



# FCC TEST REPORT (PART 27)

**REPORT NO.:** RF140624C19-3

**MODEL NO.:** 0P82300

**FCC ID:** NM80P82300

**RECEIVED:** Jun. 24, 2014

**TESTED:** Jul. 18, 2014 ~ Aug. 05, 2014

**ISSUED:** Aug. 26, 2014

**APPLICANT:** HTC Corporation

**ADDRESS:** 1F, 6-3 Baoqiang Road, Xindian District, New Taipei City, Taiwan 231

**ISSUED BY:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140624C19-3	Original release	Aug. 26, 2014



## 1 CERTIFICATION

**PRODUCT:** Tablet  
**MODEL NO.:** 0P82300  
**BRAND:** HTC  
**APPLICANT:** HTC Corporation  
**TESTED:** Jul. 18, 2014 ~ Aug. 05, 2014  
**TEST SAMPLE:** Production Unit  
**TEST STANDARDS:** **FCC Part 27, Subpart C, M**  
**FCC Part 2**  
ANSI C63.4-2003

The above equipment (model: 0P82300) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** : Ivonne Wu , **DATE:** Aug. 26, 2014  
Ivonne Wu / Supervisor

**APPROVED BY** : Sam Chen , **DATE:** Aug. 26, 2014  
Sam Chen / Senior Project Engineer

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
2.1046 27.50(h)	Equivalent Isotropically Radiated Power	PASS	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	PASS	Meet the requirement of limit.
2.1049	Occupied Bandwidth	PASS	Meet the requirement of limit.
	Peak to average ratio	PASS	Meet the requirement of limit.
2.1051 27.53(m)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 27.53(l)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(l)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -9.65dB at 5087.60MHz.

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

## 2.2 TEST SITE AND INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2014	Apr. 14, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 27, 2014	Feb. 26, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 19, 2014	Feb. 18, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 26, 2013	Dec. 25, 2014
Preamplifier EMCI	EMC 184045	980116	Jan. 13, 2014	Jan. 12, 2015
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY52102544	Sep. 05, 2012	Sep. 04, 2014
Radio Communication Analyzer	MT8820C	6201300640	Aug. 01, 2013	Jul. 31, 2015

- NOTE:**
1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. The test was performed in HwaYa Chamber 10.
  3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Site Registration No. is 690701.
  5. The IC Site Registration No. is IC 7450F-10.

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Tablet		
<b>MODEL NO.</b>	0P82300		
<b>POWER SUPPLY</b>	5Vdc (adapter or host equipment) 3.8Vdc (battery)		
<b>MODULATION TECHNOLOGY</b>	LTE Band 7	QPSK, 16QAM	
	LTE Band 41	QPSK, 16QAM	
<b>FREQUENCY RANGE</b>	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz	
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz	
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz	
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz	
	LTE Band 41 Channel Bandwidth: 5MHz	2498.5MHz ~ 2687.5MHz	
	LTE Band 41 Channel Bandwidth: 10MHz	2501.0MHz ~ 2685.0MHz	
	LTE Band 41 Channel Bandwidth: 15MHz	2503.5MHz ~ 2682.5MHz	
	LTE Band 41 Channel Bandwidth: 20MHz	2506.0MHz ~ 2680.0MHz	
	<b>EMISSION DESIGNATOR</b>	LTE Band 7 Channel Bandwidth: 5MHz	4M49G7D
		LTE Band 7 Channel Bandwidth: 10MHz	8M93W7D
LTE Band 7 Channel Bandwidth: 15MHz		13M4G7D	
LTE Band 7 Channel Bandwidth: 20MHz		17M8G7D	
LTE Band 41 Channel Bandwidth: 5MHz		4M50G7D	
LTE Band 41 Channel Bandwidth: 10MHz		8M92W7D	
LTE Band 41 Channel Bandwidth: 15MHz		13M4G7D	
LTE Band 41 Channel Bandwidth: 20MHz		17M8W7D	

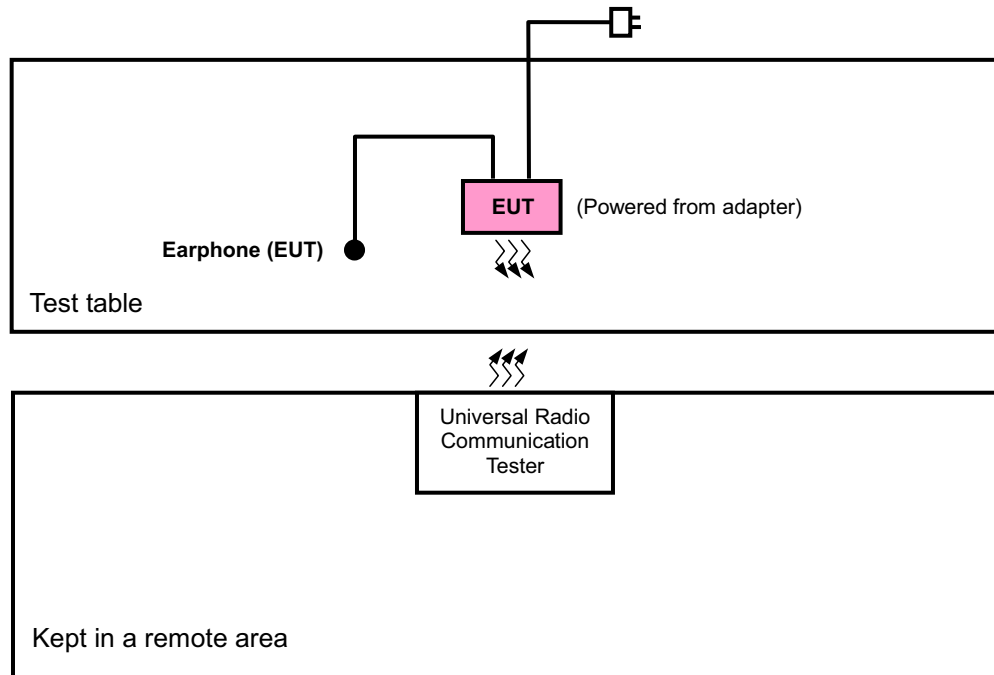
<b>MAX. EIRP POWER</b>	<b>LTE Band 7 Channel Bandwidth: 5MHz</b>	48.07mW
	<b>LTE Band 7 Channel Bandwidth: 10MHz</b>	47.93mW
	<b>LTE Band 7 Channel Bandwidth: 15MHz</b>	53.55mW
	<b>LTE Band 7 Channel Bandwidth: 20MHz</b>	58.08mW
	<b>LTE Band 41 Channel Bandwidth: 5MHz</b>	51.50mW
	<b>LTE Band 41 Channel Bandwidth: 10MHz</b>	50.20mW
	<b>LTE Band 41 Channel Bandwidth: 15MHz</b>	49.62mW
	<b>LTE Band 41 Channel Bandwidth: 20MHz</b>	53.33mW
<b>ANTENNA TYPE</b>	Fixed Internal Antenna	
<b>DATA CABLE</b>	Refer to Note as below	
<b>I/O PORTS</b>	Refer to users' manual	
<b>ACCESSORY DEVICES</b>	Refer to Note as below	

**NOTE:**

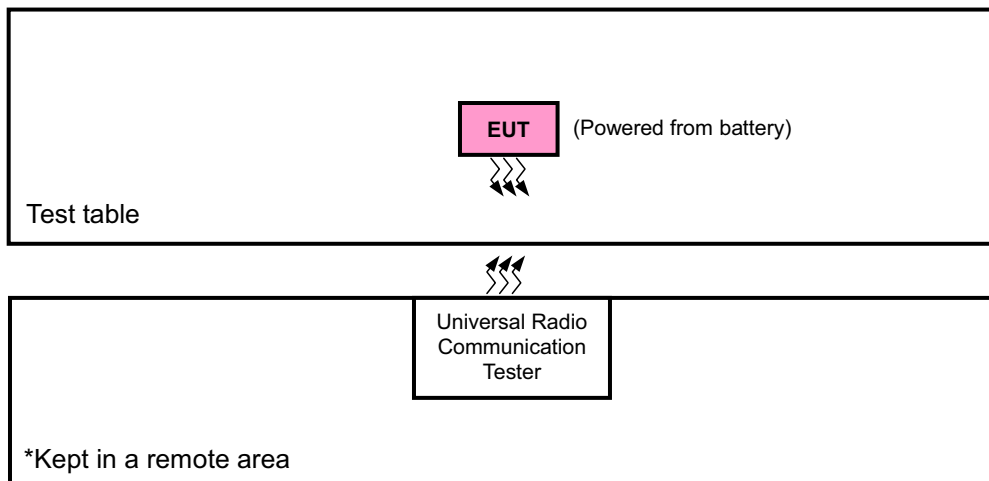
- There're 2 configurations for the EUT listed as below.  
 Main sample (A): Battery 1 + eMMC 16G  
 2nd sample (B): Battery 2 + eMMC 32G  
 ✧ Only the worst test data was presented in the report.
- The EUT's accessories list refers to Ext. Pho.
- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



### 3.2 CONFIGURATION OF SYSTEM UNDER TEST FOR RADIATION EMISSION TEST



### FOR E.I.R.P. TEST



### 3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.

### 3.4 DESCRIPTION OF TEST MODES

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	Main sample
B	2 <sup>nd</sup> sample

ANTENNA	EUT CONFIGURE MODE	BAND	ERP / EIRP	RADIATED EMISSION
0	A	LTE BAND 7	X-plane	X-axis
		LTE BAND 41	Y-plane	X-axis
	B	LTE BAND 7	X-plane	Z-axis
		LTE BAND 41	Y-plane	Y-axis

### LTE BAND 7

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB / 49 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	1 RB / 74 RB Offset
		20850 to 21350	20850, 21100 21350	20MHz	QPSK, 16QAM	1 RB / 99 RB Offset
B	EIRP	20850 to 21350	20850, 21100 21350	20MHz	QPSK, 16QAM	1 RB / 99 RB Offset
A	FREQUENCY STABILITY	20775 to 21425	21100	5MHz	QPSK	1 RB / 24 RB Offset
		20800 to 21400	21100	10MHz	QPSK	1 RB / 49 RB Offset
		20825 to 21375	21100	15MHz	QPSK	1 RB / 74 RB Offset
		20850 to 21350	21100	20MHz	QPSK	1 RB / 99 RB Offset
A	OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100 21350	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM	1 RB / 49 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM	1 RB / 74 RB Offset
		20850 to 21350	20850, 21100 21350	20MHz	QPSK, 16QAM	1 RB / 99 RB Offset
A	BAND EDGE	20775 to 21425	20775, 21425	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21400	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21375	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21350	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	CONDCUDED EMISSION	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	21100	20MHz	QPSK	1 RB / 0 RB Offset
A, B	RADIATED EMISSION	20850 to 21350	21100	20MHz	QPSK	1 RB / 99 RB Offset

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

### LTE BAND 41

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
B	EIRP	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
A	FREQUENCY STABILITY	39675 to 41565	40620	5MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	40620	10MHz	QPSK	1 RB / 0 RB Offset
		39725 to 41515	40620	15MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	40620	20MHz	QPSK	1 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
A	BAND EDGE	39675 to 41565	39675, 41565	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 41540	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		39725 to 41515	39725, 41515	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		39750 to 41490	39750, 41490	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
A	CONDCUDED EMISSION	39675 to 41565	40620	5MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	40620	10MHz	QPSK	1 RB / 0 RB Offset
		39725 to 41515	40620	15MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	40620	20MHz	QPSK	1 RB / 0 RB Offset
A, B	RADIATED EMISSION	39750 to 41490	40620	20MHz	QPSK	1 RB / 0 RB Offset

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

### TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP/EIRP	26deg. C, 58%RH	3.8Vdc	Dylan Yang
FREQUENCY STABILITY	26deg. C, 58%RH	3.8Vdc	Dylan Yang
OCCUPIED BANDWIDTH	26deg. C, 58%RH	3.8Vdc	Dylan Yang
PEAK TO AVERAGE RATIO	26deg. C, 58%RH	3.8Vdc	Dylan Yang
BAND EDGE	26deg. C, 58%RH	3.8Vdc	Dylan Yang
CONDCUDED EMISSION	26deg. C, 58%RH	3.8Vdc	Dylan Yang
RADIATED EMISSION	25deg. C, 65%RH	120Vac, 60Hz	Harry Hsueh



### **3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 27**

**ANSI C63.4-2003**

**ANSI/TIA/EIA-603-C 2004**

**NOTE:** All test items have been performed and recorded as per the above standards.

## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

#### 4.1.2 TEST PROCEDURES

##### EIRP MEASUREMENT:

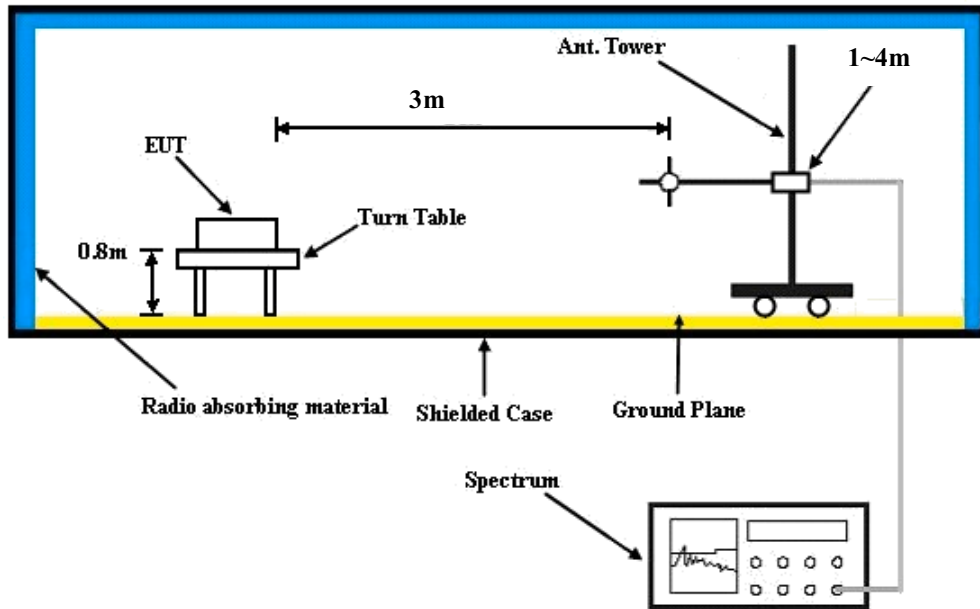
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G.
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

##### CONDUCTED POWER MEASUREMENT:

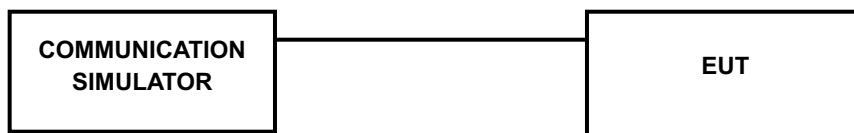
- a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

### 4.1.3 TEST SETUP

#### EIRP / ERP MEASUREMENT:



#### CONDUCTED POWER MEASUREMENT:





#### 4.1.4 TEST RESULTS

##### AVERAGE CONDUCTED OUTPUT POWER (dBm)

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20775	Mid CH 21100	High CH 21425		Low CH 20775	Mid CH 21100	High CH 21425	
			2502.5 MHz	2535.0 MHz	2567.5 MHz		2502.5 MHz	2535.0 MHz	2567.5 MHz	
7 / 5M	1	0	21.78	21.87	21.81	0	20.74	20.83	20.77	1
	1	12	21.83	21.92	21.86	0	20.79	20.88	20.82	1
	1	24	21.89	21.98	21.92	0	20.85	20.94	20.88	1
	12	0	20.76	20.85	20.79	1	19.72	19.81	19.75	2
	12	6	20.79	20.88	20.82	1	19.75	19.84	19.78	2
	12	13	20.74	20.83	20.77	1	19.70	19.79	19.73	2
	25	0	20.76	20.85	20.79	1	19.72	19.81	19.75	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20800	Mid CH 21100	High CH 21400		Low CH 20800	Mid CH 21100	High CH 21400	
			2505.0 MHz	2535.0 MHz	2565.0 MHz		2505.0 MHz	2535.0 MHz	2565.0 MHz	
7 / 10M	1	0	21.95	22.04	21.98	0	20.93	21.02	20.96	1
	1	24	22.00	22.09	22.03	0	20.98	21.07	21.01	1
	1	49	22.06	22.15	22.09	0	21.04	21.13	21.07	1
	25	0	20.93	21.02	20.96	1	19.91	20.00	19.94	2
	25	12	20.96	21.05	20.99	1	19.94	20.03	19.97	2
	25	25	20.91	21.00	20.94	1	19.89	19.98	19.92	2
	50	0	20.93	21.02	20.96	1	19.91	20.00	19.94	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20825	Mid CH 21100	High CH 21375		Low CH 20825	Mid CH 21100	High CH 21375	
			2507.5 MHz	2535.0 MHz	2562.5 MHz		2507.5 MHz	2535.0 MHz	2562.5 MHz	
7 / 15M	1	0	22.11	22.20	22.14	0	21.07	21.16	21.10	1
	1	37	22.16	22.25	22.19	0	21.12	21.21	21.15	1
	1	74	22.22	22.31	22.25	0	21.18	21.27	21.21	1
	36	0	21.09	21.18	21.12	1	20.05	20.14	20.08	2
	36	19	21.12	21.21	21.15	1	20.08	20.17	20.11	2
	36	39	21.07	21.16	21.10	1	20.03	20.12	20.06	2
	75	0	21.09	21.18	21.12	1	20.05	20.14	20.08	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20850	Mid CH 21100	High CH 21350		Low CH 20850	Mid CH 21100	High CH 21350	
			2510.0 MHz	2535.0 MHz	2560.0 MHz		2510.0 MHz	2535.0 MHz	2560.0 MHz	
7 / 20M	1	0	22.30	22.39	22.33	0	21.23	21.32	21.26	1
	1	50	22.35	22.44	22.38	0	21.28	21.37	21.31	1
	1	99	22.41	<b>22.50</b>	22.44	0	21.34	21.43	21.37	1
	50	0	21.28	21.37	21.31	1	20.21	20.30	20.24	2
	50	25	21.31	21.40	21.34	1	20.24	20.33	20.27	2
	50	50	21.26	21.35	21.29	1	20.19	20.28	20.22	2
	100	0	21.28	21.37	21.31	1	20.21	20.30	20.24	2





Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39675	Mid CH 40620	High CH 41565		Low CH 39675	Mid CH 40620	High CH 41565	
			2498.5 MHz	2593.0 MHz	2687.5 MHz		2498.5 MHz	2593.0 MHz	2687.5 MHz	
41 / 5M	1	0	22.20	21.90	21.96	0	21.17	20.87	20.93	1
	1	12	22.19	21.99	22.06	0	21.16	20.96	21.03	1
	1	24	22.10	21.86	22.01	0	21.07	20.83	20.98	1
	12	0	21.12	20.91	20.93	1	20.09	19.88	19.90	2
	12	6	21.17	20.98	21.02	1	20.14	19.95	19.99	2
	12	13	21.18	20.97	21.00	1	20.15	19.94	19.97	2
	25	0	21.25	20.97	20.99	1	20.22	19.94	19.96	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39700	Mid CH 40620	High CH 41540		Low CH 39700	Mid CH 40620	High CH 41540	
			2501.0 MHz	2593.0 MHz	2685.0 MHz		2501.0 MHz	2593.0 MHz	2685.0 MHz	
41 / 10M	1	0	22.33	22.03	22.09	0	21.30	21.00	21.06	1
	1	24	22.32	22.12	22.19	0	21.29	21.09	21.16	1
	1	49	22.23	21.99	22.14	0	21.20	20.96	21.11	1
	25	0	21.25	21.04	21.06	1	20.22	20.01	20.03	2
	25	12	21.30	21.11	21.15	1	20.27	20.08	20.12	2
	25	25	21.31	21.10	21.13	1	20.28	20.07	20.10	2
	50	0	21.38	21.10	21.12	1	20.35	20.07	20.09	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39725	Mid CH 40620	High CH 41515		Low CH 39725	Mid CH 40620	High CH 41515	
			2503.5 MHz	2593.0 MHz	2682.5 MHz		2503.5 MHz	2593.0 MHz	2682.5 MHz	
41 / 15M	1	0	22.44	22.14	22.20	0	21.41	21.11	21.17	1
	1	37	22.43	22.23	22.30	0	21.40	21.20	21.27	1
	1	74	22.34	22.10	22.25	0	21.31	21.07	21.22	1
	36	0	21.36	21.15	21.17	1	20.33	20.12	20.14	2
	36	19	21.41	21.22	21.26	1	20.38	20.19	20.23	2
	36	39	21.42	21.21	21.24	1	20.39	20.18	20.21	2
	75	0	21.49	21.21	21.23	1	20.46	20.18	20.20	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39750	Mid CH 40620	High CH 41490		Low CH 39750	Mid CH 40620	High CH 41490	
			2506.0 MHz	2593.0 MHz	2680.0 MHz		2506.0 MHz	2593.0 MHz	2680.0 MHz	
41 / 20M	1	0	22.56	22.26	22.32	0	21.53	21.23	21.29	1
	1	50	22.55	22.35	22.42	0	21.52	21.32	21.39	1
	1	99	22.46	22.22	22.37	0	21.43	21.19	21.34	1
	50	0	21.48	21.27	21.29	1	20.45	20.24	20.26	2
	50	25	21.53	21.34	21.38	1	20.50	20.31	20.35	2
	50	50	21.54	21.33	21.36	1	20.51	20.30	20.33	2
	100	0	21.61	21.33	21.35	1	20.58	20.30	20.32	2



**AVERAGE EIRP (dBm)**

**MODE A**

LTE Band 7							
Channel Bandwidth: 5MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20775	2502.5	-31.26	44.24	12.98	19.85	H
	21100	2535.0	-32.15	44.20	12.05	16.02	
	21425	2567.5	-31.75	44.80	13.05	20.19	
	20775	2502.5	-27.67	44.19	16.52	44.88	V
	21100	2535.0	-27.97	44.09	16.12	40.91	
	21425	2567.5	-27.68	44.50	16.82	48.07	

LTE Band 7							
Channel Bandwidth: 5MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20775	2502.5	-33.23	44.24	11.01	12.61	H
	21100	2535.0	-33.07	44.20	11.13	12.96	
	21425	2567.5	-33.94	44.80	10.86	12.19	
	20775	2502.5	-28.62	44.19	15.57	36.07	V
	21100	2535.0	-28.19	44.09	15.90	38.89	
	21425	2567.5	-28.76	44.50	15.74	37.49	

LTE Band 7							
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20800	2505.0	-31.72	44.34	12.62	18.29	H
	21100	2535.0	-31.24	44.20	12.96	19.76	
	21400	2565.0	-31.77	44.72	12.95	19.74	
	20800	2505.0	-27.53	44.23	16.70	46.73	V
	21100	2535.0	-27.44	44.09	16.65	46.22	
	21400	2565.0	-27.60	44.41	16.81	47.93	

LTE Band 7							
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20800	2505.0	-33.51	44.34	10.83	12.11	H
	21100	2535.0	-33.06	44.20	11.14	12.99	
	21400	2565.0	-33.80	44.72	10.92	12.37	
	20800	2505.0	-28.42	44.23	15.81	38.07	V
	21100	2535.0	-28.24	44.09	15.85	38.44	
	21400	2565.0	-28.79	44.41	15.62	36.44	



LTE Band 7							
Channel Bandwidth: 15MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20825	2507.5	-30.87	44.32	13.45	22.12	H
	21100	2535.0	-30.44	44.20	13.76	23.75	
	21375	2562.5	-31.81	44.85	13.04	20.13	
	20825	2507.5	-26.78	43.99	17.21	52.63	V
	21100	2535.0	-26.80	44.09	17.29	53.55	
	21375	2562.5	-27.61	44.51	16.90	48.98	

