

# FCC RF Test Report

**APPLICANT** : Lemobile Information Technology (Beijing) Co., Ltd  
**EQUIPMENT** : mobile phone  
**BRAND NAME** : Letv  
**MODEL NAME** : Le 1 Pro  
**FCC ID** : 2AFWMLE1PRO  
**STANDARD** : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)  
**CLASSIFICATION** : PCS Licensed Transmitter Held to Ear (PCE)

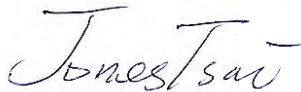
The product was received on Aug. 25, 2015 and testing was completed on Sep. 24, 2015. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and has been in compliance with 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.**

**1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town,  
Nanshan District, Shenzhen, Guangdong, P. R. China**



## **TABLE OF CONTENTS**

<b>1</b>	<b>GENERAL DESCRIPTION .....</b>	<b>5</b>
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 .....	8
<b>2</b>	<b>TEST CONFIGURATION OF EQUIPMENT UNDER TEST .....</b>	<b>9</b>
2.1	Test Mode.....	9
2.2	Connection Diagram of Test System .....	12
2.3	Support Unit used in test configuration .....	13
2.4	Measurement Results Explanation Example .....	13
<b>3</b>	<b>TEST RESULT .....</b>	<b>14</b>
3.1	Conducted Output Power Measurement.....	14
3.2	Peak-to-Average Ratio .....	17
3.3	Effective Radiated Power and Effective Isotropic Radiated Power Measurement .....	38
3.4	99% Occupied Bandwidth and 26dB Bandwidth Measurement.....	43
3.5	Band Edge Measurement.....	73
3.6	Conducted Spurious Emission Measurement.....	83
3.7	Field Strength of Spurious Radiation Measurement .....	93
3.8	Frequency Stability Measurement.....	104
<b>4</b>	<b>LIST OF MEASURING EQUIPMENT .....</b>	<b>111</b>
<b>5</b>	<b>UNCERTAINTY OF EVALUATION .....</b>	<b>112</b>
<b>APPENDIX A. SETUP PHOTOGRAPHS</b>		



## REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG582501A	Rev. 01	Initial issue of report	Sep. 29, 2015

## 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	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 19.08 dB at 5640.000 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

**Lemobile Information Technology (Beijing) Co., Ltd**

WENHUAYING NORTH (No.1, LINKONG 2nd St), GAOLIYING, SHUNYI DISTRICT, BEIJING.China

## 1.2 Manufacturer

**Lemobile Information Technology (Beijing) Co., Ltd**

WENHUAYING NORTH (No.1, LINKONG 2nd St), GAOLIYING, SHUNYI DISTRICT, BEIJING.China

## 1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	mobile phone
Brand Name	Letv
Model Name	Le 1 Pro
FCC ID	2AFWMLE1PRO
EUT supports Radios application	CDMA/EV-DO/GSM/GPRS/EGPRS/WCDMA/HSPA/ HSPA+(Downlink Only)/DC-HSDPA/LTE/ANT+ 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 v4.1 LE
IMEI Code	Conducted: 868126020009324/868126020009332 Radiation: 868126020009662 ERP&EIRP: 868126020010447
HW Version	DVT3.2
SW Version	5.0.008S
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	
<b>Tx Frequency</b>	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 CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz
<b>Rx Frequency</b>	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 CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz
<b>Maximum Output Power to Antenna</b>	GSM850 : 32.54 dBm GSM1900 : 30.02 dBm WCDMA Band V : 24.53 dBm WCDMA Band IV : 24.68 dBm WCDMA Band II : 24.25 dBm CDMA2000 BC0 : 24.46 dBm CDMA2000 BC1 : 24.65 dBm
<b>Antenna Type</b>	PIFA Antenna
<b>Type of Modulation</b>	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA : QPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (Downlink Only) DC-HSDPA : 64QAM CDMA2000 : QPSK CDMA2000 1xEV-DO : QPSK/8PSK



## 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	1.4883	0.0347	245KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.4404	0.0885	246KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.2081	0.0167	4M12F9W
Part 22	CDMA2000 BC0 1xRTT	QPSK	0.1829	0.0084	1M28F9W
Part 24	GSM1900 GSM	GMSK	0.8732	0.0309	245KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.3040	0.0362	249KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.3091	0.0021	4M15F9W
Part 24	CDMA2000 BC1 1xRTT	QPSK	0.2715	0.0117	1M28F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.2240	0.0075	4M14F9W

## 1.7 Testing Location

<b>Test Site</b>	SPORTON INTERNATIONAL (SHENZHEN) INC.	
<b>Test Site Location</b>	1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	TH01-SZ	

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

**Note:** The test site complies with ANSI C63.4 2009 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 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 10th harmonic for GSM850, WCDMA Band V, and CDMA2000 BC0.
2. 30 MHz to 10th harmonic for WCDMA Band IV
3. 30 MHz to 10th harmonic for GSM1900, WCDMA Band II, and CDMA2000 BC1.

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
<b>GSM 850</b>	<ul style="list-style-type: none"> <li>■ GSM Link</li> <li>■ EDGE class 8 Link</li> </ul>	<ul style="list-style-type: none"> <li>■ GSM Link</li> <li>■ EDGE class 8 Link</li> </ul>
<b>GSM 1900</b>	<ul style="list-style-type: none"> <li>■ GSM Link</li> <li>■ EDGE class 8 Link</li> </ul>	<ul style="list-style-type: none"> <li>■ GSM Link</li> <li>■ EDGE class 8 Link</li> </ul>
<b>WCDMA Band V</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
<b>WCDMA Band II</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
<b>WCDMA Band IV</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
<b>CDMA2000 BC0</b>	<ul style="list-style-type: none"> <li>■ 1xRTT Link Mode</li> </ul>	<ul style="list-style-type: none"> <li>■ 1xRTT Link Mode</li> </ul>
<b>CDMA2000 BC1</b>	<ul style="list-style-type: none"> <li>■ 1xRTT Link Mode</li> </ul>	<ul style="list-style-type: none"> <li>■ 1xRTT Link Mode</li> </ul>

**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,

1xRTT RC3+SO55 mode for CDMA2000 BC0,

1xRTT RC3+SO55 mode for CDMA2000 BC1, 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	32.54	32.51	32.53	30.02	30.00	29.96
GPRS class 8	32.53	32.48	32.52	29.98	29.95	29.93
GPRS class 10	30.13	29.85	29.88	29.22	29.01	29.00
GPRS class 11	29.15	28.49	28.72	28.32	27.99	27.70
GPRS class 12	28.86	28.18	28.46	27.16	26.82	26.54
EGPRS class 8	26.86	26.90	26.92	25.80	25.75	25.81
EGPRS class 10	24.93	24.96	24.97	24.36	24.35	24.39
EGPRS class 11	23.90	23.92	23.95	23.35	23.32	23.38
EGPRS class 12	23.25	23.32	23.38	22.41	22.36	22.49

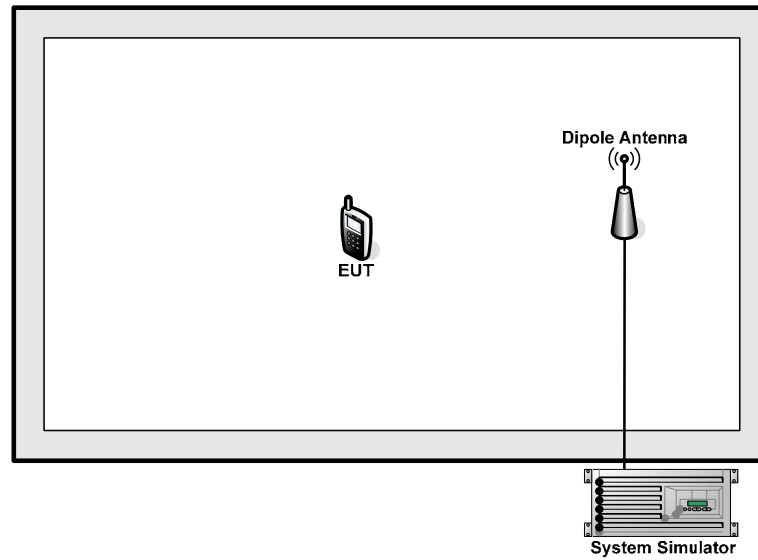
Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
AMR 12.2K	24.40	24.46	24.50	23.85	24.23	23.92	24.41	24.26	24.67
RMC 12.2K	24.41	24.48	24.53	23.86	24.25	23.93	24.42	24.28	24.68
HSDPA Subtest-1	23.21	23.25	23.28	22.60	22.87	22.21	23.35	22.96	23.50
HSDPA Subtest-2	23.30	23.28	23.31	22.54	22.87	22.31	23.12	22.98	23.57
HSDPA Subtest-3	22.74	22.57	22.78	21.99	22.35	21.77	22.83	22.43	23.10
HSDPA Subtest-4	22.73	22.58	23.02	21.96	22.34	21.73	22.47	22.41	23.05
DC-HSDPA Subtest-1	21.85	21.79	21.74	21.66	21.68	21.72	21.75	21.63	21.68
DC-HSDPA Subtest-2	21.87	21.82	21.77	21.76	21.72	21.75	21.76	21.64	21.67
DC-HSDPA Subtest-3	21.34	21.29	21.23	21.29	21.17	21.26	21.23	21.12	21.16
DC-HSDPA Subtest-4	21.35	21.33	21.25	21.28	21.16	21.28	21.25	21.13	21.09
HSUPA Subtest-1	22.80	22.51	22.60	22.25	22.92	22.29	22.54	22.35	22.88
HSUPA Subtest-2	21.94	22.12	22.16	21.45	21.56	21.75	22.14	21.94	22.54
HSUPA Subtest-3	21.74	21.80	21.88	21.36	21.70	21.34	21.80	21.53	22.09
HSUPA Subtest-4	22.31	22.30	22.17	21.95	22.30	21.92	22.13	21.91	22.53
HSUPA Subtest-5	23.10	23.20	23.40	22.60	23.20	22.90	23.30	23.10	23.60



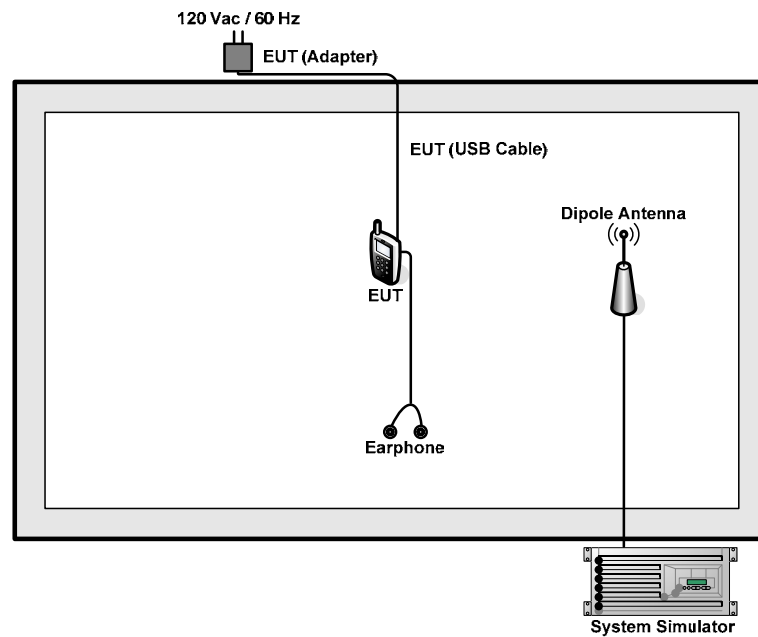
Conducted Power (*Unit: dBm)						
Band	CDMA2000 BC0			CDMA2000 BC1		
Channel	1013	384	777	25	600	1175
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75
1xRTT RC1 SO55	24.32	24.33	24.36	24.21	24.37	24.54
1xRTT RC3 SO55	24.46	24.35	24.39	24.44	24.39	24.65
1xRTT RC3 SO32(+ F-SCH)	24.44	24.32	24.36	24.43	24.32	24.64
1xRTT RC3 SO32(+SCH)	24.37	24.31	24.31	24.28	24.30	24.62
1xEV-DO RTAP 153.6kbps	24.38	24.25	24.30	24.36	24.31	24.64
1xEV-DO RETAP 4096Bits	24.25	24.23	24.24	24.27	24.25	24.45

## 2.2 Connection Diagram of Test System

For 22H



For 24E,27L



## 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.	iPod Earphone	Apple	MC690ZP/A	N/A	Unshielded, 1.6 m	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.

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 4.5 dB and a 10dB attenuator.

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.5 + 10 = 14.5 \text{ (dB)}\end{aligned}$$

### 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.

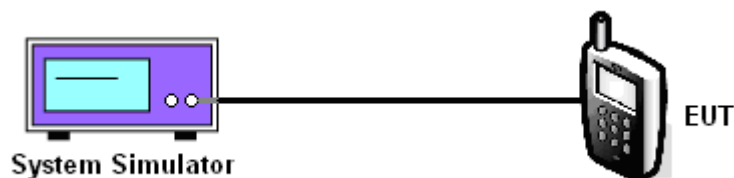
##### 3.1.2 Measuring Instruments

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 (GSM)			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)	32.54	32.51	32.53	26.86	26.90	26.92	24.41	24.48	24.53

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)	30.02	30.00	29.96	25.80	25.75	25.81	23.86	24.25	23.93

CDMA2000 BC0			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC3+SO55		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
Conducted Power (dBm)	24.46	24.35	24.39

CDMA2000 BC1			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC3+SO55		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880.00	1908.75
Conducted Power (dBm)	24.44	24.39	24.65



AWS Band			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312 (Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
Conducted Power (dBm)	24.42	24.28	24.68

**Note:** maximum burst average power for GSM, and maximum average power for WCDMA and CDMA2000.



## 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.

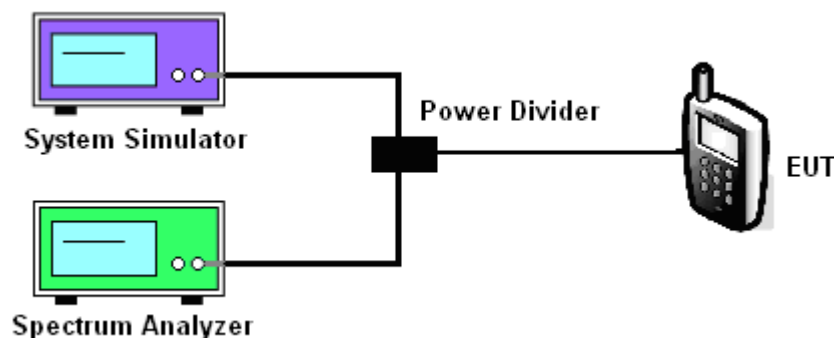
### 3.2.2 Measuring Instruments

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

Cellular Band									
Modes	GSM850 (GSM)			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
Peak-to-Average Ratio (dB)	0.38	0.39	0.36	2.57	2.68	2.77	3.25	3.04	2.55

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)	0.30	0.30	0.29	2.70	2.56	2.73	3.04	3.16	3.04

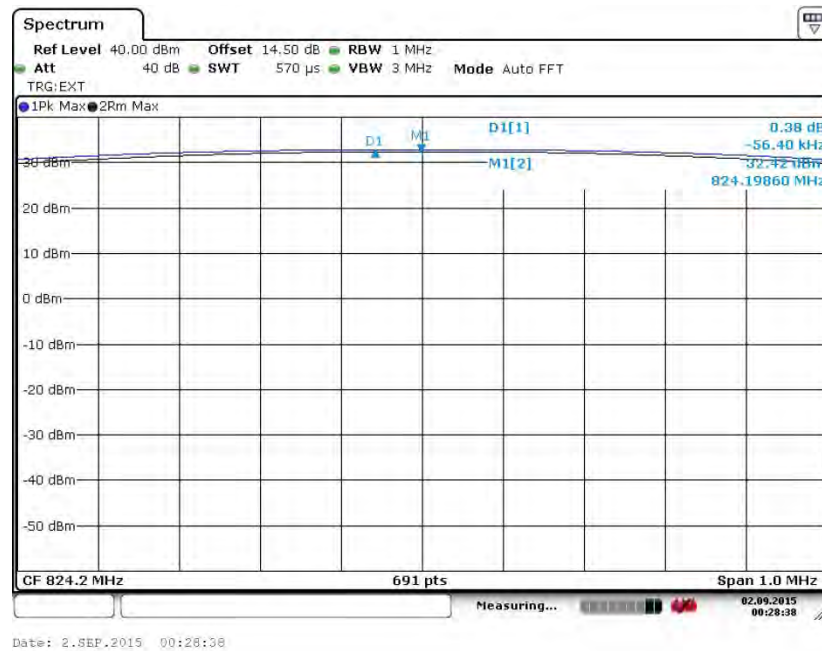
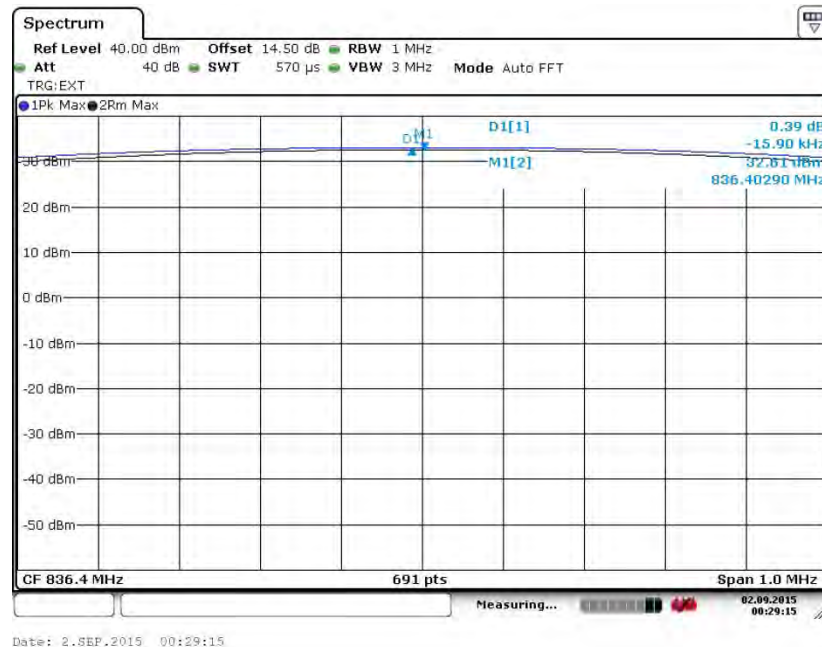
CDMA2000 BC0			
Modes	CDMA 2000 1xRTT		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
Peak-to-Average Ratio (dB)	4.12	3.72	2.80

