



# **CERTIFICATION TEST REPORT**

**Report Number. :** 12073310-E8V2

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

**FCC ID :** PY7-21831A

**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 B

**Date Of Issue:**

January 16, 2018

**Prepared by:**

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Revision History

| <u>Rev.</u> | <u>Issue Date</u> | <u>Revisions</u>                                     | <u>Revised By</u> |
|-------------|-------------------|--|-------------------|
| V1          | 01/08/18          | Initial Issue  | Dan Corona        |
| V2          | 01/16/18          | Section 1 removed "Reviewed By", updated header date | Dan Corona        |

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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:** QV70003Q12

**DATE TESTED:** DECEMBER 07- 26, 2017

| APPLICABLE STANDARDS         |              |
|------------------------------|--------------|
| STANDARD                     | TEST RESULTS |
| FCC 47 CFR PART 15 SUBPART B | 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:



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Operations Leader  
UL Verification Services Inc.

Prepared By:



Kiya Kedida  
Project Engineer  
UL Verification Services Inc.

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2014.

## 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: 22541-1) |
| <input checked="" type="checkbox"/> Chamber B(IC: 2324B-2) | <input type="checkbox"/> Chamber E(IC: 22541-2) |
| <input type="checkbox"/> Chamber C(IC: 2324B-3)            | <input type="checkbox"/> Chamber F(IC: 22541-3) |
|  | <input type="checkbox"/> Chamber G(IC: 22541-4) |
|  | <input type="checkbox"/> 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:

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

### 4.3. MEASUREMENT UNCERTAINTY

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

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

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

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, & NFC.

#### GENERAL INFORMATION

|  |          |
|--|----------|
| Highest frequency generated or used by the EUT | 5825 MHz |
|--|----------|

### 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 0.202.

### 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    |
| Audio & Charger Splitter | SONY         | 1312-8675.1B  | YYWWSSPCXXXXXC       | 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 Sync Mode

| I/O Cable List |          |                      |                |            |                  |                                    |
|----------------|----------|----------------------|----------------|------------|------------------|------------------------------------|
| Cable No       | Port     | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks                            |
| 1              | AC Power | 1                    | AC             | Unshielded | 1.2m             | AC Mains to AC/DC Adapter          |
| 2              | DC Power | 1                    | DC             | Unshielded | 1m               | AC/DC Adapter to Switch and Laptop |
| 3              | USB      | 2                    | USB            | Unshielded | 1m               | Laptop to keyboard and mouse       |
| 4              | USB      | 1                    | USB-type-C     | Unshielded | 1m               | EUT to Laptop                      |
| 5              | Ethernet | 1                    | RJ45           | Unshielded | >2m              | Laptop to Switch                   |

### I/O CABLES Charging Mode

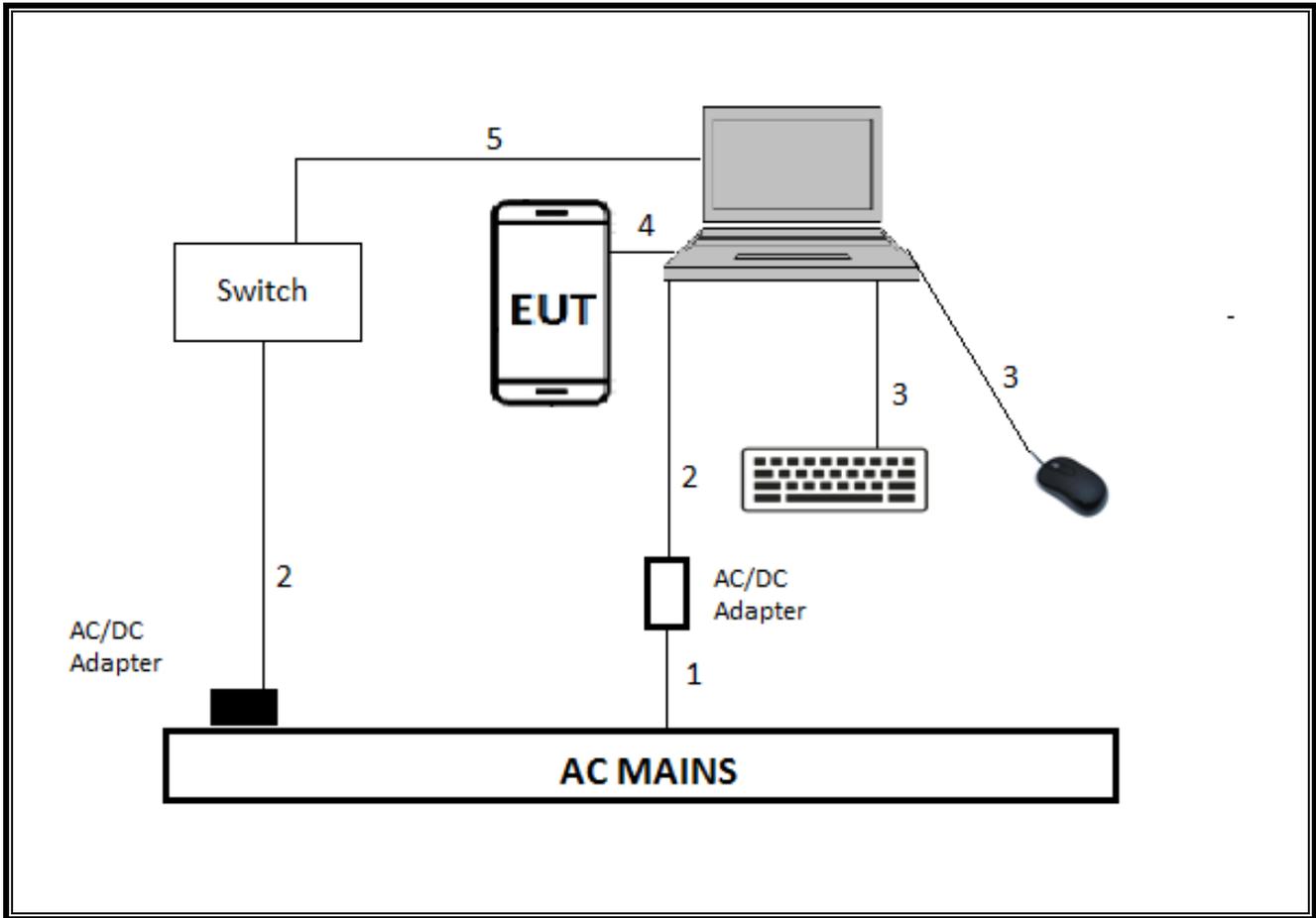
| I/O Cable List |             |                      |                  |             |                  |                        |
|----------------|-------------|----------------------|------------------|-------------|------------------|------------------------|
| Cable No       | Port        | # of identical ports | Connector Type   | Cable Type  | Cable Length (m) | Remarks                |
| 1              | USB         | 1                    | AC Adapter       | Un-Shielded | 1.2m             | No                     |
| 2              | Jack        | 1                    | Headset          | Shielded    | 1m               | No                     |
| 3              | USB/HP Jack | 1                    | USB Type-C/Audio | Un-Shielded | .2m              | Audio & Charging Cabel |

### TEST SETUP

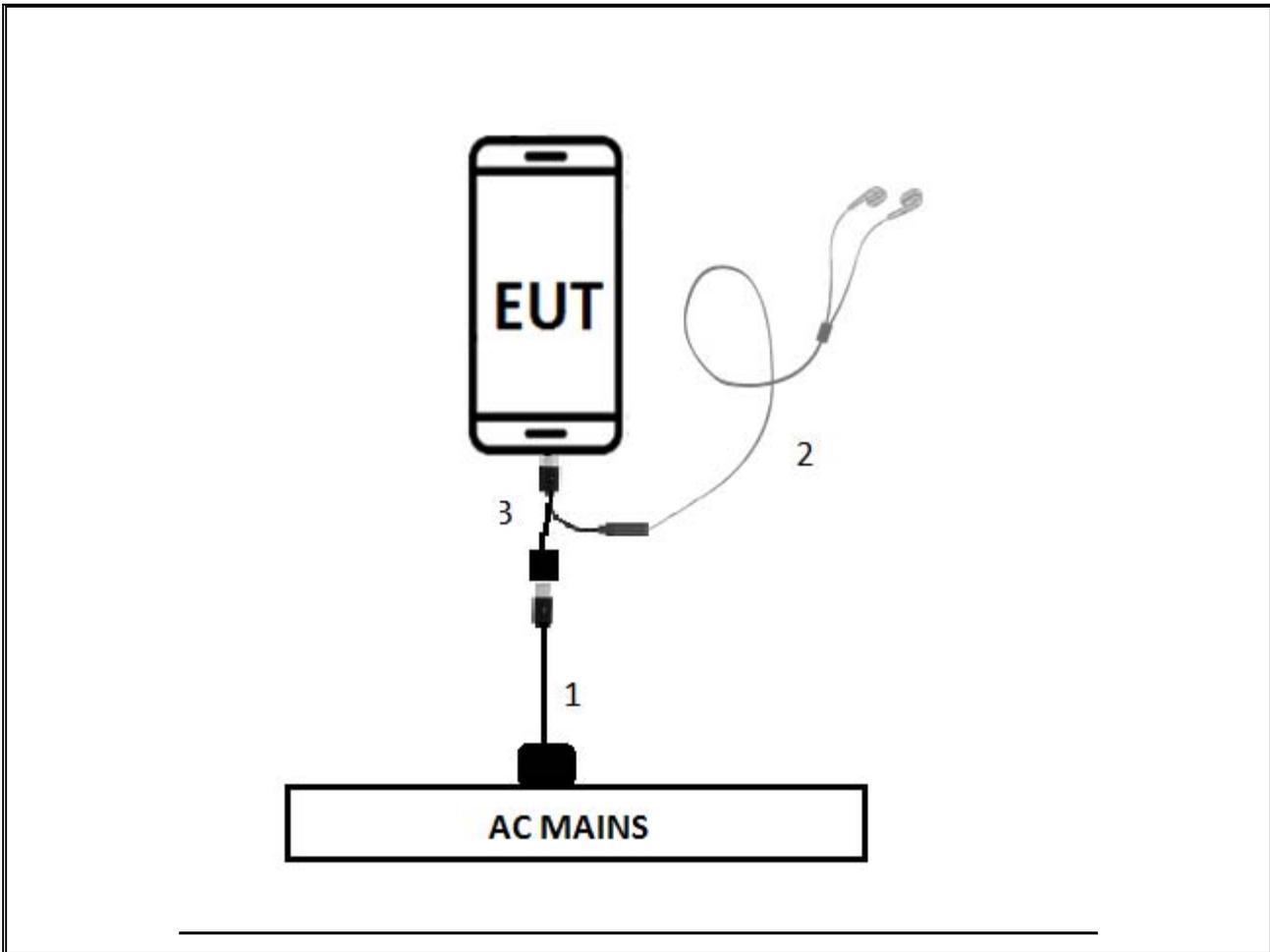
The EUT is installed in a typical configuration. Test software exercised the EUT.

