



# **CERTIFICATION TEST REPORT**

**Report Number.** : 4789754174-E1V1

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

**Model** : SCG09, SC-51B

**FCC ID** : A3LSMG991JPN

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

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

**Date Of Issue:**  
February 08, 2021

**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



Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SAMSUNG ELECTRONICS CO., LTD.  
**EUT DESCRIPTION:** GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, WPT and NFC  
**MODEL NUMBER:** SCG09, SC-51B  
**SERIAL NUMBER:** R3CNC038RQH, R3CNC038Z3E (RADIATED)  
**DATE TESTED:** JAN 12, 2021 –JAN 18, 2021;

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

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

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

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

### 4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Radiated Disturbance, 30 MHz to 1 GHz	4.26 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.90 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, WPT and NFC. This test report addresses the WWAN receiver mode.

This report covers the Samsung models SCG09 and SC-51B. SCG09 and SC-51B have the same hardware. Supported band and protocol are different depending on software settings.

### 5.2. TEST MODE

Mode	Description
GSM850	Communicating with Call simulator(CMW500)
WCDMA BAND 5	Communicating with Call simulator(CMW500)
LTE BAND 5	Communicating with Call simulator(CMW500)
LTE BAND 12	Communicating with Call simulator(CMW500)
LTE BAND 13	Communicating with Call simulator(CMW500)

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### 5.3. WORST-CASE ORIENTATION AND MODE

For GSM850 / WCDMA B5 / LTE B5 / 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.

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



## 5.4. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

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

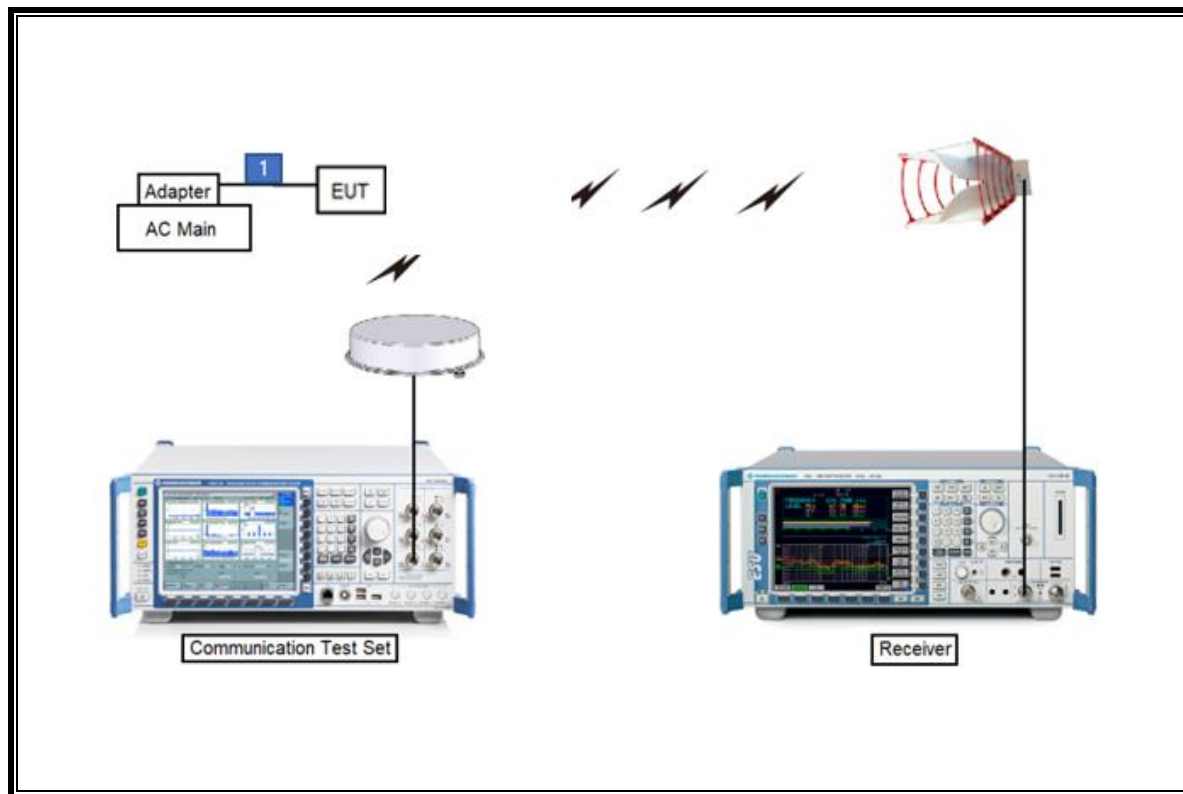
### I/O CABLE

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)



## 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	08-04-22
Preamplifier	ETS	3116C-PA	00168841	08-06-21
Antenna, Horn, 40 GHz	ETS	3116C	00168645	08-04-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	08-19-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-13-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	08-13-22
Antenna, Horn, 18 GHz	ETS	3115	00167211	07-27-22
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-15-22
Antenna, Horn, 18 GHz	ETS	3117	00168724	07-27-22
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-15-22
Communications Test Set	R&S	CMW500	115331	08-03-21
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-03-21
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-06-21
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-04-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-03-21
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-03-21
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-03-21
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	08-05-21
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G006	08-05-21
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	010	08-05-21
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	011	08-05-21
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G001	08-05-21
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G002	08-05-21
Attenuator	PASTERNAK	PE7087-10	A009	08-05-21
Attenuator	PASTERNAK	PE7087-10	A001	08-03-21
Attenuator	PASTERNAK	PE7087-10	A008	08-03-21
Attenuator	PASTERNAK	PE7004-10	2	08-04-21
Attenuator	PASTERNAK	PE7395-10	A011	08-05-21
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. 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:

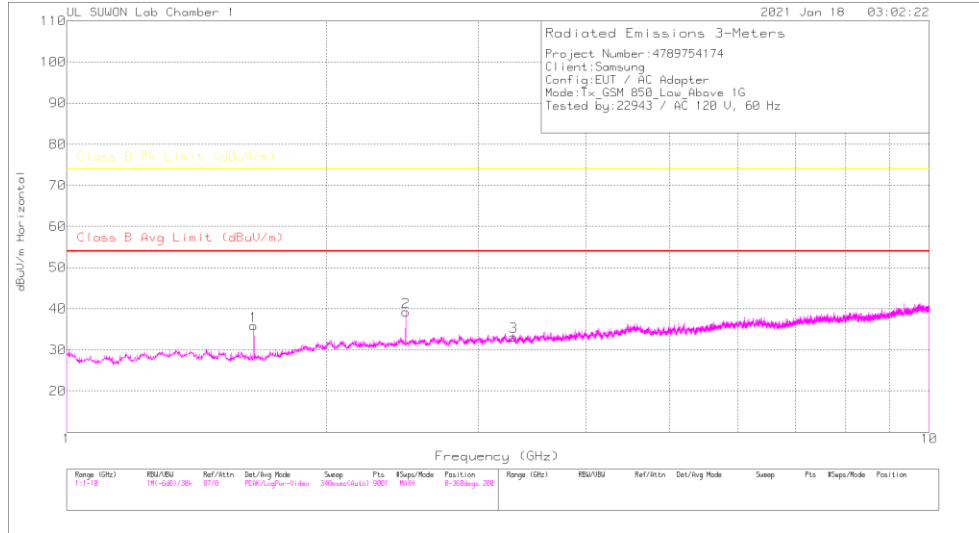
Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB $\mu$ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54

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

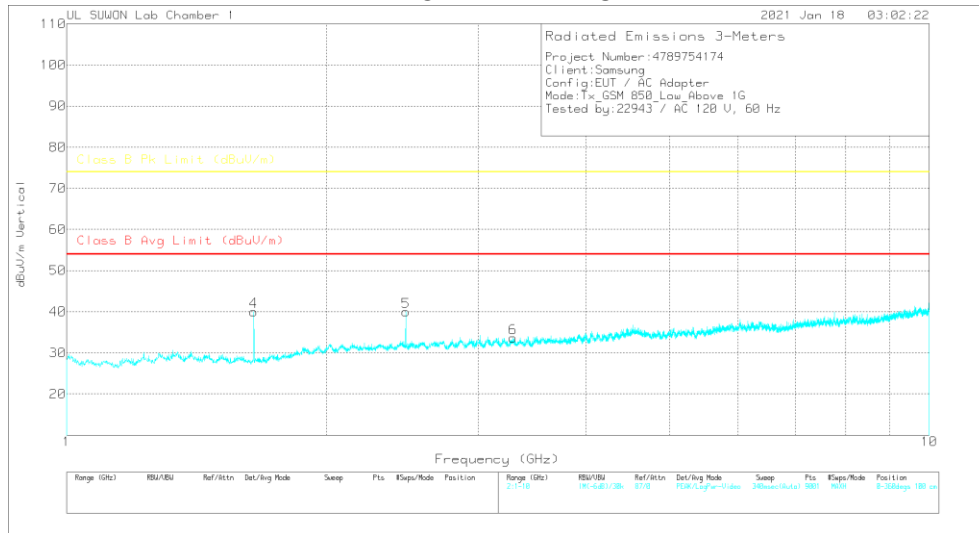
## 7.1. Above 1 GHz in the GSM850

### LOW CHANNEL(869.2 MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

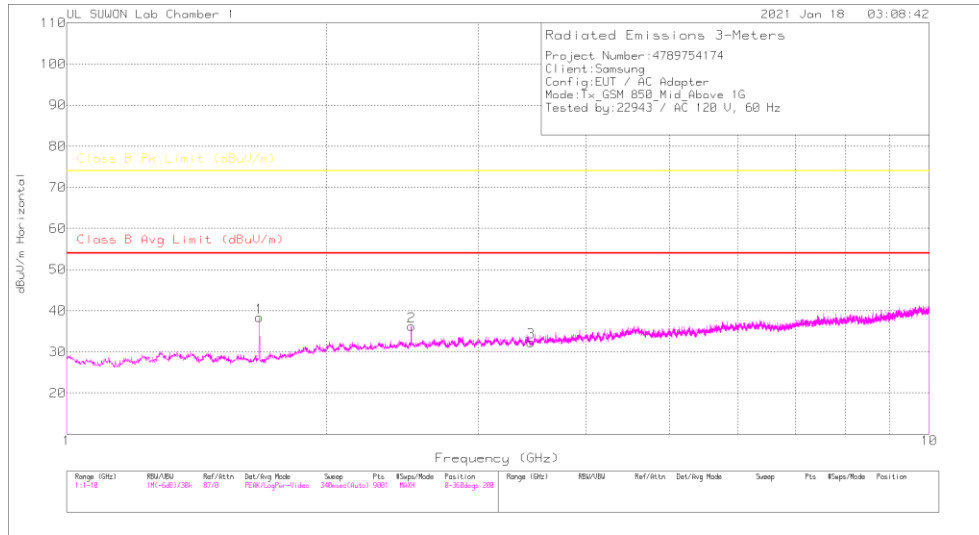
##### Trace Markers

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	43.47	PK	28.4	-36.6	.6	35.87	-	-	74	-38.13	0-360	200	H
2	2.472	41.76	PK	31.9	-35.1	.7	39.26	-	-	74	-34.74	0-360	100	H
3	3.298	33.9	PK	32.6	-33.9	.6	33.2	-	-	74	-40.8	0-360	200	H
4	1.648	47.65	PK	28.4	-36.6	.6	40.05	-	-	74	-33.95	0-360	200	V
5	2.472	42.51	PK	31.9	-35.1	.7	40.01	-	-	74	-33.99	0-360	200	V
6	3.294	34.38	PK	32.6	-34.1	.7	33.58	-	-	74	-40.42	0-360	100	V

