FCC RF Test Report

APPLICANT	**: ZTE CORPORATION**
EQUIPMENT	**: LTE/WCDMA/GSM Digital Mobile Phone**
BRAND NAME	**: ZTE**
MODEL NAME	**: Blade Apex 2**
FCC ID	**: SRQ-ZTEBLADEAPEX2**
STANDARD	**: 47 CFR Part 2, 24(E)**
CLASSIFICATION	**: PCS Licensed Transmitter Held to Ear (PCE)**

The product was received on Jun. 24, 2014 and testing was completed on Jul. 24, 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.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
2627

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG432202-01	Rev. 01	The report is in accordance with C2PC rule for adding LTE Band 2. The product equality declaration could be referred to Appendix B. Based on the similarity between current and previous project, only adding LTE Band 2 full test items from original test report (Sporton Report Number FG432202B).	Jul. 30, 2014

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)	Peak-to-Average Ratio	<13 dB	PASS	-
3.2.6	§24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	EIRP < 2Watt	PASS	-
3.4	§2.1049 §24.238(b)	Occupied Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §24.238(a)	Conducted Band Edge Measurement (Band 2)	< 43+10log10(P[Watt])	PASS	-
3.6	§2.1051 §24.238(a)	Conducted Spurious Emission (Band 2)	< $43+10\log_{10}$(P[Watts])	PASS	-
3.7	§2.1053 §24.238(a)	Radiated Spurious Emission (Band 2)	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 28.57 dB at 7515.000 MHz
3.8	§2.1055 §24.235	Frequency Stability Temperature & Voltage	< 2.5 ppm	PASS	-

1 General Description

1.1 Applicant

ZTE CORPORATION

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

1.2 Manufacturer

ZTE CORPORATION

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

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE/WCDMA/GSM Digital Mobile Phone
Brand Name	ZTE
Model Name	Blade Apex 2
FCC ID	SRQ-ZTEBLADEAPEX2
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+/DC-HSDPA/LTE WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
HW Version	wmqA
SW Version	PV_ZTE_P892E10_MOVIV1.0.0B02
EUT Stage	Production Unit

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	
Tx Frequency	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz
Rx Frequency	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz
Bandwidth	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 2 : 23.39 dBm
Antenna Type	PIFA Antenna
Type of Modulation	QPSK / 16QAM

1.5 Modification of EUT

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

1.6 Maximum EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	BW	Emission Designator	Frequency Tolerance (ppm)	Maximum EIRP
Part 24	LTE Band 2	QPSK	1.4 MHz	1M10G7D	-	0.36 W
Part 24	LTE Band 2	16QAM	1.4 MHz	1M10D7W	-	0.28 W
Part 24	LTE Band 2	QPSK	3 MHz	2M73G7D	-	-
Part 24	LTE Band 2	16QAM	3 MHz	2M72D7W	-	-
Part 24	LTE Band 2	QPSK	5 MHz	4M49G7D	-	-
Part 24	LTE Band 2	16QAM	5 MHz	4M50D7W	-	-
Part 24	LTE Band 2	QPSK	10 MHz	9M07G7D	0.0114 ppm	-
Part 24	LTE Band 2	16QAM	10 MHz	9M03D7W	-	-
Part 24	LTE Band 2	QPSK	15 MHz	13M5G7D	-	-
Part 24	LTE Band 2	16QAM	15 MHz	13M4D7W	-	-
Part 24	LTE Band 2	QPSK	20 MHz	18M3G7D	-	0.36 W
Part 24	LTE Band 2	16QAM	20 MHz	18M3D7W	-	0.28 W

1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	**Sporton Site No.**			**FCC Registration No.**
	TH01-KS	03CH01-KS	OTA01-KS	149928

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, 24(E)
- 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.

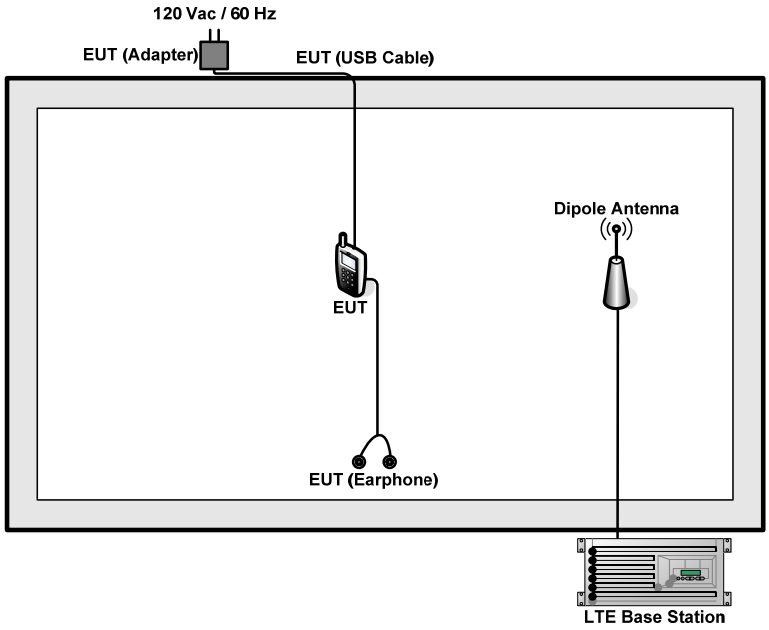
2 Test Configuration of Equipment Under Test

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.

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
Peak-to-Average Ratio	2						v		v	v		v		v	
26dB and 99% Bandwidth	2	v	v	v	v	v	v	v	v			v		v	
Conducted Band Edge	2	v	v	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	2	v	v	v	v	v	v	v	v	v			v	v	v
Frequency Stability	2				v			v				v		v	
E.I.R.P.	2	v					v	v	v	v			v	v	v
Radiated Spurious Emission	2	v	v	v	v	v	v	v		v				v	
Note	1. The mark "v " means that this configuration is chosen for testing 2. For E.I.R.P. measurement, the widest bandwidth and the bandwidth with the highest conducted power of each band is chosen for testing. Besides, the lowest bandwidth of each band is also measured for reporting only. 3. 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.														

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.

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.

Example :

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

= 6 + 10 = 16 (dB)

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A system simulator 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.

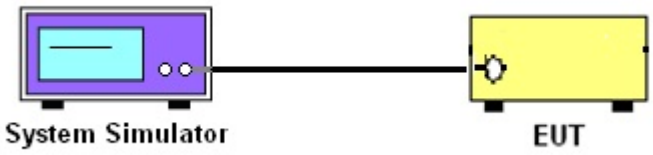
3.1.2 Measuring Instruments

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 system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

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.
Channel				**18700**	**18900**	**19100**
Frequency (MHz)				**1860**	**1880**	**1900**
20	QPSK	1	0	22.96	23.06	23.15
20	QPSK	1	49	23.00	**23.39**	23.25
20	QPSK	1	99	22.91	23.14	23.24
20	QPSK	50	0	22.19	22.31	22.38
20	QPSK	50	24	22.23	22.39	22.30
20	QPSK	50	49	22.21	22.36	22.26
20	QPSK	100	0	22.25	22.27	22.26
20	16QAM	1	0	21.97	22.15	22.16
20	16QAM	1	49	22.02	22.20	22.27
20	16QAM	1	99	21.88	22.10	22.17
20	16QAM	50	0	21.14	21.29	21.49
20	16QAM	50	24	21.28	21.24	21.37
20	16QAM	50	49	21.25	21.36	21.28
20	16QAM	100	0	21.19	21.31	21.41
Channel				**18675**	**18900**	**19125**
Frequency (MHz)				**1857.5**	**1880**	**1902.5**
15	QPSK	1	0	23.04	23.21	23.22
15	QPSK	1	37	23.01	23.10	23.19
15	QPSK	1	74	23.03	23.20	23.18
15	QPSK	36	0	22.16	22.26	22.26
15	QPSK	36	18	22.17	22.23	22.28
15	QPSK	36	37	22.15	22.26	22.27
15	QPSK	75	0	22.19	22.29	22.34
15	16QAM	1	0	21.99	22.24	22.26
15	16QAM	1	37	21.96	22.09	22.23
15	16QAM	1	74	21.98	22.18	22.19
15	16QAM	36	0	21.10	21.11	21.30
15	16QAM	36	18	21.06	21.14	21.33
15	16QAM	36	37	21.15	21.19	21.22
15	16QAM	75	0	21.16	21.35	21.35

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				**18650**	**18900**	**19150**
Frequency (MHz)				**1855**	**1880**	**1905**
10	QPSK	1	0	23.12	23.20	23.22
10	QPSK	1	24	23.09	23.06	23.20
10	QPSK	1	49	23.04	23.17	23.20
10	QPSK	25	0	22.10	22.20	22.27
10	QPSK	25	12	22.12	22.19	22.23
10	QPSK	25	24	22.11	22.21	22.28
10	QPSK	50	0	22.32	22.36	22.32
10	16QAM	1	0	22.07	22.20	22.23
10	16QAM	1	24	22.05	22.18	22.20
10	16QAM	1	49	22.04	22.19	22.15
10	16QAM	25	0	21.12	21.27	21.29
10	16QAM	25	12	21.13	21.28	21.31
10	16QAM	25	24	21.13	21.25	21.48
10	16QAM	50	0	21.23	21.36	21.36
Channel				**18625**	**18900**	**19175**
Frequency (MHz)				**1852.5**	**1880**	**1907.5**
5	QPSK	1	0	23.08	23.19	23.26
5	QPSK	1	12	23.05	23.14	23.13
5	QPSK	1	24	23.05	23.17	23.19
5	QPSK	12	0	22.10	22.22	22.26
5	QPSK	12	6	22.07	22.26	22.25
5	QPSK	12	11	22.12	22.21	22.24
5	QPSK	25	0	22.08	22.23	22.32
5	16QAM	1	0	22.05	22.23	22.24
5	16QAM	1	12	21.94	22.13	22.17
5	16QAM	1	24	21.97	22.10	22.23
5	16QAM	12	0	21.15	21.29	21.29
5	16QAM	12	6	21.17	21.30	21.24
5	16QAM	12	11	21.17	21.28	21.37
5	16QAM	25	0	21.11	21.25	21.39

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				**18615**	**18900**	**19185**
Frequency (MHz)				**1851.5**	**1880**	**1908.5**
3	QPSK	1	0	23.11	23.25	23.20
3	QPSK	1	7	23.07	23.11	23.19
3	QPSK	1	14	23.09	23.20	23.18
3	QPSK	8	0	22.08	22.25	22.29
3	QPSK	8	4	22.09	22.26	22.27
3	QPSK	8	7	22.12	22.25	22.30
3	QPSK	15	0	22.15	22.29	22.29
3	16QAM	1	0	22.08	22.25	22.19
3	16QAM	1	7	22.07	22.14	22.18
3	16QAM	1	14	21.99	22.17	22.16
3	16QAM	8	0	21.18	21.32	21.35
3	16QAM	8	4	21.14	21.32	21.42
3	16QAM	8	7	21.18	21.31	21.33
3	16QAM	15	0	21.12	21.26	21.39
Channel				**18607**	**18900**	**19193**
Frequency (MHz)				**1850.7**	**1880**	**1909.3**
1.4	QPSK	1	0	23.17	23.38	23.26
1.4	QPSK	1	2	23.10	23.26	23.20
1.4	QPSK	1	5	23.13	23.34	23.23
1.4	QPSK	3	0	23.15	23.26	23.23
1.4	QPSK	3	1	23.15	23.22	23.21
1.4	QPSK	3	2	23.16	23.20	23.23
1.4	QPSK	6	0	22.18	22.29	22.36
1.4	16QAM	1	0	22.13	22.31	22.24
1.4	16QAM	1	2	22.10	22.21	22.21
1.4	16QAM	1	5	22.12	22.24	22.22
1.4	16QAM	3	0	22.12	22.15	22.23
1.4	16QAM	3	1	22.08	22.09	22.23
1.4	16QAM	3	2	22.08	22.21	22.21
1.4	16QAM	6	0	21.01	21.20	21.25

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.

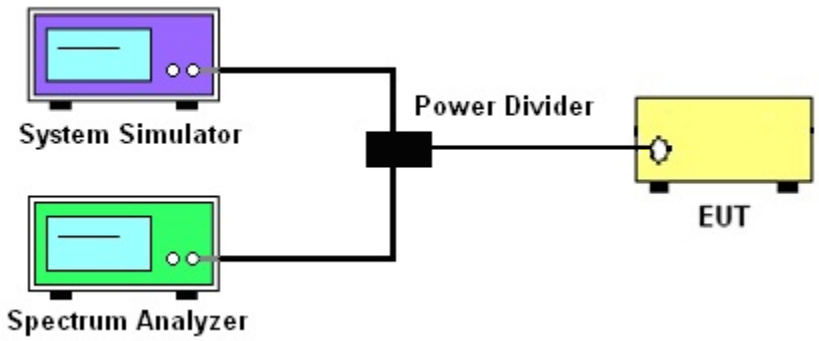
3.2.2 Measuring Instruments

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 system simulator 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



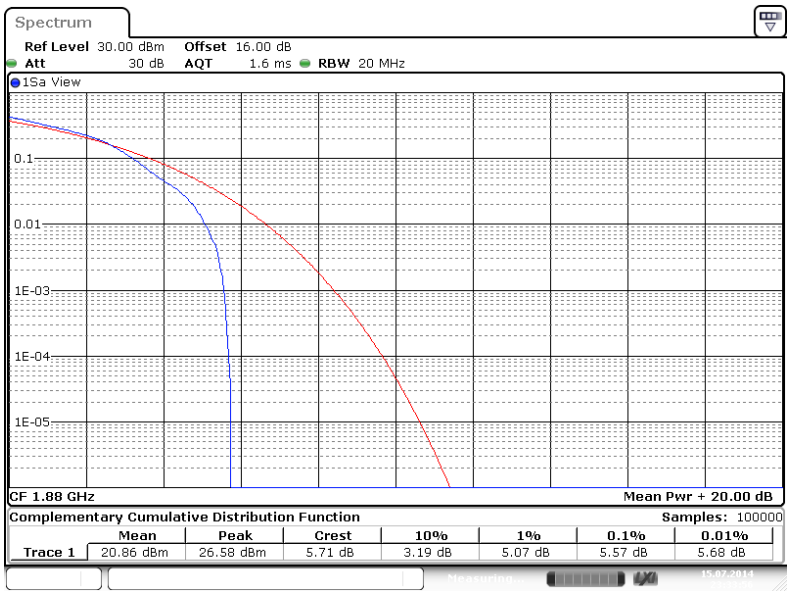
3.2.5 Test Result of Peak-to-Average Ratio

LTE Band 2				
BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Middle Ch. / Freq.
Channel				18900
Frequency (MHz)				1880
20	16QAM	1	0	5.57
20	16QAM	100	0	5.74

3.2.6 Peak to Average Power Ratio

Peak-to-Average Ratio on LTE Band 2

20MHz / 16QAM in Ch. 18900 (1RB Size)



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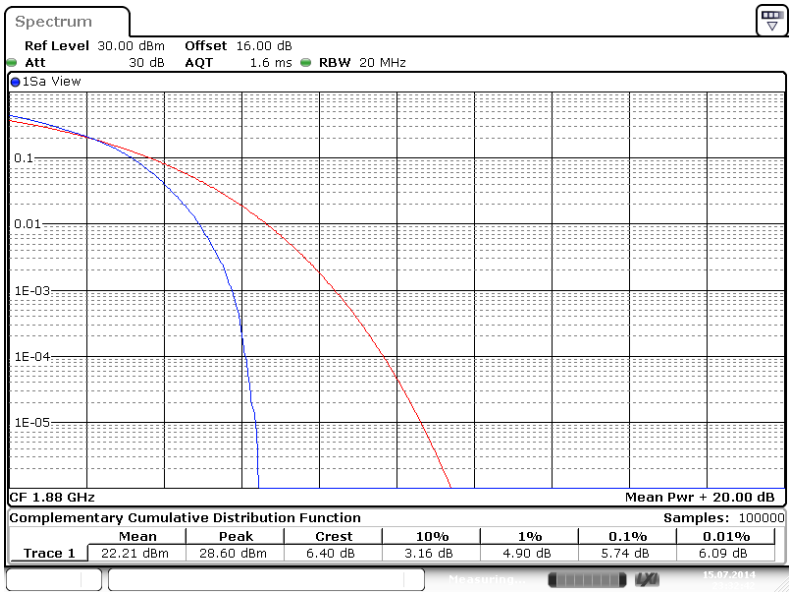
Peak-to-Average Ratio on LTE Band 2

20MHz / 16QAM in Ch. 18900 (100RB Size)



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3.3 Effective Radiated Power and Equivalent Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

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.

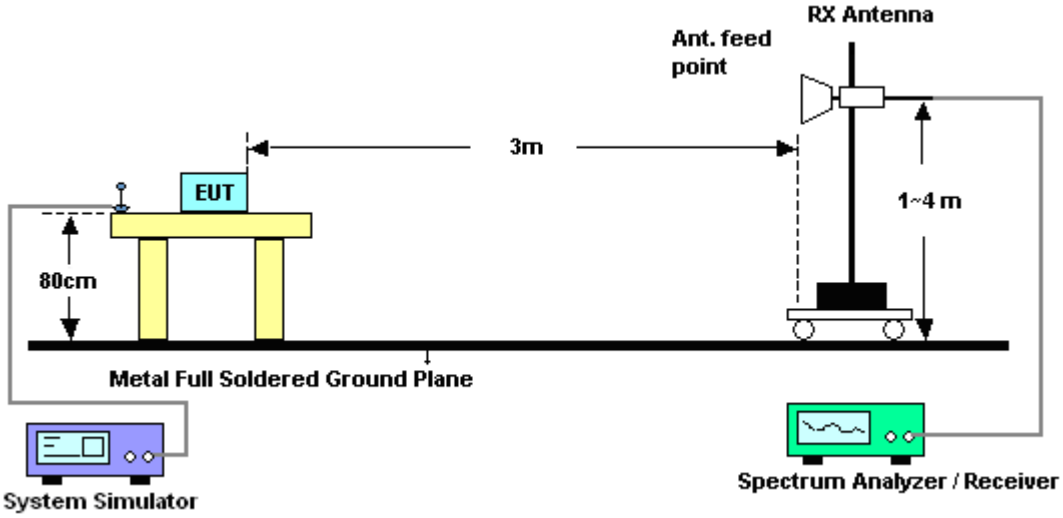
3.3.2 Measuring Instruments

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 non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, EIRP= LVL + Correction factor.

3.3.4 Test Setup



3.3.5 Test Result of 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	25.12	0.33	H
2	1.4	QPSK	1	0	1880	25.60	0.36	H
2	1.4	QPSK	1	0	1909.3	25.36	0.34	H
2	1.4	QPSK	1	0	1850.7	21.92	0.16	V
2	1.4	QPSK	1	0	1880	22.35	0.17	V
2	1.4	QPSK	1	0	1909.3	21.95	0.16	V
2	1.4	16QAM	1	0	1850.7	23.94	0.25	H
2	1.4	16QAM	1	0	1880	24.52	0.28	H
2	1.4	16QAM	1	0	1909.3	24.26	0.27	H
2	1.4	16QAM	1	0	1850.7	20.80	0.12	V
2	1.4	16QAM	1	0	1880	21.35	0.14	V
2	1.4	16QAM	1	0	1909.3	20.80	0.12	V
2	20	QPSK	1	49	1860	25.42	0.35	H
2	20	QPSK	1	49	1880	25.58	0.36	H
2	20	QPSK	1	49	1900	25.49	0.35	H
2	20	QPSK	1	49	1860	22.56	0.18	V
2	20	QPSK	1	49	1880	22.79	0.19	V
2	20	QPSK	1	49	1900	22.39	0.17	V
2	20	16QAM	1	49	1860	24.29	0.27	H
2	20	16QAM	1	49	1880	24.46	0.28	H
2	20	16QAM	1	49	1900	24.27	0.27	H
2	20	16QAM	1	49	1860	21.48	0.14	V
2	20	16QAM	1	49	1880	21.51	0.14	V
2	20	16QAM	1	49	1900	21.25	0.13	V

3.4 Occupied Bandwidth

3.4.1 Description of Occupied 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.

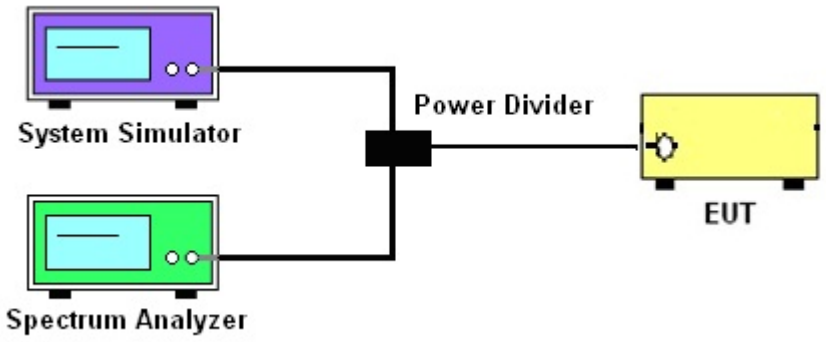
3.4.2 Measuring Instruments

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 system simulator 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



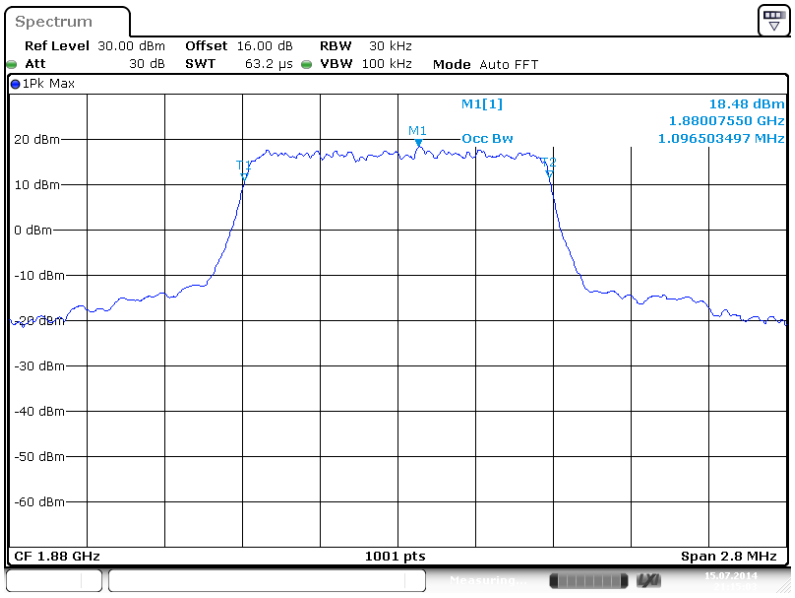
3.4.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

Modes	LTE Band 2			
BW / Mod.	**1.4MHz / QPSK**	**1.4MHz / 16QAM**	**3MHz / QPSK**	**3MHz / 16QAM**
99% OBW (MHz)	1.097	1.099	2.727	2.721
26dB BW (MHz)	1.290	1.292	3.045	3.045
BW / Mod.	**5MHz / QPSK**	**5MHz / 16QAM**	**10MHz / QPSK**	**10MHz / 16QAM**
99% OBW (MHz)	4.486	4.496	9.071	9.031
26dB BW (MHz)	5.035	5.045	10.070	10.010
BW / Mod.	**15MHz / QPSK**	**15MHz / 16QAM**	**20MHz / QPSK**	**20MHz / 16QAM**
99% OBW (MHz)	13.457	13.397	18.262	18.342
26dB BW (MHz)	14.745	14.835	20.420	20.220

3.4.6 Test Result (Plots) of Occupied Bandwidth

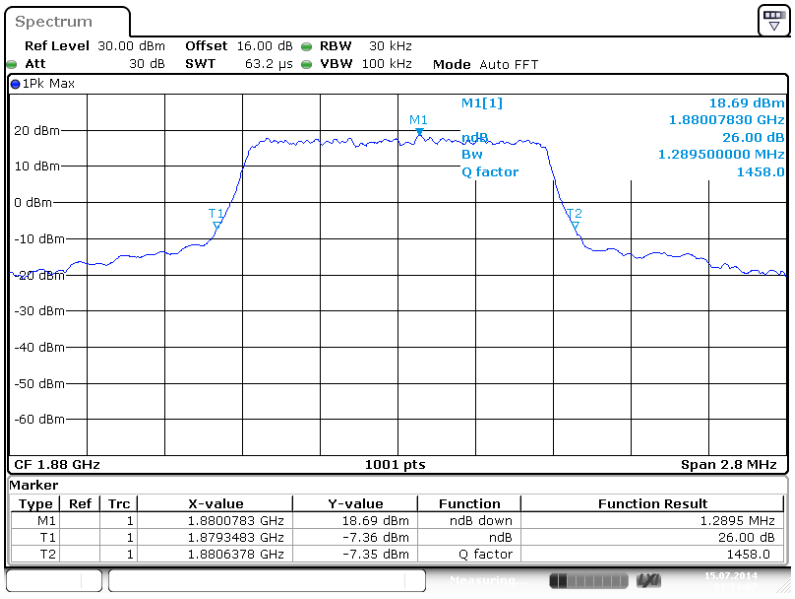
Band :	LTE Band 2	BW / Mod. :	1.4MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900



Date:15.JUL.2014 21:15:52

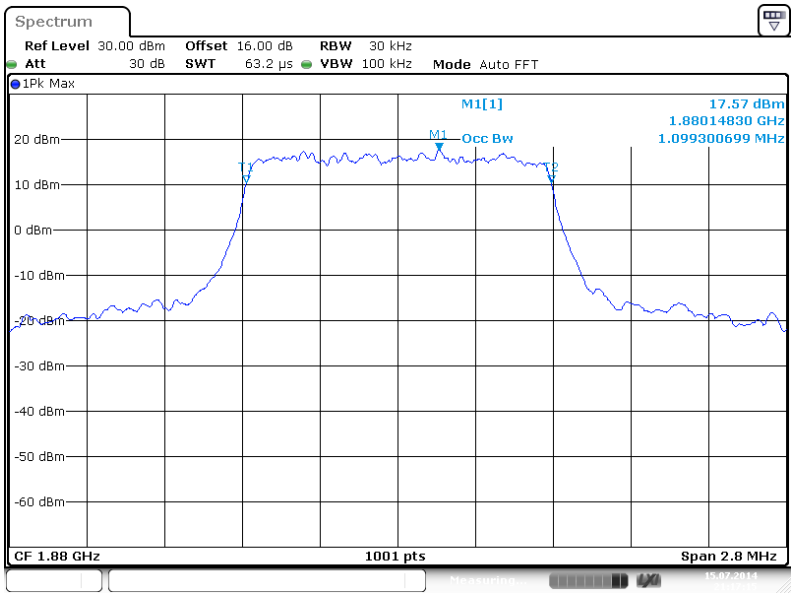
26dB Bandwidth Plot on Channel 18900



Date:15.JUL.2014 21:21:07

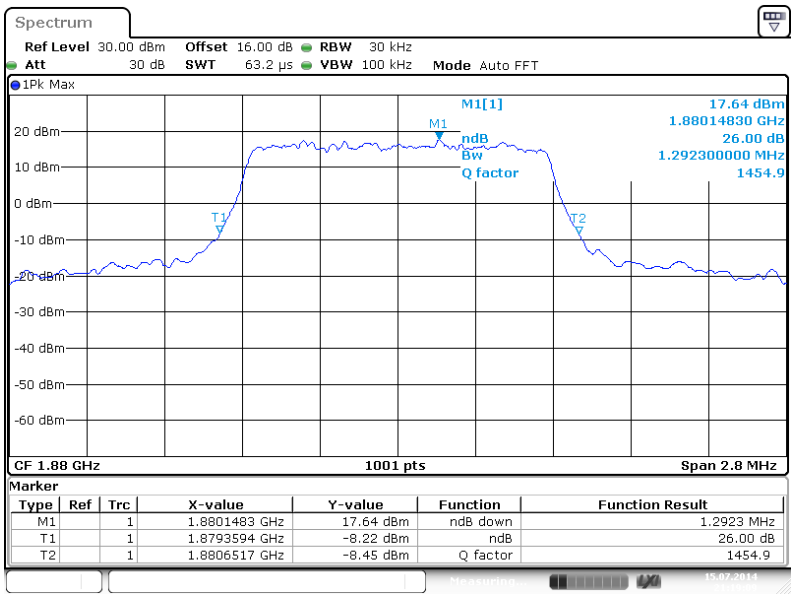
Band :	LTE Band 2	BW / Mod. :	1.4MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 18900



