



CERTIFICATION TEST REPORT

Report Number. : 4790302419-E7V4

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

Model : SM-A136B/DSN, SM-A136B/N

FCC ID : A3LSMA136B

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

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

Date Of Issue:

2022-05-04

Prepared by:

UL Korea, Ltd.

26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL Korea, Ltd. Suwon Laboratory

218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea

TEL: (031) 337-9902

FAX: (031) 213-5433



ACCREDITED

Testing Laboratory

TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2022-03-26	Initial issue	Sungeun Lee
V2	2022-04-27	Updated to address TCB's question	Sungeun Lee
V3	2022-04-29	Updated to address TCB's question	Sungeun Lee
V4	2022-05-04	Add model name	Sungeun Lee

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	6
4.1. <i>MEASURING INSTRUMENT CALIBRATION.....</i>	6
4.2. <i>SAMPLE CALCULATION.....</i>	6
4.3. <i>MEASUREMENT UNCERTAINTY</i>	6
4.4. <i>DECISION RULE</i>	6
5. EQUIPMENT UNDER TEST.....	7
5.1. <i>DESCRIPTION OF EUT.....</i>	7
5.2. <i>MAXIMUM E-FIELD STRENGTH.....</i>	7
5.3. <i>WORST-CASE CONFIGURATION AND MODE</i>	7
5.4. <i>DESCRIPTION OF TEST SETUP</i>	8
6. TEST AND MEASUREMENT EQUIPMENT	9
7. 20dB BANDWIDTH	10
8. RADIATED EMISSION TEST RESULTS.....	11
8.1. <i>LIMITS AND PROCEDURE</i>	11
8.1.1. <i>FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz)</i>	13
8.1.2. <i>SPURIOUS EMISSION 0.009 TO 30 MHz.....</i>	14
8.1.3. <i>TX SPURIOUS EMISSION 30 TO 1000 MHz (USB C to C Cable).....</i>	15
8.1.4. <i>TX SPURIOUS EMISSION 30 TO 1000 MHz (USB A to C Cable).....</i>	16
8.1.5. <i>FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz) [EUT with passive TAG mode]</i>	17
8.1.6. <i>SPURIOUS EMISSION 0.09 TO 30 MHz [EUT with passive TAG mode].....</i>	18
8.1.7. <i>TX SPURIOUS EMISSION 30 TO 1000 MHz (USB C to C Cable) [EUT with passive TAG mode]</i>	19
8.1.8. <i>TX SPURIOUS EMISSION 30 TO 1000 MHz (USB A to C Cable) [EUT with passive TAG mode]</i>	20
9. AC MAINS LINE CONDUCTED EMISSIONS.....	21
9.1. <i>USB C to C Cable</i>	22
9.2. <i>USB A to C Cable</i>	26
10. FREQUENCY STABILITY	30

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 and NFC
MODEL NUMBER: SM-A136B/DSN, SM-A136B/N
SERIAL NUMBER: R3CT209QMHH (RADIATED);
DATE TESTED: 2022-02-16 ~ 2022-04-29;

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies

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:



Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Sungeun Lee
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 C63.10-2013.
4. 414788 D01 Radiated Test Site v01r01

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 type="checkbox"/>	Chamber 1(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 2(3m semi-anechoic chamber)
<input type="checkbox"/>	Chamber 3(3m semi-anechoic chamber)
<input type="checkbox"/>	Chamber 4(3m Full-anechoic chamber)
<input type="checkbox"/>	Chamber 5(3m Full-anechoic chamber)

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:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.02 dB
Radiated Disturbance, 9 kHz to 30 MHz	1.72 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 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 and NFC. This test report addresses the DXX (NFC) operational mode.

This report covers the Samsung models SM-A136B/DSN and SM-A136B/N. These models are identical in hardware except SM-A136B/N has single SIM tray. With some pre-scan, model SM-A136B/DSN was set for final test.

5.2. MAXIMUM E-FIELD STRENGTH

The testing was performed at 3 meter. The transmitter maximum E-field at 30m distance is 17.69 dBuV/m which convert from 3 meter data.

5.3. WORST-CASE CONFIGURATION AND MODE

The NFC function was tested at its' fundamental and only operational frequency of 13.56 MHz.

The NFC with tag mode's fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that the Y orientation was the worst-case orientation; therefore all final radiated testing was performed with the EUT in the Y orientation while generating continuous emissions.

The NFC without tag mode's fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that the Y orientation was the worst-case orientation; therefore all final radiated testing was performed with the EUT in the Y orientation while generating continuous emissions.

The fundamental level of the EUT was investigated each type and bitrate. All test was performed worst case condition(type A and bit rate 106 kbps).

Radiated(fundamental level and spurious emissions) tests were performed both without reading a passive tag condition[test mode] and with reading a passive tag condition.

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37MANQ1E72SE3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02115A BWE	N/A
Charger	SAMSUNG	EP-TA200	R37KC6F39T1SE3	N/A
Data Cable	SAMSUNG	EP-DR140AWE	GH39-01999A	N/A
Earphone	SAMSUNG	GH59-15055A	EHS64AVFWE	N/A

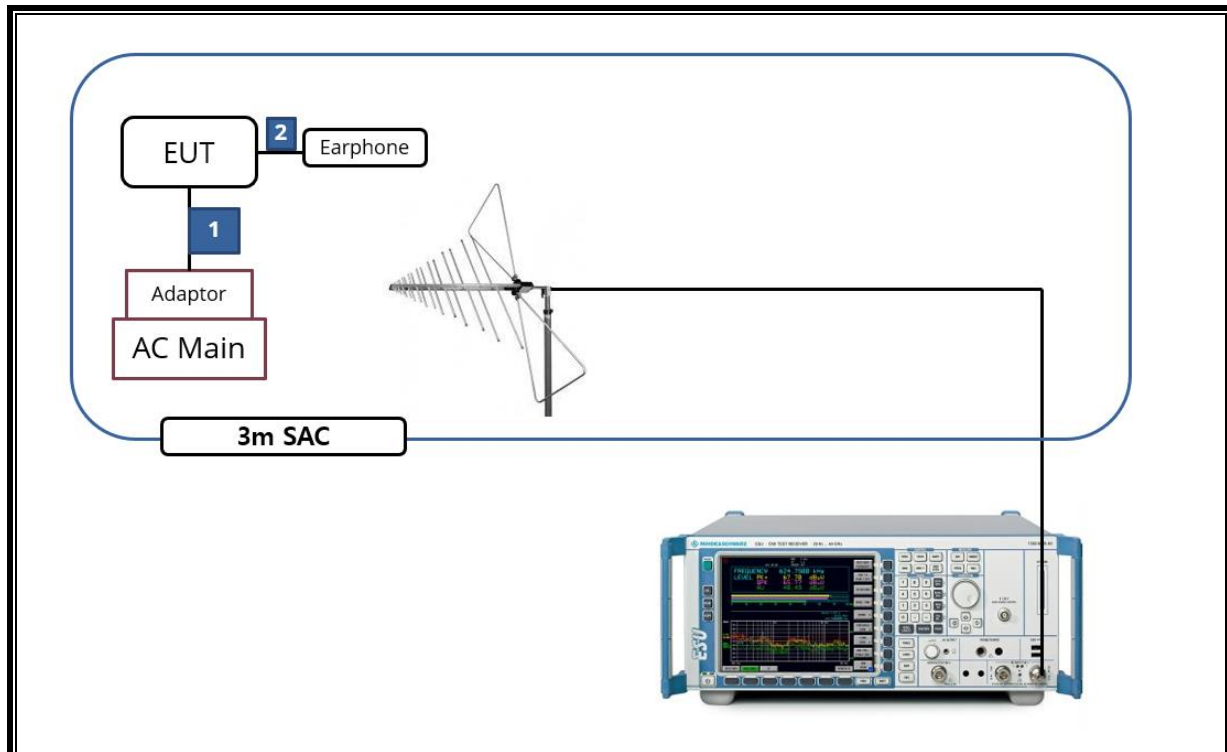
I/O CABLE

I/O Cable List						
Cable No.	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C to C Type	Shielded	1.0 m	N/A
2	DC Power	1	A to C Type	Shielded	1.0 m	N/A
3	Audio	2	Mini-Jack	Unshielded	0.7 m	N/A

The EUT is a stand-alone device configured and tested in a worst-case setup.

Note: Worst case is using worst case orientation with AC charger attached to the EUT with NFC signal continuously transmitting.

SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2022-08-13
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2022-08-13
Preamplifier, 1000 MHz	Sonoma	310N	341282	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2022-08-02
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY542200580	2022-08-02
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2022-08-02
DC Power Supply	Agilent / HP	E3640A	MY54226395	2022-08-02
Temperature Chamber	ESPEC	SH-642	93001109	2022-08-02
LISN	R&S	ENV216	101837	2022-08-05
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06
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. 20dB BANDWIDTH

LIMITS

§15.215

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated

§15.225

Operation within the band 13.110 – 14.010MHz

TEST PROCEDURE

The spectrum analyzer connected receive antenna and the EUT placed on near the receive antenna. The RBW is set to 10kHz. The VBW is set to 3 times the RBW. The sweep time is coupled.

