

# FCC Test Report

**FCC ID** : MXF-WLTMQ117  
**Equipment** : LTE Mini Card  
**Model No.** : WLTMQ-117  
**Brand Name** : Gemtek  
**Applicant** : Gemtek Technology Co., Ltd.  
**Address** : No. 15-1 Zhanghua Road, Hsinchu Industrial  
Park, Hukou, Hsinchu, Taiwan, 30352  
**Standard** : 47 CFR FCC Part 90  
**Received Date** : Dec. 30, 2015  
**Tested Date** : Jan. 14 ~ Feb. 02, 2016

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

  
\_\_\_\_\_  
Gary Chang / Manager



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## Release Record

Report No.	Version	Description	Issued Date
FW5D3001	Rev. 01	Initial issue	Feb. 22, 2016
FW5D3001	Rev. 02	Corrected category and height of table of test diagram	Feb. 24, 2016

## Summary of Test Results

FCC Rules	Test Items	Measured	Result
2.1046 / 90.635(b)	Effective Radiated Power	Max ERP [dBm]: 21.83	Pass
2.1053 / 90.691	Radiated Emissions	Meet the requirement of limit	Pass
2.1051 / 90.691	Conducted Emissions	Meet the requirement of limit	Pass
2.1051 / 90.691	Band edge	Meet the requirement of limit	Pass
2.1049	Occupied Bandwidth	Meet the requirement of limit	Pass
-	Peak to average ratio	Meet the requirement of limit	Pass
2.1055 / 90.213	Frequency Stability	Meet the requirement of limit	Pass

# 1 General Description

## 1.1 Information

### 1.1.1 Specification of the Equipment under Test (EUT)

<b>Operating Frequency (MHz)</b>	Channel Bandwidth: 1.4MHz: 814.7~823.3 Channel Bandwidth: 3MHz: 815.5~822.5 Channel Bandwidth: 5MHz: 816.5~821.5 Channel Bandwidth: 10MHz: 819
<b>Modulation</b>	Uplink: QPSK, 16QAM, 64QAM Downlink: QPSK, 16QAM, 64QAM, 256QAM
<b>Duplex Mode</b>	FDD
<b>Category</b>	Cat 5 & Cat 6
<b>Release Version</b>	11
<b>H/W Version</b>	V01
<b>S/W Version</b>	LE5166215.12052
<b>TX/RX function</b>	1TX / 4RX

### 1.1.2 Maximum Conducted Power and Emission Designator

Mode	Modulation	Maximum Conducted Power (W)	Emission Designator
LTE Band 26, CB: 1.4MHz	QPSK	0.187	1M08G7D
LTE Band 26, CB: 1.4MHz	16QAM	0.163	1M08W7D
LTE Band 26, CB: 1.4MHz	64QAM	0.162	1M08W7D
LTE Band 26, CB: 3MHz	QPSK	0.190	2M68G7D
LTE Band 26, CB: 3MHz	16QAM	0.167	2M68W7D
LTE Band 26, CB: 3MHz	64QAM	0.166	2M69W7D
LTE Band 26, CB: 5MHz	QPSK	0.185	4M47G7D
LTE Band 26, CB: 5MHz	16QAM	0.163	4M47W7D
LTE Band 26, CB: 5MHz	64QAM	0.160	4M48W7D
LTE Band 26, CB: 10MHz	QPSK	0.194	8M92G7D
LTE Band 26, CB: 10MHz	16QAM	0.149	8M91W7D
LTE Band 26, CB: 10MHz	64QAM	0.143	8M93W7D

### 1.1.3 Antenna Details

Ant. No.	Type	Gain (dBi)	Connector	Remark
1	Dipole	1.1	SMA	---

### 1.1.4 EUT Operational Condition

<b>Power Supply Type</b>	3.3Vdc from host		
<b>Operational Climatic</b>	<input checked="" type="checkbox"/> Tnom (20°C)	<input checked="" type="checkbox"/> Tmax (60°C)	<input checked="" type="checkbox"/> Tmin (-40°C)

### 1.1.5 Accessories

N/A

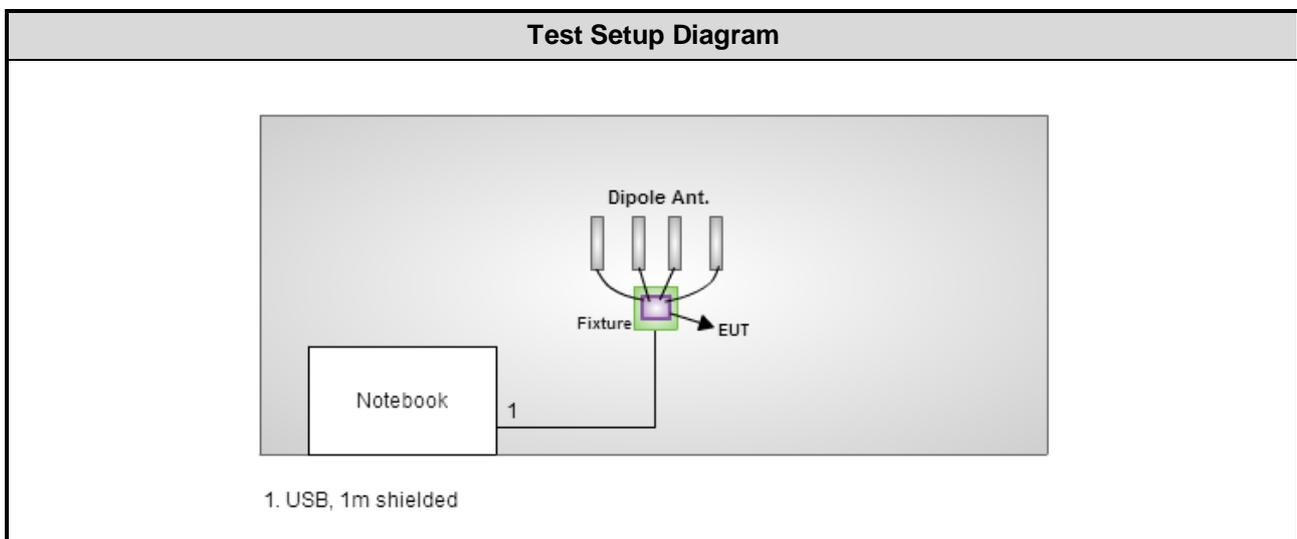
### 1.1.6 Operating Channel List

LTE Band 26		
Channel Bandwidth (MHz)	Channel	Frequency (MHz)
1.4	26697	814.7
1.4	26740	819.0
1.4	26783	823.3
3	26705	815.5
3	26740	819.0
3	26775	822.5
5	26715	816.5
5	26740	819.0
5	26765	821.5
10	26740	819.0

## 1.2 Local Support Equipment List

Support Equipment List						
No.	Equipment	Brand	Model	S/N	FCC ID	Signal cable / Length (m)
1	Notebook	DELL	Latitude E5420	B6FT9T1	DoC	USB, 1m shielded.
2	Fixture	---	---	---	---	---

## 1.3 Test Setup Chart



## 1.4 The Equipment List

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101498	Dec. 13, 2015	Dec. 12, 2016
Receiver	R&S	ESR3	101658	Nov. 04, 2015	Nov. 03, 2016
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Aug. 20, 2015	Aug. 19, 2016
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 16, 2015	Dec. 15, 2016
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 04, 2015	Nov. 03, 2016
Loop Antenna	R&S	HFH2-Z2	11900	Nov. 16, 2015	Nov. 15, 2016
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 10, 2015	Dec. 09, 2016
Preamplifier	Burgeon	BPA-530	SN:100219	Sep. 10, 2015	Sep. 09, 2016
Preamplifier	Agilent	83017A	MY39501308	Oct. 02, 2015	Oct. 01, 2016
Preamplifier	EMC	EMC184045B	980192	Sep. 01, 2015	Aug. 31, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 10, 2015	Dec. 09, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 10, 2015	Dec. 09, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 10, 2015	Dec. 09, 2016
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 10, 2015	Dec. 09, 2016
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 10, 2015	Dec. 09, 2016
Measurement Software	AUDIX	e3	6.120210g	NA	NA

Note: Calibration Interval of instruments listed above is one year.

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Feb. 03, 2015	Feb. 02, 2016
Spectrum Analyzer	Agilent	N9010A	MY53400091	Sep. 14, 2015	Sep. 13, 2016
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 27, 2015	Nov. 26, 2016
Power Meter	Anritsu	ML2495A	1241002	Sep. 21, 2015	Sep. 20, 2016
Power Sensor	Anritsu	MA2411B	1207366	Sep. 21, 2015	Sep. 20, 2016
Signal Generator	R&S	SMB100A	175727	Oct. 05, 2015	Oct. 04, 2016
Radio Communication Analyzer	Anritsu	MT8820C	6201240341	Mar. 19, 2015	Mar. 18, 2016
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA

Note: Calibration Interval of instruments listed above is one year.