Date:15.JUL.2014 21:17:16

26dB Bandwidth Plot on Channel 18900



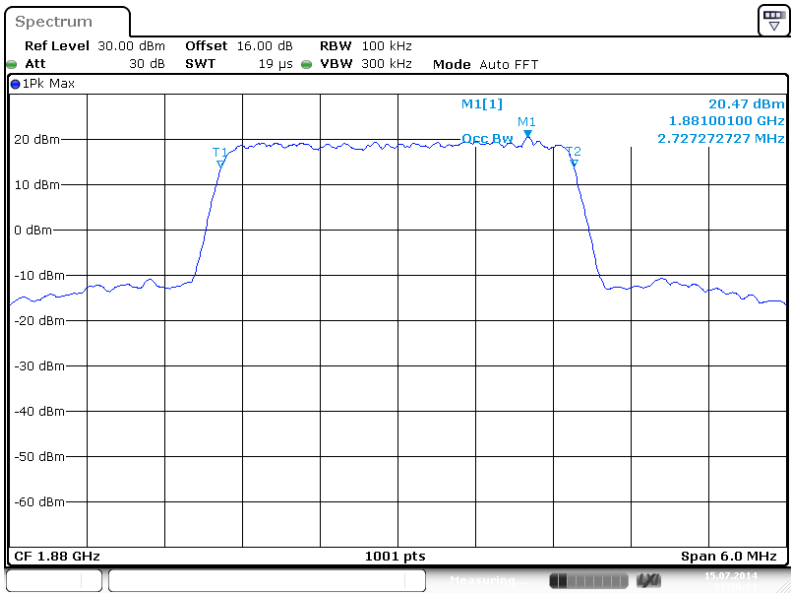
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.8801483 GHz	17.64 dBm	ndB down	1.2923 MHz
T1		1	1.8793594 GHz	-8.22 dBm	ndB	26.00 dB
T2		1	1.8806517 GHz	-8.45 dBm	Q factor	1454.9

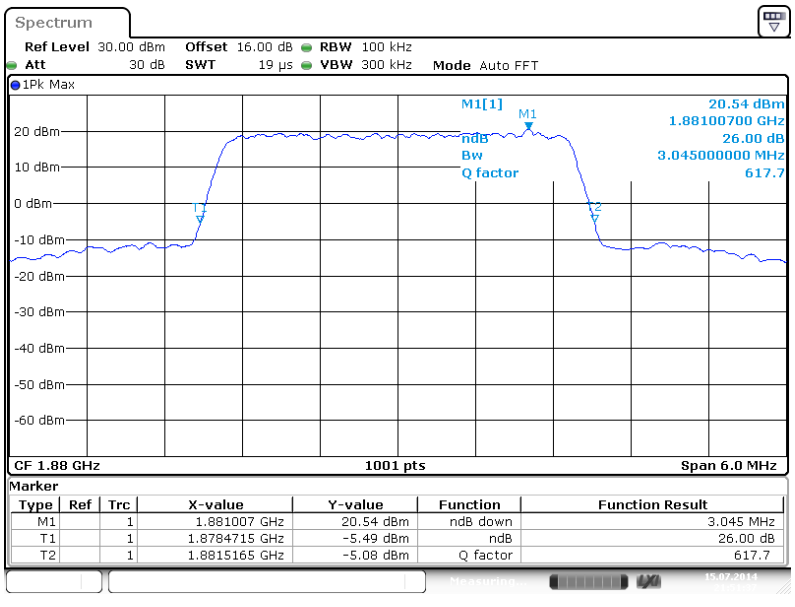
Date:15.JUL.2014 21:19:09

Band :	LTE Band 2	BW / Mod. :	3MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900

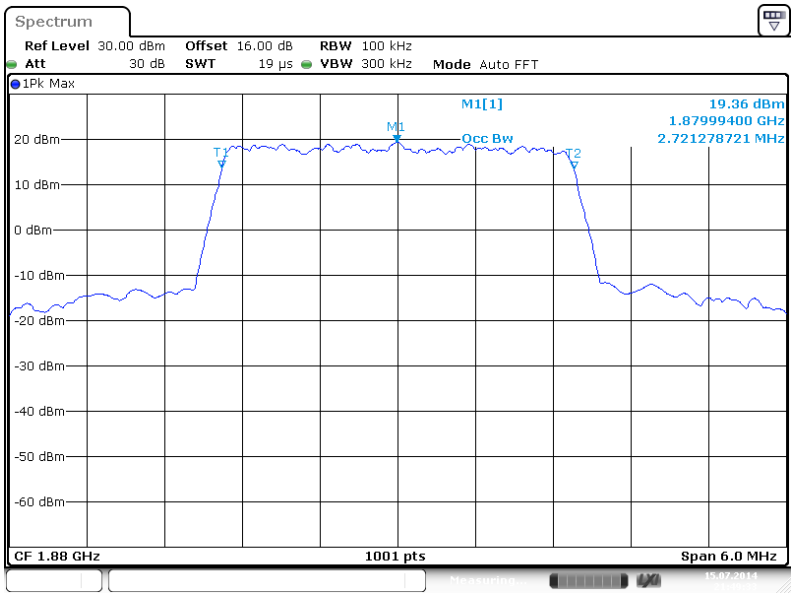


26dB Bandwidth Plot on Channel 18900



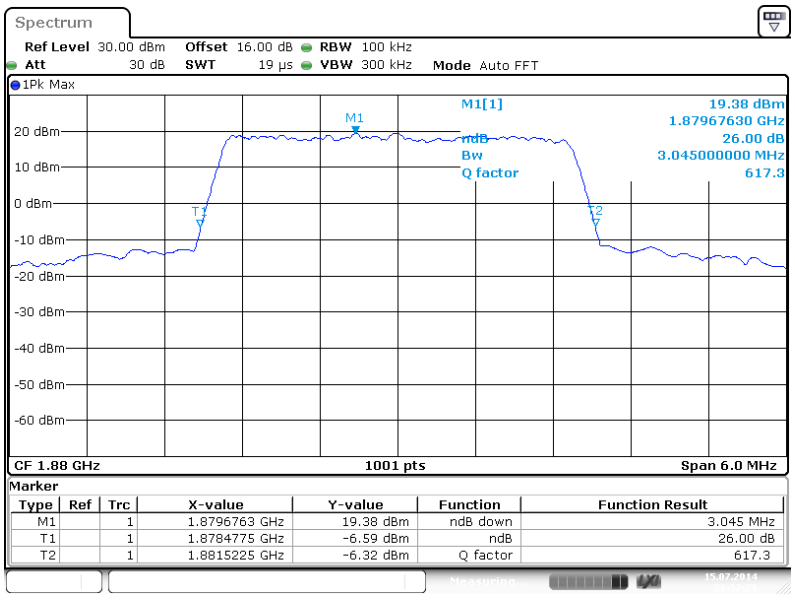
Band :	LTE Band 2	BW / Mod. :	3MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 18900



Date: 15.JUL.2014 21:49:34

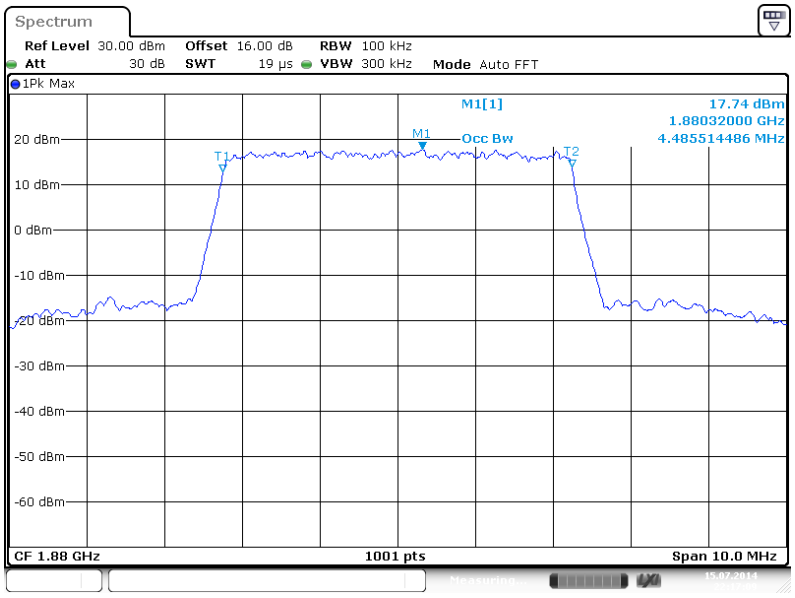
26dB Bandwidth Plot on Channel 18900



Date: 15.JUL.2014 21:52:29

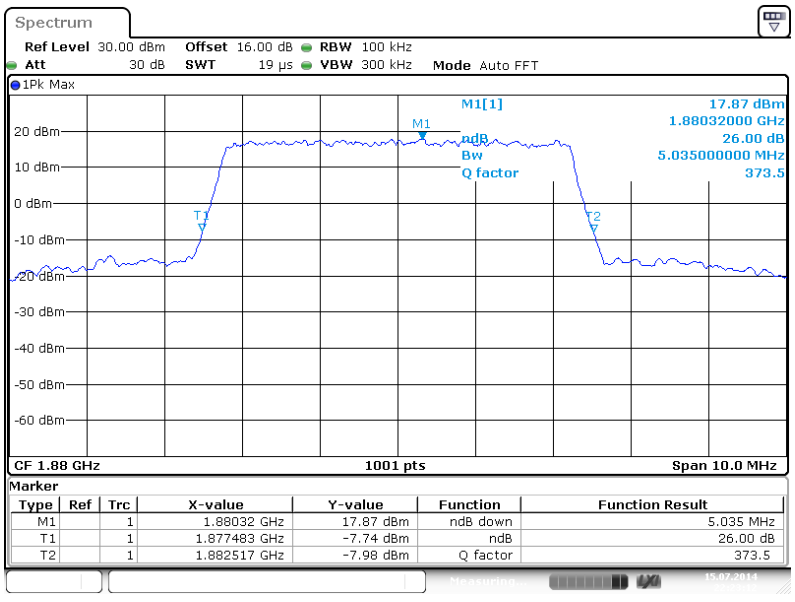
Band :	LTE Band 2	BW / Mod. :	5MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900



Date: 15.JUL.2014 22:17:09

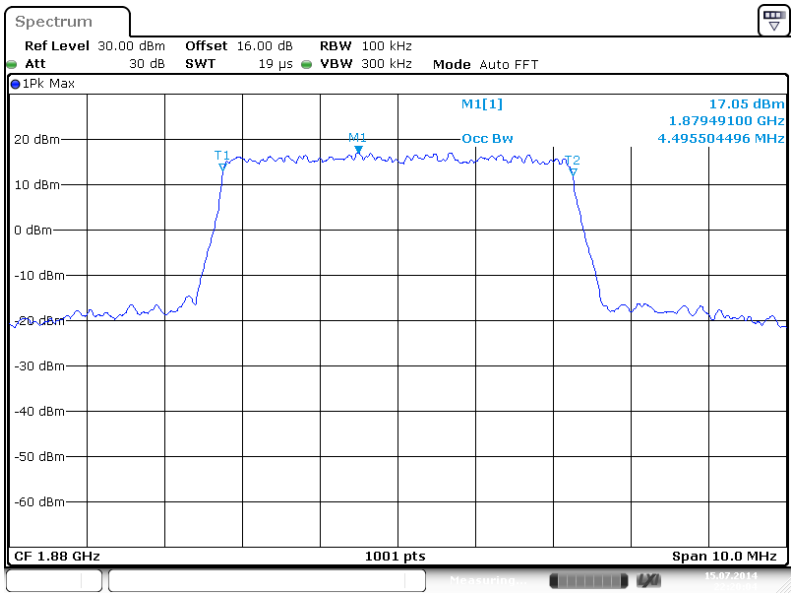
26dB Bandwidth Plot on Channel 18900



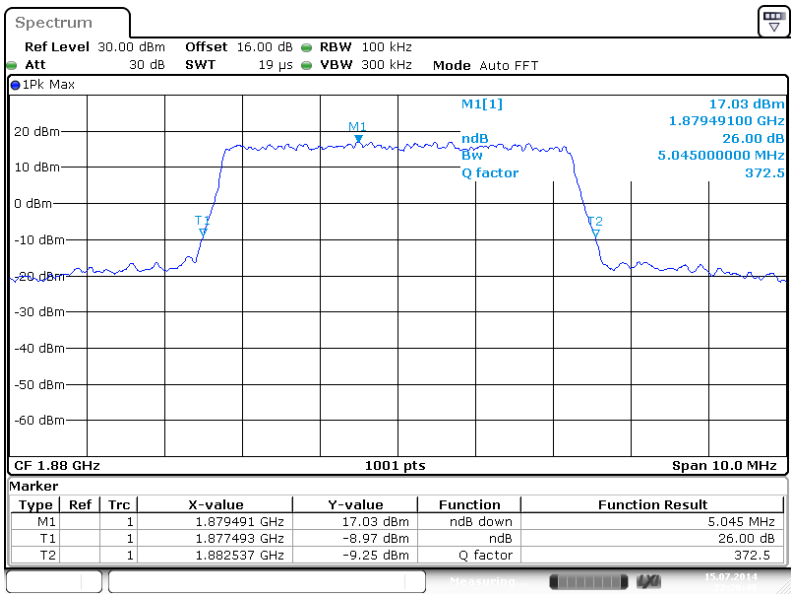
Date: 15.JUL.2014 22:23:12

Band :	LTE Band 2	BW / Mod. :	5MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 18900

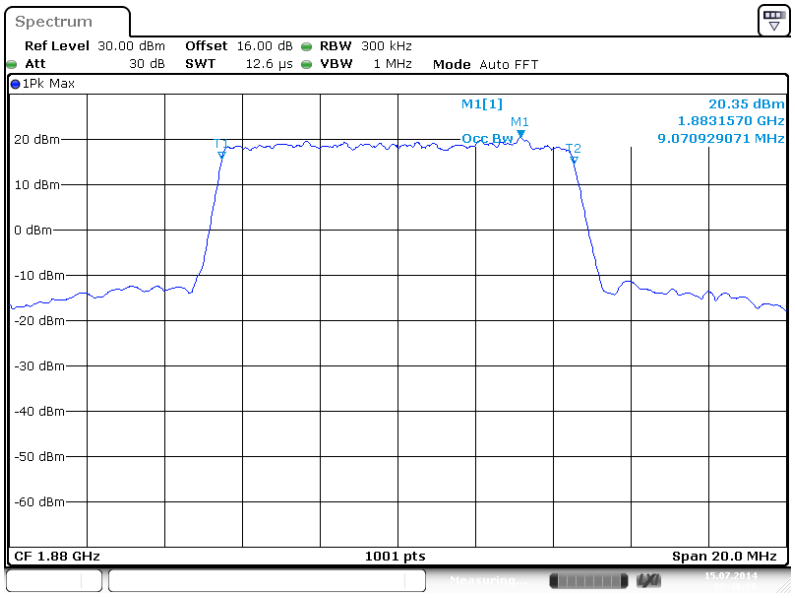


26dB Bandwidth Plot on Channel 18900



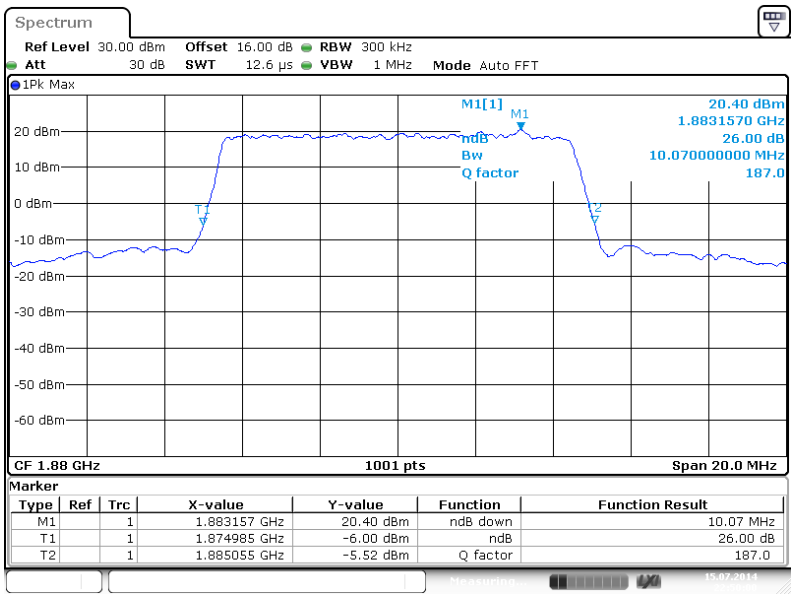
Band :	LTE Band 2	BW / Mod. :	10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900



Date:15.JUL.2014 22:48:26

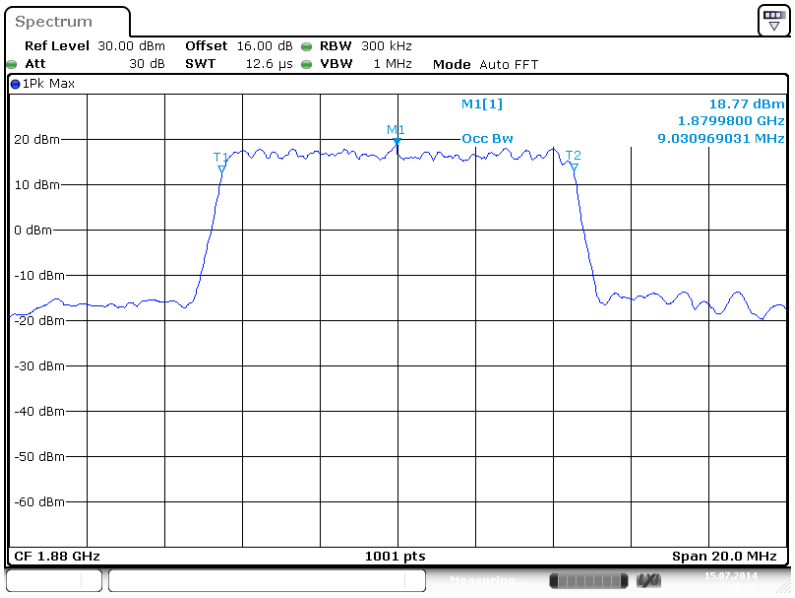
26dB Bandwidth Plot on Channel 18900



Date:15.JUL.2014 22:50:00

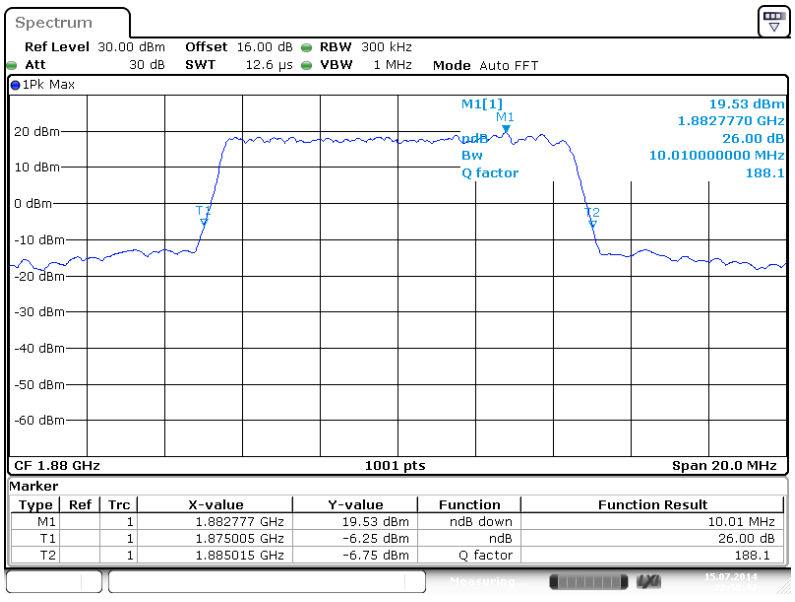
Band :	LTE Band 2	BW / Mod. :	10MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 18900



Date: 15.JUL.2014 22:46:45

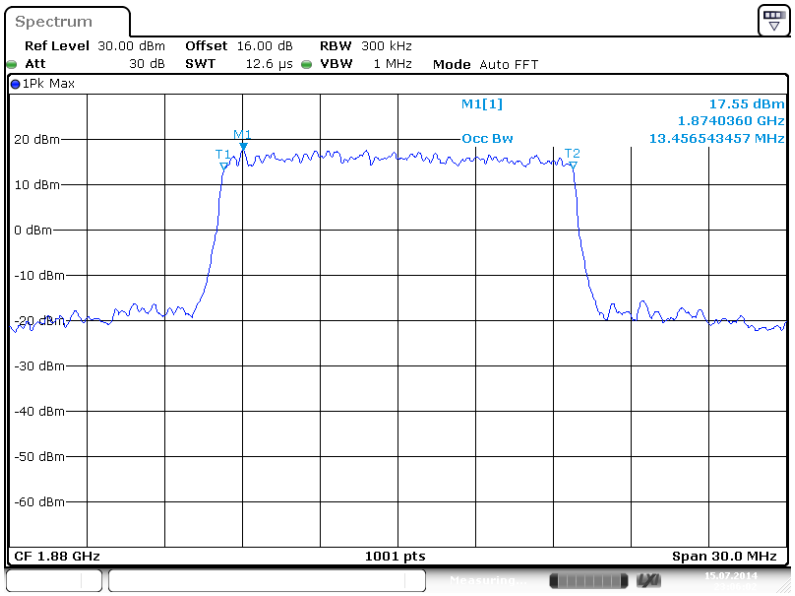
26dB Bandwidth Plot on Channel 18900



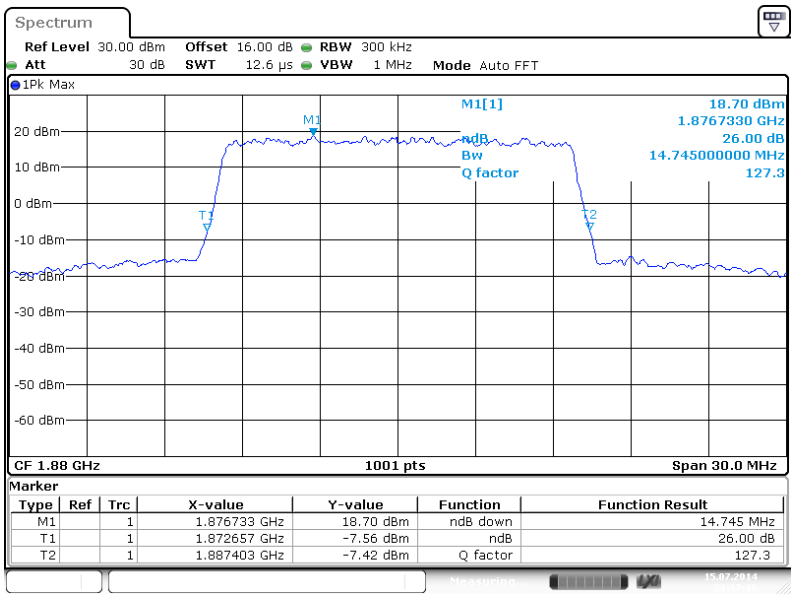
Date: 15.JUL.2014 22:50:42

Band :	LTE Band 2	BW / Mod. :	15MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900

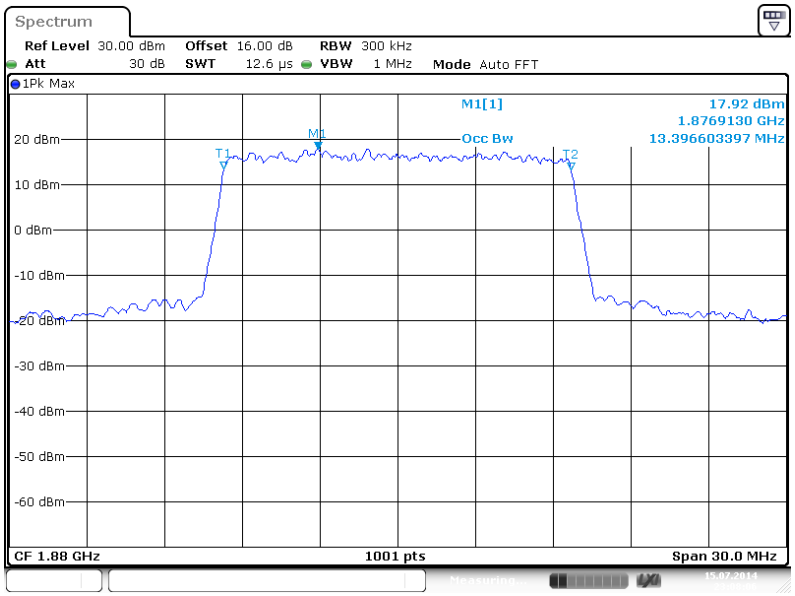


26dB Bandwidth Plot on Channel 18900

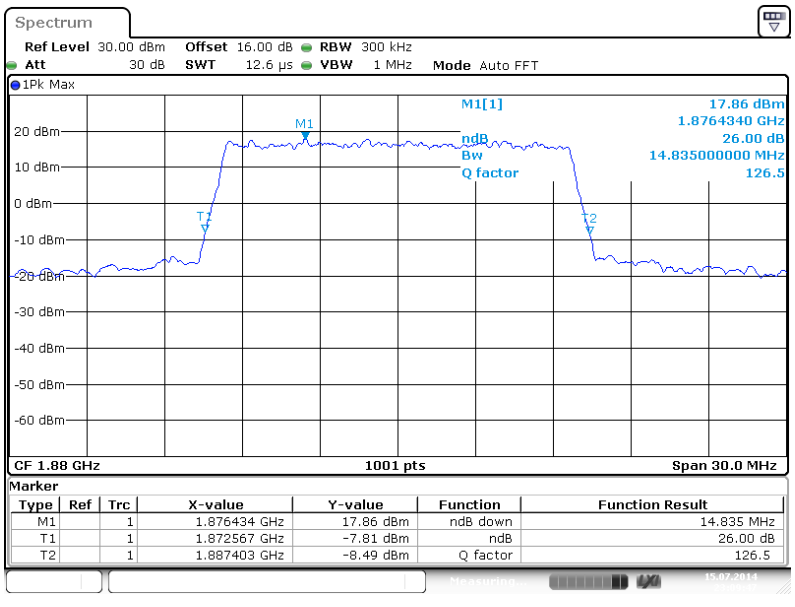


Band :	LTE Band 2	BW / Mod. :	15MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 18900

