CERTIFICATION TEST REPORT

Report Number. : 11785278-E8V3

Applicant	:	SONY MOBILE COMMUNICATIONS INC. 4-12-3 HIGASHI-SHINAGAWA, SHINAGAWA -KU,TOKYO, 140-0002, JAPAN
FCCC ID	:	PY7-76486N
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 B

Date Of Issue:

August 01, 2017

Prepared by:
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	07/08/17	Initial Issue	D. Coronia
V2	07/28/17	Added Section 6 (Re-use data information)	D. Coronia
V3	08/01/17	Updated Section 7.1	D. Coronia

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.

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

SERIAL NUMBER: QV7001D00N

DATE TESTED: June 07 to July 7, 2017

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC 47 CFR PART 15 SUBPART B	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 and released for
UL Verification Services Inc. by:

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UL VERIFICATION SERVICES INC
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Prepared by:

GLENN ESCANO
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WiSE LAB ENGINEER
UL VERIFICATION SERVICES INC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2014, ICES-003 ISSUE 6.

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.

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%.

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.

GENERAL INFORMATION

Highest frequency generated or used by the EUT	5GHz

5.2. TEST CONFIGURATIONS

The following configuration was tested:

EUT Configuration	Description
1	Laptop Sync Mode - The EUT was configured as table top equipment. The EUT is installed in a typical configuration. The EUT is connected to a laptop via USB, is charging and transferring data via the laptop.
2	Charging - The EUT was configured as table top equipment. The EUT is installed in a typical configuration. The EUT is connected to an AC adapter for charging and in a functional mode.

5.3. MODE(S) OF OPERATION

Mode	Description
Sync mode	Data transfer; Sync video file from laptop to EUT and continued playing video during testing.
Charging Mode	Charging with supplied USB charger. EUT and its charger shall be on back edge of table, with charger connected to extension cord.

5.4. SOFTWARE AND FIRMWARE

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

5.5. MODIFICATIONS

No modifications were made during testing.

5.6. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT & PERIPHERALS

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Lenovo	2349CW5	PB05HPL	DoC
Earphone	Sony	N/A	N/A	N/A
AC Adapter	Lenovo	ADLX90NLT2A	11S45N0307ZLZ436RDM2	N/A
Mouse	Logitech	M-U0026	1304HS02AX68	N/A
Keyboard	Lenovo	KU-0225	54Y9400	N/A
Switch	Netgear	FS105 v2	1D52163304A74	DoC
AC Adapter	Netgear	FA-0751000SUA	332-10154-01	N/A

I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	2	Power	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A
3	USB	1	Mini-USB	Shielded	0.9 m	UCB20 cable from EUT to Laptop
3	USB	2	USB	Shielded	2m	From laptop to keyboard & mouse
4	AC Power	2	IEC	Unshielded	1m	N/A
5	Ethernet	1	RJ45	Unshielded	2m	N/A

TEST SETUP

The EUT is installed in a typical configuration. Test software exercised the EUT.

6. REUSE OF TEST DATA

6.1. INTRODUCTION

According to manufacturer, FCC ID: PY7-81775I and FCC ID: PY7-76486N unlicensed radios (WLAN/BT/BLE/NFC) are electrically identical. They share the same chipset, same power and same antenna performance including antenna gain. The FCC ID: PY7-81775I test data shall remain representative of FCC ID: PY7-76486N so FCC ID: PY7-76486N leverage test data from FCC ID: PY7-81775I.

The applicant takes full responsibility that the test data as referenced in this section represent compliance for this FCC ID.

6.2. DEVICES DIFFERENCES

Difference between PY7-81775I and PY7-76486N:

Various components were removed from PY7-81775I to establish PY7-76486N; such components are related only to the cellular part and no change in non-cellular (WLAN/BT/BLE/NFC) parts, which are electronically identical.

6.3. RADIATED EMISSIONS VERIFICATION

Radiated emissions were fully re-evaluated against FCC Part 15B requirements for digital devices and results indicated no significant differences between the two versions

NOTE: AC Main Line Conducted Emissions please refer to 11740661-E8V2 FCC Report 15B.

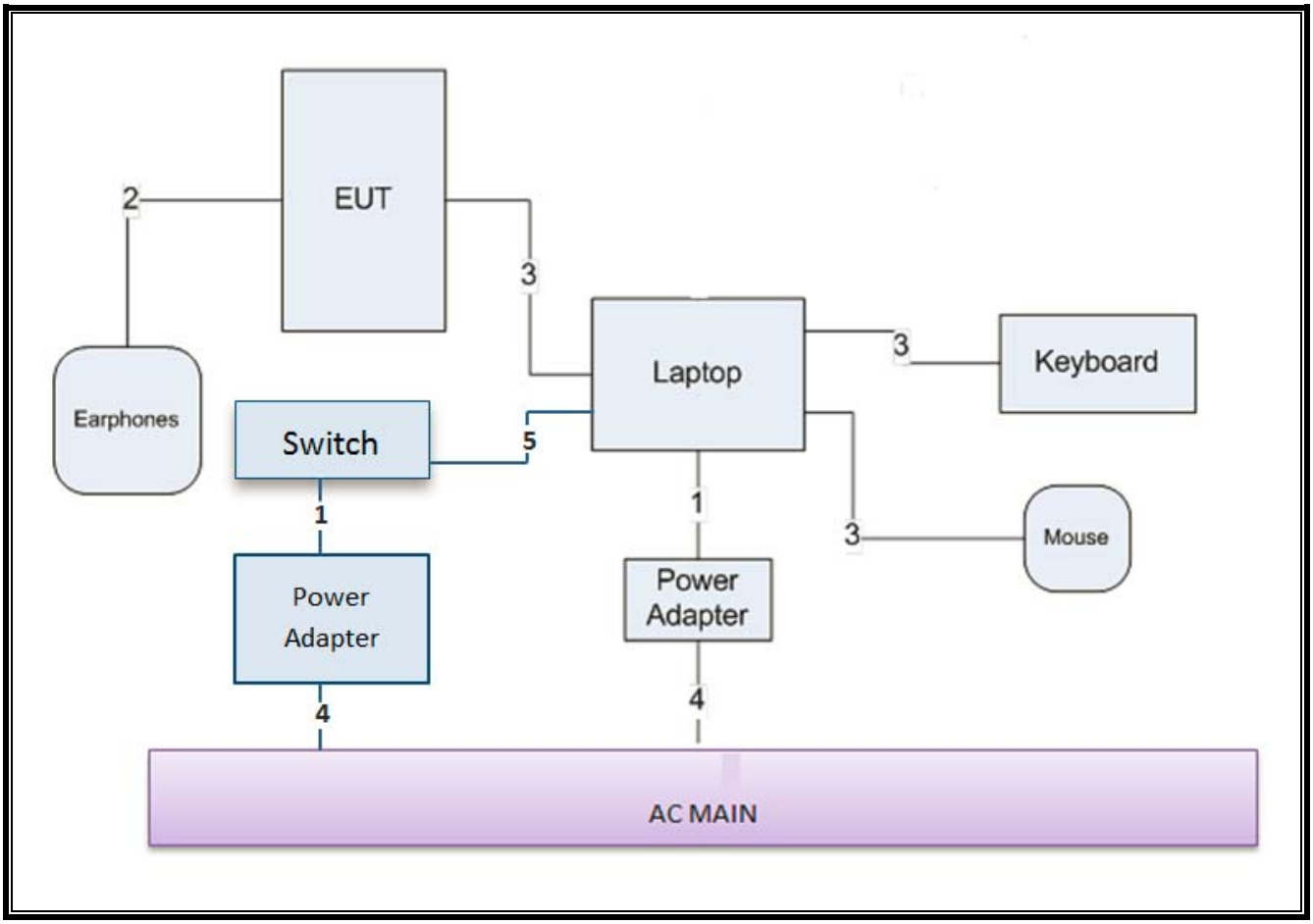
PY7-76486N and PY7-81775I using only one power charger

