

# FCC RF Test Report

**APPLICANT** : ZTE CORPORATION  
**EQUIPMENT** : CDMA/LTE Digital Mobile Handset  
**BRAND NAME** : ZTE  
**MODEL NAME** : ZTE FLASH 4G LTE  
**FCC ID** : Q78-ZTEN9500  
**STANDARD** : 47 CFR Part 2, 24(E)  
**CLASSIFICATION** : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jul. 02, 2012 and completely tested on Sep. 04, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager



**SPORTON INTERNATIONAL (KUNSHAN) INC.**  
**No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.**



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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	NA	Conducted Output Power	NA	PASS	-
3.1	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	EIRP < 2 Watt	PASS	-
3.2	§24.232(d)	RSS-133(6.4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§2.1049 §24.238(a)	N/A	Occupied Bandwidth	NA	PASS	-
3.4	§2.1051 §24.238(a)	RSS-133 (6.5.1)	Emission Mask Measurement	< 43+10log <sub>10</sub> (P[Watts])	PASS	-
3.4	§2.1051 §24.238(a)	RSS-133 (6.5.1)	Conducted Spurious Emission	< 43+10log <sub>10</sub> (P[Watts])	PASS	-
3.5	§2.1053 §24.238(a)	RSS-133 (6.5.1)	Undesirable Out of Band Emissions	< 43+10log <sub>10</sub> (P[Watts])	PASS	Under limit 27.67 dB at 5737.500 MHz
3.6	§2.1055 §24.235	RSS-133 (6.3)	Frequency Stability Temperature & Voltage	< 2.5 ppm	PASS	-

# 1 General Description

## 1.1 Applicant

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

## 1.2 Manufacturer

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

## 1.3 Feature of Equipment Under Test

Product Feature	
<b>Equipment</b>	CDMA/LTE Digital Mobile Handset
<b>Brand Name</b>	ZTE
<b>Model Name</b>	ZTE FLASH 4G LTE
<b>FCC ID</b>	Q78-ZTEN9500
<b>EUT supports Radios application</b>	CDMA/EV-DO/LTE/WLAN 11bgn/ Bluetooth/Bluetooth4.0 – LE/NFC
<b>HW Version</b>	N9500.H01
<b>SW Version</b>	N9500V1.0.0B05
<b>EUT Stage</b>	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Product Specification subjective to this standard	
<b>Tx Frequency</b>	1850.7 MHz ~ 1914.3 MHz
<b>Rx Frequency</b>	1930.7 MHz ~ 1994.3 MHz
<b>Bandwidth</b>	1.4MHz / 3MHz / 5MHz/ 10MHz
<b>Maximum Output Power to Antenna</b>	23.33 dBm
<b>Antenna Type</b>	PIFA Antenna
<b>Type of Modulation</b>	QPSK / 16QAM

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



### 1.4 Emission Designator and Maximum EIRP

FCC Rule	System	Type of Modulation	BW	Maximum EIRP (W)	Frequency Tolerance (% , Hz, ppm)	Emission Designator
Part 24E	LTE Band 25	QPSK	1.4MHz	0.2388 W	0.022	1M10G7D
Part 24E	LTE Band 25	16QAM	1.4MHz	0.2046 W	0.022	1M10D7W
Part 24E	LTE Band 25	QPSK	3MHz	0.2748 W	0.023	2M74G7D
Part 24E	LTE Band 25	16QAM	3MHz	0.2438 W	0.023	2M74D7W
Part 24E	LTE Band 25	QPSK	5MHz	0.2742 W	0.022	4M48G7D
Part 24E	LTE Band 25	16QAM	5MHz	0.2512 W	0.022	4M50D7W
Part 24E	LTE Band 25	QPSK	10MHz	0.3090 W	0.015	9M12G7D
Part 24E	LTE Band 25	16QAM	10MHz	0.3289 W	0.015	9M12D7W



### 1.5 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL (KUNSHAN) INC.		
<b>Test Site Location</b>	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC/IC Registration No.</b>
	TH01-KS	03CH01-KS	149928/4086E-1

### 1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 24(E)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v01
- IC RSS-133 Issue 5

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

### 1.7 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

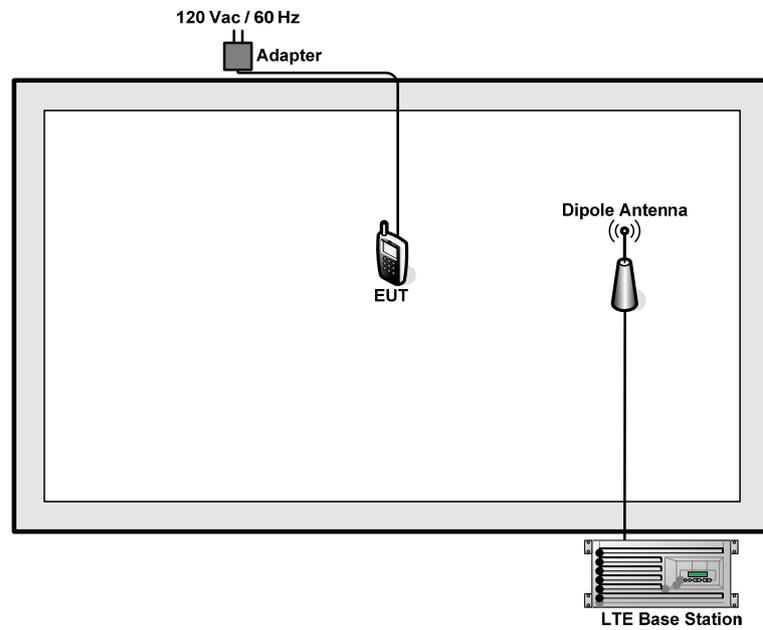
Frequency range investigated for radiated emission is: 30 MHz to 19000 MHz.

Test Modes			
Band		Radiated TCs	Conducted TCs
LTE Band 25	BW 1.4MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	<ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0)Link</li> <li>■ LTE (RB Size 1, RB Offset 5)Link</li> <li>■ LTE (RB Size 3, RB Offset 2)Link</li> <li>■ LTE (RB Size 6, RB Offset 0)Link</li> </ul>
	BW 3MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	<ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0)Link</li> <li>■ LTE (RB Size 1, RB Offset 14)Link</li> <li>■ LTE (RB Size 8, RB Offset 4)Link</li> <li>■ LTE (RB Size 15, RB Offset 0)Link</li> </ul>
	BW 5MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	<ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0)Link</li> <li>■ LTE (RB Size 1, RB Offset 24)Link</li> <li>■ LTE (RB Size 12, RB Offset 6)Link</li> <li>■ LTE (RB Size 25, RB Offset 0)Link</li> </ul>
	BW 10MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	<ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0)Link</li> <li>■ LTE (RB Size 1, RB Offset 49)Link</li> <li>■ LTE (RB Size 25, RB Offset 13)Link</li> <li>■ LTE (RB Size 50, RB Offset 0)Link</li> </ul>

**Note:**

1. For conducted test, both two Modulations (QPSK and 16QAM) are tested. For RSE, only the maximum RF output power level is chosen.
2. From conducted spurious emission measurement, the modulation related spurious emission out of the band is not identified. Since MPR is implemented, 1RB-QPSK results in highest RF power, therefore it's chosen for RSE measurement.

## 2.2 Connection Diagram of Test System



### 3 Test Result

#### 3.1 Maximum Output Power and Effective Isotropic Radiated Power Measurement

##### 3.1.1 Limit

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004. Mobile and portable (hand-held) stations operating in each channel are limited to average EIRP of 2 watts.

##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

###### For Conducted Power Measurement:

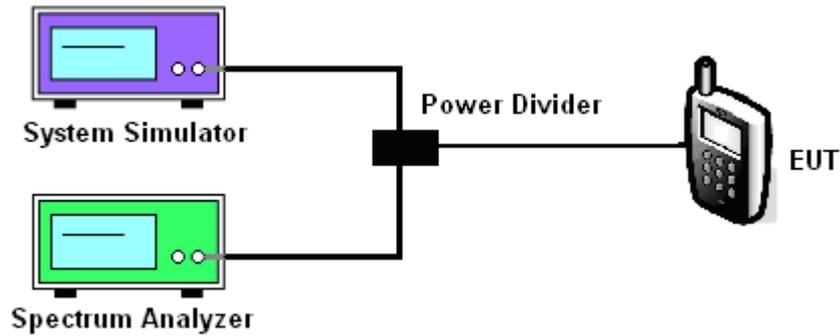
1. The RF output of the transmitter was connected to base station simulator.
2. Set EUT at maximum average power by base station simulator.
3. Measure lowest, middle, and highest channels for each bandwidth and different modulation.

###### For Effective Isotropic Radiated Power Measurement:

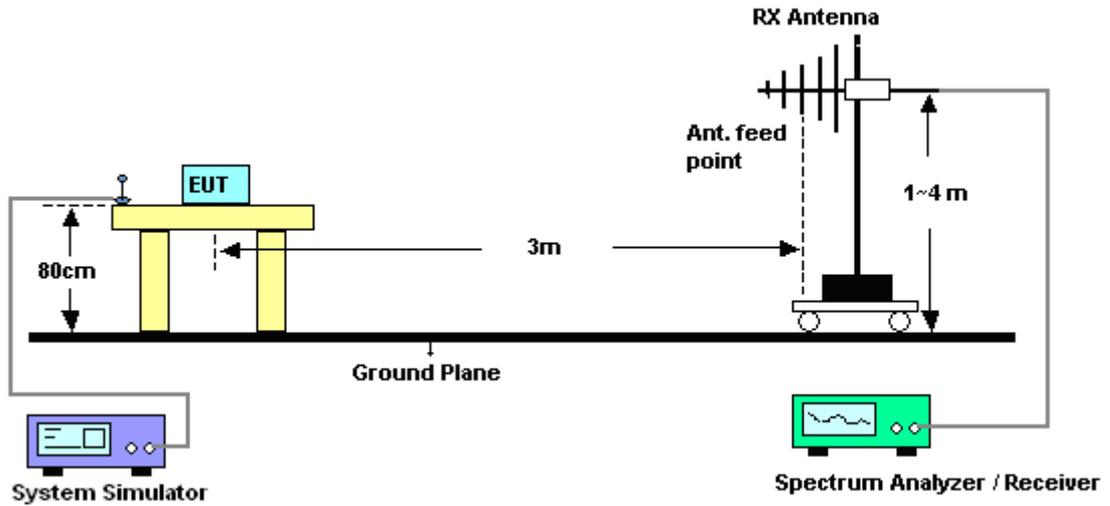
1. The EUT was placed on an non-conductive rotating platform with 0.8 meter height in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m.
2. During the measurement, the EUT was enforced in maximum power. The highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Radiated Power (ERP) and Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor,  $EIRP = LVL + \text{Correction factor}$ .

### 3.1.4 Test Setup

#### <Conducted Power and Band Edge Measurement>



#### < Effective Isotropic Radiated Power Measurement >



3.1.5 Test Result of Conducted Output Power

Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 25	1.4MHz	26047	1850.7	QPSK	1	0	23.03	0.2009
					1	5	22.91	0.1954
					3	2	22.88	0.1941
					6	0	21.88	0.1542
				16-QAM	1	0	22.07	0.1611
					1	5	22.05	0.1603
					3	2	21.84	0.1528
					6	0	21.04	0.1271
		26365	1882.5	QPSK	1	0	23.30	0.2138
					1	5	23.28	0.2128
					3	2	23.18	0.2080
					6	0	22.00	0.1585
	16-QAM			1	0	22.49	0.1774	
				1	5	22.23	0.1671	
				3	2	22.08	0.1614	
				6	0	21.21	0.1321	
	26683	1914.3	QPSK	1	0	22.80	0.1905	
				1	5	22.53	0.1791	
				3	2	22.43	0.1750	
				6	0	21.46	0.1400	
			16-QAM	1	0	21.83	0.1524	
				1	5	21.82	0.1521	
				3	2	21.33	0.1358	
				6	0	21.34	0.1361	



Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 25	3MHz	26055	1851.5	QPSK	1	0	22.90	0.1950
					1	14	22.85	0.1928
					8	4	21.75	0.1496
					15	0	21.73	0.1489
				16-QAM	1	0	22.14	0.1637
					1	14	22.03	0.1596
					8	4	20.76	0.1191
					15	0	20.75	0.1189
		26365	1882.5	QPSK	1	0	23.16	0.2070
					1	14	23.15	0.2065
					8	4	21.99	0.1581
					15	0	21.94	0.1563
				16-QAM	1	0	22.00	0.1585
					1	14	21.91	0.1552
					8	4	21.06	0.1276
					15	0	20.98	0.1253
		26675	1913.5	QPSK	1	0	22.74	0.1879
					1	14	22.25	0.1679
					8	4	21.38	0.1374
					15	0	21.36	0.1368
				16-QAM	1	0	21.83	0.1524
					1	14	21.26	0.1337
					8	4	20.50	0.1122
					15	0	20.44	0.1107



Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 25	5MHz	26065	1852.5	QPSK	1	0	22.93	0.1963
					1	24	22.91	0.1954
					12	6	21.87	0.1538
					25	0	21.67	0.1469
				16-QAM	1	0	22.07	0.1611
					1	24	22.04	0.1600
					12	6	20.85	0.1216
					25	0	20.71	0.1178
		26365	1882.5	QPSK	1	0	23.33	0.2153
					1	24	23.15	0.2065
					12	6	22.13	0.1633
					25	0	21.99	0.1581
				16-QAM	1	0	22.45	0.1758
					1	24	22.37	0.1726
					12	6	21.20	0.1318
					25	0	20.96	0.1247
		26665	1912.5	QPSK	1	0	22.89	0.1945
					1	24	22.40	0.1738
					12	6	21.87	0.1538
					25	0	21.73	0.1489
				16-QAM	1	0	22.22	0.1667
					1	24	21.39	0.1377
					12	6	20.89	0.1227
					25	0	20.78	0.1197



Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 25	10MHz	26090	1855	QPSK	1	0	23.04	0.2014
					1	49	22.91	0.1954
					25	13	21.63	0.1455
					50	0	21.58	0.1439
				16-QAM	1	0	22.17	0.1648
					1	49	22.10	0.1622
					25	13	20.61	0.1151
					50	0	20.55	0.1135
		26365	1882.5	QPSK	1	0	23.30	0.2138
					1	49	23.12	0.2051
					25	13	21.93	0.1560
					50	0	21.86	0.1535
				16-QAM	1	0	22.43	0.1750
					1	49	22.25	0.1679
					25	13	20.86	0.1219
					50	0	20.81	0.1205
		26640	1910	QPSK	1	0	22.90	0.1950
					1	49	22.40	0.1738
					25	13	21.65	0.1462
					50	0	21.42	0.1387
				16-QAM	1	0	22.25	0.1679
					1	49	21.65	0.1462
					25	13	20.64	0.1159
					50	0	20.44	0.1107

3.1.6 Test Result of EIRP

LTE Band 25 Radiated Power EIRP										
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset						
25	1.4	QPSK	1	0	1850.7	-13.38	37.16	23.78	0.2388	H
25	1.4	QPSK	1	0	1882.5	-12.62	35.61	22.99	0.1991	H
25	1.4	QPSK	1	0	1914.3	-16.45	36.04	19.59	0.0910	H
25	1.4	QPSK	1	0	1850.7	-21.37	36.1	14.73	0.0297	V
25	1.4	QPSK	1	0	1882.5	-21.56	37.44	15.88	0.0387	V
25	1.4	QPSK	1	0	1914.3	-25.55	39.12	13.57	0.0228	V
25	1.4	16QAM	1	0	1850.7	-14.05	37.16	23.11	0.2046	H
25	1.4	16QAM	1	0	1882.5	-14.50	35.61	21.11	0.1291	H
25	1.4	16QAM	1	0	1914.3	-16.05	36.04	19.99	0.0998	H
25	1.4	16QAM	1	0	1850.7	-22.11	36.1	13.99	0.0251	V
25	1.4	16QAM	1	0	1882.5	-21.70	37.44	15.74	0.0375	V
25	1.4	16QAM	1	0	1914.3	-25.93	39.12	13.19	0.0208	V
25	3	QPSK	1	0	1851.5	-12.77	37.16	24.39	0.2748	H
25	3	QPSK	1	0	1882.5	-12.18	35.61	23.43	0.2203	H
25	3	QPSK	1	0	1913.5	-14.80	36.04	21.24	0.1330	H
25	3	QPSK	1	0	1851.5	-20.71	36.1	15.39	0.0346	V
25	3	QPSK	1	0	1882.5	-20.80	37.44	16.64	0.0461	V
25	3	QPSK	1	0	1913.5	-19.68	39.12	19.44	0.0879	V
25	3	16QAM	1	0	1851.5	-13.29	37.16	23.87	0.2438	H
25	3	16QAM	1	0	1882.5	-12.60	35.61	23.01	0.2000	H
25	3	16QAM	1	0	1913.5	-15.39	36.04	20.65	0.1161	H
25	3	16QAM	1	0	1851.5	-20.79	36.1	15.31	0.0340	V
25	3	16QAM	1	0	1882.5	-20.63	37.44	16.81	0.0480	V
25	3	16QAM	1	0	1913.5	-19.83	39.12	19.29	0.0849	V



LTE Band 25 Radiated Power EIRP										
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset						
25	5	QPSK	1	0	1852.5	-12.78	37.16	24.38	0.2742	H
25	5	QPSK	1	0	1882.5	-12.52	35.61	23.09	0.2037	H
25	5	QPSK	1	0	1912.5	-15.23	36.04	20.81	0.1205	H
25	5	QPSK	1	0	1852.5	-20.88	36.1	15.22	0.0333	V
25	5	QPSK	1	0	1882.5	-21.54	37.44	15.90	0.0389	V
25	5	QPSK	1	0	1912.5	-20.50	39.12	18.62	0.0728	V
25	5	16QAM	1	0	1852.5	-13.16	37.16	24.00	0.2512	H
25	5	16QAM	1	0	1882.5	-12.93	35.61	22.68	0.1854	H
25	5	16QAM	1	0	1912.5	-15.49	36.04	20.55	0.1135	H
25	5	16QAM	1	0	1852.5	-22.03	36.1	14.07	0.0255	V
25	5	16QAM	1	0	1882.5	-21.75	37.44	15.69	0.0371	V
25	5	16QAM	1	0	1912.5	-21.77	39.12	17.35	0.0543	V
25	10	QPSK	1	0	1855.0	-12.26	37.16	24.90	0.3090	H
25	10	QPSK	1	0	1882.5	-11.73	35.61	23.88	0.2443	H
25	10	QPSK	1	0	1910.0	-13.34	36.04	22.70	0.1862	H
25	10	QPSK	1	0	1855.0	-20.72	36.1	15.38	0.0345	V
25	10	QPSK	1	0	1882.5	-19.84	37.44	17.60	0.0575	V
25	10	QPSK	1	0	1910.0	-18.96	39.12	20.16	0.1038	V
25	10	16QAM	1	0	1855.0	-11.99	37.16	25.17	0.3289	H
25	10	16QAM	1	0	1882.5	-11.73	35.61	23.88	0.2443	H
25	10	16QAM	1	0	1910.0	-13.01	36.04	23.03	0.2009	H
25	10	16QAM	1	0	1855.0	-20.33	36.1	15.77	0.0378	V
25	10	16QAM	1	0	1882.5	-20.32	37.44	17.12	0.0515	V
25	10	16QAM	1	0	1910.0	-20.95	39.12	18.17	0.0656	V

## 3.2 Peak-to-Average Ratio

### 3.2.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. The following guidelines are offered for performing a CCDF measurement.

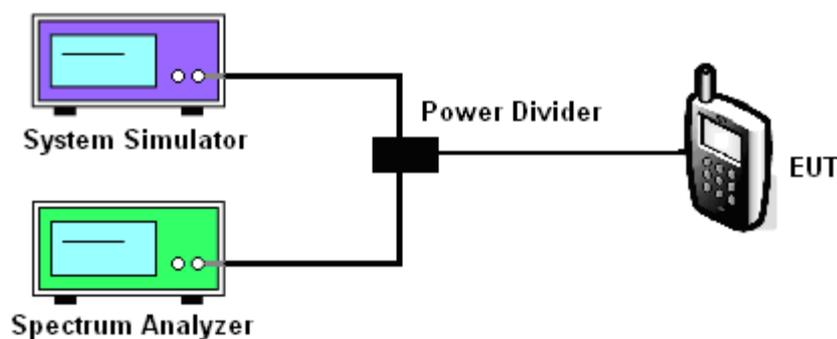
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The CCDF (Complementary Cumulative Distribution Function) of the middle channel for the highest RF powers were measured.

