CERTIFICATION TEST REPORT

Report Number. : 4790089626-E1V1

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-S906B/DS
FCC ID	:	A3LSMS906B
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:
2021-11-09

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

IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2021-11-09	Initial issue	Hyunsik Yun

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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-S906B/DS
SERIAL NUMBER:	R3CR80TBVEE, R3CR80TBVZT, R3CR80TBVBL (RADIATED)
DATE TESTED:	2021-09-28 ~ 2021-10-29;

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15B	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:



Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Hyunsik Yun
Suwon Lab Engineer
UL Korea, Ltd.

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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
☒ Chamber 1
☒ Chamber 2
☐ Chamber 3

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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 = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss(between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – 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

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.

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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 addresses the WWAN receiver mode.

5.2. TEST MODE

Mode	Description
GSM 850	Communicating with Call simulator(CMW500)
WCDMA BAND 5	Communicating with Call simulator(CMW500)
LTE BAND 12	Communicating with Call simulator(CMW500)
LTE BAND 13	Communicating with Call simulator(CMW500)
LTE BAND 26	Communicating with Call simulator(CMW500)
5G NR BAND n5	Communicating with Call simulator(E7515B)

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5.3. WORST-CASE ORIENTATION AND MODE

The fundamental and radiated spurious emission were investigated in three orthogonal orientations X and Y, it was determined that below orientation was worst-case orientation for each band.

Band	Worst Case		
	X	Y	Z
GSM 850		O	
WCDMA B5			O
LTE B12	O		
LTE B13			O
LTE B26	O		
NR B5		O	

WCDMA Band5

WCDMA Band 5(Rx Frequncy range: 871.4-891.6 MHz) is covered by GSM 850(Rx Frequency range: 869-894 MHz) due to same frequency range and maximum tune-up limit is higher than WCDMA Band5. Therefore, only Mid channel was checked.

LTE Band 5

LTE Band 5(Rx Frequency range: 869-894 MHz) is covered by LTE Band 26(Rx Frequency range: 859-894 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

Note : The EUT is continuously communicated with the call box during the tests. Also attached with travel adapter for the worst case condition.

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5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA800	R37N9BV0382HM3	N/A
Data Cable	SAMSUNG	EP-DN980BBE	N/A	N/A

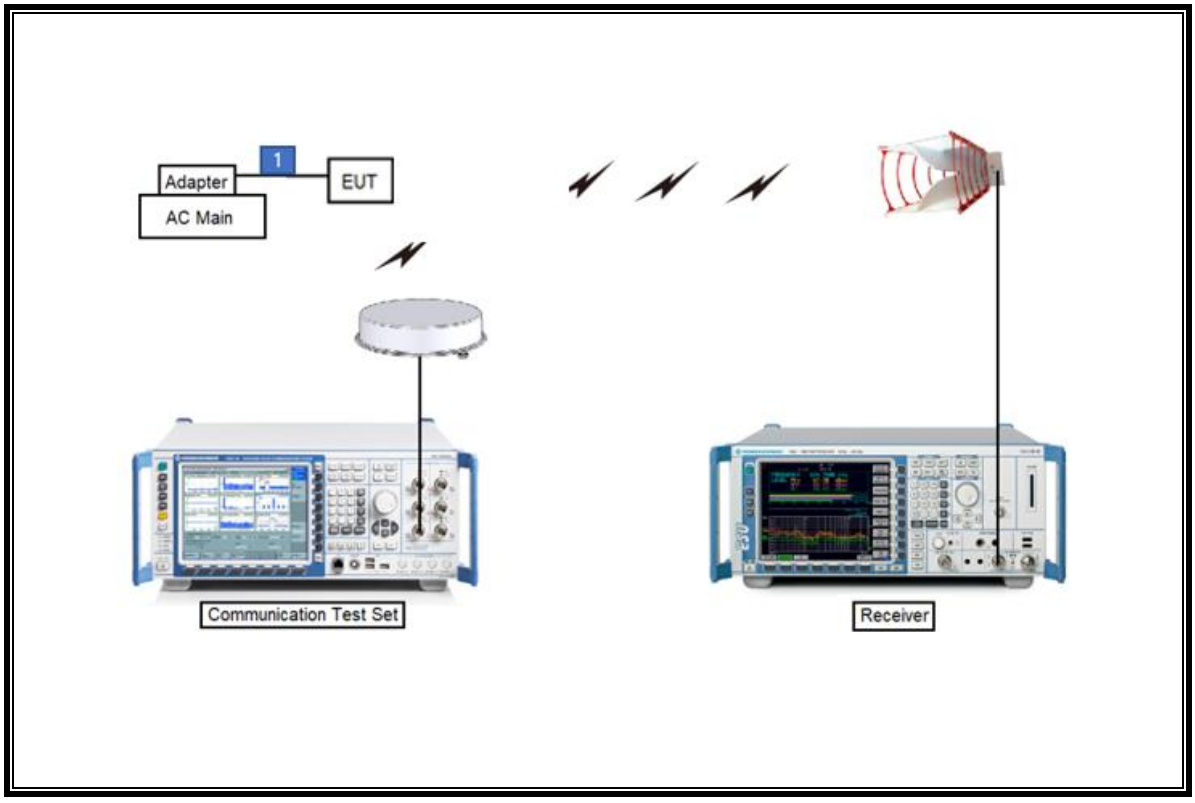
I/O CABLE

I/O Cable List						
Cable No.	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	C Type	Shielded	1.0 m	N/A

TEST SETUP

The EUT is continuously communicated with the call box during the tests.

SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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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, Tuned Dipole 400~1000 MHz	ETS	3121D DB4	00164753	2023-02-08
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
Communications Test Set	R&S	CMW500	169796	2022-01-27
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
Directional Antenna	Cobham	FPA3-0.8-6.0R/1329	80108-0004	N/A
Directional Antenna	Cobham	FPA3-0.8-6.0R/1329	110367-0003	N/A
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G005	2022-08-03
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G006	2022-08-02
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	010	2022-08-03
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	011	2022-08-02
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G001	2022-08-03
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G002	2022-08-02
Attenuator	PASTERNACK	PE7087-10	A009	2022-08-03
Attenuator	PASTERNACK	PE7087-10	A001	2022-08-03
Attenuator	PASTERNACK	PE7087-10	A008	2022-08-03
Attenuator	PASTERNACK	PE7004-10	2	2022-08-02
Attenuator	PASTERNACK	PE7395-10	A011	2022-08-03
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
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58120110	2022-01-13
UL Software				
Description	**Manufacturer**	**Model**	**Version**	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

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7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4-2014

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:

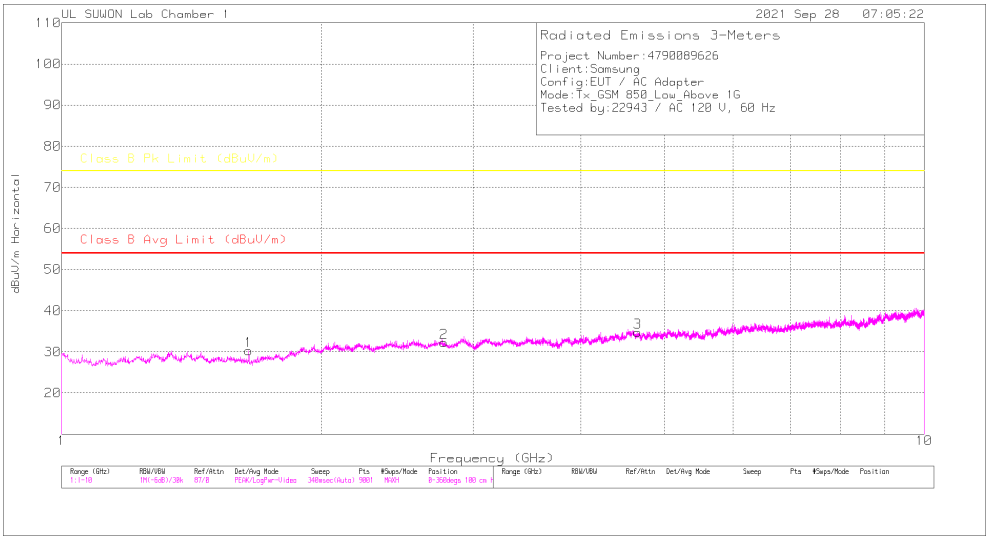
Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dBµV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

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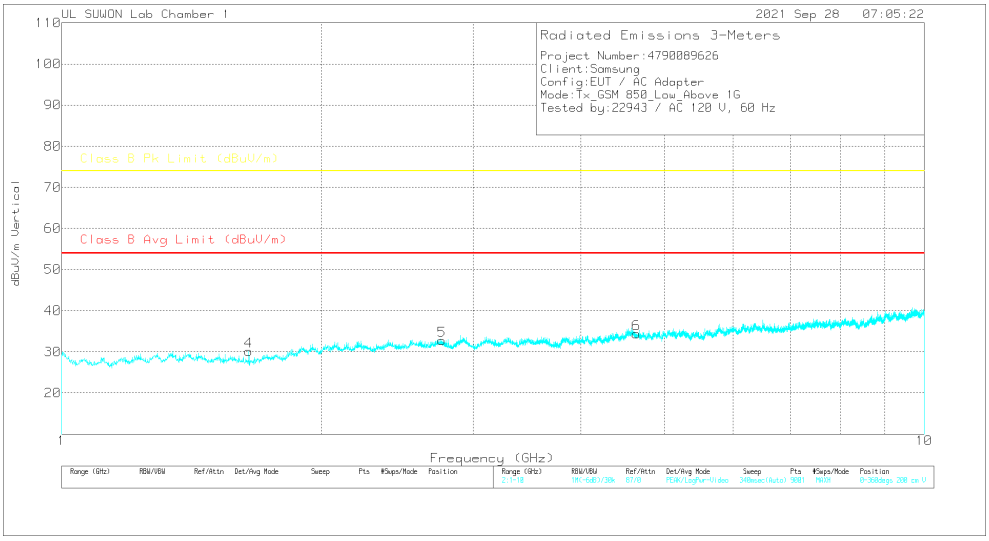
7.1.1. Above 1 GHz in the GSM850

LOW CHANNEL(869.2 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

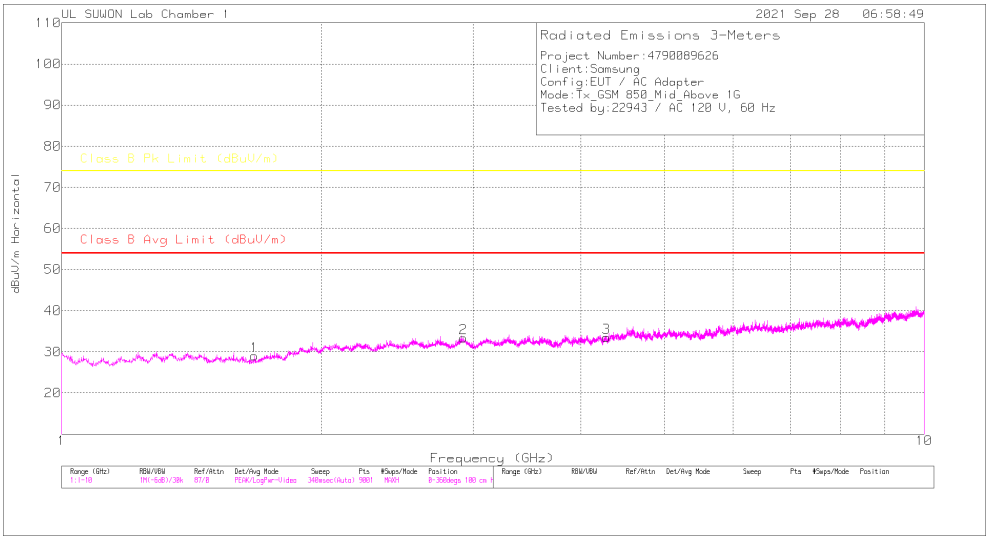
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	1GHz_HP[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.648	37.62	PK	28.4	-36.5	.8	30.32	-	-	74	-43.68	0-360	100	H
2	2.773	33.7	PK	32.2	-34.2	.6	32.3	-	-	74	-41.7	0-360	100	H
3	4.655	32.02	PK	34.2	-31.9	.4	34.72	-	-	74	-39.28	0-360	100	H
4	1.648	37.42	PK	28.4	-36.5	.8	30.12	-	-	74	-43.88	0-360	200	V
5	2.759	34.22	PK	32.2	-34.2	.6	32.82	-	-	74	-41.18	0-360	200	V
6	4.638	31.7	PK	34.2	-31.9	.4	34.4	-	-	74	-39.6	0-360	200	V

PK – Peak Detector

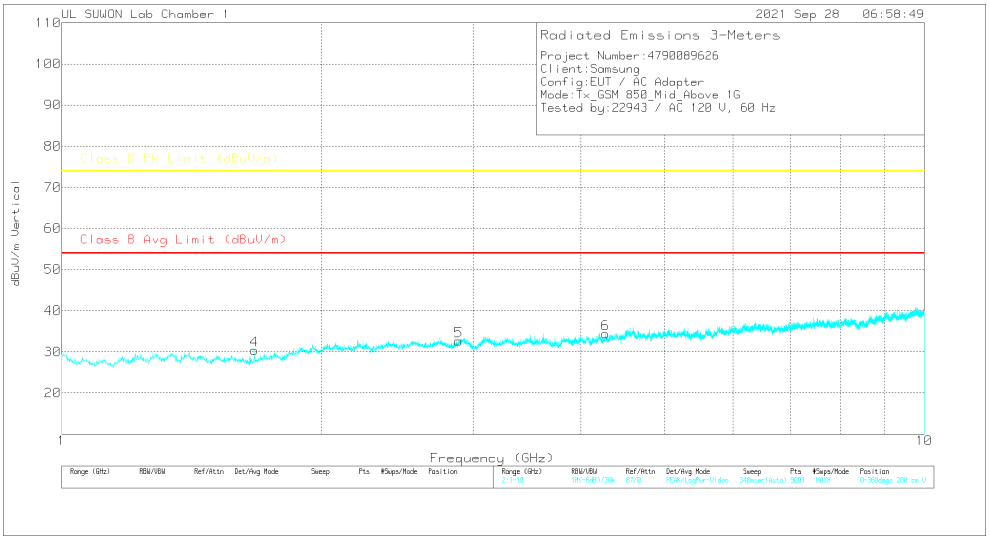
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MID CHANNEL(881.6 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