6.4. REFERENCE DETAIL

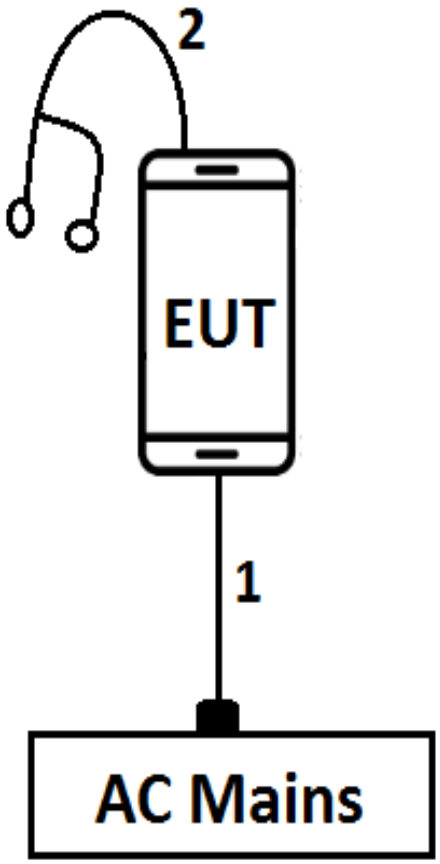
Equipment Class	Reference FCC ID	Report Title/Section
DSS (BT)	PY7-81775I	11740661-E2V3 FCC Report BT
DTS (BLE)	PY7-81775I	11740661-E3V3 FCC Report BLE
DTS (WLAN)	PY7-81775I	11740661-E4V4 FCC Report DTS
UNII (WLAN)	PY7-81775I	11740661-E5V4 FCC Report UNII
NFC	PY7-81775I	11740661-E7V3 FCC Report NFC
JBP	PY7-81775I	**11740661-E8V2 FCC Report 15B**

SETUP DIAGRAM

Sync Mode



Charging Mode



7. APPLICABLE EMISSIONS LIMITS AND TEST RESULTS

7.1. EMISSIONS 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 Number**	**Cal Date**	**Cal Due**
Amplifier, 1 to 18 GHz	Miteq	AFS43-00101800-25-S-42	493	02/15/17	02/15/18
Amplifier, 1 to 8 GHz	Miteq	AMF-4D-01000800-30-29P	1170	04/28/17	04/28/18
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	300	11/10/16	11/10/17
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	130	09/23/16	09/23/17
PXA Spectrum Analyzer, 3Hz to 44GHz	Agilent	N9030A	1466	04/11/17	04/11/18
18 - 26.5 GHz Horn Antenna	Seavey Division	MWH-1826/B	449	06/12/17	06/12/2018
26.5 - 40 GHz Horn Antenna	ARA	MWH-2640/B	446	06/12/17	06/12/2018
Pre-Amp 1-26.5 GHz	Agilent	8449B	404	07/05/16	07/05/17
Pre-Amp, 26-40GHz	MITEQ	NSP4000-SP2	88	04/29/17	04/29/2018
Spectrum Analyzer	Agilent	8564E	106	09/07/16	09/07/17

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, Dec 01, 2016

7.2. RADIATED EMISSIONS LIMITS AND RESULTS

LIMIT

FCC Part 15 Subpart B

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dBµV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

TEST PROCEDURE

ANSI C63.4: 2014

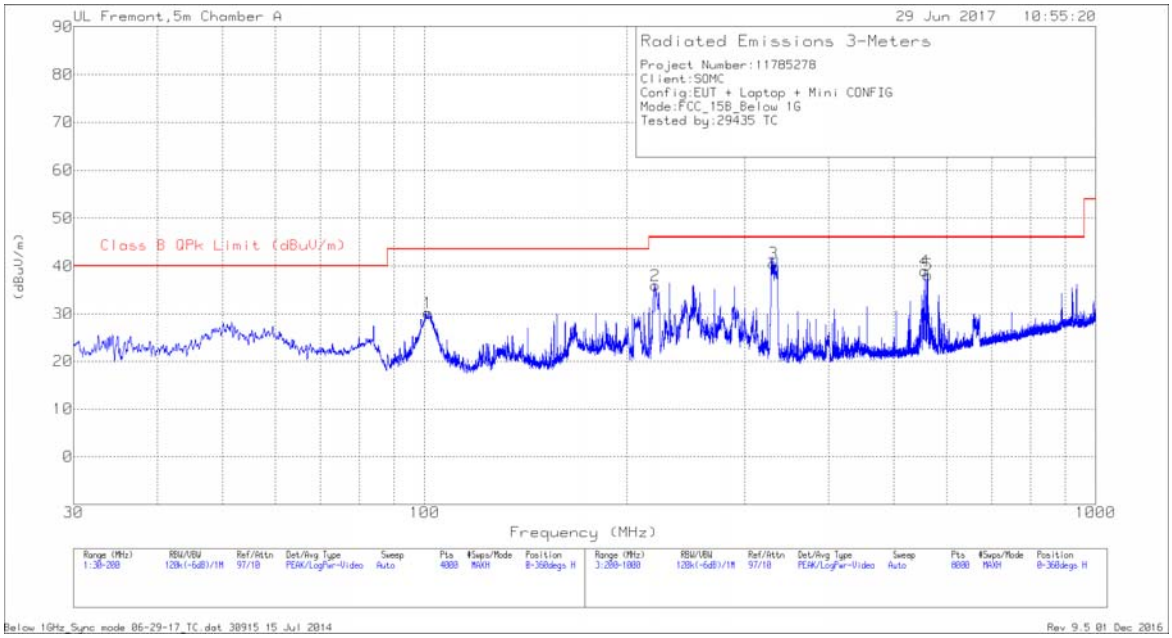
The highest frequency generated or used in the EUT is 5.8 GHz therefore the frequency range was investigated from 30 MHz to 40 GHz.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	**Upper frequency of measurement range** (MHz)
Below 108	1000
108-500	2000
500-1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

