



CERTIFICATION TEST REPORT

Report Number. : 4789497455-E1V2

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

Model : SM-N985F/DS, SM-N985F

FCC ID : A3LSMN985F

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

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

Date Of Issue:

July 08, 2020

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	07/07/20	Initial issue	Hyunsik Yun
V2	07/08/20	Updated to address TCB's question	Hyunsik Yun

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. MEASURING INSTRUMENT CALIBRATION.....	6
4.2. SAMPLE CALCULATION.....	6
4.3. MEASUREMENT UNCERTAINTY	6
4.4. DECISION RULE	6
5. EQUIPMENT UNDER TEST	7
5.1. DESCRIPTION OF EUT.....	7
5.2. TEST MODE	7
5.3. WORST-CASE ORIENTATION AND MODE.....	7
5.4. DESCRIPTION OF TEST SETUP.....	8
6. TEST AND MEASUREMENT EQUIPMENT	9
7. APPLICABLE LIMITS AND TEST RESULTS	10
7.1. Above 1 GHz in the GSM850	11
7.2. Above 1 GHz in the WCDMA Band 5	17
7.3. Above 1 GHz in the LTE Band 12	19
7.4. Above 1 GHz in the LTE Band 13	25
7.5. Above 1 GHz in the LTE Band 26	27
7.6. Below 1 GHz in the GSM850.....	33
7.7. Below 1 GHz in the WCDMA Band 5.....	39
7.8. Below 1 GHz in the LTE Band 12.....	41
7.9. Below 1 GHz in the LTE Band 13.....	47
7.10. Below 1 GHz in the LTE Band 26.....	49

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

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

MODEL NUMBER: SM-N985F/DS, SM-N985F

SERIAL NUMBER: R38N406WGAX (RADIATED);

DATE TESTED: JUL 02, 2020 – JUL 03, 2020;

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:



Hyunsik Yun
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	
☒	Chamber 1
☒	Chamber 2
☐	Chamber 3

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <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:

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

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

(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	3.49 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.82 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 1, Clause 4.4.2 in IEC Guide 115:2007.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, UWB, WPT and NFC. This test report addresses the WWAN operational mode.

This report covers the Samsung models SM-N985F/DS and SM-N985F.
These models are identical in hardware except SM-N985F has single SIM tray.
With some pre-scan, model SM-N985F/DS was set for final test.

5.2. TEST MODE

Mode	Description
GSM850	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)

5.3. WORST-CASE ORIENTATION AND MODE

For GSM850 / LTE B12 / LTE B13, EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Z orientation was worst-case orientation.

For WCDMA B5 / LTE B26, EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation.

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

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.

LTE Band 17

LTE Band 17 (Rx Frequency range: 734-746 MHz) is covered by LTE Band 12 (Rx Frequency range: 729-746 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37N39301T8SE3	N/A
Data Cable	SAMSUNG	EP-DG980	N/A	N/A

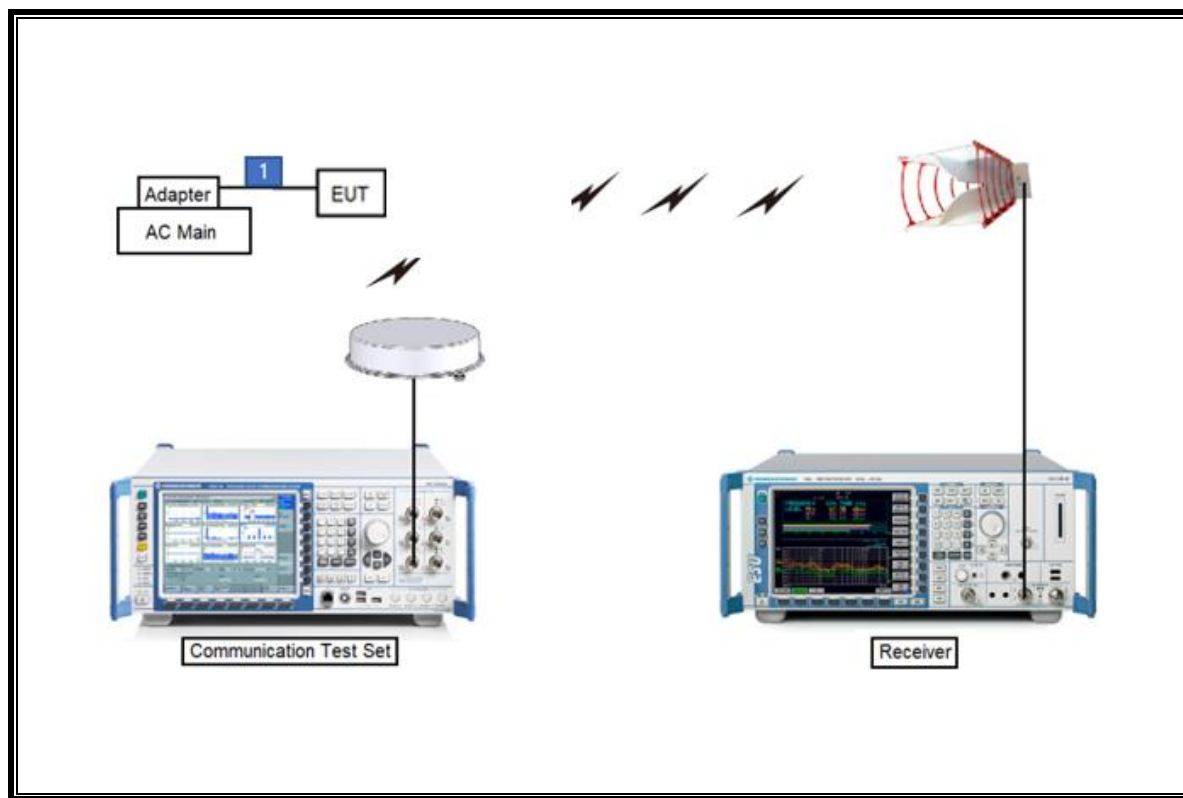
I/O CABLE

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	1.1m	N/A

TEST SETUP

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

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, Tuned Dipole 400~1000 MHz	ETS	3121D DB4	00164753	01-31-21
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-13-20
Preamplifier	ETS	3116C-PA	00168841	08-08-20
Antenna, Horn, 40 GHz	ETS	3116C	00168645	10-02-21
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00167211	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168724	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00205959	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-04-20
Communications Test Set	R&S	CMW500	115331	08-05-20
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58010202	02-05-21
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-05-20
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-05-20
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-05-20
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-06-20
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-06-20
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-06-20
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-06-20
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-06-20
EMI Test Receive, 44 GHz	R&S	ESW40	101590	08-05-20
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	08-05-20
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G006	08-05-20
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	010	08-05-20
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	011	08-05-20
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G001	08-05-20
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G002	08-05-20
Attenuator	PASTERNAK	PE7087-10	A009	08-08-20
Attenuator	PASTERNAK	PE7087-10	A001	08-08-20
Attenuator	PASTERNAK	PE7087-10	A008	08-08-20
Attenuator	PASTERNAK	PE7087-10	2	08-08-20
Attenuator	PASTERNAK	PE7395-10	A011	08-08-20
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	

7. APPLICABLE LIMITS AND TEST RESULTS

TEST PROCEDURE

ANSI C63.4: 2014

LIMIT

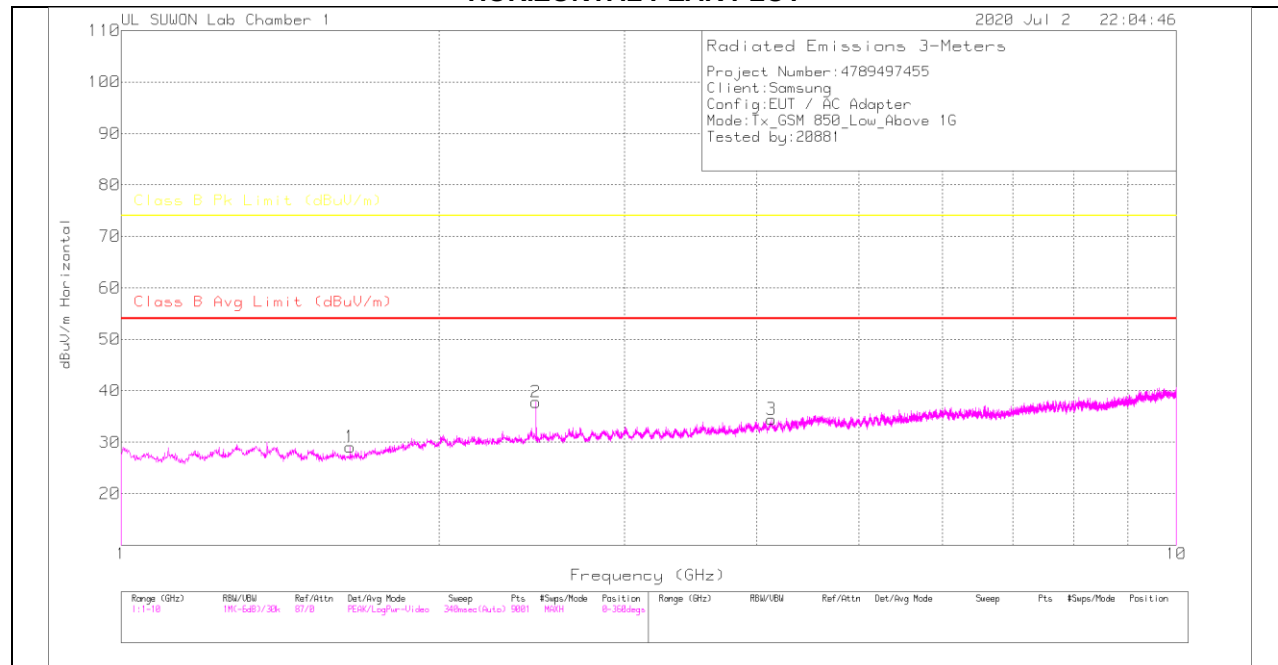
§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (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.	

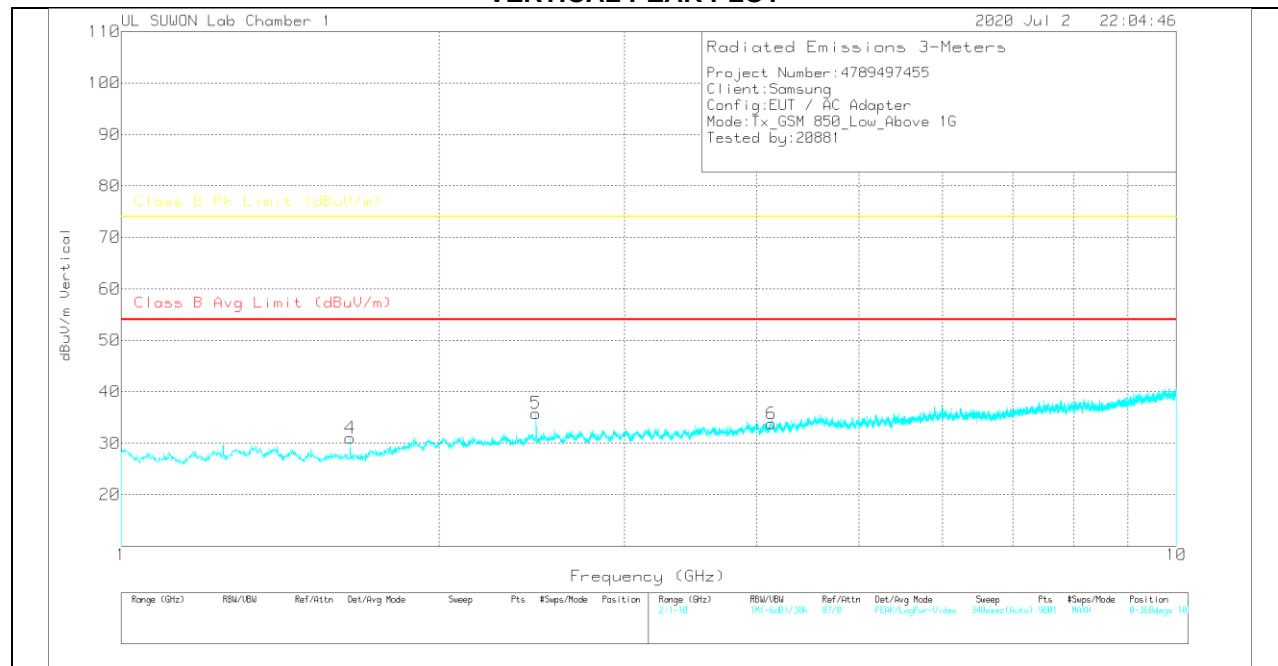
7.1. Above 1 GHz in the GSM850

LOW CHANNEL(869.2 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

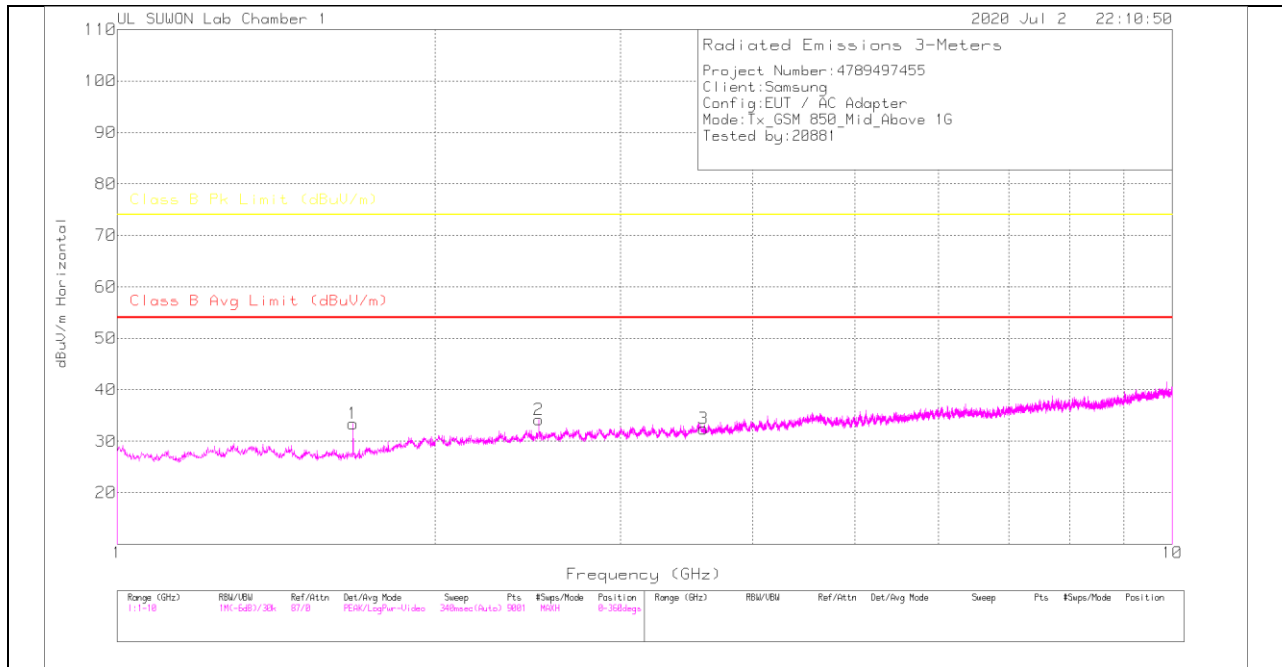
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1.18GHz(dB)	1GHz_HPF	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	36.81	PK	28.3	-36.6	.6	29.11	-	-	74	-44.89	0-360	100	H
2	2.472	40.21	PK	31.9	-35	.7	37.81	-	-	74	-36.19	0-360	200	H
3	4.133	33.07	PK	33.6	-32.6	.4	34.47	-	-	74	-39.53	0-360	100	H
4	1.648	38.73	PK	28.3	-36.6	.6	31.03	-	-	74	-42.97	0-360	100	V
5	2.473	38.22	PK	31.9	-35	.7	35.82	-	-	74	-38.18	0-360	100	V
6	4.134	32.39	PK	33.6	-32.6	.4	33.79	-	-	74	-40.21	0-360	100	V

