CERTIFICATION TEST REPORT

REPORT NUMBER : 11785223-E7V2

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

FCC ID : PY7-65365K

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:

July 31, 2017

Prepared by:

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Revision History

Ver.	Issue Date	Revisions	Revised By
V1	07/14/17	Initial Issue	D. Coronia
V2	07/31/17	Updated Section 5.1, 7 & 8.1	D. Coronia

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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: BH9000K881; BH9000BN81

DATE TESTED: JUNE 24 – JULY 11, 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.

Approved & Released For
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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
☒ Chamber A (IC:2324B-1)	☐ Chamber D (IC:22541-1)
☐ Chamber B (IC:2324B-2)	☐ Chamber E (IC: 22541-2)
☐ Chamber C (IC:2324B-3)	☐ Chamber F (IC: 22541-3)
	☐ Chamber G (IC: 22541-4)
	☐ Chamber H (IC: 22541-5)

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.
Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.
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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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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%.

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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.
NOTE: This test report documents testing the NFC radio of the device.

5.2. MAXIMUM FIELD STRENGTH

The testing was performed at 3 meter. The transmitter maximum E-field at 30 meter distance is 26.96 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 Z-Axis orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z-Axis orientation.

5.6. MODIFICATIONS

No modifications were made during testing.

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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.

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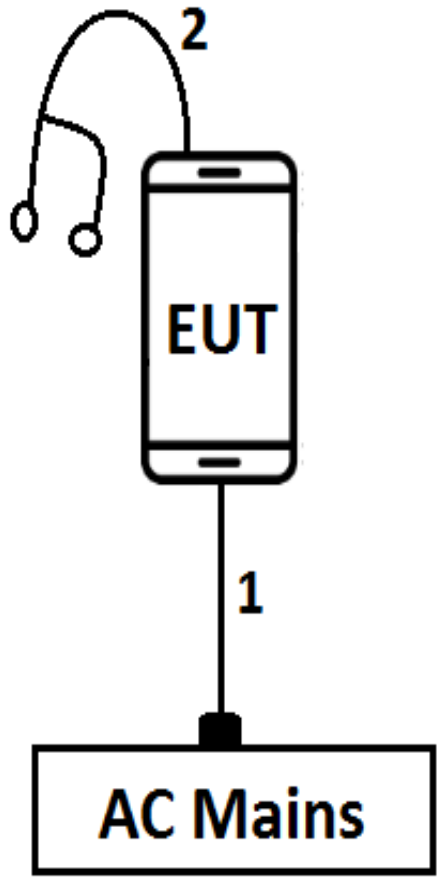
SETUP DIAGRAM FOR TESTS

RADIATED AND AC LINE CONDUCTED EMISSIONS SETUP DIAGRAM



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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	T130	09/23/2017
Antenna, Active Loop 9kHz-30MHz	ETS-Lindgren	6502	T1683	02/17/2018
Amplifier, 10kHz-1GHz	Agilent (Keysight) Technologies	8447D	T300	11/10/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1466	04/11/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1450	01/10/2018
Temperature Chamber	Thermotron Industires	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	06/08/2018
Transient Limiter	COM-POWER	LIT-930	T1457	02/24/18

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Antenna Port Software	UL	UL RF	Ver 6.8, June 08, 2017
Radiated Emissions Software	UL	UL EMC	Ver 9.5, Dec 01, 2016

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

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7. OCCUPIED BANDWIDTH

LIMITS

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

RESULTS

ID:	29435TC	Date:	7/11/17

Frequency (MHz)	Modulation	Data Rate (kbps)	99% Bandwidth (kHz)	20dB Bandwidth (kHz)
13.56	Type A	106	22.426	23.810
		212	21.477	24.960
		424	21.711	24.930
		848	21.407	24.880
	Type B	106	25.661	26.030
		212	22.740	25.860
		424	21.347	23.960
		848	22.373	25.810
	Type F	212	21.355	24.920
		424	21.215	24.990

Note: Measured signal is CW. 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.

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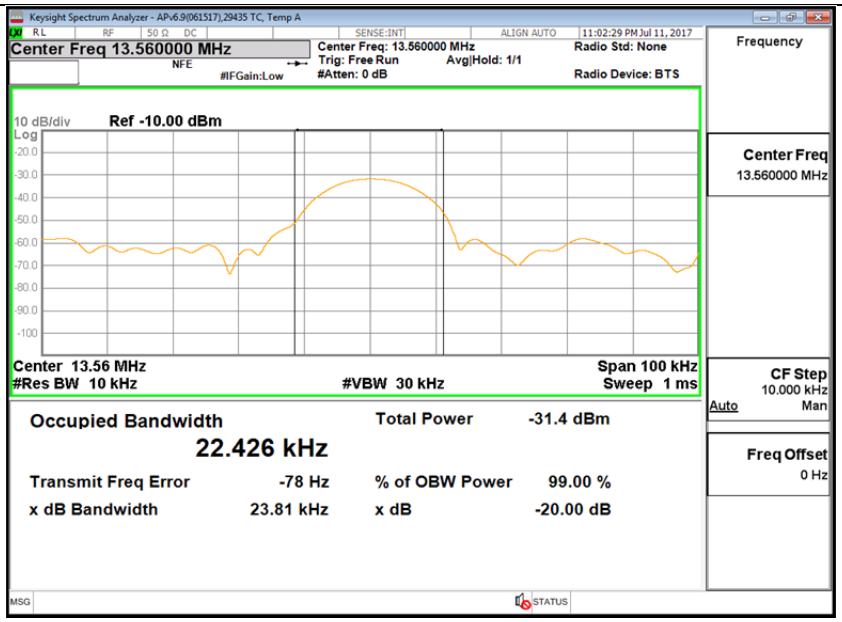
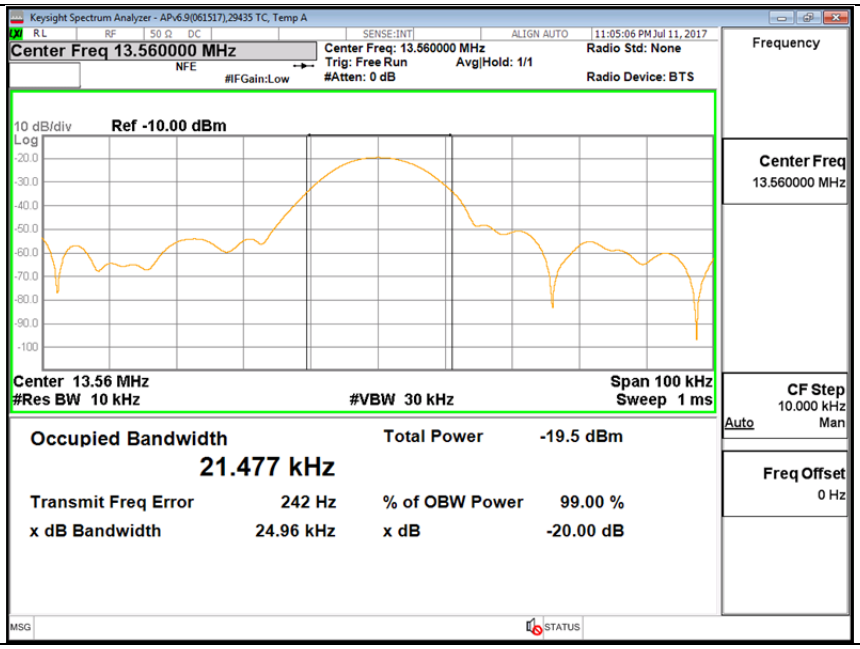
99% & 20dB Bandwidth

