FCC RF Test Report

APPLICANT	:	**CT Asia**
EQUIPMENT	:	**Mobile Phone**
BRAND NAME	:	**BLU**
MODEL NAME	:	**Studio 5.0 HD LTE**
FCC ID	:	**YHLBLUST50HDLTE**
STANDARD	:	**FCC 47 CFR Part 2, 22(H), 24(E), (27L)**
CLASSIFICATION	:	**PCS Licensed Transmitter Held to Ear (PCE)**

The product was received on Sep. 19, 2014 and testing was completed on Nov. 12, 2014. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and has been in compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

SPORTON INTERNATIONAL (SHENZHEN) INC.
No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1 GENERAL DESCRIPTION **5**

1.1 Applicant 5
1.2 Manufacturer 5
1.3 Product Feature of Equipment Under Test 5
1.4 Product Specification subjective to this standard 6
1.5 Modification of EUT 6
1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator 7
1.7 Testing Location 7
1.8 Applicable Standards 8

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

2.1 Test Mode 9
2.2 Connection Diagram of Test System 11
2.3 Support Unit used in test configuration 11
2.4 Measurement Results Explanation Example 12

3 TEST RESULT **13**

3.1 Conducted Output Power Measurement 13
3.2 Peak-to-Average Ratio 15
3.3 Effective Radiated Power and Effective Isotropic Radiated Power Measurement 26
3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement 32
3.5 Band Edge Measurement 56
3.6 Conducted Spurious Emission Measurement 72
3.7 Field Strength of Spurious Radiation Measurement 92
3.8 Frequency Stability Measurement 115

4 LIST OF MEASURING EQUIPMENT **121**

5 UNCERTAINTY OF EVALUATION **122**

APPENDIX A. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG491911A	Rev. 01	Initial issue of report	Nov. 12, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.2	§24.232(d)	Peak-to-Average Ratio	< 13 dB	PASS	-
3.3	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
	§27.50(d)(4)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
3.4	§2.1049 §22.917(b) §24.238(b) §27.53(g)	Occupied Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Band Edge Measurement	<43+10log10(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Conducted Emission	<43+10log10(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a) §27.53(h)	Field Strength of Spurious Radiation	<43+10log10(P[Watts])	PASS	Under limit 24.69 dB at 1652.800 MHz
3.8	§2.1055 §22.355	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22 Within Authorized Band	PASS	-
	§2.1055 §24.235 §27.54				

1 General Description

1.1 Applicant

CT Asia
Unit 01, 15/F, Seaview Centre, 139-141 Hoi bun road, Kwun Tong, Kowloon, Hongkong

1.2 Manufacturer

BEIJING BENYWAVE TECHNOLOGY CO., LTD.
NO.55 Jiachang 2 road, OPTO-Mechatronics Industrial Park, Tongzhou district, Beijing 101111

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	BLU
Model Name	Studio 5.0 HD LTE
FCC ID	YHLBLUST50HDLTE
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+(Downlink Only)/LTE WLAN 2.4GHz 802.11b/g/n HT20/ Bluetooth v3.0 + EDR
HW Version	TBW5706_P2_001
SW Version	BLU_Y534Q_V10_GENERIC
EUT Stage	Production Unit

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

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 33.25 dBm GSM1900 : 31.05 dBm WCDMA Band V : 22.52 dBm WCDMA Band IV : 23.82 dBm WCDMA Band II : 22.86 dBm
Antenna Type	IFA Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM (Downlink Only)

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	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GSM	GMSK	0.5024	0.0084 ppm	249KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.0884	0.0084 ppm	247KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.0688	0.0072 ppm	4M17F9W
Part 24	GSM1900 GSM	GMSK	1.1581	0.0069 ppm	248KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.4676	0.0064 ppm	246KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.3332	0.0011 ppm	4M17F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.3367	0.0012 ppm	4M17F9W

1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.		
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-3320-2398		
Test Site No.	**Sporton Site No.**		**FCC Registration No.**
	TH01-SZ	03CH01-SZ	831040

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	No. 101, Complex Building C, Guanlong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL:+86-755-8637-9589 FAX: +86-755-8637-9595
Test Site No.	**Sporton Site No.**
	OTA01-SZ

1.8 Applicable Standards

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

- 47 CFR Part 2, 22(H), 24(E), 27(L)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.
3. 30 MHz to 18000 MHz for WCDMA Band IV.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
GSM 1900	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Note: The maximum power levels are chosen to test as the worst case configuration as follows:

GSM mode for GMSK modulation,

RMC 12.2Kbps mode for WCDMA band V,

RMC 12.2Kbps mode for WCDMA band II,

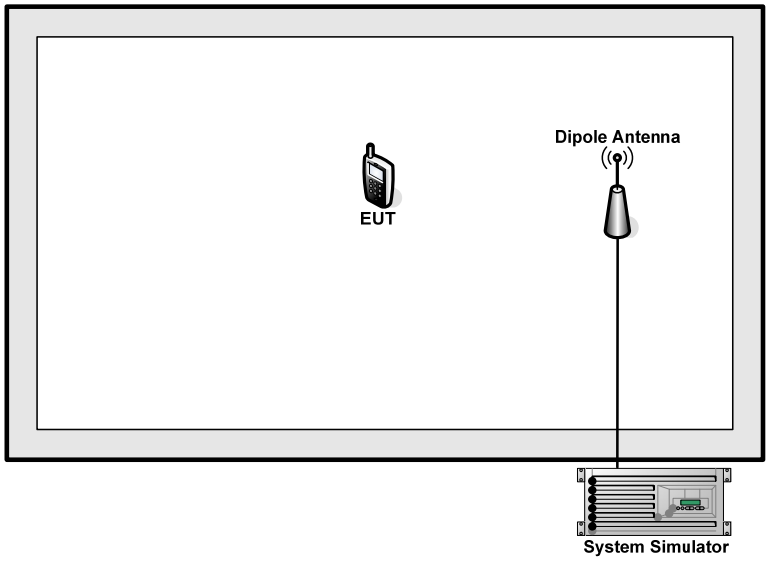
RMC 12.2Kbps mode for WCDMA band IV, only these modes were used for all tests.

Conducted Power Measurement Results:

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	33.25	33.21	33.12	30.45	30.72	31.05
GPRS class 8	33.24	33.20	33.09	30.43	30.71	30.98
GPRS class 10	29.39	29.42	29.38	27.74	27.94	28.30
GPRS class 11	28.36	28.38	28.35	26.36	26.41	26.48
GPRS class 12	27.26	27.22	27.15	25.06	25.12	25.43
EGPRS class 8	25.65	25.57	25.61	25.58	25.66	25.93
EGPRS class 10	24.49	24.47	24.45	24.39	24.42	24.80
EGPRS class 11	23.30	23.28	23.31	23.30	23.34	23.60
EGPRS class 12	22.12	22.15	22.10	22.09	22.10	22.34

Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
AMR 12.2K	22.50	22.38	22.35	22.85	22.71	22.80	23.45	23.37	23.80
RMC 12.2K	22.52	22.40	22.36	22.86	22.72	22.82	23.46	23.39	23.82
HSDPA Subtest-1	21.63	21.73	21.70	22.24	22.13	22.04	22.87	22.91	23.11
HSDPA Subtest-2	21.69	21.71	21.77	22.22	22.19	22.01	22.84	22.89	23.15
HSDPA Subtest-3	21.33	21.19	21.25	21.69	21.70	21.59	22.34	22.38	22.69
HSDPA Subtest-4	21.37	21.18	21.25	21.77	21.68	21.68	22.34	22.37	22.69
HSUPA Subtest-1	21.73	21.59	21.21	21.83	21.58	21.61	22.35	22.30	22.74
HSUPA Subtest-2	20.41	20.23	20.78	21.41	21.14	21.00	21.87	21.84	22.25
HSUPA Subtest-3	20.48	20.52	20.47	20.98	20.81	20.86	21.47	21.62	22.41
HSUPA Subtest-4	21.04	20.70	21.46	21.24	20.98	20.95	22.03	22.00	22.37
HSUPA Subtest-5	22.10	21.70	21.90	22.20	22.20	22.10	22.80	23.10	23.10

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW	3303D	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 RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

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

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 7.0 dB and a 10dB attenuator.

Example :

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

= 7.0 + 10 = 17.0 (dB)

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

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

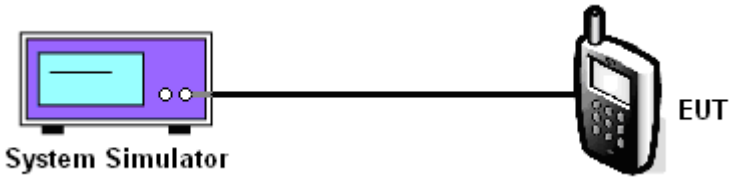
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

Cellular Band						
Modes	GSM850 (GSM)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	826.4	836.4	846.6
Conducted Power (dBm)	33.25	33.21	33.12	22.52	22.40	22.36
Conducted Power (Watts)	2.11	2.09	2.05	0.18	0.17	0.17

Cellular Band						
Modes	GSM1900 (GSM)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1852.4	1880	1907.6
Conducted Power (dBm)	30.45	30.72	31.05	22.86	22.72	22.82
Conducted Power (Watts)	1.11	1.18	1.27	0.19	0.19	0.19

AWS Band			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312(Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
Conducted Power (dBm)	23.46	23.39	23.82
Conducted Power (Watts)	0.22	0.22	0.24

3.2 Peak-to-Average Ratio

3.2.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

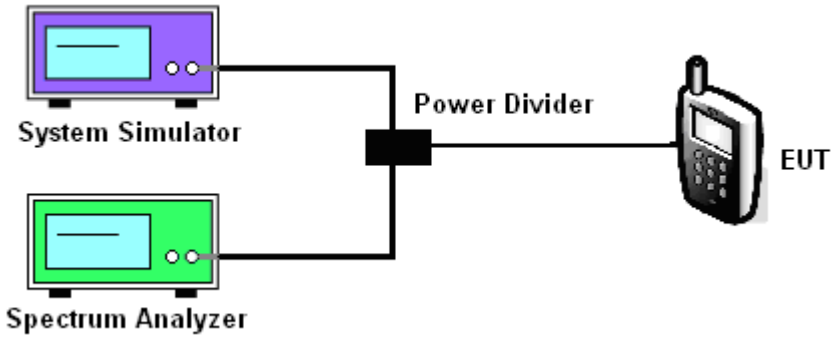
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. For GSM/EGPRS operating modes:
   a. Set EUT in maximum power output.
   b. Set the RBW = 1MHz, VBW = 3MHz, Peak detector on spectrum analyzer for first trace.
   c. Set the RBW = 1MHz, VBW = 3MHz, RMS detector on spectrum analyzer for second trace.
   d. The wanted burst signal is triggered by spectrum analyzer, and measured respectively the peak level and Mean level without burst-off time, after system simulator has synchronized with the spectrum analyzer.
4. For UMTS operating modes:
   a. Set the CCDF (Complementary Cumulative Distribution Function) option on the spectrum analyzer.
   b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.2.4 Test Setup



3.2.5 Test Result of Peak-to-Average Ratio

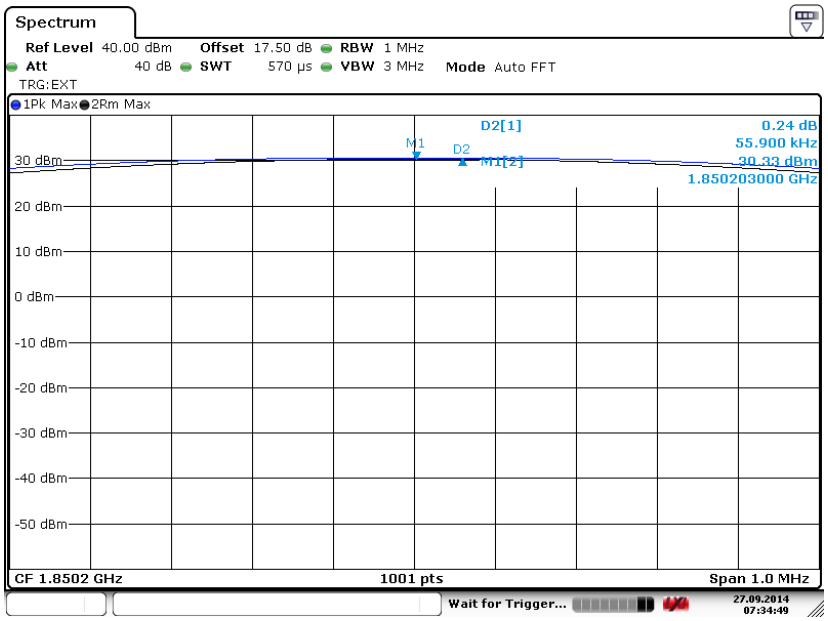
PCS Band									
Modes	GSM1900 (GSM)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	0.24	0.37	0.52	3.16	3.25	3.17	2.99	2.87	2.90

AWS Band			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312(Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
Peak-to-Average Ratio (dB)	2.90	3.10	2.96

3.2.6 Test Result (Plots) of Peak-to-Average Ratio

Band :	GSM 1900	Test Mode :	GSM Link (GMSK)

Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



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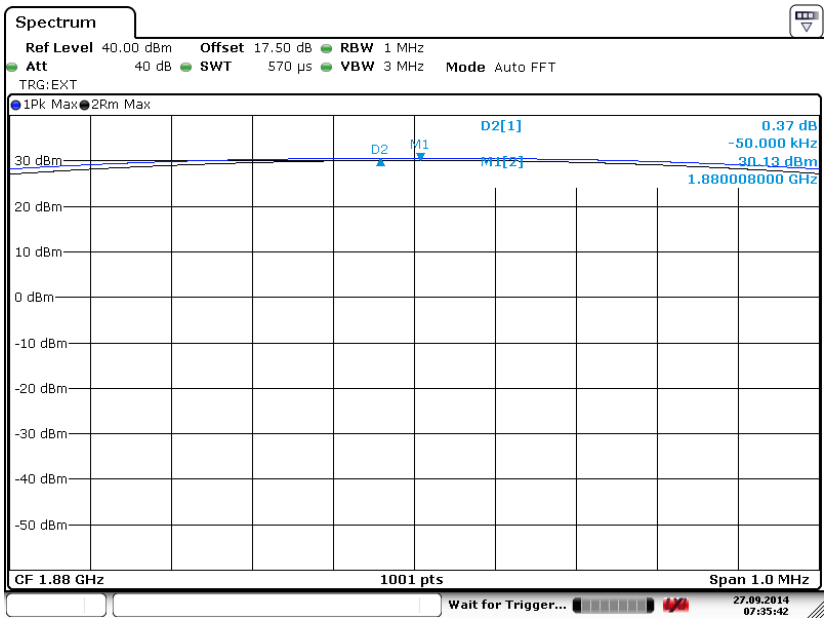
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



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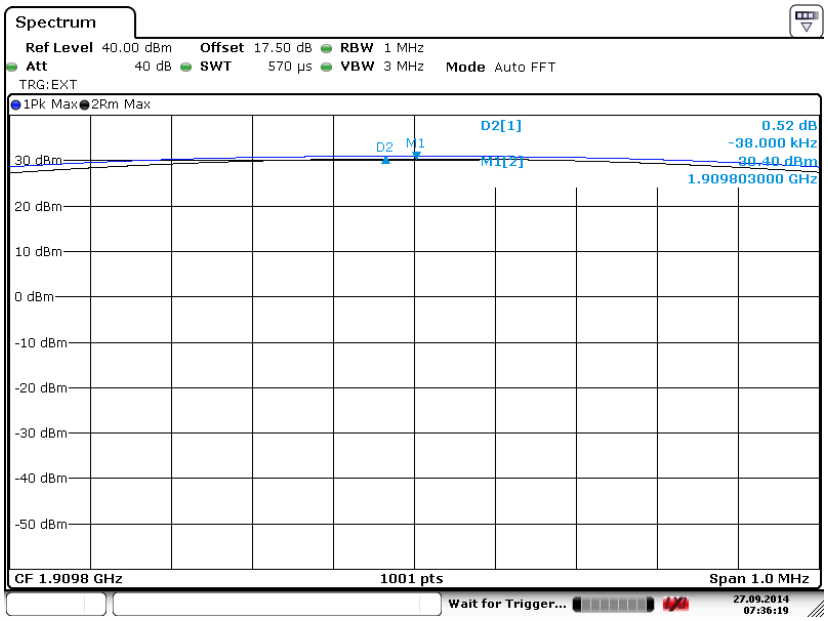
Peak-to-Average Ratio on Channel 810 (1909.8 MHz)



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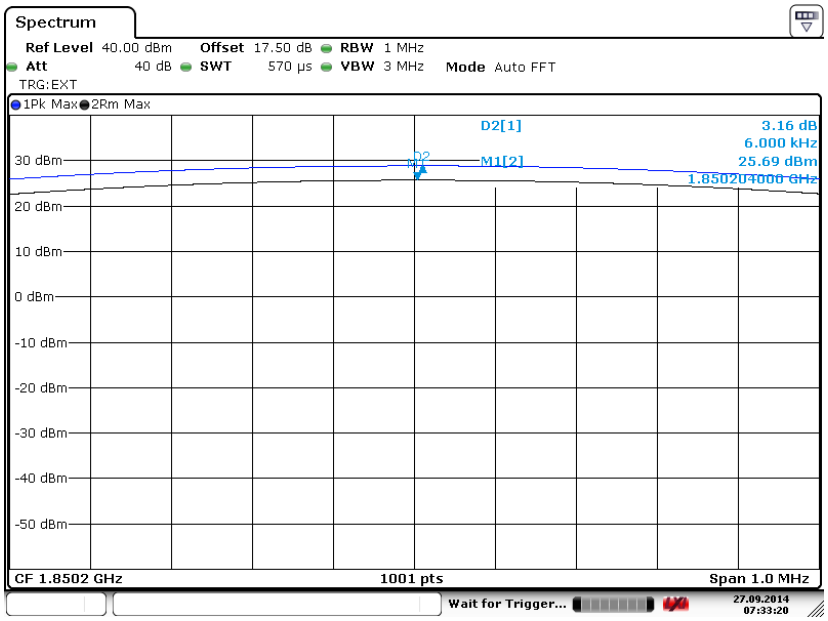
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)

Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



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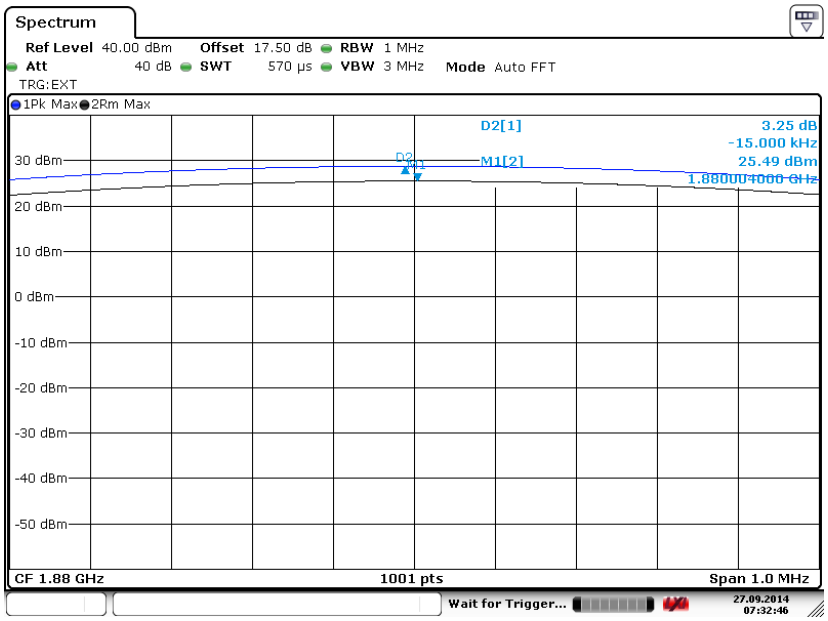
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



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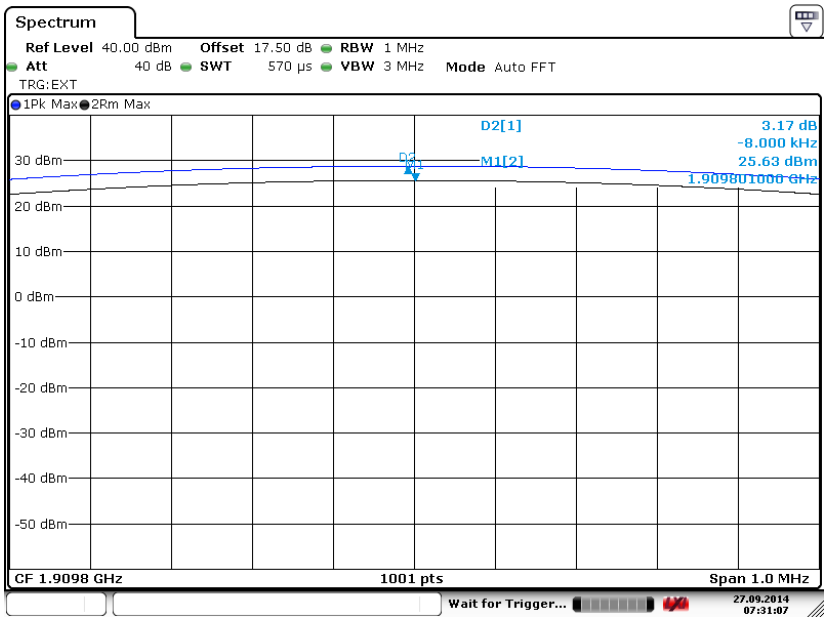
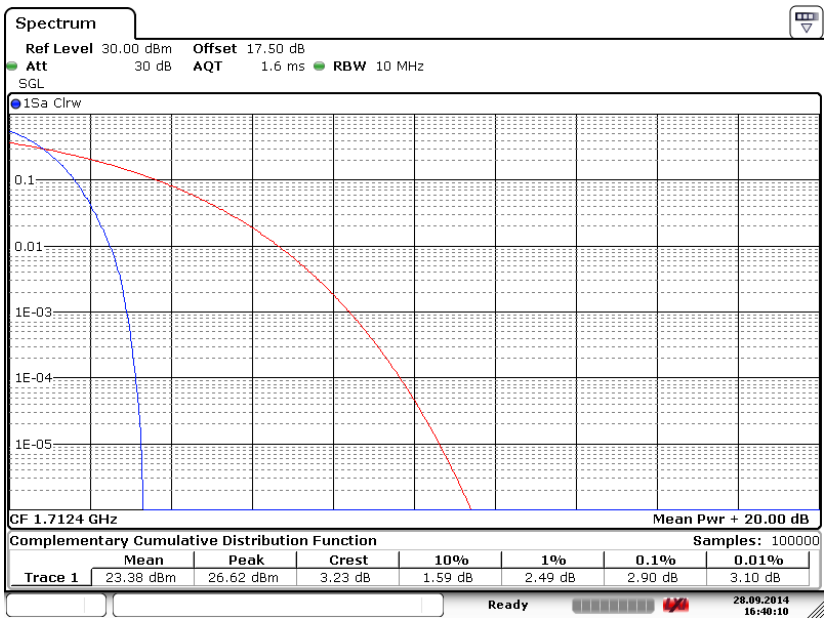
Peak-to-Average Ratio on Channel 810 (1909.8 MHz)



Date: 27.SEP.2014 07:31:07

Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)

Peak-to-Average Ratio on Channel 1312 (1712.4 MHz)



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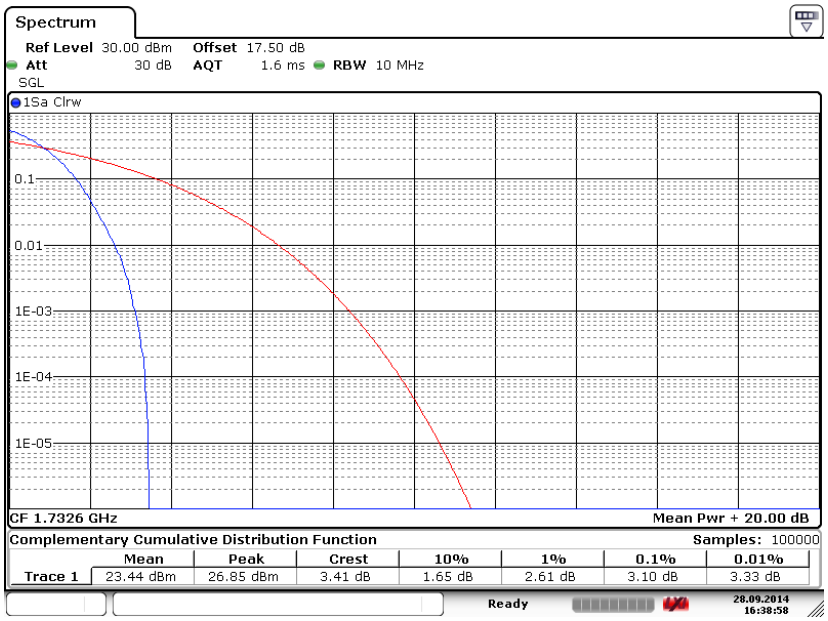
Peak-to-Average Ratio On Channel 1413 (1732.6 MHz)



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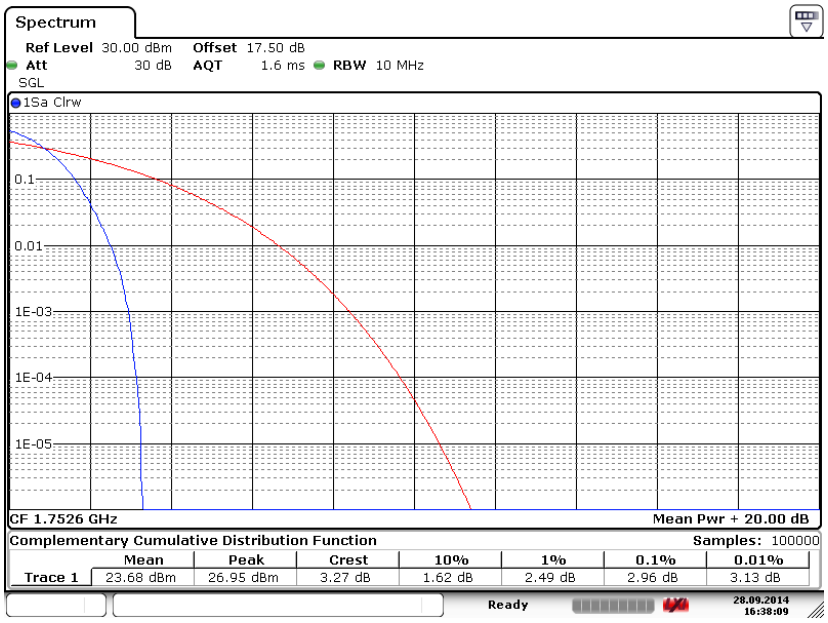
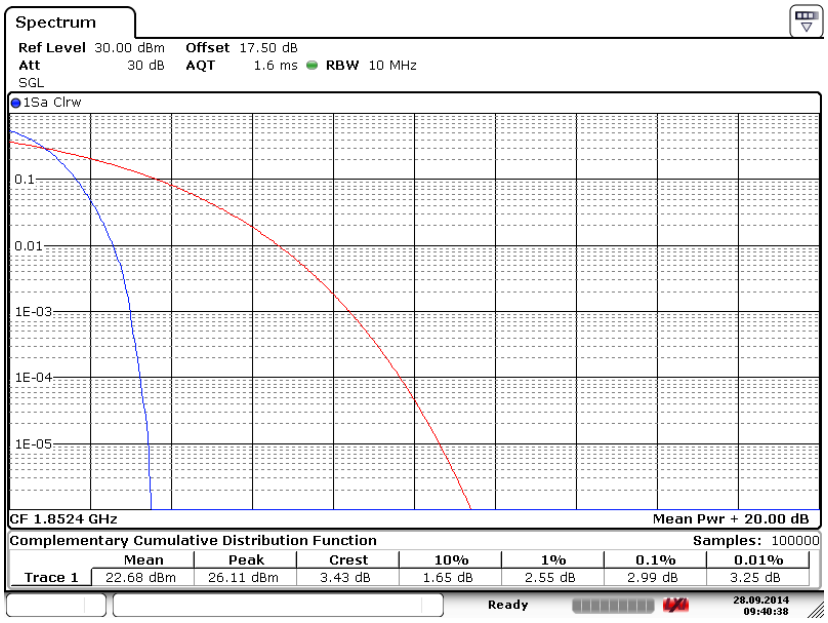
Peak-to-Average Ratio on Channel 1513 (1752.6 MHz)



Date: 28.SEP.2014 16:38:09

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

Peak-to-Average Ratio on Channel 9262 (1852.4 MHz)



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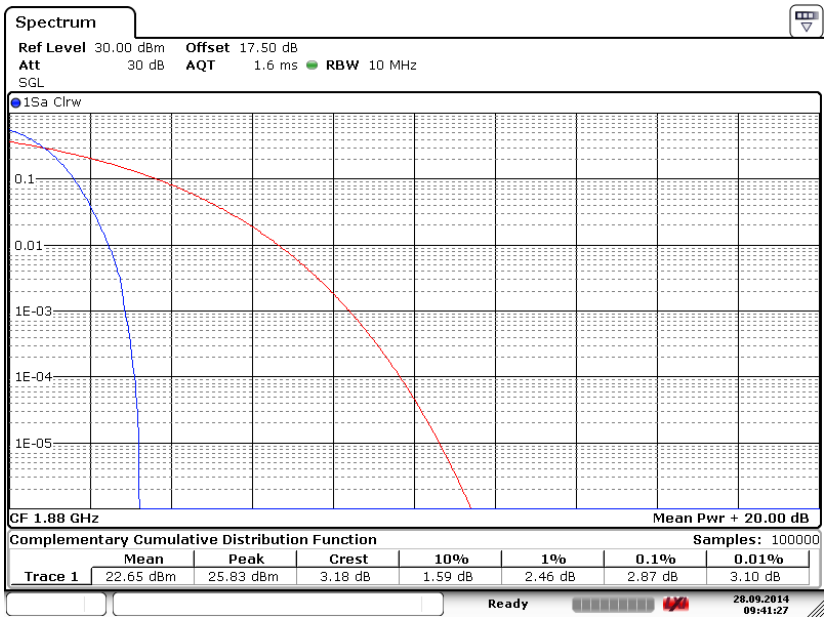
Peak-to-Average Ratio on Channel 9400 (1880.0 MHz)



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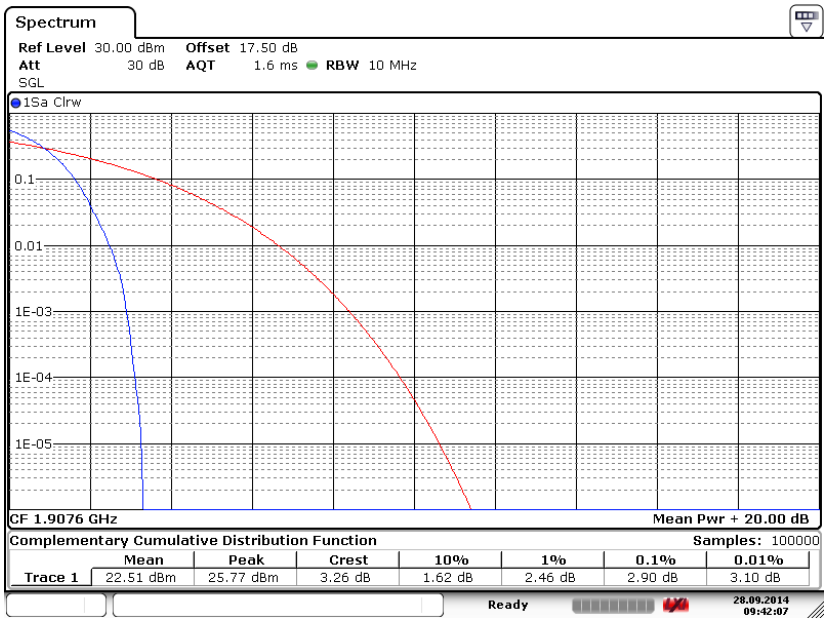
Peak-to-Average Ratio on Channel 9538 (1907.6 MHz)



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3.3 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02.