LTE Band 7							
Channel Bandwidth: 15MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20825	2507.5	-32.68	44.32	11.64	14.58	H
	21100	2535.0	-33.23	44.20	10.97	12.49	
	21375	2562.5	-33.89	44.85	10.96	12.47	
	20825	2507.5	-28.41	43.99	15.58	36.16	V
	21100	2535.0	-28.59	44.09	15.50	35.47	
	21375	2562.5	-28.88	44.51	15.63	36.56	



LTE Band 7							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20850.0	2510.0	-30.84	44.16	13.32	21.48	H
	21100.0	2535.0	-30.32	44.20	13.88	24.42	
	21350.0	2560.0	-30.88	44.81	13.93	24.70	
	20850.0	2510.0	-27.54	44.78	17.24	52.97	V
	21100.0	2535.0	-26.80	44.09	17.29	53.55	
	21350.0	2560.0	-27.64	44.72	17.08	51.05	

LTE Band 7							
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20850.0	2510.0	-32.63	44.16	11.53	14.22	H
	21100.0	2535.0	-32.30	44.20	11.90	15.48	
	21350.0	2560.0	-33.73	44.81	11.08	12.81	
	20850.0	2510.0	-28.42	44.78	16.36	43.25	V
	21100.0	2535.0	-28.63	44.09	15.46	35.14	
	21350.0	2560.0	-28.78	44.72	15.94	39.26	



LTE Band 41							
Channel Bandwidth: 5MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39675	2498.5	-27.12	44.24	17.12	51.50	H
	40620	2593.0	-27.86	44.20	16.34	43.02	
	41565	2687.5	-28.22	44.80	16.58	45.51	
	39675	2498.5	-30.35	44.19	13.84	24.22	V
	40620	2593.0	-30.69	44.09	13.40	21.87	
	41565	2687.5	-31.22	44.50	13.28	21.28	

LTE Band 41							
Channel Bandwidth: 5MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39675	2498.5	-28.65	44.24	15.59	36.21	H
	40620	2593.0	-28.34	44.20	15.86	38.52	
	41565	2687.5	-28.73	44.80	16.07	40.47	
	39675	2498.5	-31.86	44.19	12.33	17.10	V
	40620	2593.0	-31.18	44.09	12.91	19.53	
	41565	2687.5	-31.73	44.50	12.77	18.92	



LTE Band 41							
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39700	2501.0	-27.35	44.34	16.99	50.01	H
	40620	2593.0	-27.19	44.20	17.01	50.20	
	41540	2685.0	-28.35	44.72	16.37	43.38	
	39700	2501.0	-30.01	44.23	14.22	26.40	V
	40620	2593.0	-30.25	44.09	13.84	24.20	
	41540	2685.0	-31.22	44.41	13.19	20.83	

**CHANNEL BANDWIDTH: 10MHz 16QAM**

LTE Band 41							
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39700	2501.0	-28.18	44.34	16.16	41.31	H
	40620	2593.0	-28.52	44.20	15.68	36.96	
	41540	2685.0	-28.79	44.72	15.93	39.20	
	39700	2501.0	-31.53	44.23	12.70	18.60	V
	40620	2593.0	-31.66	44.09	12.43	17.49	
	41540	2685.0	-31.88	44.41	12.53	17.89	



LTE Band 41							
Channel Bandwidth: 15MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39725	2503.5	-27.68	44.32	16.64	46.11	H
	40620	2593.0	-27.24	44.20	16.96	49.62	
	41515	2682.5	-28.31	44.85	16.54	45.06	
	39725	2503.5	-30.02	43.99	13.97	24.96	V
	40620	2593.0	-30.08	44.09	14.01	25.17	
	41515	2682.5	-31.23	44.51	13.28	21.28	

LTE Band 41							
Channel Bandwidth: 15MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39725	2503.5	-28.22	44.32	16.10	40.72	H
	40620	2593.0	-28.69	44.20	15.51	35.54	
	41515	2682.5	-28.79	44.85	16.06	40.35	
	39725	2503.5	-31.52	43.99	12.47	17.67	V
	40620	2593.0	-31.44	44.09	12.65	18.40	
	41515	2682.5	-31.81	44.51	12.70	18.62	





**CHANNEL BANDWIDTH: 20MHz QPSK**

LTE Band 41							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39750	2506.0	-26.89	44.16	17.27	53.33	H
	40620	2593.0	-27.05	44.20	17.15	51.84	
	41490	2680.0	-28.21	44.81	16.60	45.68	
	39750	2506.0	-30.00	44.78	14.78	30.06	V
	40620	2593.0	-30.59	44.09	13.50	22.38	
	41490	2680.0	-31.16	44.72	13.56	22.70	

LTE Band 41							
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39750	2506.0	-28.11	44.16	16.05	40.27	H
	40620	2593.0	-28.74	44.20	15.46	35.13	
	41490	2680.0	-28.62	44.81	16.19	41.56	
	39750	2506.0	-31.56	44.78	13.22	20.99	V
	40620	2593.0	-31.18	44.09	12.91	19.53	
	41490	2680.0	-31.63	44.72	13.09	20.37	



**MODE B**

LTE Band 7							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20850.0	2510.0	-30.59	44.16	13.57	22.75	H
	21100.0	2535.0	-30.77	44.20	13.43	22.01	
	21350.0	2560.0	-30.81	44.81	14.00	25.10	
	20850.0	2510.0	-27.14	44.78	17.64	58.08	V
	21100.0	2535.0	-26.88	44.09	17.21	52.58	
	21350.0	2560.0	-27.34	44.72	17.38	54.70	

LTE Band 7							
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20850.0	2510.0	-32.43	44.16	11.73	14.89	H
	21100.0	2535.0	-32.72	44.20	11.48	14.05	
	21350.0	2560.0	-32.95	44.81	11.86	15.34	
	20850.0	2510.0	-28.47	44.78	16.31	42.76	V
	21100.0	2535.0	-28.04	44.09	16.05	40.25	
	21350.0	2560.0	-28.36	44.72	16.36	43.25	



**CHANNEL BANDWIDTH: 20MHz QPSK**

LTE Band 41							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39750	2506.0	-27.30	44.16	16.86	48.53	H
	40620	2593.0	-27.41	44.20	16.79	47.72	
	41490	2680.0	-28.13	44.81	16.68	46.53	
	39750	2506.0	-30.82	44.78	13.96	24.89	V
	40620	2593.0	-30.38	44.09	13.71	23.49	
	41490	2680.0	-31.21	44.72	13.51	22.44	

LTE Band 41							
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	39750	2506.0	-28.75	44.16	15.41	34.75	H
	40620	2593.0	-28.68	44.20	15.52	35.62	
	41490	2680.0	-28.76	44.81	16.05	40.24	
	39750	2506.0	-31.46	44.78	13.32	21.48	V
	40620	2593.0	-31.49	44.09	12.60	18.19	
	41490	2680.0	-31.34	44.72	13.38	21.78	

## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

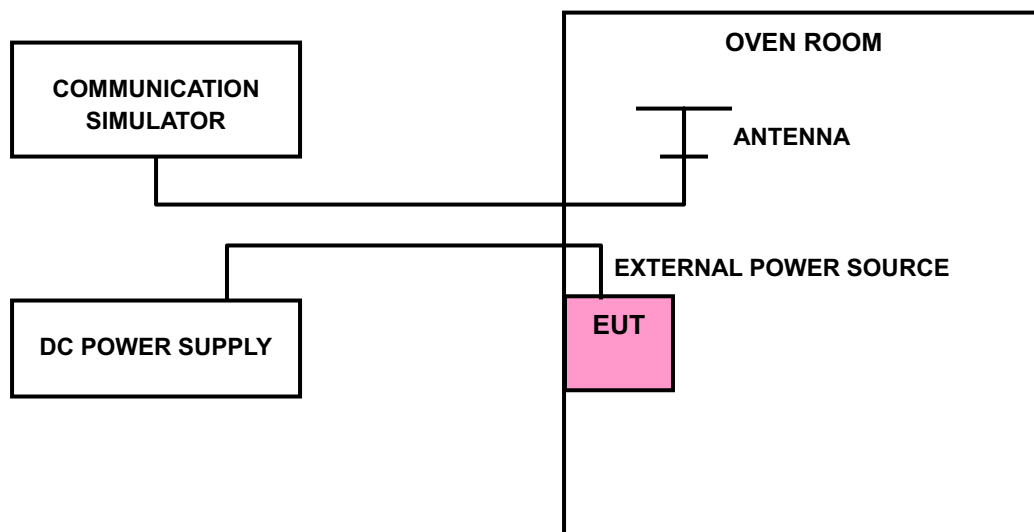
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 4.2.2 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

### 4.2.3 TEST SETUP



#### 4.2.4 TEST RESULTS

##### FREQUENCY ERROR vs. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)				LIMIT (ppm)
	LTE BAND 7				
	5MHz	10MHz	15MHz	20MHz	
3.8	-0.001	-0.001	-0.001	0.002	2.5
3.6	-0.002	-0.001	-0.002	0.001	2.5
4.35	-0.001	-0.002	-0.002	0.002	2.5

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.35Vdc.

##### FREQUENCY ERROR vs. TEMPERATURE

TEMP. (°C)	FREQUENCY ERROR (ppm)				LIMIT (ppm)
	LTE BAND 7				
	5MHz	10MHz	15MHz	20MHz	
-30	-0.003	-0.001	-0.003	0.002	2.5
-20	-0.002	-0.002	-0.002	0.001	2.5
-10	0.001	-0.003	-0.001	0.003	2.5
0	-0.002	-0.001	-0.001	0.002	2.5
10	0.002	-0.002	-0.002	0.001	2.5
20	-0.002	-0.002	0.001	-0.001	2.5
30	-0.002	-0.001	-0.001	0.002	2.5
40	-0.001	-0.001	-0.001	0.000	2.5
50	-0.003	-0.001	0.001	-0.001	2.5
55	-0.001	-0.001	0.001	-0.001	2.5



VOLTAGE (Volts)	FREQUENCY ERROR (ppm)				LIMIT (ppm)
	LTE BAND 41				
	5MHz	10MHz	15MHz	20MHz	
3.8	-0.001	-0.002	-0.002	-0.002	2.5
3.6	-0.001	-0.002	-0.002	-0.001	2.5
4.35	-0.001	-0.002	-0.002	-0.001	2.5

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.35Vdc.

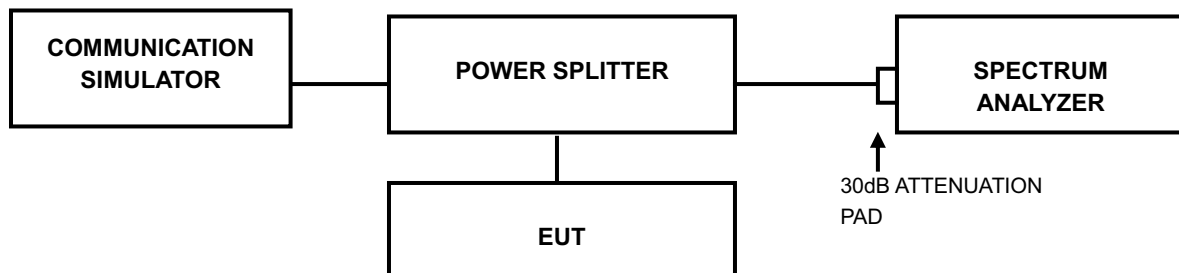
TEMP. (°C)	FREQUENCY ERROR (ppm)				LIMIT (ppm)
	LTE BAND 41				
	5MHz	10MHz	15MHz	20MHz	
-30	-0.002	-0.001	-0.001	-0.002	2.5
-20	-0.001	-0.002	-0.001	-0.002	2.5
-10	-0.002	-0.002	-0.002	-0.002	2.5
0	-0.001	-0.001	-0.002	-0.001	2.5
10	-0.001	-0.001	-0.001	-0.001	2.5
20	-0.002	-0.001	-0.002	-0.001	2.5
30	-0.002	-0.001	0.001	-0.002	2.5
40	-0.001	0.001	-0.001	-0.002	2.5
50	-0.001	-0.001	0.001	-0.001	2.5
55	-0.001	0.001	0.001	-0.003	2.5

## 4.3 OCCUPIED BANDWIDTH MEASUREMENT

### 4.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

### 4.3.2 TEST SETUP

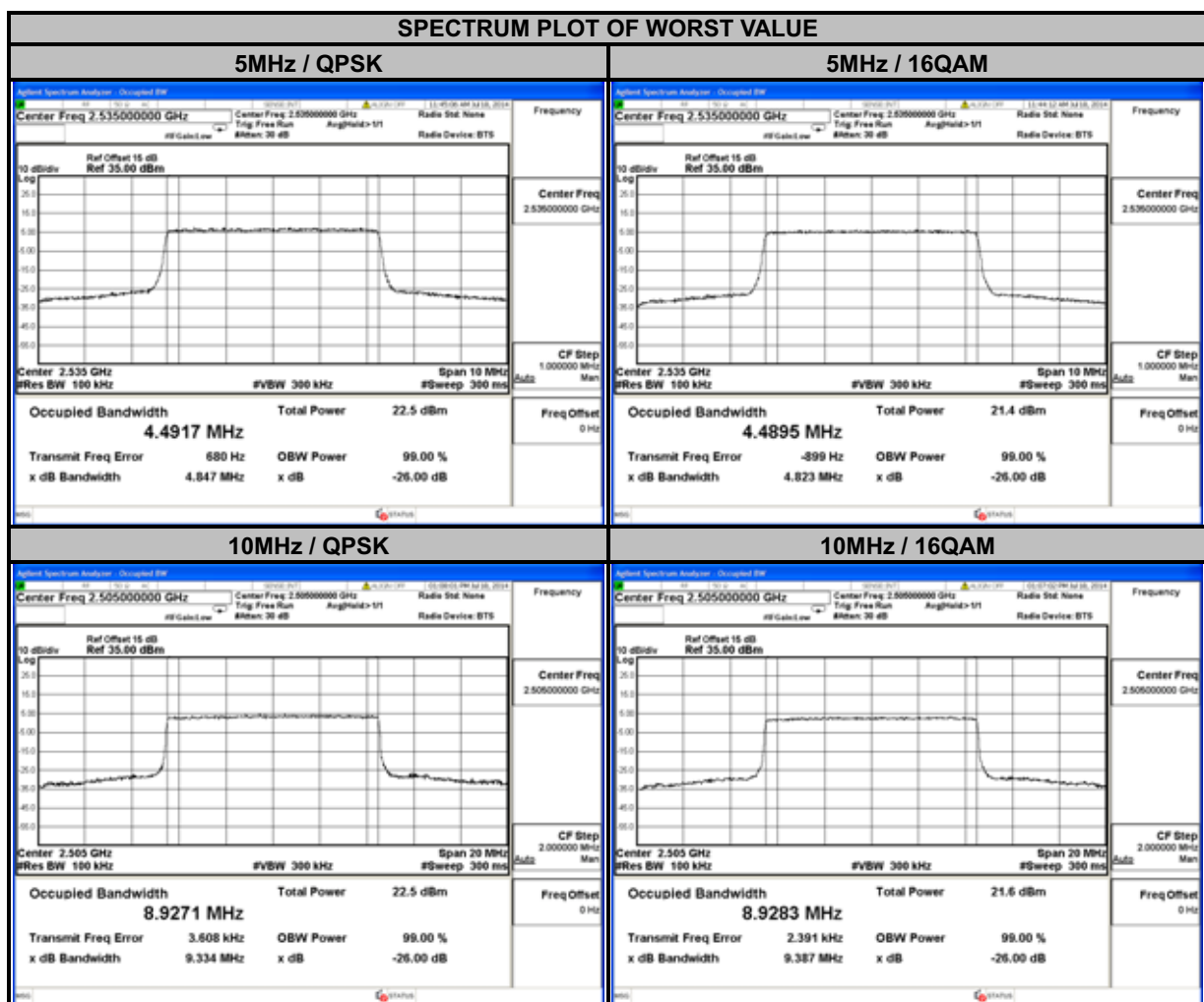


### 4.3.3 TEST PROCEDURES

- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

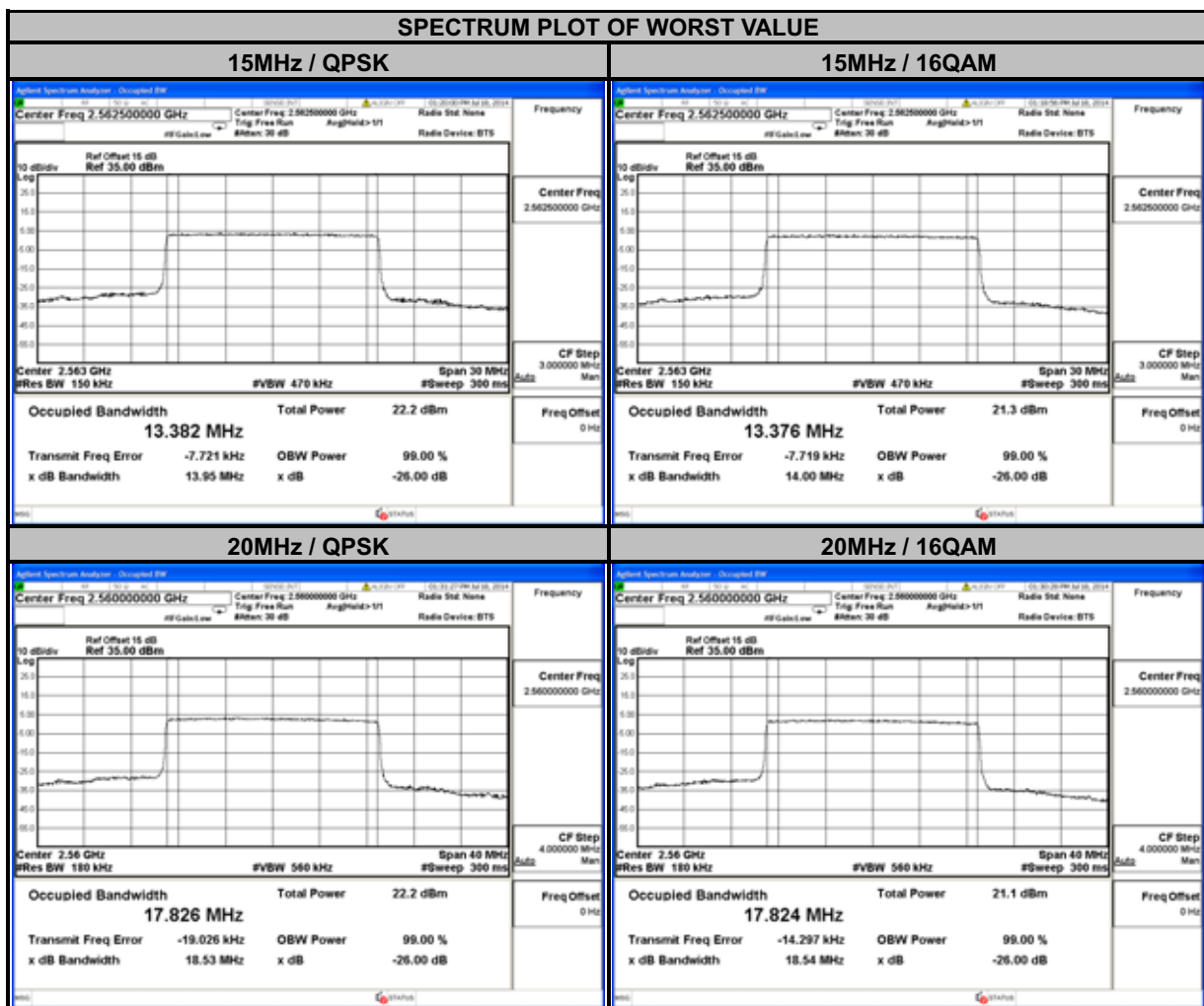
### 4.3.4 TEST RESULTS

LTE BAND 7							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	4.4898	4.4877	20800	2505.0	8.9271	8.9283
21100	2535.0	4.4917	4.4895	21100	2535.0	8.9183	8.9246
21425	2567.5	4.4901	4.4890	21400	2565.0	8.9262	8.9266



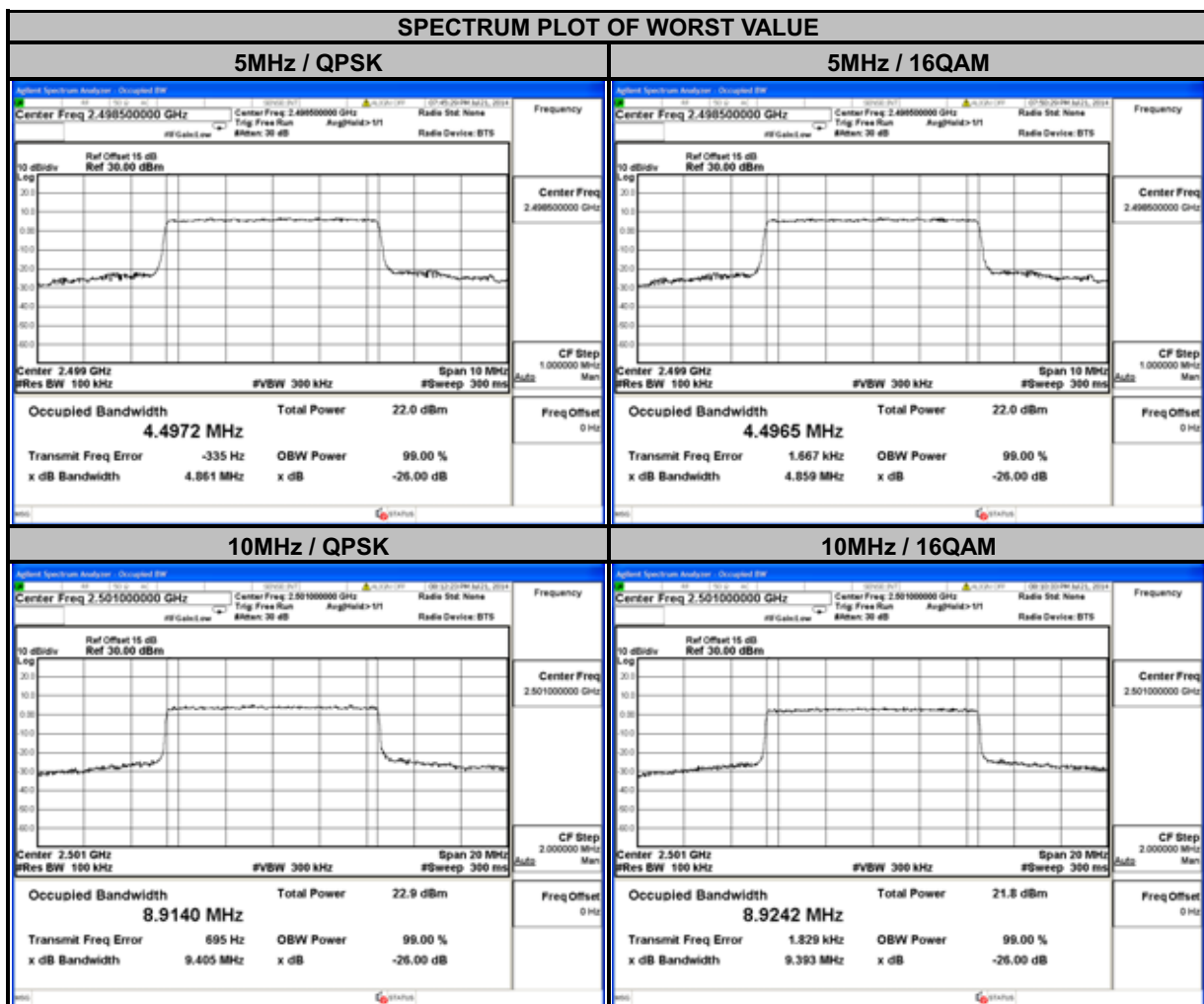


LTE BAND 7							
CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	13.380	13.364	20850	2510.0	17.803	17.811
21100	2535.0	13.372	13.376	21100	2535.0	17.809	17.803
21375	2562.5	13.382	13.376	21350	2560.0	17.826	17.824