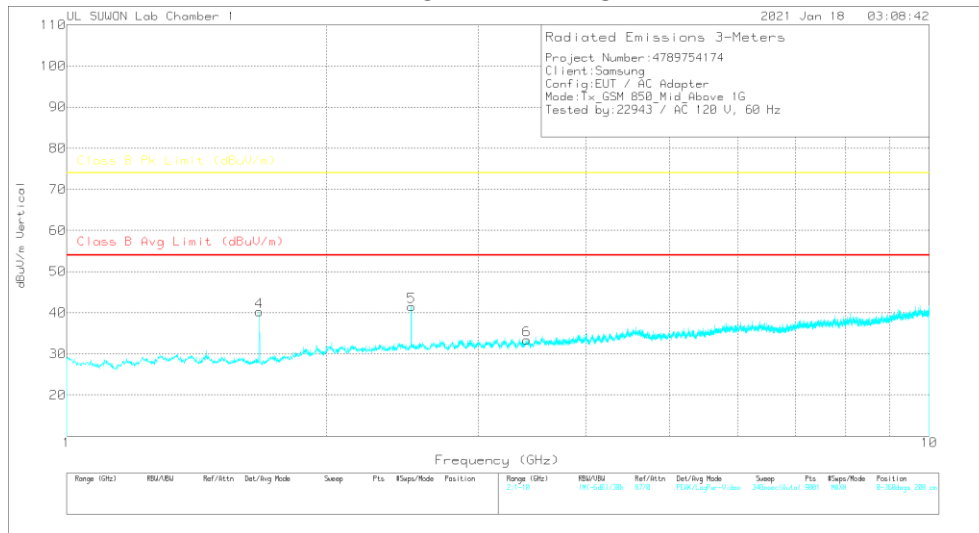
##### PK-Peak Detector

**MID CHANNEL(881.6 MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

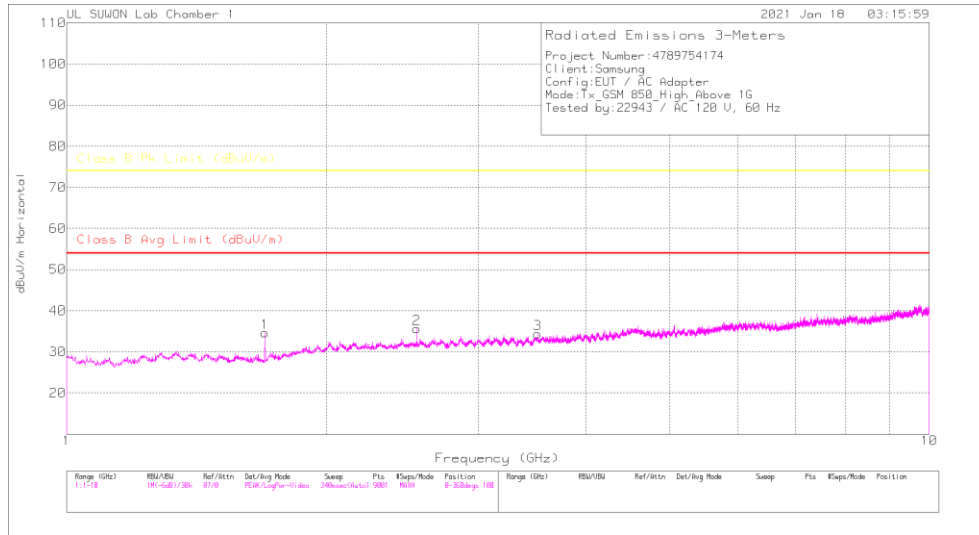
**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBu)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	Corrected Reading dBu/m	Class B Avg Limit (dBu/m)	Avi(DSPR)Margin (dB)	Class B Pk Limit (dBu/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.673	48.01	PK	28.5	-36.6	.5	38.41	-	-	74	-35.59	0-360	100	H
2	2.51	38.81	PK	32	-35	.5	36.31	-	-	74	-37.69	0-360	200	H
3	3.454	32.63	PK	32.7	-33.5	.5	32.33	-	-	74	-41.67	0-360	200	H
4	1.673	47.83	PK	28.5	-36.6	.5	40.23	-	-	74	-33.77	0-360	100	V
5	2.51	44.01	PK	32	-35	.5	41.51	-	-	74	-32.49	0-360	100	V
6	3.415	33.59	PK	32.7	-33.6	.7	33.39	-	-	74	-40.61	0-360	100	V

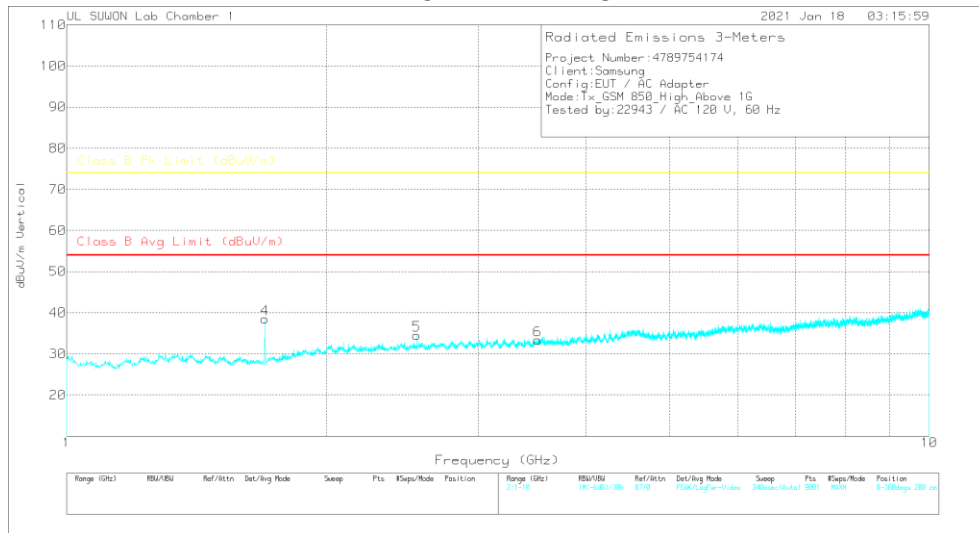
**PK – Peak Detector**

**HIGH CHANNEL(893.8 MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

**Trace Markers**

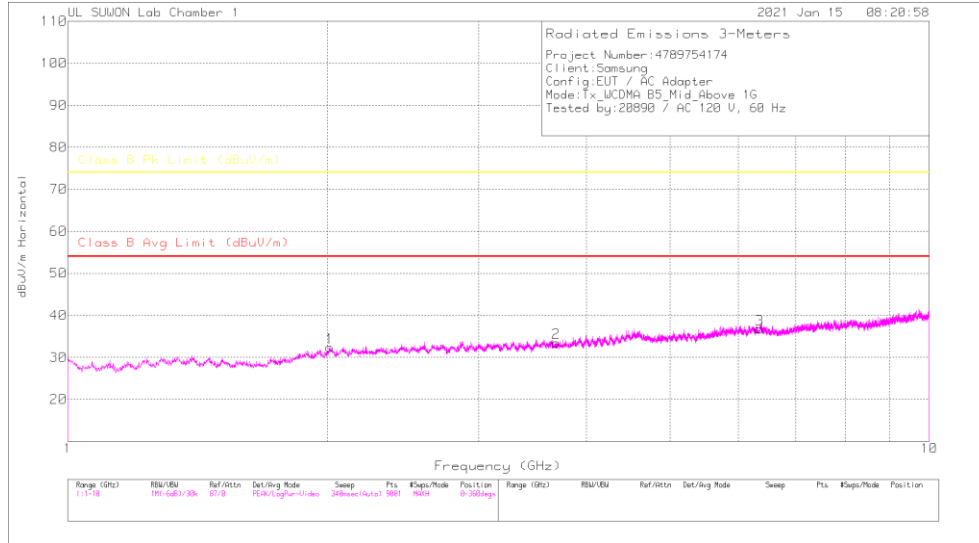
Marker	Frequency (GHz)	Meter Reading (dBu)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	Corrected Reading (dBu/m)	Class B Avg Limit (dBu/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBu/m)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	1.697	41.97	PK		-36.5	.6	34.67	-	-	74	-39.33	0-360	200	H
2	2.546	37.78	PK		-34.8	.7	35.68	-	-	74	-38.32	0-360	100	H
3	3.514	34.29	PK		-33.4	.6	34.38	-	-	74	-39.61	0-360	100	H
4	1.697	45.82	PK		-36.5	.6	38.52	-	-	74	-35.48	0-360	100	V
5	2.546	36.67	PK		-34.8	.7	34.57	-	-	74	-39.43	0-360	100	V
6	3.514	33.25	PK		-33.4	.6	33.35	-	-	74	-40.65	0-360	100	V

**PK – Peak Detector**

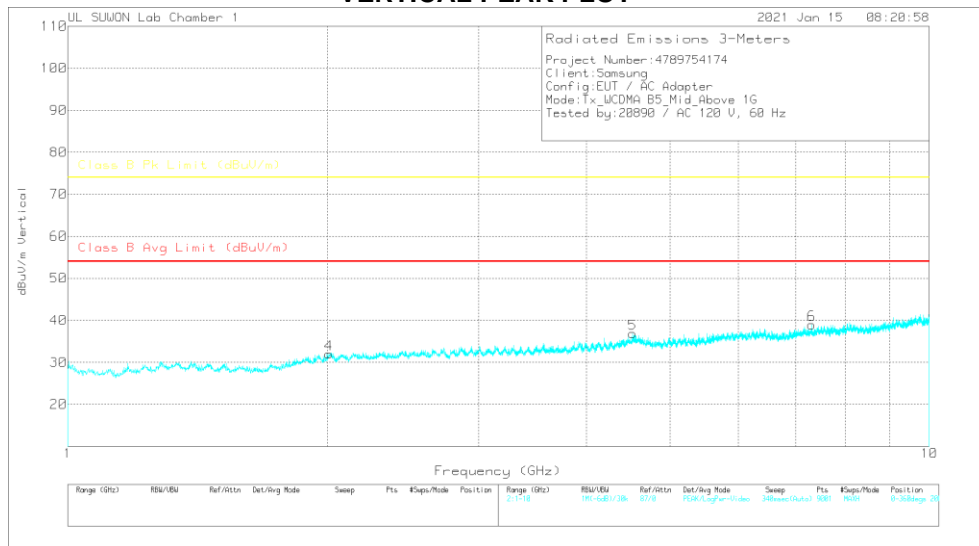
## 7.2. Above 1 GHz in the WCDMA Band 5

### MID CHANNEL(881.6 MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

##### Trace Markers

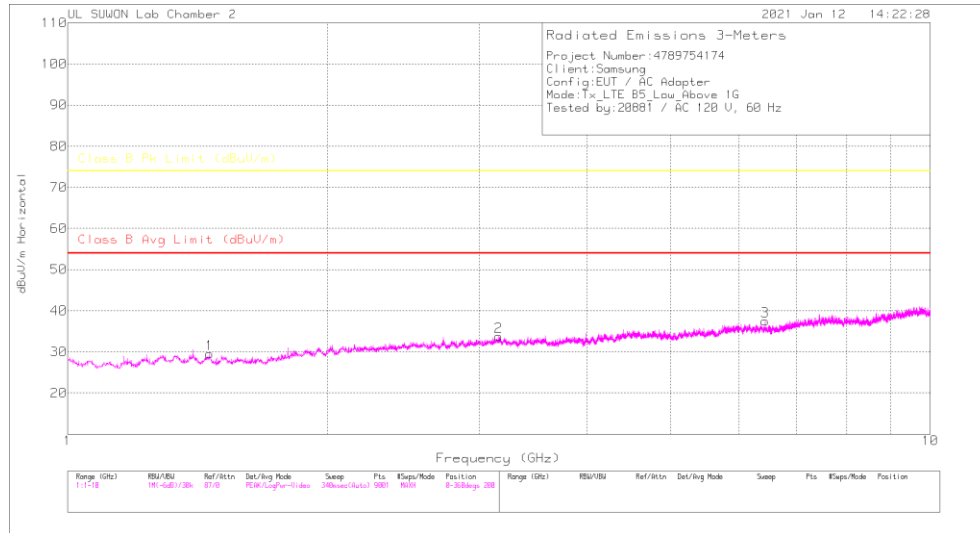
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	1-18GHz(dB)	1GHz_HPF	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.015	36.08	PK		-35.8	.6	32.38	-	-	74	-41.62	0-360	200	H
2	3.688	33.5	PK		-33.5	.5	33.5	-	-	74	-40.5	0-360	100	H
3	6.355	30.65	PK		-29.8	.4	36.75	-	-	74	-37.25	0-360	100	H
4	2.01	35.76	PK		-35.9	.6	31.96	-	-	74	-42.04	0-360	100	V
5	4.525	34.56	PK		-32.3	.4	36.86	-	-	74	-37.14	0-360	200	V
6	7.304	30.66	PK		-28	.5	38.96	-	-	74	-35.04	0-360	200	V

