.66	Pk	12.4	-31.2	28.86	40	-11.14	0-360	198	H
3	78.6325	43.09	Qp	12.1	-31.3	23.89	40	-16.11	135	240	H
4	79.4693	42.83	Qp	12.1	-31.2	23.73	40	-16.27	139	241	H
5	89.0903	46.26	Pk	11.6	-31.1	26.76	43.52	-16.76	0-360	198	H
6	178.746	38.6	Pk	15.6	-30.4	23.8	43.52	-19.72	0-360	198	H
7	350.6196	35.36	Pk	19.2	-29.3	25.26	46.02	-20.76	0-360	102	H
8	33.741	42.19	Qp	23.2	-31.7	33.69	40	-6.31	346	100	V
9	37.3969	38.69	Qp	20.3	-31.7	27.29	40	-12.71	327	101	V
10	90.2806	48.06	Pk	11.7	-31.1	28.66	43.52	-14.86	0-360	101	V
11	178.3634	37.34	Pk	15.7	-30.4	22.64	43.52	-20.88	0-360	101	V
12	195.3253	36.98	Pk	16.6	-30.3	23.28	43.52	-20.24	0-360	101	V
13	569.048	31.7	Pk	23.3	-28.6	26.4	46.02	-19.62	0-360	102	V

Pk - Peak detector

Qp - Quasi-Peak detector

Standby (No Qi client on charging pad.)



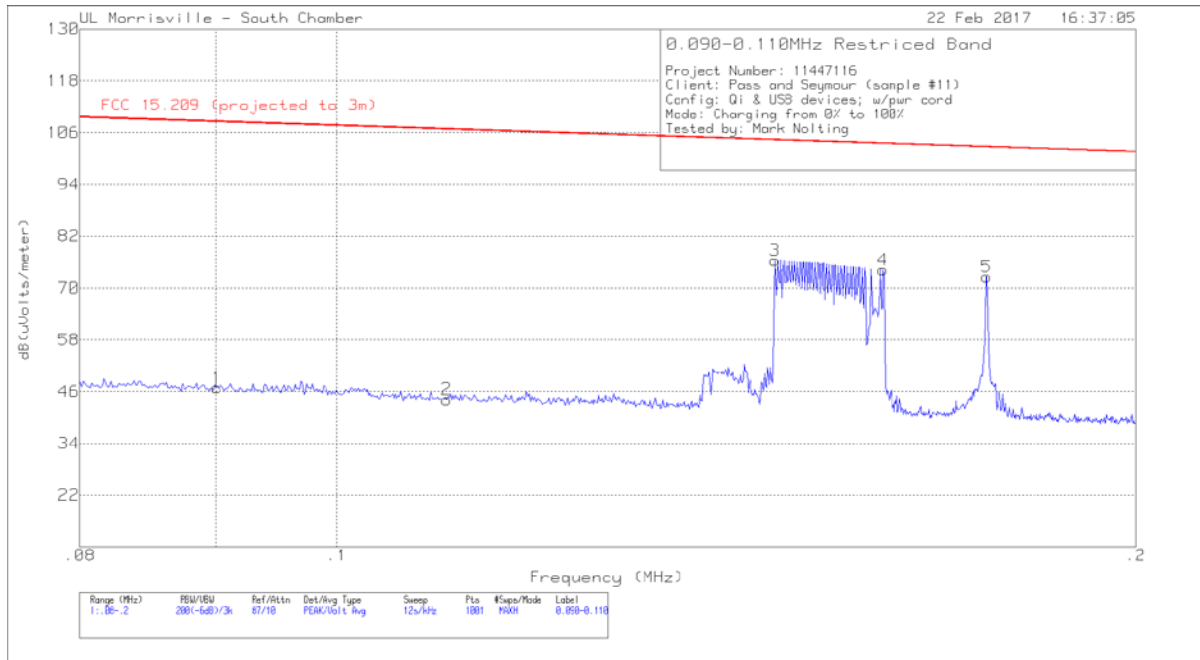
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0074 AF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	34.8888	36.29	Pk	22.3	-31.7	26.89	40	-13.11	0-360	102	H
2	73.51	44.88	Pk	12.4	-31.3	25.98	40	-14.02	0-360	398	H
3	82.1185	48.48	Pk	11.9	-31.2	29.18	40	-10.82	0-360	102	H
4	93.1713	44.93	Pk	12.3	-31.1	26.13	43.52	-17.39	0-360	198	H
5	180.9141	42.46	Pk	15.6	-30.4	27.66	43.52	-15.86	0-360	198	H
6	288.8115	34.49	Pk	17.9	-29.7	22.69	46.02	-23.33	0-360	102	H
7	33.7336	42.48	Qp	23.2	-31.8	33.88	40	-6.12	340	100	V
8	73.2124	38.97	Pk	12.4	-31.3	20.07	40	-19.93	0-360	101	V
9	93.0863	47.04	Pk	12.2	-31.1	28.14	43.52	-15.38	0-360	101	V
10	180.9141	41.14	Pk	15.6	-30.4	26.34	43.52	-17.18	0-360	101	V
11	348.8193	33.67	Pk	19.2	-29.3	23.57	46.02	-22.45	0-360	199	V
12	964.9994	31.59	Pk	27.4	-26.2	32.79	53.97	-21.18	0-360	102	V

Pk - Peak detector

Qp - Quasi-Peak detector

RESTRICTED BANDEDGE EMISSIONS

The following data was collected at the worst-case azimuth while the Qi client charged from 0% charge to 100% charge.



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 AF (dB/m)	Cbl (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.209 (projected to 3m)	Margin (dB)	Azimuth (Degs)
1	0.0900	35.59	Pk	11.2	.1	46.89	108.51	-61.62	195
2	0.1100	33.31	Pk	10.8	.1	44.21	106.78	-62.57	195
3	0.14624	65.51	Pk	10.8	.1	76.41	104.3	-27.89	195
4	0.16064	63.42	Pk	10.7	.1	74.22	103.49	-29.27	195
5	0.17576	61.83	Pk	10.7	.1	72.63	102.71	-30.08	195

Pk - Peak detector

9. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207 (a)

Frequency of emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50
* Decreases with the logarithm of the frequency.		