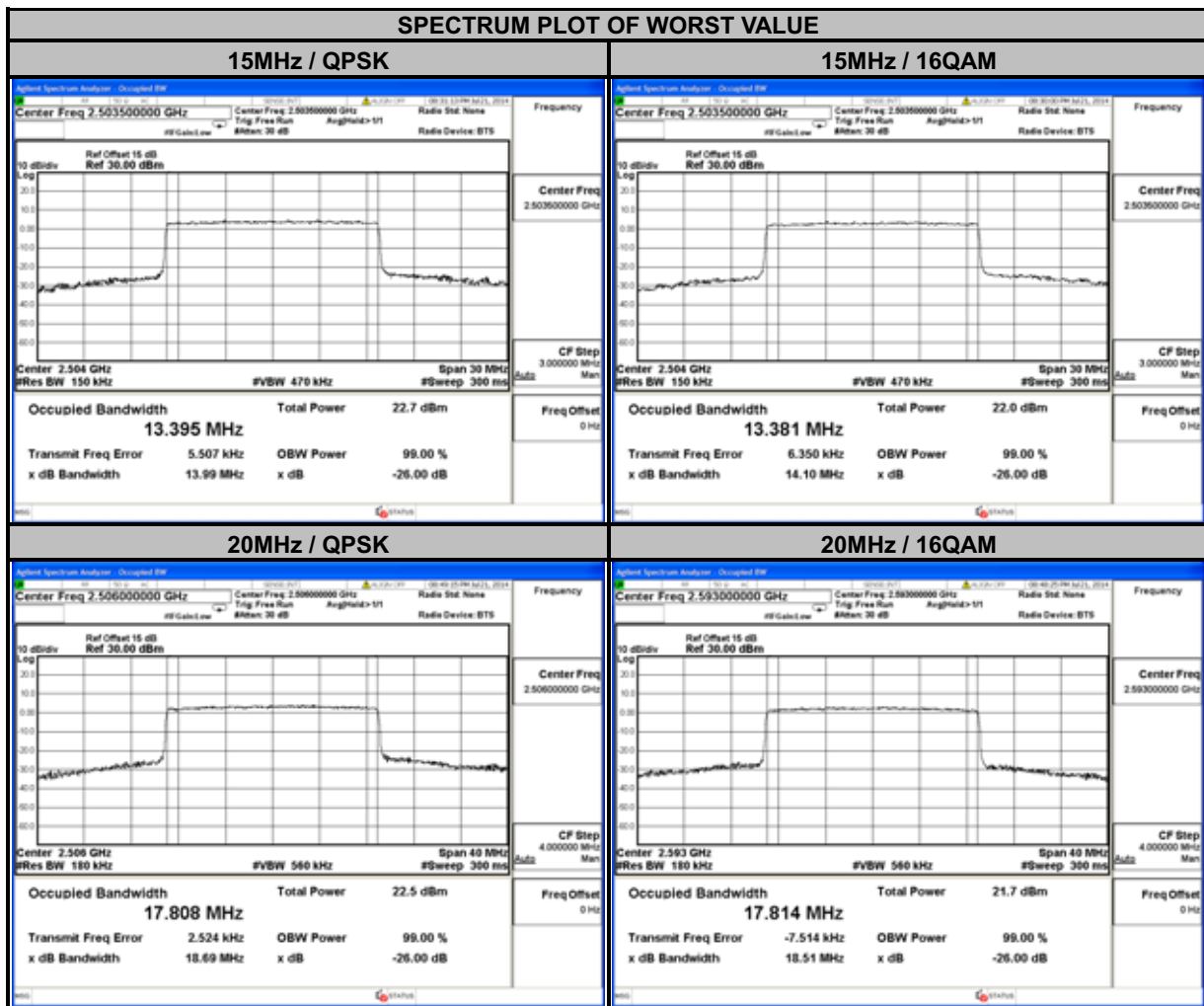




LTE BAND 41							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
39675	2498.5	4.4972	4.4965	39700	2501.0	8.9140	8.9242
40620	2593.0	4.4940	4.4884	40620	2593.0	8.9112	8.9164
41565	2687.5	4.4909	4.4919	41540	2685.0	8.9102	8.9148



LTE BAND 41							
CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
39725	2503.5	13.395	13.381	39750	2506.0	17.808	17.809
40620	2593.0	13.384	13.376	40620	2593.0	17.792	17.814
41515	2682.5	13.377	13.369	41490	2680.0	17.780	17.795

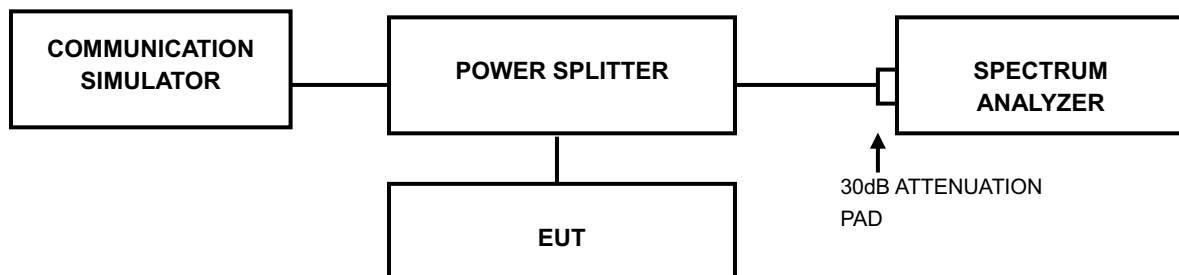


## 4.4 PEAK TO AVERAGE RATIO

### 4.4.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 4.4.2 TEST SETUP

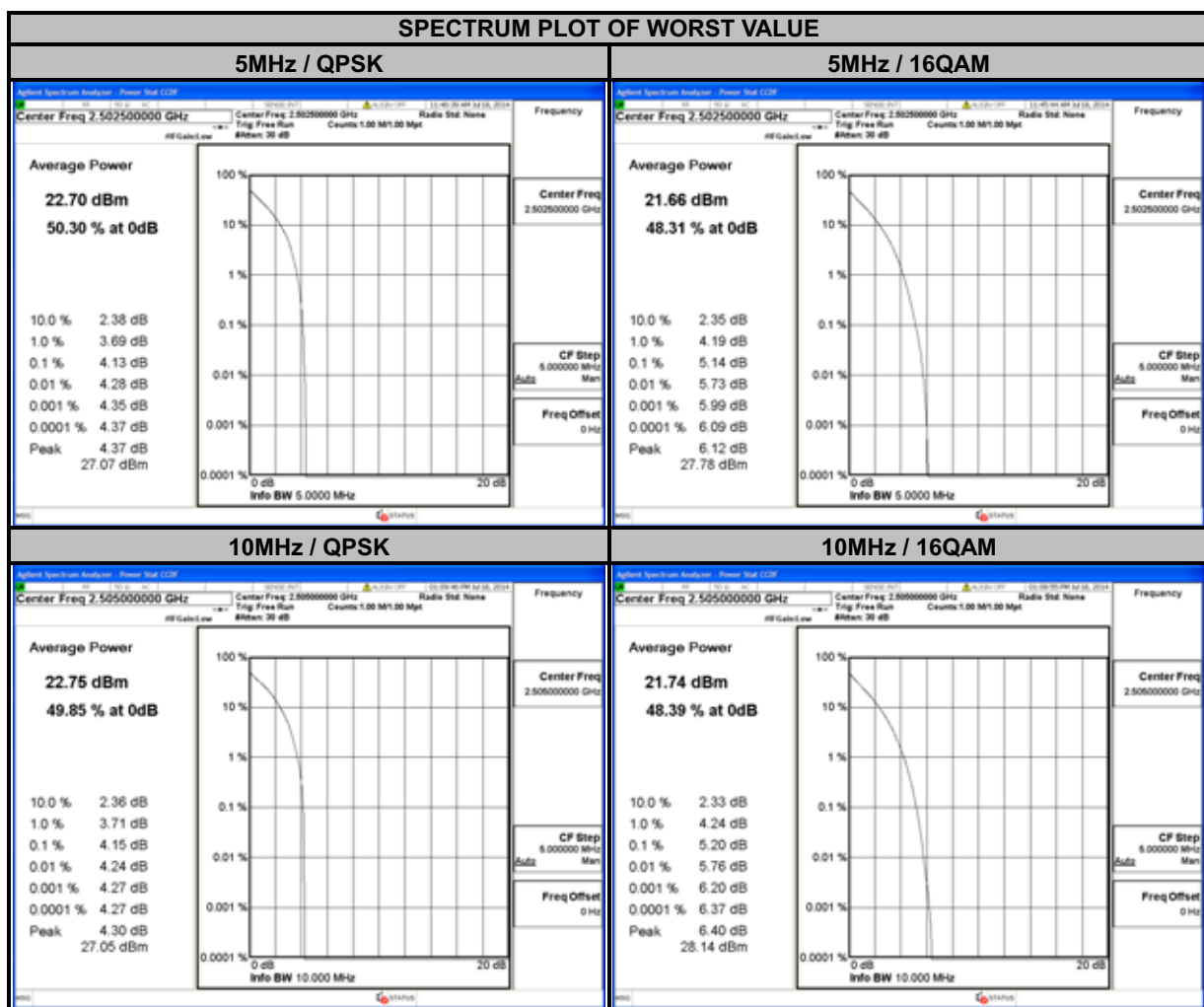


### 4.4.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

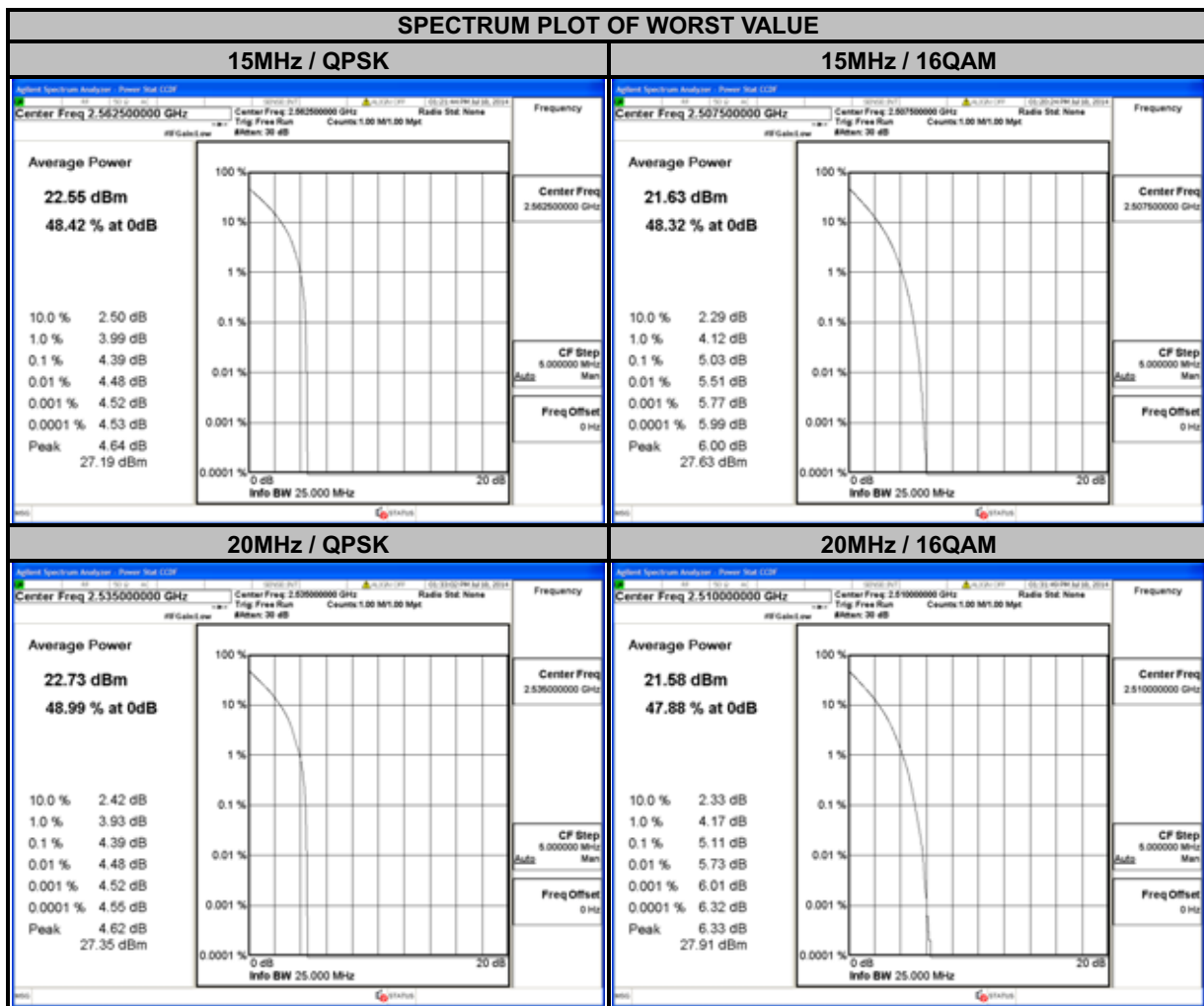
### 4.4.4 TEST RESULTS

LTE BAND 7							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
20775	2502.5	4.13	5.14	20800	2505.0	4.15	5.20
21100	2535.0	4.04	5.10	21100	2535.0	4.13	5.20
21425	2567.5	3.70	4.89	21400	2565.0	4.12	5.06

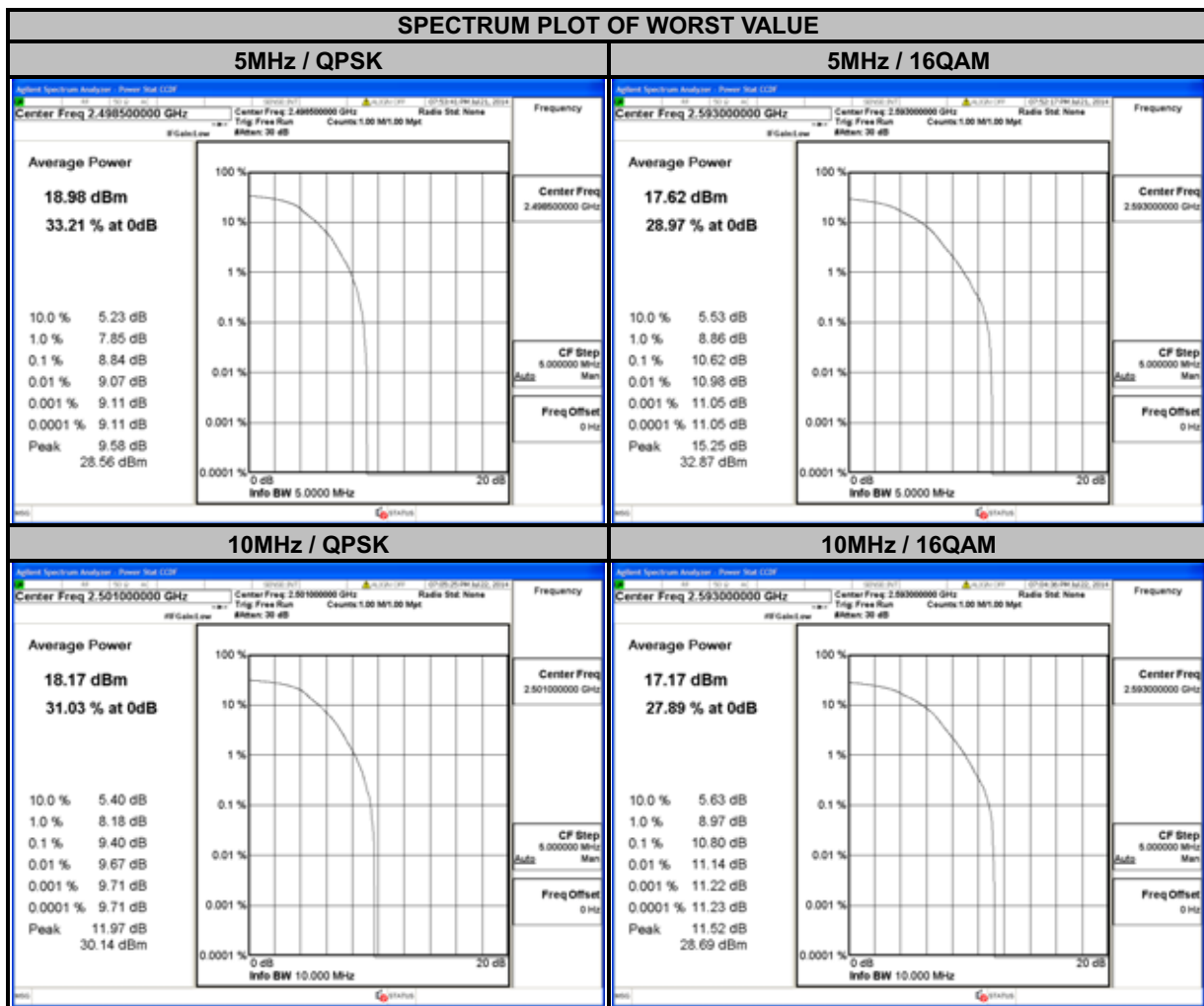




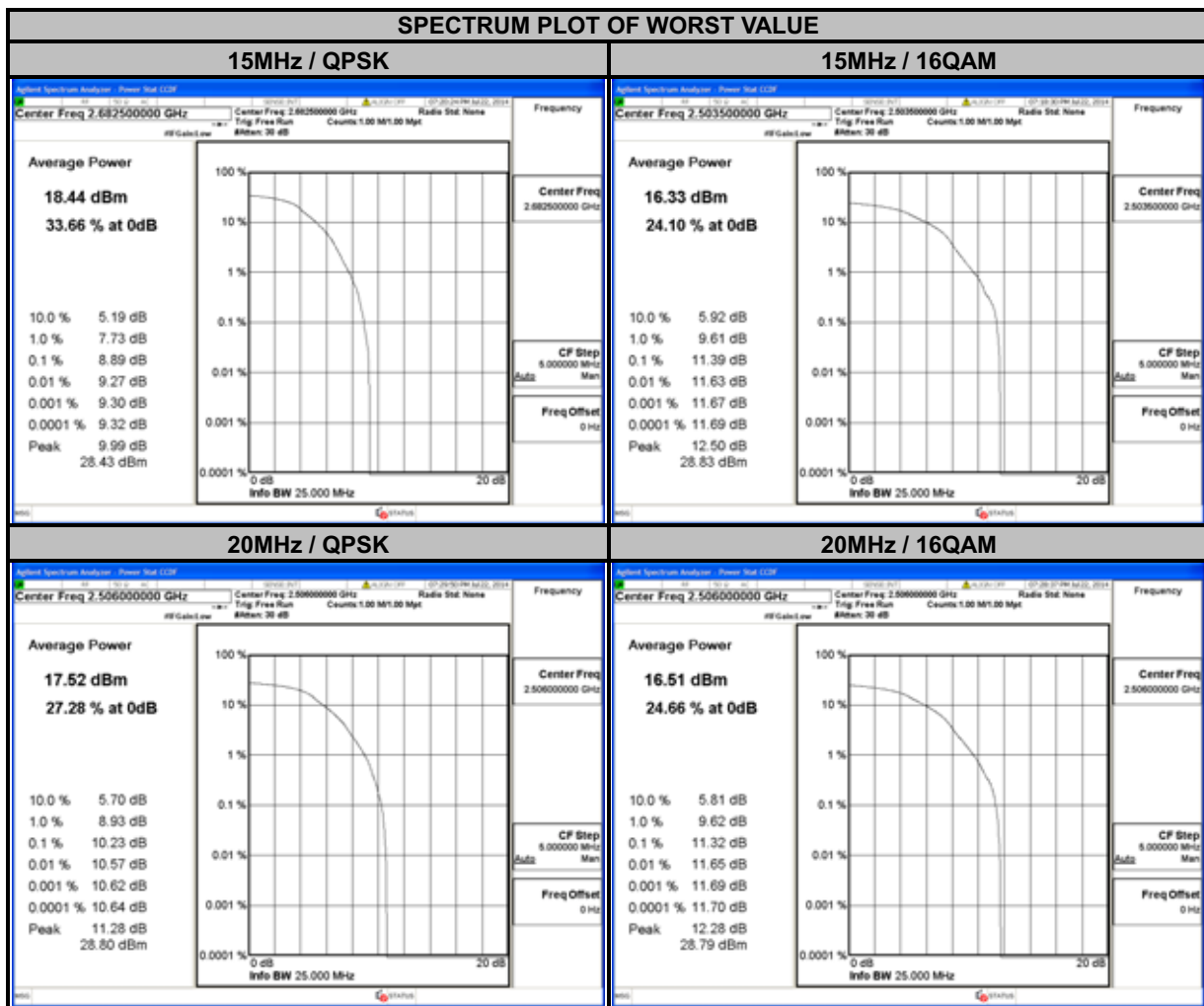
LTE BAND 7							
CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
20825	2507.5	4.16	5.03	20850	2510.0	4.21	5.11
21100	2535.0	4.25	4.91	21100	2535.0	4.39	5.03
21375	2562.5	4.39	4.87	21350	2560.0	4.36	5.04



LTE BAND 41							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
39675	2498.5	8.84	9.22	39700	2501.0	9.40	10.77
40620	2593.0	8.56	10.62	40620	2593.0	8.03	10.80
41565	2687.5	8.80	10.22	41540	2685.0	7.74	8.75



LTE BAND 41							
CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
39725	2503.5	8.38	11.39	39750	2506.0	10.23	11.32
40620	2593.0	8.09	10.14	40620	2593.0	9.81	10.54
41515	2682.5	8.89	10.23	41490	2680.0	8.50	10.56