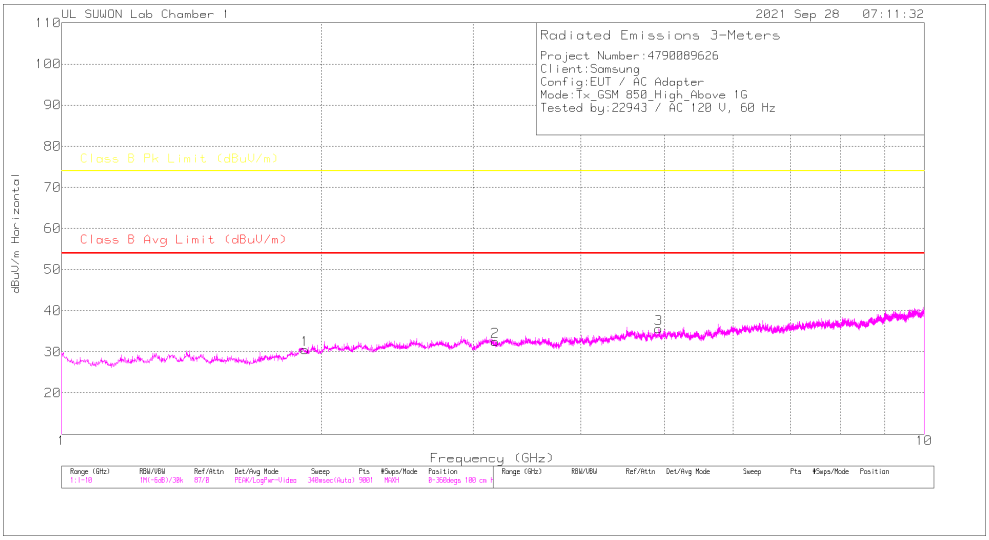
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz[dB]	1GHz_HP[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.673	36.15	PK	28.5	-36.4	.8	29.05	-	-	74	-44.95	0-360	100	H
2	2.922	34.04	PK	32.3	-33.9	.9	33.34	-	-	74	-40.66	0-360	100	H
3	4.283	31.65	PK	33.8	-32.4	.5	33.55	-	-	74	-40.45	0-360	100	H
4	1.673	37.55	PK	28.5	-36.4	.8	30.45	-	-	74	-43.55	0-360	200	V
5	2.885	33.59	PK	32.3	-34	.8	32.69	-	-	74	-41.31	0-360	200	V
6	4.272	32.57	PK	33.7	-32.4	.5	34.37	-	-	74	-39.63	0-360	200	V

PK – Peak Detector

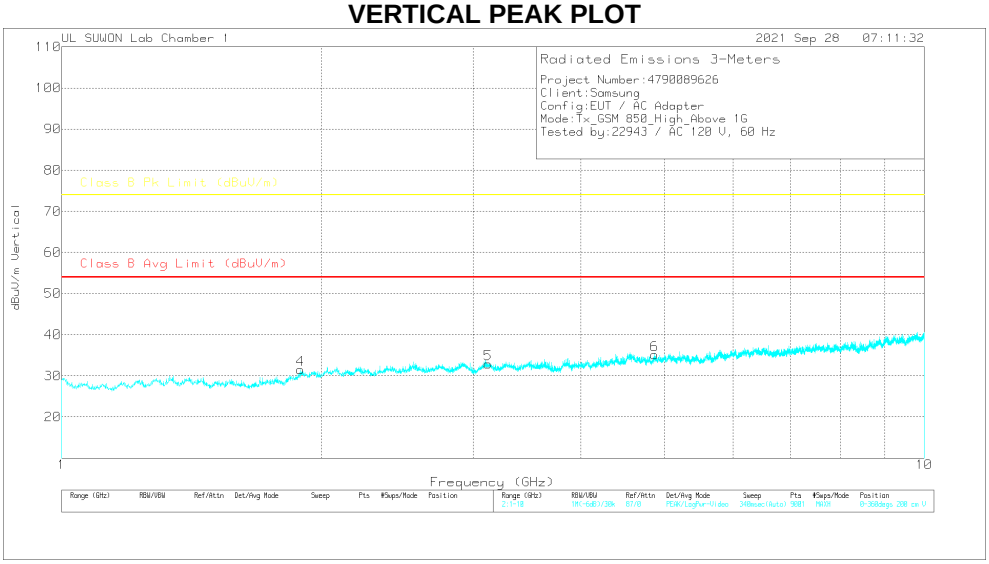
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HIGH CHANNEL(893.8 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	1.915	34.88	PK	30.8	-35.9	.7	30.48	-	-	74	-43.52	0-360	100	H
2	3.182	32.76	PK	32.7	-33.7	.7	32.46	-	-	74	-41.54	0-360	100	H
3	4.921	32.75	PK	34.1	-31.6	.4	35.65	-	-	74	-38.35	0-360	100	H
4	1.892	36.25	PK	30.6	-36	.7	31.55	-	-	74	-42.45	0-360	200	V
5	3.12	33.22	PK	32.6	-33.6	.7	32.92	-	-	74	-41.08	0-360	200	V
6	4.867	32.43	PK	34.1	-31.8	.4	35.13	-	-	74	-38.87	0-360	200	V

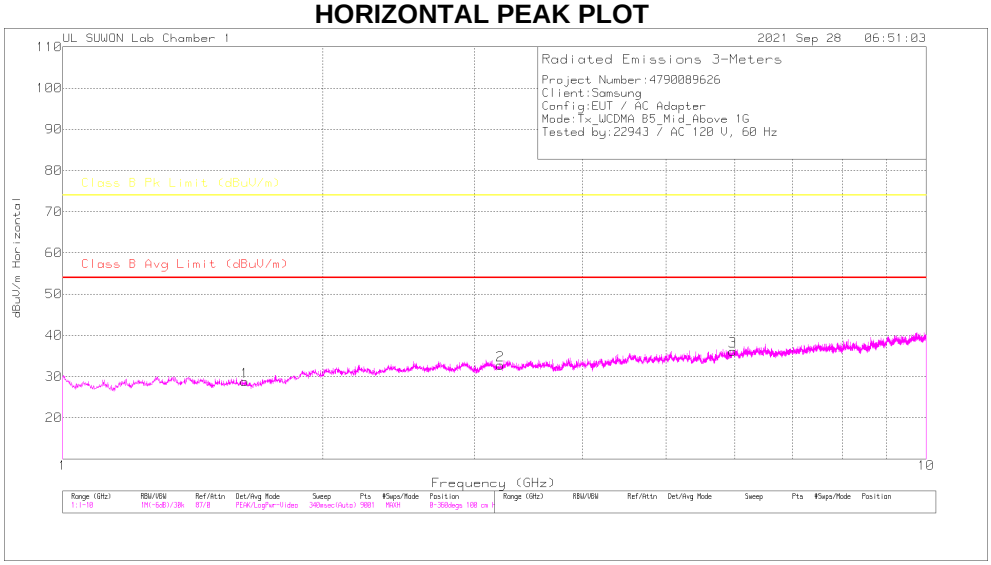
PK – Peak Detector

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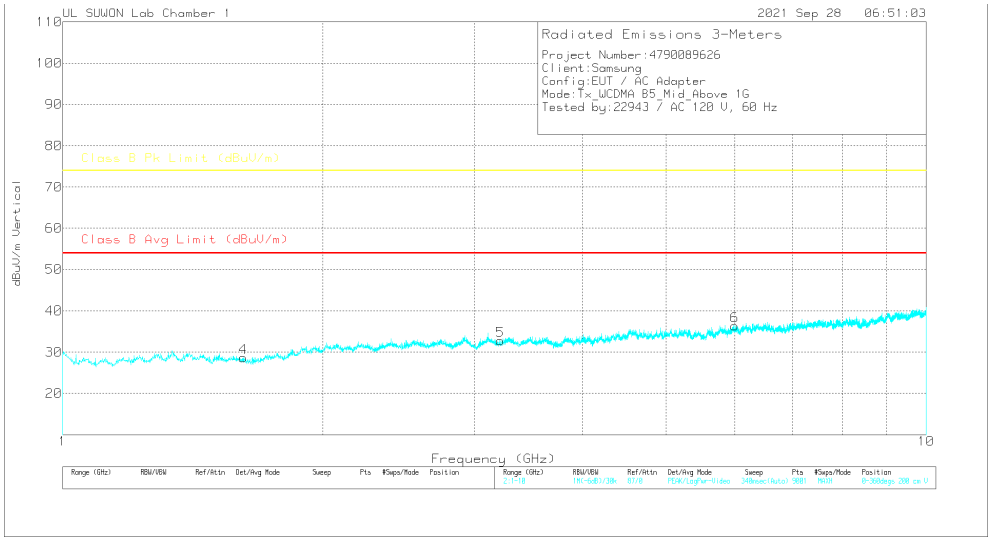
7.1.2. Above 1 GHz in the WCDMA Band 5

MID CHANNEL(881.6 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	1.626	36.11	PK	28.4	-36.5	.8	28.81	-	-	74	-45.19	0-360	100	H
2	3.212	33.2	PK	32.7	-33.8	.7	32.8	-	-	74	-41.2	0-360	100	H
3	5.967	30.79	PK	35.2	-30.4	.6	36.19	-	-	74	-37.81	0-360	100	H
4	1.619	35.99	PK	28.4	-36.5	.8	28.69	-	-	74	-45.31	0-360	200	V
5	3.213	33.22	PK	32.7	-33.8	.7	32.82	-	-	74	-41.18	0-360	200	V
6	6.006	30.95	PK	35.2	-30.3	.5	36.35	-	-	74	-37.65	0-360	200	V

PK – Peak Detector

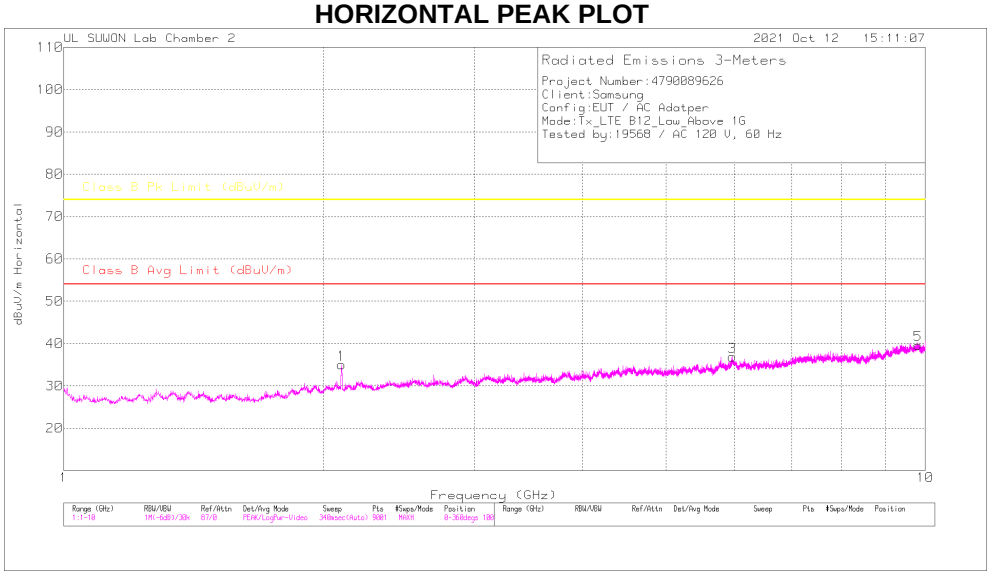
Note: Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

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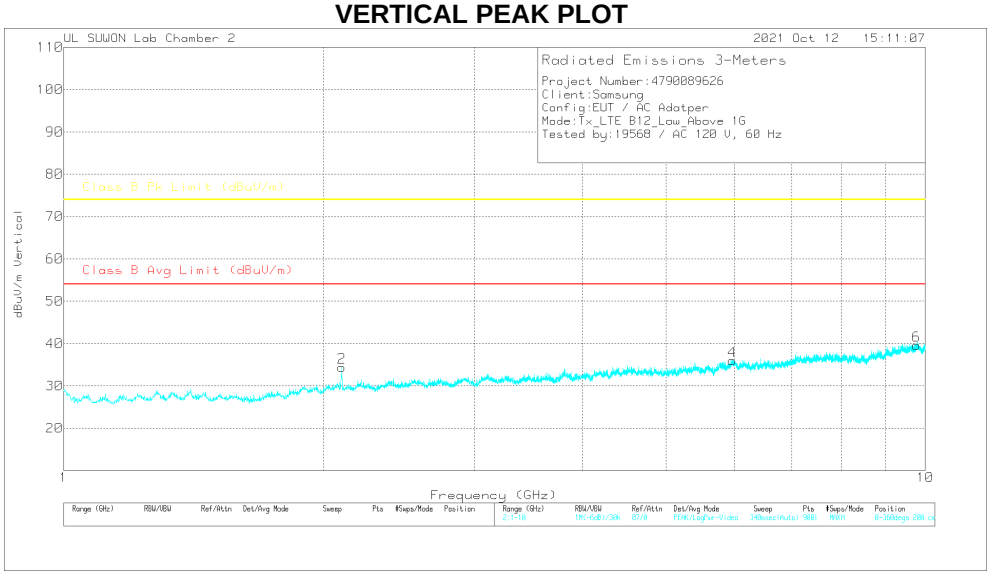
7.1.3. Above 1 GHz in the LTE Band 12

LOW CHANNEL(730.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	2.101	33.52	PK	31.6	-30.7	.6	35.02	-	-	74	-38.98	0-360	100	H
3	5.97	28.69	PK	35.1	-27.5	.6	36.89	-	-	74	-37.11	0-360	100	H
5	9.812	23.86	PK	37.2	-22	.6	39.66	-	-	74	-34.34	0-360	100	H
2	2.102	32.9	PK	31.6	-30.7	.6	34.4	-	-	74	-39.6	0-360	200	V
4	5.968	27.75	PK	35.1	-27.5	.6	35.95	-	-	74	-38.05	0-360	200	V
6	9.77	23.8	PK	37.2	-22	.6	39.6	-	-	74	-34.4	0-360	200	V

