



FCC 47 CFR PART 15 SUBPART B

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, ANT+, NFC and WPT

MODEL NUMBER : SM-N975F/DS, SM-N975F, SM-N975X

FCC ID: A3LSMN975F

REPORT NUMBER: 4789067225-E13V2

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Prepared for
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Testing
Laboratory

TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	06/27/19	Initial issue	Sangyun Kim
V1	06/28/19	Update to address TCB's question	Sangyun Kim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, ANT+, NFC and WPT

MODEL NUMBER: SM-N975F/DS, SM-N975F, SM-N975X

SERIAL NUMBER: R38M50ASH5W, R38M40ESVFM;

DATE TESTED: JUN 25, 2019 – JUN 27, 2019;

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 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 & Released For
UL Korea, Ltd. By:



Changyoung Choi
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Sangyun Kim
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2014, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 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.

218 Maeyeong-ro	
☒	Chamber 1
☒	Chamber 2
☐	Chamber 3

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

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	2.32 dB
Radiated Disturbance, Below 1GHz	3.86 dB
Radiated Disturbance, Above 1 GHz	5.97 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 + BT/BLE, DTS/UNII a/b/g/n/ac/ax, ANT+, NFC and WPT.

GENERAL INFORMATION

Type of device	Class B personal computers and peripherals Other Class B digital devices & peripherals
Personal Computer power requirements	100-240 VAC / 50-60 Hz, 1.8 A
Travel Adapter power requirements	100-240 VAC / 50-60 Hz, 0.7 A
List of frequencies generated or used by the EUT	30 GHz (5 th harmonic of the frequency of 5GHz UNII)

5.2. PRELIMINARY TEST CONFIGURATIONS

This EUT have a camera pop up function when user operate front camera function. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was normal mode and camera pop up mode. It was determined that Z on normal mode orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation with data transfer.

5.3. MODE(S) OF OPERATION INVESTIGATED

Mode	Description
Test Case 1	Camera(Front) + Charging
Test Case 2	Camera(Rear) + Charging
Test Case 3	Video and Audio Play + Charging
Test Case 4	Video and Audio Play + Display Out
Test Case 5	USB Data Communication with PC
Test Case 6	Receiver Mode (Licensed Band within 30-960MHz)

Note: Receiver Mode (Licensed Band within 30-960MHz) radiated test result refer to FCC Report WWAN Part15B.

Receiver Mode (Licensed Band within 30-960MHz) AC mains line conducted test was tested to high power licensed band(GSM850).

5.4. MODIFICATIONS

No modifications were made during testing.

5.5. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT & PERIPHERALS

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID/DoC
Laptop PC	Lenovo	L480	PF-18QBWC	DoC
AC/DC Adapter	Lenovo	ADLX65YDC3A	8SSA10M13946-1SG85B05SR	N/A
Mouse	Logitech	U0026	1451HS05S6G8	DoC
Data Cable	SAMSUNG	EP-DG977	N/A	N/A
LCD Monitor	DELL	U2417H	CN-0767T7-WS2000-83F-BCRL-A07	DoC
Charger	SAMSUNG	EP-TA800	R37	N/A
Micro SD Card	SAMSUNG	MB-MC256GA	-	-

I/O CABLES

[DIAGRAM 1]

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length(m)	Remarks
1	AC Power	1	Power	Direct	-	From Charger to AC Main
2	USB	1	Type-C	Shielded	1.0m	From Charger to EUT

[DIAGRAM 2]

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length(m)	Remarks
1	AC Power	1	Power	Unshielded	1.5m	From LCD Monitor to AC Main
2	DP	1	Type-C	Shielded	1.5m	From EUT to LCD Monitor

* Radiated Test Only

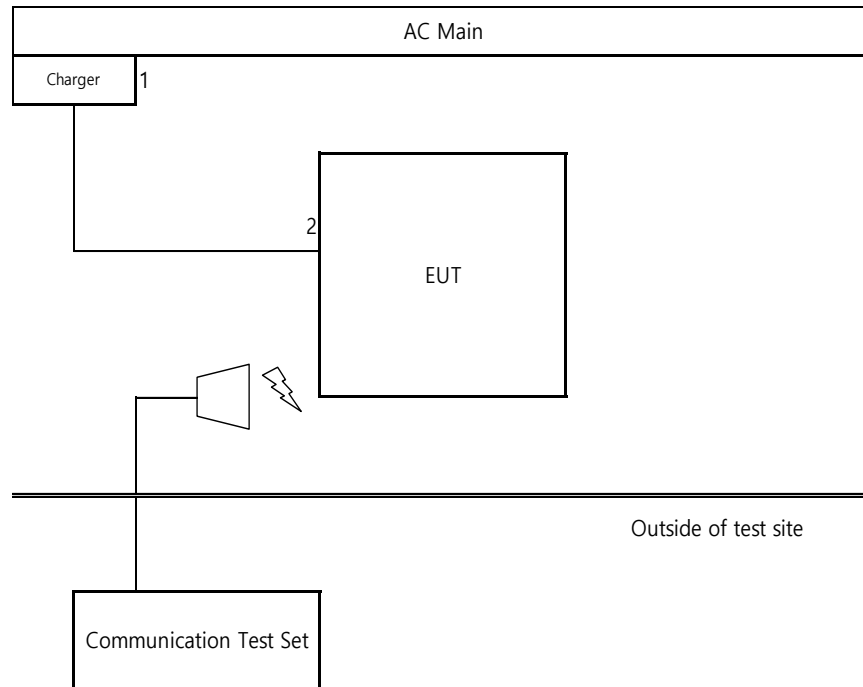
[DIAGRAM 3]

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length(m)	Remarks
1	AC Power	1	Power	Unshielded	1.0m	From AC/DC Adapter to AC Main
2	DC Power	1	Power	Unshielded	1.5m	From AD/DC Adapter to Laptop PC
3	USB	1	Type-C	Shielded	1.1m	From EUT to PC
4	USB	1	USB	Shielded	1.5m	From Mouse to PC
5	LAN	1	RJ-45	Shielded	1.0m	From Laptop PC to Ethernet (Outside of test site)

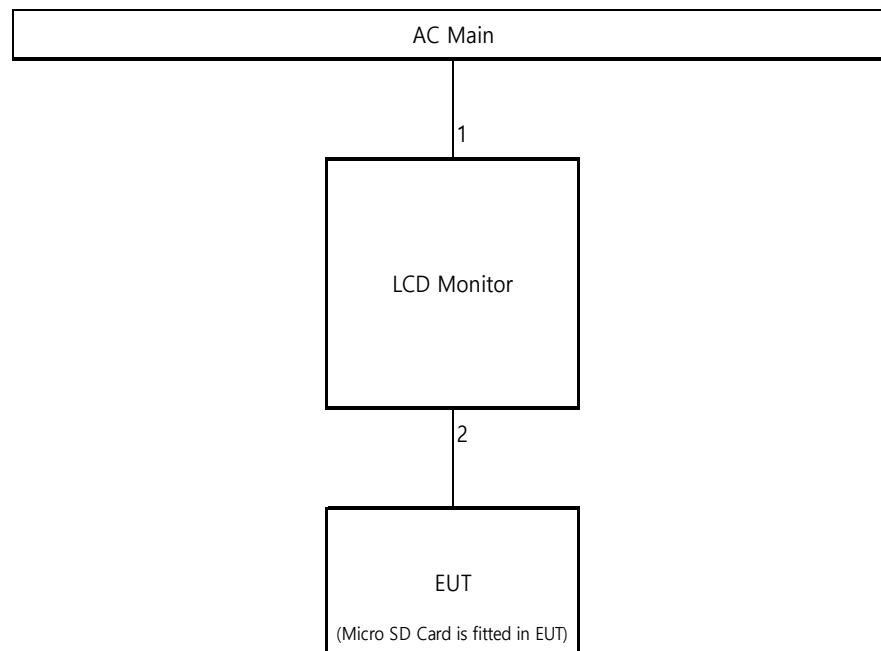
TEST SETUP

The EUT is installed in a typical configuration. Copy files from PC to EUT fitted Micro sd card.
Video and sound on EUT send to the LCD Monitor from DP cable.

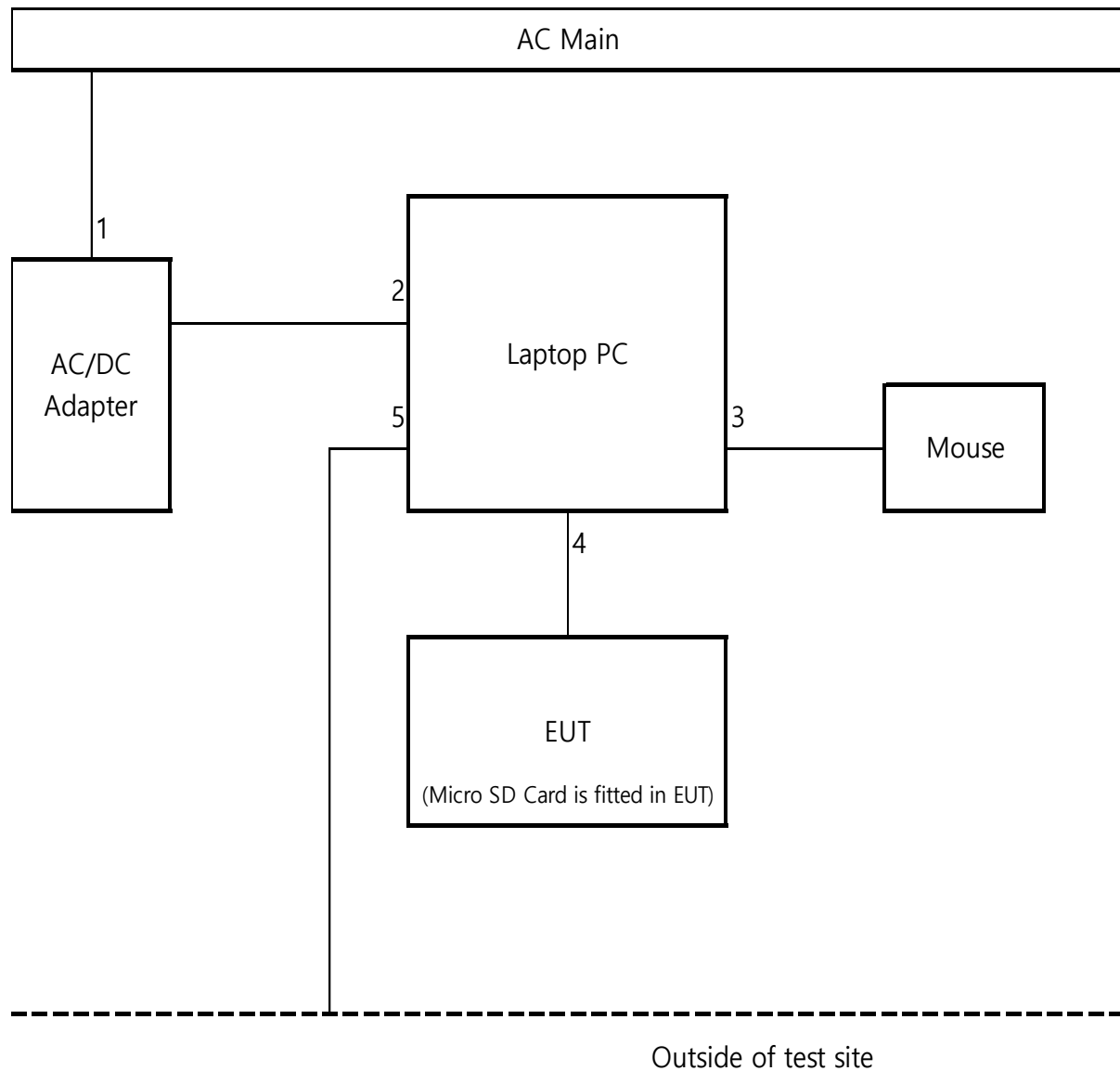
TEST SETUP DIAGRAM 1 for Test Case 1 to 3 and 6



TEST SETUP DIAGRAM 2 for Test Case 4



TEST SETUP DIAGRAM 3 for Test case 5



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	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00167211	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168724	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00205959	08-04-20
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-14-20
Antenna, Horn, 40 GHz	ETS	3116C	00168645	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	08-09-19
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-07-19
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-07-19
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-07-19
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-06-19
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-06-19
EMI Test Receive, 44 GHz	R&S	ESW44	101590	08-06-19
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-06-19
Communications Test Set	R&S	CMW500	115331	08-07-19
LISN	R&S	ENV-216	101837	08-09-19
LISN	R&S	ENV-216	101837	08-09-19
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

6. APPLICABLE LIMITS AND TEST RESULTS

6.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4: 2014

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

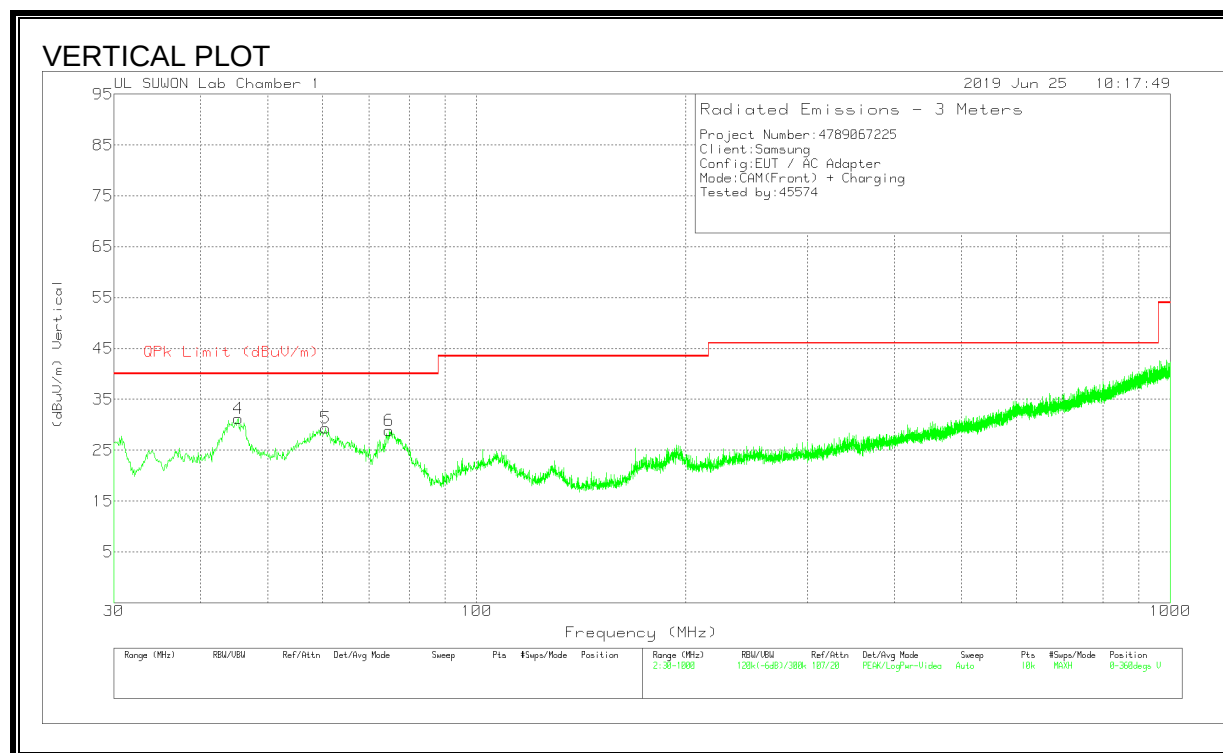
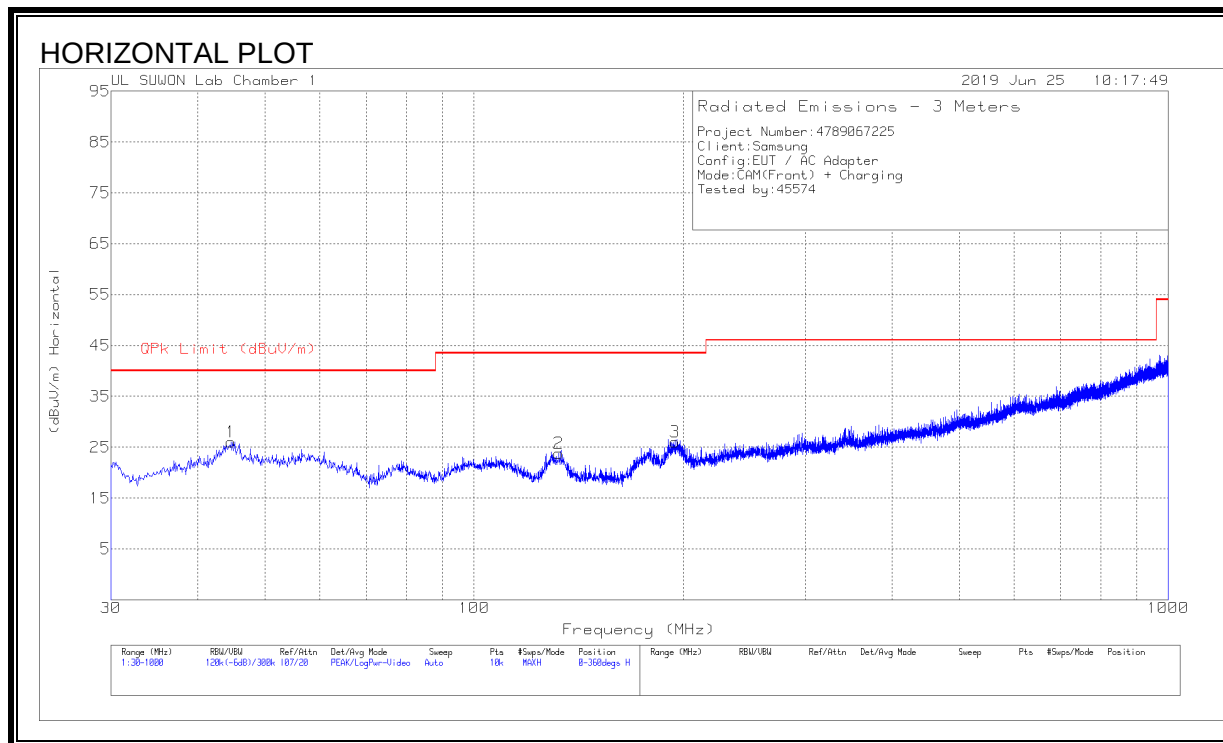
LIMIT

§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 (dB μ V/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.	