CDMA2000 BC1			
Modes	CDMA 2000 1xRTT		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880	1908.75
Peak-to-Average Ratio (dB)	2.92	3.76	2.68

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)	2.61	2.84	2.29

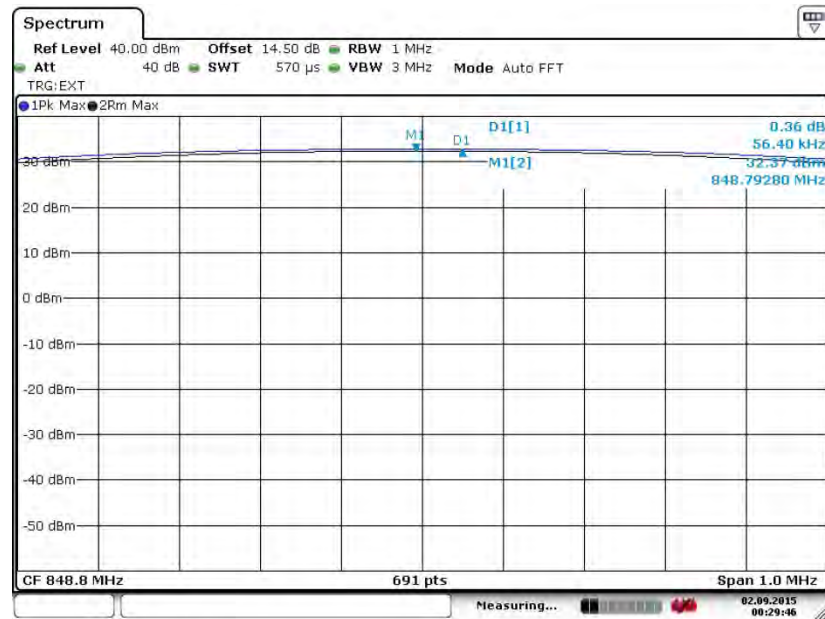
### 3.2.6 Test Result (Plots) of Peak-to-Average Ratio

<b>Band :</b>	GSM 850	<b>Test Mode :</b>	GSM Link (GMSK)
---------------	---------	--------------------	-----------------

**Peak-to-Average Ratio on Channel 128 (824.2 MHz)**

**Peak-to-Average Ratio on Channel 189 (836.4 MHz)**




Peak-to-Average Ratio on Channel 251 (848.8 MHz)

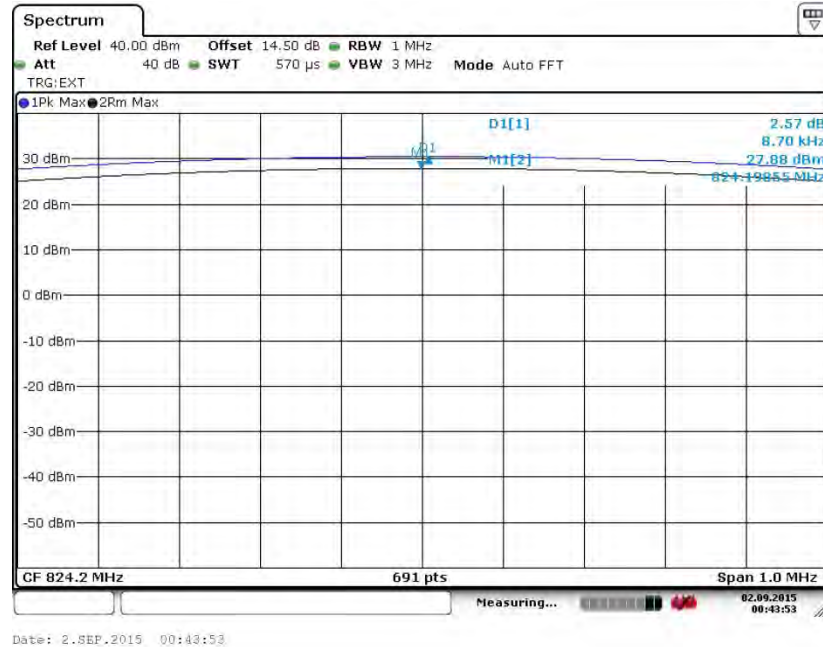


Date: 2.SEP.2015 00:29:47

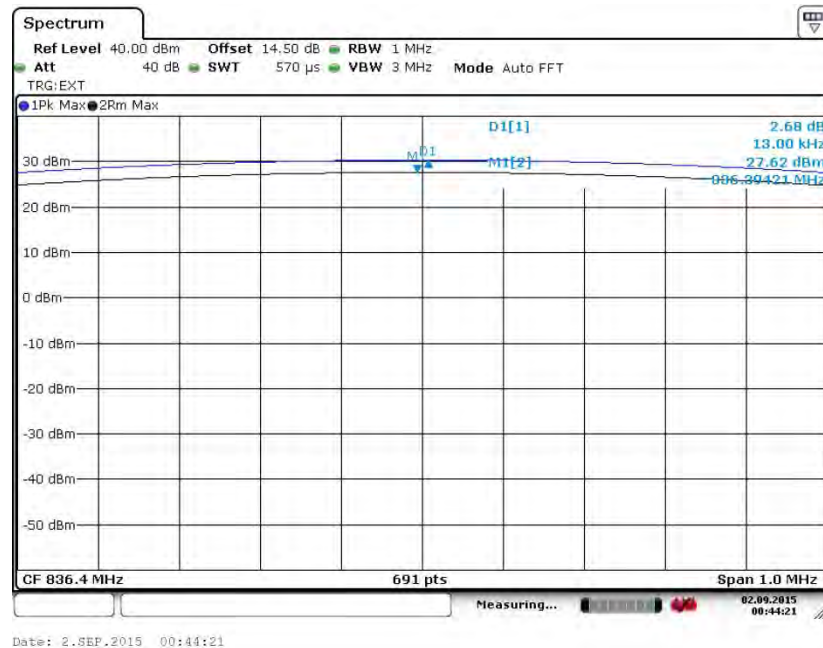


Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
--------	---------	-------------	--------------------------

Peak-to-Average Ratio on Channel 128 (824.2 MHz)

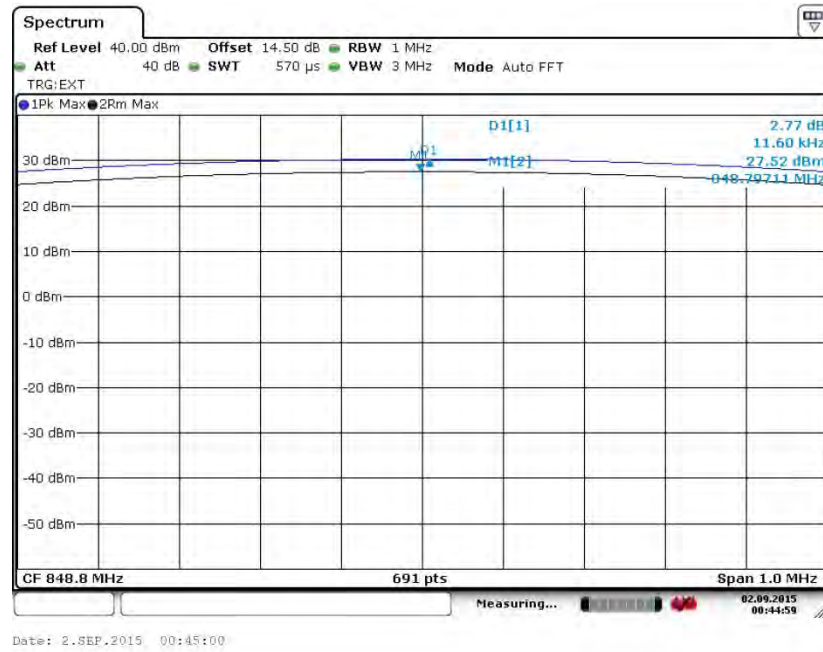


Peak-to-Average Ratio on Channel 189 (836.4 MHz)





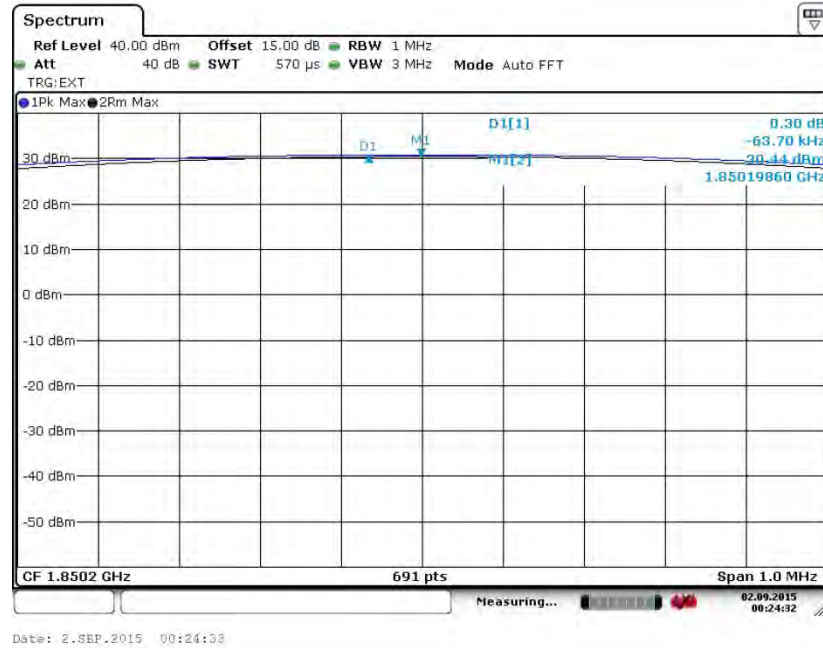
Peak-to-Average Ratio on Channel 251 (848.8 MHz)



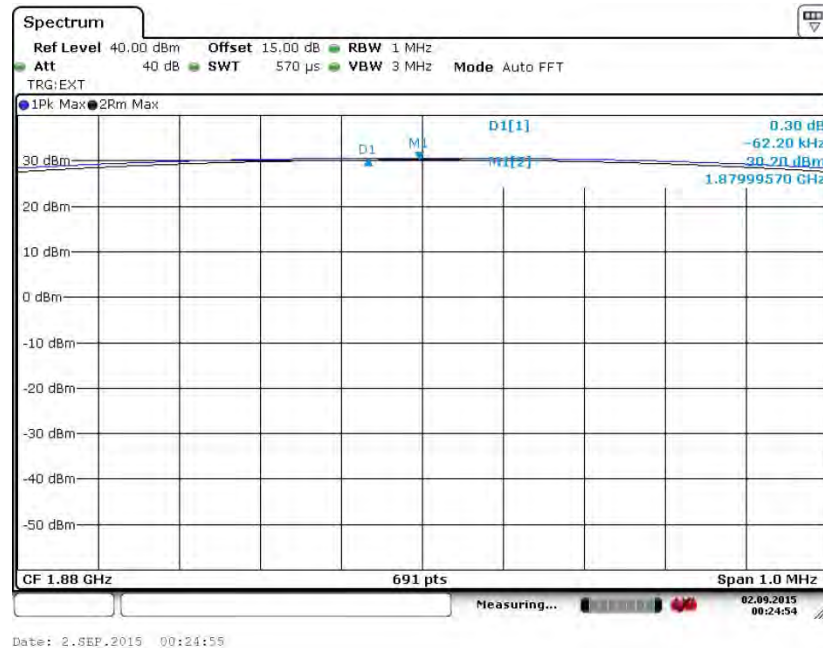


Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
--------	----------	-------------	-----------------

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



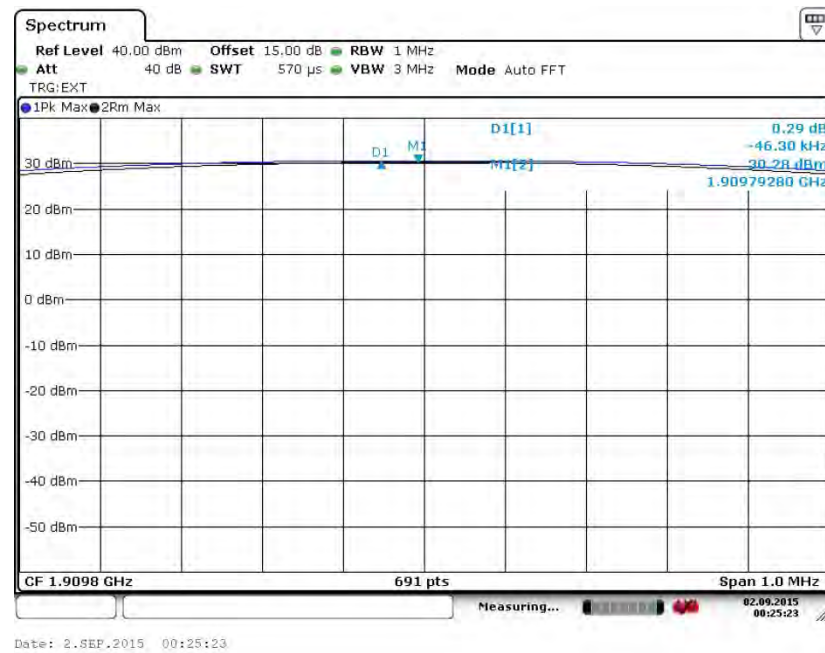
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)







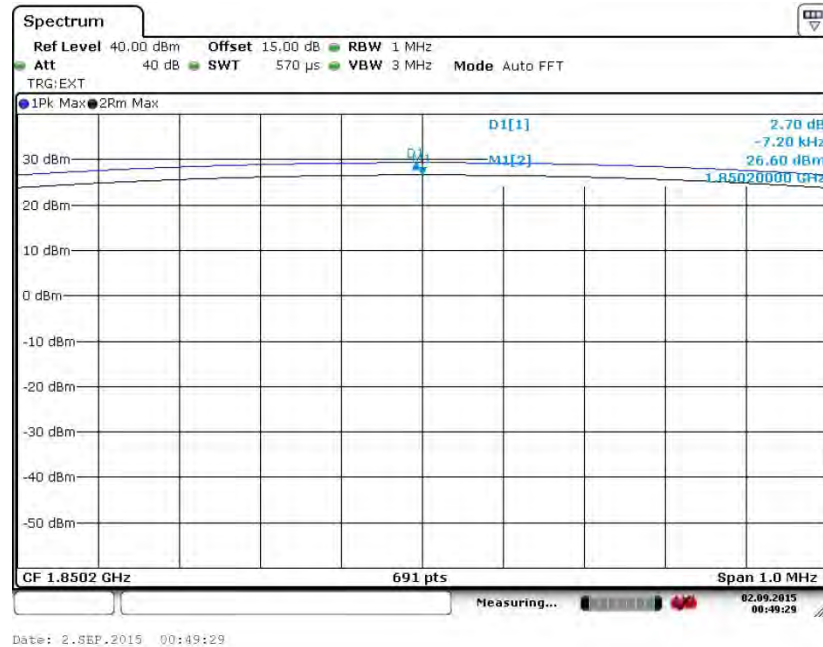
Peak-to-Average Ratio on Channel 810 (1909.8 MHz)



