



CERTIFICATION TEST REPORT

Report Number. : 12380932-E7V4

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

FCC ID : PY7-12644J

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

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
August 10, 2018

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NVLAP Lab code: 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	7/20/18	Initial Issue	
V2	8/07/18	Updated Section 5.1 & 5.2.	Kiya Kedida
V3	8/08/18	Updated Section 8.2	Dan Corona
V4	8/10/18	Updated Section 7	Kiya Kedida

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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 & NFC

SERIAL NUMBER: BH93000ZD8 (With Antenna)
BH93001SD8 (Terminated Antenna)

DATE TESTED: July 18 – 19, 2018

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Complies

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.

Approved & Released For
UL Verification Services Inc. By:

Reviewed By:



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CONSUMER TECHNOLOGY DIVISION
Operations Leader
UL VERIFICATION SERVICES INC.

Kiya Kedida
CONSUMER TECHNOLOGY DIVISION
Project 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, 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, and at 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	47266 Benicia Street	47658 Kato Rd.
<input checked="" type="checkbox"/> Chamber A (ISED:2324B-1)	<input type="checkbox"/> Chamber D (ISED:22541-1)	<input checked="" type="checkbox"/> Chamber K (ISED: 2324A-1)
<input type="checkbox"/> Chamber B (ISED:2324B-2)	<input type="checkbox"/> Chamber E (ISED:22541-2)	<input type="checkbox"/> Chamber L (ISED: 2324A-3)
<input type="checkbox"/> Chamber C (ISED:2324B-3)	<input type="checkbox"/> Chamber F (ISED:22541-3)	
	<input type="checkbox"/> Chamber G (ISED:22541-4)	
	<input type="checkbox"/> Chamber H (ISED:22541-5)	

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through C are covered under ISED company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under ISED company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

ISED company address codes for chambers K through L are in process, and have yet to be determined.

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

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 & NFC.

5.2. MAXIMUM FIELD STRENGTH

The testing was performed at 3 meters. The transmitter maximum E-field at 30 meter distance was 17.89 dBuV/m, which was converted from the 3 meter data.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes the loop antenna.

5.4. SOFTWARE AND FIRMWARE

The software version installed in the EUT during testing was 2.20.

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 with AC/DC adapter and headphone was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y-Axis with AC/DC adapter and headphone orientation.

NOTE: The EUT pre-scanned in three NFC type A, B & F. The worst type is A, and data rate of 106kbps was recorded to this report.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SONY	UCH20	3416W45305784	N/A
Headphones	SONY	N/A	N/A	N/A

I/O CABLES

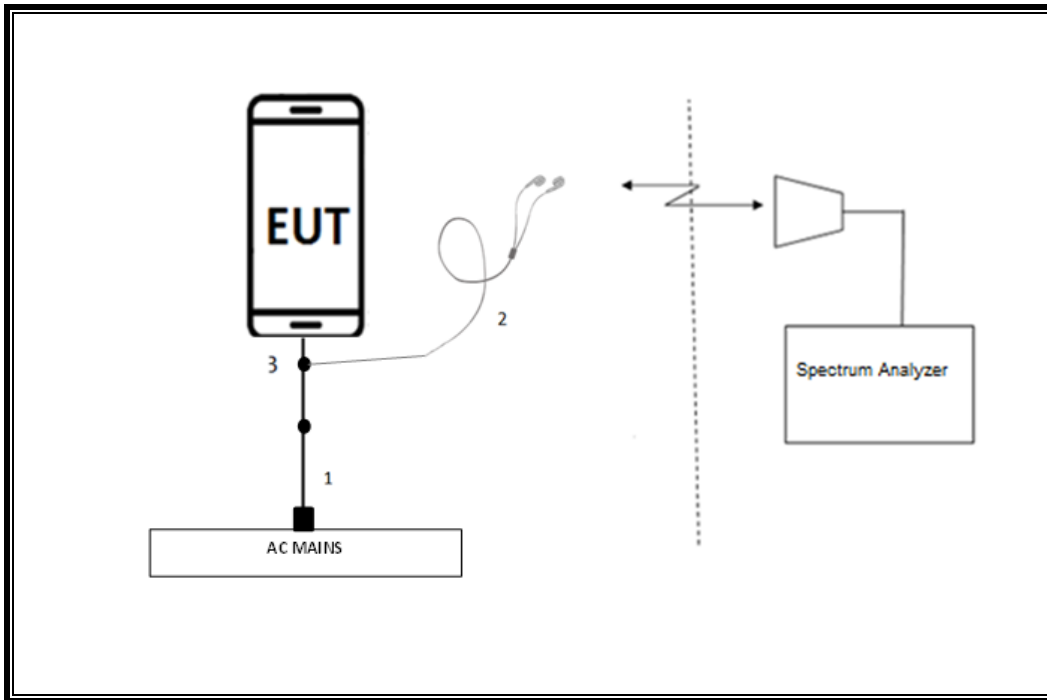
I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB Type-C	Un-Shielded	1.2	N/A
2	Jack	1	Headset	Shielded	1	N/A
3	USB/HP Jack	1	USB Type-C/Audio	Un-Shielded	0.11	Audio & Charger cable

TEST SETUP

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

SETUP DIAGRAM

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	ID Num	Cal Due
Amplifier, 9KHz to 1GHz, 32dB	Sonoma Instrument	310	PRE0180089	06/21/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB Pad	Sunol Sciences Corp.	JB3	T477	06/16/2019
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179522	05/11/2019
Spectrum Analyzer, PSA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1454	01/08/2019
Antenna, Active Loop 9kHz-30MHz	Com-Power Corp.	AL-130R	T1866	10/10/2018
EMI Reciever	Rohde & Schwarz	ESR	T1436	02/21/2019
L.I.S.N.	FCC INC.	FCC LISN 50/250	T1310	06/15/2019
L.I.S.N.	FCC INC.	FCC LISN 50/250	T24	03/06/2019
Thermometer - Digital	Control Company	14-650-118	PRE0177862	02/22/2019

UL SOFTWARE			
Antenna Port Software	UL	UL EMC	Ver 8.4, June 12, 2018
Radiated Software	UL	UL EMC	Ver 9.5, Dec 01, 2016

7. OCCUPIED BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 10kHz. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

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

RESULTS

99% and 20dB BW

TYPE A

Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
848	13.56	21.579	25.04
424	13.56	21.643	24.98
212	13.56	21.995	24.97
106	13.56	27.056	25.65

TYPE B

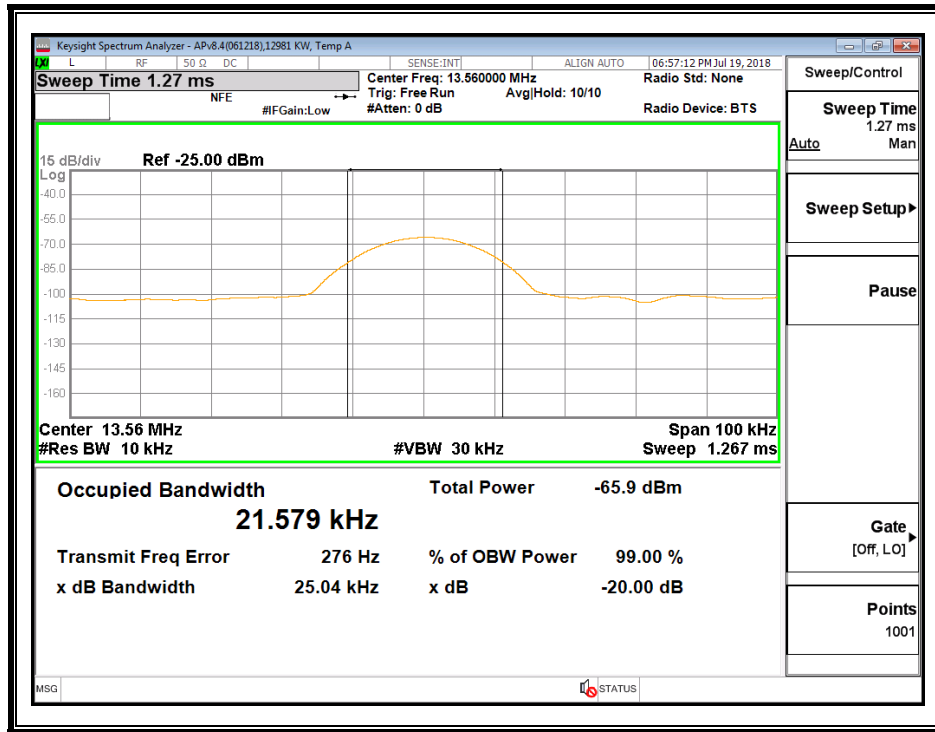
Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
848	13.56	21.873	25.18
424	13.56	22.020	25.07
212	13.56	23.525	25.10
106	13.56	29.546	24.71