99% & 20dB BANDWIDTH TYPE A 106k



99% & 20dB BANDWIDTH TYPE A 212k



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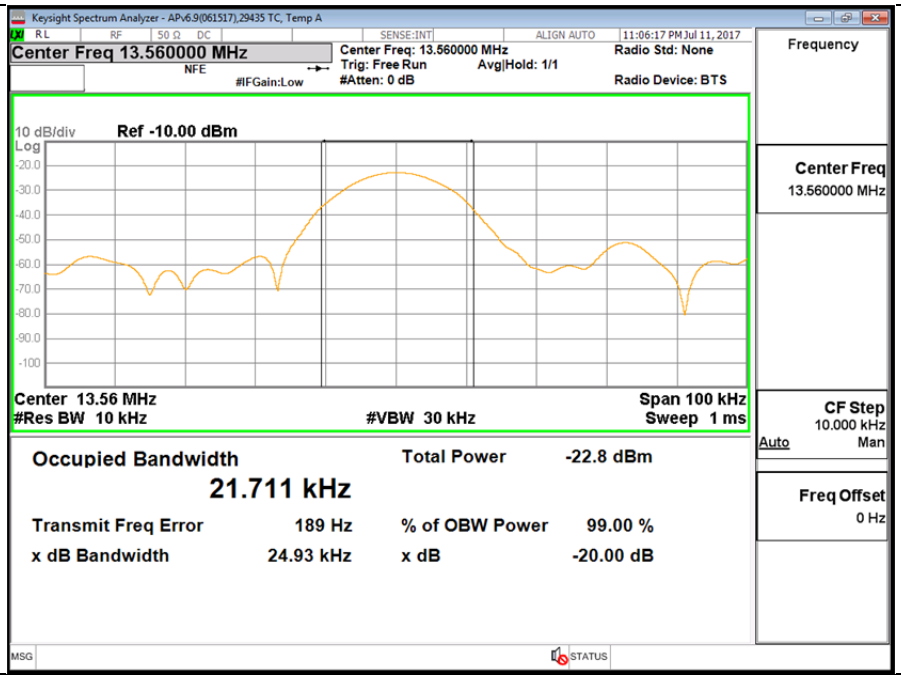
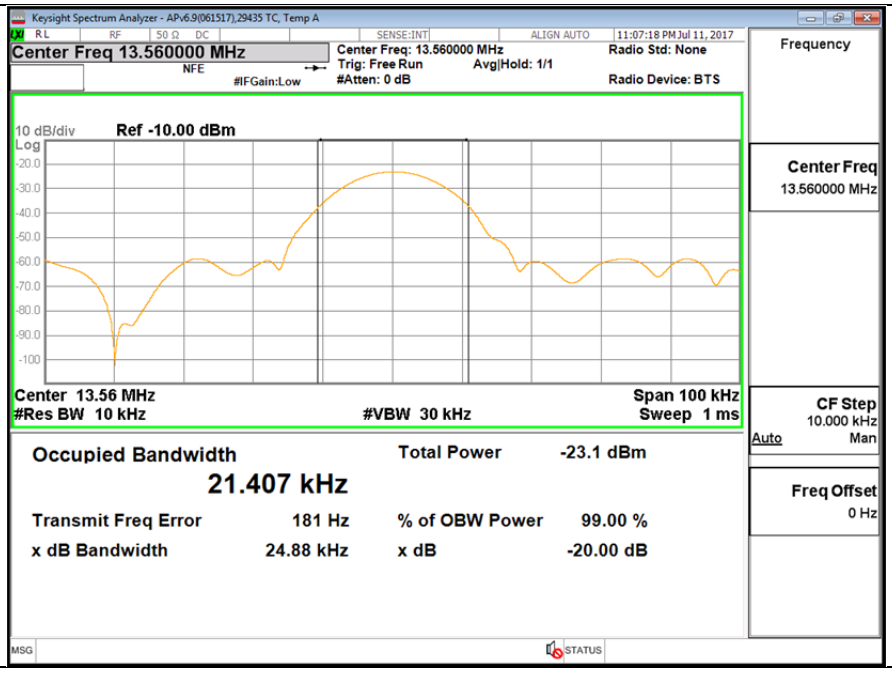
99% & 20dB BANDWIDTH TYPE A 424k



99% & 20dB BANDWIDTH TYPE A 848k



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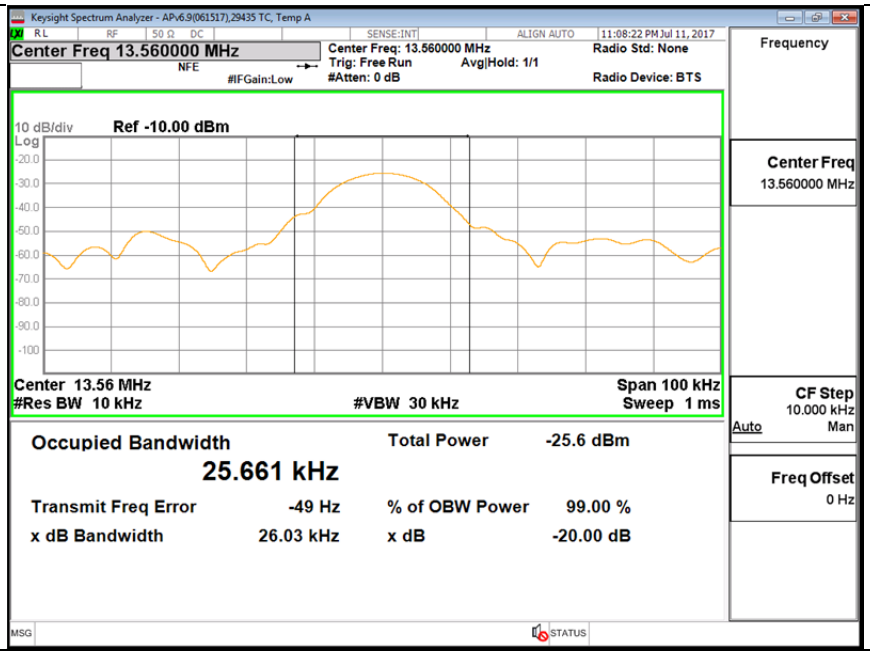
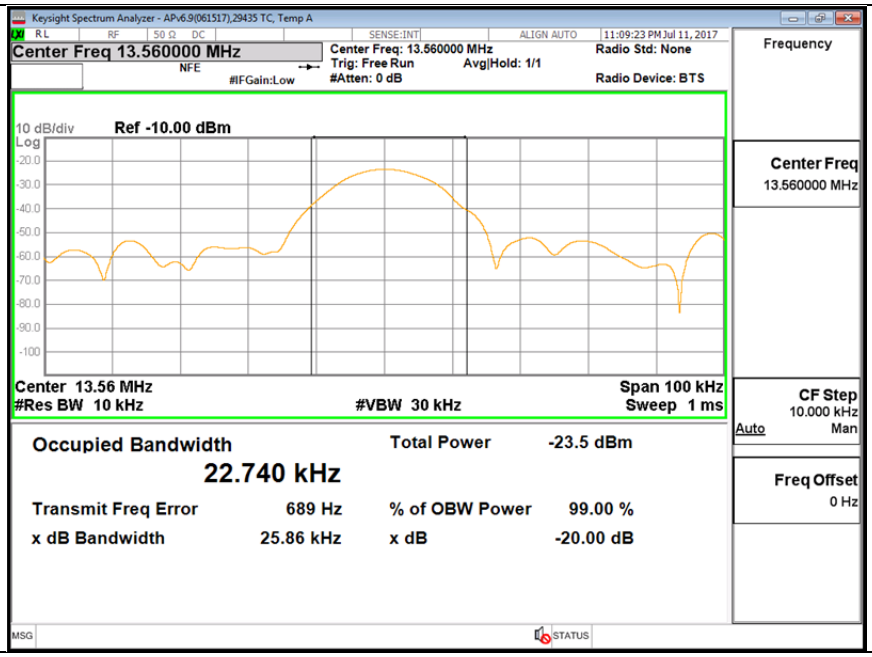
99% & 20dB BANDWIDTH TYPE B 106k