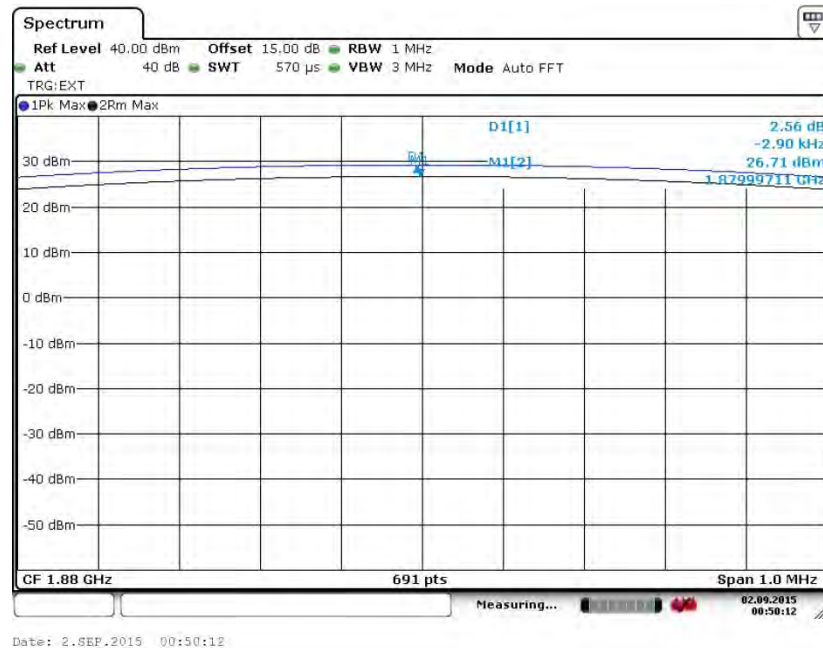


Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
--------	----------	-------------	--------------------------

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

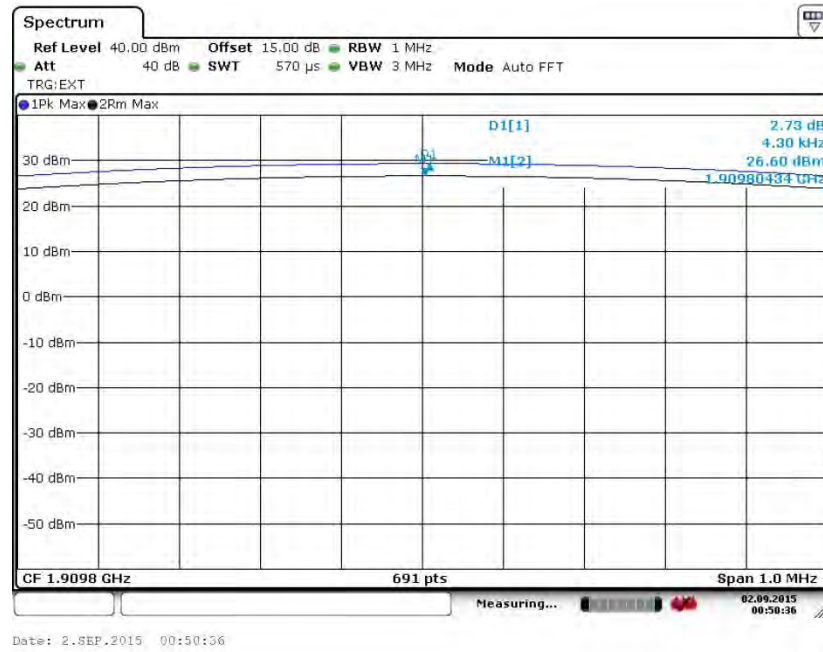


Peak-to-Average Ratio on Channel 661 (1880.0 MHz)





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





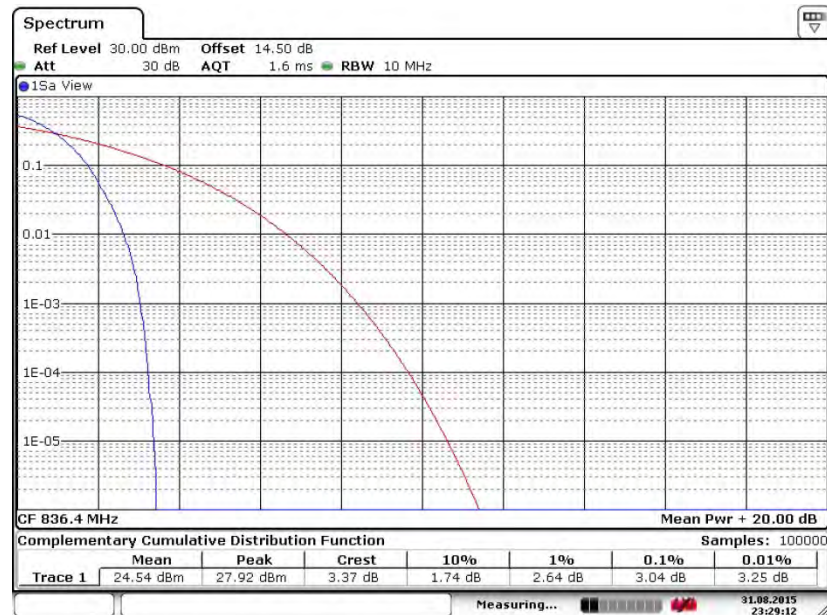
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	--------------	-------------	--------------------------

Peak-to-Average Ratio on Channel 4132 (826.4 MHz)



Date: 31.AUG.2015 23:28:47

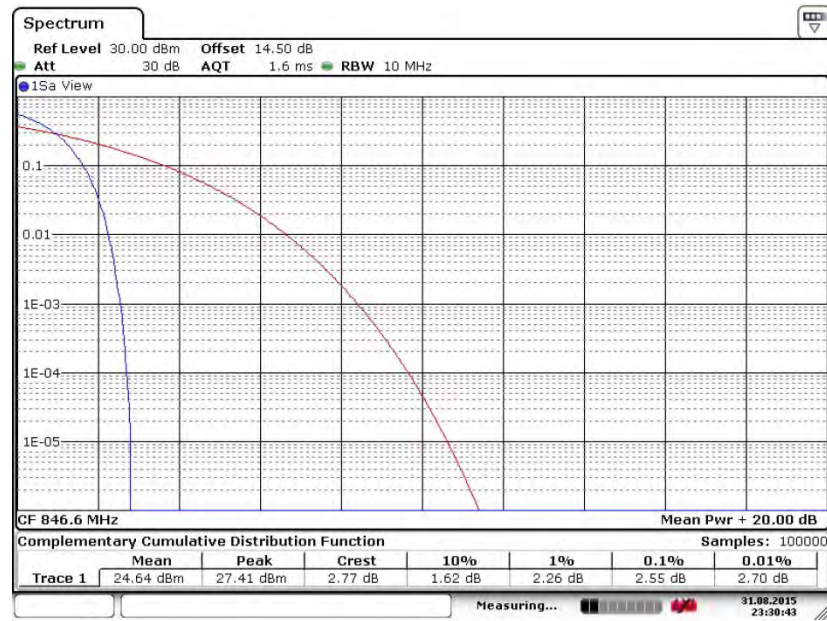
Peak-to-Average Ratio on Channel 4182 (836.4 MHz)



Date: 31.AUG.2015 23:29:12



Peak-to-Average Ratio on Channel 4233 (846.6 MHz)



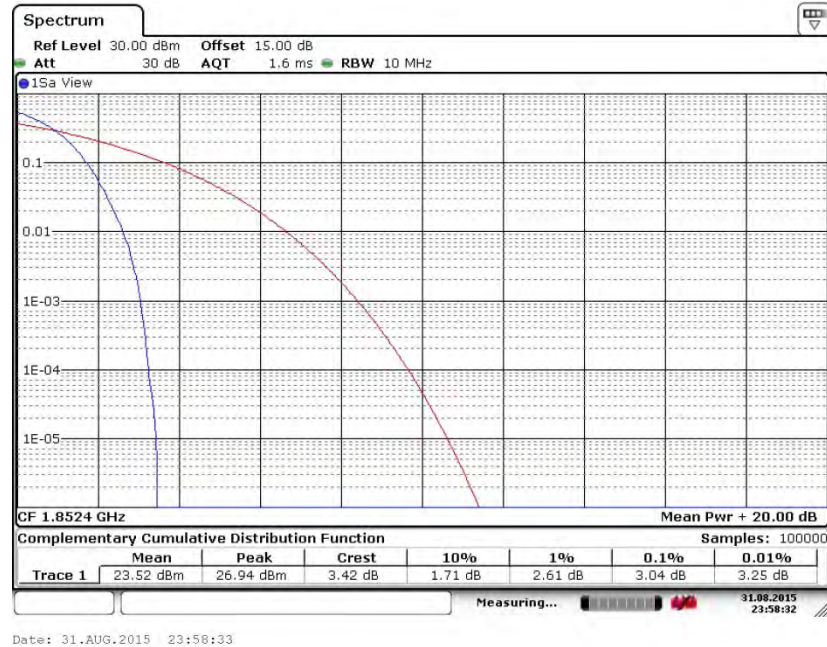
Date: 31.AUG.2015 23:30:44



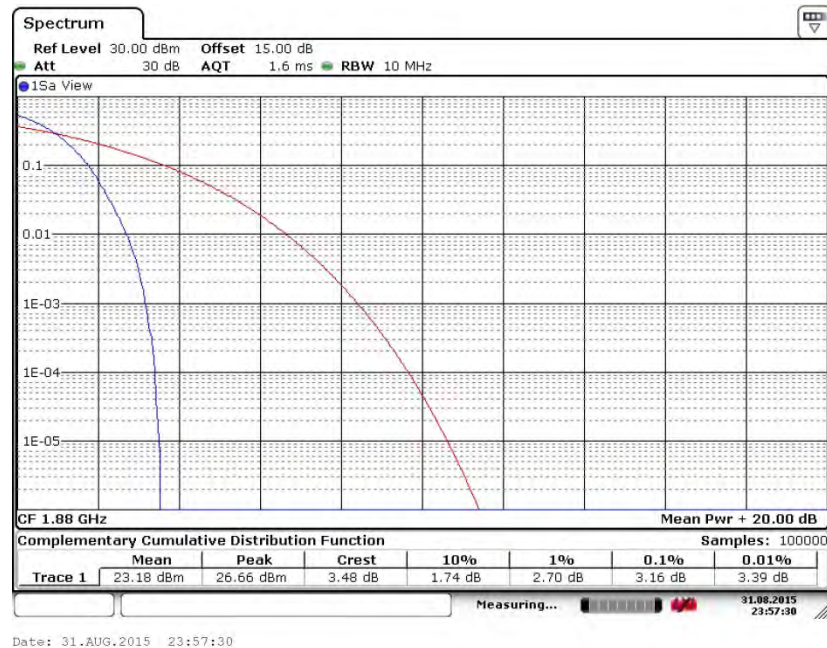


Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

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

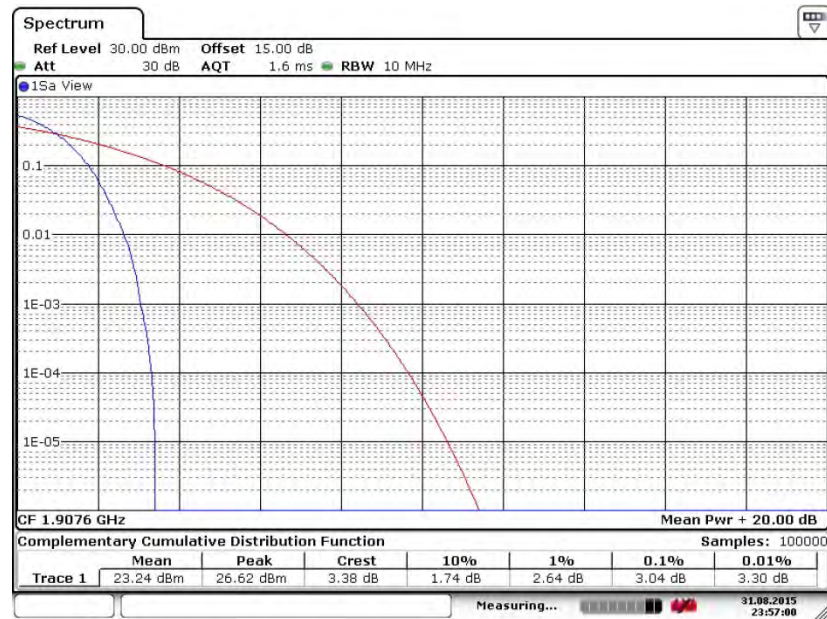


Peak-to-Average Ratio on Channel 9400 (1880.0 MHz)





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

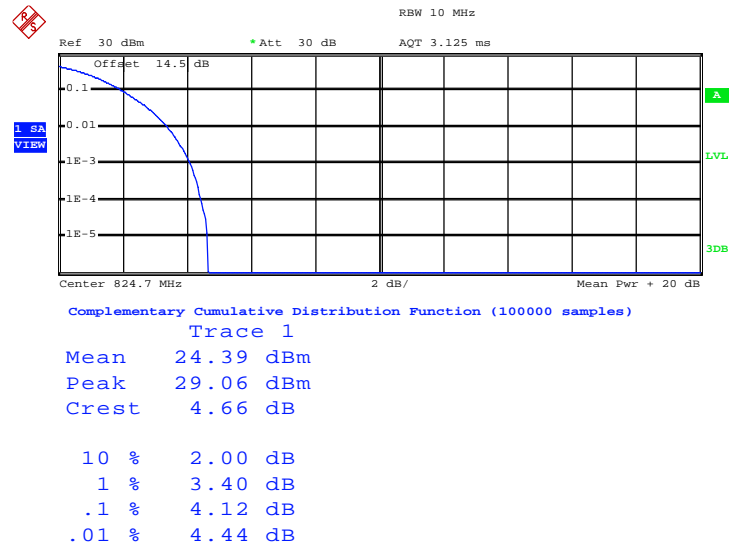


Date: 31.AUG.2015 23:57:00



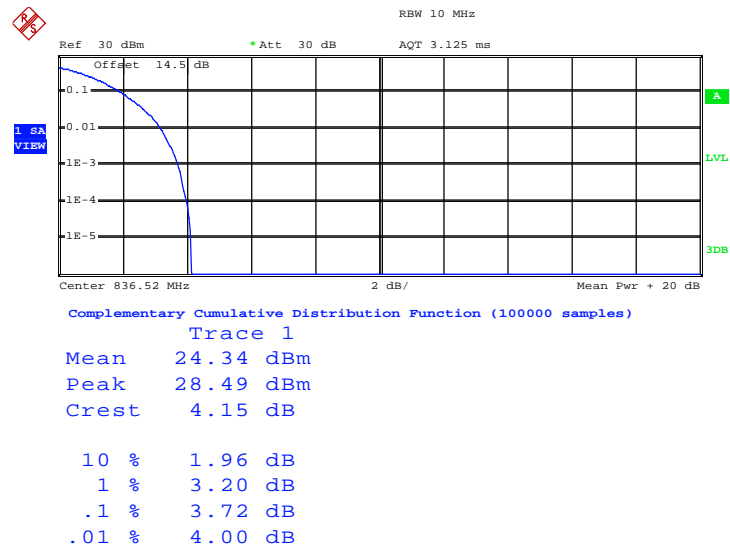
Band :	CDMA2000 BC0	Test Mode :	1xRTT Link (QPSK)
--------	--------------	-------------	-------------------

Peak-to-Average Ratio on Channel 1013 (824.70 MHz)



Date: 7.SEP.2015 12:04:36

Peak-to-Average Ratio on Channel 384 (836.52 MHz)

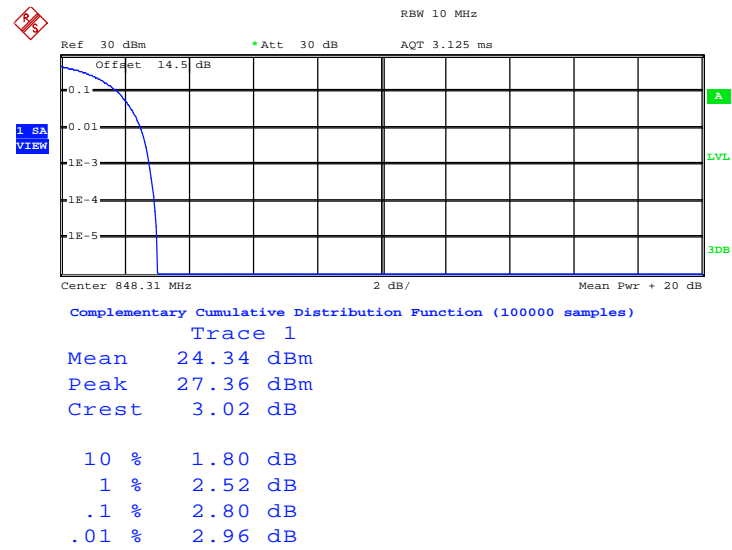


Date: 7.SEP.2015 12:04:56





Peak-to-Average Ratio on Channel 777 (848.31 MHz)