### 3.2.4 Test Setup





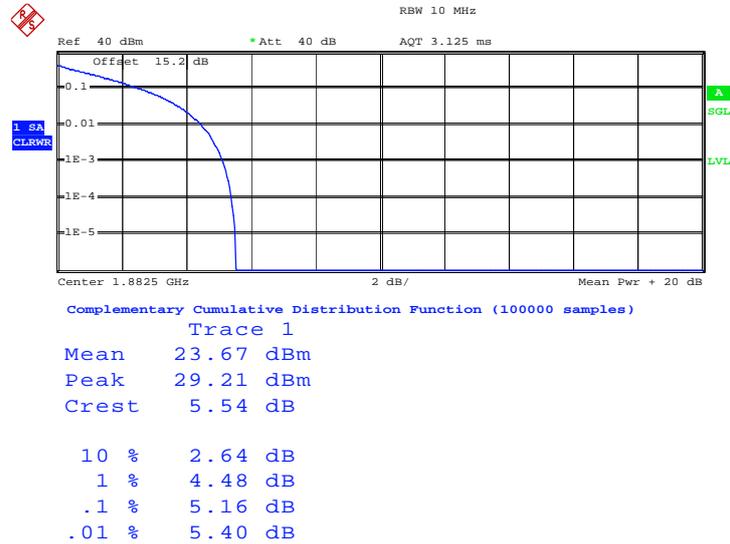
3.2.5 Test Result of Peak-to-Average Ratio

Band	Band Width	Channel	Frequency (MHz)	Modulation	PAR (dB)
LTE Band 25	1.4MHz	26365	1882.5	QPSK	5.16
				16-QAM	6.00
	3MHz	26365	1882.5	QPSK	5.24
				16-QAM	6.16
	5MHz	26365	1882.5	QPSK	5.48
				16-QAM	6.16
	10MHz	26365	1882.5	QPSK	5.52
				16-QAM	6.40



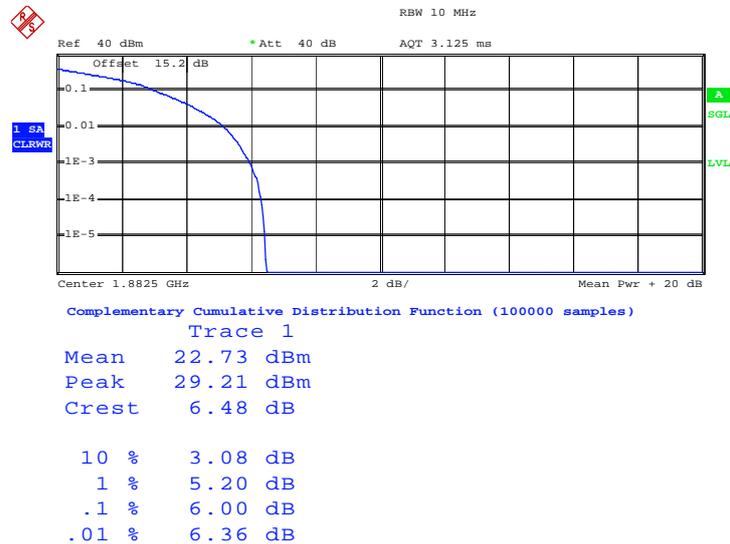
<b>Band:</b>	LTE Band 25	<b>Bandwidth:</b>	1.4MHz
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Peak-to-Average Ratio for QPSK-RB Size 6, RB Offset 0



Date: 1.AUG.2012 20:05:07

Peak-to-Average Ratio for 16QAM-RB Size 6, RB Offset 0

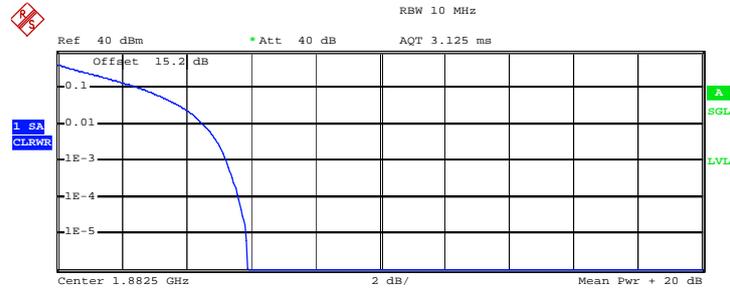


Date: 1.AUG.2012 20:10:53



<b>Band:</b>	LTE Band 25	<b>Bandwidth:</b>	3MHz
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Peak-to-Average Ratio for QPSK-RB Size 15, RB Offset 0



Complementary Cumulative Distribution Function (100000 samples)

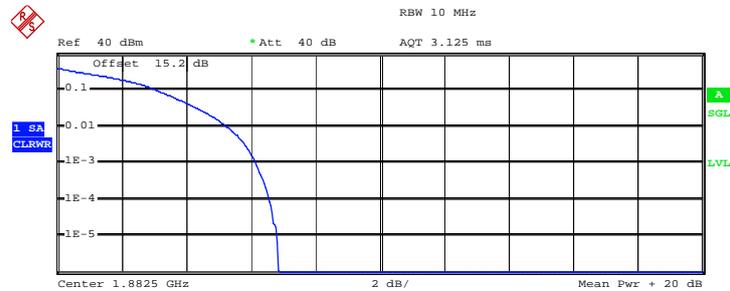
Trace 1

Mean 23.67 dBm  
 Peak 29.56 dBm  
 Crest 5.89 dB

10 % 2.64 dB  
 1 % 4.56 dB  
 .1 % 5.24 dB  
 .01 % 5.64 dB

Date: 1.AUG.2012 20:11:41

Peak-to-Average Ratio for 16QAM-RB Size 15, RB Offset 0



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 22.57 dBm  
 Peak 29.42 dBm  
 Crest 6.85 dB

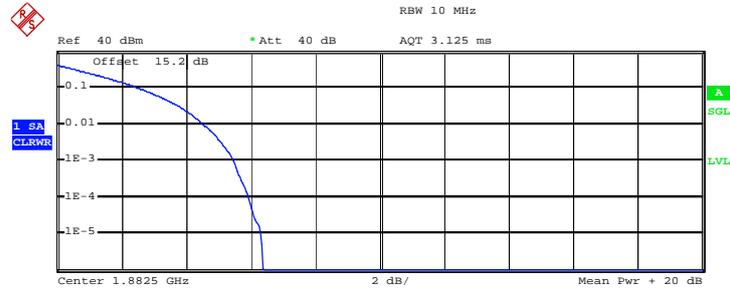
10 % 3.16 dB  
 1 % 5.28 dB  
 .1 % 6.16 dB  
 .01 % 6.60 dB

Date: 1.AUG.2012 20:11:29



<b>Band:</b>	LTE Band 25	<b>Bandwidth:</b>	5MHz
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Peak-to-Average Ratio for QPSK-RB Size 25, RB Offset 0



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 23.46 dBm  
 Peak 29.84 dBm  
 Crest 6.38 dB

10 % 2.60 dB  
 1 % 4.56 dB  
 .1 % 5.48 dB  
 .01 % 5.96 dB

Date: 1.AUG.2012 20:12:20

Peak-to-Average Ratio for 16QAM-RB Size 25, RB Offset 0



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 22.48 dBm  
 Peak 29.35 dBm  
 Crest 6.87 dB

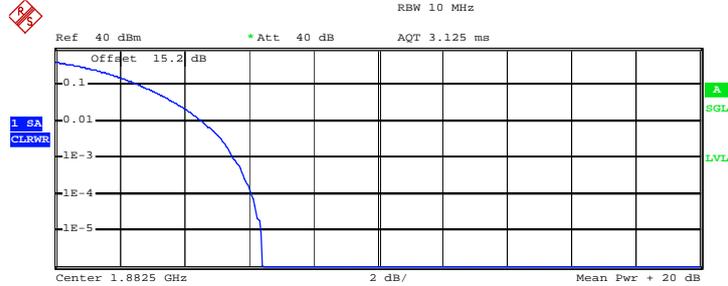
10 % 3.16 dB  
 1 % 5.20 dB  
 .1 % 6.16 dB  
 .01 % 6.60 dB

Date: 1.AUG.2012 20:12:47



<b>Band:</b>	LTE Band 25	<b>Bandwidth:</b>	10MHz
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**Peak-to-Average Ratio for QPSK-RB Size 50, RB Offset 0**



Complementary Cumulative Distribution Function (100000 samples)

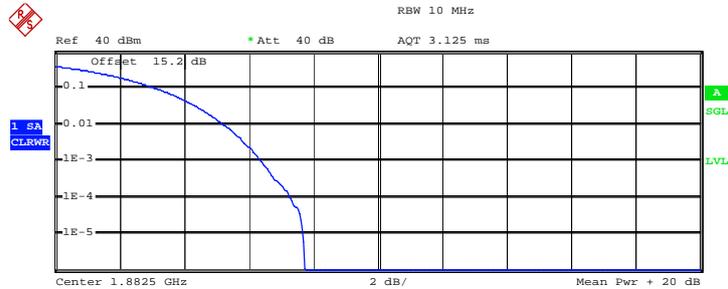
Trace 1

Mean 23.07 dBm  
 Peak 29.49 dBm  
 Crest 6.42 dB

10 % 2.68 dB  
 1 % 4.60 dB  
 .1 % 5.52 dB  
 .01 % 6.12 dB

Date: 1.AUG.2012 20:13:28

**Peak-to-Average Ratio for 16QAM-RB Size 50, RB Offset 0**



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 22.10 dBm  
 Peak 29.84 dBm  
 Crest 7.75 dB

10 % 3.20 dB  
 1 % 5.24 dB  
 .1 % 6.40 dB  
 .01 % 7.32 dB

Date: 1.AUG.2012 20:13:10

### 3.3 Emission Bandwidth

#### 3.3.1 Description of Emission Bandwidth Measurement

The occupied bandwidth is 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 transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

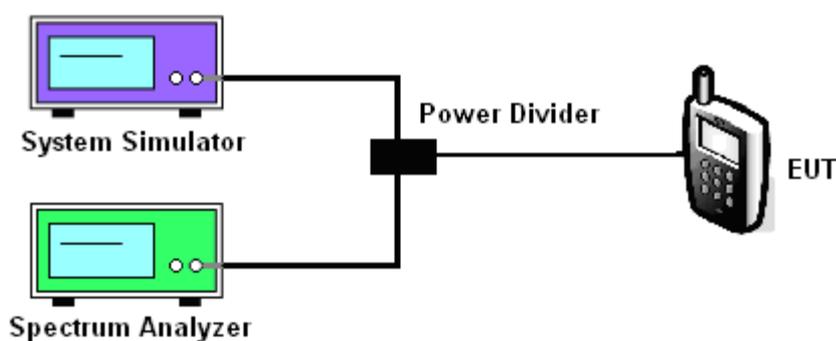
#### 3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and System Simulator via power divider.
2. The 99% occupied bandwidth and 26 dB bandwidth of the middle channel for the highest RF powers were measured.

#### 3.3.4 Test Setup



3.3.6 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

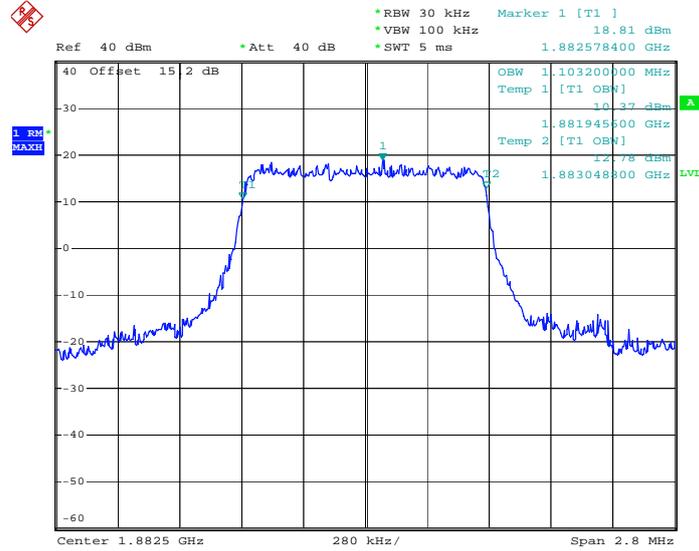
Band	Band Width	Channel	Frequency (MHz)	Modulation	99%Bandwidth (MHz)	26dB Bandwidth (MHz)
LTE Band 25	1.4MHz	26365	1882.5	QPSK	1.1032	1.3328
				16-QAM	1.1032	1.3272
	3MHz	26365	1882.5	QPSK	2.7360	3.1320
				16-QAM	2.7360	3.1560
	5MHz	26365	1882.5	QPSK	4.4800	5.1400
				16-QAM	4.5000	5.1400
	10MHz	26365	1882.5	QPSK	9.1200	10.2000
				16-QAM	9.1200	10.1600



### 3.3.7 Test Result (Plots) of 99% Occupied Bandwidth and 26dB Bandwidth

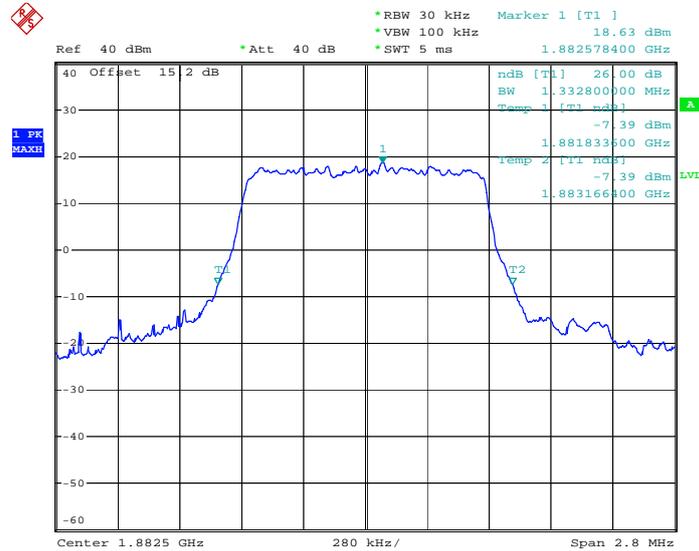
Band :	LTE Band 25	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 20:26:14

26dB Bandwidth Plot on Channel 26365

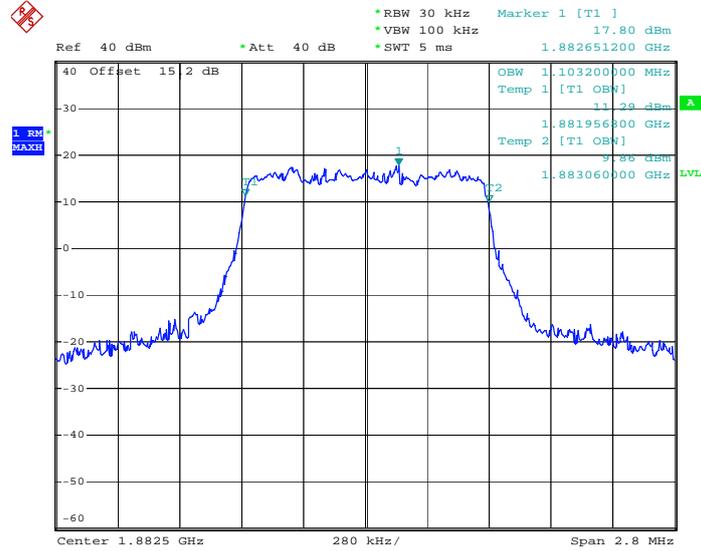


Date: 1.AUG.2012 19:33:27



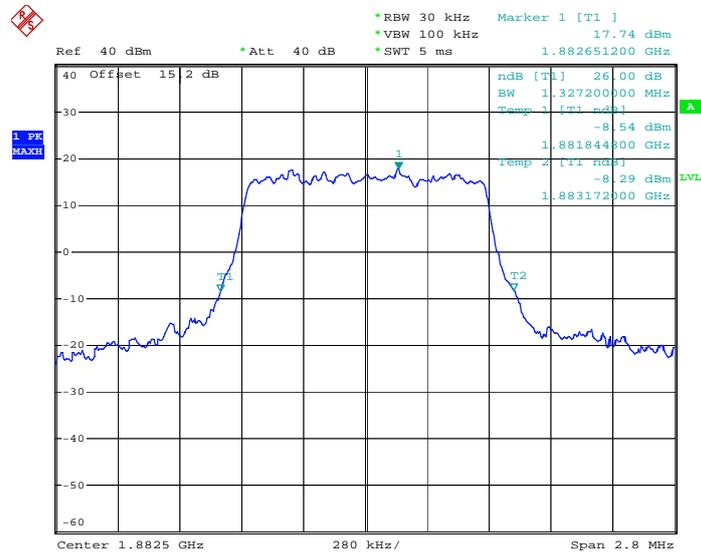
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 20:26:56

26dB Bandwidth Plot on Channel 26365

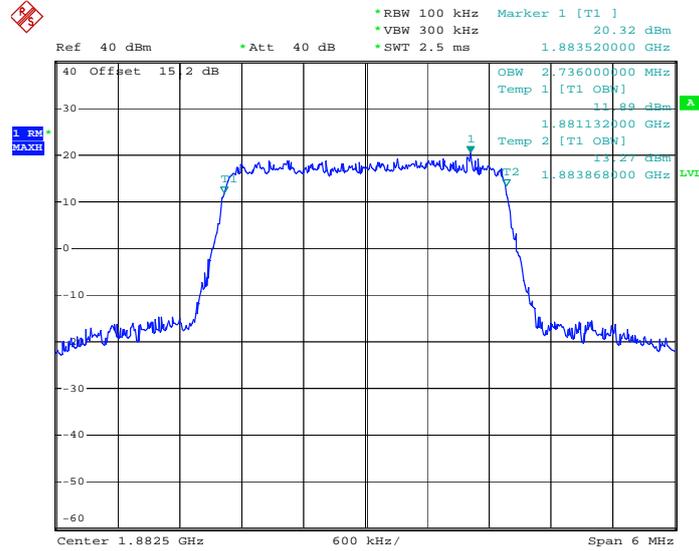


Date: 1.AUG.2012 19:34:10



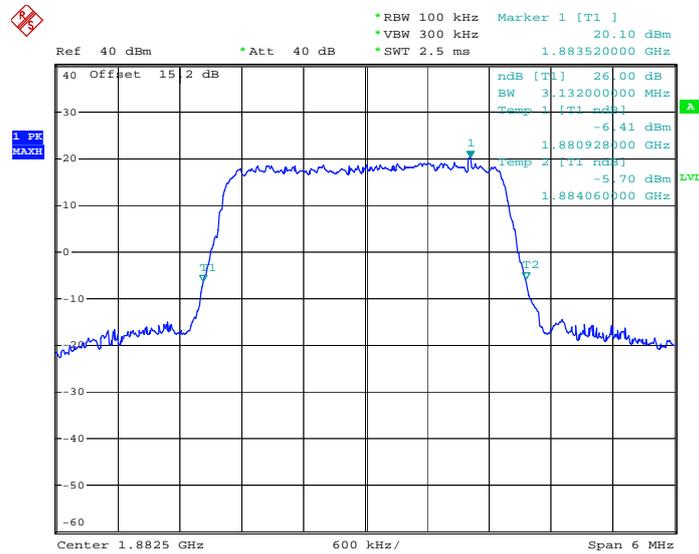
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 20:31:16

26dB Bandwidth Plot on Channel 26365



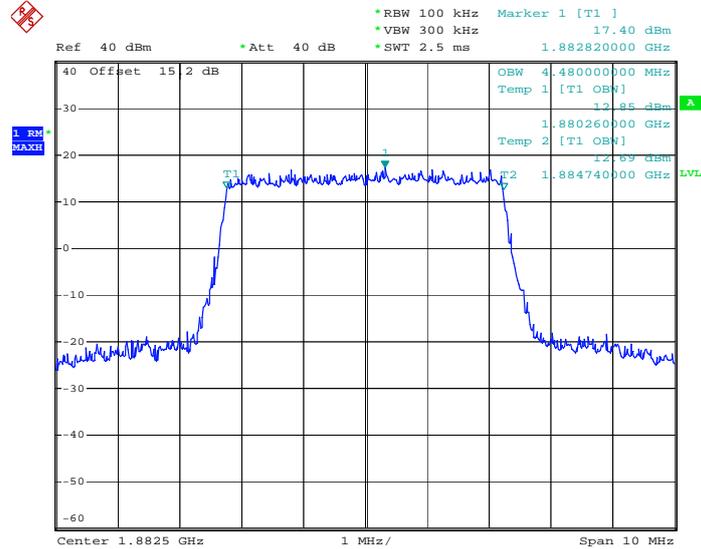
Date: 1.AUG.2012 19:35:41





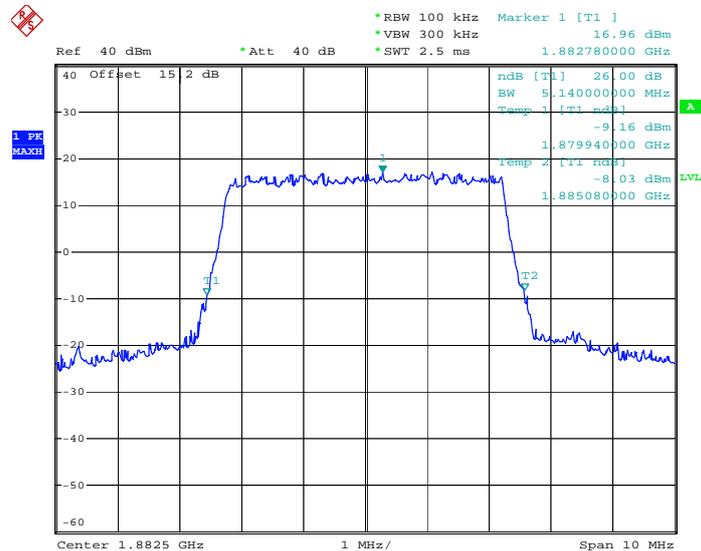
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 20:38:18