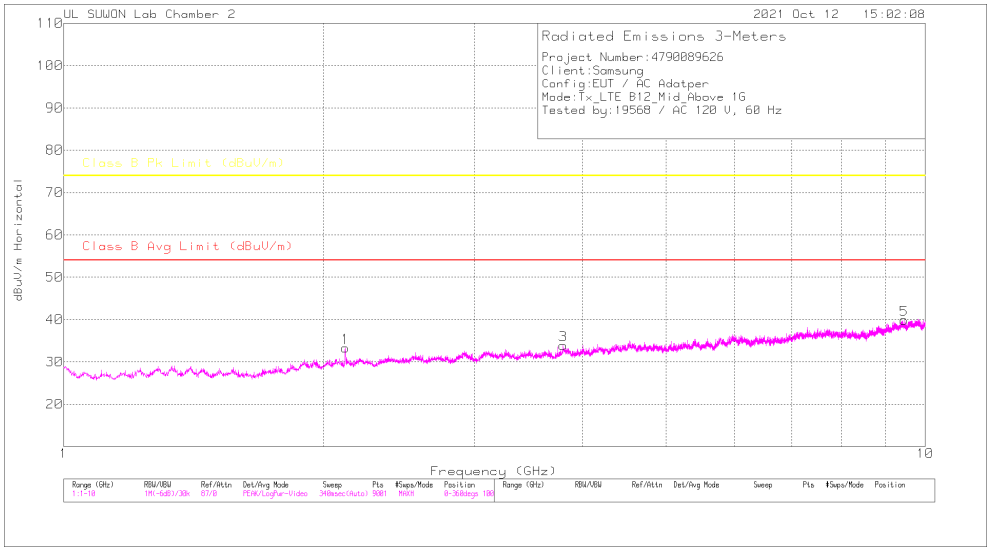
PK – Peak Detector

Note: Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

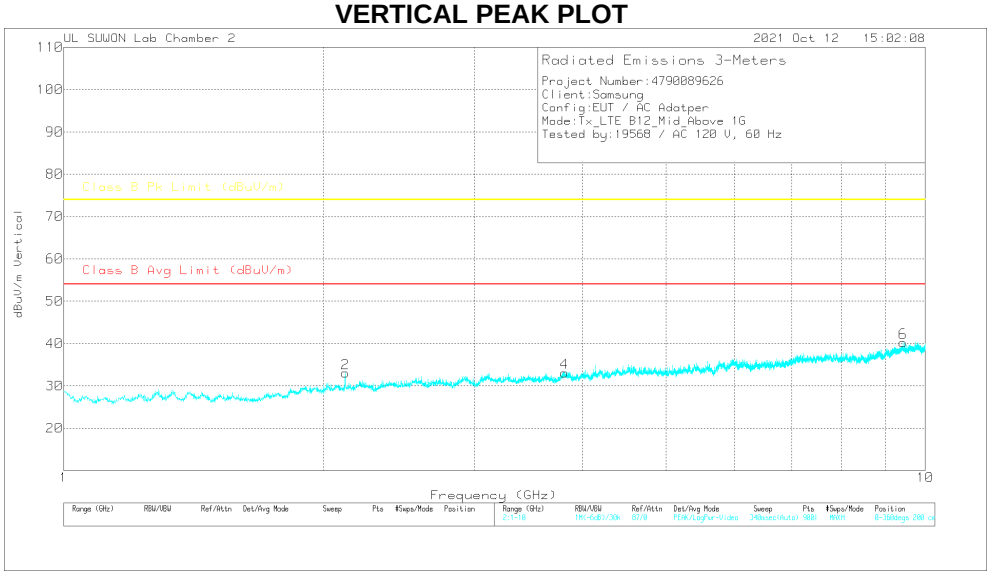
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MID CHANNEL(737.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	2.123	31.63	PK	31.7	-30.6	.6	33.33	-	-	74	-40.67	0-360	100	H
3	3.799	29.46	PK	33.3	-29.3	.5	33.96	-	-	74	-40.04	0-360	100	H
5	9.452	24.91	PK	36.9	-22.6	.7	39.91	-	-	74	-34.09	0-360	100	H
2	2.123	31.35	PK	31.7	-30.6	.6	33.05	-	-	74	-40.95	0-360	200	V
4	3.813	28.5	PK	33.3	-29.3	.6	33.1	-	-	74	-40.9	0-360	200	V
6	9.428	25.33	PK	36.8	-22.6	.7	40.23	-	-	74	-33.77	0-360	200	V

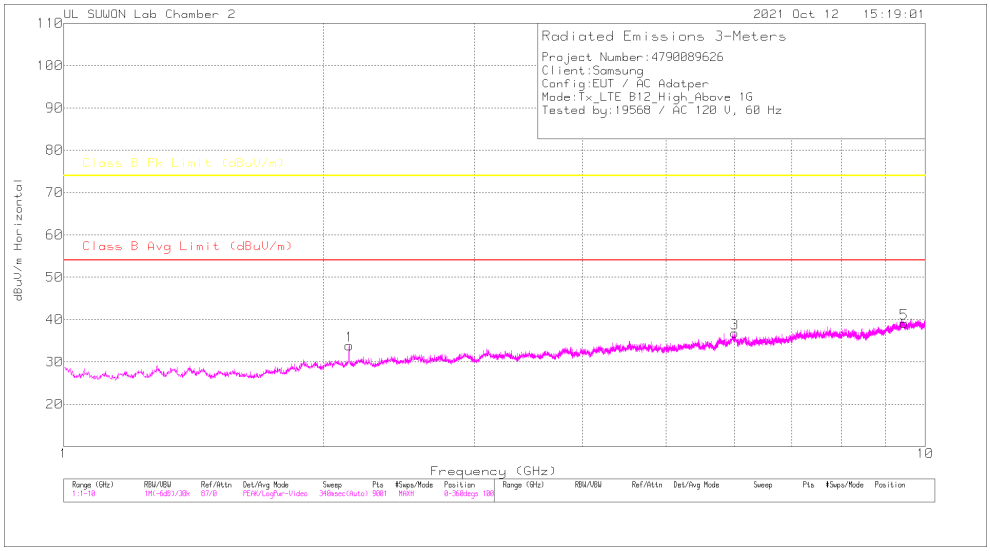
PK – Peak Detector

Note: Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

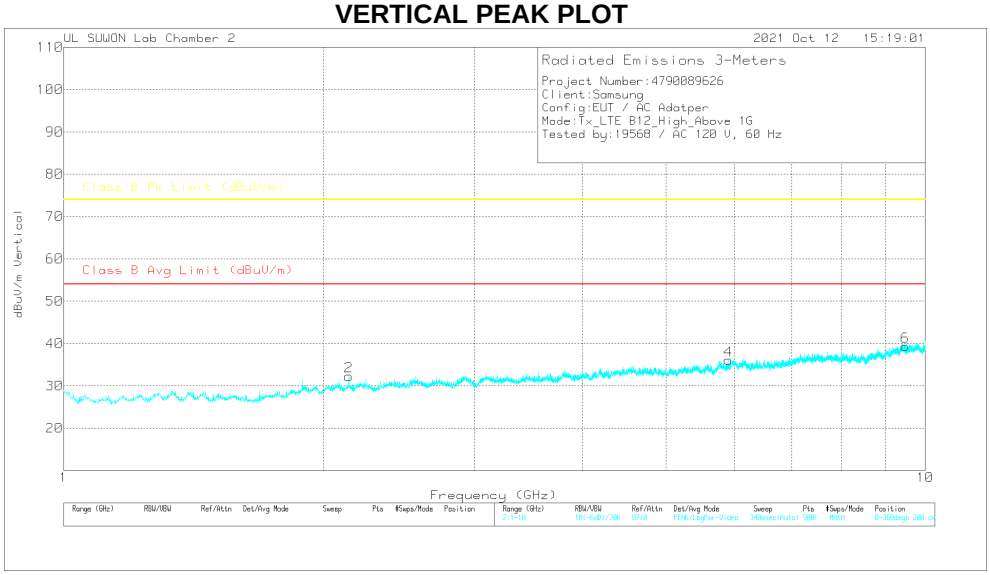
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HIGH CHANNEL(744.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	2.145	32.06	PK	31.7	-30.6	.7	33.86	-	-	74	-40.14	0-360	100	H
3	6.013	28.59	PK	35.2	-27.5	.5	36.79	-	-	74	-37.21	0-360	100	H
5	9.451	24.12	PK	36.9	-22.6	.7	39.12	-	-	74	-34.88	0-360	100	H
2	2.142	30.47	PK	31.7	-30.6	.7	32.27	-	-	74	-41.73	0-360	200	V
4	5.91	28.07	PK	35	-27.5	.5	36.07	-	-	74	-37.93	0-360	200	V
6	9.48	24.33	PK	36.9	-22.6	.7	39.33	-	-	74	-34.67	0-360	200	V

PK – Peak Detector

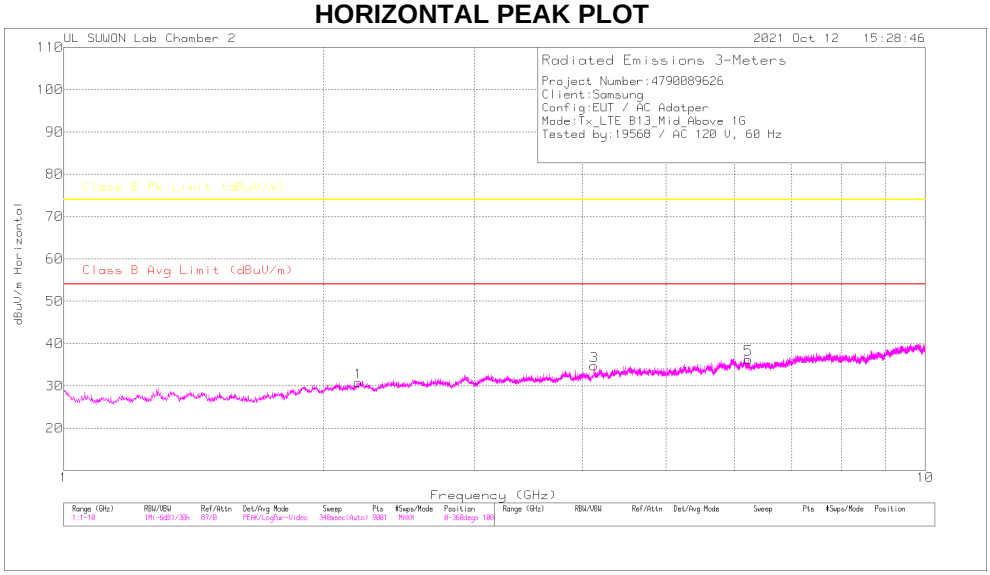
Note: Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

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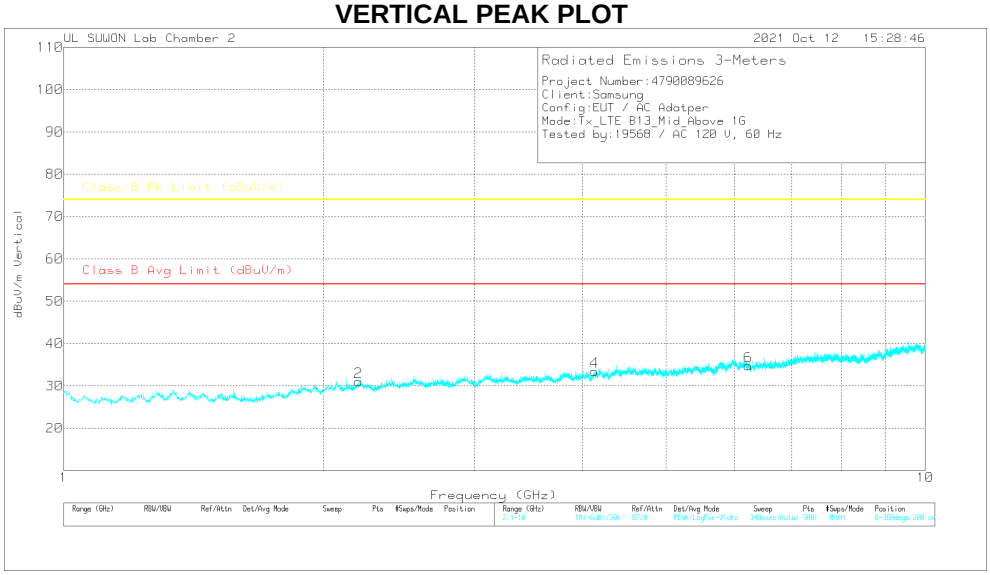
7.1.4. Above 1 GHz in the LTE Band 13

MID CHANNEL(751.0 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	2.196	29.06	PK	31.7	-30.6	.7	30.86	-	-	74	-43.14	0-360	100	H
3	4.126	29.44	PK	33.4	-28.6	.5	34.74	-	-	74	-39.26	0-360	100	H
5	6.233	27.64	PK	35.3	-27.2	.5	36.24	-	-	74	-37.76	0-360	100	H
2	2.198	29.19	PK	31.7	-30.6	.7	30.99	-	-	74	-43.01	0-360	200	V
4	4.131	28.13	PK	33.4	-28.6	.5	33.43	-	-	74	-40.57	0-360	200	V
6	6.233	26.13	PK	35.3	-27.2	.5	34.73	-	-	74	-39.27	0-360	200	V

PK – Peak Detector

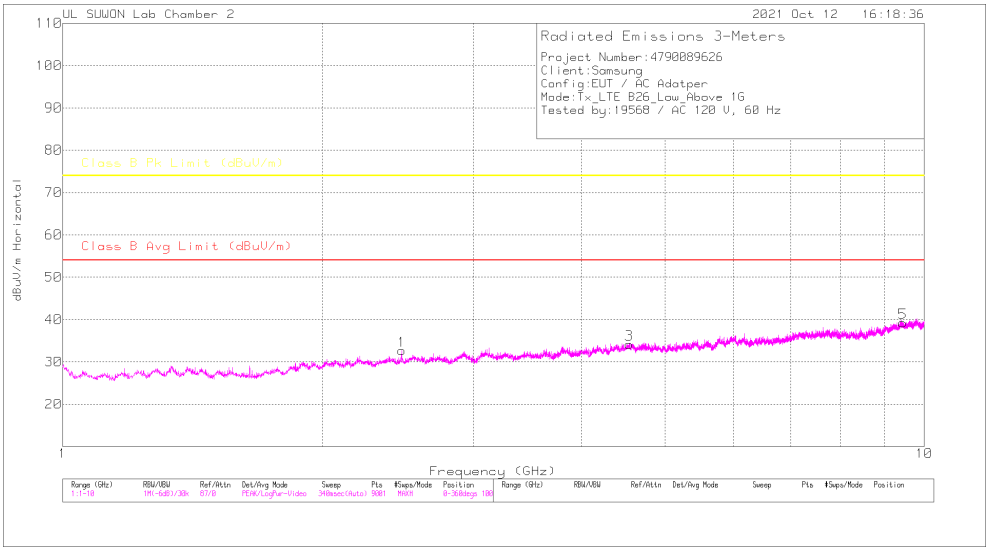
Note: Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

