



# **CERTIFICATION TEST REPORT**

**REPORT NUMBER :** 11626381H-E7V2

**APPLICANT :** SONY MOBILE COMMUNICATIONS INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA -KU,TOKYO, 140-0002, JAPAN

**FCC ID :** PY7-54254H

**EUT DESCRIPTION :** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

**TEST STANDARD(S) :** FCC 47 CFR PART 15 SUBPART C

**Date Of Issue:**

April 07, 2017

**Prepared by:**

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NVLAP Lab code: 200246-0

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**Revision History**

<u>Ver.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	03/24/2017	Initial Issue	C. Vergonio
V2	04/07/2017	Updated Section 5.2. Added note in Section 8.1.1.	C. Vergonio

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SONY MOBILE COMMUNICATIONS, INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA –KU, TOKYO, 140-0002, JAPAN

**EUT DESCRIPTION:** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

**SERIAL NUMBER:** CB512DQZZ4, CB512DQZZ3

**DATE TESTED:** MARCH 22 – 24, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	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, any agency of the Federal Government, or any agency of any government.

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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.

## 3. FACILITIES AND ACCREDITATION

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 type="checkbox"/>	Chamber A (IC:2324B-1)	<input type="checkbox"/>	Chamber D (IC:2324B-4)
<input checked="" type="checkbox"/>	Chamber B (IC:2324B-2)	<input type="checkbox"/>	Chamber E (IC:2324B-5)
<input type="checkbox"/>	Chamber C (IC:2324B-3)	<input type="checkbox"/>	Chamber F (IC:2324B-6)
		<input type="checkbox"/>	Chamber G (IC:2324B-7)
		<input type="checkbox"/>	Chamber H (IC:2324B-8)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

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
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	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case 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 GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS & NFC

### **5.2. MAXIMUM FIELD STRENGTH**

The testing was performed at 3 meter. The transmitter maximum E-field at 30 meter distance is 14.5 dBuV/m which is converted from the 3 meter data.

### **5.3. DESCRIPTION OF AVAILABLE ANTENNAS**

The radio utilizes loop antenna.

### **5.4. SOFTWARE AND FIRMWARE**

The software version installed in the EUT during testing was 0.274.

## **5.5. WORST-CASE CONFIGURATION AND MODE**

Radiated emission was performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z, it was determined that Y-Axis orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y-Axis orientation.

## **5.6. MODIFICATIONS**

No modifications were made during testing.



## 5.7. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SONY	1300-7137.1	4016W40310044	NA
Headphones	SONY	N/A	N/A	N/A

### I/O CABLES

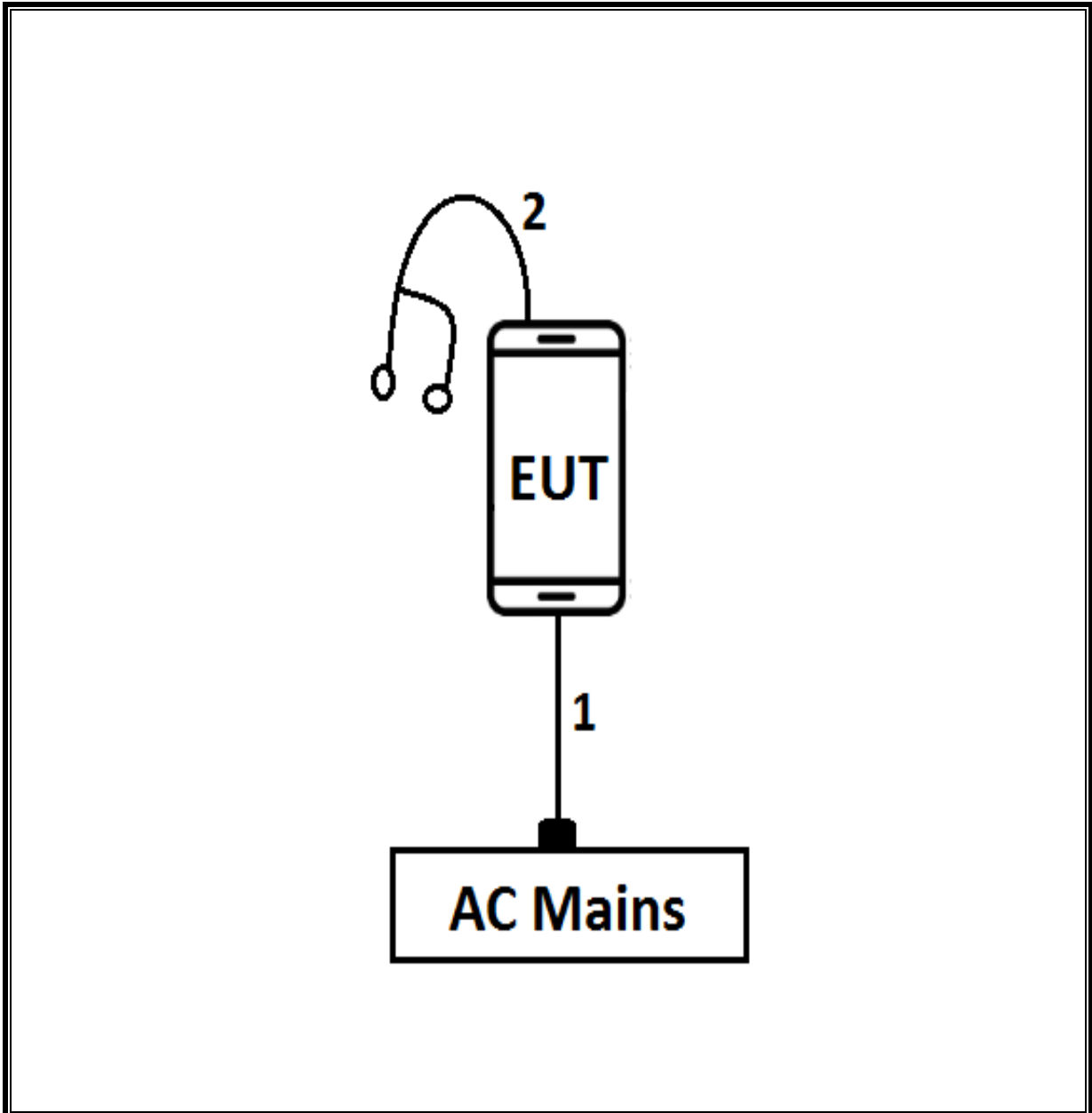
I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Shielded	3	N/A
2	Audio	1	3.5mm	Shielded	1	N/A

### TEST SETUP

The EUT is setup as a standalone device. Test software exercised the radio card.

**SETUP DIAGRAM FOR TESTS**

**RADIATED AND AC LINE CONDUCTED EMISSIONS SETUP DIAGRAM**



## 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	Asset	Cal Due
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB Pad	Sunol Sciences Corp.	JB3	T477	06/22/2017
Antenna, Active Loop 9kHz-30MHz	ETS-Lindgren	6502	T1683	02/17/2018
Amplifier, 10kHz-1GHz	Agilent (Keysight) Technologies	8447D	T15	08/26/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T907	01/23/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1450	01/10/2018
Temperature Chamber	Thermotron Industries	SE-600-10-10	T80	08/21/2017
EMI Test Receiver	Rohde & Schwarz	ESR	T1436	01/18/2018
LISN	Fischer Custom Communications	FCC-LISN-50/250-25-2-01	T1310	06/08/2017
Transient Limiter	COM-POWER	LIT-930	T1457	02/24/18

Test Software List			
Description	Manufacturer	Model	Version
Conducted Emissions Software	UL	UL EMC	Ver 9.5, May 26, 2015
Radiated Emissions Software	UL	UL EMC	Ver 9.5, April 26, 2016

