



CERTIFICATION TEST REPORT

Report Number. : 4790089631-E12V1

Applicant : SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA

Model : SM-S908B/DS

FCC ID : A3LSMS908B

EUT Description : GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax,
NFC, WPT and UWB

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

Date Of Issue:

2021-12-20

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ACCREDITED

Testing Laboratory

TL-637

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2021-12-20	Initial issue	Steven(Sangyun) Kim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC, WPT and UWB

MODEL NUMBER: SM-S908B/DS

SERIAL NUMBER: R3CRB0V30VF / Version 2(RADIATED)
R3CRB0V2YDW / Version 3(RADIATED);

DATE TESTED: 2021-12-09 ~ 2021-12-20;

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15B	Pass

UL Korea, Ltd. 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 Korea, Ltd. 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 Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. 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 IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:



Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Steven(Sangyun) Kim
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. ANSI C63.4-2014

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	
<input checked="" type="checkbox"/>	Chamber 1
<input checked="" type="checkbox"/>	Chamber 2
<input checked="" type="checkbox"/>	Chamber 3

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.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:

$EIRP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$

$ERP = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)}$

(Path loss = Signal generator output – PSA reading with substitution antenna)

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, Above 18 GHz	5.58 dB

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

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2007.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC, WPT and UWB.

This test report is 15B JBP test report for chipset version 2 and 3 .
Chipset version 1 15B JBP test report is refer to report number LBE20210654.

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	8.250 GHz from UWB

5.2. TEST MODE

Mode	Description
Test Case 1	Camera(Front) + Charging
Test Case 2	Camera(Rear) + Charging + GSM850
Test Case 3	Video and Audio Play + Earphone
Test Case 4	Video and Audio Play + Display Out
Test Case 5	USB Data Communication with PC

Note: All descriptions were tested under simultaneous operation.

5.3. WORST-CASE ORIENTATION AND MODE

The EUT was investigated in three orthogonal orientations X, Y, Z it was determined that X orientation with data transfer was worst-case; therefore, all final radiated testing was performed with the EUT in X orientation with data transfer.

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	P15S	PF1ARJSC	DoC
AC/DC Adapter	Lenovo	ADLX65YDC3D	8SSA10R16870D1SG09E04YX	N/A
Mouse	LENOVO	MSU1175	4G084D5273B	DoC
LCD Monitor	DELL	U2417H	CN-0767T7-WS2000-83F-BCRL-A07	DoC
Data Cable	SAMSUNG	EP-DN980BBE	N/A	N/A
Charger	SAMSUNG	EP-TA800	R37N9BV0372HM3	N/A
Earphone	SAMSUNG	GH59-15448AYB	N/A	N/A

I/O CABLES

[DIAGRAM 1]

I/O Cable List						
Cable No	Port	# of identical ports	Connect or Type	Cable Type	Cable Length(m)	Remarks
1	AC Power	1	Power	-	Direct	From AC/DC Adapter to AC Main
2	Type C	1	Power	Unshielded	0.7m	From AD/DC Adapter to EUT

[DIAGRAM 2]

I/O Cable List						
Cable No	Port	# of identical ports	Connect or Type	Cable Type	Cable Length(m)	Remarks
1	Earphone	1	Type C	Shielded	0.7m	From Earphone to EUT

* Radiated Test Only

[DIAGRAM 3]

I/O Cable List						
Cable No	Port	# of identical ports	Connect or Type	Cable Type	Cable Length(m)	Remarks
1	AC Power	1	Power	Unshielded	1.5m	From LCD Monitor to AC Main
2	Type C	1	DP	Shielded	1.0m	From LCD Monitor to EUT

* Radiated Test Only

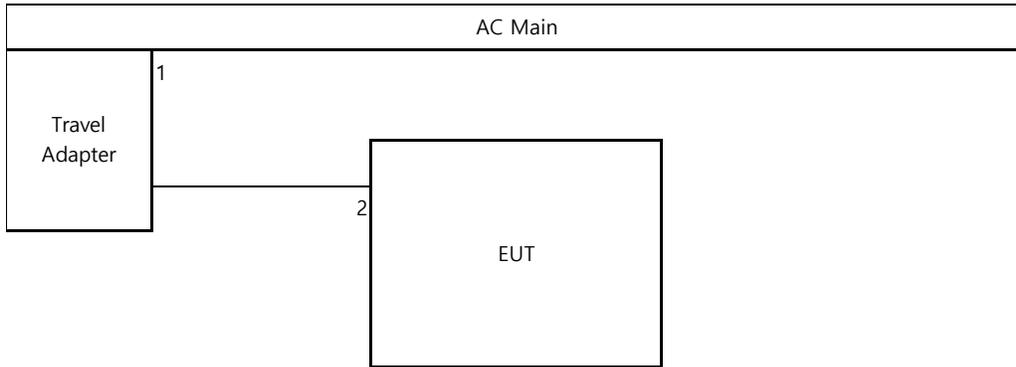
[DIAGRAM 4]

I/O Cable List						
Cable No	Port	# of identical ports	Connect or Type	Cable Type	Cable Length(m)	Remarks
1	AC Power	1	Power	Unshielded	1.5m	From AD/DC Adapter to AC Main
2	DC Power	1	Type C	Shielded	0.7m	From Laptop to AC/DC Adapter
3	USB	1	USB	Shielded	1.5m	From Laptop to EUT
4	AC Power	1	Type C	Unshielded	1.0m	From Mouse to Laptop
5	Ethernet	1	RJ45	Unshielded	1.5m	From Laptop to Router in out of test site

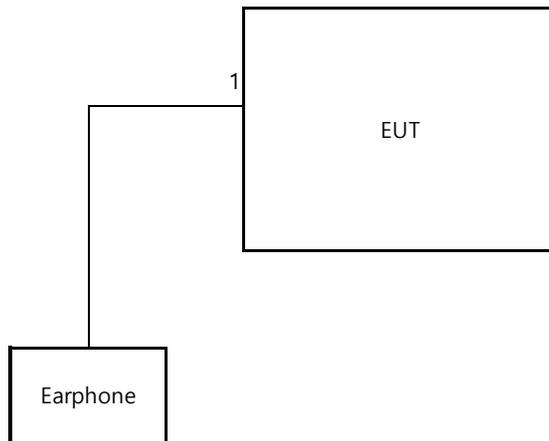
TEST SETUP

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

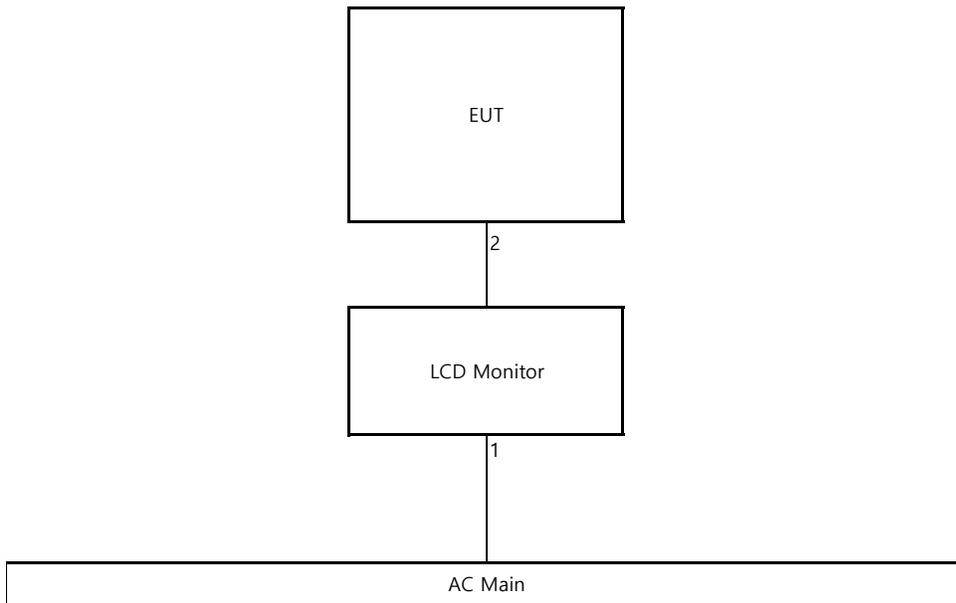
TEST SETUP DIAGRAM 1 for Test Case 1 and 2



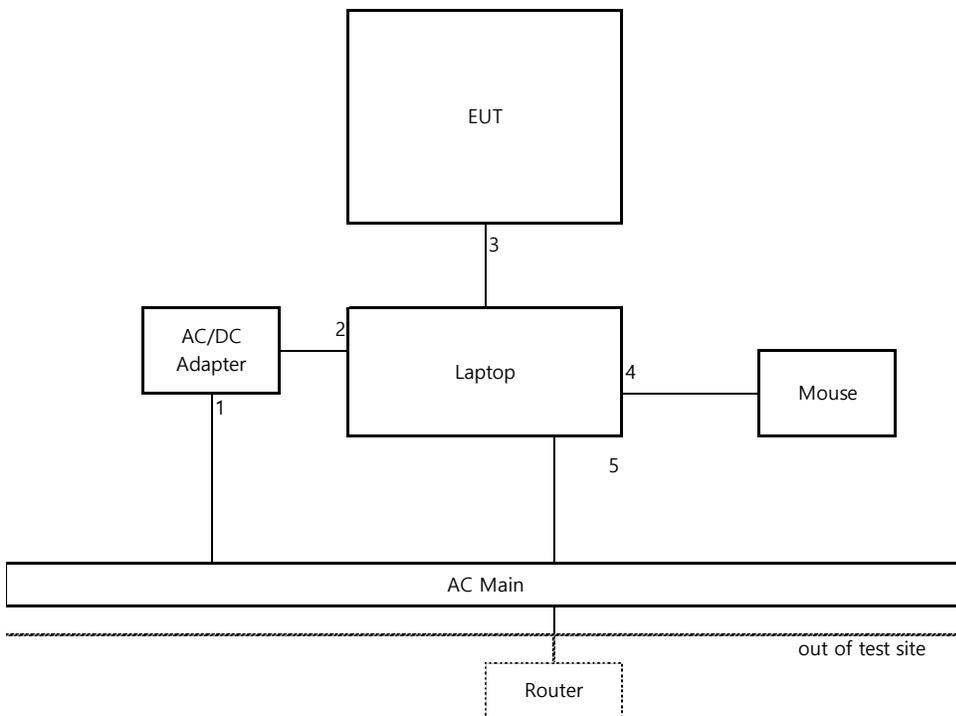
TEST SETUP DIAGRAM 2 for Test Case 3



TEST SETUP DIAGRAM 3 for Test case 4



TEST SETUP DIAGRAM 4 for Test case 5



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2022-08-04
Antenna, Horn, 40 GHz	ETS	3116C	00168645	2023-10-13
Preamplifier	ETS	3116C-PA	00168841	2022-08-04
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	2022-08-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2022-08-13
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2022-08-13
Antenna, Horn, 18 GHz	ETS	3115	00167211	2022-07-27
Antenna, Horn, 18 GHz	ETS	3115	00161451	2022-08-15
Antenna, Horn, 18 GHz	ETS	3117	00168724	2022-07-27
Antenna, Horn, 18 GHz	ETS	3117	00168717	2022-08-15
Antenna, Horn, 18 GHz	ETS	3117	00218597	2023-01-15
Preamplifier, 1000 MHz	Sonoma	310N	341282	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	370599	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029168	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2022-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2022-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2022-08-02
EMI Test Receive, 44 GHz	R&S	ESW44	101590	2022-08-02
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2022-08-02
LISN	R&S	ENV-216	101836	2022-08-05
LISN	R&S	ENV-216	101837	2022-08-05
Communications Test Set	R&S	CMW500	169796	2022-01-27
Directional Antenna	Cobham	FPA3-0.8-6.0R/1329	80108-0004	N/A
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G005	2022-08-03
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

7. TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4-2014

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

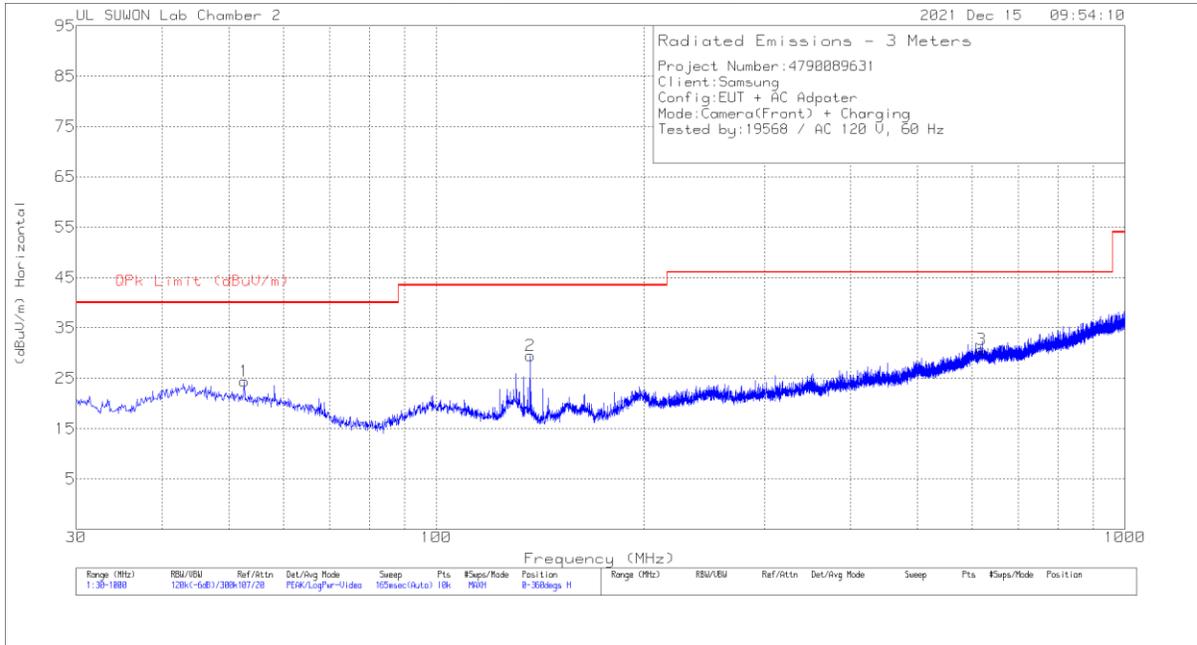
Note: The lower limit shall apply at the transition frequency.

7.1.1. RADIATED EMISSIONS 30 TO 1000 MHz

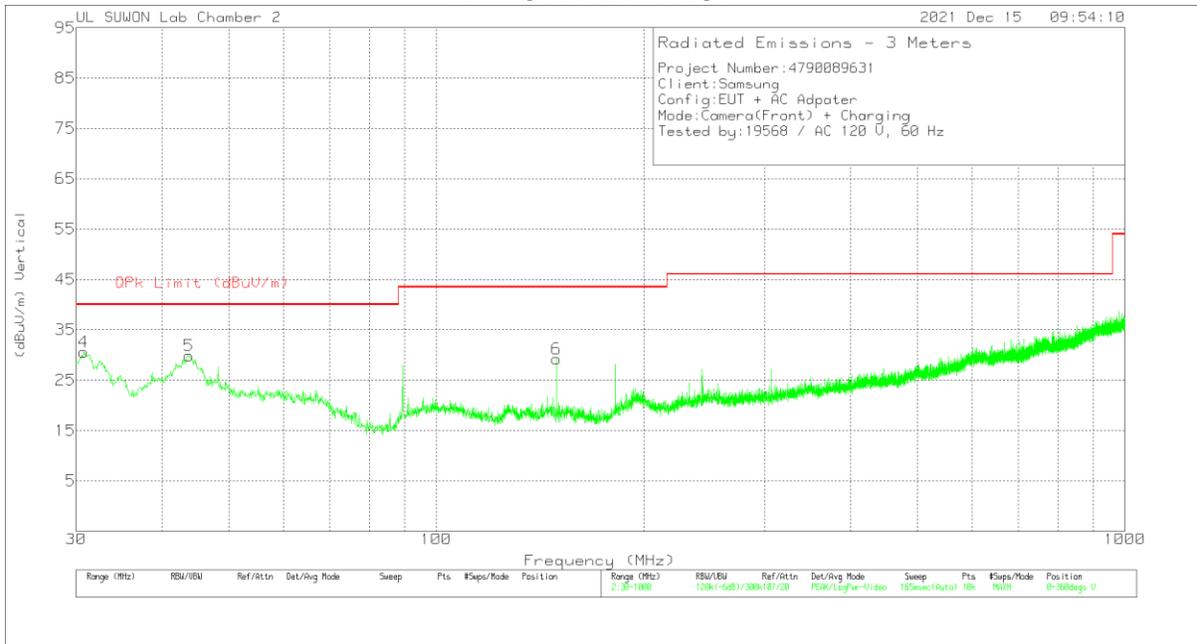
7.1.1.1. Version 2

[Test case 1]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	52.601	36.43	Pk	19.6	-31.6	24.43	40	-15.57	0-360	300	H
2	136.894	46.53	Pk	14.1	-31.1	29.53	43.52	-13.99	0-360	100	H
3	619.372	34.87	Pk	25.4	-29.6	30.67	46.02	-15.35	0-360	300	H
4	30.776	46.84	Pk	15.6	-31.9	30.54	40	-9.46	0-360	100	V
5	43.774	42.09	Pk	19.6	-31.8	29.89	40	-10.11	0-360	100	V
6	149.504	46.22	Pk	14	-31	29.22	43.52	-14.3	0-360	100	V

Pk - Peak detector

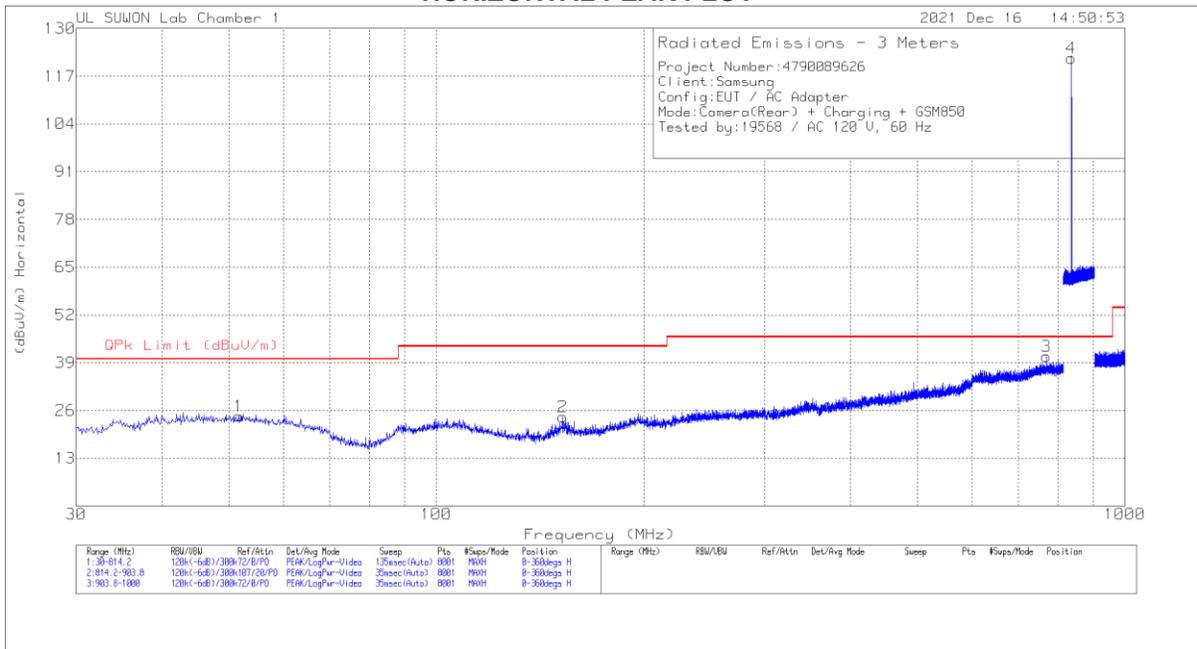
Radiated Emissions

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
30.776	39.26	Qp	15.6	-31.9	22.96	40	-17.04	130	100	V
43.774	32.85	Qp	19.6	-31.8	20.65	40	-19.35	350	100	V
149.504	25.05	Qp	14	-31	8.05	43.52	-35.47	174	100	V