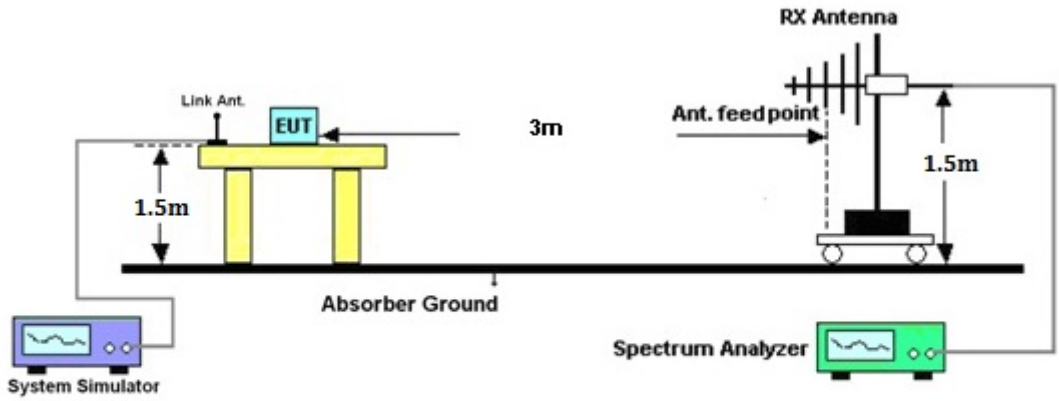
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-C-2004 Section 2.2.17.
2. The EUT was placed on a turntable 1.5 meters high in a fully anechoic chamber.
3. The EUT was placed 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;
   UMTS operating modes: Set RBW= 100 kHz, VBW= 300 kHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per KDB 971168 D01.
5. The table was rotated 360 degrees to determine the position of the highest radiated power.
6. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
7. Taking the record of maximum ERP/EIRP.
8. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
9. The conducted power at the terminal of the dipole antenna is measured.
10. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
11. ERP/EIRP = Ps + Et – Es + Gs = Ps + Rt – Rs + Gs
    Ps (dBm)：Input power to substitution antenna.
    Gs (dBi or dBd)：Substitution antenna Gain.
    Et = Rt + AF
    Es = Rs + AF
    AF (dB/m)：Receive antenna factor
    Rt：The highest received signal in spectrum analyzer for EUT.
    Rs：The highest received signal in spectrum analyzer for substitution antenna.

3.3.4 Test Setup



3.3.5 Test Result of ERP

GSM850 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBd)**	**ERP (dBm)**	**ERP (W)**
824.20	-20.46	-48.12	0.00	-1.08	26.58	0.4555
836.40	-20.80	-48.28	0.00	-0.93	26.55	0.4515
848.80	-20.58	-48.35	0.00	-0.76	27.01	0.5024
Vertical Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBd)**	**ERP (dBm)**	**ERP (W)**
824.20	-31.15	-47.97	0.00	-1.08	15.74	0.0375
836.40	-31.39	-48.01	0.00	-0.93	15.69	0.0371
848.80	-31.08	-48.05	0.00	-0.76	16.21	0.0418

GSM850 (EDGE class 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBd)**	**ERP (dBm)**	**ERP (W)**
824.20	-28.32	-48.12	0.00	-1.08	18.72	0.0744
836.40	-28.48	-48.28	0.00	-0.93	18.87	0.0771
848.80	-28.12	-48.35	0.00	-0.76	19.47	0.0884
Vertical Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBd)**	**ERP (dBm)**	**ERP (W)**
824.20	-39.17	-47.97	0.00	-1.08	7.72	0.0059
836.40	-38.83	-48.01	0.00	-0.93	8.25	0.0067
848.80	-38.55	-48.05	0.00	-0.76	8.74	0.0075

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBd)**	**ERP (dBm)**	**ERP (W)**
826.40	-29.36	-48.12	0.00	-1.08	17.68	0.0586
836.40	-29.39	-48.28	0.00	-0.93	17.96	0.0625
846.60	-29.22	-48.35	0.00	-0.76	18.37	0.0688
Vertical Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBd)**	**ERP (dBm)**	**ERP (W)**
826.40	-39.92	-47.97	0.00	-1.08	6.97	0.0050
836.40	-39.55	-48.01	0.00	-0.93	7.53	0.0057
846.60	-39.30	-48.05	0.00	-0.76	7.99	0.0063

3.3.6 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1850.20	-23.20	-51.88	0.00	1.96	30.64	1.1581
1880.00	-24.50	-52.99	0.00	2.00	30.49	1.1185
1909.80	-25.80	-54.28	0.00	1.98	30.46	1.1118
Vertical Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1850.20	-22.57	-52.13	0.00	1.96	31.52	1.4184
1880.00	-23.73	-53.17	0.00	2.00	31.44	1.3928
1909.80	-24.77	-54.13	0.00	1.98	31.34	1.3614

GSM1900 (EDGE class 8) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1850.20	-28.15	-51.88	0.00	1.96	25.69	0.3703
1880.00	-29.68	-52.99	0.00	2.00	25.31	0.3395
1909.80	-31.12	-54.28	0.00	1.98	25.14	0.3267
Vertical Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1850.20	-27.39	-52.13	0.00	1.96	26.70	0.4676
1880.00	-28.68	-53.17	0.00	2.00	26.49	0.4452
1909.80	-29.79	-54.13	0.00	1.98	26.32	0.4288

WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1712.40	-29.62	-51.88	0.00	1.96	24.23	0.2645
1732.60	-29.77	-52.99	0.00	2.00	25.22	0.3325
1752.60	-31.18	-54.28	0.00	1.98	25.08	0.3218
Vertical Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1712.40	-29.47	-52.13	0.00	1.96	24.63	0.2901
1732.60	-30.26	-53.17	0.00	2.00	24.91	0.3098
1752.60	-30.84	-54.13	0.00	1.98	25.27	0.3367

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-29.62	-51.88	0.00	1.96	24.23	0.2645
1880.00	-31.39	-52.99	0.00	2.00	23.60	0.2292
1907.60	-32.77	-54.28	0.00	1.98	23.49	0.2234
Vertical Polarization						
Frequency (MHz)	**Rt (dBm)**	**Rs (dBm)**	**Ps (dBm)**	**Gs (dBi)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-28.86	-52.13	0.00	1.96	25.23	0.3332
1880.00	-30.36	-53.17	0.00	2.00	24.81	0.3028
1907.60	-31.39	-54.13	0.00	1.98	24.72	0.2965

3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

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

The 99% 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.

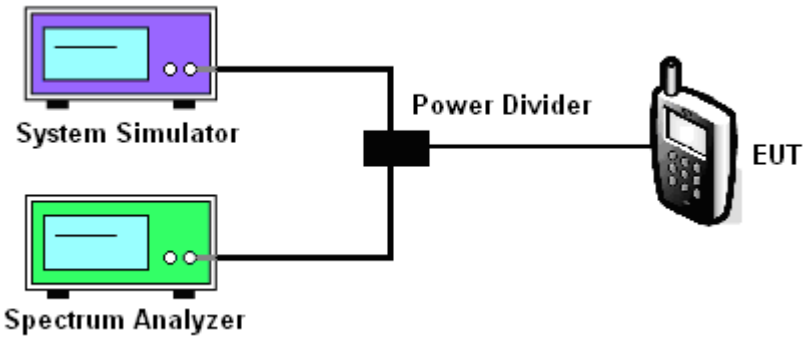
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 4.2.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold.
5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.

3.4.4 Test Setup



3.4.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

Cellular Band						
Modes	**GSM850 (GSM)**			**GSM850 (EDGE class 8)**		
Channel	**128 (Low)**	**189 (Mid)**	**251 (High)**	**128 (Low)**	**189 (Mid)**	**251 (High)**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**824.2**	**836.4**	**848.8**
99% OBW (kHz)	245.75	245.75	248.75	244.76	246.75	244.76
26dB BW (kHz)	306.70	298.70	309.70	302.70	299.70	294.70

PCS Band						
Modes	**GSM1900 (GSM)**			**GSM1900 (EDGE class 8)**		
Channel	**512 (Low)**	**661 (Mid)**	**810 (High)**	**512 (Low)**	**661 (Mid)**	**810 (High)**
Frequency (MHz)	**1850.2**	**1880**	**1909.8**	**1850.2**	**1880**	**1909.8**
99% OBW (kHz)	247.75	243.76	244.76	244.76	245.75	244.76
26dB BW (kHz)	285.70	300.70	304.70	290.70	292.70	303.70

Cellular Band			
Modes	**WCDMA Band V (RMC 12.2Kbps)**		
Channel	**4132 (Low)**	**4182 (Mid)**	**4233 (High)**
Frequency (MHz)	**826.4**	**836.4**	**846.6**
99% OBW (MHz)	4.17	4.15	4.14
26dB BW (MHz)	4.66	4.66	4.65

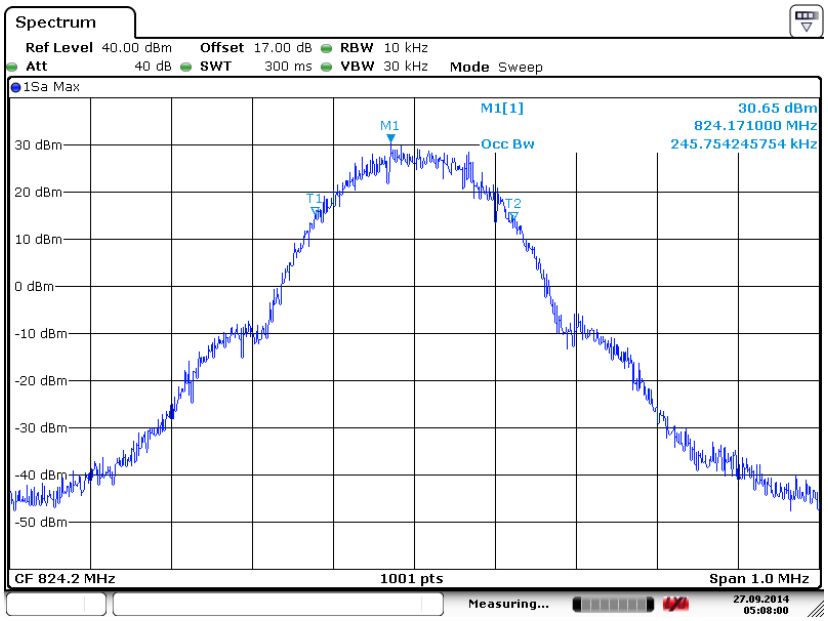
AWS Band			
Modes	**WCDMA Band IV (RMC 12.2Kbps)**		
Channel	**1312(Low)**	**1413 (Mid)**	**1513 (High)**
Frequency (MHz)	**1712.4**	**1732.6**	**1752.6**
99% OBW (MHz)	4.17	4.15	4.17
26dB BW (MHz)	4.67	4.66	4.67

PCS Band			
Modes	**WCDMA Band II (RMC 12.2Kbps)**		
Channel	**9262 (Low)**	**9400 (Mid)**	**9538 (High)**
Frequency (MHz)	**1852.4**	**1880**	**1907.6**
99% OBW (MHz)	4.15	4.17	4.15
26dB BW (MHz)	4.66	4.66	4.66

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

Band :	GSM 850	Test Mode :	GSM Link (GMSK)

99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



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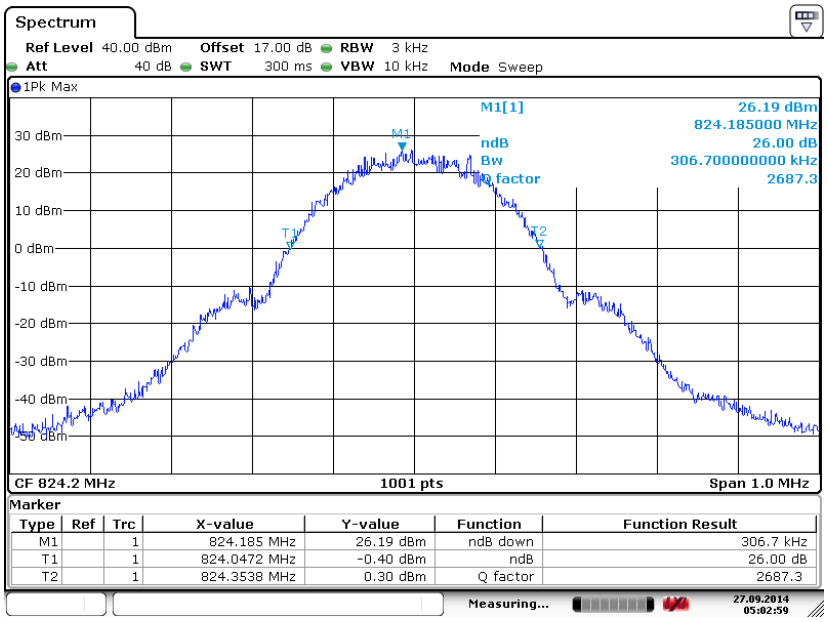
26dB Bandwidth Plot on Channel 128 (824.2 MHz)

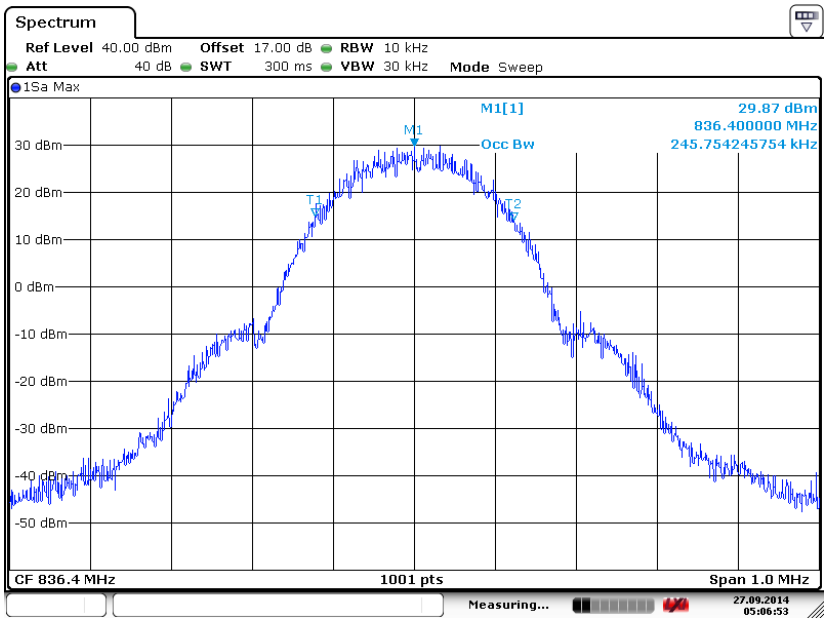


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	824.185 MHz	26.19 dBm	ndB down	306.7 kHz
T1		1	824.0472 MHz	-0.40 dBm	ndB	26.00 dB
T2		1	824.3538 MHz	0.30 dBm	Q factor	2687.3

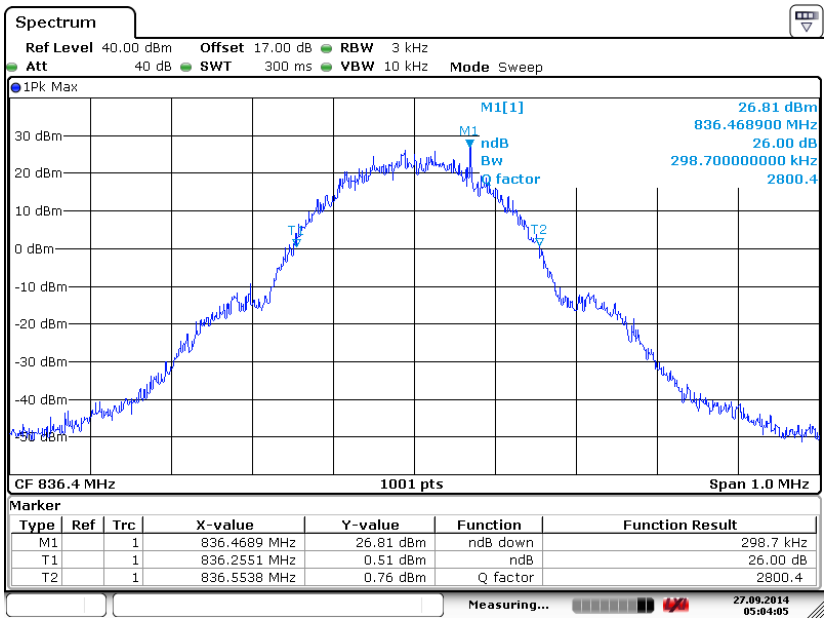
Date: 27.SEP.2014 05:02:59

99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 27.SEP.2014 05:06:53

26dB Bandwidth Plot on Channel 189 (836.4 MHz)

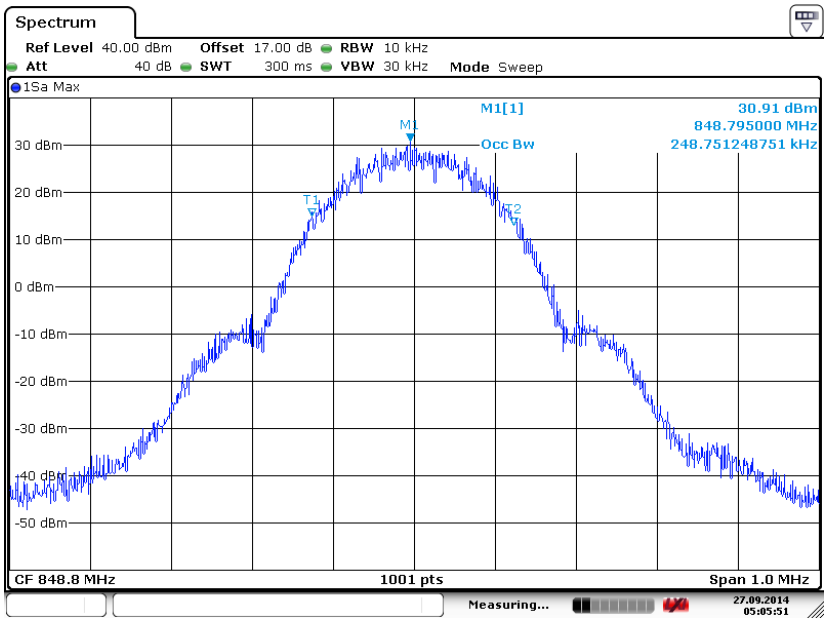


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	836.4689 MHz	26.81 dBm	ndB down	298.7 kHz
T1		1	836.2551 MHz	0.51 dBm	ndB	26.00 dB
T2		1	836.5538 MHz	0.76 dBm	Q factor	2800.4

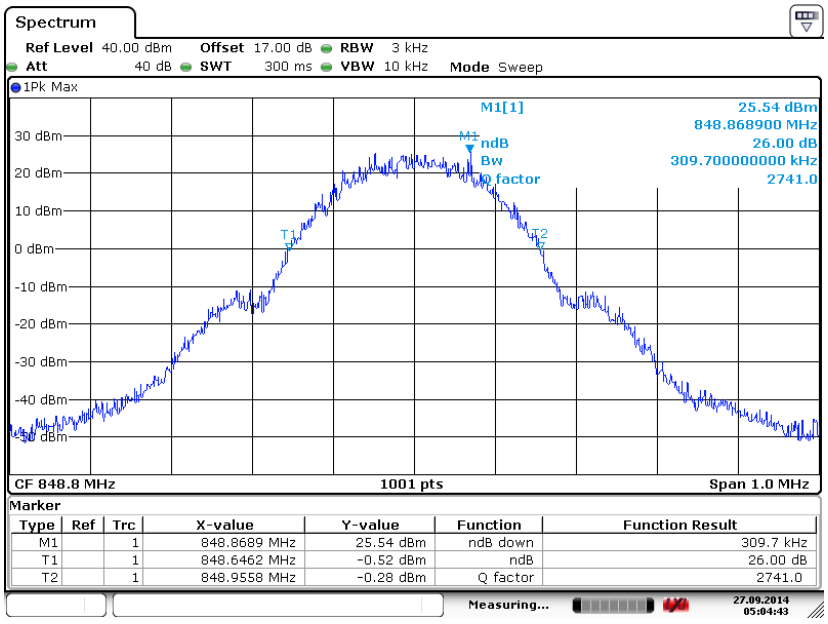
Date: 27.SEP.2014 05:04:05

99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 27.SEP.2014 05:05:51

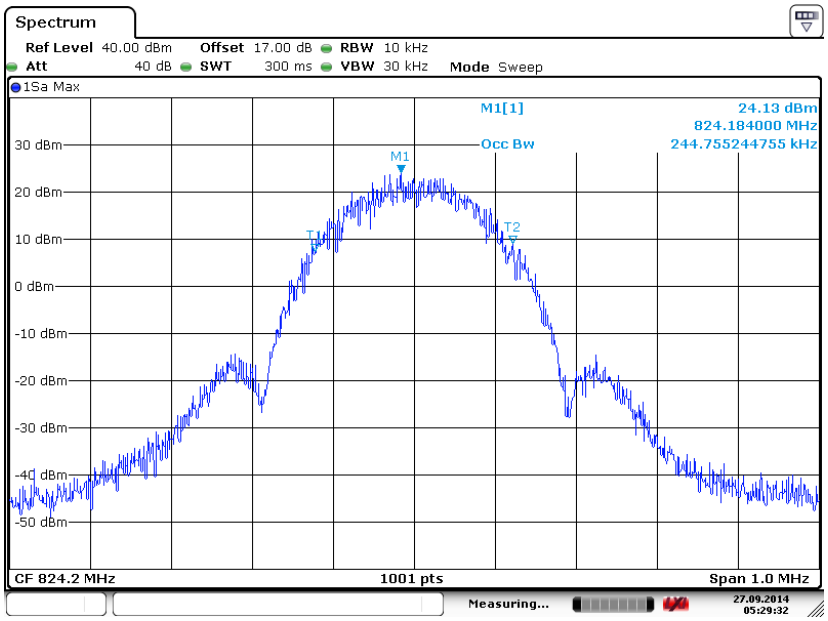
26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 27.SEP.2014 05:04:43

Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)

99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



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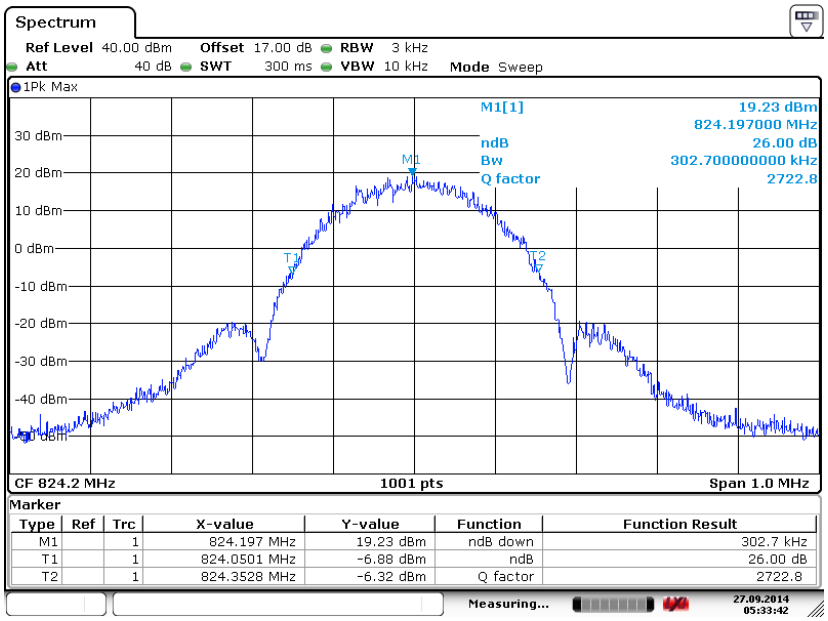
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	824.197 MHz	19.23 dBm	ndB down	302.7 kHz
T1		1	824.0501 MHz	-6.88 dBm	ndB	26.00 dB
T2		1	824.3528 MHz	-6.32 dBm	Q factor	2722.8

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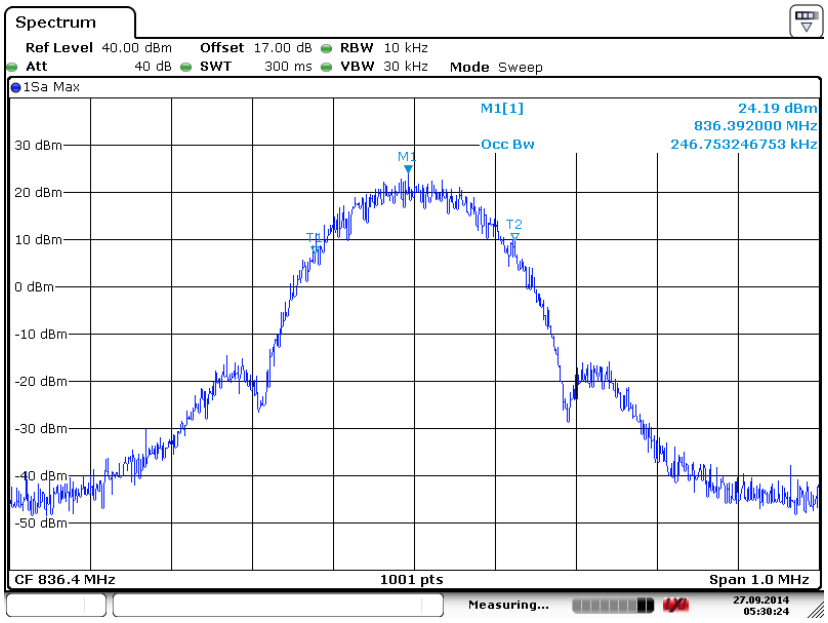
99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