## 7. OCCUPIED BANDWIDTH

### LIMITS

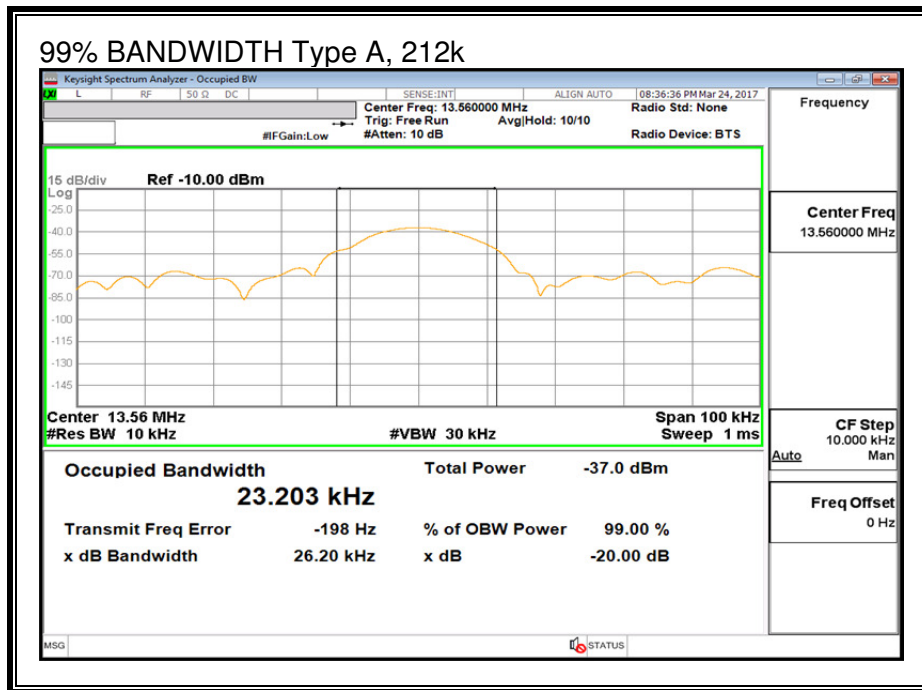
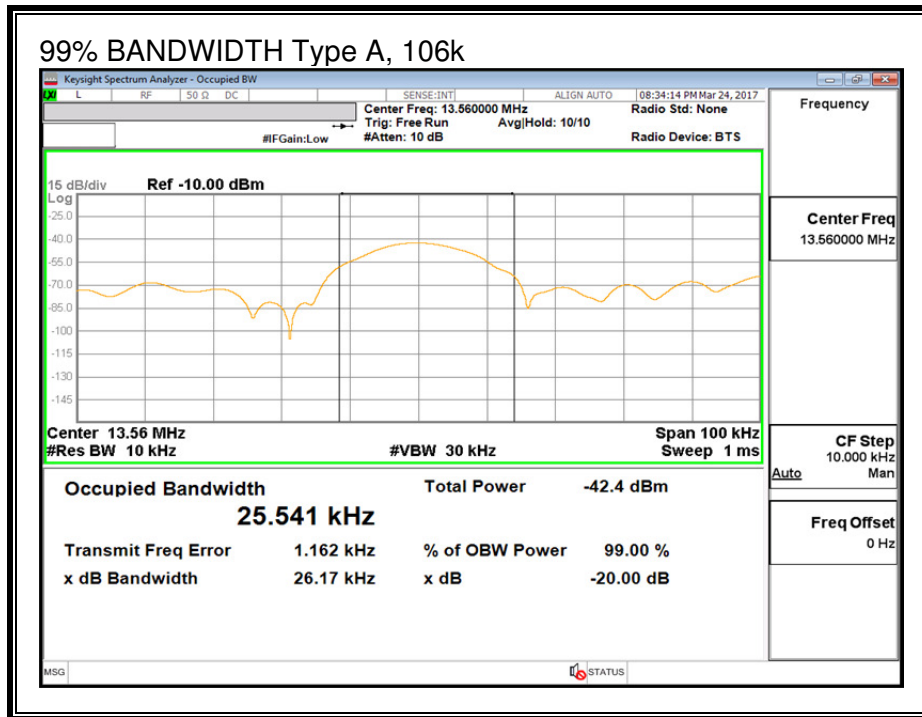
For reporting purposes only. Tested per ANSI C63.10 (6.9.3)

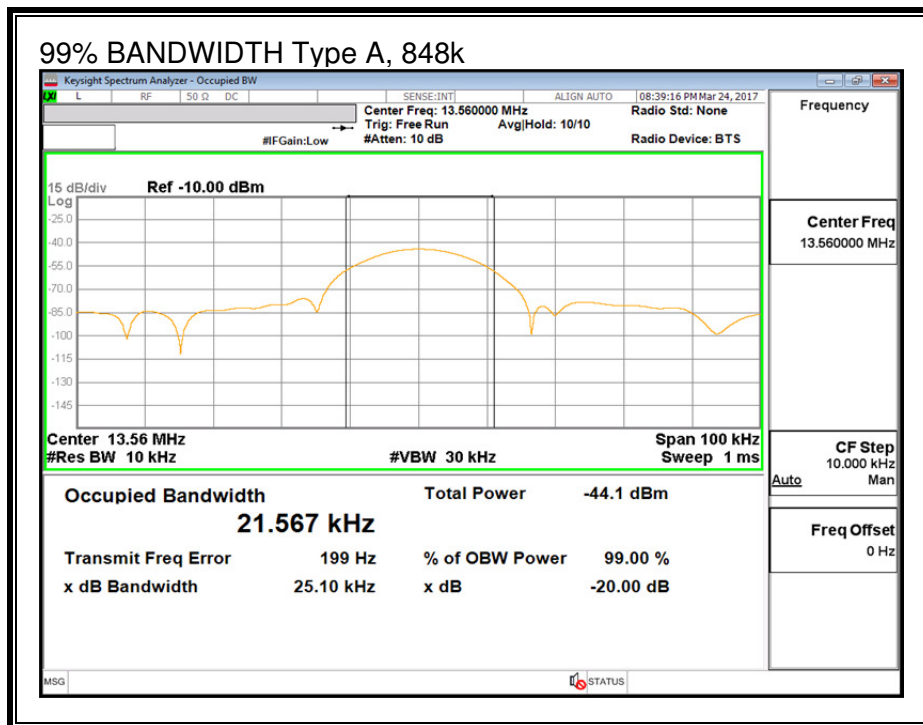
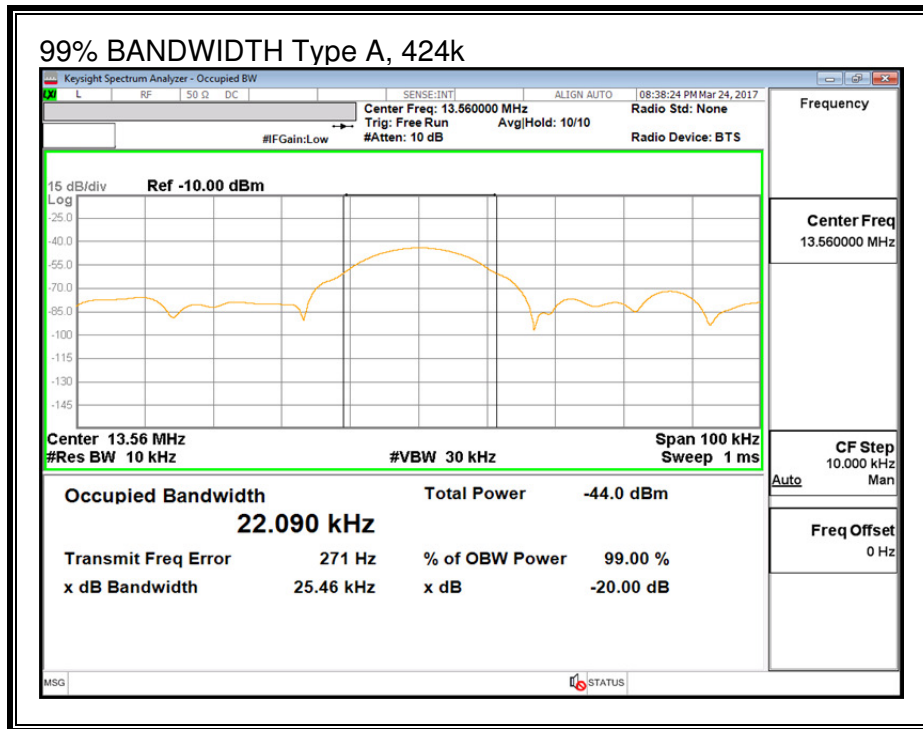
### RESULTS