PK – Peak Detector

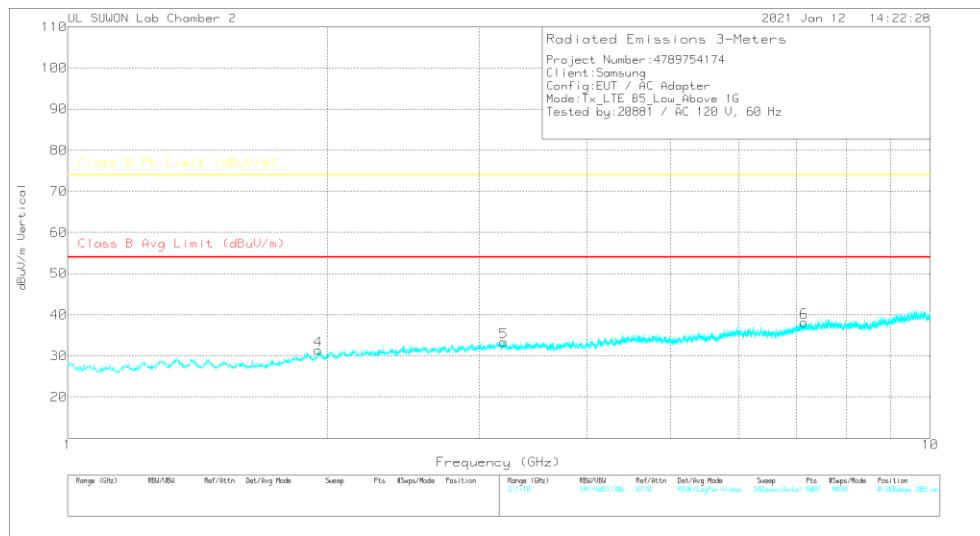
### 7.3. Above 1 GHz in the LTE Band 5

#### LOW CHANNEL(870.5MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

##### Trace Markers

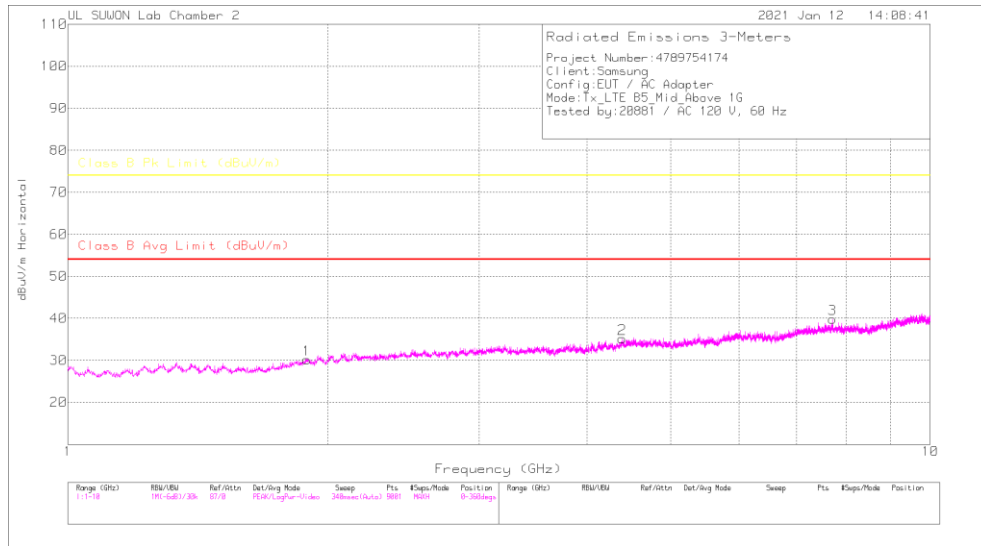
Marker	Frequency (GHz)	Meter Reading (dBu)	Det	3117_00168724	1-18GHz(dB)	1GHz_HP(dB)	Corrected Reading dBu/m	Class B Avg Limit (dBu/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBu/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.46	31.24	PK	29.2	-31.6	.7	29.54	-	-	74	-44.46	0-360	200	H
2	3.161	29.86	PK	33	-29.8	.7	33.76	-	-	74	-40.24	0-360	100	H
3	6.436	27.85	PK	35.4	-26.2	.5	37.55	-	-	74	-36.45	0-360	200	H
4	1.951	30.72	PK	31	-30.9	.6	31.42	-	-	74	-42.58	0-360	200	V
5	3.203	29.34	PK	33	-29.7	.7	33.34	-	-	74	-40.66	0-360	100	V
6	7.146	26.48	PK	36.1	-24.9	.5	38.18	-	-	74	-35.82	0-360	200	V

PK – Peak Detector

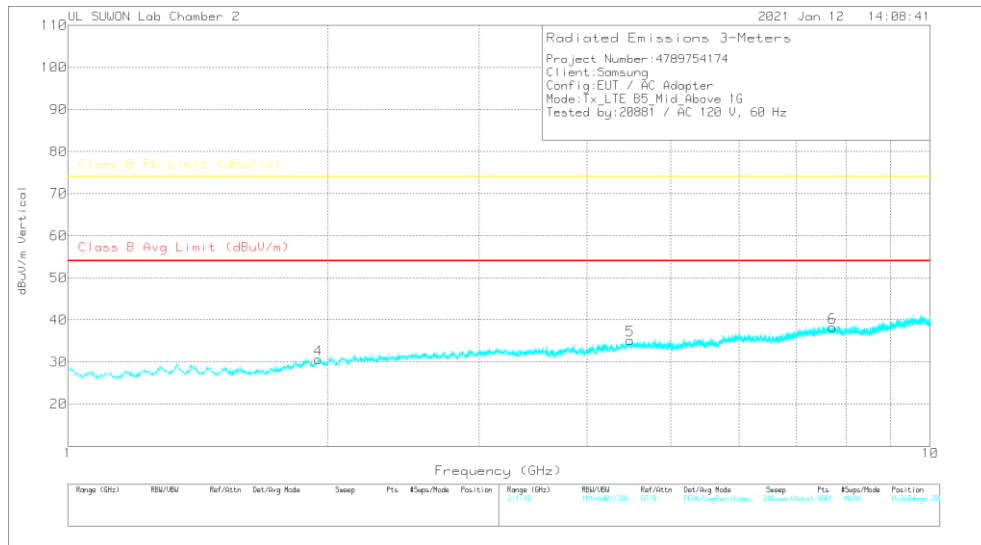


**MID CHANNEL(881.5MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

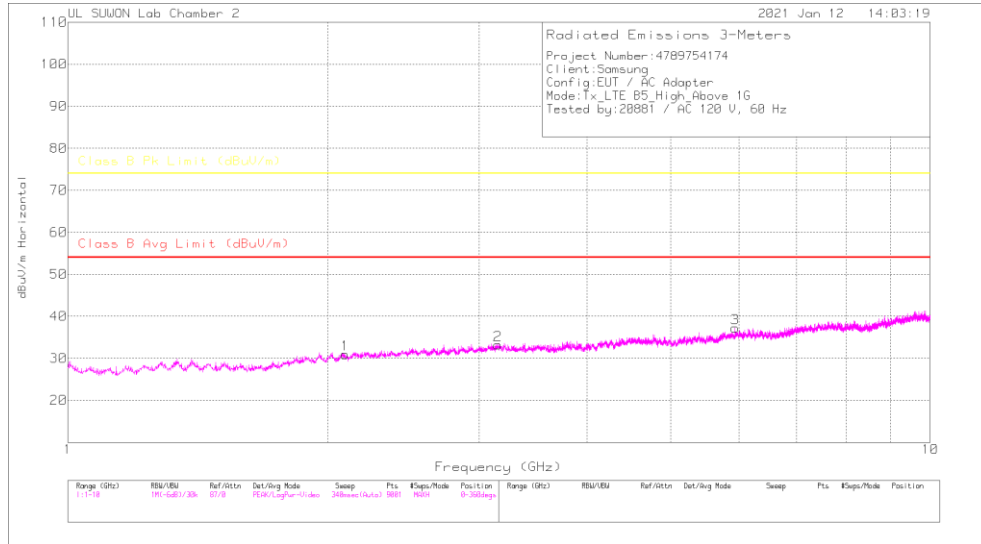
**Trace Markers**

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	1.893	29.81	PK	30.7	-31	.7	30.21	-	-	74	-43.79	0-360	100	H
2	4.394	29.48	PK	33.7	-28.5	.5	35.18	-	-	74	-38.82	0-360	200	H
3	7.704	27.27	PK	36	-24	.6	39.87	-	-	74	-34.13	0-360	100	H
4	1.953	29.94	PK	31	-30.9	.6	30.64	-	-	74	-43.38	0-360	200	V
5	4.49	29.01	PK	34	-28.3	.5	35.21	-	-	74	-38.79	0-360	100	V
6	7.703	25.63	PK	36	-24	.6	38.23	-	-	74	-35.77	0-360	200	V

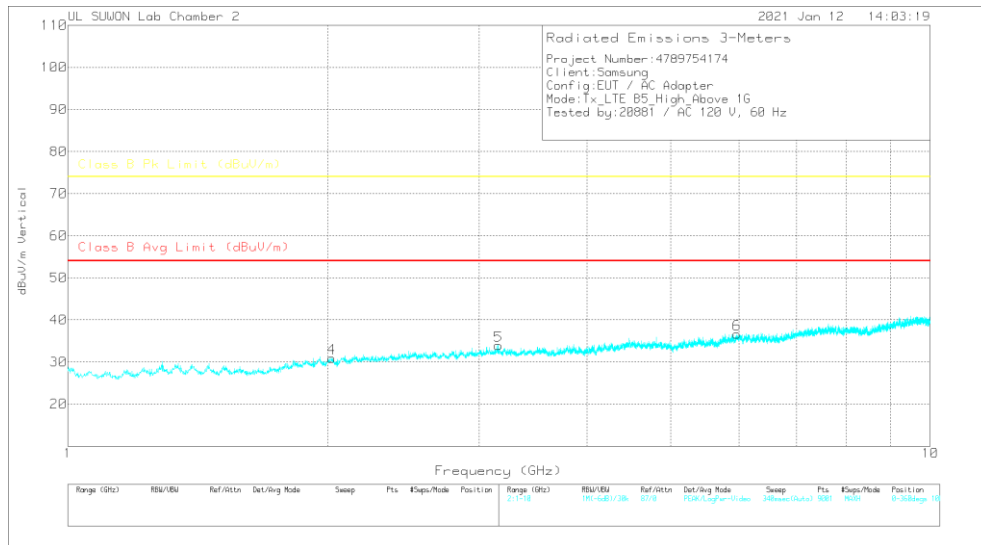
PK – Peak Detector

**HIGH CHANNEL(892.5MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

**Trace Markers**

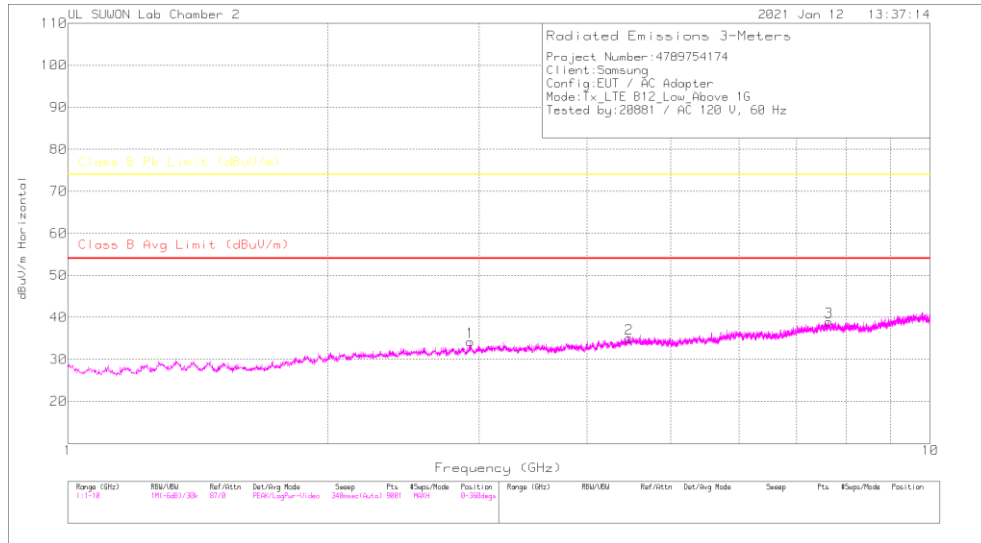
Marker	Frequency (GHz)	Marker Reading (dBuV)	Det	3117_00168724	1-18Hz[dB]	1GHz_HP[dB]	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.097	29.45	PK	31.6	-30.7	.6	30.95	-	-	74	-43.05	0-360	100	H
2	3.153	29.39	PK	33	-29.9	.7	33.19	-	-	74	-40.81	0-360	100	H
3	5.941	28.63	PK	35.1	-27	.5	37.23	-	-	74	-36.77	0-360	100	H
4	2.024	29.93	PK	31.3	-30.9	.6	30.93	-	-	74	-43.07	0-360	200	V
5	3.157	30.03	PK	33	-29.8	.7	33.93	-	-	74	-40.07	0-360	100	V
6	5.968	28.24	PK	35.1	-27.2	.5	36.64	-	-	74	-37.36	0-360	100	V