99% & 20dB BANDWIDTH TYPE B 212k



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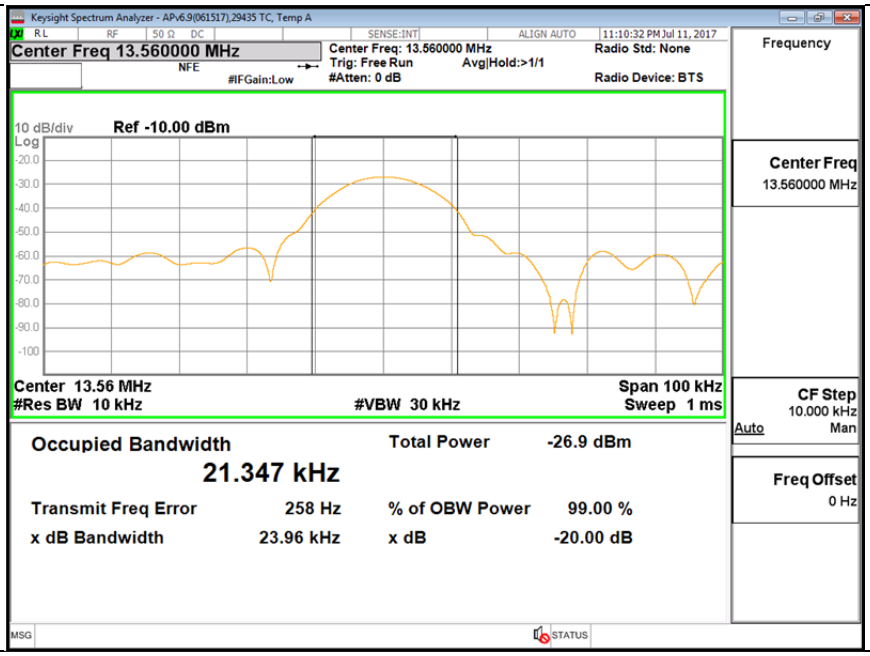
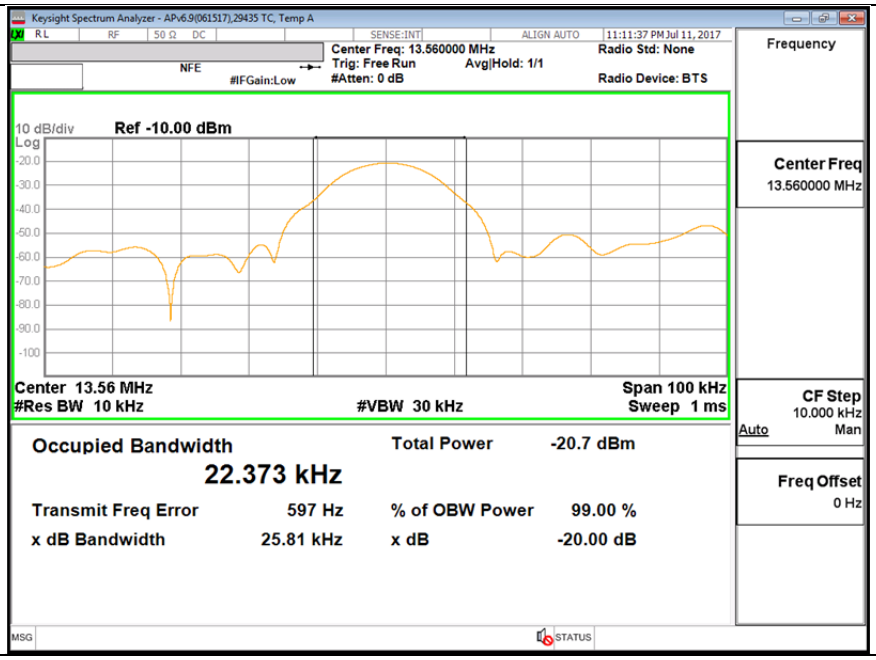
99% & 20dB BANDWIDTH TYPE B 424k