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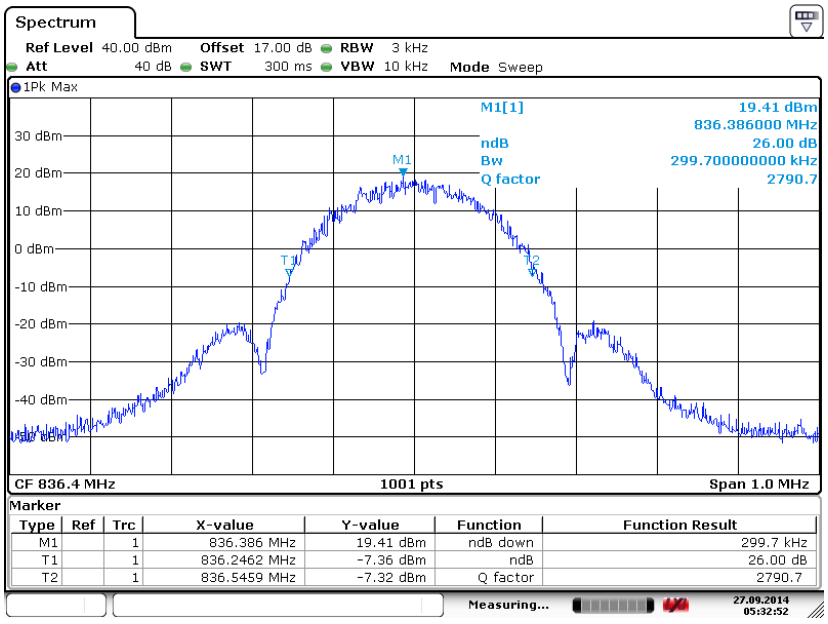
26dB Bandwidth Plot on Channel 189 (836.4 MHz)

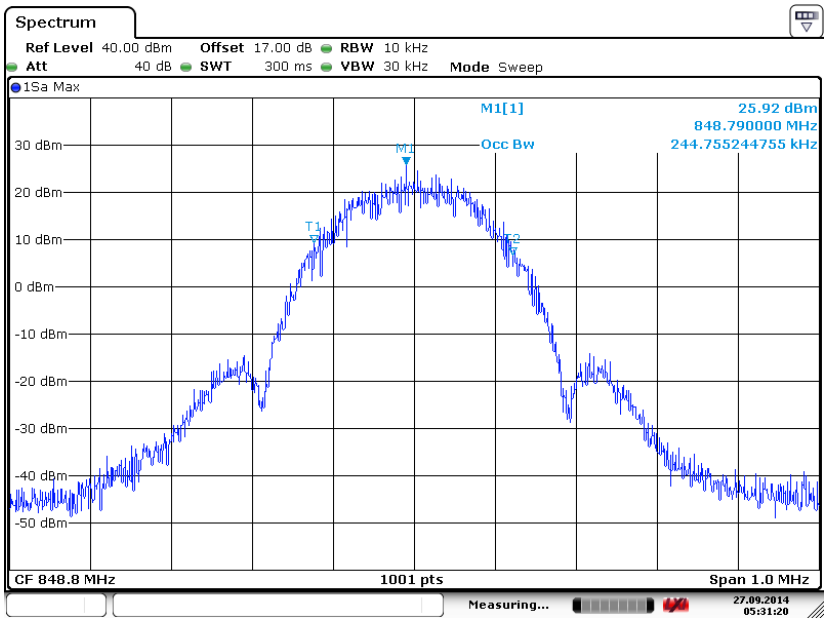


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	836.386 MHz	19.41 dBm	ndB down	299.7 kHz
T1		1	836.2462 MHz	-7.36 dBm	ndB	26.00 dB
T2		1	836.5459 MHz	-7.32 dBm	Q factor	2790.7

Date: 27.SEP.2014 05:32:52

99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



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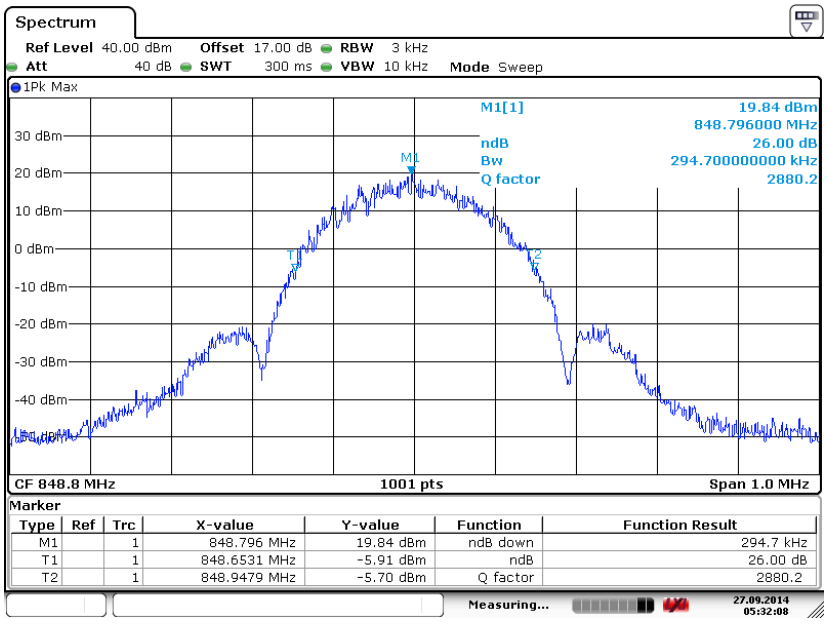
26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	848.796 MHz	19.84 dBm	ndB down	294.7 kHz
T1		1	848.6531 MHz	-5.91 dBm	ndB	26.00 dB
T2		1	848.9479 MHz	-5.70 dBm	Q factor	2880.2

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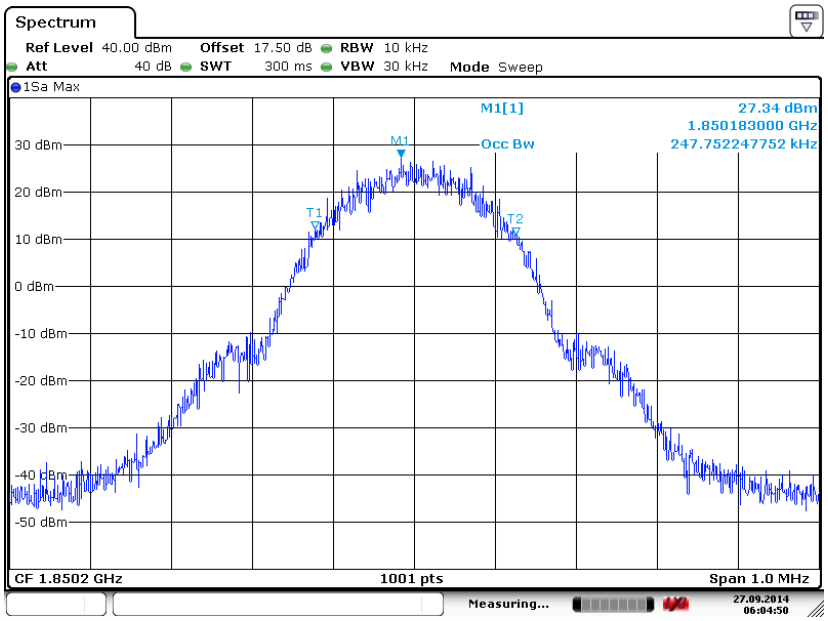
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)

99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



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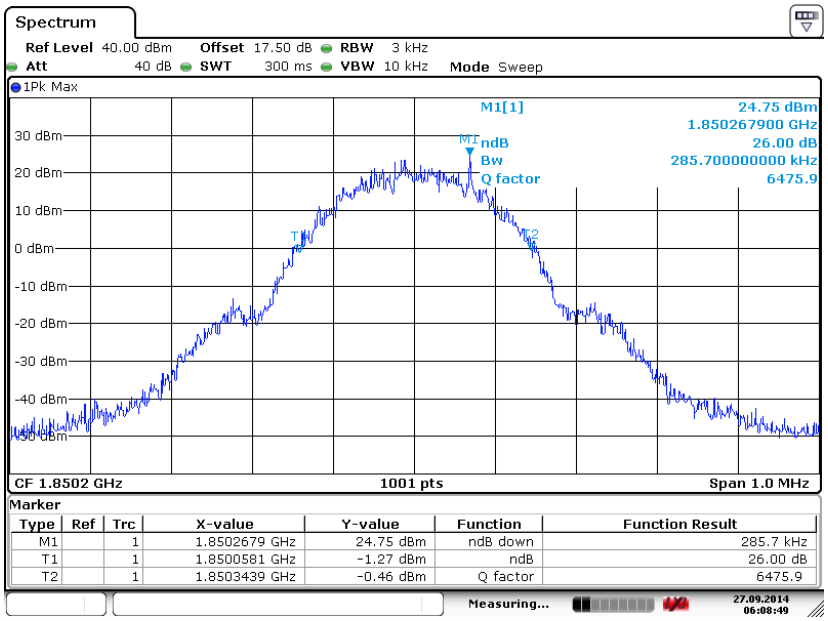
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.8502679 GHz	24.75 dBm	ndB down	285.7 kHz
T1		1	1.8500581 GHz	-1.27 dBm	ndB	26.00 dB
T2		1	1.8503439 GHz	-0.46 dBm	Q factor	6475.9

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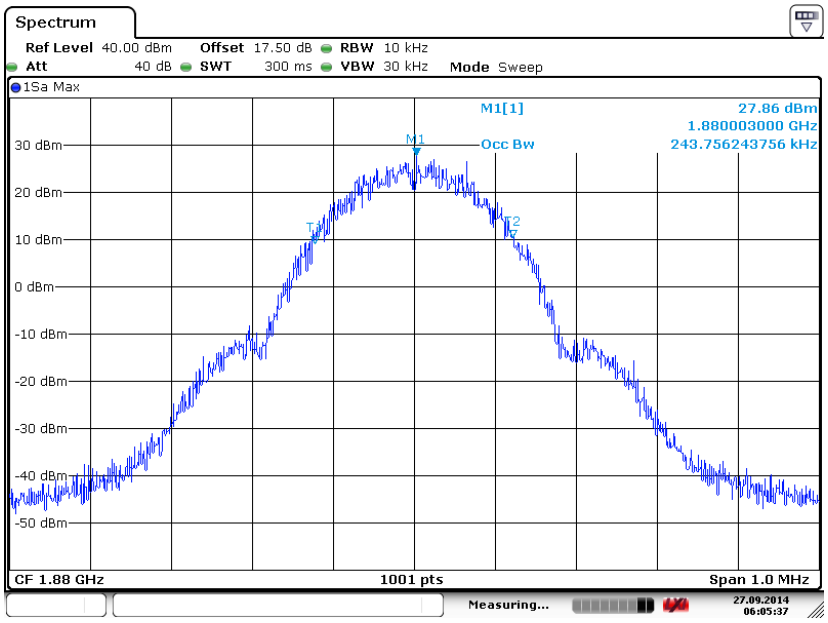
99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



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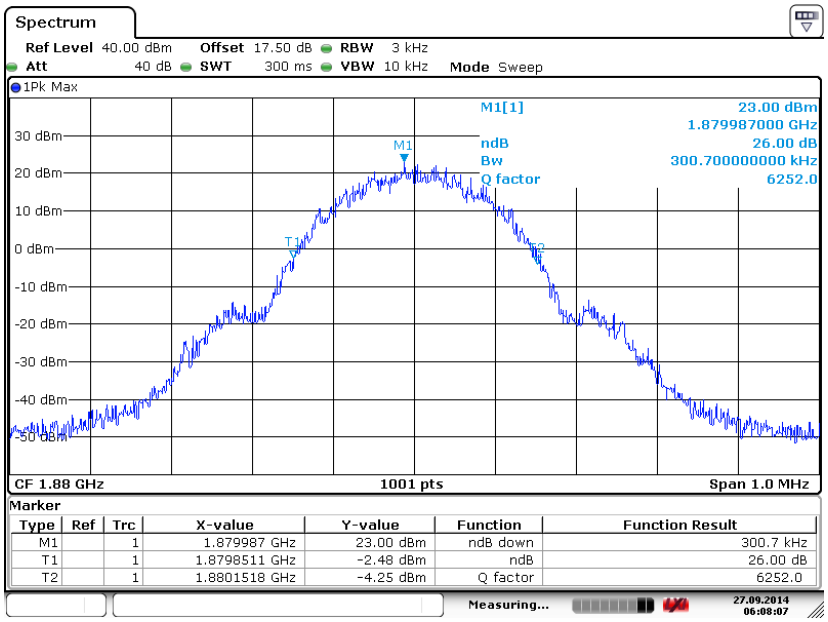
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)

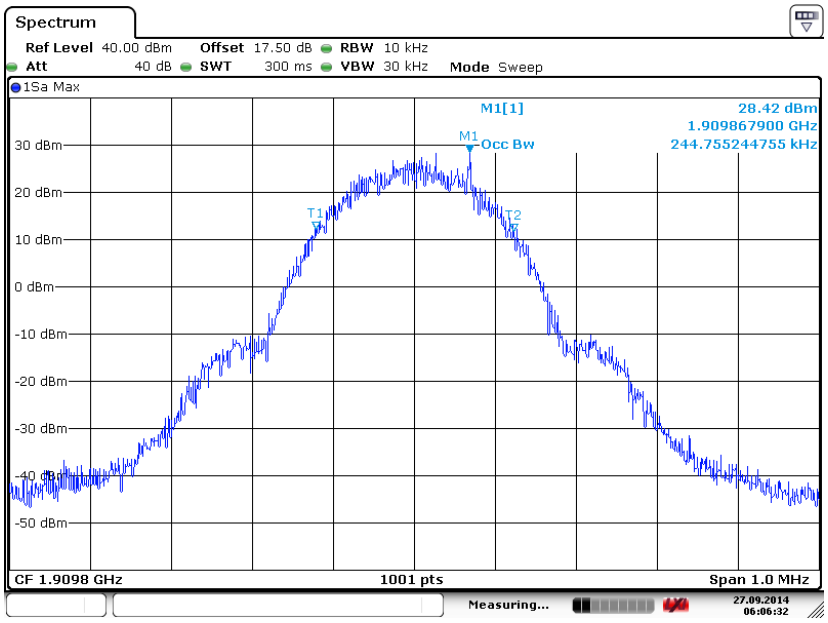


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.879987 GHz	23.00 dBm	ndB down	300.7 kHz
T1		1	1.8798511 GHz	-2.48 dBm	ndB	26.00 dB
T2		1	1.8801518 GHz	-4.25 dBm	Q factor	6252.0

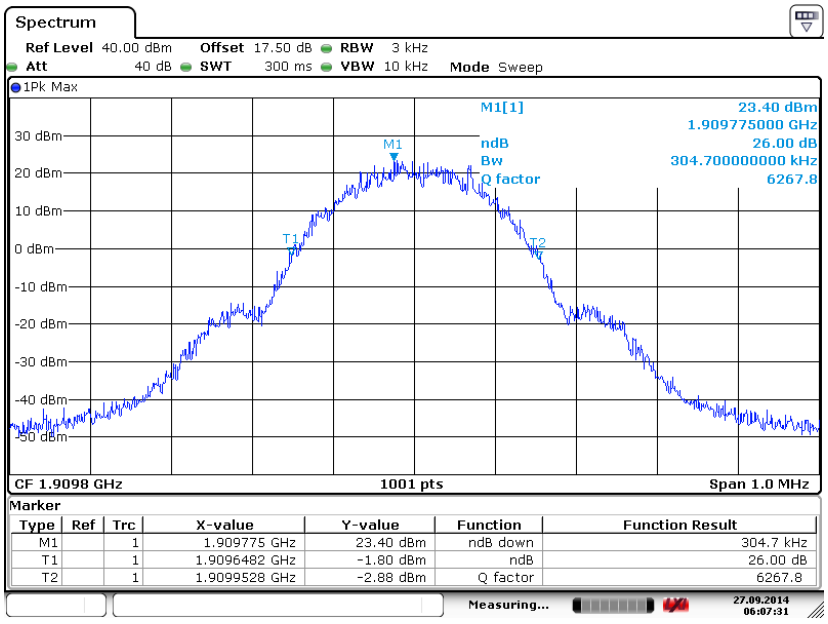
Date: 27.SEP.2014 06:08:06

99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 27.SEP.2014 06:06:32

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



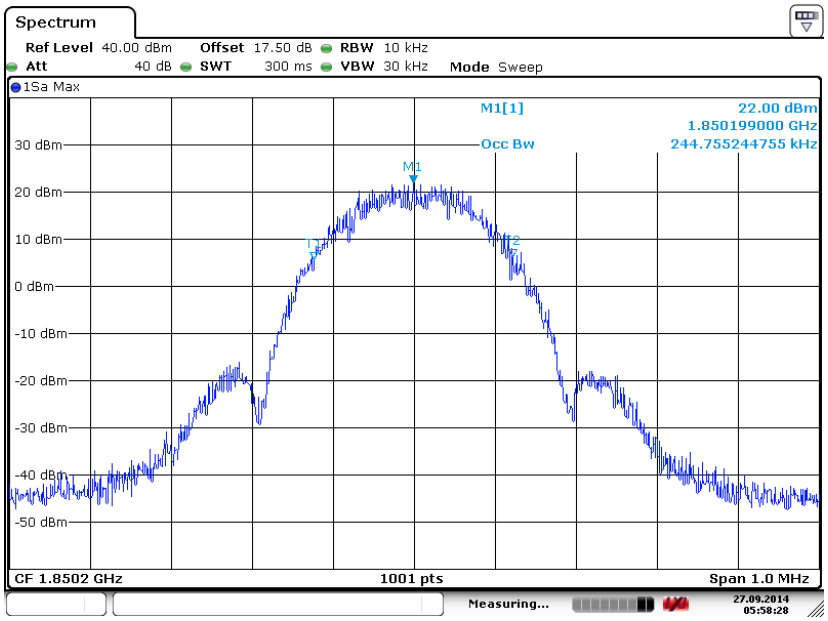
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.909775 GHz	23.40 dBm	ndB down	304.7 kHz
T1		1	1.9096482 GHz	-1.80 dBm	ndB	26.00 dB
T2		1	1.9099528 GHz	-2.88 dBm	Q factor	6267.8

Date: 27.SEP.2014 06:07:31

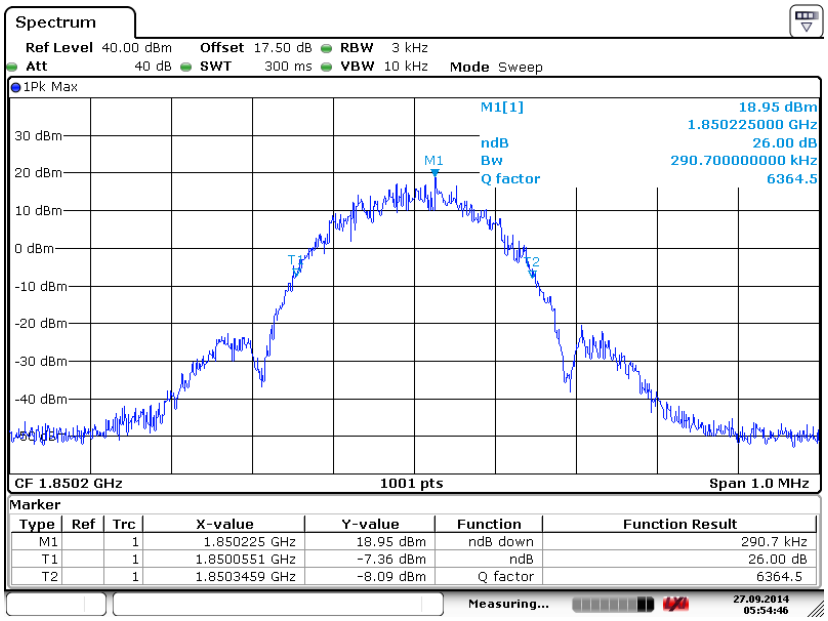
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)

99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 27.SEP.2014 05:58:28

26dB Bandwidth Plot on Channel 512 (1850.2 MHz)

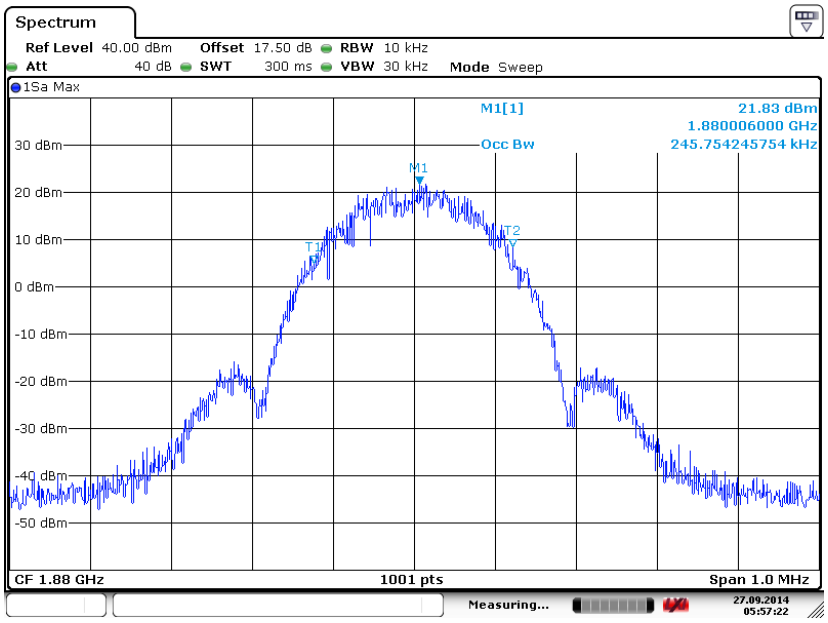


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.850225 GHz	18.95 dBm	ndB down	290.7 kHz
T1		1	1.8500551 GHz	-7.36 dBm	ndB	26.00 dB
T2		1	1.8503459 GHz	-8.09 dBm	Q factor	6364.5

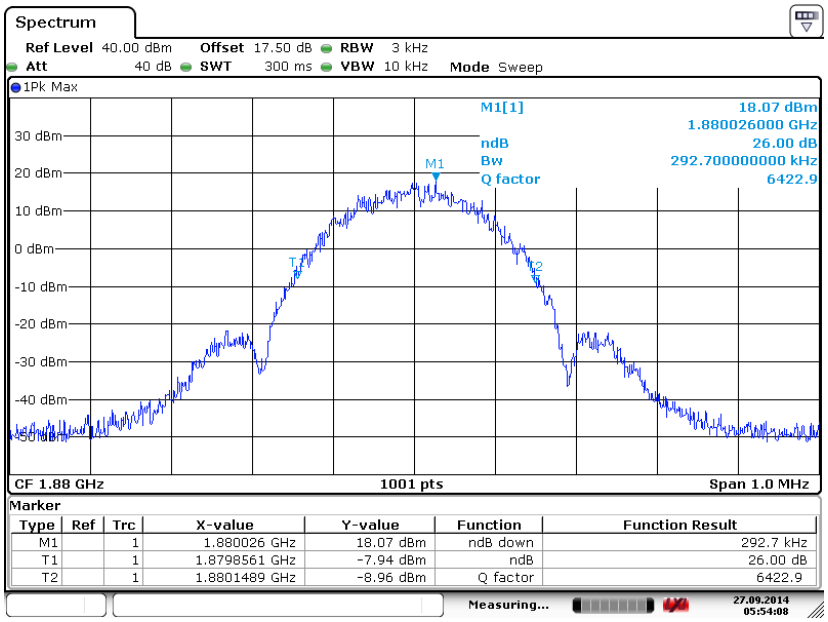
Date: 27.SEP.2014 05:54:46

99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 27.SEP.2014 05:57:22

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)

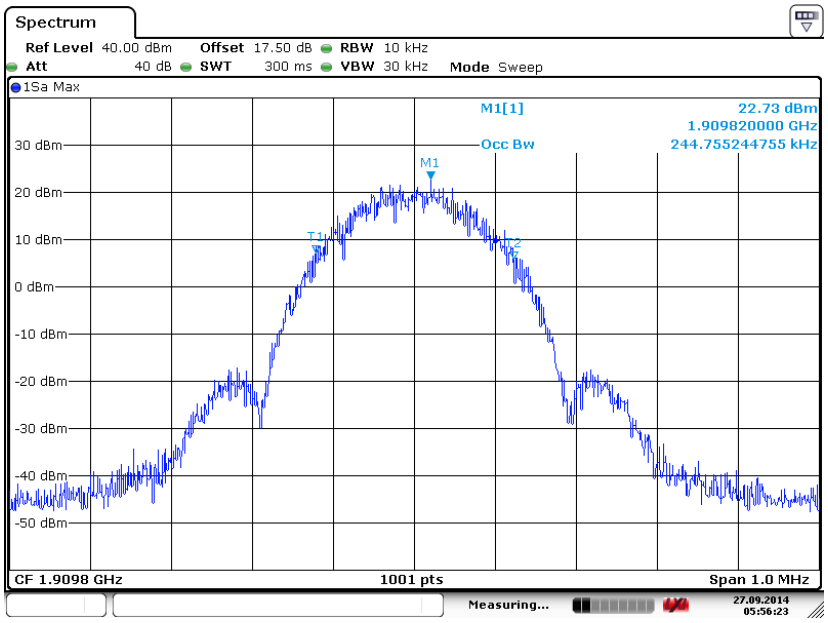


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.880026 GHz	18.07 dBm	ndB down	292.7 kHz
T1		1	1.8798561 GHz	-7.94 dBm	ndB	26.00 dB
T2		1	1.8801489 GHz	-8.96 dBm	Q factor	6422.9

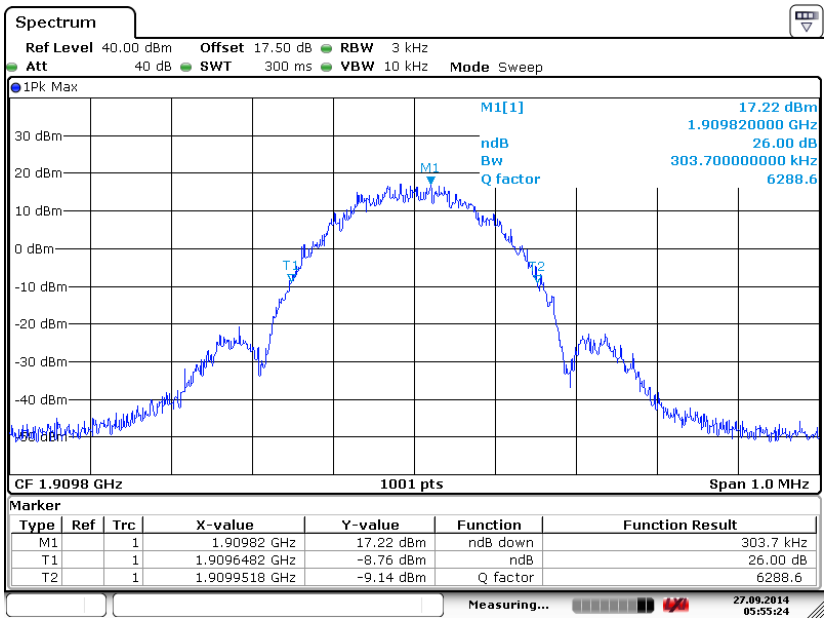
Date: 27.SEP.2014 05:54:08

99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 27.SEP.2014 05:56:23

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



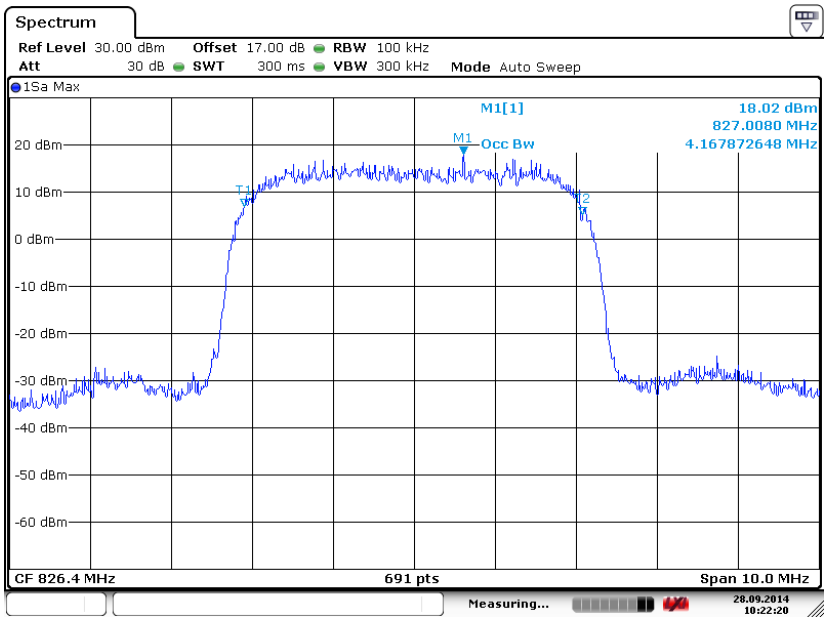
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.90982 GHz	17.22 dBm	ndB down	303.7 kHz
T1		1	1.9096482 GHz	-8.76 dBm	ndB	26.00 dB
T2		1	1.9099518 GHz	-9.14 dBm	Q factor	6288.6