26dB Bandwidth Plot on Channel 26365

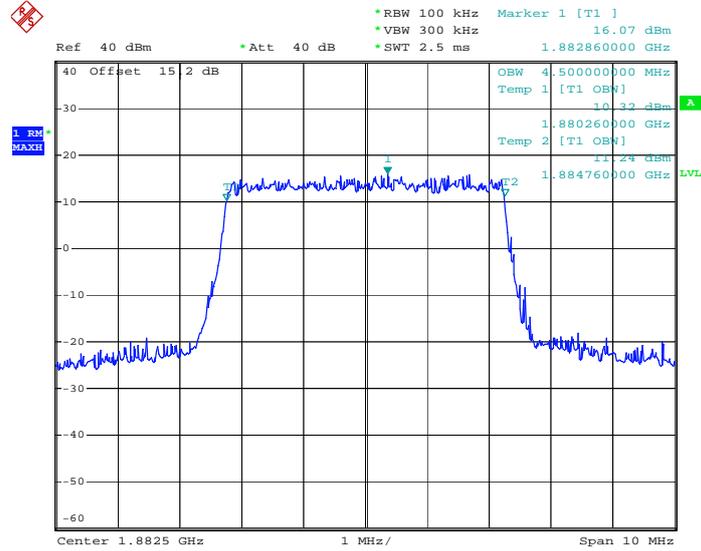


Date: 1.AUG.2012 19:36:15



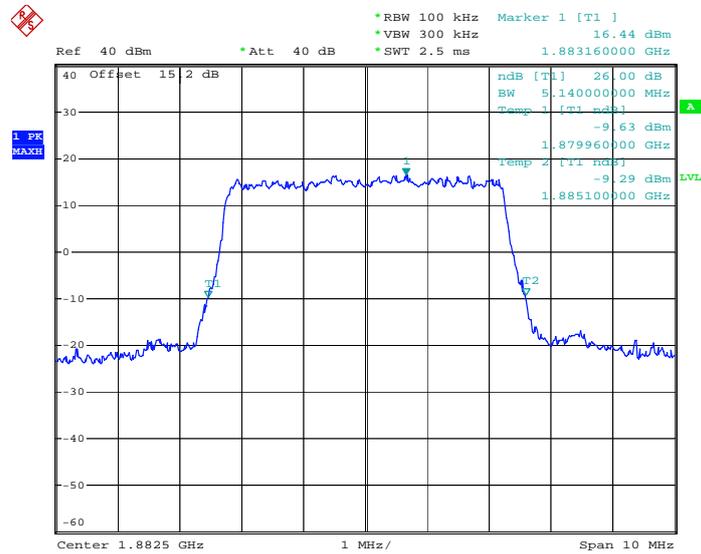
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 20:38:33

26dB Bandwidth Plot on Channel 26365

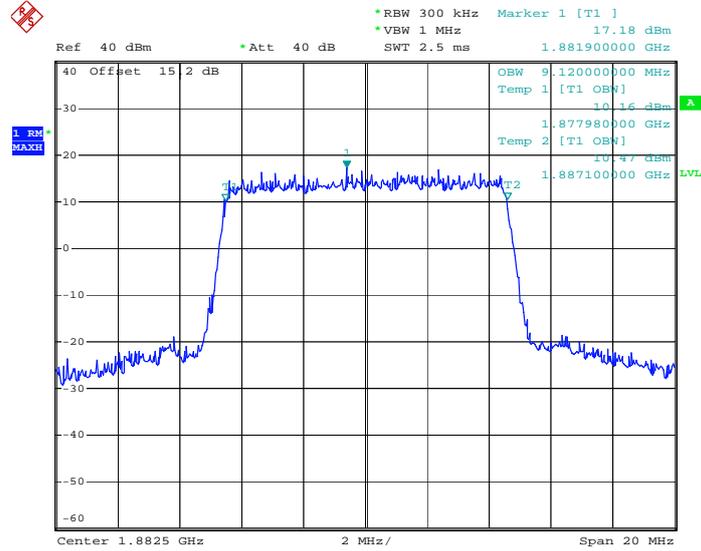


Date: 1.AUG.2012 19:37:42



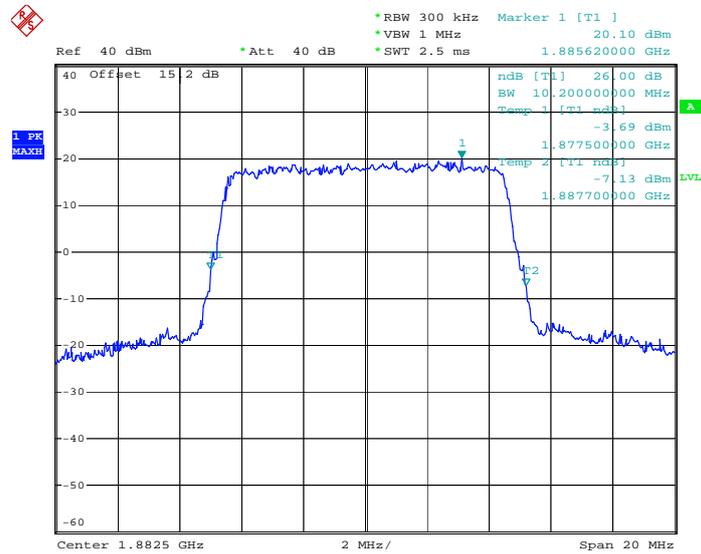
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 22:15:43

26dB Bandwidth Plot on Channel 26365

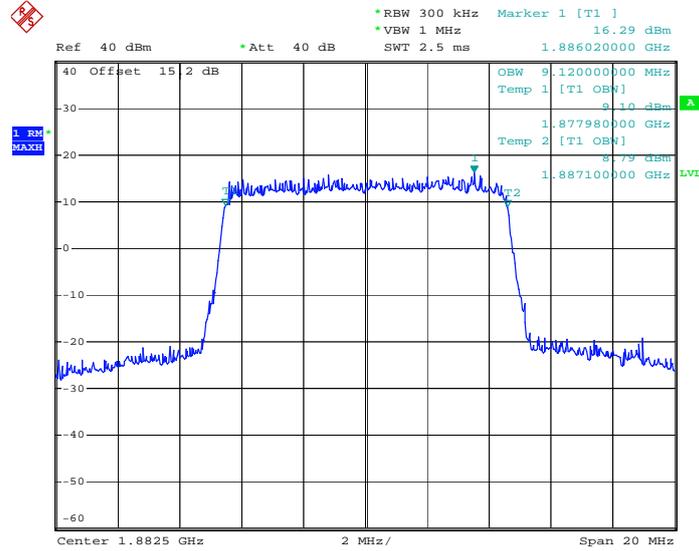


Date: 1.AUG.2012 19:41:16



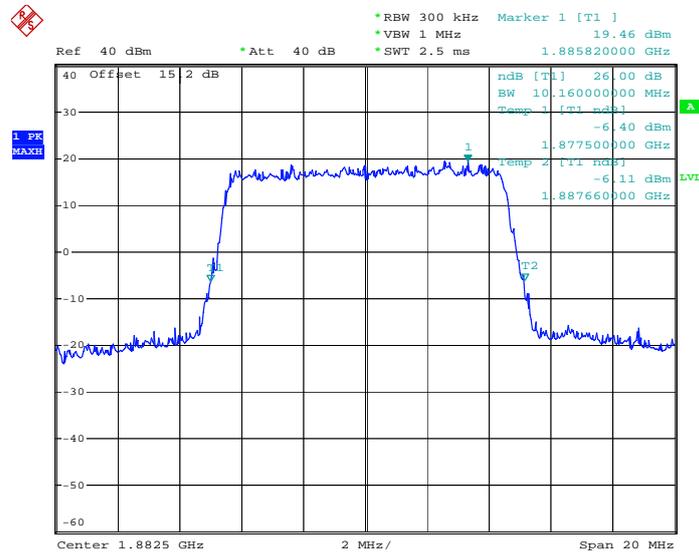
Band :	LTE Band 25	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 22:16:10

26dB Bandwidth Plot on Channel 26365



Date: 1.AUG.2012 19:40:54

### 3.4 Conducted Band Edge and Spurious Emission Measurement

#### 3.4.1 Limit

For operations in band 25, the FCC limit is

$43 + 10\log_{10}(P[\text{Watts}]) \text{ dB} = -13 \text{ dBm}$  in a 1 MHz bandwidth.

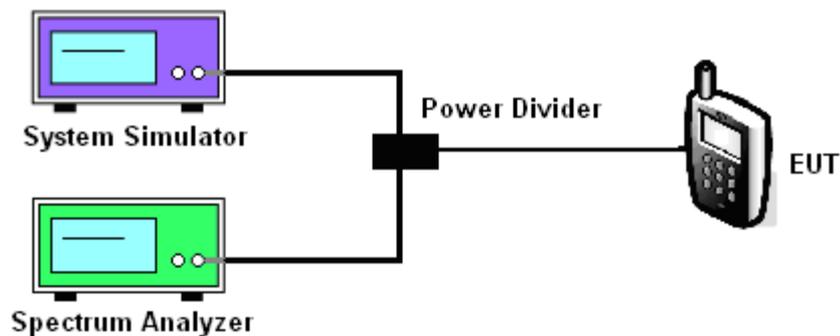
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via power divider.
2. The conducted spurious emission for the whole frequency range was taken.

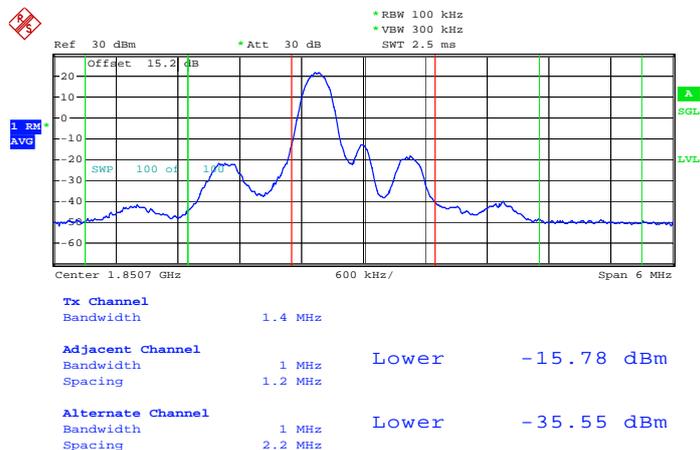
#### 3.4.4 Test Setup



### 3.4.5 Test Plots of Conducted Band-Edge Emission

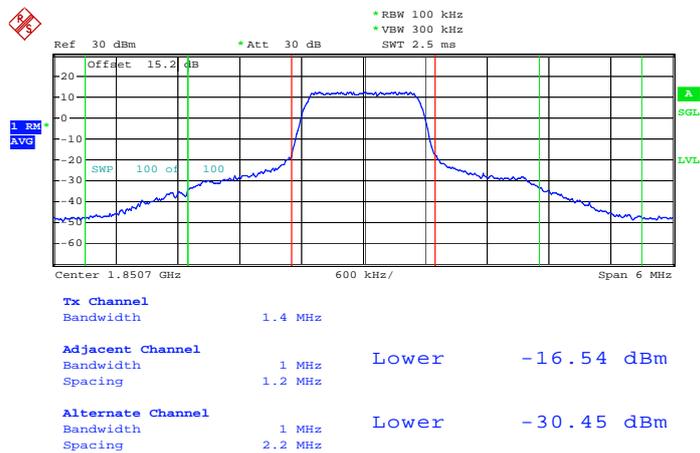
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	1.4MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 1.AUG.2012 23:00:05

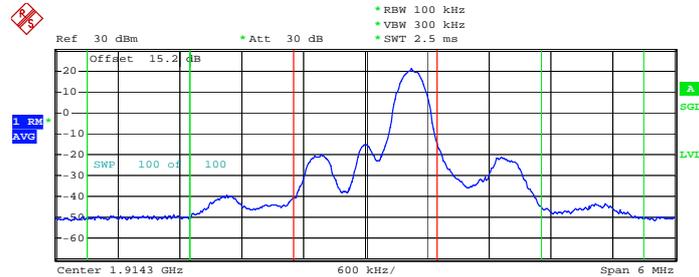
Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 1.AUG.2012 23:01:01



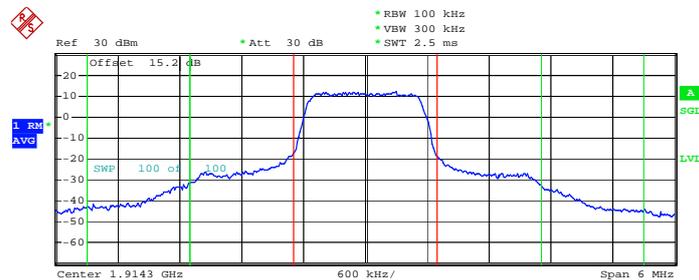
Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5



<b>Tx Channel</b>			
Bandwidth	1.4 MHz		
<b>Adjacent Channel</b>			
Bandwidth	1 MHz		
Spacing	1.2 MHz	Upper	-15.54 dBm
<b>Alternate Channel</b>			
Bandwidth	1 MHz		
Spacing	2.2 MHz	Upper	-36.59 dBm

Date: 2.AUG.2012 19:13:24

Higher Band Edge Plot for QPSK-RB Size 6, RB Offset 0



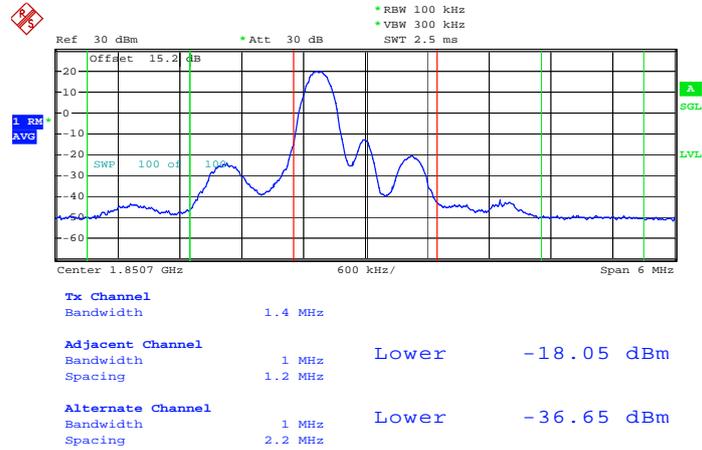
<b>Tx Channel</b>			
Bandwidth	1.4 MHz		
<b>Adjacent Channel</b>			
Bandwidth	1 MHz		
Spacing	1.2 MHz	Upper	-16.17 dBm
<b>Alternate Channel</b>			
Bandwidth	1 MHz		
Spacing	2.2 MHz	Upper	-29.33 dBm

Date: 2.AUG.2012 19:13:39



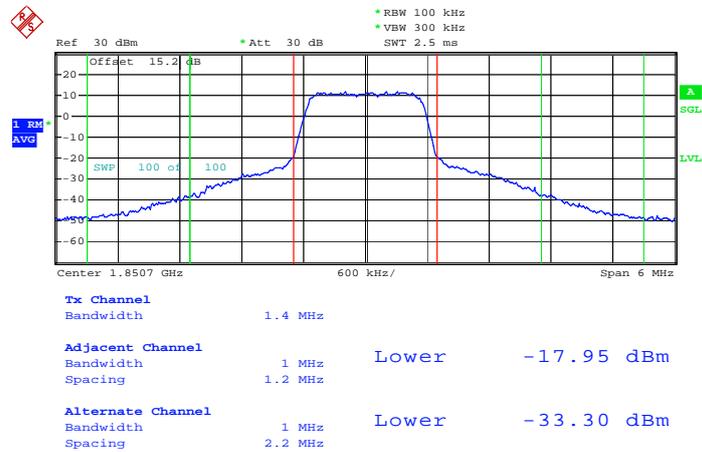
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	1.4MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 1.AUG.2012 23:00:17

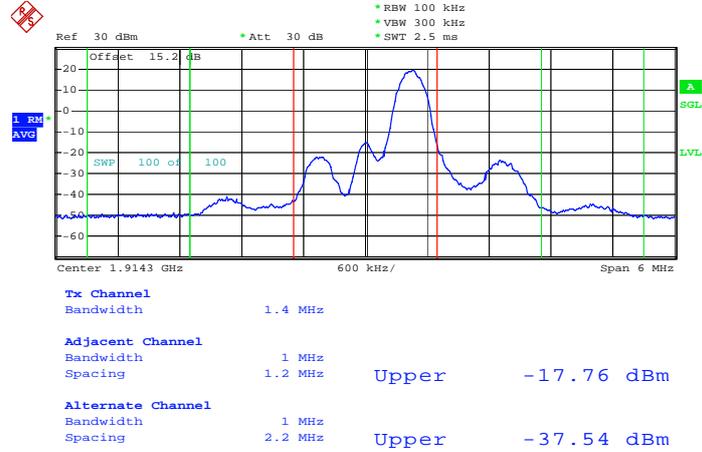
Lower Band Edge Plot for 16QAM -RB Size 6, RB Offset 0



Date: 1.AUG.2012 23:00:45

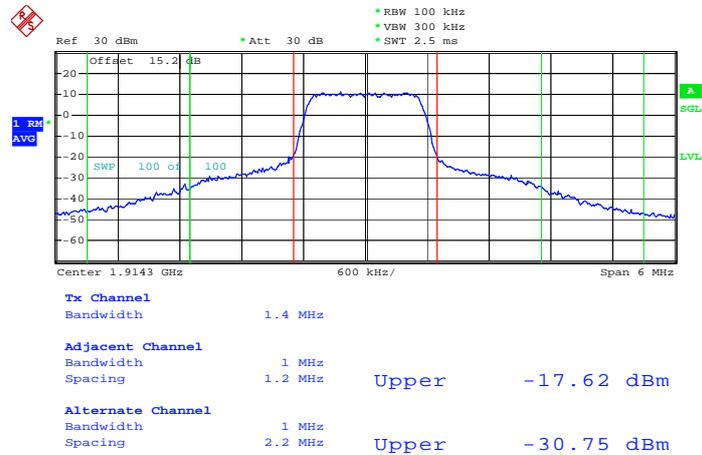


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 5



Date: 2.AUG.2012 19:13:04

Higher Band Edge Plot for 16QAM -RB Size 6, RB Offset 0

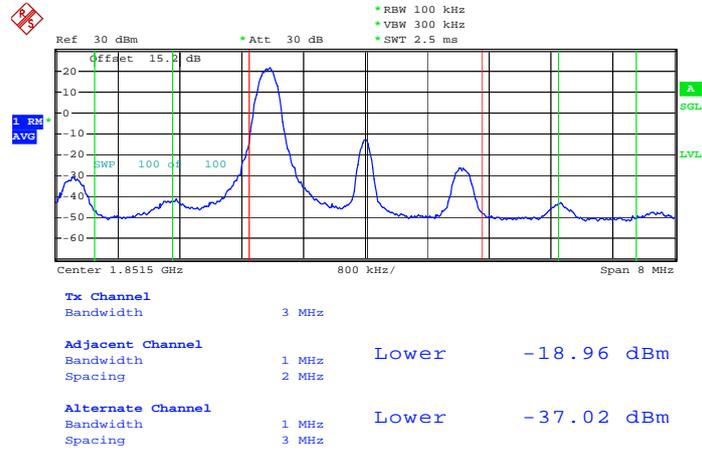


Date: 2.AUG.2012 19:13:57



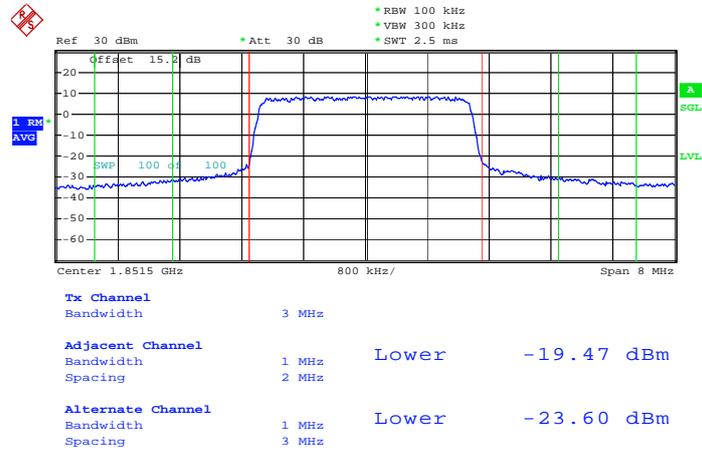
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / QPSK
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**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**