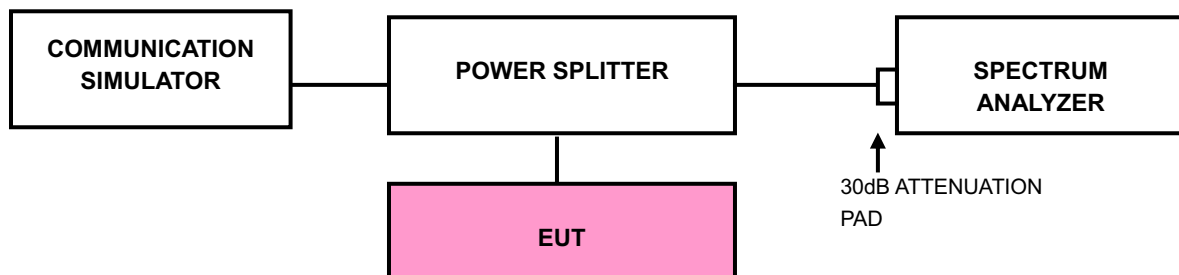


## 4.5 BAND EDGE MEASUREMENT

### 4.5.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(m)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed.

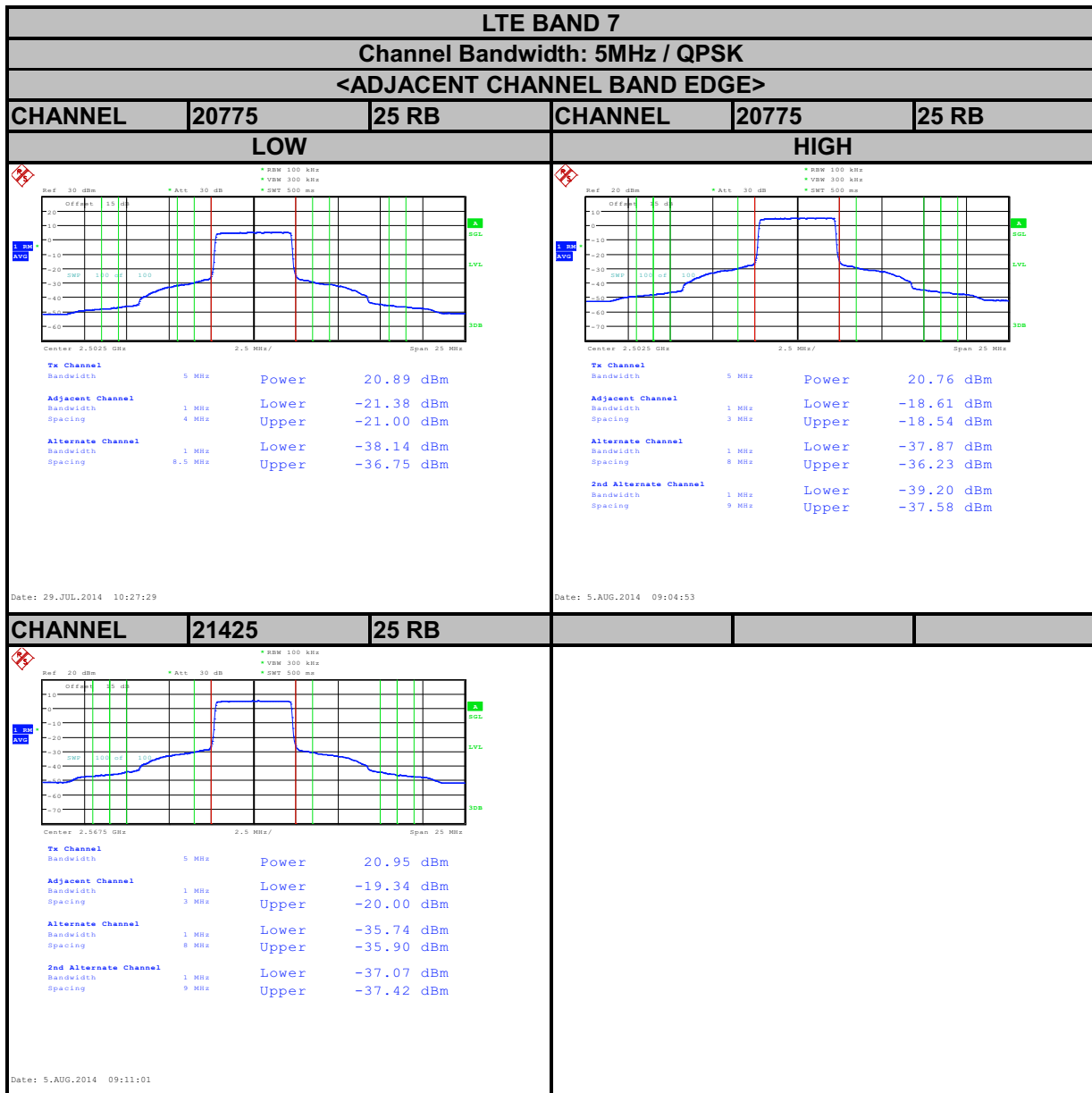
### 4.5.2 TEST SETUP



#### 4.5.3 TEST PROCEDURES

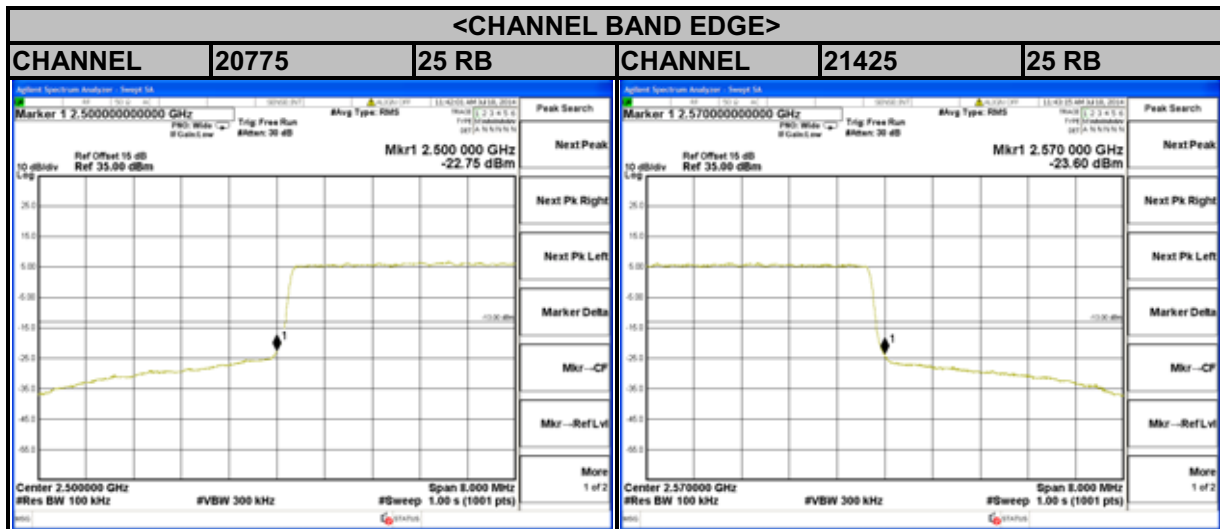
- a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
- b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The center frequency of spectrum is the band edge frequency and span is 8MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (Channel bandwidth 5MHz/10MHz).
- d. The center frequency of spectrum is the band edge frequency and span is 8MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (Channel bandwidth 15MHz).
- e. The center frequency of spectrum is the band edge frequency and span is 8MHz. RB of the spectrum is 180kHz and VB of the spectrum is 560kHz (Channel bandwidth 20MHz).
- f. The center frequency of spectrum is the band edge frequency and span is 80MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz (Channel bandwidth 20MHz).
- g. Record the max trace plot into the test report.

### 4.5.4 TEST RESULTS





A D T





A D T

**LTE BAND 7**  
**Channel Bandwidth: 5MHz / 16QAM**  
**<ADJACENT CHANNEL BAND EDGE>**

CHANNEL	20775	25 RB	CHANNEL	20775	25 RB																																																												
LOW			HIGH																																																														
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>5 MHz</td> <td>Power</td> <td>19.81 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-22.29 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>4 MHz</td> <td>Upper</td> <td>-21.91 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-39.08 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8.5 MHz</td> <td>Upper</td> <td>-37.80 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	5 MHz	Power	19.81 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-22.29 dBm		Spacing	4 MHz	Upper	-21.91 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-39.08 dBm		Spacing	8.5 MHz	Upper	-37.80 dBm	<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>5 MHz</td> <td>Power</td> <td>19.72 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-19.95 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>3 MHz</td> <td>Upper</td> <td>-19.75 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-38.73 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-37.19 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-40.38 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>9 MHz</td> <td>Upper</td> <td>-38.87 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	5 MHz	Power	19.72 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-19.95 dBm		Spacing	3 MHz	Upper	-19.75 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-38.73 dBm		Spacing	8 MHz	Upper	-37.19 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-40.38 dBm		Spacing	9 MHz	Upper	-38.87 dBm
<b>Tx Channel</b>	Bandwidth	5 MHz	Power	19.81 dBm																																																													
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-22.29 dBm																																																													
	Spacing	4 MHz	Upper	-21.91 dBm																																																													
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	Spacing	8.5 MHz	Upper	-37.80 dBm																																																													
<b>Tx Channel</b>	Bandwidth	5 MHz	Power	19.72 dBm																																																													
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-19.95 dBm																																																													
	Spacing	3 MHz	Upper	-19.75 dBm																																																													
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-38.73 dBm																																																													
	Spacing	8 MHz	Upper	-37.19 dBm																																																													
<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-40.38 dBm																																																													
	Spacing	9 MHz	Upper	-38.87 dBm																																																													
Date: 29.JUL.2014 10:26:17			Date: 5.AUG.2014 09:07:42																																																														

CHANNEL	21425	25 RB																																						
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>5 MHz</td> <td>Power</td> <td>19.90 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-20.84 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>3 MHz</td> <td>Upper</td> <td>-21.44 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-37.20 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-37.33 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-38.73 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>9 MHz</td> <td>Upper</td> <td>-38.99 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	5 MHz	Power	19.90 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-20.84 dBm		Spacing	3 MHz	Upper	-21.44 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-37.20 dBm		Spacing	8 MHz	Upper	-37.33 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-38.73 dBm		Spacing	9 MHz	Upper	-38.99 dBm			
<b>Tx Channel</b>	Bandwidth	5 MHz	Power	19.90 dBm																																				
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-20.84 dBm																																				
	Spacing	3 MHz	Upper	-21.44 dBm																																				
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-37.20 dBm																																				
	Spacing	8 MHz	Upper	-37.33 dBm																																				
<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-38.73 dBm																																				
	Spacing	9 MHz	Upper	-38.99 dBm																																				
Date: 5.AUG.2014 09:09:53																																								

**<CHANNEL BAND EDGE>**

CHANNEL	20775	25 RB	CHANNEL	21425	25 RB										
<table border="0" style="width: 100%;"> <tr> <td>Marker 1</td> <td>2.4999200000 GHz</td> <td>Mkr1</td> <td>2.499 992 GHz</td> <td>-24.42 dBm</td> </tr> </table>			Marker 1	2.4999200000 GHz	Mkr1	2.499 992 GHz	-24.42 dBm	<table border="0" style="width: 100%;"> <tr> <td>Marker 1</td> <td>2.5700000000 GHz</td> <td>Mkr1</td> <td>2.570 000 GHz</td> <td>-25.53 dBm</td> </tr> </table>			Marker 1	2.5700000000 GHz	Mkr1	2.570 000 GHz	-25.53 dBm
Marker 1	2.4999200000 GHz	Mkr1	2.499 992 GHz	-24.42 dBm											
Marker 1	2.5700000000 GHz	Mkr1	2.570 000 GHz	-25.53 dBm											
<p>Center 2.500000 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 1.00 s (1001 pts)</p>			<p>Center 2.570000 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 1.00 s (1001 pts)</p>												

**LTE BAND 7**  
**Channel Bandwidth: 10MHz / QPSK**  
**<ADJACENT CHANNEL BAND EDGE>**

CHANNEL	20800	50 RB	CHANNEL	20800	50 RB
LOW			HIGH		
<p><b>Tx Channel</b>            Bandwidth 10 MHz      Power 20.94 dBm</p> <p><b>Adjacent Channel</b>            Bandwidth 1 MHz      Lower -22.70 dBm            Spacing 6.5 MHz      Upper -22.29 dBm</p> <p><b>Alternate Channel</b>            Bandwidth 1 MHz      Lower -29.01 dBm            Spacing 11 MHz      Upper -27.54 dBm</p>			<p><b>Tx Channel</b>            Bandwidth 10 MHz      Power 20.54 dBm</p> <p><b>Adjacent Channel</b>            Bandwidth 1 MHz      Lower -21.54 dBm            Spacing 5.5 MHz      Upper -21.19 dBm</p> <p><b>Alternate Channel</b>            Bandwidth 1 MHz      Lower -28.29 dBm            Spacing 10.5 MHz      Upper -26.70 dBm</p> <p><b>2nd Alternate Channel</b>            Bandwidth 1 MHz      Lower -40.99 dBm            Spacing 14.94 MHz      Upper -38.63 dBm</p>		
Date: 29.JUL.2014 10:19:54			Date: 5.AUG.2014 09:13:35		

CHANNEL	21400	50 RB			
<p><b>Tx Channel</b>            Bandwidth 10 MHz      Power 19.64 dBm</p> <p><b>Adjacent Channel</b>            Bandwidth 1 MHz      Lower -23.04 dBm            Spacing 5.5 MHz      Upper -24.86 dBm</p> <p><b>Alternate Channel</b>            Bandwidth 1 MHz      Lower -28.30 dBm            Spacing 10.5 MHz      Upper -30.69 dBm</p> <p><b>2nd Alternate Channel</b>            Bandwidth 1 MHz      Lower -38.36 dBm            Spacing 14.94 MHz      Upper -39.06 dBm</p>					
Date: 5.AUG.2014 09:16:21					

**<CHANNEL BAND EDGE>**

CHANNEL	20800	50 RB	CHANNEL	21400	50 RB
<p>Marker 1 2.500000000000 GHz</p> <p>Mkr1 2.500 000 GHz -27.88 dBm</p> <p>Center 2.500000 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 1.00 s (1001 pts)</p>			<p>Marker 1 2.570008000000 GHz</p> <p>Mkr1 2.570 008 GHz -29.05 dBm</p> <p>Center 2.570000 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 1.00 s (1001 pts)</p>		



**LTE BAND 7**  
**Channel Bandwidth: 10MHz / 16QAM**  
**<ADJACENT CHANNEL BAND EDGE>**

CHANNEL	20800	50 RB	CHANNEL	20800	50 RB
LOW			HIGH		
Date: 29.JUL.2014 10:18:46			Date: 5.AUG.2014 09:14:44		

CHANNEL	21400	50 RB			
Date: 5.AUG.2014 09:18:58					

**<CHANNEL BAND EDGE>**

CHANNEL	20800	50 RB	CHANNEL	21400	50 RB

**LTE BAND 7**  
**Channel Bandwidth: 15MHz / QPSK**  
**<ADJACENT CHANNEL BAND EDGE>**

CHANNEL	20825	75 RB	CHANNEL	20825	75 RB																																																												
<b>LOW</b>			<b>HIGH</b>																																																														
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>20.85 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-23.69 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>9 MHz</td> <td>Upper</td> <td>-23.79 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-27.86 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13.5 MHz</td> <td>Upper</td> <td>-27.02 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	20.85 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-23.69 dBm		Spacing	9 MHz	Upper	-23.79 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-27.86 dBm		Spacing	13.5 MHz	Upper	-27.02 dBm	<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>20.45 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-23.33 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-23.38 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-28.03 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13 MHz</td> <td>Upper</td> <td>-27.20 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-45.39 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>22 MHz</td> <td>Upper</td> <td>-40.89 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	20.45 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-23.33 dBm		Spacing	8 MHz	Upper	-23.38 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-28.03 dBm		Spacing	13 MHz	Upper	-27.20 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-45.39 dBm		Spacing	22 MHz	Upper	-40.89 dBm
<b>Tx Channel</b>	Bandwidth	15 MHz	Power	20.85 dBm																																																													
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-23.69 dBm																																																													
	Spacing	9 MHz	Upper	-23.79 dBm																																																													
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-27.86 dBm																																																													
	Spacing	13.5 MHz	Upper	-27.02 dBm																																																													
<b>Tx Channel</b>	Bandwidth	15 MHz	Power	20.45 dBm																																																													
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-23.33 dBm																																																													
	Spacing	8 MHz	Upper	-23.38 dBm																																																													
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-28.03 dBm																																																													
	Spacing	13 MHz	Upper	-27.20 dBm																																																													
<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-45.39 dBm																																																													
	Spacing	22 MHz	Upper	-40.89 dBm																																																													
Date: 29.JUL.2014 10:12:39			Date: 5.AUG.2014 09:22:13																																																														

CHANNEL	21375	75 RB																																						
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>20.53 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-22.87 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-26.28 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-25.66 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13 MHz</td> <td>Upper</td> <td>-30.73 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-40.01 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>22 MHz</td> <td>Upper</td> <td>-40.51 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	20.53 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-22.87 dBm		Spacing	8 MHz	Upper	-26.28 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-25.66 dBm		Spacing	13 MHz	Upper	-30.73 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-40.01 dBm		Spacing	22 MHz	Upper	-40.51 dBm			
<b>Tx Channel</b>	Bandwidth	15 MHz	Power	20.53 dBm																																				
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-22.87 dBm																																				
	Spacing	8 MHz	Upper	-26.28 dBm																																				
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-25.66 dBm																																				
	Spacing	13 MHz	Upper	-30.73 dBm																																				
<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-40.01 dBm																																				
	Spacing	22 MHz	Upper	-40.51 dBm																																				
Date: 5.AUG.2014 09:26:02																																								

**<CHANNEL BAND EDGE>**

CHANNEL	20825	75 RB	CHANNEL	21375	75 RB												
<table border="0" style="width: 100%;"> <tr> <td>Marker 1</td> <td>2.499800000 GHz</td> <td>-30.55 dBm</td> </tr> <tr> <td>Ref Offset</td> <td>15 dB</td> <td>Ref 35.00 dBm</td> </tr> </table>			Marker 1	2.499800000 GHz	-30.55 dBm	Ref Offset	15 dB	Ref 35.00 dBm	<table border="0" style="width: 100%;"> <tr> <td>Marker 1</td> <td>2.570016000 GHz</td> <td>-31.45 dBm</td> </tr> <tr> <td>Ref Offset</td> <td>15 dB</td> <td>Ref 35.00 dBm</td> </tr> </table>			Marker 1	2.570016000 GHz	-31.45 dBm	Ref Offset	15 dB	Ref 35.00 dBm
Marker 1	2.499800000 GHz	-30.55 dBm															
Ref Offset	15 dB	Ref 35.00 dBm															
Marker 1	2.570016000 GHz	-31.45 dBm															
Ref Offset	15 dB	Ref 35.00 dBm															
<p>Center 2.500000 GHz #Res BW 150 kHz #VBW 470 kHz #Sweep 1.00 s (1001 pts)</p>			<p>Center 2.570000 GHz #Res BW 150 kHz #VBW 470 kHz #Sweep 1.00 s (1001 pts)</p>														





**LTE BAND 7**  
**Channel Bandwidth: 15MHz / 16QAM**  
**<ADJACENT CHANNEL BAND EDGE>**

CHANNEL	20825	75 RB	CHANNEL	20825	75 RB																																																												
LOW			HIGH																																																														
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>19.84 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-25.02 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>9 MHz</td> <td>Upper</td> <td>-24.93 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-28.91 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13.5 MHz</td> <td>Upper</td> <td>-28.03 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.84 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-25.02 dBm		Spacing	9 MHz	Upper	-24.93 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-28.91 dBm		Spacing	13.5 MHz	Upper	-28.03 dBm	<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>19.46 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-24.70 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-24.48 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-28.92 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13 MHz</td> <td>Upper</td> <td>-28.01 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-45.50 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>22 MHz</td> <td>Upper</td> <td>-41.18 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.46 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-24.70 dBm		Spacing	8 MHz	Upper	-24.48 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-28.92 dBm		Spacing	13 MHz	Upper	-28.01 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-45.50 dBm		Spacing	22 MHz	Upper	-41.18 dBm
<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.84 dBm																																																													
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-25.02 dBm																																																													
	Spacing	9 MHz	Upper	-24.93 dBm																																																													
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-28.91 dBm																																																													
	Spacing	13.5 MHz	Upper	-28.03 dBm																																																													
<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.46 dBm																																																													
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-24.70 dBm																																																													
	Spacing	8 MHz	Upper	-24.48 dBm																																																													
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-28.92 dBm																																																													
	Spacing	13 MHz	Upper	-28.01 dBm																																																													
<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-45.50 dBm																																																													
	Spacing	22 MHz	Upper	-41.18 dBm																																																													
Date: 29.JUL.2014 10:11:25			Date: 5.AUG.2014 09:23:16																																																														

CHANNEL	21375	75 RB																																						
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>19.49 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-24.27 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-27.33 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-26.78 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13 MHz</td> <td>Upper</td> <td>-31.45 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-40.64 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>22 MHz</td> <td>Upper</td> <td>-41.50 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.49 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-24.27 dBm		Spacing	8 MHz	Upper	-27.33 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-26.78 dBm		Spacing	13 MHz	Upper	-31.45 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-40.64 dBm		Spacing	22 MHz	Upper	-41.50 dBm			
<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.49 dBm																																				
<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-24.27 dBm																																				
	Spacing	8 MHz	Upper	-27.33 dBm																																				
<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-26.78 dBm																																				
	Spacing	13 MHz	Upper	-31.45 dBm																																				
<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-40.64 dBm																																				
	Spacing	22 MHz	Upper	-41.50 dBm																																				
Date: 5.AUG.2014 09:24:44																																								

**<CHANNEL BAND EDGE>**

CHANNEL	20825	75 RB	CHANNEL	21375	75 RB										
<table border="0" style="width: 100%;"> <tr> <td><b>Marker 1</b></td> <td>2.4992800000 GHz</td> <td>-32.02 dBm</td> </tr> </table>			<b>Marker 1</b>	2.4992800000 GHz	-32.02 dBm	<table border="0" style="width: 100%;"> <tr> <td><b>Marker 1</b></td> <td>2.570008000000 GHz</td> <td>-32.60 dBm</td> </tr> </table>			<b>Marker 1</b>	2.570008000000 GHz	-32.60 dBm				
<b>Marker 1</b>	2.4992800000 GHz	-32.02 dBm													
<b>Marker 1</b>	2.570008000000 GHz	-32.60 dBm													
<table border="0" style="width: 100%;"> <tr> <td>Center</td> <td>2.500000 GHz</td> <td>#Res BW 150 kHz</td> <td>#VBW 470 kHz</td> <td>#Sweep 1.00 s (1001 pts)</td> </tr> </table>			Center	2.500000 GHz	#Res BW 150 kHz	#VBW 470 kHz	#Sweep 1.00 s (1001 pts)	<table border="0" style="width: 100%;"> <tr> <td>Center</td> <td>2.570000 GHz</td> <td>#Res BW 150 kHz</td> <td>#VBW 470 kHz</td> <td>#Sweep 1.00 s (1001 pts)</td> </tr> </table>			Center	2.570000 GHz	#Res BW 150 kHz	#VBW 470 kHz	#Sweep 1.00 s (1001 pts)
Center	2.500000 GHz	#Res BW 150 kHz	#VBW 470 kHz	#Sweep 1.00 s (1001 pts)											
Center	2.570000 GHz	#Res BW 150 kHz	#VBW 470 kHz	#Sweep 1.00 s (1001 pts)											



