FCC RF Test Report

APPLICANT	:	ZTE CORPORATION
EQUIPMENT	:	4G Wireless Router
BRAND NAME	:	ZTE
MODEL NAME	:	MF253L
FCC ID	:	SRQ-ZTEMF253L
STANDARD	:	47 CFR Part 2, 22(H), 27(M)
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)

The product was received on Feb. 24, 2014 and testing was completed on Mar. 24, 2014. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.

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

Reviewed by: 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.

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1 GENERAL DESCRIPTION **6**

1.1 Applicant 6
1.2 Manufacturer 6
1.3 Feature of Equipment Under Test 6
1.4 Product Specification of Equipment Under Test 6
1.5 Modification of EUT 7
1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator 7
1.7 Testing Site 8
1.8 Applied Standards 8

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **9**

2.1 Test Mode 9
2.2 Connection Diagram of Test System 10
2.3 Support Unit used in test configuration and system 10
2.4 Measurement Results Explanation Example 11

3 TEST RESULT **12**

3.1 Conducted Output Power Measurement and ERP/EIRP Measurement 12
3.2 Peak-to-Average Ratio 21
3.3 99% Occupied Bandwidth and 26dB Bandwidth Measurement 31
3.4 Conducted Band Edge Measurement 49
3.5 Conducted Spurious Emission Measurement 83
3.6 Radiated Spurious Emission Measurement 133
3.7 Frequency Stability Measurement 152

4 LIST OF MEASURING EQUIPMENT **159**

5 UNCERTAINTY OF EVALUATION **160**

APPENDIX A. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG422411B	Rev. 01	Initial issue of report	Mar. 26, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.1	§22.913(a)(2)	Effective Radiated Power (Band 5)	ERP < 7 Watts	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 7)	EIRP < 2Watt		-
3.2	§27.50(d)(5)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§2.1049 §22.917(b) §27.53(l)(6)	Occupied Bandwidth	Reporting Only	PASS	-
3.4	§2.1051 §22.917(a)	Conducted Band Edge Measurement (Band 5)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(l)(4)	Conducted Band Edge Measurement (Band 7)	< 5.5MHz: -13 dBm ≥5.5MHz: -25 dBm		

Report Section	FCC Rule	Description	Limit	Result	Remark
3.5	§2.1051 §22.917(a)	Conducted Spurious Emission (Band 5)	< 43+10log$_{10}$(P[Watts])	PASS	-
	§2.1051 §27.53(l)(4)	Conducted Spurious Emission (Band 7)	< 55+10log10(P[Watts])	PASS	-
3.6	§2.1053 §22.917(a)	Radiated Spurious Emission (Band 5)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 0.220 dB at 10002.000 MHz
	§2.1053 §27.53(l)(4)	Radiated Spurious Emission (Band 7)	< 55+10log$_{10}$(P[Watts])	PASS	
3.7	§2.1055 §22.355 §27.54	Frequency Stability Temperature & Voltage	< 2.5 ppm	PASS	

1 General Description

1.1 Applicant

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

1.2 Manufacturer

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

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	4G Wireless Router
Brand Name	ZTE
Model Name	MF253L
FCC ID	SRQ-ZTEMF253L
EUT supports Radios application	GPRS/EGPRS/WCDMA/HSPA/HSPA+/DC-HSDPA/LTE WLAN2.4GHz 802.11b/g/n (HT20/HT40)
HW Version	d68A
SW Version	EN_ZTE_MF253V1.0.0B05
EUT Stage	Identical Prototype

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

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx Frequency	LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz
Rx Frequency	LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5 MHz ~ 2687.5 MHz
Bandwidth	1.4MHz / 3MHz / 5MHz / 10MHz (LTE Band 5) 5MHz/ 10MHz / 15MHz / 20MHz (LTE Band 7)
Maximum Output Power to Antenna	LTE Band 5 : 22.58 dBm LTE Band 7 : 23.27 dBm
Antenna Type	Monopole Antenna
Antenna Gain	LTE Band 5 : 2.55 dBi LTE Band 7 : 2.55 dBi
Type of Modulation	QPSK / 16QAM

1.5 Modification of EUT

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

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

FCC Rule	System	Type of Modulation	BW	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22H	LTE Band 5	QPSK	1.4 MHz	0.19	0.012	1M10G7D
Part 22H	LTE Band 5	16QAM	1.4 MHz	0.16	0.012	1M10D7W
Part 22H	LTE Band 5	QPSK	3 MHz	0.19	0.013	2M74G7D
Part 22H	LTE Band 5	16QAM	3 MHz	0.16	0.011	2M74D7W
Part 22H	LTE Band 5	QPSK	5 MHz	0.19	0.012	4M50G7D
Part 22H	LTE Band 5	16QAM	5 MHz	0.16	0.014	4M50D7W
Part 22H	LTE Band 5	QPSK	10 MHz	0.20	0.012	9M16G7D
Part 22H	LTE Band 5	16QAM	10 MHz	0.15	0.013	9M12D7W
Part 27M	LTE Band 7	QPSK	5MHz	0.37	0.005	4M52G7D
Part 27M	LTE Band 7	16QAM	5MHz	0.31	0.005	4M52D7W
Part 27M	LTE Band 7	QPSK	10MHz	0.37	0.004	9M16G7D
Part 27M	LTE Band 7	16QAM	10MHz	0.34	0.005	9M16D7W
Part 27M	LTE Band 7	QPSK	15MHz	0.38	0.004	13M6G7D
Part 27M	LTE Band 7	16QAM	15MHz	0.33	0.004	13M6D7W
Part 27M	LTE Band 7	QPSK	20MHz	0.38	0.005	18M9G7D
Part 27M	LTE Band 7	16QAM	20MHz	0.31	0.005	18M9D7W

1.7 Testing Site

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	149928

1.8 Applied Standards

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

- 47 CFR Part 2, 22(H), 27(M)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 412172 D01 Determining ERP and ERIP v01

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

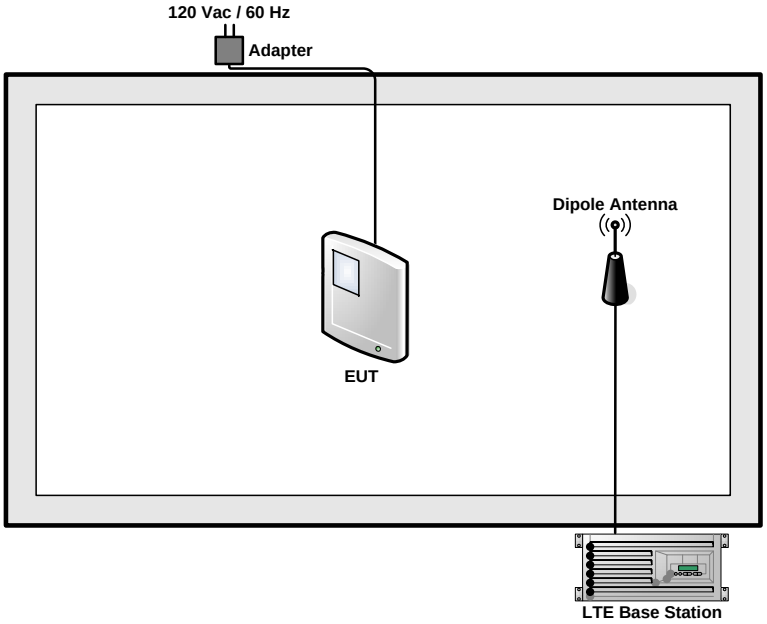
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.

Frequency range investigated for radiated emission: 30MHz to 10th harmonic.

Test Modes			
Band		**Radiated TCs**	**Conducted TCs**
LTE Band 5	**BW 1.4MHz**	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 3) Link ■ LTE (RB Size 6) Link
	BW 3MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 8) Link ■ LTE (RB Size 15) Link
	BW 5MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 12) Link ■ LTE (RB Size 25) Link
	BW 10MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 25) Link ■ LTE (RB Size 50) Link
LTE Band 7	**BW 5MHz**	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 12) Link ■ LTE (RB Size 25) Link
	BW 10MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 25) Link ■ LTE (RB Size 50) Link
	BW 15MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 36) Link ■ LTE (RB Size 75) Link
	BW 20MHz	■ LTE (RB Size 1, RB Offset 0) QPSK Link	■ LTE (RB Size 1) Link ■ LTE (RB Size 50) Link ■ LTE (RB Size 100) Link

Note: The spurious emission was performed by conducted and radiated methods. From conducted spurious emission measurement (QPSK and 16QAM), the modulation related spurious emission out of the band was not identified and the radiated spurious emissions results on 16QAM were not worse than QSPK mode during exploratory test.

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

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

2.4 Measurement Results Explanation Example

For all conducted test items:

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

Example:

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5.2 dB and 10dB attenuator.

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

= 5.2 + 10 = 15.2 (dB)

3 Test Result

3.1 Conducted Output Power Measurement and ERP/EIRP Measurement

3.1.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

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

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 7.

According to KDB 412172 D01 Determining ERP and ERIP v01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

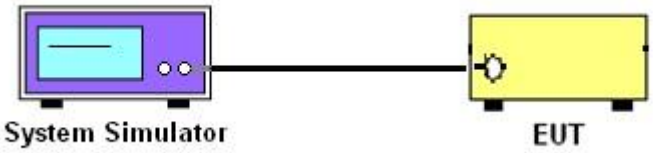
3.1.2 Measuring Instruments

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

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

<LTE Band 5 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				**20450**	**20525**	**20600**
Frequency (MHz)				**829**	**836.5**	**844**
10	QPSK	1	0	22.24	**22.58**	22.09
10	QPSK	1	24	22.14	22.32	21.95
10	QPSK	1	49	22.17	22.36	21.84
10	QPSK	25	0	21.06	21.04	20.90
10	QPSK	25	12	20.99	21.06	20.87
10	QPSK	25	24	21.06	20.94	21.05
10	QPSK	50	0	20.96	20.96	20.90
10	16QAM	1	0	21.39	21.42	21.19
10	16QAM	1	24	21.18	21.39	20.80
10	16QAM	1	49	20.87	21.10	21.08
10	16QAM	25	0	20.08	19.94	19.79
10	16QAM	25	12	19.94	20.02	20.01
10	16QAM	25	24	20.05	20.03	20.02
10	16QAM	50	0	19.93	19.98	19.89
Channel				**20425**	**20525**	**20625**
Frequency (MHz)				**826.5**	**836.5**	**846.5**
5	QPSK	1	0	22.33	22.24	22.30
5	QPSK	1	12	22.20	22.22	22.28
5	QPSK	1	24	22.30	22.01	22.14
5	QPSK	12	0	21.23	21.17	21.20
5	QPSK	12	6	21.31	21.16	21.21
5	QPSK	12	11	21.22	21.12	21.32
5	QPSK	25	0	21.22	21.09	21.20
5	16QAM	1	0	21.14	21.46	21.59
5	16QAM	1	12	20.86	21.31	21.53
5	16QAM	1	24	21.04	21.25	21.45
5	16QAM	12	0	20.41	20.20	20.20
5	16QAM	12	6	20.36	20.22	20.18
5	16QAM	12	11	20.16	20.22	20.28
5	16QAM	25	0	20.27	20.14	20.09

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				**20415**	**20525**	**20635**
Frequency (MHz)				**825.5**	**836.5**	**847.5**
3	QPSK	1	0	22.35	22.27	22.45
3	QPSK	1	7	22.26	22.20	22.21
3	QPSK	1	14	22.29	22.13	22.23
3	QPSK	8	0	21.40	21.21	21.34
3	QPSK	8	4	21.38	21.14	21.31
3	QPSK	8	7	21.32	21.23	21.33
3	QPSK	15	0	21.35	21.16	21.33
3	16QAM	1	0	21.68	21.38	21.29
3	16QAM	1	7	21.65	20.81	21.21
3	16QAM	1	14	20.98	21.31	20.97
3	16QAM	8	0	20.33	20.21	20.20
3	16QAM	8	4	20.38	20.07	20.25
3	16QAM	8	7	20.26	20.20	20.15
3	16QAM	15	0	20.34	20.23	20.20
Channel				**20407**	**20525**	**20643**
Frequency (MHz)				**824.7**	**836.5**	**848.3**
1.4	QPSK	1	0	22.50	22.31	22.40
1.4	QPSK	1	2	22.48	22.28	22.29
1.4	QPSK	1	5	22.42	22.16	22.25
1.4	QPSK	3	0	22.43	22.20	22.27
1.4	QPSK	3	1	22.42	22.22	22.29
1.4	QPSK	3	2	22.41	22.16	22.22
1.4	QPSK	6	0	21.47	21.23	21.29
1.4	16QAM	1	0	21.52	21.53	21.37
1.4	16QAM	1	2	21.18	21.52	21.16
1.4	16QAM	1	5	21.18	21.34	21.27
1.4	16QAM	3	0	21.32	21.24	21.36
1.4	16QAM	3	1	21.45	21.26	21.26
1.4	16QAM	3	2	21.25	21.20	21.32
1.4	16QAM	6	0	20.52	20.22	20.37

<LTE Band 7 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				**20850**	**21100**	**21350**
Frequency (MHz)				**2510**	**2535**	**2560**
20	QPSK	1	0	23.07	**23.27**	23.07
20	QPSK	1	49	22.95	22.90	22.87
20	QPSK	1	99	23.02	22.64	22.92
20	QPSK	50	0	22.12	21.71	21.60
20	QPSK	50	24	22.18	21.63	21.58
20	QPSK	50	49	21.83	21.64	21.41
20	QPSK	100	0	21.65	21.71	21.61
20	16QAM	1	0	22.41	22.16	21.98
20	16QAM	1	49	22.15	21.80	21.62
20	16QAM	1	99	22.26	21.65	21.69
20	16QAM	50	0	21.05	20.79	20.63
20	16QAM	50	24	21.06	20.80	21.00
20	16QAM	50	49	21.15	20.61	21.32
20	16QAM	100	0	21.04	20.82	20.56
Channel				**20825**	**21100**	**21375**
Frequency (MHz)				**2507.5**	**2535**	**2562.5**
15	QPSK	1	0	23.26	23.18	23.07
15	QPSK	1	37	23.22	23.15	22.82
15	QPSK	1	74	23.25	22.80	22.92
15	QPSK	36	0	22.02	21.76	21.83
15	QPSK	36	18	22.09	21.72	21.71
15	QPSK	36	37	22.00	21.64	21.85
15	QPSK	75	0	21.95	21.67	21.64
15	16QAM	1	0	22.38	21.88	22.57
15	16QAM	1	37	22.15	21.87	21.87
15	16QAM	1	74	21.94	21.75	22.51
15	16QAM	36	0	20.98	20.69	20.83
15	16QAM	36	18	21.23	20.71	20.77
15	16QAM	36	37	21.19	20.61	20.88
15	16QAM	75	0	21.05	21.08	20.70

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				**20800**	**21100**	**21400**
Frequency (MHz)				**2505**	**2535**	**2565**
10	QPSK	1	0	23.15	22.98	22.99
10	QPSK	1	24	23.07	22.66	22.57
10	QPSK	1	49	23.09	22.77	22.87
10	QPSK	25	0	22.09	21.83	21.71
10	QPSK	25	12	22.08	21.72	21.82
10	QPSK	25	24	22.26	21.68	21.80
10	QPSK	50	0	22.03	21.73	21.73
10	16QAM	1	0	22.78	22.34	22.02
10	16QAM	1	24	22.50	22.16	21.90
10	16QAM	1	49	21.97	22.13	21.82
10	16QAM	25	0	21.53	20.78	20.75
10	16QAM	25	12	21.49	20.65	21.31
10	16QAM	25	24	21.64	21.22	20.88
10	16QAM	50	0	21.08	20.78	20.64
Channel				**20775**	**21100**	**21425**
Frequency (MHz)				**2502.5**	**2535**	**2567.5**
5	QPSK	1	0	23.12	23.13	23.07
5	QPSK	1	12	23.11	22.95	22.50
5	QPSK	1	24	22.92	23.06	22.56
5	QPSK	12	0	22.32	21.67	21.78
5	QPSK	12	6	21.95	22.13	21.80
5	QPSK	12	11	21.92	22.05	21.74
5	QPSK	25	0	21.83	21.60	21.73
5	16QAM	1	0	21.97	22.36	22.42
5	16QAM	1	12	21.90	22.12	21.55
5	16QAM	1	24	21.95	22.18	21.87
5	16QAM	12	0	21.22	21.10	21.18
5	16QAM	12	6	21.33	21.03	20.80
5	16QAM	12	11	21.35	20.98	21.22
5	16QAM	25	0	21.15	20.58	20.72

Note: Maximum average power for LTE.

3.1.6 Test Result of Conducted Output Power and ERP/EIRP

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 5 (QPSK, BW=1.4M, 1RB-0)**			**LTE Band 5 (16QAM, BW=1.4M, 1RB-0)**		
Channel	**20407 (Low)**	**20525 (Mid)**	**20643 (High)**	**20407 (Low)**	**20525 (Mid)**	**20643 (High)**
Frequency (MHz)	**824.7**	**836.5**	**848.3**	**824.7**	**836.5**	**848.3**
Conducted Power P_T (dBm)	22.50	22.31	22.40	21.52	21.53	21.37
Conducted Power P_T (Watts)	0.18	0.17	0.17	0.14	0.14	0.14
ERP(dBm)	22.90	22.71	22.80	21.92	21.93	21.77
ERP(Watts)	0.19	0.19	0.19	0.16	0.16	0.15

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 5 (QPSK, BW=3M, 1RB-0)**			**LTE Band 5 (16QAM, BW=3M, 1RB-0)**		
Channel	**20415 (Low)**	**20525 (Mid)**	**20635 (High)**	**20415 (Low)**	**20525 (Mid)**	**20635 (High)**
Frequency (MHz)	**825.5**	**836.5**	**847.5**	**825.5**	**836.5**	**847.5**
Conducted Power P_T (dBm)	22.35	22.27	22.45	21.68	21.38	21.29
Conducted Power P_T (Watts)	0.17	0.17	0.18	0.15	0.14	0.13
ERP(dBm)	22.75	22.67	22.85	22.08	21.78	21.69
ERP(Watts)	0.19	0.18	0.19	0.16	0.15	0.15

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 5 (QPSK, BW=5M, 1RB-0)**			**LTE Band 5 (16QAM, BW=5M, 1RB-0)**		
Channel	**20425 (Low)**	**20525 (Mid)**	**20625 (High)**	**20425 (Low)**	**20525 (Mid)**	**20625 (High)**
Frequency (MHz)	**826.5**	**836.5**	**846.5**	**826.5**	**836.5**	**846.5**
Conducted Power P_T (dBm)	22.33	22.24	22.30	21.14	21.46	21.59
Conducted Power P_T (Watts)	0.17	0.17	0.17	0.13	0.14	0.14
ERP(dBm)	22.73	22.64	22.70	21.54	21.86	21.99
ERP(Watts)	0.19	0.18	0.19	0.14	0.15	0.16

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 5 (QPSK, BW=10M, 1RB-0)**			**LTE Band 5 (16QAM, BW=10M, 1RB-0)**		
Channel	**20450 (Low)**	**20525 (Mid)**	**20600 (High)**	**20450 (Low)**	**20525 (Mid)**	**20600 (High)**
Frequency (MHz)	**829**	**836.5**	**844**	**829**	**836.5**	**844**
Conducted Power P_T (dBm)	22.24	22.58	22.09	21.39	21.42	21.19
Conducted Power P_T (Watts)	0.17	0.18	0.16	0.14	0.14	0.13
ERP(dBm)	22.64	22.98	22.49	21.79	21.82	21.59
ERP(Watts)	0.18	0.20	0.18	0.15	0.15	0.14

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 7 (QPSK, BW=5M, 1RB-0)**			**LTE Band 7 (16QAM, BW=5M, 1RB-0)**		
Channel	**20775 (Low)**	**21100 (Mid)**	**21425 (High)**	**20775 (Low)**	**21100 (Mid)**	**21425 (High)**
Frequency (MHz)	**2502.5**	**2353**	**2567.5**	**2502.5**	**2353**	**2567.5**
Conducted Power P_T (dBm)	23.12	23.13	23.07	21.97	22.36	22.42
Conducted Power P_T (Watts)	0.21	0.21	0.20	0.16	0.17	0.17
ERP(dBm)	25.67	25.68	25.62	24.52	24.91	24.97
ERP(Watts)	0.37	0.37	0.36	0.28	0.31	0.31

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 7 (QPSK, BW=10M, 1RB-0)**			**LTE Band 7 (16QAM, BW=10M, 1RB-0)**		
Channel	**20800 (Low)**	**21100 (Mid)**	**21400 (High)**	**20800 (Low)**	**21100 (Mid)**	**21400 (High)**
Frequency (MHz)	**2505**	**2535**	**2565**	**2505**	**2535**	**2565**
Conducted Power P_T (dBm)	23.15	22.98	22.99	22.78	22.34	22.02
Conducted Power P_T (Watts)	0.21	0.20	0.20	0.19	0.17	0.16
ERP(dBm)	25.70	25.53	25.54	25.33	24.89	24.57
ERP(Watts)	0.37	0.36	0.36	0.34	0.31	0.29

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 7 (QPSK, BW=15M, 1RB-0)**			**LTE Band 7 (16QAM, BW=15M, 1RB-0)**		
Channel	**20825 (Low)**	**21100 (Mid)**	**21375 (High)**	**20825 (Low)**	**21100 (Mid)**	**21375 (High)**
Frequency (MHz)	**2507.5**	**2535**	**2562.5**	**2507.5**	**2535**	**2562.5**
Conducted Power P_T (dBm)	23.26	23.18	23.07	22.38	21.88	22.57
Conducted Power P_T (Watts)	0.21	0.21	0.20	0.17	0.15	0.18
ERP(dBm)	25.81	25.73	25.62	24.93	24.43	25.12
ERP(Watts)	0.38	0.37	0.36	0.31	0.28	0.33

Cellular Band (G_T - L_C = 2.55 dB)						
Modes	**LTE Band 7 (QPSK, BW=20M, 1RB-0)**			**LTE Band 7 (16QAM, BW=20M, 1RB-0)**		
Channel	**20850 (Low)**	**21100 (Mid)**	**21350 (High)**	**20850 (Low)**	**21100 (Mid)**	**21350 (High)**
Frequency (MHz)	**2510**	**2535**	**2560**	**2510**	**2535**	**2560**
Conducted Power P_T (dBm)	23.07	23.27	23.07	22.41	22.16	21.98
Conducted Power P_T (Watts)	0.20	0.21	0.20	0.17	0.16	0.16
ERP(dBm)	25.62	25.82	25.62	24.96	24.71	24.53
ERP(Watts)	0.36	0.38	0.36	0.31	0.30	0.28

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.

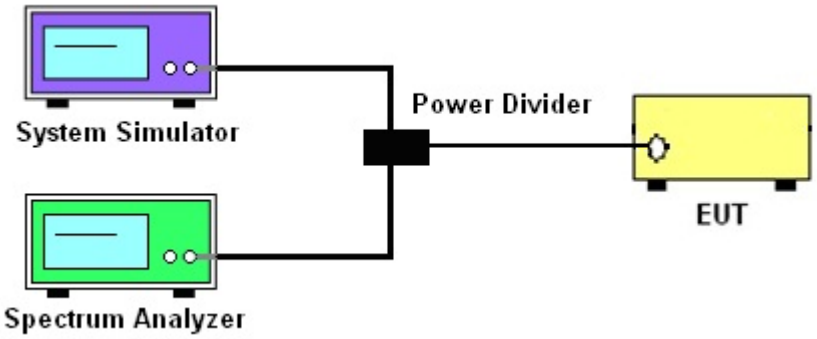
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The EUT was connected to the spectrum and the base station via the 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

Modes	LTE Band 5			
BW / Mod.	1.4MHz / QPSK	1.4MHz / 16QAM	3MHz / QPSK	3MHz / 16QAM
Peak-to-Average Ratio (dB)	5.96	6.88	6.00	6.80
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
Peak-to-Average Ratio (dB)	5.92	6.68	5.76	6.48

Modes	LTE Band 7			
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
Peak-to-Average Ratio (dB)	5.36	6.20	5.60	6.48
BW / Mod.	15MHz / QPSK	15MHz / 16QAM	20MHz / QPSK	20MHz / 16QAM
Peak-to-Average Ratio (dB)	5.92	6.96	6.40	7.32

Note:

The maximum RB configurations of the PAPR summary as below:

BW1.4MHz RB setting：RB Size 6, RB offset 0

BW3MHz RB setting：RB Size 15, RB offset 0

BW5MHz RB setting：RB Size 25, RB offset 0

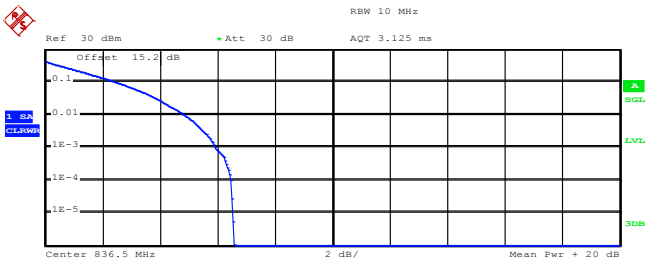
BW10MHz RB setting：RB Size 50, RB offset 0

BW15MHz RB setting：RB Size 75, RB offset 0

BW20MHz RB setting：RB Size 100, RB offset 0

3.2.6 Peak to Average Power Ratio

Peak-to-Average Ratio on LTE Band 5 1.4MHz / QPSK

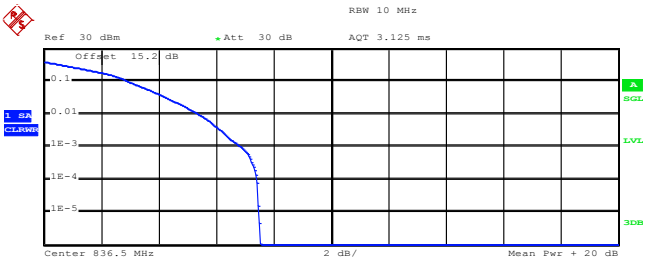


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.79 dBm
Peak	28.38 dBm
Crest	6.59 dB
10 %	2.56 dB
1 %	4.88 dB
.1 %	5.96 dB
.01 %	6.48 dB

Date: 19.MAR.2014 18:43:55

Peak-to-Average Ratio on LTE Band 5 1.4MHz / 16QAM

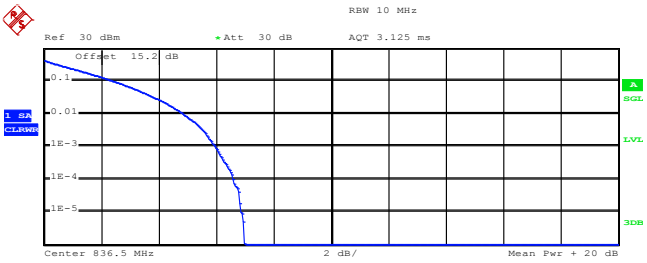


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	20.84 dBm
Peak	28.38 dBm
Crest	7.54 dB
10 %	3.00 dB
1 %	5.44 dB
.1 %	6.88 dB
.01 %	7.44 dB

Date: 19.MAR.2014 18:44:13

Peak-to-Average Ratio on LTE Band 5 3MHz / QPSK

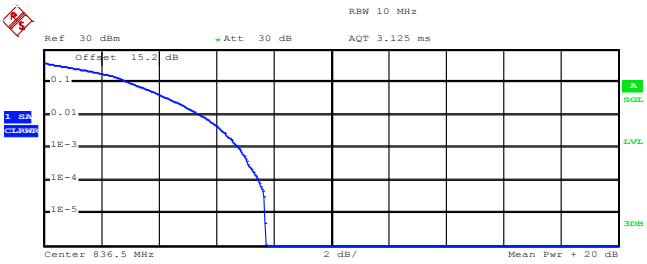


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.54 dBm
Peak	28.52 dBm
Crest	6.98 dB
10 %	2.52 dB
1 %	4.88 dB
.1 %	6.00 dB
.01 %	6.60 dB

Date: 19.MAR.2014 18:44:44

Peak-to-Average Ratio on LTE Band 5 3MHz / 16QAM

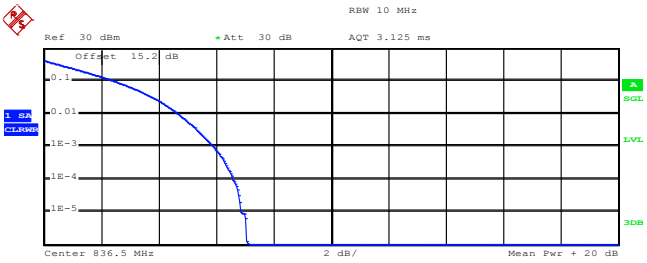


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	20.67 dBm
Peak	28.38 dBm
Crest	7.71 dB
10 %	3.04 dB
1 %	5.48 dB
.1 %	6.80 dB
.01 %	7.48 dB

Date: 19.MAR.2014 18:44:33

Peak-to-Average Ratio on LTE Band 5 5MHz / QPSK

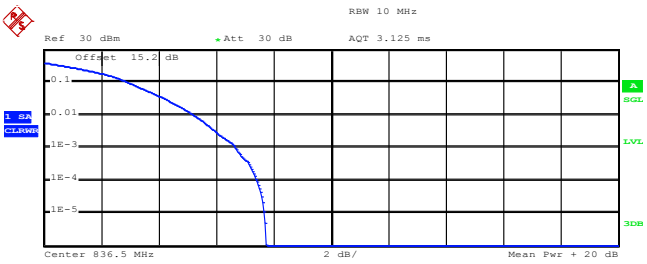


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.52 dBm
Peak	28.59 dBm
Crest	7.07 dB
10 %	2.56 dB
1 %	4.68 dB
.1 %	5.92 dB
.01 %	6.60 dB

Date: 19.MAR.2014 18:45:01

Peak-to-Average Ratio on LTE Band 5 5MHz / 16QAM

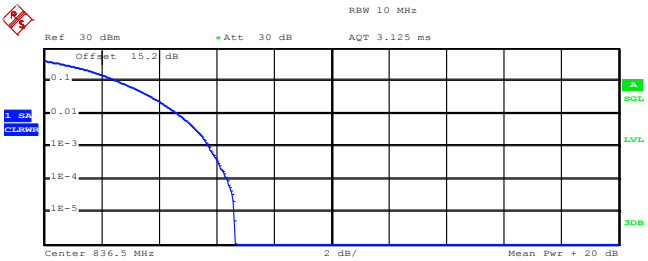


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	20.50 dBm
Peak	28.24 dBm
Crest	7.74 dB
10 %	3.00 dB
1 %	5.24 dB
.1 %	6.68 dB
.01 %	7.44 dB

Date: 19.MAR.2014 18:45:12

Peak-to-Average Ratio on LTE Band 5 10MHz / QPSK

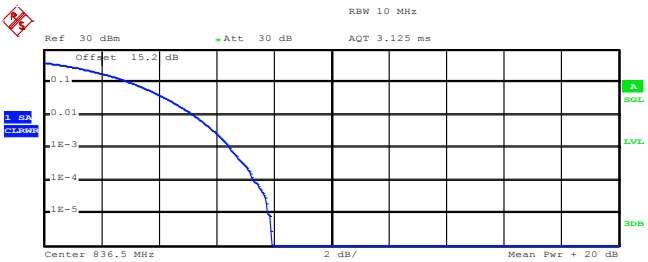


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.17 dBm
Peak	27.81 dBm
Crest	6.64 dB
10 %	2.64 dB
1 %	4.68 dB
.1 %	5.76 dB
.01 %	6.40 dB

Date: 19.MAR.2014 18:45:51

Peak-to-Average Ratio on LTE Band 5 10MHz / 16QAM

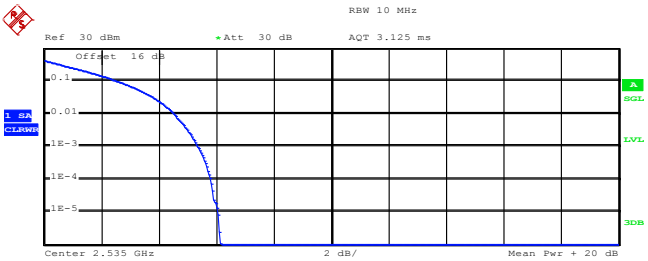


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	20.31 dBm
Peak	28.24 dBm
Crest	7.92 dB
10 %	3.08 dB
1 %	5.24 dB
.1 %	6.48 dB
.01 %	7.36 dB

Date: 19.MAR.2014 18:45:40

Peak-to-Average Ratio on LTE Band 7 5MHz / QPSK

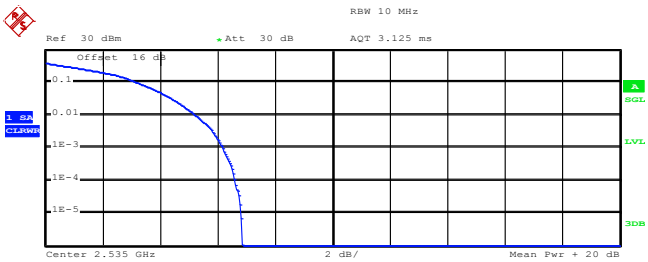


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.46 dBm
Peak	28.59 dBm
Crest	6.13 dB
10 %	2.64 dB
1 %	4.52 dB
.1 %	5.36 dB
.01 %	5.80 dB

Date: 19.MAR.2014 20:01:02

Peak-to-Average Ratio on LTE Band 7 5MHz / 16QAM

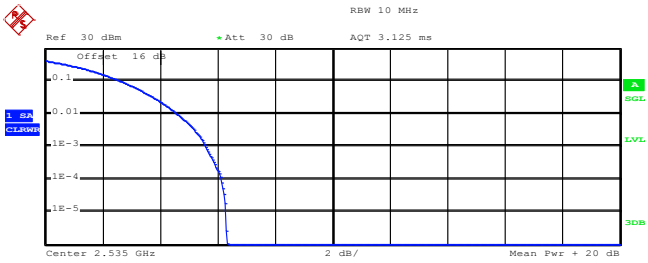


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.46 dBm
Peak	28.31 dBm
Crest	6.85 dB
10 %	3.28 dB
1 %	5.24 dB
.1 %	6.20 dB
.01 %	6.60 dB

Date: 19.MAR.2014 20:01:14

Peak-to-Average Ratio on LTE Band 7 10MHz / QPSK

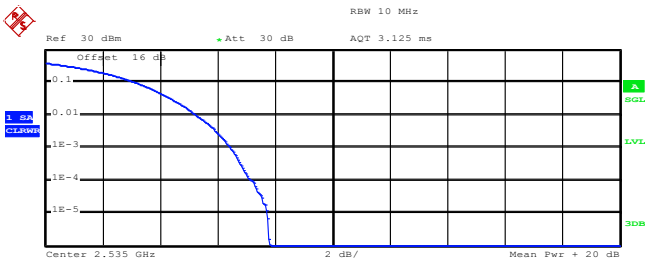


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.07 dBm
Peak	28.38 dBm
Crest	6.31 dB
10 %	2.68 dB
1 %	4.60 dB
.1 %	5.60 dB
.01 %	6.16 dB

Date: 19.MAR.2014 20:01:46

Peak-to-Average Ratio on LTE Band 7 10MHz / 16QAM

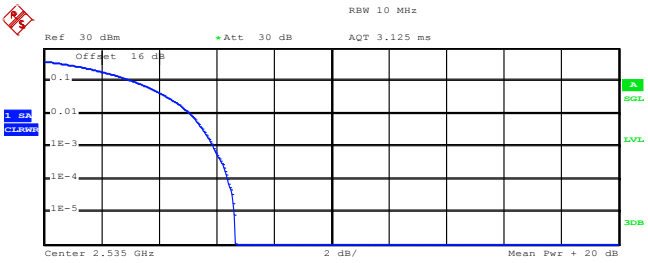


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.15 dBm
Peak	28.94 dBm
Crest	7.80 dB
10 %	3.24 dB
1 %	5.28 dB
.1 %	6.48 dB
.01 %	7.24 dB

Date: 19.MAR.2014 20:01:35

Peak-to-Average Ratio on LTE Band 7 15MHz / QPSK

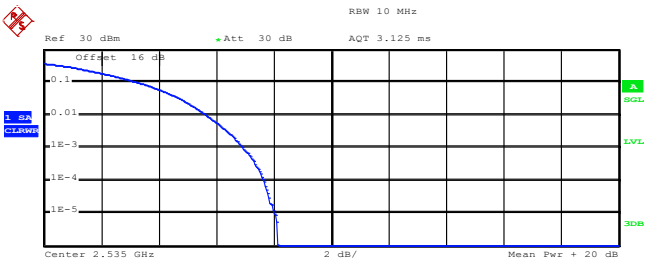


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	20.80 dBm
Peak	27.46 dBm
Crest	6.66 dB
10 %	3.20 dB
1 %	5.08 dB
.1 %	5.92 dB
.01 %	6.40 dB

Date: 19.MAR.2014 20:02:03

Peak-to-Average Ratio on LTE Band 7 15MHz / 16QAM

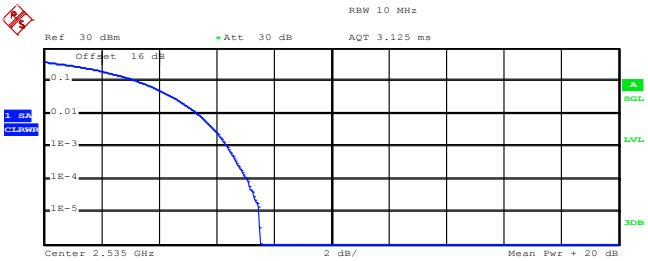


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	19.88 dBm
Peak	28.03 dBm
Crest	8.15 dB
10 %	3.40 dB
1 %	5.68 dB
.1 %	6.96 dB
.01 %	7.68 dB

Date: 19.MAR.2014 20:02:14

Peak-to-Average Ratio on LTE Band 7 20MHz / QPSK

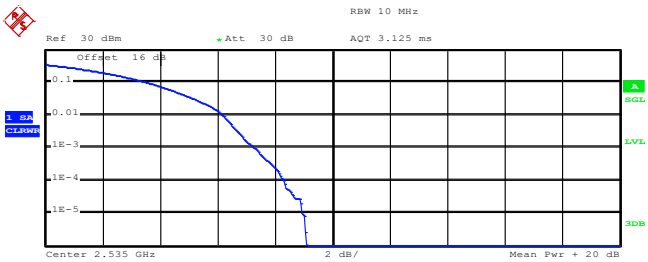


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	19.52 dBm
Peak	27.04 dBm
Crest	7.52 dB
10 %	3.32 dB
1 %	5.36 dB
.1 %	6.40 dB
.01 %	7.08 dB

Date: 19.MAR.2014 20:02:52

Peak-to-Average Ratio on LTE Band 7 20MHz / 16QAM



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	18.52 dBm
Peak	27.60 dBm
Crest	9.08 dB
10 %	3.64 dB
1 %	6.20 dB
.1 %	7.32 dB
.01 %	8.32 dB

Date: 19.MAR.2014 20:02:40

3.3 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.3.1 Description of 99% Occupied Bandwidth and 26dB Bandwidth Measurement

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

The 26dB 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 26 dB.
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.