Date: 2.AUG.2012 19:20:45

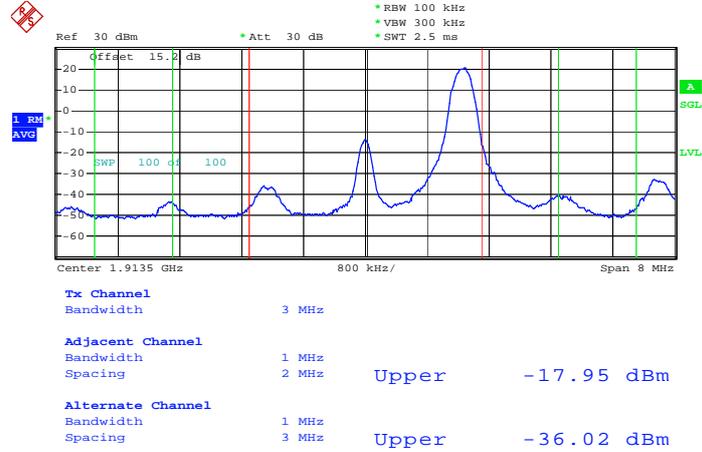
**Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0**



Date: 2.AUG.2012 19:21:10

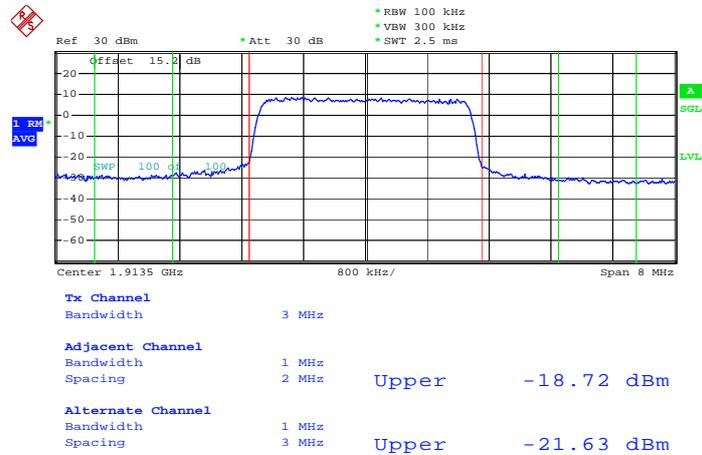


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14



Date: 2.AUG.2012 19:23:20

Higher Band Edge Plot for QPSK-RB Size 15, RB Offset 0

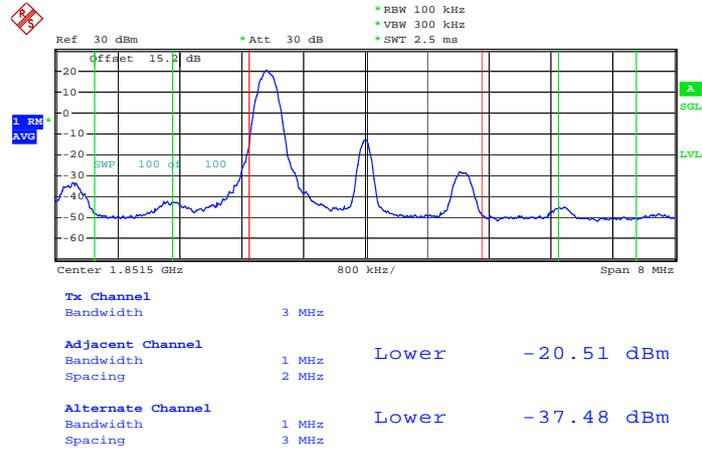


Date: 2.AUG.2012 19:23:38



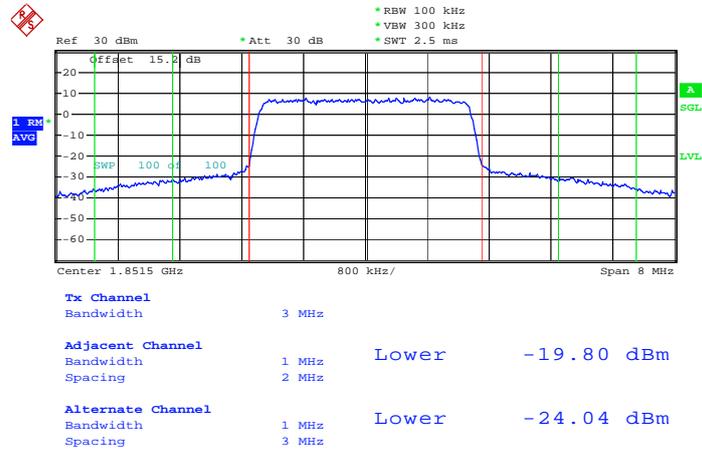
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 2.AUG.2012 19:20:31

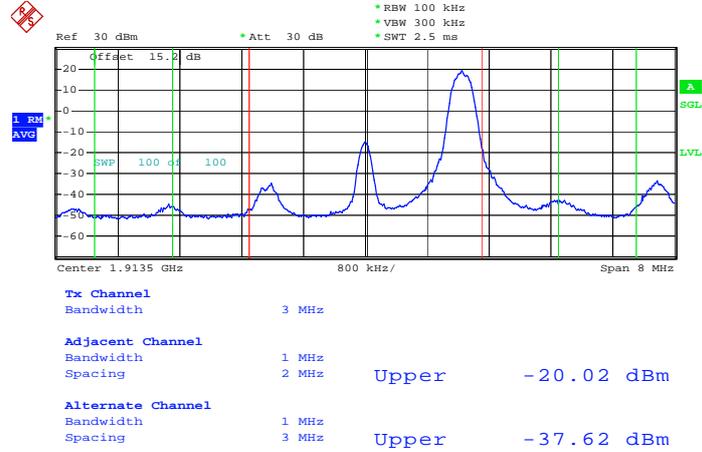
Lower Band Edge Plot for 16QAM -RB Size 15, RB Offset 0



Date: 2.AUG.2012 19:21:40

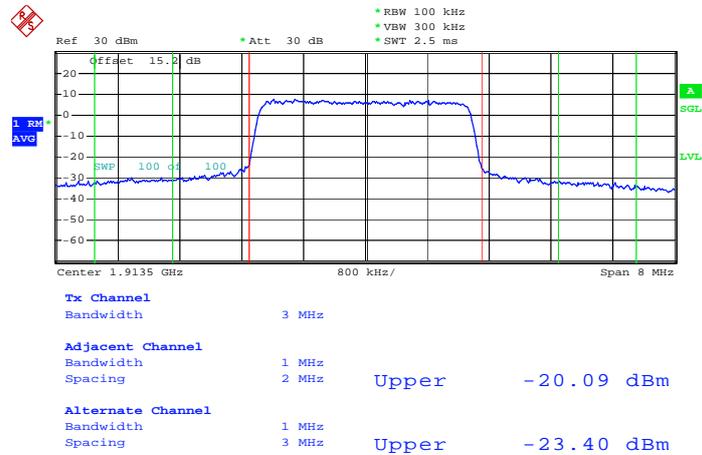


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 14



Date: 2.AUG.2012 19:23:07

Higher Band Edge Plot for 16QAM -RB Size 15, RB Offset 0

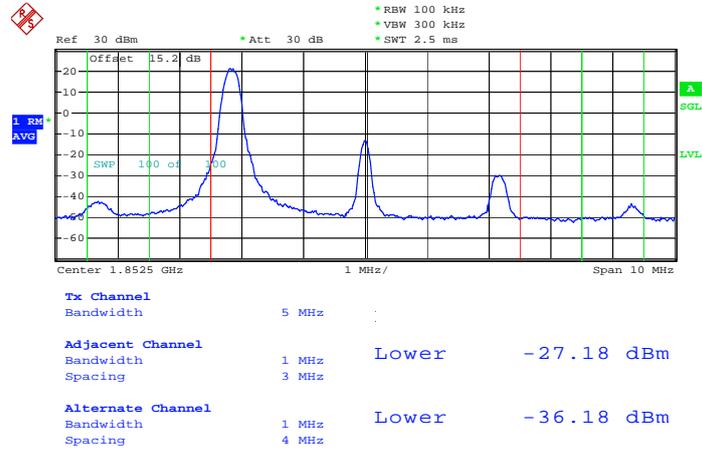


Date: 2.AUG.2012 19:23:54



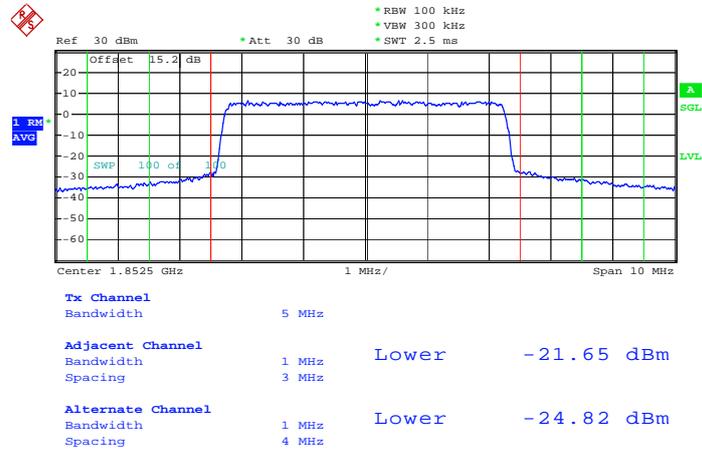
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / QPSK
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**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**



Date: 2.AUG.2012 19:36:59

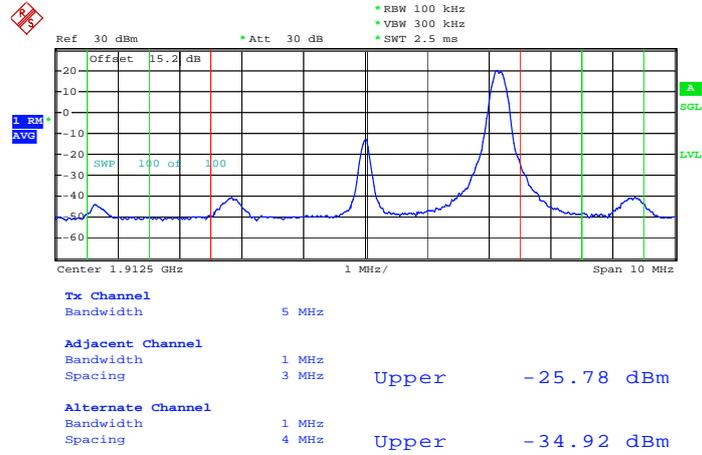
**Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0**



Date: 2.AUG.2012 19:37:55

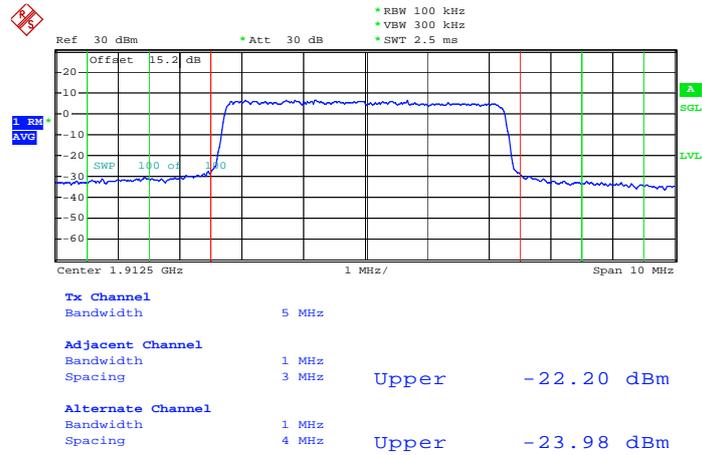


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 2.AUG.2012 19:39:15

Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

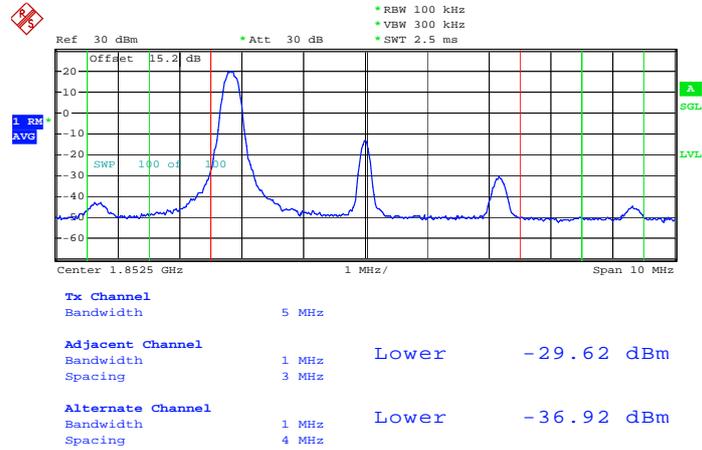


Date: 2.AUG.2012 19:40:08



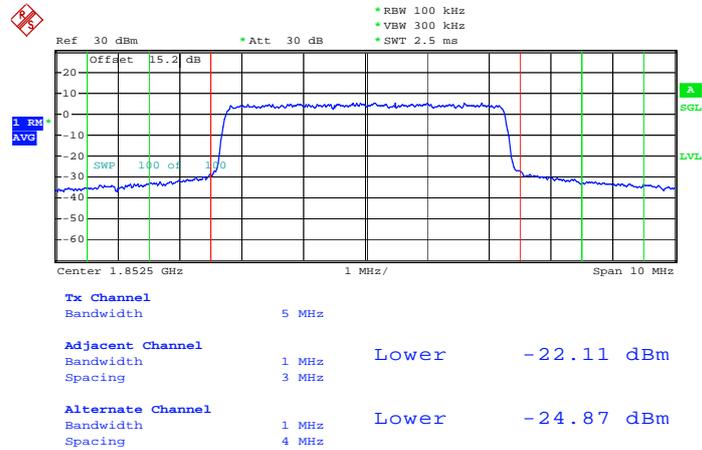
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 2.AUG.2012 19:36:46

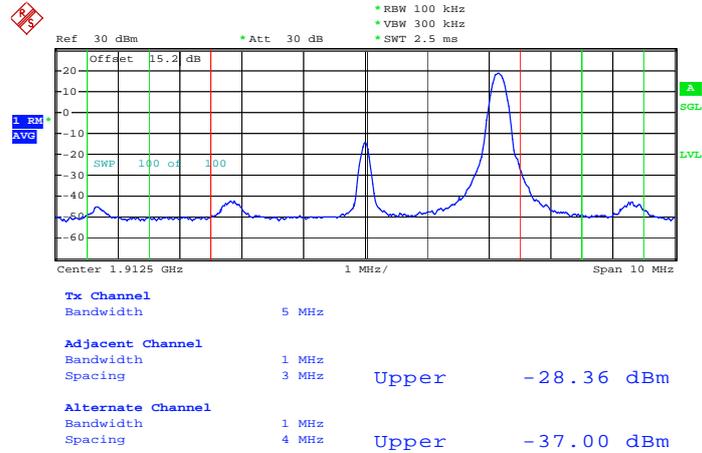
Lower Band Edge Plot for 16QAM -RB Size 25, RB Offset 0



Date: 2.AUG.2012 19:37:31

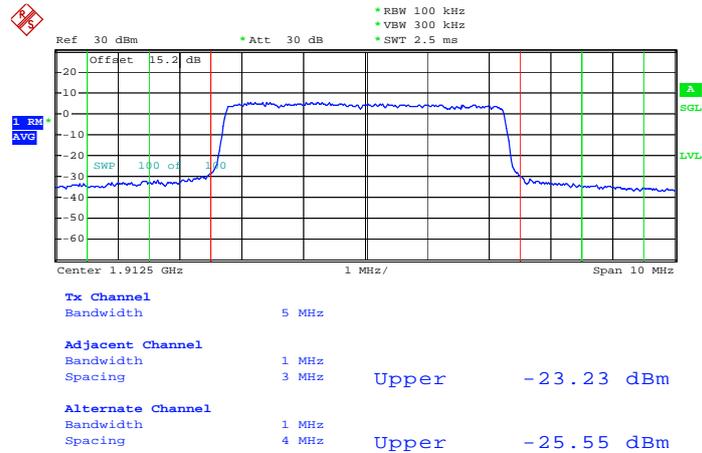


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 24



Date: 2.AUG.2012 19:39:38

Higher Band Edge Plot for 16QAM -RB Size 25, RB Offset 0

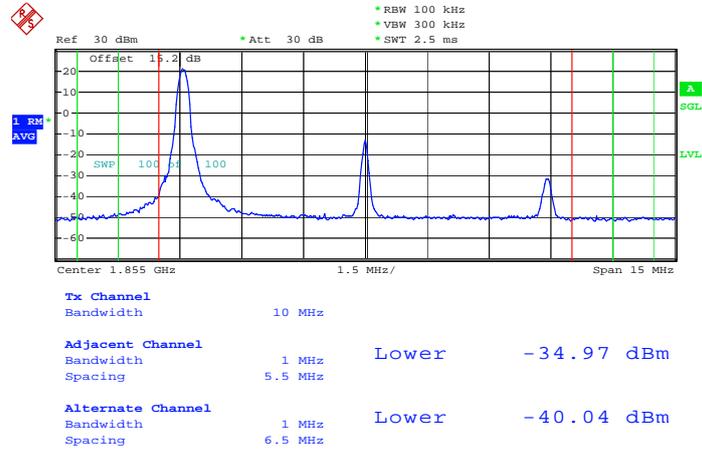


Date: 2.AUG.2012 19:39:54



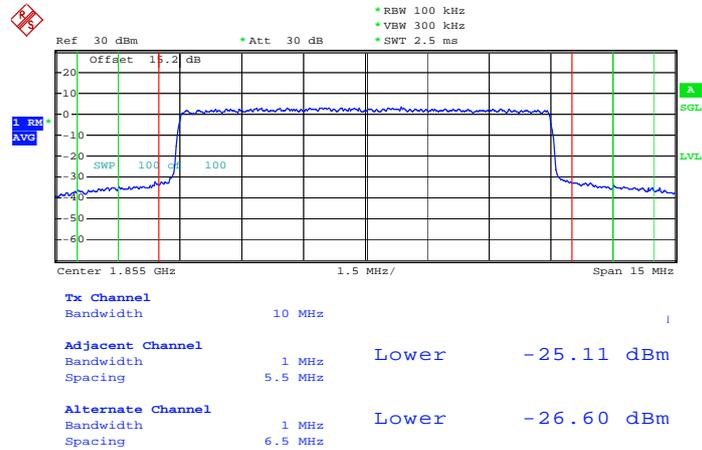
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 2.AUG.2012 19:42:25

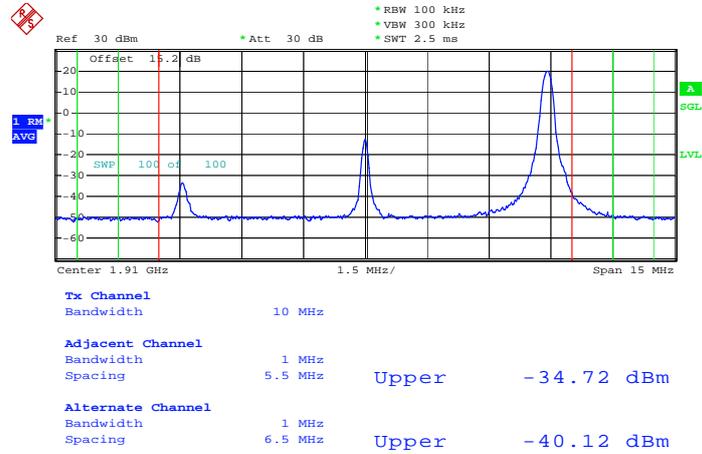
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 2.AUG.2012 19:43:20