**SETUP DIAGRAM**

**Sync Mode**



**Charging Mode**



## 6. APPLICABLE EMISSIONS LIMITS AND TEST RESULTS

### 6.1. 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      | 06/23/17 | 06/23/2018 |
| Amplifier, 10KHz to 1GHz, 32dB              | Keysight        | 8447D                   | 10       | 02/15/17 | 02/15/2018 |
| Antenna, Horn 1-18GHz                       | ETS-Lindgren    | 3117                    | 346      | 3/28/17  | 03/28/2018 |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz | Sunol Sciences  | JB3                     | 899      | 06/15/17 | 06/15/2018 |
| PXA Spectrum Analyzer, 3Hz to 44GHz         | Agilent         | N9030A                  | 907      | 01/23/17 | 01/23/2018 |
| EMI Reciever                                | Rohde & Schwarz | ESR-EMI                 | 1436     | 01/06/17 | 01/06/2018 |
| LISN  | FISCHER         | FCC-LISN-50/250-25-2-01 | 1310     | 06/08/17 | 06/08/2018 |
| 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      | 07/23/17 | 07/23/2018 |
| Pre-Amp, 26-40GHz                           | MITEQ           | NSTTA2640-35-HG         | 1864     | 09/21/17 | 09/21/2018 |
| PXA Spectrum Analyzer, 3Hz to 44GHz         | Keysight        | N9030A                  | 1454     | 12/15/17 | 12/15/2018 |

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

## 6.2. 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

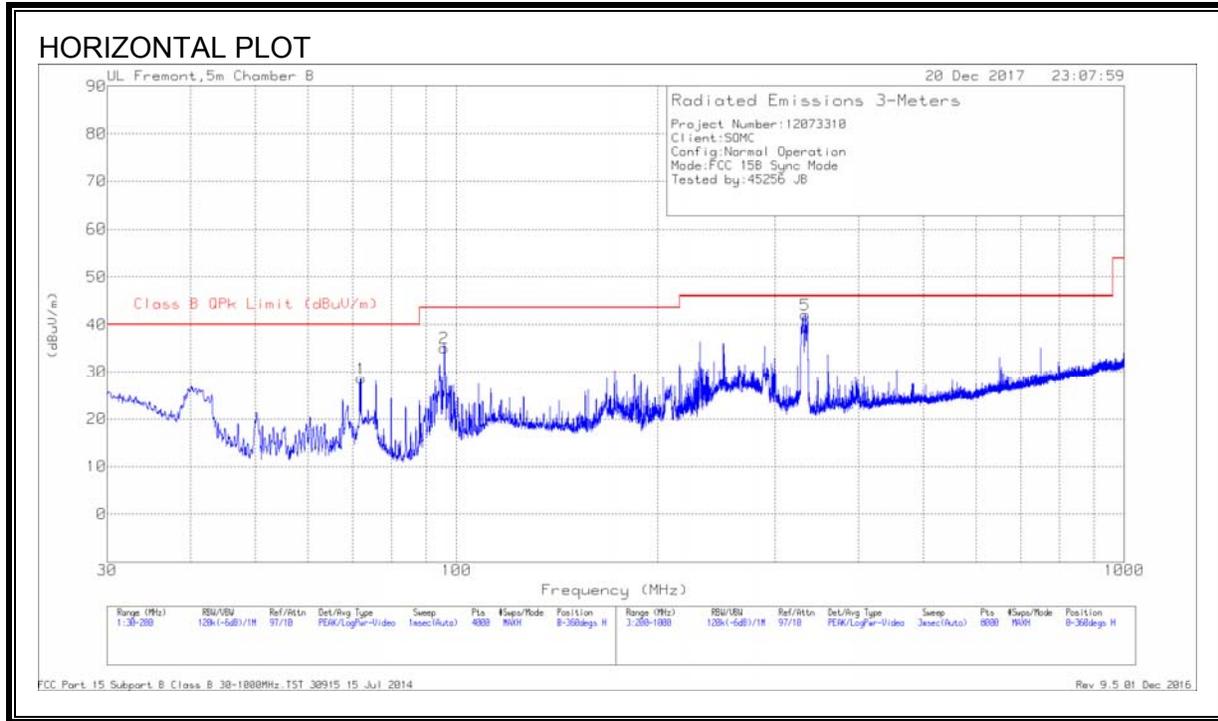
ANSI C63.4: 2014

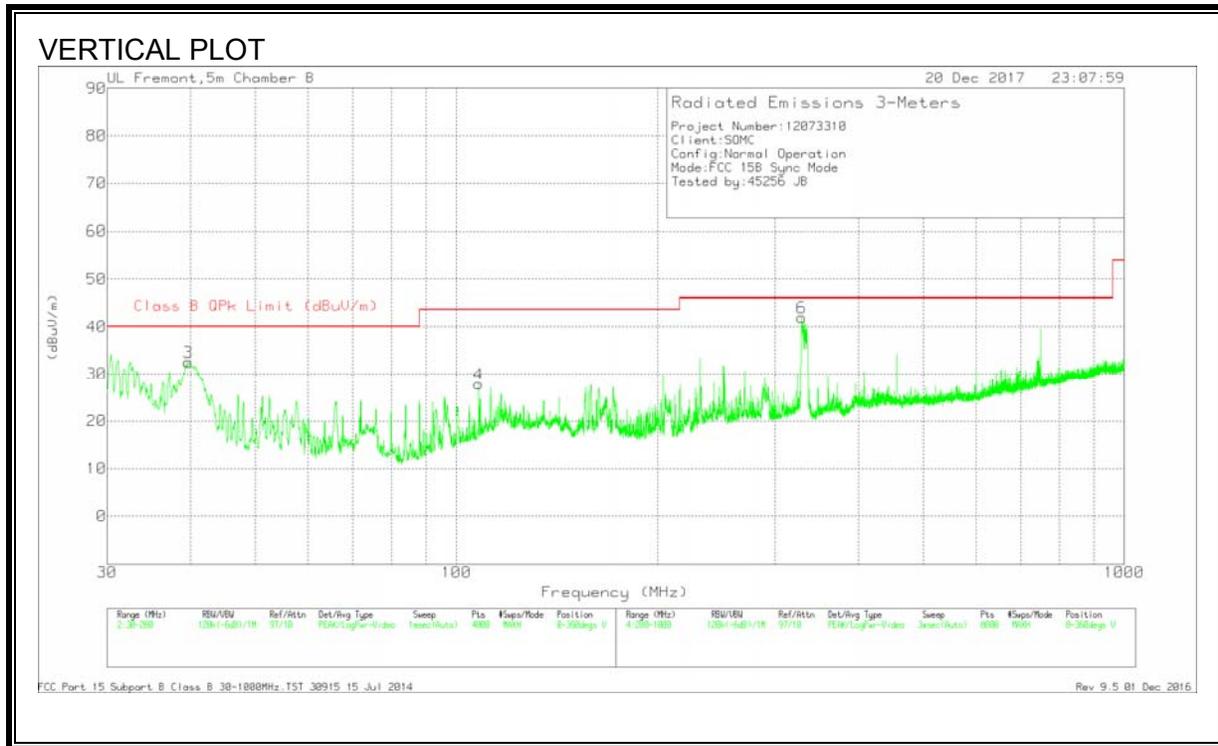
The highest frequency generated or used in the EUT is 5.8 GHz therefore the frequency range was investigated from 30 MHz to 40 GHz.

| 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 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower |

**RESULTS**

**6.2.1. RADIATED EMISSIONS 30 TO 1000 MHz (SYNC MODE)**





### HORIZONTAL AND VERTICAL DATA

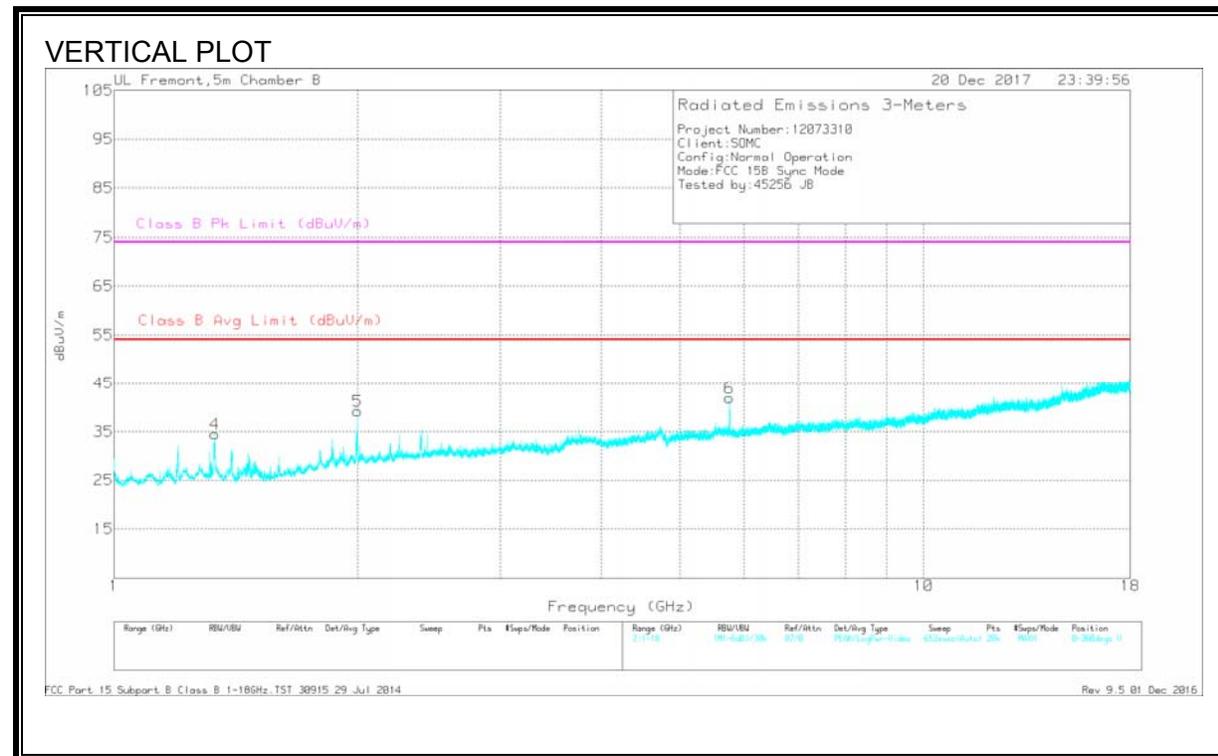
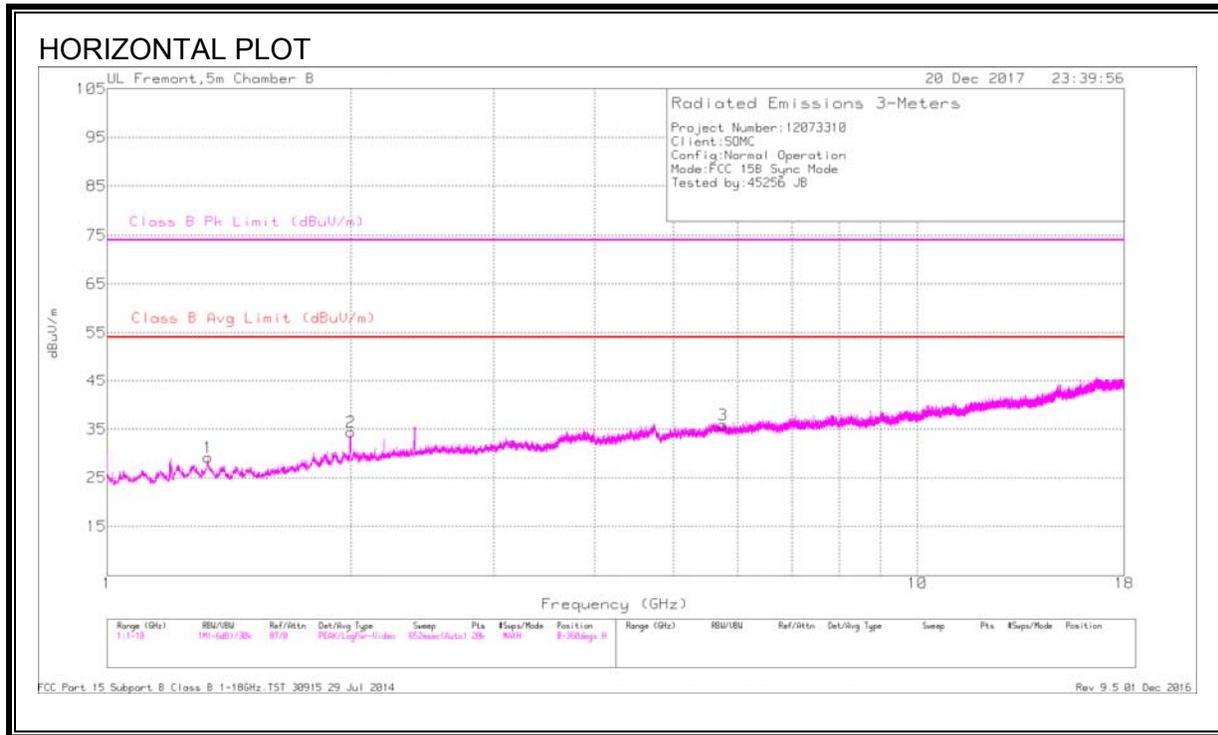
#### Radiated Emissions