TYPE F

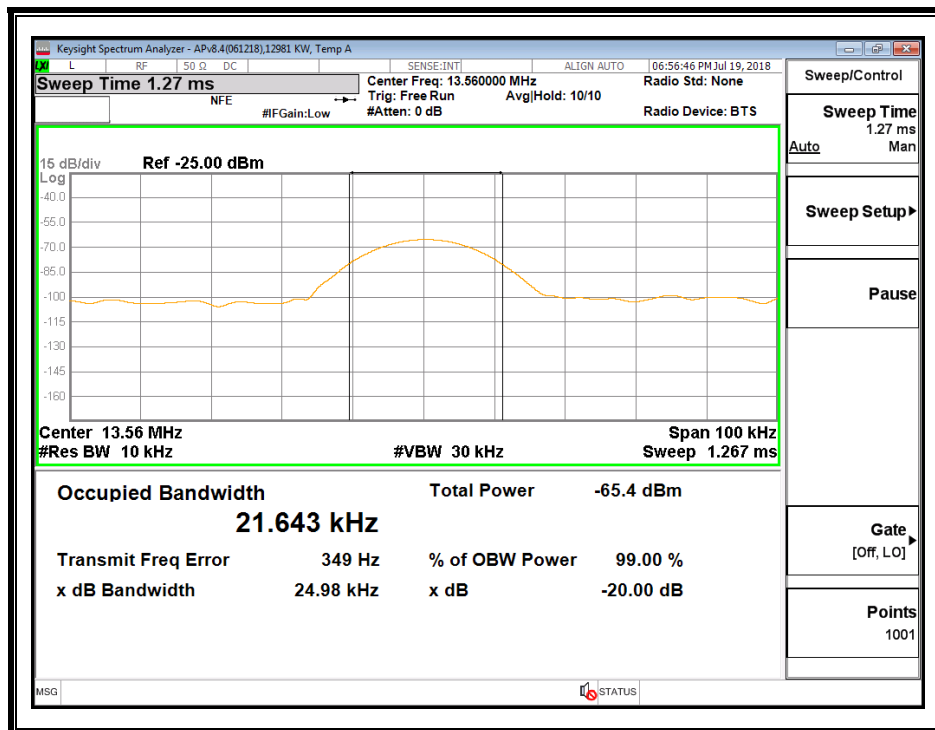
Mode Kbps	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
424	13.56	21.163	24.90
212	13.56	21.249	24.91

