



FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : LTE/WCDMA FWT
BRAND NAME : ZTE
MODEL NAME : MF28B
FCC ID : Q78-MF28B
STANDARD : 47 CFR Part 2, 27(M)
CLASSIFICATION : PCS Licensed Transmitter (PCB)

The product was received on May 15, 2012 and completely tested on Jul. 31, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and 47 CFR FCC Part 27 Subpart M and shown compliance with the applicable technical standards. The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai / Manager



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



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1033 §2.1046 §27.50	RSS-199 4.4	Maximum Output Power	N/A	PASS	-
3.1	§27.50	RSS-199 4.4	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.2	§2.1049 §27.53	RSS-199 4.5	Emissions Bandwidth	N/A	PASS	-
3.3	§2.1033 §2.1046 §27.50	RSS-199 4.5	Conducted Band Edge Emissions and Spurious Emissions	< 5.5MHz: -13 dBm ≥5.5MHz: -25 dBm	PASS	-
3.4	§2.1053 §27.53	RSS-199 4.5	Field Strength of Spurious Radiation	-25 dBm	PASS	Under limit 26.38 dB at 5069.000 MHz
3.5	§2.1055 §27.54	RSS-199 4.3	Frequency Stability for 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 & Specification	
Equipment	LTE/WCDMA FWT
Brand Name	ZTE
Model Name	MF28B
FCC ID	Q78-MF28B
Tx Frequency	2502.5-2567.5 MHz
Rx Frequency	2622.5-2687.5 MHz
Maximum Output Average Power to Antenna	23.48 dBm
Antenna Type	Monopole Antenna
HW Version	dw8A&dm4A
SW Version	CR_MF28BV1.0.0B01&BD_ROG_MF28BV1.0.0B01
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. EUT at the uplink/downlink paired EBS channels, and the frequency range below is skipped:
2500-2504 / 2620-2624 MHz and 2537-2553.5 / 2657-2673.5 MHz.

1.4 Emission Designator and Maximum EIRP Power

FCC Rule	System	Type of Modulation	BW	Emission Designator	Maximum EIRP
Part 27M	LTE Band 7	QPSK	5MHz	4M52G7D	0.2692 W
Part 27M	LTE Band 7	16QAM	5MHz	4M52D7W	0.1660 W
Part 27M	LTE Band 7	QPSK	10MHz	9M16G7D	0.2388 W
Part 27M	LTE Band 7	16QAM	10MHz	9M08D7W	0.2427 W
Part 27M	LTE Band 7	QPSK	15MHz	13M6G7D	0.1991 W
Part 27M	LTE Band 7	16QAM	15MHz	13M6D7W	0.1652 W
Part 27M	LTE Band 7	QPSK	20MHz	17M9G7D	0.1954 W
Part 27M	LTE Band 7	16QAM	20MHz	18M0D7W	0.1770 W



1.5 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/IC Registration No.
	TH01-KS	03CH01-KS	149928/4086E-1

1.6 Applied Standards

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

- 47 CFR Part 2, 27(M)
- RSS-199 issue 1
- ANSI C63.4-2003
- ANSI TIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems 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.

1.7 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	AC Power Source	Chroma	61602	N/A	N/A	Unshielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

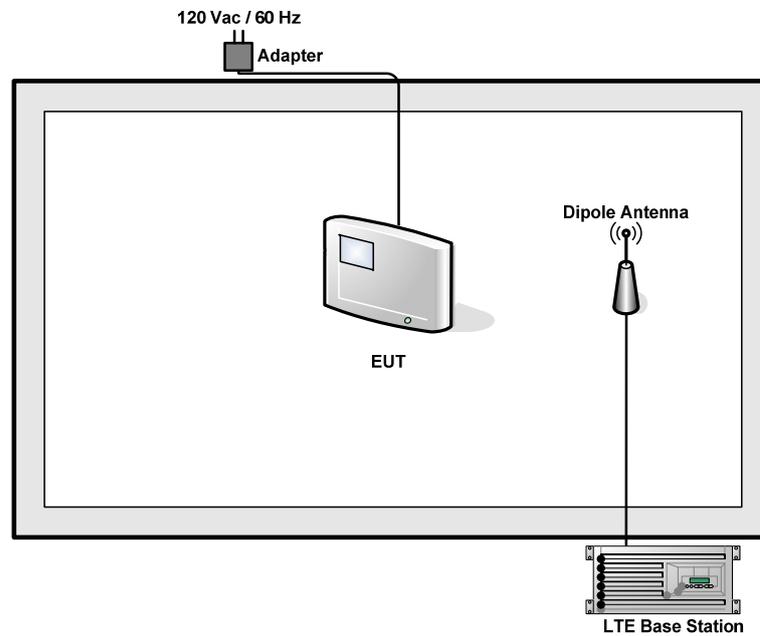
Frequency range investigated for radiated emission: 30MHz to 26000 MHz.

Test Modes			
Band			
		Radiated TCs	
		Conducted TCs	
LTE Band 7	BW 5MHz	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0) QPSK Link 	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0)Link ■ LTE (RB Size 1, RB Offset 24)Link ■ LTE (RB Size 12, RB Offset 6)Link ■ LTE (RB Size 25, RB Offset 0)Link
	BW 10MHz	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0) QPSK Link 	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0)Link ■ LTE (RB Size 1, RB Offset 49)Link ■ LTE (RB Size 25, RB Offset 13)Link ■ LTE (RB Size 50, RB Offset 0)Link
	BW 15MHz	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0) QPSK Link 	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0)Link ■ LTE (RB Size 1, RB Offset 74)Link ■ LTE (RB Size 36, RB Offset 18)Link ■ LTE (RB Size 75, RB Offset 0)Link
	BW 20MHz	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0) QPSK Link 	<ul style="list-style-type: none"> ■ LTE (RB Size 1, RB Offset 0) Link ■ LTE (RB Size 1, RB Offset 99) Link ■ LTE (RB Size 50, RB Offset 25) Link ■ LTE (RB Size 100, RB Offset 0) Link

Note:

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

2.2 Connection Diagram of Test System



3 Test Result

3.1 Maximum Output Power and Effective Isotropic Radiated Power Measurement

3.1.1 Limit

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v01. Mobile and portable (hand-held) stations operating in the BRS and EBS band are limited to a peak EIRP of 2 watts.

3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

For Conducted Power Measurement:

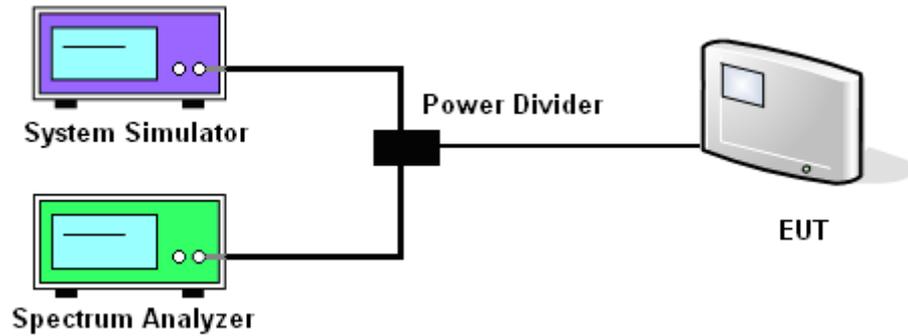
1. The RF output of the transmitter was connected to base station simulator.
2. Set EUT at maximum average power by base station simulator.
3. Measure lowest, middle, and highest channels for each bandwidth and different modulation.

For Effective Isotropic Radiated Power Measurement:

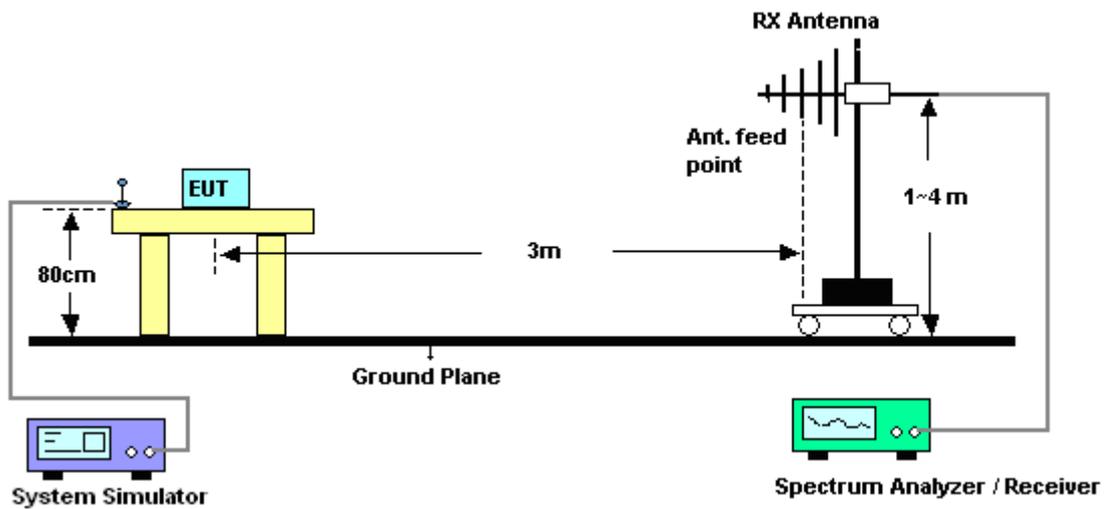
1. The EUT was placed on a non-conductive rotating platform with 0.8 meter height in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m.
2. During the measurement, the EUT was enforced in maximum power. The highest emission was recorded from analyzer power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

3.1.4 Test Setup

<Conducted Power and Band Edge Measurement>



<Effective Isotropic Radiated Power Measurement>



3.1.5 Test Result of Conducted Output Power

Mode	Bandwidth	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 7	5MHz	20815	2506.5	QPSK	1	0	23.12	0.2051
					1	24	23.01	0.2000
					12	6	22.19	0.1656
					25	0	22.08	0.1614
				16-QAM	1	0	22.58	0.1811
					1	24	22.45	0.1758
					12	6	21.41	0.1384
					25	0	21.22	0.1324
		21095	2534.5	QPSK	1	0	23.28	0.2128
					1	24	23.12	0.2051
					12	6	22.25	0.1679
					25	0	22.13	0.1633
				16-QAM	1	0	22.34	0.1714
					1	24	22.28	0.1690
					12	6	21.38	0.1374
					25	0	21.27	0.1340
		21425	2567.5	QPSK	1	0	22.89	0.1945
					1	24	23.10	0.2042
					12	6	22.15	0.1641
					25	0	22.05	0.1603
				16-QAM	1	0	22.08	0.1614
					1	24	21.99	0.1581
					12	6	21.26	0.1337
					25	0	21.15	0.1303



Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 7	10MHz	20840	2509	QPSK	1	0	23.22	0.2099
					1	49	23.12	0.2051
					25	13	22.32	0.1706
					50	0	22.21	0.1663
				16-QAM	1	0	22.32	0.1706
					1	49	22.24	0.1675
					25	13	21.35	0.1365
					50	0	21.12	0.1294
		21070	2532	QPSK	1	0	23.47	0.2223
					1	49	23.29	0.2133
					25	13	22.28	0.1690
					50	0	22.23	0.1671
				16-QAM	1	0	22.50	0.1778
					1	49	22.45	0.1758
					25	13	21.56	0.1432
					50	0	21.42	0.1387
		21400	2565	QPSK	1	0	23.05	0.2018
					1	49	23.08	0.2032
					25	13	22.05	0.1603
					50	0	21.97	0.1574
				16-QAM	1	0	22.20	0.1660
					1	49	22.18	0.1652
					25	13	21.16	0.1306
					50	0	21.07	0.1279



Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 7	15MHz	20865	2511.5	QPSK	1	0	23.35	0.2163
					1	74	23.21	0.2094
					36	18	22.46	0.1762
					75	0	22.41	0.1742
				16-QAM	1	0	22.42	0.1746
					1	74	22.31	0.1702
					36	18	21.51	0.1416
					75	0	21.40	0.1380
		21045	2529.5	QPSK	1	0	23.48	0.2228
					1	74	23.28	0.2128
					36	18	22.60	0.1820
					75	0	22.42	0.1746
				16-QAM	1	0	22.64	0.1837
					1	74	22.21	0.1663
					36	18	21.75	0.1496
					75	0	21.43	0.1390
		21375	2562.5	QPSK	1	0	22.85	0.1928
					1	74	22.93	0.1963
					36	18	21.97	0.1574
					75	0	22.04	0.1600
				16-QAM	1	0	21.98	0.1578
					1	74	21.75	0.1496
					36	18	21.06	0.1276
					75	0	20.97	0.1250



Mode	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power (dBm)	Average Power (Watts)
					RB Size	RB Offset		
LTE Band 7	20MHz	20890	2514	QPSK	1	0	23.20	0.2089
					1	99	23.18	0.2080
					50	25	22.37	0.1726
					100	0	22.25	0.1679
		16-QAM	1	0	22.56	0.1803		
			1	99	22.45	0.1758		
			50	25	21.48	0.1406		
			100	0	21.32	0.1355		
	21020	2527	QPSK	1	0	23.35	0.2163	
				1	99	23.26	0.2118	
				50	25	22.56	0.1803	
				100	0	22.52	0.1786	
		16-QAM	1	0	22.46	0.1762		
			1	99	22.34	0.1714		
			50	25	21.46	0.1400		
			100	0	21.15	0.1303		

3.1.6 Test Result of Effective Isotropic Radiated Power

LTE Band 7 Radiated Power EIRP										
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset						
7	5	QPSK	1	0	2506.5	-16.74	43.19	24.3	0.2692	H
7	5	QPSK	1	0	2534.5	-18.45	42.05	21.45	0.1396	H
7	5	QPSK	1	24	2567.5	-17.53	41.69	22.01	0.1589	H
7	5	QPSK	1	0	2506.5	-26.09	45.08	16.84	0.0483	V
7	5	QPSK	1	0	2534.5	-24.59	45.26	18.52	0.0711	V
7	5	QPSK	1	24	2567.5	-23.36	44.63	19.12	0.0817	V
7	5	16QAM	1	0	2506.5	-18.84	43.19	22.2	0.1660	H
7	5	16QAM	1	0	2534.5	-18.91	42.05	20.99	0.1256	H
7	5	16QAM	1	0	2567.5	-17.65	41.69	21.89	0.1545	H
7	5	16QAM	1	0	2506.5	-24.67	45.08	18.26	0.0670	V
7	5	16QAM	1	0	2534.5	-24.52	45.26	18.59	0.0723	V
7	5	16QAM	1	0	2567.5	-23.86	44.63	18.62	0.0728	V
7	10	QPSK	1	0	2509.0	-17.26	43.19	23.78	0.2388	H
7	10	QPSK	1	0	2532.0	-18.71	42.05	21.19	0.1315	H
7	10	QPSK	1	49	2565.0	-16.89	41.69	22.65	0.1841	H
7	10	QPSK	1	0	2509.0	-24.46	45.08	18.47	0.0703	V
7	10	QPSK	1	0	2532.0	-24.09	45.26	19.02	0.0798	V
7	10	QPSK	1	49	2565.0	-24.15	44.63	18.33	0.0681	V
7	10	16QAM	1	0	2509.0	-17.19	43.19	23.85	0.2427	H
7	10	16QAM	1	0	2532.0	-18.02	42.05	21.88	0.1542	H
7	10	16QAM	1	0	2565.0	-17.00	41.69	22.54	0.1795	H
7	10	16QAM	1	0	2509.0	-24.00	45.08	18.93	0.0782	V
7	10	16QAM	1	0	2532.0	-24.99	45.26	18.12	0.0649	V
7	10	16QAM	1	0	2565.0	-24.08	44.63	18.4	0.0692	V



LTE Band 7 Radiated Power EIRP										
LTE Band	Channel BW (MHz)	Modulation	RB Configuration		Freq. (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)	H/V
			RB Size	RB Offset						
7	15	QPSK	1	0	2511.5	-18.05	43.19	22.99	0.1991	H
7	15	QPSK	1	0	2529.5	-17.68	42.05	22.22	0.1667	H
7	15	QPSK	1	74	2562.5	-18.60	41.69	20.94	0.1242	H
7	15	QPSK	1	0	2511.5	-24.47	45.08	18.46	0.0701	V
7	15	QPSK	1	0	2529.5	-25.87	45.26	17.24	0.0530	V
7	15	QPSK	1	74	2562.5	-23.12	44.63	19.36	0.0863	V
7	15	16QAM	1	0	2511.5	-18.86	43.19	22.18	0.1652	H
7	15	16QAM	1	0	2529.5	-18.16	42.05	21.74	0.1493	H
7	15	16QAM	1	0	2562.5	-18.91	41.69	20.63	0.1156	H
7	15	16QAM	1	0	2511.5	-24.80	45.08	18.13	0.0650	V
7	15	16QAM	1	0	2529.5	-26.73	45.26	16.38	0.0435	V
7	15	16QAM	1	0	2562.5	-24.06	44.63	18.42	0.0695	V
7	20	QPSK	1	0	2514.0	-18.13	43.19	22.91	0.1954	H
7	20	QPSK	1	0	2527.0	-17.59	42.05	22.31	0.1702	H
7	20	QPSK	1	0	2514.0	-24.57	45.08	18.36	0.0685	V
7	20	QPSK	1	0	2527.0	-24.73	45.26	18.38	0.0689	V
7	20	16QAM	1	0	2514.0	-18.56	43.19	22.48	0.1770	H
7	20	16QAM	1	0	2527.0	-18.06	42.05	21.84	0.1528	H
7	20	16QAM	1	0	2514.0	-24.88	45.08	18.05	0.0638	V
7	20	16QAM	1	0	2527.0	-25.06	45.26	18.05	0.0638	V

