

FCC RF Test Report

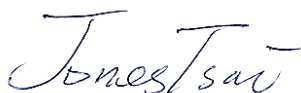
APPLICANT : ZTE CORPORATION
EQUIPMENT : LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
BRAND NAME : ZTE
MODEL NAME : Z970
FCC ID : SRQ-Z970
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Apr. 04, 2014 and testing was completed on Jun. 14, 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



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	7
1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator	7
1.7 Testing Location	8
1.8 Applicable Standards	9
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	10
2.1 Test Mode.....	10
2.2 Connection Diagram of Test System	12
2.3 Support Unit used in test configuration	12
2.4 Measurement Results Explanation Example	13
3 TEST RESULT.....	14
3.1 Conducted Output Power Measurement.....	14
3.2 Peak-to-Average Ratio	16
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.....	71
3.7 Field Strength of Spurious Radiation Measurement	90
3.8 Frequency Stability Measurement.....	99
4 LIST OF MEASURING EQUIPMENT	105
5 UNCERTAINTY OF EVALUATION	106
APPENDIX A. SETUP PHOTOGRAPHS	

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG440414A	Rev. 01	Initial issue of report	Jul. 22, 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) §27.50(d)(5)	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(g)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a) §27.53(g)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a) §27.53(g)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 18.29 dB at 9400.000 MHz
3.8	§2.1055 §22.355 §24.235 §27.54	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

1 General Description

1.1 Applicant

ZTE CORPORATION

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

1.2 Manufacturer

ZTE CORPORATION

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

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z970
FCC ID	SRQ-Z970
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+(Downlink Only)/ DC-HSDPA/LTE/WLAN 2.4GHz 802.11b/g/n HT20/HT40/ WLAN 5GHz 802.11a/n HT20/HT40/ WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/ Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
HW Version	wwdB
SW Version	Z970V1.0.0B01
EUT Stage	Identical Prototype

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

1.4 Product Specification 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 : 32.67 dBm GSM1900 : 29.31 dBm WCDMA Band V : 24.68 dBm WCDMA Band IV : 23.41 dBm WCDMA Band II : 23.76 dBm
Antenna Type	PIFA Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: QPSK (Uplink) HSDPA/ DC-HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM (Downlink Only) DC-HSDPA: 64QAM

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 GPRS class 8	GMSK	0.0355	0.03 ppm	246KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.0085	0.02 ppm	246KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.0069	0.01 ppm	4M18F9W
Part 24	GSM1900 GSM	GMSK	1.0972	0.03 ppm	246KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.3875	0.03 ppm	245KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.3106	0.01 ppm	4M17F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.2244	0.01 ppm	4M15F9W

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	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	

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	FCC Registration No.
	03CH07-HY	TW1022

Note: The test site complies with ANSI C63.4 2003 requirement.

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 v02r01

Remark:

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

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes with accessories and standalone 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.

Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	■ GPRS class 8 Link ■ EDGE class 8 Link	■ GPRS class 8 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,

EDGE multi-slot class 8 mode for 8PSK modulation,

RMC 12.2Kbps mode for WCDMA band V,

RMC 12.2Kbps mode for WCDMA band II,

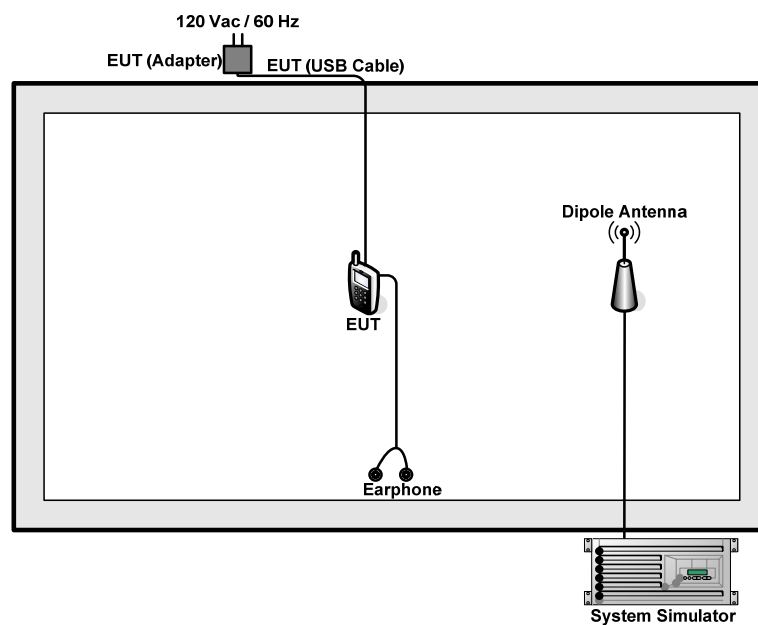
RMC 12.2Kbps mode for WCDMA band IV, only these modes were used for all tests.

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	32.66	32.64	32.61	29.31	29.30	29.22
GPRS class 8	32.67	32.65	32.62	29.29	29.29	29.20
GPRS class 10	29.37	29.31	29.28	27.04	26.99	26.95
GPRS class 11	27.49	27.35	27.26	25.24	25.20	25.18
GPRS class 12	26.38	26.32	26.25	23.91	23.90	23.88
EGPRS class 8	27.52	27.46	27.45	26.11	25.98	25.97
EGPRS class 10	25.98	25.94	25.89	24.56	24.47	24.45
EGPRS class 11	24.82	24.77	24.75	23.51	23.50	23.48
EGPRS class 12	23.72	23.69	23.67	21.48	21.43	21.42

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	24.67	24.61	24.67	23.75	23.68	23.65	23.37	23.33	23.40
RMC 12.2K	24.67	24.63	24.68	23.76	23.69	23.67	23.37	23.34	23.41
HSDPA Subtest-1	23.16	23.34	23.39	23.07	23.18	22.99	23.12	23.06	23.02
HSDPA Subtest-2	23.19	23.33	23.34	22.97	23.16	22.98	23.15	23.16	23.11
HSDPA Subtest-3	22.77	22.49	22.94	22.52	22.65	22.57	22.70	22.64	22.61
HSDPA Subtest-4	22.81	22.88	22.99	22.48	22.64	22.57	22.66	22.62	22.59
DC-HSDPA Subtest-1	23.02	23.22	23.27	22.95	23.04	22.85	23.02	22.94	22.90
DC-HSDPA Subtest-2	23.07	23.10	23.18	22.81	23.01	22.86	23.03	22.91	22.92
DC-HSDPA Subtest-3	22.65	22.62	22.82	22.39	22.53	22.41	22.53	22.52	22.43
DC-HSDPA Subtest-4	22.61	22.76	22.85	22.36	22.52	22.45	22.54	22.50	22.47
HSUPA Subtest-1	22.54	22.46	23.12	22.29	23.07	22.20	22.71	22.82	22.83
HSUPA Subtest-2	22.03	22.07	21.70	21.81	21.56	21.61	21.43	21.36	21.54
HSUPA Subtest-3	22.10	22.25	21.45	21.39	21.22	21.22	21.60	21.00	21.74
HSUPA Subtest-4	22.04	22.27	22.58	21.95	22.63	21.79	21.68	22.26	21.82
HSUPA Subtest-5	22.72	22.72	22.69	22.48	22.57	22.38	22.20	22.35	22.34

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	TOPWORD	3303DR	N/A	N/A	Unshielded, 1.8 m
3.	Earphone	Lenovo	SH100	N/A	N/A	N/A

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.

Example:

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 dB and a 10dB attenuator.

$$\begin{aligned}\text{Offset (dB)} &= \text{RF cable loss (dB)} + \text{attenuator factor (dB)} \\ &= 7 + 10 = 17 \text{ (dB)}\end{aligned}$$

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.

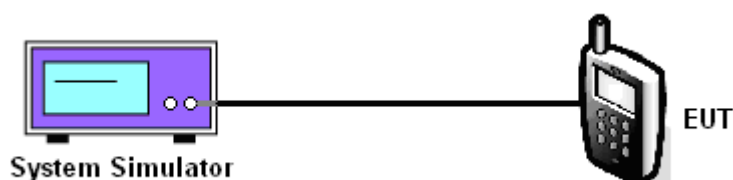
3.1.2 Measuring Instruments

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 (GPRS class 8)			GSM850 (EDGE class 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6
Conducted Power (dBm)	32.67	32.64	32.62	27.52	27.46	27.45	24.67	24.63	24.68
Conducted Power (Watts)	1.85	1.84	1.83	0.56	0.56	0.56	0.29	0.29	0.29

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
Conducted Power (dBm)	29.31	29.30	29.22	26.11	25.98	25.97	23.76	23.69	23.67
Conducted Power (Watts)	0.85	0.85	0.84	0.41	0.40	0.40	0.24	0.23	0.23

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)	23.37	23.34	23.41
Conducted Power (Watts)	0.22	0.22	0.22

Note: Maximum burst average power for GSM, and maximum average power for WCDMA.

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.

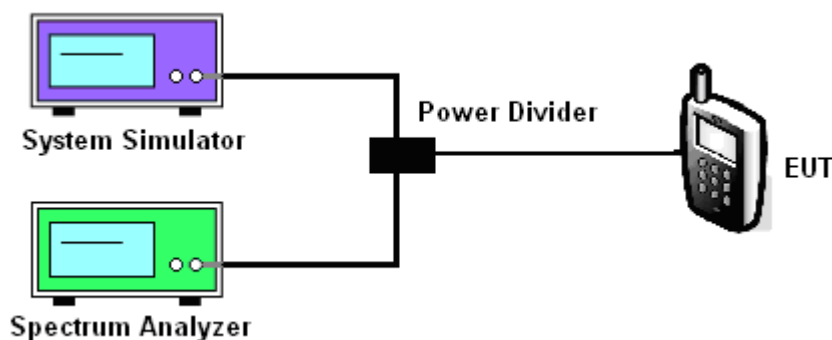
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. 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.
3. 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 %.
4. Record the deviation as Peak to Average Ratio.

3.2.4 Test Setup



3.2.5 Test Result of Peak-to-Average Ratio

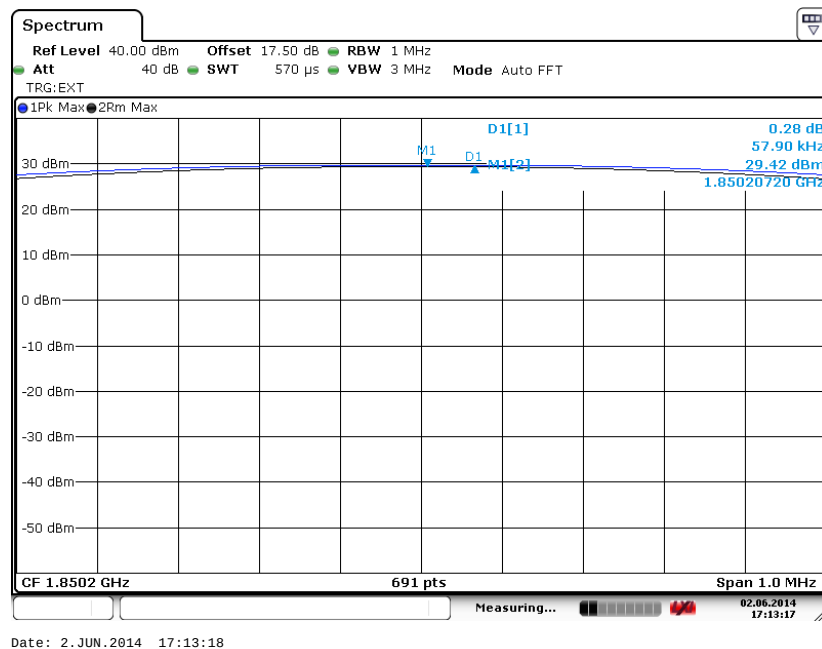
PCS Band									
Modes	GSM1900 (GSM)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	0.28	0.29	0.28	2.74	2.57	2.73	3.28	3.04	3.13

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)	2.93	2.72	2.96

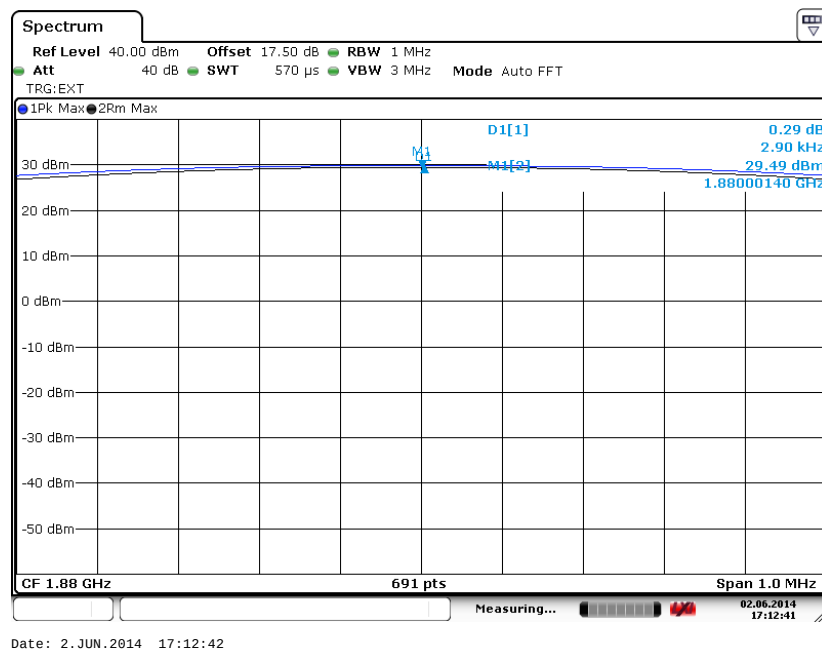
3.2.6 Test Result (Plots) of Peak-to-Average Ratio

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

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

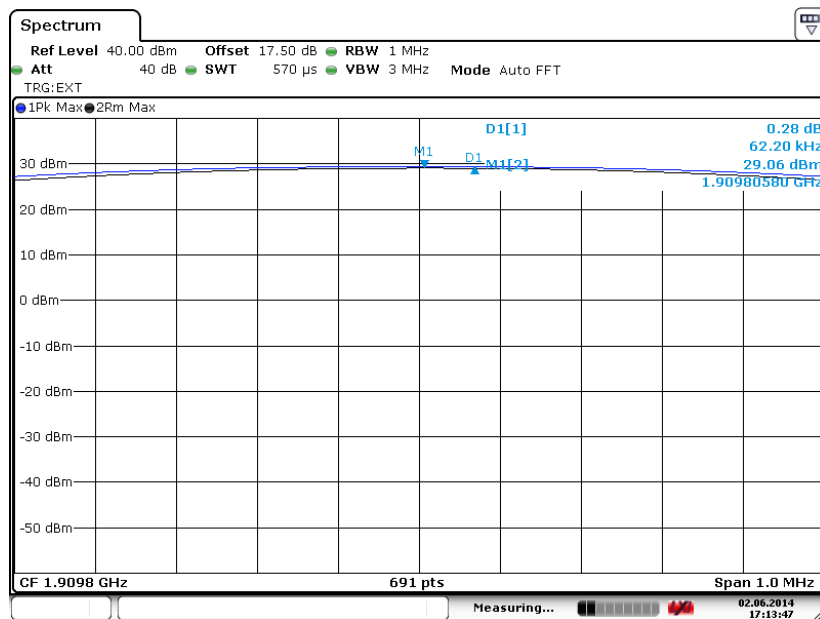


Peak-to-Average Ratio on Channel 661 (1880.0 MHz)





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

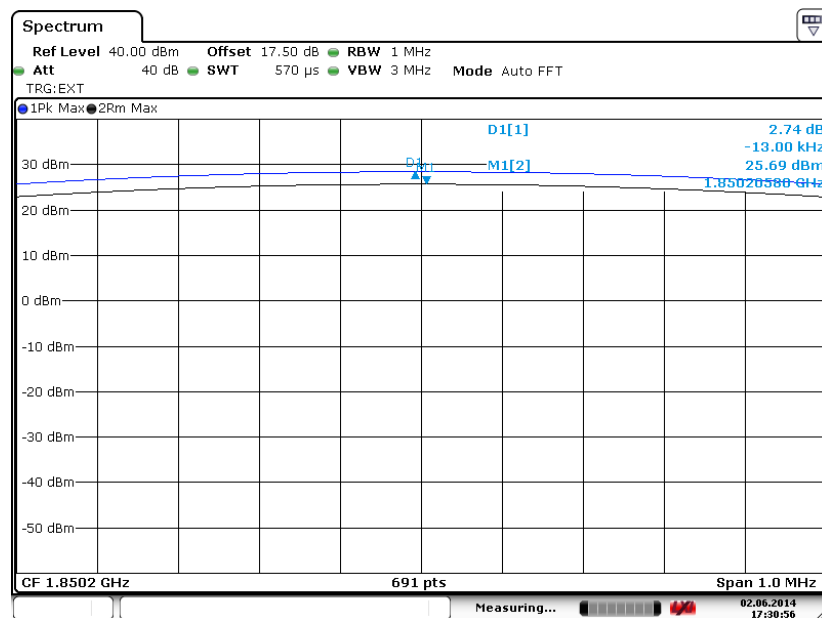


Date: 2.JUN.2014 17:13:48



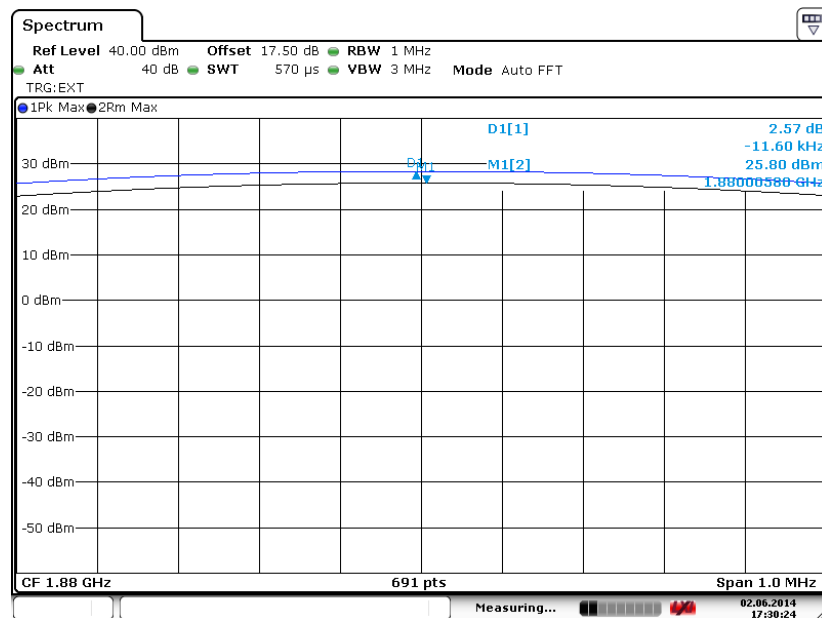
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
--------	----------	-------------	--------------------------

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



Date: 2. JUN. 2014 17:30:56

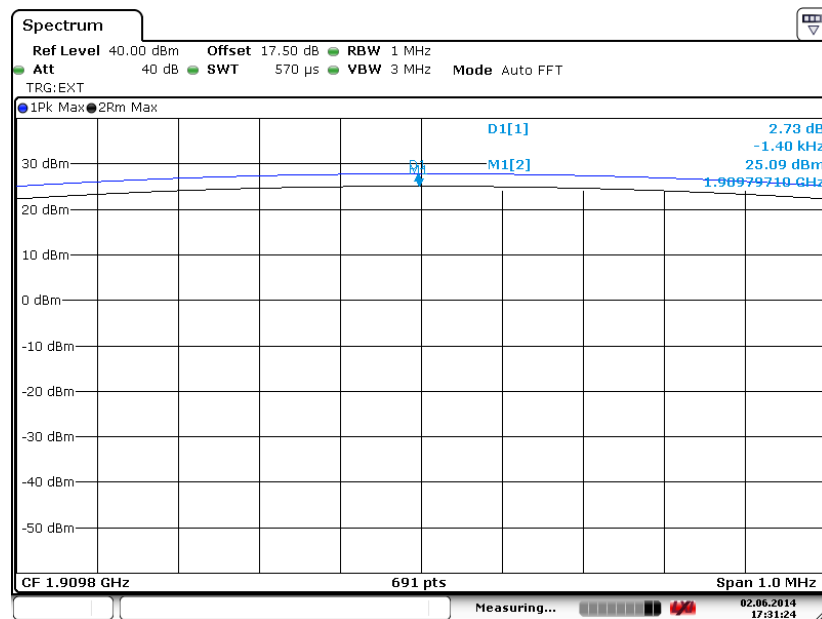
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 2. JUN. 2014 17:30:24



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

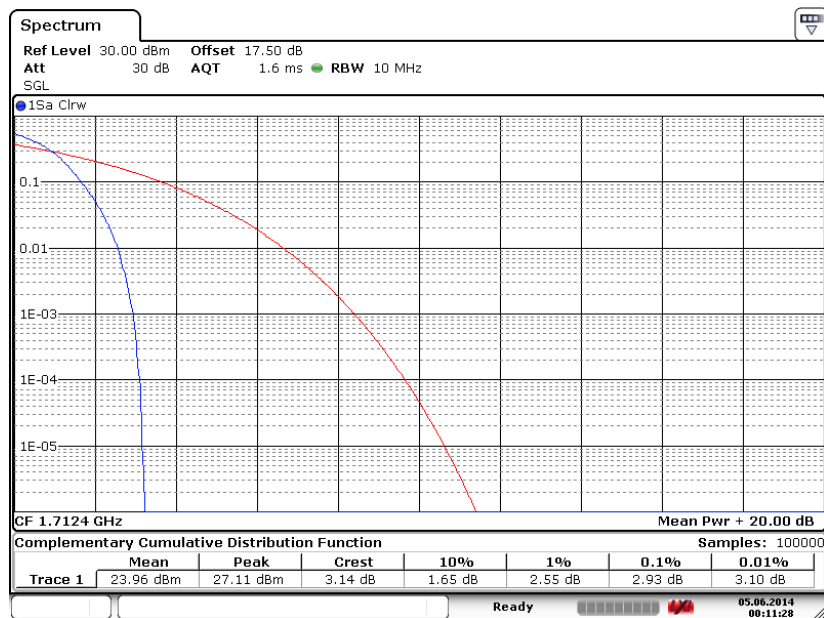


Date: 2.JUN.2014 17:31:24



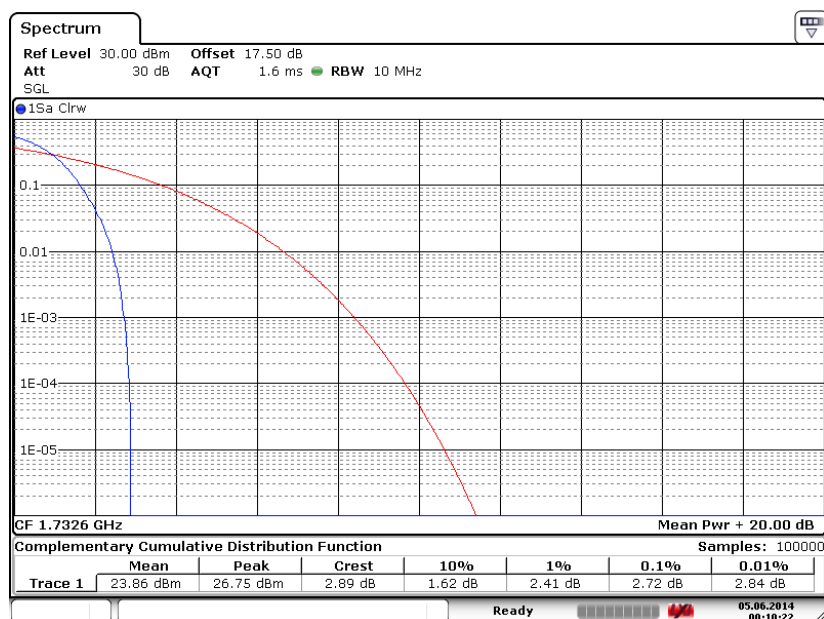
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