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AF T899 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | Class B QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|--------------|----------------------------|----------------------------|-------------|----------------|-------------|----------|
| 3      | 39.65           | 42.74                | Pk  | 18.5           | -28.7        | 32.54                      | 40                         | -7.46       | 0-360          | 100         | V        |
| 1      | 71.9584         | 44.87                | Pk  | 12             | -28.3        | 28.57                      | 40                         | -11.43      | 0-360          | 300         | H        |
| 2      | 95.8921         | 50                   | Pk  | 13.1           | -28          | 35.1                       | 43.52                      | -8.42       | 0-360          | 300         | H        |
| 4      | 108.0077        | 39.49                | Pk  | 16.3           | -27.9        | 27.89                      | 43.52                      | -15.63      | 0-360          | 100         | V        |
| 6      | 328.8861        | 43.01                | Qp  | 17.9           | -25.9        | 35.01                      | 46.02                      | -11.01      | 197            | 134         | V        |
| 5      | 332.9559        | 43.32                | Qp  | 17.8           | -25.8        | 35.32                      | 46.02                      | -10.7       | 263            | 106         | H        |

Pk - Peak detector

Qp - Quasi-Peak detector

### 6.2.2. RADIATED EMISSIONS 1GHz to 18GHz (SYNC MODE)



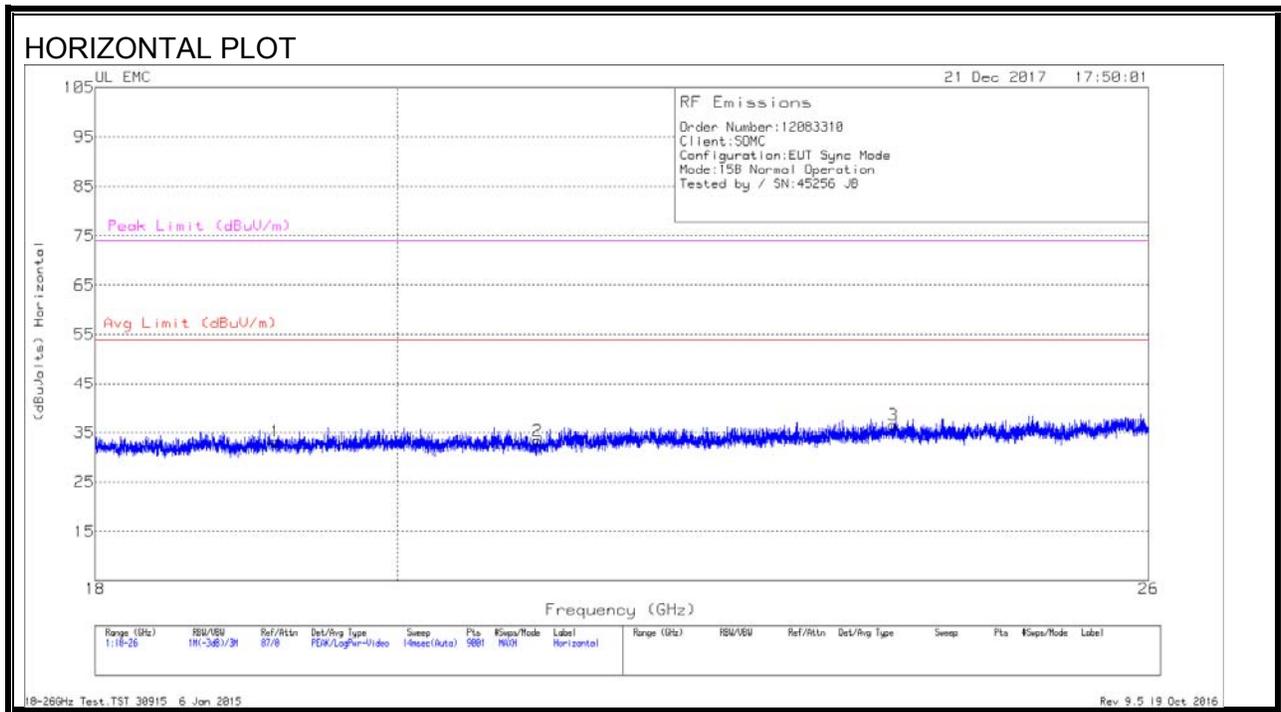
**HORIZONTAL AND VERTICAL DATA**

**Radiated Emissions**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T863 (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      | 1.332           | 45.81                | Pk  | 28.9           | -34.3        | 40.41                    | -                          | -           | 74                        | -33.59      | 0              | 199         | H        |
|        | 1.332           | 28.66                | Av  | 28.9           | -34.3        | 23.26                    | 54                         | -30.74      | -                         | -           | 0              | 199         | H        |
| 4      | 1.333           | 45.32                | Pk  | 28.9           | -34.3        | 39.92                    | -                          | -           | 74                        | -34.08      | 360            | 199         | V        |
|        | 1.333           | 28.67                | Av  | 28.9           | -34.3        | 23.27                    | 54                         | -30.73      | -                         | -           | 360            | 199         | V        |
| 2      | 1.996           | 40.23                | Pk  | 31.3           | -33.5        | 38.03                    | -                          | -           | 74                        | -35.97      | 0              | 199         | V        |
|        | 1.996           | 26.98                | Av  | 31.3           | -33.5        | 24.78                    | 54                         | -29.22      | -                         | -           | 0              | 199         | V        |
| 5      | 1.998           | 40.79                | Pk  | 31.3           | -33.5        | 38.59                    | -                          | -           | 74                        | -35.41      | 360            | 199         | H        |
|        | 1.998           | 26.93                | Av  | 31.3           | -33.5        | 24.73                    | 54                         | -29.27      | -                         | -           | 360            | 199         | H        |
| 3      | 5.751           | 39.55                | Pk  | 35             | -30.6        | 43.95                    | -                          | -           | 74                        | -30.05      | 0              | 199         | H        |
|        | 5.751           | 26.05                | Av  | 35             | -30.6        | 30.45                    | 54                         | -23.55      | -                         | -           | 0              | 199         | H        |
| 6      | 5.762           | 39.76                | Pk  | 35             | -30.5        | 44.26                    | -                          | -           | 74                        | -29.74      | 257            | 199         | V        |
|        | 5.762           | 26.04                | Av  | 35             | -30.5        | 30.54                    | 54                         | -23.46      | -                         | -           | 257            | 199         | V        |