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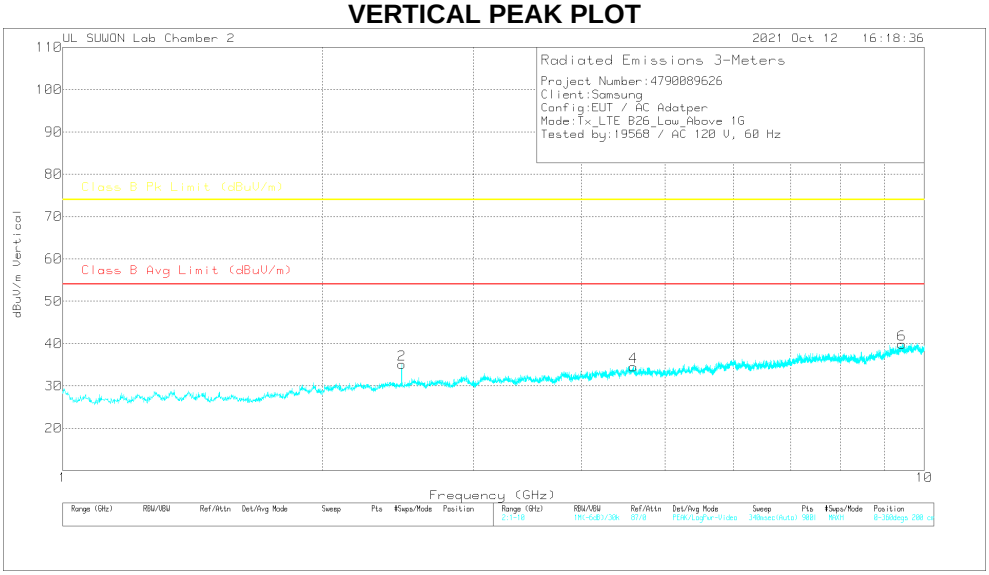
7.1.5. Above 1 GHz in the LTE Band 26

LOW CHANNEL(860.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

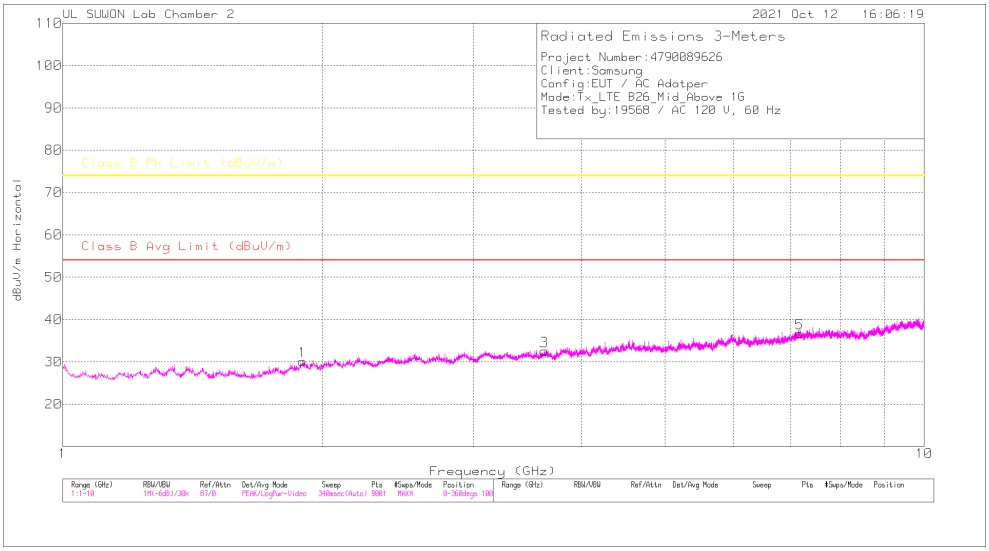
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HP[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.474	30.06	PK	32	-30.2	.8	32.66	-	-	74	-41.34	0-360	100	H
3	4.543	28.18	PK	34.1	-28.6	.5	34.18	-	-	74	-39.82	0-360	100	H
5	9.444	24.35	PK	36.8	-22.6	.7	39.25	-	-	74	-34.75	0-360	100	H
2	2.474	32.5	PK	32	-30.2	.8	35.1	-	-	74	-38.9	0-360	200	V
4	4.597	28.73	PK	34.1	-28.8	.5	34.53	-	-	74	-39.47	0-360	200	V
6	9.421	24.92	PK	36.8	-22.6	.7	39.82	-	-	74	-34.18	0-360	200	V

PK – Peak Detector

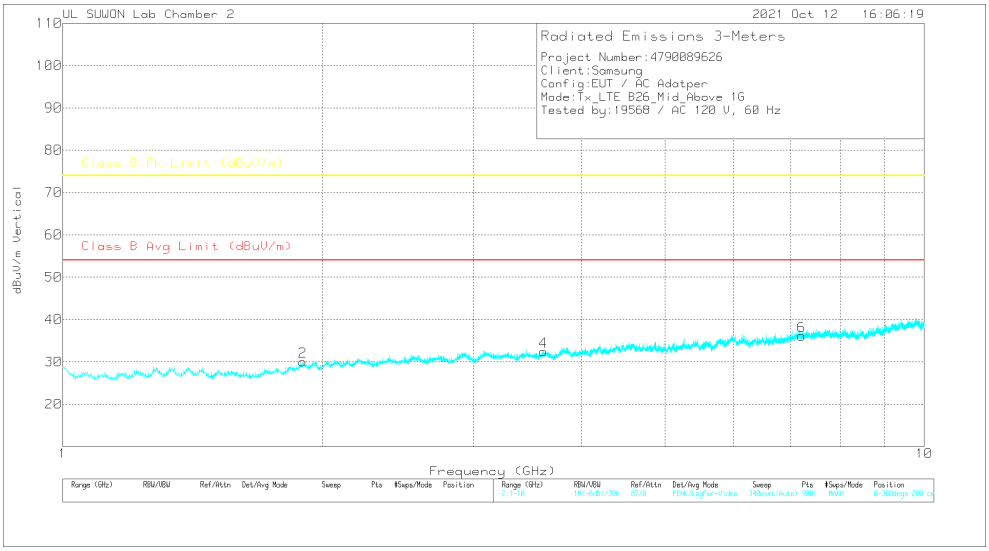
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MID CHANNEL(876.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

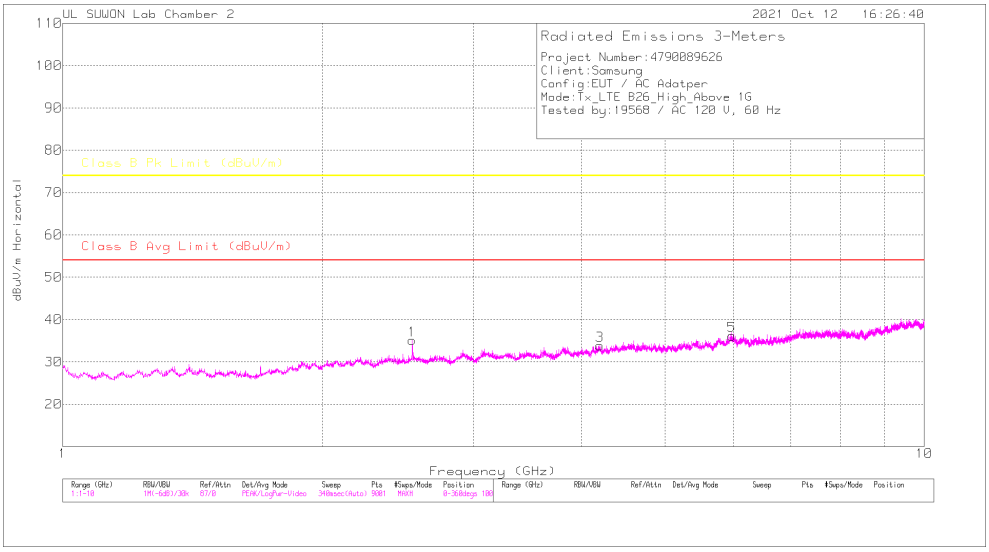
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HP[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.898	29.89	PK	30.7	-31.1	.7	30.19	-	-	74	-43.81	0-360	100	H
3	3.622	28.7	PK	32.8	-29.6	.7	32.6	-	-	74	-41.4	0-360	100	H
5	7.166	25.95	PK	36.1	-25.7	.4	36.75	-	-	74	-37.25	0-360	100	H
2	1.9	29.57	PK	30.8	-31	.7	30.07	-	-	74	-43.93	0-360	200	V
4	3.615	28.65	PK	32.8	-29.6	.6	32.45	-	-	74	-41.55	0-360	200	V
6	7.206	25.46	PK	36.2	-25.9	.4	36.16	-	-	74	-37.84	0-360	200	V

PK – Peak Detector

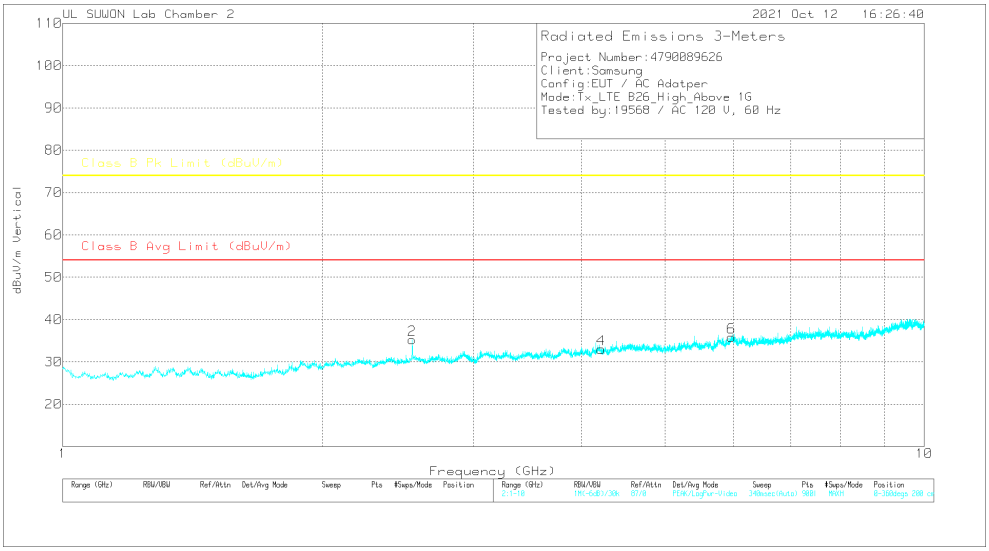
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HIGH CHANNEL(892.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



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	2.545	32.48	PK	32.1	-30.2	.7	35.08	-	-	74	-38.92	0-360	100	H
3	4.203	28.45	PK	33.4	-28.4	.4	33.85	-	-	74	-40.15	0-360	100	H
5	5.977	27.95	PK	35.1	-27.5	.6	36.15	-	-	74	-37.85	0-360	100	H
2	2.545	32.64	PK	32.1	-30.2	.7	35.24	-	-	74	-38.76	0-360	200	V
4	4.217	27.7	PK	33.4	-28.5	.4	33	-	-	74	-41	0-360	200	V
6	5.974	27.65	PK	35.1	-27.5	.6	35.85	-	-	74	-38.15	0-360	200	V

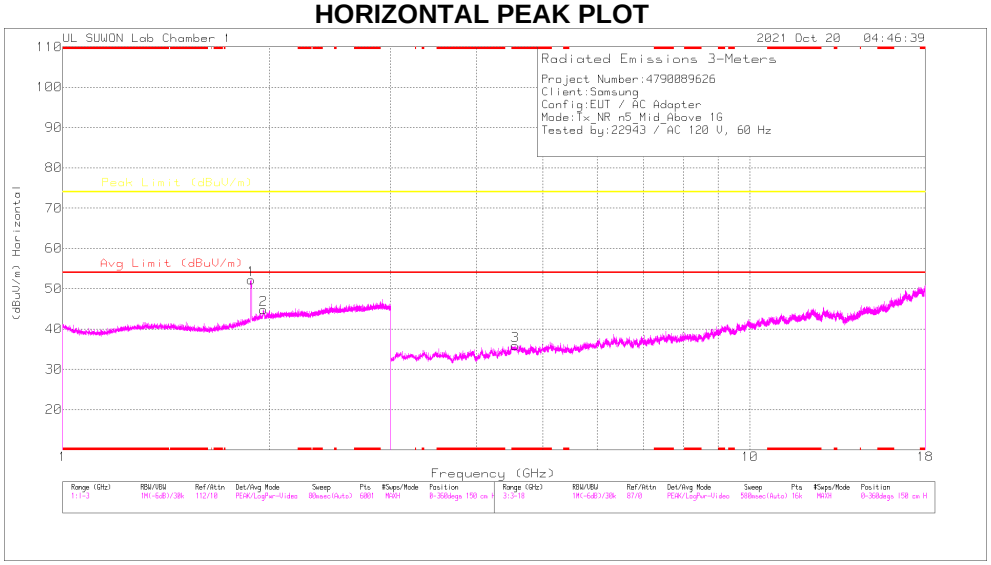
PK – Peak Detector

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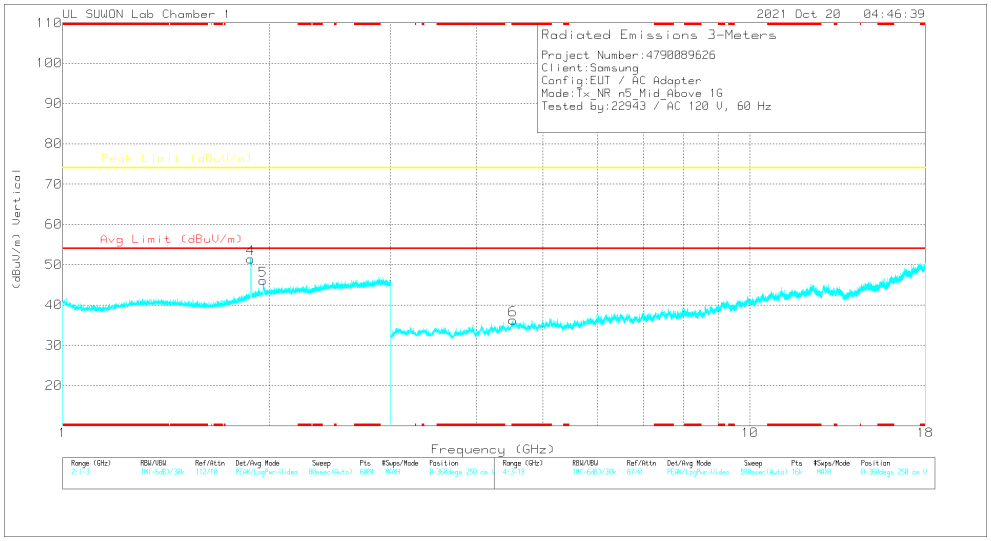
7.1.6. Above 1 GHz in the 5G NR Band 5

