

# FCC RF Test Report

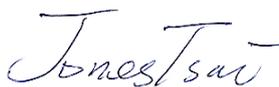
**APPLICANT** : ZTE CORPORATION  
**EQUIPMENT** : WCDMA/LTE Multi-Mode Digital Mobile Phone  
**BRAND NAME** : ZTE  
**MODEL NAME** : Z830  
**FCC ID** : SRQ-Z830  
**STANDARD** : 47 CFR Part 2, 22(H), 24(E), 27(L), 27(H)  
**CLASSIFICATION** : PCS Licensed Transmitter Held to Ear (PCE)

The product testing was completed on May 16, 2014. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and the testing has shown the tested sample to be in 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.



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Reviewed by: Joseph Lin / Supervisor



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Approved by: Jones Tsai / Manager



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



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**APPENDIX A. SETUP PHOTOGRAPHS**





### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.2	§24.232(d) §27.50(d)(5)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§22.913(a)(2)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS	-
	§27.50(c)(10)	Effective Radiated Power (Band 17)	ERP < 3 Watt		
	§24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	EIRP < 2Watt		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		
3.4	§2.1049 §22.917(b) §24.238(b) §27.53(g)(3)	Occupied Bandwidth & 26dB Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a) §27.53(f) §27.53(g)	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5) (Band 17)	< 43+10log10(P[Watt])	PASS	-



Report Section	FCC Rule	Description	Limit	Result	Remark
3.6	§2.1051 §22.917(a) §24.238(a) §27.53(f) §27.53(g)	Conducted Spurious Emission (Band 2) (Band 4) (Band 5) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a) §27.53(f) §27.53(g)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 17)	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 26.01 dB at 1696.000 MHz
3.8	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	$< 2.5 \text{ ppm}$	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 Product Feature of Equipment Under Test

Product Feature	
Equipment	WCDMA/LTE Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z830
FCC ID	SRQ-Z830
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+/LTE/ WLAN 2.4GHz 802. 11b/g/n HT20/ Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
HW Version	wwuA
SW Version	Z830V1.0.0B01
EUT Stage	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.

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
<b>Tx Frequency</b>	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz
<b>Rx Frequency</b>	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz
<b>Bandwidth</b>	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 17 : 5MHz / 10MHz
<b>Maximum Output Power to Antenna</b>	LTE Band 2 : 22.56 dBm LTE Band 4 : 23.02 dBm LTE Band 5 : 23.58 dBm LTE Band 17 : 23.41 dBm
<b>Antenna Type</b>	PIFA Antenna
<b>Type of Modulation</b>	QPSK / 16QAM

### 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

### 1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	BW	Maximum EIRP (W)	Frequency Tolerance (% , Hz, ppm)	Emission Designator
Part 24E	LTE Band 2	QPSK	1.4MHz	0.1219 W	0.005 ppm	1M10G7D
Part 24E	LTE Band 2	16QAM	1.4MHz	0.0933 W	0.005 ppm	1M09D7W
Part 24E	LTE Band 2	QPSK	3MHz	0.1189 W	0.005 ppm	2M73G7D
Part 24E	LTE Band 2	16QAM	3MHz	0.0927 W	0.006 ppm	2M72D7W
Part 24E	LTE Band 2	QPSK	5MHz	0.1199 W	0.005 ppm	4M50G7D
Part 24E	LTE Band 2	16QAM	5MHz	0.0904 W	0.006 ppm	4M50D7W
Part 24E	LTE Band 2	QPSK	10MHz	0.1435 W	0.005 ppm	9M14G7D
Part 24E	LTE Band 2	16QAM	10MHz	0.0957 W	0.007 ppm	9M04D7W
Part 24E	LTE Band 2	QPSK	15MHz	0.1104 W	0.005 ppm	13M5G7D
Part 24E	LTE Band 2	16QAM	15MHz	0.0843 W	0.006 ppm	13M5D7W
Part 24E	LTE Band 2	QPSK	20MHz	0.1035 W	0.006 ppm	18M5G7D
Part 24E	LTE Band 2	16QAM	20MHz	0.0800 W	0.008 ppm	18M5D7W
Part 27L	LTE Band 4	QPSK	1.4MHz	0.1746 W	0.006 ppm	1M10G7D
Part 27L	LTE Band 4	16QAM	1.4MHz	0.1337 W	0.006 ppm	1M10D7W
Part 27L	LTE Band 4	QPSK	3MHz	0.1774 W	0.005 ppm	2M73G7D
Part 27L	LTE Band 4	16QAM	3MHz	0.1361 W	0.006 ppm	2M72D7W
Part 27L	LTE Band 4	QPSK	5MHz	0.1816 W	0.005 ppm	4M51G7D
Part 27L	LTE Band 4	16QAM	5MHz	0.1371 W	0.005 ppm	4M49D7W
Part 27L	LTE Band 4	QPSK	10MHz	0.1718 W	0.006 ppm	9M08G7D
Part 27L	LTE Band 4	16QAM	10MHz	0.1300 W	0.006 ppm	9M04D7W
Part 27L	LTE Band 4	QPSK	15MHz	0.1667 W	0.006 ppm	13M5G7D
Part 27L	LTE Band 4	16QAM	15MHz	0.1282 W	0.006 ppm	13M5D7W
Part 27L	LTE Band 4	QPSK	20MHz	0.1667 W	0.005 ppm	18M4G7D
Part 27L	LTE Band 4	16QAM	20MHz	0.1276 W	0.007 ppm	18M4D7W



FCC Rule	System	Type of Modulation	BW	Maximum ERP (W)	Frequency Tolerance (% , Hz, ppm)	Emission Designator
Part 22H	LTE Band 5	QPSK	1.4MHz	0.0685 W	0.012 ppm	1M10G7D
Part 22H	LTE Band 5	16QAM	1.4MHz	0.0525 W	0.011 ppm	1M10D7W
Part 22H	LTE Band 5	QPSK	3MHz	0.0671 W	0.014 ppm	2M72G7D
Part 22H	LTE Band 5	16QAM	3MHz	0.0511 W	0.013 ppm	2M72D7W
Part 22H	LTE Band 5	QPSK	5MHz	0.0670 W	0.012 ppm	4M49G7D
Part 22H	LTE Band 5	16QAM	5MHz	0.0508 W	0.010 ppm	4M49D7W
Part 22H	LTE Band 5	QPSK	10MHz	0.0667 W	0.010 ppm	9M12G7D
Part 22H	LTE Band 5	16QAM	10MHz	0.0507 W	0.014 ppm	9M02D7W
Part 27H	LTE Band 17	QPSK	5MHz	0.0407 W	0.014 ppm	4M50G7D
Part 27H	LTE Band 17	16QAM	5MHz	0.0384 W	0.017 ppm	4M50D7W
Part 27H	LTE Band 17	QPSK	10MHz	0.0349 W	0.016 ppm	9M12G7D
Part 27H	LTE Band 17	16QAM	10MHz	0.0264 W	0.017 ppm	9M04D7W

## 1.7 Testing Location

<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 Registration No.</b>
	TH01-KS	03CH01-KS	OTA01-KS	149928

**Note:** The test site complies with ANSI C63.4 2003 requirement.

## 1.8 Applicable Standards

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

- ♦ 47 CFR Part 2, 22(H), 24(E), 27(L), 27(H)
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01

**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.



## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

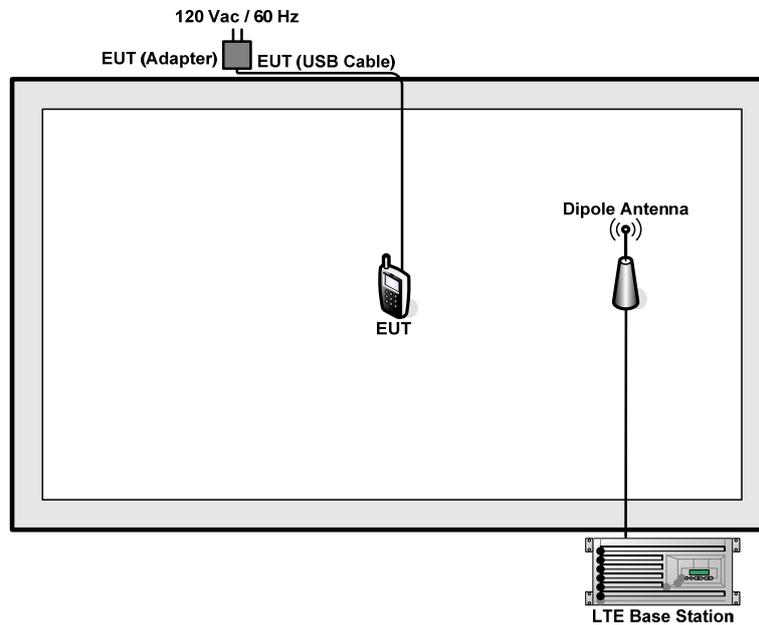
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission (X plane for LTE Band 2, Y plane for LTE Band 5 and LTE Band 17, and Z plane for LTE Band 4).

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	2						v		v	v		v		v	
	4						v		v	v		v		v	
	5				v	-	-		v	v		v		v	
	17	-	-		v	-	-		v	v		v		v	
26dB and 99% Bandwidth	2	v	v	v	v	v	v	v	v			v		v	
	4	v	v	v	v	v	v	v	v			v		v	
	5	v	v	v	v	-	-	v	v			v		v	
	17	-	-	v	v	-	-	v	v			v		v	
Conducted Band Edge	2	v	v	v	v	v	v	v	v	v		v	v		v
	4	v	v	v	v	v	v	v	v	v		v	v		v
	5	v	v	v	v	-	-	v	v	v		v	v		v
	17	-	-	v	v	-	-	v	v	v		v	v		v



Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Conducted Spurious Emission	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	5	v	v	v	v	-	-	v	v	v			v	v	v
	17	-	-	v	v	-	-	v	v	v			v	v	v
Frequency Stability	2	v	v	v	v	v	v	v	v			v		v	
	4	v	v	v	v	v	v	v	v			v		v	
	5	v	v	v	v	-	-	v	v			v		v	
	17	-	-	v	v	-	-	v	v			v		v	
E.R.P./ E.I.R.P.	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	5	v	v	v	v	-	-	v	v	v			v	v	v
	17	-	-	v	v	-	-	v	v	v			v	v	v
Radiated Spurious Emission	2	v	v	v	v	v	v	v		v				v	
	4	v	v	v	v	v	v	v		v				v	
	5	v	v	v	v	-	-	v		v				v	
	17	-	-	v	v	-	-	v		v				v	
Note	<ol style="list-style-type: none"> <li>The mark "v" means that this configuration is chosen for testing</li> <li>The mark "-" means that this bandwidth is not supported.</li> <li>The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.</li> </ol>														

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration and system

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

## 2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 6 dB and 10dB attenuator.

*Offset (dB) = RF cable loss (dB) + attenuator factor (dB).*

$$= 6 + 10 = 16 \text{ (dB)}$$

### 3 Test Result

#### 3.1 Conducted Output Power Measurement

##### 3.1.1 Description of the Conducted Output Power Measurement

A LTE base station was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

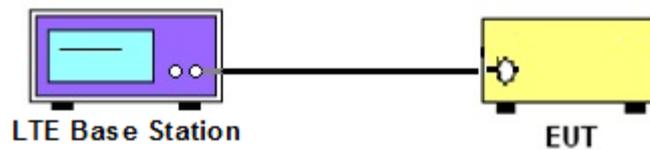
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedures

1. The transmitter output port was connected to the LTE base station.
2. Set EUT at maximum power through the LTE base station.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the LTE base station.

##### 3.1.4 Test Setup





3.1.5 Test Result of Conducted Output Power

<LTE Band 2 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>18700</b>	<b>18900</b>	<b>19100</b>
<b>Frequency (MHz)</b>				<b>1860</b>	<b>1880</b>	<b>1900</b>
20	QPSK	1	0	22.38	22.56	22.46
20	QPSK	1	49	22.31	22.43	22.42
20	QPSK	1	99	22.34	22.38	22.45
20	QPSK	50	0	21.32	21.60	21.48
20	QPSK	50	24	21.35	21.59	21.44
20	QPSK	50	49	21.39	21.55	21.57
20	QPSK	100	0	21.42	21.57	21.47
20	16QAM	1	0	21.54	21.58	21.58
20	16QAM	1	49	21.51	21.52	21.49
20	16QAM	1	99	21.53	21.55	21.35
20	16QAM	50	0	20.35	20.51	20.52
20	16QAM	50	24	20.30	20.43	20.47
20	16QAM	50	49	20.44	20.44	20.44
20	16QAM	100	0	20.34	20.43	20.52
<b>Channel</b>				<b>18675</b>	<b>18900</b>	<b>19125</b>
<b>Frequency (MHz)</b>				<b>1857.5</b>	<b>1880</b>	<b>1902.5</b>
15	QPSK	1	0	22.26	22.39	22.41
15	QPSK	1	37	22.16	22.34	22.33
15	QPSK	1	74	22.17	22.35	22.33
15	QPSK	36	0	21.22	21.45	21.49
15	QPSK	36	18	21.31	21.44	21.47
15	QPSK	36	37	21.26	21.48	21.41
15	QPSK	75	0	21.27	21.46	21.47
15	16QAM	1	0	21.48	21.45	21.64
15	16QAM	1	37	21.13	21.32	21.58
15	16QAM	1	74	21.38	21.24	21.03
15	16QAM	36	0	20.21	20.35	20.48
15	16QAM	36	18	20.28	20.32	20.47
15	16QAM	36	37	20.28	20.37	20.48
15	16QAM	75	0	20.26	20.35	20.48



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>18650</b>	<b>18900</b>	<b>19150</b>
<b>Frequency (MHz)</b>				<b>1855</b>	<b>1880</b>	<b>1905</b>
10	QPSK	1	0	22.25	22.39	22.43
10	QPSK	1	24	22.07	22.35	22.39
10	QPSK	1	49	22.24	22.36	22.40
10	QPSK	25	0	21.00	21.39	21.50
10	QPSK	25	12	21.27	21.39	21.45
10	QPSK	25	24	21.30	21.39	21.48
10	QPSK	50	0	21.23	21.44	21.41
10	16QAM	1	0	21.28	21.52	21.70
10	16QAM	1	24	21.27	21.48	21.65
10	16QAM	1	49	21.02	21.47	21.19
10	16QAM	25	0	20.15	20.47	20.51
10	16QAM	25	12	20.21	20.44	20.49
10	16QAM	25	24	20.21	20.39	20.56
10	16QAM	50	0	20.21	20.46	20.41
<b>Channel</b>				<b>18625</b>	<b>18900</b>	<b>19175</b>
<b>Frequency (MHz)</b>				<b>1852.5</b>	<b>1880</b>	<b>1907.5</b>
5	QPSK	1	0	22.10	22.46	22.54
5	QPSK	1	12	21.98	22.43	22.30
5	QPSK	1	24	22.07	22.45	22.35
5	QPSK	12	0	20.97	21.45	21.45
5	QPSK	12	6	20.97	21.45	21.43
5	QPSK	12	11	21.07	21.42	21.44
5	QPSK	25	0	21.02	21.41	21.48
5	16QAM	1	0	21.33	21.28	21.55
5	16QAM	1	12	21.23	21.15	21.47
5	16QAM	1	24	21.32	21.19	21.44
5	16QAM	12	0	20.06	20.37	20.53
5	16QAM	12	6	20.04	20.45	20.49
5	16QAM	12	11	20.14	20.44	20.55
5	16QAM	25	0	20.25	20.36	20.57



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>18615</b>	<b>18900</b>	<b>19185</b>
<b>Frequency (MHz)</b>				<b>1851.5</b>	<b>1880</b>	<b>1908.5</b>
3	QPSK	1	0	22.01	22.46	22.49
3	QPSK	1	7	21.99	22.45	22.40
3	QPSK	1	14	21.93	22.31	22.29
3	QPSK	8	0	21.09	21.39	21.58
3	QPSK	8	4	21.05	21.43	21.53
3	QPSK	8	7	20.94	21.39	21.41
3	QPSK	15	0	21.05	21.42	21.48
3	16QAM	1	0	20.95	21.45	21.32
3	16QAM	1	7	20.82	21.28	21.26
3	16QAM	1	14	20.93	21.42	21.29
3	16QAM	8	0	19.91	20.39	20.35
3	16QAM	8	4	19.93	20.34	20.43
3	16QAM	8	7	20.10	20.43	20.48
3	16QAM	15	0	20.08	20.57	20.56
<b>Channel</b>				<b>18607</b>	<b>18900</b>	<b>19193</b>
<b>Frequency (MHz)</b>				<b>1850.7</b>	<b>1880</b>	<b>1909.3</b>
1.4	QPSK	1	0	21.97	22.46	22.47
1.4	QPSK	1	2	21.96	22.44	22.45
1.4	QPSK	1	5	21.94	22.43	22.22
1.4	QPSK	3	0	21.89	22.39	22.31
1.4	QPSK	3	1	21.96	22.37	22.36
1.4	QPSK	3	2	21.96	22.35	22.46
1.4	QPSK	6	0	21.03	21.53	21.52
1.4	16QAM	1	0	21.19	21.68	21.67
1.4	16QAM	1	2	21.09	21.58	21.49
1.4	16QAM	1	5	21.08	21.11	21.33
1.4	16QAM	3	0	20.95	21.23	21.41
1.4	16QAM	3	1	21.02	21.38	21.45
1.4	16QAM	3	2	21.02	21.40	21.40
1.4	16QAM	6	0	20.00	20.22	20.38



<LTE Band 4 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>20050</b>	<b>20175</b>	<b>20300</b>
<b>Frequency (MHz)</b>				<b>1720</b>	<b>1732.5</b>	<b>1745</b>
20	QPSK	1	0	22.85	23.02	22.91
20	QPSK	1	49	22.67	23.00	22.86
20	QPSK	1	99	22.76	22.88	22.90
20	QPSK	50	0	21.83	22.01	21.99
20	QPSK	50	24	21.82	21.89	21.97
20	QPSK	50	49	21.82	21.90	21.95
20	QPSK	100	0	21.89	21.97	21.96
20	16QAM	1	0	21.66	22.06	22.08
20	16QAM	1	49	21.64	21.98	21.85
20	16QAM	1	99	21.62	22.04	22.05
20	16QAM	50	0	20.78	20.81	20.88
20	16QAM	50	24	20.83	20.95	20.86
20	16QAM	50	49	20.75	20.84	20.98
20	16QAM	100	0	20.88	20.89	20.99
<b>Channel</b>				<b>20025</b>	<b>20175</b>	<b>20325</b>
<b>Frequency (MHz)</b>				<b>1717.5</b>	<b>1732.5</b>	<b>1747.5</b>
15	QPSK	1	0	22.72	22.94	22.98
15	QPSK	1	37	22.71	22.91	22.96
15	QPSK	1	74	22.62	22.82	22.94
15	QPSK	36	0	21.79	21.91	21.97
15	QPSK	36	18	21.85	21.94	21.96
15	QPSK	36	37	21.86	21.86	22.01
15	QPSK	75	0	21.81	21.91	22.00
15	16QAM	1	0	21.71	22.11	22.06
15	16QAM	1	37	21.57	21.92	21.80
15	16QAM	1	74	21.70	21.98	21.96
15	16QAM	36	0	20.79	20.91	20.84
15	16QAM	36	18	20.68	20.77	20.99
15	16QAM	36	37	20.68	20.81	20.90
15	16QAM	75	0	20.84	20.85	21.01



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>20000</b>	<b>20175</b>	<b>20350</b>
<b>Frequency (MHz)</b>				<b>1715</b>	<b>1732.5</b>	<b>1750</b>
10	QPSK	1	0	22.72	22.77	22.95
10	QPSK	1	24	22.69	22.76	22.89
10	QPSK	1	49	22.69	22.70	22.86
10	QPSK	25	0	21.80	21.97	22.01
10	QPSK	25	12	21.78	21.91	21.95
10	QPSK	25	24	21.74	21.83	22.01
10	QPSK	50	0	21.88	21.88	22.02
10	16QAM	1	0	21.88	22.14	21.96
10	16QAM	1	24	21.79	22.01	21.76
10	16QAM	1	49	21.85	21.94	21.93
10	16QAM	25	0	20.76	20.83	21.06
10	16QAM	25	12	20.75	20.92	20.96
10	16QAM	25	24	20.82	20.87	20.92
10	16QAM	50	0	20.76	20.81	20.97
<b>Channel</b>				<b>19975</b>	<b>20175</b>	<b>20375</b>
<b>Frequency (MHz)</b>				<b>1712.5</b>	<b>1732.5</b>	<b>1752.5</b>
5	QPSK	1	0	22.79	22.99	22.98
5	QPSK	1	12	22.69	22.50	22.88
5	QPSK	1	24	22.73	22.76	22.96
5	QPSK	12	0	21.80	21.96	21.99
5	QPSK	12	6	21.76	21.75	21.89
5	QPSK	12	11	21.72	21.87	21.93
5	QPSK	25	0	21.69	21.89	21.96
5	16QAM	1	0	21.80	22.05	22.25
5	16QAM	1	12	21.65	21.97	22.04
5	16QAM	1	24	21.79	21.77	22.23
5	16QAM	12	0	20.79	20.97	20.95
5	16QAM	12	6	20.84	20.69	20.99
5	16QAM	12	11	20.92	20.80	20.91
5	16QAM	25	0	20.84	20.82	20.88



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>19965</b>	<b>20175</b>	<b>20385</b>
<b>Frequency (MHz)</b>				<b>1711.5</b>	<b>1732.5</b>	<b>1753.5</b>
3	QPSK	1	0	22.71	22.91	23.01
3	QPSK	1	7	22.68	22.72	22.91
3	QPSK	1	14	22.61	22.89	23.00
3	QPSK	8	0	21.91	21.96	21.94
3	QPSK	8	4	21.75	21.73	21.75
3	QPSK	8	7	21.73	21.80	21.78
3	QPSK	15	0	21.99	21.87	21.99
3	16QAM	1	0	21.72	21.94	21.99
3	16QAM	1	7	21.41	21.87	21.71
3	16QAM	1	14	21.66	21.73	21.96
3	16QAM	8	0	20.92	20.75	20.93
3	16QAM	8	4	20.64	20.80	20.76
3	16QAM	8	7	20.72	20.88	20.83
3	16QAM	15	0	20.98	20.93	20.97
<b>Channel</b>				<b>19957</b>	<b>20175</b>	<b>20393</b>
<b>Frequency (MHz)</b>				<b>1710.7</b>	<b>1732.5</b>	<b>1754.3</b>
1.4	QPSK	1	0	22.75	22.92	22.99
1.4	QPSK	1	2	22.72	22.82	22.98
1.4	QPSK	1	5	22.73	22.87	22.95
1.4	QPSK	3	0	22.71	22.86	22.95
1.4	QPSK	3	1	22.65	22.87	22.89
1.4	QPSK	3	2	22.71	22.83	22.96
1.4	QPSK	6	0	21.75	21.93	22.02
1.4	16QAM	1	0	21.72	22.05	22.02
1.4	16QAM	1	2	21.55	21.77	21.96
1.4	16QAM	1	5	21.55	21.66	21.57
1.4	16QAM	3	0	21.65	21.87	21.84
1.4	16QAM	3	1	21.71	21.87	21.74
1.4	16QAM	3	2	21.54	21.74	21.95
1.4	16QAM	6	0	20.61	20.56	21.06



<LTE Band 5 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>20450</b>	<b>20525</b>	<b>20600</b>
<b>Frequency (MHz)</b>				<b>829</b>	<b>836.5</b>	<b>844</b>
10	QPSK	1	0	23.37	23.58	23.47
10	QPSK	1	24	23.31	23.37	23.40
10	QPSK	1	49	23.31	23.35	23.45
10	QPSK	25	0	22.42	22.52	22.45
10	QPSK	25	12	22.43	22.34	22.23
10	QPSK	25	24	22.38	22.36	22.43
10	QPSK	50	0	22.43	22.48	22.46
10	16QAM	1	0	22.55	22.35	22.56
10	16QAM	1	24	22.25	21.97	22.11
10	16QAM	1	49	22.25	21.97	22.26
10	16QAM	25	0	21.35	21.32	21.53
10	16QAM	25	12	21.40	21.38	21.41
10	16QAM	25	24	21.27	21.52	21.41
10	16QAM	50	0	21.41	21.39	21.44
<b>Channel</b>				<b>20425</b>	<b>20525</b>	<b>20625</b>
<b>Frequency (MHz)</b>				<b>826.5</b>	<b>836.5</b>	<b>846.5</b>
5	QPSK	1	0	23.47	23.39	23.52
5	QPSK	1	12	23.28	23.35	23.50
5	QPSK	1	24	23.35	23.29	23.42
5	QPSK	12	0	22.40	22.40	22.51
5	QPSK	12	6	22.37	22.36	22.44
5	QPSK	12	11	22.39	22.19	22.49
5	QPSK	25	0	22.39	22.40	22.45
5	16QAM	1	0	22.59	22.44	22.25
5	16QAM	1	12	21.89	21.92	22.21
5	16QAM	1	24	22.40	22.15	22.07
5	16QAM	12	0	21.32	21.35	21.43
5	16QAM	12	6	21.29	21.39	21.39
5	16QAM	12	11	21.30	21.19	21.41
5	16QAM	25	0	21.45	21.35	21.34



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>20415</b>	<b>20525</b>	<b>20635</b>
<b>Frequency (MHz)</b>				<b>825.5</b>	<b>836.5</b>	<b>847.5</b>
3	QPSK	1	0	23.46	23.37	23.54
3	QPSK	1	7	23.24	23.31	23.47
3	QPSK	1	14	23.29	23.33	23.47
3	QPSK	8	0	22.37	22.26	22.50
3	QPSK	8	4	22.38	22.34	22.44
3	QPSK	8	7	22.44	22.17	22.51
3	QPSK	15	0	22.40	22.39	22.54
3	16QAM	1	0	22.52	22.37	22.64
3	16QAM	1	7	22.51	22.15	22.58
3	16QAM	1	14	22.13	22.25	22.61
3	16QAM	8	0	21.36	21.23	21.50
3	16QAM	8	4	21.40	21.47	21.42
3	16QAM	8	7	21.42	21.32	21.31
3	16QAM	15	0	21.32	21.17	21.34
<b>Channel</b>				<b>20407</b>	<b>20525</b>	<b>20643</b>
<b>Frequency (MHz)</b>				<b>824.7</b>	<b>836.5</b>	<b>848.3</b>
1.4	QPSK	1	0	23.45	23.39	23.55
1.4	QPSK	1	2	23.44	23.31	23.35
1.4	QPSK	1	5	23.41	23.35	23.47
1.4	QPSK	3	0	23.37	23.31	23.47
1.4	QPSK	3	1	23.29	23.35	23.50
1.4	QPSK	3	2	23.43	23.34	23.53
1.4	QPSK	6	0	22.56	22.30	22.57
1.4	16QAM	1	0	22.43	22.43	22.83
1.4	16QAM	1	2	22.32	22.38	22.67
1.4	16QAM	1	5	22.37	22.41	22.34
1.4	16QAM	3	0	22.25	22.07	22.45
1.4	16QAM	3	1	22.36	22.18	22.52
1.4	16QAM	3	2	22.40	22.05	22.51
1.4	16QAM	6	0	21.40	21.45	21.33



<LTE Band 17 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
<b>Channel</b>				<b>23780</b>	<b>23790</b>	<b>23800</b>
<b>Frequency (MHz)</b>				<b>709</b>	<b>710</b>	<b>711</b>
10	QPSK	1	0	23.36	23.41	23.39
10	QPSK	1	24	23.13	23.20	23.08
10	QPSK	1	49	23.35	23.33	23.20
10	QPSK	25	0	22.26	22.30	22.28
10	QPSK	25	12	22.27	22.20	22.23
10	QPSK	25	24	22.26	22.28	22.25
10	QPSK	50	0	22.29	22.30	22.23
10	16QAM	1	0	22.29	22.48	22.54
10	16QAM	1	24	21.84	22.31	22.03
10	16QAM	1	49	22.17	22.47	22.40
10	16QAM	25	0	21.14	21.40	21.11
10	16QAM	25	12	21.25	21.32	21.34
10	16QAM	25	24	21.30	21.38	21.22
10	16QAM	50	0	21.22	21.21	21.17
<b>Channel</b>				<b>23755</b>	<b>23790</b>	<b>23825</b>
<b>Frequency (MHz)</b>				<b>706.5</b>	<b>710</b>	<b>713.5</b>
5	QPSK	1	0	23.24	23.26	23.38
5	QPSK	1	12	23.04	23.11	23.30
5	QPSK	1	24	23.14	23.24	23.29
5	QPSK	12	0	22.27	22.17	22.19
5	QPSK	12	6	22.26	22.27	22.14
5	QPSK	12	11	22.23	22.26	22.25
5	QPSK	25	0	22.25	22.30	22.32
5	16QAM	1	0	22.25	22.05	22.34
5	16QAM	1	12	22.18	22.02	22.14
5	16QAM	1	24	22.04	21.92	22.03
5	16QAM	12	0	21.29	21.29	21.21
5	16QAM	12	6	21.25	21.21	21.24
5	16QAM	12	11	21.24	21.29	21.25
5	16QAM	25	0	21.25	21.26	21.32

Note: Maximum average power for LTE.

## 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. 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.

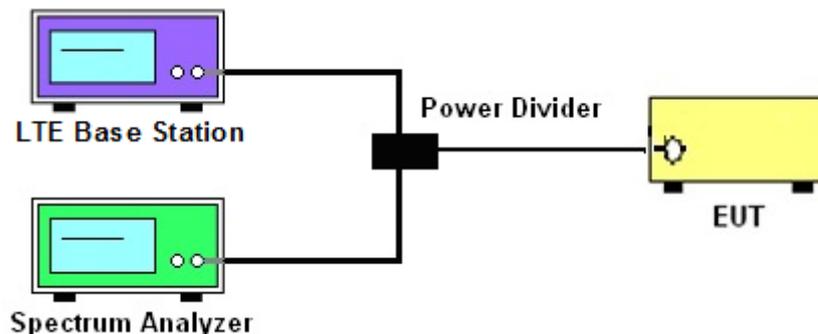
### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.2.3 Test Procedures

1. The EUT was connected to spectrum and LTE base station via a power divider.
2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
4. Record the deviation as Peak to Average Ratio.

### 3.2.4 Test Setup



3.2.5 Test Result of Peak-to-Average Ratio

LTE Band 2				
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Middle Ch. / Freq.
Channel				18900
Frequency (MHz)				1880
20	16QAM	1	0	3.08
20	16QAM	100	0	7.24

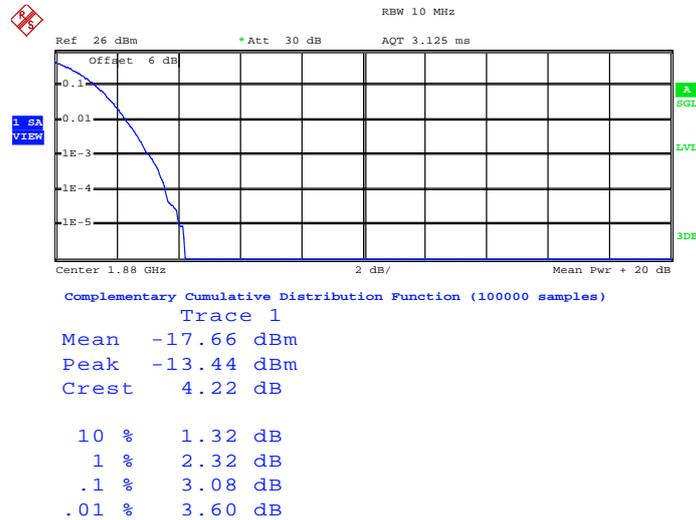
LTE Band 4				
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Middle Ch. / Freq.
Channel				20175
Frequency (MHz)				1732.5
20	16QAM	1	0	1.20
20	16QAM	100	0	7.16

LTE Band 5				
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Middle Ch. / Freq.
Channel				20525
Frequency (MHz)				836.5
10	16QAM	1	0	6.44
10	16QAM	50	0	6.44

LTE Band 17				
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Middle Ch. / Freq.
Channel				23790
Frequency (MHz)				710
10	16QAM	1	0	6.80
10	16QAM	50	0	6.44

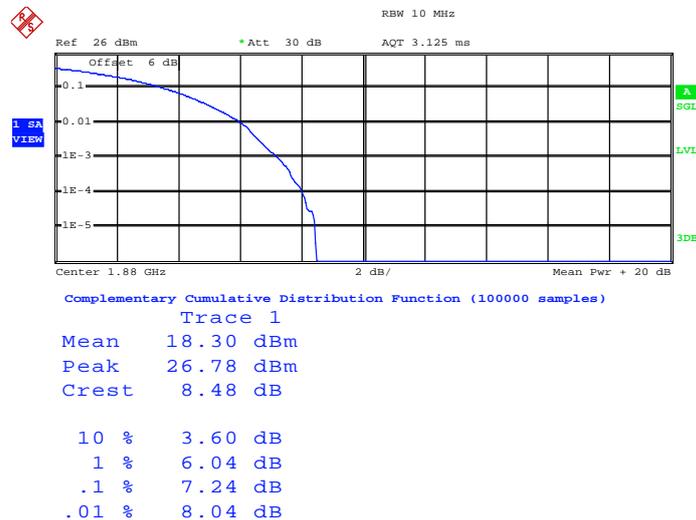
### 3.2.6 Peak to Average Power Ratio

**Peak-to-Average Ratio on LTE Band 2**  
**20MHz / 16QAM in Ch. 18900 (1RB Size)**



Date: 16.MAY.2014 10:51:25

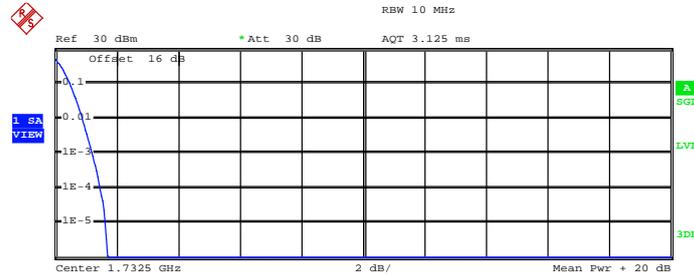
**Peak-to-Average Ratio on LTE Band 2**  
**20MHz / 16QAM in Ch. 18900 (100RB Size)**



Date: 16.MAY.2014 10:51:54



Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20175 (1RB Size)

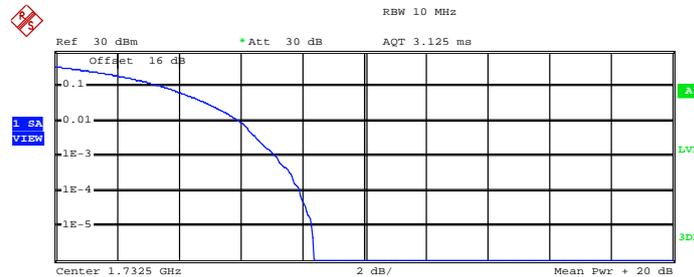


Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 0.15 dBm
Peak 1.85 dBm
Crest 1.70 dB
10 % 0.48 dB
1 % 0.88 dB
.1 % 1.20 dB
.01 % 1.48 dB

Date: 16.MAY.2014 10:53:52

Peak-to-Average Ratio on LTE Band 4
20MHz / 16QAM in Ch. 20175 (100RB Size)

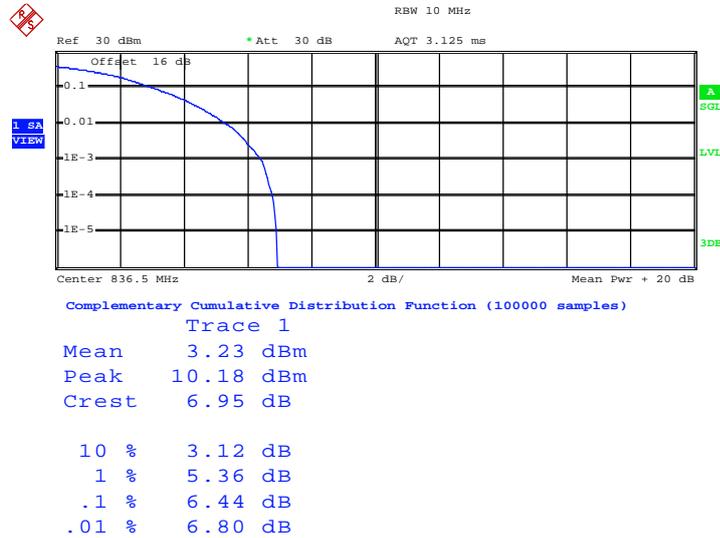


Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 18.59 dBm
Peak 26.97 dBm
Crest 8.38 dB
10 % 3.56 dB
1 % 6.00 dB
.1 % 7.16 dB
.01 % 7.92 dB

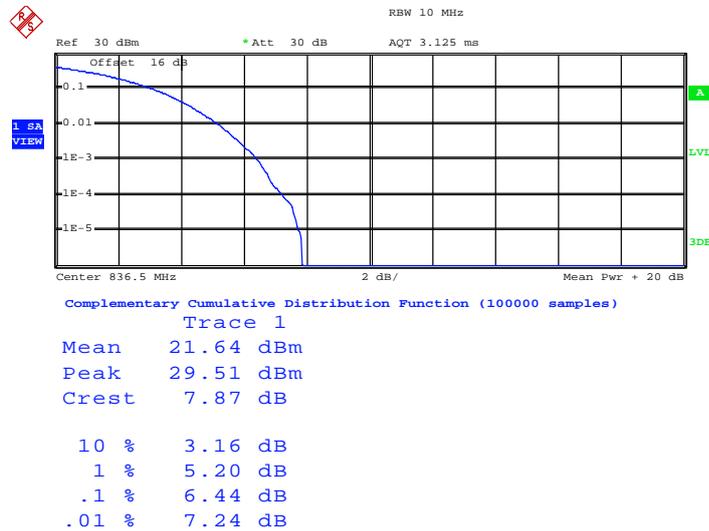
Date: 17.APR.2014 19:47:52

**Peak-to-Average Ratio on LTE Band 5**  
**10MHz / 16QAM in Ch. 20525 (1RB Size)**



Date: 16.MAY.2014 11:16:27

**Peak-to-Average Ratio on LTE Band 5**  
**10MHz / 16QAM in Ch. 20525 (50RB Size)**

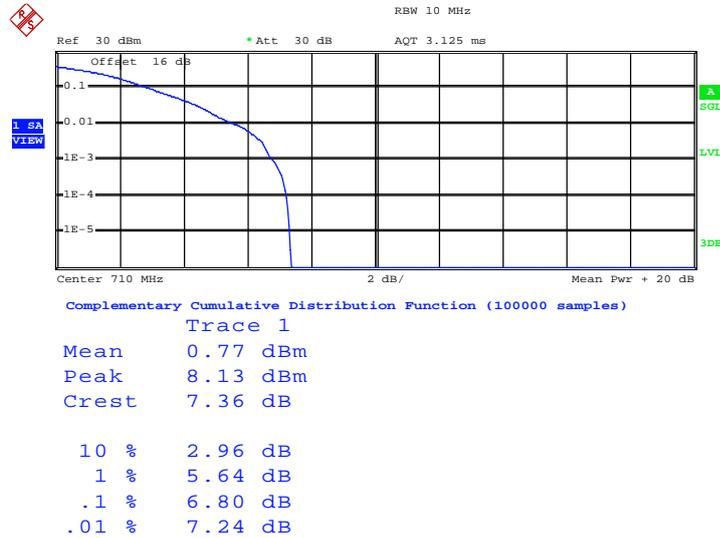


Date: 17.APR.2014 20:00:57



Peak-to-Average Ratio on LTE Band 17

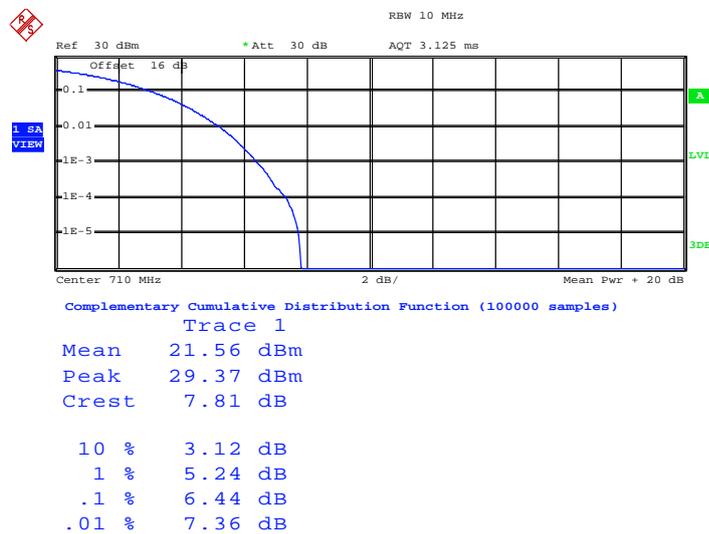
10MHz / 16QAM in Ch. 23790 (1RB Size)



Date: 16.MAY.2014 11:05:07

Peak-to-Average Ratio on LTE Band 17

10MHz / 16QAM in Ch. 23790 (50RB Size)



Date: 17.APR.2014 20:11:20

### 3.3 Effective Radiated Power and Equivalent Isotropic Radiated Power Measurement

#### 3.3.1 Description of the ERP/EIRP Measurement

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts with LTE band 5 and 3 watts with LTE band 17.

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. Mobile and portable (hand-held) stations operating are limited to average EIRP of 2 watts with LTE band 2 and 1 watt with LTE band 4.

#### 3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.3.3 Test Procedures

1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer which used a channel power option across EUT's signal bandwidth per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10.  $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

$P_s$  (dBm) : Input power to substitution antenna.

$G_s$  (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

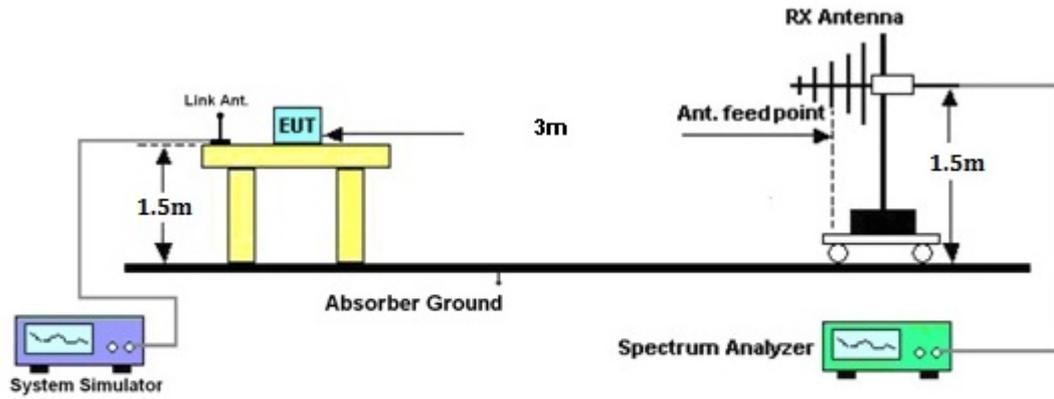
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

$R_t$  : The highest received signal in spectrum analyzer for EUT.

$R_s$  : The highest received signal in spectrum analyzer for substitution antenna.

### 3.3.4 Test Setup





3.3.5 Test Result of ERP/EIRP

LTE Band 2 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
2	1.4	QPSK	1	0	1850.7	20.70	0.1175	H
2	1.4	QPSK	1	0	1880	20.48	0.1117	H
2	1.4	QPSK	1	0	1909.3	20.14	0.1033	H
2	1.4	QPSK	1	0	1850.7	20.86	0.1219	V
2	1.4	QPSK	1	0	1880	20.45	0.1109	V
2	1.4	QPSK	1	0	1909.3	20.52	0.1127	V
2	1.4	16QAM	1	0	1850.7	19.52	0.0895	H
2	1.4	16QAM	1	0	1880	19.16	0.0824	H
2	1.4	16QAM	1	0	1909.3	18.98	0.0791	H
2	1.4	16QAM	1	0	1850.7	19.70	0.0933	V
2	1.4	16QAM	1	0	1880	19.23	0.0838	V
2	1.4	16QAM	1	0	1909.3	19.38	0.0867	V
2	3	QPSK	1	0	1851.5	20.61	0.1151	H
2	3	QPSK	1	0	1880	20.43	0.1104	H
2	3	QPSK	1	0	1908.5	20.13	0.1030	H
2	3	QPSK	1	0	1851.5	20.75	0.1189	V
2	3	QPSK	1	0	1880	20.42	0.1102	V
2	3	QPSK	1	0	1908.5	20.40	0.1096	V
2	3	16QAM	1	0	1851.5	19.51	0.0893	H
2	3	16QAM	1	0	1880	19.16	0.0824	H
2	3	16QAM	1	0	1908.5	18.90	0.0776	H
2	3	16QAM	1	0	1851.5	19.67	0.0927	V
2	3	16QAM	1	0	1880	19.10	0.0813	V
2	3	16QAM	1	0	1908.5	19.23	0.0838	V



LTE Band 2 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
2	5	QPSK	1	0	1852.5	20.62	0.1153	H
2	5	QPSK	1	0	1880	20.36	0.1086	H
2	5	QPSK	1	0	1907.5	20.16	0.1038	H
2	5	QPSK	1	0	1852.5	20.79	0.1199	V
2	5	QPSK	1	0	1880	20.35	0.1084	V
2	5	QPSK	1	0	1907.5	20.36	0.1086	V
2	5	16QAM	1	0	1852.5	19.44	0.0879	H
2	5	16QAM	1	0	1880	19.15	0.0822	H
2	5	16QAM	1	0	1907.5	19.00	0.0794	H
2	5	16QAM	1	0	1852.5	19.56	0.0904	V
2	5	16QAM	1	0	1880	19.16	0.0824	V
2	5	16QAM	1	0	1907.5	19.21	0.0834	V
2	10	QPSK	1	0	1855	21.38	0.1374	H
2	10	QPSK	1	0	1880	20.24	0.1057	H
2	10	QPSK	1	0	1905	19.96	0.0991	H
2	10	QPSK	1	0	1855	21.57	0.1435	V
2	10	QPSK	1	0	1880	20.37	0.1089	V
2	10	QPSK	1	0	1905	20.48	0.1117	V
2	10	16QAM	1	0	1855	19.63	0.0918	H
2	10	16QAM	1	0	1880	18.97	0.0789	H
2	10	16QAM	1	0	1905	18.98	0.0791	H
2	10	16QAM	1	0	1855	19.81	0.0957	V
2	10	16QAM	1	0	1880	19.14	0.0820	V
2	10	16QAM	1	0	1905	19.45	0.0881	V



LTE Band 2 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
2	15	QPSK	1	0	1857.5	20.33	0.1079	H
2	15	QPSK	1	0	1880	19.59	0.0910	H
2	15	QPSK	1	0	1902.5	19.80	0.0955	H
2	15	QPSK	1	0	1857.5	20.43	0.1104	V
2	15	QPSK	1	0	1880	19.77	0.0948	V
2	15	QPSK	1	0	1902.5	19.94	0.0986	V
2	15	16QAM	1	0	1857.5	19.07	0.0807	H
2	15	16QAM	1	0	1880	18.85	0.0767	H
2	15	16QAM	1	0	1902.5	18.63	0.0729	H
2	15	16QAM	1	0	1857.5	19.26	0.0843	V
2	15	16QAM	1	0	1880	18.90	0.0776	V
2	15	16QAM	1	0	1902.5	18.78	0.0755	V
2	20	QPSK	1	0	1860	20.09	0.1021	H
2	20	QPSK	1	0	1880	20.06	0.1014	H
2	20	QPSK	1	0	1900	19.39	0.0869	H
2	20	QPSK	1	0	1860	20.15	0.1035	V
2	20	QPSK	1	0	1880	20.02	0.1005	V
2	20	QPSK	1	0	1900	19.65	0.0923	V
2	20	16QAM	1	0	1860	18.97	0.0789	H
2	20	16QAM	1	0	1880	18.82	0.0762	H
2	20	16QAM	1	0	1900	18.31	0.0678	H
2	20	16QAM	1	0	1860	19.03	0.0800	V
2	20	16QAM	1	0	1880	18.83	0.0764	V
2	20	16QAM	1	0	1900	18.59	0.0723	V



LTE Band 4 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
4	1.4	QPSK	1	0	1710.7	20.83	0.1211	H
4	1.4	QPSK	1	0	1732.5	21.62	0.1452	H
4	1.4	QPSK	1	0	1754.3	22.06	0.1607	H
4	1.4	QPSK	1	0	1710.7	20.96	0.1247	V
4	1.4	QPSK	1	0	1732.5	21.84	0.1528	V
4	1.4	QPSK	1	0	1754.3	22.42	0.1746	V
4	1.4	16QAM	1	0	1710.7	19.71	0.0935	H
4	1.4	16QAM	1	0	1732.5	20.47	0.1114	H
4	1.4	16QAM	1	0	1754.3	20.93	0.1239	H
4	1.4	16QAM	1	0	1710.7	19.87	0.0971	V
4	1.4	16QAM	1	0	1732.5	20.76	0.1191	V
4	1.4	16QAM	1	0	1754.3	21.26	0.1337	V
4	3	QPSK	1	0	1711.5	20.81	0.1205	H
4	3	QPSK	1	0	1732.5	21.60	0.1445	H
4	3	QPSK	1	0	1753.5	22.26	0.1683	H
4	3	QPSK	1	0	1711.5	20.98	0.1253	V
4	3	QPSK	1	0	1732.5	21.87	0.1538	V
4	3	QPSK	1	0	1753.5	22.49	0.1774	V
4	3	16QAM	1	0	1711.5	19.67	0.0927	H
4	3	16QAM	1	0	1732.5	20.43	0.1104	H
4	3	16QAM	1	0	1753.5	21.10	0.1288	H
4	3	16QAM	1	0	1711.5	19.77	0.0948	V
4	3	16QAM	1	0	1732.5	20.72	0.1180	V
4	3	16QAM	1	0	1753.5	21.34	0.1361	V



LTE Band 4 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
4	5	QPSK	1	0	1712.5	20.87	0.1222	H
4	5	QPSK	1	0	1732.5	21.61	0.1449	H
4	5	QPSK	1	0	1752.5	22.18	0.1652	H
4	5	QPSK	1	0	1712.5	21.02	0.1265	V
4	5	QPSK	1	0	1732.5	21.99	0.1581	V
4	5	QPSK	1	0	1752.5	22.59	0.1816	V
4	5	16QAM	1	0	1712.5	19.63	0.0918	H
4	5	16QAM	1	0	1732.5	20.32	0.1076	H
4	5	16QAM	1	0	1752.5	20.97	0.1250	H
4	5	16QAM	1	0	1712.5	19.78	0.0951	V
4	5	16QAM	1	0	1732.5	20.70	0.1175	V
4	5	16QAM	1	0	1752.5	21.37	0.1371	V
4	10	QPSK	1	0	1715	20.75	0.1189	H
4	10	QPSK	1	0	1732.5	21.63	0.1455	H
4	10	QPSK	1	0	1750	22.11	0.1626	H
4	10	QPSK	1	0	1715	20.93	0.1239	V
4	10	QPSK	1	0	1732.5	21.88	0.1542	V
4	10	QPSK	1	0	1750	22.35	0.1718	V
4	10	16QAM	1	0	1715	19.53	0.0897	H
4	10	16QAM	1	0	1732.5	20.36	0.1086	H
4	10	16QAM	1	0	1750	20.90	0.1230	H
4	10	16QAM	1	0	1715	19.72	0.0938	V
4	10	16QAM	1	0	1732.5	20.61	0.1151	V
4	10	16QAM	1	0	1750	21.14	0.1300	V



LTE Band 4 Radiated Power EIRP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset				
4	15	QPSK	1	0	1717.5	20.74	0.1186	H
4	15	QPSK	1	0	1732.5	21.36	0.1368	H
4	15	QPSK	1	0	1747.5	21.96	0.1570	H
4	15	QPSK	1	0	1717.5	20.93	0.1239	V
4	15	QPSK	1	0	1732.5	21.53	0.1422	V
4	15	QPSK	1	0	1747.5	22.22	0.1667	V
4	15	16QAM	1	0	1717.5	19.53	0.0897	H
4	15	16QAM	1	0	1732.5	20.20	0.1047	H
4	15	16QAM	1	0	1747.5	20.81	0.1205	H
4	15	16QAM	1	0	1717.5	19.74	0.0942	V
4	15	16QAM	1	0	1732.5	20.39	0.1094	V
4	15	16QAM	1	0	1747.5	21.08	0.1282	V
4	20	QPSK	1	0	1720	20.70	0.1175	H
4	20	QPSK	1	0	1732.5	21.12	0.1294	H
4	20	QPSK	1	0	1745	21.97	0.1574	H
4	20	QPSK	1	0	1720	20.96	0.1247	V
4	20	QPSK	1	0	1732.5	21.34	0.1361	V
4	20	QPSK	1	0	1745	22.22	0.1667	V
4	20	16QAM	1	0	1720	19.69	0.0931	H
4	20	16QAM	1	0	1732.5	19.98	0.0995	H
4	20	16QAM	1	0	1745	20.79	0.1199	H
4	20	16QAM	1	0	1720	19.91	0.0979	V
4	20	16QAM	1	0	1732.5	20.18	0.1042	V
4	20	16QAM	1	0	1745	21.06	0.1276	V



LTE Band 5 Radiated Power ERP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	ERP (W)	H/V
			RB Size	RB Offset				
5	1.4	QPSK	1	0	824.7	18.36	0.0685	H
5	1.4	QPSK	1	0	836.5	17.67	0.0585	H
5	1.4	QPSK	1	0	848.3	16.27	0.0424	H
5	1.4	QPSK	1	0	824.7	4.03	0.0025	V
5	1.4	QPSK	1	0	836.5	3.90	0.0025	V
5	1.4	QPSK	1	0	848.3	0.51	0.0011	V
5	1.4	16QAM	1	0	824.7	17.20	0.0525	H
5	1.4	16QAM	1	0	836.5	16.61	0.0458	H
5	1.4	16QAM	1	0	848.3	15.14	0.0327	H
5	1.4	16QAM	1	0	824.7	2.86	0.0019	V
5	1.4	16QAM	1	0	836.5	2.75	0.0019	V
5	1.4	16QAM	1	0	848.3	-0.59	0.0009	V
5	3	QPSK	1	0	825.5	18.27	0.0671	H
5	3	QPSK	1	0	836.5	17.70	0.0589	H
5	3	QPSK	1	0	847.5	16.50	0.0447	H
5	3	QPSK	1	0	825.5	4.11	0.0026	V
5	3	QPSK	1	0	836.5	3.45	0.0022	V
5	3	QPSK	1	0	847.5	1.27	0.0013	V
5	3	16QAM	1	0	825.5	17.08	0.0511	H
5	3	16QAM	1	0	836.5	16.47	0.0444	H
5	3	16QAM	1	0	847.5	15.29	0.0338	H
5	3	16QAM	1	0	825.5	2.91	0.0020	V
5	3	16QAM	1	0	836.5	2.22	0.0017	V
5	3	16QAM	1	0	847.5	-0.13	0.0010	V



LTE Band 5 Radiated Power ERP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	ERP (W)	H/V
			RB Size	RB Offset				
5	5	QPSK	1	0	826.5	18.26	0.0670	H
5	5	QPSK	1	0	836.5	17.75	0.0596	H
5	5	QPSK	1	0	846.5	16.83	0.0482	H
5	5	QPSK	1	0	826.5	4.19	0.0026	V
5	5	QPSK	1	0	836.5	3.52	0.0022	V
5	5	QPSK	1	0	846.5	1.67	0.0015	V
5	5	16QAM	1	0	826.5	17.06	0.0508	H
5	5	16QAM	1	0	836.5	16.54	0.0451	H
5	5	16QAM	1	0	846.5	15.58	0.0361	H
5	5	16QAM	1	0	826.5	2.89	0.0019	V
5	5	16QAM	1	0	836.5	2.32	0.0017	V
5	5	16QAM	1	0	846.5	0.41	0.0011	V
5	10	QPSK	1	0	829	18.24	0.0667	H
5	10	QPSK	1	0	836.5	17.91	0.0618	H
5	10	QPSK	1	0	844	17.35	0.0543	H
5	10	QPSK	1	0	829	4.21	0.0026	V
5	10	QPSK	1	0	836.5	3.76	0.0024	V
5	10	QPSK	1	0	844	2.78	0.0019	V
5	10	16QAM	1	0	829	17.05	0.0507	H
5	10	16QAM	1	0	836.5	16.73	0.0471	H
5	10	16QAM	1	0	844	16.16	0.0413	H
5	10	16QAM	1	0	829	2.97	0.0020	V
5	10	16QAM	1	0	836.5	2.56	0.0018	V
5	10	16QAM	1	0	844	1.52	0.0014	V



LTE Band 17 Radiated Power ERP								
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	ERP (dBm)	ERP (W)	H/V
			RB Size	RB Offset				
17	5	QPSK	1	0	706.5	15.63	0.0366	H
17	5	QPSK	1	0	710	15.85	0.0385	H
17	5	QPSK	1	0	713.5	16.10	0.0407	H
17	5	QPSK	1	0	706.5	-0.58	0.0009	V
17	5	QPSK	1	0	710	-0.13	0.0010	V
17	5	QPSK	1	0	713.5	0.28	0.0011	V
17	5	16QAM	1	0	706.5	14.33	0.0271	H
17	5	16QAM	1	0	710	14.79	0.0301	H
17	5	16QAM	1	0	713.5	15.84	0.0384	H
17	5	16QAM	1	0	706.5	-1.77	0.0007	V
17	5	16QAM	1	0	710	-1.31	0.0007	V
17	5	16QAM	1	0	713.5	0.14	0.0010	V
17	10	QPSK	1	0	709	15.31	0.0340	H
17	10	QPSK	1	0	710	15.43	0.0349	H
17	10	QPSK	1	0	711	15.14	0.0327	H
17	10	QPSK	1	0	709	-0.81	0.0008	V
17	10	QPSK	1	0	710	-0.77	0.0008	V
17	10	QPSK	1	0	711	-1.11	0.0008	V
17	10	16QAM	1	0	709	14.08	0.0256	H
17	10	16QAM	1	0	710	14.21	0.0264	H
17	10	16QAM	1	0	711	14.05	0.0254	H
17	10	16QAM	1	0	709	-2.02	0.0006	V
17	10	16QAM	1	0	710	-1.94	0.0006	V
17	10	16QAM	1	0	711	-2.20	0.0006	V

### 3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

#### 3.4.1 Description of 99% Occupied Bandwidth and 26dB 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 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

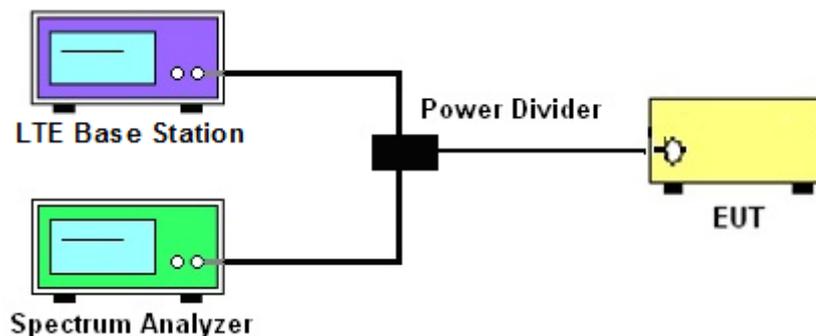
#### 3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.4.3 Test Procedures

1. The EUT was connected to spectrum analyzer and LTE base station via a power divider.
2. The 26dB and 99% occupied bandwidth (BW) of the middle channel for the highest RF power with full RB sizes were measured.