RESULTS Test Case 1

RADIATED EMISSIONS 30 TO 1000 MHz



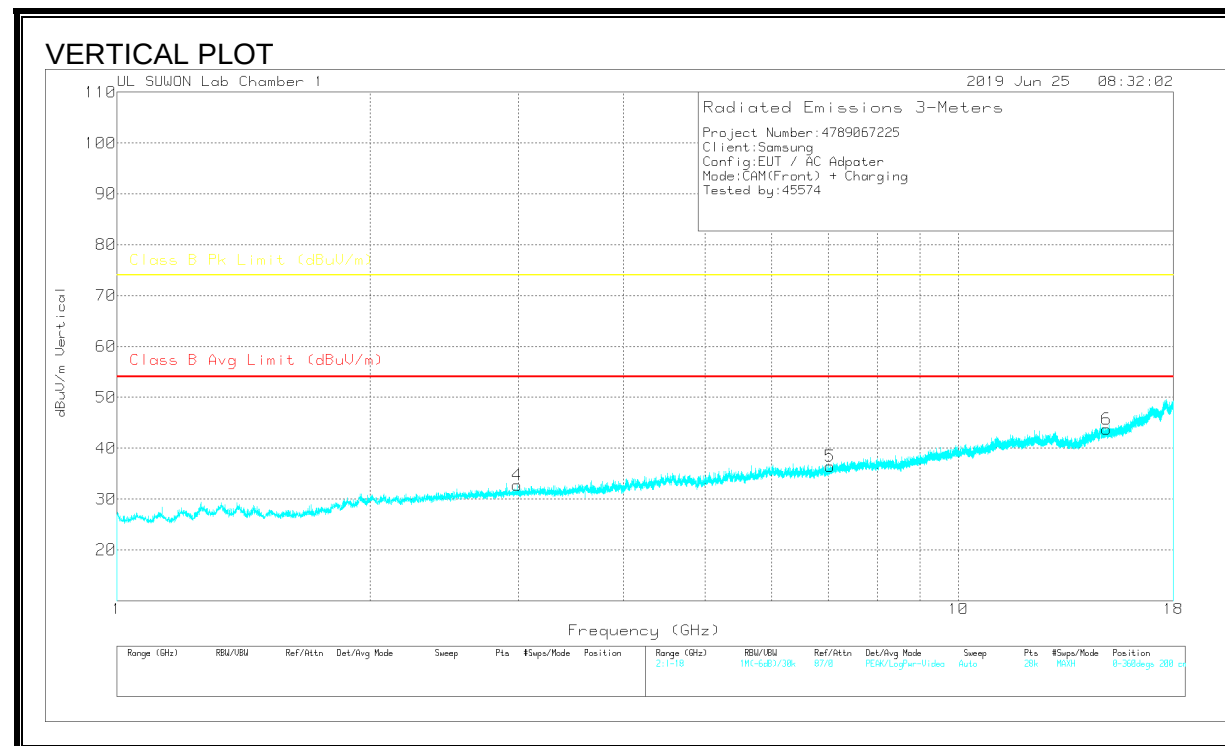
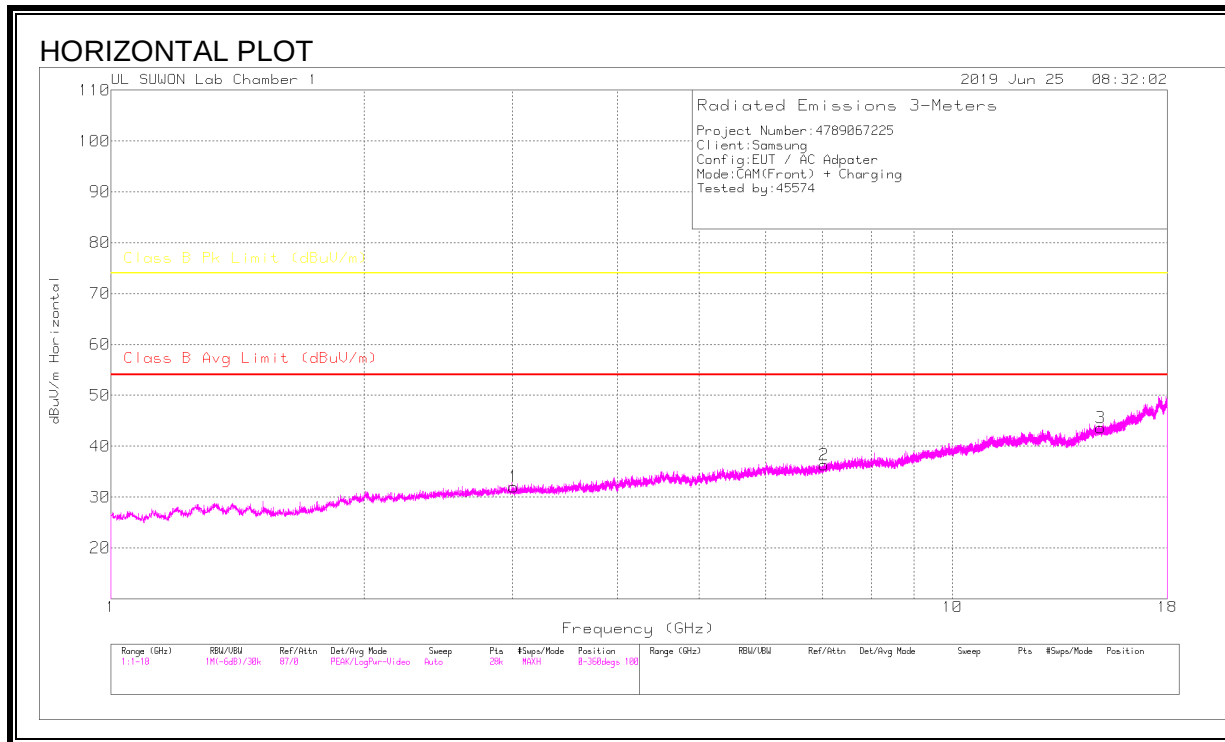
HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	44.647	37.05	Pk	19.6	-30.6	26.05	40	-13.95	0-360	400	H
2	132.335	38.94	Pk	14.2	-29.3	23.84	43.52	-19.68	0-360	200	H
3	194.997	36.61	Pk	18	-28.6	26.01	43.52	-17.51	0-360	200	H
4	45.326	42.21	Pk	19.6	-30.6	31.21	40	-8.79	0-360	100	V
5	60.555	41.28	Pk	18.4	-30.3	29.38	40	-10.62	0-360	100	V
6	74.717	45.36	Pk	13.6	-30.1	28.86	40	-11.14	0-360	100	V

Pk - Peak detector

RADIATED EMISSIONS 1GHz to 18GHz



HORIZONTAL AND VERTICAL DATA

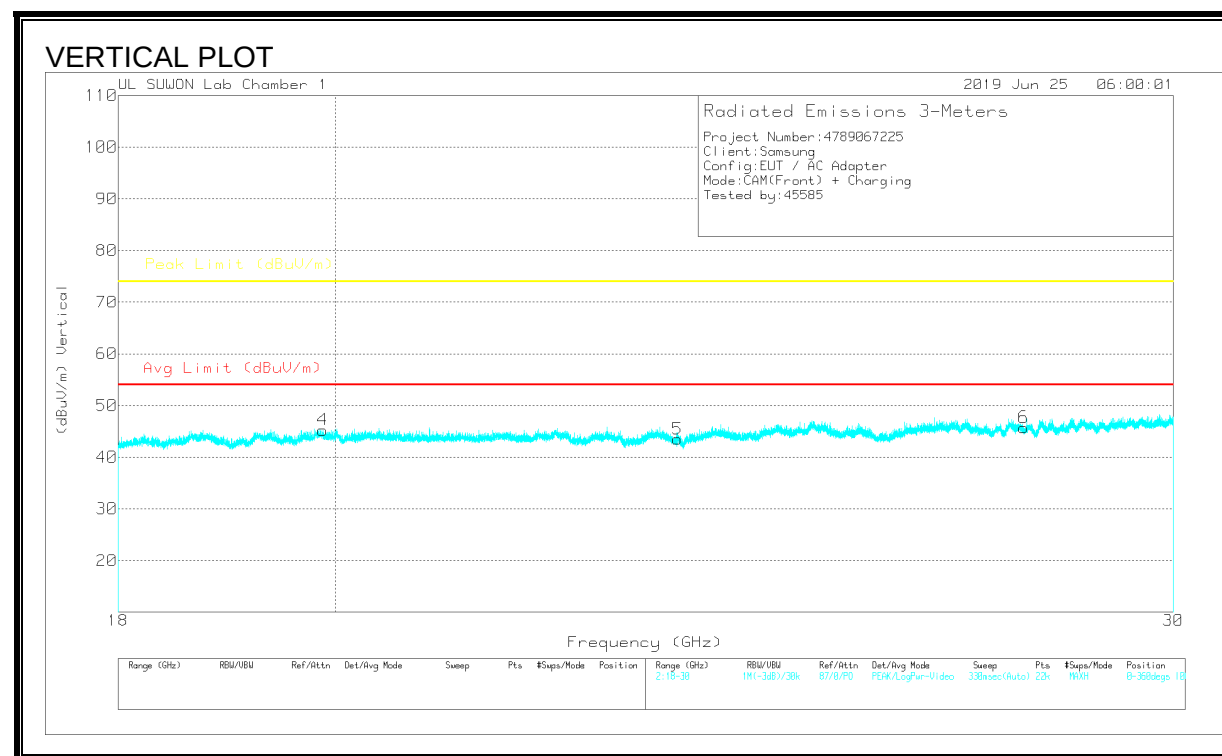
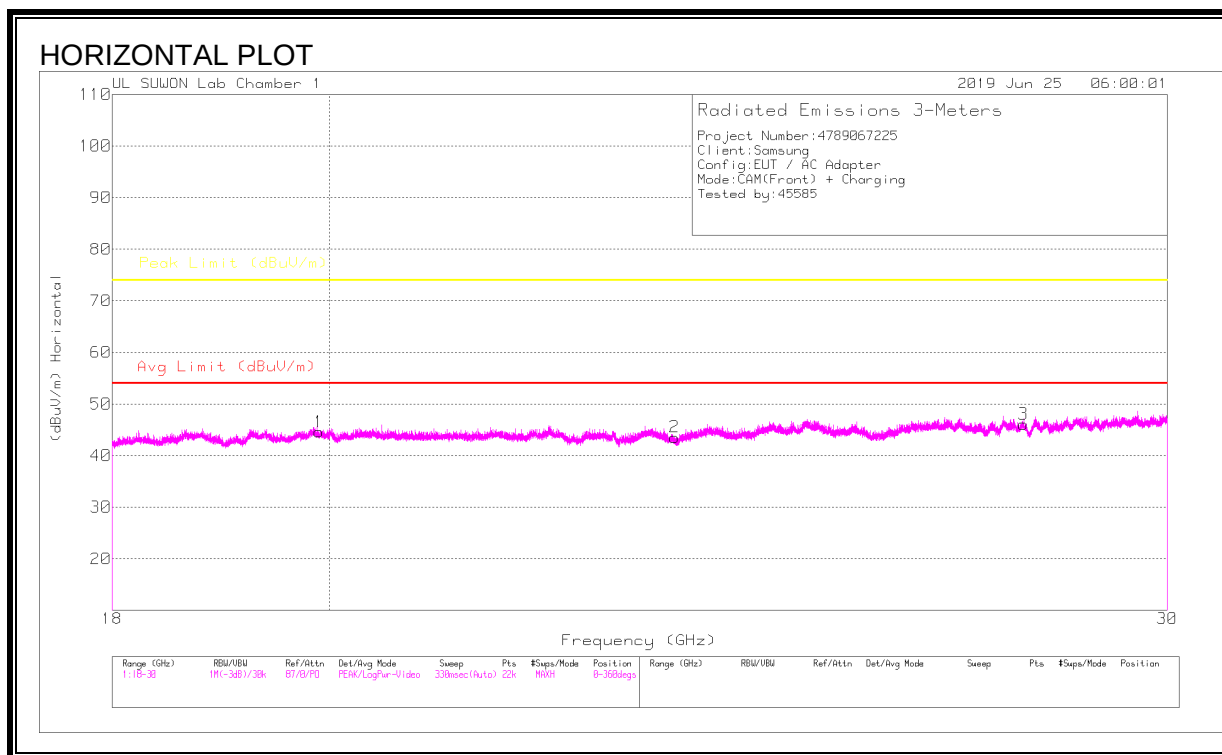
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001687 17	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.01186	33.25	PK	32.5	-33.8	31.95	-	-	74	-42.05	0-360	100	H
2	7.03253	29.2	PK	35.7	-28.6	36.3	-	-	74	-37.7	0-360	100	H
3	14.99497	26.83	PK	40.1	-23.3	43.63	-	-	74	-30.37	0-360	200	H
4	2.98879	34.14	PK	32.4	-33.8	32.74	-	-	74	-41.26	0-360	100	V
5	7.03436	29.22	PK	35.7	-28.5	36.42	-	-	74	-37.58	0-360	200	V
6	14.99315	26.87	PK	40.1	-23.2	43.77	-	-	74	-30.23	0-360	200	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

RADIATED EMISSIONS 18GHz to 30GHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

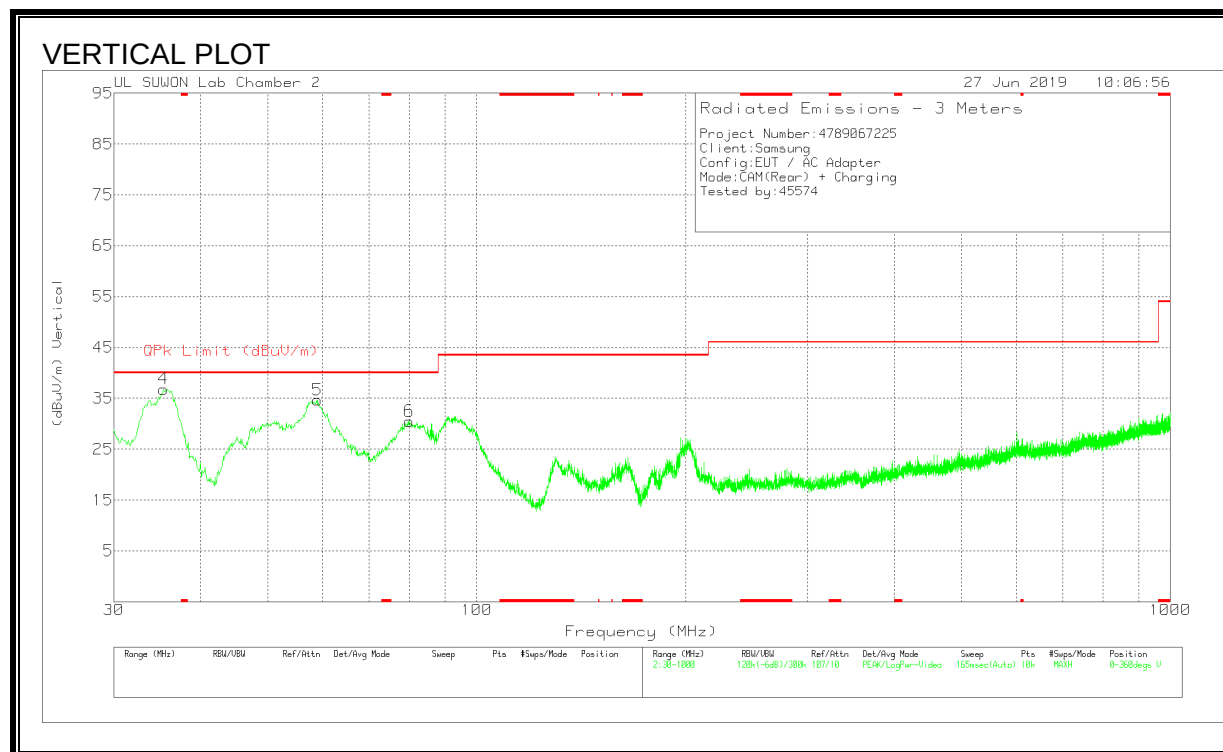
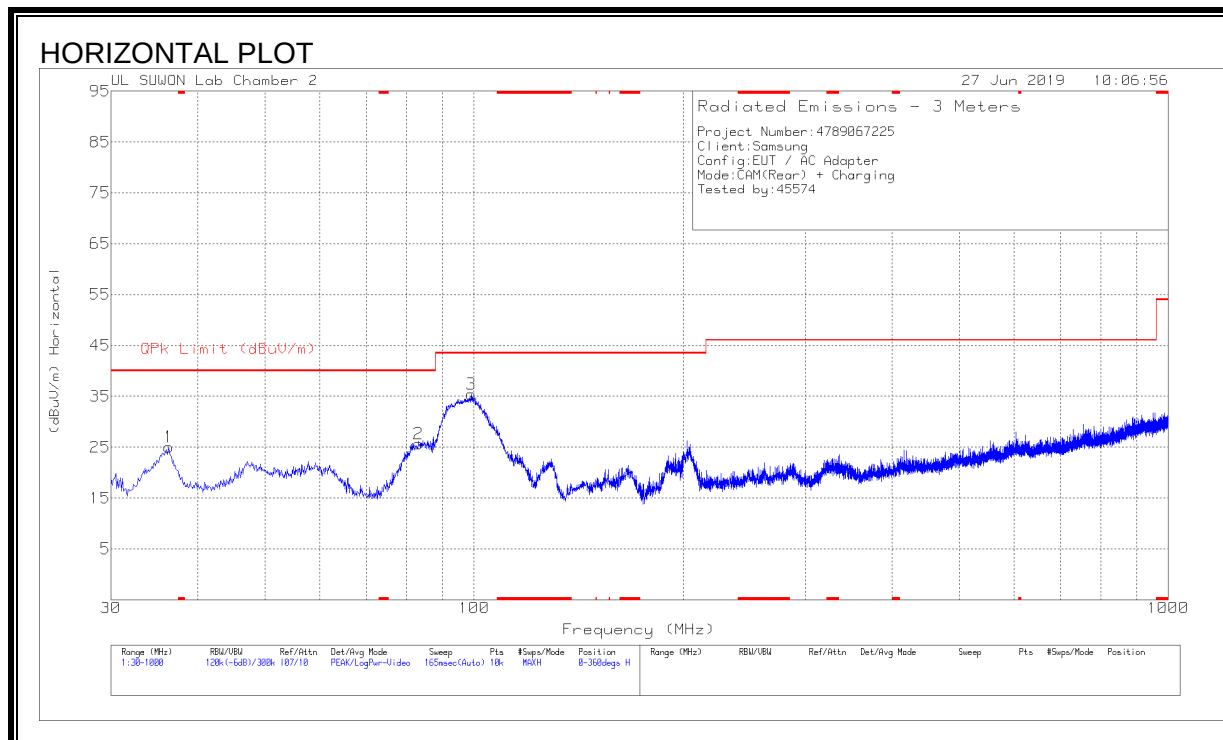
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3116C-PA	18-40GHz[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.89373	21.41	PK	7.6	15.6	44.61	-	-	74	-29.39	0-360	100	H
2	23.63484	15.58	PK	10.9	17.1	43.58	-	-	74	-30.42	0-360	100	H
3	27.97919	15.51	PK	11.7	18.9	46.11	-	-	74	-27.89	0-360	100	H
4	19.87464	22.18	PK	7.5	15.6	45.28	-	-	74	-28.72	0-360	100	V
5	23.59993	15.51	PK	10.9	17.1	43.51	-	-	74	-30.49	0-360	100	V
6	27.90119	15.34	PK	11.6	18.8	45.74	-	-	74	-28.26	0-360	100	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