3.2 Emission Bandwidth

3.2.1 Description of Emission Bandwidth Measurement

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

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

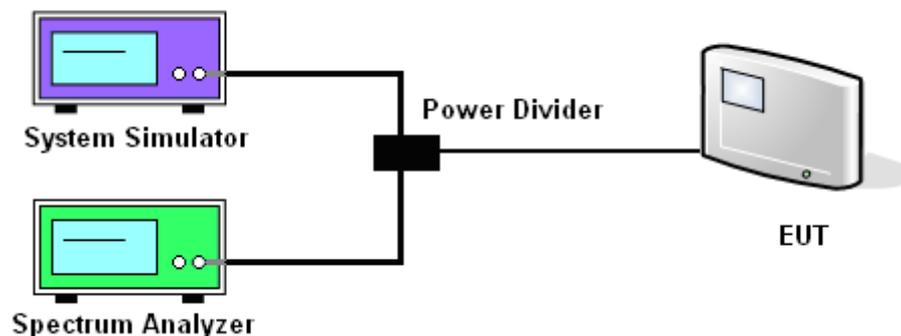
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup





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

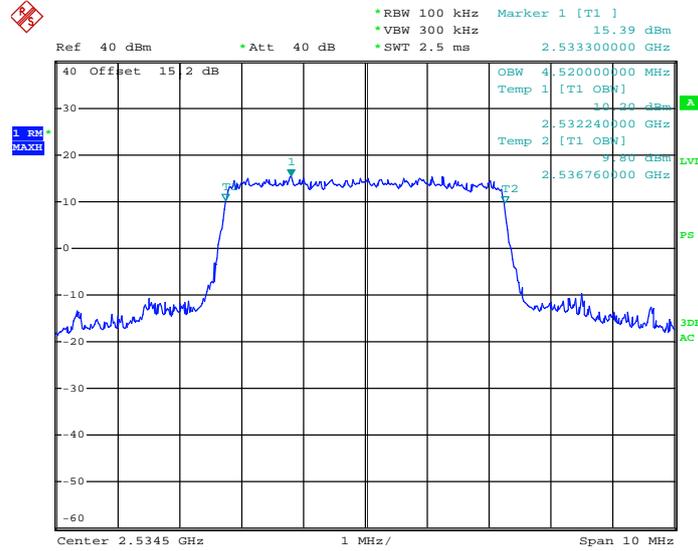
Band	Band Width	Channel	Frequency (MHz)	Modulation	99%Bandwidth (MHz)	26dB Bandwidth (MHz)
LTE Band 7	5MHz	21095	2534.5	QPSK	4.52	5.18
				16-QAM	4.52	5.12
	10MHz	21070	2532	QPSK	9.16	10.32
				16-QAM	9.08	10.28
	15MHz	21045	2529.5	QPSK	13.62	15.06
				16-QAM	13.62	15.12
	20MHz	21020	2527	QPSK	17.92	19.68
				16-QAM	18.00	19.60



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

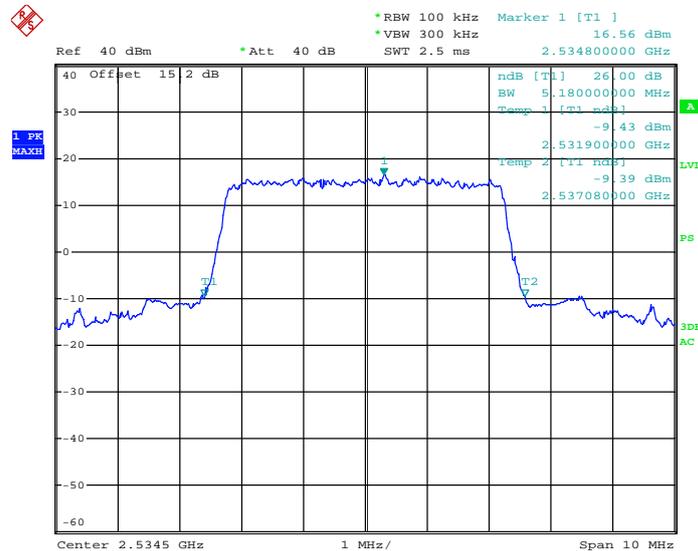
Band :	LTE Band 7	BW / Mod. :	5MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 21095



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26dB Bandwidth Plot on Channel 21095

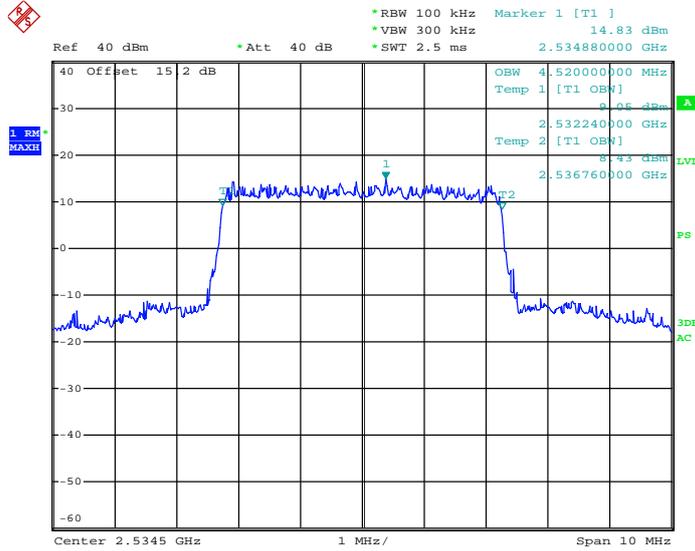


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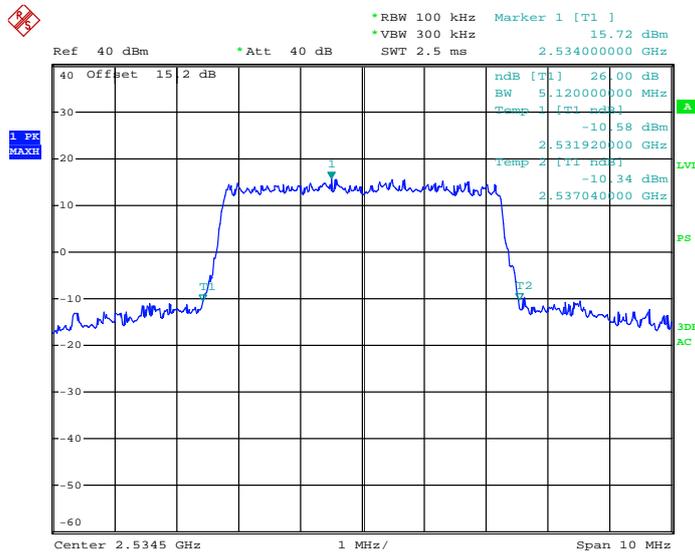
Band :	LTE Band 7	BW / Mod. :	5MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21095



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26dB Bandwidth Plot on Channel 21095

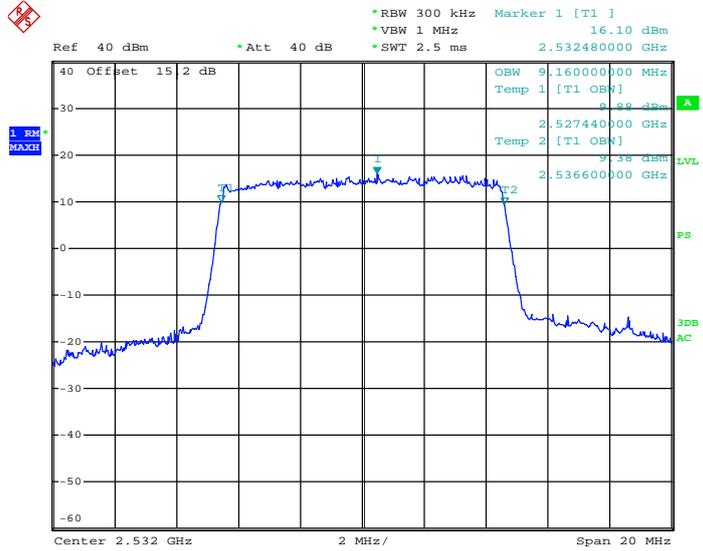


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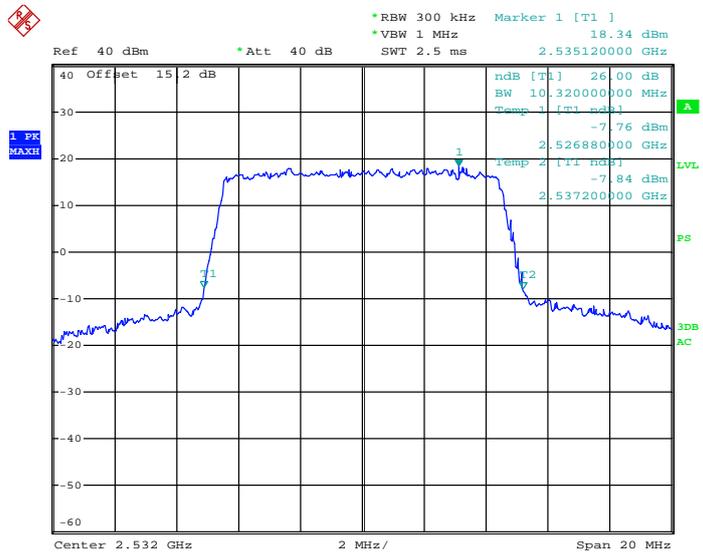
Band :	LTE Band 7	BW / Mod. :	10MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 21070



Date: 24.JUL.2012 10:58:16

26dB Bandwidth Plot on Channel 21070

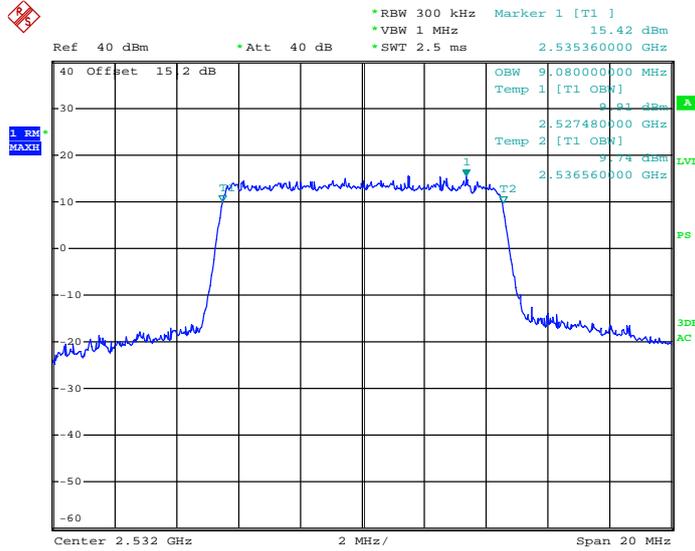


Date: 24.JUL.2012 09:54:03



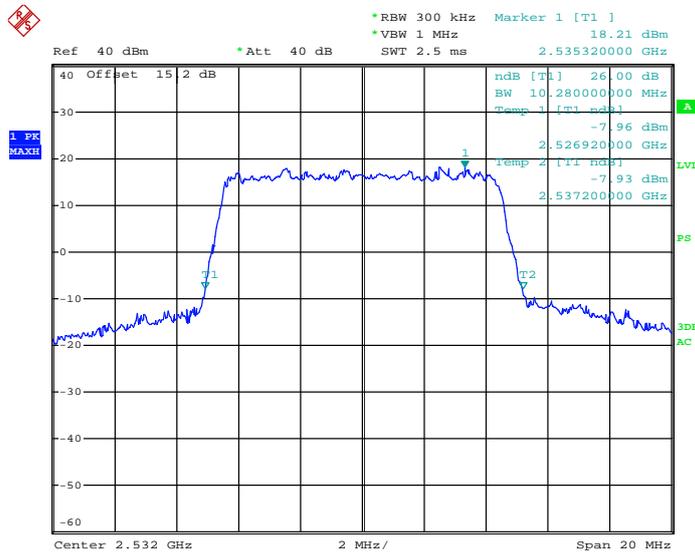
Band :	LTE Band 7	BW / Mod. :	10MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21070



Date: 24.JUL.2012 10:59:16

26dB Bandwidth Plot on Channel 21070

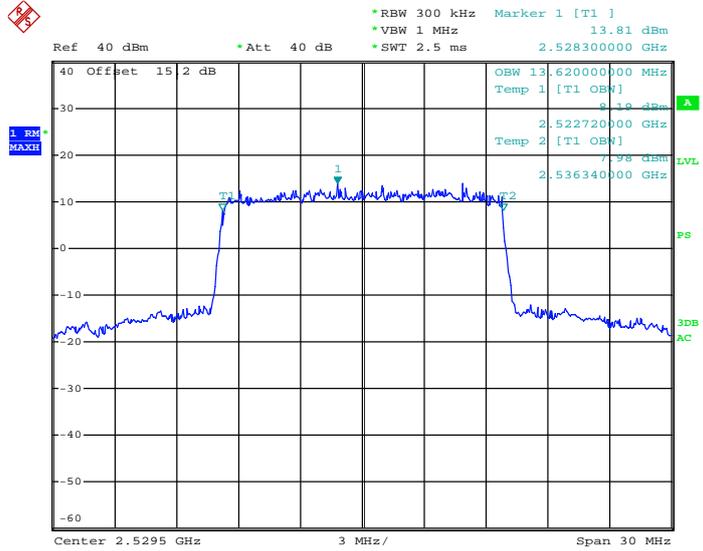


Date: 24.JUL.2012 09:53:28



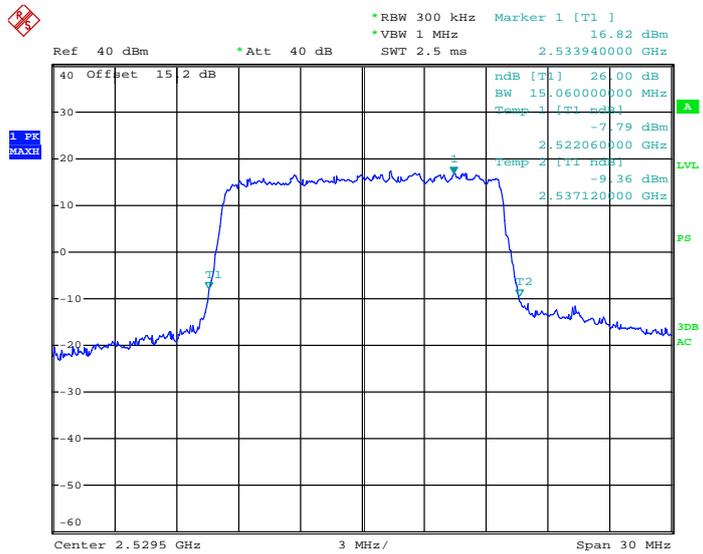
Band :	LTE Band 7	BW / Mod. :	15MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 21045



Date: 24.JUL.2012 11:10:01

26dB Bandwidth Plot on Channel 21045

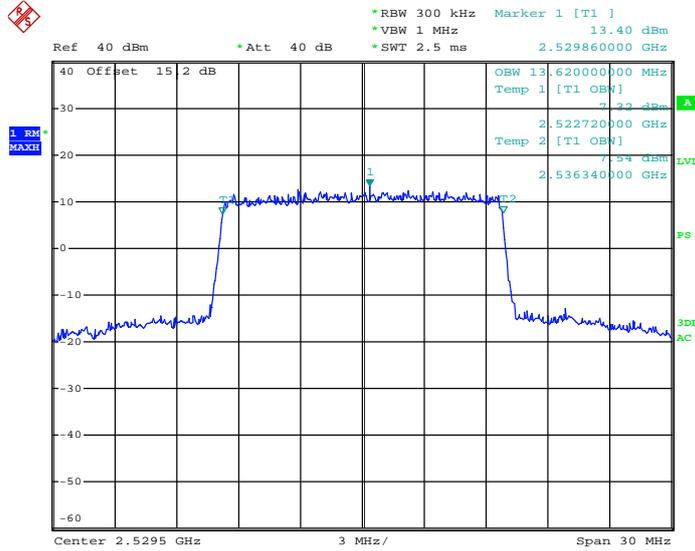


Date: 24.JUL.2012 09:58:21



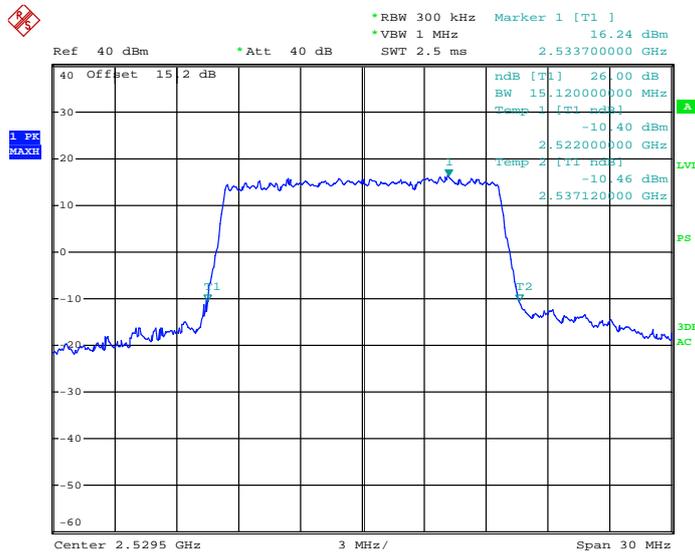
Band :	LTE Band 7	BW / Mod. :	15MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21045



