



CERTIFICATION TEST REPORT

Report Number. : 11633253-E4V1

Applicant : FITBIT INC.
405 HOWARD STREET, SUITE 550
SAN FRANCISCO,
CA 94105, U.S.A

Model : FB503

FCC ID : XRAFB503

IC : 8542A-FB503

EUT Description : Smart Watch

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS - 210 ISSUE 9

Date Of Issue:
March 30, 2017

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	03/30/17	Initial Issue	C. Vergonio

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: FITBIT INC.
405 HOWARD STREET, SUITE 550
SAN FRANCISCO, CA 94105, U.S.A

EUT DESCRIPTION: Smart Watch

MODEL: FB503

SERIAL NUMBER: 0x00001BA532AE3029 (Radiated)
0x00001B9F282E4829 (Conducted)

DATE TESTED: February 20 to March 30, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Pass
INDUSTRY CANADA RSS-210 Issue 9, Annex B	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

UL Verification Services Inc. 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 Verification Services Inc. 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 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, or any agency of the U.S. Government.

Approved & Released For
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CHARLES VERGONIO
WiSE PROJECT LEAD
UL Verification Services Inc.

Prepared By:



GLENN ESCANO
WiSE LAB ENGINEER
UL Verification Services Inc.

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, RSS-GEN Issue 4, and RSS-210 Issue 9.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, 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	47266 Benicia Street
<input checked="" type="checkbox"/> Chamber A	<input type="checkbox"/> Chamber D
<input type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E
<input type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F
	<input type="checkbox"/> Chamber G
	<input type="checkbox"/> Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

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

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Smart Watch.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The EUT utilizes a loop antenna.

5.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was Tera Term Ver 4.79.
The firmware installed in the EUT during testing was Version 27.20.11.4.

5.4. WORST-CASE CONFIGURATION AND MODE

The NFC function was tested at its' fundamental and only operational frequency of 13.56MHz. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that the Y-orientation was the worst-case orientation; therefore, all final radiated testing was performed with the EUT in the Y-orientation while generating continuous emissions.

The data rates as provided by the client were: Type A 848kbps and Type B 106kbps. Based on the baseline scan, the worst-case data rate was Type B 106kbps; therefore, all final testing was performed with the Type B 106kbps.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop AC/DC adapter	Lenovo	92P1160	11S92P1160Z1ZBGH798B12	NA
Laptop	Lenovo	7659	L3-AL664 08/03	NA
Test Fixture	FITBIT	COMPTON 4	N/A	DOC
USB Adapter	Apple	A1385	D292312F0HADHLHBS	NA
DC Power Supply	Ametek	XT15-4	1319A00221	NA

I/O CABLES

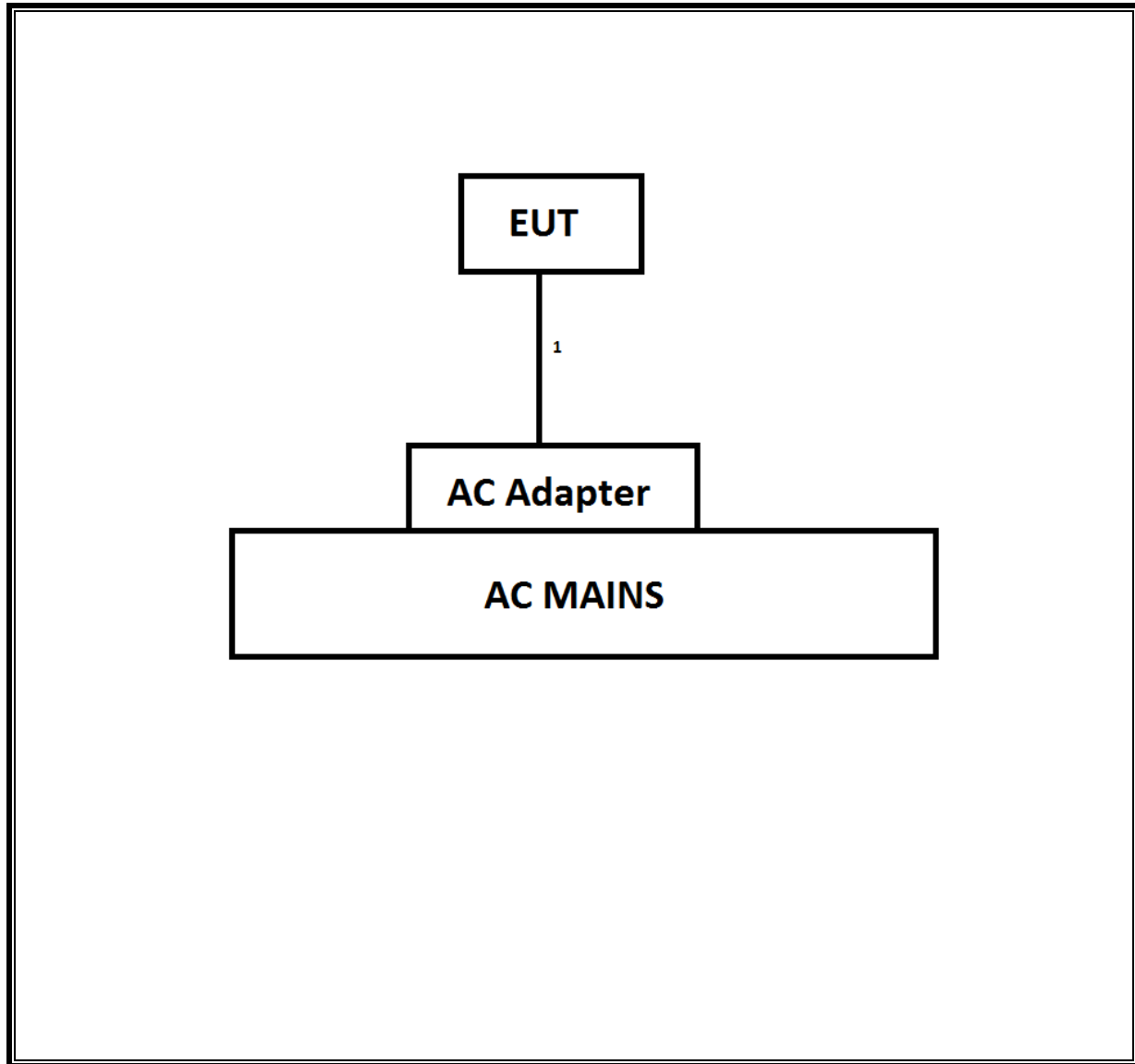
I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Shielded	1	N/A