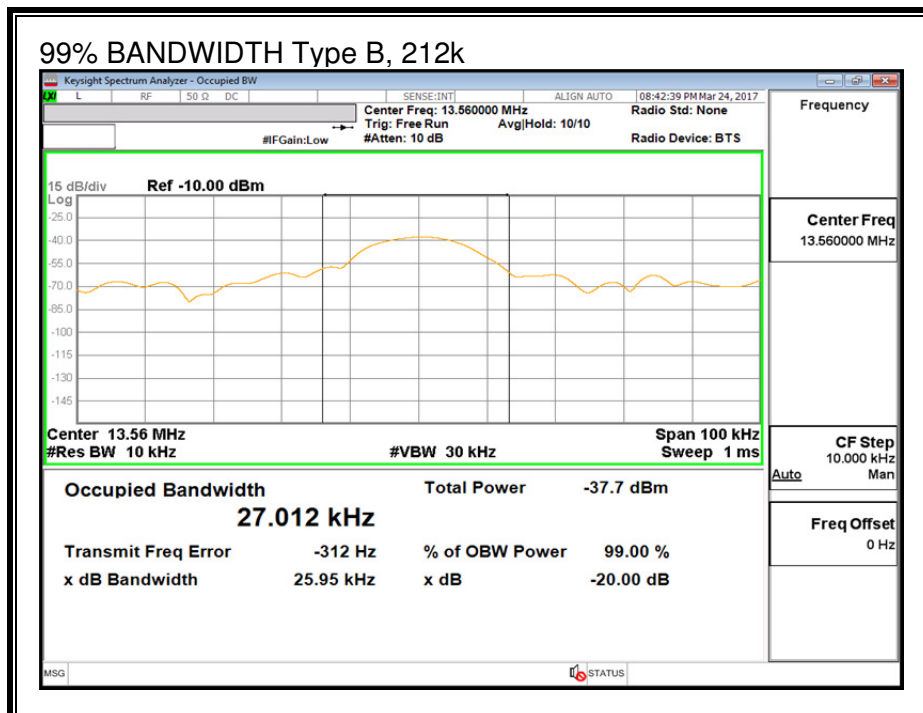
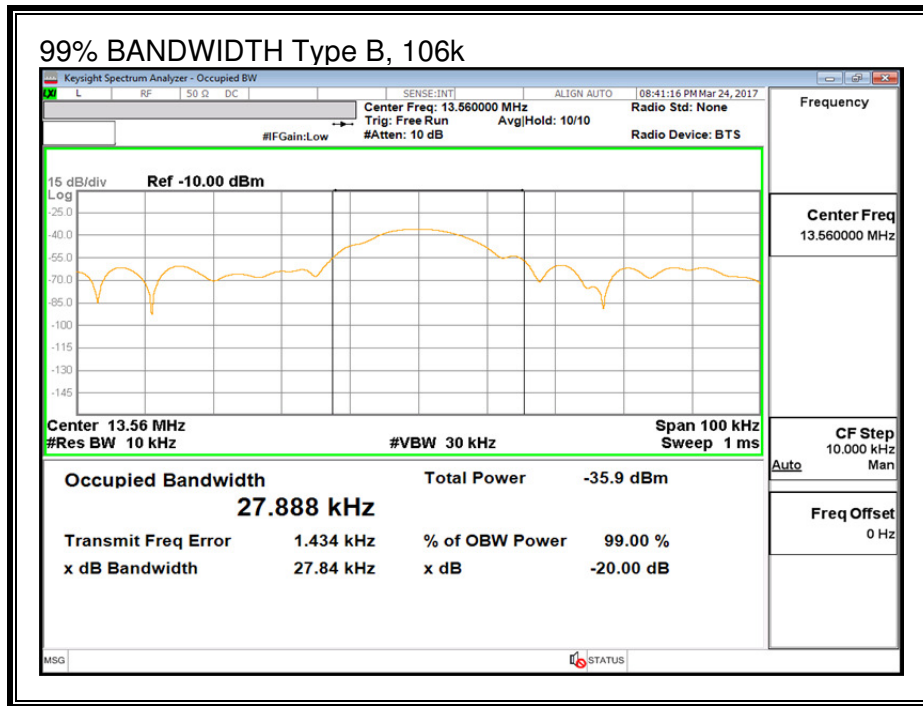
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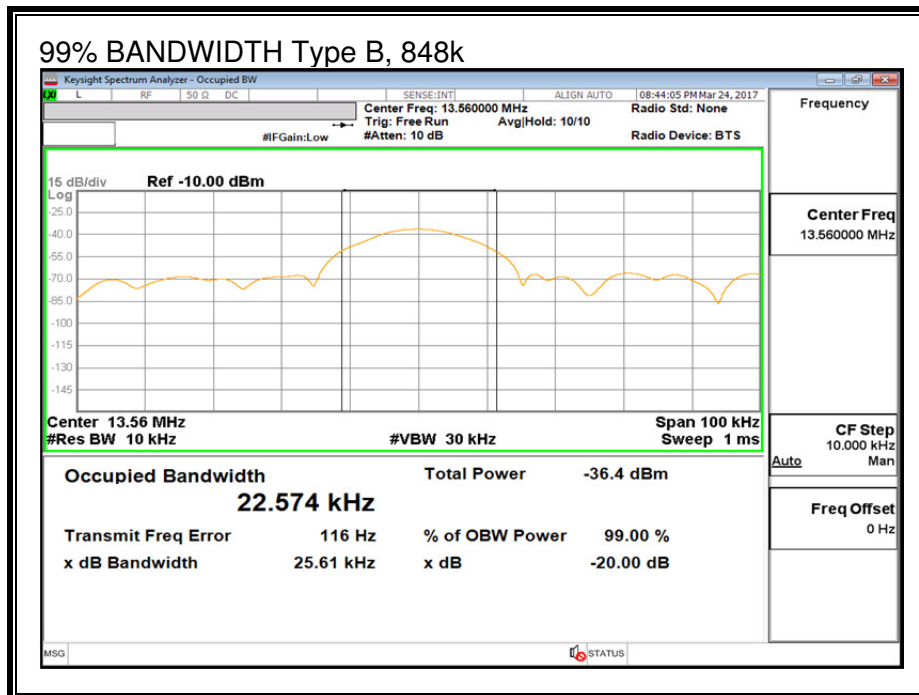
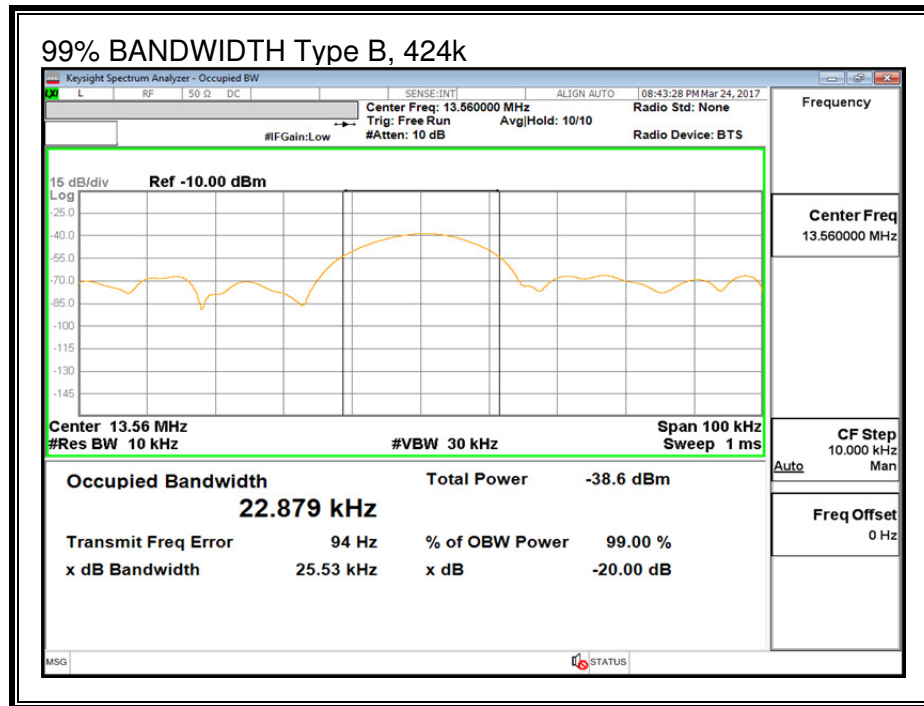
Frequency (MHz)	Modulation	Data Rate (kbps)	99% Bandwidth (kHz)	20dB Bandwidth (kHz)
13.56	Type A	106	25.541	26.170
		212	23.203	26.200
		424	22.090	25.460
		848	21.567	25.100
	Type B	106	27.888	27.840
		212	27.012	25.950
		424	22.879	25.530
		848	22.574	25.610
	Type F	212	21.394	25.050
		424	21.193	25.000
		848	21.273	25.130