Date: 24.JUL.2012 11:11:29

26dB Bandwidth Plot on Channel 21045

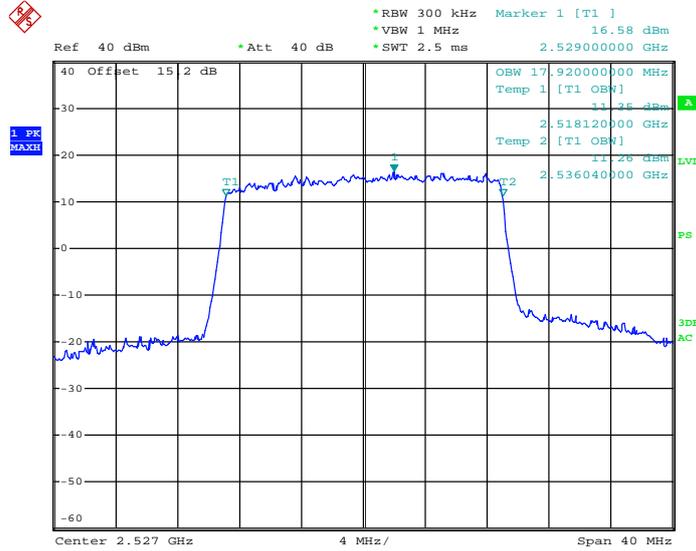


Date: 24.JUL.2012 09:59:32



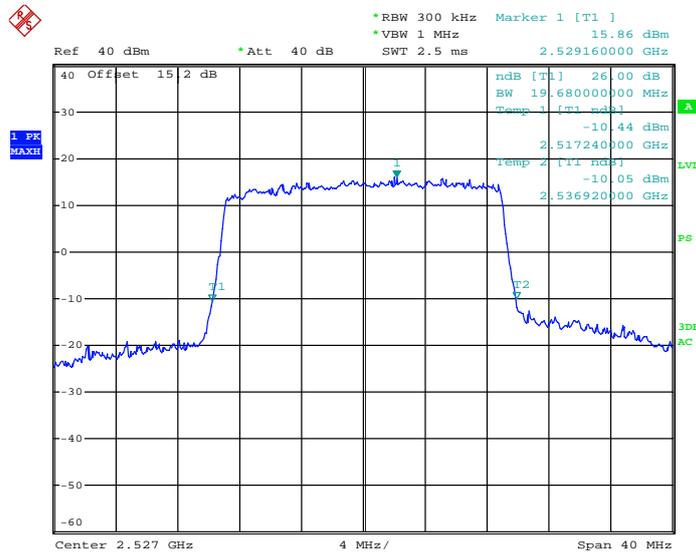
Band :	LTE Band 7	BW / Mod. :	20MHz / QPSK
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99% Occupied Bandwidth Plot on Channel 21020



Date: 24.JUL.2012 11:53:46

26dB Bandwidth Plot on Channel 21020

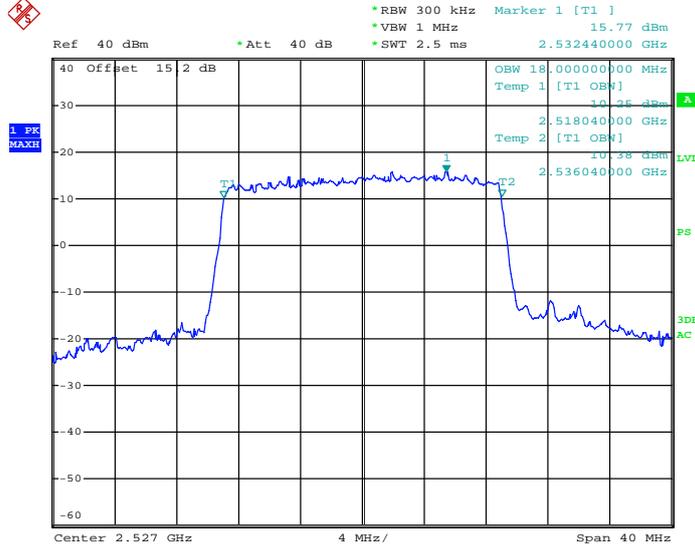


Date: 24.JUL.2012 10:03:04



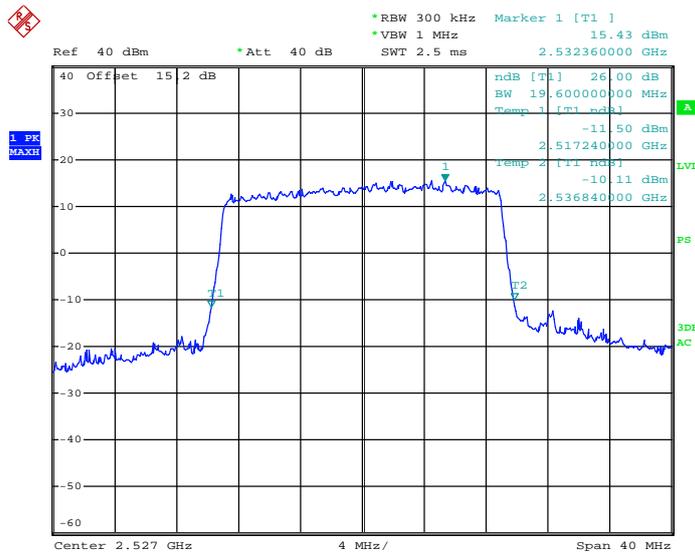
Band :	LTE Band 7	BW / Mod. :	20MHz / 16QAM
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99% Occupied Bandwidth Plot on Channel 21020



Date: 24.JUL.2012 11:54:49

26dB Bandwidth Plot on Channel 21020



Date: 24.JUL.2012 10:02:27

3.3 Conducted Band Edge and Spurious Emission Measurement

3.3.1 Description of Conducted Band Edge and Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of mobile digital stations, the attenuation factor 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. It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

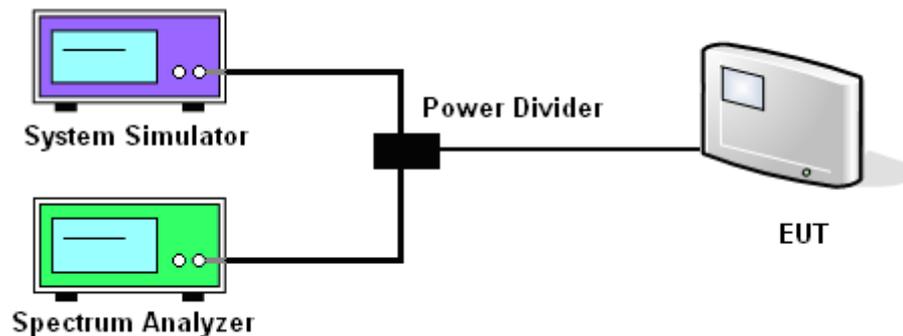
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

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

3.3.4 Test Setup

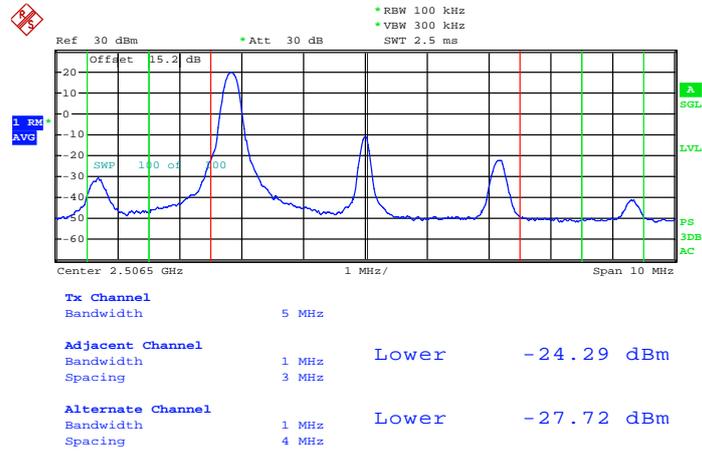




3.3.5 Test Plots of Conducted Band-Edge Emission

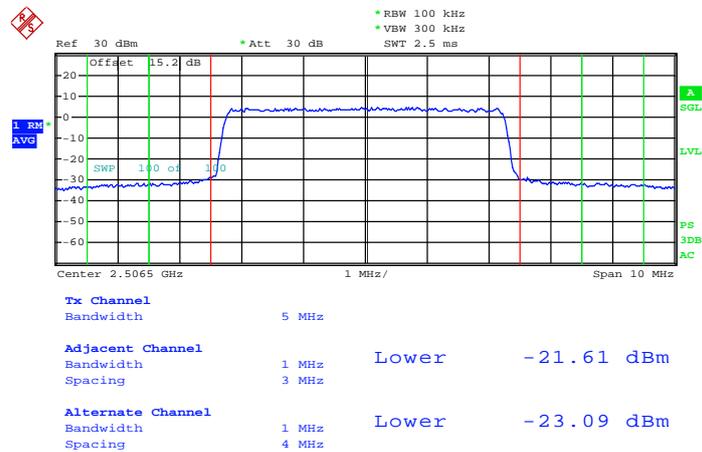
Band :	LTE Band 7	Band Width	5MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 24.JUL.2012 09:43:18

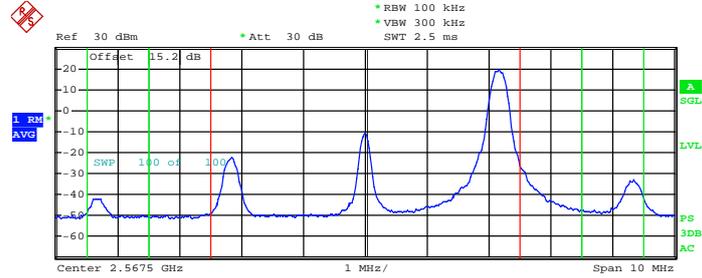
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 24.JUL.2012 09:44:02



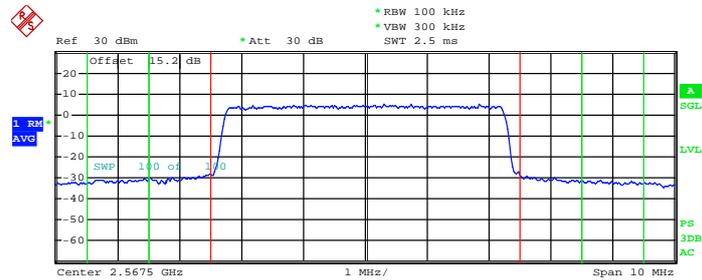
Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Tx Channel			
Bandwidth	5 MHz		
Adjacent Channel			
Bandwidth	1 MHz		
Spacing	3 MHz	Upper	-26.31 dBm
Alternate Channel			
Bandwidth	1 MHz		
Spacing	4 MHz	Upper	-29.83 dBm

Date: 24.JUL.2012 09:41:43

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



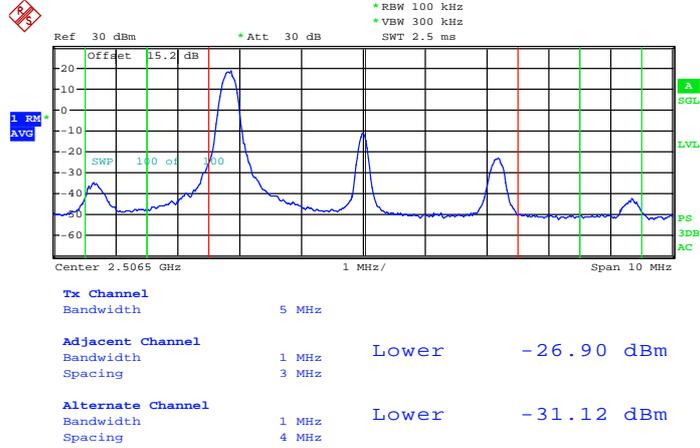
Tx Channel			
Bandwidth	5 MHz		
Adjacent Channel			
Bandwidth	1 MHz		
Spacing	3 MHz	Upper	-21.01 dBm
Alternate Channel			
Bandwidth	1 MHz		
Spacing	4 MHz	Upper	-22.54 dBm

Date: 24.JUL.2012 09:41:21



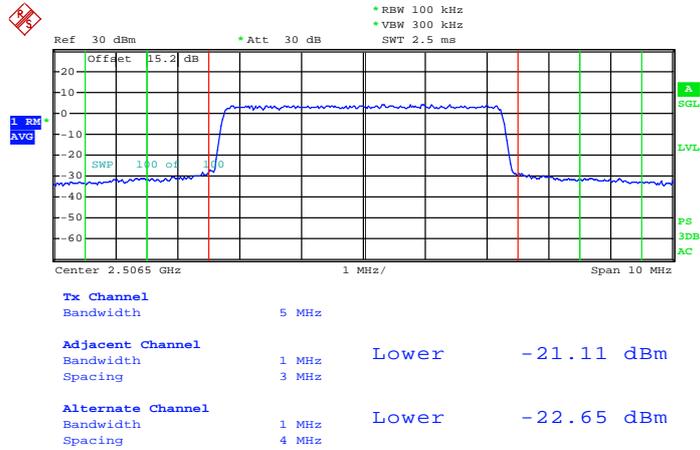
Band :	LTE Band 7	Band Width	5MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 24.JUL.2012 09:42:55

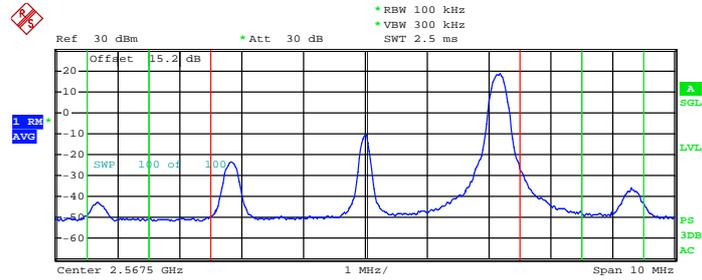
Lower Band Edge Plot for 16QAM -RB Size 25, RB Offset 0



Date: 24.JUL.2012 09:43:47



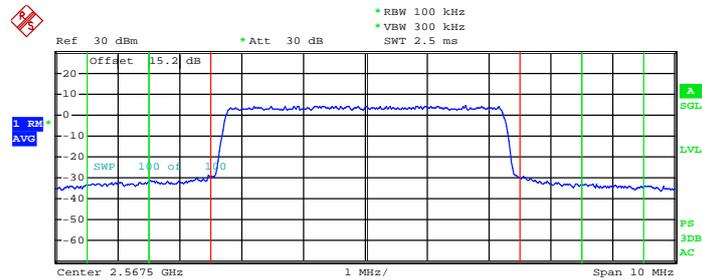
Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 24



Tx Channel			
Bandwidth	5 MHz		
Adjacent Channel			
Bandwidth	1 MHz		
Spacing	3 MHz	Upper	-27.35 dBm
Alternate Channel			
Bandwidth	1 MHz		
Spacing	4 MHz	Upper	-32.33 dBm

Date: 24.JUL.2012 09:41:55

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



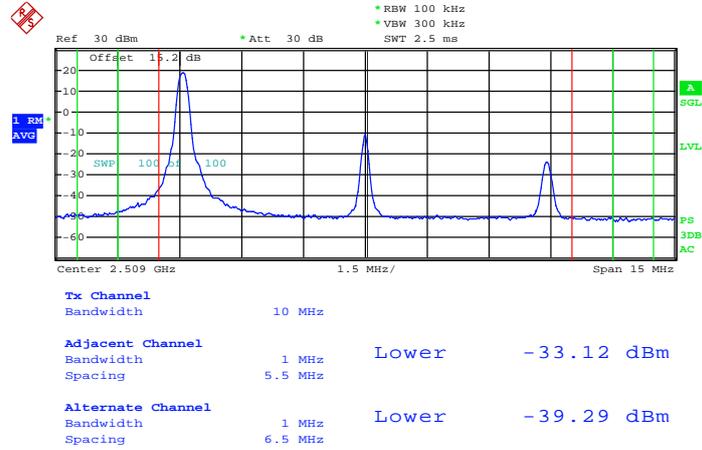
Tx Channel			
Bandwidth	5 MHz		
Adjacent Channel			
Bandwidth	1 MHz		
Spacing	3 MHz	Upper	-22.36 dBm
Alternate Channel			
Bandwidth	1 MHz		
Spacing	4 MHz	Upper	-24.29 dBm

Date: 24.JUL.2012 09:41:09



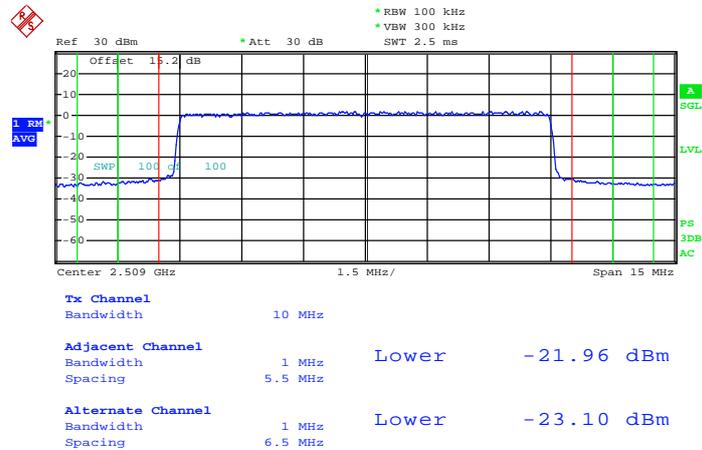
Band :	LTE Band 7	Band Width	10MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 24.JUL.2012 09:31:49

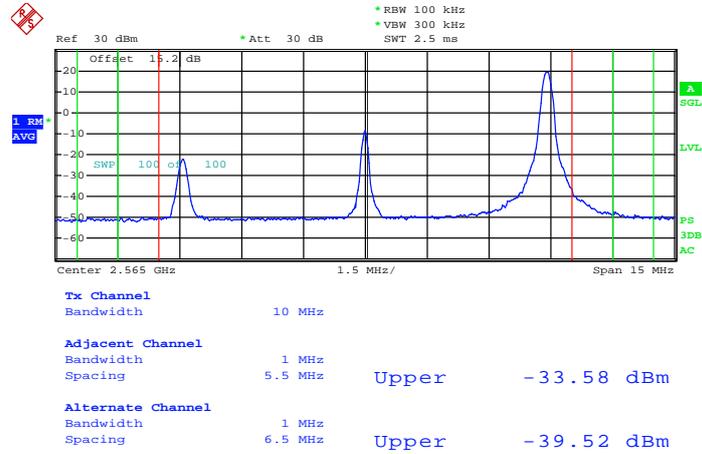
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 24.JUL.2012 09:31:29