PK – Peak Detector

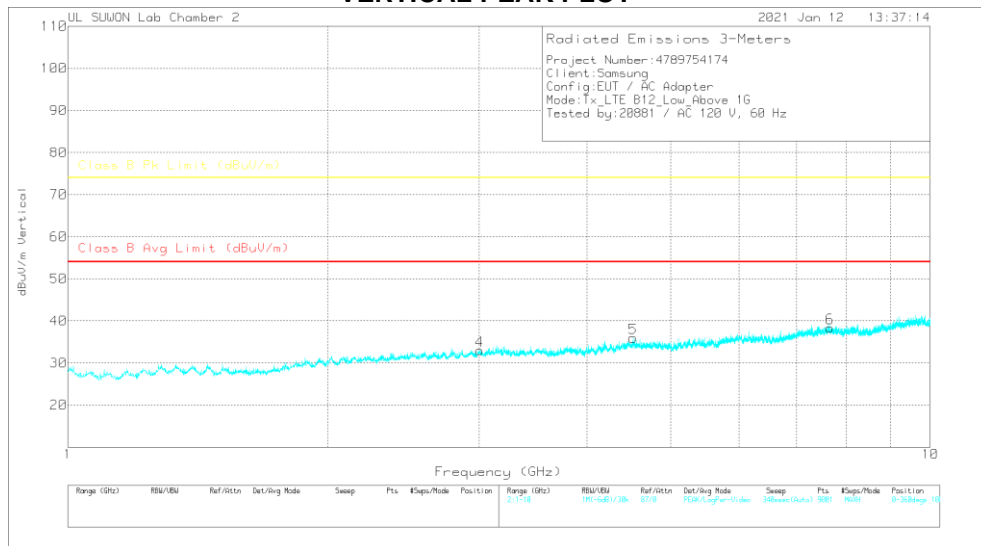
### 7.4. Above 1 GHz in the LTE Band 12

#### LOW CHANNEL(730.5 MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

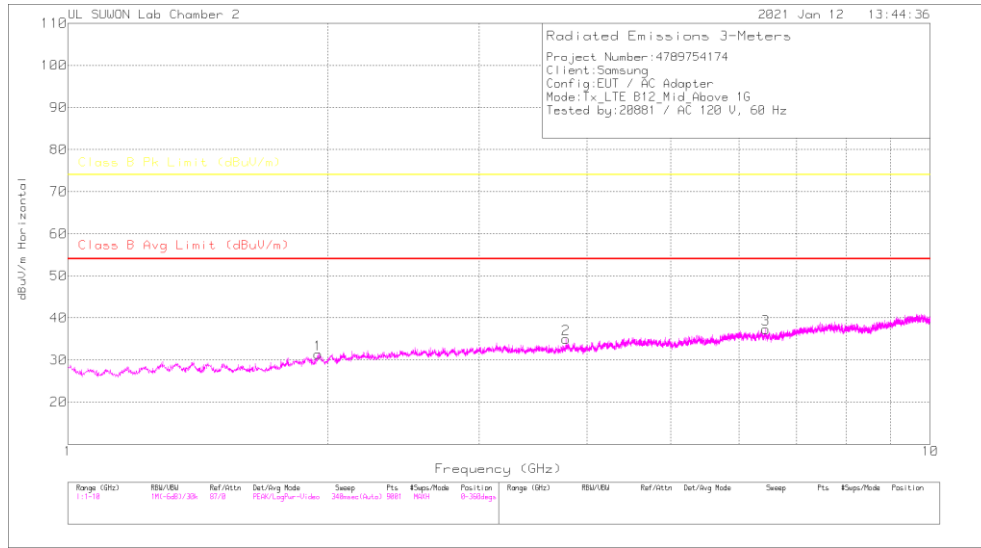
##### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-10GHz(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	2.931	31.21	PK	32.4	-30.1	.7	34.21	-	-	74	-39.79	0-360	200	H
2	4.475	28.72	PK	34	-28.2	.5	35.02	-	-	74	-38.98	0-360	200	H
3	7.632	26.9	PK	35.9	-24.4	.6	39	-	-	74	-35	0-360	200	H
4	3.004	29.87	PK	32.7	-30.3	.7	32.97	-	-	74	-41.03	0-360	100	V
5	4.523	29.68	PK	34.1	-28.3	.5	35.98	-	-	74	-38.02	0-360	200	V
6	7.653	26.16	PK	35.9	-24.3	.6	38.36	-	-	74	-35.64	0-360	100	V

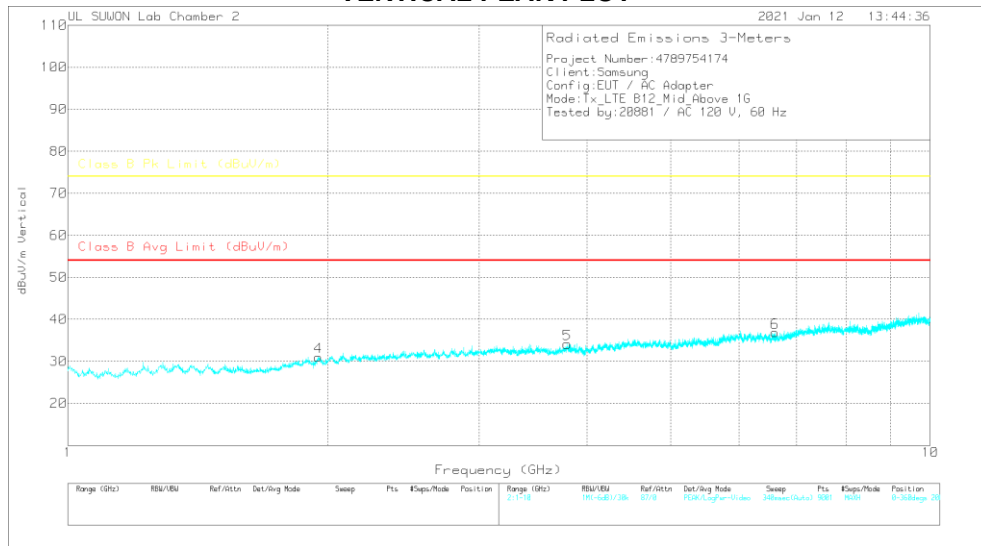
PK – Peak Detector

**MID CHANNEL(737.5 MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

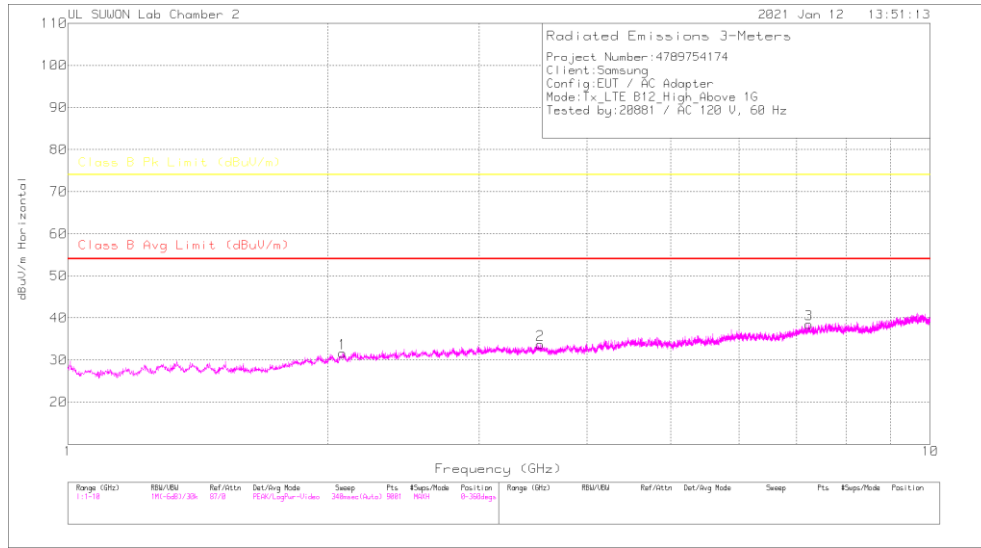
**Trace Markers**

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	1.951	30.65	PK	31	-30.9	.6	31.35	-	-	74	-42.65	0-360	100	H
2	3.78	30.19	PK	33.3	-29.1	.6	34.99	-	-	74	-39.01	0-360	100	H
3	6.447	27.62	PK	35.4	-26.2	.5	37.32	-	-	74	-36.68	0-360	200	H
4	1.952	30.36	PK	31	-30.9	.6	31.06	-	-	74	-42.94	0-360	100	V
5	3.794	29.04	PK	33.3	-28.8	.6	34.14	-	-	74	-39.86	0-360	200	V
6	6.611	27.38	PK	35.5	-26.5	.5	36.88	-	-	74	-37.12	0-360	100	V

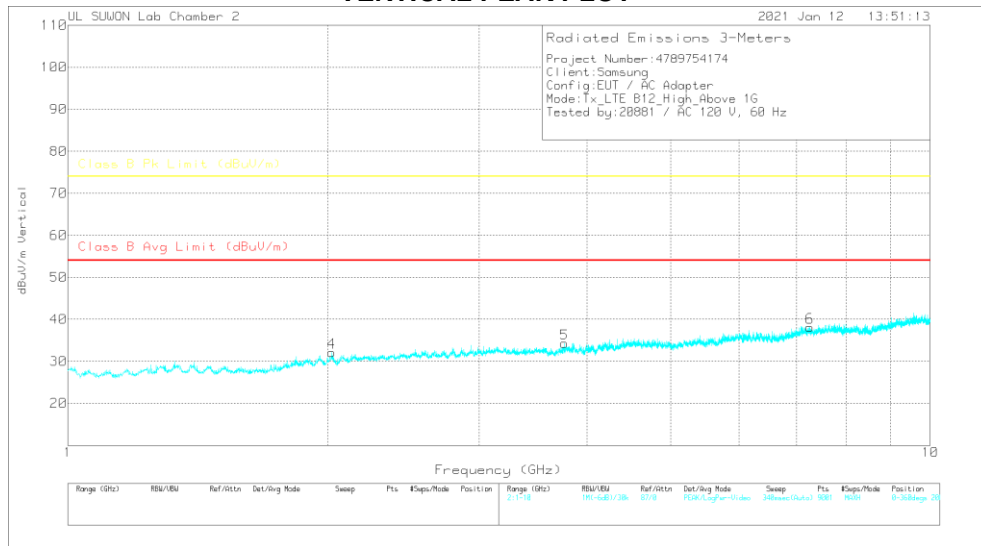
PK – Peak Detector

**HIGH CHANNEL(744.5 MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

**Trace Markers**

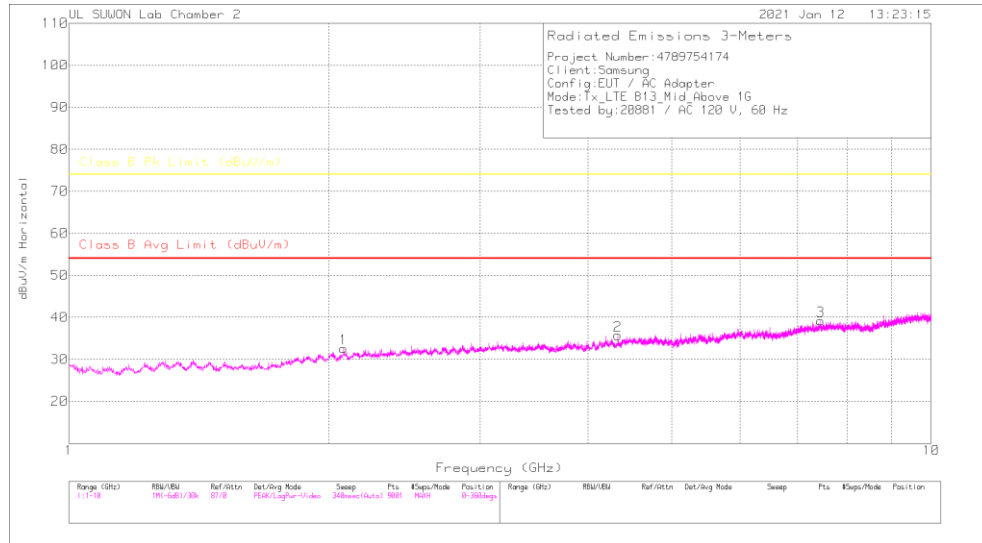
Marker	Frequency (GHz)	Marker Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HP[dB]	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.083	30.24	PK	31.6	-30.8	.6	31.64	-	-	74	-42.36	0-360	100	H
2	3.532	29.1	PK	32.8	-28.8	.6	33.7	-	-	74	-40.3	0-360	100	H
3	7.235	27.42	PK	36.2	-25.6	.5	38.52	-	-	74	-35.48	0-360	100	H
4	2.024	31.15	PK	31.3	-30.9	.6	32.15	-	-	74	-41.85	0-360	100	V
5	3.764	29.7	PK	33.2	-29.2	.6	34.3	-	-	74	-39.7	0-360	100	V
6	7.253	27.02	PK	36.2	-25.6	.5	38.12	-	-	74	-35.88	0-360	200	V