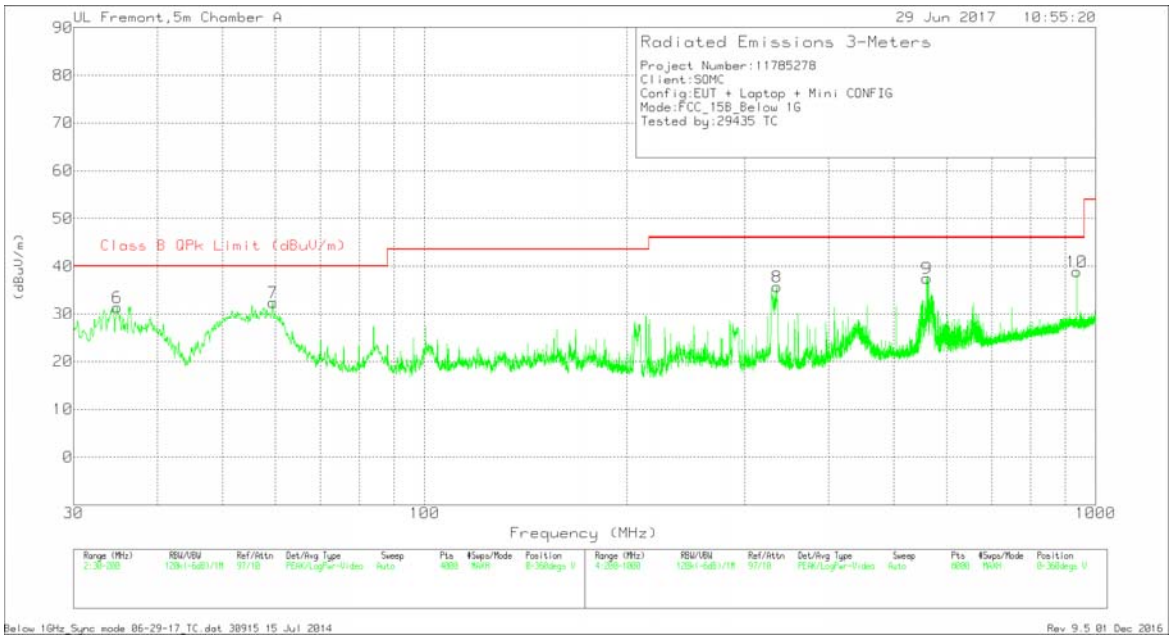
RESULTS

7.2.1. RADIATED EMISSIONS 30 TO 1000 MHz (SYNC MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

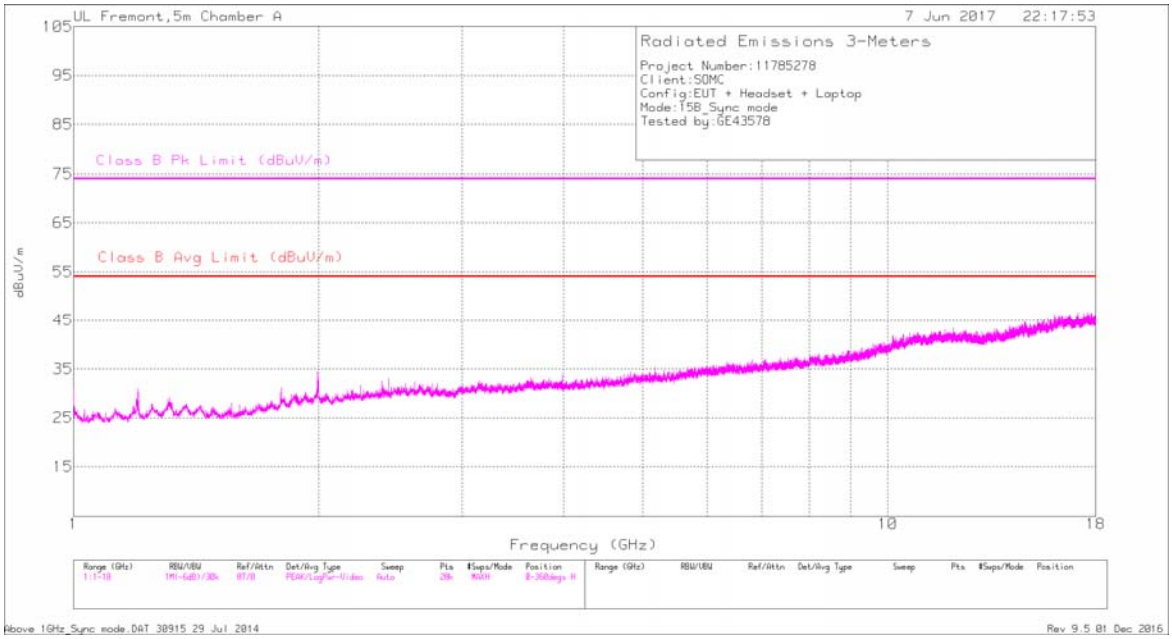
Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	34.8463	41.3	Pk	21.3	-31.2	31.4	40	-8.6	0-360	100	V
7	59.4176	51.65	Pk	11.6	-30.9	32.35	40	-7.65	0-360	100	V
1	101.1634	46.39	Pk	14.5	-30.6	30.29	43.52	-13.23	0-360	300	H
2	220.7027	51.04	Pk	14.7	-29.8	35.94	46.02	-10.08	0-360	101	H
3	331.2205	47.99	Qp	18	-29.3	36.69	46.02	-9.33	333	112	H
8	335.2176	46.91	Pk	18	-29.2	35.71	46.02	-10.31	0-360	101	V
4	556.4463	45.12	Pk	22.5	-28.6	39.02	46.02	-7	0-360	300	H
9	560.3468	43.58	Pk	22.6	-28.7	37.48	46.02	-8.54	0-360	101	V
5	562.2471	44.28	Pk	22.6	-28.7	38.18	46.02	-7.84	0-360	300	H
10	937.4959	39.1	Pk	26.8	-27	38.9	46.02	-7.12	0-360	101	V

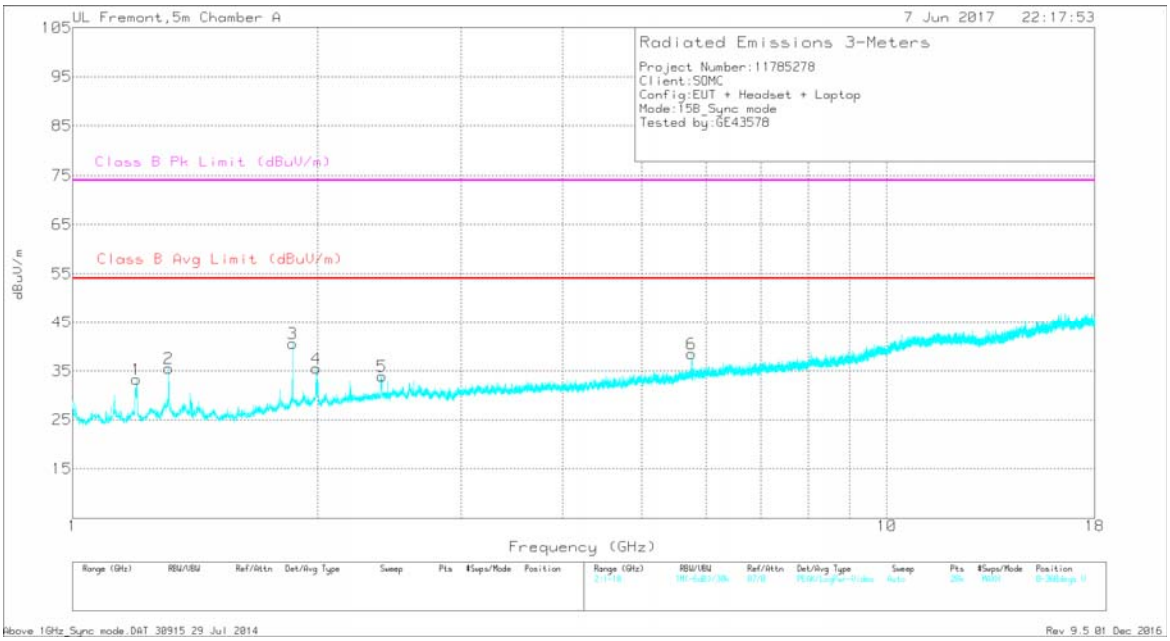
Pk - Peak detector
Qp - Quasi-Peak detector