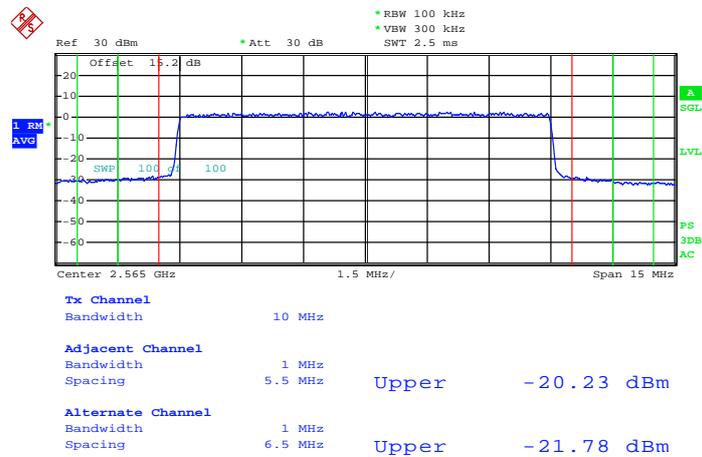


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 24.JUL.2012 09:36:14

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

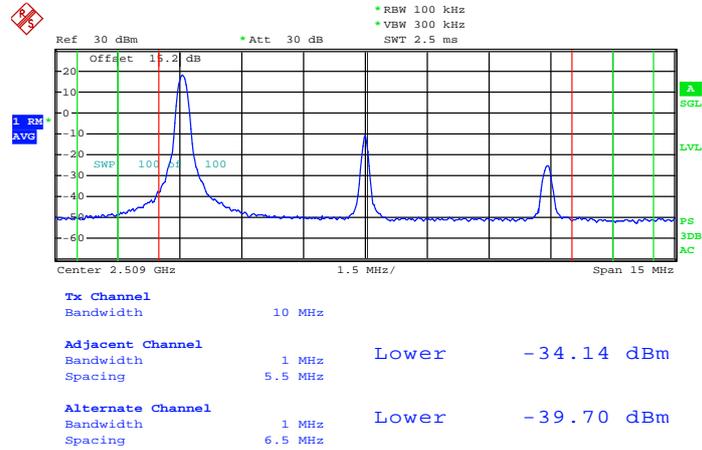


Date: 24.JUL.2012 09:37:32



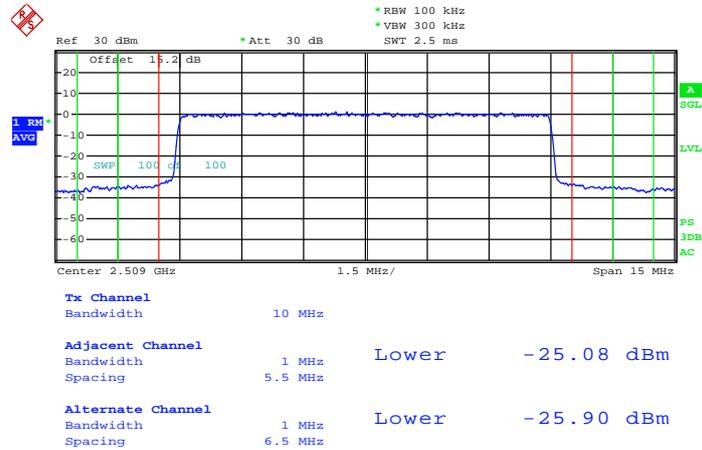
Band :	LTE Band 7	Band Width	10MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 24.JUL.2012 09:32:30

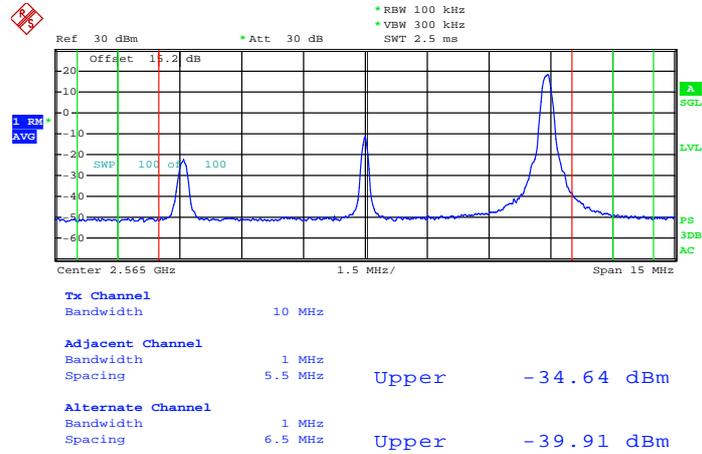
Lower Band Edge Plot for 16QAM -RB Size 50, RB Offset 0



Date: 24.JUL.2012 09:31:09

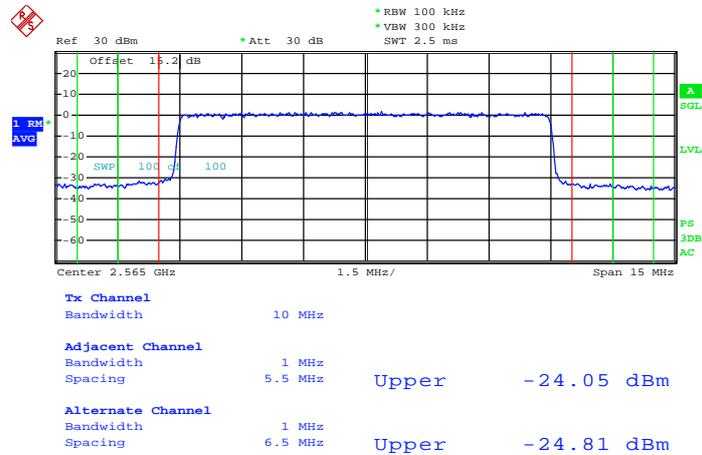


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 49



Date: 24.JUL.2012 09:35:54

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

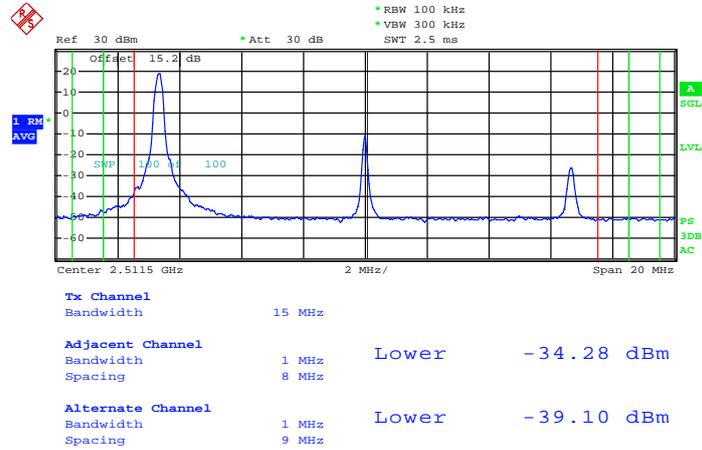


Date: 24.JUL.2012 09:39:04



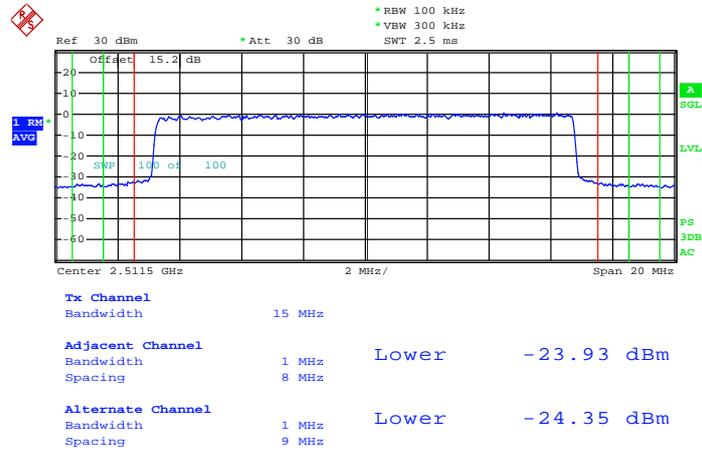
Band :	LTE Band 7	Band Width	15MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 24.JUL.2012 09:28:08

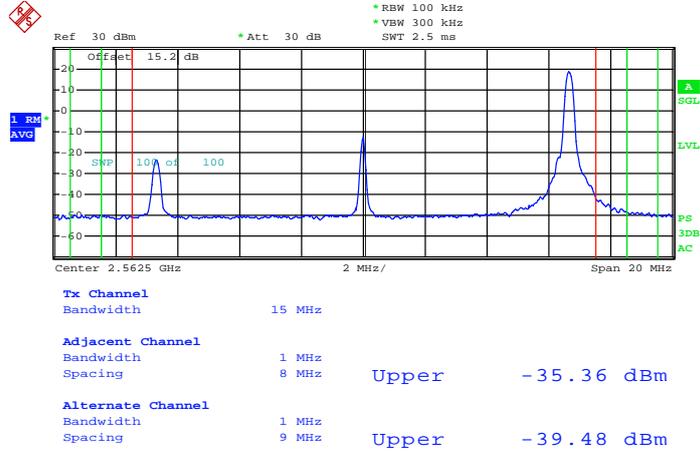
Lower Band Edge Plot for QPSK-RB Size 75, RB Offset 0



Date: 24.JUL.2012 09:28:23

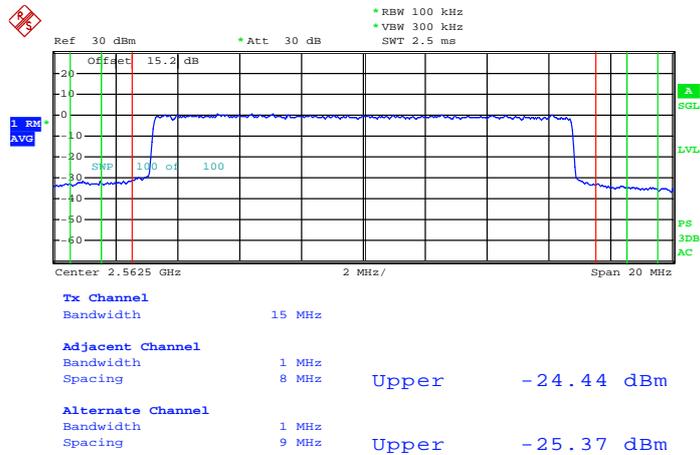


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 74



Date: 24.JUL.2012 09:25:27

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

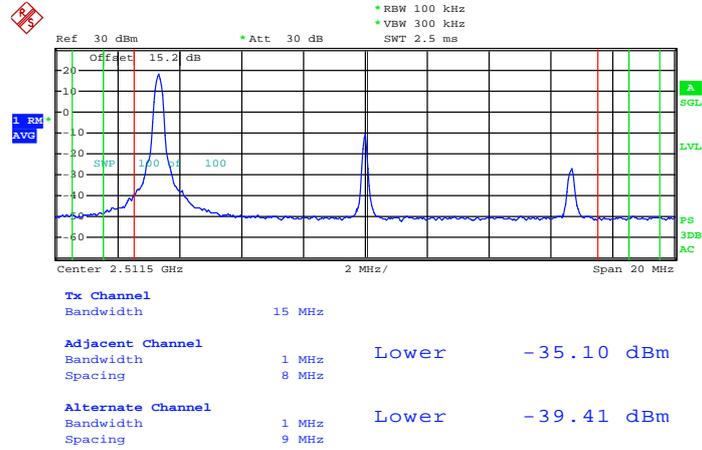


Date: 24.JUL.2012 09:24:55



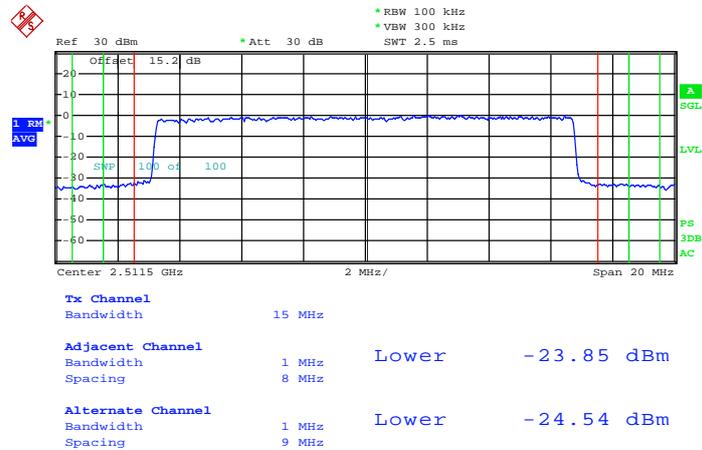
Band :	LTE Band 7	Band Width	15MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 24.JUL.2012 09:27:53

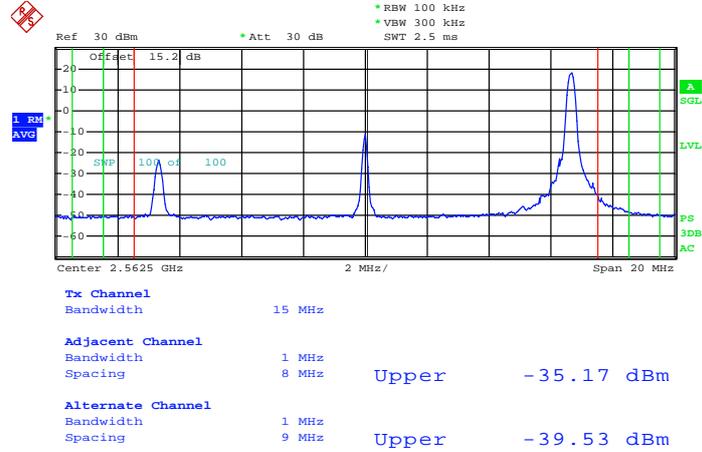
Lower Band Edge Plot for 16QAM -RB Size 75, RB Offset 0



Date: 24.JUL.2012 09:28:35

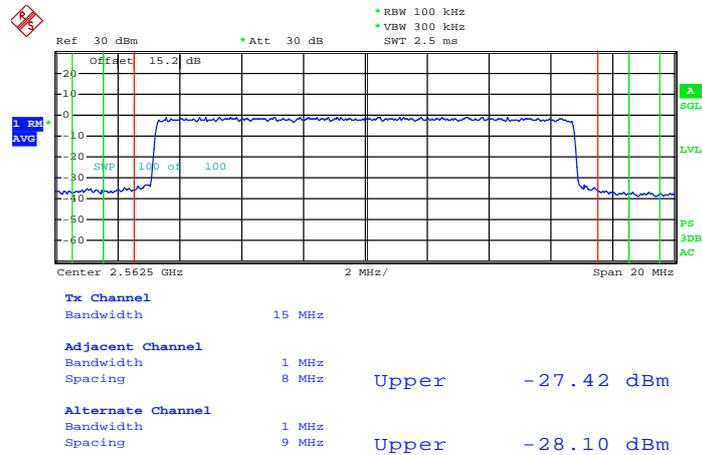


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 74



Date: 24.JUL.2012 09:25:43

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

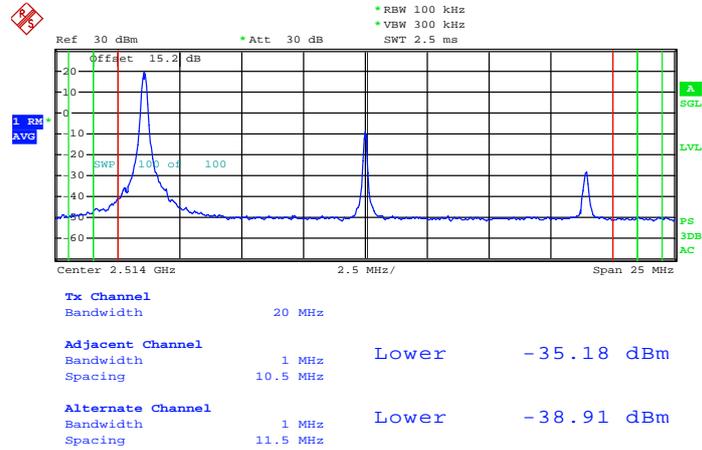


Date: 24.JUL.2012 09:22:39



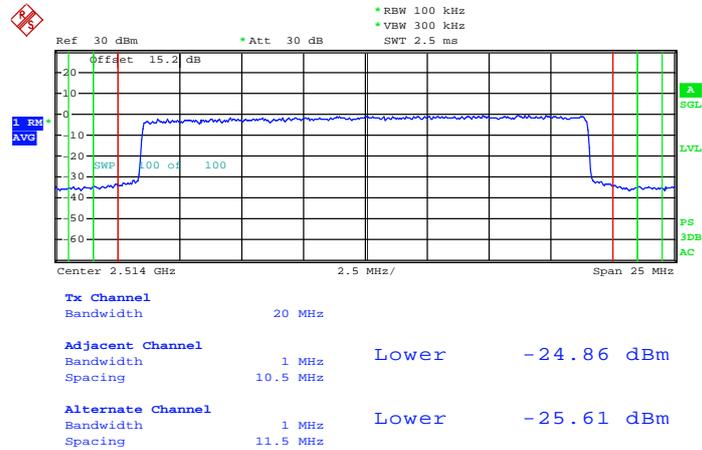
Band :	LTE Band 7	Band Width	20MHz / QPSK
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Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0