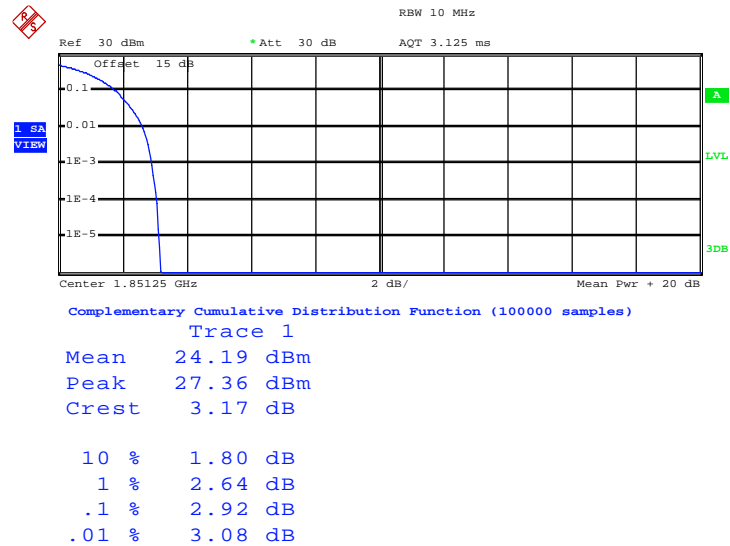


Date: 7.SEP.2015 12:05:13



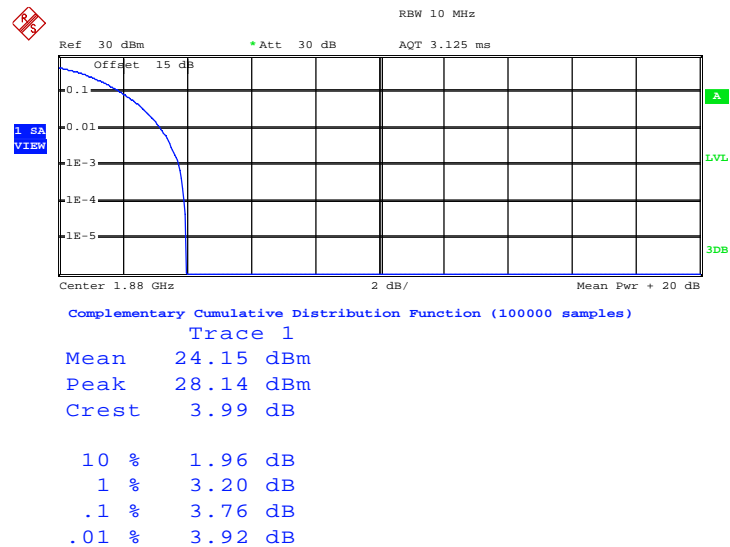
Band :	CDMA2000 BC1	Test Mode :	1xRTT Link (QPSK)
--------	--------------	-------------	-------------------

Peak-to-Average Ratio on Channel 25 (1851.25 MHz)



Date: 7.SEP.2015 12:28:26

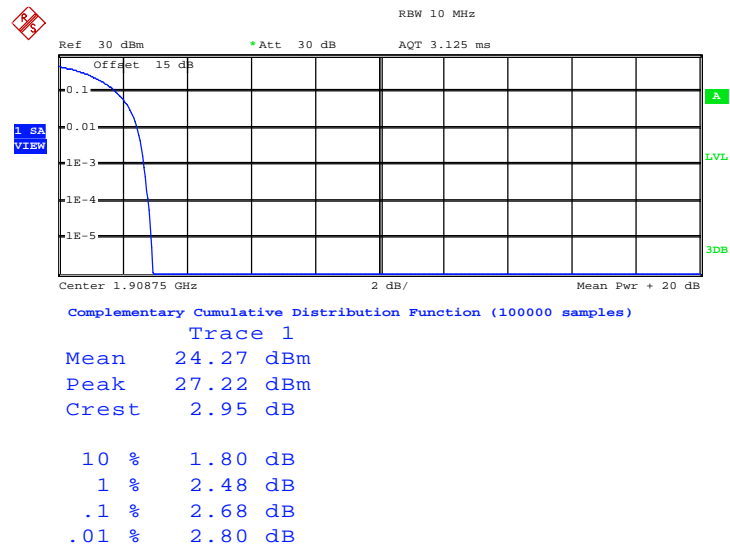
Peak-to-Average Ratio on Channel 600 (1880 MHz)



Date: 7.SEP.2015 12:28:51



Peak-to-Average Ratio on Channel 1175 (1908.75 MHz)

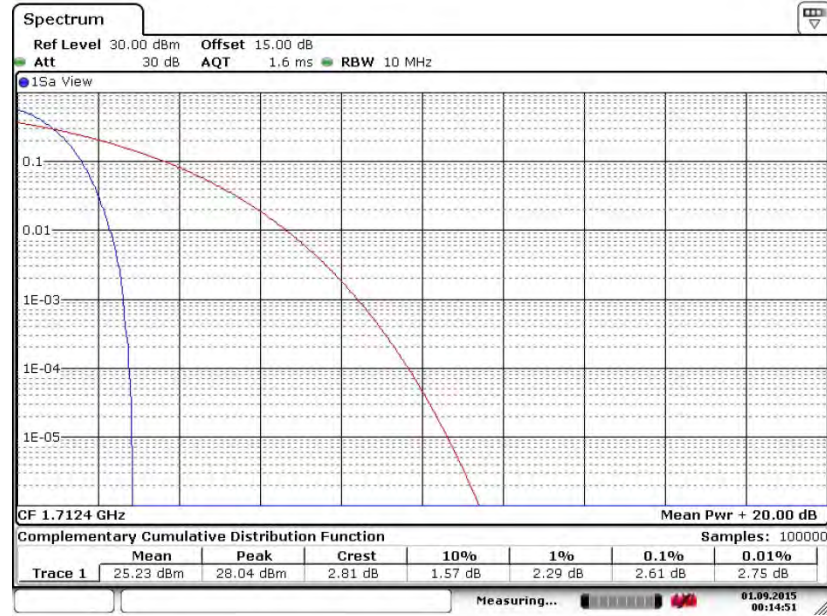


Date: 7.SEP.2015 12:29:09



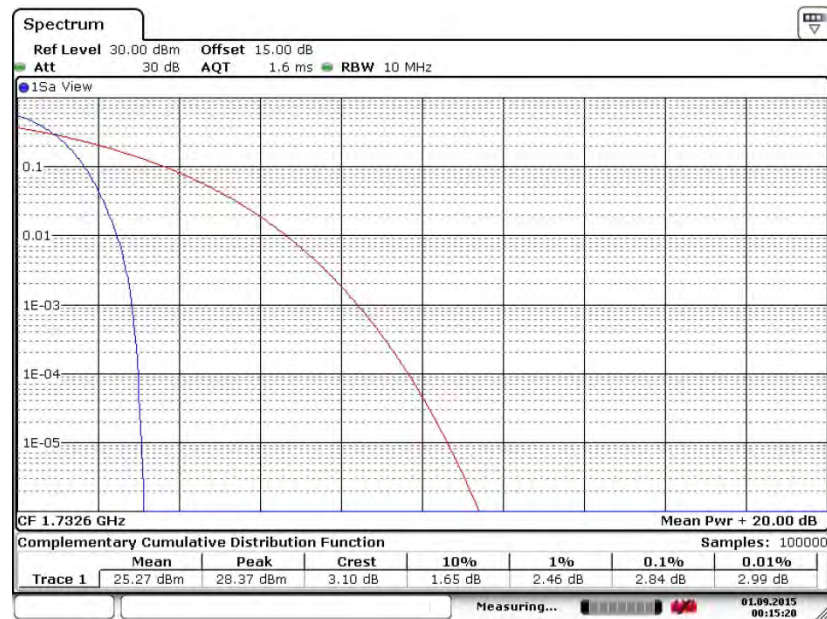
Band : WCDMA Band IV Test Mode : RMC 12.2Kbps Link (QPSK)

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



Date: 1.SEP.2015 00:14:52

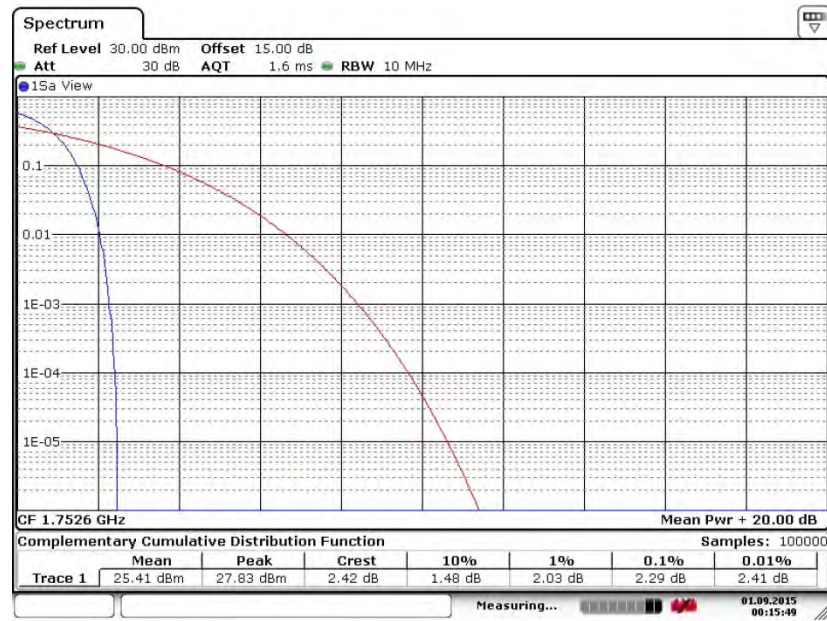
Peak-to-Average Ratio on Channel 1413 (1732.6 MHz)



Date: 1.SEP.2015 00:15:21



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



Date: 1.SEP.2015 00:15:49

### **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. 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 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 non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor,  $EIRP = LVL + \text{Correction factor}$  and  $ERP = EIRP - 2.15$ . Take the record of the output power at substitution antenna.



	GSM/GPRS/EDGE	CDMA2000/EV-DO	WCDMA/HSPA
SPAN	500kHz	3MHz	10MHz
RBW	10kHz	30kHz	100kHz
VBW	30kHz	100kHz	300kHz
Detector	RMS	RMS	RMS
Trace	Average	Average	Average
Average Type	Power	Power	Power
Sweep Count	100	100	100

### 3.3.4 Test Result of ERP

GSM850 (GSM) Radiated Power ERP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	824.2	30.54	1.1320	15.97	0.0396
Middle	836.4	31.63	1.4554	17.62	0.0579
Highest	848.8	31.73	1.4883	18.20	0.0661
Limit	ERP < 7W	Result		PASS	

GSM850 (EDGE class 8) Radiated Power ERP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	824.2	25.05	0.3201	10.21	0.0105
Middle	836.4	26.10	0.4078	11.90	0.0155
Highest	848.8	26.44	0.4404	12.86	0.0193
Limit	ERP < 7W	Result		PASS	

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	826.4	23.18	0.2081	8.54	0.0071
Middle	836.4	22.85	0.1929	8.82	0.0076
Highest	846.6	23.11	0.2045	9.18	0.0083
Limit	ERP < 7W	Result		PASS	

CDMA2000 BC0 1xRTT_RC3+SO55 Radiated Power ERP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	824.70	22.62	0.1829	8.37	0.0069
Middle	836.52	22.53	0.1792	8.76	0.0075
Highest	848.31	22.56	0.1801	9.24	0.0084
Limit	ERP < 7W	Result		PASS	



### 3.3.5 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	1850.2	29.41	0.8732	27.47	0.5580
Middle	1880.0	28.82	0.7618	26.75	0.4732
Highest	1909.8	28.91	0.7784	27.05	0.5067
Limit	EIRP < 2W	Result		PASS	

GSM1900 (EDGE class 8) Radiated Power EIRP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	1850.2	24.78	0.3003	22.36	0.1720
Middle	1880.0	24.73	0.2972	22.27	0.1685
Highest	1909.8	24.83	0.3040	22.47	0.1766
Limit	EIRP < 2W	Result		PASS	

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	1852.4	24.44	0.2780	22.44	0.1753
Middle	1880.0	24.90	0.3091	22.68	0.1855
Highest	1907.6	24.76	0.2992	22.91	0.1956
Limit	EIRP < 2W	Result		PASS	

CDMA2000 BC1 1xRTT_RC3+SO55 Radiated Power EIRP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	1851.25	24.21	0.2634	21.68	0.1471
Middle	1880.00	24.32	0.2702	21.74	0.1491
Highest	1908.75	24.34	0.2715	22.10	0.1622
Limit	EIRP < 2W	Result		PASS	



WCDMA Band IV(RMC 12.2Kbps) Radiated Power EIRP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	1712.4	23.50	0.2240	20.84	0.1213
Middle	1732.6	22.33	0.1711	19.71	0.0935
Highest	1752.6	23.26	0.2118	20.97	0.1251
Limit	EIRP < 1W	Result		PASS	

### 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.

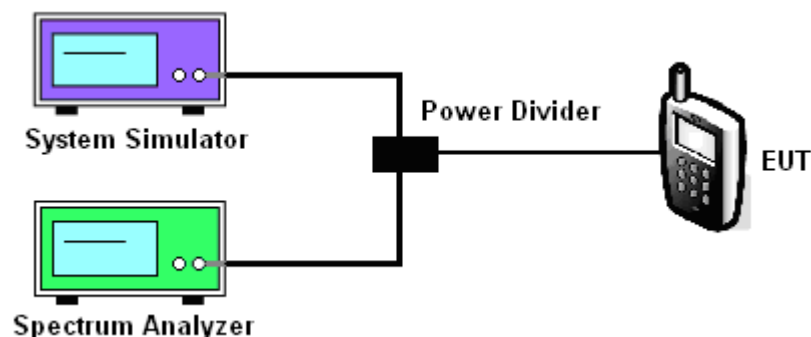
#### 3.4.2 Measuring Instruments

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

#### 3.4.3 Test Procedures

5. The testing follows FCC KDB 971168 v02r02 Section 4.2.
6. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
7. 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.
8. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3\*RBW, peak detector, trace maximum hold.
9. 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)	244.57	243.13	244.57	246.02	246.02	246.02
26dB BW (kHz)	315.50	312.60	312.60	314.00	314.00	312.60

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)	244.57	243.13	243.13	248.91	247.47	247.47
26dB BW (kHz)	309.70	312.60	312.60	316.90	314.00	312.60

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)	4.12	4.12	4.12
26dB BW (MHz)	4.72	4.70	4.73

CDMA2000 BC0			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC3+SO55		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
99% OBW (MHz)	1.27	1.27	1.28
26dB BW (MHz)	1.41	1.41	1.42

CDMA2000 BC1			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC3+SO55		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880.00	1908.75
99% OBW (MHz)	1.28	1.27	1.28
26dB BW (MHz)	1.42	1.41	1.42

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	4.14	4.15
26dB BW (MHz)	4.73	4.72	4.72

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)	4.14	4.12	4.14
26dB BW (MHz)	4.73	4.72	4.78



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

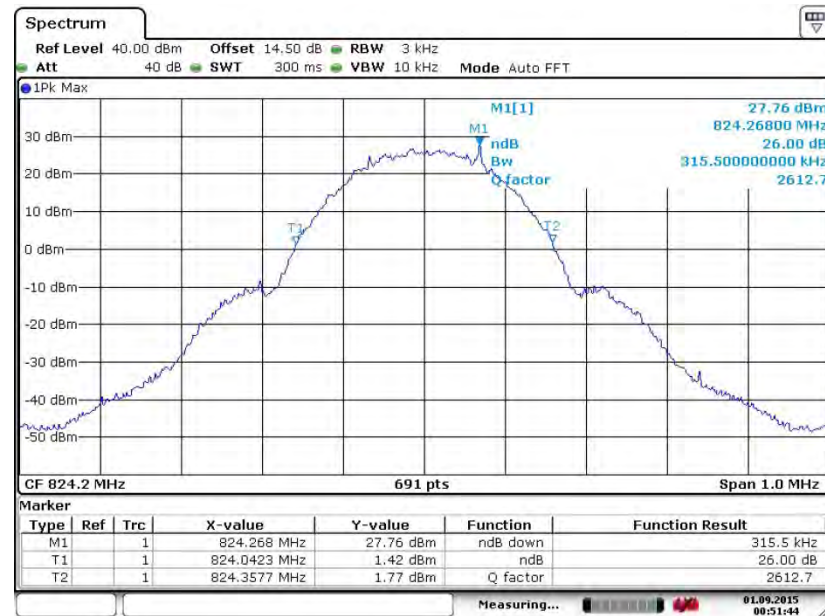
Band :	GSM 850	Test Mode :	GSM Link (GMSK)
--------	---------	-------------	-----------------