7.2.2. RADIATED EMISSIONS 1GHz to 18GHz (SYNC MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

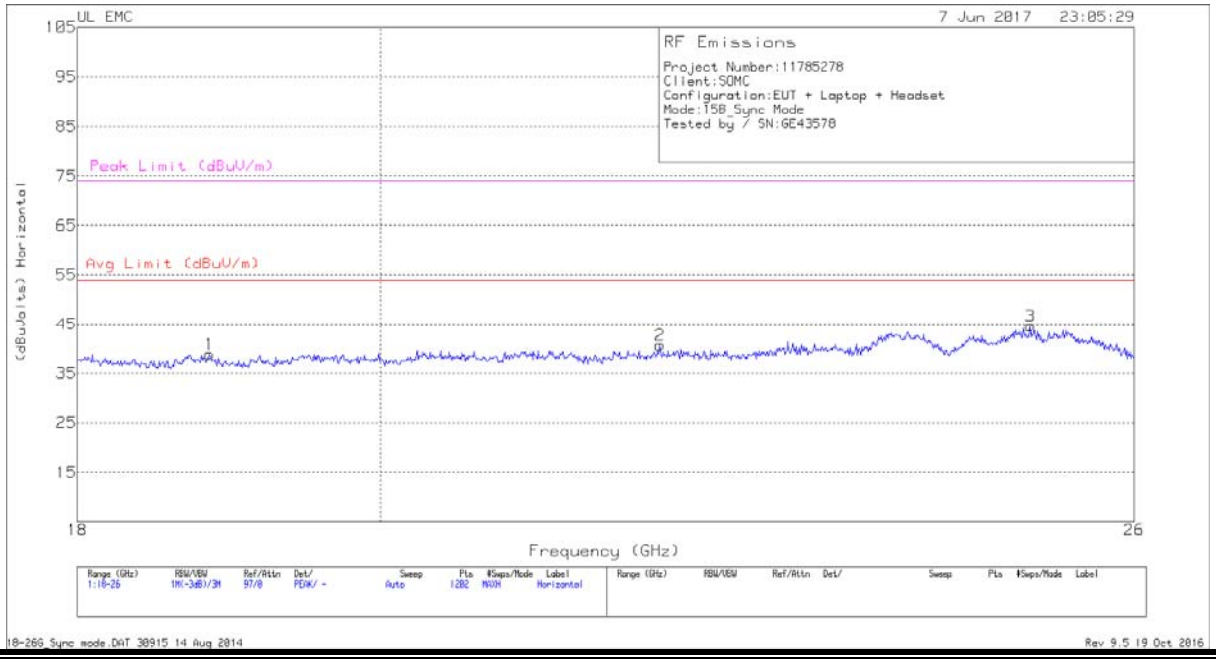
Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.196	49.29	Pk	28.6	-34.3	43.59	-	-	74	-30.41	115	196	V
	1.196	28.58	Av	28.6	-34.3	22.88	54	-31.12	-	-	115	196	V
2	1.312	49.01	Pk	29.5	-34.1	44.41	-	-	74	-29.59	108	168	V
	1.312	28.85	Av	29.5	-34.1	24.25	54	-29.75	-	-	108	168	V
3	1.864	40.94	Pk	30.9	-33.3	38.54	-	-	74	-35.46	12	181	V
	1.864	27.36	Av	30.9	-33.3	24.96	54	-29.04	-	-	12	181	V
4	1.994	49.04	Pk	31.4	-33.3	47.14	-	-	74	-26.86	281	105	V
	1.994	27.55	Av	31.4	-33.3	25.65	54	-28.35	-	-	281	105	V
5	2.398	33.13	Pk	32.1	-32.7	32.53	-	-	74	-41.47	137	367	V
	2.398	27.16	Av	32.1	-32.7	26.56	54	-27.44	-	-	137	367	V
6	5.76	29.57	Pk	34.7	-27.7	36.57	-	-	74	-37.43	256	128	V
	5.76	28.5	Av	34.7	-27.7	35.5	54	-18.5	-	-	256	128	V

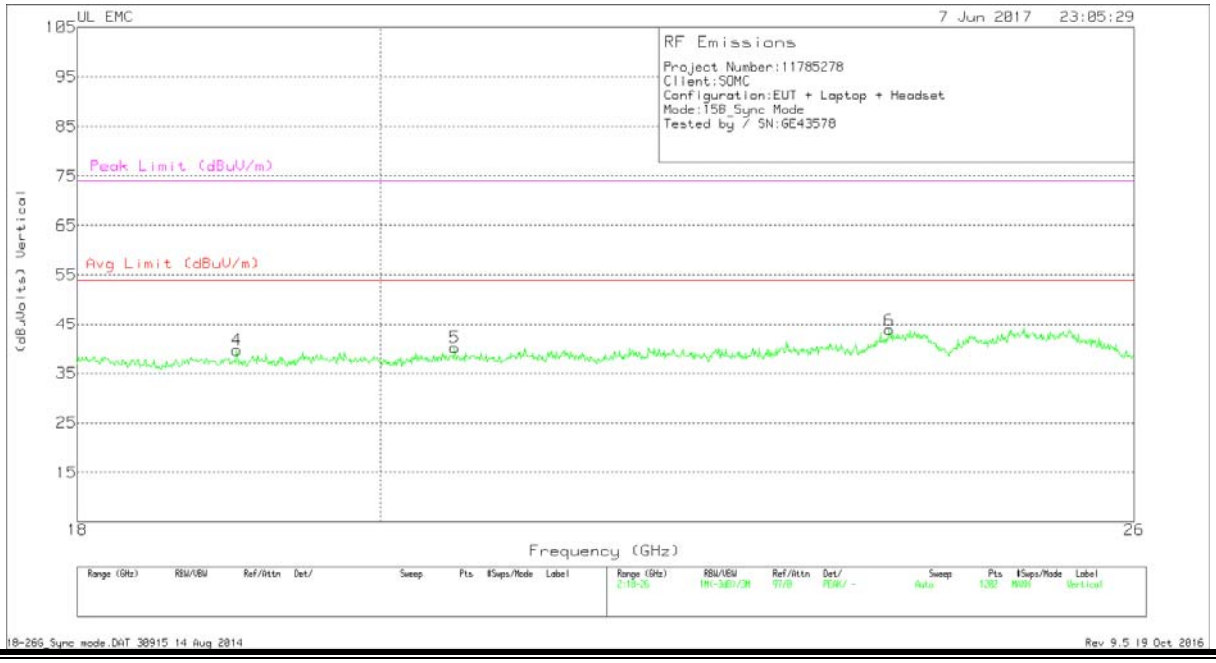
Pk - Peak detector
Av - Average detection