**LTE BAND 7**  
**Channel Bandwidth: 20MHz / QPSK**  
**<ADJACENT CHANNEL BAND EDGE>**

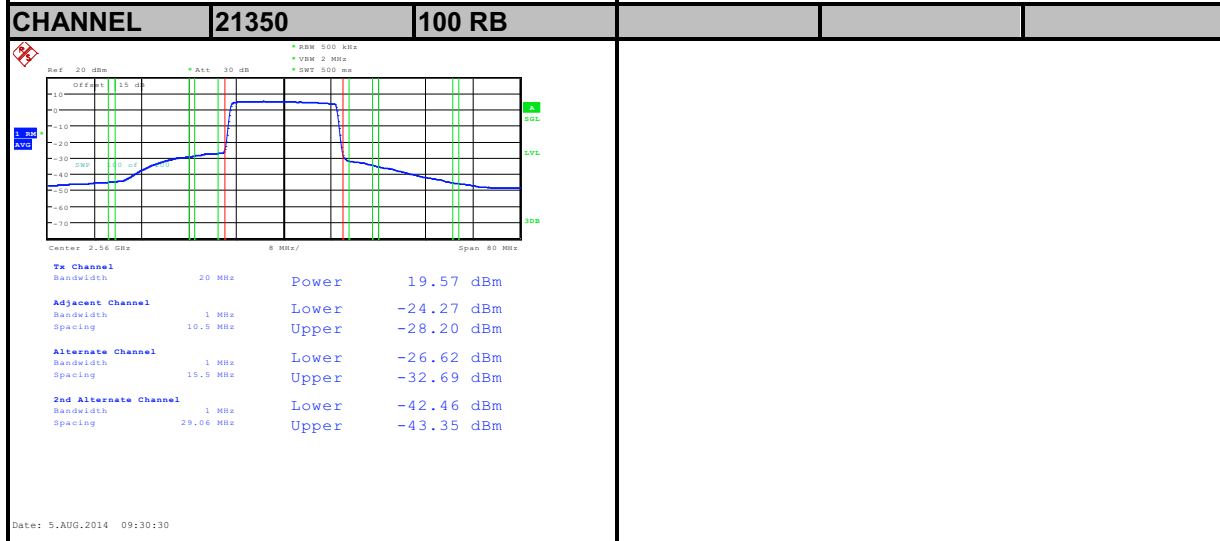
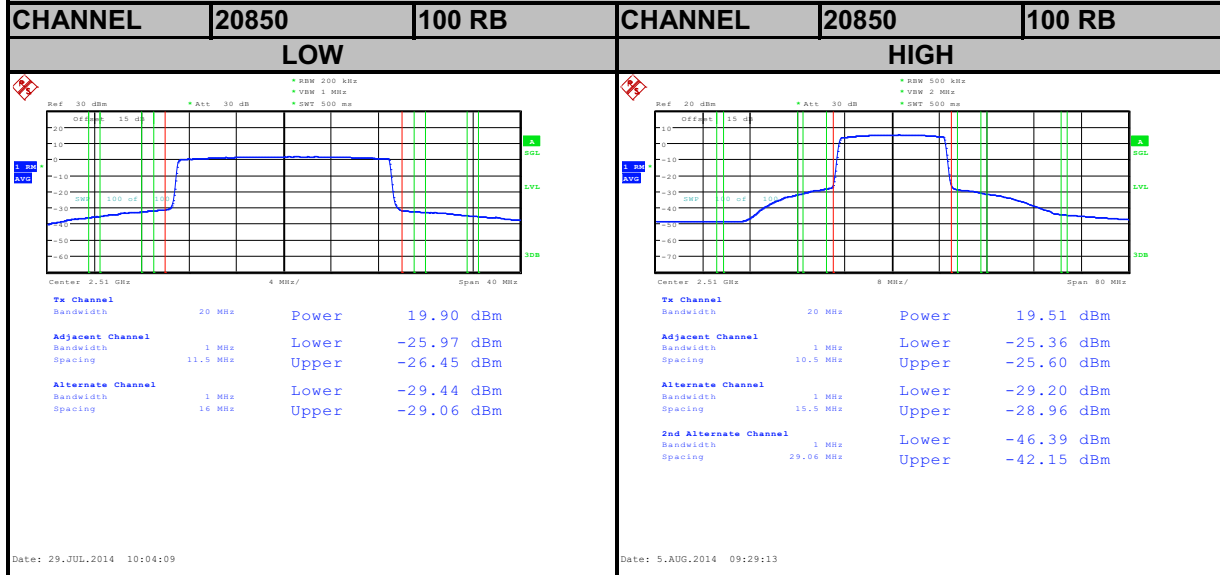
CHANNEL	20850	100 RB	CHANNEL	20850	100 RB
LOW			HIGH		
<p><b>Tx Channel</b>            Bandwidth: 20 MHz      Power: 20.93 dBm</p> <p><b>Adjacent Channel</b>            Bandwidth: 1 MHz      Lower: -24.58 dBm            Spacing: 11.5 MHz      Upper: -25.28 dBm</p> <p><b>Alternate Channel</b>            Bandwidth: 1 MHz      Lower: -28.46 dBm            Spacing: 16 MHz      Upper: -28.35 dBm</p>			<p><b>Tx Channel</b>            Bandwidth: 20 MHz      Power: 20.48 dBm</p> <p><b>Adjacent Channel</b>            Bandwidth: 1 MHz      Lower: -24.06 dBm            Spacing: 10.5 MHz      Upper: -24.45 dBm</p> <p><b>Alternate Channel</b>            Bandwidth: 1 MHz      Lower: -28.36 dBm            Spacing: 15.5 MHz      Upper: -28.29 dBm</p> <p><b>2nd Alternate Channel</b>            Bandwidth: 1 MHz      Lower: -46.38 dBm            Spacing: 29.06 MHz      Upper: -42.10 dBm</p>		
Date: 29.JUL.2014 10:05:24			Date: 5.AUG.2014 09:28:05		

CHANNEL	21350	100 RB			
<p><b>Tx Channel</b>            Bandwidth: 20 MHz      Power: 20.57 dBm</p> <p><b>Adjacent Channel</b>            Bandwidth: 1 MHz      Lower: -22.91 dBm            Spacing: 10.5 MHz      Upper: -27.15 dBm</p> <p><b>Alternate Channel</b>            Bandwidth: 1 MHz      Lower: -25.61 dBm            Spacing: 15.5 MHz      Upper: -32.22 dBm</p> <p><b>2nd Alternate Channel</b>            Bandwidth: 1 MHz      Lower: -42.39 dBm            Spacing: 29.06 MHz      Upper: -42.73 dBm</p>					
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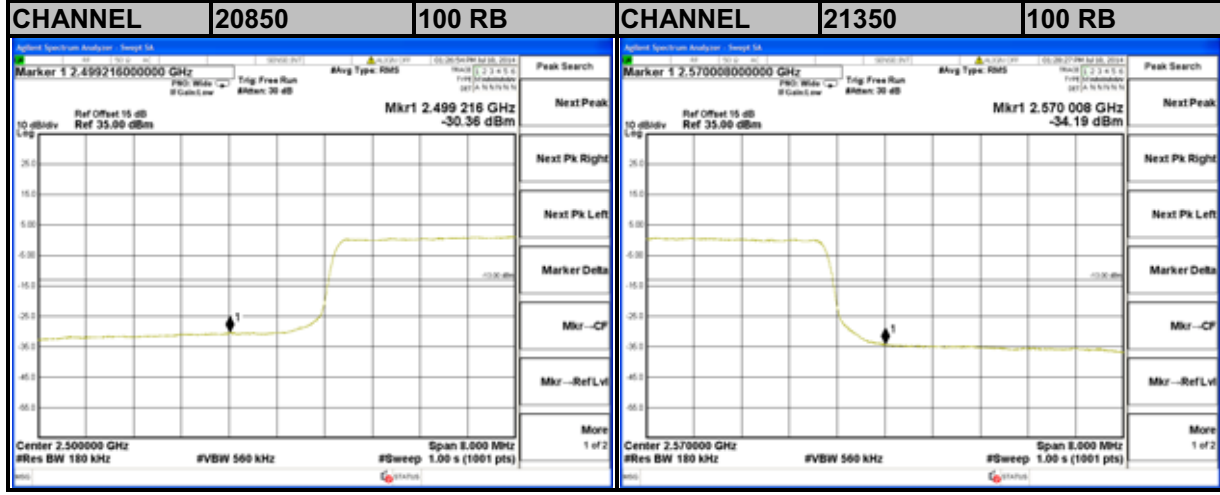
**<CHANNEL BAND EDGE>**

CHANNEL	20850	100 RB	CHANNEL	21350	100 RB
<p>Marker 1 2.499856000000 GHz      Mkr1 2.499 856 GHz      -28.89 dBm</p> <p>Ref Offset 15 dB      Ref 35.00 dBm</p> <p>Center 2.500000 GHz      #Res BW 180 kHz      #VBW 560 kHz      #Sweep 1.00 s (1001 pts)</p>			<p>Marker 1 2.570024000000 GHz      Mkr1 2.570 024 GHz      -33.25 dBm</p> <p>Ref Offset 15 dB      Ref 35.00 dBm</p> <p>Center 2.570000 GHz      #Res BW 180 kHz      #VBW 560 kHz      #Sweep 1.00 s (1001 pts)</p>		

**LTE BAND 7**  
**Channel Bandwidth: 20MHz / 16QAM**  
**<ADJACENT CHANNEL BAND EDGE>**

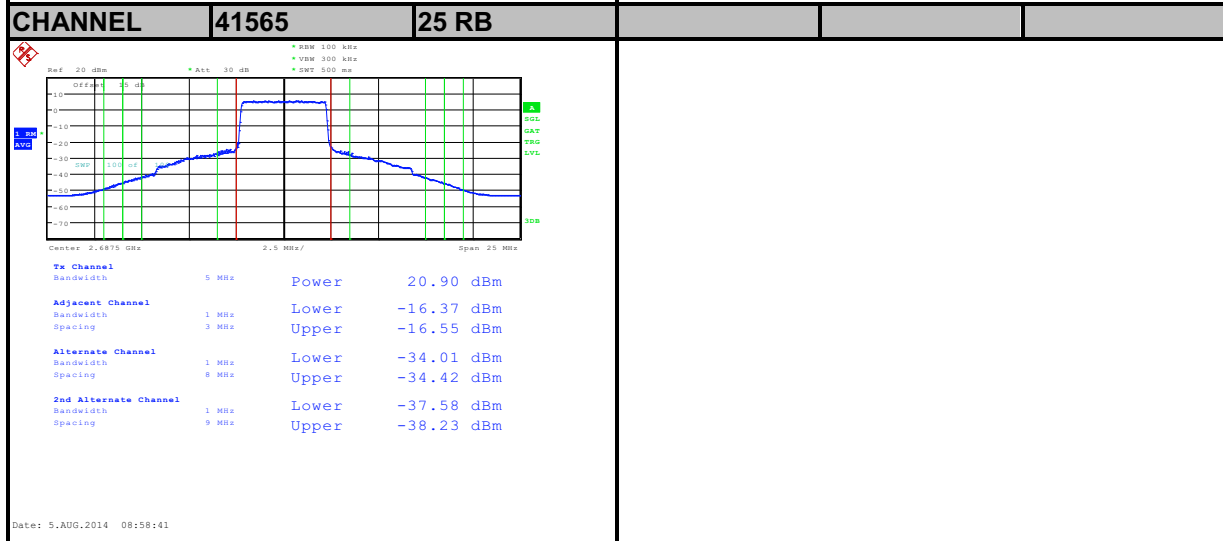
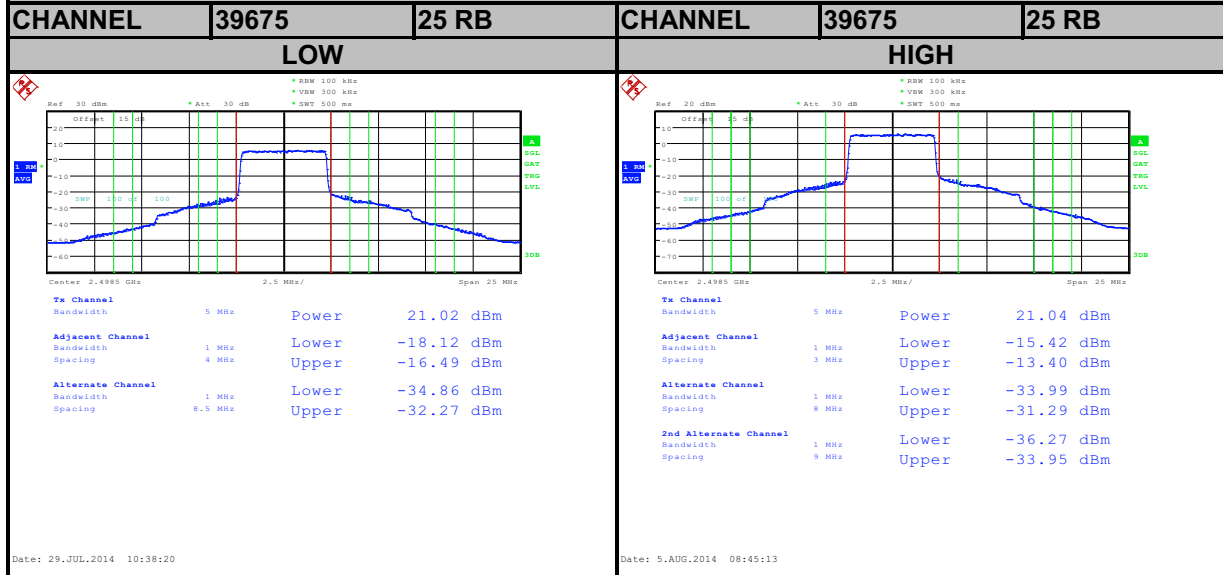


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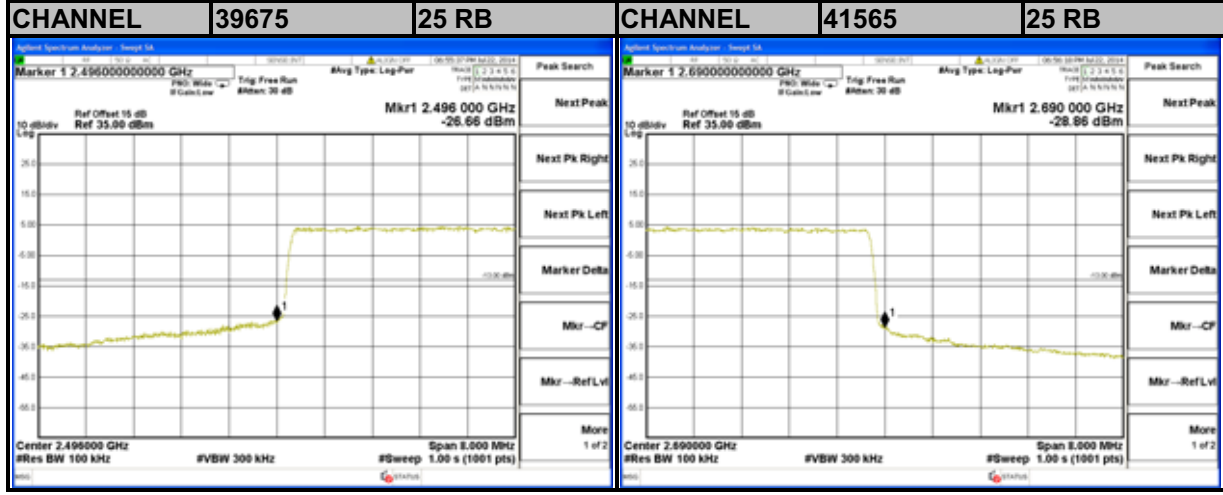




**LTE BAND 41**  
**Channel Bandwidth: 5MHz / QPSK**  
**<ADJACENT CHANNEL BAND EDGE>**



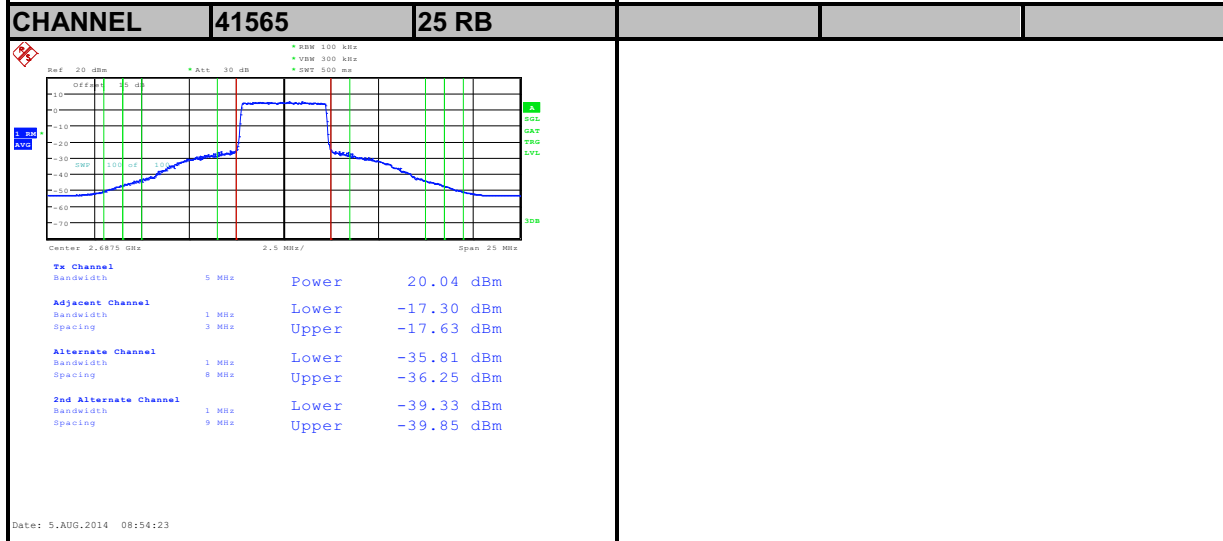
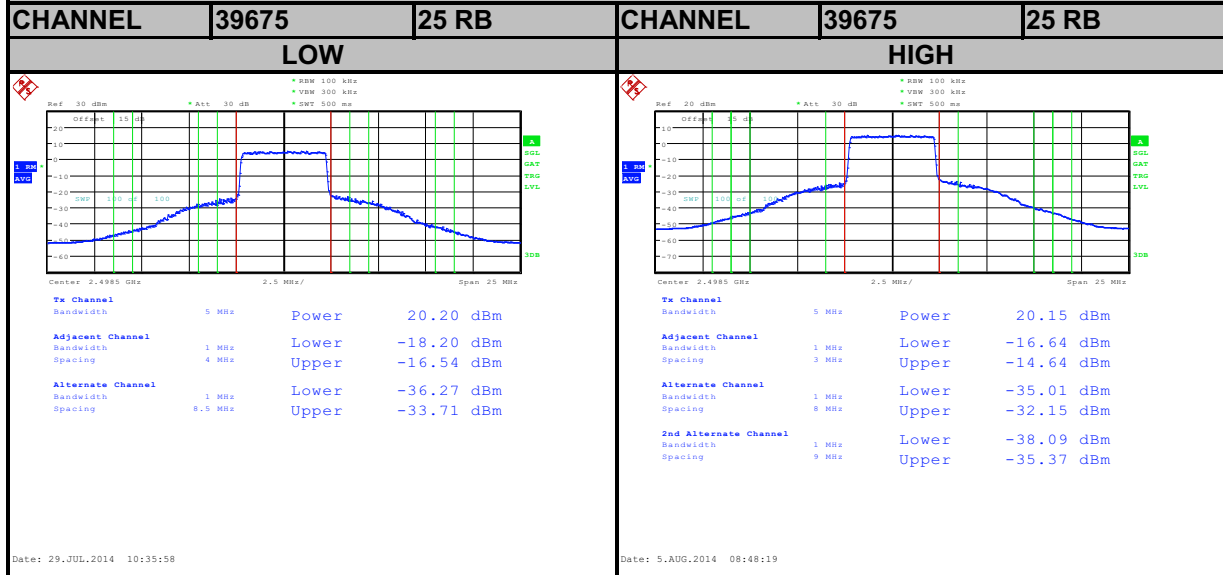
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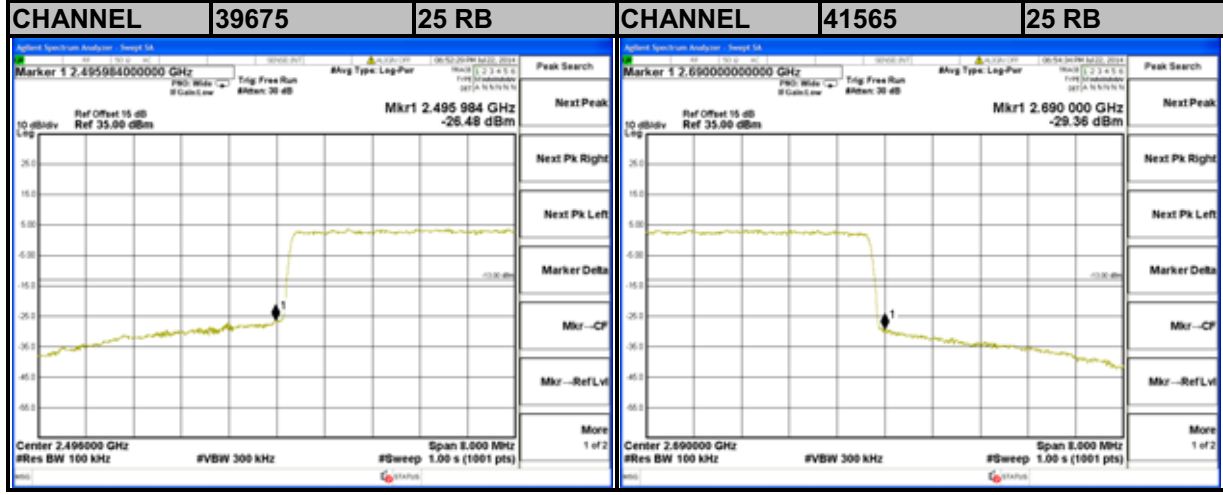


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**LTE BAND 41**  
**Channel Bandwidth: 5MHz / 16QAM**  
**<ADJACENT CHANNEL BAND EDGE>**

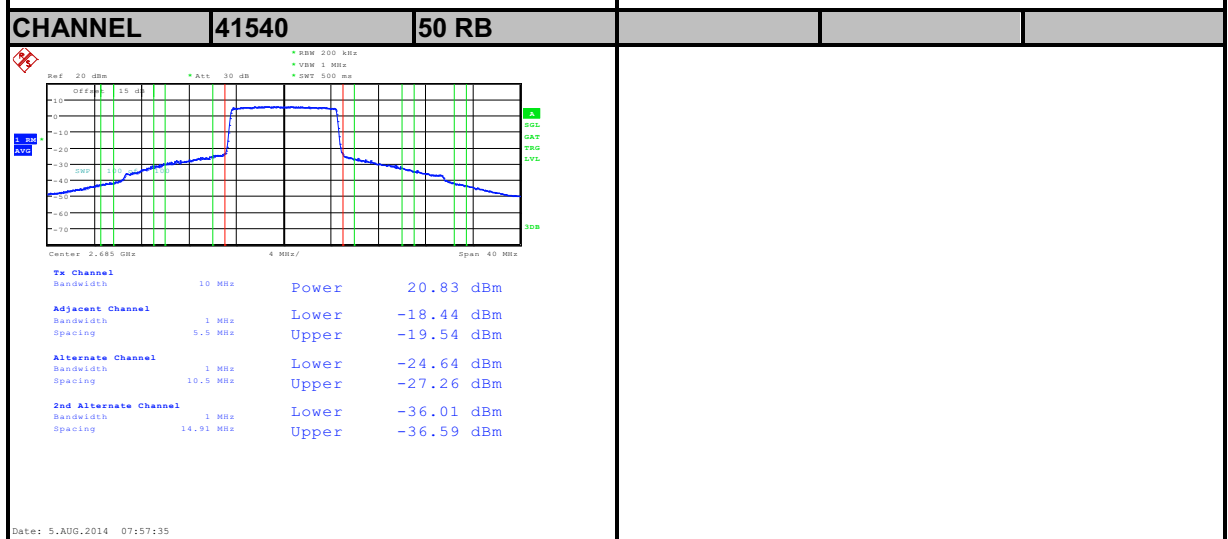
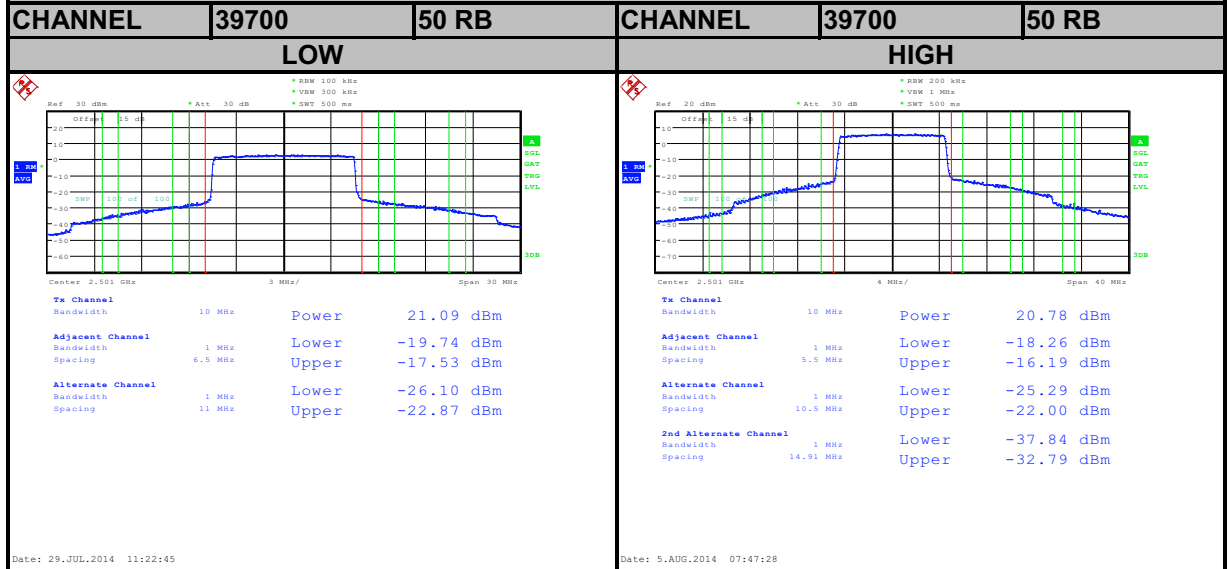