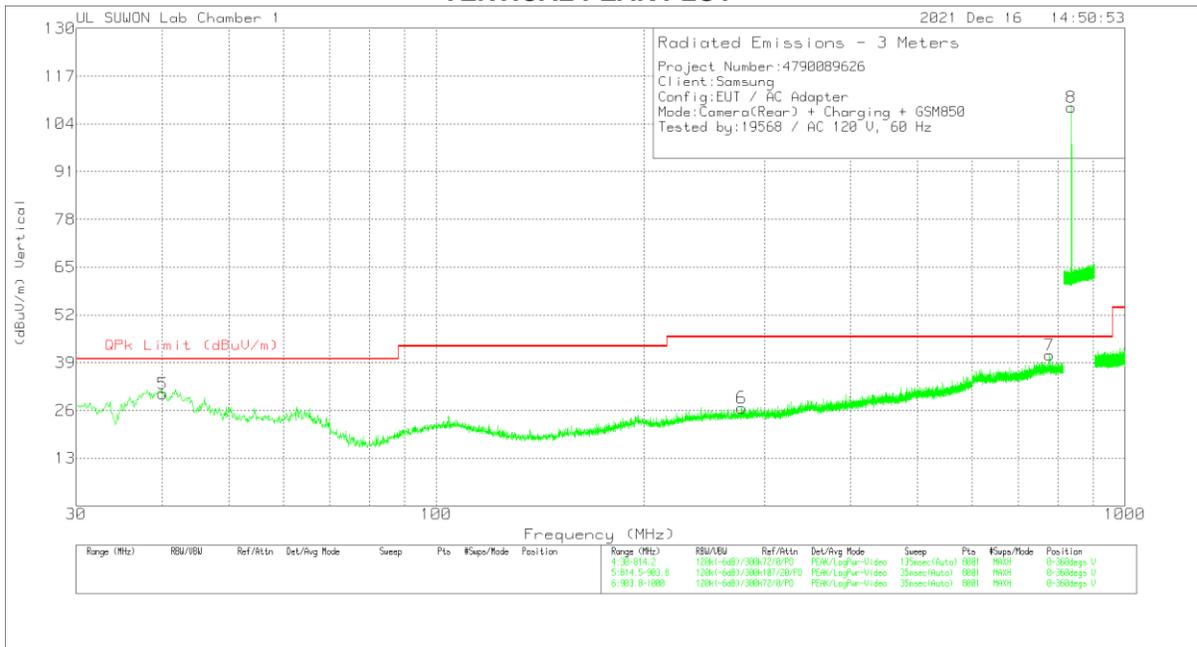
Qp - Quasi-Peak detector

[Test case 2]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

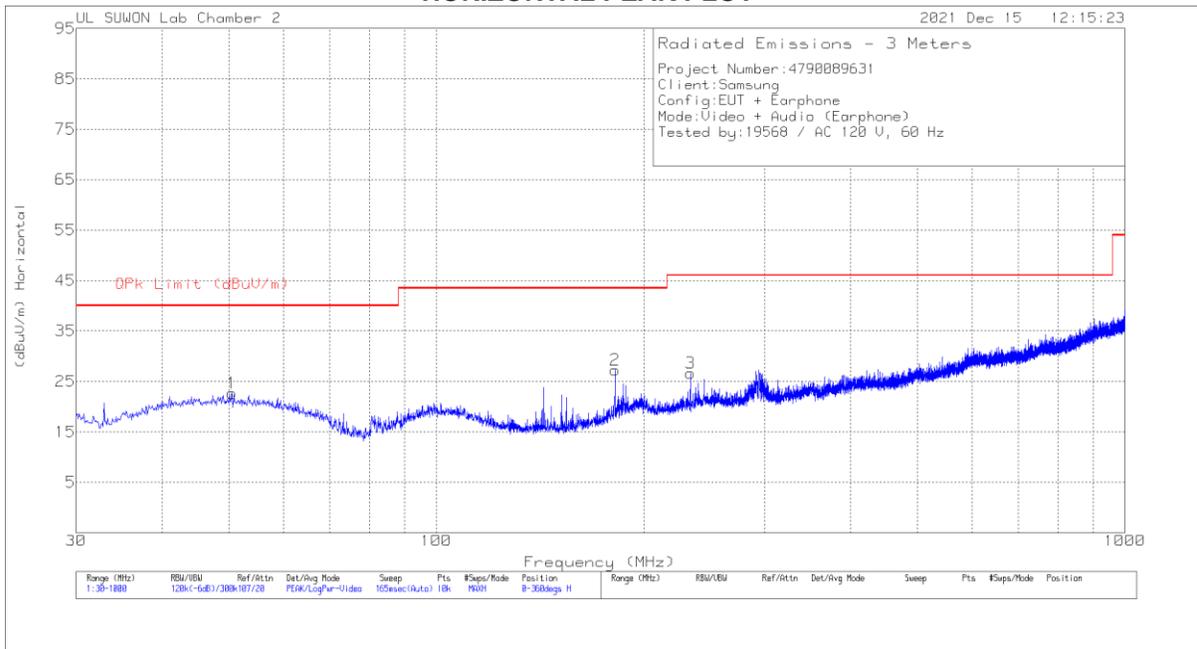
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	51.6635	3.25	Pk	19.7	1.5	24.45	40	-15.55	0-360	300	H
2	152.5313	7.72	Pk	14	2.6	24.32	43.52	-19.2	0-360	100	H
3	768.4223	8.1	Pk	26.9	5.7	40.7	46.02	-5.32	0-360	100	H
*4	836.5552	88.79	Pk	27.1	6	121.89	46.02	75.87	0-360	200	H
5	40.0966	10.53	Pk	18.7	1.4	30.63	40	-9.37	0-360	200	V
6	277.5131	4.45	Pk	18.8	3.5	26.75	46.02	-19.27	0-360	400	V
7	777.8327	8.59	Pk	26.7	5.8	41.09	46.02	-4.93	0-360	400	V
*8	836.6362	75.38	Pk	27.1	6	108.48	46.02	62.46	0-360	100	V

Pk - Peak detector

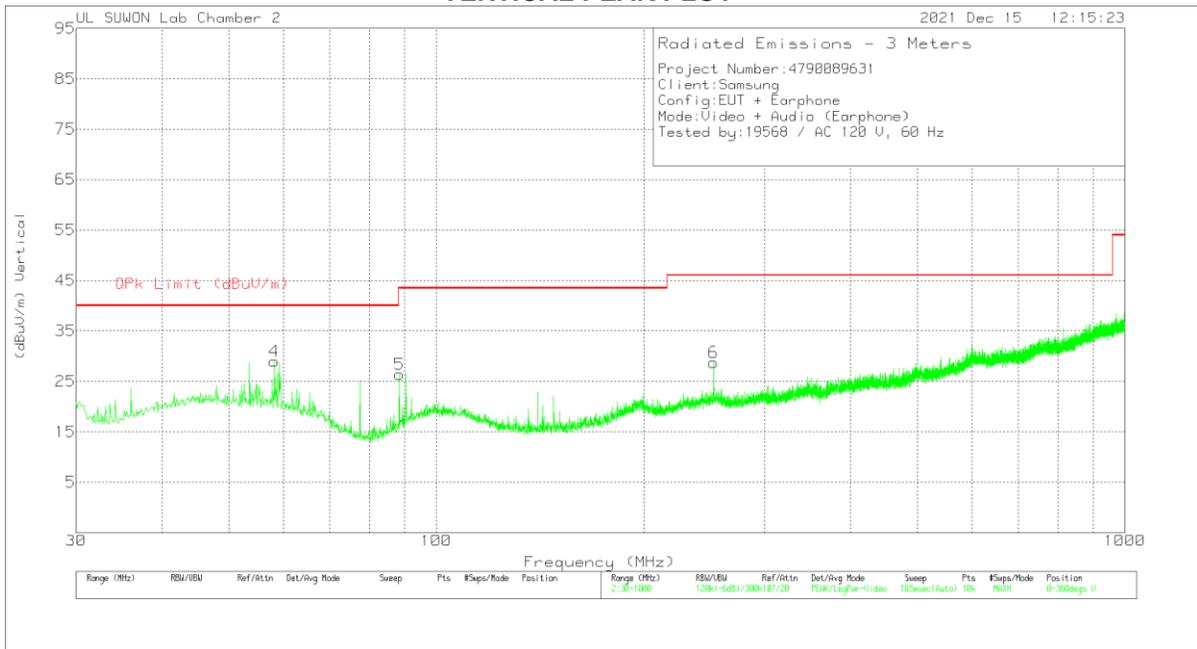
*GSM850 Fundamental

[Test case 3]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	50.467	34.72	Pk	19.7	-31.8	22.62	40	-17.38	0-360	300	H
2	181.902	42.09	Pk	16	-30.8	27.29	43.52	-16.23	0-360	100	H
3	233.797	39.02	Pk	18.2	-30.6	26.62	46.02	-19.4	0-360	100	H
4	58.227	41.74	Pk	18.8	-31.6	28.94	40	-11.06	0-360	100	V
5	88.394	42.88	Pk	15	-31.5	26.38	43.52	-17.14	0-360	100	V
6	252.906	40.02	Pk	19.1	-30.4	28.72	46.02	-17.3	0-360	100	V

Pk - Peak detector

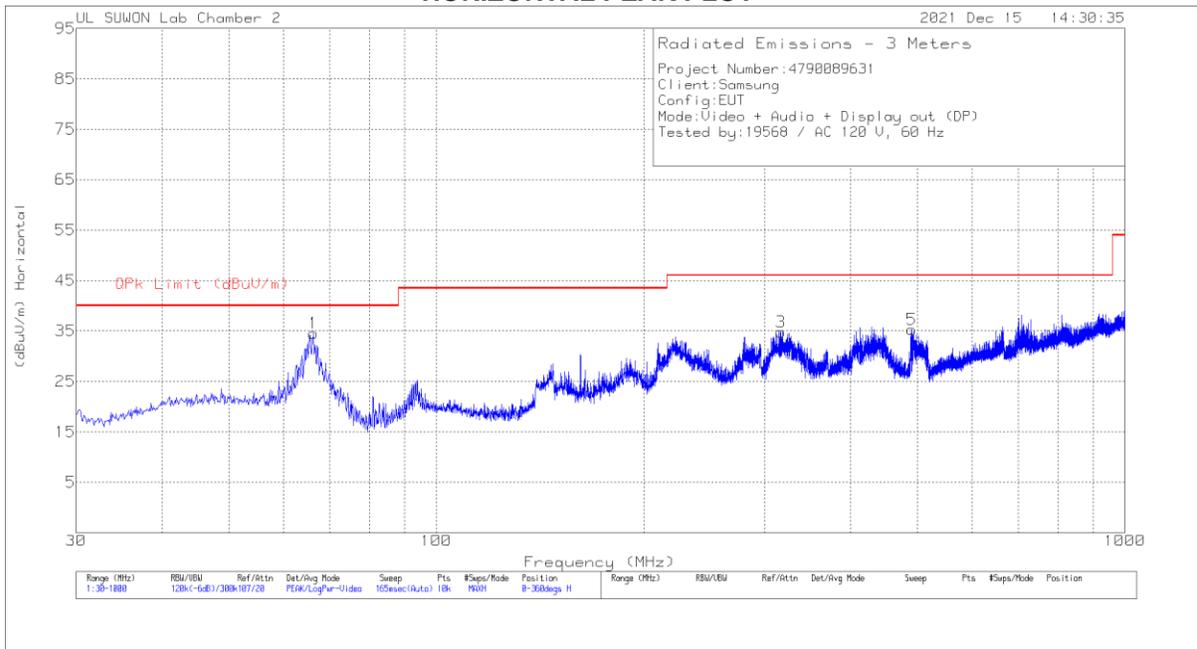
Radiated Emissions

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
181.902	30.79	Qp	16	-30.8	15.99	43.52	-27.53	285	130	H
58.227	23.7	Qp	18.8	-31.6	10.9	40	-29.1	7	116	V

Qp - Quasi-Peak detector

[Test case 4]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	66.375	49.25	Pk	16.8	-31.5	34.55	40	-5.45	0-360	200	H
3	316.732	45.29	Pk	19.7	-30.2	34.79	46.02	-11.23	0-360	100	H
5	490.556	42.04	Pk	23	-29.8	35.24	46.02	-10.78	0-360	100	H
2	66.375	49.64	Pk	16.8	-31.5	34.94	40	-5.06	0-360	100	V
4	327.693	47.61	Pk	20	-30.2	37.41	46.02	-8.61	0-360	100	V
6	490.556	42.45	Pk	23	-29.8	35.65	46.02	-10.37	0-360	100	V

Pk - Peak detector

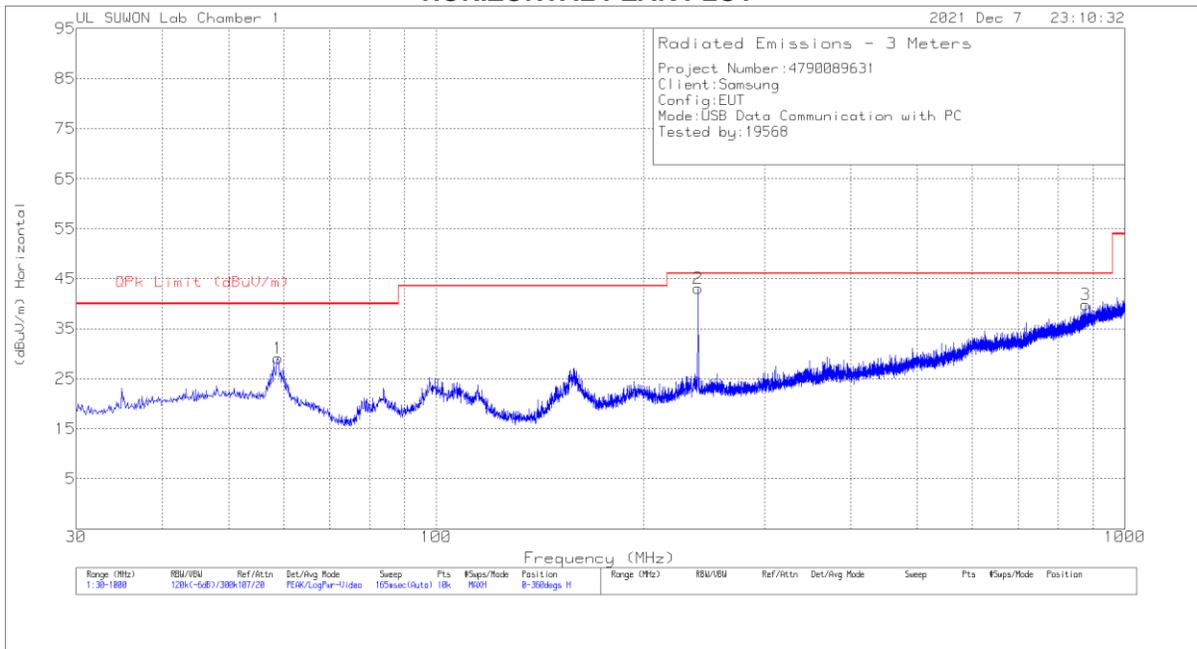
Radiated Emissions

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
66.375	45.89	Qp	16.8	-31.5	31.19	40	-8.81	4	361	H
66.375	47.52	Qp	16.8	-31.5	32.82	40	-7.18	85	100	V
316.732	39.22	Qp	19.7	-30.2	28.72	46.02	-17.3	239	100	H
490.556	40.58	Qp	23	-29.8	33.78	46.02	-12.24	147	157	H
490.556	39.71	Qp	23	-29.8	32.91	46.02	-13.11	91	100	V
327.693	46.26	Qp	20	-30.2	36.06	46.02	-9.96	3	123	V

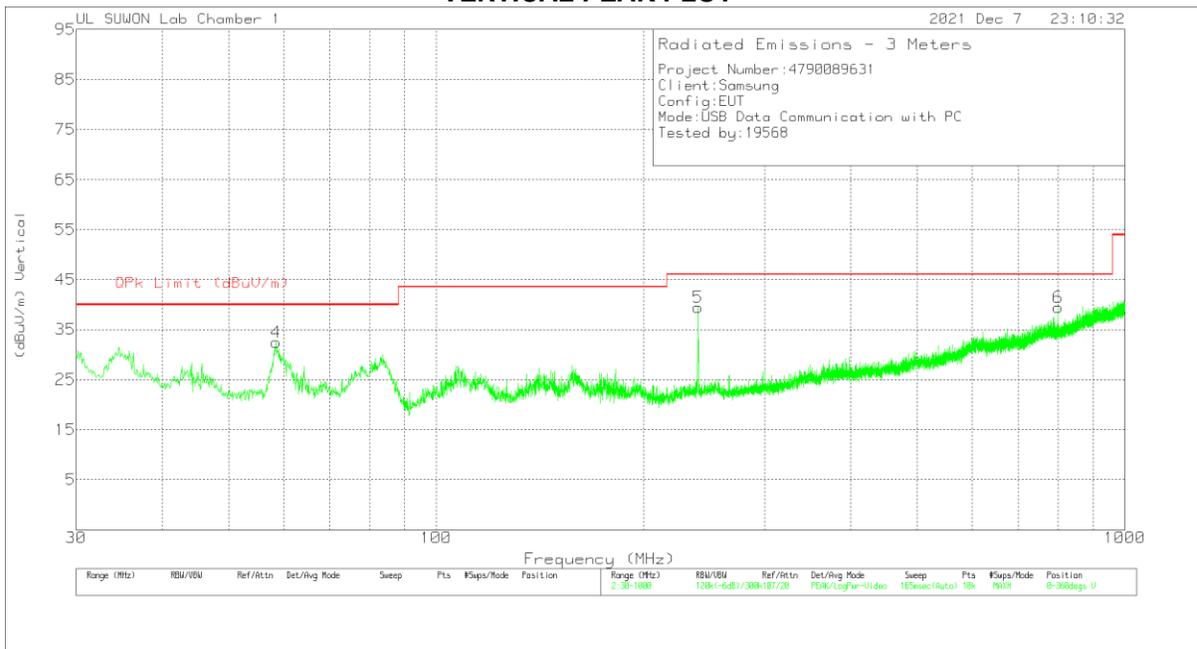
Qp - Quasi-Peak detector

[Test case 5]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	58.906	41.09	Pk	18.8	-30.8	29.09	40	-10.91	0-360	300	H
2	240.005	53.32	Pk	18.6	-28.9	43.02	46.02	-3	0-360	100	H
3	876.034	37.06	Pk	28.2	-25.4	39.86	46.02	-6.16	0-360	300	H
4	58.518	44.3	Pk	18.8	-30.6	32.5	40	-7.5	0-360	100	V
5	240.005	49.71	Pk	18.6	-28.9	39.41	46.02	-6.61	0-360	100	V
6	800.083	38.63	Pk	26.9	-26.1	39.43	46.02	-6.59	0-360	100	V