#### 3.4.4 Test Setup



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

Modes	LTE Band 2			
BW / Mod.	1.4MHz / QPSK	1.4MHz / 16QAM	3MHz / QPSK	3MHz / 16QAM
99% OBW (MHz)	1.0976	1.0948	2.7300	2.7240
26dB BW (MHz)	1.2544	1.2740	3.0240	3.0540
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.5000	4.5000	9.1400	9.0400
26dB BW (MHz)	4.9000	4.7900	10.1600	10.0800
BW / Mod.	15MHz / QPSK	15MHz / 16QAM	20MHz / QPSK	20MHz / 16QAM
99% OBW (MHz)	13.5000	13.4700	18.5200	18.5200
26dB BW (MHz)	14.6100	14.5200	20.9600	20.8400

Modes	LTE Band 4			
BW / Mod.	1.4MHz / QPSK	1.4MHz / 16QAM	3MHz / QPSK	3MHz / 16QAM
99% OBW (MHz)	1.0976	1.0976	2.7300	2.7240
26dB BW (MHz)	1.2852	1.2936	3.0540	3.0540
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.5100	4.4900	9.0800	9.0400
26dB BW (MHz)	5.0300	4.9400	10.2000	10.0000
BW / Mod.	15MHz / QPSK	15MHz / 16QAM	20MHz / QPSK	20MHz / 16QAM
99% OBW (MHz)	13.4700	13.4700	18.4000	18.4000
26dB BW (MHz)	14.8200	14.8800	21.0000	21.0400



Modes	LTE Band 5			
BW / Mod.	1.4MHz / QPSK	1.4MHz / 16QAM	3MHz / QPSK	3MHz / 16QAM
99% OBW (MHz)	1.0976	1.0976	2.7240	2.7240
26dB BW (MHz)	1.2796	1.2908	3.0480	3.0540
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.4900	4.4900	9.1200	9.0200
26dB BW (MHz)	4.9200	4.8900	10.1400	10.0600

Modes	LTE Band 17			
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.5000	4.5000	9.1200	9.0400
26dB BW (MHz)	4.9900	4.9900	10.1400	10.1400

**Note:**

The maximum RB configurations of the 99% Occupied Bandwidth and 26dB Bandwidth summary as below:

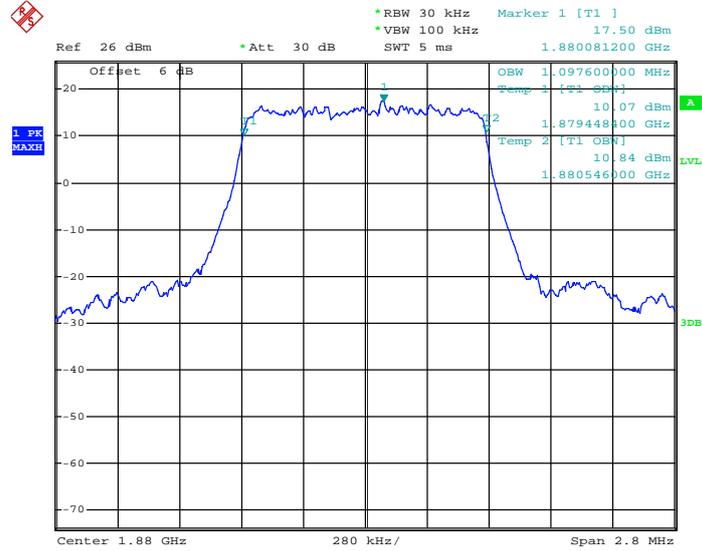
- BW1.4MHz RB setting : RB Size 6, RB offset 0
- BW3.0MHz RB setting : RB Size 15, RB offset 0
- BW5.0MHz RB setting : RB Size 25, RB offset 0
- BW10MHz RB setting : RB Size 50, RB offset 0
- BW15MHz RB setting : RB Size 75, RB offset 0
- BW20MHz RB setting : RB Size 100, RB offset 0



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

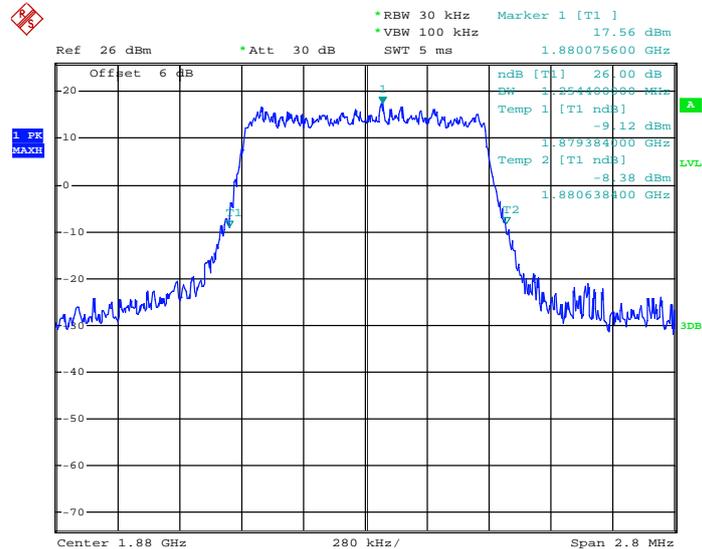
Band :	LTE Band 2	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 17:52:42

26dB Bandwidth Plot on Channel 18900

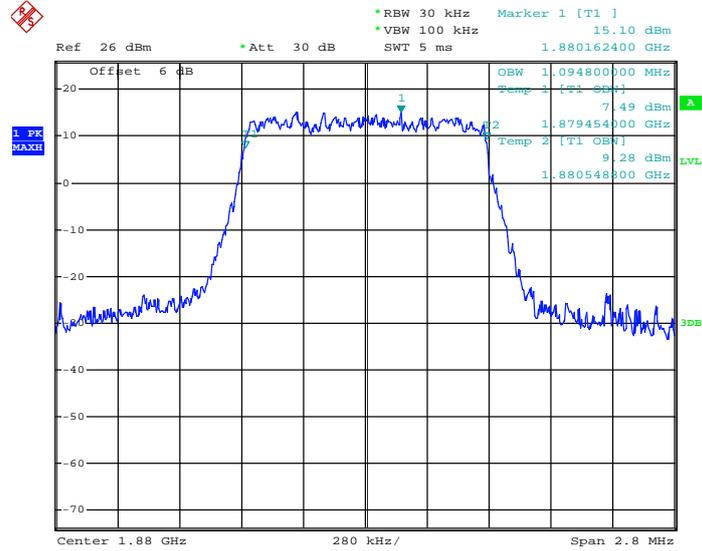


Date: 12.APR.2014 12:19:18



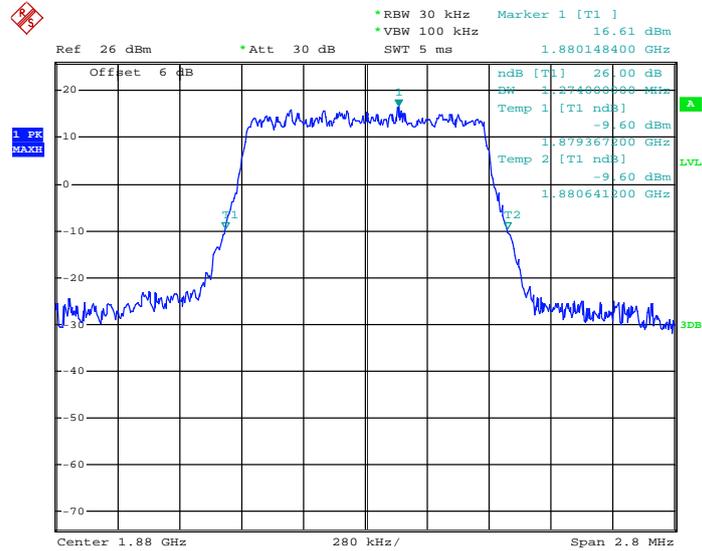
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 17:53:00

26dB Bandwidth Plot on Channel 18900

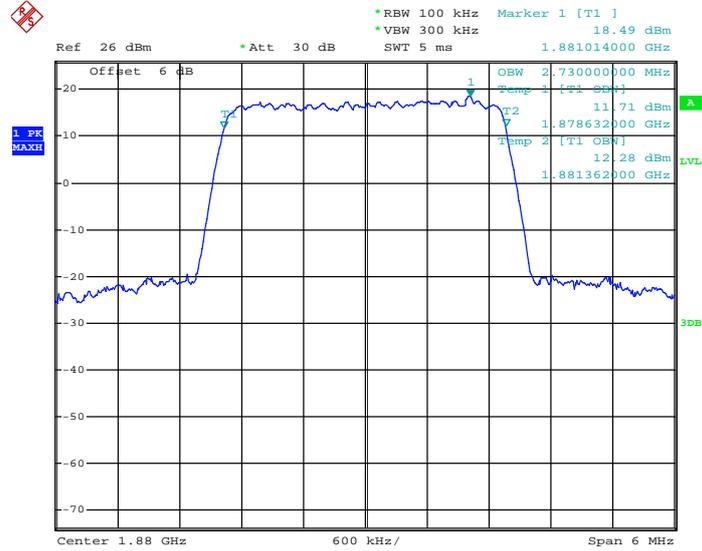


Date: 12.APR.2014 12:19:37



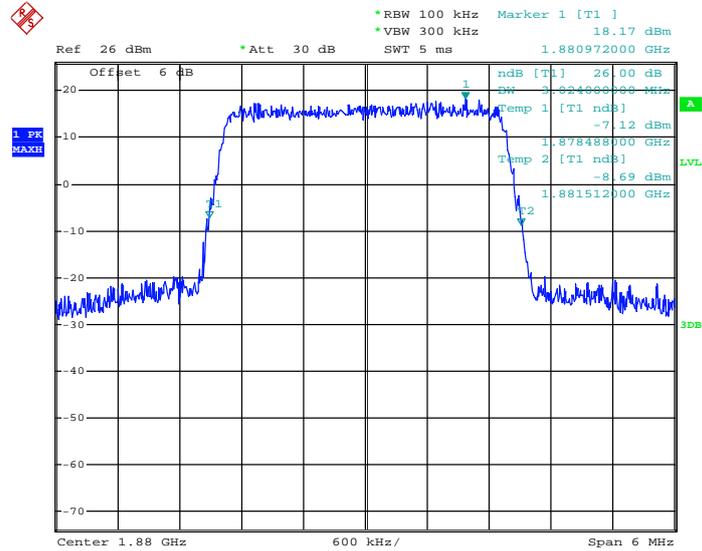
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 18:16:29

26dB Bandwidth Plot on Channel 18900

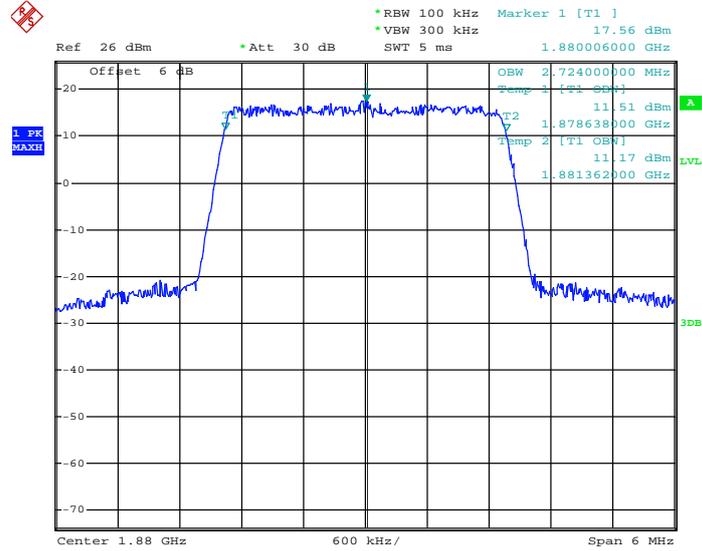


Date: 12.APR.2014 12:20:56



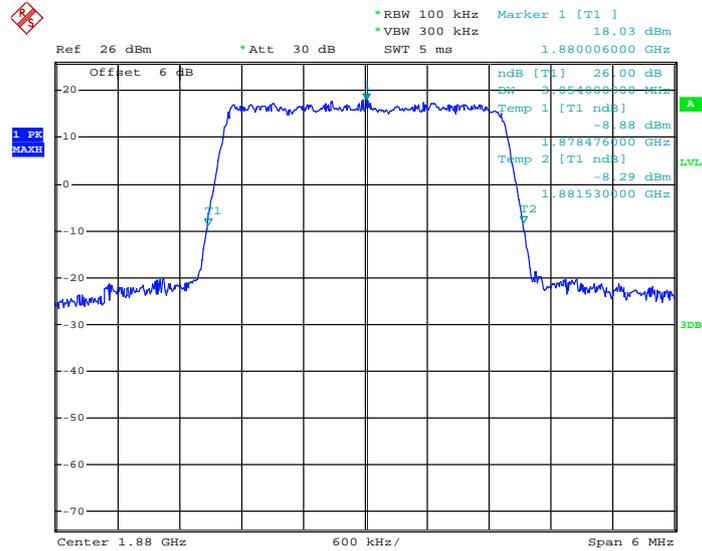
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	3MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 18:17:34

26dB Bandwidth Plot on Channel 18900

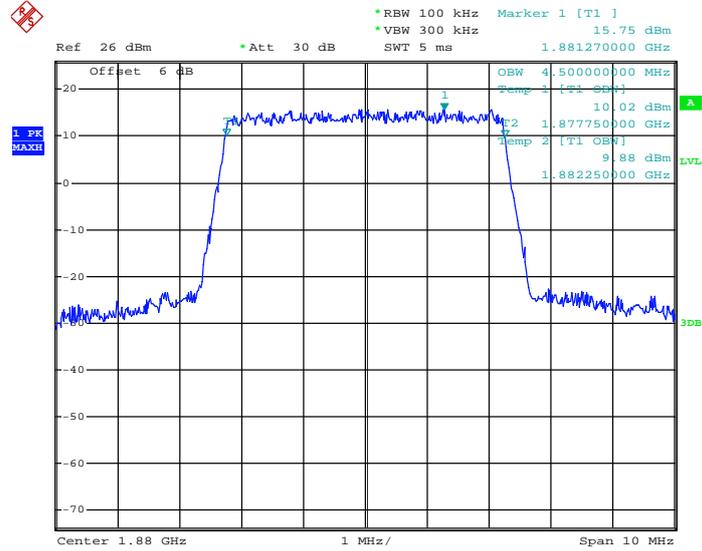


Date: 12.APR.2014 12:20:39



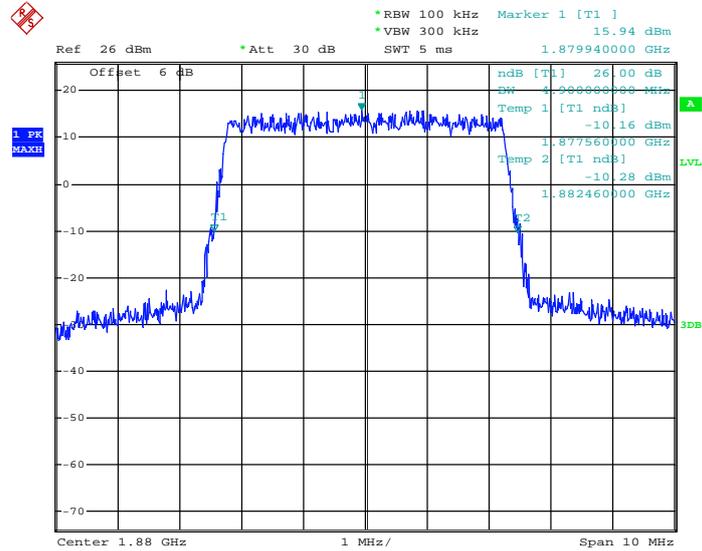
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 18:18:36

26dB Bandwidth Plot on Channel 18900

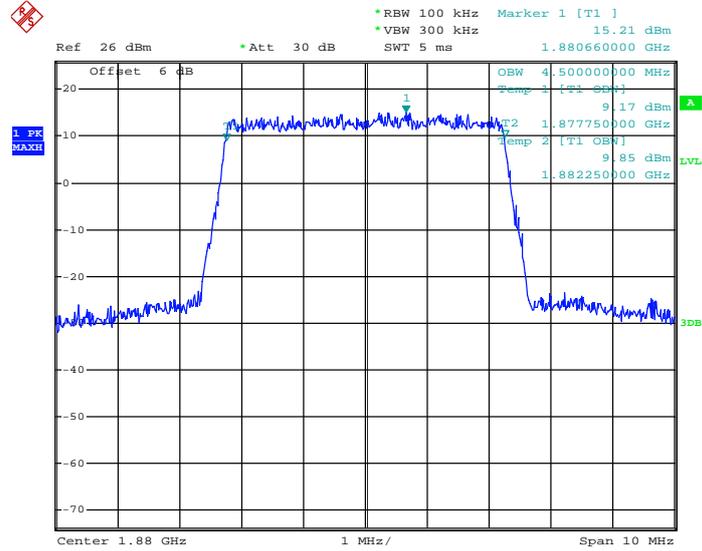


Date: 12.APR.2014 12:21:17



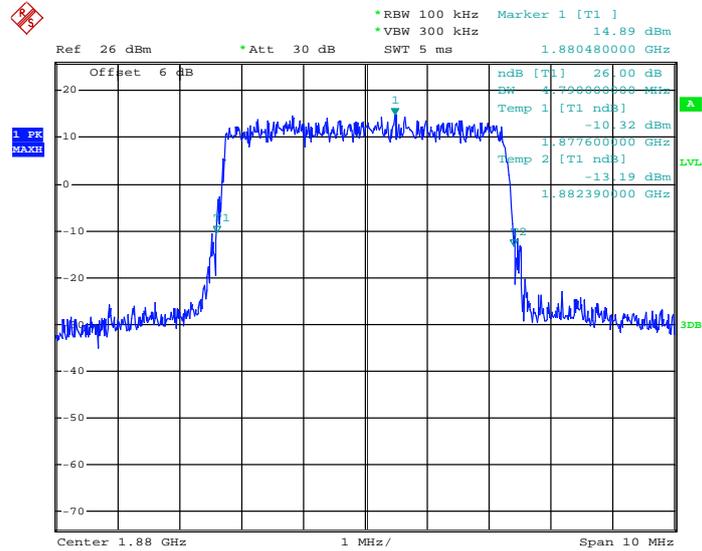
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 18:19:13

26dB Bandwidth Plot on Channel 18900

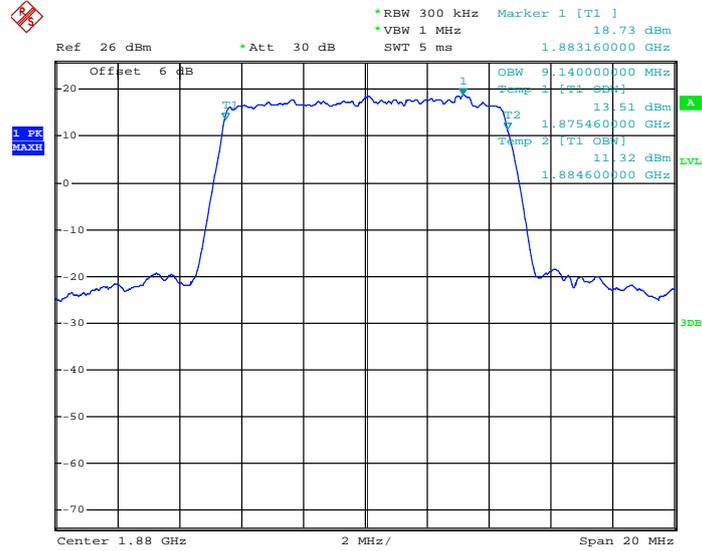


Date: 12.APR.2014 12:21:30



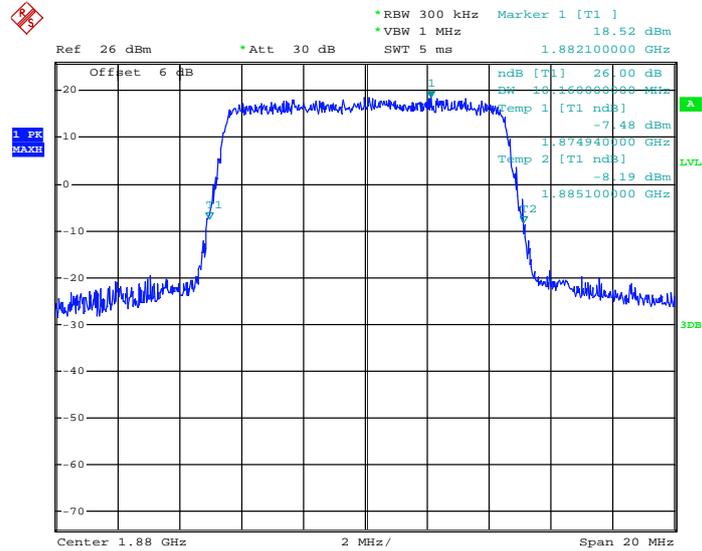
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 18:38:23

26dB Bandwidth Plot on Channel 18900

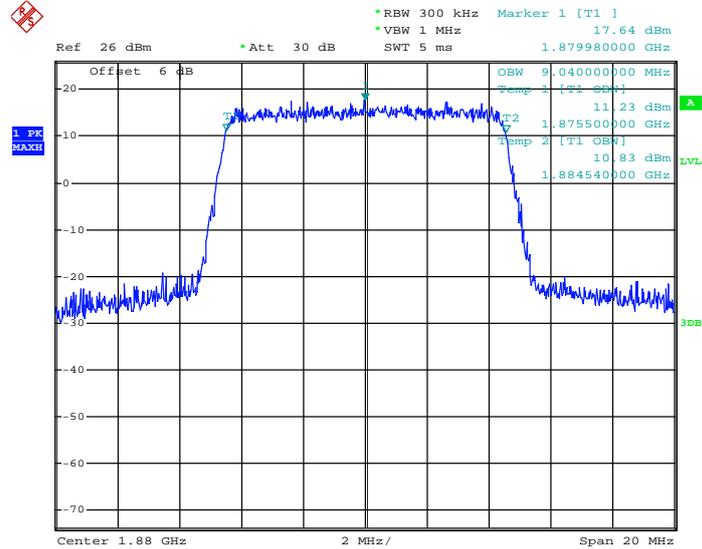


Date: 12.APR.2014 12:22:08



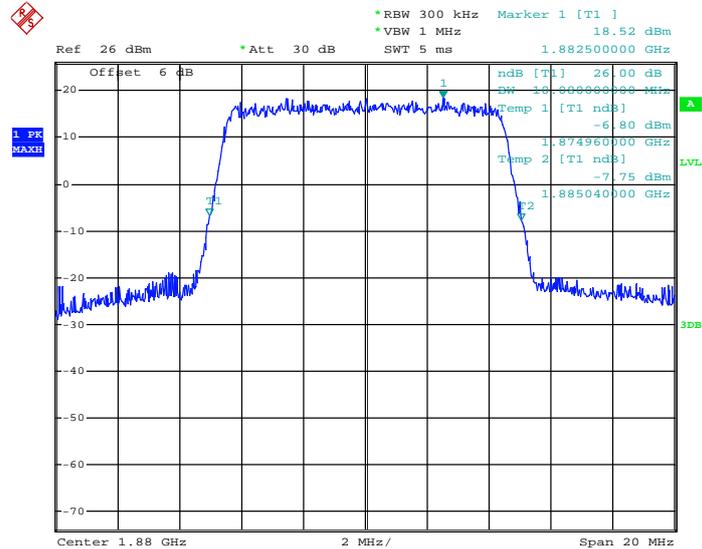
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 10.APR.2014 18:19:35

26dB Bandwidth Plot on Channel 18900

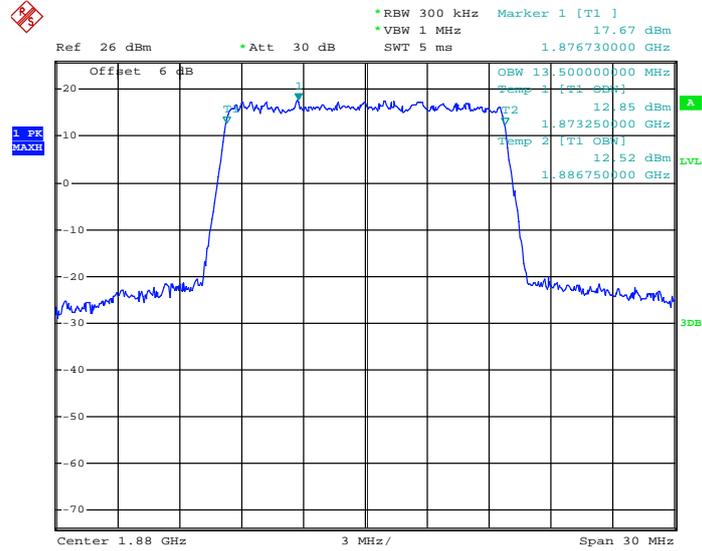


Date: 12.APR.2014 12:21:52



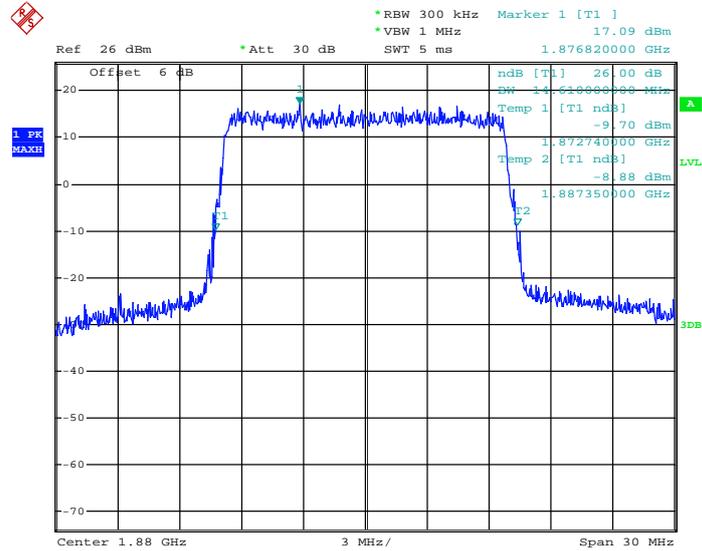
Band :	LTE Band 2	BW / Mod. :	15MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 12.APR.2014 12:05:56

26dB Bandwidth Plot on Channel 18900



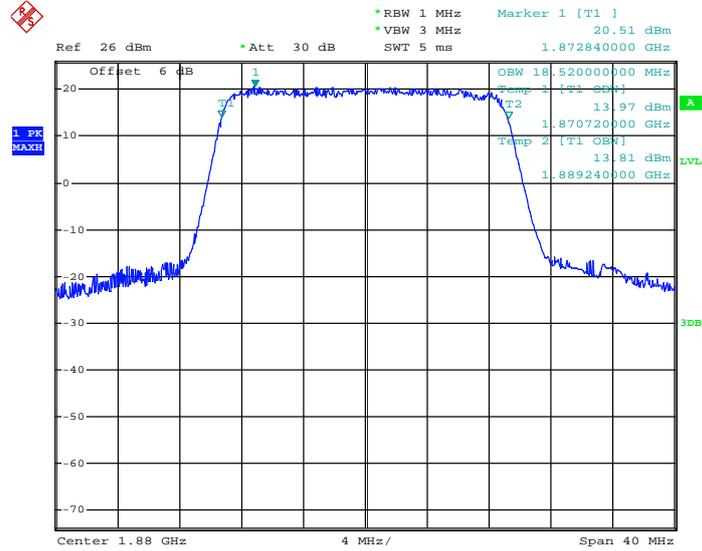
Date: 12.APR.2014 12:22:30





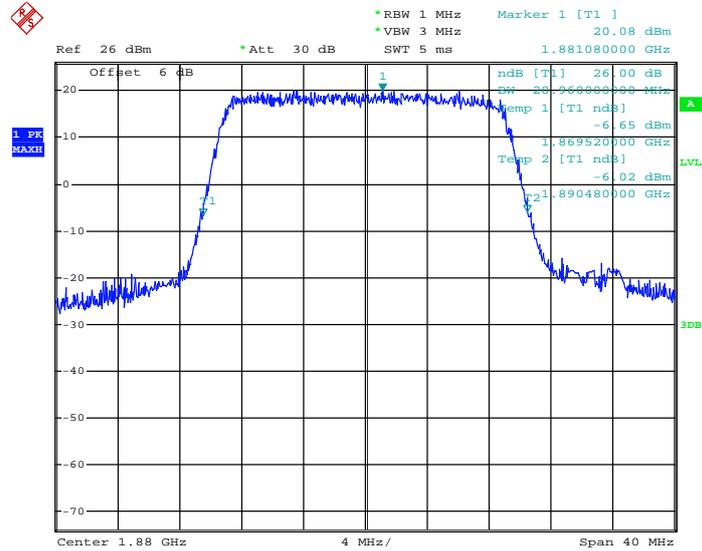
<b>Band :</b>	LTE Band 2	<b>BW / Mod. :</b>	20MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 18900



Date: 12.APR.2014 12:14:20

26dB Bandwidth Plot on Channel 18900

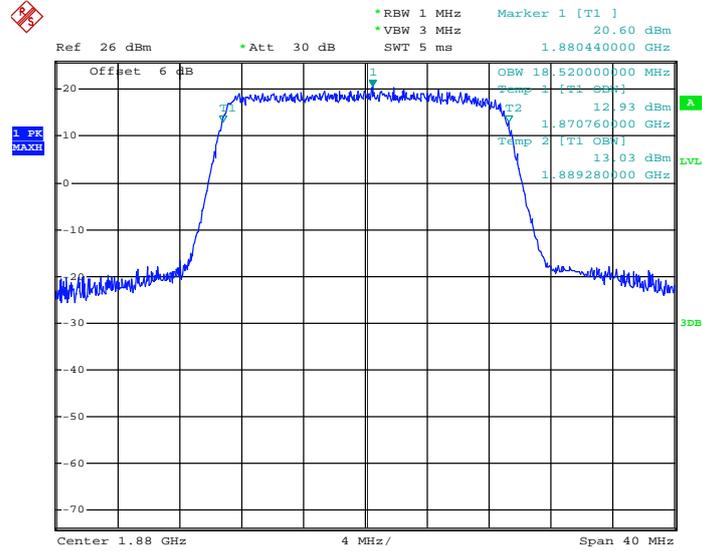


Date: 12.APR.2014 12:23:15



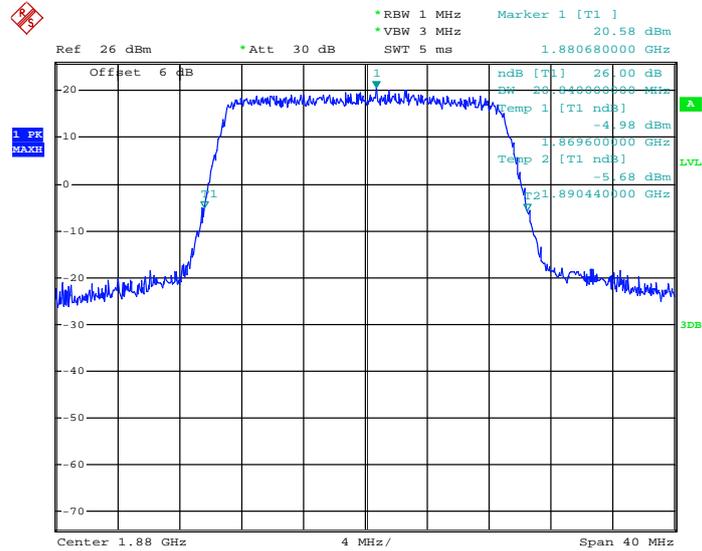
Band :	LTE Band 2	BW / Mod. :	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 18900



Date: 12.APR.2014 12:14:51

26dB Bandwidth Plot on Channel 18900

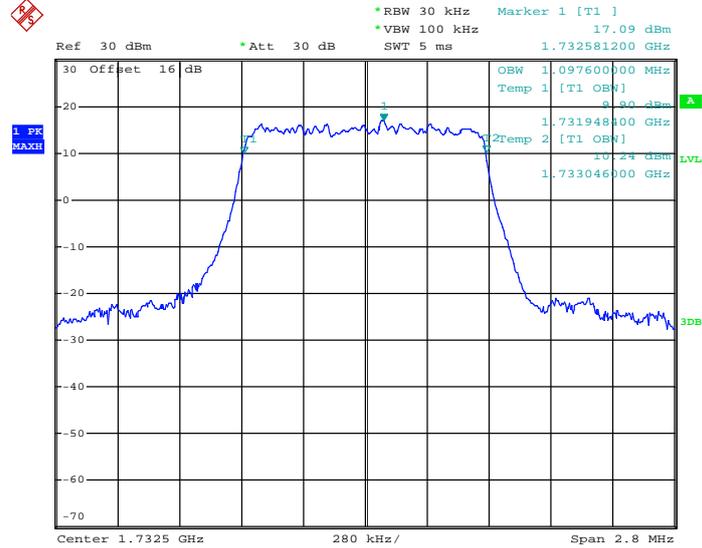


Date: 12.APR.2014 12:23:03



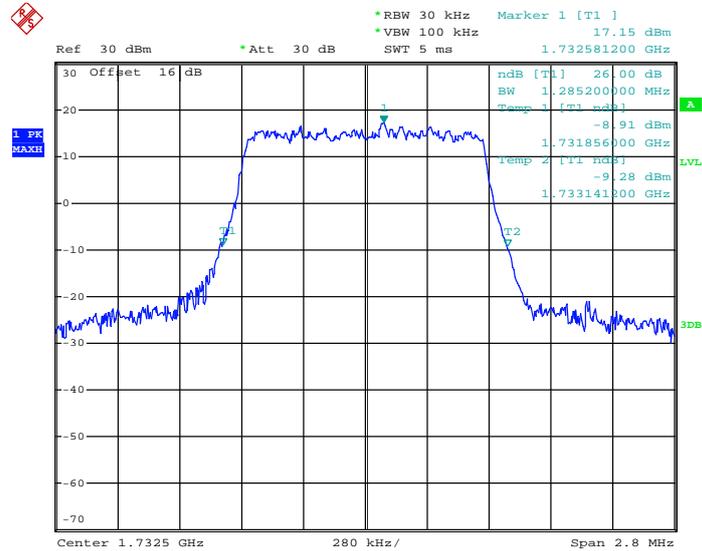
Band :	LTE Band 4	BW / Mod. :	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:20:19

26dB Bandwidth Plot on Channel 20175

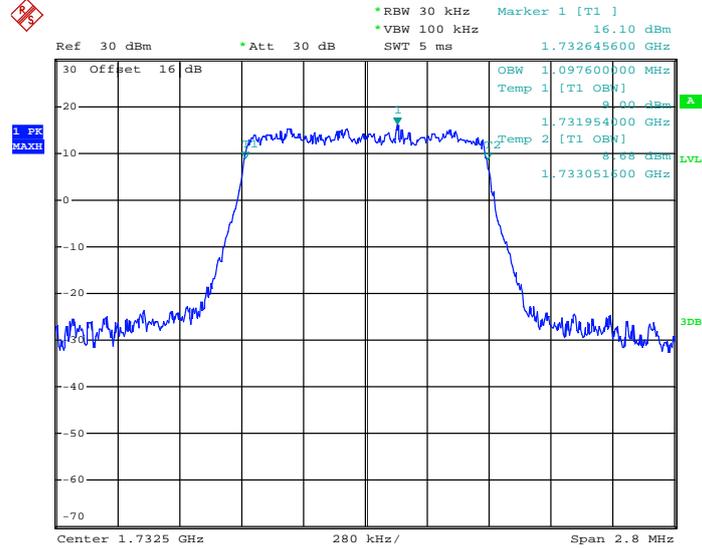


Date: 17.APR.2014 19:20:49



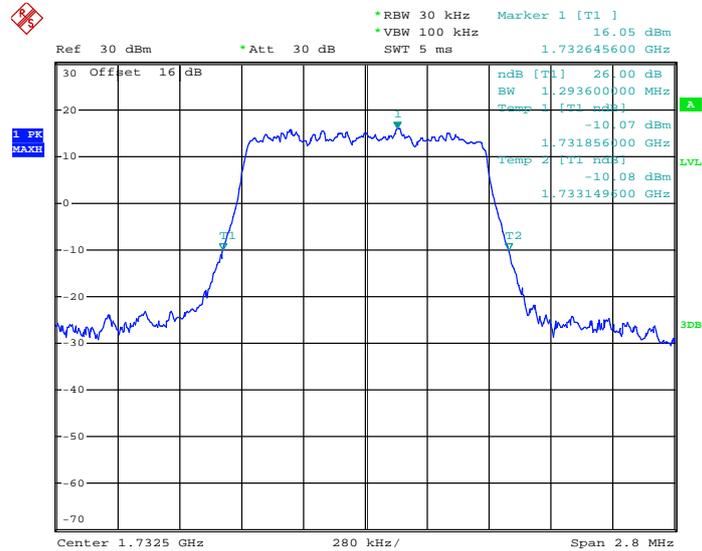
<b>Band :</b>	LTE Band 4	<b>BW / Mod. :</b>	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:21:13

26dB Bandwidth Plot on Channel 20175

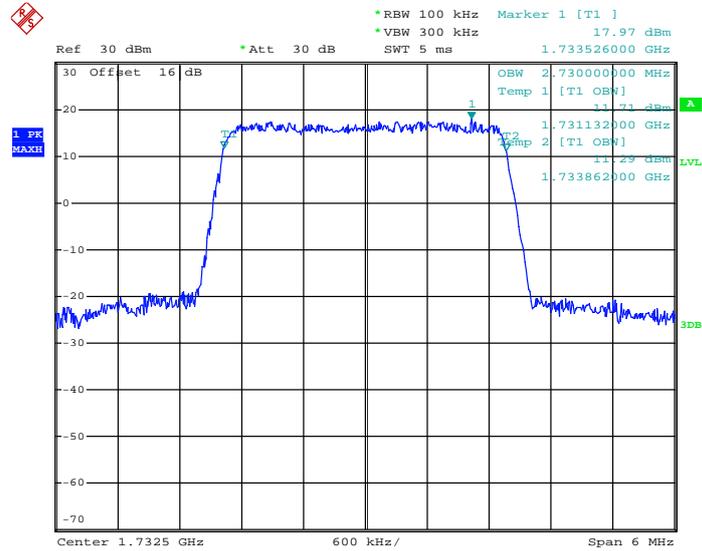


Date: 17.APR.2014 19:22:13



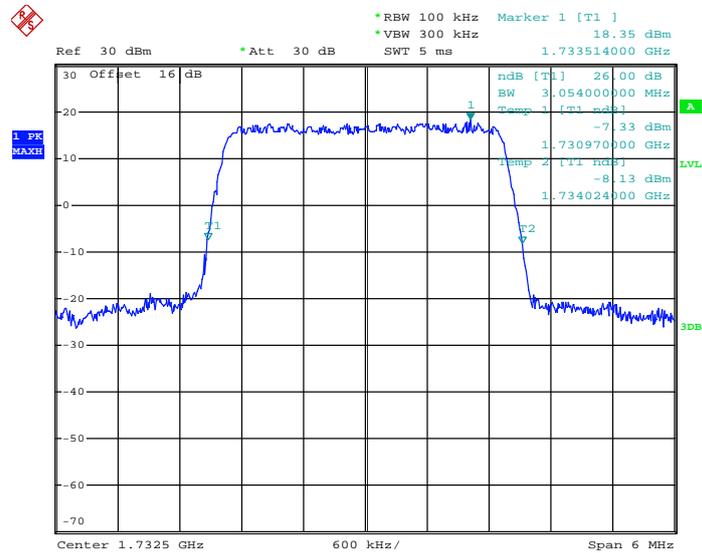
<b>Band :</b>	LTE Band 4	<b>BW / Mod. :</b>	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:23:04

26dB Bandwidth Plot on Channel 20175

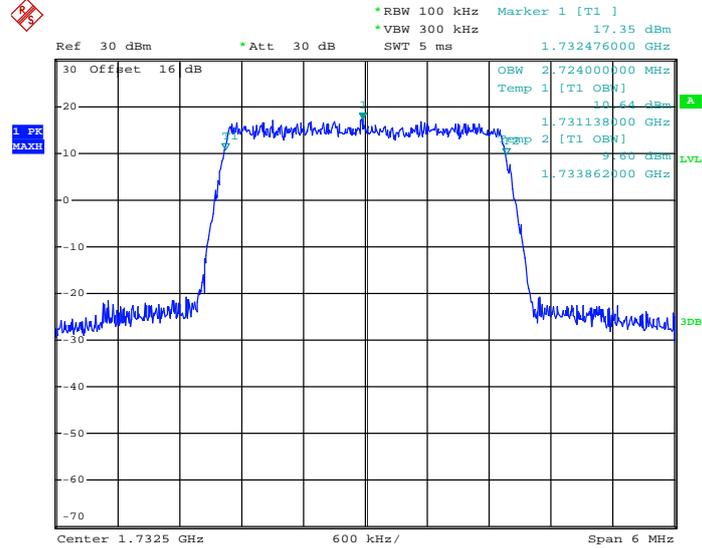


Date: 17.APR.2014 19:23:40



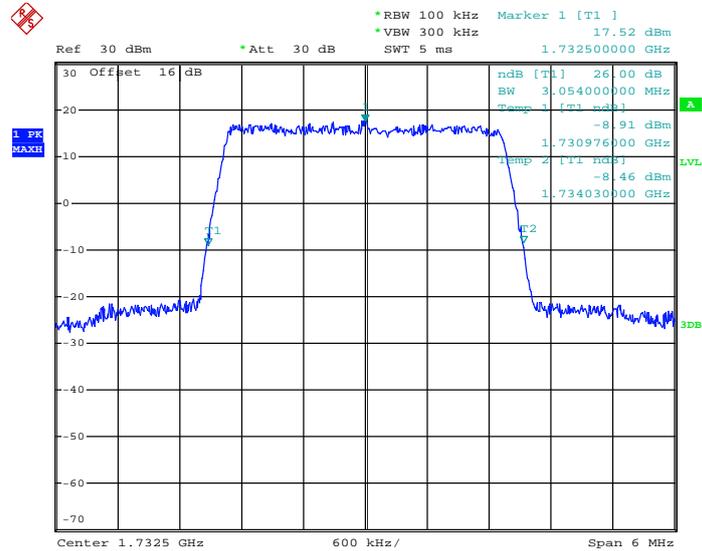
<b>Band :</b>	LTE Band 4	<b>BW / Mod. :</b>	3MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:22:37

26dB Bandwidth Plot on Channel 20175

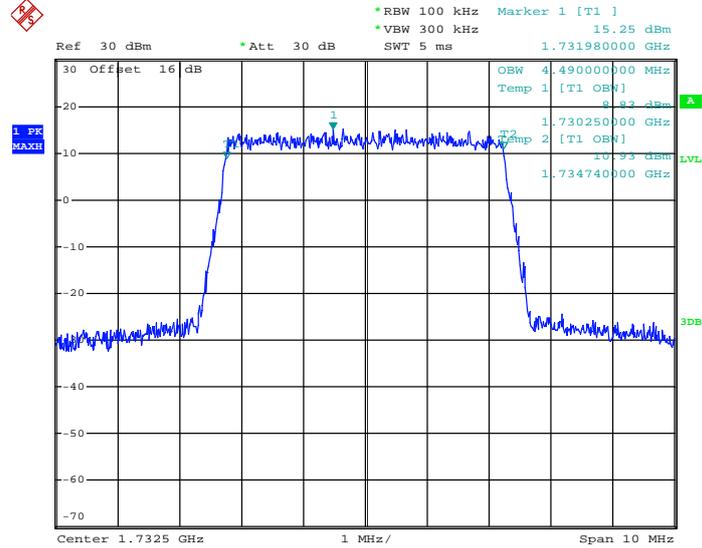






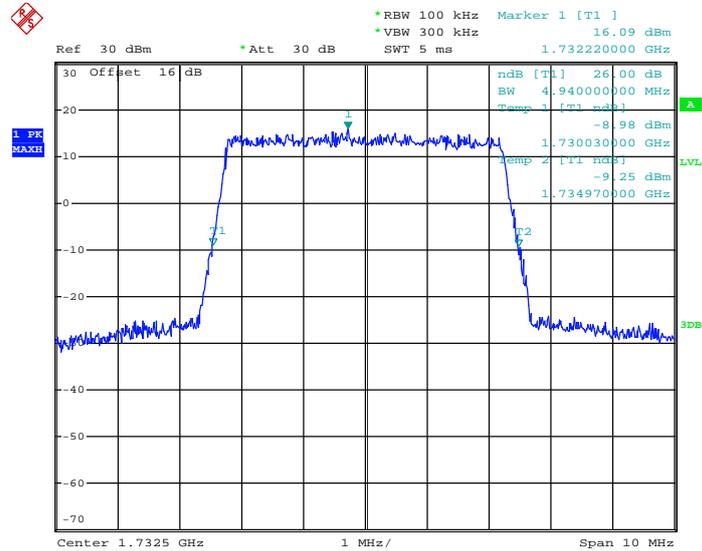
Band :	LTE Band 4	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:25:17

26dB Bandwidth Plot on Channel 20175

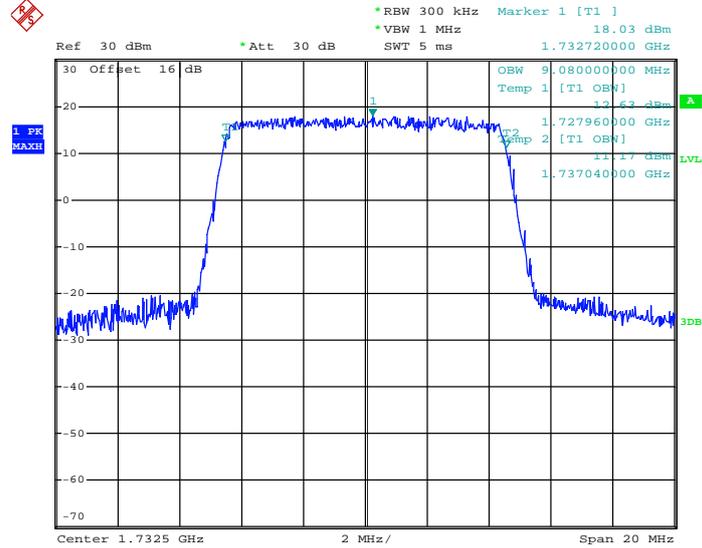


Date: 17.APR.2014 19:29:30



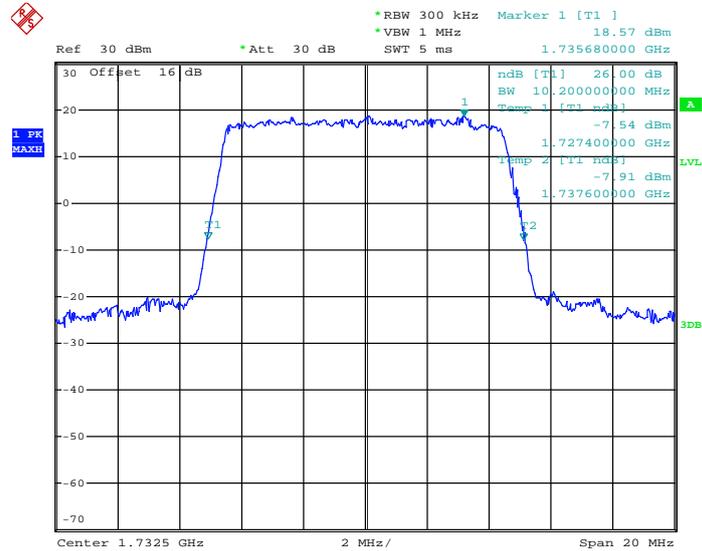
Band :	LTE Band 4	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:30:41

26dB Bandwidth Plot on Channel 20175

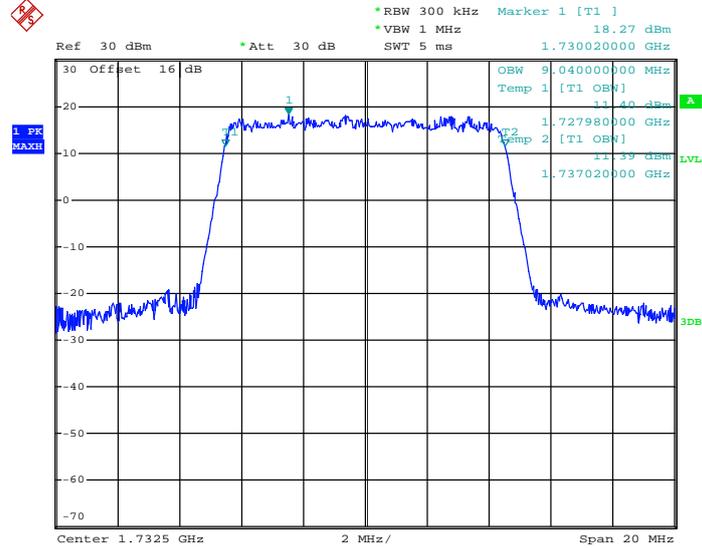


Date: 17.APR.2014 19:31:40



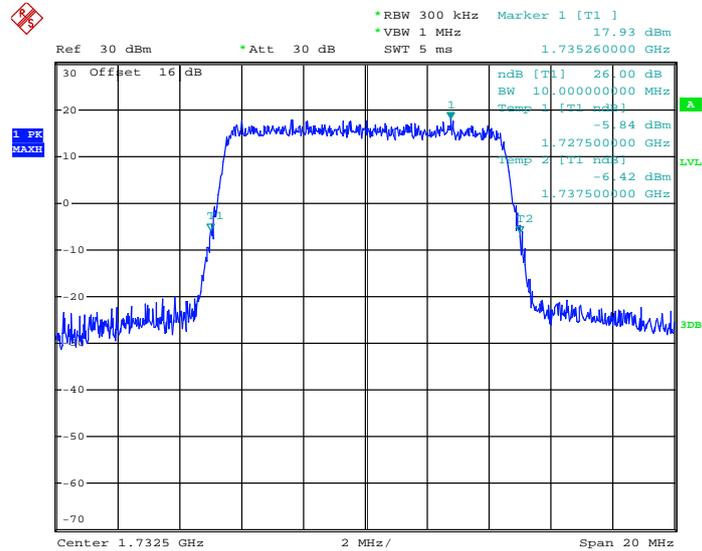
Band :	LTE Band 4	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:30:19

26dB Bandwidth Plot on Channel 20175



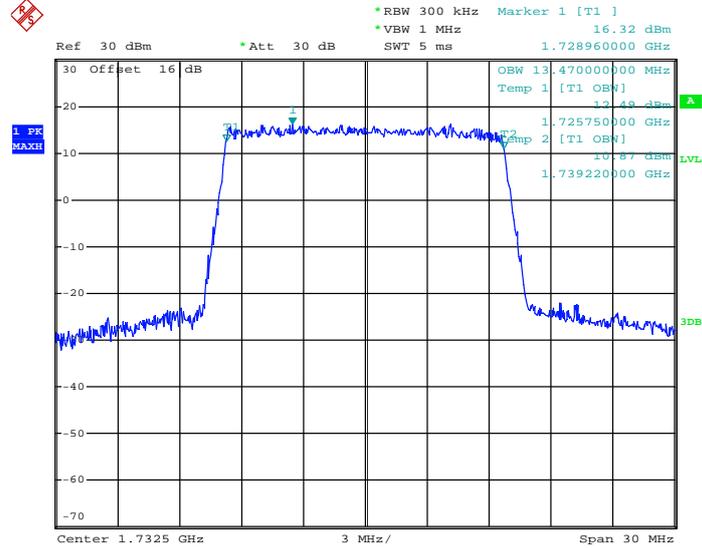
Date: 17.APR.2014 19:31:58





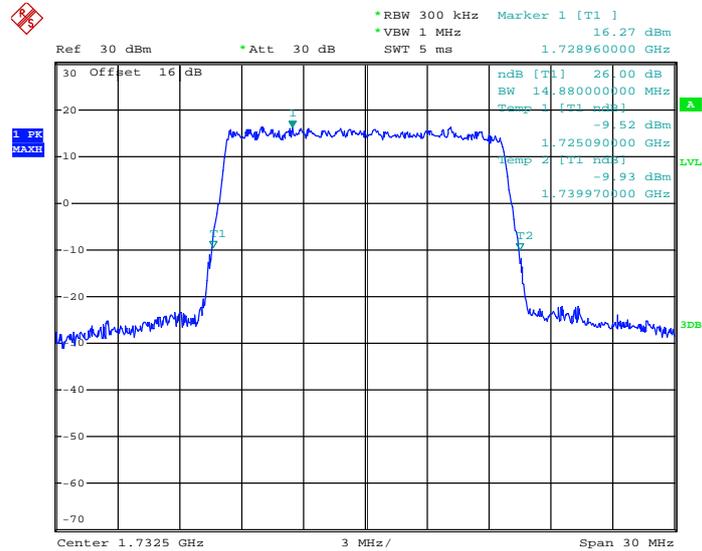
Band :	LTE Band 4	BW / Mod. :	15MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:32:44

26dB Bandwidth Plot on Channel 20175

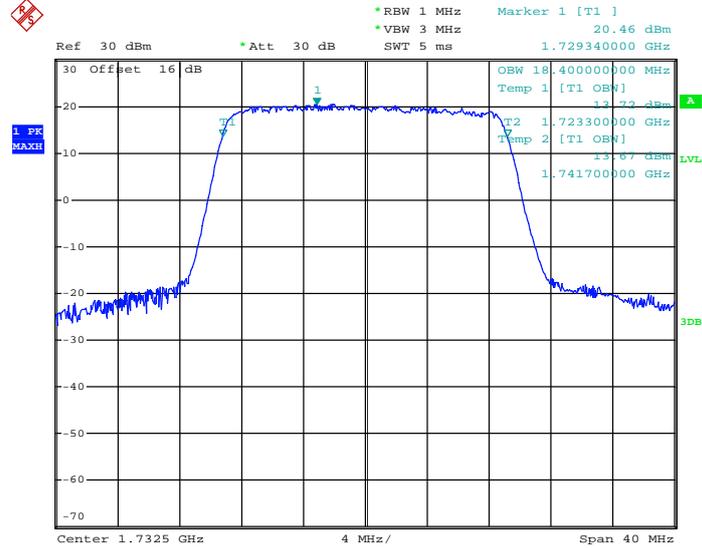


Date: 17.APR.2014 19:33:47



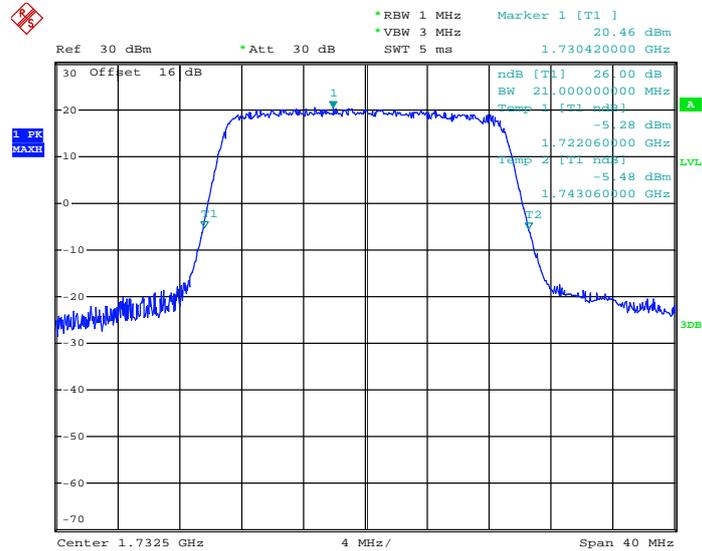
Band :	LTE Band 4	BW / Mod. :	20MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:39:27

26dB Bandwidth Plot on Channel 20175

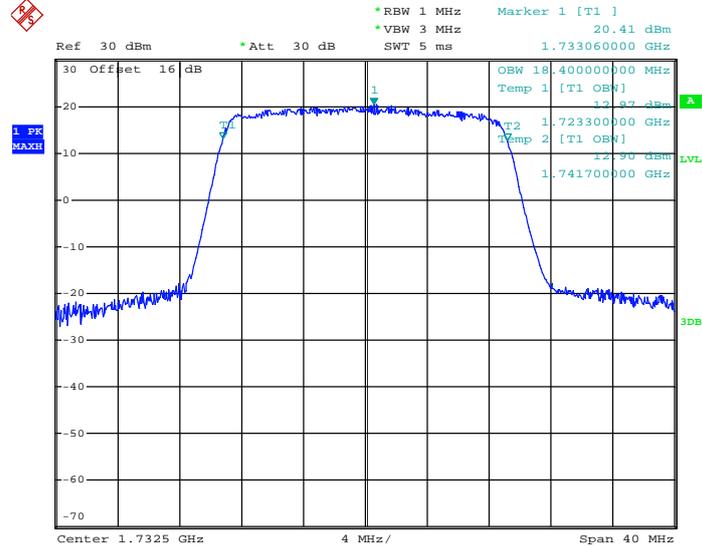


Date: 17.APR.2014 19:41:47



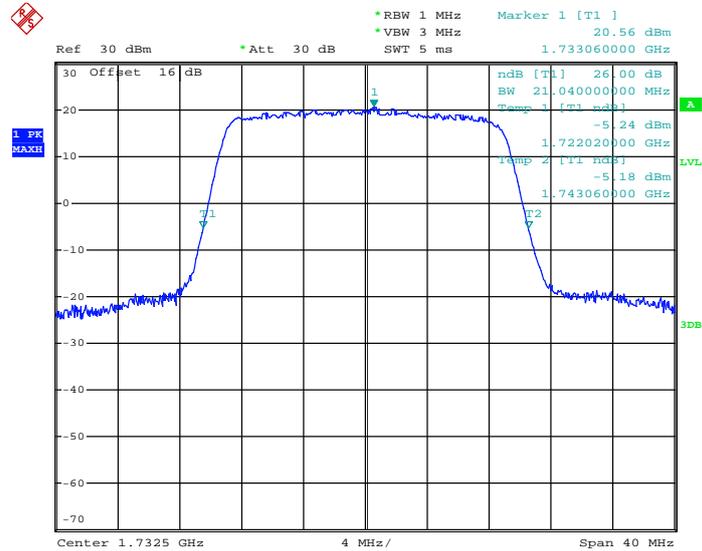
<b>Band :</b>	LTE Band 4	<b>BW / Mod. :</b>	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20175



Date: 17.APR.2014 19:40:11

26dB Bandwidth Plot on Channel 20175

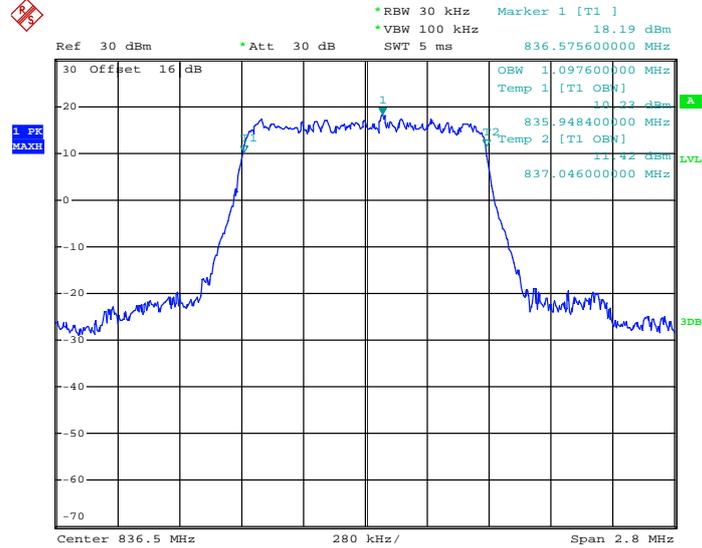


Date: 17.APR.2014 19:41:14



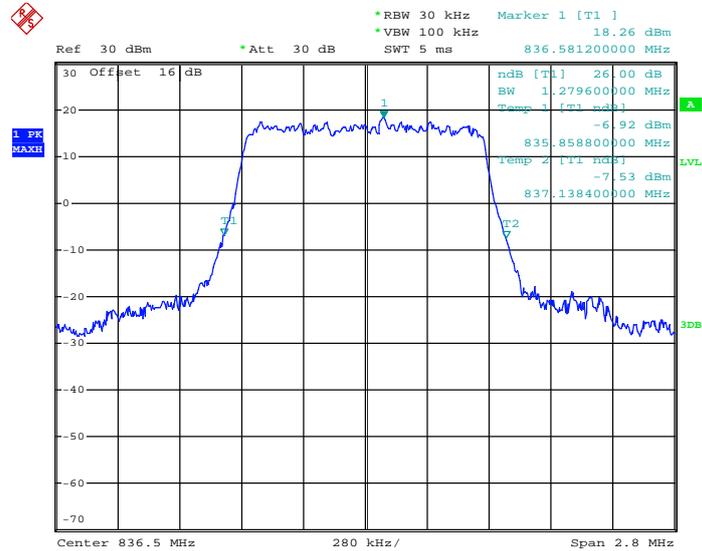
<b>Band :</b>	LTE Band 5	<b>BW / Mod. :</b>	1.4MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:50:27

26dB Bandwidth Plot on Channel 20525

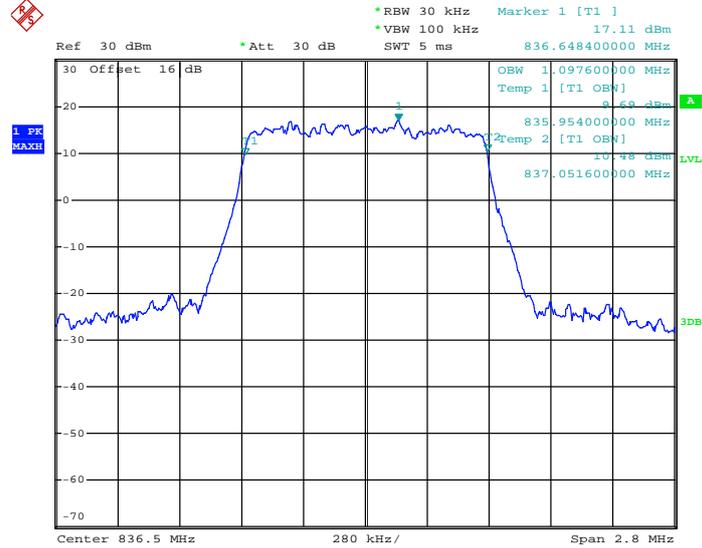


Date: 17.APR.2014 19:52:43



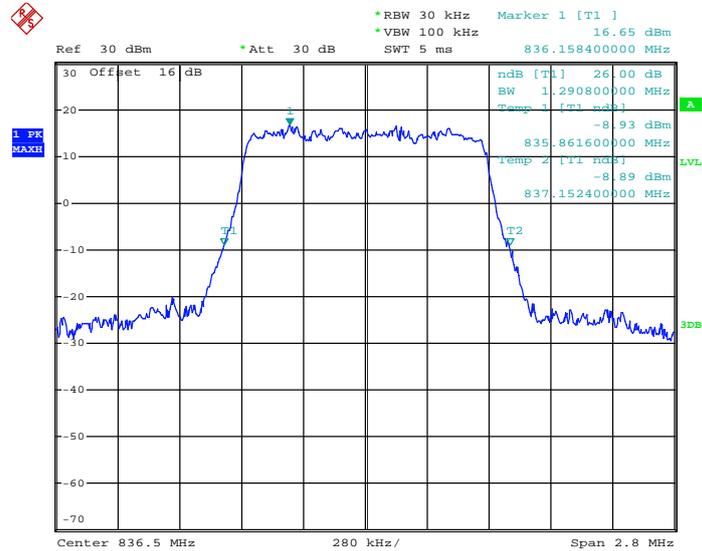
<b>Band :</b>	LTE Band 5	<b>BW / Mod. :</b>	1.4MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:51:32

26dB Bandwidth Plot on Channel 20525

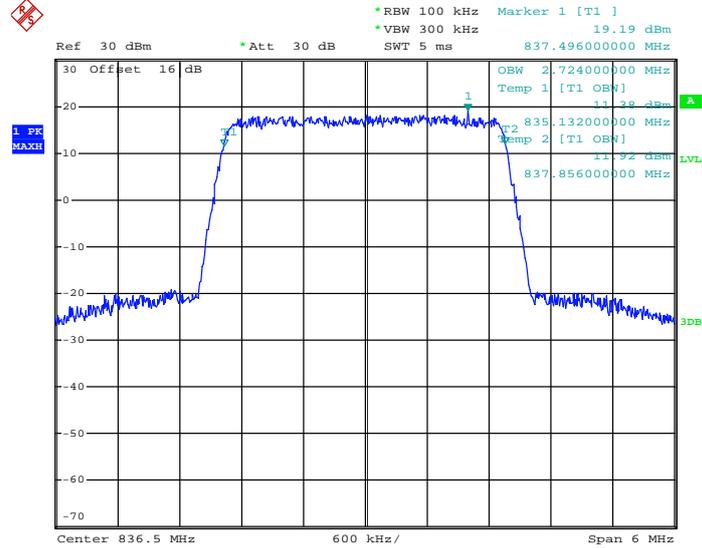


Date: 17.APR.2014 19:52:04



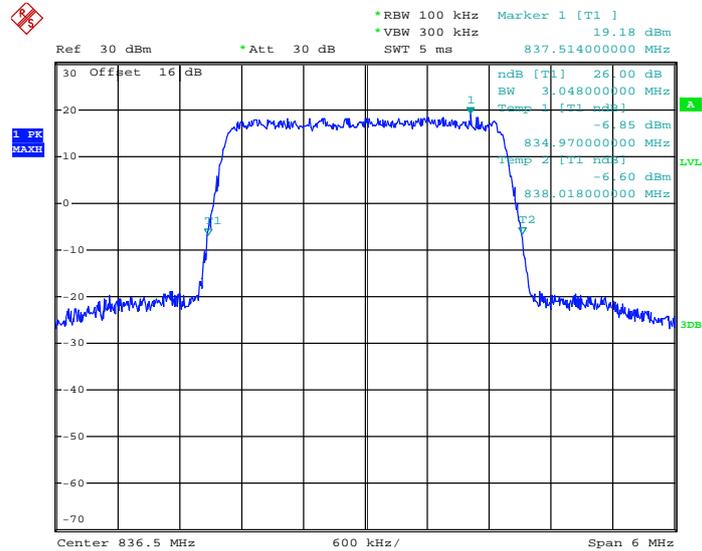
<b>Band :</b>	LTE Band 5	<b>BW / Mod. :</b>	3MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:53:20