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



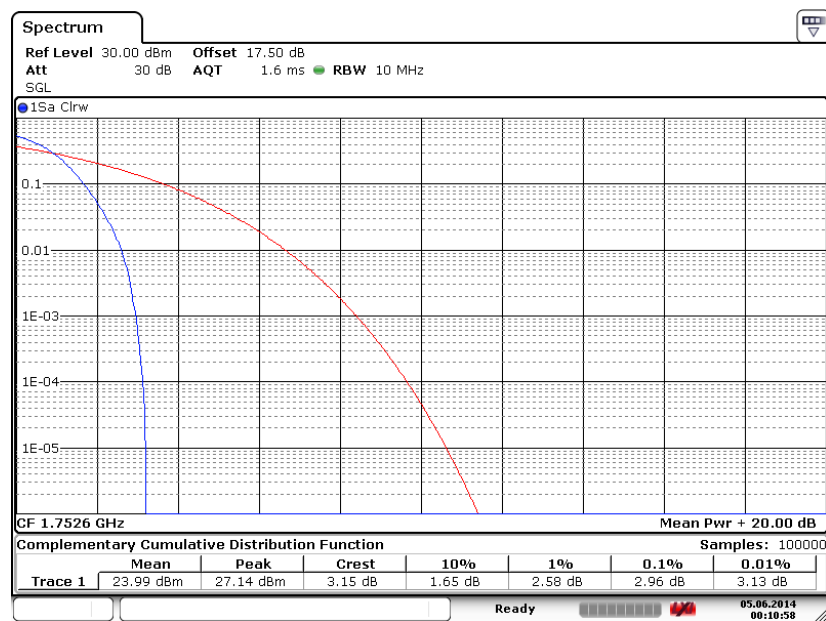
Date: 5. JUN. 2014 00:11:28

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



Date: 5. JUN. 2014 00:10:22

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

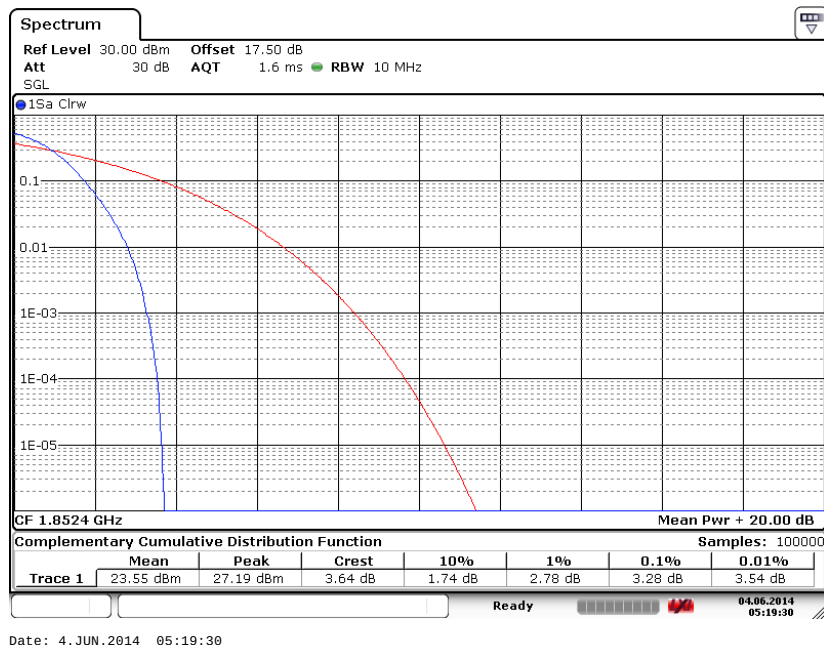


Date: 5.JUN.2014 00:10:58

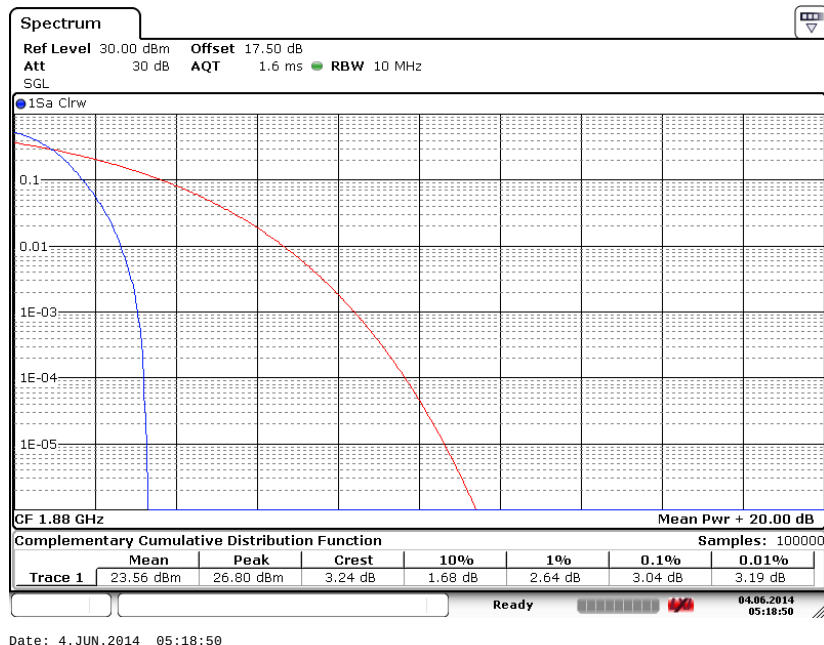


Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

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

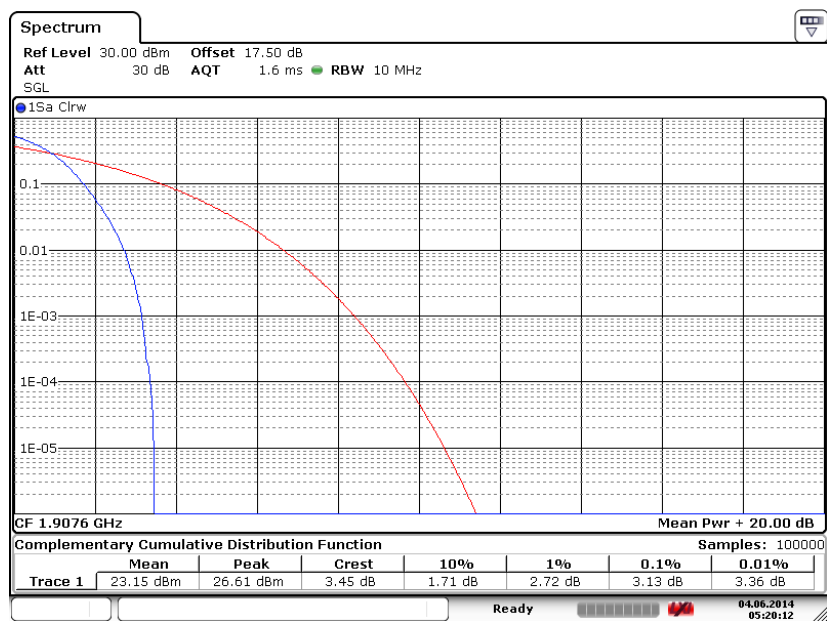


Peak-to-Average Ratio on Channel 9400 (1880.0 MHz)





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



Date: 4. JUN. 2014 05:20:13

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 v02r01. The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and 1 Watts (AWS Band).

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The EUT was placed on a turntable 1.5 meters high in a fully anechoic chamber.
2. The EUT was placed 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. 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.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

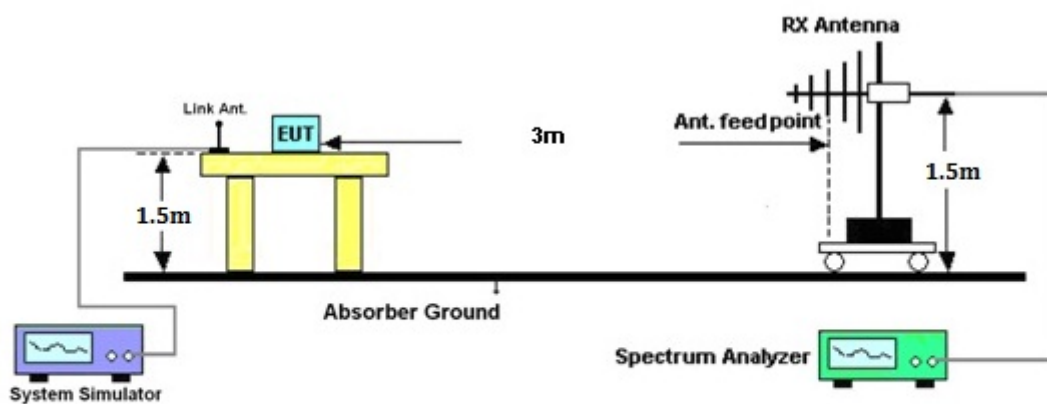
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

R_t : The highest received signal in spectrum analyzer for EUT.

R_s : The highest received signal in spectrum analyzer for substitution antenna.

3.3.4 Test Setup



3.3.5 Test Result of ERP

GSM850 (GPRS class 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-31.54	-48.12	0.00	-1.08	15.50	0.0355
836.40	-33.04	-48.28	0.00	-0.93	14.31	0.0270
848.80	-35.02	-48.35	0.00	-0.76	12.57	0.0181
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-40.97	-47.97	0.00	-1.08	5.92	0.0039
836.40	-41.12	-48.01	0.00	-0.93	5.96	0.0039
848.80	-41.18	-48.05	0.00	-0.76	6.11	0.0041

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	-37.73	-48.12	0.00	-1.08	9.31	0.0085
836.40	-39.77	-48.28	0.00	-0.93	7.58	0.0057
848.80	-41.93	-48.35	0.00	-0.76	5.66	0.0037
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-46.84	-47.97	0.00	-1.08	0.05	0.0010
836.40	-47.48	-48.01	0.00	-0.93	-0.40	0.0009
848.80	-48.06	-48.05	0.00	-0.76	-0.77	0.0008

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	-38.66	-48.12	0.00	-1.08	8.38	0.0069
836.40	-40.25	-48.28	0.00	-0.93	7.10	0.0051
846.60	-41.79	-48.35	0.00	-0.76	5.80	0.0038
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-47.73	-47.97	0.00	-1.08	-0.84	0.0008
836.40	-48.07	-48.01	0.00	-0.93	-0.99	0.0008
846.60	-48.22	-48.05	0.00	-0.76	-0.93	0.0008

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	-23.94	-51.88	0.00	1.96	29.90	0.9770
1880.00	-24.59	-52.99	0.00	2.00	30.40	1.0972
1909.80	-26.06	-54.28	0.00	1.98	30.20	1.0474
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-24.27	-52.13	0.00	1.96	29.82	0.9593
1880.00	-24.90	-53.17	0.00	2.00	30.27	1.0631
1909.80	-25.77	-54.13	0.00	1.98	30.34	1.0813

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	-28.84	-51.88	0.00	1.96	25.00	0.3166
1880.00	-29.27	-52.99	0.00	2.00	25.72	0.3736
1909.80	-30.58	-54.28	0.00	1.98	25.68	0.3699
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-28.57	-52.13	0.00	1.96	25.52	0.3566
1880.00	-29.29	-53.17	0.00	2.00	25.88	0.3875
1909.80	-31.10	-54.13	0.00	1.98	25.01	0.3167

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	-30.46	-51.88	0.00	1.96	23.38	0.2177
1732.60	-31.48	-52.99	0.00	2.00	23.51	0.2244
1752.60	-32.91	-54.28	0.00	1.98	23.35	0.2162
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1712.40	-30.90	-52.13	0.00	1.96	23.19	0.2083
1732.60	-31.89	-53.17	0.00	2.00	23.28	0.2127
1752.60	-32.80	-54.13	0.00	1.98	23.31	0.2142

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	-28.92	-51.88	0.00	1.96	24.92	0.3106
1880.00	-30.44	-52.99	0.00	2.00	24.55	0.2850
1907.60	-32.29	-54.28	0.00	1.98	23.97	0.2494
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-29.24	-52.13	0.00	1.96	24.85	0.3056
1880.00	-30.60	-53.17	0.00	2.00	24.57	0.2862
1907.60	-31.86	-54.13	0.00	1.98	24.25	0.2660

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.

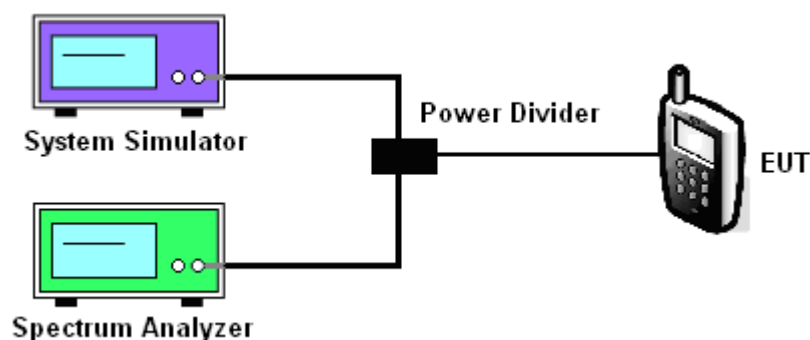
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. 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.
3. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold.
4. 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 99% Occupied Bandwidth and 26dB Bandwidth

Cellular Band						
Modes	GSM850 (GPRS class 8)			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)	246.02	244.57	246.02	244.57	246.02	244.57
26dB BW (kHz)	308.20	312.60	306.80	305.40	303.90	305.40

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)	246.02	244.57	244.57	244.57	243.13	243.13
26dB BW (kHz)	309.70	312.60	309.70	303.90	305.40	306.80

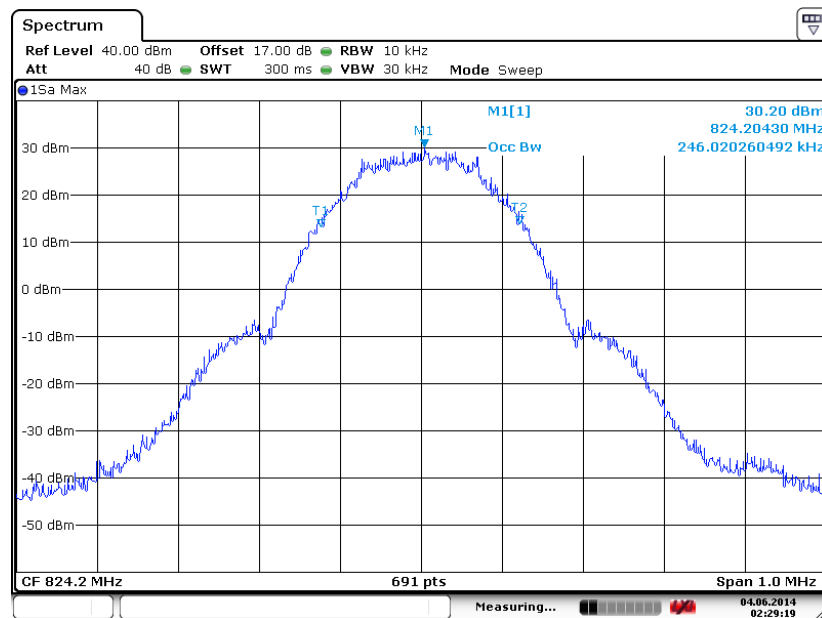
Cellular Band			
Modes	WCDMA Band V (RMC 12.2Kbps)		
Channel	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	826.4	836.4	846.6
99% OBW (MHz)	4.1679	4.1823	4.1679
26dB BW (MHz)	4.6740	4.6890	4.6890

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)	4.1534	4.1534	4.1534
26dB BW (MHz)	4.6600	4.6600	4.6600

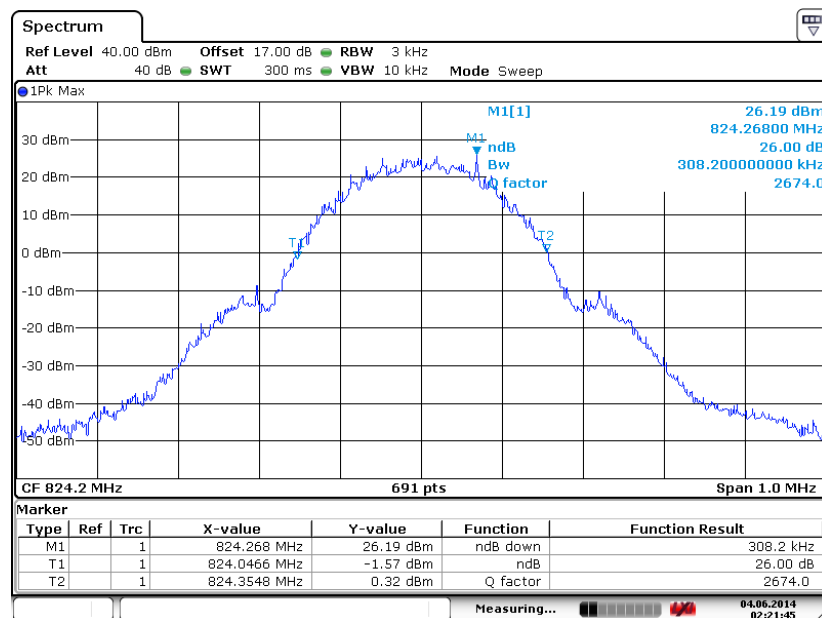
PCS Band			
Modes	WCDMA Band II (RMC 12.2Kbps)		
Channel	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1852.4	1880	1907.6
99% OBW (MHz)	4.1534	4.1534	4.1679
26dB BW (MHz)	4.6600	4.6600	4.6600

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

Band :	GSM 850	Test Mode :	GPRS class 8 Link (GMSK)
---------------	---------	--------------------	--------------------------

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


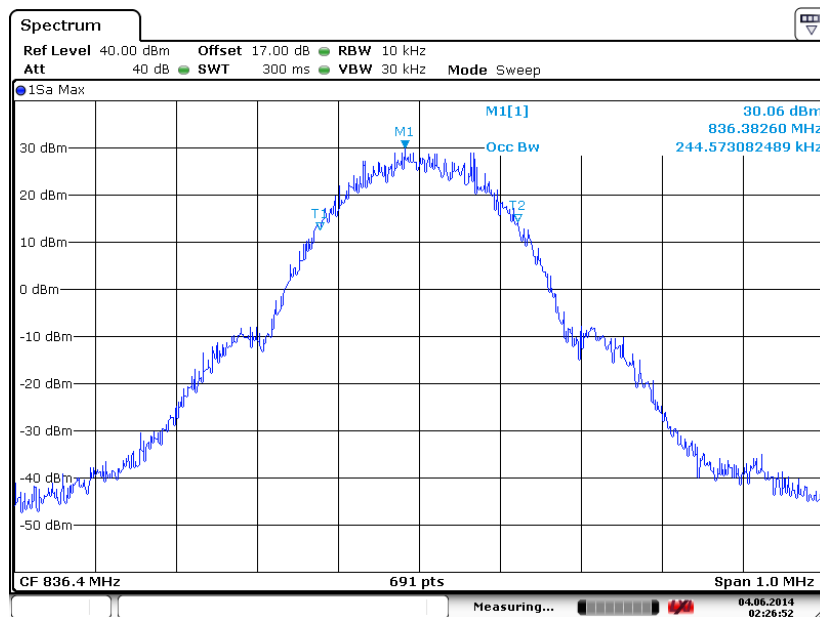
Date: 4. JUN. 2014 02:29:19

26dB Bandwidth Plot on Channel 128 (824.2 MHz)


Date: 4. JUN. 2014 02:21:45

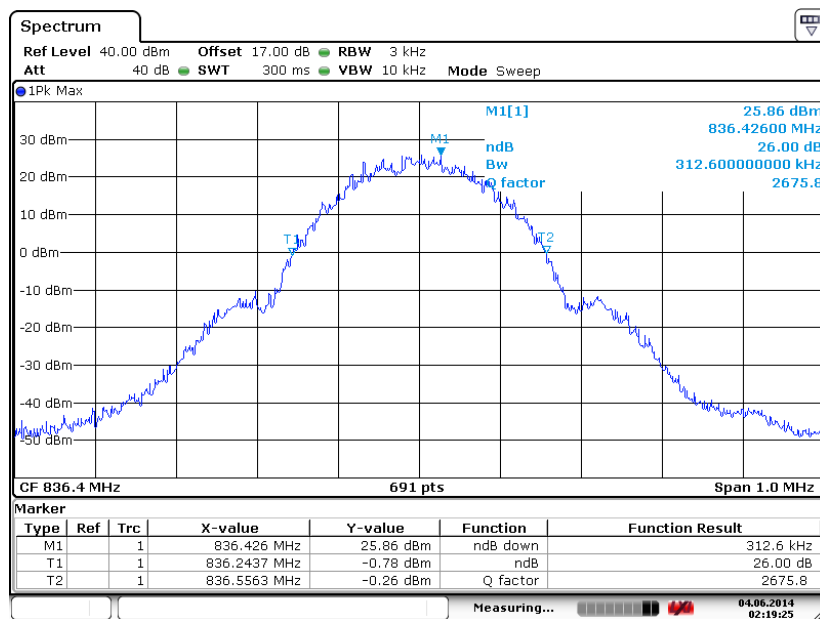


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 4. JUN. 2014 02:26:53

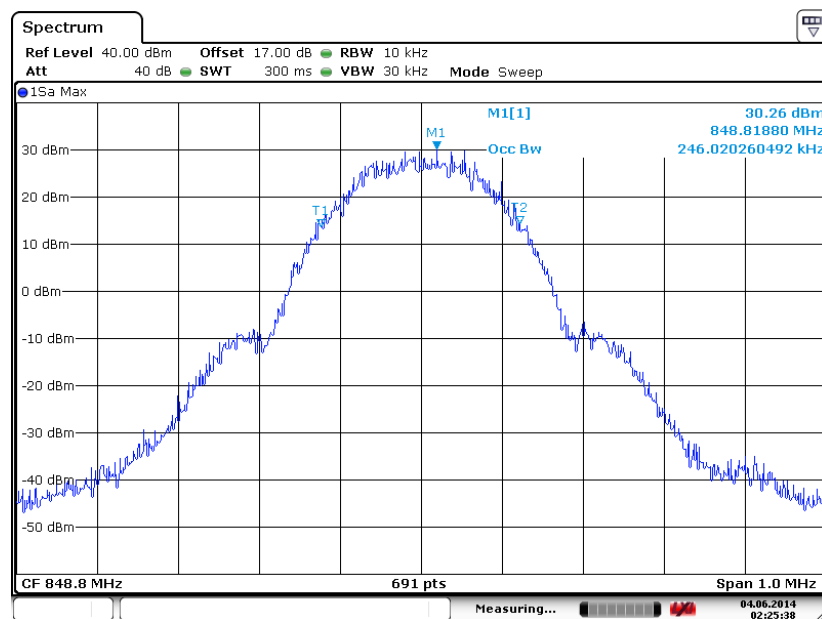
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 4. JUN. 2014 02:19:25

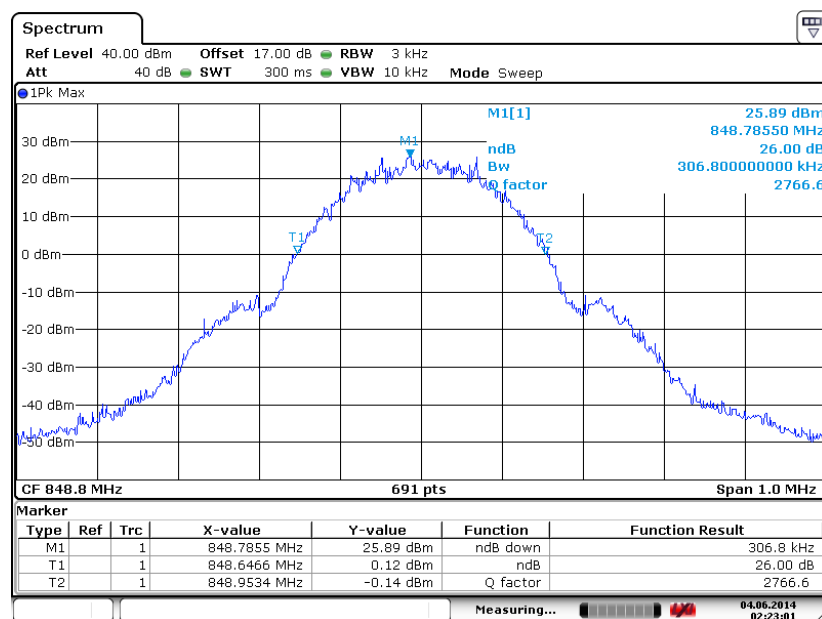


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 4. JUN. 2014 02:25:38

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

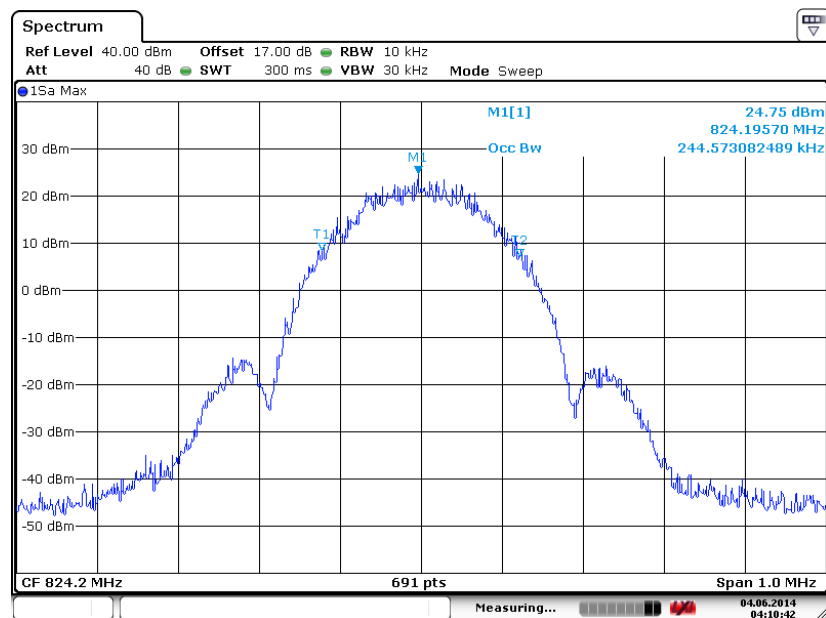


Date: 4. JUN. 2014 02:23:02



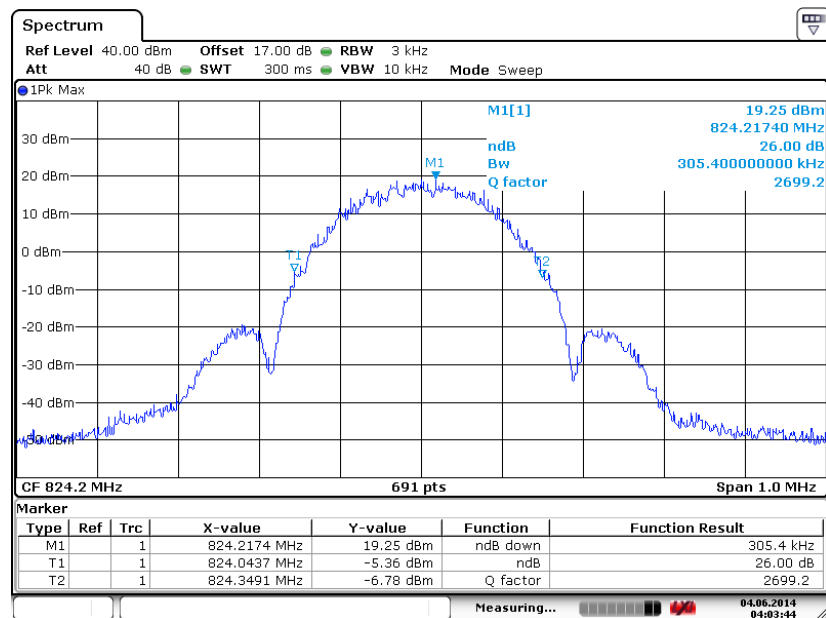
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
--------	---------	-------------	--------------------------