## 1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards.

47 CFR FCC Part 90

47 CFR FCC Part 2

ANSI C63.4-2014

ANSI/TIA-603-D 2010

KDB 971168 D01 Power Meas License Digital Systems v02r02

KDB 412172 D01 Determining ERP and EIRP v01r01

## 1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ( $k=2$ )).

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	$\pm 34.134$ Hz
Conducted power	$\pm 0.808$ dB
Frequency error	$\pm 34.134$ Hz
Conducted emission	$\pm 2.670$ dB
Radiated emission $\leq 1$ GHz	$\pm 3.66$ dB
Radiated emission $> 1$ GHz	$\pm 5.63$ dB
Temperature	$\pm 0.6$ °C

## 2 Test Configuration

### 2.1 Testing Condition and Location Information

Test Item	Test Site	Ambient Condition	Tested By
RF conducted	TH01-WS	20°C / 62%	Felix Sung
Radiated Emissions	03CH01-WS	22°C / 64%	Aska Huang

➤ FCC site registration No.: 657002

➤ IC site registration No.: 10807A-1

### 2.2 The Worst Test Modes and Channel Details

Test item	Channel Bandwidths	Modulation	Test channel
Effective Radiated Power Conducted Emissions	1.4 MHz	QPSK / 16QAM / 64QAM	814.7 / 819.0 / 823.3
	3 MHz	QPSK / 16QAM / 64QAM	815.5 / 819.0 / 822.5
	5 MHz	QPSK / 16QAM / 64QAM	816.5 / 819.0 / 821.5
	10 MHz	QPSK / 16QAM / 64QAM	819.0
Radiated Emission ≤ 1GHz	1.4 MHz	QPSK	819.0
	3 MHz	QPSK	819.0
	5 MHz	QPSK	819.0
	10 MHz	QPSK	819.0
Radiated Emission > 1GHz	1.4 MHz	QPSK	814.7 / 819.0 / 823.3
	3 MHz	QPSK	815.5 / 819.0 / 822.5
	5 MHz	QPSK	816.5 / 819.0 / 821.5
	10 MHz	QPSK	819.0
Band Edge	1.4 MHz	QPSK / 16QAM / 64QAM	814.7 / 823.3
	3 MHz	QPSK / 16QAM / 64QAM	815.5 / 822.5
	5 MHz	QPSK / 16QAM / 64QAM	816.5 / 821.5
	10 MHz	QPSK / 16QAM / 64QAM	819.0
Frequency Stability	1.4 MHz	QPSK	819.0
	3 MHz	QPSK	819.0
	5 MHz	QPSK	819.0
	10 MHz	QPSK	819.0

## 3 Test Results

### 3.1 Effective Radiated Power

#### 3.1.1 Limit of Effective Radiated Power

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 100 Watts.

#### 3.1.2 Test Procedures

For Conducted power measurement:

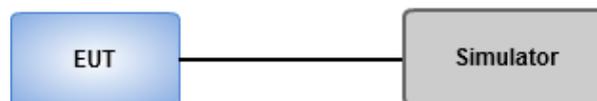
1. The EUT links up with simulator and is set to maximum output power level at low / middle / high channel.
2. Measure the output power of low / middle / high channel of the EUT.

For ERP measurement:

EPR can be calculated by below formula from KDB 412172 D01.

1.  $EIRP = P_T + G_T - L_C$   
 $P_T$  = transmitter output power, in dBm.  
 $G_T$  = gain of the transmitting antenna, in dBi (EIRP).  
 $L_C$  = signal attenuation in the connecting cable between the transmitter and antenna, in dB.
2.  $ERP = EIRP - 2.15 \text{ dB}$ .

#### 3.1.3 Test Setup



### 3.1.4 Test Result of Conducted Output Power (dBm)

Band / Channel Bandwidth			LTE Band 26 / CB: 1.4MHz		
Channel			26697	26740	26783
Frequency (MHz)			814.7	819	823.3
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	22.56	<b>22.73</b>	22.57
	1	2	22.50	22.57	22.45
	1	5	22.38	22.53	22.43
	3	0	22.46	22.46	22.48
	3	1	22.48	22.49	22.49
	3	2	22.54	22.23	22.46
	6	0	21.49	21.60	21.47
16QAM	1	0	22.13	22.12	22.03
	1	2	21.99	21.78	21.97
	1	5	21.84	21.99	21.80
	3	0	21.41	21.53	21.46
	3	1	21.45	21.49	21.57
	3	2	21.60	21.55	21.54
	6	0	20.68	20.80	20.70
64QAM	1	0	22.03	22.09	21.88
	1	2	21.86	21.53	21.86
	1	5	21.76	21.76	21.76
	3	0	21.32	21.34	21.53
	3	1	21.33	21.33	21.47
	3	2	21.43	21.43	21.43
	6	0	20.56	20.76	20.82

Band / Channel Bandwidth			LTE Band 26 / CB: 3MHz		
Channel			26705	26740	26775
Frequency (MHz)			815.5	819	822.5
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	22.72	<b>22.79</b>	22.73
	1	7	22.70	22.75	22.62
	1	14	22.51	22.66	22.57
	8	0	21.67	21.64	21.67
	8	4	21.63	21.77	21.70
	8	7	21.52	21.76	21.64
	15	0	21.59	21.74	21.71
16QAM	1	0	21.95	22.19	22.23
	1	7	21.76	22.17	22.21
	1	14	21.82	22.13	21.68
	8	0	20.77	20.71	20.76
	8	4	20.72	20.86	20.82
	8	7	20.59	20.85	20.76
	15	0	20.59	20.75	20.73
64QAM	1	0	21.76	22.11	22.19
	1	7	21.55	22.03	22.03
	1	14	21.73	22.00	22.11
	8	0	20.53	20.65	20.65
	8	4	20.62	20.78	20.76
	8	7	20.43	20.77	20.73
	15	0	20.44	20.72	20.65

Band / Channel Bandwidth			LTE Band 26 / CB: 5MHz		
Channel			26715	26740	26765
Frequency (MHz)			816.5	819	821.5
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	22.60	<b>22.68</b>	22.65
	1	12	22.33	22.32	22.48
	1	24	22.42	22.47	22.43
	12	0	21.65	21.56	21.58
	12	6	21.52	21.72	21.62
	12	11	21.65	21.70	21.70
	25	0	21.58	21.64	21.64
16QAM	1	0	21.70	21.75	22.11
	1	12	21.59	21.72	21.66
	1	24	21.69	21.48	21.94
	12	0	20.66	20.59	20.61
	12	6	20.54	20.74	20.59
	12	11	20.68	20.73	20.69
	25	0	20.62	20.70	20.72
64QAM	1	0	21.65	21.65	22.03
	1	12	21.43	21.32	21.65
	1	24	21.53	21.62	21.85
	12	0	20.57	20.43	20.53
	12	6	20.44	20.66	20.49
	12	11	20.57	20.67	20.58
	25	0	20.52	20.59	20.61

Band / Channel Bandwidth			LTE Band 26 / CB: 10MHz		
Channel			---	26740	---
Frequency (MHz)			---	819	---
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	---	22.88	---
	1	24	---	22.53	---
	1	49	---	22.47	---
	25	0	---	21.61	---
	25	12	---	21.89	---
	25	24	---	21.76	---
	50	0	---	21.64	---
16QAM	1	0	---	21.73	---
	1	24	---	21.65	---
	1	49	---	21.60	---
	25	0	---	20.66	---
	25	12	---	20.89	---
	25	24	---	20.83	---
	50	0	---	20.63	---
64QAM	1	0	---	21.55	---
	1	24	---	21.43	---
	1	49	---	21.49	---
	25	0	---	20.54	---
	25	12	---	20.78	---
	25	24	---	20.75	---
	50	0	---	20.55	---

### 3.1.5 Test Result of Effective Radiated Power (dBm)

#### LTE Band 26, CB: 1.4MHz

Mode	LTE Band 26, CB: 1.4MHz, QPSK						
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26697	814.7	22.56	1.1	23.66	21.51	0.142	100
26740	819.0	22.73	1.1	23.83	<b>21.68</b>	0.147	100
26783	823.3	22.57	1.1	23.67	21.52	0.142	100

Mode	LTE Band 26, CB: 1.4MHz, 16QAM						
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26697	814.7	22.13	1.1	23.23	21.08	0.128	100
26740	819.0	22.12	1.1	23.22	21.07	0.128	100
26783	823.3	22.03	1.1	23.13	20.98	0.125	100

Mode	LTE Band 26, CB: 1.4MHz, 64QAM						
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26697	814.7	22.03	1.1	23.13	20.98	0.125	100
26740	819.0	22.09	1.1	23.19	21.04	0.127	100
26783	823.3	21.88	1.1	22.98	20.83	0.121	100

NOTE: ERP = EIRP - 2.15 dB.

**LTE Band 26, CB: 3MHz**

Mode		LTE Band 26, CB: 3MHz, QPSK					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26705	815.5	22.72	1.1	23.82	21.67	0.147	100
26740	819.0	22.79	1.1	23.89	<b>21.74</b>	0.149	100
26775	822.5	22.73	1.1	23.83	21.68	0.147	100

Mode		LTE Band 26, CB: 3MHz, 16QAM					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26705	815.5	21.95	1.1	23.05	20.90	0.123	100
26740	819.0	22.19	1.1	23.29	21.14	0.130	100
26775	822.5	22.23	1.1	23.33	21.18	0.131	100

Mode		LTE Band 26, CB: 3MHz, 64QAM					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26705	815.5	21.76	1.1	22.86	20.71	0.118	100
26740	819.0	22.11	1.1	23.21	21.06	0.128	100
26775	822.5	22.19	1.1	23.29	21.14	0.130	100

NOTE: ERP = EIRP - 2.15 dB.