RESULTS

Frequency [MHz]	20 dB Bandwidth [kHz]
13.56	436.45

20dB Bandwidth Plot



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

§15.225

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:

§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:

Limit (dBuV/m) = 20 log limit (uV/m)

In addition:

§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

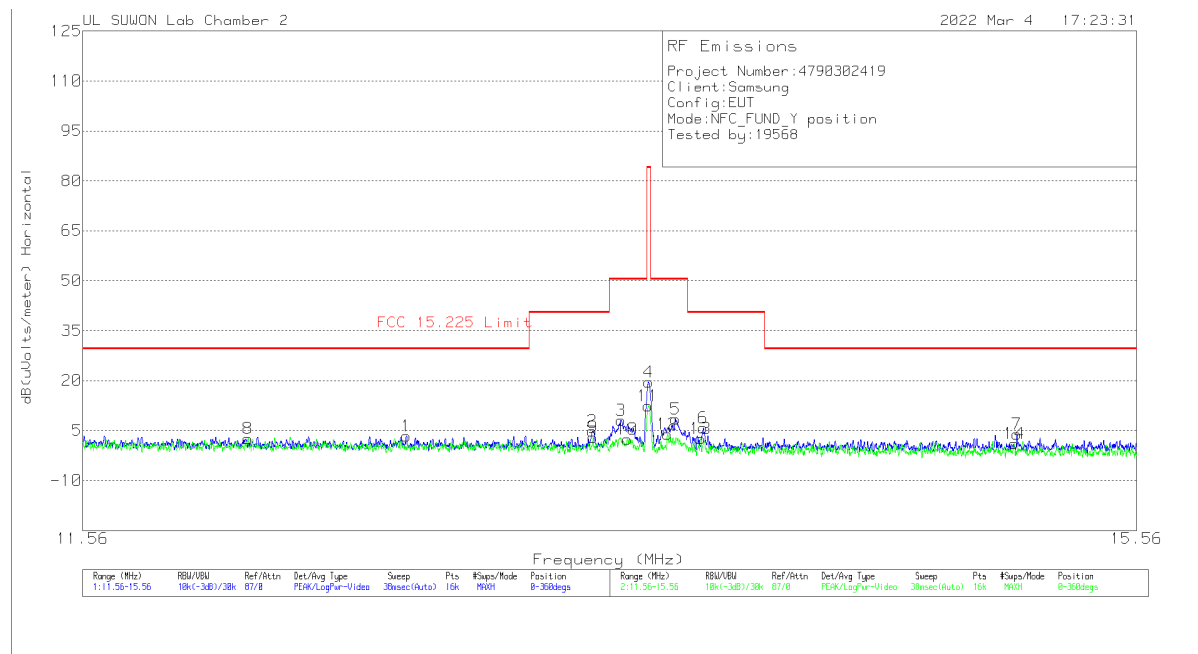
ANSI C63.10-2013

The EUT is an intentional radiator that incorporates a digital device. The highest fundamental frequency generated or used in the device is 13.56 MHz. The frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater (1000MHz)

RESULTS

No non-compliance noted:

8.1.1. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz) [EUT without passive TAG mode]



Trace Markers
 Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Dist Corr 30m	Cable Loss	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	Margin (dB)	Azimuth (Degs)
1	12.66488	22.89	Pk	20	-40	.5	3.39	29.54	-26.15	0-360
2	13.34688	24.45	Pk	20	-40	.5	4.95	40.51	-35.56	0-360
3	13.45438	27.62	Pk	20	-40	.5	8.12	50.5	-42.38	0-360
**4	13.55963	39.09	Pk	20	-40	.5	19.59	84	-64.41	0-360
5	13.66263	27.85	Pk	20	-40	.6	8.45	50.5	-42.05	0-360
6	13.77088	25.12	Pk	20	-40	.6	5.72	40.51	-34.79	0-360
7	15.04413	23.3	Pk	20	-40	.6	3.9	29.54	-25.64	0-360

Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Dist Corr 30m	Cable Loss	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	Margin (dB)	Azimuth (Degs)
8	12.11163	22.17	Pk	20	-40	.5	2.67	29.54	-26.87	0-360
9	13.3495	22.48	Pk	20	-40	.5	2.98	40.51	-37.53	0-360
10	13.47888	21.92	Pk	20	-40	.5	2.42	50.5	-48.08	0-360
**11	13.559	31.94	Pk	20	-40	.5	12.44	84	-71.56	0-360
12	13.63288	23.26	Pk	20	-40	.6	3.86	50.5	-46.64	0-360
13	13.76038	22.05	Pk	20	-40	.6	2.65	40.51	-37.86	0-360
14	15.03263	20.47	Pk	20	-40	.6	1.07	29.54	-28.47	0-360

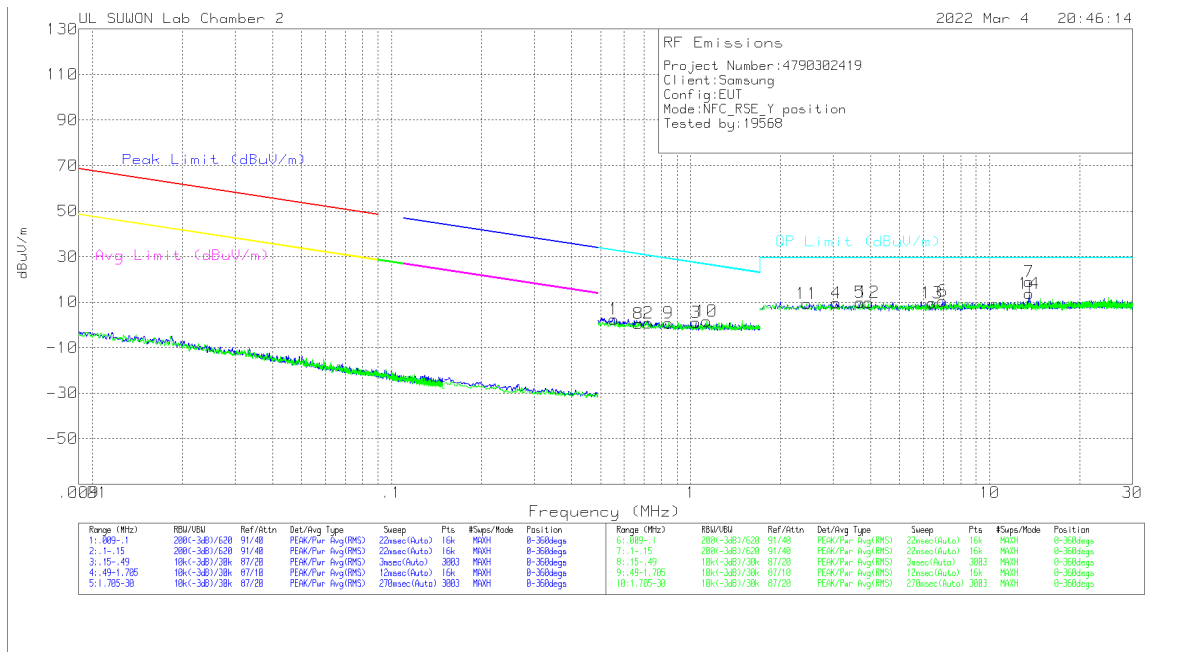
Pk - Peak detector
 **Fundamental

Note 1 : Although these tests were performed other than open filed test site, adequate comparison measurements were confirmed against 30 m open are test site.

Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

Note 2: Radiated test were investigated with three receiving antenna axes: Face-on, Face-off and horizontal (parallel to the ground plane) and the worse orientations of Face-on and Face-off were set for final test.

8.1.2. SPURIOUS EMISSION 0.009 TO 30 MHz [EUT without passive TAG mode]



Trace Markers

Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Cable Loss	Dist Corr 30m	Corrected Reading dBuV/m	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.55544	22.68	Pk	19.7	.1	-40	2.48	32.71	-30.23	0-360
2	.72104	21.07	Pk	19.7	.1	-40	.87	30.45	-29.58	0-360
3	1.0421	21.06	Pk	19.8	.2	-40	1.06	27.26	-26.2	0-360
4	3.06691	29.4	Pk	19.9	.3	-40	9.6	29.5	-19.9	0-360
5	3.69368	29.81	Pk	19.9	.3	-40	10.01	29.5	-19.49	0-360
6	6.95473	30.13	Pk	19.9	.4	-40	10.43	29.5	-19.07	0-360
**7	13.56165	38.58	Pk	20	.5	-40	19.08	29.5	-10.42	0-360

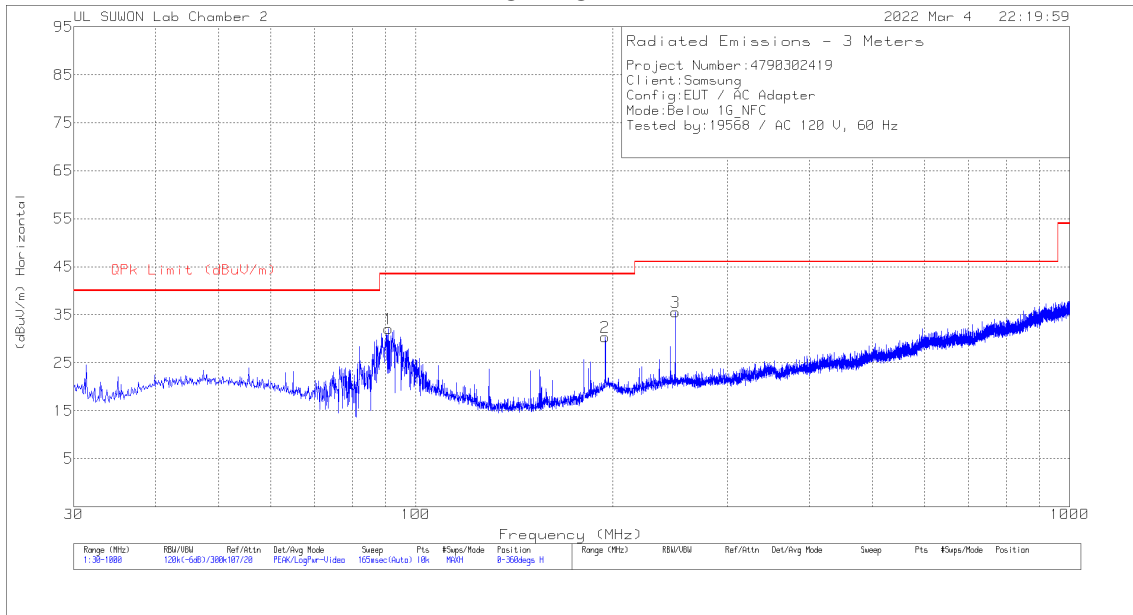
Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Cable Loss	Dist Corr 30m	Corrected Reading dBuV/m	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
8	.66826	20.77	Pk	19.7	.1	-40	.57	31.11	-30.54	0-360
9	.845	20.91	Pk	19.8	.2	-40	.91	29.08	-28.17	0-360
10	1.13361	21.55	Pk	19.8	.2	-40	1.55	26.54	-24.99	0-360
11	2.44958	29.34	Pk	19.9	.2	-40	9.44	29.5	-20.06	0-360
12	3.93873	29.78	Pk	19.9	.3	-40	9.98	29.5	-19.52	0-360
13	6.41279	29.29	Pk	19.9	.4	-40	9.59	29.5	-19.91	0-360
**14	13.56165	33.37	Pk	20	.5	-40	13.87	29.5	-15.63	0-360