RESULTS Test Case 2

RADIATED EMISSIONS 30 TO 1000 MHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	36.305	39.72	Pk	17.2	-31.9	25.02	40	-14.98	0-360	300	H
2	83.156	44.1	Pk	13.1	-31.5	25.7	40	-14.3	0-360	200	H
3	99.161	49.13	Pk	17.7	-31.4	35.43	43.52	-8.09	0-360	300	H
4	35.335	52.04	Pk	16.8	-32	36.84	40	-3.16	0-360	100	V
5	59.003	47.68	Pk	18.7	-31.7	34.68	40	-5.32	0-360	100	V
6	79.955	49.53	Pk	12.6	-31.6	30.53	40	-9.47	0-360	100	V

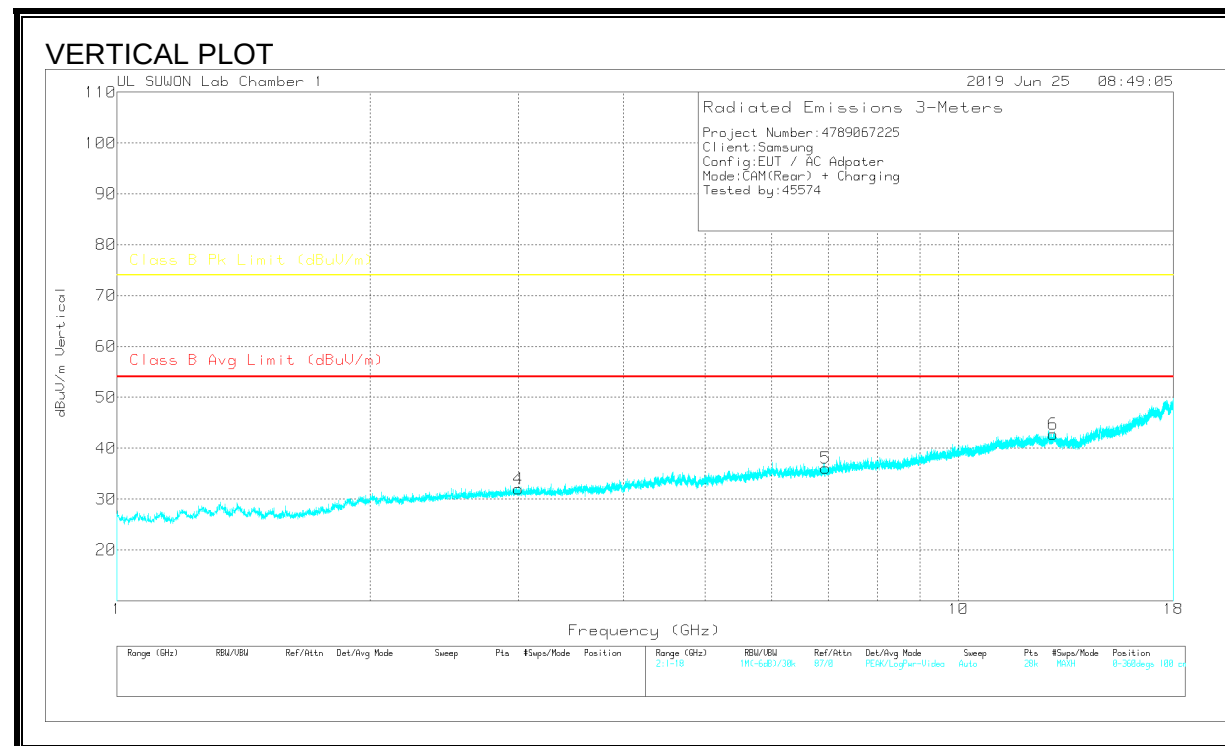
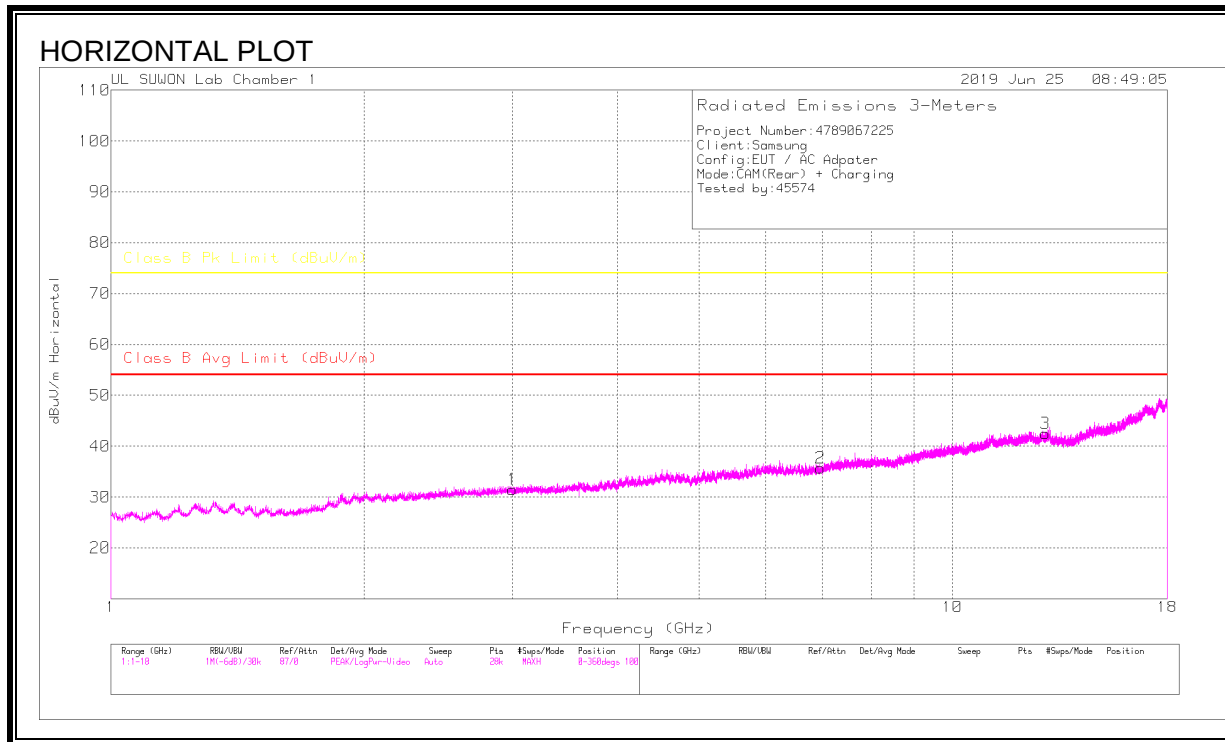
Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
35.335	40.09	Qp	16.8	-32	24.89	40	-15.11	0	100	V

Qp - Quasi-Peak detector

RADIATED EMISSIONS 1GHz to 18GHz



HORIZONTAL AND VERTICAL DATA

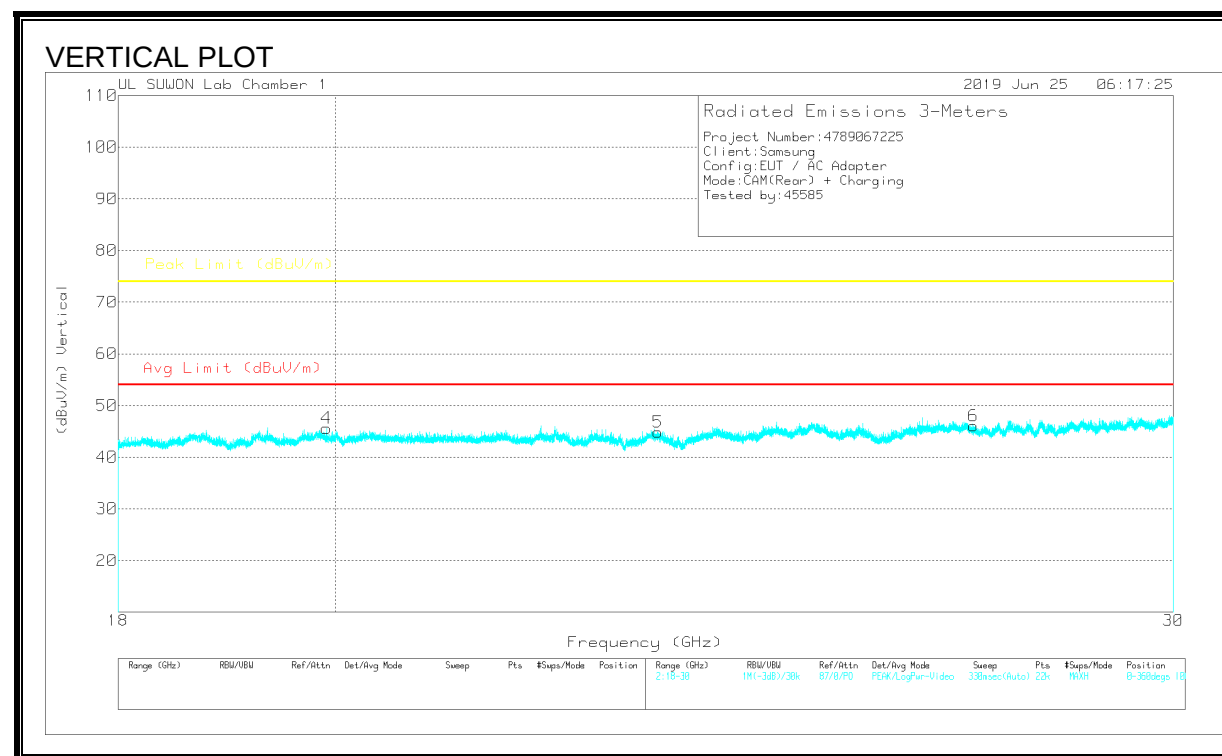
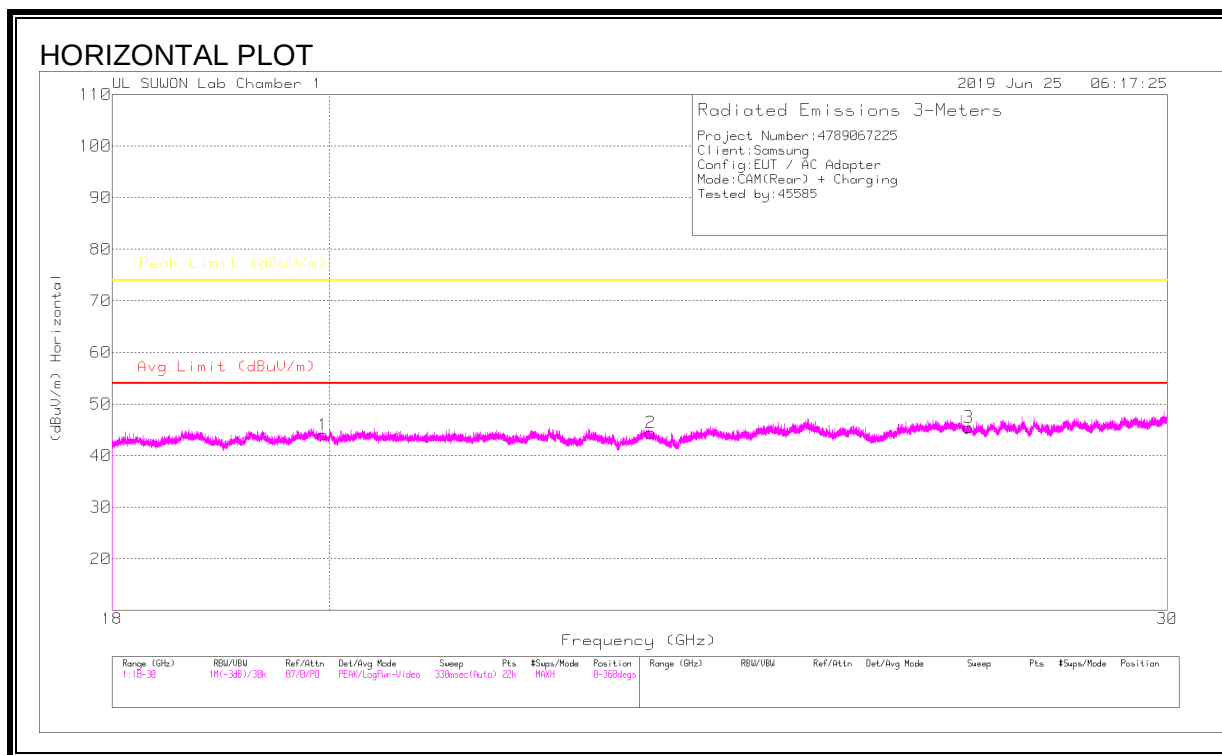
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001687 17	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.00154	32.93	PK	32.5	-33.9	31.53	-	-	74	-42.47	0-360	100	H
2	6.9609	28.92	PK	35.7	-28.9	35.72	-	-	74	-38.28	0-360	200	H
3	12.88477	27	PK	38.9	-23.4	42.5	-	-	74	-31.5	0-360	200	H
4	3.00154	33.44	PK	32.5	-33.9	32.04	-	-	74	-41.96	0-360	100	V
5	6.95726	29.18	PK	35.7	-28.8	36.08	-	-	74	-37.92	0-360	200	V
6	12.95579	27.09	PK	38.9	-23.2	42.79	-	-	74	-31.21	0-360	100	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

RADIATED EMISSIONS 18GHz to 30GHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

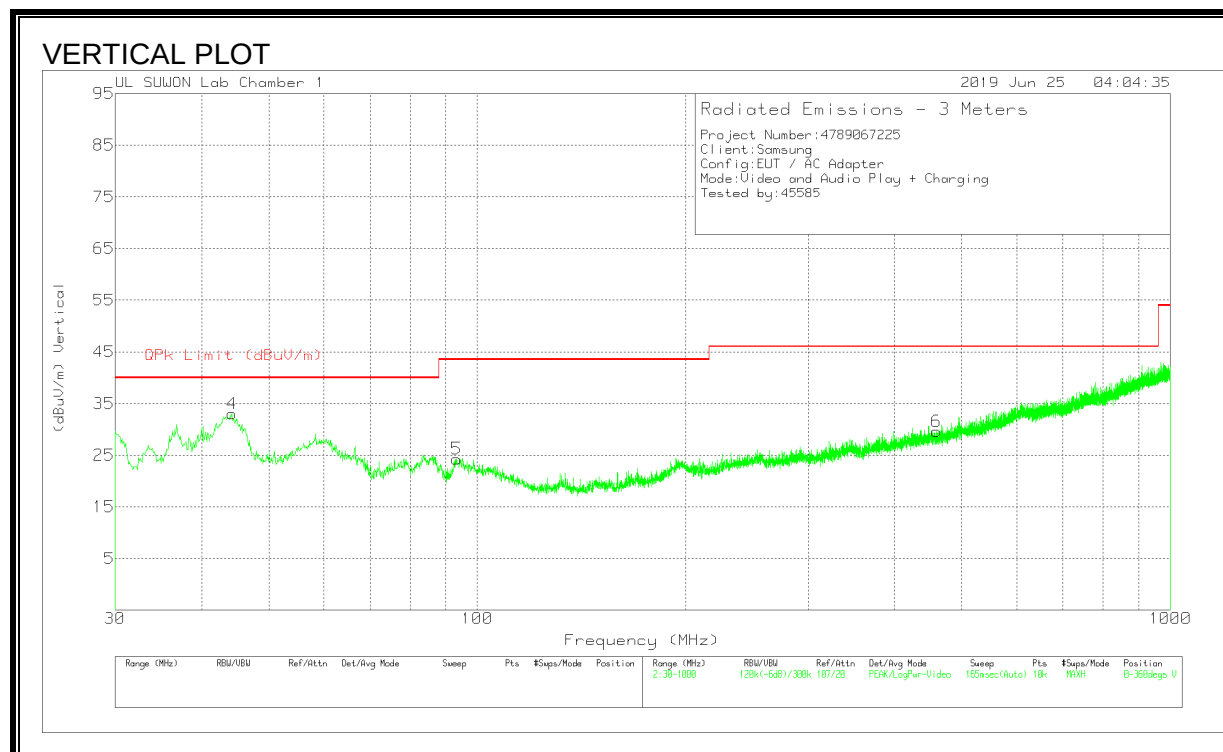
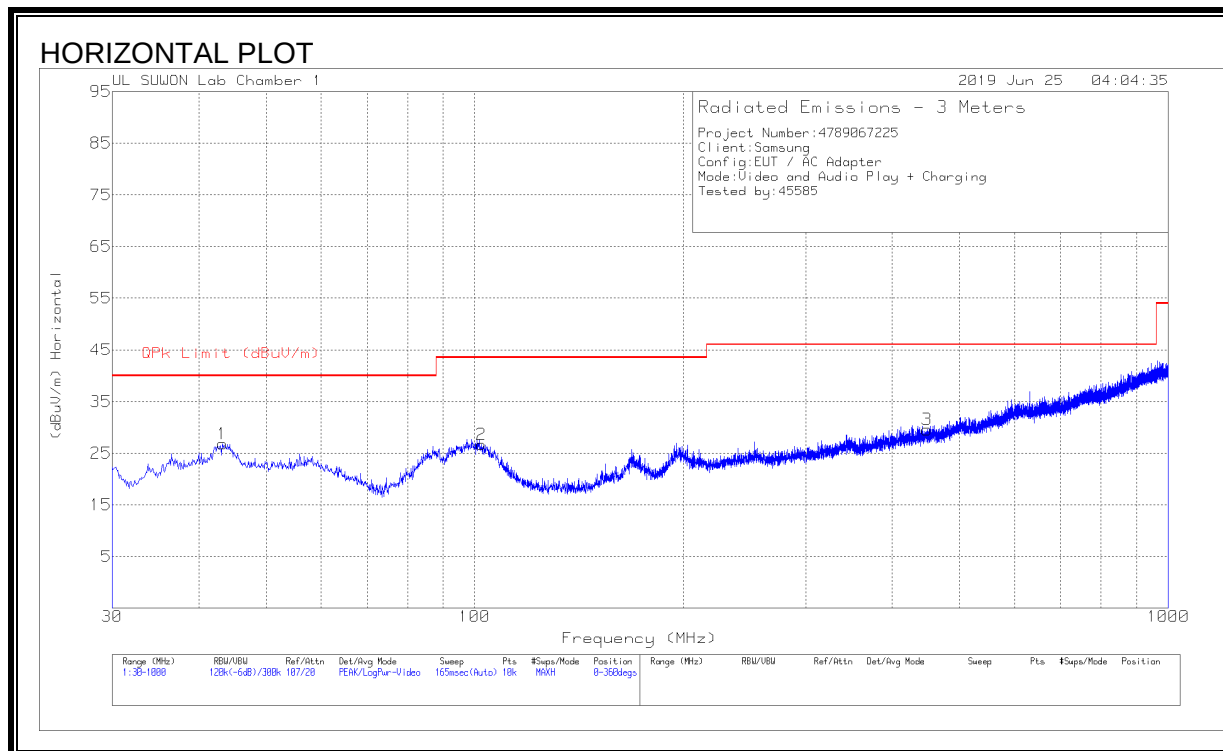
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3116C-PA	18-40GHz[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.93519	20.61	PK	7.7	15.7	44.01	-	-	74	-29.99	0-360	100	H
2	23.35994	16.34	PK	11	17.1	44.44	-	-	74	-29.56	0-360	100	H
3	27.24777	16.28	PK	10.6	18.6	45.48	-	-	74	-28.52	0-360	100	H
4	19.91064	22.3	PK	7.6	15.7	45.6	-	-	74	-28.4	0-360	100	V
5	23.37685	16.86	PK	11	17	44.86	-	-	74	-29.14	0-360	100	V
6	27.23249	16.94	PK	10.5	18.6	46.04	-	-	74	-27.96	0-360	100	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