PK – Peak Detector

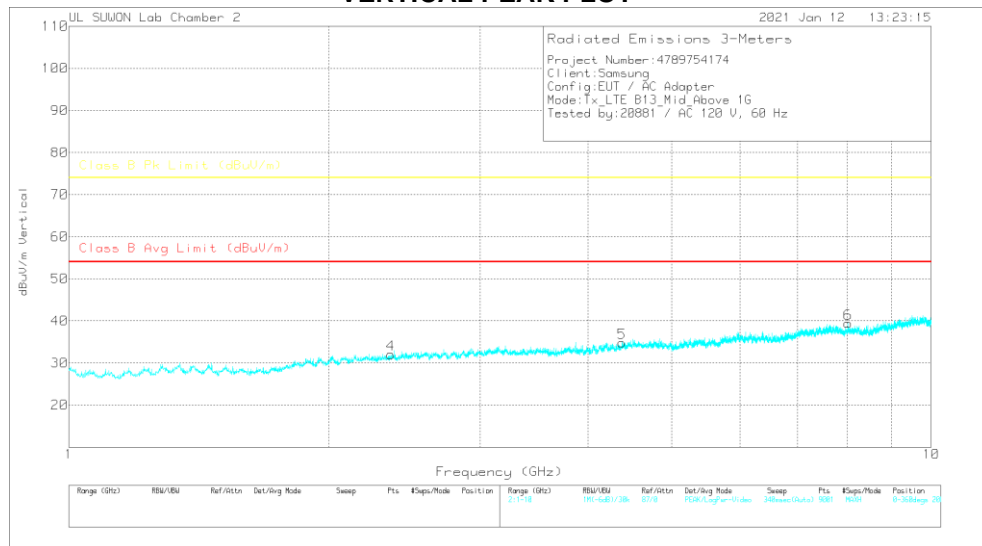
### 7.5. Above 1 GHz in the LTE Band 13

#### MID CHANNEL(751.0 MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

##### Trace Markers

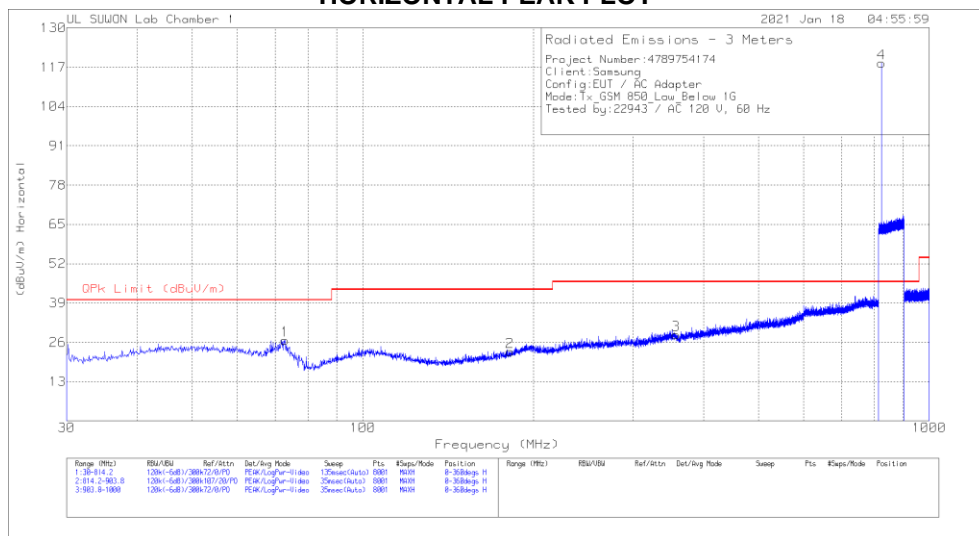
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	1-18GHz[dB]	1GHz_HP[dB]	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Av(CISPR)Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.082	31.15	PK	31.5	-30.6	.6	32.65	-	-	74	-41.35	0-360	200	H
2	4.331	30.54	PK	33.6	-28.9	.5	35.74	-	-	74	-38.26	0-360	100	H
3	7.443	27.13	PK	36	-24.5	.6	39.23	-	-	74	-34.77	0-360	100	H
4	2.363	30.05	PK	31.8	-30.5	.7	32.05	-	-	74	-41.95	0-360	200	V
5	4.377	29.12	PK	33.7	-28.5	.5	34.82	-	-	74	-39.18	0-360	100	V
6	8.011	27.22	PK	35.9	-24.3	.6	39.42	-	-	74	-34.58	0-360	100	V

PK – Peak Detector

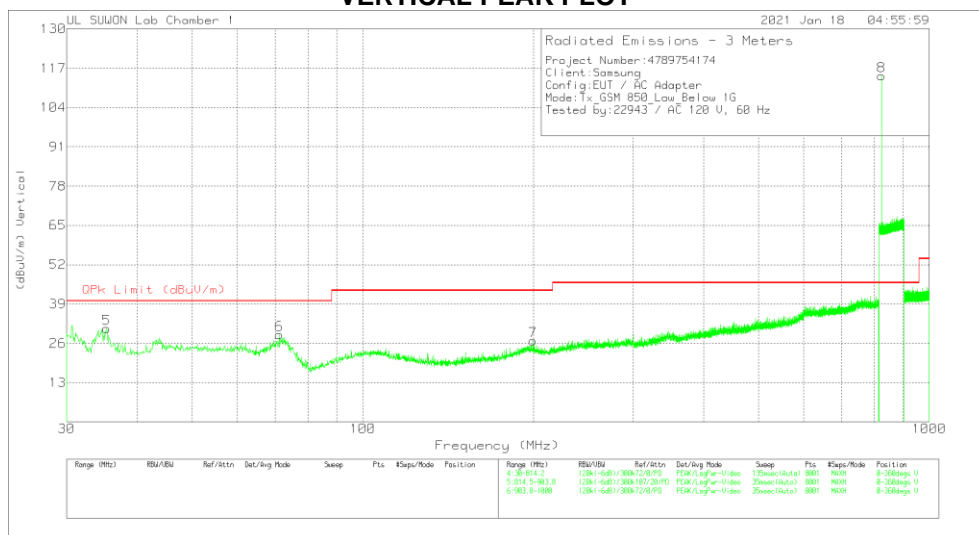
## 7.6. Below 1 GHz in the GSM850

### LOW CHANNEL(869.2 MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

##### Trace Markers

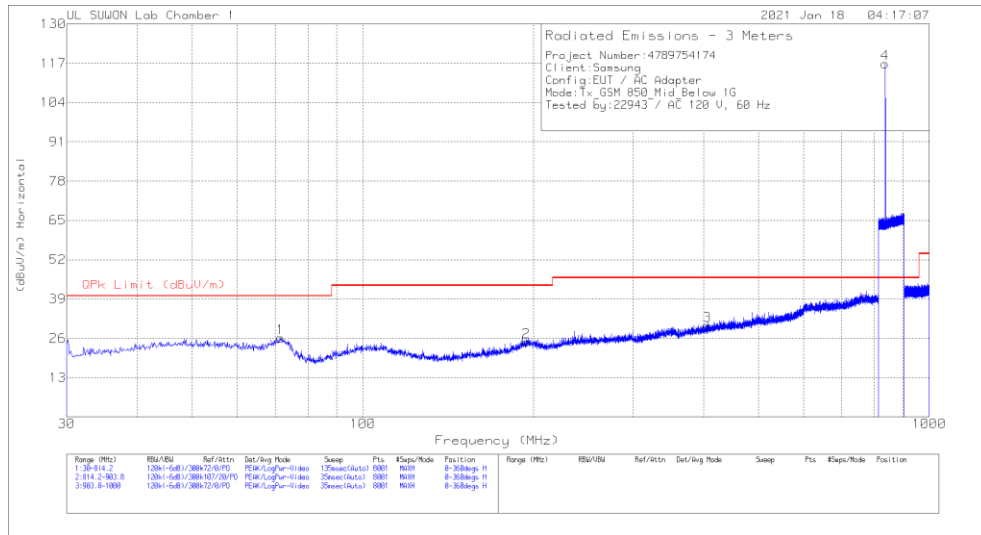
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	72.8369	10.15	Pk	14.3	2.3	26.75	40	-13.25	0-360	300	H
2	181.7427	3.91	Pk	15.5	3.6	23.01	43.52	-20.51	0-360	300	H
3	357.4035	3.04	Pk	20.5	5	28.54	46.02	-17.48	0-360	400	H
4	824.1456	83.62	Pk	27.1	7.6	118.32	46.02	72.3	0-360	200	H
5	35.2934	12.82	Pk	16.7	1.4	30.92	40	-9.08	0-360	100	V
6	71.2685	11.74	Pk	14.9	2.2	28.84	40	-11.16	0-360	100	V
7	199.7793	5.96	Pk	17.2	3.7	26.86	43.52	-16.66	0-360	100	V
8	824.1895	79.8	Pk	27.1	7.6	114.5	46.02	68.48	0-360	100	V

Pk - Peak detector

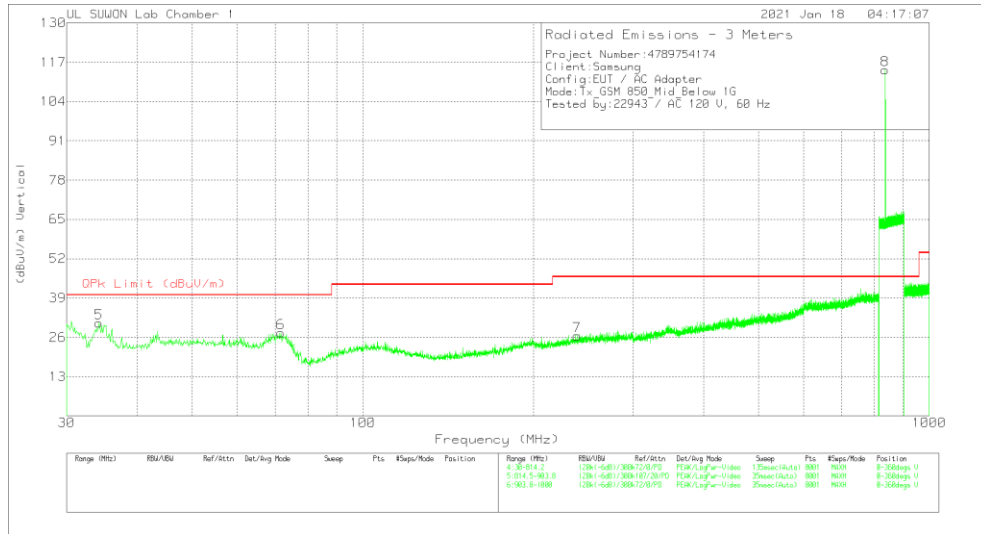
Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

**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	71.4646	9.13	Pk	14.8	2.2	26.13	40	-13.87	0-360	400	H
2	194.2899	3.87	Pk	17.3	3.7	24.87	43.52	-18.65	0-360	100	H
3	406.0239	3.2	Pk	21.6	5.4	30.2	46.02	-15.82	0-360	100	H
4	836.6	82.16	Pk	27.1	7.6	116.86	46.02	70.84	0-360	200	H
5	34.2151	12.78	Pk	16.3	1.7	30.78	40	-9.22	0-360	100	V
6	71.6606	10.62	Pk	14.7	2.2	27.52	40	-12.48	0-360	100	V
7	239.0873	4.2	Pk	18.1	4.2	26.5	46.02	-19.52	0-360	400	V
8	836.6474	79.72	Pk	27.1	7.6	114.42	46.02	68.4	0-360	100	V