7.2.3. RADIATED EMISSIONS 18 to 26 GHz (SYNC MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

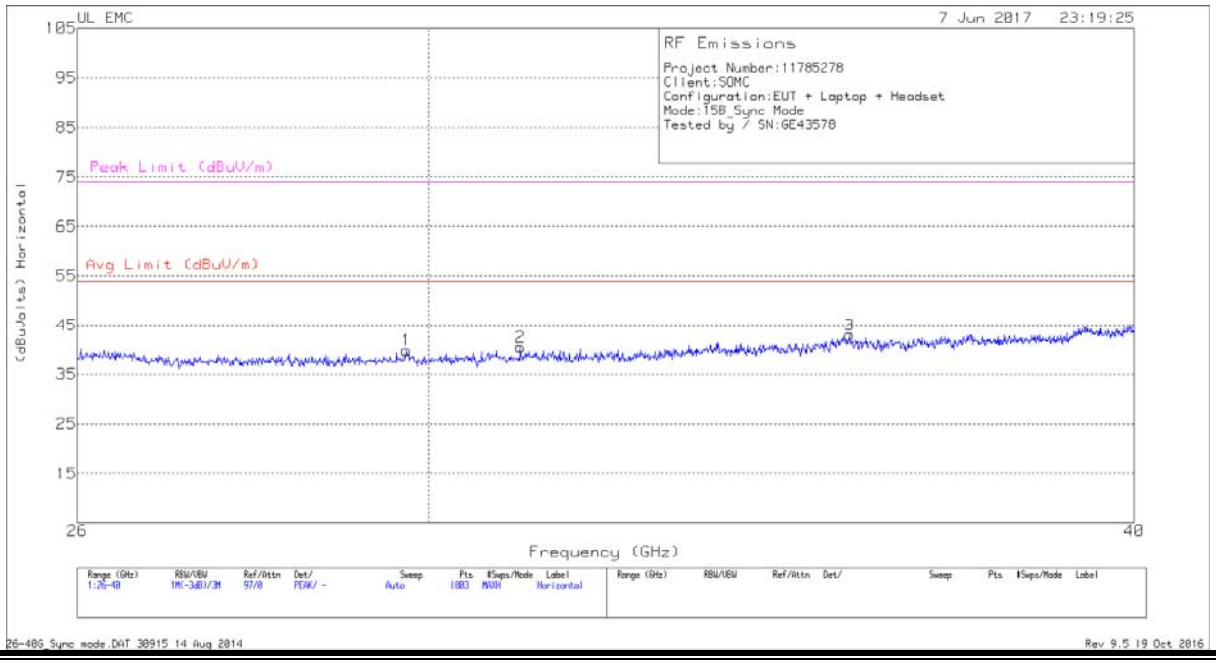
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T447 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.846	41.23	Pk	32.2	-25.1	-9.5	38.83	54	-15.17	74	-35.17
2	22.043	41.97	Pk	33.4	-25.2	-9.5	40.67	54	-13.33	74	-33.33
3	25.074	44.27	Pk	34.5	-24.6	-9.5	44.67	54	-9.33	74	-29.33
4	19.026	41.67	Pk	32.3	-24.8	-9.5	39.67	54	-14.33	74	-34.33
5	20.525	42.17	Pk	32.9	-25.4	-9.5	40.17	54	-13.83	74	-33.83
6	23.875	43.33	Pk	34.1	-24.1	-9.5	43.83	54	-10.17	74	-30.17

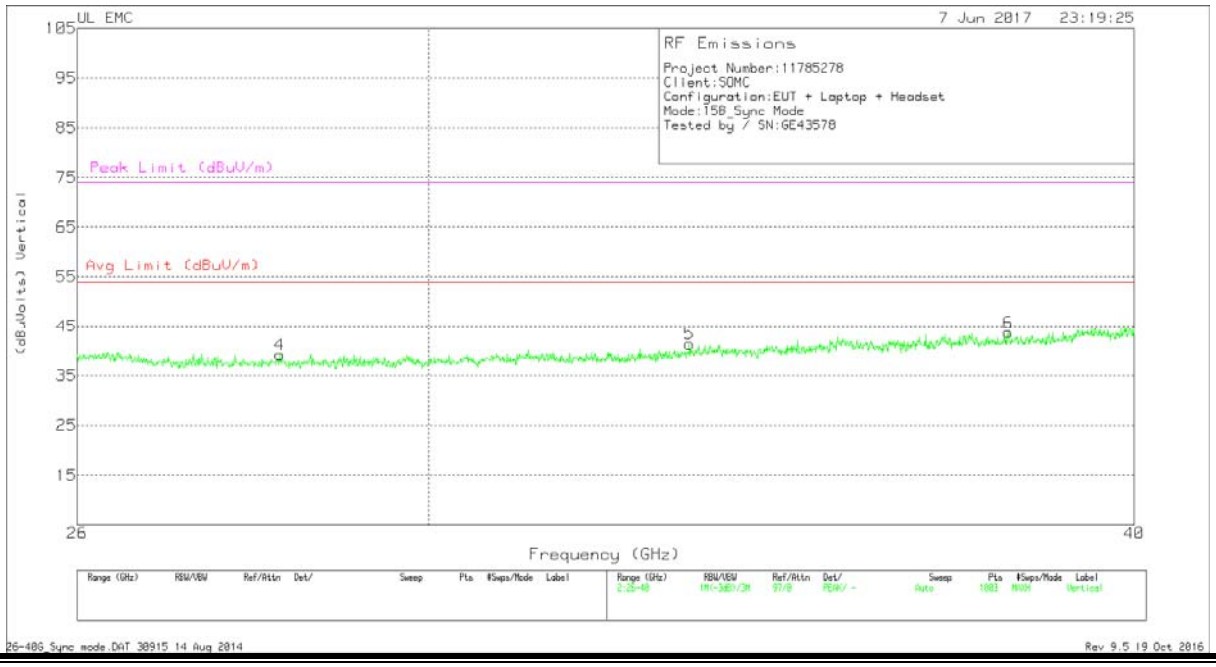
Pk - Peak detector

7.2.4. RADIATED EMISSIONS 26 to 40 GHz (SYNC MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

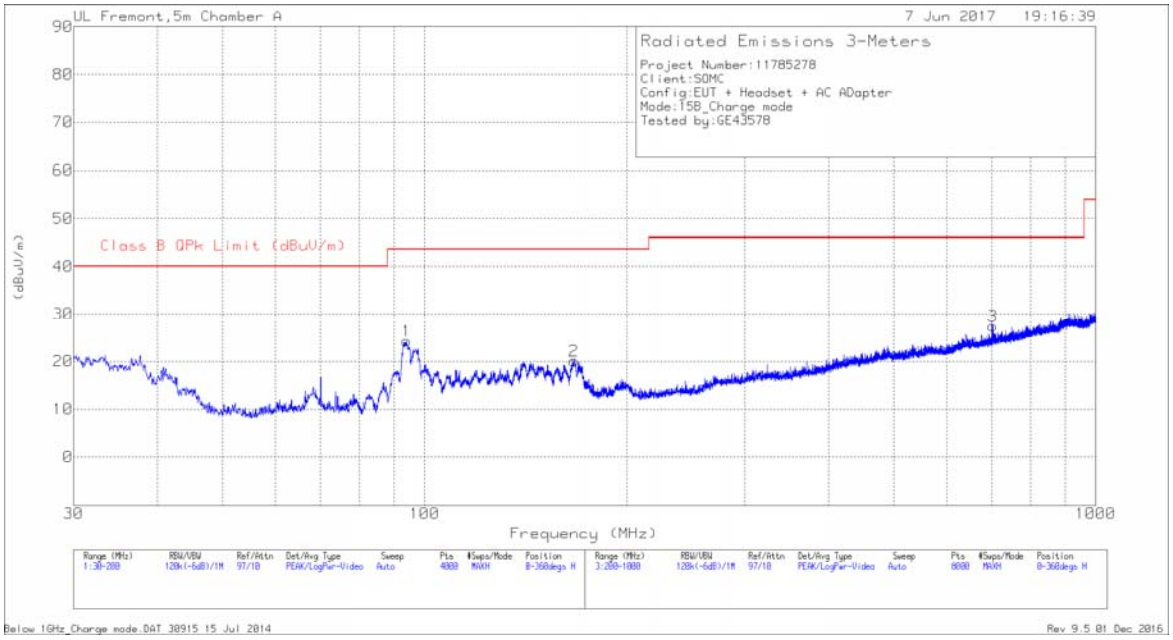
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	29.729	46.13	Pk	36.1	-32.9	-9.5	39.83	54	-14.17	74	-34.17
2	31.143	47.3	Pk	35.9	-33.2	-9.5	40.5	54	-13.5	74	-33.5
3	35.618	49.1	Pk	37.6	-34.2	-9.5	43	54	-11	74	-31
4	28.238	44.67	Pk	35.9	-31.9	-9.5	39.17	54	-14.83	74	-34.83
5	33.365	47.33	Pk	37	-33.5	-9.5	41.33	54	-12.67	74	-32.67
6	37.996	49.47	Pk	37.3	-33.6	-9.5	43.67	54	-10.33	74	-30.33