**LTE Band 26, CB: 5MHz**

Mode		LTE Band 26, CB: 5MHz, QPSK					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26715	816.5	22.60	1.1	23.70	21.55	0.143	100
26740	819.0	22.68	1.1	23.78	<b>21.63</b>	0.146	100
26765	821.5	22.65	1.1	23.75	21.60	0.145	100

Mode		LTE Band 26, CB: 5MHz, 16QAM					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26715	816.5	21.70	1.1	22.80	20.65	0.116	100
26740	819.0	21.75	1.1	22.85	20.70	0.117	100
26765	821.5	22.11	1.1	23.21	21.06	0.128	100

Mode		LTE Band 26, CB: 5MHz, 64QAM					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26715	816.5	21.65	1.1	22.75	20.60	0.115	100
26740	819.0	21.65	1.1	22.75	20.60	0.115	100
26765	821.5	22.03	1.1	23.13	20.98	0.125	100

NOTE: ERP = EIRP - 2.15 dB.

**LTE Band 26, CB: 10MHz**

Mode		LTE Band 26, CB: 10MHz, QPSK					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26740	819	22.88	1.1	23.98	<b>21.83</b>	0.152	100

Mode		LTE Band 26, CB: 10MHz, 16QAM					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26740	819	21.73	1.1	22.83	20.68	0.117	100

Mode		LTE Band 26, CB: 10MHz, 64QAM					
Channel	Frequency (MHz)	Max Conducted Output Power (dBm)	Max Antenna Gain(dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Limit (W)
26740	819	21.55	1.1	22.65	20.50	0.112	100

## 3.2 Radiated Emissions

### 3.2.1 Limit of Radiated Emissions

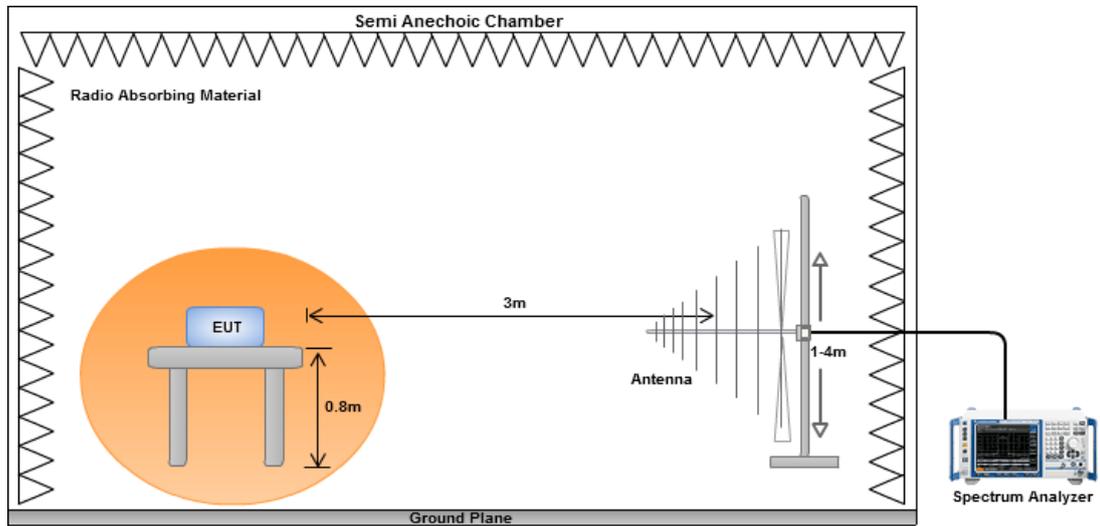
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB equal to -13dBm.

### 3.2.2 Test Procedures

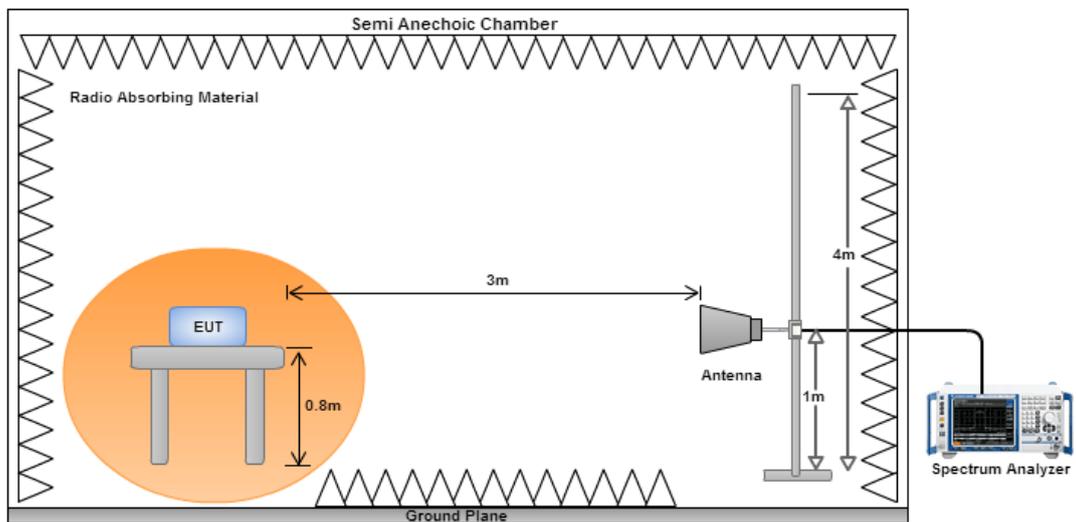
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.
4. After finding the max radiated emission, substitution method will be used for getting effective radiated power. EUT will be removed and substitution antenna will be placed at same position. Signal generator will output CW signal to substitution antenna through a RF cable. Rotate turntable and move antenna to find maximum radiated emission. Adjust output power of signal generator to let the maximum radiated emission is same as step 3. Record the output power level.
5. E.I.R.P = output power of step 4 + gain of substitution antenna – cable loss of RF cable. ERP can be calculated by below formula:  
 $E.R.P = E.I.R.P - 2.15dB$

### 3.2.3 Test Setup

#### Radiated Emissions below 1 GHz



#### Radiated Emissions above 1 GHz



### 3.2.4 Test Result of Radiated Emissions below 1GHz

Mode	LTE Band 26, CB: 1.4MHz, 1RB, Offset 0,Channel: 26740						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
32.91	H	-65.03	-13.00	-52.03	-60.92	-49.23	-13.65
158.04	H	-65.11	-13.00	-52.11	-54.12	-62.35	-0.61
237.58	H	-54.88	-13.00	-41.88	-41.28	-57.18	4.45
295.78	H	-58.13	-13.00	-45.13	-46.29	-60.26	4.28
334.58	H	-54.37	-13.00	-41.37	-44.54	-56.58	4.36
417.03	H	-67.85	-13.00	-54.85	-60.06	-69.86	4.16
43.58	V	-63.86	-13.00	-50.86	-52.25	-49.78	-11.93
104.69	V	-67.72	-13.00	-54.72	-56.47	-65.62	0.05
156.10	V	-63.56	-13.00	-50.56	-55.41	-60.70	-0.71
237.58	V	-60.44	-13.00	-47.44	-52.05	-62.74	4.45
336.52	V	-62.02	-13.00	-49.02	-53.87	-64.23	4.36
540.22	V	-64.46	-13.00	-51.46	-60.41	-66.40	4.09

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 26, CB: 3MHz, 1RB, Offset 0,Channel: 26740						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
30.97	H	-65.05	-13.00	-52.05	-61.58	-48.88	-14.02
158.04	H	-64.70	-13.00	-51.70	-53.71	-61.94	-0.61
239.52	H	-55.70	-13.00	-42.70	-42.16	-58.00	4.45
296.75	H	-57.71	-13.00	-44.71	-45.89	-59.84	4.28
333.61	H	-54.89	-13.00	-41.89	-45.01	-57.10	4.36
418.00	H	-68.73	-13.00	-55.73	-60.95	-70.74	4.16
43.58	V	-65.49	-13.00	-52.49	-53.88	-51.41	-11.93
102.75	V	-63.38	-13.00	-50.38	-52.15	-61.40	0.17
151.25	V	-63.37	-13.00	-50.37	-54.84	-60.24	-0.98
236.61	V	-59.23	-13.00	-46.23	-50.80	-61.53	4.45
339.43	V	-62.55	-13.00	-49.55	-54.42	-64.77	4.37
565.44	V	-63.89	-13.00	-50.89	-60.84	-65.65	3.91

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 26, CB: 5MHz, 1RB, Offset 0,Channel: 26740						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
30.00	H	-64.81	-13.00	-51.81	-61.66	-48.45	-14.21
156.10	H	-64.26	-13.00	-51.26	-53.29	-61.40	-0.71
237.58	H	-54.76	-13.00	-41.76	-41.16	-57.06	4.45
293.84	H	-57.80	-13.00	-44.80	-45.89	-59.94	4.29
334.58	H	-54.46	-13.00	-41.46	-44.63	-56.67	4.36
412.18	H	-68.58	-13.00	-55.58	-60.76	-70.62	4.19
45.52	V	-62.50	-13.00	-49.50	-51.14	-48.71	-11.64
90.14	V	-67.23	-13.00	-54.23	-55.52	-65.74	0.66
152.22	V	-63.25	-13.00	-50.25	-54.80	-60.18	-0.92
237.58	V	-59.38	-13.00	-46.38	-50.99	-61.68	4.45
336.52	V	-61.55	-13.00	-48.55	-53.40	-63.76	4.36
540.22	V	-63.57	-13.00	-50.57	-59.52	-65.51	4.09