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



Date: 4. JUN. 2014 04:10:43

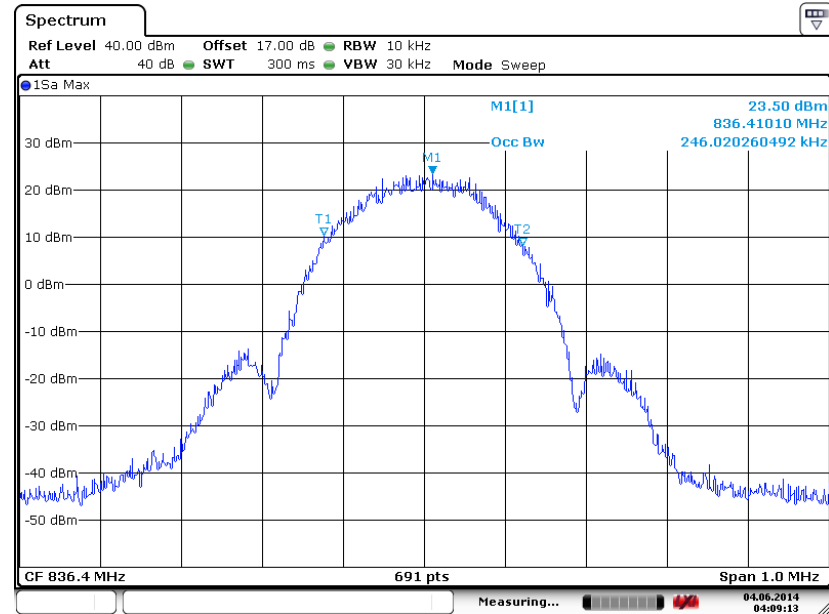
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 4. JUN. 2014 04:03:44

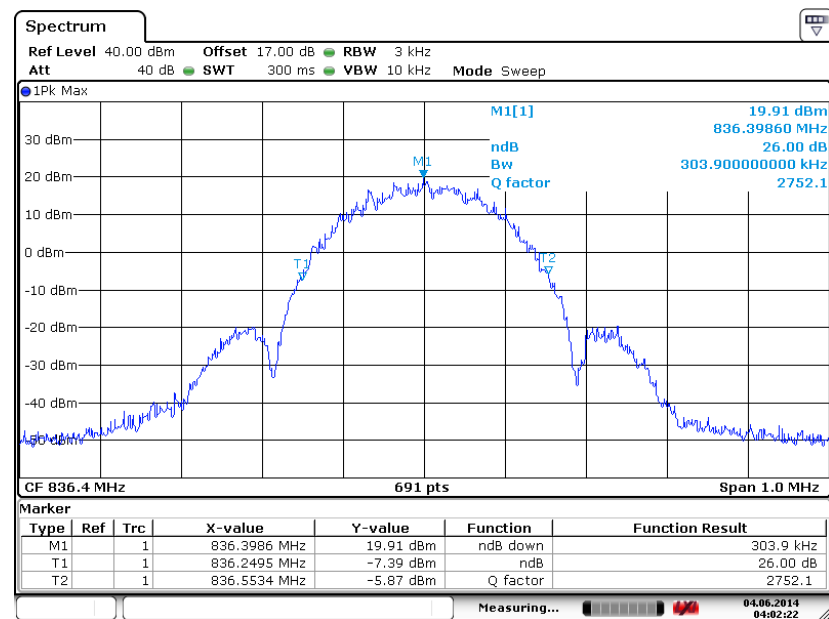


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 4. JUN. 2014 04:09:13

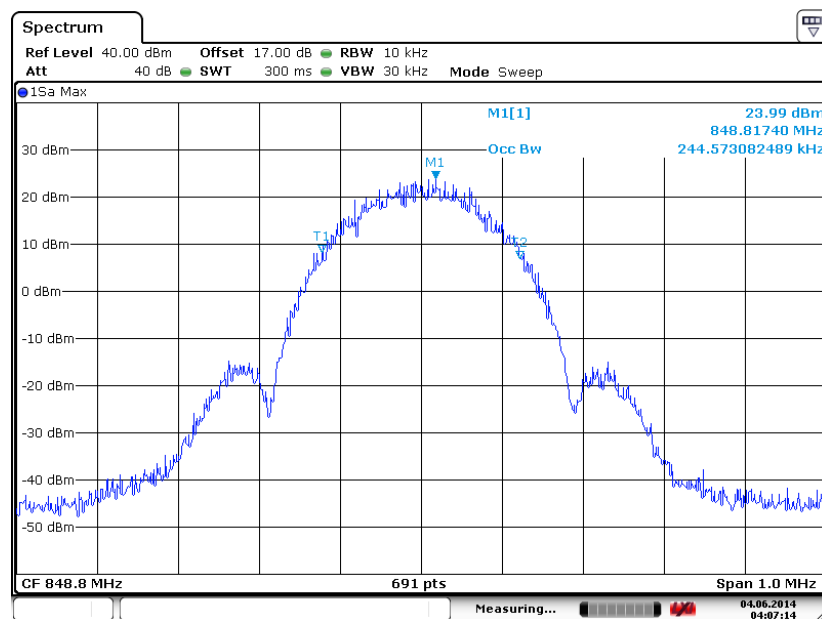
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 4. JUN. 2014 04:02:23

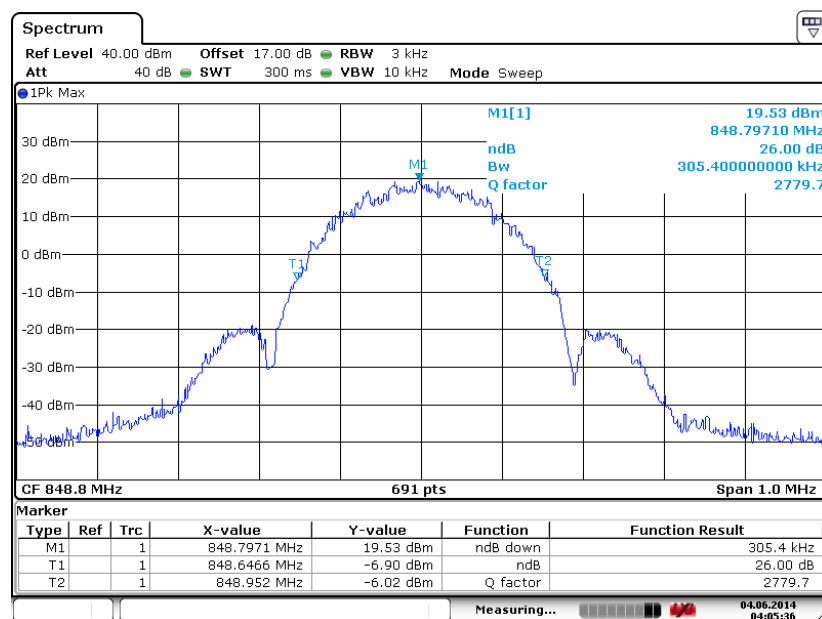


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 4. JUN. 2014 04:07:15

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

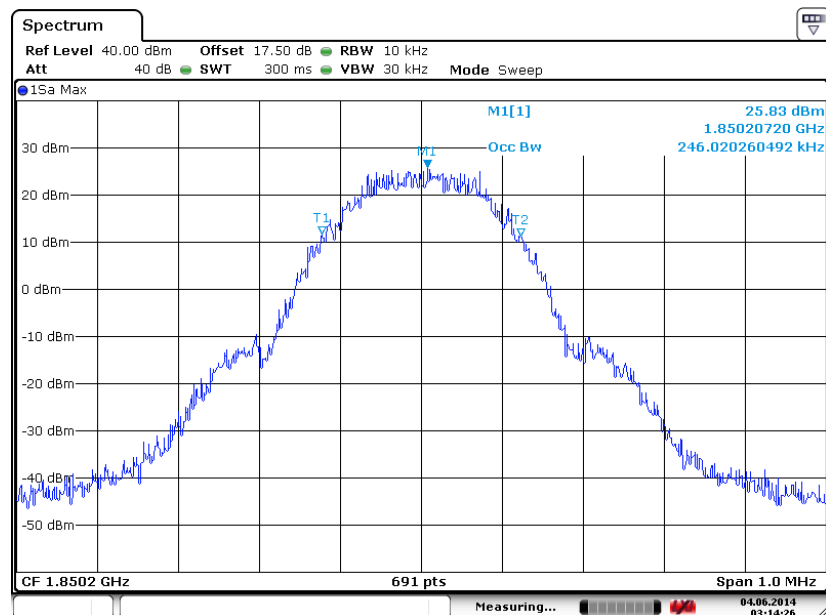


Date: 4. JUN. 2014 04:05:36



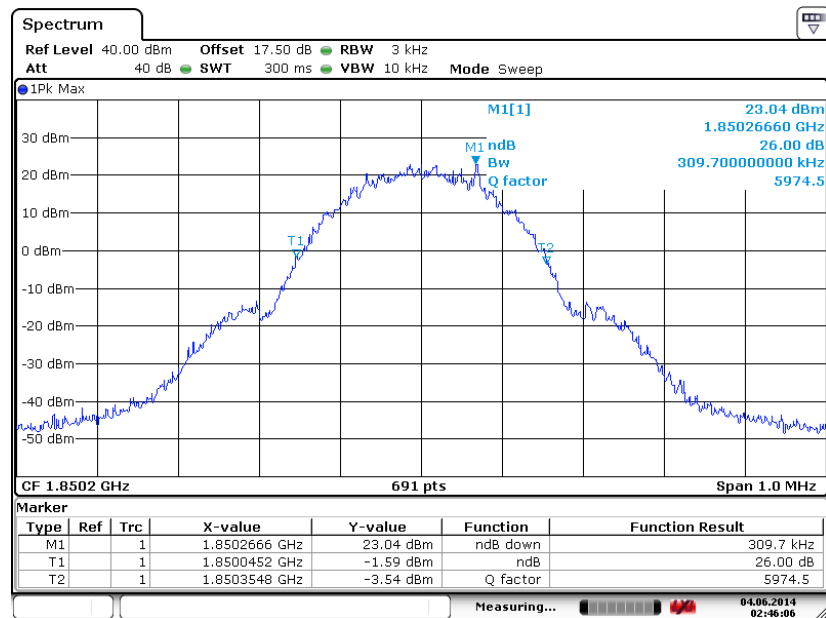
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
--------	----------	-------------	-----------------

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



Date: 4.JUN.2014 03:14:27

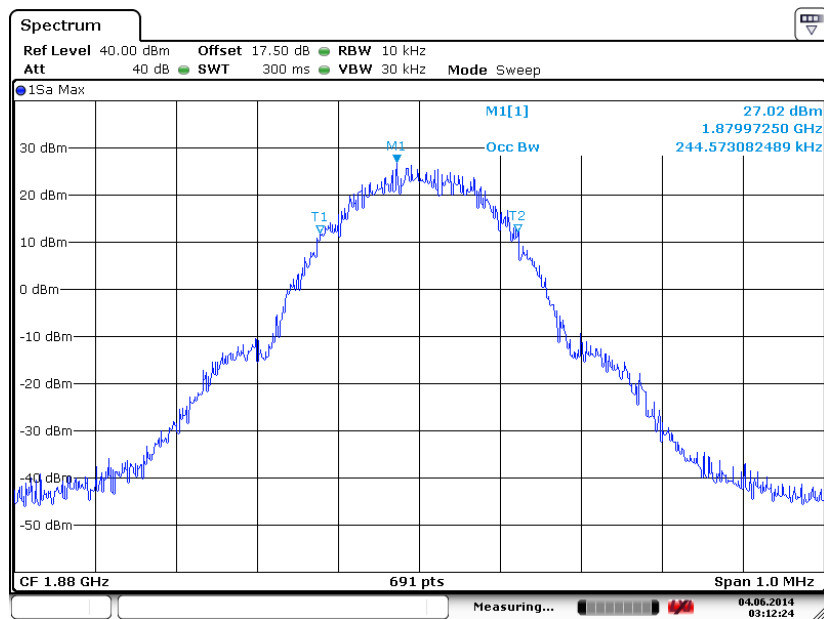
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 4.JUN.2014 02:46:07

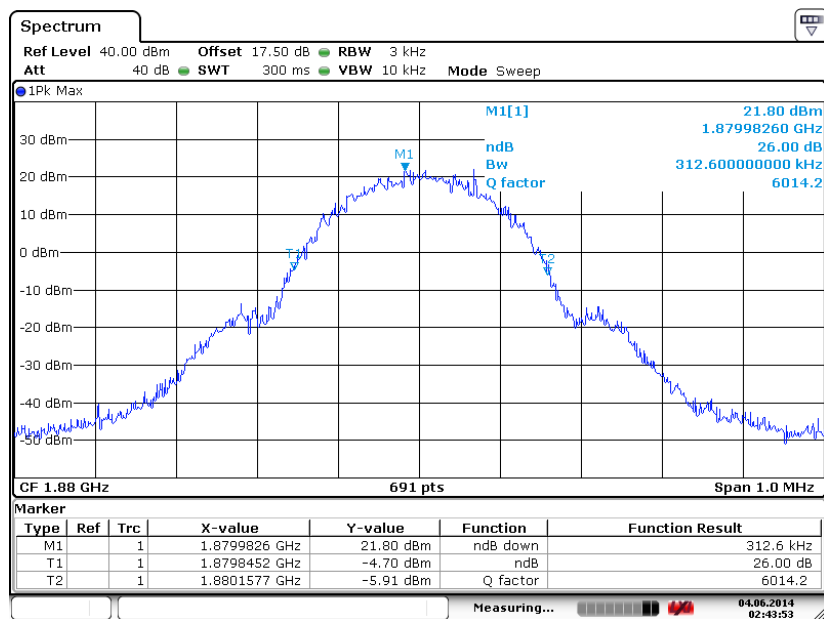


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 4. JUN. 2014 03:12:24

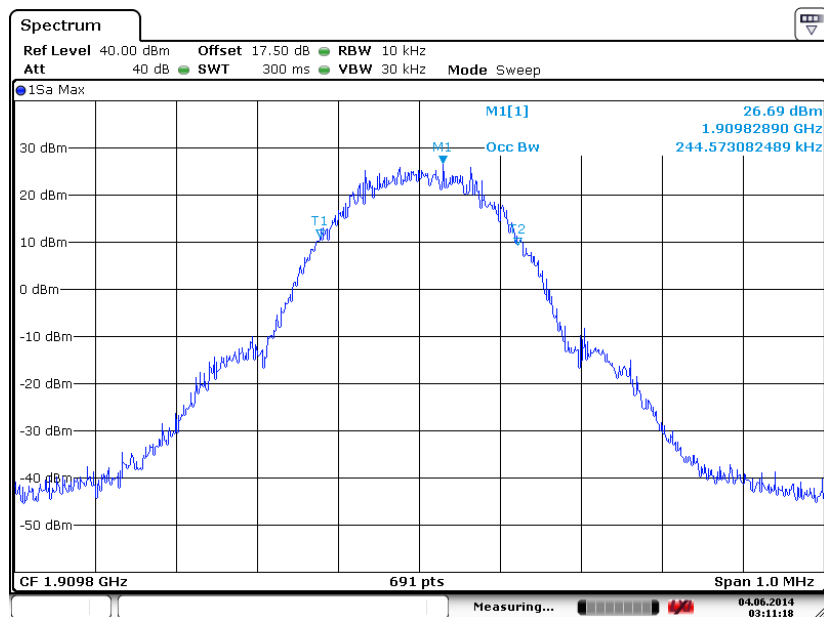
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 4. JUN. 2014 02:43:53

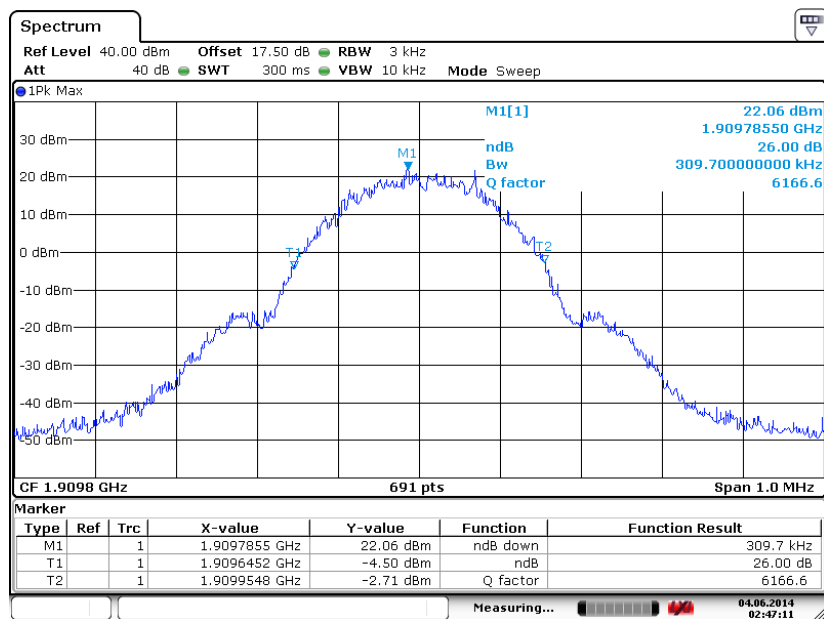


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 4. JUN. 2014 03:11:18

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

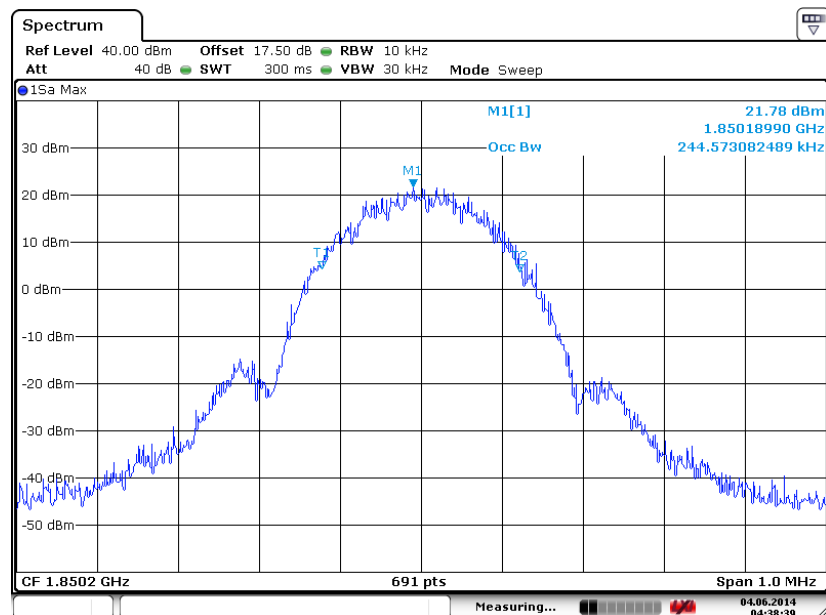


Date: 4. JUN. 2014 02:47:12



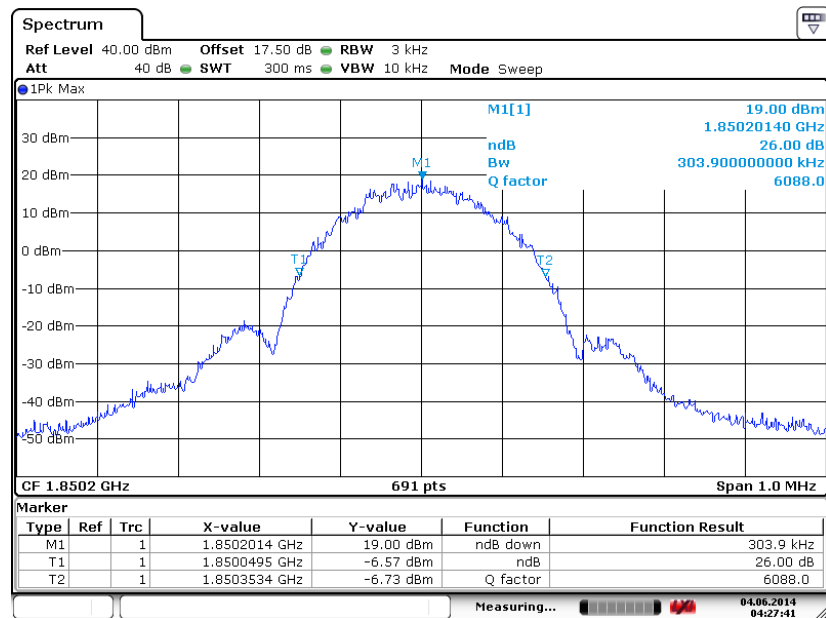
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
--------	----------	-------------	--------------------------

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



Date: 4. JUN. 2014 04:38:40

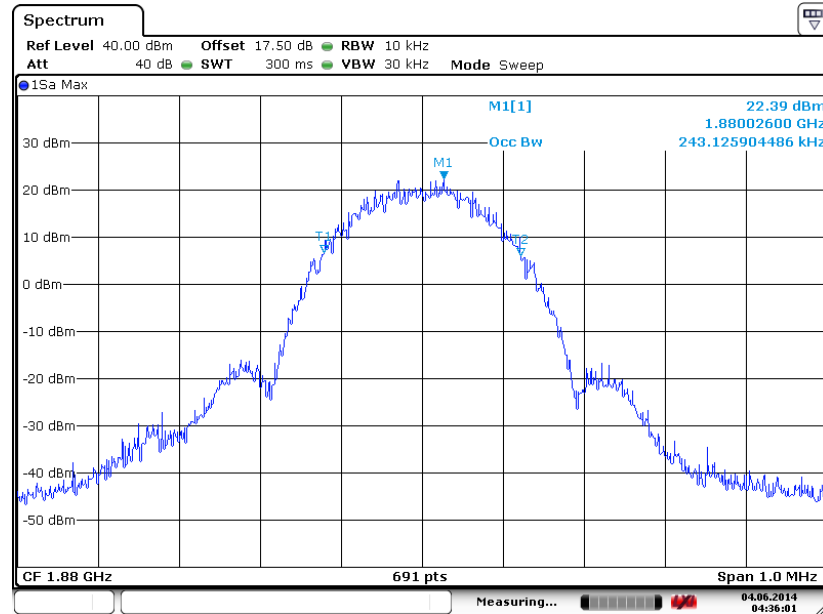
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 4. JUN. 2014 04:27:41

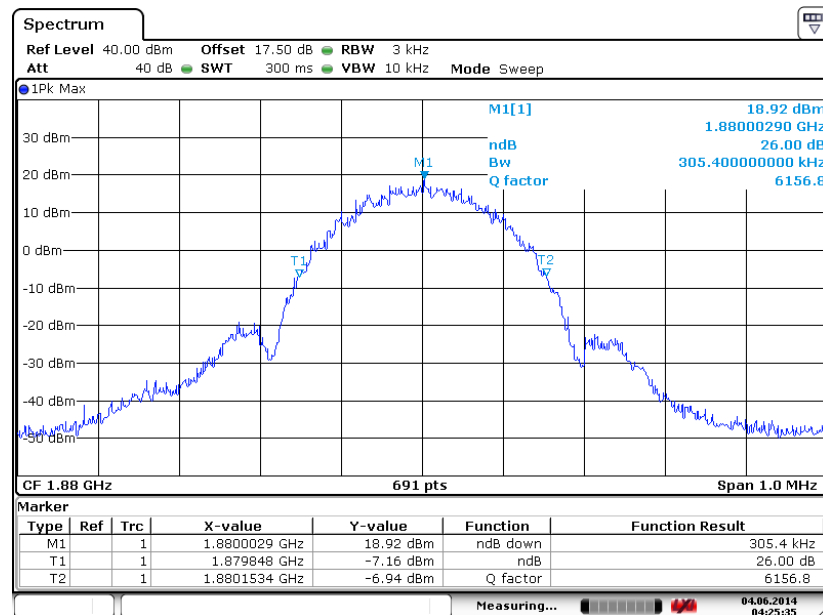


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 4. JUN. 2014 04:36:01

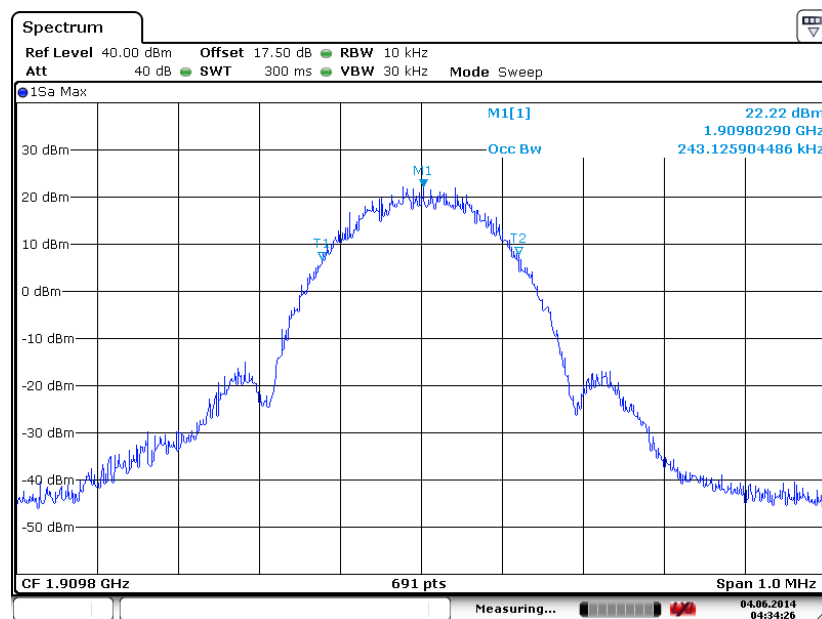
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 4. JUN. 2014 04:25:35