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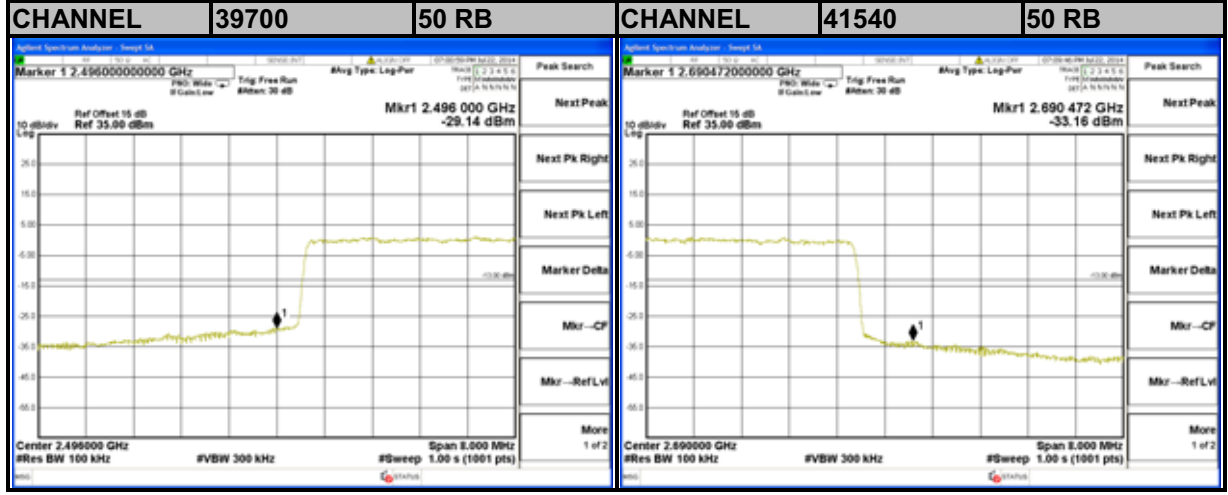




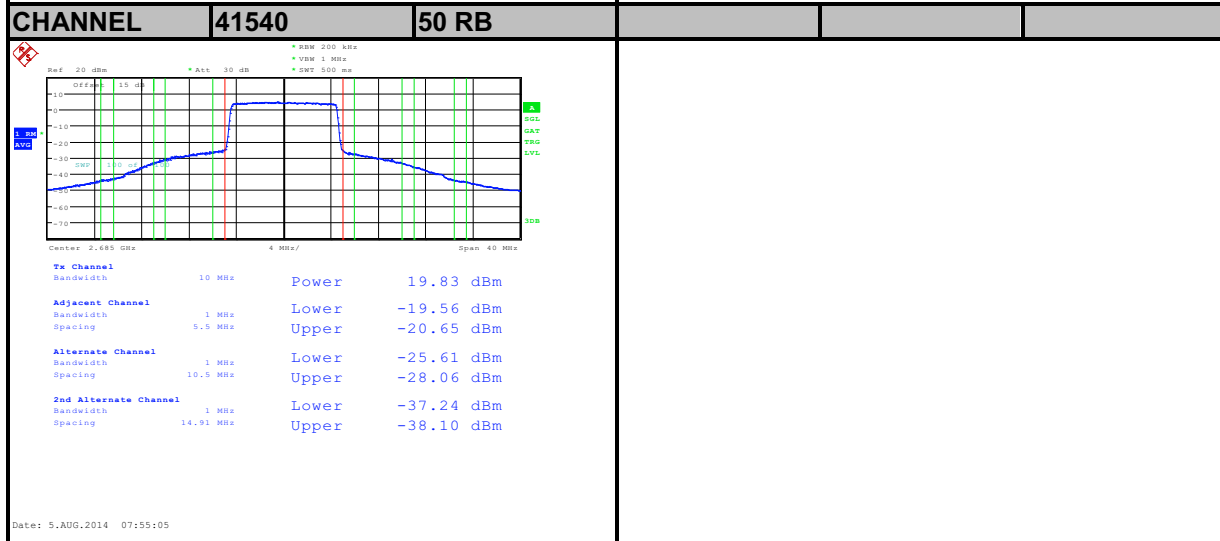
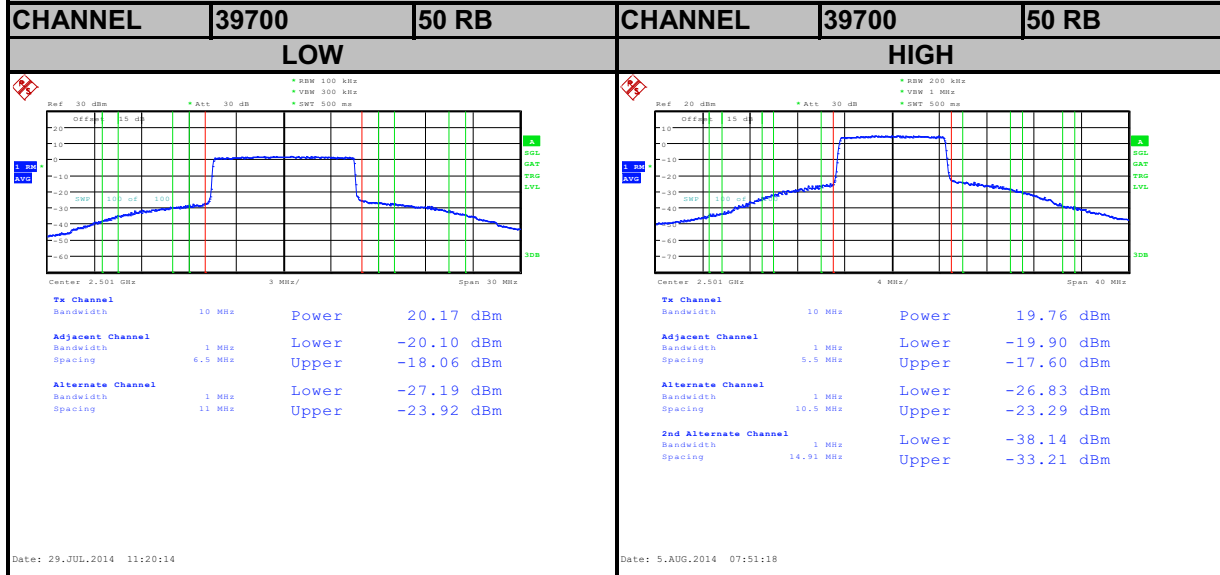
**LTE BAND 41**  
**Channel Bandwidth: 10MHz / QPSK**  
**<ADJACENT CHANNEL BAND EDGE>**



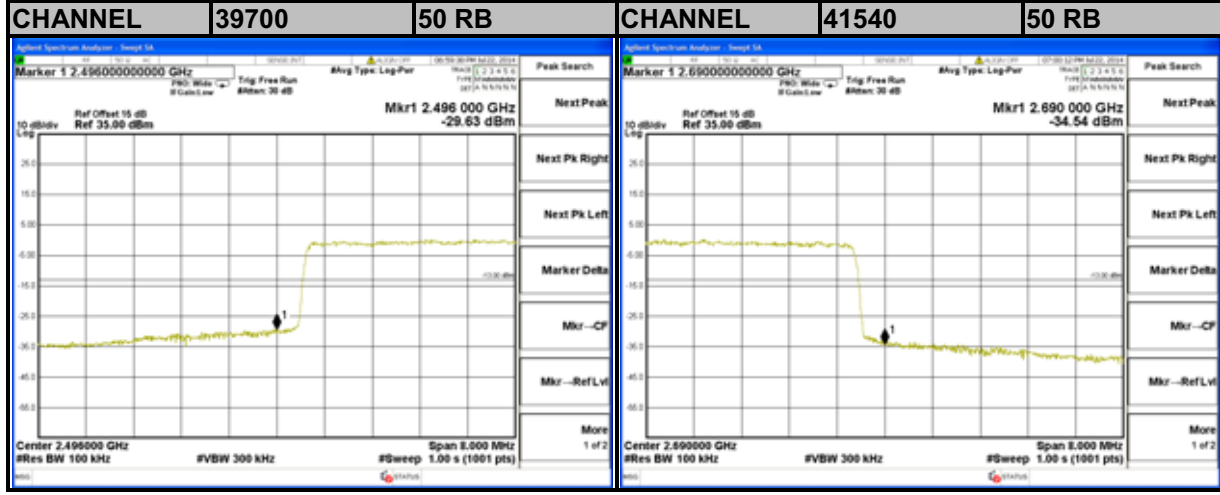
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**LTE BAND 41**  
**Channel Bandwidth: 10MHz / 16QAM**  
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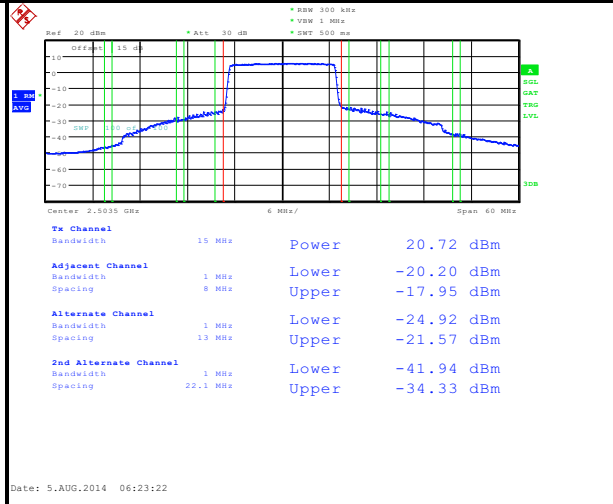
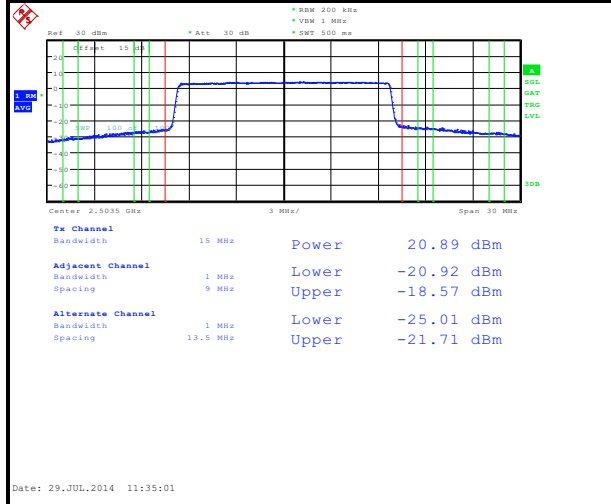


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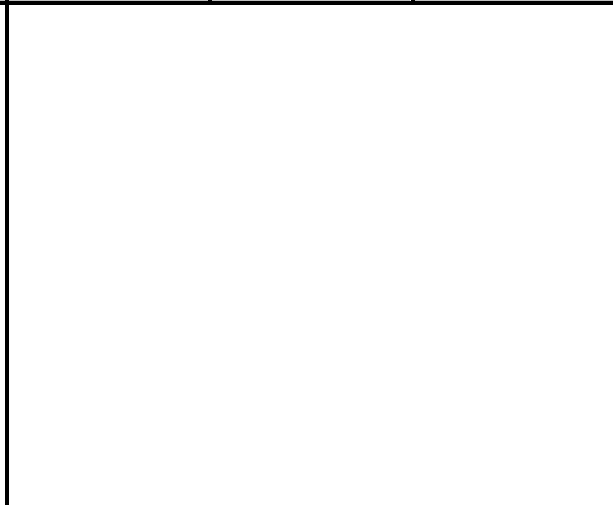
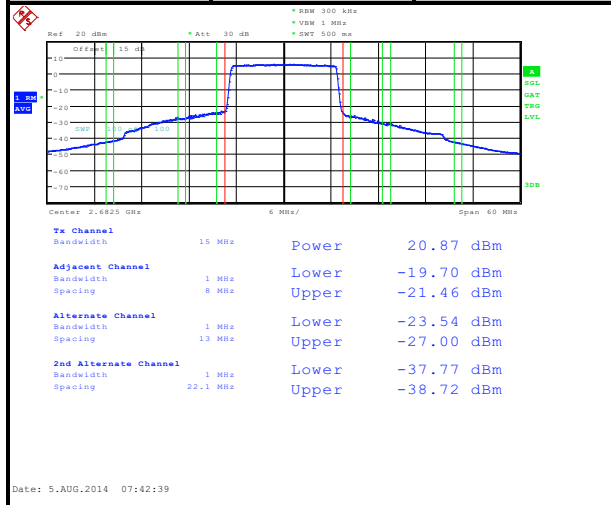


**LTE BAND 41**  
**Channel Bandwidth: 15MHz / QPSK**  
**<ADJACENT CHANNEL BAND EDGE>**

<b>CHANNEL</b>	<b>39725</b>	<b>75 RB</b>	<b>CHANNEL</b>	<b>39725</b>	<b>75 RB</b>
<b>LOW</b>			<b>HIGH</b>		

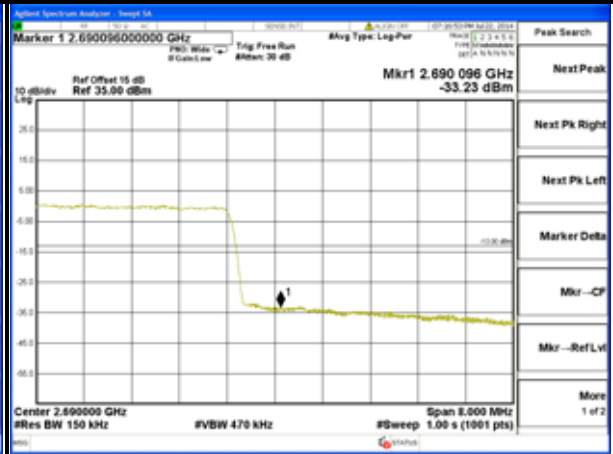
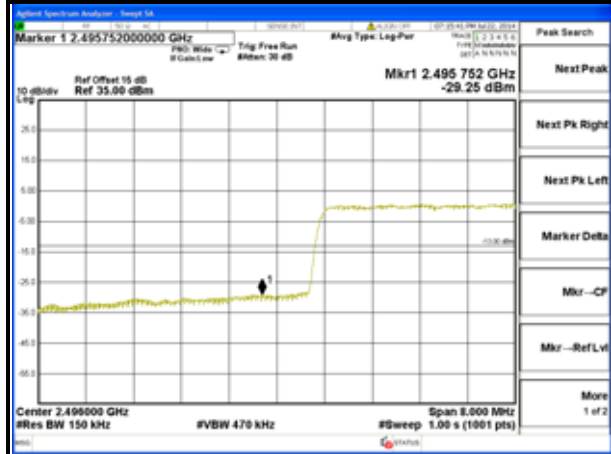


<b>CHANNEL</b>	<b>41515</b>	<b>75 RB</b>			
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**<CHANNEL BAND EDGE>**

<b>CHANNEL</b>	<b>39725</b>	<b>75 RB</b>	<b>CHANNEL</b>	<b>41515</b>	<b>75 RB</b>
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**LTE BAND 41**  
**Channel Bandwidth: 15MHz / 16QAM**  
**<ADJACENT CHANNEL BAND EDGE>**

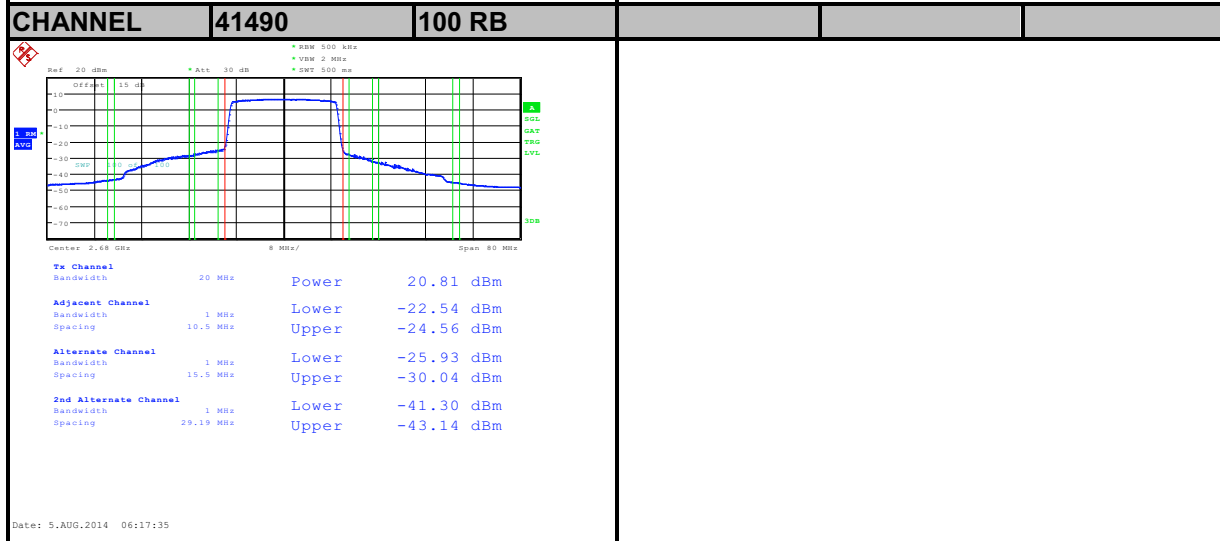
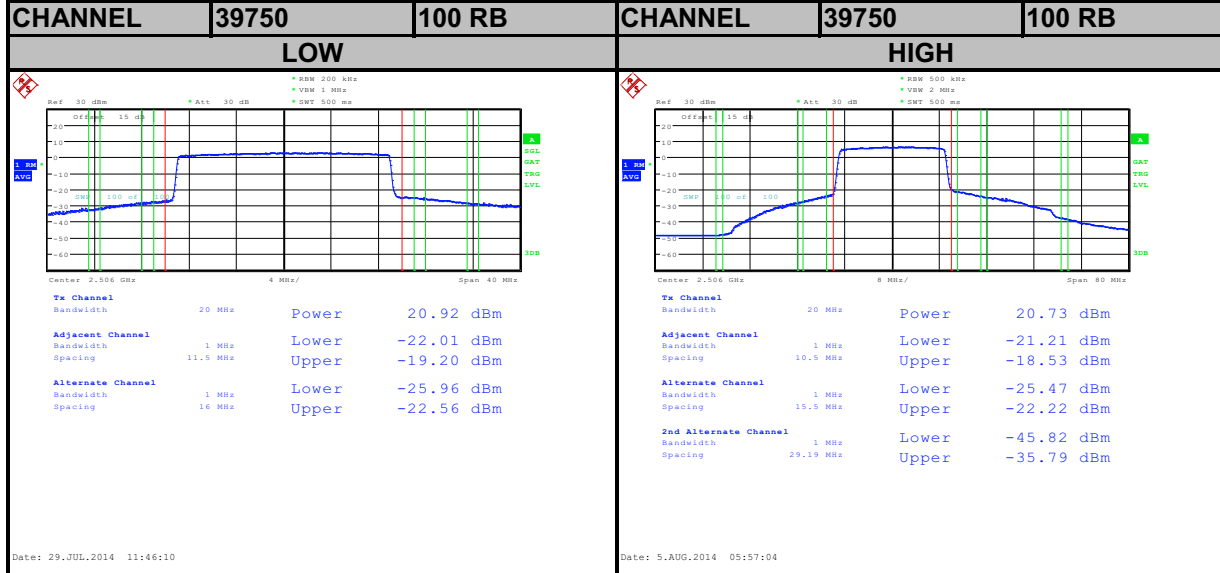
CHANNEL	39725	75 RB	CHANNEL	39725	75 RB																																																												
LOW			HIGH																																																														
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>19.90 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-21.78 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>9 MHz</td> <td>Upper</td> <td>-19.26 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-25.49 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13.5 MHz</td> <td>Upper</td> <td>-22.07 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.90 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-21.78 dBm		Spacing	9 MHz	Upper	-19.26 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-25.49 dBm		Spacing	13.5 MHz	Upper	-22.07 dBm	<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>19.70 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-21.62 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-19.10 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-25.88 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13 MHz</td> <td>Upper</td> <td>-22.10 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-42.45 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>22.1 MHz</td> <td>Upper</td> <td>-35.24 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.70 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-21.62 dBm		Spacing	8 MHz	Upper	-19.10 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-25.88 dBm		Spacing	13 MHz	Upper	-22.10 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-42.45 dBm		Spacing	22.1 MHz	Upper	-35.24 dBm
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Date: 29.JUL.2014 11:32:37			Date: 5.AUG.2014 06:27:15																																																														

CHANNEL	41515	75 RB																																				
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>15 MHz</td> <td>Power</td> <td>19.82 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-20.97 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>8 MHz</td> <td>Upper</td> <td>-22.56 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-24.25 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>13 MHz</td> <td>Upper</td> <td>-27.17 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-39.20 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>22.1 MHz</td> <td>Upper</td> <td>-40.49 dBm</td> </tr> </table>		<b>Tx Channel</b>	Bandwidth	15 MHz	Power	19.82 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-20.97 dBm		Spacing	8 MHz	Upper	-22.56 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-24.25 dBm		Spacing	13 MHz	Upper	-27.17 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-39.20 dBm		Spacing	22.1 MHz	Upper	-40.49 dBm		
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Date: 5.AUG.2014 07:40:09																																						

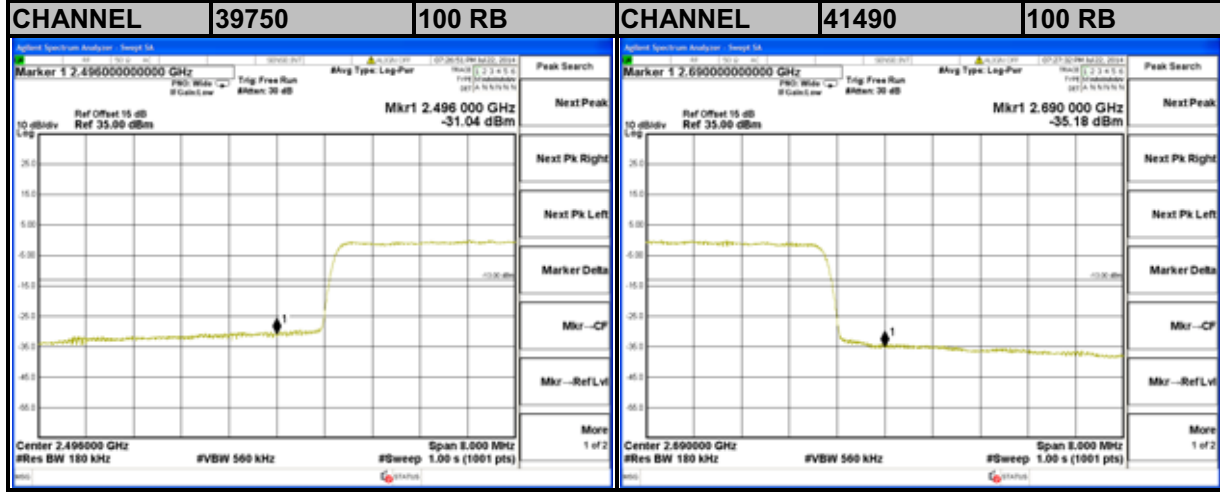
**<CHANNEL BAND EDGE>**

CHANNEL	39725	75 RB	CHANNEL	41515	75 RB										
<table border="0" style="width: 100%;"> <tr> <td><b>Marker 1</b></td> <td>2.496000000000 GHz</td> <td>-30.60 dBm</td> </tr> </table>			<b>Marker 1</b>	2.496000000000 GHz	-30.60 dBm	<table border="0" style="width: 100%;"> <tr> <td><b>Marker 1</b></td> <td>2.690000000000 GHz</td> <td>-33.69 dBm</td> </tr> </table>			<b>Marker 1</b>	2.690000000000 GHz	-33.69 dBm				
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<table border="0" style="width: 100%;"> <tr> <td>Center</td> <td>2.4960000 GHz</td> <td>#Res BW 150 kHz</td> <td>#VBW 470 kHz</td> <td>#Sweep 1.00 s (1001 pts)</td> </tr> </table>			Center	2.4960000 GHz	#Res BW 150 kHz	#VBW 470 kHz	#Sweep 1.00 s (1001 pts)	<table border="0" style="width: 100%;"> <tr> <td>Center</td> <td>2.6900000 GHz</td> <td>#Res BW 150 kHz</td> <td>#VBW 470 kHz</td> <td>#Sweep 1.00 s (1001 pts)</td> </tr> </table>			Center	2.6900000 GHz	#Res BW 150 kHz	#VBW 470 kHz	#Sweep 1.00 s (1001 pts)
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**LTE BAND 41**  
**Channel Bandwidth: 20MHz / QPSK**  
**<ADJACENT CHANNEL BAND EDGE>**