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 26, CB: 10MHz, 1RB, Offset 0,Channel: 26740						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
30.00	H	-64.51	-13.00	-51.51	-61.36	-48.15	-14.21
158.04	H	-64.84	-13.00	-51.84	-53.85	-62.08	-0.61
239.52	H	-55.05	-13.00	-42.05	-41.51	-57.35	4.45
292.87	H	-57.35	-13.00	-44.35	-45.41	-59.49	4.29
334.58	H	-54.63	-13.00	-41.63	-44.80	-56.84	4.36
418.00	H	-68.16	-13.00	-55.16	-60.38	-70.17	4.16
45.52	V	-67.24	-13.00	-54.24	-55.88	-53.45	-11.64
104.69	V	-63.73	-13.00	-50.73	-52.48	-61.63	0.05
152.22	V	-63.82	-13.00	-50.82	-55.37	-60.75	-0.92
240.49	V	-59.79	-13.00	-46.79	-51.52	-62.09	4.45
339.43	V	-62.63	-13.00	-49.63	-54.50	-64.85	4.37
486.87	V	-67.34	-13.00	-54.34	-61.10	-69.40	4.21

NOTE: ERP = S.G power value + correction factor - 2.15.

### 3.2.5 Test Result of Radiated Emissions above 1GHz

Mode	LTE Band 26, CB: 1.4MHz, 1RB, Offset 0, Channel:26697						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1628.50	H	-47.99	-13.00	-34.99	-49.25	-50.96	5.12
2442.75	H	-53.18	-13.00	-40.18	-59.35	-57.33	6.30
3257.00	H	-50.95	-13.00	-37.95	-60.28	-55.48	6.68
1628.50	V	-44.79	-13.00	-31.79	-45.49	-47.76	5.12
2442.75	V	-51.38	-13.00	-38.38	-58.31	-55.53	6.30
3257.00	V	-51.49	-13.00	-38.49	-60.23	-56.02	6.68

Mode	LTE Band 26, CB: 1.4MHz, 1RB, Offset 0, Channel:26740						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1637.10	H	-48.05	-13.00	-35.05	-49.35	-51.04	5.14
2455.65	H	-53.24	-13.00	-40.24	-59.44	-57.39	6.30
3274.20	H	-51.11	-13.00	-38.11	-60.35	-55.66	6.70
1637.10	V	-44.72	-13.00	-31.72	-45.44	-47.71	5.14
2455.65	V	-52.35	-13.00	-39.35	-59.31	-56.50	6.30
3274.20	V	-51.52	-13.00	-38.52	-60.25	-56.07	6.70

Mode	LTE Band 26, CB: 1.4MHz, 1RB, Offset 0, Channel:26783						
Frequency (MHz)	Antenna Polarity.	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1645.70	H	-48.08	-13.00	-35.08	-49.43	-51.09	5.16
2468.55	H	-54.11	-13.00	-41.11	-60.35	-58.27	6.31
3291.40	H	-51.33	-13.00	-38.33	-60.48	-55.90	6.72
1645.70	V	-42.93	-13.00	-29.93	-43.68	-45.94	5.16
2468.55	V	-50.59	-13.00	-37.59	-57.58	-54.75	6.31
3291.40	V	-51.72	-13.00	-38.72	-60.44	-56.29	6.72

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode							
LTE Band 26, CB: 3MHz, 1RB, Offset 0, Channel:26705							
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1628.48	H	-47.85	-13.00	-34.85	-49.11	-50.82	5.12
1628.48	H	-53.11	-13.00	-40.11	-49.11	-56.08	5.12
2442.72	H	-50.95	-13.00	-37.95	-59.28	-55.10	6.30
3252.96	H	-44.79	-13.00	-31.79	-60.28	-49.31	6.67
1628.48	V	-52.51	-13.00	-39.51	-45.49	-55.48	5.12
2442.72	V	-51.64	-13.00	-38.64	-59.44	-55.79	6.30

Mode							
LTE Band 26, CB: 3MHz, 1RB, Offset 0, Channel:26740							
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1635.48	H	-48.17	-13.00	-35.17	-49.47	-51.16	5.14
2453.22	H	-53.42	-13.00	-40.42	-59.62	-57.57	6.30
3270.96	H	-51.12	-13.00	-38.12	-60.38	-55.66	6.69
1635.48	V	-44.72	-13.00	-31.72	-45.44	-47.71	5.14
2453.22	V	-52.63	-13.00	-39.63	-59.59	-56.78	6.30
3270.96	V	-51.51	-13.00	-38.51	-60.24	-56.05	6.69

Mode							
LTE Band 26, CB: 3MHz, 1RB, Offset 0, Channel:26775							
Frequency (MHz)	Antenna Polarity.	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1642.48	H	-48.02	-13.00	-35.02	-49.36	-51.02	5.15
2463.72	H	-53.40	-13.00	-40.40	-59.62	-57.56	6.31
3284.96	H	-51.25	-13.00	-38.25	-60.43	-55.81	6.71
1642.48	V	-42.64	-13.00	-29.64	-43.38	-45.64	5.15
2463.72	V	-52.50	-13.00	-39.50	-59.47	-56.66	6.31
3284.96	V	-51.52	-13.00	-38.52	-60.24	-56.08	6.71

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode							
LTE Band 26, CB: 5MHz, 1RB, Offset 0, Channel:26715							
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1628.68	H	-47.90	-13.00	-34.90	-49.16	-50.87	5.12
2443.02	H	-53.05	-13.00	-40.05	-59.22	-57.20	6.30
3257.36	H	-51.04	-13.00	-38.04	-60.37	-55.57	6.68
1628.68	V	-43.86	-13.00	-30.86	-44.56	-46.83	5.12
2443.02	V	-52.33	-13.00	-39.33	-59.26	-56.48	6.30
3257.36	V	-51.62	-13.00	-38.62	-60.36	-56.15	6.68

Mode							
LTE Band 26, CB: 5MHz, 1RB, Offset 0, Channel:26740							
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1633.68	H	-48.15	-13.00	-35.15	-49.44	-51.13	5.13
2450.52	H	-53.13	-13.00	-40.13	-59.32	-57.28	6.30
3267.36	H	-50.96	-13.00	-37.96	-60.23	-55.50	6.69
1633.68	V	-44.50	-13.00	-31.50	-45.22	-47.48	5.13
2450.52	V	-52.58	-13.00	-39.58	-59.53	-56.73	6.30
3267.36	V	-51.80	-13.00	-38.80	-60.53	-56.34	6.69

Mode							
LTE Band 26, CB: 5MHz, 1RB, Offset 0, Channel:26765							
Frequency (MHz)	Antenna Polarity.	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1638.68	H	-48.17	-13.00	-35.17	-49.48	-51.16	5.14
2458.02	H	-54.36	-13.00	-41.36	-60.57	-58.51	6.30
3277.36	H	-51.44	-13.00	-38.44	-60.67	-55.99	6.70
1638.68	V	-44.12	-13.00	-31.12	-44.85	-47.11	5.14
2458.02	V	-52.41	-13.00	-39.41	-59.37	-56.56	6.30
3277.36	V	-51.68	-13.00	-38.68	-60.41	-56.23	6.70

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 26, CB: 10MHz, 1RB, Offset 0, Channel:26740						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
1629.16	H	-49.39	-13.00	-36.39	-50.65	-52.36	5.12
2443.74	H	-54.31	-13.00	-41.31	-60.48	-58.46	6.30
3258.32	H	-51.41	-13.00	-38.41	-60.73	-55.94	6.68
1629.16	V	-45.52	-13.00	-32.52	-46.22	-48.49	5.12
2443.74	V	-52.43	-13.00	-39.43	-59.36	-56.58	6.30
3258.32	V	-52.62	-13.00	-39.62	-61.35	-57.15	6.68

NOTE: ERP = S.G power value + correction factor - 2.15.

## 3.3 Conducted Emissions

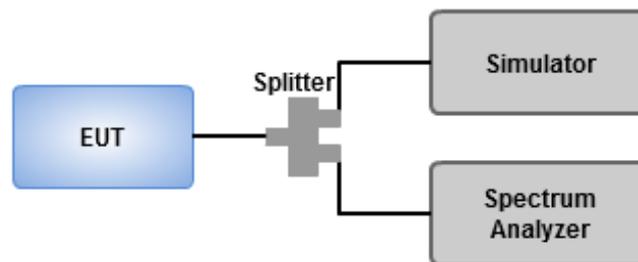
### 3.3.1 Limit of Conducted Emissions

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB equal to -13dBm.