TEST SETUP

The EUT was installed on a test fixture which connected to a laptop via USB cable to program the parameters such as modes, channels, output powers, & data rates.

After programed, the EUT was connected to an AC/DC adapter and tested without the test fixture and the laptop.

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 List					
Description	Manufacturer	Model	T No.	Cal Date	Cal Due
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	10	02/01/17	02/01/18
Antenna, Broadband Hybrid 30MHz to 2000MHz	Sunol Science	JB1	130	09/01/16	09/01/17
Loop Antenna	EMCO	6502	1616	12/12/16	12/12/17
Temperature/Humidity Chamber	Thermotron	SE-600-10-10	80	11/14/16	05/14/17
EMI Reciever	Rohde & Schwarz	ESR-EMI	1436	01/06/17	01/06/18
LISN	Fischer	FCC-LISN-50/250-25-2-01	1310	06/08/16	06/08/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	1210	06/30/16	06/30/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	908	04/13/16	04/13/17

NOTE: *testing is completed before equipment calibration expiration date.

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, April 26, 2016
Antenna Port Software	UL	UL RF	Ver 6.0, Jan 19, 2017

8. ANTENNA PORT TEST RESULTS

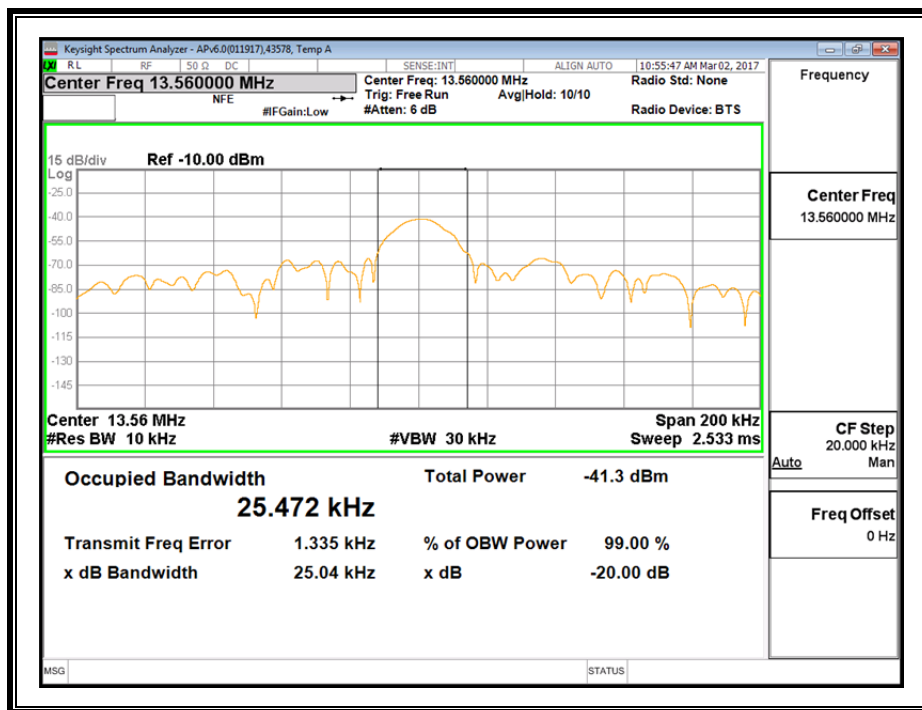
8.1. OCCUPIED BANDWIDTH

LIMITS

For reporting purposes only

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
Low	13.56	25.472	25.040



9. RADIATED EMISSION TEST RESULTS

LIMITS AND PROCEDURE

LIMIT

§15.225

IC RSS-210, Annex B.6 (Transmitter)

IC RSS-GEN, Section 7.1.2 (Receiver)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	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 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the field strength from µV/m to dBµV/m is:

Limit (dBµV/m) = 20 log limit (µV/m)

In addition:

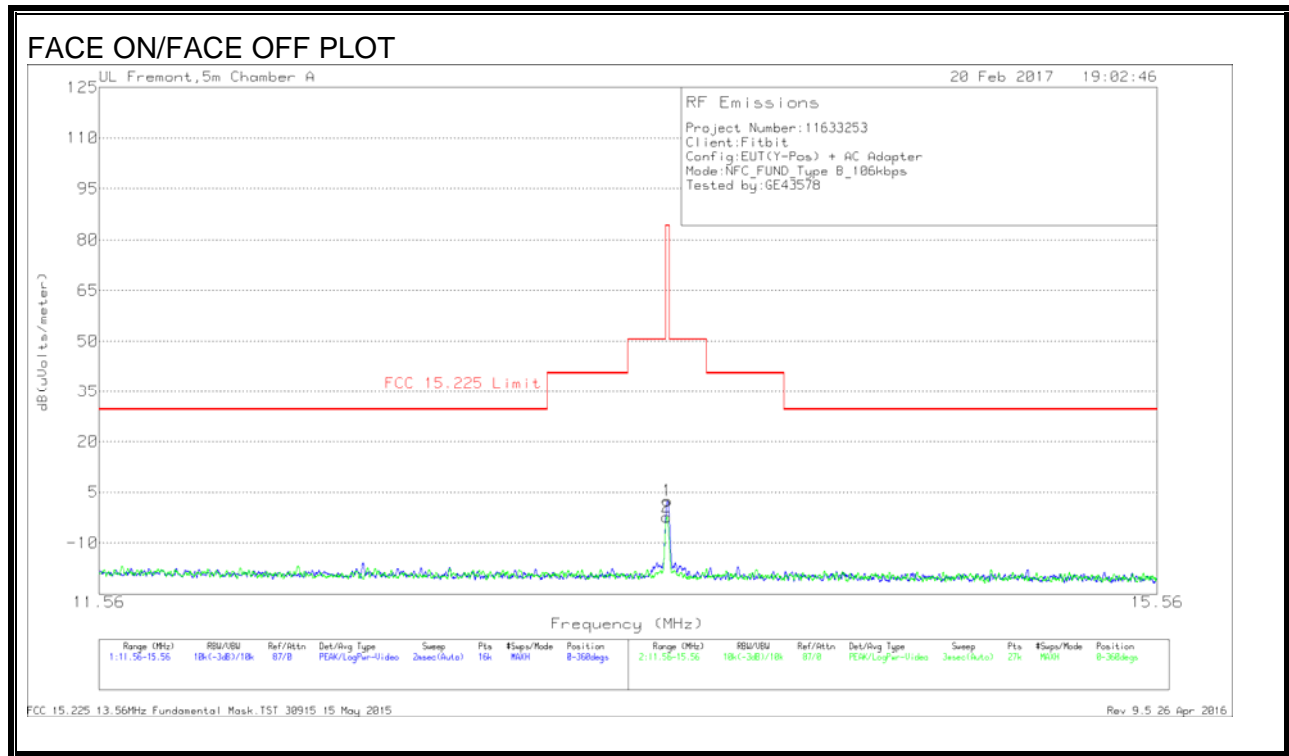
§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

RESULTS

9.1. FUNDAMENTAL AND SPURIOUS EMISSIONS (9 kHz– 30 MHz)

9.1.1. FUNDAMENTAL EMISSIONS



DATA

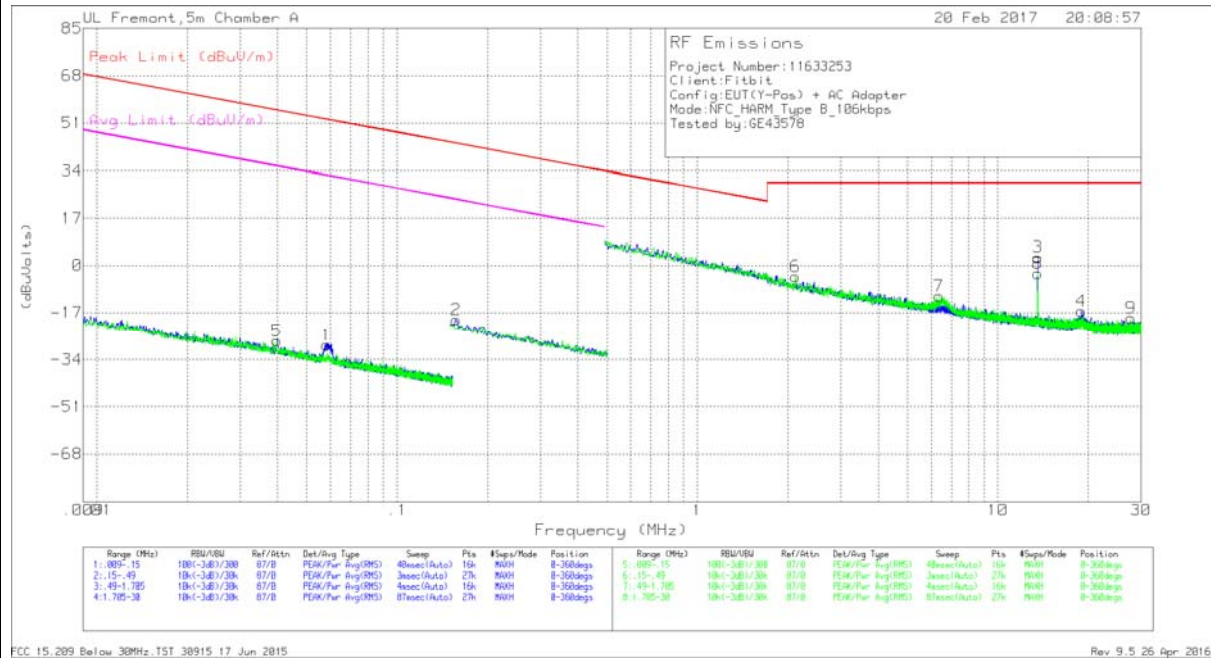
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)
2	13.55867	26.49	Pk	10.6	.6	-40	-2.31	84	-86.31	0-360
1	13.56063	31.31	Pk	10.6	.6	-40	2.51	84	-81.49	0-360