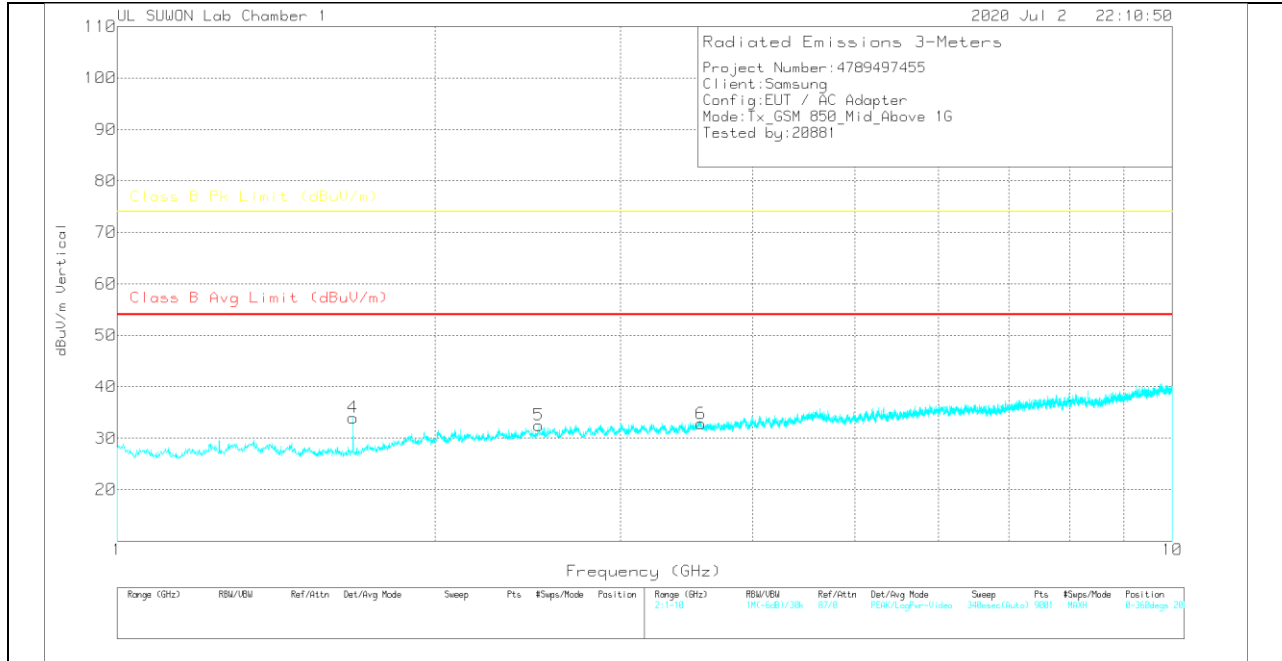
PK – Peak Detector

MID CHANNEL(881.6 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

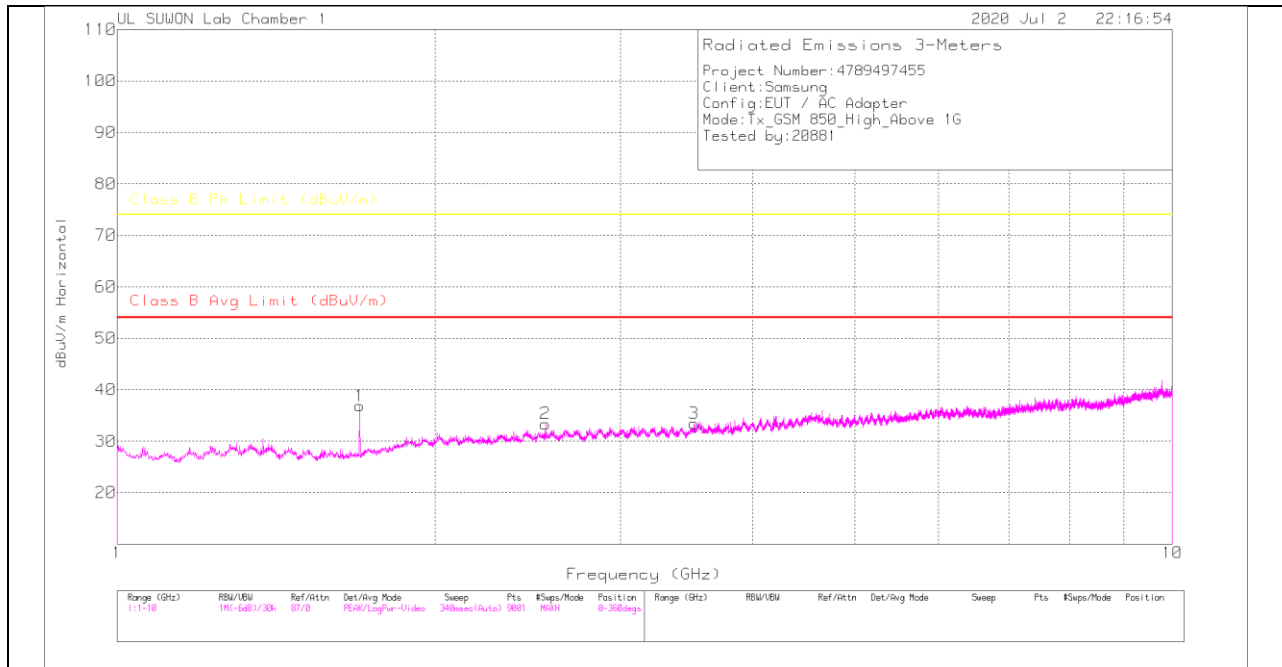
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	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	40.91	PK	28.4	-36.4	.5	33.41	-	-	74	-40.59	0-360	200	H
2	2.509	36.48	PK	32	-34.8	.5	34.18	-	-	74	-39.82	0-360	200	H
3	3.593	32.53	PK	33.1	-33.6	.4	32.43	-	-	74	-41.57	0-360	100	H
4	1.673	41.49	PK	28.4	-36.4	.5	33.99	-	-	74	-40.01	0-360	200	V
5	2.51	34.93	PK	32	-34.9	.5	32.53	-	-	74	-41.47	0-360	200	V
6	3.574	32.61	PK	33.1	-33.4	.5	32.81	-	-	74	-41.19	0-360	100	V

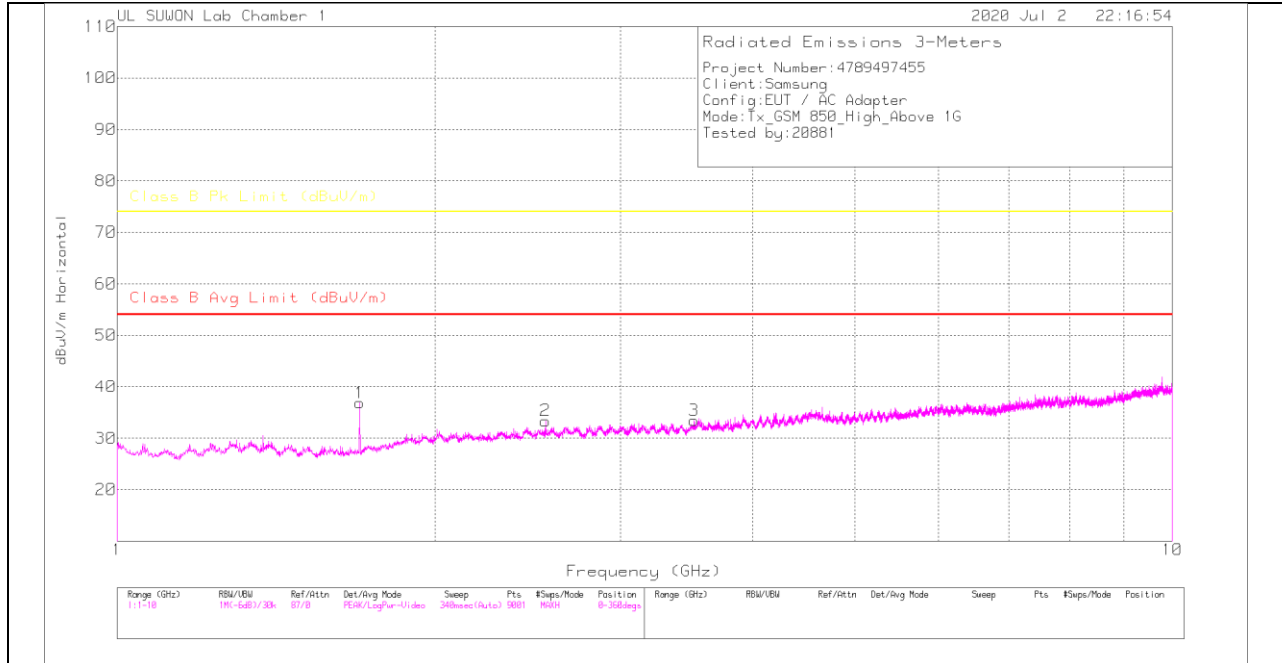
PK – Peak Detector

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_HPF	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	1.697	44.07	PK	28.6	-36.4	.6	36.67	-	-	74	-37.13	0-360	100	H
2	2.546	35.49	PK	32	-34.8	.7	33.39	-	-	74	-40.61	0-360	200	H
3	3.522	33.24	PK	32.9	-33.3	.6	33.44	-	-	74	-40.56	0-360	100	H
4	1.697	47.14	PK	28.6	-36.4	.6	39.94	-	-	74	-34.06	0-360	100	V
5	2.558	33.73	PK	32	-34.8	.7	31.63	-	-	74	-42.37	0-360	200	V
6	3.527	32.37	PK	32.9	-33.5	.6	32.37	-	-	74	-41.63	0-360	100	V

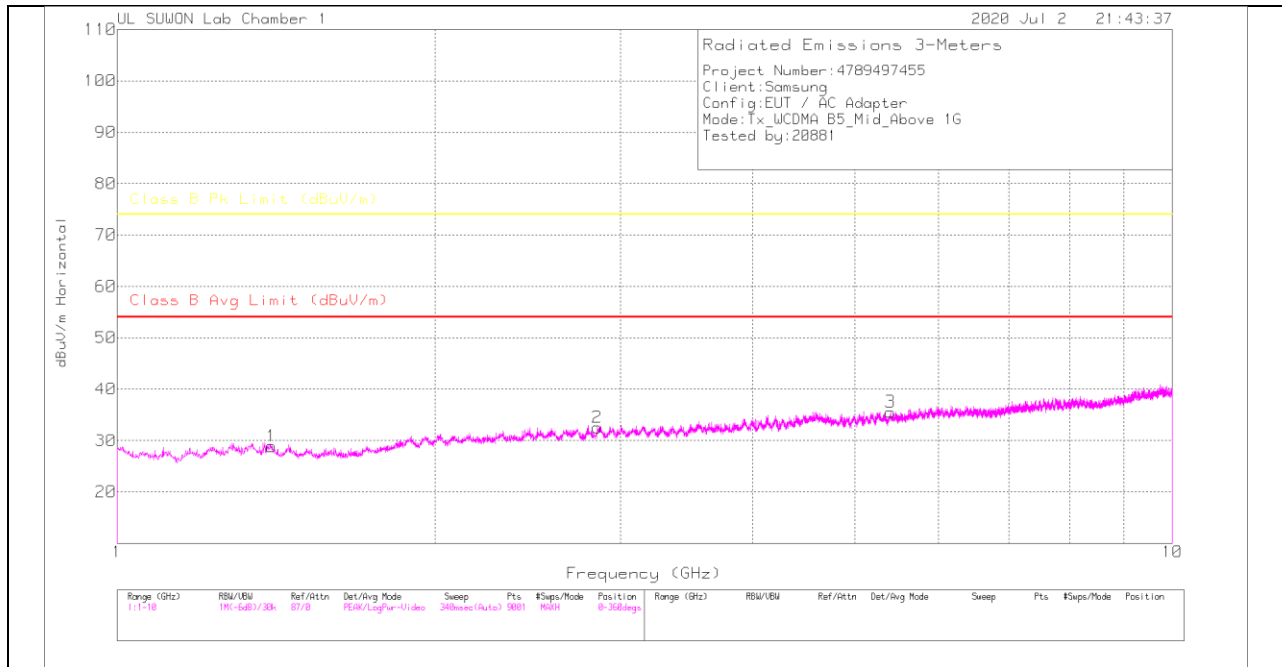
PK – Peak Detector

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

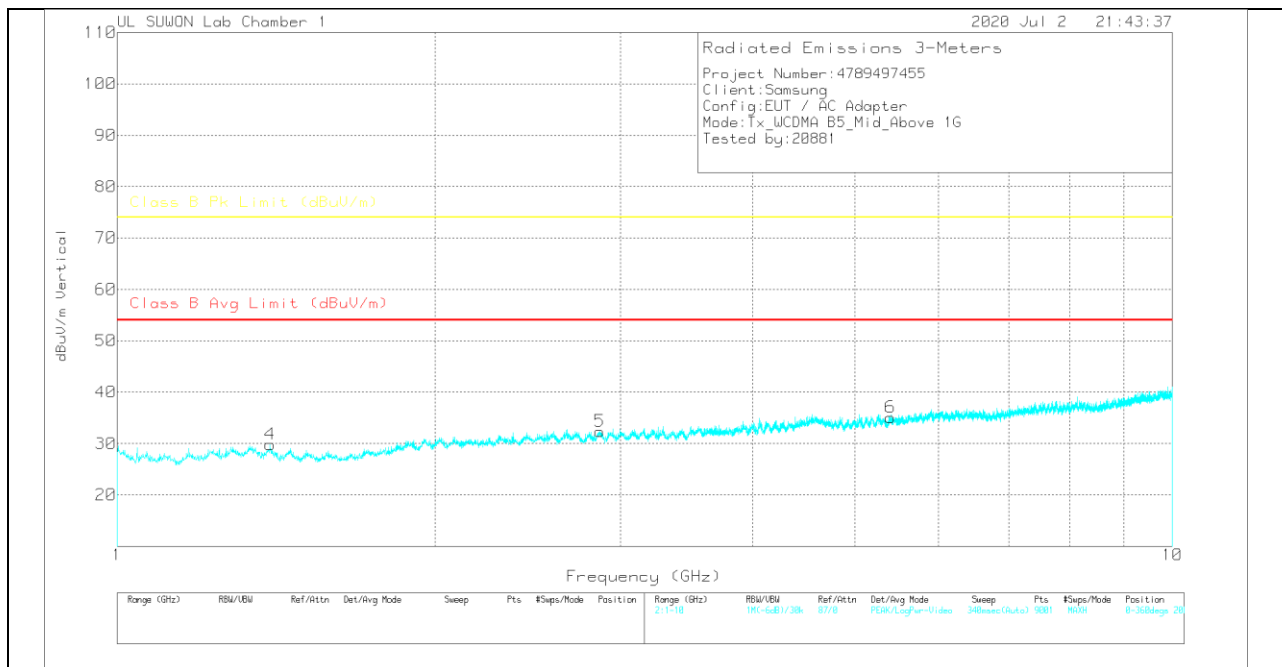
7.2. Above 1 GHz in the WCDMA Band 5

MID CHANNEL(881.6 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

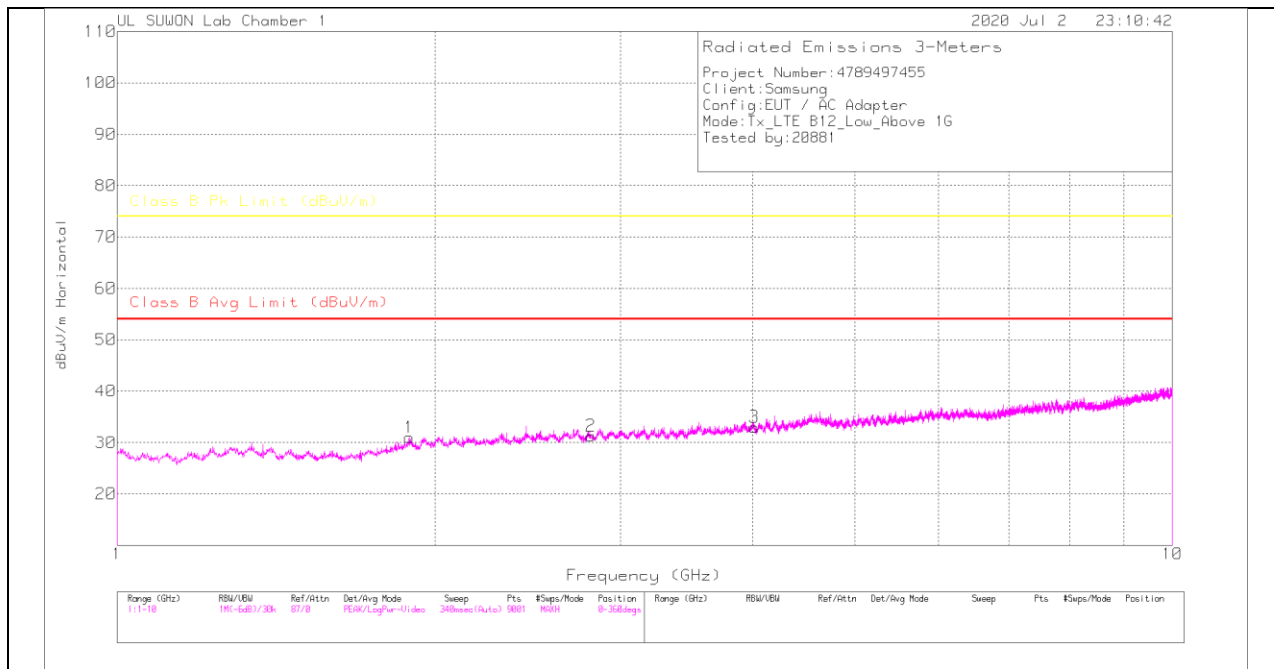
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1.18GHz(dB)	1GHz_HPF	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.4	35.88	PK	29.4	-37	.6	28.88	-	-	74	-45.12	0-360	100	H
2	2.852	33.46	PK	32.3	-34.1	.9	32.56	-	-	74	-41.44	0-360	100	H
3	5.405	31.97	PK	34.7	-31.5	.4	35.57	-	-	74	-38.43	0-360	100	H
4	1.396	36.74	PK	29.4	-36.9	.6	29.84	-	-	74	-44.16	0-360	100	V
5	2.866	33.58	PK	32.3	-34.3	.8	32.38	-	-	74	-41.62	0-360	200	V
6	5.406	31.39	PK	34.7	-31.4	.4	35.09	-	-	74	-38.91	0-360	100	V