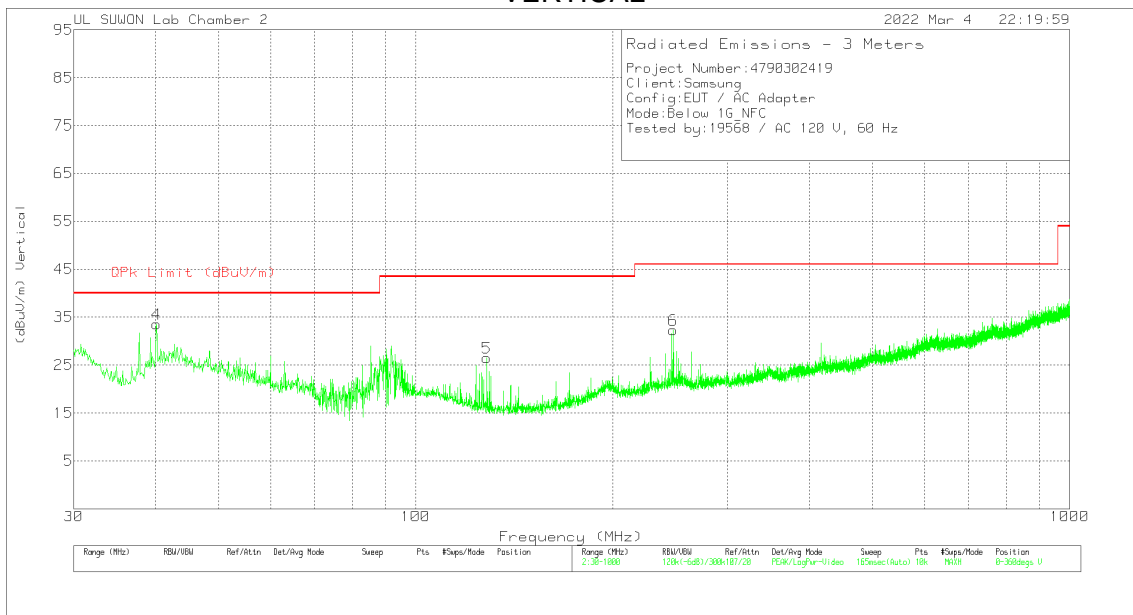
Pk - Peak detector
 **Fundamental

8.1.3. TX SPURIOUS EMISSION 30 TO 1000 MHz (USB C to C Cable) [EUT without passive TAG mode]

HORIZONTAL



VERTICAL



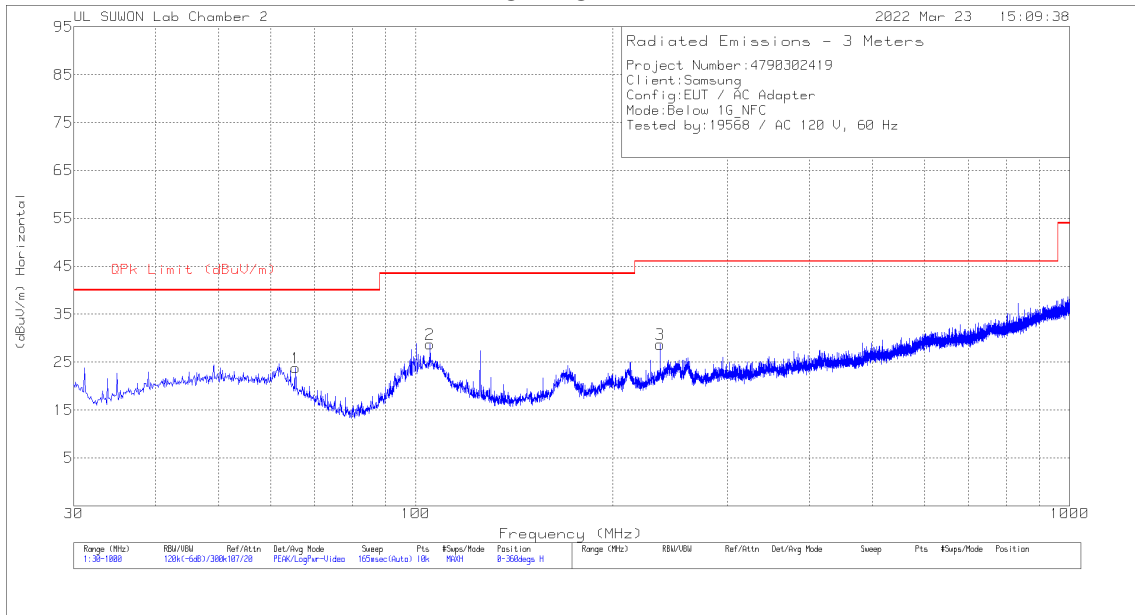
Trace Markers

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	90.916	47.48	Pk	16	-31.4	32.08	43.52	-11.44	0-360	100	H
2	194.997	43.12	Pk	18	-30.8	30.32	43.52	-13.2	0-360	100	H
3	249.511	47.06	Pk	19	-30.5	35.56	46.02	-10.46	0-360	100	H
4	40.185	46.41	Pk	18.8	-31.7	33.51	40	-6.49	0-360	100	V
5	128.455	43.22	Pk	14.4	-31.1	26.52	43.52	-17	0-360	100	V
6	247.765	43.95	Pk	18.9	-30.5	32.35	46.02	-13.67	0-360	100	V

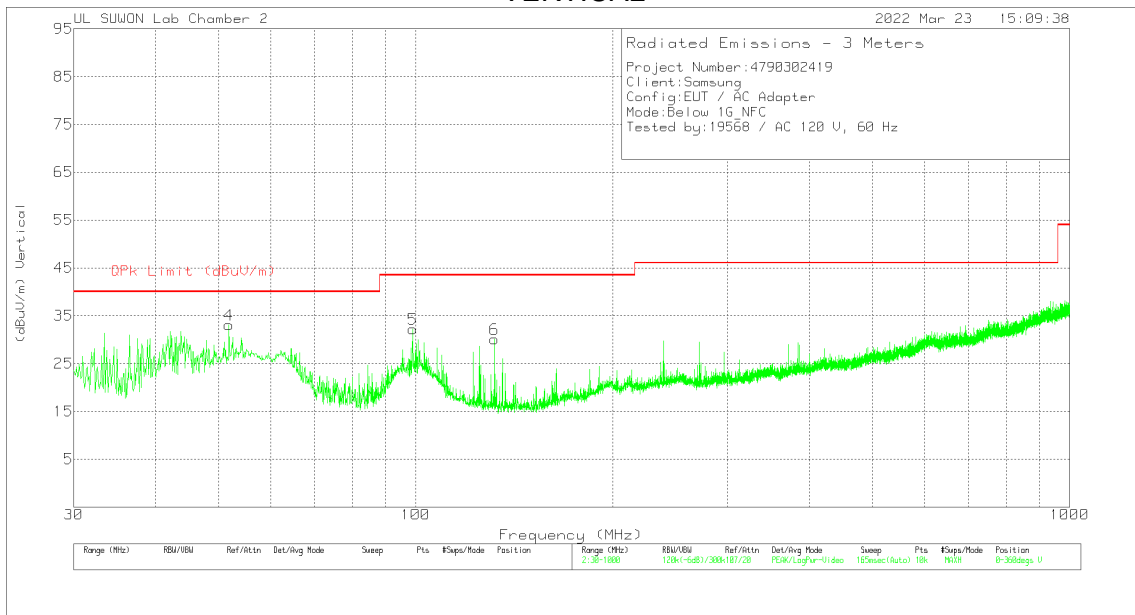
Pk - Peak detector

8.1.4. TX SPURIOUS EMISSION 30 TO 1000 MHz (USB A to C Cable) [EUT without passive TAG mode]

HORIZONTAL



VERTICAL

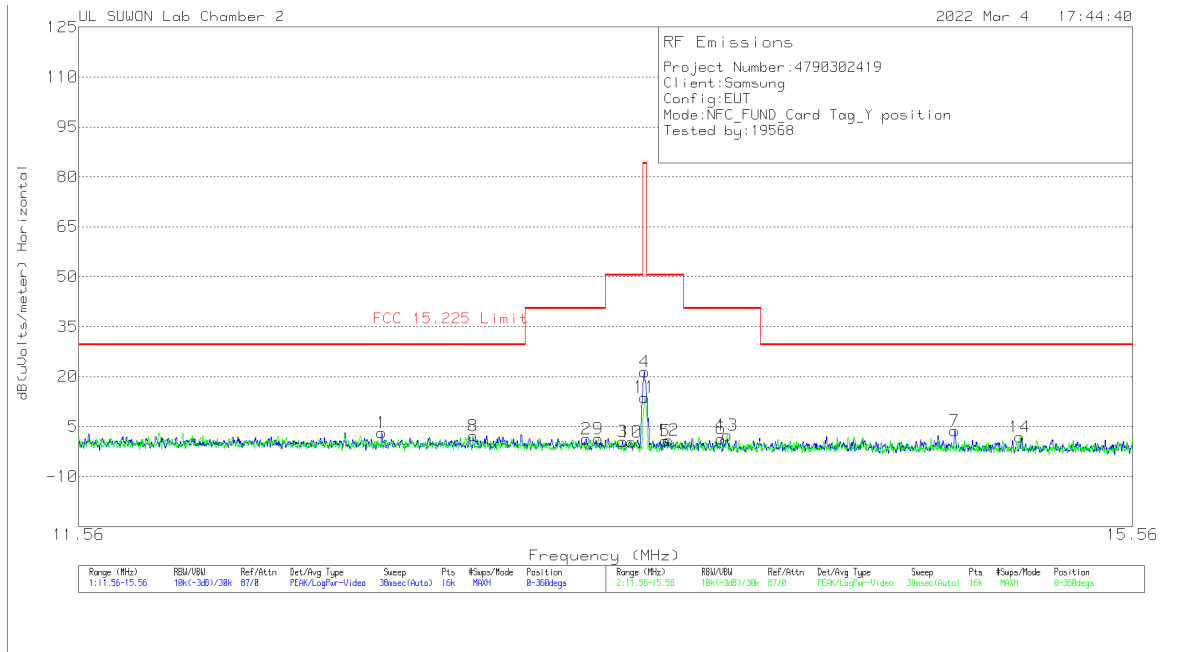


Trace Markers

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	65.502	38.29	Pk	17.1	-31.6	23.79	40	-16.21	0-360	200	H
2	105.175	42.53	Pk	17.6	-31.4	28.73	43.52	-14.79	0-360	200	H
3	236.61	40.98	Pk	18.3	-30.6	28.68	46.02	-17.34	0-360	200	H
4	51.825	45.16	Pk	19.7	-31.8	33.06	40	-6.94	0-360	100	V
5	98.967	45.92	Pk	17.7	-31.4	32.22	43.52	-11.3	0-360	100	V
6	132.044	47.08	Pk	14.1	-31.1	30.08	43.52	-13.44	0-360	100	V

Pk - Peak detector

8.1.5. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz) [EUT with passive TAG mode]