MID CHANNEL(881.5MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT[dB]	1GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.87967	47.32	PK	30.5	-26.3	.7	52.22	-	-	74	-21.78	0-360	150	H
2	1.95967	39.05	PK	31.2	-26.1	.6	44.75	-	-	74	-29.25	0-360	150	H
4	1.879	46.56	PK	30.5	-26.3	.7	51.46	-	-	74	-22.54	0-360	250	V
5	1.95767	40.4	PK	31.2	-26.1	.6	46.1	-	-	74	-27.9	0-360	250	V

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HP[dB]	1GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.55615	32.51	PK	34.2	-31.3	.5	35.91	-	-	74	-38.09	0-360	150	H
6	* 4.52053	33.1	PK	34.2	-31.4	.4	36.3	-	-	74	-37.7	0-360	250	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak Detector

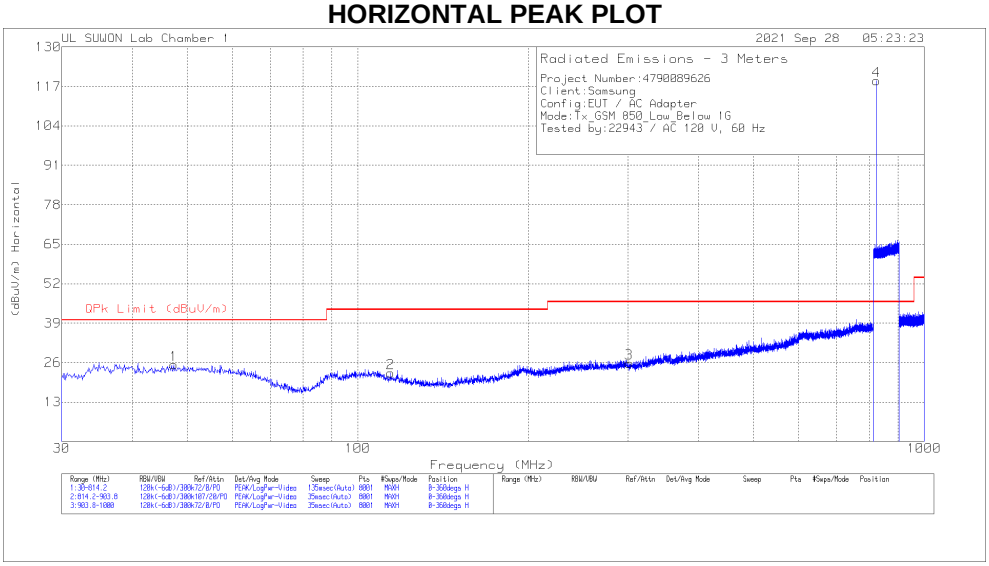
Note. Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

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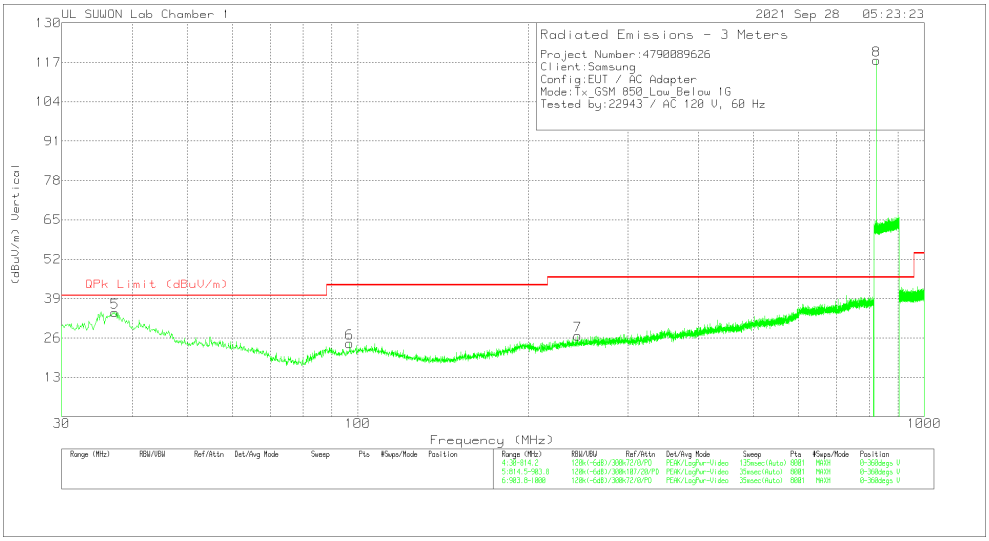
7.1.7. Below 1 GHz in the GSM850

LOW CHANNEL(869.2 MHz)

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	47.3504	3.79	Pk	19.9	1.6	25.29	40	-14.71	0-360	100	H
2	114.2035	4.07	Pk	16.3	2.3	22.67	43.52	-20.85	0-360	100	H
3	301.2352	3.04	Pk	19.2	3.6	25.84	46.02	-20.18	0-360	100	H
4	824.1344	85.8	Pk	27.1	6	118.9	**46.02**	**72.88**	0-360	200	H
5	37.2539	15.74	Pk	17.6	1.2	34.54	40	-5.46	0-360	100	V
6	96.755	5.12	Pk	17	2.1	24.22	43.52	-19.3	0-360	100	V
7	244.3807	5.16	Pk	18.4	3.2	26.76	46.02	-19.26	0-360	100	V
8	824.1783	84.55	Pk	27.1	6	117.65	**46.02**	**71.63**	0-360	200	V

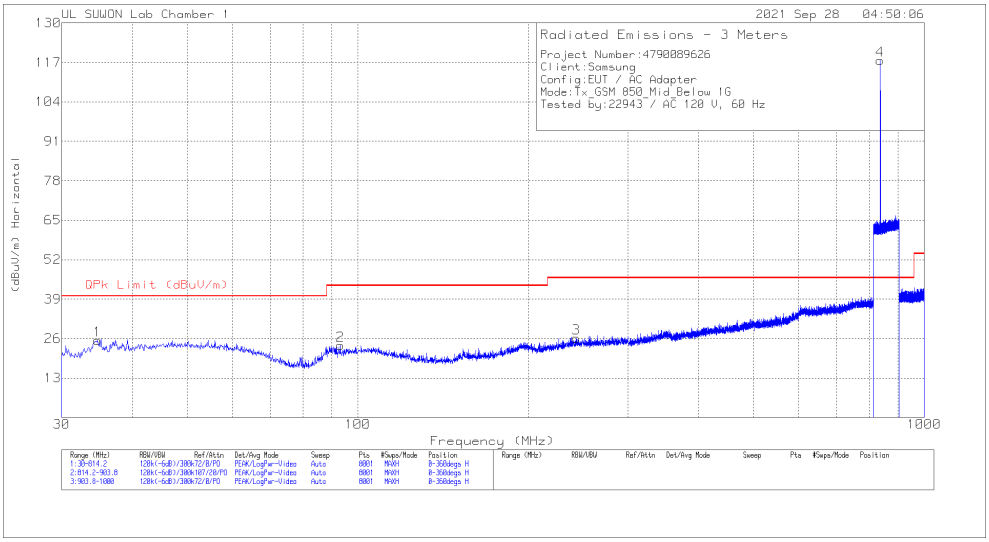
Pk - Peak detector

Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

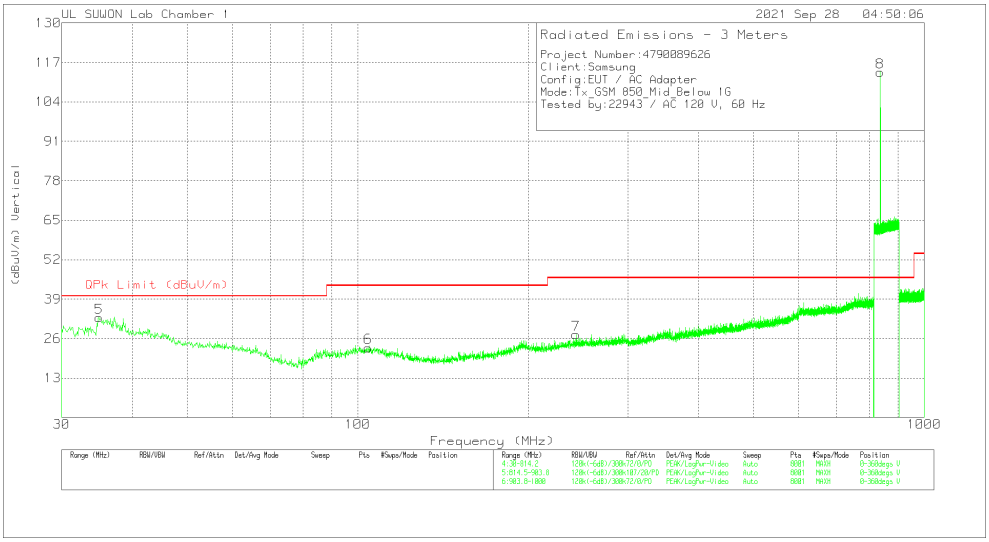
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MID CHANNEL(881.6 MHz)

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	34.7052	7.73	Pk	16.5	1.3	25.53	40	-14.47	0-360	100	H
2	93.1281	5.61	Pk	16.2	2	23.81	43.52	-19.71	0-360	200	H
3	242.8123	4.52	Pk	18.3	3.3	26.12	46.02	-19.9	0-360	200	H
4	836.6	84.63	Pk	27.1	6	117.73	**46.02**	**71.71**	0-360	100	H
5	34.9013	14.92	Pk	16.6	1.4	32.92	40	-7.08	0-360	100	V
6	104.2049	3.23	Pk	17.7	2.1	23.03	43.52	-20.49	0-360	100	V
7	242.7143	5.76	Pk	18.3	3.3	27.36	46.02	-18.66	0-360	100	V
8	836.6027	80.66	Pk	27.1	6	113.76	**46.02**	**67.74**	0-360	200	V

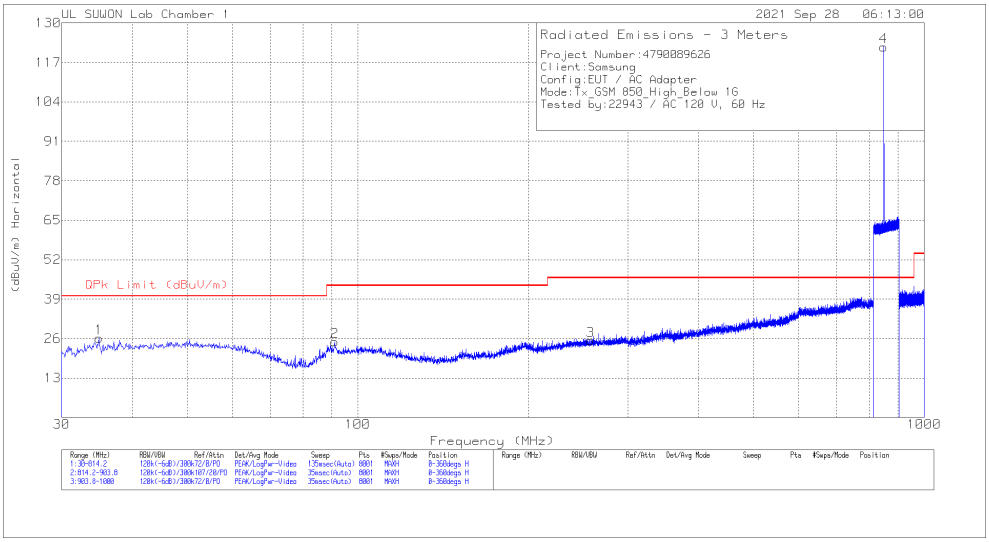
Pk - Peak detector

Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

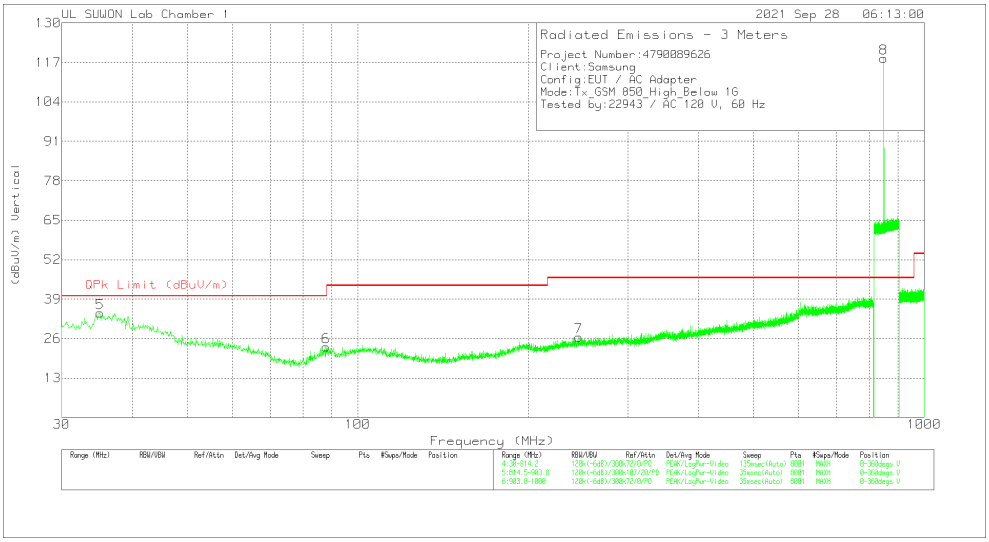
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HIGH CHANNEL(893.8 MHz)