TEST PROCEDURE

ANSI C63.10

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

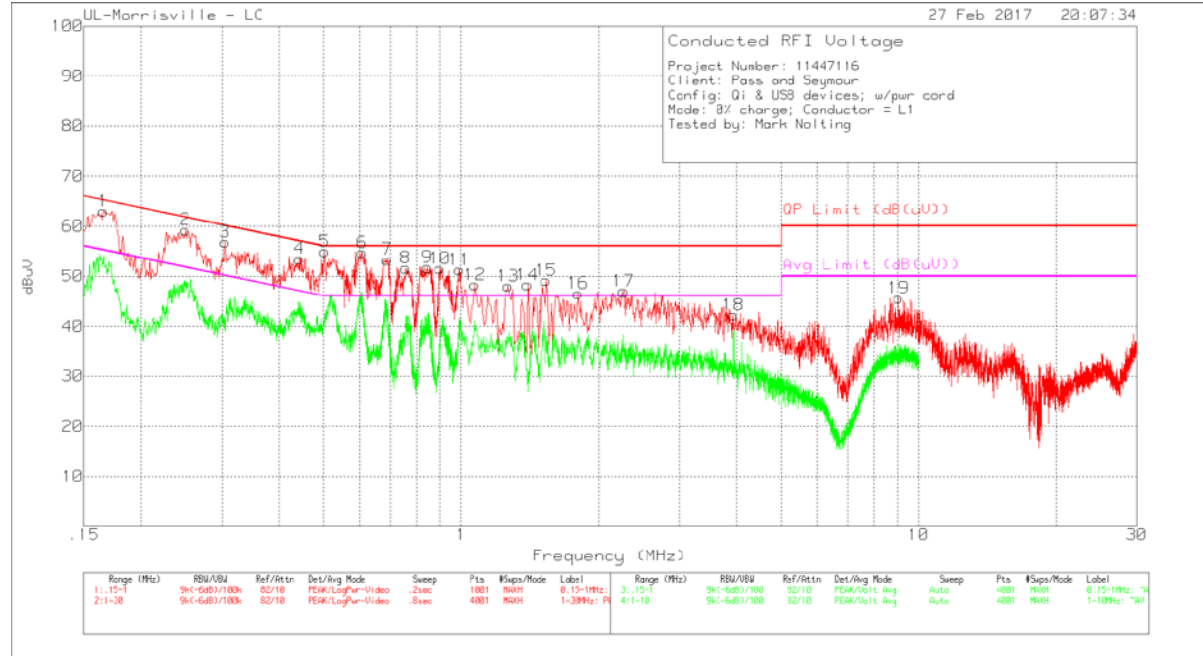
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both LINE (Line 1) and NEUTRAL (Line 2) conductors.