7.1. TYPE A

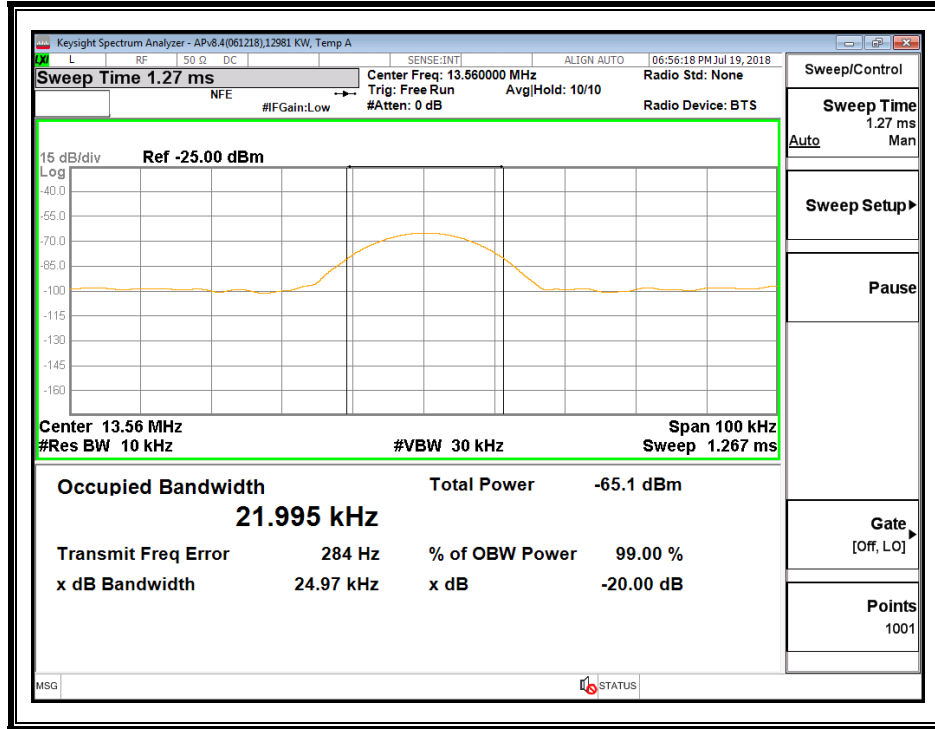
848Kbps



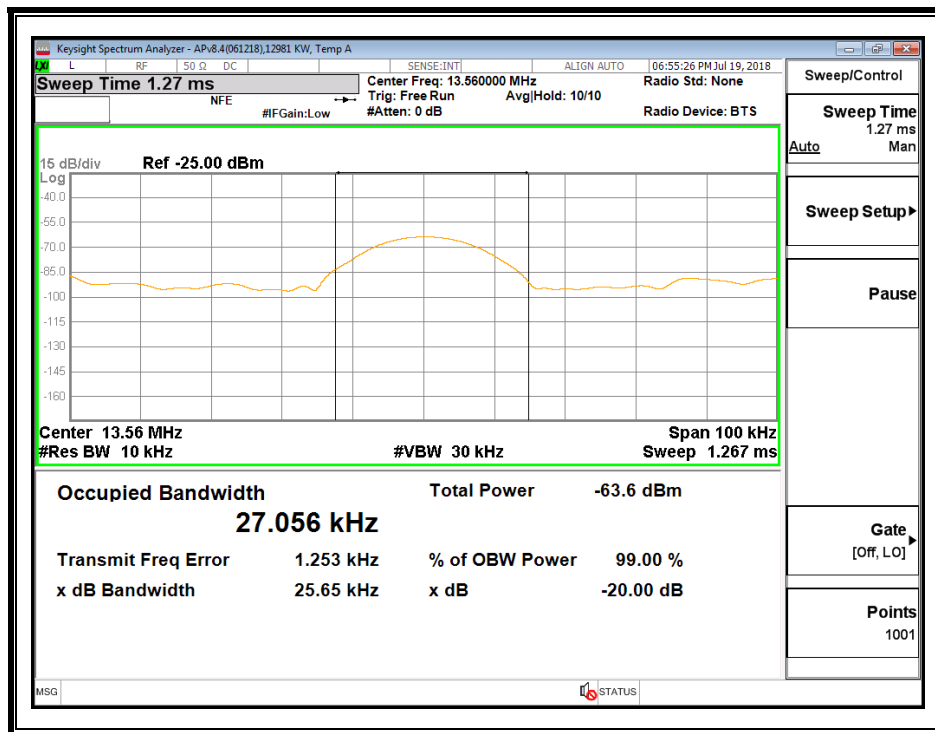
424Kbps



212Kbps

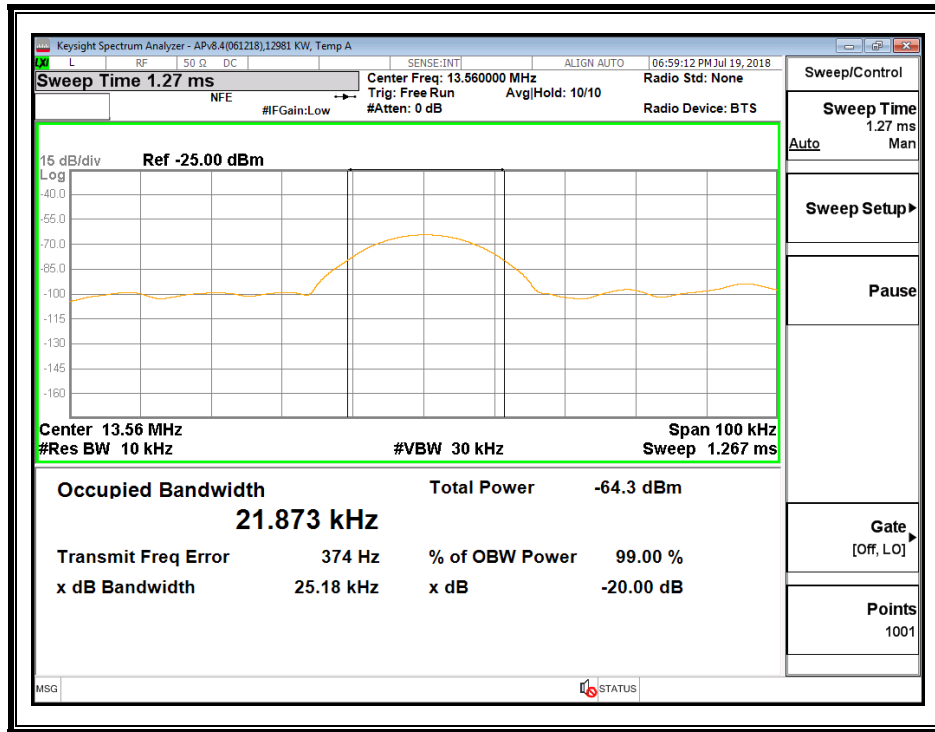


106Kbps

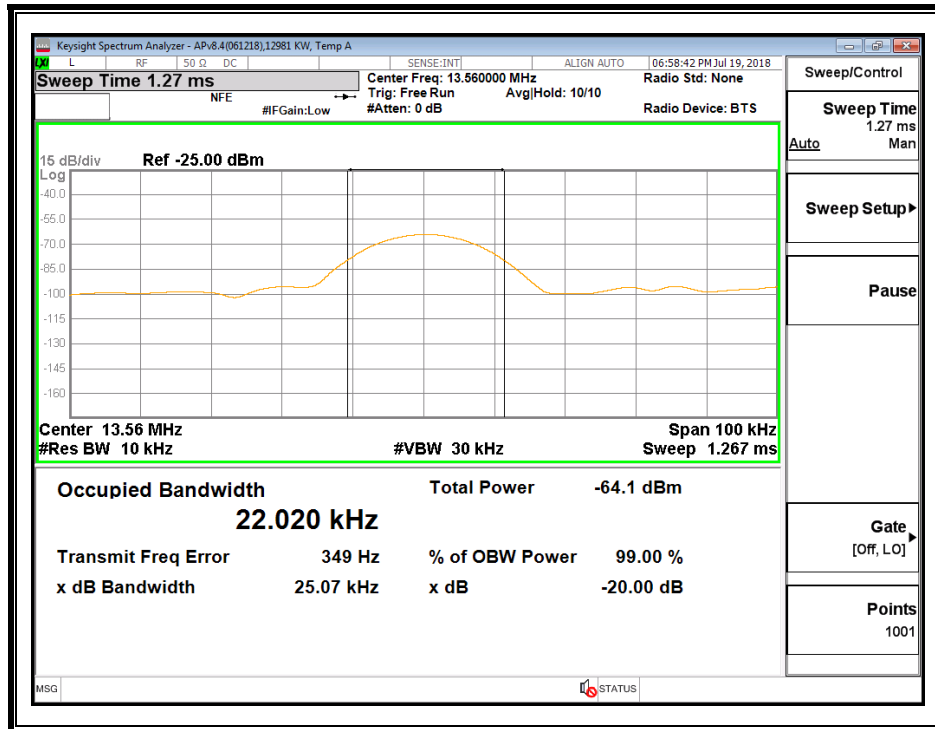


7.2. TYPE B

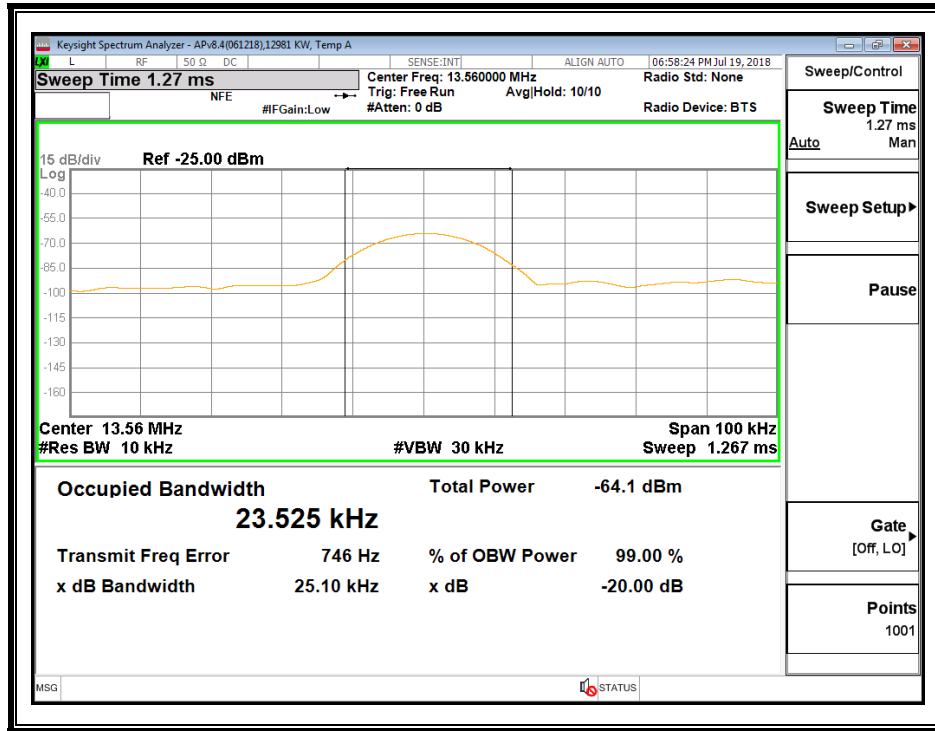
848Kbps



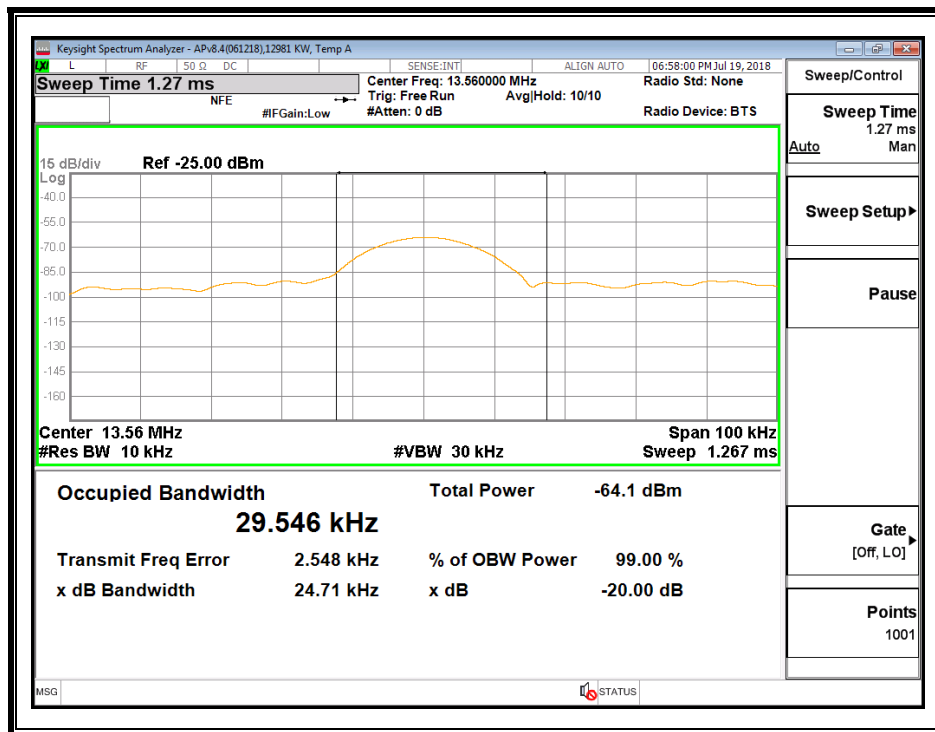
424Kbps



212Kbps

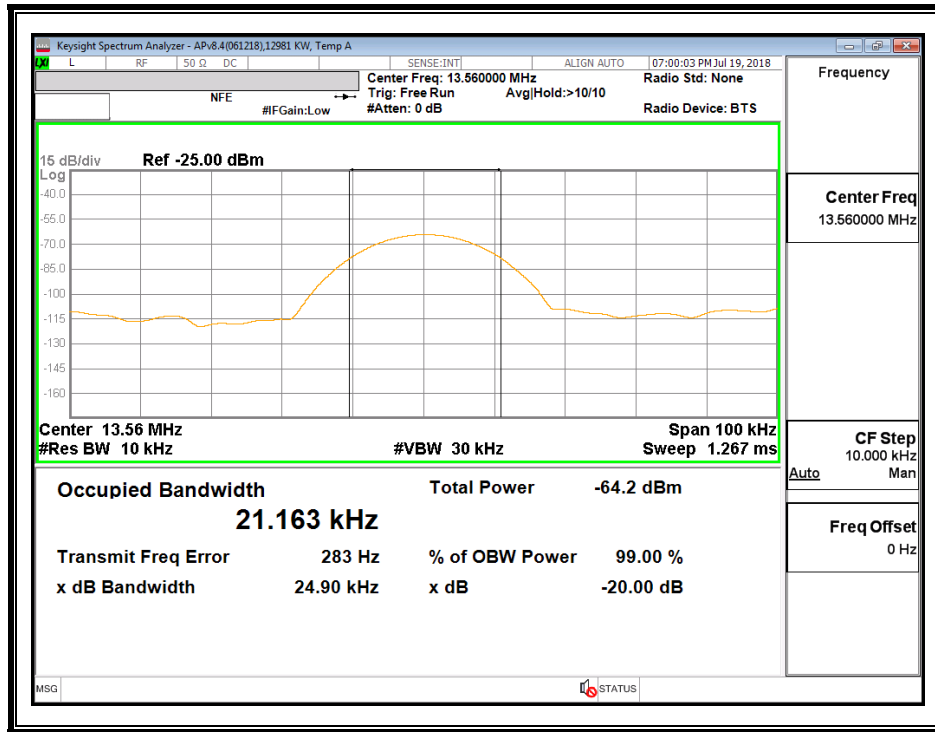


106Kbps

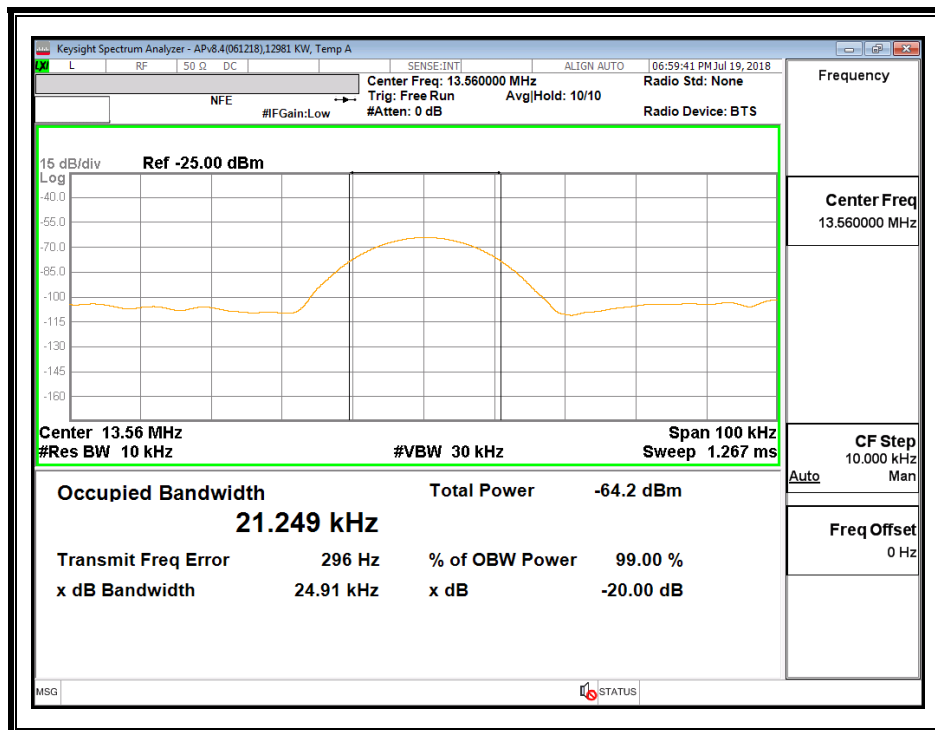


7.3. TYPE F

424Kbps



212Kbps