99% & 20dB BANDWIDTH TYPE B 848k



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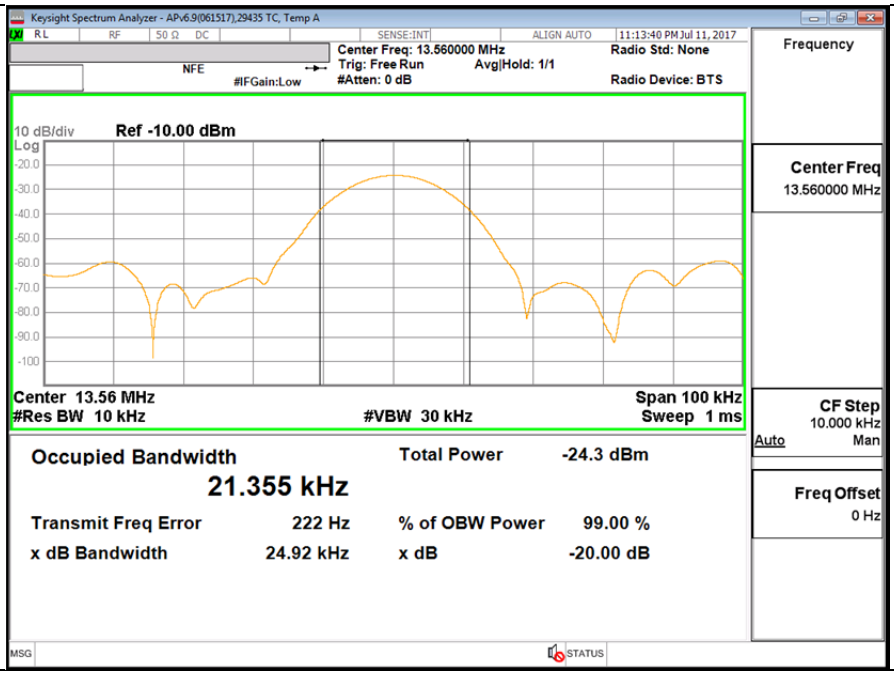
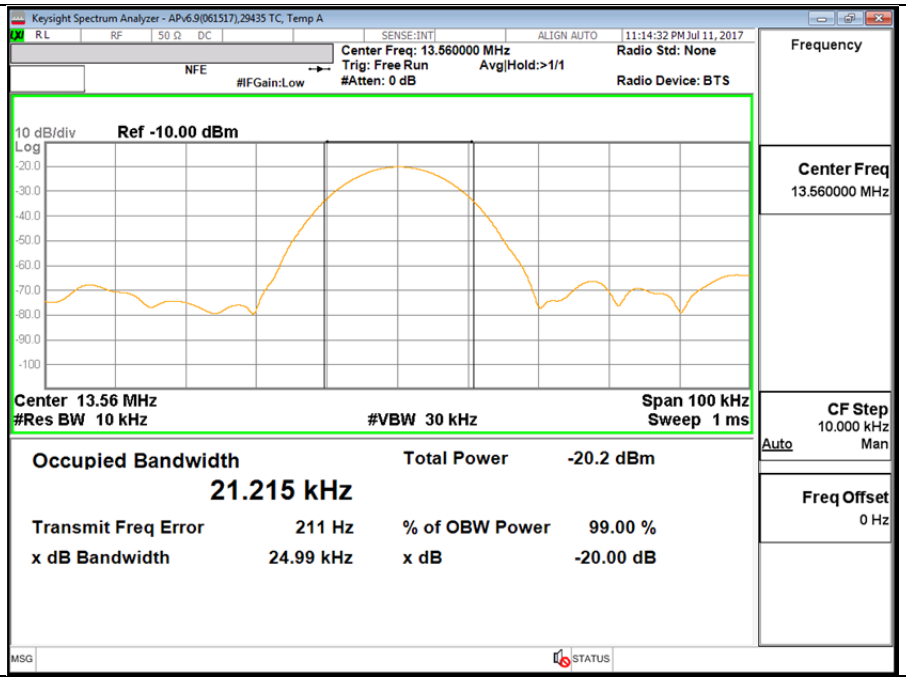
99% & 20dB BANDWIDTH TYPE F 212k



99% & 20dB BANDWIDTH TYPE F 424k



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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:
Limit (dBuV/m) = 20 log limit (uV/m)
In addition:

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§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 (e) The provisions in §§15.31, 15.33, and 15.35 for 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 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.

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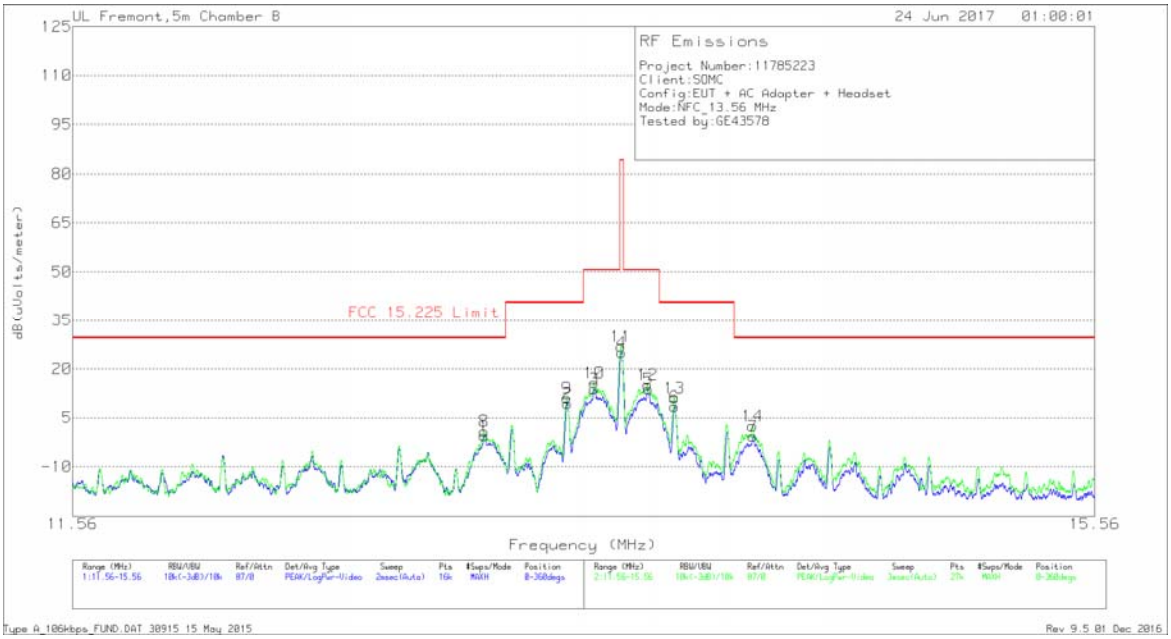
8.1.1. FUNDAMENTAL EMISSION MASK (11.56 – 15.56MHz)

FUNDAMENTAL Type A, 106k



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.

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Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr (dB) 40Log	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	PK Margin (dB)	Azimuth (Degs)
8	13.02868	28.62	Pk	10.7	1.6	-40	.92	29.54	-28.62	0-360
1	13.03013	27.29	Pk	10.7	1.6	-40	-.41	29.54	-29.95	0-360
9	13.34599	38.76	Pk	10.7	1.6	-40	11.06	40.51	-29.45	0-360
2	13.34788	37.08	Pk	10.7	1.6	-40	9.38	40.51	-31.13	0-360
10	13.45225	43.39	Pk	10.7	1.6	-40	15.69	50.5	-34.81	0-360
3	13.45363	41.5	Pk	10.7	1.6	-40	13.8	50.5	-36.7	0-360
11	*13.55763	54.76	Pk	10.6	1.6	-40	26.96	84	-57.04	0-360
4	*13.55963	52.86	Pk	10.6	1.6	-40	25.06	84	-58.94	0-360
12	13.66315	43.02	Pk	10.6	1.6	-40	15.22	50.5	-35.28	0-360
5	13.66563	41.72	Pk	10.6	1.6	-40	13.92	50.5	-36.58	0-360
13	13.76942	38.92	Pk	10.6	1.6	-40	11.12	40.51	-29.39	0-360
6	13.7715	36.29	Pk	10.6	1.6	-40	8.49	40.51	-32.02	0-360
14	14.08688	30.28	Pk	10.6	1.6	-40	2.48	29.54	-27.06	0-360
7	14.08913	27.09	Pk	10.6	1.6	-40	-.71	29.54	-30.25	0-360