RESULTS Test Case 3

RADIATED EMISSIONS 30 TO 1000 MHz



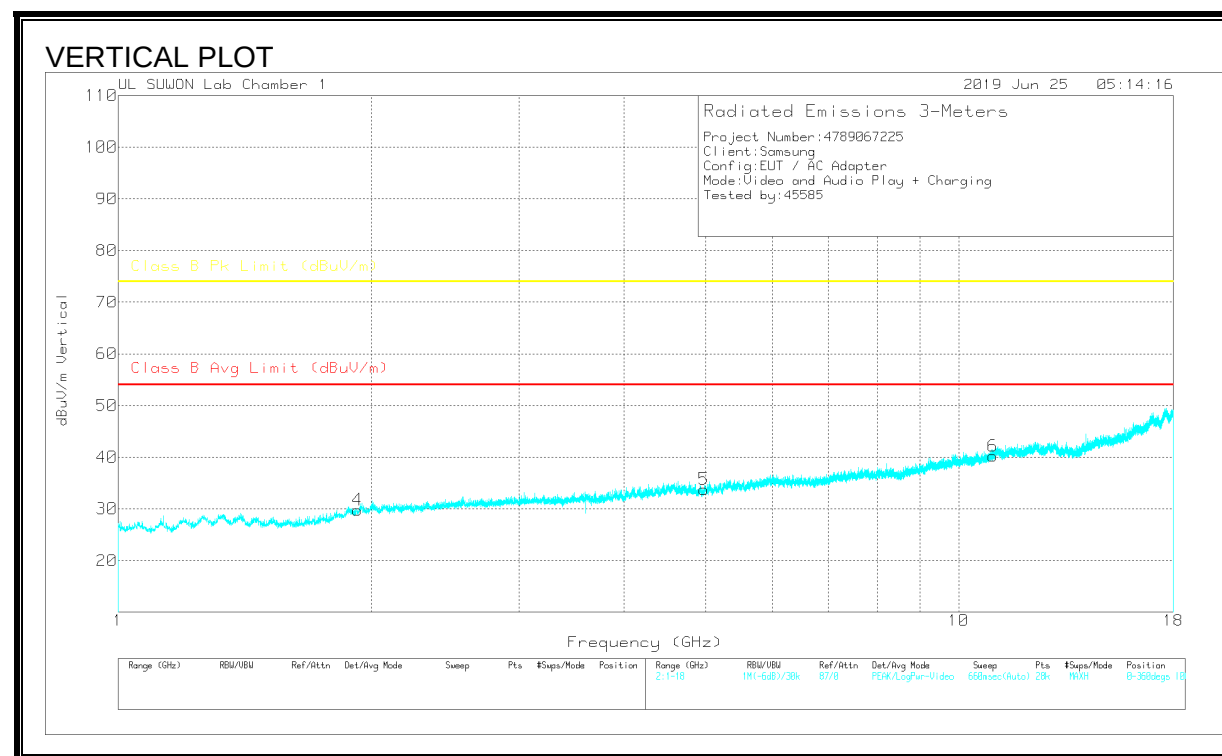
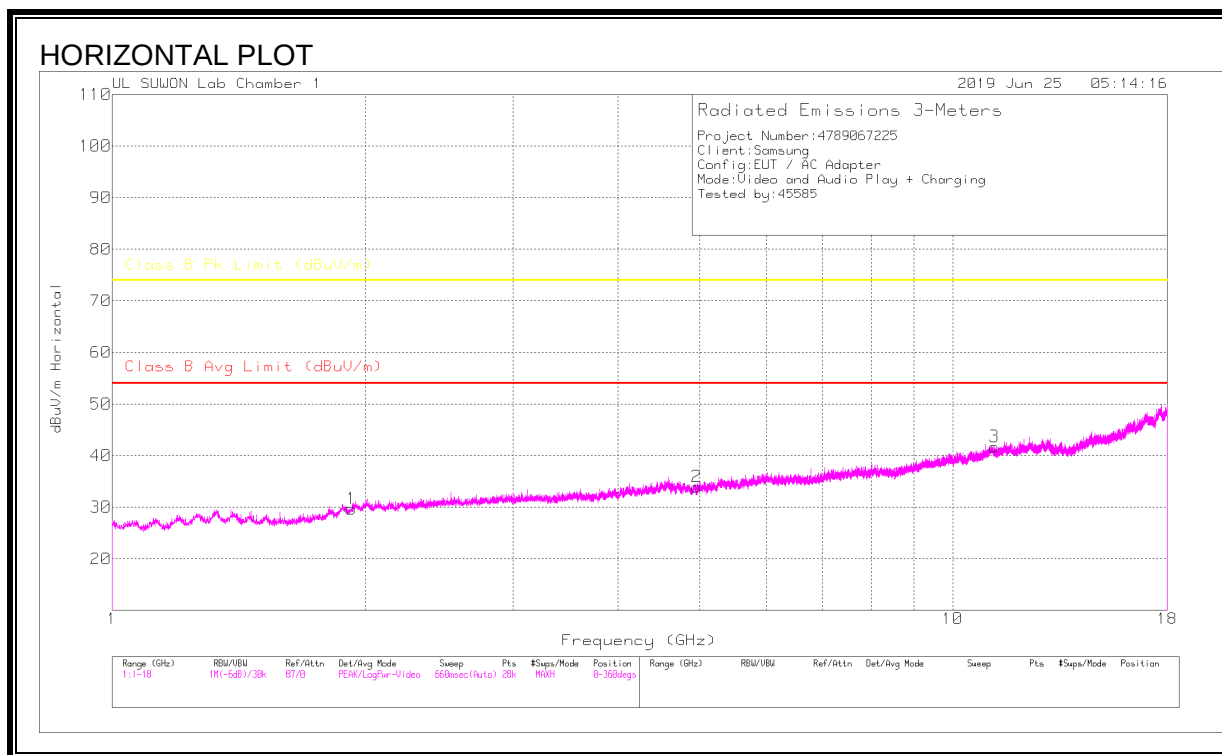
HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	43.289	37.98	Pk	19.4	-30.6	26.78	40	-13.22	0-360	300	H
2	102.265	38.46	Pk	17.9	-29.7	26.66	43.52	-16.86	0-360	400	H
3	448.846	34.07	Pk	22.2	-26.7	29.57	46.02	-16.45	0-360	400	H
4	44.259	44.03	Pk	19.6	-30.6	33.03	40	-6.97	0-360	100	V
5	93.341	37.17	Pk	16.9	-29.8	24.27	43.52	-19.25	0-360	100	V
6	459.516	33.9	Pk	22.3	-26.6	29.6	46.02	-16.42	0-360	200	V

Pk - Peak detector

RADIATED EMISSIONS 1GHz to 18GHz



HORIZONTAL AND VERTICAL DATA

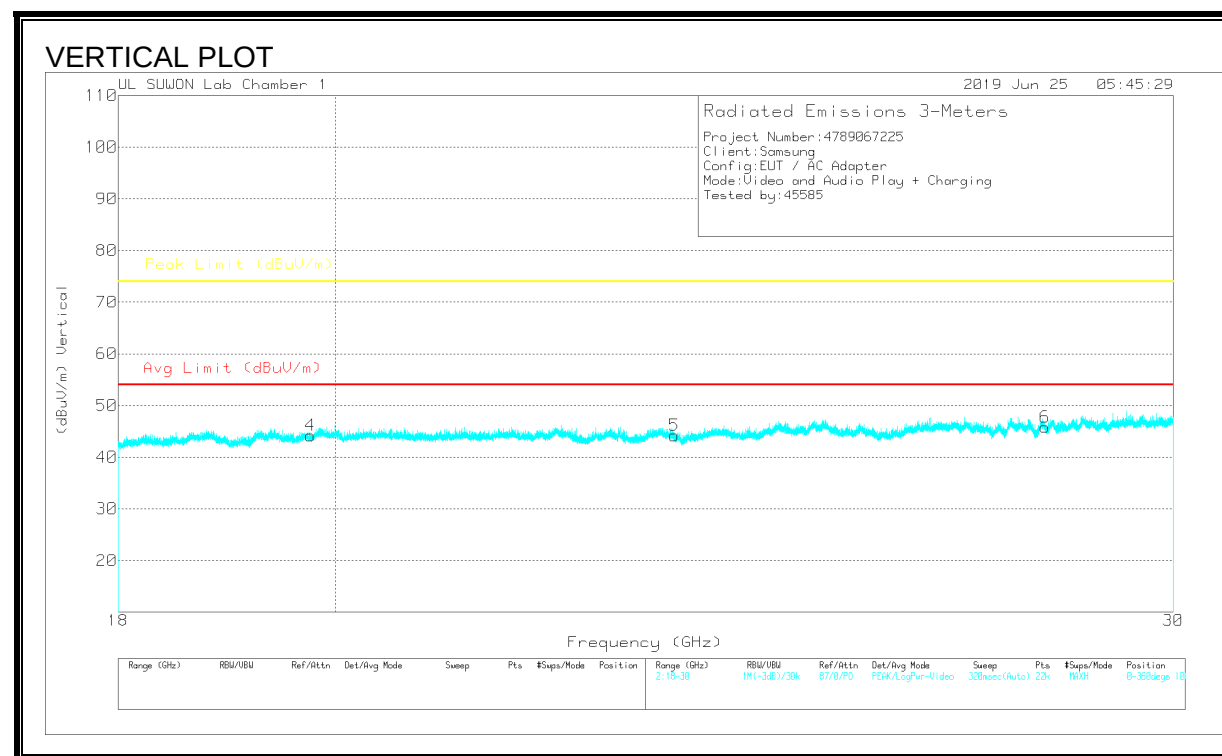
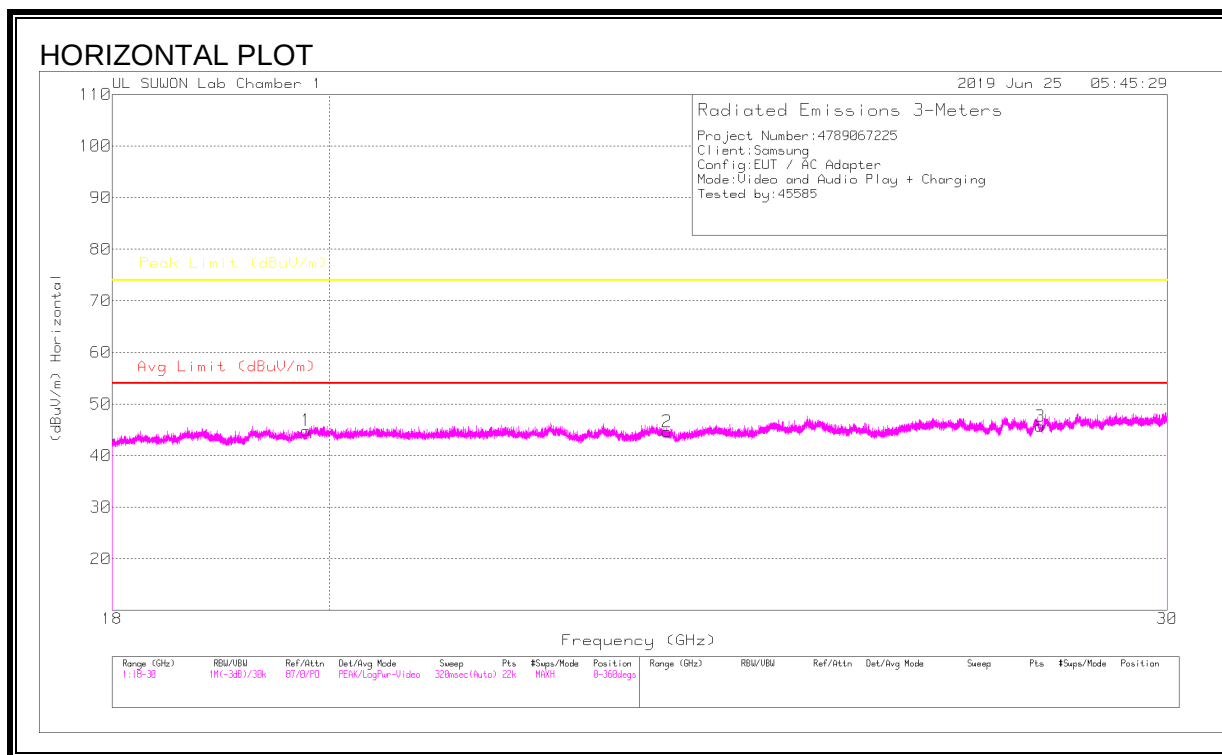
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001687 17	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.92579	34.42	PK	30.9	-35.6	29.72	-	-	74	-44.28	0-360	100	H
2	4.95572	31.26	PK	34.2	-31.5	33.96	-	-	74	-40.04	0-360	100	H
3	11.20984	26.24	PK	38.4	-22.9	41.74	-	-	74	-32.26	0-360	200	H
4	1.92762	34.48	PK	30.9	-35.6	29.78	-	-	74	-44.22	0-360	200	V
5	4.97636	31	PK	34.2	-31.4	33.8	-	-	74	-40.2	0-360	200	V
6	10.98218	25.03	PK	38.2	-23	40.23	-	-	74	-33.77	0-360	200	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

RADIATED EMISSIONS 18GHz to 30GHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

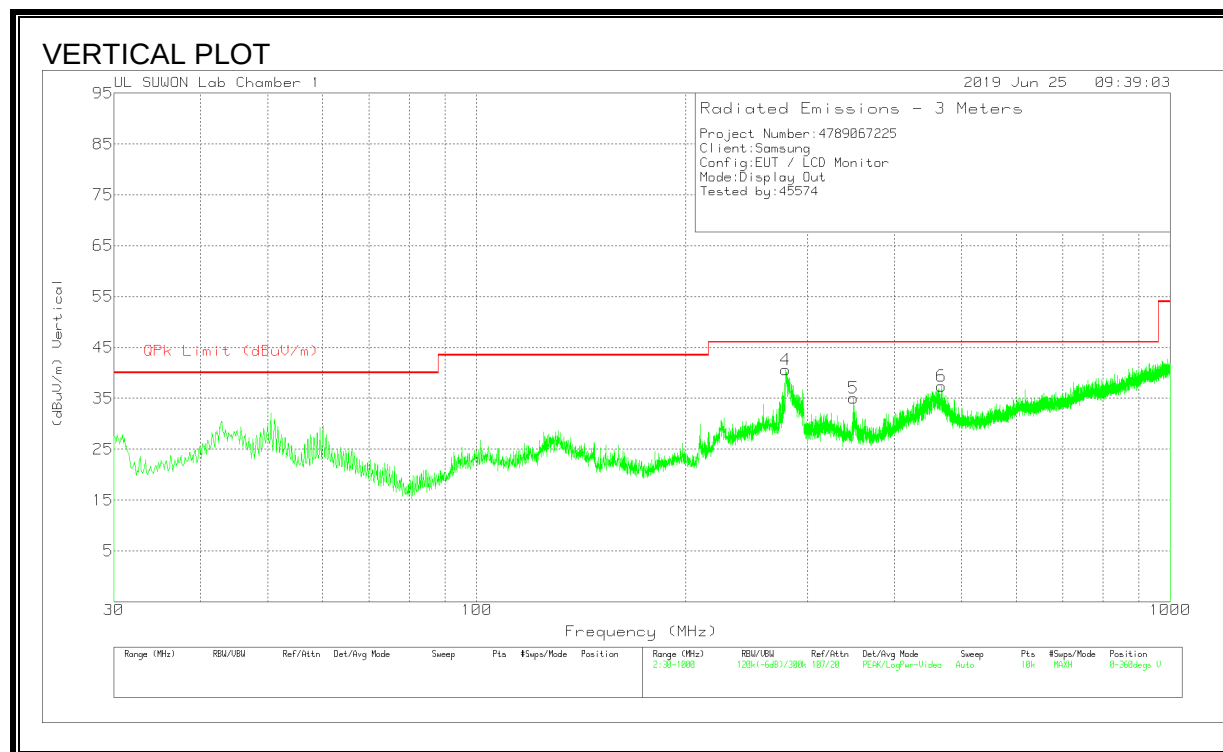
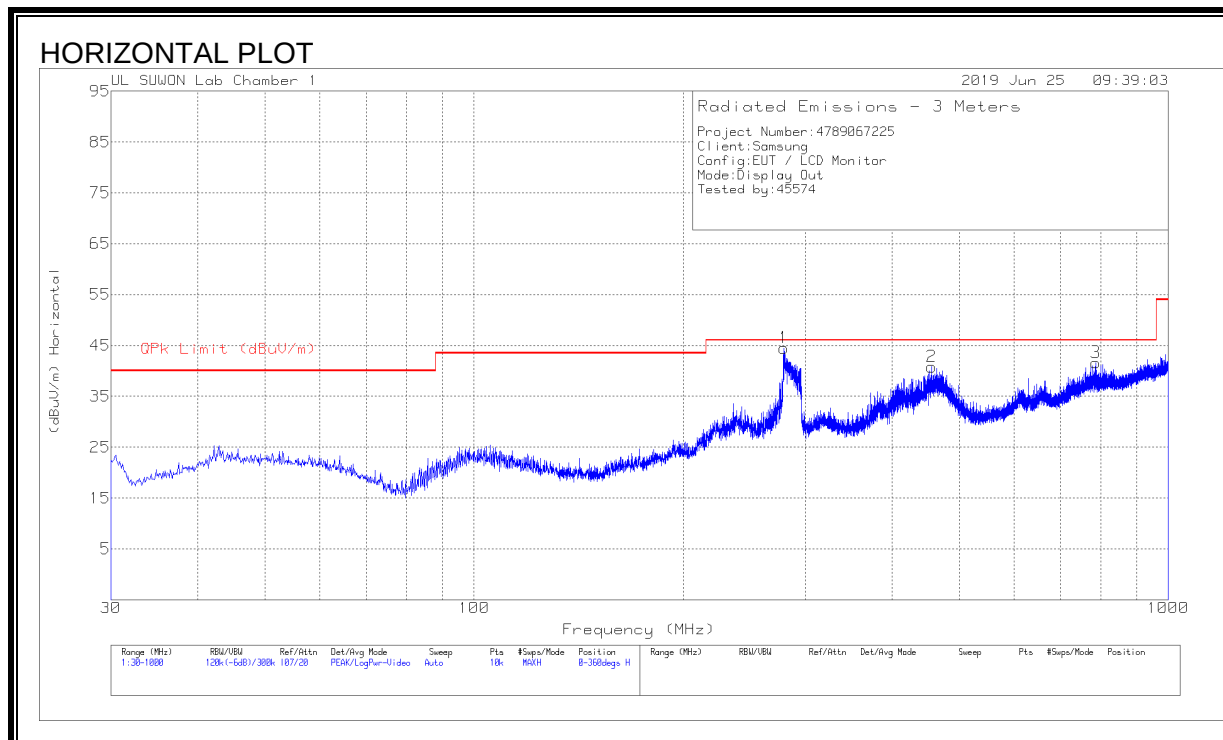
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3116C-PA	18-40GHz[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.77592	21.98	PK	7.3	15.6	44.88	-	-	74	-29.12	0-360	100	H
2	23.54648	16.53	PK	10.9	17.2	44.63	-	-	74	-29.37	0-360	100	H
3	28.2099	14.78	PK	12	18.9	45.68	-	-	74	-28.32	0-360	100	H
4	19.75901	21.4	PK	7.2	15.6	44.2	-	-	74	-29.8	0-360	100	V
5	23.55957	16.11	PK	10.9	17.2	44.21	-	-	74	-29.79	0-360	100	V
6	28.19245	14.93	PK	12	18.9	45.83	-	-	74	-28.17	0-360	100	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