### 3.3.2 Test Procedures

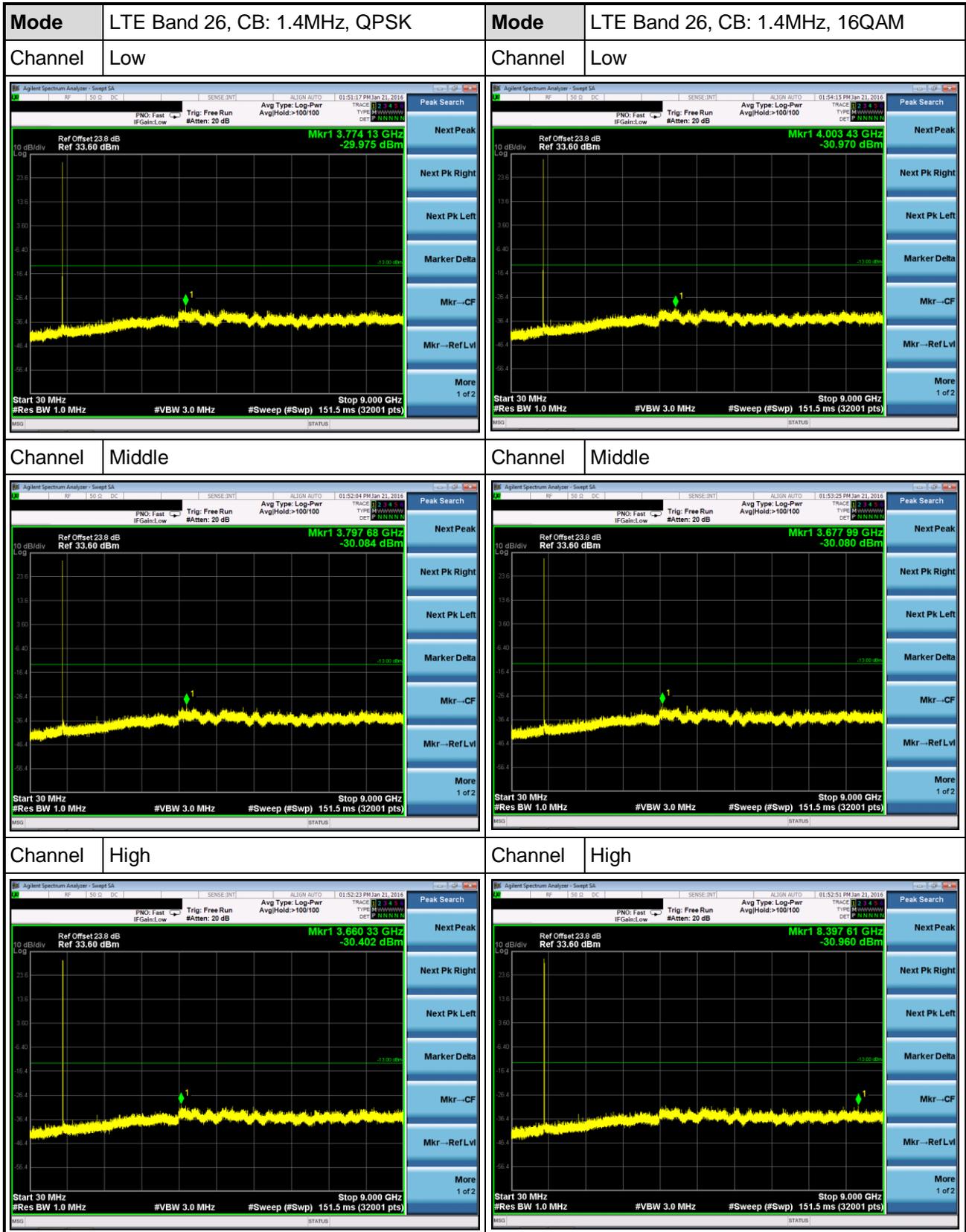
1. Lowest, middle and highest operating channels are tested for this item.
2. Scan frequency range is from 30MHz ~ 9GHz.
3. Set RBW = 1MHz, VBW = 3MHz, detector = RMS, sweep time = auto.
4. Record the max trace value and capture the test plot of each sub frequency band.

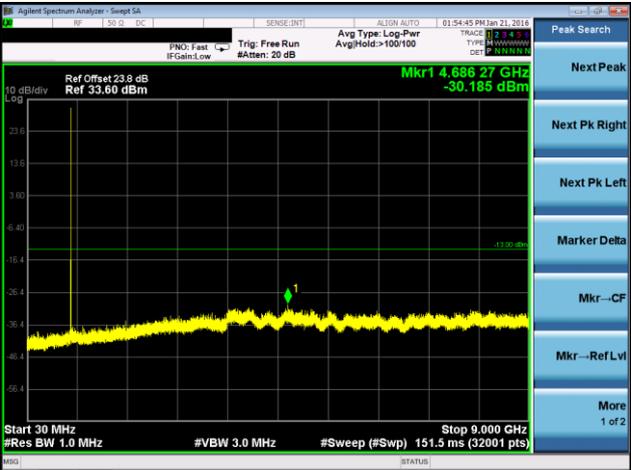
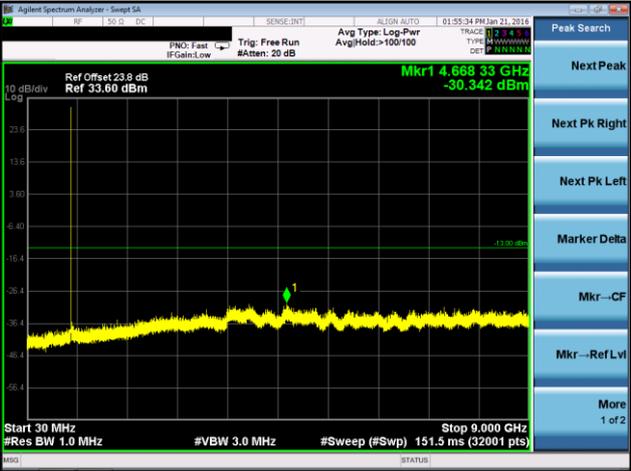
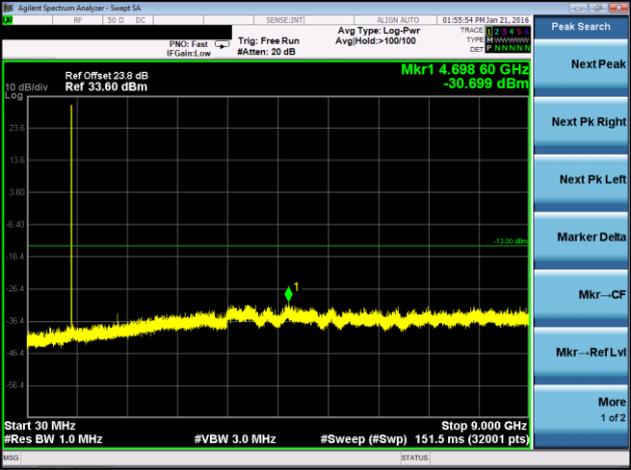
### 3.3.3 Test Setup



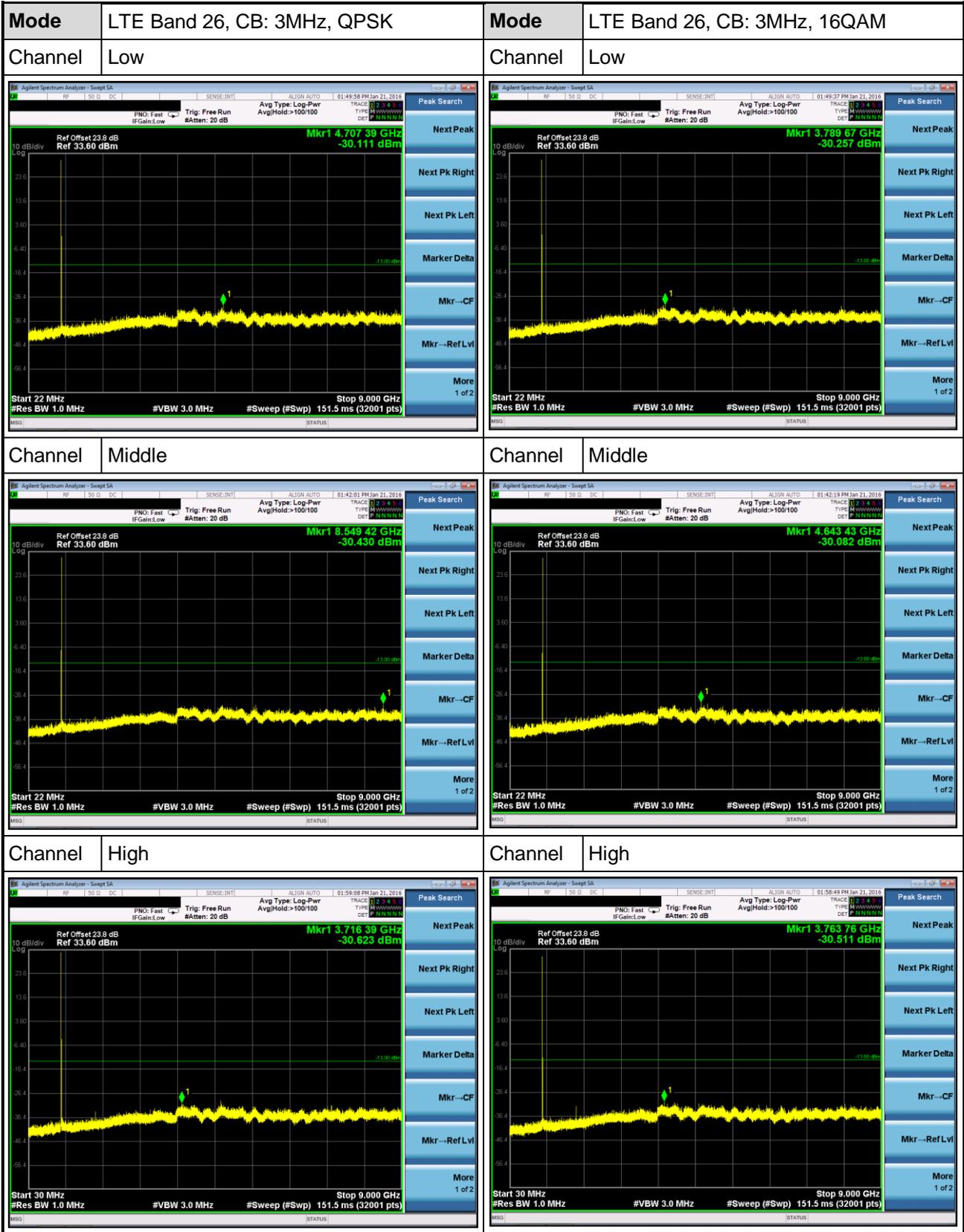
### 3.3.4 Test Result of Conducted Emissions