RESULTS

Qi Client @ 0% Charge

Line 1 Plot



Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

Line 1 Tabular Data

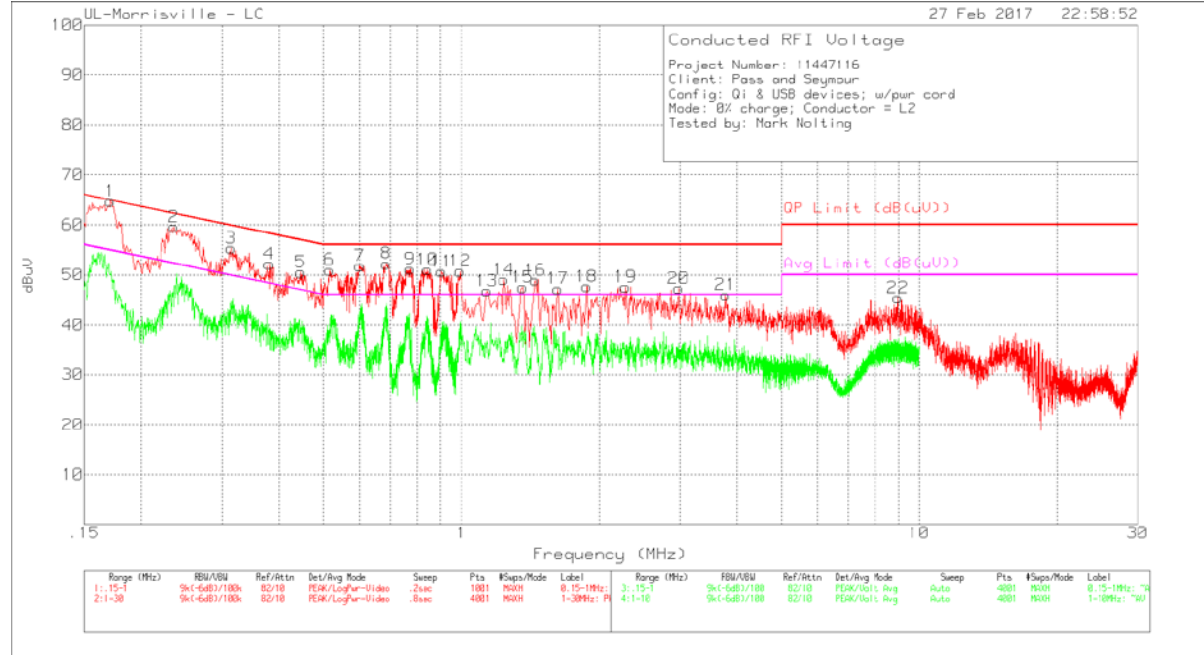
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.162	51.42	Qp	.2	10	61.62	65.36	-3.74	-	-
	.162	36.9	Ca	.2	10	47.1	-	-	55.36	-8.26
2	.24	44.92	Qp	.1	10	55.02	62.1	-7.08	-	-
	.24	28.95	Ca	.1	10	39.05	-	-	51.89	-12.84
3	.306	39.33	Qp	.1	10	49.43	60.08	-10.65	-	-
	.306	23.37	Ca	.1	10	33.47	-	-	50.08	-16.61
4	.438	37.41	Qp	.1	10	47.51	57.1	-9.59	-	-
	.438	21.91	Ca	.1	10	32.01	-	-	47.1	-15.09
5	.5177	38.3	Qp	0	10	48.3	56	-7.7	-	-
	.5177	23.65	Ca	0	10	33.65	-	-	46	-12.35
6	.6005	40.14	Qp	0	10	50.14	56	-5.86	-	-
	.6005	23.18	Ca	0	10	33.18	-	-	46	-12.82
7	.6783	38.97	Qp	0	10	48.97	56	-7.03	-	-
	.6783	20.05	Ca	0	10	30.05	-	-	46	-15.95
8	.75455	37.13	Qp	0	10	47.13	56	-8.87	-	-
	.75455	20.2	Ca	0	10	30.2	-	-	46	-15.8
9	.83484	37.17	Qp	0	10	47.17	56	-8.83	-	-
	.83484	18.78	Ca	0	10	28.78	-	-	46	-17.22
10	.9033	36.35	Qp	0	10	46.35	56	-9.65	-	-
	.9033	18.92	Ca	0	10	28.92	-	-	46	-17.08
11	.9856	36.28	Qp	0	10	46.28	56	-9.72	-	-
	.9856	18.97	Ca	0	10	28.97	-	-	46	-17.03
12	1.07289	34.9	Qp	0	10	44.9	56	-11.1	-	-
	1.07289	16.84	Ca	0	10	26.84	-	-	46	-19.16
13	1.26817	33.17	Qp	0	10	43.17	56	-12.83	-	-
	1.26817	16.36	Ca	0	10	26.36	-	-	46	-19.64
14	1.427	34.34	Qp	0	10	44.34	56	-11.66	-	-
	1.427	17.33	Ca	0	10	27.33	-	-	46	-18.67
15	1.51	34.25	Qp	0	10	44.25	56	-11.75	-	-
	1.51	16.4	Ca	0	10	26.4	-	-	46	-19.6
16	1.8	31.47	Qp	0	10.1	41.57	56	-14.43	-	-
	1.8	15.47	Ca	0	10.1	25.57	-	-	46	-20.43
17	2.248	31.1	Qp	0	10.1	41.2	56	-14.8	-	-
	2.248	14.68	Ca	0	10.1	24.78	-	-	46	-21.22
18	3.964	32.72	Qp	0	10.1	42.82	56	-13.18	-	-
	3.964	27.68	Ca	0	10.1	37.78	-	-	46	-8.22
19	9.03413	29.48	Qp	.1	10.3	39.88	60	-20.12	-	-
	9.03413	20.19	Ca	.1	10.3	30.59	-	-	50	-19.41

Pk - Peak detector

Qp - Quasi-Peak detector

Ca - CISPR average detection

Line 2 Plot



Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

Line 2 Tabular Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.162	47.7	Qp	.2	10	57.9	65.36	-7.46	-	-
	.162	32.62	Ca	.2	10	42.82	-	-	55.36	-12.54
2	.24	42.35	Qp	.1	10	52.45	62.1	-9.65	-	-
	.24	26.08	Ca	.1	10	36.18	-	-	52.1	-15.92
3	.3178	38.02	Qp	.1	10	48.12	59.76	-11.64	-	-
	.3178	23.87	Ca	.1	10	33.97	-	-	49.76	-15.79
4	.3796	33.63	Qp	.1	10	43.73	58.29	-14.56	-	-
	.3796	16.31	Ca	.1	10	26.41	-	-	48.29	-21.88
5	.43452	34.94	Qp	.1	10	45.04	57.17	-12.13	-	-
	.43452	18.84	Ca	.1	10	28.94	-	-	47.17	-18.23
6	.51721	35.45	Qp	0	10	45.45	56	-10.55	-	-
	.51721	20.61	Ca	0	10	30.61	-	-	46	-15.39
7	.59811	37.48	Qp	0	10	47.48	56	-8.52	-	-
	.59811	21.97	Ca	0	10	31.97	-	-	46	-14.03
8	.6782	38.69	Qp	0	10	48.69	56	-7.31	-	-
	.6782	21.45	Ca	0	10	31.45	-	-	46	-14.55
9	.75547	37	Qp	0	10	47	56	-9	-	-
	.75547	18.86	Ca	0	10	28.86	-	-	46	-17.14
10	.8359	36.37	Qp	0	10	46.37	56	-9.63	-	-
	.8359	16.94	Ca	0	10	26.94	-	-	46	-19.06
11	.90725	36.1	Qp	0	10	46.1	56	-9.9	-	-
	.90725	18.29	Ca	0	10	28.29	-	-	46	-17.71
12	.99018	35.71	Qp	0	10	45.71	56	-10.29	-	-
	.99018	17.13	Ca	0	10	27.13	-	-	46	-18.87
13	1.16317	33.08	Qp	0	10	43.08	56	-12.92	-	-
	1.16317	16.44	Ca	0	10	26.44	-	-	46	-19.56
14	1.27364	33.91	Qp	0	10	43.91	56	-12.09	-	-
	1.27364	15.76	Ca	0	10	25.76	-	-	46	-20.24
15	1.34878	33.87	Qp	0	10	43.87	56	-12.13	-	-
	1.34878	16.42	Ca	0	10	26.42	-	-	46	-19.58
16	1.4311	34.46	Qp	0	10	44.46	56	-11.54	-	-
	1.4311	18.55	Ca	0	10	28.55	-	-	46	-17.45
17	1.58902	33.22	Qp	0	10	43.22	56	-12.78	-	-
	1.58902	16.41	Ca	0	10	26.41	-	-	46	-19.59
18	1.88777	31.79	Qp	0	10.1	41.89	56	-14.11	-	-
	1.88777	17.25	Ca	0	10.1	27.35	-	-	46	-18.65
19	2.24788	31.56	Qp	0	10.1	41.66	56	-14.34	-	-
	2.24788	16.71	Ca	0	10.1	26.81	-	-	46	-19.19
20	3.141	30.1	Qp	0	10.1	40.2	56	-15.8	-	-
	3.141	17.88	Ca	0	10.1	27.98	-	-	46	-18.02
21	3.97402	24.9	Ca	0	10.1	35	-	-	46	-11
	3.97402	31.21	Qp	0	10.1	41.31	56	-14.69	-	-
22	8.94375	30.79	Qp	.1	10.3	41.19	60	-18.81	-	-
	8.94375	23	Ca	.1	10.3	33.4	-	-	50	-16.6