Pk - Peak detector  
 Av - Average detection

### 6.2.3. RADIATED EMISSIONS 18 to 26 GHz (SYNC MODE)



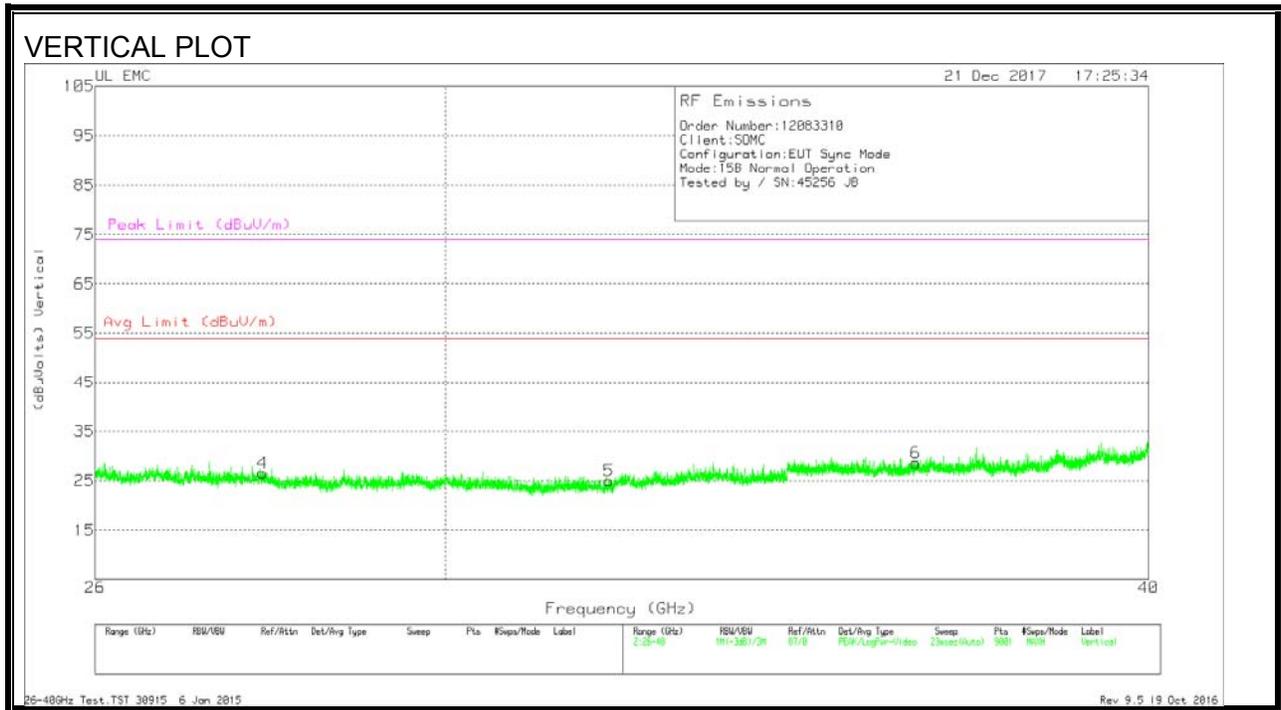
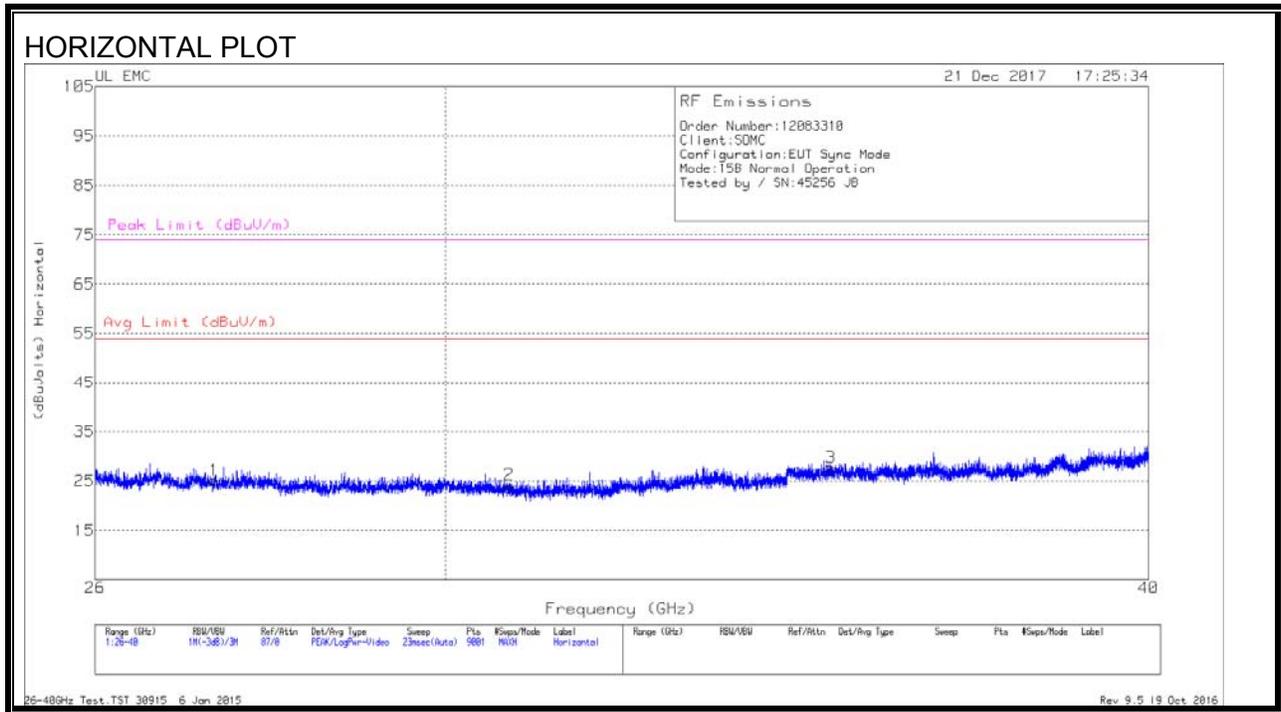
**HORIZONTAL AND VERTICAL DATA**

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | T89 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      | 19.168          | 35.14                | Pk  | 32.3          | -24.7        | -9.5           | 33.24                        | 54                 | -20.76      | 74                  | -40.76         |
| 2      | 21.004          | 36.13                | Pk  | 32.4          | -25.7        | -9.5           | 33.33                        | 54                 | -20.67      | 74                  | -40.67         |
| 3      | 23.783          | 36.51                | Pk  | 33.7          | -24.2        | -9.5           | 36.51                        | 54                 | -17.49      | 74                  | -37.49         |
| 4      | 19.577          | 35.12                | Pk  | 32.5          | -25.1        | -9.5           | 33.02                        | 54                 | -20.98      | 74                  | -40.98         |
| 5      | 22.376          | 36.2                 | Pk  | 33.1          | -24.9        | -9.5           | 34.9                         | 54                 | -19.1       | 74                  | -39.1          |
| 6      | 24.6            | 35.92                | Pk  | 33.9          | -24.2        | -9.5           | 36.12                        | 54                 | -17.88      | 74                  | -37.88         |

Pk - Peak detector

### 6.2.4. RADIATED EMISSIONS 26 to 40 GHz (SYNC MODE)



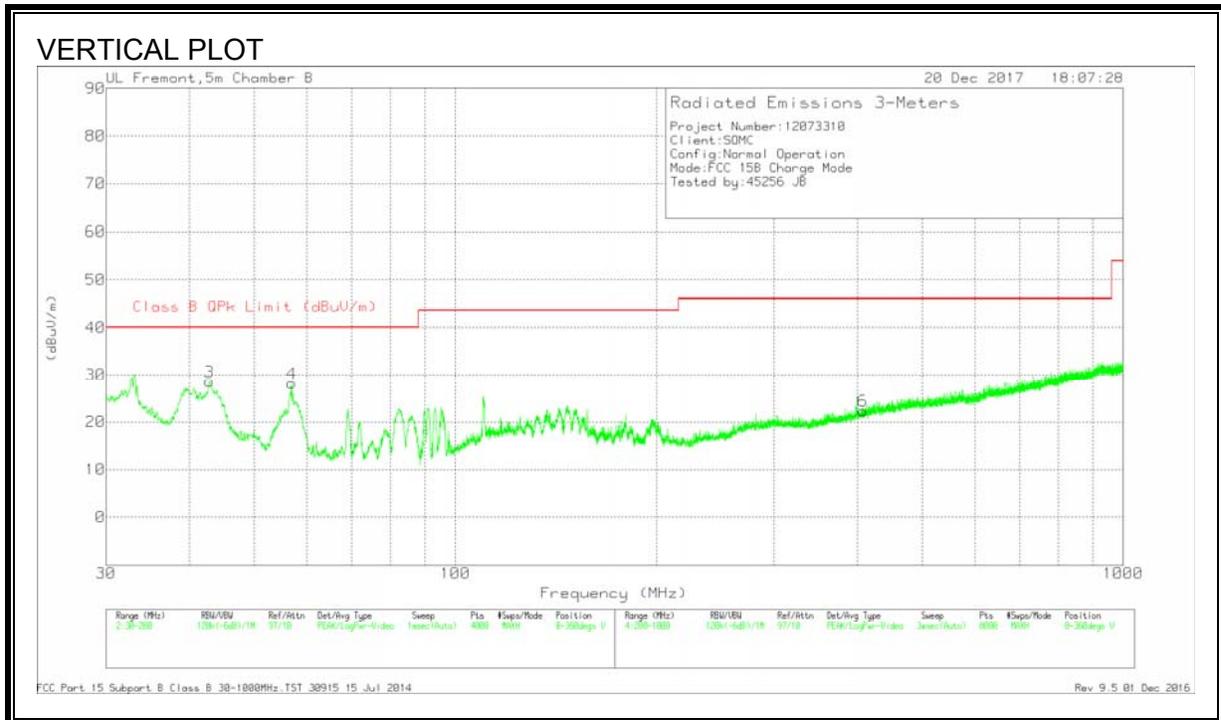
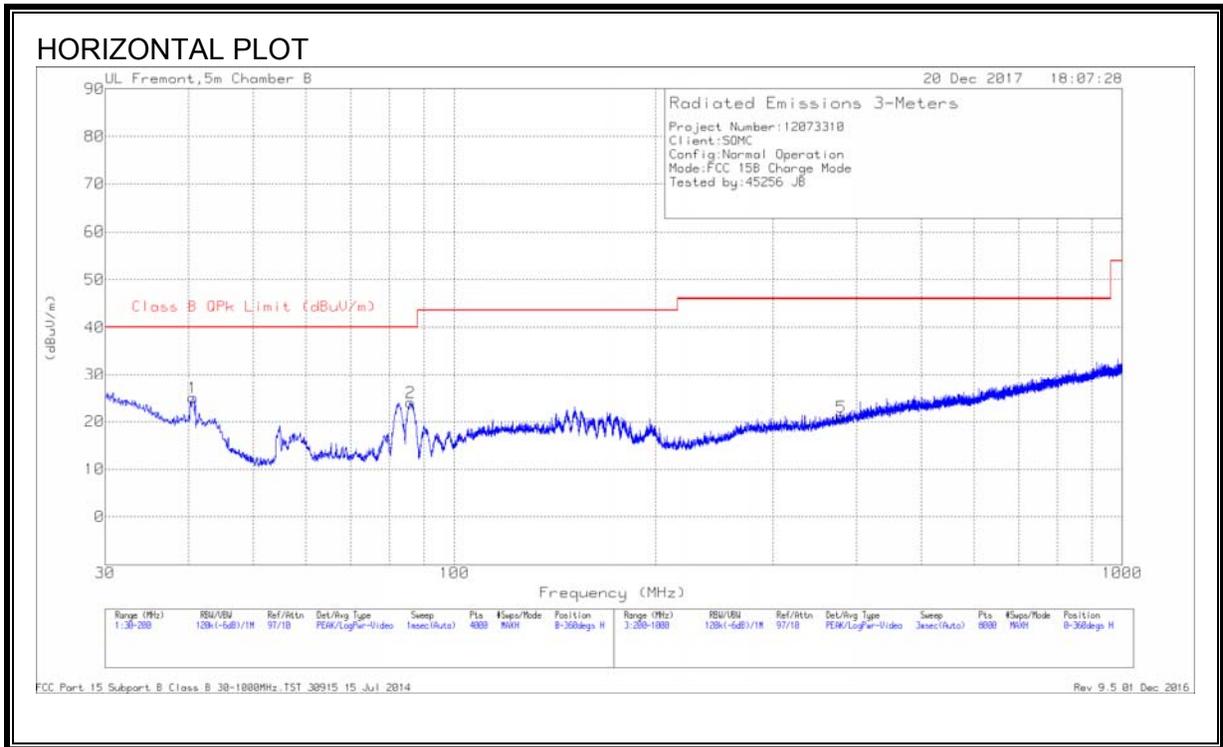
### HORIZONTAL AND VERTICAL DATA