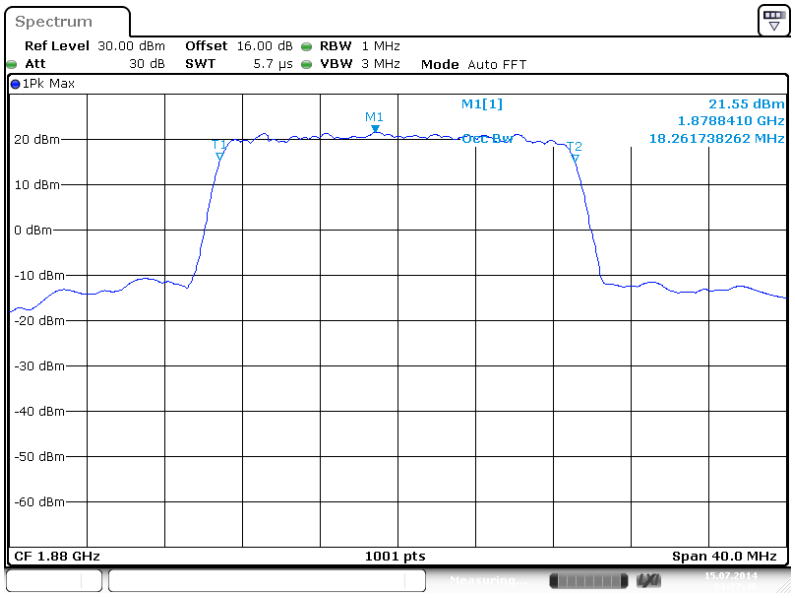


26dB Bandwidth Plot on Channel 18900

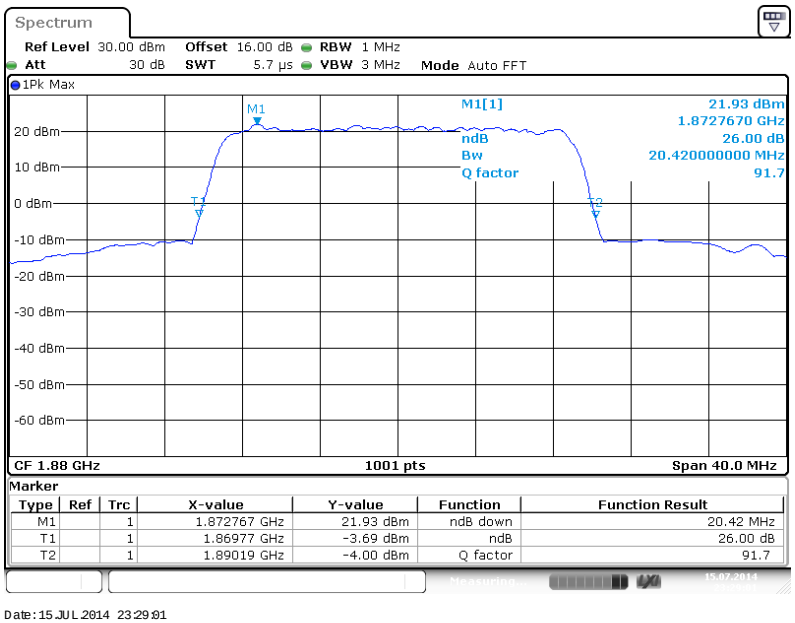


Band :	LTE Band 2	BW / Mod. :	20MHz / QPSK

99% Occupied Bandwidth Plot on Channel 18900

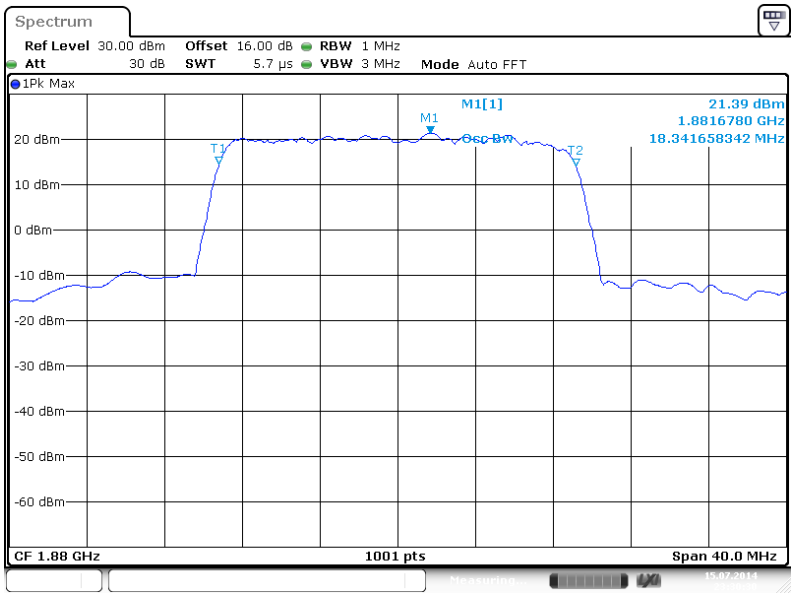


26dB Bandwidth Plot on Channel 18900

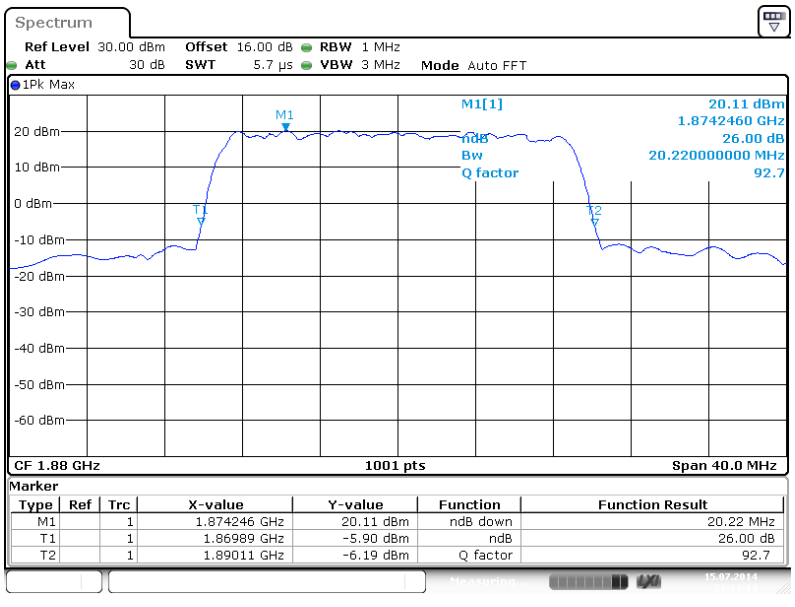


Band :	LTE Band 2	BW / Mod. :	20MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 18900



26dB Bandwidth Plot on Channel 18900



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[Watts]) dB below the transmitter power P(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.

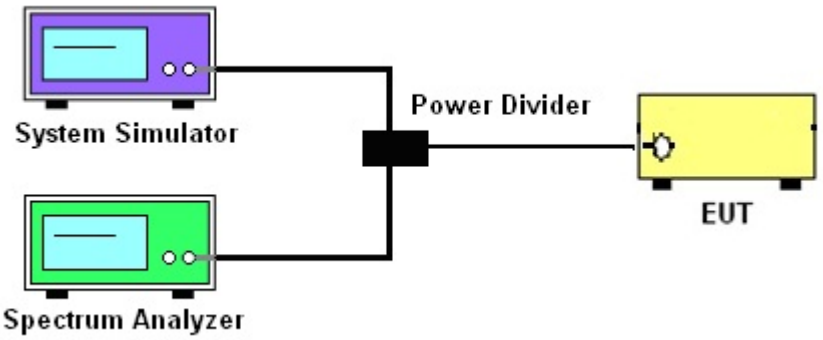
3.5.2 Measuring Instruments

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 system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Set RBW >= 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 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

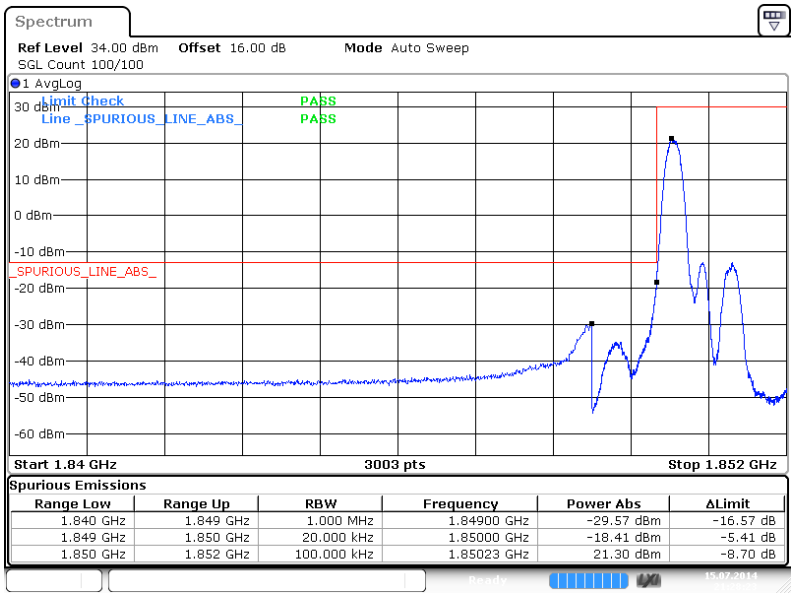
3.5.4 Test Setup



3.5.5 Test Result (Plots) of Conducted Band Edge

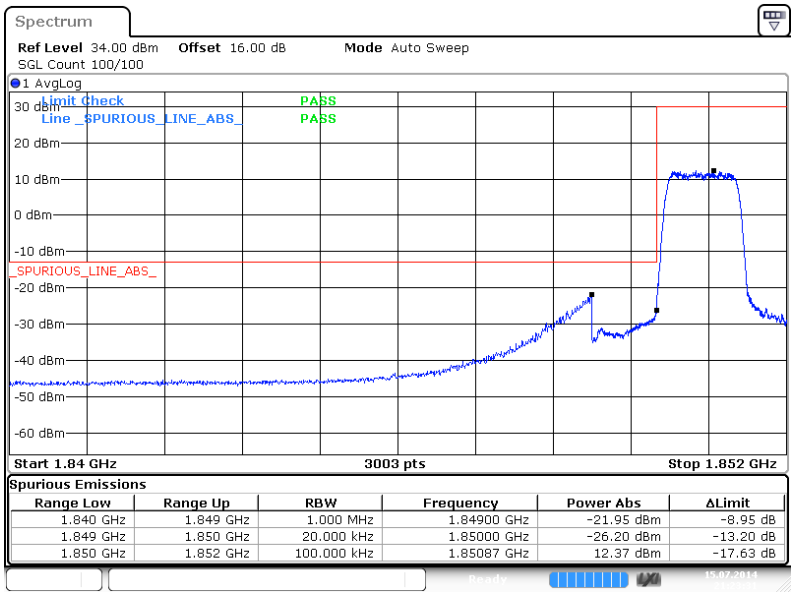
Band :	LTE Band 2	Band Width :	1.4MHz / QPSK

Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



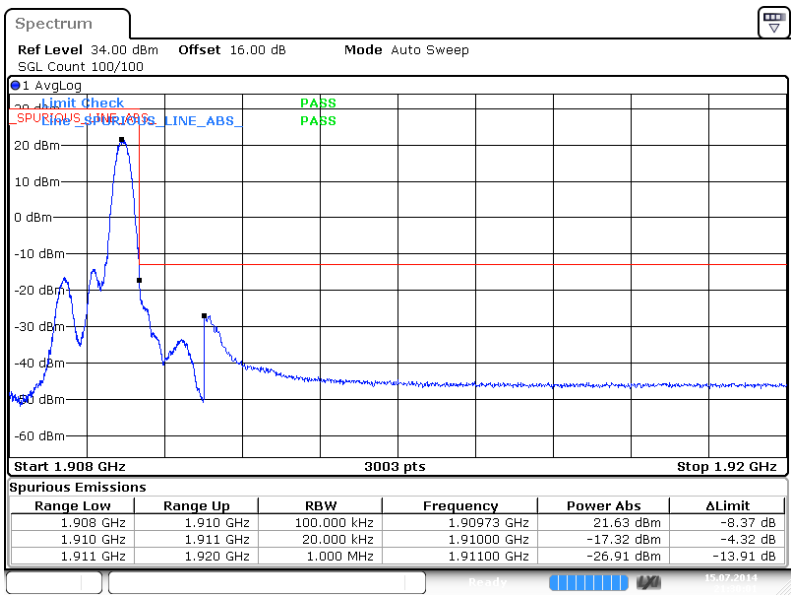
Date:15.JUL.2014 21:28:22

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



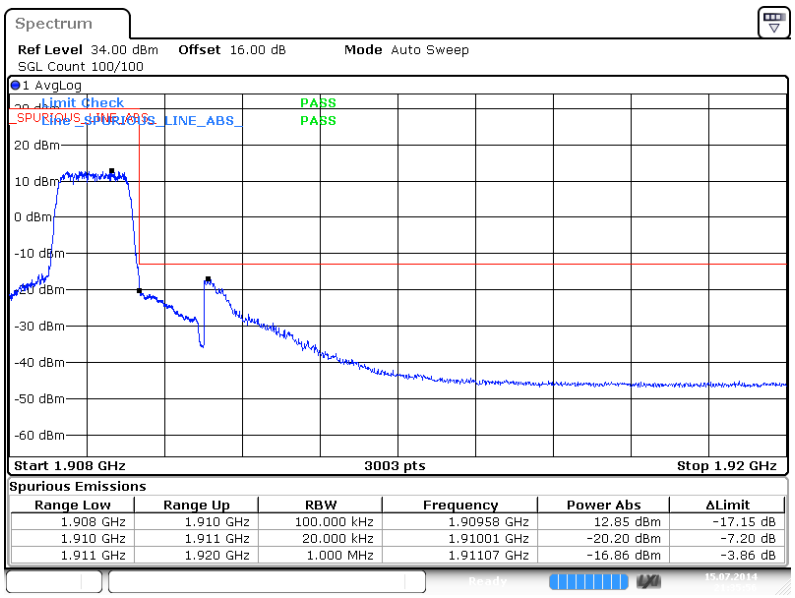
Date:15.JUL.2014 21:23:31

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



Date: 15.JUL.2014 21:30:01

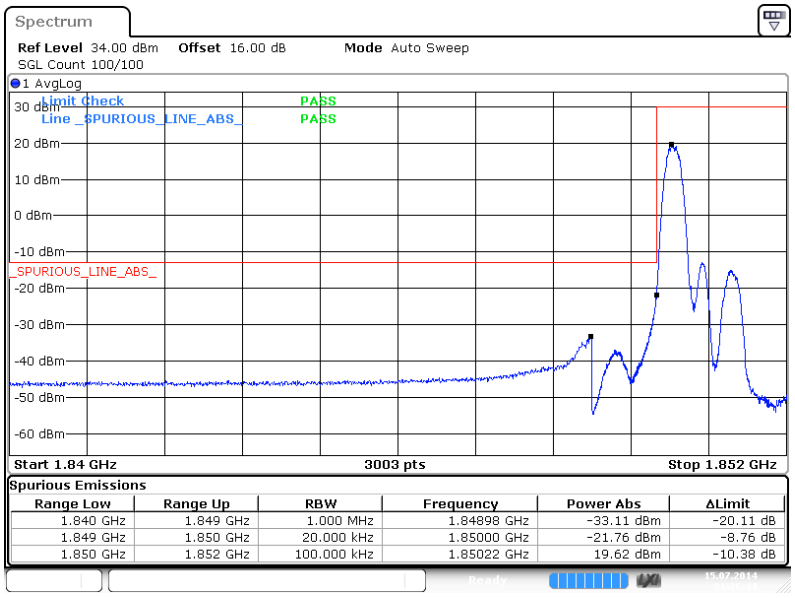
Higher Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 15.JUL.2014 21:35:56

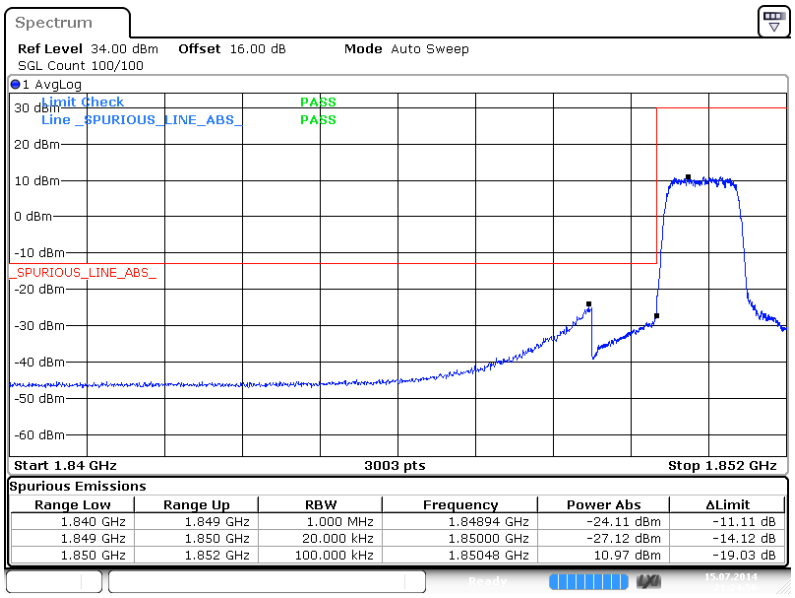
Band :	LTE Band 2	Band Width :	1.4MHz / 16QAM

Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



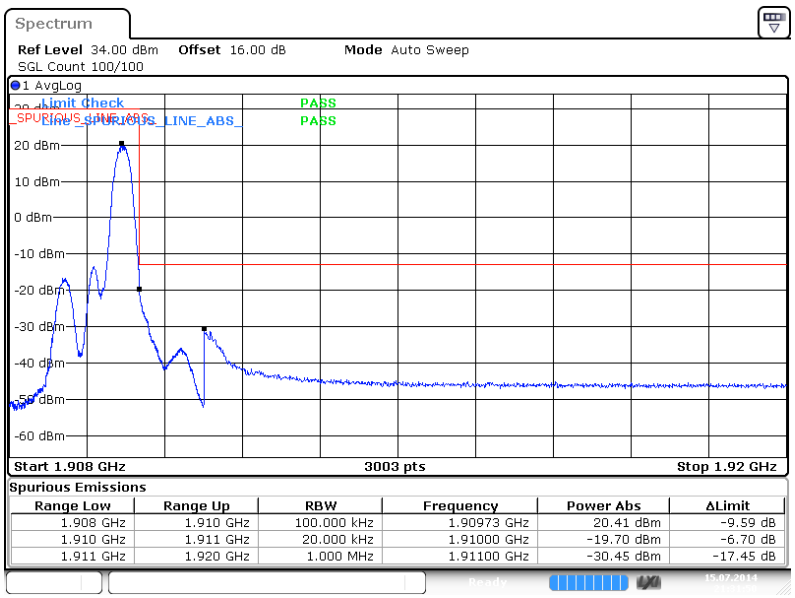
Date: 15.JUL.2014 21:26:44

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



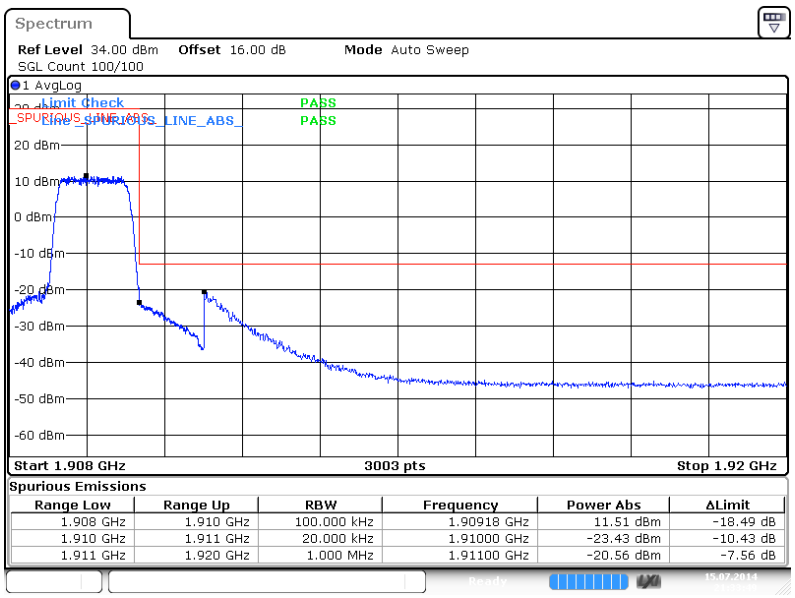
Date: 15.JUL.2014 21:24:56

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



Date: 15.JUL.2014 21:31:49

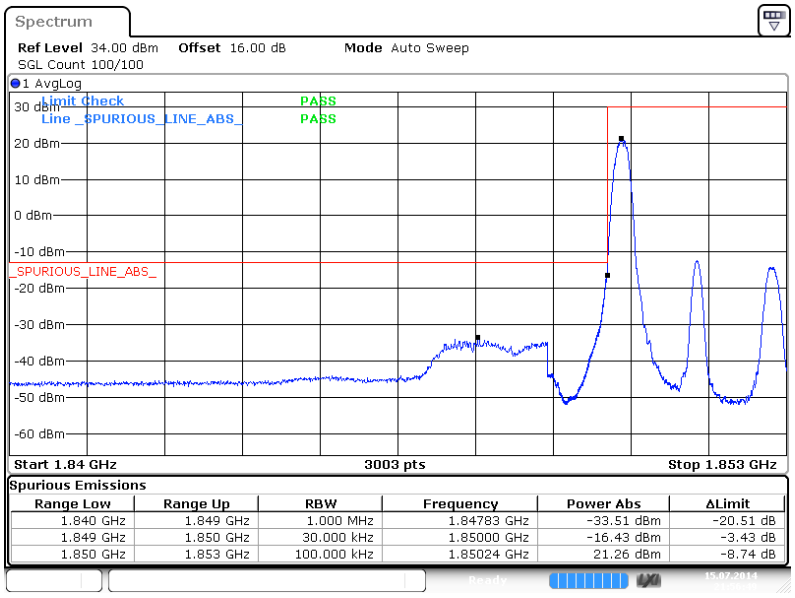
Higher Band Edge Plot for 16QAM -RB Size 6, RB Offset 0



Date: 15.JUL.2014 21:33:49

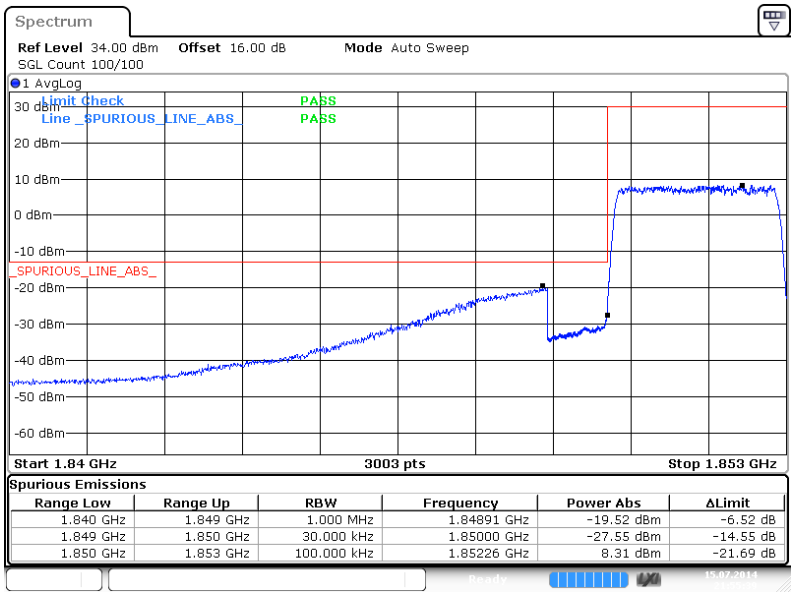
Band :	LTE Band 2	Band Width :	3MHz / QPSK

Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



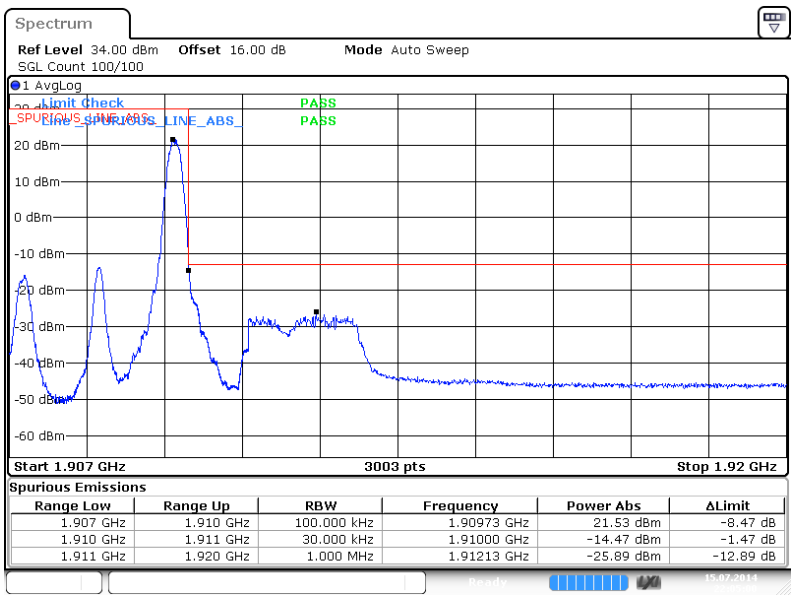
Date:15.JUL.2014 21:56:50

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



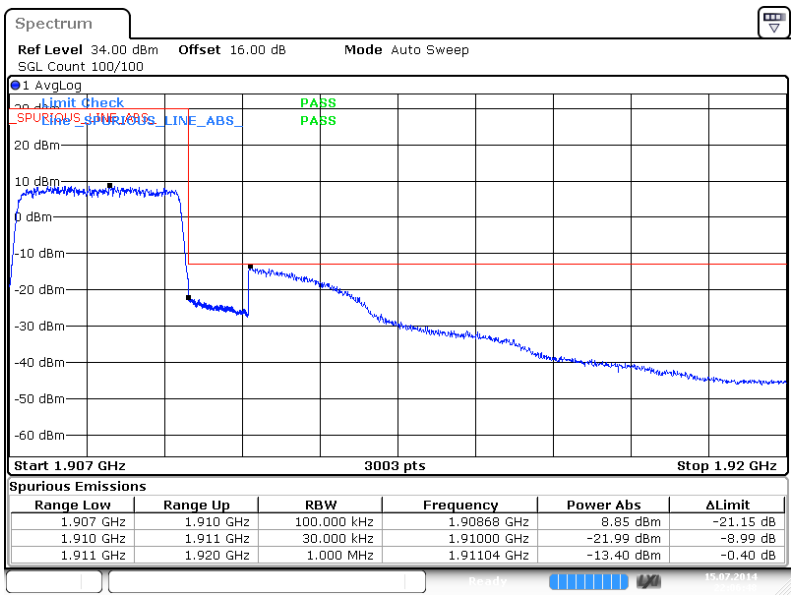
Date:15.JUL.2014 21:55:39

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



Date: 15.JUL.2014 22:05:00

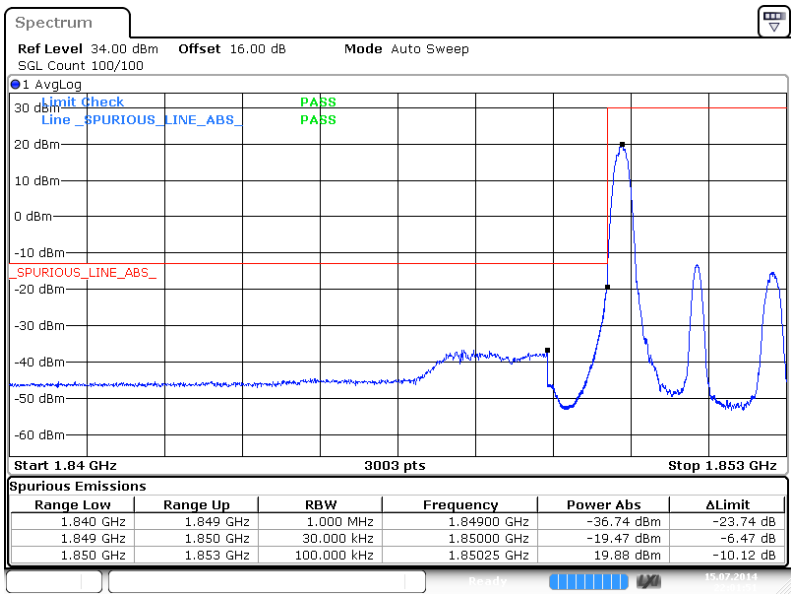
Higher Band Edge Plot for QPSK-RB Size 15, RB Offset 0