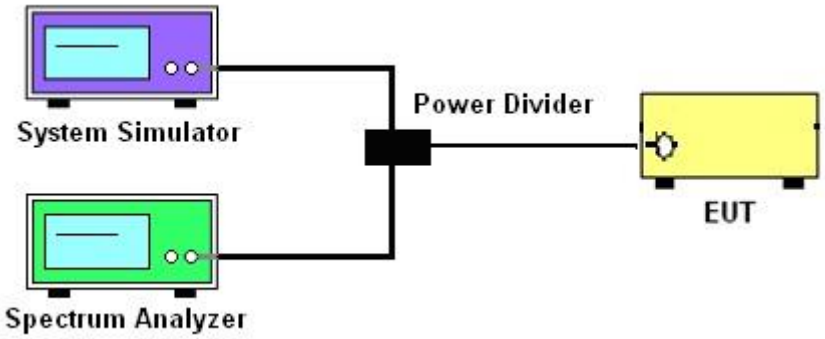
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 26dB and 99% occupied bandwidth (BW) of the middle channel for the highest RF powers with full RB sizes were measured.

3.3.4 Test Setup



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

Modes	LTE Band 5			
BW / Mod.	1.4MHz / QPSK	1.4MHz / 16QAM	3MHz / QPSK	3MHz / 16QAM
99% OBW (MHz)	1.0976	1.0976	2.7360	2.7360
26dB BW (MHz)	1.2936	1.2768	3.0600	3.0840
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.5000	4.5000	9.1600	9.1200
26dB BW (MHz)	5.0200	4.9800	10.0400	10.0400

Modes	LTE Band 7			
BW / Mod.	5MHz / QPSK	5MHz / 16QAM	10MHz / QPSK	10MHz / 16QAM
99% OBW (MHz)	4.5200	4.5200	9.1600	9.1600
26dB BW (MHz)	5.1200	4.9800	10.0800	10.0800
BW / Mod.	15MHz / QPSK	15MHz / 16QAM	20MHz / QPSK	20MHz / 16QAM
99% OBW (MHz)	13.5600	13.5600	18.8800	18.8800
26dB BW (MHz)	14.7000	14.7600	21.2000	21.1200

Note:

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

BW1.4MHz RB setting：RB Size 6, RB offset 0

BW3MHz RB setting：RB Size 15, RB offset 0

BW5MHz RB setting：RB Size 25, RB offset 0

BW10MHz RB setting：RB Size 50, RB offset 0

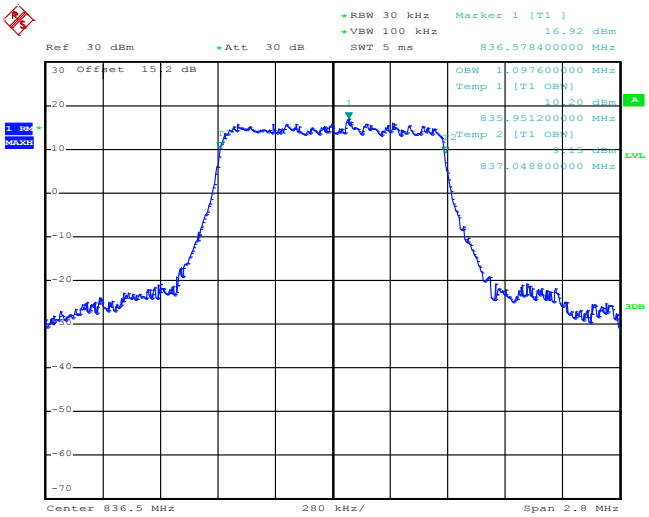
BW15MHz RB setting：RB Size 75, RB offset 0

BW20MHz RB setting：RB Size 100, RB offset 0

3.3.6 Test Result (Plots) of Occupied Bandwidth

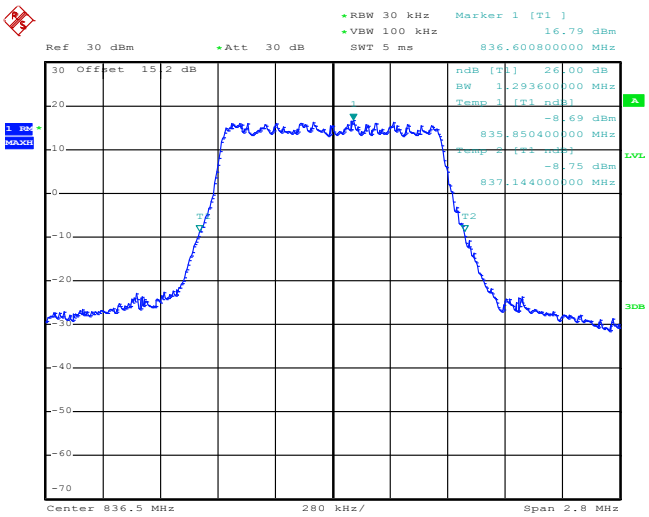
Band :	LTE Band 5	BW / Mod. :	1.4MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:47:25

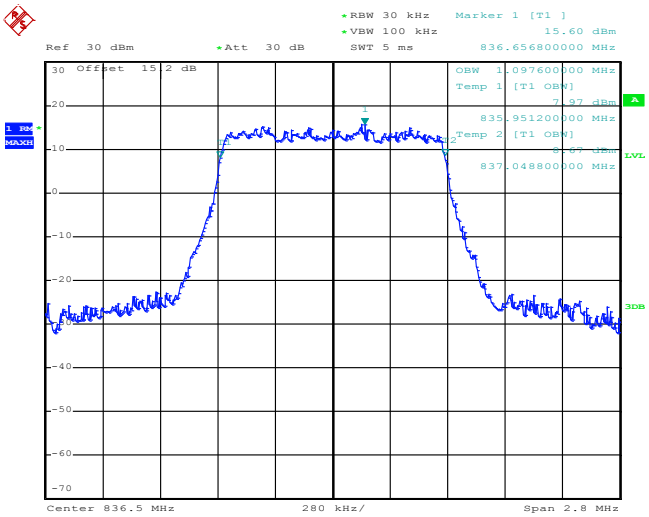
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:38:03

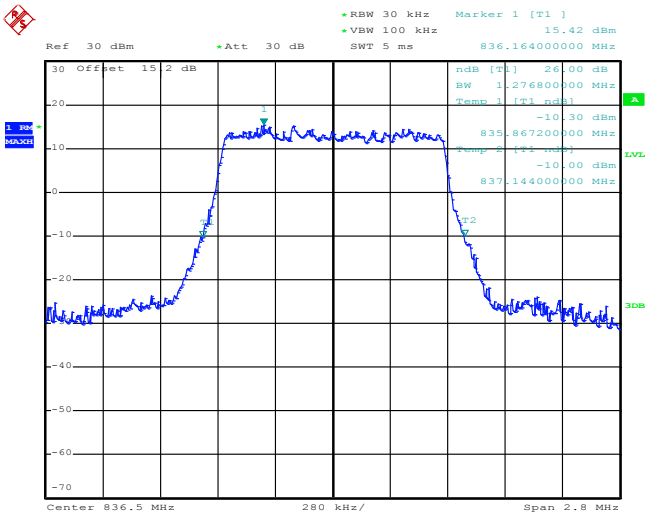
Band :	LTE Band 5	BW / Mod. :	1.4MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:47:41

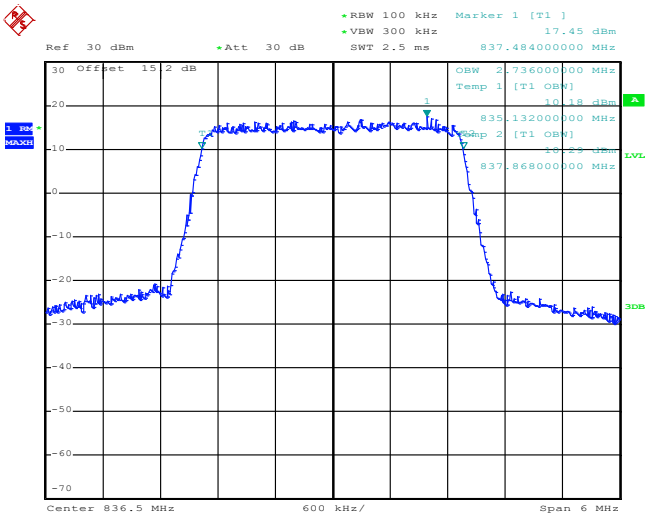
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:38:25

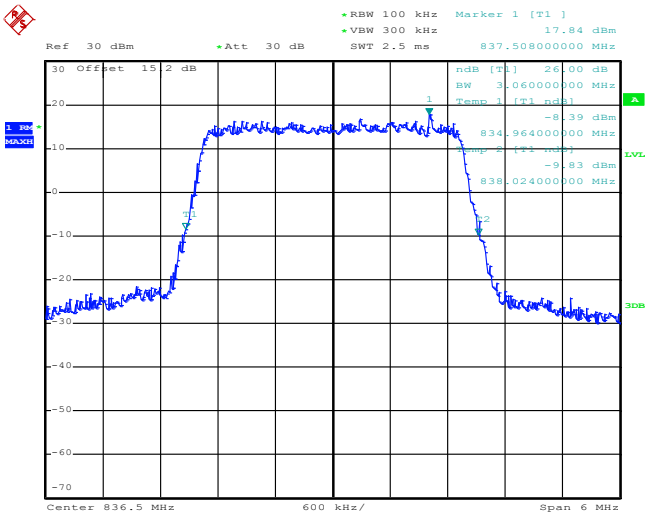
Band :	LTE Band 5	BW / Mod. :	3MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:51:49

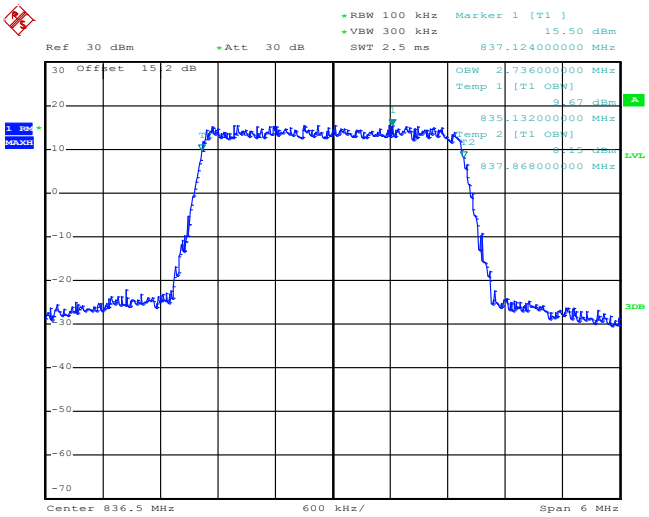
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:39:15

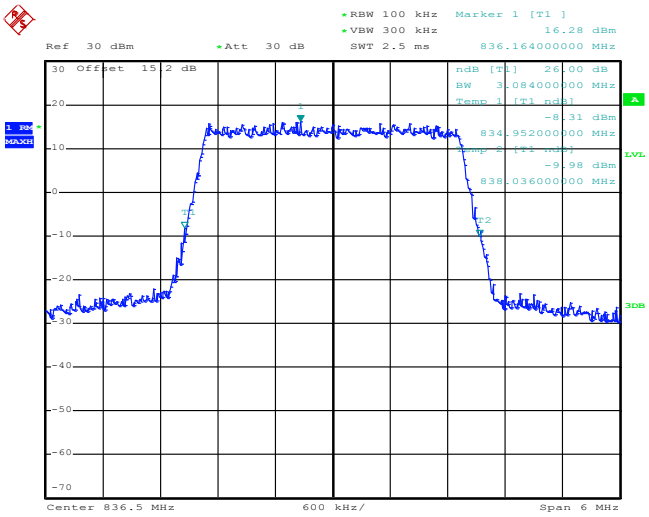
Band :	LTE Band 5	BW / Mod. :	3MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:52:02

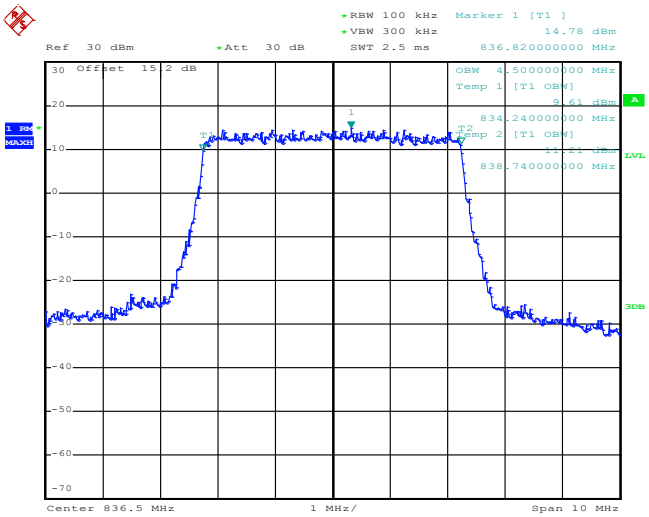
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:39:04

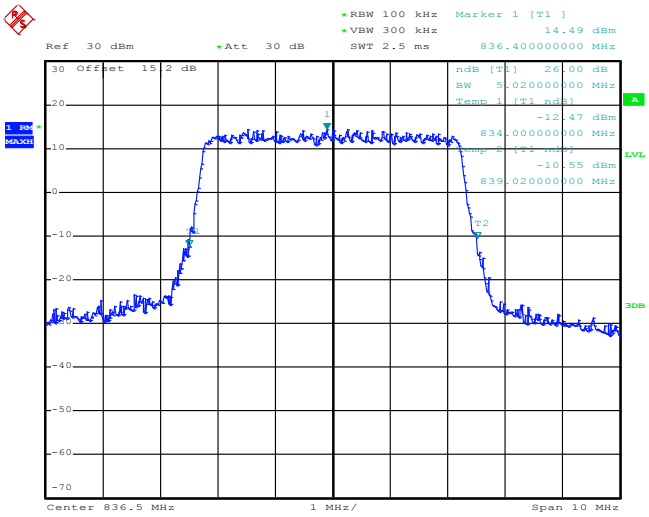
Band :	LTE Band 5	BW / Mod. :	5MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:53:55

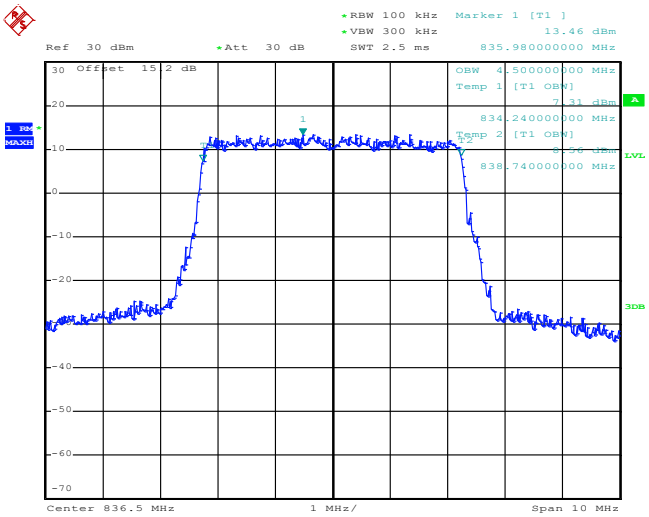
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:39:42

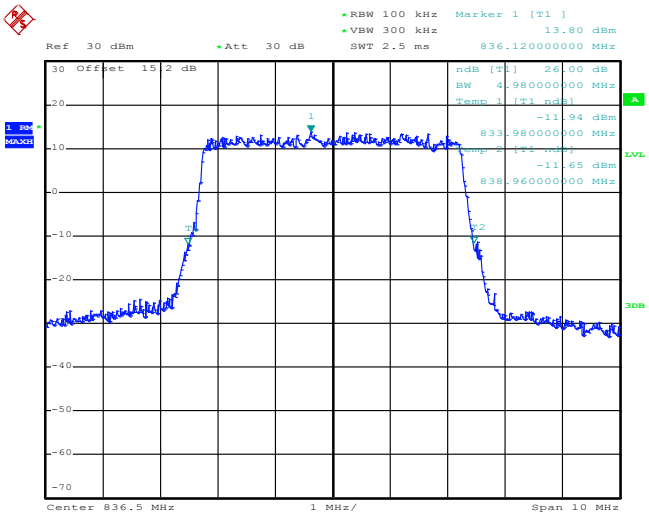
Band :	LTE Band 5	BW / Mod. :	5MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:54:08

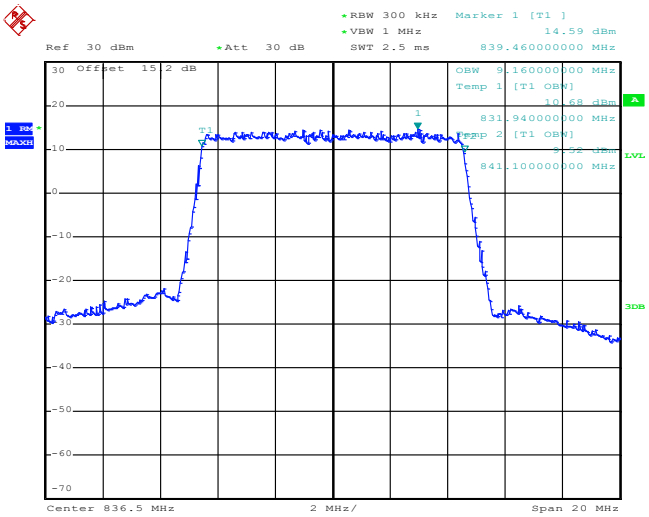
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:39:58

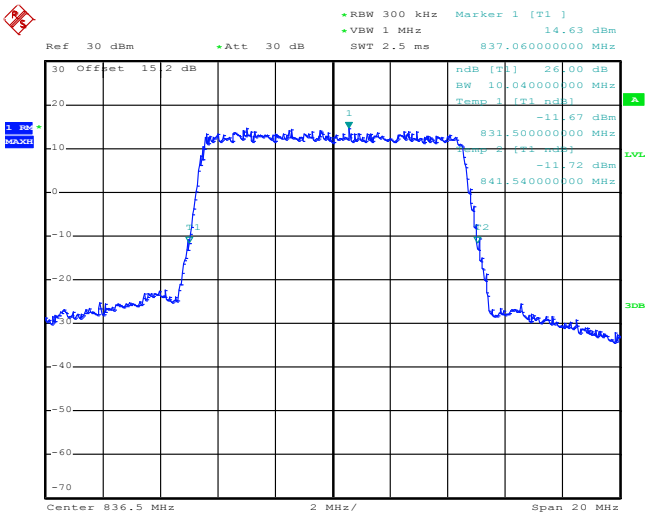
Band :	LTE Band 5	BW / Mod. :	10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:56:00

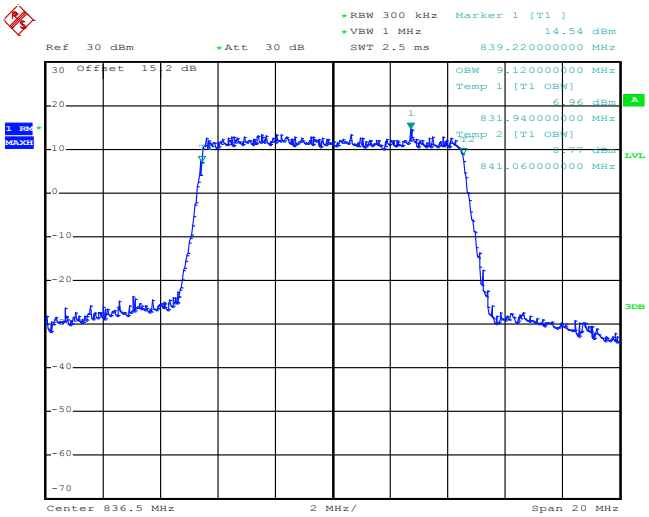
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:40:45

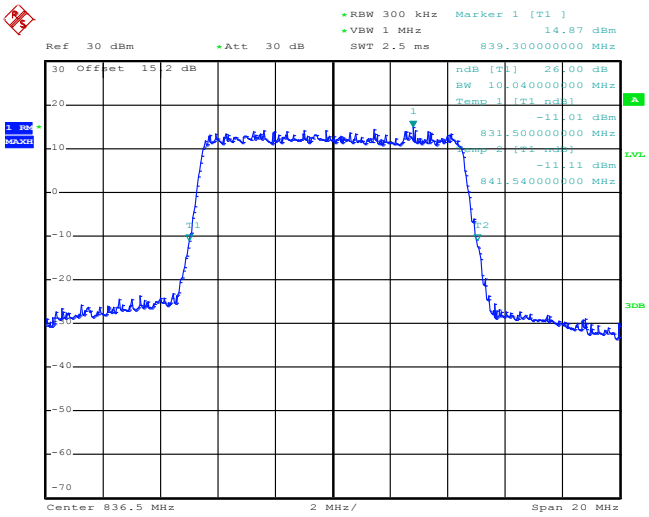
Band :	LTE Band 5	BW / Mod. :	10MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:56:11

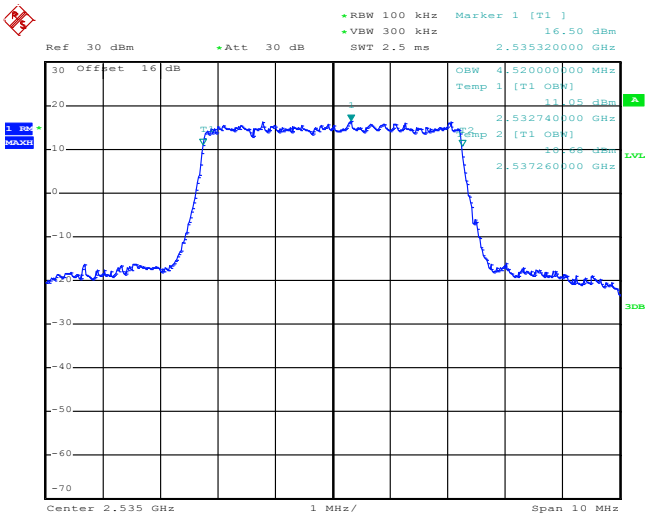
26dB Bandwidth Plot on Channel 20525



Date: 19.MAR.2014 18:40:33

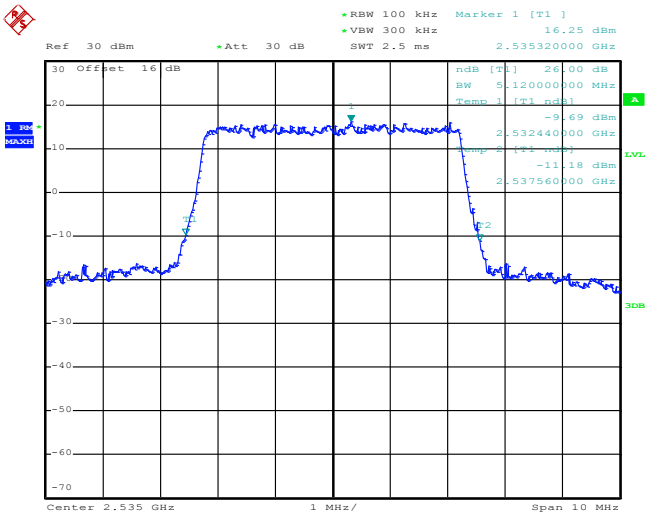
Band :	LTE Band 7	BW / Mod. :	5MHz / QPSK

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:27:49

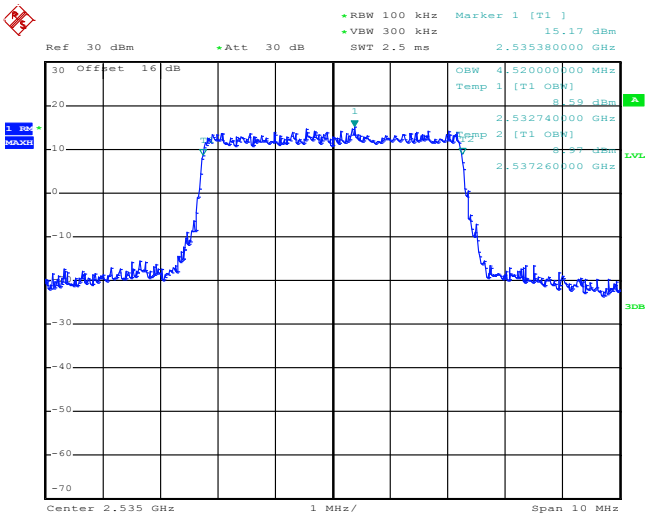
26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:57:04

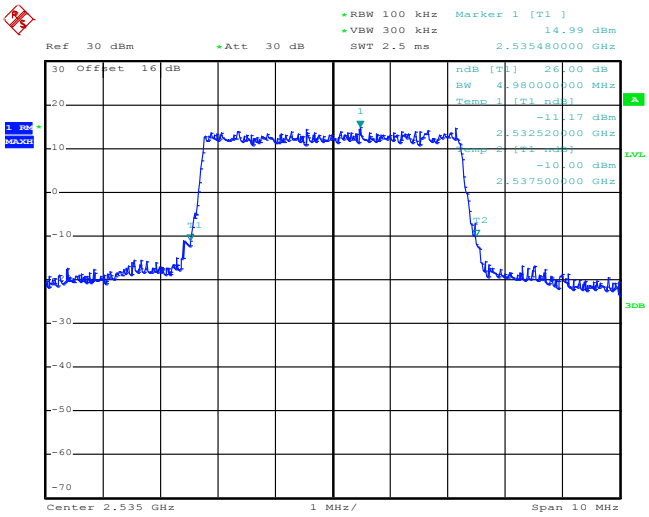
Band :	LTE Band 7	BW / Mod. :	5MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:28:02

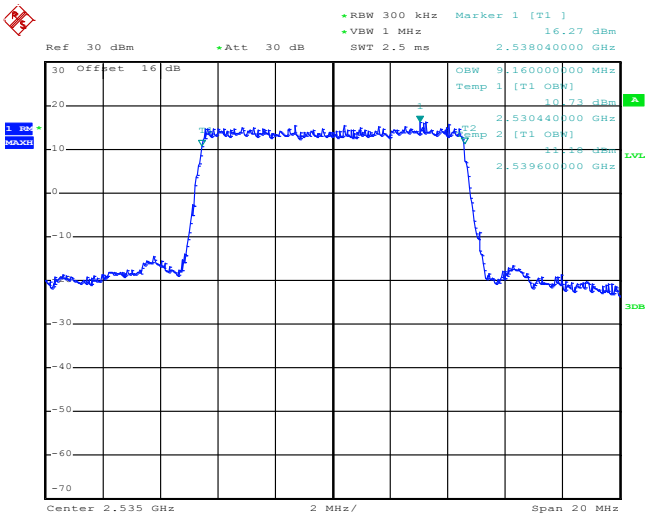
26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:57:22

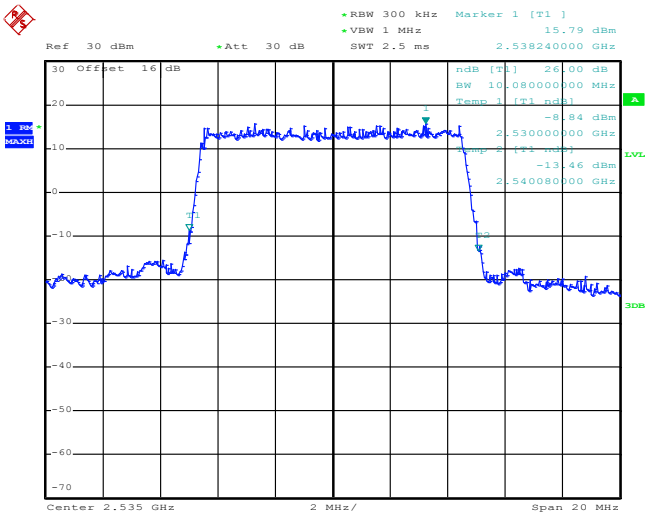
Band :	LTE Band 7	BW / Mod. :	10MHz / QPSK

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:30:02

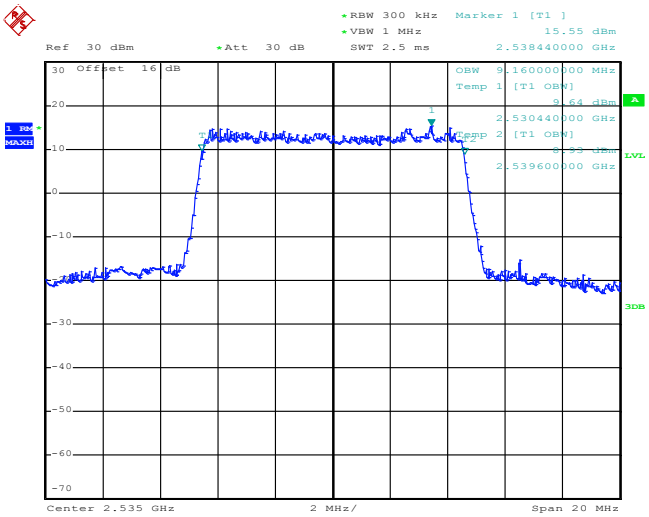
26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:58:01

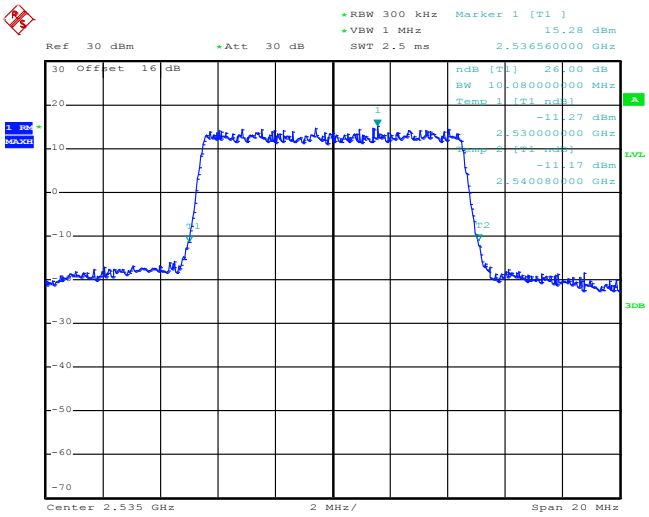
Band :	LTE Band 7	BW / Mod. :	10MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:30:13

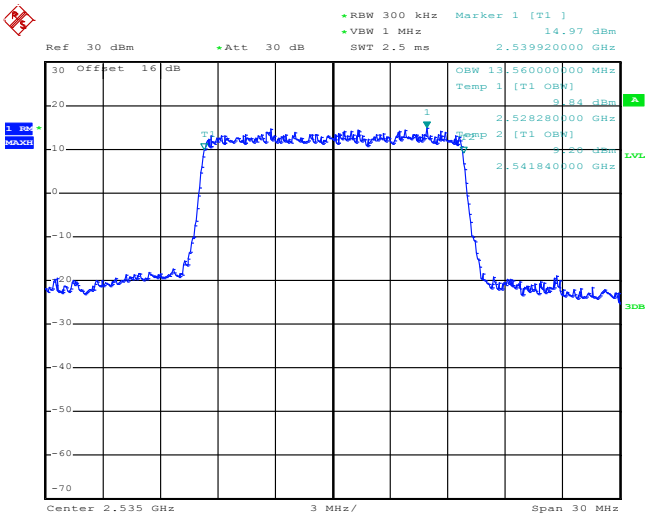
26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:57:49

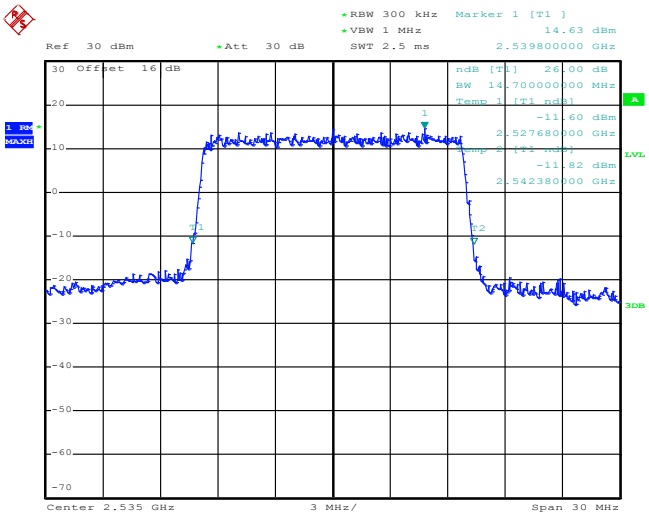
Band :	LTE Band 7	BW / Mod. :	15MHz / QPSK