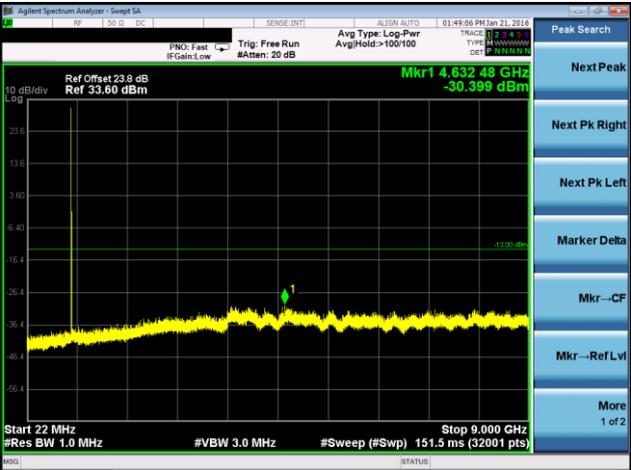
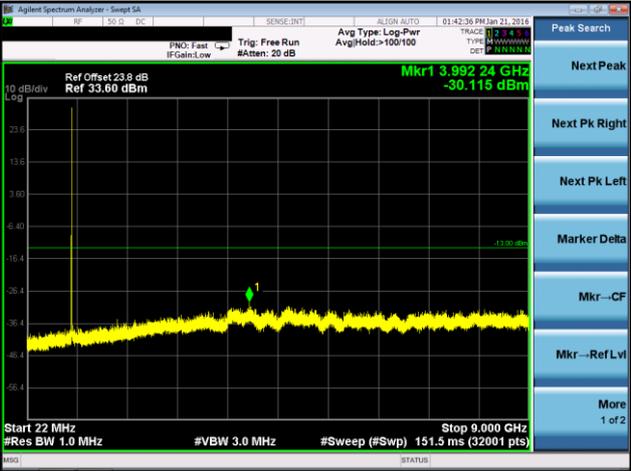
#### LTE Band 26, CB: 1.4MHz



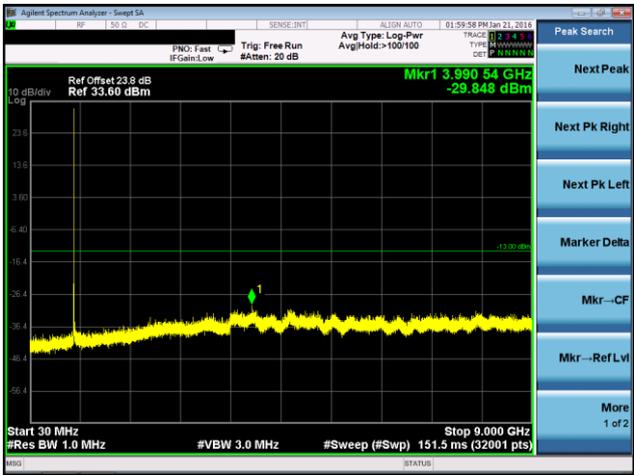
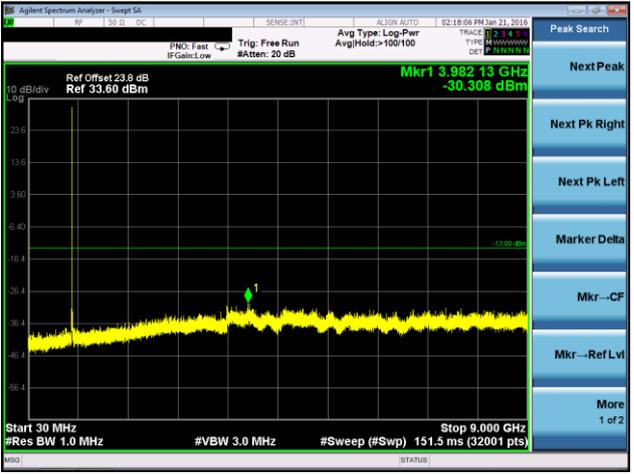
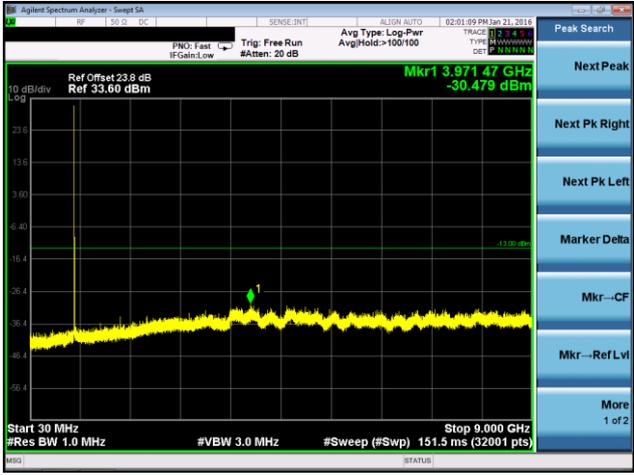
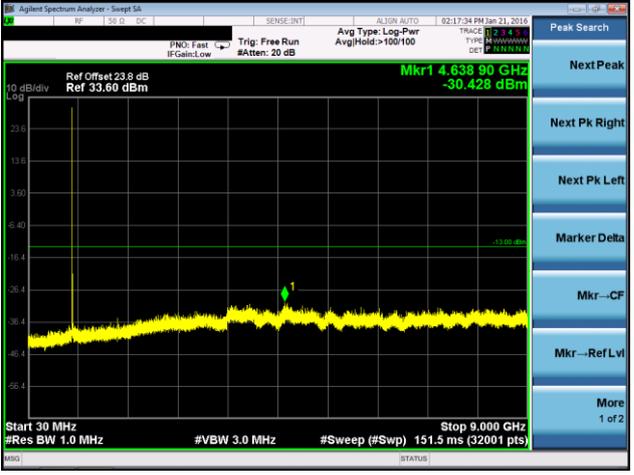
<b>Mode</b>	LTE Band 26, CB: 1.4MHz, 64QAM	<b>Mode</b>	---
<b>Channel</b>	Low	<b>Channel</b>	Low
		---	
<b>Channel</b>	Middle	<b>Channel</b>	Middle
		---	
<b>Channel</b>	High	<b>Channel</b>	High
		---	

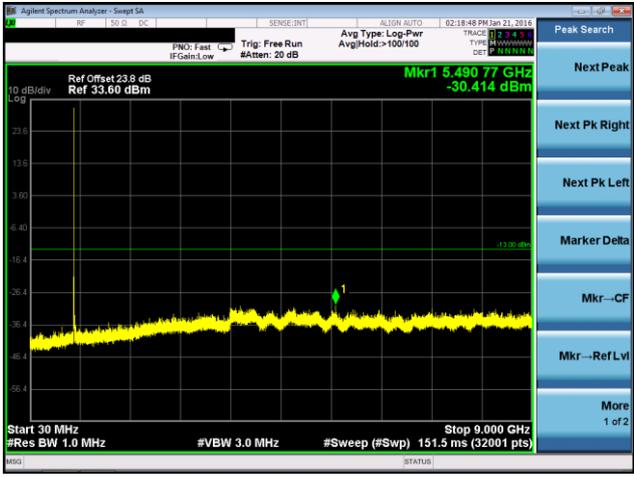
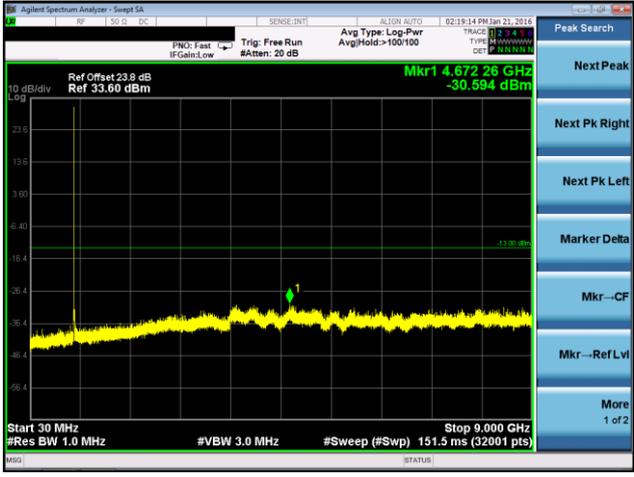
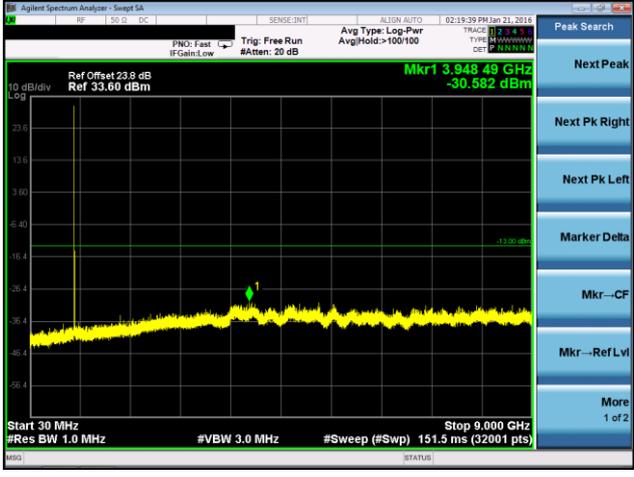
**LTE Band 26, CB: 3MHz**