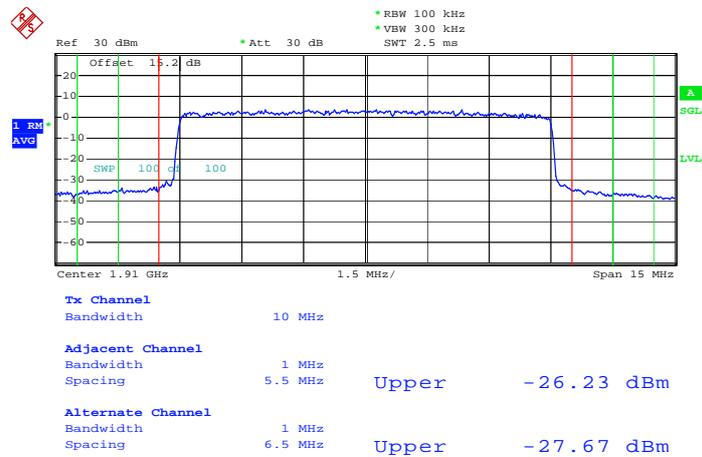


### Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 2.AUG.2012 19:44:35

### Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

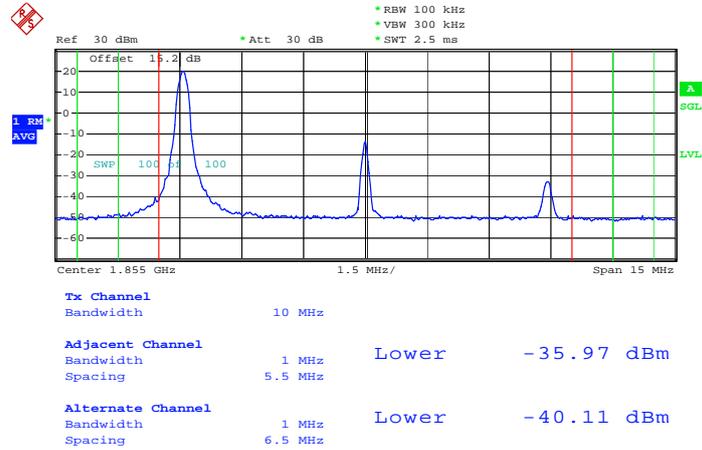


Date: 2.AUG.2012 19:53:32



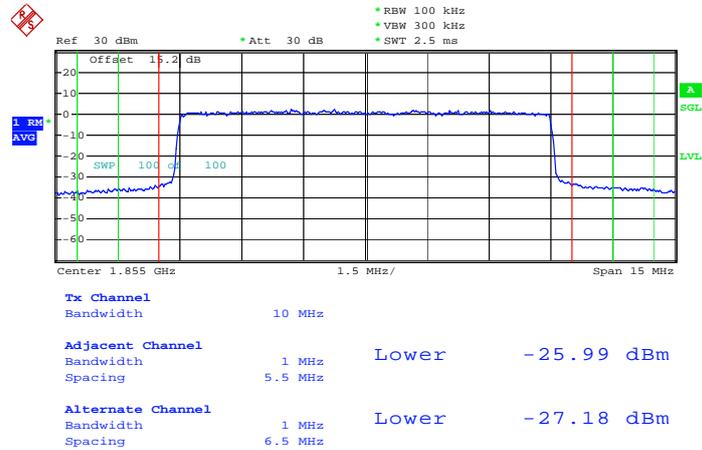
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 2.AUG.2012 19:42:44

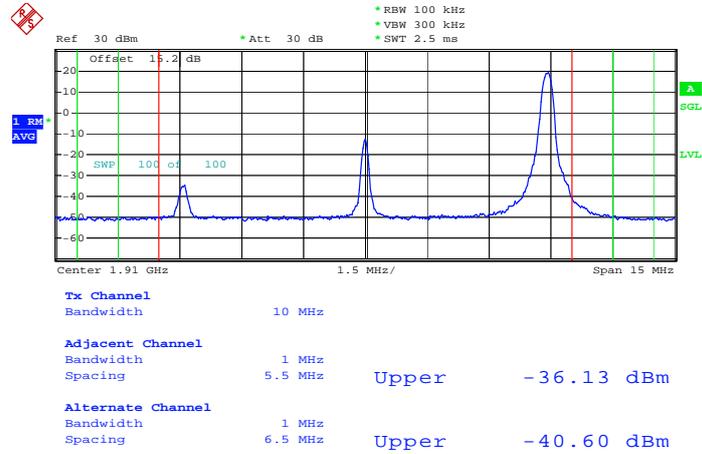
Lower Band Edge Plot for 16QAM -RB Size 50, RB Offset 0



Date: 2.AUG.2012 19:43:06

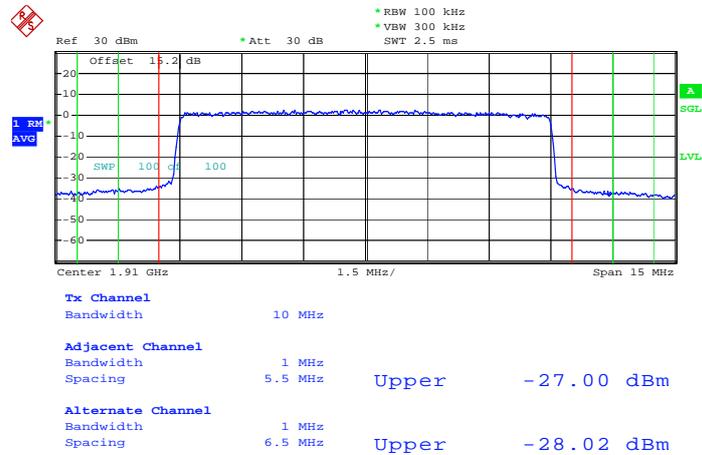


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 49



Date: 2.AUG.2012 19:44:55

Higher Band Edge Plot for 16QAM -RB Size 50, RB Offset 0



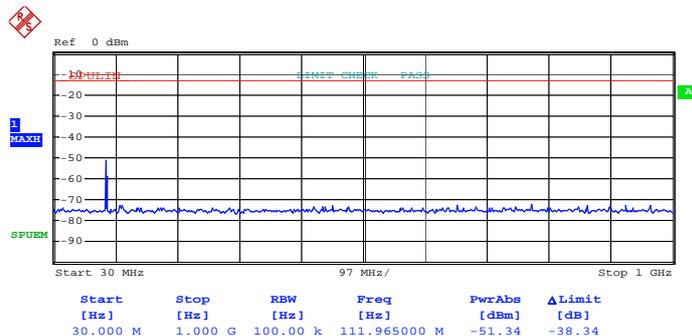
Date: 2.AUG.2012 19:53:48



3.4.6 Test Plots of Spurious Emission

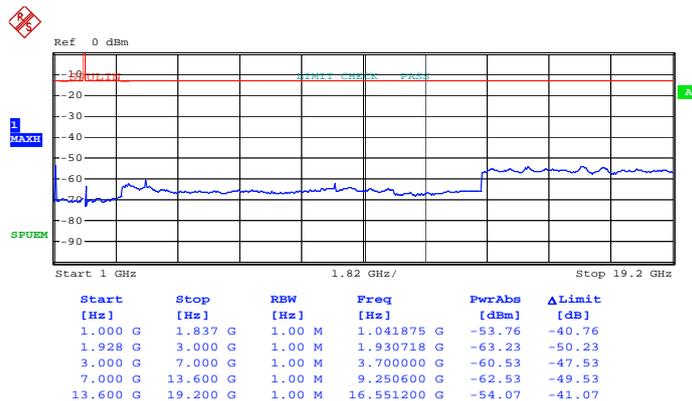
Band :	LTE Band 25	BW / Mod. :	1.4MHz / QPSK
Frequency :	1850.7	Channel :	26047

Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)



Date: 3.SEP.2012 21:42:13

Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)

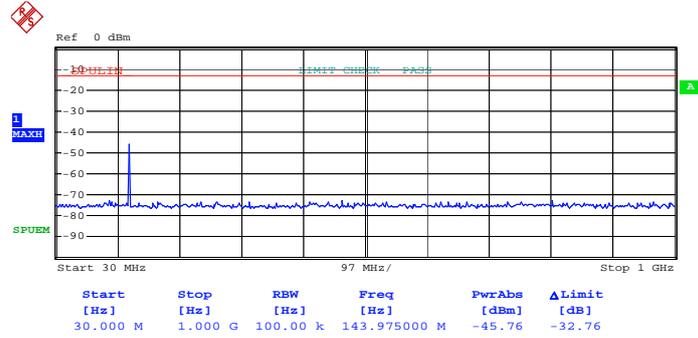


Date: 3.SEP.2012 21:43:50



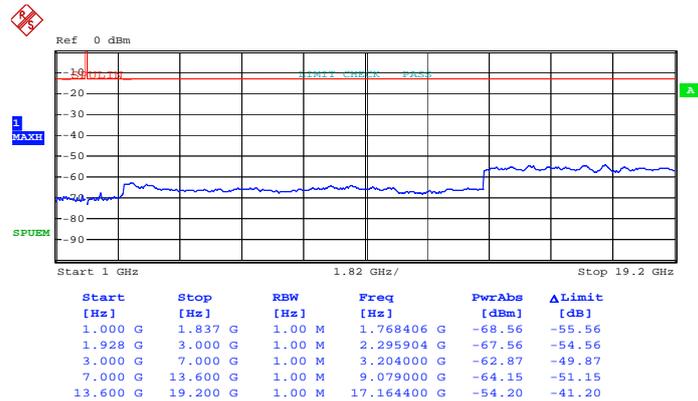
Band :	LTE Band 25	BW / Mod. :	1.4MHz / QPSK
Frequency :	1882.5	Channel :	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:08:54

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

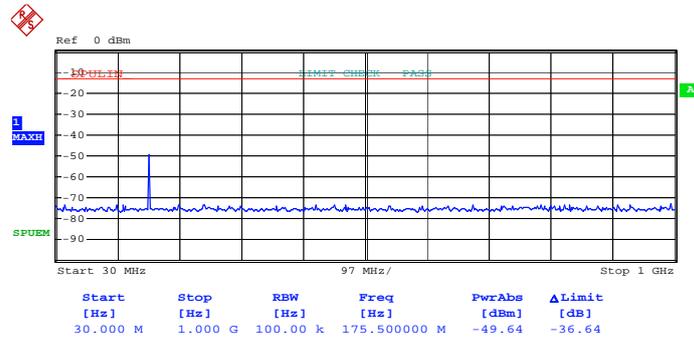


Date: 3.SEP.2012 22:04:10



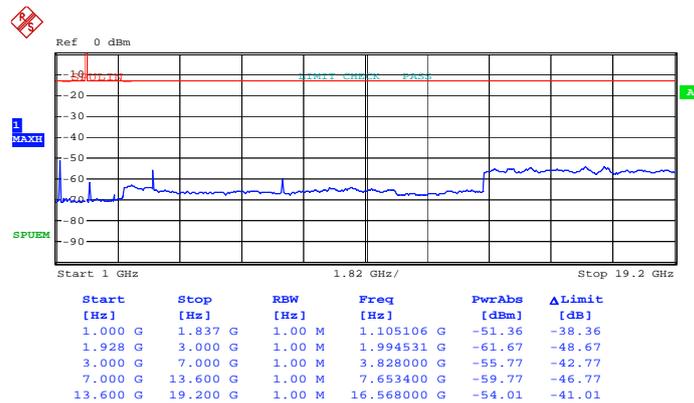
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	1.4MHz / QPSK
<b>Frequency :</b>	1914.3	<b>Channel :</b>	26683

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:10:30

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

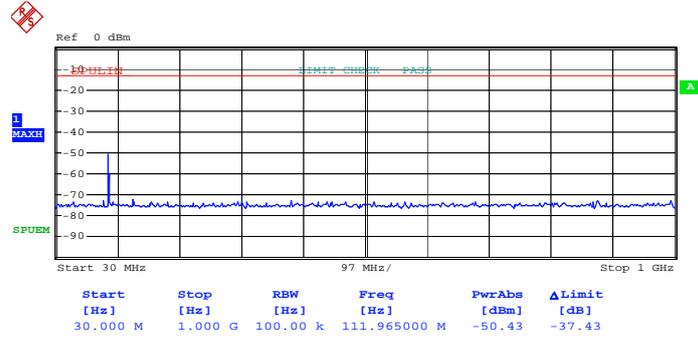


Date: 4.SEP.2012 00:13:17



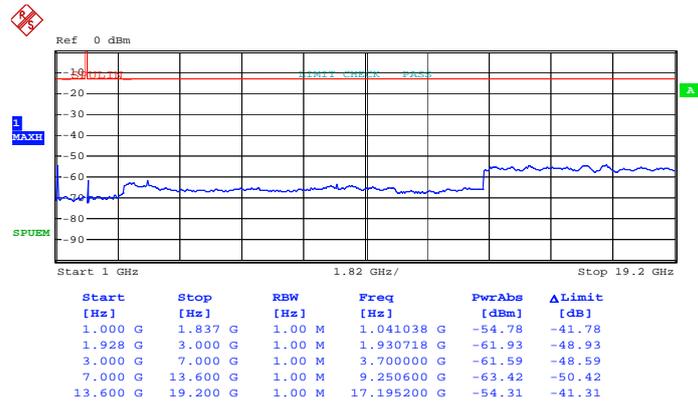
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	1.4MHz / 16QAM
<b>Frequency :</b>	1850.7	<b>Channel :</b>	26047

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 3.SEP.2012 21:41:37

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

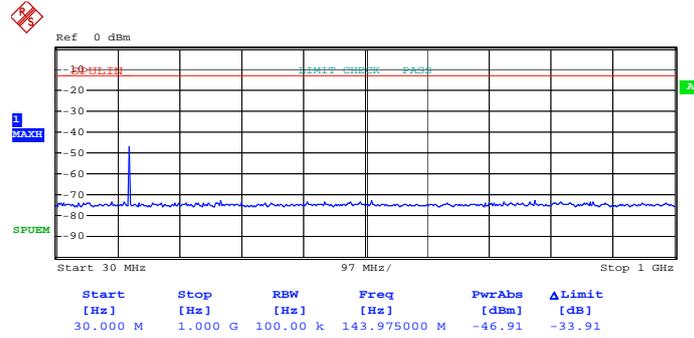


Date: 3.SEP.2012 21:44:17



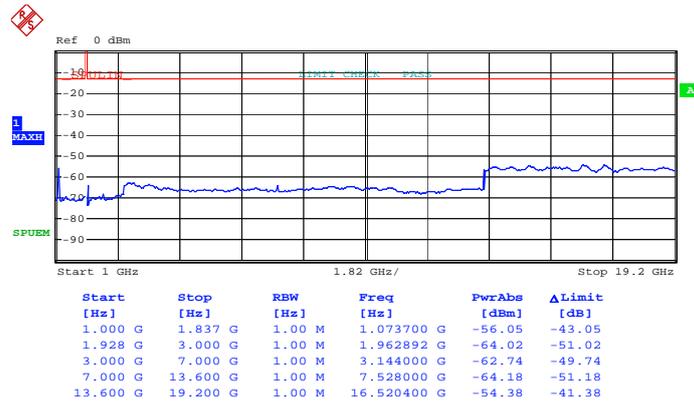
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	1.4MHz / 16QAM
<b>Frequency :</b>	1882.5	<b>Channel :</b>	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:08:26

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

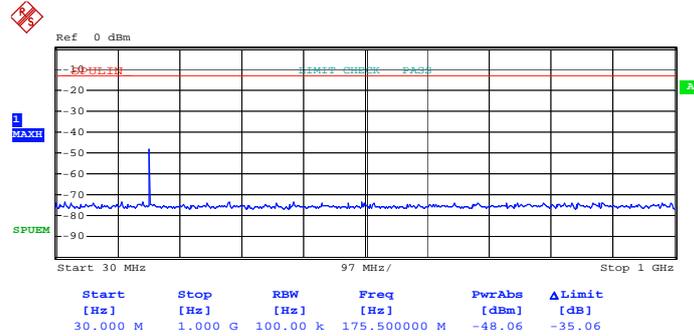


Date: 3.SEP.2012 22:03:41



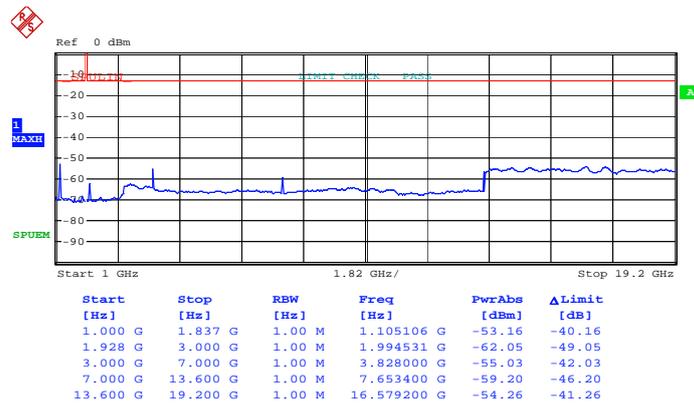
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	1.4MHz / 16QAM
<b>Frequency :</b>	1914.3	<b>Channel :</b>	26683

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:10:55

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

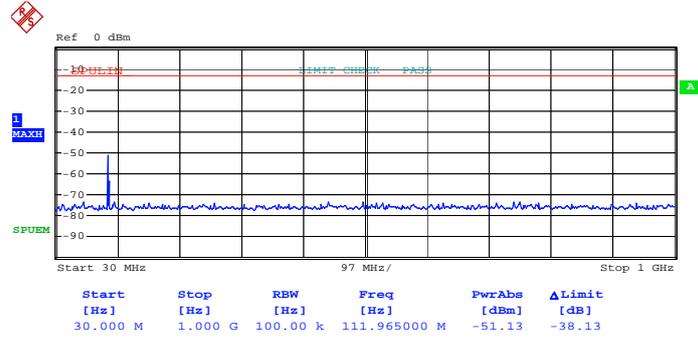


Date: 4.SEP.2012 00:12:46



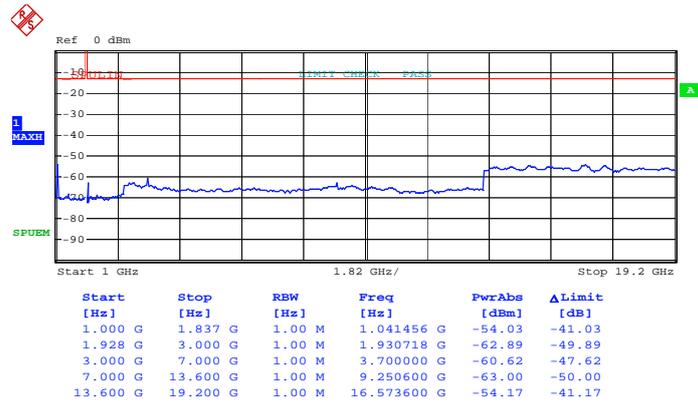
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / QPSK
<b>Frequency :</b>	1851.5	<b>Channel :</b>	26055

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:18:13

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

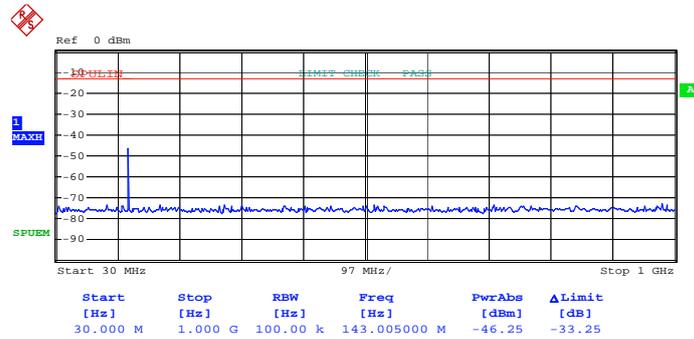


Date: 4.SEP.2012 00:16:33



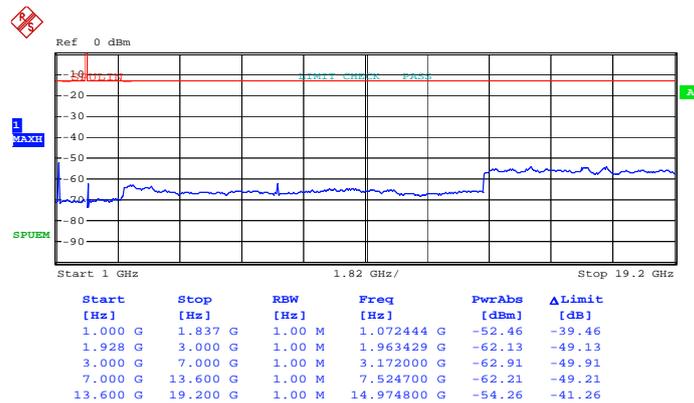
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / QPSK
<b>Frequency :</b>	1882.5	<b>Channel :</b>	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:20:34