#### 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      | 27.296          | 30.24                | Pk  | 35.6          | -31.2        | -9.5           | 25.14                        | 54                 | -28.86      | 74                  | -48.86         |
| 2      | 30.797          | 30.39                | Pk  | 36            | -32.6        | -9.5           | 24.29                        | 54                 | -29.71      | 74                  | -49.71         |
| 3      | 35.122          | 32.93                | Pk  | 37.4          | -33.1        | -9.5           | 27.73                        | 54                 | -26.27      | 74                  | -46.27         |
| 4      | 27.843          | 31.84                | Pk  | 35.8          | -31.6        | -9.5           | 26.54                        | 54                 | -27.46      | 74                  | -47.46         |
| 5      | 32.076          | 31.1                 | Pk  | 36.3          | -32.9        | -9.5           | 25                           | 54                 | -29         | 74                  | -49            |
| 6      | 36.368          | 33.99                | Pk  | 37.2          | -33.1        | -9.5           | 28.59                        | 54                 | -25.41      | 74                  | -45.41         |

Pk - Peak detector

### 6.2.1. RADIATED EMISSIONS 30 TO 1000 MHz (CHARGING MODE)



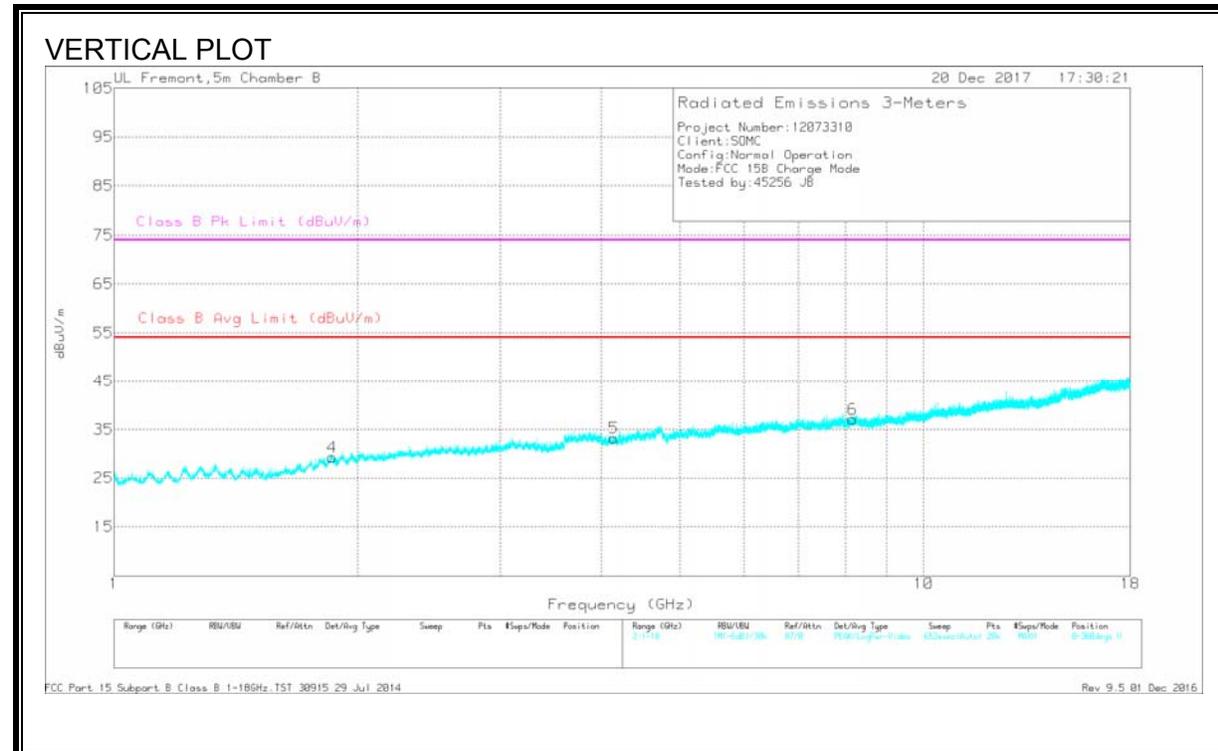
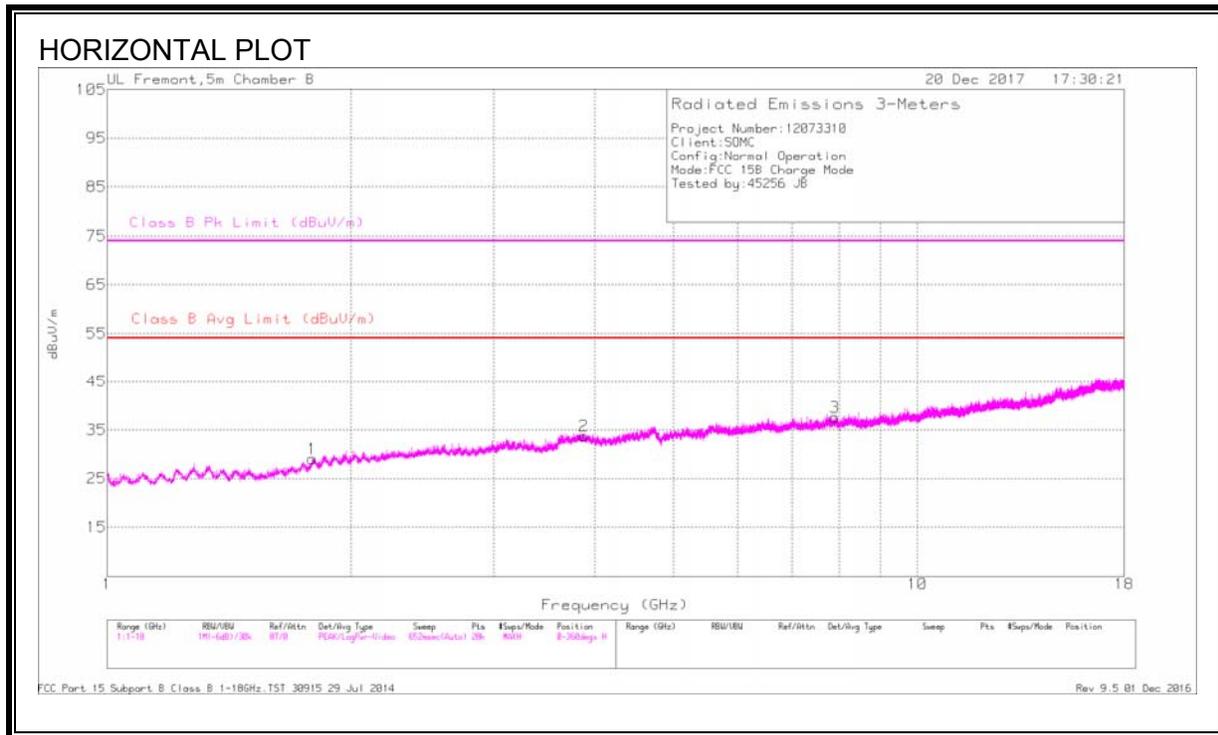
**HORIZONTAL AND VERTICAL DATA**

**Radiated Emissions**

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AF T899 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | Class B QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|--------------|----------------------------|----------------------------|-------------|----------------|-------------|----------|
| 1      | 40.6278         | 36.09                | Pk  | 17.7           | -28.7        | 25.09                      | 40                         | -14.91      | 0-360          | 400         | H        |
| 3      | 42.8383         | 41.23                | Pk  | 16             | -28.6        | 28.63                      | 40                         | -11.37      | 0-360          | 100         | V        |
| 4      | 56.9095         | 45.32                | Pk  | 11.3           | -28.4        | 28.22                      | 40                         | -11.78      | 0-360          | 100         | V        |
| 2      | 85.987          | 41.06                | Pk  | 11.1           | -28.1        | 24.06                      | 40                         | -15.94      | 0-360          | 400         | H        |
| 5      | 380.1234        | 28.03                | Pk  | 19             | -26          | 21.03                      | 46.02                      | -24.99      | 0-360          | 300         | H        |
| 6      | 407.827         | 28.46                | Pk  | 19.9           | -26          | 22.36                      | 46.02                      | -23.66      | 0-360          | 200         | V        |