Trace Markers

Face on

Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Dist Corr 30m	Cable Loss	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	Margin (dB)	Azimuth (Degs)
1	12.59113	22.69	Pk	20	-40	.5	3.19	29.54	-26.35	0-360
2	13.33838	20.75	Pk	20	-40	.5	1.25	40.51	-39.26	0-360
3	13.476	20.07	Pk	20	-40	.5	.57	50.5	-49.93	0-360
**4	13.56	41.01	Pk	20	-40	.5	21.51	84	-62.49	0-360
5	13.63863	20.08	Pk	20	-40	.6	.68	50.5	-49.82	0-360
6	13.85588	20.78	Pk	20	-40	.6	1.38	40.51	-39.13	0-360
7	14.80013	23.08	Pk	20	-40	.6	3.68	29.54	-25.86	0-360
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Dist Corr 30m	Cable Loss	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit	Margin (dB)	Azimuth (Degs)
8	12.91963	21.69	Pk	20	-40	.5	2.19	29.54	-27.35	0-360
9	13.38463	20.75	Pk	20	-40	.5	1.25	40.51	-39.26	0-360
10	13.50925	19.85	Pk	20	-40	.5	.35	50.5	-50.15	0-360
**11	13.56025	33.31	Pk	20	-40	.5	13.81	84	-70.19	0-360
12	13.65163	20.3	Pk	20	-40	.6	.9	50.5	-49.6	0-360
13	13.87988	21.73	Pk	20	-40	.6	2.33	40.51	-38.18	0-360
14	15.07413	21.32	Pk	20	-40	.6	1.92	29.54	-27.62	0-360

Pk - Peak detector

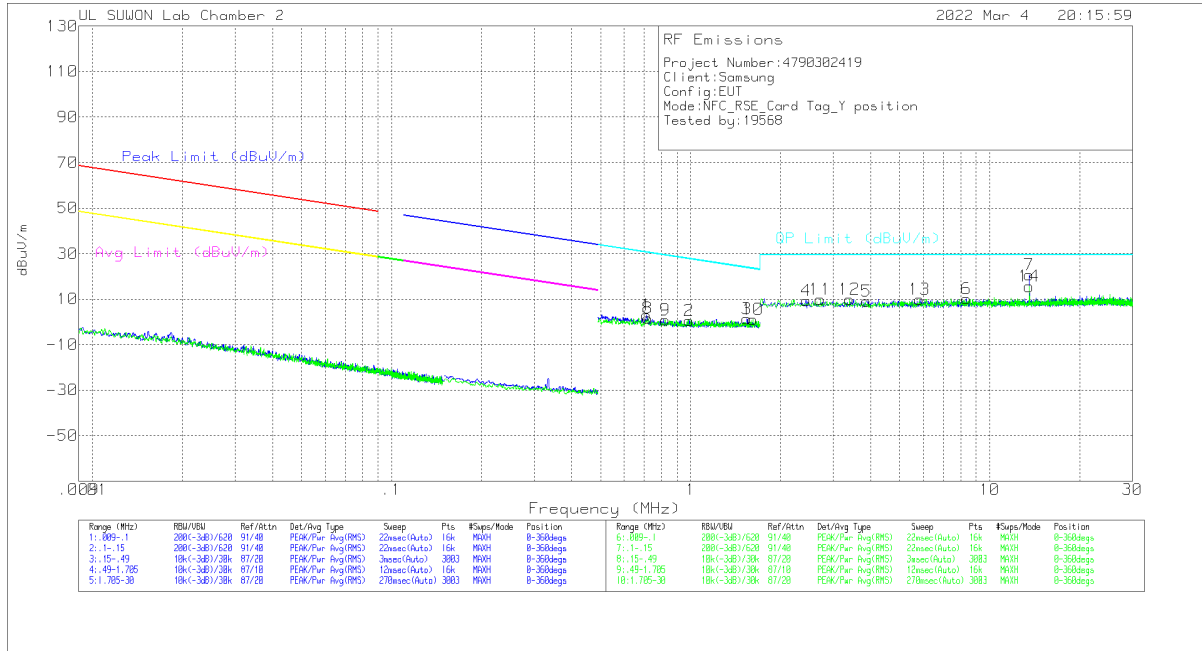
**Fundamental

Note 1: Although these tests were performed other than open filed test site, adequate comparison measurements were confirmed against 30 m open are test site.

Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

Note 2: Radiated test were investigated with three receiving antenna axes: Face-on, Face-off and horizontal (parallel to the ground plane) and the worse orientations of Face-on and Face-off were set for final test.

8.1.6. SPURIOUS EMISSION 0.09 TO 30 MHz [EUT with passive TAG mode]



Trace Markers

Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Cable Loss	Dist Corr 30m	Corrected Reading dBuV/m	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.71272	23.26	Pk	19.7	.1	-40	3.06	30.55	-27.49	0-360
2	.99027	20.63	Pk	19.8	.2	-40	.63	27.71	-27.08	0-360
3	1.54294	21.28	Pk	19.8	.2	-40	1.28	23.87	-22.59	0-360
4	2.43073	29.18	Pk	19.9	.2	-40	9.28	29.5	-20.22	0-360
5	3.87275	28.98	Pk	19.9	.3	-40	9.18	29.5	-20.32	0-360
6	8.34963	29.81	Pk	19.9	.4	-40	10.11	29.5	-19.39	0-360
**7	13.56165	40.1	Pk	20	.5	-40	20.6	29.5	-8.9	0-360

Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	HFH2-Z2_Loop Antenna	Cable Loss	Dist Corr 30m	Corrected Reading dBuV/m	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
8	.71933	21.8	Pk	19.7	.1	-40	1.6	30.47	-28.87	0-360
9	.8217	20.8	Pk	19.8	.2	-40	.8	29.32	-28.52	0-360
10	1.61704	21.01	Pk	19.8	.2	-40	1.01	23.46	-22.45	0-360
11	2.71348	29.79	Pk	19.9	.3	-40	9.99	29.5	-19.51	0-360
12	3.4015	29.6	Pk	19.9	.3	-40	9.8	29.5	-19.7	0-360
13	5.83315	29.82	Pk	19.8	.4	-40	10.02	29.5	-19.48	0-360
**14	13.56165	35.08	Pk	20	.5	-40	15.58	29.5	-13.92	0-360

Pk - Peak detector

**Fundamental

Note 1: The data for marker number 7 and 14 are the fundamental signal.

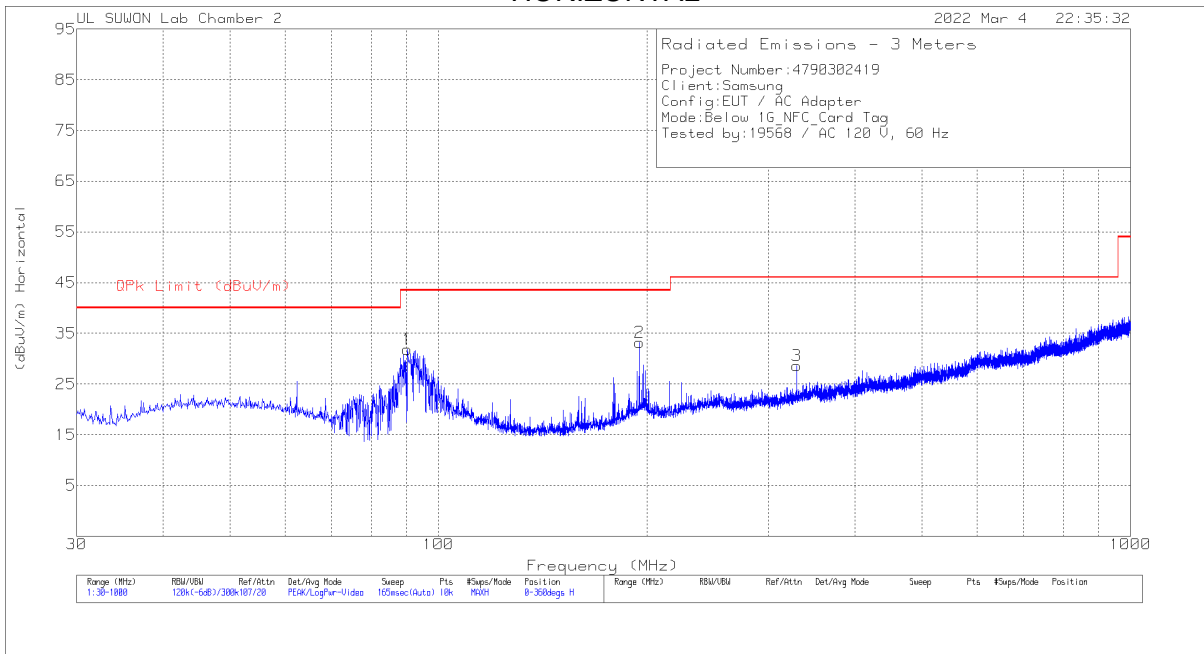
Please refer to section 8.1.4 about the fundamental level.

Frequency range 0.009MHz ~ 0.490MHz, only noise floor level and more than 20dB margin.

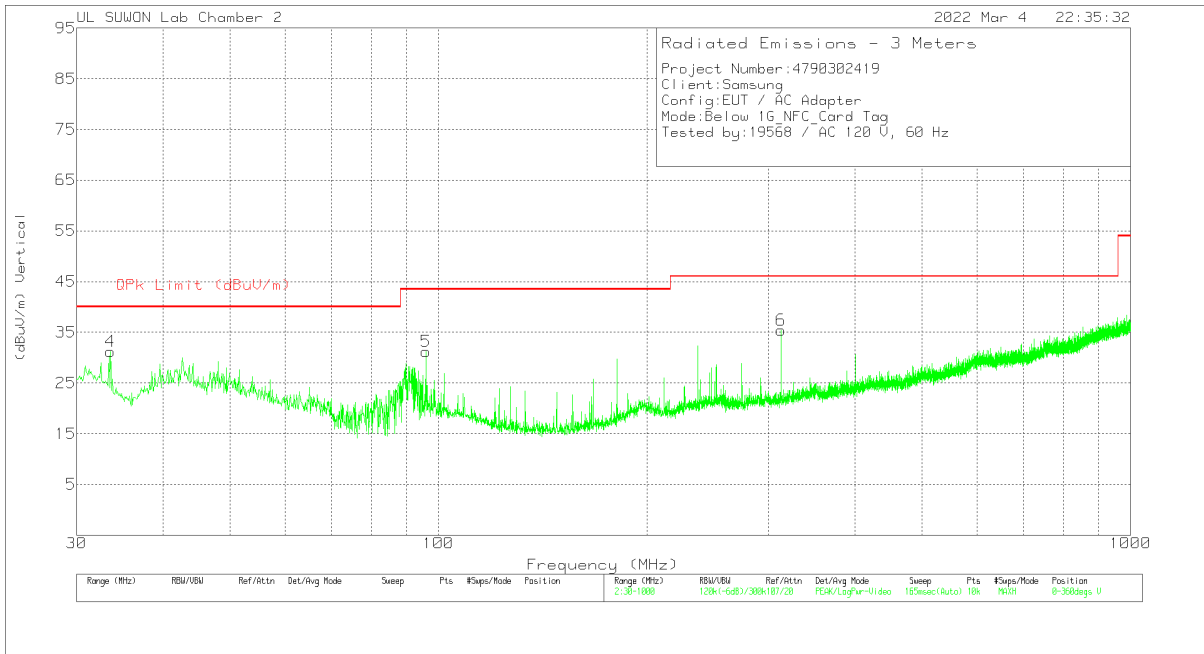
Note 2: Radiated test were investigated with three receiving antenna axes: Face-on, Face-off and horizontal (parallel to the ground plane) and the worse orientations of Face-on and Face-off were set for final test.