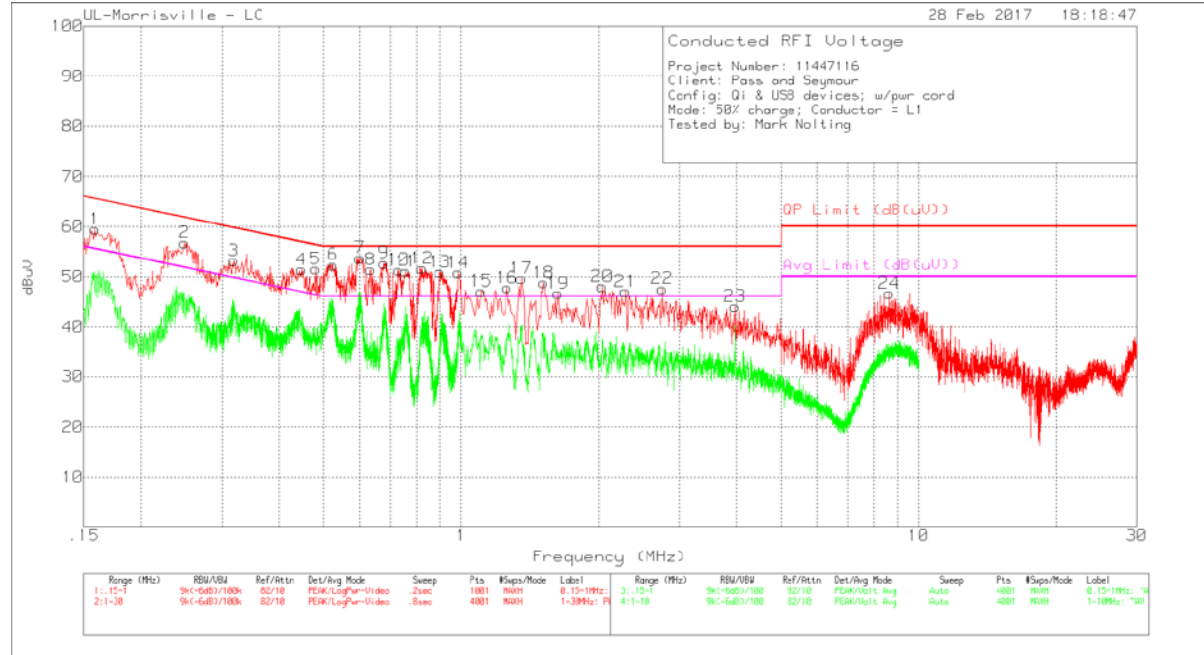
Pk - Peak detector

Qp - Quasi-Peak detector

Ca - CISPR average detection

Qi Client @ 50% Charge

Line 1 Plot



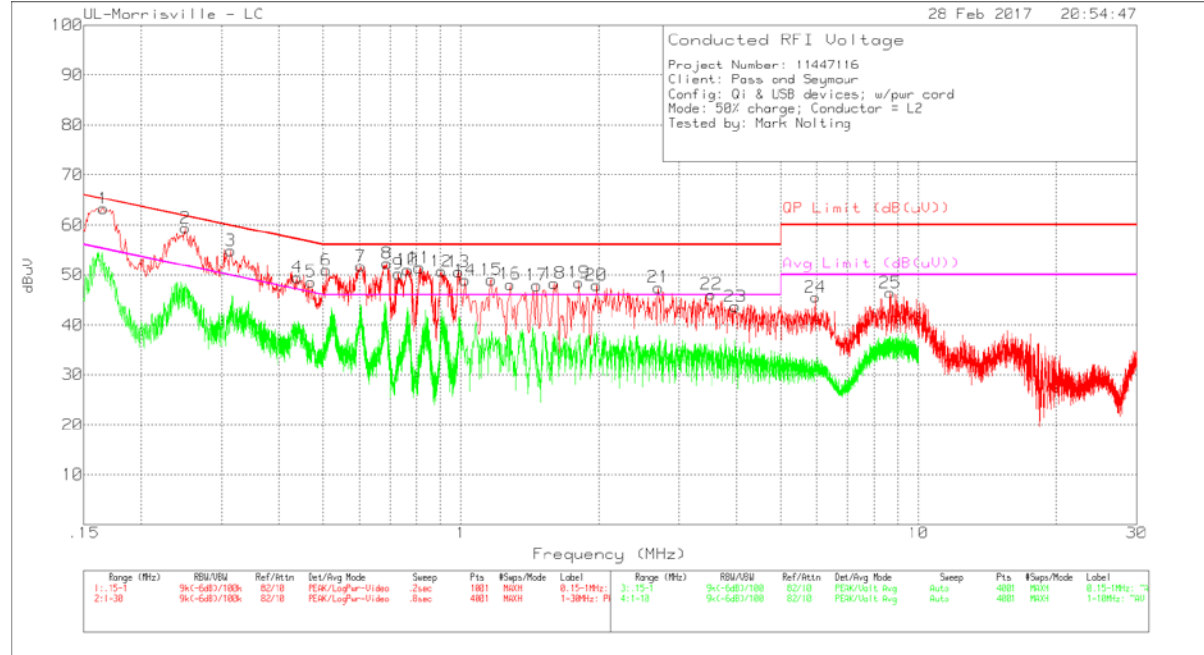
Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