Pk - Peak detector

Radiated Emissions

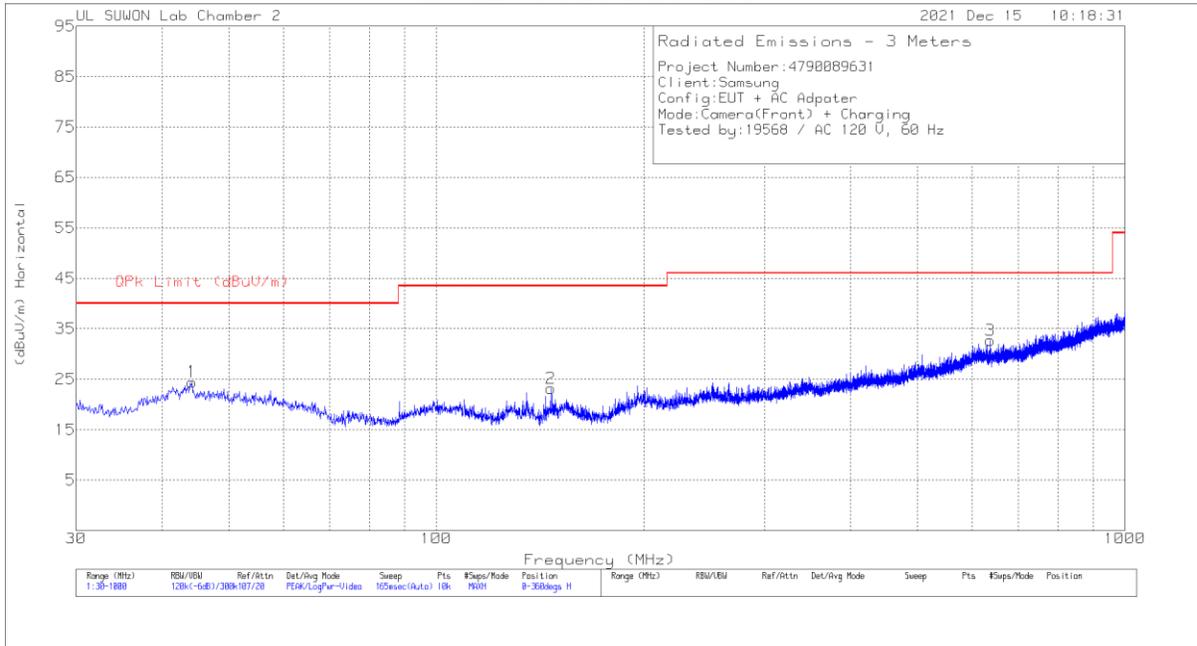
Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
240.005	48.26	Qp	18.6	-28.9	37.96	46.02	-8.06	359	123	H
240.005	47.3	Qp	18.6	-28.9	37	46.02	-9.02	168	100	V
800.083	27.82	Qp	26.9	-26.1	28.62	46.02	-17.4	127	109	V

Qp - Quasi-Peak detector

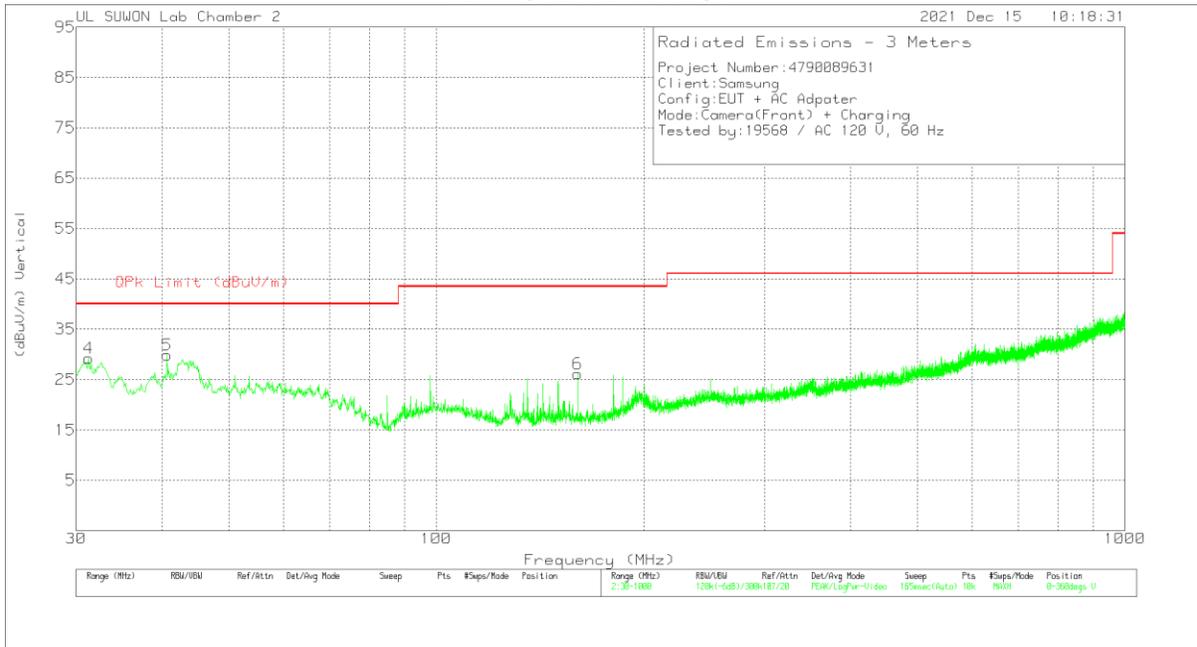
7.1.1.2. Version 3

[Test case 1]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	44.162	36.47	Pk	19.7	-31.7	24.47	40	-15.53	0-360	100	H
2	146.594	40.08	Pk	14.1	-31	23.18	43.52	-20.34	0-360	200	H
3	636.929	37.23	Pk	25	-29.5	32.73	46.02	-13.29	0-360	200	H
4	31.261	45.65	Pk	15.5	-31.9	29.25	40	-10.75	0-360	100	V
5	40.67	42.74	Pk	18.9	-31.8	29.84	40	-10.16	0-360	100	V
6	160.562	42.5	Pk	14.6	-31	26.1	43.52	-17.42	0-360	100	V

Pk - Peak detector

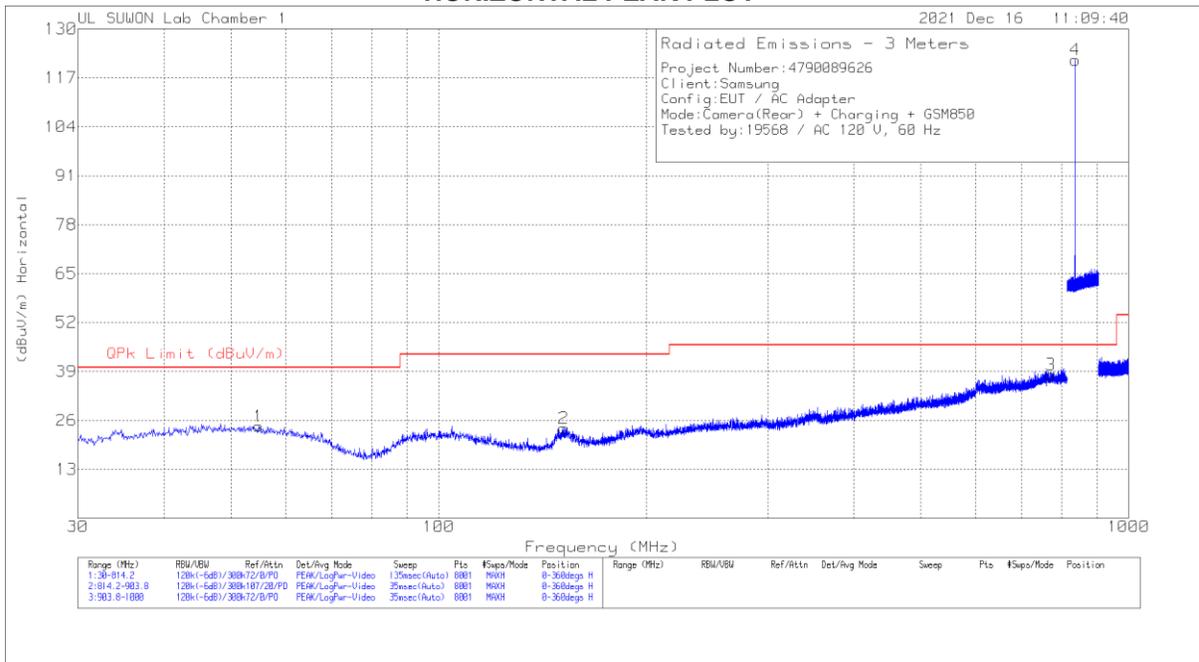
Radiated Emissions

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
31.261	40.52	Qp	15.5	-31.9	24.12	40	-15.88	216	100	V
40.67	26.26	Qp	18.9	-31.8	13.36	40	-26.64	290	100	V
160.562	25.52	Qp	14.6	-31	9.12	43.52	-34.4	194	100	V

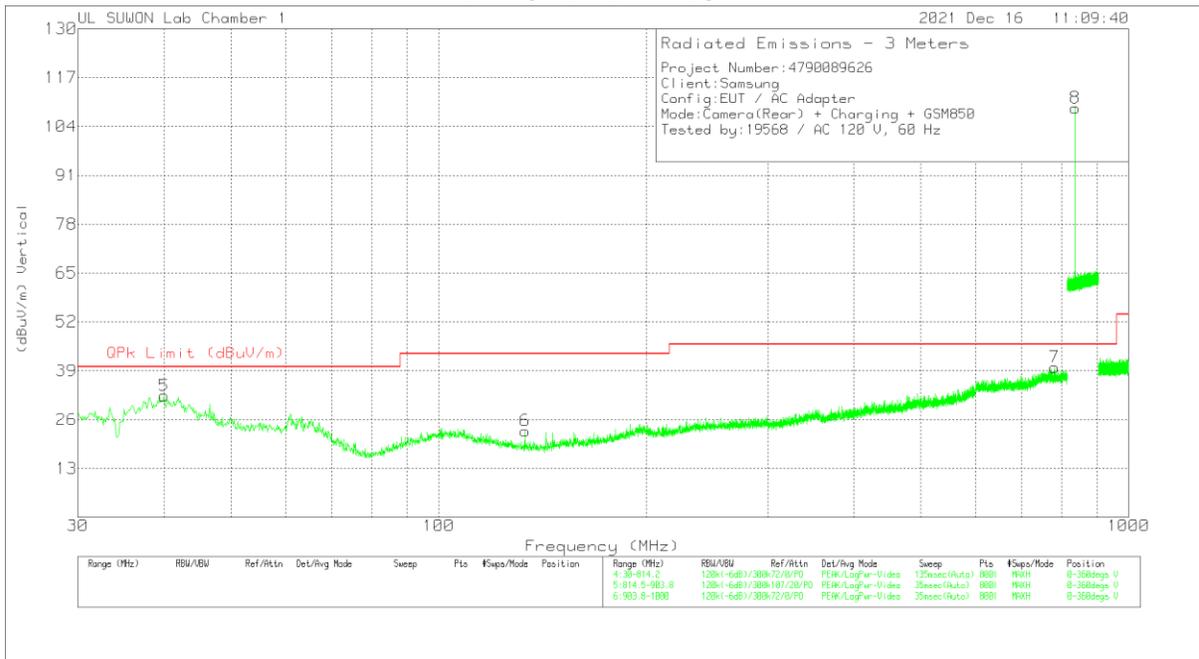
Qp - Quasi-Peak detector

[Test case 2]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

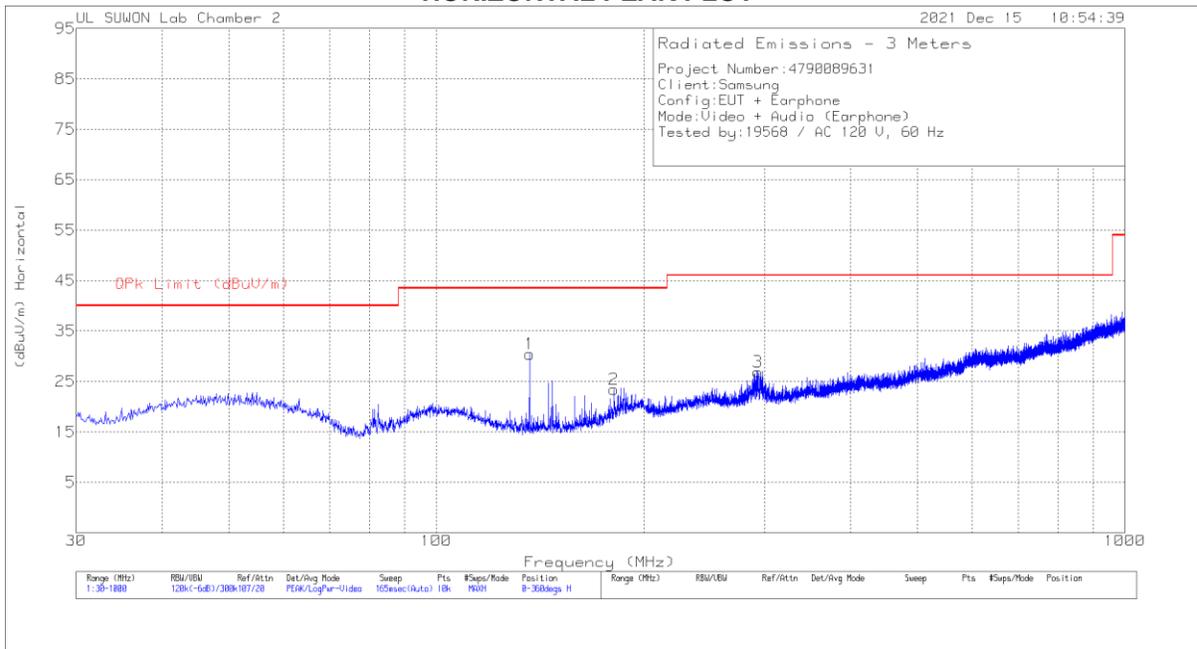
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	54.8003	3.49	Pk	19.4	1.5	24.39	40	-15.61	0-360	100	H
2	151.8451	7.42	Pk	14	2.5	23.92	43.52	-19.6	0-360	200	H
3	771.5591	5.38	Pk	26.9	5.8	38.08	46.02	-7.94	0-360	300	H
*4	836.5888	88.68	Pk	27.1	6	121.78	46.02	75.76	0-360	200	H
5	39.9986	12.35	Pk	18.7	1.3	32.35	40	-7.65	0-360	200	V
6	133.5144	6.51	Pk	14	2.5	23.01	43.52	-20.51	0-360	200	V
7	780.9695	7.46	Pk	26.7	5.8	39.96	46.02	-6.06	0-360	400	V
*8	836.6362	75.83	Pk	27.1	6	108.93	46.02	62.91	0-360	100	V

Pk - Peak detector

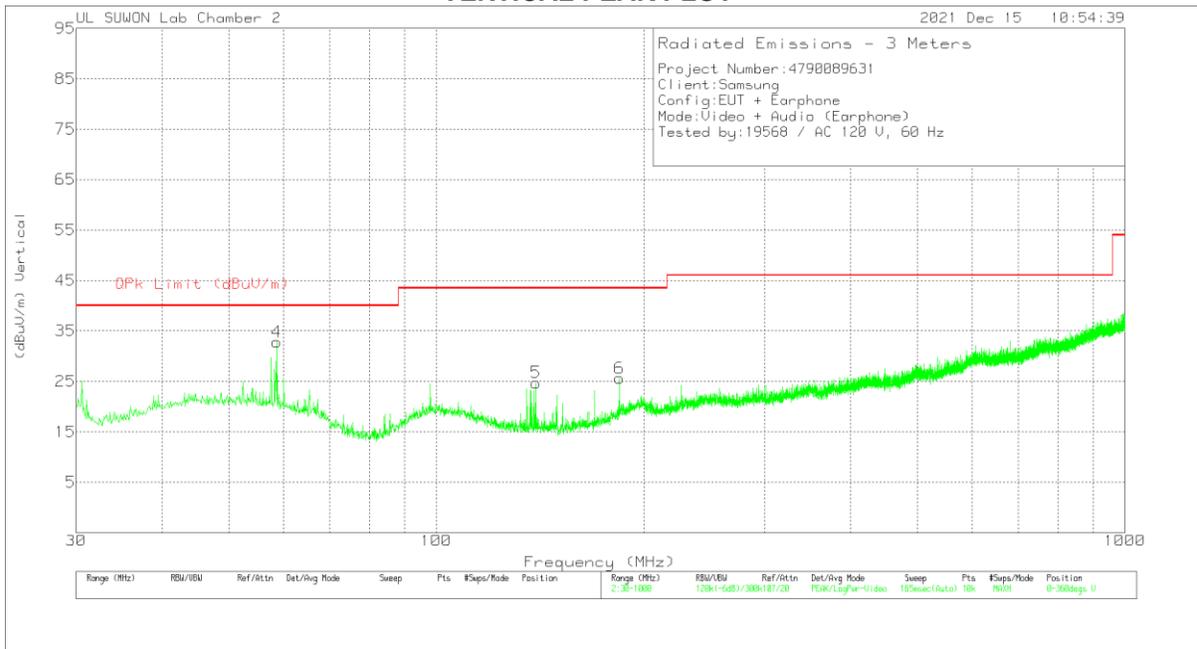
*GSM850 Fundamental

[Test case 3]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	136.7	47.41	Pk	14.1	-31.1	30.41	43.52	-13.11	0-360	200	H
2	181.029	38.41	Pk	15.8	-30.8	23.41	43.52	-20.11	0-360	100	H
3	293.258	38.06	Pk	19.2	-30.4	26.86	46.02	-19.16	0-360	100	H
4	58.712	45.85	Pk	18.7	-31.7	32.85	40	-7.15	0-360	100	V
5	139.513	41.82	Pk	14	-31.1	24.72	43.52	-18.8	0-360	100	V
6	184.521	40.1	Pk	16.3	-30.8	25.6	43.52	-17.92	0-360	100	V