PK – Peak Detector

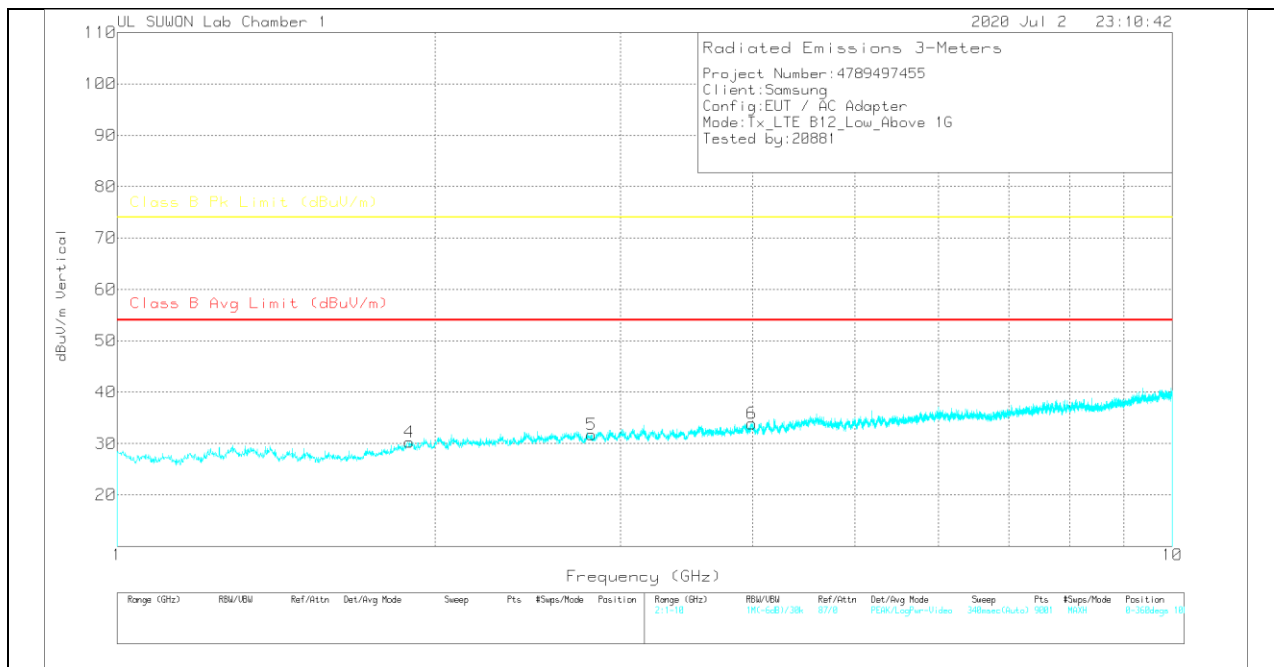
7.3. Above 1 GHz in the LTE Band 12

LOW CHANNEL(730.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

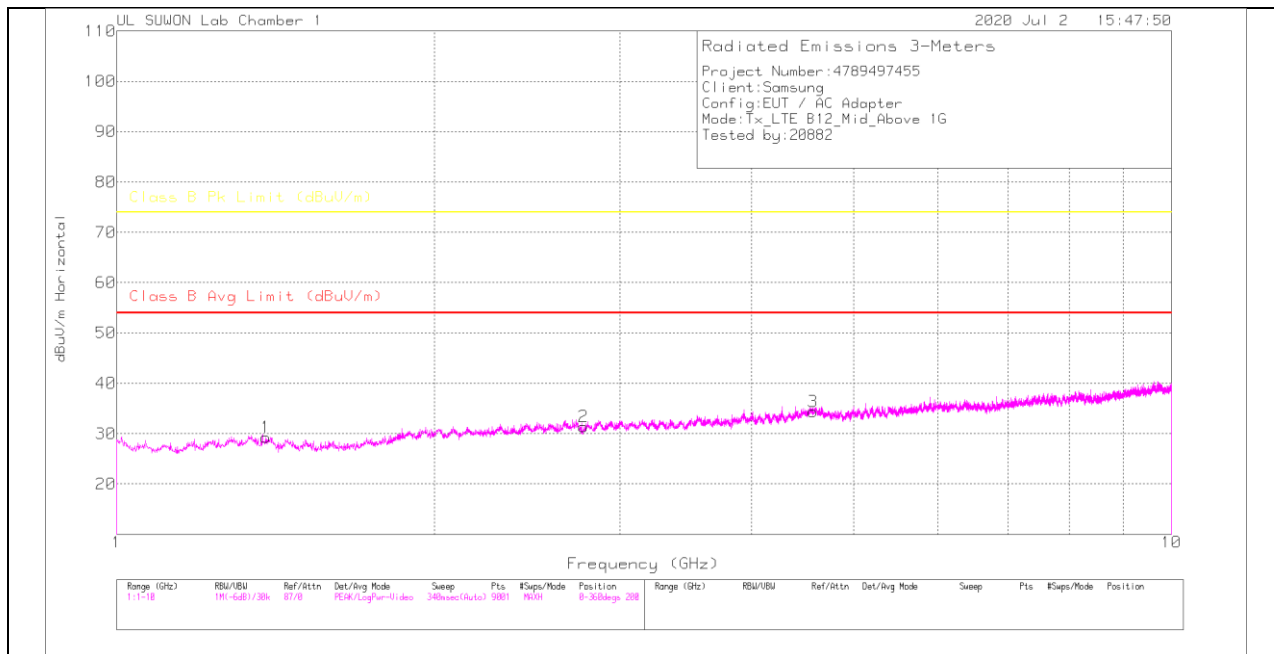
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1:18GHz(dB)	1GHz_HPF	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.892	35.68	PK	30.7	-36.1	.7	30.98	-	-	74	-43.02	0-360	100	H
2	2.812	32.79	PK	32.2	-34.3	.6	31.29	-	-	74	-42.71	0-360	100	H
3	4.018	31.81	PK	33.6	-32.8	.4	33.01	-	-	74	-40.99	0-360	100	H
4	1.892	34.97	PK	30.7	-36.1	.7	30.27	-	-	74	-43.73	0-360	100	V
5	2.815	33.31	PK	32.2	-34.5	.7	31.71	-	-	74	-42.29	0-360	100	V
6	3.993	32.8	PK	33.5	-32.8	.4	33.9	-	-	74	-40.1	0-360	200	V

PK – Peak Detector

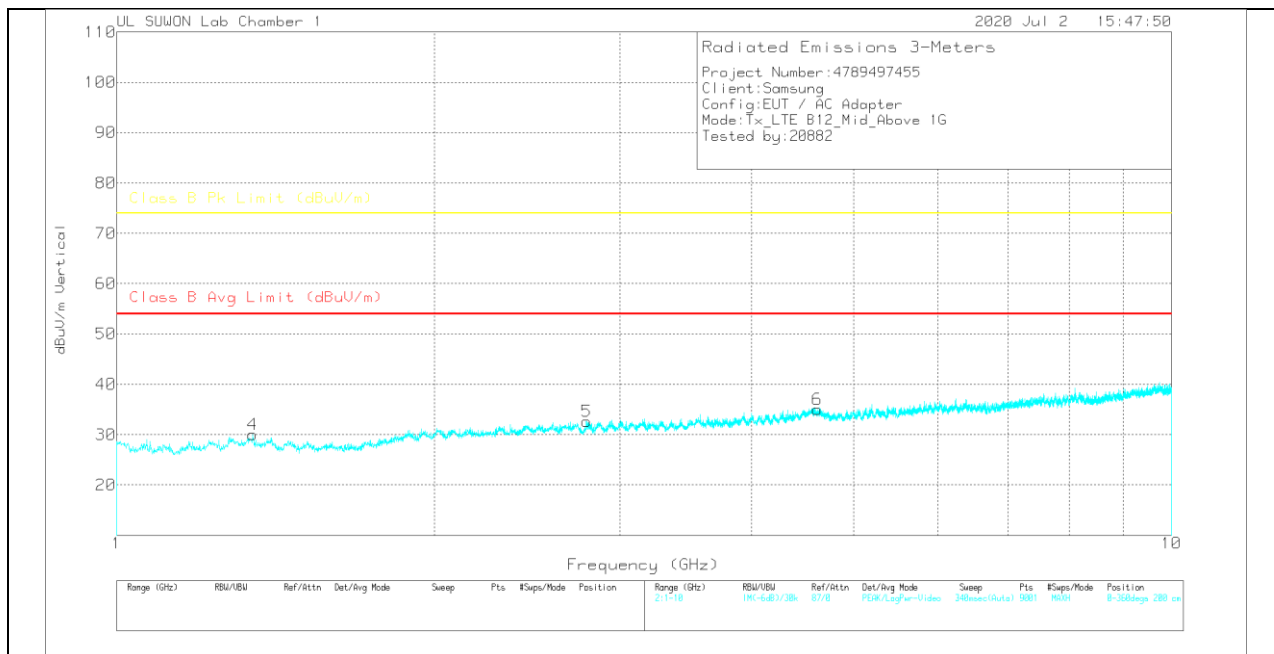
Note: Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

MID CHANNEL(737.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

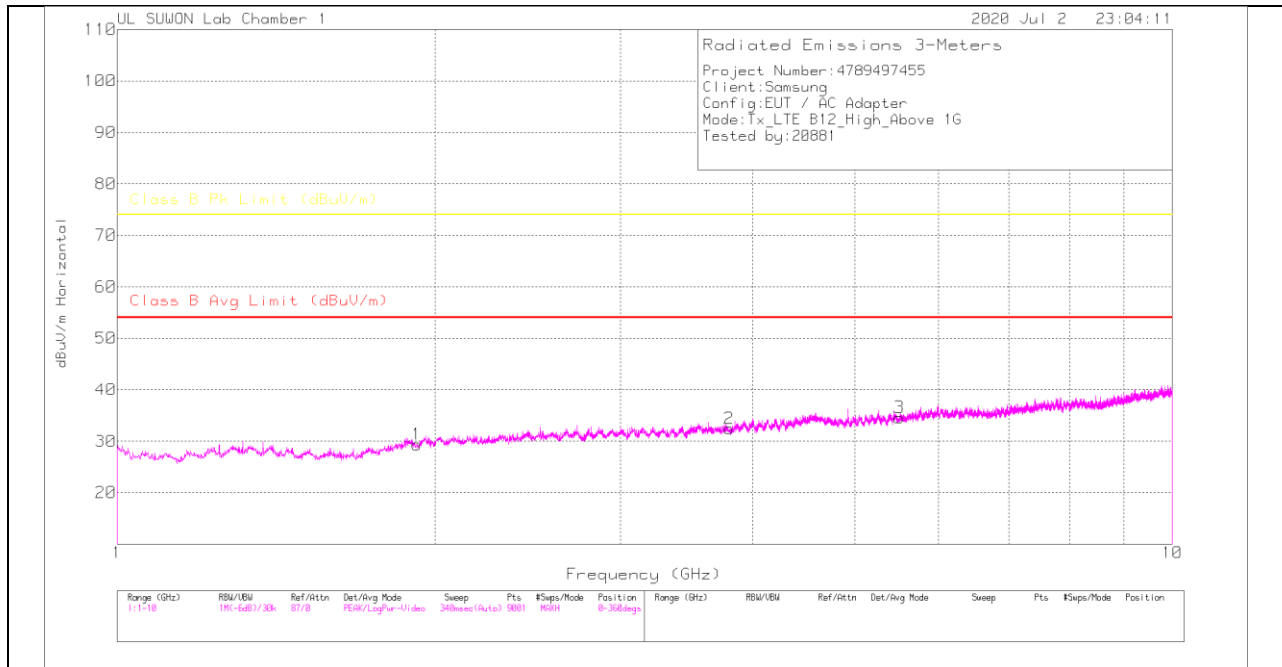
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.385	36.33	PK	29.4	-37.1	.6	29.23	-	-	74	-44.77	0-360	100	H
2	2.77	33.07	PK	32.2	-34.3	.4	31.37	-	-	74	-42.63	0-360	200	H
3	4.574	31.98	PK	34.2	-32.2	.4	34.38	-	-	74	-39.62	0-360	100	H
4	1.346	36.79	PK	29.6	-37.1	.7	29.99	-	-	74	-44.01	0-360	200	V
5	2.79	34.34	PK	32.2	-34.4	.5	32.64	-	-	74	-41.36	0-360	200	V
6	4.615	32.66	PK	34.2	-32.2	.4	35.06	-	-	74	-38.94	0-360	100	V

PK – Peak Detector

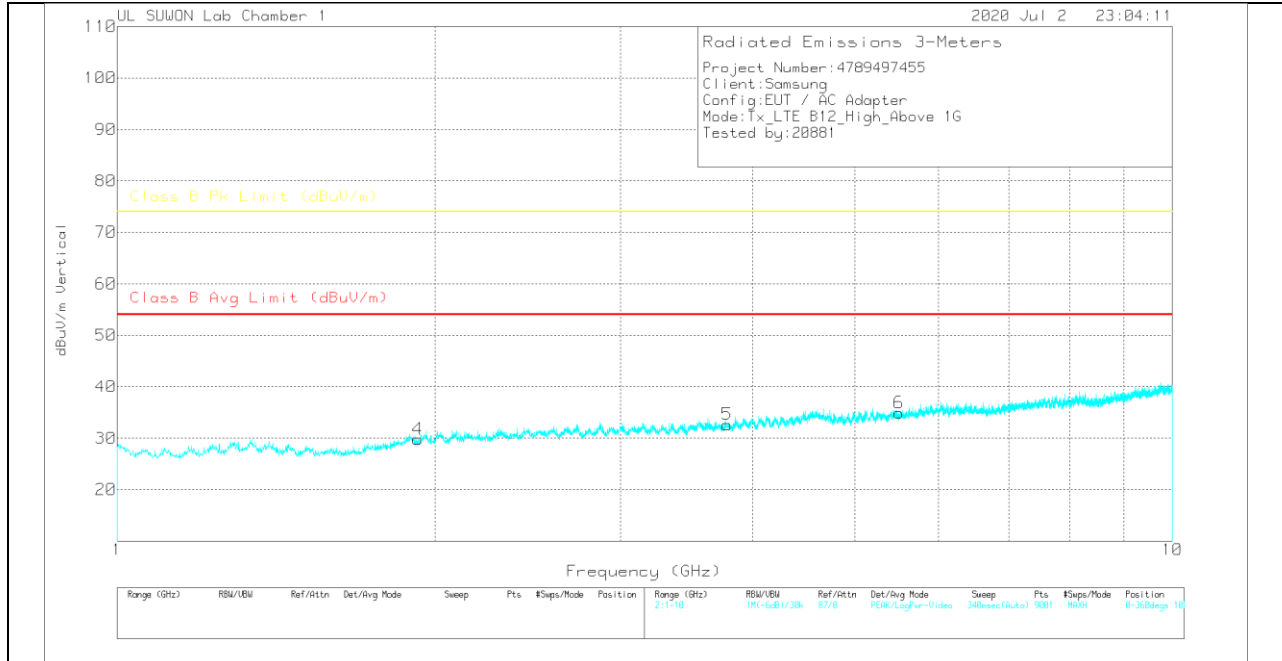
Note: Unwanted emissions on the harmonic frequency were generated from the call-simulator with the TX and RX signals.

HIGH CHANNEL(744.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

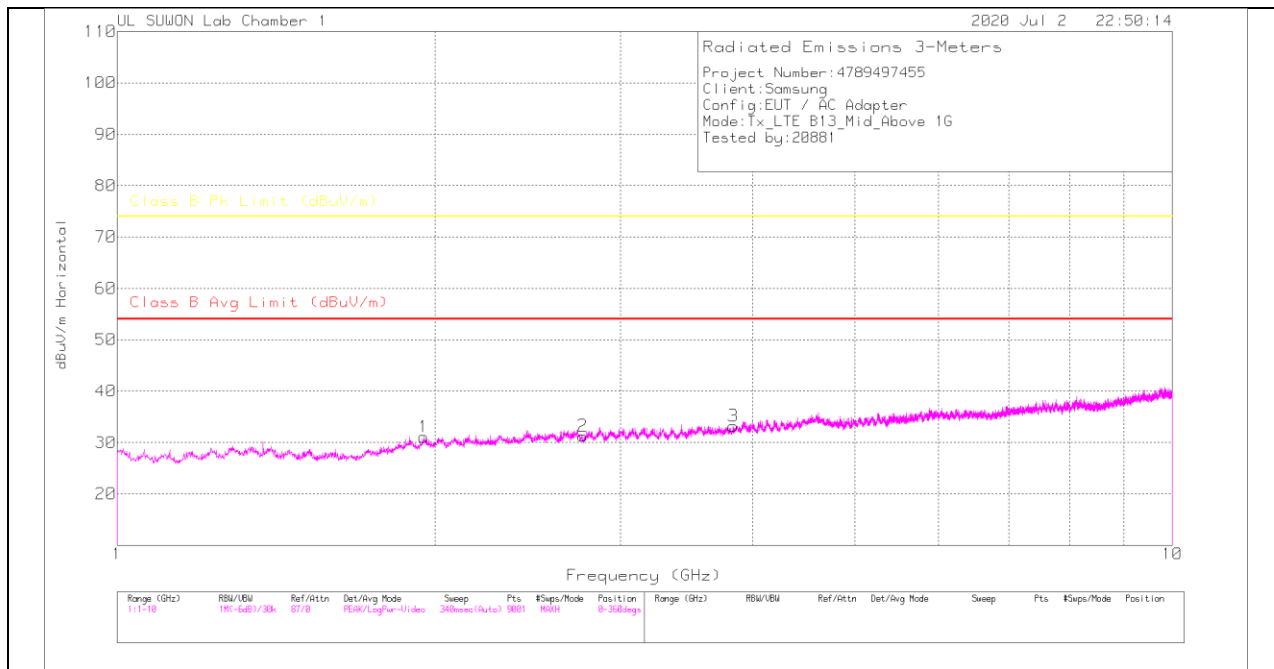
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1:18GHz(dB)	1GHz_HPF	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.924	33.88	PK	30.9	-36	.6	29.38	-	-	74	-44.62	0-360	200	H
2	3.804	31.87	PK	33.3	-33.2	.5	32.47	-	-	74	-41.53	0-360	200	H
3	5.51	30.99	PK	34.7	-31.5	.4	34.59	-	-	74	-39.41	0-360	100	H
4	1.927	34.31	PK	30.9	-35.9	.5	29.81	-	-	74	-44.19	0-360	100	V
5	3.784	32.15	PK	33.2	-33.2	.5	32.65	-	-	74	-41.35	0-360	100	V
6	5.504	31.13	PK	34.7	-31.3	.4	34.93	-	-	74	-39.07	0-360	100	V