**99% Bandwidth**

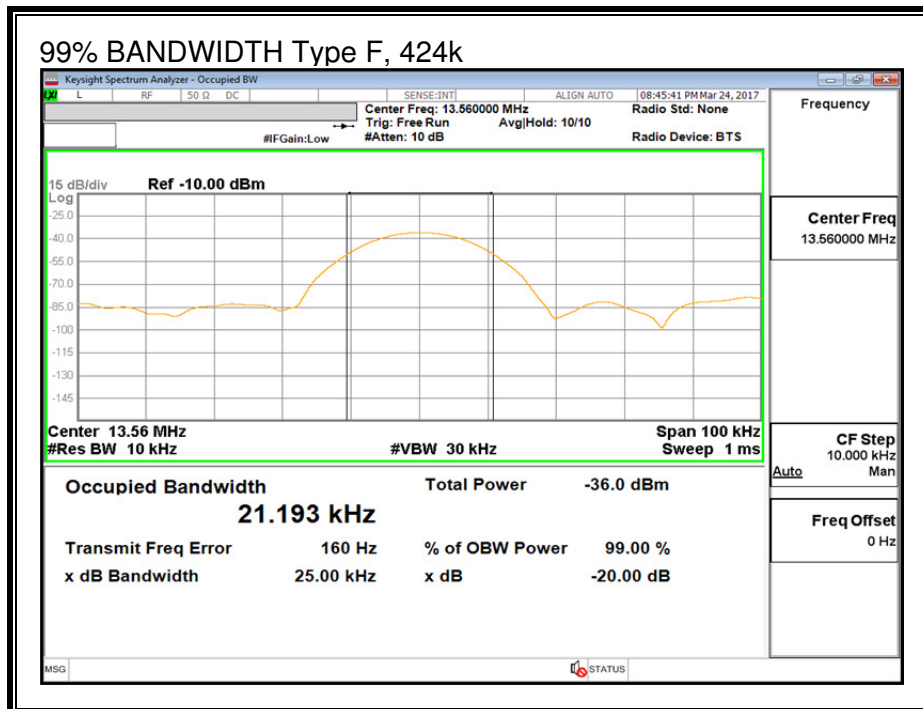
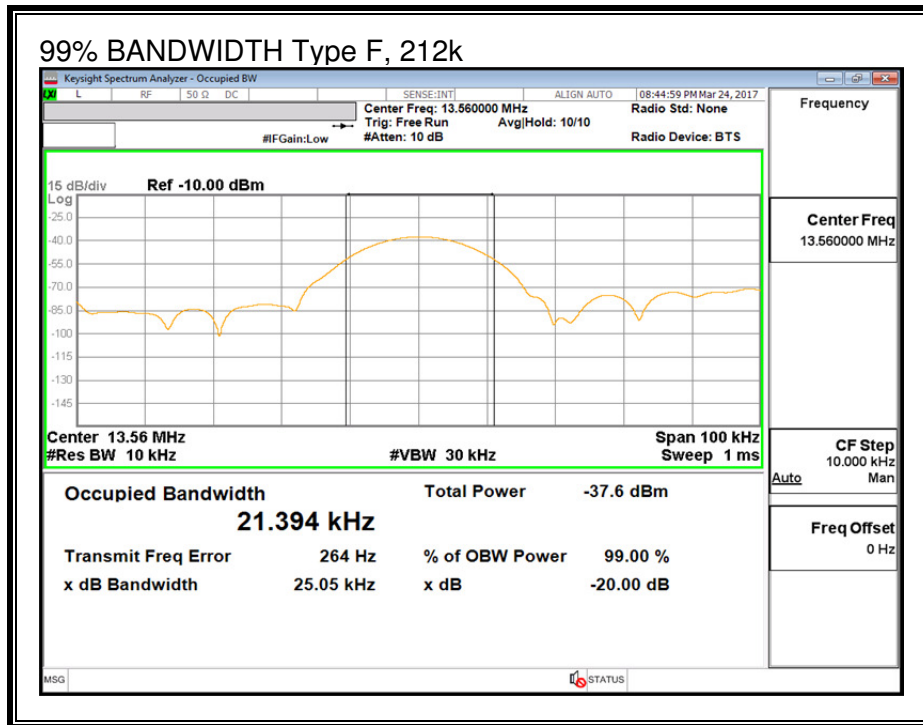


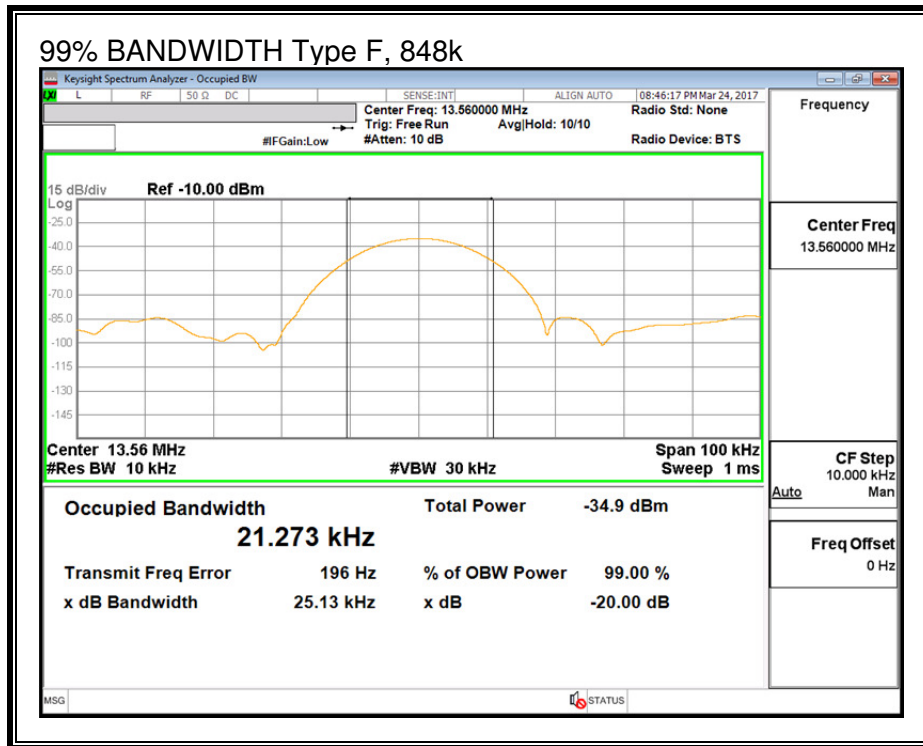












## 8. RADIATED EMISSION TEST RESULTS

### 8.1. LIMITS AND PROCEDURE

#### LIMIT

§15.225, 15.209

(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 470-806 MHz. 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 filed strength from uV/m to dBuV/m is:

$$\text{Limit (dBuV/m)} = 20 \log \text{limit (uV/m)}$$

In addition:

§15.209 (d) The emission limits shown at 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.

### **TEST PROCEDURE**

ANSI C63.10-2013

The EUT is an intentional radiator that incorporates a digital device. The highest fundamental frequency generated or used in the device is 13.56 MHz. The frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater (1000MHz)

### **RESULTS**

No non-compliance noted:

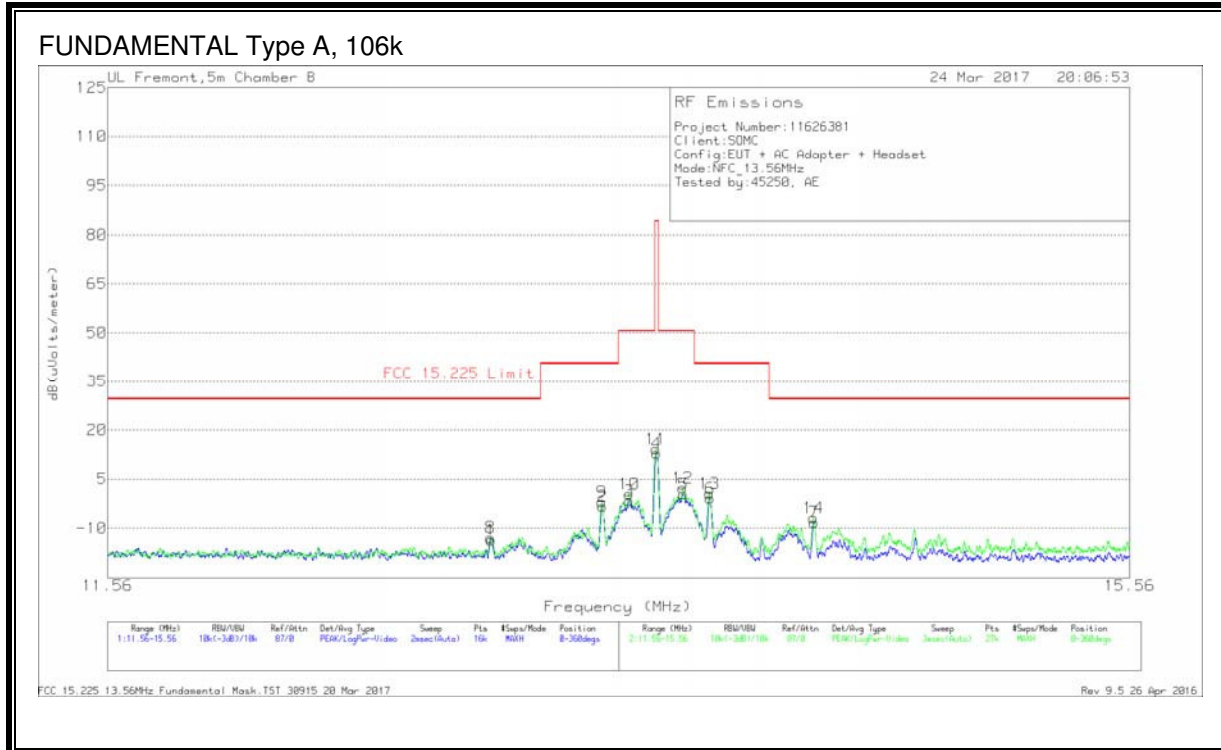
### **KDB 937606 OATS and Chamber Correlation Justification**

Device is a Smart Phone.

Base 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.

**8.1.1. FUNDAMENTAL EMISSION MASK (11.56 – 15.56MHz)**



Note: All data rate Field Strength was investigated and Type A, 106k found to have the highest Field Strength results and represents as the worst case data rate.

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)	Antenna Position
8	12.92182	15.14	Pk	10.4	1.6	-40	-12.86	29.54	-42.4	0-360	Face Off
1	12.92288	14.51	Pk	10.4	1.6	-40	-13.49	29.54	-43.03	0-360	Face On
9	13.34688	26.04	Pk	10.4	1.6	-40	-1.96	40.51	-42.47	0-360	Face Off
2	13.34863	24.71	Pk	10.4	1.6	-40	-3.29	40.51	-43.8	0-360	Face On
10	13.45225	28.45	Pk	10.4	1.6	-40	.45	50.5	-50.05	0-360	Face Off
3	13.45338	26.46	Pk	10.4	1.6	-40	-1.54	50.5	-52.04	0-360	Face On
11	13.55837	42.32	Pk	10.4	1.6	-40	14.32	84	-69.68	0-360	Face Off
4	13.56025	41	Pk	10.4	1.6	-40	13	84	-71	0-360	Face On
12	13.66449	30.24	Pk	10.4	1.6	-40	2.24	50.5	-48.26	0-360	Face Off
5	13.66588	28.46	Pk	10.4	1.6	-40	.46	50.5	-50.04	0-360	Face On
13	13.76971	28.78	Pk	10.3	1.6	-40	.68	40.51	-39.83	0-360	Face Off
6	13.77213	27.19	Pk	10.3	1.6	-40	-.91	40.51	-41.42	0-360	Face On
14	14.19314	21.3	Pk	10.3	1.6	-40	-6.8	29.54	-36.34	0-360	Face Off
7	14.19513	19.9	Pk	10.3	1.6	-40	-8.2	29.54	-37.74	0-360	Face On

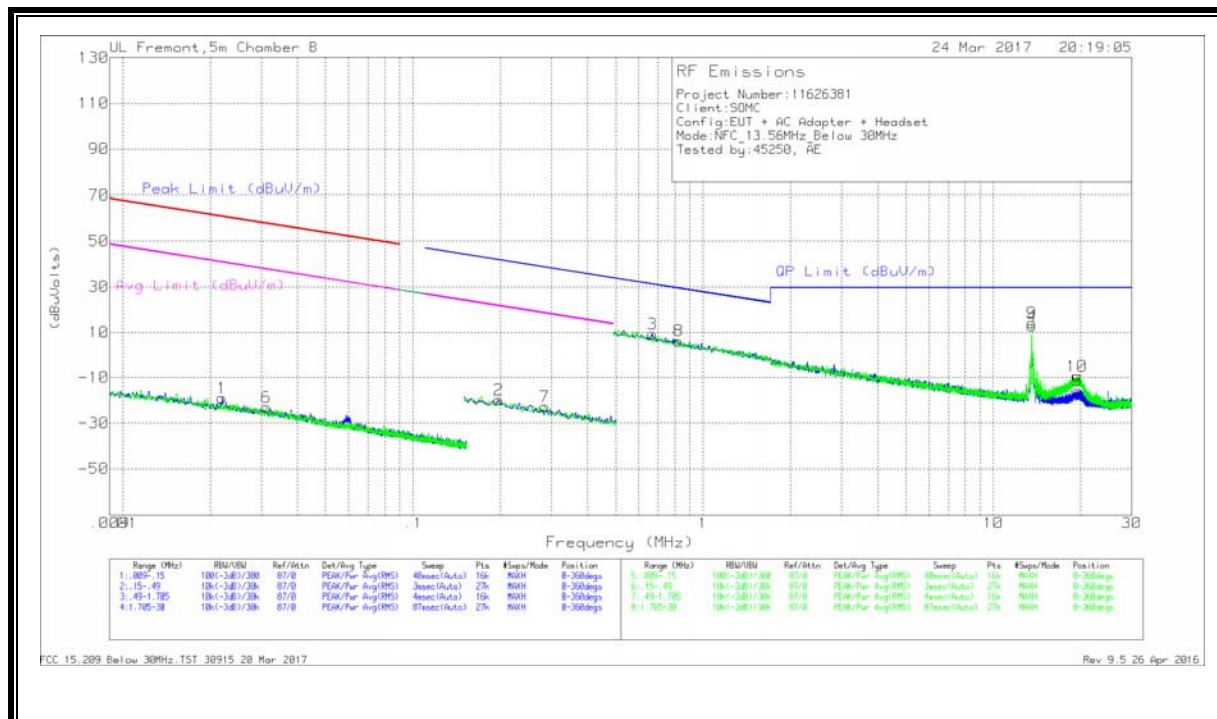
Pk - Peak detector

Fundamental Frequency

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)	Antenna Position
13.56	42.5	Pk	10.4	1.6	-40	14.5	84	-69.5	152	Face Off
13.5605	41.54	Pk	10.4	1.6	-40	13.54	84	-70.46	82	Face On

