



TEST REPORT

REPORT NUMBER: B17W00381-FCC-RF

ON

Type of Equipment: Wireless Modules
Model Name: WP7603
Manufacturer: Sierra Wireless Inc.

ACCORDING TO

FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS; e-CFR, Jun 22, 2017

PART 22, PUBLIC MOBILE SERVICES , e-CFR, Jun 22, 2017

PART 24, PERSONAL COMMUNICATIONS SERVICES, e-CFR, Jun 22, 2017

PART 27, MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES, e-CFR, Jun 22, 2017

RSS-Gen General Requirements for Compliance of Radio Apparatus. Issue 4, November 13, 2014

RSS-130 Mobile Broadband Services (MBS) Equipment Operating in the Frequency Bands 698-756 MHz and 777-787 MHz, Issue 1, October , 2013

RSS-132 Cellular Telephone Systems Operating in the Bands 824-849MHz and 869-894MHz, Issue 3, January 2013

RSS-133 2GHz Personal Communications Services, Issue 6, January 25, 2013

RSS-139 Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz, Issue 3, July 2015

Chongqing Institute of Telecommunications

Month date, year

Jun, 28, 2017

Signature

Zhang Yan

Director

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Institute of Telecommunications.



FCC ID: N7NWP76C
ISED: 2147C-WP76C
Report Date: 2017-06-28

Test Firm Name: Chongqing Institute of Telecommunications
FCC Registration Number: 428018

Test Firm Name: Telecommunication Technology Labs. Academy
of Telecommunication Research. MIIT
ISED Registration Number: 11590A

Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22, 24, 27 and RSS-Gen, 130, 132, 133, 139, The sample tested was found to comply with the requirements defined in the applied rules.



CONTENTS

1 GENERAL INFORMATION.....	4
1.1 NOTES	4
1.2 TESTERS.....	5
1.3 TESTING LABORATORY INFORMATION	6
1.4 DETAILS OF APPLICANT OR MANUFACTURER.....	7
2 TEST ITEM.....	8
2.1 GENERAL INFORMATION	8
2.2 OUTLINE OF EQUIPMENT UNDER TEST.....	8
2.3 MODIFICATIONS INCORPORATED IN EUT.....	8
2.4 EQUIPMENT CONFIGURATION	8
2.5 OTHER INFORMATION.....	8
3 SUMMARY OF TEST RESULTS	9
4 TEST EQUIPMENTS AND ANCILLARIES USED FOR TESTS.....	10
5 TEST RESULTS.....	11
5.1 CONDUCTED RF POWER OUTPUT	11
5.2 OCCUPIED BANDWIDTH.....	34
5.3 CONDUCTED SPURIOUS EMISSION.....	59
5.4 RADIATED SPURIOUS EMISSION.....	96
5.5 BAND EDGE	ERROR! BOOKMARK NOT DEFINED.21
5.6 FREQUENCY STABILITY OVER TEMPERATURE VARIATION.....	ERROR! BOOKMARK NOT DEFINED.
5.7 FREQUENCY STABILITY OVER VOLTAGE VARIATION.....	ERROR! BOOKMARK NOT DEFINED.
5.8 PEAK TO AVERAGE RATIO.....	ERROR! BOOKMARK NOT DEFINED.
ANNEX A EUT PHOTOS	ERROR! BOOKMARK NOT DEFINED.
ANNEX B DEVIATIONS FROM PRESCRIBED TEST METHOD.....	ERROR! BOOKMARK NOT DEFINED.



1 General Information

1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22, 24, 27 and RSS-Gen, 130, 132, 133,139.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex B.

Chongqing Institute of Telecommunications authorizes the applicant or manufacturer (see section 1.4) to reproduce this report provided, and the test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of Chongqing Institute of Telecommunications Mr. Zhang Yan.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Chongqing Institute of Telecommunications accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



1.2 Testers

Name: Chen Wen
Position: Engineer
Department: Department of RF test
Date: 2017-06-13 to 2017-06-27

Signature:

Editor of this test report:

Name: Zhou Jin
Position: Engineer
Department: Department of RF test
Date: 2017-06-28

Signature:

Technical responsibility for area of testing:

Name: Zhang Yan
Position: Manager
Department: Director of the laboratory
Date: 2017-06-28

Signature:



1.3 Testing Laboratory information

1.3.1 Location

Name: Chongqing Institute of Telecommunications
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District,
Chongqing
P. R. CHINA, 401336
Tel: +86-23-88069965
Fax: +86-23-88608777
Email: songweiwei@chinattl.com

1.3.2 Test location, where different from section 1.3.1

Name: -----
Street: -----
City: -----
Country: -----
Telephone: -----
Fax: -----
Postcode: -----



1.4 Details of applicant or manufacturer

1.4.1 Manufacturer

Name: Sierra Wireless Inc.
Address: 13811, Wireless Way, Richmond, British Columbia
Country: Canada
Telephone: +1 604 231 1100
Fax: +1 604 231 1109

Cell Test Report



2 Test Item

2.1 General Information

Manufacturer: Sierra Wireless Inc.
Type of Equipment: Wireless Modules
Model Name: WP7603
Serial Number: S1: U3708475240103
Production Status: Product
Receipt date of test item: 2016-06-13

2.2 Outline of Equipment under Test

The WP7603, referred to as “EUT” hereafter, is a multi-band wireless modem operating on the UMTS/LTE networks. The table below shows the supported bands for the EUT.

Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)	Note
WCDMA/HSUPA /HSDPA	B2	1850 – 1910	1930 – 1990	--
	B4	1710 – 1755	2110 – 2155	--
	B5	824 – 849	869 – 894	--
LTE	B2	1850 – 1910	1930 – 1990	--
	B4	1710 – 1755	2110 – 2155	--
	B5	824 – 849	869 – 894	--
	B12	699 – 716	729 – 746	--

2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Modules	Sierra Wireless Inc.	WP7603	S1: U3708475240103	None

2.5 Other Information

--



3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

FCC Rules	ISED Standards	Name of Test	Result
2.1046, 22.913(a) 24.232(c), 27.50	RSS-130 4.4 RSS-132 5.4 RSS-133 6.4 RSS-139 6.5	Conducted RF Power Output	Pass
2.1049, 22.917(b), 24.238(b)	RSS-Gen 6.6	Occupied Bandwidth	*Note 1
2.1051, 2.1053 22.917, 24.238 27.53	RSS-130 4.6 RSS-132 5.5 RSS-133 6.5 RSS-139 6.6	Conducted spurious emissions	Pass
2.1051, 2.1053 22.917, 24.238 27.53	RSS-130 4.3 RSS-132 5.3 RSS-133 6.3 RSS-139 6.4	Radiated Spurious Emission	Pass
2.1051, 2.1053 22.917, 24.238 27.53	RSS-130 4.6 RSS-132 5.5 RSS-133 6.5 RSS-139 6.6	Band Edge	Pass
2.1055, 22.355 24.235, 27.54	RSS-130 4.3 RSS-132 5.3 RSS-133 6.3 RSS-139 6.4	Frequency Stability over Temperature Variation	Pass
2.1055, 22.355 24.235, 27.54	RSS-130 4.3 RSS-132 5.3 RSS-133 6.3 RSS-139 6.4	Frequency Stability over Voltage Variation	Pass
24.232, 27.50	RSS-130 4.4	Peak to Average Ratio	Pass
Note 1: No applicable performance criteria.			



4 Test Equipments and Ancillaries Used For Tests

The test equipments and ancillaries used are as follows.

No.	Equipment	Model	SN	Manufacture	Cal. Due Date
1	EMI Test Receiver	ESU26	100367	R&S	2018-03-03
2	Trilog super broadband test antenna	VULB 9163	9163-544	R&S	2017-12-01
3	Double-Ridged Horn Antenna	HF907	100356	R&S	2017-12-01
4	Fully-Anechoic Chamber	11.8m×6.5m×6.3m	--	ETS	2017-08-19
5	Universal Radio Communication Tester	CMW500	128181	R&S	2018-03-03
6	Signal Generator	SMU200A	104517	R&S	2018-03-03
7	spectrum analyzer	FSQ 26	201137/026	R&S	2018-03-03
8	spectrum analyzer	N9020A	MY50200376	Agilent	2018-03-03
9	Universal Radio Communication Tester	CMU200	112012	R&S	2018-03-03
10	Climate chamber	SH-241	92010759	ESPEC	2018-03-03
11	DC Power Supply	N6705B	MY50000919	Agilent	2017-12-06
12	Universal Radio Communication Tester	CMW500	152395	R&S	2018-03-03

5 Test Results

5.1 Conducted RF Power Output

Specifications:	FCC Part 2.1046, 22.913(a), 24.232(c), 27.50 RSS-130 4.4, RSS-132 5.4, RSS-133 6.4, RSS-139 6.5
DUT Serial Number:	S1: U3708475240103
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

According to Part 22.913(a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

According to Part 24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to Part 27.50(c), portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP;

According to Part 27.50(d), fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to RSS-130 4.4, the e.i.r.p. shall not exceed 50 watts for mobile equipment or for outdoor fixed subscriber equipment, nor shall it exceed 5 watts for portable equipment or for indoor fixed subscriber equipment.

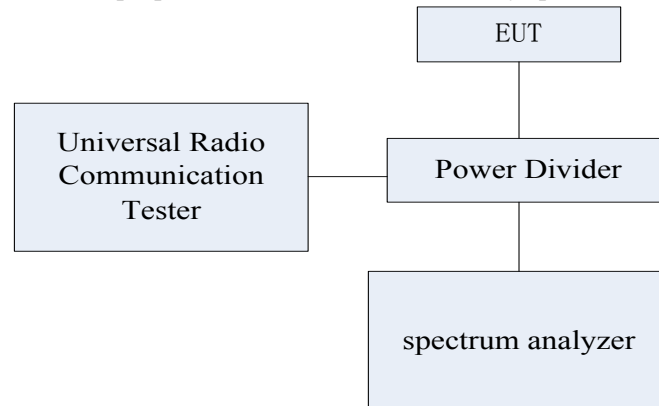
According to RSS-132 5.4, the transmitter output power shall be measured in terms of average power. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts. Refer to SRSP-503 for base station e.i.r.p. limits.

According to RSS-133 6.4, the equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510. Moreover, base station transmitters operating in the band 1930-1995 MHz shall not have output power exceeding 100 watts.

According to RSS-139 6.5, the equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed one watt.

Test Setup:

During the test, the EUT was controlled via the Wireless Telecommunications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



Test Method:

- 1) The EUT was coupled to the spectrum analyzer and the Wireless Telecommunications Test Set through a power divider. The loss of the RF cables of the test system is calibrated to correct the readings.
- 2) For RMS power test, the spectrum analyzer was set to RMS Detector function and Maximum hold mode.
- 3) For Peak power test, the spectrum analyzer was set to Maxpeak Detector function and Maximum hold mode.
- 4) The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth.

Note: --

5.1.1 WCDMA Band2 Conducted RF Power Output Results

		Maximum output power(pk) [dBm]			Maximum output power(RMS) [dBm]		
Mode	3GPP Subtest	9262	9400	9538	9262	9400	9538
RMC	--	25.84	26.10	25.23	22.83	23.39	22.62
HSDPA	1	24.93	25.29	24.44	21.92	22.41	21.74
	2	26.10	26.36	25.38	22.36	22.45	21.89
	3	26.03	26.84	26.00	21.45	21.98	20.94
	4	26.55	26.22	25.43	21.37	21.55	21.06
HSUPA	1	26.68	26.31	25.60	22.06	22.51	21.66
	2	26.99	26.55	25.87	21.95	22.43	21.69
	3	26.71	26.83	25.70	21.92	22.55	21.71
	4	26.71	26.80	25.48	21.89	22.46	21.54
	5	26.46	26.46	25.80	21.87	22.54	21.49

**5.1.2 WCDMA Band4 Conducted RF Power Output Results**

		Maximum output power(pk) [dBm]			Maximum output power(RMS) [dBm]		
Mode	3GPP Subtest	1312	1412	1512	1312	1412	1512
RMC	--	25.88	26.52	26.22	23.21	23.48	23.76
HSDPA	1	24.93	25.47	25.48	22.05	22.56	23.01
	2	25.97	26.42	26.06	22.32	22.71	22.99
	3	26.72	26.61	26.19	21.70	22.52	22.20
	4	25.91	26.31	23.84	21.55	21.92	22.70
HSUPA	1	26.42	26.93	26.47	21.93	22.35	22.42
	2	26.59	26.73	26.49	22.22	22.36	22.45
	3	26.03	26.80	26.60	22.12	22.47	22.42
	4	26.43	26.74	26.71	21.89	22.30	22.44
	5	26.42	26.71	26.00	22.14	22.29	22.29