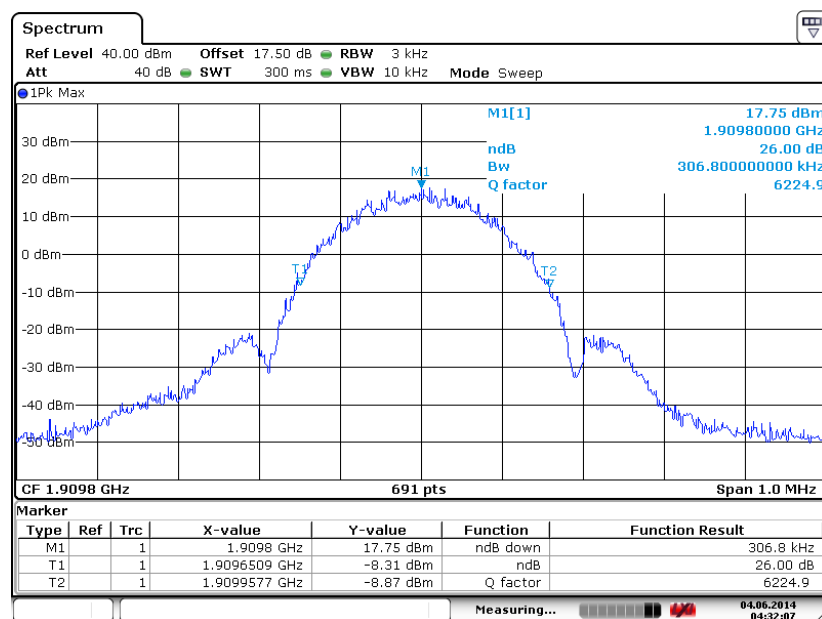


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 4. JUN. 2014 04:34:26

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

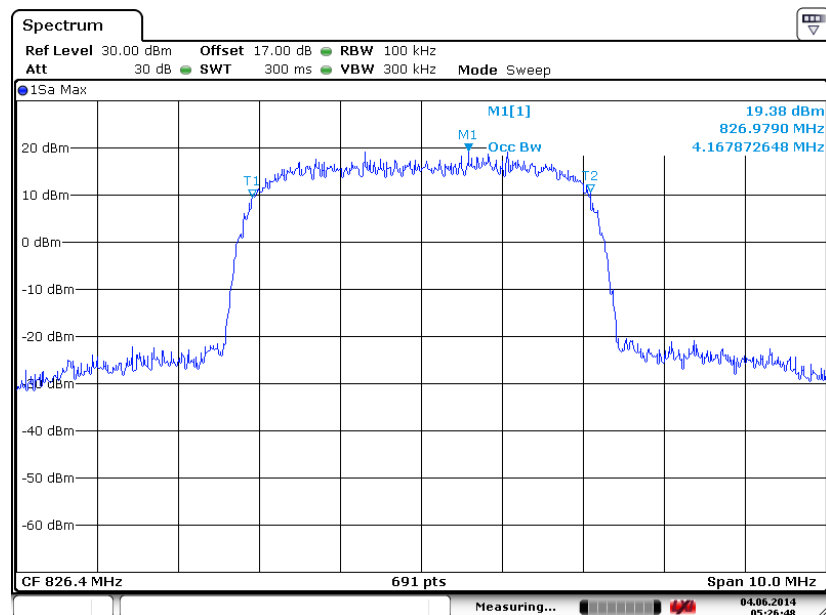


Date: 4. JUN. 2014 04:32:08



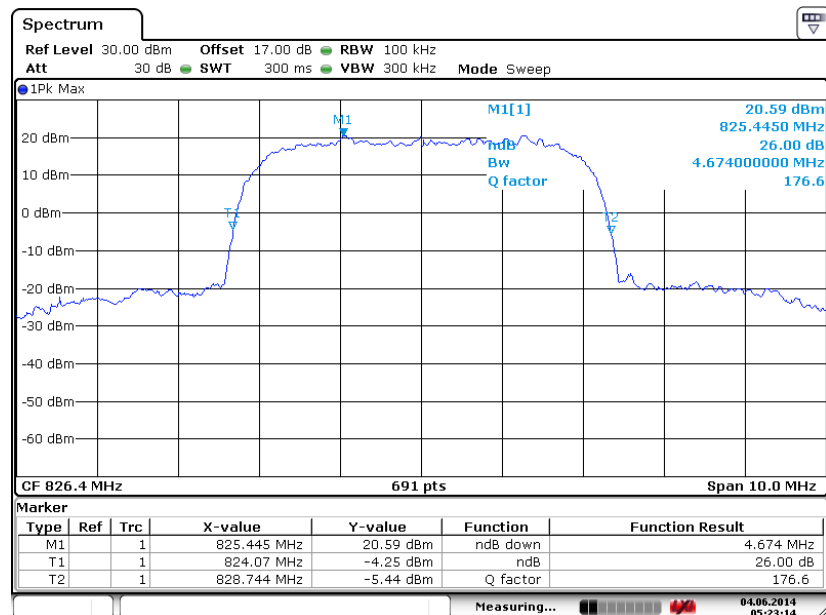
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	--------------	-------------	--------------------------

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



Date: 4.JUN.2014 05:26:48

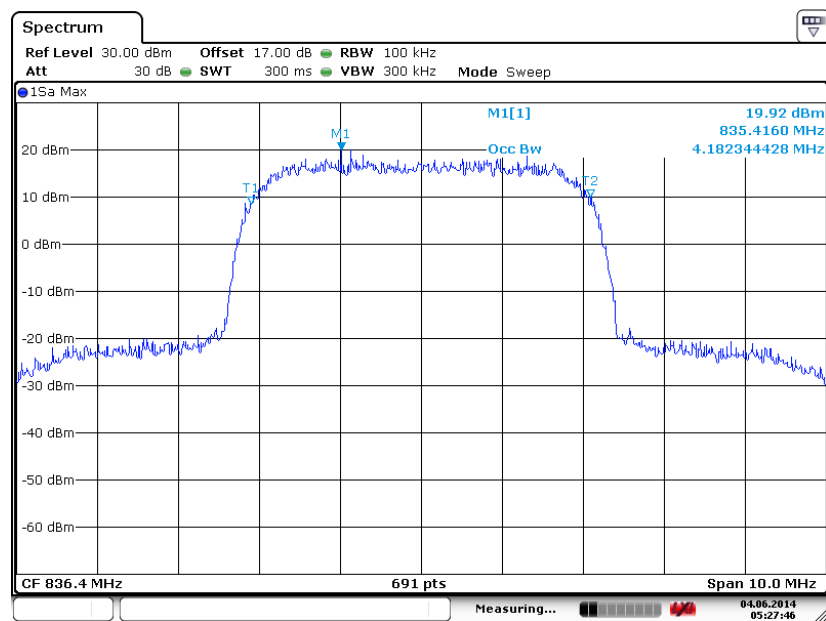
26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 4.JUN.2014 05:23:14

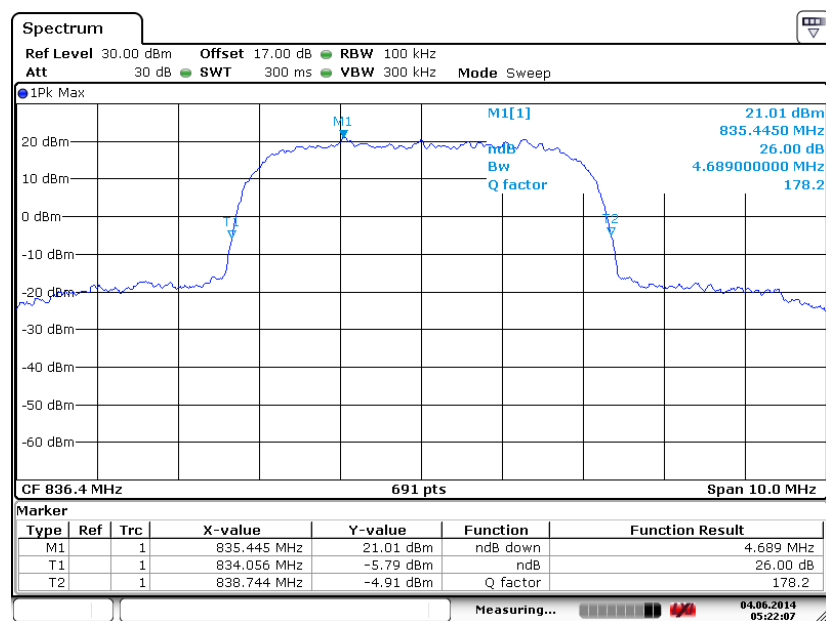


99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 4. JUN. 2014 05:27:45

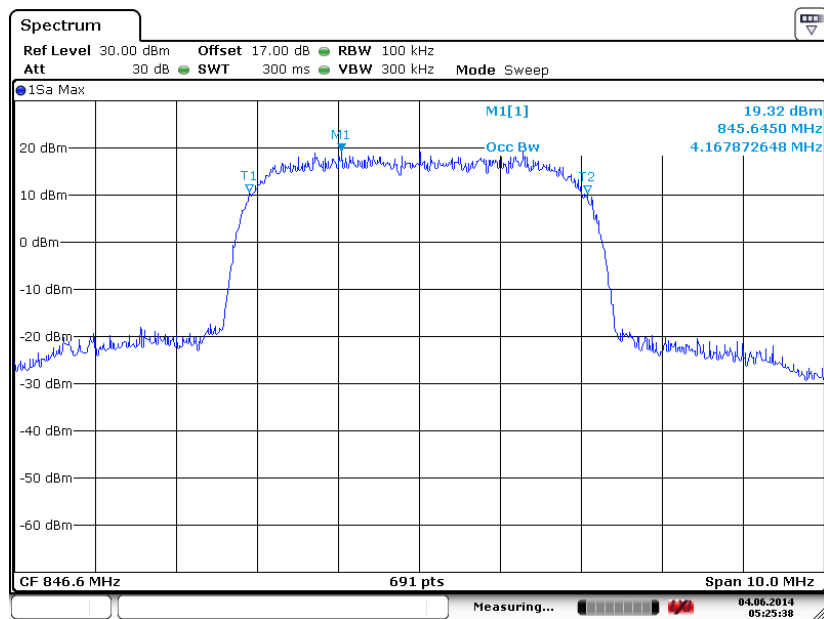
26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 4. JUN. 2014 05:22:07

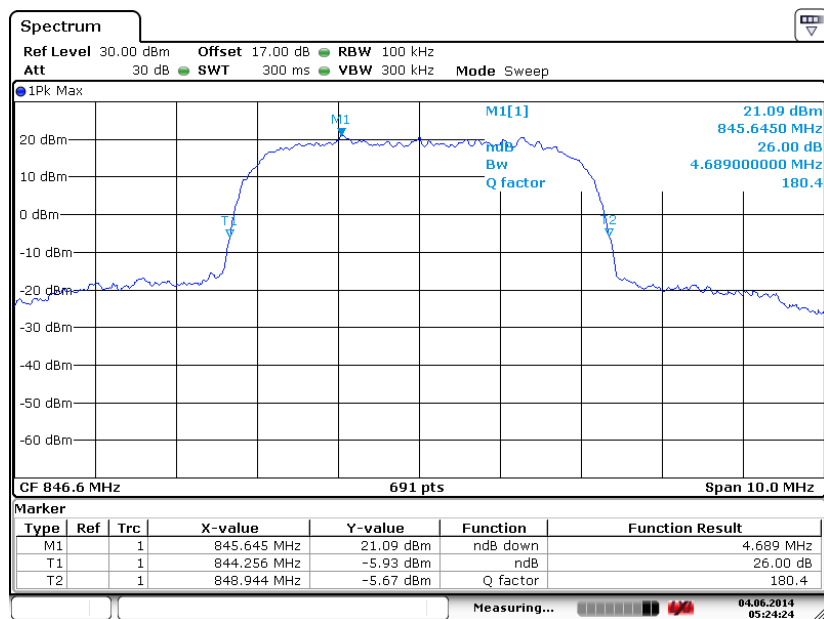


99% Occupied Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 4. JUN. 2014 05:25:37

26dB Bandwidth Plot on Channel 4233 (846.6 MHz)

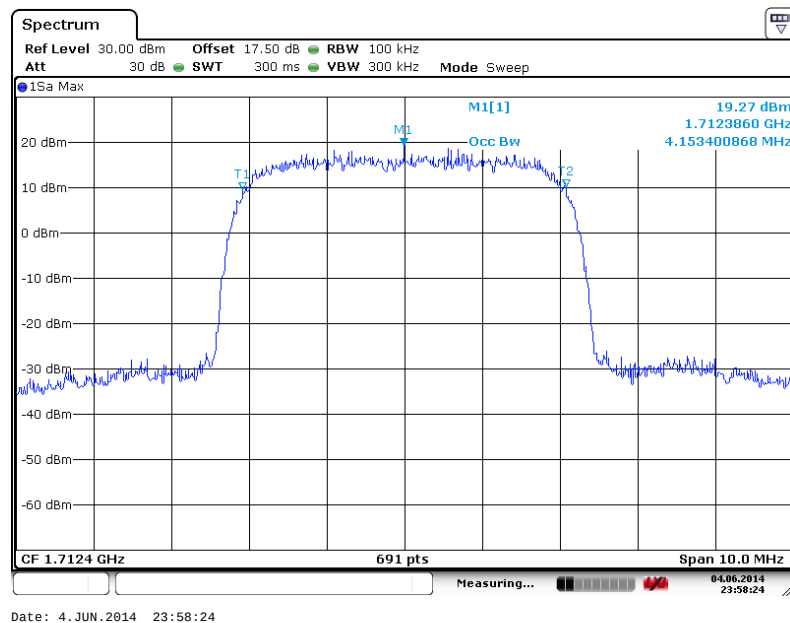


Date: 4. JUN. 2014 05:24:25

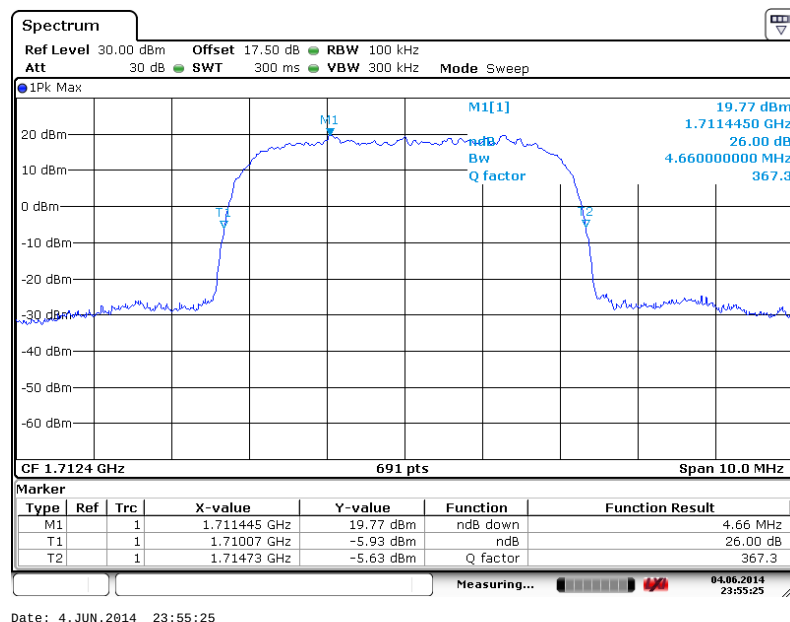


Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

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

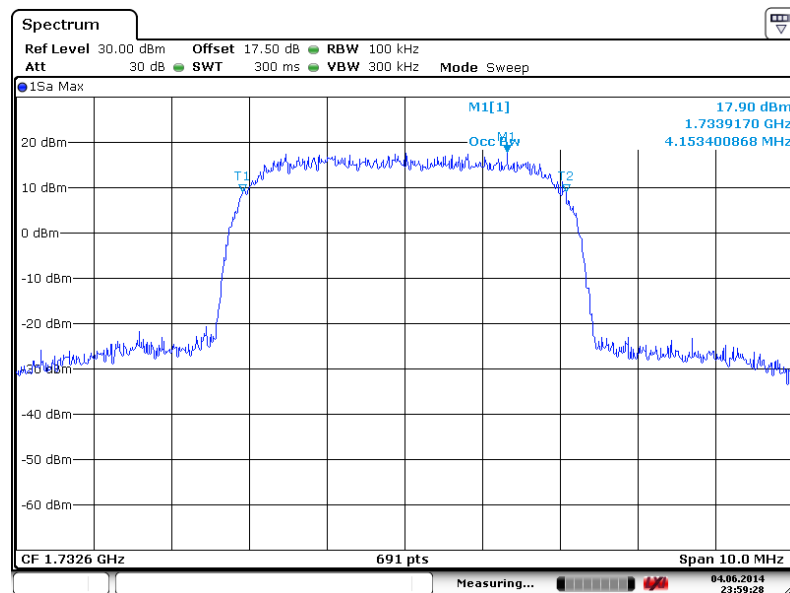


26dB Bandwidth Plot on Channel 1312 (1712.4 MHz)



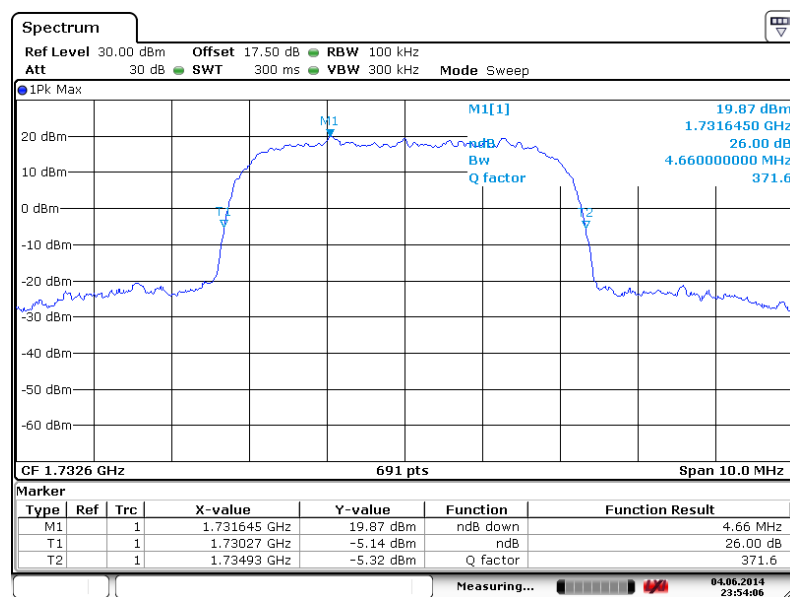


99% Occupied Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 4. JUN. 2014 23:59:28

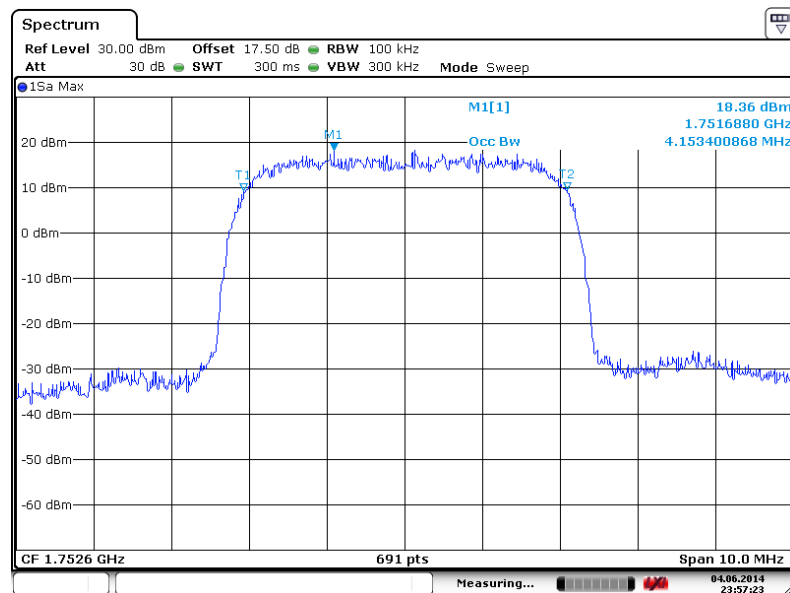
26dB Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 4. JUN. 2014 23:54:06

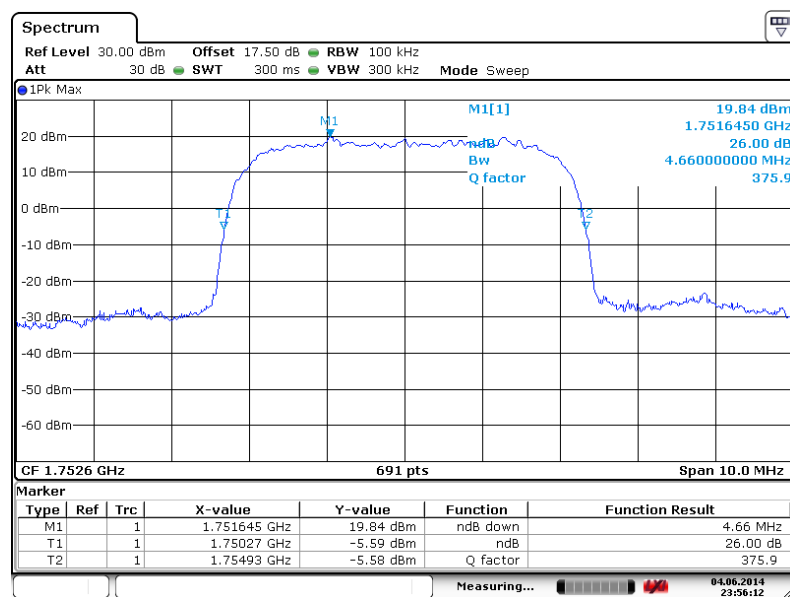


99% Occupied Bandwidth Plot on Channel 1513 (1752.6 MHz)



Date: 4. JUN. 2014 23:57:23

26dB Bandwidth Plot on Channel 1513 (1752.6 MHz)

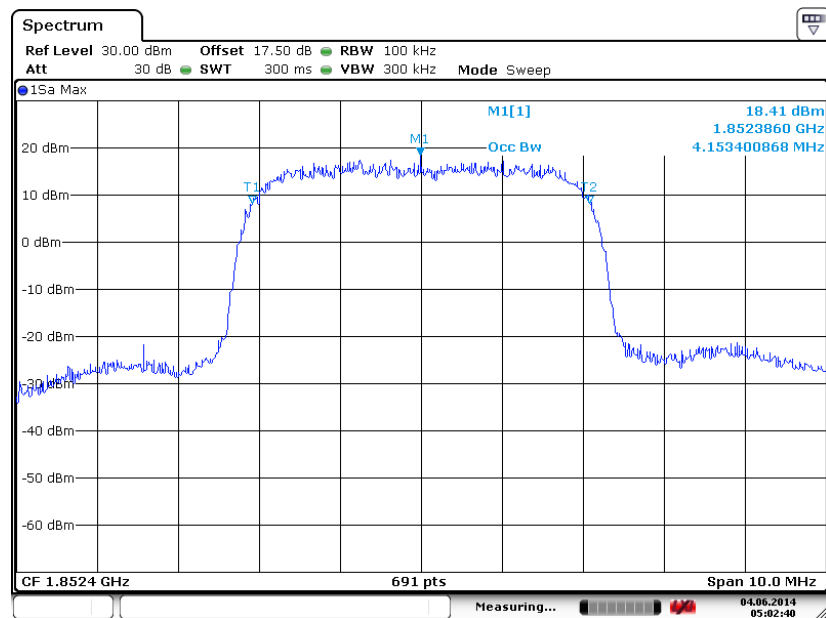


Date: 4. JUN. 2014 23:56:12



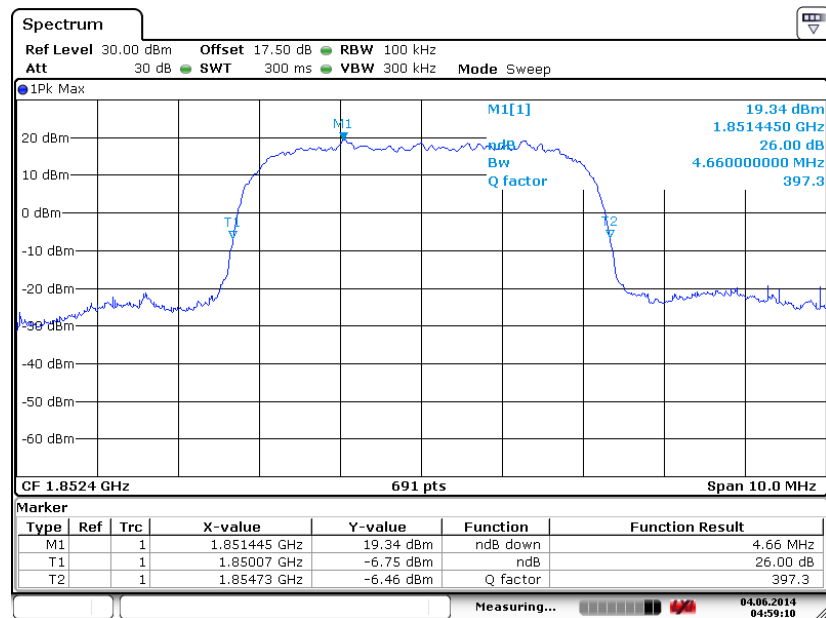
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

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



Date: 4.JUN.2014 05:02:40

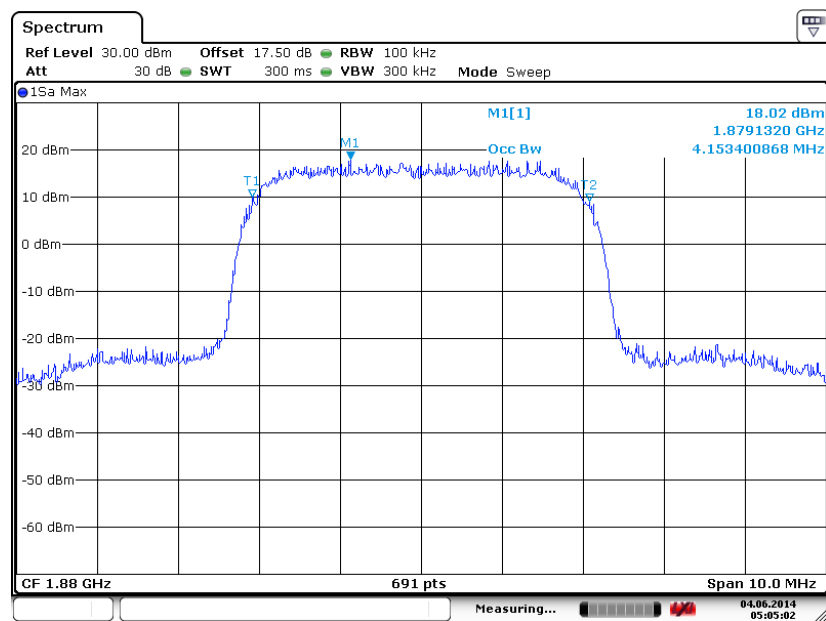
26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 4.JUN.2014 04:59:11