Line 1 Tabular Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.161	46.58	Qp	.2	10	56.78	65.44	-8.66	-	-
	.161	31.79	Ca	.2	10	41.99	-	-	55.44	-13.45
2	.249	41.54	Qp	.1	10	51.64	61.8	-10.16	-	-
	.249	25.64	Ca	.1	10	35.74	-	-	51.8	-16.06
3	.318	38.34	Qp	.1	10	48.44	59.76	-11.32	-	-
	.318	23.06	Ca	.1	10	33.16	-	-	49.76	-16.6
4	.439	36.29	Qp	.1	10	46.39	57.07	-10.68	-	-
	.439	21.11	Ca	.1	10	31.21	-	-	47.07	-15.86
5	.477	33.48	Qp	.1	10	43.58	56.39	-12.81	-	-
	.477	20.5	Ca	.1	10	30.6	-	-	46.39	-15.79
6	.5205	38.27	Qp	0	10	48.27	56	-7.73	-	-
	.5205	23.68	Ca	0	10	33.68	-	-	46	-12.32
7	.6002	40.15	Qp	0	10	50.15	56	-5.85	-	-
	.6002	23.37	Ca	0	10	33.37	-	-	46	-12.63
8	.6394	32.05	Qp	0	10	42.05	56	-13.95	-	-
	.6394	14.63	Ca	0	10	24.63	-	-	46	-21.37
9	.67842	39.03	Qp	0	10	49.03	56	-6.97	-	-
	.67842	20.08	Ca	0	10	30.08	-	-	46	-15.92
10	.7322	34.11	Qp	0	10	44.11	56	-11.89	-	-
	.7322	16.01	Ca	0	10	26.01	-	-	46	-19.99
11	.7571	37.16	Qp	0	10	47.16	56	-8.84	-	-
	.7571	19.89	Ca	0	10	29.89	-	-	46	-16.11
12	.8335	36.9	Qp	0	10	46.9	56	-9.1	-	-
	.8335	18.81	Ca	0	10	28.81	-	-	46	-17.19
13	.90665	36.49	Qp	0	10	46.49	56	-9.51	-	-
	.90665	18.89	Ca	0	10	28.89	-	-	46	-17.11
14	.98837	36.71	Qp	0	10	46.71	56	-9.29	-	-
	.98837	19.47	Ca	0	10	29.47	-	-	46	-16.53
15	1.08	34.57	Qp	0	10	44.57	56	-11.43	-	-
	1.08	18.01	Ca	0	10	28.01	-	-	46	-17.99
16	1.2684	32.66	Qp	0	10	42.66	56	-13.34	-	-
	1.2684	16.27	Ca	0	10	26.27	-	-	46	-19.73
17	1.35232	34.26	Qp	0	10	44.26	56	-11.74	-	-
	1.35232	16.72	Ca	0	10	26.72	-	-	46	-19.28
18	1.513	33.98	Qp	0	10	43.98	56	-12.02	-	-
	1.513	16.75	Ca	0	10	26.75	-	-	46	-19.25
19	1.60195	32.57	Qp	0	10	42.57	56	-13.43	-	-
	1.60195	14.94	Ca	0	10	24.94	-	-	46	-21.06
20	2.039	31.82	Qp	0	10.1	41.92	56	-14.08	-	-
	2.039	13.95	Ca	0	10.1	24.05	-	-	46	-21.95
21	2.3388	30.76	Qp	0	10.1	40.86	56	-15.14	-	-
	2.3388	15.08	Ca	0	10.1	25.18	-	-	46	-20.82
22	2.79498	30.53	Qp	0	10.1	40.63	56	-15.37	-	-
	2.79498	14.92	Ca	0	10.1	25.02	-	-	46	-20.98
23	3.98496	33.03	Qp	0	10.1	43.13	56	-12.87	-	-
	3.98496	28.32	Ca	0	10.1	38.42	-	-	46	-7.58
24	9.005	29.41	Qp	.1	10.3	39.81	60	-20.19	-	-
	9.005	20.65	Ca	.1	10.3	31.05	-	-	50	-18.95