5.1.3 WCDMA Band5 Conducted RF Power Output Results

		Maximum output power(pk) [dBm]			Maximum output power(RMS) [dBm]		
Mode	3GPP Subtest	4132	4182	4233	4132	4182	4233
RMC	--	26.25	26.93	26.25	23.48	23.65	23.45
HSDPA	1	25.45	26.02	25.45	23.18	22.94	22.55
	2	26.30	27.10	26.32	22.61	22.54	22.51
	3	27.08	27.86	26.12	22.12	22.00	21.87
	4	26.89	27.78	26.72	22.17	22.15	21.77
HSUPA	1	27.27	27.69	26.69	22.14	23.02	22.15
	2	27.20	27.92	26.84	22.26	22.86	22.05
	3	27.14	27.90	26.50	22.44	22.42	22.28
	4	27.44	27.91	26.86	22.13	22.45	22.32
	5	27.02	27.88	26.45	22.08	22.32	21.90

5.1.4 LTE B2 Conducted RF Power Output Results

Test Data (1.4MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
18607	1850.7	1	0	QPSK	22.74	27.60	4.86
		1	2		22.73	27.54	4.81
		1	5		22.66	27.58	4.92
		6	0		21.59	27.22	5.63
		1	0	16QAM	22.12	27.33	5.21
		1	2		22.32	27.53	5.21
		1	5		22.18	27.55	5.37
		6	0		20.56	27.03	6.47
18900	1880	1	0	QPSK	22.60	26.94	4.34
		1	2		22.60	26.93	4.33
		1	5		22.62	27.00	4.38
		6	0		21.56	26.87	5.31
		1	0	16QAM	21.30	26.66	5.36
		1	2		21.41	26.73	5.32
		1	5		21.56	26.86	5.30
		6	0		20.73	26.95	6.22
19193	1909.3	1	0	QPSK	22.66	27.06	4.40
		1	2		22.60	26.97	4.37
		1	5		22.57	27.04	4.47
		6	0		21.63	27.03	5.40
		1	0	16QAM	21.78	27.04	5.26
		1	2		21.91	27.19	5.28
		1	5		21.64	27.02	5.38
		6	0		20.71	27.04	6.33



Test Data (3MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
18615	1851.5	1	0	QPSK	23.18	28.06	4.88
		1	8		22.93	27.68	4.75
		1	15		22.96	27.88	4.92
		15	0		21.72	27.56	5.84
		1	0	16QAM	22.45	27.76	5.31
		1	8		22.25	27.38	5.13
		1	15		22.65	27.95	5.30
		15	0		20.76	27.38	6.62
18900	1880	1	0	QPSK	23.03	27.25	4.22
		1	8		22.66	26.96	4.30
		1	15		23.09	27.45	4.36
		15	0		21.65	27.17	5.52
		1	0	16QAM	21.43	26.65	5.22
		1	8		21.35	26.57	5.22
		1	15		21.37	26.77	5.40
		15	0		20.65	26.94	6.29
19185	1908.5	1	0	QPSK	22.90	27.20	4.30
		1	8		22.55	26.92	4.37
		1	15		22.49	27.01	4.52
		15	0		21.57	27.02	5.45
		1	0	16QAM	22.05	26.91	4.86
		1	8		21.55	26.54	4.99
		1	15		21.70	26.89	5.19
		15	0		20.58	27.02	6.44



Test Data (5MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
18625	1852.5	1	0	QPSK	22.77	27.72	4.95
		1	13		22.78	27.54	4.76
		1	24		22.72	27.55	4.83
		25	0		21.71	27.62	5.91
		1	0	16QAM	22.28	27.95	5.67
		1	13		22.30	27.77	5.47
		1	24		22.22	27.76	5.54
		25	0		20.85	27.71	6.86
18900	1880	1	0	QPSK	22.96	27.16	4.20
		1	13		22.76	27.00	4.24
		1	24		23.03	27.48	4.45
		25	0		21.75	27.27	5.52
		1	0	16QAM	21.64	26.84	5.20
		1	13		21.37	26.77	5.40
		1	24		21.46	26.95	5.49
		25	0		20.77	26.73	5.96
19175	1907.5	1	0	QPSK	22.63	26.89	4.26
		1	13		22.47	26.78	4.31
		1	24		22.49	27.04	4.55
		25	0		21.58	27.06	5.48
		1	0	16QAM	21.11	26.39	5.28
		1	13		21.07	26.45	5.38
		1	24		21.12	26.66	5.54
		25	0		20.70	26.85	6.15



Test Data (10MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
18650	1855	1	0	QPSK	22.78	27.74	4.96
		1	25		23.17	27.89	4.72
		1	49		23.13	27.71	4.58
		50	0		21.70	27.77	6.07
		1	0	16QAM	22.27	27.72	5.45
		1	25		22.79	27.89	5.10
		1	49		22.32	27.46	5.14
		50	0		20.80	27.85	7.05
18900	1880	1	0	QPSK	22.84	26.70	3.86
		1	25		22.89	27.10	4.21
		1	49		22.77	27.44	4.67
		50	0		21.67	26.82	5.15
		1	0	16QAM	21.61	26.63	5.02
		1	25		21.59	26.84	5.25
		1	49		21.84	27.42	5.58
		50	0		20.71	27.04	6.33
19150	1905	1	0	QPSK	22.61	26.87	4.26
		1	25		22.82	26.67	3.85
		1	49		22.61	27.11	4.50
		50	0		21.56	27.28	5.72
		1	0	16QAM	21.89	27.00	5.11
		1	25		21.54	26.48	4.94
		1	49		21.68	26.86	5.18
		50	0		20.63	27.05	6.42



Test Data (15MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
18675	1857.5	1	0	QPSK	22.86	27.88	5.02
		1	38		22.80	27.71	4.91
		1	74		22.91	27.16	4.25
		75	0		21.82	27.66	5.84
		1	0	16QAM	22.07	27.61	5.54
		1	38		22.06	27.46	5.40
		1	74		22.04	26.89	4.85
		75	0		20.82	27.67	6.85
18900	1880	1	0	QPSK	22.67	26.58	3.91
		1	38		22.55	26.95	4.40
		1	74		22.86	27.61	4.75
		75	0		21.75	27.42	5.67
		1	0	16QAM	22.35	26.87	4.52
		1	38		22.06	26.76	4.70
		1	74		22.39	27.63	5.24
		75	0		20.78	27.22	6.44
19125	1902.5	1	0	QPSK	22.88	27.49	4.61
		1	38		22.61	26.71	4.10
		1	74		22.48	26.83	4.35
		75	0		21.68	27.24	5.56
		1	0	16QAM	21.81	27.22	5.41
		1	38		21.52	26.39	4.87
		1	74		21.40	26.61	5.21
		75	0		20.62	27.01	6.39



Test Data (20MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
18700	1860	1	0	QPSK	23.00	27.90	4.90
		1	50		23.21	27.66	4.45
		1	99		22.76	26.72	3.96
		100	0		21.79	27.56	5.77
		1	0	16QAM	21.73	27.55	5.82
		1	50		21.79	27.15	5.36
		1	99		21.48	26.42	4.94
		100	0		20.81	27.48	6.67
18900	1880	1	0	QPSK	22.64	26.50	3.86
		1	50		22.93	27.12	4.19
		1	99		22.84	27.66	4.82
		100	0		21.78	27.28	5.50
		1	0	16QAM	21.55	26.39	4.84
		1	50		22.27	27.16	4.89
		1	99		22.38	27.89	5.51
		100	0		20.73	27.50	6.77
19100	1900	1	0	QPSK	23.09	28.02	4.93
		1	50		23.08	27.48	4.40
		1	99		22.57	27.05	4.48
		100	0		21.79	27.45	5.66
		1	0	16QAM	22.93	28.21	5.28
		1	50		22.54	27.26	4.72
		1	99		22.09	27.05	4.96
		100	0		20.91	27.46	6.55

5.1.5 LTE B4 Conducted RF Power Output Results

Test Data (1.4MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
19957	1710.7	1	0	QPSK	22.85	27.64	4.79
		1	2		23.28	27.92	4.64
		1	5		23.02	27.79	4.77
		6	0		22.05	27.51	5.46
		1	0	16QAM	21.99	27.58	5.59
		1	2		22.53	27.98	5.45
		1	5		22.10	27.72	5.62
		6	0		21.08	27.64	6.56
20175	1732.5	1	0	QPSK	23.13	27.76	4.63
		1	2		23.15	27.72	4.57
		1	5		23.13	27.82	4.69
		6	0		22.07	27.60	5.53
		1	0	16QAM	22.09	27.65	5.56
		1	2		22.37	27.88	5.51
		1	5		22.08	27.72	5.64
		6	0		21.00	27.39	6.39
20393	1754.3	1	0	QPSK	23.02	27.07	4.05
		1	2		23.11	27.10	3.99
		1	5		22.89	27.08	4.19
		6	0		22.06	27.10	5.04
		1	0	16QAM	22.31	26.88	4.57
		1	2		22.63	27.09	4.46
		1	5		22.53	27.22	4.69
		6	0		21.28	27.11	5.83



Test Data (3MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
19965	1711.5	1	0	QPSK	23.10	27.81	4.71
		1	8		22.97	27.67	4.70
		1	15		23.08	27.78	4.70
		15	0		22.09	27.48	5.39
		1	0	16QAM	22.21	27.38	5.17
		1	8		22.31	27.27	4.96
		1	15		22.44	27.61	5.17
		15	0		21.08	27.45	6.37
20175	1732.5	1	0	QPSK	22.88	27.52	4.64
		1	8		22.93	27.47	4.54
		1	15		22.99	27.73	4.74
		15	0		22.03	27.76	5.73
		1	0	16QAM	21.61	27.17	5.56
		1	8		21.46	26.92	5.46
		1	15		21.65	27.35	5.70
		15	0		20.96	27.39	6.43
20385	1753.5	1	0	QPSK	22.76	26.87	4.11
		1	8		22.88	26.90	4.02
		1	15		23.11	27.34	4.23
		15	0		22.13	27.40	5.27
		1	0	16QAM	22.08	26.76	4.68
		1	8		22.09	26.66	4.57
		1	15		22.17	27.00	4.83
		15	0		21.08	27.10	6.02



Test Data (5MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
19975	1712.5	1	0	QPSK	22.90	27.59	4.69
		1	13		23.15	27.71	4.56
		1	24		23.05	27.49	4.44
		25	0		21.93	27.79	5.86
		1	0	16QAM	22.47	27.84	5.37
		1	13		22.56	27.84	5.28
		1	24		22.34	27.52	5.18
		25	0		20.94	27.58	6.64
20175	1732.5	1	0	QPSK	22.99	27.62	4.63
		1	13		23.05	27.56	4.51
		1	24		23.05	27.83	4.78
		25	0		21.95	27.72	5.77
		1	0	16QAM	21.04	26.74	5.70
		1	13		21.30	26.90	5.60
		1	24		21.63	27.38	5.75
		25	0		20.84	27.44	6.60
20375	1752.5	1	0	QPSK	22.99	26.96	3.97
		1	13		23.09	26.96	3.87
		1	24		23.20	27.39	4.19
		25	0		22.14	27.39	5.25
		1	0	16QAM	21.55	26.39	4.84
		1	13		21.54	26.44	4.90
		1	24		21.79	26.92	5.13
		25	0		21.24	27.34	6.10



Test Data (10MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
20000	1715	1	0	QPSK	22.96	27.69	4.73
		1	25		23.19	27.43	4.24
		1	49		22.98	27.02	4.04
		50	0		22.05	27.73	5.68
		1	0	16QAM	22.38	27.68	5.30
		1	25		22.49	27.29	4.80
		1	49		22.54	27.02	4.48
		50	0		21.17	27.18	6.01
20175	1732.5	1	0	QPSK	22.90	27.40	4.50
		1	25		23.32	27.82	4.50
		1	49		23.19	27.97	4.78
		50	0		21.91	27.33	5.42
		1	0	16QAM	21.45	26.96	5.51
		1	25		21.50	27.07	5.57
		1	49		21.60	27.41	5.81
		50	0		20.91	27.65	6.74
20350	1750	1	0	QPSK	23.12	27.03	3.91
		1	25		23.00	26.77	3.77
		1	49		23.26	27.41	4.15
		50	0		22.00	27.21	5.21
		1	0	16QAM	22.45	27.00	4.55
		1	25		22.07	26.55	4.48
		1	49		22.22	27.00	4.78
		50	0		21.11	27.02	5.91