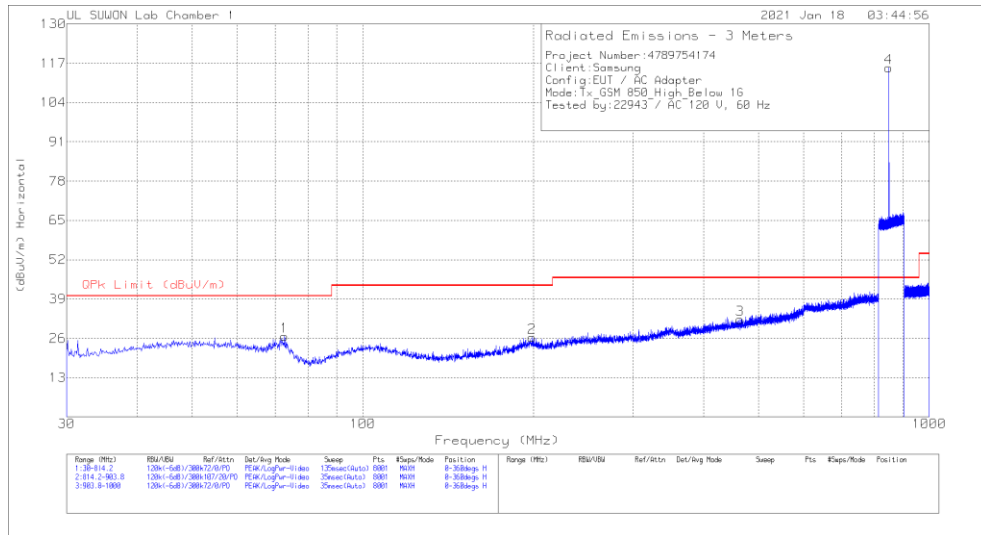
Pk - Peak detector

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

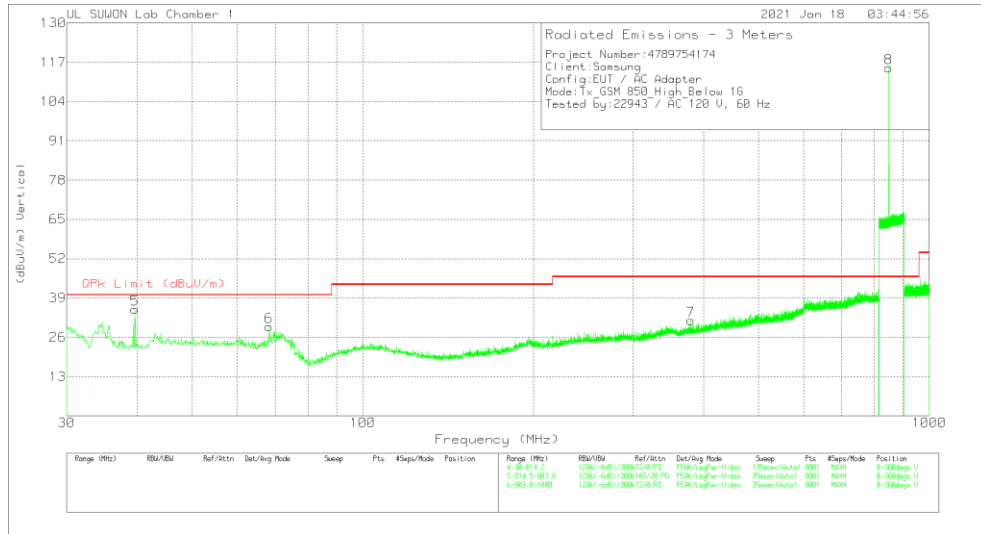


**HIGH CHANNEL(893.8 MHz)**

**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	72.7389	10.14	Pk	14.3	2.3	26.74	40	-13.26	0-360	300	H
2	199.0931	5.14	Pk	17.3	3.9	26.34	43.52	-17.18	0-360	100	H
3	463.8587	4.31	Pk	22.2	5.7	32.21	46.02	-13.81	0-360	400	H
4	848.7296	80.38	Pk	27.4	7.7	115.48	46.02	69.46	0-360	100	H
5	39.6065	14.67	Pk	18.6	2	35.27	40	-4.73	0-360	200	V
6	68.3278	11.24	Pk	16.1	2.2	29.54	40	-10.46	0-360	200	V
7	379.7532	5.44	Pk	21	5.2	31.64	46.02	-14.38	0-360	100	V
8	848.8709	80.04	Pk	27.4	7.7	115.14	46.02	69.12	0-360	100	V

Pk - Peak detector

**Radiated Emissions**

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
39.6065	-2.05	Qp	18.6	2	18.55	40	-21.45	278	103	V

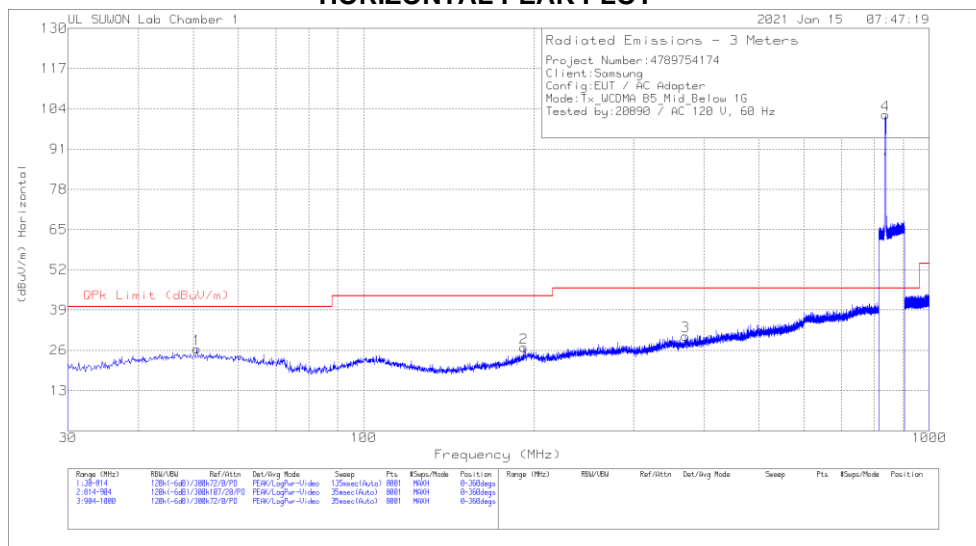
Qp - Quasi-Peak detector

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

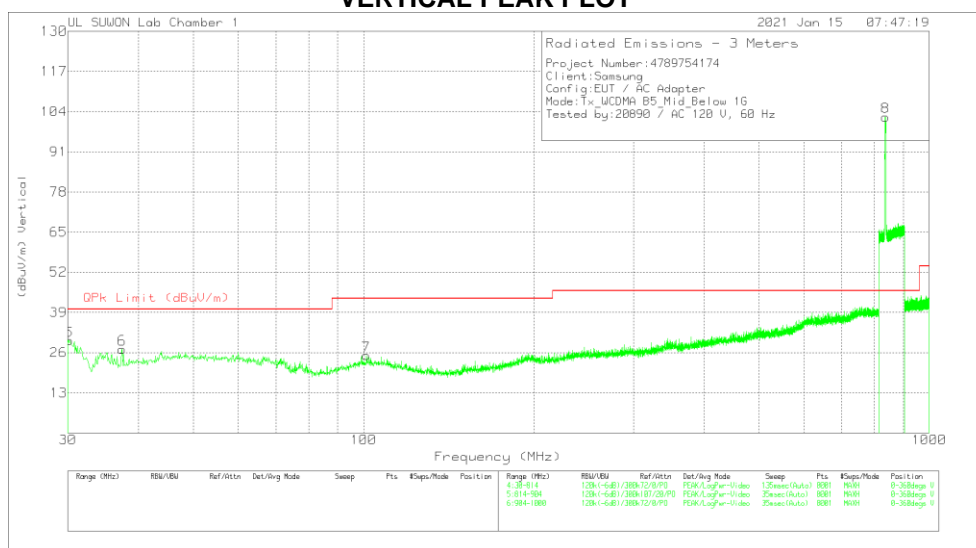
## 7.7. Below 1 GHz in the WCDMA Band 5

### 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	50.776	4.64	Pk	19.8	2	26.44	40	-13.56	0-360	400	H
2	192.092	6.39	Pk	16.8	3.7	26.89	43.52	-16.63	0-360	100	H
3	370.55	4.83	Pk	20.7	5.1	30.63	46.02	-15.39	0-360	400	H
4	836.8375	67.4	Pk	27.1	7.6	102.1	46.02	56.08	0-360	100	H
5	30.196	12.5	Pk	15.9	1.5	29.9	40	-10.1	0-360	100	V
6	37.448	7.8	Pk	17.7	1.6	27.1	40	-12.9	0-360	100	V
7	101.148	4.59	Pk	17.7	2.8	25.09	43.52	-18.43	0-360	300	V
8	837.355	67.6	Pk	27.1	7.6	102.3	46.02	56.28	0-360	100	V

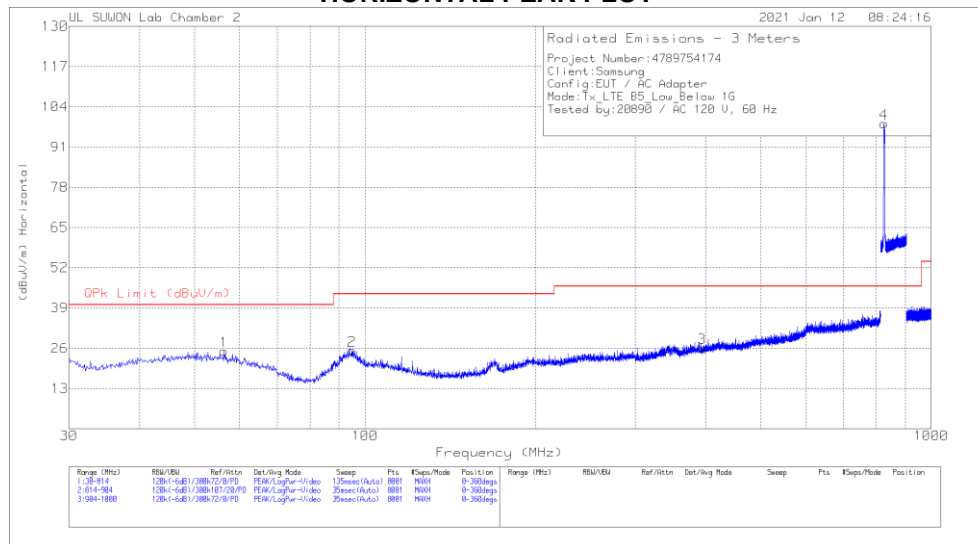
Pk - Peak detector

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

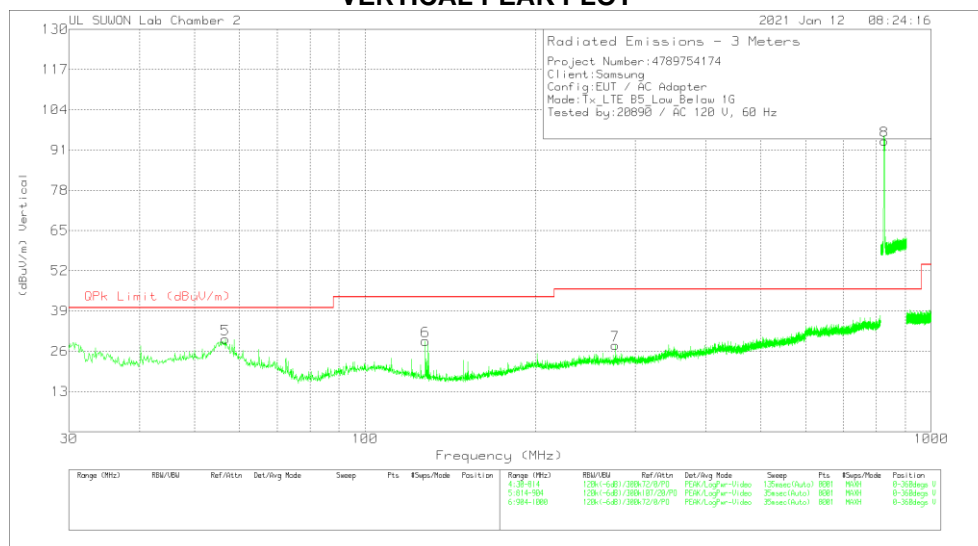
## 7.8. Below 1 GHz in the LTE Band 5

### LOW CHANNEL(871.4MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

##### Trace Markers

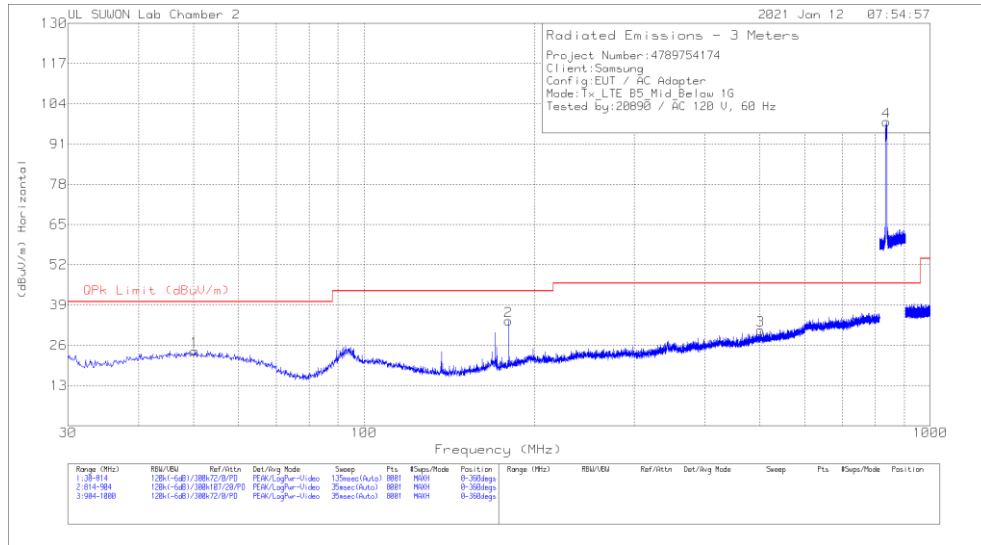
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	56.362	5.26	Pk	19.2	.7	25.16	40	-14.84	0-360	400	H
2	94.876	7.6	Pk	16.5	1.2	25.3	43.52	-18.22	0-360	200	H
3	393.678	2.67	Pk	21.2	2.3	26.17	46.02	-19.85	0-360	100	H
4	825.6663	68.71	Pk	26.7	3.2	98.61	46.02	52.59	0-360	100	H
5	56.656	10.04	Pk	19.1	.8	29.94	40	-10.06	0-360	100	V
6	127.902	13.63	Pk	14.5	1.2	29.33	43.52	-14.19	0-360	200	V
7	276.764	7.44	Pk	18.6	1.9	27.94	46.02	-18.08	0-360	100	V
8	827.2075	64.08	Pk	26.7	3.2	93.98	46.02	47.96	0-360	100	V