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:32:53

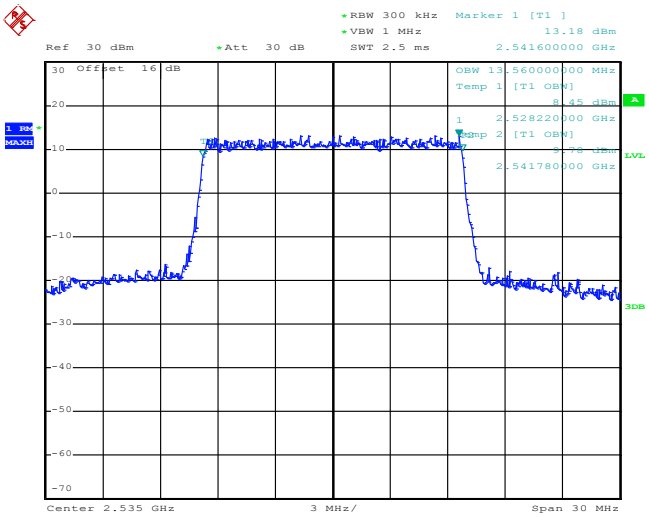
26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:58:23

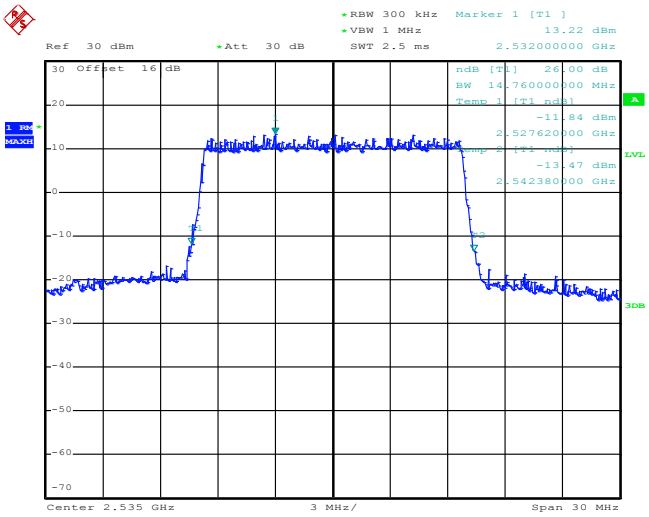
Band :	LTE Band 7	BW / Mod. :	15MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:33:15

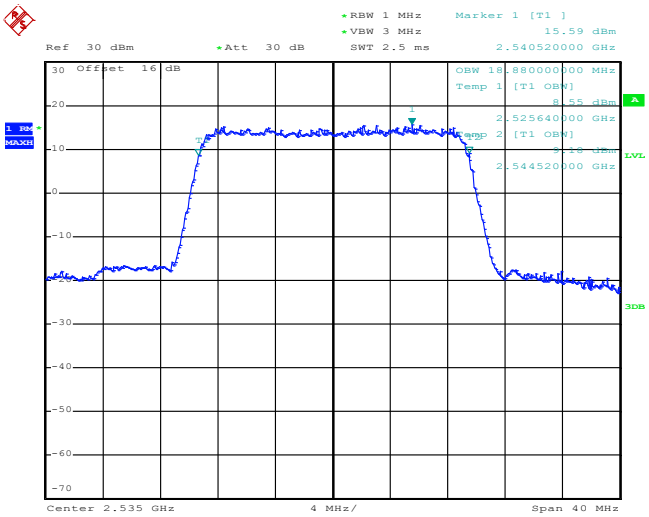
26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:58:35

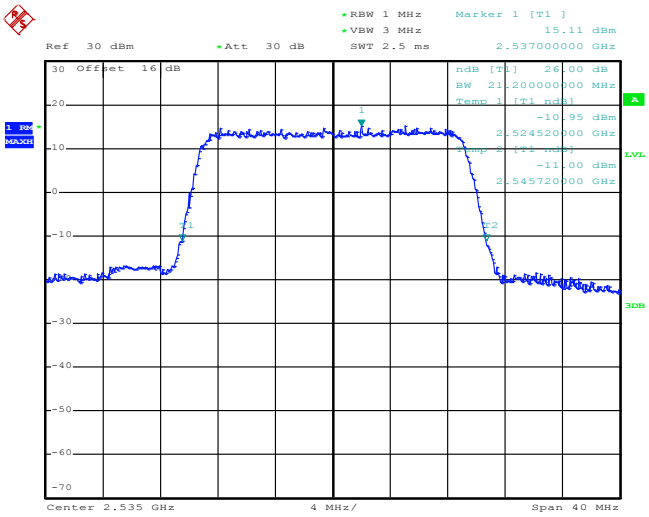
Band :	LTE Band 7	BW / Mod. :	20MHz / QPSK

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:35:43

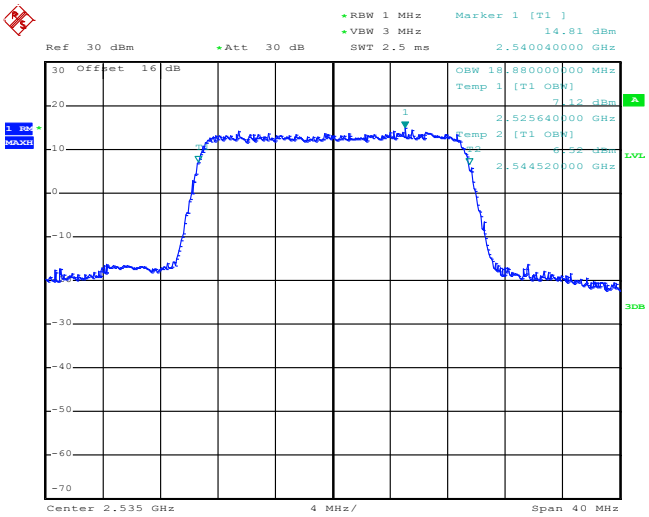
26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:59:14

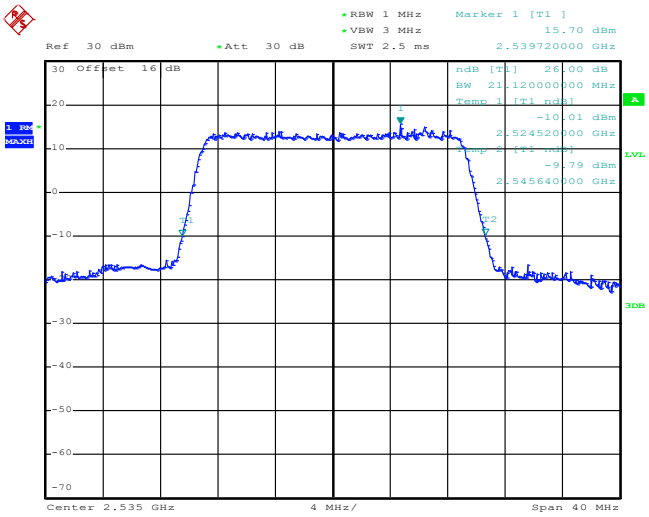
Band :	LTE Band 7	BW / Mod. :	20MHz / 16QAM

99% Occupied Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 20:35:58

26dB Bandwidth Plot on Channel 21100



Date: 19.MAR.2014 19:59:02

3.4 Conducted Band Edge Measurement

3.4.1 Description of Conducted Band Edge Measurement

22.917(a) For Band 5

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

27.53(l) (4) For Band 7

The emissions be operated in the 2496-2690 MHz band, the attenuation factor of transmitter Power (P) shall be not less than 43 + 10 log (P) dB at the channel edge and 55 + 10 log (P) dB at 5.5 MHz from the channel edges.

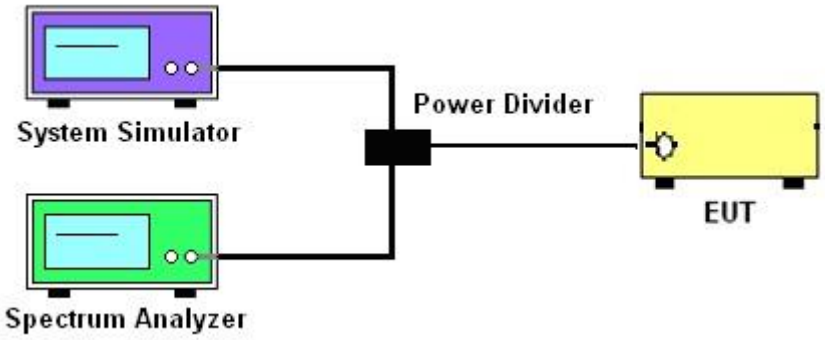
3.4.2 Measuring Instruments

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 Base Station via power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Setting RBW ≥ 1% EBW, and measuring bandwidth = 1MHz.
3. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

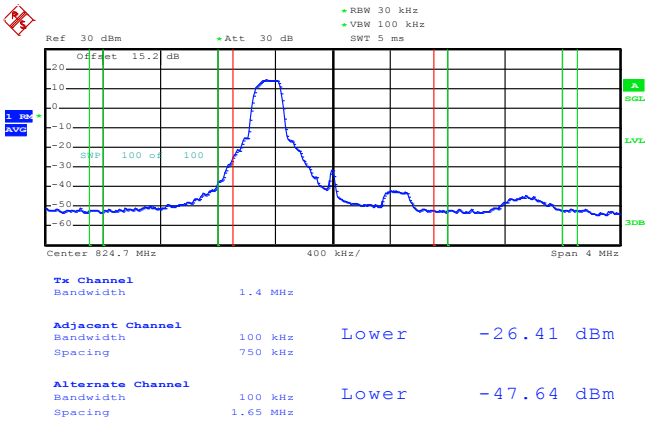
3.4.4 Test Setup



3.4.5 Test Result (Plots) of Conducted Band Edge

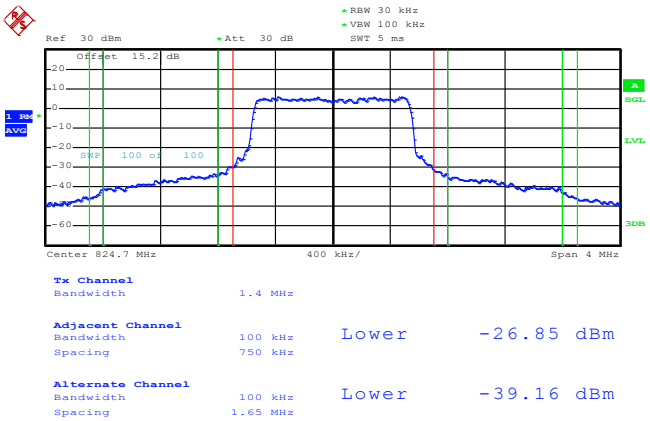
Band :	LTE Band 5	Band Width :	1.4MHz / QPSK

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



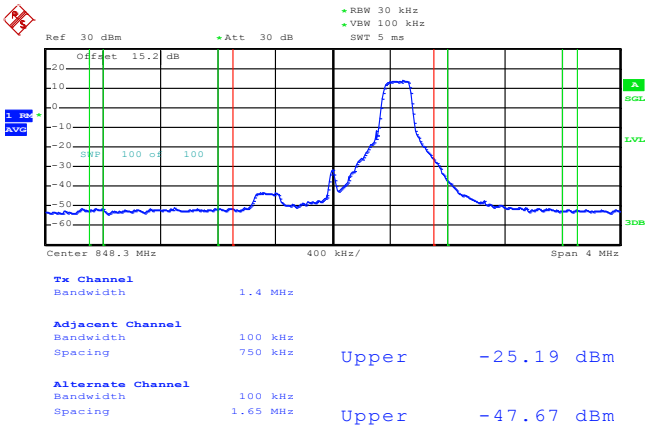
Date: 19.MAR.2014 19:15:20

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



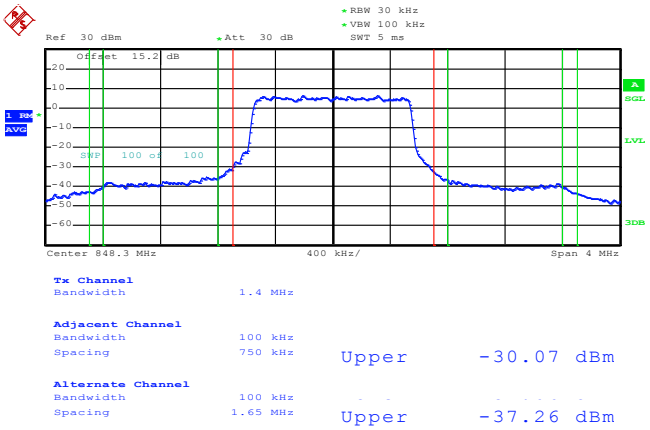
Date: 19.MAR.2014 19:14:34

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



Date: 19.MAR.2014 19:16:04

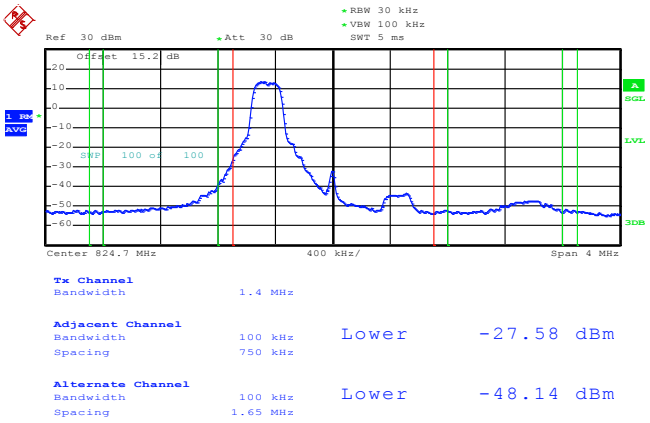
Higher Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 19.MAR.2014 19:16:48

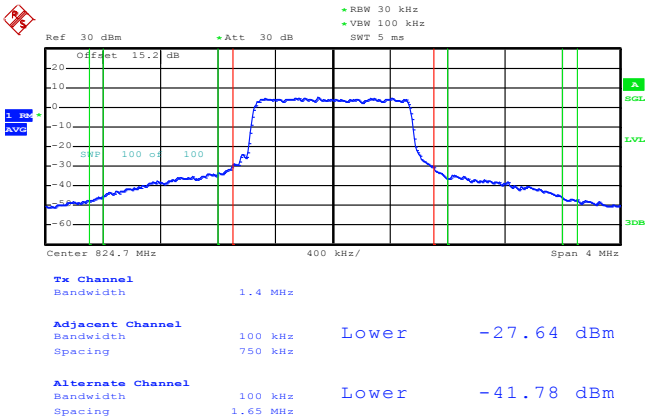
Band :	LTE Band 5	Band Width :	1.4MHz / 16QAM

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



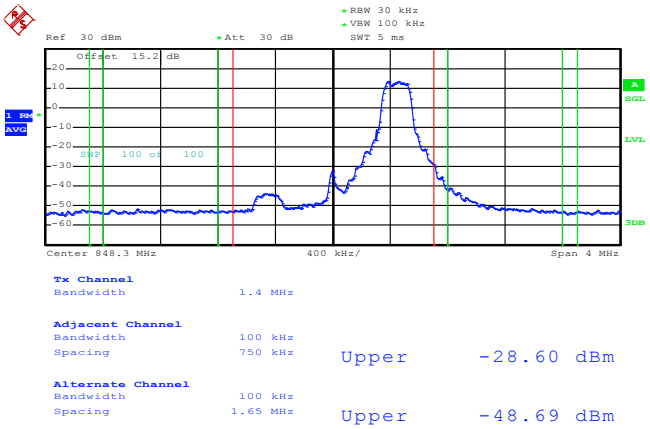
Date: 19.MAR.2014 19:15:03

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



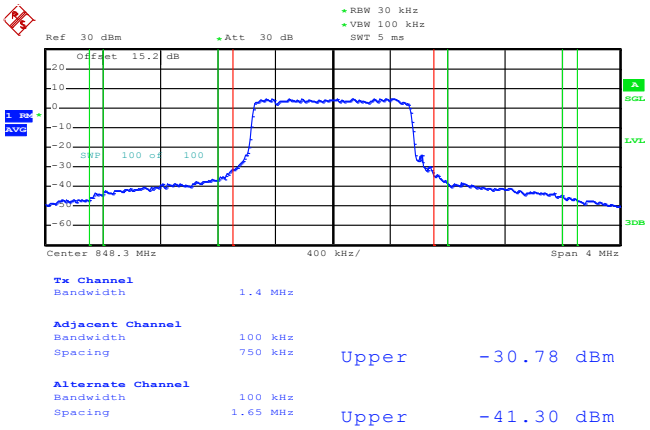
Date: 19.MAR.2014 19:14:47

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



Date: 19.MAR.2014 19:16:17

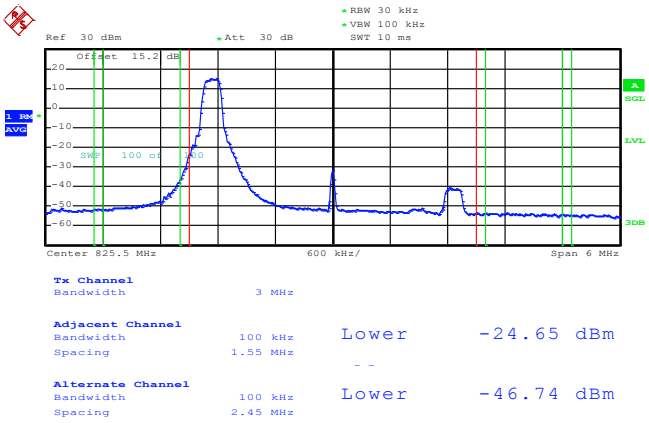
Higher Band Edge Plot for 16QAM -RB Size 6, RB Offset 0



Date: 19.MAR.2014 19:16:33

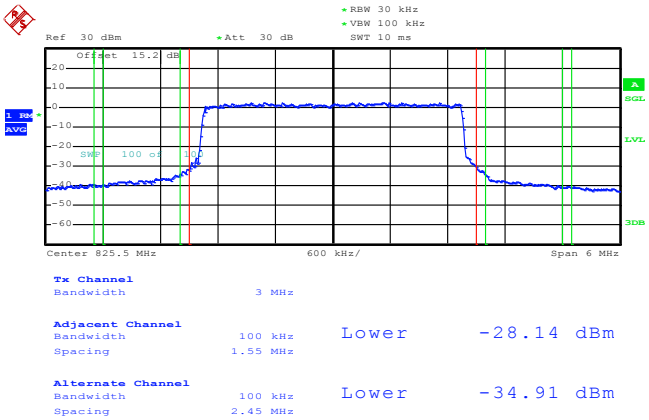
Band :	LTE Band 5	Band Width :	3MHz / QPSK

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



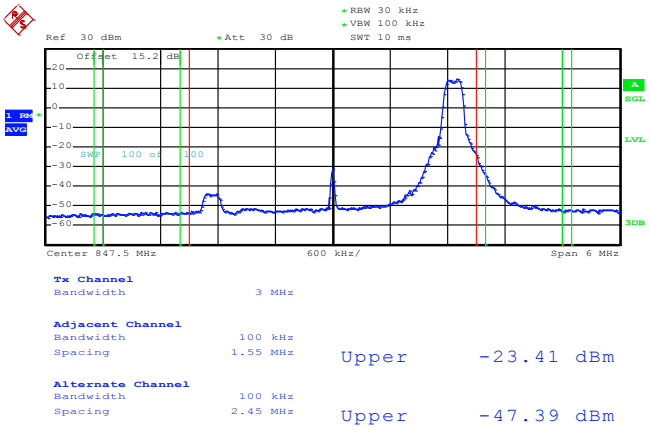
Date: 19.MAR.2014 19:20:04

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



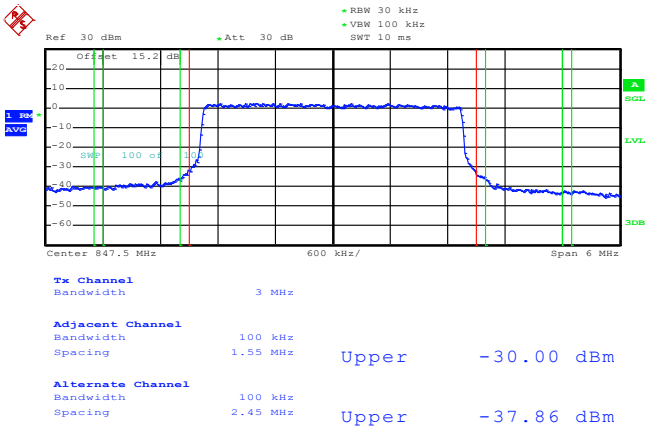
Date: 19.MAR.2014 19:20:50

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



Date: 19.MAR.2014 19:19:24

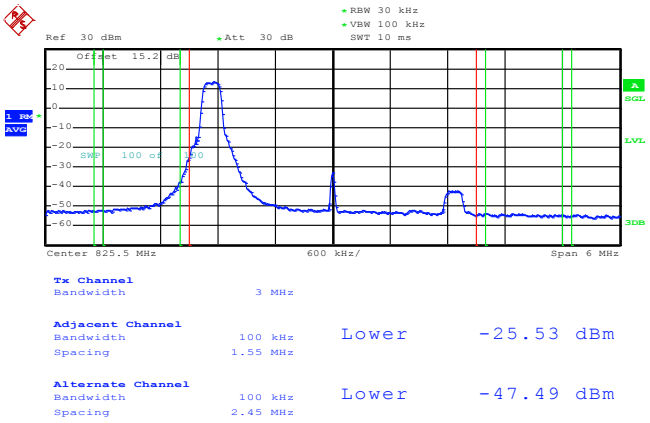
Higher Band Edge Plot for QPSK-RB Size 15, RB Offset 0



Date: 19.MAR.2014 19:18:17

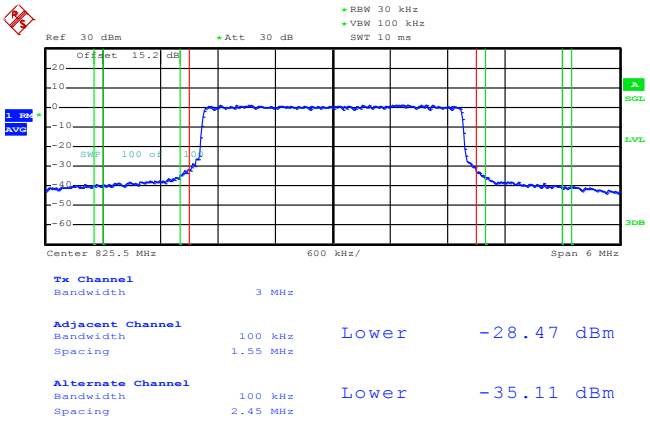
Band :	LTE Band 5	Band Width :	3MHz / 16QAM

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



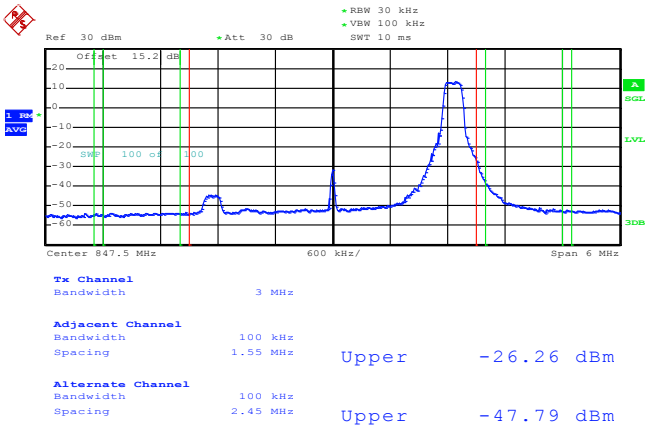
Date: 19.MAR.2014 19:20:18

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



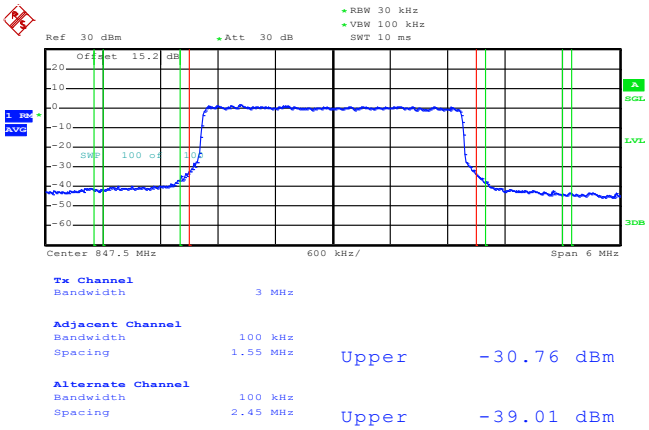
Date: 19.MAR.2014 19:20:34

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



Date: 19.MAR.2014 19:19:08

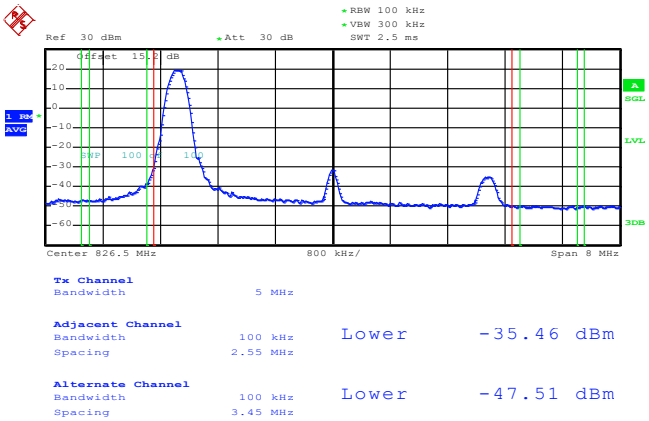
Higher Band Edge Plot for 16QAM -RB Size 15, RB Offset 0



Date: 19.MAR.2014 19:18:37

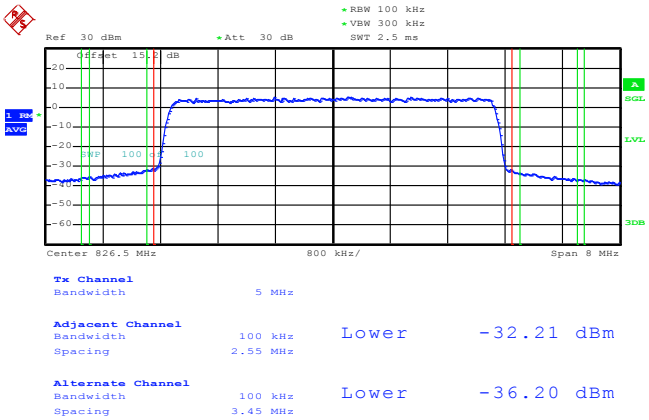
Band :	LTE Band 5	Band Width :	5MHz / QPSK

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



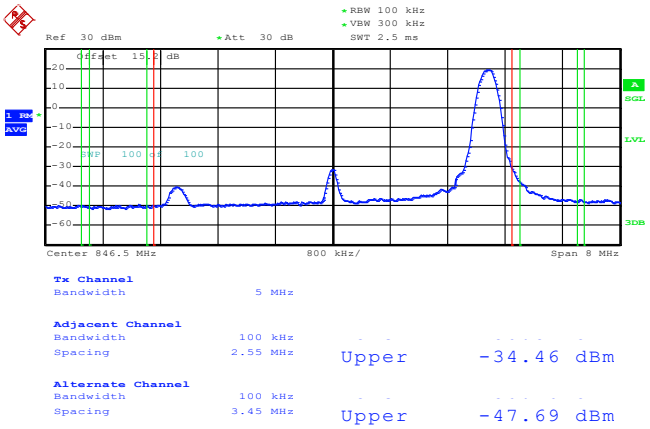
Date: 19.MAR.2014 19:23:12

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



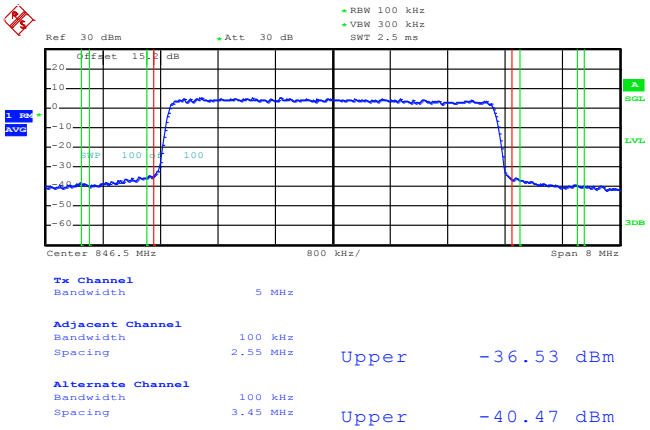
Date: 19.MAR.2014 19:22:08

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



Date: 19.MAR.2014 19:23:54

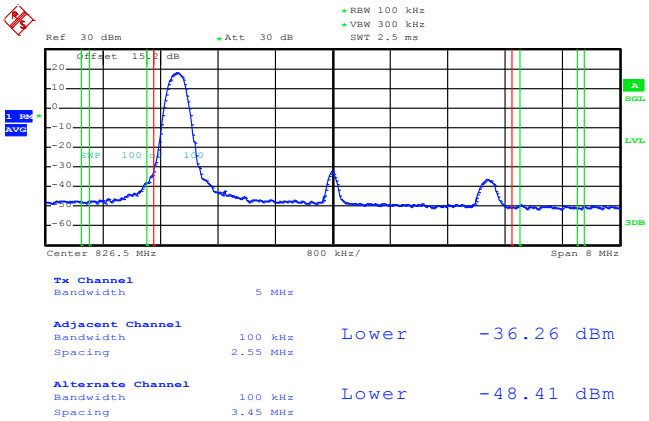
Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 19.MAR.2014 19:24:41

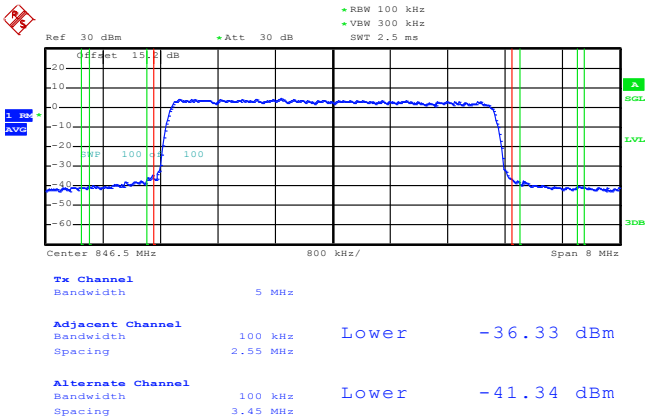
Band :	LTE Band 5	Band Width :	5MHz / 16QAM

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



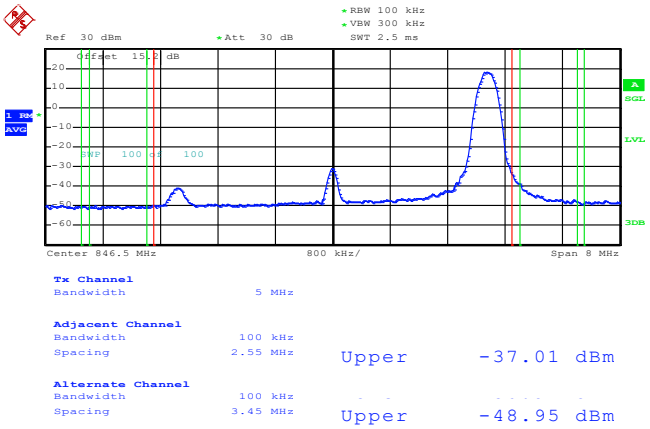
Date: 19.MAR.2014 19:22:57

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



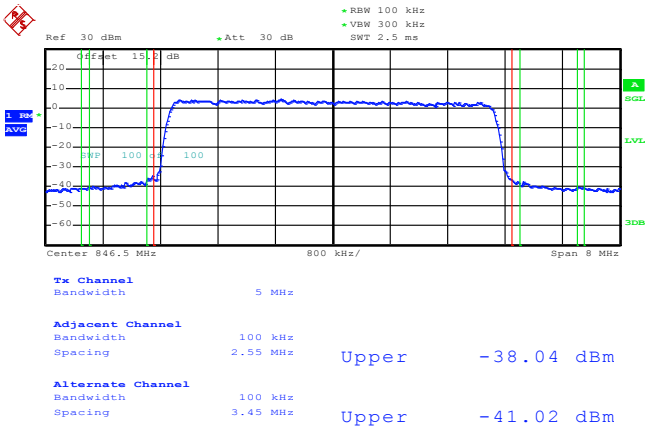
Date: 19.MAR.2014 19:24:27

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



Date: 19.MAR.2014 19:24:10

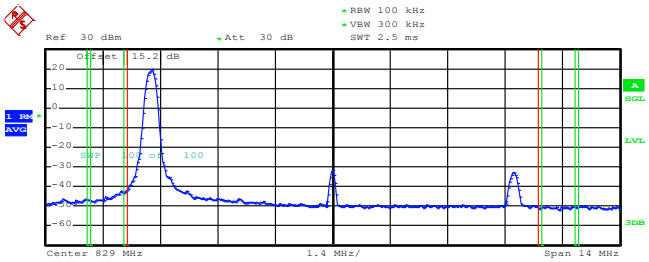
Higher Band Edge Plot for 16QAM -RB Size 25, RB Offset 0



Date: 19.MAR.2014 19:24:27

Band :	LTE Band 5	Band Width :	10MHz / QPSK

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



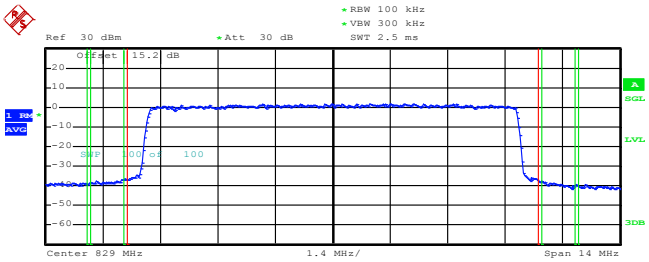
Tx Channel
Bandwidth 10 MHz

Adjacent Channel
Bandwidth 100 kHz Lower -42.79 dBm
Spacing 5.05 MHz

Alternate Channel
Bandwidth 100 kHz Lower -47.17 dBm
Spacing 5.95 MHz

Date: 19.MAR.2014 19:27:29

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



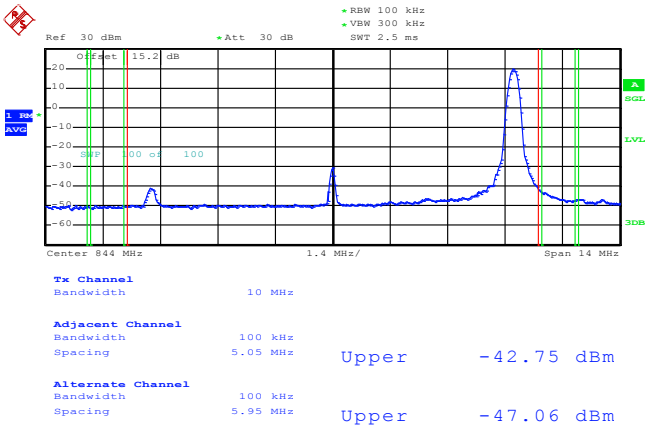
Tx Channel
Bandwidth 10 MHz

Adjacent Channel
Bandwidth 100 kHz Lower -37.00 dBm
Spacing 5.05 MHz

Alternate Channel
Bandwidth 100 kHz Lower -39.10 dBm
Spacing 5.95 MHz

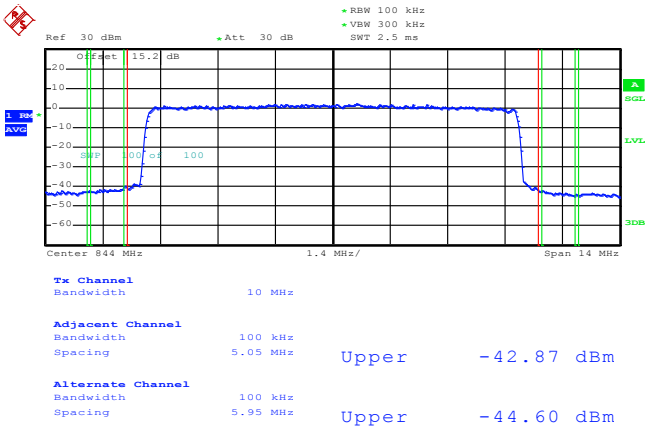
Date: 19.MAR.2014 19:28:19

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



Date: 19.MAR.2014 19:26:50

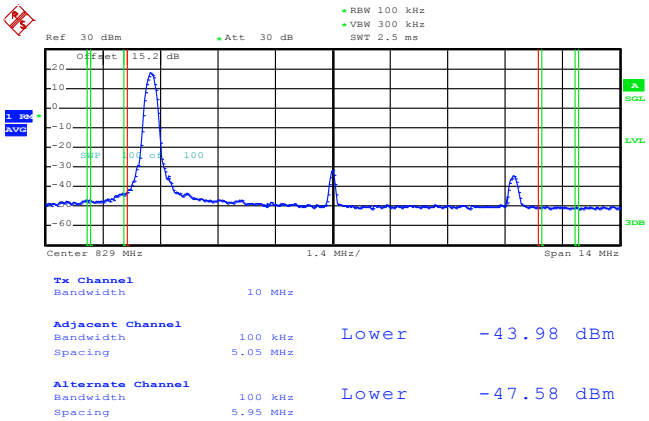
Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 19.MAR.2014 19:25:57