RESULTS Test Case 4

RADIATED EMISSIONS 30 TO 1000 MHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	279.387	53.41	Pk	18.9	-27.8	44.51	46.02	-1.51	0-360	100	H
2	456.315	45.2	Pk	22.3	-26.7	40.8	46.02	-5.22	0-360	100	H
3	786.406	39.86	Pk	26.7	-24.9	41.66	46.02	-4.36	0-360	100	H
4	279.096	49.5	Pk	18.9	-27.8	40.6	46.02	-5.42	0-360	200	V
5	349.13	41.33	Pk	21	-27.3	35.03	46.02	-10.99	0-360	100	V
6	467.664	41.68	Pk	22.3	-26.6	37.38	46.02	-8.64	0-360	100	V

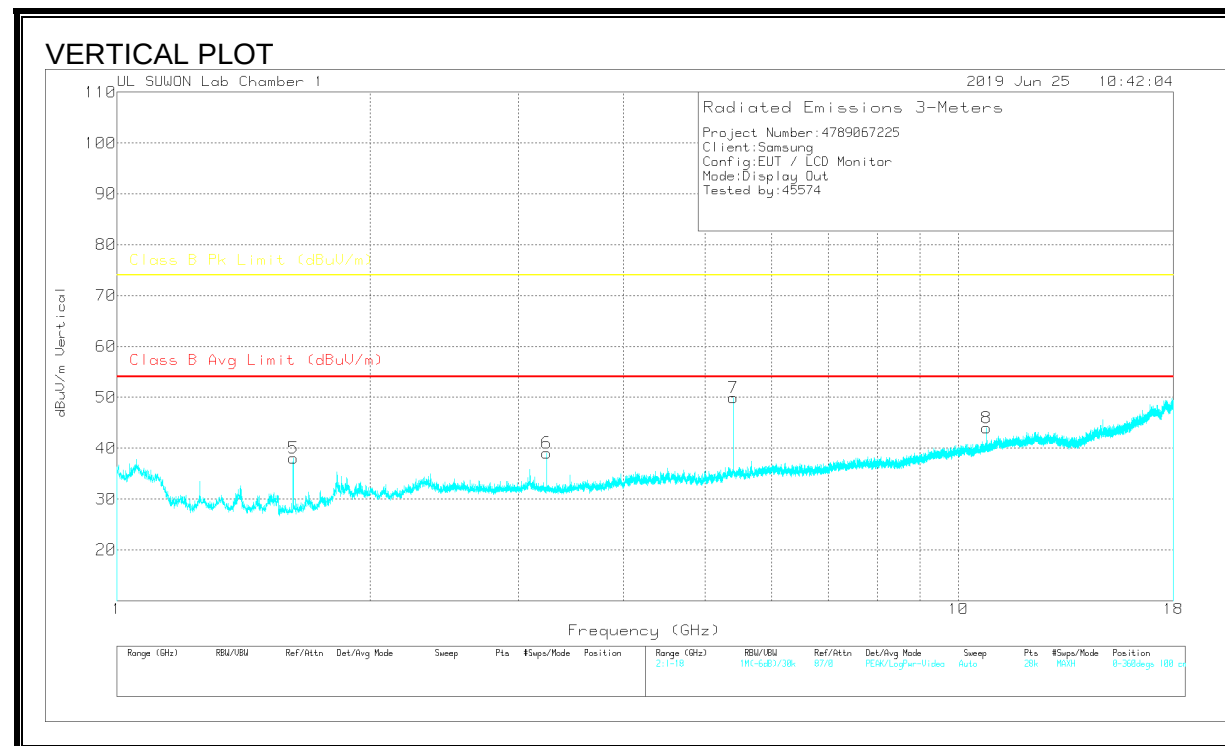
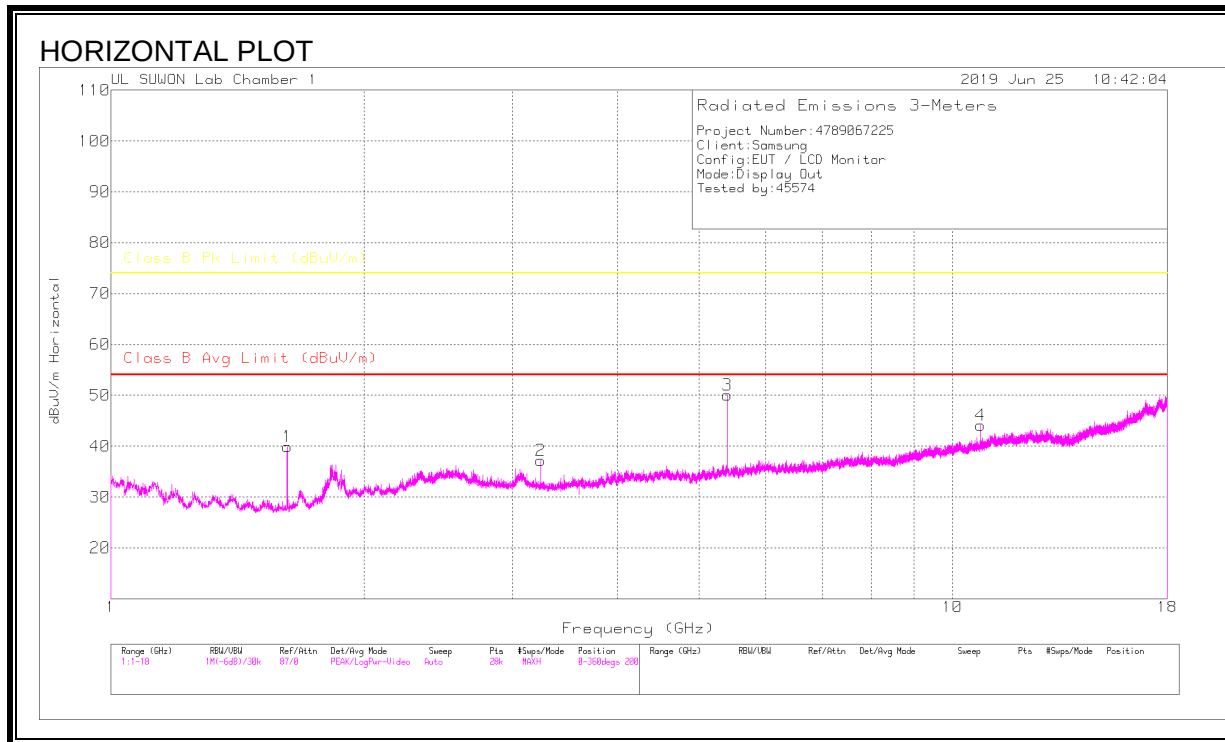
Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
279.387	49.6	Qp	18.9	-27.8	40.7	46.02	-5.32	79	100	H
456.315	40.96	Qp	22.3	-26.7	36.56	46.02	-9.46	137	101	H
786.406	34.39	Qp	26.7	-24.9	36.19	46.02	-9.83	295	108	H
279.096	45.97	Qp	18.9	-27.8	37.07	46.02	-8.95	0	178	V
349.13	36.31	Qp	21	-27.3	30.01	46.02	-16.01	29	116	V
467.664	38.96	Qp	22.3	-26.6	34.66	46.02	-11.36	180	124	V

Qp - Quasi-Peak detector

RADIATED EMISSIONS 1GHz to 18GHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001687 17	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.61983	47.86	PK	28.3	-36.3	39.86	-	-	74	-34.14	0-360	100	H
2	3.23951	38.29	PK	32.7	-33.8	37.19	-	-	74	-36.81	0-360	100	H
3	5.40071	46.83	PK	34.7	-31.5	50.03	-	-	74	-23.97	0-360	100	H
4	10.80188	29.01	PK	37.9	-22.8	44.11	-	-	74	-29.89	0-360	200	H
5	1.61983	46.04	PK	28.3	-36.3	38.04	-	-	74	-35.96	0-360	200	V
6	3.24012	40.17	PK	32.7	-33.8	39.07	-	-	74	-34.93	0-360	100	V
7	5.40071	46.68	PK	34.7	-31.5	49.88	-	-	74	-24.12	0-360	100	V
8	10.80188	28.86	PK	37.9	-22.8	43.96	-	-	74	-30.04	0-360	200	V

PK – Peak Detector

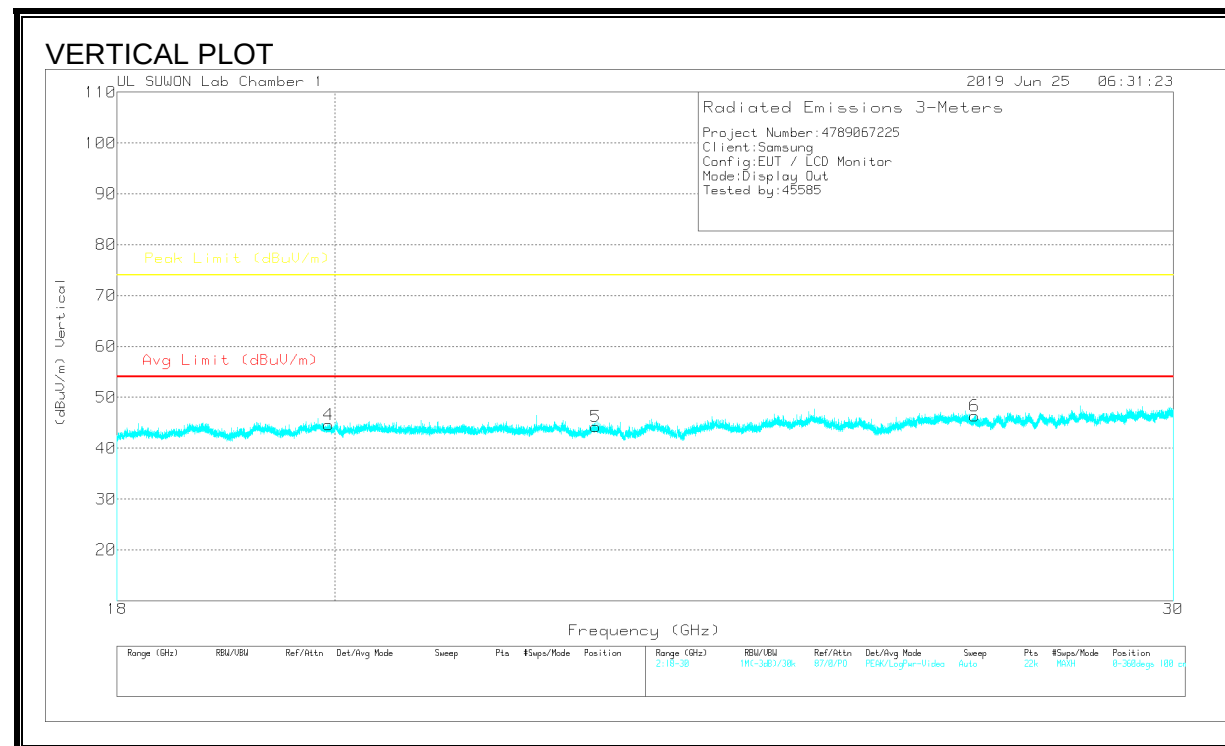
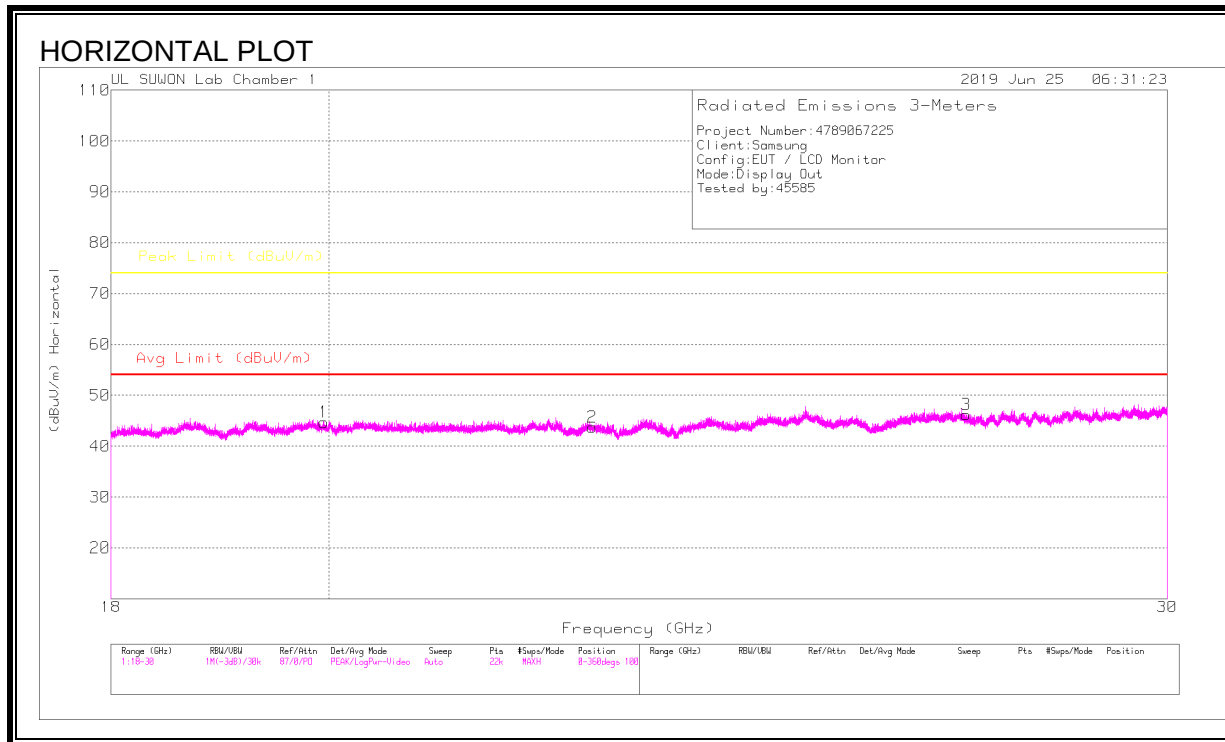
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001687 17	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.61983	49.76	Pk	28.3	-36.3	41.76	-	-	74	-32.24	70	101	H
1.61983	44.81	Ca	28.3	-36.3	36.81	54	-17.19	-	-	70	101	H
3.23951	42.2	Pk	32.7	-33.8	41.1	-	-	74	-32.9	33	100	H
3.23951	32.36	Ca	32.7	-33.8	31.26	54	-22.74	-	-	33	100	H
5.40071	49.1	Pk	34.7	-31.5	52.3	-	-	74	-21.7	218	102	H
5.40071	44.99	Ca	34.7	-31.5	48.19	54	-5.81	-	-	218	102	H
10.80188	37.3	Pk	37.9	-22.8	52.4	-	-	74	-21.6	230	380	H
10.80188	27.22	Ca	37.9	-22.8	42.32	54	-11.68	-	-	230	380	H
1.62006	50.68	Pk	28.3	-36.3	42.68	-	-	74	-31.32	106	273	V
1.62006	46.84	Ca	28.3	-36.3	38.84	54	-15.16	-	-	106	273	V
3.24006	44.51	Pk	32.7	-33.8	43.41	-	-	74	-30.59	141	100	V
3.24006	37.59	Ca	32.7	-33.8	36.49	54	-17.51	-	-	141	100	V
5.40076	51.67	Pk	34.7	-31.5	54.87	-	-	74	-19.13	194	120	V
5.40076	45.83	Ca	34.7	-31.5	49.03	54	-4.97	-	-	206	120	V
10.80162	36.7	Pk	37.9	-22.8	51.8	-	-	74	-22.2	140	198	V
10.80162	27.39	Ca	37.9	-22.8	42.49	54	-11.51	-	-	140	198	V

Pk - Peak detector

Ca - CISPR average detection

RADIATED EMISSIONS 18GHz to 30GHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