Date: 15.JUL.2014 22:06:47

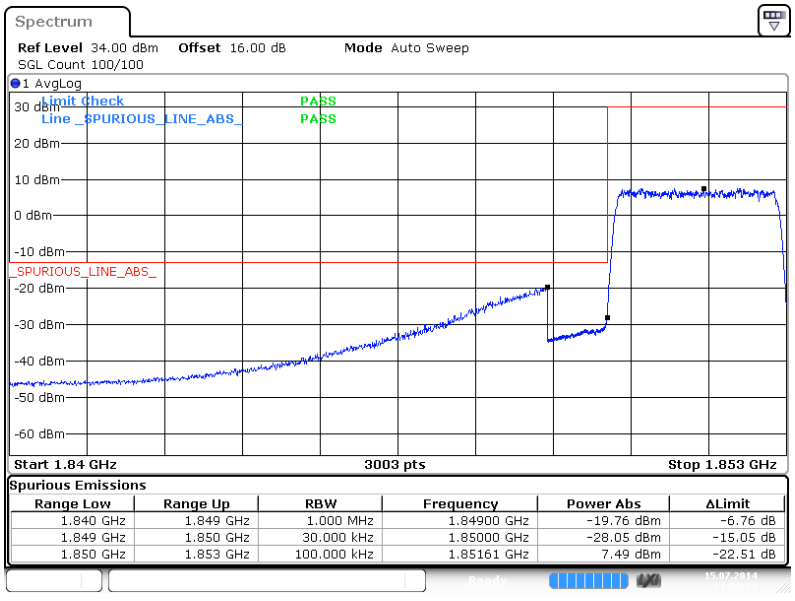
Band :	LTE Band 2	Band Width :	3MHz / 16QAM

Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



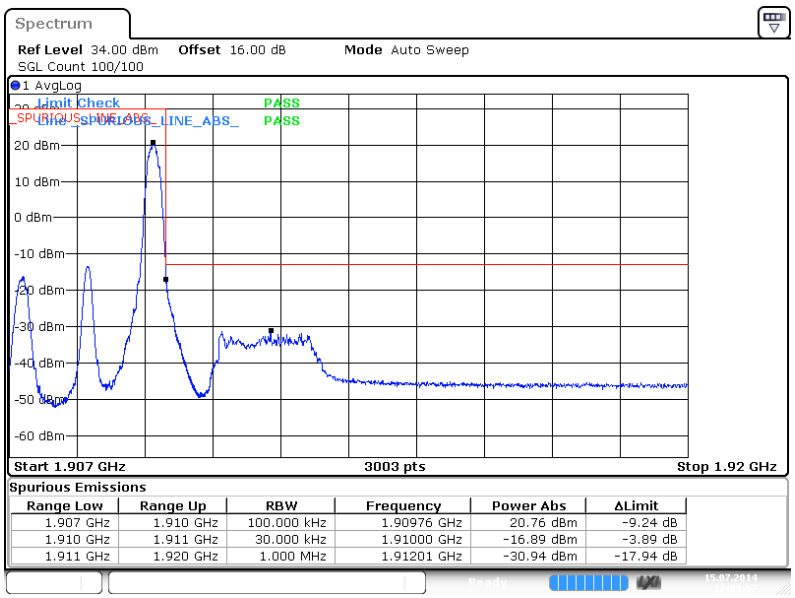
Date:15.JUL.2014 22:01:51

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



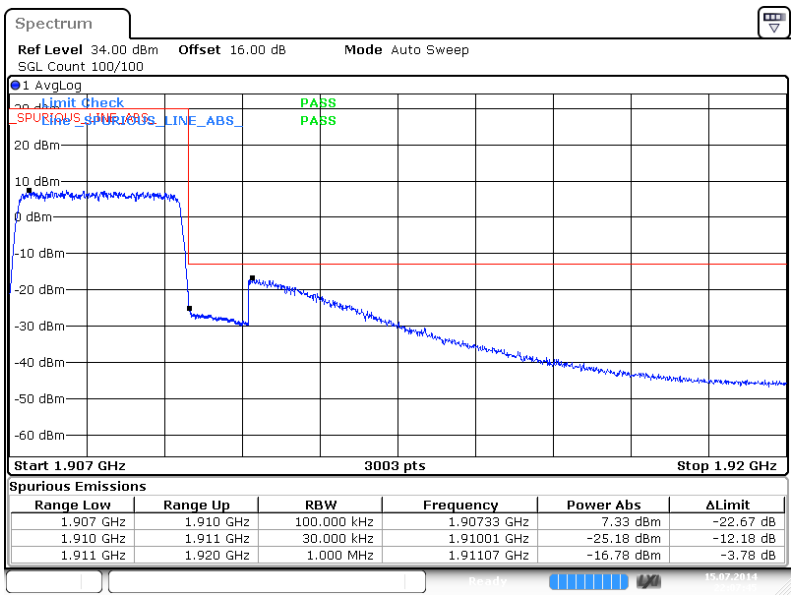
Date:15.JUL.2014 21:53:54

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



Date:15.JUL.2014 22:03:57

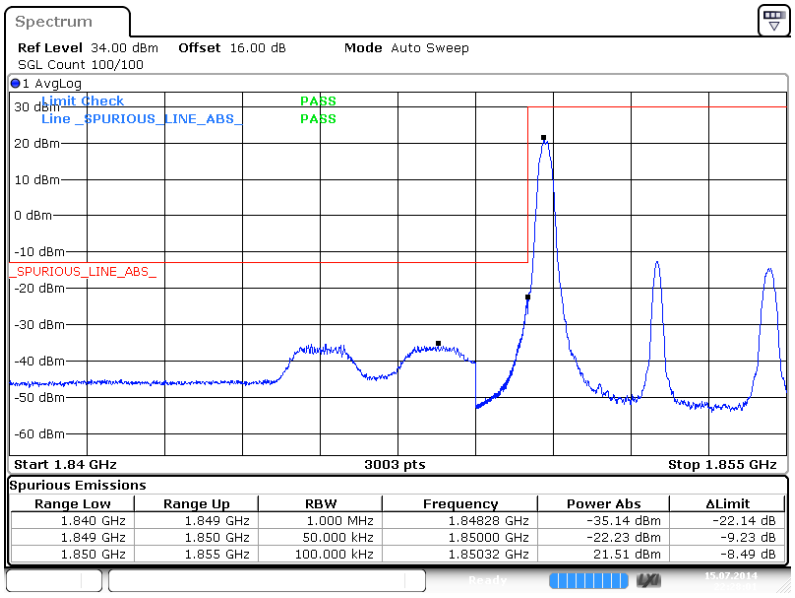
Higher Band Edge Plot for 16QAM -RB Size 15, RB Offset 0



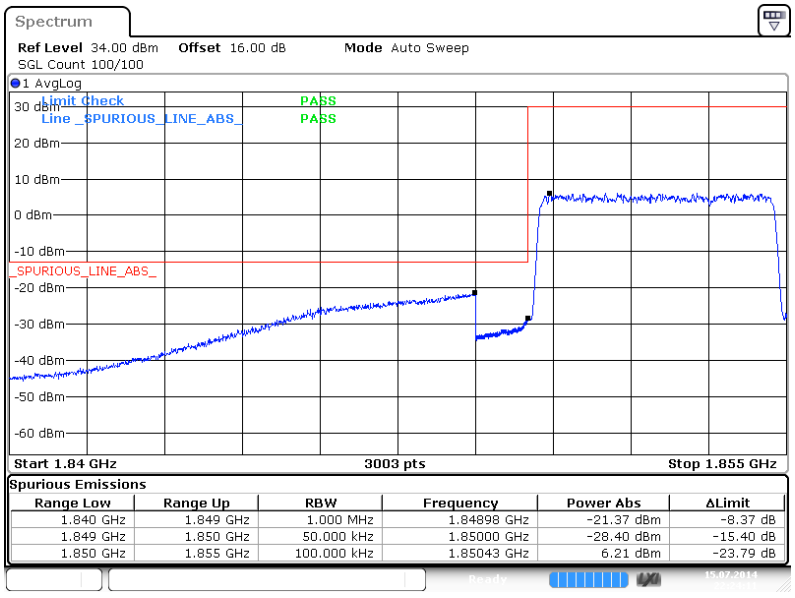
Date:15.JUL.2014 22:07:45

Band :	LTE Band 2	Band Width :	5MHz / QPSK

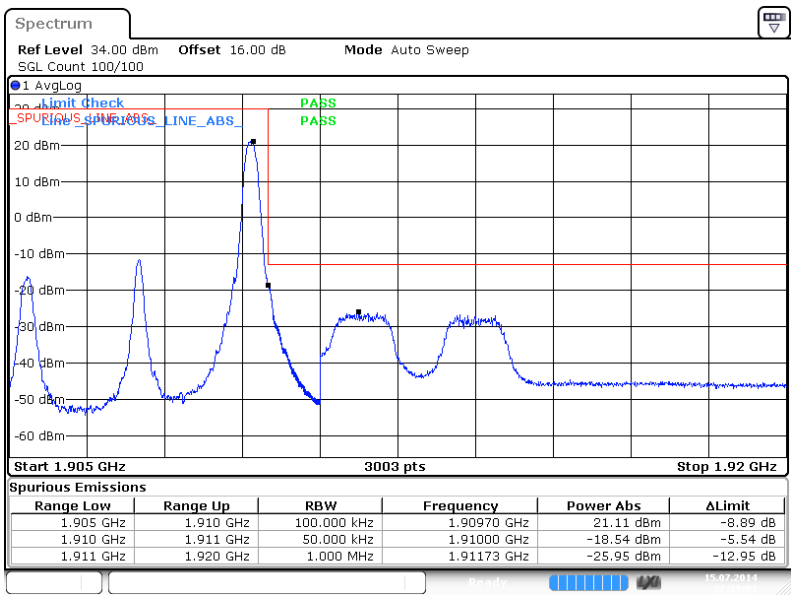
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



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

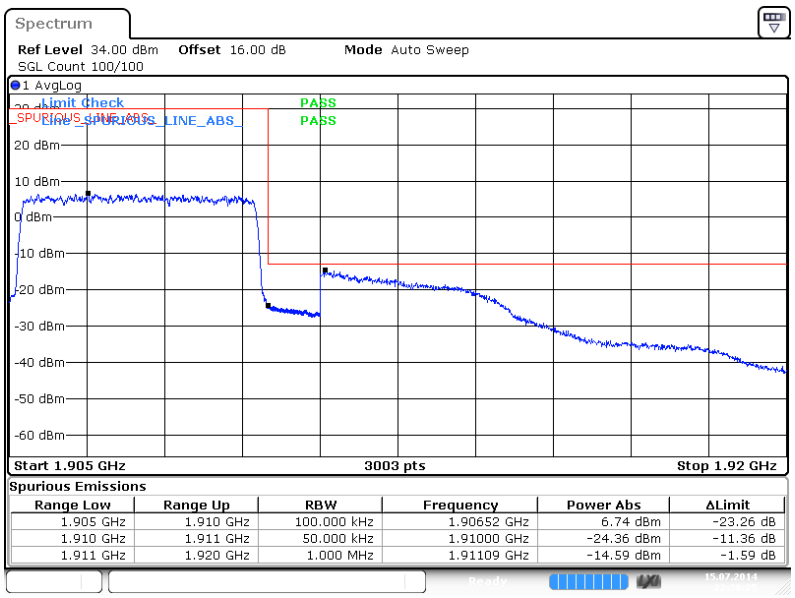


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 15.JUL.2014 22:29:03

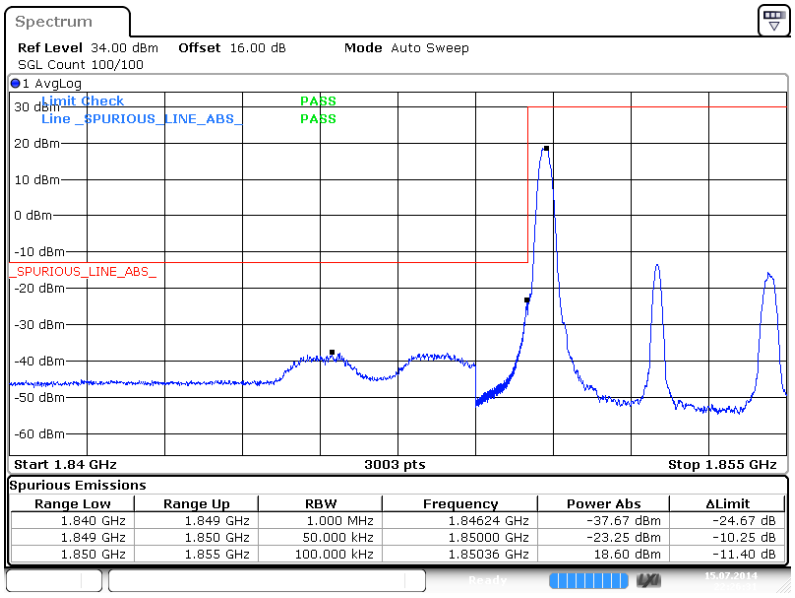
Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 15.JUL.2014 22:38:25

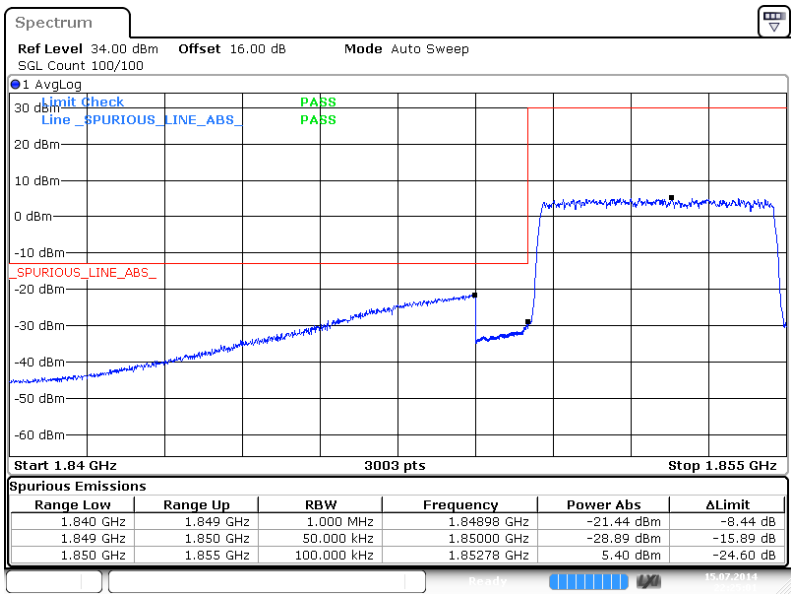
Band :	LTE Band 2	Band Width :	5MHz / 16QAM

Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



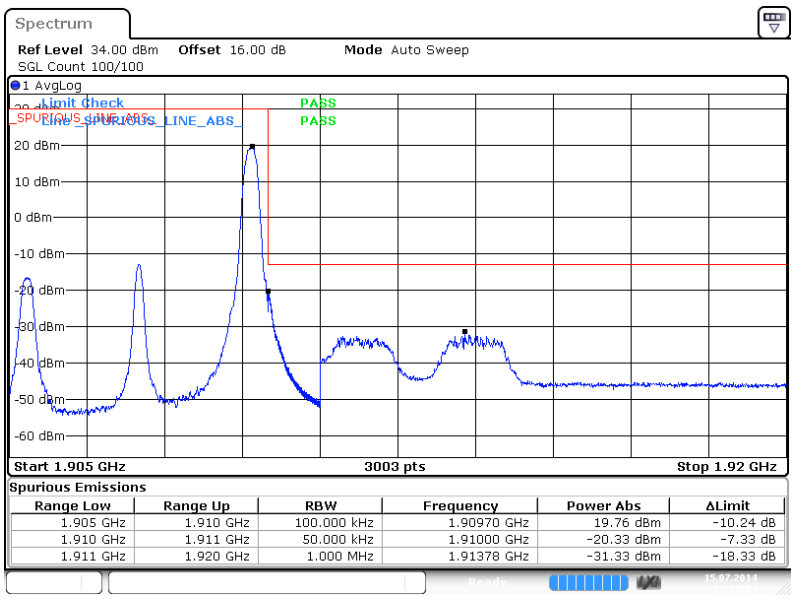
Date: 15.JUL.2014 22:26:31

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



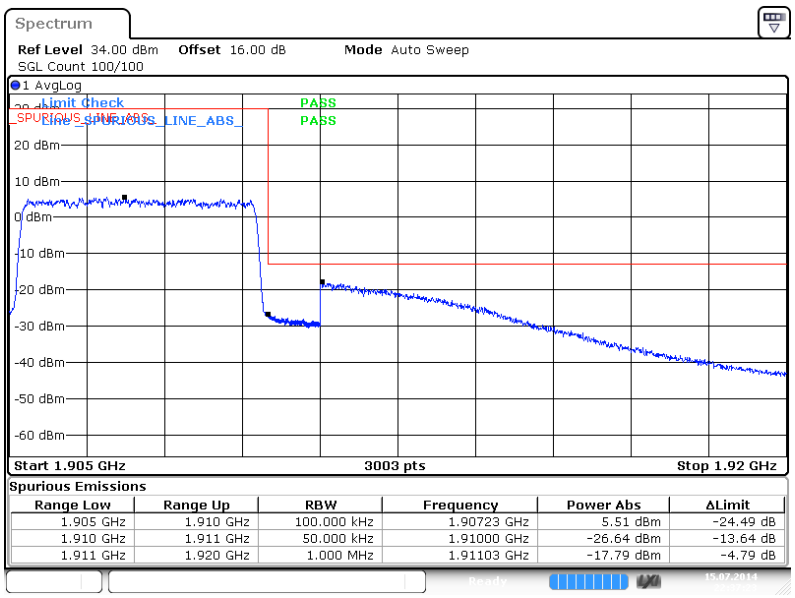
Date: 15.JUL.2014 22:25:01

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



Date: 15.JUL.2014 22:29:54

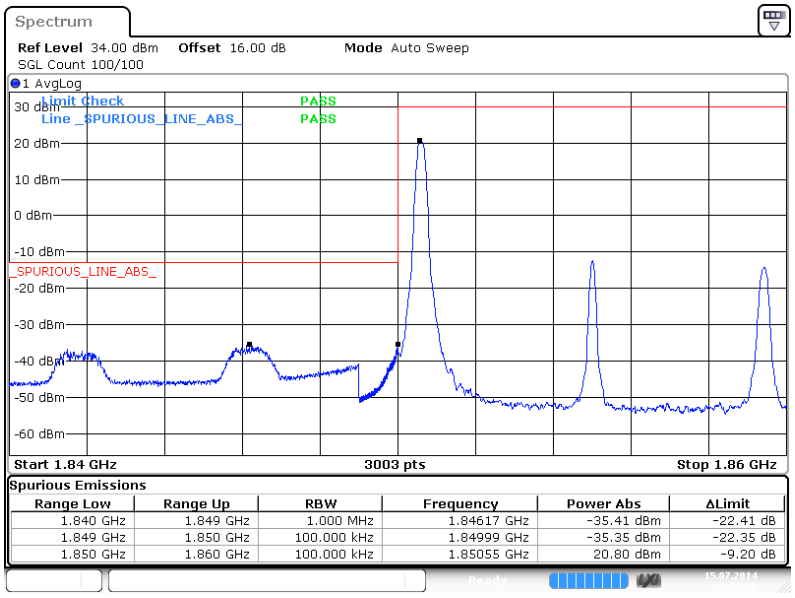
Higher Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



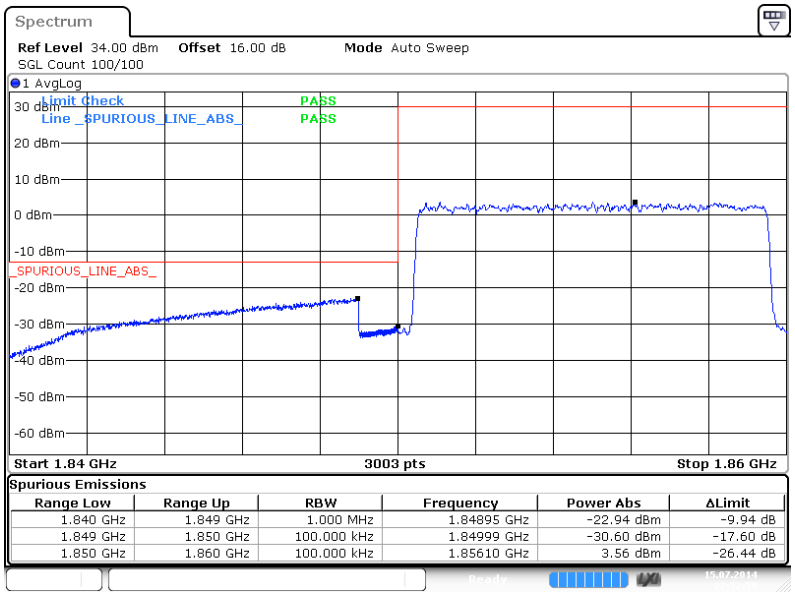
Date: 15.JUL.2014 22:37:23

Band :	LTE Band 2	Band Width :	10MHz / QPSK

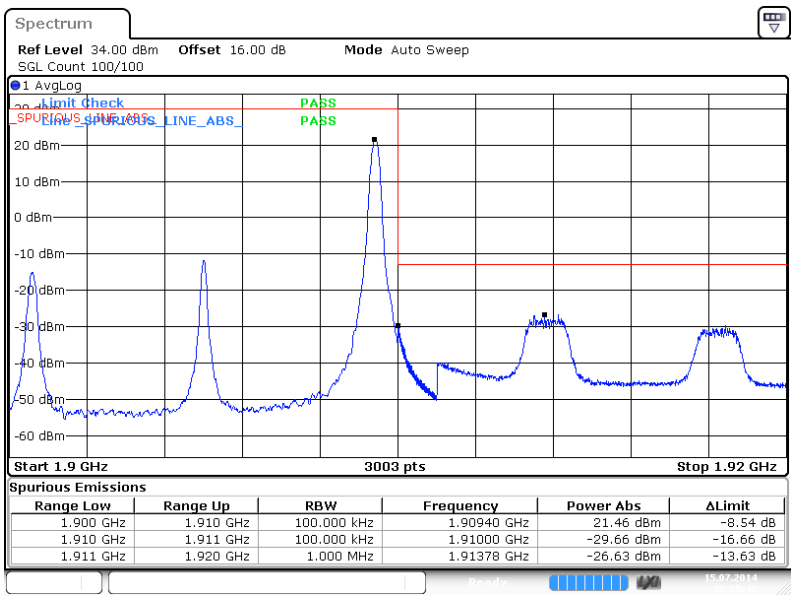
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



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

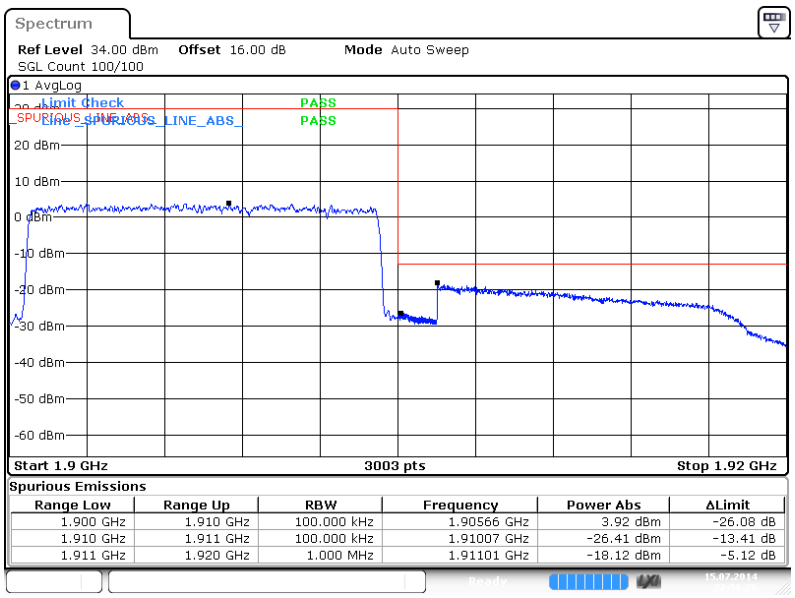


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 15.JUL.2014 22:55:42

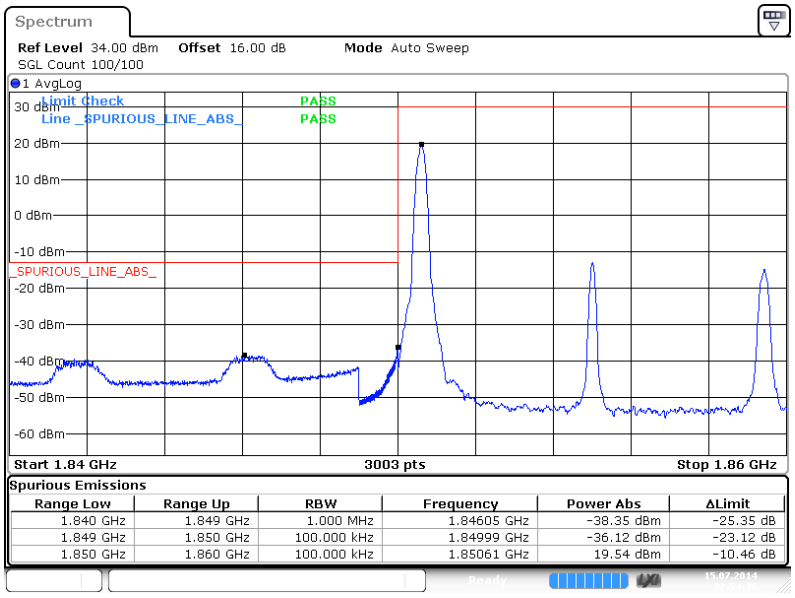
Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 15.JUL.2014 22:56:20