Date: 27.SEP.2014 05:55:24

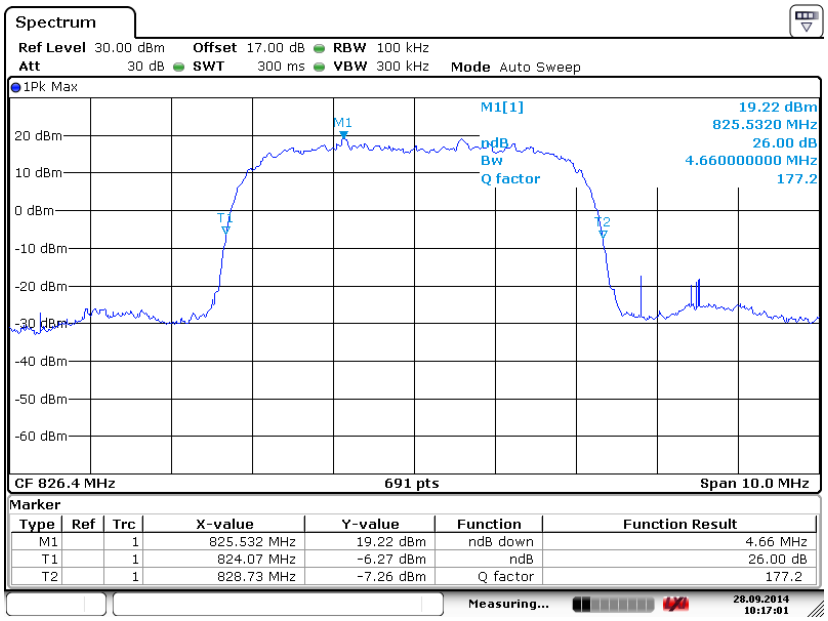
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

99% Occupied Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 28.SEP.2014 10:22:20

26dB Bandwidth Plot on Channel 4132 (826.4 MHz)

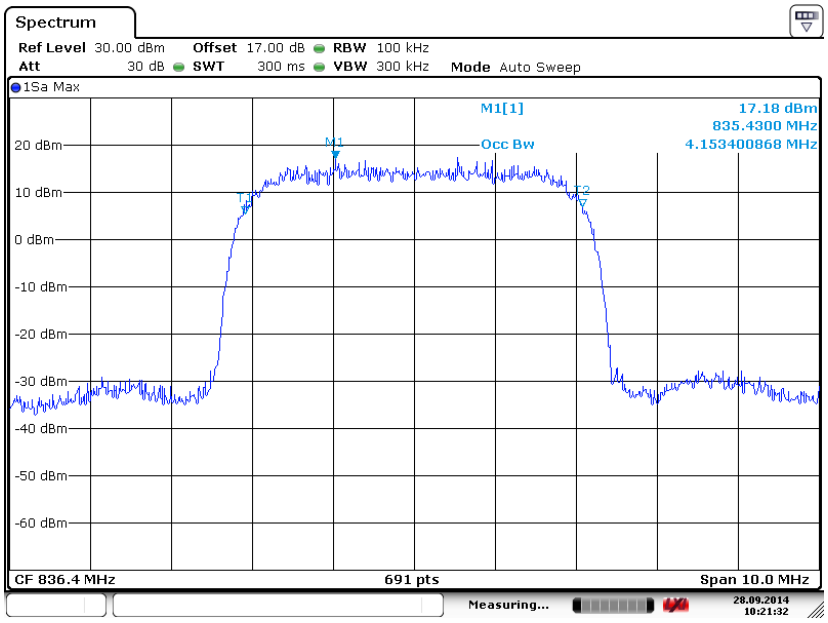


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	825.532 MHz	19.22 dBm	ndB down	4.66 MHz
T1		1	824.07 MHz	-6.27 dBm	ndB	26.00 dB
T2		1	828.73 MHz	-7.26 dBm	Q factor	177.2

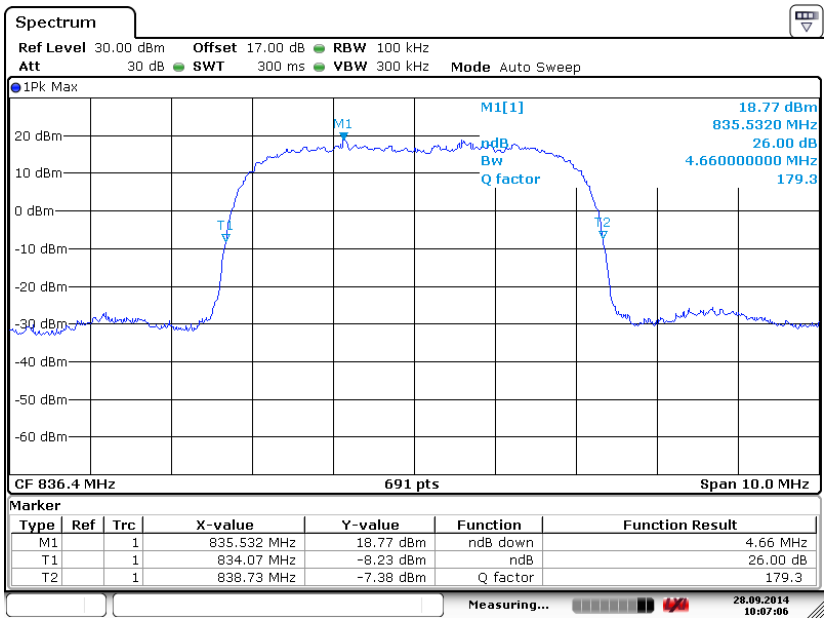
Date: 28.SEP.2014 10:17:01

99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 28.SEP.2014 10:21:33

26dB Bandwidth Plot on Channel 4182 (836.4 MHz)

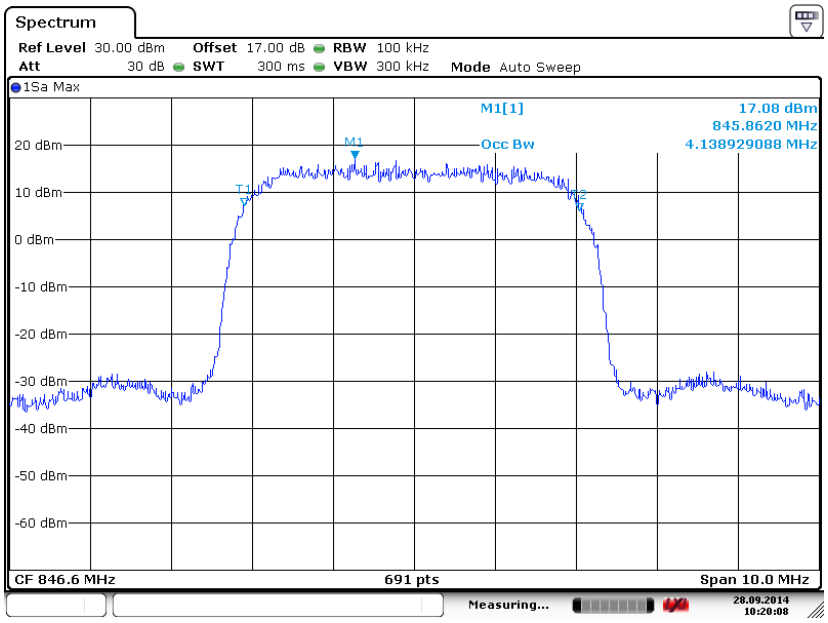


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	835.532 MHz	18.77 dBm	ndB down	4.66 MHz
T1		1	834.07 MHz	-8.23 dBm	ndB	26.00 dB
T2		1	838.73 MHz	-7.38 dBm	Q factor	179.3

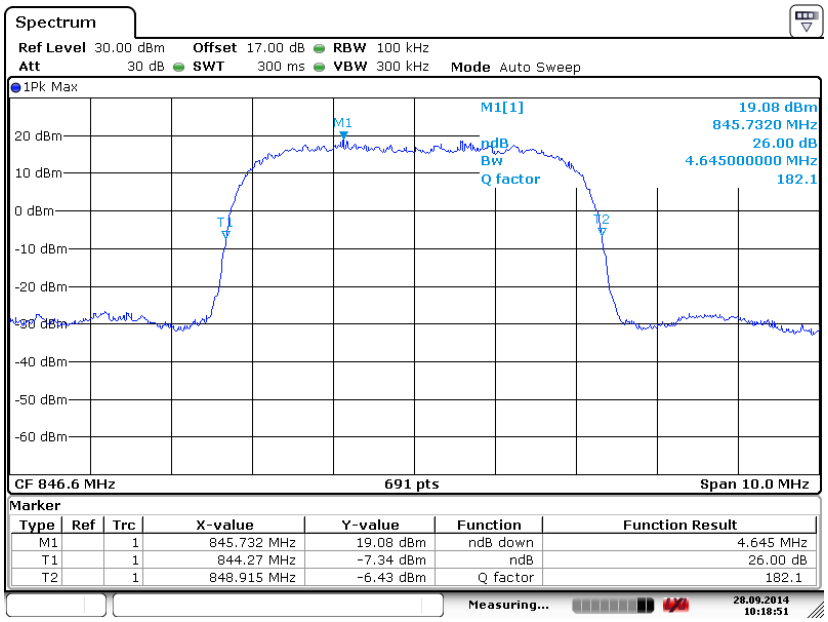
Date: 28.SEP.2014 10:07:07

99% Occupied Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 28.SEP.2014 10:20:09

26dB Bandwidth Plot on Channel 4233 (846.6 MHz)



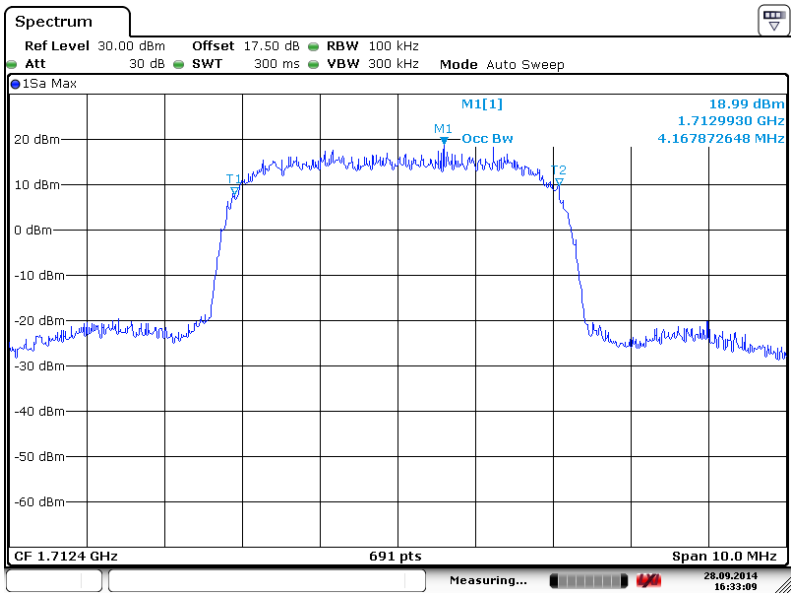
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	845.732 MHz	19.08 dBm	ndB down	4.645 MHz
T1		1	844.27 MHz	-7.34 dBm	ndB	26.00 dB
T2		1	848.915 MHz	-6.43 dBm	Q factor	182.1

Date: 28.SEP.2014 10:18:52

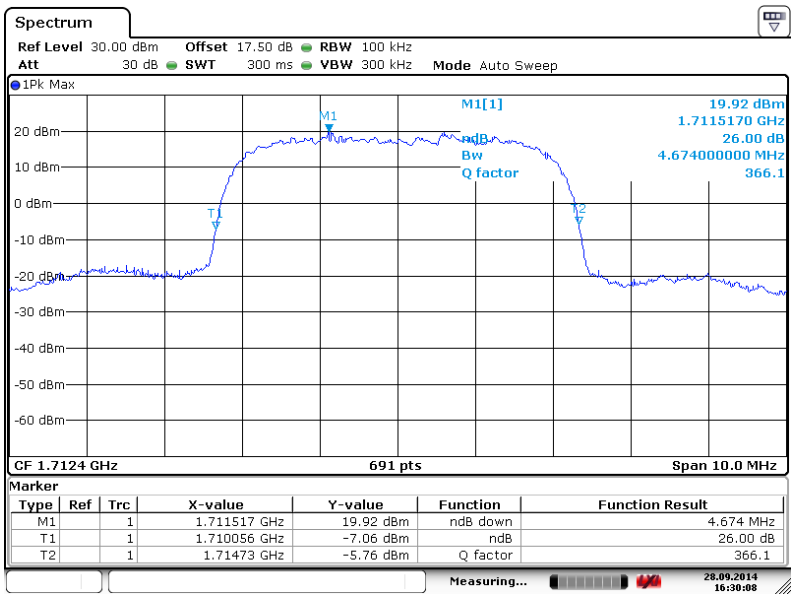
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)

99% Occupied Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 28.SEP.2014 16:33:09

26dB Bandwidth Plot on Channel 1312 (1712.4 MHz)

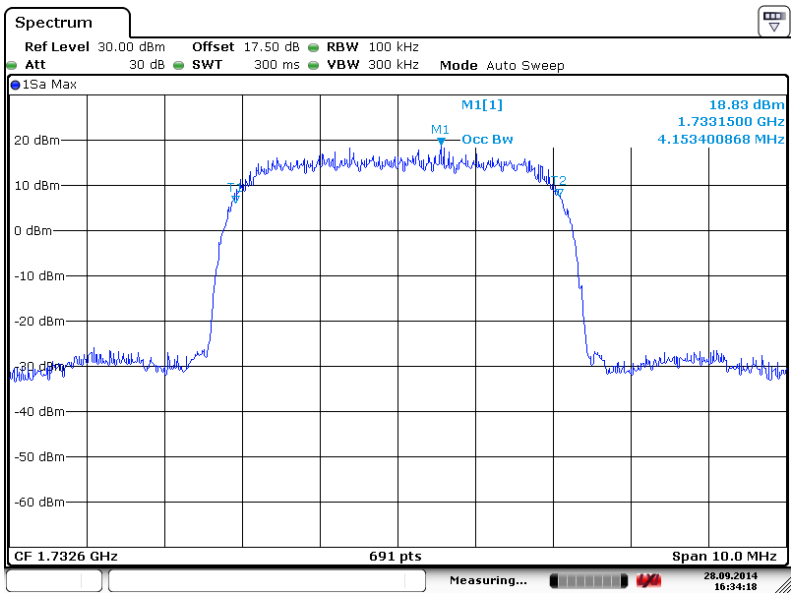


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.711517 GHz	19.92 dBm	ndB down	4.674 MHz
T1		1	1.710056 GHz	-7.06 dBm	ndB	26.00 dB
T2		1	1.71473 GHz	-5.76 dBm	Q factor	366.1

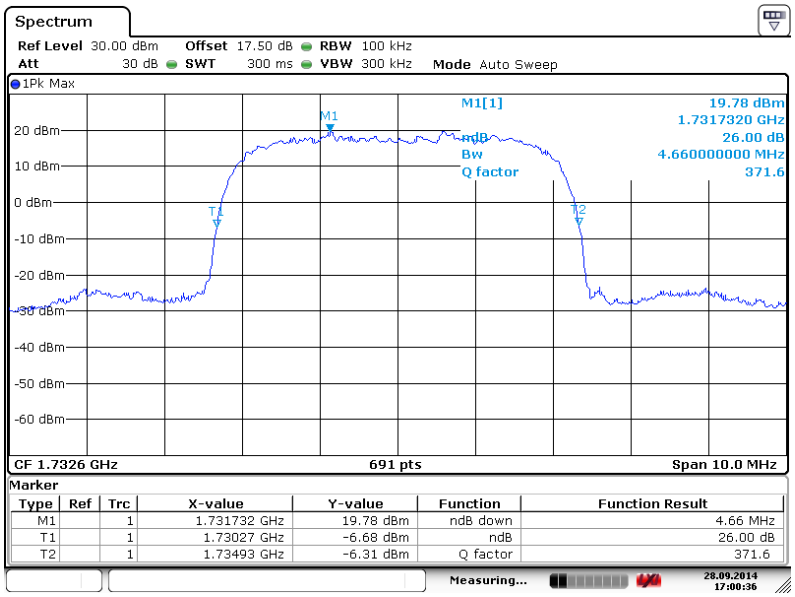
Date: 28.SEP.2014 16:30:08

99% Occupied Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 28.SEP.2014 16:34:18

26dB Bandwidth Plot on Channel 1413 (1732.6 MHz)

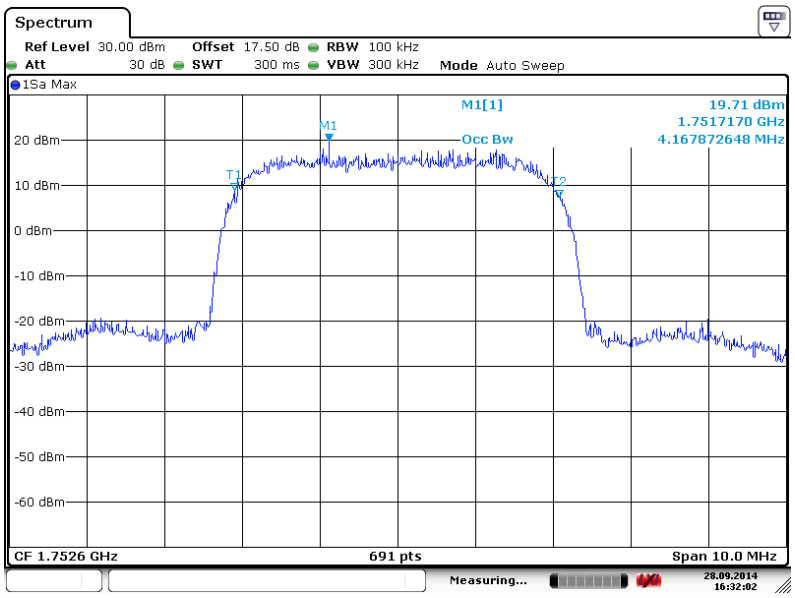


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.731732 GHz	19.78 dBm	ndB down	4.66 MHz
T1		1	1.73027 GHz	-6.68 dBm	ndB	26.00 dB
T2		1	1.73493 GHz	-6.31 dBm	Q factor	371.6

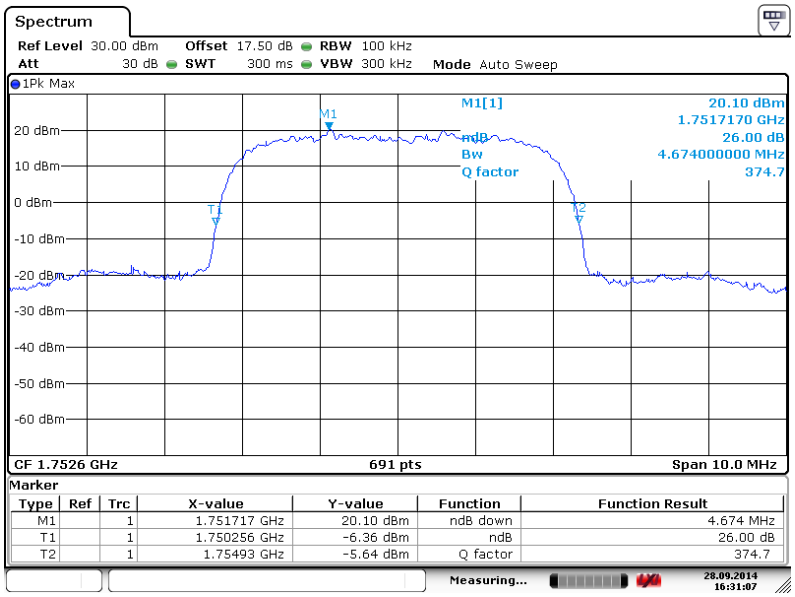
Date: 28.SEP.2014 17:00:36

99% Occupied Bandwidth Plot on Channel 1513 (1752.6 MHz)



Date: 28.SEP.2014 16:32:02

26dB Bandwidth Plot on Channel 1513 (1752.6 MHz)



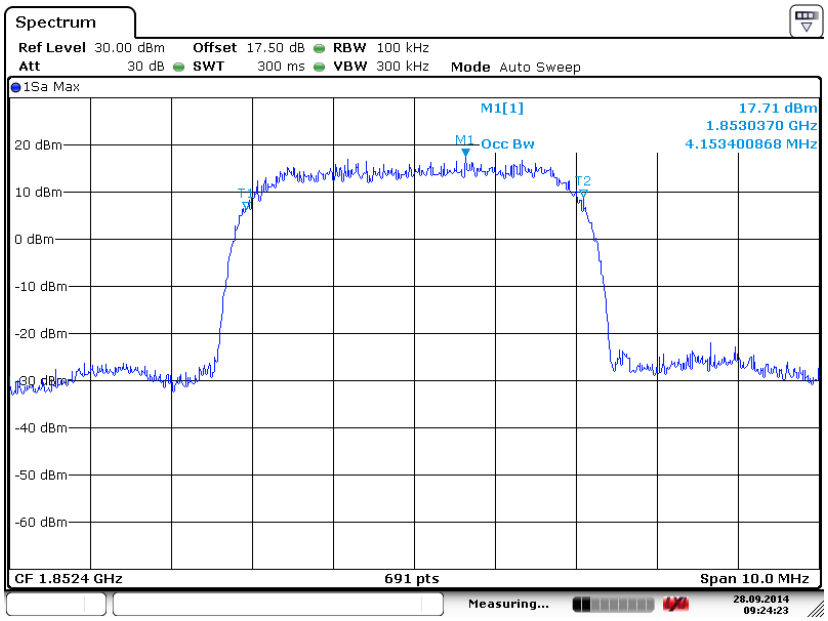
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.751717 GHz	20.10 dBm	ndB down	4.674 MHz
T1		1	1.750256 GHz	-6.36 dBm	ndB	26.00 dB
T2		1	1.75493 GHz	-5.64 dBm	Q factor	374.7

Date: 28.SEP.2014 16:31:07

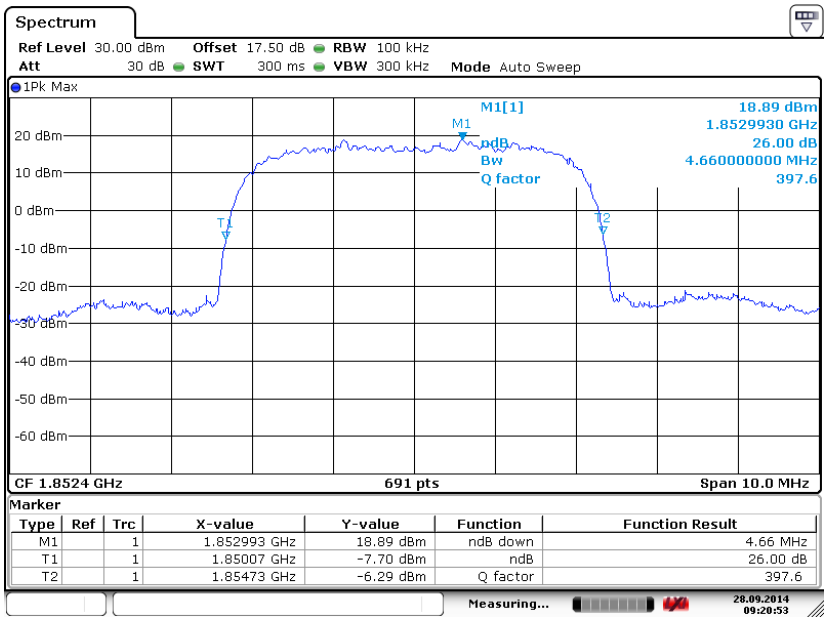
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

99% Occupied Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 28.SEP.2014 09:24:23

26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)

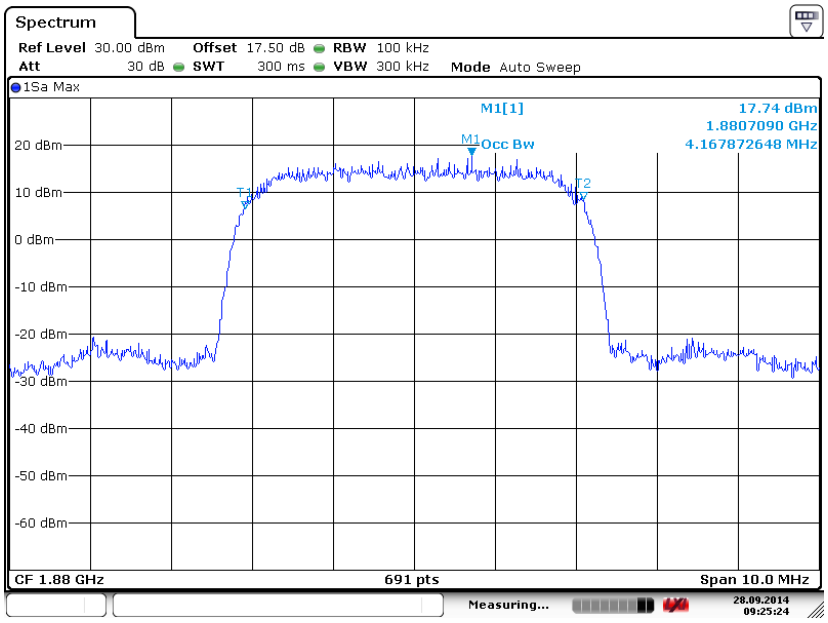


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.852993 GHz	18.89 dBm	ndB down	4.66 MHz
T1		1	1.85007 GHz	-7.70 dBm	ndB	26.00 dB
T2		1	1.85473 GHz	-6.29 dBm	Q factor	397.6

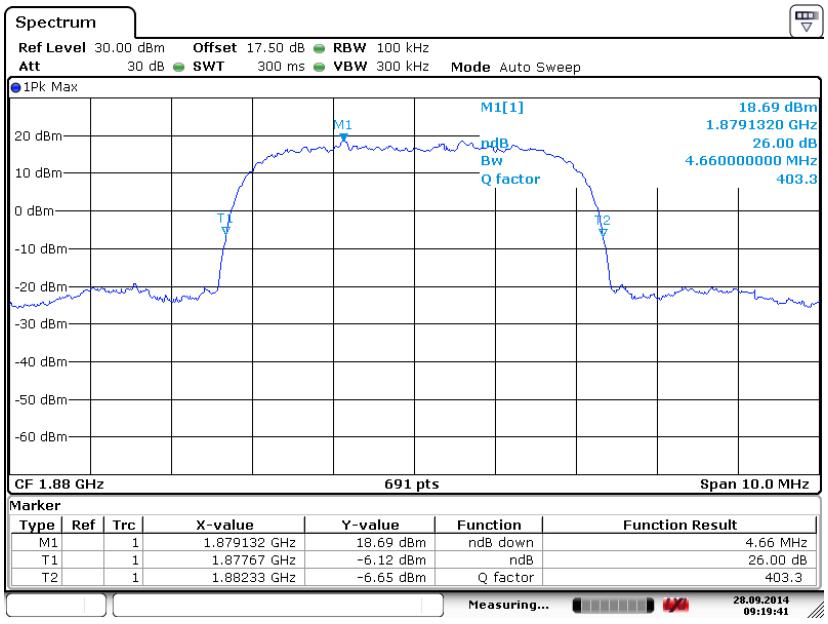
Date: 28.SEP.2014 09:20:53

99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 28.SEP.2014 09:25:25

26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)