<b>Mode</b>	LTE Band 26, CB: 3MHz, 64QAM	<b>Mode</b>	---
<b>Channel</b>	Low	<b>Channel</b>	Low
		---	
<b>Channel</b>	Middle	<b>Channel</b>	Middle
		---	
<b>Channel</b>	High	<b>Channel</b>	High
		---	

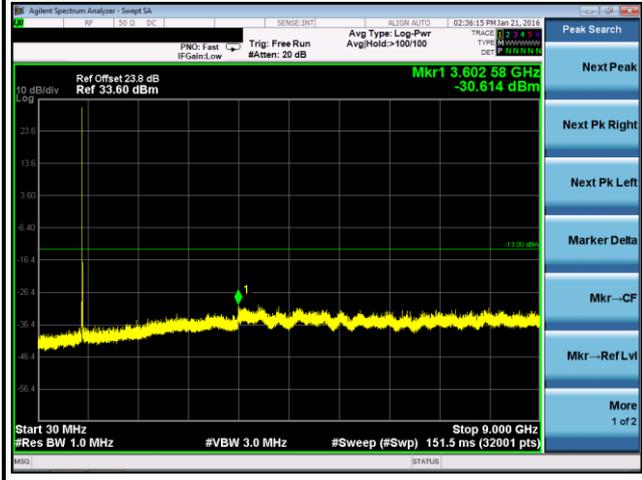
**LTE Band 26, CB: 5MHz**

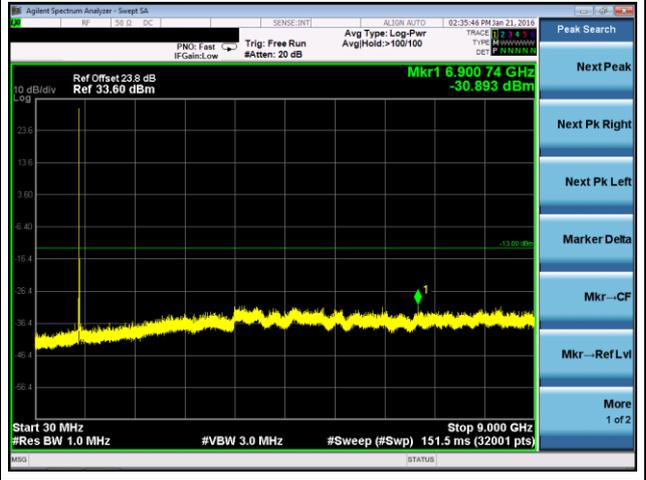
Mode	LTE Band 26, CB: 5MHz, QPSK	Mode	LTE Band 26, CB: 5MHz, 16QAM
Channel	Low	Channel	Low
			
Channel	Middle	Channel	Middle
			
Channel	High	Channel	High
			

<b>Mode</b>	LTE Band 26, CB: 5MHz, 64QAM	<b>Mode</b>	---
<b>Channel</b>	Low	<b>Channel</b>	Low
		---	
<b>Channel</b>	Middle	<b>Channel</b>	Middle
		---	
<b>Channel</b>	High	<b>Channel</b>	High
		---	

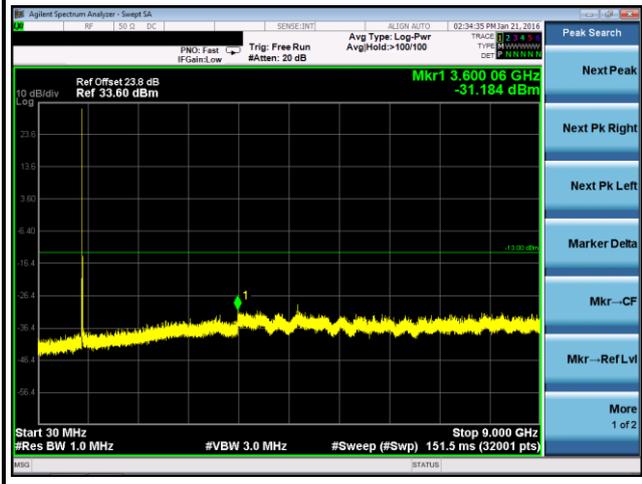
**LTE Band 26, CB: 10MHz**

<b>Mode</b>	LTE Band 26, CB: 10MHz, QPSK	<b>Mode</b>	LTE Band 26, CB: 10MHz, 16QAM
<b>Channel</b>	Middle	<b>Channel</b>	Middle





<b>Mode</b>	LTE Band 26, CB: 10MHz, 64QAM	<b>Mode</b>	---
<b>Channel</b>	Middle	<b>Channel</b>	Middle



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## 3.4 Band edge

### 3.4.1 Limit of band edge

For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{ Log}_{10}(f/6.1)$  decibels or  $50 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

### 3.4.2 Test Procedures

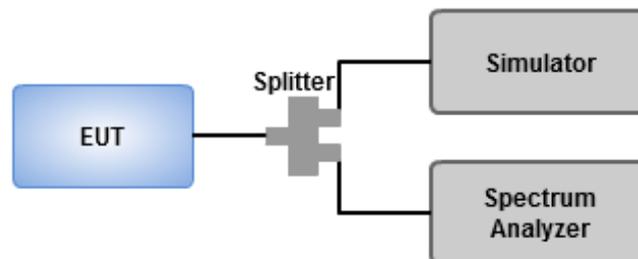
For out-of band emission except emission within 1MHz band immediately outside and adjacent to the edge

- 1 Lowest and highest operating channels are tested for this item.
- 2 Set RBW = 100 kHz, VBW = 300 kHz detector = RMS, sweep time = auto to measure trace.

For emission within 1MHz band immediately outside and adjacent to the edge

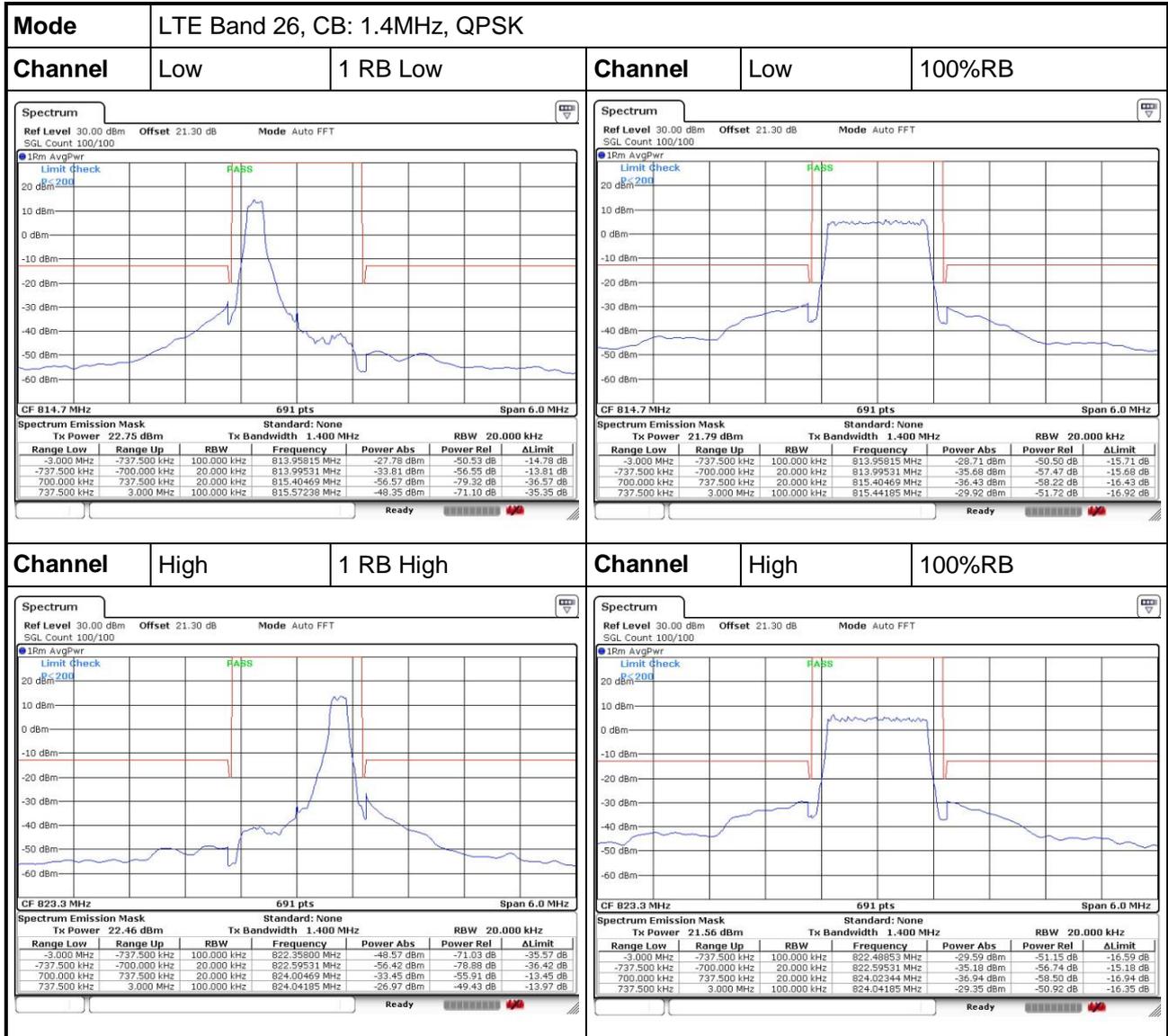
- 1 Lowest and highest operating channels are tested for this item.
- 2 Set RBW = at least 1% of 26dB bandwidth, VBW = 3 x RBW detector = RMS, sweep time = auto to measure trace.