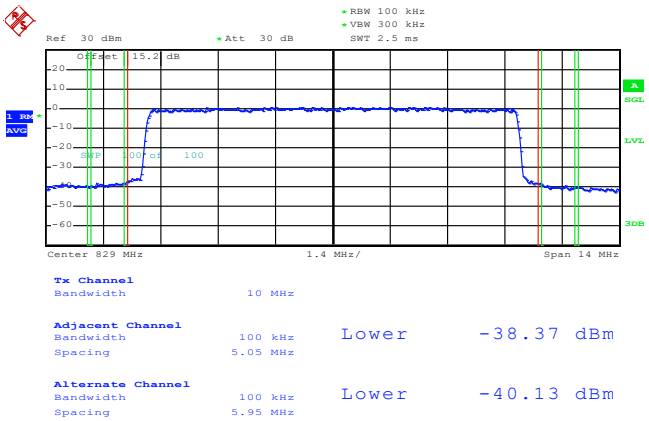
Band :	LTE Band 5	Band Width :	10MHz / 16QAM

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



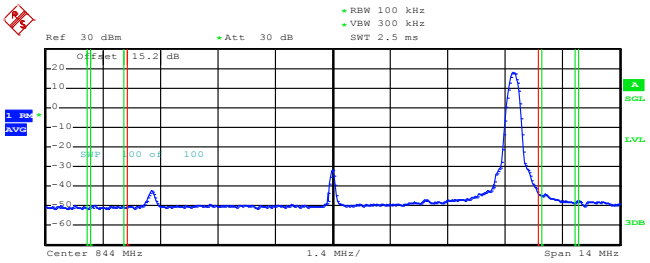
Date: 19.MAR.2014 19:27:46

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



Date: 19.MAR.2014 19:28:05

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



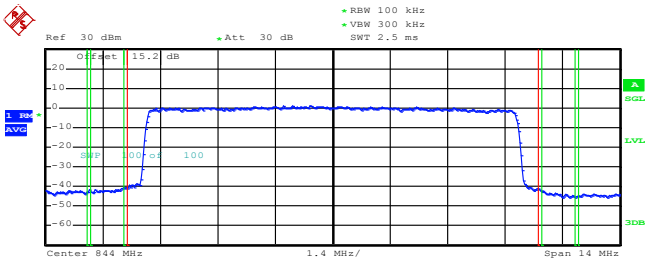
Tx Channel
Bandwidth 10 MHz

Adjacent Channel
Bandwidth 100 kHz
Spacing 5.05 MHz
Upper -44.64 dBm

Alternate Channel
Bandwidth 100 kHz
Spacing 5.95 MHz
Upper -48.17 dBm

Date: 19.MAR.2014 19:26:35

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



Tx Channel
Bandwidth 10 MHz

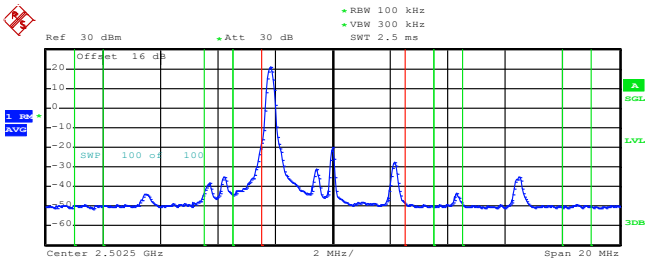
Adjacent Channel
Bandwidth 100 kHz
Spacing 5.05 MHz
Upper -42.18 dBm

Alternate Channel
Bandwidth 100 kHz
Spacing 5.95 MHz
Upper -45.24 dBm

Date: 19.MAR.2014 19:26:13

Band :	LTE Band 7	Band Width :	5MHz / QPSK

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



Tx Channel
Bandwidth 5 MHz

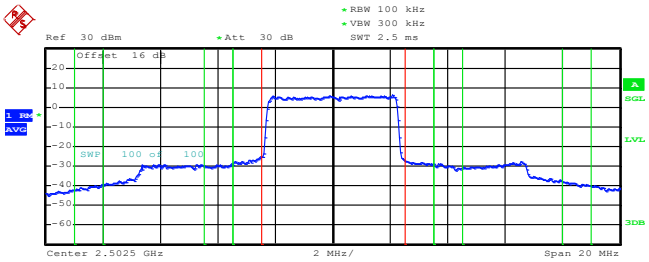
Adjacent Channel
Bandwidth 1 MHz
Spacing 3 MHz
Lower -21.41 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 4 MHz
Lower -30.01 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 8.5 MHz
Lower -40.30 dBm

Date: 19.MAR.2014 20:57:45

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



Tx Channel
Bandwidth 5 MHz

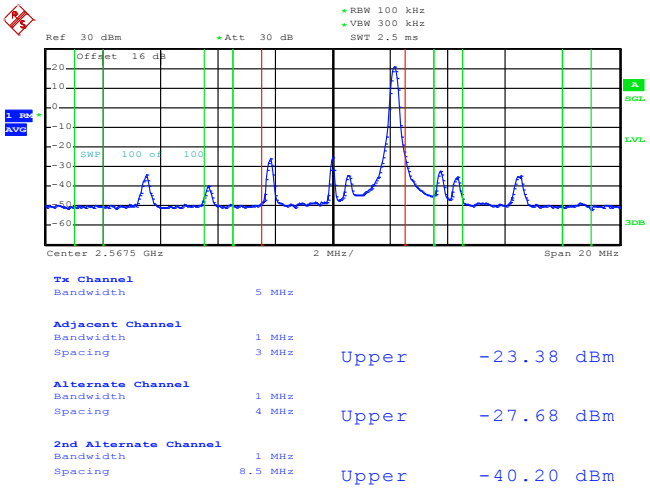
Adjacent Channel
Bandwidth 1 MHz
Spacing 3 MHz
Lower -17.87 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 4 MHz
Lower -20.41 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 8.5 MHz
Lower -31.30 dBm

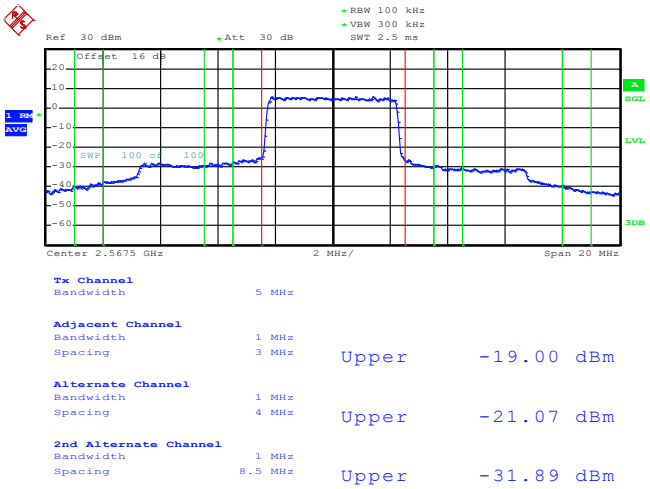
Date: 19.MAR.2014 20:54:31

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



Date: 19.MAR.2014 20:58:58

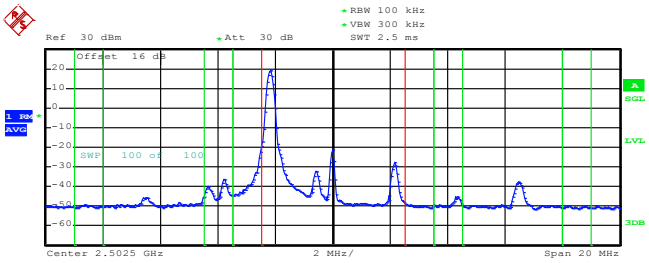
Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 19.MAR.2014 20:51:06

Band :	LTE Band 7	Band Width :	5MHz / 16QAM

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



Tx Channel
Bandwidth 5 MHz

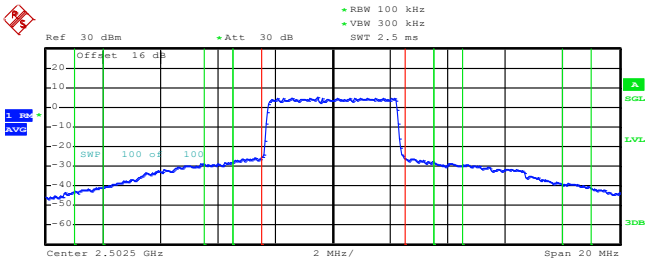
Adjacent Channel
Bandwidth 1 MHz
Spacing 3 MHz
Lower -23.25 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 4 MHz
Lower -31.31 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 8.5 MHz
Lower -40.49 dBm

Date: 19.MAR.2014 20:58:01

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



Tx Channel
Bandwidth 5 MHz

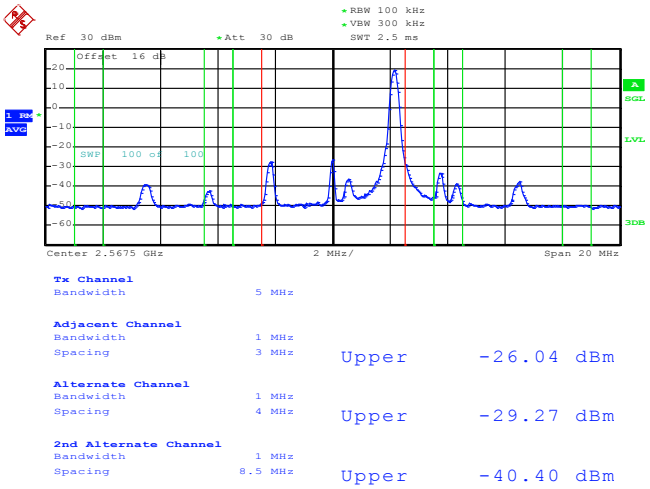
Adjacent Channel
Bandwidth 1 MHz
Spacing 3 MHz
Lower -17.11 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 4 MHz
Lower -19.48 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 8.5 MHz
Lower -32.32 dBm

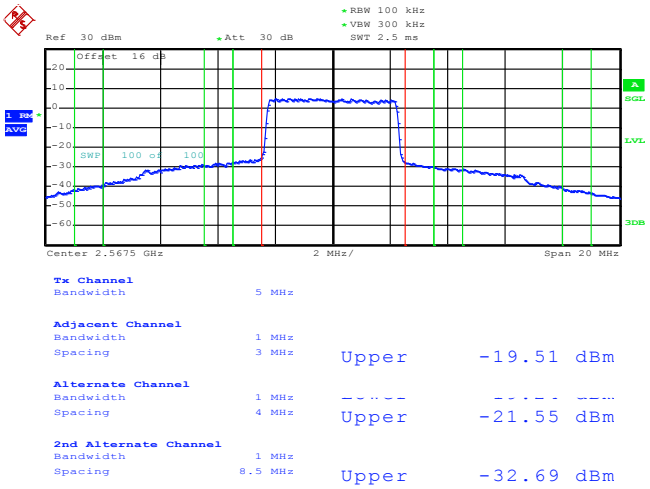
Date: 19.MAR.2014 20:54:09

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



Date: 19.MAR.2014 20:58:42

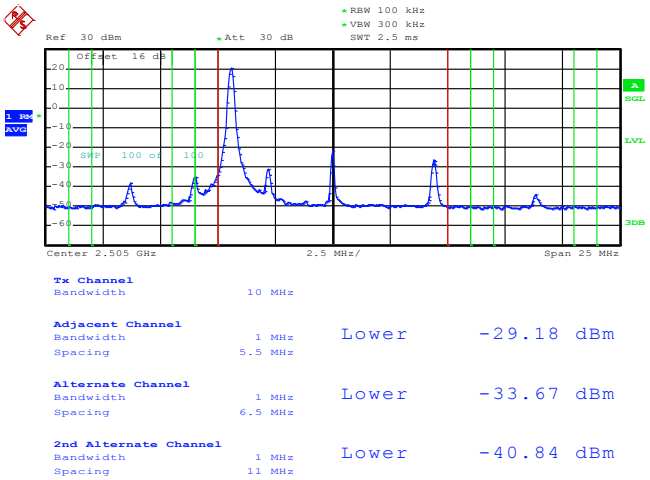
Higher Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



Date: 19.MAR.2014 20:51:28

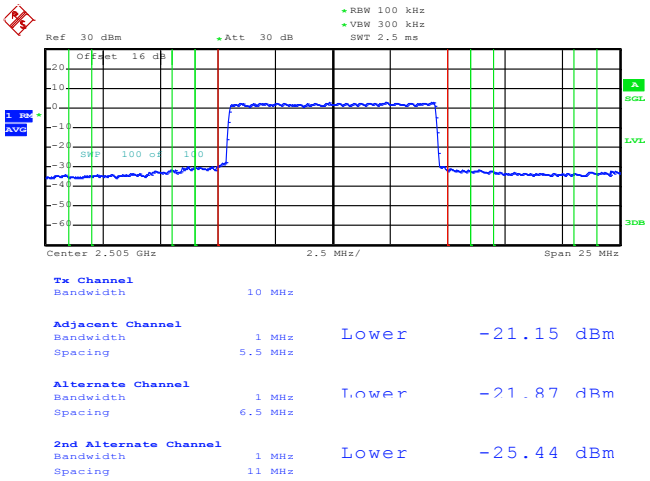
Band :	LTE Band 7	Band Width :	10MHz / QPSK

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



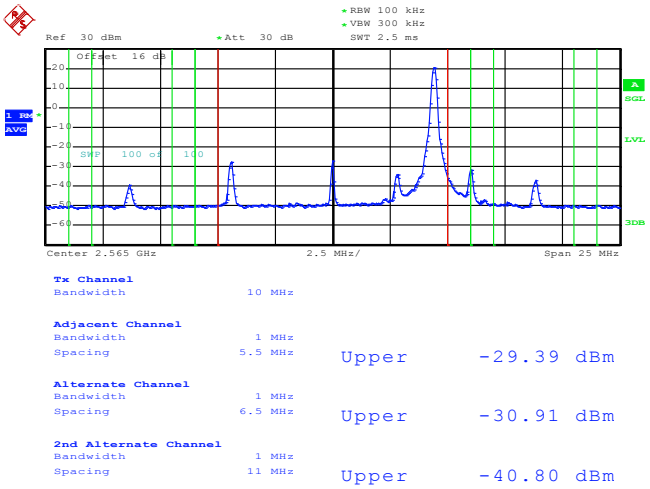
Date: 19.MAR.2014 21:01:36

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



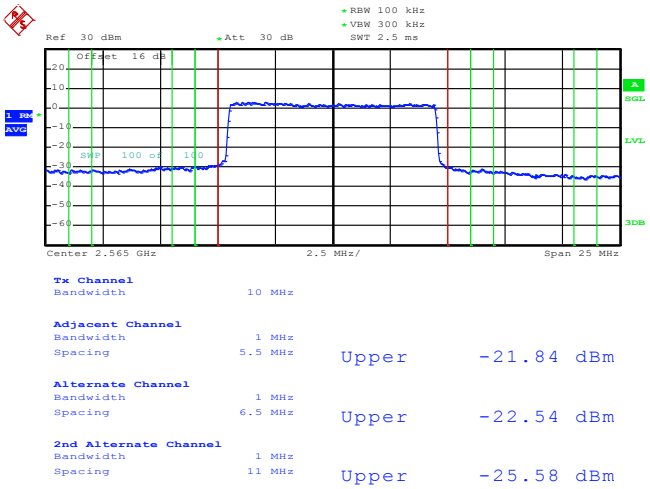
Date: 19.MAR.2014 21:02:21

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



Date: 19.MAR.2014 21:01:02

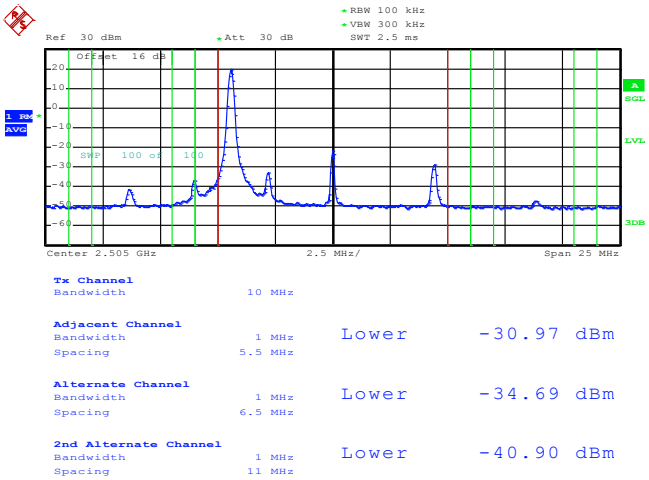
Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 19.MAR.2014 21:00:05

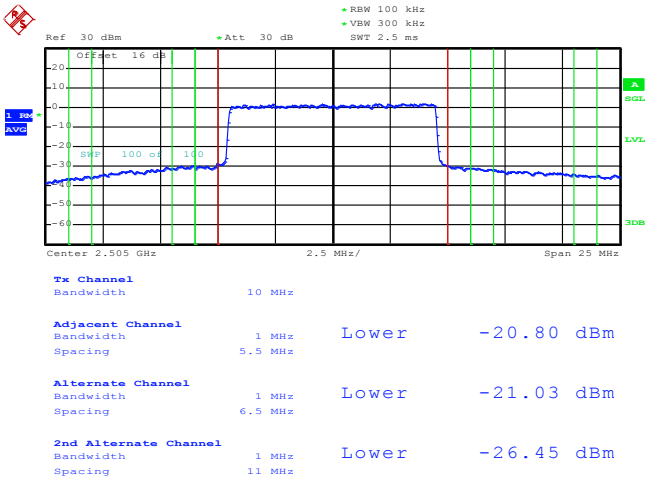
Band :	LTE Band 7	Band Width :	10MHz / 16QAM

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



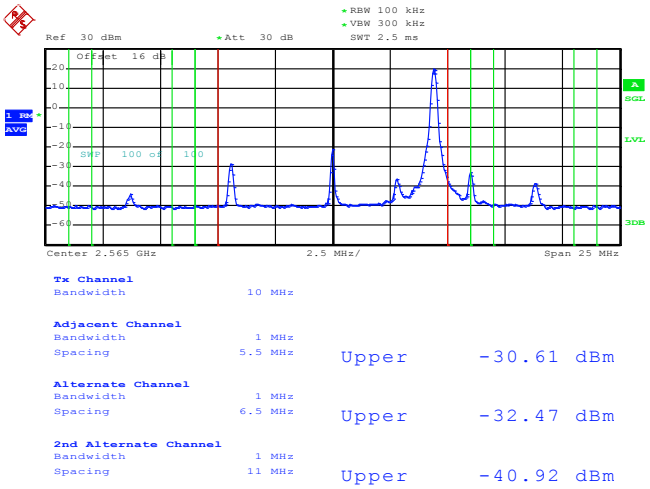
Date: 19.MAR.2014 21:01:51

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



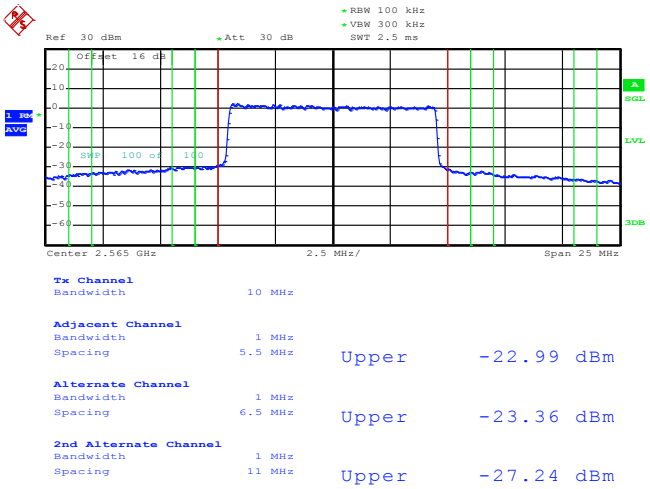
Date: 19.MAR.2014 21:02:08

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



Date: 19.MAR.2014 21:00:49

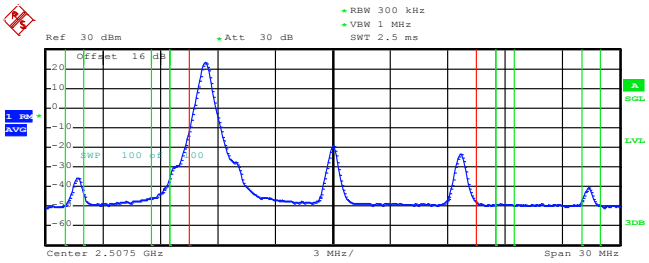
Higher Band Edge Plot for 16QAM-RB Size 50, RB Offset 0



Date: 19.MAR.2014 21:00:24

Band :	LTE Band 7	Band Width :	15MHz / QPSK

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



Tx Channel
Bandwidth 15 MHz

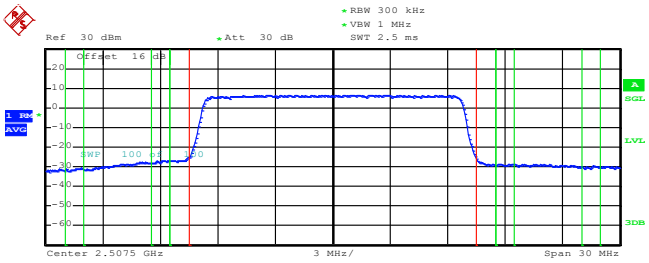
Adjacent Channel
Bandwidth 1 MHz
Spacing 8 MHz
Lower -16.66 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 9 MHz
Lower -37.22 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 13.5 MHz
Lower -34.89 dBm

Date: 19.MAR.2014 21:04:37

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



Tx Channel
Bandwidth 15 MHz

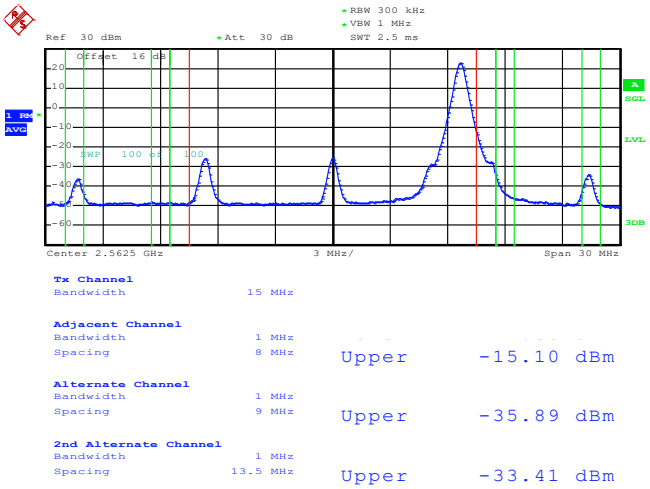
Adjacent Channel
Bandwidth 1 MHz
Spacing 8 MHz
Lower -22.20 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 9 MHz
Lower -22.92 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 13.5 MHz
Lower -26.93 dBm

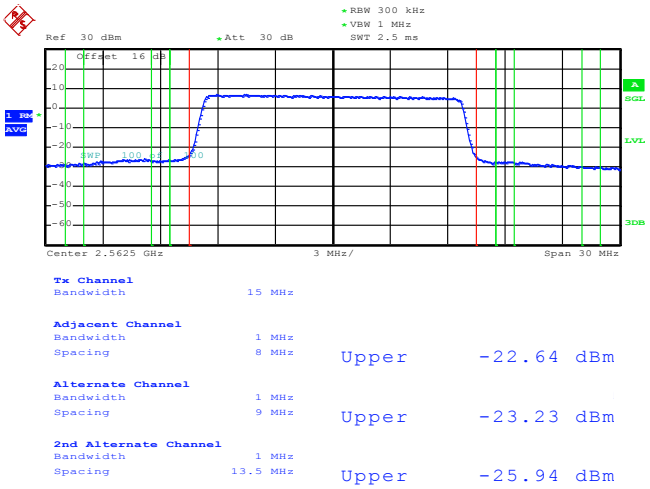
Date: 19.MAR.2014 21:03:51

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



Date: 19.MAR.2014 21:05:19

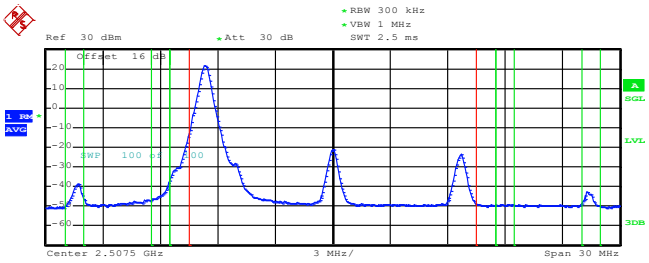
Higher Band Edge Plot for QPSK-RB Size 75, RB Offset 0



Date: 19.MAR.2014 21:06:06

Band :	LTE Band 7	Band Width :	15MHz / 16QAM

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



Tx Channel
Bandwidth 15 MHz

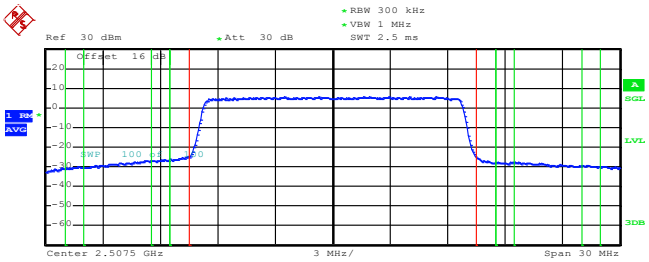
Adjacent Channel
Bandwidth 1 MHz
Spacing 8 MHz
Lower -17.85 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 9 MHz
Lower -38.34 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 13.5 MHz
Lower -37.60 dBm

Date: 19.MAR.2014 21:04:25

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



Tx Channel
Bandwidth 15 MHz

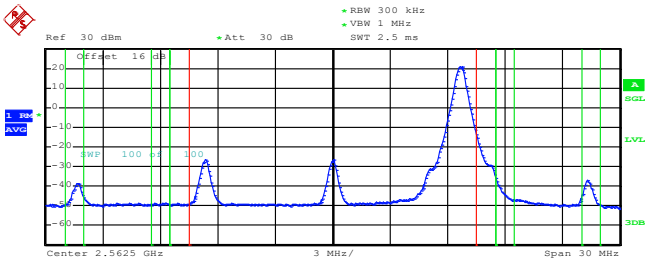
Adjacent Channel
Bandwidth 1 MHz
Spacing 8 MHz
Lower -21.33 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 9 MHz
Lower -22.29 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 13.5 MHz
Lower -25.96 dBm

Date: 19.MAR.2014 21:04:06

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



Tx Channel
Bandwidth 15 MHz

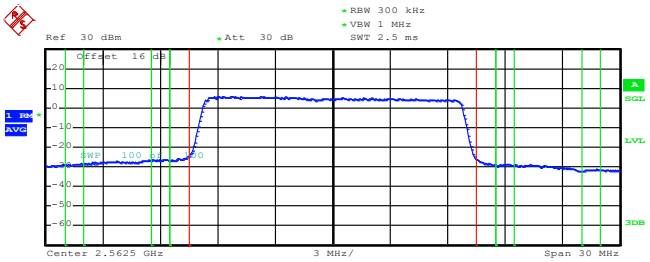
Adjacent Channel
Bandwidth 1 MHz
Spacing 8 MHz
Upper -16.70 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 9 MHz
Upper -37.01 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 13.5 MHz
Upper -36.49 dBm

Date: 19.MAR.2014 21:05:33

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



Tx Channel
Bandwidth 15 MHz

Adjacent Channel
Bandwidth 1 MHz
Spacing 8 MHz
Upper -23.54 dBm

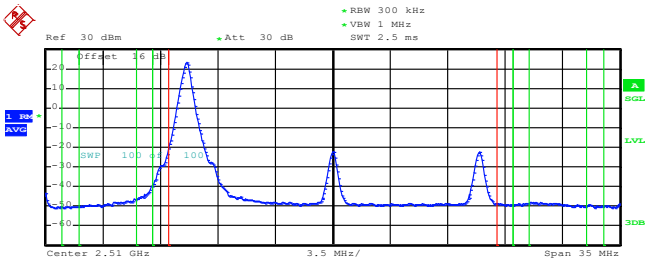
Alternate Channel
Bandwidth 1 MHz
Spacing 9 MHz
Upper -24.52 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 13.5 MHz
Upper -27.16 dBm

Date: 19.MAR.2014 21:05:54

Band :	LTE Band 7	Band Width :	20MHz / QPSK

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



Tx Channel
Bandwidth 20 MHz

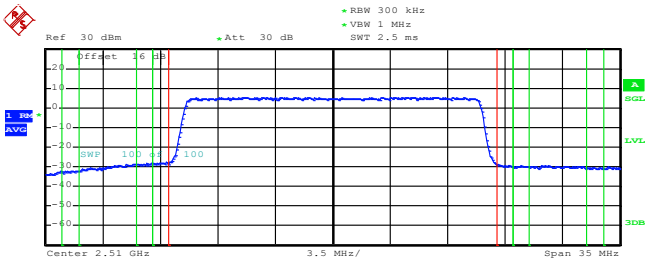
Adjacent Channel
Bandwidth 1 MHz
Spacing 10.5 MHz
Lower -24.04 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 11.5 MHz
Lower -39.34 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 16 MHz
Lower -45.95 dBm

Date: 19.MAR.2014 21:08:44

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



Tx Channel
Bandwidth 20 MHz

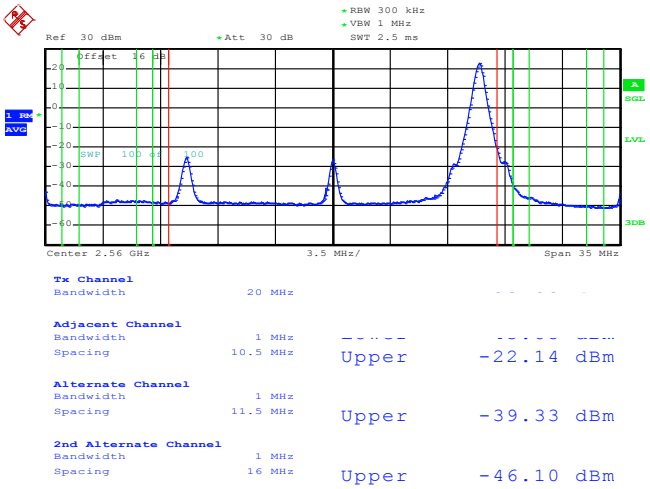
Adjacent Channel
Bandwidth 1 MHz
Spacing 10.5 MHz
Lower -23.79 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 11.5 MHz
Lower -24.28 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 16 MHz
Lower -27.95 dBm

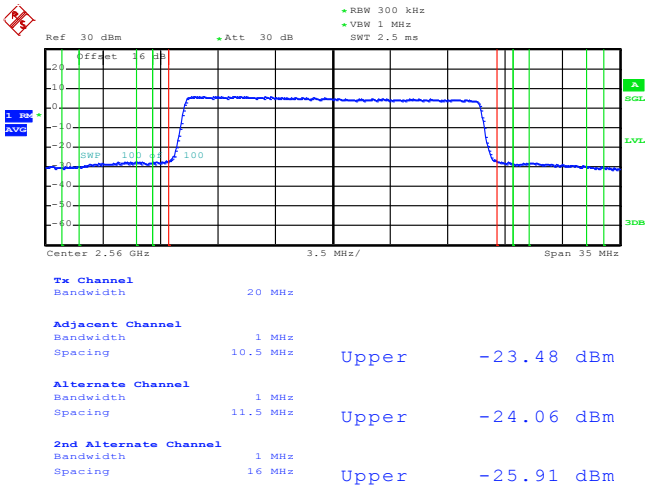
Date: 19.MAR.2014 21:09:40

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



Date: 19.MAR.2014 21:08:13

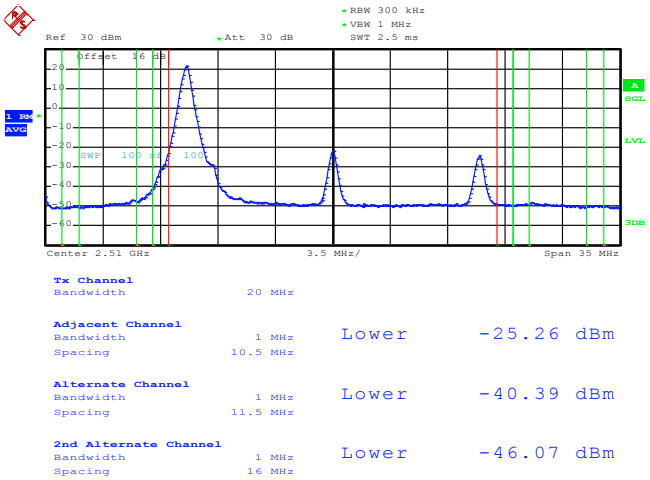
Higher Band Edge Plot for QPSK-RB Size 100, RB Offset 0



Date: 19.MAR.2014 21:07:19

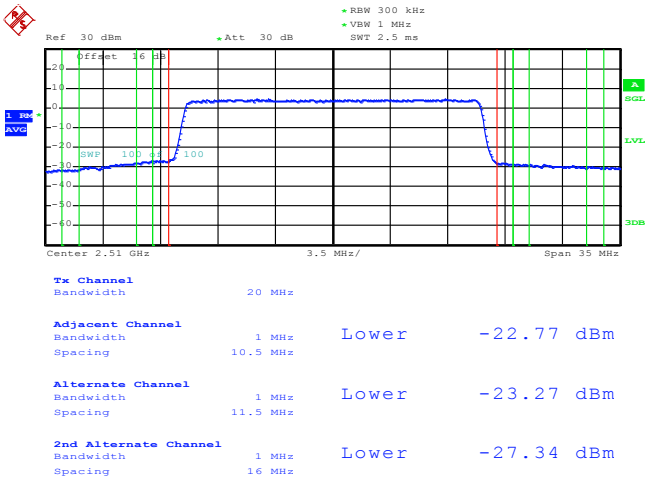
Band :	LTE Band 7	Band Width :	20MHz / 16QAM

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



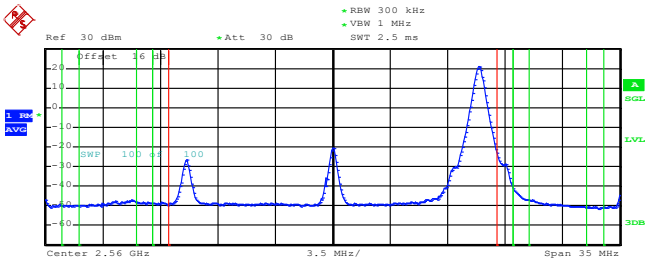
Date: 19.MAR.2014 21:08:58

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



Date: 19.MAR.2014 21:09:23

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



Tx Channel
Bandwidth 20 MHz

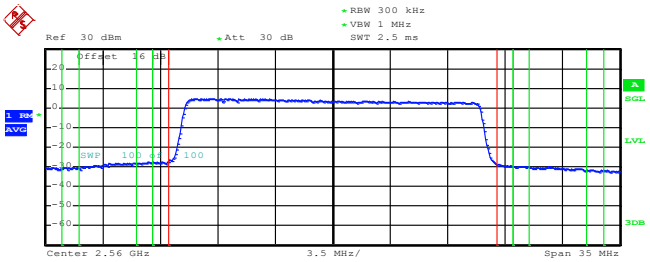
Adjacent Channel
Bandwidth 1 MHz
Spacing 10.5 MHz
Upper -23.93 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 11.5 MHz
Upper -40.31 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 16 MHz
Upper -46.32 dBm

Date: 19.MAR.2014 21:08:00

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



Tx Channel
Bandwidth 20 MHz

Adjacent Channel
Bandwidth 1 MHz
Spacing 10.5 MHz
Upper -24.93 dBm

Alternate Channel
Bandwidth 1 MHz
Spacing 11.5 MHz
Upper -25.54 dBm

2nd Alternate Channel
Bandwidth 1 MHz
Spacing 16 MHz
Upper -27.43 dBm

Date: 19.MAR.2014 21:07:35

3.5 Conducted Spurious Emission Measurement

3.5.1 Description of Conducted Spurious Emission Measurement

For Band 5

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.