Pk - Peak detector

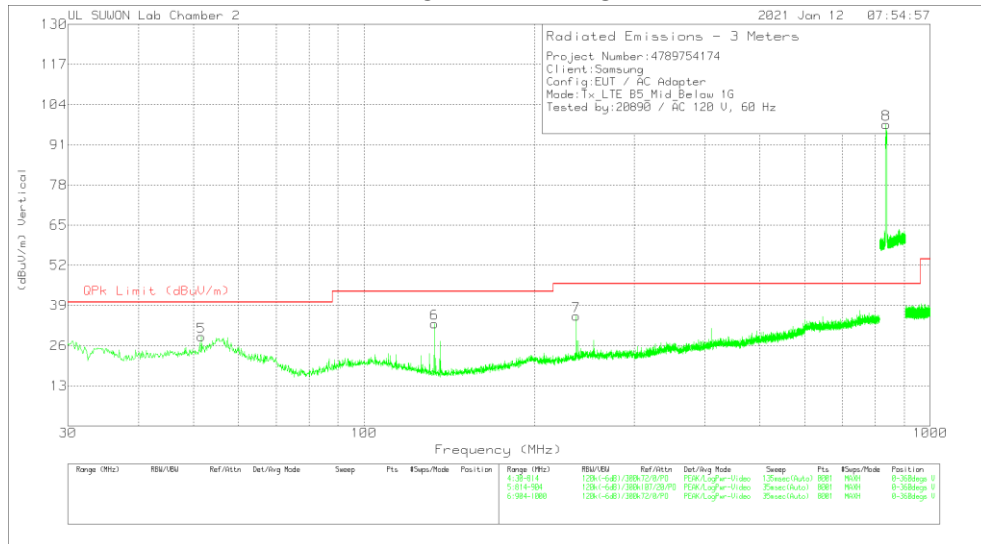
Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

**MID CHANNEL(881.6MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

**Trace Markers**

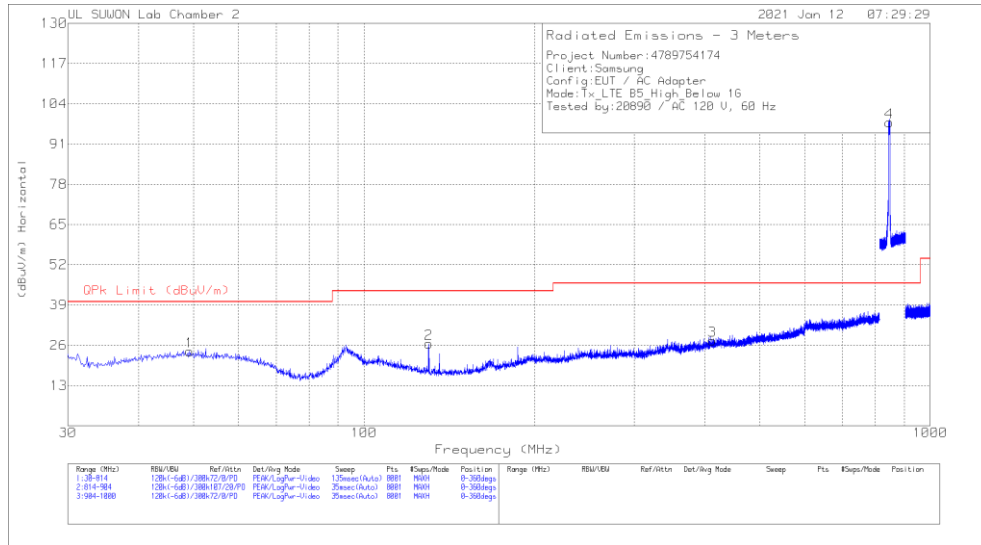
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	50.286	3.34	Pk	19.9	.9	24.14	40	-15.86	0-360	400	H
2	180.038	17.06	Pk	15.3	1.5	33.86	43.52	-9.66	0-360	100	H
3	501.772	5.33	Pk	23	2.5	30.83	46.02	-15.19	0-360	400	H
4	837.0963	67.98	Pk	26.9	3.3	98.18	<b>46.02</b>	<b>52.16</b>	0-360	200	H
5	51.658	8.48	Pk	19.7	.7	28.88	40	-11.12	0-360	100	V
6	133.194	17.84	Pk	14	1.3	33.14	43.52	-10.38	0-360	100	V
7	237.172	16.03	Pk	18	1.5	35.53	46.02	-10.49	0-360	300	V
8	836.1738	67.41	Pk	26.9	3.3	97.61	<b>46.02</b>	<b>51.59</b>	0-360	100	V

Pk - Peak detector

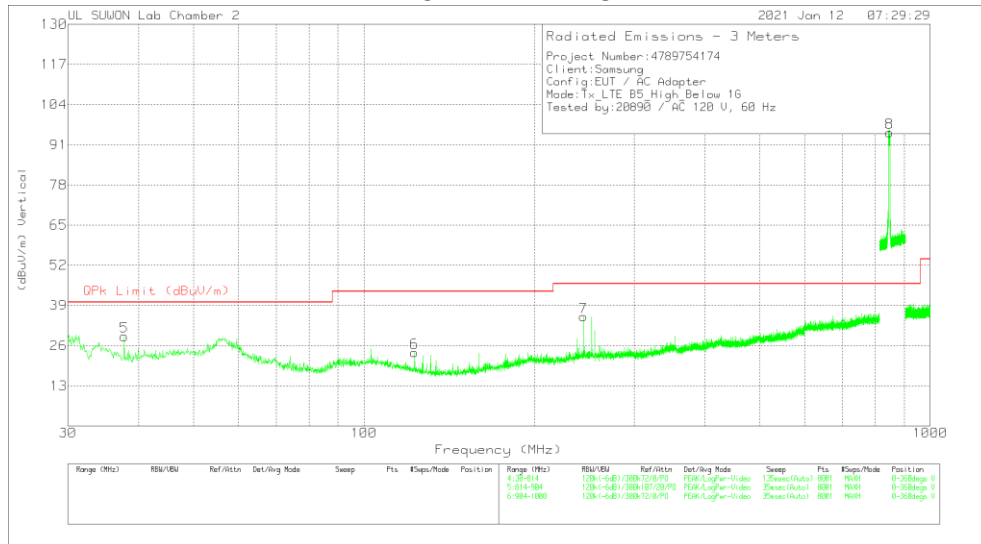
Note: Unwanted emissions captured from 824MHz to 849MHz and from 869MHz to 894MHz were the TX and RX signals generated from the call-simulator.

**HIGH CHANNEL(891.6MHz)**

**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	49.208	3.14	Pk	19.9	1	24.04	40	-15.96	0-360	200	H
2	130.254	11.01	Pk	14.2	1.3	26.51	43.52	-17.01	0-360	200	H
3	412.298	3.52	Pk	21.7	2.3	27.52	46.02	-18.5	0-360	400	H
4	847.0525	67.49	Pk	27.2	3.3	97.99	<b>46.02</b>	<b>51.97</b>	0-360	100	H
5	37.742	10.4	Pk	17.8	.8	29	40	-11	0-360	100	V
6	122.904	7.61	Pk	15	1.2	23.81	43.52	-19.71	0-360	200	V
7	244.228	15.16	Pk	18.4	1.8	35.36	46.02	-10.66	0-360	100	V
8	847.4688	64.45	Pk	27.2	3.3	94.95	<b>46.02</b>	<b>48.93</b>	0-360	100	V

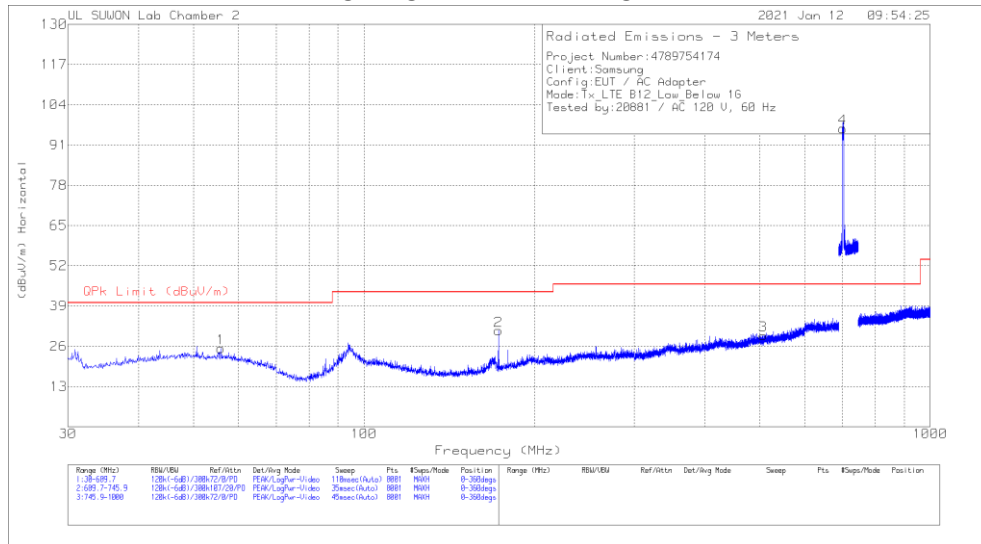
Pk - Peak detector

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

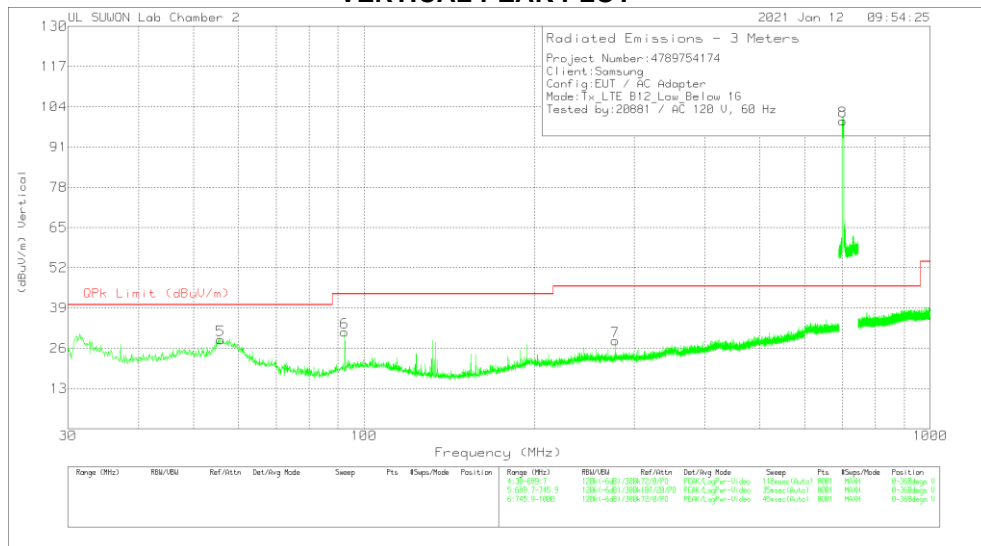
### 7.9. Below 1 GHz in the LTE Band 12

#### LOW CHANNEL(730.5 MHz)

#### HORIZONTAL PEAK PLOT



#### VERTICAL PEAK PLOT



#### DATA

#### Trace Markers

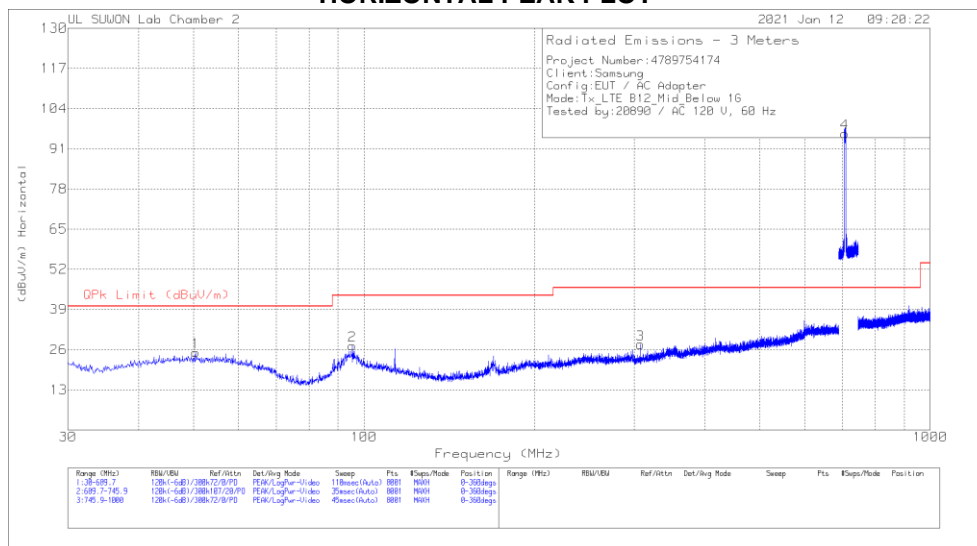
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	55.8934	5.14	Pk	19.2	1	25.34	40	-14.66	0-360	300	H
2	172.8259	15.07	Pk	14.6	1.4	31.07	43.52	-12.45	0-360	300	H
3	507.2958	3.98	Pk	23	2.5	29.48	46.02	-16.54	0-360	400	H
4	700.9892	68.03	Pk	25.4	2.9	96.33	46.02	50.31	0-360	100	H
5	55.8109	8.85	Pk	19.2	.7	28.75	40	-11.25	0-360	100	V
6	92.507	13.94	Pk	16.1	1.2	31.24	43.52	-12.28	0-360	200	V
7	278.0487	7.77	Pk	18.7	1.9	28.37	46.02	-17.65	0-360	100	V
8	701.3123	71.05	Pk	25.4	3	99.45	46.02	53.43	0-360	100	V