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

§15.225

(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:

Limit (dBuV/m) = 20 log limit (uV/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.

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; therefore, the frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

RESULTS

KDB 414788 OATS and Chamber Correlation Justification

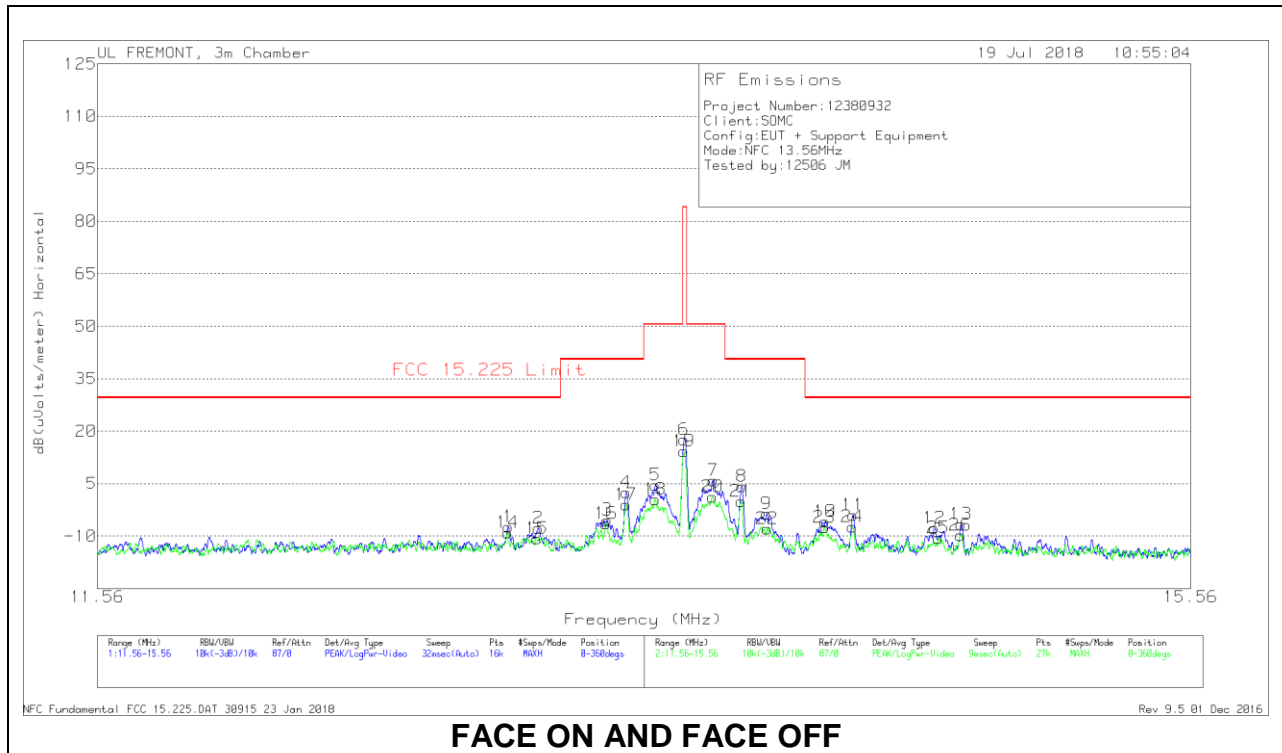
Device is a Smart Phone.

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.