* - indicates fundamental frequency
Pk - Peak detector

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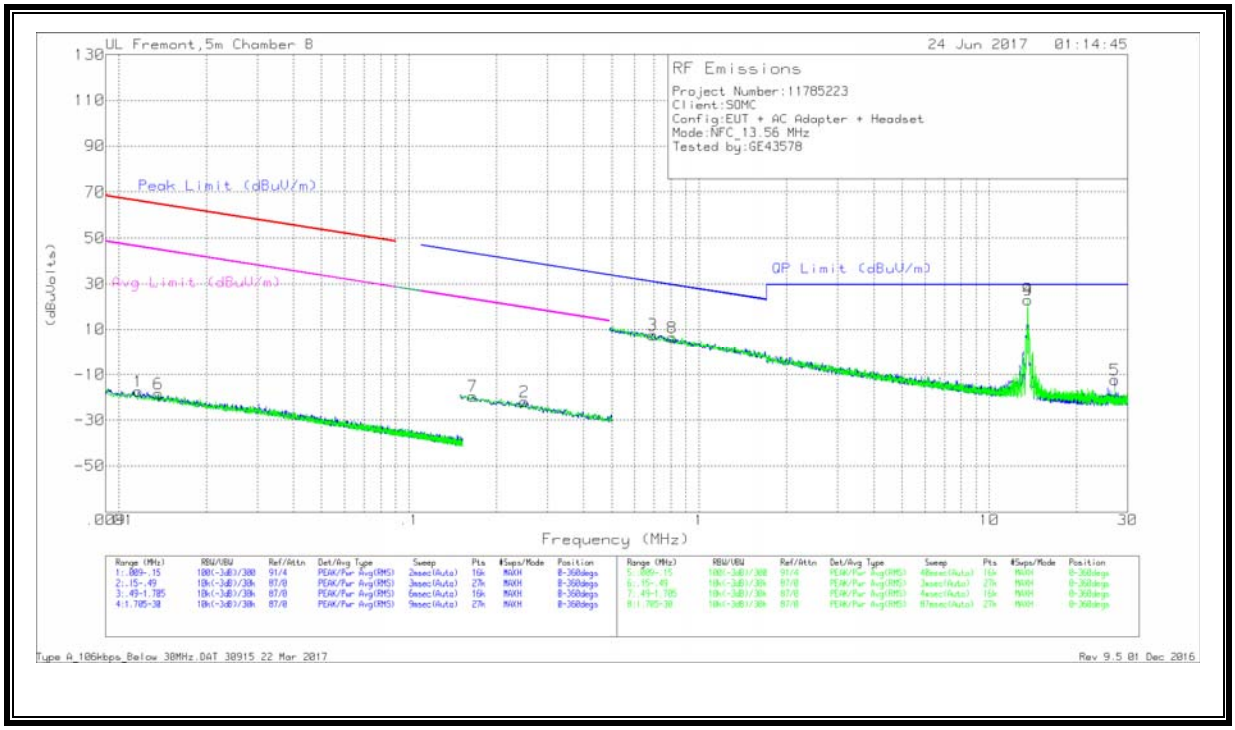
8.1.2. SPURIOUS EMISSIONS (0.09 – 30MHz)



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)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.01169	43.38	Pk	17.8	1.4	-80	-17.42	66.23	-83.65	46.23	-63.65	-	-	-	-	0-360
6	.0137	43.05	Pk	17	1.4	-80	-18.55	64.85	-83.4	44.85	-63.4	-	-	-	-	0-360
7	.16614	47.35	Pk	11.6	1.5	-80	-19.55	-	-	-	-	43.21	-62.76	23.21	-42.76	0-360
2	.25007	44.89	Pk	11.6	1.5	-80	-22.01	-	-	-	-	39.65	-61.66	19.65	-41.66	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.69163	34.58	Pk	11.6	1.5	-40	7.68	30.81	-23.13	-	-	-	-	0-360
8	.80692	33.33	Pk	11.6	1.5	-40	6.43	29.48	-23.05	-	-	-	-	0-360
4	*13.55893	50.91	Pk	10.4	1.6	-40	22.91	29.5	-6.59	-	-	-	-	0-360
9	*13.55893	51.1	Pk	10.4	1.6	-40	23.1	29.5	-6.4	-	-	-	-	0-360
5	27.119	17.14	Pk	8.8	1.7	-40	-12.36	29.5	-41.86	-	-	-	-	0-360

* - indicates fundamental frequency
Pk - Peak detector

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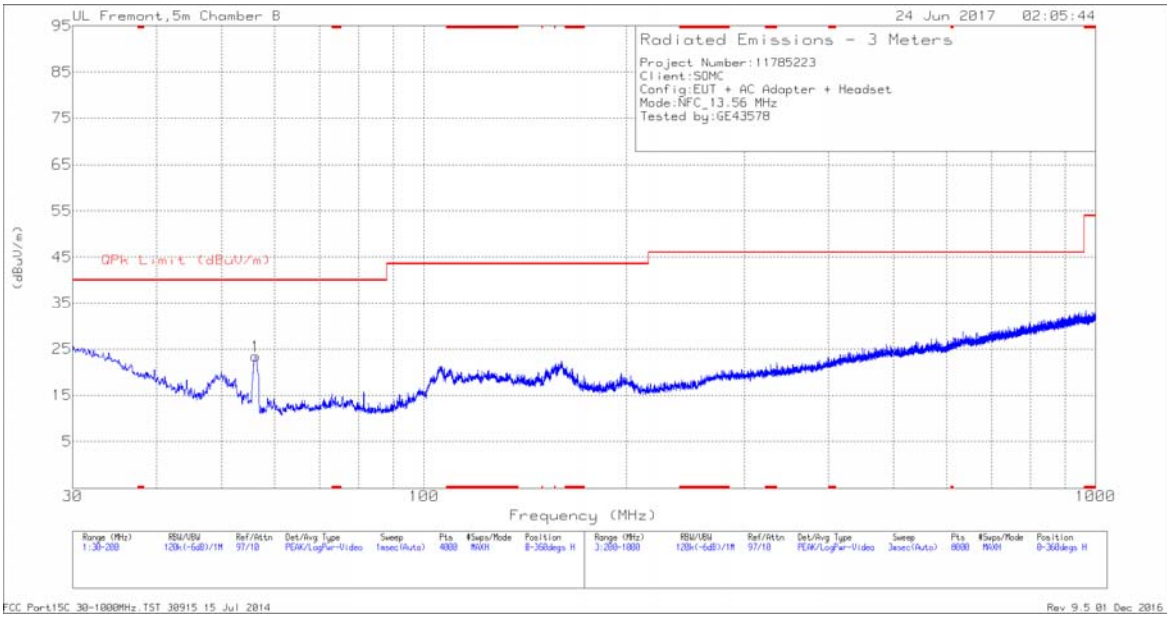
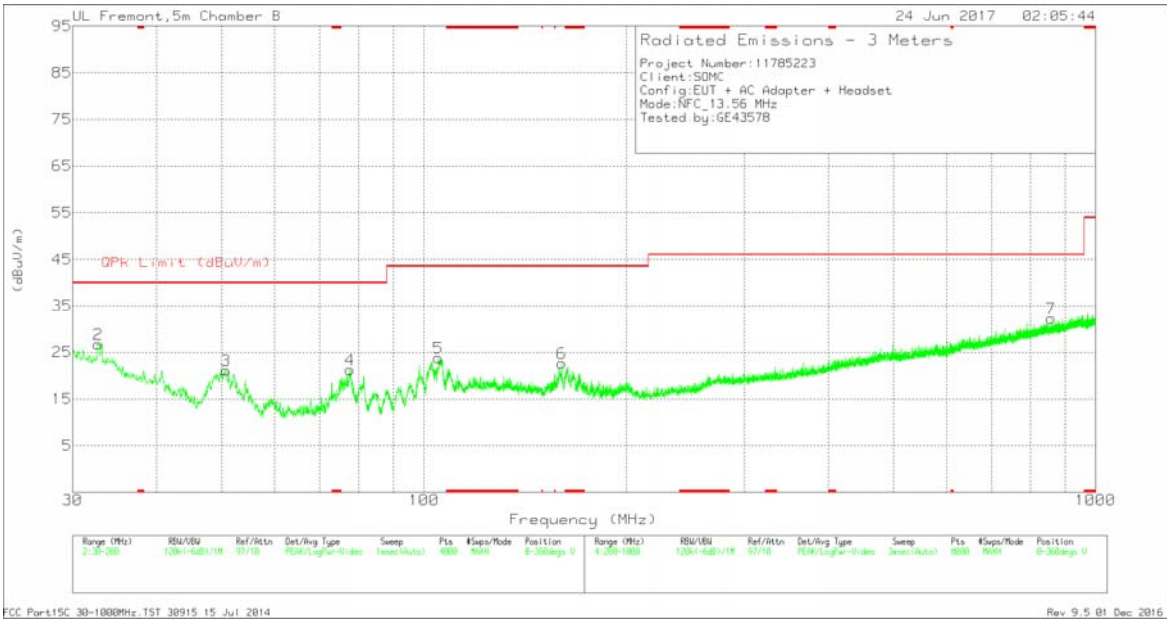
8.1.3. TX SPURIOUS EMISSIONS (30 – 1000MHz)