Pk - Peak detector

### 6.2.2. RADIATED EMISSIONS 1GHz to 18GHz (CHARGING MODE)



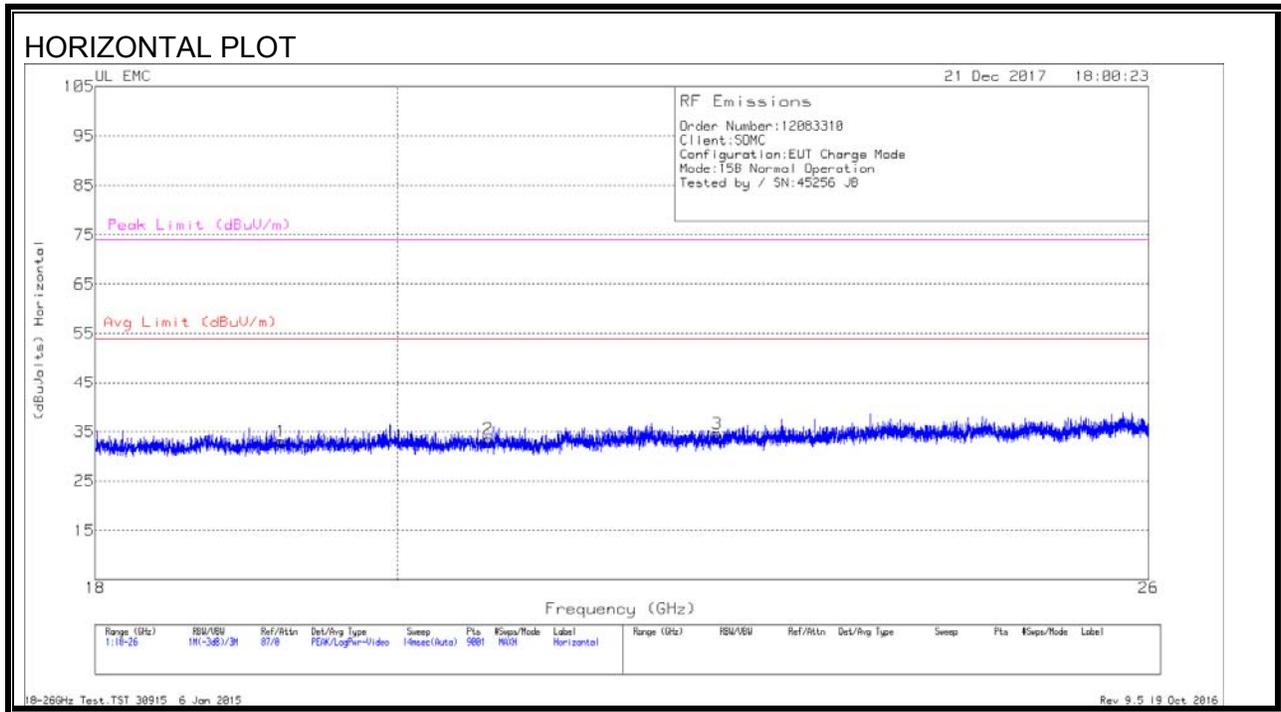
**HORIZONTAL AND VERTICAL DATA**

**Radiated Emissions**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T863 (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      | 1.792           | 41.84                | Pk  | 30.1           | -33.5        | 38.44                    | -                          | -           | 74                        | -35.56      | 320            | 199         | H        |
|        | 1.792           | 28.12                | Av  | 30.1           | -33.5        | 24.72                    | 54                         | -29.28      | -                         | -           | 320            | 199         | H        |
| 4      | 1.859           | 41.47                | Pk  | 30.8           | -33.6        | 38.67                    | -                          | -           | 74                        | -35.33      | 360            | 102         | V        |
|        | 1.859           | 28.29                | Av  | 30.8           | -33.6        | 25.49                    | 54                         | -28.51      | -                         | -           | 360            | 102         | V        |
| 2      | 3.873           | 40.79                | Pk  | 33.5           | -31.4        | 42.89                    | -                          | -           | 74                        | -31.11      | 0              | 104         | H        |
|        | 3.873           | 27.1                 | Av  | 33.5           | -31.4        | 29.2                     | 54                         | -24.8       | -                         | -           | 0              | 104         | H        |
| 5      | 4.144           | 40.11                | Pk  | 33.4           | -31.7        | 41.81                    | -                          | -           | 74                        | -32.19      | 0              | 199         | V        |
|        | 4.144           | 27.08                | Av  | 33.4           | -31.7        | 28.78                    | 54                         | -25.22      | -                         | -           | 0              | 199         | V        |
| 3      | 7.912           | 37.23                | Pk  | 36             | -28.1        | 45.13                    | -                          | -           | 74                        | -28.87      | 360            | 198         | H        |
|        | 7.912           | 23.95                | Av  | 36             | -28.1        | 31.85                    | 54                         | -22.15      | -                         | -           | 360            | 198         | H        |
| 6      | 8.176           | 37.05                | Pk  | 36             | -27.6        | 45.45                    | -                          | -           | 74                        | -28.55      | 360            | 102         | V        |
|        | 8.176           | 23.38                | Av  | 36             | -27.6        | 31.78                    | 54                         | -22.22      | -                         | -           | 360            | 102         | V        |

Pk - Peak detector  
 Av - Average detection

### 6.2.3. RADIATED EMISSIONS 18 to 26 GHz (CHARGING MODE)



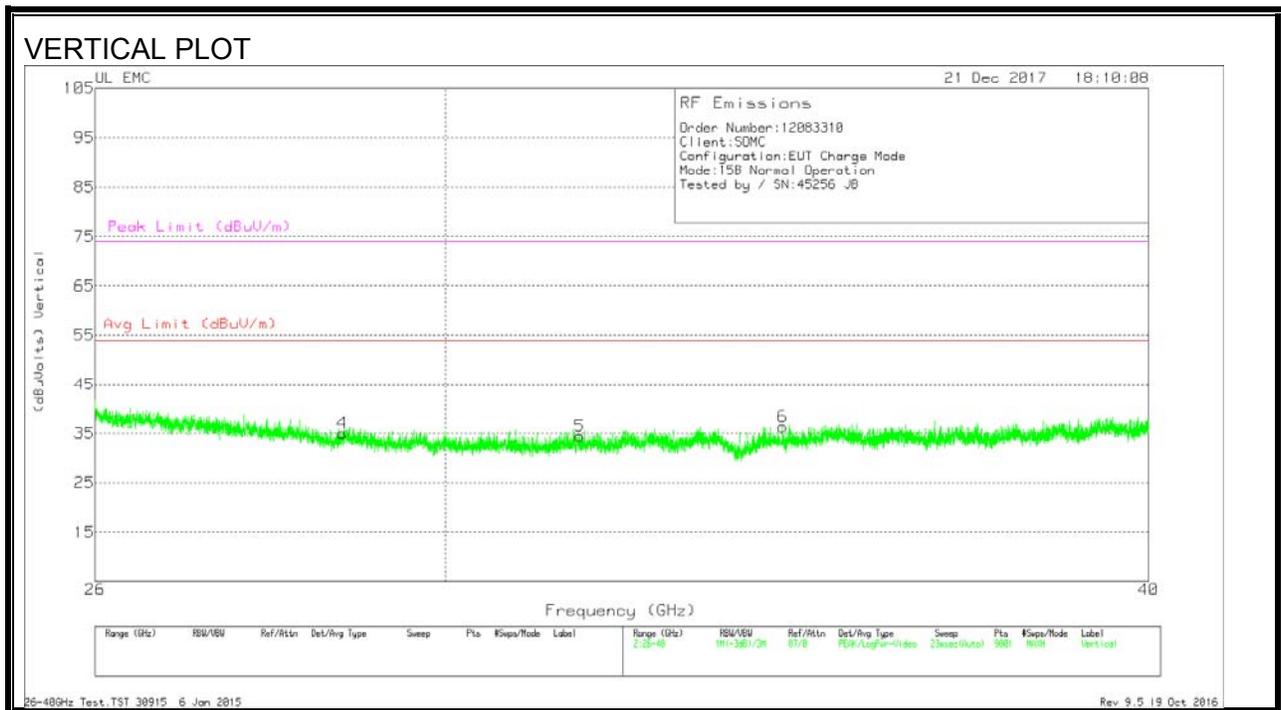
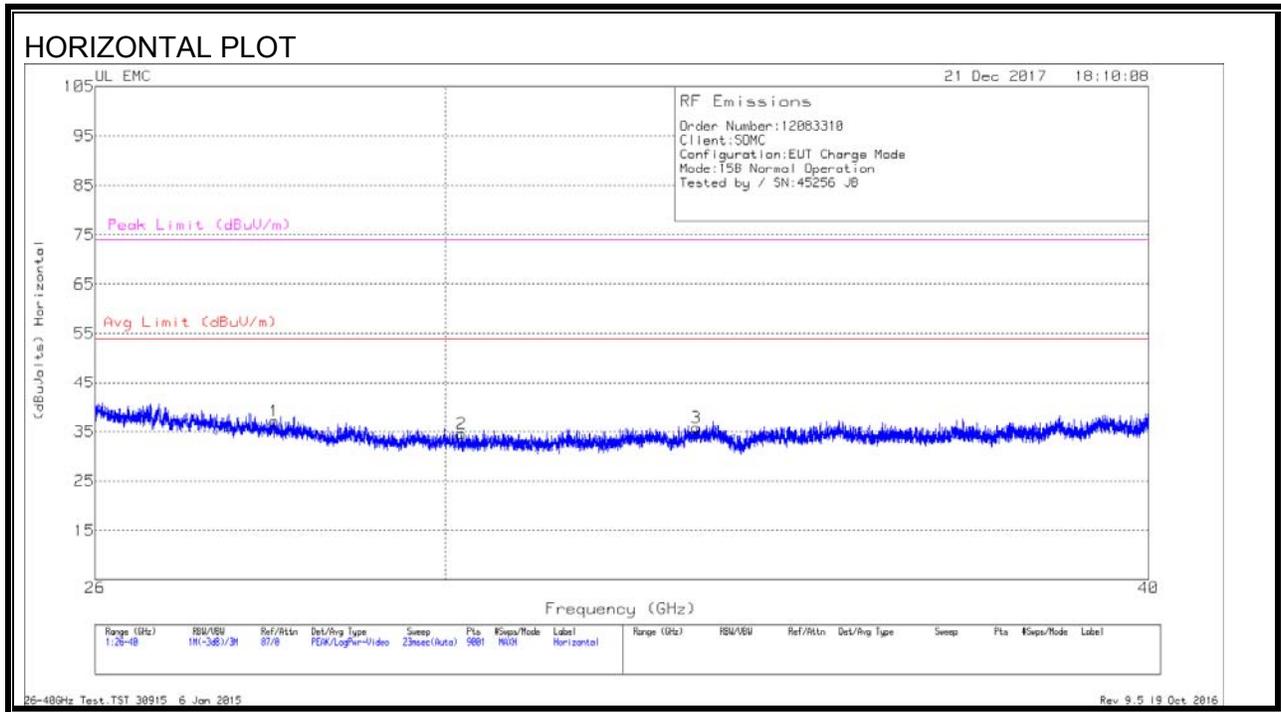
**HORIZONTAL AND VERTICAL DATA**

Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | T89 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      | 19.207          | 35.23                | Pk  | 32.3          | -25          | -9.5           | 33.03                        | 54                 | -20.97      | 74                  | -40.97         |
| 2      | 20.646          | 35.79                | Pk  | 32.7          | -25.5        | -9.5           | 33.49                        | 54                 | -20.51      | 74                  | -40.51         |
| 3      | 22.364          | 35.84                | Pk  | 33            | -24.8        | -9.5           | 34.54                        | 54                 | -19.46      | 74                  | -39.46         |
| 4      | 19.742          | 35.4                 | Pk  | 32.5          | -24.9        | -9.5           | 33.5                         | 54                 | -20.5       | 74                  | -40.5          |
| 5      | 21.724          | 35.39                | Pk  | 33.3          | -24.9        | -9.5           | 34.29                        | 54                 | -19.71      | 74                  | -39.71         |
| 6      | 23.164          | 34.99                | Pk  | 33.5          | -25          | -9.5           | 33.99                        | 54                 | -20.01      | 74                  | -40.01         |

Pk - Peak detector

### 6.2.4. RADIATED EMISSIONS 26 to 40 GHz (CHARGING MODE)



**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      | 27.977          | 42.72                | Pk  | 35.8          | -31.9        | -9.5           | 37.12                        | 54                 | -16.88      | 74                  | -36.88         |
| 2      | 30.2            | 40.77                | Pk  | 35.9          | -32.6        | -9.5           | 34.57                        | 54                 | -19.43      | 74                  | -39.43         |
| 3      | 33.244          | 41.08                | Pk  | 36.9          | -32.7        | -9.5           | 35.78                        | 54                 | -18.22      | 74                  | -38.22         |
| 4      | 28.766          | 40.63                | Pk  | 35.7          | -31.8        | -9.5           | 35.03                        | 54                 | -18.97      | 74                  | -38.97         |
| 5      | 31.701          | 40.57                | Pk  | 36.3          | -32.9        | -9.5           | 34.47                        | 54                 | -19.53      | 74                  | -39.53         |
| 6      | 34.439          | 41.54                | Pk  | 37.3          | -33          | -9.5           | 36.34                        | 54                 | -17.66      | 74                  | -37.66         |

Pk - Peak detector

### 6.3. AC MAINS LINE CONDUCTED EMISSIONS

#### TEST PROCEDURE

ANSI C63.4: 2014

#### LIMIT

§15.107 (a) Except for Class A digital devices, for equipment 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.