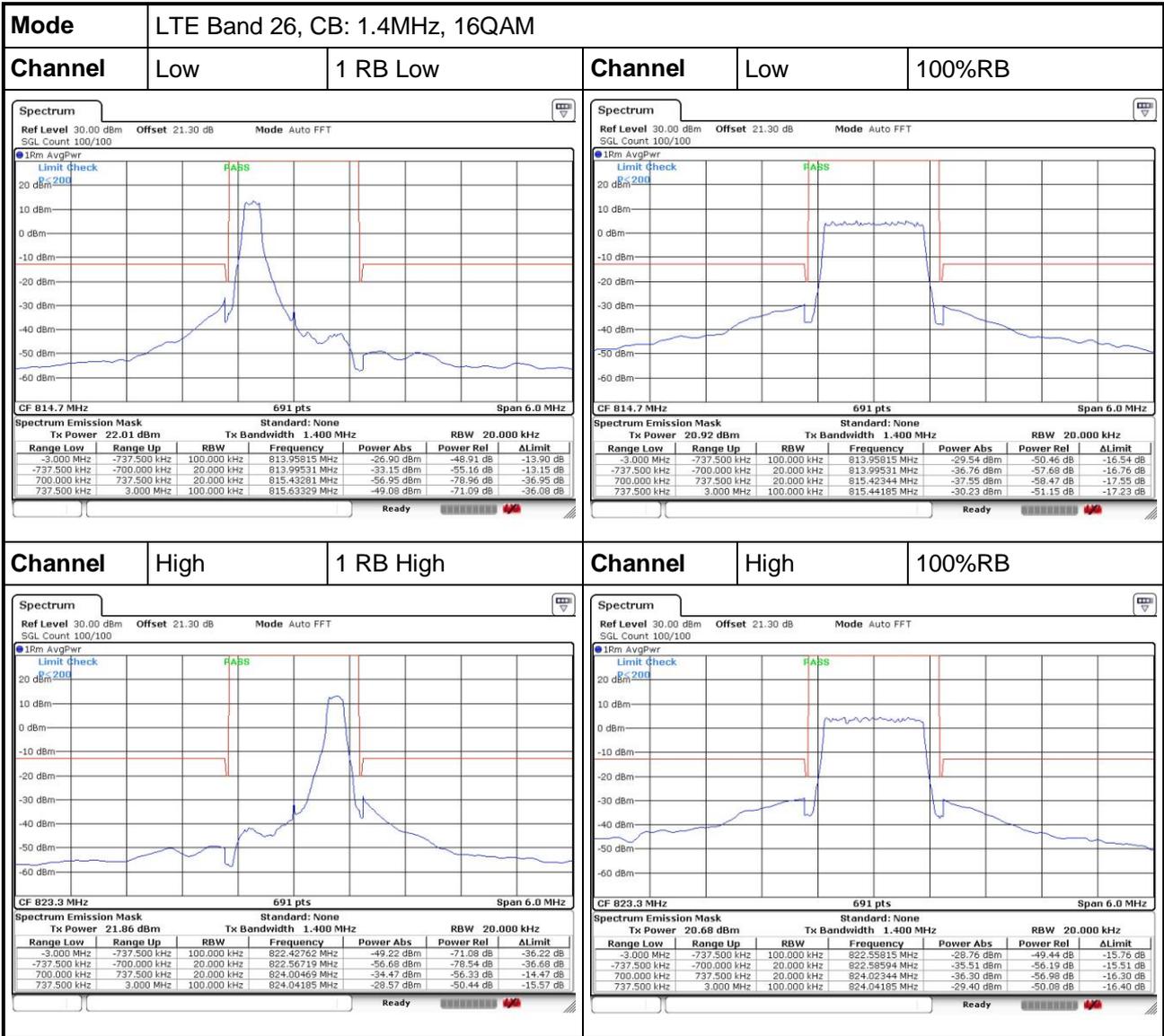
### 3.4.3 Test Setup

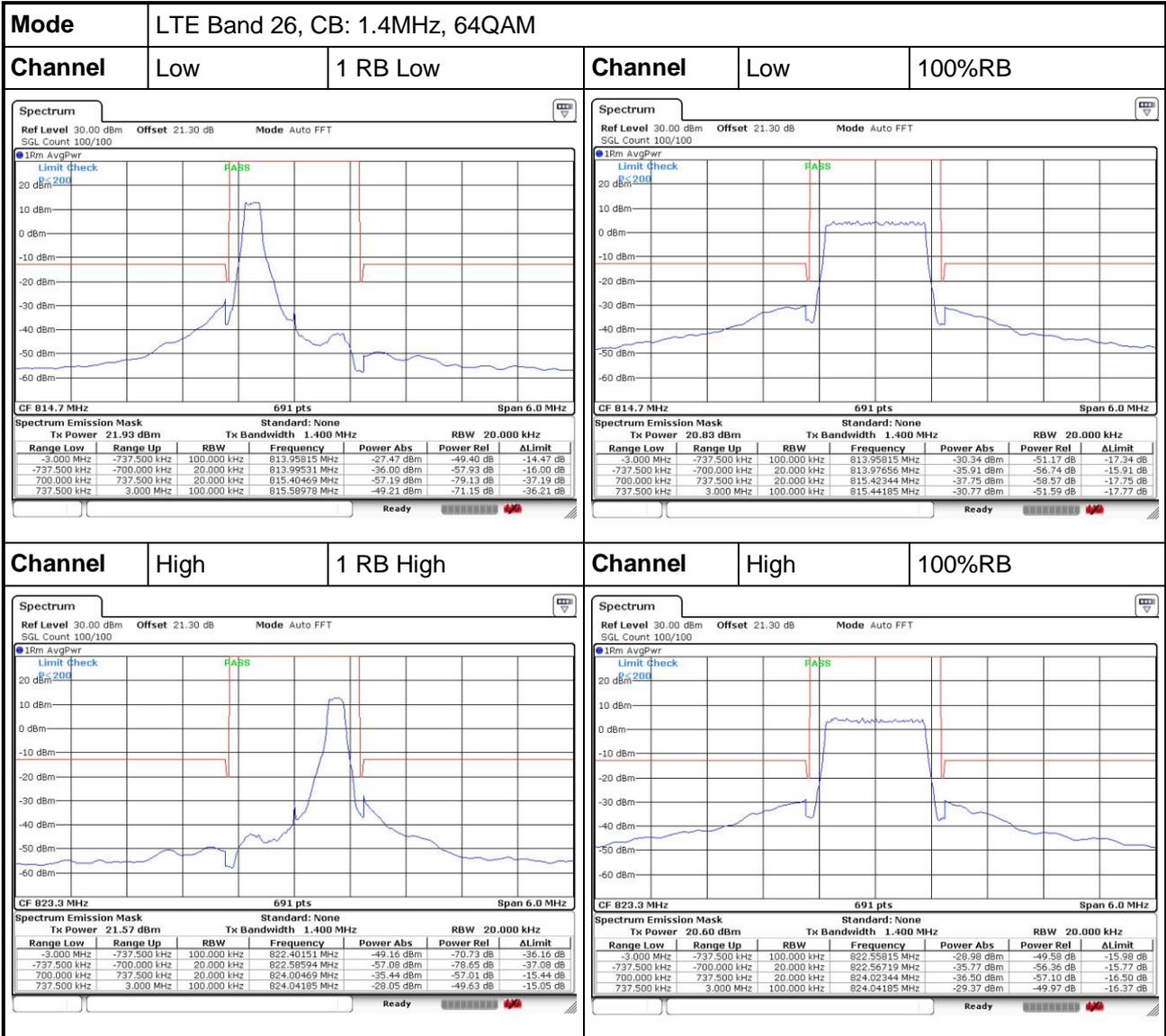


### 3.4.4 Test Result of Band Edge

#### LTE Band 26, CB: 1.4MHz







**LTE Band 26, CB: 3MHz**