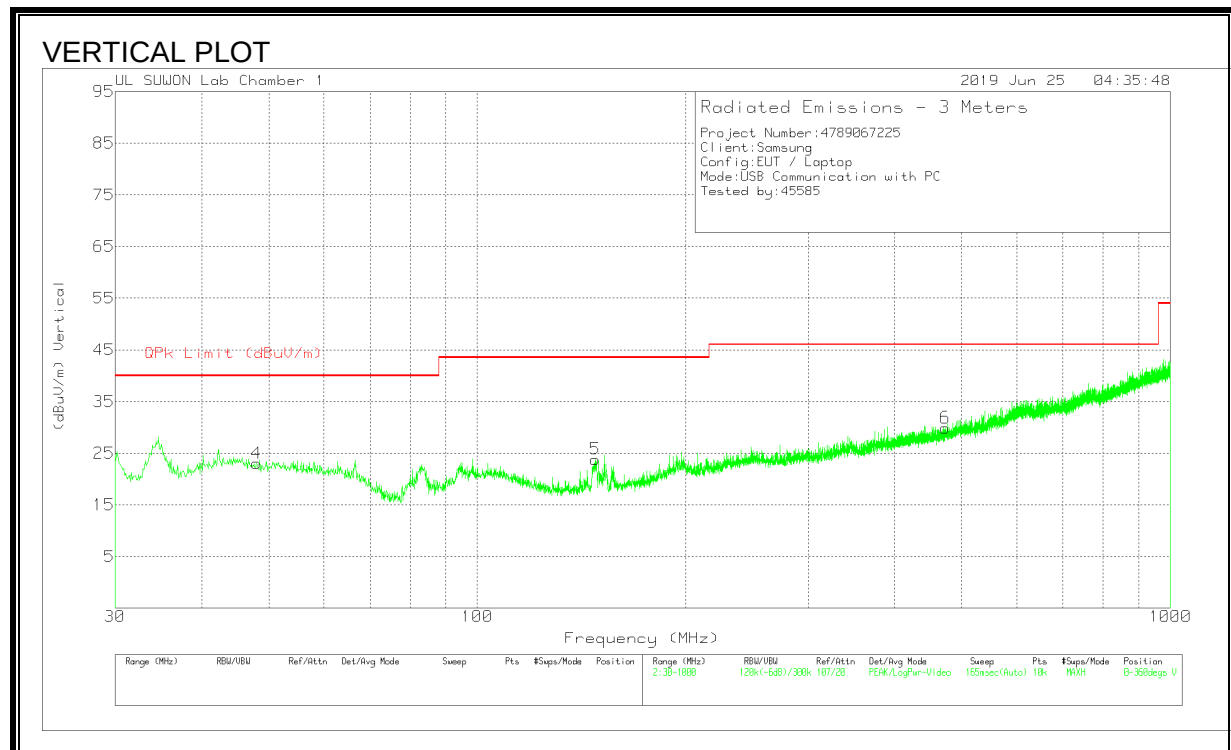
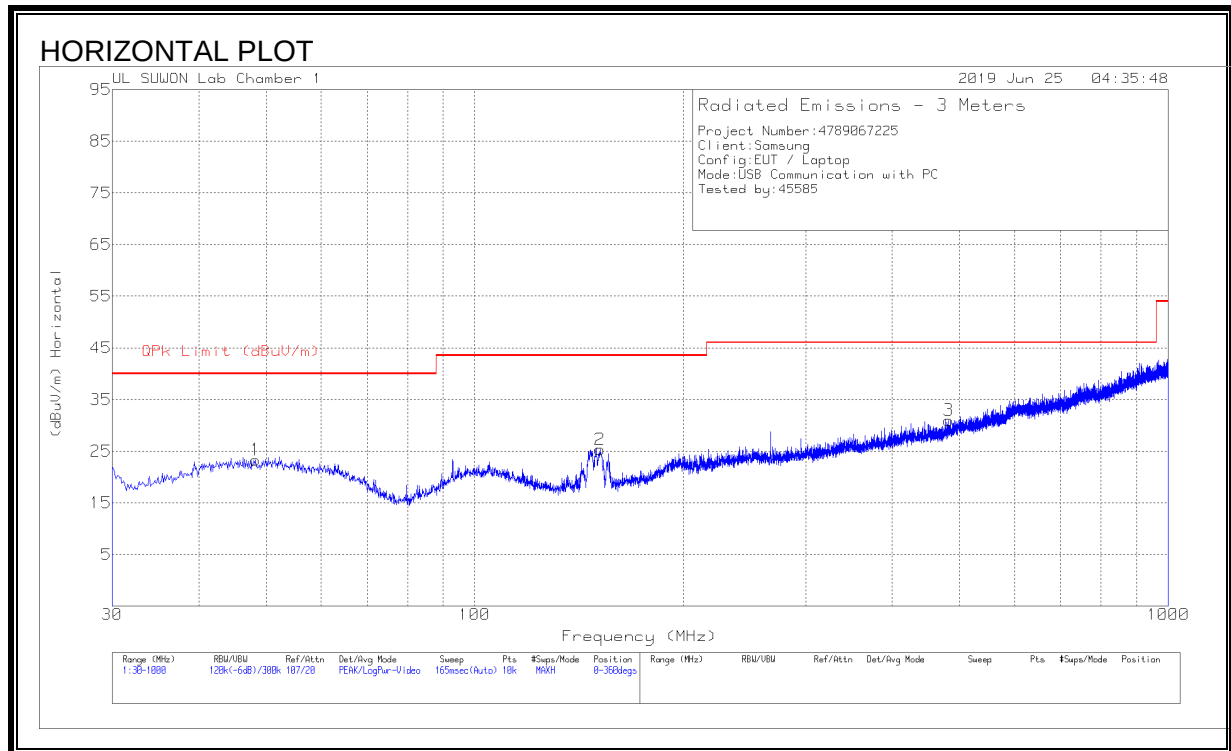
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3116C-PA	18-40GHz[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.95428	21.27	PK	7.7	15.7	44.67	-	-	74	-29.33	0-360	100	H
2	22.71742	15.65	PK	11.2	16.9	43.75	-	-	74	-30.25	0-360	100	H
3	27.21668	17.25	PK	10.5	18.5	46.25	-	-	74	-27.75	0-360	100	H
4	19.939	21.25	PK	7.7	15.7	44.65	-	-	74	-29.35	0-360	100	V
5	22.68797	16.24	PK	11.2	16.8	44.24	-	-	74	-29.76	0-360	100	V
6	27.25213	17.09	PK	10.6	18.6	46.29	-	-	74	-27.71	0-360	100	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

RESULTS Test Case 5

RADIATED EMISSIONS 30 TO 1000 MHz



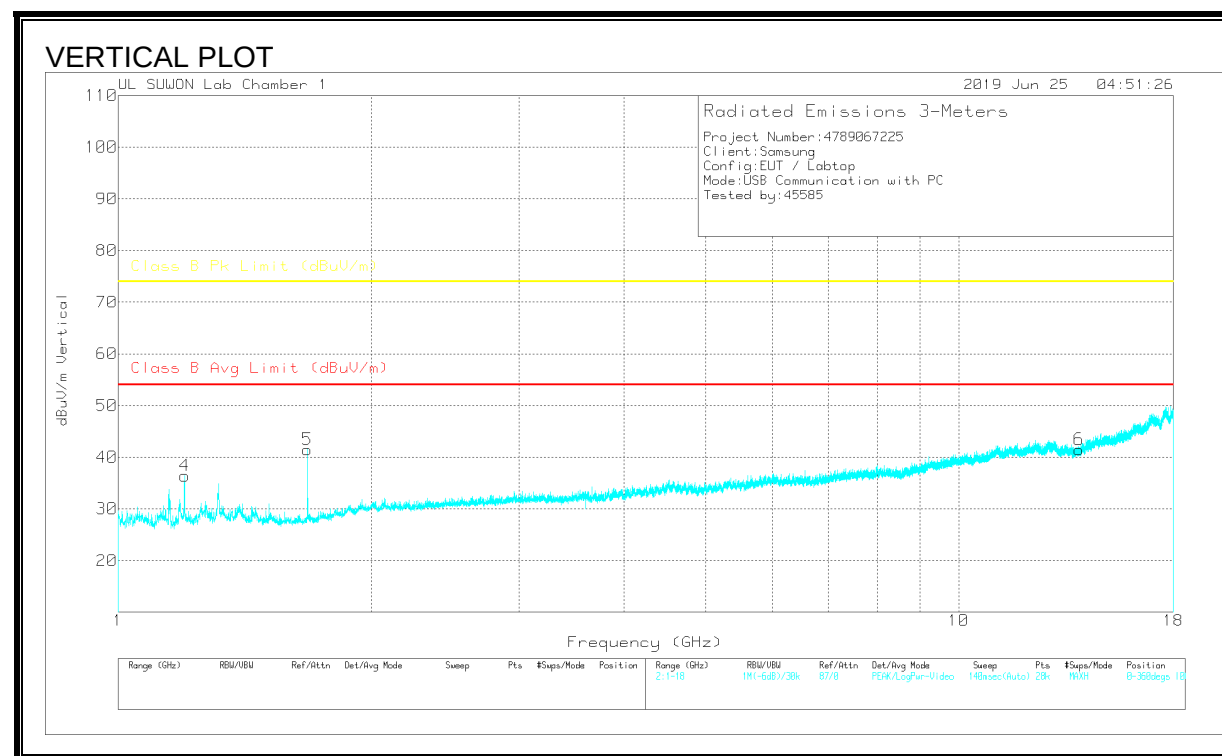
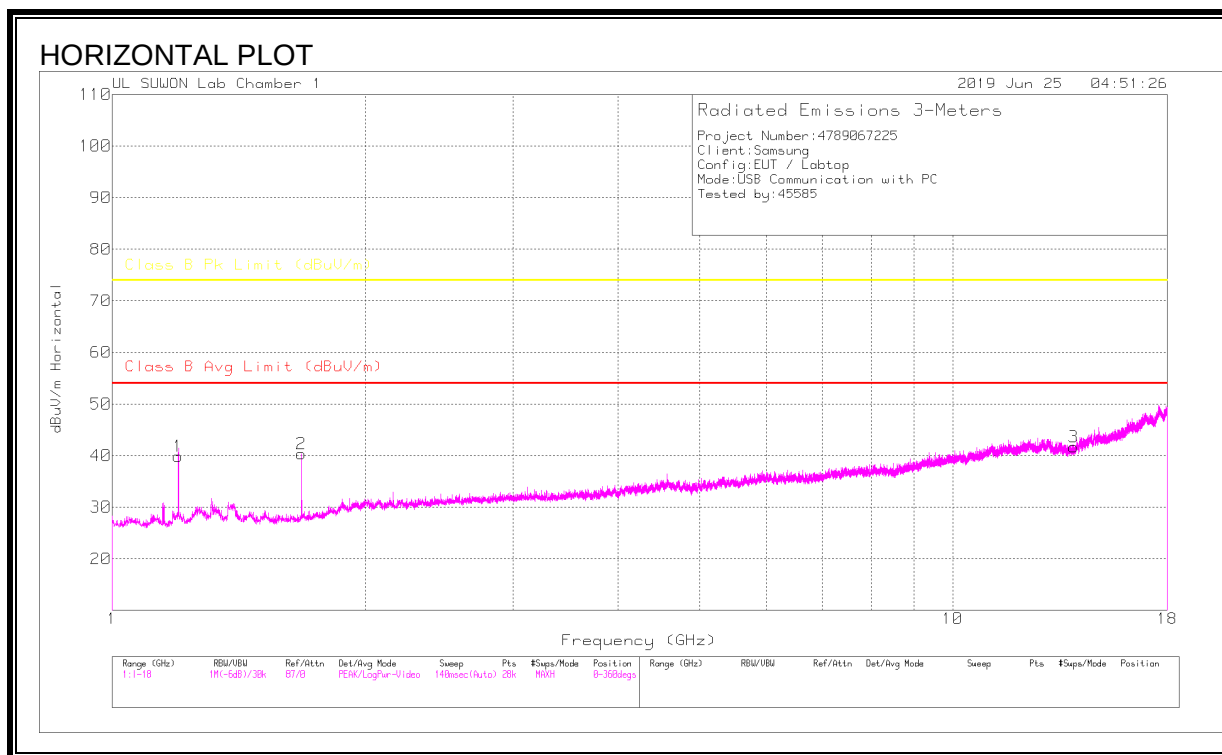
HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.333	34.02	Pk	19.8	-30.5	23.32	40	-16.68	0-360	400	H
2	151.541	40.24	Pk	14.1	-29	25.34	43.52	-18.18	0-360	200	H
3	482.117	34.79	Pk	22.7	-26.5	30.99	46.02	-15.03	0-360	100	H
4	48.042	33.73	Pk	19.8	-30.5	23.03	40	-16.97	0-360	100	V
5	148.049	38.83	Pk	14.1	-29.1	23.83	43.52	-19.69	0-360	200	V
6	473.678	34.1	Pk	22.4	-26.6	29.9	46.02	-16.12	0-360	300	V

Pk - Peak detector

RADIATED EMISSIONS 1GHz to 18GHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001687 17	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.19912	48.36	PK	28.6	-37.1	39.86	-	-	74	-34.14	0-360	200	H
2	1.67993	47.94	PK	28.5	-36.1	40.34	-	-	74	-33.66	0-360	100	H
3	13.92773	26.39	PK	38.8	-23.5	41.69	-	-	74	-32.31	0-360	100	H
4	1.19973	44.91	PK	28.6	-37.1	36.41	-	-	74	-37.59	0-360	200	V
5	1.67932	49.08	PK	28.5	-36.1	41.48	-	-	74	-32.52	0-360	100	V
6	13.90344	26.19	PK	38.8	-23.5	41.49	-	-	74	-32.51	0-360	100	V

PK – Peak Detector

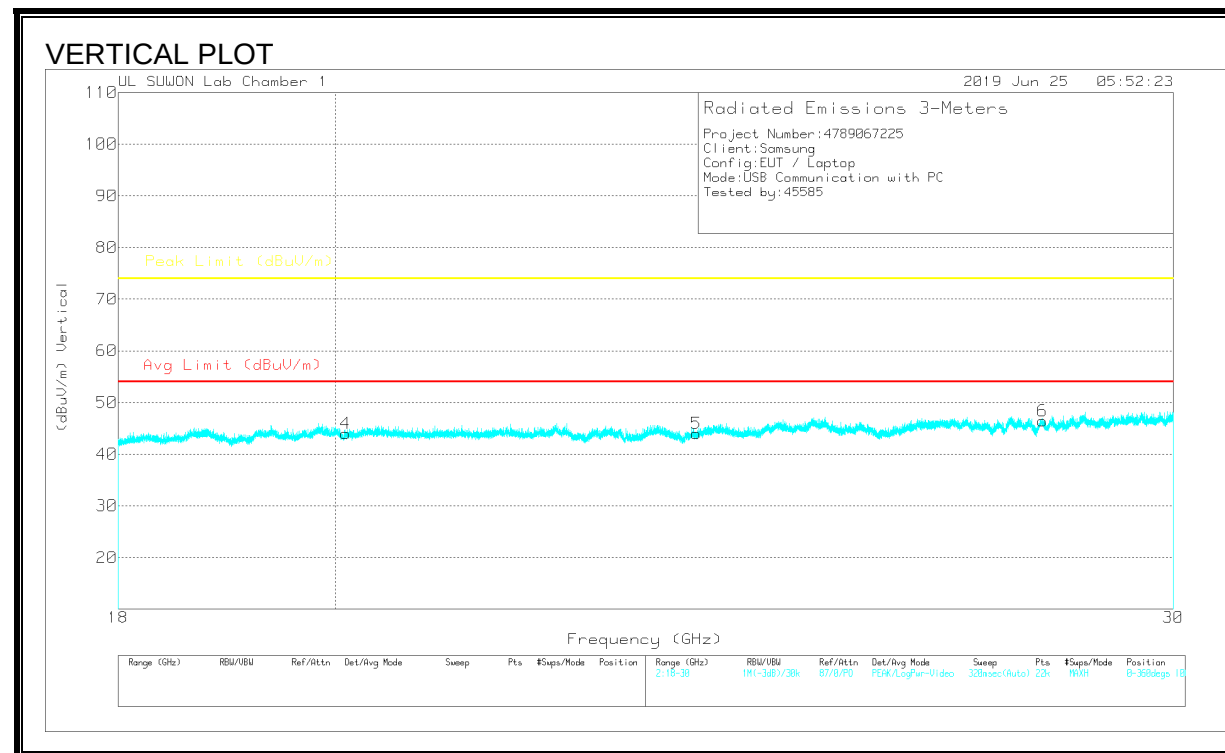
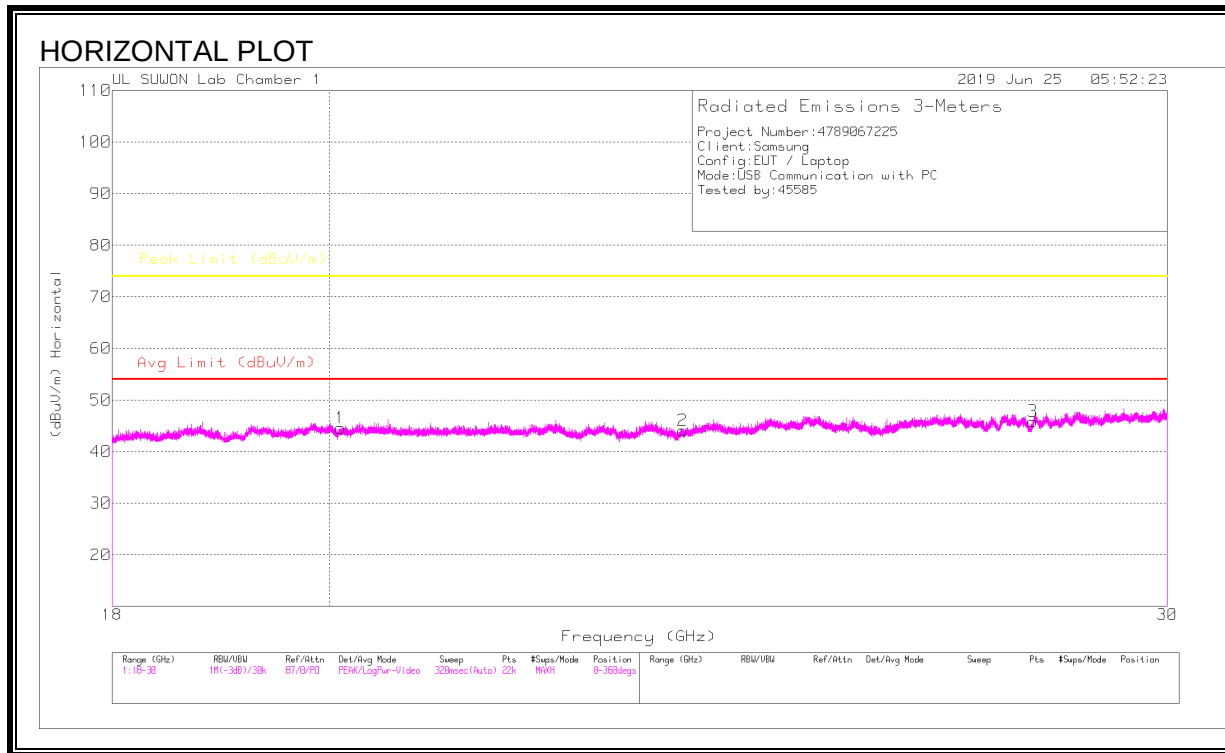
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001687 17	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.19912	45.02	Pk	28.6	-37.1	36.52	-	-	74	-37.48	335	280	H
1.19912	31.55	Ca	28.6	-37.1	23.05	54	-30.95	-	-	335	280	H
1.19912	44.74	Pk	28.6	-37.1	36.24	-	-	74	-37.76	258	102	V
1.19912	31.49	Ca	28.6	-37.1	22.99	54	-31.01	-	-	258	102	V
1.67993	42.18	Pk	28.5	-36.1	34.58	-	-	74	-39.42	38	362	V
1.67993	30.44	Ca	28.5	-36.1	22.84	54	-31.16	-	-	38	362	V
1.67993	43.58	Pk	28.5	-36.1	35.98	-	-	74	-38.02	59	132	H
1.67993	30.44	Ca	28.5	-36.1	22.84	54	-31.16	-	-	59	132	H