Date: 24.JUL.2012 08:34:50

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

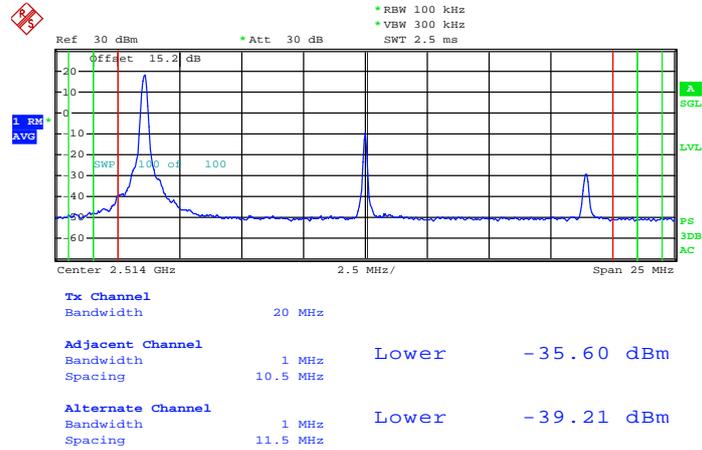


Date: 24.JUL.2012 08:40:09



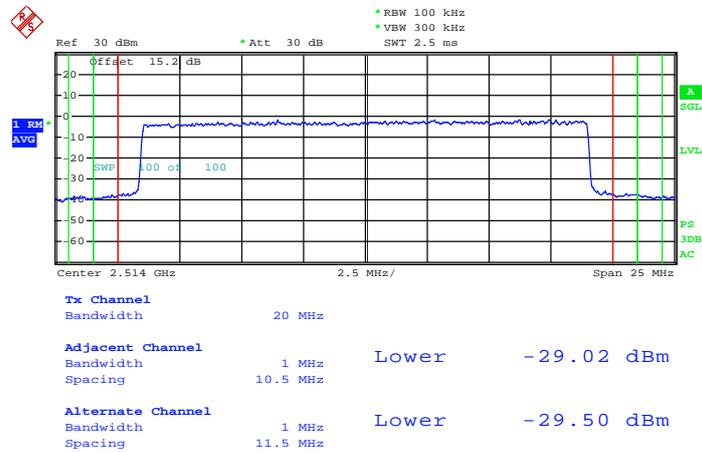
Band :	LTE Band 7	Band Width	20MHz / 16QAM
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Lower Band Edge Plot for 16QAM -RB Size 1, RB Offset 0



Date: 24.JUL.2012 08:35:12

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



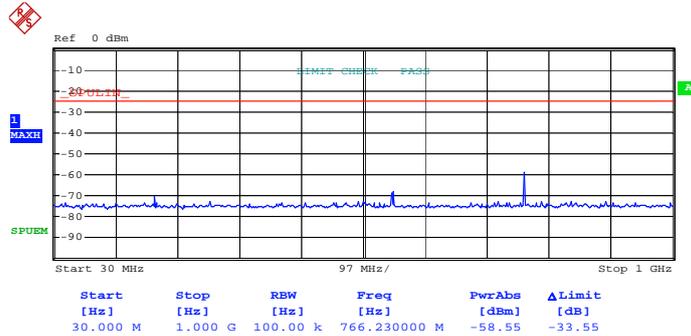
Date: 24.JUL.2012 08:39:57



3.3.6 Test Plots of Spurious Emission

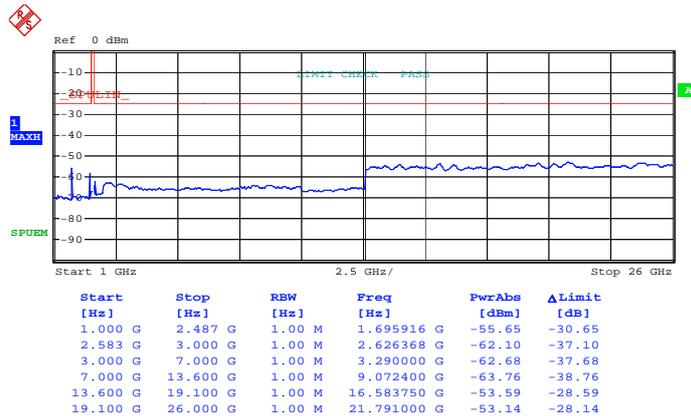
Band :	LTE Band 7	Bandwidth :	5MHz / QPSK
Frequency :	2506.5	Channel :	20815

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



Date: 25.JUL.2012 13:37:51

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

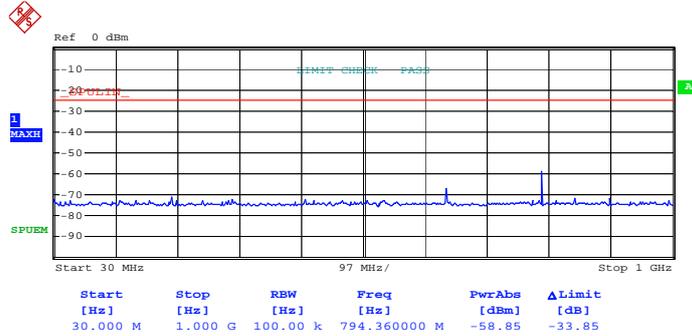


Date: 25.JUL.2012 13:35:53



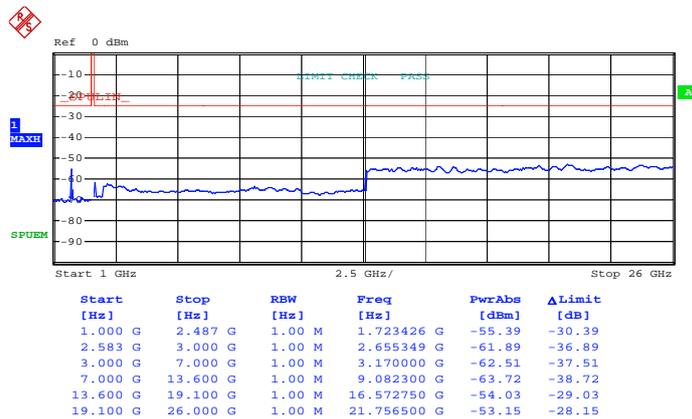
Band :	LTE Band 7	Bandwidth :	5MHz / QPSK
Frequency :	2534.5	Channel :	21095

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



Date: 25.JUL.2012 13:40:53

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

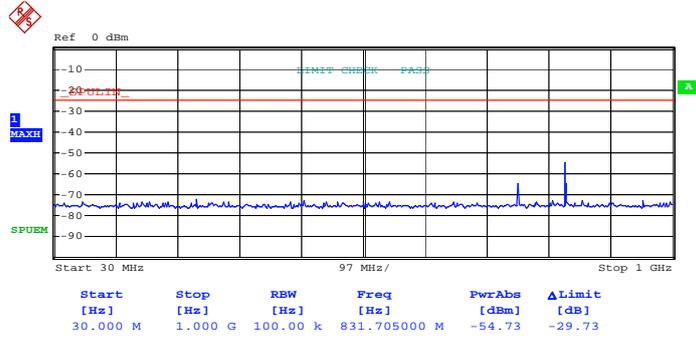


Date: 25.JUL.2012 13:41:45



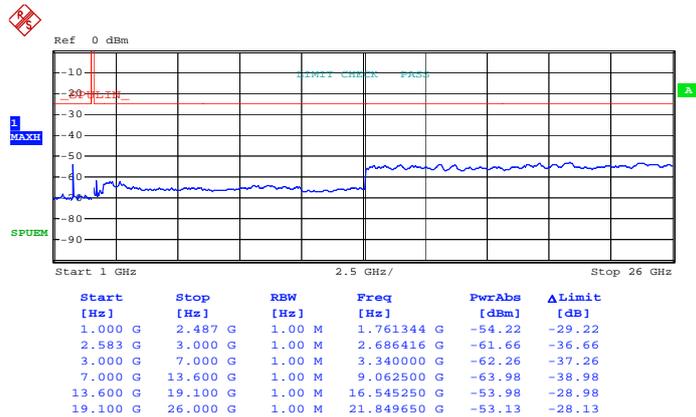
Band :	LTE Band 7	Bandwidth :	5MHz / QPSK
Frequency :	2567.5	Channel :	21425

Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 24)



Date: 25.JUL.2012 13:48:26

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 24)

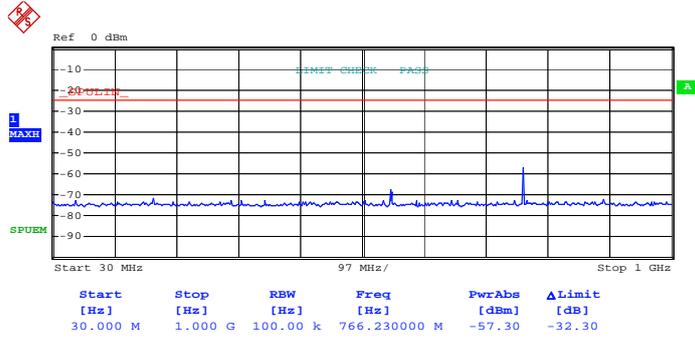


Date: 25.JUL.2012 13:49:17



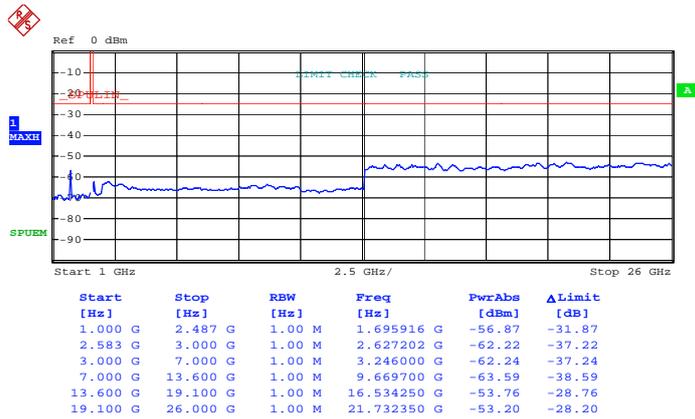
Band :	LTE Band 7	Bandwidth :	5MHz / 16QAM
Frequency :	2506.5	Channel :	20815

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



Date: 25.JUL.2012 13:38:39

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

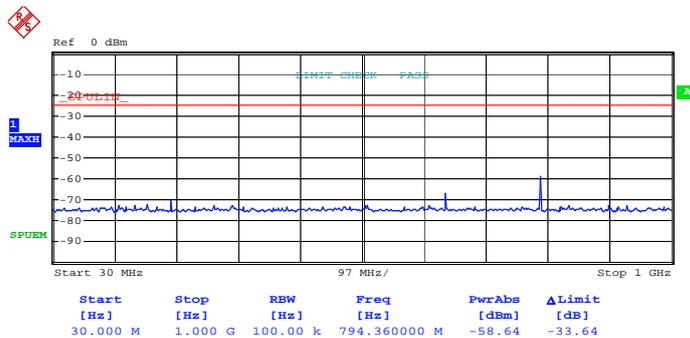


Date: 25.JUL.2012 13:35:01



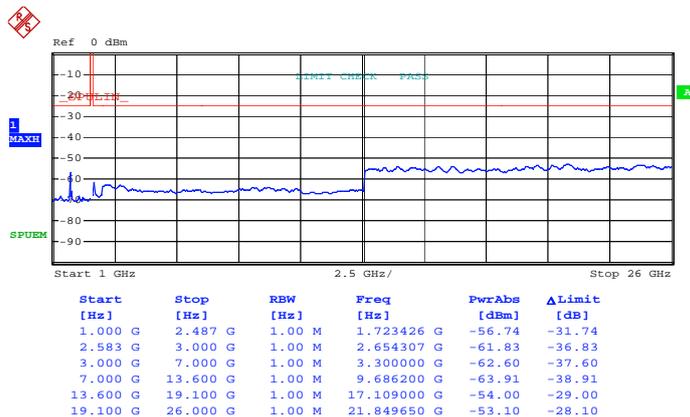
Band :	LTE Band 7	Bandwidth :	5MHz / 16QAM
Frequency :	2534.5	Channel :	21095

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



Date: 25.JUL.2012 13:39:43

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

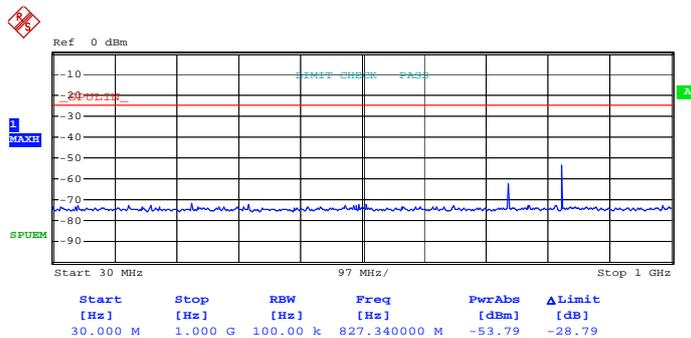


Date: 25.JUL.2012 13:42:52



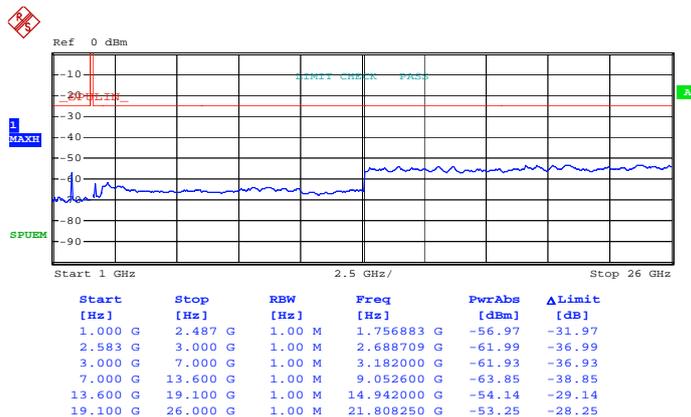
Band :	LTE Band 7	Bandwidth :	5MHz / 16QAM
Frequency :	2567.5	Channel :	21425

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



Date: 25.JUL.2012 13:47:16

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

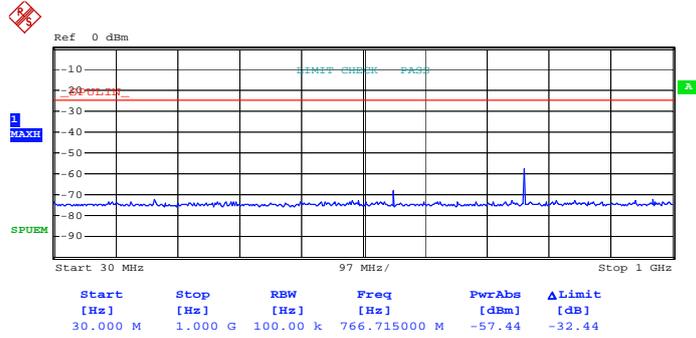


Date: 25.JUL.2012 13:46:11



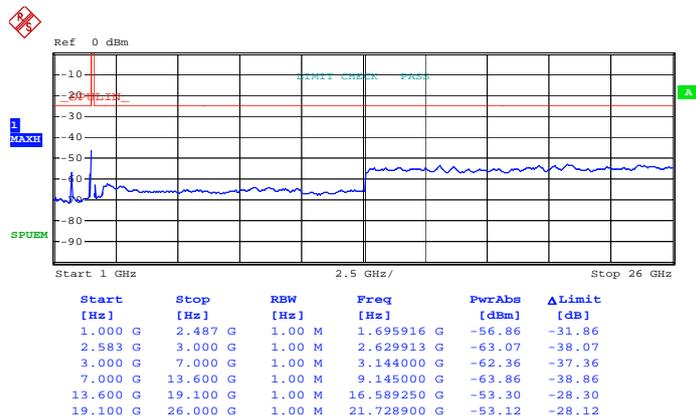
Band :	LTE Band 7	Bandwidth:	10MHz / QPSK
Frequency :	2509	Channel :	20840

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



Date: 25.JUL.2012 13:31:16

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

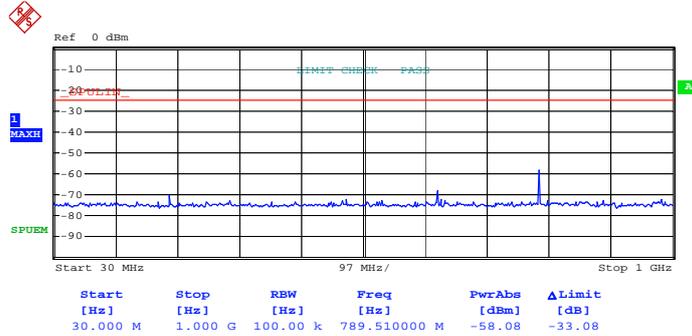


Date: 25.JUL.2012 13:31:53



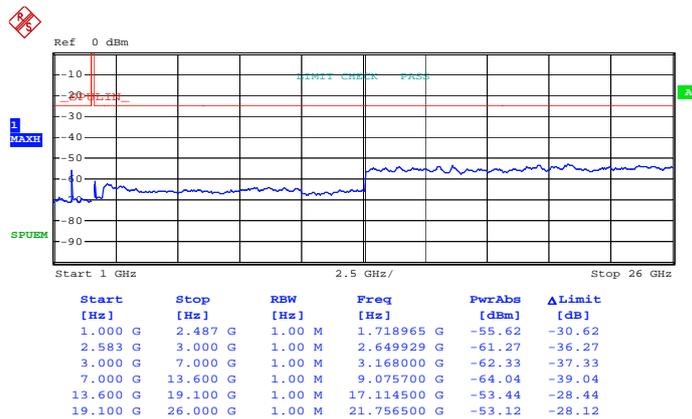
Band :	LTE Band 7	Bandwidth:	10MHz / QPSK
Frequency :	2532	Channel :	21070

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



Date: 25.JUL.2012 13:28:54

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

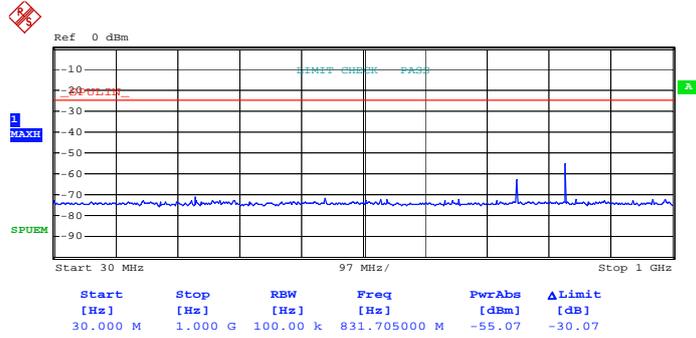


Date: 25.JUL.2012 13:28:12



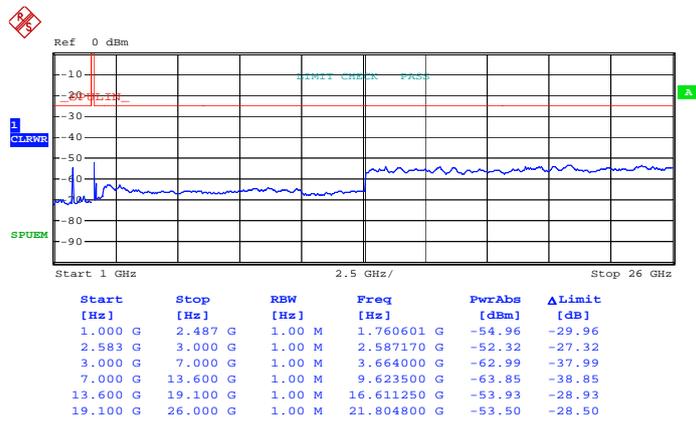
Band :	LTE Band 7	Bandwidth:	10MHz / QPSK
Frequency :	2565	Channel :	21400

Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 49)



Date: 25.JUL.2012 11:55:11

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 49)

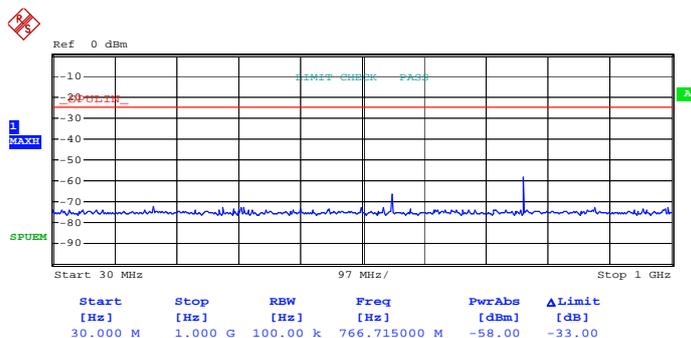


Date: 25.JUL.2012 11:53:36



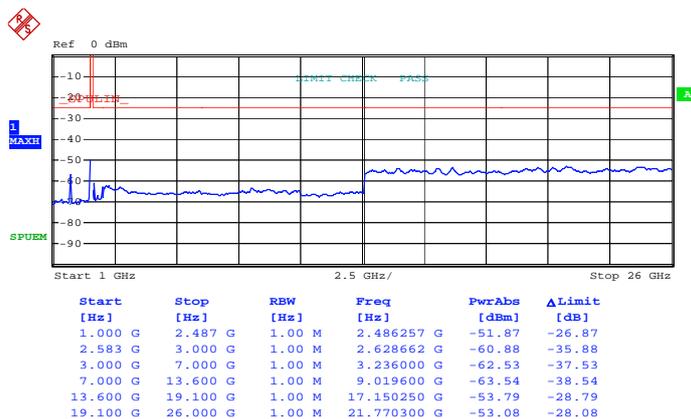
Band :	LTE Band 7	Bandwidth:	10MHz / 16QAM
Frequency :	2509	Channel :	20840

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



Date: 25.JUL.2012 13:30:38

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

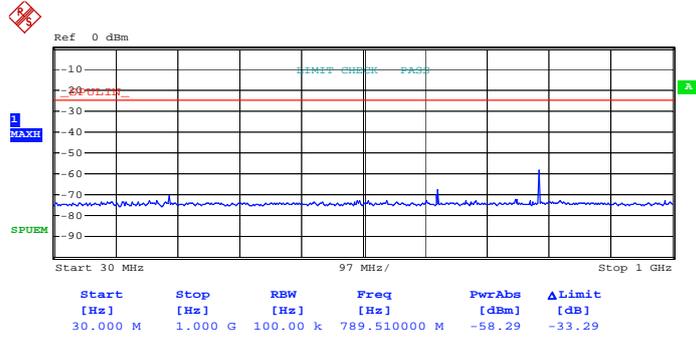


Date: 25.JUL.2012 13:32:32



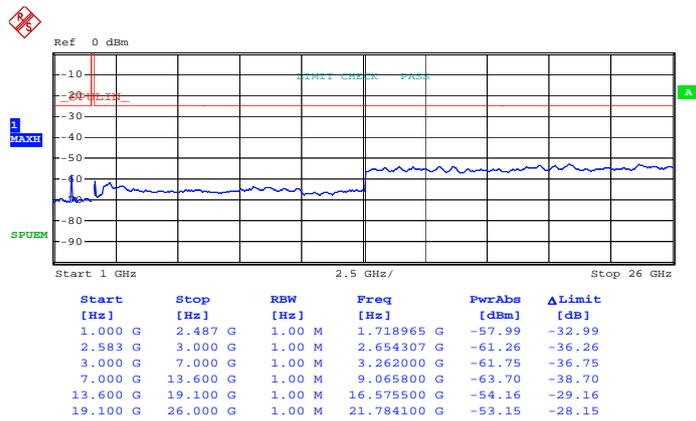
Band :	LTE Band 7	Bandwidth:	10MHz / 16QAM
Frequency :	2532	Channel :	21070

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



Date: 25.JUL.2012 13:29:47

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

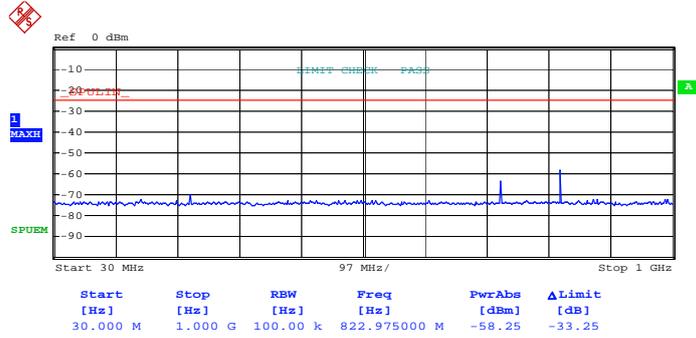


Date: 25.JUL.2012 13:27:46



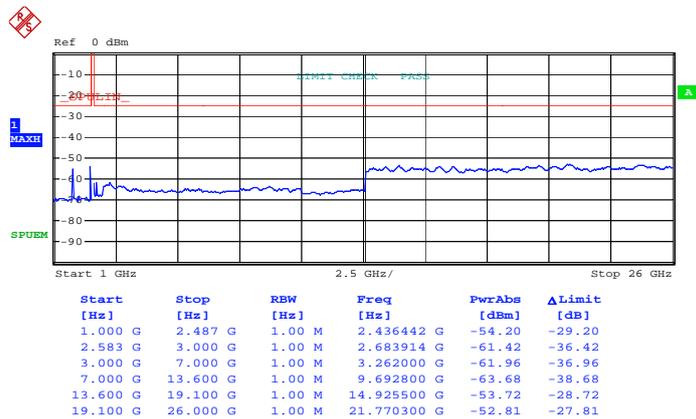
Band :	LTE Band 7	Bandwidth:	10MHz / 16QAM
Frequency :	2565	Channel :	21400

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



Date: 25.JUL.2012 11:56:49

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

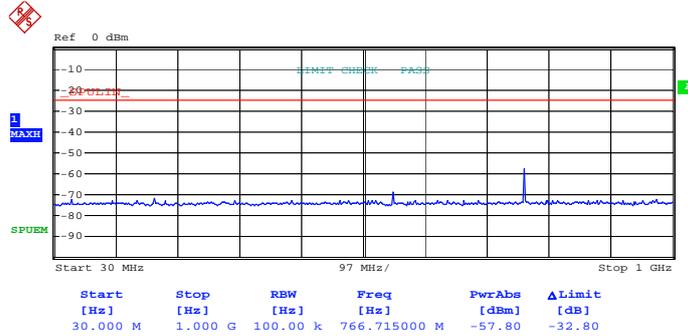


Date: 25.JUL.2012 11:58:32



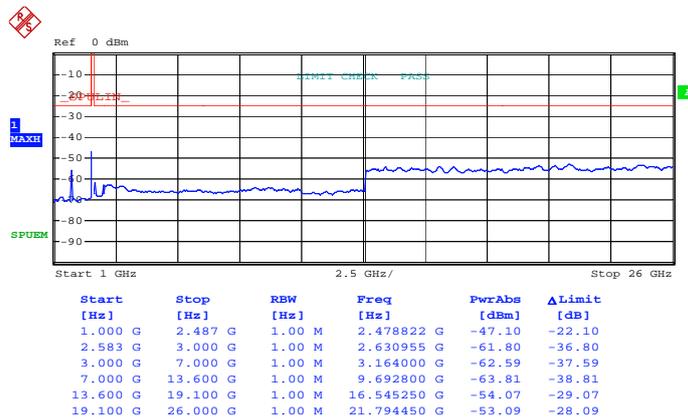
Band :	LTE Band 7	Bandwidth:	15MHz / QPSK
Frequency :	2511.5	Channel :	20865

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



Date: 25.JUL.2012 10:43:37

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

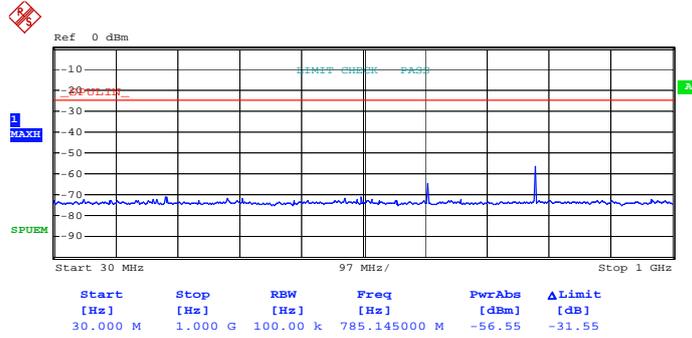


Date: 25.JUL.2012 10:44:26



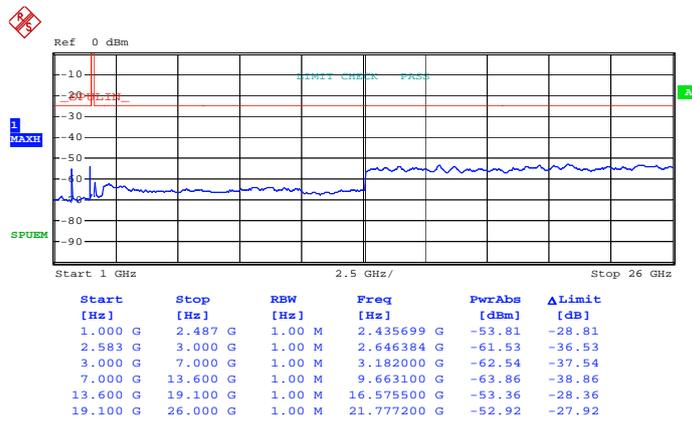
Band :	LTE Band 7	Bandwidth:	15MHz / QPSK
Frequency :	2529.5	Channel :	21045

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



Date: 25.JUL.2012 10:53:28

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

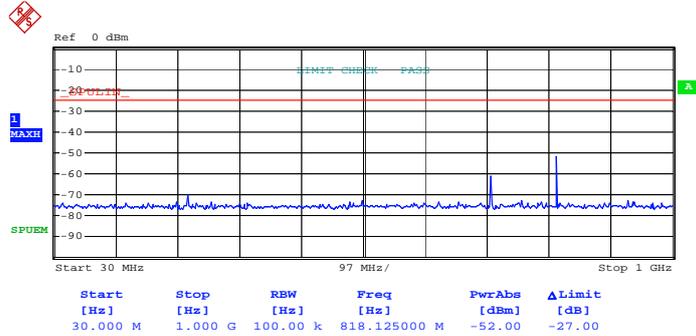


Date: 25.JUL.2012 10:51:02



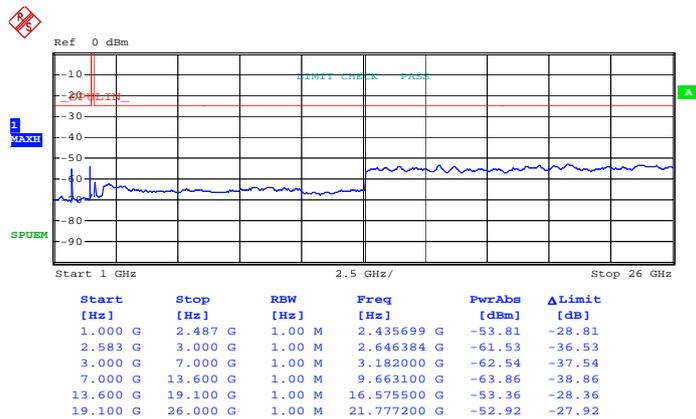
Band :	LTE Band 7	Bandwidth:	15MHz / QPSK
Frequency :	2562.5	Channel :	21375

Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 74)



Date: 25.JUL.2012 11:18:38

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 74)

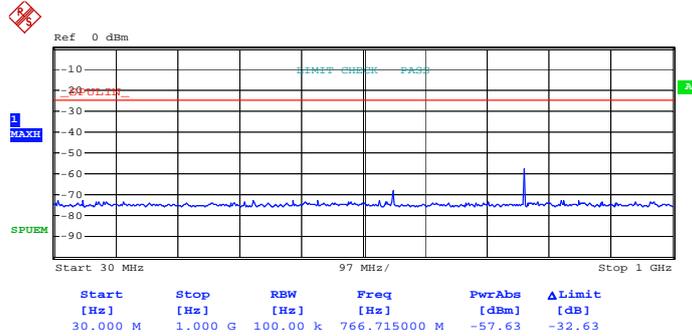


Date: 25.JUL.2012 10:51:02



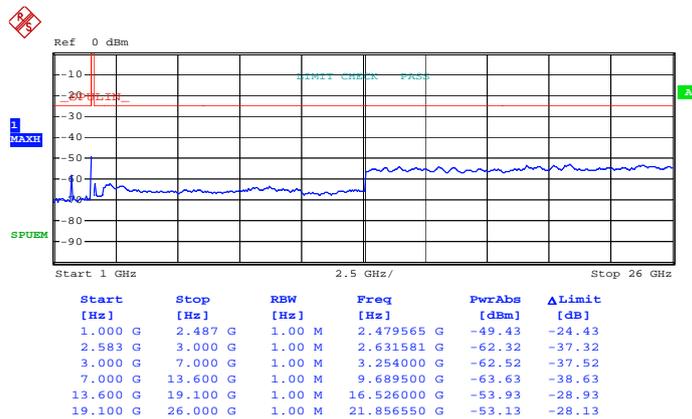
Band :	LTE Band 7	Bandwidth:	15MHz / 16QAM
Frequency :	2511.5	Channel :	20865

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



Date: 25.JUL.2012 10:42:19

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

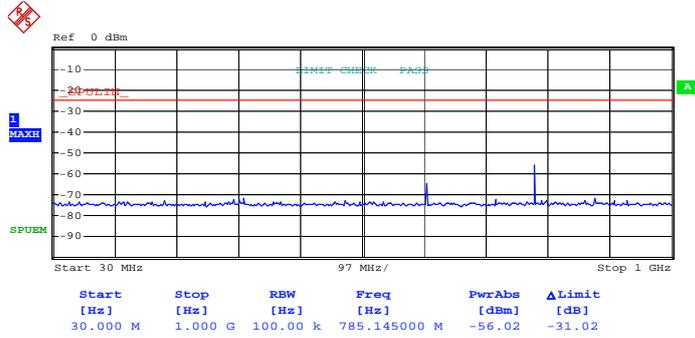


Date: 25.JUL.2012 10:45:04



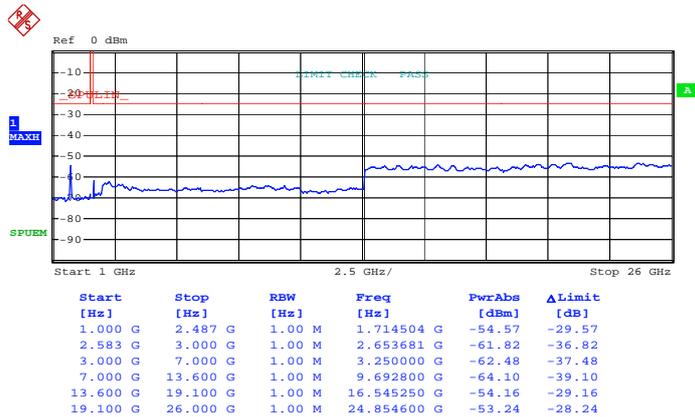
Band :	LTE Band 7	Bandwidth:	15MHz / 16QAM
Frequency :	2529.5	Channel :	21045

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



Date: 25.JUL.2012 10:54:19

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

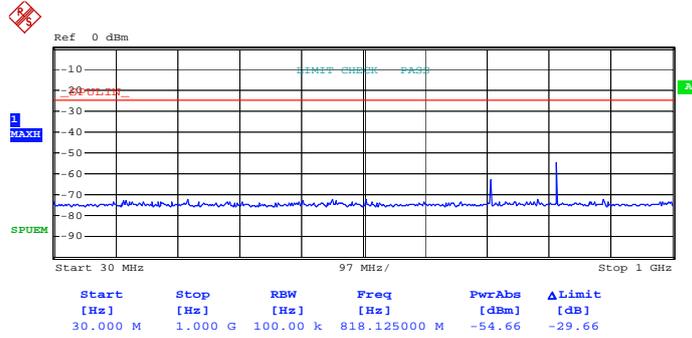


Date: 25.JUL.2012 10:47:04



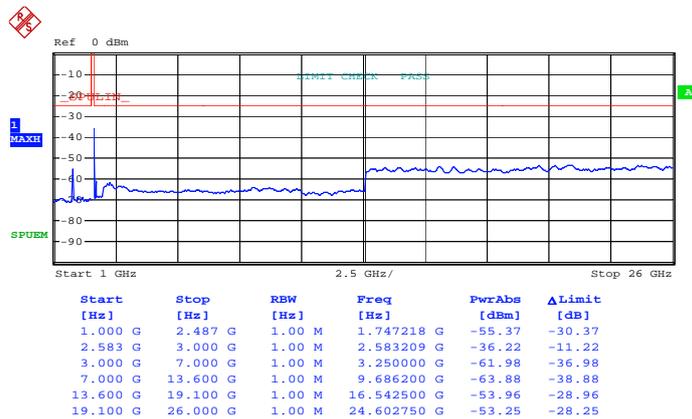
Band :	LTE Band 7	Bandwidth:	15MHz / 16QAM
Frequency :	2562.5	Channel :	21375