For Band 7

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 55 + 10 log (P) dB.

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

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 base station via 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. For 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.
8. For Band 7

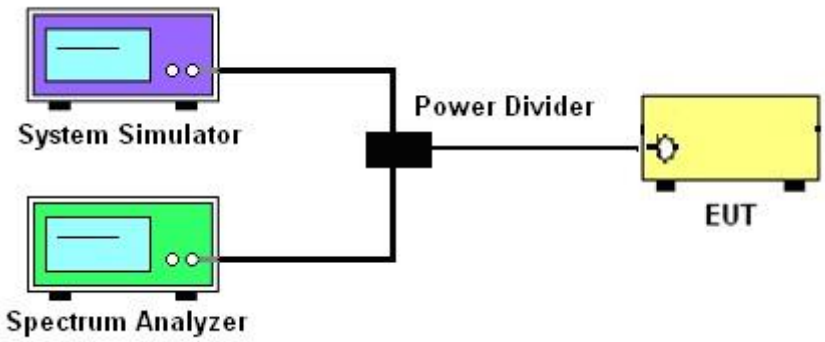
   The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [55 + 10log(P)] (dB)

   = [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)

   = -25dBm.

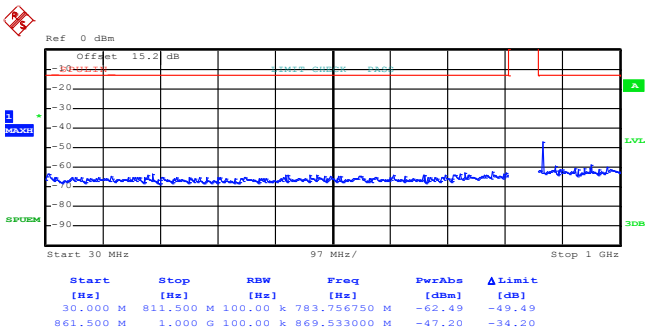
3.5.4 Test Setup



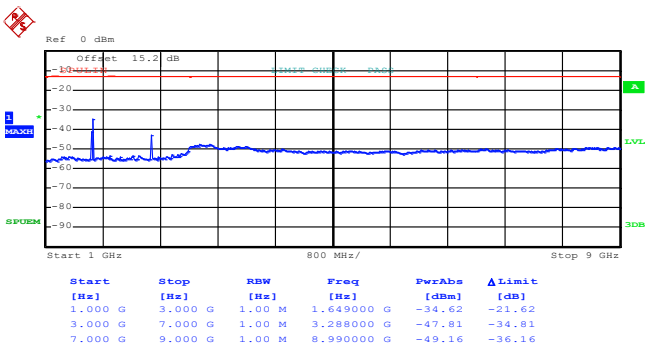
3.5.5 Test Result (Plots) of Conducted Spurious Emission

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

QPSK (RB Size 1, RB Offset 0)

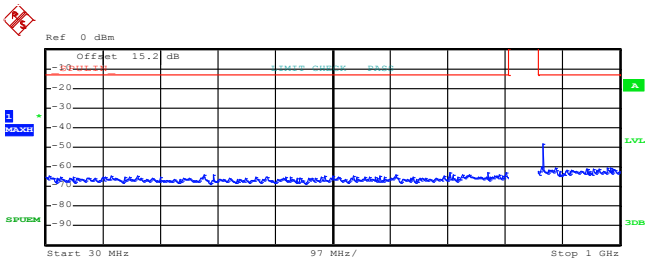


Date: 19.MAR.2014 19:41:09



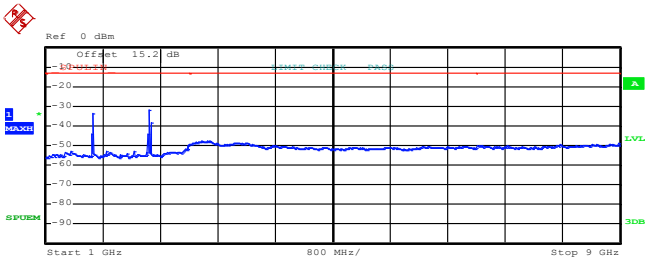
Date: 19.MAR.2014 19:42:05

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	775.941750 M	-62.62	-49.62
861.500 M	1.000 G	100.00 k	869.602250 M	-48.53	-35.53

Date: 19.MAR.2014 19:41:24

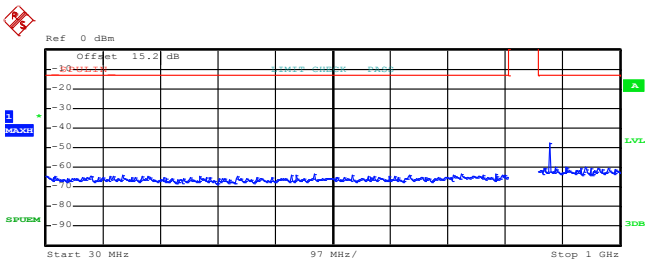


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	2.440000 G	-31.59	-18.59
3.000 G	7.000 G	1.00 M	3.280000 G	-47.48	-34.48
7.000 G	9.000 G	1.00 M	8.981000 G	-48.98	-35.98

Date: 19.MAR.2014 19:41:44

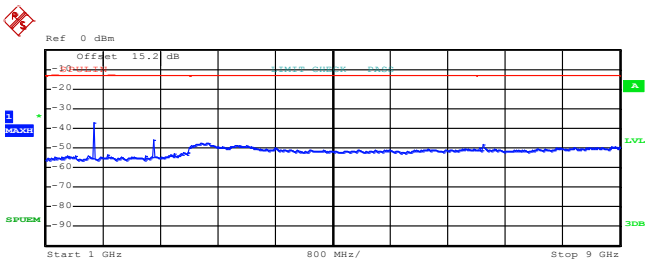
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	811.500 M	100.00 k	483.270000 M	-63.54	-50.54
861.500 M	1.000 G	100.00 k	881.859500 M	-47.43	-34.43

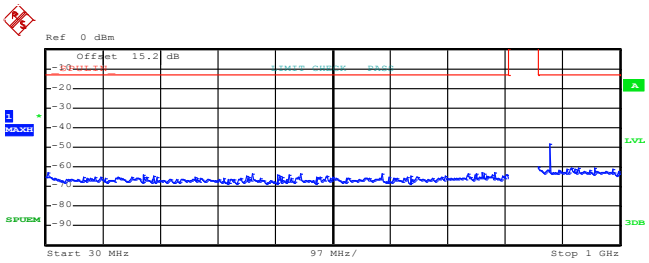
Date: 19.MAR.2014 19:35:15



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.000 G	3.000 G	1.00 M	1.672000 G	-36.99	-23.99
3.000 G	7.000 G	1.00 M	3.238000 G	-47.49	-34.49
7.000 G	9.000 G	1.00 M	7.094000 G	-48.17	-35.17

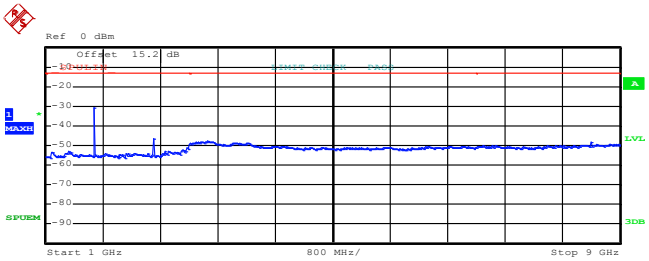
Date: 19.MAR.2014 19:36:04

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	34.298250 M	-62.84	-49.84
861.500 M	1.000 G	100.00 k	881.582500 M	-47.96	-34.96

Date: 19.MAR.2014 19:35:30

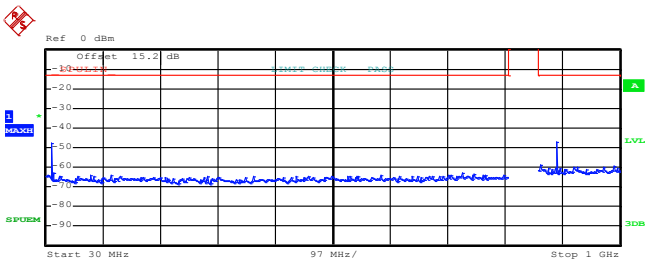


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.672000 G	-30.49	-17.49
3.000 G	7.000 G	1.00 M	3.252000 G	-47.68	-34.68
7.000 G	9.000 G	1.00 M	8.595000 G	-48.50	-35.50

Date: 19.MAR.2014 19:35:52

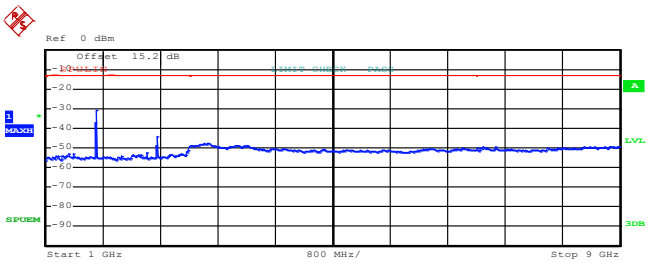
Band :	LTE Band 5	Channel :	CH20643 (High)
Band Width :	1.4MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	38.987250 M	-47.80	-34.80
861.500 M	1.000 G	100.00 k	893.424250 M	-47.26	-34.26

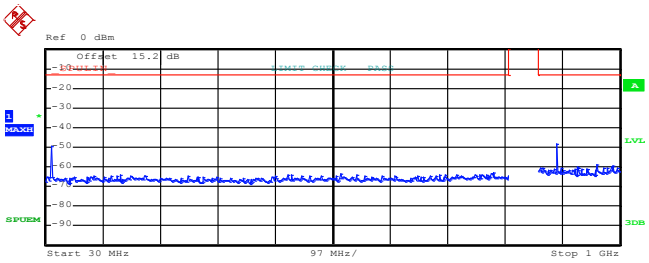
Date: 19.MAR.2014 19:43:28



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.696000 G	-30.97	-17.97
3.000 G	7.000 G	1.00 M	3.266000 G	-47.63	-34.63
7.000 G	9.000 G	1.00 M	8.654000 G	-49.24	-36.24

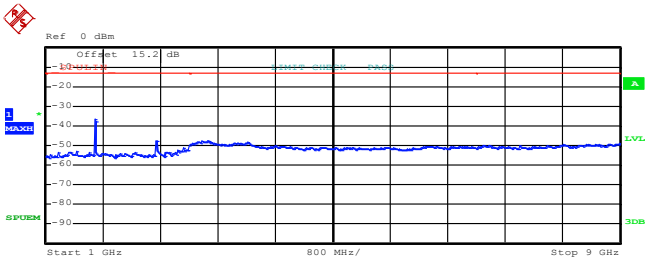
Date: 19.MAR.2014 19:42:41

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	38.987250 M	-49.15	-36.15
861.500 M	1.000 G	100.00 k	893.147250 M	-48.03	-35.03

Date: 19.MAR.2014 19:43:15

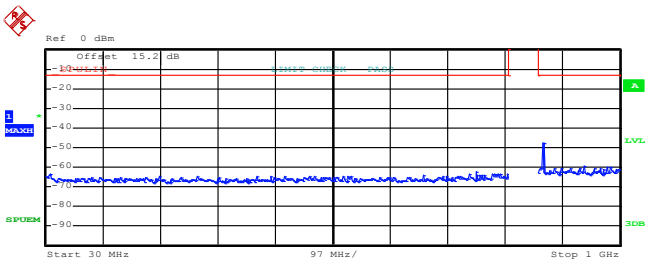


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.695000 G	-36.42	-23.42
3.000 G	7.000 G	1.00 M	3.182000 G	-47.70	-34.70
7.000 G	9.000 G	1.00 M	8.992000 G	-48.80	-35.80

Date: 19.MAR.2014 19:42:56

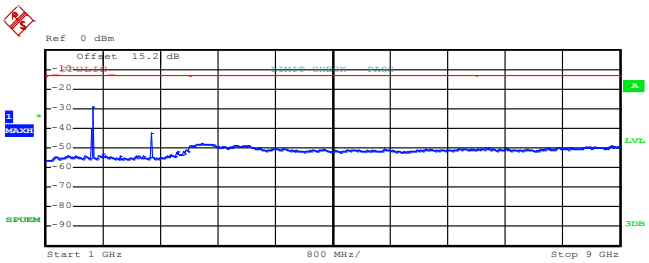
Band :	LTE Band 5	Channel :	CH20415 (Low)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	757.967250 M	-62.39	-49.39
861.500 M	1.000 G	100.00 k	871.402750 M	-47.51	-34.51

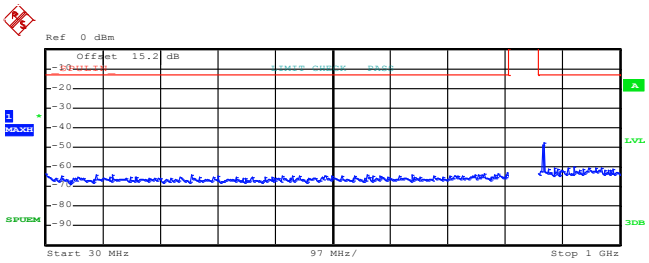
Date: 19.MAR.2014 19:46:09



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.648000 G	-28.98	-15.98
3.000 G	7.000 G	1.00 M	3.176000 G	-47.93	-34.93
7.000 G	9.000 G	1.00 M	8.882000 G	-48.91	-35.91

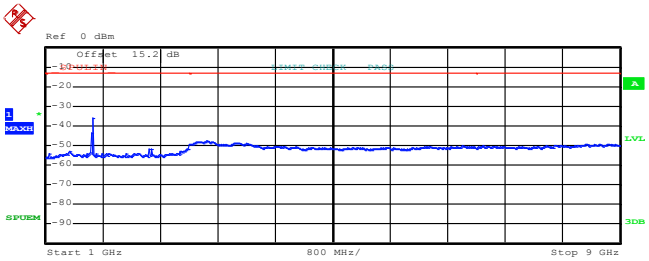
Date: 19.MAR.2014 19:45:23

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	810.327750 M	-62.68	-49.68
861.500 M	1.000 G	100.00 k	870.987250 M	-47.68	-34.68

Date: 19.MAR.2014 19:45:56

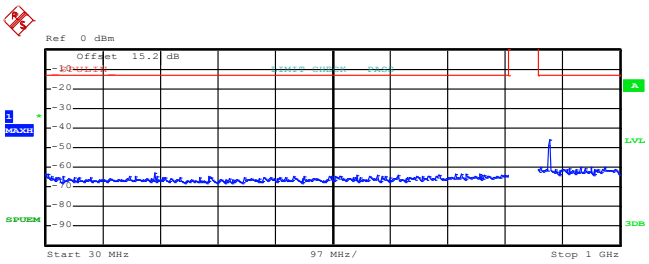


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.649000 G	-36.21	-23.21
3.000 G	7.000 G	1.00 M	3.244000 G	-47.64	-34.64
7.000 G	9.000 G	1.00 M	8.717000 G	-49.18	-36.18

Date: 19.MAR.2014 19:45:38

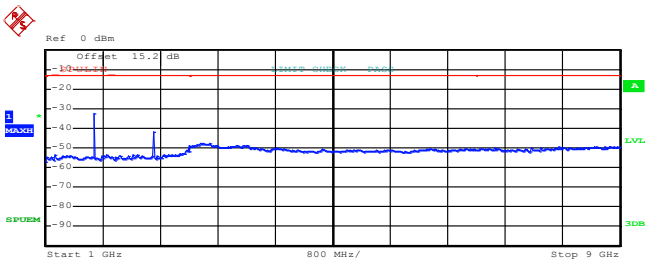
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	811.500 M	100.00 k	214.434000 M	-62.71	-49.71
861.500 M	1.000 G	100.00 k	881.859500 M	-45.94	-32.94

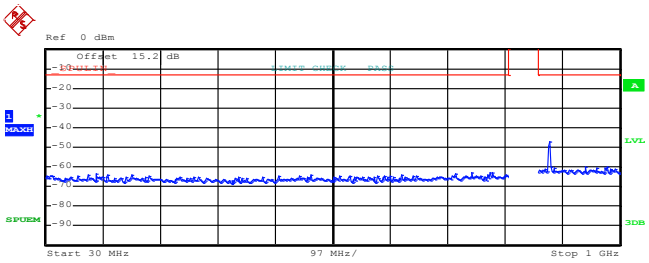
Date: 19.MAR.2014 19:37:15



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.000 G	3.000 G	1.00 M	1.670000 G	-32.36	-19.36
3.000 G	7.000 G	1.00 M	3.188000 G	-47.77	-34.77
7.000 G	9.000 G	1.00 M	8.996000 G	-49.33	-36.33

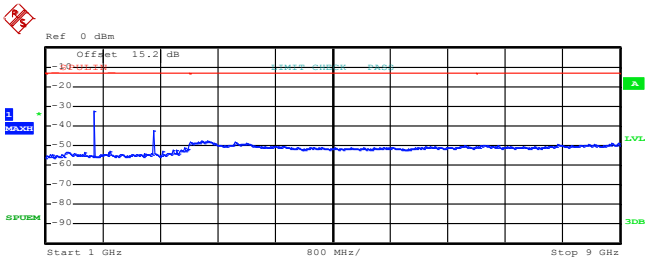
Date: 19.MAR.2014 19:36:27

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	781.021500 M	-62.66	-49.66
861.500 M	1.000 G	100.00 k	881.651750 M	-47.17	-34.17

Date: 19.MAR.2014 19:37:01

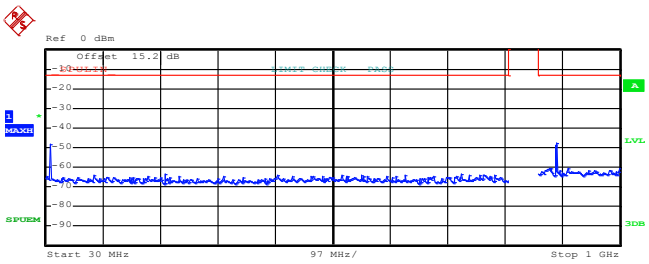


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.671000 G	-32.57	-19.57
3.000 G	7.000 G	1.00 M	3.258000 G	-47.91	-34.91
7.000 G	9.000 G	1.00 M	8.888000 G	-49.01	-36.01

Date: 19.MAR.2014 19:36:42

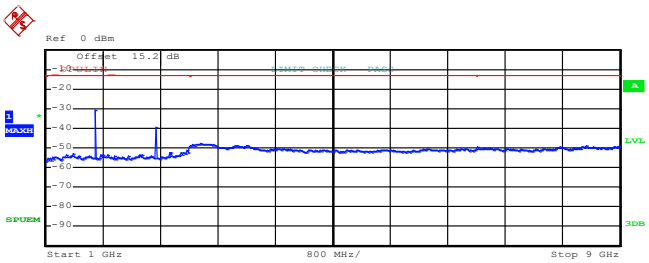
Band :	LTE Band 5	Channel :	CH20635 (High)
Band Width :	3MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	37.424250 M	-48.11	-35.11
861.500 M	1.000 G	100.00 k	893.285750 M	-47.76	-34.76

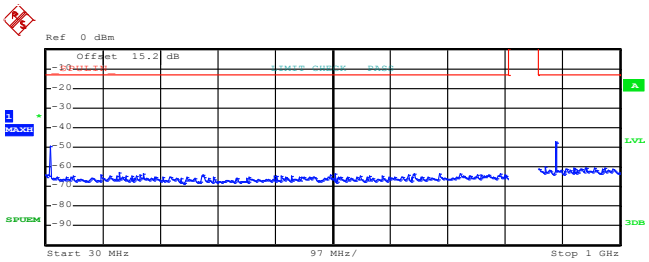
Date: 19.MAR.2014 19:43:58



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.693000 G	-30.43	-17.43
3.000 G	7.000 G	1.00 M	3.152000 G	-47.69	-34.69
7.000 G	9.000 G	1.00 M	8.541000 G	-49.06	-36.06

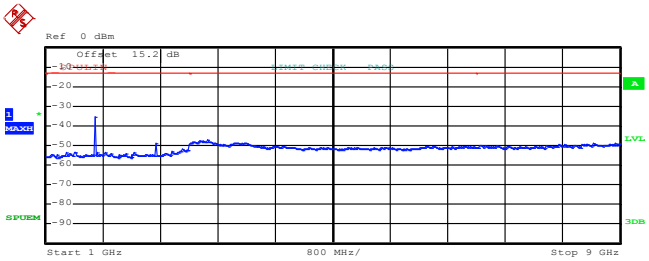
Date: 19.MAR.2014 19:44:50

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	37.424250 M	-49.40	-36.40
861.500 M	1.000 G	100.00 k	892.247000 M	-47.03	-34.03

Date: 19.MAR.2014 19:44:12

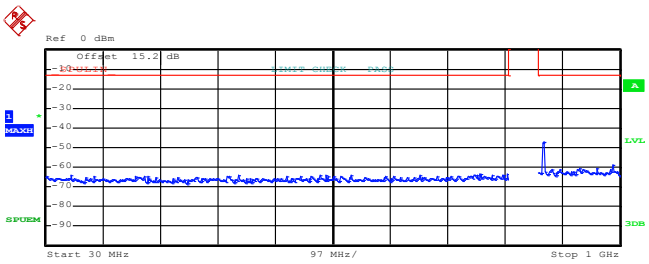


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.693000 G	-35.65	-22.65
3.000 G	7.000 G	1.00 M	3.248000 G	-47.25	-34.25
7.000 G	9.000 G	1.00 M	8.636000 G	-48.91	-35.91

Date: 19.MAR.2014 19:44:34

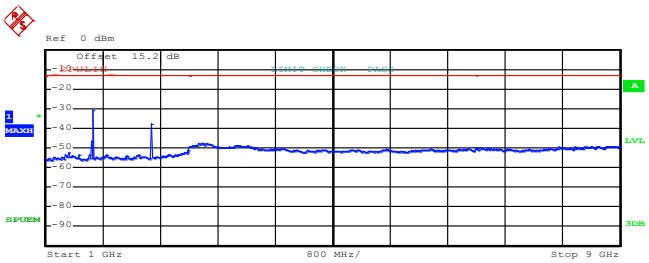
Band :	LTE Band 5	Channel :	CH20425 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	763.047000 M	-63.44	-50.44
861.500 M	1.000 G	100.00 k	872.718500 M	-46.94	-33.94

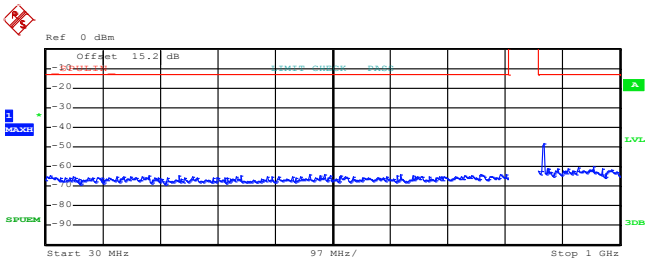
Date: 19.MAR.2014 19:46:40



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.649000 G	-30.43	-17.43
3.000 G	7.000 G	1.00 M	3.240000 G	-47.75	-34.75
7.000 G	9.000 G	1.00 M	8.996000 G	-49.04	-36.04

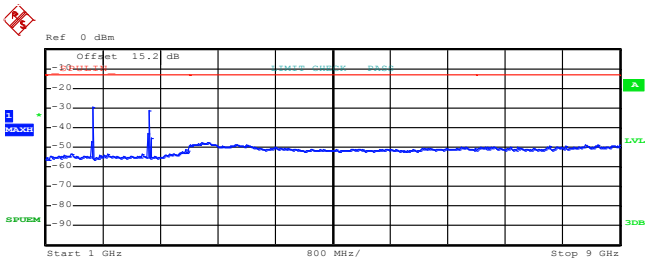
Date: 19.MAR.2014 19:47:37

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	500.853750 M	-63.80	-50.80
861.500 M	1.000 G	100.00 k	871.195000 M	-48.24	-35.24

Date: 19.MAR.2014 19:46:53

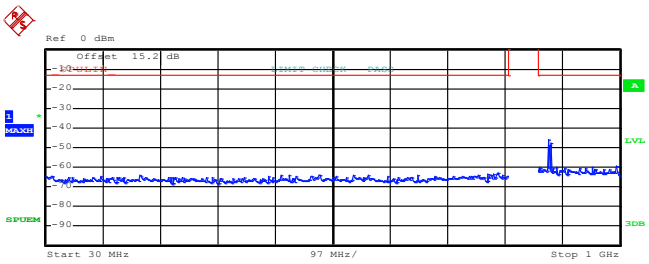


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.649000 G	-29.52	-16.52
3.000 G	7.000 G	1.00 M	3.176000 G	-47.43	-34.43
7.000 G	9.000 G	1.00 M	8.992000 G	-48.55	-35.55

Date: 19.MAR.2014 19:47:22

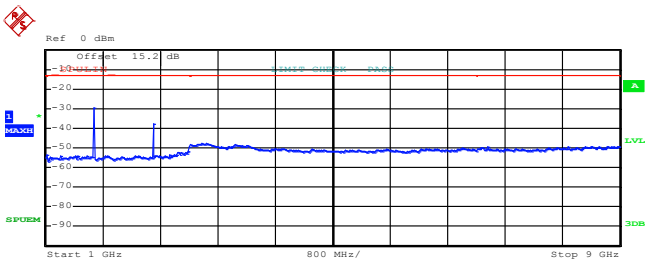
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	811.500 M	100.00 k	794.307000 M	-62.88	-49.88
861.500 M	1.000 G	100.00 k	880.197500 M	-46.17	-33.17

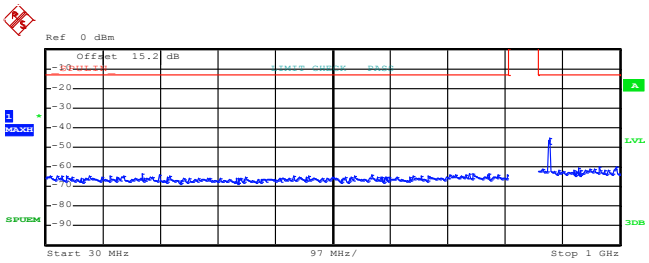
Date: 19.MAR.2014 19:37:41



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.000 G	3.000 G	1.00 M	1.669000 G	-29.32	-16.32
3.000 G	7.000 G	1.00 M	3.176000 G	-47.81	-34.81
7.000 G	9.000 G	1.00 M	8.823000 G	-49.26	-36.26

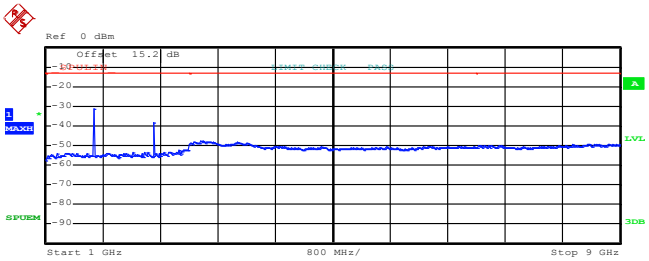
Date: 19.MAR.2014 19:38:28

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	778.286250 M	-63.36	-50.36
861.500 M	1.000 G	100.00 k	881.305500 M	-45.43	-32.43

Date: 19.MAR.2014 19:37:53

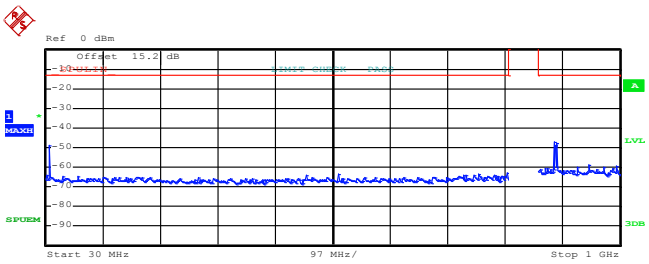


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.669000 G	-31.06	-18.06
3.000 G	7.000 G	1.00 M	3.162000 G	-47.65	-34.65
7.000 G	9.000 G	1.00 M	8.548000 G	-49.32	-36.32

Date: 19.MAR.2014 19:38:14

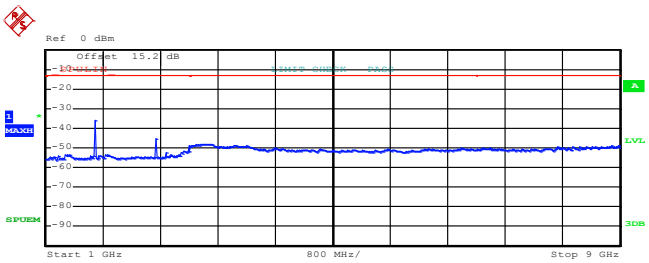
Band :	LTE Band 5	Channel :	CH20625 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	35.470500 M	-48.80	-35.80
861.500 M	1.000 G	100.00 k	889.269250 M	-47.11	-34.11

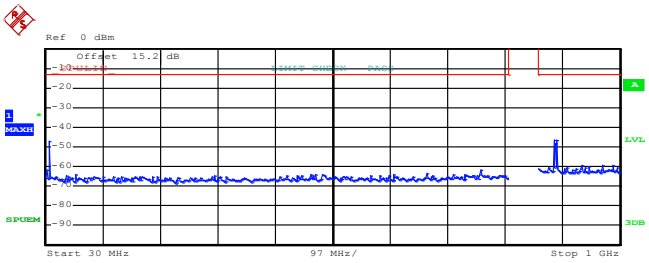
Date: 19.MAR.2014 19:48:49



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.689000 G	-35.88	-22.88
3.000 G	7.000 G	1.00 M	3.234000 G	-47.98	-34.98
7.000 G	9.000 G	1.00 M	8.983000 G	-48.82	-35.82

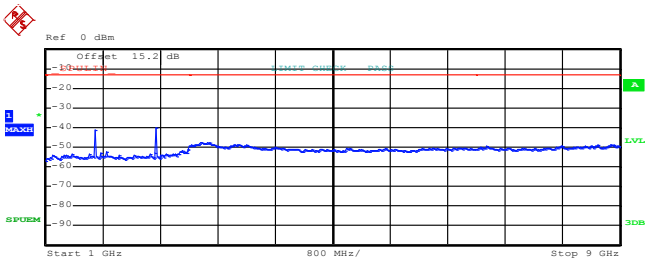
Date: 19.MAR.2014 19:48:06

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	35.470500 M	-47.02	-34.02
861.500 M	1.000 G	100.00 k	893.355000 M	-46.68	-33.68

Date: 19.MAR.2014 19:48:38

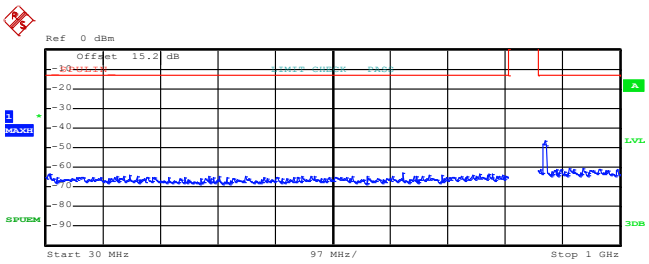


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	2.534000 G	-40.11	-27.11
3.000 G	7.000 G	1.00 M	3.180000 G	-47.41	-34.41
7.000 G	9.000 G	1.00 M	8.893000 G	-48.87	-35.87

Date: 19.MAR.2014 19:48:20

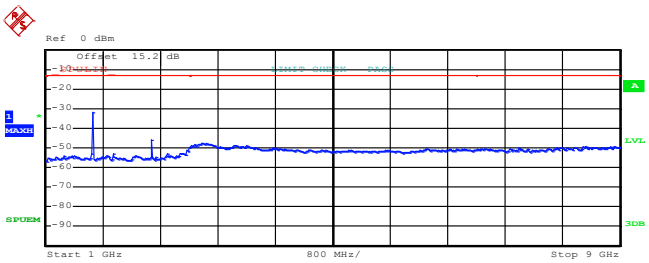
Band :	LTE Band 5	Channel :	CH20450 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	633.318000 M	-62.97	-49.97
861.500 M	1.000 G	100.00 k	873.203250 M	-46.58	-33.58

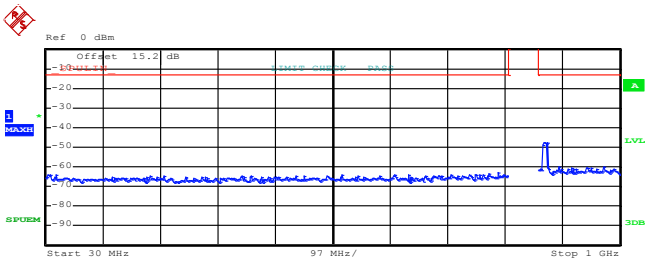
Date: 19.MAR.2014 19:52:42



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.649000 G	-31.82	-18.82
3.000 G	7.000 G	1.00 M	3.194000 G	-47.49	-34.49
7.000 G	9.000 G	1.00 M	8.941000 G	-49.14	-36.14

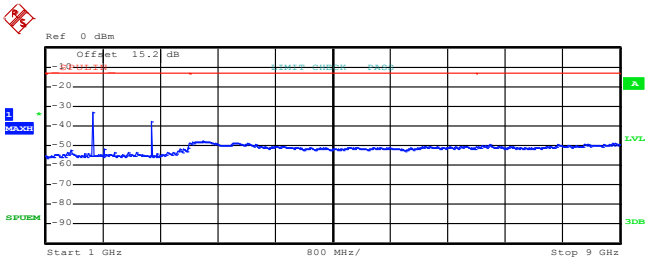
Date: 19.MAR.2014 19:51:57

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	793.916250 M	-62.92	-49.92
861.500 M	1.000 G	100.00 k	872.372250 M	-47.44	-34.44

Date: 19.MAR.2014 19:52:30

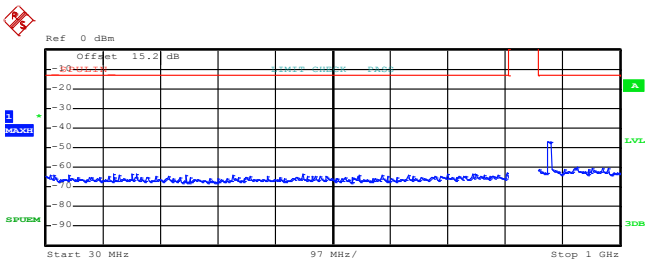


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.649000 G	-33.28	-20.28
3.000 G	7.000 G	1.00 M	3.188000 G	-47.51	-34.51
7.000 G	9.000 G	1.00 M	8.904000 G	-49.00	-36.00