8.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.09 - 1000 MHz)

FUNDAMENTAL EMISSION MASK - TYPE A, 106Kbps (11.56 – 15.56 MHz)



FACE ON AND FACE OFF

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.

DATA

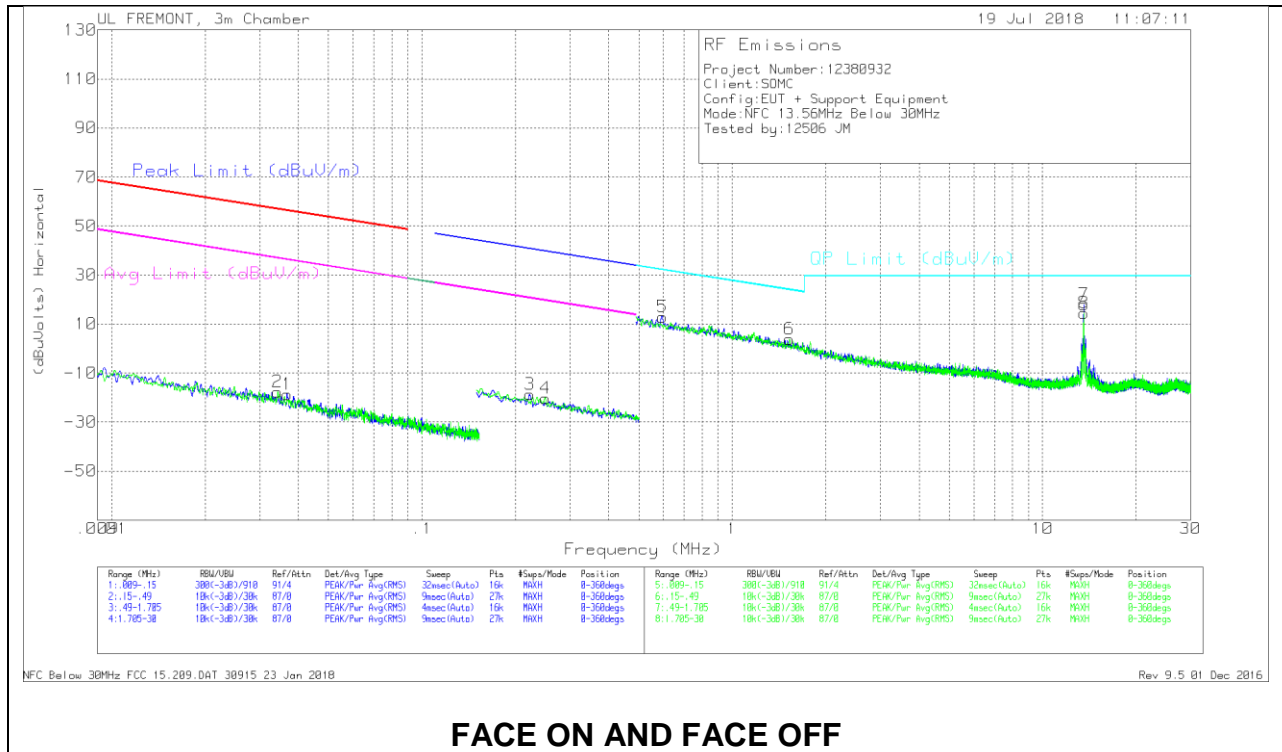
Trace Markers

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)	Polarity
14	12.92315	14.88	Pk	14.5	1.6	-40	-9.02	29.54	-38.56	0-360	Face-Off
1	12.92525	16.53	Pk	14.5	1.6	-40	-7.37	29.54	-36.91	0-360	Face-On
15	13.02609	13.22	Pk	14.5	1.6	-40	-10.68	29.54	-40.22	0-360	Face-Off
2	13.03213	16.18	Pk	14.5	1.6	-40	-7.72	29.54	-37.26	0-360	Face-On
16	13.27451	17.55	Pk	14.4	1.6	-40	-6.45	40.51	-46.96	0-360	Face-Off
3	13.27763	18.59	Pk	14.4	1.6	-40	-5.41	40.51	-45.92	0-360	Face-On
4	13.3465	26.49	Pk	14.4	1.6	-40	2.49	40.51	-38.02	0-360	Face-On
17	13.34688	23.05	Pk	14.4	1.6	-40	-.95	40.51	-41.46	0-360	Face-Off
18	13.45225	24.42	Pk	14.4	1.6	-40	.42	50.5	-50.08	0-360	Face-Off
5	13.453	28.61	Pk	14.4	1.6	-40	4.61	50.5	-45.89	0-360	Face-On
6	*13.558	41.67	Pk	14.4	1.6	-40	17.67	84	-66.33	0-360	Face-On
19	*13.55807	38.29	Pk	14.4	1.6	-40	14.29	84	-69.71	0-360	Face-Off
20	13.66389	25.22	Pk	14.4	1.6	-40	1.22	50.5	-49.28	0-360	Face-Off
7	13.66588	29.82	Pk	14.4	1.6	-40	5.82	50.5	-44.68	0-360	Face-On
21	13.76949	24.03	Pk	14.3	1.6	-40	-.07	40.51	-40.58	0-360	Face-Off
8	13.77213	28.31	Pk	14.3	1.6	-40	4.21	40.51	-36.3	0-360	Face-On
9	13.86663	20.45	Pk	14.3	1.6	-40	-3.65	40.51	-44.16	0-360	Face-On
22	13.86843	16.13	Pk	14.3	1.6	-40	-7.97	40.51	-48.48	0-360	Face-Off
23	14.08643	16.55	Pk	14.3	1.6	-40	-7.55	29.54	-37.09	0-360	Face-Off
10	14.089	18.17	Pk	14.3	1.6	-40	-5.93	29.54	-35.47	0-360	Face-On
24	14.19396	16.67	Pk	14.3	1.6	-40	-7.43	29.54	-36.97	0-360	Face-Off
11	14.19538	20.05	Pk	14.3	1.6	-40	-4.05	29.54	-33.59	0-360	Face-On
12	14.51363	16.42	Pk	14.3	1.6	-40	-7.68	29.54	-37.22	0-360	Face-On
25	14.52918	13.56	Pk	14.3	1.6	-40	-10.54	29.54	-40.08	0-360	Face-Off
26	14.61605	14.33	Pk	14.3	1.6	-40	-9.77	29.54	-39.31	0-360	Face-Off
13	14.61863	17.4	Pk	14.3	1.6	-40	-6.7	29.54	-36.24	0-360	Face-On

* - Indicates fundamental frequency

Pk - Peak detector

SPURIOUS EMISSIONS - TYPE A, 106kbps (0.09 – 30MHz)