8.1.7. TX SPURIOUS EMISSION 30 TO 1000 MHz (USB C to C Cable) [EUT with passive TAG mode]

HORIZONTAL



VERTICAL



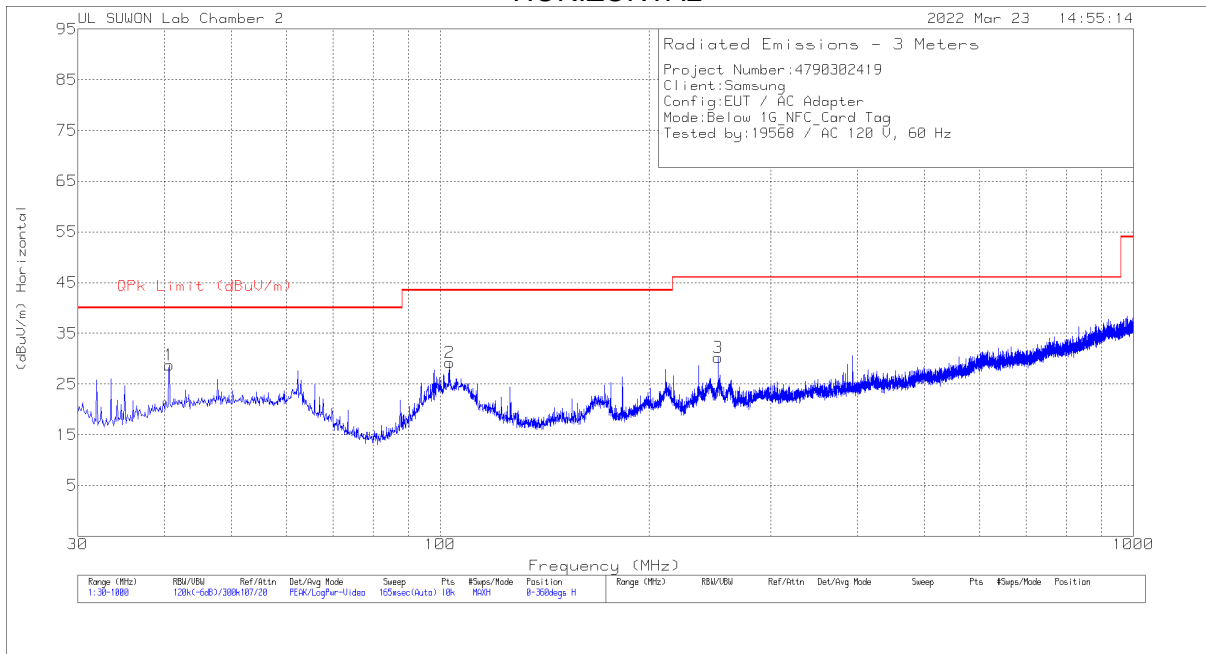
Trace Markers

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	90.14	47.54	Pk	15.7	-31.4	31.84	43.52	-11.68	0-360	100	H
2	195.094	45.97	Pk	18	-30.8	33.17	43.52	-10.35	0-360	100	H
3	329.148	38.78	Pk	20	-30.2	28.58	46.02	-17.44	0-360	200	H
4	33.589	47.24	Pk	15.9	-31.9	31.24	40	-8.76	0-360	100	V
5	95.863	45.24	Pk	17.3	-31.3	31.24	43.52	-12.28	0-360	100	V
6	312.658	46.22	Pk	19.5	-30.3	35.42	46.02	-10.6	0-360	100	V

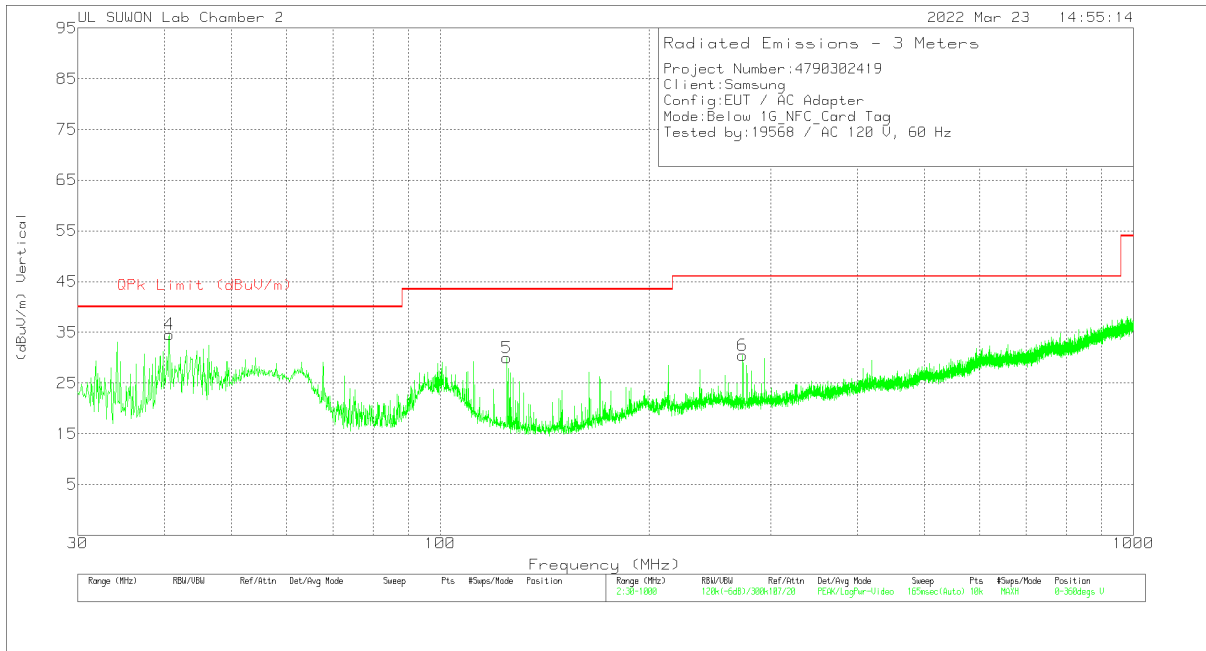
Pk - Peak detector

8.1.8. TX SPURIOUS EMISSION 30 TO 1000 MHz (USB A to C Cable) [EUT with passive TAG mode]

HORIZONTAL



VERTICAL



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	40.67	41.59	Pk	18.9	-31.8	28.69	40	-11.31	0-360	200	H
2	103.138	42.81	Pk	17.7	-31.3	29.21	43.52	-14.31	0-360	200	H
3	251.742	41.67	Pk	19.1	-30.5	30.27	46.02	-15.75	0-360	100	H
4	40.67	47.51	Pk	18.9	-31.8	34.61	40	-5.39	0-360	100	V
5	124.769	46.49	Pk	14.7	-31.2	29.99	43.52	-13.53	0-360	100	V
6	273.276	42.14	Pk	18.7	-30.4	30.44	46.02	-15.58	0-360	100	V

Pk - Peak detector

9. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 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.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

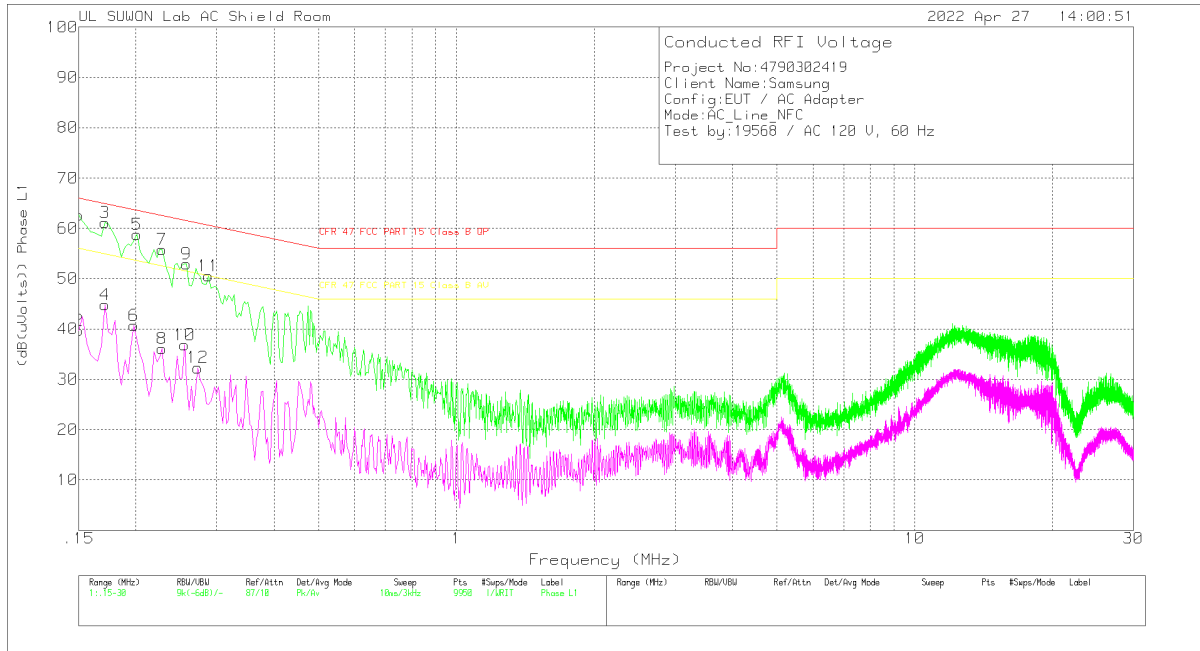
RESULTS

No non-compliance noted:

9.1. USB C to C Cable

WORST EMISSIONS(Terminated EUT's loop antenna)