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



Date: 31.AUG.2015 21:38:36

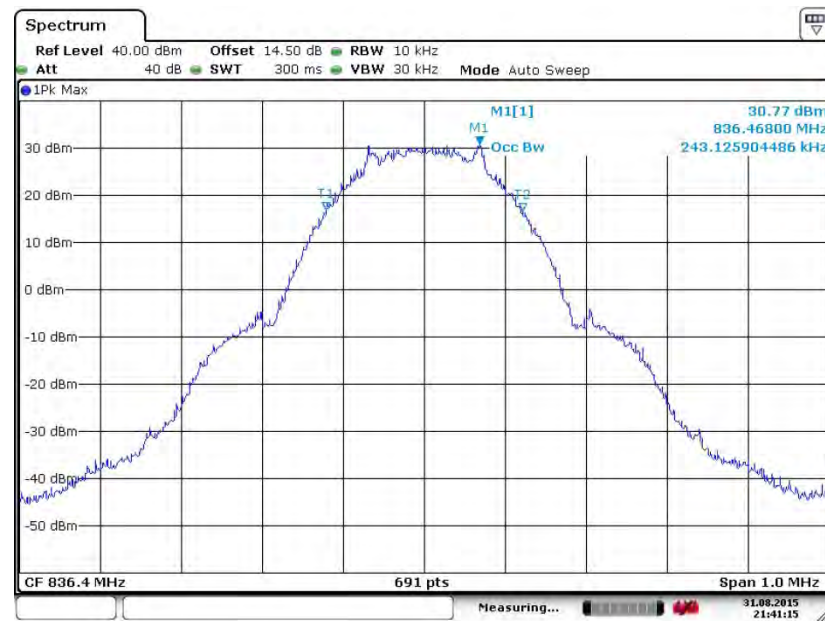
## 26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 1.SEP.2015 00:51:44

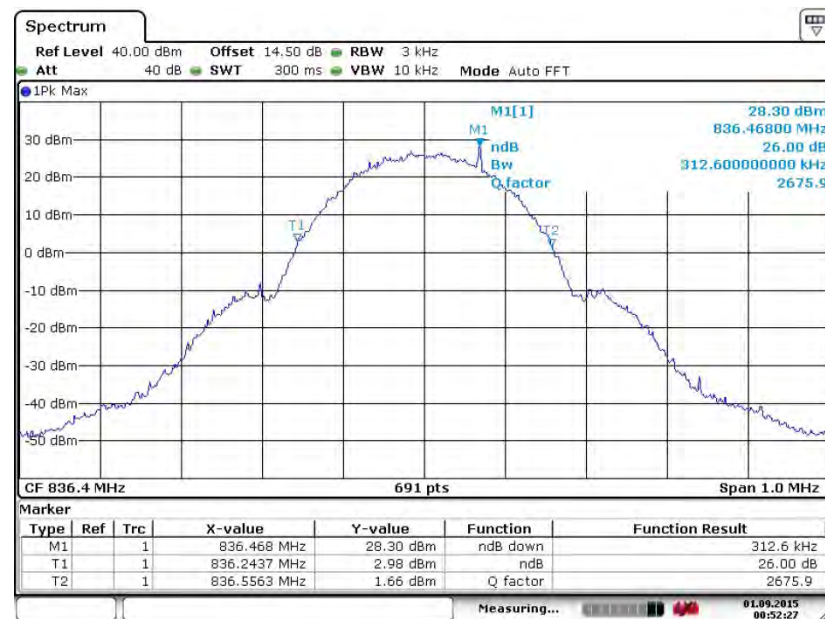


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 31.AUG.2015 21:41:15

26dB Bandwidth Plot on Channel 189 (836.4 MHz)

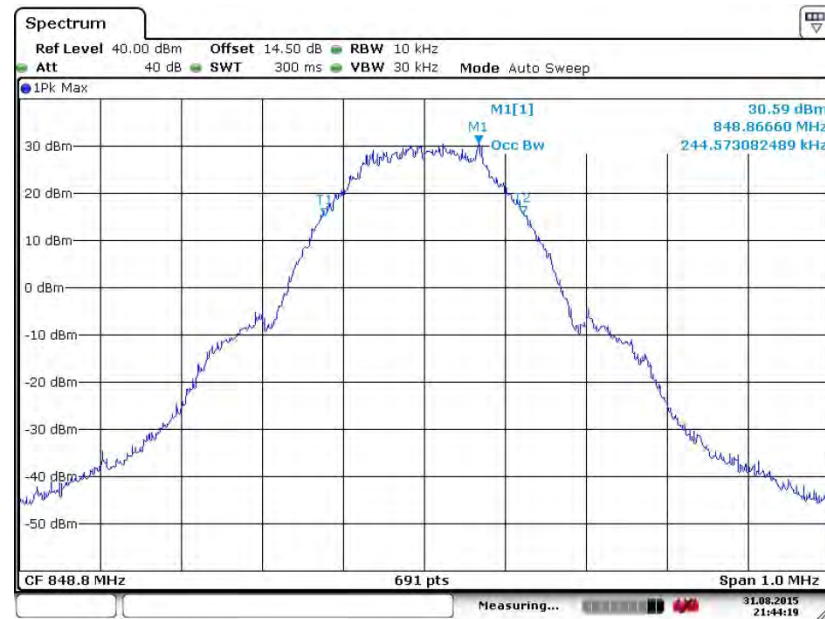


Date: 1.SEP.2015 00:52:27



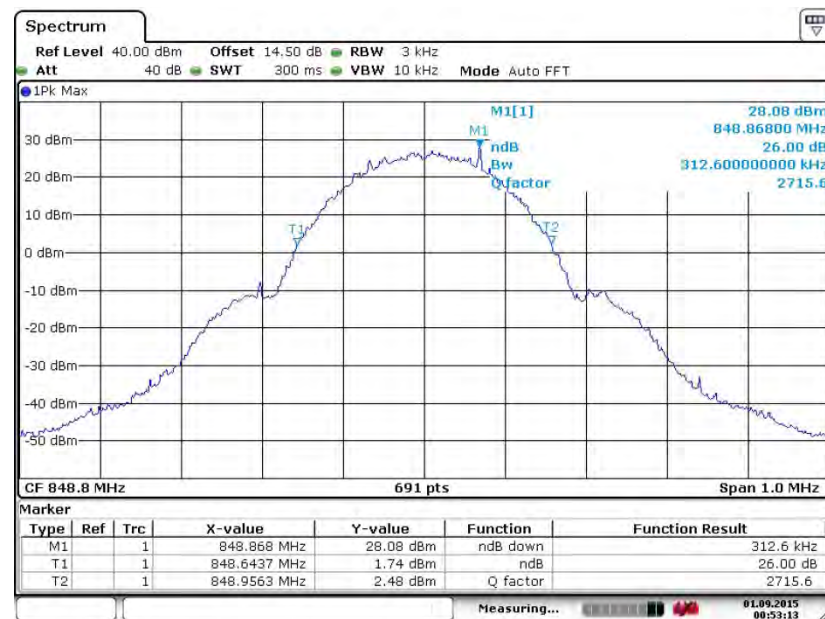


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 31.AUG.2015 21:44:19

26dB Bandwidth Plot on Channel 251 (848.8 MHz)



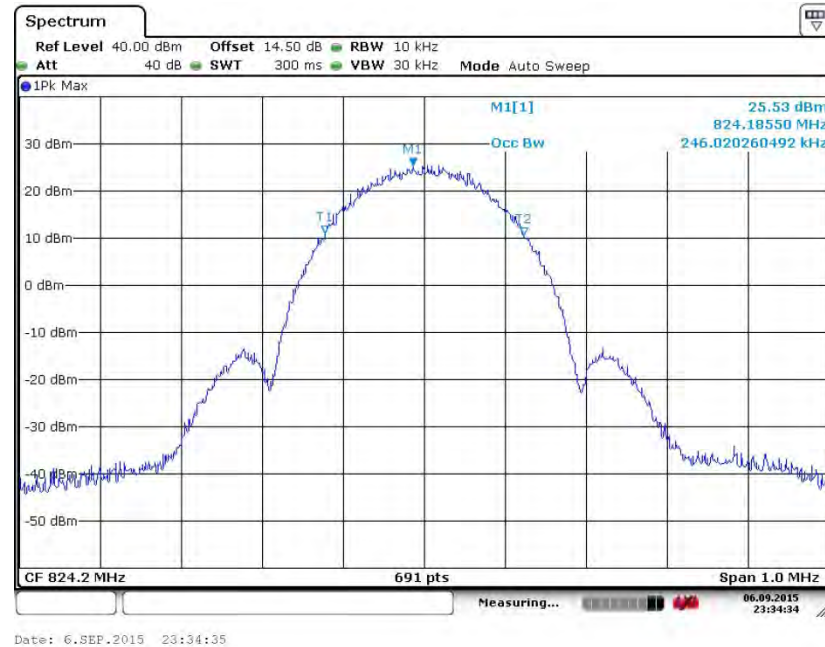
Date: 1.SEP.2015 00:53:13



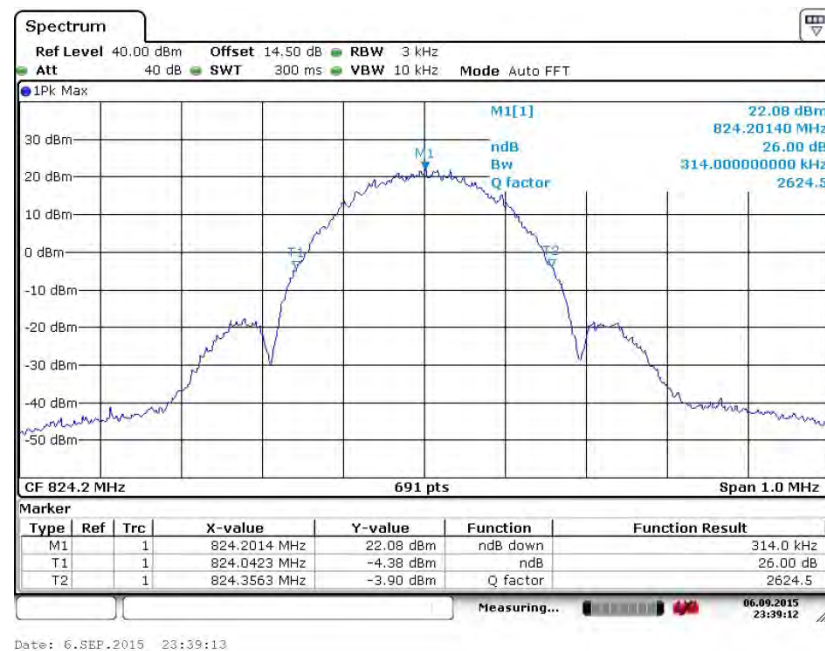


Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
--------	---------	-------------	--------------------------

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

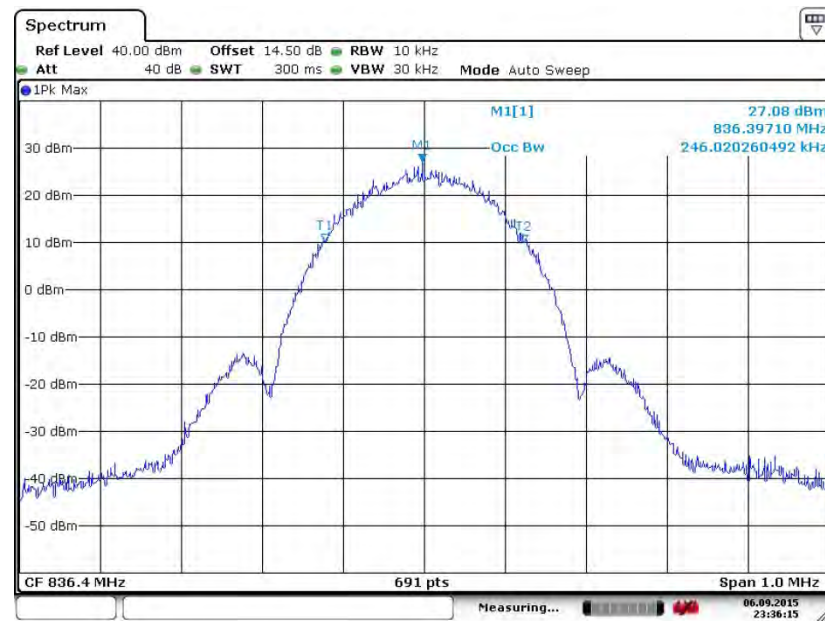


26dB Bandwidth Plot on Channel 128 (824.2 MHz)



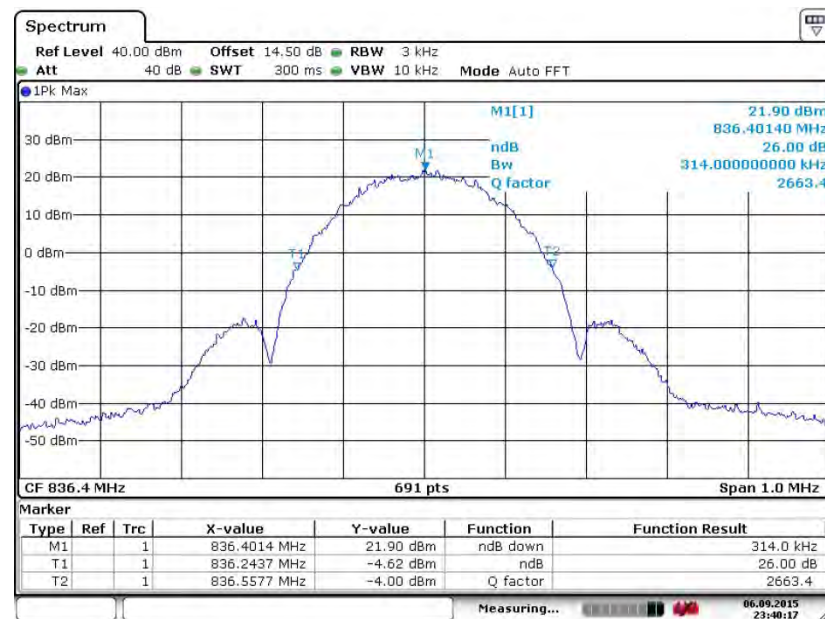


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 6.SEP.2015 23:36:16

26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 6.SEP.2015 23:40:17

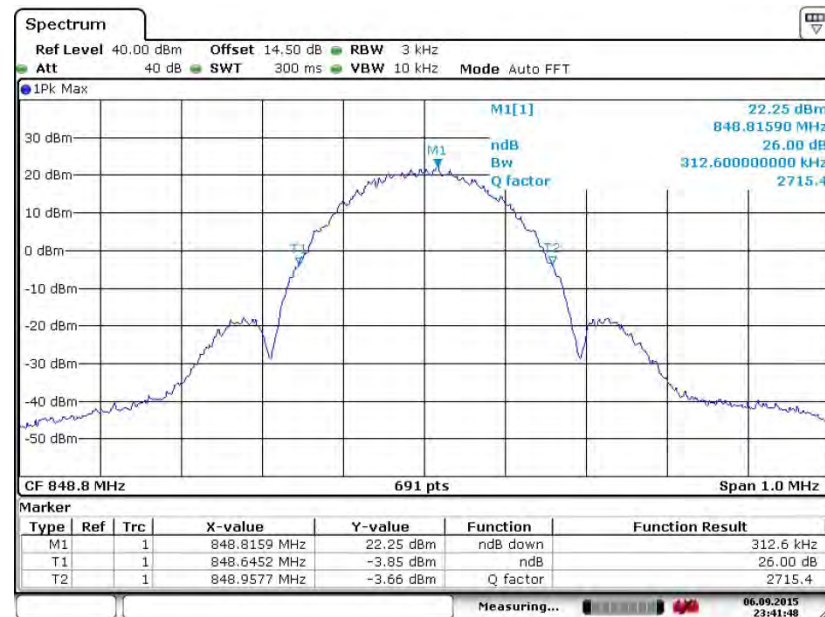


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 6.SEP.2015 23:38:11

26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 6.SEP.2015 23:41:48



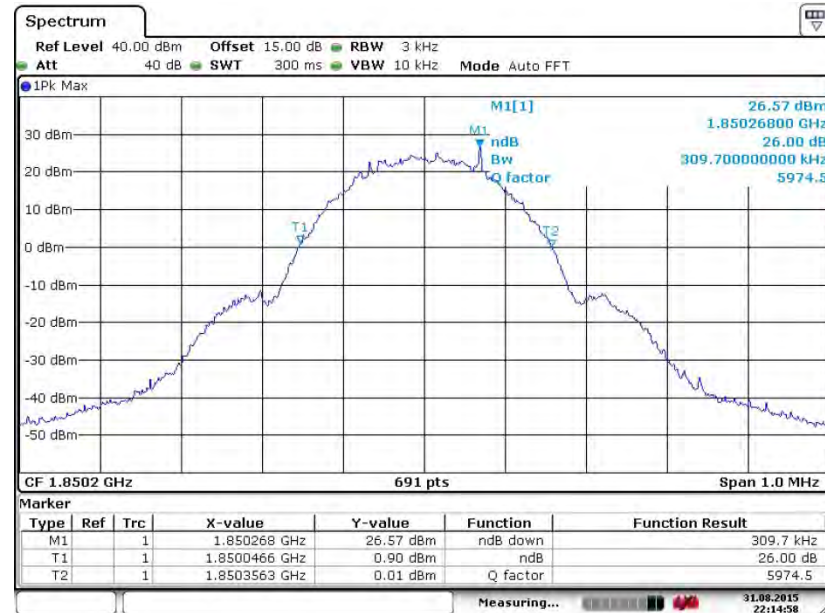
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
--------	----------	-------------	-----------------