DATA

Trace Markers

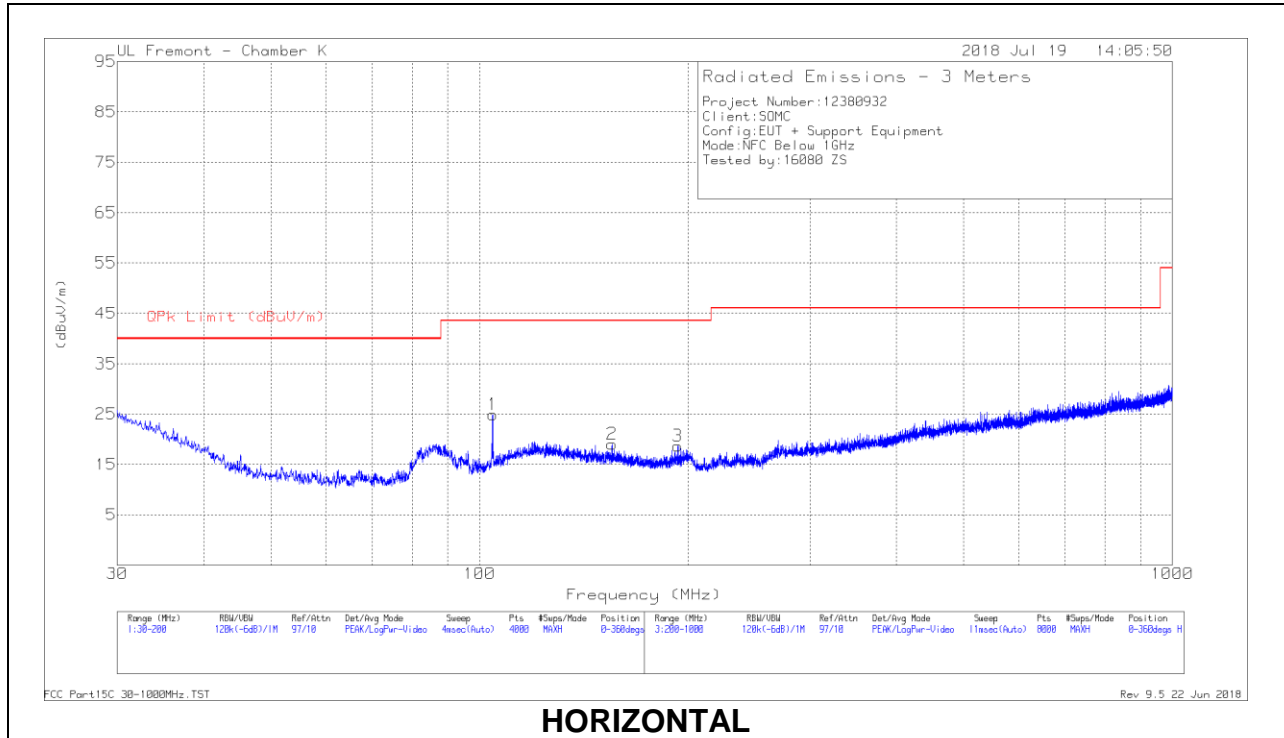
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.03428	45.85	Pk	15.1	1.4	-80	-17.65	56.88	-74.53	36.88	-54.53	-	-	-	-	0-360
1	.03679	44.86	Pk	15	1.4	-80	-18.74	56.27	-75.01	36.27	-55.01	-	-	-	-	0-360
3	.22225	45.85	Pk	13.8	1.5	-80	-18.85	-	-	-	40.68	-59.53	-	20.68	-39.53	0-360
4	.24998	44.38	Pk	13.8	1.5	-80	-20.32	-	-	-	39.66	-59.98	-	19.66	-39.98	0-360

Pk - Peak detector

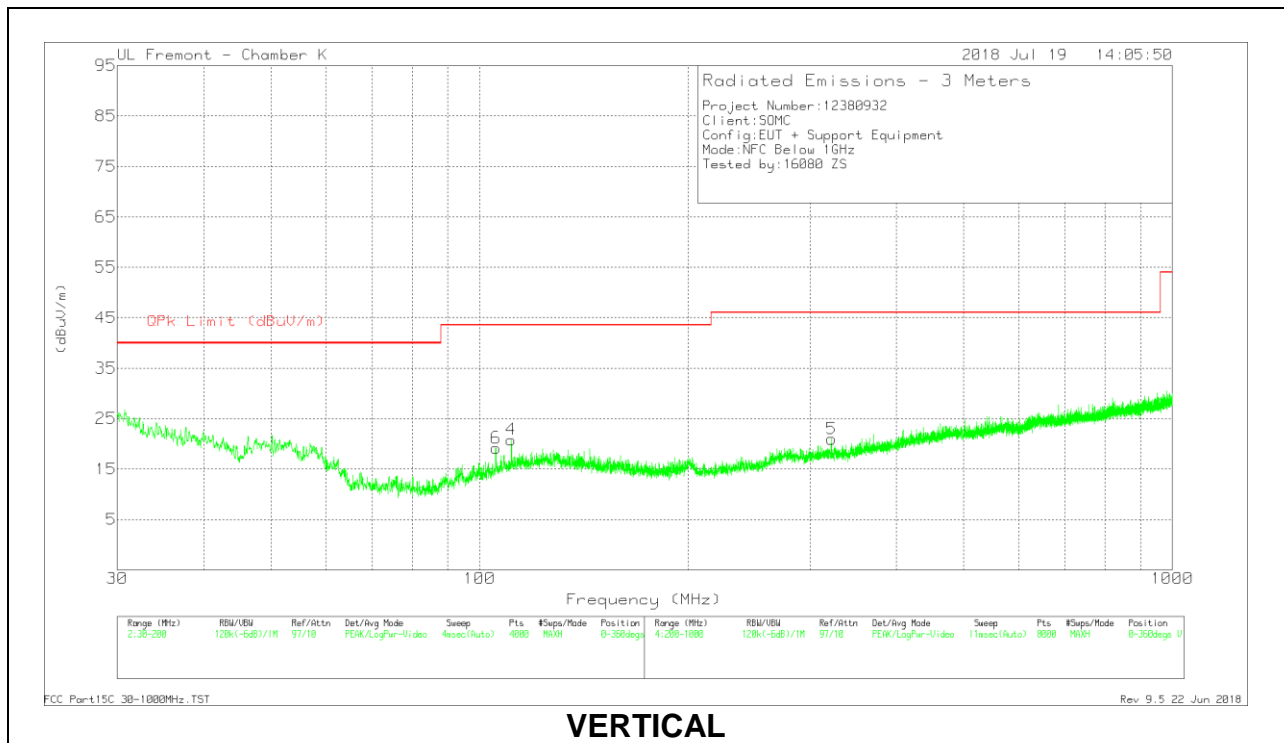
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	.59518	37.49	Pk	13.9	1.5	-40	12.89	32.12	-19.23	-	-	-	-	0-360
6	1.52801	28.2	Pk	14.2	1.5	-40	3.9	23.95	-20.05	-	-	-	-	0-360
7	13.55945	41.89	Pk	14.4	1.6	-40	17.89	84	-66.11	-	-	-	-	0-360
8	13.55945	38.36	Pk	14.4	1.6	-40	14.36	84	-69.64	-	-	-	-	0-360

Pk - Peak detector

SPURIOUS EMISSIONS - TYPE A, 106kbps (30 – 1000MHz)



HORIZONTAL



VERTICAL

DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T407 (dB)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	104.5218	36.32	Pk	15.6	-27	24.92	43.52	-18.6	0-360	299	H
2	155.3649	29.36	Pk	16.3	-26.6	19.06	43.52	-24.46	0-360	399	H
3	193.3698	29.36	Pk	15.6	-26.3	18.66	43.52	-24.86	0-360	100	H
4	* 111.1535	30.82	Pk	16.9	-26.9	20.82	43.52	-22.7	0-360	100	V
6	105.5846	30.17	Pk	15.9	-26.9	19.17	43.52	-24.35	0-360	100	V
5	* 322.1159	28.78	Pk	17.9	-25.7	20.98	46.02	-25.04	0-360	100	V

* - indicates frequency in CFR47 Pt 15 Restricted Band

Pk - Peak detector

9. 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 -20 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 C63.10-2013 Clause 6.8

RESULTS

Tested By:	16069 OG
Date:	7/18/2018

No non-compliance noted.

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)
3.80	50	13.5599539	3.245	13.5599524	3.355	13.5599497	3.555	13.5599468	3.768	± 100
3.80	40	13.5599766	1.571	13.5599696	2.087	13.5599660	2.353	13.5599655	2.389	± 100
3.80	30	13.5600187	-1.534	13.5600133	-1.136	13.5600068	-0.656	13.5599997	-0.133	± 100
3.80	20	13.5599979	0.000	13.5599976	0.022	13.5599988	-0.066	13.5599989	-0.074	± 100
3.80	10	13.5600359	-2.802	13.5600380	-2.957	13.5600404	-3.134	13.5600425	-3.289	± 100
3.80	0	13.5600569	-4.351	13.5600581	-4.440	13.5600592	-4.521	13.5600600	-4.580	± 100
3.80	-10	13.5600619	-4.720	13.5600623	-4.749	13.5600624	-4.757	13.5600615	-4.688	± 100
3.23	20	13.5599975	0.029	13.5599965	0.103	13.5600001	-0.162	13.5600018	-0.288	± 100
4.37	20	13.5599965	0.103	13.5599986	-0.052	13.5599982	-0.022	13.5599985	-0.044	± 100

10. 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 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.