Pk - Peak detector

### 8.1.2. SPURIOUS EMISSIONS (0.09 – 30MHz)



#### Trace Markers

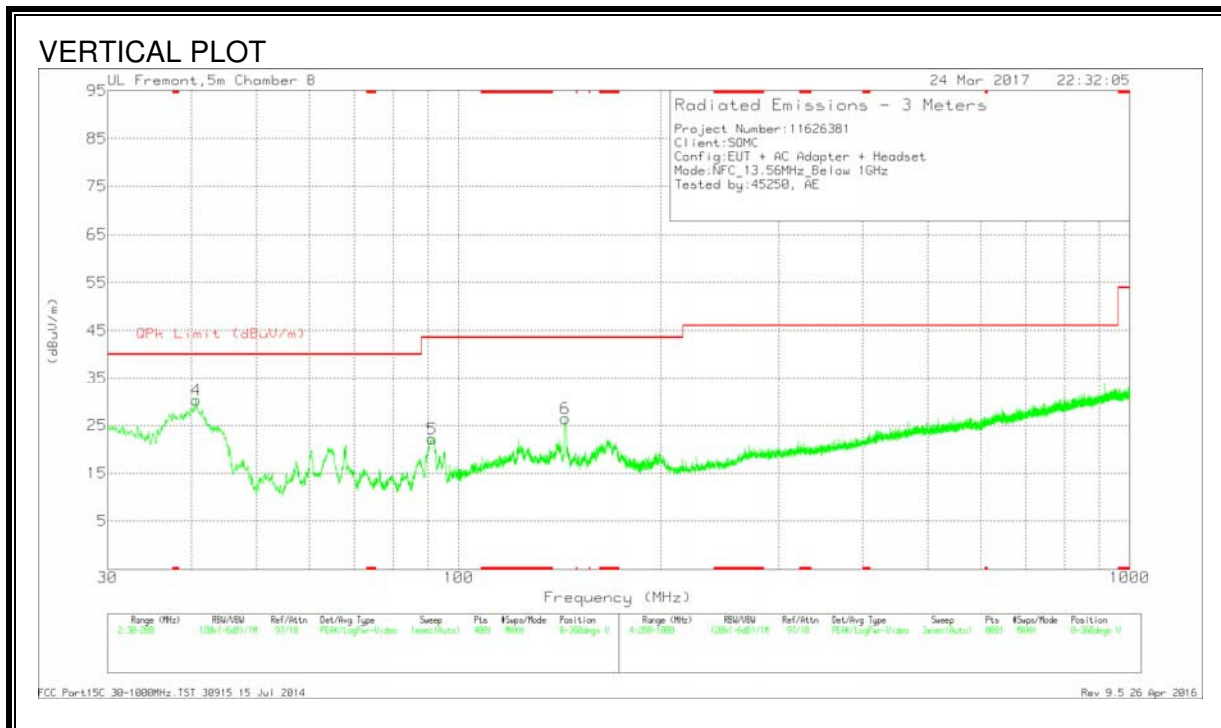
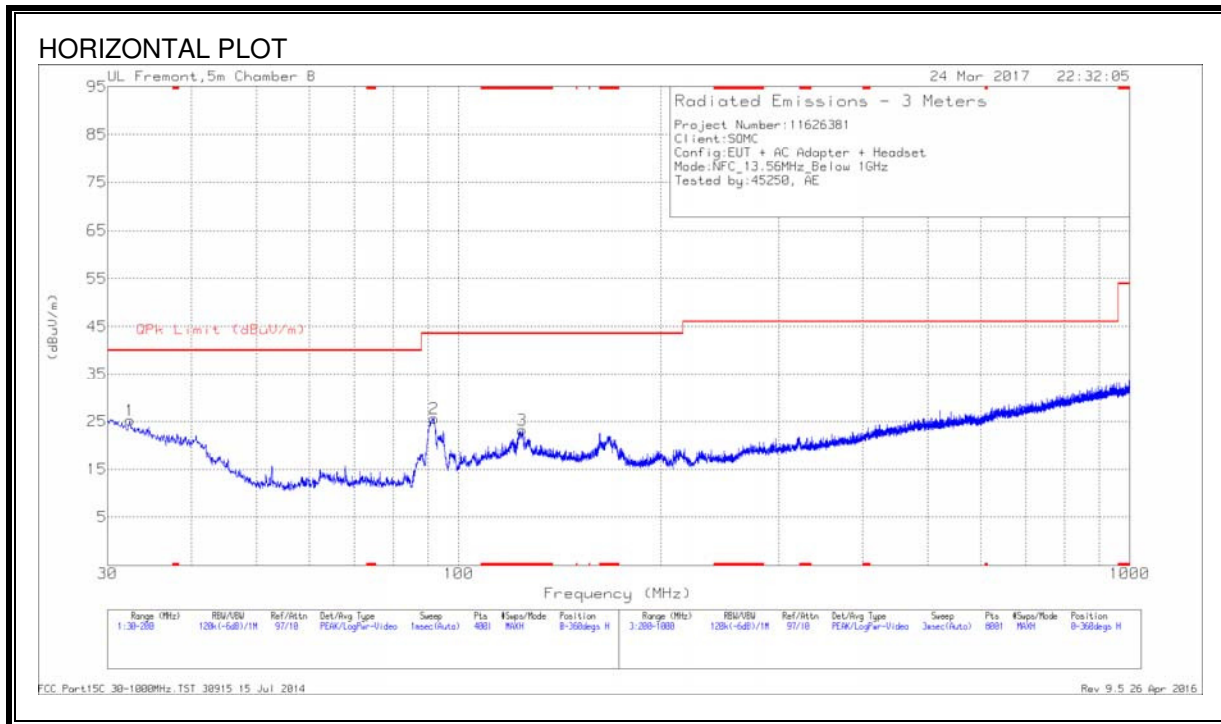
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.02201	44.36	Pk	15.1	1.4	-80	-19.14	60.73	-79.87	40.73	-59.87	-	-	-	-	-	-	0-360
6	.03119	41.5	Pk	14.2	1.4	-80	-22.9	57.71	-80.61	37.71	-60.61	-	-	-	-	-	-	0-360
2	.19729	47.04	Pk	11.6	1.5	-80	-19.86	-	-	-	-	-	-	41.72	-61.58	21.72	-41.58	0-360
7	.28522	44.37	Pk	11.5	1.5	-80	-22.63	-	-	-	-	-	-	38.51	-61.14	18.51	-41.14	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)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.66868	36.36	Pk	11.5	1.5	-40	9.36	-	-	-	-	31.11	-21.75	0-360
8	.82307	33.36	Pk	11.5	1.5	-40	6.36	-	-	-	-	29.31	-22.95	0-360
9	13.5605	42.14	Pk	10.4	1.6	-40	14.14	-	-	-	-	29.5	-15.36	0-360
4	13.56102	40.96	Pk	10.4	1.6	-40	12.96	-	-	-	-	29.5	-16.54	0-360
10	19.37323	19.09	Pk	9.8	1.6	-40	-9.51	-	-	-	-	29.5	-39.01	0-360
5	19.49585	12.85	Pk	9.8	1.6	-40	-15.75	-	-	-	-	29.5	-45.25	0-360

#### Pk - Peak detector

### 8.1.3. TX SPURIOUS EMISSIONS (30 – 1000MHz)





Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AFT477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 124.4775	32.97	Pk	17.8	-27.6	23.17	43.52	-20.35	0-360	200	H
1	32.38	30.47	Pk	23.6	-28.8	25.27	40	-14.73	0-360	200	H
4	40.6675	41.5	Pk	17.5	-28.7	30.3	40	-9.7	0-360	100	V
5	91.4125	38.43	Pk	11.8	-28	22.23	43.52	-21.29	0-360	100	V
2	91.9013	41.55	Pk	12	-28	25.55	43.52	-17.97	0-360	200	H
6	144.24	37.13	Pk	16.7	-27.4	26.43	43.52	-17.09	0-360	100	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
Pk - Peak detector

## 9. AC MAINS LINE CONDUCTED EMISSIONS

### LIMITS

§15.207

(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 $\mu$ 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 $\mu$ 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.

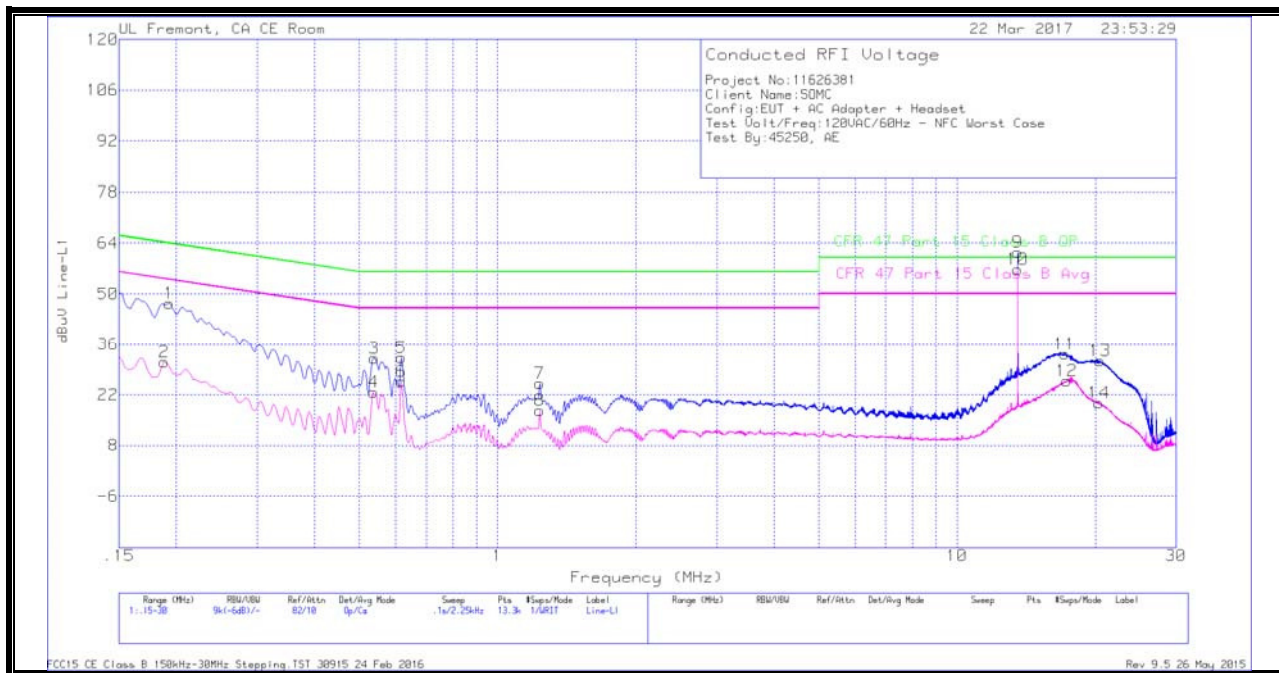
### TEST PROCEDURE

ANSI C63.10

### RESULTS

No non-compliance noted.