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	34.9013	8.17	Pk	16.6	1.4	26.17	40	-13.83	0-360	200	H
2	90.9716	6.99	Pk	16	2	24.99	43.52	-18.53	0-360	200	H
3	257.516	3.43	Pk	18.5	3.4	25.33	46.02	-20.69	0-360	100	H
4	848.7968	88.6	Pk	27.4	6.1	122.1	**46.02**	**76.08**	0-360	200	H
5	35.0973	16.75	Pk	16.6	1.1	34.45	40	-5.55	0-360	100	V
6	87.9328	6.11	Pk	15.2	1.9	23.21	40	-16.79	0-360	100	V
7	245.655	4.9	Pk	18.4	3.2	26.5	46.02	-19.52	0-360	100	V
8	848.7146	84.84	Pk	27.4	6.1	118.34	**46.02**	**72.32**	0-360	300	V

Pk - Peak detector

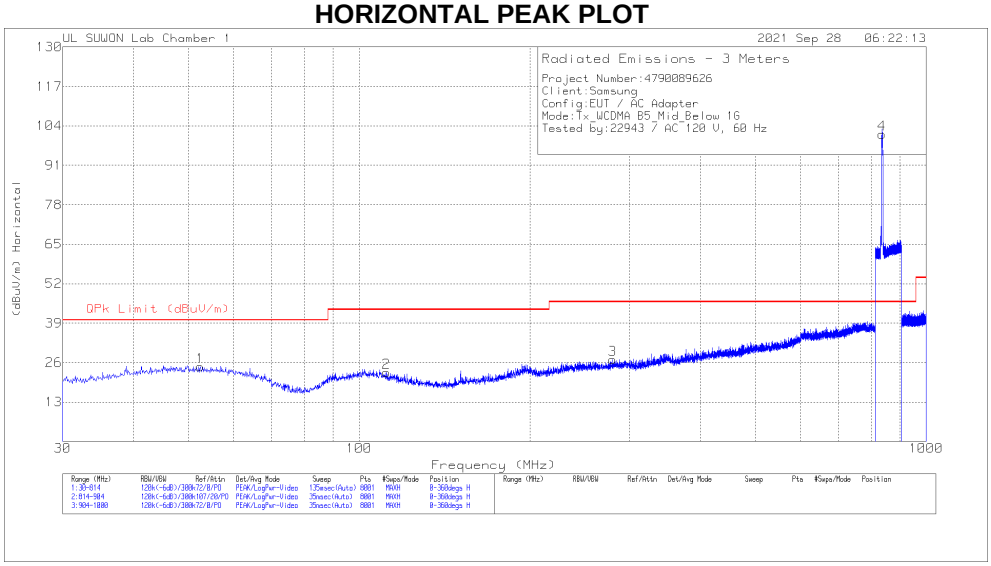
Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

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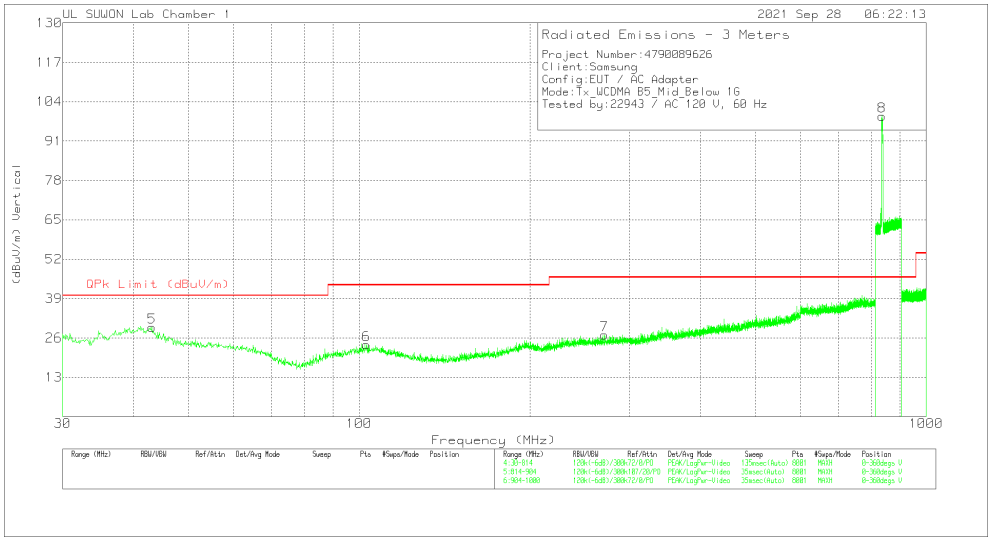
7.1.8. Below 1 GHz in the WCDMA Band 5

MID CHANNEL(881.6 MHz)

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	52.442	3.6	Pk	19.7	1.4	24.7	40	-15.3	0-360	200	H
2	111.634	3.81	Pk	16.6	2.3	22.71	43.52	-20.81	0-360	300	H
3	279.802	4.86	Pk	18.8	3.4	27.06	46.02	-18.96	0-360	300	H
4	836.32	68.1	Pk	27.1	6	101.2	**46.02**	**55.18**	0-360	300	H
5	43.132	8.88	Pk	19.3	1.4	29.58	40	-10.42	0-360	200	V
6	103.01	3.8	Pk	17.7	2.3	23.8	43.52	-19.72	0-360	200	V
7	270.982	4.79	Pk	18.6	3.6	26.99	46.02	-19.03	0-360	400	V
8	836.4888	66.07	Pk	27.1	6	99.17	**46.02**	**53.15**	0-360	100	V

Pk - Peak detector

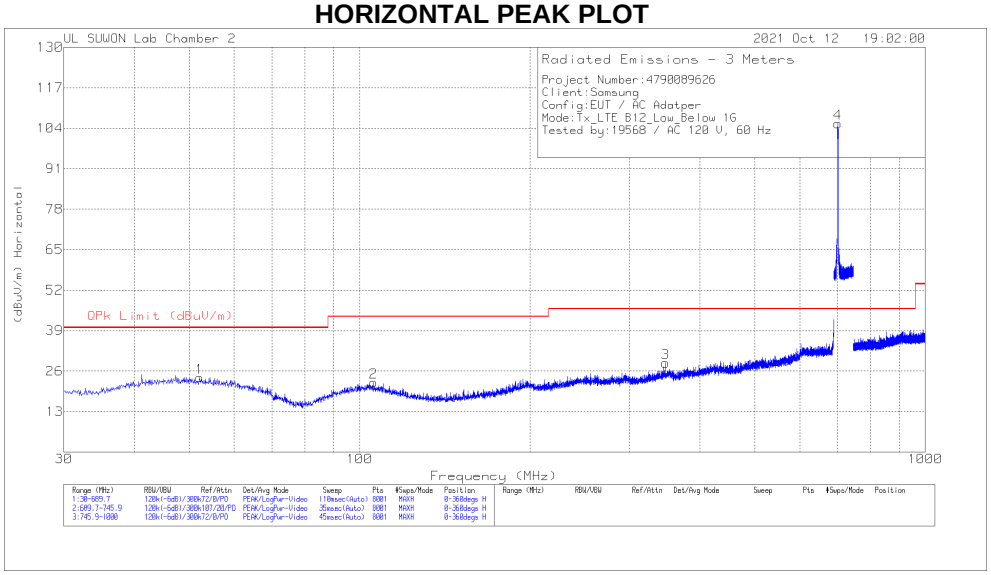
Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

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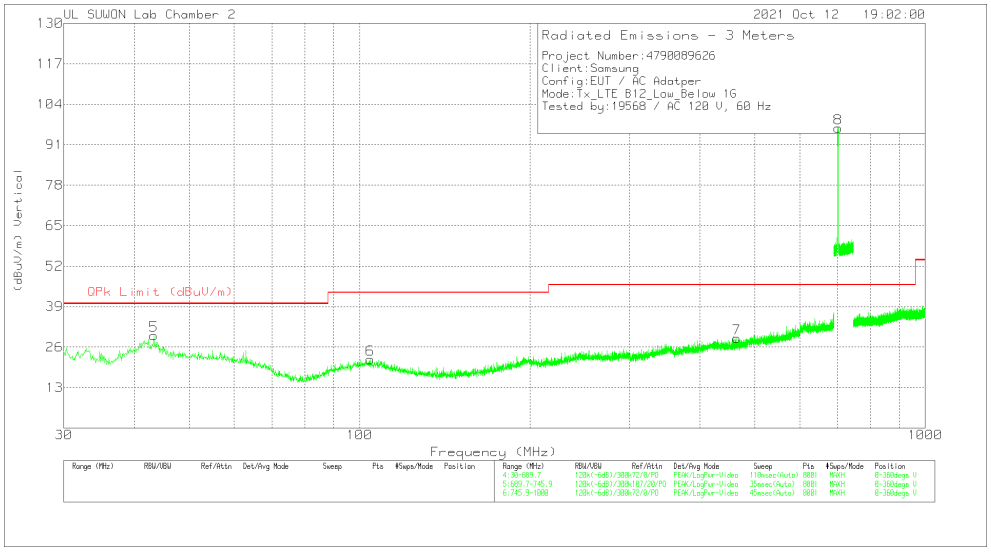
7.1.9. Below 1 GHz in the LTE Band 12

LOW CHANNEL(730.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	52.1825	3.39	Pk	19.7	.8	23.89	40	-16.11	0-360	300	H
2	105.866	3.66	Pk	17.5	1.2	22.36	43.52	-21.16	0-360	100	H
3	347.7299	5.65	Pk	20.9	2.1	28.65	46.02	-17.37	0-360	200	H
4	701.207	77.1	Pk	25.4	3	105.5	**46.02**	**59.48**	0-360	200	H
5	43.2765	9.51	Pk	19.4	.8	29.71	40	-10.29	0-360	200	V
6	104.4641	3.26	Pk	17.6	1.2	22.06	43.52	-21.46	0-360	300	V
7	464.4151	4.36	Pk	22.1	2.4	28.86	46.02	-17.16	0-360	400	V
8	701.7479	67.89	Pk	25.4	3	96.29	**46.02**	**50.27**	0-360	100	V

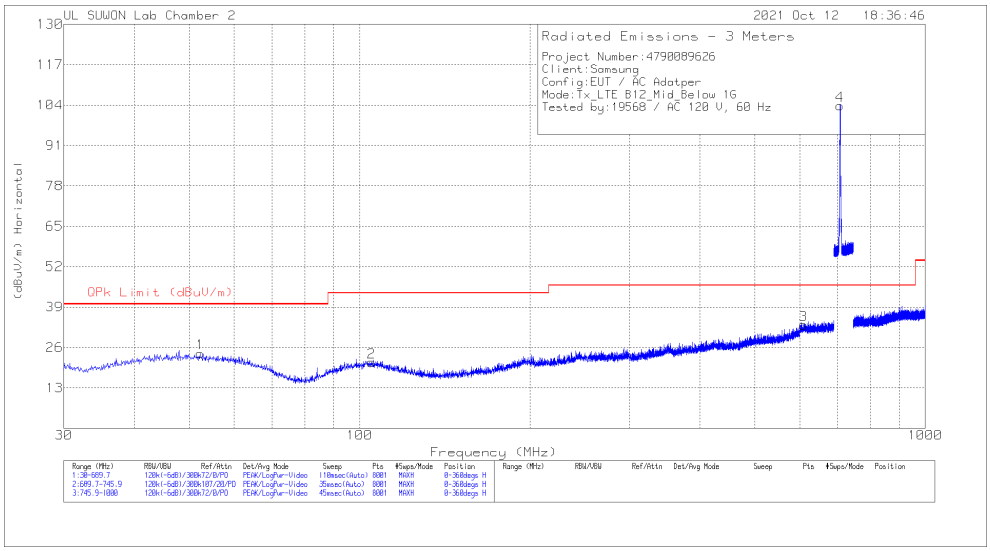
Pk - Peak detector

Note: Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

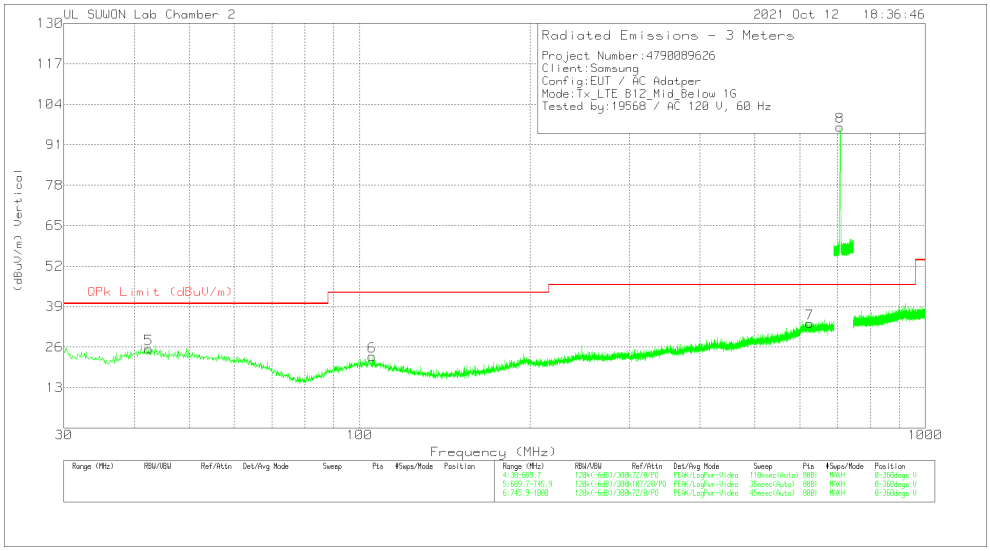
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MID CHANNEL(737.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	52.265	3.66	Pk	19.7	.8	24.16	40	-15.84	0-360	100	H
2	105.0413	2.46	Pk	17.6	1.2	21.26	43.52	-22.26	0-360	100	H
3	609.385	5.16	Pk	25.3	2.8	33.26	46.02	-12.76	0-360	200	H
4	706.4827	75.3	Pk	25.5	3	103.8	**46.02**	**57.78**	0-360	200	H
5	42.3695	5.54	Pk	19.2	.7	25.44	40	-14.56	0-360	200	V
6	105.2887	4.22	Pk	17.6	1.2	23.02	43.52	-20.5	0-360	400	V
7	624.7232	5.81	Pk	25	2.8	33.61	46.02	-12.41	0-360	400	V
8	706.3703	68.24	Pk	25.5	3	96.74	**46.02**	**50.72**	0-360	100	V