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

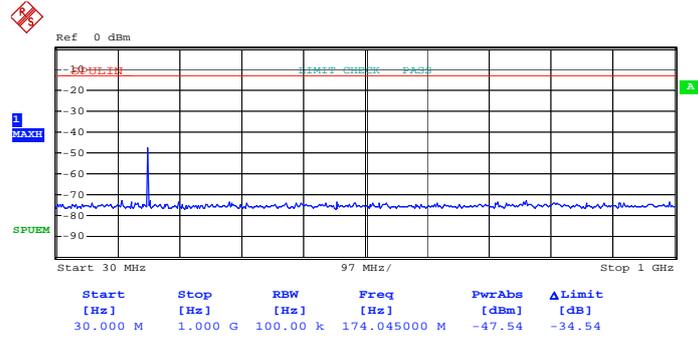


Date: 4.SEP.2012 00:22:00



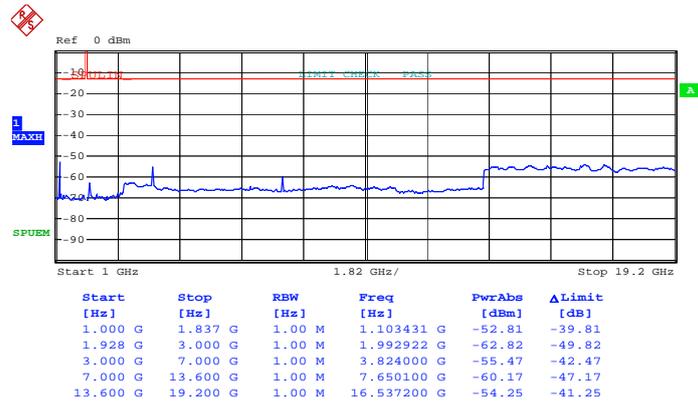
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / QPSK
<b>Frequency :</b>	1913.5	<b>Channel :</b>	26675

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:29:57

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

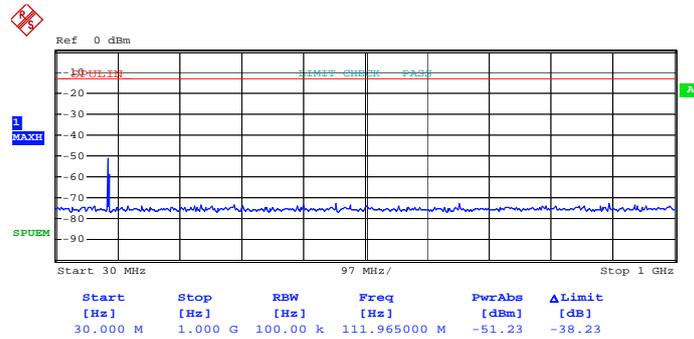


Date: 4.SEP.2012 00:30:28



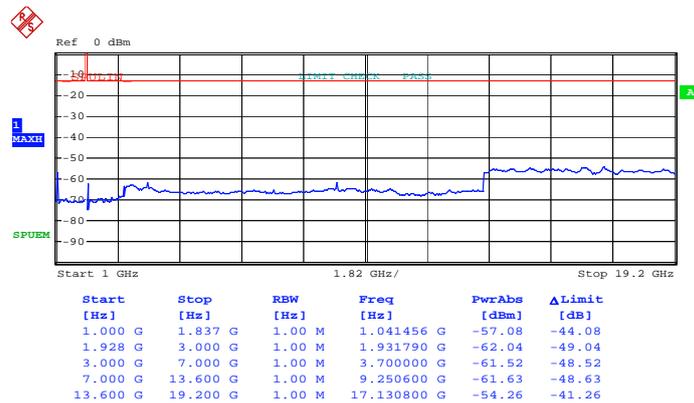
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / 16QAM
<b>Frequency :</b>	1851.5	<b>Channel :</b>	26055

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:17:54

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

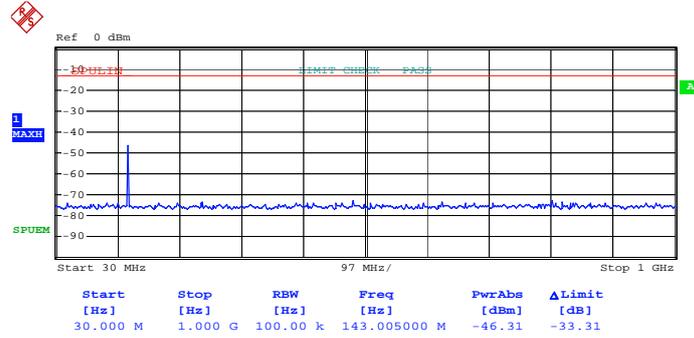


Date: 4.SEP.2012 00:16:52



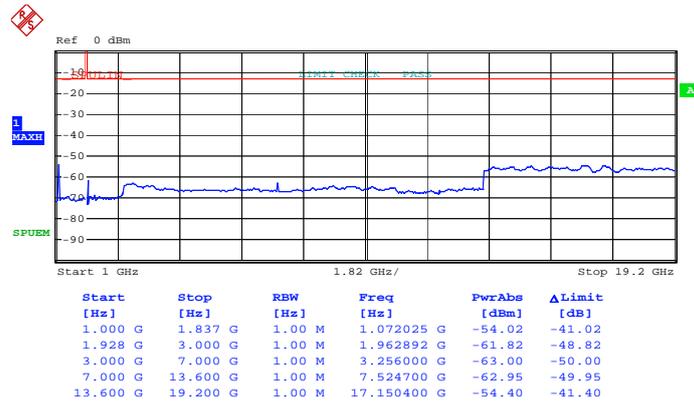
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / 16QAM
<b>Frequency :</b>	1882.5	<b>Channel :</b>	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:21:01

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

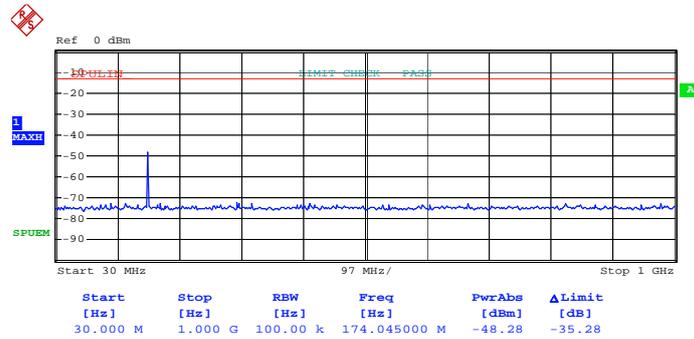


Date: 4.SEP.2012 00:21:42



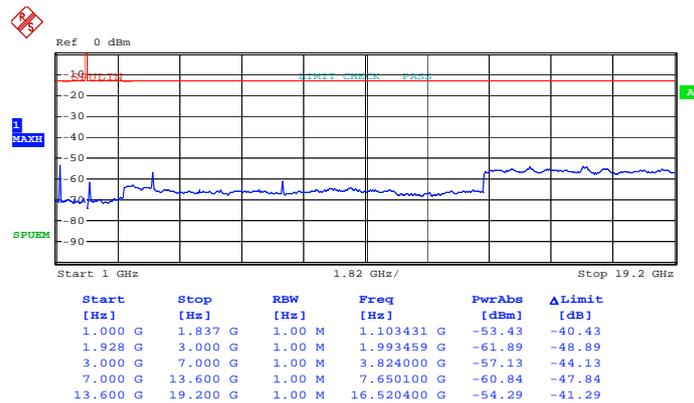
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	3MHz / 16QAM
<b>Frequency :</b>	1913.5	<b>Channel :</b>	26675

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:29:21

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

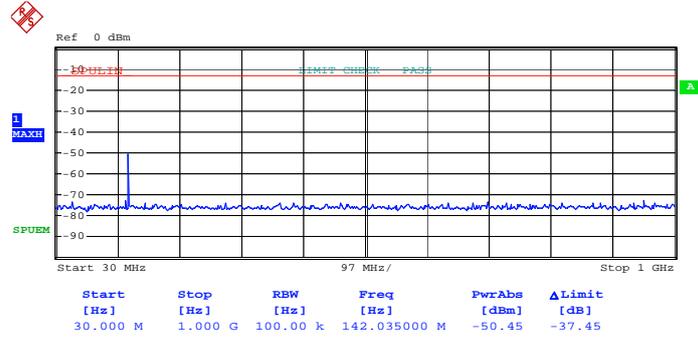


Date: 4.SEP.2012 00:30:48



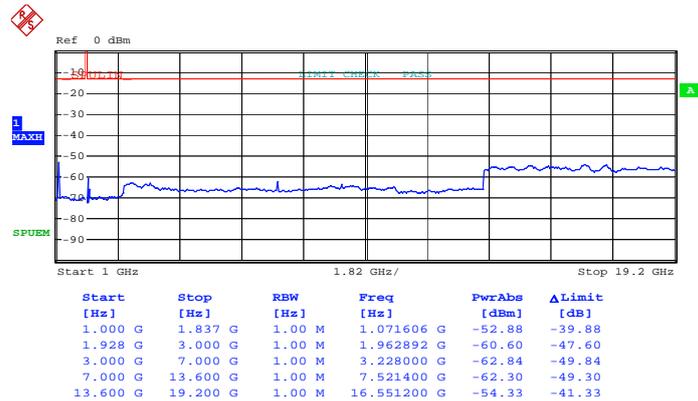
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / QPSK
<b>Frequency :</b>	1852.5	<b>Channel :</b>	26065

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:36:02

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

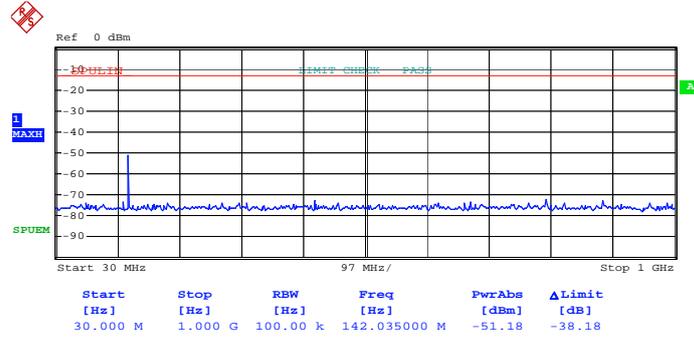


Date: 4.SEP.2012 00:36:25



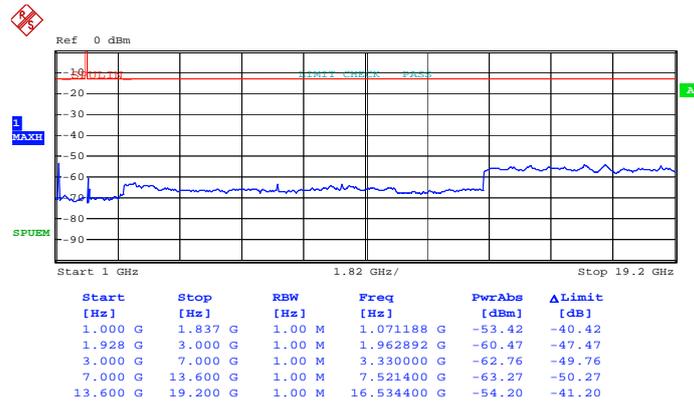
Band :	LTE Band 25	BW / Mod. :	5MHz / QPSK
Frequency :	1882.5	Channel :	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:38:30

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

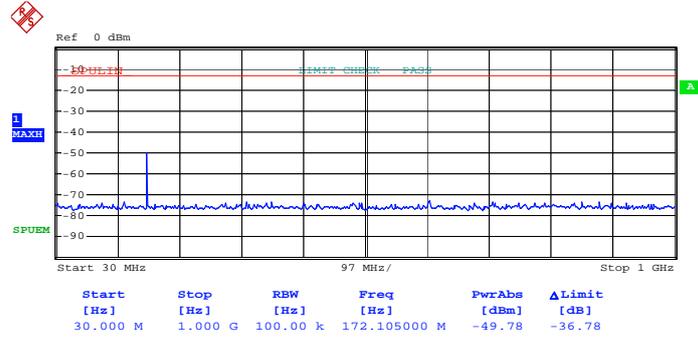


Date: 4.SEP.2012 00:38:10



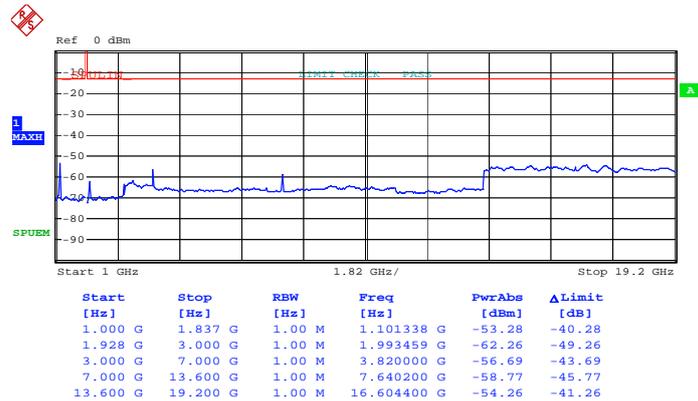
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / QPSK
<b>Frequency :</b>	1912.5	<b>Channel :</b>	26665

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:39:47

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

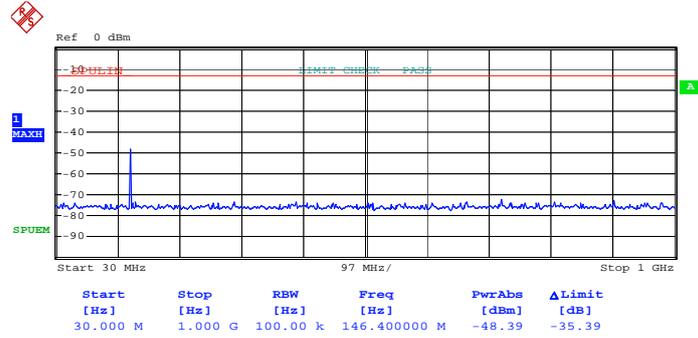


Date: 4.SEP.2012 00:40:41



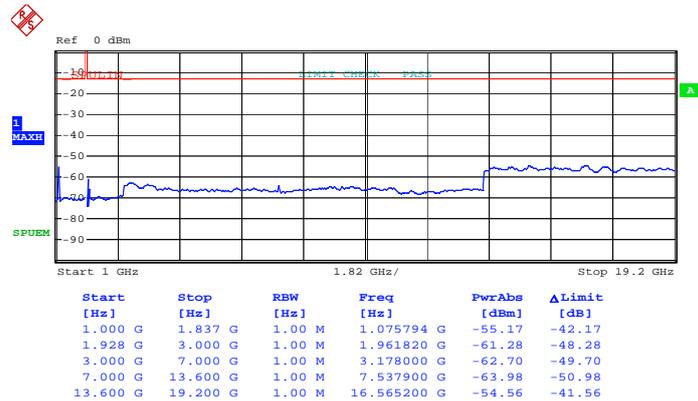
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / 16QAM
<b>Frequency :</b>	1852.5	<b>Channel :</b>	26065

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:34:10

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

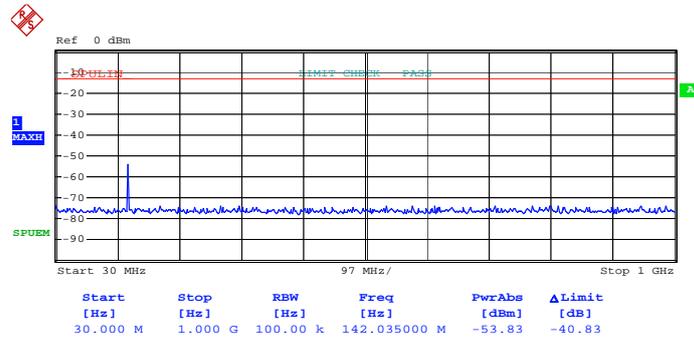


Date: 4.SEP.2012 00:32:11



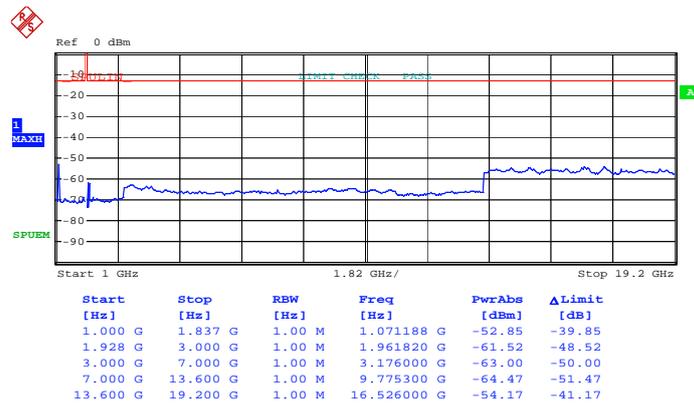
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / 16QAM
<b>Frequency :</b>	1882.5	<b>Channel :</b>	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:38:44

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

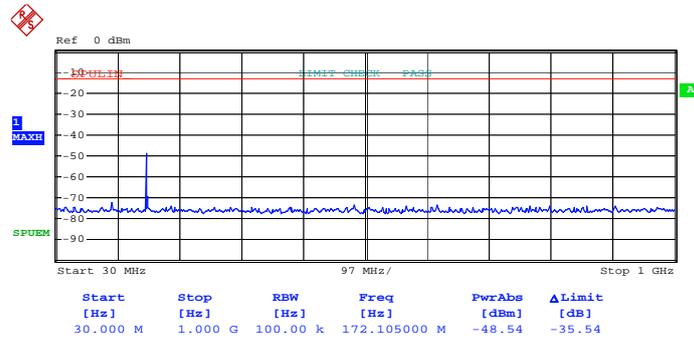


Date: 4.SEP.2012 00:37:55



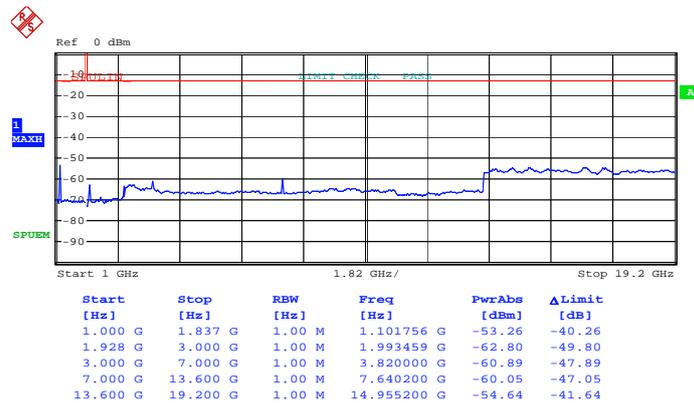
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	5MHz / 16QAM
<b>Frequency :</b>	1912.5	<b>Channel :</b>	26665

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:39:24

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

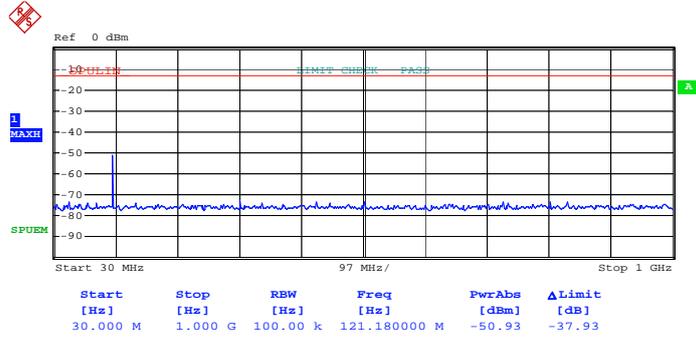


Date: 4.SEP.2012 00:40:59



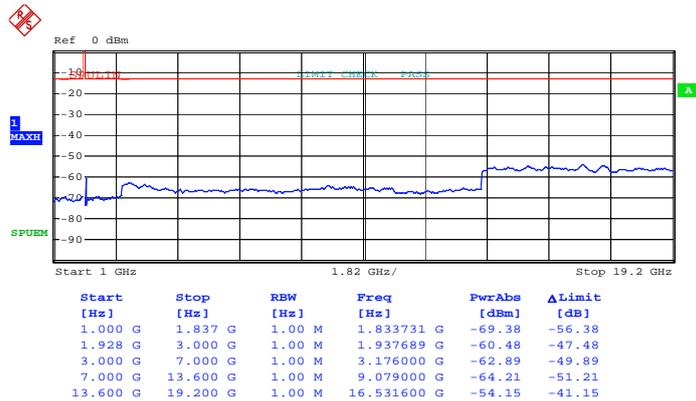
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / QPSK
<b>Frequency :</b>	1855	<b>Channel :</b>	26090