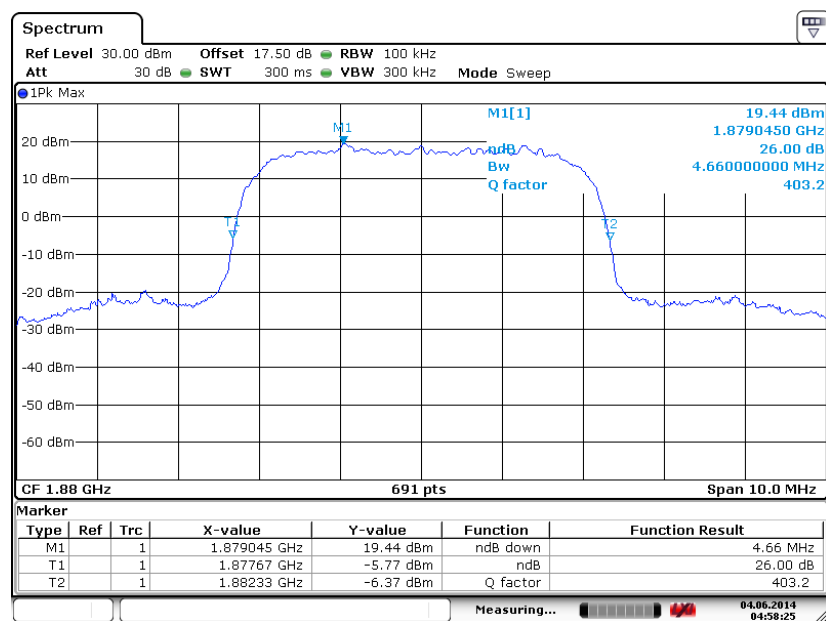


99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 4. JUN. 2014 05:05:01

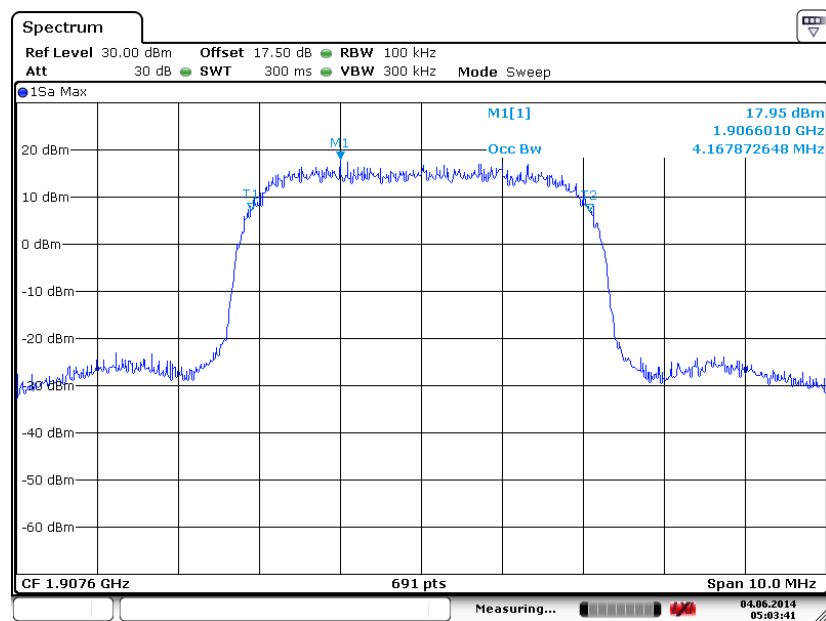
26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 4. JUN. 2014 04:58:24

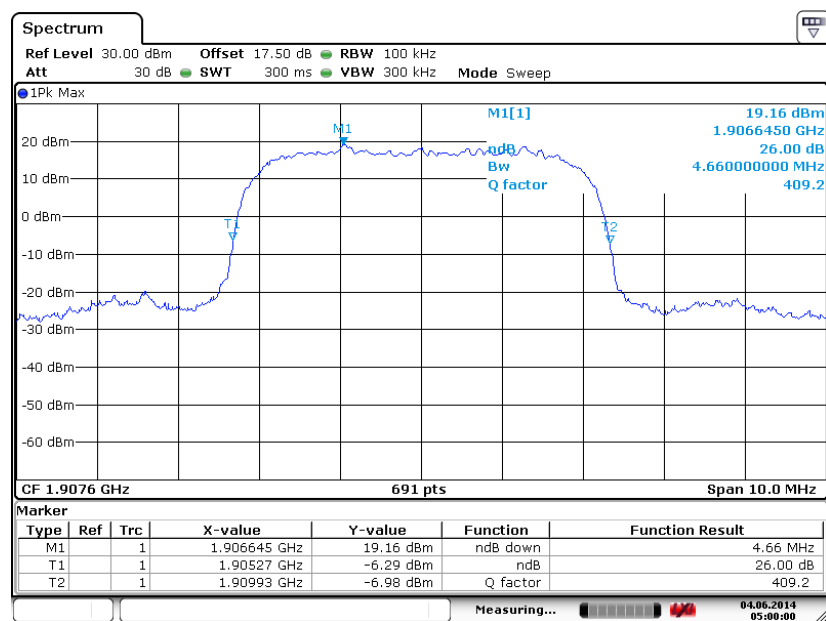


99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 4. JUN. 2014 05:03:42

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 4. JUN. 2014 05:00:00

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.

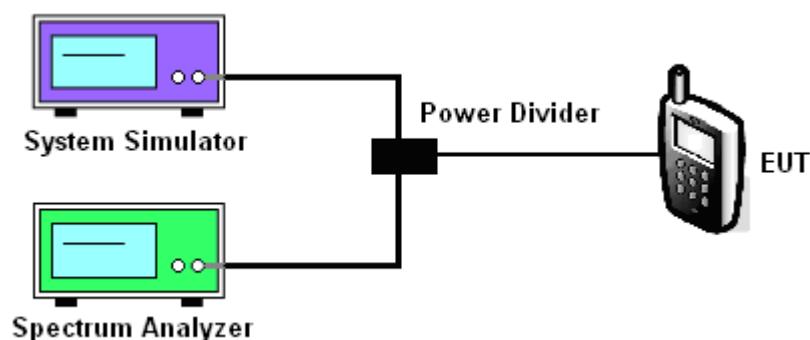
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. 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.
3. The band edges of low and high channels for the highest RF powers were measured.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

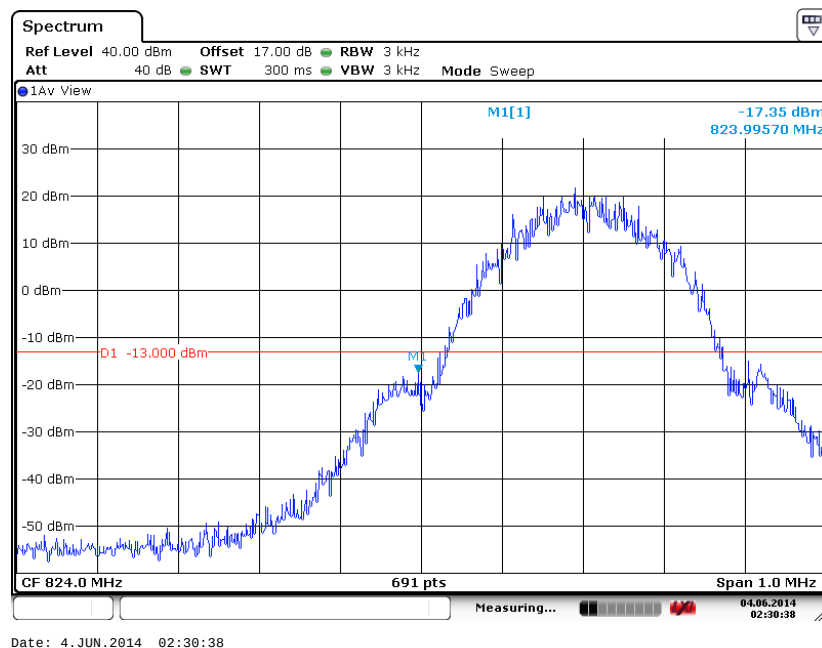
3.5.4 Test Setup



3.5.5 Test Result (Plots) of Conducted Band Edge

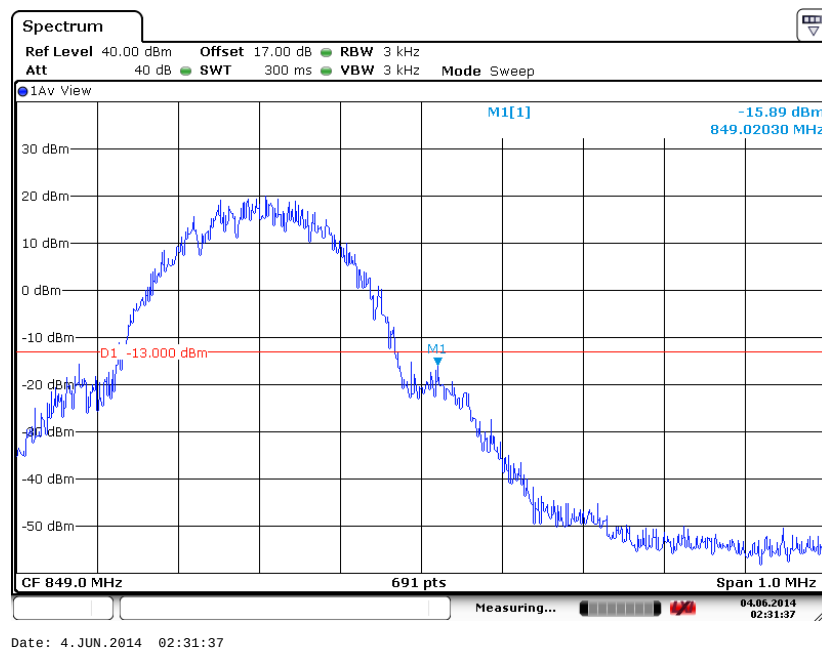
Band :	GSM850	Test Mode :	GPRS class 8 Link (GMSK)
Correction Factor :	0.18dB	Maximum 26dB Bandwidth :	0.313MHz
Band Edge :	-17.17Bm	Measurement Value :	-17.35dBm

Lower Band Edge Plot on Channel 128 (824.2 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

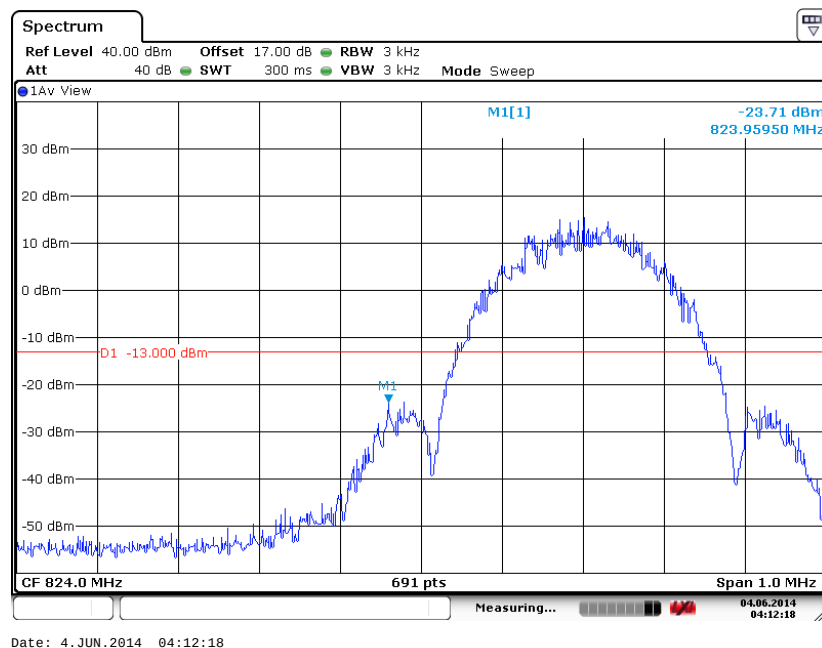
Band :	GSM850	Test Mode :	GPRS class 8 Link (GMSK)
Correction Factor :	0.18dB	Maximum 26dB Bandwidth :	0.313MHz
Band Edge :	-15.71dBm	Measurement Value :	-15.89dBm

Higher Band Edge Plot on Channel 251 (848.8 MHz)


1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
Correction Factor :	0.08dB	Maximum 26dB Bandwidth :	0.305MHz
Band Edge :	-23.63dBm	Measurement Value :	-23.71dBm

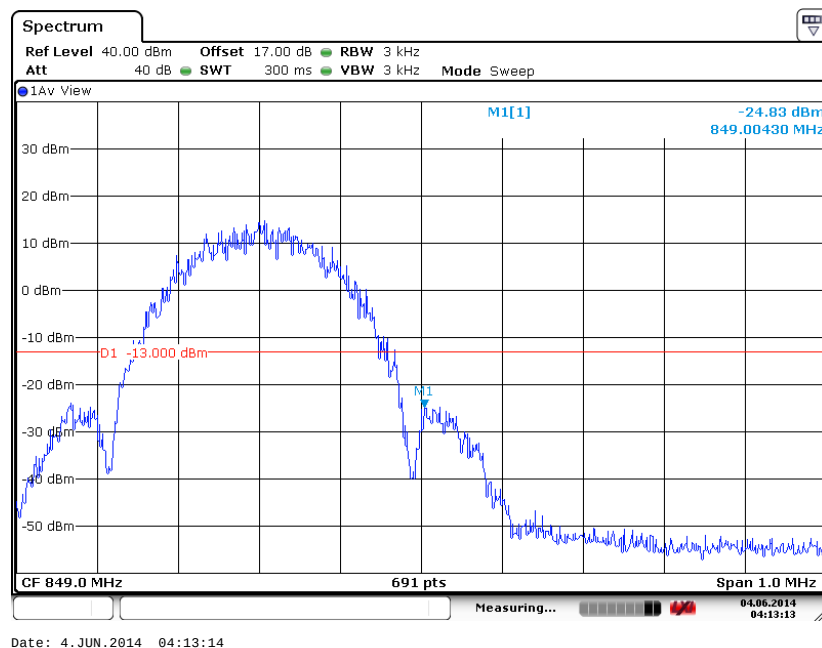
Lower Band Edge Plot on Channel 128 (824.2 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
Correction Factor :	0.08dB	Maximum 26dB Bandwidth :	0.305MHz
Band Edge :	-24.75dBm	Measurement Value :	-24.83dBm

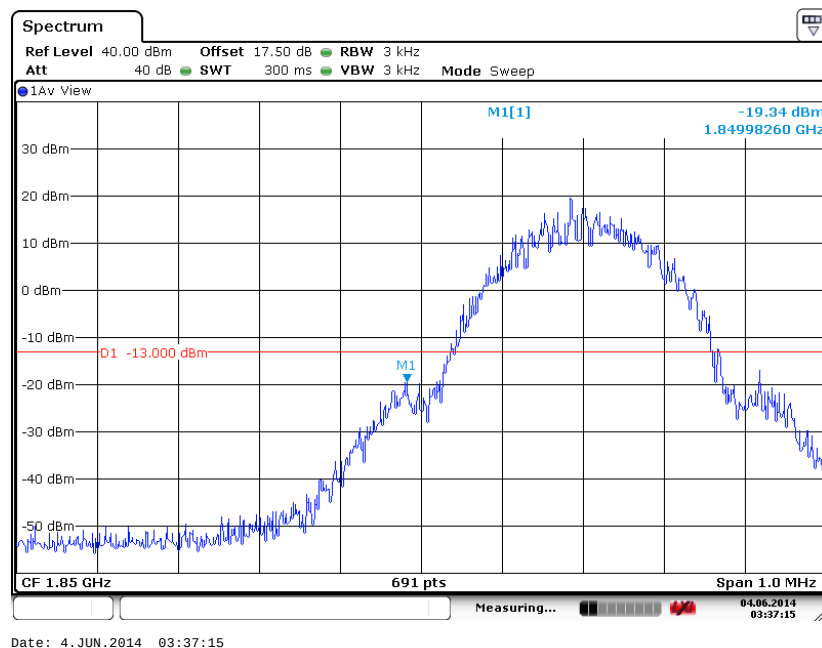
Higher Band Edge Plot on Channel 251 (848.8 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

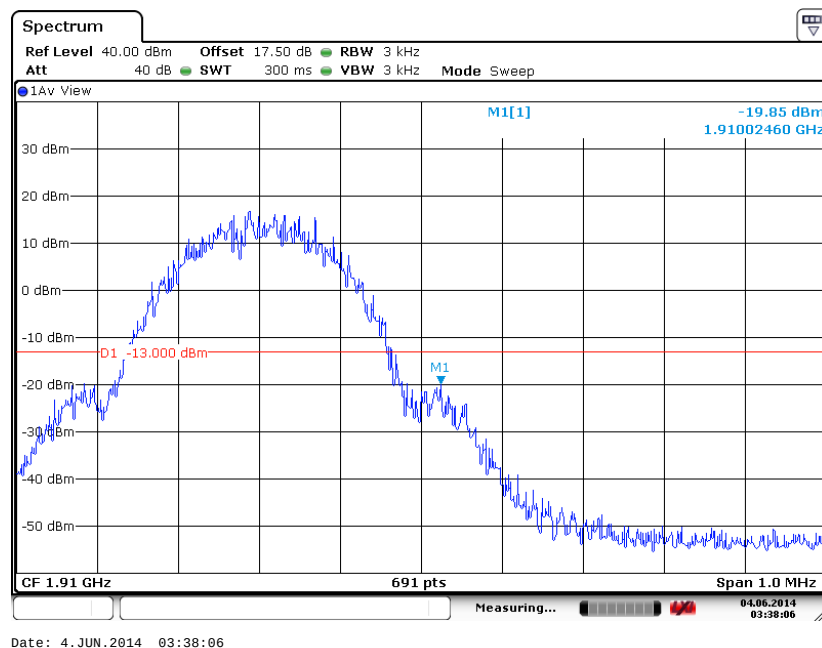
Band :	GSM1900	Test Mode :	GSM Link (GMSK)
Correction Factor :	0.18dB	Maximum 26dB Bandwidth :	0.313MHz
Band Edge :	-19.16dBm	Measurement Value :	-19.34dBm

Lower Band Edge Plot on Channel 512 (1850.2 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

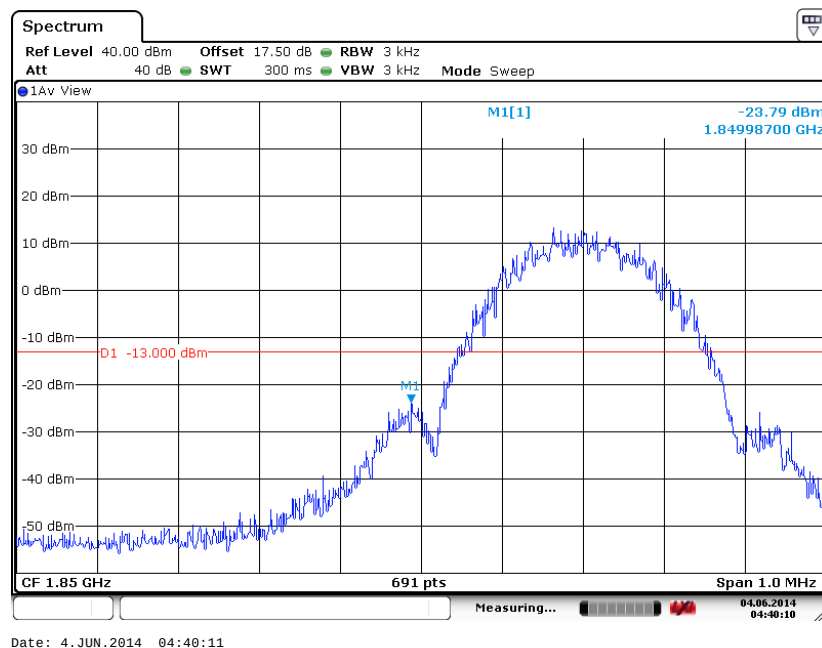
Band :	GSM1900	Test Mode :	GSM Link (GMSK)
Correction Factor :	0.18dB	Maximum 26dB Bandwidth :	0.313MHz
Band Edge :	-19.67dBm	Measurement Value :	-19.85dBm

Higher Band Edge Plot on Channel 810 (1909.8 MHz)


1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

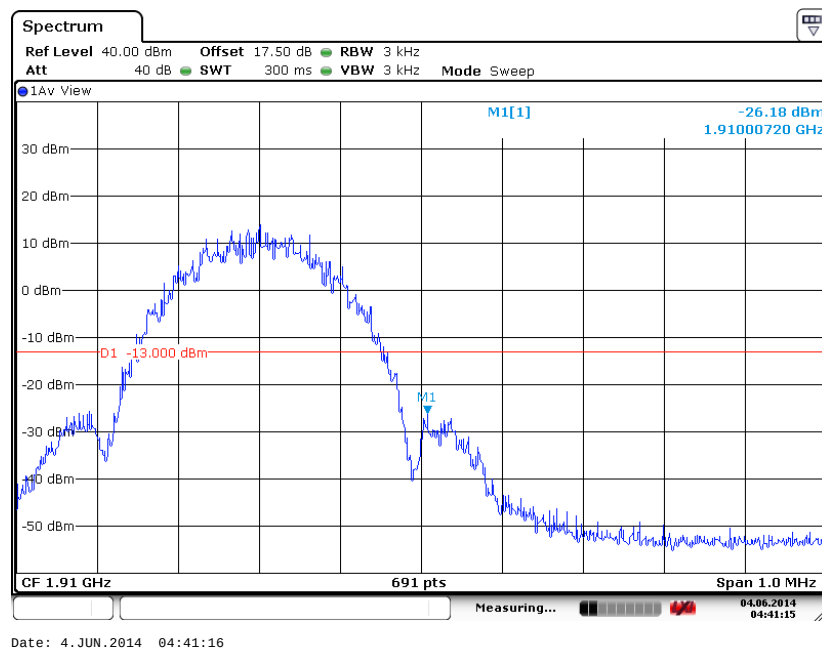
Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)
Correction Factor :	0.10dB	Maximum 26dB Bandwidth :	0.307MHz
Band Edge :	-23.69dBm	Measurement Value :	-23.79dBm

Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)
Correction Factor :	0.10dB	Maximum 26dB Bandwidth :	0.307MHz
Band Edge :	-26.08dBm	Measurement Value :	-26.18dBm

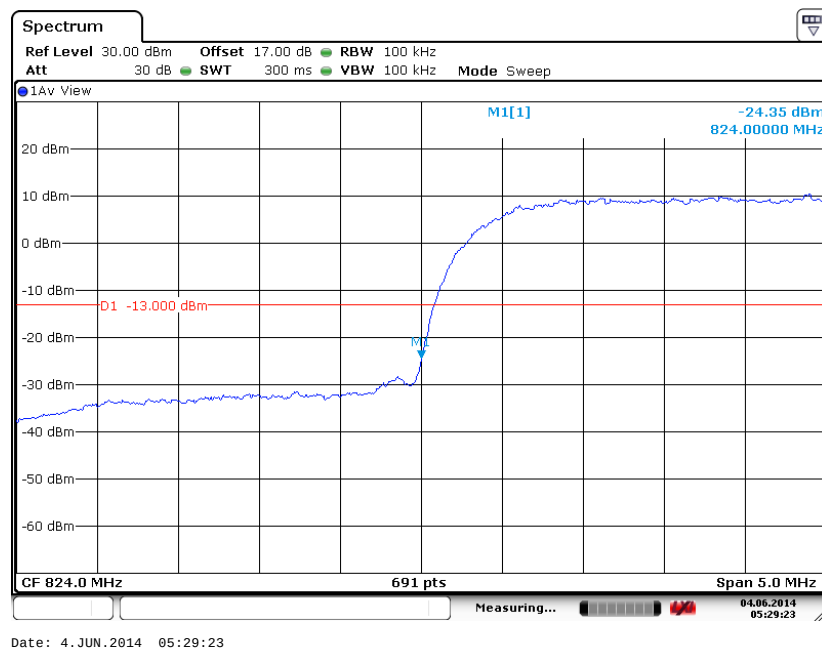
Higher Band Edge Plot on Channel 810 (1909.8 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
Correction Factor :	-3.29dB	Maximum 26dB Bandwidth :	4.689MHz
Band Edge :	-27.64dBm	Measurement Value :	-24.35dBm

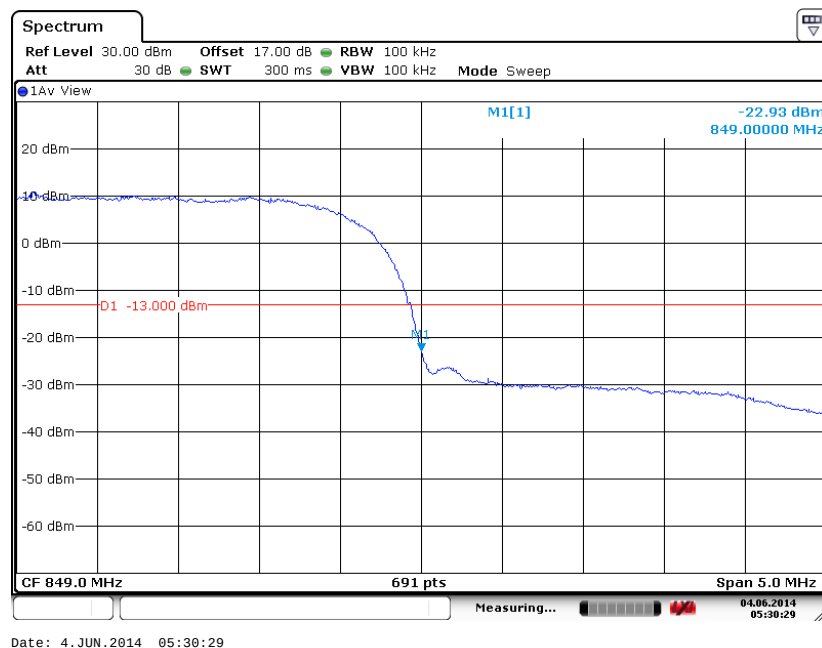
Lower Band Edge Plot on Channel 4132 (826.4 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
Correction Factor :	-3.29dB	Maximum 26dB Bandwidth :	4.689MHz
Band Edge :	-26.22dBm	Measurement Value :	-22.93dBm