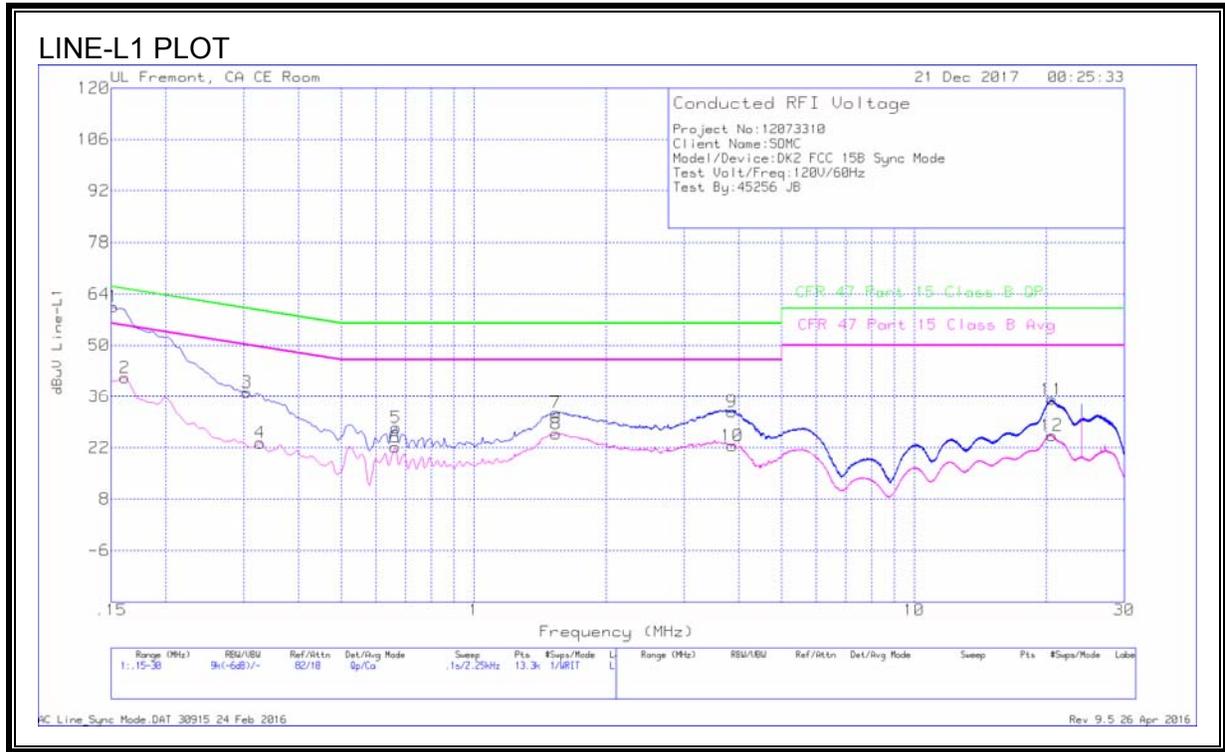
| Frequency range<br>(MHz) | Limits (dB $\mu$ V) |          |
|--------------------------|---------------------|----------|
|                          | Quasi-peak          | Average  |
| 0.15 to 0.50             | 66 to 56            | 56 to 46 |
| 0.50 to 5                | 56                  | 46       |
| 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

### 6.3.1. RESULTS- SYNC MODE

#### 6 WORST EMISSIONS

#### Line-L1 .15 - 30MHz

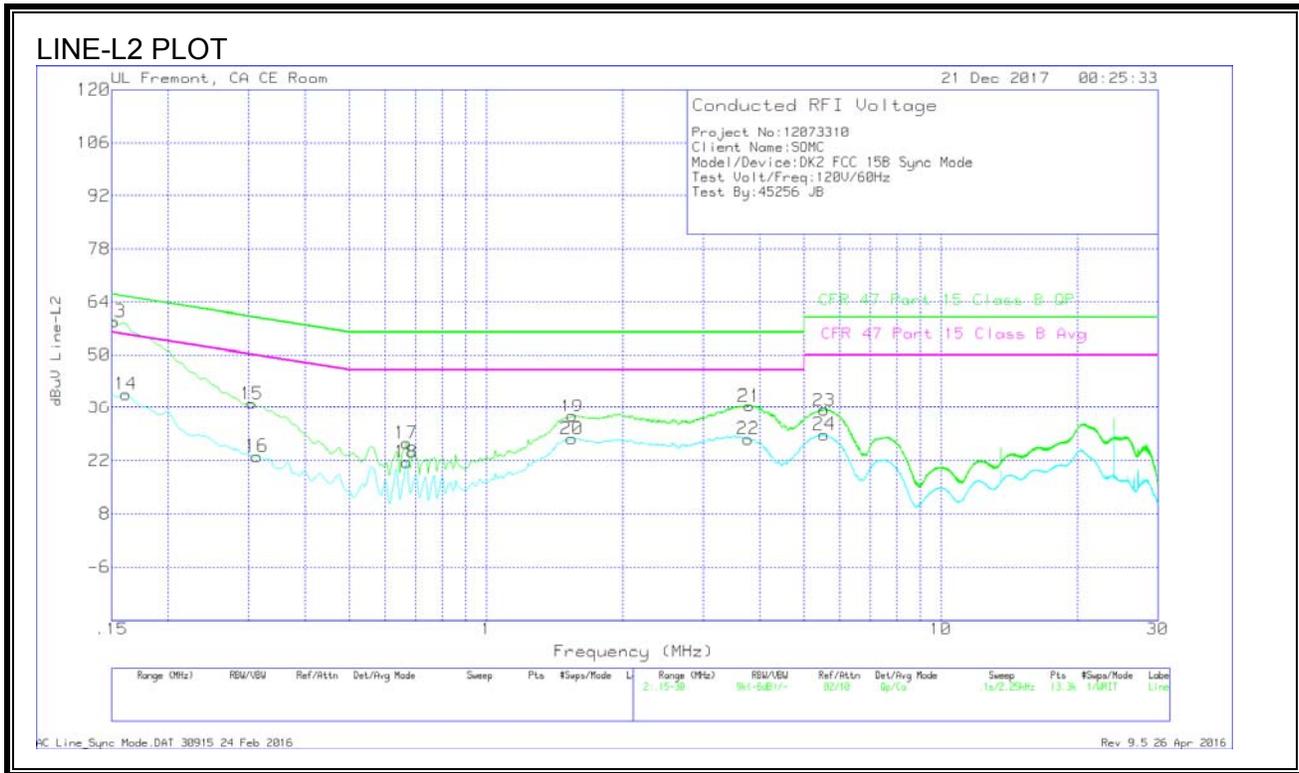


#### Trace Markers

| 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                            | .15225          | 50.3                 | Qp  | .1      | 0               | 10.1         | 60.5                   | 65.88                     | -5.38          | -                          | -                    |  |
| 2                            | .16125          | 30.97                | Ca  | .1      | 0               | 10.1         | 41.17                  | -                         | -              | 55.4                       | -14.23               |  |
| 3                            | .30525          | 27.05                | Qp  | 0       | 0               | 10.1         | 37.15                  | 60.1                      | -22.95         | -                          | -                    |  |
| 4                            | .32775          | 13.22                | Ca  | 0       | 0               | 10.1         | 23.32                  | -                         | -              | 49.51                      | -26.19               |  |
| 5                            | .66525          | 17.34                | Qp  | 0       | 0               | 10.1         | 27.44                  | 56                        | -28.56         | -                          | -                    |  |
| 6                            | .663            | 12.06                | Ca  | 0       | 0               | 10.1         | 22.16                  | -                         | -              | 46                         | -23.84               |  |
| 7                            | 1.53825         | 21.32                | Qp  | 0       | .1              | 10.1         | 31.52                  | 56                        | -24.48         | -                          | -                    |  |
| 8                            | 1.53825         | 15.62                | Ca  | 0       | .1              | 10.1         | 25.82                  | -                         | -              | 46                         | -20.18               |  |
| 9                            | 3.86025         | 21.51                | Qp  | 0       | .1              | 10.2         | 31.81                  | 56                        | -24.19         | -                          | -                    |  |
| 10                           | 3.86475         | 12.25                | Ca  | 0       | .1              | 10.2         | 22.55                  | -                         | -              | 46                         | -23.45               |  |
| 11                           | 20.553          | 24.36                | Qp  | .1      | .3              | 10.4         | 35.16                  | 60                        | -24.84         | -                          | -                    |  |
| 12                           | 20.54963        | 14.51                | Ca  | .1      | .3              | 10.4         | 25.31                  | -                         | -              | 50                         | -24.69               |  |