PK – Peak Detector

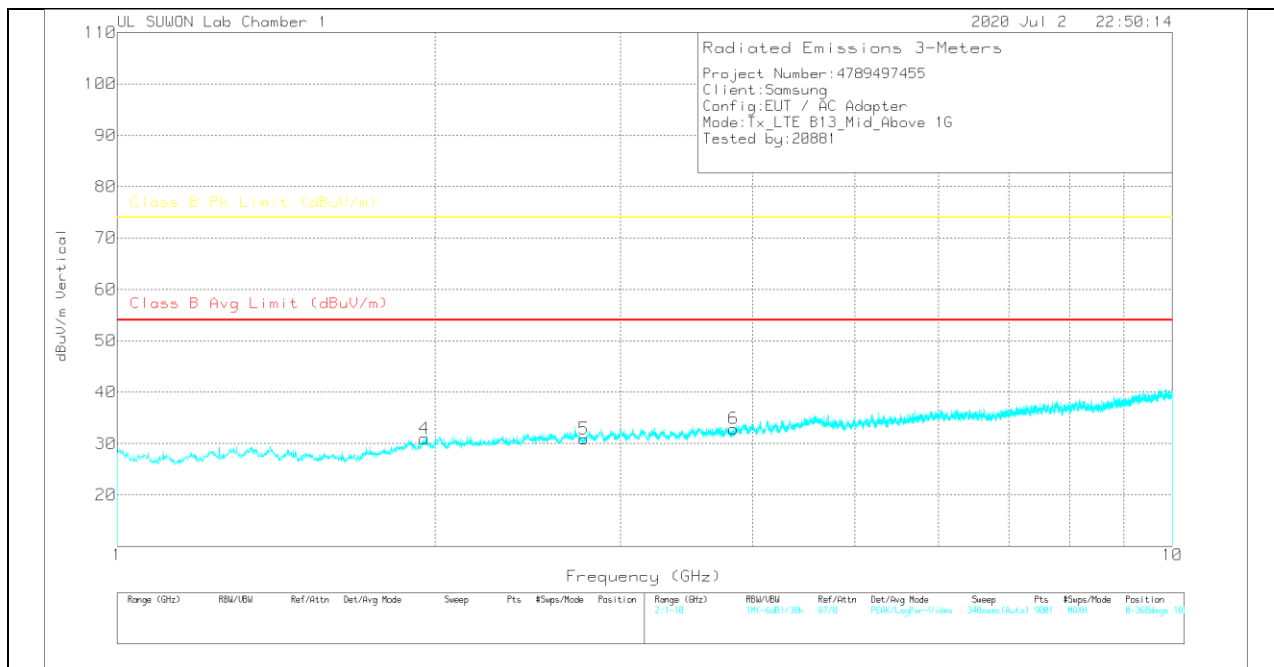
7.4. Above 1 GHz in the LTE Band 13

MID CHANNEL(751.0 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

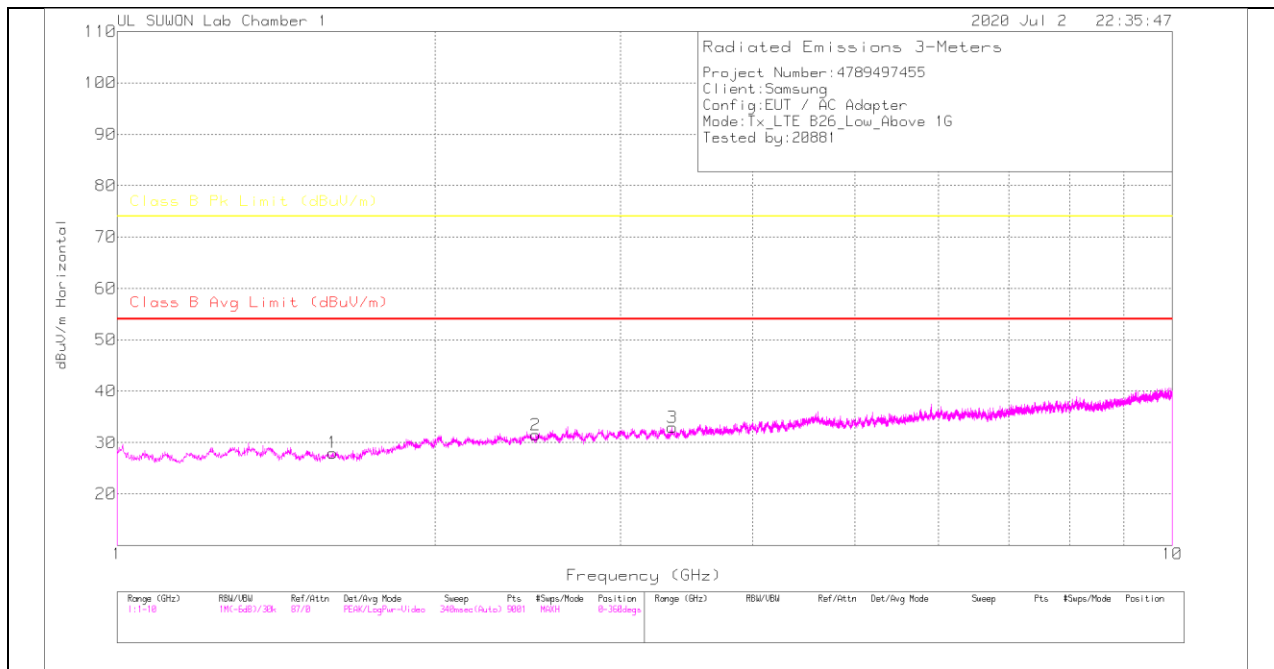
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.952	35.28	PK	31.1	-35.8	.5	31.08	-	-	74	-42.92	0-360	100	H
2	2.762	32.97	PK	32.1	-34.2	.4	31.27	-	-	74	-42.73	0-360	100	H
3	3.836	32.61	PK	33.3	-33.1	.4	33.21	-	-	74	-40.79	0-360	200	H
4	1.956	35.26	PK	31.1	-35.9	.5	30.96	-	-	74	-43.04	0-360	100	V
5	2.769	32.59	PK	32.2	-34.3	.4	30.89	-	-	74	-43.11	0-360	100	V
6	3.84	32.29	PK	33.3	-33.1	.4	32.89	-	-	74	-41.11	0-360	100	V

PK – Peak Detector

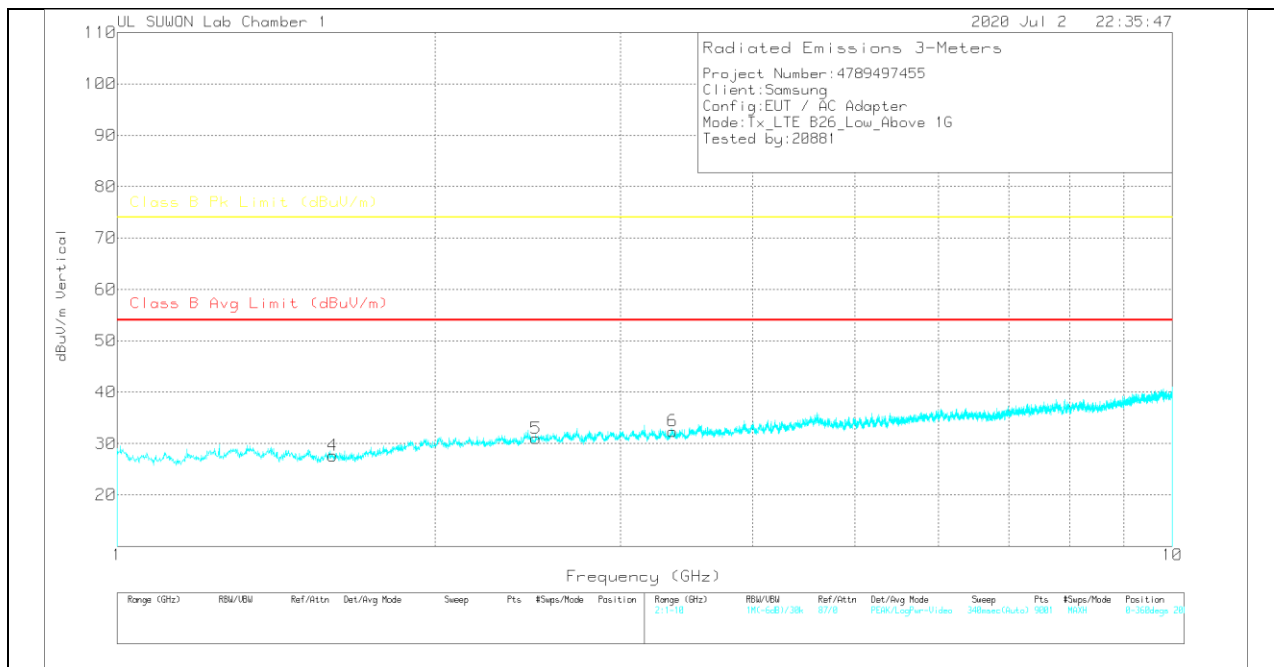
7.5. Above 1 GHz in the LTE Band 26

LOW CHANNEL(860.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

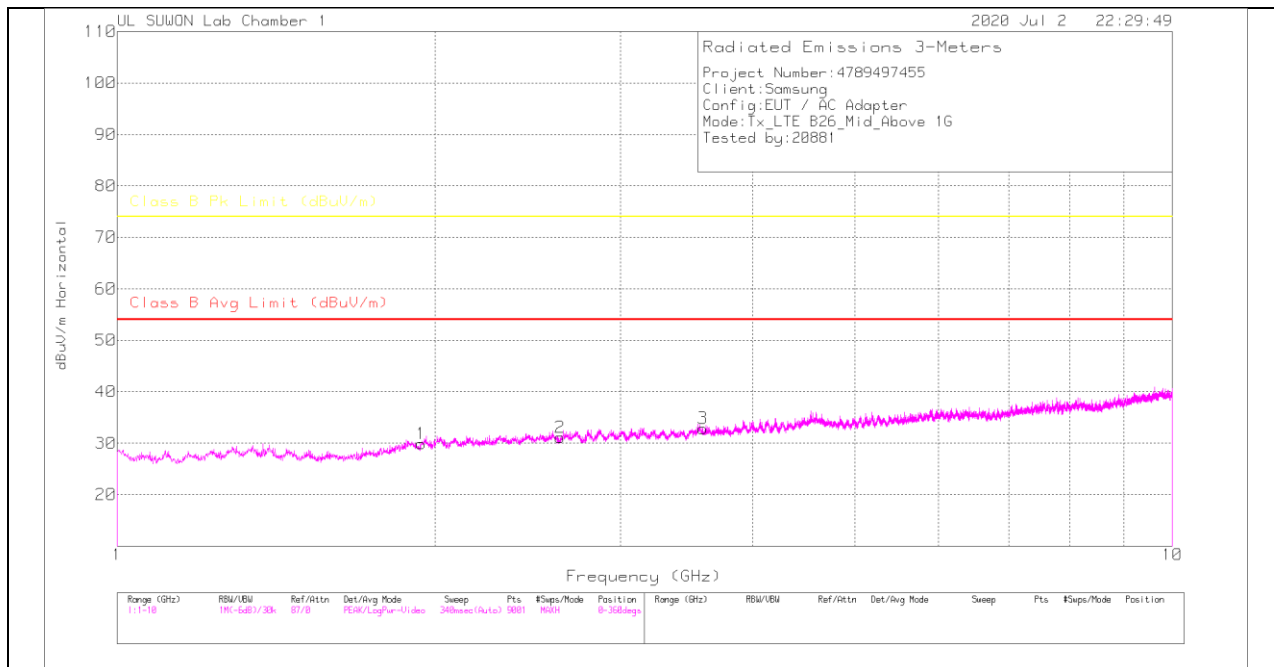
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1.18GHz(dB)	1GHz_HPF	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	1.601	35.41	PK	28.3	-36.5	.8	28.01	-	-	74	-45.99	0-360	200	H
2	2.493	33.69	PK	31.9	-34.7	.6	31.49	-	-	74	-42.51	0-360	100	H
3	3.358	33.54	PK	32.6	-33.7	.5	32.94	-	-	74	-41.06	0-360	200	H
4	1.601	35.07	PK	28.3	-36.5	.8	27.67	-	-	74	-46.33	0-360	100	V
5	2.494	33.28	PK	31.9	-34.8	.6	30.98	-	-	74	-43.02	0-360	100	V
6	3.361	33.11	PK	32.6	-33.8	.5	32.41	-	-	74	-41.59	0-360	200	V

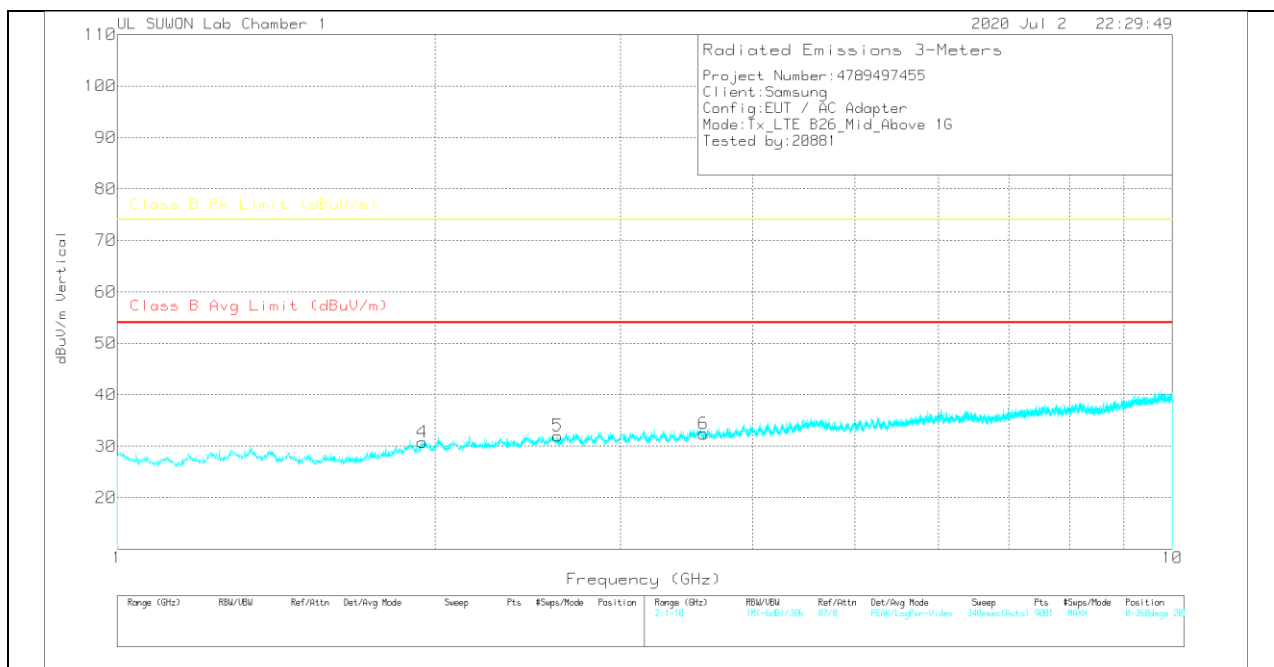
PK – Peak Detector

MID CHANNEL(876.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

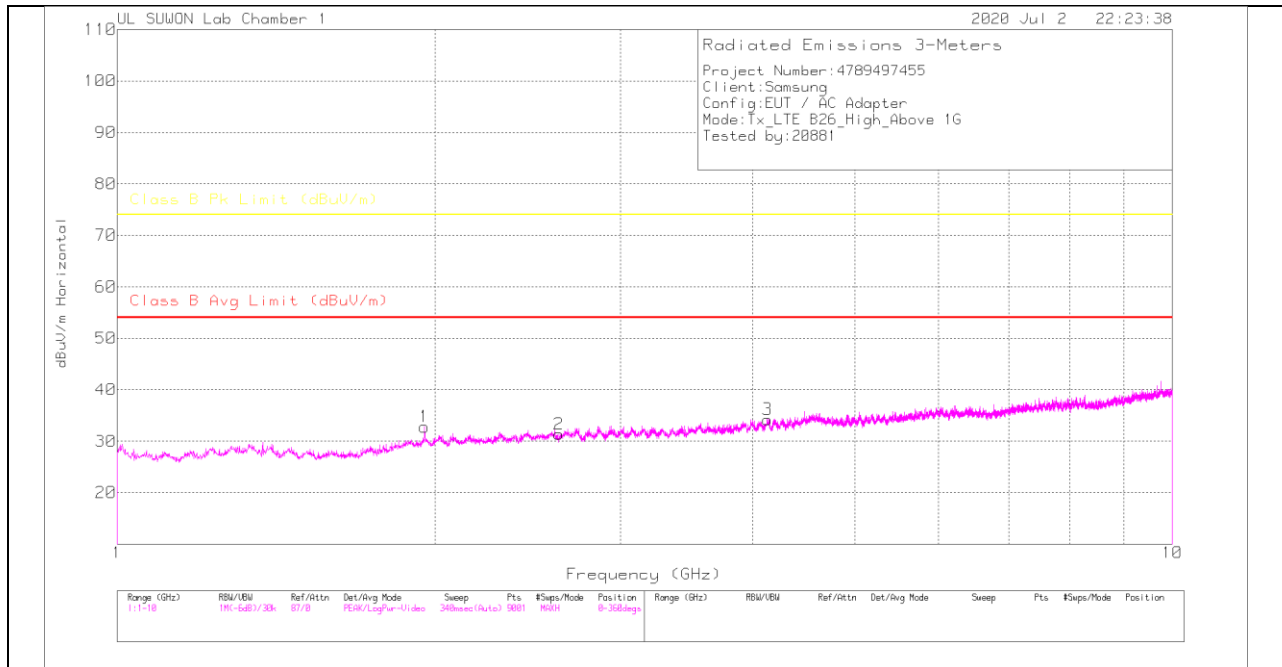
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	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	1.941	34.39	PK	31	-36	.5	29.89	-	-	74	-44.11	0-360	100	H
2	2.63	33.33	PK	32.1	-34.8	.5	31.13	-	-	74	-42.87	0-360	100	H
3	3.591	32.78	PK	33.1	-33.5	.5	32.88	-	-	74	-41.12	0-360	200	H
4	1.946	34.99	PK	31.1	-35.8	.5	30.79	-	-	74	-43.21	0-360	100	V
5	2.615	34.23	PK	32.1	-34.8	.5	32.03	-	-	74	-41.97	0-360	100	V
6	3.593	32.54	PK	33.1	-33.6	.4	32.44	-	-	74	-41.56	0-360	200	V