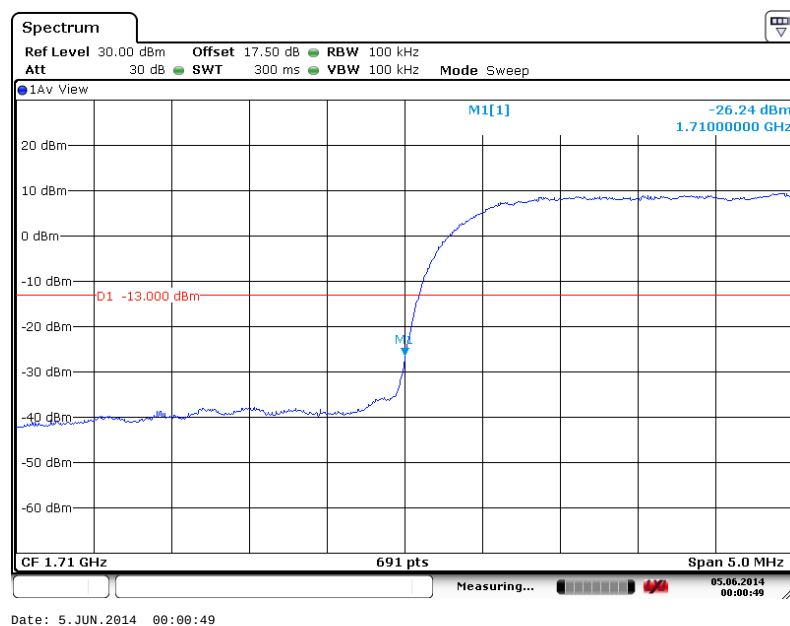
Higher Band Edge Plot on Channel 4233 (846.6 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

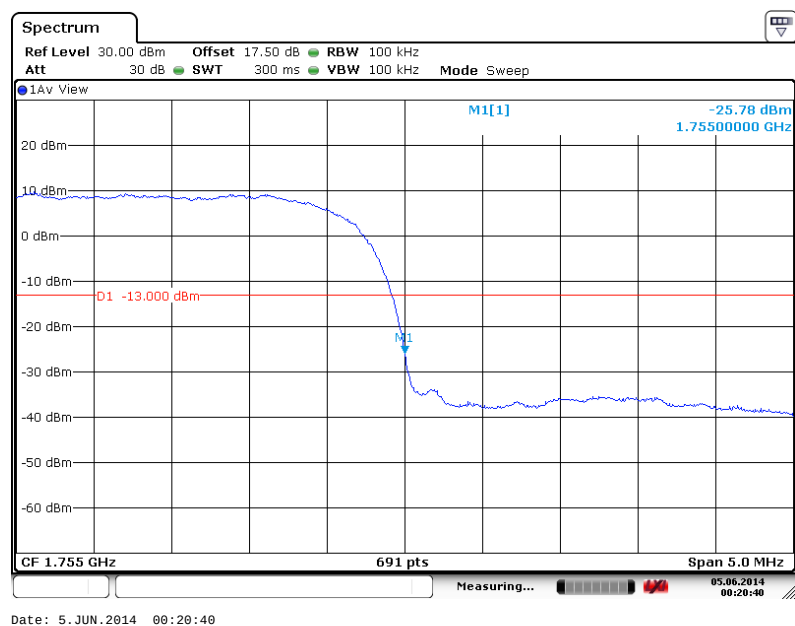
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
Correction Factor :	-3.32dB	Maximum 26dB Bandwidth :	4.660MHz
Band Edge :	-29.56dBm	Measurement Value :	-26.24dBm

Lower Band Edge Plot on Channel 1312 (1712.4 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

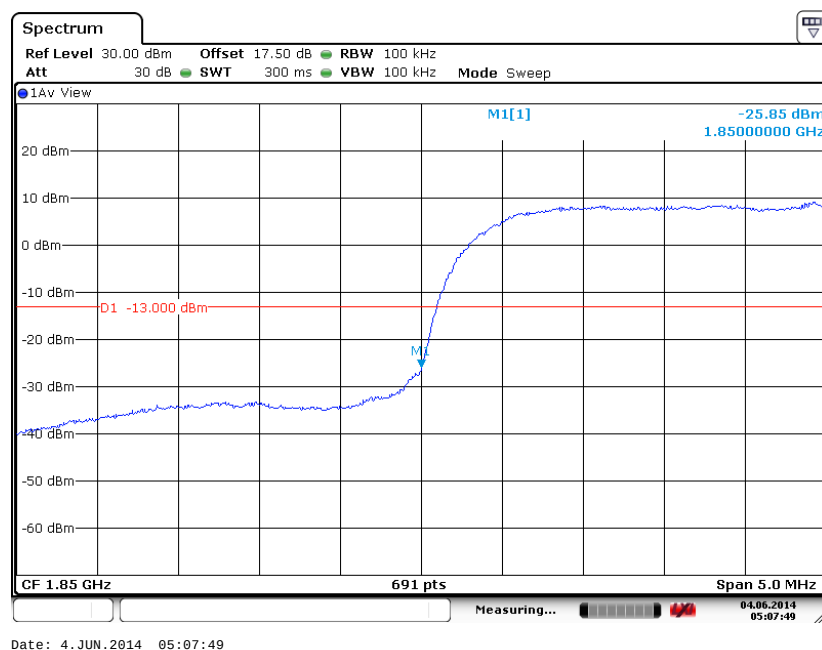
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
Correction Factor :	-3.32dB	Maximum 26dB Bandwidth :	4.660MHz
Band Edge :	-29.10dBm	Measurement Value :	-25.78dBm

Higher Band Edge Plot on Channel 1513 (1752.6 MHz)


1. Correction Factor(dB)= 10log(1% Emission BW/RBW)
2. Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
Correction Factor :	-3.32dB	Maximum 26dB Bandwidth :	4.660MHz
Band Edge :	-29.17dBm	Measurement Value :	-25.85dBm

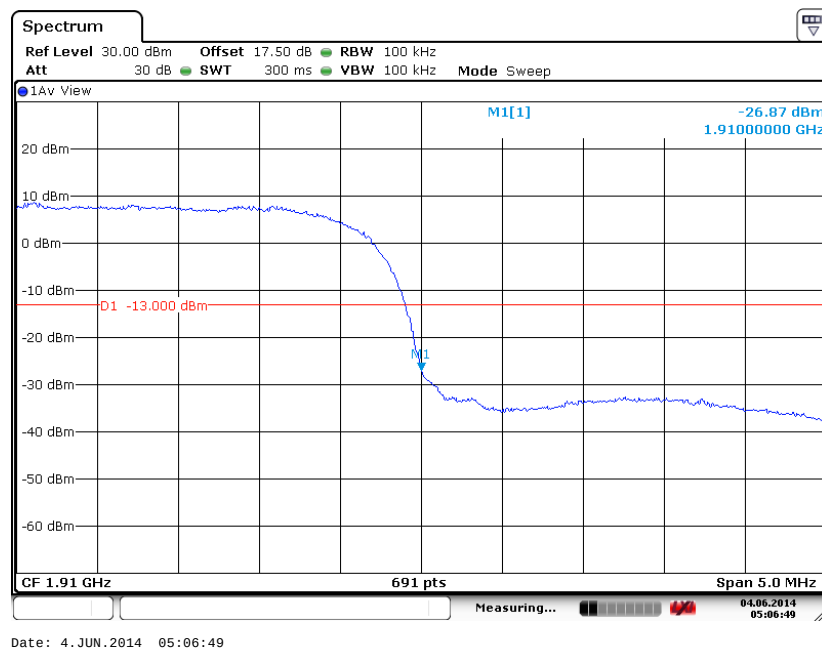
Lower Band Edge Plot on Channel 9262 (1852.4 MHz)



1. Correction Factor(dB)= 10log(1% Emission BW/RBW)
2. Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
Correction Factor :	-3.32dB	Maximum 26dB Bandwidth :	4.660MHz
Band Edge :	-30.19dBm	Measurement Value :	-26.87dBm

Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



1. Correction Factor(dB)= $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

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

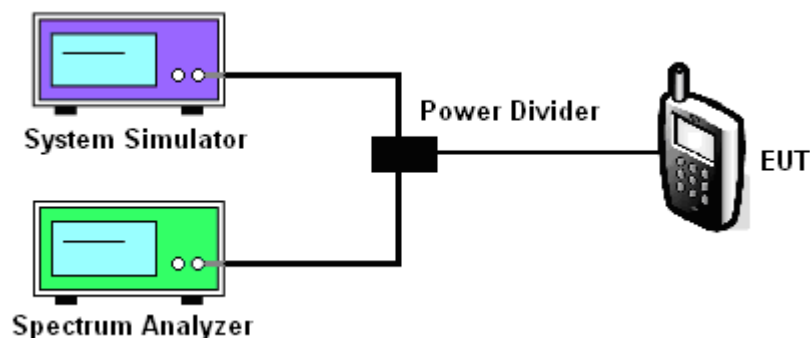
1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

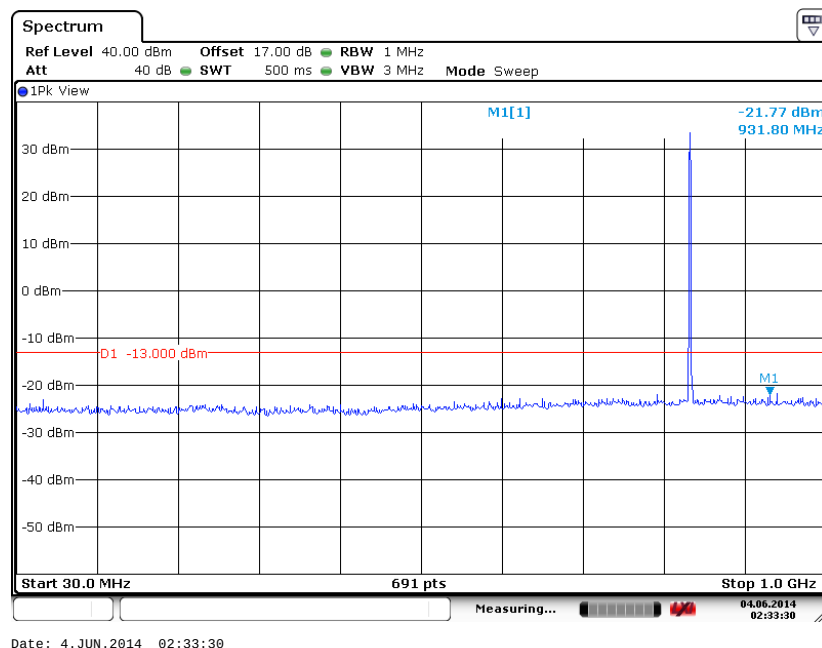
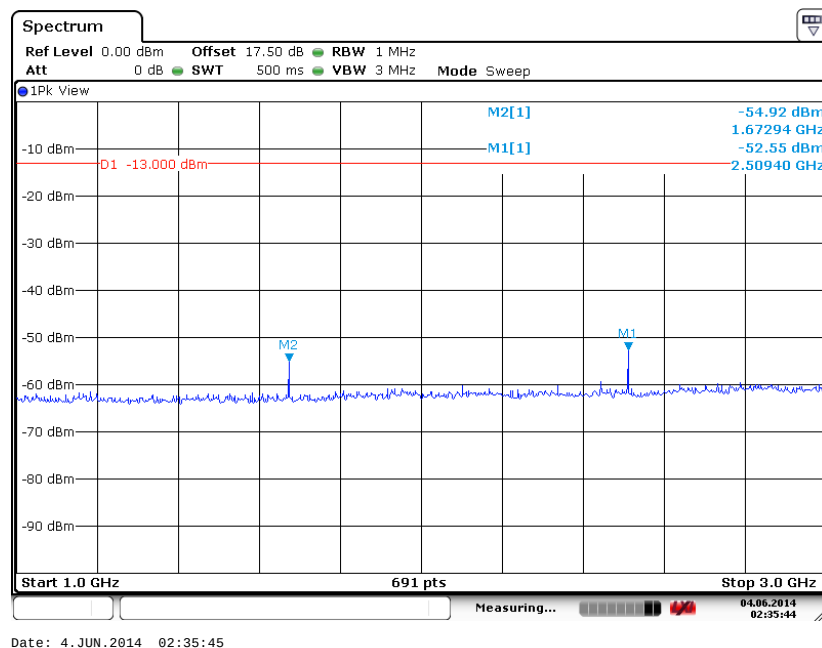
$$= -13\text{dBm}.$$

3.6.4 Test Setup



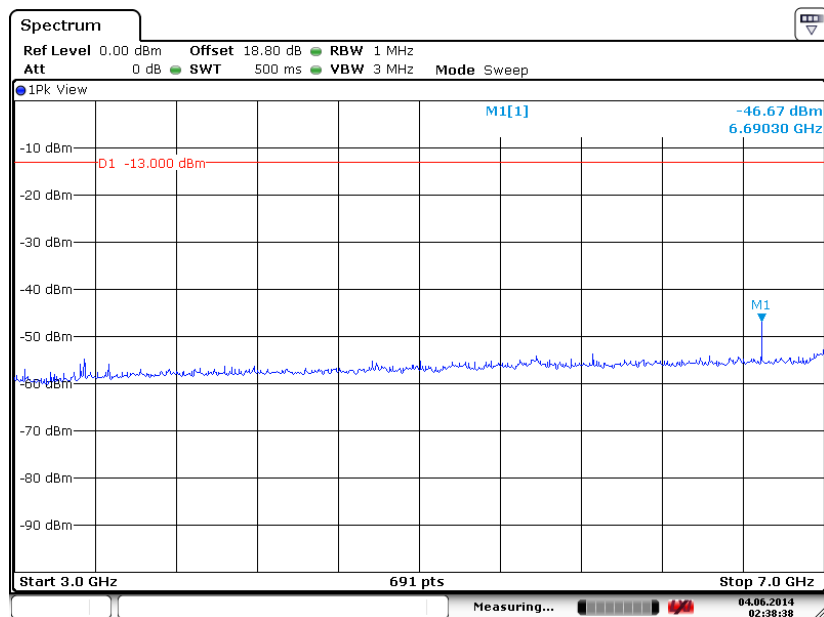
3.6.5 Test Result (Plots) of Conducted Spurious Emission

Band :	GSM850	Channel :	CH189
Test Mode :	GPRS class 8 Link (GMSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


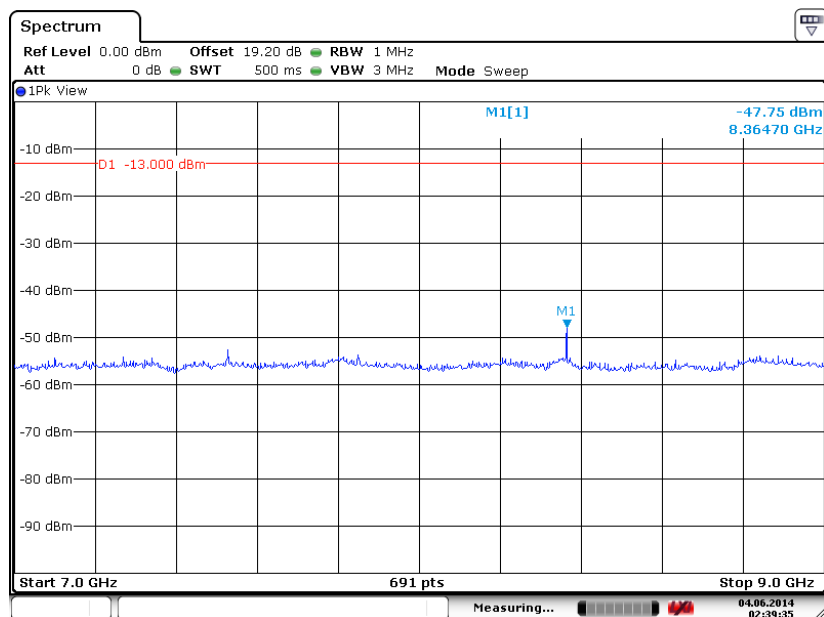


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 4. JUN. 2014 02:38:38

Conducted Spurious Emission Plot between 7GHz ~ 9GHz

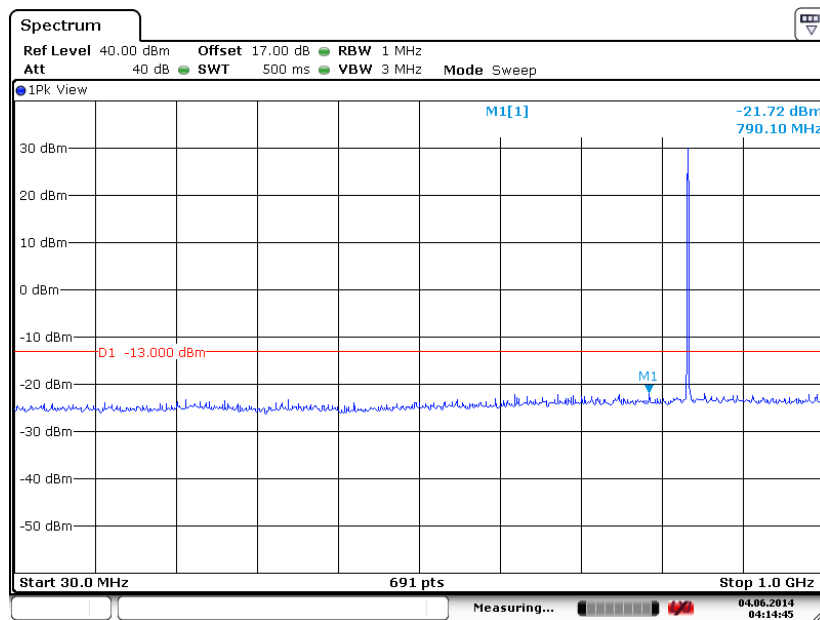


Date: 4. JUN. 2014 02:39:36



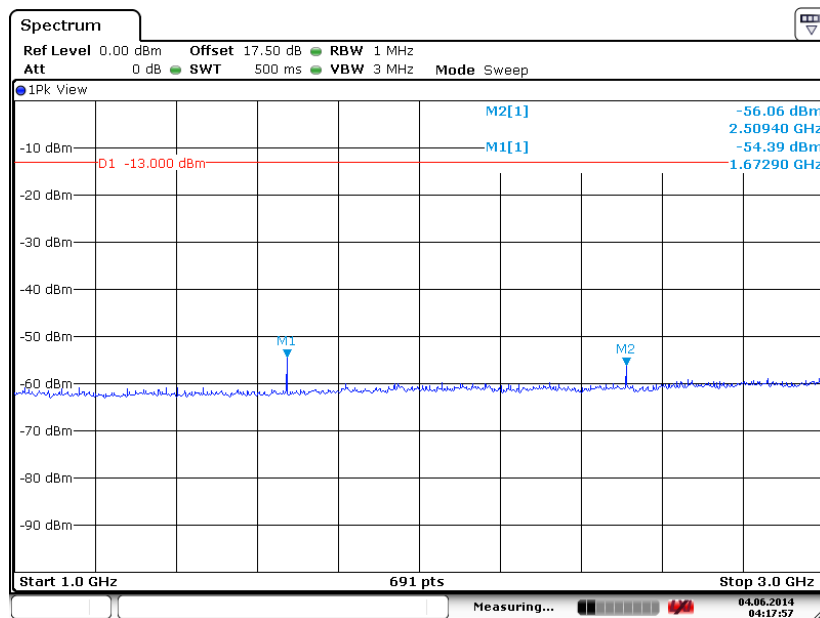
Band :	GSM850	Channel :	CH189
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 4.JUN.2014 04:14:45

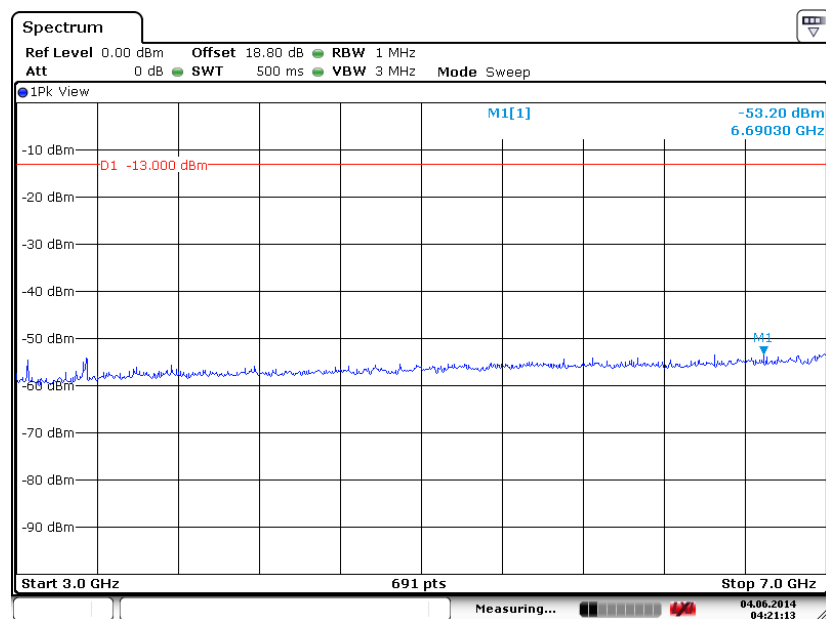
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 4.JUN.2014 04:17:57

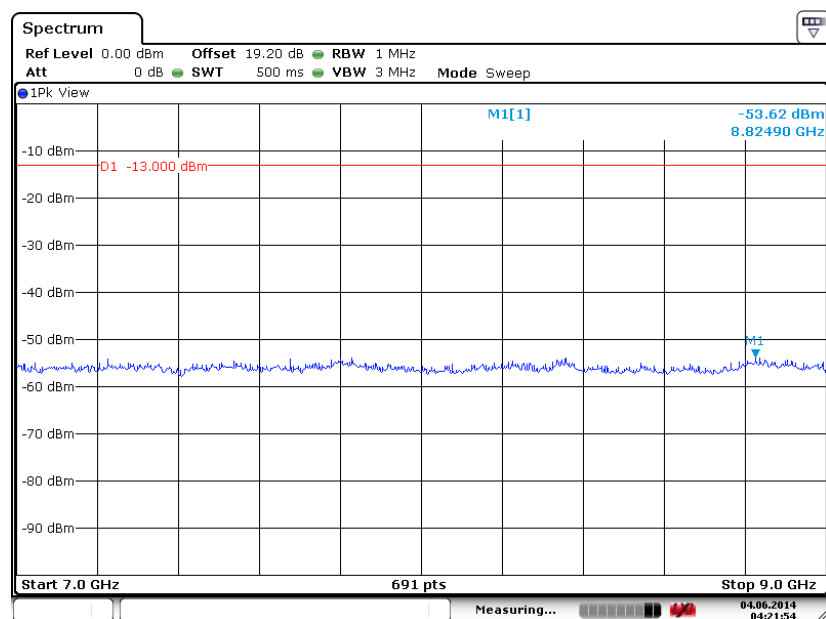


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 4. JUN. 2014 04:21:14

Conducted Spurious Emission Plot between 7GHz ~ 9GHz

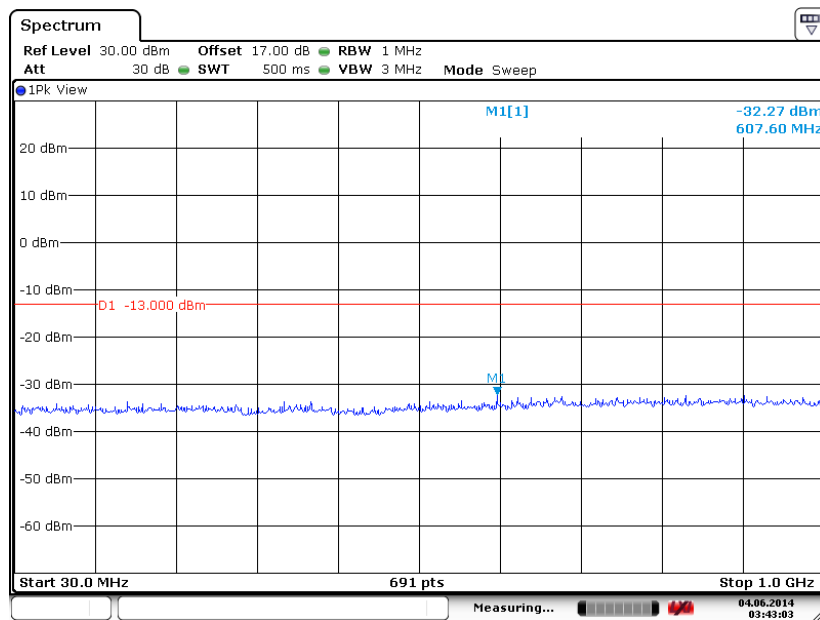


Date: 4. JUN. 2014 04:21:55



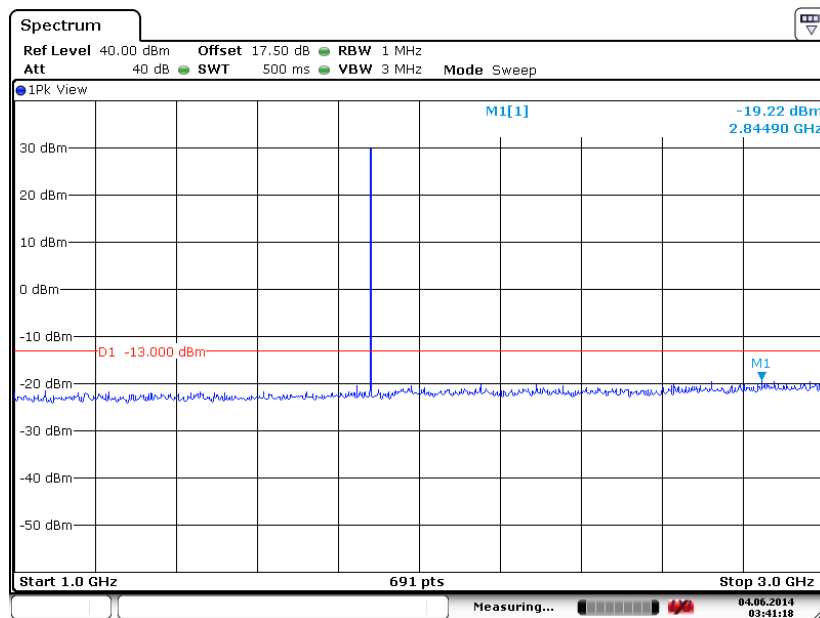
Band :	GSM1900	Channel :	CH661
Test Mode :	GSM Link (GMSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