Qp - Quasi-Peak detector  
 Ca - CISPR average detection

**Line-L2 .15 - 30MHz**



**Trace Markers**

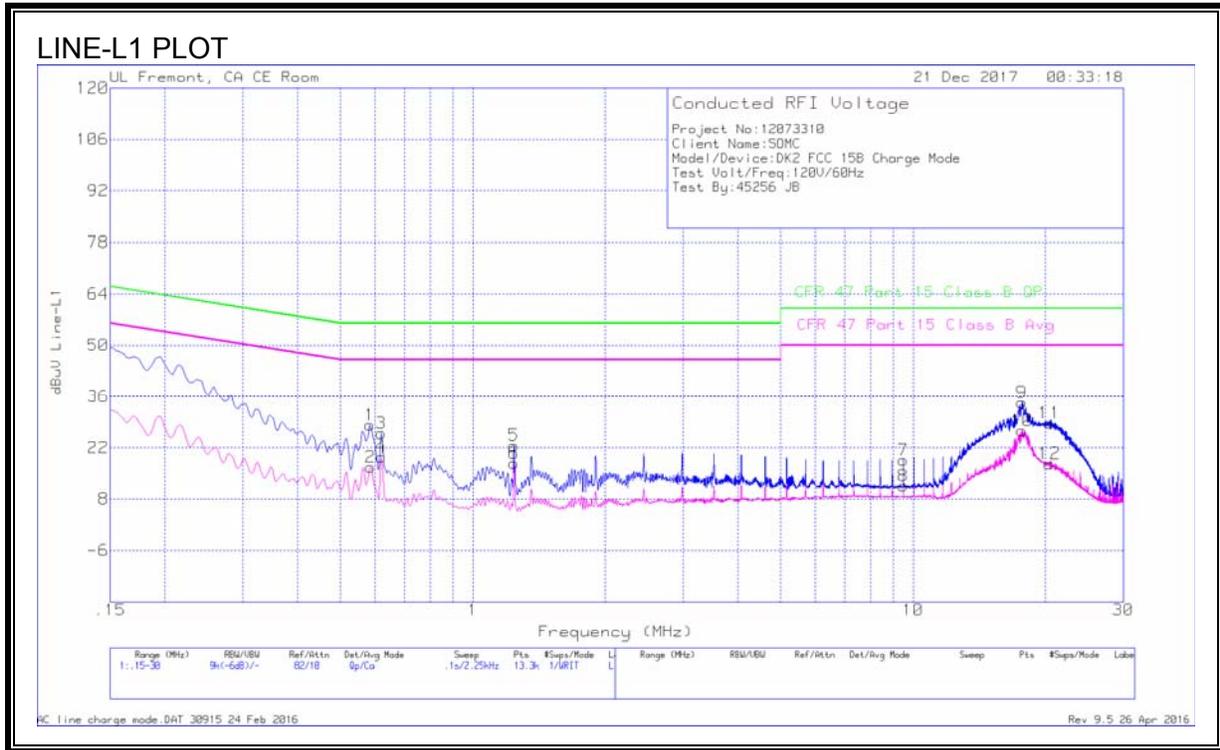
| Range 2: Line-L2 .15 - 30MHz |                 |                      |     |         |                 |              |                        |                           |                |                            |                      |
|------------------------------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|----------------|----------------------------|----------------------|
| 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                           | .15225          | 48.76                | Qp  | 0       | 0               | 10.1         | 58.86                  | 65.88                     | -7.02          | -                          | -                    |
| 14                           | .16125          | 29.52                | Ca  | 0       | 0               | 10.1         | 39.62                  | -                         | -              | 55.4                       | -15.78               |
| 15                           | .30525          | 26.98                | Qp  | 0       | 0               | 10.1         | 37.08                  | 60.1                      | -23.02         | -                          | -                    |
| 16                           | .31312          | 12.99                | Ca  | 0       | 0               | 10.1         | 23.09                  | -                         | -              | 49.89                      | -26.8                |
| 17                           | .6675           | 16.44                | Qp  | 0       | 0               | 10.1         | 26.54                  | 56                        | -29.46         | -                          | -                    |
| 18                           | .6675           | 11.39                | Ca  | 0       | 0               | 10.1         | 21.49                  | -                         | -              | 46                         | -24.51               |
| 19                           | 1.545           | 23.46                | Qp  | 0       | .1              | 10.1         | 33.66                  | 56                        | -22.34         | -                          | -                    |
| 20                           | 1.54388         | 17.47                | Ca  | 0       | .1              | 10.1         | 27.67                  | -                         | -              | 46                         | -18.33               |
| 21                           | 3.7905          | 26.13                | Qp  | 0       | .1              | 10.2         | 36.43                  | 56                        | -19.57         | -                          | -                    |
| 22                           | 3.77025         | 17.29                | Ca  | 0       | .1              | 10.2         | 27.59                  | -                         | -              | 46                         | -18.41               |
| 23                           | 5.541           | 24.9                 | Qp  | 0       | .2              | 10.2         | 35.3                   | 60                        | -24.7          | -                          | -                    |
| 24                           | 5.54438         | 18.36                | Ca  | 0       | .2              | 10.2         | 28.76                  | -                         | -              | 50                         | -21.24               |

Qp - Quasi-Peak detector  
 Ca - CISPR average detection

### 6.3.2. RESULTS- CHARGING MODE

#### 6 WORST EMISSIONS

#### Line-L1 .15 - 30MHz

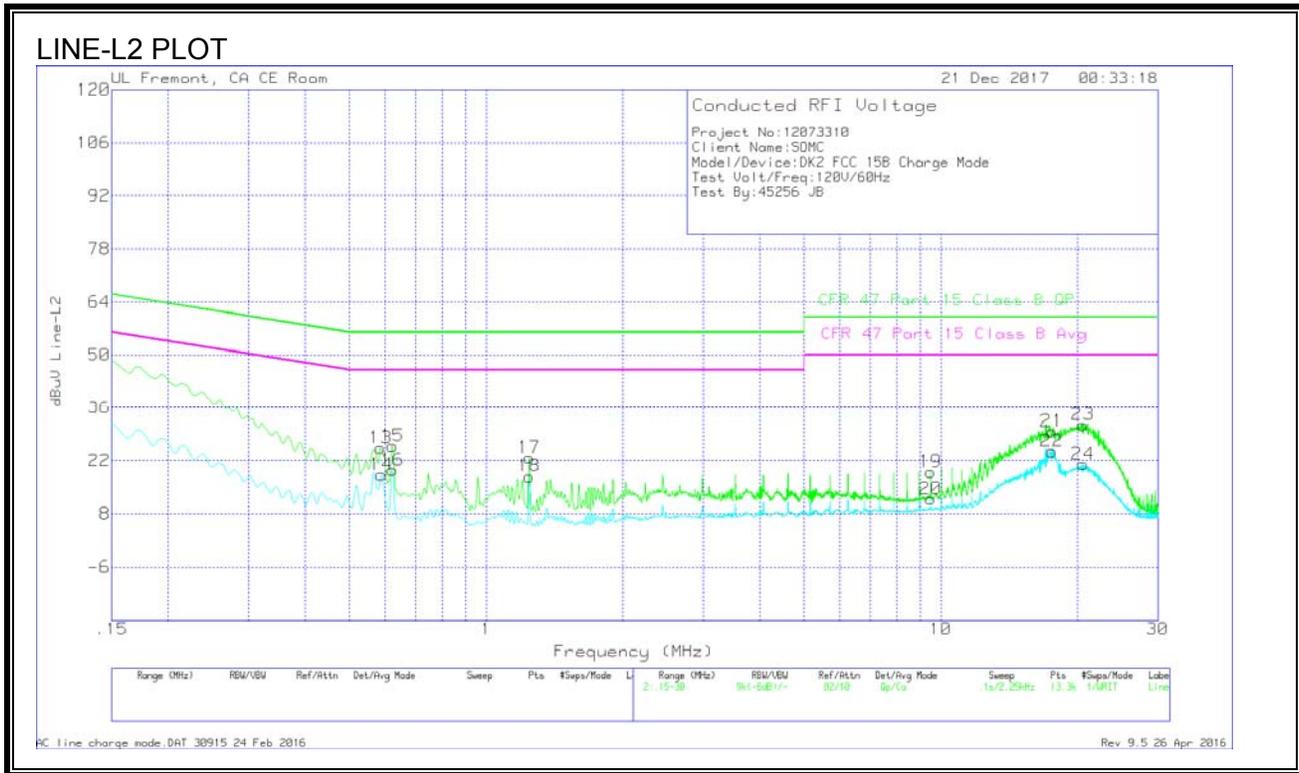


#### Trace Markers

| 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                            | .58425          | 18.09                | Qp  | 0       | 0               | 10.1         | 28.19                  | 56                        | -27.81         | -                          | -                    |
| 2                            | .5865           | 6.57                 | Ca  | 0       | 0               | 10.1         | 16.67                  | -                         | -              | 46                         | -29.33               |
| 3                            | .62025          | 15.81                | Qp  | 0       | 0               | 10.1         | 25.91                  | 56                        | -30.09         | -                          | -                    |
| 4                            | .62025          | 9.43                 | Ca  | 0       | 0               | 10.1         | 19.53                  | -                         | -              | 46                         | -26.47               |
| 5                            | 1.24125         | 12.41                | Qp  | 0       | .1              | 10.1         | 22.61                  | 56                        | -33.39         | -                          | -                    |
| 6                            | 1.24125         | 7.59                 | Ca  | 0       | .1              | 10.1         | 17.79                  | -                         | -              | 46                         | -28.21               |
| 7                            | 9.501           | 8.19                 | Qp  | 0       | .2              | 10.2         | 18.59                  | 60                        | -41.41         | -                          | -                    |
| 8                            | 9.501           | 1.13                 | Ca  | 0       | .2              | 10.2         | 11.53                  | -                         | -              | 50                         | -38.47               |
| 9                            | 17.66175        | 23.74                | Qp  | 0       | .3              | 10.3         | 34.34                  | 60                        | -25.66         | -                          | -                    |
| 10                           | 17.664          | 16.07                | Ca  | 0       | .3              | 10.3         | 26.67                  | -                         | -              | 50                         | -23.33               |
| 11                           | 20.40788        | 17.93                | Qp  | .1      | .3              | 10.4         | 28.73                  | 60                        | -31.27         | -                          | -                    |
| 12                           | 20.409          | 6.83                 | Ca  | .1      | .3              | 10.4         | 17.63                  | -                         | -              | 50                         | -32.37               |

Qp - Quasi-Peak detector  
 Ca - CISPR average detection

**Line-L2 .15 - 30MHz**



**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                           | .5865           | 15.14                | Qp  | 0       | 0               | 10.1         | 25.24                  | 56                        | -30.76         | -                          | -                    |
| 14                           | .58875          | 8.17                 | Ca  | 0       | 0               | 10.1         | 18.27                  | -                         | -              | 46                         | -27.73               |
| 15                           | .6225           | 15.7                 | Qp  | 0       | 0               | 10.1         | 25.8                   | 56                        | -30.2          | -                          | -                    |
| 16                           | .6225           | 9.31                 | Ca  | 0       | 0               | 10.1         | 19.41                  | -                         | -              | 46                         | -26.59               |
| 17                           | 1.2435          | 12.52                | Qp  | 0       | .1              | 10.1         | 22.72                  | 56                        | -33.28         | -                          | -                    |
| 18                           | 1.2435          | 7.62                 | Ca  | 0       | .1              | 10.1         | 17.82                  | -                         | -              | 46                         | -28.18               |
| 19                           | 9.501           | 8.58                 | Qp  | 0       | .2              | 10.2         | 18.98                  | 60                        | -41.02         | -                          | -                    |
| 20                           | 9.501           | 1.49                 | Ca  | 0       | .2              | 10.2         | 11.89                  | -                         | -              | 50                         | -38.11               |
| 21                           | 17.556          | 19.02                | Qp  | 0       | .3              | 10.3         | 29.62                  | 60                        | -30.38         | -                          | -                    |
| 22                           | 17.55375        | 13.75                | Ca  | 0       | .3              | 10.3         | 24.35                  | -                         | -              | 50                         | -25.65               |
| 23                           | 20.53725        | 20.66                | Qp  | 0       | .3              | 10.4         | 31.36                  | 60                        | -28.64         | -                          | -                    |
| 24                           | 20.5395         | 10.26                | Ca  | 0       | .3              | 10.4         | 20.96                  | -                         | -              | 50                         | -29.04               |

Qp - Quasi-Peak detector  
 Ca - CISPR average detection