26dB Bandwidth Plot on Channel 20525

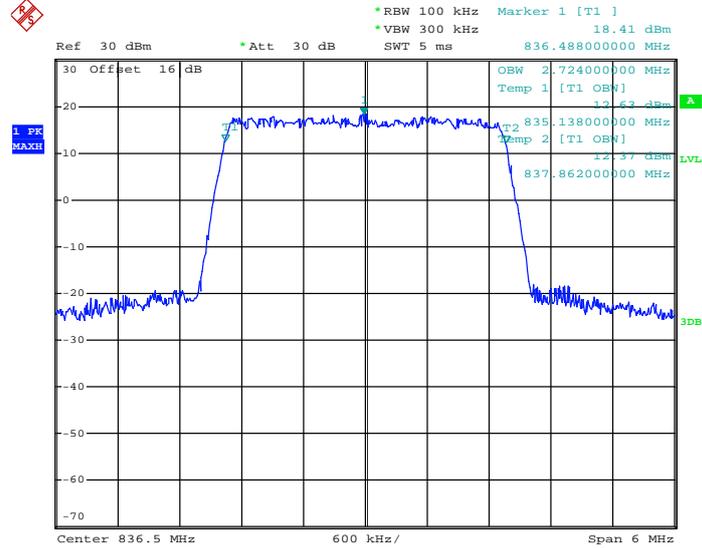


Date: 17.APR.2014 19:55:11



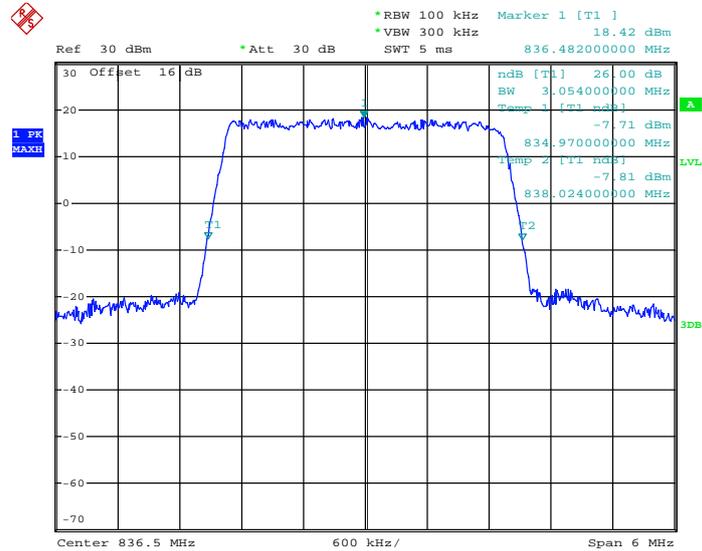
<b>Band :</b>	LTE Band 5	<b>BW / Mod. :</b>	3MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:53:58

26dB Bandwidth Plot on Channel 20525

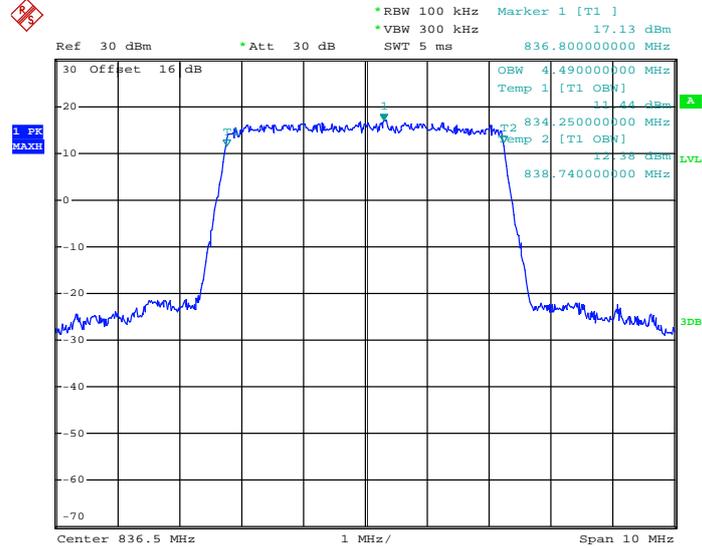


Date: 17.APR.2014 19:54:45



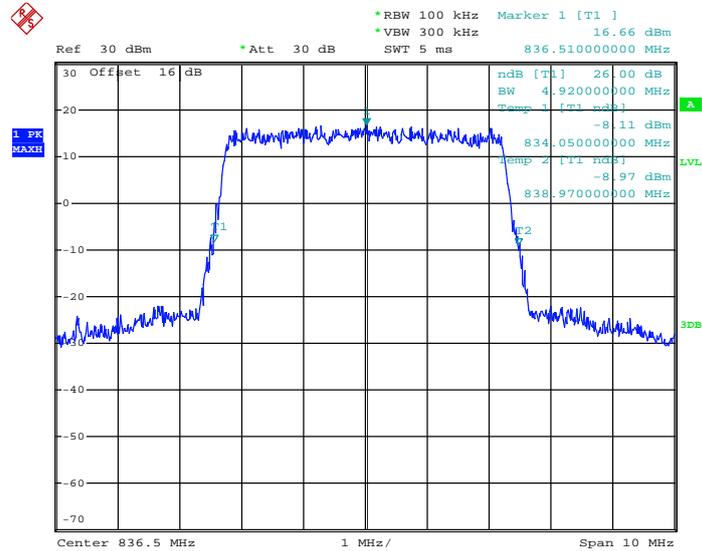
<b>Band :</b>	LTE Band 5	<b>BW / Mod. :</b>	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:56:11

26dB Bandwidth Plot on Channel 20525

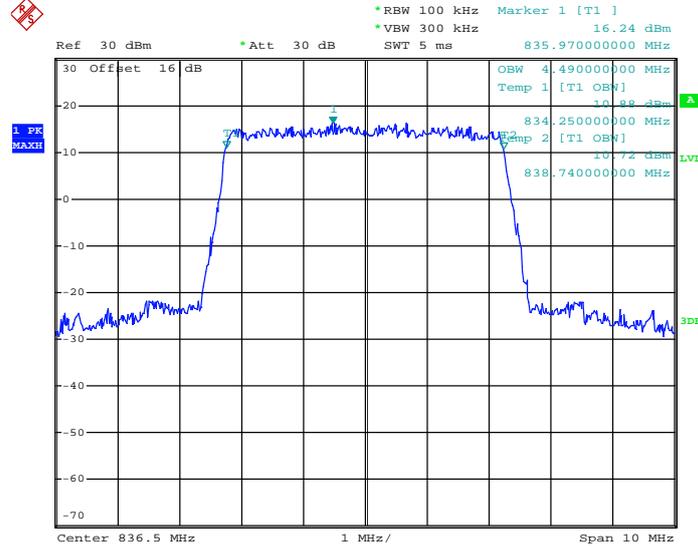


Date: 17.APR.2014 19:57:19



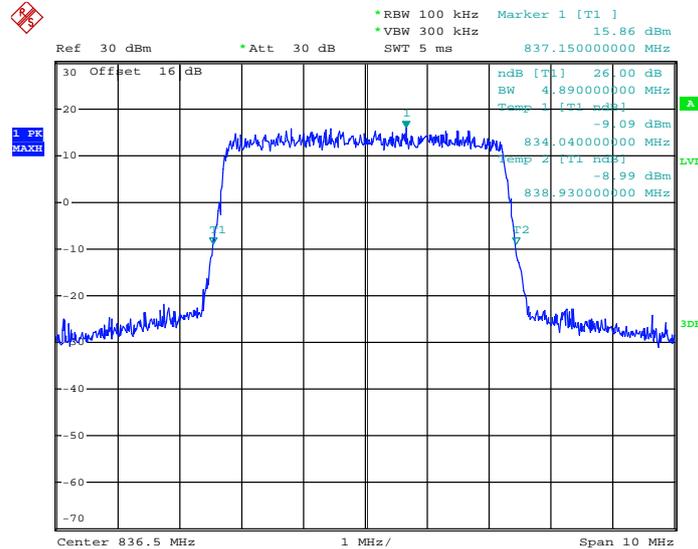
Band :	LTE Band 5	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:56:48

26dB Bandwidth Plot on Channel 20525

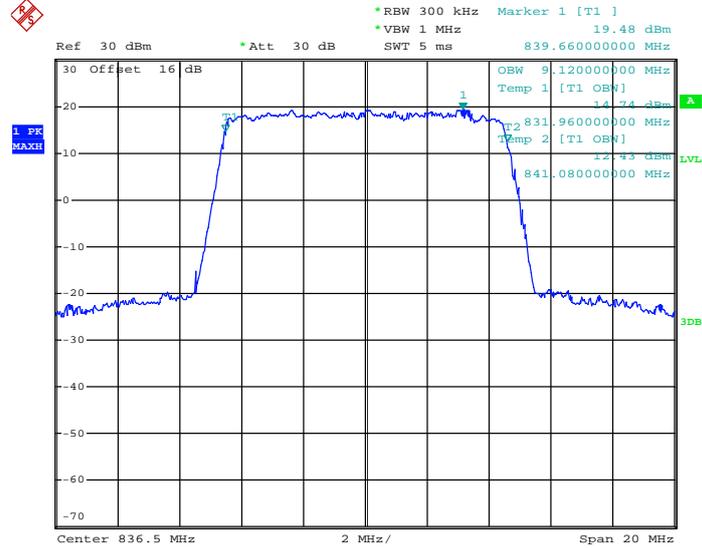


Date: 17.APR.2014 19:57:02



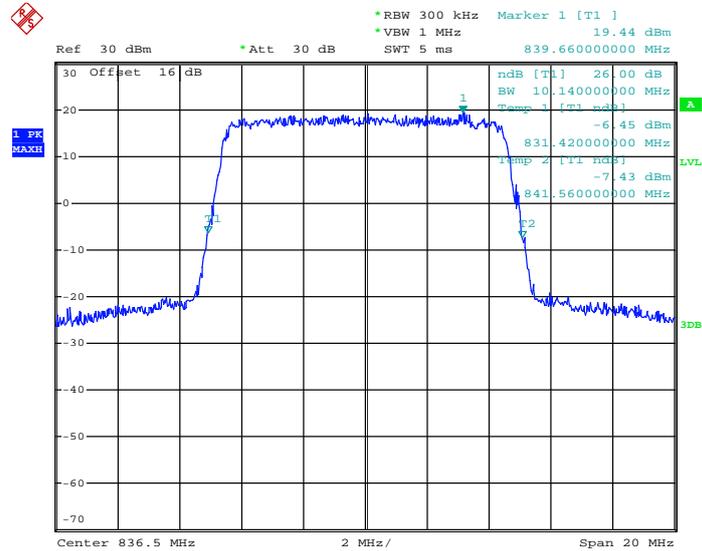
<b>Band :</b>	LTE Band 5	<b>BW / Mod. :</b>	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:58:52

26dB Bandwidth Plot on Channel 20525

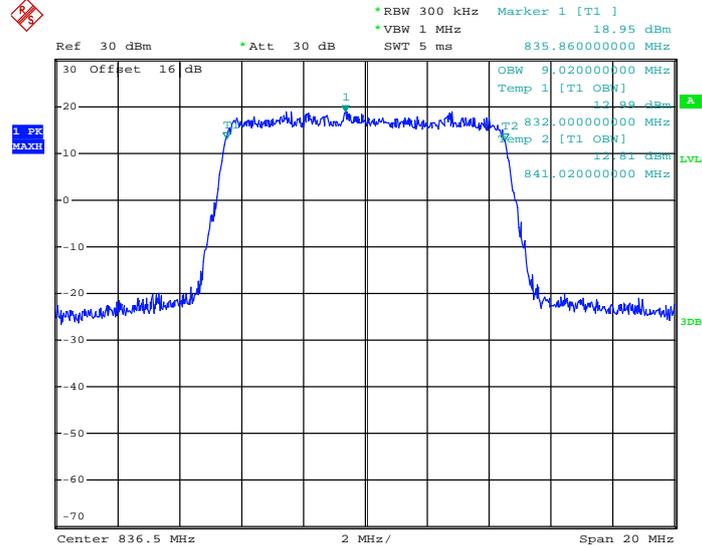


Date: 17.APR.2014 20:00:00



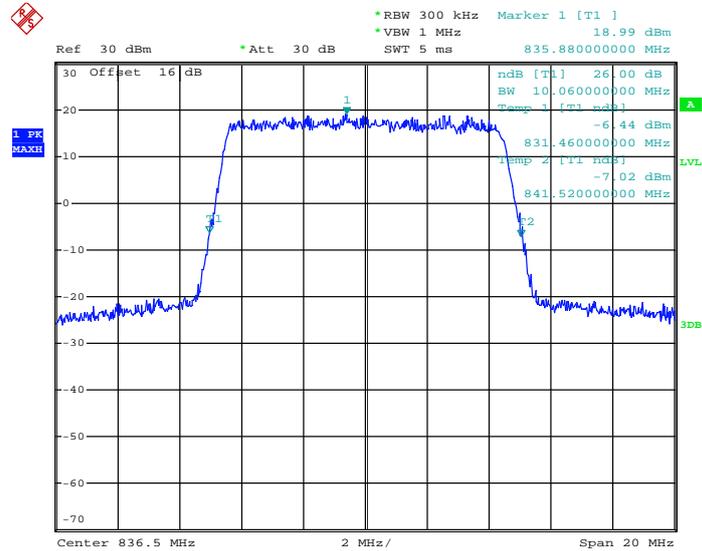
<b>Band :</b>	LTE Band 5	<b>BW / Mod. :</b>	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 20525



Date: 17.APR.2014 19:59:13

26dB Bandwidth Plot on Channel 20525

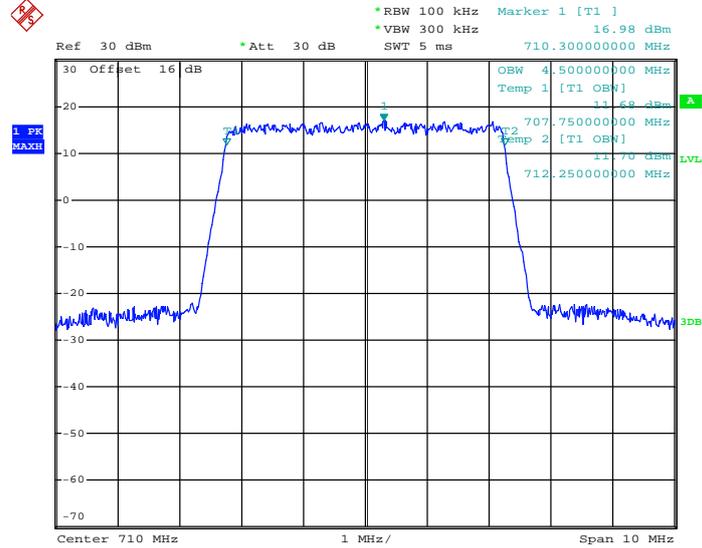


Date: 17.APR.2014 19:59:35



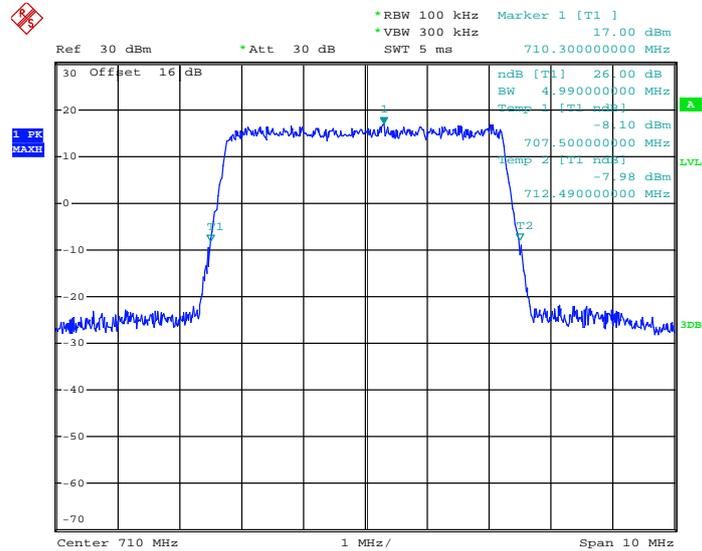
Band :	LTE Band 17	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23790



Date: 17.APR.2014 20:03:14

26dB Bandwidth Plot on Channel 23790

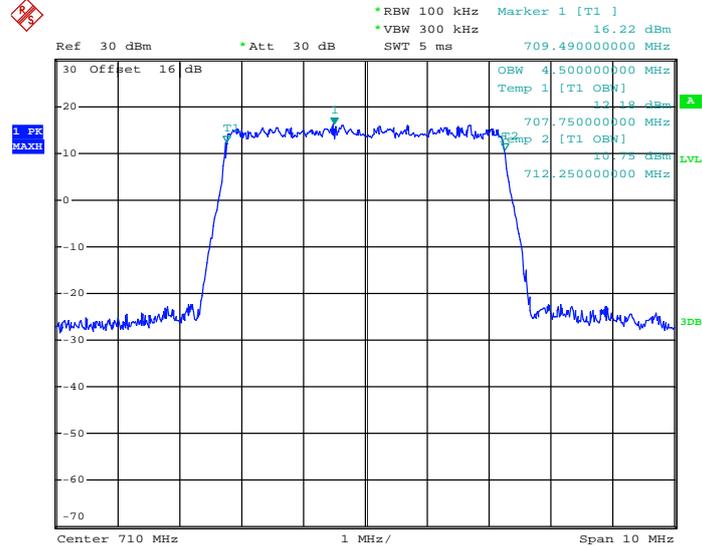


Date: 17.APR.2014 20:05:12



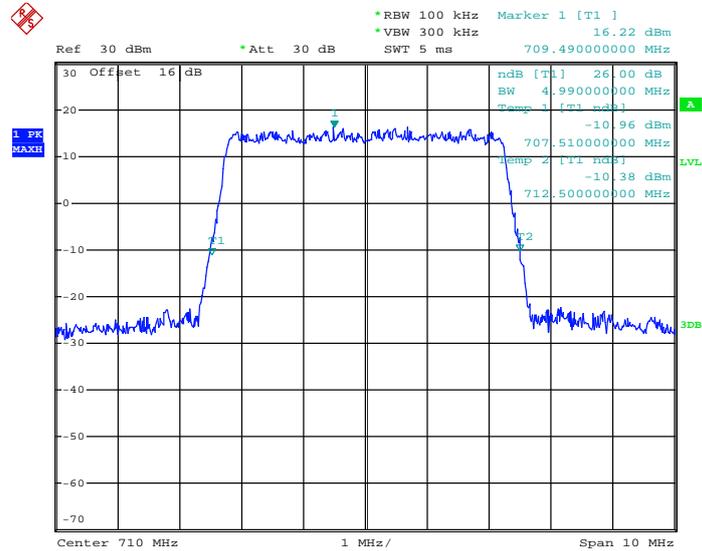
<b>Band :</b>	LTE Band 17	<b>BW / Mod. :</b>	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 23790



Date: 17.APR.2014 20:04:06

26dB Bandwidth Plot on Channel 23790

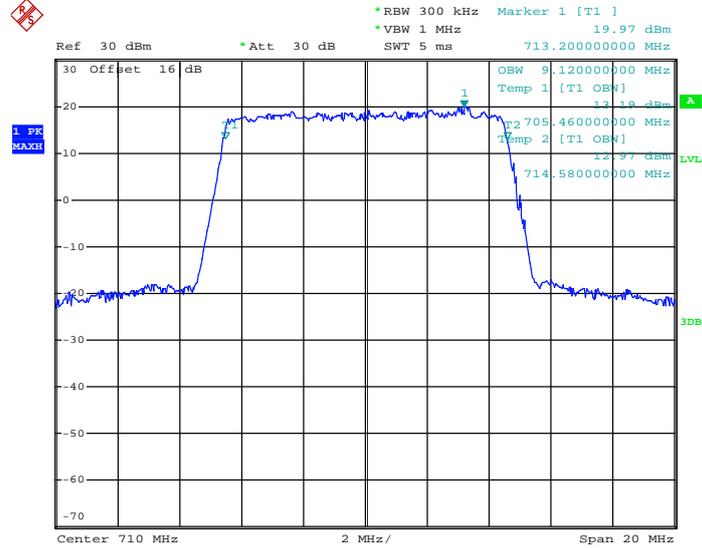


Date: 17.APR.2014 20:04:39



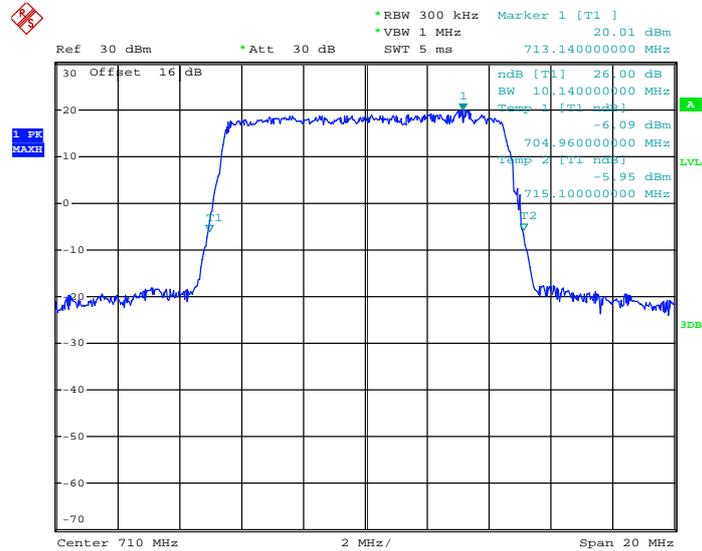
Band :	LTE Band 17	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 23790



Date: 17.APR.2014 20:06:23

26dB Bandwidth Plot on Channel 23790



Date: 17.APR.2014 20:09:34



## 3.5 Conducted Band Edge Measurement

### 3.5.1 Description of Conducted Band Edge Measurement

24.238 (a) for Band 2

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is  $43 + 10\log_{10}(P[\text{Watts}])$  dB below the transmitter power  $P(\text{Watts})$  in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (g) for Band 4

For operations in the 1710 – 1755 MHz band, the FCC limit is  $43 + 10\log_{10}(P[\text{Watts}])$  dB below the transmitter power  $P(\text{Watts})$  in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

22.917(a) for Band 5

For operations in the 824 – 849 MHz band, the FCC limit is  $43 + 10\log_{10}(P[\text{Watts}])$  dB below the transmitter power  $P(\text{Watts})$  in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (f) for Band 17

For operations in the 698 -746 MHz band, the FCC limit is  $43 + 10\log_{10}(P[\text{Watts}])$  dB below the transmitter power  $P(\text{Watts})$  in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

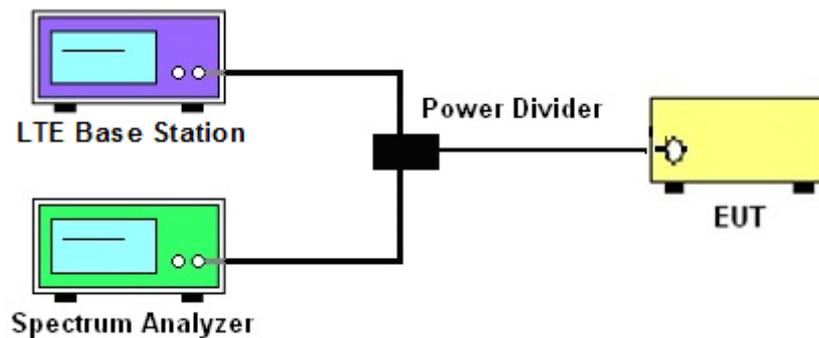
### 3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.5.3 Test Procedures

1. The EUT was connected to spectrum analyzer and LTE base station via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Set RBW  $\geq 1\%$  EBW in the 1MHz band immediately outside and adjacent to the band edge.
3. Set spectrum analyzer with RMS detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5. The limit line is derived from  $43 + 10\log(P)$ dB below the transmitter power P(Watts)  
 $= P(W) - [43 + 10\log(P)]$  (dB)  
 $= [30 + 10\log(P)]$  (dBm) -  $[43 + 10\log(P)]$  (dB)  
 $= -13$ dBm.

### 3.5.4 Test Setup

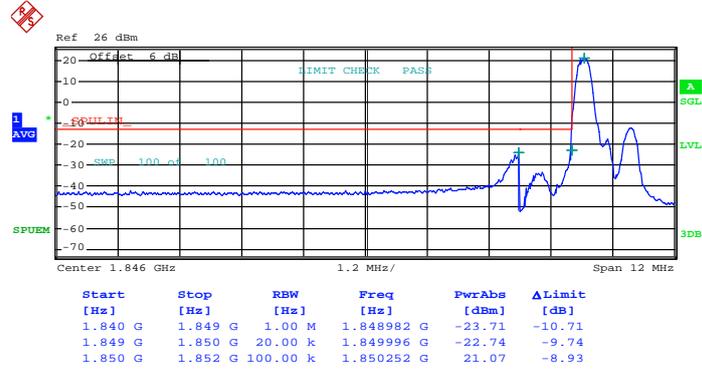




### 3.5.5 Test Result (Plots) of Conducted Band Edge

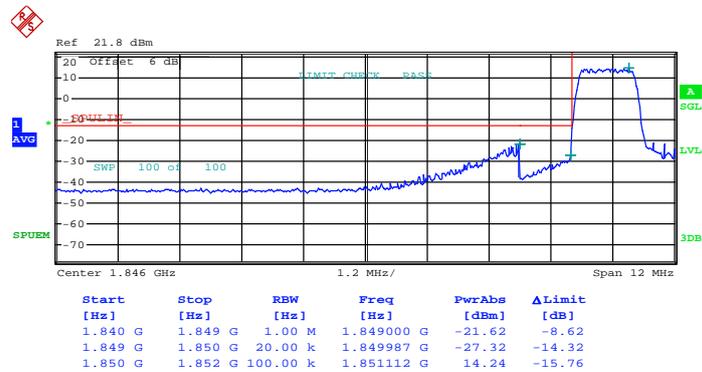
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	1.4MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 16.MAY.2014 10:43:43

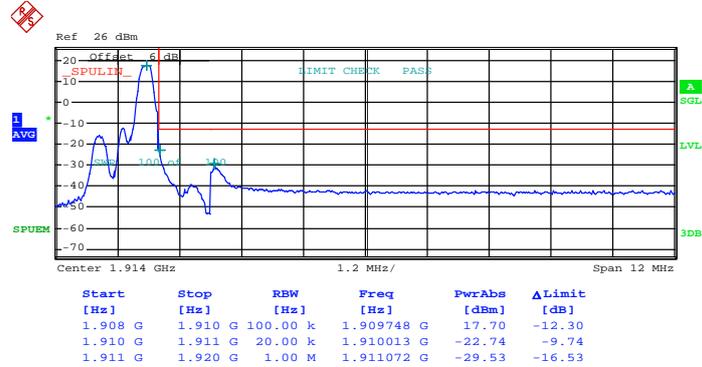
Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 12.APR.2014 14:49:39

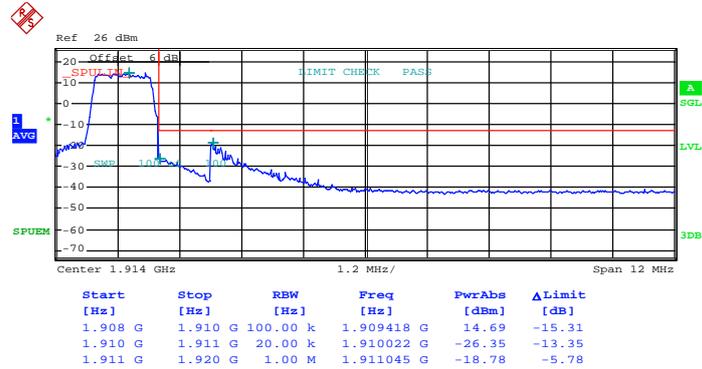


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5



Date: 12.APR.2014 14:52:11

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

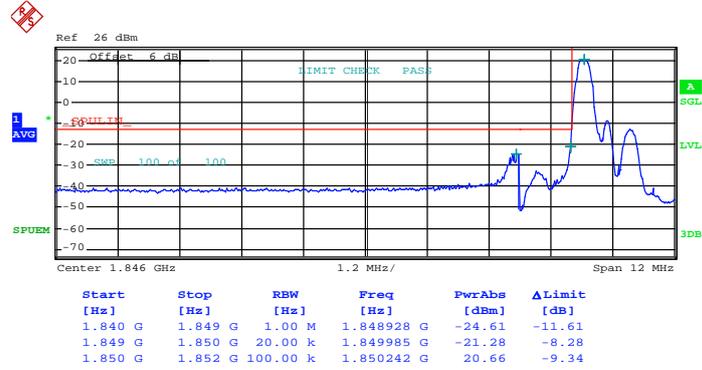


Date: 12.APR.2014 15:14:58



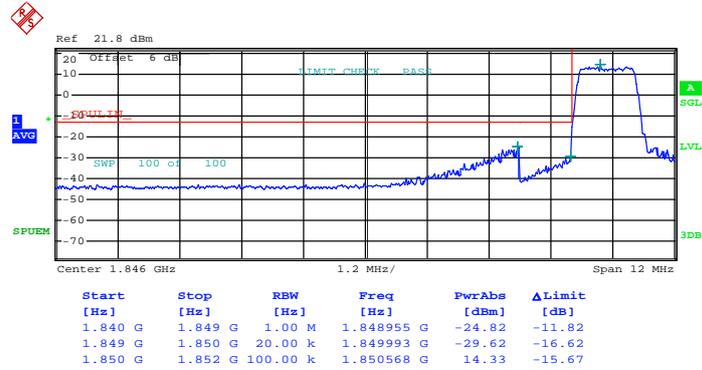
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	1.4MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 12.APR.2014 14:40:36

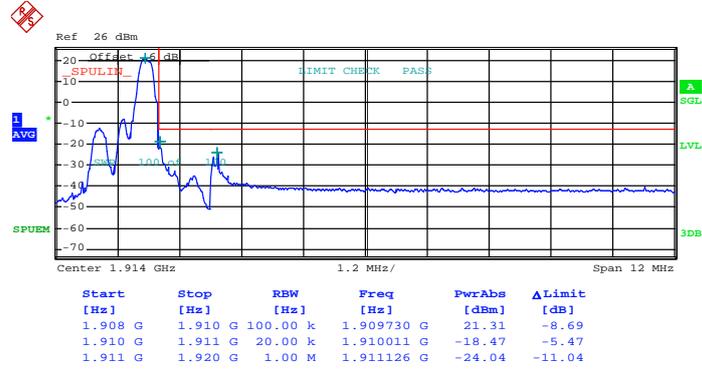
Lower Band Edge Plot for 16QAM -RB Size 6, RB Offset 0



Date: 12.APR.2014 14:42:30

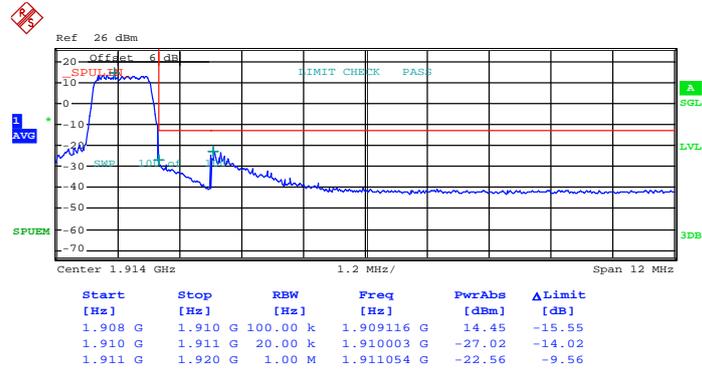


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 5



Date: 12.APR.2014 14:54:34

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

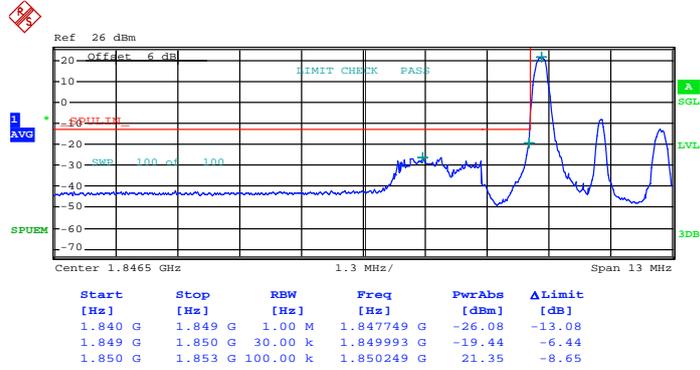


Date: 12.APR.2014 15:01:26



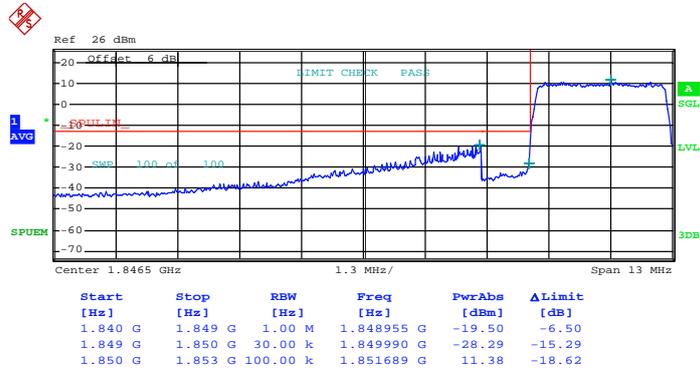
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	3MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 12.APR.2014 14:16:10

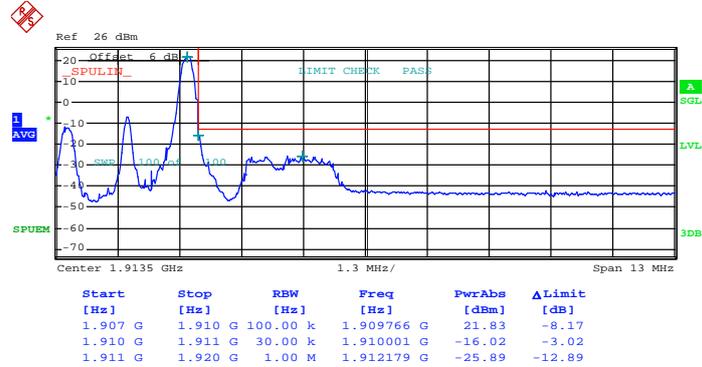
Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0



Date: 12.APR.2014 14:18:30

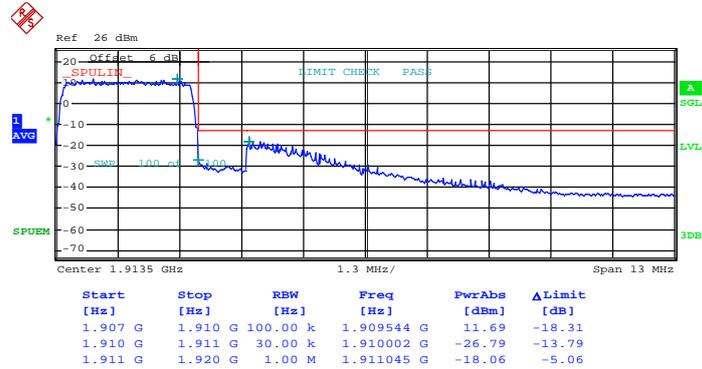


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14



Date: 12.APR.2014 14:25:34

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

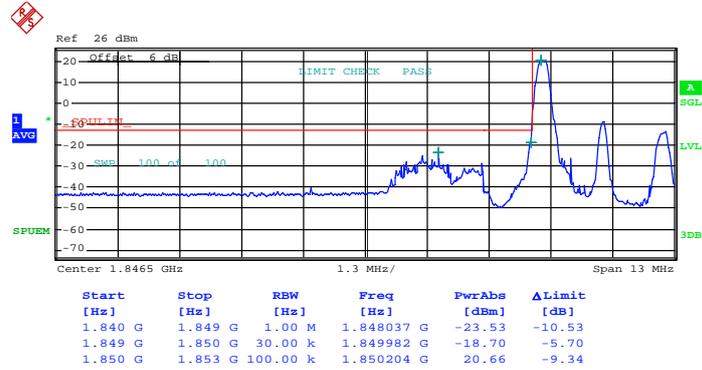


Date: 12.APR.2014 14:27:13



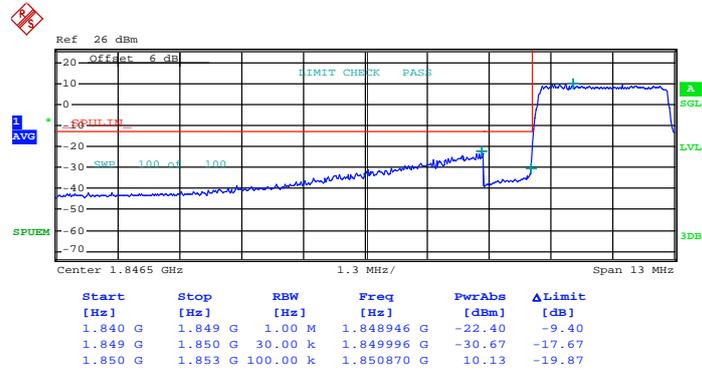
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	3MHz / 16QAM
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**Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0**



Date: 12.APR.2014 14:12:22

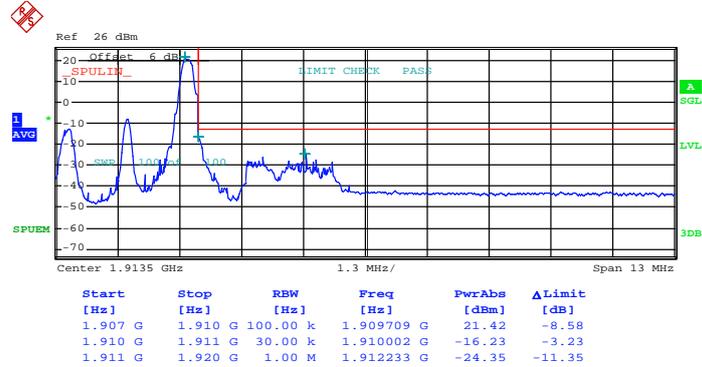
**Lower Band Edge Plot for 16QAM -RB Size 15, RB Offset 0**



Date: 12.APR.2014 14:21:35

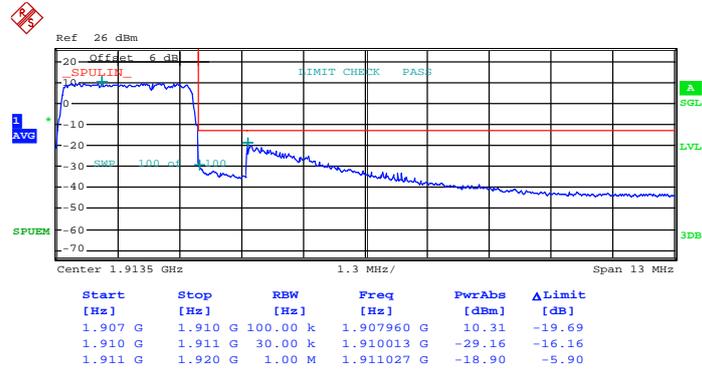


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 14



Date: 12.APR.2014 14:23:27

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

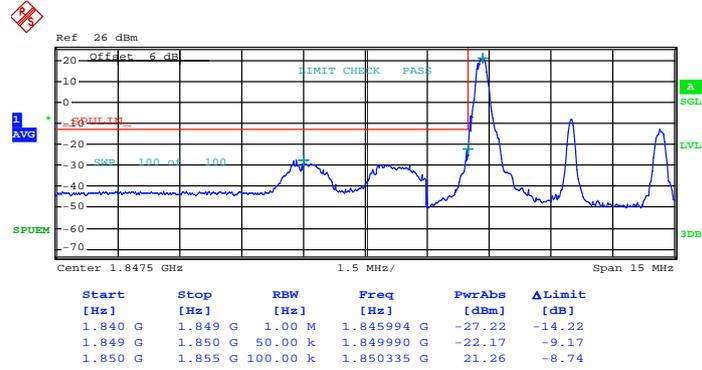


Date: 12.APR.2014 14:28:52



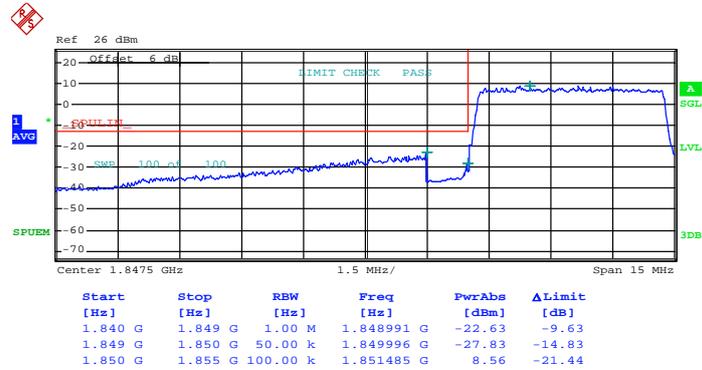
Band :	LTE Band 2	Band Width :	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 12.APR.2014 13:53:20

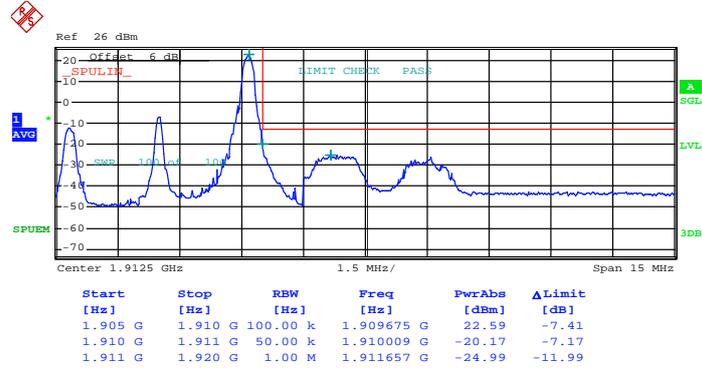
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 12.APR.2014 13:59:18

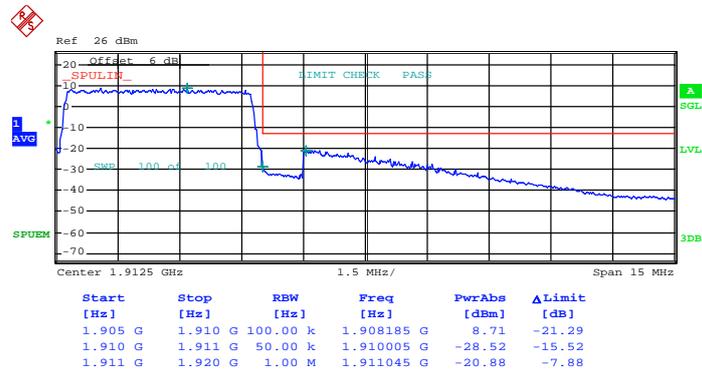


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 12.APR.2014 14:01:17

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

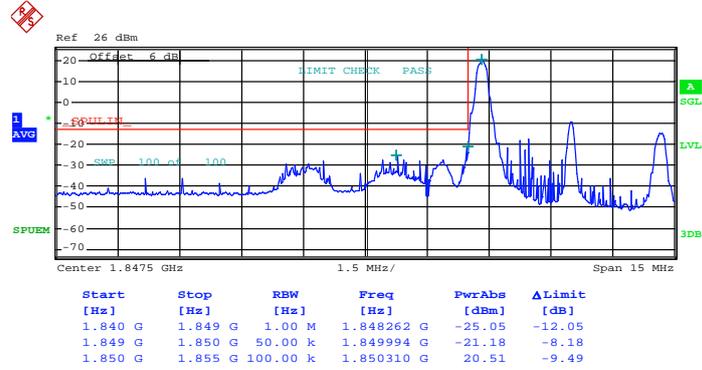


Date: 12.APR.2014 14:07:25



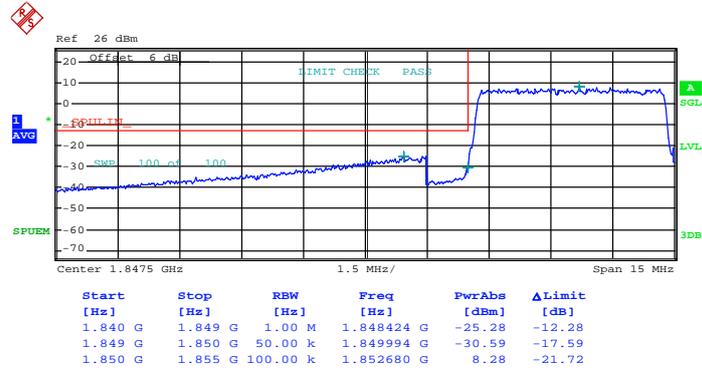
Band :	LTE Band 2	Band Width :	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 12.APR.2014 13:54:59

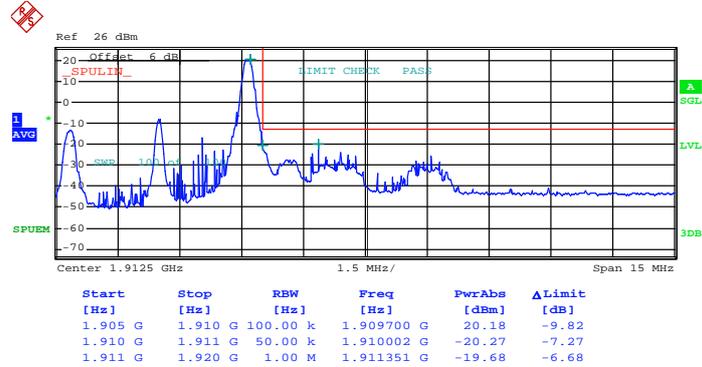
Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



Date: 12.APR.2014 13:57:40

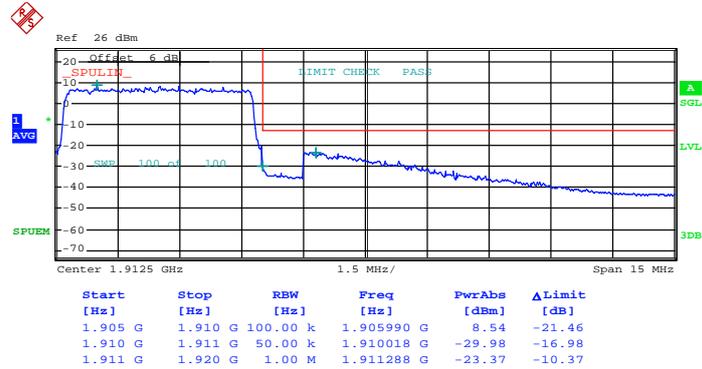


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24



Date: 12.APR.2014 14:03:52

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

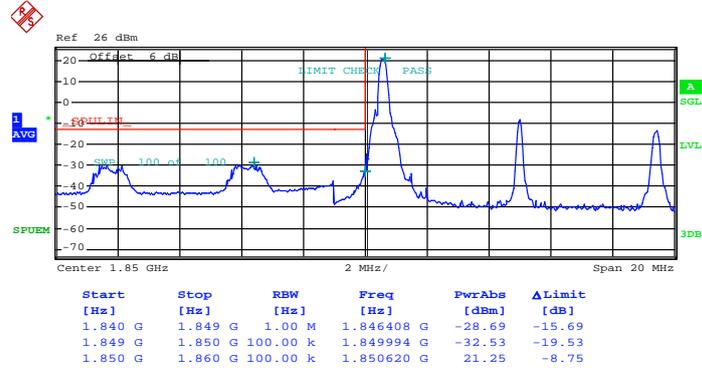


Date: 12.APR.2014 14:05:52



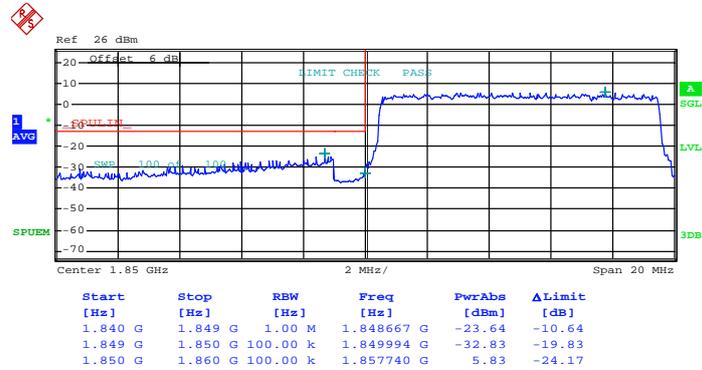
Band :	LTE Band 2	Band Width :	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 12.APR.2014 13:09:30

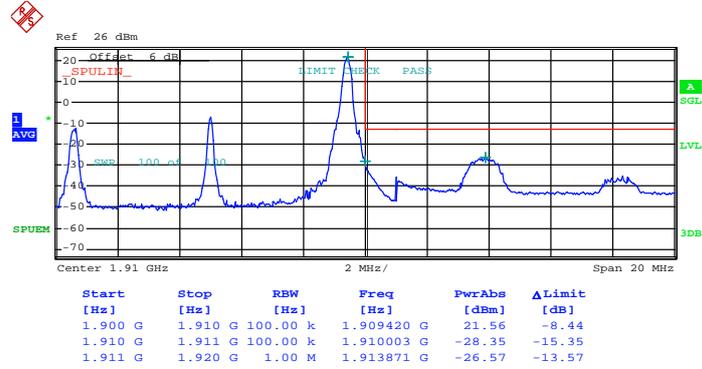
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 12.APR.2014 13:33:52

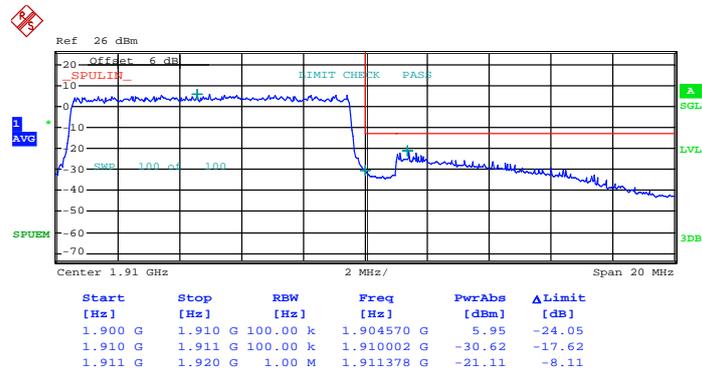


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 12.APR.2014 13:42:10

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

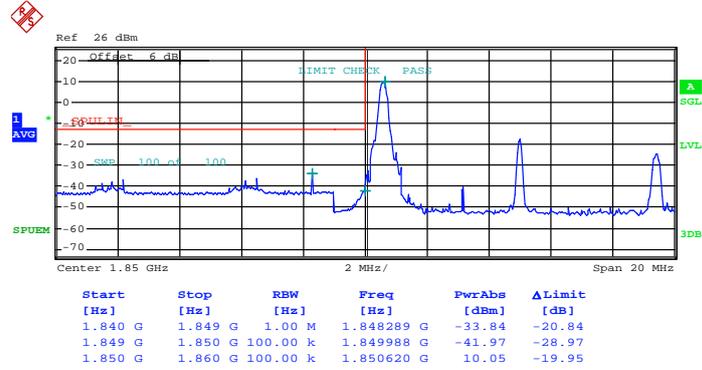


Date: 12.APR.2014 13:46:04



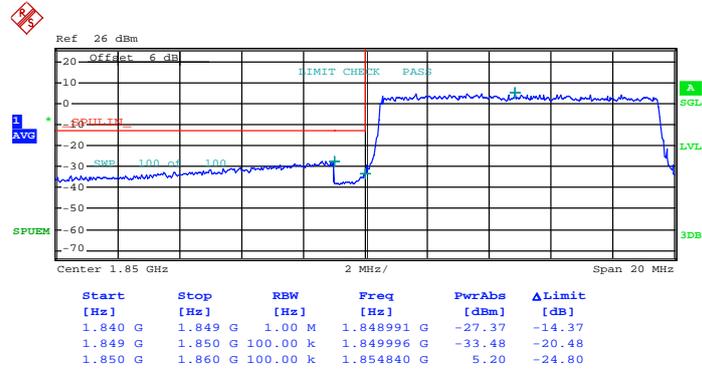
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	10MHz / 16QAM
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**Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0**



Date: 12.APR.2014 13:23:43

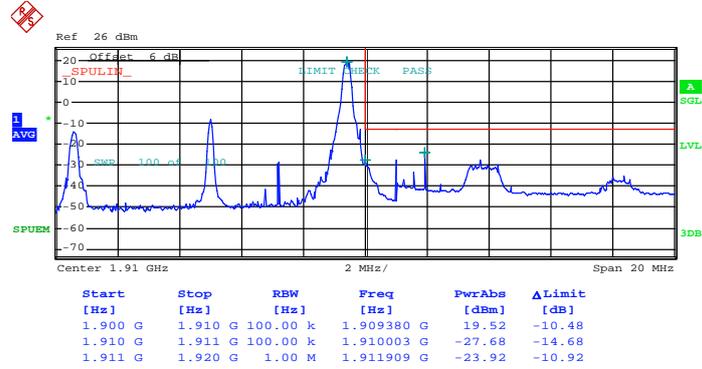
**Lower Band Edge Plot for 16QAM-RB Size 50, RB Offset 0**



Date: 12.APR.2014 13:31:19

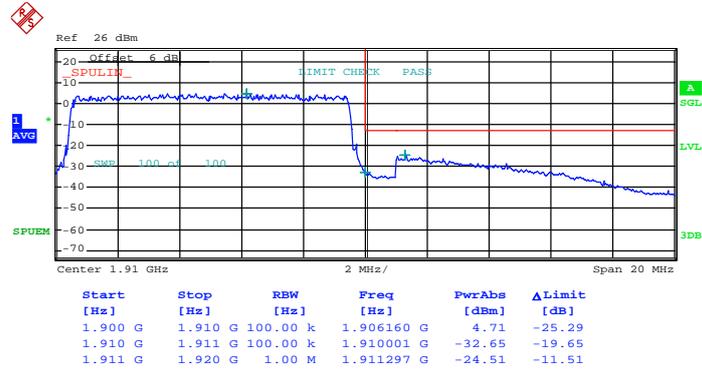


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 49



Date: 12.APR.2014 13:38:55

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

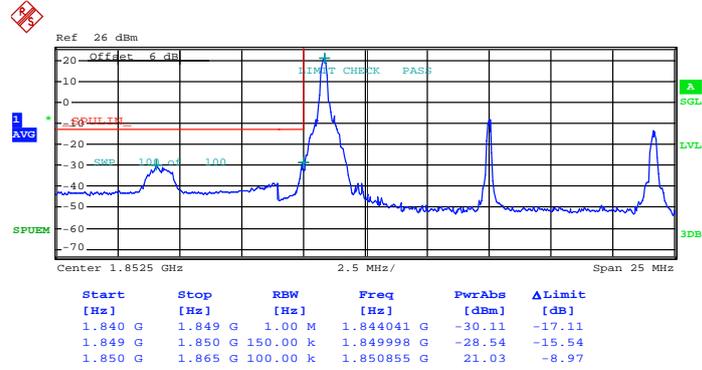


Date: 12.APR.2014 13:49:26



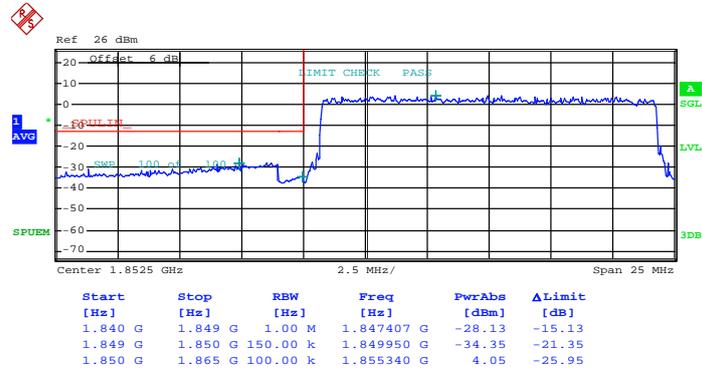
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	15MHz / QPSK
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**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**



Date: 12.APR.2014 12:52:20

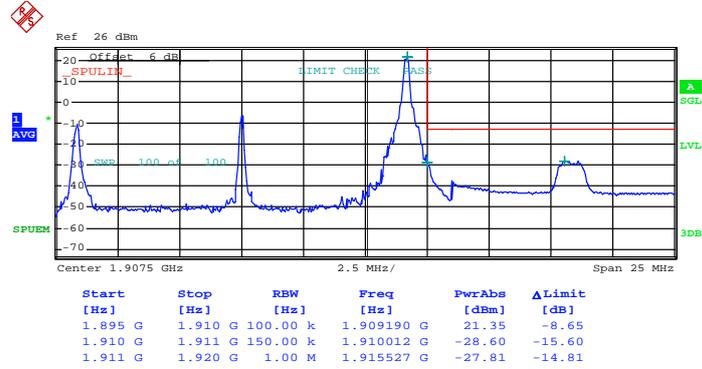
**Lower Band Edge Plot for QPSK-RB Size 75, RB Offset 0**



Date: 12.APR.2014 12:58:38

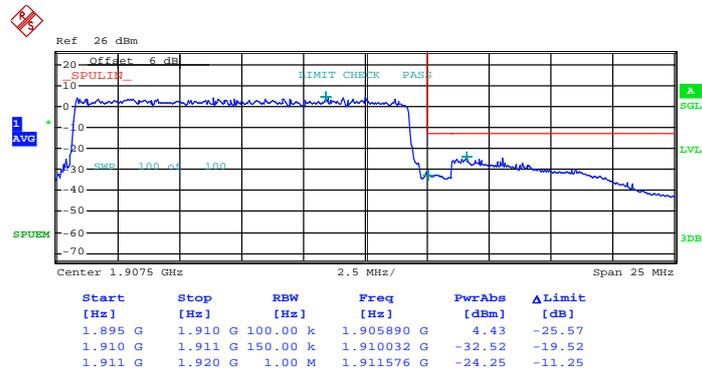


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 74



Date: 12.APR.2014 13:01:22

Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0

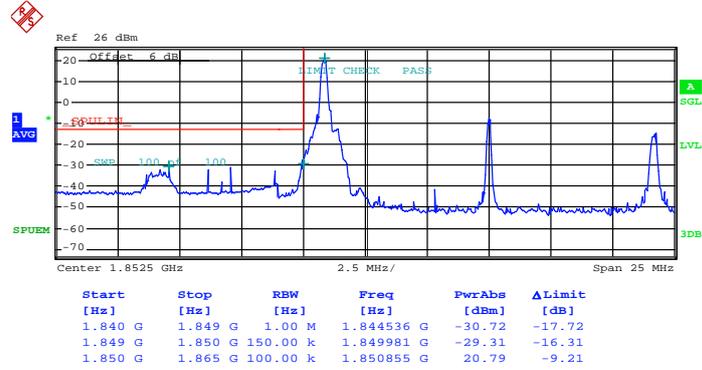


Date: 12.APR.2014 13:07:27



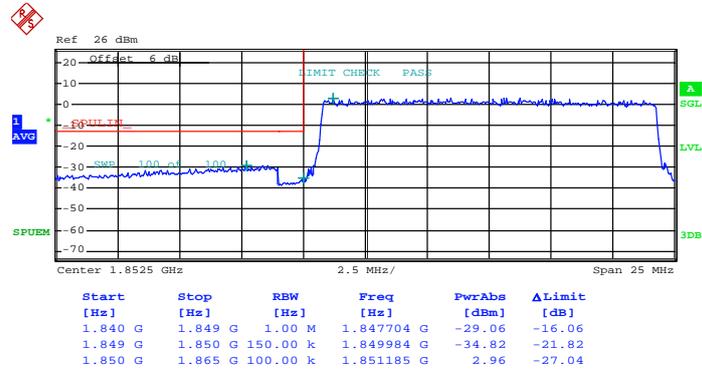
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	15MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 12.APR.2014 12:49:50

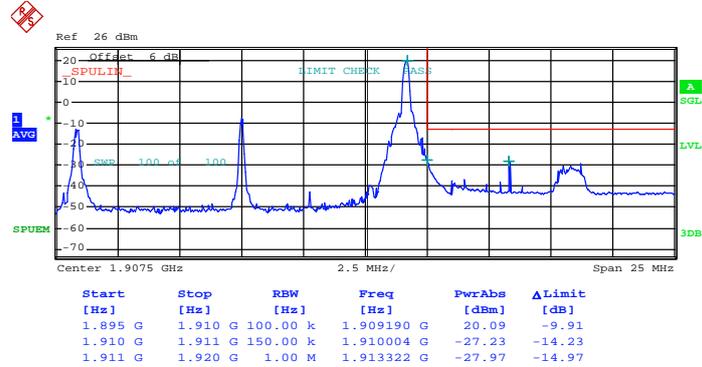
Lower Band Edge Plot for 16QAM-RB Size 75, RB Offset 0



Date: 12.APR.2014 12:56:50

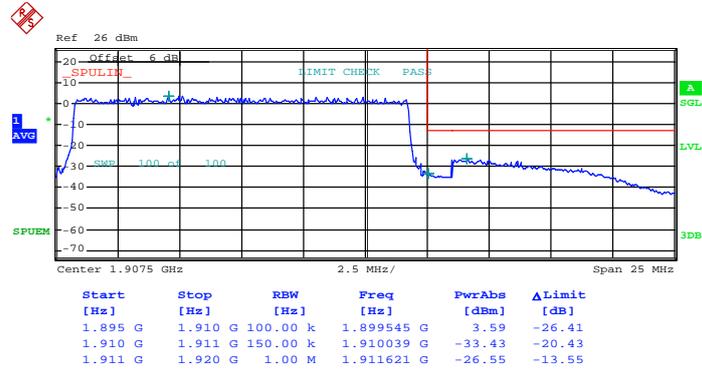


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 74



Date: 12.APR.2014 13:03:20

Higher Band Edge Plot for 16QAM-RB Size 75, RB Offset 0

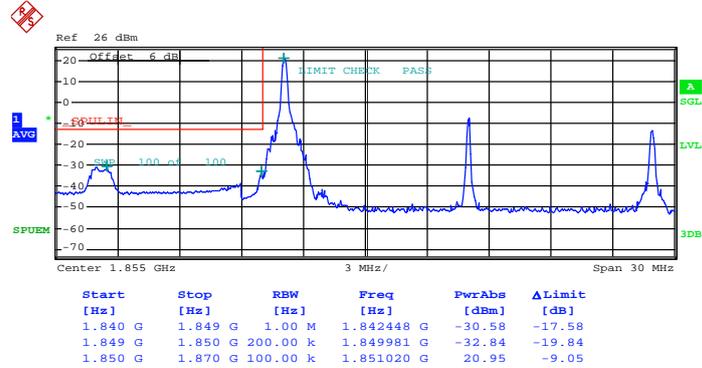


Date: 12.APR.2014 13:05:34



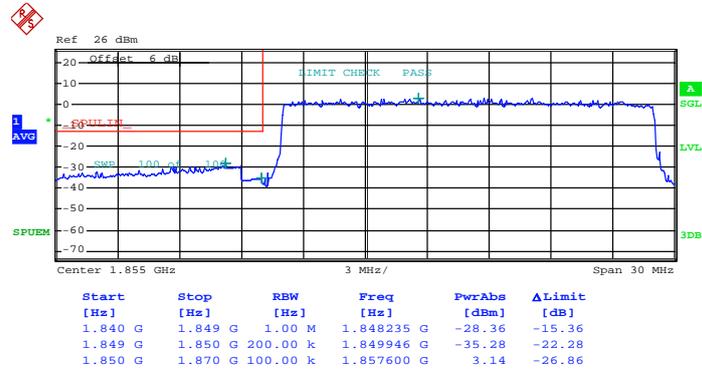
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	20MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 12.APR.2014 12:27:57

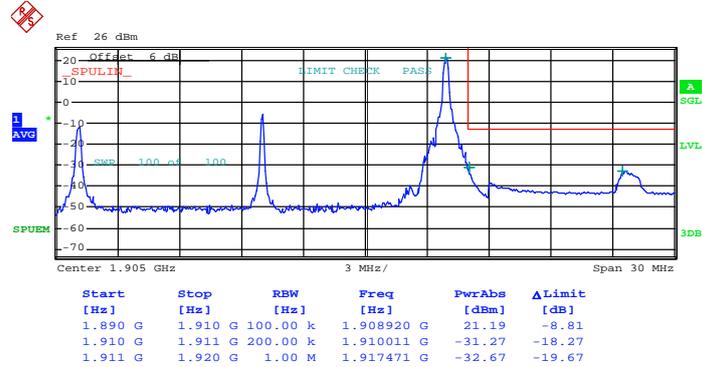
Lower Band Edge Plot for QPSK-RB Size 100, RB Offset 0