Pk - Peak detector

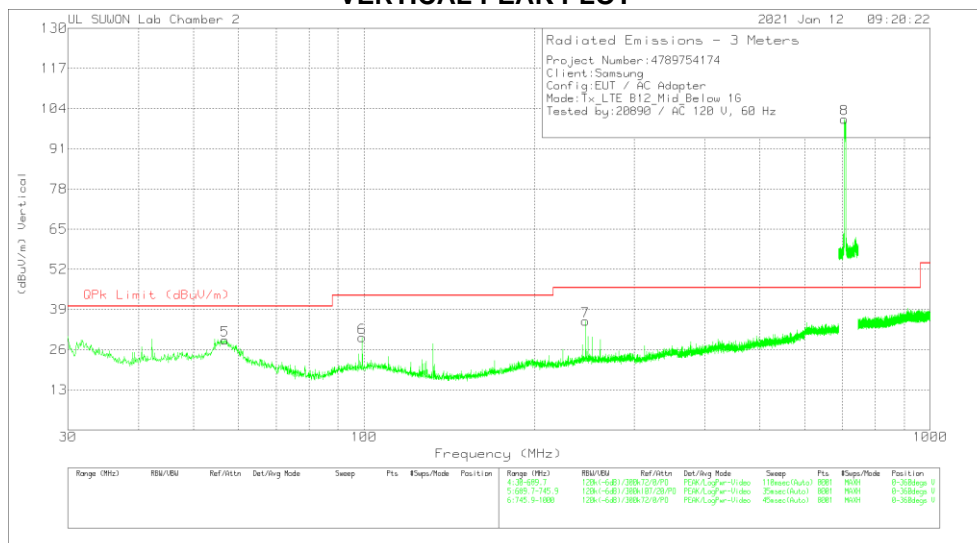
Note: Unwanted emissions captured from 699MHz to 716MHz and from 729MHz to 746MHz were the TX and RX signals generated from the call-simulator.

**MID CHANNEL(737.5 MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	50.4508	4.42	Pk	19.9	.8	25.12	40	-14.88	0-360	300	H
2	95.3932	9.53	Pk	16.6	1.2	27.33	43.52	-16.19	0-360	300	H
3	307.7354	6.7	Pk	19.2	1.8	27.7	46.02	-18.32	0-360	400	H
4	706.5951	67.45	Pk	25.5	3	95.95	46.02	49.93	0-360	200	H
5	56.8005	9.05	Pk	19.1	.9	29.05	40	-10.95	0-360	100	V
6	99.2689	11.58	Pk	17.3	1	29.88	43.52	-13.64	0-360	100	V
7	246.218	15.09	Pk	18.4	1.7	35.19	46.02	-10.83	0-360	200	V
8	705.5133	72.14	Pk	25.5	3	100.64	46.02	54.62	0-360	100	V

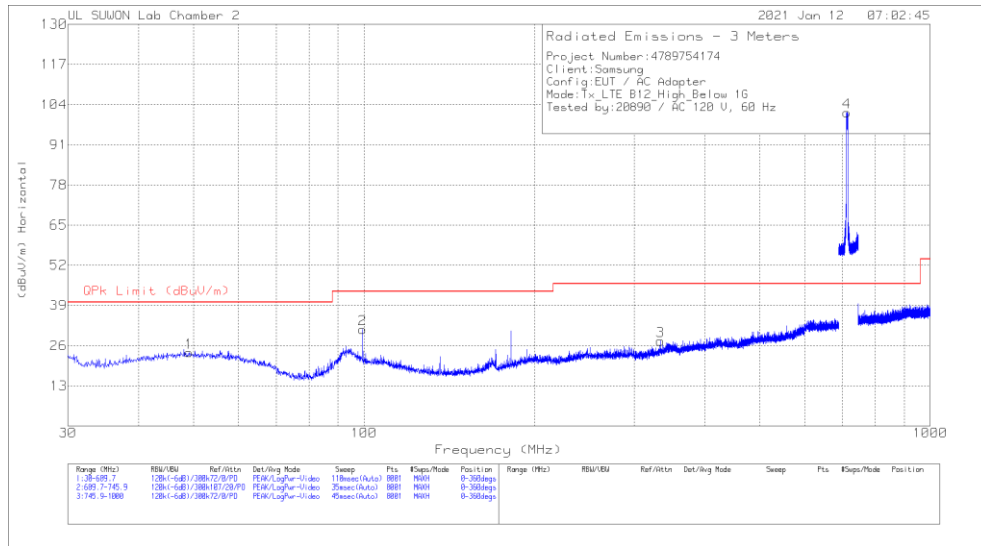
Pk - Peak detector

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

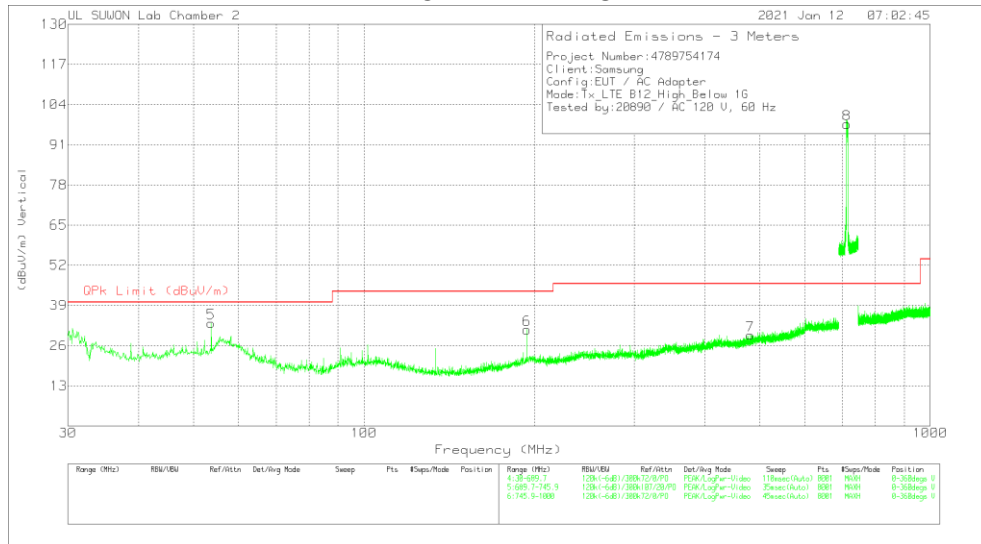


**HIGH CHANNEL(744.5 MHz)**

**HORIZONTAL PEAK PLOT**



**VERTICAL PEAK PLOT**



**DATA**

**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G_Bypass [dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	49.1314	2.77	Pk	19.9	1.1	23.77	40	-16.23	0-360	300	H
2	99.4338	12.92	Pk	17.3	1.1	31.32	43.52	-12.2	0-360	100	H
3	334.0411	5.31	Pk	20.1	2.1	27.51	46.02	-18.51	0-360	300	H
4	713.1495	72.86	Pk	25.6	3	101.46	46.02	55.44	0-360	100	H
5	53.7493	13.07	Pk	19.5	.7	33.27	40	-6.73	0-360	100	V
6	194.0189	12.48	Pk	17.1	1.6	31.18	43.52	-12.34	0-360	100	V
7	481.1551	4.38	Pk	22.6	2.4	29.38	46.02	-16.64	0-360	200	V
8	712.735	69.08	Pk	25.6	3	97.68	46.02	51.66	0-360	100	V

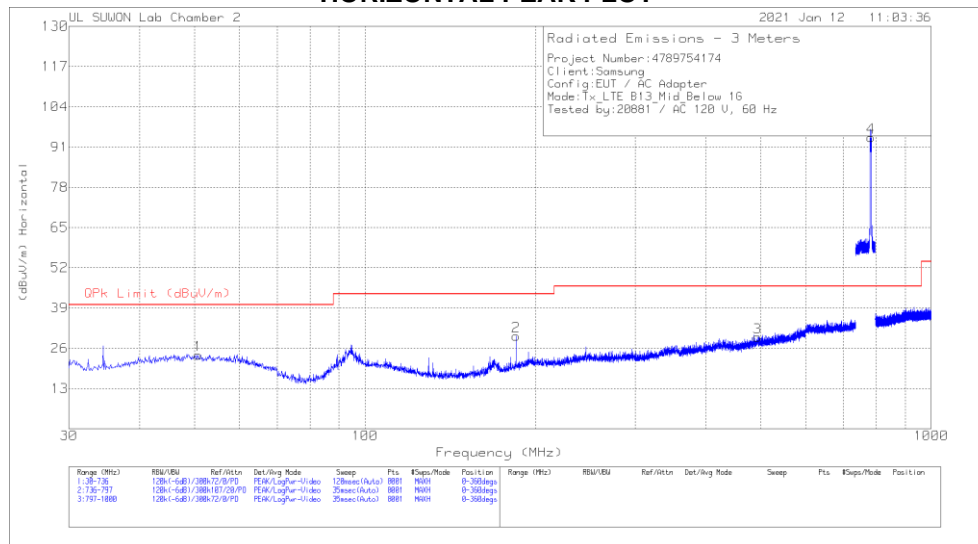
Pk - Peak detector

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

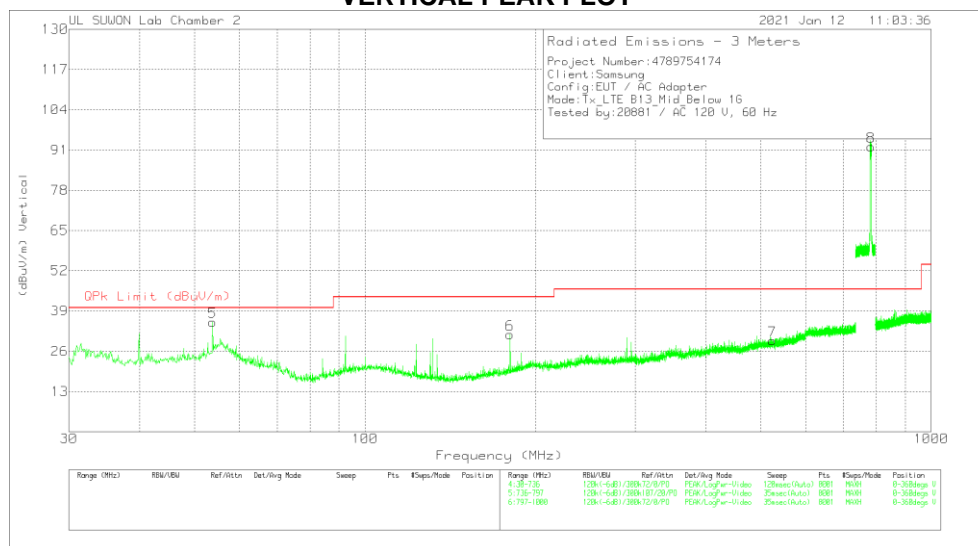
### 7.10. Below 1 GHz in the LTE Band 13

#### 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	50.7388	3.23	Pk	19.8	.8	23.83	40	-16.17	0-360	200	H
2	184.967	12.62	Pk	15.8	1.5	29.92	43.52	-13.6	0-360	200	H
3	493.3125	4.06	Pk	23	2.5	29.56	46.02	-16.46	0-360	300	H
4	782.9853	64.49	Pk	26.5	3.1	94.09	46.02	48.07	0-360	100	H
5	53.8275	15.27	Pk	19.4	.8	35.47	40	-4.53	0-360	100	V
6	180.4663	14.65	Pk	15.3	1.5	31.45	43.52	-12.07	0-360	300	V
7	524.6413	3.78	Pk	23.1	2.6	29.48	46.02	-16.54	0-360	300	V
8	782.9166	62.42	Pk	26.5	3.2	92.12	46.02	46.1	0-360	100	V

Pk - Peak detector

## END OF TEST REPORT