Pk - Peak detector, Qp - Quasi-Peak detector, Ca - CISPR average detection

Line 2 Plot



Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

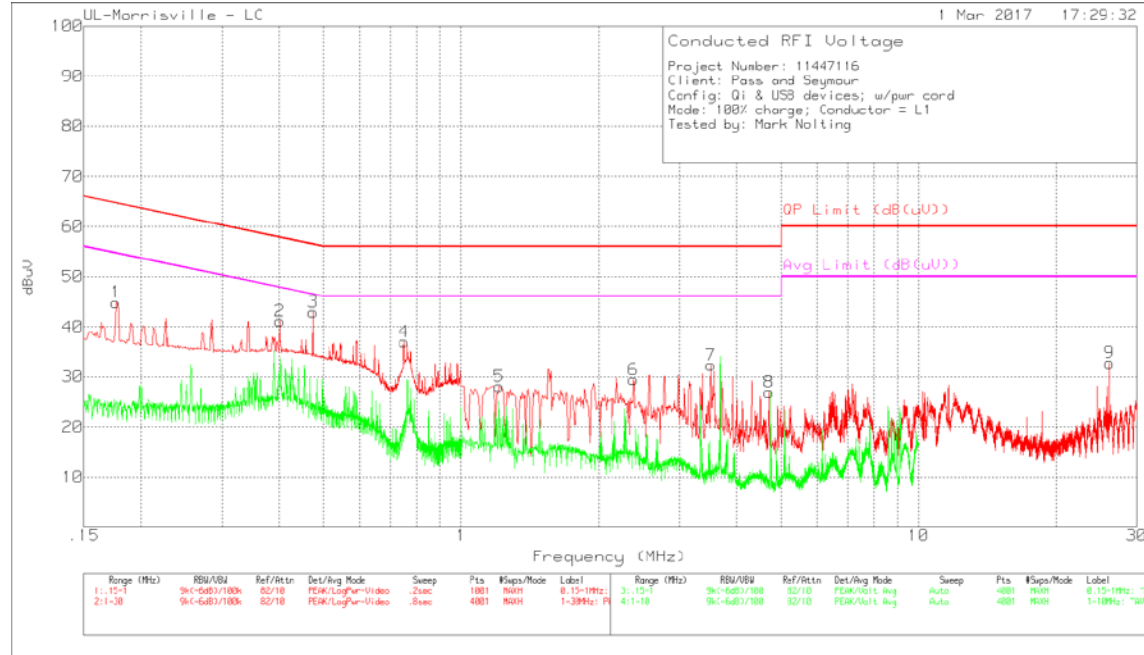
Line 2 Tabular Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.162	45.67	Qp	.2	10	55.87	65.36	-9.49	-	-
	.162	29.93	Ca	.2	10	40.13	-	-	55.36	-15.23
2	.24	41.23	Qp	.1	10	51.33	62.1	-10.77	-	-
	.24	24.45	Ca	.1	10	34.55	-	-	52.1	-17.55
3	.315	37.88	Qp	.1	10	47.98	59.84	-11.86	-	-
	.315	23.59	Ca	.1	10	33.69	-	-	49.84	-16.15
4	.441	34.74	Qp	.1	10	44.84	57.04	-12.2	-	-
	.441	18.85	Ca	.1	10	28.95	-	-	47.04	-18.09
5	.474	31.24	Qp	0	10	41.24	56.44	-15.2	-	-
	.474	18.65	Ca	0	10	28.65	-	-	46.44	-17.79
6	.51642	35.01	Qp	0	10	45.01	56	-10.99	-	-
	.51642	20.57	Ca	0	10	30.57	-	-	46	-15.43
7	.60025	37.3	Qp	0	10	47.3	56	-8.7	-	-
	.60025	21.63	Ca	0	10	31.63	-	-	46	-14.37
8	.6787	38.19	Qp	0	10	48.19	56	-7.81	-	-
	.6787	21.18	Ca	0	10	31.18	-	-	46	-14.82
9	.732	33.43	Qp	0	10	43.43	56	-12.57	-	-
	.732	13.03	Ca	0	10	23.03	-	-	46	-22.97
10	.75932	36.63	Qp	0	10	46.63	56	-9.37	-	-
	.75932	18.59	Ca	0	10	28.59	-	-	46	-17.41
11	.8341	36.21	Qp	0	10	46.21	56	-9.79	-	-
	.8341	16.75	Ca	0	10	26.75	-	-	46	-19.25
12	.9038	36.08	Qp	0	10	46.08	56	-9.92	-	-
	.9038	18.42	Ca	0	10	28.42	-	-	46	-17.58
13	.98964	35.63	Qp	0	10	45.63	56	-10.37	-	-
	.98964	17.5	Ca	0	10	27.5	-	-	46	-18.5
14	1.0775	34.83	Qp	0	10	44.83	56	-11.17	-	-
	1.0775	18.29	Ca	0	10	28.29	-	-	46	-17.71
15	1.165	33.24	Qp	0	10	43.24	56	-12.76	-	-
	1.165	16.95	Ca	0	10	26.95	-	-	46	-19.05
16	1.279	33.41	Qp	0	10	43.41	56	-12.59	-	-
	1.279	15.46	Ca	0	10	25.46	-	-	46	-20.54
17	1.434	34.3	Qp	0	10	44.3	56	-11.7	-	-
	1.434	17.98	Ca	0	10	27.98	-	-	46	-18.02
18	1.601	32.5	Qp	0	10	42.5	56	-13.5	-	-
	1.601	15.29	Ca	0	10	25.29	-	-	46	-20.71
19	1.8061	31.9	Qp	0	10.1	42	56	-14	-	-
	1.8061	17.67	Ca	0	10.1	27.77	-	-	46	-18.23
20	1.978	31.67	Qp	0	10.1	41.77	56	-14.23	-	-
	1.978	15.88	Ca	0	10.1	25.98	-	-	46	-20.02
21	2.711	31.19	Qp	0	10.1	41.29	56	-14.71	-	-
	2.711	17.27	Ca	0	10.1	27.37	-	-	46	-18.63
22	3.53	28.85	Qp	0	10.1	38.95	56	-17.05	-	-
	3.53	17.13	Ca	0	10.1	27.23	-	-	46	-18.77
23	3.95372	30.78	Qp	0	10.1	40.88	56	-15.12	-	-
	3.95372	24.57	Ca	0	10.1	34.67	-	-	46	-11.33
24	5.957	23.18	Qp	.1	10.2	33.48	60	-26.52	-	-
	5.957	15.13	Ca	.1	10.2	25.43	-	-	50	-24.57
25	8.61913	30.71	Qp	.1	10.3	41.11	60	-18.89	-	-
	8.61913	23.72	Ca	.1	10.3	34.12	-	-	50	-15.88