LINE 1 PLOT



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOS S(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	.15	52.79	Pk	9.7	.1	62.59	66	-3.41	-	-
2	.15	29.96	Av	9.7	.1	39.76	-	-	56	-16.24
3	.171	50.94	Pk	10	.2	61.14	64.91	-3.77	-	-
4	.171	34.67	Av	10	.2	44.87	-	-	54.91	-10.04
5	.201	48.77	Pk	9.8	.2	58.77	63.57	-4.8	-	-
6	.198	30.7	Av	9.8	.2	40.7	-	-	53.69	-12.99
7	.228	45.94	Pk	9.7	.2	55.84	62.52	-6.68	-	-
8	.228	26.19	Av	9.7	.2	36.09	-	-	52.52	-16.43
9	.258	43.16	Pk	9.6	.2	52.96	61.5	-8.54	-	-
10	.255	27.1	Av	9.6	.2	36.9	-	-	51.59	-14.69
11	.288	40.65	Pk	9.7	.2	50.55	60.58	-10.03	-	-
12	.273	22.5	Av	9.6	.2	32.3	-	-	51.03	-18.73

Pk - Peak detector

Av - Average detection

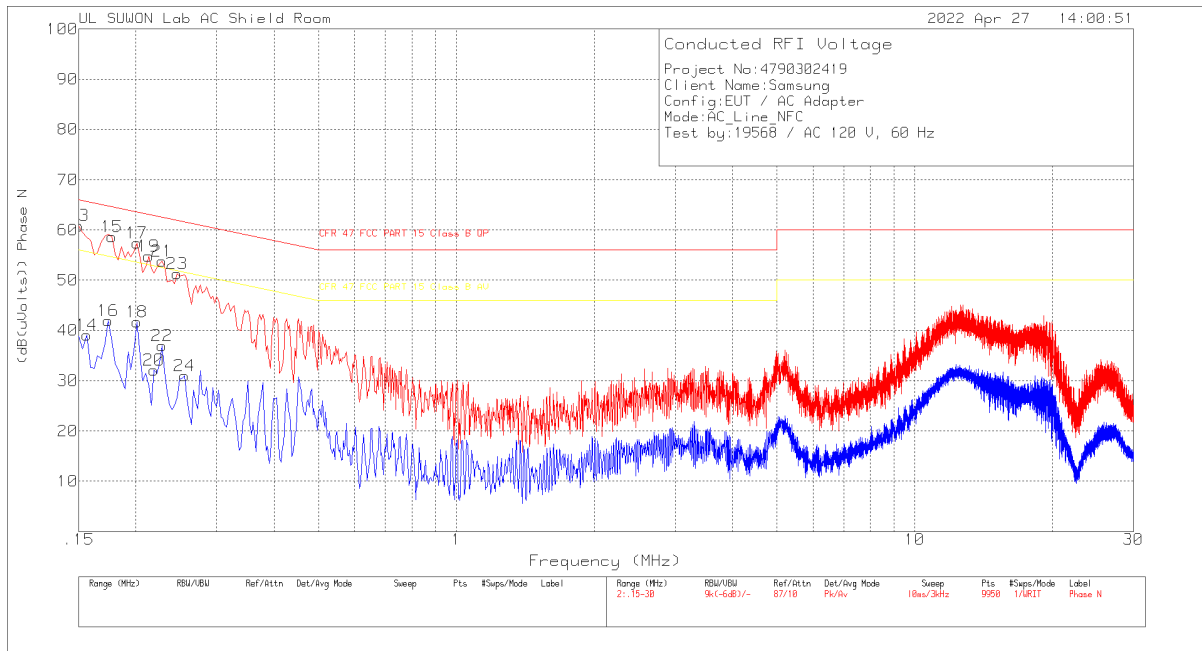
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOS S(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)
.1509	42.61	Qp	9.7	.1	52.41	65.95	-13.54	-	-
.17175	41.74	Qp	10	.2	51.94	64.88	-12.94	-	-
.20025	40.5	Qp	9.8	.2	50.5	63.6	-13.1	-	-
.22725	37.4	Qp	9.7	.2	47.3	62.55	-15.25	-	-
.25725	33.22	Qp	9.6	.2	43.02	61.52	-18.5	-	-

Qp - Quasi-Peak detector

LINE 2 PLOT



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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	.15	51.04	Pk	9.7	.1	60.84	66	-5.16	-	-
14	.156	29.21	Av	9.8	.1	39.11	-	-	55.67	-16.56
15	.177	48.57	Pk	9.9	.2	58.67	64.63	-5.96	-	-
16	.174	31.7	Av	10	.2	41.9	-	-	54.77	-12.87
17	.201	47.42	Pk	9.8	.2	57.42	63.57	-6.15	-	-
18	.201	31.71	Av	9.8	.2	41.71	-	-	53.57	-11.86
19	.213	44.83	Pk	9.8	.2	54.83	63.09	-8.26	-	-
20	.219	22.12	Av	9.8	.2	32.12	-	-	52.86	-20.74
21	.228	43.84	Pk	9.7	.2	53.74	62.52	-8.78	-	-
22	.228	27.03	Av	9.7	.2	36.93	-	-	52.52	-15.59
23	.246	41.46	Pk	9.6	.2	51.26	61.89	-10.63	-	-
24	.255	21.21	Av	9.6	.2	31.01	-	-	51.59	-20.58

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

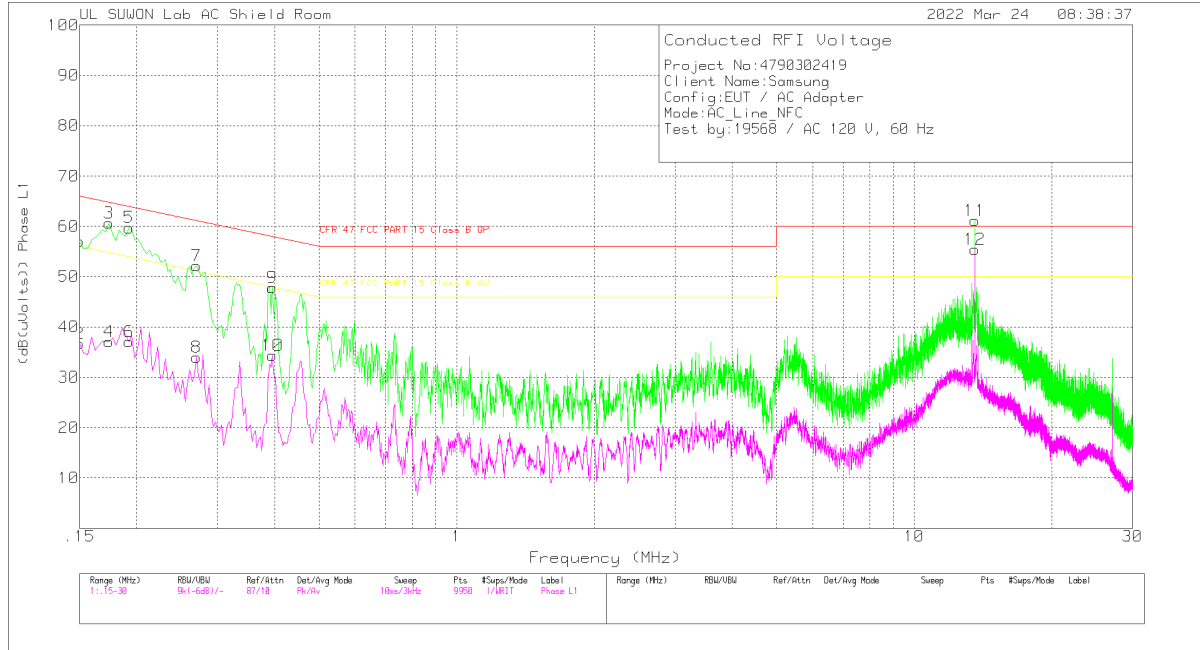
Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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)
.1515	41.92	Qp	9.7	.1	51.72	65.92	-14.2	-	-
.17625	40.21	Qp	10	.2	50.41	64.66	-14.25	-	-
.20025	39.6	Qp	9.8	.2	49.6	63.6	-14	-	-
.21225	29.68	Qp	9.8	.2	39.68	63.12	-23.44	-	-
.22725	36.53	Qp	9.7	.2	46.43	62.55	-16.12	-	-

Qp - Quasi-Peak detector

WORST EMISSIONS(Not terminated)

LINE 1 PLOT



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOS S(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	.15	47.24	Pk	9.7	.1	57.04	66	-8.96	-	-
2	.15	26.97	Av	9.7	.1	36.77	-	-	56	-19.23
3	.174	50.4	Pk	10	.2	60.6	64.77	-4.17	-	-
4	.174	26.92	Av	10	.2	37.12	-	-	54.77	-17.65
5	.192	49.62	Pk	9.9	.2	59.72	63.95	-4.23	-	-
6	.192	27	Av	9.9	.2	37.1	-	-	53.95	-16.85
7	.27	42.38	Pk	9.6	.2	52.18	61.12	-8.94	-	-
8	.27	24.22	Av	9.6	.2	34.02	-	-	51.12	-17.1
9	.396	37.83	Pk	9.8	.2	47.83	57.94	-10.11	-	-
10	.396	24.37	Av	9.8	.2	34.37	-	-	47.94	-13.57
11	13.56	50.79	Pk	10	.4	61.19	60	1.19	-	-
12	13.56	45.05	Av	10	.4	55.45	-	-	50	5.45