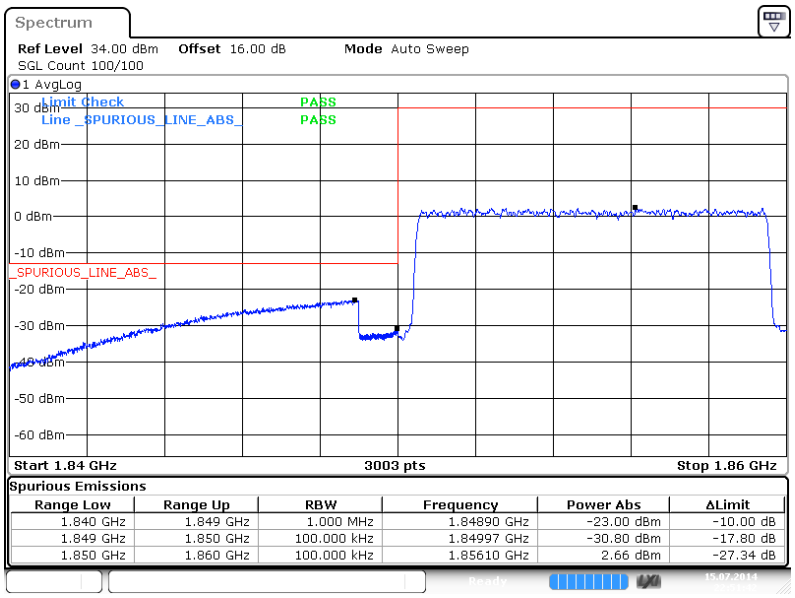
Band :	LTE Band 2	Band Width :	10MHz / 16QAM

Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



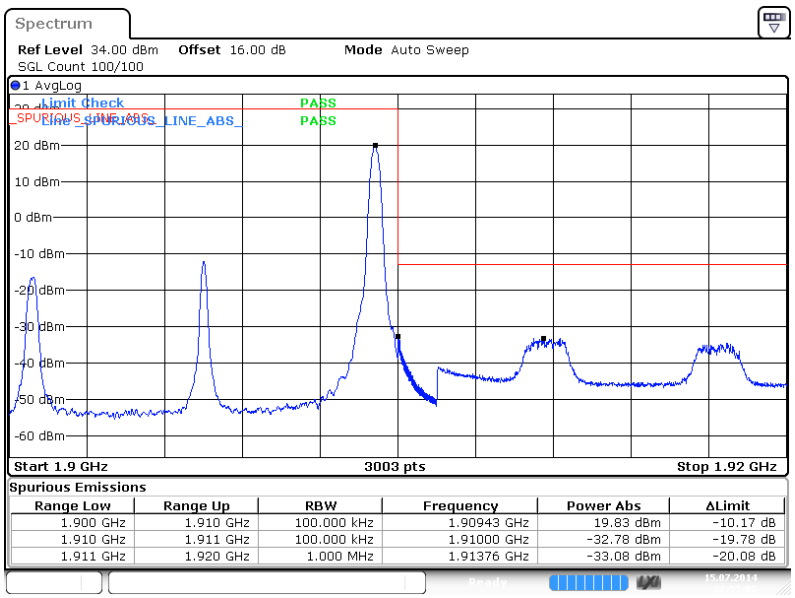
Date: 15.JUL.2014 22:54:30

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



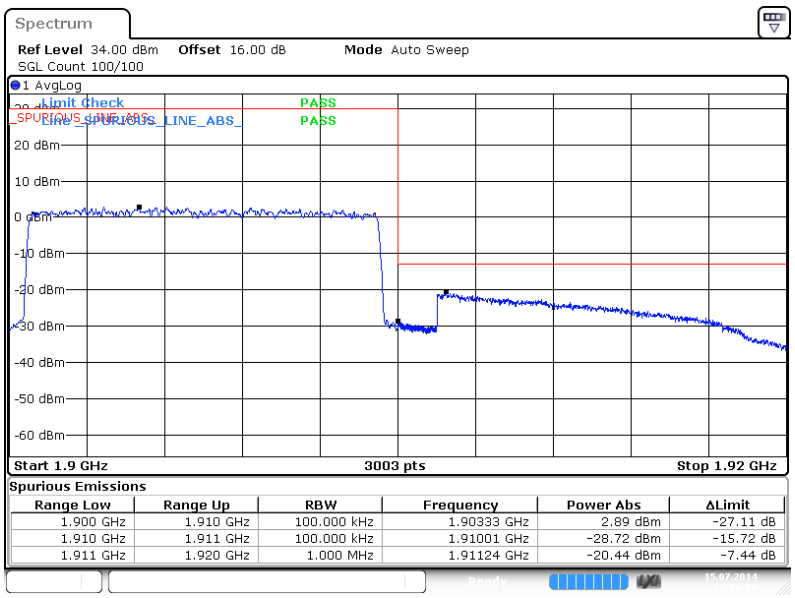
Date: 15.JUL.2014 22:51:42

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



Date: 15.JUL.2014 22:55:37

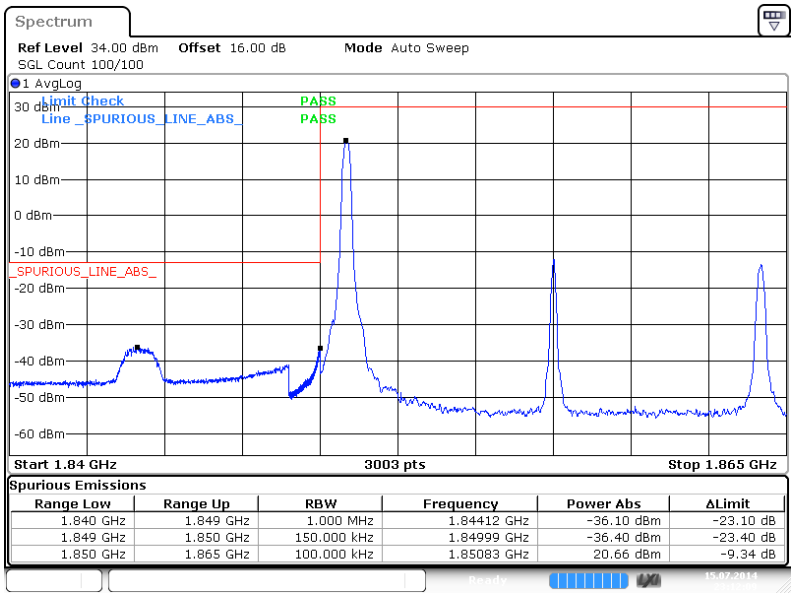
Higher Band Edge Plot for 16QAM-RB Size 50, RB Offset 0



Date: 15.JUL.2014 22:56:56

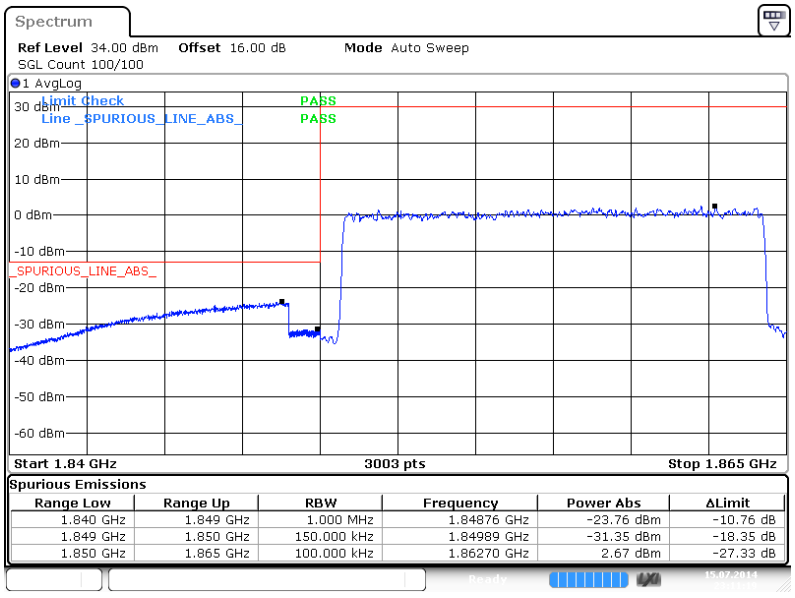
Band :	LTE Band 2	Band Width :	15MHz / QPSK

Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



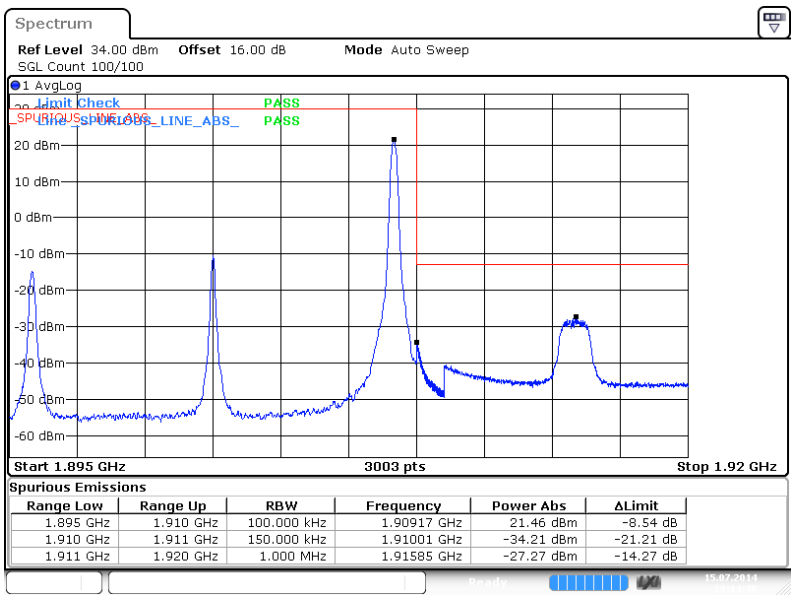
Date:15.JUL.2014 23:12:09

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



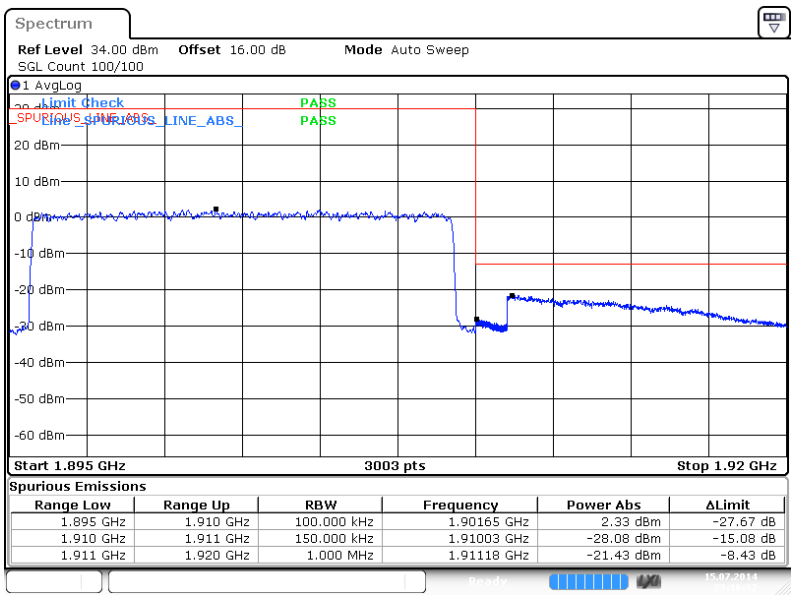
Date:15.JUL.2014 23:11:19

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



Date:15.JUL.2014 23:14:46

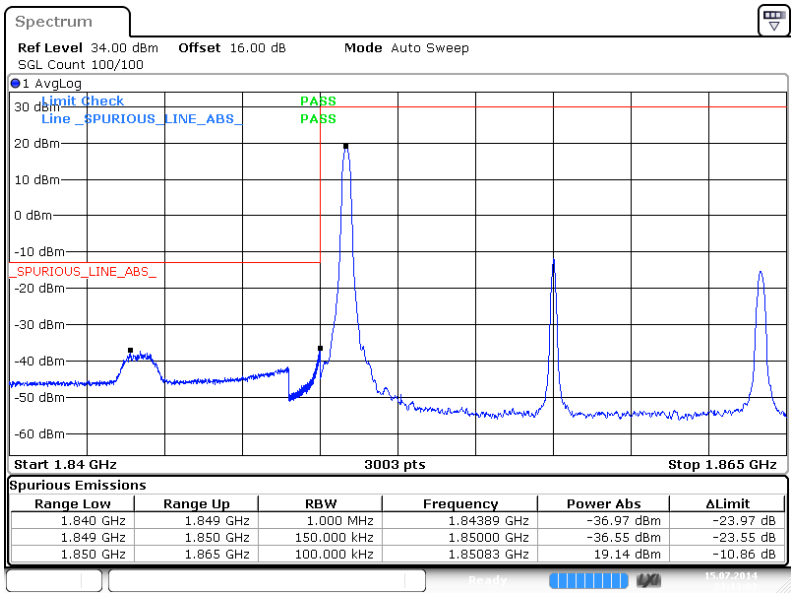
Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0



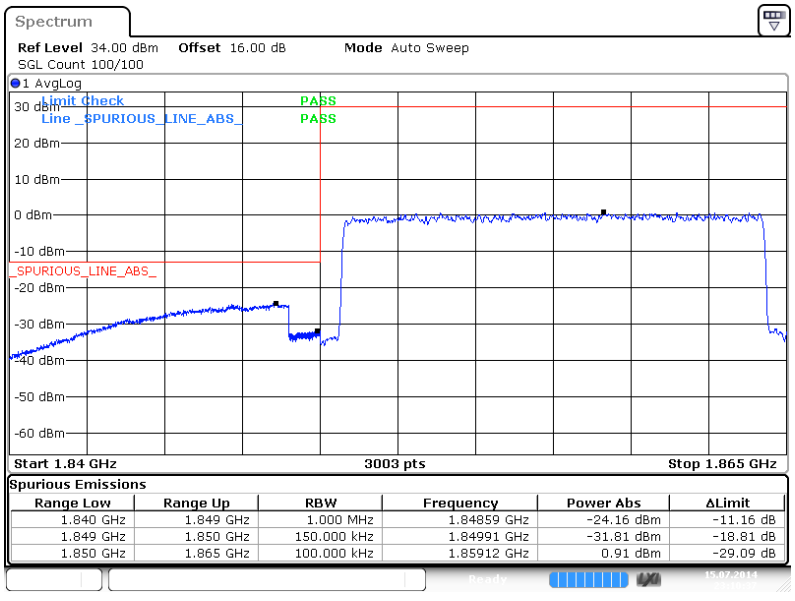
Date:15.JUL.2014 23:16:33

Band :	LTE Band 2	Band Width :	15MHz / 16QAM

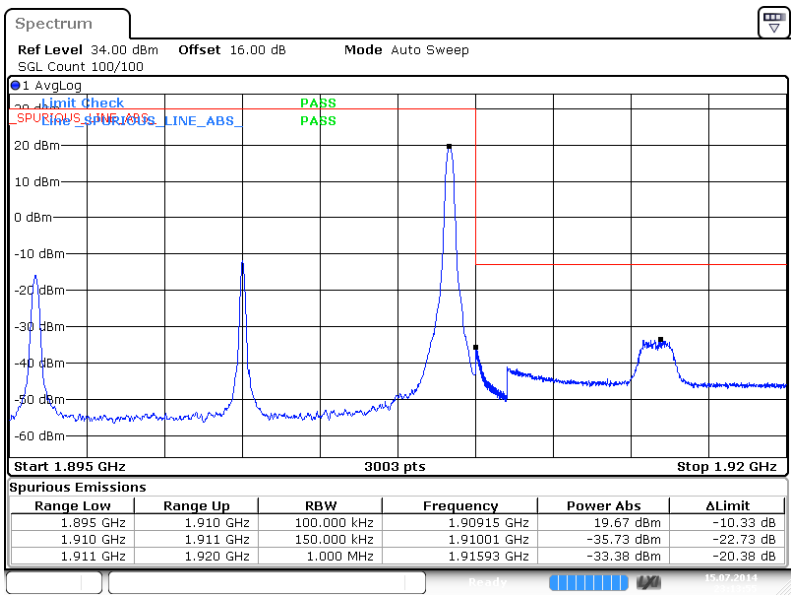
Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



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

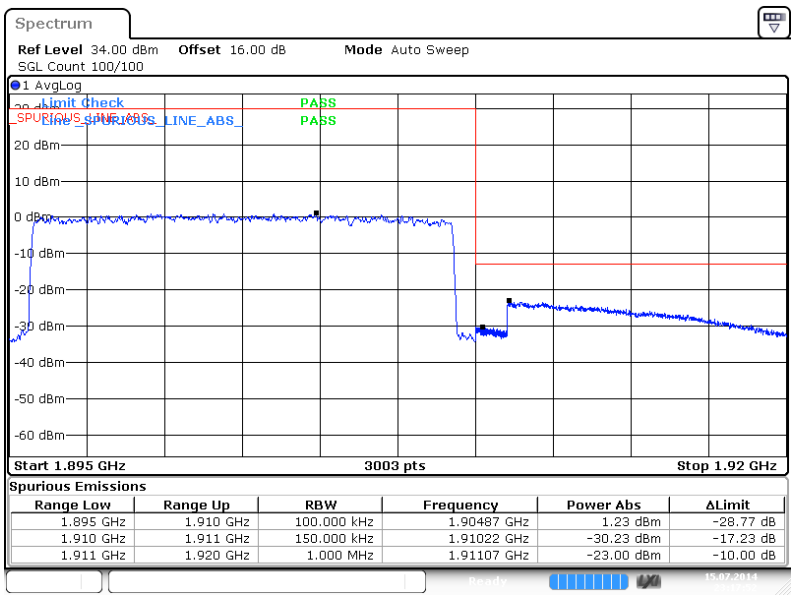


Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 74



Date:15.JUL.2014 23:13:56

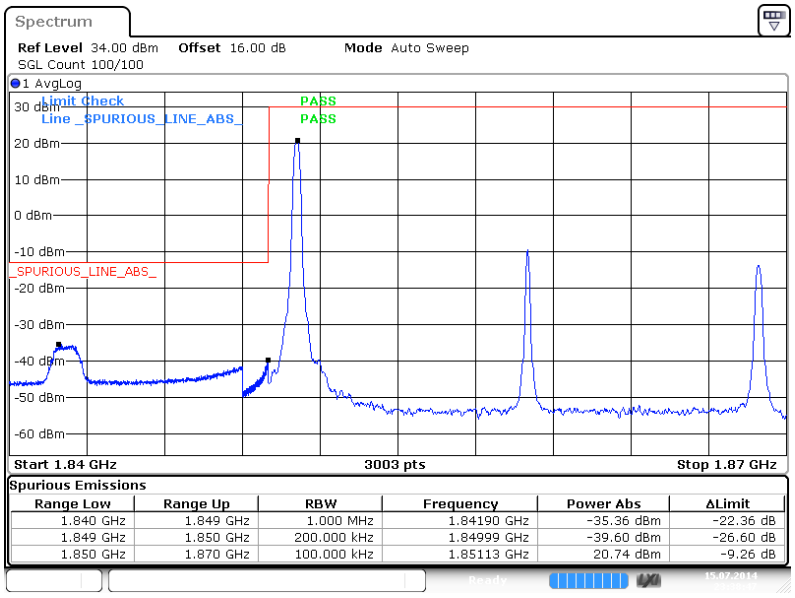
Higher Band Edge Plot for 16QAM-RB Size 75, RB Offset 0



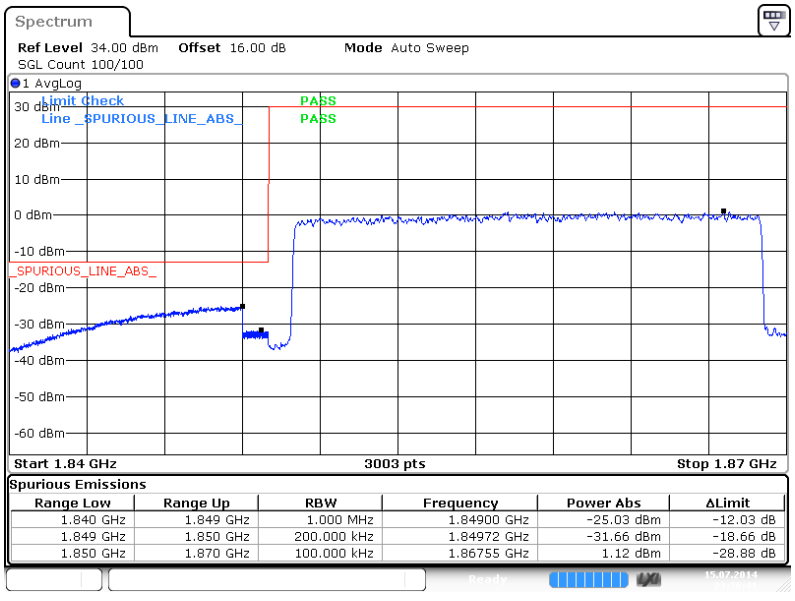
Date:15.JUL.2014 23:17:53

Band :	LTE Band 2	Band Width :	20MHz / QPSK

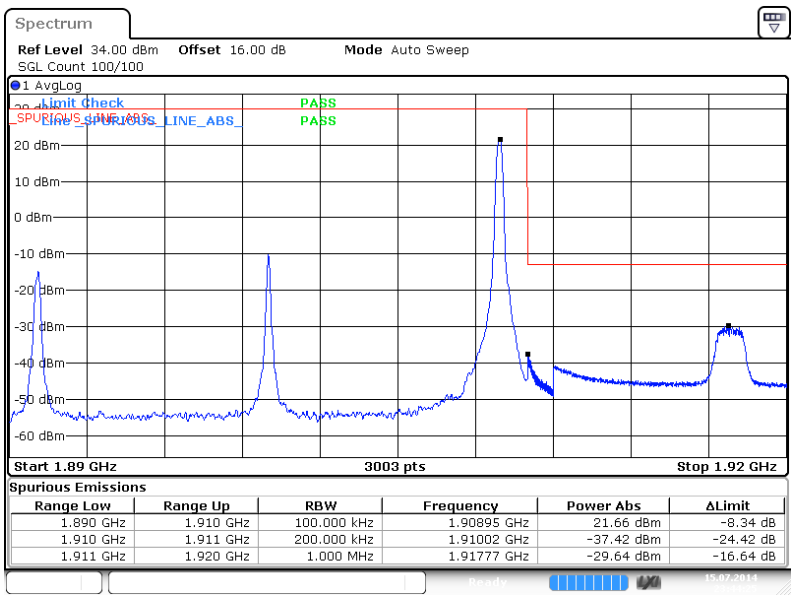
Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



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

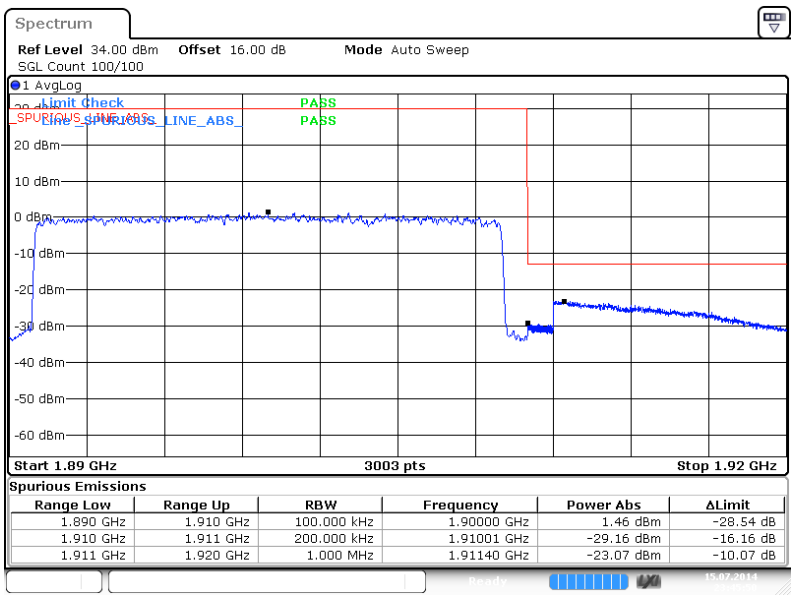


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 99



Date:15.JUL.2014 23:44:26

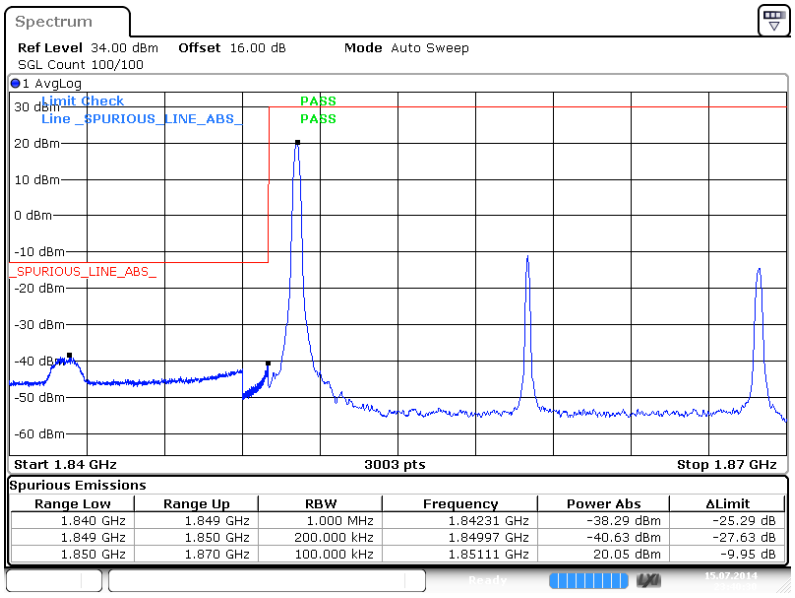
Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0



Date:15.JUL.2014 23:45:50

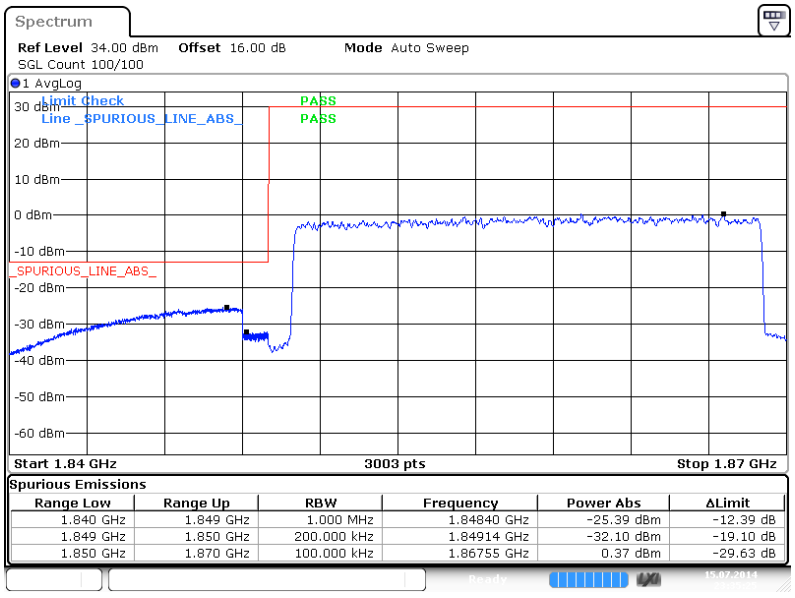
Band :	LTE Band 2	Band Width :	20MHz / 16QAM

Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0



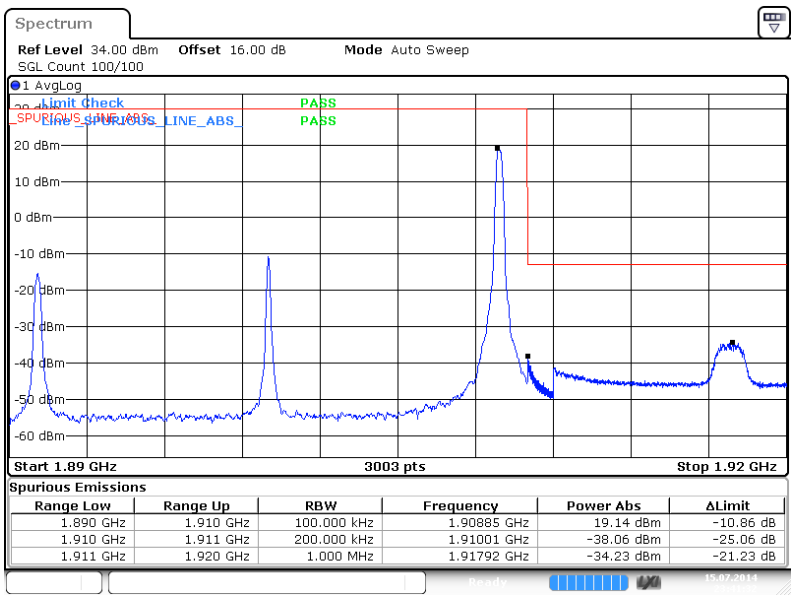
Date:15.JUL.2014 23:40:30

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



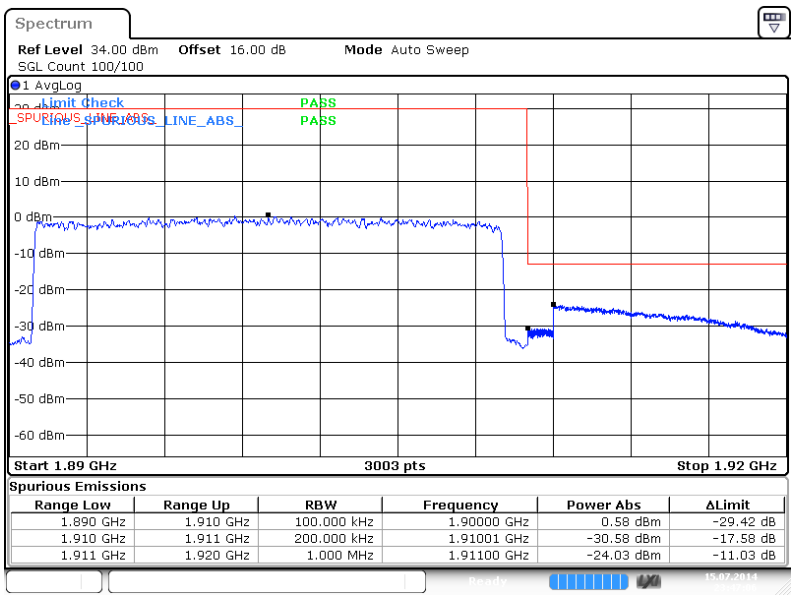
Date:15.JUL.2014 23:35:25

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



Date:15.JUL.2014 23:41:32

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



Date:15.JUL.2014 23:47:96

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 30MHz up to a frequency including its 10^{th} harmonic.