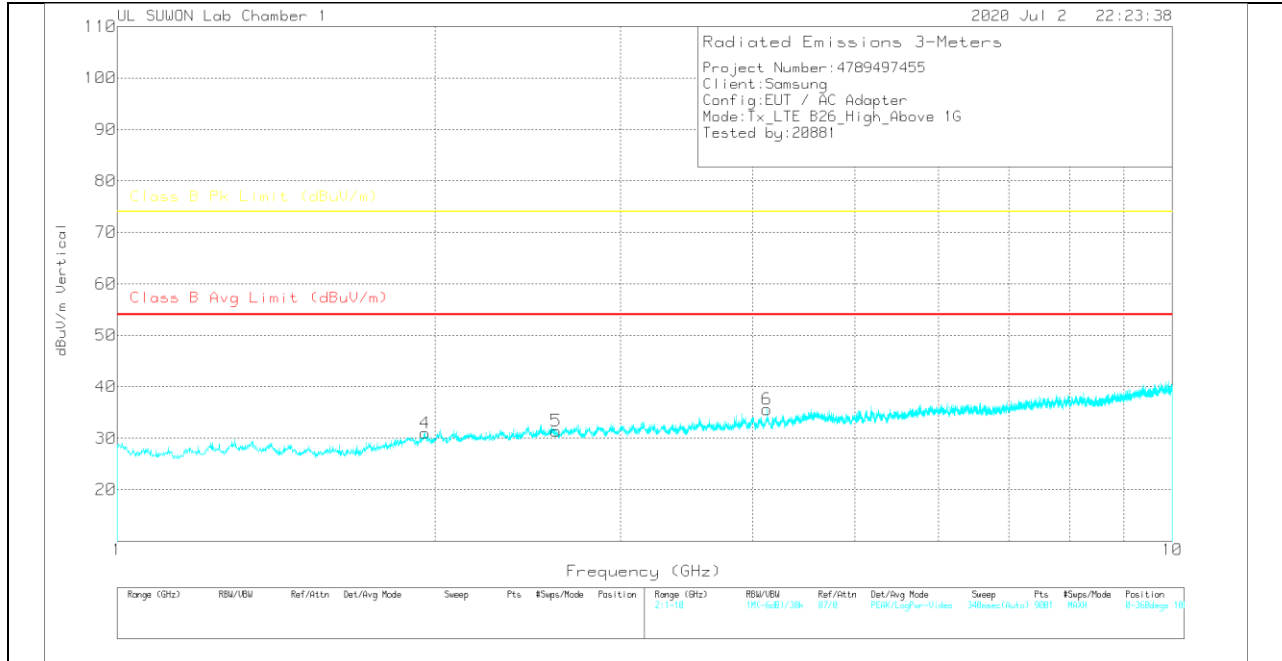
PK – Peak Detector

HIGH CHANNEL(892.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

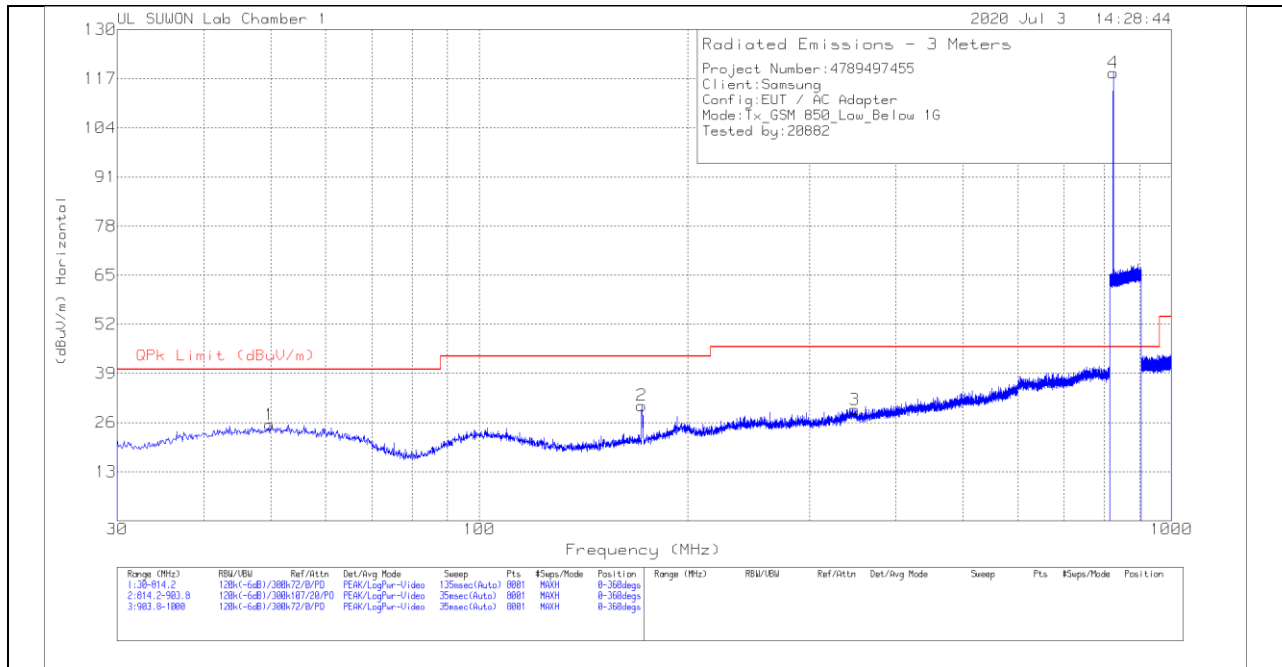
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.956	37.1	PK	31.1	-35.9	.5	32.8	-	-	74	-41.2	0-360	100	H
2	2.621	33.47	PK	32.1	-34.7	.5	31.37	-	-	74	-42.63	0-360	200	H
3	4.133	32.82	PK	33.6	-32.6	.4	34.22	-	-	74	-39.78	0-360	100	H
4	1.957	35.29	PK	31.1	-35.9	.5	30.99	-	-	74	-43.01	0-360	100	V
5	2.606	33.6	PK	32.1	-34.8	.5	31.4	-	-	74	-42.6	0-360	100	V
6	4.129	34.1	PK	33.6	-32.5	.4	35.6	-	-	74	-38.4	0-360	200	V

PK – Peak Detector

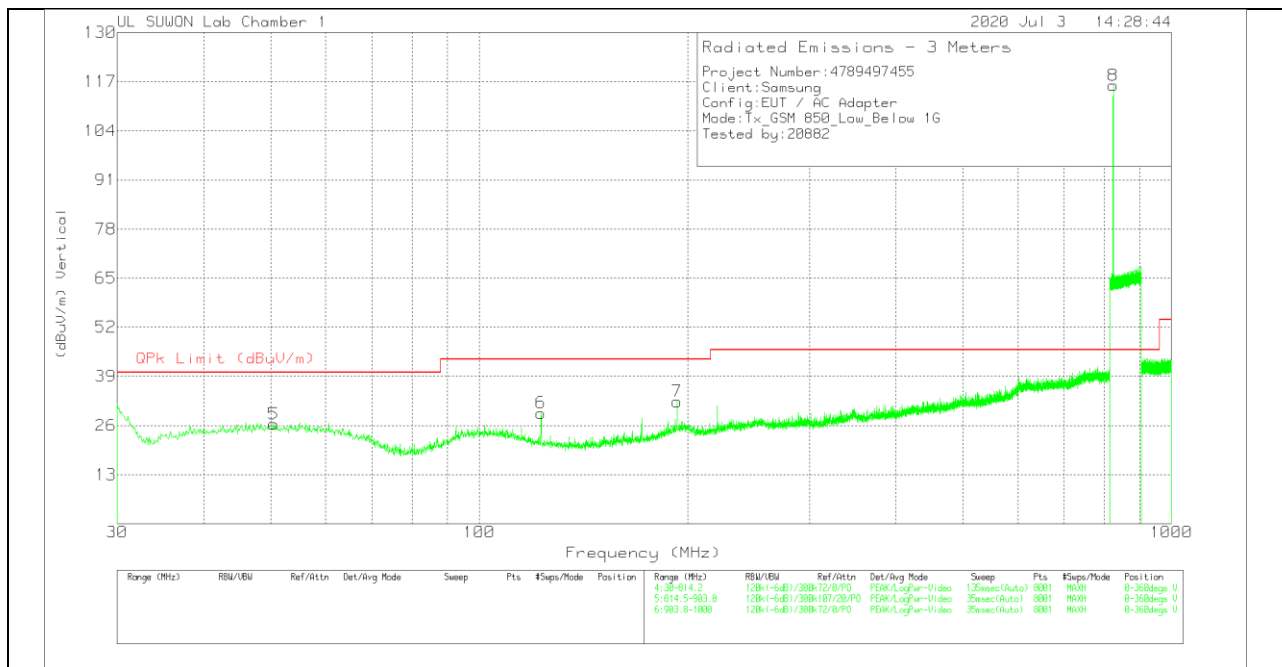
7.6. Below 1 GHz in the GSM850

LOW CHANNEL(869.2 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

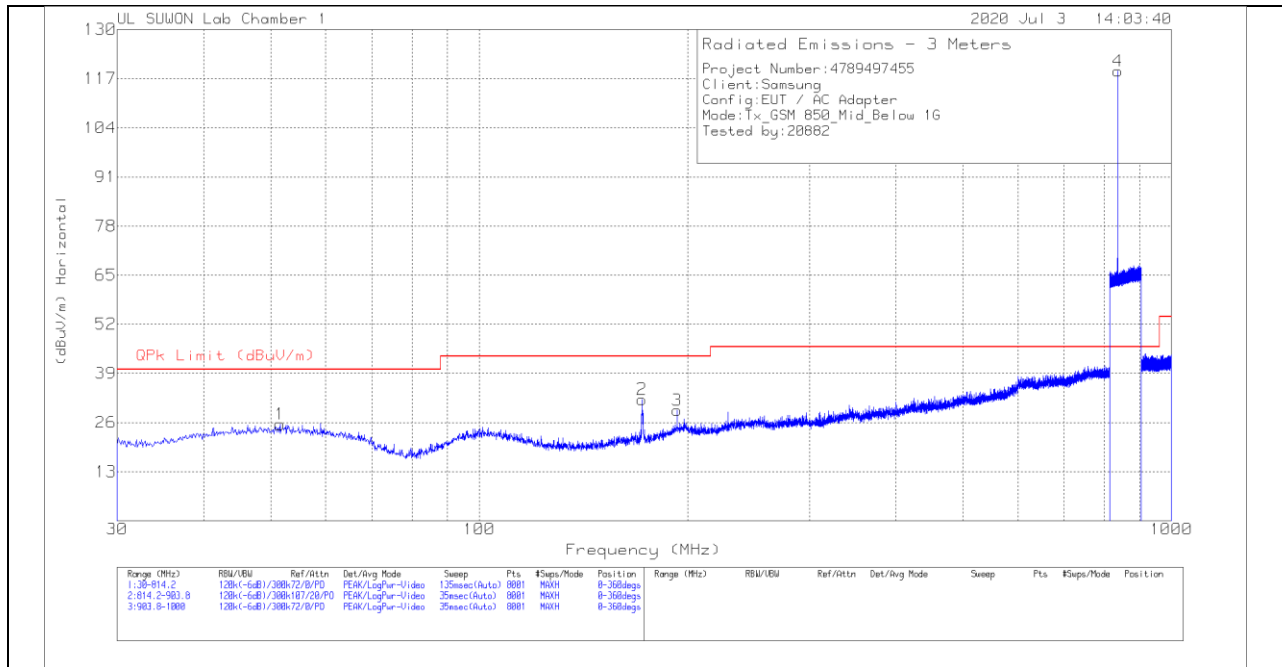
Trace Markers

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	49.8011	3.82	Pk	19.7	1.9	25.42	40	-14.58	0-360	300	H
2	171.7442	12.08	Pk	14.9	3.5	30.48	43.52	-13.04	0-360	300	H
3	348.9734	3.38	Pk	21	5	29.38	46.02	-16.64	0-360	300	H
4	824.1232	83.94	Pk	27	7.6	118.54	46.02	72.52	0-360	100	H
5	50.4872	3.41	Pk	19.7	3.3	26.41	40	-13.59	0-360	200	V
6	122.8297	10.32	Pk	14.9	4.1	29.32	43.52	-14.2	0-360	100	V
7	193.3097	9.93	Pk	17.7	4.7	32.33	43.52	-11.19	0-360	100	V
8	824.1225	81.38	Pk	27	7.6	115.98	46.02	69.96	0-360	100	V

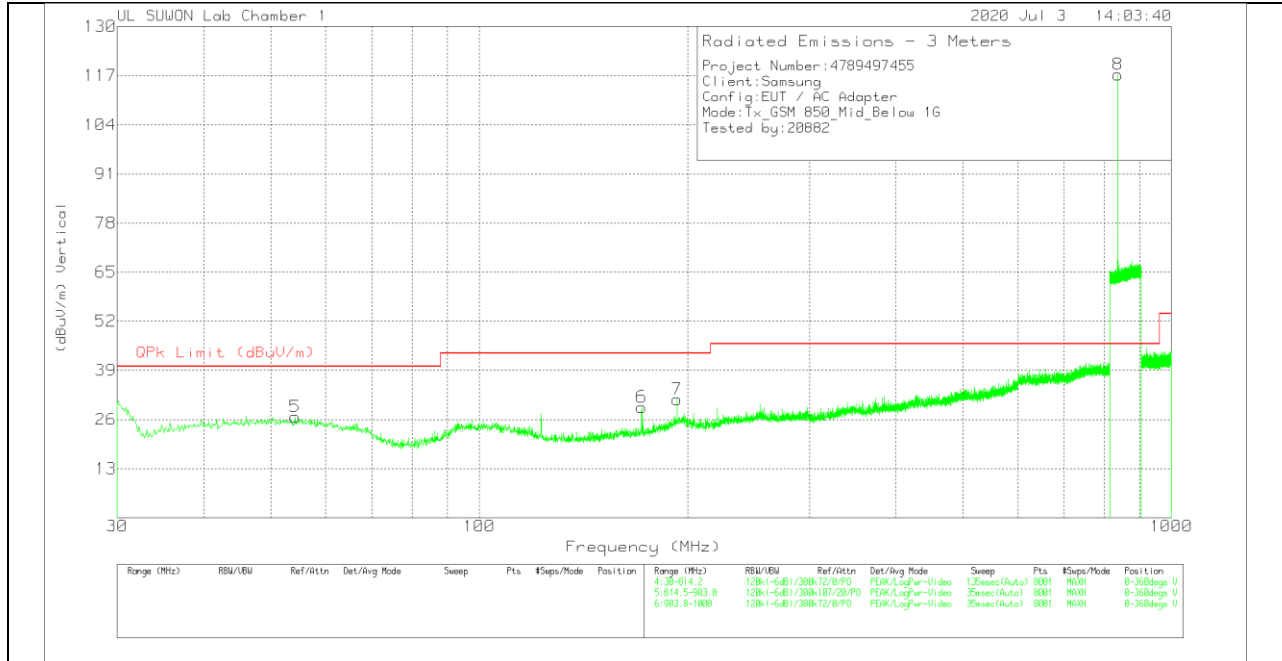
Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

MID CHANNEL(881.6 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

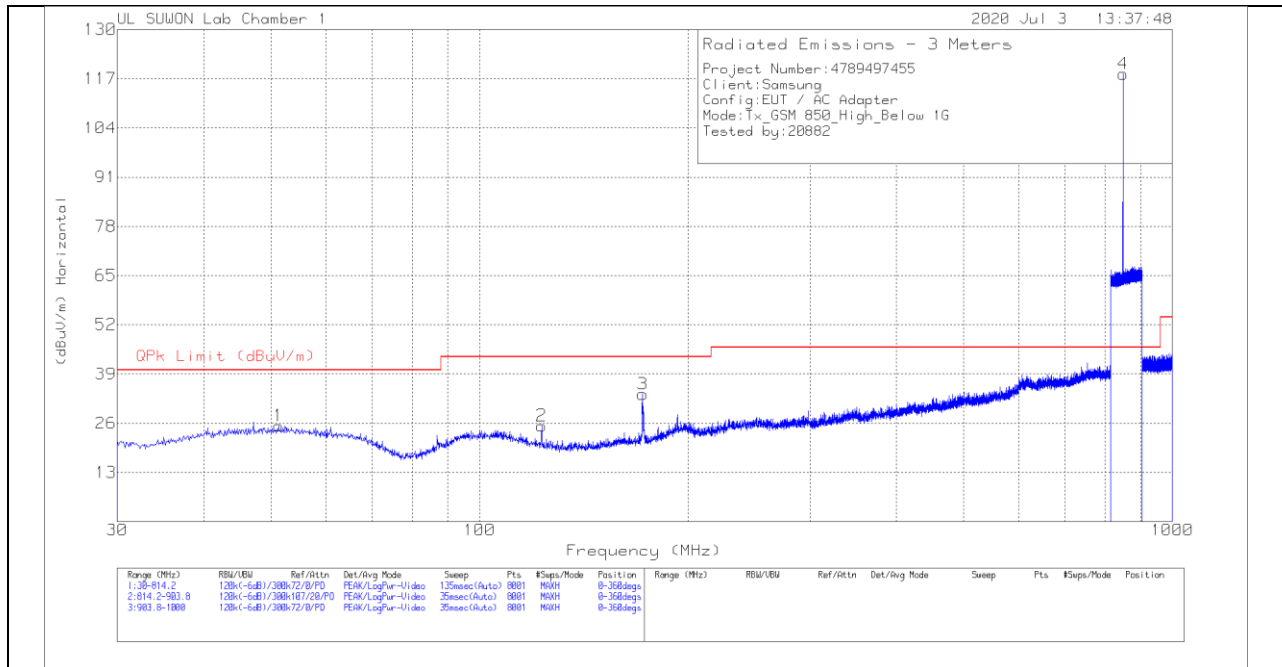
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	51.5655	3.84	Pk	19.7	2	25.54	40	-14.46	0-360	400	H
2	171.8422	13.69	Pk	14.9	3.5	32.09	43.52	-11.43	0-360	200	H
3	193.2116	7.83	Pk	17.7	3.7	29.23	43.52	-14.29	0-360	100	H
4	836.656	84.1	Pk	27.2	7.7	119	46.02	72.98	0-360	100	H
5	54.2122	3.9	Pk	19.4	3.4	26.7	40	-13.3	0-360	100	V
6	171.7442	9.8	Pk	14.9	4.6	29.3	43.52	-14.22	0-360	200	V
7	193.2116	8.95	Pk	17.7	4.7	31.35	43.52	-12.17	0-360	100	V
8	836.6697	82.37	Pk	27.2	7.7	117.27	46.02	71.25	0-360	100	V