**<CHANNEL BAND EDGE>**





**LTE BAND 41**  
**Channel Bandwidth: 20MHz / 16QAM**  
**<ADJACENT CHANNEL BAND EDGE>**

CHANNEL	39750	100 RB	CHANNEL	39750	100 RB																																																												
LOW			HIGH																																																														
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>20 MHz</td> <td>Power</td> <td>19.89 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-22.90 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>11.5 MHz</td> <td>Upper</td> <td>-20.14 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-26.42 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>16 MHz</td> <td>Upper</td> <td>-22.78 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	20 MHz	Power	19.89 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-22.90 dBm		Spacing	11.5 MHz	Upper	-20.14 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-26.42 dBm		Spacing	16 MHz	Upper	-22.78 dBm	<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>20 MHz</td> <td>Power</td> <td>19.73 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-22.84 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>10.5 MHz</td> <td>Upper</td> <td>-19.99 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-26.71 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>15.5 MHz</td> <td>Upper</td> <td>-22.90 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-46.13 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>29.19 MHz</td> <td>Upper</td> <td>-36.48 dBm</td> </tr> </table>			<b>Tx Channel</b>	Bandwidth	20 MHz	Power	19.73 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-22.84 dBm		Spacing	10.5 MHz	Upper	-19.99 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-26.71 dBm		Spacing	15.5 MHz	Upper	-22.90 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-46.13 dBm		Spacing	29.19 MHz	Upper	-36.48 dBm
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Date: 29.JUL.2014 11:43:40			Date: 5.AUG.2014 06:12:31																																																														

CHANNEL	41490	100 RB																																				
<table border="0" style="width: 100%;"> <tr> <td><b>Tx Channel</b></td> <td>Bandwidth</td> <td>20 MHz</td> <td>Power</td> <td>19.86 dBm</td> </tr> <tr> <td><b>Adjacent Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-23.92 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>10.5 MHz</td> <td>Upper</td> <td>-25.87 dBm</td> </tr> <tr> <td><b>Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-26.80 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>15.5 MHz</td> <td>Upper</td> <td>-30.60 dBm</td> </tr> <tr> <td><b>2nd Alternate Channel</b></td> <td>Bandwidth</td> <td>1 MHz</td> <td>Lower</td> <td>-41.10 dBm</td> </tr> <tr> <td></td> <td>Spacing</td> <td>29.19 MHz</td> <td>Upper</td> <td>-42.99 dBm</td> </tr> </table>				<b>Tx Channel</b>	Bandwidth	20 MHz	Power	19.86 dBm	<b>Adjacent Channel</b>	Bandwidth	1 MHz	Lower	-23.92 dBm		Spacing	10.5 MHz	Upper	-25.87 dBm	<b>Alternate Channel</b>	Bandwidth	1 MHz	Lower	-26.80 dBm		Spacing	15.5 MHz	Upper	-30.60 dBm	<b>2nd Alternate Channel</b>	Bandwidth	1 MHz	Lower	-41.10 dBm		Spacing	29.19 MHz	Upper	-42.99 dBm
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Date: 5.AUG.2014 06:15:10																																						

**<CHANNEL BAND EDGE>**

CHANNEL	39750	100 RB	CHANNEL	41490	100 RB																																								
<table border="0" style="width: 100%;"> <tr> <td>Marker 1</td> <td>2.496000000000 GHz</td> <td></td> <td></td> </tr> <tr> <td>Ref Offset</td> <td>15 dB</td> <td></td> <td></td> </tr> <tr> <td>Ref</td> <td>35.00 dBm</td> <td></td> <td></td> </tr> <tr> <td>Mkr1</td> <td>2.496 000 GHz</td> <td></td> <td></td> </tr> <tr> <td></td> <td>-30.77 dBm</td> <td></td> <td></td> </tr> </table>			Marker 1	2.496000000000 GHz			Ref Offset	15 dB			Ref	35.00 dBm			Mkr1	2.496 000 GHz				-30.77 dBm			<table border="0" style="width: 100%;"> <tr> <td>Marker 1</td> <td>2.690000000000 GHz</td> <td></td> <td></td> </tr> <tr> <td>Ref Offset</td> <td>15 dB</td> <td></td> <td></td> </tr> <tr> <td>Ref</td> <td>35.00 dBm</td> <td></td> <td></td> </tr> <tr> <td>Mkr1</td> <td>2.690 000 GHz</td> <td></td> <td></td> </tr> <tr> <td></td> <td>-34.80 dBm</td> <td></td> <td></td> </tr> </table>			Marker 1	2.690000000000 GHz			Ref Offset	15 dB			Ref	35.00 dBm			Mkr1	2.690 000 GHz				-34.80 dBm		
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Center 2.4960000 GHz #Res BW 180 kHz #VBW 560 kHz #Sweep 1.00 s (1001 pts)			Center 2.6900000 GHz #Res BW 180 kHz #VBW 560 kHz #Sweep 1.00 s (1001 pts)																																										

## 4.6 CONDUCTED SPURIOUS EMISSIONS

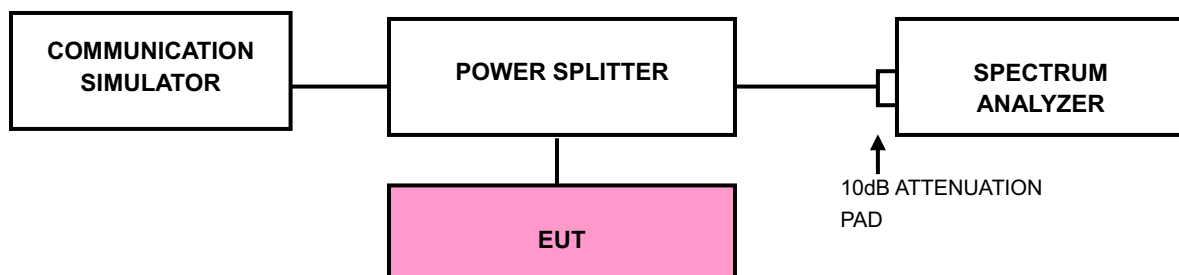
### 4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to -25dBm.

### 4.6.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 30MHz to 26GHz for LTE Band 7 and from 30MHz to 27GHz for LTE Band 41. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

### 4.6.3 TEST SETUP

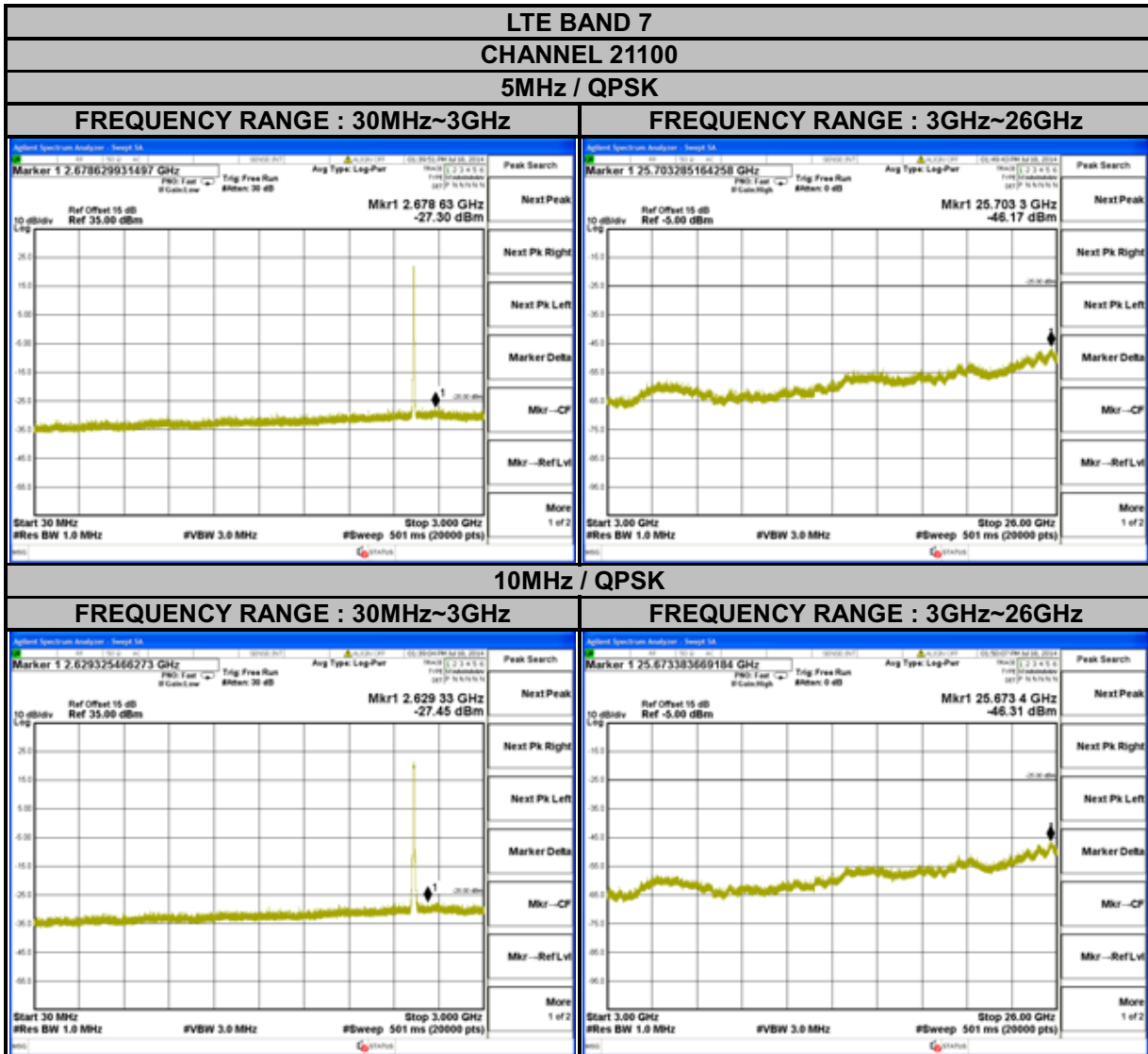




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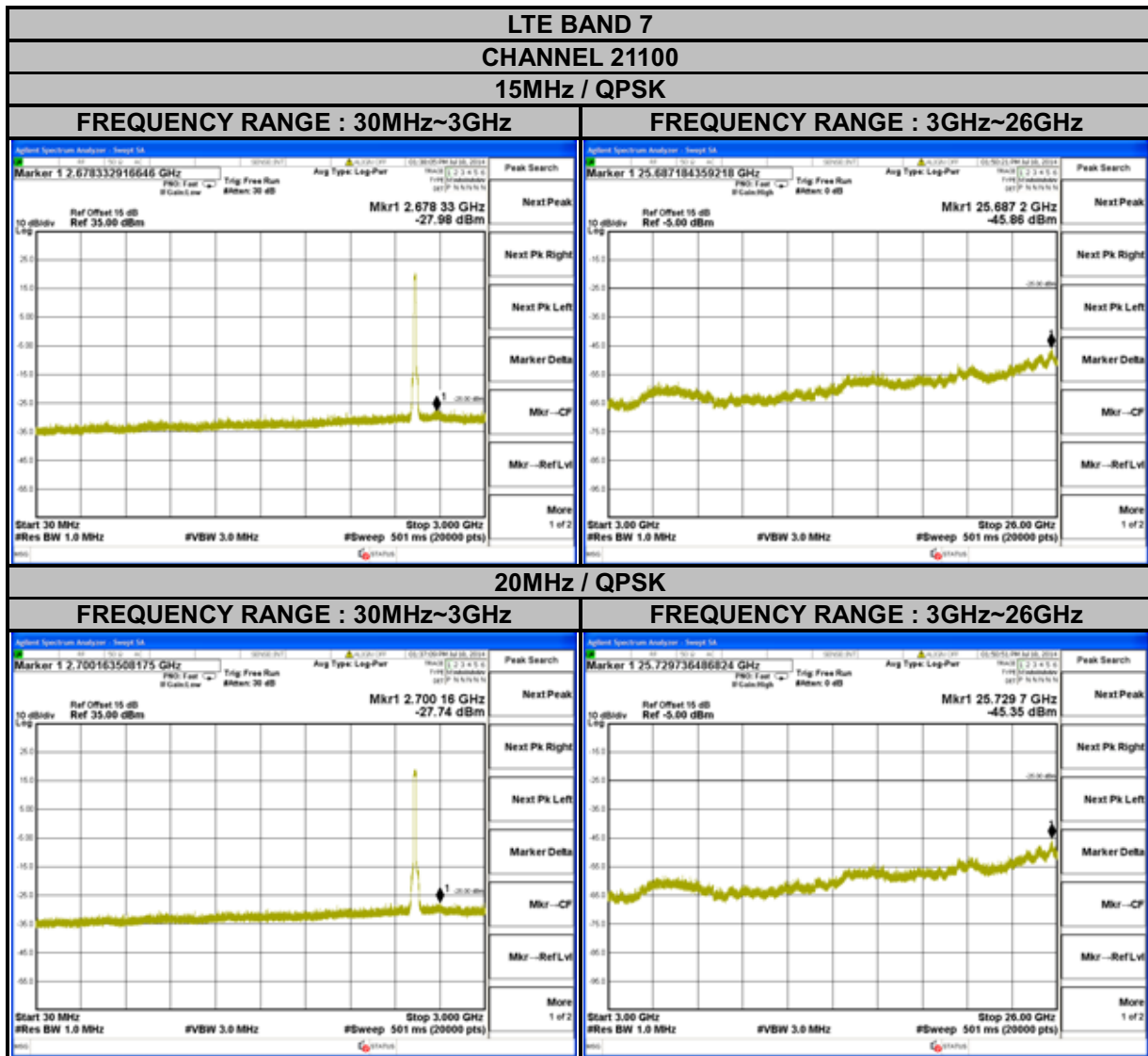
#### 4.6.4 TEST RESULTS

FREQUENCY RANGE: 30MHz~26GHz



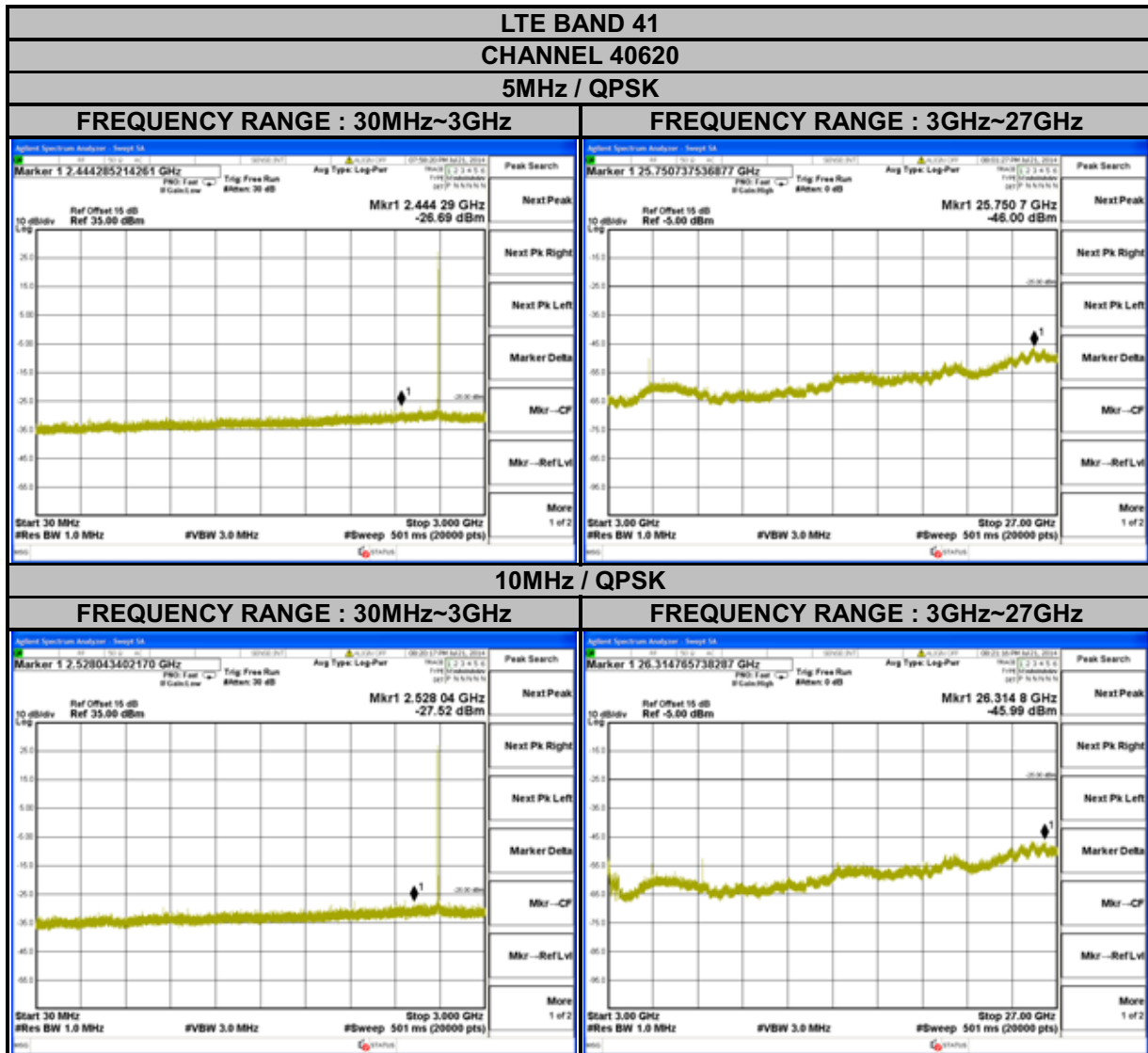


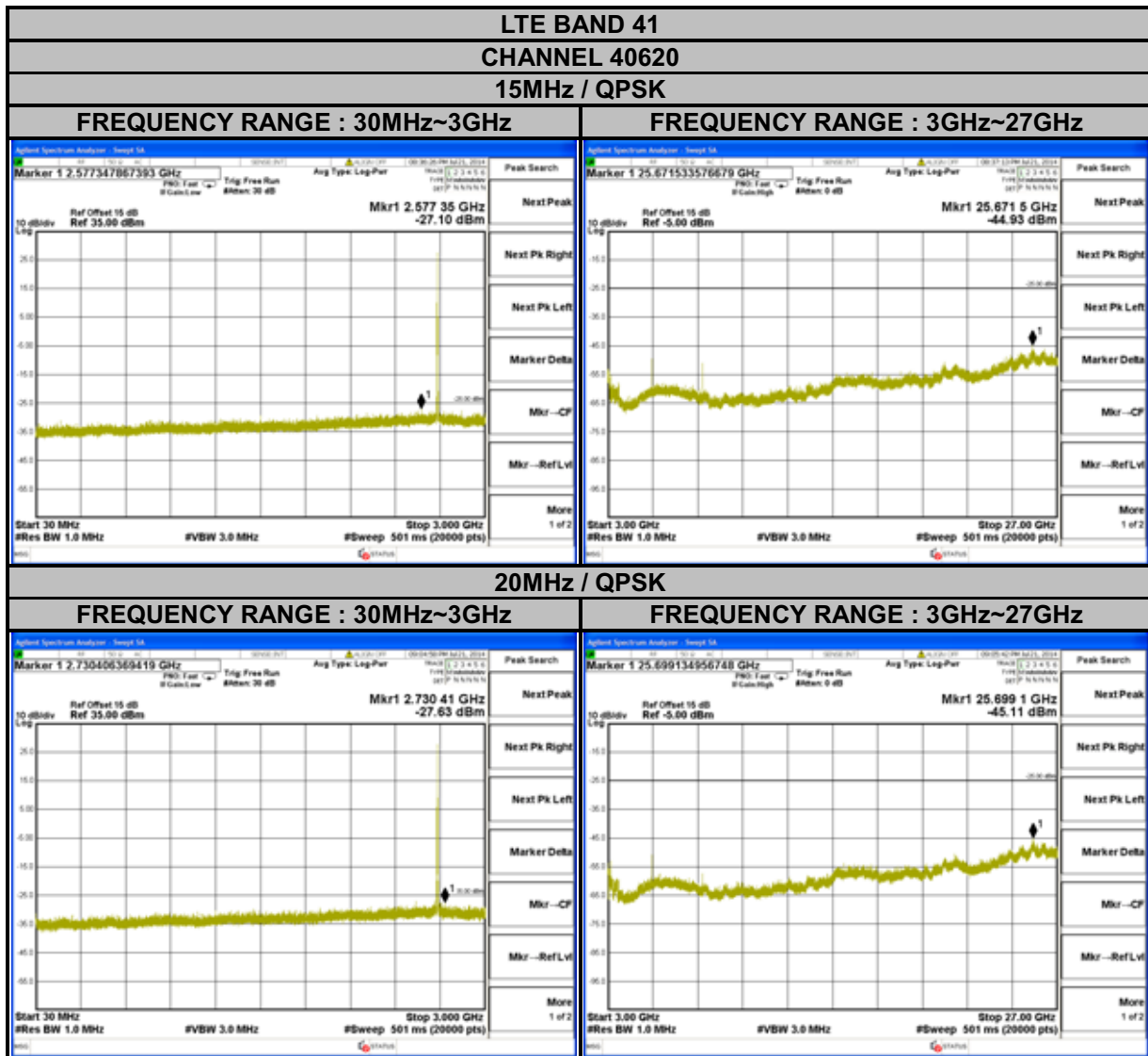
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## 4.7 RADIATED EMISSION MEASUREMENT

### 4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $55 + 10 \log_{10}(P)$  dB. The limit of emission is equal to -25dBm.