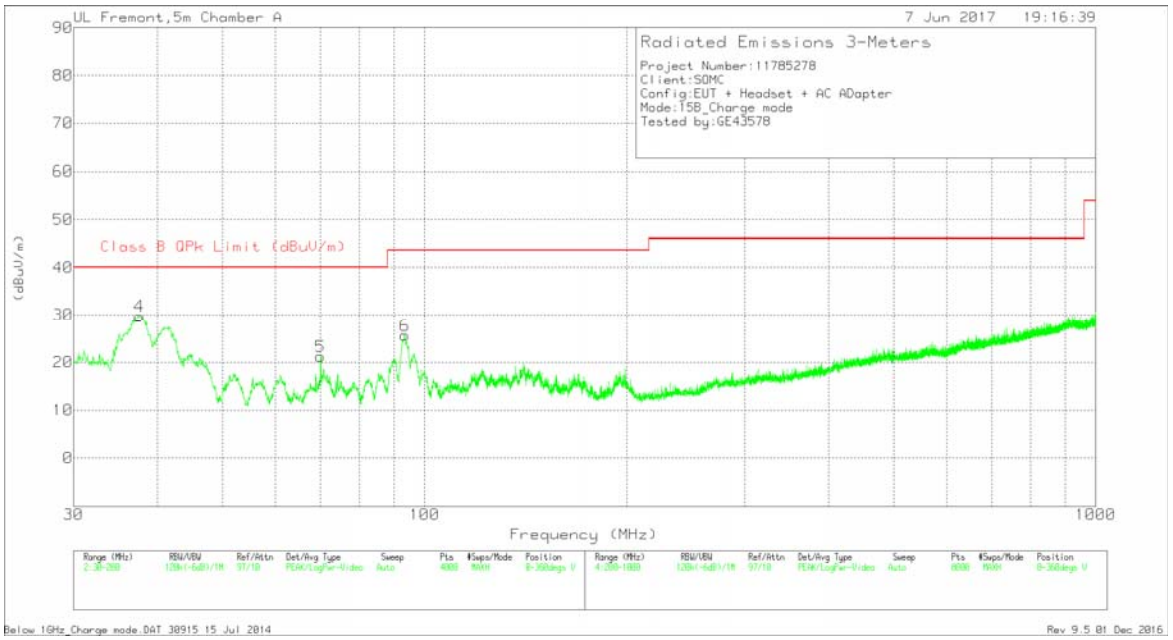
Pk - Peak detector

7.2.5. RADIATED EMISSIONS 30 TO 1000 MHz (CHARGING MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

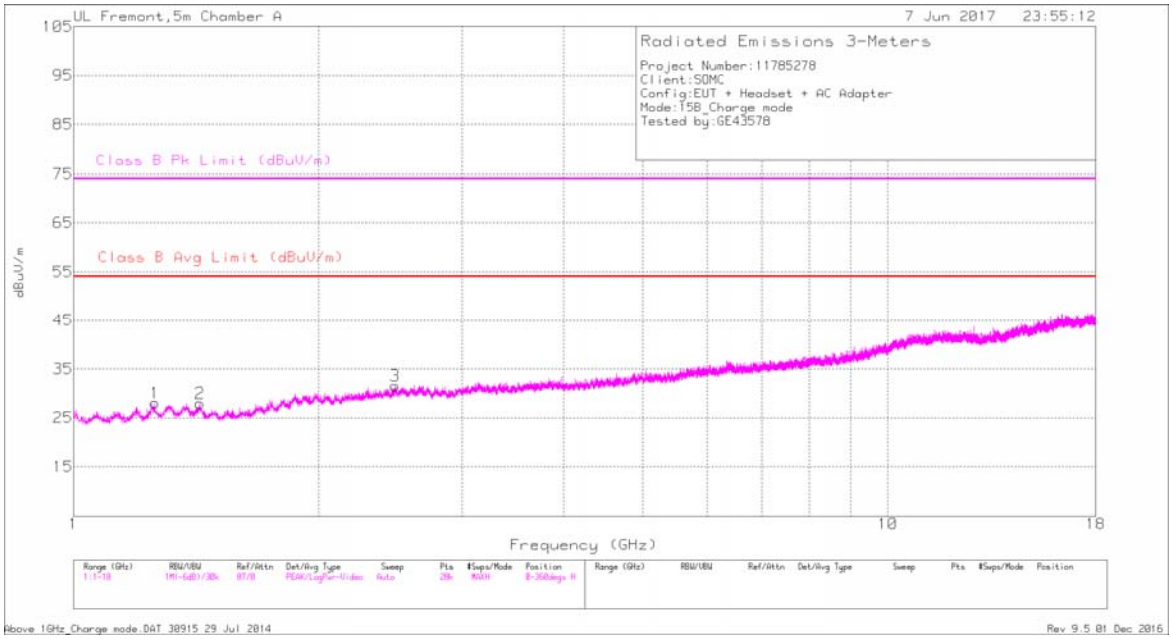
Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	37.5985	34.59	Qp	19.7	-31.2	23.09	40	-16.91	88	103	V
5	70.0399	33.93	Qp	12.5	-30.8	15.63	40	-24.37	181	104	V
6	93.508	35.47	Qp	12.5	-30.6	17.37	43.52	-26.15	231	160	V
1	94.085	13.68	Qp	12.6	-30.6	-4.32	43.52	-47.84	196	288	H
2	167.0186	27.55	Qp	15.9	-30.2	13.25	43.52	-30.27	122	297	H
3	702.493	16.96	Qp	24.3	-28.2	13.06	46.02	-32.96	317	353	H