Pk - Peak detector

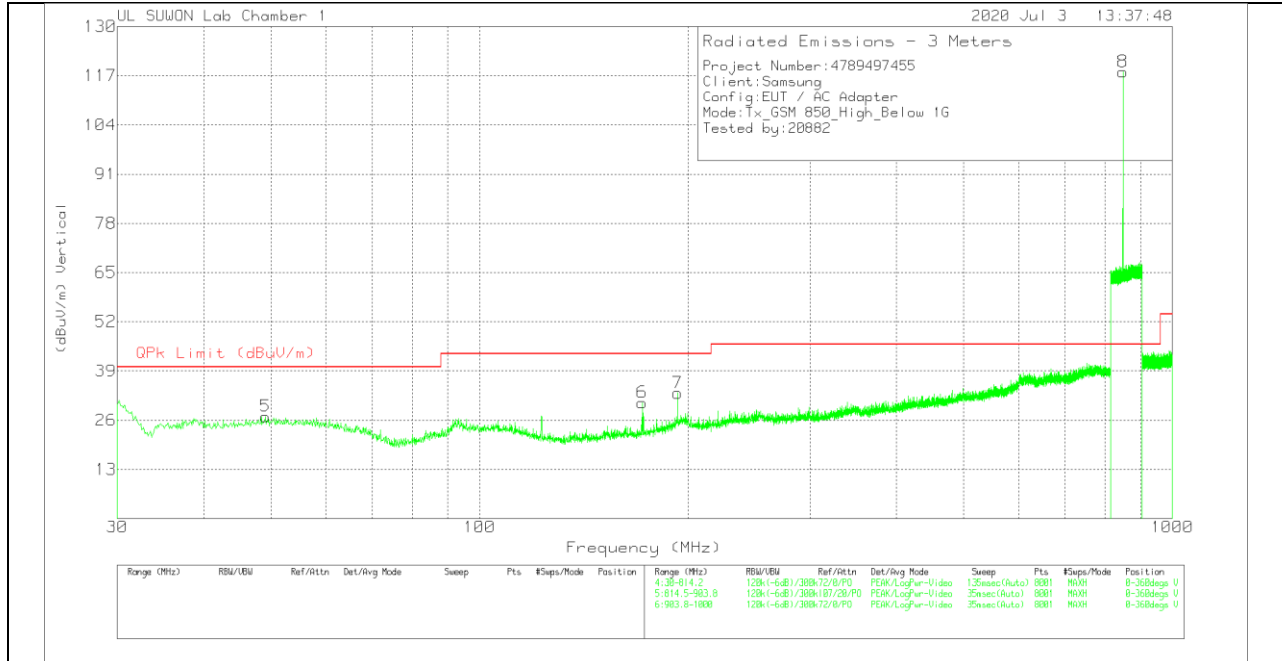
Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

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	51.2714	3.61	Pk	19.7	2	25.31	40	-14.69	0-360	400	H
2	122.9277	7.39	Pk	14.9	3	25.29	43.52	-18.23	0-360	100	H
3	172.0382	15.27	Pk	14.9	3.5	33.67	43.52	-9.85	0-360	200	H
4	848.8752	82.98	Pk	27.5	7.8	118.28	46.02	72.26	0-360	100	H
5	49.1149	4	Pk	19.7	3.3	27	40	-13	0-360	100	V
6	171.7442	11.14	Pk	14.9	4.6	30.64	43.52	-12.88	0-360	200	V
7	193.2116	10.77	Pk	17.7	4.7	33.17	43.52	-10.35	0-360	100	V
8	848.7369	82.77	Pk	27.5	7.8	118.07	46.02	72.05	0-360	100	V

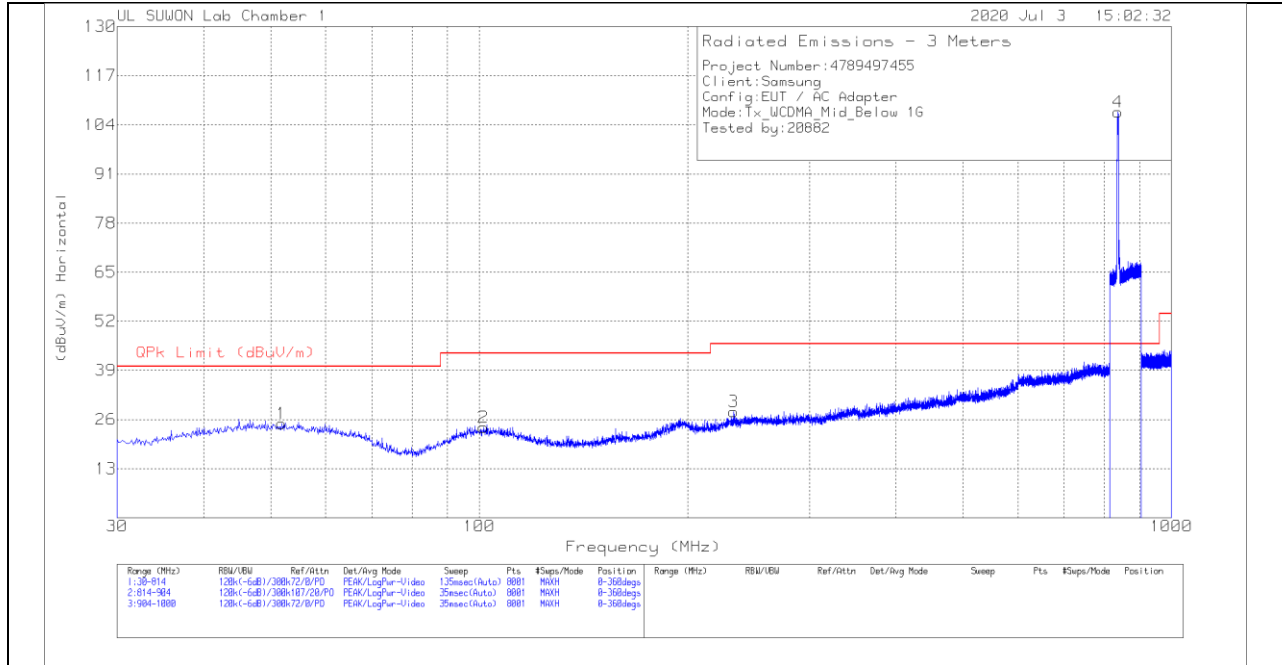
Pk - Peak detector

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

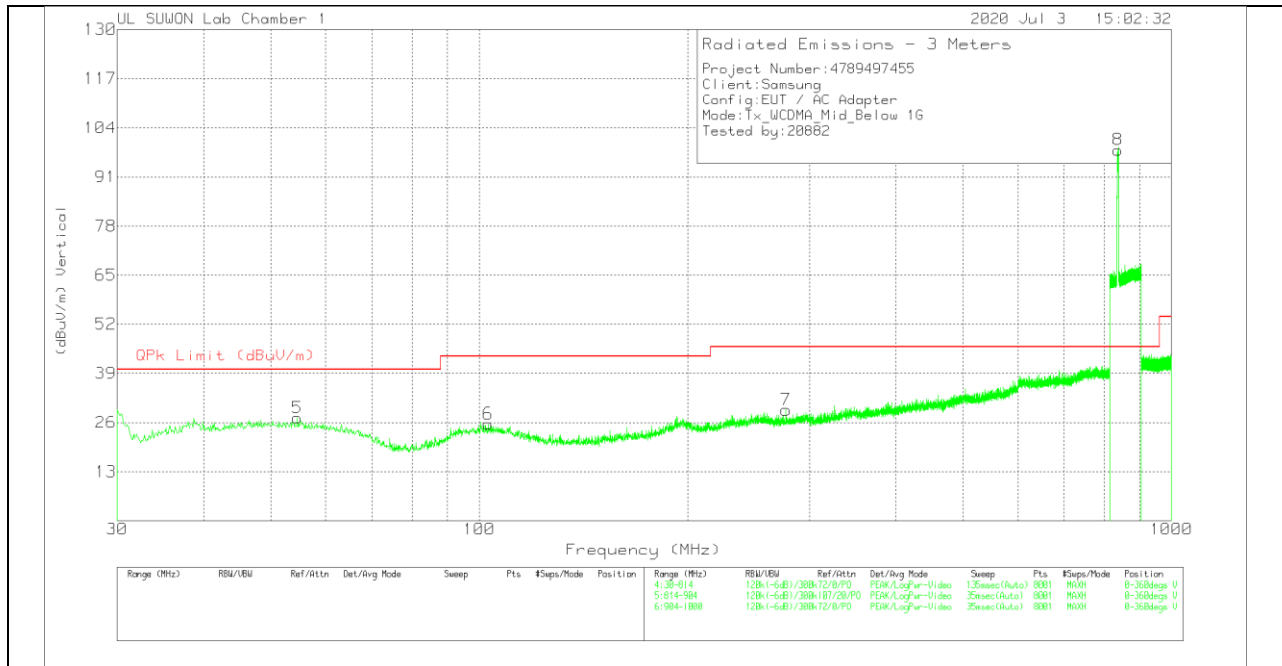
7.7. Below 1 GHz in the WCDMA Band 5

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	51.854	3.18	Pk	19.7	2	24.88	40	-15.12	0-360	300	H
2	101.442	3.28	Pk	17.9	2.7	23.88	43.52	-19.64	0-360	200	H
3	233.35	5.67	Pk	18.3	4.1	28.07	46.02	-17.95	0-360	300	H
4	837.5125	72.47	Pk	27.2	7.7	107.37	46.02	61.35	0-360	100	H
5	54.598	4.32	Pk	19.4	3.5	27.22	40	-12.78	0-360	100	V
6	103.108	3.8	Pk	17.9	3.9	25.6	43.52	-17.92	0-360	400	V
7	277.548	5.24	Pk	18.9	5.2	29.34	46.02	-16.68	0-360	100	V
8	837.5463	63.24	Pk	27.2	7.7	98.14	46.02	52.12	0-360	200	V

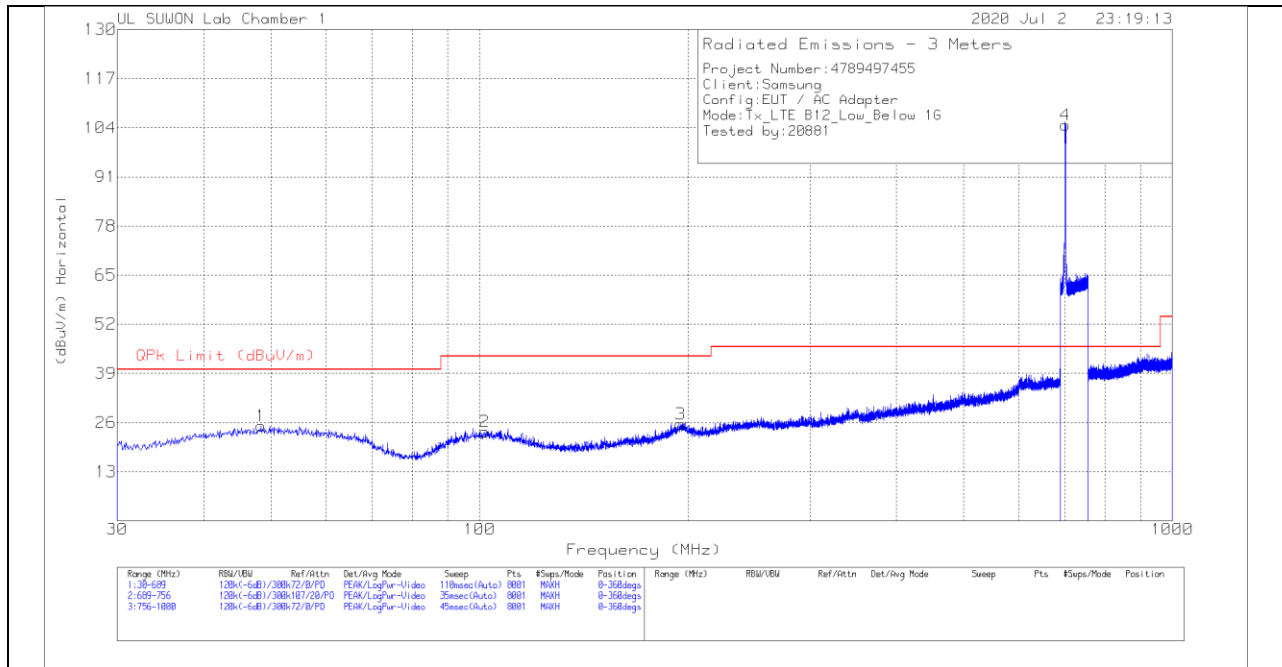
Pk - Peak detector

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

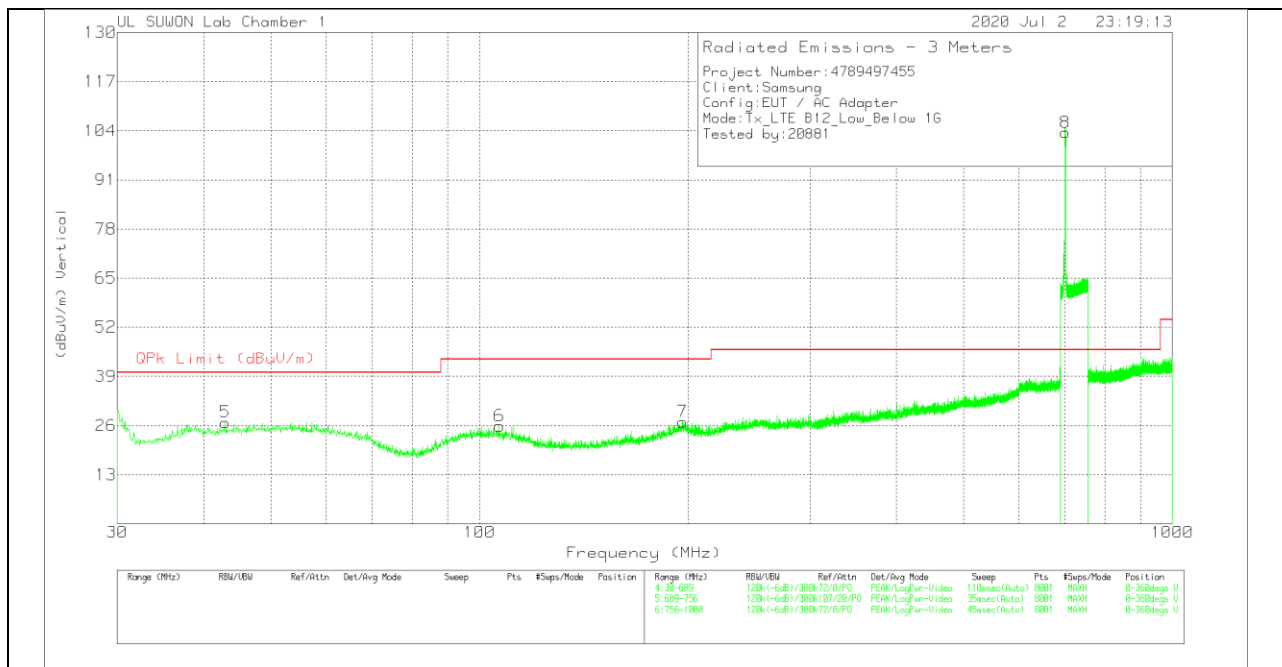
7.8. Below 1 GHz in the LTE Band 12

LOW CHANNEL(730.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

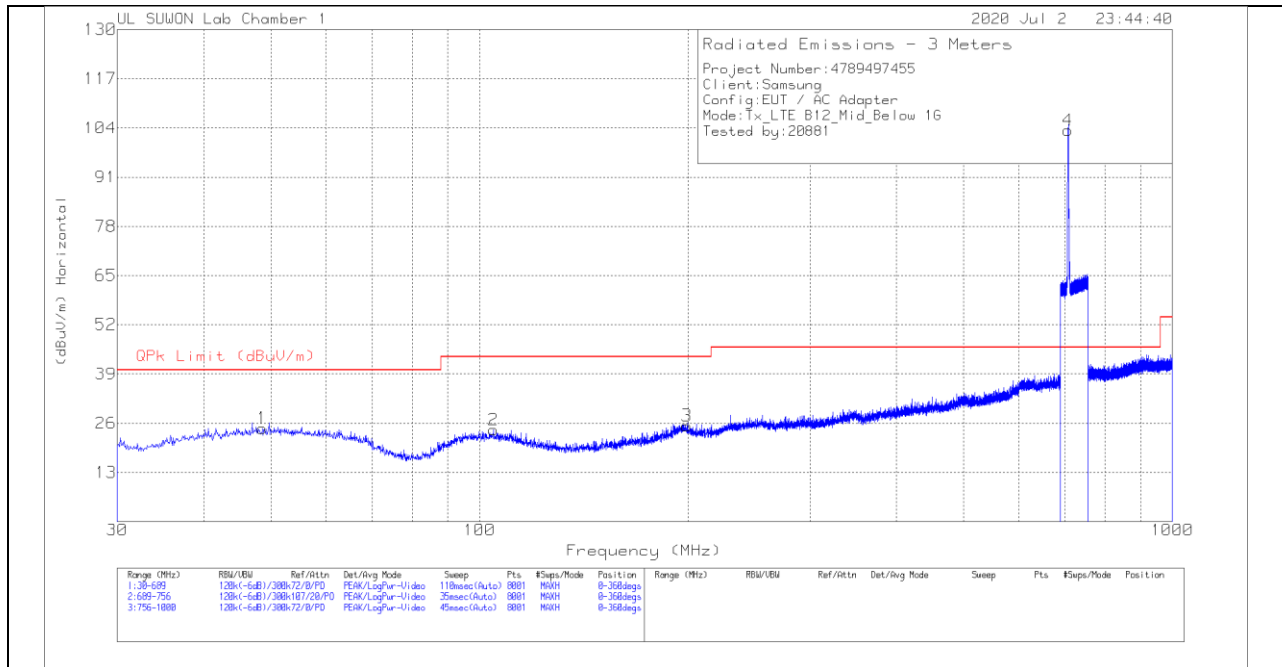
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.3696	3.36	Pk	19.8	1.9	25.06	40	-14.94	0-360	300	H
2	101.831	2.93	Pk	17.9	2.7	23.53	43.52	-19.99	0-360	400	H
3	195.0795	3.88	Pk	18	3.7	25.58	43.52	-17.94	0-360	300	H
4	701.0265	71.88	Pk	25.6	7.2	104.68	46.02	58.66	0-360	100	H
5	42.9329	4.33	Pk	19.3	3.2	26.83	40	-13.17	0-360	100	V
6	106.8559	4.26	Pk	17.7	3.9	25.86	43.52	-17.66	0-360	200	V
7	196.4799	4.19	Pk	18.2	4.6	26.99	43.52	-16.53	0-360	300	V
8	700.591	70.85	Pk	25.6	7.1	103.55	46.02	57.53	0-360	100	V