Pk - Peak detector

9.1.2. SPURIOUS EMISSIONS 9 kHz TO 30 MHz

FACE ON/FACE OFF PLOT



NOTE: KDB 937606 OATS and Chamber Correlation Justification

- Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

DATA

Trace Markers

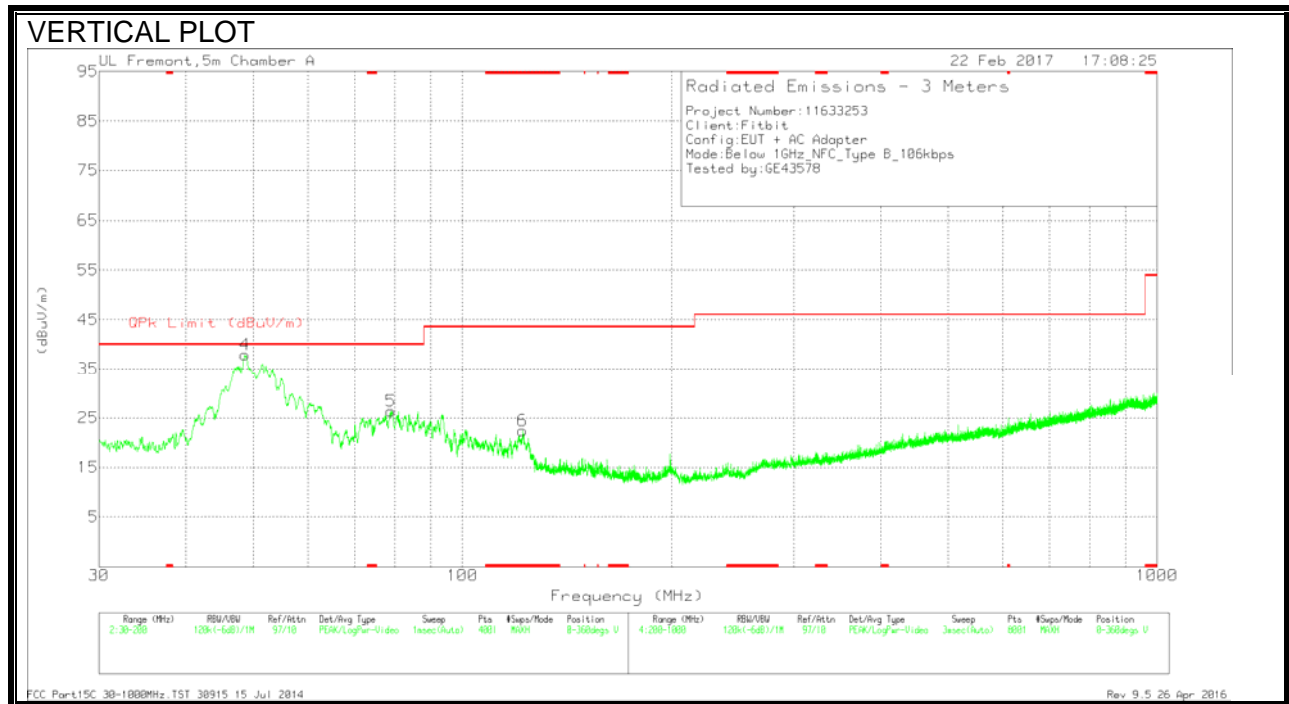
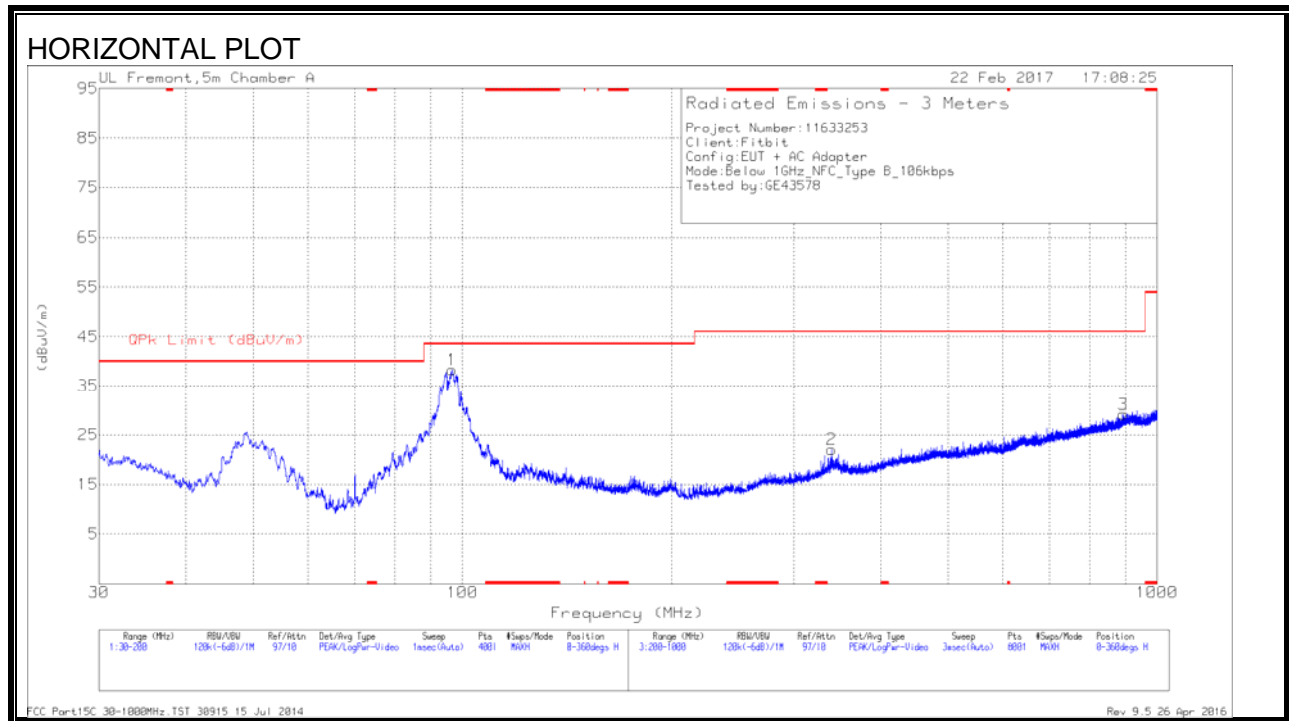
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	.0398	40.58	PK	12.2	.1	-80	-27.12	55.61	-82.73	35.61	-62.73	0-360
1	.05822	39.82	PK	11.2	.1	-80	-28.88	52.3	-81.18	32.3	-61.18	0-360
2	.15726	49.53	PK	10.8	.1	-80	-19.57	43.67	-63.24	23.67	-43.24	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
6	2.12263	25.02	PK	10.8	.2	-40	-3.98	29.54	-33.52	-	-	0-360
7	6.37803	17.68	PK	10.9	.4	-40	-11.02	29.54	-40.56	-	-	0-360
3	13.56155	31.65	PK	10.7	.6	-40	2.95	29.54	-26.59	-	-	0-360
8	13.56155	25.84	PK	10.7	.6	-40	-2.86	29.54	-32.4	-	-	0-360
4	18.9598	12.91	PK	10.2	.6	-40	-16.29	29.54	-45.83	-	-	0-360
9	27.70798	11.83	PK	8.6	.8	-40	-18.77	29.54	-48.31	-	-	0-360