**EUT WITH ANTENNA - LINE 1 RESULTS**



**WORST EMISSIONS**

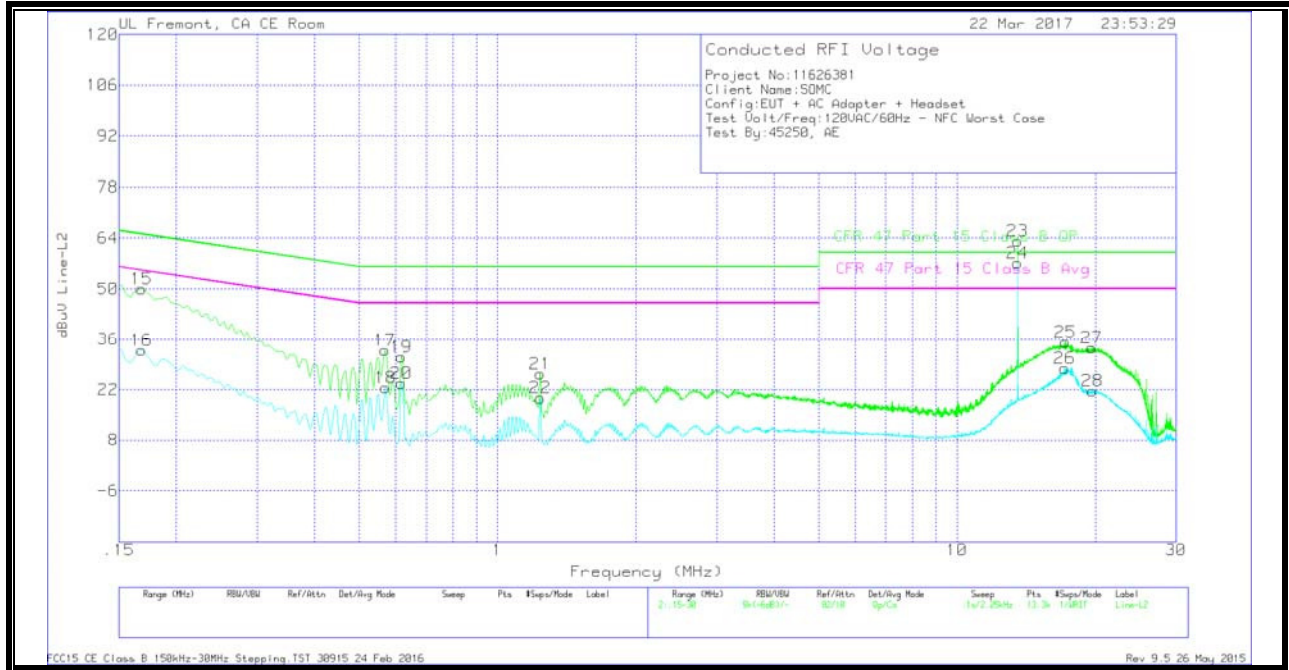
Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
1	.19275	37.25	Qp	0	.1	10.1	47.45	63.92	-16.47	-	-
2	.18825	20.82	Ca	0	.1	10.1	31.02	-	-	54.11	-23.09
3	.53925	21.86	Qp	0	.1	10.1	32.06	56	-23.94	-	-
4	.537	12.56	Ca	0	.1	10.1	22.76	-	-	46	-23.24
5	.618	22.09	Qp	0	.1	10.1	32.29	56	-23.71	-	-
6	.618	15.41	Ca	0	.1	10.1	25.61	-	-	46	-20.39
7	1.23675	14.97	Qp	0	.1	10.1	25.17	56	-30.83	-	-
8	1.23675	7.39	Ca	0	.1	10.1	17.59	-	-	46	-28.41
9	13.56	51.03	Qp	.1	.2	10.2	61.53	60	1.53	-	-
10	13.56	46.2	Ca	.1	.2	10.2	56.7	-	-	50	6.7
11	17.187	22.81	Qp	0	.2	10.3	33.31	60	-26.69	-	-
12	17.331	15.28	Ca	0	.2	10.3	25.78	-	-	50	-24.22
13	20.463	20.62	Qp	0	.3	10.4	31.32	60	-28.68	-	-
14	20.37863	9.14	Ca	0	.3	10.3	19.74	-	-	50	-30.26

Pk - Peak detector

Av - Average detection

Note: Markers 9 and 10 are the 13.56MHz NFC Fundamental

**EUT WITH ANTENNA-LINE 2 RESULTS**



**WORST EMISSIONS**

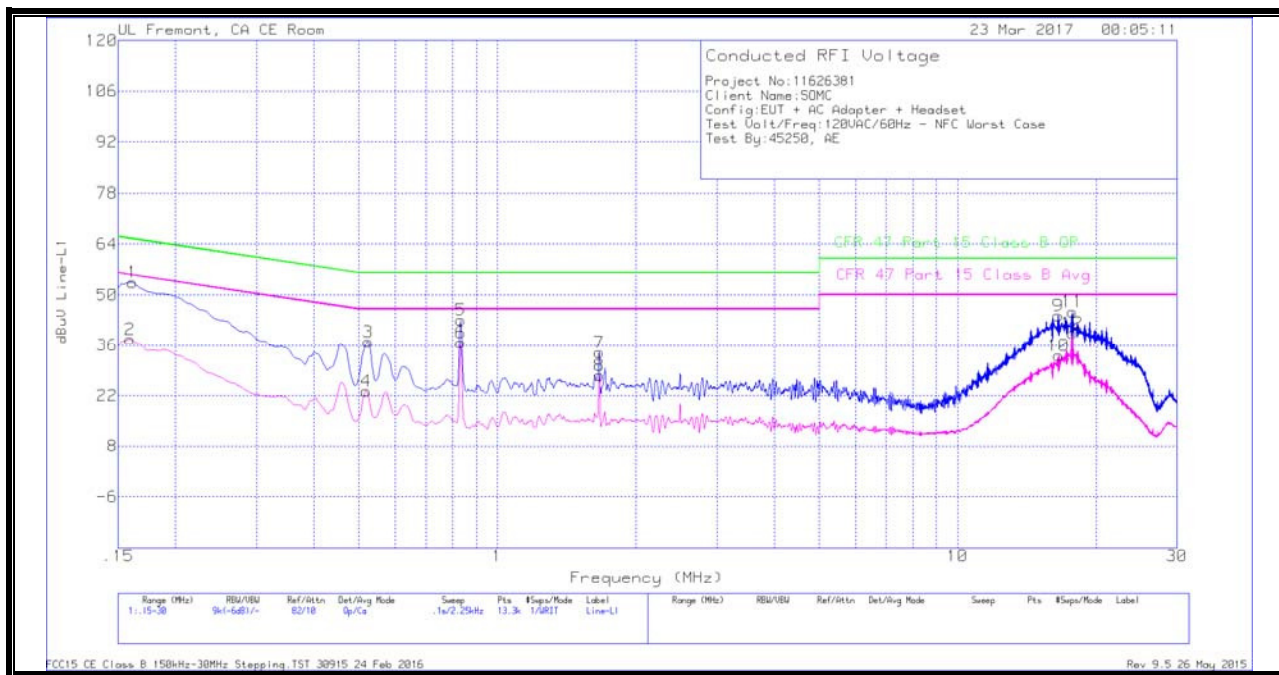
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
15	.168	39.85	Qp	0	0	10.1	49.95	65.06	-15.11	-	-
16	.168	22.88	Ca	0	0	10.1	32.98	-	-	55.06	-22.08
17	.5685	22.7	Qp	0	.1	10.1	32.9	56	-23.1	-	-
18	.57075	12.37	Ca	0	.1	10.1	22.57	-	-	46	-23.43
19	.618	20.91	Qp	0	.1	10.1	31.11	56	-24.89	-	-
20	.618	13.63	Ca	0	.1	10.1	23.83	-	-	46	-22.17
21	1.239	16.17	Qp	0	.1	10.1	26.37	56	-29.63	-	-
22	1.239	9.47	Ca	0	.1	10.1	19.67	-	-	46	-26.33
23	13.56	52.77	Qp	.1	.2	10.2	63.27	60	3.27	-	-
24	13.56	46.61	Ca	.1	.2	10.2	57.11	-	-	50	7.11
25	17.2005	24.71	Qp	0	.2	10.3	35.21	60	-24.79	-	-
26	17.178	17.41	Ca	0	.2	10.3	27.91	-	-	50	-22.09
27	19.68225	23.08	Qp	0	.3	10.3	33.68	60	-26.32	-	-
28	19.70475	11.13	Ca	0	.3	10.3	21.73	-	-	50	-28.27