Test Data (15MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
20025	1717.5	1	0	QPSK	23.16	27.85	4.69
		1	38		22.74	26.96	4.22
		1	74		22.89	27.08	4.19
		75	0		21.87	27.10	5.23
		1	0	16QAM	22.46	27.70	5.24
		1	38		22.20	22.68	0.48
		1	74		22.29	27.00	4.71
		75	0		20.94	27.10	6.16
20175	1732.5	1	0	QPSK	22.74	27.04	4.30
		1	38		22.76	27.18	4.42
		1	74		22.76	27.31	4.55
		75	0		21.80	27.73	5.93
		1	0	16QAM	21.06	26.10	5.04
		1	38		21.88	27.04	5.16
		1	74		21.77	27.10	5.33
		75	0		20.91	27.63	6.72
20325	1747.5	1	0	QPSK	23.09	27.69	4.60
		1	38		22.90	26.79	3.89
		1	74		23.28	27.36	4.08
		75	0		21.90	27.27	5.37
		1	0	16QAM	22.58	27.67	5.09
		1	38		21.71	26.32	4.61
		1	74		21.83	26.69	4.86
		75	0		21.01	27.11	6.10



Test Data (20MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
20050	1720	1	0	QPSK	23.34	28.11	4.77
		1	50		23.16	27.11	3.95
		1	99		23.00	27.56	4.56
		100	0		21.99	27.83	5.84
		1	0	16QAM	21.82	27.31	5.49
		1	50		21.84	26.60	4.76
		1	99		21.82	27.21	5.39
		100	0		20.97	27.29	6.32
20175	1732.5	1	0	QPSK	22.80	27.00	4.20
		1	50		23.20	27.80	4.60
		1	99		23.23	27.69	4.46
		100	0		21.91	28.02	6.11
		1	0	16QAM	22.61	27.21	4.60
		1	50		23.11	28.04	4.93
		1	99		22.93	27.82	4.89
		100	0		20.93	27.61	6.68
20300	1745	1	0	QPSK	23.04	27.91	4.87
		1	50		23.26	27.09	3.83
		1	99		23.14	27.26	4.12
		100	0		21.93	27.21	5.28
		1	0	16QAM	22.75	28.27	5.52
		1	50		22.70	27.21	4.51
		1	99		22.74	27.41	4.67
		100	0		20.88	27.18	6.30

**5.1.6 LTE B5 Conducted RF Power Output Results**

Test Data (1.4MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
20407	824.7	1	0	QPSK	23.38	27.43	4.05
		1	2		23.33	27.41	4.08
		1	5		23.20	27.36	4.16
		6	0		22.38	27.38	5.00
		1	0	16QAM	22.68	27.28	4.60
		1	2		22.77	27.28	4.51
		1	5		22.80	27.34	4.54
		6	0		21.45	27.33	5.88
20525	836.5	1	0	QPSK	23.19	28.11	4.92
		1	2		23.39	28.23	4.84
		1	5		23.13	28.04	4.91
		6	0		22.28	28.00	5.72
		1	0	16QAM	22.43	28.16	5.73
		1	2		22.09	28.22	6.13
		1	5		21.89	28.06	6.17
		6	0		21.35	28.03	6.68
20643	848.3	1	0	QPSK	23.43	27.54	4.11
		1	2		23.61	27.62	4.01
		1	5		23.41	27.54	4.13
		6	0		22.35	27.56	5.21
		1	0	16QAM	22.51	27.47	4.96
		1	2		22.60	27.50	4.90
		1	5		22.32	27.43	5.11
		6	0		21.23	27.41	6.18



Test Data (3MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
20415	825.5	1	0	QPSK	23.58	27.52	3.94
		1	8		23.40	27.41	4.01
		1	15		23.45	27.47	4.02
		15	0		22.34	27.53	5.19
		1	0	16QAM	23.05	27.42	4.37
		1	8		22.90	27.33	4.43
		1	15		22.92	27.36	4.44
		15	0		21.45	27.41	5.96
20525	836.5	1	0	QPSK	23.14	28.08	4.94
		1	8		23.16	28.08	4.92
		1	15		23.12	28.0	4.88
		15	0		22.38	28.27	5.89
		1	0	16QAM	21.81	27.71	5.90
		1	8		21.89	27.71	5.82
		1	15		21.85	27.73	5.88
		15	0		21.35	28.04	6.69
20635	847.5	1	0	QPSK	23.36	27.31	3.95
		1	8		23.33	27.42	4.09
		1	15		23.14	27.37	4.23
		15	0		22.36	27.75	5.39
		1	0	16QAM	22.63	27.19	4.56
		1	8		22.55	27.27	4.72
		1	15		22.35	27.23	4.88
		15	0		21.22	27.45	6.23



Test Data (5MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
20425	826.5	1	0	QPSK	23.18	27.35	4.17
		1	13		23.11	27.23	4.12
		1	24		23.07	27.38	4.31
		25	0		22.41	27.84	5.43
		1	0	16QAM	22.54	27.35	4.81
		1	13		22.62	27.31	4.69
		1	24		22.61	27.43	4.82
		25	0		21.38	27.58	6.20
20525	836.5	1	0	QPSK	23.31	28.15	4.84
		1	13		23.30	28.09	4.79
		1	24		23.18	28.02	4.84
		25	0		22.36	28.27	5.91
		1	0	16QAM	22.08	27.99	5.91
		1	13		21.99	27.96	5.97
		1	24		22.12	27.99	5.87
		25	0		21.25	28.05	6.80
20625	846.5	1	0	QPSK	23.14	27.18	4.04
		1	13		23.23	27.34	4.11
		1	24		23.00	27.38	4.38
		25	0		22.31	27.61	5.30
		1	0	16QAM	21.64	26.68	5.04
		1	13		21.70	26.77	5.07
		1	24		21.49	26.88	5.39
		25	0		21.43	27.55	6.12



Test Data (10MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
20450	829	1	0	QPSK	23.33	27.51	4.18
		1	25		23.50	27.61	4.11
		1	49		23.45	28.25	4.80
		50	0		22.38	27.49	5.11
		1	0	16QAM	22.77	27.34	4.57
		1	25		22.69	27.30	4.61
		1	49		22.76	27.90	5.14
		50	0		21.30	27.89	6.59
20525	836.5	1	0	QPSK	23.18	27.81	4.63
		1	25		23.69	28.43	4.74
		1	49		23.19	27.80	4.61
		50	0		22.41	28.54	6.13
		1	0	16QAM	22.10	27.65	5.55
		1	25		22.07	27.94	5.87
		1	49		21.83	27.48	5.65
		50	0		21.24	27.97	6.73
20600	844	1	0	QPSK	23.10	27.89	4.79
		1	25		23.23	27.14	3.91
		1	49		23.12	27.06	3.94
		50	0		22.42	27.87	5.45
		1	0	16QAM	22.06	27.77	5.71
		1	25		22.21	27.05	4.84
		1	49		21.84	27.10	5.26
		50	0		21.24	27.44	6.20

**5.1.7 LTE B12 Conducted RF Power Output Results**

Test Data (1.4MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
23017	699.7	1	0	QPSK	23.08	28.22	5.14
		1	2		23.33	28.28	4.95
		1	5		23.09	28.19	5.10
		6	0		22.28	27.89	5.61
		1	0	16QAM	22.73	28.30	5.57
		1	2		22.86	28.27	5.41
		1	5		22.73	28.22	5.49
		6	0		21.40	27.91	6.51
23095	707.5	1	0	QPSK	23.33	28.47	5.14
		1	2		23.48	28.49	5.01
		1	5		23.53	28.61	5.08
		6	0		22.42	28.26	5.84
		1	0	16QAM	22.45	28.52	6.07
		1	2		22.70	28.63	5.93
		1	5		22.50	28.54	6.04
		6	0		21.40	28.27	6.87
23173	715.3	1	0	QPSK	23.03	27.82	4.79
		1	2		23.44	28.04	4.60
		1	5		23.31	28.02	4.71
		6	0		22.29	27.92	5.63
		1	0	16QAM	21.94	27.65	5.71
		1	2		22.10	27.78	5.68
		1	5		21.99	27.76	5.77
		6	0		21.20	27.63	6.43



Test Data (3MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
23025	700.5	1	0	QPSK	23.21	28.28	5.07
		1	8		23.22	28.07	4.85
		1	15		23.07	28.02	4.95
		15	0		22.29	28.00	5.71
		1	0	16QAM	21.93	27.94	6.01
		1	8		21.81	27.65	5.84
		1	15		21.73	27.65	5.92
		15	0		21.40	28.02	6.62
23095	707.5	1	0	QPSK	23.35	28.44	5.09
		1	8		23.37	28.37	5.00
		1	15		23.33	28.45	5.12
		15	0		22.46	28.40	5.94
		1	0	16QAM	22.54	28.15	5.61
		1	8		22.47	27.96	5.49
		1	15		22.04	27.77	5.73
		15	0		21.30	28.30	7.00
23165	714.5	1	0	QPSK	23.21	27.60	4.39
		1	8		23.20	27.86	4.66
		1	15		23.62	28.27	4.65
		15	0		22.34	27.97	5.63
		1	0	16QAM	22.79	27.94	5.15
		1	8		22.91	27.97	5.06
		1	15		23.01	28.17	5.16
		15	0		21.46	27.85	6.39



Test Data (5MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
23035	701.5	1	0	QPSK	23.13	28.19	5.06
		1	13		23.04	27.88	4.84
		1	24		23.24	28.17	4.93
		25	0		22.32	28.26	5.94
		1	0	16QAM	22.57	28.36	5.79
		1	13		22.54	28.07	5.53
		1	24		22.65	28.31	5.66
		25	0		21.30	28.45	7.15
23095	707.5	1	0	QPSK	23.21	28.21	5.00
		1	13		23.31	28.26	4.95
		1	24		23.16	28.19	5.03
		25	0		22.34	28.18	5.84
		1	0	16QAM	21.93	27.97	6.04
		1	13		21.73	27.76	6.03
		1	24		21.68	27.76	6.08
		25	0		21.24	28.33	7.09
23155	713.5	1	0	QPSK	23.29	28.11	4.82
		1	13		23.17	27.77	4.60
		1	24		22.99	27.89	4.90
		25	0		22.19	27.96	5.77
		1	0	16QAM	21.79	27.54	5.75
		1	13		21.65	27.16	5.51
		1	24		21.42	27.24	5.82
		25	0		21.18	27.80	6.62



Test Data (10MHz bandwidth Mode)

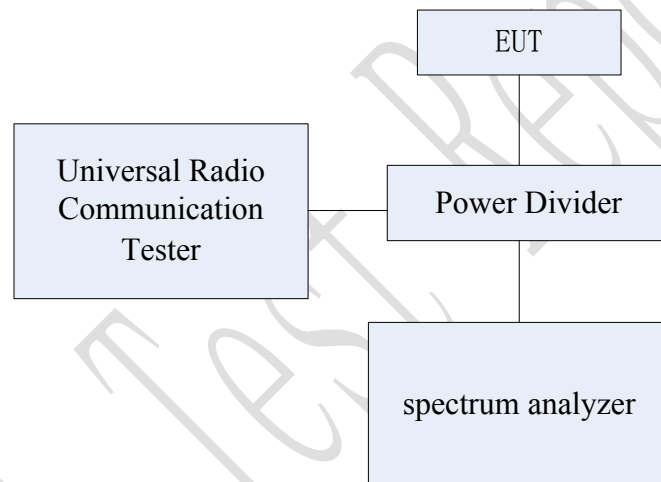
Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS) [dBm]	Max Power (PK) [dBm]	PAR
23060	704	1	0	QPSK	23.05	28.12	5.07
		1	25		23.40	28.30	4.90
		1	49		23.35	28.43	5.08
		50	0		22.29	27.90	5.61
		1	0	16QAM	22.85	28.34	5.49
		1	25		22.82	28.18	5.36
		1	49		22.63	28.22	5.59
		50	0		21.35	28.40	7.05
23095	707.5	1	0	QPSK	23.16	28.06	4.90
		1	25		23.52	28.46	4.94
		1	49		23.15	27.98	4.83
		50	0		22.33	27.89	5.56
		1	0	16QAM	21.89	27.81	5.92
		1	25		21.96	27.98	6.02
		1	49		21.95	27.78	5.83
		50	0		21.26	28.32	7.06
23130	711	1	0	QPSK	23.38	28.49	5.11
		1	25		23.41	28.23	4.82
		1	49		22.98	27.87	4.89
		50	0		22.43	28.60	6.17
		1	0	16QAM	22.70	28.26	5.56
		1	25		22.96	28.24	5.28
		1	49		22.00	27.50	5.50
		50	0		21.38	28.58	7.20

5.2 Occupied bandwidth

Specifications:	FCC Part 2.1049, 22.917(b), 24.238(b), RSS-Gen 6.6
DUT Serial Number:	S1: U3708475240103
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

Test Setup

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



Test Method

The 99% occupied bandwidth was calculated from the spectrum analyzer. Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power band. The -26dB bandwidth was also measured and recorded.