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:46:59

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

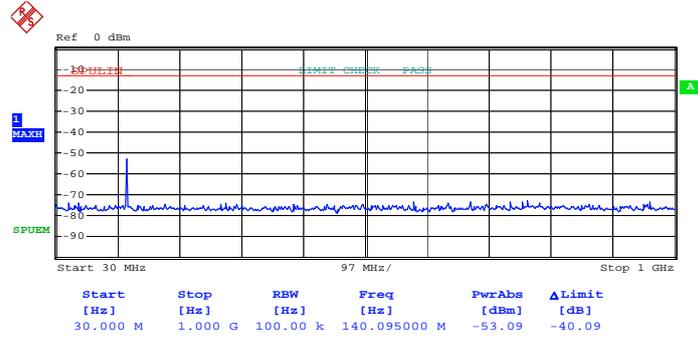


Date: 4.SEP.2012 00:44:23



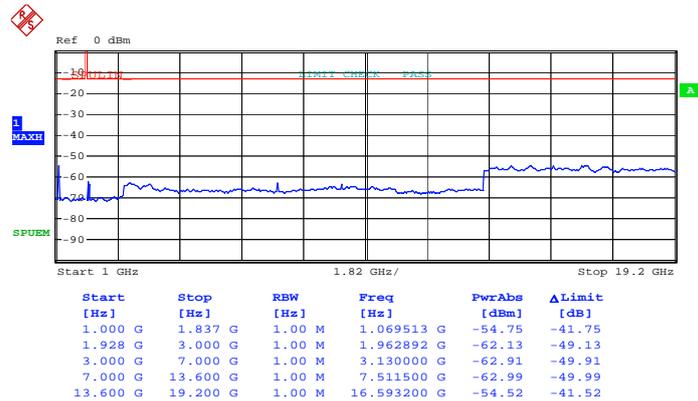
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / QPSK
<b>Frequency :</b>	1882.5	<b>Channel :</b>	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:50:06

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

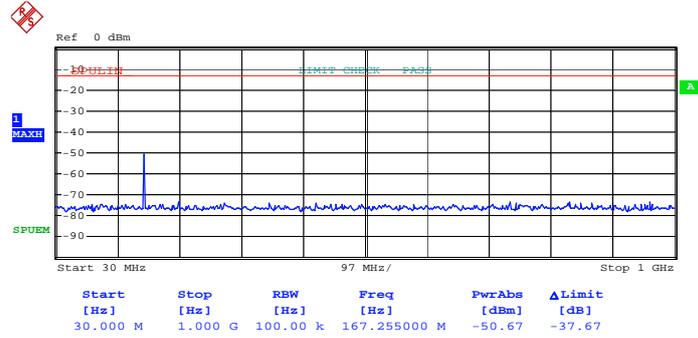


Date: 4.SEP.2012 00:49:14



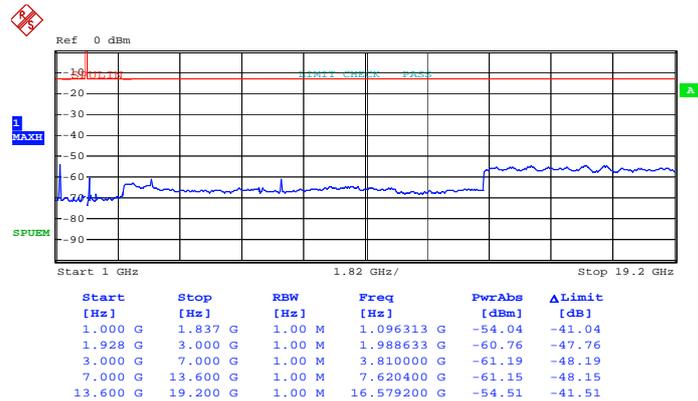
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / QPSK
<b>Frequency :</b>	1910	<b>Channel :</b>	26640

**Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:50:53

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

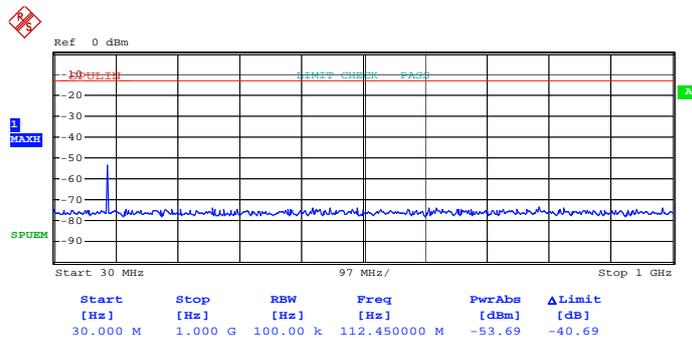


Date: 4.SEP.2012 00:52:00



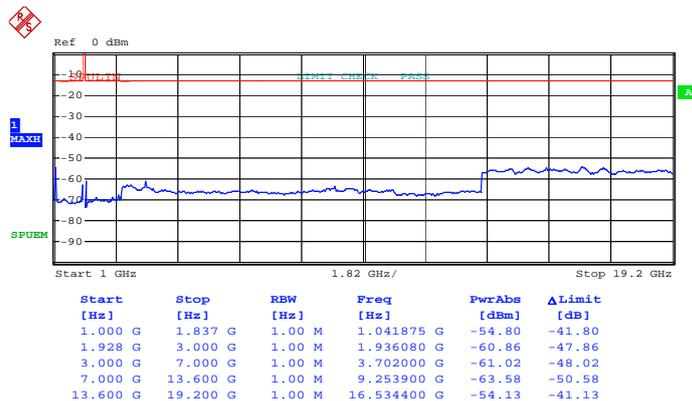
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / 16QAM
<b>Frequency :</b>	1855	<b>Channel :</b>	26090

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:47:43

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

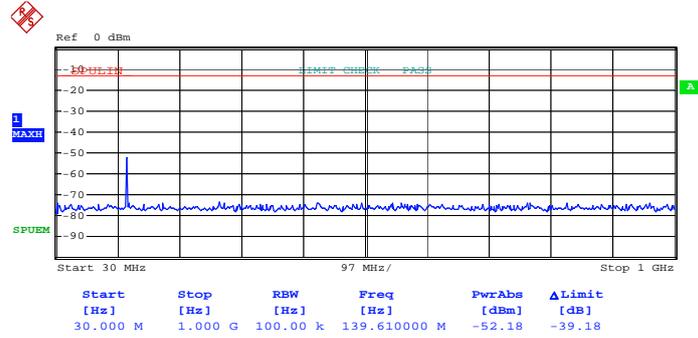


Date: 4.SEP.2012 00:48:22



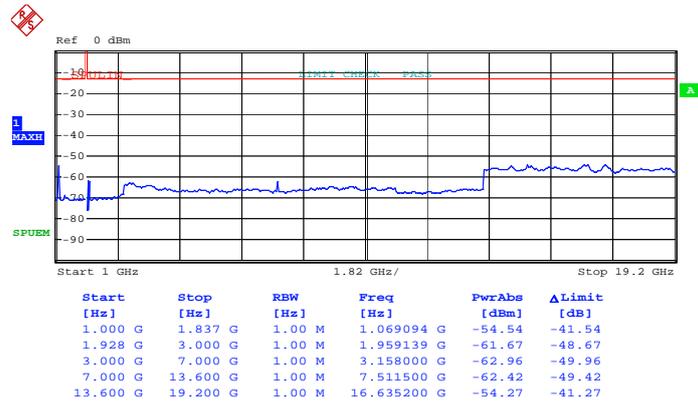
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / 16QAM
<b>Frequency :</b>	1882.5	<b>Channel :</b>	26365

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:49:51

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

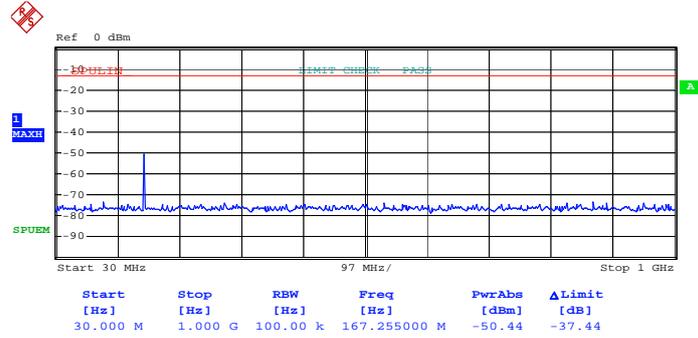


Date: 4.SEP.2012 00:49:29



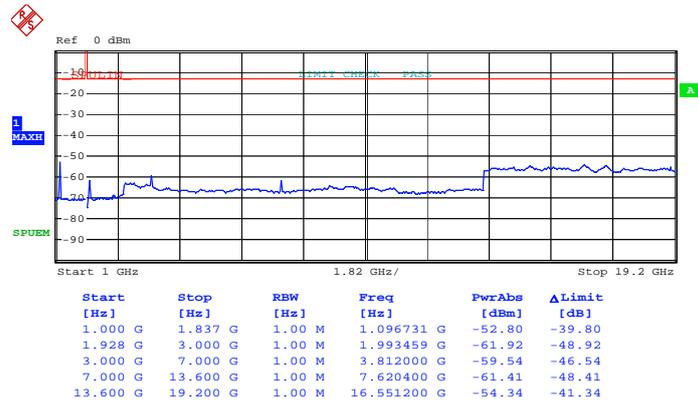
<b>Band :</b>	LTE Band 25	<b>BW / Mod. :</b>	10MHz / 16QAM
<b>Frequency :</b>	1910	<b>Channel :</b>	26640

**Conducted Emission Plot (30MHz ~ 1GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:51:12

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 4.SEP.2012 00:51:46

## 3.5 Radiated Emissions Measurement

### 3.5.1 Description of Radiated Emissions Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 3.5.2 Measuring Instruments

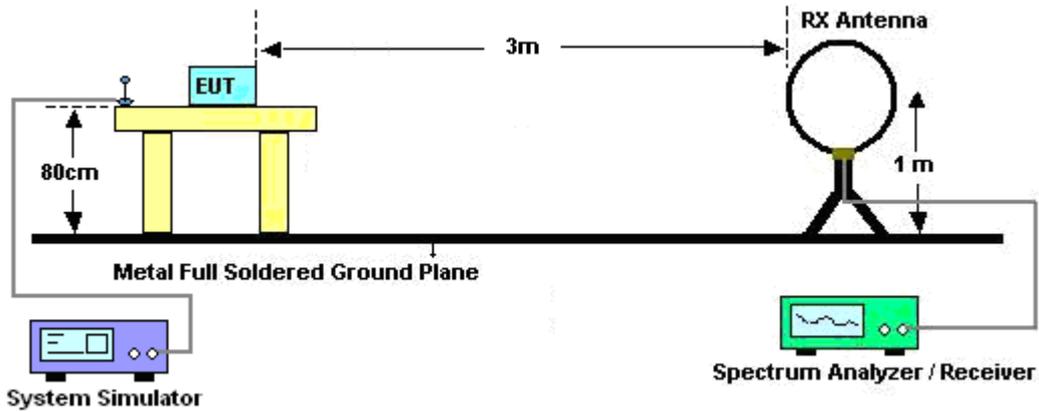
See list of measuring instruments of this test report.

### 3.5.3 Test Procedures

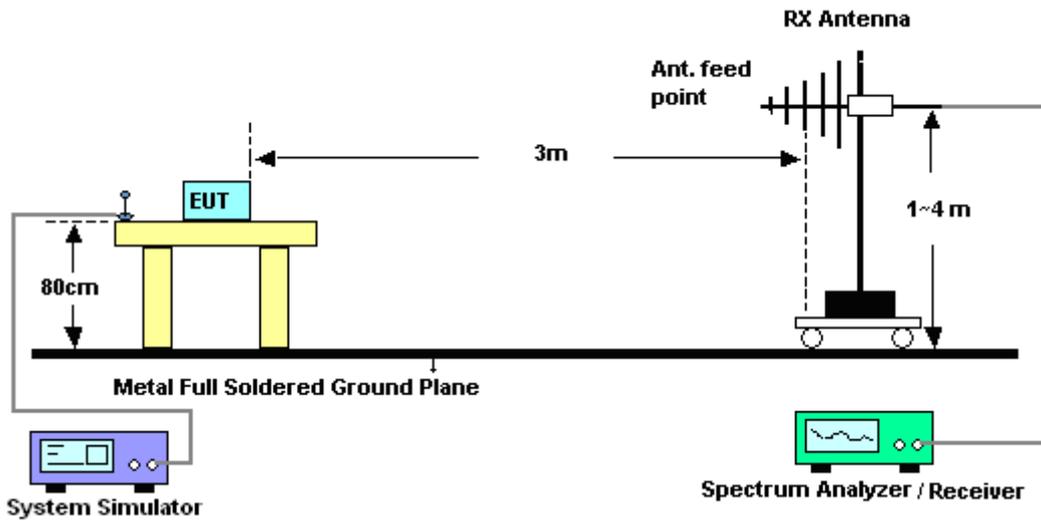
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. Emission level (dBm) = output power + substitution Gain.

### 3.5.4 Test Setup

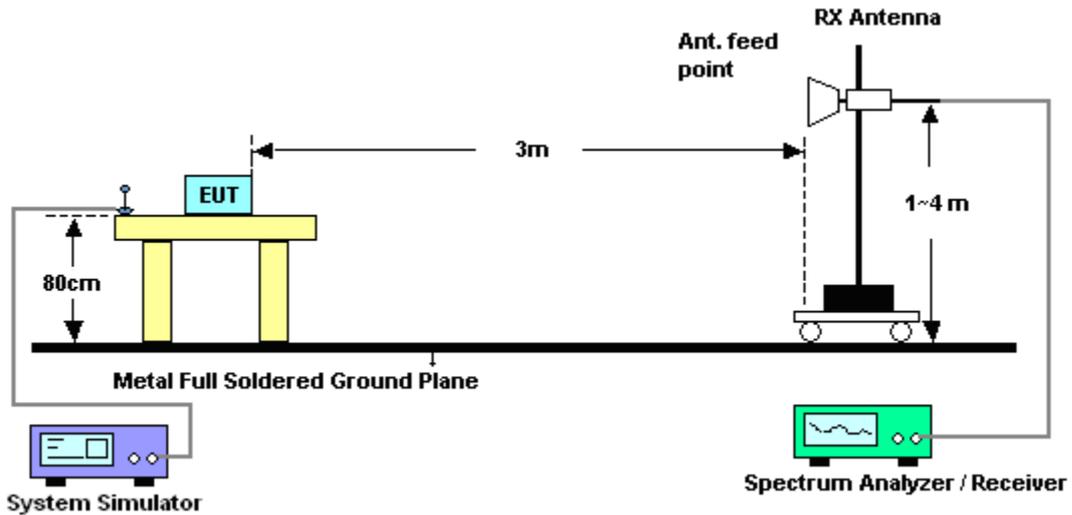
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



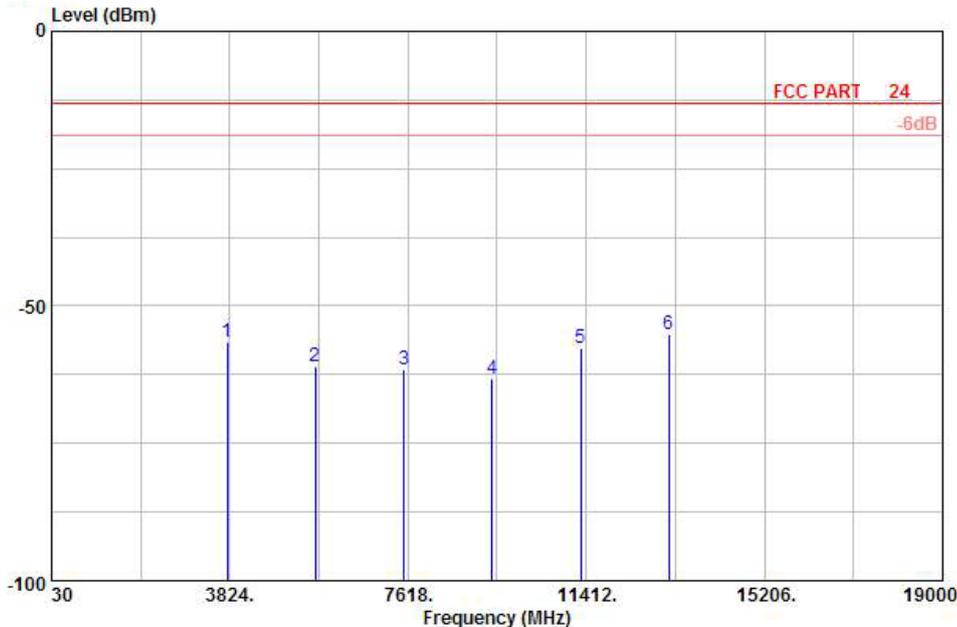
### 3.5.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



3.5.6 Test Result of Radiated Emissions

<b>Band :</b>	LTE Band 25	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	1.4MHz, QPSK, RB Size 1, RB Offset 0	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Steven Hao	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

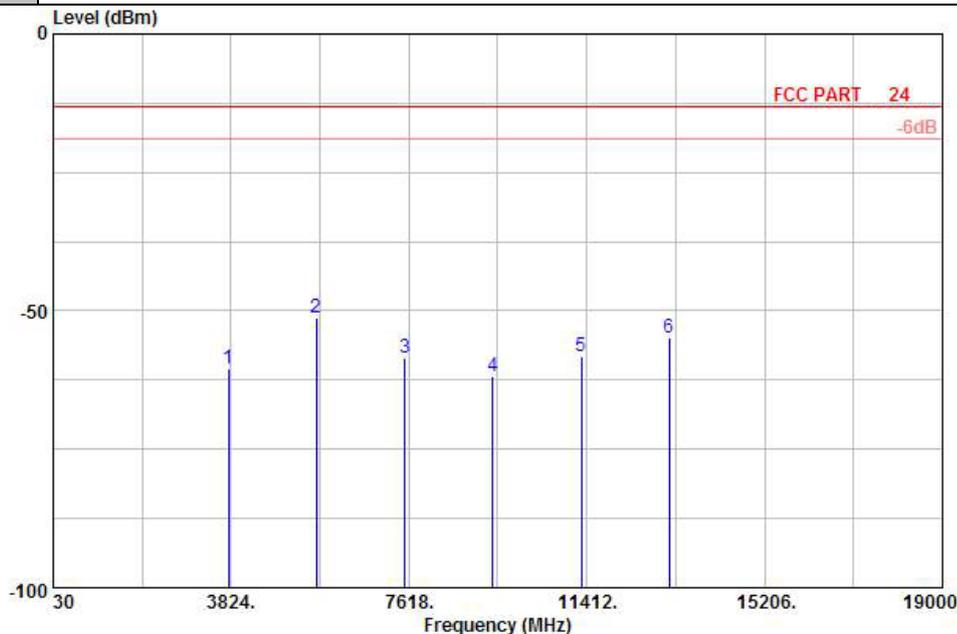


Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 HORIZONTAL  
 Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3765	-56.43	-13	-43.43	-57.40	-62.81	0.78	7.16	H	Pass
5647.5	-61.13	-13	-48.13	-65.31	-69.67	1.04	9.58	H	Pass
7530	-61.67	-13	-48.67	-66.80	-71.78	1.35	11.46	H	Pass
9412.5	-63.24	-13	-50.24	-66.50	-74.30	1.75	12.81	H	Pass
11295	-57.74	-13	-44.74	-69.23	-68.83	2	13.09	H	Pass
13177.5	-55.19	-13	-42.19	-66.49	-66.90	2.04	13.75	H	Pass



<b>Band :</b>	LTE Band 25	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	1.4MHz, QPSK, RB Size 1, RB Offset 0	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Steven Hao	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



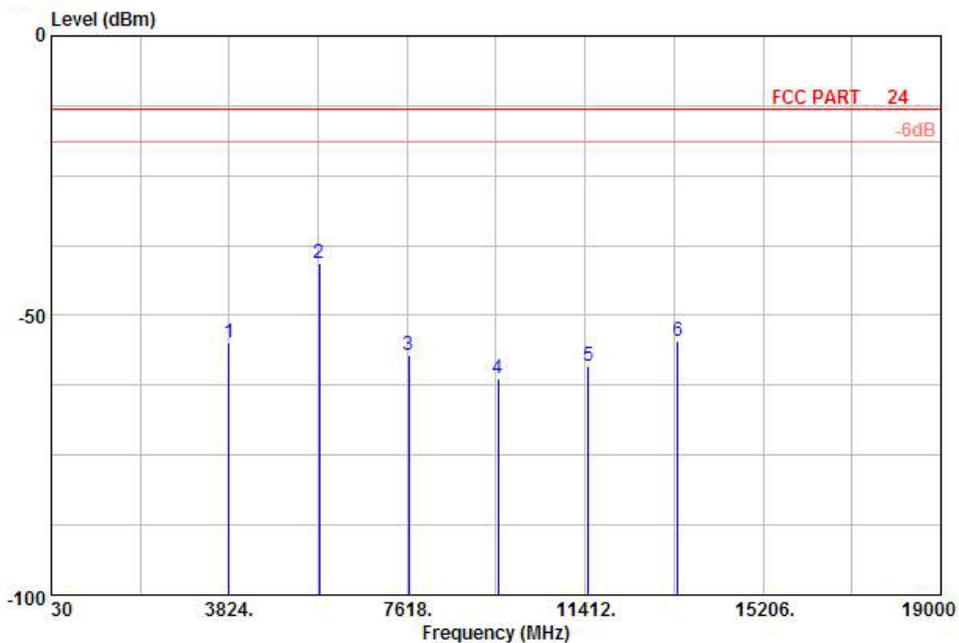
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL

Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3765	-60.31	-13	-47.31	-61.68	-66.69	0.78	7.16	V	Pass
5647.5	-51.15	-13	-38.15	-56.27	-59.69	1.04	9.58	V	Pass
7530	-58.56	-13	-45.56	-63.05	-68.67	1.35	11.46	V	Pass
9412.5	-61.72	-13	-48.72	-62.94	-72.78	1.75	12.81	V	Pass
11295	-58.13	-13	-45.13	-69.37	-69.22	2	13.09	V	Pass
13177.5	-54.79	-13	-41.79	-65.98	-66.50	2.04	13.75	V	Pass



<b>Band :</b>	LTE Band 25	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	3MHz, QPSK, RB Size 1, RB Offset 0	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Steven Hao	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



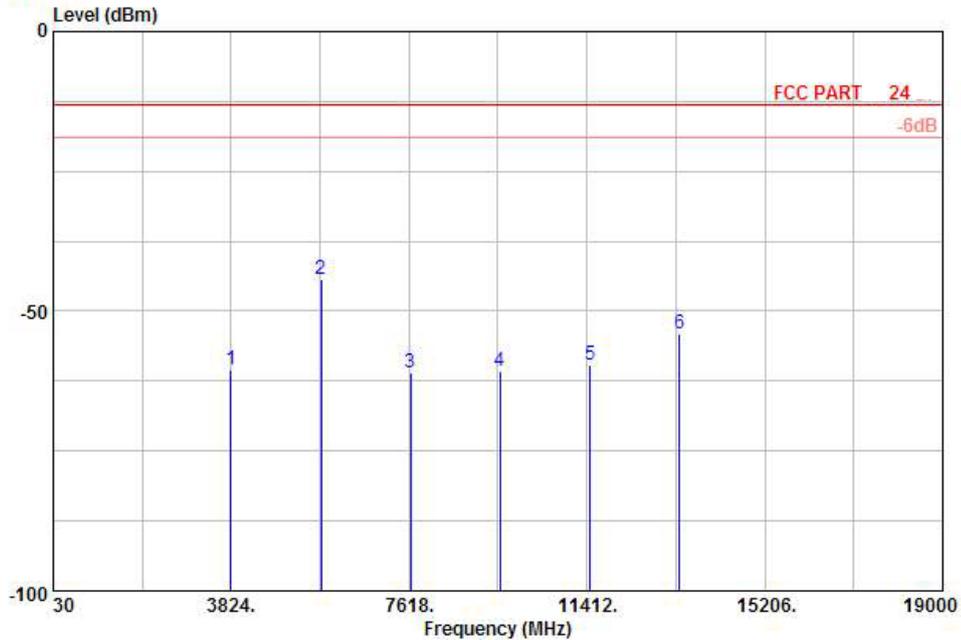
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 HORIZONTAL

Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3825	-54.88	-13	-41.88	-55.85	-61.26	0.78	7.16	H	Pass
5737.5	-40.67	-13	-27.67	-51.86	-49.21	1.04	9.58	H	Pass
7650	-57.15	-13	-44.15	-62.28	-67.26	1.35	11.46	H	Pass
9562.5	-61.30	-13	-48.30	-64.56	-72.36	1.75	12.81	H	Pass
11475	-58.99	-13	-45.99	-70.48	-70.08	2	13.09	H	Pass
13387.5	-54.51	-13	-41.51	-65.81	-66.22	2.04	13.75	H	Pass



<b>Band :</b>	LTE Band 25	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	3MHz, QPSK, RB Size 1, RB Offset 0	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Steven Hao	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



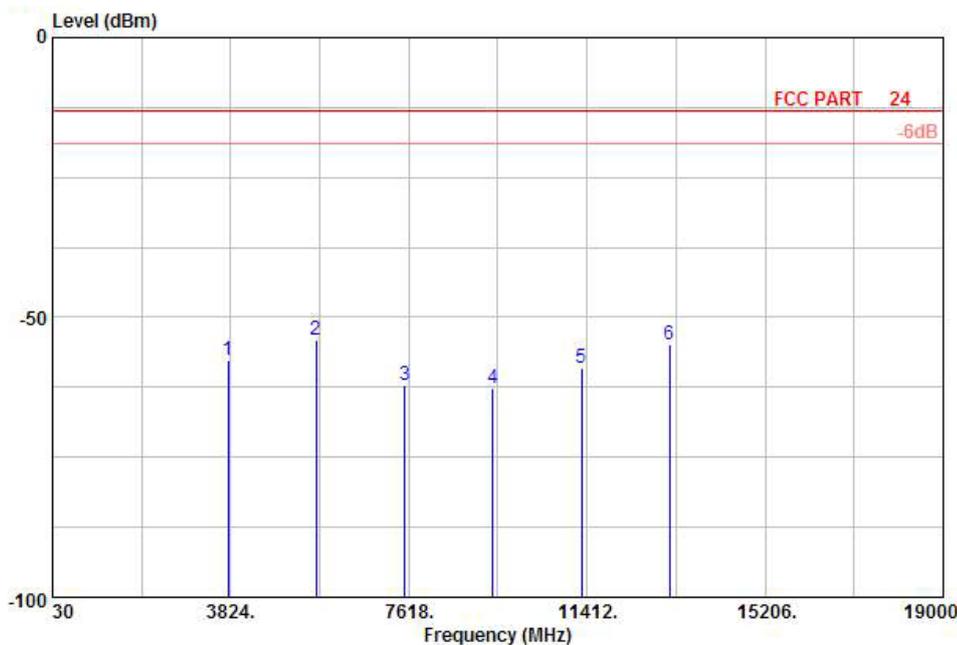
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL

Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3825	-60.57	-13	-47.57	-61.94	-66.95	0.78	7.16	V	Pass
5737.5	-44.25	-13	-31.25	-54.08	-52.79	1.04	9.58	V	Pass
7650	-61.04	-13	-48.04	-65.53	-71.15	1.35	11.46	V	Pass
9562.5	-60.78	-13	-47.78	-62.00	-71.84	1.75	12.81	V	Pass
11475	-59.57	-13	-46.57	-70.81	-70.66	2	13.09	V	Pass
13387.5	-54.11	-13	-41.11	-65.30	-65.82	2.04	13.75	V	Pass



<b>Band :</b>	LTE Band 25	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	5MHz, QPSK, RB Size 1, RB Offset 0	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Steven Hao	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



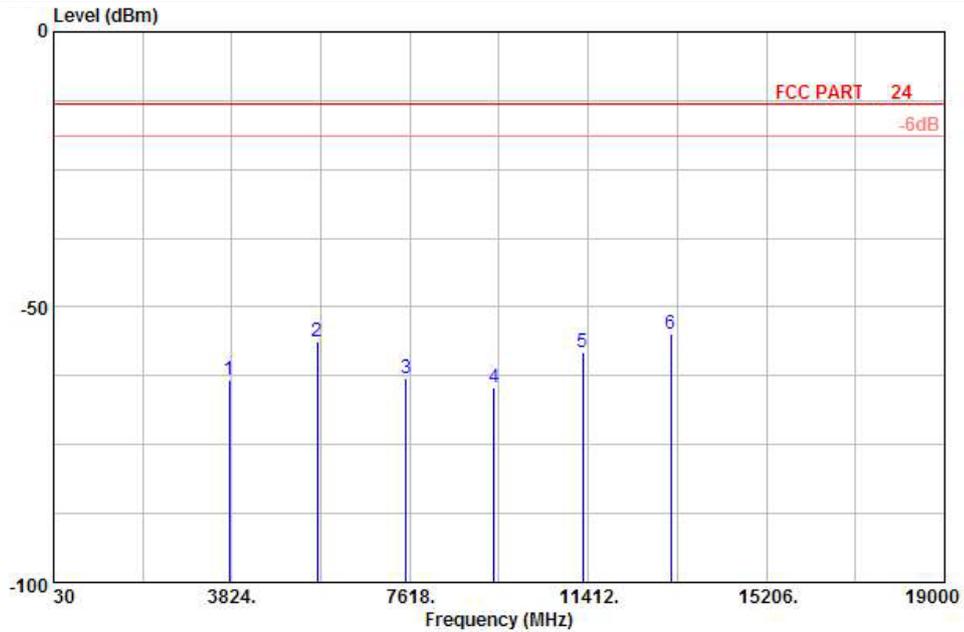
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 HORIZONTAL

Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3765	-57.77	-13	-44.77	-58.74	-64.15	0.78	7.16	H	Pass
5647.5	-53.96	-13	-40.96	-58.14	-62.50	1.04	9.58	H	Pass
7530	-62.25	-13	-49.25	-67.38	-72.36	1.35	11.46	H	Pass
9412.5	-62.67	-13	-49.67	-65.93	-73.73	1.75	12.81	H	Pass
11295	-59.00	-13	-46.00	-70.49	-70.09	2	13.09	H	Pass
13177.5	-54.75	-13	-41.75	-66.05	-66.46	2.04	13.75	H	Pass



Band :	LTE Band 25	Temperature :	23~24°C
Test Mode :	5MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	43~44%
Test Engineer :	Steven Hao	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

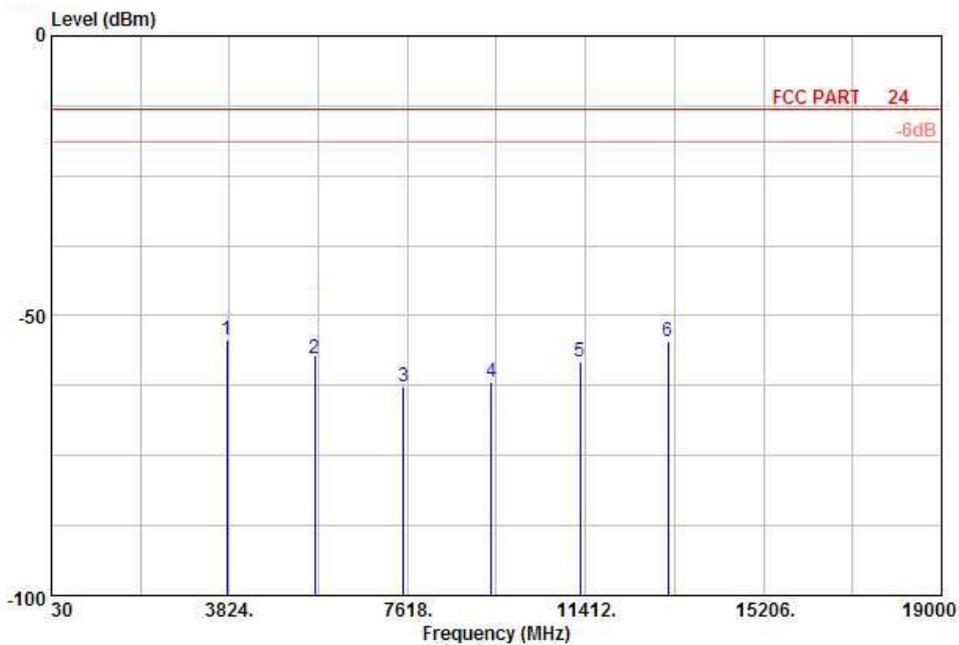


Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL  
 Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3765	-63.35	-13	-50.35	-64.72	-69.73	0.78	7.16	V	Pass
5647.5	-56.39	-13	-43.39	-59.61	-64.93	1.04	9.58	V	Pass
7530	-63.00	-13	-50.00	-67.49	-73.11	1.35	11.46	V	Pass
9412.5	-64.57	-13	-51.57	-65.79	-75.63	1.75	12.81	V	Pass
11295	-58.35	-13	-45.35	-69.59	-69.44	2	13.09	V	Pass
13177.5	-54.87	-13	-41.87	-66.06	-66.58	2.04	13.75	V	Pass



<b>Band :</b>	LTE Band 25	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	10MHz, QPSK, RB Size 1, RB Offset 0	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Steven Hao	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



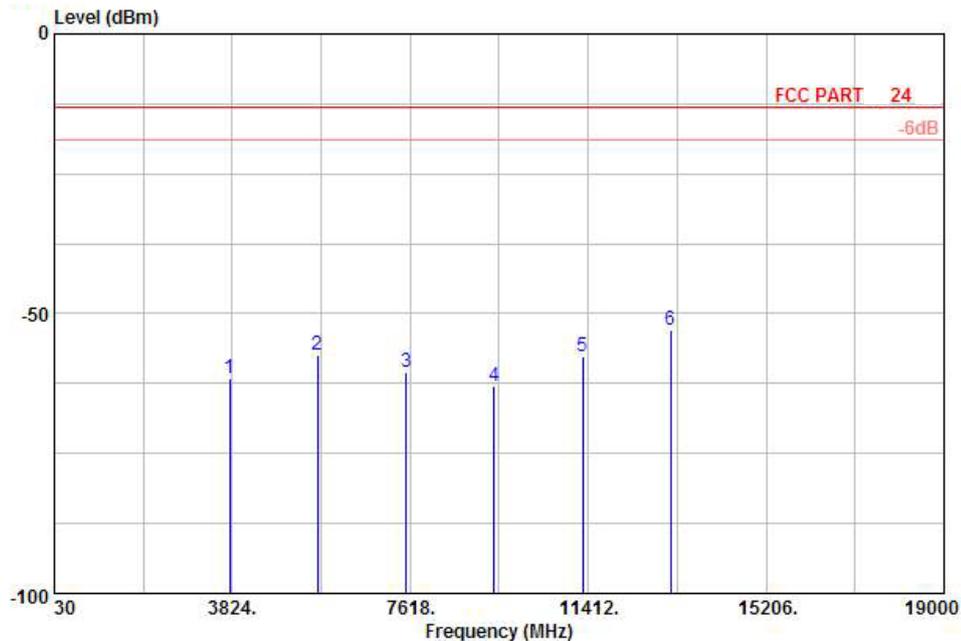
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 HORIZONTAL

Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3765	-54.19	-13	-41.19	-55.16	-60.57	0.78	7.16	H	Pass
5647.5	-49.93	-13	-36.93	-56.62	-58.47	1.04	9.58	H	Pass
7530	-57.63	-13	-44.63	-62.76	-67.74	1.35	11.46	H	Pass
9412.5	-61.82	-13	-48.82	-65.08	-72.88	1.75	12.81	H	Pass
11295	-58.26	-13	-45.26	-69.75	-69.35	2	13.09	H	Pass
13177.5	-54.68	-13	-41.68	-65.98	-66.39	2.04	13.75	H	Pass



<b>Band :</b>	LTE Band 25	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	10MHz, QPSK, RB Size 1, RB Offset 0	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Steven Hao	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL

Plan : E1

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3765	-61.59	-13	-48.59	-62.96	-67.97	0.78	7.16	V	Pass
5647.5	-57.46	-13	-44.46	-60.68	-66.00	1.04	9.58	V	Pass
7530	-60.46	-13	-47.46	-64.95	-70.57	1.35	11.46	V	Pass
9412.5	-63.09	-13	-50.09	-64.31	-74.15	1.75	12.81	V	Pass
11295	-57.63	-13	-44.63	-68.87	-68.72	2	13.09	V	Pass
13177.5	-53.05	-13	-40.05	-64.24	-64.76	2.04	13.75	V	Pass

### 3.6 Frequency Stability Measurement

#### 3.6.1 Description of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency band. For equipment authorization purposes, this is a reporting requirement only.

#### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

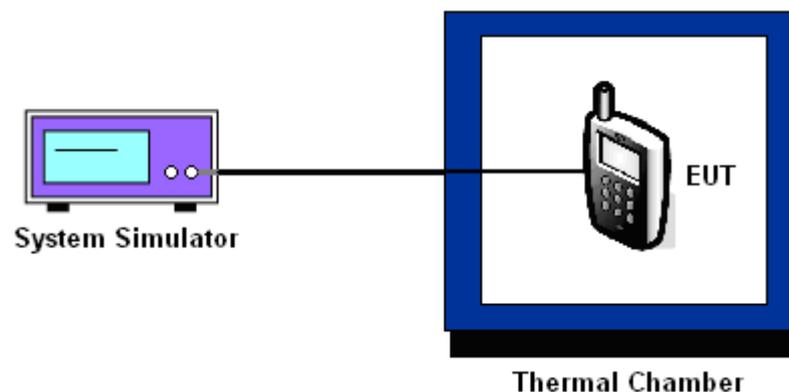
#### 3.6.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to  $-30^{\circ}\text{C}$  and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in  $10^{\circ}\text{C}$  step up to  $50^{\circ}\text{C}$ . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
4. If the EUT cannot be turned on at  $-30^{\circ}\text{C}$ , the testing lowest temperature will be raised in  $10^{\circ}\text{C}$  step until the EUT can be turned on.

#### 3.6.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at  $25\pm 5^{\circ}\text{C}$  and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case

#### 3.6.5 Test Setup



3.6.6 Test Result of Temperature Variation

Band :	LTE Band 25		Limit (ppm) :	2.5	
Temperature (°C)	1.4MHz		3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-13.6	-0.019	14.1	0.020	PASS
-20	-11.3	-0.016	1.8	0.003	
-10	15.5	0.022	-7.8	-0.011	
0	13.0	0.018	5.9	0.008	
10	3.7	0.005	8.5	0.012	
20	2.9	0.004	-5.7	-0.008	
30	1.7	0.002	9.7	0.014	
40	-6.5	-0.009	7.4	0.010	
50	-12.5	-0.018	-4.2	-0.006	
55	6.5	0.009	11.6	0.016	

Note: The manufacturer declared that the EUT could work properly at temperature 55°C.

Band :	LTE Band 25		Limit (ppm) :	2.5	
Temperature (°C)	5MHz		10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-5.1	-0.007	0.6	0.001	PASS
-20	-13.7	-0.019	-2.7	-0.004	
-10	4.5	0.006	-7.7	-0.011	
0	-15.5	-0.022	-6.6	-0.009	
10	-10.4	-0.015	1.8	0.003	
20	7.9	0.011	9.7	0.014	
30	12.4	0.017	7.1	0.010	
40	-9.4	-0.013	10.7	0.015	
50	2.9	0.004	-7.5	-0.011	
55	9.1	0.013	1.0	0.001	

Note: The manufacturer declared that the EUT could work properly at temperature 55°C.

3.6.7 Test Result of Voltage Variation

Band	Band Width & Channel	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 25	1.4MHz	3.8	8.5	0.012	2.5	PASS
		3.6	-13.9	-0.020		
		4.35	9.3	0.013		
	3MHz	3.8	12.7	0.018		
		3.6	16.6	0.023		
		4.35	8.9	0.013		
	5MHz	3.8	13.4	0.019		
		3.6	10.2	0.014		
		4.35	-8.9	-0.013		
	10MHz	3.8	-3.0	-0.004		
		3.6	7.2	0.010		
		4.35	0.6	0.001		

Remark:

1. Normal Voltage = 3.8V.
2. Battery End Point (BEP) = 3.6 V.



3.6.8 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Aug. 01, 2012~ Sep. 04, 2012	Dec. 29, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Aug. 01, 2012~ Sep. 04, 2012	Aug. 22, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 22, 2012	Aug. 01, 2012~ Sep. 04, 2012	Aug. 21, 2013	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Aug. 01, 2012~ Sep. 04, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Aug. 31, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Aug. 31, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Aug. 31, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Aug. 31, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060007	30MHz~2GHz	Dec. 30, 2011	Aug. 31, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Aug. 31, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
SHE-EHF Horn	Schwarzbeck	BBHA9170	BBHA170249	15GHz-40GHz	Oct. 11, 2011	Aug. 31, 2012	Oct. 10, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9kHz~30 MHz	Jul. 28, 2012	Aug. 31, 2012	Jul. 27, 2013	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10MHz-40GHz	Dec. 30, 2011	Aug. 31, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
LTE Base Station	Anritsu	MT8820C	6201074235	LTE_FDD full band	Dec. 30, 2011	Aug. 01, 2012~ Sep. 04, 2012	Dec. 29, 2012	-



## 4 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95%(U = 2Uc(y))	4.72
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## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP270201B as below.