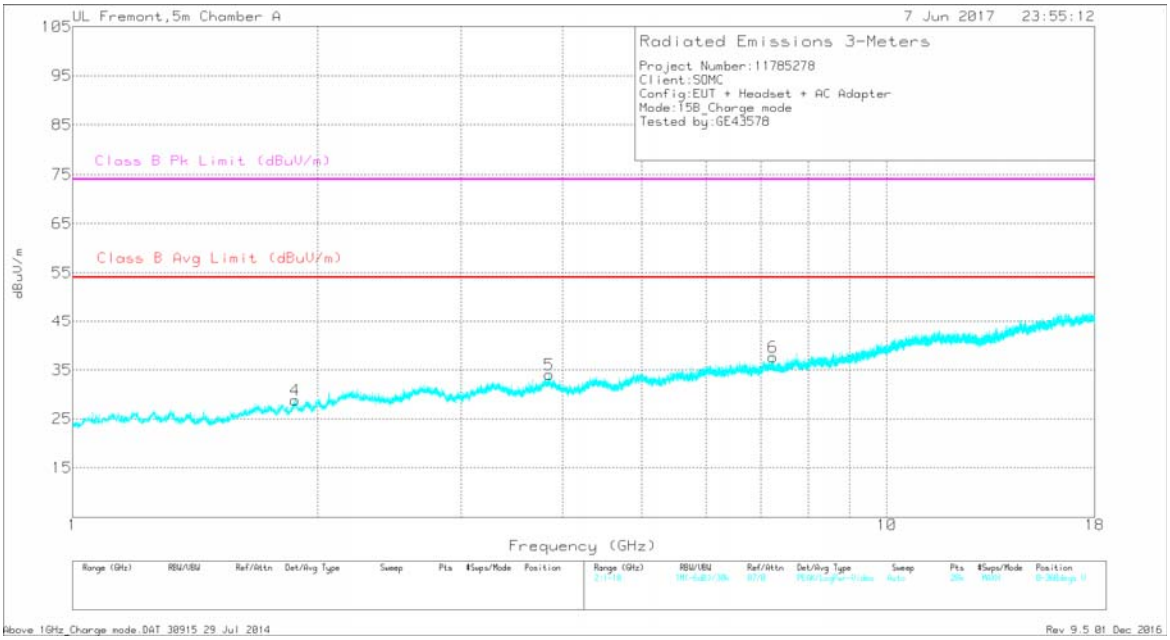
Qp - Quasi-Peak detector

7.2.6. RADIATED EMISSIONS 1GHz to 18GHz (CHARGING MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

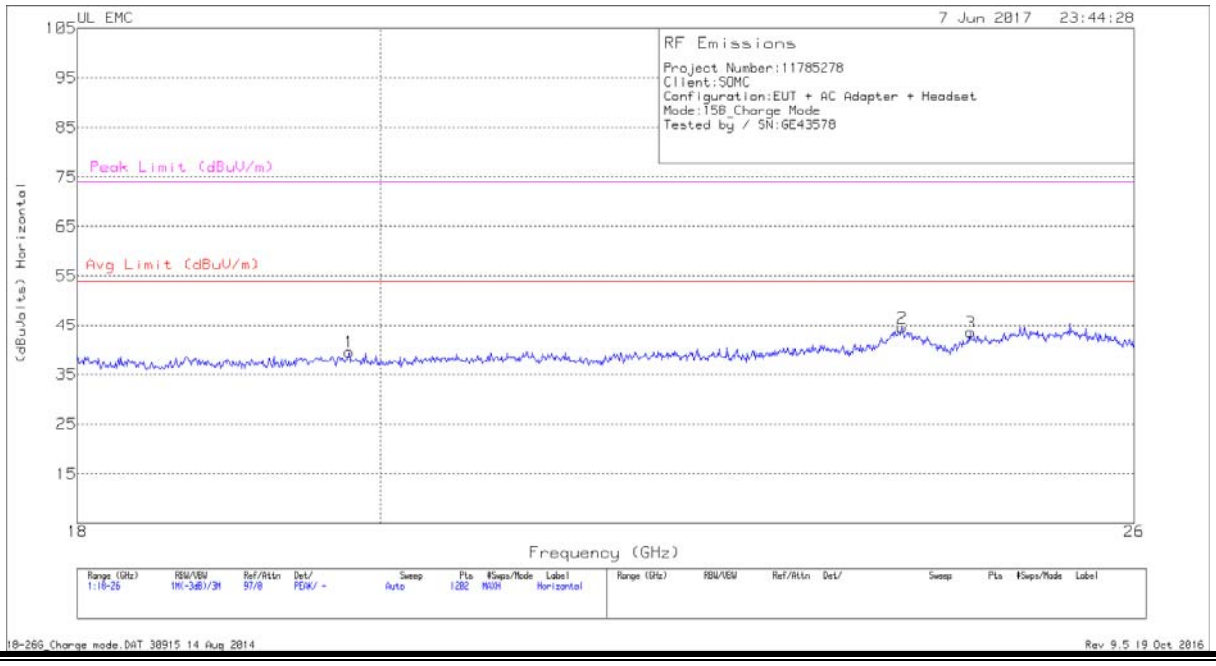
Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.257	40.84	Pk	29.2	-34.2	35.84	-	-	74	-38.16	17	199	H
	1.257	27.71	Av	29.2	-34.2	22.71	54	-31.29	-	-	17	199	H
2	1.431	39.7	Pk	28.9	-33.7	34.9	-	-	74	-39.1	216	199	H
	1.431	27.61	Av	28.9	-33.7	22.81	54	-31.19	-	-	216	199	H
4	1.874	39.18	Pk	31	-33.4	36.78	-	-	74	-37.22	317	102	V
	1.874	27	Av	31	-33.4	24.6	54	-29.4	-	-	317	102	V
3	2.485	38.76	Pk	32.6	-32.6	38.76	-	-	74	-35.24	313	102	H
	2.485	26.35	Av	32.6	-32.6	26.35	54	-27.65	-	-	313	102	H
5	3.852	36.62	Pk	33.2	-30.4	39.42	-	-	74	-34.58	300	200	V
	3.852	24.98	Av	33.2	-30.4	27.78	54	-26.22	-	-	300	200	V
6	7.241	34.01	Pk	35.5	-25.1	44.41	-	-	74	-29.59	176	200	V
	7.241	21.21	Av	35.5	-25.1	31.61	54	-22.39	-	-	176	200	V

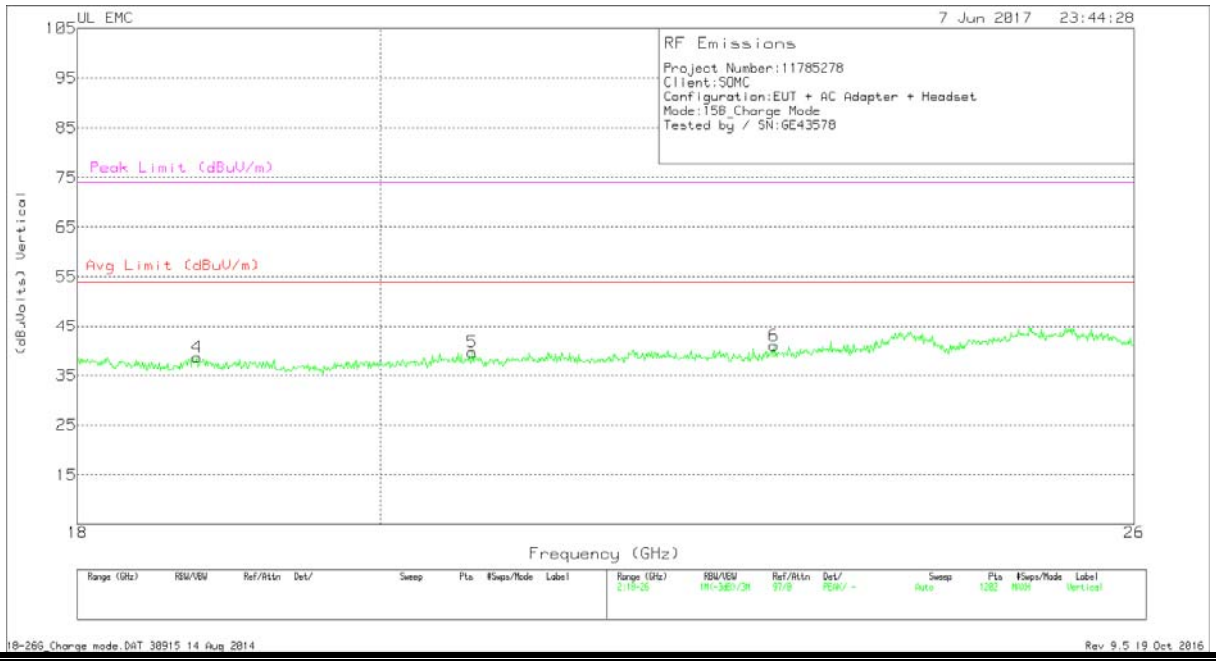
Pk - Peak detector
Av - Average detection