Pk – Peak detector

Ca – CISPR average detection

RADIATED EMISSIONS 18GHz to 30GHz



HORIZONTAL AND VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3116C-PA	18-40GHz[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	20.10536	20.76	PK	8.1	15.7	44.56	-	-	74	-29.44	0-360	100	H
2	23.7292	15.98	PK	10.9	17.2	44.08	-	-	74	-29.92	0-360	100	H
3	28.10682	15.05	PK	11.9	18.9	45.85	-	-	74	-28.15	0-360	100	H
4	20.09827	20.31	PK	8	15.7	44.01	-	-	74	-29.99	0-360	100	V
5	23.81374	15.99	PK	10.8	17.2	43.99	-	-	74	-30.01	0-360	100	V
6	28.15891	15.53	PK	12	18.9	46.43	-	-	74	-27.57	0-360	100	V

PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

6.2. CONDUCTED EMISSIONS

TEST PROCEDURE

ANSI C63.4: 2014

LIMIT

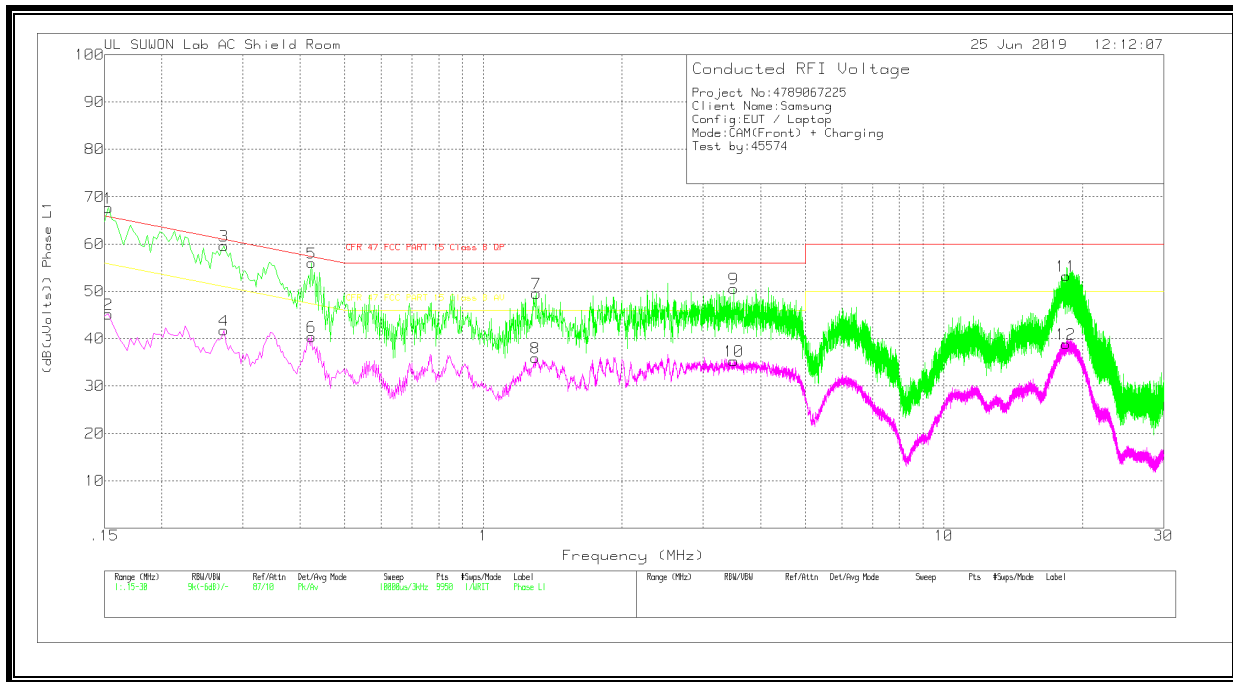
§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

RESULTS

6 WORST EMISSIONS Test Case 1

Line-L1 .15 - 30MHz



LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_10183 6_With ex- cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.153	57.73	Pk	9.8	.1	67.63	65.84	1.79	-	-
2	.153	35.26	Av	9.8	.1	45.16	-	-	55.84	-10.68
3	.273	49.69	Pk	9.7	.2	59.59	61.03	-1.44	-	-
4	.273	31.86	Av	9.7	.2	41.76	-	-	51.03	-9.27
5	.423	45.89	Pk	9.9	.2	55.99	57.39	-1.4	-	-
6	.423	30.3	Av	9.9	.2	40.4	-	-	47.39	-6.99
7	1.302	39.48	Pk	9.8	.3	49.58	56	-6.42	-	-
8	1.296	25.83	Av	9.8	.3	35.93	-	-	46	-10.07
9	3.495	40.38	Pk	9.9	.3	50.58	56	-5.42	-	-
10	3.495	25.1	Av	9.9	.3	35.3	-	-	46	-10.7
11	18.405	42.41	Pk	10.4	.4	53.21	60	-6.79	-	-
12	18.405	28.08	Av	10.4	.4	38.88	-	-	50	-11.12

Pk - Peak detector

Av - Average detection

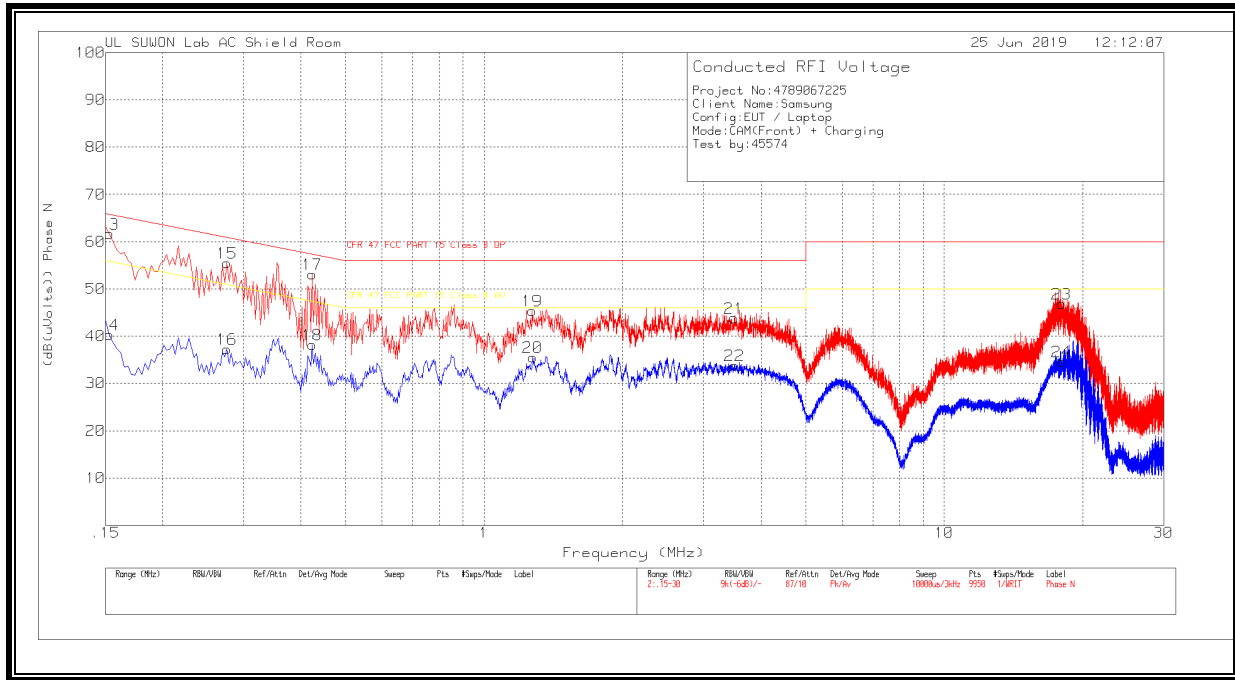
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836 _With ex- cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15225	35.4	Qp	9.8	.1	45.3	65.88	-20.58	-	-
.27225	27.66	Qp	9.7	.2	37.56	61.05	-23.49	-	-
.42375	18.79	Qp	9.9	.2	28.89	57.37	-28.48	-	-
1.30125	30.67	Qp	9.8	.3	40.77	56	-15.23	-	-
3.49515	28.21	Qp	9.9	.3	38.41	56	-17.59	-	-
18.4043	34.19	Qp	10.4	.4	44.99	60	-15.01	-	-

Qp - Quasi-Peak detector

Line-L2 .15 - 30MHz



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.153	51.74	Pk	9.8	.1	61.64	65.84	-4.2	-	-
14	.153	30.42	Av	9.8	.1	40.32	-	-	55.84	-15.52
15	.276	45.57	Pk	9.7	.2	55.47	60.94	-5.47	-	-
16	.276	27.38	Av	9.7	.2	37.28	-	-	50.94	-13.66
17	.423	43.68	Pk	9.2	.2	53.08	57.39	-4.31	-	-
18	.423	28.81	Av	9.2	.2	38.21	-	-	47.39	-9.18
19	1.272	35.26	Pk	9.8	.3	45.36	56	-10.64	-	-
20	1.275	25.44	Av	9.8	.3	35.54	-	-	46	-10.46
21	3.492	33.74	Pk	9.8	.3	43.84	56	-12.16	-	-
22	3.501	23.71	Av	9.8	.3	33.81	-	-	46	-12.19
23	18.006	36.03	Pk	10.4	.4	46.83	60	-13.17	-	-
24	18.006	23.83	Av	10.4	.4	34.63	-	-	50	-15.37

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15375	37.22	Qp	9.8	.1	47.12	65.79	-18.67	-	-
.27525	32.36	Qp	9.7	.2	42.26	60.96	-18.7	-	-
.42375	19.16	Qp	9.2	.2	28.56	57.37	-28.81	-	-

Qp - Quasi-Peak detector

LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_10183 6_With ex- cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.462	39.69	Pk	9.9	.2	49.79	56.66	-6.87	-	-
2	.462	33.53	Av	9.9	.2	43.63	-	-	46.66	-3.03
3	.879	37.98	Pk	9.8	.3	48.08	56	-7.92	-	-
4	.876	29.9	Av	9.8	.3	40	-	-	46	-6
5	1.377	38.9	Pk	9.8	.3	49	56	-7	-	-
6	1.383	27.47	Av	9.8	.3	37.57	-	-	46	-8.43
7	2.508	38.89	Pk	10	.3	49.19	56	-6.81	-	-
8	2.508	28.6	Av	10	.3	38.9	-	-	46	-7.1
9	3.459	39.76	Pk	9.9	.3	49.96	56	-6.04	-	-
10	3.465	25.26	Av	9.9	.3	35.46	-	-	46	-10.54
11	18.672	41.62	Pk	10.4	.4	52.42	60	-7.58	-	-
12	18.672	29.58	Av	10.4	.4	40.38	-	-	50	-9.62

Pk - Peak detector

Av - Average detection

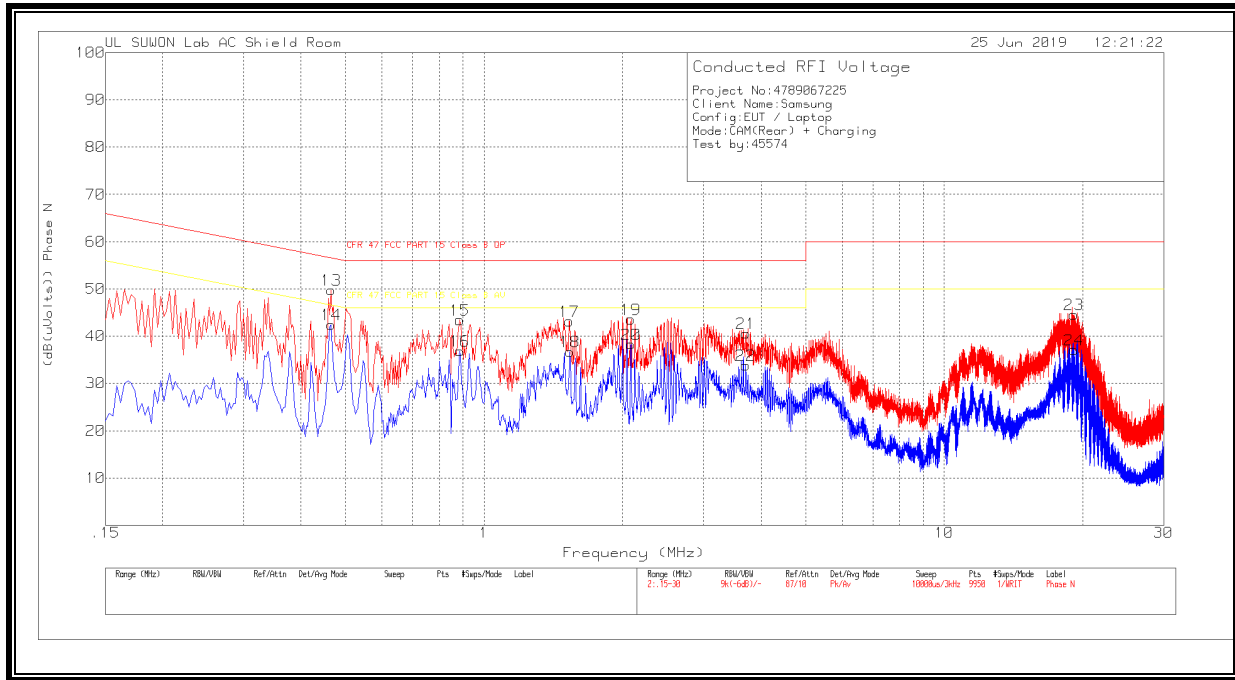
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836 _With ex- cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.46275	27.75	Qp	9.9	.2	37.85	56.64	-18.79	-	-
.87915	33.17	Qp	9.8	.3	43.27	56	-12.73	-	-
1.37775	32.09	Qp	9.8	.3	42.19	56	-13.81	-	-
2.50725	28.12	Qp	10	.3	38.42	56	-17.58	-	-
3.45975	23.86	Qp	9.9	.3	34.06	56	-21.94	-	-
18.6713	27.65	Qp	10.4	.4	38.45	60	-21.55	-	-

Qp - Quasi-Peak detector

Line-L2 .15 - 30MHz



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_10183 6_With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.465	39.96	Pk	9.6	.2	49.76	56.6	-6.84	-	-
14	.465	32.64	Av	9.6	.2	42.44	-	-	46.6	-4.16
15	.885	33.36	Pk	9.8	.3	43.46	56	-12.54	-	-
16	.885	26.79	Av	9.8	.3	36.89	-	-	46	-9.11
17	1.5315	33.19	Pk	9.7	.3	43.19	56	-12.81	-	-
18	1.536	26.75	Av	9.7	.3	36.75	-	-	46	-9.25
19	2.085	33.56	Pk	9.7	.3	43.56	56	-12.44	-	-
20	2.085	28.3	Av	9.7	.3	38.3	-	-	46	-7.7
21	3.708	30.47	Pk	9.8	.3	40.57	56	-15.43	-	-
22	3.702	23.74	Av	9.8	.3	33.84	-	-	46	-12.16
23	19.161	33.67	Pk	10.5	.4	44.57	60	-15.43	-	-
24	19.164	26.2	Av	10.5	.4	37.1	-	-	50	-12.9

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

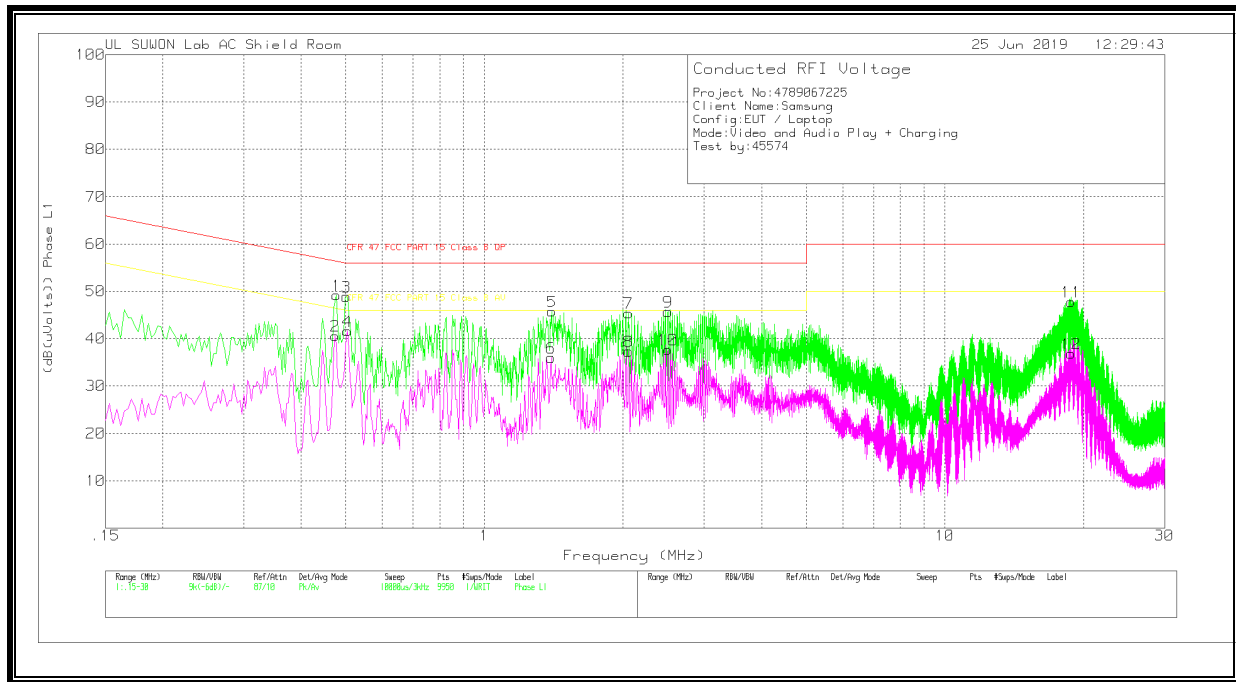
Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836 _With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.46575	25.82	Qp	9.6	.2	35.62	56.59	-20.97	-	-

Qp - Quasi-Peak detector

6 WORST EMISSIONS Test Case 3

Line-L1 .15 - 30MHz



LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.477	39.09	Pk	9.9	.2	49.19	56.39	-7.2	-	-
2	.474	30.48	Av	9.9	.2	40.58	-	-	46.44	-5.86
3	.501	38.82	Pk	9.9	.2	48.92	56	-7.08	-	-
4	.504	31.51	Av	9.9	.2	41.61	-	-	46	-4.39
5	1.401	35.65	Pk	9.8	.3	45.75	56	-10.25	-	-
6	1.395	25.91	Av	9.8	.3	36.01	-	-	46	-9.99
7	2.055	35.3	Pk	9.8	.3	45.4	56	-10.6	-	-
8	2.055	27.25	Av	9.8	.3	37.35	-	-	46	-8.65
9	2.505	35.39	Pk	10	.3	45.69	56	-10.31	-	-
10	2.502	27.37	Av	10	.3	37.67	-	-	46	-8.33
11	18.807	36.98	Pk	10.4	.4	47.78	60	-12.22	-	-
12	18.807	26.04	Av	10.4	.4	36.84	-	-	50	-13.16