Pk - Peak detector

Av - Average detection

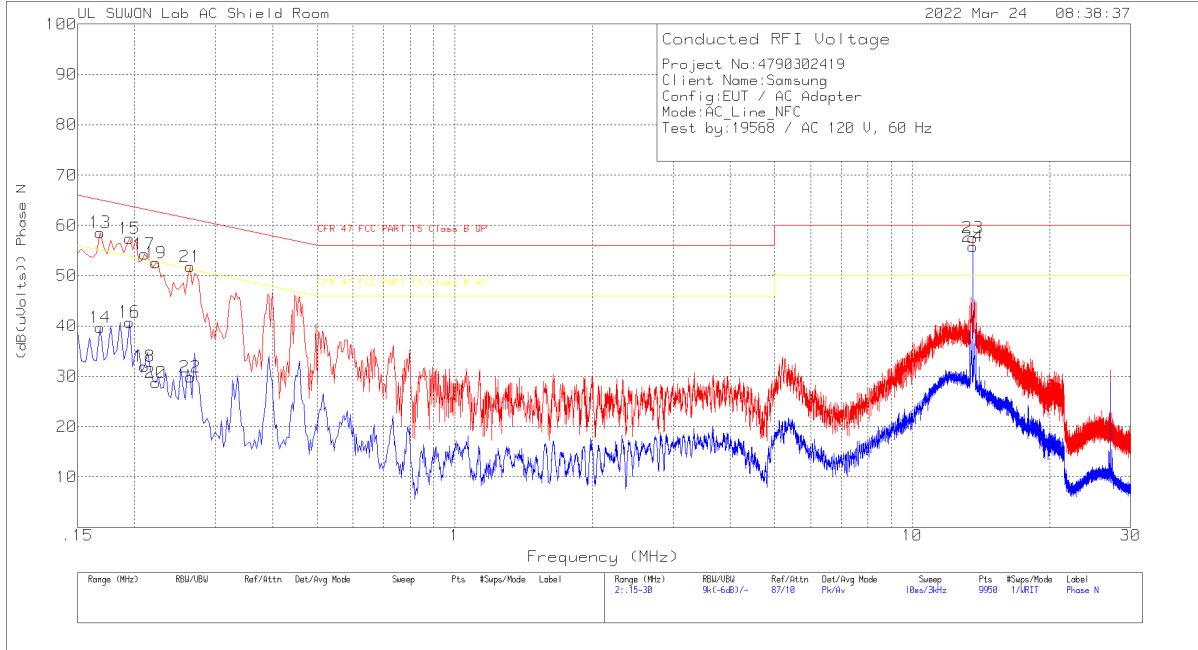
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOS S(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)
.1515	41.87	Qp	9.7	.1	51.67	65.92	-14.25	-	-
.17325	41.34	Qp	10	.2	51.54	64.8	-13.26	-	-
.19215	41.51	Qp	9.9	.2	51.61	63.94	-12.33	-	-
.27075	25.22	Qp	9.6	.2	35.02	61.09	-26.07	-	-
13.5602	49	Qp	10	.4	59.4	60	-6	-	-

Qp - Quasi-Peak detector

LINE 2 PLOT



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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	48.49	Pk	10	.1	58.59	65.06	-6.47	-	-
14	.168	29.56	Av	10	.1	39.66	-	-	55.06	-15.4
15	.195	47.36	Pk	9.9	.2	57.46	63.82	-6.36	-	-
16	.195	30.67	Av	9.9	.2	40.77	-	-	53.82	-13.05
17	.21	44.3	Pk	9.8	.2	54.3	63.21	-8.91	-	-
18	.21	21.99	Av	9.8	.2	31.99	-	-	53.21	-21.22
19	.222	42.69	Pk	9.7	.2	52.59	62.74	-10.15	-	-
20	.222	18.9	Av	9.7	.2	28.8	-	-	52.74	-23.94
21	.264	42	Pk	9.6	.2	51.8	61.3	-9.5	-	-
22	.264	20.05	Av	9.6	.2	29.85	-	-	51.3	-21.45
23	13.56	47.1	Pk	10	.4	57.5	60	-2.5	-	-
24	13.56	45.36	Av	10	.4	55.76	-	-	50	5.76

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

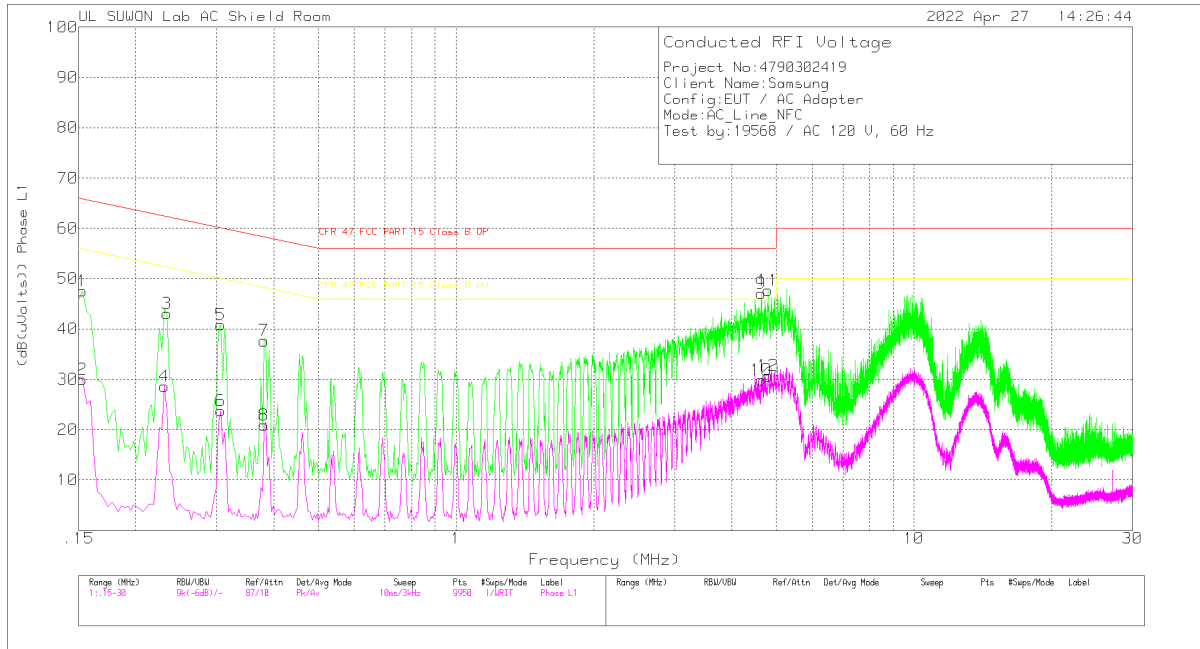
Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.16875	37.02	Qp	10	.1	47.12	65.02	-17.9	-	-
.19575	33.9	Qp	9.9	.2	44	63.79	-19.79	-	-
.20925	30.2	Qp	9.8	.2	40.2	63.24	-23.04	-	-
.26325	26.64	Qp	9.6	.2	36.44	61.33	-24.89	-	-
13.5602	45.96	Qp	10	.4	56.36	60	-3.64	-	-

Qp - Quasi-Peak detector

9.2. USB A to C Cable

WORST EMISSIONS(Terminated EUT's loop antenna)

LINE 1 PLOT



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOS S(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	37.61	Pk	9.8	.1	47.51	65.84	-18.33	-	-
2	.153	20.04	Av	9.8	.1	29.94	-	-	55.84	-25.9
3	.234	33.14	Pk	9.7	.2	43.04	62.31	-19.27	-	-
4	.231	18.71	Av	9.7	.2	28.61	-	-	52.41	-23.8
5	.306	30.99	Pk	9.7	.2	40.89	60.08	-19.19	-	-
6	.306	13.9	Av	9.7	.2	23.8	-	-	50.08	-26.28
7	.381	27.66	Pk	9.8	.2	37.66	58.26	-20.6	-	-
8	.381	10.85	Av	9.8	.2	20.85	-	-	48.26	-27.41
9	4.644	37.04	Pk	9.7	.3	47.04	56	-8.96	-	-
10	4.641	19.84	Av	9.7	.3	29.84	-	-	46	-16.16
11	4.803	37.66	Pk	9.7	.3	47.66	56	-8.34	-	-
12	4.806	20.68	Av	9.7	.3	30.68	-	-	46	-15.32

Pk - Peak detector

Av - Average detection

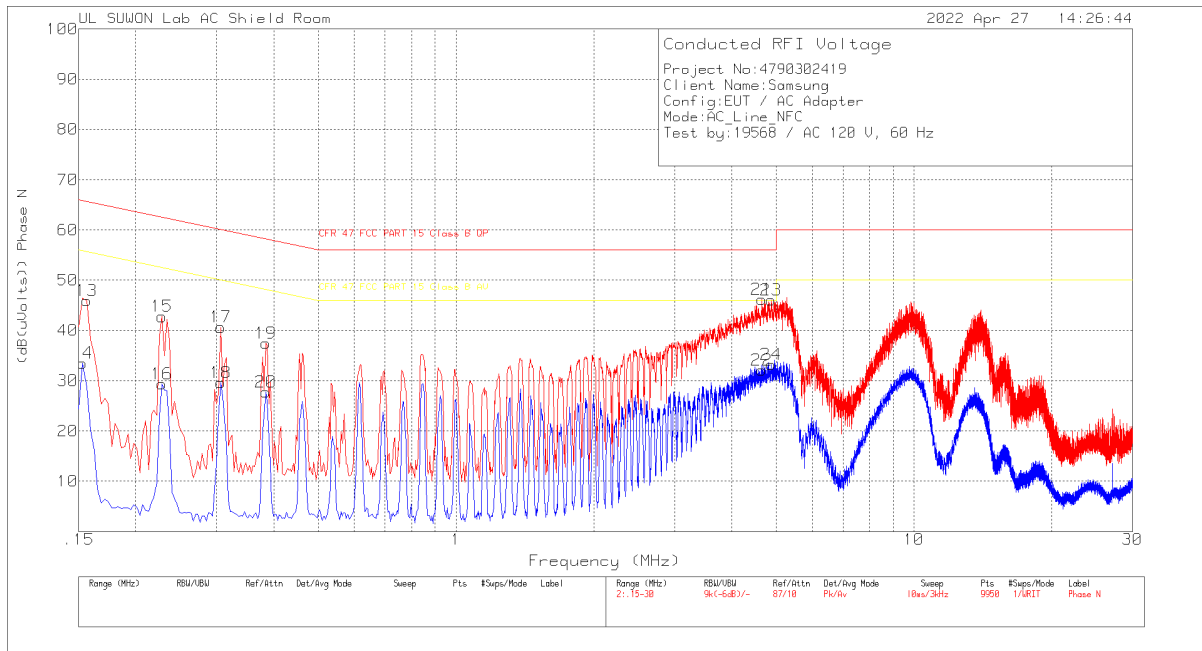
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOS S(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)
4.64415	29.93	Qp	9.7	.3	39.93	56	-16.07	-	-
4.80315	29.71	Qp	9.7	.3	39.71	56	-16.29	-	-

Qp - Quasi-Peak detector

LINE 2 PLOT



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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	.156	36.03	Pk	9.8	.1	45.93	65.67	-19.74	-	-
14	.153	23.64	Av	9.8	.1	33.54	-	-	55.84	-22.3
15	.228	32.87	Pk	9.7	.2	42.77	62.52	-19.75	-	-
16	.228	19.52	Av	9.7	.2	29.42	-	-	52.52	-23.1
17	.306	30.75	Pk	9.7	.2	40.65	60.08	-19.43	-	-
18	.306	19.73	Av	9.7	.2	29.63	-	-	50.08	-20.45
19	.384	27.48	Pk	9.8	.2	37.48	58.19	-20.71	-	-
20	.384	17.74	Av	9.8	.2	27.74	-	-	48.19	-20.45
21	4.656	36.18	Pk	9.7	.3	46.18	56	-9.82	-	-
22	4.656	22.11	Av	9.7	.3	32.11	-	-	46	-13.89
23	4.878	36.08	Pk	9.7	.3	46.08	56	-9.92	-	-
24	4.872	23.18	Av	9.7	.3	33.18	-	-	46	-12.82