Date: 12.APR.2014 12:33:30

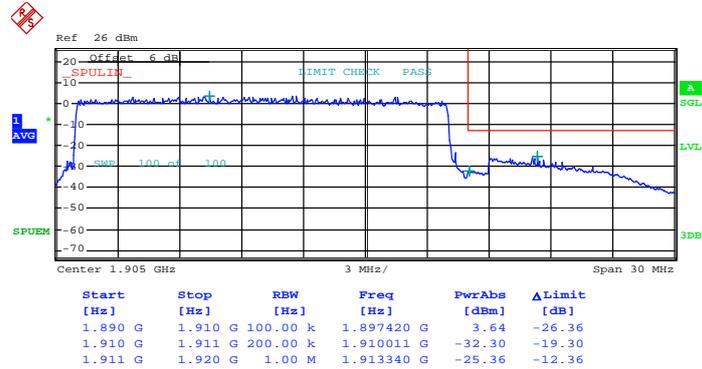


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 99



Date: 12.APR.2014 12:42:48

Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0

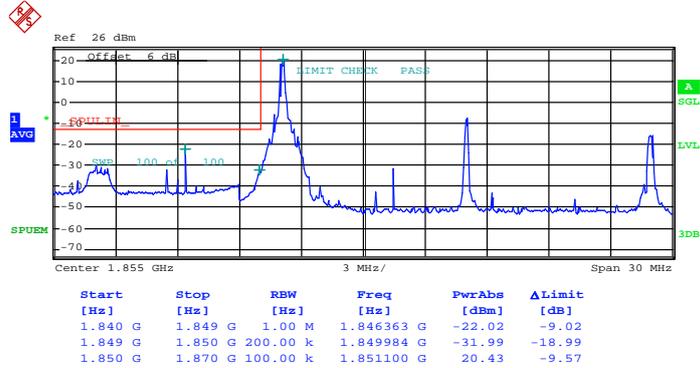


Date: 12.APR.2014 12:44:37



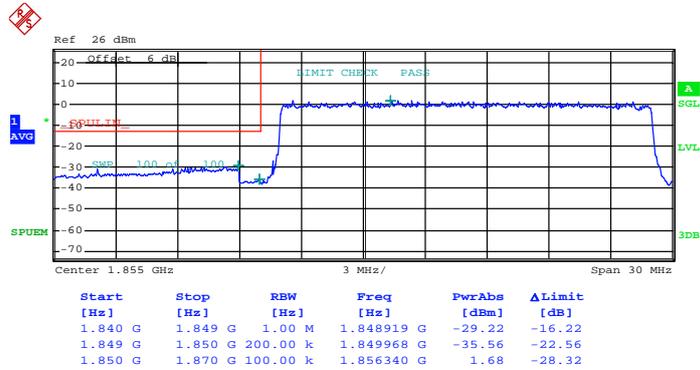
<b>Band :</b>	LTE Band 2	<b>Band Width :</b>	20MHz / 16QAM
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**Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0**



Date: 12.APR.2014 12:30:06

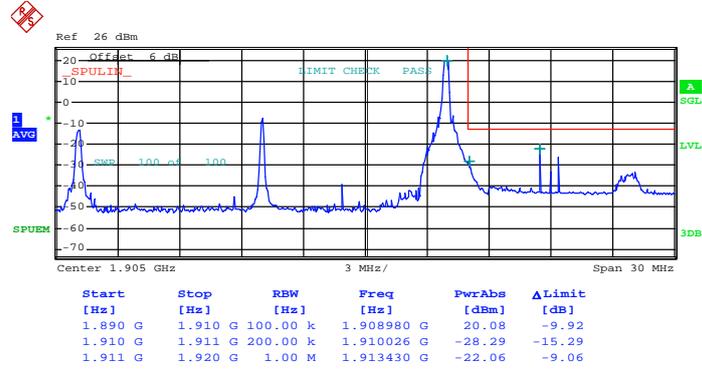
**Lower Band Edge Plot for 16QAM-RB Size 100, RB Offset 0**



Date: 12.APR.2014 12:35:28

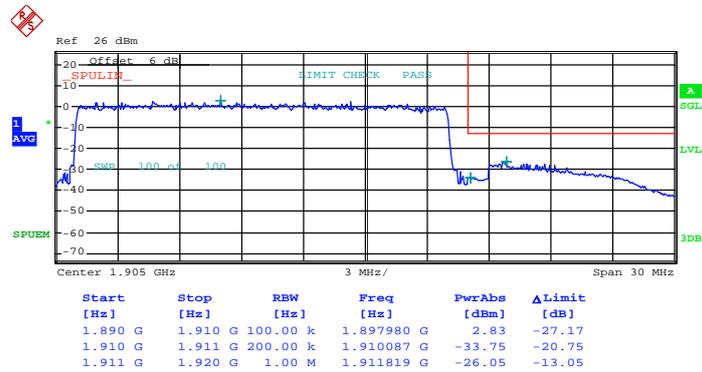


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 99



Date: 12.APR.2014 12:40:32

Higher Band Edge Plot for 16QAM-RB Size 100, RB Offset 0

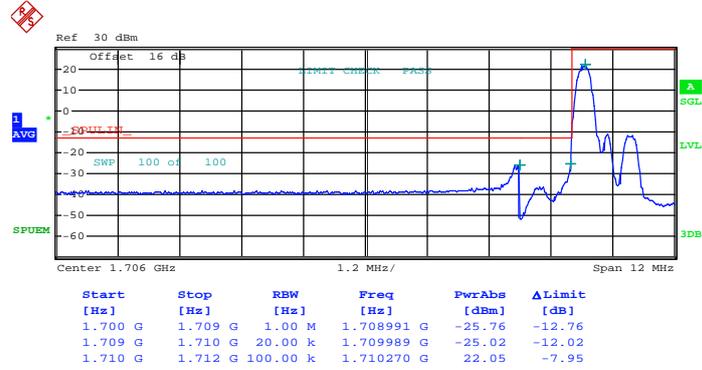


Date: 12.APR.2014 12:46:46



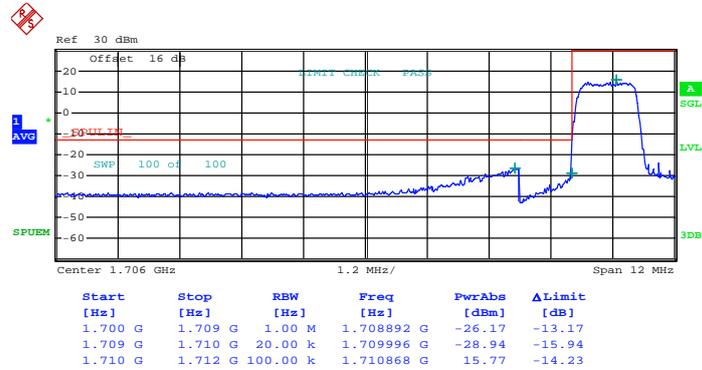
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	1.4MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 16.APR.2014 12:38:22

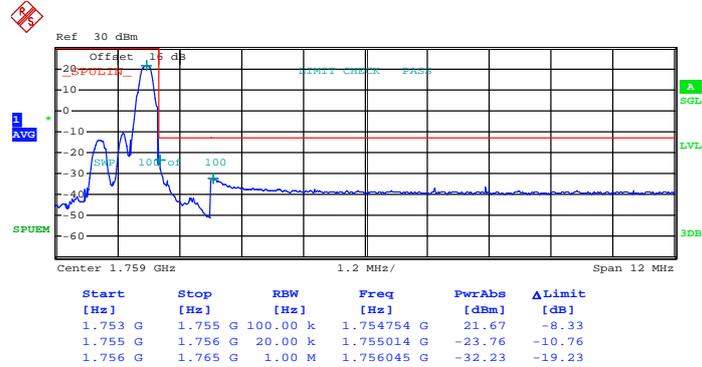
Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 16.APR.2014 13:01:18

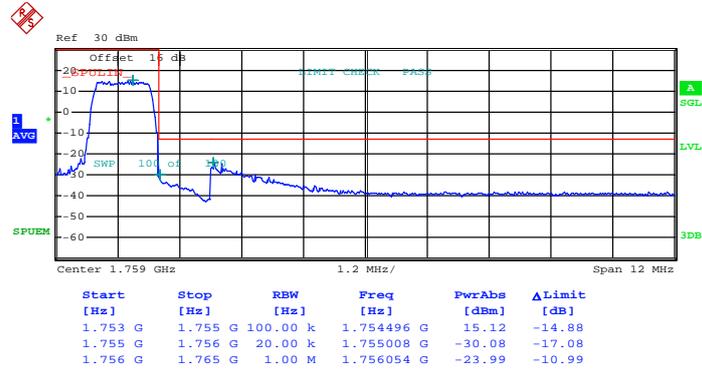


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5



Date: 16.APR.2014 12:52:55

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

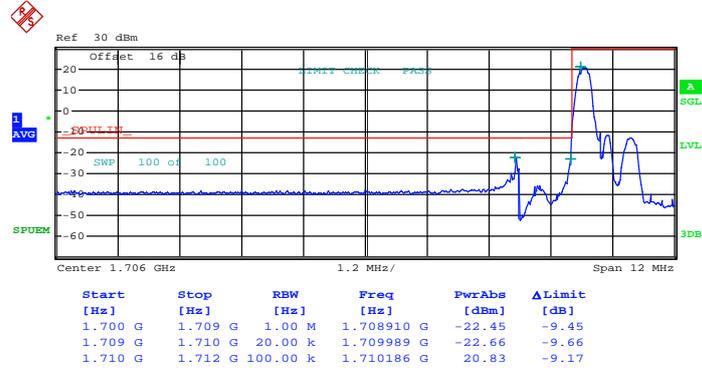


Date: 16.APR.2014 12:56:40



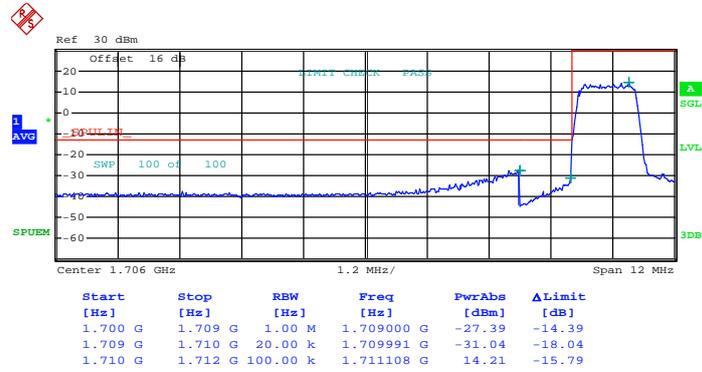
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	1.4MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 16.APR.2014 12:40:58

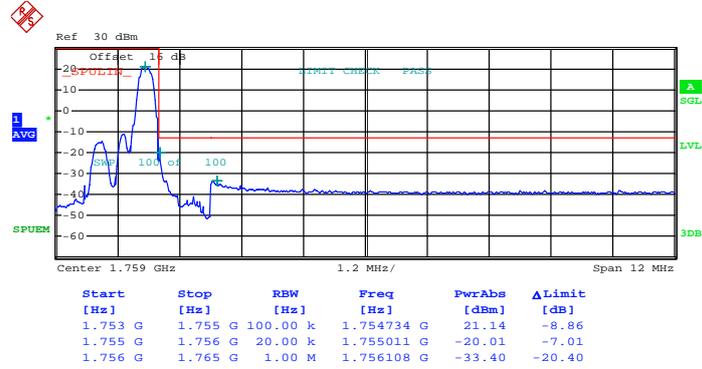
Lower Band Edge Plot for 16QAM-RB Size 6, RB Offset 0



Date: 16.APR.2014 12:50:25

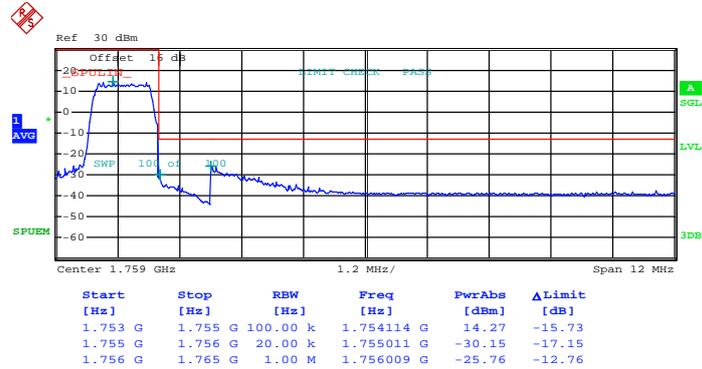


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 5



Date: 16.APR.2014 12:54:34

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



Date: 16.APR.2014 12:58:31



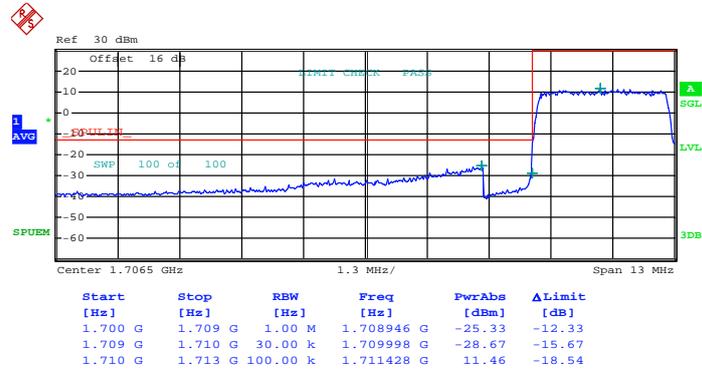
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	3MHz / QPSK
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**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**



Date: 16.APR.2014 13:03:38

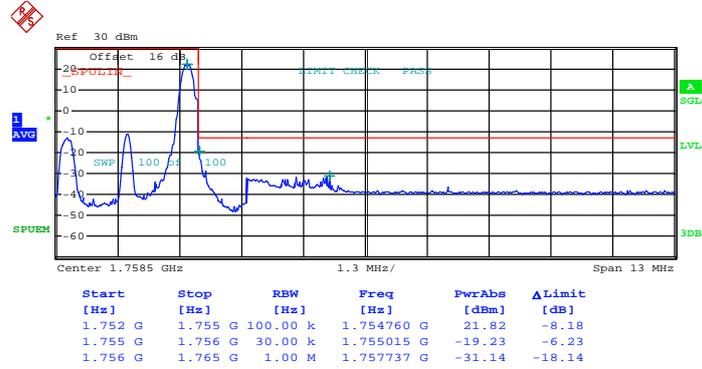
**Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0**



Date: 16.APR.2014 14:27:55

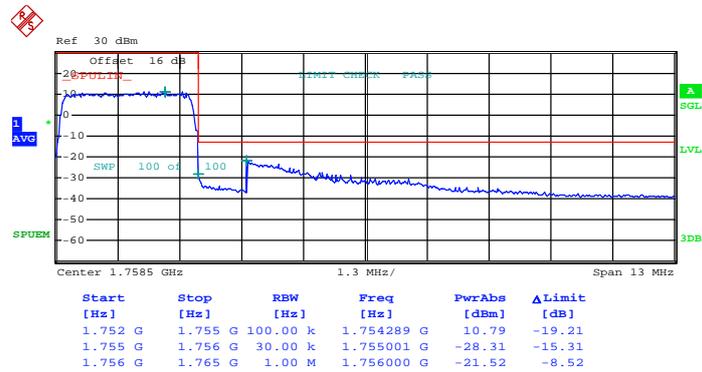


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14



Date: 16.APR.2014 14:33:14

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

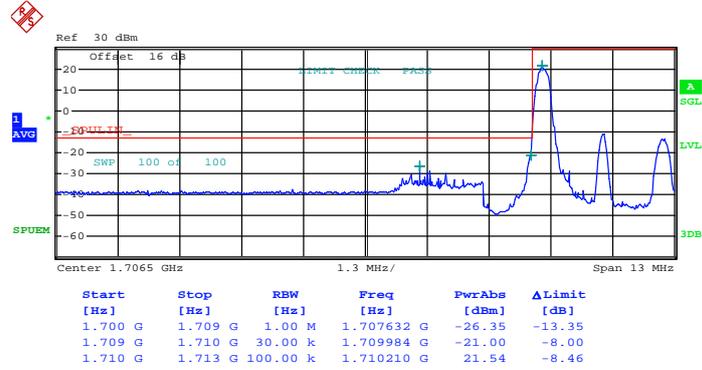


Date: 16.APR.2014 14:41:36



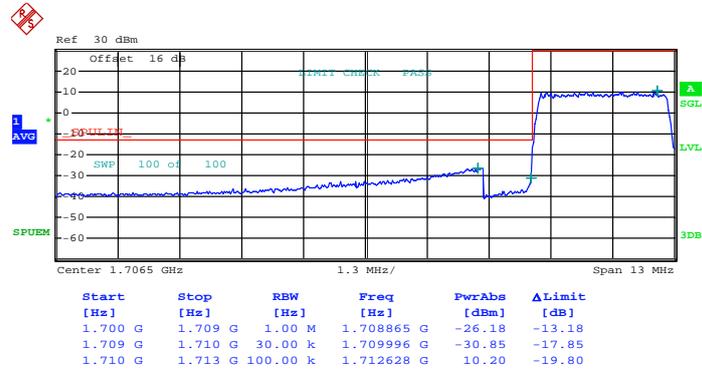
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	3MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 16.APR.2014 13:06:17

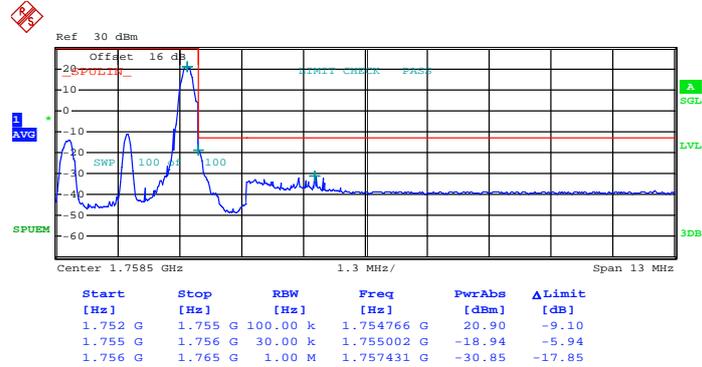
Lower Band Edge Plot for 16QAM-RB Size 15, RB Offset 0



Date: 16.APR.2014 14:29:36

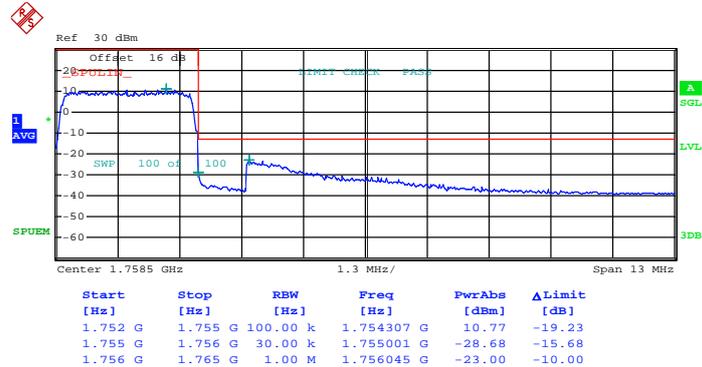


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 14



Date: 16.APR.2014 14:31:38

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

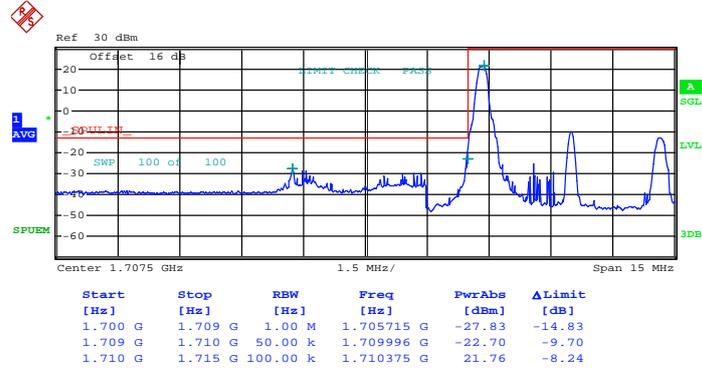


Date: 16.APR.2014 14:43:41



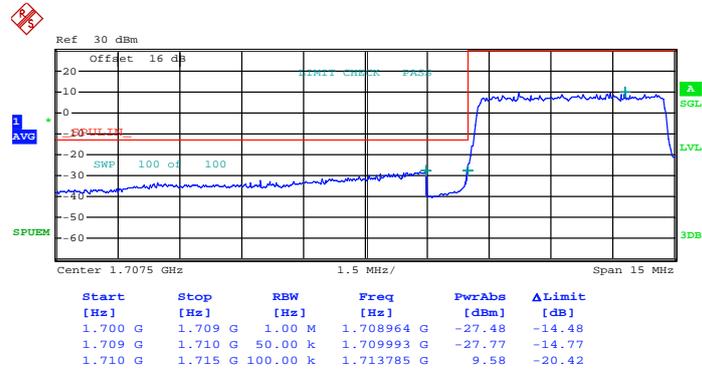
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 16.APR.2014 14:49:41

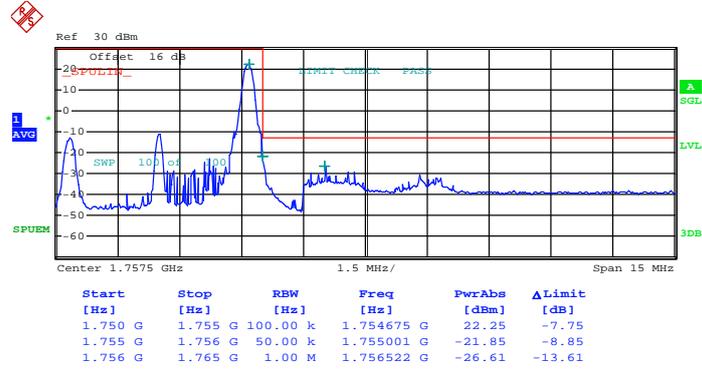
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 16.APR.2014 14:45:38

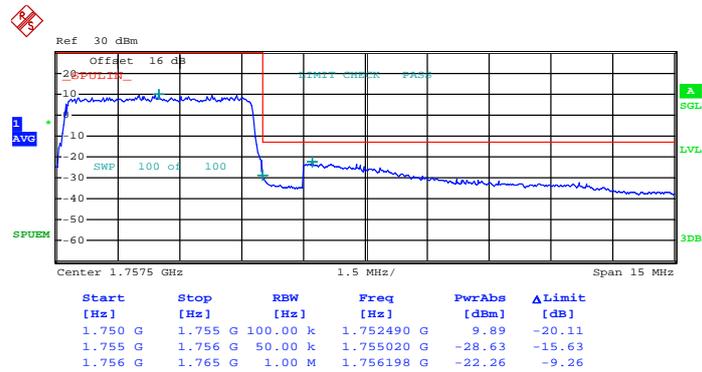


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 16.APR.2014 14:59:00

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

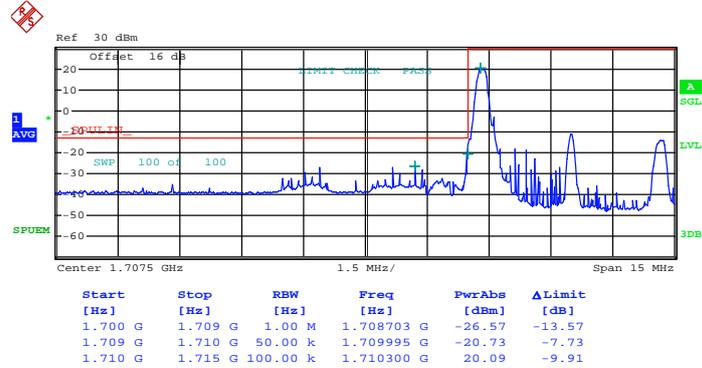


Date: 16.APR.2014 15:04:46



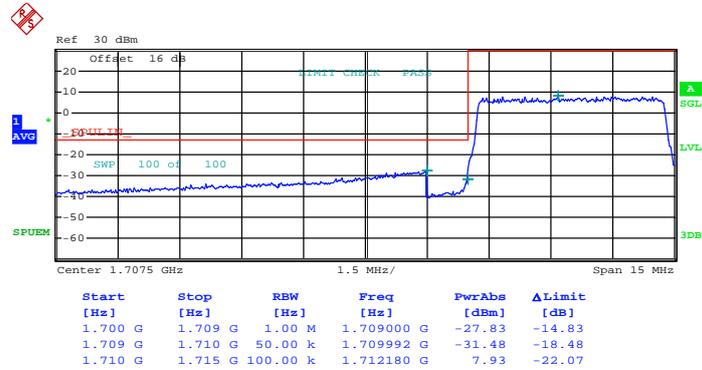
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 16.APR.2014 14:52:09

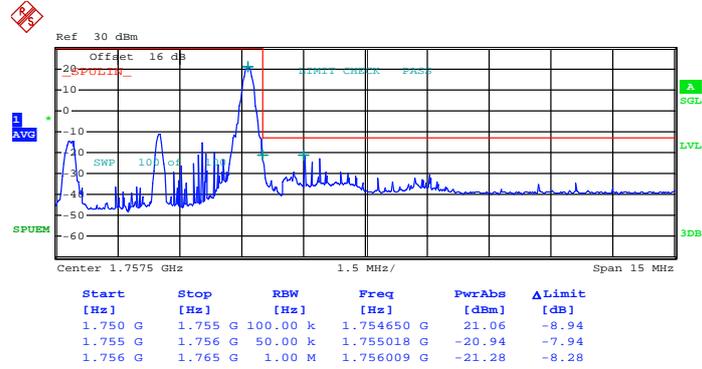
Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



Date: 16.APR.2014 14:47:53

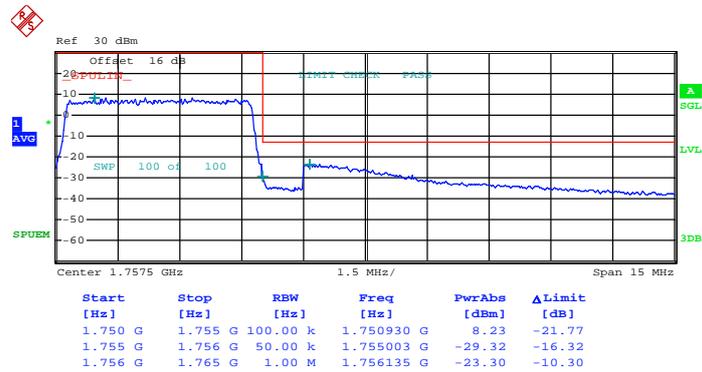


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24



Date: 16.APR.2014 15:02:39

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

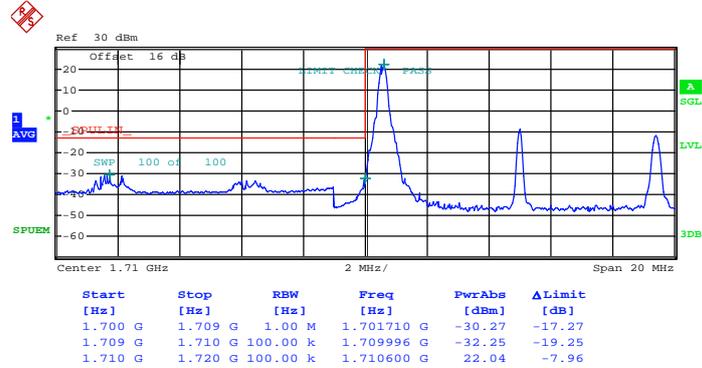


Date: 16.APR.2014 15:06:30



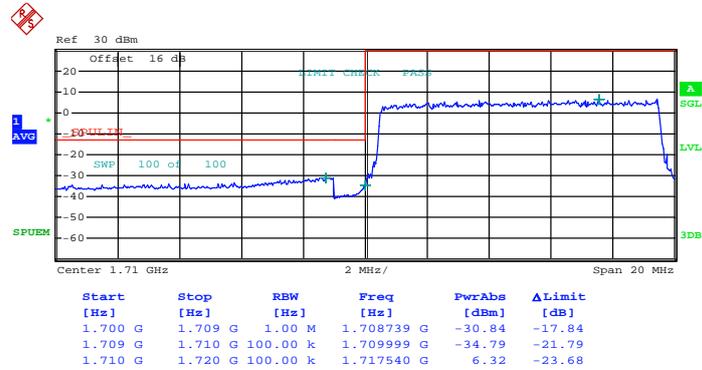
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 16.APR.2014 15:08:27

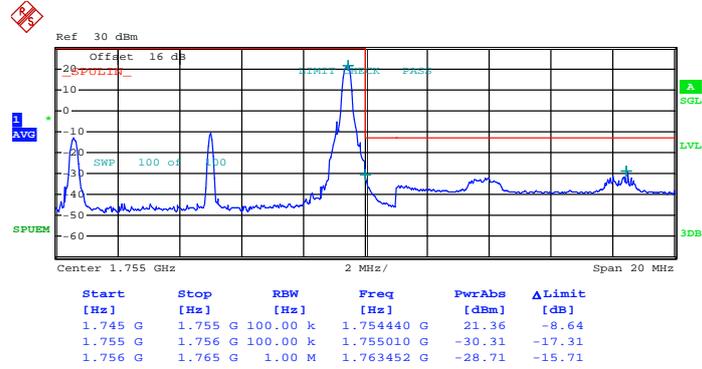
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 16.APR.2014 15:12:23

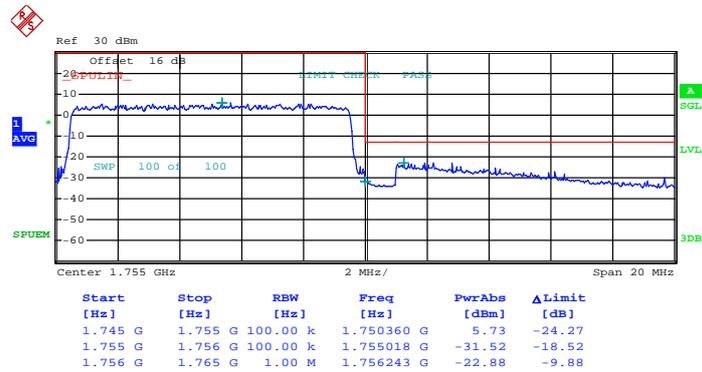


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 16.APR.2014 15:15:57

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

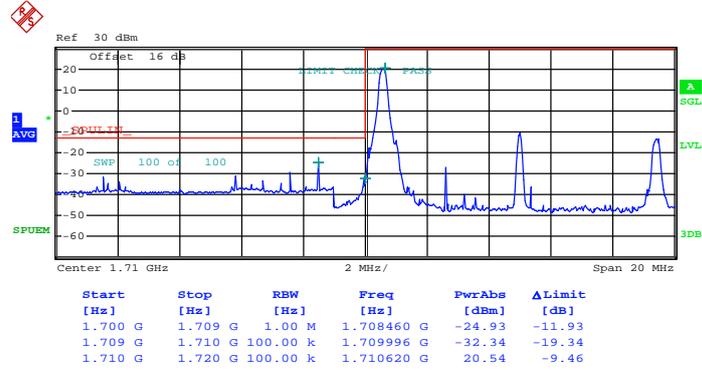


Date: 16.APR.2014 15:20:17



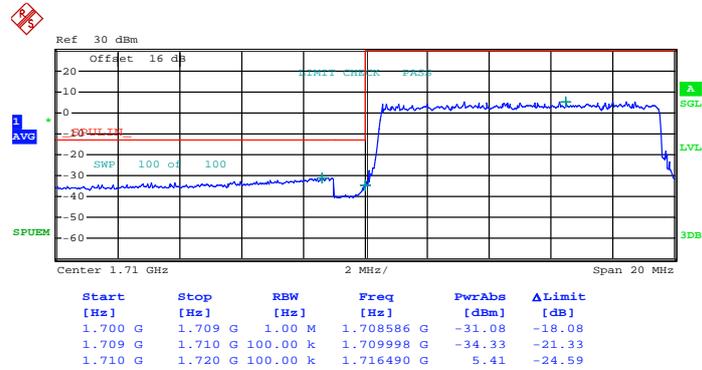
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	10MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 16.APR.2014 15:10:26

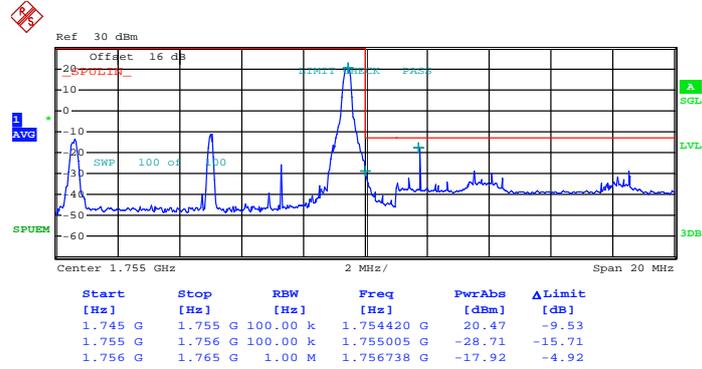
Lower Band Edge Plot for 16QAM-RB Size 50, RB Offset 0



Date: 16.APR.2014 15:14:03

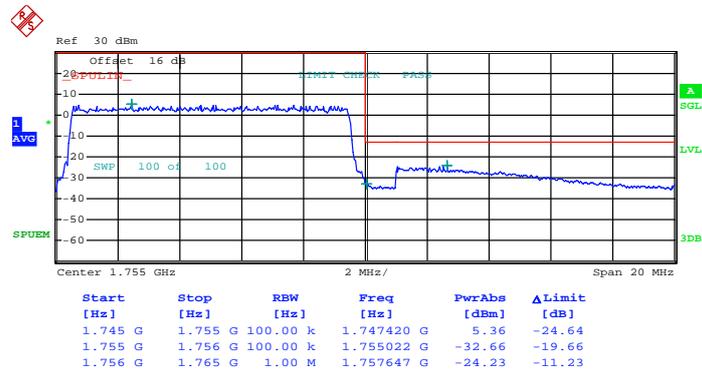


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 49



Date: 16.APR.2014 15:18:16

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

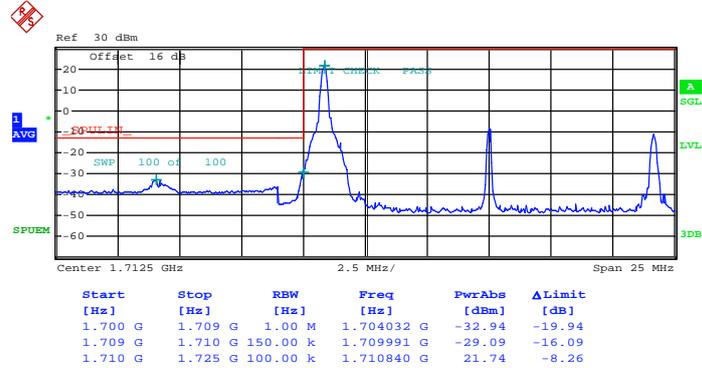


Date: 16.APR.2014 15:22:26



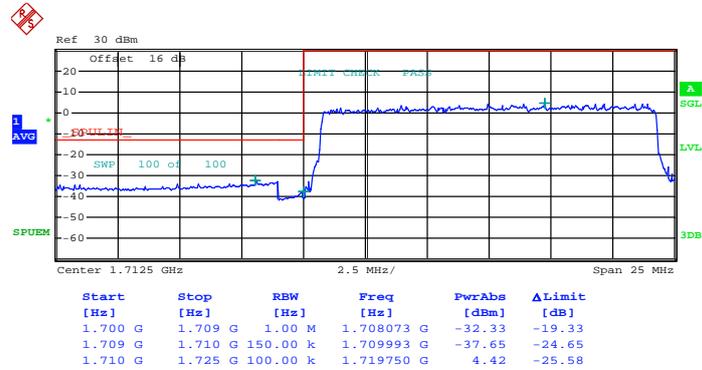
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	15MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 16.APR.2014 15:41:22

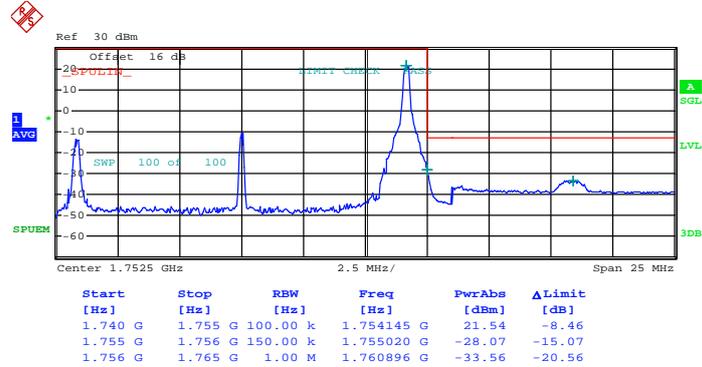
Lower Band Edge Plot for QPSK-RB Size 75, RB Offset 0



Date: 16.APR.2014 15:48:19

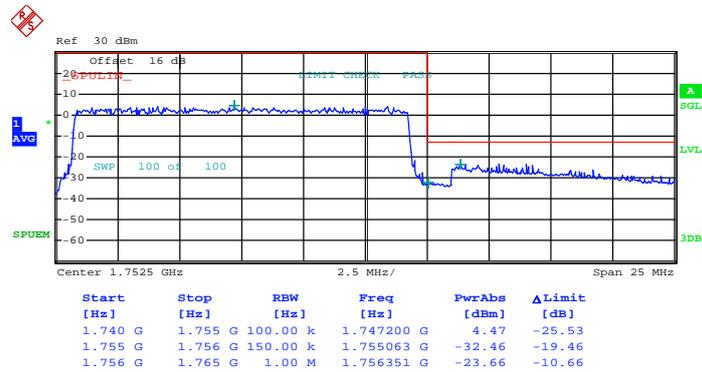


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 74



Date: 16.APR.2014 15:52:12

Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0

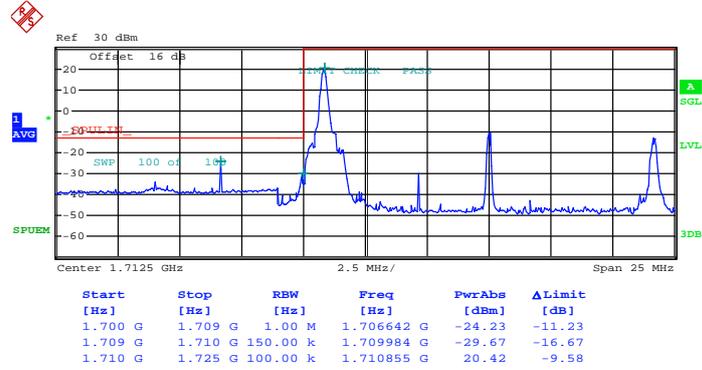


Date: 16.APR.2014 15:56:20



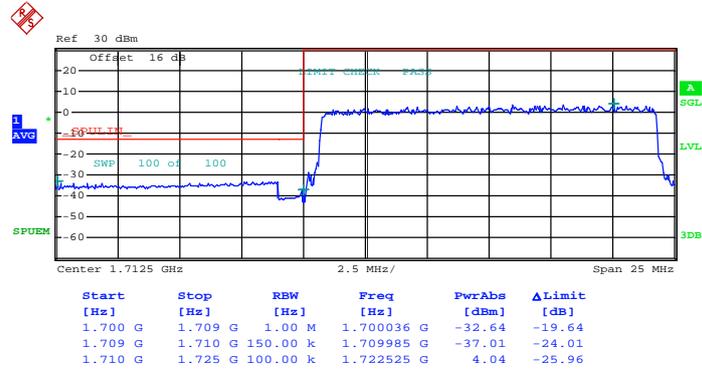
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	15MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 16.APR.2014 15:46:23

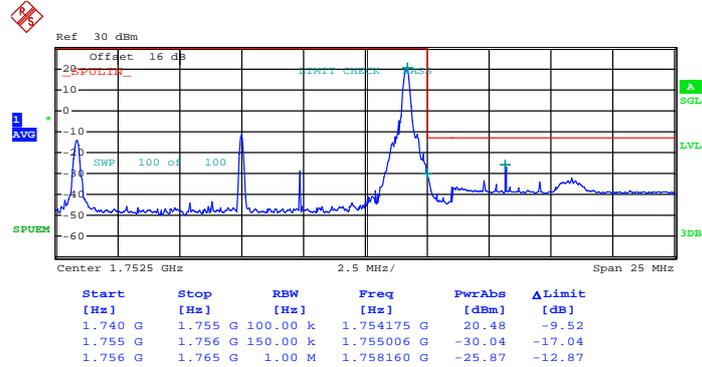
Lower Band Edge Plot for 16QAM-RB Size 75, RB Offset 0



Date: 16.APR.2014 15:49:50

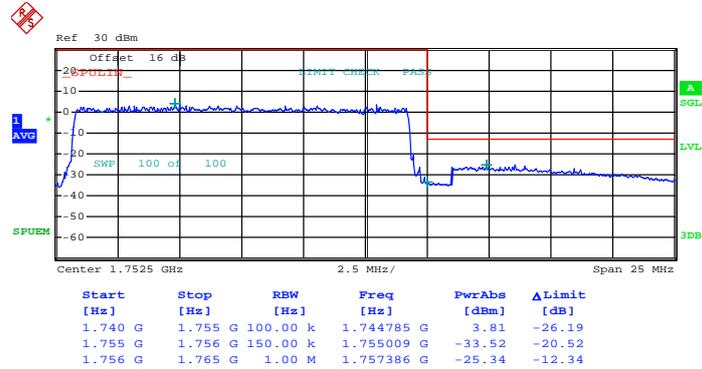


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 74



Date: 16.APR.2014 15:54:19

Higher Band Edge Plot for 16QAM-RB Size 75, RB Offset 0

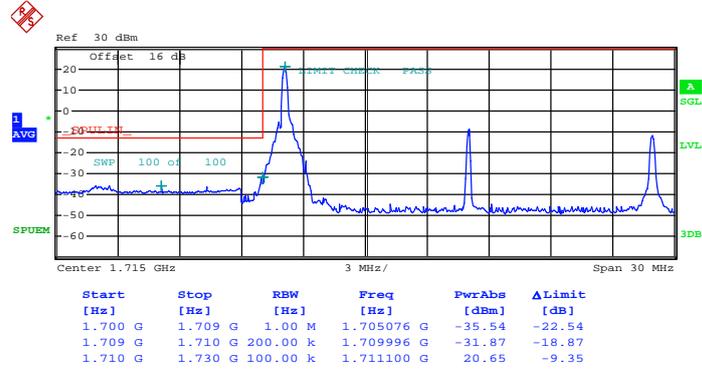


Date: 16.APR.2014 16:00:20



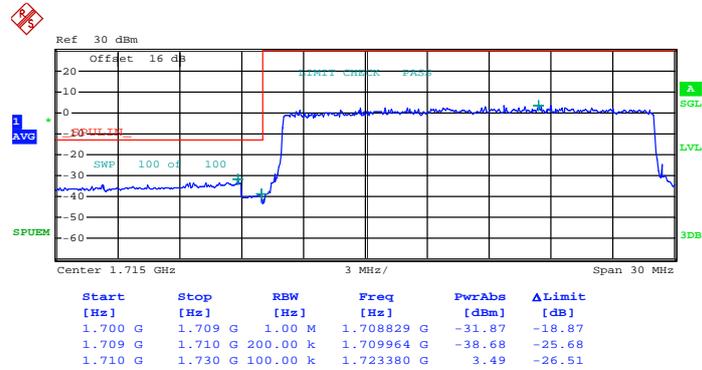
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	20MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 16.APR.2014 16:08:02

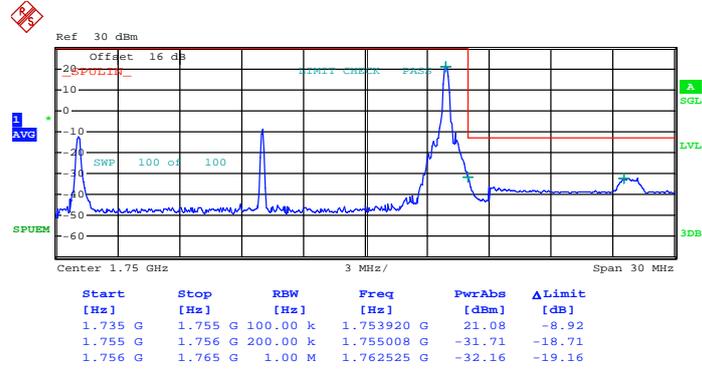
Lower Band Edge Plot for QPSK-RB Size 100, RB Offset 0



Date: 16.APR.2014 16:19:27

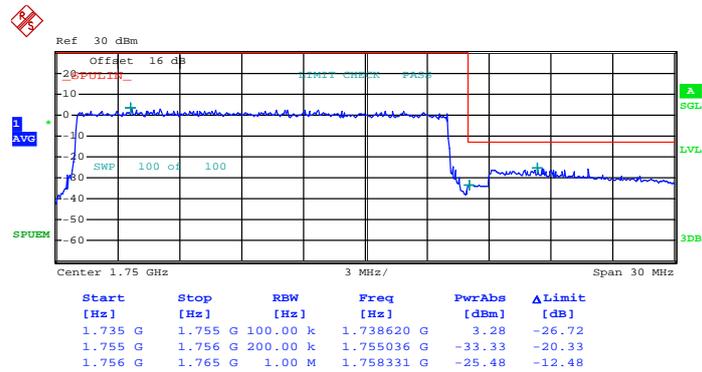


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 99



Date: 16.APR.2014 16:24:01

Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0

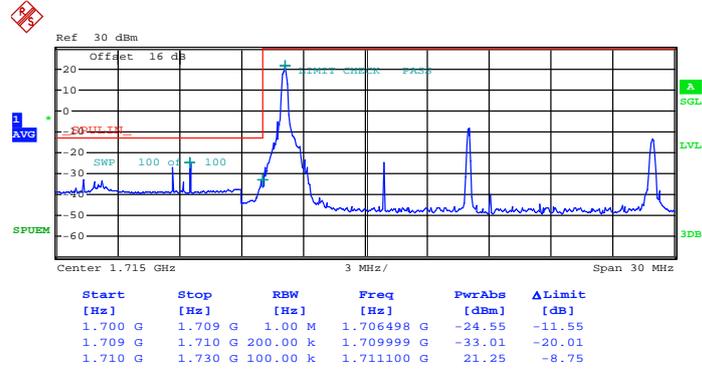


Date: 16.APR.2014 17:10:36



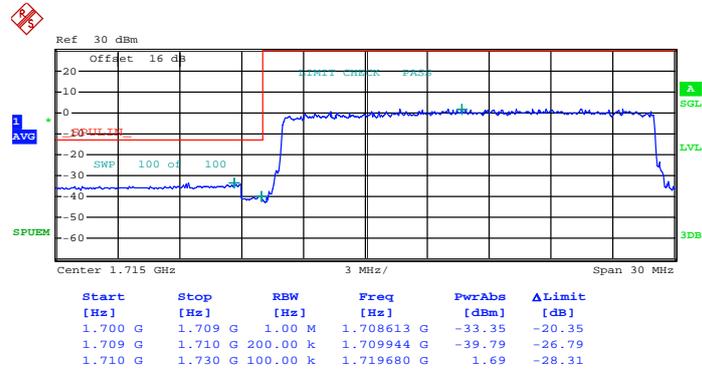
<b>Band :</b>	LTE Band 4	<b>Band Width :</b>	20MHz / 16QAM
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**Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0**



Date: 16.APR.2014 16:10:27

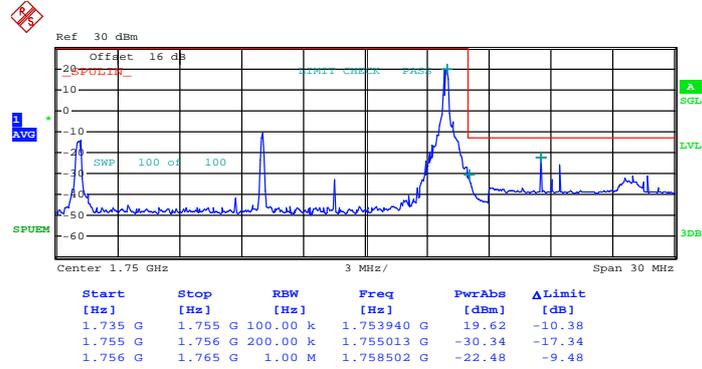
**Lower Band Edge Plot for 16QAM-RB Size 100, RB Offset 0**



Date: 16.APR.2014 16:21:56

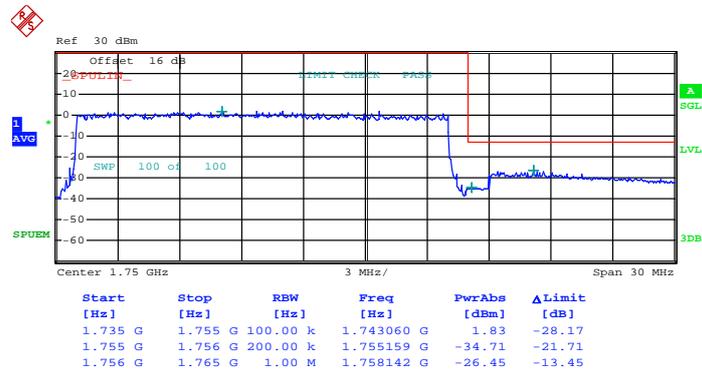


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 99



Date: 16.APR.2014 16:28:20

Higher Band Edge Plot for 16QAM-RB Size 100, RB Offset 0

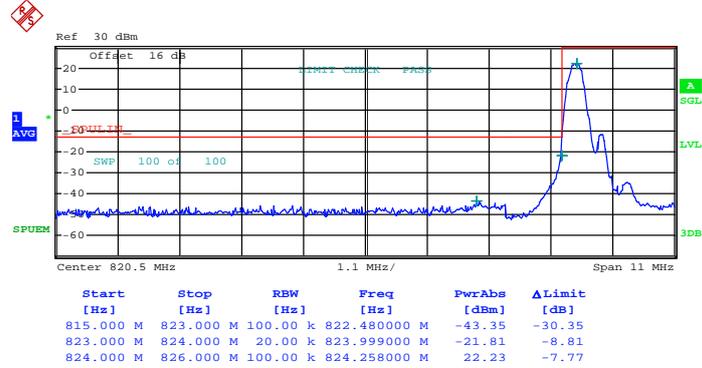


Date: 16.APR.2014 17:12:15



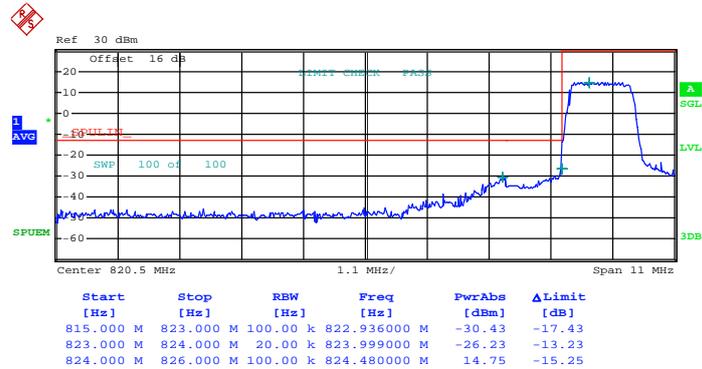
Band :	LTE Band 5	Band Width :	1.4MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 16.APR.2014 23:43:35

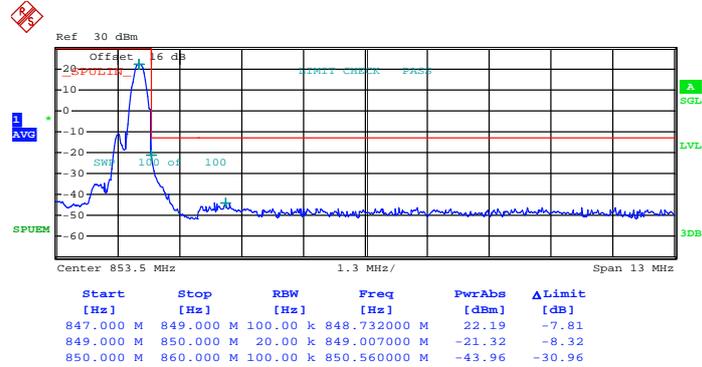
Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 16.APR.2014 23:49:27

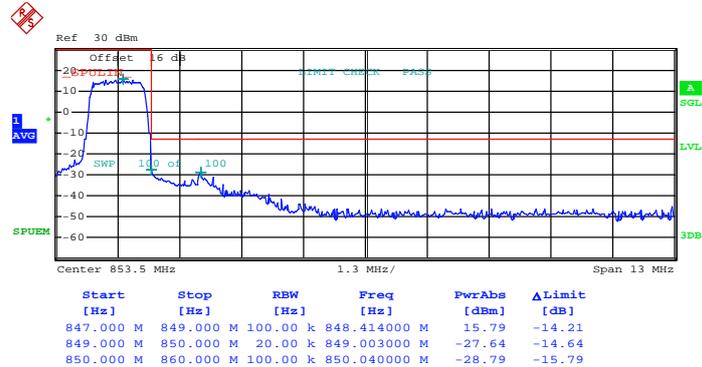


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5



Date: 16.APR.2014 23:58:28

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

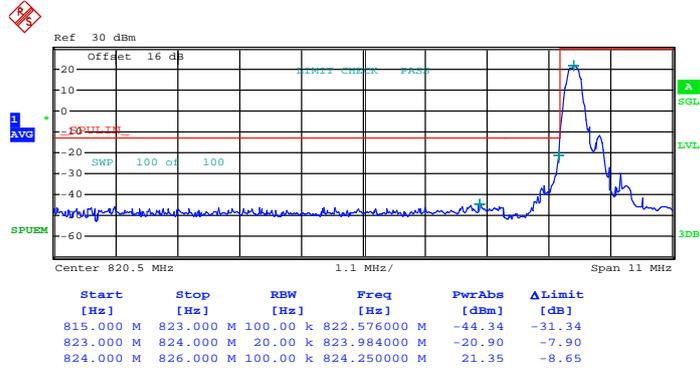


Date: 16.APR.2014 23:51:26



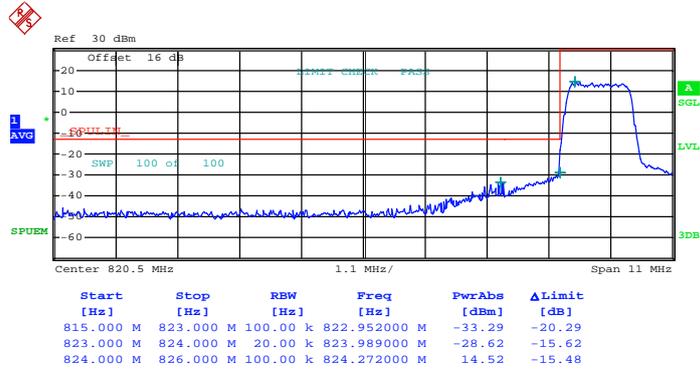
<b>Band :</b>	LTE Band 5	<b>Band Width :</b>	1.4MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 16.APR.2014 23:45:11

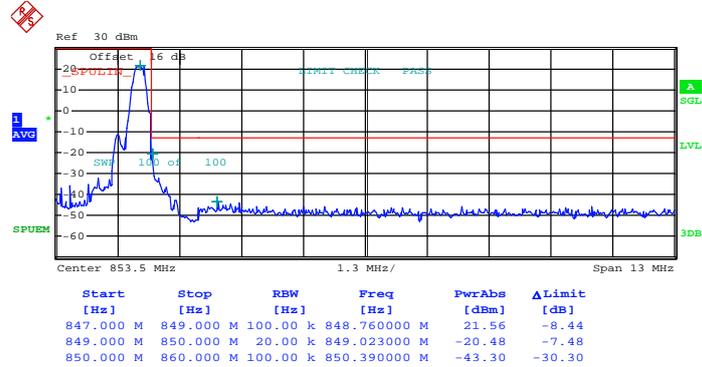
Lower Band Edge Plot for 16QAM -RB Size 6, RB Offset 0



Date: 16.APR.2014 23:47:23

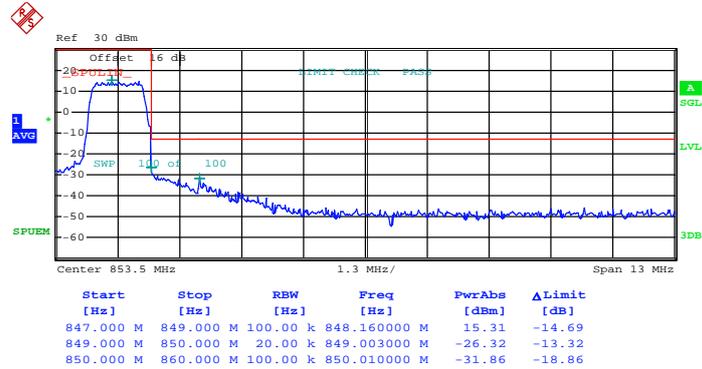


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 5



Date: 16.APR.2014 23:56:04

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

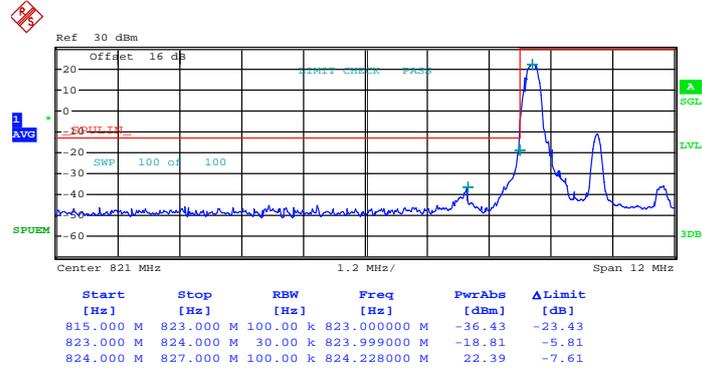


Date: 16.APR.2014 23:53:41



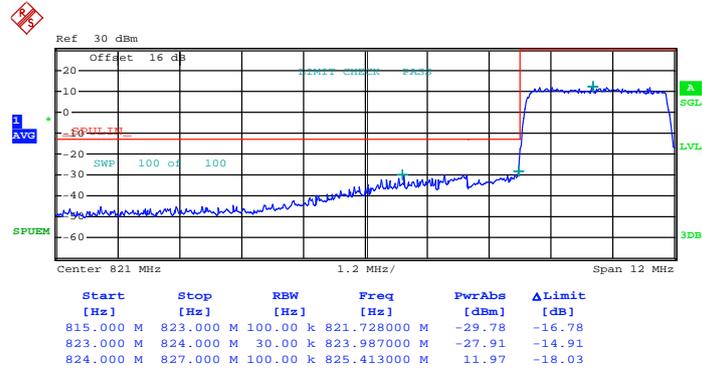
<b>Band :</b>	LTE Band 5	<b>Band Width :</b>	3MHz / QPSK
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**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**



Date: 17.APR.2014 00:14:27

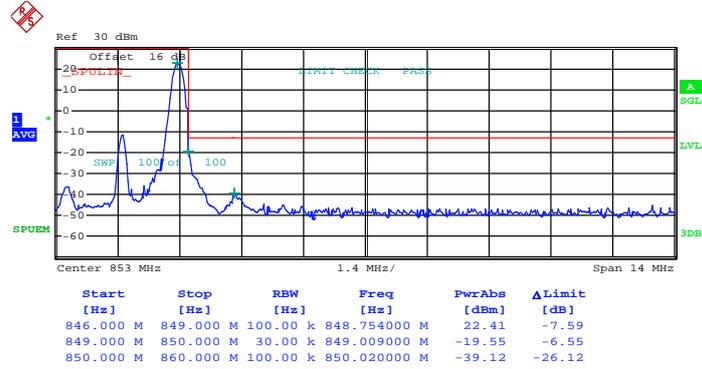
**Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0**



Date: 17.APR.2014 00:08:55

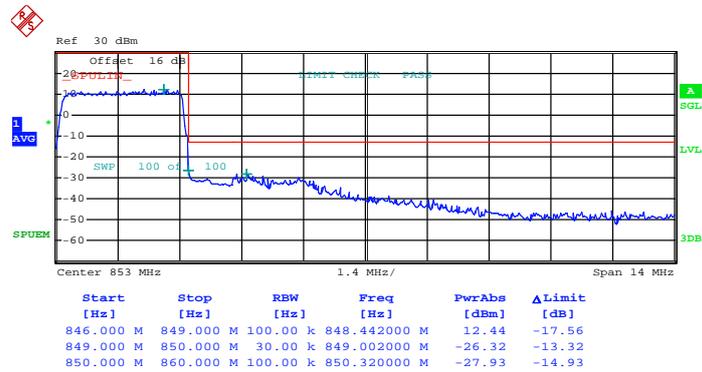


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14



Date: 17.APR.2014 00:01:06

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

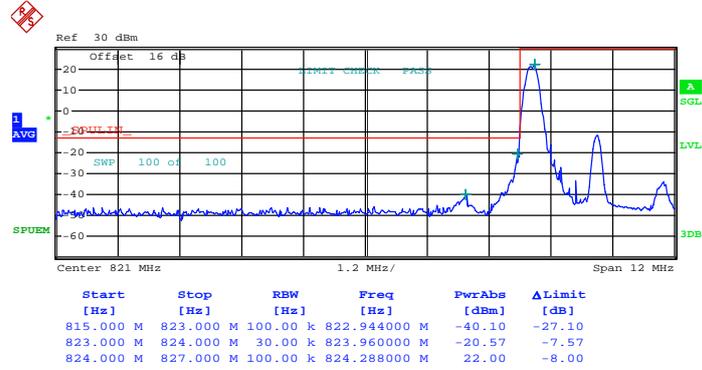


Date: 17.APR.2014 00:06:55



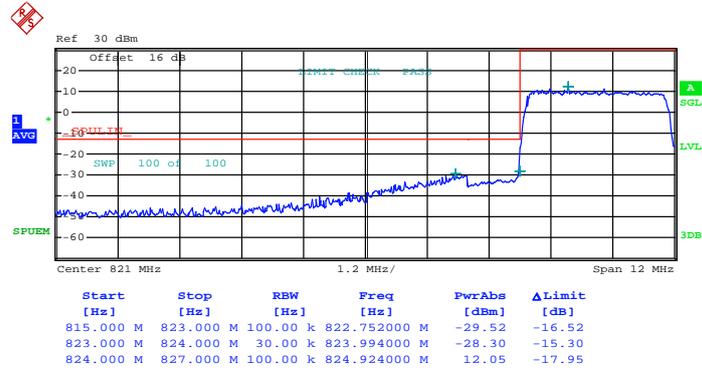
<b>Band :</b>	LTE Band 5	<b>Band Width :</b>	3MHz / 16QAM
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**Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0**



Date: 17.APR.2014 00:12:11

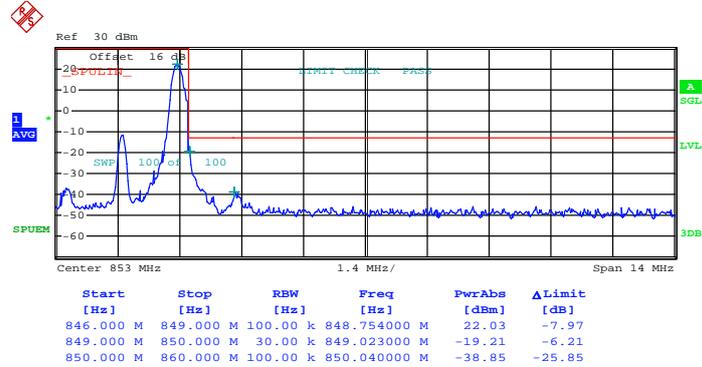
**Lower Band Edge Plot for 16QAM -RB Size 15, RB Offset 0**