7.2.7. RADIATED EMISSIONS 18 to 26 GHz (CHARGING MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

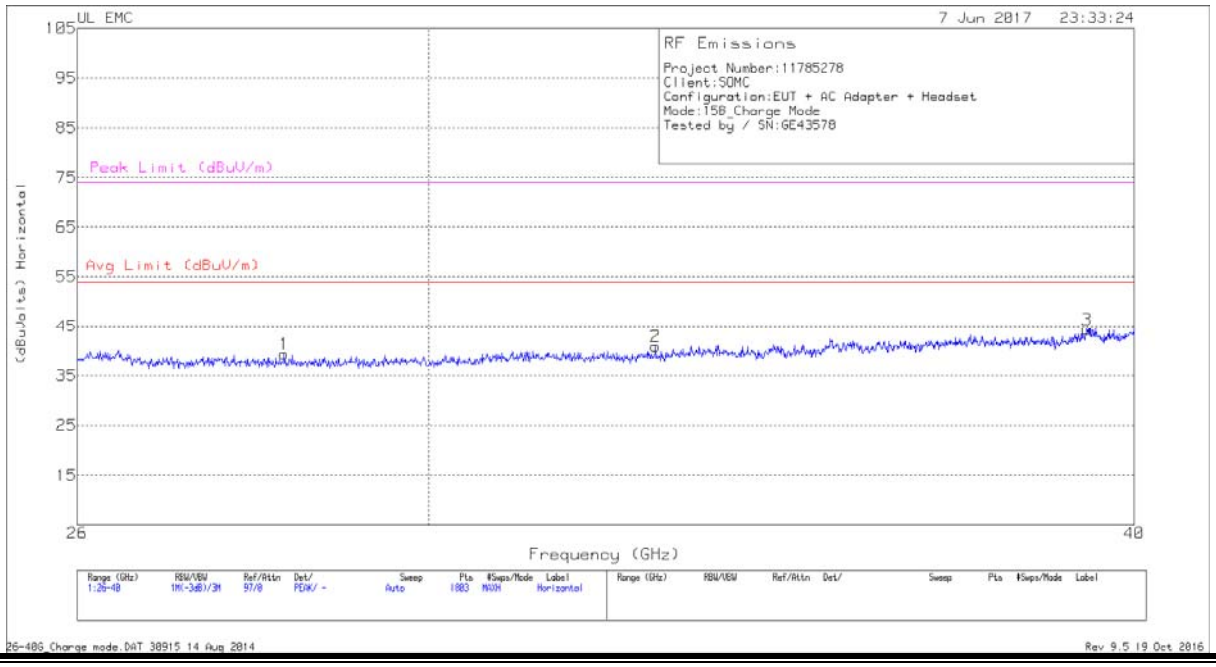
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T447 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.785	40.9	Pk	32.8	-24.7	-9.5	39.5	54	-14.5	74	-34.5
2	23.982	44	Pk	34.3	-24.3	-9.5	44.5	54	-9.5	74	-29.5
3	24.561	42.8	Pk	34.1	-23.9	-9.5	43.5	54	-10.5	74	-30.5
4	18.766	40.87	Pk	32.2	-24.9	-9.5	38.67	54	-15.33	74	-35.33
5	20.651	41.57	Pk	32.9	-25.3	-9.5	39.67	54	-14.33	74	-34.33
6	22.936	42.1	Pk	33.4	-25	-9.5	41	54	-13	74	-33

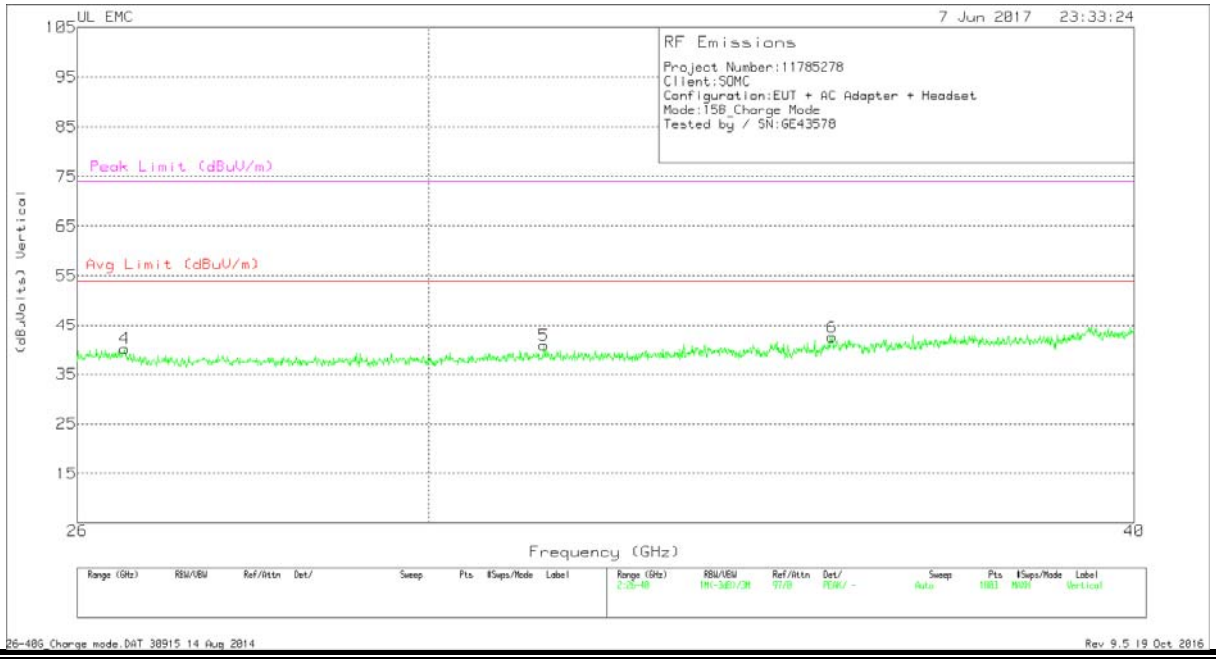
Pk - Peak detector

7.2.8. RADIATED EMISSIONS 26 to 40 GHz (CHARGING MODE)

HORIZONTAL PLOT



VERTICAL PLOT



HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	28.284	44.93	Pk	35.9	-32	-9.5	39.33	54	-14.67	74	-34.67
2	32.907	47.23	Pk	36.6	-33.5	-9.5	40.83	54	-13.17	74	-33.17
3	39.231	47.73	Pk	38.5	-32.4	-9.5	44.33	54	-9.67	74	-29.67
4	26.505	45.07	Pk	35.5	-30.9	-9.5	40.17	54	-13.83	74	-33.83
5	31.446	47.43	Pk	36.2	-33.3	-9.5	40.83	54	-13.17	74	-33.17
6	35.362	47.9	Pk	37.8	-33.7	-9.5	42.5	54	-11.5	74	-31.5

Pk - Peak detector

7.3. AC MAINS LINE CONDUCTED EMISSIONS

RESULTS

Please refer to report "11740661-E8V2 FCC Report 15B", Section 6.3.