Pk - Peak detector

9.2. WORST-CASE BELOW 1 GHz



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 122.055	34.95	Pk	17.9	-30.4	22.45	43.52	-21.07	0-360	100	V
4	48.6575	56.76	Pk	12.1	-31	37.86	40	-2.14	0-360	100	V
5	79.0025	45.22	Pk	11.9	-30.7	26.42	40	-13.58	0-360	100	V
1	96.64	55.61	Pk	13.3	-30.6	38.31	43.52	-5.21	0-360	300	H
2	340.2	33.35	Pk	18	-29.3	22.05	46.02	-23.97	0-360	100	H
3	892.4	30.03	Pk	26.5	-27.4	29.13	46.02	-16.89	0-360	200	H

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

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
48.8922	46.12	Qp	12	-31	27.12	40	-12.88	303	111	V
96.4989	47.09	Qp	13.2	-30.6	29.69	43.52	-13.83	269	306	H

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

Qp - Quasi-Peak detector

10. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207

IC RSS-GEN, Section 7.2.2

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dB μ V)	
	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
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz		

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.

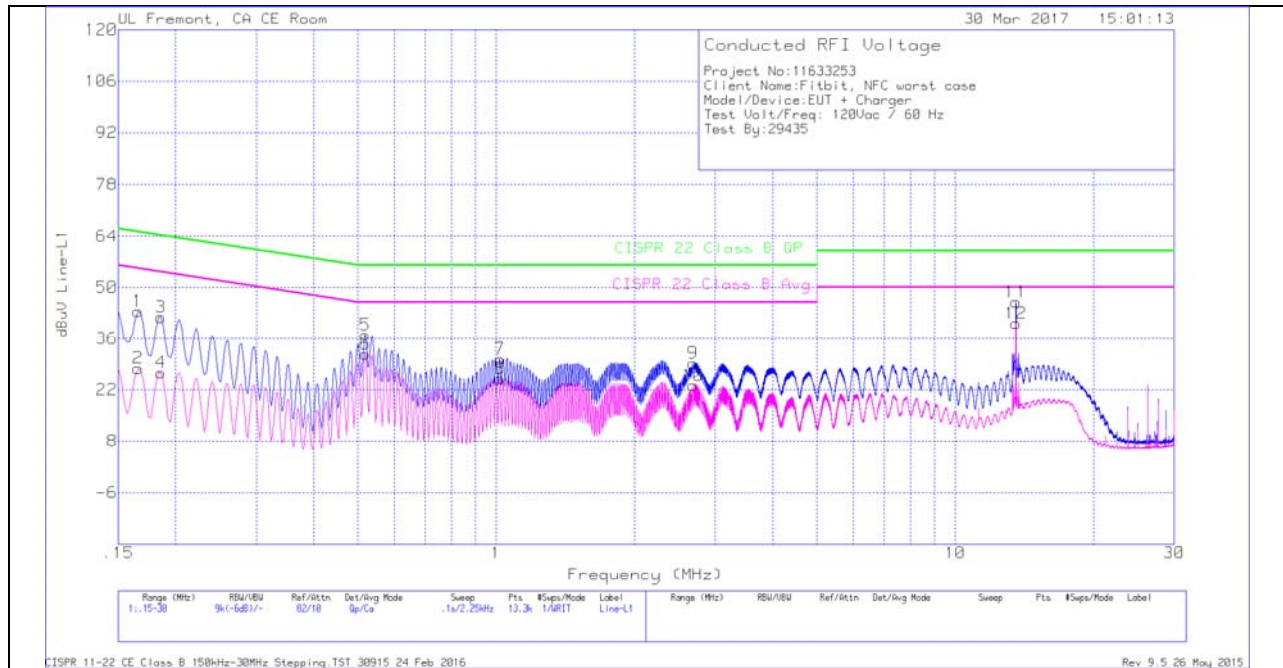
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