Date: 17.APR.2014 00:10:29

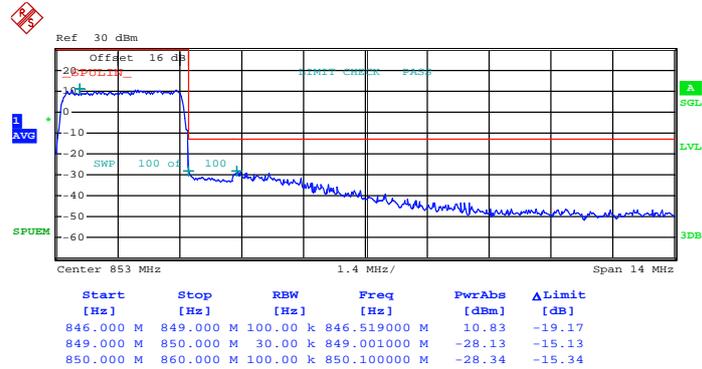


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 14



Date: 17.APR.2014 00:03:15

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

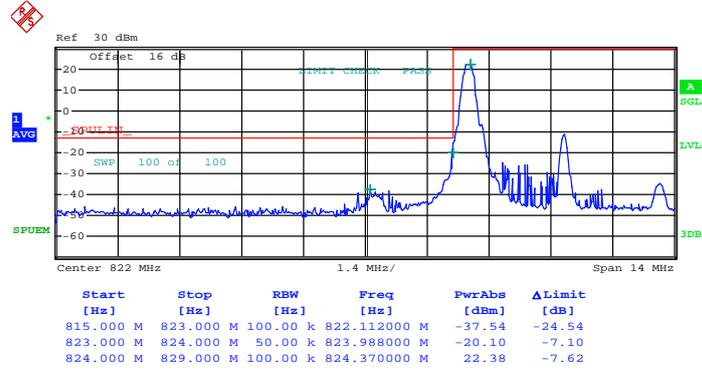


Date: 17.APR.2014 00:05:16



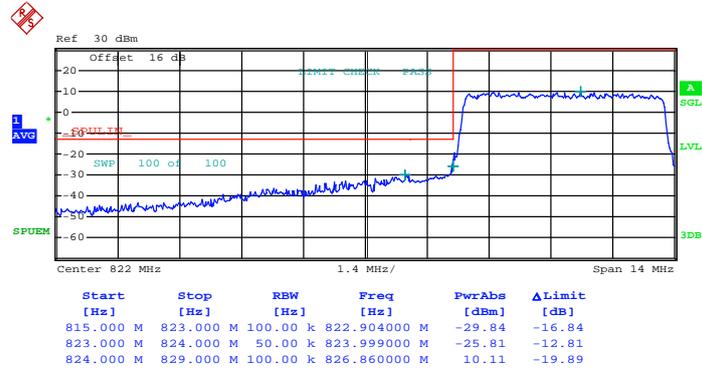
Band :	LTE Band 5	Band Width :	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 17.APR.2014 00:16:41

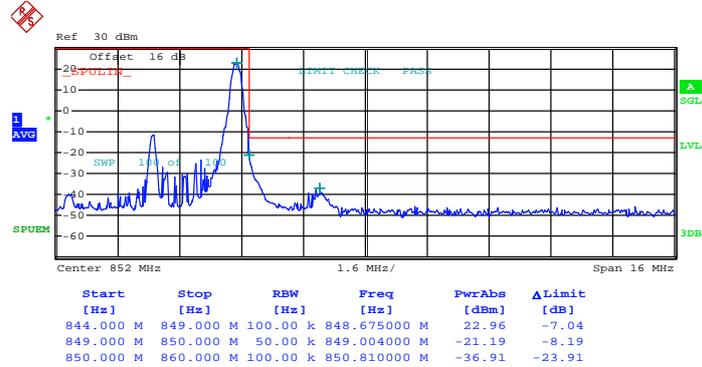
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 17.APR.2014 00:22:32

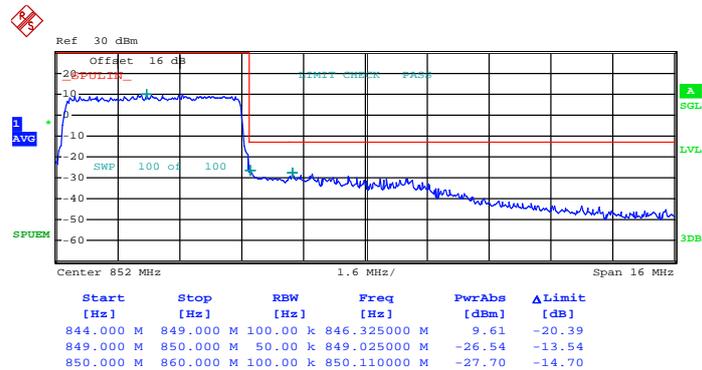


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 17.APR.2014 00:30:42

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

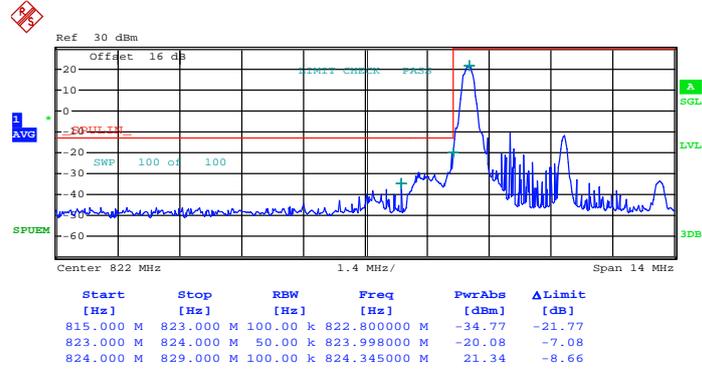


Date: 17.APR.2014 00:24:12



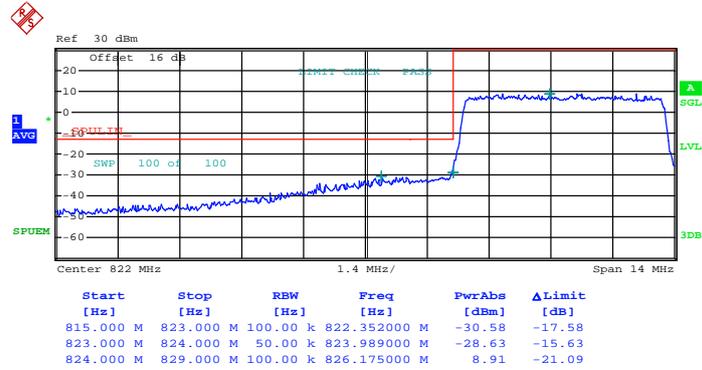
<b>Band :</b>	LTE Band 5	<b>Band Width :</b>	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 17.APR.2014 00:18:46

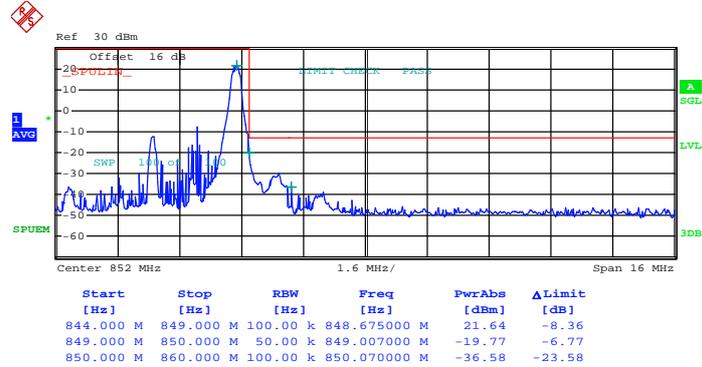
Lower Band Edge Plot for 16QAM -RB Size 25, RB Offset 0



Date: 17.APR.2014 00:20:23

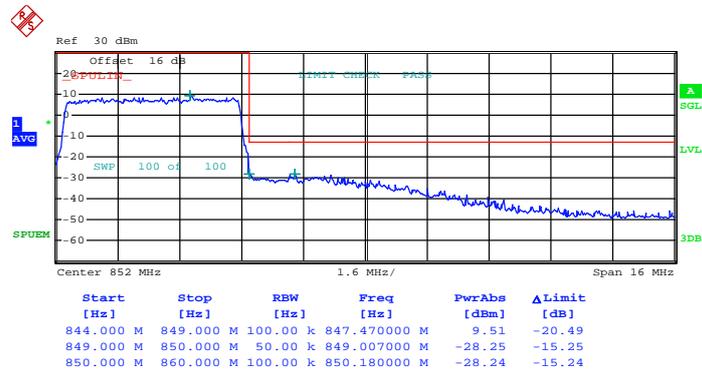


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 24



Date: 17.APR.2014 00:29:01

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

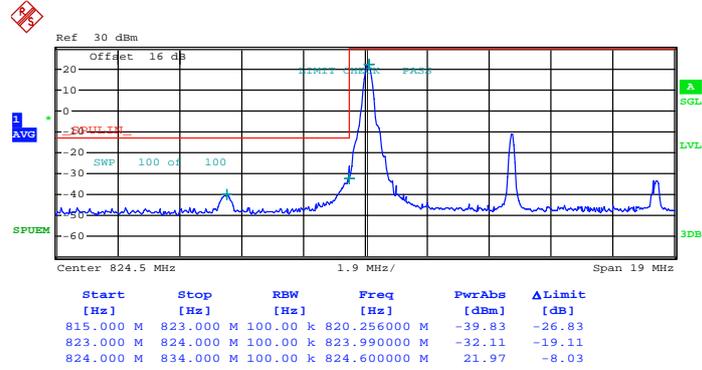


Date: 17.APR.2014 00:26:37



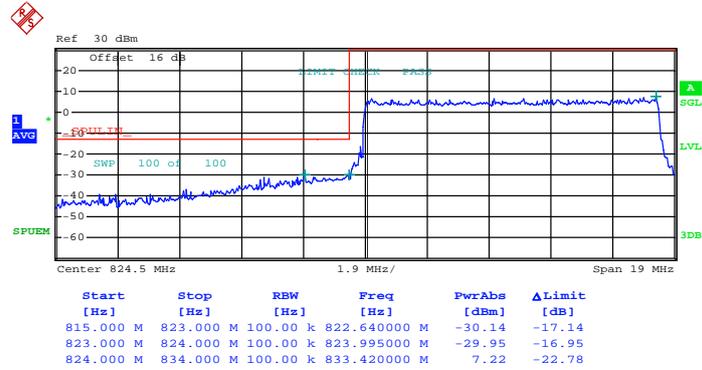
Band :	LTE Band 5	Band Width :	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 17.APR.2014 00:46:49

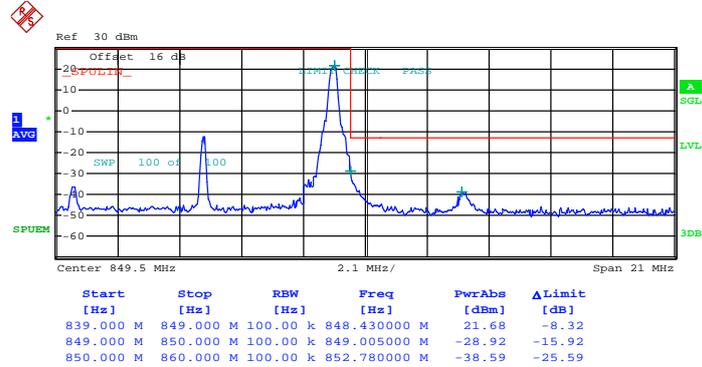
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 17.APR.2014 00:41:35

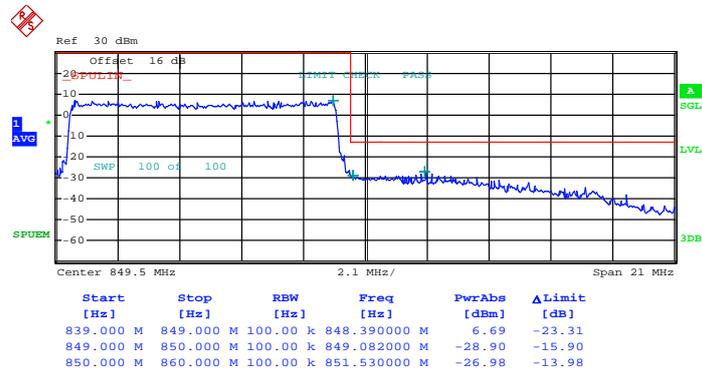


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 17.APR.2014 00:32:49

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

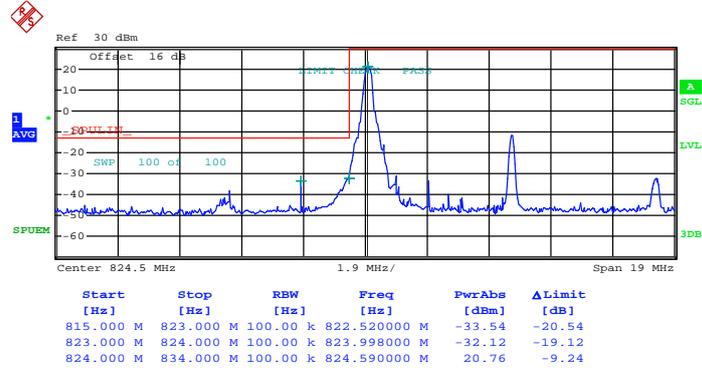


Date: 17.APR.2014 00:39:32



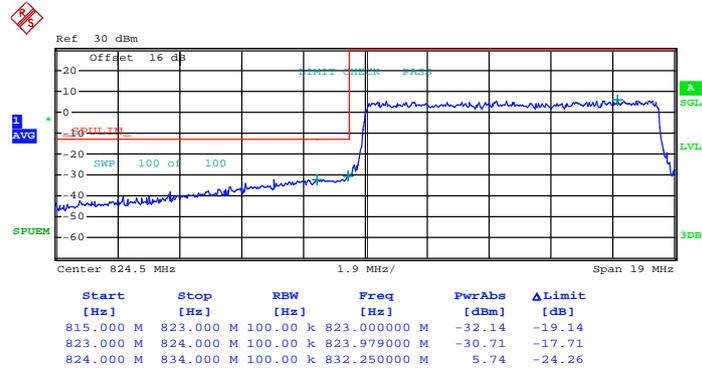
<b>Band :</b>	LTE Band 5	<b>Band Width :</b>	10MHz / 16QAM
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**Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0**



Date: 17.APR.2014 00:45:09

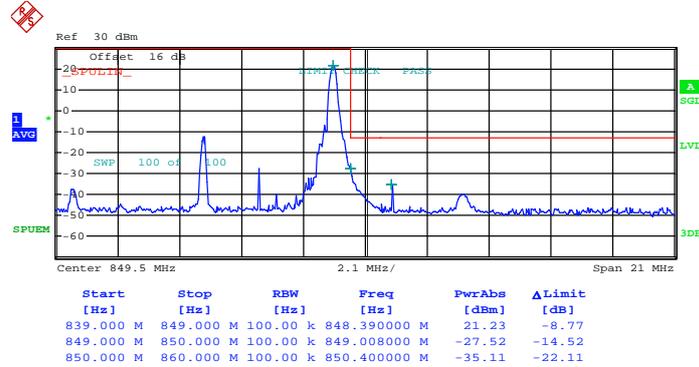
**Lower Band Edge Plot for 16QAM -RB Size 50, RB Offset 0**



Date: 17.APR.2014 00:43:30

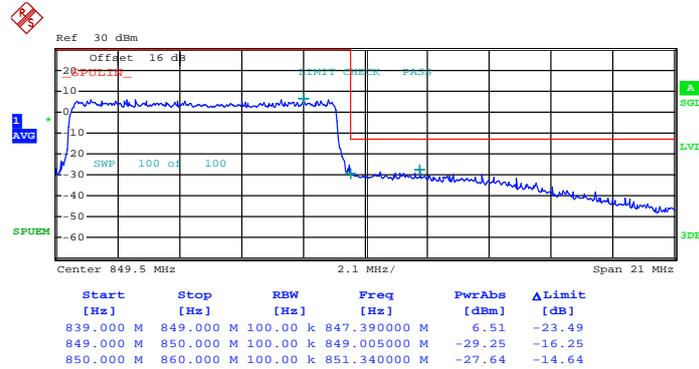


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 49



Date: 17.APR.2014 00:35:10

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

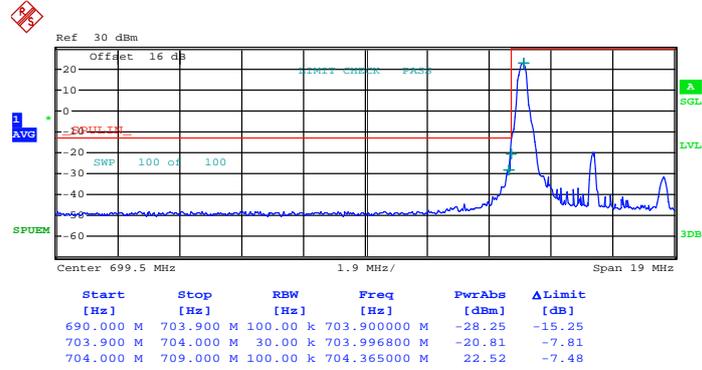


Date: 17.APR.2014 00:37:16



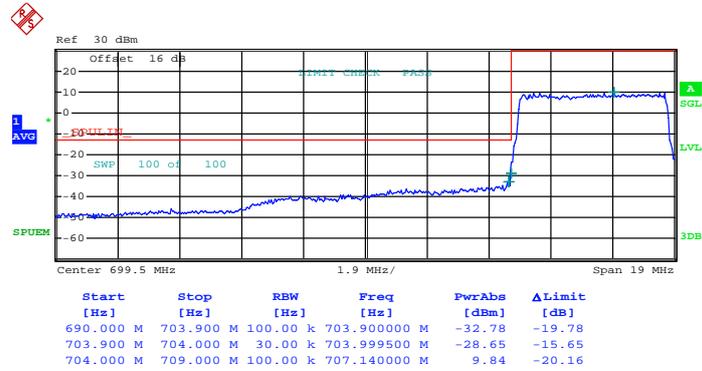
<b>Band :</b>	LTE Band 17	<b>Band Width :</b>	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 17.APR.2014 03:16:48

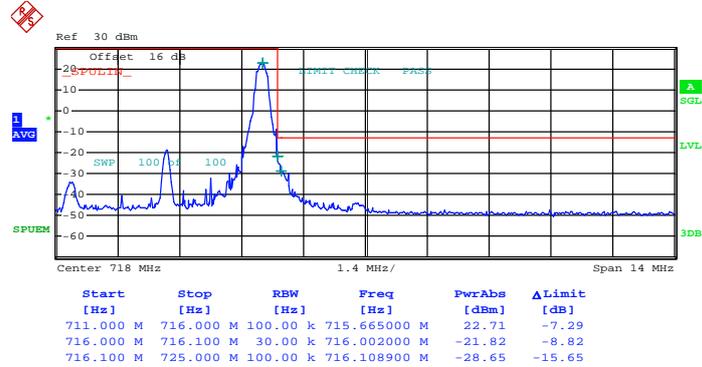
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 17.APR.2014 03:28:09

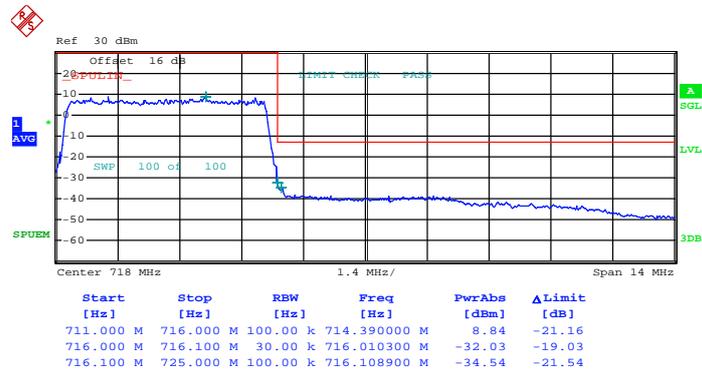


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 17.APR.2014 03:51:40

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

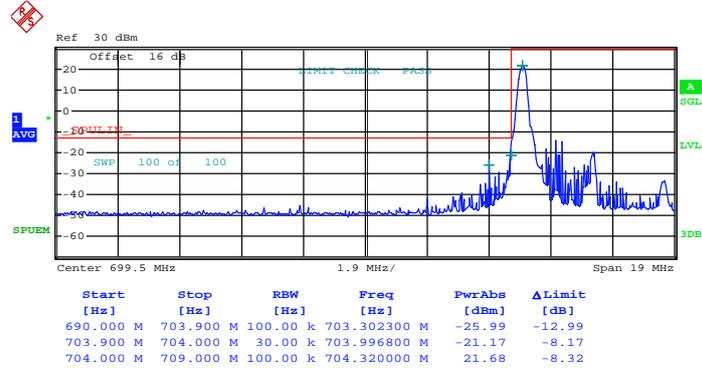


Date: 16.MAY.2014 11:41:53



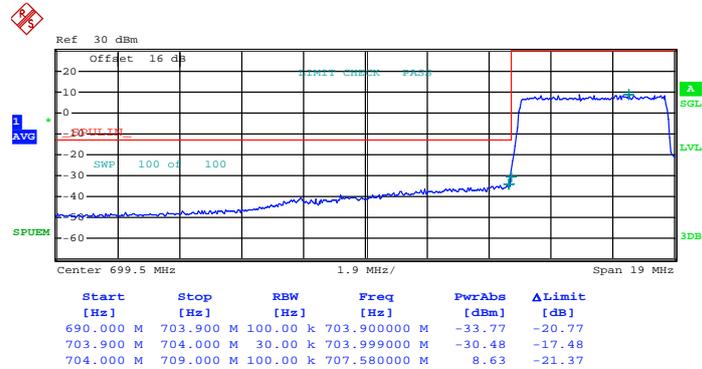
<b>Band :</b>	LTE Band 17	<b>Band Width :</b>	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 17.APR.2014 03:19:38

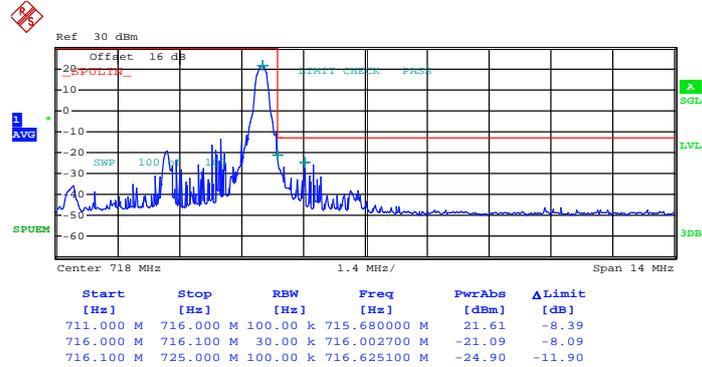
Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



Date: 17.APR.2014 03:23:37

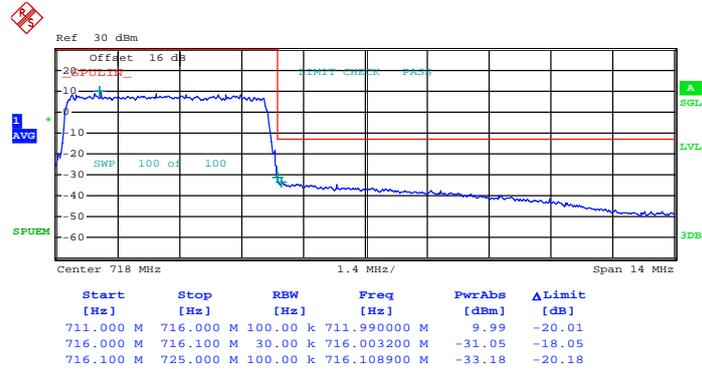


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24



Date: 17.APR.2014 03:54:44

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

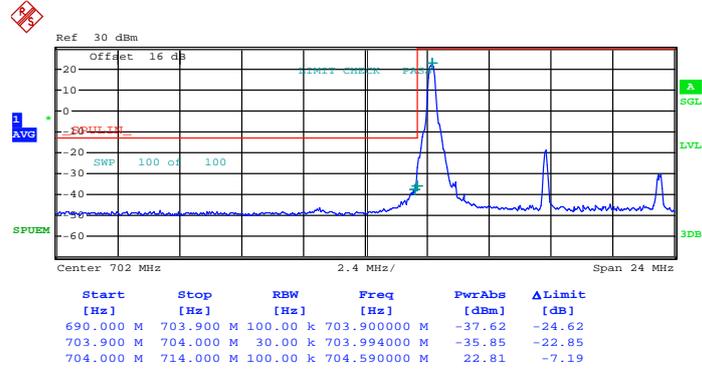


Date: 17.APR.2014 03:32:55



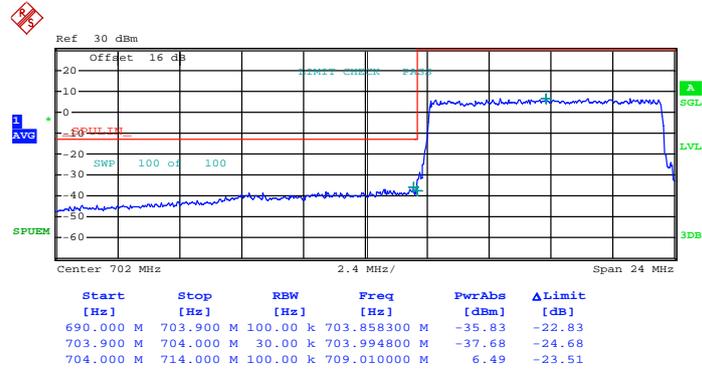
<b>Band :</b>	LTE Band 17	<b>Band Width :</b>	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 17.APR.2014 04:14:08

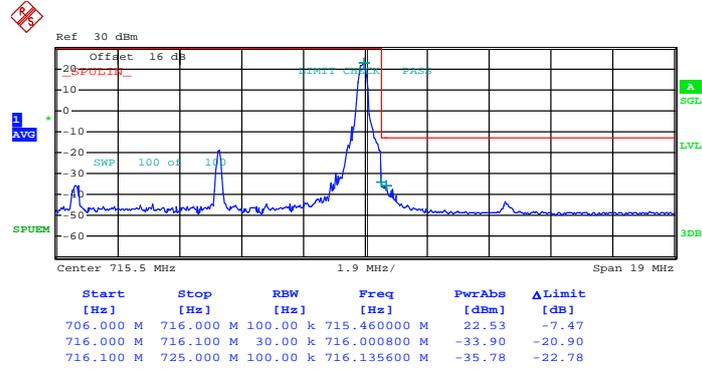
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 17.APR.2014 04:17:14

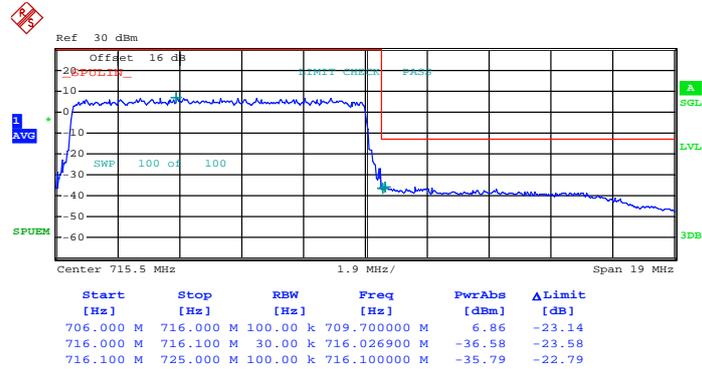


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 17.APR.2014 03:59:57

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

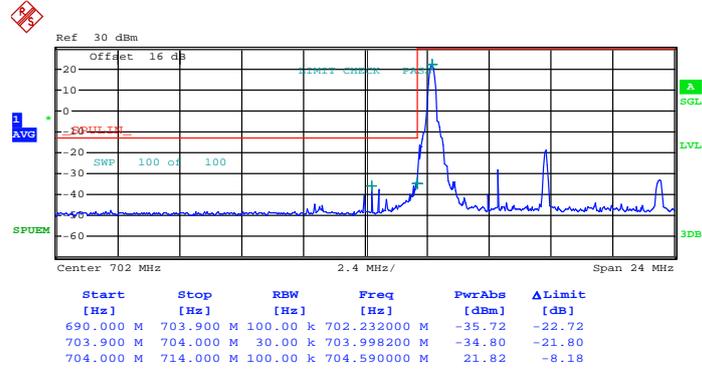


Date: 17.APR.2014 04:02:52



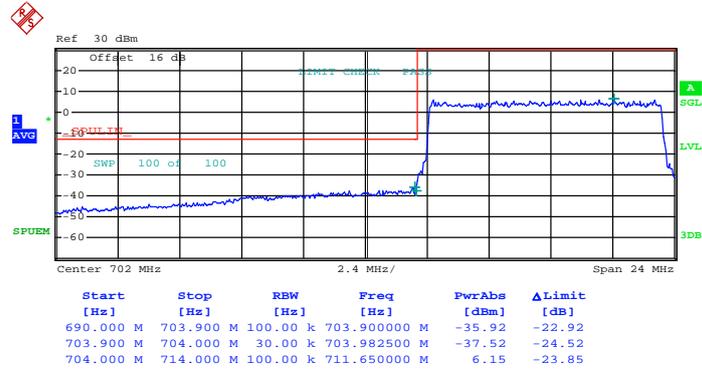
<b>Band :</b>	LTE Band 17	<b>Band Width :</b>	10MHz / 16QAM
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Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



Date: 17.APR.2014 04:10:30

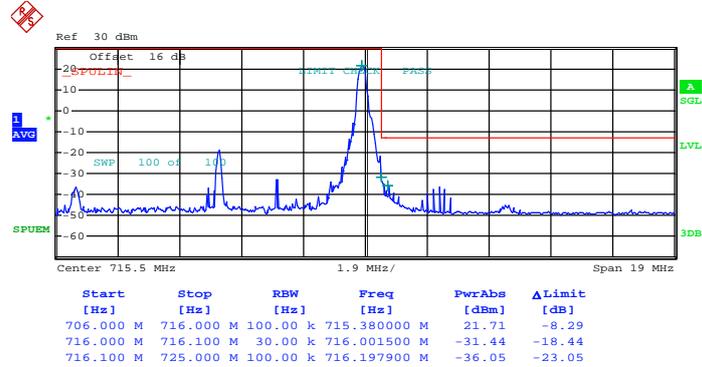
Lower Band Edge Plot for 16QAM-RB Size 50, RB Offset 0



Date: 17.APR.2014 04:08:03

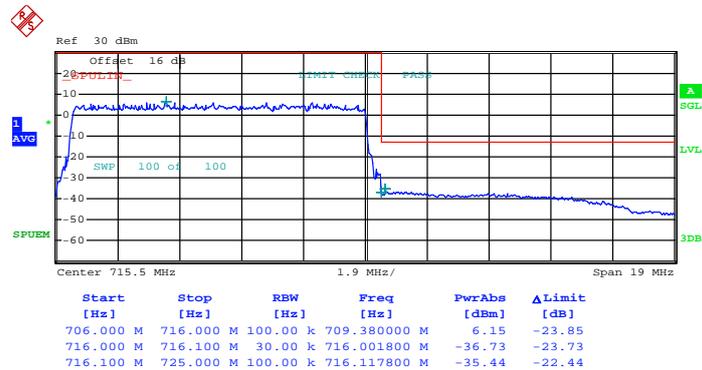


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 49



Date: 17.APR.2014 03:57:24

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



Date: 17.APR.2014 04:05:28

## 3.6 Conducted Spurious Emission Measurement

### 3.6.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 9 kHz up to a frequency including its 10<sup>th</sup> harmonic.

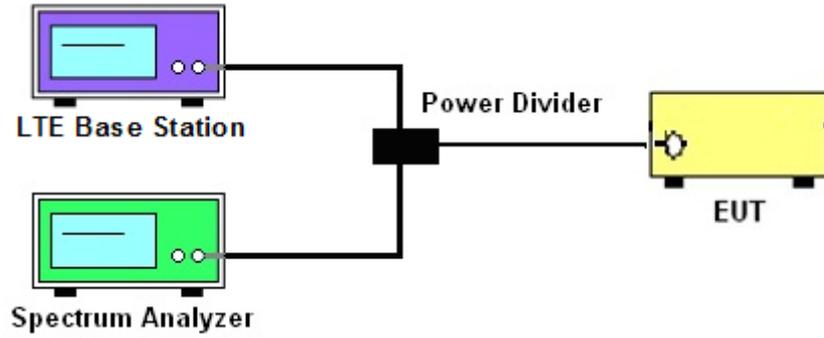
### 3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.6.3 Test Procedures

1. The EUT was connected to spectrum analyzer and LTE base station via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from  $43 + 10\log(P)$ dB below the transmitter power P(Watts)  
= P(W)- [43 + 10log(P)] (dB)  
= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)  
= -13dBm.

### 3.6.4 Test Setup

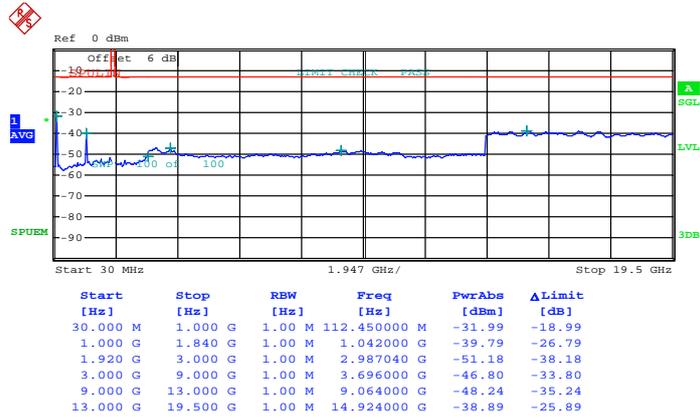




3.6.5 Test Result (Plots) of Conducted Spurious Emission

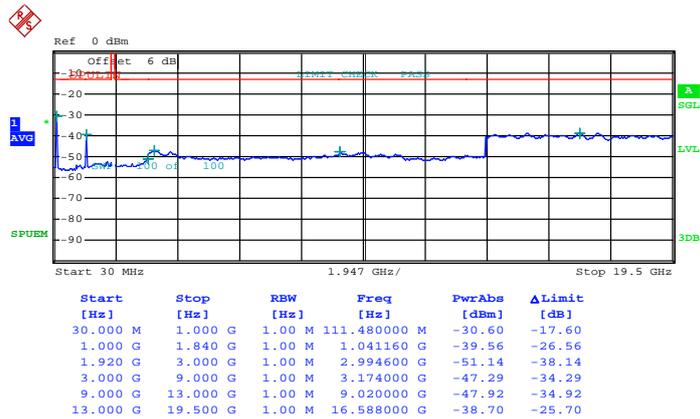
Band :	LTE Band 2	Channel :	CH18607 (Low)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 12.APR.2014 15:21:54

16QAM (RB Size 1, RB Offset 0)

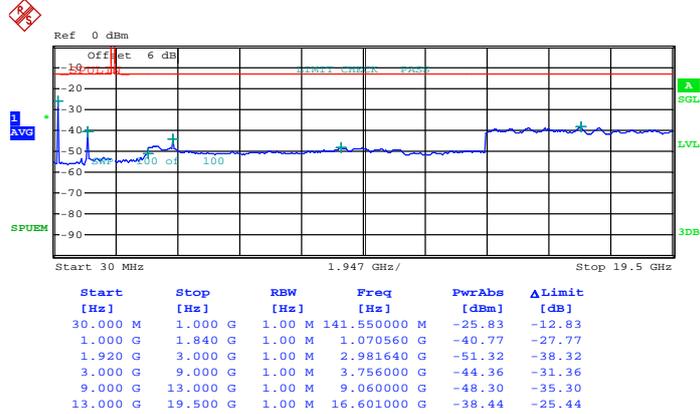


Date: 12.APR.2014 15:30:20



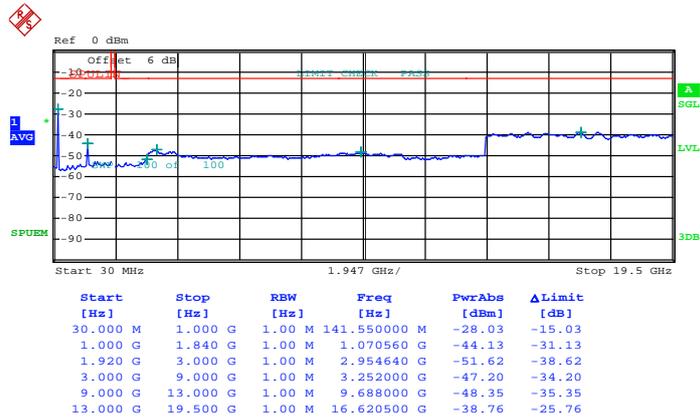
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 15:41:34

**16QAM (RB Size 1, RB Offset 0)**

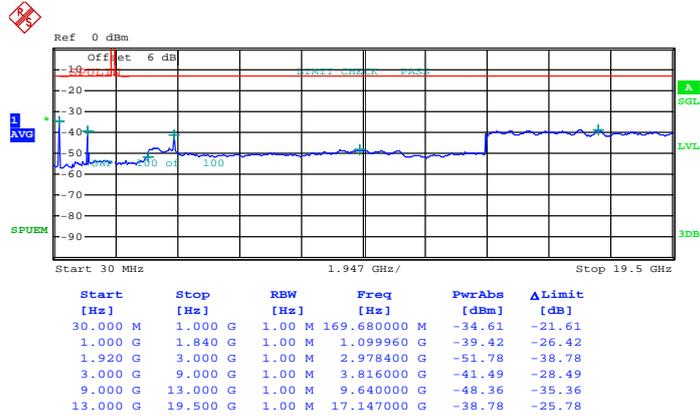


Date: 12.APR.2014 15:47:23



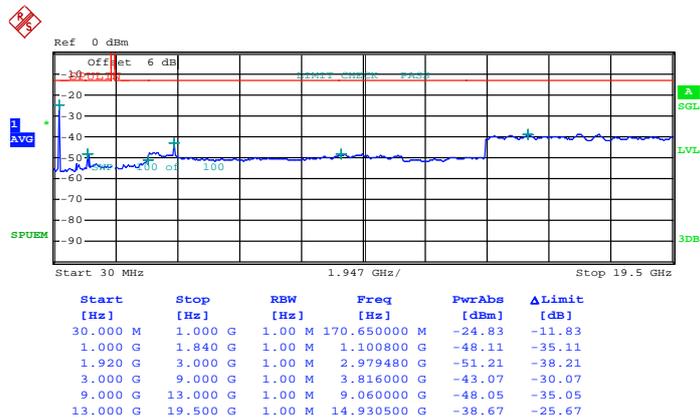
Band :	LTE Band 2	Channel :	CH19193 (High)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 16:04:52

**16QAM (RB Size 1, RB Offset 0)**

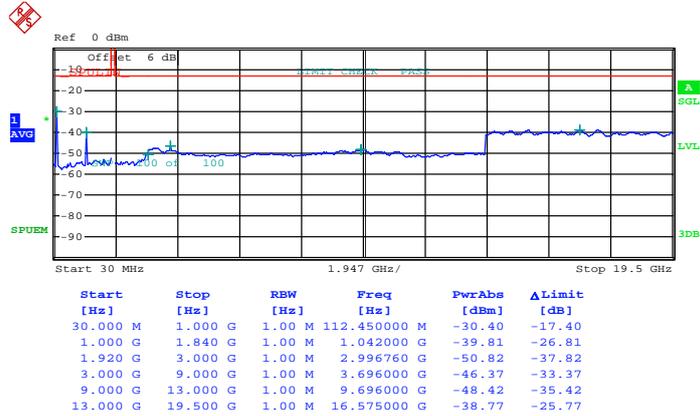


Date: 12.APR.2014 15:58:52



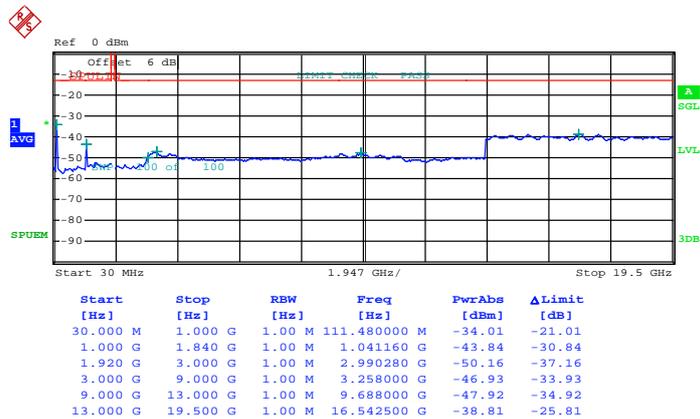
Band :	LTE Band 2	Channel :	CH18615 (Low)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 12.APR.2014 16:11:58

16QAM (RB Size 1, RB Offset 0)

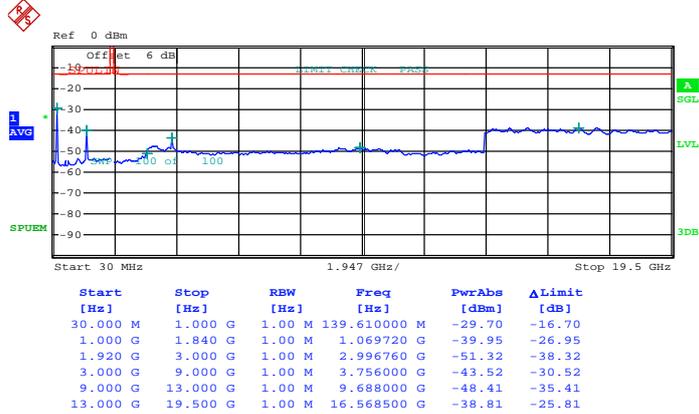


Date: 12.APR.2014 16:23:37



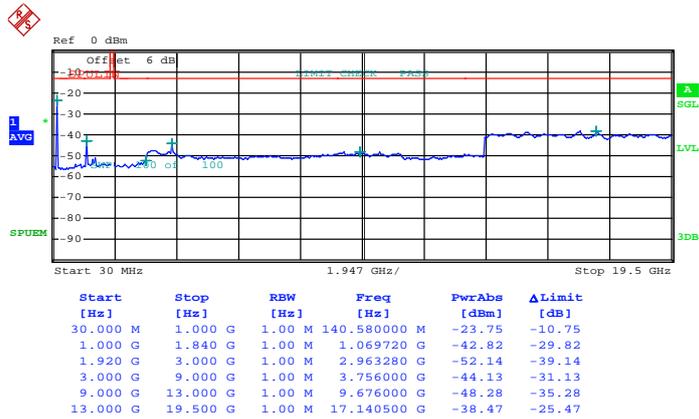
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	3MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 16:36:53

**16QAM (RB Size 1, RB Offset 0)**

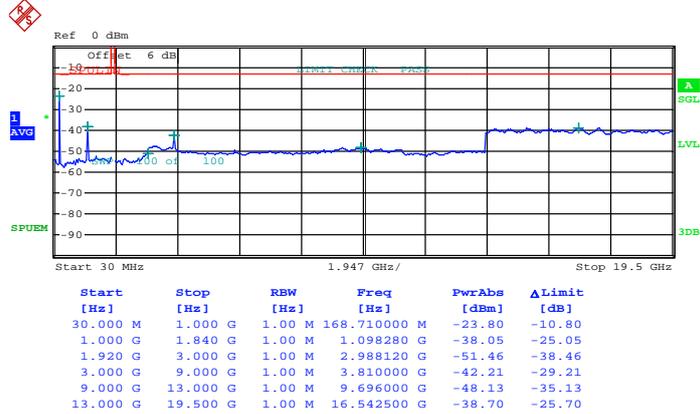


Date: 12.APR.2014 16:31:07



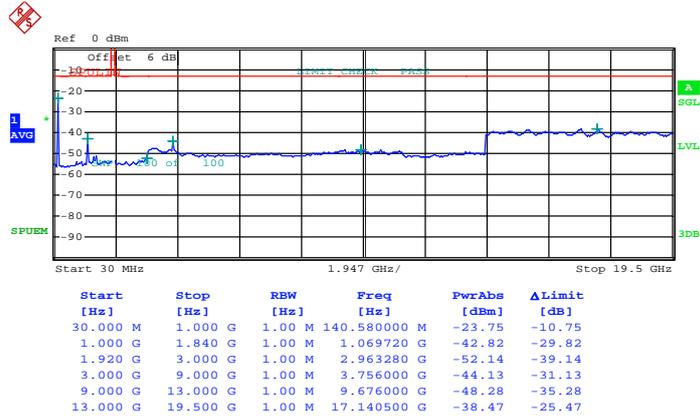
Band :	LTE Band 2	Channel :	CH19185 (High)
Band Width :	3MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 16:46:48

**16QAM (RB Size 1, RB Offset 0)**

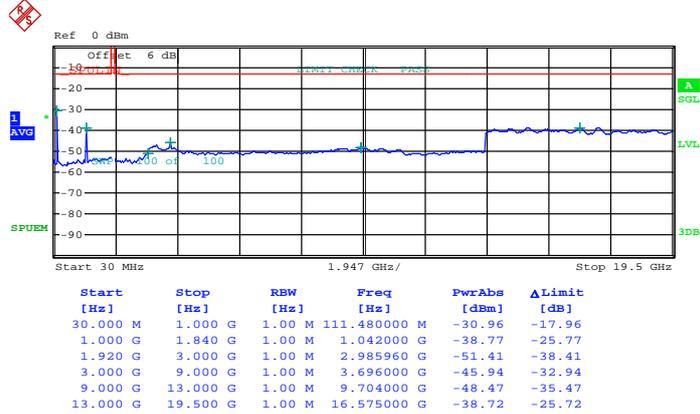


Date: 12.APR.2014 16:31:07



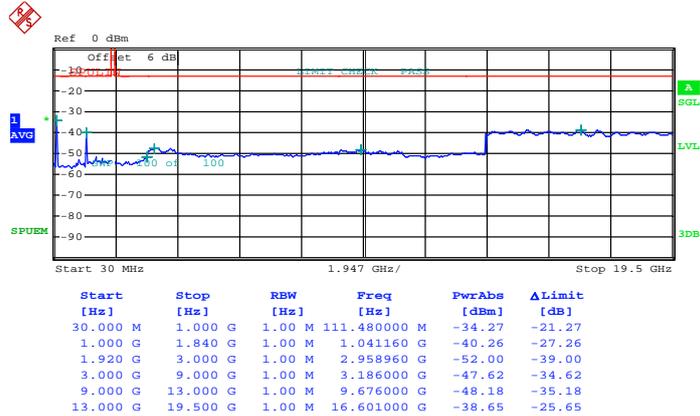
Band :	LTE Band 2	Channel :	CH18625 (Low)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 16:59:14

**16QAM (RB Size 1, RB Offset 0)**

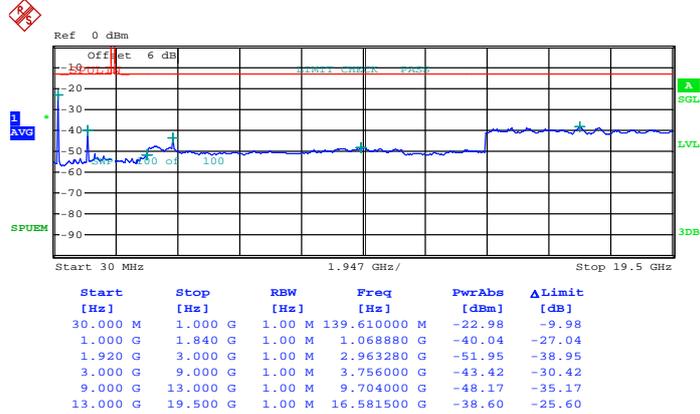


Date: 12.APR.2014 17:04:36



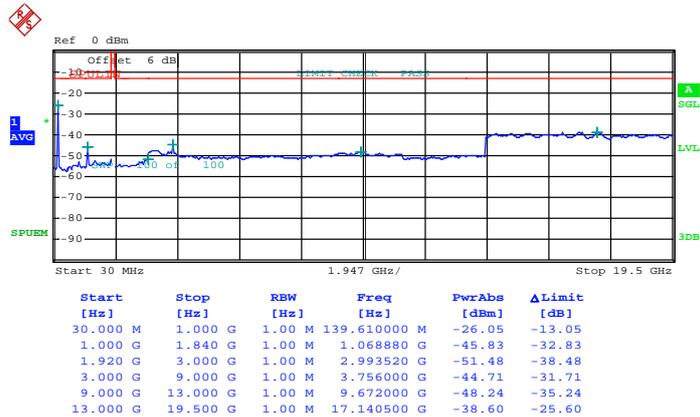
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 17:10:11

**16QAM (RB Size 1, RB Offset 0)**

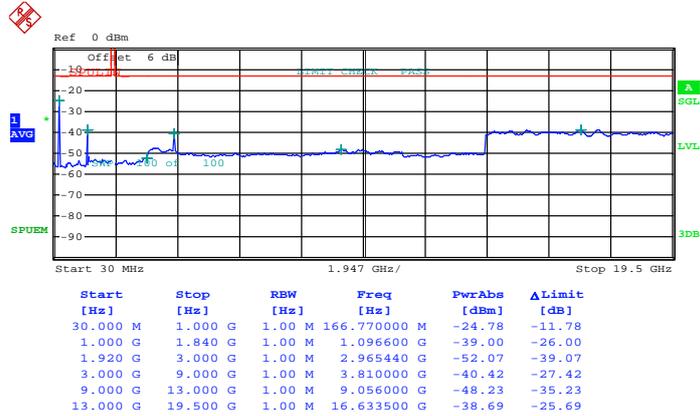


Date: 12.APR.2014 17:17:19



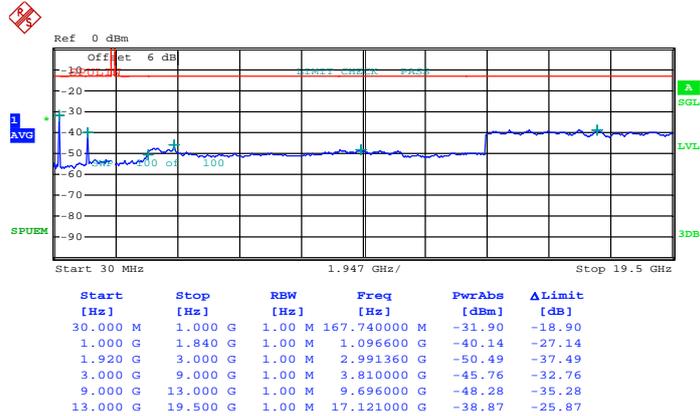
Band :	LTE Band 2	Channel :	CH19175 (High)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 17:25:38

**16QAM (RB Size 1, RB Offset 0)**

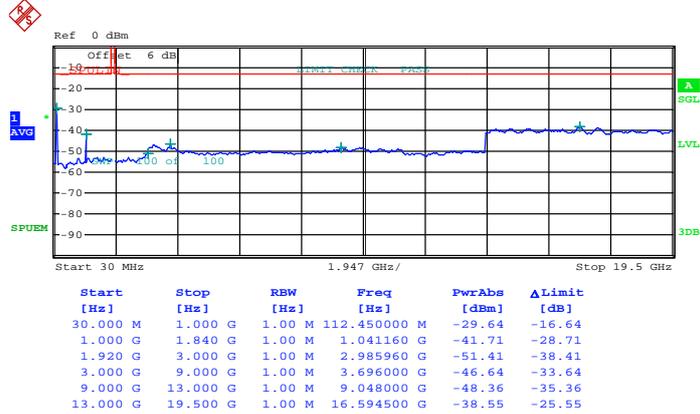


Date: 12.APR.2014 17:32:08



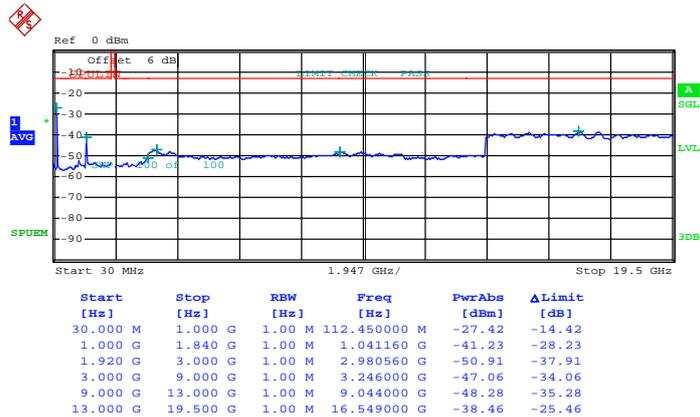
Band :	LTE Band 2	Channel :	CH18650 (Low)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 17:40:59

**16QAM (RB Size 1, RB Offset 0)**

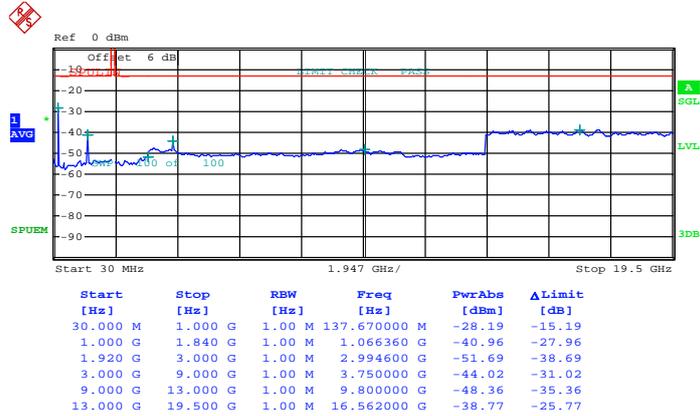


Date: 12.APR.2014 17:48:17



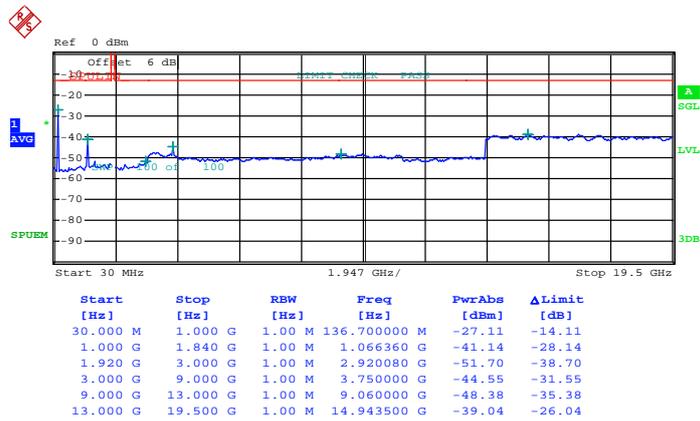
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 17:53:38

**16QAM (RB Size 1, RB Offset 0)**

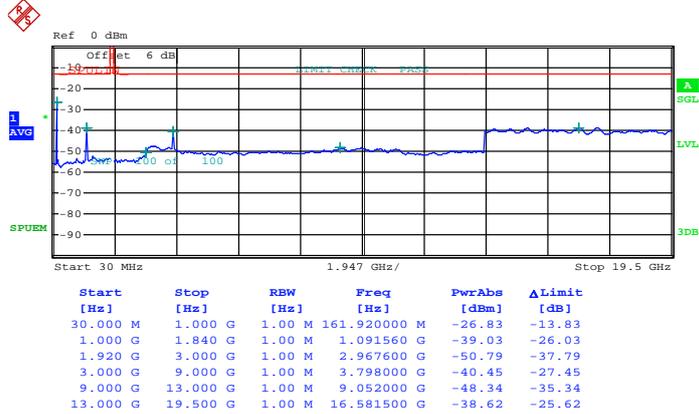


Date: 12.APR.2014 18:00:05



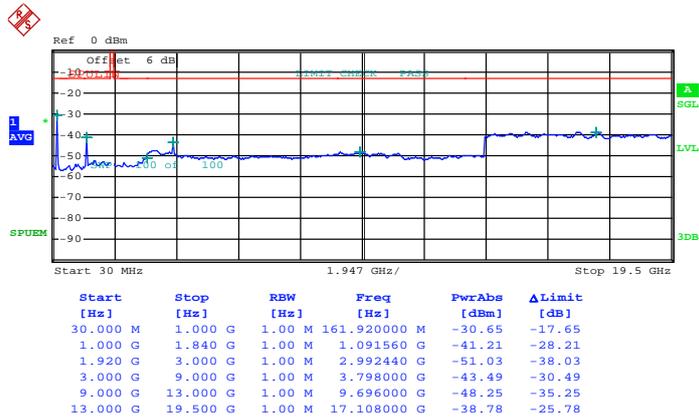
Band :	LTE Band 2	Channel :	CH19150 (High)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 18:05:57

**16QAM (RB Size 1, RB Offset 0)**

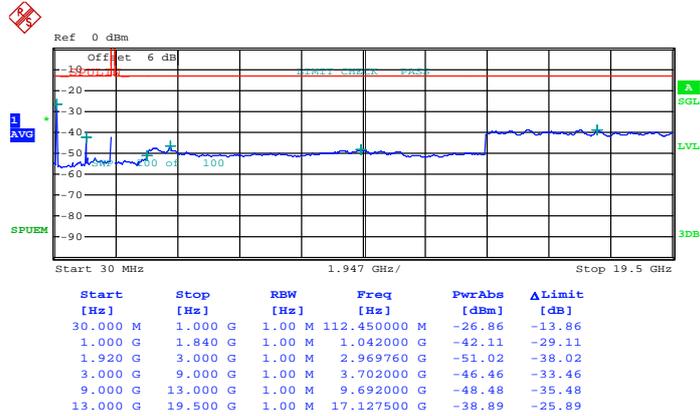


Date: 12.APR.2014 18:16:08



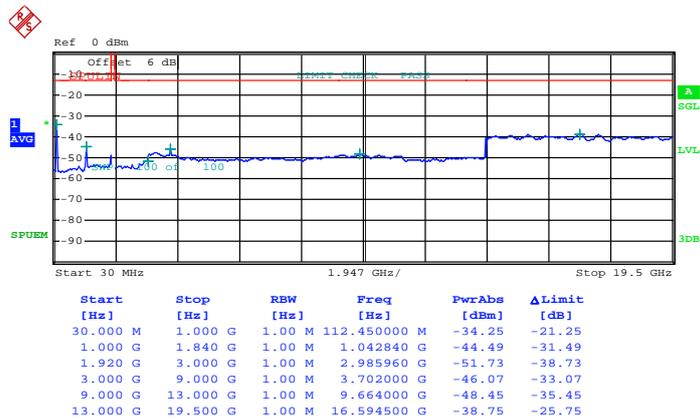
Band :	LTE Band 2	Channel :	CH18675 (Low)
Band Width :	15MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 18:28:38

**16QAM (RB Size 1, RB Offset 0)**

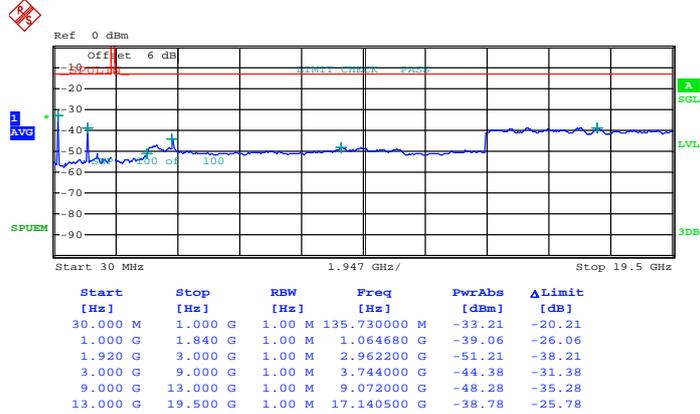


Date: 12.APR.2014 18:22:15



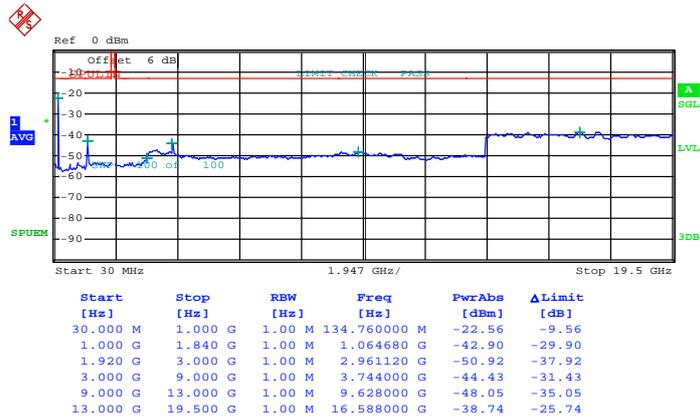
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	15MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 18:36:57

**16QAM (RB Size 1, RB Offset 0)**

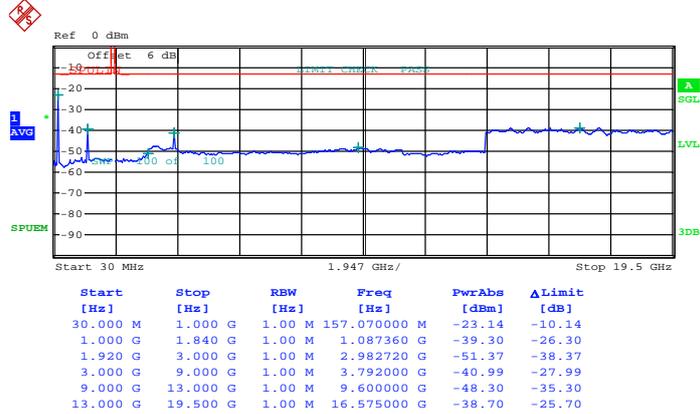


Date: 12.APR.2014 18:44:48



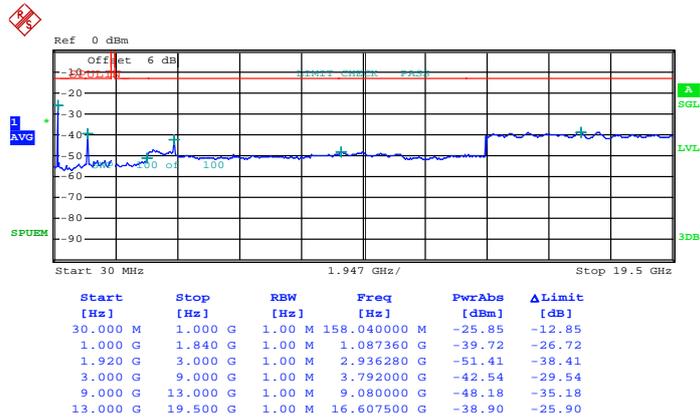
Band :	LTE Band 2	Channel :	CH19125 (High)
Band Width :	15MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 19:00:11