Note: --

5.2.1 WCDMA Band mode occupied bandwidth Results

Band	EUT channel No.	Mode	99% OBW (MHz)	-26dBc OBW (MHz)
B2	9400 (1880.0 MHz)	QPSK	4.12	4.71
B4	1412 (1732.4 MHz)	QPSK	4.12	4.73
B5	4182 (836.4MHz)	QPSK	4.13	4.69

5.2.2 LTE B2 occupied bandwidth Results

Mode	EUT channel No.	bandwidth	No. RB	RB offset	99% occupied bandwidth [MHz]	-26dBc occupied bandwidth [MHz]
QPSK	18900 (1880MHz)	1.4MHz	6	0	1.08	1.23
		3MHz	15		2.68	2.91
		5MHz	25		4.49	4.92
		10MHz	50		8.92	9.61
		15MHz	75		13.46	14.68
		20MHz	100		17.88	20.74
16QAM		1.4MHz	6		1.09	1.24
		3MHz	15		2.68	2.90
		5MHz	25		4.47	4.94
		10MHz	50		8.93	9.68
		15MHz	75		13.46	14.55
		20MHz	100		17.88	19.12

5.2.3 LTE B4 occupied bandwidth Results

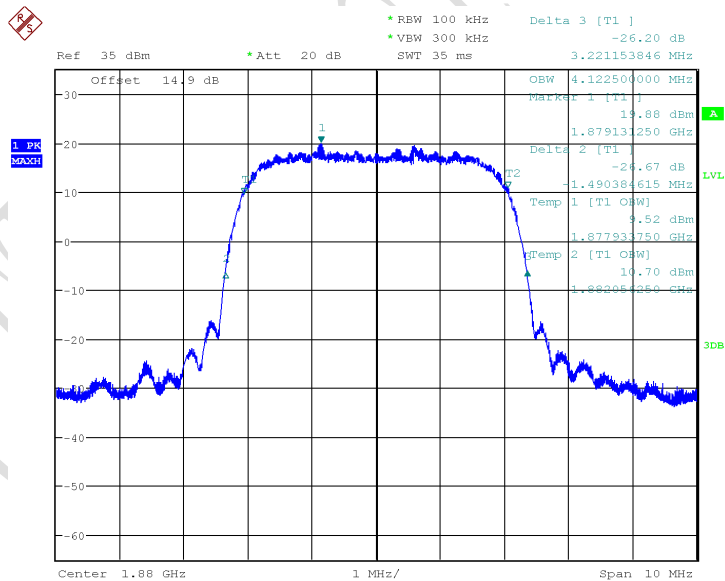
Mode	EUT channel No.	bandwidth	No. RB	RB offset	99% occupied bandwidth [MHz]	-26dBc occupied bandwidth [MHz]
QPSK	20175 (1732.5MHz)	1.4MHz	6	0	1.08	1.23
		3MHz	15		2.68	2.92
		5MHz	25		4.49	4.93
		10MHz	50		8.94	9.68
		15MHz	75		13.46	14.52
		20MHz	100		17.93	19.23
16QAM		1.4MHz	6		1.08	1.26
		3MHz	15		2.68	2.89
		5MHz	25		4.49	4.92
		10MHz	50		8.95	9.68
		15MHz	75		13.46	14.61
		20MHz	100		17.93	19.10

5.2.4 LTE B5 occupied bandwidth Results

Mode	EUT channel No.	bandwidth	No. RB	RB offset	99% occupied bandwidth [MHz]	-26dBc occupied bandwidth [MHz]
QPSK	20525 (836.5MHz)	1.4MHz	6	0	1.09	1.24
		3MHz	15		2.68	2.89
		5MHz	25		4.49	4.92
		10MHz	50		8.95	9.70
16QAM		1.4MHz	6		1.09	1.25
		3MHz	15		2.68	2.93
		5MHz	25		4.47	4.87
		10MHz	50		8.94	9.55

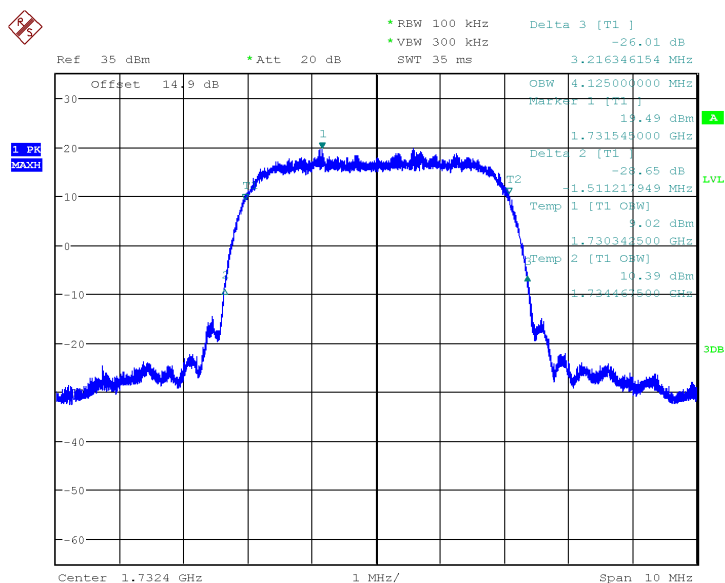
**5.2.5 LTE B12 occupied bandwidth Results**

Mode	EUT channel No.	bandwidth	No. RB	RB offset	99% occupied bandwidth [MHz]	-26dBc occupied bandwidth [MHz]
QPSK	23095 (707.5MHz)	1.4MHz	6	0	1.09	1.26
		3MHz	15		2.69	2.92
		5MHz	25		4.49	4.95
		10MHz	50		8.95	9.72
16QAM		1.4MHz	6		1.09	1.25
		3MHz	15		2.69	2.92
		5MHz	25		4.47	4.84
		10MHz	50		8.95	9.50

Graphical results for WCDMA :

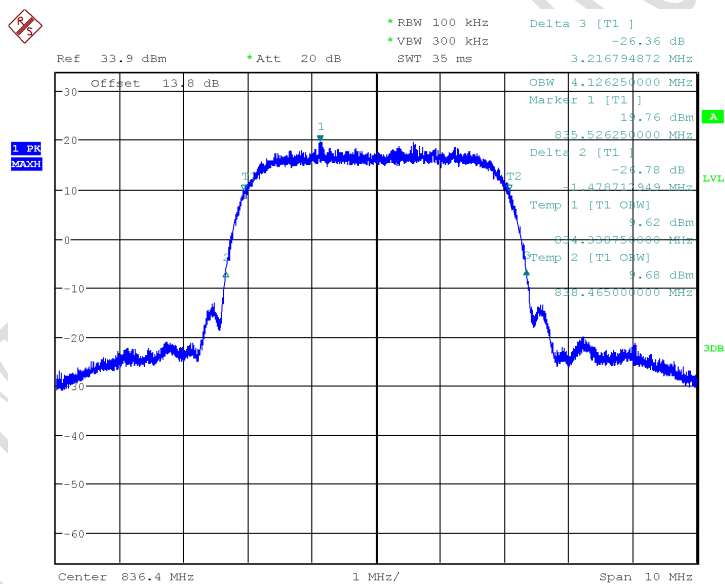
Date: 22.JUN.2017 09:57:05

WCDMA B2 Channel 9400, QPSK



Date: 22.JUN.2017 10:01:18

WCDMA B4 Channel 1412, QPSK

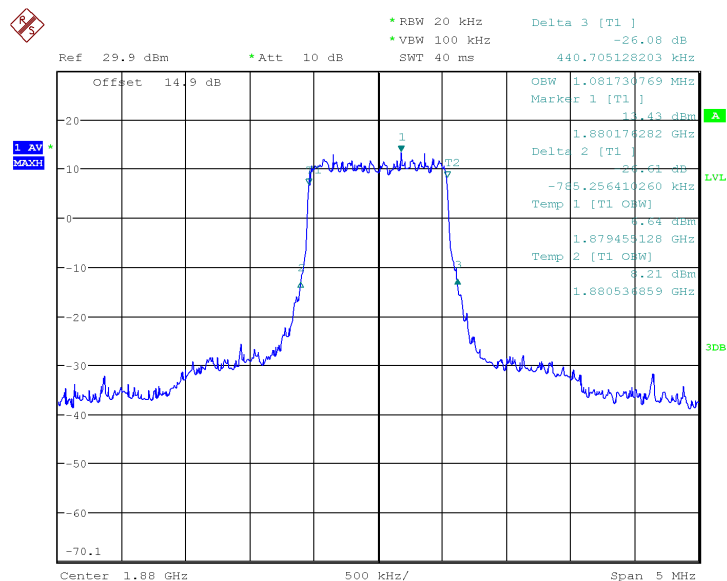


Date: 22.JUN.2017 10:06:04

WCDMA B5 Channel 4182, QPSK

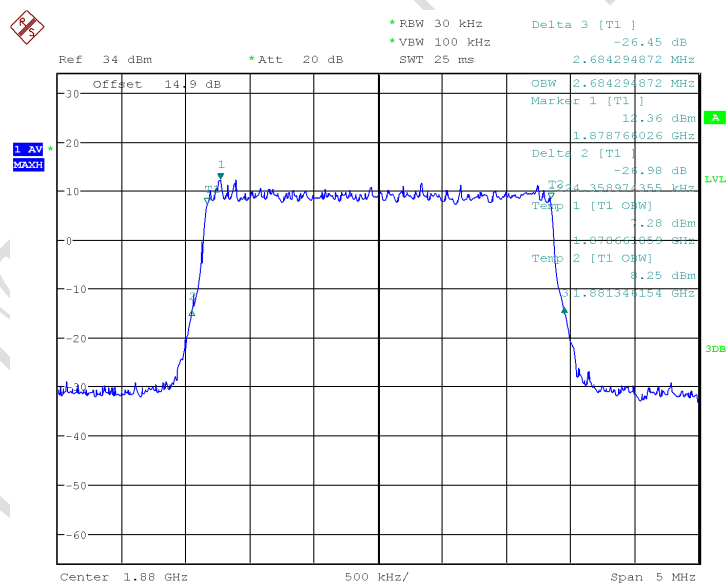


Graphical results for LTE B2:



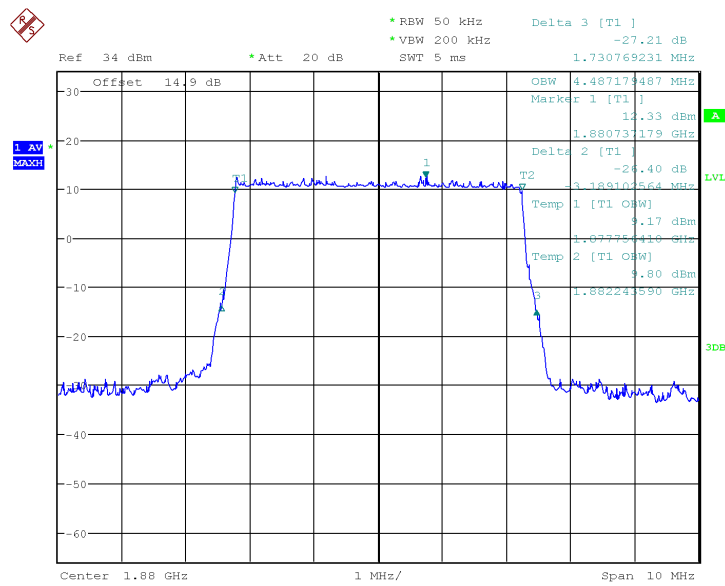
Date: 21.JUN.2017 10:59:18

LTE Band2 QPSK Channel 18900 BW=1.4MHz RB=6 RB Offset=0



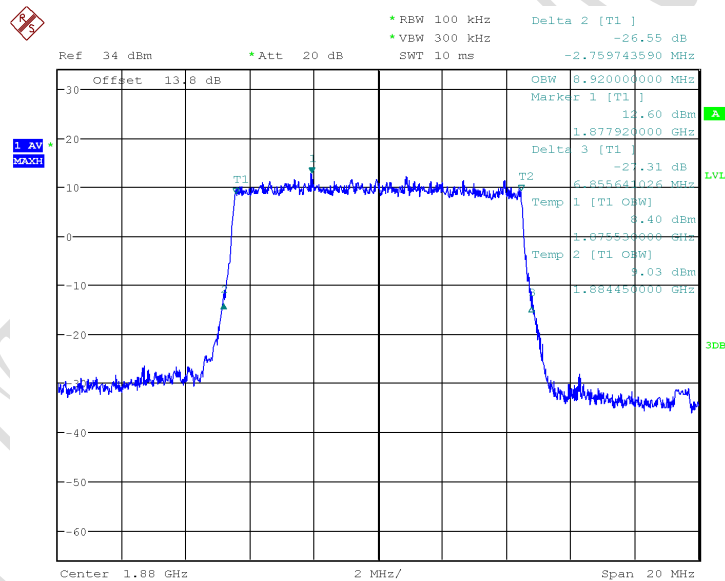
Date: 21.JUN.2017 11:27:01

LTE Band2 QPSK Channel 18900 BW=3MHz RB=15 RB Offset=0



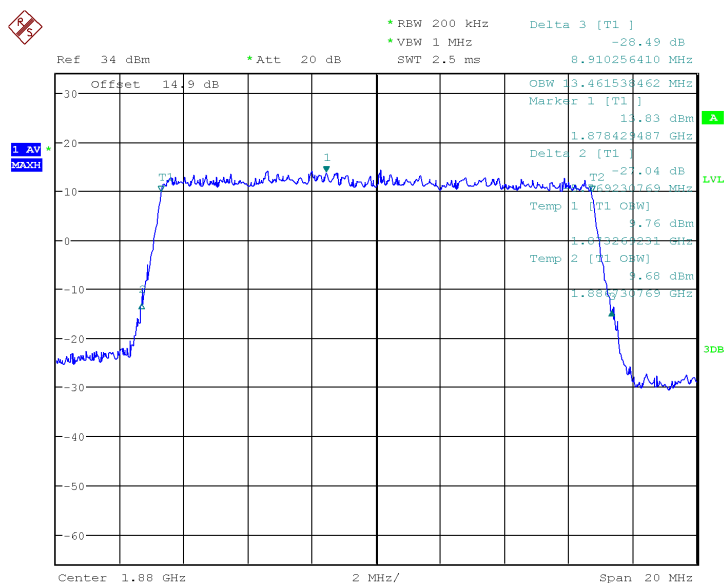
Date: 21.JUN.2017 11:52:06

LTE Band2 QPSK Channel 18900 BW=5MHz RB=25 RB Offset=0



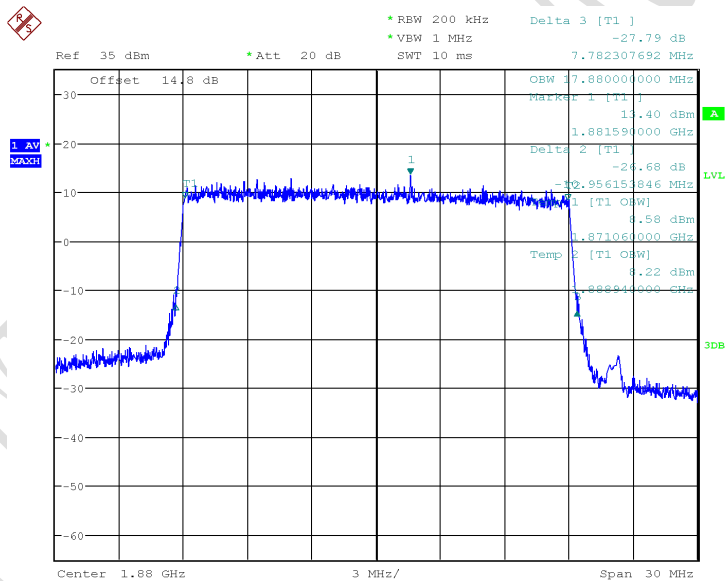
Date: 26.JUN.2017 17:39:39

LTE Band2 QPSK Channel 18900 BW=10MHz RB=50 RB Offset=0



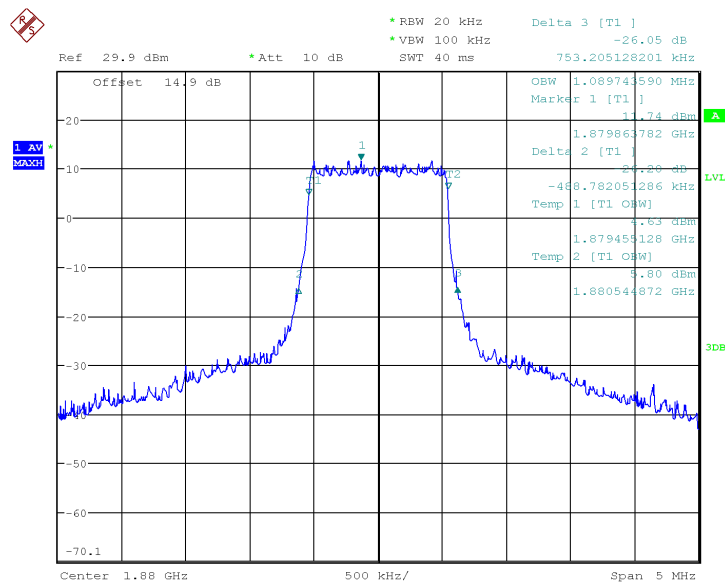
Date: 21.JUN.2017 11:57:37

LTE Band2 QPSK Channel 18900 BW=15MHz RB=75 RB Offset=0



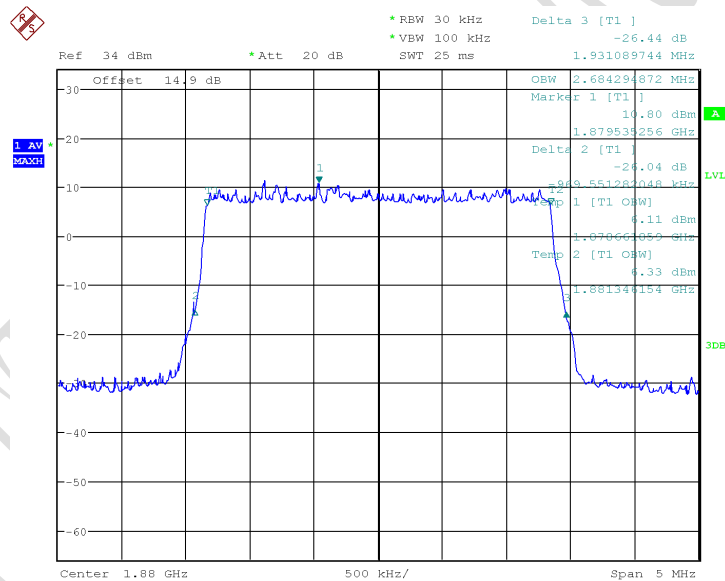
Date: 27.JUN.2017 09:44:14

LTE Band2 QPSK Channel 18900 BW=20MHz RB=100 RB Offset=0



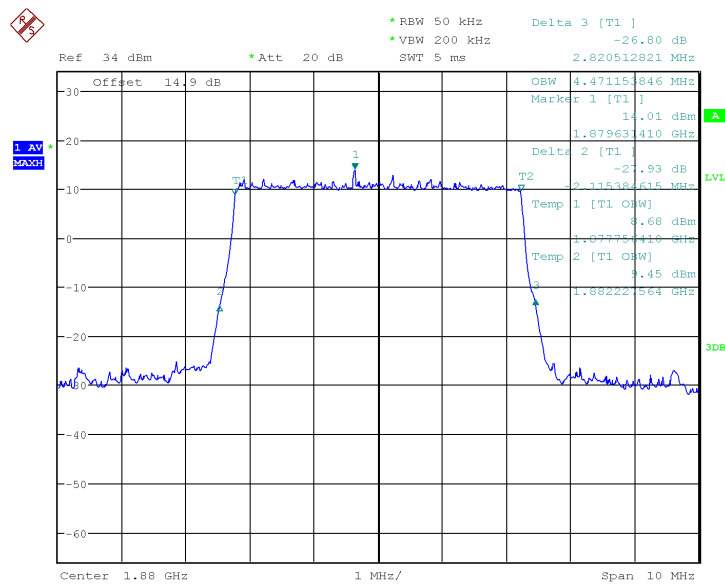
Date: 21.JUN.2017 10:58:03

LTE Band2 16QAM Channel 18900 BW=1.4MHz RB=6 RB Offset=0



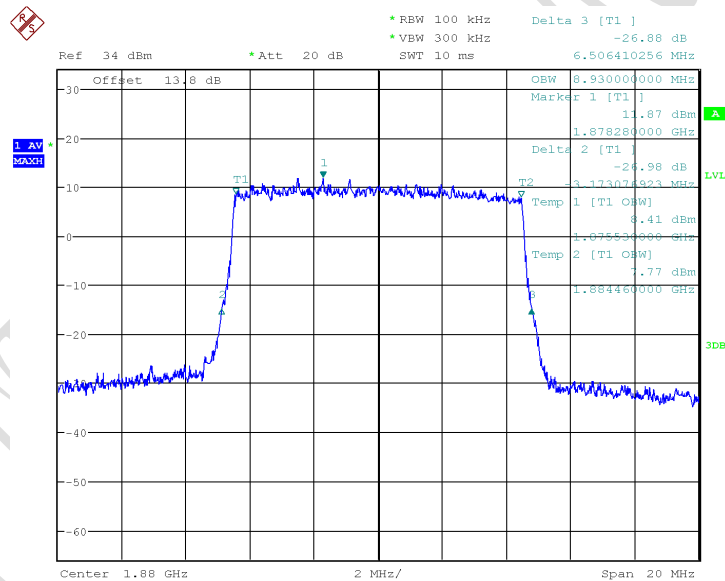
Date: 21.JUN.2017 11:22:58

LTE Band2 16QAM Channel 18900 BW=3MHz RB=15 RB Offset=0



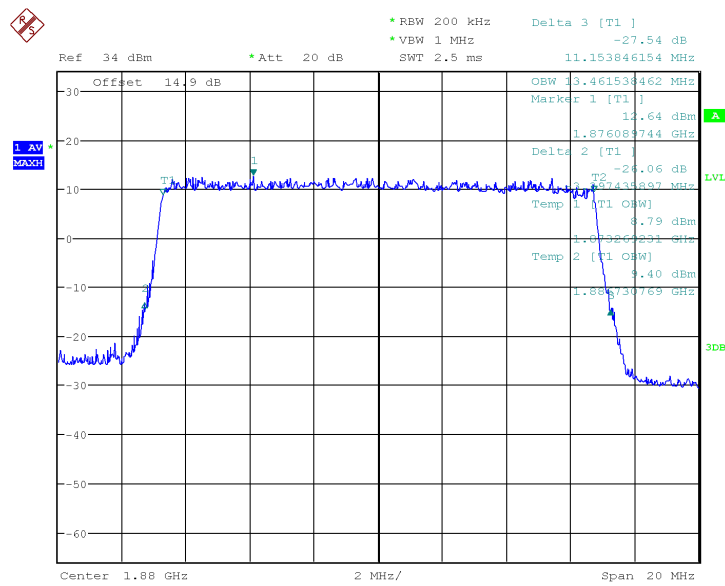
Date: 21.JUN.2017 11:51:35

LTE Band2 16QAM Channel 18900 BW=5MHz RB=25 RB Offset=0



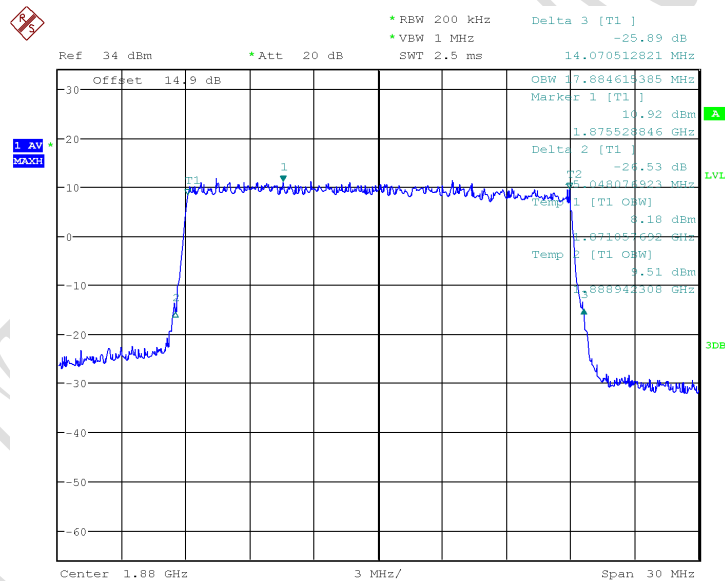
Date: 26.JUN.2017 17:42:28

LTE Band2 16QAM Channel 18900 BW=10MHz RB=50 RB Offset=0



Date: 21.JUN.2017 11:59:06

LTE Band2 16QAM Channel 18900 BW=15MHz RB=75 RB Offset=0

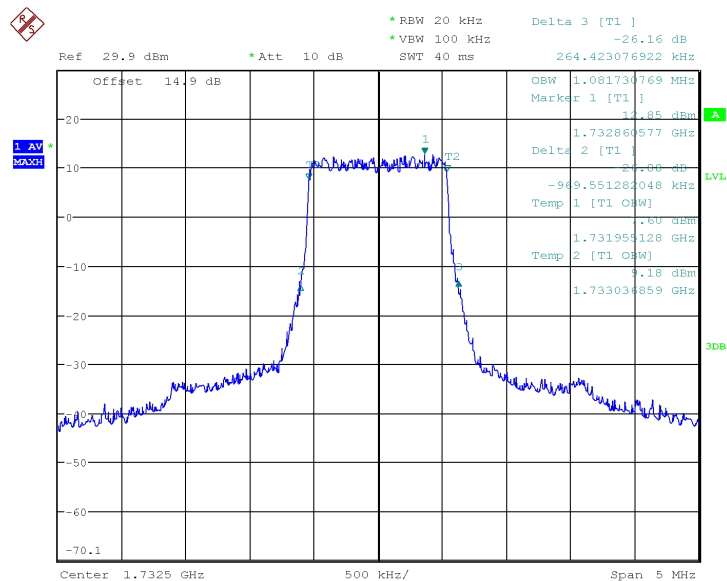


Date: 21.JUN.2017 12:00:24

LTE Band2 16QAM Channel 18900 BW=20MHz RB=100 RB Offset=0

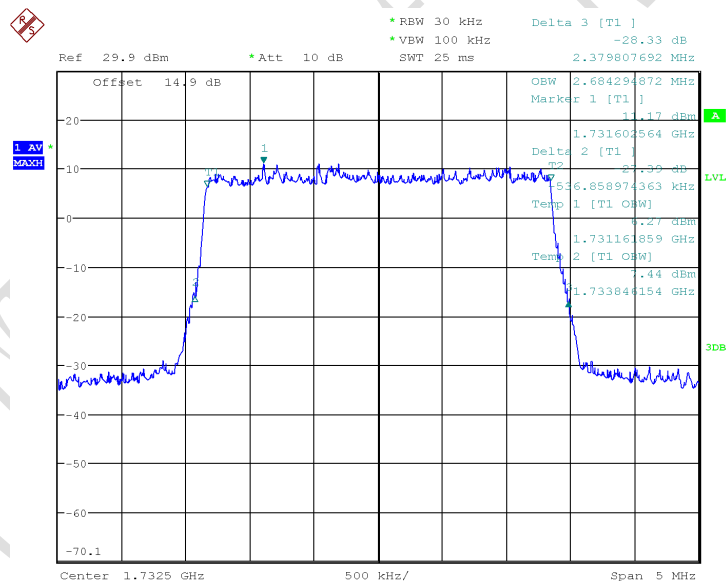


Graphical results for LTE B4:



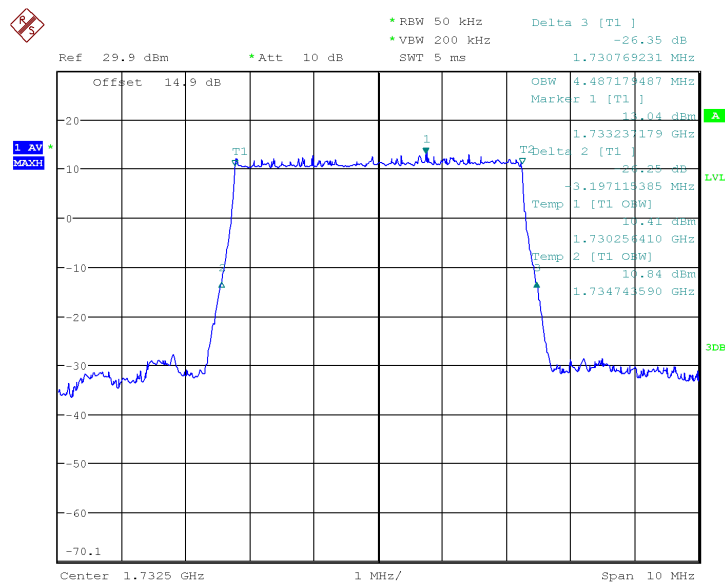
Date: 21.JUN.2017 10:05:40

LTE Band4 QPSK Channel 20175 BW=1.4MHz RB=6 RB Offset=0



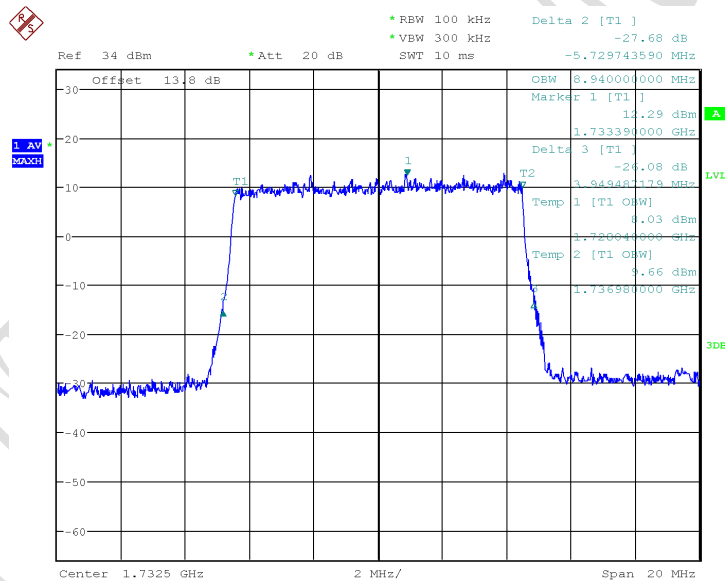
Date: 21.JUN.2017 10:40:35

LTE Band4 QPSK Channel 20175 BW=3MHz RB=15 RB Offset=0



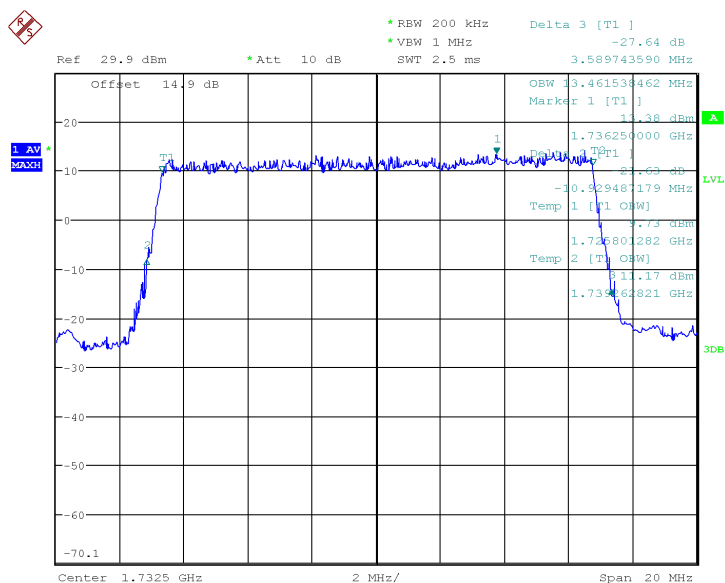
Date: 21.JUN.2017 10:14:53

LTE Band4 QPSK Channel 20175 BW=5MHz RB=25 RB Offset=0



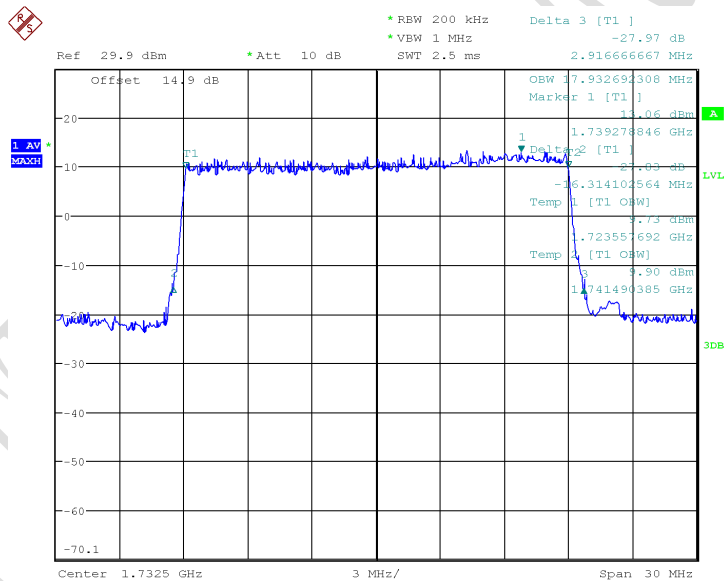
Date: 26.JUN.2017 17:49:44

LTE Band4 QPSK Channel 20175 BW=10MHz RB=50 RB Offset=0



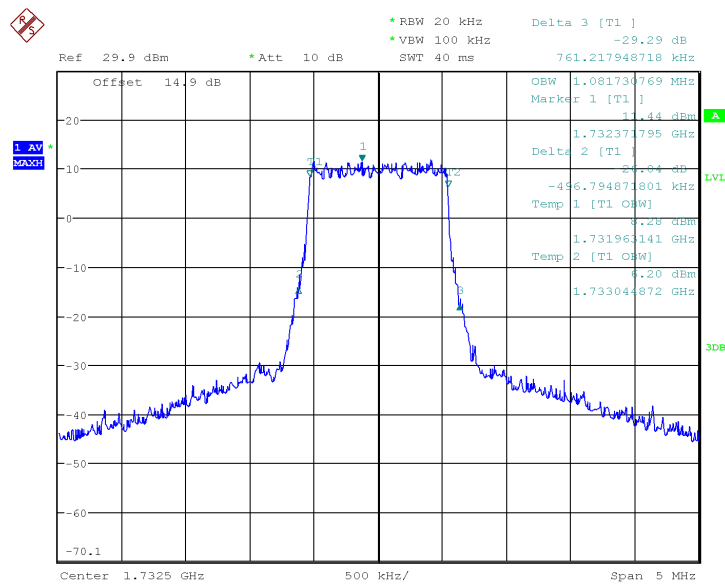
Date: 21.JUN.2017 10:18:54

LTE Band4 QPSK Channel 20175 BW=15MHz RB=75 RB Offset=0



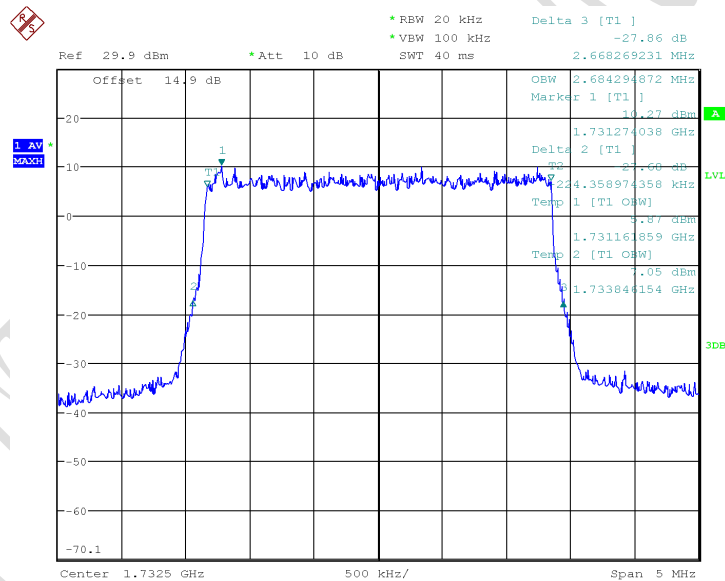
Date: 21.JUN.2017 10:20:12

LTE Band4 QPSK Channel 20175 BW=20MHz RB=100 RB Offset=0



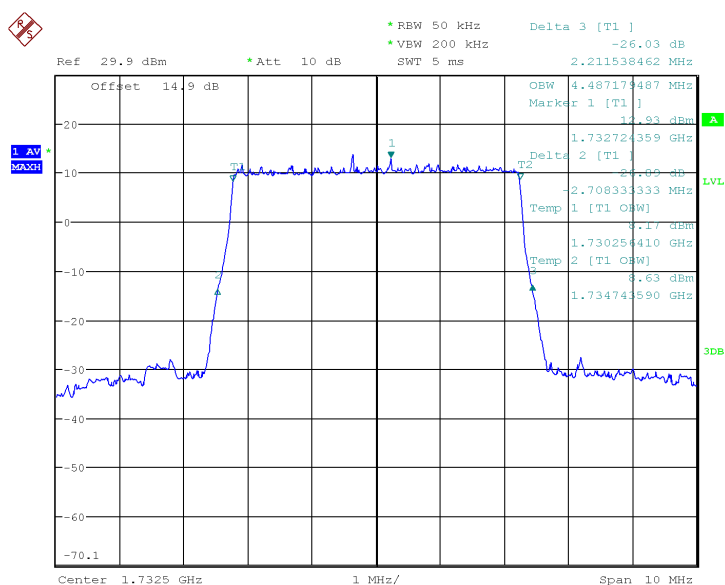
Date: 21.JUN.2017 10:50:59

LTE Band4 16QAM Channel 20175 BW=1.4MHz RB=6 RB Offset=0



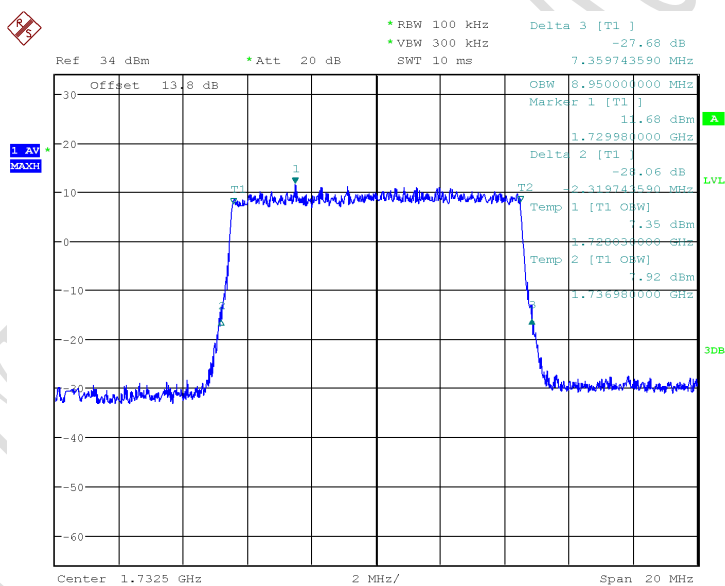
Date: 21.JUN.2017 10:07:35

LTE Band4 16QAM Channel 20175 BW=3MHz RB=15 RB Offset=0



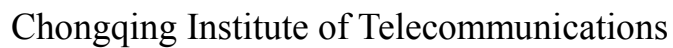
Date: 21.JUN.2017 10:37:07

LTE Band4 16QAM Channel 20175 BW=5MHz RB=25 RB Offset=0



Date: 26.JUN.2017 17:47:54

LTE Band4 16QAM Channel 20175 BW=10MHz RB=50 RB Offset=0

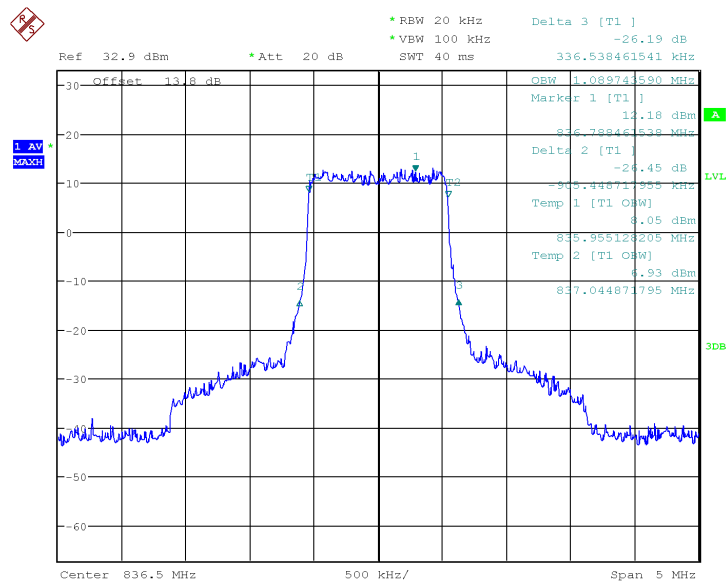


V=15MHz RB=75 RB Offset

Date: 21.JUN.2017 10:21:34

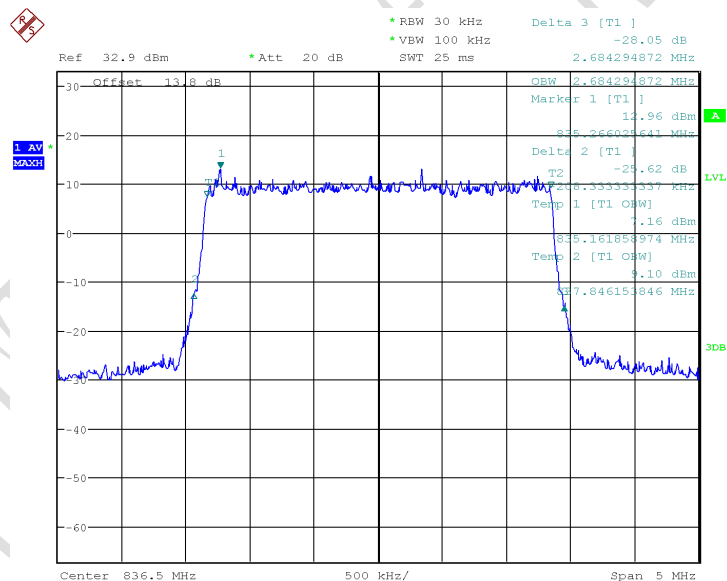


Graphical results for LTE B5:



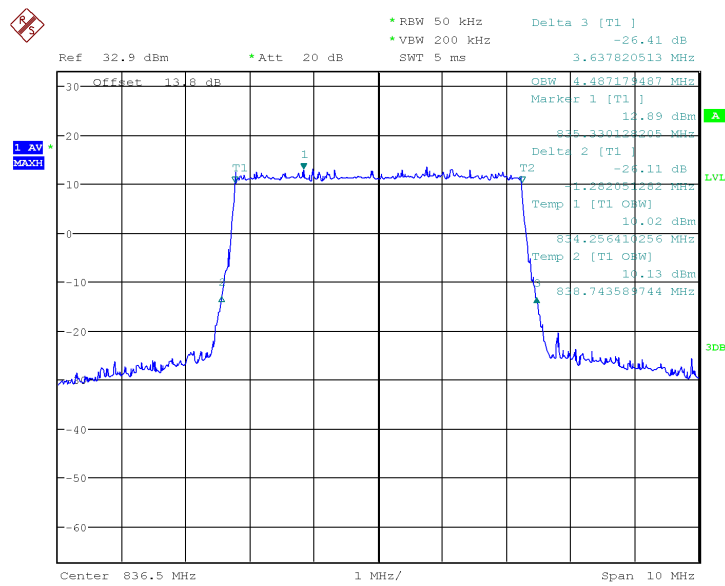
Date: 21.JUN.2017 13:38:25

LTE Band5 QPSK Channel 20525 BW=1.4MHz RB=6 RB Offset=0



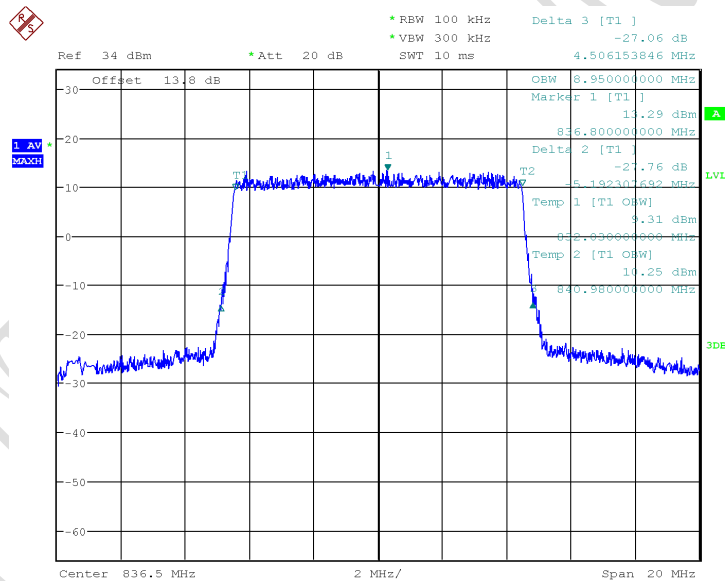
Date: 21.JUN.2017 13:36:39

LTE Band5 QPSK Channel 20525 BW=3MHz RB=15 RB Offset=0



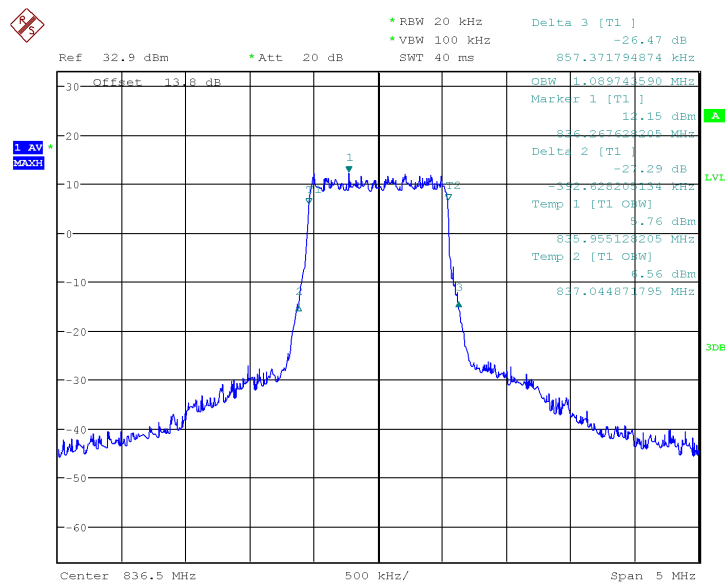
Date: 21.JUN.2017 13:34:33

LTE Band5 QPSK Channel 20525 BW=5MHz RB=25 RB Offset=0



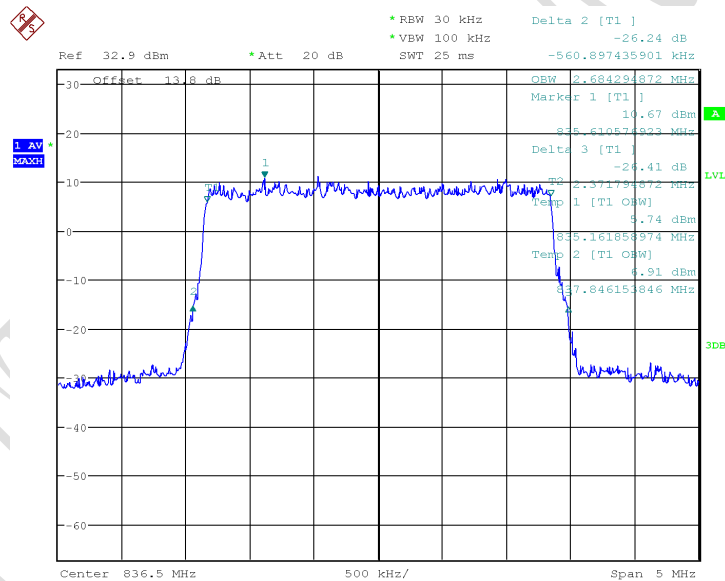
Date: 26.JUN.2017 17:51:29

LTE Band5 QPSK Channel 20525 BW=10MHz RB=50 RB Offset=0



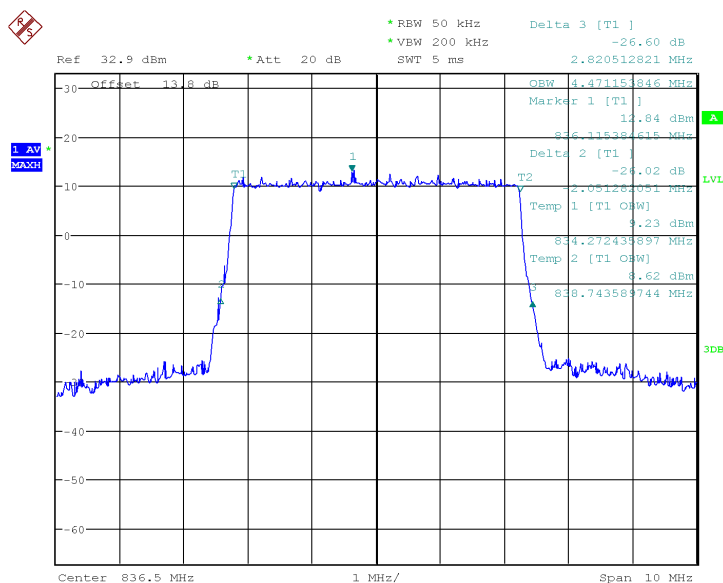
Date: 21.JUN.2017 13:38:59

LTE Band5 16QAM Channel 20525 BW=1.4MHz RB=6 RB Offset=0



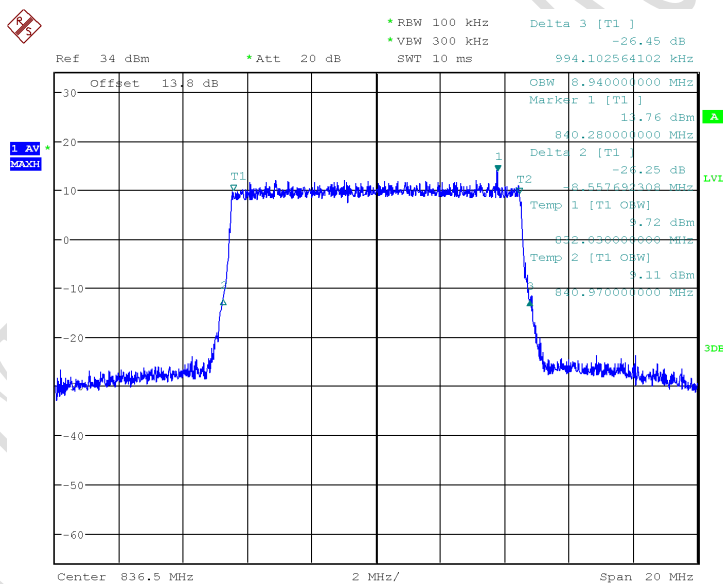
Date: 21.JUN.2017 13:37:23

LTE Band5 16QAM Channel 20525 BW=3MHz RB=15 RB Offset=0



Date: 21.JUN.2017 13:35:29

LTE Band5 16QAM Channel 20525 BW=5MHz RB=25 RB Offset=0

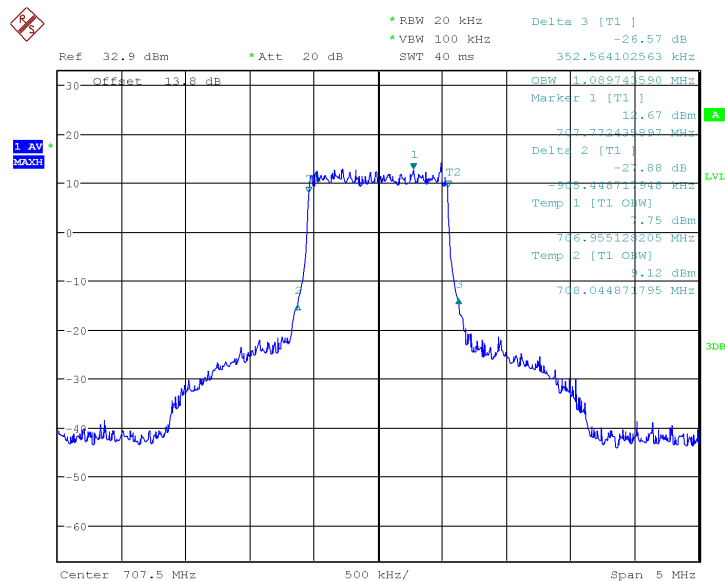


Date: 26.JUN.2017 17:52:27

LTE Band5 16QAM Channel 20525 BW=10MHz RB=50 RB Offset=0

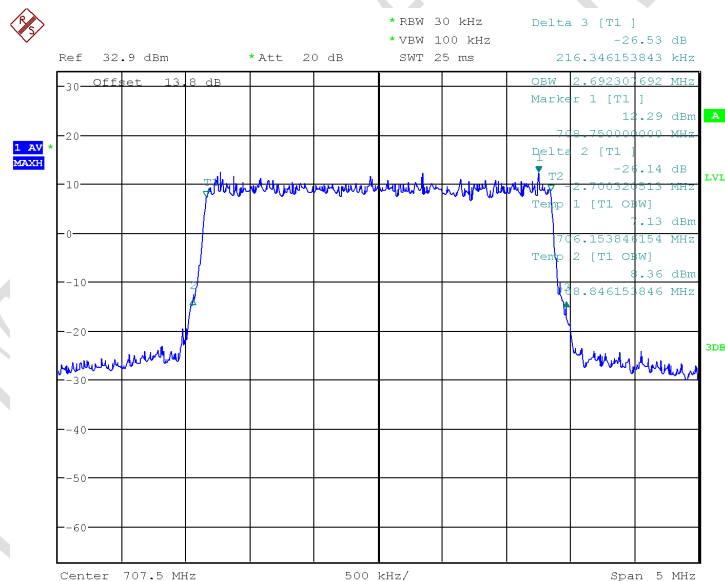


Graphical results for LTE B12:



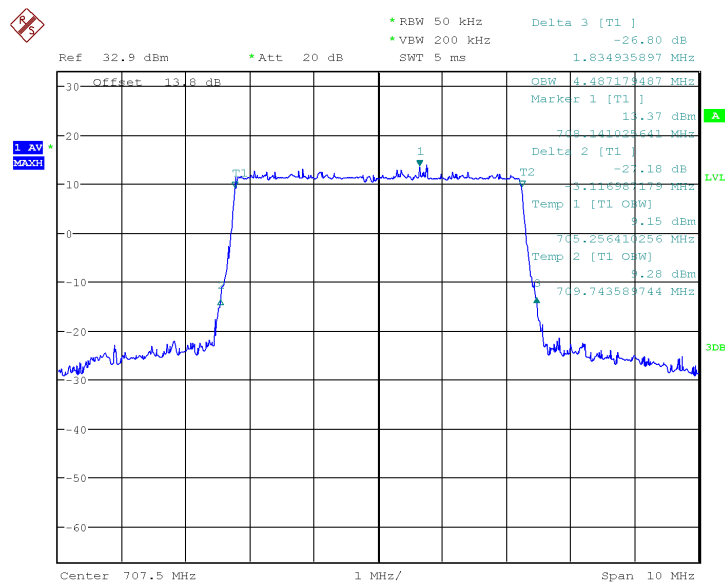
Date: 21.JUN.2017 13:42:49

LTE Band12 QPSK Channel 23095 BW=1.4MHz RB=6 RB Offset=0



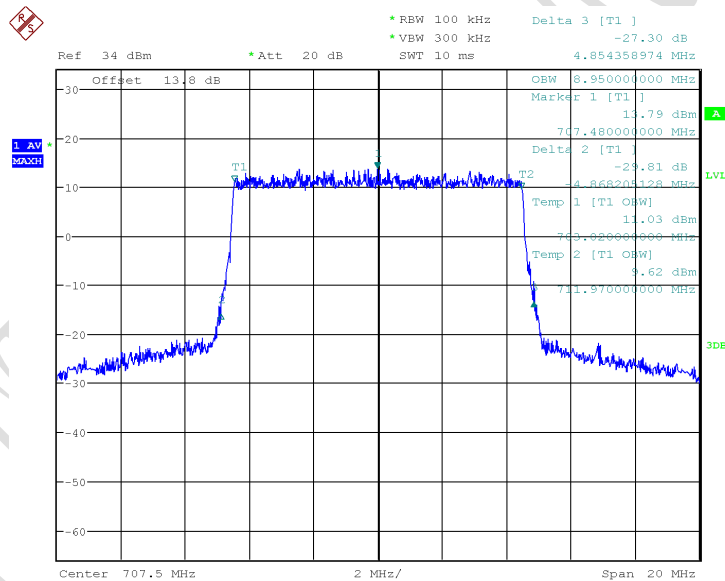
Date: 21.JUN.2017 13:44:02

LTE Band12 QPSK Channel 23095 BW=3MHz RB=15 RB Offset=0



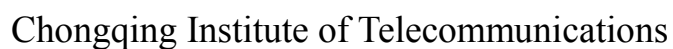
Date: 21.JUN.2017 13:45:43

LTE Band12 QPSK Channel 23095 BW=5MHz RB=25 RB Offset=0



Date: 26.JUN.2017 17:55:08

LTE Band12 QPSK Channel 23095 BW=10MHz RB=50 RB Offset=0



Ref 32.9 dBm *Att 20 dB Delta 3 [T1] -26.57 dB
 *RBW 200 kHz *VBW 100 kHz 825.320512819 kHz
 SWT 40 ms

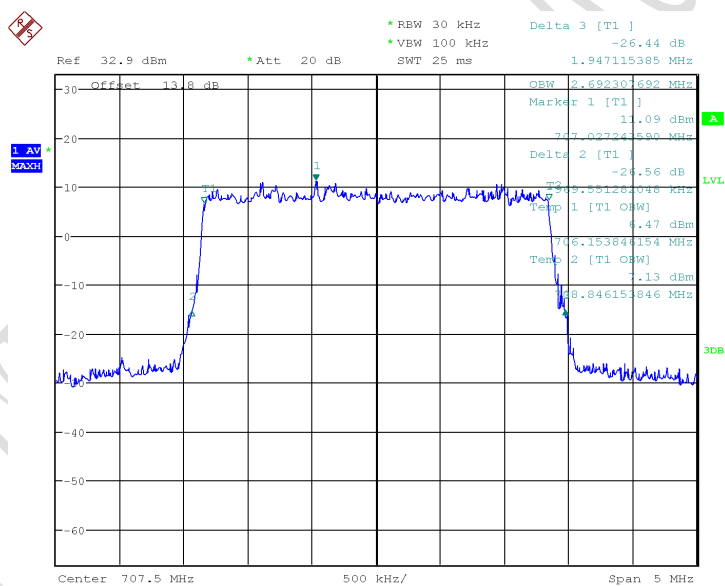
Offset 13.8 dB

1. AV
 MAG

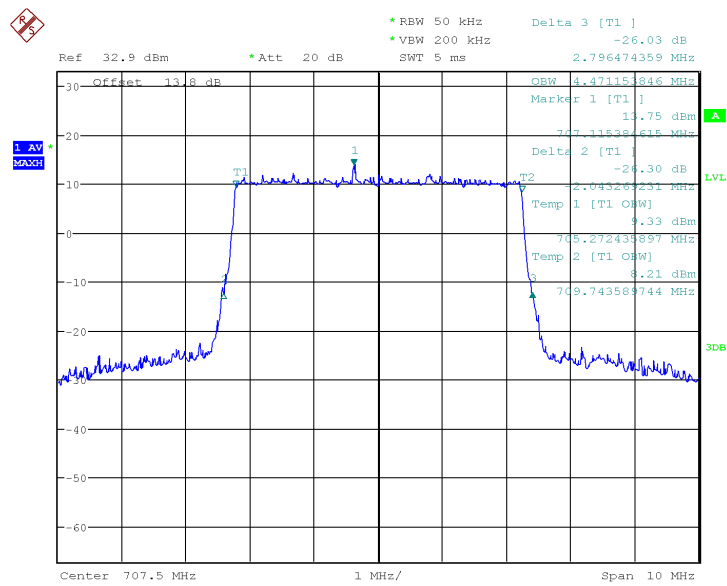
Marker 1 [T1] 12.08 dB
 707.266673487 MHz
 Delta 2 [T1] -26.82 dB
 -444.67948178 kHz
 Temp 1 [T1 CW] 7.52 dBm
 706.955128205 MHz
 Temp 2 [T1 CW] 8.41 dBm