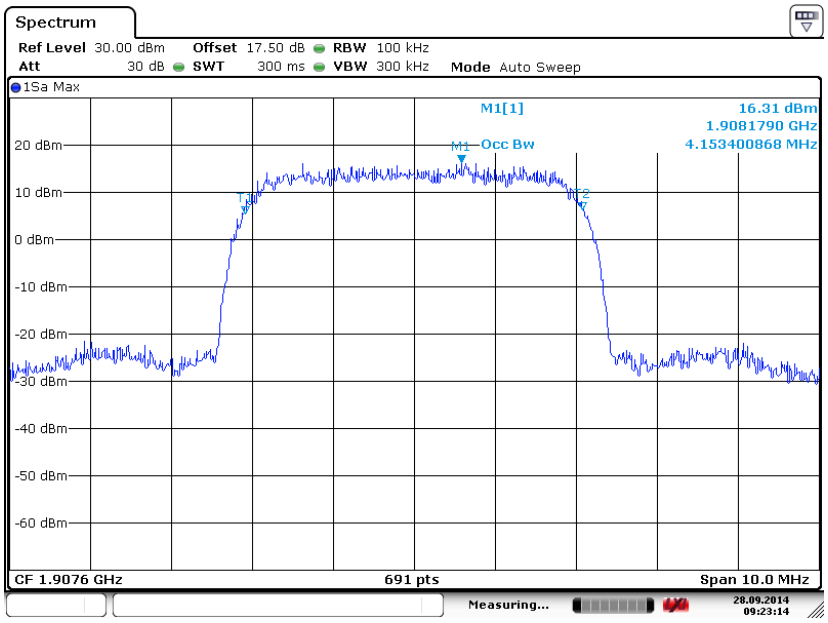


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.879132 GHz	18.69 dBm	ndB down	4.66 MHz
T1		1	1.87767 GHz	-6.12 dBm	ndB	26.00 dB
T2		1	1.88233 GHz	-6.65 dBm	Q factor	403.3

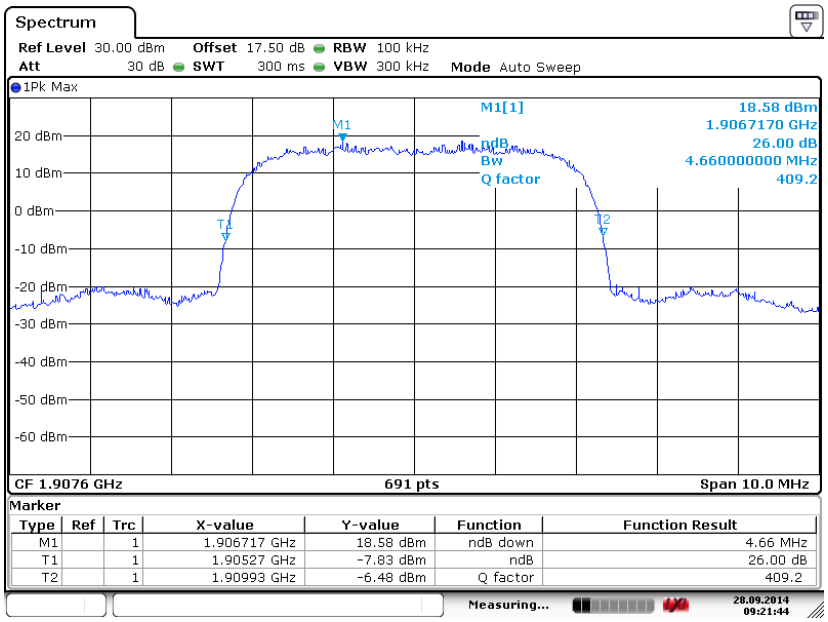
Date: 28.SEP.2014 09:19:41

99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 28.SEP.2014 09:23:15

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.906717 GHz	18.58 dBm	ndB down	4.66 MHz
T1		1	1.90527 GHz	-7.83 dBm	ndB	26.00 dB
T2		1	1.90993 GHz	-6.48 dBm	Q factor	409.2

Date: 28.SEP.2014 09:21:44

3.5 Band Edge Measurement

3.5.1 Description of Band Edge Measurement

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

3.5.2 Measuring Instruments

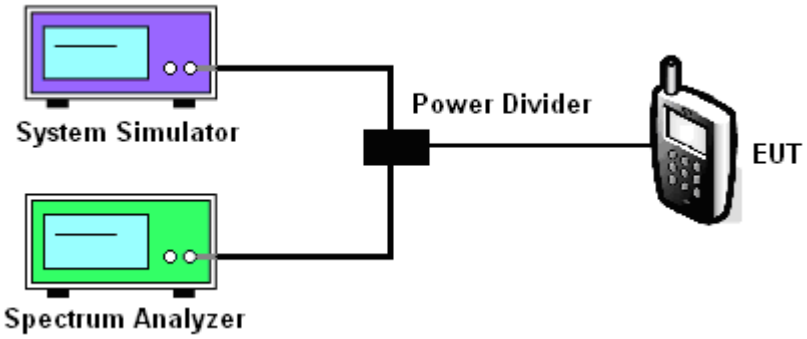
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The band edges of low and high channels for the highest RF powers were measured.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
   = P(W) - [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

3.5.4 Test Setup

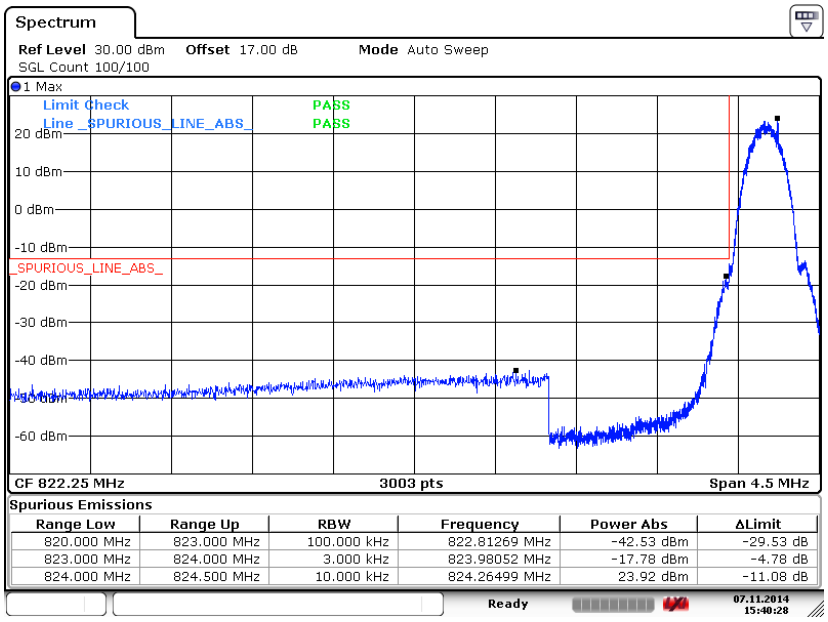
<Conducted Band Edge >



3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Test Mode :	GSM Link (GMSK)

Lower Band Edge Plot on Channel 128 (824.2 MHz)



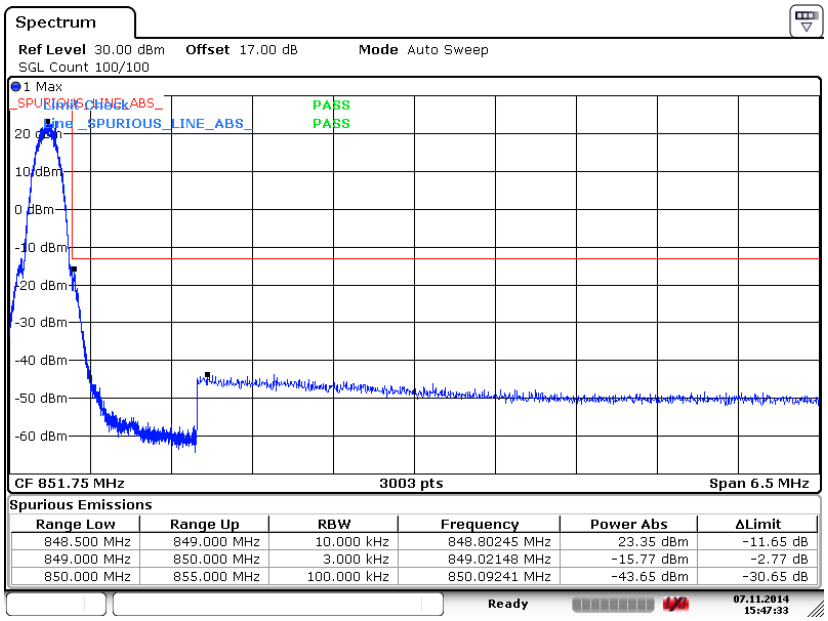
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.81269 MHz	-42.53 dBm	-29.53 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.98052 MHz	-17.78 dBm	-4.78 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.26499 MHz	23.92 dBm	-11.08 dB

Date: 7.NOV.2014 15:40:28

Band :	GSM850	Test Mode :	GSM Link (GMSK)

Higher Band Edge Plot on Channel 251 (848.8 MHz)



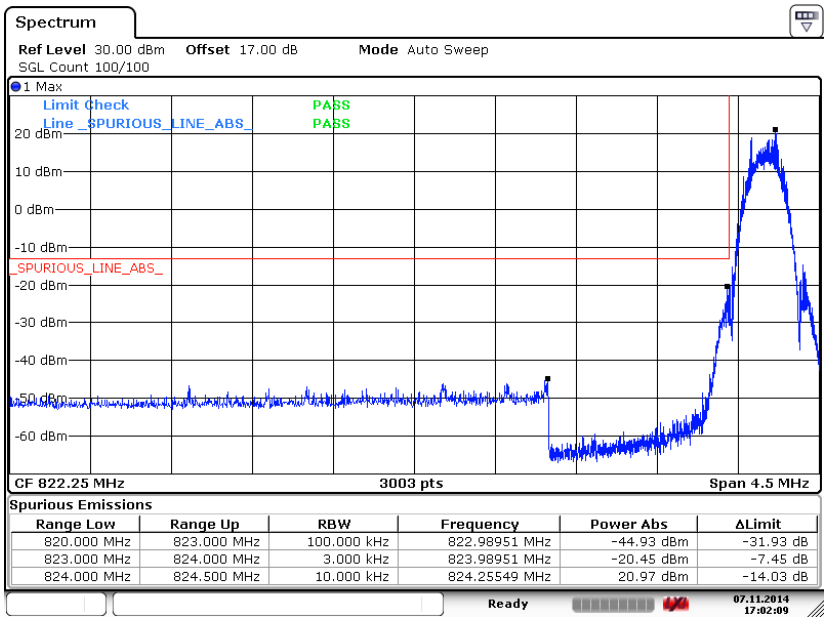
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.80245 MHz	23.35 dBm	-11.65 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.02148 MHz	-15.77 dBm	-2.77 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.09241 MHz	-43.65 dBm	-30.65 dB

Date: 7.NOV.2014 15:47:33

Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)

Lower Band Edge Plot on Channel 128 (824.2 MHz)



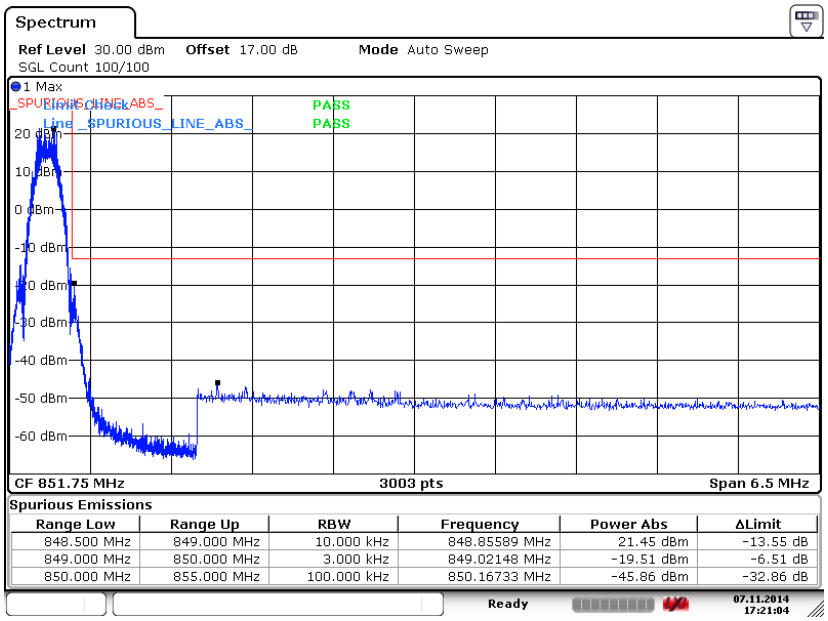
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.98951 MHz	-44.93 dBm	-31.93 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.98951 MHz	-20.45 dBm	-7.45 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.25549 MHz	20.97 dBm	-14.03 dB

Date: 7.NOV.2014 17:02:09

Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)

Higher Band Edge Plot on Channel 251 (848.8 MHz)



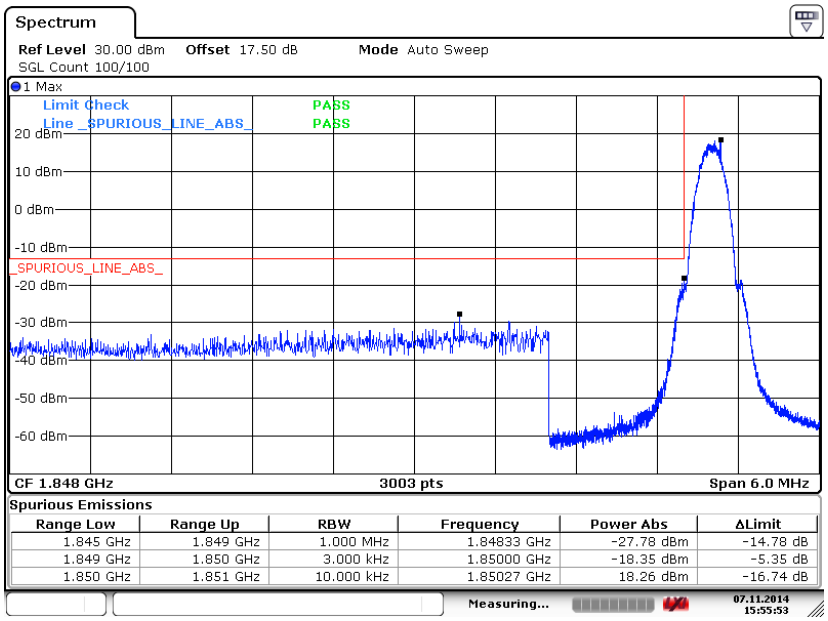
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.85589 MHz	21.45 dBm	-13.55 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.02148 MHz	-19.51 dBm	-6.51 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.16733 MHz	-45.86 dBm	-32.86 dB

Date: 7.NOV.2014 17:21:04

Band :	GSM1900	Test Mode :	GSM Link (GMSK)

Lower Band Edge Plot on Channel 512 (1850.2 MHz)



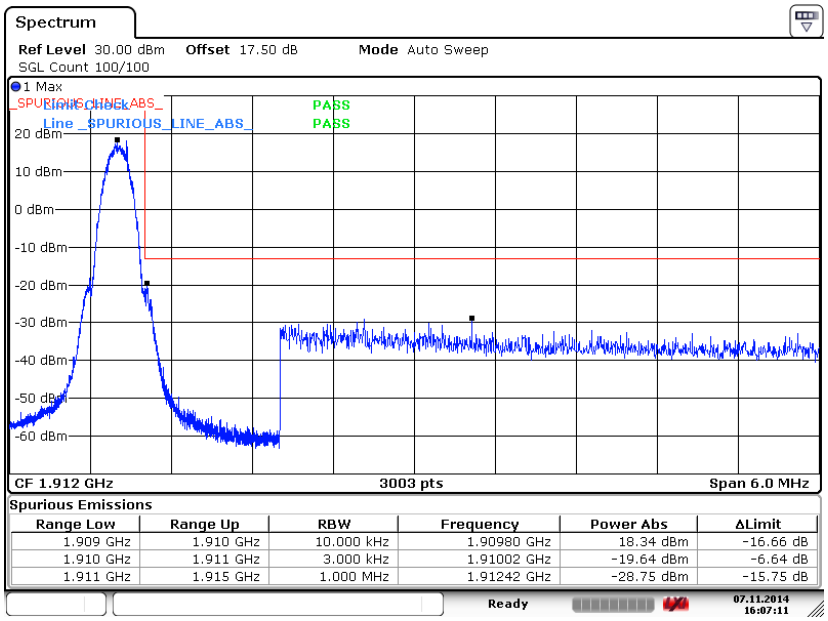
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84833 GHz	-27.78 dBm	-14.78 dB
1.849 GHz	1.850 GHz	3.000 kHz	1.85000 GHz	-18.35 dBm	-5.35 dB
1.850 GHz	1.851 GHz	10.000 kHz	1.85027 GHz	18.26 dBm	-16.74 dB

Date: 7.NOV.2014 15:55:53

Band :	GSM1900	Test Mode :	GSM Link (GMSK)

Higher Band Edge Plot on Channel 810 (1909.8 MHz)



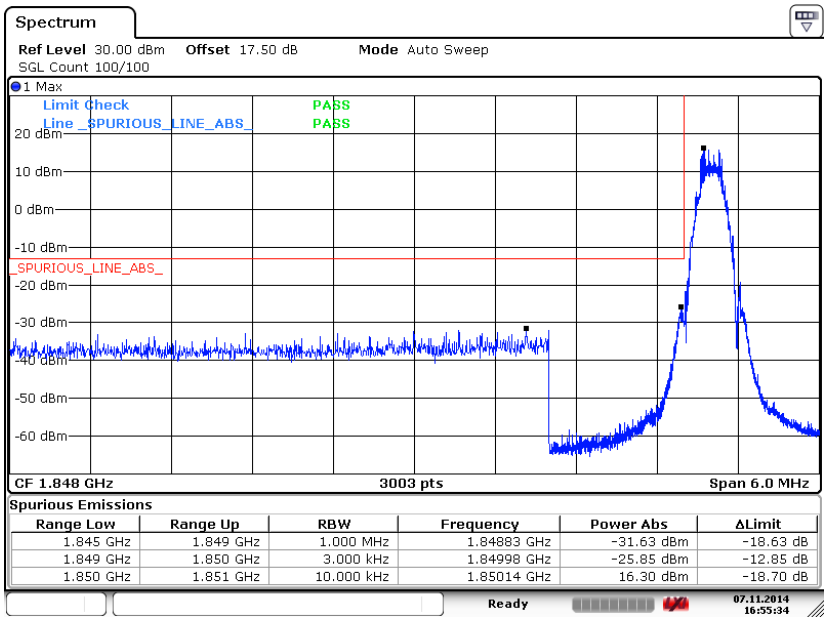
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.909 GHz	1.910 GHz	10.000 kHz	1.90980 GHz	18.34 dBm	-16.66 dB
1.910 GHz	1.911 GHz	3.000 kHz	1.91002 GHz	-19.64 dBm	-6.64 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91242 GHz	-28.75 dBm	-15.75 dB

Date: 7.NOV.2014 16:07:11

Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)

Lower Band Edge Plot on Channel 512 (1850.2 MHz)



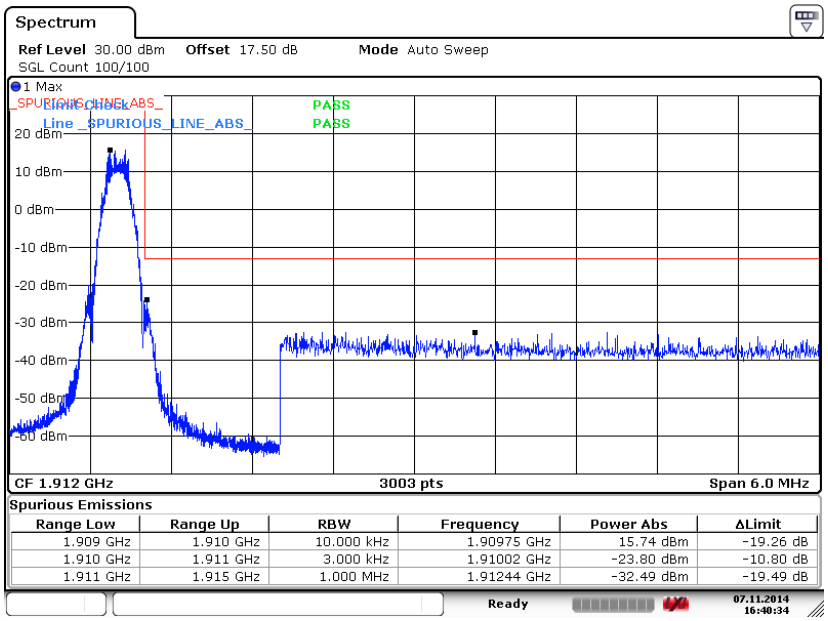
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84883 GHz	-31.63 dBm	-18.63 dB
1.849 GHz	1.850 GHz	3.000 kHz	1.84998 GHz	-25.85 dBm	-12.85 dB
1.850 GHz	1.851 GHz	10.000 kHz	1.85014 GHz	16.30 dBm	-18.70 dB

Date: 7.NOV.2014 16:55:34

Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)

Higher Band Edge Plot on Channel 810 (1909.8 MHz)



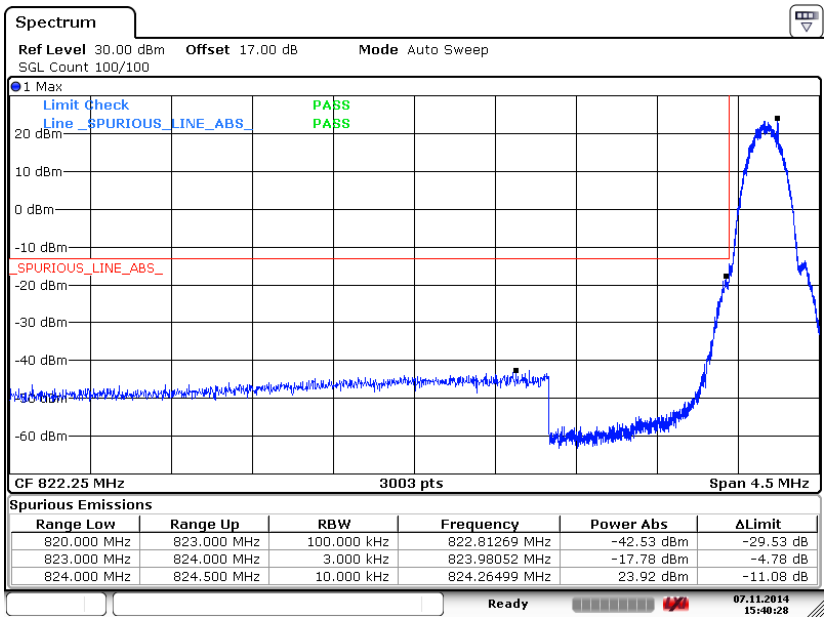
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.909 GHz	1.910 GHz	10.000 kHz	1.90975 GHz	15.74 dBm	-19.26 dB
1.910 GHz	1.911 GHz	3.000 kHz	1.91002 GHz	-23.80 dBm	-10.80 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91244 GHz	-32.49 dBm	-19.49 dB

Date: 7.NOV.2014 16:40:34

Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

Lower Band Edge Plot on Channel 4132 (826.4 MHz)



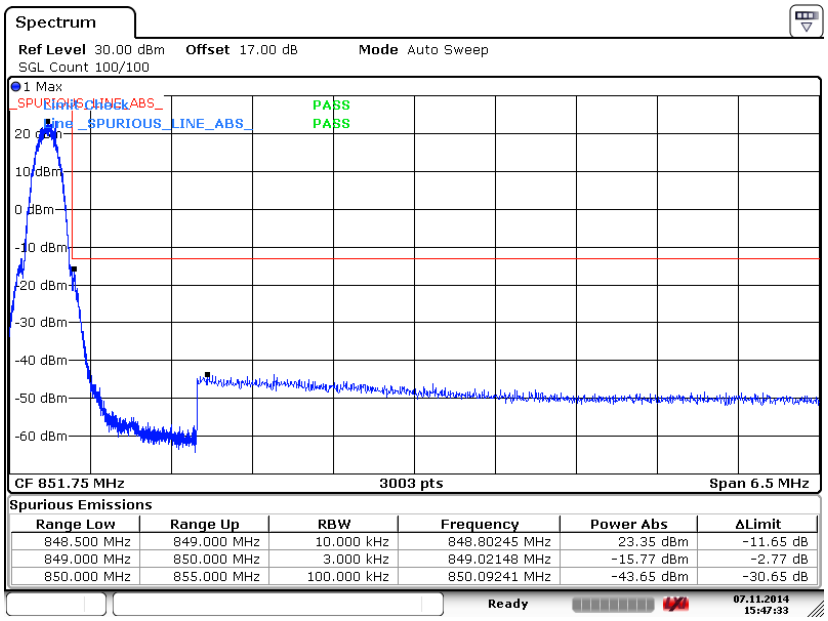
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.81269 MHz	-42.53 dBm	-29.53 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.98052 MHz	-17.78 dBm	-4.78 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.26499 MHz	23.92 dBm	-11.08 dB

Date: 7.NOV.2014 15:40:28

Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

Higher Band Edge Plot on Channel 4233 (846.6 MHz)



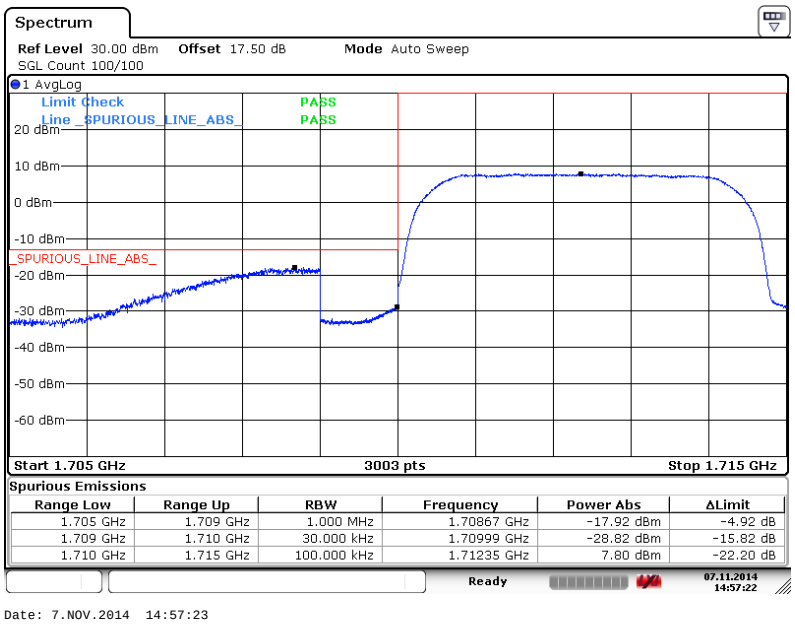
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.80245 MHz	23.35 dBm	-11.65 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.02148 MHz	-15.77 dBm	-2.77 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.09241 MHz	-43.65 dBm	-30.65 dB

Date: 7.NOV.2014 15:47:33

Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)

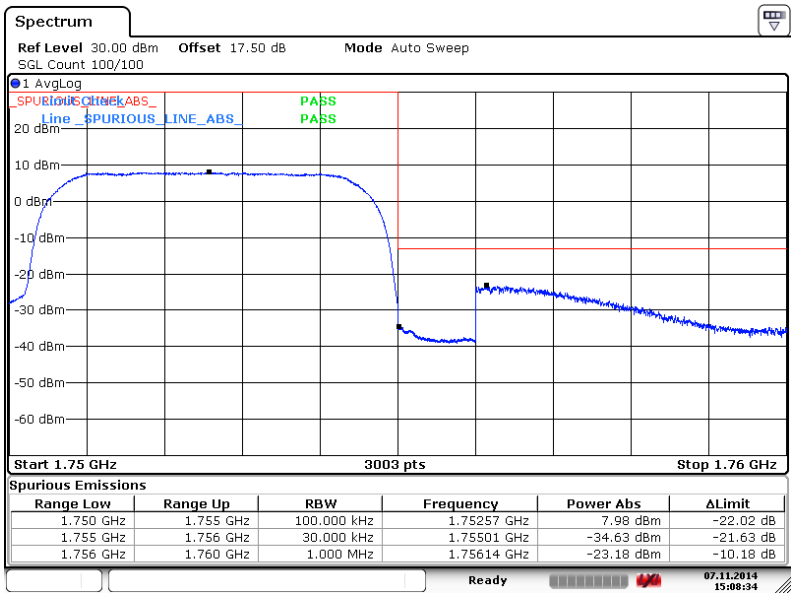
Lower Band Edge Plot on Channel 1312 (1712.4 MHz)