Pk - Peak detector

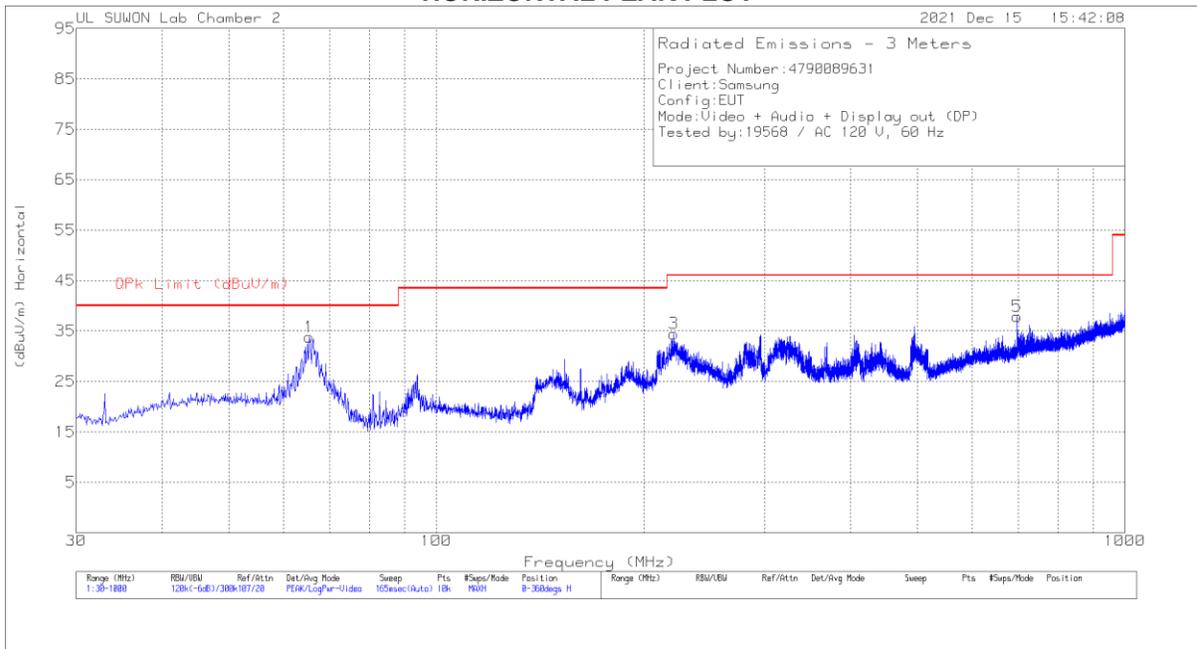
Radiated Emissions

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
136.7	23.22	Qp	14.1	-31.1	6.22	43.52	-37.3	211	204	H
58.712	23.7	Qp	18.7	-31.7	10.7	40	-29.3	12	132	V

Qp - Quasi-Peak detector

[Test case 4]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	65.405	48.24	Pk	17.1	-31.5	33.84	40	-6.16	0-360	300	H
3	221.09	47.69	Pk	17.4	-30.6	34.49	46.02	-11.53	0-360	100	H
5	697.651	41.66	Pk	25.6	-29.4	37.86	46.02	-8.16	0-360	100	H
2	65.502	48	Pk	17.1	-31.6	33.5	40	-6.5	0-360	100	V
4	140.58	53.02	Pk	14	-31.1	35.92	43.52	-7.6	0-360	100	V
6	326.335	48.38	Pk	19.9	-30.2	38.08	46.02	-7.94	0-360	100	V

Pk - Peak detector

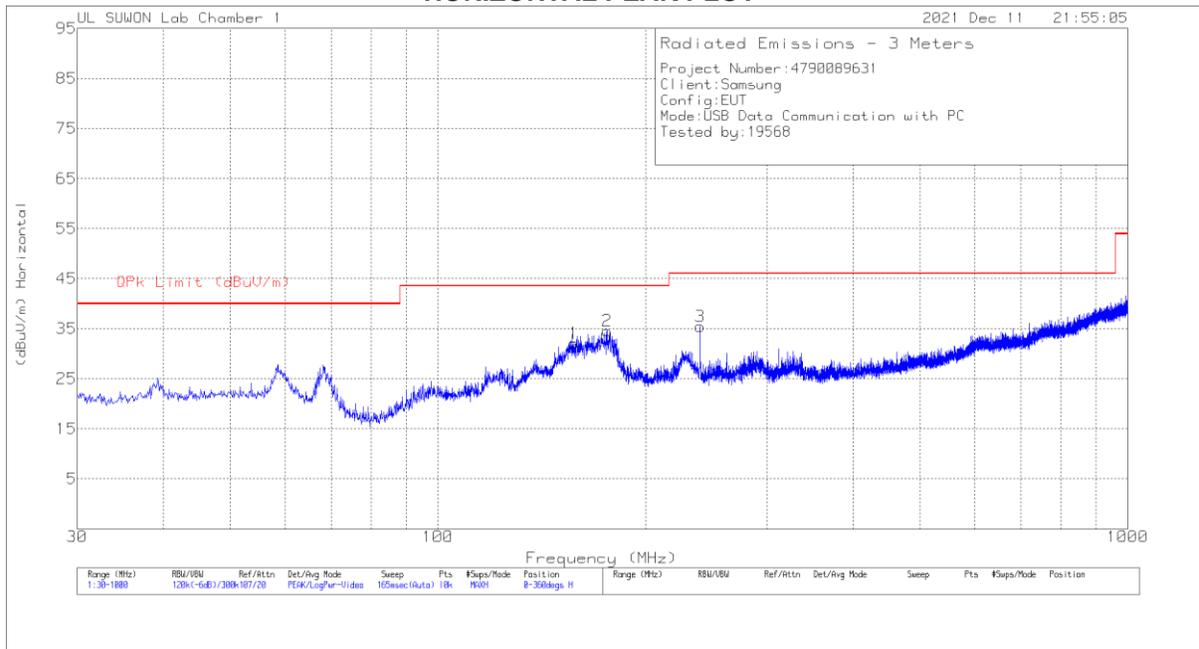
Radiated Emissions

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
65.5635	44.99	Qp	17	-31.6	30.39	40	-9.61	0	380	H
65.5635	46.27	Qp	17	-31.6	31.67	40	-8.33	96	100	V
221.09	43.1	Qp	17.4	-30.6	29.9	46.02	-16.12	57	142	H
697.651	33.5	Qp	25.6	-29.4	29.7	46.02	-16.32	202	109	H
140.58	43.11	Qp	14	-31.1	26.01	43.52	-17.51	310	103	V
326.335	45.84	Qp	19.9	-30.2	35.54	46.02	-10.48	3	137	V

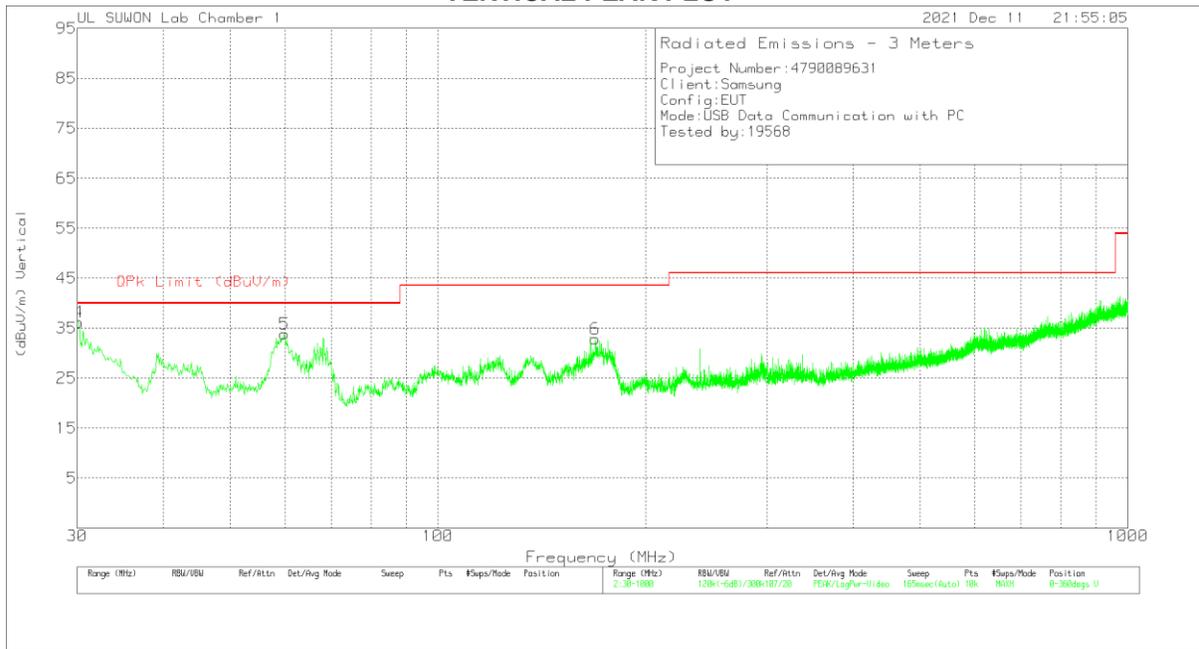
Qp - Quasi-Peak detector

[Test case 5]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	157.458	47.53	Pk	14.3	-29.7	32.13	43.52	-11.39	0-360	200	H
2	175.791	48.95	Pk	15.1	-29.5	34.55	43.52	-8.97	0-360	100	H
3	240.005	45.71	Pk	18.6	-28.9	35.41	46.02	-10.61	0-360	100	H
4	30.097	51.35	Pk	16.1	-31.3	36.15	40	-3.85	0-360	200	V
5	59.876	45.96	Pk	18.6	-30.7	33.86	40	-6.14	0-360	200	V
6	169.098	47.49	Pk	14.9	-29.5	32.89	43.52	-10.63	0-360	200	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
157.458	40.05	Qp	14.3	-29.7	24.65	43.52	-18.87	9	211	H
175.791	41.39	Qp	15.1	-29.5	26.99	43.52	-16.53	310	147	H
240.005	47.12	Qp	18.6	-28.9	36.82	46.02	-9.2	239	126	H
30.097	44.59	Qp	16.1	-31.3	29.39	40	-10.61	262	113	V
59.876	41.17	Qp	18.6	-30.7	29.07	40	-10.93	0	100	V
169.098	38.52	Qp	14.9	-29.5	23.92	43.52	-19.6	240	171	V

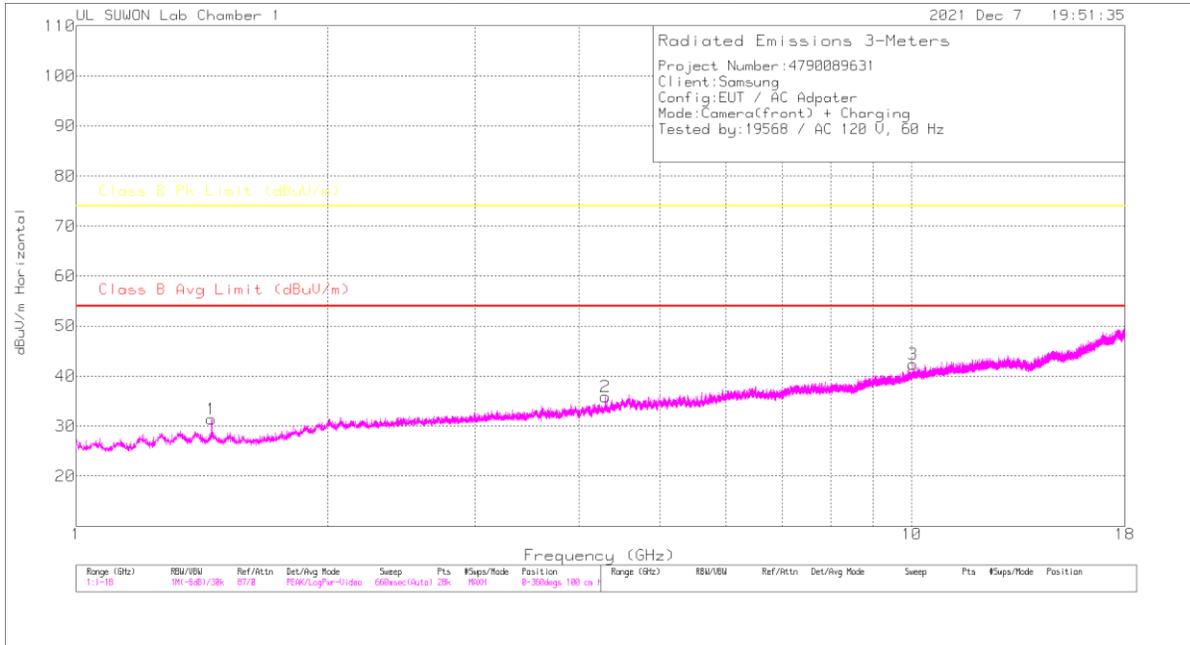
Qp - Quasi-Peak detector

7.1.2. RADIATED EMISSIONS 1 TO 18 GHz

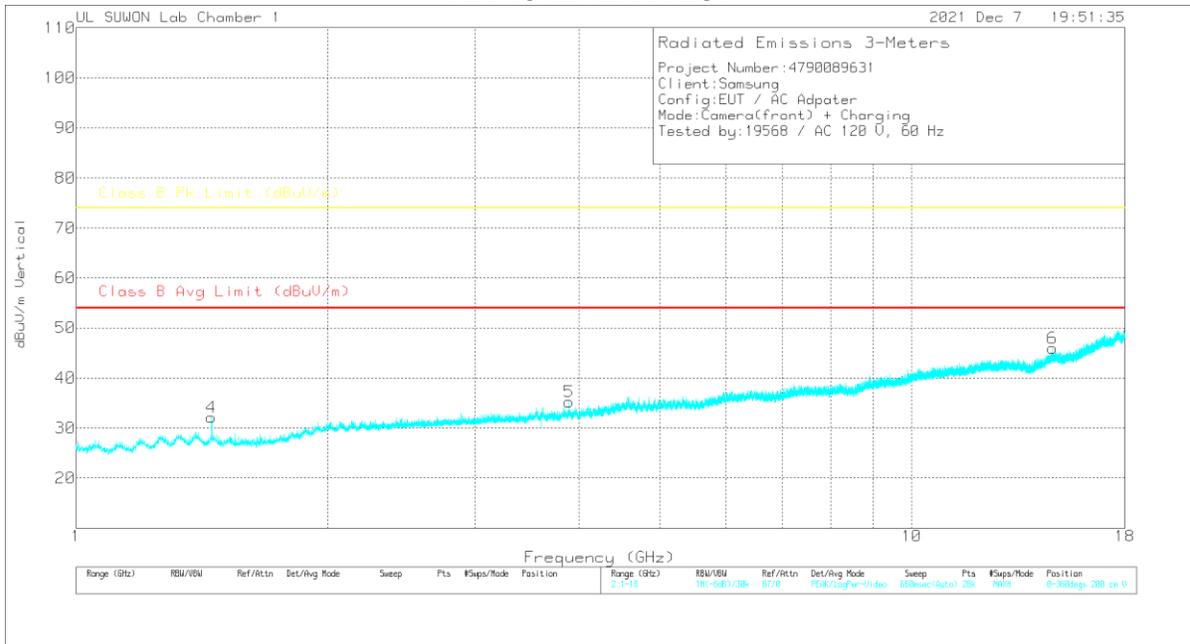
7.1.2.1. Version 2

[Test case 1]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	1.45227	39.17	PK	29.1	-36.9	31.37	-	-	74	-42.63	0-360	108	H
2	4.30068	34.43	PK	33.8	-32.4	35.83	-	-	74	-38.17	0-360	108	H
3	10.03757	27.68	PK	37.8	-23.1	42.38	-	-	74	-31.62	0-360	108	H
4	1.45227	39.94	PK	29.1	-36.9	32.14	-	-	74	-41.86	0-360	200	V
5	3.88969	34.75	PK	33.3	-32.8	35.25	-	-	74	-38.75	0-360	200	V
6	14.75699	28.5	PK	40	-22.5	46	-	-	74	-28	0-360	200	V

PK – Peak Detector

Radiated Emissions

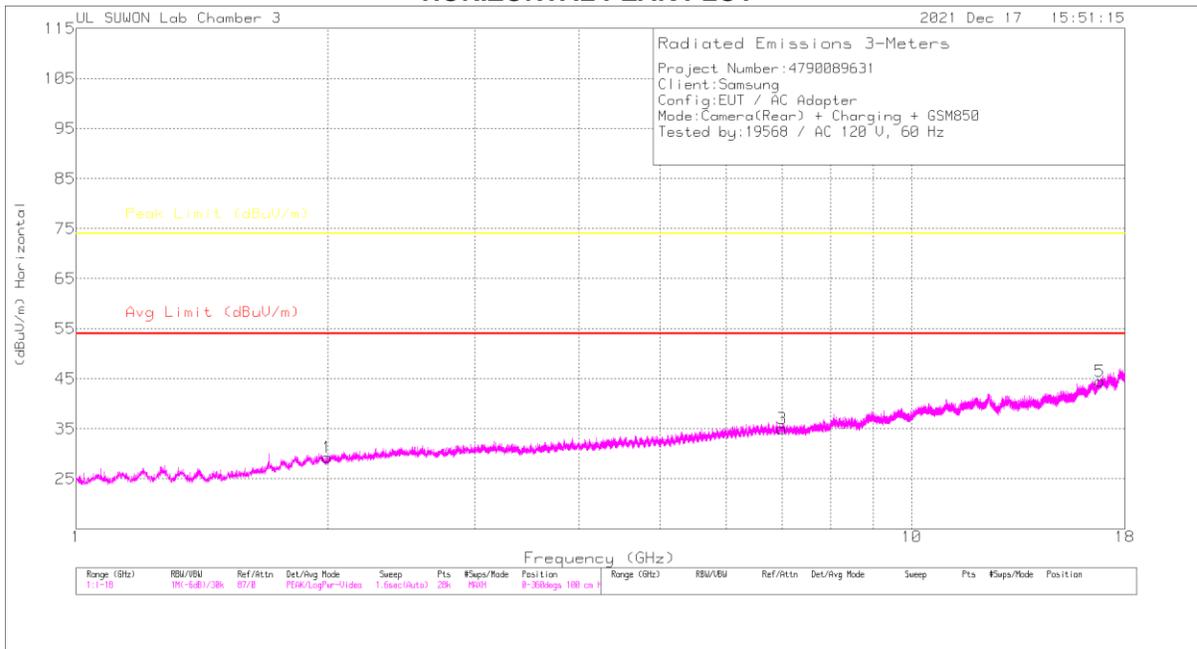
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.45227	45.93	Pk	29.1	-36.9	38.13	-	-	74	-35.87	0	100	H
1.45227	32.39	Ca	29.1	-36.9	24.59	54	-29.41	-	-	0	100	H
1.45227	44.91	Pk	29.1	-36.9	37.11	-	-	74	-36.89	0	100	V
1.45227	31.68	Ca	29.1	-36.9	23.88	54	-30.12	-	-	0	100	V
4.30068	42.13	Pk	33.8	-32.4	43.53	-	-	74	-30.47	0	100	H
4.30068	29.13	Ca	33.8	-32.4	30.53	54	-23.47	-	-	0	100	H
3.88969	41.51	Pk	33.3	-32.8	42.01	-	-	74	-31.99	0	100	V
3.88969	28.45	Ca	33.3	-32.8	28.95	54	-25.05	-	-	0	100	V
10.03757	35.2	Pk	37.8	-23.1	49.9	-	-	74	-24.1	0	100	H
10.03757	21.88	Ca	37.8	-23.1	36.58	54	-17.42	-	-	0	100	H
14.757	35.56	Pk	40	-22.5	53.06	-	-	74	-20.94	0	100	V
14.757	22.83	Ca	40	-22.5	40.33	54	-13.67	-	-	0	100	V