### 4.7.2 TEST PROCEDURES

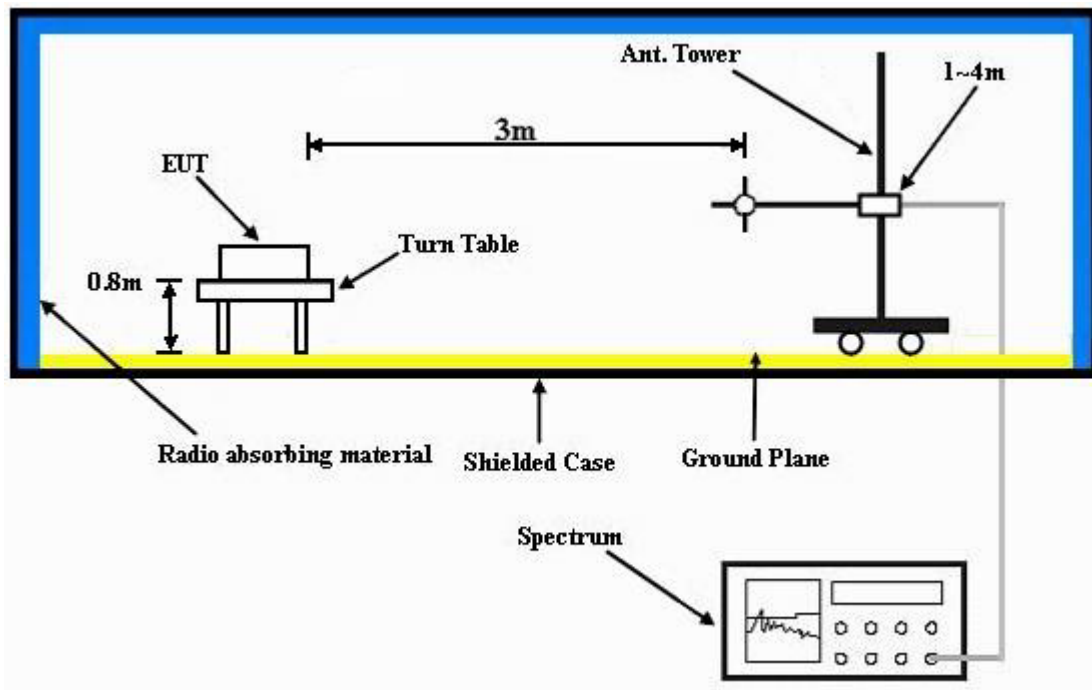
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G.
- c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

### 4.7.3 DEVIATION FROM TEST STANDARD

No deviation

#### 4.7.4 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).



### 4.7.5 TEST RESULTS

MODE A

LTE BAND 7

CHANNEL BANDWIDTH: 20MHz / QPSK

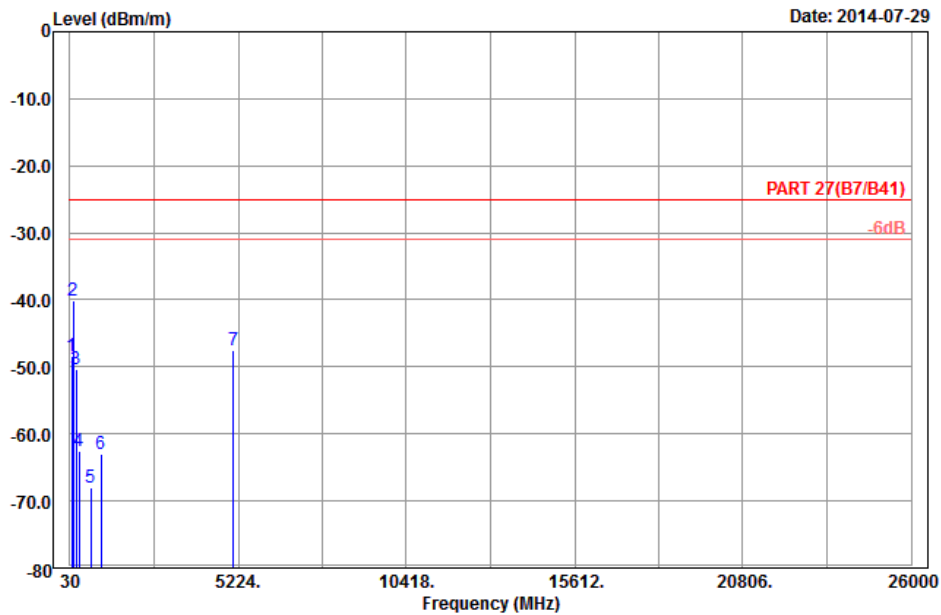


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Data: 13

Date: 2014-07-29



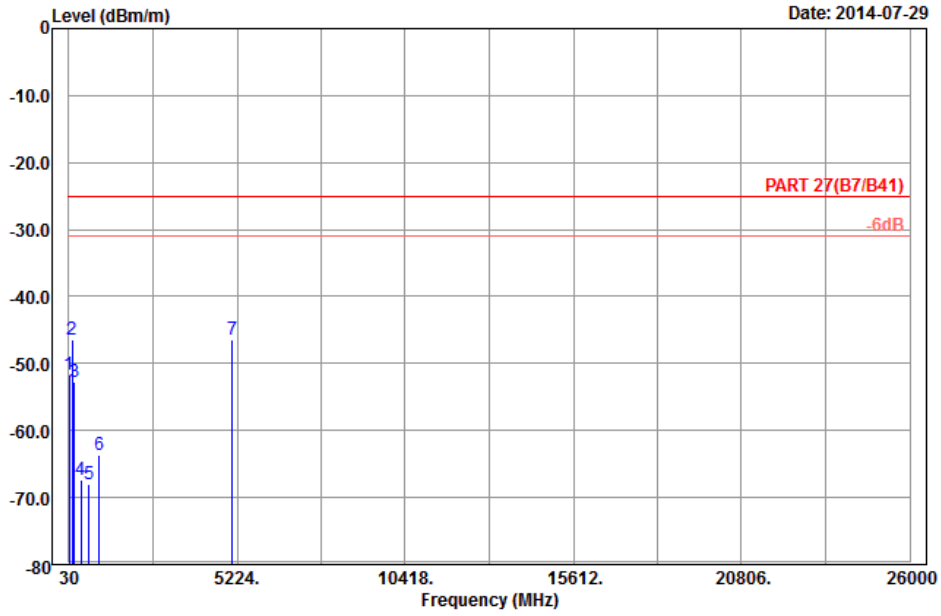
Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Horizontal  
 Remark : LTE\_Band 7\_QPSK(1,99)\_20M\_CH21100  
 Tested by: Harry Hsueh  
 Plane : X  
 ANT : Main

	Freq	Level	Read Level	Limit	Over		
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	Remark
1	91.02	-48.35	-37.73	-25.00	-23.35	-10.62	Peak
2	pp 123.96	-40.09	-32.08	-25.00	-15.09	-8.01	Peak
3	216.30	-50.31	-44.35	-25.00	-25.31	-5.96	Peak
4	318.20	-62.67	-56.92	-25.00	-37.67	-5.75	Peak
5	680.80	-67.98	-67.70	-25.00	-42.98	-0.28	Peak
6	989.50	-62.97	-68.20	-25.00	-37.97	5.23	Peak
7	5070.00	-47.56	-66.95	-25.00	-22.56	19.39	Peak



Data: 14

Date: 2014-07-29



Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Vertical  
 Remark : LTE\_Band 7\_QPSK(1,99)\_20M\_CH21100  
 Tested by: Harry Hsueh  
 Plane : X  
 ANT : Main

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	47.82	-51.74	-38.63	-25.00	-26.74	-13.11	Peak
2	122.34	-46.52	-38.39	-25.00	-21.52	-8.13	Peak
3	188.76	-52.76	-47.04	-25.00	-27.76	-5.72	Peak
4	391.70	-67.46	-64.31	-25.00	-42.46	-3.15	Peak
5	655.60	-68.10	-67.94	-25.00	-43.10	-0.16	Peak
6	963.60	-63.67	-68.82	-25.00	-38.67	5.15	Peak
7 pp	5070.00	-46.38	-65.77	-25.00	-21.38	19.39	Peak



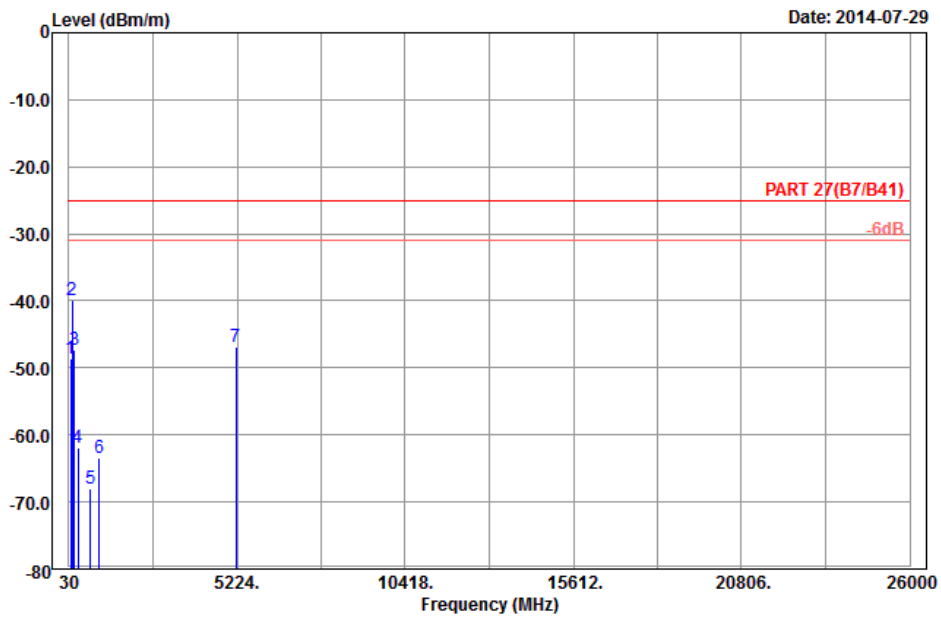
**LTE BAND 41**  
**CHANNEL BANDWIDTH: 20MHZ / QPSK**



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 13



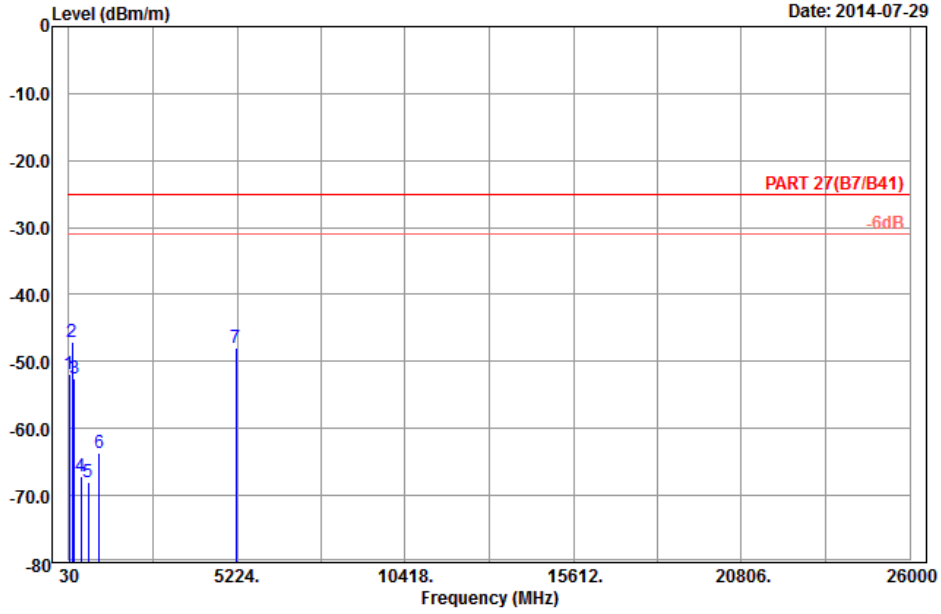
Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Horizontal  
 Remark : LTE\_Band 41\_QPSK(1,0)\_20M\_CH40620  
 Tested by: Harry Hsueh  
 Plane : X  
 ANT : Main

	Read	Limit	Over		
Freq	Level	Level	Line	Limit	Factor Remark
MHz	dBm/m	dBm	dBm/m	dB	dB/m
1	90.48	-48.53	-37.86	-25.00	-23.53 -10.67 Peak
2 pp	124.50	-39.96	-31.95	-25.00	-14.96 -8.01 Peak
3	194.43	-47.23	-41.27	-25.00	-22.23 -5.96 Peak
4	321.70	-61.87	-56.17	-25.00	-36.87 -5.70 Peak
5	694.10	-67.93	-67.58	-25.00	-42.93 -0.35 Peak
6	967.10	-63.44	-68.60	-25.00	-38.44 5.16 Peak
7	5186.00	-46.79	-66.91	-25.00	-21.79 20.12 Peak



Data: 14

Date: 2014-07-29



Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Vertical  
 Remark : LTE\_Band 41\_QPSK(1,0)\_20M\_CH40620  
 Tested by: Harry Hsueh  
 Plane : X  
 ANT : Main

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	47.82	-51.84	-38.73	-25.00	-26.84	-13.11	Peak
2	pp 124.23	-47.08	-39.07	-25.00	-22.08	-8.01	Peak
3	189.03	-52.44	-46.72	-25.00	-27.44	-5.72	Peak
4	396.60	-67.04	-64.14	-25.00	-42.04	-2.90	Peak
5	634.60	-67.94	-67.98	-25.00	-42.94	0.04	Peak
6	959.40	-63.71	-68.85	-25.00	-38.71	5.14	Peak
7	5186.00	-47.96	-68.08	-25.00	-22.96	20.12	Peak

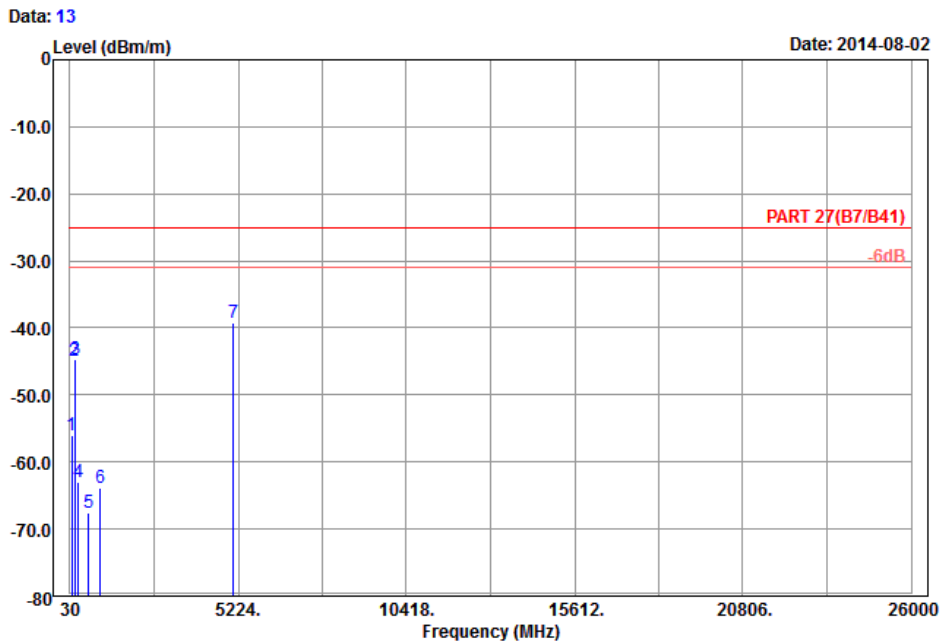


**MODE B**  
**LTE BAND 7**  
**CHANNEL BANDWIDTH: 20MHZ / QPSK**



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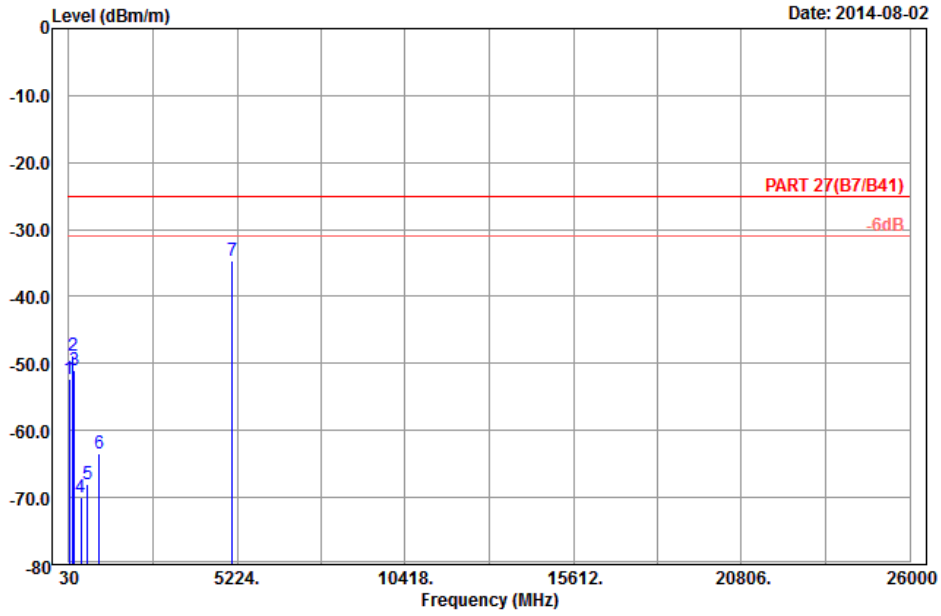
Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Horizontal  
 Remark : LTE\_Band 7\_QPSK(1,99)\_20M\_CH21100  
 Tested by: Harry Hsueh  
 Plane : Z  
 ANT : Main

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	89.67	-55.96	-45.29	-25.00	-30.96	-10.67	Peak
2	167.43	-44.93	-38.03	-25.00	-19.93	-6.90	Peak
3	194.70	-44.75	-38.79	-25.00	-19.75	-5.96	Peak
4	300.00	-62.92	-56.96	-25.00	-37.92	-5.96	Peak
5	607.30	-67.62	-67.97	-25.00	-42.62	0.35	Peak
6	965.70	-63.96	-69.12	-25.00	-38.96	5.16	Peak
7 pp	5070.00	-39.30	-58.69	-25.00	-14.30	19.39	Peak



Data: 14

Date: 2014-08-02



Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Vertical  
 Remark : LTE\_Band 7\_QPSK(1,99)\_20M\_CH21100  
 Tested by: Harry Hsueh  
 Plane : Z  
 ANT : Main

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	48.36	-52.26	-38.83	-25.00	-27.26	-13.43	Peak
2	144.21	-48.81	-41.00	-25.00	-23.81	-7.81	Peak
3	199.56	-51.04	-44.86	-25.00	-26.04	-6.18	Peak
4	399.40	-69.93	-67.19	-25.00	-44.93	-2.74	Peak
5	599.60	-67.97	-68.36	-25.00	-42.97	0.39	Peak
6	967.80	-63.45	-68.62	-25.00	-38.45	5.17	Peak
7 pp	5070.00	-34.65	-54.04	-25.00	-9.65	19.39	Peak



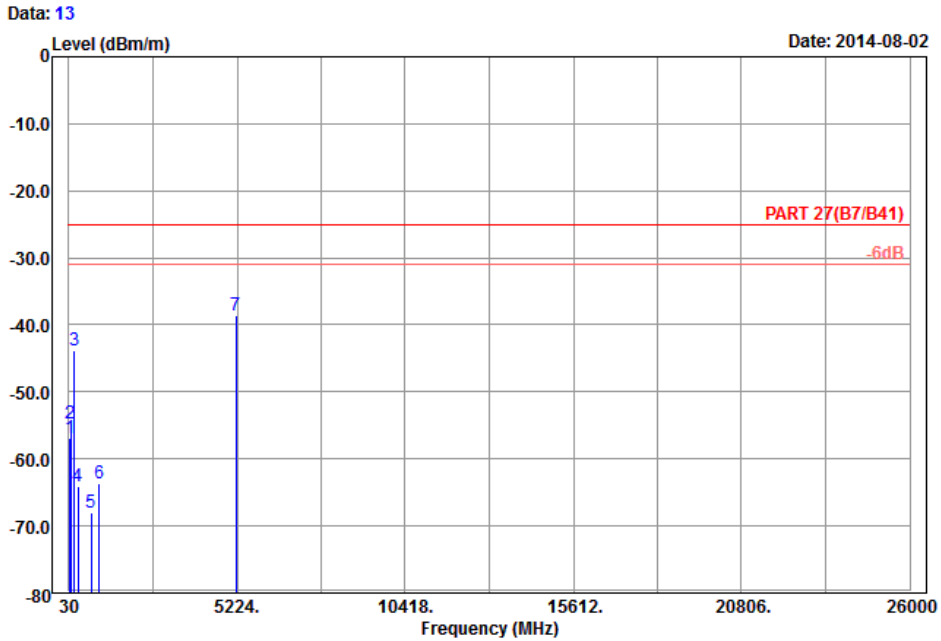


**LTE BAND 41**  
**CHANNEL BANDWIDTH: 20MHZ / QPSK**



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

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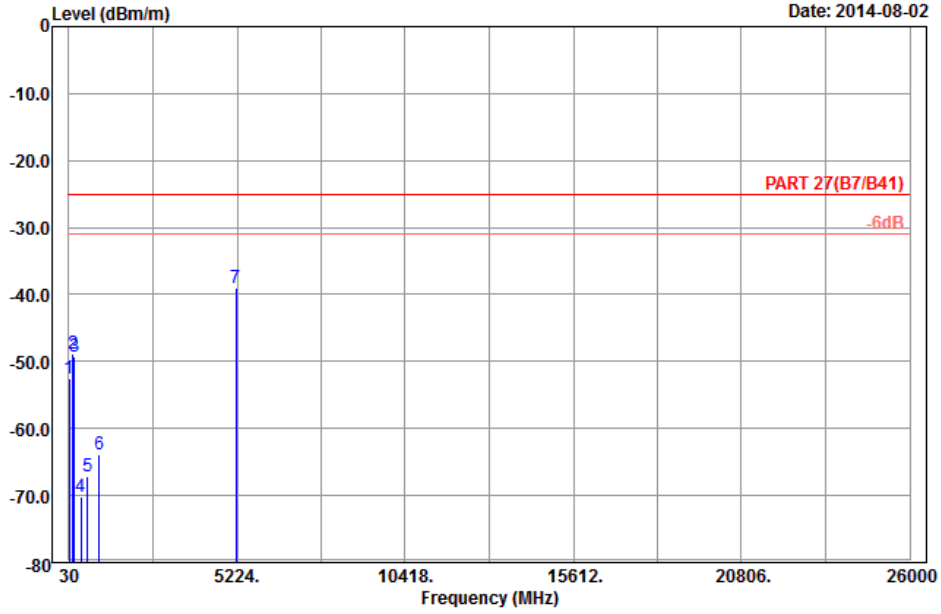
Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Horizontal  
 Remark : LTE\_Band 41\_QPSK(1,0)\_20M\_CH40620  
 Tested by: Harry Hsueh  
 Plane : Y  
 ANT : Main

	Read	Limit	Over				
Freq	Level	Level	Line	Limit	Factor	Remark	
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	62.13	-56.79	-43.00	-25.00	-31.79	-13.79	Peak
2	90.75	-54.69	-44.07	-25.00	-29.69	-10.62	Peak
3	191.73	-43.86	-38.04	-25.00	-18.86	-5.82	Peak
4	305.60	-64.03	-58.14	-25.00	-39.03	-5.89	Peak
5	724.20	-67.98	-67.14	-25.00	-42.98	-0.84	Peak
6	958.70	-63.64	-68.77	-25.00	-38.64	5.13	Peak
7 pp	5186.00	-38.56	-58.68	-25.00	-13.56	20.12	Peak



Data: 14

Date: 2014-08-02



Site : 966 chamber 5  
 Condition: PART 27(B7/B41) 3m Vertical  
 Remark : LTE\_Band 41\_QPSK(1,0)\_20M\_CH40620  
 Tested by: Harry Hsueh  
 Plane : Y  
 ANT : Main

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	48.36	-52.51	-39.08	-25.00	-27.51	-13.43	Peak
2	145.02	-48.84	-41.01	-25.00	-23.84	-7.83	Peak
3	199.83	-49.32	-43.14	-25.00	-24.32	-6.18	Peak
4	398.00	-70.29	-67.45	-25.00	-45.29	-2.84	Peak
5	599.60	-67.23	-67.62	-25.00	-42.23	0.39	Peak
6	963.60	-63.88	-69.03	-25.00	-38.88	5.15	Peak
7 pp	5186.00	-39.08	-59.20	-25.00	-14.08	20.12	Peak



## 5 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-2-26051924

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**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



## **6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No modifications were made to the EUT by the lab during the test.

**---END---**