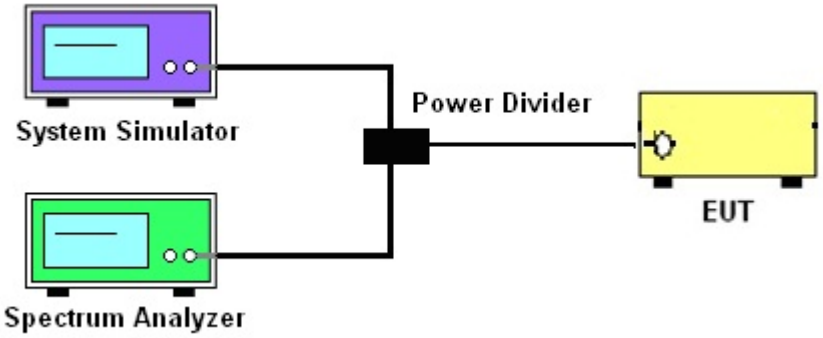
3.6.2 Measuring Instruments

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 system simulator 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 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

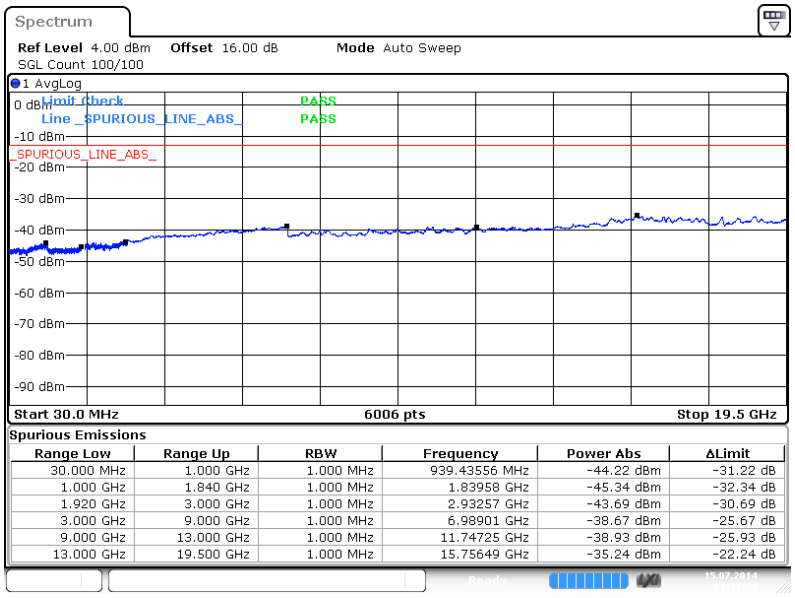
3.6.4 Test Setup



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)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	939.43556 MHz	-44.22 dBm	-31.22 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83958 GHz	-45.34 dBm	-32.34 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.93257 GHz	-43.69 dBm	-30.69 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98901 GHz	-38.67 dBm	-25.67 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74725 GHz	-38.93 dBm	-25.93 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.24 dBm	-22.24 dB

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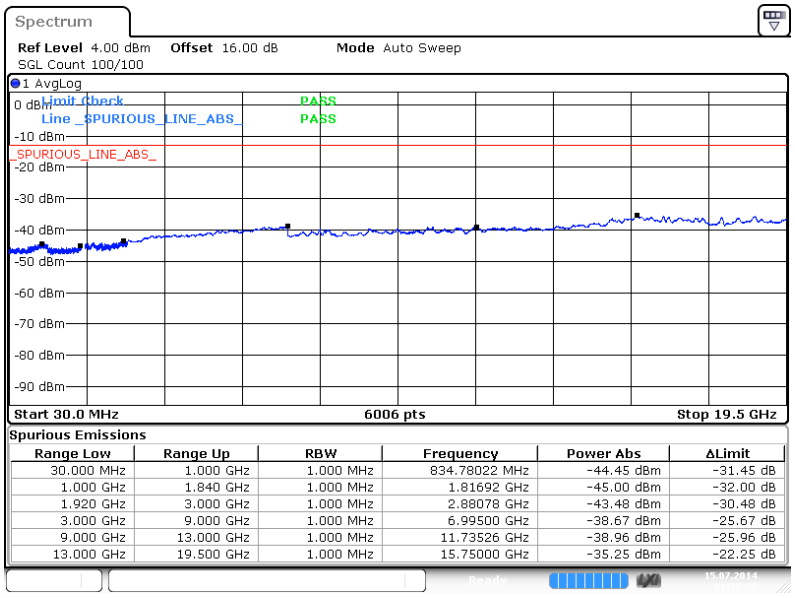
16QAM (RB Size 1, RB Offset 0)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	834.78022 MHz	-44.45 dBm	-31.45 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.81692 GHz	-45.00 dBm	-32.00 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.88078 GHz	-43.48 dBm	-30.48 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.67 dBm	-25.67 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.73526 GHz	-38.96 dBm	-25.96 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.25 dBm	-22.25 dB

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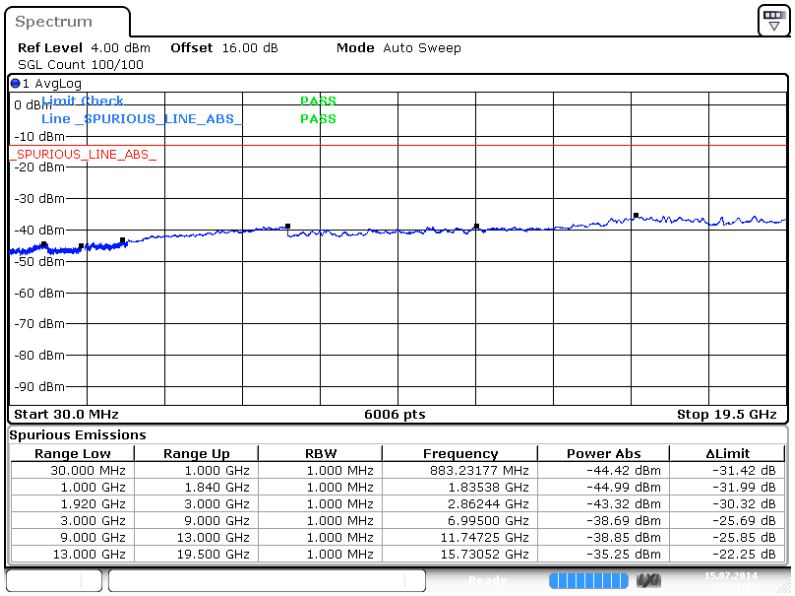
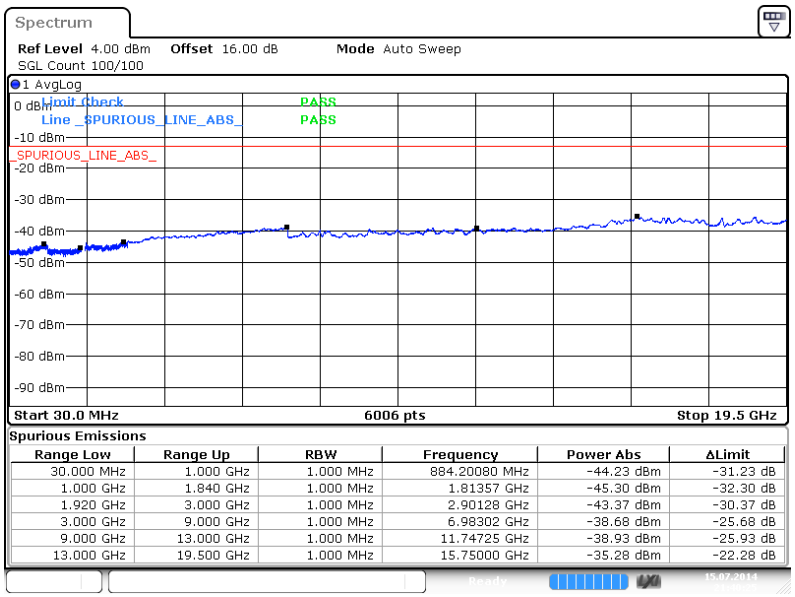
Band :	LTE Band 2	Channel :	CH18900 (Middle)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)

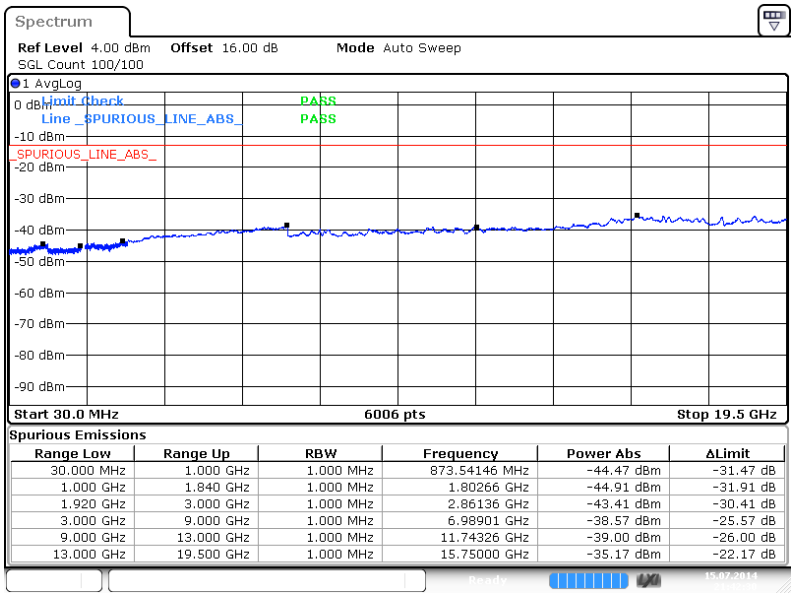


16QAM (RB Size 1, RB Offset 0)



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

QPSK (RB Size 1, RB Offset 0)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	873.54146 MHz	-44.47 dBm	-31.47 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.80266 GHz	-44.91 dBm	-31.91 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.86136 GHz	-43.41 dBm	-30.41 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98901 GHz	-38.57 dBm	-25.57 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74326 GHz	-39.00 dBm	-26.00 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.17 dBm	-22.17 dB

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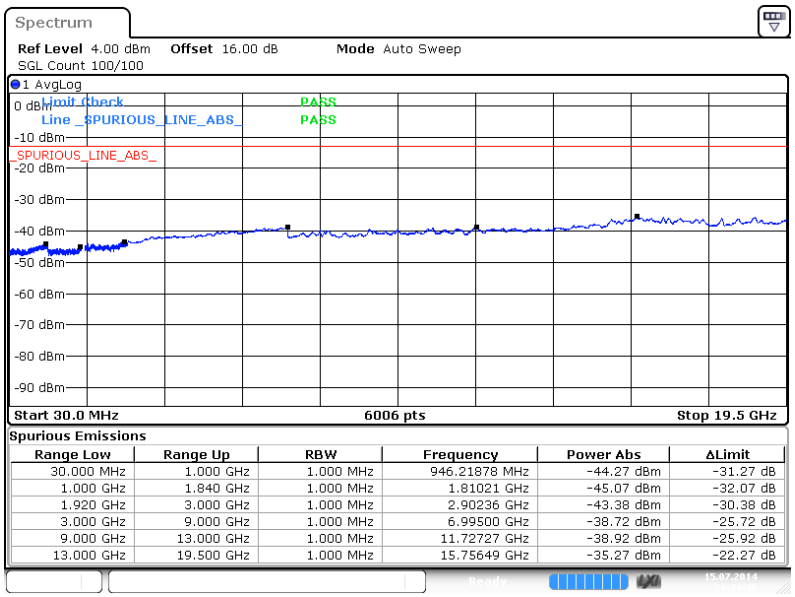
16QAM (RB Size 1, RB Offset 0)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	946.21878 MHz	-44.27 dBm	-31.27 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.81021 GHz	-45.07 dBm	-32.07 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.90236 GHz	-43.38 dBm	-30.38 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.72 dBm	-25.72 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.72727 GHz	-38.92 dBm	-25.92 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.27 dBm	-22.27 dB

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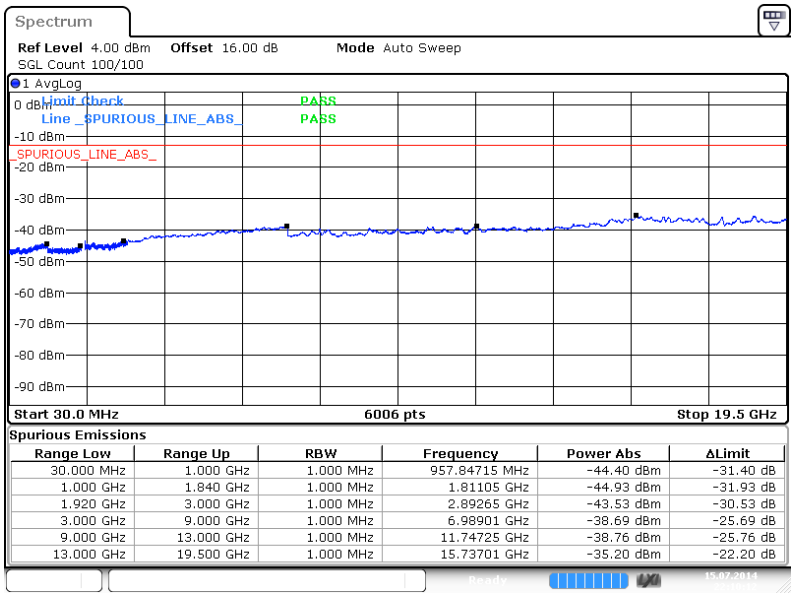
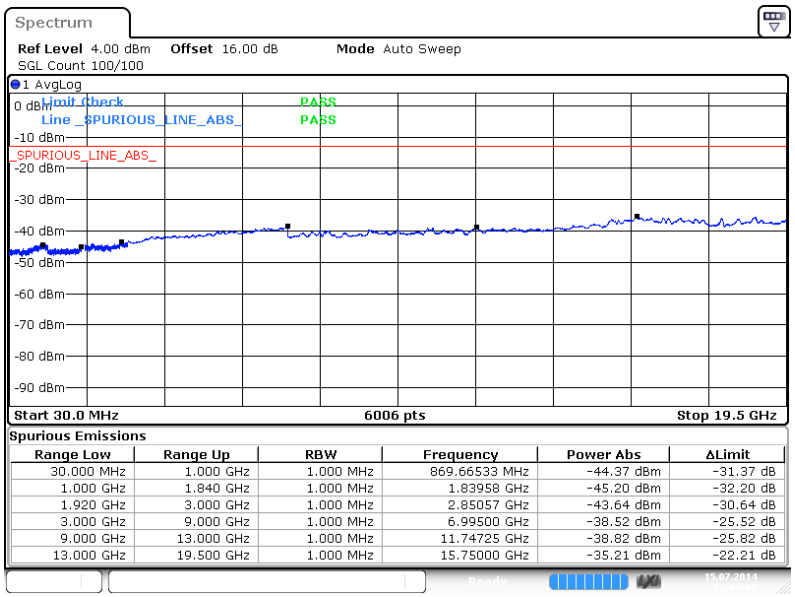
Band :	LTE Band 2	Channel :	CH18615 (Low)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)

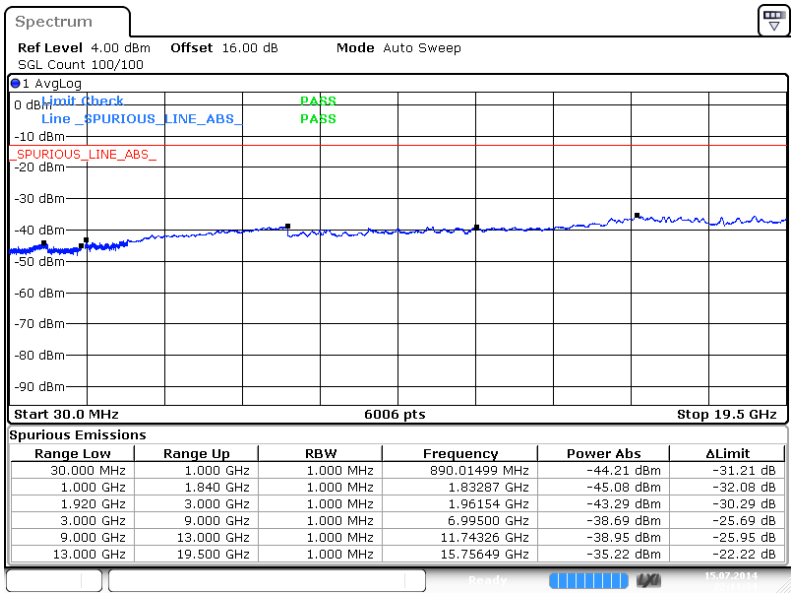


16QAM (RB Size 1, RB Offset 0)



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

QPSK (RB Size 1, RB Offset 0)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	890.01499 MHz	-44.21 dBm	-31.21 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83287 GHz	-45.08 dBm	-32.08 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.96154 GHz	-43.29 dBm	-30.29 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.69 dBm	-25.69 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74326 GHz	-38.95 dBm	-25.95 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.22 dBm	-22.22 dB

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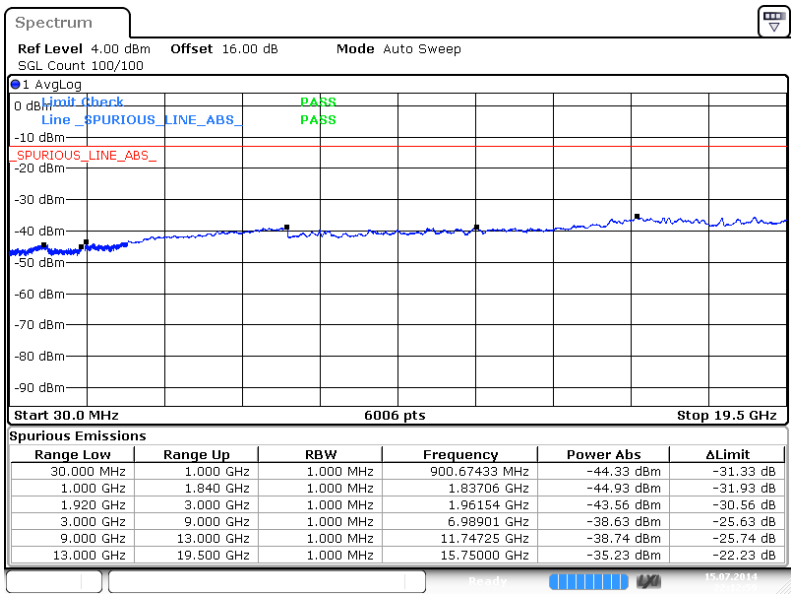
16QAM (RB Size 1, RB Offset 0)



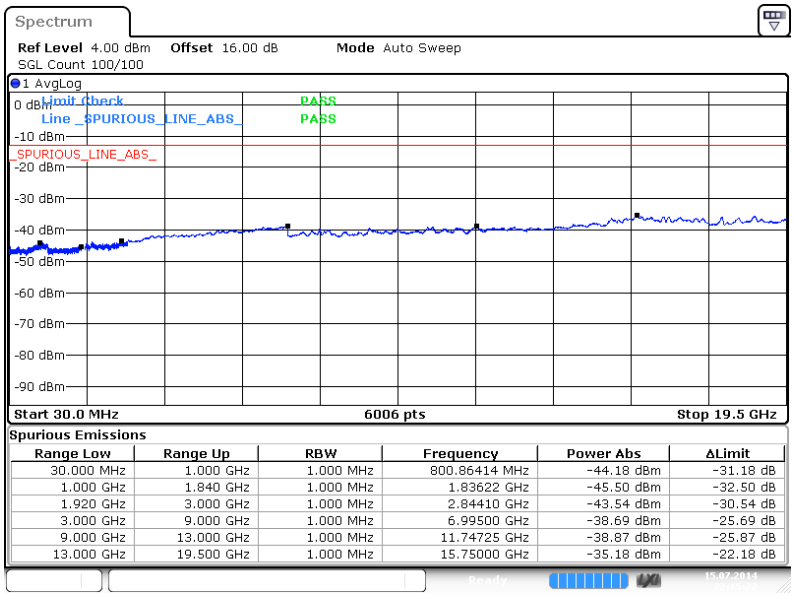
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	900.67433 MHz	-44.33 dBm	-31.33 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83706 GHz	-44.93 dBm	-31.93 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.96154 GHz	-43.56 dBm	-30.56 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98901 GHz	-38.63 dBm	-25.63 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74725 GHz	-38.74 dBm	-25.74 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.23 dBm	-22.23 dB

Date: 15.JUL.2014 22:12:59

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

QPSK (RB Size 1, RB Offset 0)

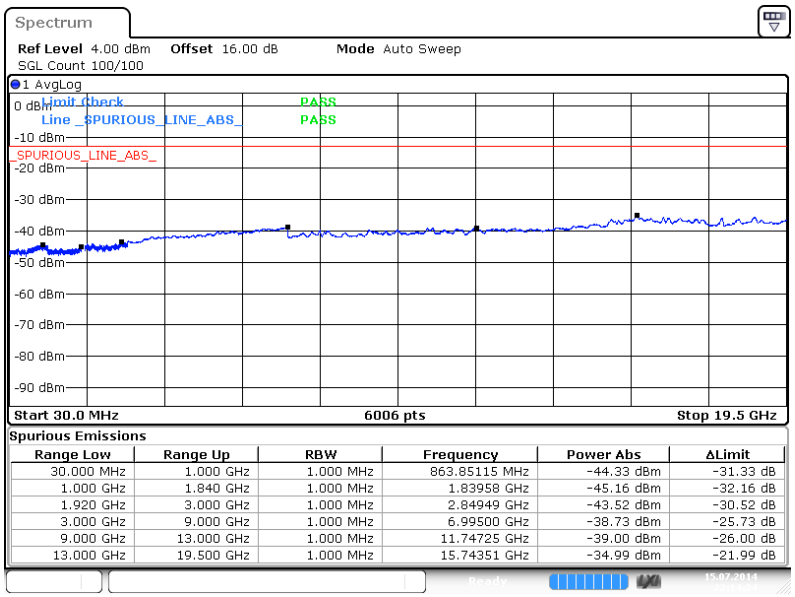


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	800.86414 MHz	-44.18 dBm	-31.18 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83622 GHz	-45.50 dBm	-32.50 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.84410 GHz	-43.54 dBm	-30.54 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.69 dBm	-25.69 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74725 GHz	-38.87 dBm	-25.87 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.18 dBm	-22.18 dB

Date:15.JUL.2014 22:15:22

16QAM (RB Size 1, RB Offset 0)



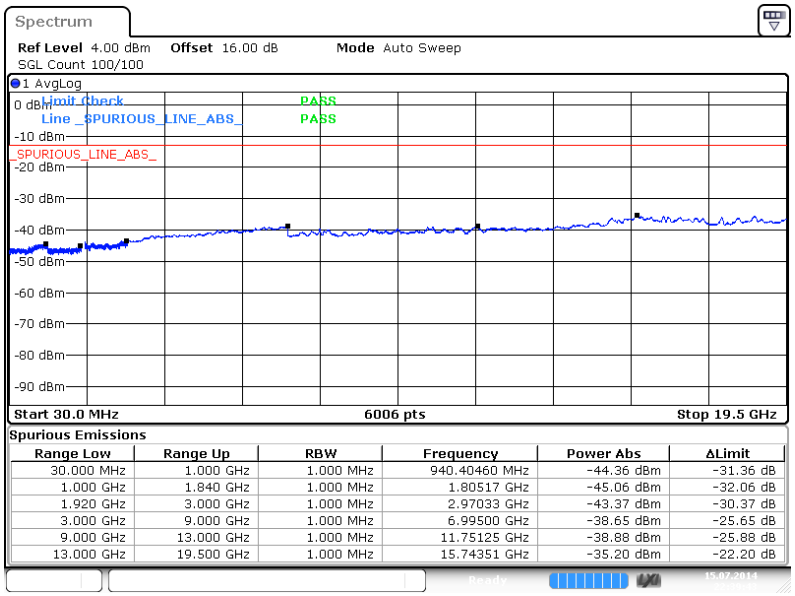
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	863.85115 MHz	-44.33 dBm	-31.33 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83958 GHz	-45.16 dBm	-32.16 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.84949 GHz	-43.52 dBm	-30.52 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.73 dBm	-25.73 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74725 GHz	-39.00 dBm	-26.00 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.74351 GHz	-34.99 dBm	-21.99 dB