Pk - Peak detector, Qp - Quasi-Peak detector, Ca - CISPR average detection

Qi Client @ 100% Charge

Line 1 Plot



Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

Line 1 Tabular Data

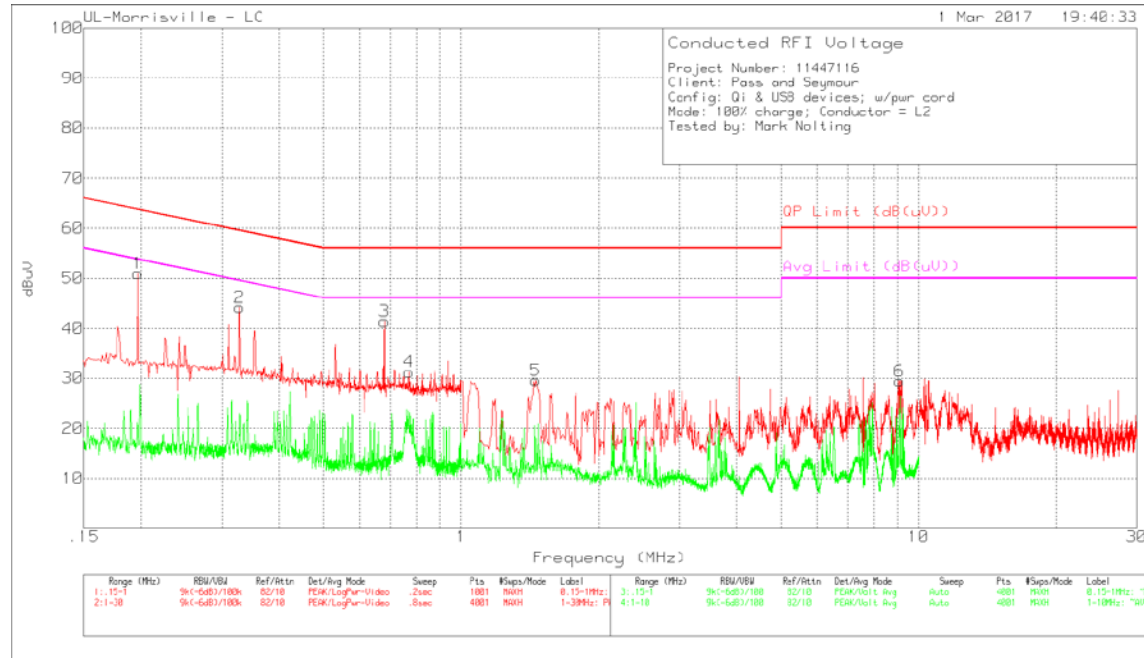
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.17484	25.96	Qp	.2	10	36.16	64.73	-28.57	-	-
	.17484	9.28	Ca	.2	10	19.48	-	-	54.73	-35.25
2	.4016	20.48	Qp	.1	10	30.58	57.82	-27.24	-	-
	.4016	9.9	Ca	.1	10	20	-	-	47.82	-27.82
3	.46948	30.94	Qp	.1	10	41.04	56.52	-15.48	-	-
	.46948	18.61	Ca	.1	10	28.71	-	-	46.52	-17.81
4	.75008	31.36	Qp	0	10	41.36	56	-14.64	-	-
	.75008	12.77	Ca	0	10	22.77	-	-	46	-23.23
5	1.21	17.96	Qp	0	10	27.96	56	-28.04	-	-
	1.21	3.17	Ca	0	10	13.17	-	-	46	-32.83
6	2.138	16.07	Qp	0	10.1	26.17	56	-29.83	-	-
	2.138	2.53	Ca	0	10.1	12.63	-	-	46	-33.37
7	3.515	15.78	Qp	0	10.1	25.88	56	-30.12	-	-
	3.515	7.71	Ca	0	10.1	17.81	-	-	46	-28.19
8	4.746	12.92	Qp	0	10.1	23.02	56	-32.98	-	-
	4.746	3.09	Ca	0	10.1	13.19	-	-	46	-32.81
9	26.1917	11.8	Qp	.3	10.7	22.8	60	-37.2	-	-
	26.1917	8.2	Ca	.3	10.7	19.2	-	-	50	-30.8

Pk - Peak detector

Qp - Quasi-Peak detector

Ca - CISPR average detection

Line 2 Plot



Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

Line 2 Tabular Data

Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBUV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.19535	18.6	Qp	.2	10	28.8	63.81	-35.01	-	-
	.19535	2.31	Ca	.2	10	12.51	-	-	53.81	-41.3
2	.3285	16.61	Qp	.1	10	26.71	59.49	-32.78	-	-
	.3285	2.41	Ca	.1	10	12.51	-	-	49.49	-36.98
3	.6804	12.61	Qp	0	10	22.61	56	-33.39	-	-
	.6804	.17	Ca	0	10	10.17	-	-	46	-35.83
4	.76533	12.95	Qp	0	10	22.95	56	-33.05	-	-
	.76533	5.55	Ca	0	10	15.55	-	-	46	-30.45
5	1.45675	11.45	Qp	0	10	21.45	56	-34.55	-	-
	1.45675	-1.97	Ca	0	10	8.03	-	-	46	-37.97
6	9.11	11.48	Qp	.1	10.3	21.88	60	-38.12	-	-
	9.11	3.15	Ca	.1	10.3	13.55	-	-	50	-36.45