No non-compliance noted:

LINE 1 RESULTS



DATA

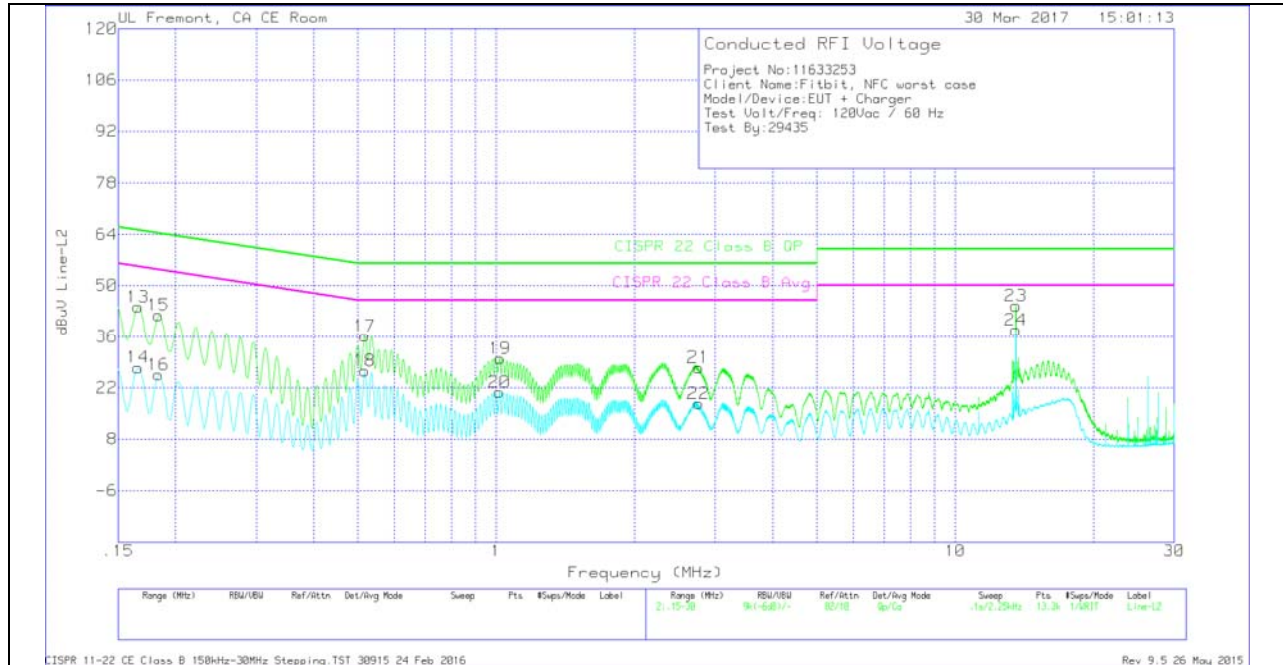
Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.16575	33.45	Qp	0	0	10.1	43.55	65.17	-21.62	-	-
2	.16575	17.75	Ca	0	0	10.1	27.85	-	-	55.17	-27.32
3	.186	31.7	Qp	0	.1	10.1	41.9	64.21	-22.31	-	-
4	.186	16.43	Ca	0	.1	10.1	26.63	-	-	54.21	-27.58
5	.519	26.85	Qp	0	.1	10.1	37.05	56	-18.95	-	-
6	.519	21.55	Ca	0	.1	10.1	31.75	-	-	46	-14.25
7	1.0185	20.21	Qp	0	.1	10.1	30.41	56	-25.59	-	-
8	1.0185	14.82	Ca	0	.1	10.1	25.02	-	-	46	-20.98
9	2.6835	19	Qp	0	.1	10.1	29.2	56	-26.8	-	-
10	2.6835	12.93	Ca	0	.1	10.1	23.13	-	-	46	-22.87
11	13.56	35.57	Qp	.1	.2	10.2	46.07	60	-13.93	-	-
12	13.56	29.75	Ca	.1	.2	10.2	40.25	-	-	50	-9.75