Date: 7.NOV.2014 14:57:23

Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)

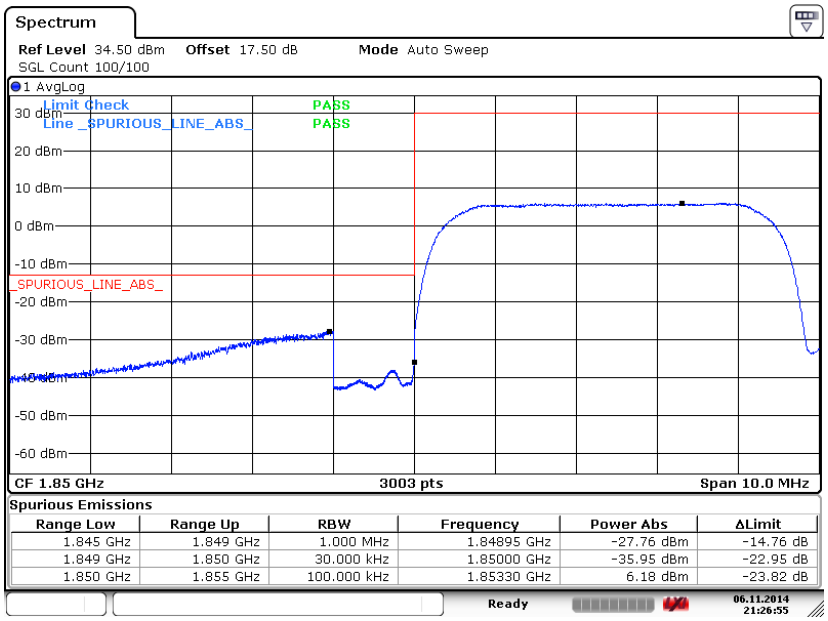
Higher Band Edge Plot on Channel 1513 (1752.6 MHz)



Date: 7.NOV.2014 15:08:34

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

Lower Band Edge Plot on Channel 9262 (1852.4 MHz)



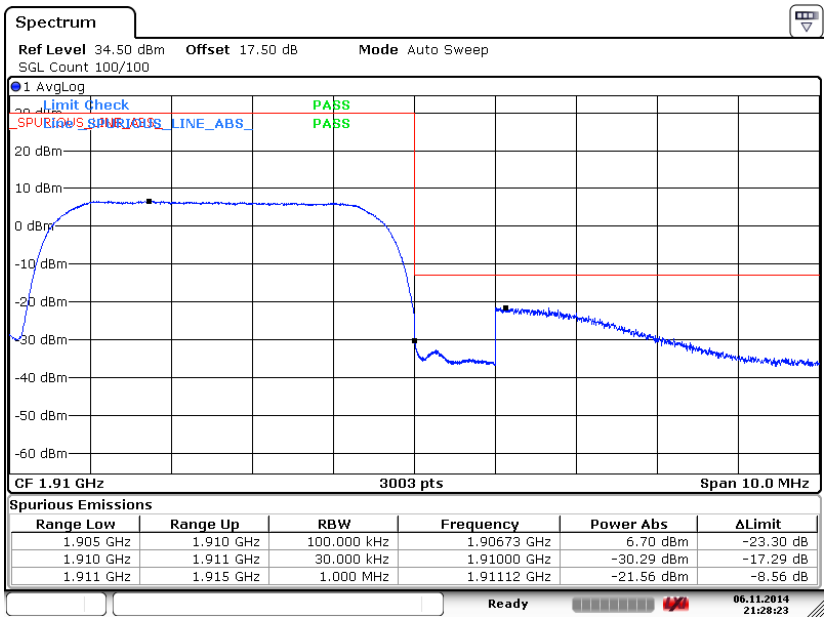
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84895 GHz	-27.76 dBm	-14.76 dB
1.849 GHz	1.850 GHz	30.000 kHz	1.85000 GHz	-35.95 dBm	-22.95 dB
1.850 GHz	1.855 GHz	100.000 kHz	1.85330 GHz	6.18 dBm	-23.82 dB

Date: 6.NOV.2014 21:26:55

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.905 GHz	1.910 GHz	100.000 kHz	1.90673 GHz	6.70 dBm	-23.30 dB
1.910 GHz	1.911 GHz	30.000 kHz	1.91000 GHz	-30.29 dBm	-17.29 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91112 GHz	-21.56 dBm	-8.56 dB

Date: 6.NOV.2014 21:28:23

3.6 Conducted Spurious Emission Measurement

3.6.1 Description of Conducted Spurious Emission Measurement

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

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

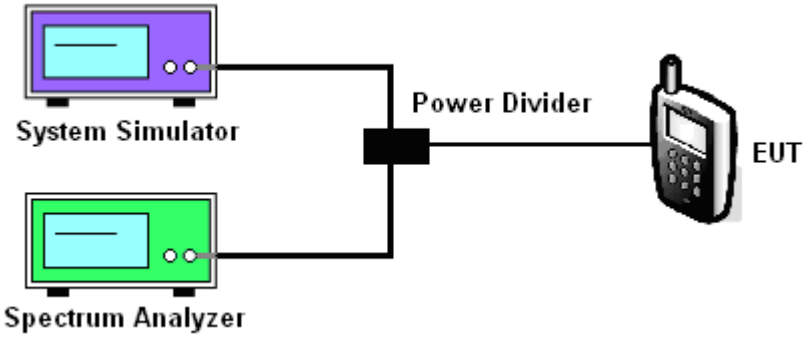
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
   = P(W) - [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

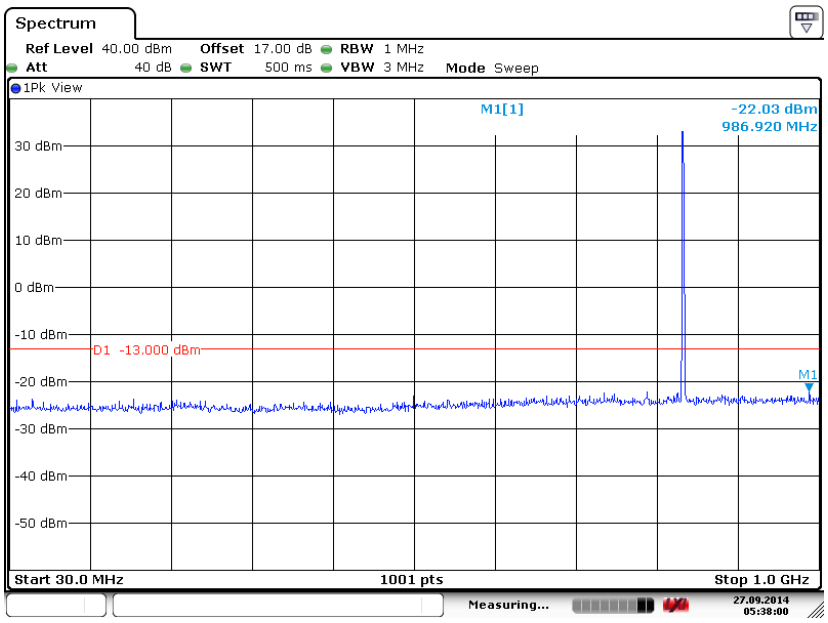
3.6.4 Test Setup



3.6.5 Test Result (Plots) of Conducted Spurious Emission

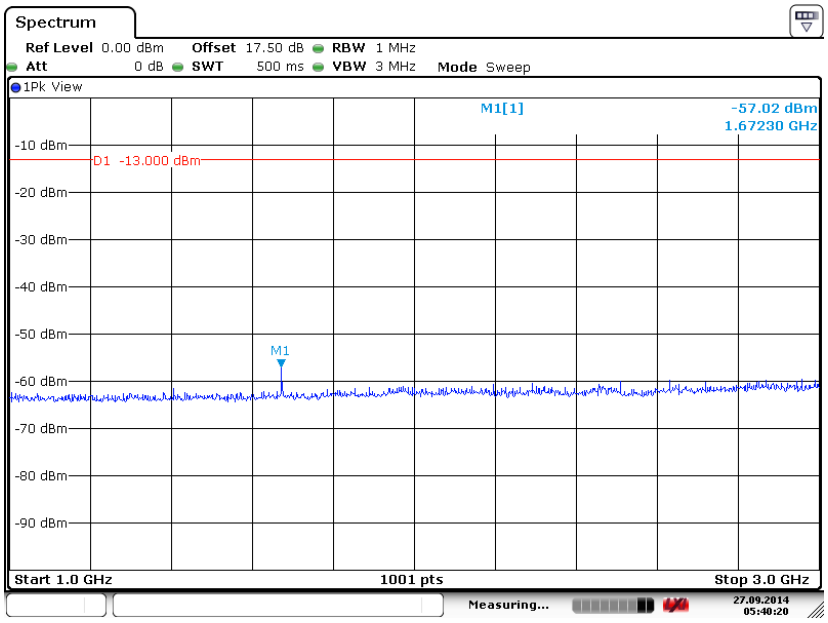
Band :	GSM850	Channel :	CH189
Test Mode :	GSM Link (GMSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



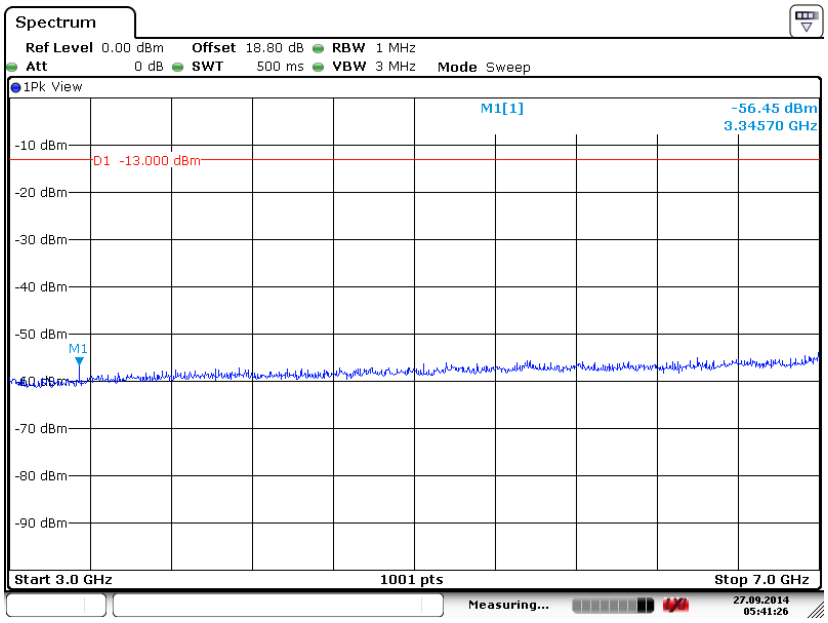
Date: 27.SEP.2014 05:38:00

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



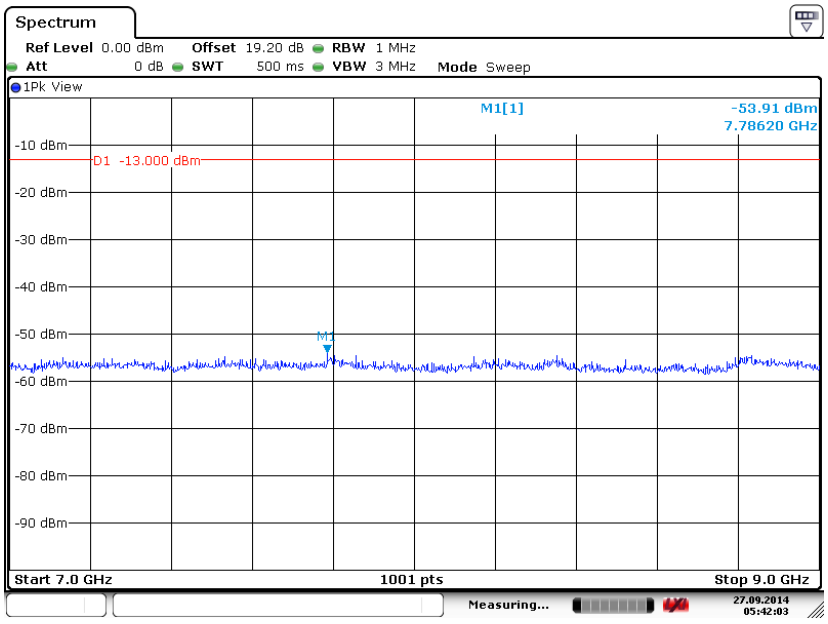
Date: 27.SEP.2014 05:40:20

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 27.SEP.2014 05:41:26

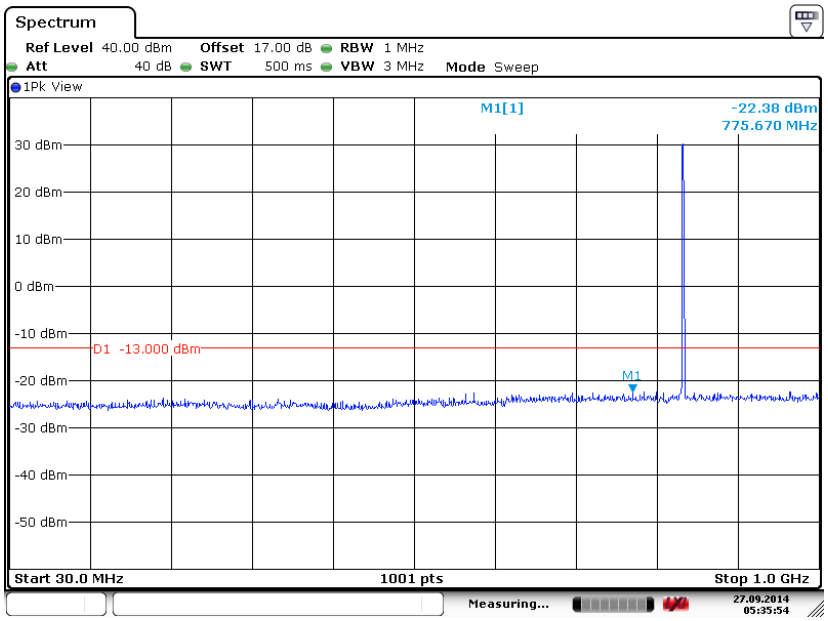
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 27.SEP.2014 05:42:03

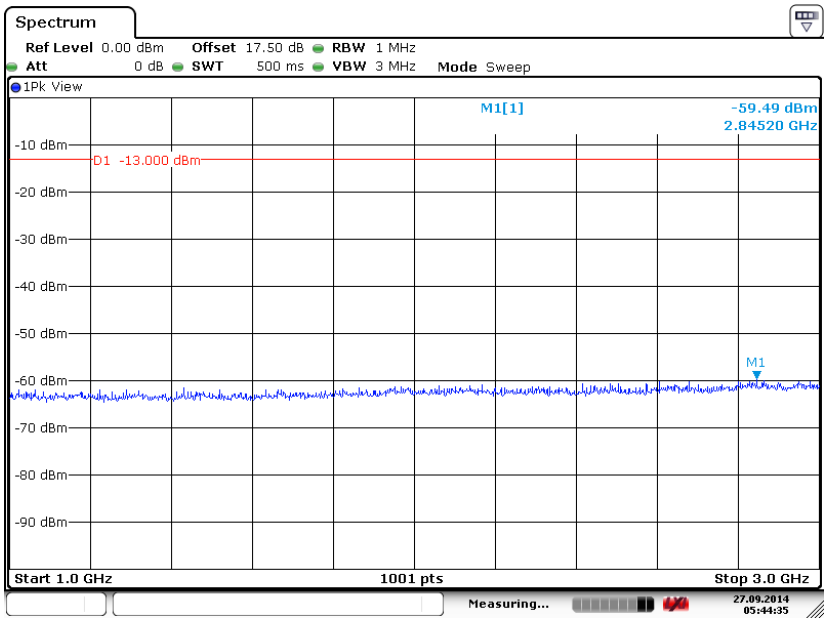
Band :	GSM850	Channel :	CH189
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



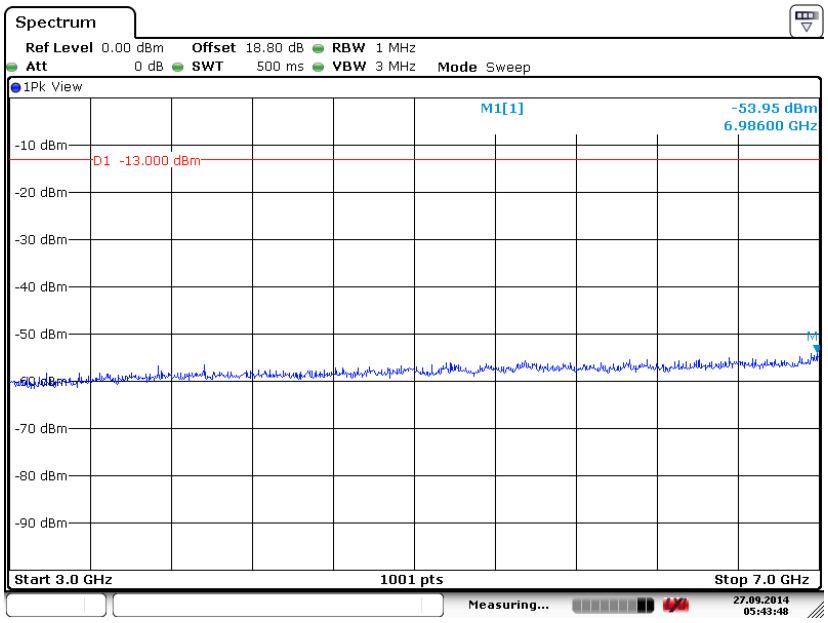
Date: 27.SEP.2014 05:35:54

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



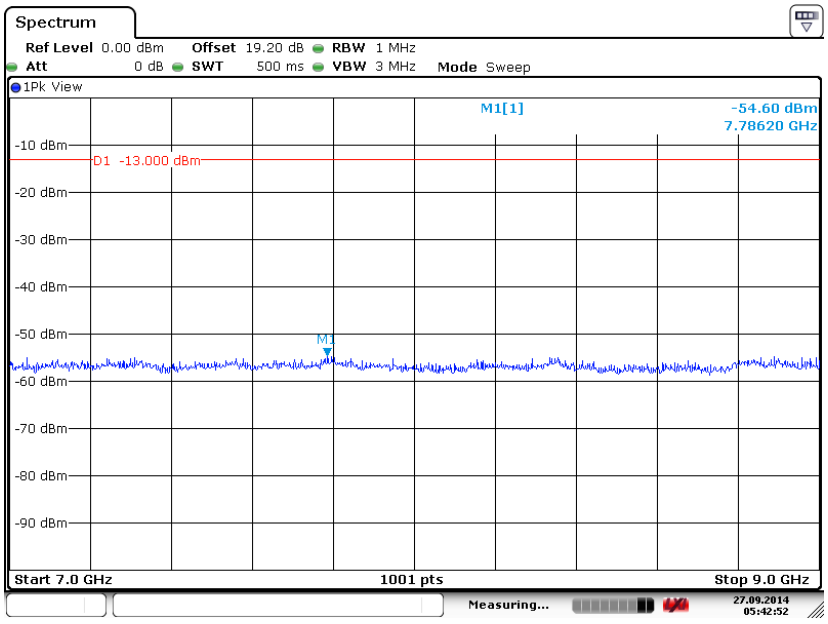
Date: 27.SEP.2014 05:44:35

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 27.SEP.2014 05:43:48

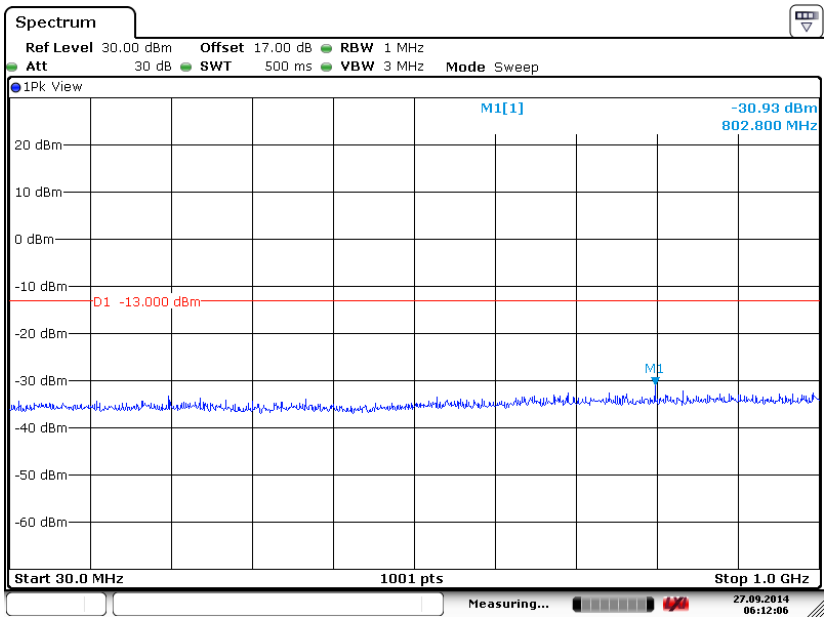
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 27.SEP.2014 05:42:52

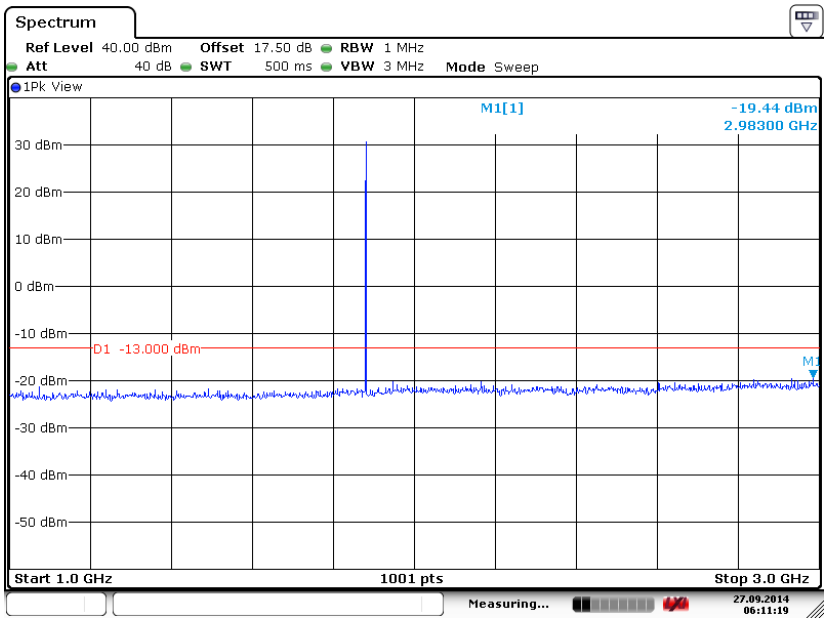
Band :	GSM1900	Channel :	CH661
Test Mode :	GSM Link (GMSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



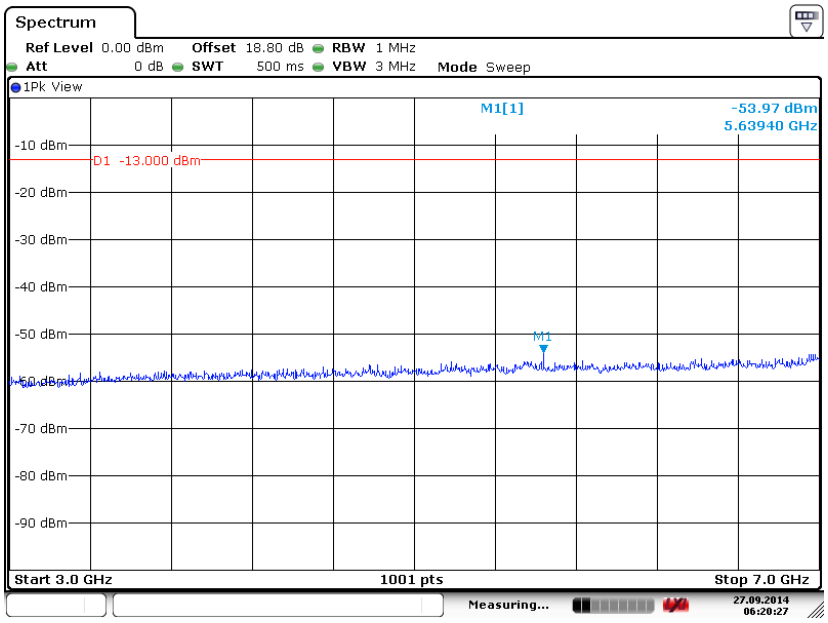
Date: 27.SEP.2014 06:12:06

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



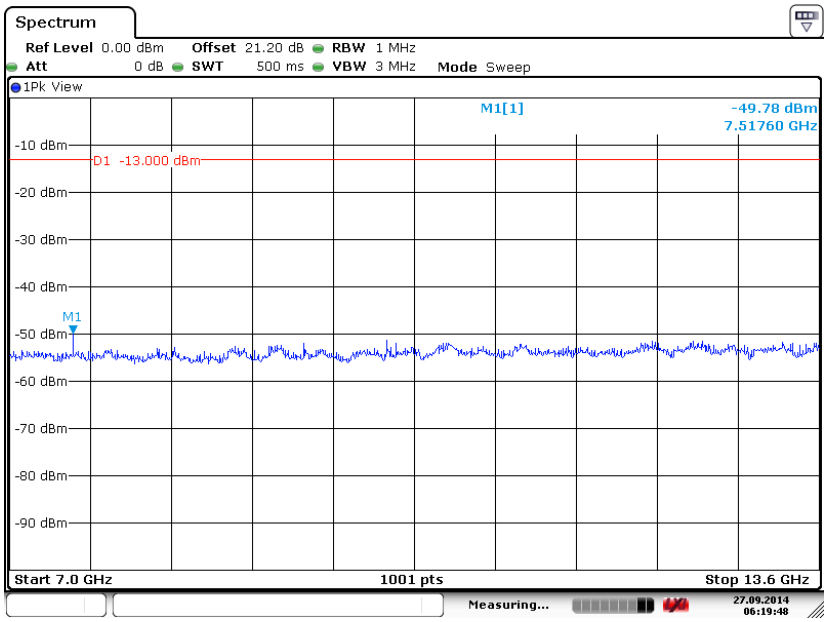
Date: 27.SEP.2014 06:11:19

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



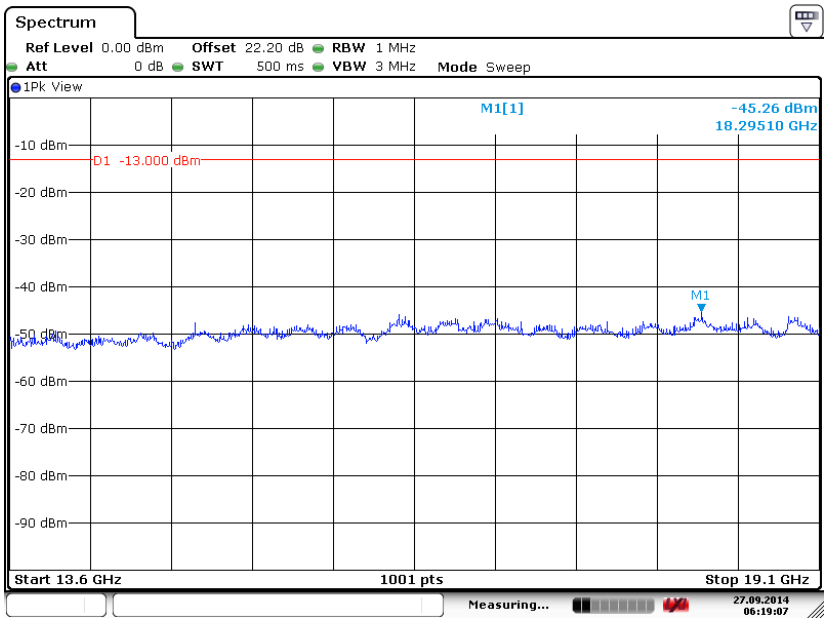
Date: 27.SEP.2014 06:20:27

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 27.SEP.2014 06:19:48

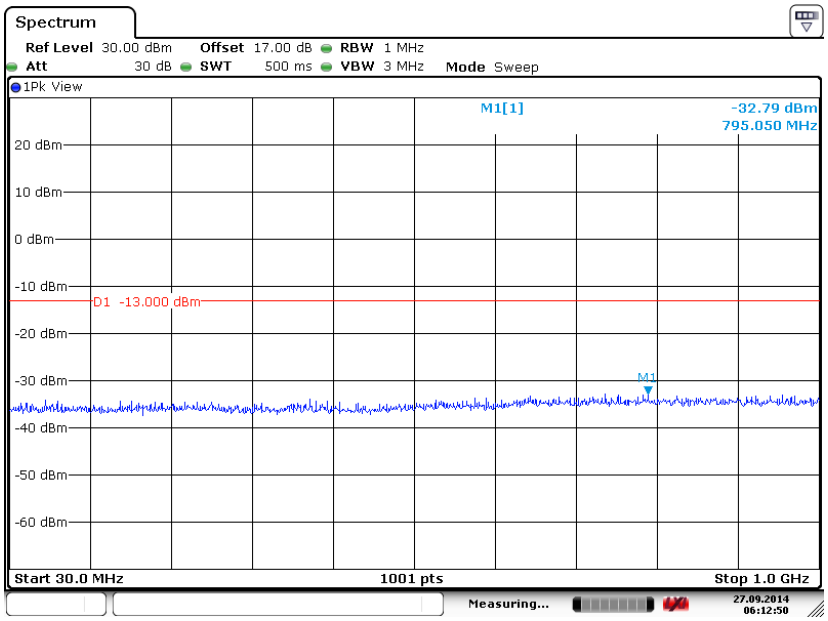
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 27.SEP.2014 06:19:07