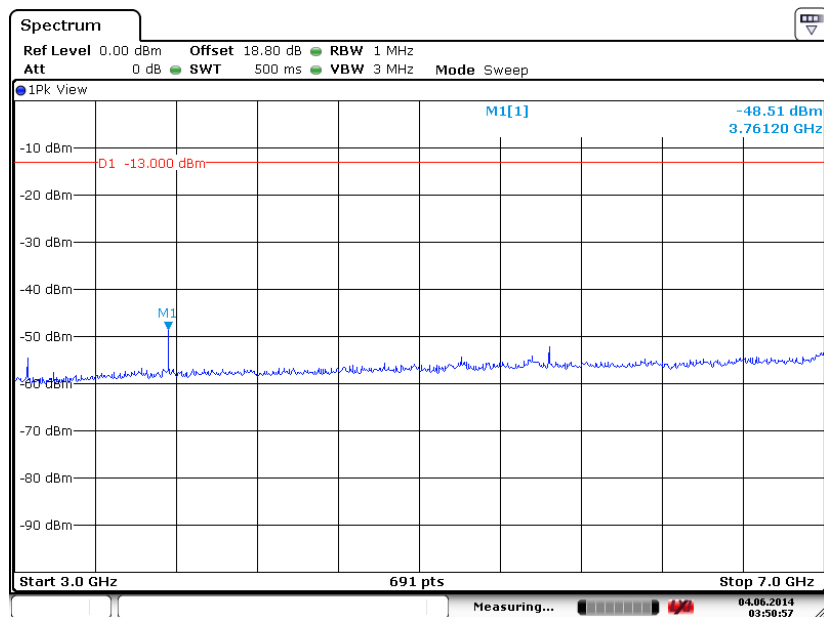
Date: 4.JUN.2014 03:43:04

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



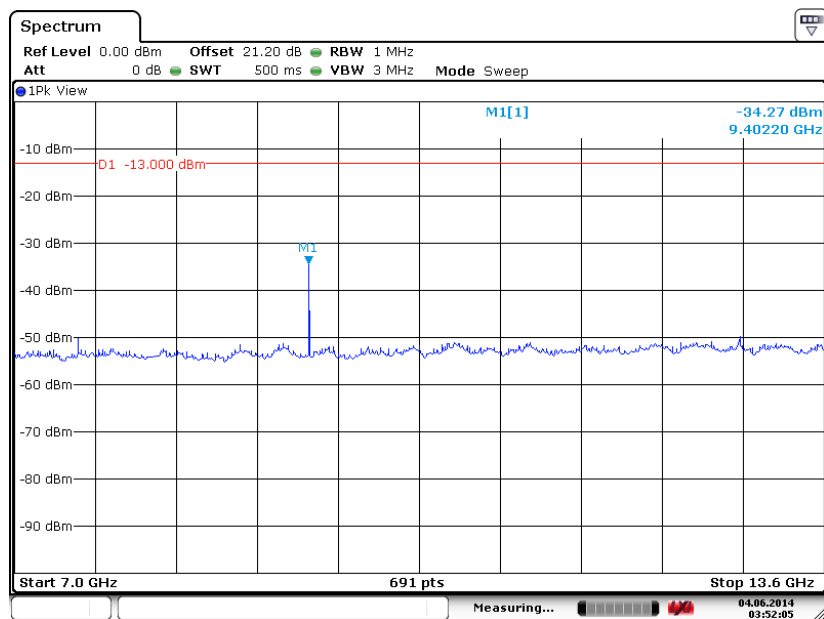
Date: 4.JUN.2014 03:41:19

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 4. JUN. 2014 03:50:58

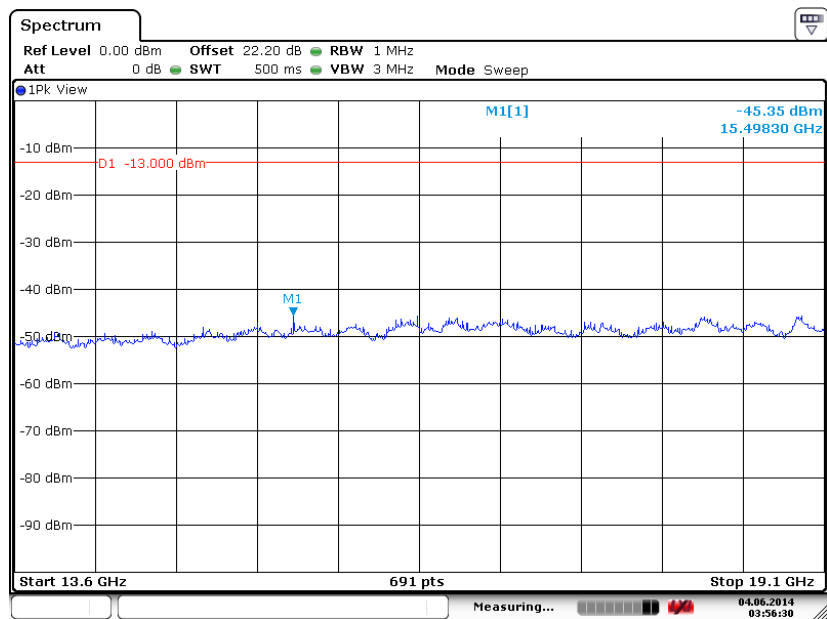
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 4. JUN. 2014 03:52:05



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

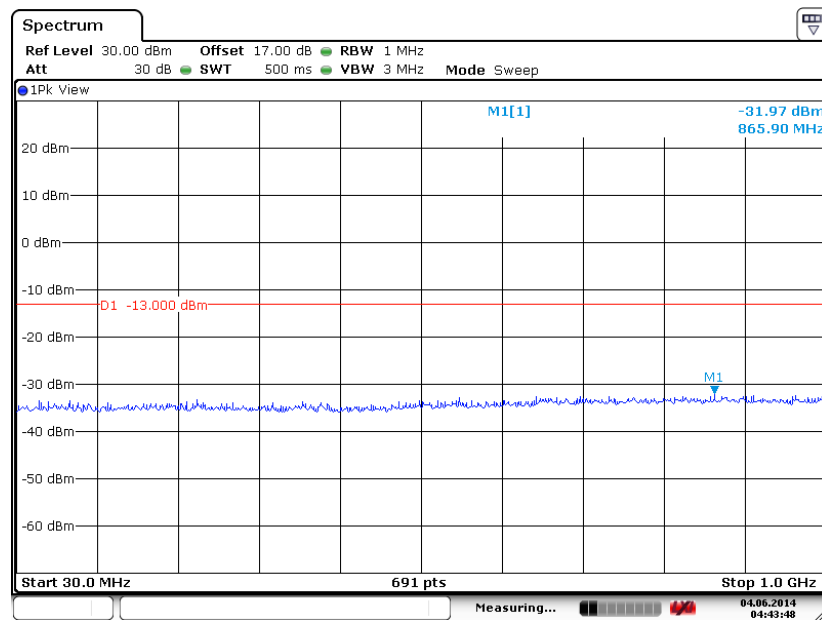


Date: 4. JUN. 2014 03:56:30



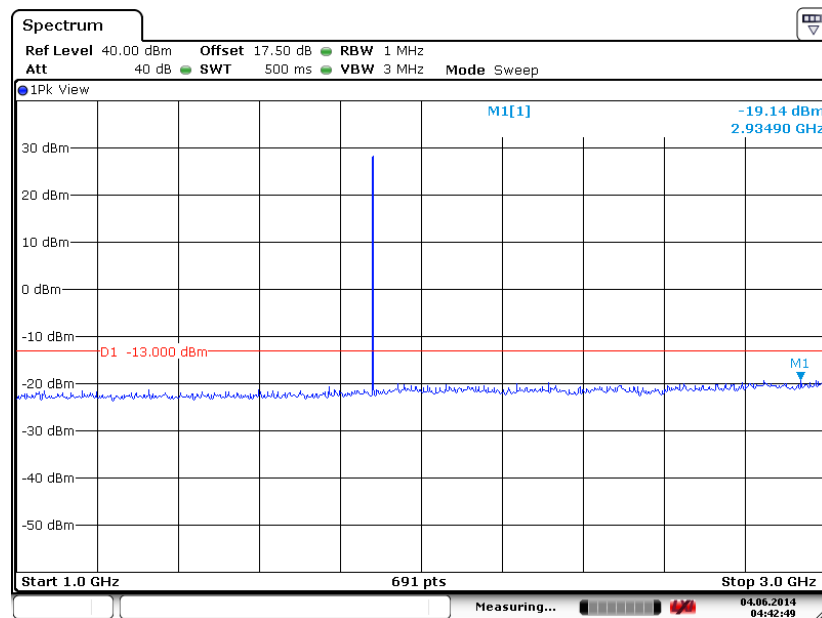
Band :	GSM1900	Channel :	CH661
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



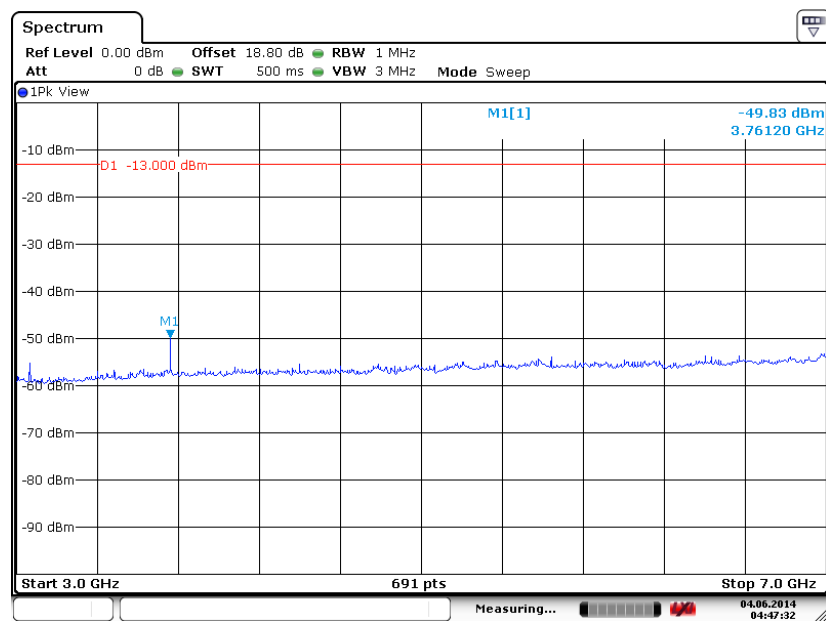
Date: 4.JUN.2014 04:43:48

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



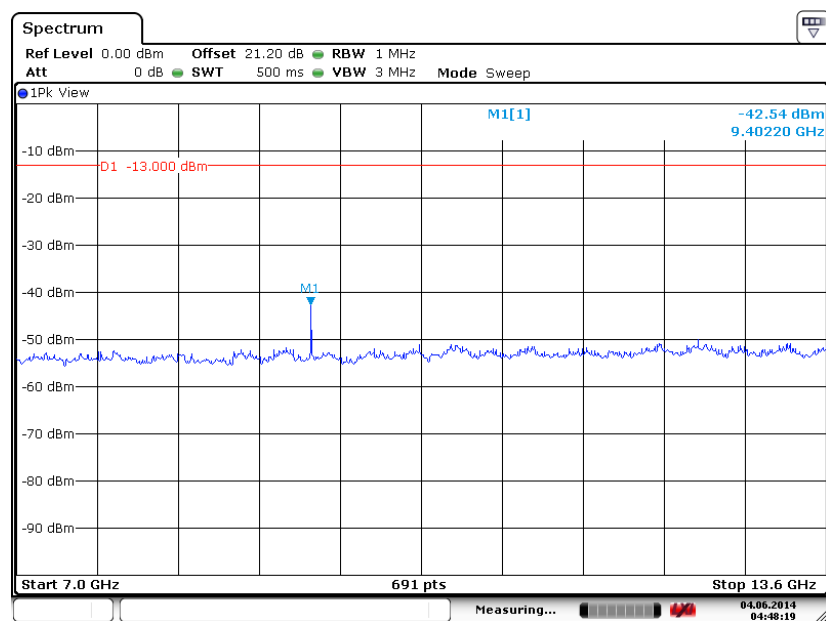
Date: 4.JUN.2014 04:42:49

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 4. JUN. 2014 04:47:32

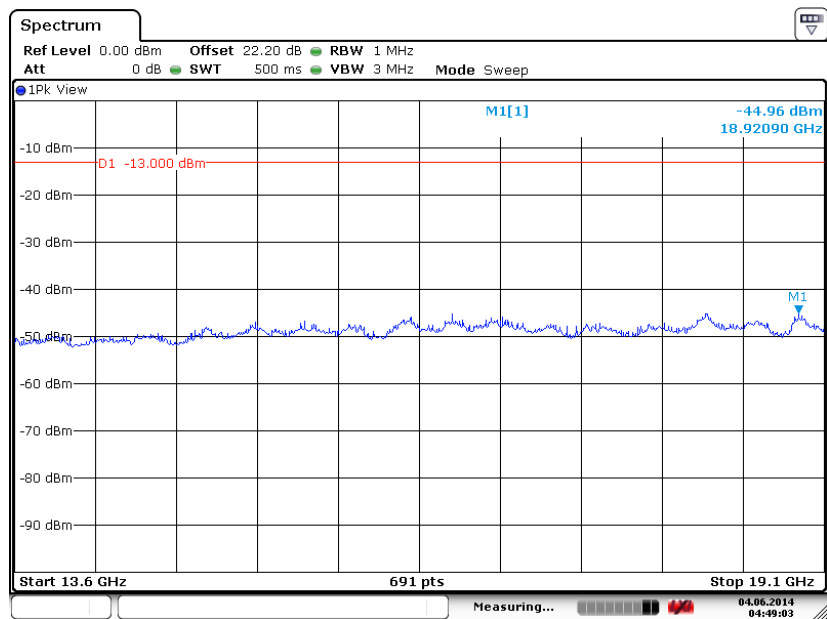
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 4. JUN. 2014 04:48:18



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

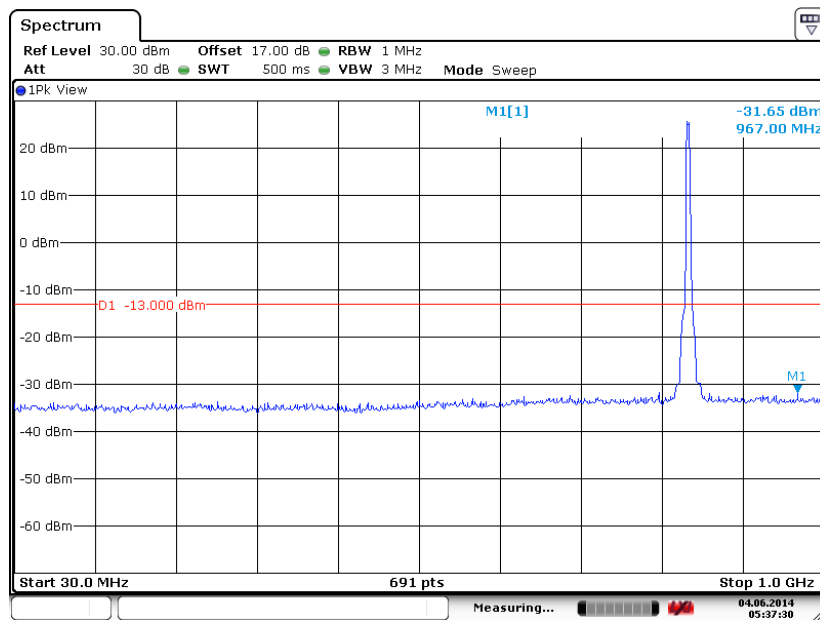


Date: 4. JUN. 2014 04:49:04



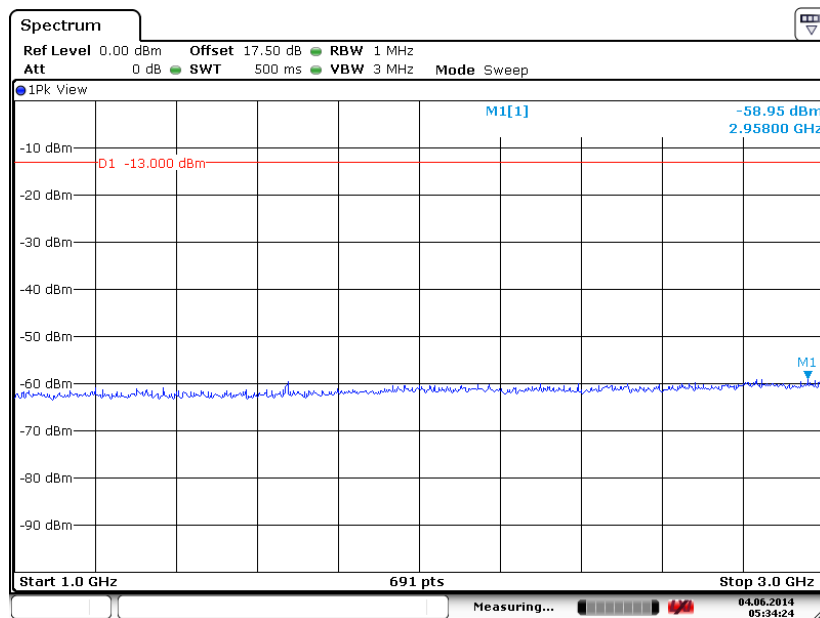
Band :	WCDMA Band V	Channel :	CH4182
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 4.JUN.2014 05:37:30

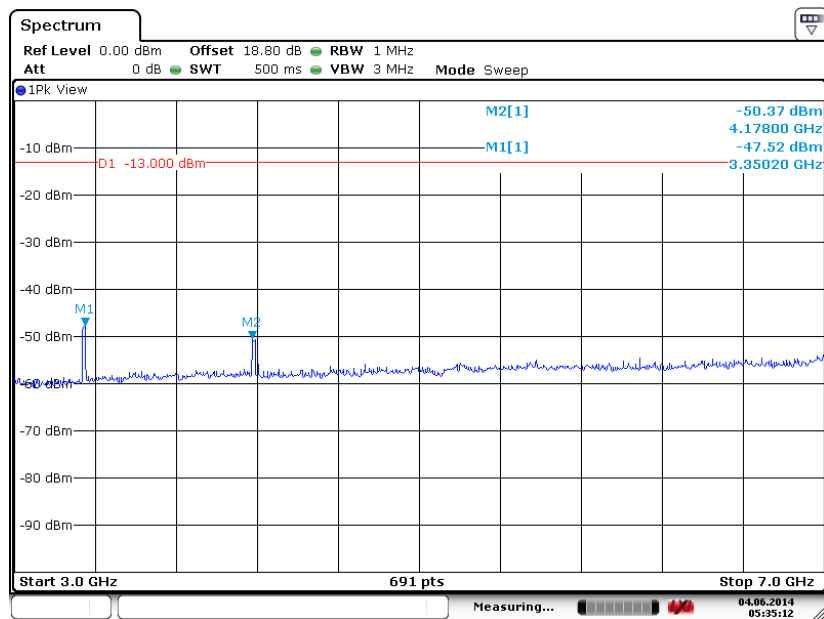
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 4.JUN.2014 05:34:24

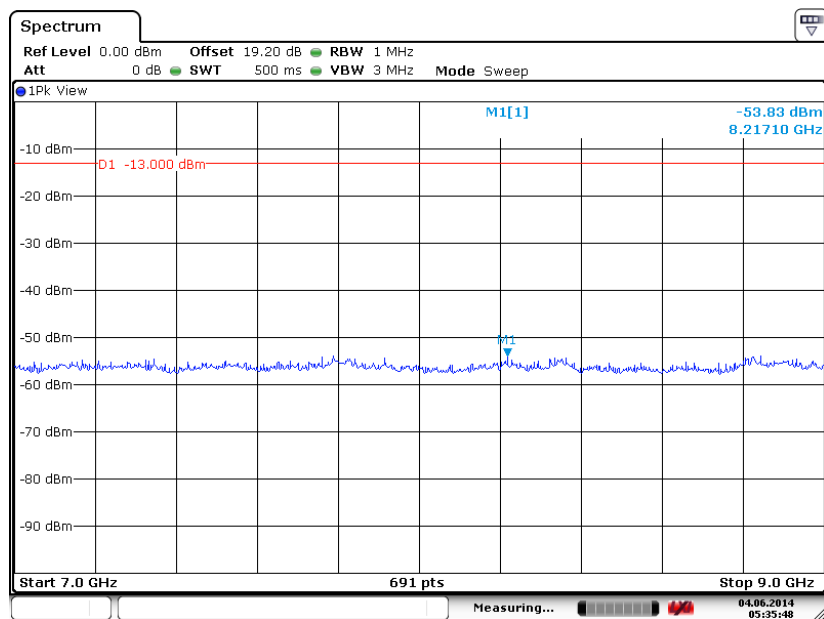


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 4. JUN. 2014 05:35:12

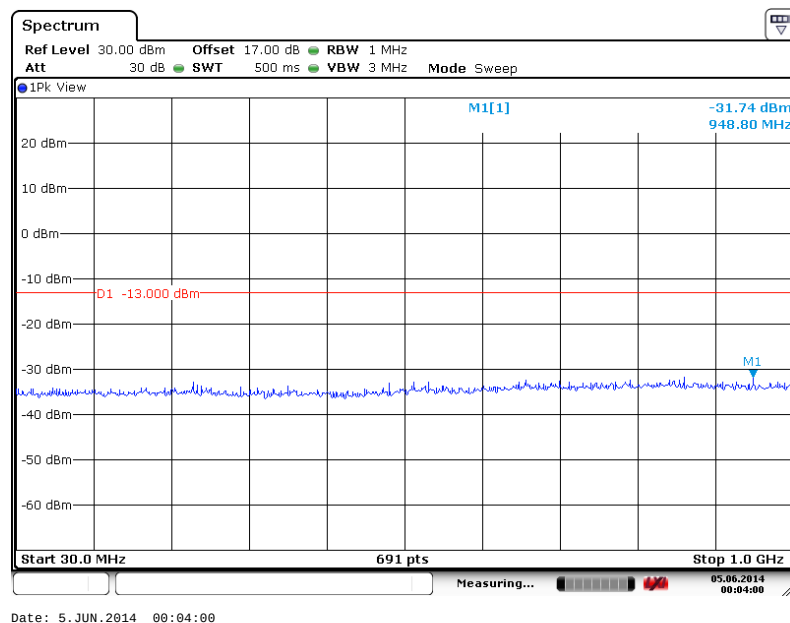
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



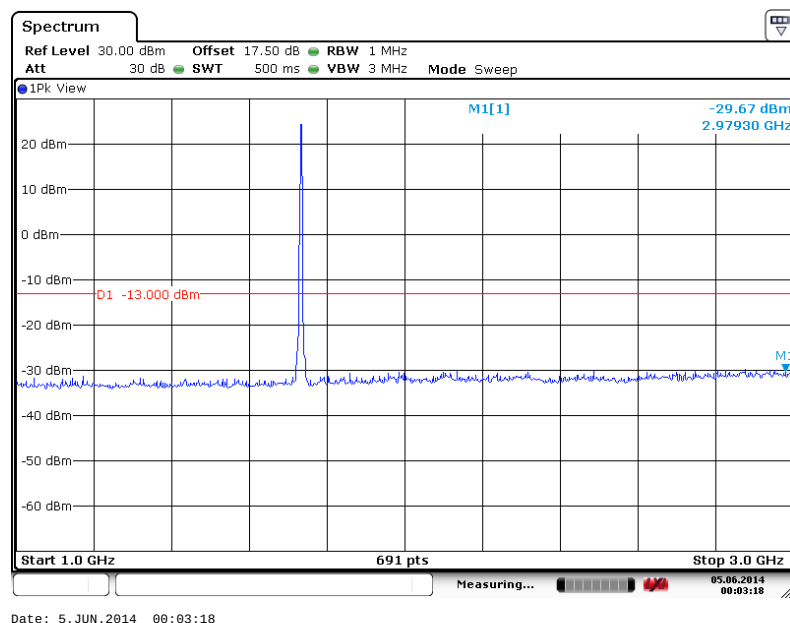
Date: 4. JUN. 2014 05:35:48

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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz