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



DATA

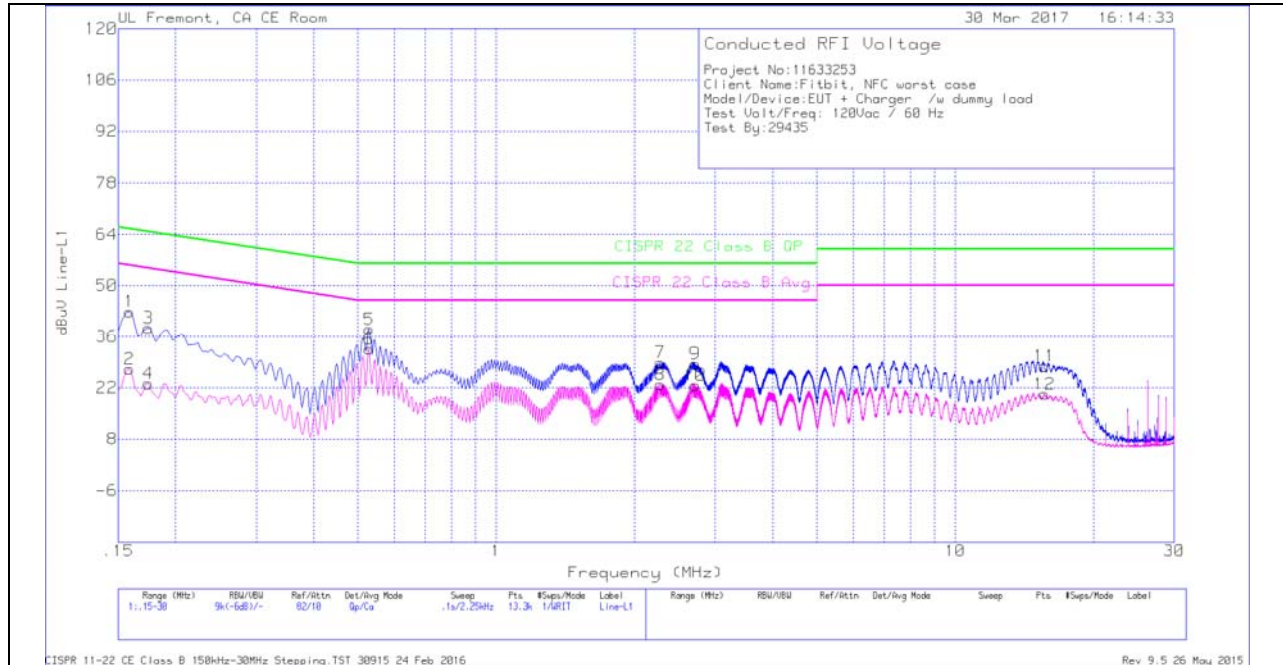
Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
13	.16575	34.05	Qp	0	0	10.1	44.15	65.17	-21.02	-	-
14	.16575	17.42	Ca	0	0	10.1	27.52	-	-	55.17	-27.65
15	.18375	31.69	Qp	0	.1	10.1	41.89	64.31	-22.42	-	-
16	.18375	15.31	Ca	0	.1	10.1	25.51	-	-	54.31	-28.8
17	.51675	25.93	Qp	0	.1	10.1	36.13	56	-19.87	-	-
18	.51675	16.41	Ca	0	.1	10.1	26.61	-	-	46	-19.39
19	1.0185	19.75	Qp	0	.1	10.1	29.95	56	-26.05	-	-
20	1.01625	10.57	Ca	0	.1	10.1	20.77	-	-	46	-25.23
21	2.75775	17.28	Qp	0	.1	10.1	27.48	56	-28.52	-	-
22	2.75775	7.47	Ca	0	.1	10.1	17.67	-	-	46	-28.33
23	13.56	33.98	Qp	.1	.2	10.2	44.48	60	-15.52	-	-
24	13.56	27.3	Ca	.1	.2	10.2	37.8	-	-	50	-12.2

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 1 RESULTS (Antenna Terminated)