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



Date: 31.AUG.2015 22:08:13

26dB Bandwidth Plot on Channel 512 (1850.2 MHz)

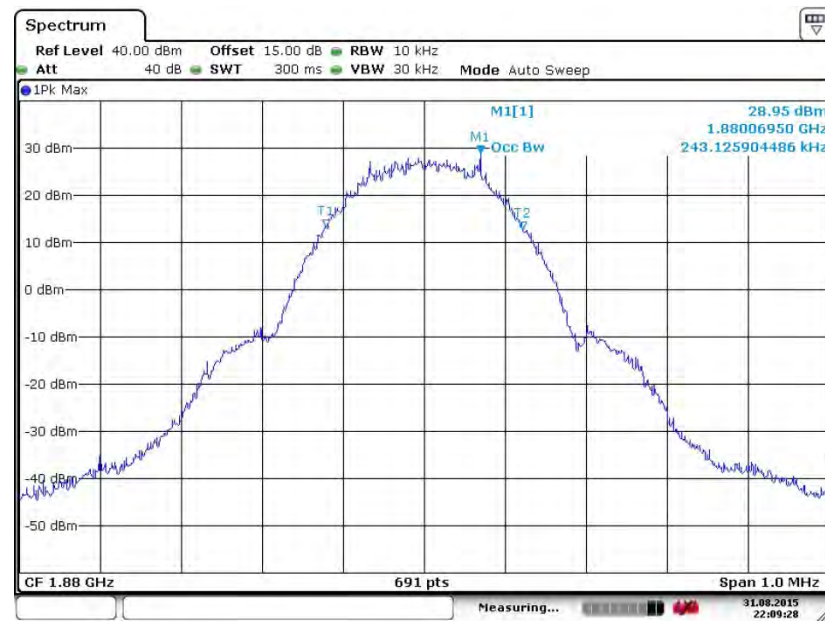


Date: 31.AUG.2015 22:14:59



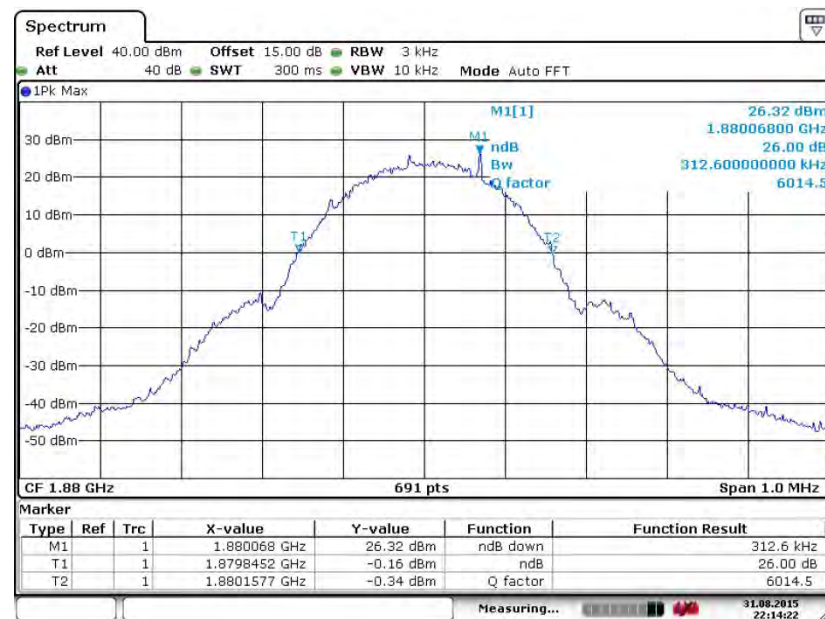


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 31.AUG.2015 22:09:28

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 31.AUG.2015 22:14:22

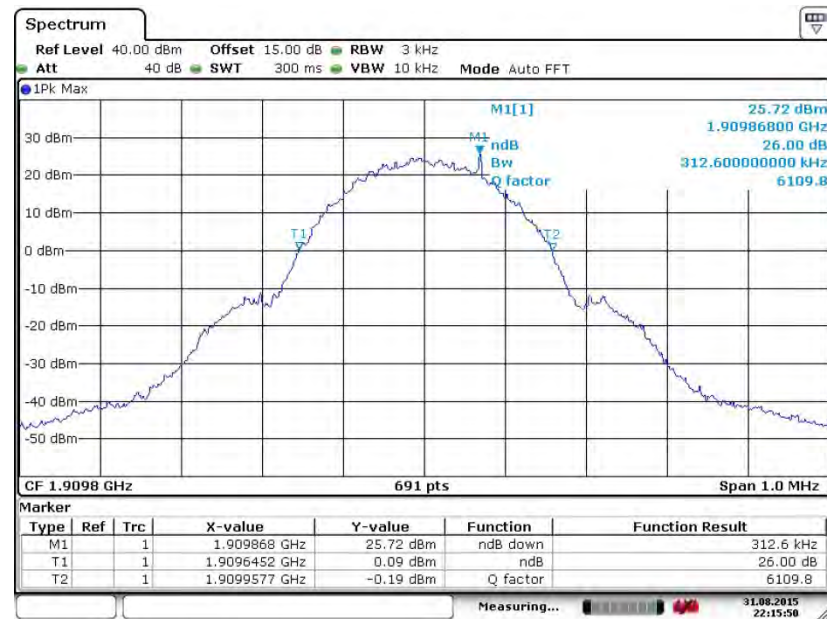


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 31.AUG.2015 22:11:48

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

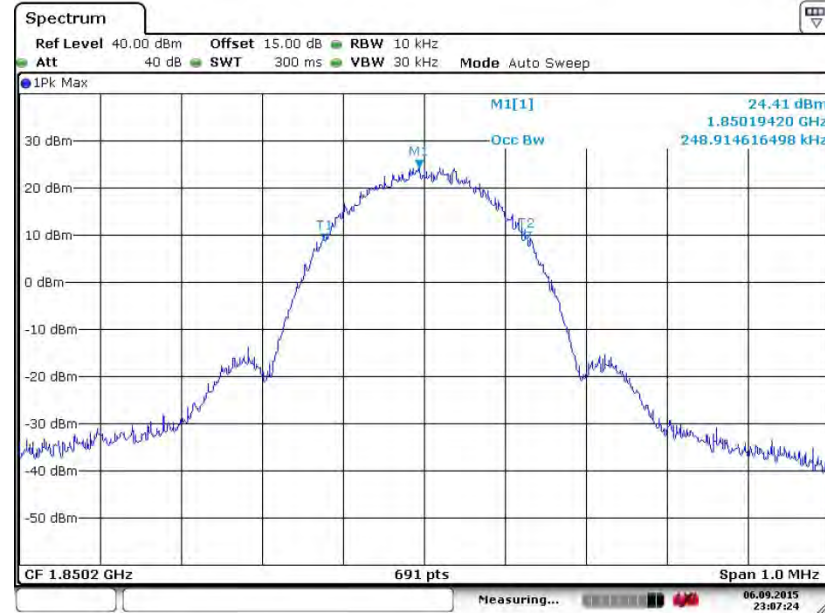


Date: 31.AUG.2015 22:15:50



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

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



Date: 6.SEP.2015 23:07:25

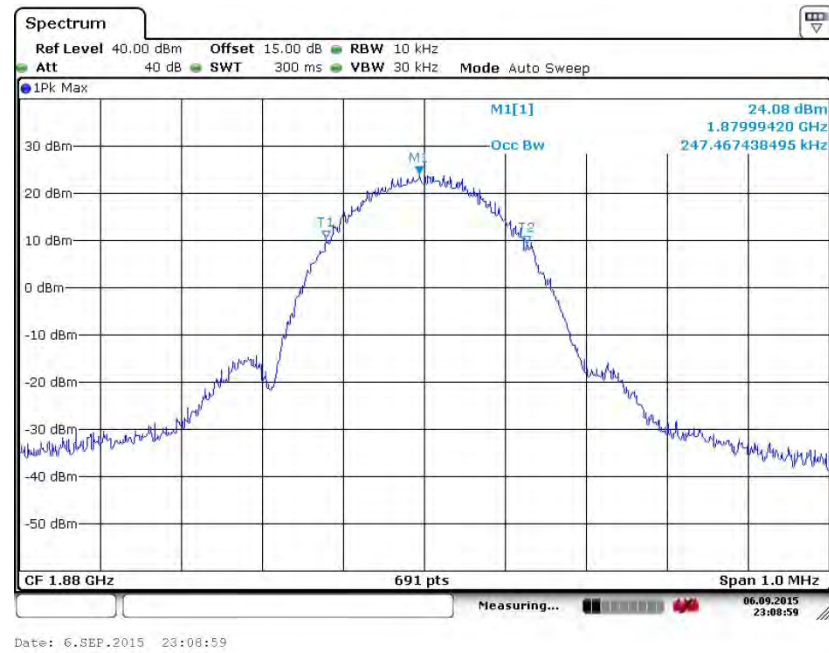
## 26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



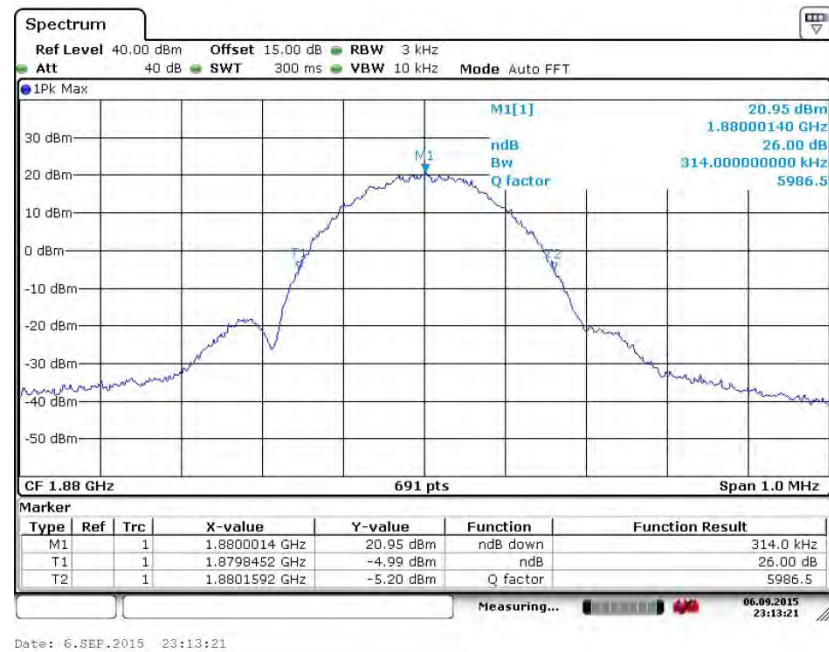
Date: 6.SEP.2015 23:12:06



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



26dB Bandwidth Plot on Channel 661 (1880.0 MHz)





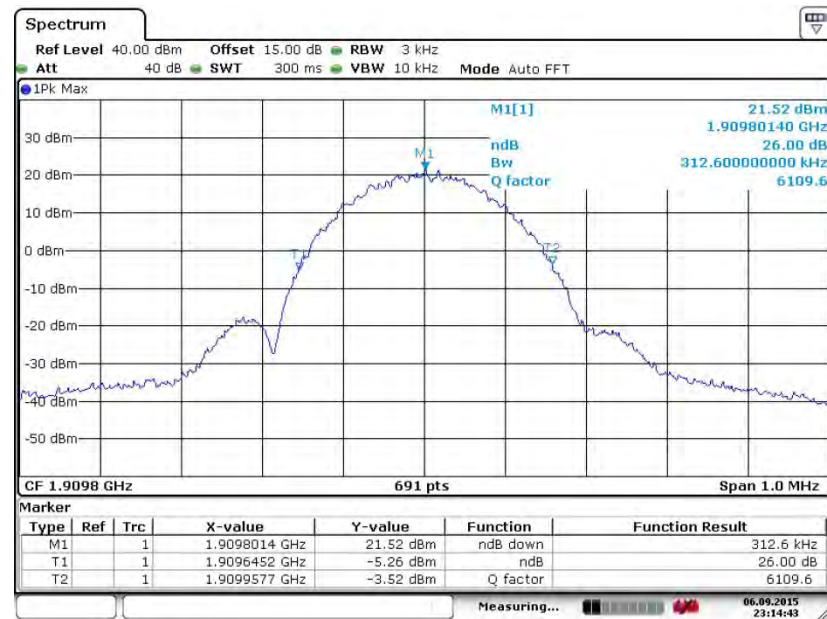


## 99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 6.SEP.2015 23:10:53

## 26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

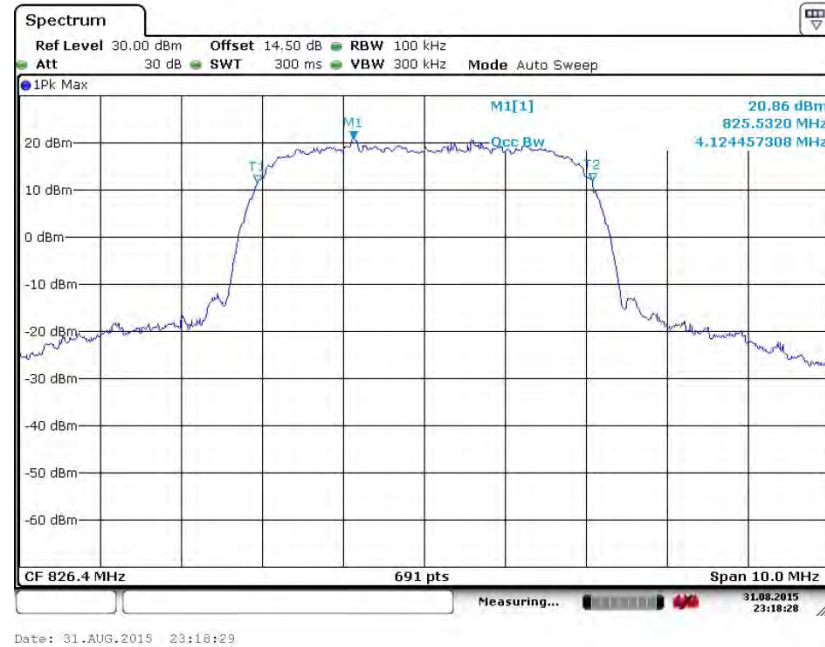


Date: 6.SEP.2015 23:14:43

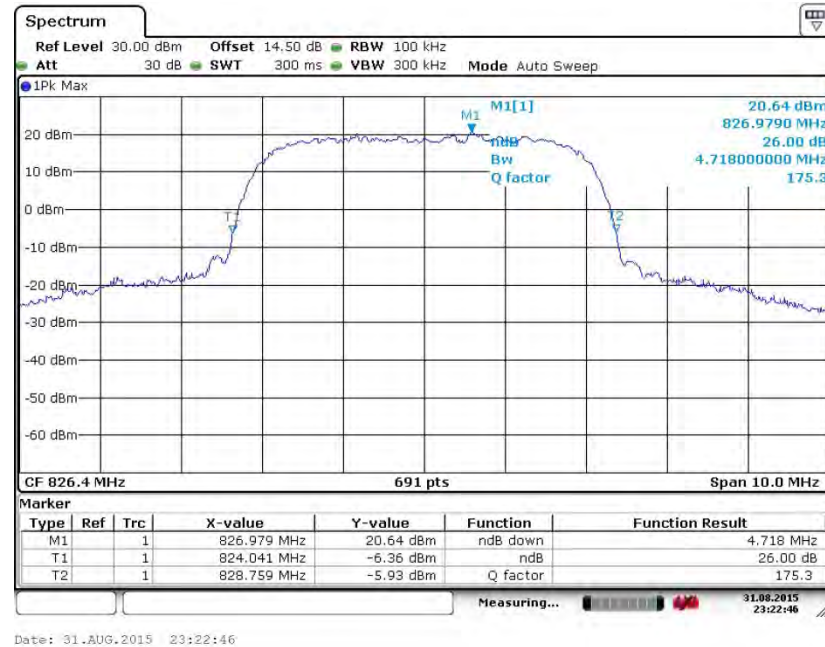


Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	--------------	-------------	--------------------------