Pk - Peak detector

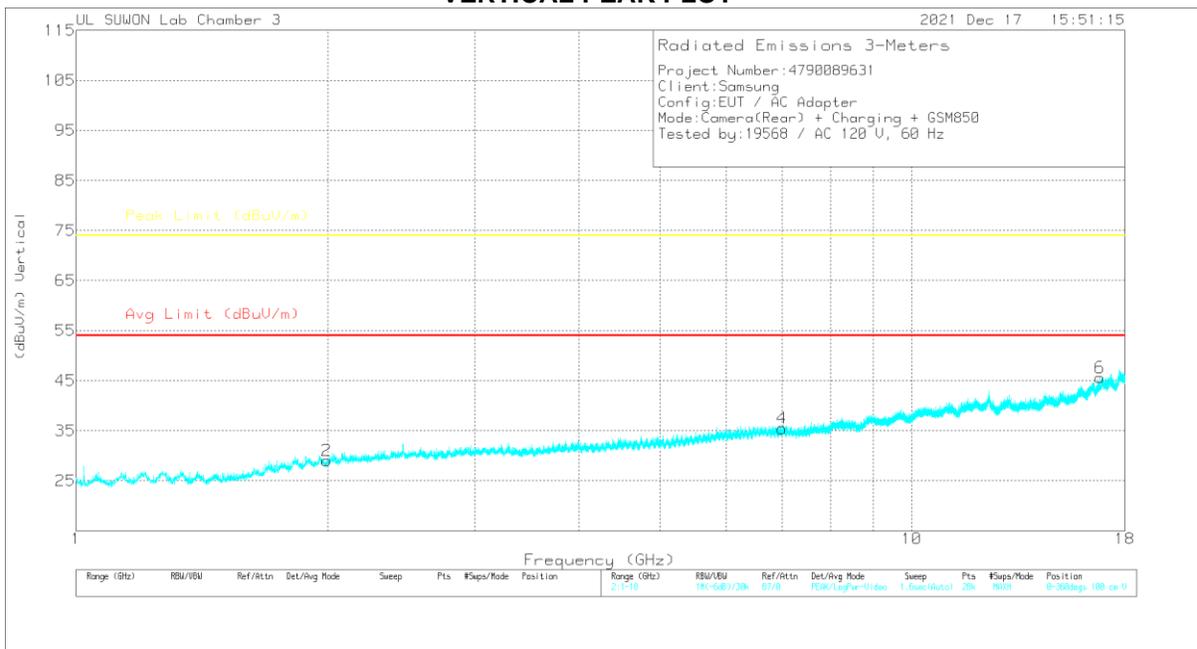
Ca - CISPR average detection

[Test case 2]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	1-18GHz[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.99682	33.04	PK	31.7	-35.4	29.34	54	-24.66	-	-	0-360	100	H
3	6.99732	26.06	PK	36.2	-27.2	35.06	54	-18.94	-	-	0-360	100	H
5	16.8162	21.5	PK	42.4	-19.4	44.5	54	-9.5	-	-	0-360	100	H
2	1.99561	32.69	PK	31.7	-35.4	28.99	54	-25.01	-	-	0-360	100	V
4	6.99368	26.46	PK	36.2	-27.2	35.46	54	-18.54	-	-	0-360	200	V
6	16.81438	22.66	PK	42.4	-19.4	45.66	54	-8.34	-	-	0-360	200	V

PK – Peak detector

Radiated Emissions

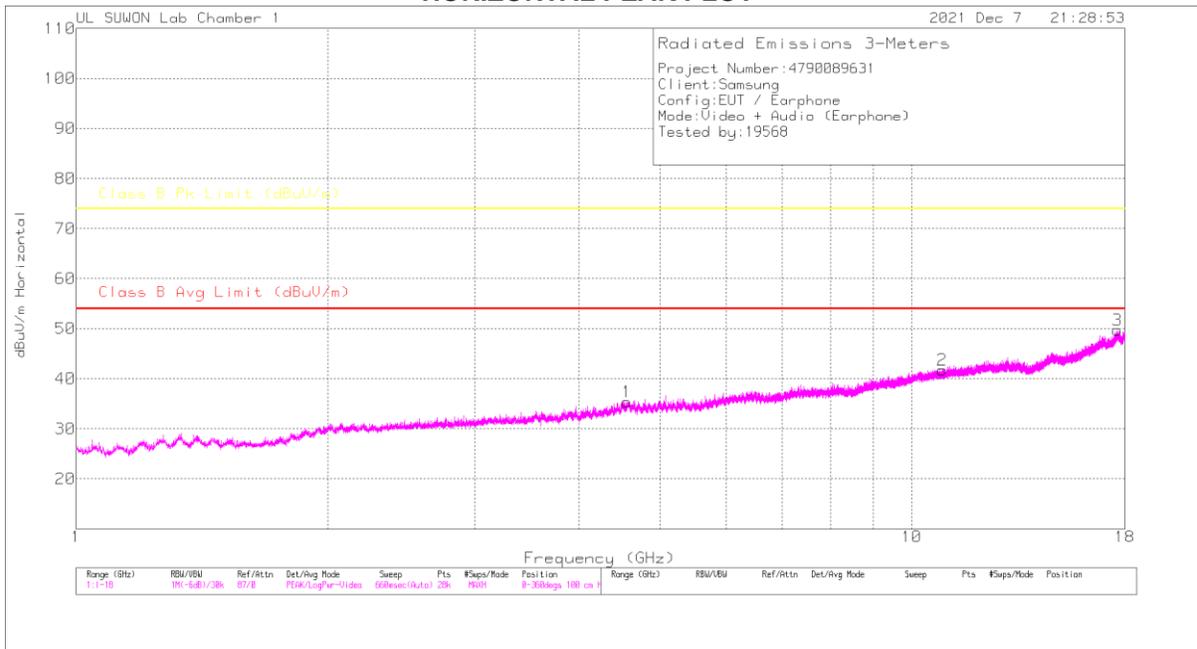
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	1-18GHz[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.99682	42.18	Pk	31.7	-35.4	38.48	-	-	74	-35.52	0	100	H
1.99682	28.45	Ca	31.7	-35.4	24.75	54	-29.25	-	-	0	100	H
1.99682	41.96	Pk	31.7	-35.4	38.26	-	-	74	-35.74	0	100	V
1.99682	28.44	Ca	31.7	-35.4	24.74	54	-29.26	-	-	0	100	V
6.99732	35.1	Pk	36.2	-27.2	44.1	-	-	74	-29.9	0	100	H
6.99732	21.6	Ca	36.2	-27.2	30.6	54	-23.4	-	-	0	100	H
6.99732	34.37	Pk	36.2	-27.2	43.37	-	-	74	-30.63	0	100	V
6.99732	21.57	Ca	36.2	-27.2	30.57	54	-23.43	-	-	0	100	V
16.8162	31.34	Pk	42.4	-19.4	54.34	-	-	74	-19.66	0	100	H
16.8162	18	Ca	42.4	-19.4	41	54	-13	-	-	0	100	H
16.8162	32.1	Pk	42.4	-19.4	55.1	-	-	74	-18.9	0	100	V
16.8162	18.01	Ca	42.4	-19.4	41.01	54	-12.99	-	-	0	100	V

Pk - Peak detector

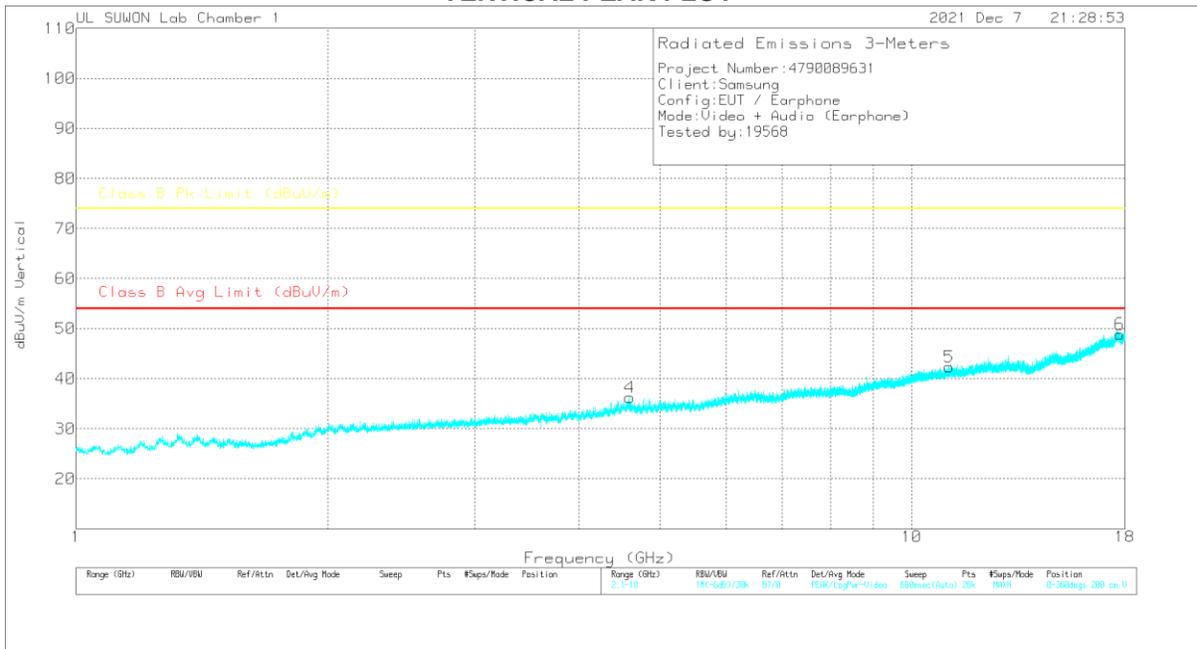
Ca - CISPR average detection

[Test case 3]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	4.56355	33.19	PK	34.2	-32	35.39	-	-	74	-38.61	0-360	100	H
2	10.87412	26.35	PK	38.1	-22.7	41.75	-	-	74	-32.25	0-360	100	H
3	17.61997	25.83	PK	41.2	-17.3	49.73	-	-	74	-24.27	0-360	100	H
4	4.59876	33.95	PK	34.2	-31.9	36.25	-	-	74	-37.75	0-360	200	V
5	11.08174	26.81	PK	38.3	-22.7	42.41	-	-	74	-31.59	0-360	200	V
6	17.74018	24.8	PK	41.3	-17.2	48.9	-	-	74	-25.1	0-360	200	V

PK – Peak Detector

Radiated Emissions

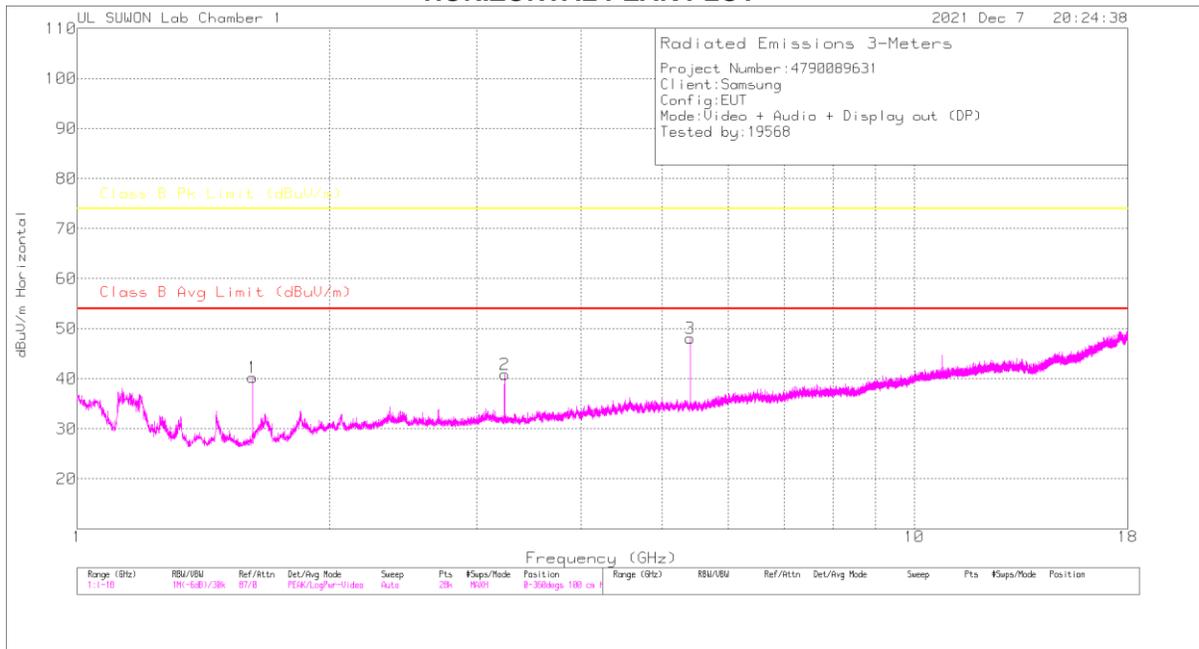
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.56355	39.41	Pk	34.2	-32	41.61	-	-	74	-32.39	0	100	H
4.56355	27.81	Ca	34.2	-32	30.01	54	-23.99	-	-	0	100	H
4.59876	39.2	Pk	34.2	-31.9	41.5	-	-	74	-32.5	0	100	V
4.59876	27.32	Ca	34.2	-31.9	29.62	54	-24.38	-	-	0	100	V
10.87412	34.02	Pk	38.1	-22.7	49.42	-	-	74	-24.58	0	100	H
10.87412	22.12	Ca	38.1	-22.7	37.52	54	-16.48	-	-	0	100	H
11.08174	34.24	Pk	38.3	-22.7	49.84	-	-	74	-24.16	0	100	V
11.08174	21.88	Ca	38.3	-22.7	37.48	54	-16.52	-	-	0	100	V
17.61997	33.14	Pk	41.2	-17.3	57.04	-	-	74	-16.96	0	100	H
17.61997	21	Ca	41.2	-17.3	44.9	54	-9.1	-	-	0	100	H
17.74018	32.33	Pk	41.3	-17.2	56.43	-	-	74	-17.57	0	100	V
17.74018	20.73	Ca	41.3	-17.2	44.83	54	-9.17	-	-	0	100	V

Pk - Peak detector

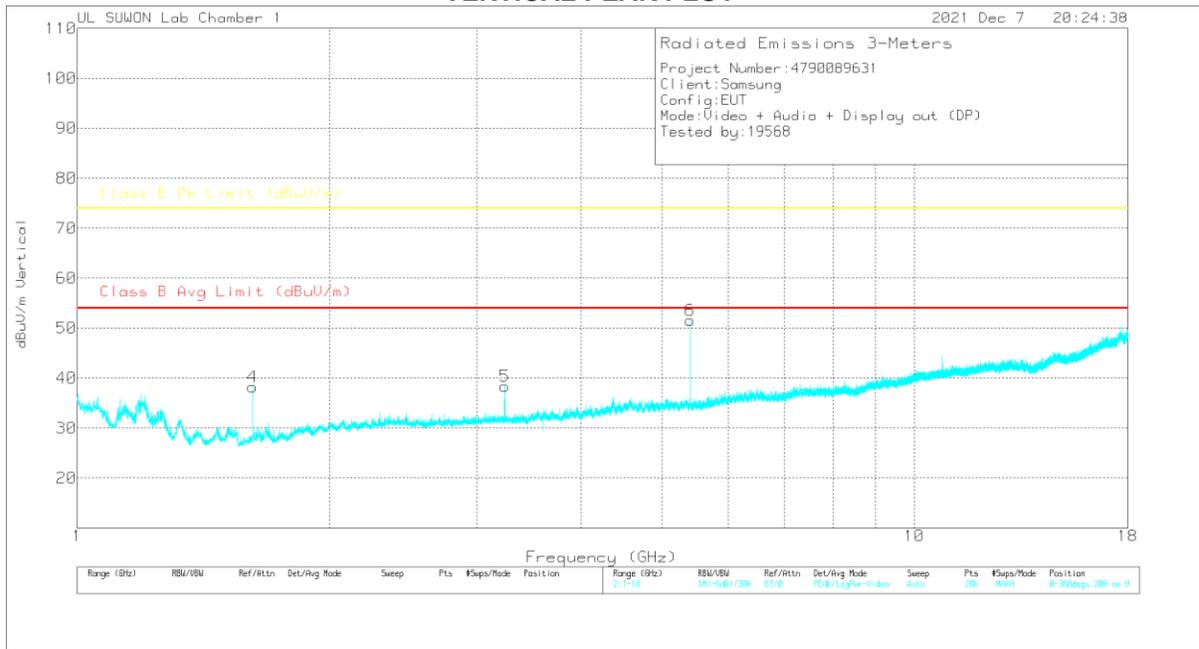
Ca - CISPR average detection

[Test case 4]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	48.39	PK	28.4	-36.5	40.29	-	-	74	-33.71	0-360	100	H
2	3.24012	42.01	PK	32.7	-33.8	40.91	-	-	74	-33.09	0-360	100	H
3	5.40071	44.69	PK	34.5	-31.1	48.09	-	-	74	-25.91	0-360	100	H
4	1.61983	46.34	PK	28.4	-36.5	38.24	-	-	74	-35.76	0-360	200	V
5	3.24012	39.42	PK	32.7	-33.8	38.32	-	-	74	-35.68	0-360	200	V
6	5.40071	48.2	PK	34.5	-31.1	51.6	-	-	74	-22.4	0-360	200	V