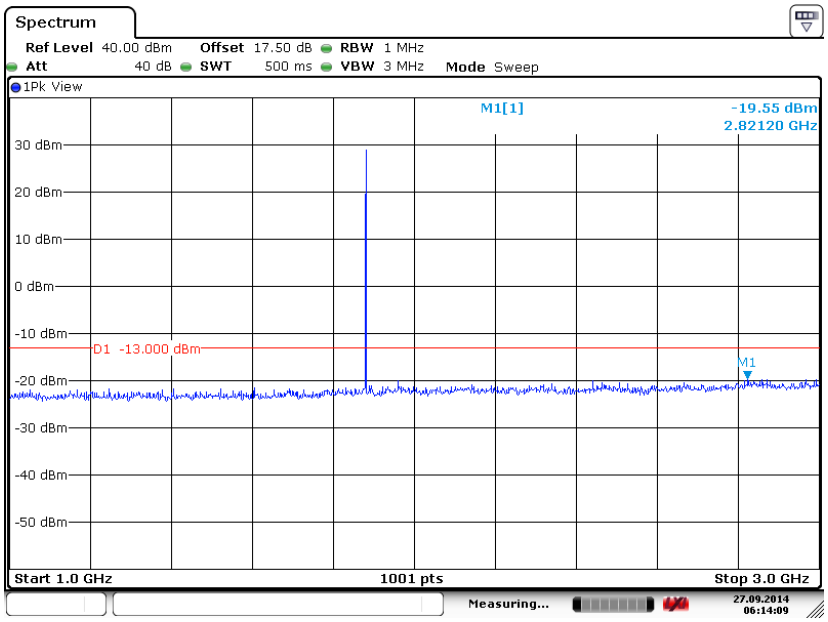
Band :	GSM1900	Channel :	CH661
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



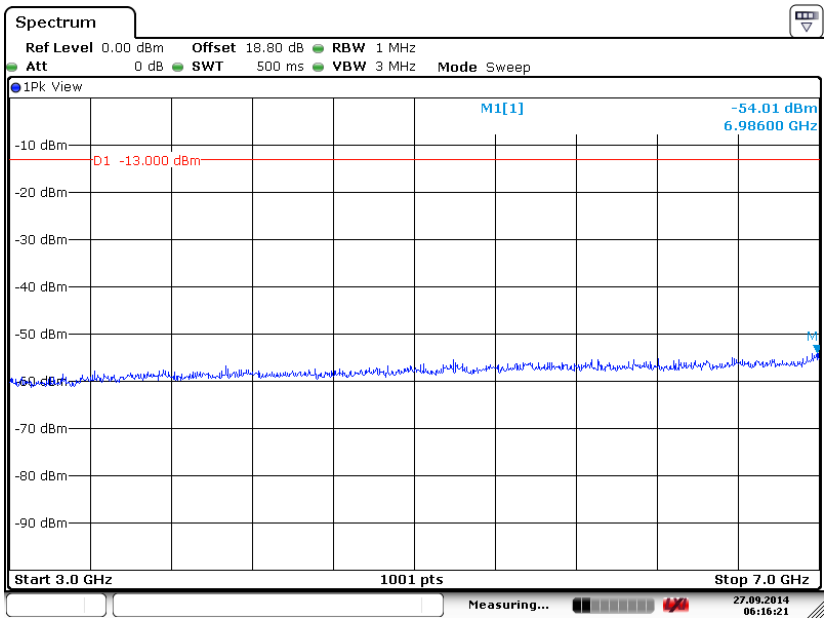
Date: 27.SEP.2014 06:12:50

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



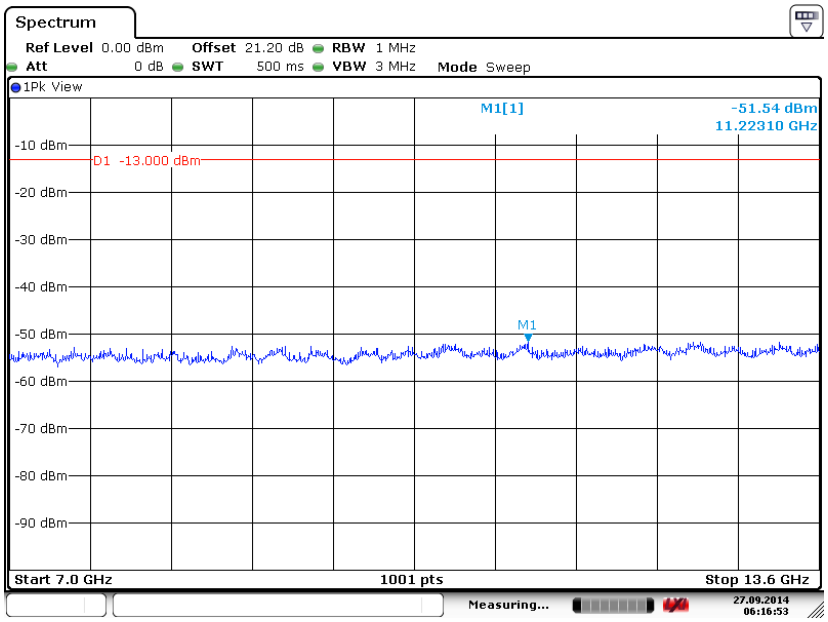
Date: 27.SEP.2014 06:14:09

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



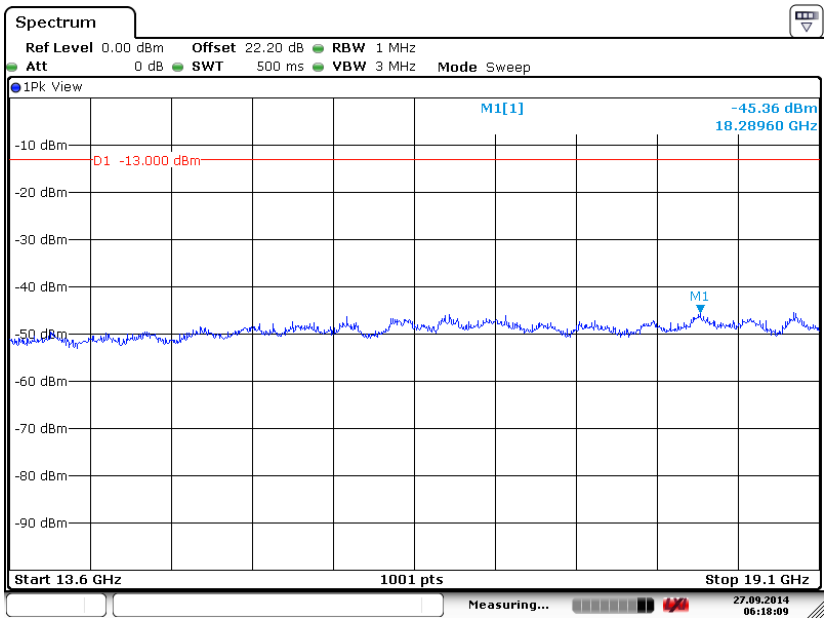
Date: 27.SEP.2014 06:16:21

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 27.SEP.2014 06:16:53

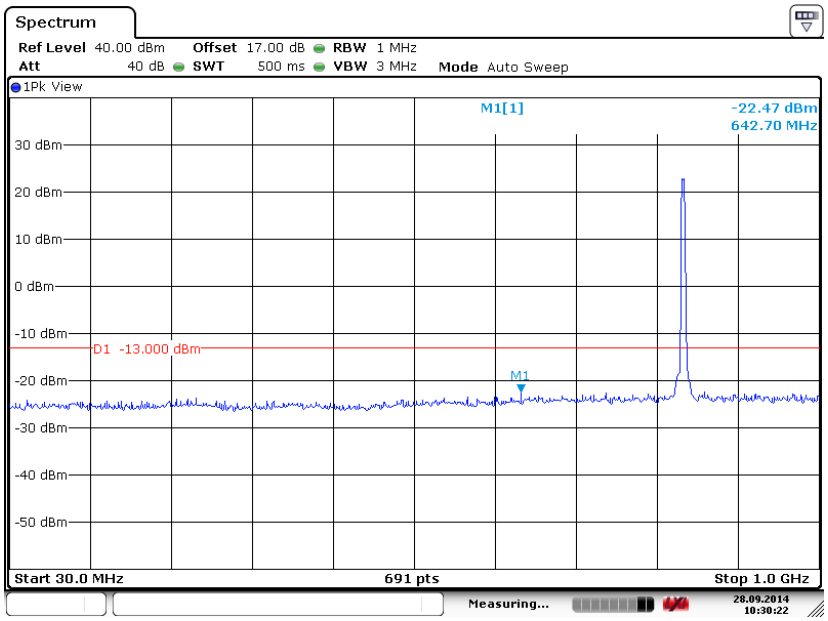
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 27.SEP.2014 06:18:09

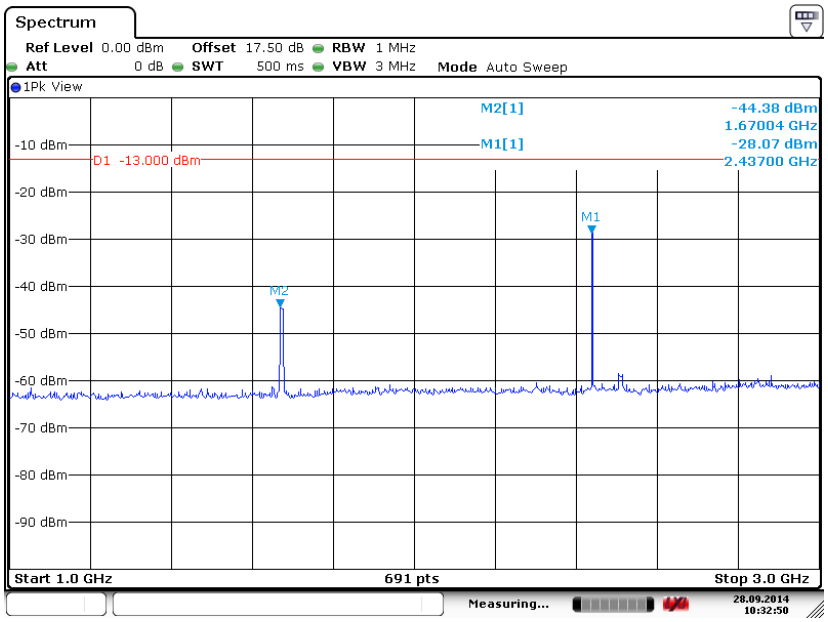
Band :	WCDMA Band V	Channel :	CH4182
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



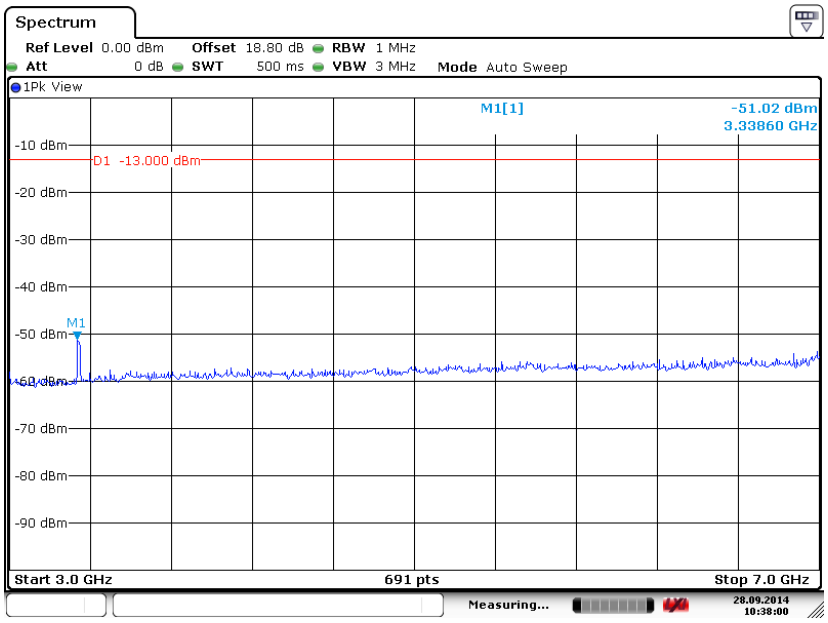
Date: 28.SEP.2014 10:30:23

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



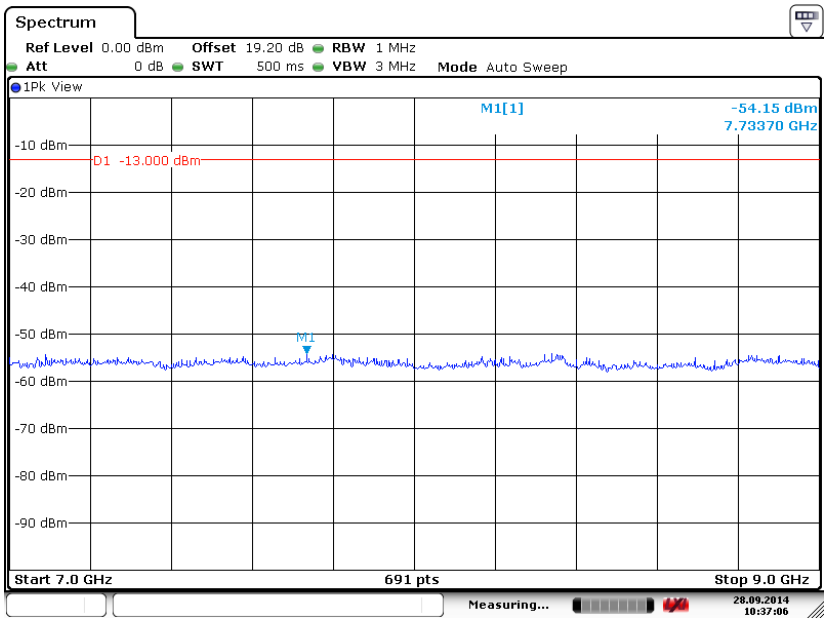
Date: 28.SEP.2014 10:32:50

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 28.SEP.2014 10:38:01

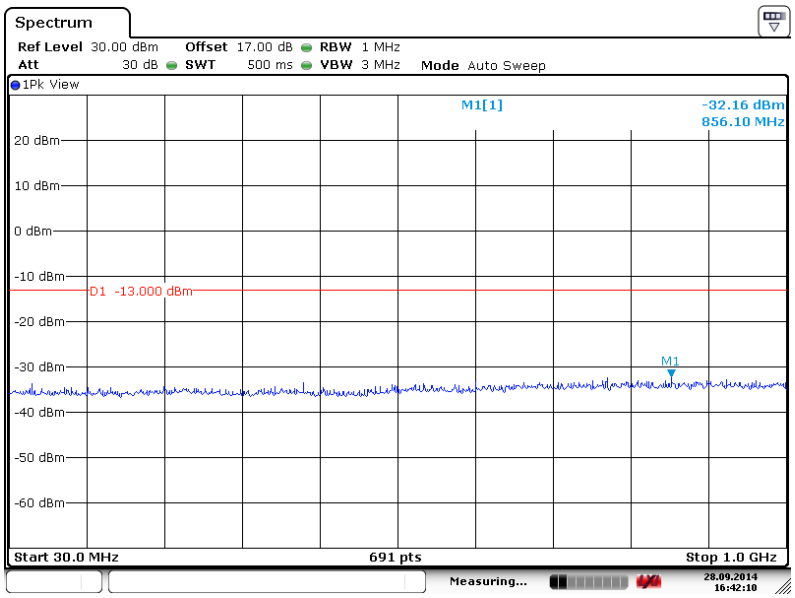
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 28.SEP.2014 10:37:07

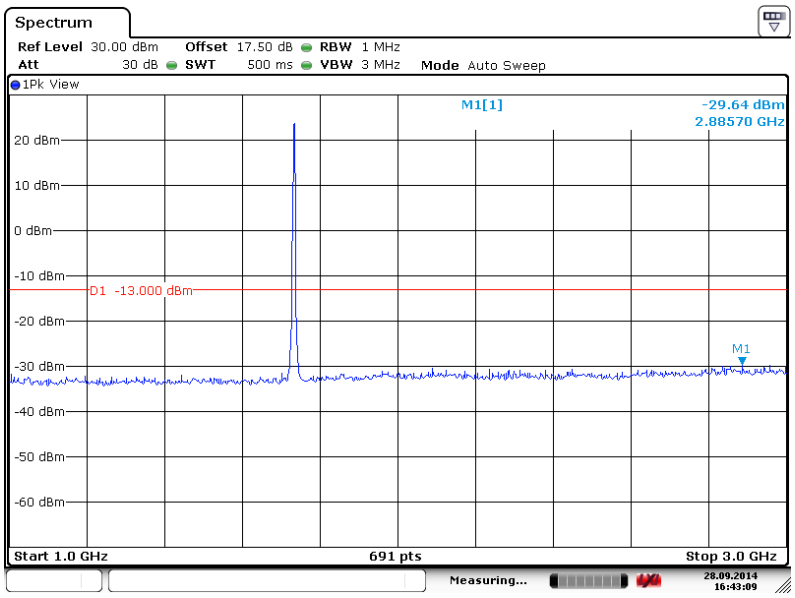
Band :	WCDMA Band IV	Channel :	CH1413
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1732.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



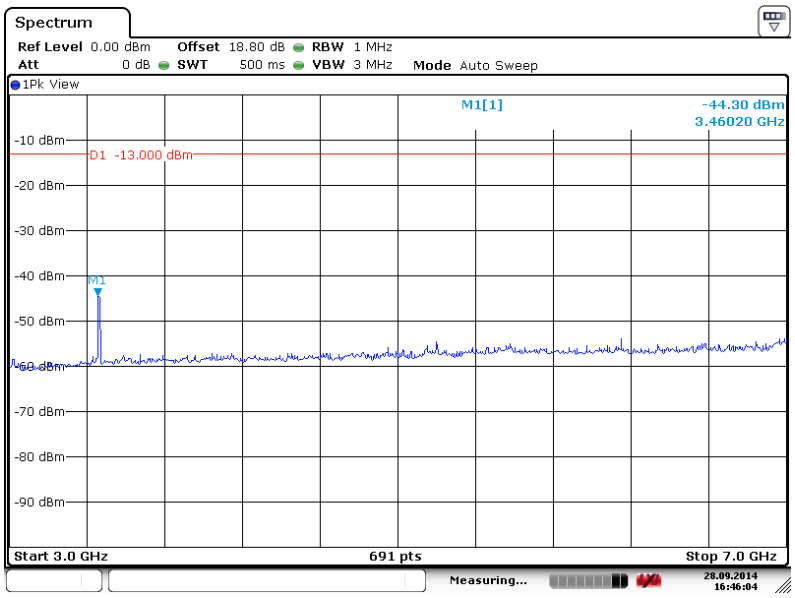
Date: 28.SEP.2014 16:42:11

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



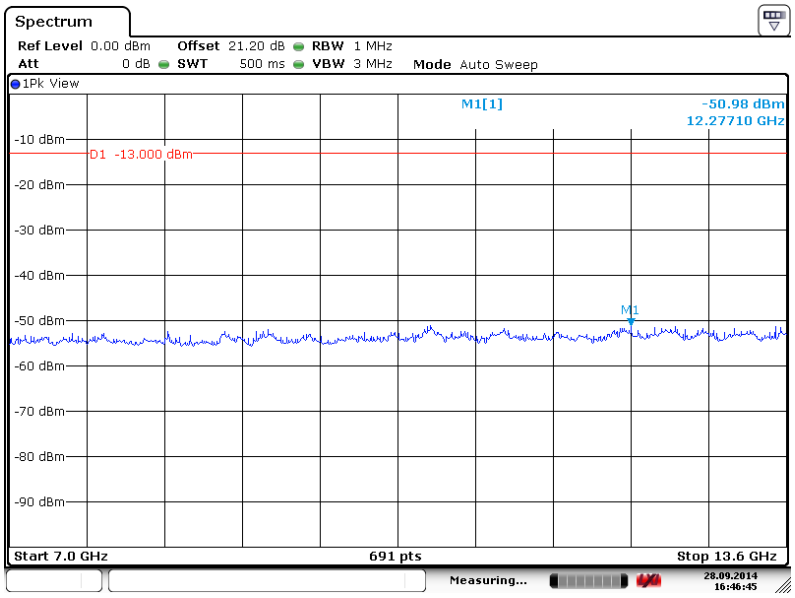
Date: 28.SEP.2014 16:43:09

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



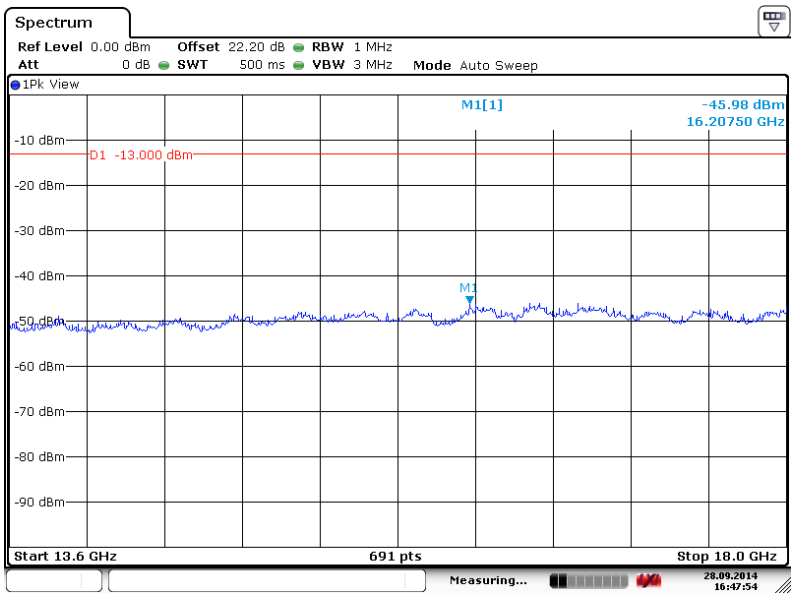
Date: 28.SEP.2014 16:46:05

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 28.SEP.2014 16:46:45

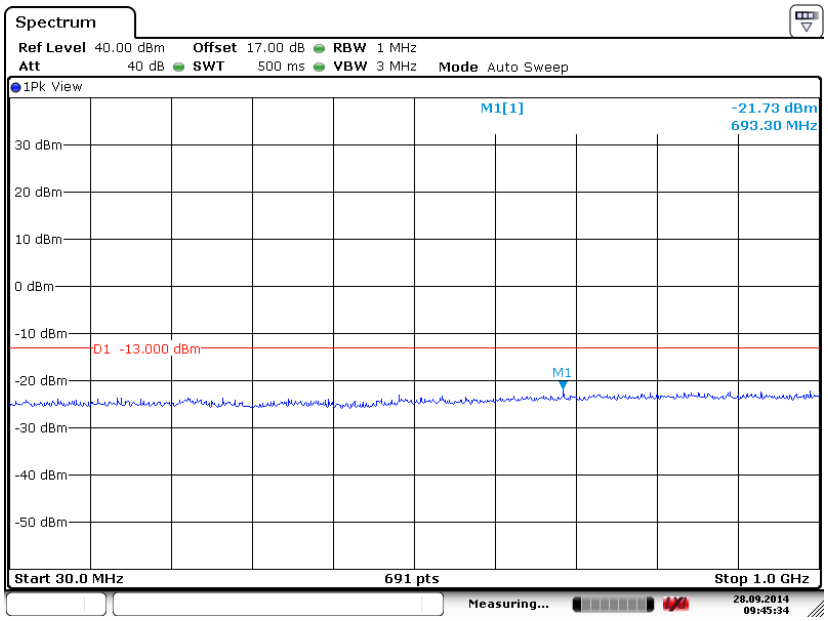
Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz



Date: 28.SEP.2014 16:47:55

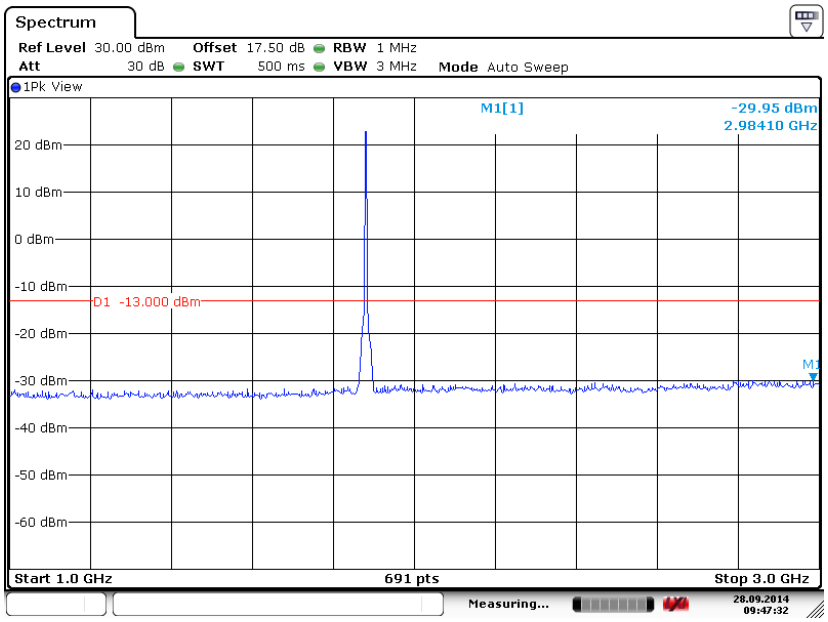
Band :	WCDMA Band II	Channel :	CH9400
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