**16QAM (RB Size 1, RB Offset 0)**

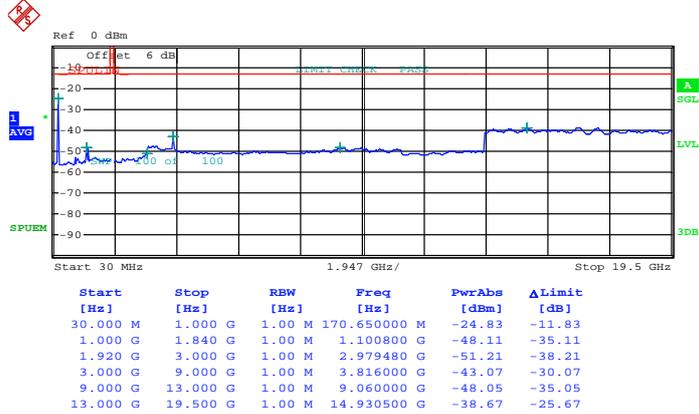


Date: 12.APR.2014 19:20:43



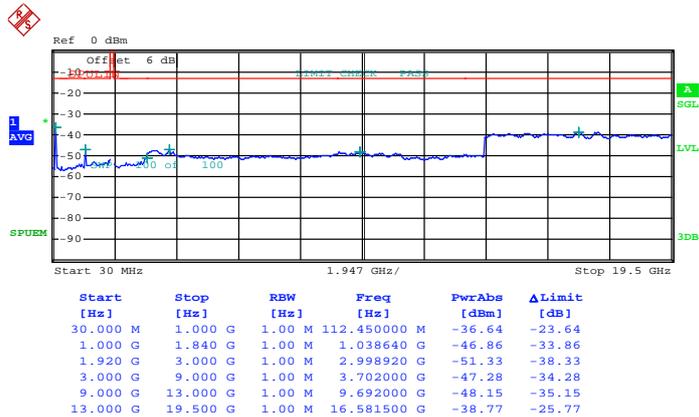
Band :	LTE Band 2	Channel :	CH18700 (Low)
Band Width :	20MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 15:58:52

**16QAM (RB Size 1, RB Offset 0)**

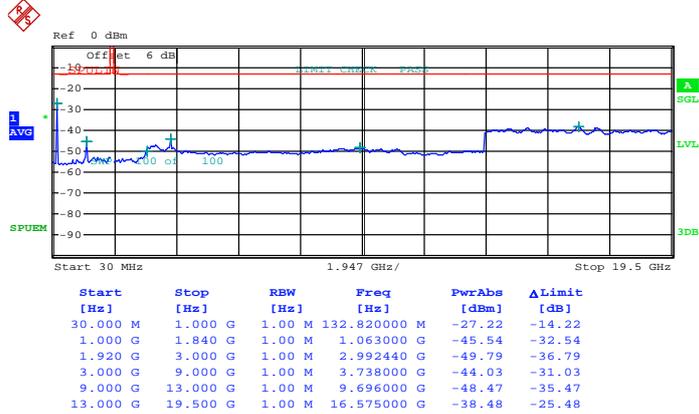


Date: 12.APR.2014 19:46:00



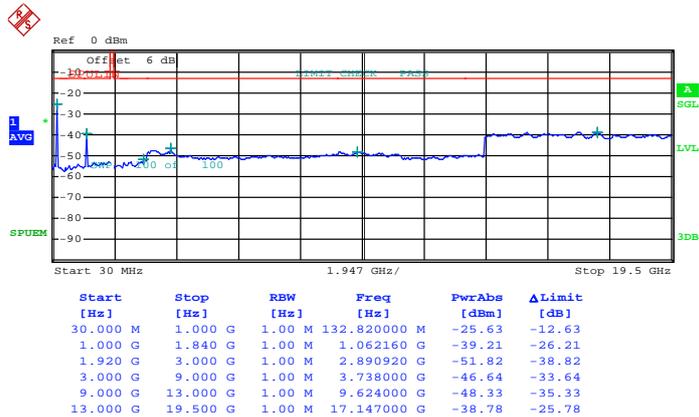
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	20MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 20:11:30

**16QAM (RB Size 1, RB Offset 0)**

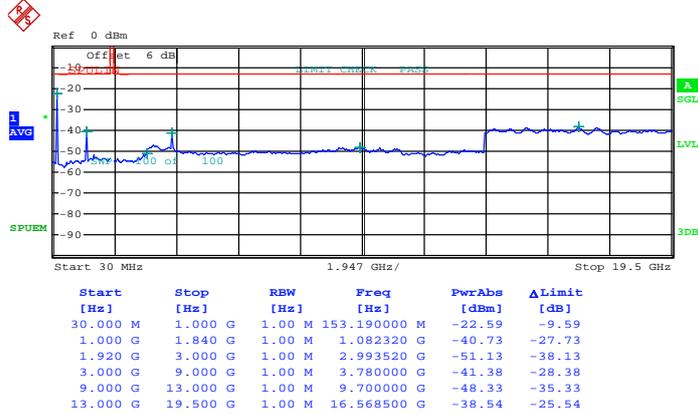


Date: 12.APR.2014 20:21:08



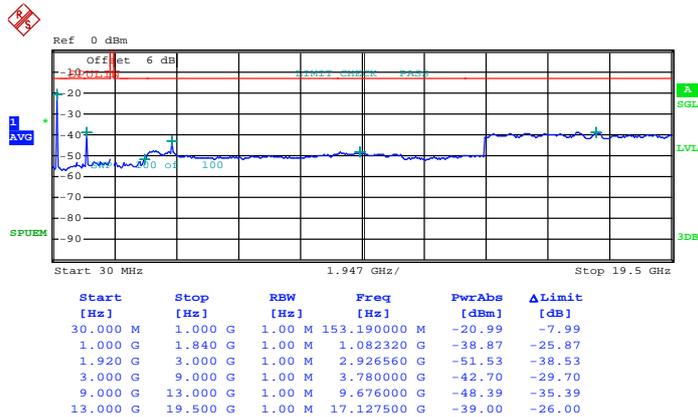
Band :	LTE Band 2	Channel :	CH19100 (High)
Band Width :	20MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 12.APR.2014 20:29:03

**16QAM (RB Size 1, RB Offset 0)**

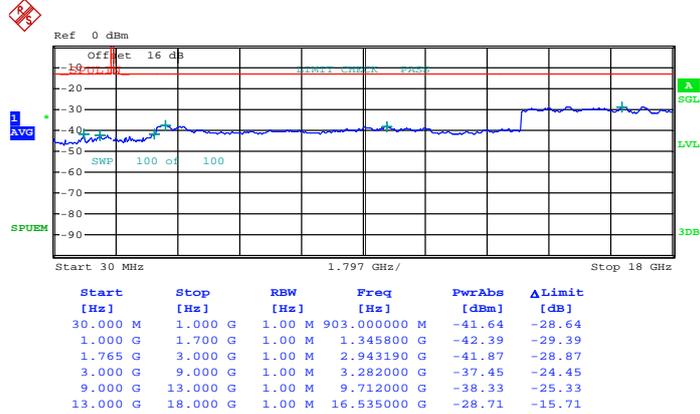


Date: 12.APR.2014 20:43:07



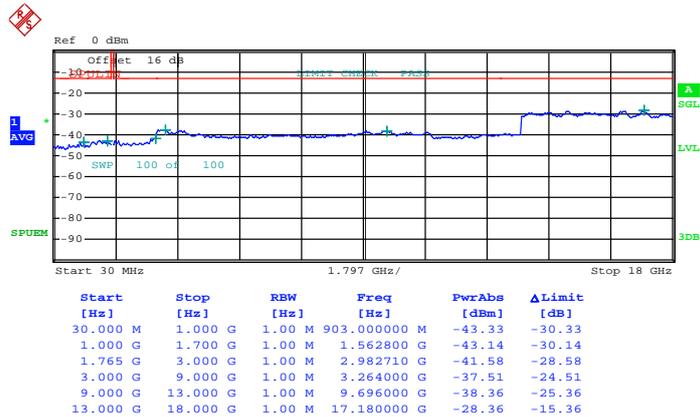
Band :	LTE Band 4	Channel :	CH19957 (Low)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 17:24:46

**16QAM (RB Size 1, RB Offset 0)**

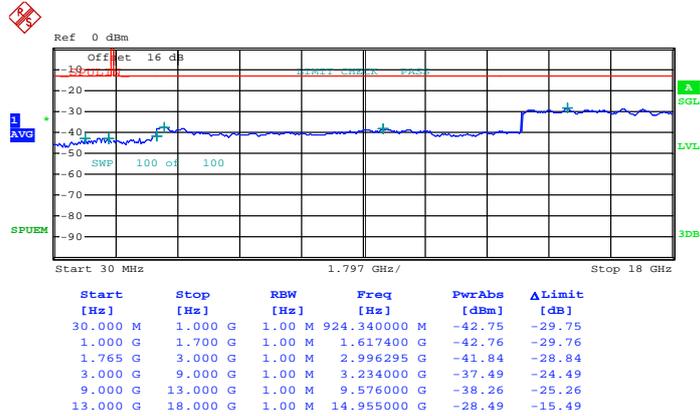


Date: 16.APR.2014 17:29:48



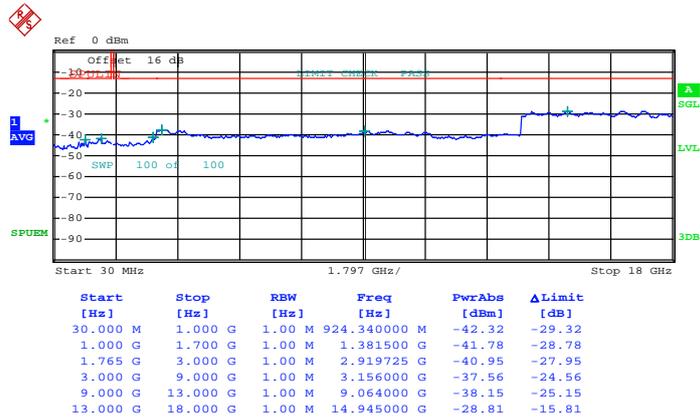
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 17:34:48

**16QAM (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 17:40:13



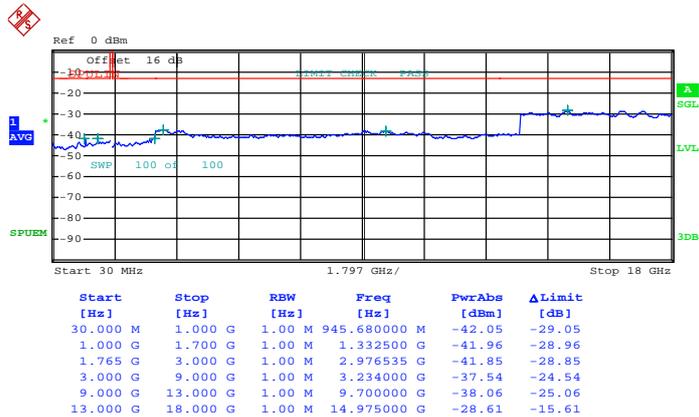
Band :	LTE Band 4	Channel :	CH20393 (High)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 17:47:22

**16QAM (RB Size 1, RB Offset 0)**

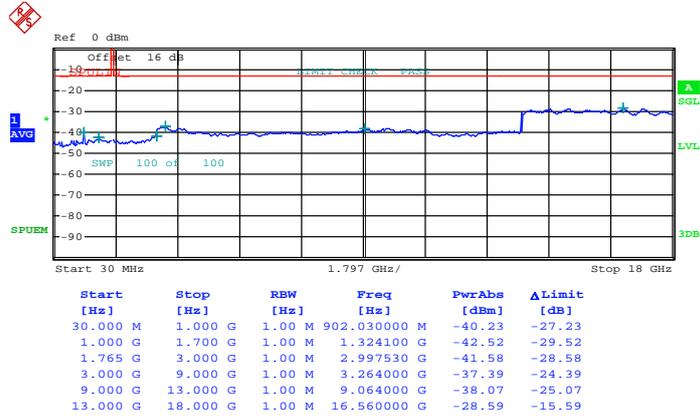


Date: 16.APR.2014 17:53:25



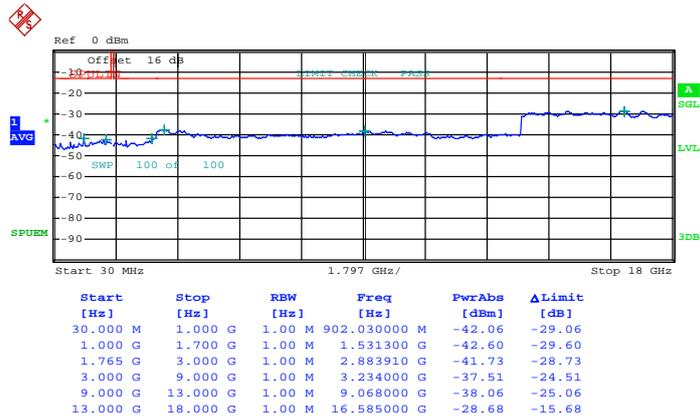
Band :	LTE Band 4	Channel :	CH19965 (Low)
Band Width :	3MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 18:01:12

**16QAM (RB Size 1, RB Offset 0)**

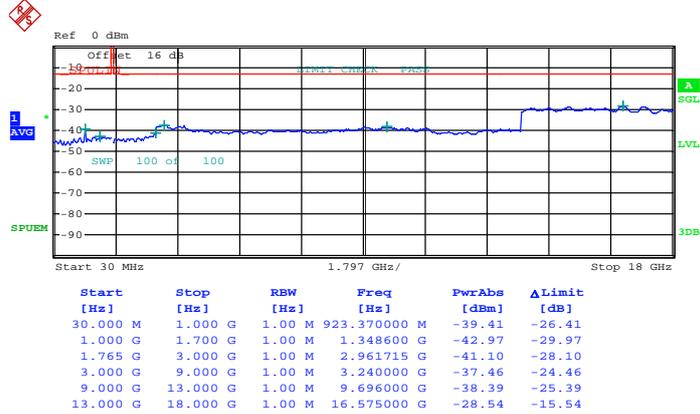


Date: 16.APR.2014 18:07:48



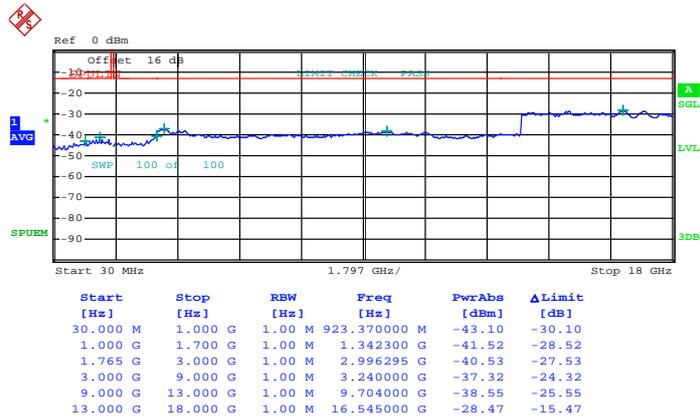
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	3MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 18:12:54

**16QAM (RB Size 1, RB Offset 0)**

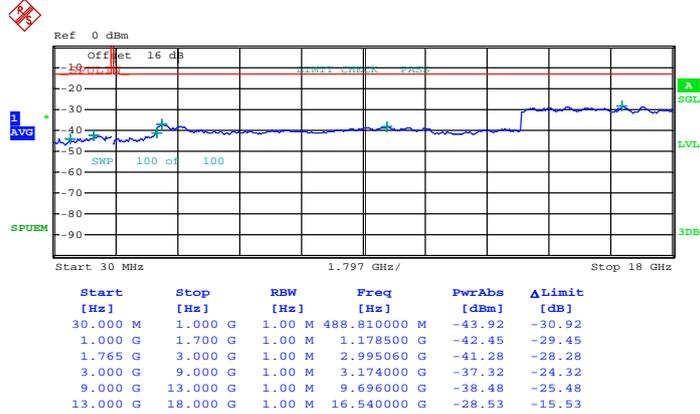


Date: 16.APR.2014 18:18:16



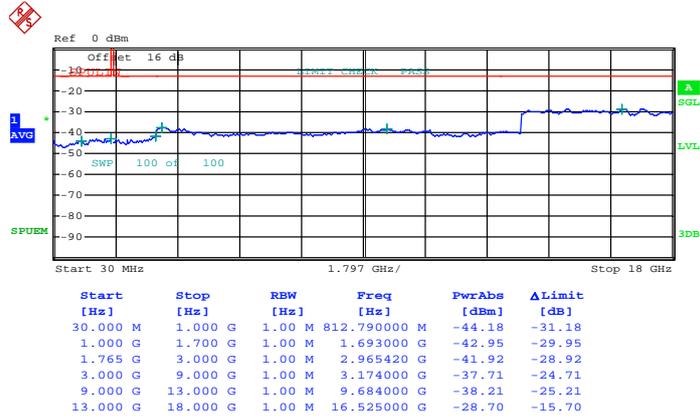
Band :	LTE Band 4	Channel :	CH20385 (High)
Band Width :	3MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 18:23:52

**16QAM (RB Size 1, RB Offset 0)**

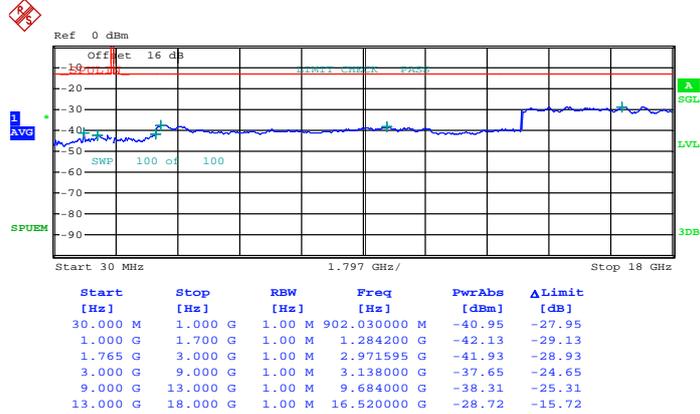


Date: 16.APR.2014 19:08:06



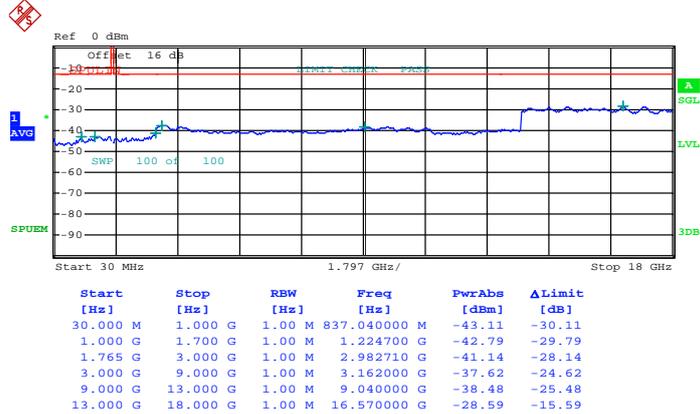
Band :	LTE Band 4	Channel :	CH19975 (Low)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 19:19:00

**16QAM (RB Size 1, RB Offset 0)**

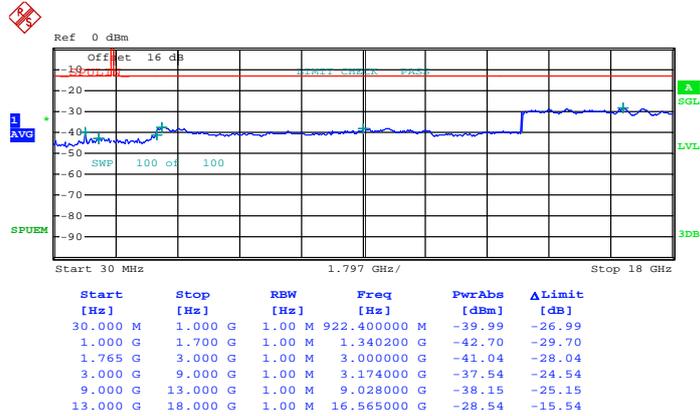


Date: 16.APR.2014 19:14:00



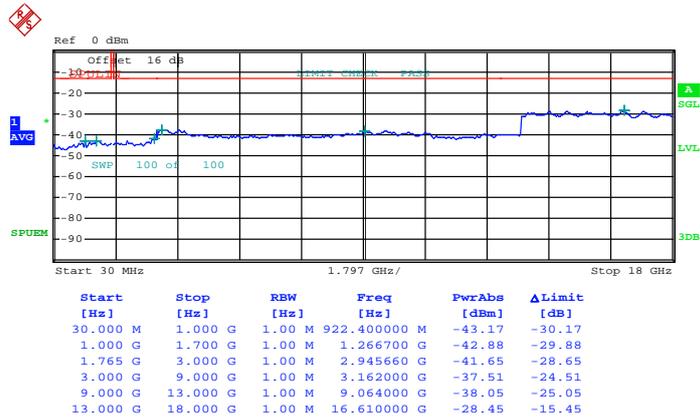
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 16.APR.2014 19:24:56

16QAM (RB Size 1, RB Offset 0)

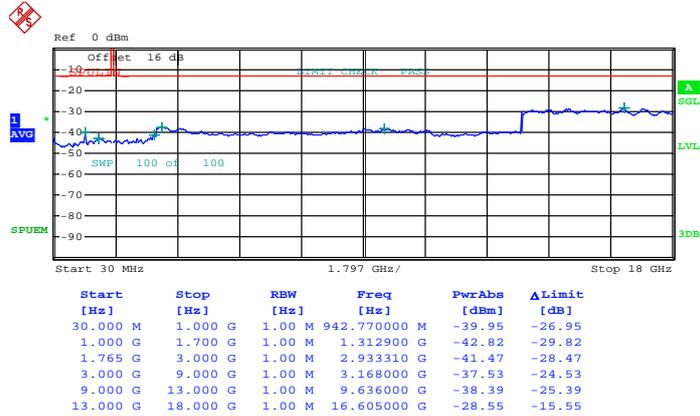


Date: 16.APR.2014 19:30:01



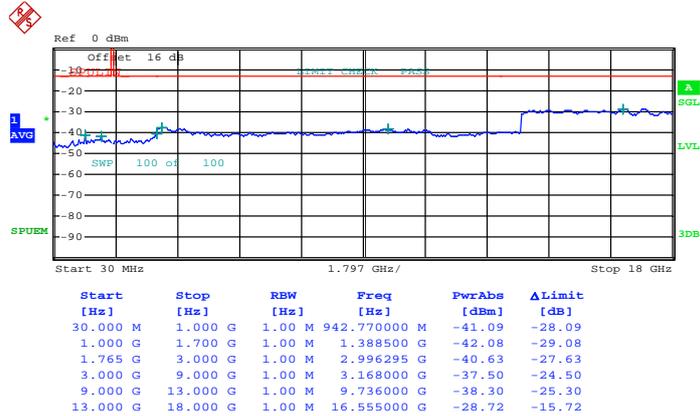
Band :	LTE Band 4	Channel :	CH20375 (High)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 19:41:45

**16QAM (RB Size 1, RB Offset 0)**

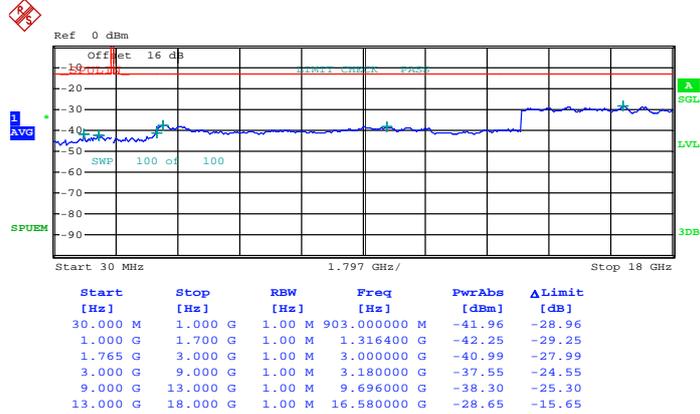


Date: 16.APR.2014 19:36:47



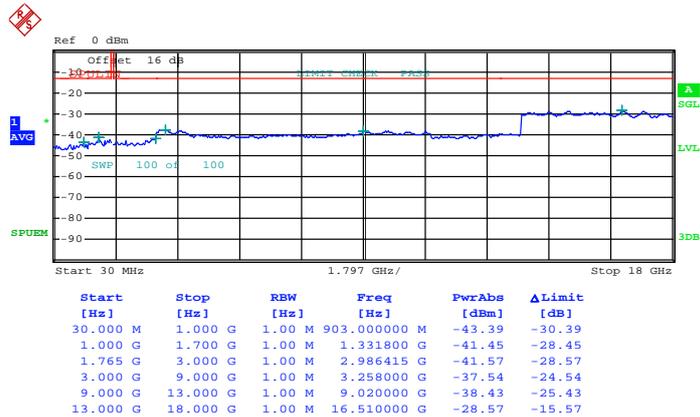
Band :	LTE Band 4	Channel :	CH20000 (Low)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 19:47:57

**16QAM (RB Size 1, RB Offset 0)**

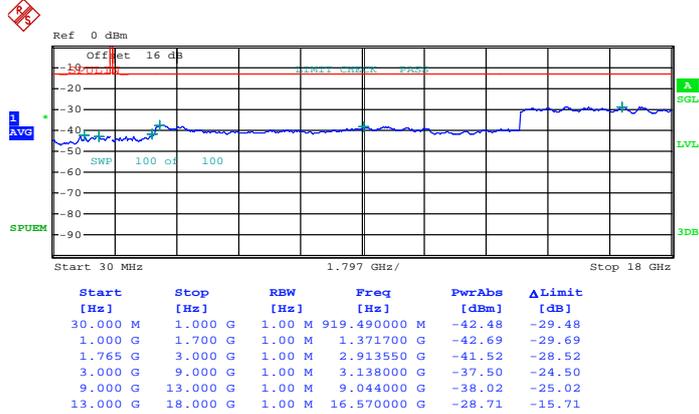


Date: 16.APR.2014 19:52:51



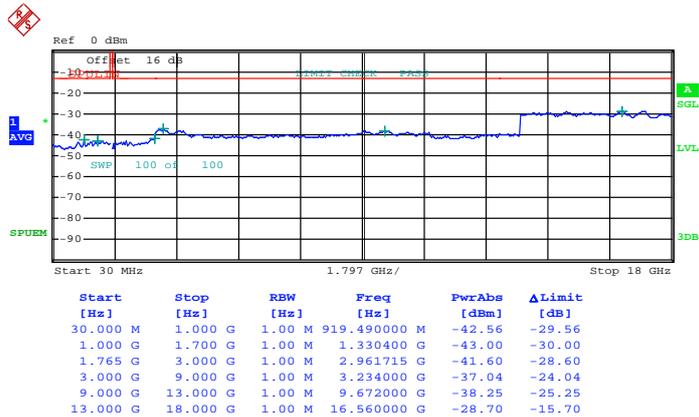
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 22:01:38

**16QAM (RB Size 1, RB Offset 0)**

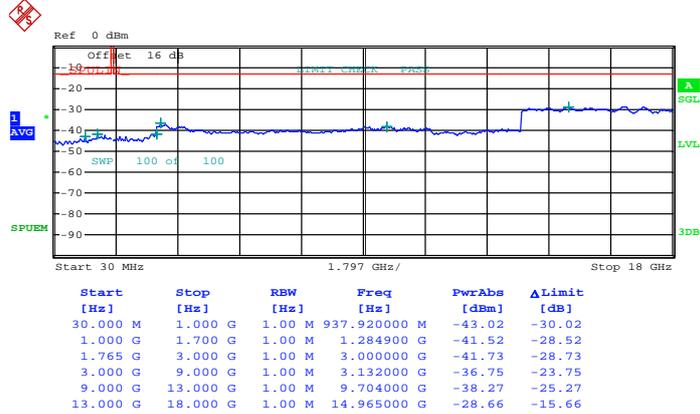


Date: 16.APR.2014 21:51:53



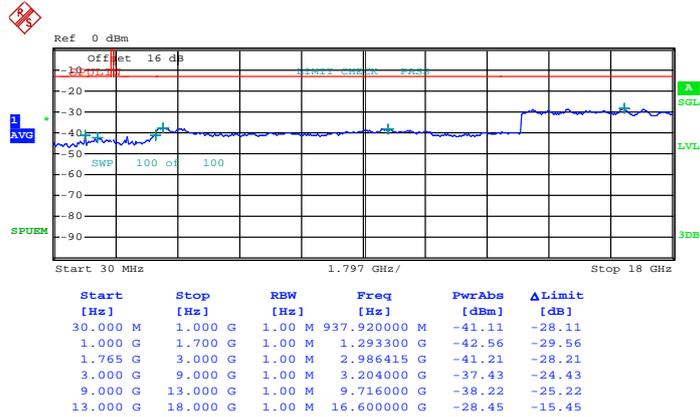
Band :	LTE Band 4	Channel :	CH20350 (High)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 22:06:58

**16QAM (RB Size 1, RB Offset 0)**

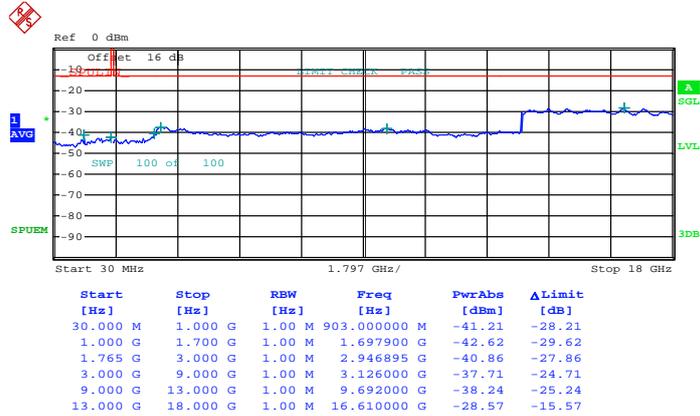


Date: 16.APR.2014 22:11:59



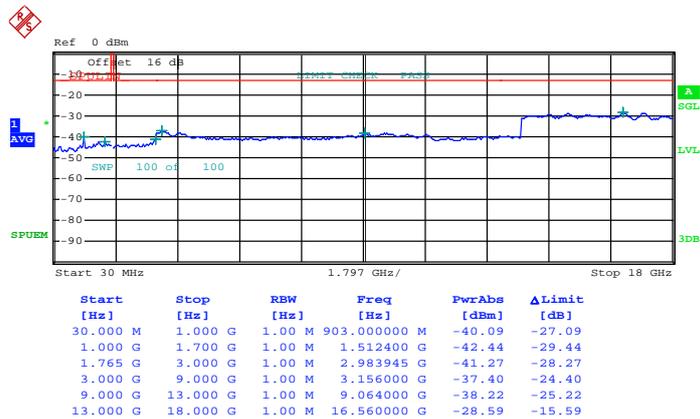
Band :	LTE Band 4	Channel :	CH20025 (Low)
Band Width :	15MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 22:22:37

**16QAM (RB Size 1, RB Offset 0)**

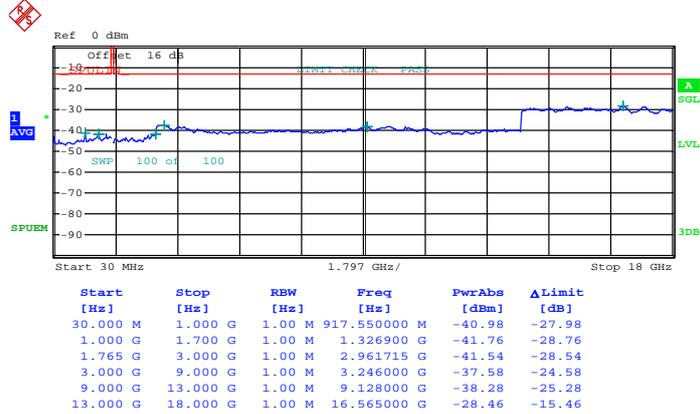


Date: 16.APR.2014 22:17:29



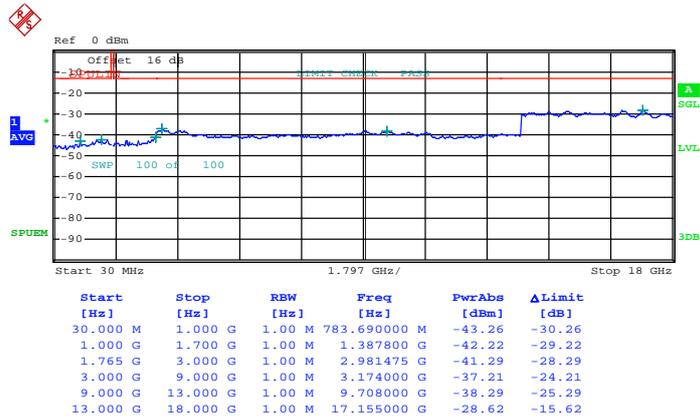
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	15MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 22:45:46

**16QAM (RB Size 1, RB Offset 0)**

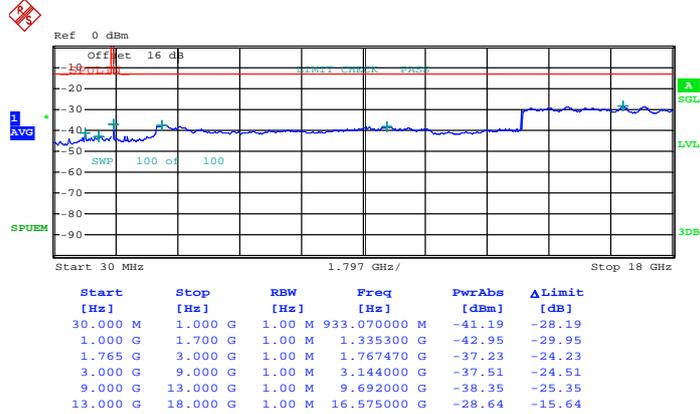


Date: 16.APR.2014 22:50:51



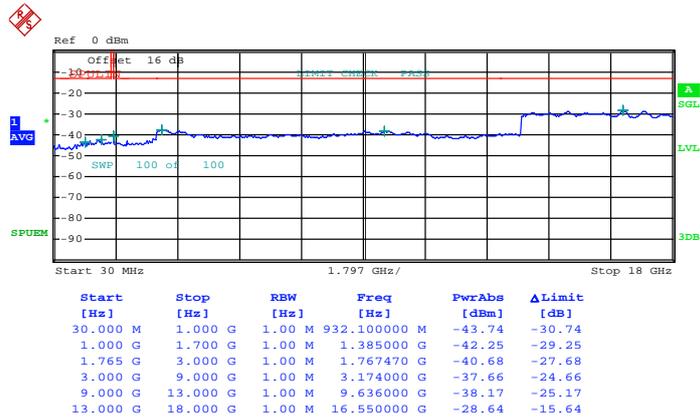
Band :	LTE Band 4	Channel :	CH20325 (High)
Band Width :	15MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 23:05:26

**16QAM (RB Size 1, RB Offset 0)**

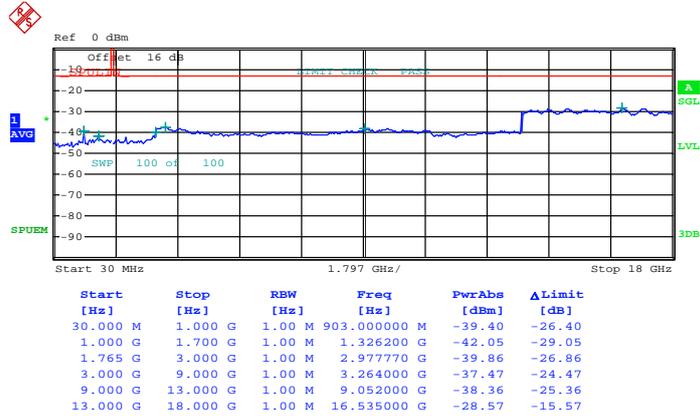


Date: 16.APR.2014 22:57:29



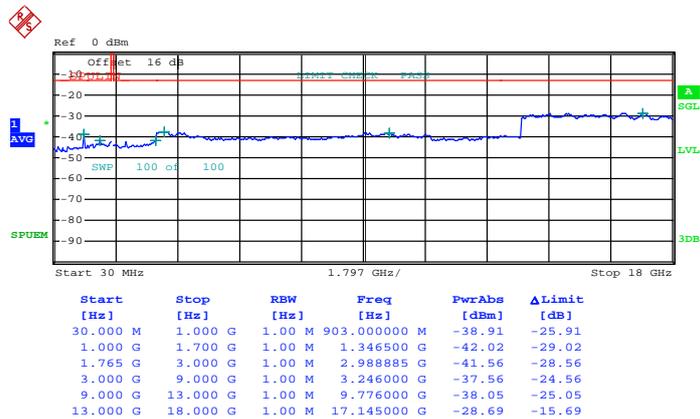
Band :	LTE Band 4	Channel :	CH20050 (Low)
Band Width :	20MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 23:10:47

**16QAM (RB Size 1, RB Offset 0)**

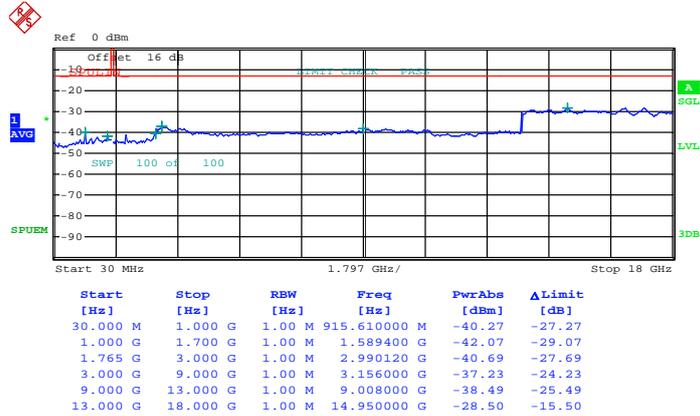


Date: 16.APR.2014 23:16:10



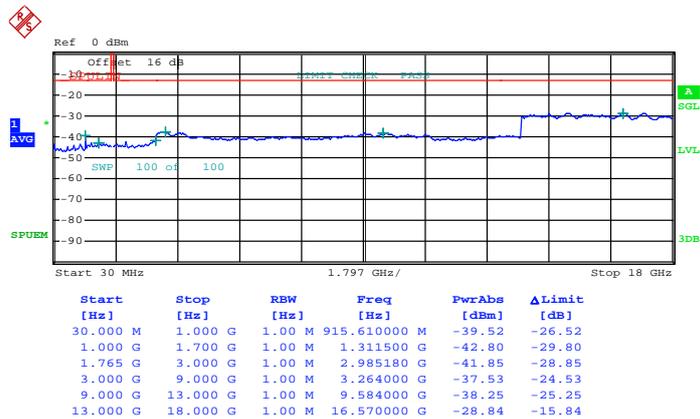
Band :	LTE Band 4	Channel :	CH20175 (Middle)
Band Width :	20MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 23:27:06

**16QAM (RB Size 1, RB Offset 0)**

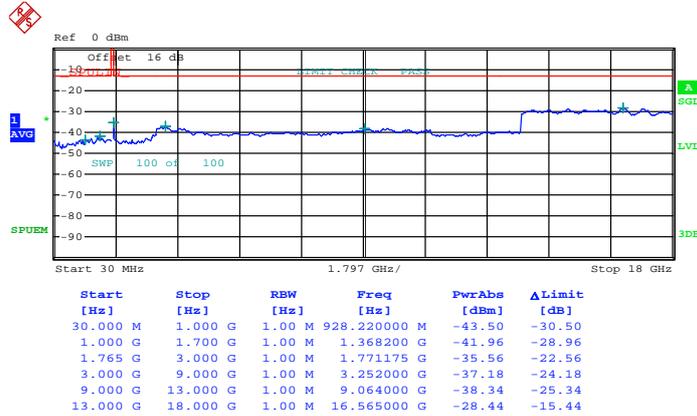


Date: 16.APR.2014 23:21:25



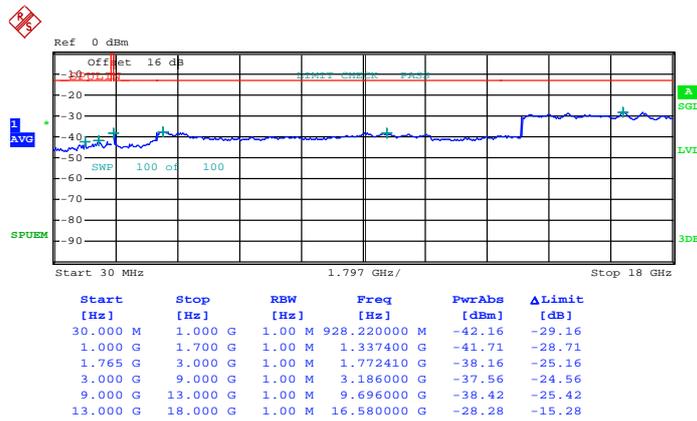
Band :	LTE Band 4	Channel :	CH20300 (High)
Band Width :	20MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 16.APR.2014 23:32:10

**16QAM (RB Size 1, RB Offset 0)**

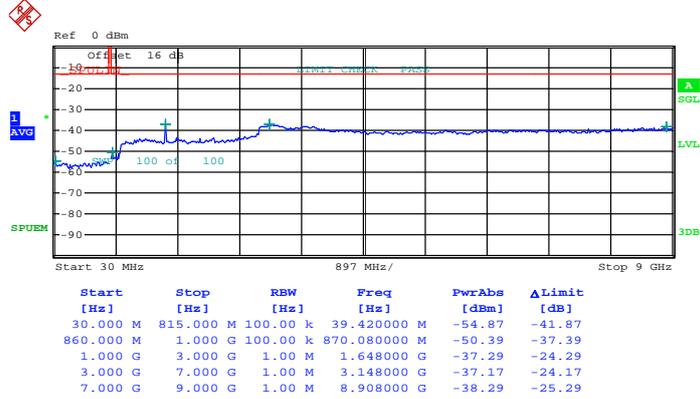


Date: 16.APR.2014 23:38:45



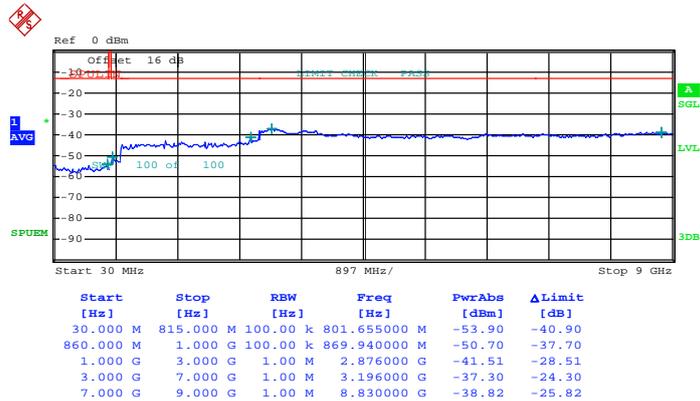
Band :	LTE Band 5	Channel :	CH20407 (Low)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 01:18:10

**16QAM(RB Size 1, RB Offset 0)**

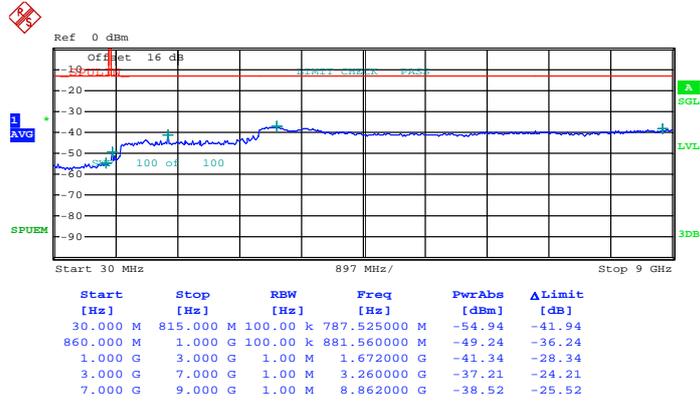


Date: 17.APR.2014 01:14:37



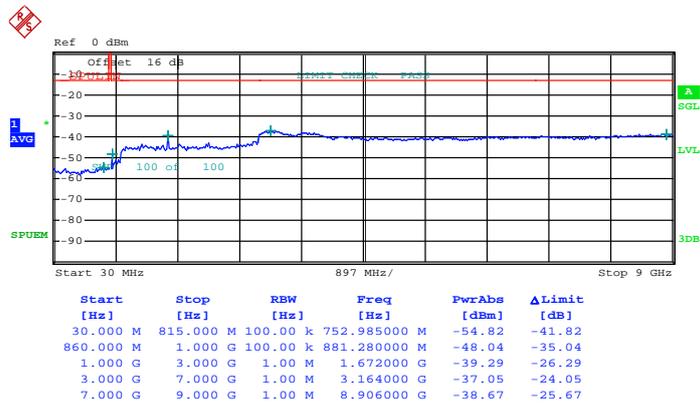
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 01:21:48

**16QAM (RB Size 1, RB Offset 0)**

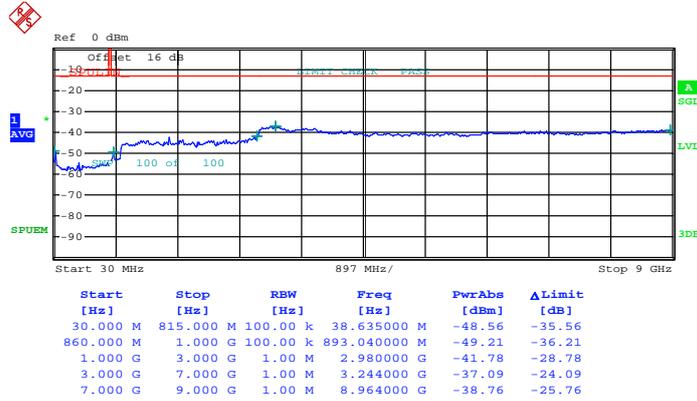


Date: 17.APR.2014 01:26:28



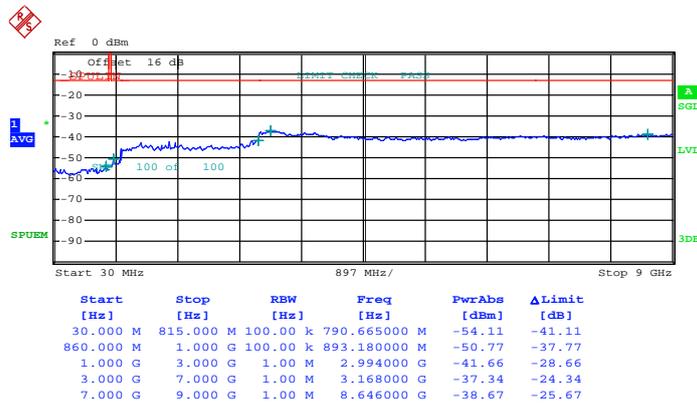
Band :	LTE Band 5	Channel :	CH20643 (High)
Band Width :	1.4MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 01:36:14

**16QAM (RB Size 1, RB Offset 0)**

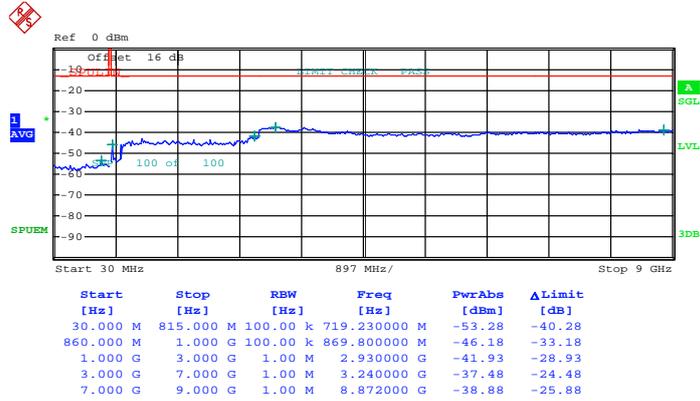


Date: 17.APR.2014 01:29:56



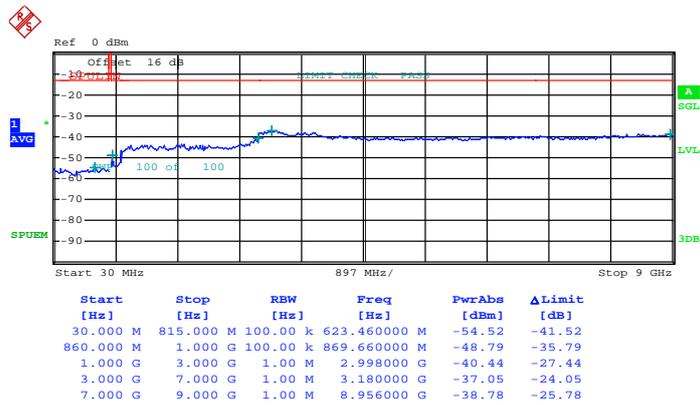
Band :	LTE Band 5	Channel :	CH20415 (Low)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 17.APR.2014 01:40:29

16QAM (RB Size 1, RB Offset 0)

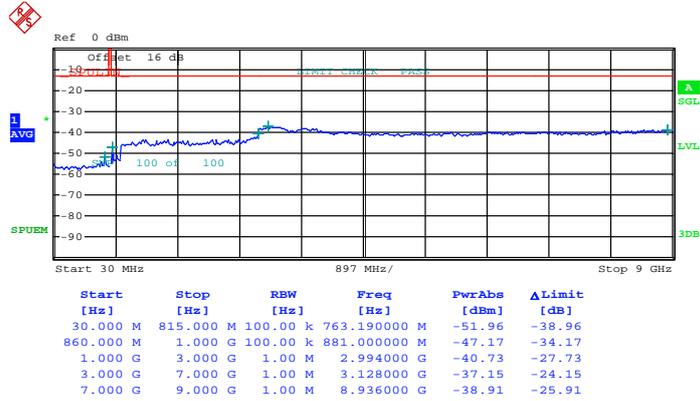


Date: 17.APR.2014 01:45:05



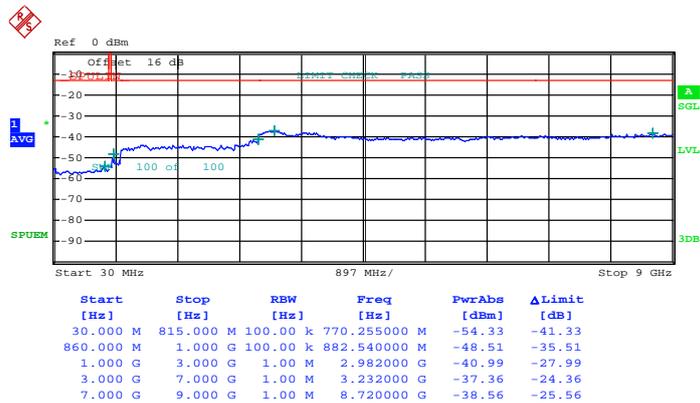
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	3MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 01:54:21

**16QAM (RB Size 1, RB Offset 0)**

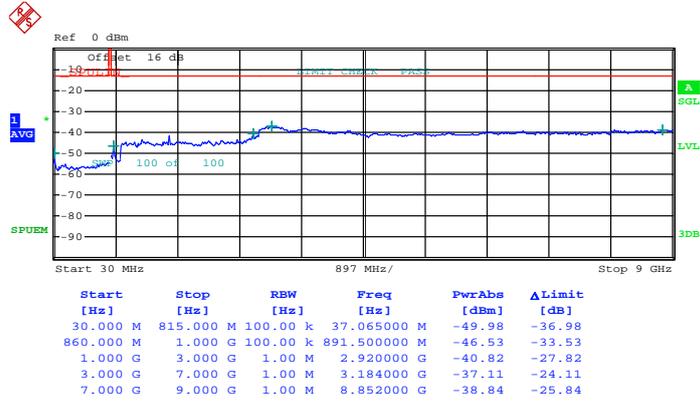


Date: 17.APR.2014 01:49:30



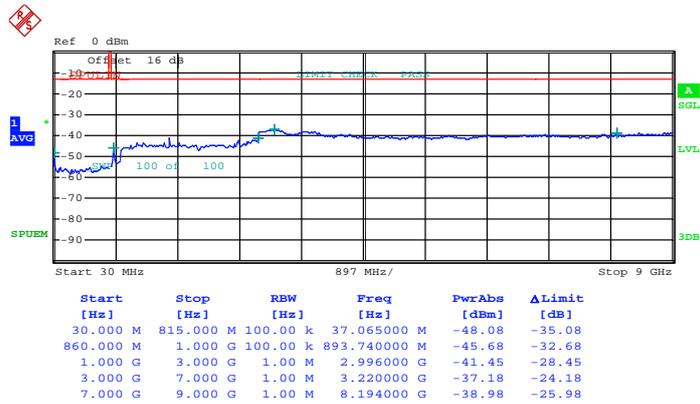
Band :	LTE Band 5	Channel :	CH20635 (High)
Band Width :	3MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 01:58:33

**16QAM (RB Size 1, RB Offset 0)**

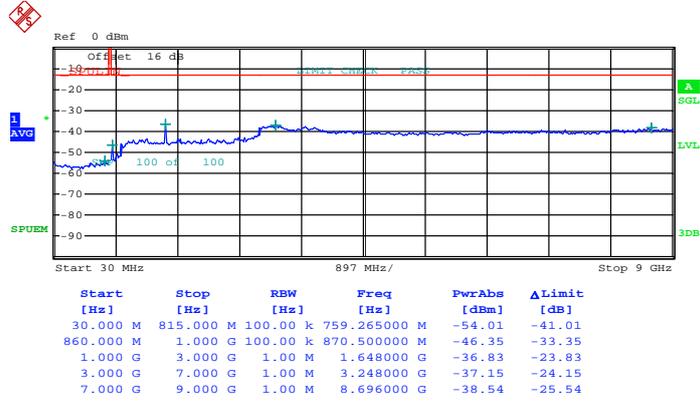


Date: 17.APR.2014 02:51:24



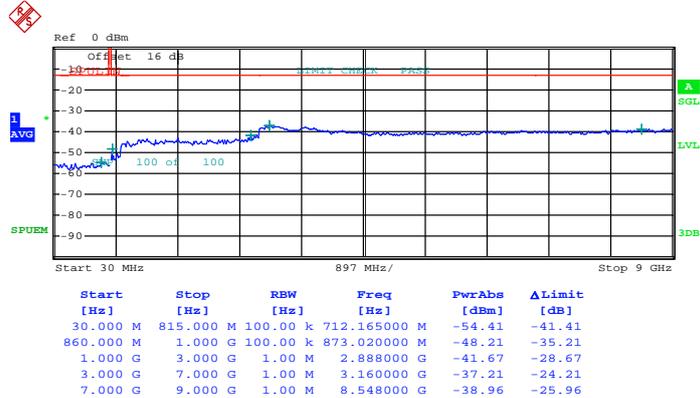
Band :	LTE Band 5	Channel :	CH20425 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 17.APR.2014 02:58:29

16QAM (RB Size 1, RB Offset 0)

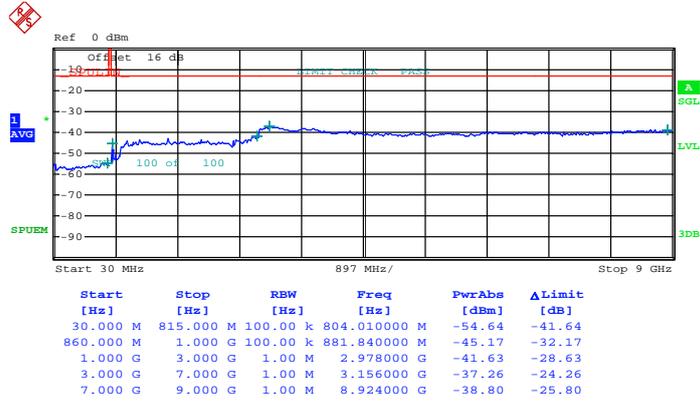


Date: 17.APR.2014 02:55:10



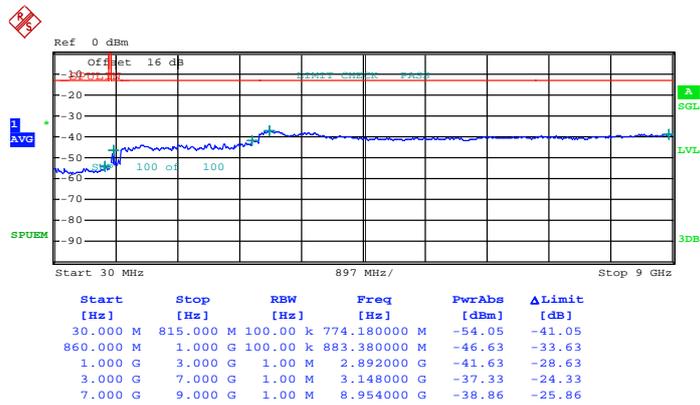
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 17.APR.2014 03:02:35

16QAM (RB Size 1, RB Offset 0)

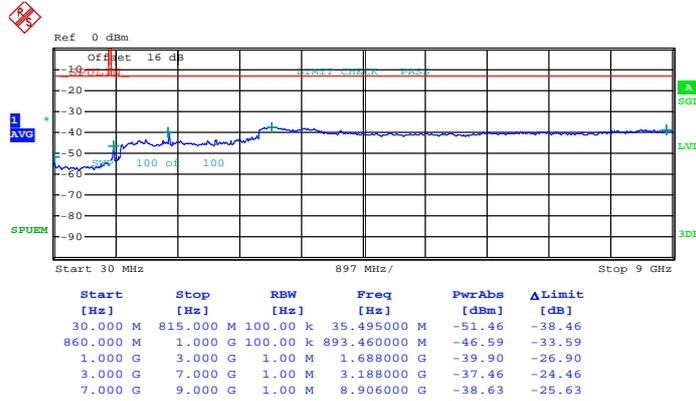


Date: 17.APR.2014 03:06:58



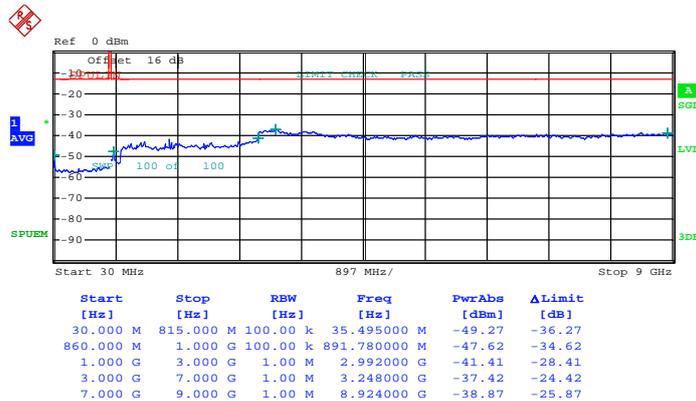
Band :	LTE Band 5	Channel :	CH20625 (High)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 03:13:27

**16QAM (RB Size 1, RB Offset 0)**

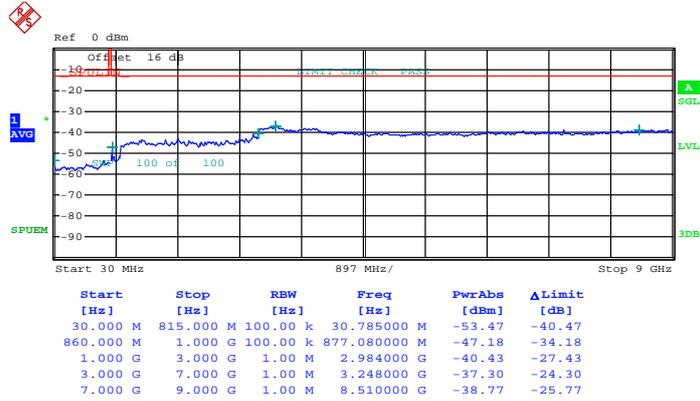


Date: 17.APR.2014 03:10:11



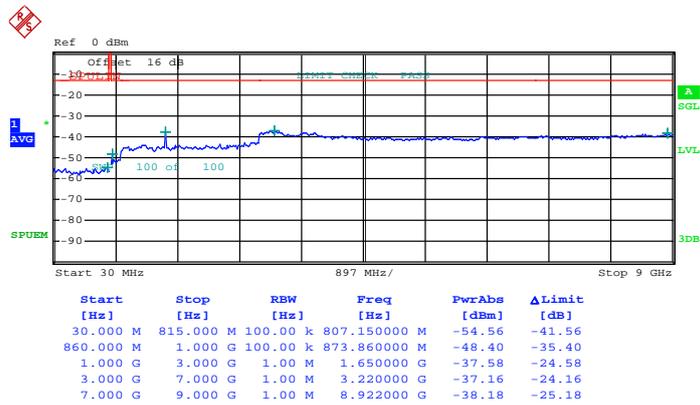
Band :	LTE Band 5	Channel :	CH20450 (Low)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 00:51:05

**16QAM (RB Size 1, RB Offset 0)**

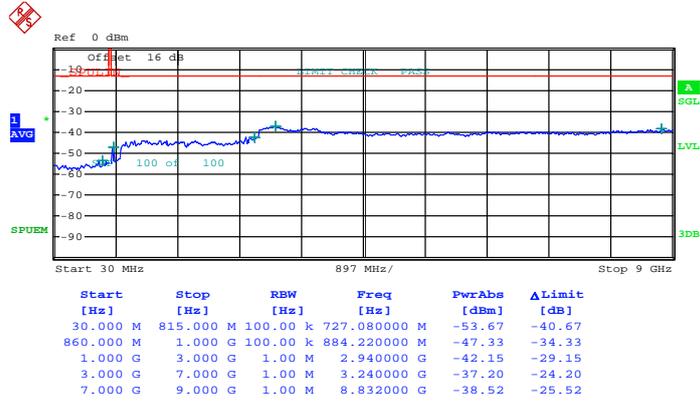


Date: 17.APR.2014 00:55:12



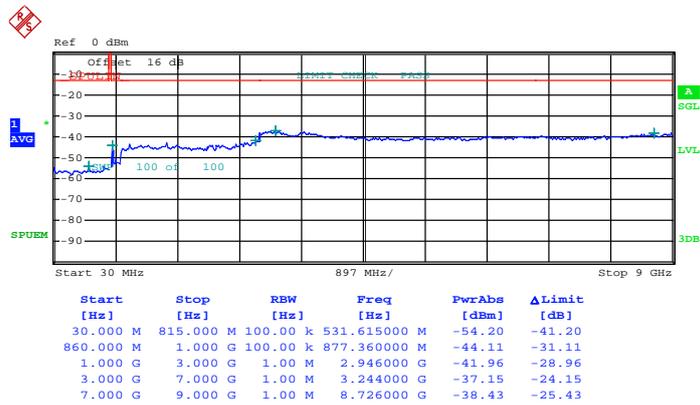
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 01:01:57

**16QAM (RB Size 1, RB Offset 0)**

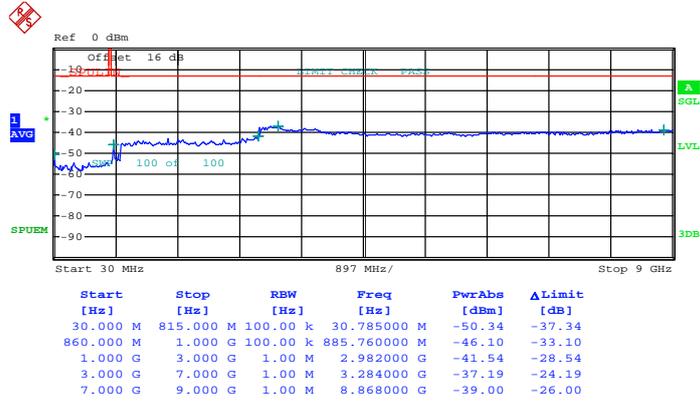


Date: 17.APR.2014 00:58:39



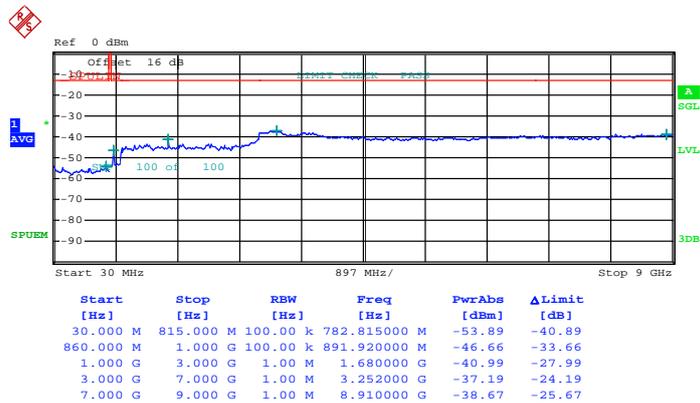
Band :	LTE Band 5	Channel :	CH20600 (High)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 01:06:46