 708.044871795 MHz

Center 707.5 MHz 500 kHz/ Span 5 MHz

LTE Band12 16QAM Channel 23095 BW=1.4MHz RB=6 RB Offset=0

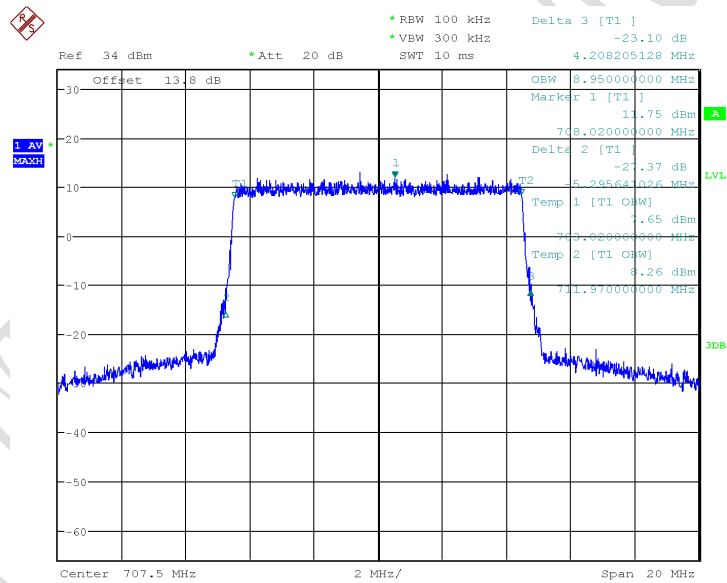


LTE Band12 16QAM Channel 23095 BW=3MHz RB=15 RB Offset=0



Date: 21.JUN.2017 13:45:11

LTE Band12 16QAM Channel 23095 BW=5MHz RB=25 RB Offset=0



Date: 26.JUN.2017 17:53:36

LTE Band12 16QAM Channel 23095 BW=10MHz RB=50 RB Offset=0

5.3 Conducted Spurious Emission

Specifications:	FCC Part 2.1051, 24.238, 2.1053, 22.917, 27.53 RSS-130 4.6, RSS-132 5.5, RSS-133 6.5, RSS-139 6.6
DUT Serial Number:	S1: U3708475240103
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

Limit Level Construction:

According to Part 22.917 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to Part 24.238 (a), i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB, so the limit level is: $P(\text{dBm}) - (43 + 10 \log(P)) \text{ dB} = -13\text{dBm}$.

According to Part 27.53(h):

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

According to Part 27.53(g):

For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. 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.

According to RSS-130 4.6:

The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside the frequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$ (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

In addition to the limit outlined above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:

- (i) $76 + 10 \log_{10} p$ (watts), dB, for base and fixed equipment, and
- (ii) $65 + 10 \log_{10} p$ (watts), dB, for mobile and portable equipment

According to RSS-132 5.5:

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed

According to RSS-133 6.5:

Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

According to RSS-139 6.6:

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

Test Setup:

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.