PK – Peak Detector

Radiated Emissions

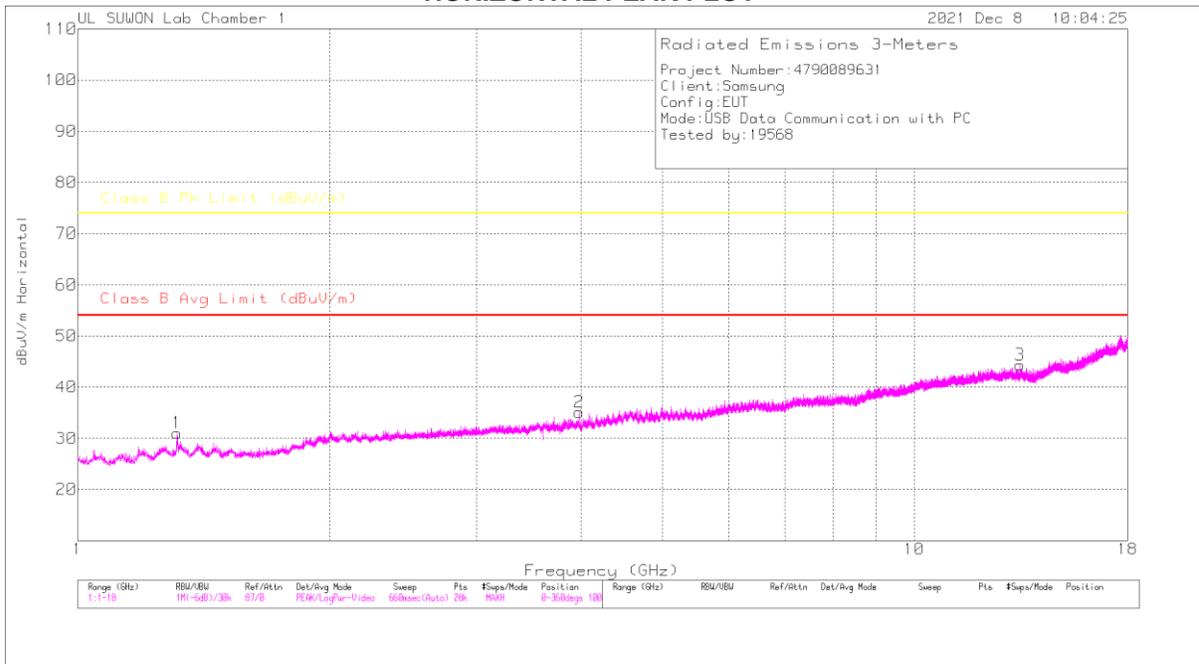
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.61983	51.02	Pk	28.4	-36.5	42.92	-	-	74	-31.08	332	100	H
1.61983	45.84	Ca	28.4	-36.5	37.74	54	-16.26	-	-	332	100	H
1.61983	51.91	Pk	28.4	-36.5	43.81	-	-	74	-30.19	188	114	V
1.61983	46.12	Ca	28.4	-36.5	38.02	54	-15.98	-	-	188	114	V
3.24012	49.13	Pk	32.7	-33.8	48.03	-	-	74	-25.97	125	283	H
3.24012	43.37	Ca	32.7	-33.8	42.27	54	-11.73	-	-	125	283	H
3.24012	46.39	Pk	32.7	-33.8	45.29	-	-	74	-28.71	162	291	V
3.24012	37.61	Ca	32.7	-33.8	36.51	54	-17.49	-	-	162	291	V
5.40071	45.49	Pk	34.5	-31.1	48.89	-	-	74	-25.11	113	100	H
5.40071	38.74	Ca	34.5	-31.1	42.14	54	-11.86	-	-	113	100	H
5.40071	51.09	Pk	34.5	-31.1	54.49	-	-	74	-19.51	188	106	V
5.40071	47.49	Ca	34.5	-31.1	50.89	54	-3.11	-	-	188	106	V

Pk - Peak detector

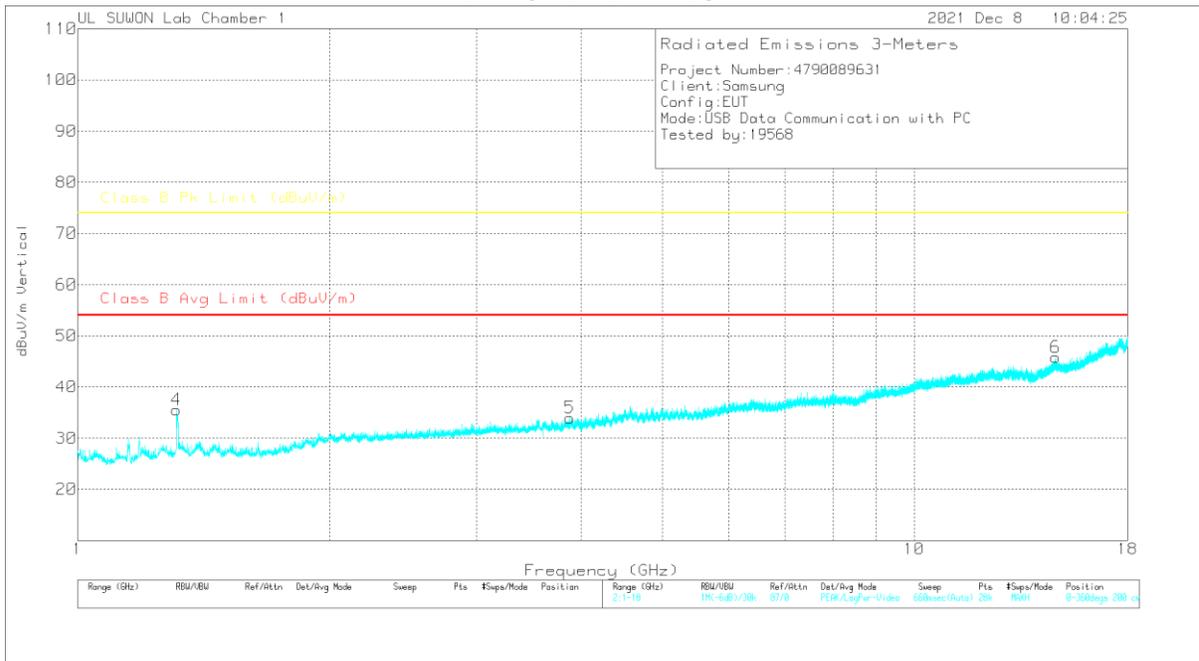
Ca - CISPR average detection

[Test case 5]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	1.31507	38.72	PK	29.5	-37.2	31.02	-	-	74	-42.98	0-360	100	H
2	3.9759	34.42	PK	33.4	-32.7	35.12	-	-	74	-38.88	0-360	100	H
3	13.39289	28.64	PK	38.7	-23	44.34	-	-	74	-29.66	0-360	100	H
4	1.31265	43.35	PK	29.4	-37.2	35.55	-	-	74	-38.45	0-360	200	V
5	3.87573	33.48	PK	33.3	-32.8	33.98	-	-	74	-40.02	0-360	200	V
6	14.75821	28.21	PK	40	-22.4	45.81	-	-	74	-28.19	0-360	200	V

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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
1.31507	50.92	Pk	29.5	-37.2	43.22	-	-	74	-30.78	124	292	H
1.31507	32.57	Ca	29.5	-37.2	24.87	54	-29.13	-	-	124	292	H
1.31265	45.54	Pk	29.4	-37.2	37.74	-	-	74	-36.26	48	205	V
1.31265	31.92	Ca	29.4	-37.2	24.12	54	-29.88	-	-	48	205	V
3.9759	39.34	Pk	33.4	-32.7	40.04	-	-	74	-33.96	0	100	H
3.9759	27.74	Ca	33.4	-32.7	28.44	54	-25.56	-	-	0	100	H
3.87573	39.92	Pk	33.3	-32.8	40.42	-	-	74	-33.58	0	100	V
3.87573	28.02	Ca	33.3	-32.8	28.52	54	-25.48	-	-	0	100	V
13.39289	35.55	PK	38.7	-23	51.25	-	-	74	-22.75	0	100	H
13.39289	23.26	Ca	38.7	-23	38.96	54	-15.04	-	-	0	100	H
14.75821	34.58	Pk	40	-22.4	52.18	-	-	74	-21.82	0	100	V
14.75821	22.74	Ca	40	-22.4	40.34	54	-13.66	-	-	0	100	V

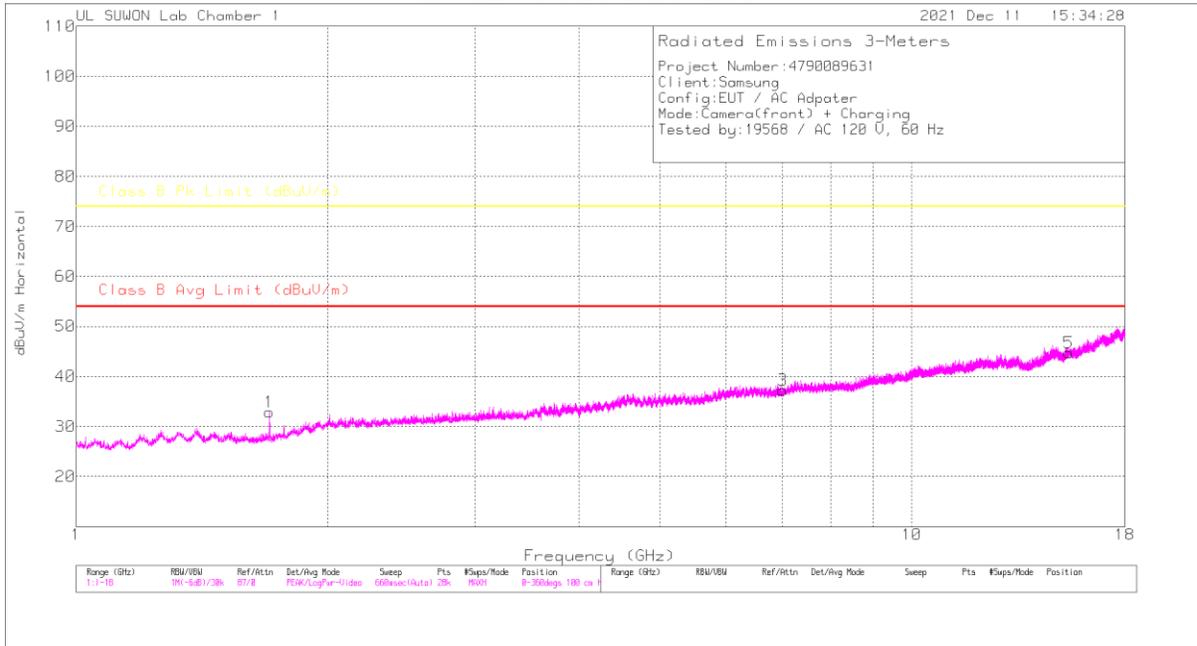
Pk - Peak detector

Ca - CISPR average detection

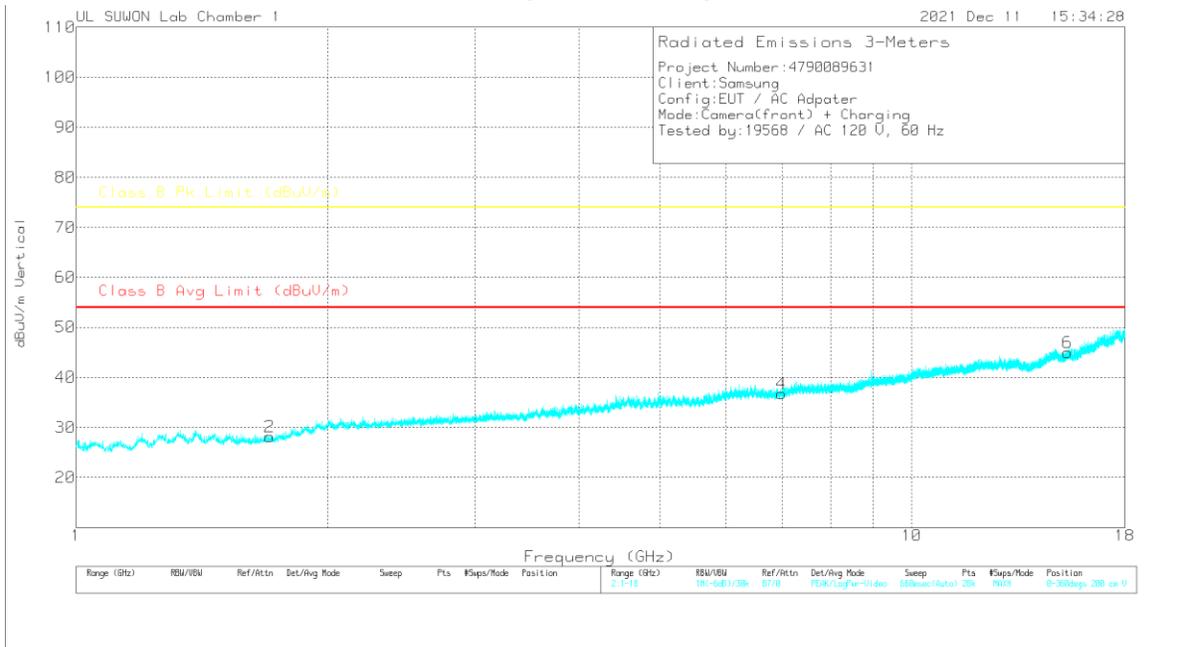
7.1.2.2. Version 3

[Test case 1]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	1.703	40.64	PK	28.6	-36.3	32.94	-	-	74	-41.06	0-360	100	H
3	7.00825	29.93	PK	35.8	-28.5	37.23	-	-	74	-36.77	0-360	100	H
5	15.41992	26.1	PK	40.1	-21.5	44.7	-	-	74	-29.3	0-360	100	H
2	1.70421	35.84	PK	28.6	-36.3	28.14	-	-	74	-45.86	0-360	200	V
4	6.98457	29.58	PK	35.7	-28.5	36.78	-	-	74	-37.22	0-360	200	V
6	15.37014	26.6	PK	40.1	-21.7	45	-	-	74	-29	0-360	200	V

Pk - Peak detector

Radiated Emissions

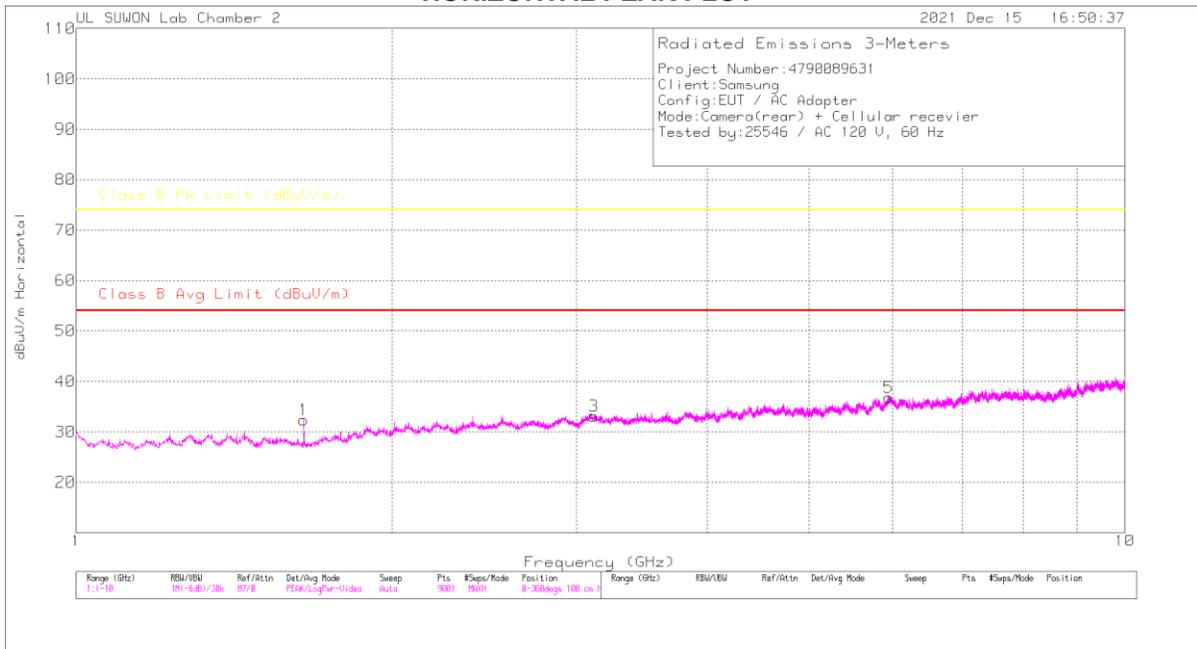
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.703	43.39	Pk	28.6	-36.3	35.69	-	-	74	-38.31	156	111	H
1.703	31.09	Ca	28.6	-36.3	23.39	54	-30.61	-	-	156	111	H
7.00825	37.04	Pk	35.8	-28.5	44.34	-	-	74	-29.66	0	100	H
7.00825	25	Ca	35.8	-28.5	32.3	54	-21.7	-	-	0	100	H
15.41992	34	Pk	40.1	-21.5	52.6	-	-	74	-21.4	0	100	H
15.41992	22.04	Ca	40.1	-21.5	40.64	54	-13.36	-	-	0	100	H
1.70421	42.94	Pk	28.6	-36.3	35.24	-	-	74	-38.76	0	200	V
1.70421	31	Ca	28.6	-36.3	23.3	54	-30.7	-	-	0	200	V
6.98457	37.32	Pk	35.7	-28.5	44.52	-	-	74	-29.48	0	200	V
6.98457	25.31	Ca	35.7	-28.5	32.51	54	-21.49	-	-	0	200	V
15.37014	34.25	Pk	40.1	-21.7	52.65	-	-	74	-21.35	0	200	V
15.37014	22.45	Ca	40.1	-21.7	40.85	54	-13.15	-	-	0	200	V

Pk - Peak detector

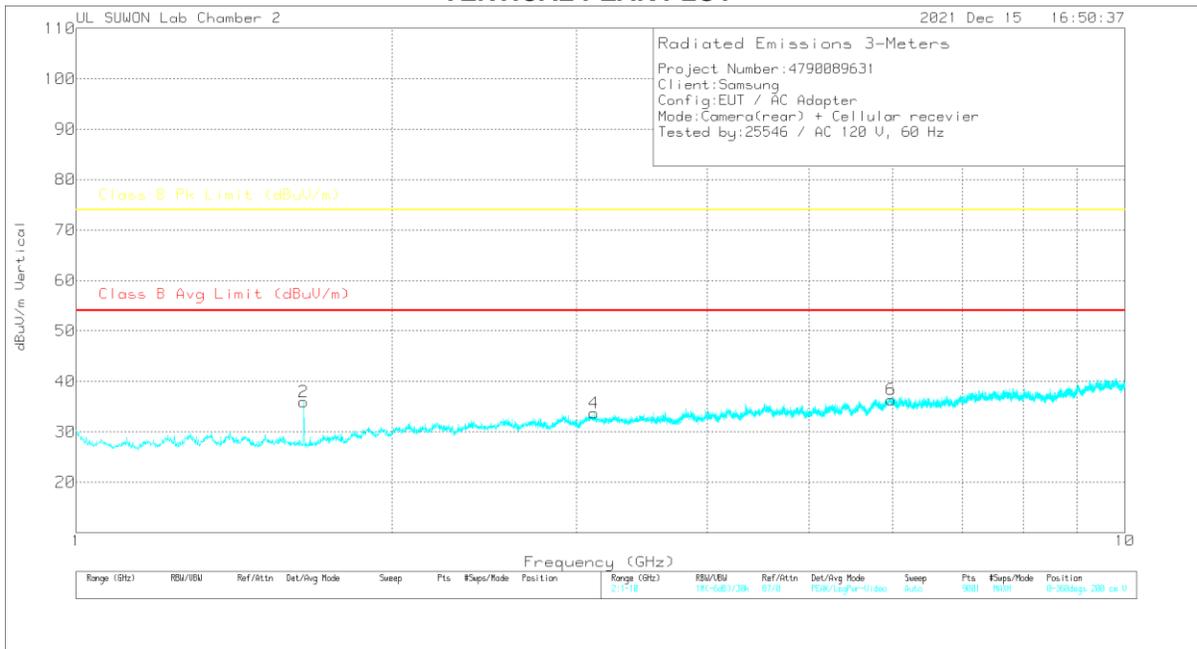
Ca - CISPR average detection

[Test case 2]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HP[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	1.648	34.32	Avg	28.6	-31.4	.8	32.32	-	-	74	-41.68	0-360	100	H
3	3.118	29.35	Avg	32.9	-29.8	.7	33.15	-	-	74	-40.85	0-360	100	H
5	5.954	29.73	Avg	35.1	-27.5	.5	36.83	-	-	74	-37.17	0-360	100	H
2	1.648	37.97	Avg	28.6	-31.4	.8	35.97	-	-	74	-38.03	0-360	200	V
4	3.118	29.81	Avg	32.9	-29.7	.7	33.71	-	-	74	-40.29	0-360	200	V
6	5.986	28.28	Avg	35.1	-27.5	.5	36.38	-	-	74	-37.62	0-360	200	V