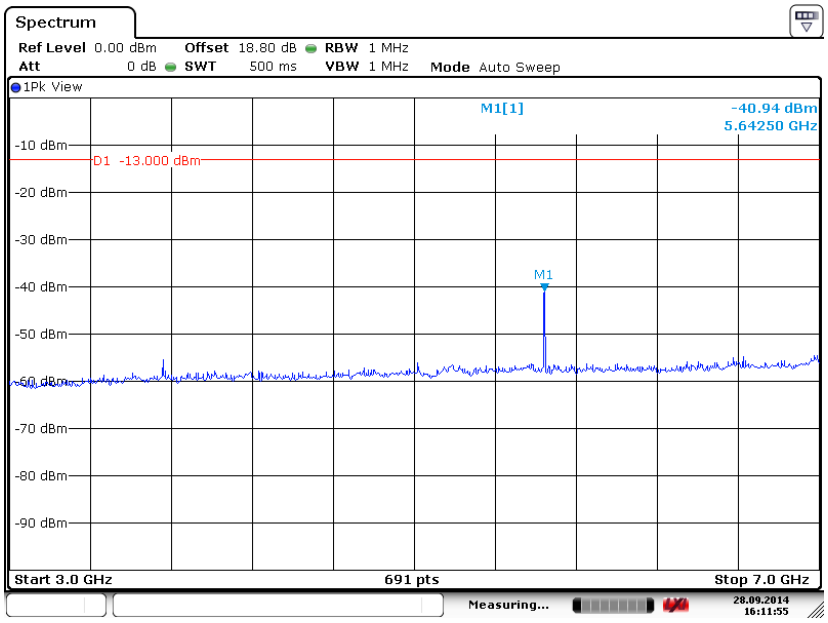
Date: 28.SEP.2014 09:45:35

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



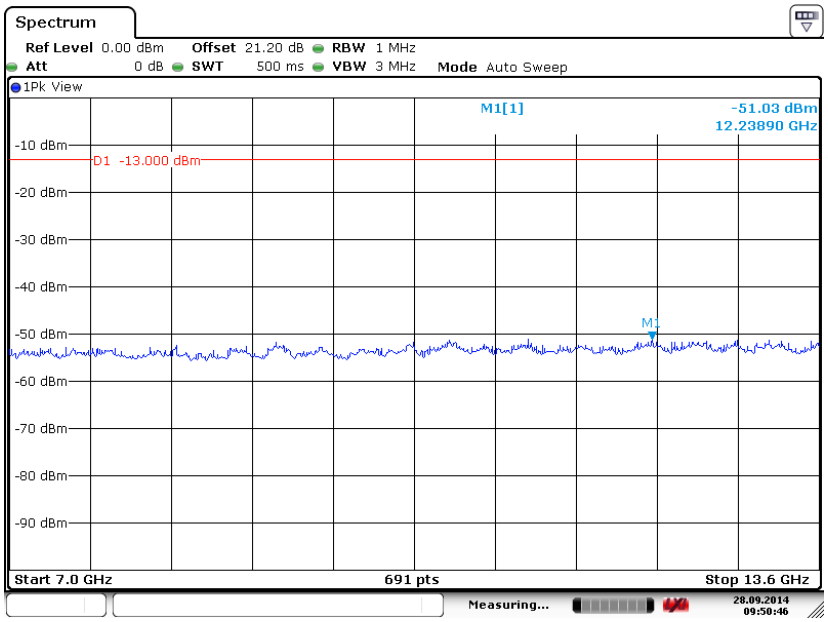
Date: 28.SEP.2014 09:47:33

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



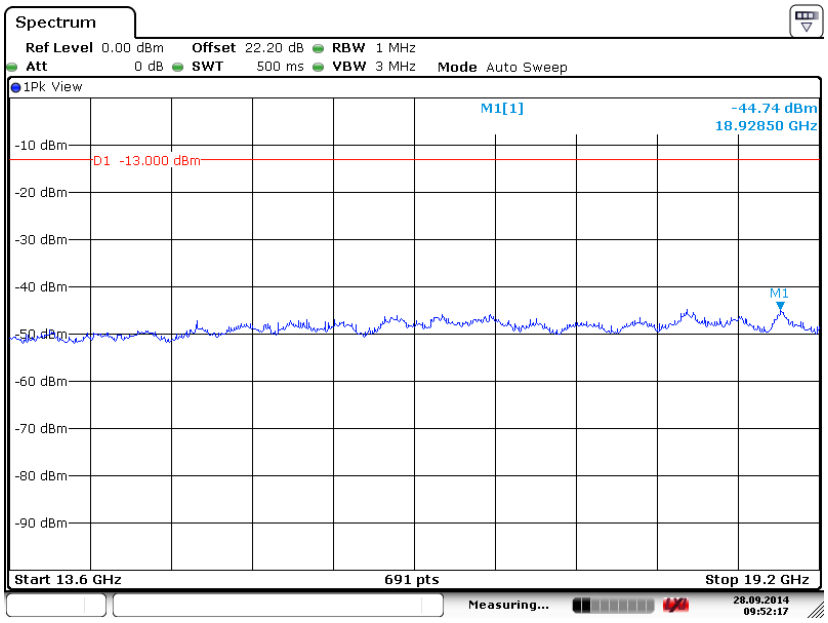
Date: 28.SEP.2014 16:11:55

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 28.SEP.2014 09:50:47

Conducted Spurious Emission Plot between 13.6GHz ~ 19.2GHz



Date: 28.SEP.2014 09:52:18

3.7 Field Strength of Spurious Radiation Measurement

3.7.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.7.2 Measuring Instruments

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

3.7.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

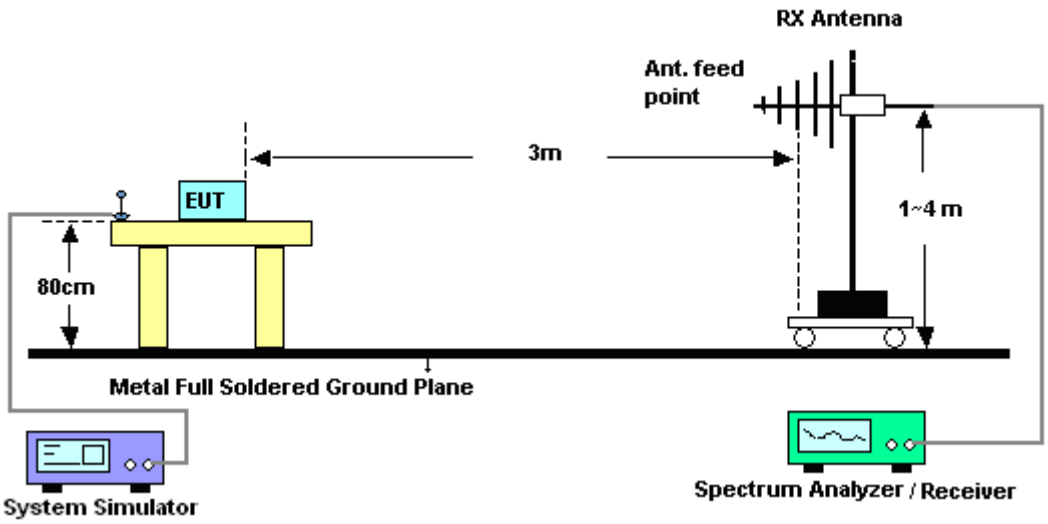
    = P(W) - [43 + 10log(P)] (dB)

    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

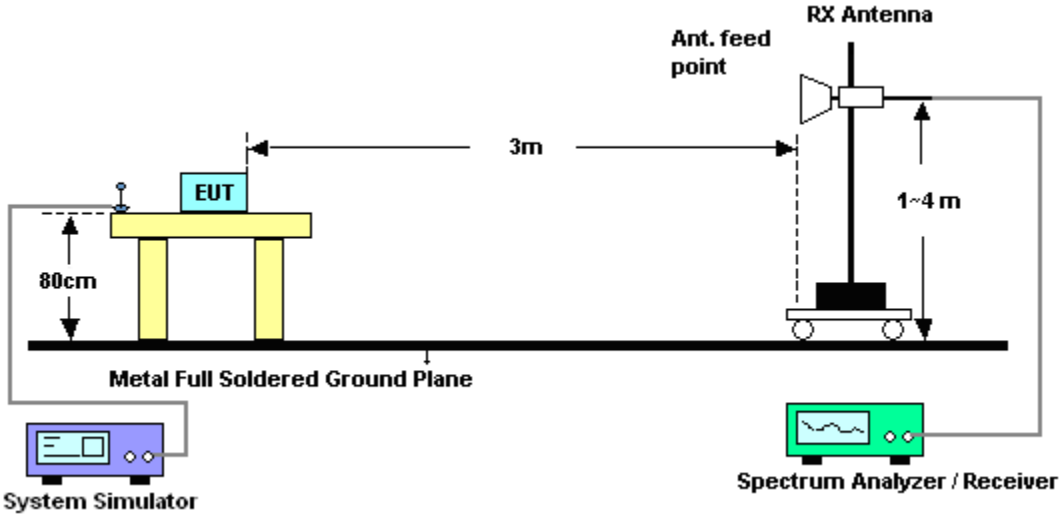
    = -13dBm.

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

Band :	GSM850 for CH128	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1648.4	-54.71	-13	-41.71	-68.15	-57.53	0.73	5.70	H	Pass
2472.6	-46.63	-13	-33.63	-69.59	-48.99	0.91	5.42	H	Pass
3296.8	-60.25	-13	-47.25	-71.12	-64.89	1.07	7.86	H	Pass

Band :	GSM850 for CH128	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1648.4	-57.18	-13	-44.18	-68.33	-60.00	0.73	5.70	V	Pass
2472.6	-48.16	-13	-35.16	-68.93	-50.52	0.91	5.42	V	Pass
3296.8	-58.28	-13	-45.28	-70.46	-62.92	1.07	7.86	V	Pass

Band :	GSM850 for CH189	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1672	-50.84	-13	-37.84	-65.37	-53.81	0.88	6.00	H	Pass
2510	-45.45	-13	-32.45	-68.36	-48.06	1.08	5.84	H	Pass
3346	-60.45	-13	-47.45	-71.05	-64.82	1.14	7.66	H	Pass

▪

Band :	GSM850 for CH189	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1672	-56.99	-13	-43.99	-67.62	-59.96	0.88	6.00	V	Pass
2510	-46.30	-13	-33.30	-67.25	-48.91	1.08	5.84	V	Pass
3346	-59.59	-13	-46.59	-71.42	-63.96	1.14	7.66	V	Pass

▪

.

Band :	GSM850 for CH251	Temperature :	23~25°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1697.6	-53.02	-13	-40.02	-66.91	-56.01	0.75	5.89	H	Pass
2546.4	-43.22	-13	-30.22	-67.18	-45.93	1.12	5.98	H	Pass
3395.2	-60.15	-13	-47.15	-71.35	-64.55	1.25	7.80	H	Pass

.

Band :	GSM850 for CH251	Temperature :	23~25°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1697.6	-57.99	-13	-44.99	-68.97	-60.98	0.75	5.89	V	Pass
2546.4	-49.38	-13	-36.38	-69.90	-52.09	1.12	5.98	V	Pass
3395.2	-58.69	-13	-45.69	-71.12	-63.09	1.25	7.80	V	Pass

Band :	GSM850 for CH128	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1648.4	-54.97	-13	-41.97	-68.41	-57.79	0.73	5.70	H	Pass
2472.6	-46.38	-13	-33.38	-69.40	-48.74	0.91	5.42	H	Pass
3296.8	-59.97	-13	-46.97	-70.84	-64.61	1.07	7.86	H	Pass

Band :	GSM850 for CH128	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1648.4	-57.07	-13	-44.07	-68.22	-59.89	0.73	5.70	V	Pass
2472.6	-49.31	-13	-36.31	-69.76	-51.67	0.91	5.42	V	Pass
3296.8	-58.15	-13	-45.15	-70.33	-62.79	1.07	7.86	V	Pass

Band :	GSM850 for CH189	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1672	-54.42	-13	-41.42	-67.34	-57.39	0.88	6.00	H	Pass
2510	-46.87	-13	-33.87	-69.48	-49.48	1.08	5.84	H	Pass
3346	-59.73	-13	-46.73	-70.33	-64.10	1.14	7.66	H	Pass

Band :	GSM850 for CH189	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1672	-58.30	-13	-45.30	-68.93	-61.27	0.88	6.00	V	Pass
2510	-47.61	-13	-34.61	-68.27	-50.22	1.08	5.84	V	Pass
3346	-58.86	-13	-45.86	-70.69	-63.23	1.14	7.66	V	Pass

Band :	GSM850 for CH251	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1697.6	-55.42	-13	-42.42	-68.69	-58.41	0.75	5.89	H	Pass
2546.4	-46.24	-13	-33.24	-69.39	-48.95	1.12	5.98	H	Pass
3395.2	-59.26	-13	-46.26	-70.46	-63.66	1.25	7.80	H	Pass

Band :	GSM850 for CH251	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1697.6	-57.96	-13	-44.96	-68.94	-60.95	0.75	5.89	V	Pass
2546.4	-49.12	-13	-36.12	-69.74	-51.83	1.12	5.98	V	Pass
3395.2	-58.55	-13	-45.55	-70.98	-62.95	1.25	7.80	V	Pass

Band :	GSM1900 for CH512	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700.4	-61.40	-13	-48.40	-72.95	-68.15	1.2	7.95	H	Pass
5550.6	-56.21	-13	-43.21	-73.60	-64.31	1.5	9.60	H	Pass
7400.8	-53.94	-13	-40.94	-75.52	-64.13	1.7	11.89	H	Pass

▪

Band :	GSM1900 for CH512	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700.4	-58.09	-13	-45.09	-72.52	-64.84	1.2	7.95	V	Pass
5550.6	-57.20	-13	-44.20	-73.68	-65.30	1.5	9.6	V	Pass
7400.8	-53.36	-13	-40.36	-75.25	-63.55	1.7	11.89	V	Pass

▪

Band :	GSM1900 for CH661	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-60.46	-13	-47.46	-72.61	-67.20	1.28	8.02	H	Pass
5640	-55.20	-13	-42.20	-73.19	-63.62	1.58	10.00	H	Pass
7520	-53.18	-13	-40.18	-75.12	-63.50	1.78	12.10	H	Pass

.

Band :	GSM1900 for CH661	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-59.00	-13	-46.00	-74.03	-65.74	1.28	8.02	V	Pass
5640	-55.93	-13	-42.93	-73.01	-64.35	1.58	10	V	Pass
7520	-53.17	-13	-40.17	-75.42	-63.49	1.78	12.1	V	Pass

.

Band :	GSM1900 for CH810	Temperature :	23~25°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819.6	-61.32	-13	-48.32	-72.89	-68.09	1.23	8.00	H	Pass
5729.4	-55.29	-13	-42.29	-73.09	-63.42	1.52	9.65	H	Pass
7639.2	-52.98	-13	-39.98	-75.22	-63.16	1.82	12.00	H	Pass

.

Band :	GSM1900 for CH810	Temperature :	23~25°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819.6	-58.99	-13	-45.99	-73.44	-65.76	1.23	8	V	Pass
5729.4	-56.40	-13	-43.40	-73.29	-64.53	1.52	9.65	V	Pass
7639.2	-52.98	-13	-39.98	-75.53	-63.16	1.82	12	V	Pass

.

Band :	GSM1900 for CH512	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700.4	-60.66	-13	-47.66	-72.21	-67.41	1.2	7.95	H	Pass
5550.6	-56.68	-13	-43.68	-74.07	-64.78	1.5	9.60	H	Pass
7400.8	-53.87	-13	-40.87	-75.45	-64.06	1.7	11.89	H	Pass

Band :	GSM1900 for CH512	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700.4	-59.14	-13	-46.14	-73.57	-65.89	1.2	7.95	V	Pass
5550.6	-57.30	-13	-44.30	-73.78	-65.40	1.5	9.6	V	Pass
7400.8	-53.66	-13	-40.66	-75.55	-63.85	1.7	11.89	V	Pass

Band :	GSM1900 for CH661	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-61.40	-13	-48.40	-73.55	-68.14	1.28	8.02	H	Pass
5640	-55.41	-13	-42.41	-73.40	-63.83	1.58	10.00	H	Pass
7520	-53.57	-13	-40.57	-75.51	-63.89	1.78	12.10	H	Pass

Band :	GSM1900 for CH661	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-59.05	-13	-46.05	-74.08	-65.79	1.28	8.02	V	Pass
5640	-55.53	-13	-42.53	-72.61	-63.95	1.58	10	V	Pass
7520	-52.64	-13	-39.64	-74.89	-62.96	1.78	12.1	V	Pass

Band :	GSM1900 for CH810	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819.6	-61.42	-13	-48.42	-72.99	-68.19	1.23	8.00	H	Pass
5729.4	-55.54	-13	-42.54	-73.34	-63.67	1.52	9.65	H	Pass
7639.2	-53.51	-13	-40.51	-75.75	-63.69	1.82	12.00	H	Pass

Band :	GSM1900 for CH810	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819.6	-58.83	-13	-45.83	-73.28	-65.60	1.23	8	V	Pass
5729.4	-55.74	-13	-42.74	-72.63	-63.87	1.52	9.65	V	Pass
7639.2	-53.05	-13	-40.05	-75.6	-63.23	1.82	12	V	Pass

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Band :	WCDMA Band V for CH4132	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1652.8	-37.69	-13	-24.69	-55.29	-40.68	0.81	5.95	H	Pass
2479.2	-45.28	-13	-32.28	-67.77	-47.73	1.2	5.80	H	Pass
3305.6	-60.26	-13	-47.26	-70.86	-64.56	1.25	7.70	H	Pass

▪

Band :	WCDMA Band V for CH4132	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1652.8	-45.49	-13	-32.49	-59.69	-48.48	0.81	5.95	V	Pass
2479.2	-48.56	-13	-35.56	-68.49	-51.01	1.20	5.80	V	Pass
3305.6	-59.23	-13	-46.23	-71.06	-63.53	1.25	7.70	V	Pass

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Band :	WCDMA Band V for CH4182	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1672	-42.50	-13	-29.50	-58.81	-45.47	0.88	6.00	H	Pass
2510	-47.44	-13	-34.44	-69.81	-50.05	1.08	5.84	H	Pass
3346	-59.88	-13	-46.88	-70.48	-64.25	1.14	7.66	H	Pass

▪

Band :	WCDMA Band V for CH4182	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1672	-50.00	-13	-37.00	-62.62	-52.97	0.88	6.00	V	Pass
2510	-48.79	-13	-35.79	-69.11	-51.40	1.08	5.84	V	Pass
3346	-59.43	-13	-46.43	-71.26	-63.80	1.14	7.66	V	Pass

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Band :	WCDMA Band V for CH4233	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1693.2	-41.84	-13	-28.84	-58.84	-45.17	0.82	6.30	H	Pass
2539.8	-47.46	-13	-34.46	-69.82	-50.07	1.08	5.84	H	Pass
3386.4	-59.96	-13	-46.96	-70.85	-64.08	1.23	7.50	H	Pass

▪

Band :	WCDMA Band V for CH4233	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

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
1693.2	-47.52	-13	-34.52	-60.99	-50.85	0.82	6.30	V	Pass
2539.8	-49.60	-13	-36.60	-69.65	-52.21	1.08	5.84	V	Pass
3386.4	-58.78	-13	-45.78	-70.90	-62.90	1.23	7.50	V	Pass

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.

Band :	WCDMA Band IV for CH1312	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3424.8	-59.24	-13	-46.24	-71.65	-66.14	1.4	8.30	H	Pass
5137.2	-54.74	-13	-41.74	-73.18	-63.39	1.65	10.30	H	Pass
6849.6	-52.64	-13	-39.64	-74.88	-63.19	1.85	12.40	H	Pass

Band :	WCDMA Band IV for CH1312	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3424.8	-56.21	-13	-43.21	-71.5	-63.11	1.4	8.3	V	Pass
5137.2	-55.56	-13	-42.56	-73.09	-64.21	1.65	10.3	V	Pass
6849.6	-51.56	-13	-38.56	-74.11	-62.11	1.85	12.4	V	Pass

.

Band :	WCDMA Band IV for CH1413	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3465	-58.70	-13	-45.70	-71.11	-65.60	1.4	8.30	H	Pass
5197.5	-54.89	-13	-41.89	-73.33	-63.54	1.65	10.30	H	Pass
6930	-52.97	-13	-39.97	-75.21	-63.52	1.85	12.40	H	Pass

.

Band :	WCDMA Band IV for CH1413	Temperature :	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%
Test Engineer :	Gavin Zhang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3465	-54.98	-13	-41.98	-70.27	-61.88	1.4	8.3	V	Pass
5197.5	-55.97	-13	-42.97	-73.5	-64.62	1.65	10.3	V	Pass
6930	-52.40	-13	-39.40	-74.95	-62.95	1.85	12.4	V	Pass

Band :	WCDMA Band IV for CH1513	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3505.2	-59.24	-13	-46.24	-71.65	-66.14	1.4	8.30	H	Pass
5257.8	-54.94	-13	-41.94	-73.38	-63.59	1.65	10.30	H	Pass
7010.4	-52.87	-13	-39.87	-75.11	-63.42	1.85	12.40	H	Pass

Band :	WCDMA Band IV for CH1513	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3505.2	-55.50	-13	-42.50	-70.79	-62.40	1.4	8.3	V	Pass
5257.8	-56.24	-13	-43.24	-73.77	-64.89	1.65	10.3	V	Pass
7010.4	-52.77	-13	-39.77	-75.32	-63.32	1.85	12.4	V	Pass

Band :	WCDMA Band II for CH9262	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3704.8	-61.32	-13	-48.32	-73.18	-68.17	1.35	8.20	H	Pass
5557.2	-55.74	-13	-42.74	-73.47	-64.35	1.65	10.26	H	Pass
7409.6	-53.08	-13	-40.08	-75.52	-63.42	1.82	12.16	H	Pass

Band :	WCDMA Band II for CH9262	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3704.8	-58.50	-13	-45.50	-73.24	-65.35	1.35	8.2	V	Pass
5557.2	-56.96	-13	-43.96	-73.78	-65.57	1.65	10.26	V	Pass
7409.6	-52.74	-13	-39.74	-75.49	-63.08	1.82	12.16	V	Pass

Band :	WCDMA Band II for CH9400	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-60.52	-13	-47.52	-72.67	-67.26	1.28	8.02	H	Pass
5640	-55.34	-13	-42.34	-73.33	-63.76	1.58	10.00	H	Pass
7520	-54.00	-13	-41.00	-75.94	-64.32	1.78	12.10	H	Pass

.

Band :	WCDMA Band II for CH9400	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-58.73	-13	-45.73	-73.76	-65.47	1.28	8.02	V	Pass
5640	-56.16	-13	-43.16	-73.24	-64.58	1.58	10	V	Pass
7520	-53.44	-13	-40.44	-75.69	-63.76	1.78	12.1	V	Pass

Band :	WCDMA Band II for CH9538	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3815.2	-61.36	-13	-48.36	-73.51	-68.10	1.28	8.02	H	Pass
5722.8	-55.42	-13	-42.42	-73.41	-63.84	1.58	10.00	H	Pass
7630.4	-53.63	-13	-40.63	-75.57	-63.95	1.78	12.10	H	Pass

Band :	WCDMA Band II for CH9538	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	48~52%
Test Engineer :	Gavin Zhang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3815.2	-57.75	-13	-44.75	-72.78	-64.49	1.28	8.02	V	Pass
5722.8	-56.40	-13	-43.40	-73.48	-64.82	1.58	10	V	Pass
7630.4	-52.92	-13	-39.92	-75.17	-63.24	1.78	12.1	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.8.2 Measuring Instruments

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

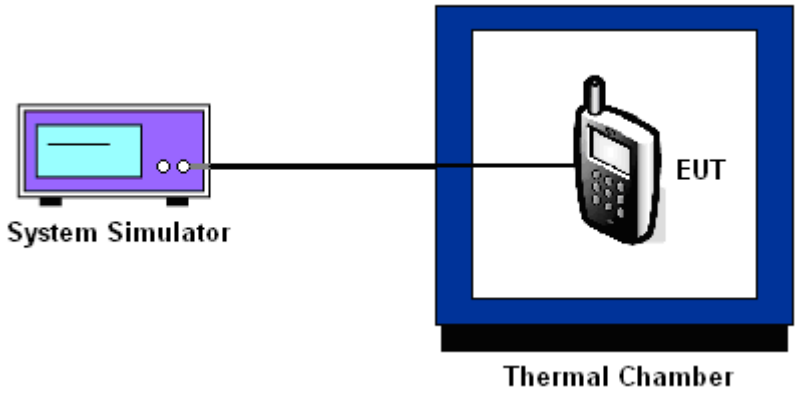
3.8.3 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. 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.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.8.4 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

Band :	GSM 850	Channel :	189
Limit (ppm) :	2.5	Frequency :	836.4 MHz

Temperature (°C)	GSM		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
50	-18	0.0084	-12	0.0072	PASS
40	-21	0.0048	-15	0.0036	
30	-25	0.0000	-17	0.0012	
20(Ref.)	-25	0.0000	-18	0.0000	
10	-27	0.0024	-19	0.0012	
0	-28	0.0036	-21	0.0036	
-10	-28	0.0036	-22	0.0048	
-20	-29	0.0048	-23	0.0060	
-30	-29	0.0048	-25	0.0084	

Band :	GSM 1900	Channel :	661
Limit (ppm) :	within authorized band	Frequency :	1880.0 MHz

Temperature (°C)	GSM		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
50	-22	0.0021	-24	0.0027	PASS
40	-24	0.0011	-22	0.0016	
30	-25	0.0005	-20	0.0005	
20(Ref.)	-26	0.0000	-19	0.0000	
10	-29	0.0016	-21	0.0011	
0	-32	0.0032	-23	0.0021	
-10	-35	0.0048	-26	0.0037	
-20	-36	0.0053	-29	0.0053	
-30	-39	0.0069	-31	0.0064	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Band :	WCDMA Band V	Channel :	4182
Limit (ppm) :	2.5	Frequency :	836.4 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	3	0.0000	PASS
40	-2	0.0060	
30	3	0.0000	
20(Ref.)	3	0.0000	
10	-2	0.0060	
0	3	0.0000	
-10	2	0.0012	
-20	-2	0.0060	
-30	-3	0.0072	

Band :	WCDMA Band IV	Channel :	1413
Limit (ppm) :	within authorized band	Frequency :	1732.6 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	11	0.0012	PASS
40	10	0.0006	
30	9	0.0000	
20(Ref.)	9	0.0000	
10	9	0.0000	
0	8	0.0006	
-10	9	0.0000	
-20	8	0.0006	
-30	7	0.0012	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Band :	WCDMA Band II	Channel :	9400
Limit (ppm) :	within authorized band	Frequency :	1880.0 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	-12	0.0005	PASS
40	-11	0.0000	
30	-12	0.0005	
20(Ref.)	-11	0.0000	
10	-9	0.0011	
0	-10	0.0005	
-10	-10	0.0005	
-20	-11	0.0000	
-30	-11	0.0000	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

3.8.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GSM	BEP	-22	0.0036	2.5	PASS
		3.8	-25	0.0000		
		4.2	-24	0.0012		
	EDGE class 8	BEP	-16	0.0024		
		3.8	-17	0.0012		
		4.2	-18	0.0000		
GSM 1900 CH661	GSM	BEP	-22	0.0021	(Note 3.)	
		3.8	-26	0.0000		
		4.2	-24	0.0011		
	EDGE class 8	BEP	-20	0.0005		
		3.8	-19	0.0000		
		4.2	-18	0.0005		
WCDMA Band V CH4182	RMC 12.2Kbps	BEP	-2	0.0060	2.5	
		3.8	3	0.0000		
		4.2	3	0.0000		
WCDMA Band IV CH1413	RMC 12.2Kbps	BEP	7	0.0012	(Note 3.)	
		3.8	8	0.0006		
		4.2	9	0.0000		
WCDMA Band II CH9400	RMC 12.2Kbps	BEP	-10	0.0005	(Note 3.)	
		3.8	-11	0.0000		
		4.2	-12	0.0005		

Note:

1. Normal Voltage = 3.8V.
2. Battery End Point (BEP) = 3.6 V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Mar. 03, 2014	Sep. 27, 2014~ Nov. 07, 2014	Mar. 02, 2015	Conducted (TH01-SZ)
Thermal Chamber	Hongzhan	LP-150U	HD20120425	-40℃~150℃	Feb. 21, 2014	Sep. 27, 2014~ Nov. 07, 2014	Feb. 20, 2015	Conducted (TH01-SZ)
ESCIO TEST Receiver	R&S	ESCI	100724	9kHz~3GHz	Feb. 21, 2014	Oct. 25, 2014~ Oct 28, 2014	Feb. 20, 2015	Radiation (03CH01-SZ)
Spectrum Analyzer	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2014	Oct. 25, 2014~ Oct 28, 2014	May 25, 2015	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 09, 2014	Oct. 25, 2014~ Oct 28, 2014	May 08, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TESEQ	CBL 6112D	37877	30MHz~2GHz	Oct. 15, 2014	Oct. 25, 2014~ Oct 28, 2014	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Oct. 25, 2014~ Oct 28, 2014	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridged Horn Antenna	COM-POWER	AH-840	101073	18GHz~40GHz	Jun. 09, 2014	Oct. 25, 2014~ Oct 28, 2014	Jun. 08,2015	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz	Feb. 21, 2014	Oct. 25, 2014~ Oct 28, 2014	Feb. 20, 2015	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 08, 2014	Oct. 25, 2014~ Oct 28, 2014	May 07, 2015	Radiation (03CH01-SZ)
AC Source(AVR)	Chroma	61601	616010001985	100Vac~250Vac	Mar. 25, 2014	Oct. 25, 2014~ Oct 28, 2014	Mar. 24, 2015	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0~360 degree	NCR	Oct. 25, 2014~ Oct 28, 2014	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m~4 m	NCR	Oct. 25, 2014~ Oct 28, 2014	NCR	Radiation (03CH01-SZ)
Spectrum Analyzer	R&S	FSP 7	100819	9kHz~7GHz	May 04, 2014	Nov. 12, 2014	May 03, 2015	ERP/EIRP (OTA01-KS)
Quad-Ridged Horn	ETS-Lindgren	3164-08	00102954	700MHz~10000MHz	N/A	Nov. 12, 2014	N/A	ERP/EIRP (OTA01-SZ)
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00108147	N/A	N/A	Nov. 12, 2014	N/A	ERP/EIRP (OTA01-SZ)
Switch Control Mainframe	Agilent	3499A	MY42005451	N/A	N/A	Nov. 12, 2014	N/A	ERP/EIRP (OTA01-SZ)

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))	**3.9**