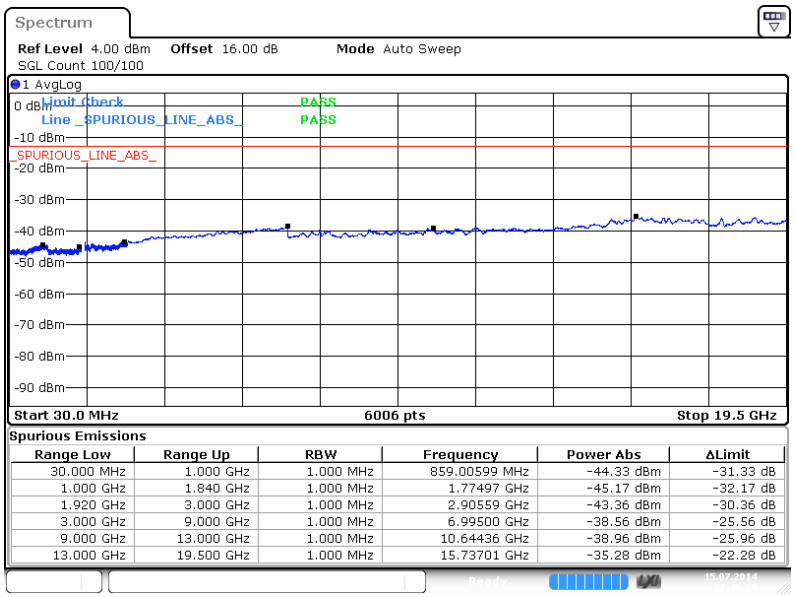
Date:15.JUL.2014 22:14:24

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

QPSK (RB Size 1, RB Offset 0)

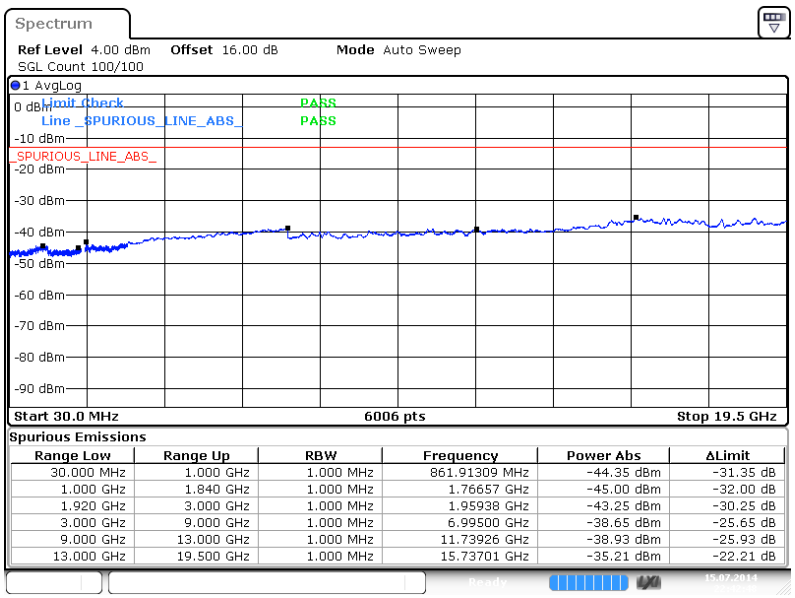


16QAM (RB Size 1, RB Offset 0)



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

QPSK (RB Size 1, RB Offset 0)

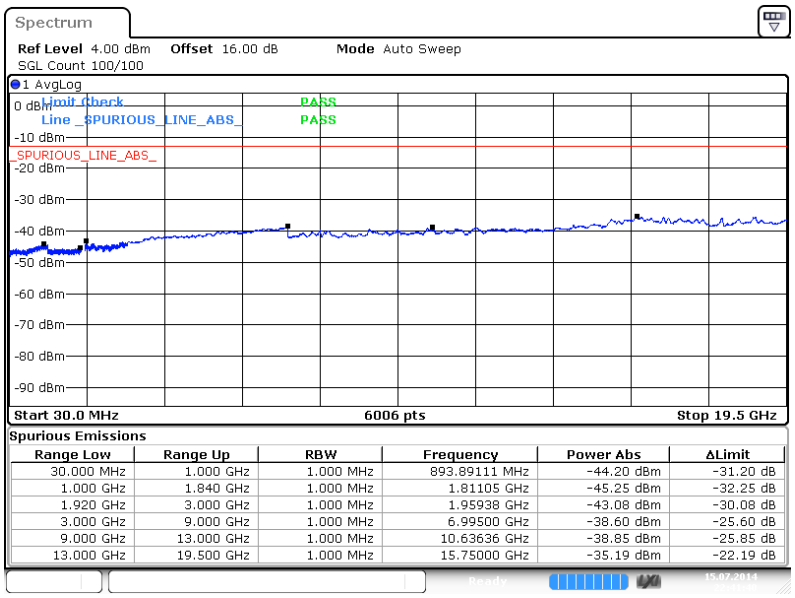


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	861.91309 MHz	-44.35 dBm	-31.35 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.76657 GHz	-45.00 dBm	-32.00 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95938 GHz	-43.25 dBm	-30.25 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.65 dBm	-25.65 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.73926 GHz	-38.93 dBm	-25.93 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.73701 GHz	-35.21 dBm	-22.21 dB

Date: 15.JUL.2014 22:42:48

16QAM (RB Size 1, RB Offset 0)



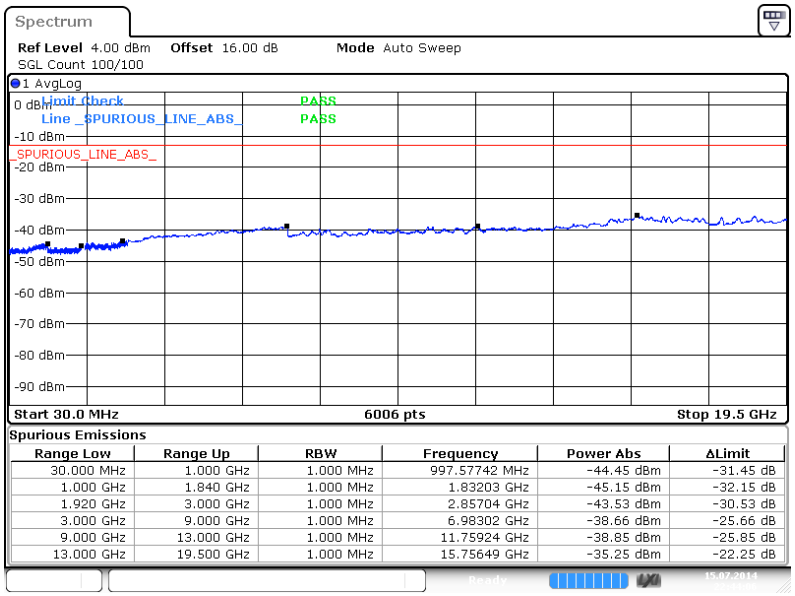
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	893.89111 MHz	-44.20 dBm	-31.20 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.81105 GHz	-45.25 dBm	-32.25 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95938 GHz	-43.08 dBm	-30.08 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.60 dBm	-25.60 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.63636 GHz	-38.85 dBm	-25.85 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.19 dBm	-22.19 dB

Date: 15.JUL.2014 22:41:40

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

QPSK (RB Size 1, RB Offset 0)

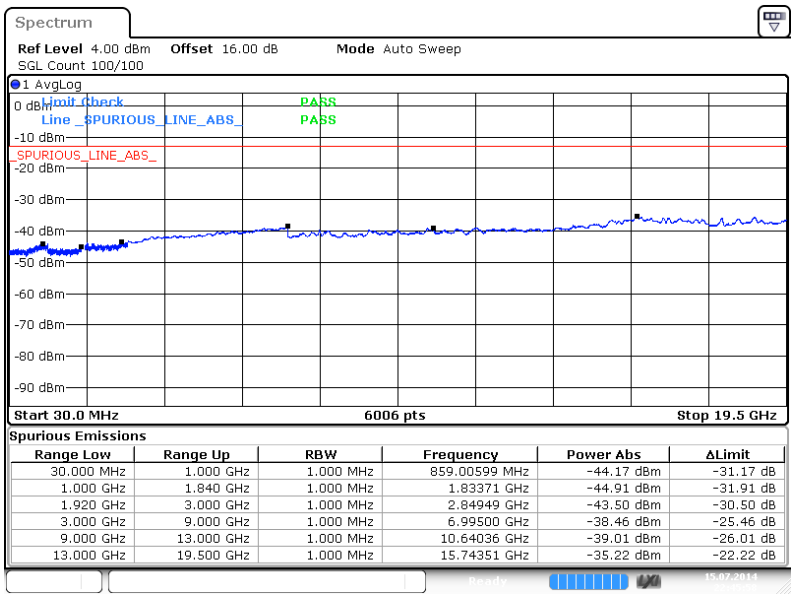


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	997.57742 MHz	-44.45 dBm	-31.45 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83203 GHz	-45.15 dBm	-32.15 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.85704 GHz	-43.53 dBm	-30.53 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98302 GHz	-38.66 dBm	-25.66 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75924 GHz	-38.85 dBm	-25.85 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.25 dBm	-22.25 dB

Date: 15.JUL.2014 22:44:96

16QAM (RB Size 1, RB Offset 0)



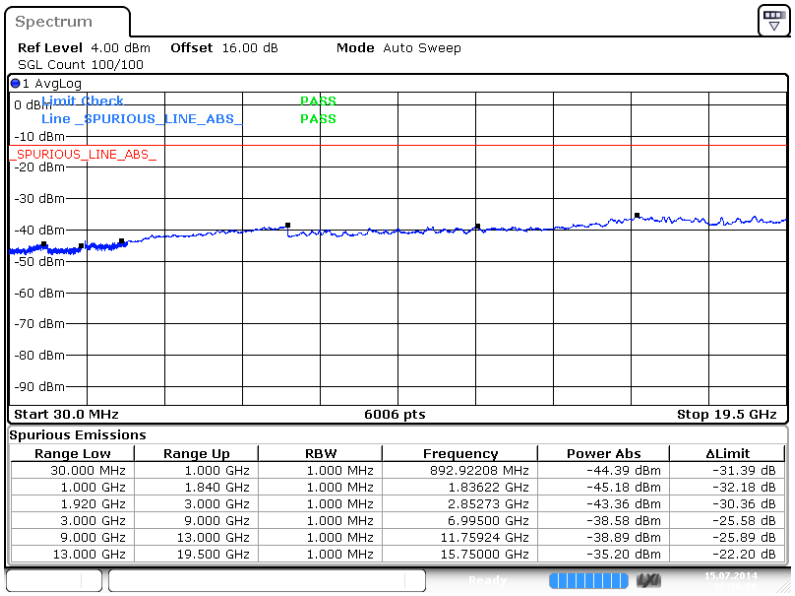
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	859.00599 MHz	-44.17 dBm	-31.17 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83371 GHz	-44.91 dBm	-31.91 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.84949 GHz	-43.50 dBm	-30.50 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.46 dBm	-25.46 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.64036 GHz	-39.01 dBm	-26.01 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.74351 GHz	-35.22 dBm	-22.22 dB

Date: 15.JUL.2014 22:45:58

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

QPSK (RB Size 1, RB Offset 0)

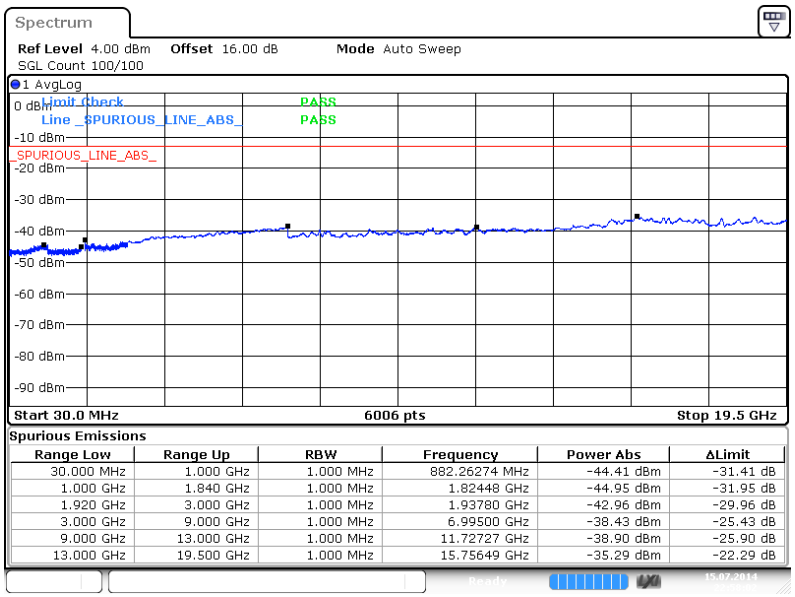


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	892.92208 MHz	-44.39 dBm	-31.39 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83622 GHz	-45.18 dBm	-32.18 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.85273 GHz	-43.36 dBm	-30.36 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.58 dBm	-25.58 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75924 GHz	-38.89 dBm	-25.89 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.20 dBm	-22.20 dB

Date: 15.JUL.2014 22:58:58

16QAM (RB Size 1, RB Offset 0)



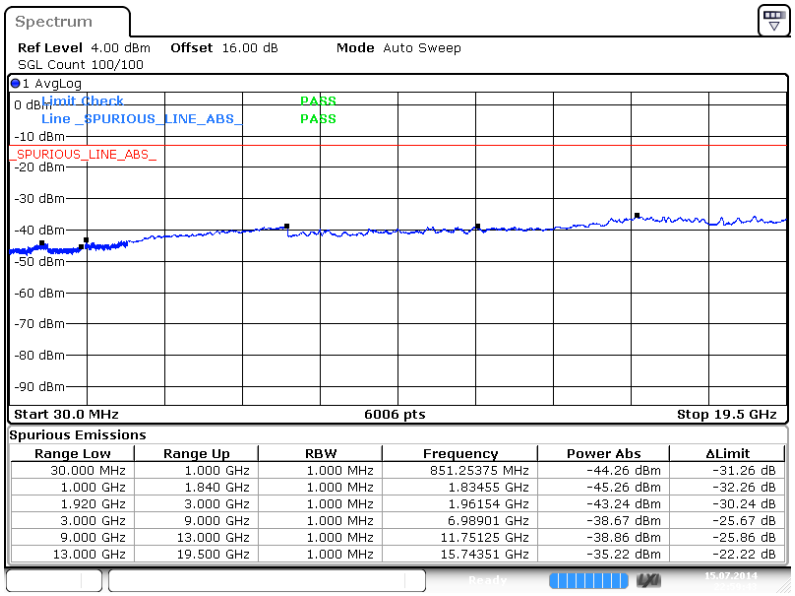
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	882.26274 MHz	-44.41 dBm	-31.41 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.82448 GHz	-44.95 dBm	-31.95 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93780 GHz	-42.96 dBm	-29.96 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.43 dBm	-25.43 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.72727 GHz	-38.90 dBm	-25.90 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.29 dBm	-22.29 dB

Date: 15.JUL.2014 22:58:02

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

QPSK (RB Size 1, RB Offset 0)

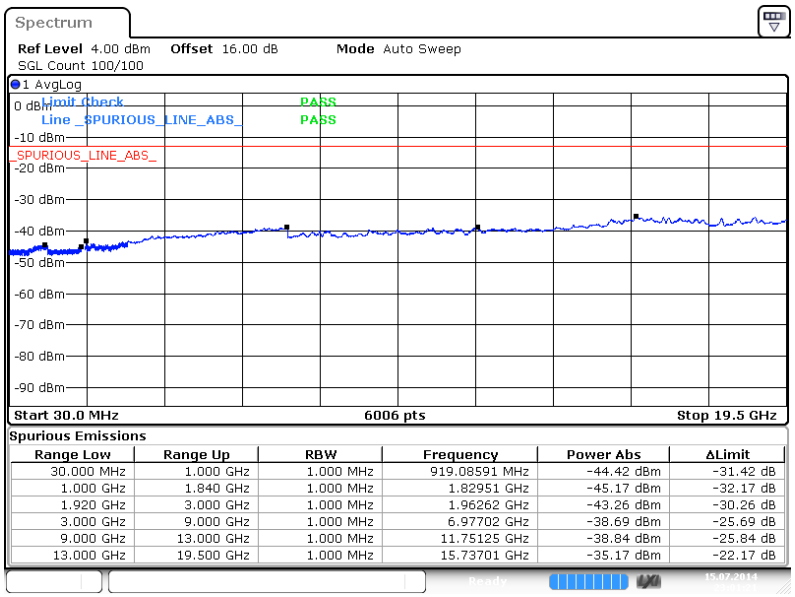


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	851.25375 MHz	-44.26 dBm	-31.26 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83455 GHz	-45.26 dBm	-32.26 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.96154 GHz	-43.24 dBm	-30.24 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98901 GHz	-38.67 dBm	-25.67 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75125 GHz	-38.86 dBm	-25.86 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.74351 GHz	-35.22 dBm	-22.22 dB

Date: 15.JUL.2014 22:59:44

16QAM (RB Size 1, RB Offset 0)



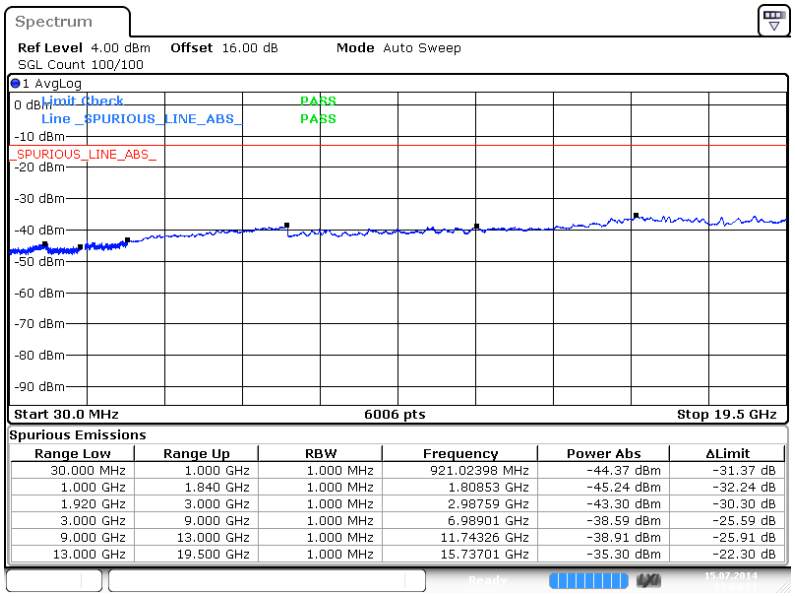
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	919.08591 MHz	-44.42 dBm	-31.42 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.82951 GHz	-45.17 dBm	-32.17 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.96262 GHz	-43.26 dBm	-30.26 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.97702 GHz	-38.69 dBm	-25.69 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75125 GHz	-38.84 dBm	-25.84 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.73701 GHz	-35.17 dBm	-22.17 dB

Date: 15.JUL.2014 23:01:21

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

QPSK (RB Size 1, RB Offset 0)

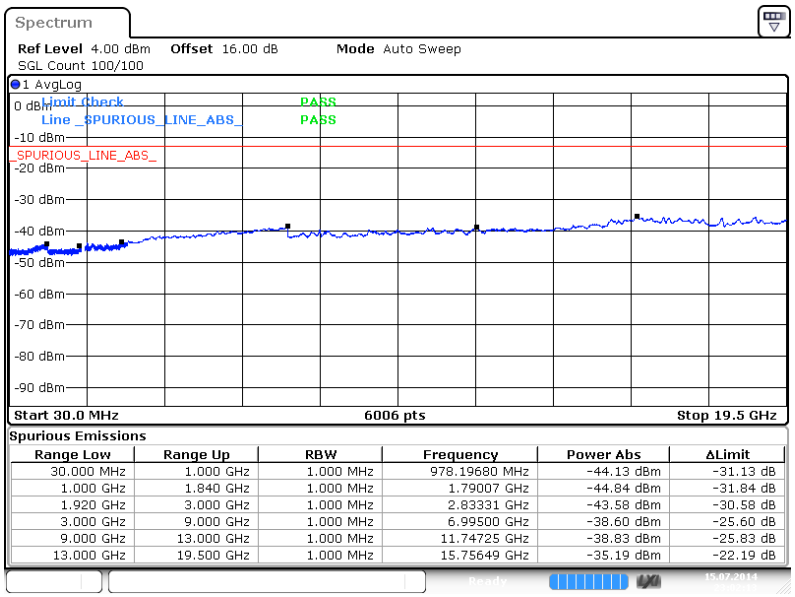


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	921.02398 MHz	-44.37 dBm	-31.37 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.80853 GHz	-45.24 dBm	-32.24 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.98759 GHz	-43.30 dBm	-30.30 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98901 GHz	-38.59 dBm	-25.59 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74326 GHz	-38.91 dBm	-25.91 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.73701 GHz	-35.30 dBm	-22.30 dB

Date: 15.JUL.2014 23:04:22

16QAM (RB Size 1, RB Offset 0)



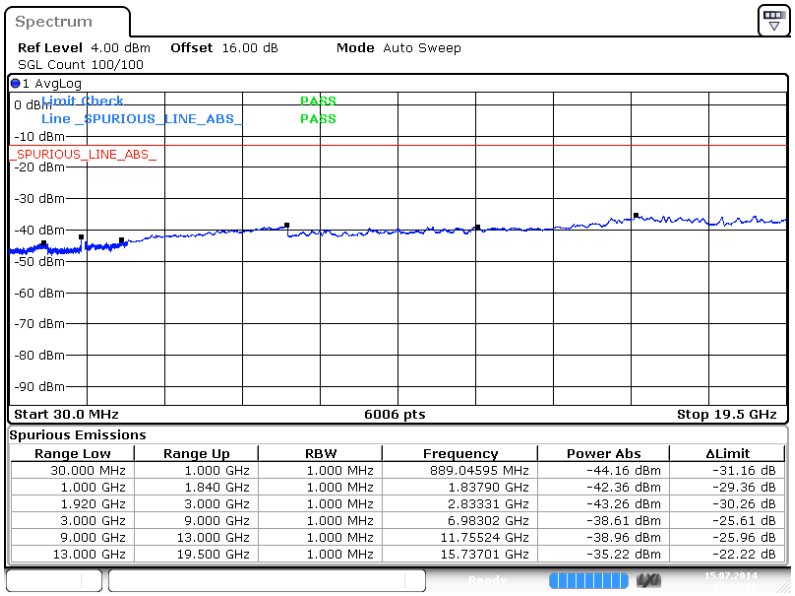
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	978.19680 MHz	-44.13 dBm	-31.13 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.79007 GHz	-44.84 dBm	-31.84 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.83331 GHz	-43.58 dBm	-30.58 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.60 dBm	-25.60 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74725 GHz	-38.83 dBm	-25.83 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.19 dBm	-22.19 dB

Date: 15.JUL.2014 23:02:12

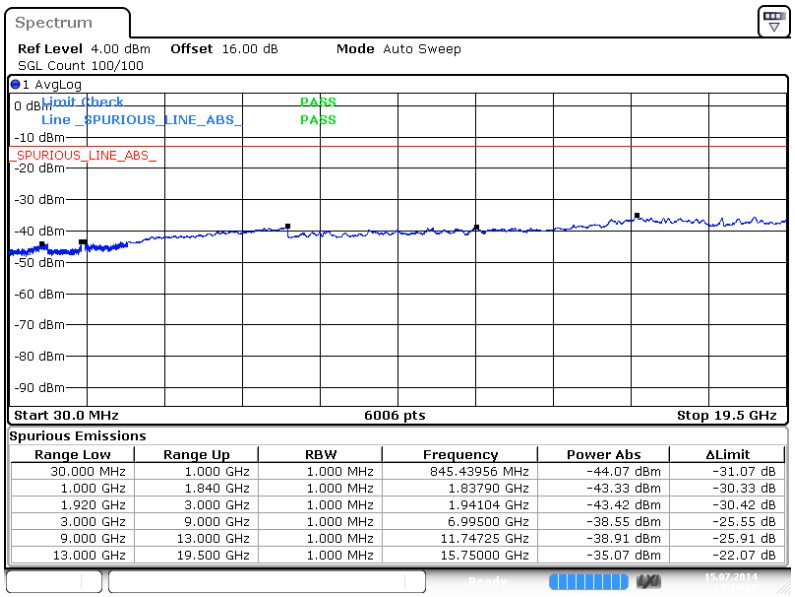
Band :	LTE Band 2	Channel :	CH18675 (Low)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Date:15.JUL.2014 23:20:19

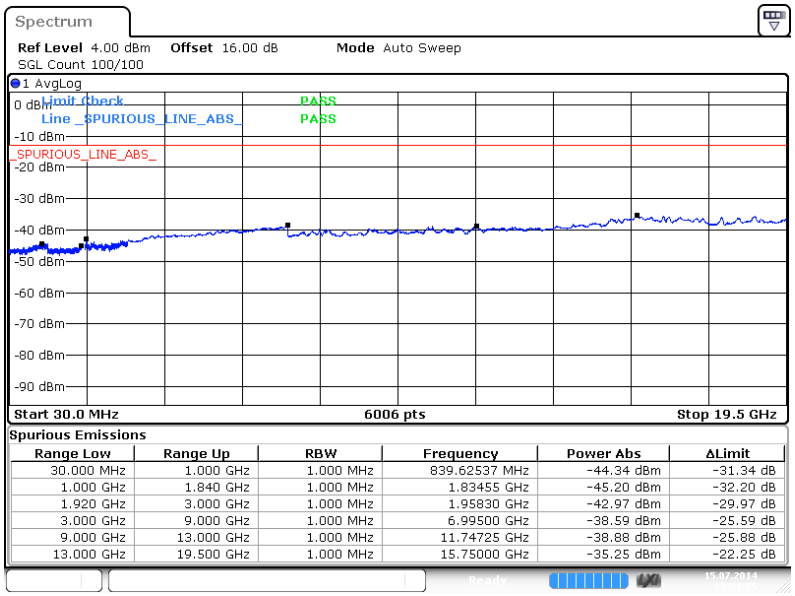
16QAM (RB Size 1, RB Offset 0)



Date:15.JUL.2014 23:19:99

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

QPSK (RB Size 1, RB Offset 0)

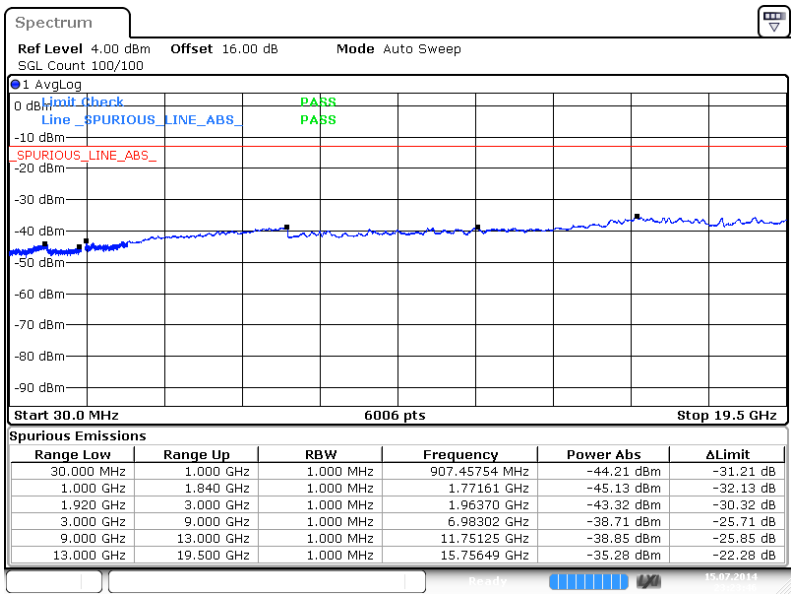


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	839.62537 MHz	-44.34 dBm	-31.34 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83455 GHz	-45.20 dBm	-32.20 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95830 GHz	-42.97 dBm	-29.97 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.59 dBm	-25.59 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74725 GHz	-38.88 dBm	-25.88 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.25 dBm	-22.25 dB