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

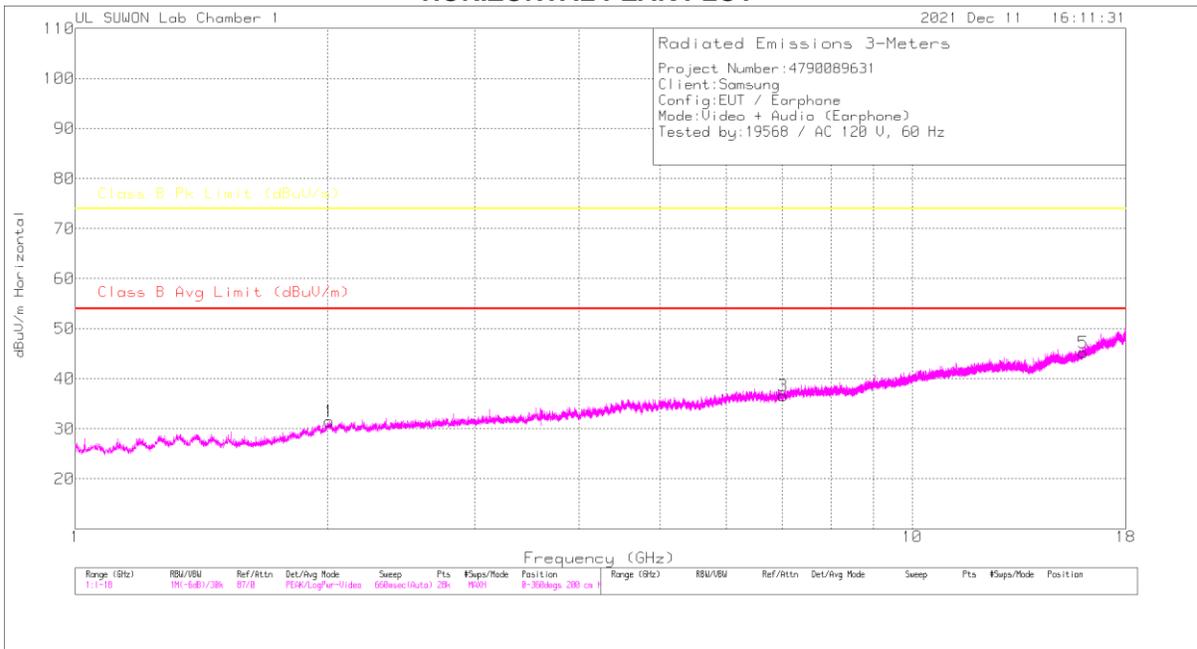
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HP[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3.118	37.04	Pk	32.9	-29.8	.7	40.84	-	-	74	-33.16	0	100	H
3.118	24.04	Ca	32.9	-29.8	.7	27.84	54	-26.16	-	-	0	100	H
3.116	37.36	Pk	32.9	-29.7	.7	41.26	-	-	74	-32.74	0	100	V
3.116	24.05	Ca	32.9	-29.7	.7	27.95	54	-26.05	-	-	0	100	V
5.954	37.35	Pk	35.1	-27.5	.5	45.45	-	-	74	-28.55	0	100	H
5.954	23.57	Ca	35.1	-27.5	.5	31.67	54	-22.33	-	-	0	100	H
5.996	36.87	Pk	35.2	-27.5	.5	45.07	-	-	74	-28.93	0	100	V
5.996	23.63	Ca	35.2	-27.5	.5	31.83	54	-22.17	-	-	0	100	V
1.64851	40.79	Pk	28.6	-31.4	.8	38.79	-	-	74	-35.21	101	163	H
1.64851	25.94	Ca	28.6	-31.4	.8	23.94	54	-30.06	-	-	101	163	H
1.6485	48.34	Pk	28.6	-31.4	.8	46.34	-	-	74	-27.66	264	324	V
1.6485	31.09	Ca	28.6	-31.4	.8	29.09	54	-24.91	-	-	264	324	V

Pk - Peak detector

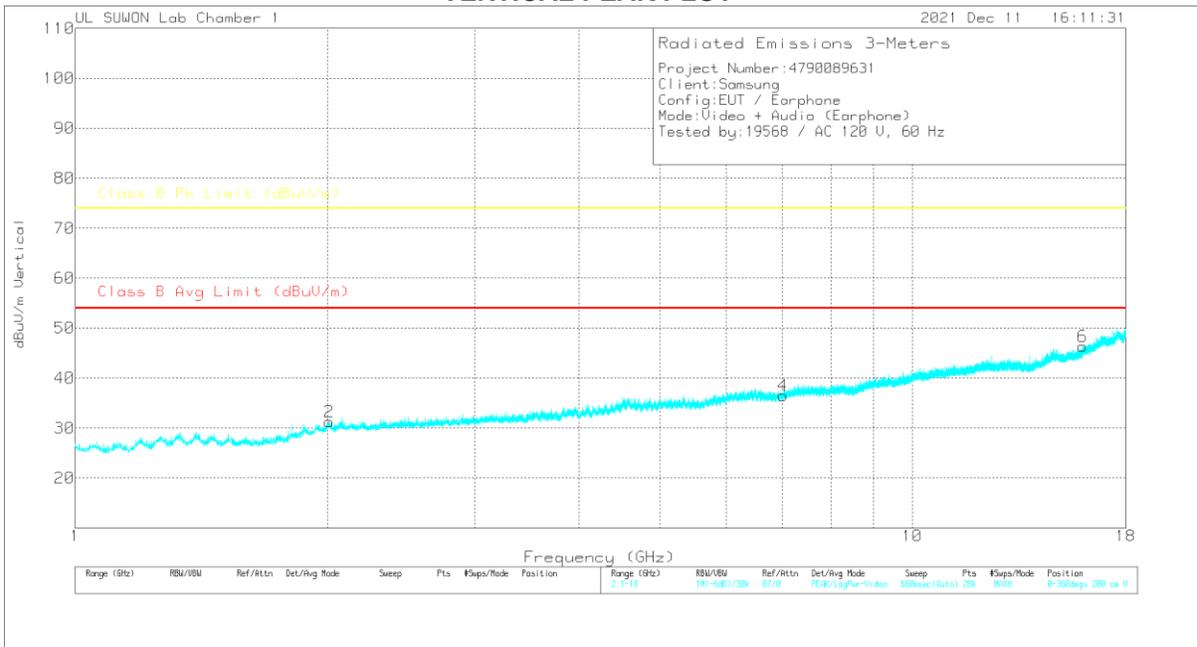
Ca - CISPR average detection

[Test case 3]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	2.012	35.68	PK	31.5	-35.7	31.48	-	-	74	-42.52	0-360	200	H
3	7.01129	29.17	PK	35.8	-28.4	36.57	-	-	74	-37.43	0-360	100	H
5	16.01365	25.78	PK	40.4	-20.9	45.28	-	-	74	-28.72	0-360	100	H
2	2.01078	35.44	PK	31.5	-35.7	31.24	-	-	74	-42.76	0-360	200	V
4	7.01311	29.1	PK	35.8	-28.4	36.5	-	-	74	-37.5	0-360	200	V
6	15.98815	27.2	PK	40.4	-21.2	46.4	-	-	74	-27.6	0-360	200	V

Pk - Peak detector

Radiated Emissions

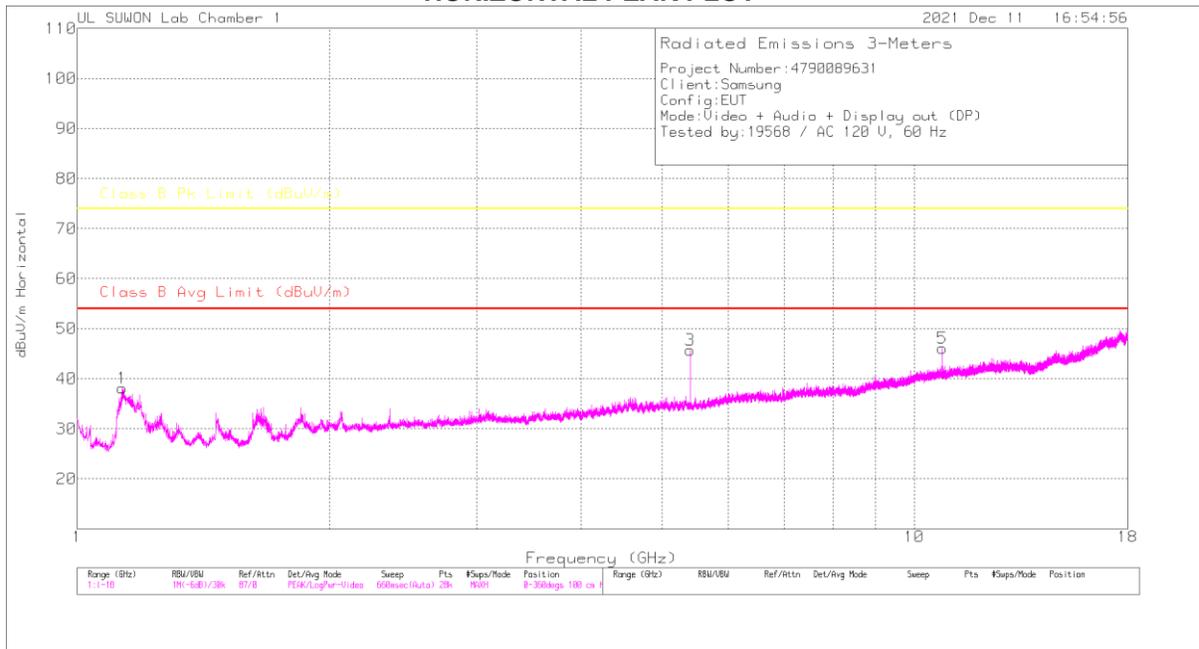
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.012	42.96	Pk	31.5	-35.7	38.76	-	-	74	-35.24	0	200	H
2.012	30.66	Ca	31.5	-35.7	26.46	54	-27.54	-	-	0	200	H
7.01129	37.16	Pk	35.8	-28.4	44.56	-	-	74	-29.44	0	100	H
7.01129	24.88	Ca	35.8	-28.4	32.28	54	-21.72	-	-	0	100	H
16.01365	34.61	PK	40.4	-20.9	54.11	-	-	74	-19.89	0	100	H
16.01365	22.14	Ca	40.4	-20.9	41.64	54	-12.36	-	-	0	100	H
2.01078	42.3	Pk	31.5	-35.7	38.1	-	-	74	-35.9	0	200	V
2.01078	30.65	Ca	31.5	-35.7	26.45	54	-27.55	-	-	0	200	V
7.01311	37.21	Pk	35.8	-28.4	44.61	-	-	74	-29.39	0	200	V
7.01311	24.88	Ca	35.8	-28.4	32.28	54	-21.72	-	-	0	200	V
15.98815	34.54	Pk	40.4	-21.2	53.74	-	-	74	-20.26	0	200	V
15.98815	22.26	Ca	40.4	-21.2	41.46	54	-12.54	-	-	0	200	V

Pk - Peak detector

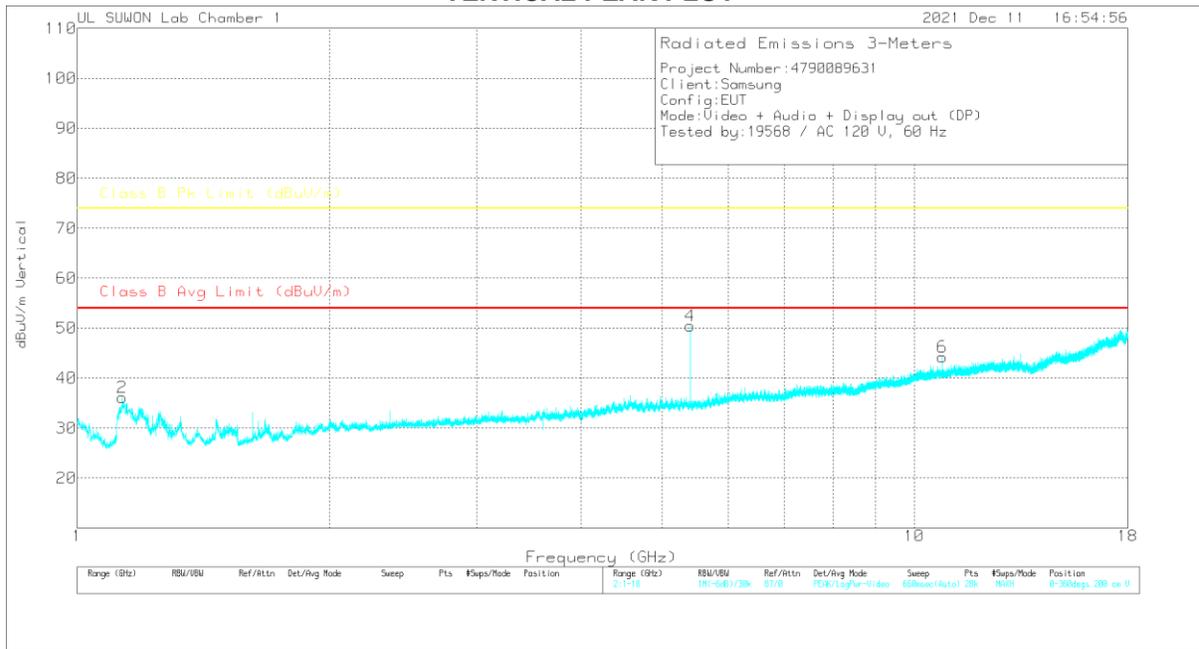
Ca - CISPR average detection

[Test case 4]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	1.13052	47.84	PK	27.8	-37.5	38.14	-	-	74	-35.86	0-360	100	H
3	5.40071	42.34	PK	34.5	-31.1	45.74	-	-	74	-28.26	0-360	100	H
5	10.80188	30.52	PK	38.1	-22.5	46.12	-	-	74	-27.88	0-360	100	H
2	1.13234	45.85	PK	27.8	-37.5	36.15	-	-	74	-37.85	0-360	200	V
4	5.40071	47.04	PK	34.5	-31.1	50.44	-	-	74	-23.56	0-360	200	V
6	10.80188	28.67	PK	38.1	-22.5	44.27	-	-	74	-29.73	0-360	200	V

Pk - Peak detector

Radiated Emissions

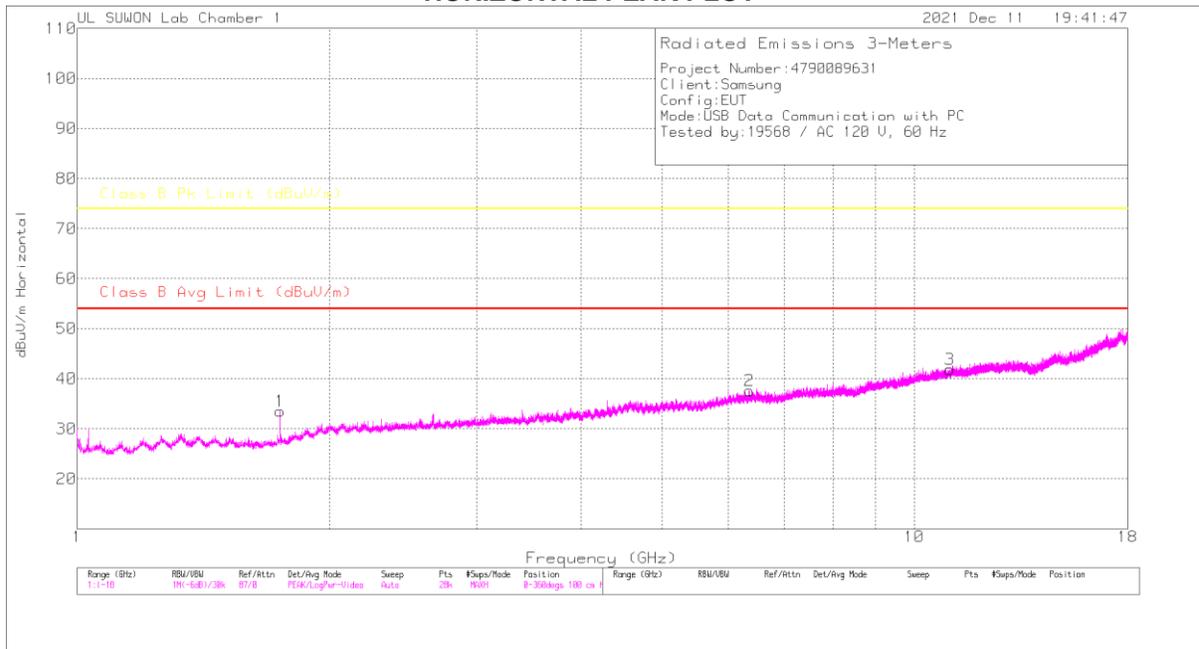
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.13052	59.34	Pk	27.8	-37.5	49.64	-	-	74	-24.36	148	156	H
1.13052	37.2	Ca	27.8	-37.5	27.5	54	-26.5	-	-	148	156	H
1.13052	59.53	Pk	27.8	-37.5	49.83	-	-	74	-24.17	210	139	V
1.13052	37	Ca	27.8	-37.5	27.3	54	-26.7	-	-	210	139	V
5.40084	48.53	PK	34.5	-31.1	51.93	-	-	74	-22.07	222	366	H
5.40084	44.58	Ca	34.5	-31.1	47.98	54	-6.02	-	-	222	366	H
5.40084	50.37	Pk	34.5	-31.1	53.77	-	-	74	-20.23	217	100	V
5.40084	46.74	Ca	34.5	-31.1	50.14	54	-3.86	-	-	217	100	V
10.80175	37.36	Pk	38.1	-22.5	52.96	-	-	74	-21.04	253	200	H
10.80175	28.91	Ca	38.1	-22.5	44.51	54	-9.49	-	-	253	200	H
10.80175	36.69	Pk	38.1	-22.5	52.29	-	-	74	-21.71	236	260	V
10.80175	26.64	Ca	38.1	-22.5	42.24	54	-11.76	-	-	236	260	V