**16QAM (RB Size 1, RB Offset 0)**

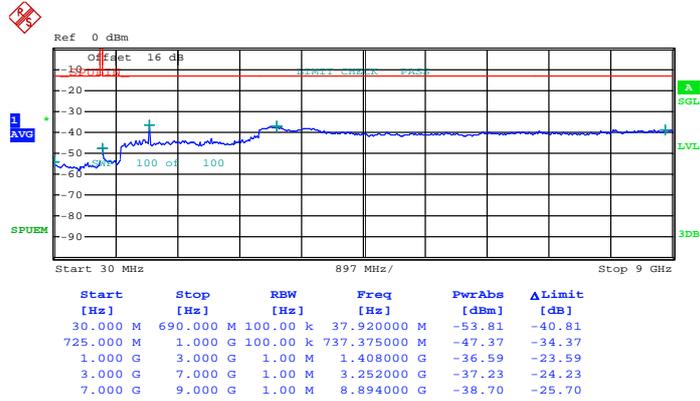


Date: 17.APR.2014 01:10:47



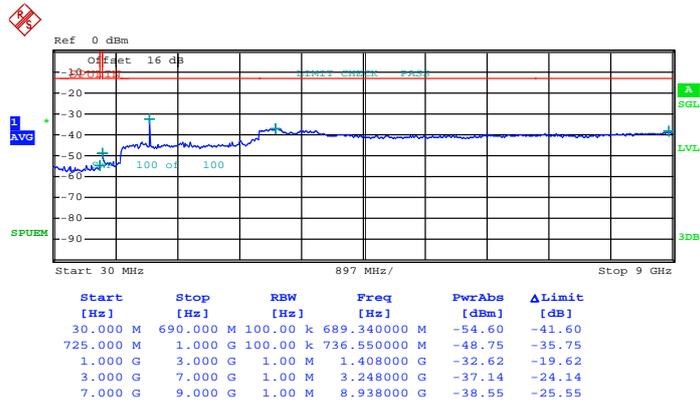
Band :	LTE Band 17	Channel :	CH23755 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 17.APR.2014 04:44:42

16QAM (RB Size 1, RB Offset 0)

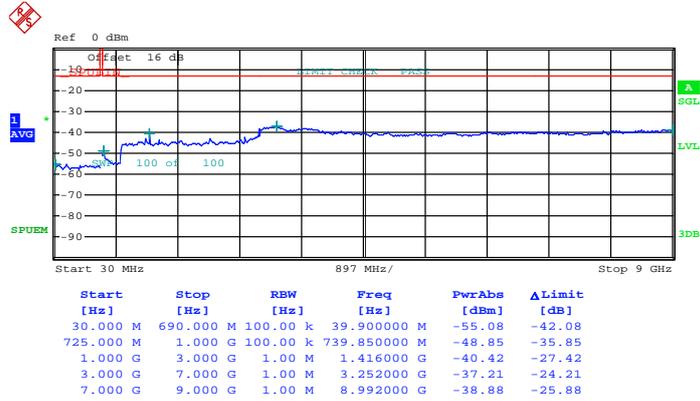


Date: 17.APR.2014 04:41:24



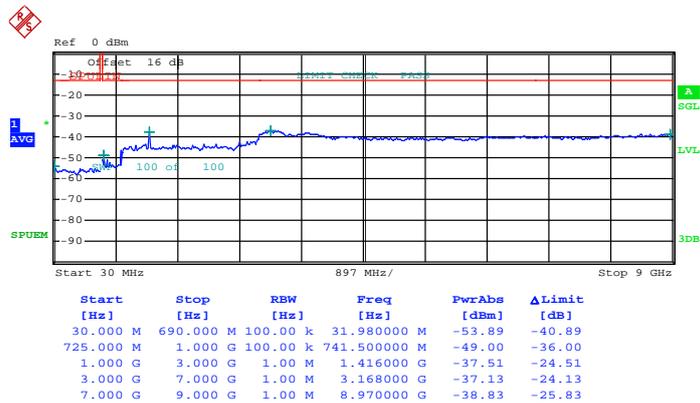
Band :	LTE Band 17	Channel :	CH23790 (Middle)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 04:48:19

**16QAM (RB Size 1, RB Offset 0)**

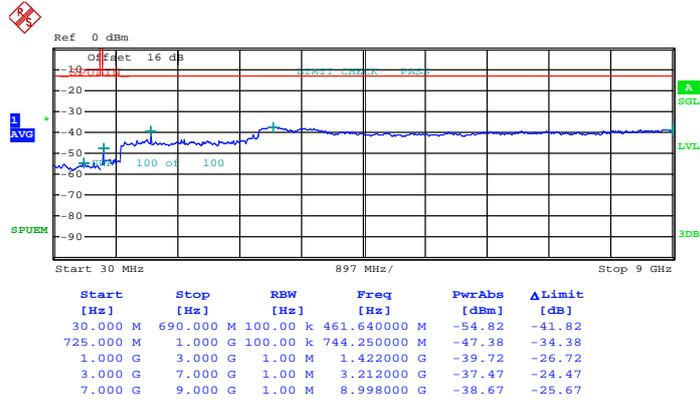


Date: 17.APR.2014 04:51:49



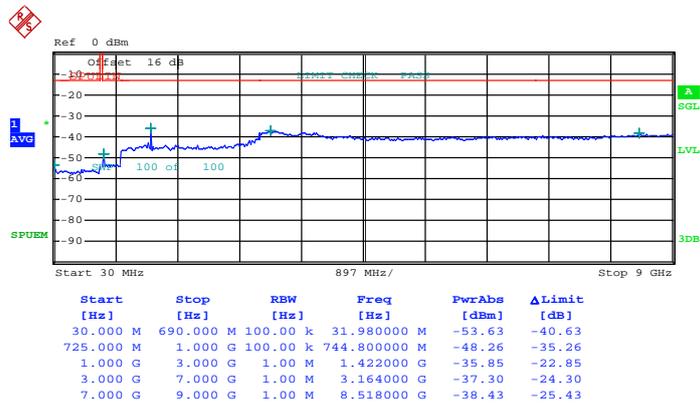
Band :	LTE Band 17	Channel :	CH23825 (High)
Band Width :	5MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 04:59:58

**16QAM (RB Size 1, RB Offset 0)**

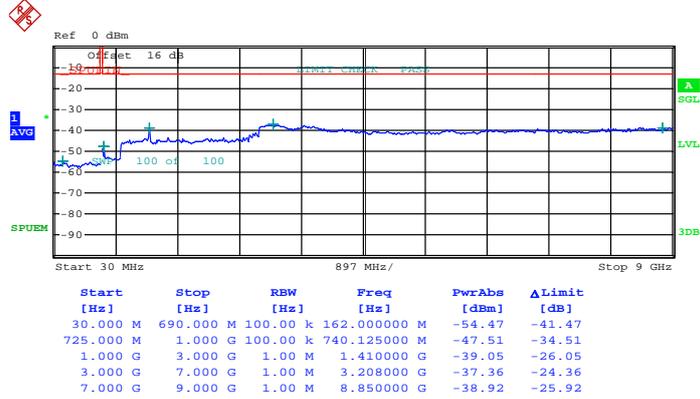


Date: 17.APR.2014 04:55:08



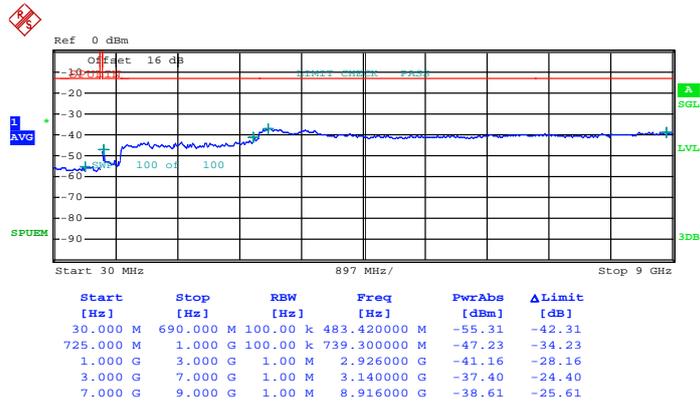
Band :	LTE Band 17	Channel :	CH23780 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 17.APR.2014 04:21:14

16QAM (RB Size 1, RB Offset 0)

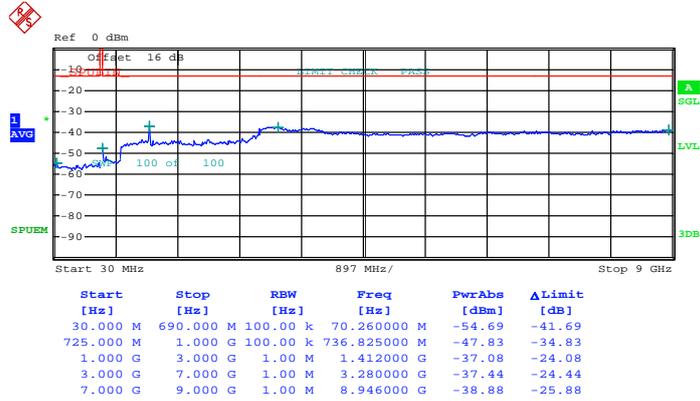


Date: 17.APR.2014 04:24:29



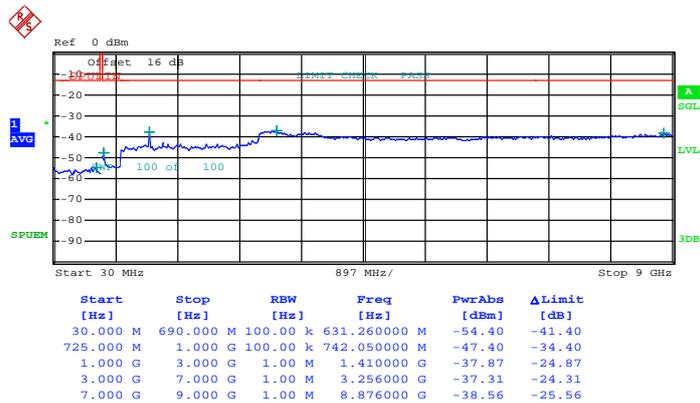
Band :	LTE Band 17	Channel :	CH23790 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Date: 17.APR.2014 04:31:09

16QAM (RB Size 1, RB Offset 0)

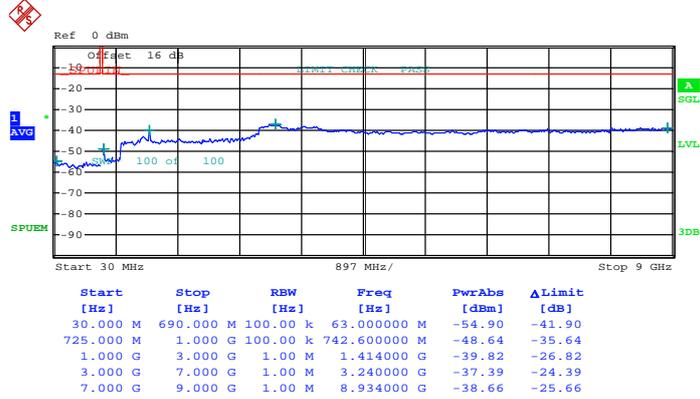


Date: 17.APR.2014 04:27:46



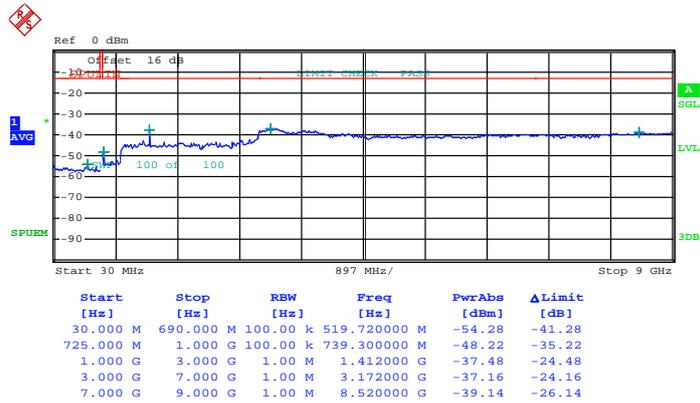
Band :	LTE Band 17	Channel :	CH23800 (High)
Band Width :	10MHz		

**QPSK (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 04:34:42

**16QAM (RB Size 1, RB Offset 0)**



Date: 17.APR.2014 04:38:02

## 3.7 Radiated Spurious Emission Measurement

### 3.7.1 Description of Radiated Spurious Emission

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.

### 3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.7.3 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. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from  $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

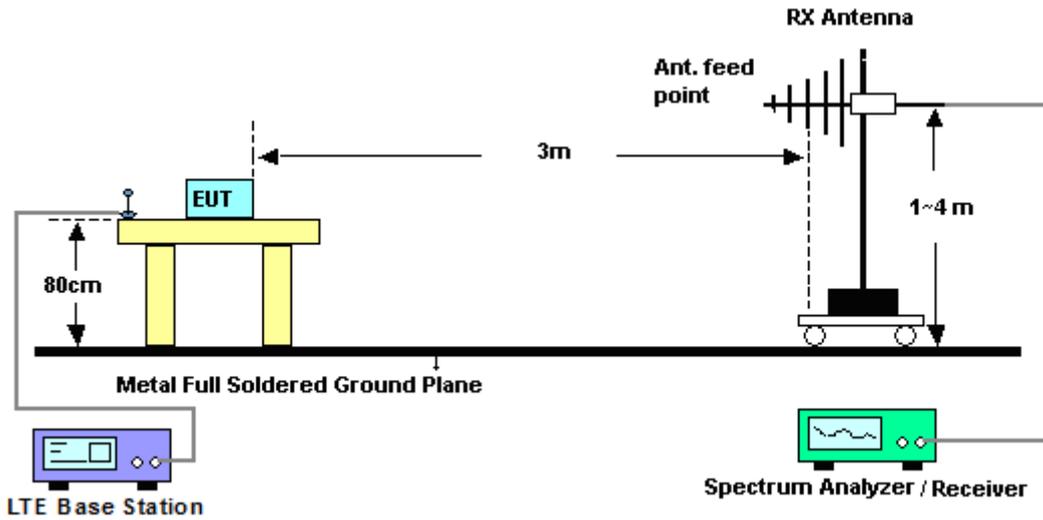
$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm.}$$

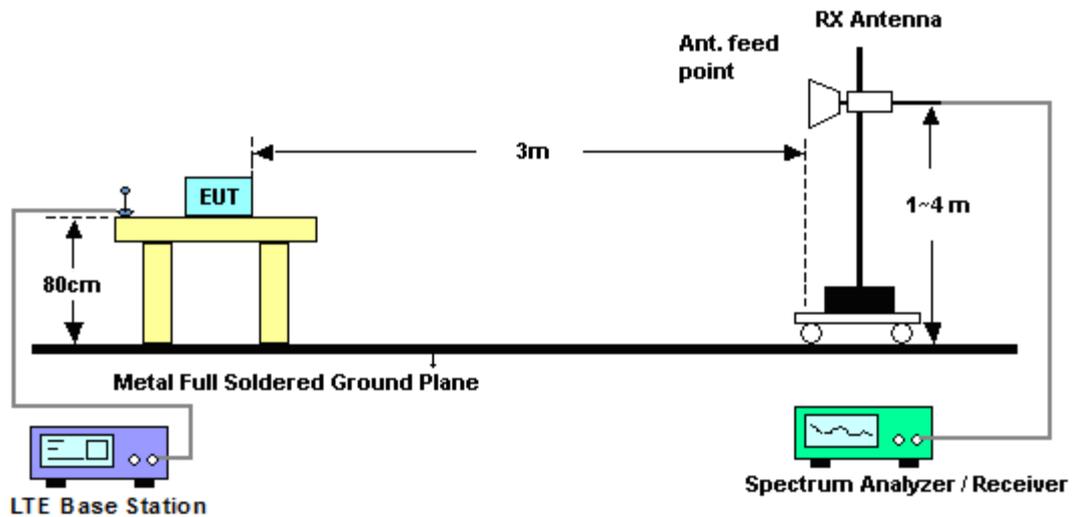
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15

### 3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



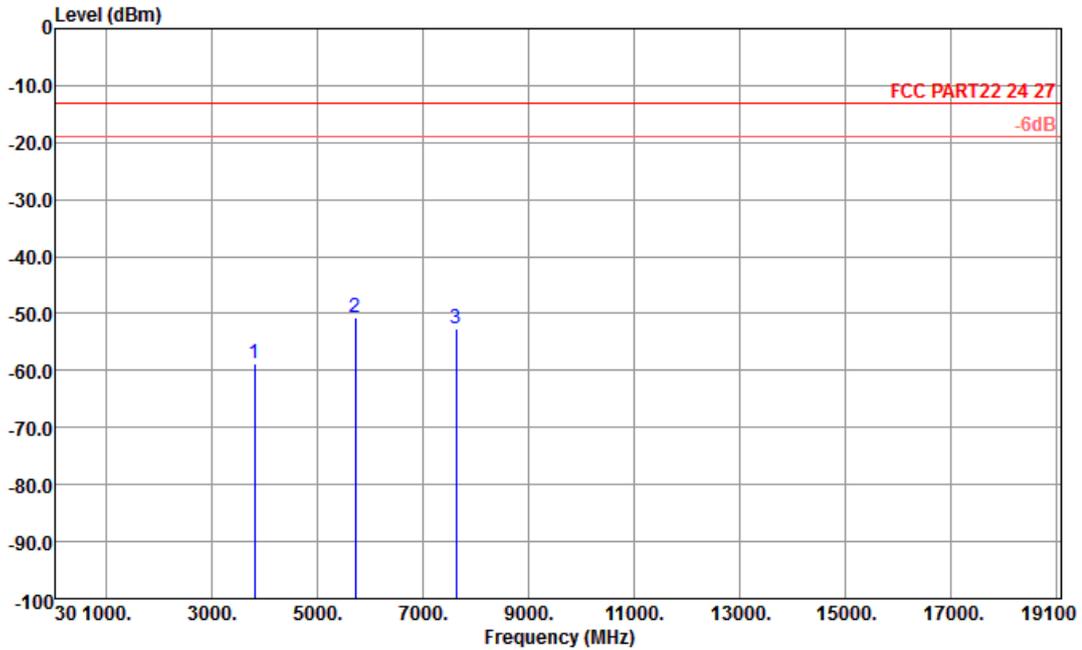
For radiated emissions above 1GHz





3.7.5 Test Result of Field Strength of Spurious Radiated

<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	1.4MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

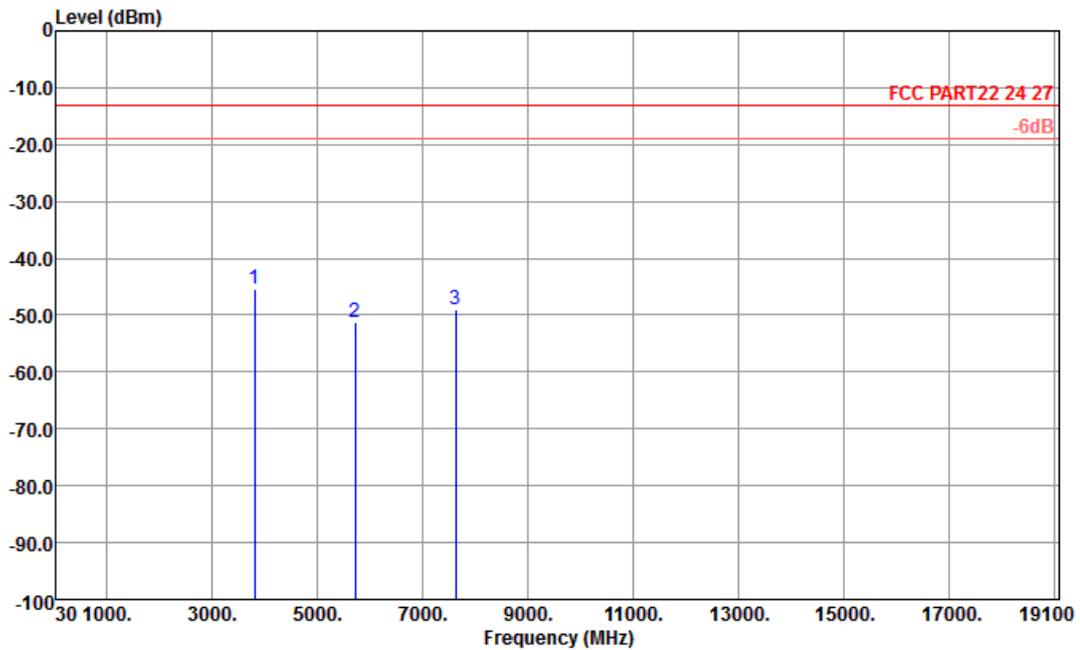


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3818	-58.73	-13	-45.73	-62.17	-65.11	0.78	7.16	H	Pass
5726	-50.79	-13	-37.79	-61.23	-59.33	1.04	9.58	H	Pass
7636	-52.58	-13	-39.58	-64.12	-62.69	1.35	11.46	H	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	1.4MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

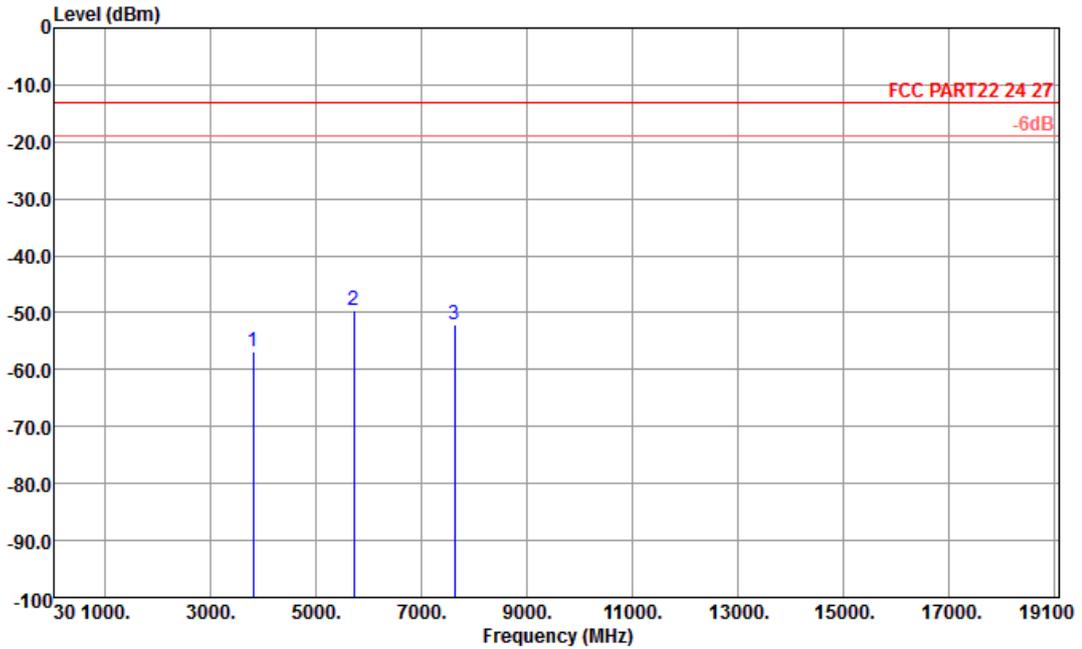


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3818	-45.54	-13	-32.54	-56.02	-51.92	0.78	7.16	V	Pass
5726	-51.19	-13	-38.19	-63.84	-59.73	1.04	9.58	V	Pass
7636	-48.93	-13	-35.93	-63.02	-59.04	1.35	11.46	V	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	3MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

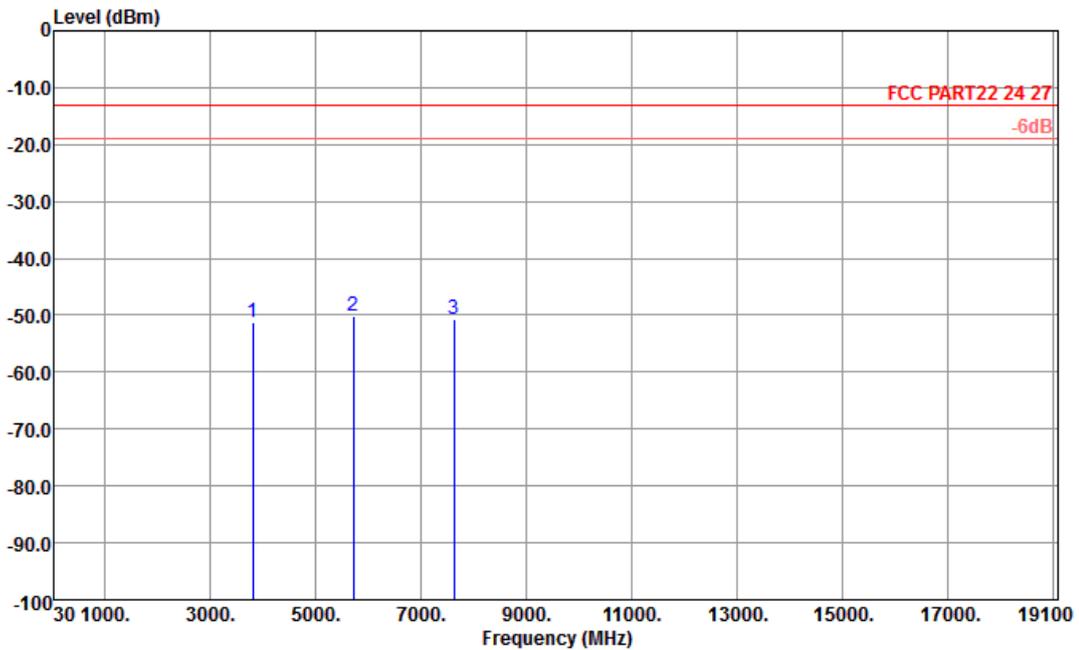


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3814	-56.82	-13	-43.82	-61.51	-63.20	0.78	7.16	H	Pass
5722	-49.45	-13	-36.45	-60.72	-57.99	1.04	9.58	H	Pass
7628	-52.04	-13	-39.04	-63.58	-62.15	1.35	11.46	H	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	3MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

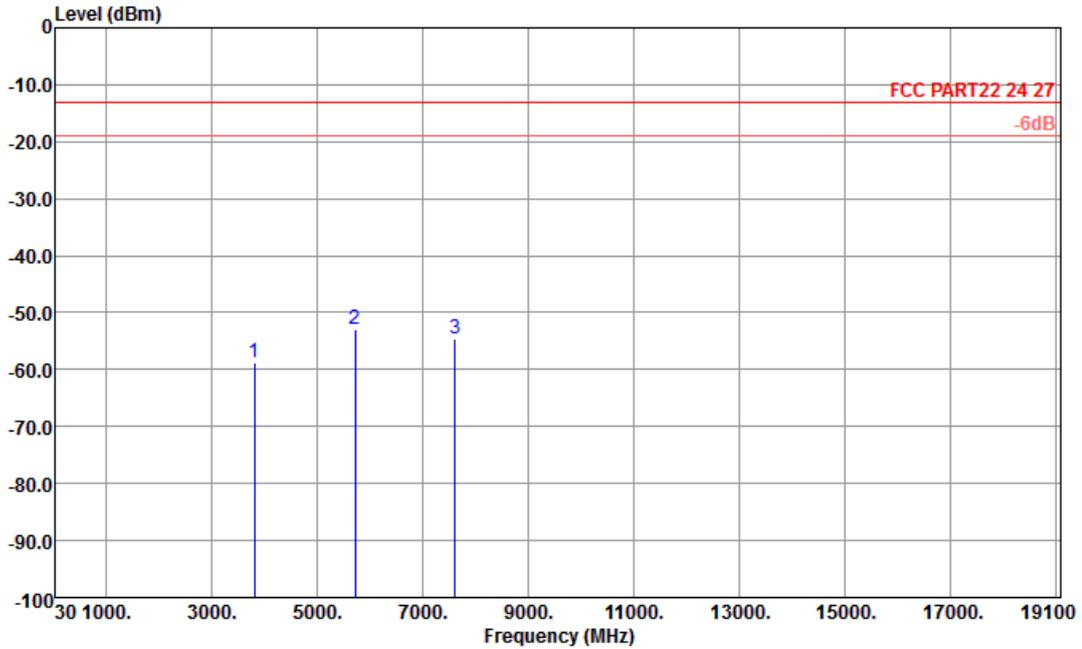


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3814	-51.21	-13	-38.21	-59.88	-57.59	0.78	7.16	V	Pass
5722	-50.01	-13	-37.01	-62.66	-58.55	1.04	9.58	V	Pass
7628	-50.82	-13	-37.82	-64.91	-60.93	1.35	11.46	V	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

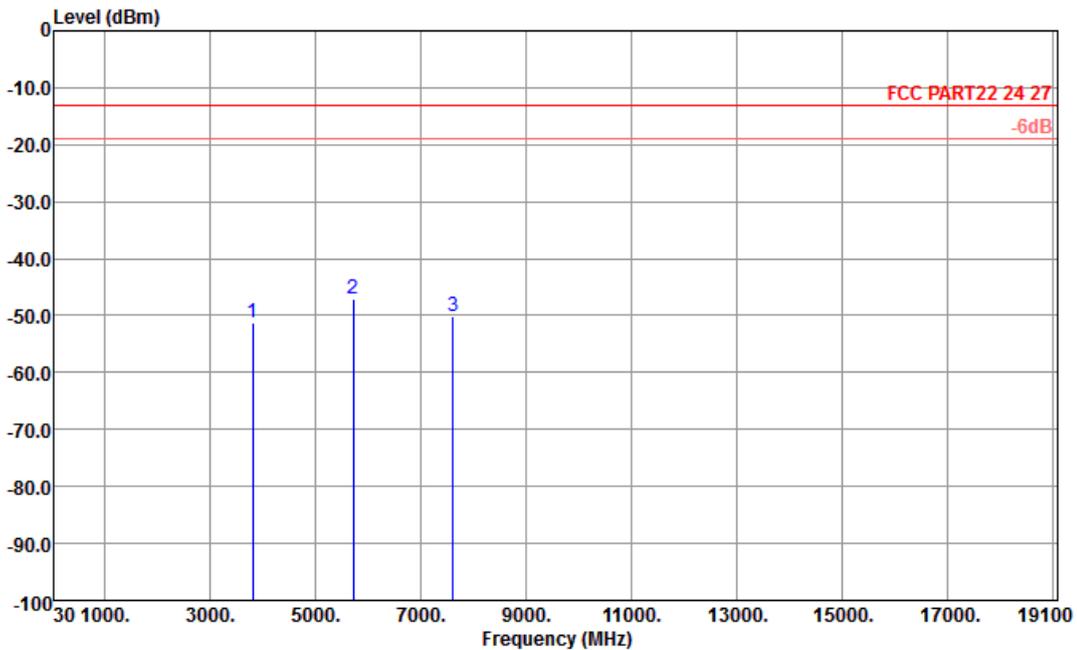


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3810	-58.89	-13	-45.89	-62.28	-65.27	0.78	7.16	H	Pass
5716	-52.85	-13	-39.85	-62.91	-61.39	1.04	9.58	H	Pass
7620	-54.62	-13	-41.62	-66.16	-64.73	1.35	11.46	H	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

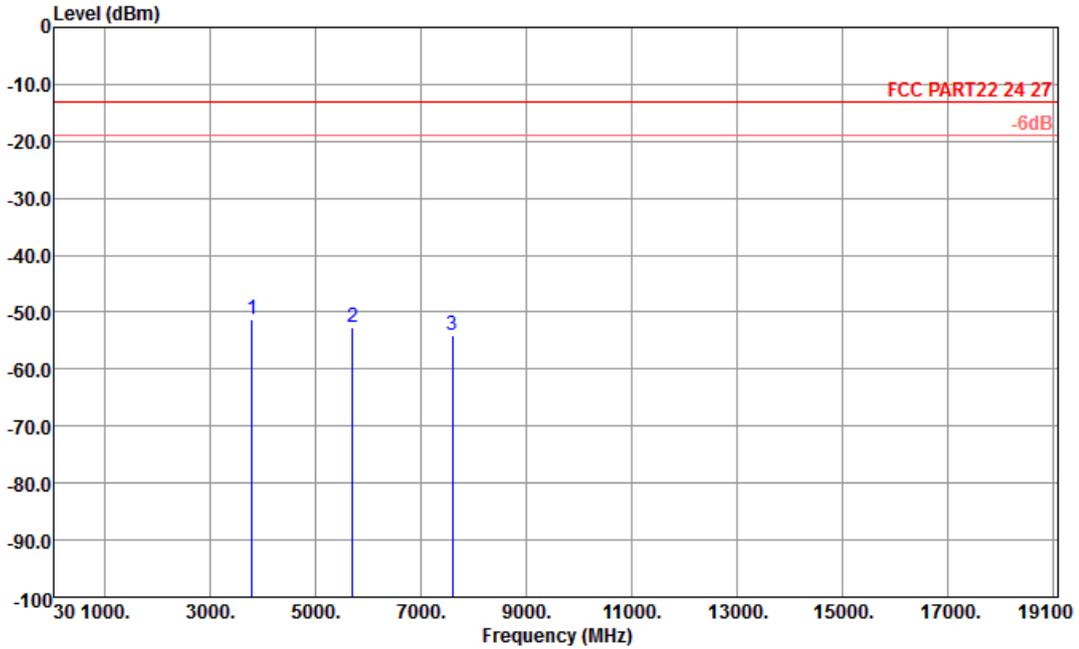


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3810	-51.36	-13	-38.36	-59.98	-57.74	0.78	7.16	V	Pass
5716	-47.19	-13	-34.19	-61.2	-55.73	1.04	9.58	V	Pass
7622	-50.06	-13	-37.06	-64.15	-60.17	1.35	11.46	V	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

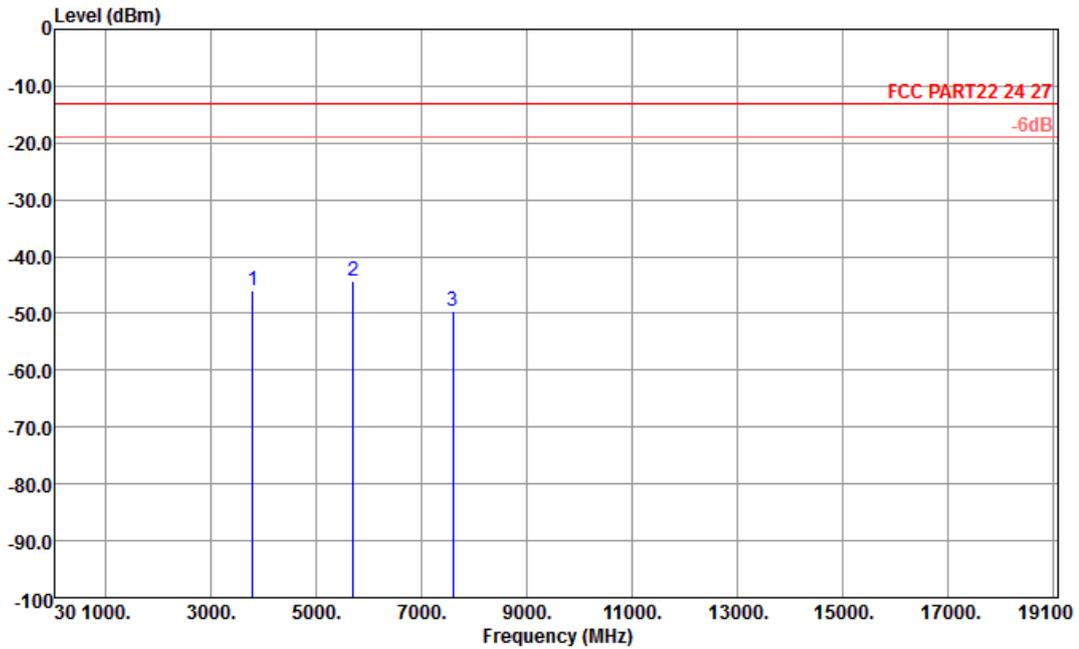


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3802	-51.15	-13	-38.15	-58.05	-57.53	0.78	7.16	H	Pass
5702	-52.69	-13	-39.69	-62.75	-61.23	1.04	9.58	H	Pass
7600	-54.15	-13	-41.15	-65.69	-64.26	1.35	11.46	H	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

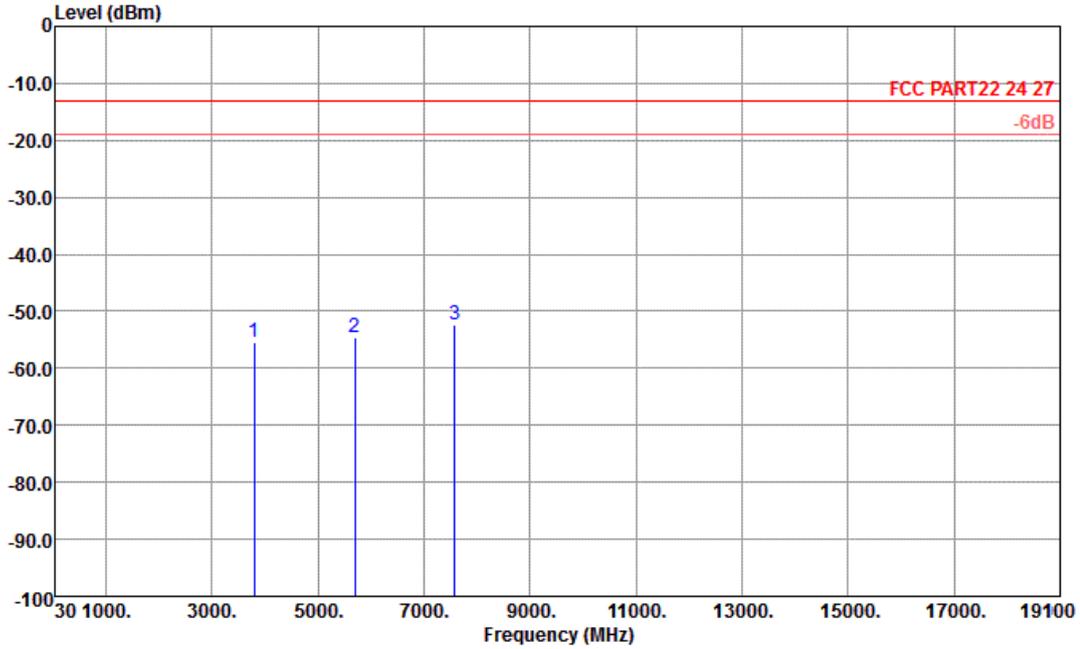


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3802	-46.00	-13	-33.00	-56.35	-52.38	0.78	7.16	V	Pass
5702	-44.23	-13	-31.23	-59	-52.77	1.04	9.58	V	Pass
7602	-49.53	-13	-36.53	-63.62	-59.64	1.35	11.46	V	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	15MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

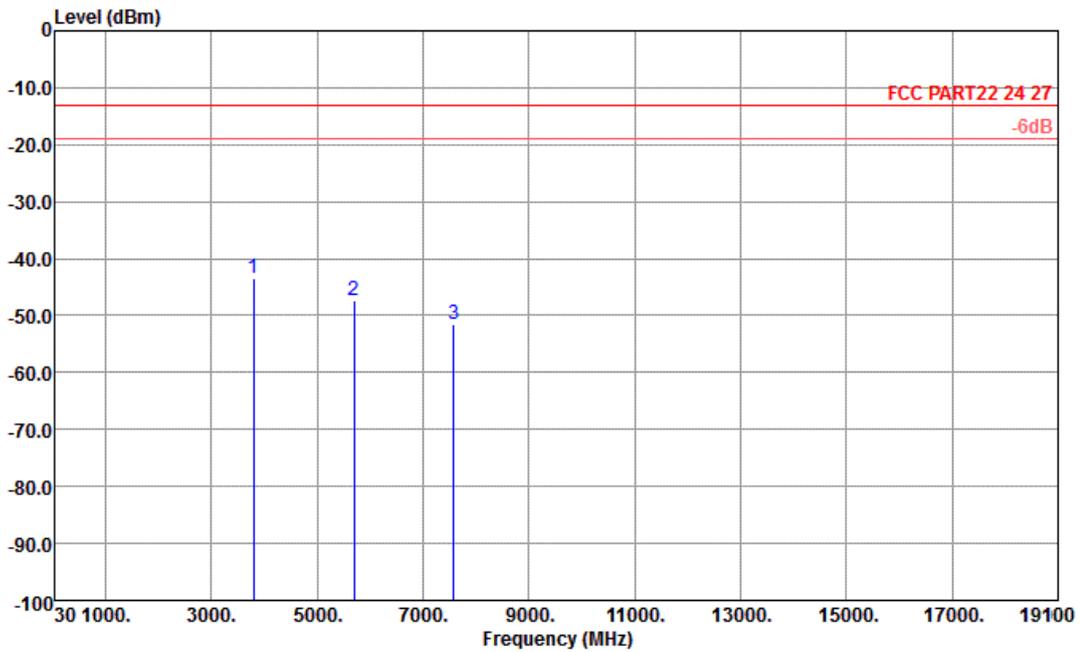


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3792	-55.53	-13	-42.53	-60.72	-61.91	0.78	7.16	H	Pass
5688	-54.62	-13	-41.62	-64.68	-63.16	1.04	9.58	H	Pass
7582	-52.48	-13	-39.48	-64.02	-62.59	1.35	11.46	H	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	15MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

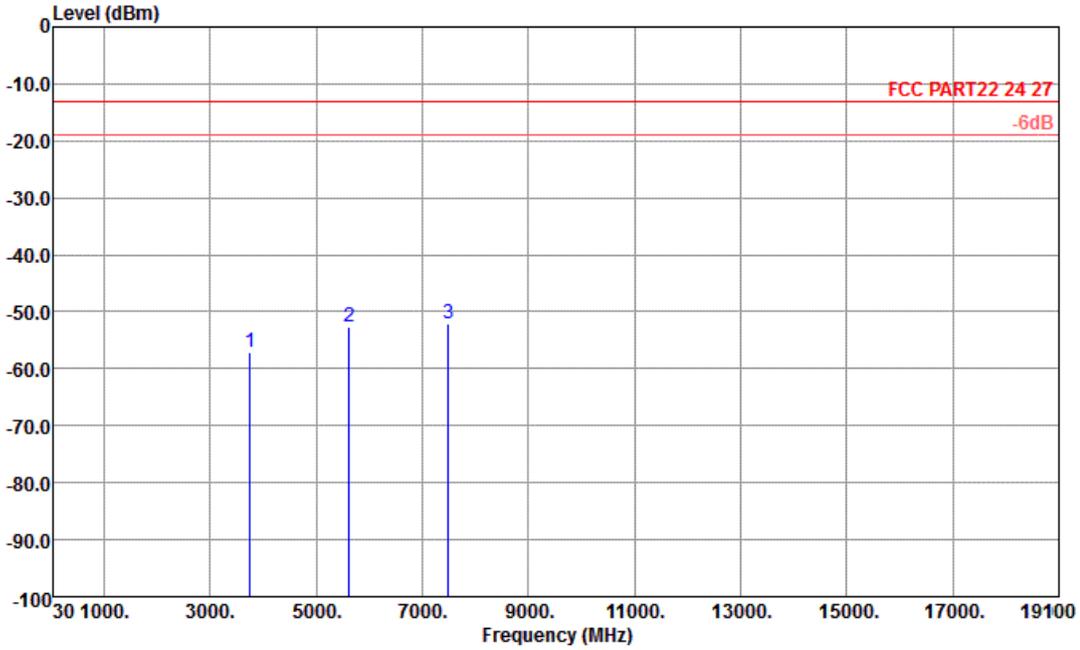


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3792	-43.51	-13	-30.51	-54.4	-49.89	0.78	7.16	V	Pass
5688	-47.30	-13	-34.30	-61.27	-55.84	1.04	9.58	V	Pass
7580	-51.45	-13	-38.45	-65.54	-61.56	1.35	11.46	V	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	20MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

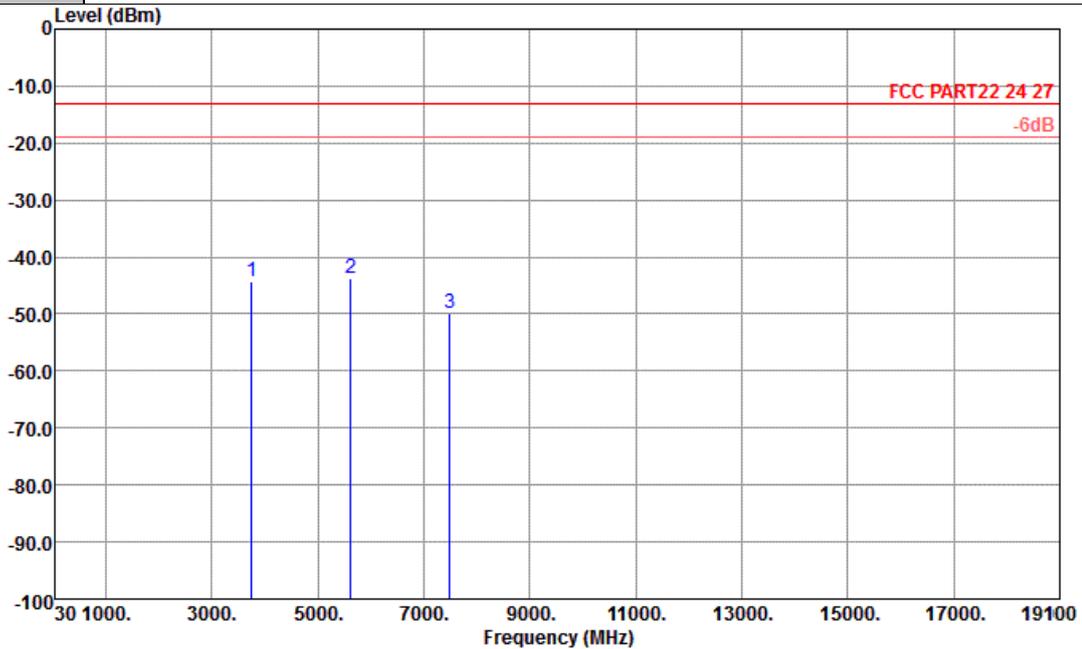


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3742	-57.00	-13	-44.00	-61.58	-63.38	0.78	7.16	H	Pass
5614	-52.76	-13	-39.76	-62.82	-61.30	1.04	9.58	H	Pass
7484	-52.22	-13	-39.22	-63.76	-62.33	1.35	11.46	H	Pass



<b>Band :</b>	LTE Band 2	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	20MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

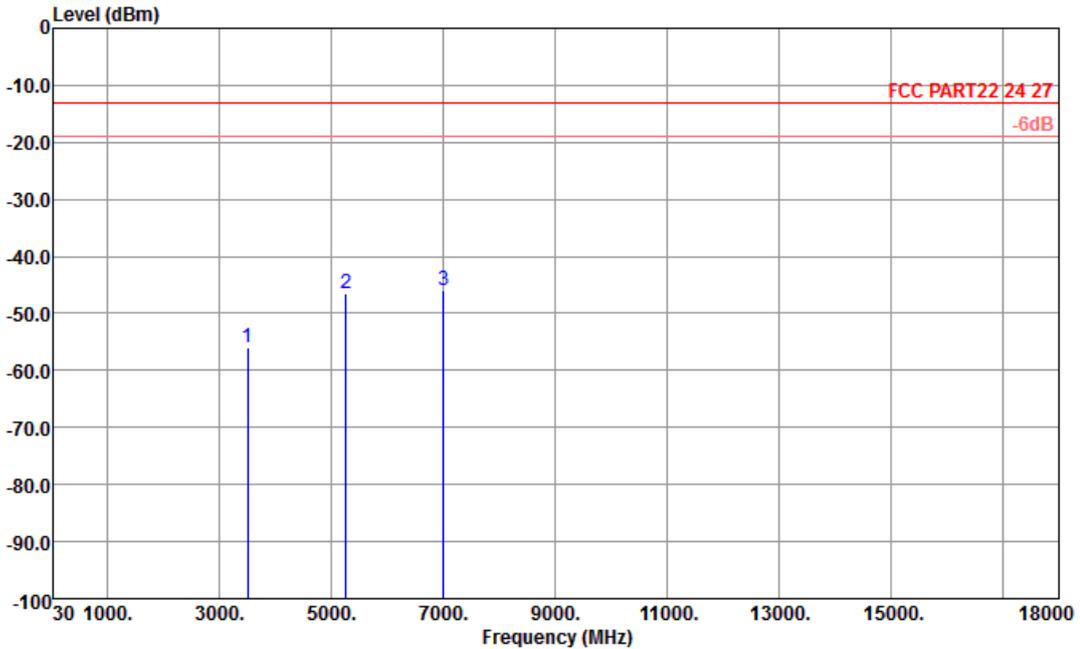


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3742	-44.18	-13	-31.18	-54.96	-50.56	0.78	7.16	V	Pass
5612	-43.84	-13	-30.84	-58.73	-52.38	1.04	9.58	V	Pass
7484	-49.75	-13	-36.75	-63.84	-59.86	1.35	11.46	V	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	1.4MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

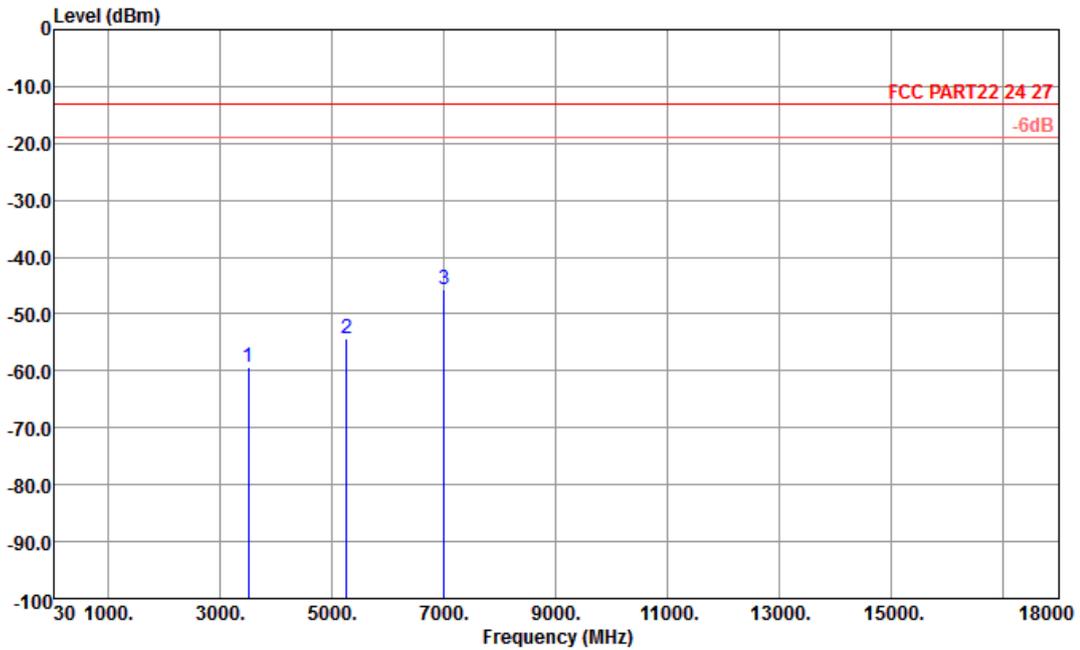


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3508	-56.05	-13	-43.05	-59.13	-61.45	2.2	7.60	H	Pass
5260	-46.51	-13	-33.51	-60.29	-53.29	3.12	9.90	H	Pass
7014	-45.87	-13	-32.87	-59.00	-53.76	2.98	10.87	H	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	1.4MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

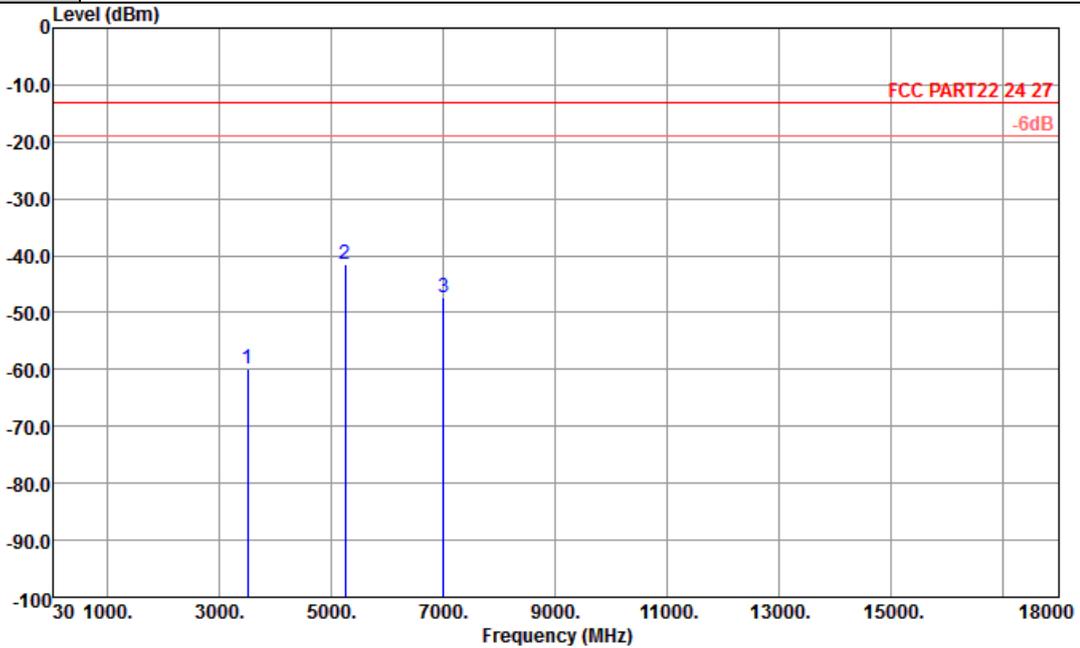


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3508	-59.46	-13	-46.46	-60.55	-64.86	2.2	7.6	V	Pass
5260	-54.33	-13	-41.33	-62.5	-61.11	3.12	9.9	V	Pass
7014	-45.74	-13	-32.74	-58.32	-53.63	2.98	10.87	V	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	3MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

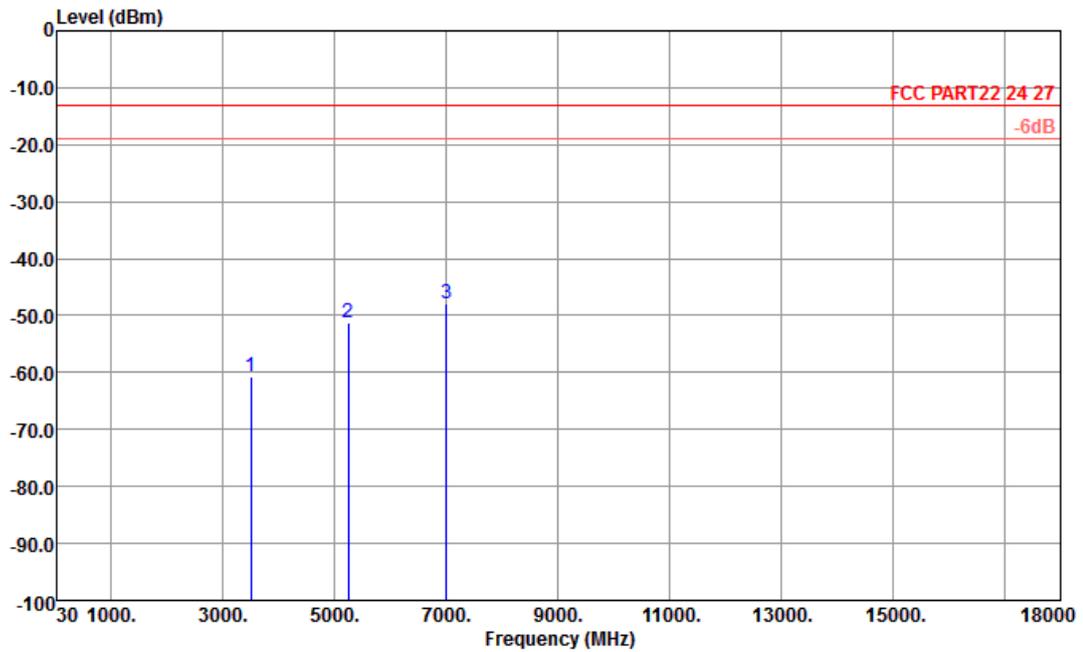


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3504	-59.84	-13	-46.84	-62.07	-65.24	2.2	7.60	H	Pass
5256	-41.50	-13	-28.50	-57.00	-48.28	3.12	9.90	H	Pass
7008	-47.35	-13	-34.35	-59.63	-55.24	2.98	10.87	H	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	3MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

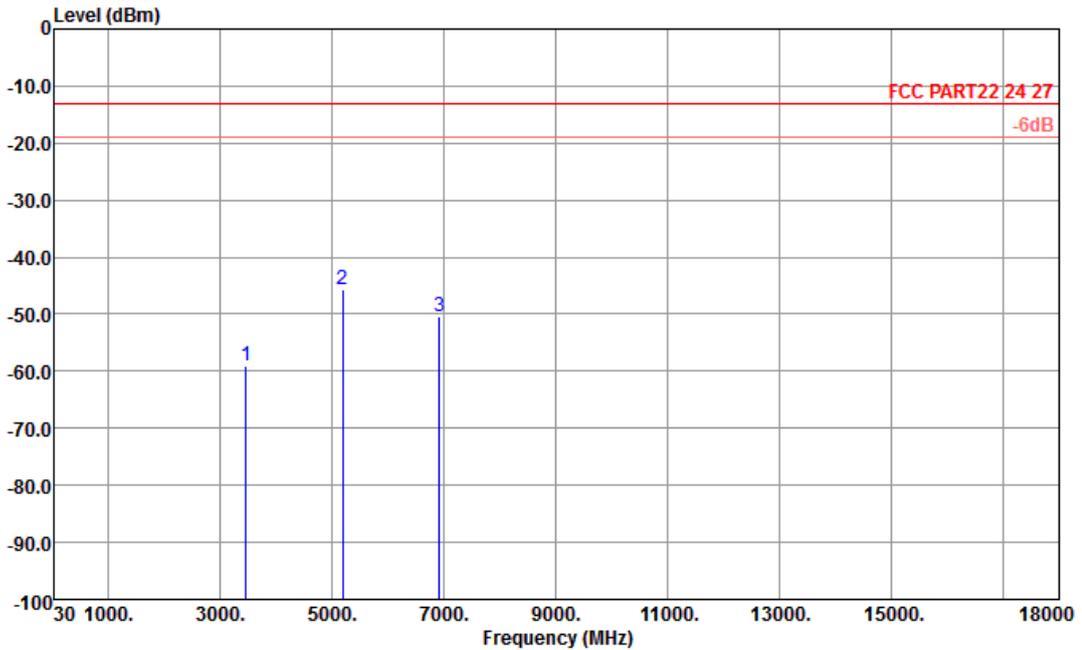


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3504	-60.61	-13	-47.61	-61.63	-66.01	2.2	7.6	V	Pass
5256	-51.32	-13	-38.32	-61.32	-58.10	3.12	9.9	V	Pass
7008	-47.95	-13	-34.95	-59.83	-55.84	2.98	10.87	V	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

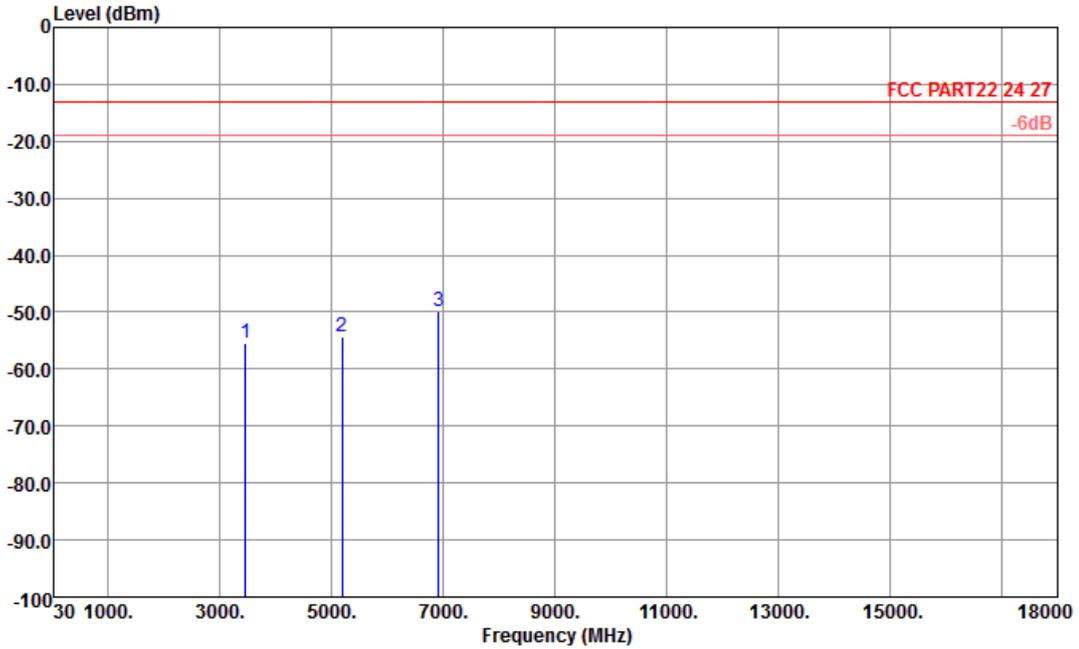


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3460	-59.01	-13	-46.01	-61.24	-64.41	2.2	7.60	H	Pass
5190	-45.58	-13	-32.58	-59.76	-52.36	3.12	9.90	H	Pass
6922	-50.35	-13	-37.35	-61.15	-58.24	2.98	10.87	H	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

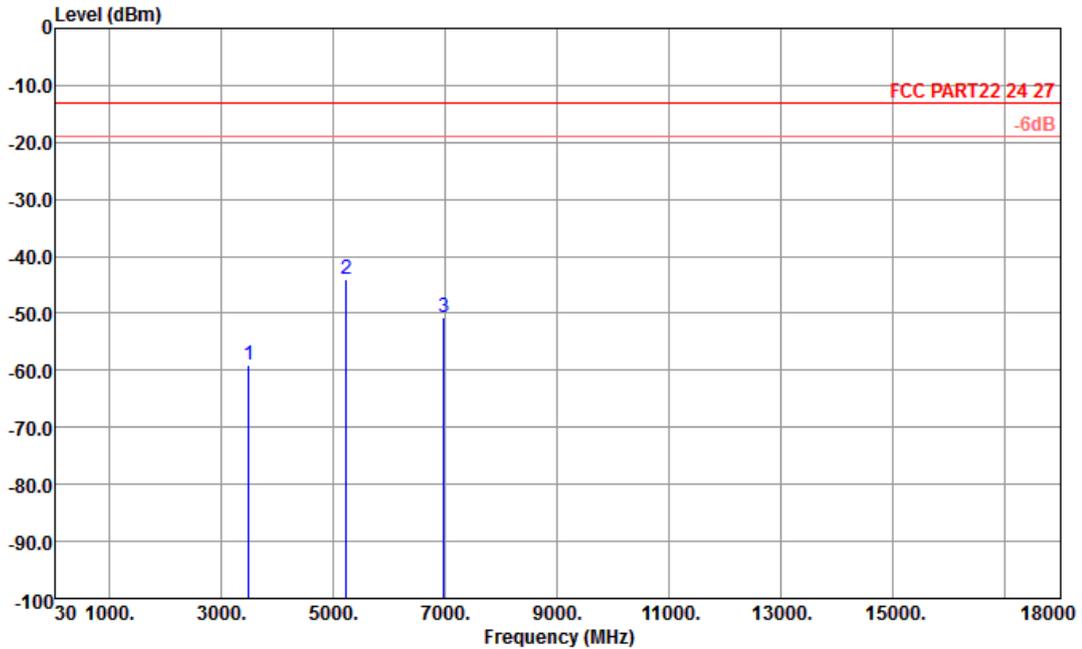


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3460	-55.47	-13	-42.47	-58.9	-60.87	2.2	7.6	V	Pass
5190	-54.18	-13	-41.18	-62.39	-60.96	3.12	9.9	V	Pass
6922	-49.89	-13	-36.89	-60.97	-57.78	2.98	10.87	V	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