HORIZONTAL PLOT



VERTICAL PLOT



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Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	32.7207	32.13	Pk	23.4	-28.8	26.73	40	-13.27	0-360	100	V
3	50.7029	37.89	Pk	11.8	-28.5	21.19	40	-18.81	0-360	100	V
1	56.208	40.62	Pk	11.2	-28.4	23.42	40	-16.58	0-360	300	H
4	77.6973	37.86	Pk	11.6	-28.2	21.26	40	-18.74	0-360	100	V
5	105.1594	36.1	Pk	15.6	-27.9	23.8	43.52	-19.72	0-360	100	V
6	160.4663	33.73	Pk	16.2	-27.2	22.73	43.52	-20.79	0-360	100	V
7	857.9855	30.37	Pk	25.8	-23.9	32.27	46.02	-13.75	0-360	300	V

Pk - Peak detector

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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 50µH/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 (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
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.

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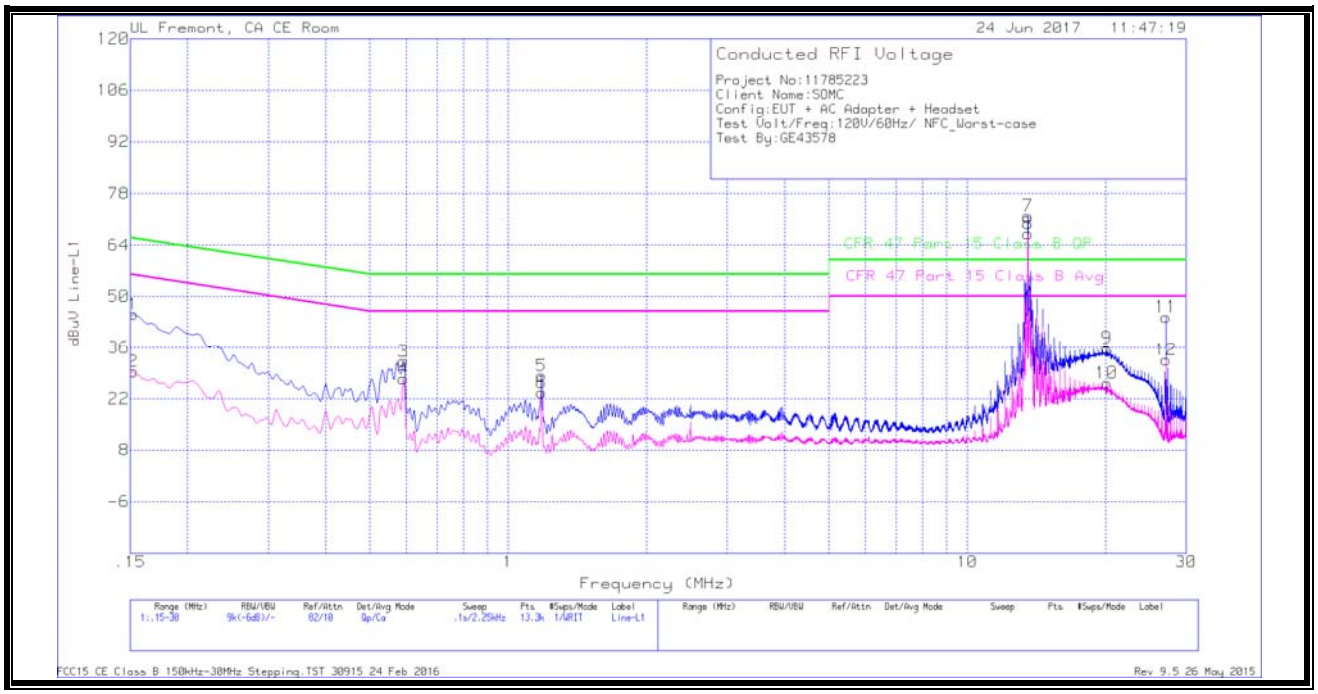
EUT WITH ANTENNA - LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	.15225	33.67	Qp	1.3	.1	10.1	45.17	65.88	-20.71	-	-
2	.15225	17.93	Ca	1.3	.1	10.1	29.43	-	-	55.88	-26.45
3	.591	21.68	Qp	.3	.1	10.1	32.18	56	-23.82	-	-
4	.591	16.89	Ca	.3	.1	10.1	27.39	-	-	46	-18.61
5	1.1805	17.9	Qp	.2	.1	10.1	28.3	56	-27.7	-	-
6	1.18275	13.27	Ca	.2	.1	10.1	23.67	-	-	46	-22.33
7	13.56	61.37	Qp	.2	.2	10.2	71.97	**60**	**11.97**	-	-
8	13.56	56.53	Ca	.2	.2	10.2	67.13	-	-	**50**	**17.13**
9	20.12775	24.98	Qp	.3	.3	10.3	35.88	60	-24.12	-	-
10	20.12775	15.36	Ca	.3	.3	10.3	26.26	-	-	50	-23.74
11	27.12075	33.32	Qp	.3	.3	10.5	44.42	60	-15.58	-	-
12	27.12075	21.54	Ca	.3	.3	10.5	32.64	-	-	50	-17.36

Pk - Peak detector
Av - Average detection
Note: Markers 7 and 8 are the 13.56MHz NFC Fundamental