Pk - Peak detector

Av - Average detection

Note: Markers 23 and 24 are the 13.56MHz NFC Fundamental

**EUT WITH ANTENNA PORT TERMINATED -LINE 1 RESULTS**

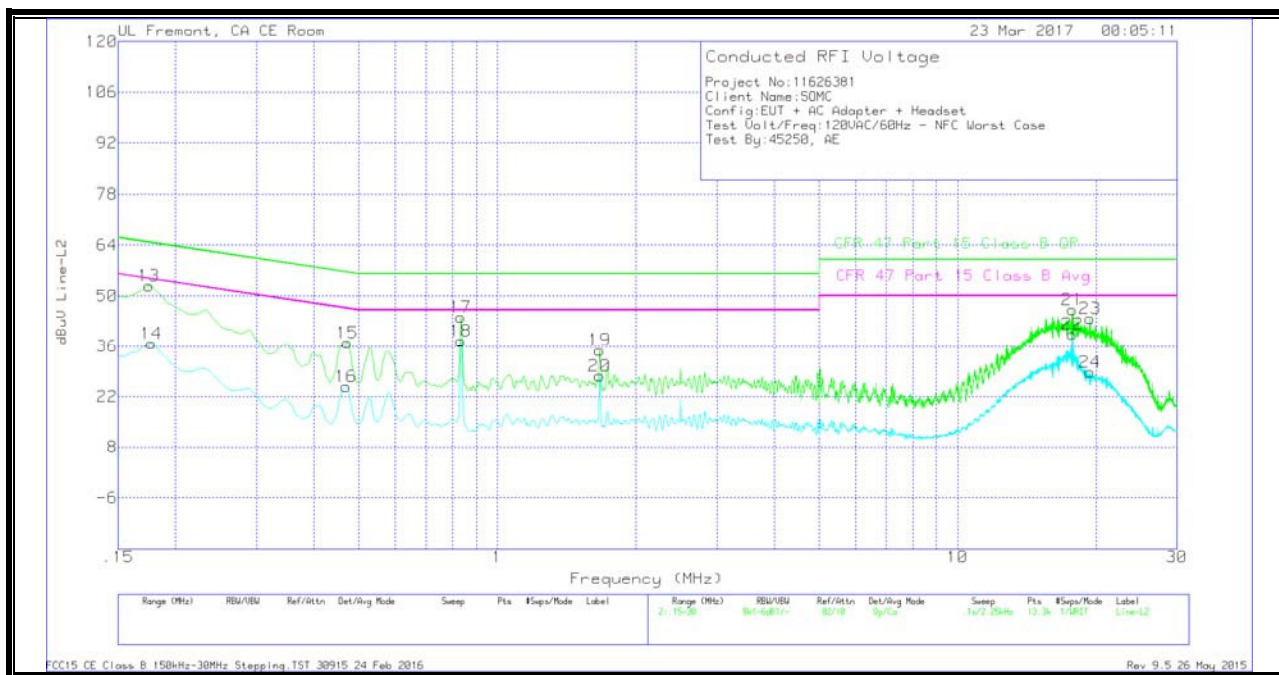


**WORST EMISSIONS**

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	.16125	43.34	Qp	0	.1	10.1	53.54	65.4	-11.86	-	-
2	.159	27.39	Ca	0	.1	10.1	37.59	-	-	55.52	-17.93
3	.5235	26.74	Qp	0	.1	10.1	36.94	56	-19.06	-	-
4	.519	12.97	Ca	0	.1	10.1	23.17	-	-	46	-22.83
5	.83175	32.83	Qp	0	.1	10.1	43.03	56	-12.97	-	-
6	.83175	26.53	Ca	0	.1	10.1	36.73	-	-	46	-9.27
7	1.66425	23.87	Qp	0	.1	10.1	34.07	56	-21.93	-	-
8	1.66425	17.44	Ca	0	.1	10.1	27.64	-	-	46	-18.36
9	16.5525	33.78	Qp	0	.2	10.3	44.28	60	-15.72	-	-
10	16.56375	22.7	Ca	0	.2	10.3	33.2	-	-	50	-16.8
11	17.745	34.89	Qp	0	.2	10.3	45.39	60	-14.61	-	-
12	17.74275	28.92	Ca	0	.2	10.3	39.42	-	-	50	-10.58

Qp - Quasi-Peak detector  
 Ca - CISPR average detection

**EUT WITH ANTENNA PORT TERMINATED -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)
13	.17475	42.63	Qp	0	.1	10.1	52.83	64.73	-11.9	-	-
14	.177	26.57	Ca	0	.1	10.1	36.77	-	-	54.63	-17.86
15	.47175	26.82	Qp	0	.1	10.1	37.02	56.48	-19.46	-	-
16	.4695	14.57	Ca	0	.1	10.1	24.77	-	-	46.52	-21.75
17	.834	33.82	Qp	0	.1	10.1	44.02	56	-11.98	-	-
18	.834	27.34	Ca	0	.1	10.1	37.54	-	-	46	-8.46
19	1.66875	24.76	Qp	0	.1	10.1	34.96	56	-21.04	-	-
20	1.66875	17.5	Ca	0	.1	10.1	27.7	-	-	46	-18.3
21	17.75175	35.59	Qp	0	.3	10.3	46.19	60	-13.81	-	-
22	17.75175	28.74	Ca	0	.3	10.3	39.34	-	-	50	-10.66
23	19.39425	33.17	Qp	0	.3	10.3	43.77	60	-16.23	-	-
24	19.39425	18.25	Ca	0	.3	10.3	28.85	-	-	50	-21.15

Qp - Quasi-Peak detector  
 Ca - CISPR average detection

## 10. 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.

### TEST PROCEDURE

ANSI C63.10

### RESULTS

<b>ID:</b>	50818	<b>Date:</b>	3/23/17
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No non-compliance noted.

Reference Frequency: EUT Channel 13.56 MHz @ 20°C Limit: $\pm 100$ 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)
3.8	50	13.5597711	1.015	13.5597182	4.915	13.5597130	5.304	13.5597059	5.824	$\pm 100$
3.8	40	13.5597722	0.940	13.5597469	2.801	13.5597421	3.160	13.5597379	3.468	$\pm 100$
3.8	30	13.5597738	0.821	13.5597933	-0.620	13.5597586	1.937	13.5597570	2.054	$\pm 100$
3.8	<b>20</b>	<b>13.5597849</b>	<b>0.000</b>	<b>13.5597933</b>	<b>-0.620</b>	<b>13.5597909</b>	<b>-0.440</b>	<b>13.5597882</b>	<b>-0.244</b>	<b><math>\pm 100</math></b>
3.8	10	13.5597965	-0.858	13.5598032	-1.346	13.5598015	-1.227	13.5597995	-1.079	$\pm 100$
3.8	0	13.5598023	-1.281	13.5598002	-1.131	13.5598004	-1.147	13.5598005	-1.150	$\pm 100$
3.8	-10	13.5598000	-1.114	13.5598027	-1.311	13.5598044	-1.440	13.5598051	-1.491	$\pm 100$
3.6	20	13.5597872	-0.170	13.5597823	0.191	13.5597823	0.192	13.5597823	0.192	$\pm 100$
4.2	20	13.5597856	-0.051	13.5597824	0.185	13.5597811	0.278	13.5597808	0.302	$\pm 100$