DATA

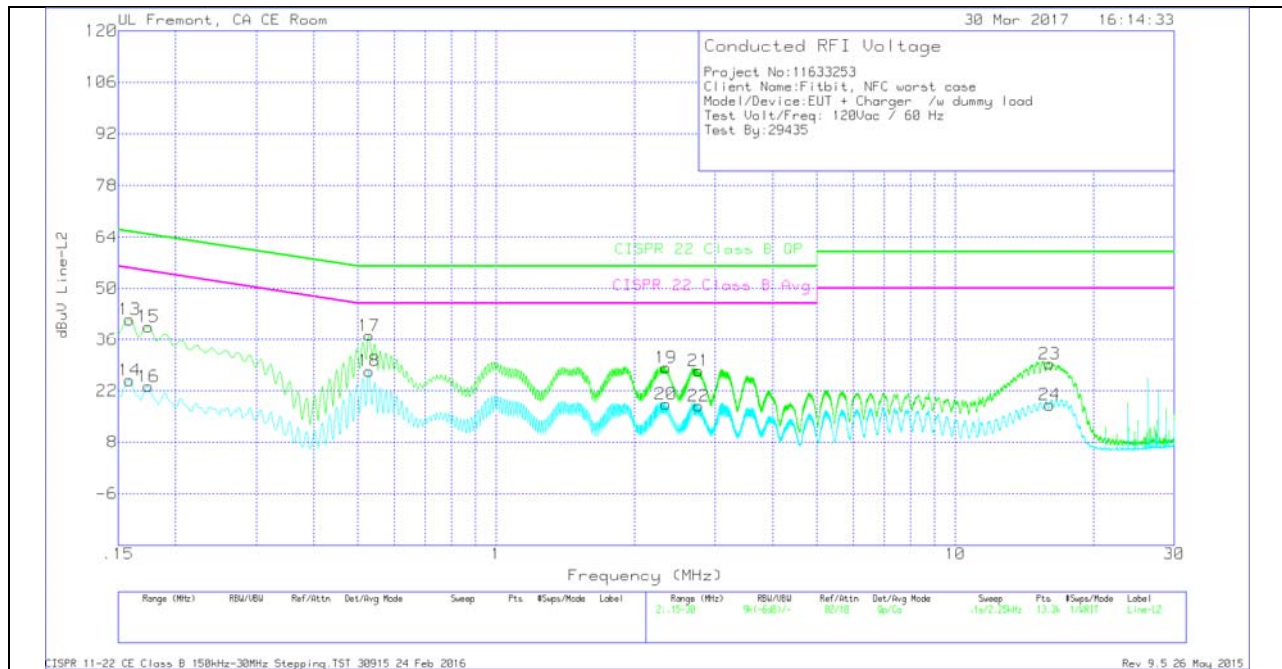
Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.159	32.71	Qp	0	.1	10.1	42.91	65.52	-22.61	-	-
2	.159	16.84	Ca	0	.1	10.1	27.04	-	-	55.52	-28.48
3	.17475	28.3	Qp	0	0	10.1	38.4	64.73	-26.33	-	-
4	.17475	13	Ca	0	0	10.1	23.1	-	-	54.73	-31.63
5	.528	27.85	Qp	0	.1	10.1	38.05	56	-17.95	-	-
6	.528	22.38	Ca	0	.1	10.1	32.58	-	-	46	-13.42
7	2.2785	18.64	Qp	0	.1	10.1	28.84	56	-27.16	-	-
8	2.2785	12.63	Ca	0	.1	10.1	22.83	-	-	46	-23.17
9	2.71275	18.29	Qp	0	.1	10.1	28.49	56	-27.51	-	-
10	2.71275	12.47	Ca	0	.1	10.1	22.67	-	-	46	-23.33
11	15.648	17.48	Qp	0	.2	10.2	27.88	60	-32.12	-	-
12	15.64575	9.83	Ca	0	.2	10.2	20.23	-	-	50	-29.77

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS (Antenna Terminated)



DATA

Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
13	.159	31.37	Qp	0	.1	10.1	41.57	65.52	-23.95	-	-
14	.159	14.61	Ca	0	.1	10.1	24.81	-	-	55.52	-30.71
15	.17475	29.41	Qp	0	.1	10.1	39.61	64.73	-25.12	-	-
16	.17475	12.96	Ca	0	.1	10.1	23.16	-	-	54.73	-31.57
17	.528	26.98	Qp	0	.1	10.1	37.18	56	-18.82	-	-
18	.528	17.14	Ca	0	.1	10.1	27.34	-	-	46	-18.66
19	2.3415	18.05	Qp	0	.1	10.1	28.25	56	-27.75	-	-
20	2.3415	8.12	Ca	0	.1	10.1	18.32	-	-	46	-27.68
21	2.76	17.2	Qp	0	.1	10.1	27.4	56	-28.6	-	-
22	2.76	7.65	Ca	0	.1	10.1	17.85	-	-	46	-28.15
23	16.04625	18.8	Qp	0	.2	10.3	29.3	60	-30.7	-	-
24	16.0665	7.64	Ca	0	.2	10.3	18.14	-	-	50	-31.86

Qp - Quasi-Peak detector

Ca - CISPR average detection

11. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency, over a temperature variation of -10 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

RSS-210 Annex B.6: Carrier frequency stability shall be maintained to $\pm 0.01\%$ (± 100 ppm).

TEST PROCEDURE

ANSI C63.10

RESULTS

ID:	43578	Date:	03/01/17
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Reference Frequency: EUT Channel 13.56 MHz @ 20°C Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measured with Time Elapse								
(Vdc)	(°C)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
4.35	50	13.5605839	1.799	13.5605895	1.386	13.5605929	1.136	13.5605806	2.043	± 100
4.35	40	13.5605725	2.640	13.5605707	2.773	13.5605697	2.847	13.5605802	2.072	± 100
4.35	30	13.5605852	1.704	13.5605811	2.006	13.5605785	2.198	13.5605786	2.190	± 100
4.35	20	13.5606083	0.000	13.5606130	-0.347	13.5605969	0.841	13.5605778	2.249	± 100
4.35	10	13.5606448	-2.692	13.5606386	-2.235	13.5606335	-1.858	13.5606154	-0.524	± 100
4.35	0	13.5606429	-2.552	13.5606470	-2.854	13.5606509	-3.142	13.5606257	-1.283	± 100
4.35	-10	13.5605943	1.032	13.5606124	-0.302	13.5606348	-1.954	13.5606691	-4.484	± 100
3.66	20	13.5606066	0.125	13.5606010	0.538	13.5605973	0.811	13.5605876	1.527	± 100
4.95	20	13.5606056	0.199	13.5606015	0.501	13.5605966	0.863	13.5605894	1.394	± 100