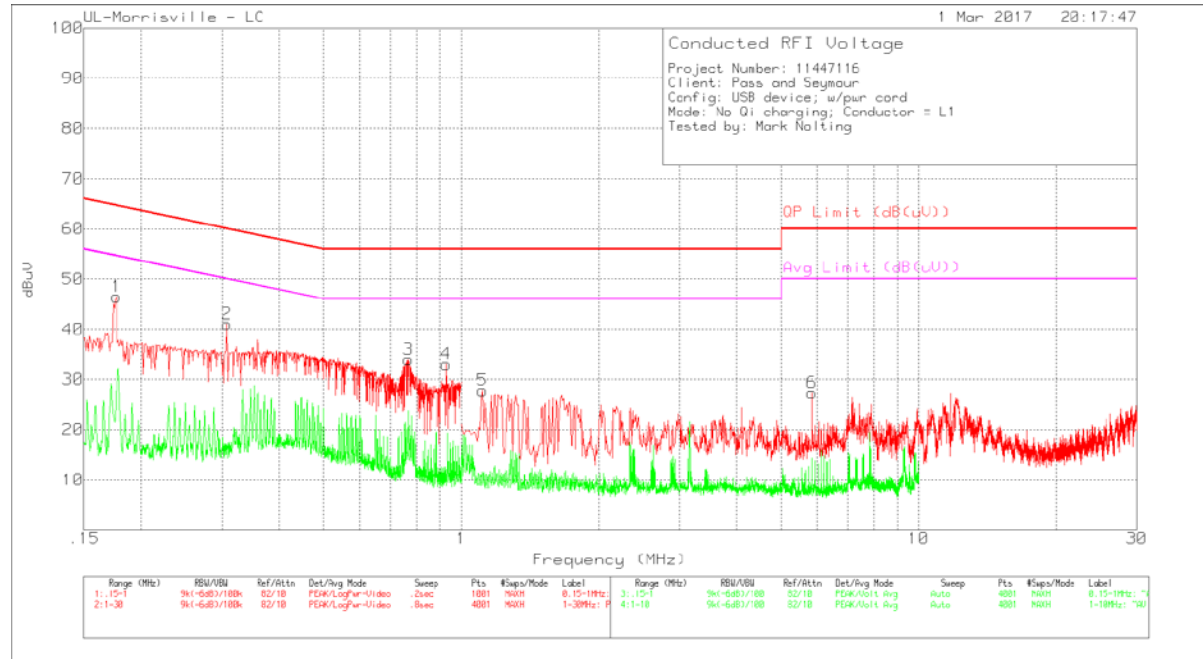
Pk - Peak detector

Qp - Quasi-Peak detector

Ca - CISPR average detection

Standby (No Qi client on charging pad.)

Line 1



Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

Line 1 Tabular Data

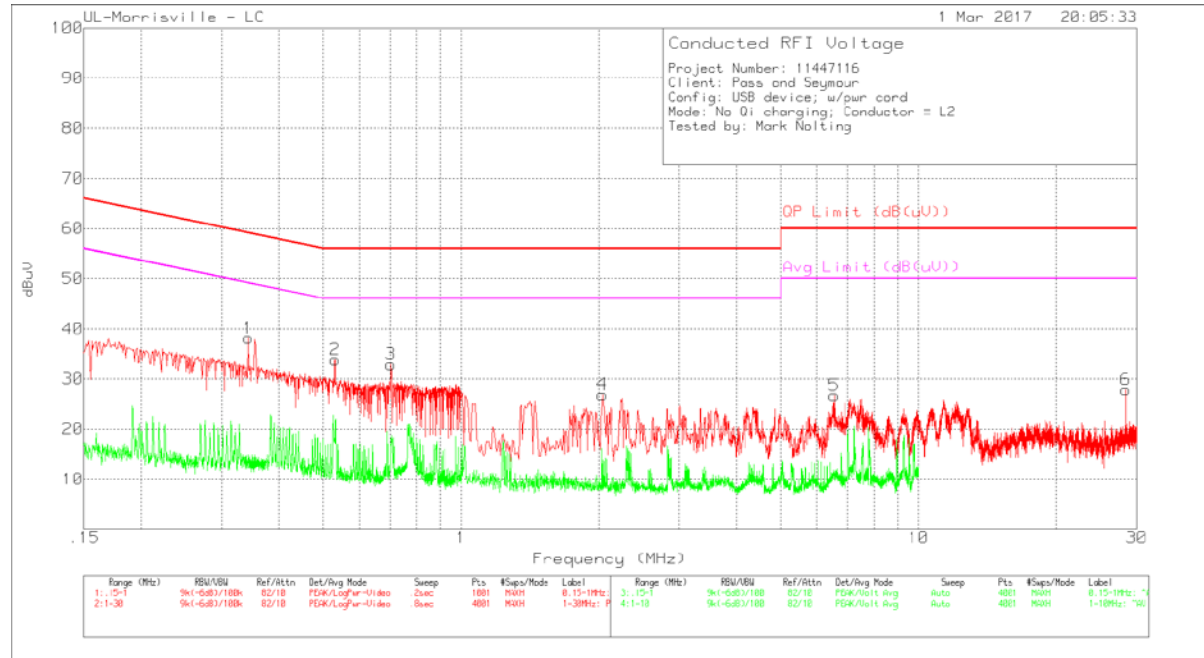
Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBUV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.17625	27.25	Qp	.2	10	37.45	64.66	-27.21	-	-
	.17625	8.09	Ca	.2	10	18.29	-	-	54.66	-36.37
2	.3081	17.61	Qp	.1	10	27.71	60.02	-32.31	-	-
	.3081	3.23	Ca	.1	10	13.33	-	-	50.02	-36.69
3	.7671	24.01	Pk	0	10	34.01	56	-21.99	46	-11.99
4	.92945	23.07	Pk	0	10	33.07	56	-22.93	46	-12.93
5	1.116	17.8	Pk	0	10	27.8	56	-28.2	46	-18.2
6	5.843	17.04	Pk	.1	10.2	27.34	60	-32.66	50	-22.66

Pk - Peak detector

Qp - Quasi-Peak detector

Ca - CISPR average detection

Line 2



Note: Green trace is a reduced VBW measurement to aid in identifying narrow-band signals.

Line 2 Tabular Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN003 VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dB(uV))	Margin (dB)	Avg Limit (dB(uV))	Margin (dB)
1	.34295	28.02	Pk	.1	10	38.12	59.13	-21.01	49.13	-11.01
2	.52995	23.85	Pk	0	10	33.85	56	-22.15	46	-12.15
3	.70335	22.94	Pk	0	10	32.94	56	-23.06	46	-13.06
4	2.03675	16.8	Pk	0	10.1	26.9	56	-29.1	46	-19.1
5	6.539	16.44	Pk	.1	10.2	26.74	60	-33.26	50	-23.26
6	28.36875	16.86	Pk	.3	10.7	27.86	60	-32.14	50	-22.14

Pk - Peak detector