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.47775	32.71	Qp	9.9	.2	42.81	56.38	-13.57	-	-
.47475	23.52	Qp	9.9	.2	33.62	56.43	-22.81	-	-
2.50575	29.29	Qp	10	.3	39.59	56	-16.41	-	-

Qp - Quasi-Peak detector

UL SUWON Lab AC Shield Room

25 Jun 2019 12:29:43

Conducted RFI Voltage

Project No: 4789067225
 Client Name: Samsung
 Config: EUT / Laptop
 Mode: Video and Audio Play + Charging
 Test by: 49574

CFR 47 FCC PART 15 Class B DP

CFR 47 FCC PART 15 Class B AC

dB(μVolts) Phase N

Frequency (MHz)

Range (MHz)	RBW/AW	Ref/Att n	Det/Avg Mode	Sweep	Pls	#Seps/Mode	Label
2: 15-30	9K(-6dB)/-	87/18	Pk/Rw				

Range	Pls	#Seps/Mode	Label
10000.00/3dB	9550	1/WRIT	Phase N

LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

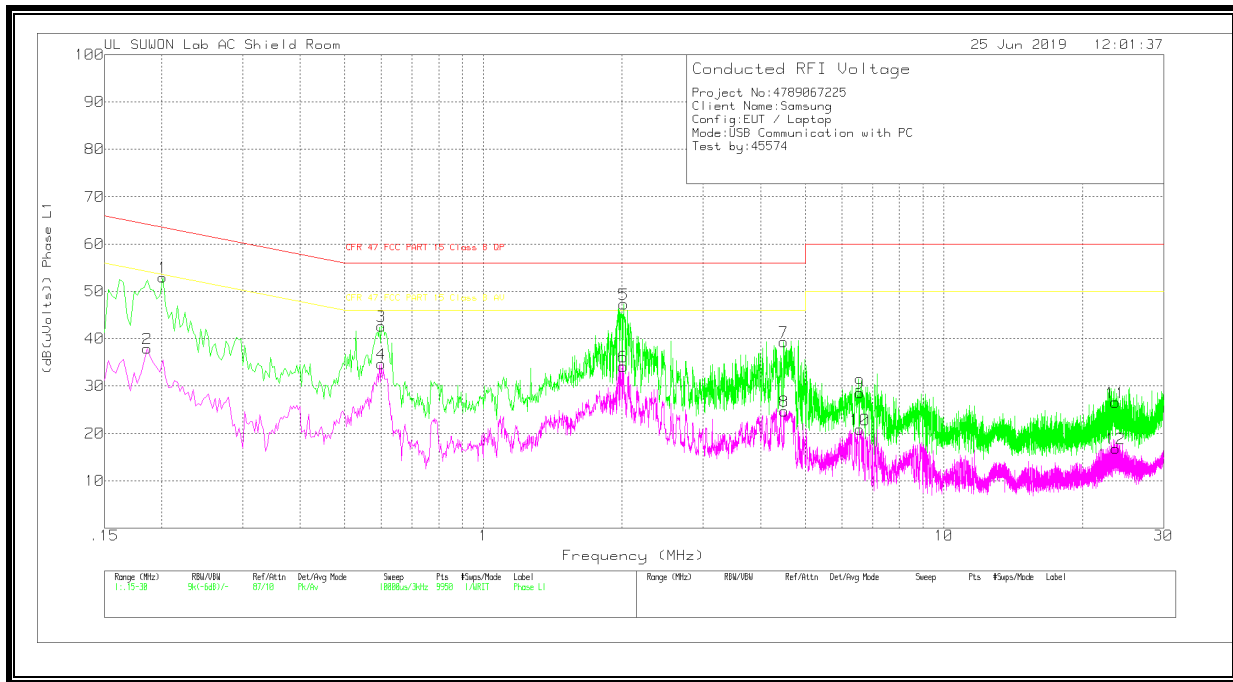
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_10183 6_With ex- cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.48	35.31	Pk	9.7	.2	45.21	56.34	-11.13	-	-
14	.477	28.21	Av	9.7	.2	38.11	-	-	46.39	-8.28
15	1.461	31.07	Pk	9.7	.3	41.07	56	-14.93	-	-
16	1.464	23.31	Av	9.7	.3	33.31	-	-	46	-12.69
17	2.025	30.66	Pk	9.7	.3	40.66	56	-15.34	-	-
18	1.998	26.45	Av	9.7	.3	36.45	-	-	46	-9.55
19	2.553	28.94	Pk	9.7	.3	38.94	56	-17.06	-	-
20	2.55	25.32	Av	9.7	.3	35.32	-	-	46	-10.68
21	3.024	28.44	Pk	9.7	.3	38.44	56	-17.56	-	-
22	3.03	22.18	Av	9.7	.3	32.18	-	-	46	-13.82
23	19.395	31.15	Pk	10.5	.4	42.05	60	-17.95	-	-
24	19.395	25.22	Av	10.5	.4	36.12	-	-	50	-13.88

Pk - Peak detector

Av - Average detection

6 WORST EMISSIONS Test Case 5

Line-L1 .15 - 30MHz



LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_10183 6_With ex- cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.201	42.86	Pk	9.9	.2	52.96	63.57	-10.61	-	-
2	.186	27.71	Av	10	.2	37.91	-	-	54.21	-16.3
3	.6	32.55	Pk	9.9	.2	42.65	56	-13.35	-	-
4	.6	24.56	Av	9.9	.2	34.66	-	-	46	-11.34
5	2.016	37.22	Pk	9.8	.3	47.32	56	-8.68	-	-
6	2.01	24.02	Av	9.8	.3	34.12	-	-	46	-11.88
7	4.488	29.24	Pk	9.8	.3	39.34	56	-16.66	-	-
8	4.503	14.59	Av	9.8	.3	24.69	-	-	46	-21.31
9	6.567	18.36	Pk	9.9	.3	28.56	60	-31.44	-	-
10	6.567	10.62	Av	9.9	.3	20.82	-	-	50	-29.18
11	23.571	15.57	Pk	10.6	.4	26.57	60	-33.43	-	-
12	23.598	5.78	Av	10.6	.4	16.78	-	-	50	-33.22

Pk - Peak detector

Av - Average detection

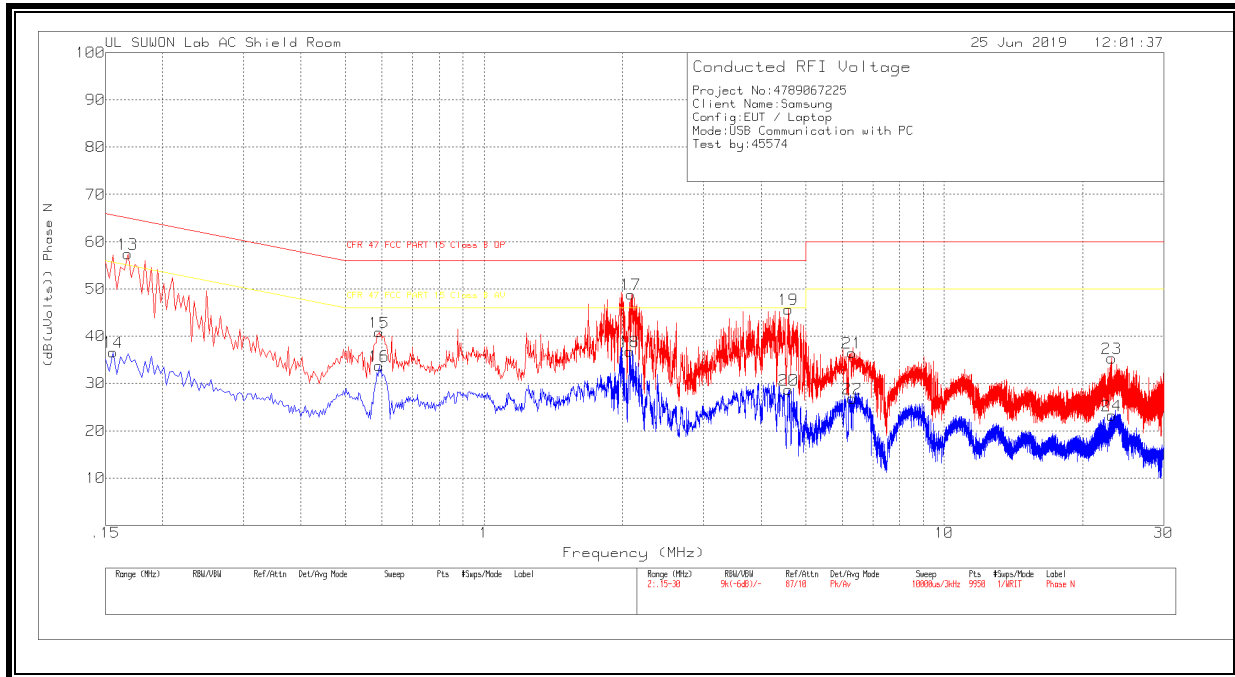
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836 _With ex- cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
2.01525	31.93	Qp	9.8	.3	42.03	56	-13.97	-	-

Qp - Quasi-Peak detector

Line-L2 .15 - 30MHz



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.168	47.31	Pk	10	.1	57.41	65.06	-7.65	-	-
14	.156	26.69	Av	9.8	.1	36.59	-	-	55.67	-19.08
15	.591	30.72	Pk	9.9	.2	40.82	56	-15.18	-	-
16	.591	23.64	Av	9.9	.2	33.74	-	-	46	-12.26
17	2.085	38.82	Pk	9.7	.3	48.82	56	-7.18	-	-
18	2.07	26.77	Av	9.7	.3	36.77	-	-	46	-9.23
19	4.584	35.57	Pk	9.8	.3	45.67	56	-10.33	-	-
20	4.59	18.59	Av	9.8	.3	28.69	-	-	46	-17.31
21	6.3	26.38	Pk	9.8	.3	36.48	60	-23.52	-	-
22	6.312	16.73	Av	9.8	.3	26.83	-	-	50	-23.17
23	23.139	24.34	Pk	10.6	.4	35.34	60	-24.66	-	-
24	23.145	12.24	Av	10.6	.4	23.24	-	-	50	-26.76

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

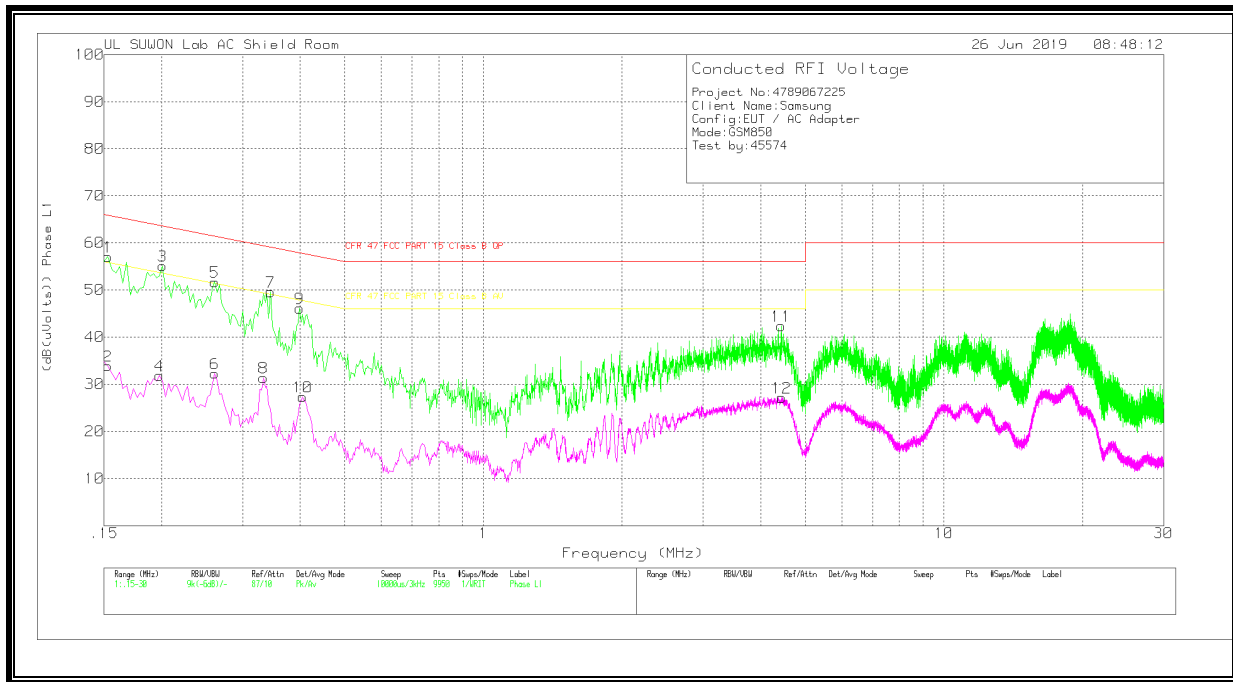
Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.16725	40.27	Qp	10	.1	50.37	65.1	-14.73	-	-
2.08575	32.58	Qp	9.7	.3	42.58	56	-13.42	-	-

Qp - Quasi-Peak detector

6 WORST EMISSIONS Test Case 6

Line-L1 .15 - 30MHz



LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_10183 6_With ex-cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.153	47.18	Pk	9.8	.1	57.08	65.84	-8.76	-	-
2	.153	23.97	Av	9.8	.1	33.87	-	-	55.84	-21.97
3	.201	45.02	Pk	9.9	.2	55.12	63.57	-8.45	-	-
4	.198	21.72	Av	9.9	.2	31.82	-	-	53.69	-21.87
5	.261	41.79	Pk	9.7	.2	51.69	61.4	-9.71	-	-
6	.261	22.38	Av	9.7	.2	32.28	-	-	51.4	-19.12
7	.345	39.51	Pk	9.9	.2	49.61	59.08	-9.47	-	-
8	.333	21.36	Av	9.8	.2	31.36	-	-	49.38	-18.02
9	.399	36.02	Pk	9.9	.2	46.12	57.87	-11.75	-	-
10	.405	17.22	Av	9.9	.2	27.32	-	-	47.75	-20.43
11	4.437	32.26	Pk	9.8	.3	42.36	56	-13.64	-	-
12	4.443	17.05	Av	9.8	.3	27.15	-	-	46	-18.85

Pk - Peak detector

Av - Average detection

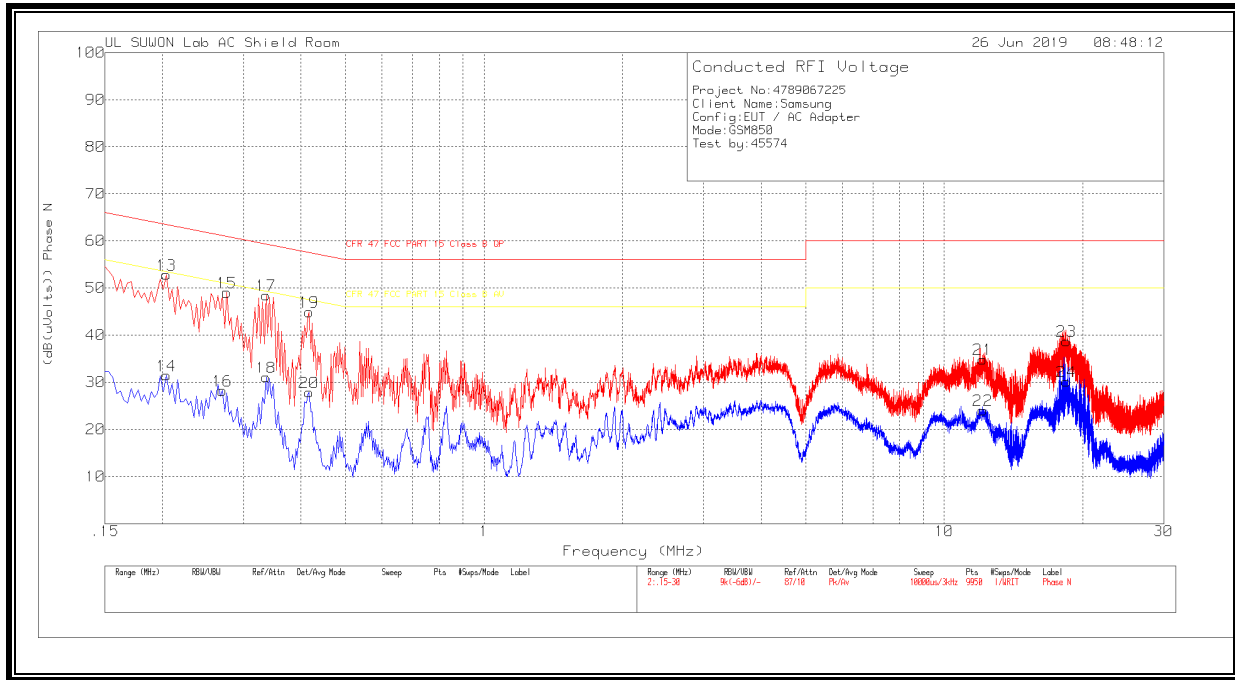
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836 _With ex-cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15225	32.66	Qp	9.8	.1	42.56	65.88	-23.32	-	-
.20115	30.69	Qp	9.9	.2	40.79	63.56	-22.77	-	-
.26025	27.45	Qp	9.7	.2	37.35	61.42	-24.07	-	-
.34425	25.42	Qp	9.9	.2	35.52	59.1	-23.58	-	-

Qp - Quasi-Peak detector

Line-L2 .15 - 30MHz



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_10183 6_With ex- cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.204	42.72	Pk	9.9	.2	52.82	63.45	-10.63	-	-
14	.204	21.35	Av	9.9	.2	31.45	-	-	53.45	-22
15	.276	39.16	Pk	9.7	.2	49.06	60.94	-11.88	-	-
16	.27	18.33	Av	9.7	.2	28.23	-	-	51.12	-22.89
17	.336	38.47	Pk	9.8	.2	48.47	59.3	-10.83	-	-
18	.336	21.07	Av	9.8	.2	31.07	-	-	49.3	-18.23
19	.417	35.53	Pk	9.2	.2	44.93	57.51	-12.58	-	-
20	.417	18.46	Av	9.2	.2	27.86	-	-	47.51	-19.65
21	12.138	24.44	Pk	10.1	.3	34.84	60	-25.16	-	-
22	12.144	13.65	Av	10.1	.3	24.05	-	-	50	-25.95
23	18.453	27.92	Pk	10.4	.4	38.72	60	-21.28	-	-
24	18.453	19.34	Av	10.4	.4	30.14	-	-	50	-19.86

Pk - Peak detector

Av - Average detection