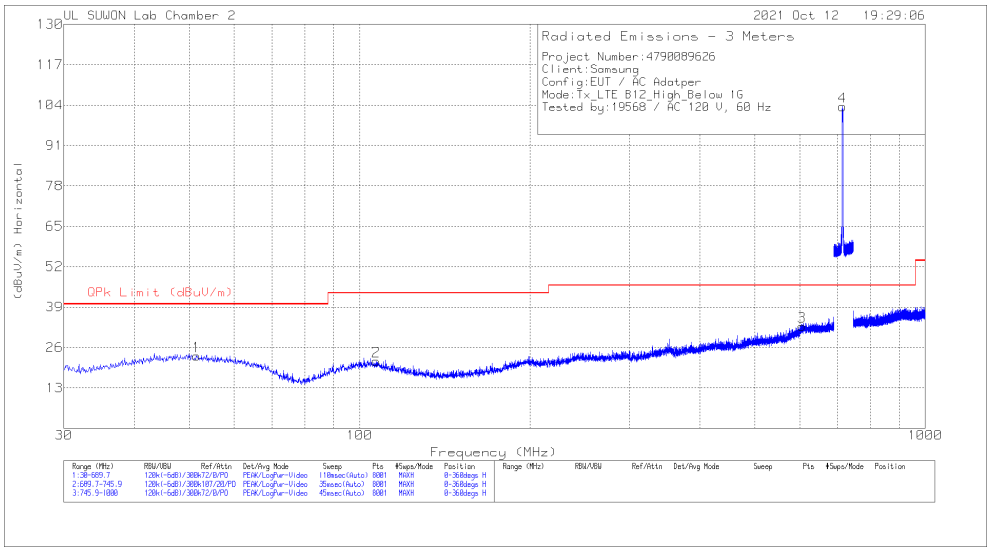
Pk - Peak detector

Note: Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

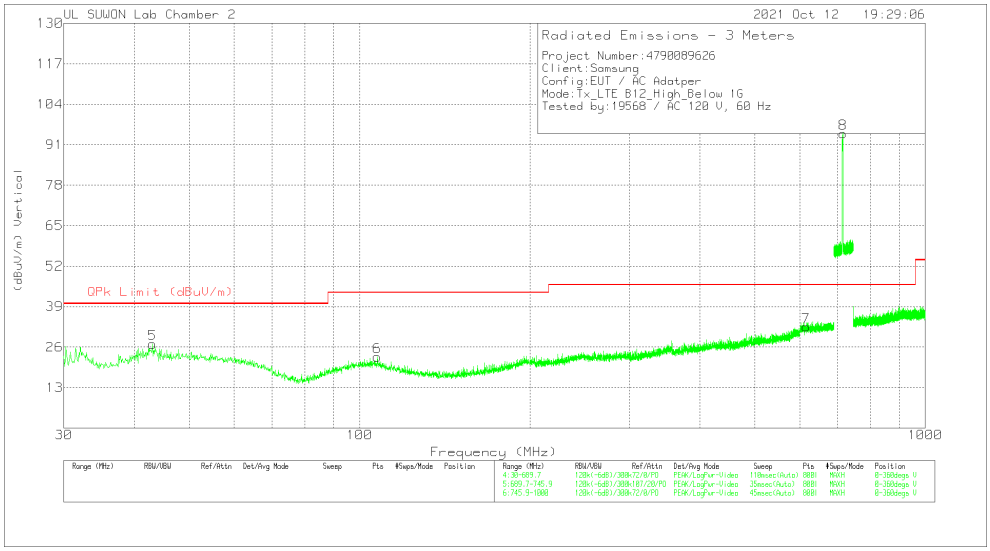
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HIGH CHANNEL(744.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	51.5228	2.81	Pk	19.7	.8	23.31	40	-16.69	0-360	300	H
2	107.0204	3.05	Pk	17.4	1.2	21.65	43.52	-21.87	0-360	100	H
3	605.8391	4.96	Pk	25.1	2.8	32.86	46.02	-13.16	0-360	200	H
4	714.0346	74.93	Pk	25.6	3	103.53	**46.02**	**57.51**	0-360	200	H
5	43.0292	6.89	Pk	19.3	.8	26.99	40	-13.01	0-360	200	V
6	107.5152	4.36	Pk	17.3	1.2	22.86	43.52	-20.66	0-360	200	V
7	615.8996	4.5	Pk	25.2	2.8	32.5	46.02	-13.52	0-360	200	V
8	715.545	65.94	Pk	25.6	3	94.54	**46.02**	**48.52**	0-360	100	V

Pk - Peak detector

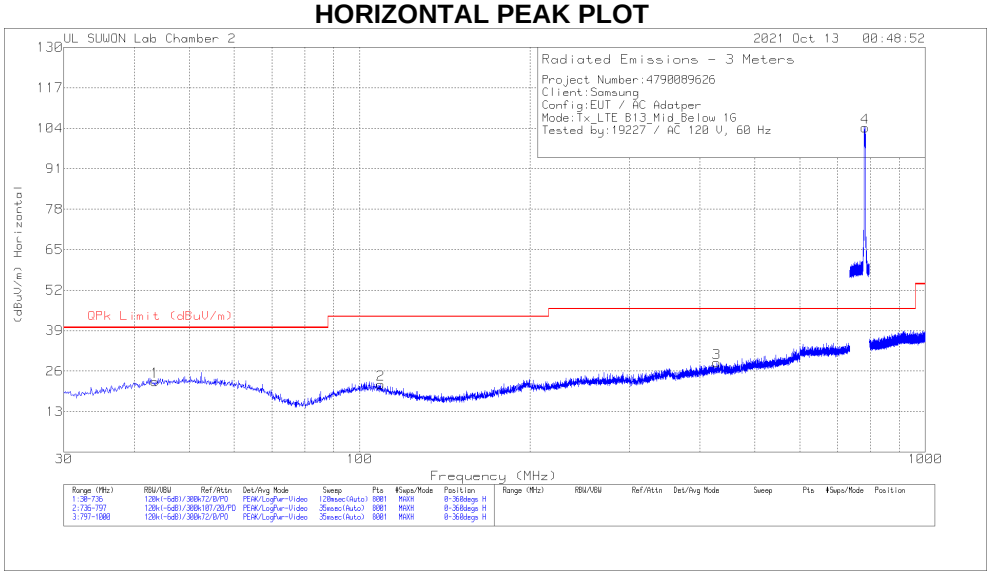
Note: Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

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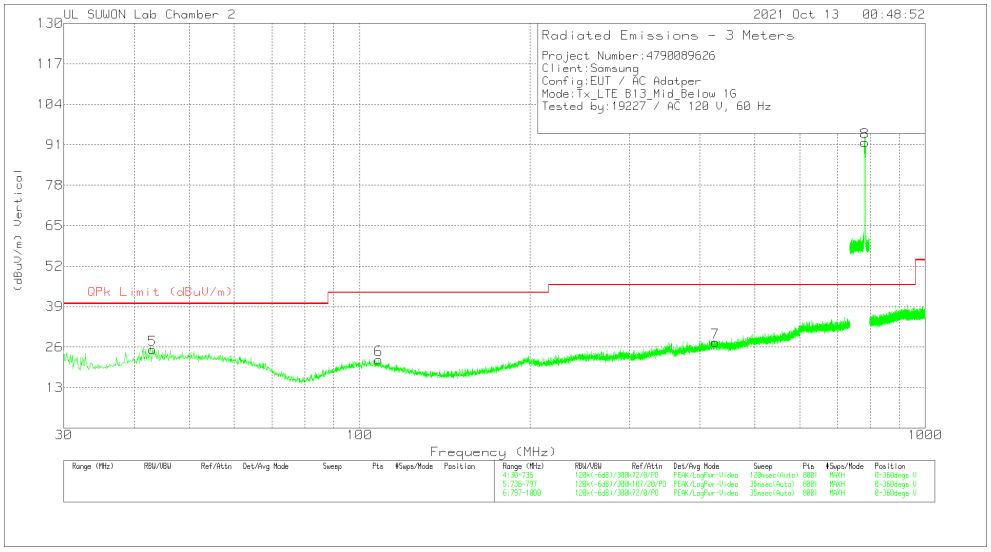
7.1.10.Below 1 GHz in the LTE Band 13

MID CHANNEL(751.0 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	43.5023	2.44	Pk	19.4	.8	22.64	40	-17.36	0-360	100	H
2	108.9838	3.37	Pk	17.2	1.2	21.77	43.52	-21.75	0-360	300	H
3	427.7428	4.27	Pk	22.1	2.3	28.67	46.02	-17.35	0-360	100	H
4	782.5583	74.48	Pk	26.5	3.2	104.18	**46.02**	**58.16**	0-360	200	H
5	43.061	5.13	Pk	19.3	.8	25.23	40	-14.77	0-360	200	V
6	108.1013	3.47	Pk	17.3	1.2	21.97	43.52	-21.55	0-360	400	V
7	425.5365	3.13	Pk	22.1	2.3	27.53	46.02	-18.49	0-360	400	V
8	782.36	62.1	Pk	26.5	3.2	91.8	**46.02**	**45.78**	0-360	100	V

Pk - Peak detector

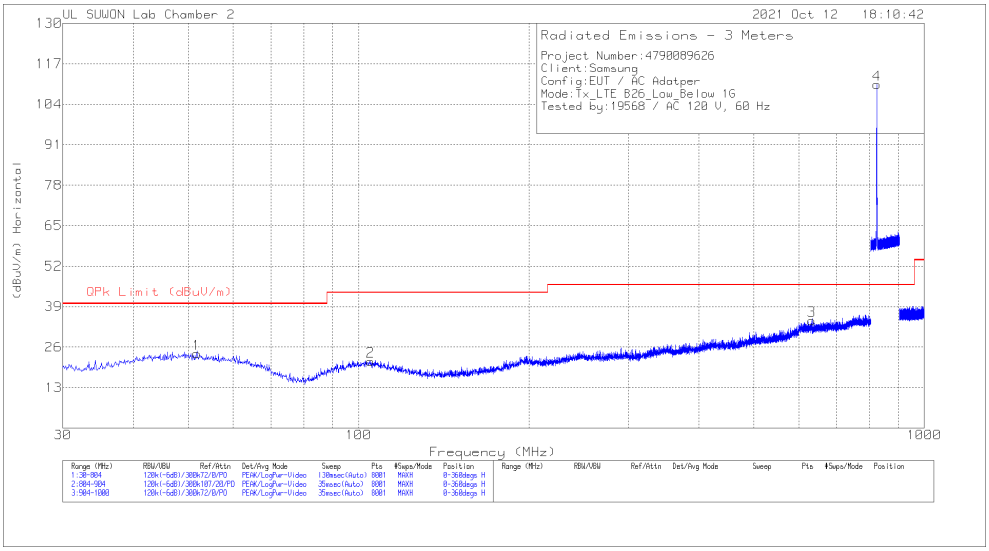
Note: Unwanted emissions captured from 777MHz to 787MHz and from 746MHz to 756MHz were the TX and RX signals generated from the call-simulator.

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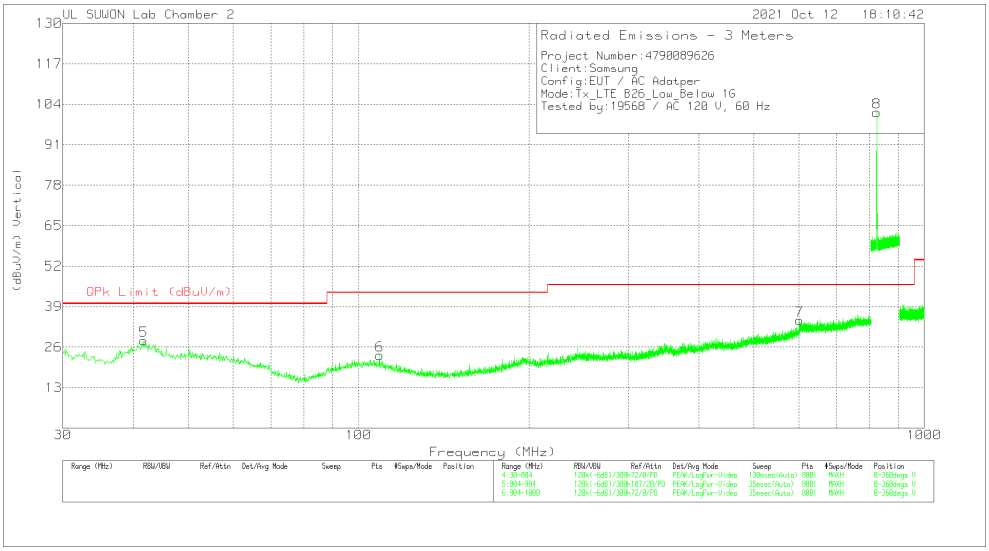
7.1.11.Below 1 GHz in the LTE Band 26

LOW CHANNEL(860.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	51.7688	3.42	Pk	19.7	.8	23.92	40	-16.08	0-360	100	H
2	105.078	2.69	Pk	17.6	1.2	21.49	43.52	-22.03	0-360	200	H
3	632.7525	6.71	Pk	25	2.8	34.51	46.02	-11.51	0-360	100	H
4	825.125	80.42	Pk	26.7	3.2	110.32	**46.02**	**64.3**	0-360	200	H
5	41.7068	8.35	Pk	19	.7	28.05	40	-11.95	0-360	200	V
6	108.948	4.96	Pk	17.2	1.2	23.36	43.52	-20.16	0-360	400	V
7	602.0828	6.8	Pk	25	2.8	34.6	46.02	-11.42	0-360	400	V
8	824.2375	71.48	Pk	26.7	3.2	101.38	**46.02**	**55.36**	0-360	100	V