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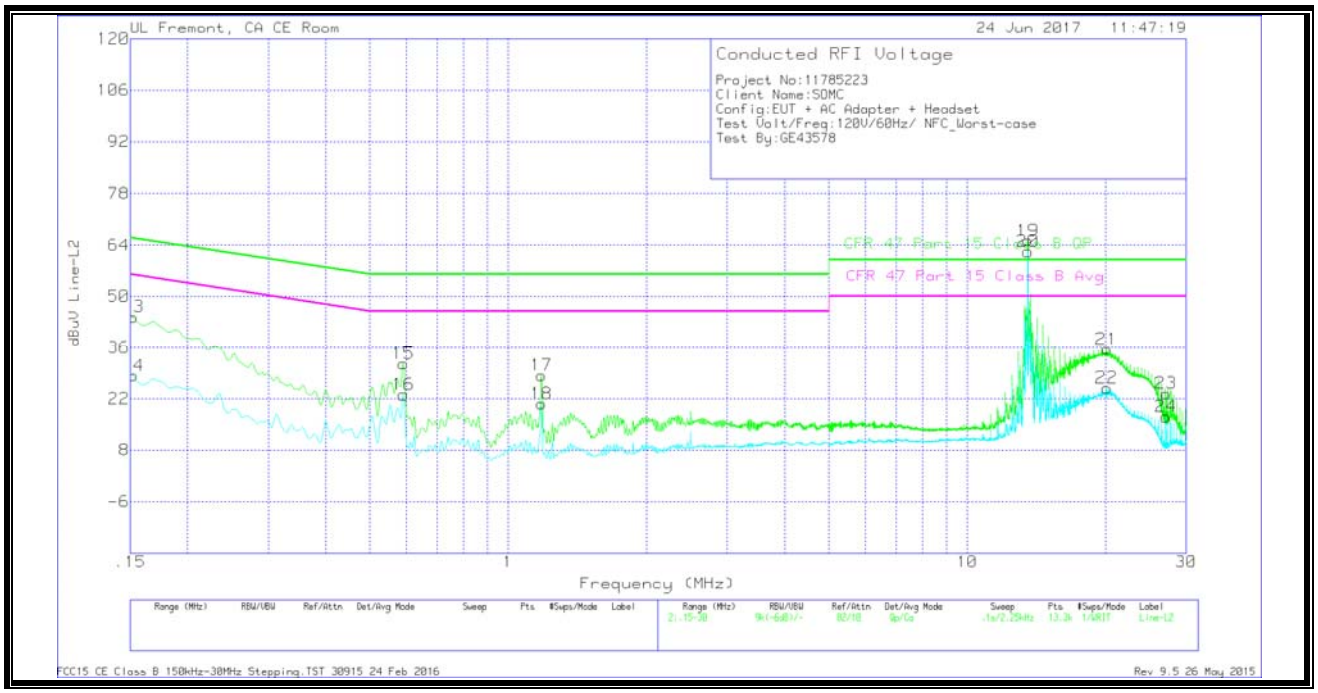
EUT WITH ANTENNA-LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	.15225	32.85	Qp	1.5	0	10.1	44.45	65.88	-21.43	-	-
14	.15225	16.69	Ca	1.5	0	10.1	28.29	-	-	55.88	-27.59
15	.591	21.08	Qp	.3	.1	10.1	31.58	56	-24.42	-	-
16	.591	12.59	Ca	.3	.1	10.1	23.09	-	-	46	-22.91
17	1.1805	17.87	Qp	.3	.1	10.1	28.37	56	-27.63	-	-
18	1.1805	10.11	Ca	.3	.1	10.1	20.61	-	-	46	-25.39
19	13.56	54.51	Qp	.3	.2	10.2	65.21	**60**	**5.21**	-	-
20	13.56	51.55	Ca	.3	.2	10.2	62.25	-	-	**50**	**12.25**
21	20.13	24.7	Qp	.3	.3	10.3	35.6	60	-24.4	-	-
22	20.12775	14.03	Ca	.3	.3	10.3	24.93	-	-	50	-25.07
23	27.12075	12.3	Qp	.3	.3	10.5	23.4	60	-36.6	-	-
24	27.12075	6	Ca	.3	.3	10.5	17.1	-	-	50	-32.9

Pk - Peak detector
Av - Average detection
Note: Markers 19 and 20 are the 13.56MHz NFC Fundamental

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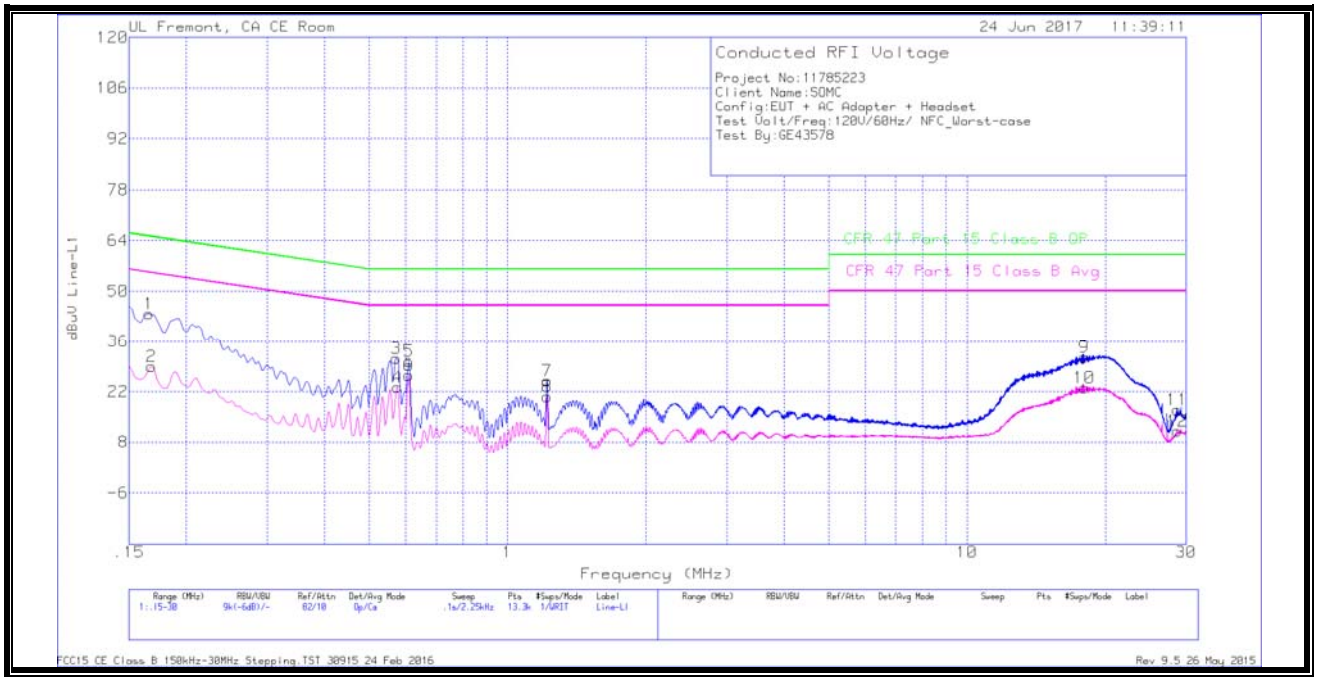
EUT WITH ANTENNA PORT TERMINATED -LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	32.48	Qp	1.1	0	10.1	43.68	65.17	-21.49	-	-
2	.168	17.78	Ca	1.1	0	10.1	28.98	-	-	55.06	-26.08
3	.573	20.76	Qp	.3	.1	10.1	31.26	56	-24.74	-	-
4	.57525	12.76	Ca	.3	.1	10.1	23.26	-	-	46	-22.74
5	.609	19.94	Qp	.3	.1	10.1	30.44	56	-25.56	-	-
6	.609	16.03	Ca	.3	.1	10.1	26.53	-	-	46	-19.47
7	1.21875	14.62	Qp	.2	.1	10.1	25.02	56	-30.98	-	-
8	1.21875	10.27	Ca	.2	.1	10.1	20.67	-	-	46	-25.33
9	17.9835	20.77	Qp	.2	.3	10.3	31.57	60	-28.43	-	-
10	18.0015	12.25	Ca	.2	.3	10.3	23.05	-	-	50	-26.95
11	28.689	5.82	Qp	.3	.3	10.5	16.92	60	-43.08	-	-
12	28.68788	-.02	Ca	.3	.3	10.5	11.08	-	-	50	-38.92