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



Date: 25.JUL.2012 11:16:00

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

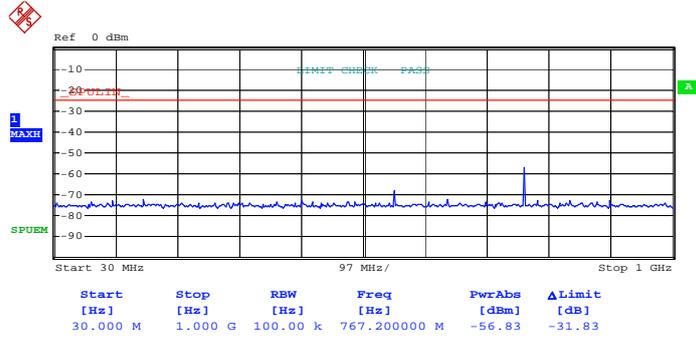


Date: 25.JUL.2012 11:21:03



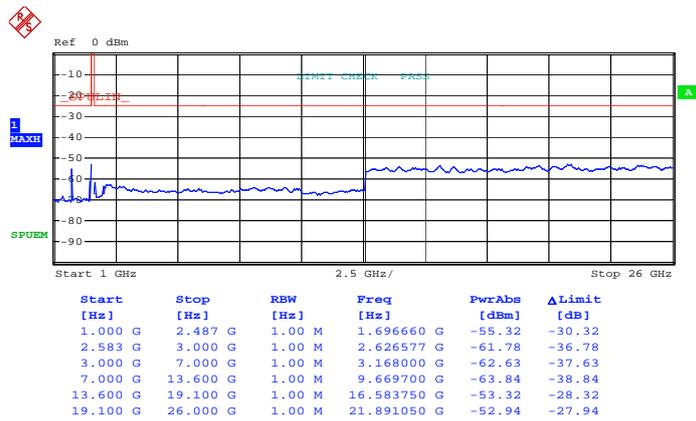
Band :	LTE Band 7	Bandwidth:	20MHz / QPSK
Frequency :	2514	Channel :	20890

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



Date: 25.JUL.2012 10:13:48

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

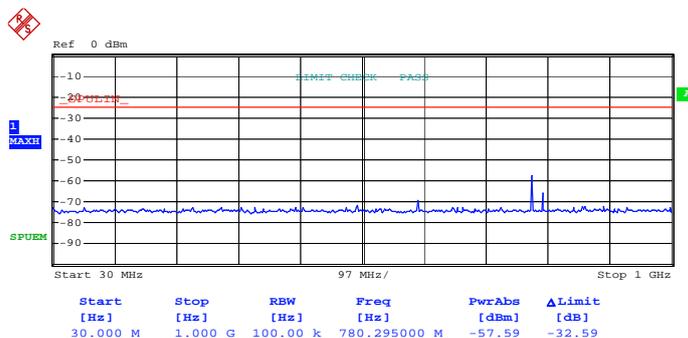


Date: 25.JUL.2012 10:13:17



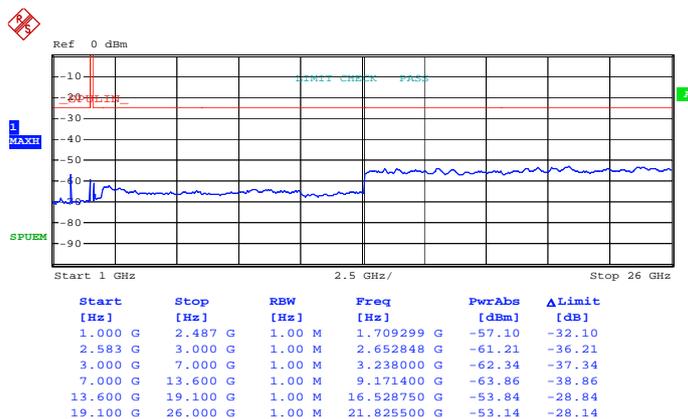
Band :	LTE Band 7	Bandwidth:	20MHz / QPSK
Frequency :	2527	Channel :	21020

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



Date: 25.JUL.2012 10:00:08

Conducted Emission Plot (1GHz ~ 26GHz) for QPSK (RB Size 1, RB Offset 0)

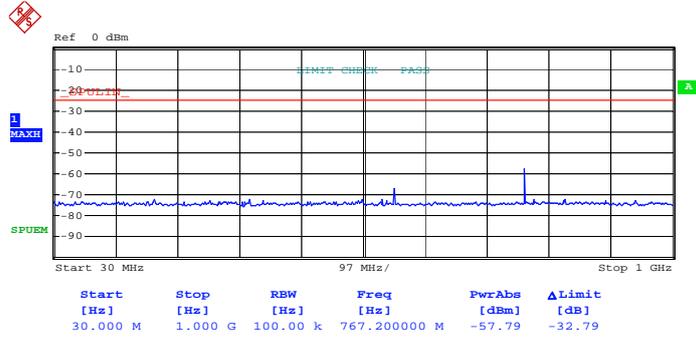


Date: 25.JUL.2012 10:02:33



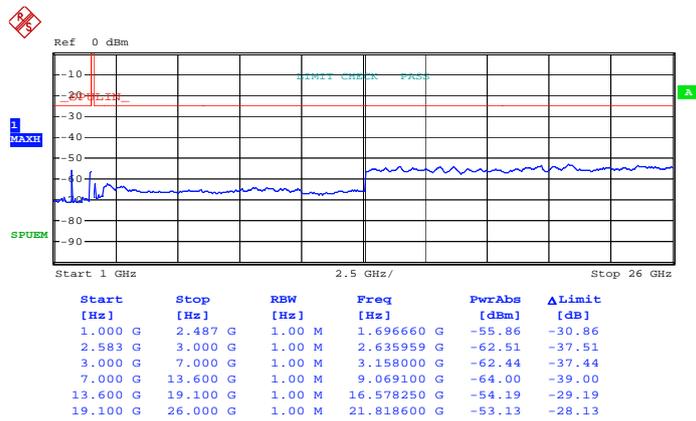
Band :	LTE Band 7	Bandwidth:	20MHz / 16QAM
Frequency :	2514	Channel :	20890

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



Date: 25.JUL.2012 10:17:24

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)

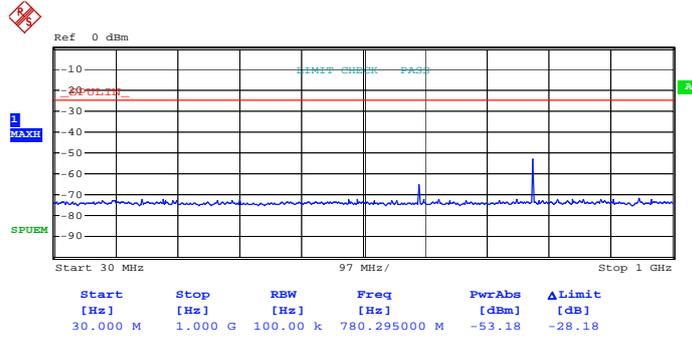


Date: 25.JUL.2012 10:12:40



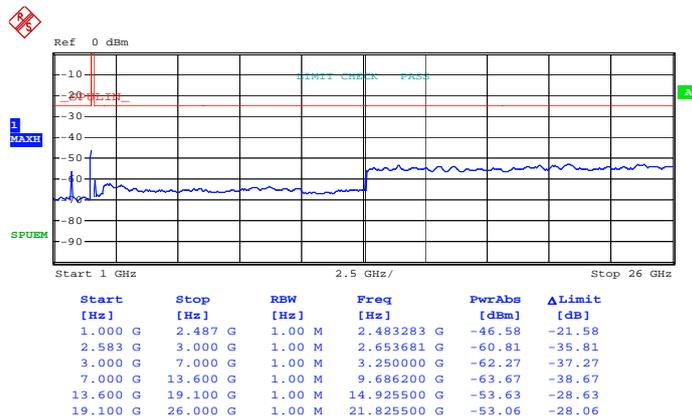
Band :	LTE Band 7	Bandwidth:	20MHz / 16QAM
Frequency :	2527	Channel :	21020

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



Date: 25.JUL.2012 09:59:07

Conducted Emission Plot (1GHz ~ 26GHz) for 16-QAM (RB Size 1, RB Offset 0)



Date: 25.JUL.2012 10:05:19

3.4 Radiated Emissions Measurement

3.4.1 Description of Radiated Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of mobile digital stations, the attenuation factor shall be not less than $55 + 10 \log (P)$ dB at 5.5 MHz from the channel edges. It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.4.2 Measuring Instruments

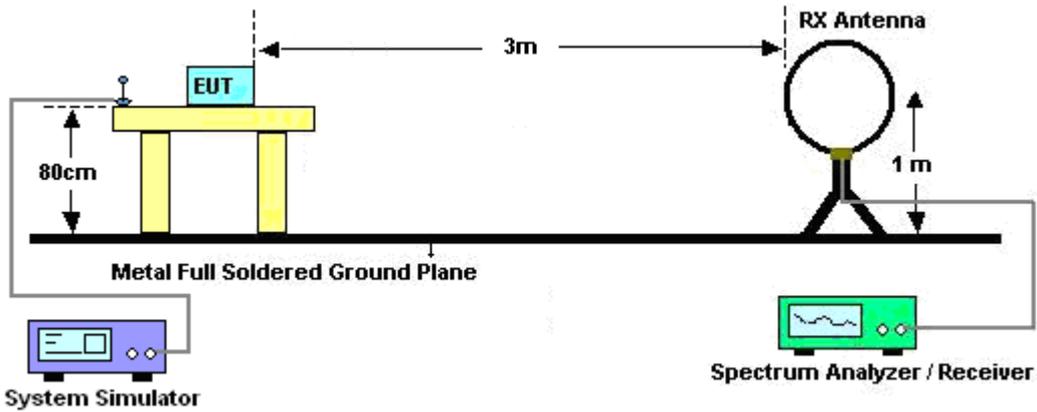
See list of measuring instruments of this test report.

3.4.3 Test Procedures

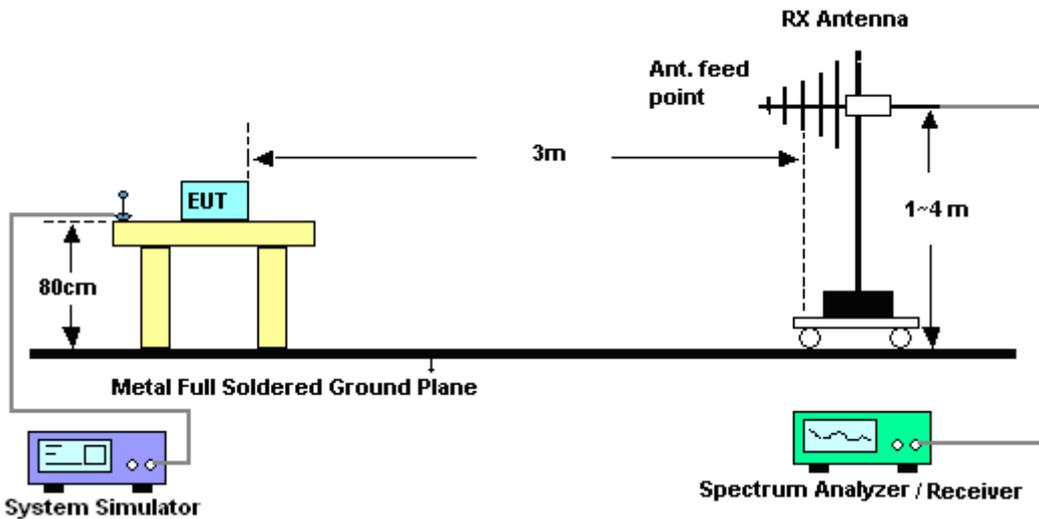
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving 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 = 1MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. Emission level (dBm) = output power + substitution Gain.

3.4.4 Test Setup

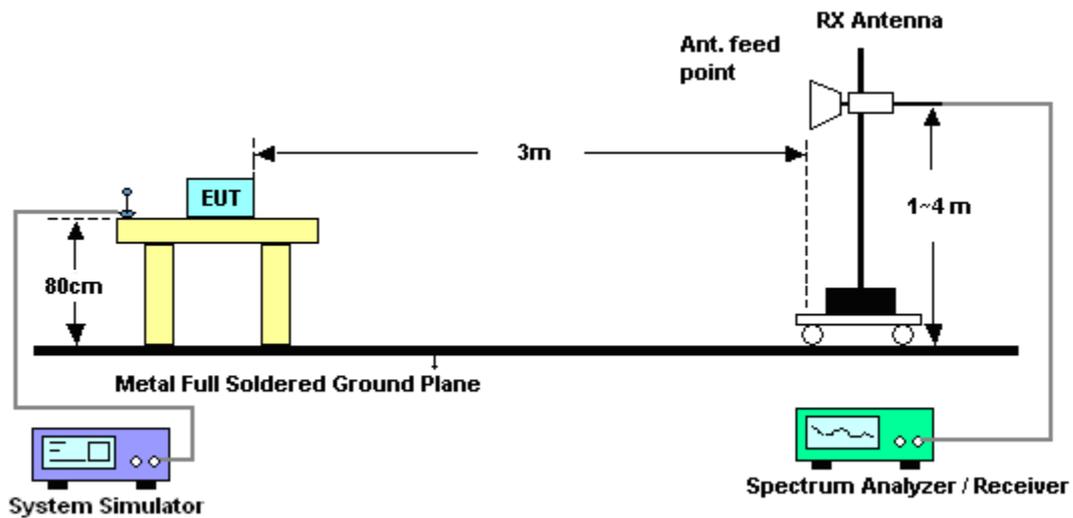
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



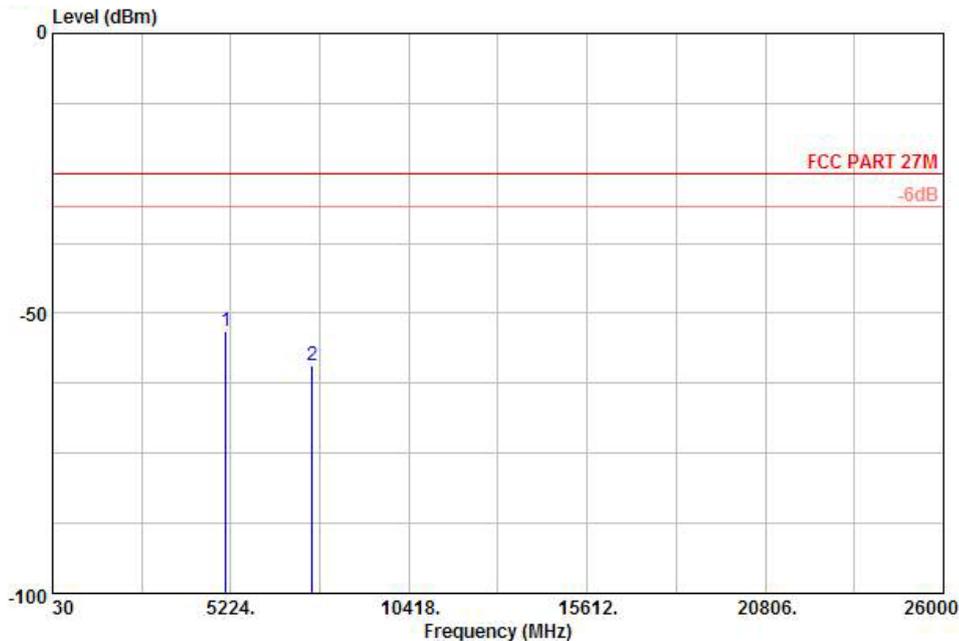
3.4.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

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



3.4.6 Test Result of Radiated Emissions

Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	5MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

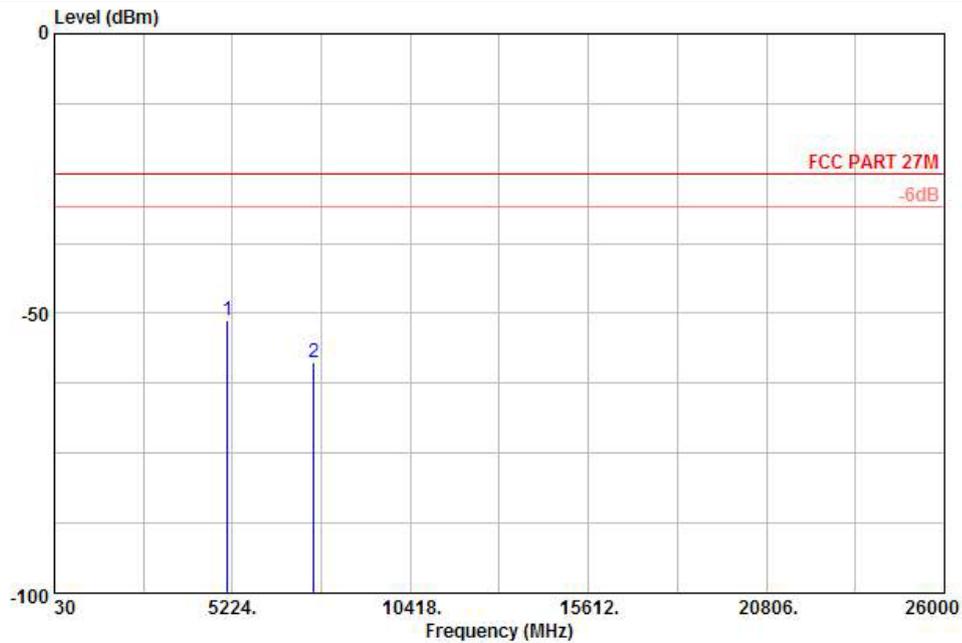


Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 HORIZONTAL

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
5069	-53.32	-25	-28.32	-66.63	-64.85	1.88	9.84	H	Pass
7603.5	-59.28	-25	-34.28	-65.22	-52.03	2.29	9.84	H	Pass



Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	5MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

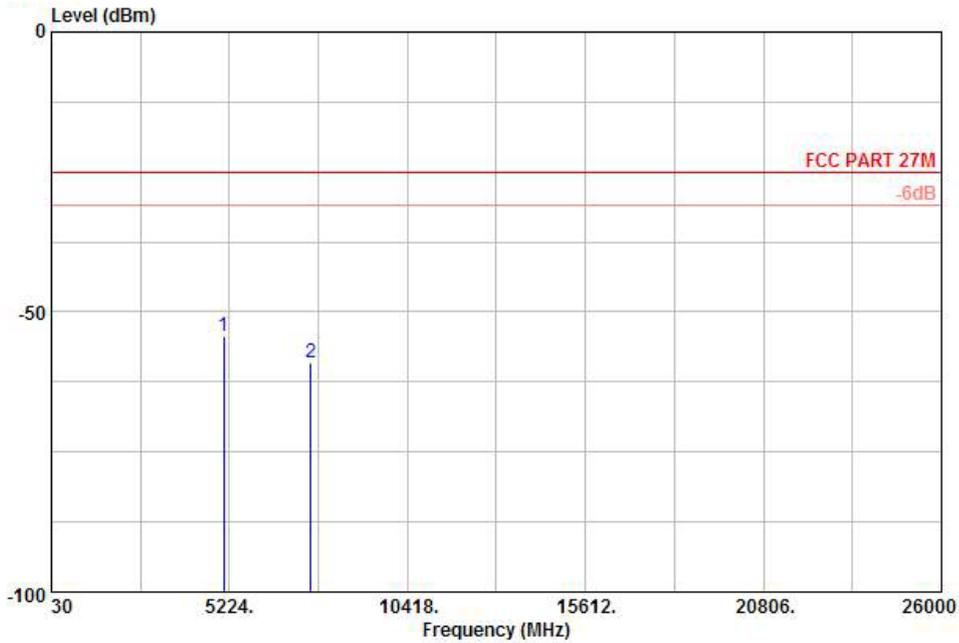


Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 VERTICAL

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
5069	-51.38	-25	-26.38	-65.63	-60.58	1.88	11.66	V	Pass
7603.5	-58.69	-25	-33.69	-66.46	-52.36	2.29	11.66	V	Pass



Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	10MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

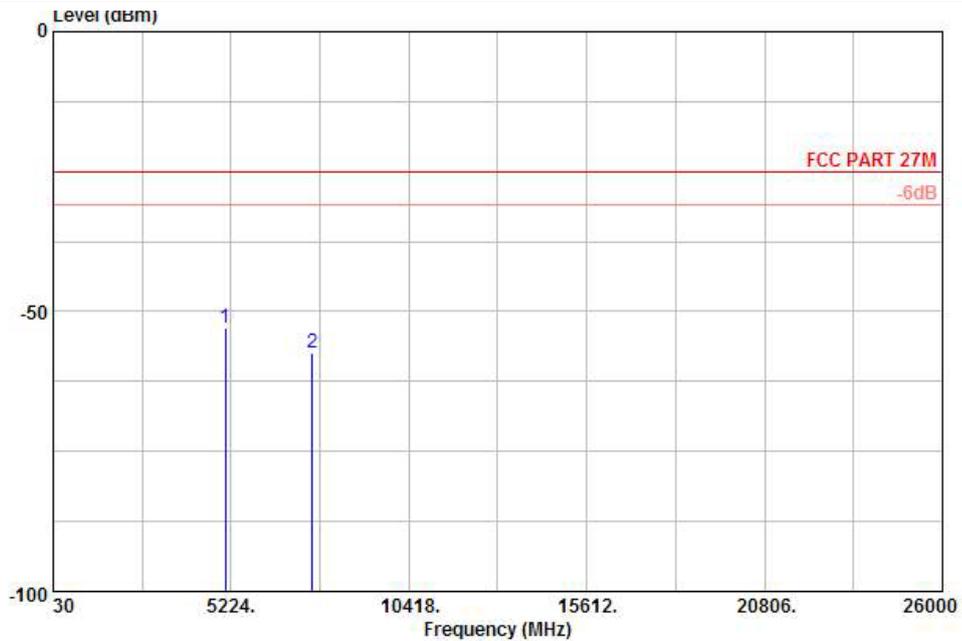


Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 HORIZONTAL

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
5064	-54.38	-25	-29.38	-65.44	-64.85	1.88	9.84	H	Pass
7596	-58.97	-25	-33.97	-66.40	-52.03	2.29	9.84	H	Pass



Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	10MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

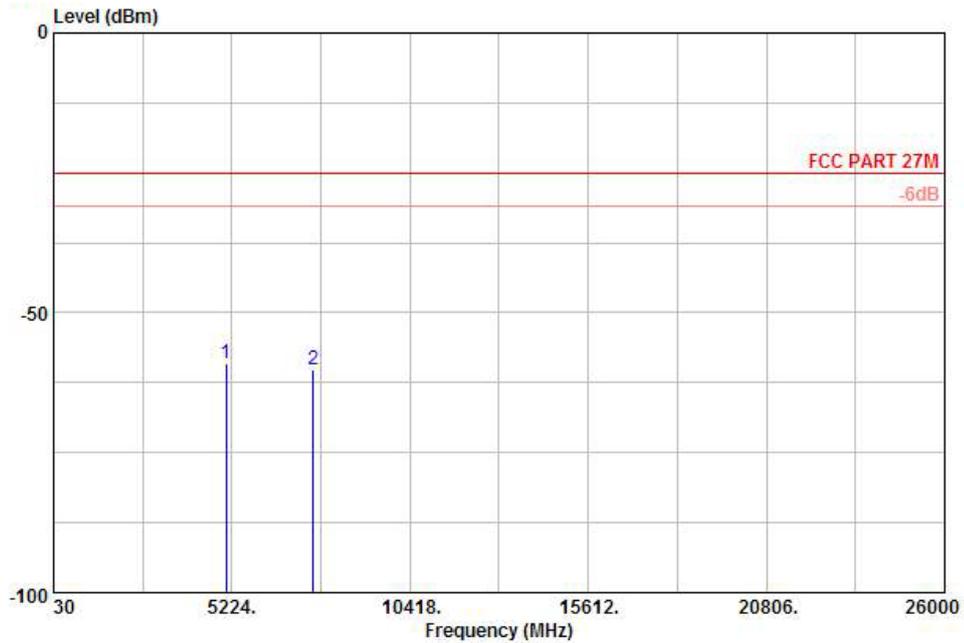


Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 VERTICAL

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
5064	-52.97	-25	-27.97	-66.35	-60.58	1.88	11.66	V	Pass
7596	-57.36	-25	-32.36	-66.34	-52.36	2.29	11.66	V	Pass



Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	15MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

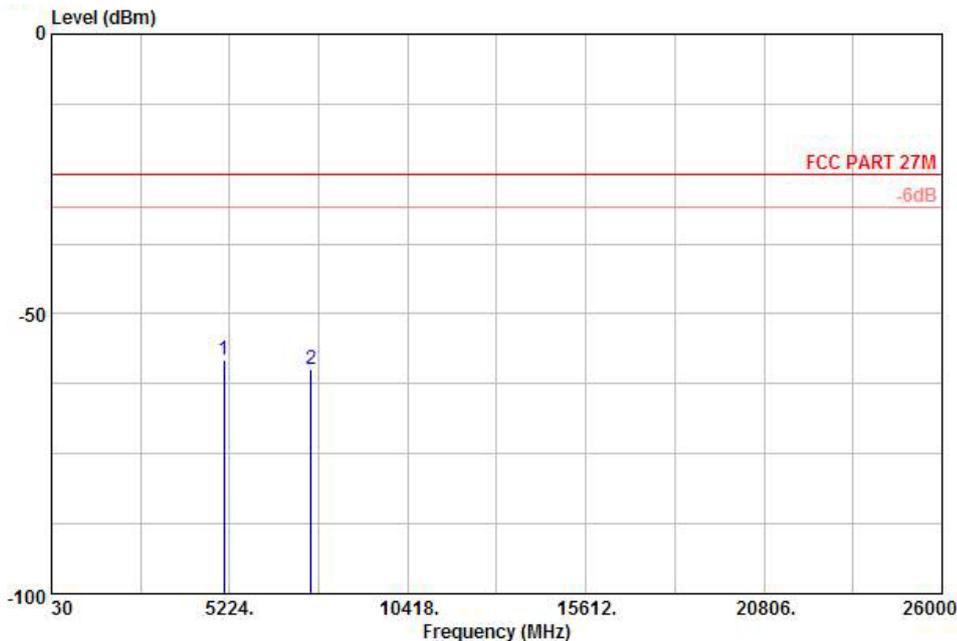


Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 HORIZONTAL

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
5069	-59.07	-25	-34.07	-65.27	-64.85	1.88	9.84	H	Pass
7588.5	-60.07	-25	-35.07	-65.20	-52.03	2.29	9.84	H	Pass



Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	15MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

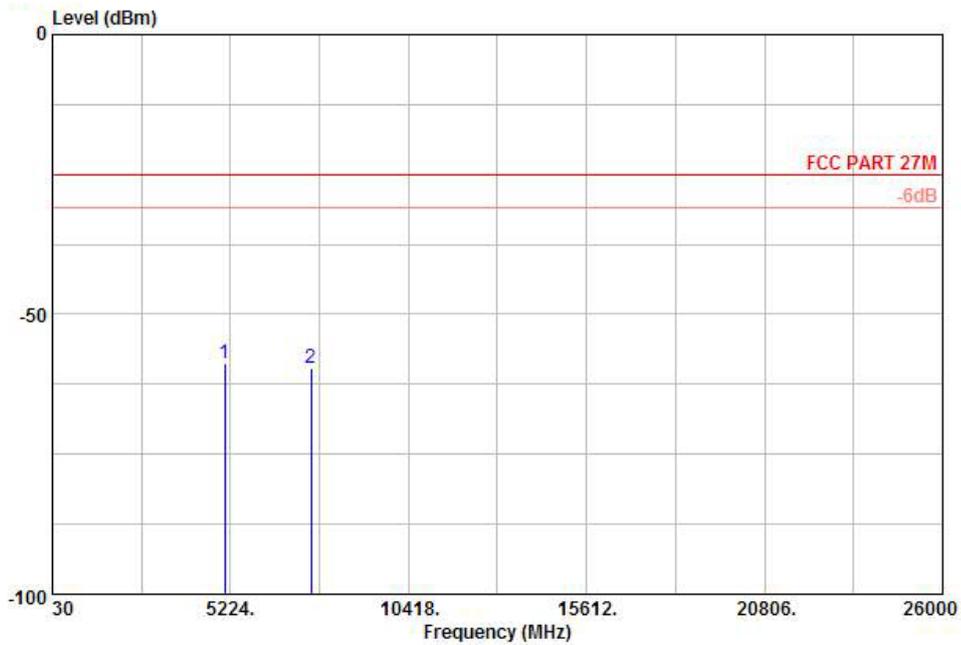


Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 VERTICAL

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
5069	-58.11	-25	-33.11	-63.05	-60.58	1.88	11.66	V	Pass
7588.5	-59.77	-25	-34.77	-64.26	-52.36	2.29	11.66	V	Pass



Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	20MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

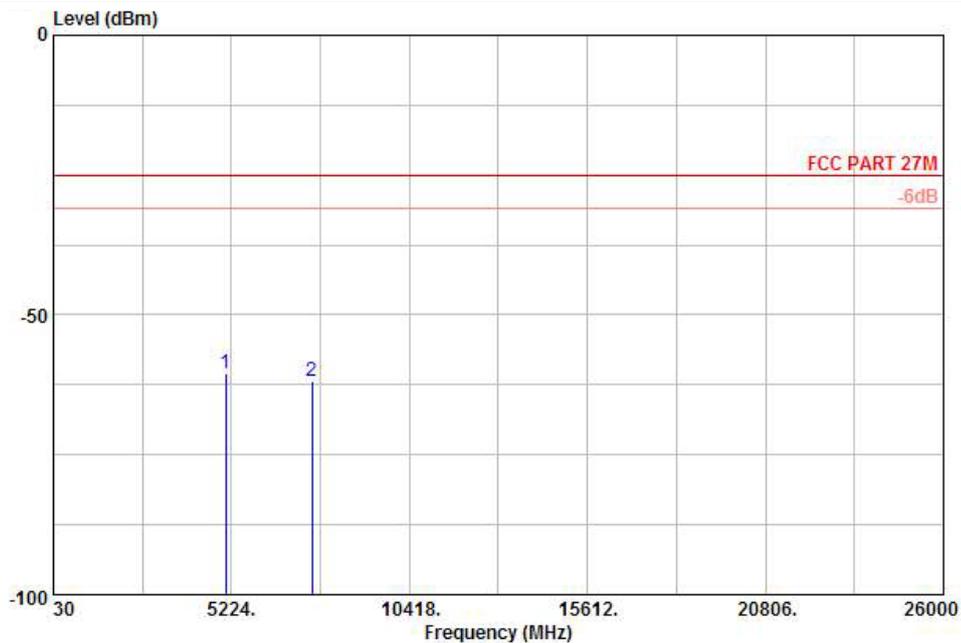


Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 HORIZONTAL

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
5054	-58.69	-25	-33.69	-64.89	-64.85	1.88	9.84	H	Pass
7581	-59.73	-25	-34.73	-64.86	-52.03	2.29	9.84	H	Pass



Band :	LTE Band 7	Temperature :	21~22°C
Test Mode :	20MHz, QPSK, RB Size 1, RB Offset 0	Relative Humidity :	41~42%
Test Engineer :	Steven Hao	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
 Condition: FCC PART 27M HF EIRP FACTOR-09020 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
5054	-60.51	-25	-35.51	-65.45	-60.58	1.88	11.66	V	Pass
7581	-61.91	-25	-36.91	-66.40	-52.36	2.29	11.66	V	Pass

3.5 Frequency Stability Measurement

3.5.1 Description of Frequency Stability Measurement

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

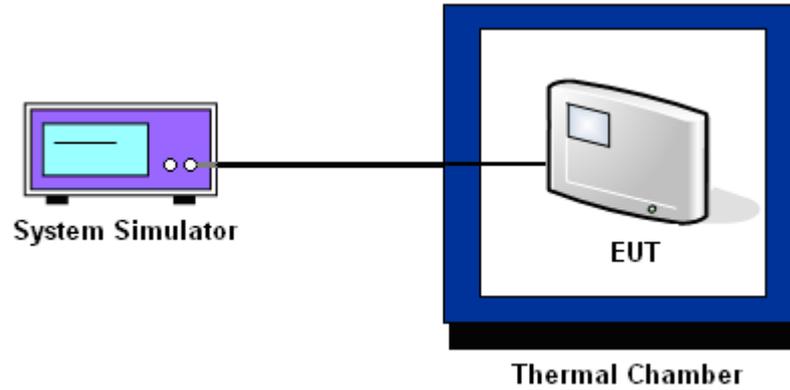
3.5.3 Test Procedures for Temperature Variation

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

3.5.4 Test Procedures for Voltage Variation

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

3.5.5 Test Setup



3.5.6 Test Result of Temperature Variation

Band :	LTE Band 7			Limit (ppm) :	2.5
Temperature (°C)	5MHz		10MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-2.5	-0.004	1.9	0.003	PASS
-20	-0.1	0.000	-2.4	-0.003	
-10	-4.7	-0.007	-1.9	-0.003	
0	-0.8	-0.001	0.3	0.000	
10	-0.2	0.000	0.5	0.001	
20	-2.0	-0.003	-2.6	-0.004	
30	-2.3	-0.003	1.2	0.002	
40	-4.2	-0.006	-0.4	-0.001	
50	-2.6	-0.004	-1.2	-0.002	

Band :	LTE Band 7			Limit (ppm) :	2.5
Temperature (°C)	15MHz		20MHz		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	1.5	0.002	-2.5	-0.004	PASS
-20	-5.7	-0.008	-1.1	-0.002	
-10	-2.1	-0.003	1.4	0.002	
0	0.6	0.001	1.5	0.002	
10	-4.1	-0.006	-1.2	-0.002	
20	1.5	0.002	-0.6	-0.001	
30	2.5	0.004	2.3	0.003	
40	1.9	0.003	-1.5	-0.002	
50	-1.1	-0.002	-0.4	-0.001	

3.5.7 Test Result of Voltage Variation

Band	Band Width & Channel	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
LTE Band 7	5MHz	120	1.7	0.002	2.5	PASS
		108	-3.8	-0.005		
		132	1.5	0.002		
	10MHz	120	-1.7	-0.002		
		108	2.6	0.004		
		132	0.3	0.000		
	15MHz	120	-3.2	-0.005		
		108	-4.7	-0.007		
		132	-0.8	-0.001		
	20MHz	120	-0.2	0.000		
		108	-2.5	-0.004		
		132	-3.2	-0.005		

Remark: Normal Voltage = 120.0V.



3.5.8 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jul. 24, 2012~ Jul. 31, 2012	Dec. 29, 2012	Conducted (TH01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	Jul. 24, 2012~ Jul. 31, 2012	Nov. 15, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Jul. 24, 2012~ Jul. 31, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Jul. 26, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jul. 26, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Jul. 26, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Jul. 26, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060007	30MHz~2GHz	Dec. 30, 2011	Jul. 26, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Jul. 26, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
SHE-EHF Horn	Schwarzbeck	BBHA9170	BBHA170249	15GHz-40GHz	Oct. 11, 2011	Jul. 26, 2012	Oct. 10, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9kHz~30 MHz	Jul. 28, 2011	Jul. 26, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
LTE Base Station	Anritsu	MT8820C	6201074414	N/A	Jan. 05, 2012	Jul. 24, 2012~ Jul. 31, 2012	Jan. 04, 2013	-



4 Uncertainty of Evaluation

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

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

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

Please refer to Sporton report number EP251501 as below.