Pk - Peak detector

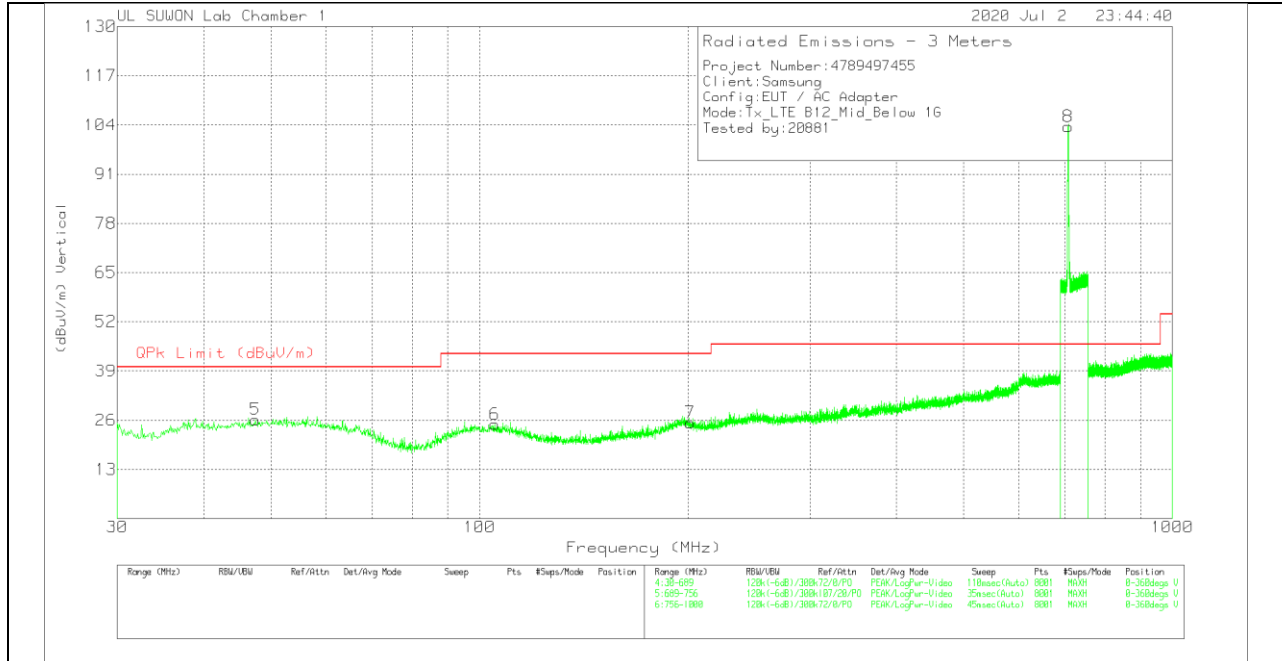
Note: Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

MID CHANNEL(737.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

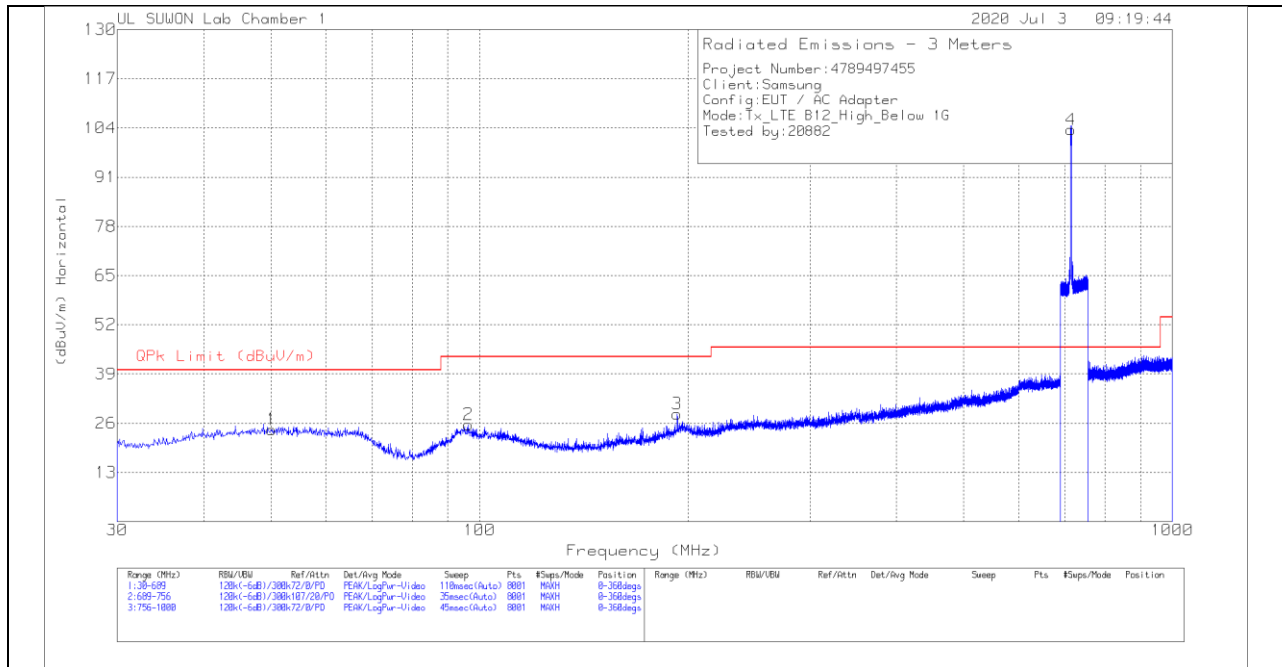
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.6168	2.94	Pk	19.8	1.9	24.64	40	-15.36	0-360	300	H
2	104.7141	3.65	Pk	17.8	2.8	24.25	43.52	-19.27	0-360	300	H
3	199.1983	3.67	Pk	17.8	3.8	25.27	43.52	-18.25	0-360	100	H
4	707.3496	70.57	Pk	25.6	7.2	103.37	46.02	57.35	0-360	100	H
5	47.4635	3.06	Pk	19.8	3.3	26.16	40	-13.84	0-360	300	V
6	105.2084	3.1	Pk	17.8	4	24.9	43.52	-18.62	0-360	100	V
7	201.4224	3.2	Pk	17.4	4.7	25.3	43.52	-18.22	0-360	100	V
8	707.4418	70.76	Pk	25.6	7.2	103.56	46.02	57.54	0-360	100	V

Pk - Peak detector

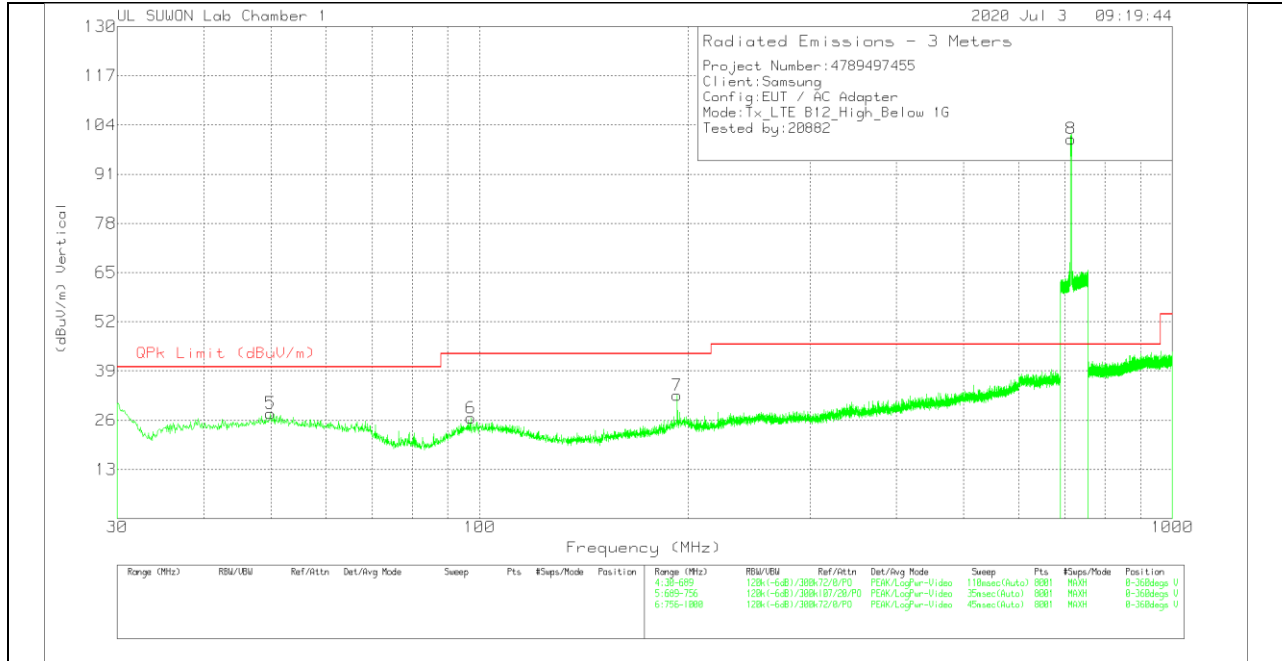
Note: Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

HIGH CHANNEL(744.5 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	50.0995	2.69	Pk	19.7	1.9	24.29	40	-15.71	0-360	300	H
2	96.3943	5.53	Pk	17.5	2.6	25.63	43.52	-17.89	0-360	300	H
3	192.9378	7.13	Pk	17.6	3.7	28.43	43.52	-15.09	0-360	100	H
4	714.4433	70.74	Pk	25.6	7.2	103.54	46.02	57.52	0-360	200	H
5	49.9348	4.81	Pk	19.7	3.3	27.81	40	-12.19	0-360	300	V
6	97.1356	5.05	Pk	17.6	3.9	26.55	43.52	-16.97	0-360	200	V
7	192.9378	10.26	Pk	17.6	4.7	32.56	43.52	-10.96	0-360	100	V
8	714.4851	67.5	Pk	25.6	7.2	100.3	46.02	54.28	0-360	100	V

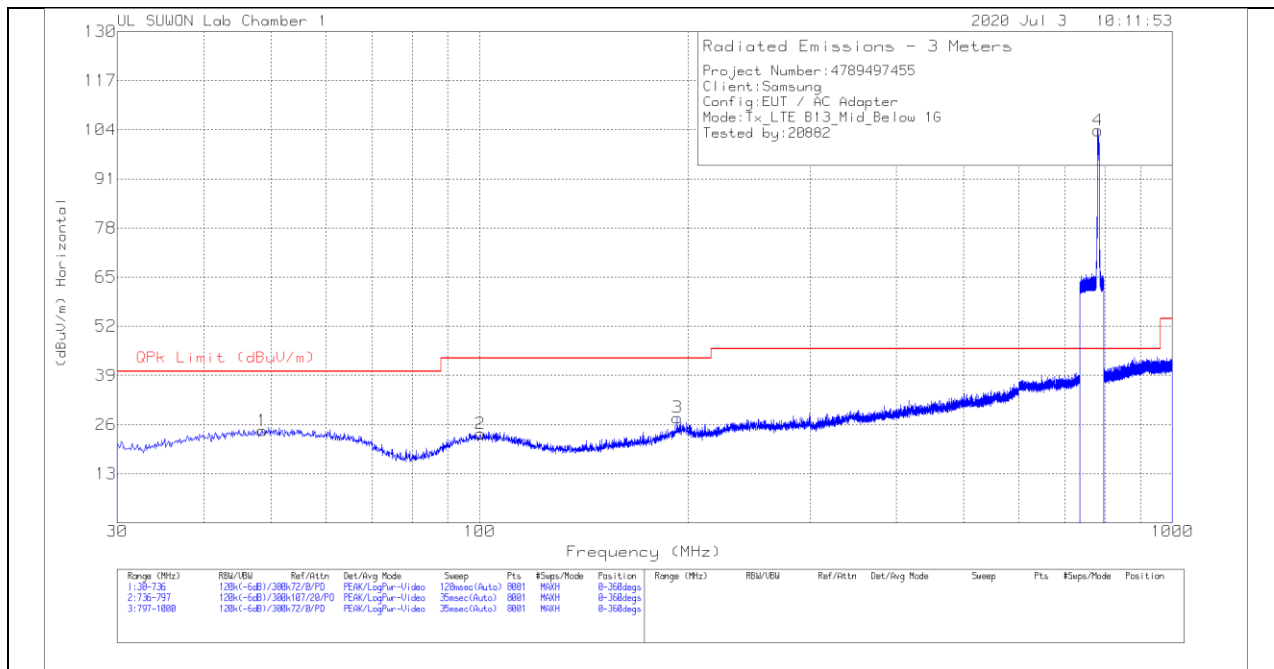
Pk - Peak detector

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

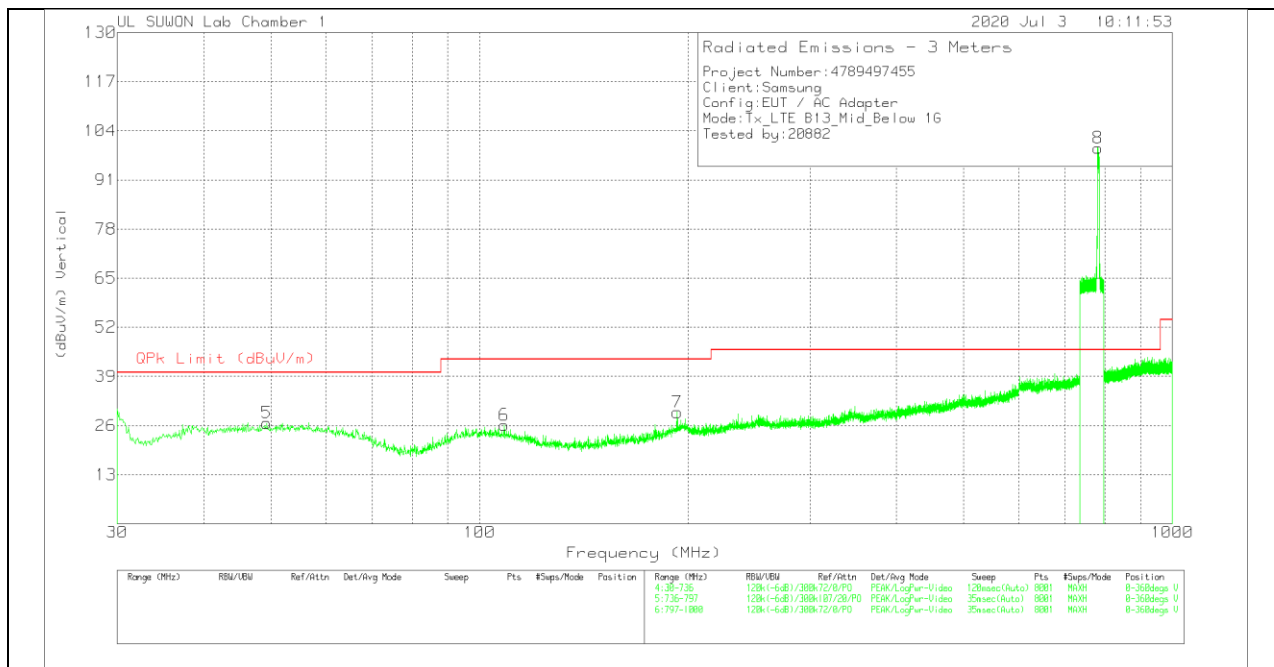
7.9. Below 1 GHz in the LTE Band 13

MID CHANNEL(751.0 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

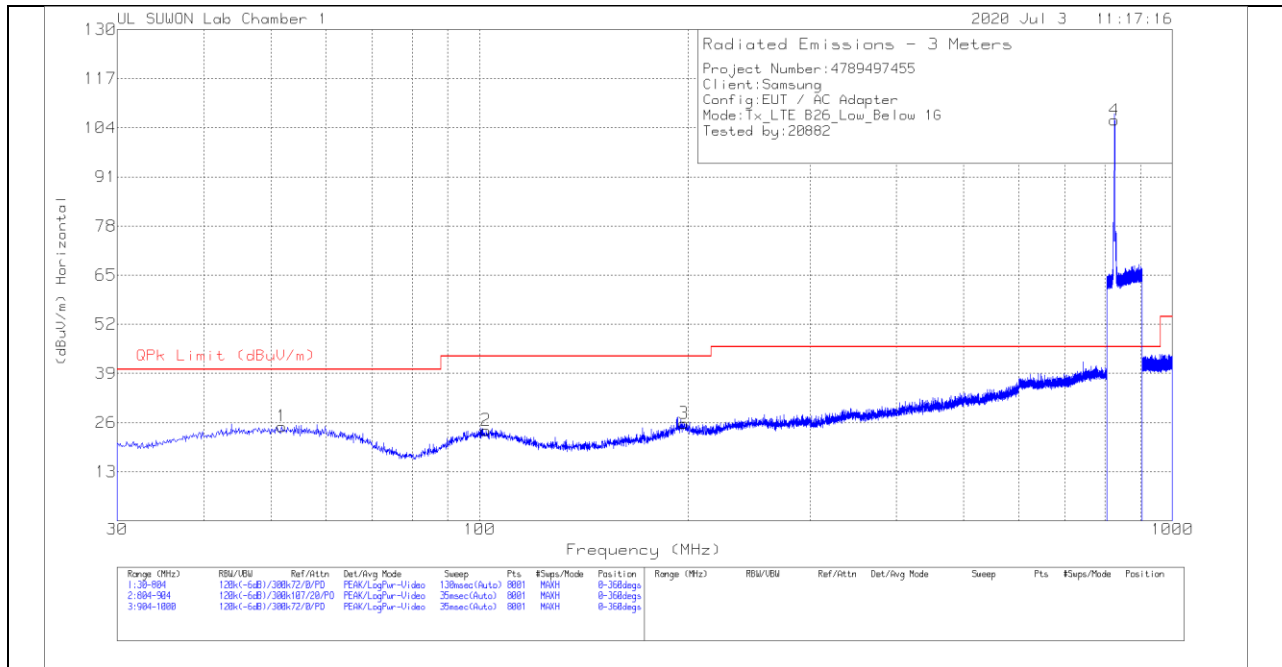
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.6208	2.71	Pk	19.8	1.9	24.41	40	-15.59	0-360	300	H
2	100.3353	2.94	Pk	17.9	2.7	23.54	43.52	-19.98	0-360	200	H
3	192.9978	6.53	Pk	17.6	3.7	27.83	43.52	-15.69	0-360	200	H
4	781.0638	69.53	Pk	26.8	7.5	103.83	46.02	57.81	0-360	100	H
5	49.3268	3.67	Pk	19.7	3.3	26.67	40	-13.33	0-360	200	V
6	108.6308	4.59	Pk	17.5	4	26.09	43.52	-17.43	0-360	400	V
7	192.9978	7.22	Pk	17.6	4.7	29.52	43.52	-14	0-360	100	V
8	781.1781	65.12	Pk	26.8	7.5	99.42	46.02	53.4	0-360	200	V