Qp - Quasi-Peak detector
Ca - CISPR average detection

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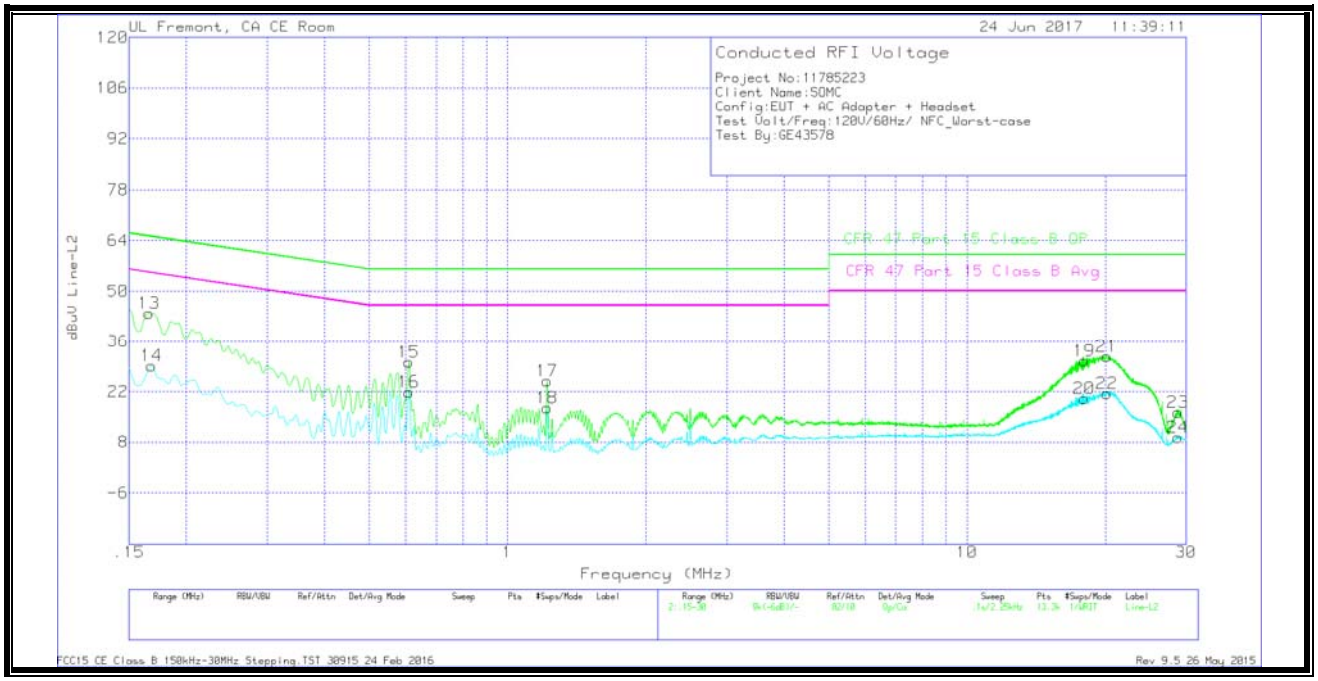
EUT WITH ANTENNA PORT TERMINATED -LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	32.45	Qp	1.3	0	10.1	43.85	65.17	-21.32	-	-
14	.168	17.82	Ca	1.3	0	10.1	29.22	-	-	55.06	-25.84
15	.609	19.72	Qp	.3	.1	10.1	30.22	56	-25.78	-	-
16	.609	11.42	Ca	.3	.1	10.1	21.92	-	-	46	-24.08
17	1.21875	14.59	Qp	.2	.1	10.1	24.99	56	-31.01	-	-
18	1.21875	7.03	Ca	.2	.1	10.1	17.43	-	-	46	-28.57
19	17.99925	19.61	Qp	.3	.3	10.3	30.51	60	-29.49	-	-
20	17.99925	9.25	Ca	.3	.3	10.3	20.15	-	-	50	-29.85
21	20.14575	20.77	Qp	.3	.3	10.3	31.67	60	-28.33	-	-
22	20.14575	10.54	Ca	.3	.3	10.3	21.44	-	-	50	-28.56
23	28.77	5.16	Qp	.3	.3	10.5	16.26	60	-43.74	-	-
24	28.79025	-1.81	Ca	.3	.3	10.5	9.29	-	-	50	-40.71

Qp - Quasi-Peak detector
Ca - CISPR average detection

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10. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within ±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

ID:	45256 JB	Date:	7/1/2017

No non-compliance noted.

Reference Frequency: EUT Channel 13.56 MHz @ 20ºC Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measureed with Time Elapse								
(Vdc)	(ºC)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	13.5599445	3.248	13.5599452	3.197	13.5599417	3.455	13.5599378	3.742	± 100
3.80	40	13.5599913	-0.203	13.5599865	0.151	13.5599773	0.829	13.5599687	1.464	± 100
3.80	30	13.5600468	-4.296	13.5600306	-3.101	13.5600173	-2.120	13.5600078	-1.420	± 100
3.80	***20***	***13.5599885***	***0.000***	***13.5599858***	***0.203***	***13.5599830***	***0.409***	***13.5599820***	***0.483***	***± 100***
3.80	10	13.5600805	-6.781	13.5600778	-6.582	13.5600732	-6.243	13.5600694	-5.963	± 100
3.80	0	13.5600863	-7.209	13.5600859	-7.179	13.5600857	-7.165	13.5600859	-7.179	± 100
3.80	-10	13.5600335	-3.315	13.5600559	-4.967	13.5600756	-6.420	13.5600868	-7.246	± 100
3.23	20	13.5599380	3.728	13.5599450	3.211	13.5599506	2.798	13.5599574	2.297	± 100
4.37	20	13.5599399	3.588	13.5599457	3.160	13.5599513	2.747	13.5599583	2.231	± 100

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