Date: 19.MAR.2014 19:52:11

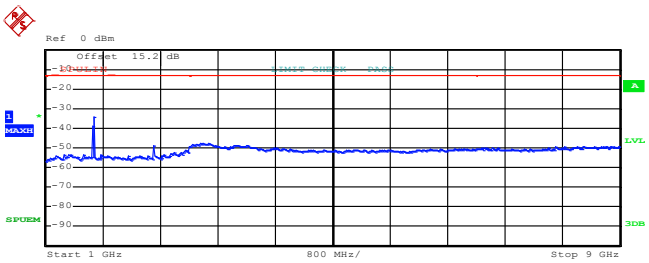
Band :	LTE Band 5	Channel :	CH20525 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	809.937000 M	-63.04	-50.04
861.500 M	1.000 G	100.00 k	879.712750 M	-47.08	-34.08

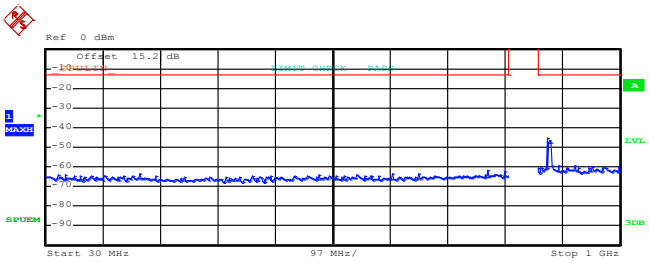
Date: 19.MAR.2014 19:39:37



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.664000 G	-34.44	-21.44
3.000 G	7.000 G	1.00 M	3.156000 G	-47.73	-34.73
7.000 G	9.000 G	1.00 M	8.982000 G	-49.32	-36.32

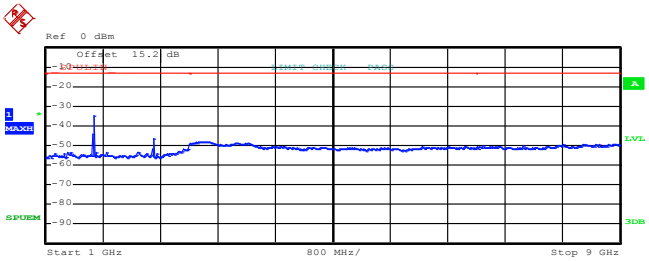
Date: 19.MAR.2014 19:38:51

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	775.551000 M	-61.55	-48.55
861.500 M	1.000 G	100.00 k	877.496750 M	-45.45	-32.45

Date: 19.MAR.2014 19:39:25

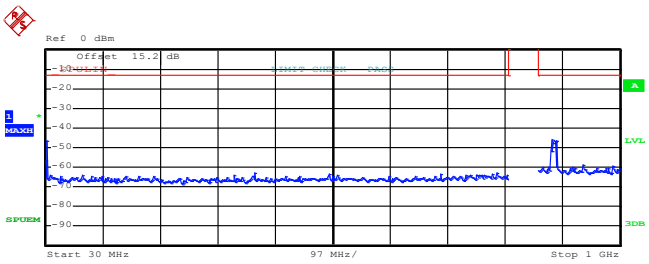


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.664000 G	-34.71	-21.71
3.000 G	7.000 G	1.00 M	3.102000 G	-47.99	-34.99
7.000 G	9.000 G	1.00 M	8.991000 G	-49.21	-36.21

Date: 19.MAR.2014 19:39:06

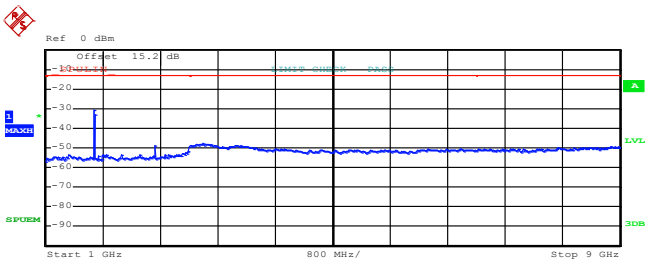
Band :	LTE Band 5	Channel :	CH20600 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	811.500 M	100.00 k	30.781500 M	-46.63	-33.63
861.500 M	1.000 G	100.00 k	885.876000 M	-46.12	-33.12

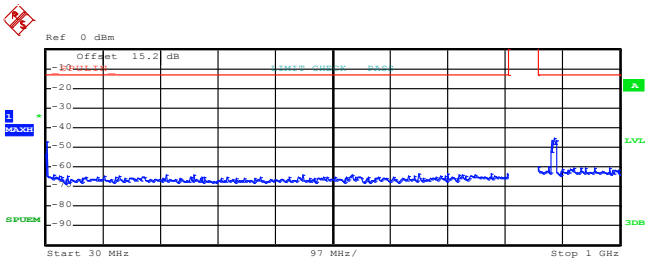
Date: 19.MAR.2014 19:50:36



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.000 G	3.000 G	1.00 M	1.679000 G	-30.72	-17.72
3.000 G	7.000 G	1.00 M	3.184000 G	-47.55	-34.55
7.000 G	9.000 G	1.00 M	8.869000 G	-49.27	-36.27

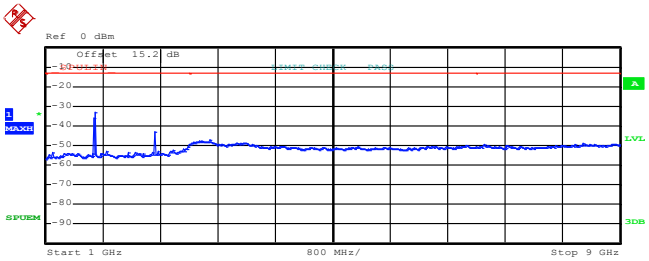
Date: 19.MAR.2014 19:51:23

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	811.500 M	100.00 k	30.781500 M	-46.86	-33.86
861.500 M	1.000 G	100.00 k	890.031000 M	-45.56	-32.56

Date: 19.MAR.2014 19:50:48

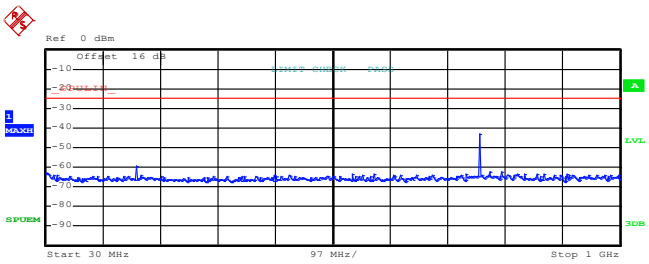


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	3.000 G	1.00 M	1.680000 G	-32.93	-19.93
3.000 G	7.000 G	1.00 M	3.288000 G	-47.17	-34.17
7.000 G	9.000 G	1.00 M	8.485000 G	-48.91	-35.91

Date: 19.MAR.2014 19:51:10

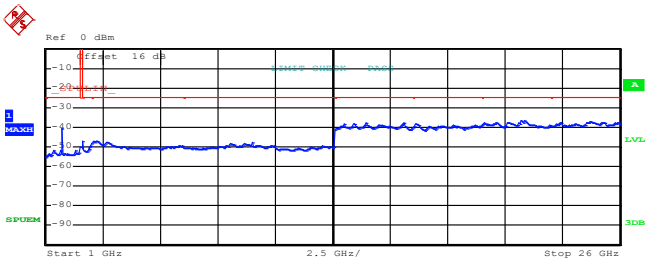
Band :	LTE Band 7	Channel :	CH20775 (Low)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.350000 M	-43.10	-18.10

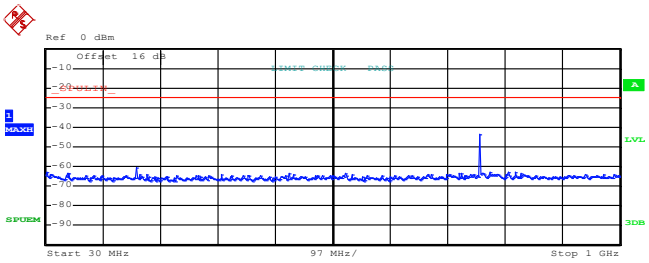
Date: 20.MAR.2014 19:09:13



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.691824 G	-40.39	-15.39
2.583 G	3.000 G	1.00 M	2.621573 G	-46.91	-21.91
3.000 G	7.000 G	1.00 M	3.270000 G	-46.96	-21.96
7.000 G	13.600 G	1.00 M	10.003000 G	-47.45	-22.45
13.600 G	17.000 G	1.00 M	16.580100 G	-37.94	-12.94
17.000 G	20.000 G	1.00 M	17.115500 G	-38.24	-13.24
20.000 G	23.000 G	1.00 M	21.716000 G	-36.67	-11.67
23.000 G	26.000 G	1.00 M	24.680000 G	-37.31	-12.31

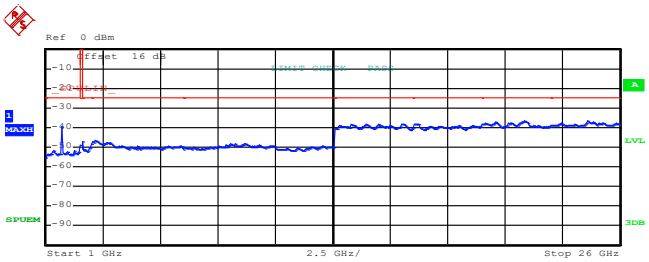
Date: 20.MAR.2014 19:10:21

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.350000 M	-43.83	-18.83

Date: 20.MAR.2014 19:09:39

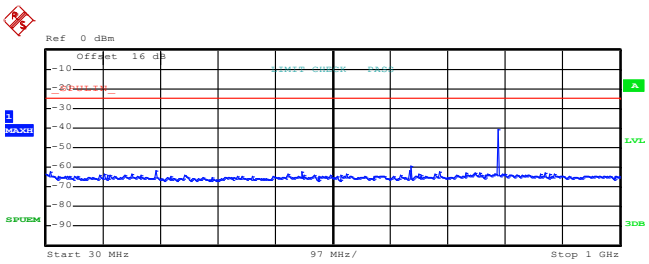


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.691824 G	-39.70	-14.70
2.583 G	3.000 G	1.00 M	2.622406 G	-46.98	-21.98
3.000 G	7.000 G	1.00 M	3.166000 G	-46.44	-21.44
7.000 G	13.600 G	1.00 M	9.676300 G	-48.18	-23.18
13.600 G	17.000 G	1.00 M	16.605600 G	-38.27	-13.27
17.000 G	20.000 G	1.00 M	17.148500 G	-38.08	-13.08
20.000 G	23.000 G	1.00 M	21.848000 G	-36.51	-11.51
23.000 G	26.000 G	1.00 M	24.617000 G	-36.79	-11.79

Date: 20.MAR.2014 19:10:03

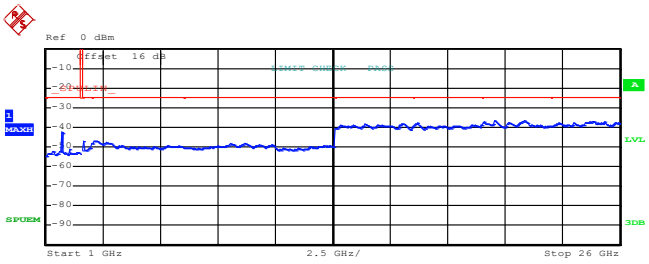
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	794.845000 M	-40.60	-15.60

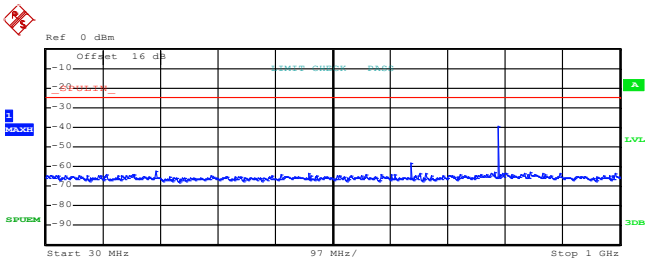
Date: 20.MAR.2014 19:03:12



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.723880 G	-42.33	-17.33
2.583 G	3.000 G	1.00 M	2.656184 G	-47.10	-22.10
3.000 G	7.000 G	1.00 M	3.258000 G	-46.89	-21.89
7.000 G	13.600 G	1.00 M	9.673000 G	-48.27	-23.27
13.600 G	17.000 G	1.00 M	16.541000 G	-38.33	-13.33
17.000 G	20.000 G	1.00 M	17.175500 G	-37.76	-12.76
20.000 G	23.000 G	1.00 M	21.831500 G	-36.76	-11.76
23.000 G	26.000 G	1.00 M	24.827000 G	-36.97	-11.97

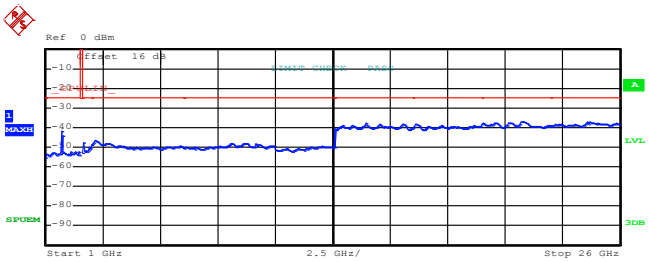
Date: 20.MAR.2014 19:04:11

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	794.845000 M	-39.77	-14.77

Date: 20.MAR.2014 19:03:23

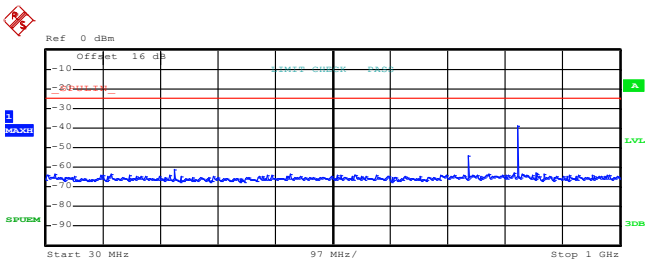


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.723880 G	-41.56	-16.56
2.583 G	3.000 G	1.00 M	2.654307 G	-47.68	-22.68
3.000 G	7.000 G	1.00 M	3.164000 G	-46.65	-21.65
7.000 G	13.600 G	1.00 M	9.620200 G	-48.23	-23.23
13.600 G	17.000 G	1.00 M	14.968500 G	-37.97	-12.97
17.000 G	20.000 G	1.00 M	17.103500 G	-38.12	-13.12
20.000 G	23.000 G	1.00 M	21.854000 G	-37.02	-12.02
23.000 G	26.000 G	1.00 M	24.696500 G	-37.28	-12.28

Date: 20.MAR.2014 19:03:52

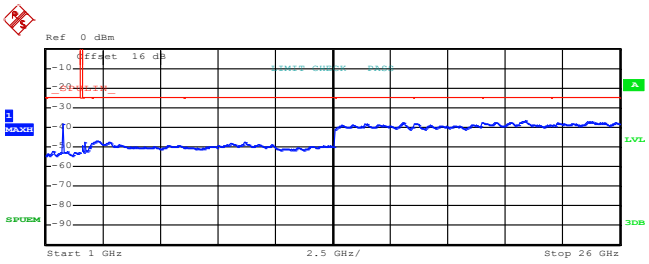
Band :	LTE Band 7	Channel :	CH21425 (High)
Band Width :	5MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	827.340000 M	-38.98	-13.98

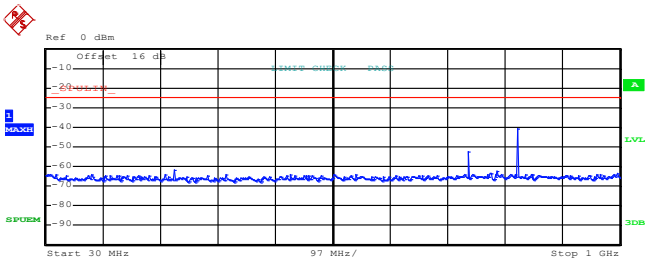
Date: 20.MAR.2014 19:24:06



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.756682 G	-38.29	-13.29
2.583 G	3.000 G	1.00 M	2.687041 G	-47.37	-22.37
3.000 G	7.000 G	1.00 M	3.178000 G	-46.95	-21.95
7.000 G	13.600 G	1.00 M	9.653200 G	-47.65	-22.65
13.600 G	17.000 G	1.00 M	16.595400 G	-37.81	-12.81
17.000 G	20.000 G	1.00 M	17.121500 G	-38.31	-13.31
20.000 G	23.000 G	1.00 M	21.884000 G	-36.66	-11.66
23.000 G	26.000 G	1.00 M	24.786500 G	-36.91	-11.91

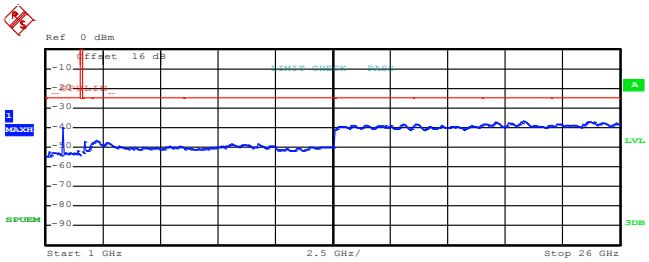
Date: 20.MAR.2014 19:22:51

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	827.340000 M	-40.76	-15.76

Date: 20.MAR.2014 19:23:23

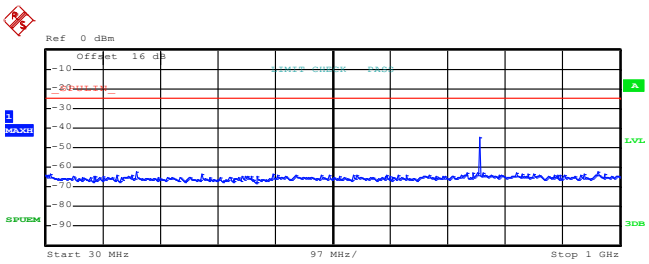


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.756682 G	-40.25	-15.25
2.583 G	3.000 G	1.00 M	2.688501 G	-47.20	-22.20
3.000 G	7.000 G	1.00 M	3.176000 G	-46.72	-21.72
7.000 G	13.600 G	1.00 M	10.260400 G	-48.11	-23.11
13.600 G	17.000 G	1.00 M	16.525700 G	-38.21	-13.21
17.000 G	20.000 G	1.00 M	17.186000 G	-38.16	-13.16
20.000 G	23.000 G	1.00 M	21.788000 G	-36.71	-11.71
23.000 G	26.000 G	1.00 M	24.674000 G	-37.01	-12.01

Date: 20.MAR.2014 19:23:07

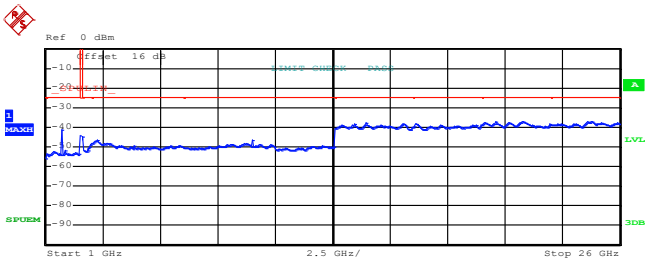
Band :	LTE Band 7	Channel :	CH20800 (Low)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.835000 M	-44.50	-19.50

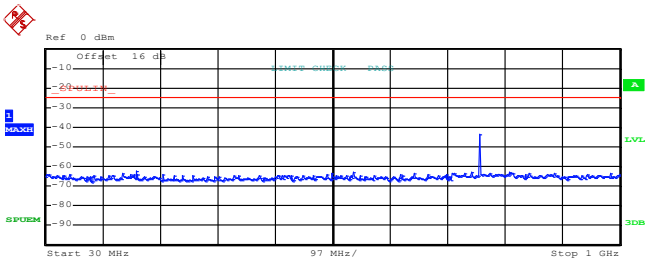
Date: 20.MAR.2014 19:11:45



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.691824 G	-41.30	-16.30
2.583 G	3.000 G	1.00 M	2.622406 G	-44.98	-19.98
3.000 G	7.000 G	1.00 M	3.246000 G	-46.72	-21.72
7.000 G	13.600 G	1.00 M	10.003000 G	-46.44	-21.44
13.600 G	17.000 G	1.00 M	14.936200 G	-37.73	-12.73
17.000 G	20.000 G	1.00 M	17.141000 G	-38.30	-13.30
20.000 G	23.000 G	1.00 M	21.753500 G	-37.05	-12.05
23.000 G	26.000 G	1.00 M	24.587000 G	-37.04	-12.04

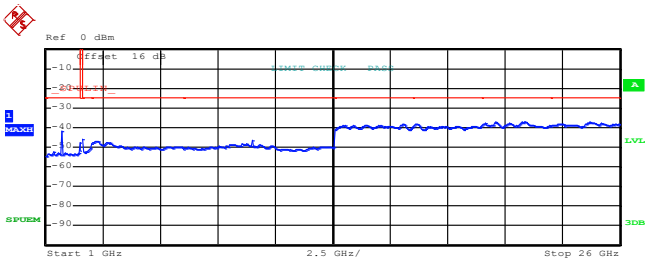
Date: 20.MAR.2014 19:10:59

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.835000 M	-43.77	-18.77

Date: 20.MAR.2014 19:11:33

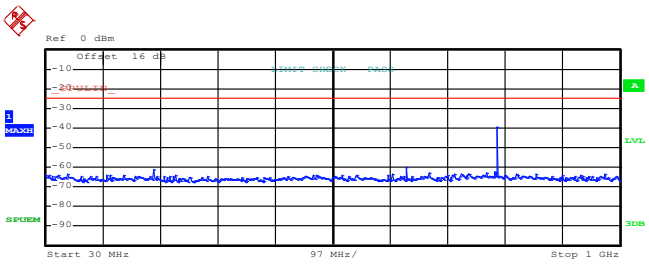


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.691824 G	-41.80	-16.80
2.583 G	3.000 G	1.00 M	2.623032 G	-45.99	-20.99
3.000 G	7.000 G	1.00 M	3.182000 G	-47.09	-22.09
7.000 G	13.600 G	1.00 M	10.003000 G	-46.40	-21.40
13.600 G	17.000 G	1.00 M	16.602200 G	-38.19	-13.19
17.000 G	20.000 G	1.00 M	17.138000 G	-38.20	-13.20
20.000 G	23.000 G	1.00 M	21.747500 G	-36.95	-11.95
23.000 G	26.000 G	1.00 M	24.713000 G	-37.24	-12.24

Date: 20.MAR.2014 19:11:15

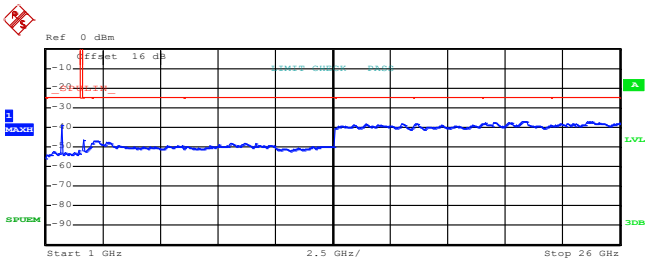
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	792.420000 M	-39.34	-14.34

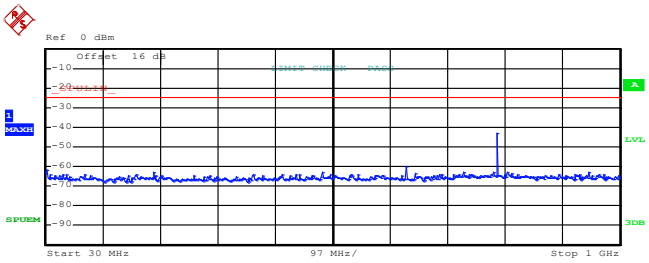
Date: 20.MAR.2014 19:05:26



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.722390 G	-38.93	-13.93
2.583 G	3.000 G	1.00 M	2.654098 G	-46.26	-21.26
3.000 G	7.000 G	1.00 M	3.236000 G	-46.97	-21.97
7.000 G	13.600 G	1.00 M	9.029500 G	-48.26	-23.26
13.600 G	17.000 G	1.00 M	16.522300 G	-38.06	-13.06
17.000 G	20.000 G	1.00 M	17.180000 G	-38.07	-13.07
20.000 G	23.000 G	1.00 M	21.800000 G	-37.18	-12.18
23.000 G	26.000 G	1.00 M	24.795500 G	-37.06	-12.06

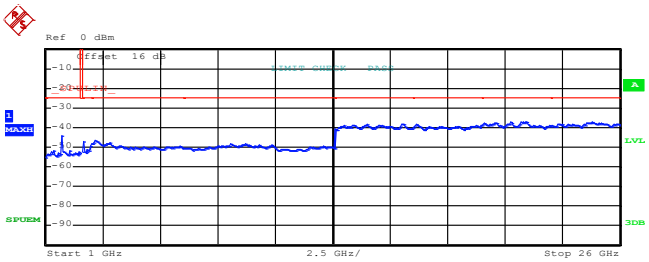
Date: 20.MAR.2014 19:04:43

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	792.905000 M	-43.19	-18.19

Date: 20.MAR.2014 19:05:15

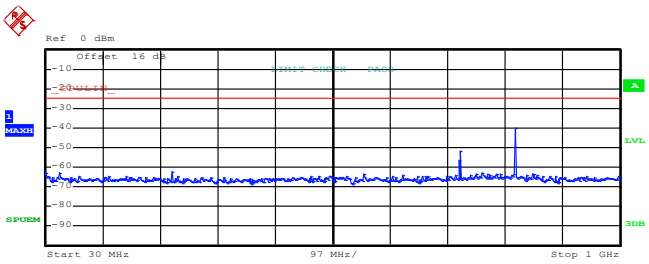


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.722390 G	-44.18	-19.18
2.583 G	3.000 G	1.00 M	2.658685 G	-47.11	-22.11
3.000 G	7.000 G	1.00 M	3.162000 G	-46.60	-21.60
7.000 G	13.600 G	1.00 M	9.676300 G	-48.31	-23.31
13.600 G	17.000 G	1.00 M	16.546100 G	-38.05	-13.05
17.000 G	20.000 G	1.00 M	17.148500 G	-38.38	-13.38
20.000 G	23.000 G	1.00 M	21.900500 G	-37.25	-12.25
23.000 G	26.000 G	1.00 M	24.782000 G	-37.12	-12.12

Date: 20.MAR.2014 19:04:57

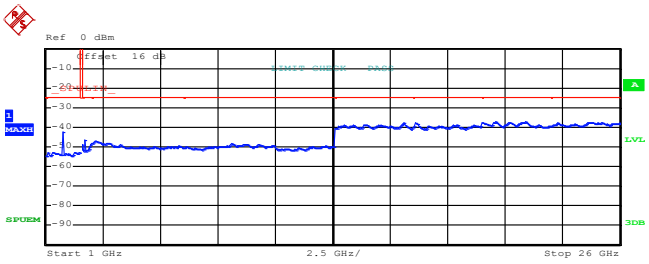
Band :	LTE Band 7	Channel :	CH21400 (High)
Band Width :	10MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	822.490000 M	-39.85	-14.85

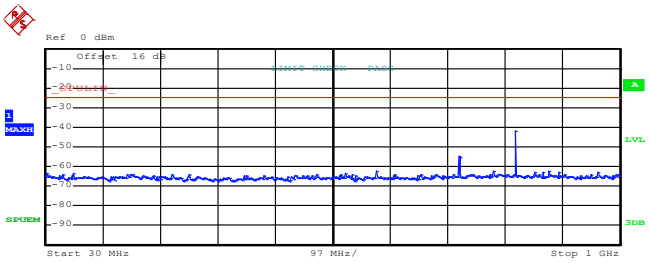
Date: 20.MAR.2014 19:21:26



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.751464 G	-42.30	-17.30
2.583 G	3.000 G	1.00 M	2.684123 G	-46.51	-21.51
3.000 G	7.000 G	1.00 M	3.150000 G	-47.08	-22.08
7.000 G	13.600 G	1.00 M	9.095500 G	-48.25	-23.25
13.600 G	17.000 G	1.00 M	16.593700 G	-37.75	-12.75
17.000 G	20.000 G	1.00 M	17.121500 G	-37.95	-12.95
20.000 G	23.000 G	1.00 M	20.589500 G	-37.01	-12.01
23.000 G	26.000 G	1.00 M	25.229000 G	-37.44	-12.44

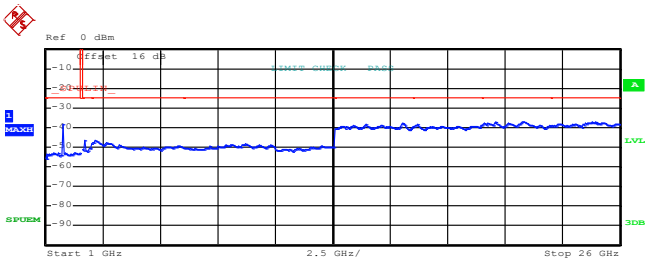
Date: 20.MAR.2014 19:22:20

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	822.490000 M	-41.74	-16.74

Date: 20.MAR.2014 19:21:41

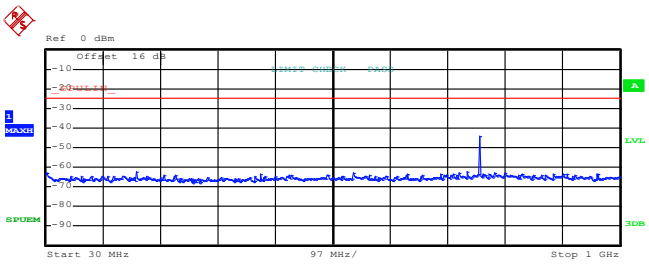


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.752210 G	-38.50	-13.50
2.583 G	3.000 G	1.00 M	2.683080 G	-46.42	-21.42
3.000 G	7.000 G	1.00 M	3.160000 G	-46.77	-21.77
7.000 G	13.600 G	1.00 M	9.682900 G	-48.30	-23.30
13.600 G	17.000 G	1.00 M	16.558000 G	-37.83	-12.83
17.000 G	20.000 G	1.00 M	17.174000 G	-38.58	-13.58
20.000 G	23.000 G	1.00 M	21.854000 G	-37.06	-12.06
23.000 G	26.000 G	1.00 M	24.819500 G	-37.29	-12.29

Date: 20.MAR.2014 19:22:04

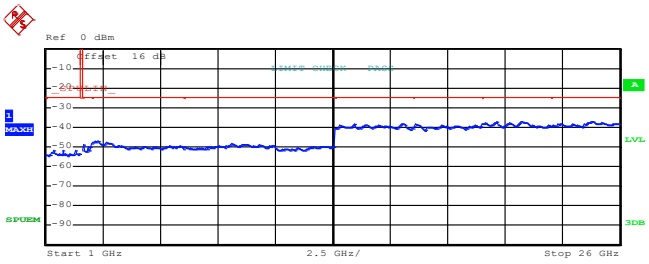
Band :	LTE Band 7	Channel :	CH20825 (Low)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.835000 M	-44.38	-19.38

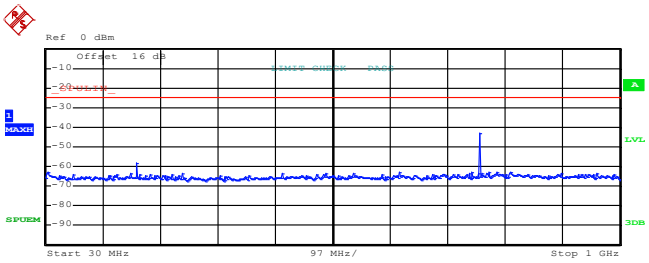
Date: 20.MAR.2014 19:12:23



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	2.291206 G	-51.79	-26.79
2.583 G	3.000 G	1.00 M	2.632414 G	-48.55	-23.55
3.000 G	7.000 G	1.00 M	3.166000 G	-46.98	-21.98
7.000 G	13.600 G	1.00 M	9.072400 G	-48.46	-23.46
13.600 G	17.000 G	1.00 M	16.534200 G	-38.02	-13.02
17.000 G	20.000 G	1.00 M	17.123000 G	-38.41	-13.41
20.000 G	23.000 G	1.00 M	20.625500 G	-36.96	-11.96
23.000 G	26.000 G	1.00 M	24.872000 G	-37.31	-12.31

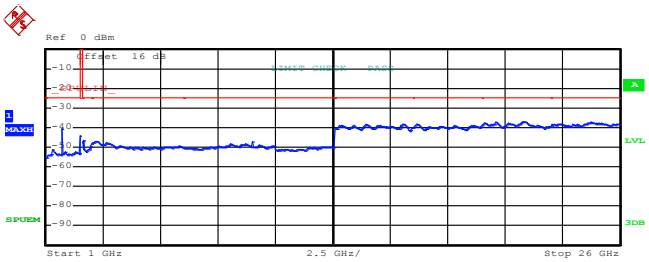
Date: 20.MAR.2014 19:15:01

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.835000 M	-43.15	-18.15

Date: 20.MAR.2014 19:12:39

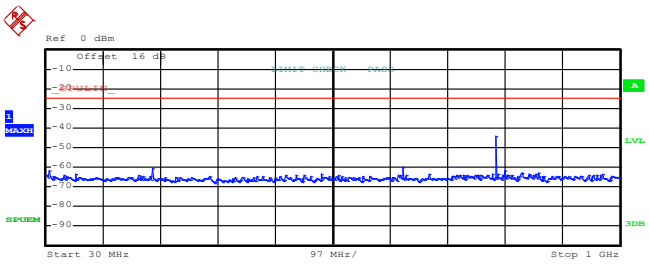


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.692570 G	-40.51	-15.51
2.583 G	3.000 G	1.00 M	2.625326 G	-46.30	-21.30
3.000 G	7.000 G	1.00 M	3.130000 G	-47.09	-22.09
7.000 G	13.600 G	1.00 M	10.003000 G	-47.20	-22.20
13.600 G	17.000 G	1.00 M	16.597100 G	-38.26	-13.26
17.000 G	20.000 G	1.00 M	17.183000 G	-38.04	-13.04
20.000 G	23.000 G	1.00 M	21.801500 G	-36.95	-11.95
23.000 G	26.000 G	1.00 M	24.737000 G	-37.42	-12.42

Date: 20.MAR.2014 19:14:46

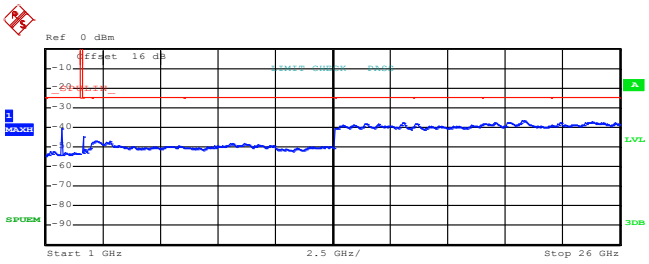
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	790.480000 M	-44.31	-19.31

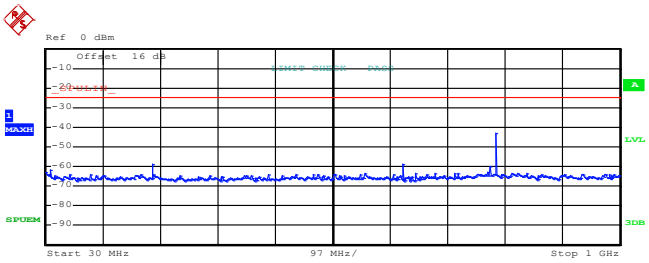
Date: 20.MAR.2014 19:05:50



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.719408 G	-40.76	-15.76
2.583 G	3.000 G	1.00 M	2.652430 G	-45.00	-20.00
3.000 G	7.000 G	1.00 M	3.160000 G	-46.81	-21.81
7.000 G	13.600 G	1.00 M	9.168100 G	-48.44	-23.44
13.600 G	17.000 G	1.00 M	16.588600 G	-37.72	-12.72
17.000 G	20.000 G	1.00 M	17.153000 G	-38.21	-13.21
20.000 G	23.000 G	1.00 M	21.860000 G	-36.72	-11.72
23.000 G	26.000 G	1.00 M	24.821000 G	-37.40	-12.40