Pk - Peak detector

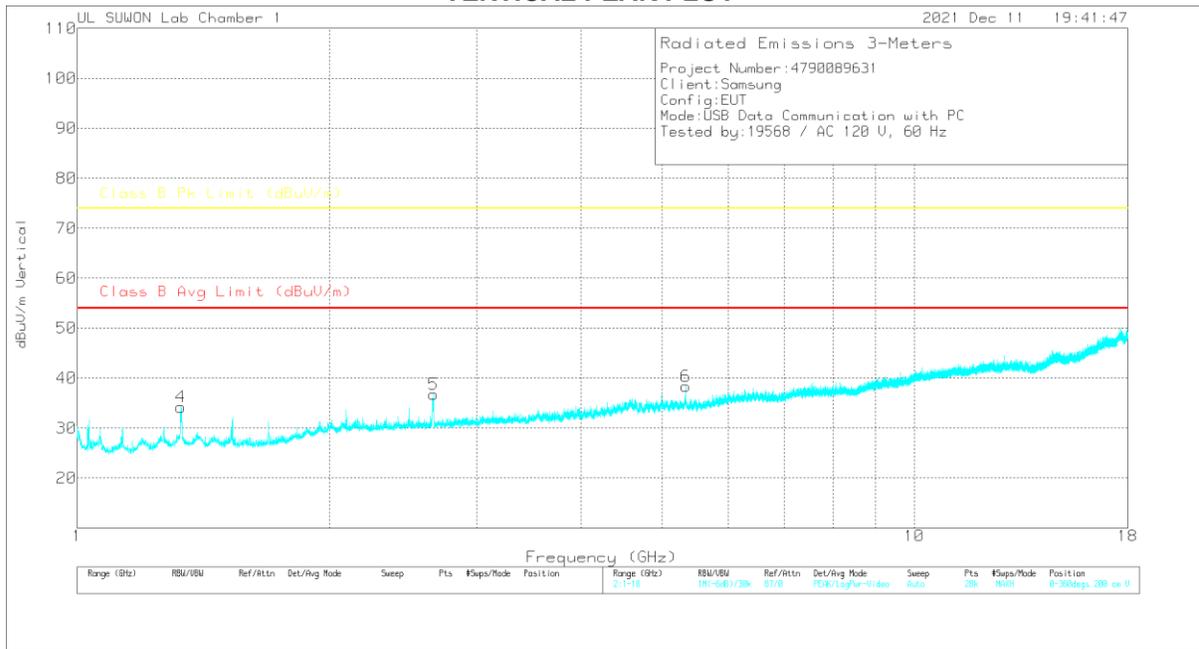
Ca - CISPR average detection

[Test case 5]

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	1.74731	40.77	PK	29	-36.3	33.47	-	-	74	-40.53	0-360	100	H
2	6.36171	31.74	PK	35.5	-29.6	37.64	-	-	74	-36.36	0-360	100	H
3	11.03561	26.01	PK	38.3	-22.5	41.81	-	-	74	-32.19	0-360	100	H
4	1.33025	41.8	PK	29.5	-37.1	34.2	-	-	74	-39.8	0-360	200	V
5	2.66461	39.2	PK	32.1	-34.5	36.8	-	-	74	-37.2	0-360	200	V
6	5.33272	35.17	PK	34.5	-31.3	38.37	-	-	74	-35.63	0-360	200	V

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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
1.74731	43.14	Pk	29	-36.3	35.84	-	-	74	-38.16	337	134	H
1.74731	30.8	Ca	29	-36.3	23.5	54	-30.5	-	-	337	134	H
6.36171	38.38	Pk	35.5	-29.6	44.28	-	-	74	-29.72	360	100	H
6.36171	26.32	Ca	35.5	-29.6	32.22	54	-21.78	-	-	360	100	H
11.03561	33.83	PK	38.3	-22.5	49.63	-	-	74	-24.37	360	100	H
11.03561	21.75	Ca	38.3	-22.5	37.55	54	-16.45	-	-	360	100	H
1.33025	48.24	Pk	29.5	-37.1	40.64	-	-	74	-33.36	131	236	V
1.33025	31.69	Ca	29.5	-37.1	24.09	54	-29.91	-	-	131	236	V
2.66461	44.8	Pk	32.1	-34.5	42.4	-	-	74	-31.6	190	100	V
2.66461	28.91	Ca	32.1	-34.5	26.51	54	-27.49	-	-	190	100	V
5.33272	40.62	Pk	34.5	-31.3	43.82	-	-	74	-30.18	8	216	V
5.33272	27.7	Ca	34.5	-31.3	30.9	54	-23.1	-	-	8	216	V

Pk - Peak detector

Ca - CISPR average detection

7.2. 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.

7.2.1. CONDUCTED EMISSIONS

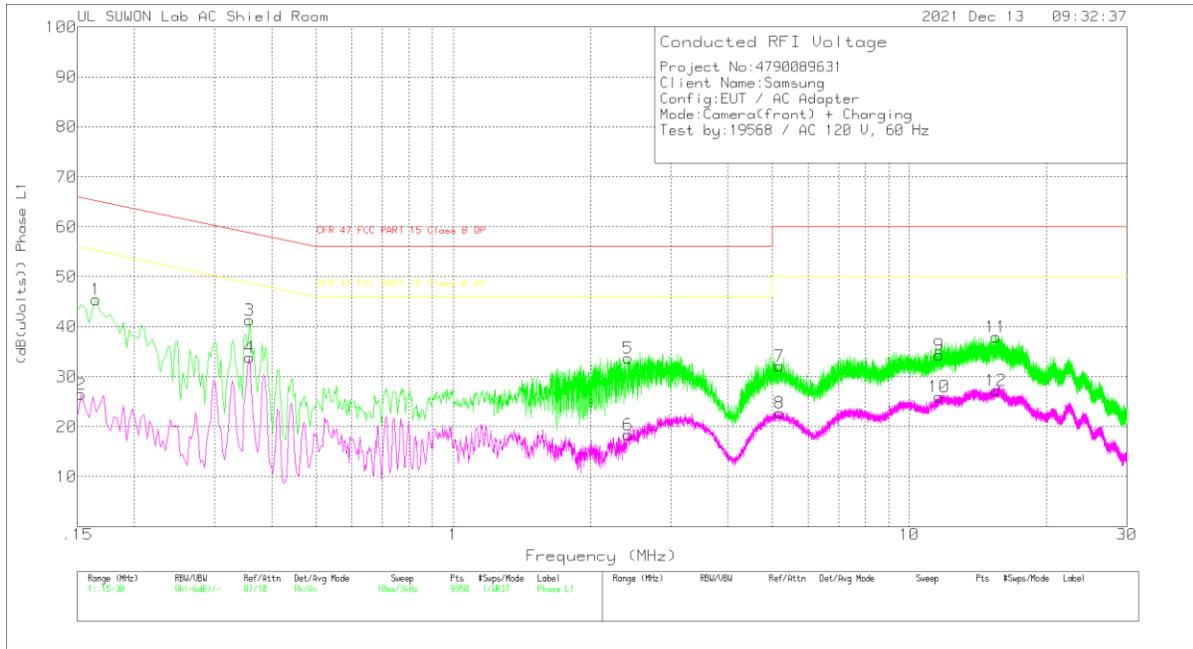
7.2.1.1. Version 2

[Test case 1]

6 WORST EMISSIONS

Line-L1 .15 – 30 MHz

LINE 1 RESULTS



Trace Markers

Range 1: Phase L1 .15 - 30MHz

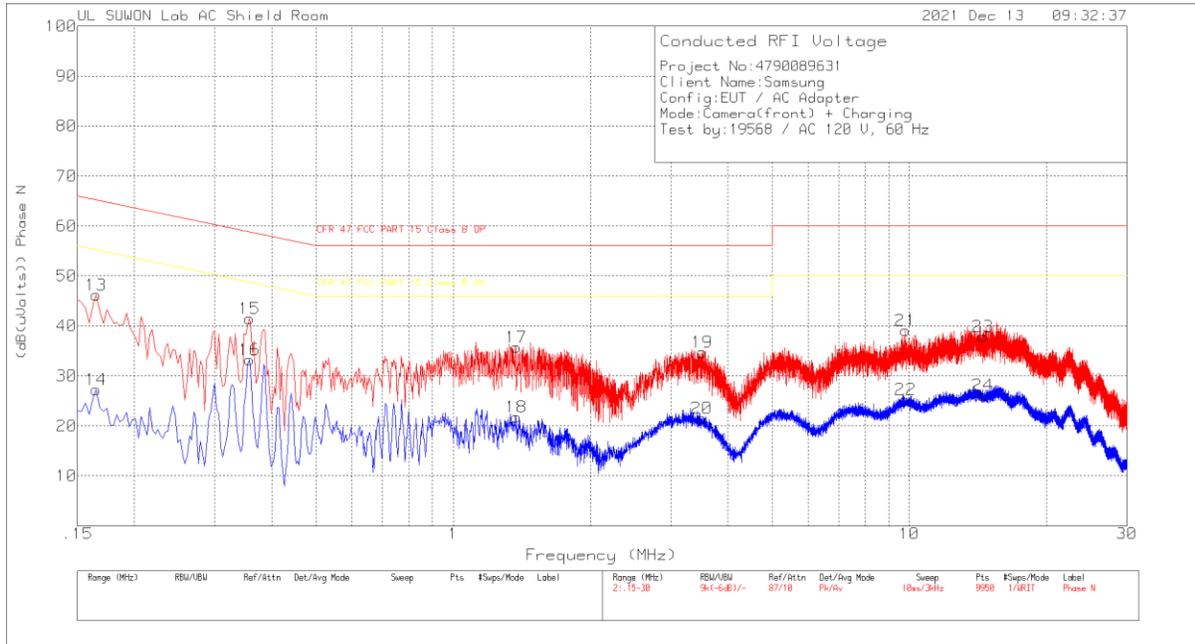
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1[dB]	CABLELOSS (dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.165	35.44	Pk	9.9	.1	45.44	65.21	-19.77	-	-
2	.153	16.57	Av	9.8	.1	26.47	-	-	55.84	-29.37
3	.357	31.36	Pk	9.8	.2	41.36	58.8	-17.44	-	-
4	.357	23.82	Av	9.8	.2	33.82	-	-	48.8	-14.98
5	2.415	23.75	Pk	9.7	.3	33.75	56	-22.25	-	-
6	2.415	8.45	Av	9.7	.3	18.45	-	-	46	-27.55
7	5.199	22.13	Pk	9.7	.3	32.13	60	-27.87	-	-
8	5.199	12.74	Av	9.7	.3	22.74	-	-	50	-27.26
9	11.613	24.21	Pk	9.9	.3	34.41	60	-25.59	-	-
10	11.622	15.78	Av	9.9	.3	25.98	-	-	50	-24.02
11	15.501	27.6	Pk	10	.4	38	60	-22	-	-
12	15.471	16.89	Av	10	.4	27.29	-	-	50	-22.71

Pk - Peak detector

Av - Average detection

Line-L2 .15 – 30 MHz

LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N[dB]	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	.165	36.25	Pk	9.9	.1	46.25	65.21	-18.96	-	-
14	.165	17.3	Av	9.9	.1	27.3	-	-	55.21	-27.91
15	.357	31.49	Pk	9.8	.2	41.49	58.8	-17.31	-	-
16	.357	23.21	Av	9.8	.2	33.21	-	-	48.8	-15.59
17	1.377	25.75	Pk	9.7	.3	35.75	56	-20.25	-	-
18	1.377	11.82	Av	9.7	.3	21.82	-	-	46	-24.18
19	3.519	24.75	Pk	9.7	.3	34.75	56	-21.25	-	-
20	3.504	11.53	Av	9.7	.3	21.53	-	-	46	-24.47
21	9.822	28.83	Pk	9.9	.4	39.13	60	-20.87	-	-
22	9.804	14.99	Av	9.9	.4	25.29	-	-	50	-24.71
23	14.496	27.37	Pk	10.1	.4	37.87	60	-22.13	-	-
24	14.505	15.63	Av	10.1	.4	26.13	-	-	50	-23.87

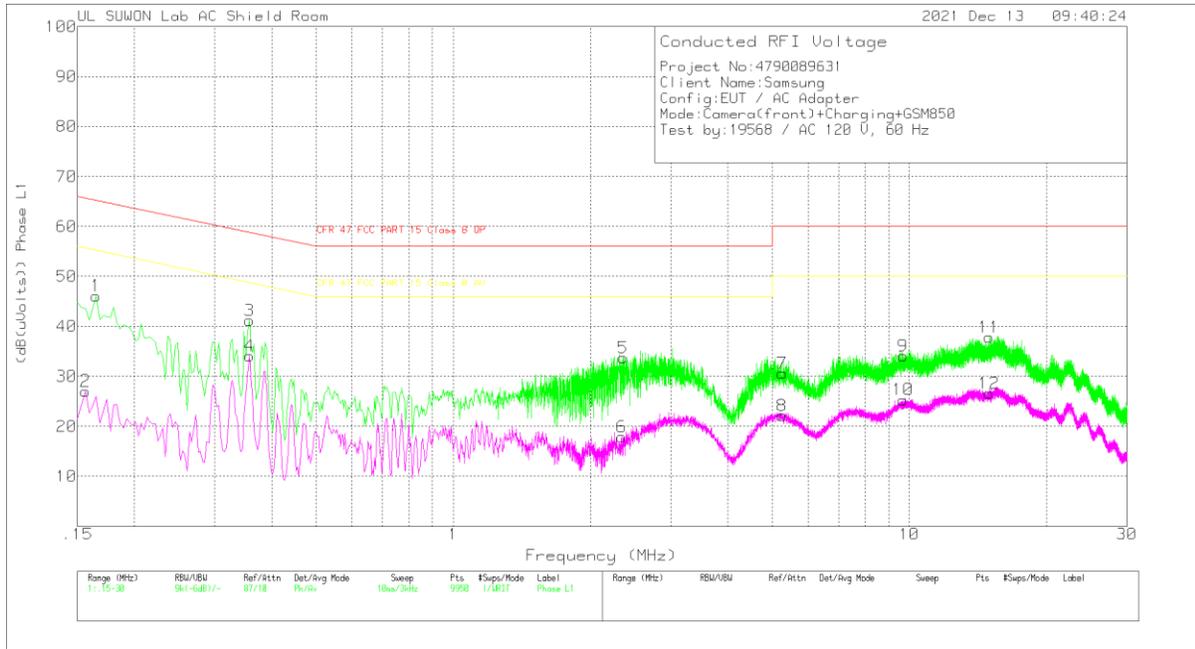
Pk - Peak detector
 Av - Average detection

[Test case 2]

6 WORST EMISSIONS

Line-L1 .15 – 30 MHz

LINE 1 RESULTS



Trace Markers

Range 1: Phase L1 .15 - 30MHz

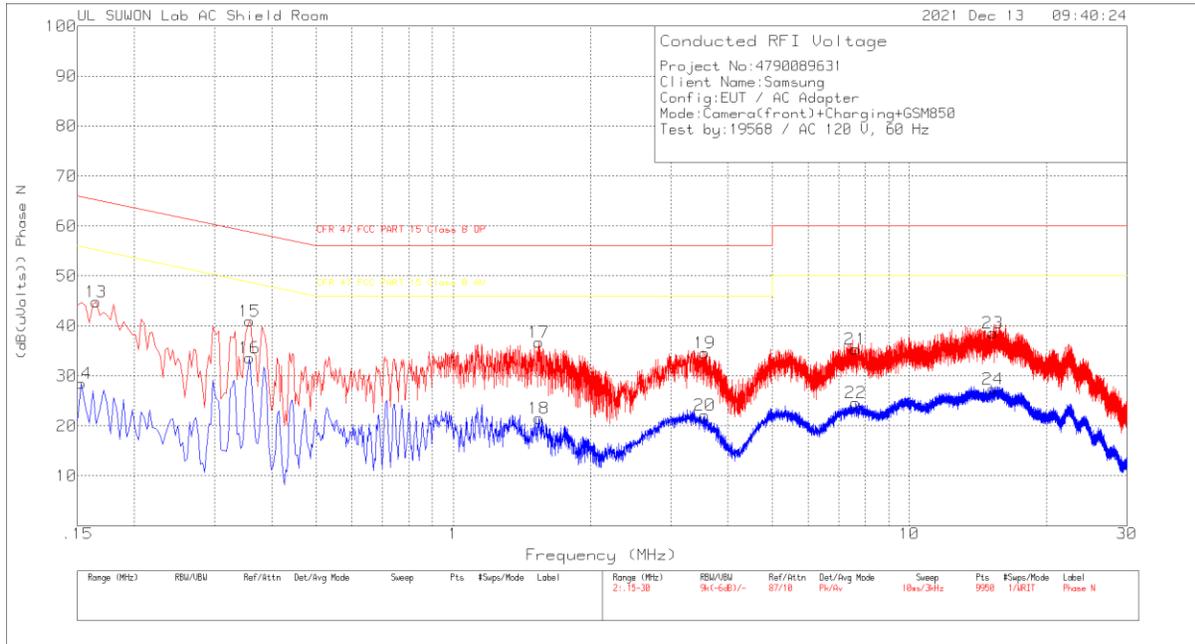
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1[dB]	CABLELOSS (dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.165	36.13	Pk	9.9	.1	46.13	65.21	-19.08	-	-
2	.156	17.16	Av	9.8	.1	27.06	-	-	55.67	-28.61
3	.357	31.23	Pk	9.8	.2	41.23	58.8	-17.57	-	-
4	.357	24.16	Av	9.8	.2	34.16	-	-	48.8	-14.64
5	2.358	23.77	Pk	9.7	.3	33.77	56	-22.23	-	-
6	2.34	7.87	Av	9.7	.3	17.87	-	-	46	-28.13
7	5.268	20.56	Pk	9.7	.3	30.56	60	-29.44	-	-
8	5.256	12.16	Av	9.7	.3	22.16	-	-	50	-27.84
9	9.696	23.94	Pk	9.8	.4	34.14	60	-25.86	-	-
10	9.696	15.12	Av	9.8	.4	25.32	-	-	50	-24.68
11	14.97	27.47	Pk	10	.4	37.87	60	-22.13	-	-
12	14.955	16.18	Av	10	.4	26.58	-	-	50	-23.42

Pk - Peak detector

Av - Average detection

Line-L2 .15 – 30 MHz

LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N[dB]	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	.165	34.84	Pk	9.9	.1	44.84	65.21	-20.37	-	-
14	.153	18.63	Av	9.8	.1	28.53	-	-	55.84	-27.31
15	.357	31.01	Pk	9.8	.2	41.01	58.8	-17.79	-	-
16	.357	23.66	Av	9.8	.2	33.66	-	-	48.8	-15.14
17	1.542	26.77	Pk	9.7	.3	36.77	56	-19.23	-	-
18	1.542	11.52	Av	9.7	.3	21.52	-	-	46	-24.48
19	3.558	24.63	Pk	9.7	.3	34.63	56	-21.37	-	-
20	3.555	12.11	Av	9.7	.3	22.11	-	-	46	-23.89
21	7.614	25.2	Pk	9.8	.3	35.3	60	-24.7	-	-
22	7.632	14.54	Av	9.8	.3	24.64	-	-	50	-25.36
23	15.249	28.1	Pk	10.1	.4	38.6	60	-21.4	-	-
24	15.243	16.92	Av	10.1	.4	27.42	-	-	50	-22.58

Pk - Peak detector
 Av - Average detection