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

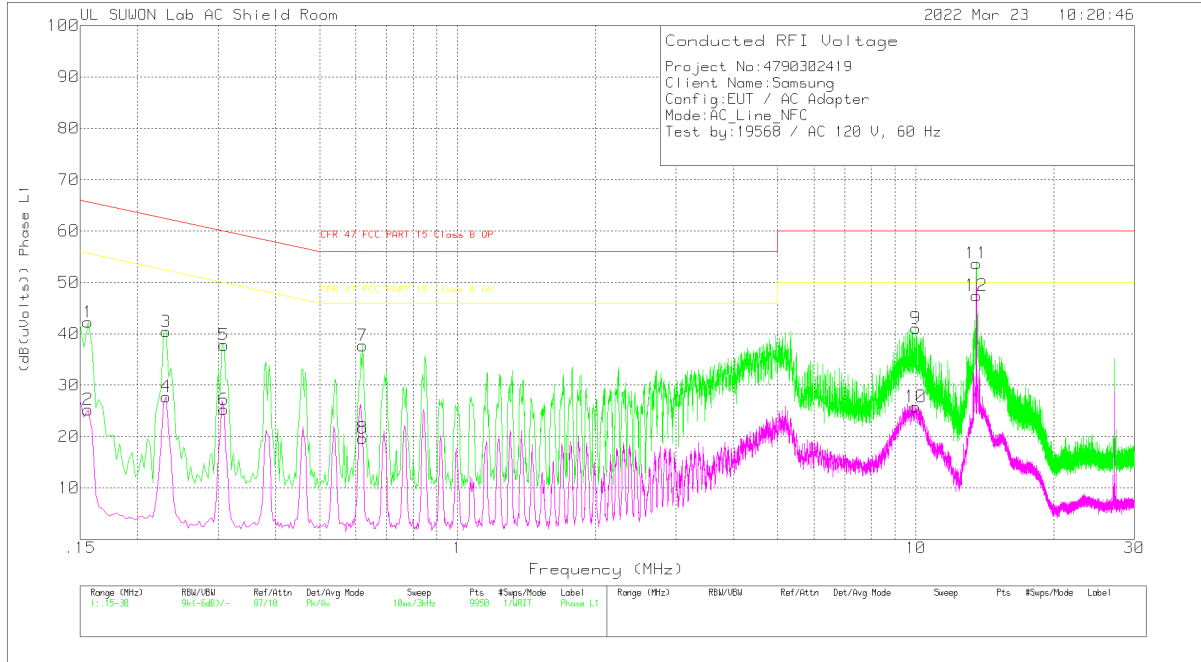
Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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)
4.65525	31.11	Qp	9.7	.3	41.11	56	-14.89	-	-
4.87875	31.09	Qp	9.7	.3	41.09	56	-14.91	-	-

Qp - Quasi-Peak detector

WORST EMISSIONS(Not terminated)

LINE 1 PLOT



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOSS S(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	.156	32.37	Pk	9.8	.1	42.27	65.67	-23.4	-	-
2	.156	15.33	Av	9.8	.1	25.23	-	-	55.67	-30.44
3	.231	30.53	Pk	9.7	.2	40.43	62.41	-21.98	-	-
4	.231	17.87	Av	9.7	.2	27.77	-	-	52.41	-24.64
5	.309	27.93	Pk	9.7	.2	37.83	60	-22.17	-	-
6	.309	15.38	Av	9.7	.2	25.28	-	-	50	-24.72
7	.621	27.71	Pk	9.8	.2	37.71	56	-18.29	-	-
8	.621	9.7	Av	9.8	.2	19.7	-	-	46	-26.3
9	9.993	30.89	Pk	9.8	.4	41.09	60	-18.91	-	-
10	9.993	15.59	Av	9.8	.4	25.79	-	-	50	-24.21
11	13.563	43.31	Pk	10	.4	53.71	60	-6.29	-	-
12	13.563	37.03	Av	10	.4	47.43	-	-	50	-2.57

Pk - Peak detector

Qp - Quasi-Peak detector

Av - Average detection

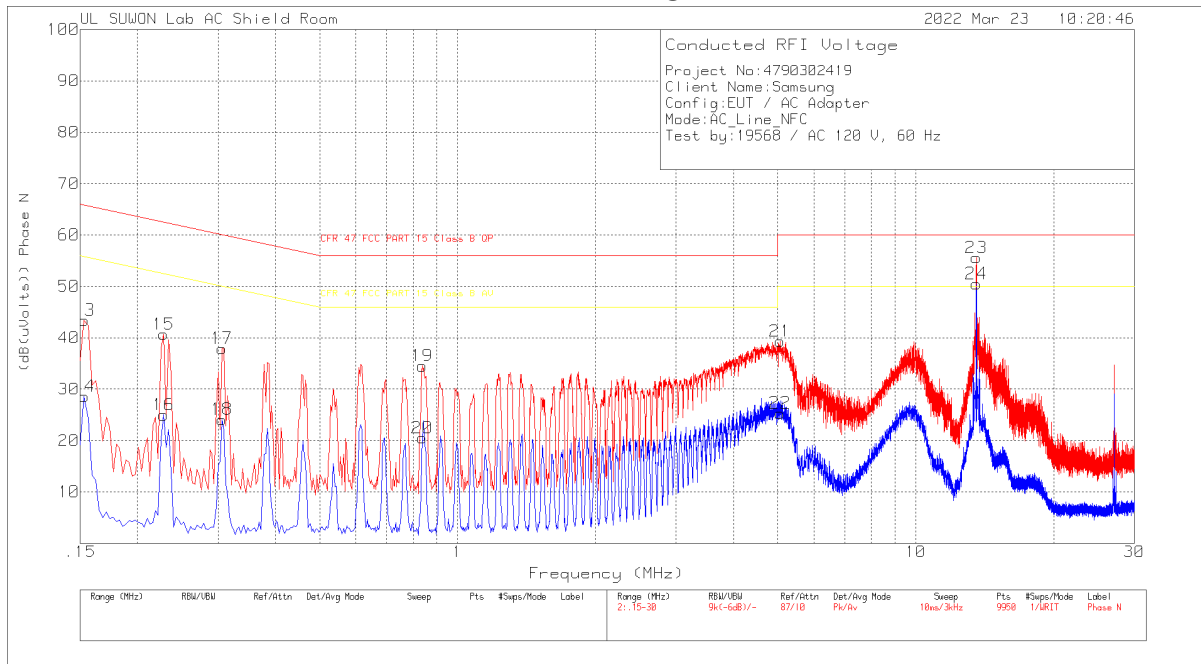
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With 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)
13.5623	40.99	Qp	10	.4	51.39	60	-8.61	-	-

Qp - Quasi-Peak detector

LINE 2 PLOT



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOS S(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	33.5	Pk	9.8	.1	43.4	65.84	-22.44	-	-
14	.153	18.71	Av	9.8	.1	28.61	-	-	55.84	-27.23
15	.228	30.77	Pk	9.7	.2	40.67	62.52	-21.85	-	-
16	.228	15.09	Av	9.7	.2	24.99	-	-	52.52	-27.53
17	.306	28	Pk	9.7	.2	37.9	60.08	-22.18	-	-
18	.306	14.21	Av	9.7	.2	24.11	-	-	50.08	-25.97
19	.837	24.43	Pk	9.8	.3	34.53	56	-21.47	-	-
20	.837	10.39	Av	9.8	.3	20.49	-	-	46	-25.51
21	5.061	29.33	Pk	9.7	.3	39.33	60	-20.67	-	-
22	5.061	15.32	Av	9.7	.3	25.32	-	-	50	-24.68
23	13.56	45.19	Pk	10	.4	55.59	60	-4.41	-	-
24	13.56	40.09	Av	10	.4	50.49	-	-	50	.49

Pk - Peak detector

Av - Average detection

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With 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)
13.5602	44.34	Qp	10	.4	54.74	60	-5.26	-	-

Qp - Quasi-Peak detector

10. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency, over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

TEST PROCEDURE

ANSI C63.10 §6.8

RESULTS

No non-compliance noted.

Reference Frequency: EUT Channel 13.56 MHz @ 20°C Limit: ± 100 ppm = 1.356 kHz										
Power Supply (Vdc)	Envir. Temp (°C)	Frequency Deviation Measured with Time Elapse								
		Start up (MHz)	Delta (ppm)	@ 2mins (MHz)	Delta (ppm)	@ 5mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
3.85	50	13.559915846	-4.663	13.559909432	-5.136	13.559903895	-5.544	13.559900318	-5.808	100
3.85	40	13.559947813	-2.305	13.559938133	-3.019	13.559928818	-3.706	13.559920756	-4.301	100
3.85	30	13.559965087	-1.032	13.559960648	-1.359	13.559955015	-1.774	13.559951747	-2.015	100
3.85	20	13.559979075	0	13.559978262	-0.060	13.559977126	-0.144	13.559976873	-0.162	100
3.85	10	13.559955745	-1.721	13.559974894	-0.308	13.559988828	0.719	13.560006632	2.032	100
3.85	0	13.560018364	2.897	13.560024999	3.387	13.560028997	3.682	13.560033379	4.005	100
3.85	-10	13.560036660	4.247	13.560037730	4.326	13.560037208	4.287	13.560036057	4.202	100
3.85	-20	13.560030642	3.803	13.560023971	3.311	13.560016123	2.732	13.560010659	2.329	100
3.85	-30	13.559985346	0.462	13.559973361	-0.421	13.559963119	-1.177	13.559953218	-1.907	100

Reference Frequency: EUT Channel 13.56 MHz @ 20°C Limit: ± 100 ppm = 1.356 kHz										
Power Supply (Vdc)	Envir. Temp (°C)	Frequency Deviation Measured with Time Elapse								
		Start up (MHz)	Delta (ppm)	@ 2mins (MHz)	Delta (ppm)	@ 5mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
3.85	20	13.559979075	0	13.559978262	-0.060	13.559977126	-0.144	13.559976873	-0.162	100
4.35	20	13.559978668	-0.030	13.559978125	-0.070	13.559976224	-0.210	13.559975696	-0.249	100
3.65	20	13.559978410	-0.049	13.559977820	-0.093	13.559975912	-0.233	13.559975533	-0.261	100

END OF TEST REPORT