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

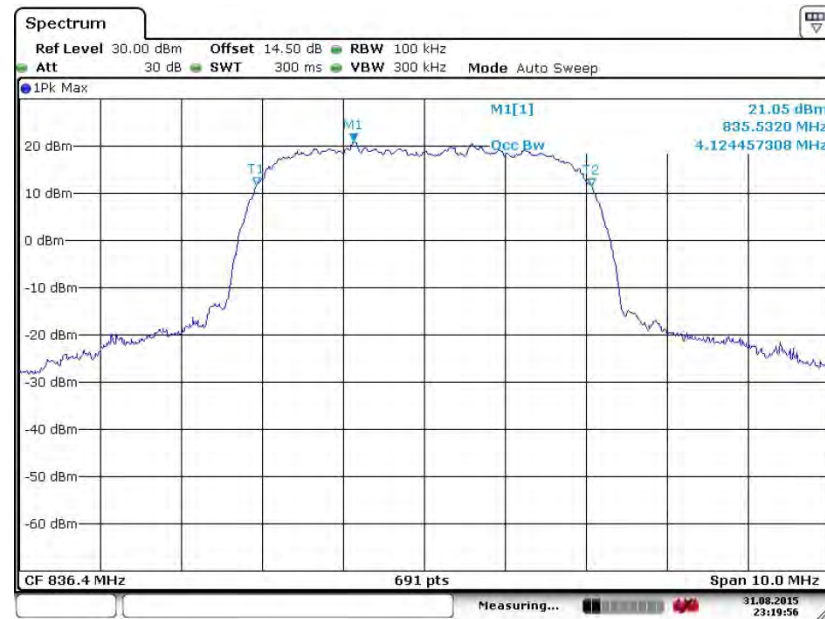


26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



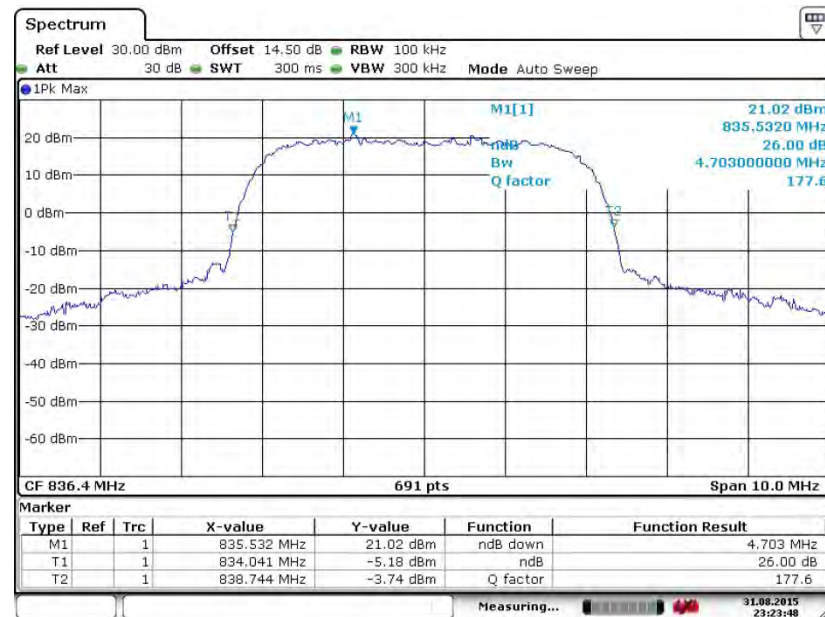


99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 31.AUG.2015 23:19:57

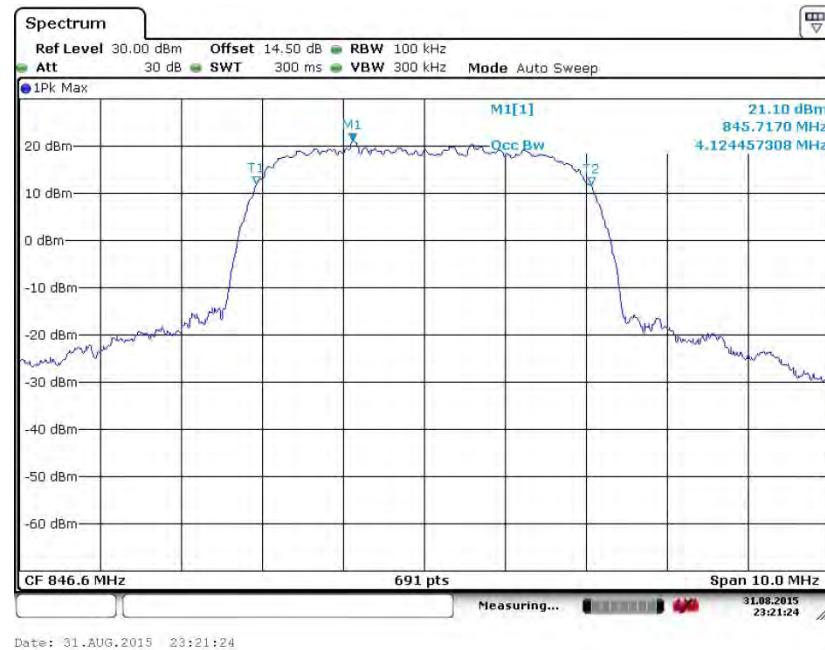
26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



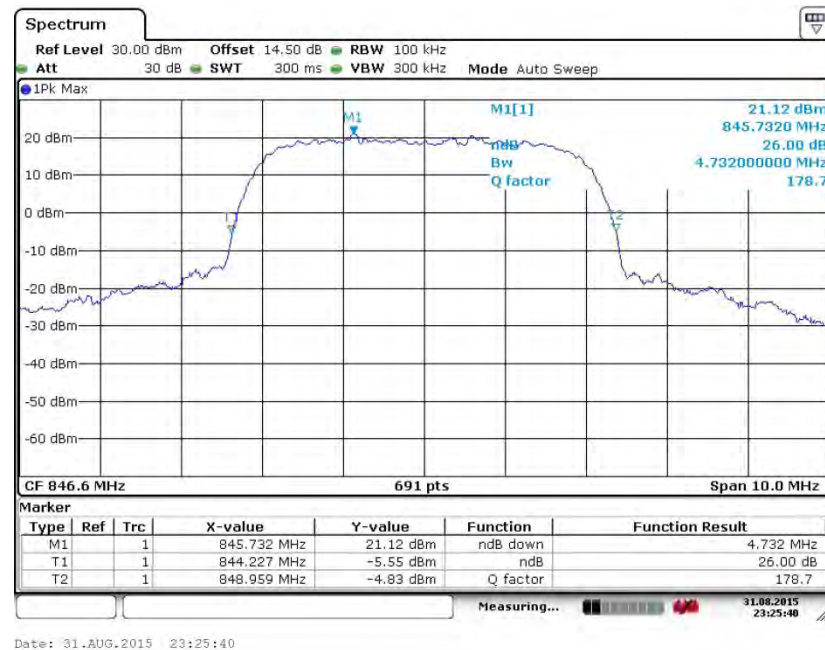
Date: 31.AUG.2015 23:23:48



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



26dB Bandwidth Plot on Channel 4233 (846.6 MHz)

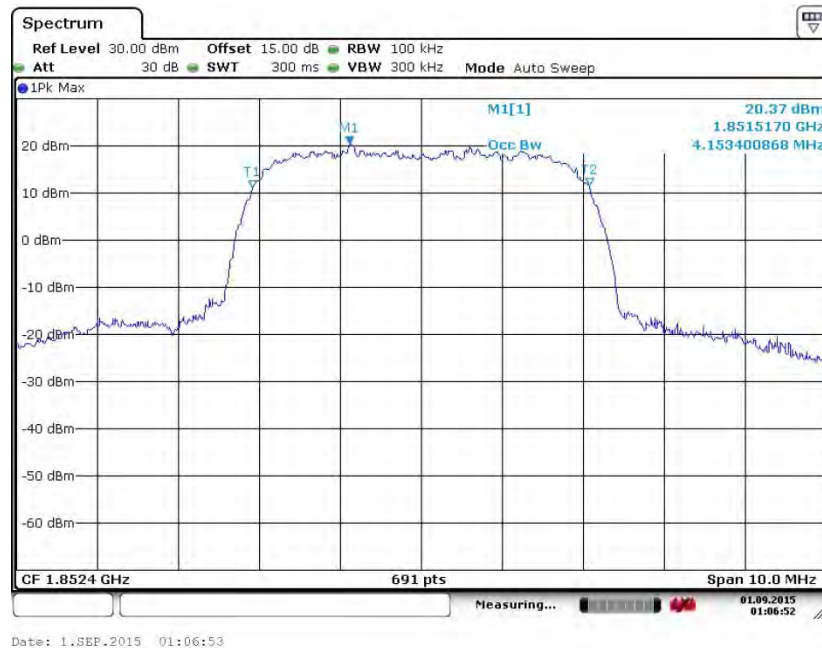




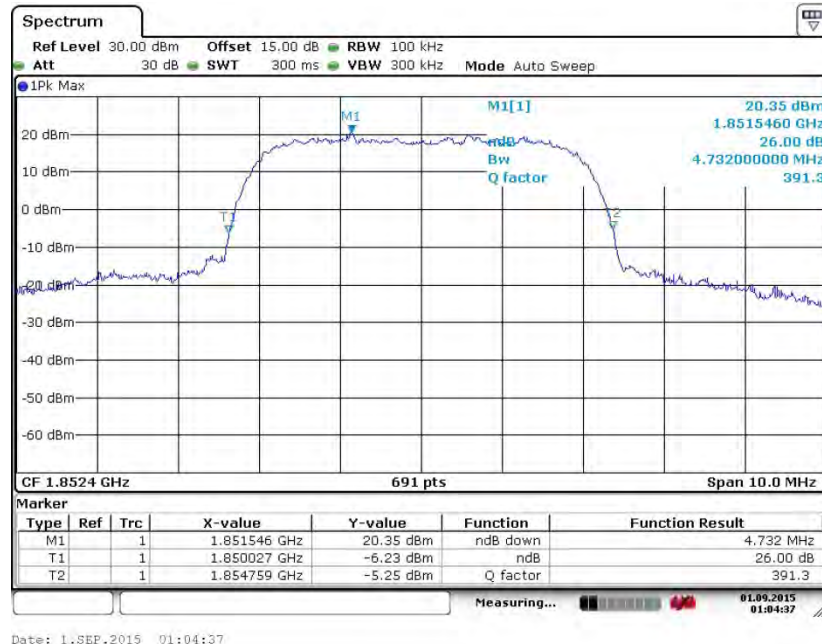


Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

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

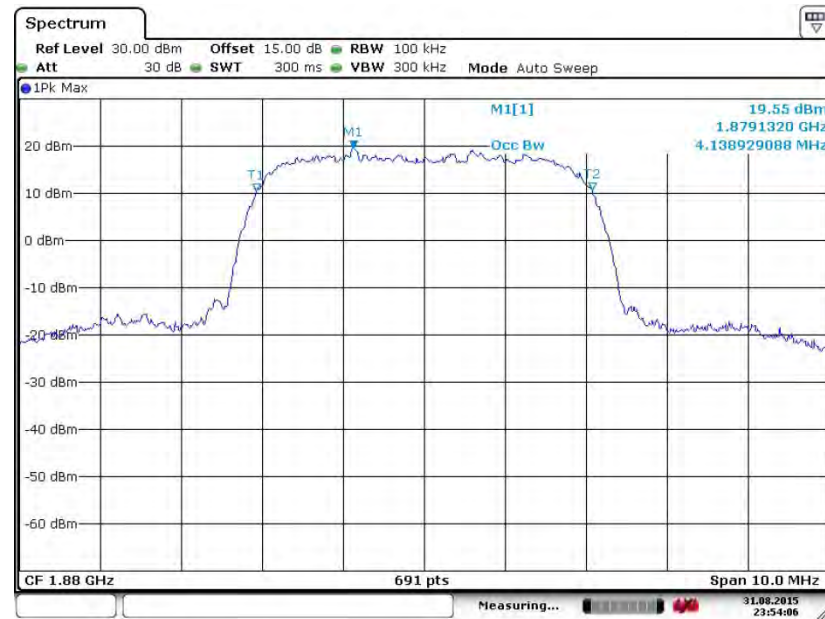


## 26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)



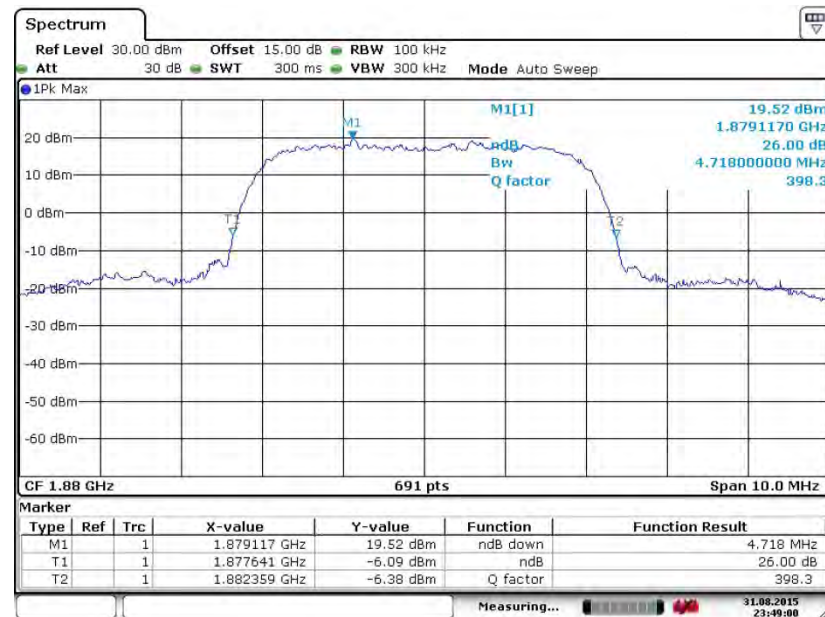


99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 31.AUG.2015 23:54:06

26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



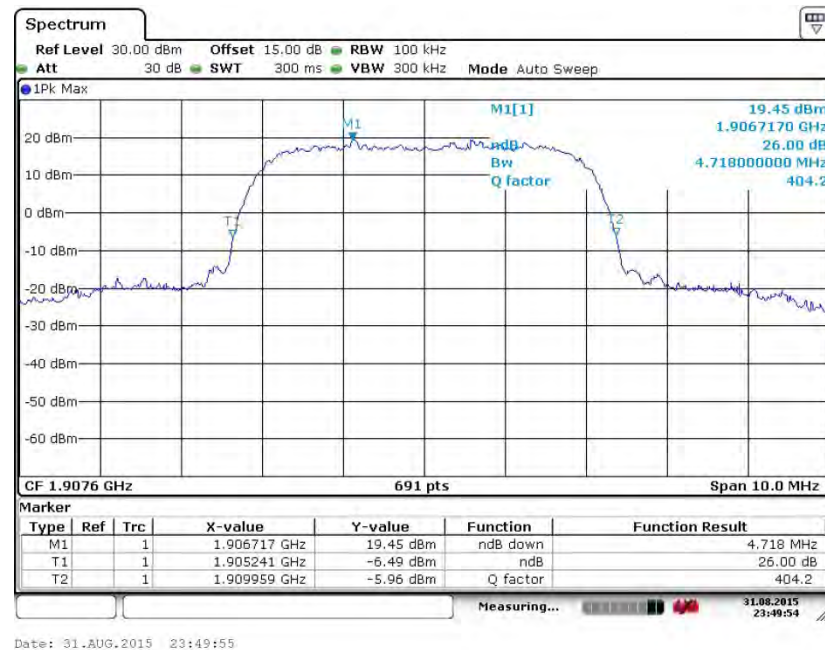
Date: 31.AUG.2015 23:49:01



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



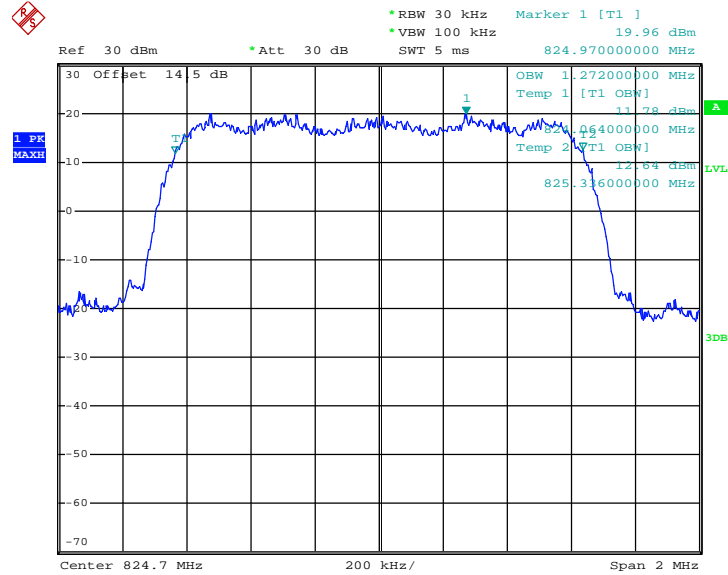
## 26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)