Date: 15.JUL.2014 23:21:55

16QAM (RB Size 1, RB Offset 0)



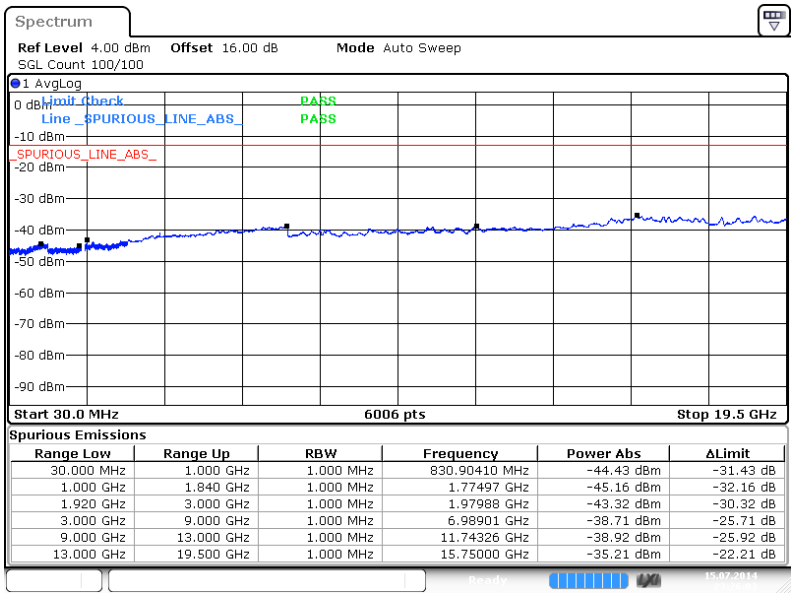
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	907.45754 MHz	-44.21 dBm	-31.21 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.77161 GHz	-45.13 dBm	-32.13 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.96370 GHz	-43.32 dBm	-30.32 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98302 GHz	-38.71 dBm	-25.71 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75125 GHz	-38.85 dBm	-25.85 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.28 dBm	-22.28 dB

Date: 15.JUL.2014 23:23:47

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

QPSK (RB Size 1, RB Offset 0)

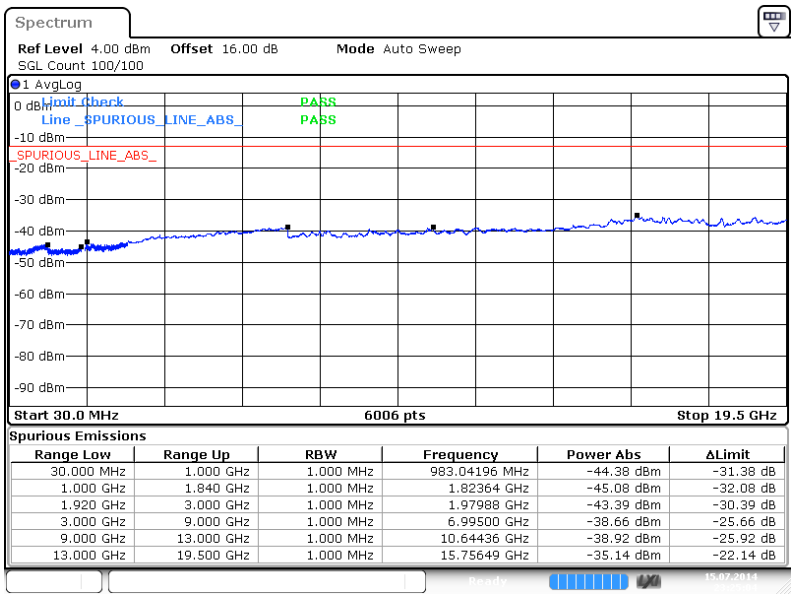


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	830.90410 MHz	-44.43 dBm	-31.43 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.77497 GHz	-45.16 dBm	-32.16 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.97988 GHz	-43.32 dBm	-30.32 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98901 GHz	-38.71 dBm	-25.71 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74326 GHz	-38.92 dBm	-25.92 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.21 dBm	-22.21 dB

Date: 15.JUL.2014 23:26:03

16QAM (RB Size 1, RB Offset 0)



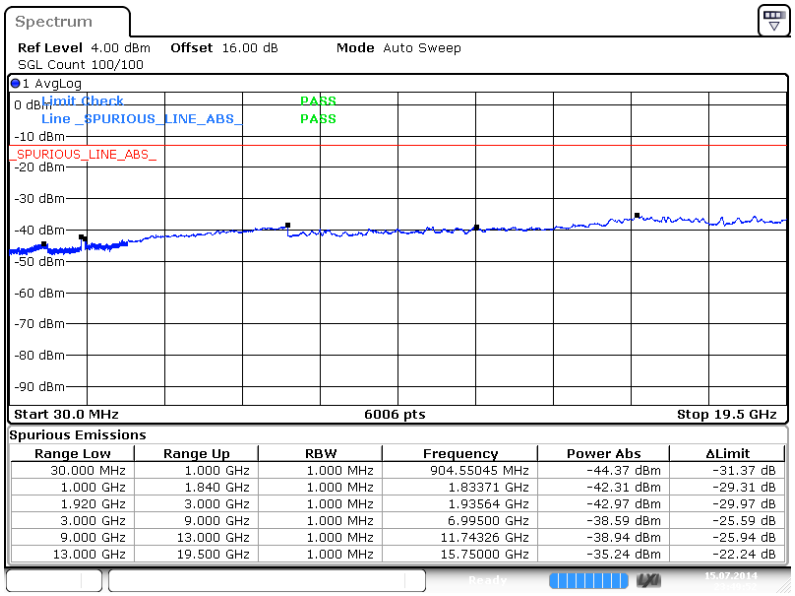
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	983.04196 MHz	-44.38 dBm	-31.38 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.82364 GHz	-45.08 dBm	-32.08 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.97988 GHz	-43.39 dBm	-30.39 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.66 dBm	-25.66 dB
9.000 GHz	13.000 GHz	1.000 MHz	10.64436 GHz	-38.92 dBm	-25.92 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75649 GHz	-35.14 dBm	-22.14 dB

Date: 15.JUL.2014 23:25:55

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

QPSK (RB Size 1, RB Offset 49)

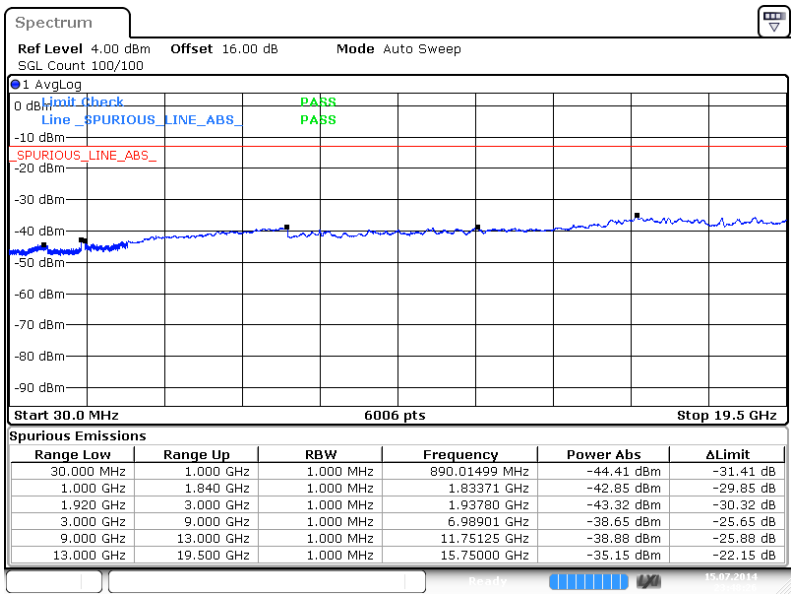


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	904.55045 MHz	-44.37 dBm	-31.37 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83371 GHz	-42.31 dBm	-29.31 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93564 GHz	-42.97 dBm	-29.97 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.99500 GHz	-38.59 dBm	-25.59 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.74326 GHz	-38.94 dBm	-25.94 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.24 dBm	-22.24 dB

Date: 15.JUL.2014 23:49:52

16QAM (RB Size 1, RB Offset 49)



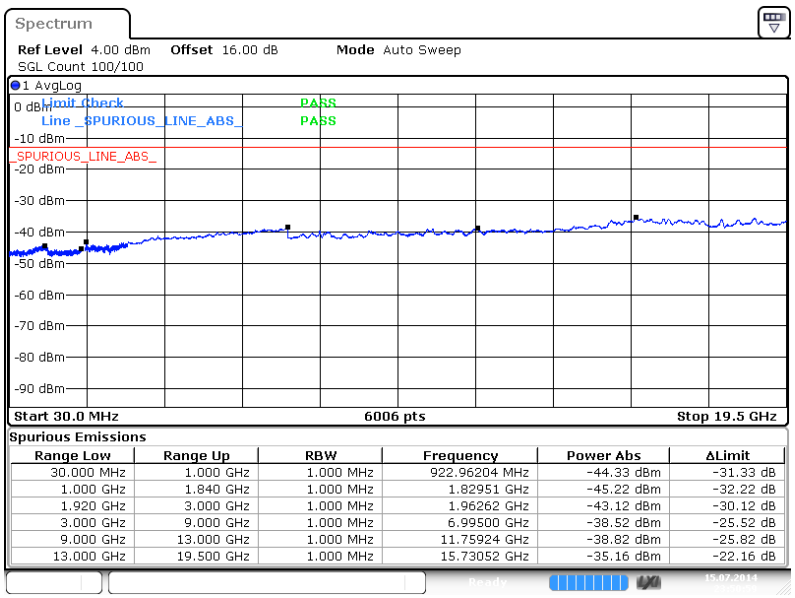
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	890.01499 MHz	-44.41 dBm	-31.41 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83371 GHz	-42.85 dBm	-29.85 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93780 GHz	-43.32 dBm	-30.32 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98901 GHz	-38.65 dBm	-25.65 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.75125 GHz	-38.88 dBm	-25.88 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.75000 GHz	-35.15 dBm	-22.15 dB

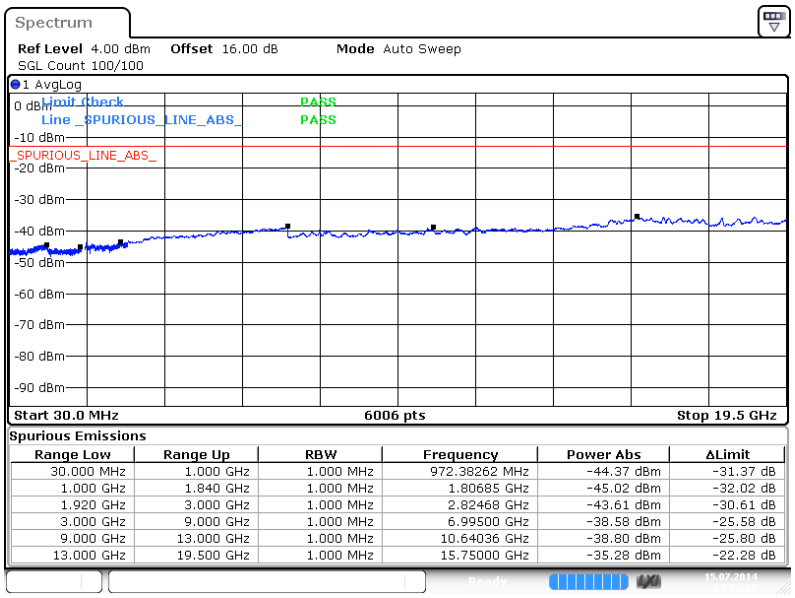
Date: 15.JUL.2014 23:48:26

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

QPSK (RB Size 1, RB Offset 49)

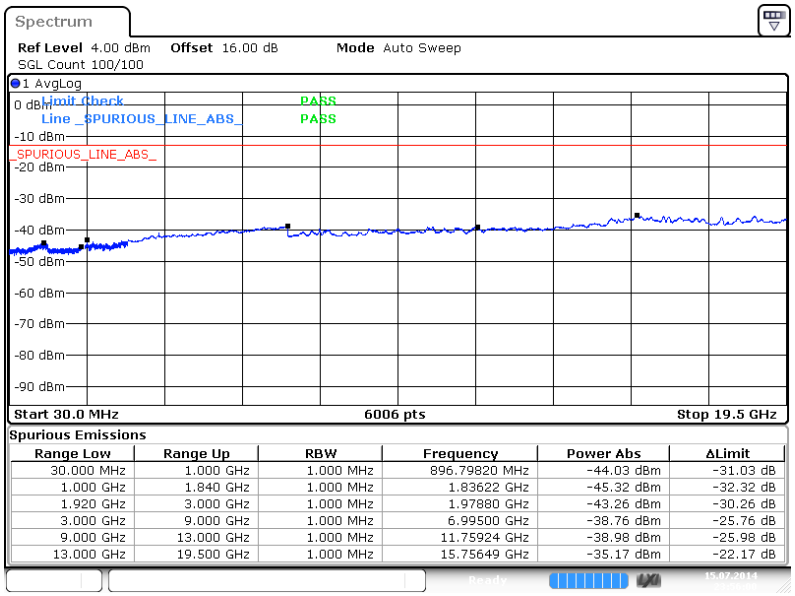


16QAM (RB Size 1, RB Offset 49)



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

QPSK (RB Size 1, RB Offset 49)



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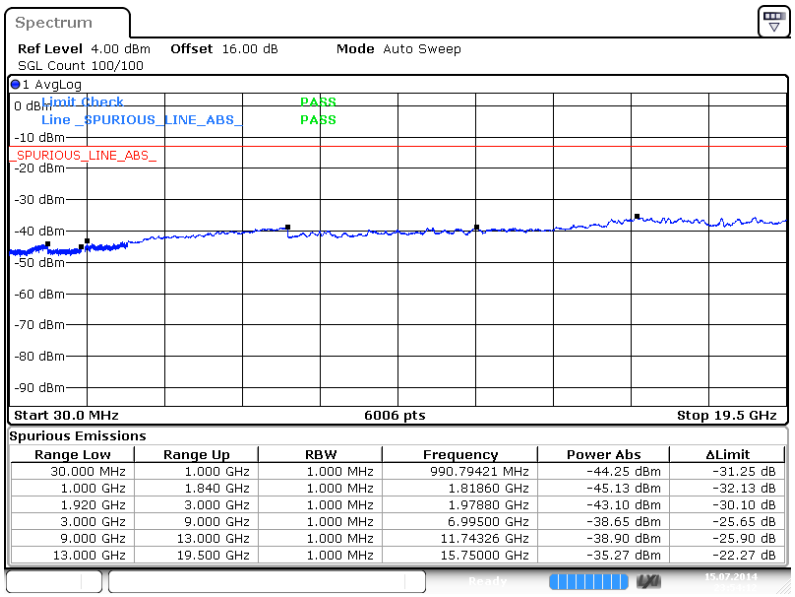
16QAM (RB Size 1, RB Offset 49)



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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

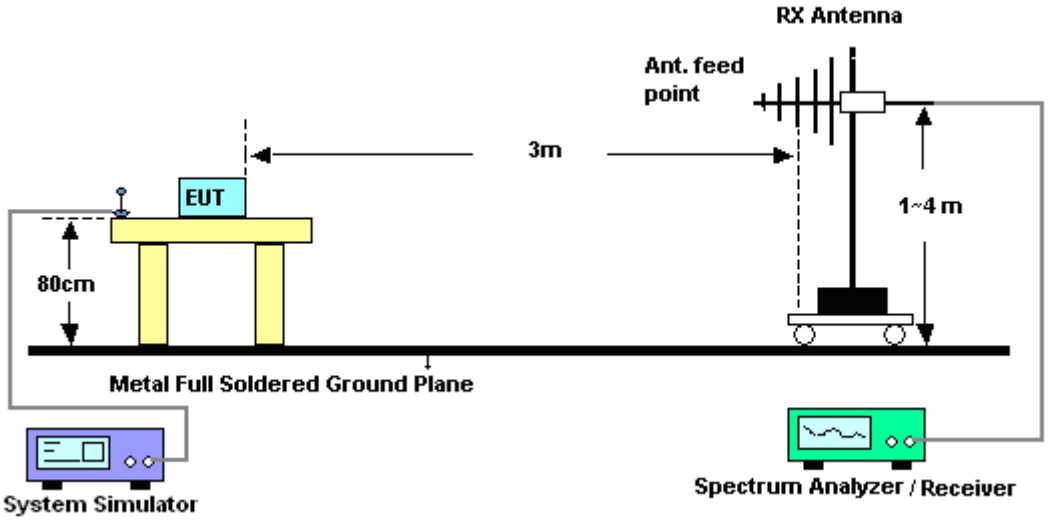
The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

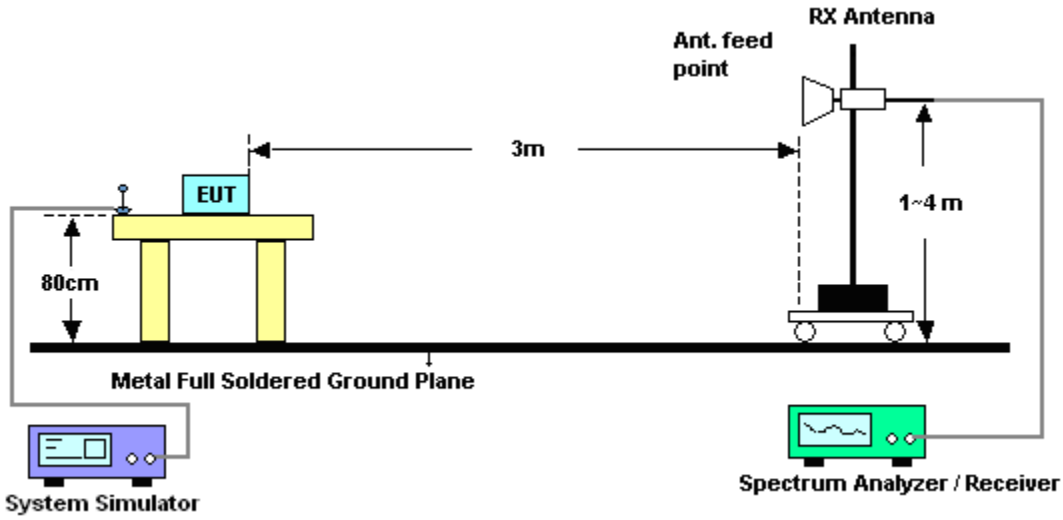
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving 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 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain

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

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

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
3760	-52.10	-13	-39.10	-58.80	-58.48	0.78	7.16	H	Pass
5636	-44.27	-13	-31.27	-57.48	-52.81	1.04	9.58	H	Pass
7520	-51.04	-13	-38.04	-62.58	-61.15	1.35	11.46	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	1.4MHz 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.		

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
3759	-50.30	-13	-37.30	-59.27	-56.68	0.78	7.16	V	Pass
5640	-42.68	-13	-29.68	-58.22	-51.22	1.04	9.58	V	Pass
7518	-48.00	-13	-35.00	-62.09	-58.11	1.35	11.46	V	Pass

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

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
3756	-52.65	-13	-39.65	-59.19	-59.03	0.78	7.16	H	Pass
5637	-48.55	-13	-35.55	-60.10	-57.09	1.04	9.58	H	Pass
7515	-50.45	-13	-37.45	-61.99	-60.56	1.35	11.46	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	3MHz 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.		

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
3756	-49.27	-13	-36.27	-58.4	-55.65	0.78	7.16	V	Pass
5637	-44.48	-13	-31.48	-59.25	-53.02	1.04	9.58	V	Pass
7515	-41.57	-13	-28.57	-57.96	-51.68	1.35	11.46	V	Pass

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

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
3756	-54.04	-13	-41.04	-59.75	-60.42	0.78	7.16	H	Pass
5634	-49.64	-13	-36.64	-61.02	-58.18	1.04	9.58	H	Pass
7512	-46.53	-13	-33.53	-60.24	-56.64	1.35	11.46	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	5MHz 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.		

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
3756	-49.02	-13	-36.02	-58.17	-55.40	0.78	7.16	V	Pass
5634	-42.40	-13	-29.40	-57.92	-50.94	1.04	9.58	V	Pass
7512	-46.02	-13	-33.02	-60.68	-56.13	1.35	11.46	V	Pass

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

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
3750	-54.06	-13	-41.06	-59.76	-60.44	0.78	7.16	H	Pass
5628	-52.91	-13	-39.91	-62.97	-61.45	1.04	9.58	H	Pass
7503	-46.67	-13	-33.67	-60.31	-56.78	1.35	11.46	H	Pass

Band :	LTE Band 2	Temperature :	22~23°C
Test Mode :	10MHz 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.		

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
3750	-47.95	-13	-34.95	-57.57	-54.33	0.78	7.16	V	Pass
5628	-47.33	-13	-34.33	-61.29	-55.87	1.04	9.58	V	Pass
7503	-44.60	-13	-31.60	-59.87	-54.71	1.35	11.46	V	Pass

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

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
3747	-54.37	-13	-41.37	-59.90	-60.75	0.78	7.16	H	Pass
5622	-49.30	-13	-36.30	-60.76	-57.84	1.04	9.58	H	Pass
7494	-44.70	-13	-31.70	-58.99	-54.81	1.35	11.46	H	Pass

Band :	LTE Band 2	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.		

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
3747	-48.00	-13	-35.00	-57.59	-54.38	0.78	7.16	V	Pass
5622	-46.80	-13	-33.80	-60.85	-55.34	1.04	9.58	V	Pass
7494	-44.52	-13	-31.52	-59.83	-54.63	1.35	11.46	V	Pass

Band :	LTE Band 2	**Temperature :**	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 49	**Relative Humidity :**	42~43%
Test Engineer :	Star Wei	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		

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
3741	-51.46	-13	-38.46	-58.30	-57.84	0.78	7.16	H	Pass
5616	-49.00	-13	-36.00	-60.52	-57.54	1.04	9.58	H	Pass
7485	-49.55	-13	-36.55	-61.35	-59.66	1.35	11.46	H	Pass

Band :	LTE Band 2	**Temperature :**	22~23°C
Test Mode :	20MHz QPSK RB Size 1 Offset 49	**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.		

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
3741	-44.64	-13	-31.64	-55.34	-51.02	0.78	7.16	V	Pass
5616	-49.60	-13	-36.60	-62.42	-58.14	1.04	9.58	V	Pass
7485	-45.08	-13	-32.08	-60.13	-55.19	1.35	11.46	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 ±0.00025% (±2.5ppm) of the center frequency.

3.8.2 Measuring Instruments

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

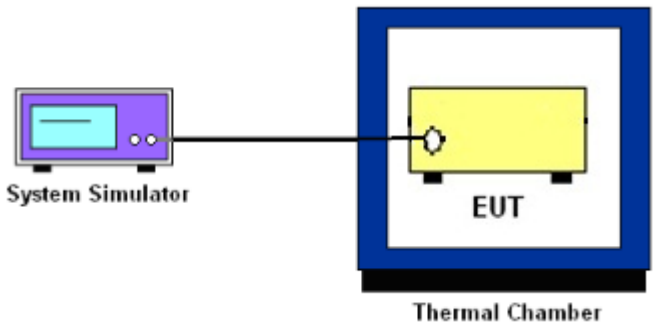
3.8.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°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°C step up to 50°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±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation (FCC)

Band :	LTE Band 2 (QPSK)	Limit (ppm) :	2.5

Temperature (°C)	BW 10MHz	Result
	Deviation (ppm)	
50	+0.0095	PASS
40	+0.0016	
30	+0.0018	
20(Ref.)	+0.0000	
10	+0.0002	
0	+0.0081	
-10	+0.0009	
-20	+0.0114	
-30	+0.0023	

3.8.7 Test Result of Voltage Variation (FCC)

Band	Bandwidth	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 2	10M	4.35	+0.0016	2.5	PASS
		Normal	+0.0004		
		3.50	+0.0066		

Remark:

1. Normal Voltage = 3.80V.
2. The manufacturer declared that the EUT could work properly between voltage 3.50V ~ 4.35V.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV30	101338	9kHz~30GHz	May 04, 2014	Jul. 15, 2014	May 03, 2015	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Dec. 10, 2013	Jul. 15, 2014	Dec. 09, 2014	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 05, 2013	Jul. 21, 2014	Nov. 04, 2014	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 04, 2014	Jul. 21, 2014	May 03, 2015	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	Jul. 21, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 08, 2014	Jul. 21, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 18, 2013	Jul. 21, 2014	Nov. 17, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	Jul. 21, 2014	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	Jul. 21, 2014	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Dec. 10, 2013	Jul. 21, 2014	Dec. 09, 2014	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 21, 2014	NCR	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Jul. 21, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Jul. 21, 2014	NCR	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP 7	100819	9kHz~7GHz	May 04, 2014	Jul. 24, 2014	May 03, 2015	ERP/EIRP (OTA01-KS)
Switch Control Manframe	Agilent	3499A	MY420054552	N/A	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Dual 1-to-6(4) MW MUX	Agilent	N2276A	MY420008401	N/A	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Microwave Switch	Agilent	44476A	MY420025773	N/A	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Microwave Switch	Agilent	44476A	MY420025886	N/A	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Diagonal Dual Polarized Horn	ETS-Lindgren	3164-04	00066993	700MHz~6GHz	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00066604	N/A	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Conical Log Spiral (Small)	ETS-Lindgren	3102	00066951	1~10GHz	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Turn Table	ETS-Lindgren	2088	N/A	Resolution : 0.1degree	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Limiting Amplifier	ETS-lindgren	109643	920326	10MHz~2.5GHz	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)

EMQuest	ETS-Lindgren	EMQ-100	1125	N/A	N/A	Jul. 24, 2014	N/A	ERP/EIRP (OTA01-KS)
Medium Duty Holder	ETS-Lindgren	2015	N/A	N/A	N/A	Jul. 24, 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))	**2.5**

Appendix B. Product Equality Declaration

ZTE CORPORATION

Product Change Description

As the applicant of the below model, [ZTE Corporation] declares that the product,

[ZTE Blade Apex 2]
[ZTE Corporation]

is the variant of the initial certified product,

[ZTE Blade Apex 2]
[ZTE Corporation]

SOFTWARE MODIFICATIONS:

Protocol Stack changes: NO
MMS/STK changes: NO
JAVA changes: NO
Other changes detailed: Yes, opened the LTE Band II.

HARDWARE MODIFICATION:

Band changes: NO
Power Amplifier changes: NO
Antenna changes: NO
PCB Layout changes: NO
Components on PCB changes: NO
LCD changes: NO
Speaker changes: NO
Camera changes: NO
Vibrator changes: NO
Bluetooth changes: NO
FM changes: NO
Other changes: NO

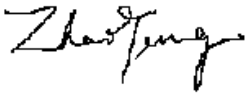
MECHANICAL MODIFICATIONS:

Use new metal front/back cover or keypad: NO
Mechanical shell changes: NO
Other changes detailed: NO

ACCESSORY MODIFICATIONS:

Battery changes: NO
AC Adaptor changes: NO
Earphone changes: NO

APPROVED BY:



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