Pk - Peak detector

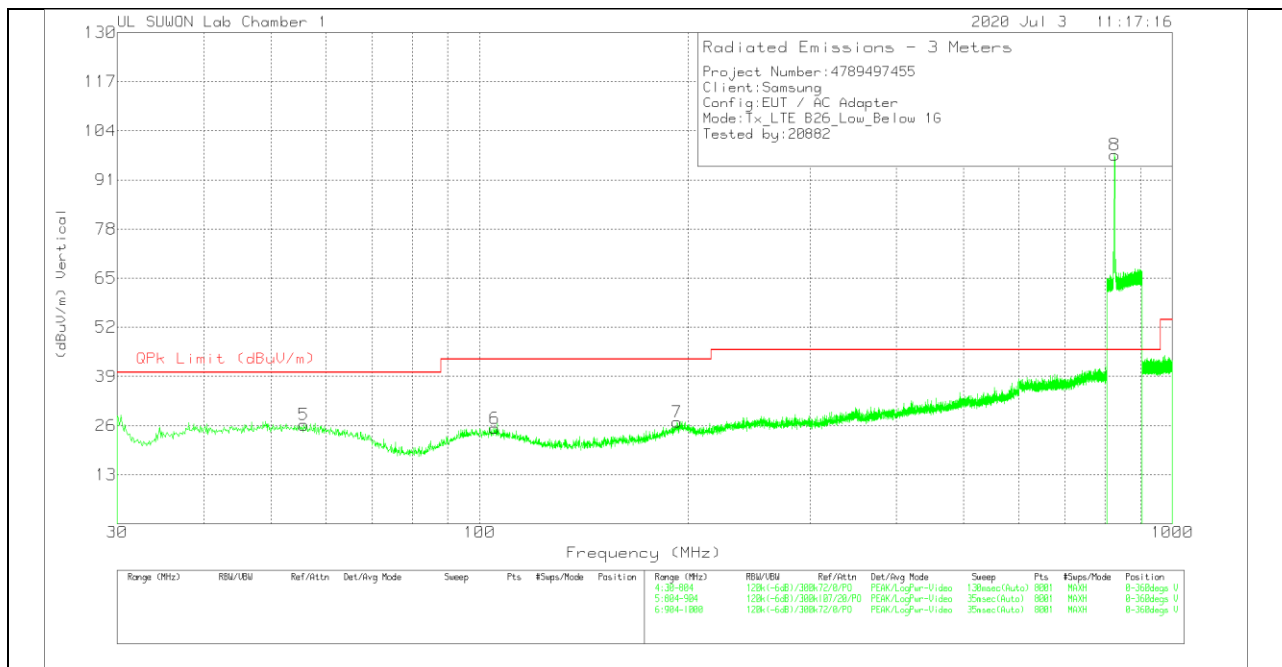
7.10. Below 1 GHz in the LTE Band 26

LOW CHANNEL(860.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

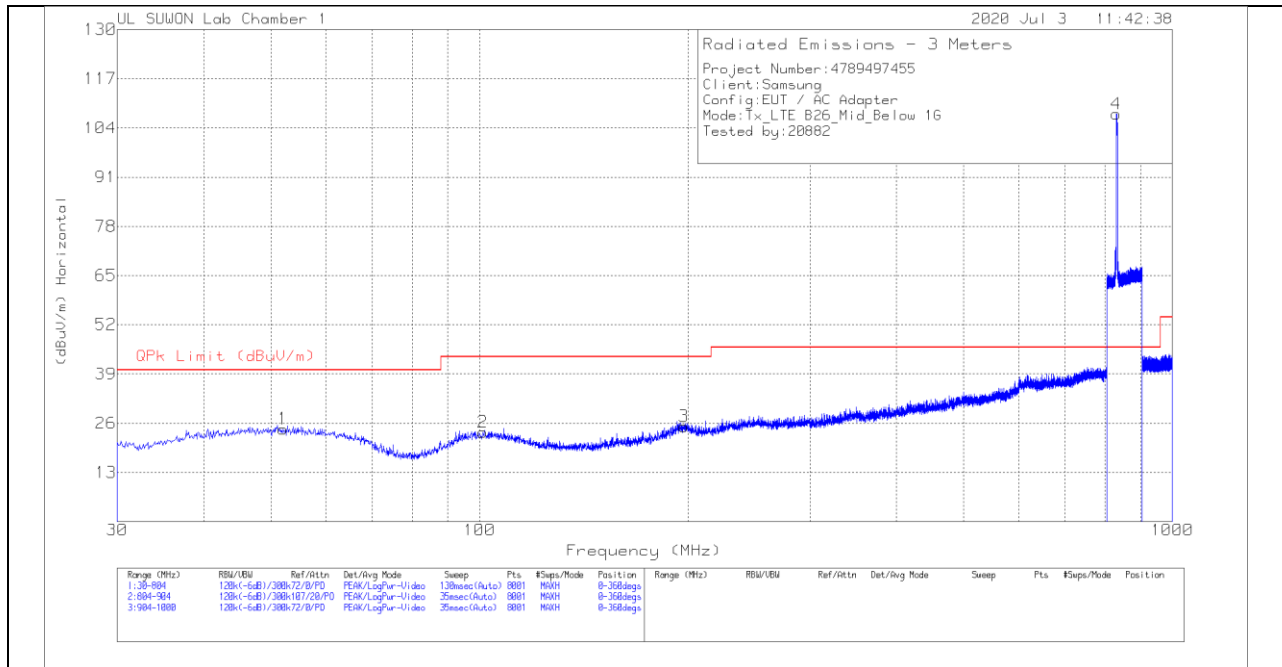
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	51.8655	3.29	Pk	19.7	2	24.99	40	-15.01	0-360	300	H
2	102.1755	3.34	Pk	17.9	2.7	23.94	43.52	-19.58	0-360	200	H
3	197.3775	3.87	Pk	18.1	3.8	25.77	43.52	-17.75	0-360	200	H
4	825.6125	71.43	Pk	27	7.6	106.03	46.02	60.01	0-360	100	H
5	55.7355	3.49	Pk	19.2	3.5	26.19	40	-13.81	0-360	300	V
6	105.1748	3.42	Pk	17.8	4	25.22	43.52	-18.3	0-360	200	V
7	192.927	4.58	Pk	17.6	4.7	26.88	43.52	-16.64	0-360	100	V
8	825.725	63	Pk	27	7.6	97.6	46.02	51.58	0-360	200	V

Pk - Peak detector

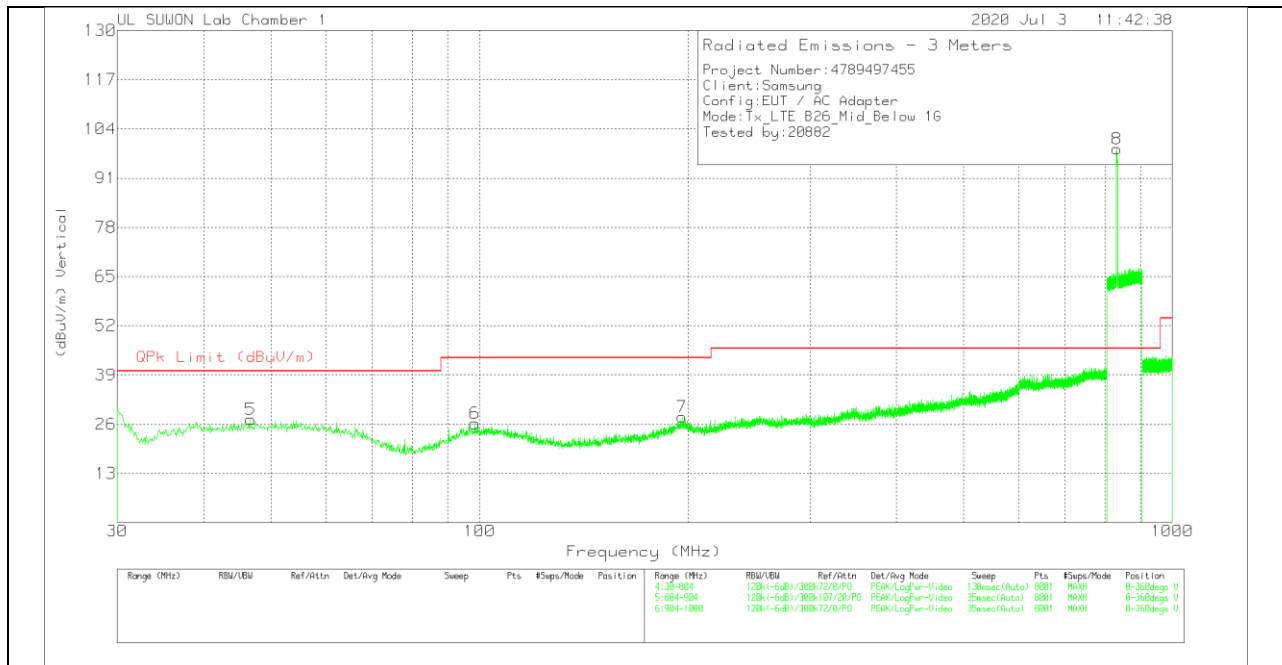
Note: Unwanted emissions captured from 814MHz to 849MHz and from 859MHz to 894MHz were the TX and RX signals generated from the call-simulator.

MID CHANNEL(876.5 MHz)

HORIZONTAL PEAK PLOT



VERTICAL PEAK PLOT



DATA

Trace Markers

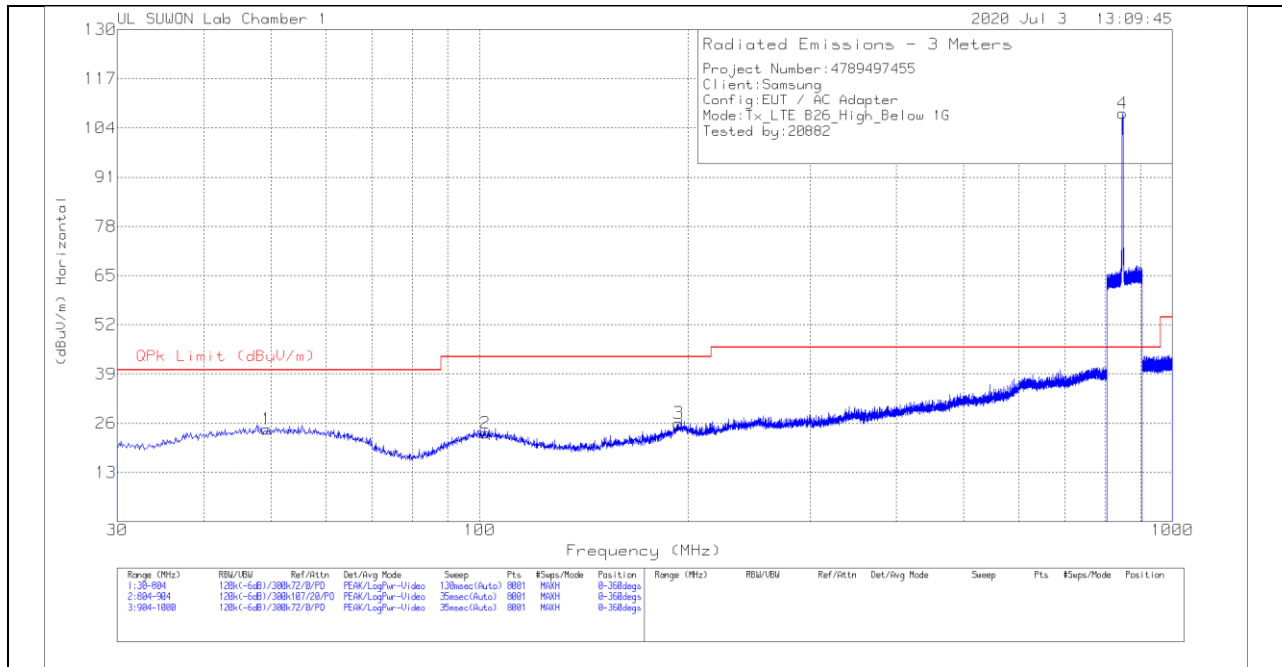
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	52.059	2.74	Pk	19.7	2	24.44	40	-15.56	0-360	400	H
2	101.1113	3	Pk	17.9	2.7	23.6	43.52	-19.92	0-360	400	H
3	197.184	3.23	Pk	18.2	3.7	25.13	43.52	-18.39	0-360	100	H
4	830.75	72.78	Pk	27.2	7.7	107.68	46.02	61.66	0-360	100	H
5	46.7378	4.21	Pk	19.7	3.3	27.21	40	-12.79	0-360	400	V
6	98.499	4.49	Pk	17.8	3.9	26.19	43.52	-17.33	0-360	400	V
7	196.2165	5.1	Pk	18.2	4.6	27.9	43.52	-15.62	0-360	400	V
8	831.575	63.82	Pk	27.2	7.7	98.72	46.02	52.7	0-360	200	V

Pk - Peak detector

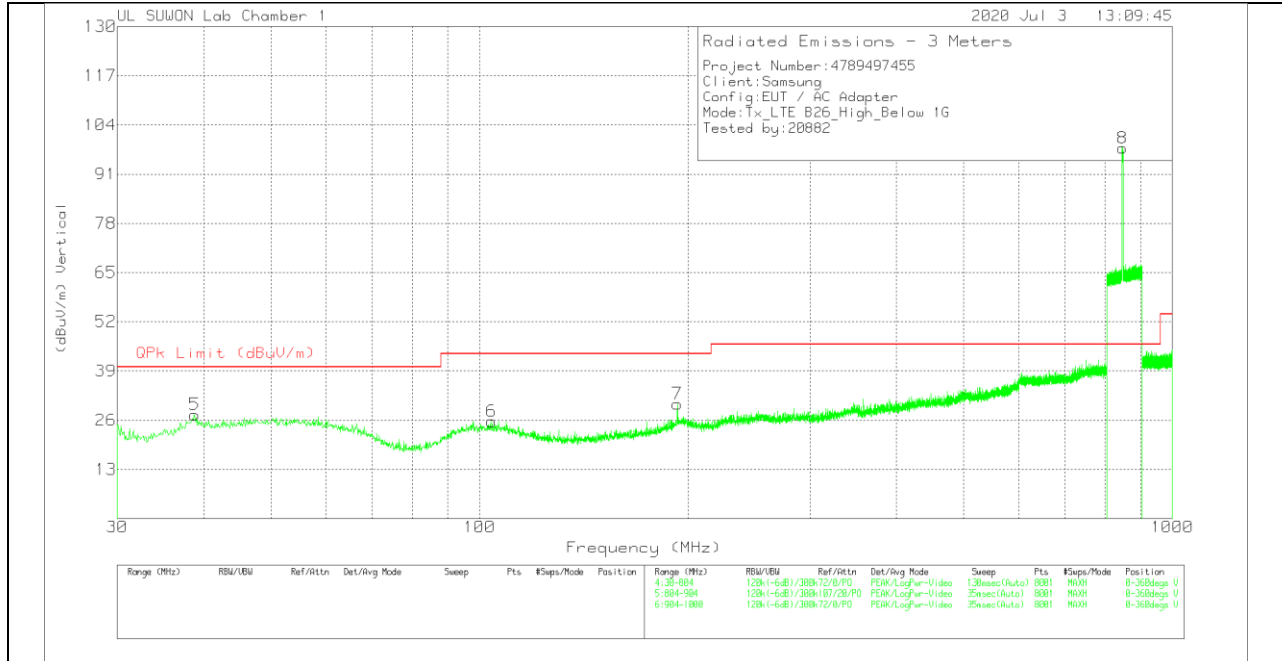
Note: Unwanted emissions captured from 814MHz to 849MHz and from 859MHz to 894MHz were the TX and RX signals generated from the call-simulator.

HIGH CHANNEL(892.5 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	49.35	2.78	Pk	19.7	1.9	24.38	40	-15.62	0-360	300	H
2	101.982	2.79	Pk	17.9	2.7	23.39	43.52	-20.13	0-360	200	H
3	193.7978	4.46	Pk	17.8	3.7	25.96	43.52	-17.56	0-360	400	H
4	848.35	72.55	Pk	27.5	7.8	107.85	46.02	61.83	0-360	100	H
5	38.8043	6.17	Pk	18.3	3	27.47	40	-12.53	0-360	100	V
6	104.2073	3.78	Pk	17.9	4	25.68	43.52	-17.84	0-360	400	V
7	193.0238	7.97	Pk	17.6	4.7	30.27	43.52	-13.25	0-360	100	V
8	847.2875	62.68	Pk	27.4	7.8	97.88	46.02	51.86	0-360	100	V

Pk - Peak detector

Note: Unwanted emissions captured from 814MHz to 849MHz and from 859MHz to 894MHz were the TX and RX signals generated from the call-simulator.

END OF TEST REPORT