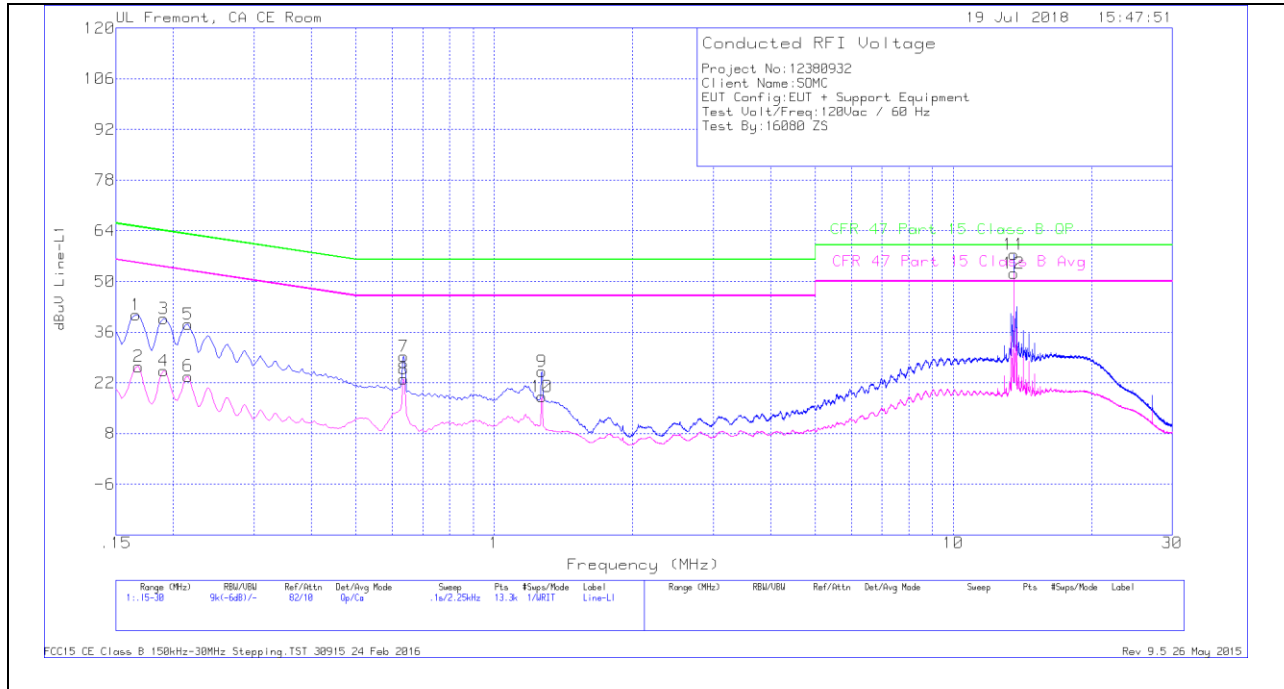
TEST PROCEDURE

ANSI C63.10:2013

RESULTS

No non-compliance noted:

EUT WITH ANTENNA – LINE 1 RESULTS



WORST EMISSIONS

Trace Markers

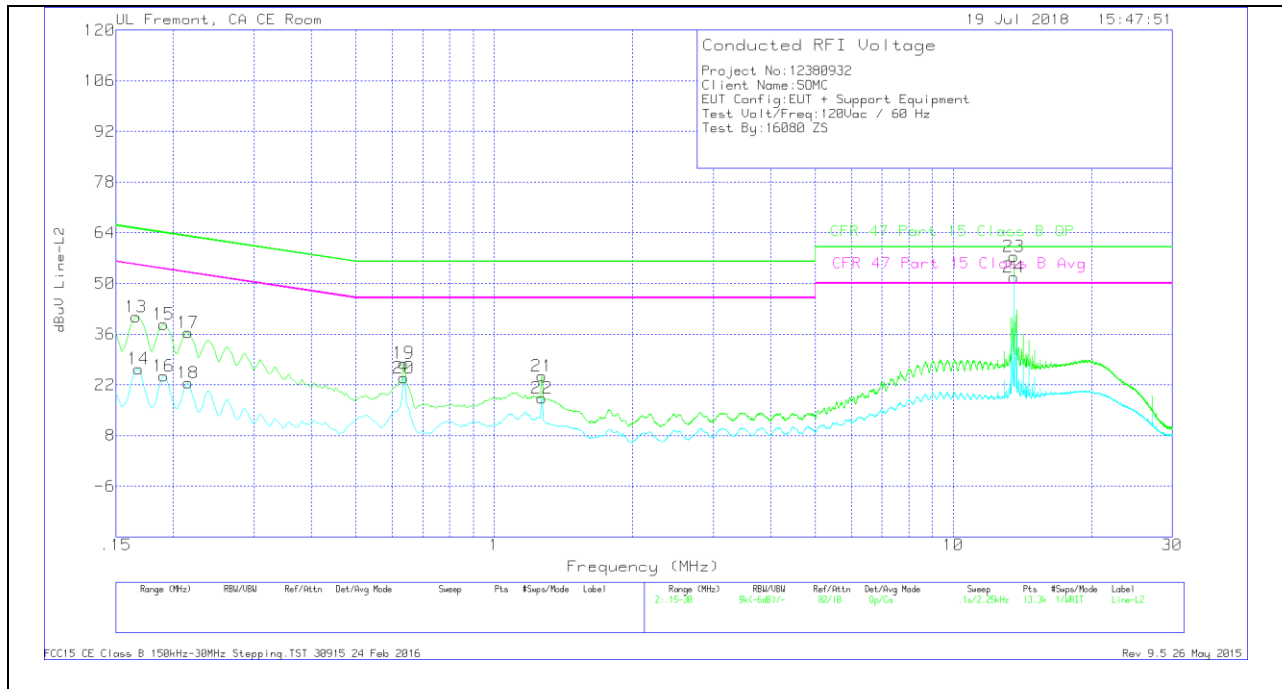
Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
1	.16575	30.64	Qp	.1	0	10.1	40.84	65.17	-24.33	-	-
2	.168	16.25	Ca	.1	0	10.1	26.45	-	-	55.06	-28.61
3	.1905	29.59	Qp	0	0	10.1	39.69	64.01	-24.32	-	-
4	.1905	15.29	Ca	0	0	10.1	25.39	-	-	54.01	-28.62
5	.21525	28.05	Qp	0	0	10.1	38.15	63	-24.85	-	-
6	.21525	13.74	Ca	0	0	10.1	23.84	-	-	53	-29.16
7	.636	19.21	Qp	0	0	10.1	29.31	56	-26.69	-	-
8	.636	12.92	Ca	0	0	10.1	23.02	-	-	46	-22.98
9	1.2705	14.92	Qp	0	.1	10.1	25.12	56	-30.88	-	-
10	1.2705	7.94	Ca	0	.1	10.1	18.14	-	-	46	-27.86
11	13.56	47.02	Qp	.1	.2	10.2	57.52	60	-2.48	-	-
12	13.56	41.81	Ca	.1	.2	10.2	52.31	-	-	50	2.31