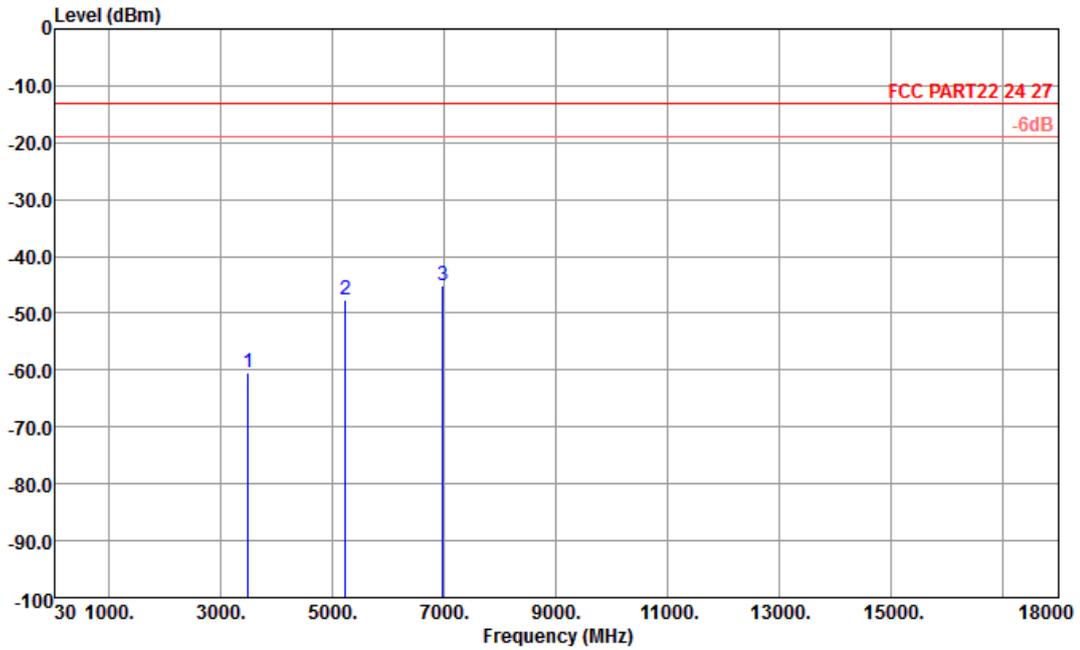


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3492	-58.96	-13	-45.96	-61.19	-64.36	2.2	7.60	H	Pass
5236	-44.14	-13	-31.14	-58.97	-50.92	3.12	9.90	H	Pass
6984	-50.83	-13	-37.83	-61.38	-58.72	2.98	10.87	H	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

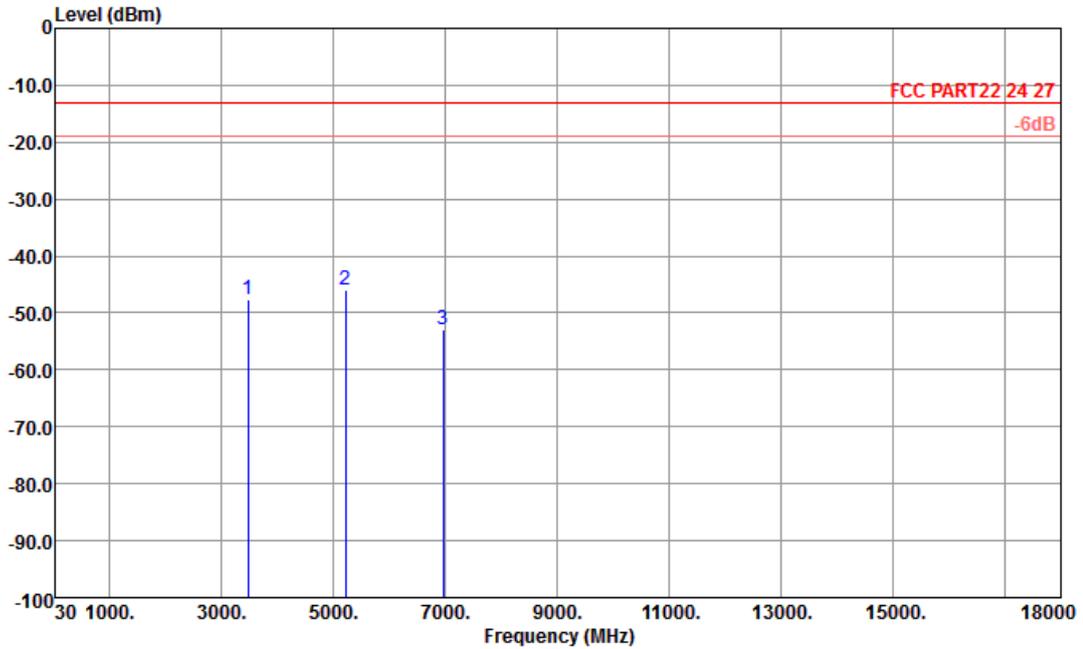


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3490	-60.32	-13	-47.32	-61.34	-65.72	2.2	7.6	V	Pass
5236	-47.73	-13	-34.73	-59.4	-54.51	3.12	9.9	V	Pass
6984	-45.22	-13	-32.22	-58.18	-53.11	2.98	10.87	V	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	15MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

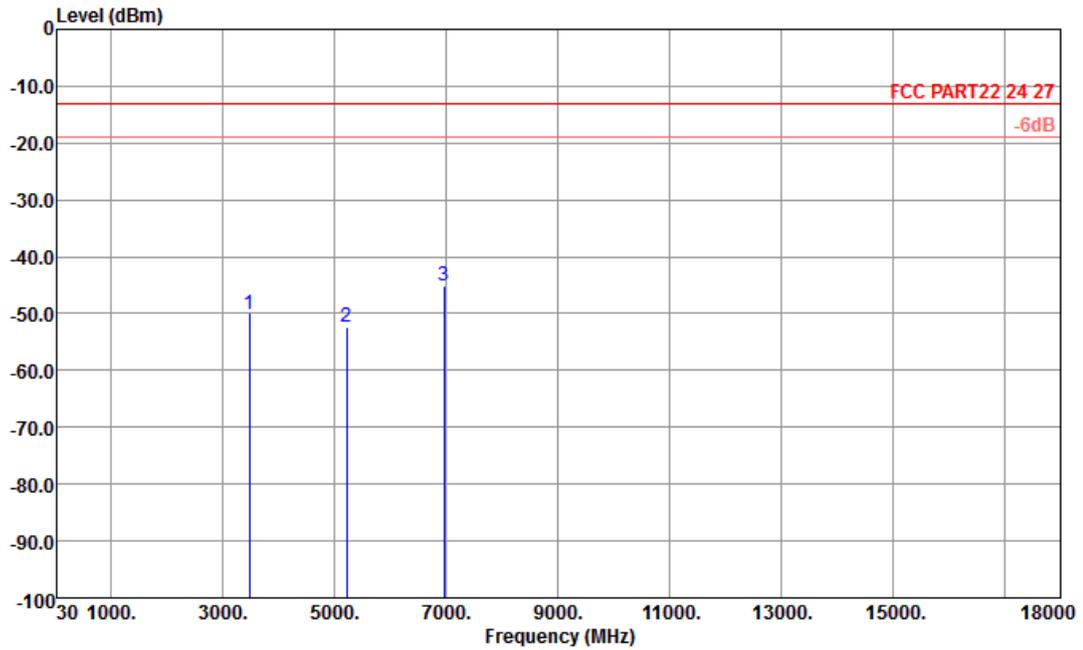


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3482	-47.54	-13	-34.54	-54.24	-52.94	2.2	7.60	H	Pass
5222	-45.91	-13	-32.91	-59.94	-52.69	3.12	9.90	H	Pass
6964	-53.01	-13	-40.01	-61.77	-60.90	2.98	10.87	H	Pass



Band :	LTE Band 4	Temperature :	22~23°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	42~43%
Test Engineer :	Star Wei	Polarization :	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

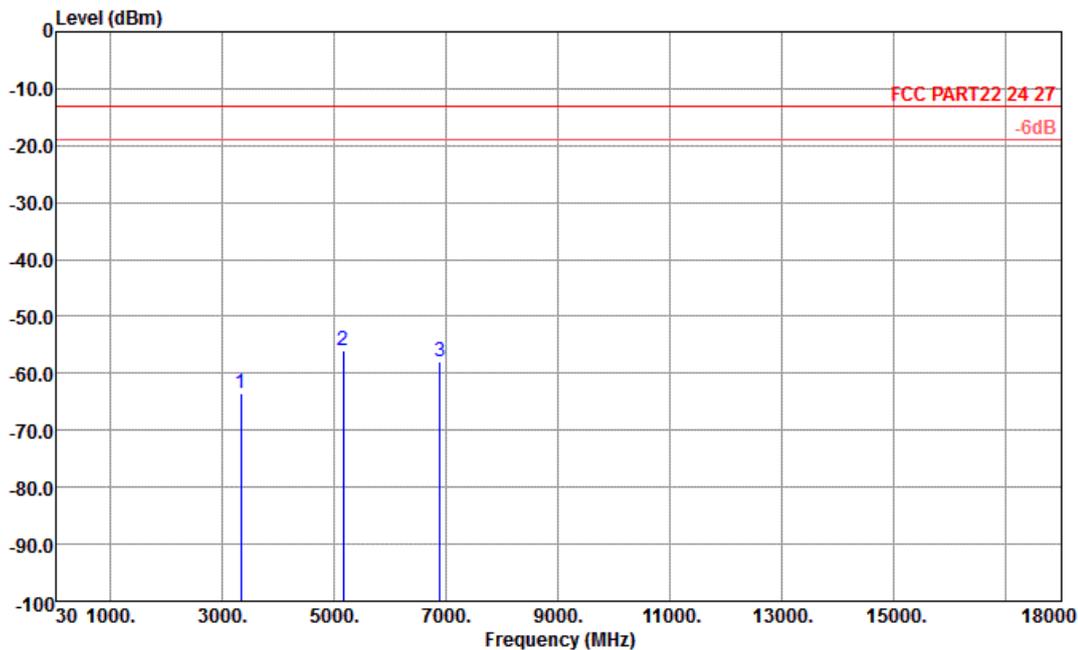


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3482	-50.00	-13	-37.00	-55.91	-55.40	2.2	7.6	V	Pass
5222	-52.48	-13	-39.48	-61.77	-59.26	3.12	9.9	V	Pass
6964	-45.25	-13	-32.25	-58.19	-53.14	2.98	10.87	V	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	20MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

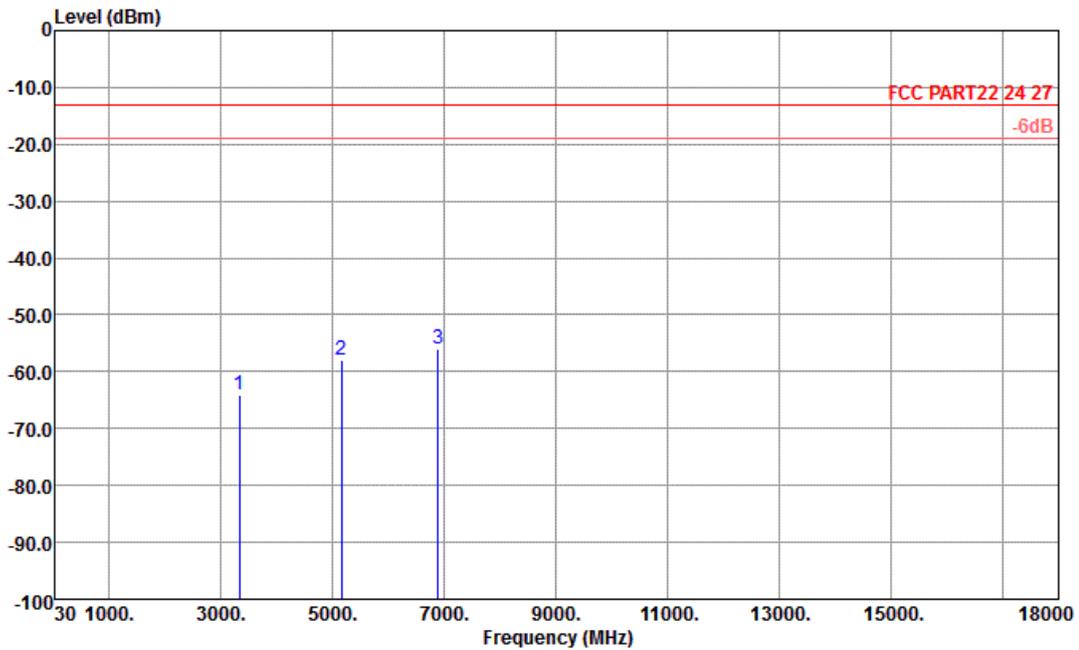


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

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
3447	-63.38	-13	-50.38	-65.61	-68.78	2.2	7.60	H	Pass
5168	-55.87	-13	-42.87	-65.74	-62.65	3.12	9.90	H	Pass
6890	-57.80	-13	-44.80	-66.09	-65.69	2.98	10.87	H	Pass



<b>Band :</b>	LTE Band 4	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	20MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

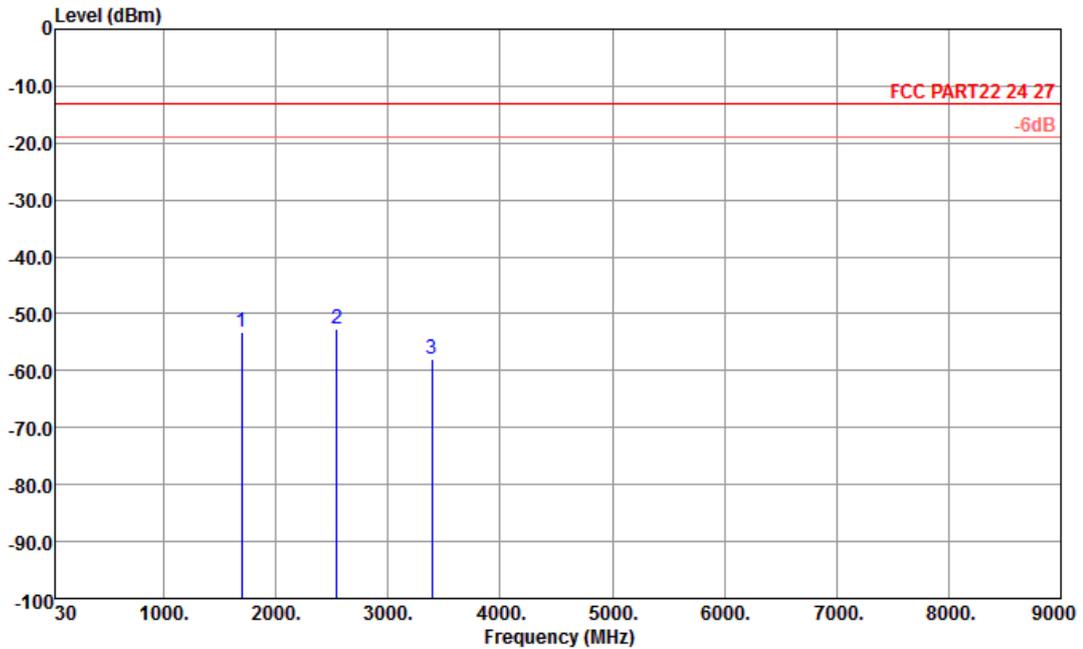


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

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
3447	-63.96	-13	-50.96	-64.98	-69.36	2.2	7.6	V	Pass
5168	-57.99	-13	-44.99	-65.96	-64.77	3.12	9.9	V	Pass
6890	-55.90	-13	-42.90	-66.42	-63.79	2.98	10.87	V	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	1.4MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

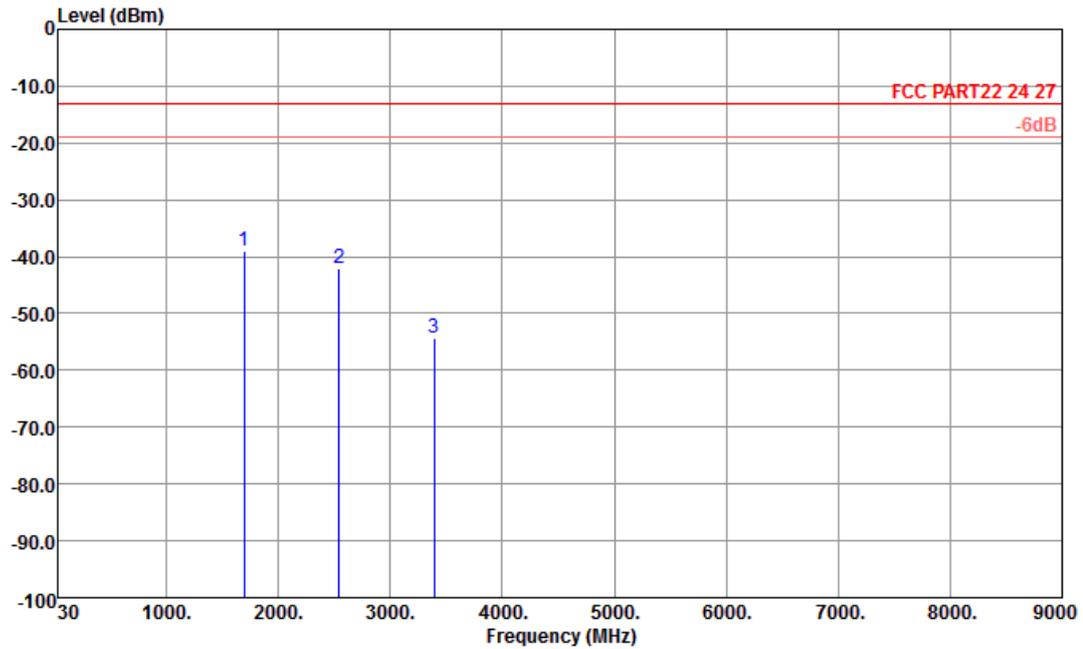


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

Frequency ( MHz )	ERP ( 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
1696	-53.29	-13	-40.29	-50.87	-53.94	0.57	3.37	H	Pass
2544	-52.77	-13	-39.77	-54.67	-55.00	0.78	5.16	H	Pass
3390	-57.94	-13	-44.94	-58.19	-61.58	0.87	6.66	H	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	1.4MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

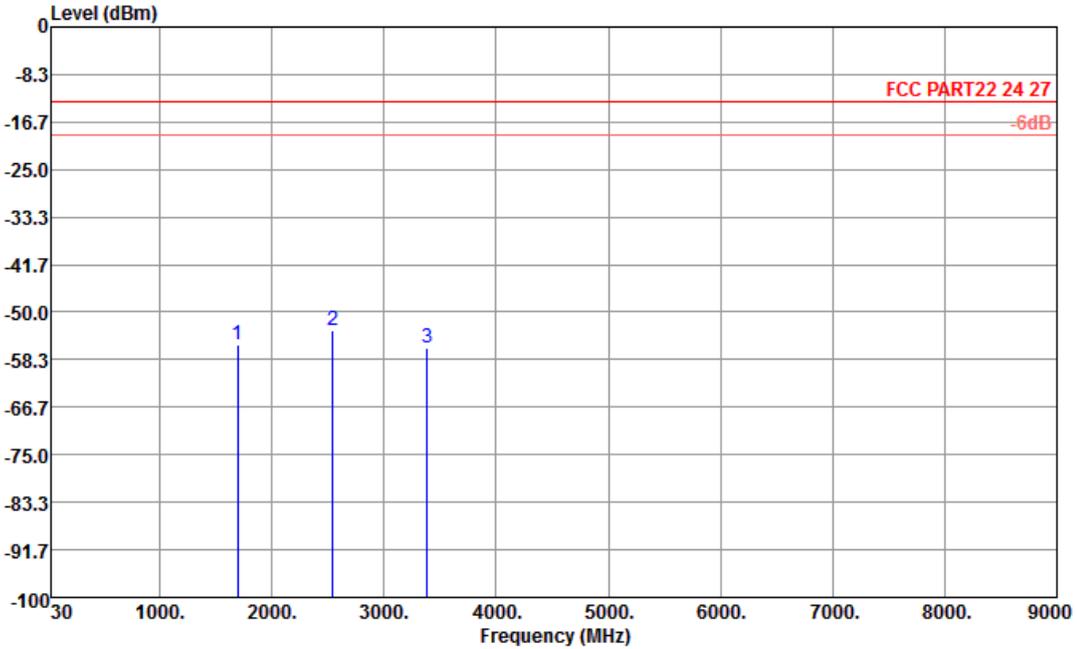


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

Frequency ( MHz )	ERP ( 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
1696	-39.01	-13	-26.01	-43.19	-39.66	0.57	3.37	V	Pass
2544	-42.03	-13	-29.03	-50.78	-44.26	0.78	5.16	V	Pass
3390	-54.36	-13	-41.36	-59.17	-58.00	0.87	6.66	V	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	3MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

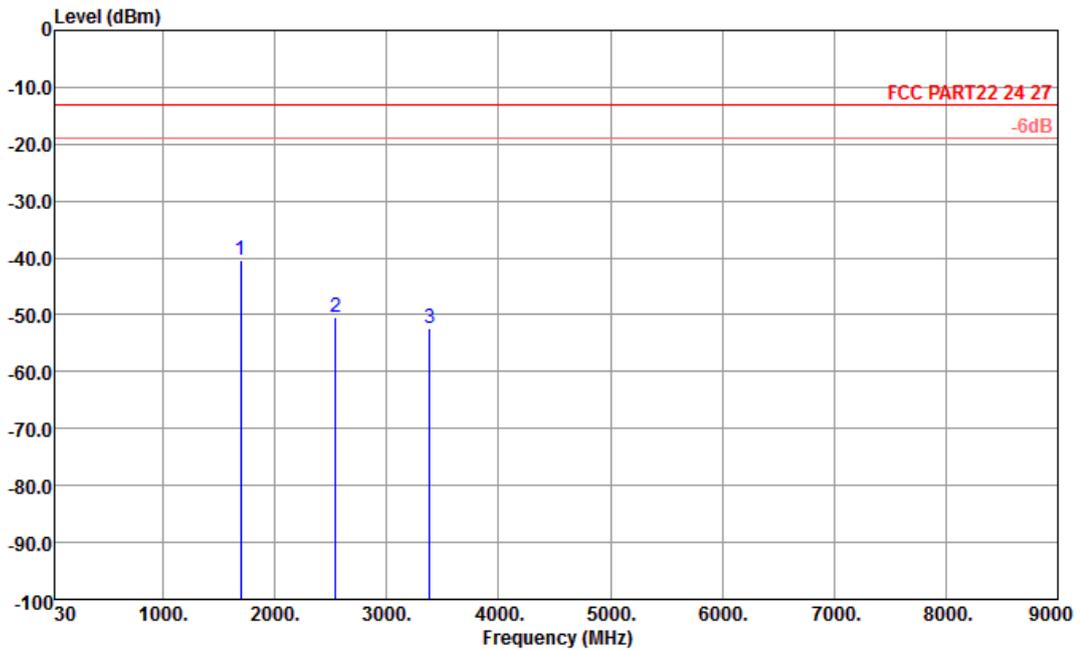


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

Frequency ( MHz )	ERP ( 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
1692	-55.79	-13	-42.79	-52.61	-56.44	0.57	3.37	H	Pass
2540	-53.29	-13	-40.29	-55.06	-55.52	0.78	5.16	H	Pass
3384	-56.38	-13	-43.38	-57.21	-60.02	0.87	6.66	H	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	3MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

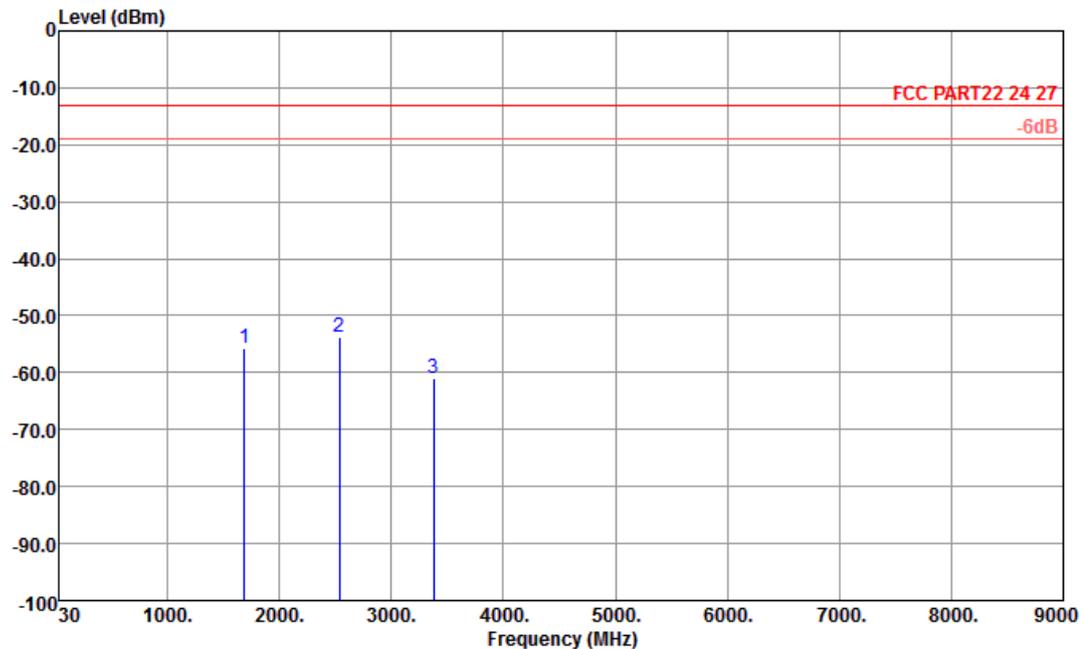


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

Frequency ( MHz )	ERP ( 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
1692	-40.32	-13	-27.32	-44.49	-40.97	0.57	3.37	V	Pass
2540	-50.28	-13	-37.28	-57.05	-52.51	0.78	5.16	V	Pass
3384	-52.50	-13	-39.50	-58.00	-56.14	0.87	6.66	V	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

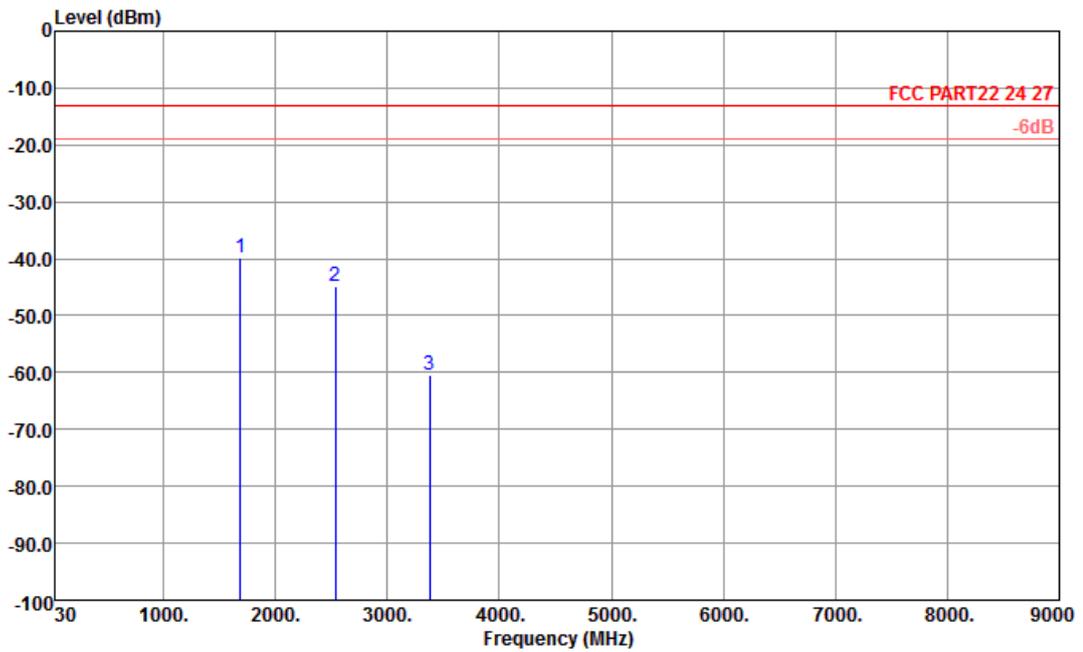


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

Frequency ( MHz )	ERP ( 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
1688	-55.58	-13	-42.58	-52.48	-56.23	0.57	3.37	H	Pass
2534	-53.70	-13	-40.70	-55.25	-55.93	0.78	5.16	H	Pass
3376	-61.07	-13	-48.07	-60.70	-64.71	0.87	6.66	H	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

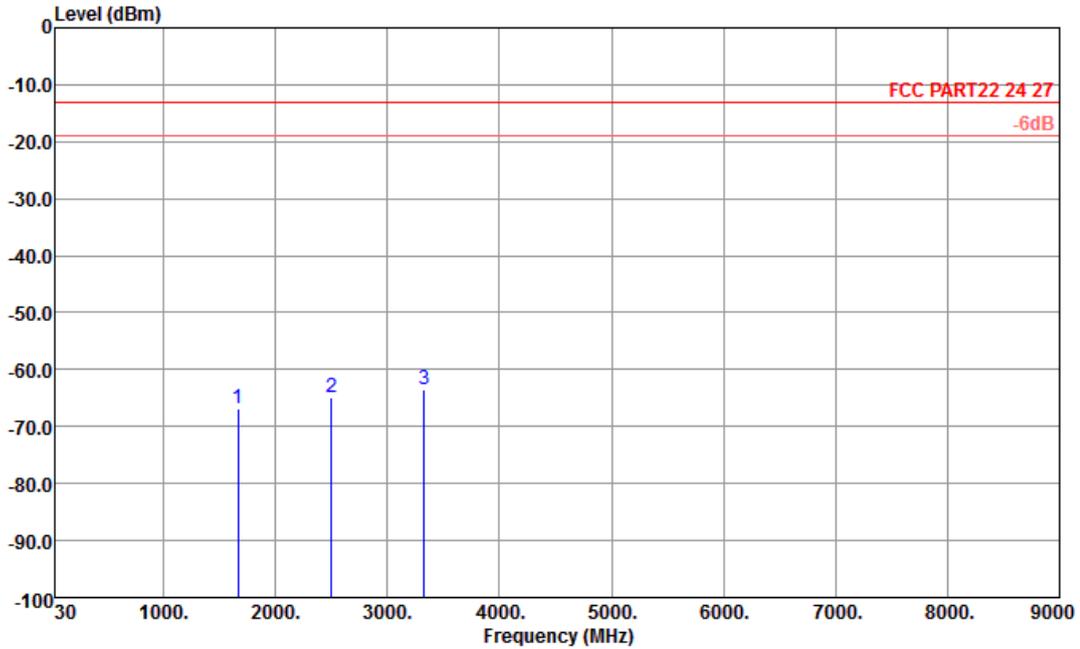


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

Frequency ( MHz )	ERP ( 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
1688	-39.72	-13	-26.72	-43.93	-40.37	0.57	3.37	V	Pass
2534	-44.86	-13	-31.86	-53.23	-47.09	0.78	5.16	V	Pass
3378	-60.42	-13	-47.42	-61.90	-64.06	0.87	6.66	V	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

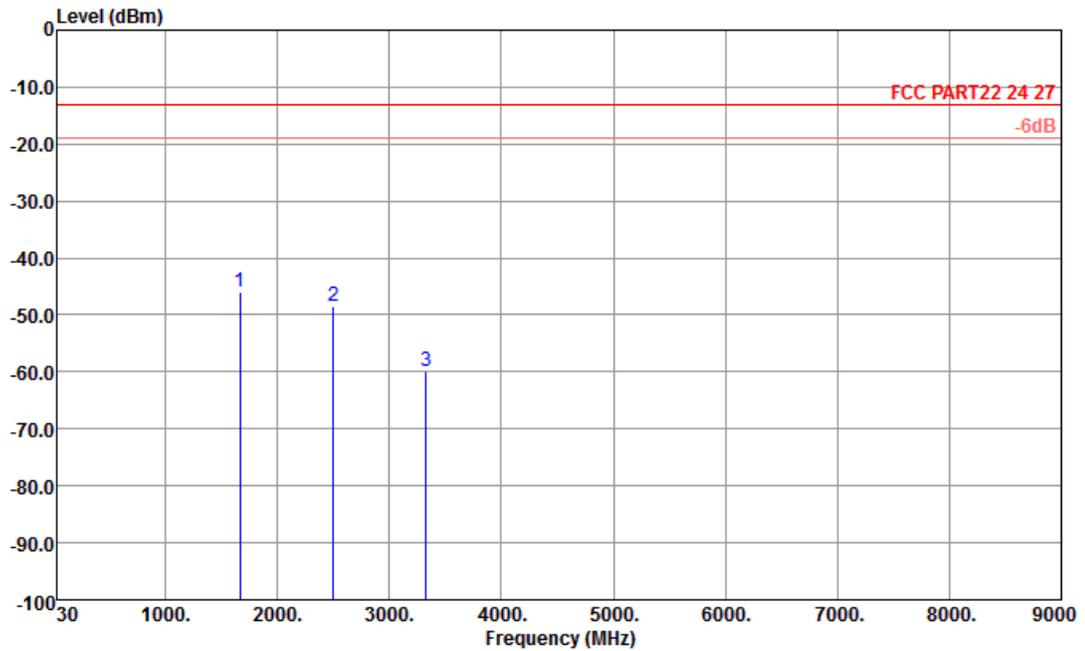


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

Frequency (MHz)	ERP (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
1664	-66.95	-13	-53.95	-58.92	-67.60	0.57	3.37	H	Pass
2498	-64.92	-13	-51.92	-63.59	-67.15	0.78	5.16	H	Pass
3328	-63.64	-13	-50.64	-63.27	-67.28	0.87	6.66	H	Pass



<b>Band :</b>	LTE Band 5	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

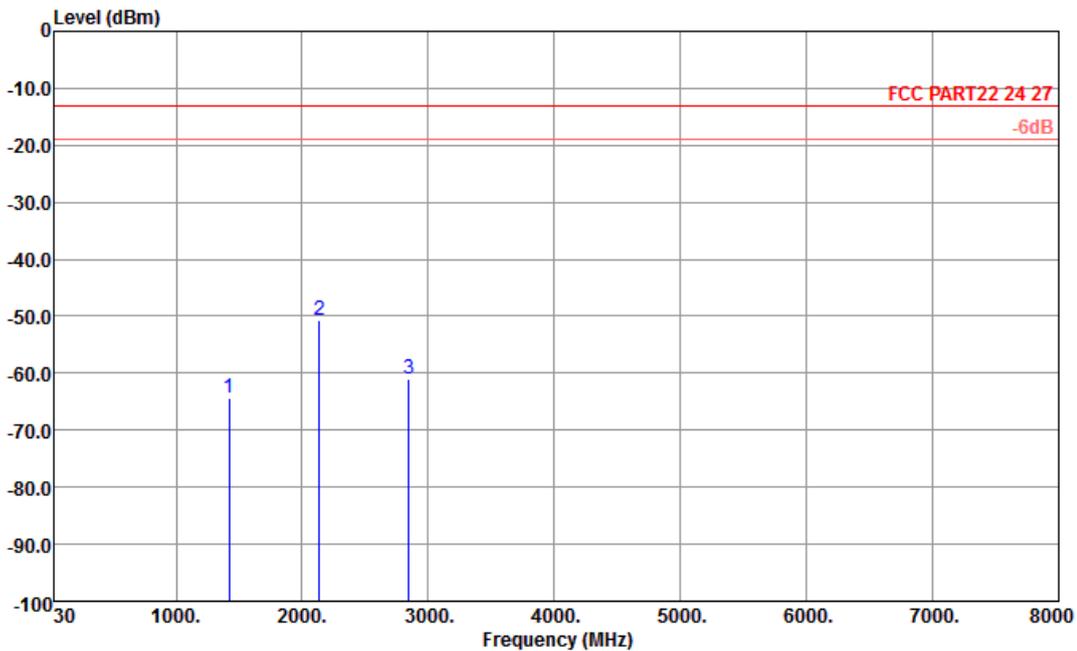


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

Frequency ( MHz )	ERP ( 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
1664	-45.96	-13	-32.96	-49.50	-46.61	0.57	3.37	V	Pass
2498	-48.53	-13	-35.53	-55.72	-50.76	0.78	5.16	V	Pass
3328	-59.94	-13	-46.94	-61.74	-63.58	0.87	6.66	V	Pass



<b>Band :</b>	LTE Band 17	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

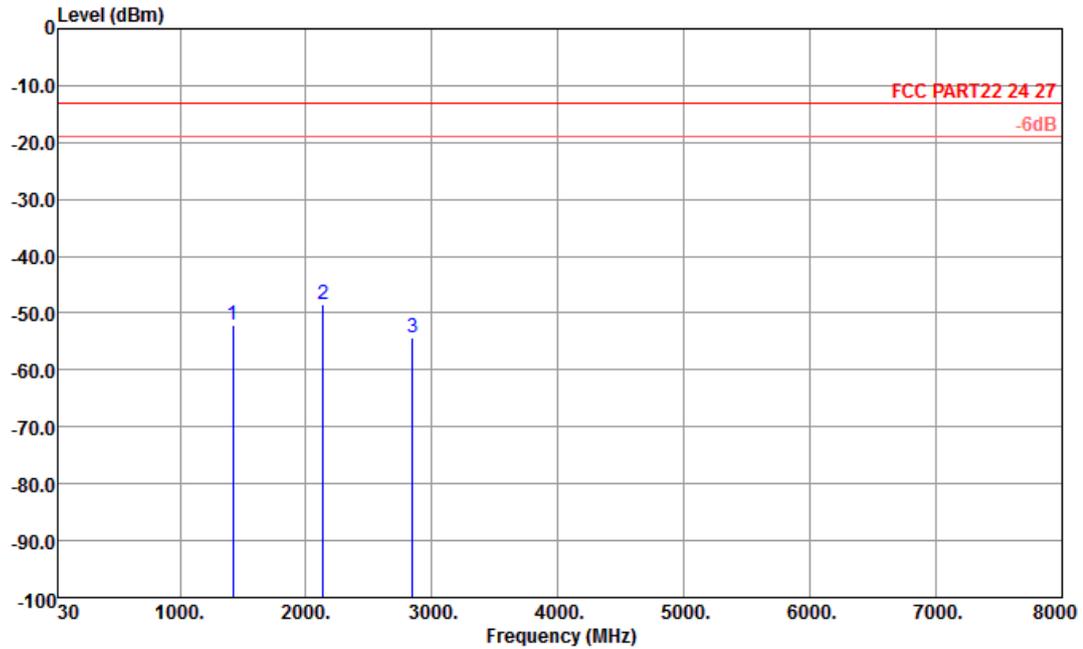


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

Frequency ( MHz )	ERP ( 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
1422	-64.35	-13	-51.35	-57.93	-65.00	0.57	3.37	H	Pass
2134	-50.73	-13	-37.73	-53.30	-52.96	0.78	5.16	H	Pass
2846	-61.09	-13	-48.09	-59.76	-64.73	0.87	6.66	H	Pass



<b>Band :</b>	LTE Band 17	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	5MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

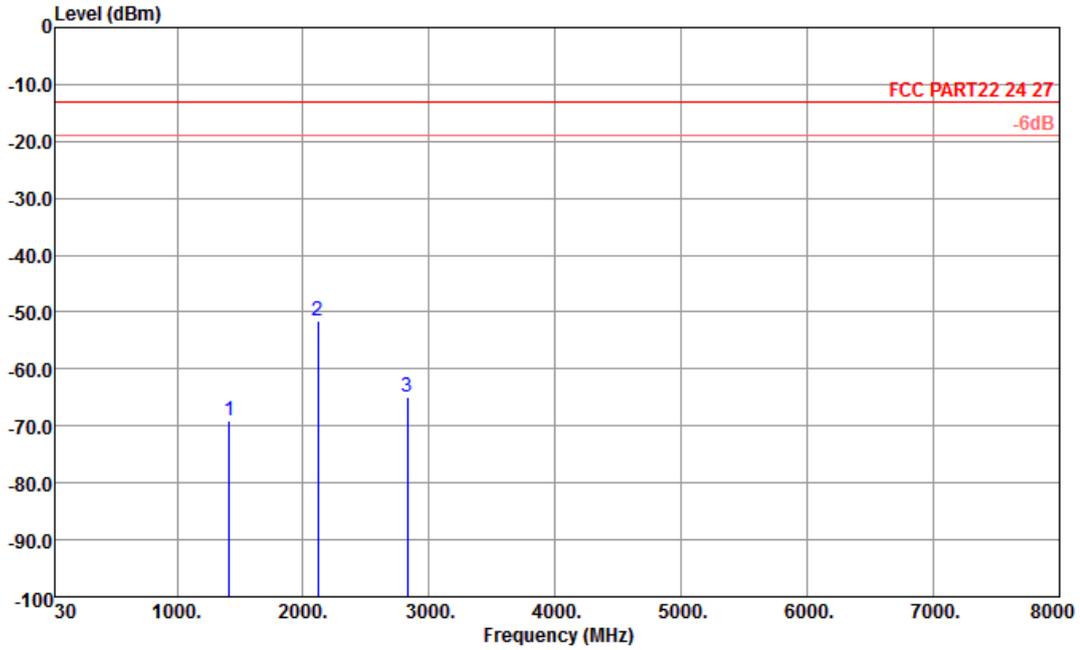


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

Frequency (MHz)	ERP (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
1422	-52.13	-13	-39.13	-54.37	-52.78	0.57	3.37	V	Pass
2134	-48.47	-13	-35.47	-55.68	-50.70	0.78	5.16	V	Pass
2846	-54.26	-13	-41.26	-59.46	-57.90	0.87	6.66	V	Pass



<b>Band :</b>	LTE Band 17	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

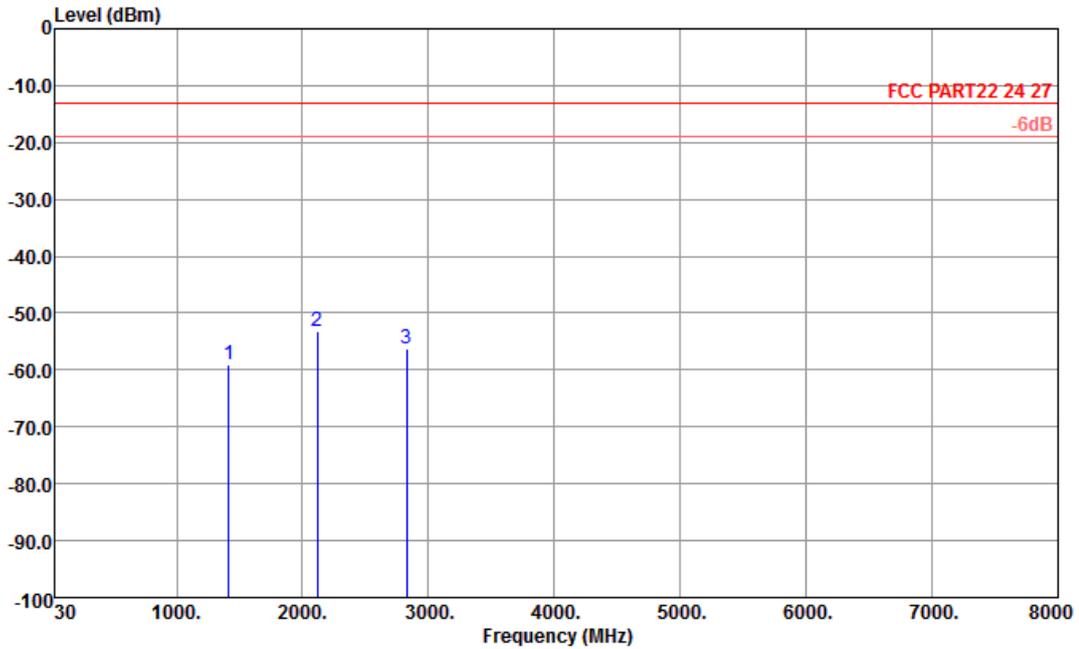


Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 HORIZONTAL

Frequency ( MHz )	ERP ( 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
1412	-68.96	-13	-55.96	-60.10	-69.61	0.57	3.37	H	Pass
2118	-51.57	-13	-38.57	-53.67	-53.80	0.78	5.16	H	Pass
2824	-64.89	-13	-51.89	-63.56	-68.53	0.87	6.66	H	Pass



<b>Band :</b>	LTE Band 17	<b>Temperature :</b>	22~23°C
<b>Test Mode :</b>	10MHz QPSK RB Size 1 Offset 0	<b>Relative Humidity :</b>	42~43%
<b>Test Engineer :</b>	Star Wei	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS  
 Condition : FCC PART22 24 27 HF\_EIRP\_FACTOR130726 VERTICAL

Frequency (MHz)	ERP (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
1412	-58.96	-13	-45.96	-58.68	-59.61	0.57	3.37	V	Pass
2118	-53.10	-13	-40.10	-59.01	-55.33	0.78	5.16	V	Pass
2824	-56.18	-13	-43.18	-60.51	-59.82	0.87	6.66	V	Pass

### 3.8 Frequency Stability Measurement

#### 3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency.

#### 3.8.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

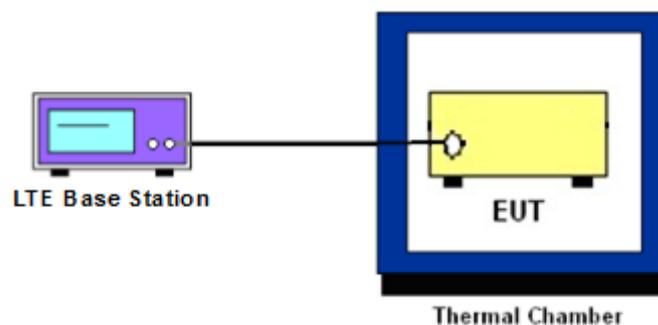
#### 3.8.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the LTE base station.
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.

#### 3.8.4 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 LTE base station.
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.

#### 3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

Band :	LTE Band 2 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	6.5	+0.003	4.7	+0.003	PASS
-20	4.5	+0.002	1.9	+0.001	
-10	8.7	+0.005	-8.8	-0.005	
0	-7.7	-0.004	9.5	+0.005	
10	7.4	+0.004	6.5	+0.003	
20	5.1	+0.003	3.2	+0.002	
30	2.3	+0.001	1.5	+0.001	
40	6.6	+0.004	3.5	+0.002	
50	5.8	+0.003	8.5	+0.005	

Band :	LTE Band 2 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	5.6	+0.003	5.6	+0.003	PASS
-20	6.2	+0.003	-9.8	-0.005	
-10	3.5	+0.002	7.5	+0.004	
0	5.4	+0.003	3.6	+0.002	
10	5.8	+0.003	-6.8	-0.004	
20	-9.8	-0.005	4.2	+0.002	
30	-6.5	-0.003	1.8	+0.001	
40	9.5	+0.005	5.6	+0.003	
50	8.5	+0.005	-9.8	-0.005	



Band :	LTE Band 2 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 15MHz		BW 20MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-8.5	-0.005	-6.6	-0.004	PASS
-20	-6.5	-0.003	-5.7	-0.003	
-10	-3.5	-0.002	-4.2	-0.002	
0	-6.7	-0.004	-9.1	-0.005	
10	-7.1	-0.004	8.1	+0.004	
20	-5.8	-0.003	11.2	+0.006	
30	-6.5	-0.003	-8.7	-0.005	
40	9.8	+0.005	6.5	+0.003	
50	6.5	+0.003	-9.8	-0.005	

Band :	LTE Band 2 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-9.1	-0.005	-3.8	-0.002	PASS
-20	-6.5	-0.003	-9.2	-0.005	
-10	-5.4	-0.003	-11.2	-0.006	
0	3.3	+0.002	-10.8	-0.006	
10	-6.8	-0.004	-8.7	-0.005	
20	-8.5	-0.005	-5.6	-0.003	
30	-8.1	-0.004	-5.4	-0.003	
40	-8.5	-0.005	-6.5	-0.003	
50	-9.2	-0.005	-6.8	-0.004	



Band :	LTE Band 2 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	11.0	+0.006	12.8	+0.007	PASS
-20	-6.9	-0.004	-9.8	-0.005	
-10	-5.4	-0.003	-5.4	-0.003	
0	-3.2	-0.002	-1.2	-0.001	
10	-6.5	-0.003	-3.5	-0.002	
20	-4.5	-0.002	-8.7	-0.005	
30	-6.9	-0.004	-6.8	-0.004	
40	-4.6	-0.002	-7.5	-0.004	
50	-7.1	-0.004	-6.4	-0.003	

Band :	LTE Band 2 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 15MHz		BW 20MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	11.9	+0.006	15.0	+0.008	PASS
-20	-5.4	-0.003	-7.0	-0.004	
-10	-1.2	-0.001	5.3	+0.003	
0	-3.5	-0.002	-7.6	-0.004	
10	-6.7	-0.004	-3.1	-0.002	
20	-8.1	-0.004	4.9	+0.003	
30	-8.2	-0.004	8.0	+0.004	
40	7.5	+0.004	8.0	+0.004	
50	-5.7	-0.003	11.0	+0.006	



Band :	LTE Band 4 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	5.6	+0.003	5.6	+0.003	PASS
-20	3.2	+0.002	6.3	+0.004	
-10	-6.5	-0.004	5.2	+0.003	
0	-9.8	-0.006	4.3	+0.002	
10	-8.5	-0.005	-7.5	-0.004	
20	5.6	+0.003	-6.9	-0.004	
30	-9.0	-0.005	-3.3	-0.002	
40	4.8	+0.003	-2.3	-0.001	
50	-5.7	-0.003	-6.5	-0.004	

Band :	LTE Band 4 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-8.3	-0.005	-10.2	-0.006	PASS
-20	-5.6	-0.003	-3.6	-0.002	
-10	-6.0	-0.003	-9.2	-0.005	
0	-6.9	-0.004	-4.2	-0.002	
10	5.6	+0.003	11.0	+0.006	
20	8.3	+0.005	1.2	+0.001	
30	3.6	+0.002	2.8	+0.002	
40	4.0	+0.002	-5.6	-0.003	
50	-5.9	-0.003	-8.0	-0.005	



Band :	LTE Band 4 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 15MHz		BW 20MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-7.1	-0.004	6.6	+0.004	PASS
-20	8.2	+0.005	9.1	+0.005	
-10	5.6	+0.003	2.5	+0.001	
0	7.4	+0.004	1.2	+0.001	
10	5.2	+0.003	3.5	+0.002	
20	-9.8	-0.006	-3.2	-0.002	
30	6.6	+0.004	1.8	+0.001	
40	4.5	+0.003	7.5	+0.004	
50	-8.4	-0.005	4.5	+0.003	

Band :	LTE Band 4 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	6.5	+0.004	8.5	+0.005	PASS
-20	7.2	+0.004	6.9	+0.004	
-10	3.1	+0.002	4.1	+0.002	
0	-9.8	-0.006	10.8	+0.006	
10	6.5	+0.004	-5.6	-0.003	
20	7.1	+0.004	2.3	+0.001	
30	3.2	+0.002	-7.4	-0.004	
40	-2.2	-0.001	-1.8	-0.001	
50	-3.5	-0.002	-5.4	-0.003	



Band :	LTE Band 4 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	8.6	+0.005	-11.0	-0.006	PASS
-20	9.4	+0.005	-5.0	-0.003	
-10	5.3	+0.003	-8.5	-0.005	
0	4.5	+0.003	-6.8	-0.004	
10	8.2	+0.005	-5.4	-0.003	
20	6.9	+0.004	-9.8	-0.006	
30	-8.2	-0.005	-5.7	-0.003	
40	-5.7	-0.003	-6.8	-0.004	
50	-8.5	-0.005	-9.5	-0.005	

Band :	LTE Band 4 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 15MHz		BW 20MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	10.2	+0.006	-9.0	-0.005	PASS
-20	3.6	+0.002	-11.6	-0.007	
-10	5.1	+0.003	9.3	+0.005	
0	5.5	+0.003	-6.2	-0.004	
10	-6.5	-0.004	-3.5	-0.002	
20	-7.8	-0.005	-4.7	-0.003	
30	-9.0	-0.005	5.9	+0.003	
40	5.0	+0.003	-8.5	-0.005	
50	6.3	+0.004	-6.8	-0.004	



Band :	LTE Band 5 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	7.1	+0.008	-9.2	-0.011	PASS
-20	2.5	+0.003	6.5	+0.008	
-10	6.5	+0.008	4.7	+0.006	
0	7.1	+0.008	3.5	+0.004	
10	6.5	+0.008	6.1	+0.007	
20	8.5	+0.010	11.6	+0.014	
30	6.5	+0.008	6.8	+0.008	
40	7.1	+0.008	7.1	+0.008	
50	-5.2	-0.006	8.6	+0.010	

Band :	LTE Band 5 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	6.5	+0.008	-8.7	-0.010	PASS
-20	3.2	+0.004	-6.5	-0.008	
-10	4.1	+0.005	-4.2	-0.005	
0	6.5	+0.008	-6.5	-0.008	
10	-9.5	-0.011	-8.2	-0.010	
20	-8.3	-0.010	-6.5	-0.008	
30	-6.5	-0.008	-8.7	-0.010	
40	-8.0	-0.010	-6.5	-0.008	
50	-3.3	-0.004	-3.0	-0.004	



Band :	LTE Band 5 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	5.7	+0.007	-6.5	-0.008	PASS
-20	8.9	+0.011	-8.1	-0.010	
-10	6.5	+0.008	7.5	+0.009	
0	-3.5	-0.004	-11.0	-0.013	
10	-7.1	-0.008	-7.5	-0.009	
20	6.6	+0.008	-2.8	-0.003	
30	-8.0	-0.010	-9.1	-0.011	
40	-7.5	-0.009	-7.5	-0.009	
50	-6.9	-0.008	-3.2	-0.004	

Band :	LTE Band 5 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-3.5	-0.004	10.3	+0.012	PASS
-20	-7.5	-0.009	-3.2	-0.004	
-10	-8.0	-0.010	-6.5	-0.008	
0	-5.6	-0.007	6.5	+0.008	
10	-7.8	-0.009	2.1	+0.003	
20	-8.2	-0.010	3.5	+0.004	
30	-6.5	-0.008	7.5	+0.009	
40	-8.5	-0.010	9.4	+0.011	
50	-8.0	-0.010	4.4	+0.005	



Band :	LTE Band 17 (QPSK)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	6.2	+0.009	-9.1	-0.013	PASS
-20	3.9	+0.005	11.2	+0.016	
-10	7.5	+0.011	3.8	+0.005	
0	5.6	+0.008	7.5	+0.011	
10	-7.3	-0.010	6.5	+0.009	
20	-9.5	-0.013	5.7	+0.008	
30	-10.2	-0.014	9.8	+0.014	
40	-8.0	-0.011	11.0	+0.015	
50	-8.7	-0.012	6.0	+0.008	

Band :	LTE Band 17 (16QAM)		Limit (ppm) :	2.5	
Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	5.6	+0.008	-8.5	-0.012	PASS
-20	8.7	+0.012	9.8	+0.014	
-10	6.9	+0.010	-12.0	-0.017	
0	6.5	+0.009	-10.0	-0.014	
10	7.4	+0.010	7.5	+0.011	
20	6.6	+0.009	6.9	+0.010	
30	-9.8	-0.014	8.8	+0.012	
40	-7.3	-0.010	-7.1	-0.010	
50	-12.1	-0.017	-5.4	-0.008	



3.8.7 Test Result of Voltage Variation

Band	Bandwidth	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 2 (QPSK)	1.4M	3.7	7.1	+0.004	2.5	PASS
		3.5	5.2	+0.003		
		4.2	8.7	+0.005		
	3M	3.7	6.2	+0.003		
		3.5	-1.2	-0.001		
		4.2	-4.5	-0.002		
	5M	3.7	7.3	+0.004		
		3.5	-8.5	-0.005		
		4.2	-6.9	-0.004		
	10M	3.7	-6.7	-0.004		
		3.5	-8.5	-0.005		
		4.2	-3.3	-0.002		
	15M	3.7	2.5	+0.001		
		3.5	6.1	+0.003		
		4.2	5.7	+0.003		
20M	3.7	-5.5	-0.003			
	3.5	6.0	+0.003			
	4.2	-7.0	-0.004			
LTE Band 4 (QPSK)	1.4M	3.7	6.3	+0.004	2.5	PASS
		3.5	5.3	+0.003		
		4.2	4.5	+0.003		
	3M	3.7	8.7	+0.005		
		3.5	9.1	+0.005		
		4.2	-1.2	-0.001		
	5M	3.7	-3.5	-0.002		
		3.5	-8.7	-0.005		
		4.2	-9.5	-0.005		
	10M	3.7	-8.5	-0.005		
		3.5	11.2	+0.006		
		4.2	3.6	+0.002		
	15M	3.7	8.7	+0.005		
		3.5	-10.5	-0.006		
		4.2	-9.8	-0.006		
20M	3.7	6.5	+0.004			
	3.5	7.5	+0.004			
	4.2	8.3	+0.005			



Band	Bandwidth	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 5 (QPSK)	1.4M	3.7	-9.8	-0.012	2.5	PASS
		3.5	-6.5	-0.008		
		4.2	-7.1	-0.008		
	3M	3.7	3.6	+0.004		
		3.5	-5.8	-0.007		
		4.2	-7.5	-0.009		
	5M	3.7	9.8	+0.012		
		3.5	6.5	+0.008		
		4.2	4.3	+0.005		
	10M	3.7	2.1	+0.003		
		3.5	3.2	+0.004		
		4.2	1.5	+0.002		
LTE Band 17 (QPSK)	5M	3.7	-4.2	-0.006	2.5	PASS
		3.5	5.4	+0.008		
		4.2	8.7	+0.012		
	10M	3.7	9.2	+0.013		
		3.5	-10.1	-0.014		
		4.2	7.8	+0.011		



Band	Bandwidth	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 2 (16QAM)	1.4M	3.7	-6.5	-0.004	2.5	PASS
		3.5	-8.7	-0.005		
		4.2	-6.9	-0.004		
	3M	3.7	-8.5	-0.005		
		3.5	-6.2	-0.003		
		4.2	-3.5	-0.002		
	5M	3.7	-4.5	-0.003		
		3.5	-5.8	-0.003		
		4.2	-11.5	-0.006		
	10M	3.7	-8.5	-0.005		
		3.5	2.2	+0.001		
		4.2	6.5	+0.004		
	15M	3.7	4.5	+0.003		
		3.5	8.7	+0.005		
		4.2	-7.7	-0.004		
	20M	3.7	-9.5	-0.005		
		3.5	-6.5	-0.004		
		4.2	4.2	+0.002		
LTE Band 4 (16QAM)	1.4M	3.7	8.4	+0.005	2.5	PASS
		3.5	3.6	+0.002		
		4.2	5.5	+0.003		
	3M	3.7	6.9	+0.004		
		3.5	8.7	+0.005		
		4.2	-6.5	-0.004		
	5M	3.7	-6.4	-0.004		
		3.5	-4.5	-0.003		
		4.2	-6.8	-0.004		
	10M	3.7	-7.0	-0.004		
		3.5	9.5	+0.005		
		4.2	-8.7	-0.005		
	15M	3.7	-5.6	-0.003		
		3.5	-9.8	-0.006		
		4.2	-4.5	-0.003		
	20M	3.7	-3.8	-0.002		
		3.5	-7.2	-0.004		
		4.2	-5.2	-0.003		



Band	Bandwidth	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 5 (16QAM)	1.4M	3.7	-8.5	-0.010	2.5	PASS
		3.5	-6.9	-0.008		
		4.2	-4.6	-0.005		
	3M	3.7	-6.8	-0.008		
		3.5	-7.5	-0.009		
		4.2	5.4	+0.006		
	5M	3.7	5.4	+0.006		
		3.5	6.5	+0.008		
		4.2	7.1	+0.008		
	10M	3.7	10.2	+0.012		
		3.5	12.0	+0.014		
		4.2	5.1	+0.006		
LTE Band 17 (16QAM)	5M	3.7	4.5	+0.006	2.5	PASS
		3.5	6.3	+0.009		
		4.2	2.8	+0.004		
	10M	3.7	9.1	+0.013		
		3.5	5.5	+0.008		
		4.2	1.3	+0.002		

**Remark:**

1. Normal Voltage = 3.7V.
2. The manufacturer declared that the EUT could work properly between voltage 3.5V ~ 4.2V.



## 4 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. 28, 2013	Apr. 10, 2014~ May 16, 2014	Dec. 27, 2014	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Dec. 10, 2013	Apr. 10, 2014~ May 16, 2014	Dec. 09, 2014	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 05, 2013	May 05, 2014~ May 12, 2014	Nov. 04, 2014	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 23, 2013	May 05, 2014~ May 12, 2014	May 22, 2014	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	May 05, 2014~ May 12, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 08, 2014	May 05, 2014~ May 12, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 18, 2013	May 05, 2014~ May 12, 2014	Nov. 17, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	May 05, 2014~ May 12, 2014	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	May 05, 2014~ May 12, 2014	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Dec. 10, 2013	May 05, 2014~ May 12, 2014	Dec. 09, 2014	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	May 05, 2014~ May 12, 2014	NCR	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	May 05, 2014~ May 12, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	May 05, 2014~ May 12, 2014	NCR	Radiation (03CH01-KS)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP 7	100819	9kHz~7GHz	May 23, 2013	May 05, 2014~ May 09, 2014	May 22, 2014	ERP/EIRP (OTA01-KS)
Switch Control Manframe	Agilent	3499A	MY42005452	N/A	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Dual 1-to-6(4) MW MUX	Agilent	N2276A	MY42000841	N/A	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Microwave Switch	Agilent	44476A	MY42002573	N/A	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Microwave Switch	Agilent	44476A	MY42002586	N/A	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Diagonal Dual Polarized Horn	ETS-Lindgren	3164-04	00066993	700MHz~6GHz	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00066604	N/A	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Conical Log Spiral (Small)	ETS-Lindgren	3102	00066951	1~10GHz	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Turn Table	ETS-Lindgren	2088	N/A	Resolution : 0.1degree	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Limiting Amplifier	ETS-lindgren	109643	920326	10MHz~2.5GHz	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
EMQuest	ETS-Lindgren	EMQ-100	1125	N/A	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Medium Duty Holder	ETS-Lindgren	2015	N/A	N/A	N/A	May 05, 2014~ May 09, 2014	N/A	ERP/EIRP (OTA01-KS)



## 5 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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