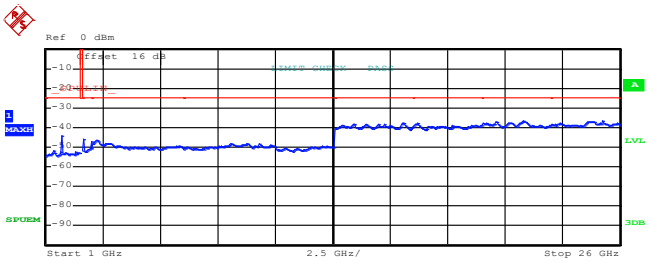
Date: 20.MAR.2014 19:07:08

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	790.480000 M	-43.16	-18.16

Date: 20.MAR.2014 19:06:03

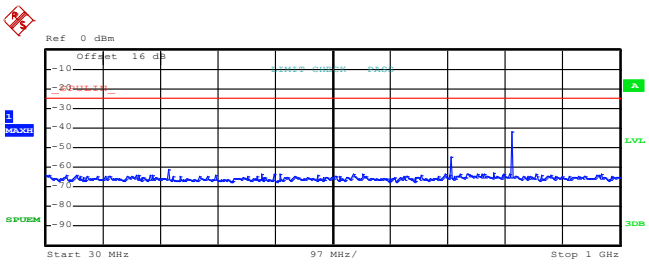


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.720153 G	-44.19	-19.19
2.583 G	3.000 G	1.00 M	2.650554 G	-46.18	-21.18
3.000 G	7.000 G	1.00 M	3.236000 G	-46.63	-21.63
7.000 G	13.600 G	1.00 M	9.739000 G	-48.16	-23.16
13.600 G	17.000 G	1.00 M	16.546100 G	-37.92	-12.92
17.000 G	20.000 G	1.00 M	17.177000 G	-37.97	-12.97
20.000 G	23.000 G	1.00 M	21.819500 G	-36.70	-11.70
23.000 G	26.000 G	1.00 M	25.242500 G	-36.81	-11.81

Date: 20.MAR.2014 19:06:54

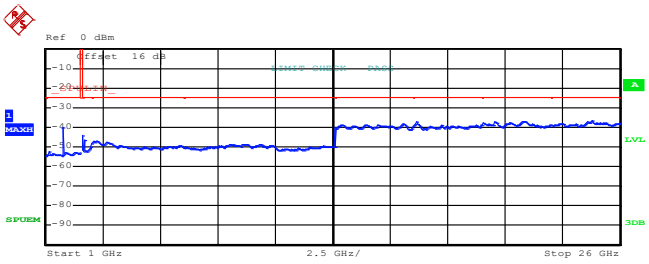
Band :	LTE Band 7	Channel :	CH21375 (High)
Band Width :	15MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	817.640000 M	-41.75	-16.75

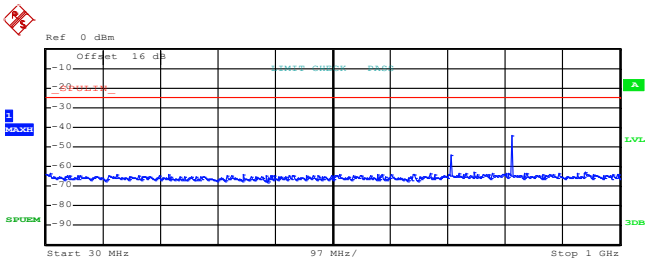
Date: 20.MAR.2014 19:20:52



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.747737 G	-39.82	-14.82
2.583 G	3.000 G	1.00 M	2.583209 G	-43.93	-18.93
3.000 G	7.000 G	1.00 M	3.186000 G	-46.99	-21.99
7.000 G	13.600 G	1.00 M	9.682900 G	-48.60	-23.60
13.600 G	17.000 G	1.00 M	16.559700 G	-38.16	-13.16
17.000 G	20.000 G	1.00 M	17.162000 G	-37.20	-12.20
20.000 G	23.000 G	1.00 M	21.915500 G	-36.95	-11.95
23.000 G	26.000 G	1.00 M	24.801500 G	-36.84	-11.84

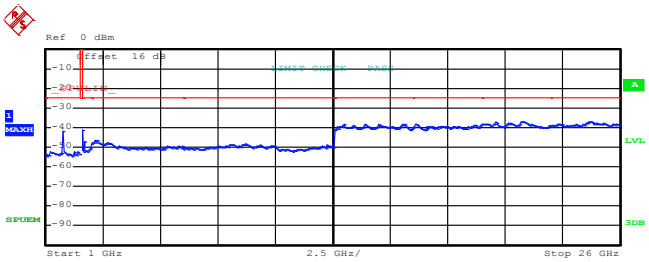
Date: 20.MAR.2014 19:19:57

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	817.640000 M	-43.95	-18.95

Date: 20.MAR.2014 19:20:39

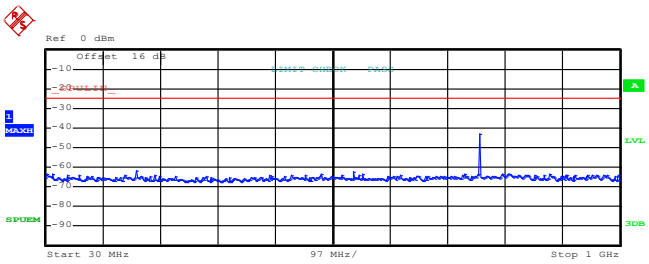


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.747737 G	-41.71	-16.71
2.583 G	3.000 G	1.00 M	2.583209 G	-42.57	-17.57
3.000 G	7.000 G	1.00 M	3.254000 G	-46.64	-21.64
7.000 G	13.600 G	1.00 M	9.692800 G	-48.52	-23.52
13.600 G	17.000 G	1.00 M	16.637900 G	-38.18	-13.18
17.000 G	20.000 G	1.00 M	17.166500 G	-38.34	-13.34
20.000 G	23.000 G	1.00 M	21.744500 G	-36.85	-11.85
23.000 G	26.000 G	1.00 M	24.701000 G	-37.00	-12.00

Date: 20.MAR.2014 19:20:17

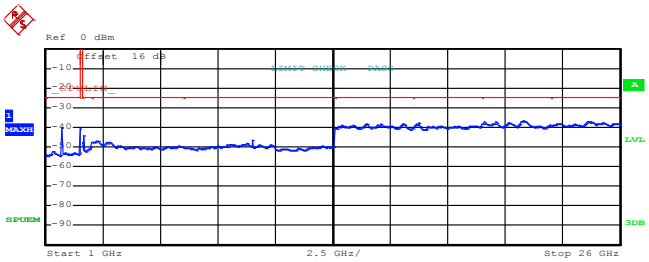
Band :	LTE Band 7	Channel :	CH20850 (Low)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.835000 M	-42.91	-17.91

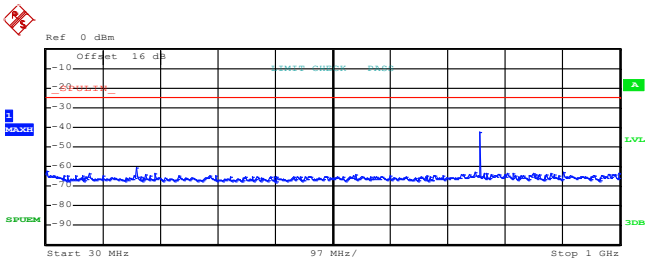
Date: 20.MAR.2014 19:17:49



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.692570 G	-39.86	-14.86
2.583 G	3.000 G	1.00 M	2.628662 G	-44.23	-19.23
3.000 G	7.000 G	1.00 M	3.248000 G	-46.88	-21.88
7.000 G	13.600 G	1.00 M	10.006300 G	-46.78	-21.78
13.600 G	17.000 G	1.00 M	16.581800 G	-38.29	-13.29
17.000 G	20.000 G	1.00 M	17.232500 G	-37.89	-12.89
20.000 G	23.000 G	1.00 M	21.813500 G	-36.51	-11.51
23.000 G	26.000 G	1.00 M	24.588500 G	-37.29	-12.29

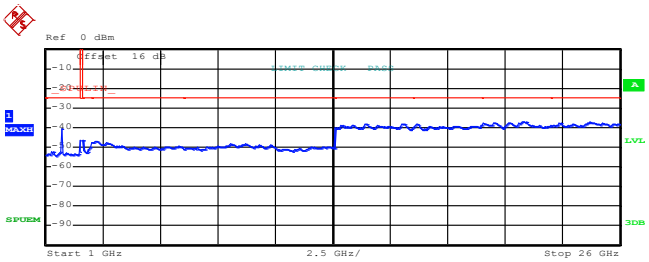
Date: 20.MAR.2014 19:15:56

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	762.835000 M	-42.60	-17.60

Date: 20.MAR.2014 19:16:27

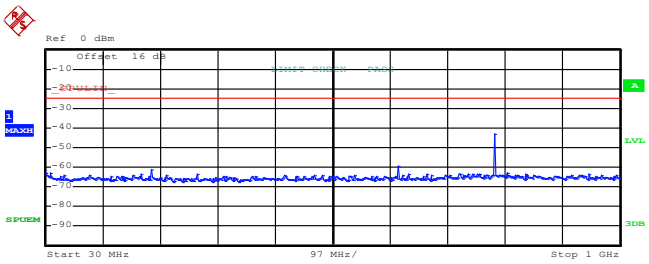


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.692570 G	-40.70	-15.70
2.583 G	3.000 G	1.00 M	2.630746 G	-46.29	-21.29
3.000 G	7.000 G	1.00 M	3.248000 G	-47.04	-22.04
7.000 G	13.600 G	1.00 M	9.042700 G	-48.33	-23.33
13.600 G	17.000 G	1.00 M	16.586900 G	-38.19	-13.19
17.000 G	20.000 G	1.00 M	17.177000 G	-38.05	-13.05
20.000 G	23.000 G	1.00 M	21.822500 G	-36.96	-11.96
23.000 G	26.000 G	1.00 M	24.716000 G	-37.42	-12.42

Date: 20.MAR.2014 19:16:11

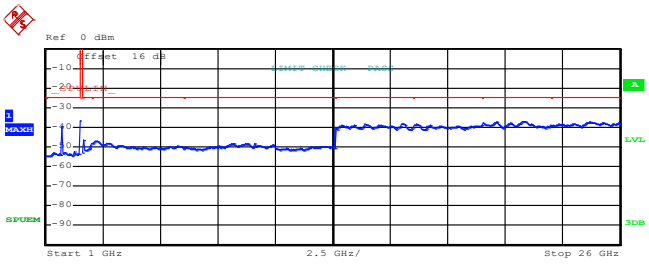
Band :	LTE Band 7	Channel :	CH21100 (Middle)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	788.055000 M	-42.93	-17.93

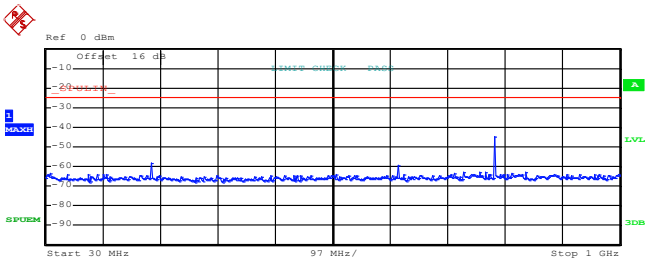
Date: 20.MAR.2014 19:08:26



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	2.490254 G	-36.61	-11.61
2.583 G	3.000 G	1.00 M	2.650345 G	-46.55	-21.55
3.000 G	7.000 G	1.00 M	3.188000 G	-46.89	-21.89
7.000 G	13.600 G	1.00 M	9.689500 G	-48.11	-23.11
13.600 G	17.000 G	1.00 M	16.522300 G	-38.07	-13.07
17.000 G	20.000 G	1.00 M	17.160500 G	-38.44	-13.44
20.000 G	23.000 G	1.00 M	21.779000 G	-37.18	-12.18
23.000 G	26.000 G	1.00 M	24.719000 G	-37.15	-12.15

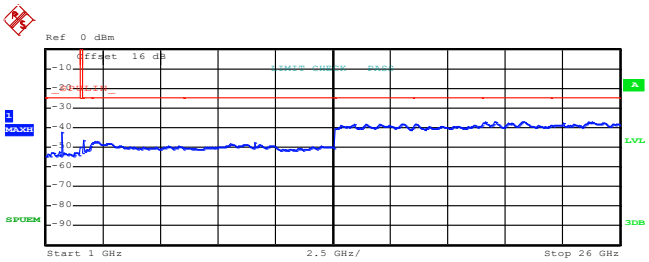
Date: 20.MAR.2014 19:07:33

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	788.055000 M	-44.99	-19.99

Date: 20.MAR.2014 19:08:14

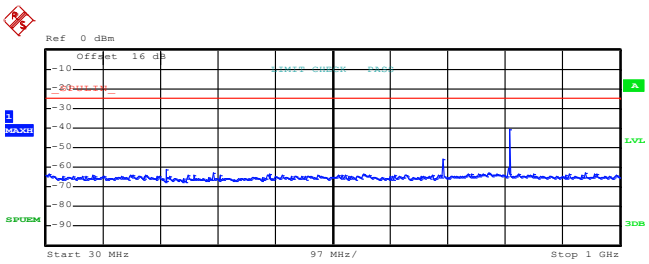


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.717917 G	-42.60	-17.60
2.583 G	3.000 G	1.00 M	2.663064 G	-46.36	-21.36
3.000 G	7.000 G	1.00 M	3.148000 G	-46.92	-21.92
7.000 G	13.600 G	1.00 M	10.105300 G	-47.80	-22.80
13.600 G	17.000 G	1.00 M	16.563100 G	-38.03	-13.03
17.000 G	20.000 G	1.00 M	17.169500 G	-38.39	-13.39
20.000 G	23.000 G	1.00 M	21.833000 G	-36.97	-11.97
23.000 G	26.000 G	1.00 M	24.657500 G	-37.22	-12.22

Date: 20.MAR.2014 19:07:57

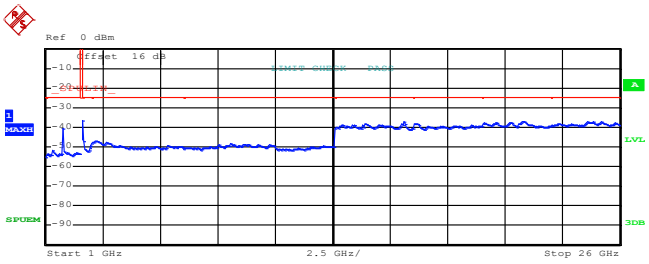
Band :	LTE Band 7	Channel :	CH21350 (High)
Band Width :	20MHz		

QPSK (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	813.275000 M	-40.47	-15.47

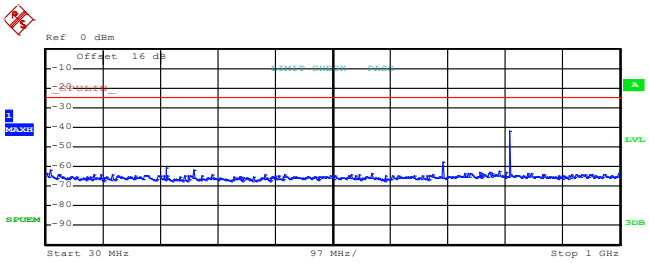
Date: 20.MAR.2014 19:18:34



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.742518 G	-40.35	-15.35
2.583 G	3.000 G	1.00 M	2.586336 G	-36.73	-11.73
3.000 G	7.000 G	1.00 M	3.138000 G	-47.09	-22.09
7.000 G	13.600 G	1.00 M	9.049300 G	-48.32	-23.32
13.600 G	17.000 G	1.00 M	16.602200 G	-37.40	-12.40
17.000 G	20.000 G	1.00 M	17.115500 G	-38.03	-13.03
20.000 G	23.000 G	1.00 M	21.734000 G	-37.07	-12.07
23.000 G	26.000 G	1.00 M	24.837500 G	-36.96	-11.96

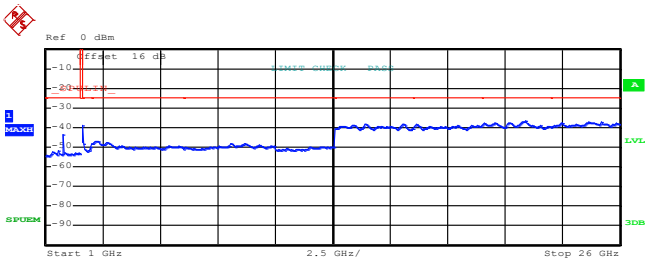
Date: 20.MAR.2014 19:19:24

16QAM (RB Size 1, RB Offset 0)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	100.00 k	813.275000 M	-41.84	-16.84

Date: 20.MAR.2014 19:18:46



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.000 G	2.491 G	1.00 M	1.742518 G	-43.42	-18.42
2.583 G	3.000 G	1.00 M	2.586753 G	-39.06	-14.06
3.000 G	7.000 G	1.00 M	3.176000 G	-46.94	-21.94
7.000 G	13.600 G	1.00 M	9.088900 G	-48.30	-23.30
13.600 G	17.000 G	1.00 M	16.610700 G	-38.32	-13.32
17.000 G	20.000 G	1.00 M	17.171000 G	-38.41	-13.41
20.000 G	23.000 G	1.00 M	21.879500 G	-36.29	-11.29
23.000 G	26.000 G	1.00 M	24.624500 G	-36.90	-11.90

Date: 20.MAR.2014 19:19:08

3.6 Radiated Spurious Emission Measurement

3.6.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004.

For Band 5

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.

For Band 7

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 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.6.2 Measuring Instruments

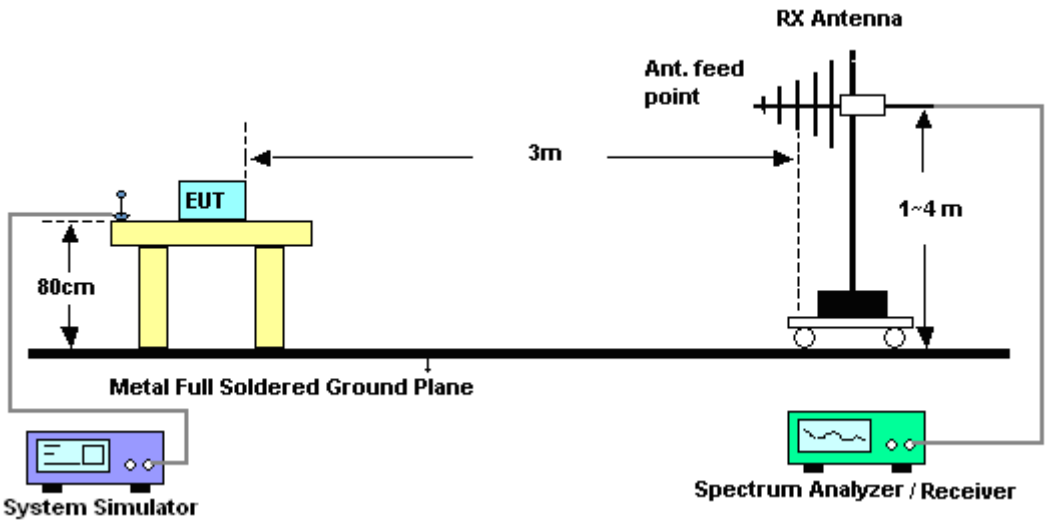
The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

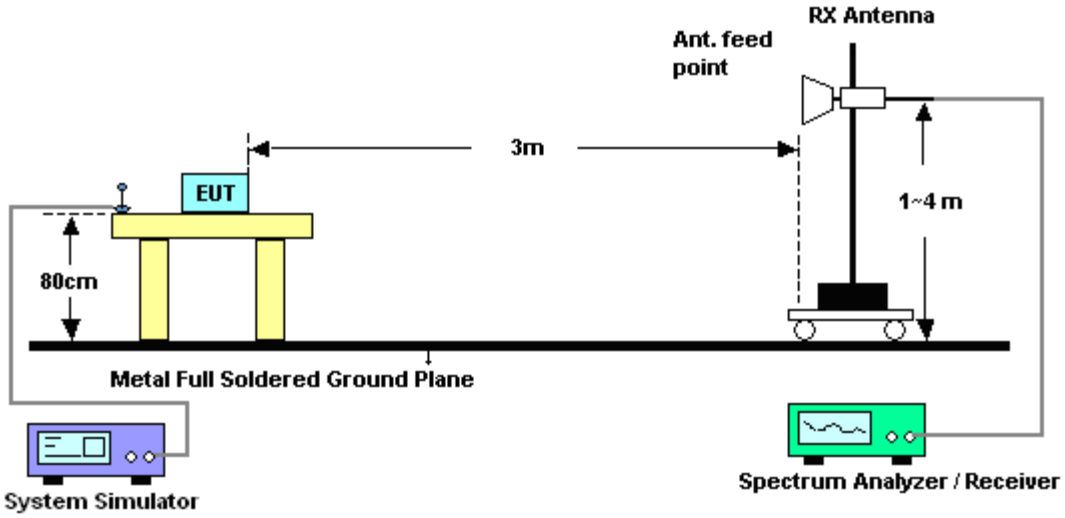
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving 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.
    For Band 7
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)
    = -25dBm.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15

3.6.4 Test Setup

For radiated emissions from 30MHz to 1GHz

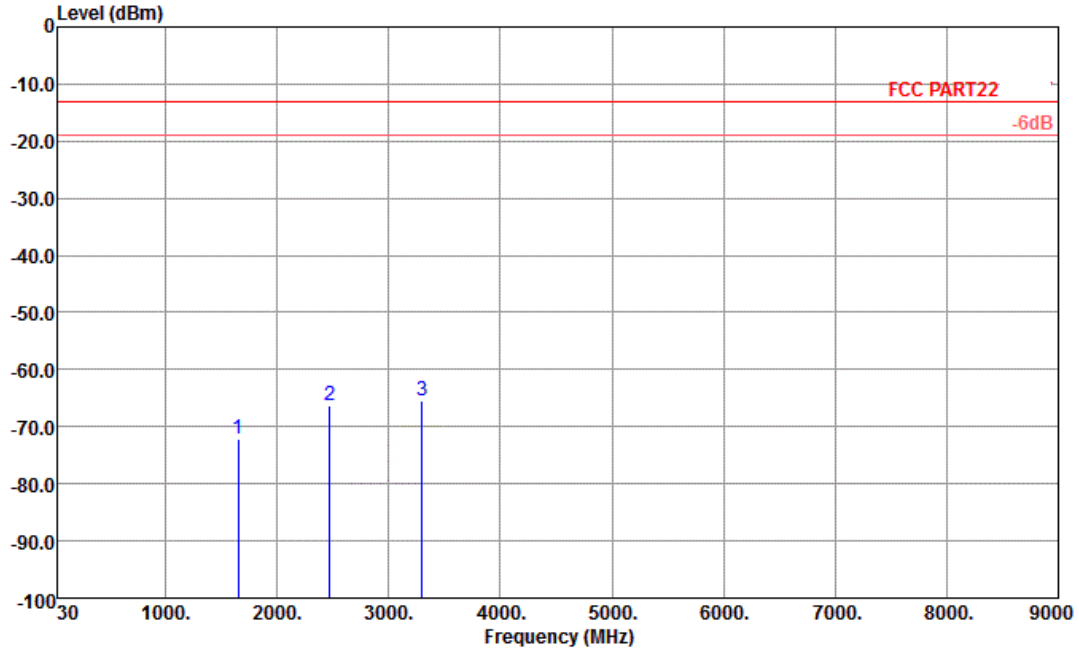


For radiated emissions above 1GHz



3.6.5 Test Result of Field Strength of Spurious Radiated

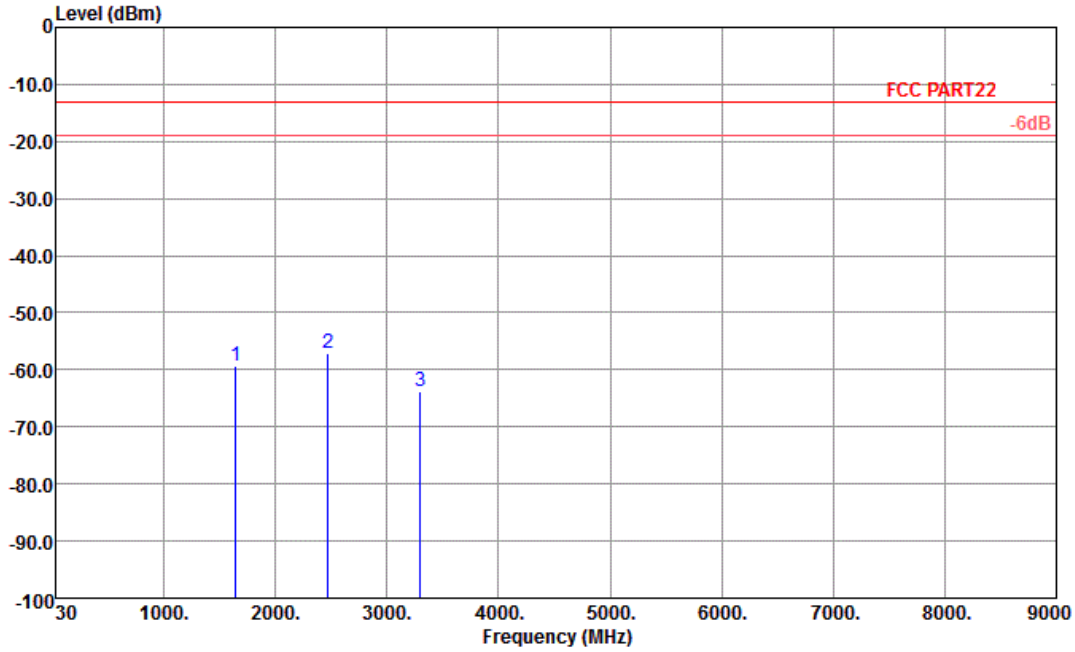
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-72.27	-13	-59.27	-63.39	-72.92	0.57	3.37	H	Pass
2474	-66.41	-13	-53.41	-65.08	-68.64	0.78	5.16	H	Pass
3298	-66.00	-13	-53.00	-65.63	-69.64	0.87	6.66	H	Pass

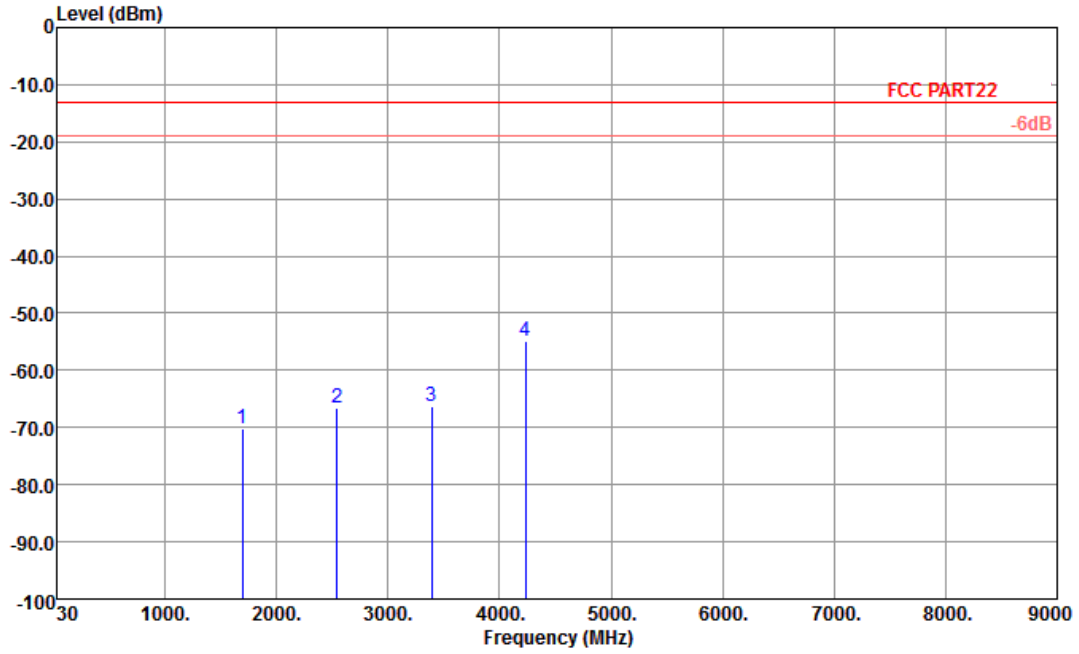
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-59.46	-13	-46.46	-58.99	-60.11	0.57	3.37	V	Pass
2474	-56.98	-13	-43.98	-60.99	-59.21	0.78	5.16	V	Pass
3298	-63.90	-13	-50.90	-64.96	-67.54	0.87	6.66	V	Pass

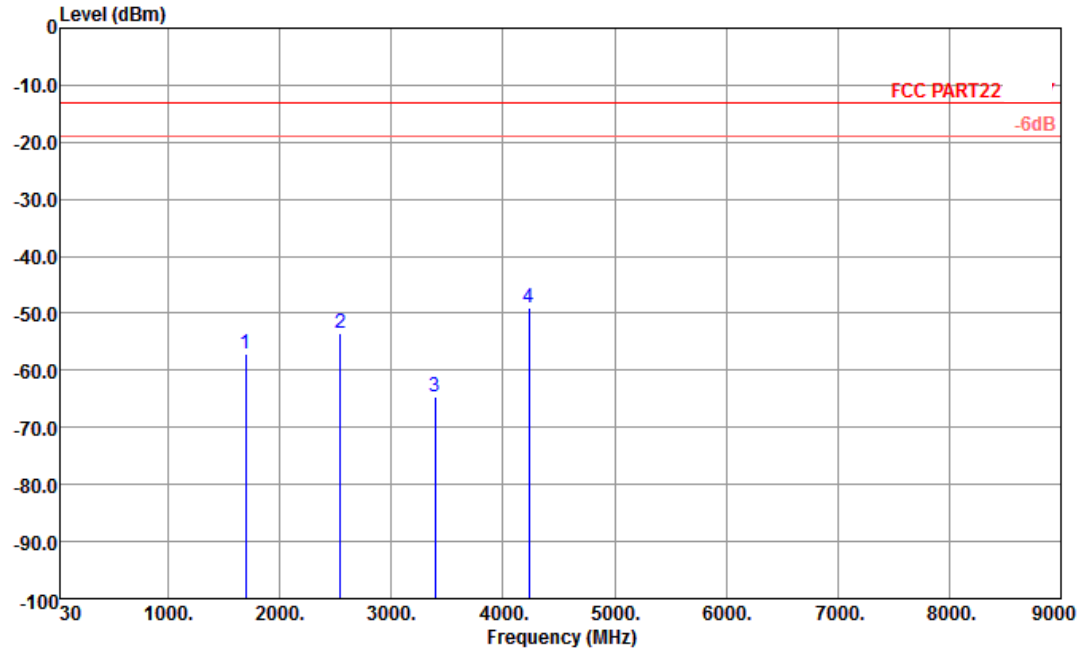
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1692	-70.10	-13	-57.10	-61.22	-70.75	0.57	3.37	H	Pass
2542	-66.45	-13	-53.45	-65.12	-68.68	0.78	5.16	H	Pass
3390	-66.36	-13	-53.36	-65.99	-70.00	0.87	6.66	H	Pass
4232	-54.90	-13	-41.90	-58.14	-59.49	0.97	7.71	H	Pass

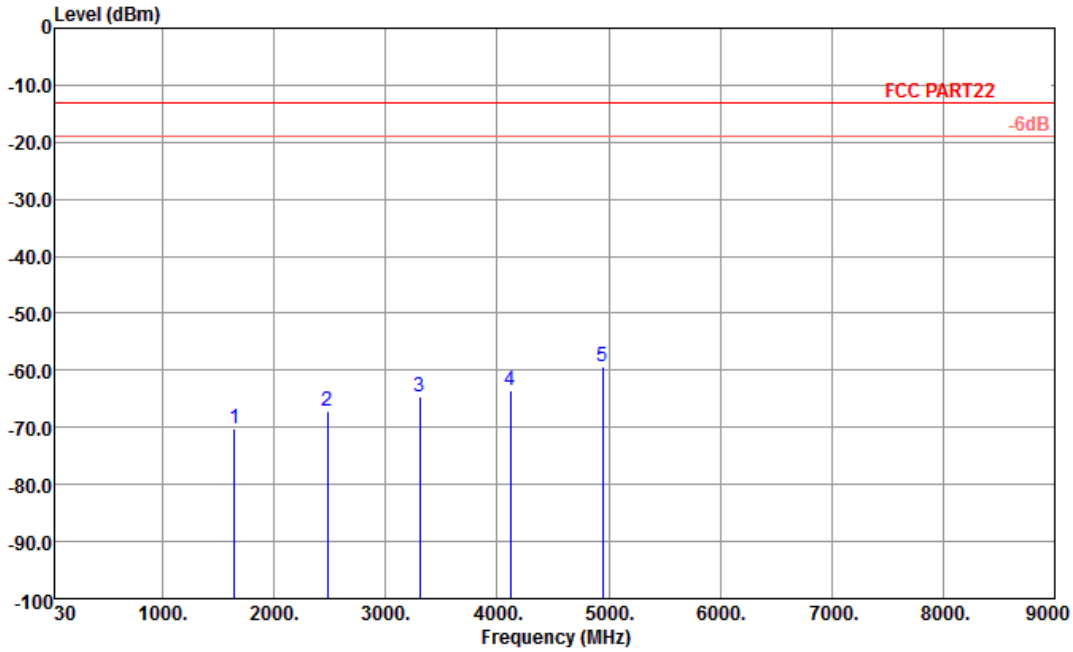
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1692	-56.97	-13	-43.97	-57.63	-57.62	0.57	3.37	V	Pass
2540	-53.59	-13	-40.59	-59.20	-55.82	0.78	5.16	V	Pass
3390	-64.51	-13	-51.51	-65.57	-68.15	0.87	6.66	V	Pass
4232	-49.12	-13	-36.12	-56.62	-53.71	0.97	7.71	V	Pass

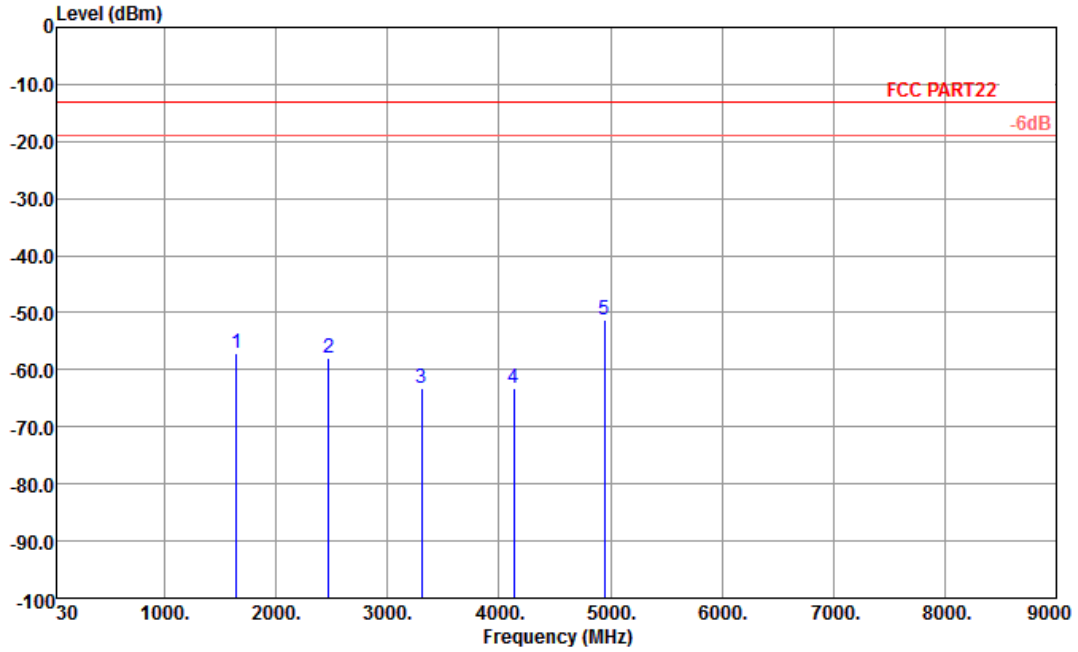
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-70.27	-13	-57.27	-61.39	-70.92	0.57	3.37	H	Pass
2480	-67.27	-13	-54.27	-65.94	-69.50	0.78	5.16	H	Pass
3308	-64.55	-13	-51.55	-64.18	-68.19	0.87	6.66	H	Pass
4122	-63.61	-13	-50.61	-63.30	-68.20	0.97	7.71	H	Pass
4946	-59.41	-13	-46.41	-61.57	-65.08	1.09	8.91	H	Pass