Qp - Quasi-Peak detector

Ca - CISPR average detection

Note: Markers 11 and 12 are the 13.56MHz NFC Fundamental

EUT WITH ANTENNA – LINE 2 RESULTS



WORST EMISSIONS

Trace Markers

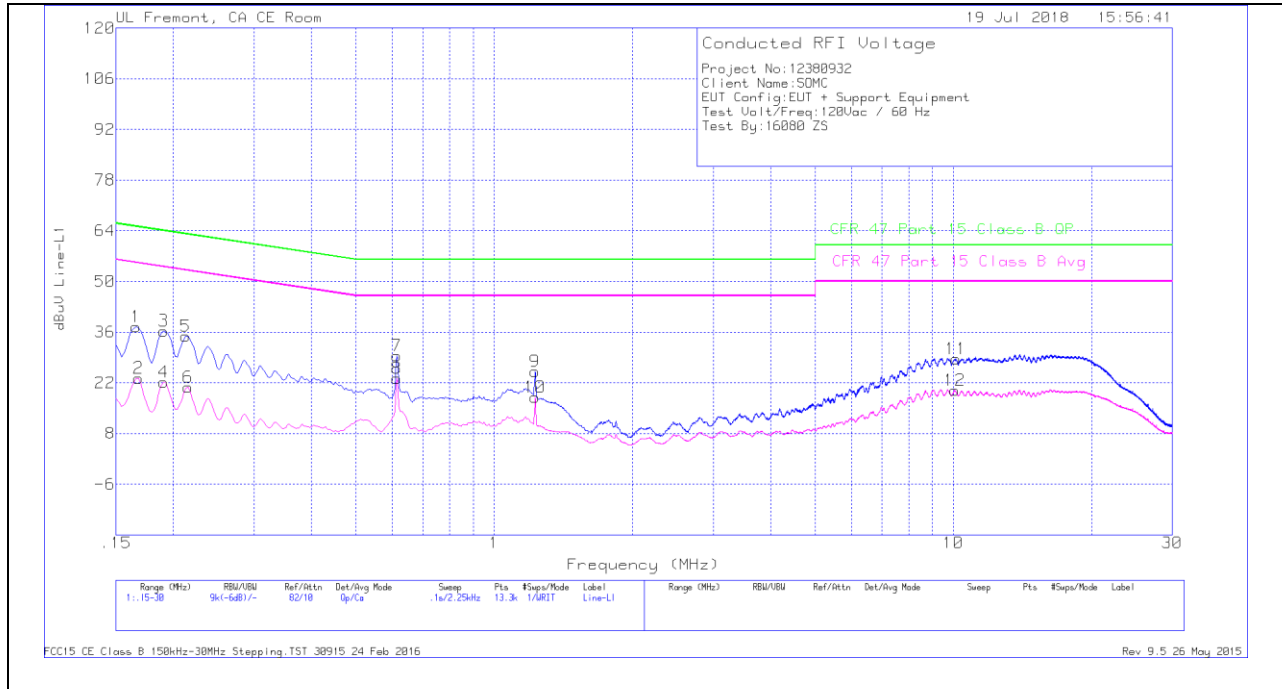
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
13	.16575	30.58	Qp	.1	0	10.1	40.78	65.17	-24.39	-	-
14	.168	16.24	Ca	.1	0	10.1	26.44	-	-	55.06	-28.62
15	.1905	28.68	Qp	0	0	10.1	38.78	64.01	-25.23	-	-
16	.1905	14.41	Ca	0	0	10.1	24.51	-	-	54.01	-29.5
17	.21525	26.35	Qp	0	0	10.1	36.45	63	-26.55	-	-
18	.21525	12.38	Ca	0	0	10.1	22.48	-	-	53	-30.52
19	.636	17.91	Qp	0	0	10.1	28.01	56	-27.99	-	-
20	.636	13.79	Ca	0	0	10.1	23.89	-	-	46	-22.11
21	1.2705	14.18	Qp	0	.1	10.1	24.38	56	-31.62	-	-
22	1.2705	8.21	Ca	0	.1	10.1	18.41	-	-	46	-27.59
23	13.56	47.03	Qp	.1	.2	10.2	57.53	60	-2.47	-	-
24	13.56	41.28	Ca	.1	.2	10.2	51.78	-	-	50	1.78

Qp - Quasi-Peak detector

Ca - CISPR average detection

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

EUT WITH ANTENNA PORT TERMINATED – LINE 1 RESULTS



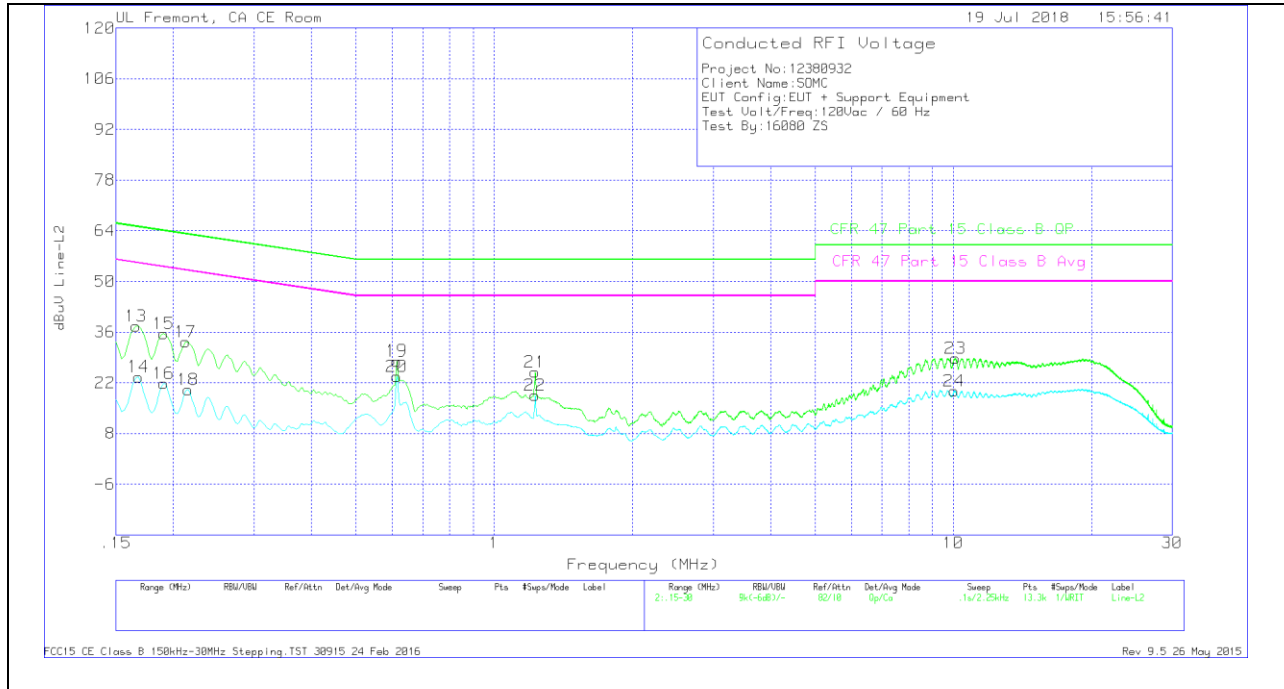
WORST EMISSIONS

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	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
1	.16575	27.3	Qp	.1	0	10.1	37.5	65.17	-27.67	-	-
2	.168	13.11	Ca	.1	0	10.1	23.31	-	-	55.06	-31.75
3	.1905	26.25	Qp	0	0	10.1	36.35	64.01	-27.66	-	-
4	.1905	12.15	Ca	0	0	10.1	22.25	-	-	54.01	-31.76
5	.213	24.79	Qp	0	0	10.1	34.89	63.09	-28.2	-	-
6	.21525	10.67	Ca	0	0	10.1	20.77	-	-	53	-32.23
7	.6135	19.37	Qp	0	0	10.1	29.47	56	-26.53	-	-
8	.6135	13.07	Ca	0	0	10.1	23.17	-	-	46	-22.83
9	1.22775	14.96	Qp	0	.1	10.1	25.16	56	-30.84	-	-
10	1.22775	7.85	Ca	0	.1	10.1	18.05	-	-	46	-27.95
11	10.131	18.28	Qp	0	.2	10.2	28.68	60	-31.32	-	-
12	10.06575	9.49	Ca	0	.2	10.2	19.89	-	-	50	-30.11

Qp - Quasi-Peak detector
 Ca - CISPR average detection

EUT WITH ANTENNA PORT TERMINATED – LINE 2 RESULTS



WORST EMISSIONS

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	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
13	.16575	27.51	Qp	.1	0	10.1	37.71	65.17	-27.46	-	-
14	.168	13.46	Ca	.1	0	10.1	23.66	-	-	55.06	-31.4
15	.1905	25.52	Qp	0	0	10.1	35.62	64.01	-28.39	-	-
16	.1905	11.74	Ca	0	0	10.1	21.84	-	-	54.01	-32.17
17	.213	23.22	Qp	0	0	10.1	33.32	63.09	-29.77	-	-
18	.21525	9.94	Ca	0	0	10.1	20.04	-	-	53	-32.96
19	.6135	17.91	Qp	0	0	10.1	28.01	56	-27.99	-	-
20	.6135	13.72	Ca	0	0	10.1	23.82	-	-	46	-22.18
21	1.22775	14.72	Qp	0	.1	10.1	24.92	56	-31.08	-	-
22	1.22775	8.37	Ca	0	.1	10.1	18.57	-	-	46	-27.43
23	10.1175	18.42	Qp	0	.2	10.2	28.82	60	-31.18	-	-
24	10.04438	9.34	Ca	0	.2	10.2	19.74	-	-	50	-30.26

Qp - Quasi-Peak detector

Ca - CISPR average detection