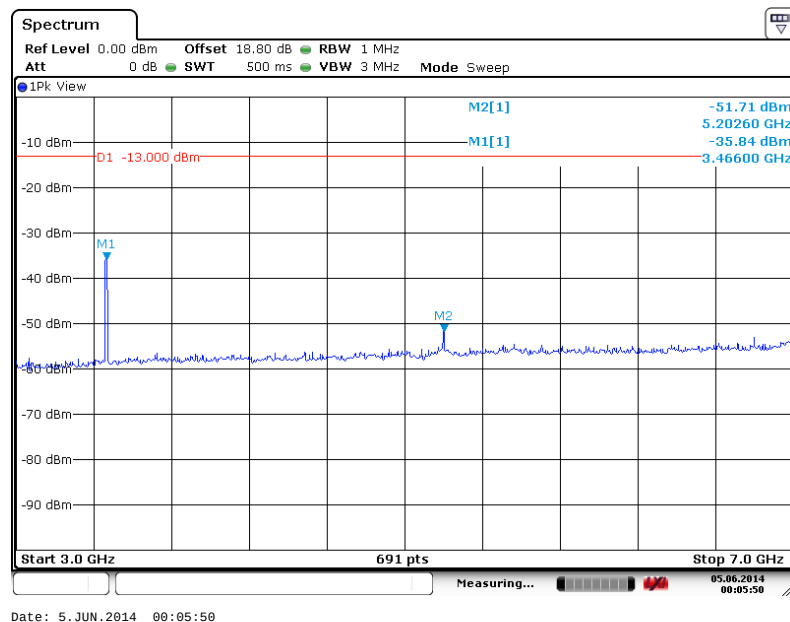


Conducted Spurious Emission Plot between 1GHz ~ 3GHz

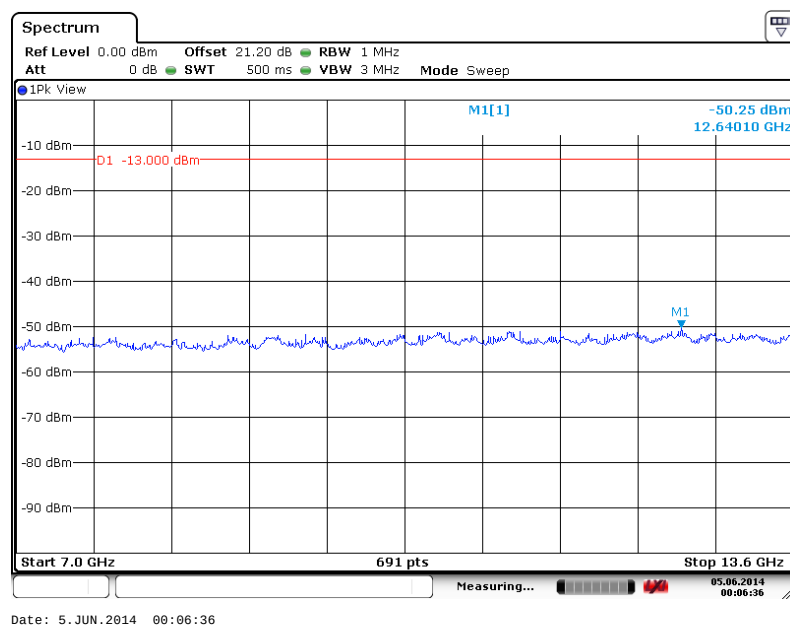




Conducted Spurious Emission Plot between 3GHz ~ 7GHz

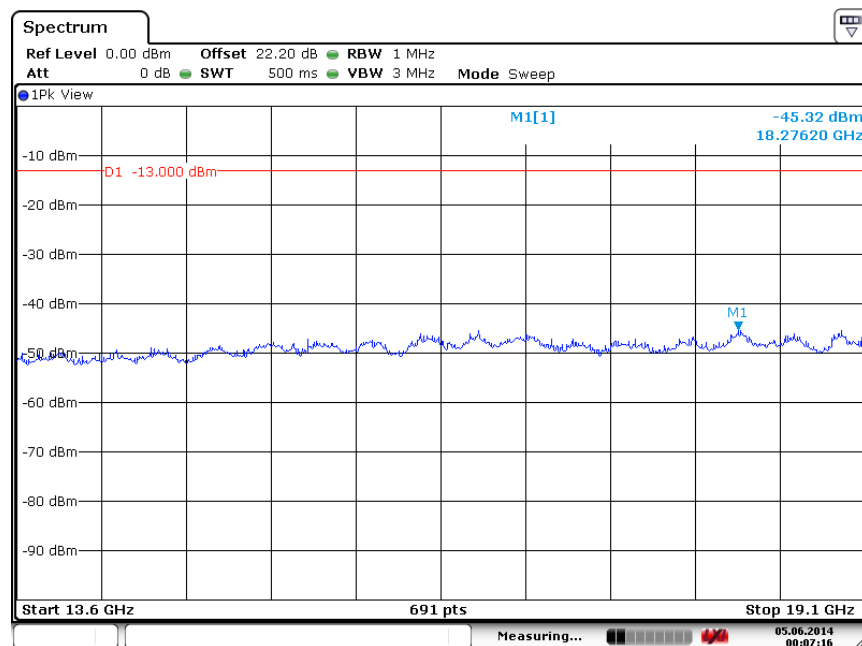


Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz





Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

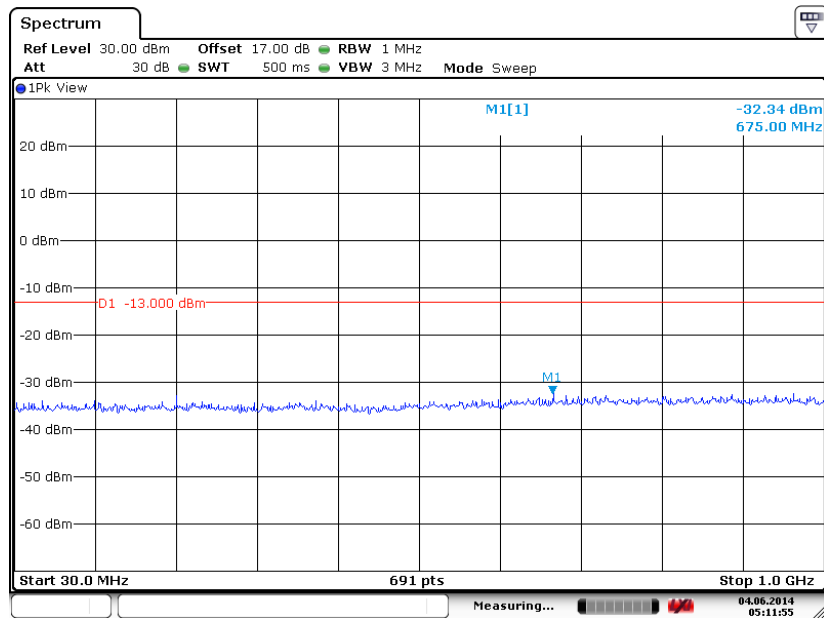


Date: 5. JUN. 2014 00:07:16



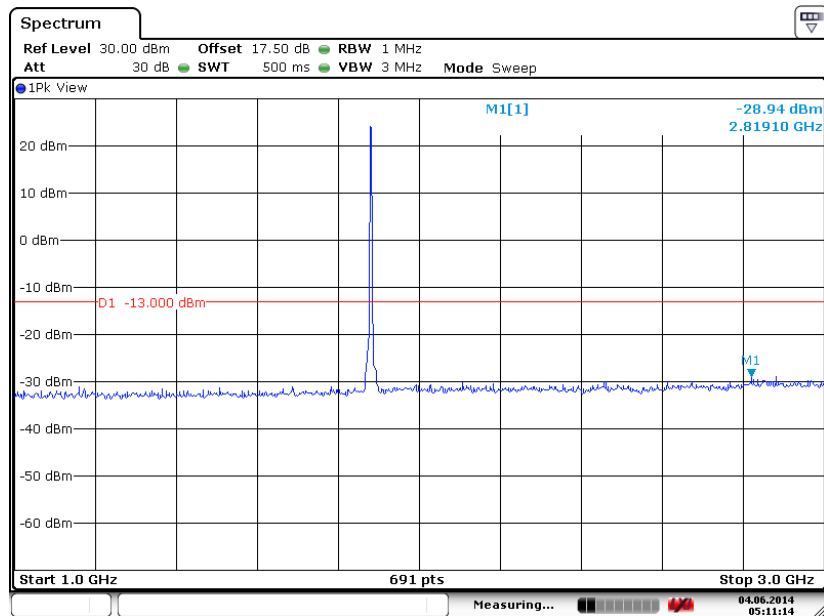
Band :	WCDMA Band II	Channel :	CH9400
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



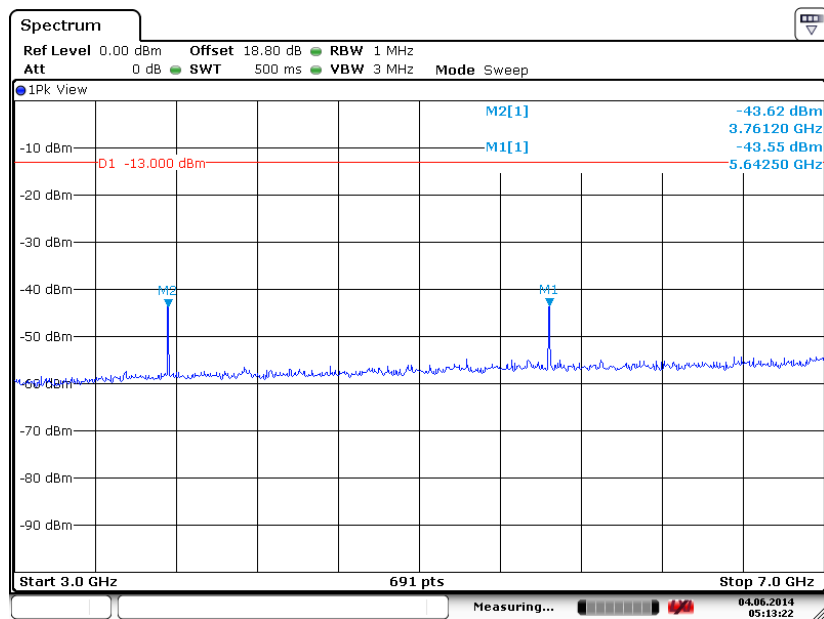
Date: 4.JUN.2014 05:11:54

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



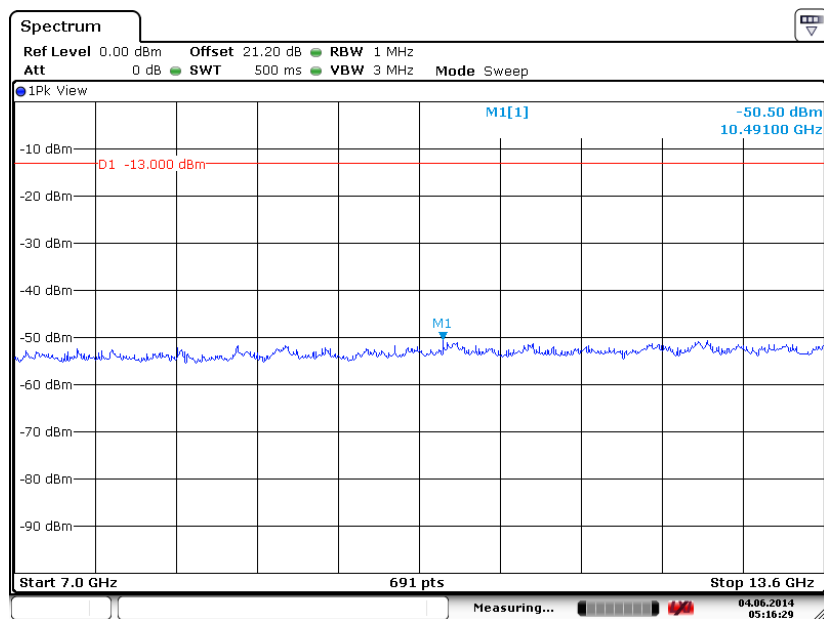
Date: 4.JUN.2014 05:11:15

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 4. JUN. 2014 05:13:21

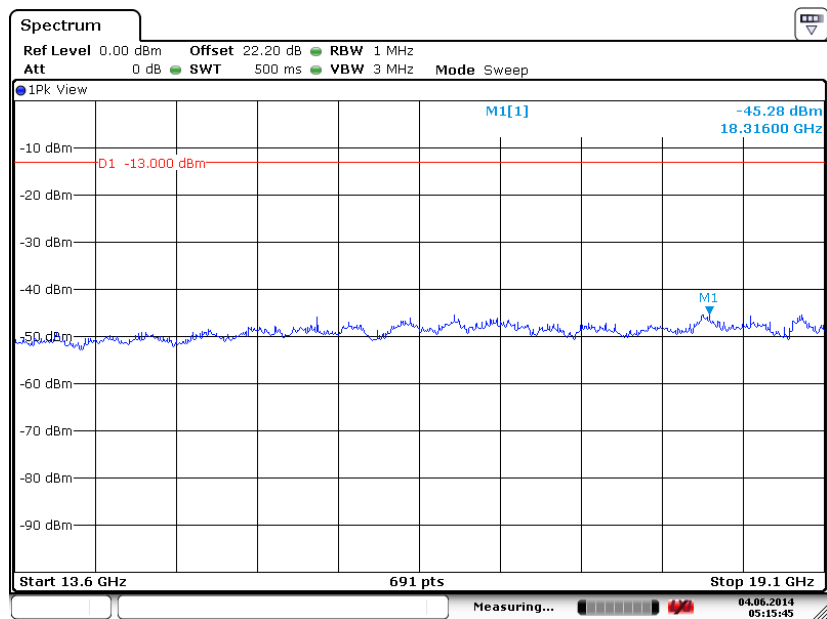
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 4. JUN. 2014 05:16:30



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 4. JUN. 2014 05:15:45

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

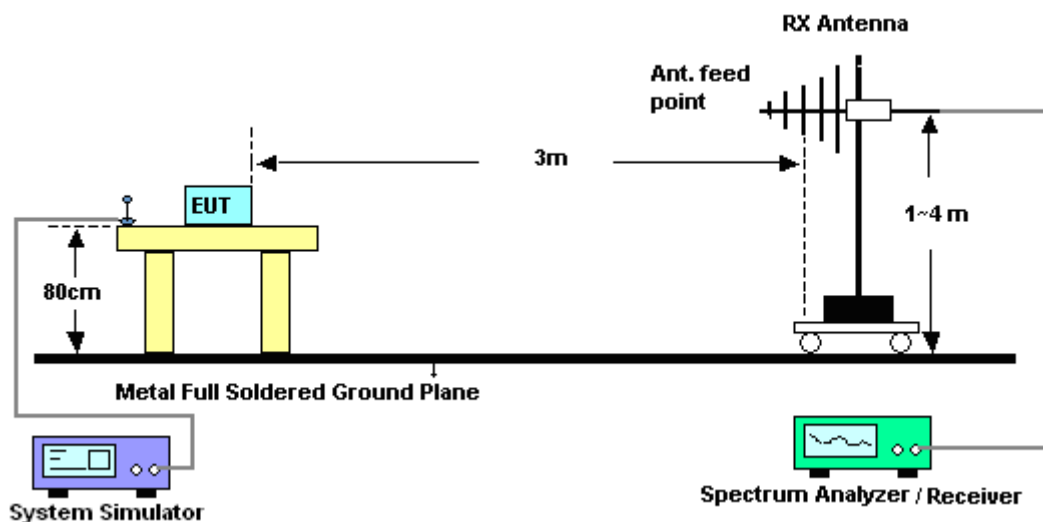
The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

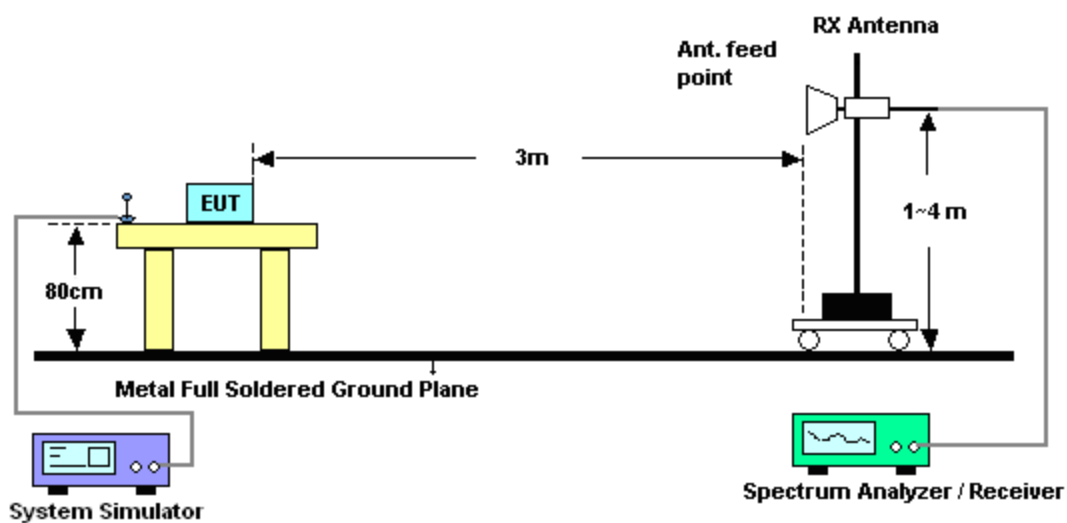
1. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
13. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$
$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$
$$= -13\text{dBm}.$$

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	Temperature :	21~24°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain		
			(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1675	-55.65	-13	-42.65	-62.43	-59.52	1.62	5.49	H	Pass
2509	-47.78	-13	-34.78	-57.93	-51.9	2.1	6.22	H	Pass
3346	-53.51	-13	-40.51	-66.46	-58.55	3.03	8.07	H	Pass

Band :	GSM850	Temperature :	21~24°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain		
			(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1675	-54.23	-13	-41.23	-60.13	-58.1	1.62	5.49	V	Pass
2509	-48.27	-13	-35.27	-59.93	-52.39	2.1	6.22	V	Pass
3346	-53.97	-13	-40.97	-66.65	-59.01	3.03	8.07	V	Pass



Band :	GSM850	Temperature :	21~24°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1675	-57.12	-13	-44.12	-63.81	-60.99	1.62	5.49	H	Pass
2509	-55.90	-13	-42.90	-65.97	-60.02	2.1	6.22	H	Pass
3346	-53.12	-13	-40.12	-65.98	-58.16	3.03	8.07	H	Pass

Band :	GSM850	Temperature :	21~24°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
1678	-55.04	-13	-42.04	-60.75	-58.91	1.62	5.49	V	Pass
2509	-53.64	-13	-40.64	-65.26	-57.76	2.1	6.22	V	Pass
3346	-53.15	-13	-40.15	-65.81	-58.19	3.03	8.07	V	Pass



Band :	GSM1900	Temperature :	21~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dBm)	(dB)	(dBi)		
3760	-48.48	-13	-35.48	-63.32	-54.78	2.51	8.81	H	Pass
5640	-44.21	-13	-31.21	-64.54	-51.92	2.99	10.70	H	Pass
7520	-41.37	-13	-28.37	-65.95	-49.9	3.59	12.12	H	Pass
9400	-31.29	-13	-18.29	-57.91	-40.39	4.1	13.20	H	Pass

Band :	GSM1900	Temperature :	21~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3760	-48.80	-13	-35.80	-63.72	-55.1	2.51	8.81	V	Pass
5636	-41.75	-13	-28.75	-60.84	-49.46	2.99	10.70	V	Pass
7520	-41.95	-13	-28.95	-65.37	-50.48	3.59	12.12	V	Pass
9396	-32.27	-13	-19.27	-57.34	-41.37	4.1	13.20	V	Pass

Band :	GSM1900	Temperature :	21~24°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3763	-48.34	-13	-35.34	-63.42	-54.64	2.51	8.81	H	Pass
5639	-45.17	-13	-32.17	-65.42	-52.88	2.99	10.70	H	Pass
7522	-40.58	-13	-27.58	-65.27	-49.11	3.59	12.12	H	Pass
9398	-34.69	-13	-21.69	-61.24	-43.79	4.1	13.20	H	Pass

Band :	GSM1900	Temperature :	21~24°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3763	-48.59	-13	-35.59	-63.48	-54.89	2.51	8.81	V	Pass
5639	-47.06	-13	-34.06	-66.03	-54.77	2.99	10.70	V	Pass
7522	-42.09	-13	-29.09	-65.38	-50.62	3.59	12.12	V	Pass
9398	-40.61	-13	-27.61	-65.57	-49.71	4.1	13.20	V	Pass



Band :	WCDMA Band V	Temperature :	21~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1675	-56.97	-13	-43.97	-63.6	-60.84	1.62	5.49	H	Pass
2509	-52.15	-13	-39.15	-62.29	-56.27	2.1	6.22	H	Pass
3346	-53.63	-13	-40.63	-66.55	-58.67	3.03	8.07	H	Pass

Band :	WCDMA Band V	Temperature :	21~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1672	-56.52	-13	-43.52	-62.31	-60.39	1.62	5.49	V	Pass
2509	-49.91	-13	-36.91	-61.51	-54.03	2.1	6.22	V	Pass
3346	-53.95	-13	-40.95	-65.58	-58.99	3.03	8.07	V	Pass



Band :	WCDMA Band IV	Temperature :	21~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3469	-50.05	-13	-37.05	-62.74	-53.88	4.48	8.31	H	Pass
5198	-43.47	-13	-30.47	-62.82	-48.11	5.332	9.98	H	Pass
6934	-38.31	-13	-25.31	-61.82	-43.55	6.1	11.34	H	Pass

Band :	WCDMA Band IV	Temperature :	21~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading	Power	loss	Gain		
				(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3465	-46.39	-13	-33.39	-60.33	-50.22	4.48	8.31	V	Pass
5197	-43.47	-13	-30.47	-62.14	-48.11	5.332	9.98	V	Pass
6930	-41.79	-13	-28.79	-64.54	-47.03	6.1	11.34	V	Pass

Band :	WCDMA Band II	Temperature :	21~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3763	-48.32	-13	-35.32	-63.37	-54.62	2.51	8.81	H	Pass
5639	-37.68	-13	-24.68	-57.89	-45.39	2.99	10.70	H	Pass
7522	-41.35	-13	-28.35	-65.92	-49.88	3.59	12.12	H	Pass

Band :	WCDMA Band II	Temperature :	21~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3763	-48.87	-13	-35.87	-63.87	-55.17	2.51	8.81	V	Pass
5639	-38.84	-13	-25.84	-58.23	-46.55	2.99	10.70	V	Pass
7522	-39.49	-13	-26.49	-63.04	-48.02	3.59	12.12	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 $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

3.8.2 Measuring Instruments

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

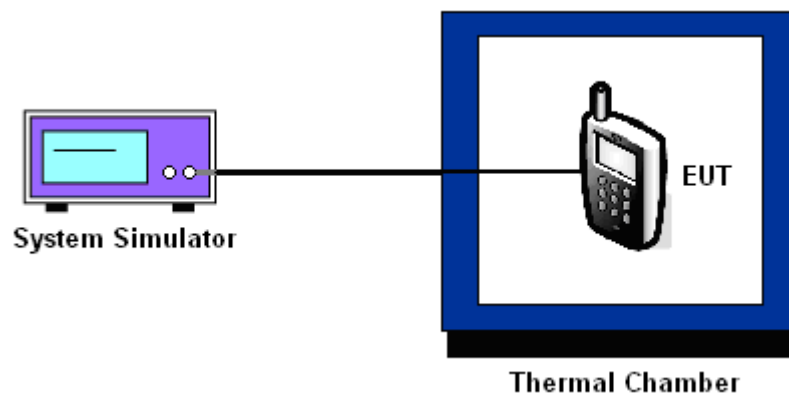
3.8.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C 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 EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the system simulator.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

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

Temperature (°C)	GPRS class 8		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	27	+0.03	14	+0.02	PASS
-20	25	+0.03	13	+0.02	
-10	26	+0.03	11	+0.01	
0	24	+0.03	10	+0.01	
10	22	+0.03	10	+0.01	
20(Ref.)	23	+0.03	11	+0.01	
30	24	+0.03	12	+0.01	
40	25	+0.03	13	+0.02	
50	26	+0.03	14	+0.02	

Band :	GSM 1900	Channel :	661
Limit (ppm) :	2.5	Frequency :	1880.0 MHz

Temperature (°C)	GSM		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	59	+0.03	61	+0.03	PASS
-20	58	+0.03	60	+0.03	
-10	56	+0.03	58	+0.03	
0	54	+0.03	57	+0.03	
10	55	+0.03	57	+0.03	
20(Ref.)	55	+0.03	58	+0.03	
30	56	+0.03	58	+0.03	
40	57	+0.03	59	+0.03	
50	58	+0.03	60	+0.03	

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)	
-30	5	+0.01	PASS
-20	4	+0.01	
-10	3	+0.01	
0	4	+0.01	
10	2	+0.01	
20(Ref.)	3	+0.01	
30	4	+0.01	
40	4	+0.01	
50	5	+0.01	

Band :	WCDMA Band IV	Channel :	1413
Limit (ppm) :	2.5	Frequency :	1732.6 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-10	-0.01	PASS
-20	-9	-0.01	
-10	-8	-0.01	
0	-7	-0.01	
10	-6	-0.01	
20(Ref.)	-6	-0.01	
30	-7	-0.01	
40	-8	-0.01	
50	-9	-0.01	

Band :	WCDMA Band II	Channel :	9400
Limit (ppm) :	2.5	Frequency :	1880.0 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	6	+0.01	PASS
-20	5	+0.01	
-10	4	+0.01	
0	4	+0.01	
10	3	+0.01	
20(Ref.)	3	+0.01	
30	4	+0.01	
40	5	+0.01	
50	5	+0.01	

3.8.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GPRS class 8	3.8	25	+0.03	2.5	PASS
		BEP	23	+0.03		
		4.35	24	+0.03		
	EDGE class 8	3.8	13	+0.02		
		BEP	11	+0.01		
		4.35	12	+0.01		
GSM 1900 CH661	GSM	3.8	57	+0.03		
		BEP	56	+0.03		
		4.35	57	+0.03		
	EDGE class 8	3.8	58	+0.03		
		BEP	57	+0.03		
		4.35	58	+0.03		
WCDMA Band V CH4182	RMC 12.2Kbps	3.8	4	+0.01		
		BEP	3	+0.01		
		4.35	4	+0.01		
WCDMA Band IV CH1413	RMC 12.2Kbps	3.8	-8	-0.01		
		BEP	-7	-0.01		
		4.35	-9	-0.01		
WCDMA Band II CH9400	RMC 12.2Kbps	3.8	5	+0.01		
		BEP	4	+0.01		
		4.35	5	+0.01		

Note:

1. Normal Voltage = 3.8V.
2. Battery End Point (BEP) = 3.5 V.

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	Jun. 02, 2014~ Jun. 05, 2014	Mar. 02, 2015	Conducted (TH01-SZ)
Thermal Chamber	Hongzhan	LP-150U	HD20120425	-40℃~150℃	Feb. 21, 2014	Jun. 02, 2014~ Jun. 05, 2014	Feb. 20, 2015	Conducted (TH01-SZ)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Jun. 14, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Jun. 14, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	Jun. 14, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Jun. 14, 2014	Oct. 02, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz	Mar. 17, 2014	Jun. 14, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Nov. 29, 2013	Jun. 14, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jun. 14, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/8000604/L	N/A	N/A	Jun. 14, 2014	N/A	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP 7	100818	9kHz~7GHz	Sep. 03, 2013	Jun. 02, 2014~ Jun. 05, 2014	Sep. 02, 2014	ERP/EIRP (OTA01-SZ)
Quad-Ridged Horn	ETS-Lindgren	3164-08	00102954	700MHz~10000M Hz	NCR	Jun. 02, 2014~ Jun. 05, 2014	NCR	ERP/EIRP (OTA01-SZ)
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00108147	N/A	NCR	Jun. 02, 2014~ Jun. 05, 2014	NCR	ERP/EIRP (OTA01-SZ)
Switch Control Mainframe	Agilent	3499A	MY42005451	N/A	NCR	Jun. 02, 2014~ Jun. 05, 2014	NCR	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% ($U = 2U_c(y)$)	3.9
--	-----