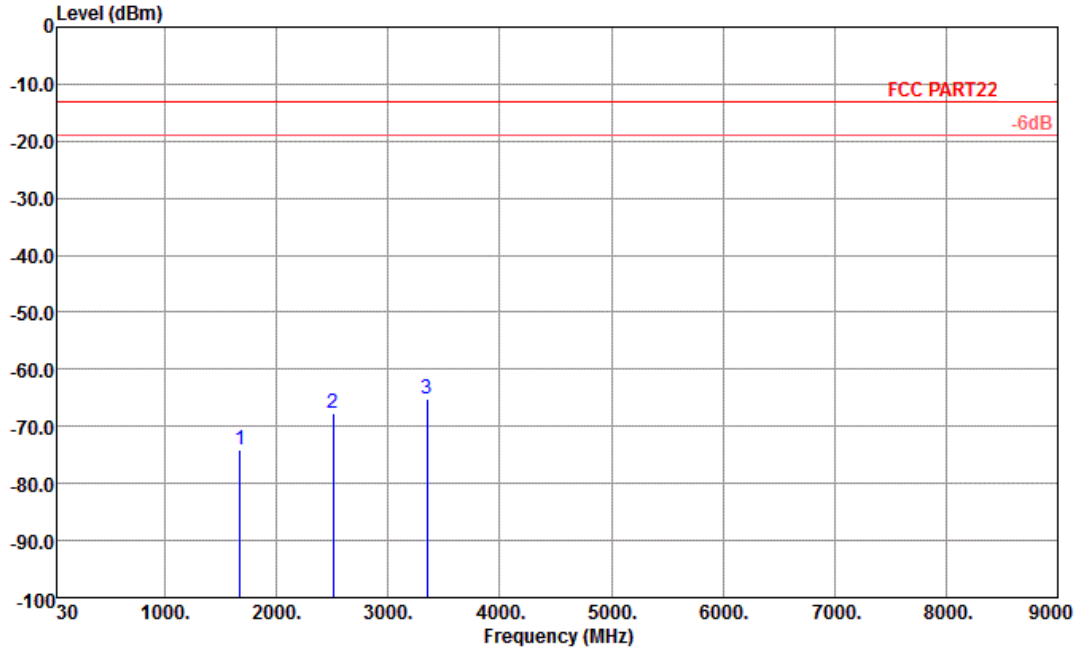
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-57.02	-13	-44.02	-57.66	-57.67	0.57	3.37	V	Pass
2474	-58.01	-13	-45.01	-61.45	-60.24	0.78	5.16	V	Pass
3306	-63.35	-13	-50.35	-64.41	-66.99	0.87	6.66	V	Pass
4132	-63.25	-13	-50.25	-65.93	-67.84	0.97	7.71	V	Pass
4946	-51.14	-13	-38.14	-60.04	-56.81	1.09	8.91	V	Pass

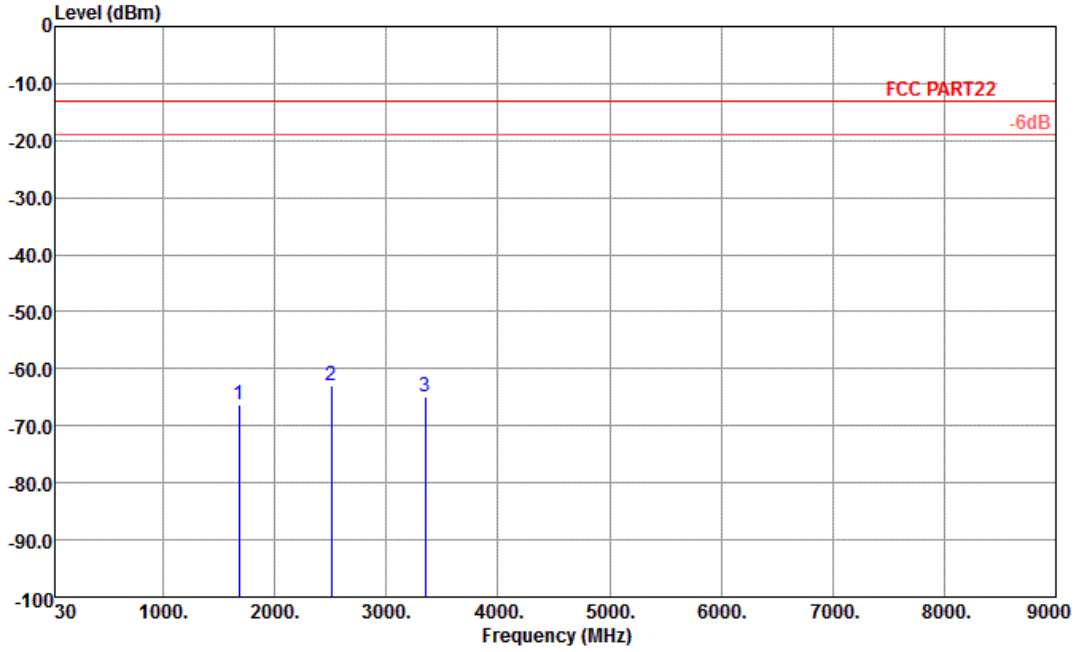
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1664	-73.96	-13	-60.96	-65.08	-74.61	0.57	3.37	H	Pass
2496	-67.60	-13	-54.60	-66.27	-69.83	0.78	5.16	H	Pass
3328	-65.17	-13	-52.17	-64.80	-68.81	0.87	6.66	H	Pass

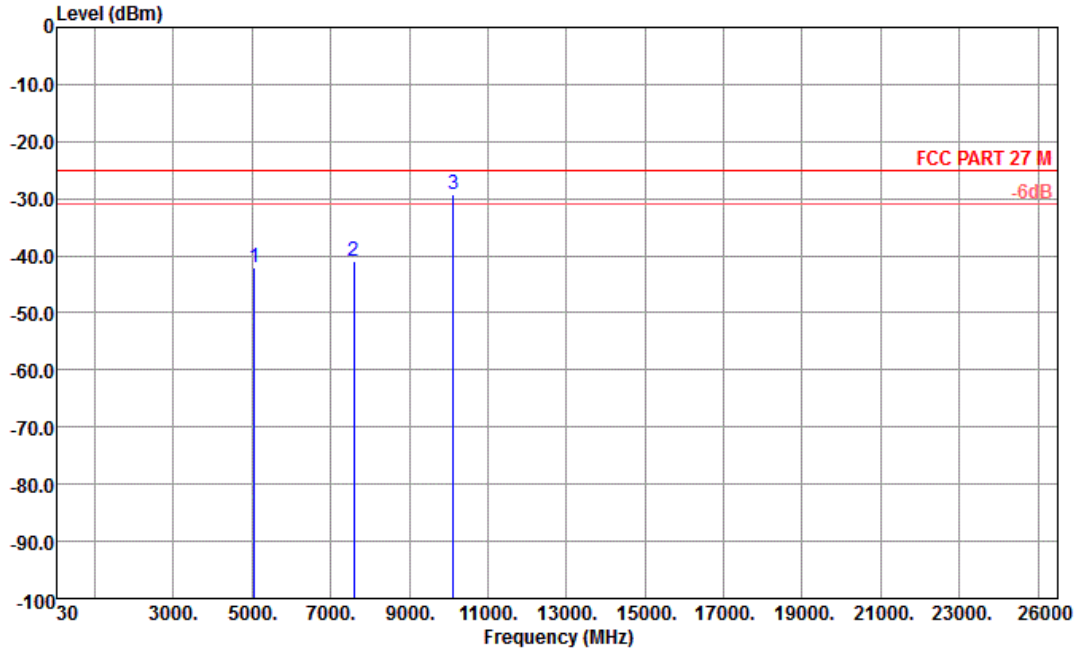
Band :	LTE Band 5	**Temperature :**	23~24°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART22 HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1664	-66.43	-13	-53.43	-62.63	-67.08	0.57	3.37	V	Pass
2496	-62.98	-13	-49.98	-65.41	-65.21	0.78	5.16	V	Pass
3328	-64.81	-13	-51.81	-65.87	-68.45	0.87	6.66	V	Pass

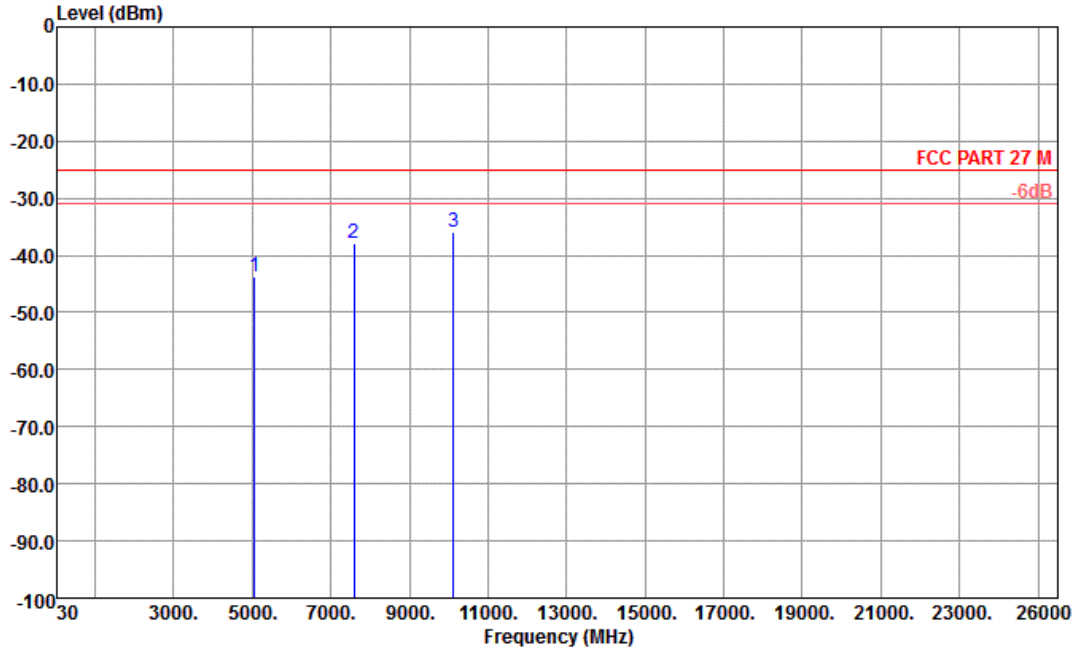
Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5064	-42.03	-25	-17.03	-51.69	-48.41	0.78	7.16	H	Pass
7596	-40.86	-25	-15.86	-53.77	-49.40	1.04	9.58	H	Pass
10128	-29.35	-25	-4.35	-50.77	-39.46	1.35	11.46	H	Pass

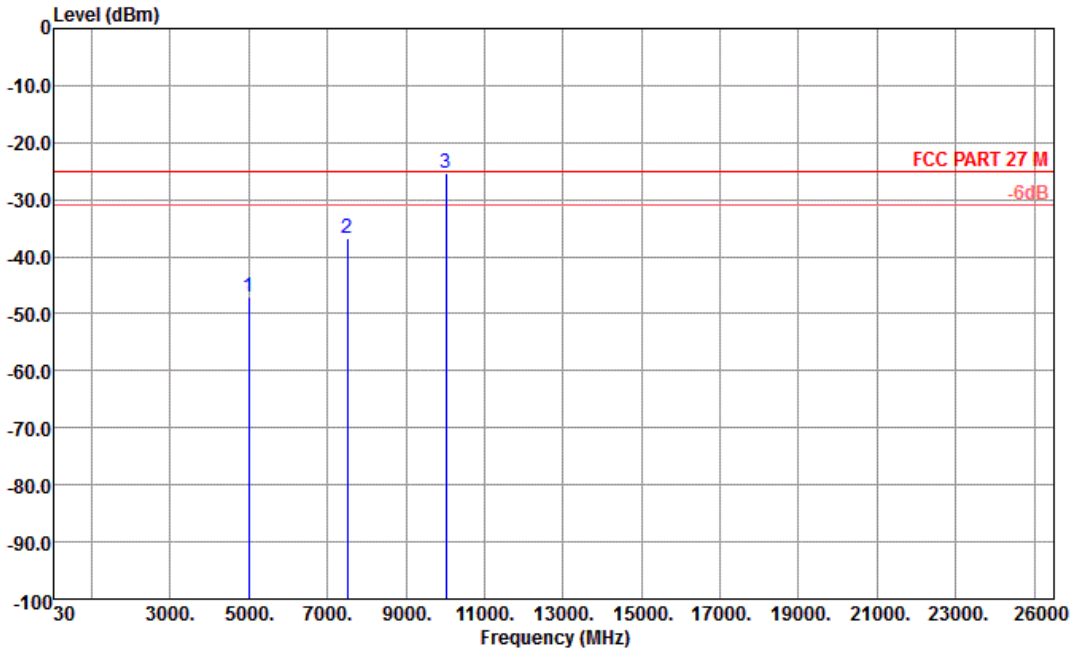
Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5064	-43.70	-25	-18.70	-55.52	-50.08	0.78	7.16	V	Pass
7598	-38.01	-25	-13.01	-52.41	-46.55	1.04	9.58	V	Pass
10128	-35.95	-25	-10.95	-54.45	-46.06	1.35	11.46	V	Pass

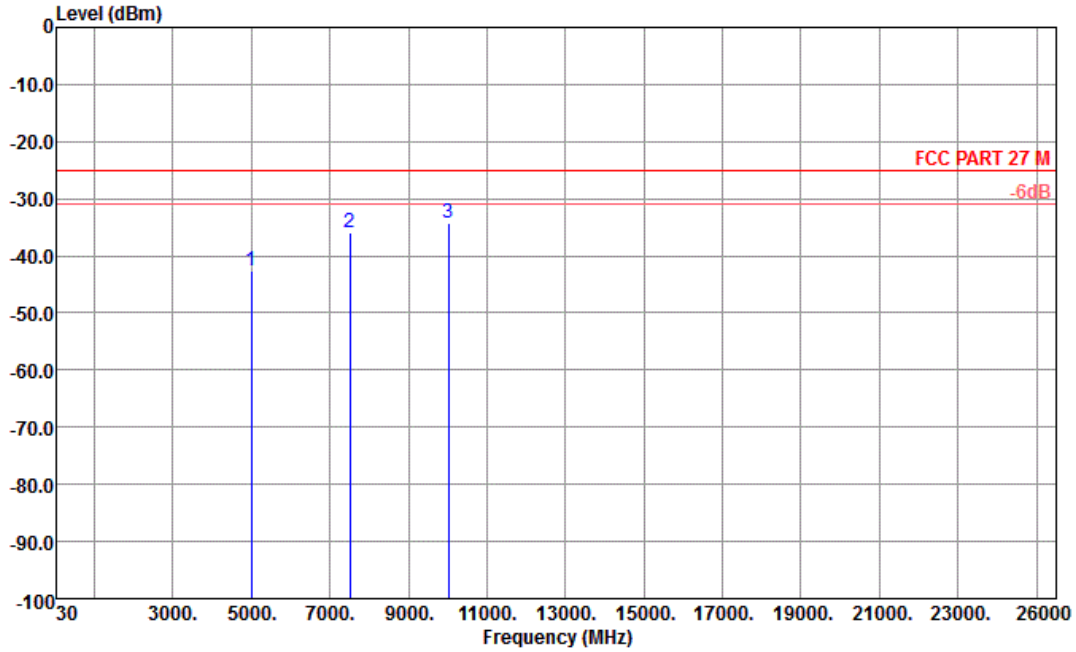
Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5001	-47.04	-25	-22.04	-55.08	-53.42	0.78	7.16	H	Pass
7501	-36.89	-25	-11.89	-50.52	-45.43	1.04	9.58	H	Pass
10002	-25.22	-25	-0.22	-47.18	-35.33	1.35	11.46	H	Pass

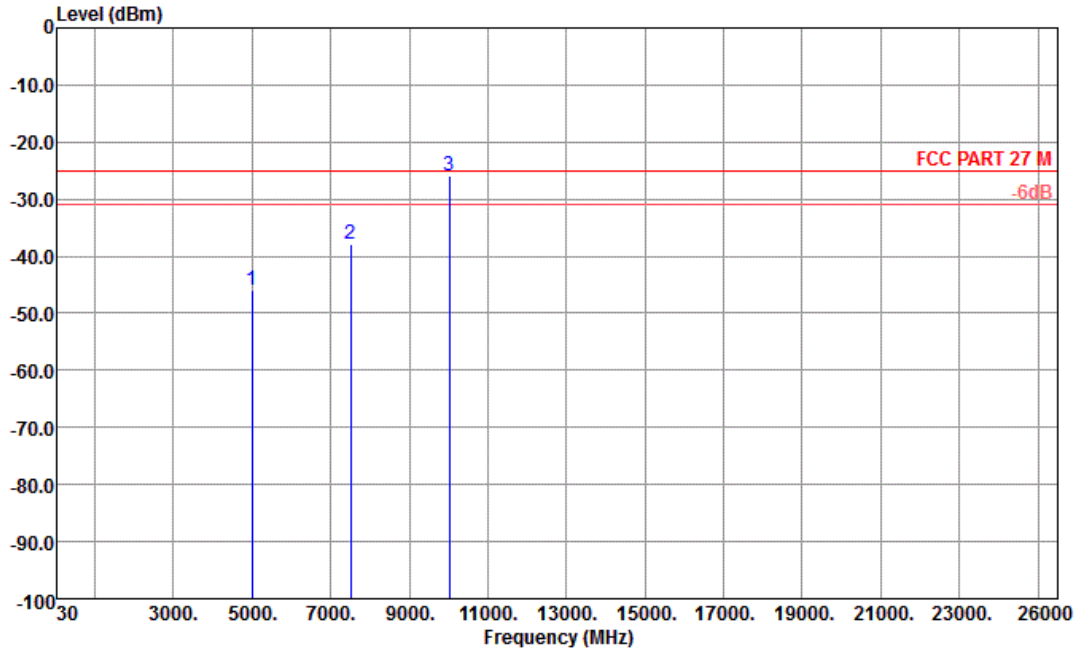
Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5001	-42.54	-25	-17.54	-54.58	-48.92	0.78	7.16	V	Pass
7501	-35.80	-25	-10.80	-50.5	-44.34	1.04	9.58	V	Pass
10002	-34.20	-25	-9.20	-52.92	-44.31	1.35	11.46	V	Pass

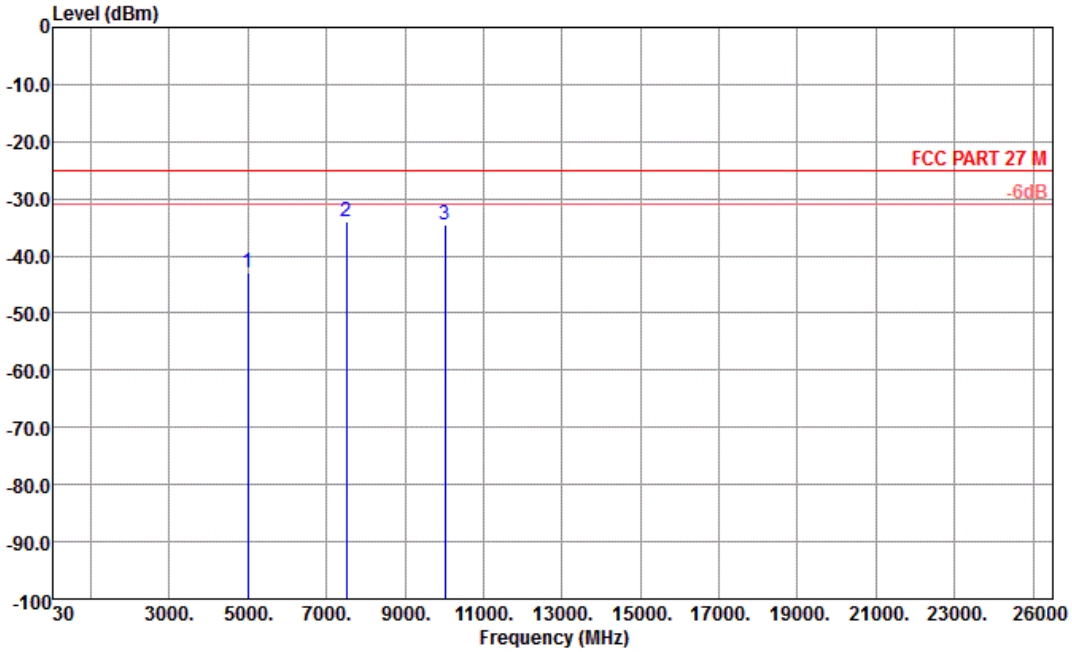
Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5001	-45.92	-25	-20.92	-54.71	-52.30	0.78	7.16	H	Pass
7502	-37.80	-25	-12.80	-51.40	-46.34	1.04	9.58	H	Pass
10003	-25.94	-25	-0.94	-47.90	-36.05	1.35	11.46	H	Pass

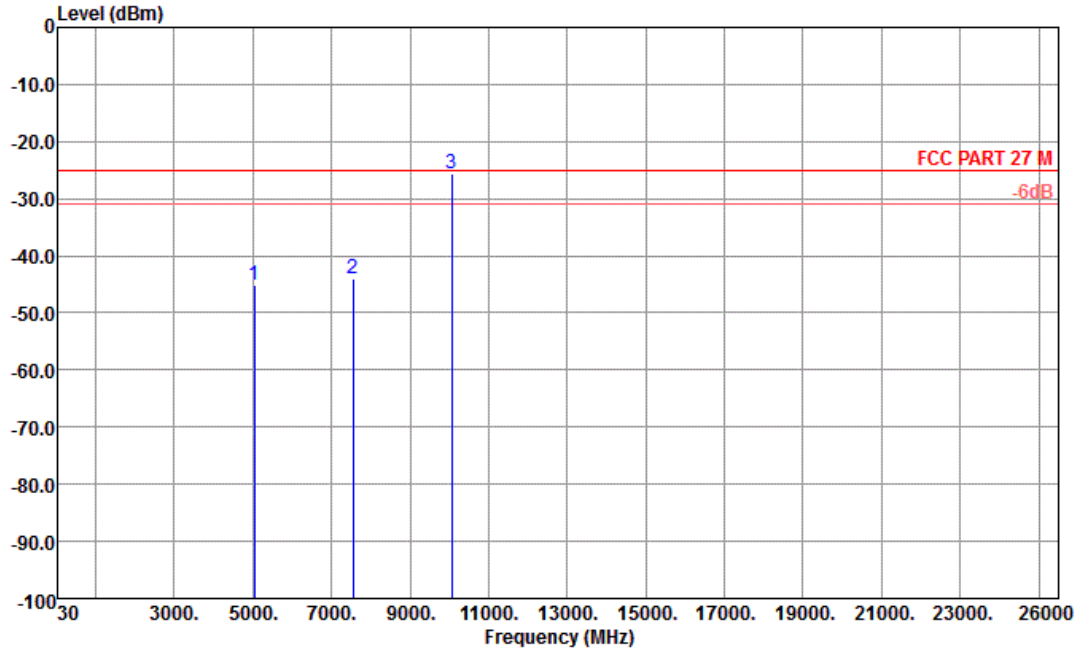
Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	15MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5001	-42.98	-25	-17.98	-54.95	-49.36	0.78	7.16	V	Pass
7502	-33.89	-25	-8.89	-48.84	-42.43	1.04	9.58	V	Pass
10003	-34.43	-25	-9.43	-53.13	-44.54	1.35	11.46	V	Pass

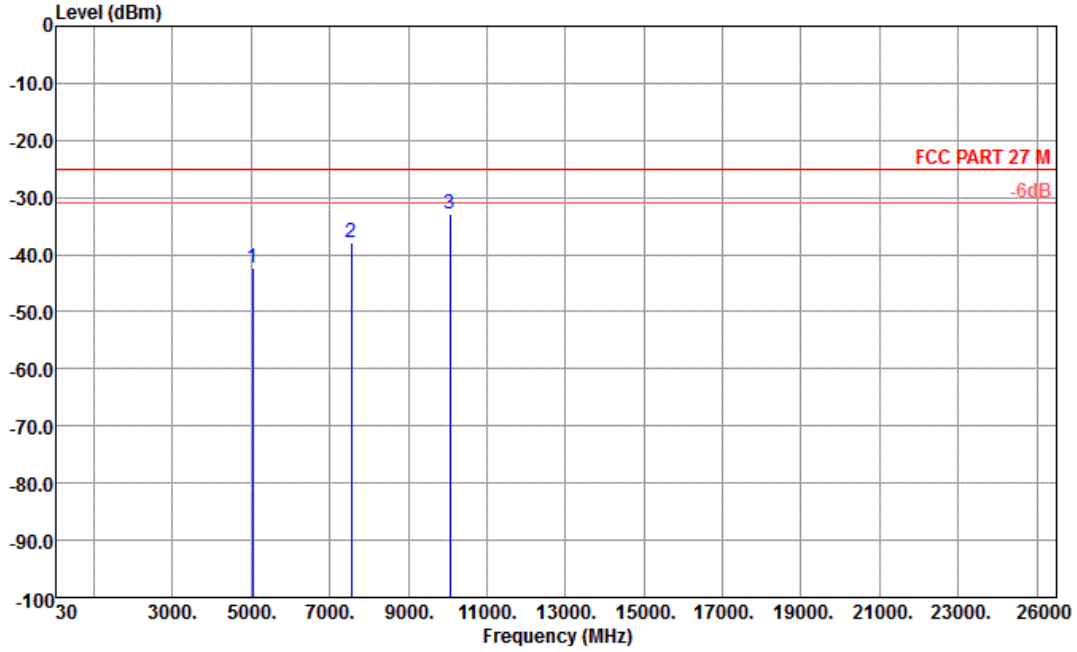
Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 HORIZONTAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5052	-45.06	-25	-20.06	-54.06	-51.44	0.78	7.16	H	Pass
7578	-44.04	-25	-19.04	-56.06	-52.58	1.04	9.58	H	Pass
10104	-25.52	-25	-0.52	-47.48	-35.63	1.35	11.46	H	Pass

Band :	LTE Band 7	**Temperature :**	23~24°C
Test Mode :	20MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition : FCC PART 27 M HF_EIRP_FACTOR130726 VERTICAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
5052	-42.28	-25	-17.28	-54.36	-48.66	0.78	7.16	V	Pass
7578	-37.86	-25	-12.86	-52.3	-46.40	1.04	9.58	V	Pass
10104	-33.00	-25	-8.00	-52.24	-43.11	1.35	11.46	V	Pass

3.7 Frequency Stability Measurement

3.7.1 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.

3.7.2 Measuring Instruments

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

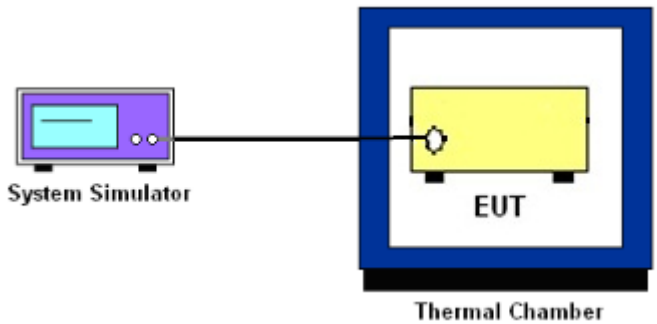
3.7.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the base station.
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.

3.7.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at 25±5° C and connected with the base station.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.7.5 Test Setup



3.7.6 Test Result of Temperature Variation (FCC)

Band :	LTE Band 5 (QPSK)	Limit (ppm) :	2.5

Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	5.5	+0.007	-7.0	-0.008	PASS
-20	-7.3	-0.009	-3.5	-0.004	
-10	-6.5	-0.008	-6.9	-0.008	
0	9.8	+0.012	-8.7	-0.010	
10	-8.7	-0.010	-9.8	-0.012	
20	-9.5	-0.011	11.2	+0.013	
30	6.5	+0.008	5.6	+0.007	
40	4.8	+0.006	6.8	+0.008	
50	-6.2	-0.007	7.5	+0.009	

Band :	LTE Band 5 (QPSK)	Limit (ppm) :	2.5

Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	5.5	+0.007	-8.7	-0.010	PASS
-20	6.5	+0.008	-6.5	-0.008	
-10	7.8	+0.009	-7.8	-0.009	
0	-8.5	-0.010	-3.8	-0.005	
10	-10.2	-0.012	-5.7	-0.007	
20	2.8	+0.003	10.2	+0.012	
30	2.0	+0.002	5.8	+0.007	
40	-1.6	-0.002	7.6	+0.009	
50	-3.3	-0.004	-3.5	-0.004	

Band :	LTE Band 5 (16QAM)	Limit (ppm) :	2.5

Temperature (°C)	BW 1.4MHz		BW 3MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	5.6	+0.007	-4.8	-0.006	PASS
-20	-9.8	-0.012	-9.1	-0.011	
-10	-5.6	-0.007	-5.6	-0.007	
0	-7.1	-0.008	-3.2	-0.004	
10	2.3	+0.003	-7.5	-0.009	
20	6.6	+0.008	-2.8	-0.003	
30	-8.0	-0.010	-9.1	-0.011	
40	-7.5	-0.009	-7.5	-0.009	
50	-6.9	-0.008	-3.2	-0.004	

Band :	LTE Band 5 (16QAM)	Limit (ppm) :	2.5

Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-5.2	-0.006	10.3	+0.012	PASS
-20	-2.6	-0.003	-3.2	-0.004	
-10	-7.5	-0.009	-6.5	-0.008	
0	-5.6	-0.007	-8.1	-0.010	
10	-7.8	-0.009	7.5	+0.009	
20	-11.5	-0.014	-11.0	-0.013	
30	-3.5	-0.004	-9.5	-0.011	
40	-7.5	-0.009	6.8	+0.008	
50	-8.0	-0.010	-8.7	-0.010	

Band :	LTE Band 7 (QPSK)	Limit (ppm) :	2.5

Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-5.4	-0.002	5.6	+0.002	PASS
-20	-2.5	-0.001	3.9	+0.002	
-10	-11.5	-0.005	-5.6	-0.002	
0	-2.9	-0.001	-3.6	-0.001	
10	-11.0	-0.004	-9.0	-0.004	
20	-2.0	-0.001	-2.5	-0.001	
30	3.8	+0.001	6.9	+0.003	
40	9.1	+0.004	-5.4	-0.002	
50	-8.0	-0.003	4.0	+0.002	

Band :	LTE Band 7 (QPSK)	Limit (ppm) :	2.5

Temperature (°C)	BW 15MHz		BW 20MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	3.6	+0.001	8.2	+0.003	PASS
-20	-8.2	-0.003	-11.0	-0.004	
-10	-6.7	-0.003	-10.0	-0.004	
0	8.2	+0.003	-8.2	-0.003	
10	-11.0	-0.004	8.2	+0.003	
20	5.9	+0.002	-11.0	-0.004	
30	9.1	+0.004	-4.7	-0.002	
40	-5.6	-0.002	3.6	+0.001	
50	-2.5	-0.001	8.2	+0.003	

Band :	LTE Band 7 (16QAM)	Limit (ppm) :	2.5

Temperature (°C)	BW 5MHz		BW 10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	8.0	+0.003	-5.4	-0.002	PASS
-20	11.3	+0.004	-2.5	-0.001	
-10	-10.0	-0.004	-11.5	-0.005	
0	-8.2	-0.003	-5.6	-0.002	
10	8.0	+0.003	-3.6	-0.001	
20	-6.7	-0.003	3.8	+0.001	
30	-9.8	-0.004	4.9	+0.002	
40	-10.0	-0.004	-2.5	-0.001	
50	7.0	+0.003	-5.6	-0.002	

Band :	LTE Band 7 (16QAM)	Limit (ppm) :	2.5

Temperature (°C)	BW 15MHz		BW 20MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	6.3	+0.002	5.0	+0.002	PASS
-20	4.9	+0.002	-11.0	-0.004	
-10	-5.6	-0.002	8.0	+0.003	
0	-3.6	-0.001	-10.0	-0.004	
10	-10.0	-0.004	-5.6	-0.002	
20	3.6	+0.001	-3.6	-0.001	
30	8.2	+0.003	-11.5	-0.005	
40	3.6	+0.001	-5.6	-0.002	
50	8.2	+0.003	3.8	+0.001	

3.7.7 Test Result of Voltage Variation (FCC)

Band	Bandwidth	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 5 (QPSK)	1.4M	Normal	-8.5	-0.010	2.5	PASS
		204	-7.1	-0.008		
		276	-3.2	-0.004		
	3M	Normal	-6.5	-0.008		
		204	-6.9	-0.008		
		276	-7.1	-0.008		
	5M	Normal	-3.2	-0.004		
		204	4.7	+0.006		
		276	8.3	+0.010		
	10M	Normal	2.1	+0.003		
		204	3.2	+0.004		
		276	1.5	+0.002		
LTE Band 7 (QPSK)	5M	Normal	3.0	+0.001	2.5	PASS
		204	3.2	+0.001		
		276	5.6	+0.002		
	10M	Normal	3.9	+0.002		
		204	-5.6	-0.002		
		276	-2.5	-0.001		
	15M	Normal	-5.6	-0.002		
		204	-2.5	-0.001		
		276	5.6	+0.002		
	20M	Normal	-11.5	-0.005		
		204	7.1	+0.003		
		276	10.3	+0.004		

Band	Bandwidth	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 5 (16QAM)	1.4M	Normal	-8.5	-0.010	2.5	PASS
		204	-6.9	-0.008		
		276	-5.7	-0.007		
	3M	Normal	-5.8	-0.007		
		204	-8.2	-0.010		
		276	-6.5	-0.008		
	5M	Normal	-8.5	-0.010		
		204	-7.4	-0.009		
		276	-9.8	-0.012		
	10M	Normal	11.2	+0.013		
		204	3.5	+0.004		
		276	6.6	+0.008		
LTE Band 7 (16QAM)	5M	Normal	-11.5	-0.005	2.5	PASS
		204	-2.9	-0.001		
		276	3.8	+0.001		
	10M	Normal	4.9	+0.002		
		204	-2.5	-0.001		
		276	-10.0	-0.004		
	15M	Normal	-5.6	-0.002		
		204	3.8	+0.001		
		276	3.2	+0.001		
	20M	Normal	4.9	+0.002		
		204	5.8	+0.002		
		276	6.0	+0.002		

Remark:

1. Normal Voltage = 240V.
2. The manufacturer declared that the EUT could work properly between voltage 204V ~ 276V.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 28, 2013	Mar. 19, 2014~ Mar. 20, 2014	Dec. 27, 2014	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	30MHz~40GHz	Feb. 27, 2014	Mar. 19, 2014~ Mar. 20, 2014	Feb. 26, 2015	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Feb. 27, 2014	Mar. 19, 2014~ Mar. 20, 2014	Feb. 26, 2015	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	(-40~+150)	Dec. 10, 2013	Mar. 19, 2014~ Mar. 20, 2014	Dec. 09, 2014	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 05, 2013	Mar. 24, 2014	Nov. 04, 2014	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 23, 2013	Mar. 24, 2014	May 22, 2014	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	Mar. 24, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 08, 2014	Mar. 24, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Nov. 22, 2013	Mar. 24, 2014	Nov. 21, 2014	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 18, 2013	Mar. 24, 2014	Nov. 17, 2014	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	May 23, 2013	Mar. 24, 2014	May 22, 2014	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Dec. 10, 2013	Mar. 24, 2014	Dec. 09, 2014	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Mar. 24, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Mar. 24, 2014	NCR	Radiation (03CH01-KS)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54