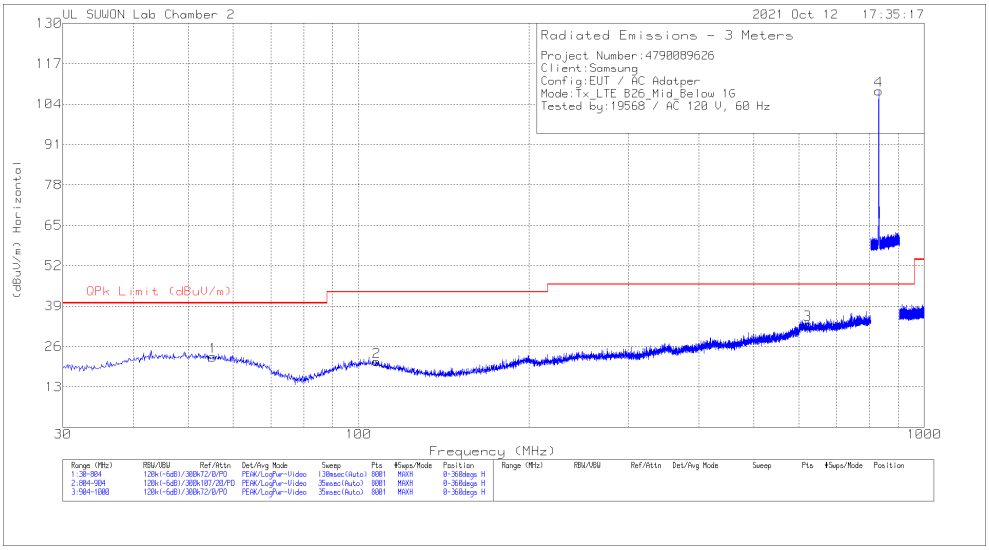
Pk - Peak detector

Note: Unwanted emissions captured from 814MHz to 849MHz and from 849MHz to 859MHz were the TX and RX signals generated from the call-simulator.

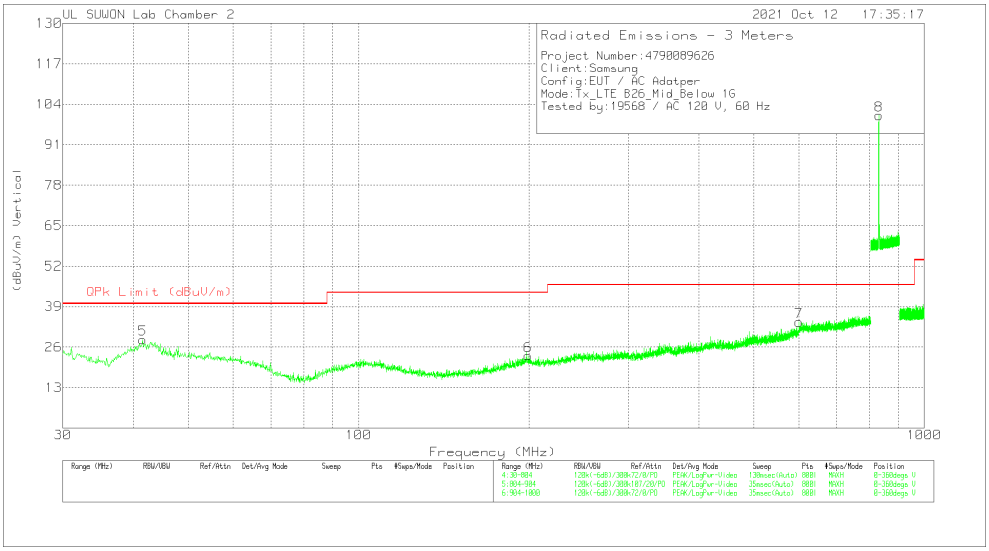
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MID CHANNEL(876.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	55.2518	2.6	Pk	19.3	.8	22.7	40	-17.3	0-360	100	H
2	107.5935	2.6	Pk	17.3	1.2	21.1	43.52	-22.42	0-360	200	H
3	622.11	5.11	Pk	25.1	2.8	33.01	46.02	-13.01	0-360	300	H
4	831.2875	78.18	Pk	26.8	3.3	108.28	**46.02**	**62.26**	0-360	200	H
5	41.5133	8.75	Pk	19	.7	28.45	40	-11.55	0-360	200	V
6	199.4093	4.35	Pk	17.3	1.6	23.25	43.52	-20.27	0-360	200	V
7	600.1478	6.28	Pk	25	2.8	34.08	46.02	-11.94	0-360	200	V
8	831.45	70.31	Pk	26.8	3.3	100.41	**46.02**	**54.39**	0-360	100	V

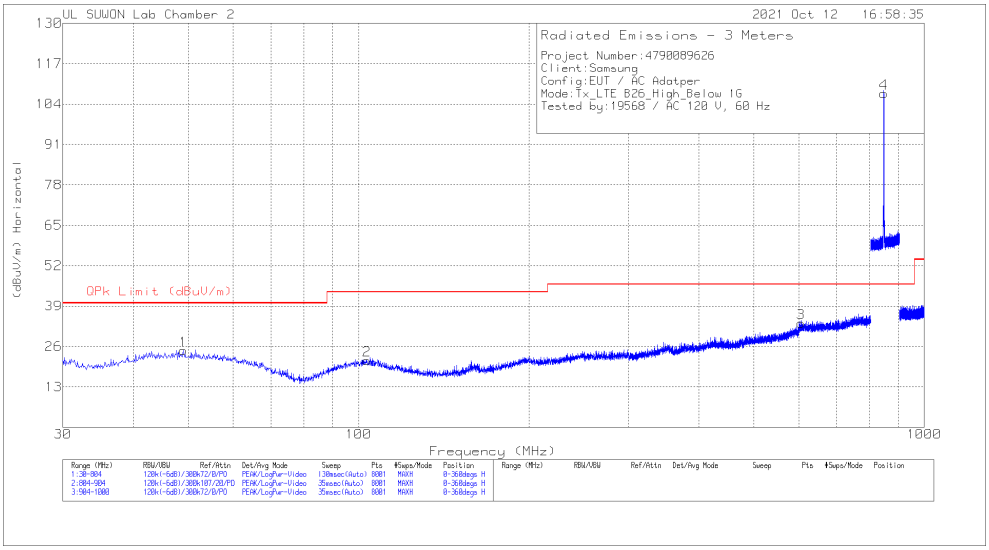
Pk - Peak detector

Note: Unwanted emissions captured from 814MHz to 849MHz and from 849MHz to 859MHz were the TX and RX signals generated from the call-simulator.

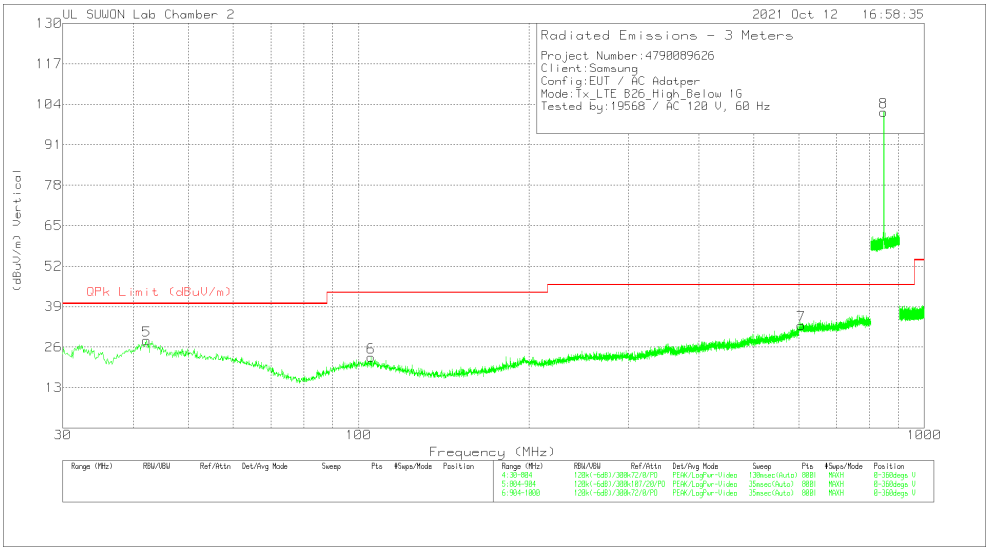
UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_15B(04)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433
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HIGH CHANNEL(892.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.963	4.05	Pk	19.9	.8	24.75	40	-15.25	0-360	100	H
2	103.53	2.73	Pk	17.6	1.2	21.53	43.52	-21.99	0-360	100	H
3	606.0495	5.67	Pk	25.1	2.8	33.57	46.02	-12.45	0-360	200	H
4	848.6875	76.83	Pk	27.3	3.3	107.43	**46.02**	**61.41**	0-360	200	H
5	42.1905	8.35	Pk	19.1	.7	28.15	40	-11.85	0-360	200	V
6	105.2715	3.98	Pk	17.6	1.2	22.78	43.52	-20.74	0-360	300	V
7	606.3398	5.01	Pk	25.2	2.8	33.01	46.02	-13.01	0-360	300	V
8	848.1	70.9	Pk	27.3	3.3	101.5	**46.02**	**55.48**	0-360	100	V

Pk - Peak detector

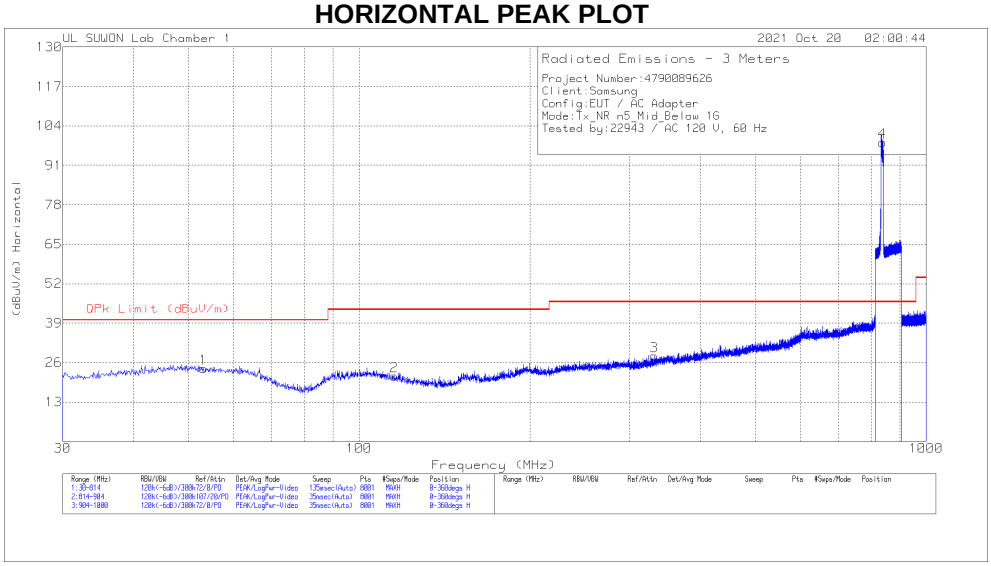
Note: Unwanted emissions captured from 814MHz to 849MHz and from 849MHz to 859MHz were the TX and RX signals generated from the call-simulator.

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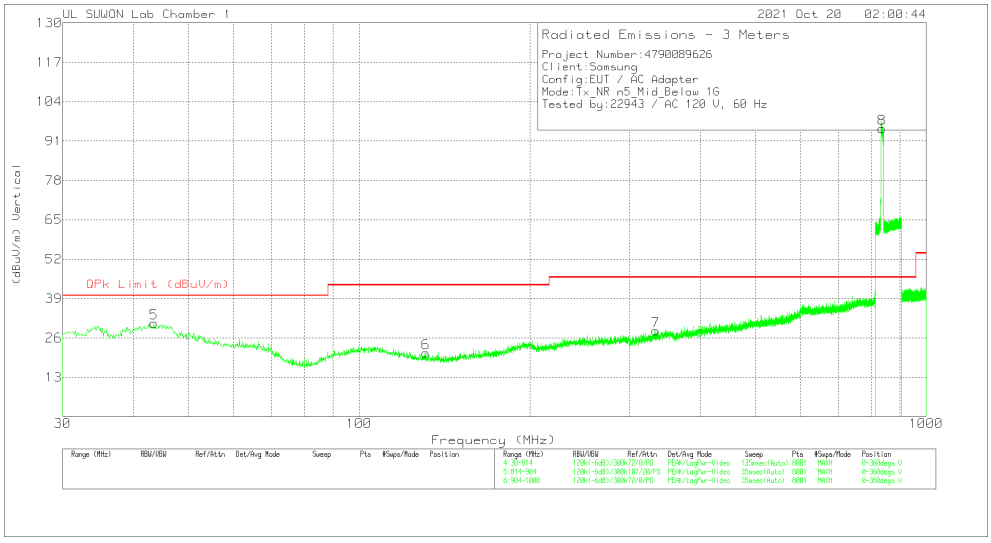
7.1.12.Below 1 GHz in the 5G NR Band 5

MID CHANNEL(881.6MHz)

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	53.128	2.98	Pk	19.6	1.5	24.08	40	-15.92	0-360	100	H
2	115.162	2.92	Pk	16.3	2.3	21.52	43.52	-22	0-360	200	H
3	331.154	4.19	Pk	20.1	3.9	28.19	46.02	-17.83	0-360	100	H
4	837.04	65.51	Pk	27.1	6	98.61	**46.02**	**52.59**	0-360	200	H
5	43.426	10.1	Pk	19.4	1.4	30.9	40	-9.1	0-360	200	V
6	131.038	4.43	Pk	14.2	2.4	21.03	43.52	-22.49	0-360	200	V
7	333.212	4.22	Pk	20.2	3.9	28.32	46.02	-17.7	0-360	400	V
8	836.545	62.07	Pk	27.1	6	95.17	**46.02**	**49.15**	0-360	100	V

Pk - Peak detector

Note. Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

END OF TEST REPORT

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