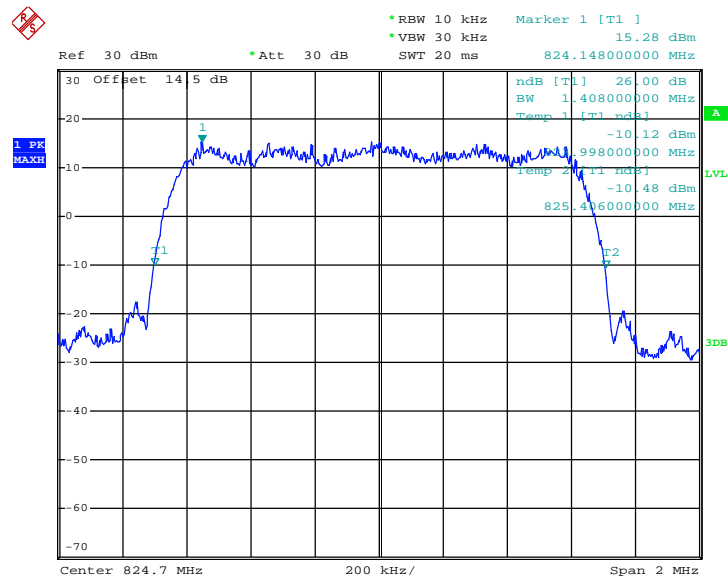
Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC3+SO55 (QPSK)
--------	--------------	-------------	-----------------------

99% Occupied Bandwidth Plot on Channel 1013 (824.7 MHz)



Date: 7.SEP.2015 11:56:09

26dB Bandwidth Plot on Channel 1013 (824.7 MHz)

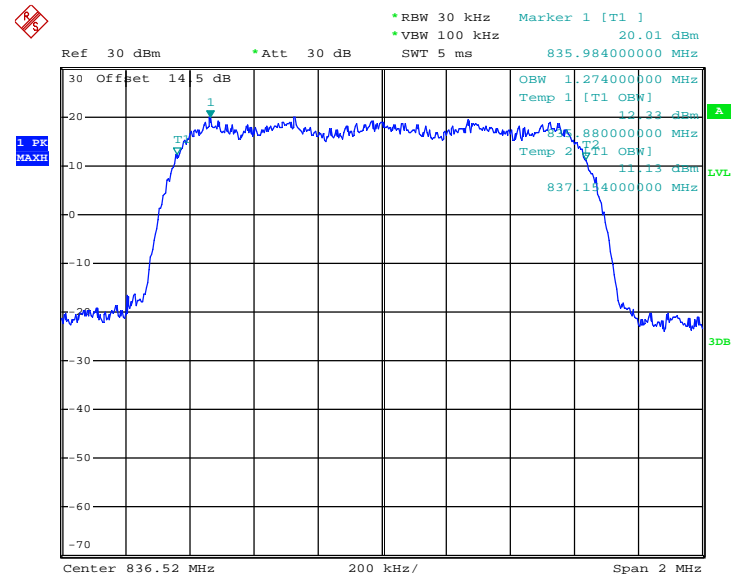


Date: 7.SEP.2015 11:53:29



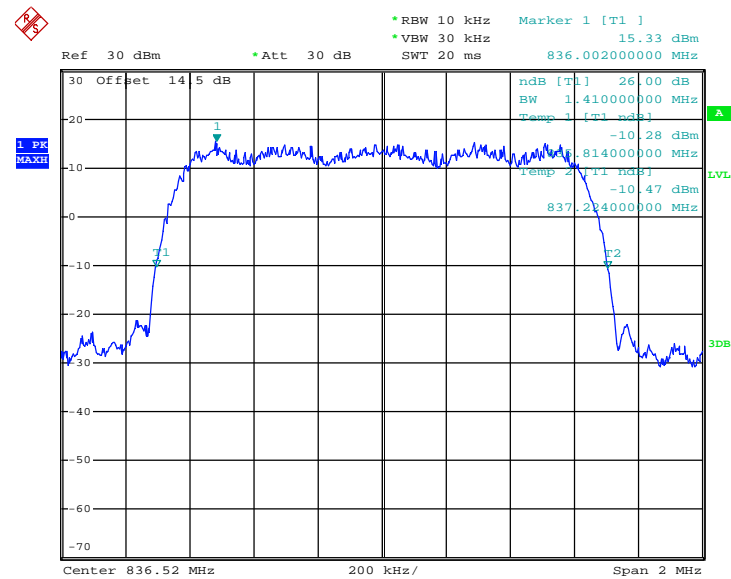


### 99% Occupied Bandwidth Plot on Channel 384 (836.52 MHz)



Date: 7.SEP.2015 11:58:48

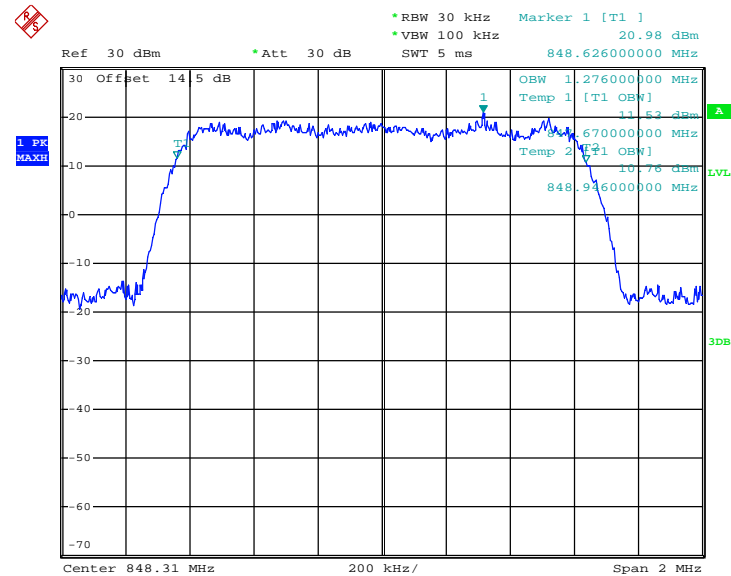
### 26dB Bandwidth Plot on Channel 384 (836.52 MHz)



Date: 7.SEP.2015 11:54:48

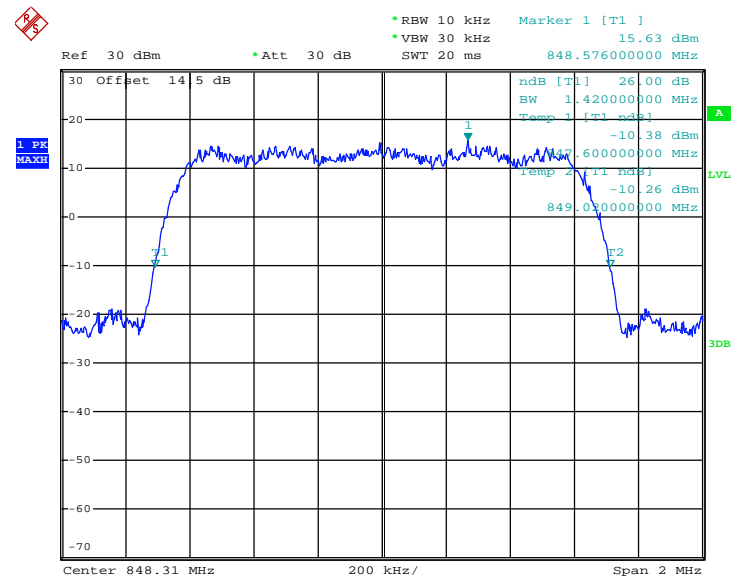


99% Occupied Bandwidth Plot on Channel 777 (848.31 MHz)



Date: 7.SEP.2015 11:59:21

26dB Bandwidth Plot on Channel 777 (848.31 MHz)

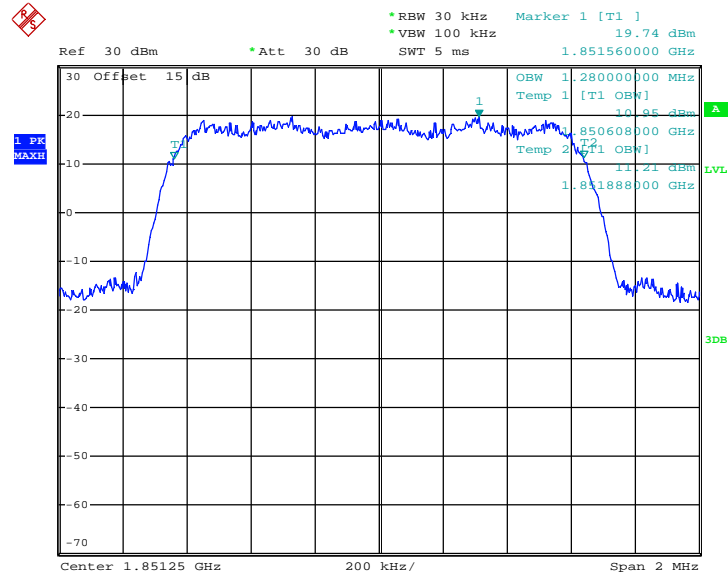


Date: 7.SEP.2015 11:55:31



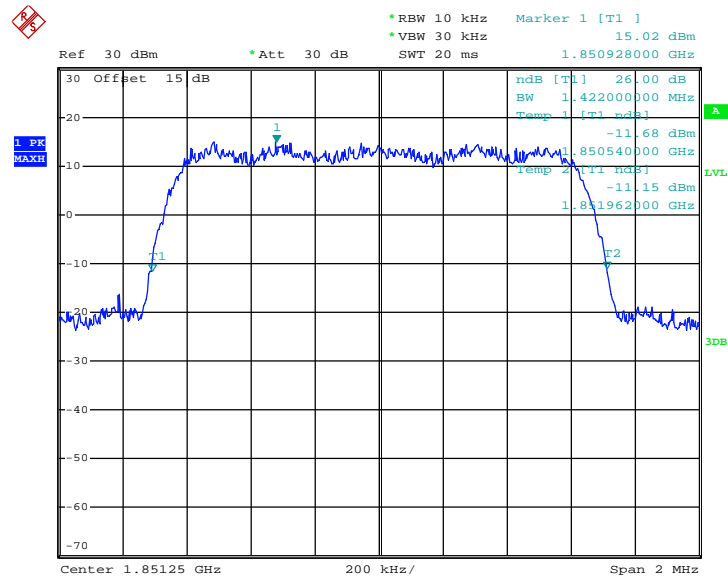
Band :	CDMA2000 BC1	Test Mode :	1xRTT_RC3+SO55 (QPSK)
--------	--------------	-------------	-----------------------

99% Occupied Bandwidth Plot on Channel 25 (1851.25 MHz)



Date: 7.SEP.2015 12:20:47

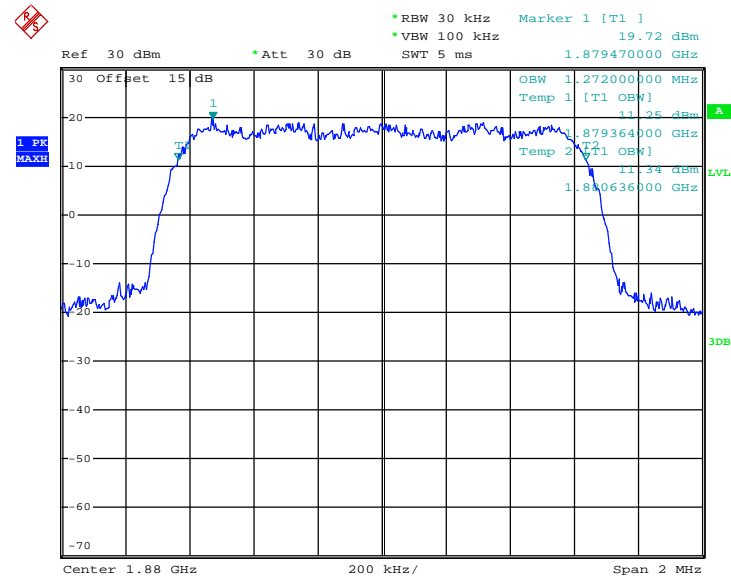
26dB Bandwidth Plot on Channel 25 (1851.25 MHz)



Date: 7.SEP.2015 12:17:41

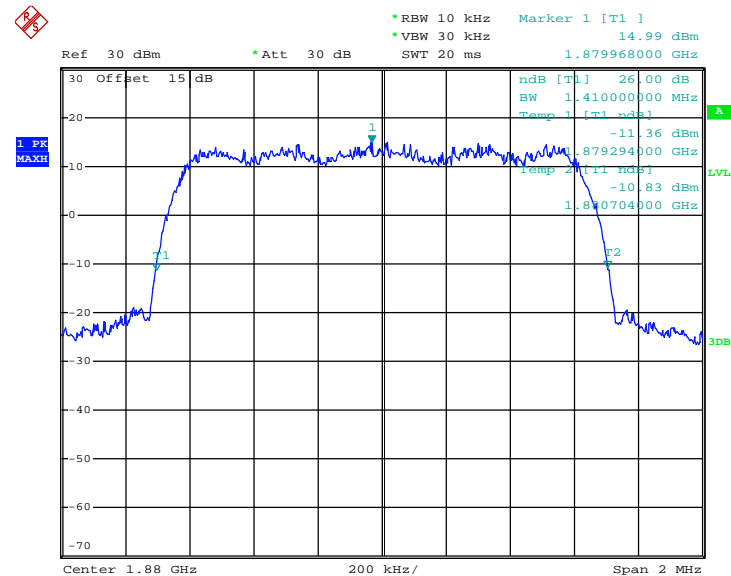


### 99% Occupied Bandwidth Plot on Channel 600 (1880.0 MHz)



Date: 7.SEP.2015 12:22:40

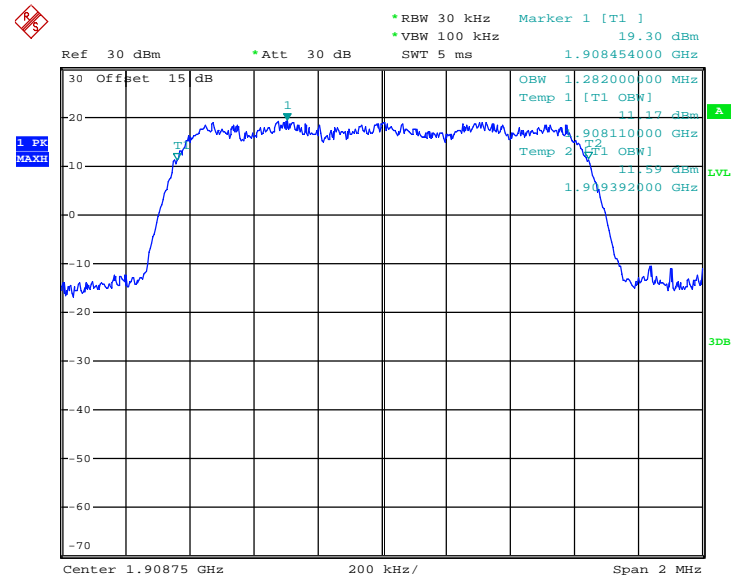
### 26dB Bandwidth Plot on Channel 600 (1880.0 MHz)



Date: 7.SEP.2015 12:19:15

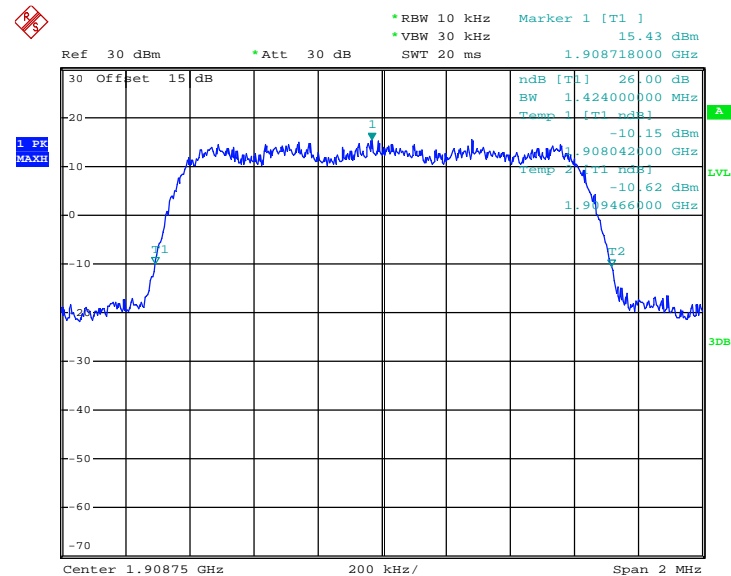


99% Occupied Bandwidth Plot on Channel 1175 (1908.75 MHz)



Date: 7.SEP.2015 12:23:35

26dB Bandwidth Plot on Channel 1175 (1908.75 MHz)

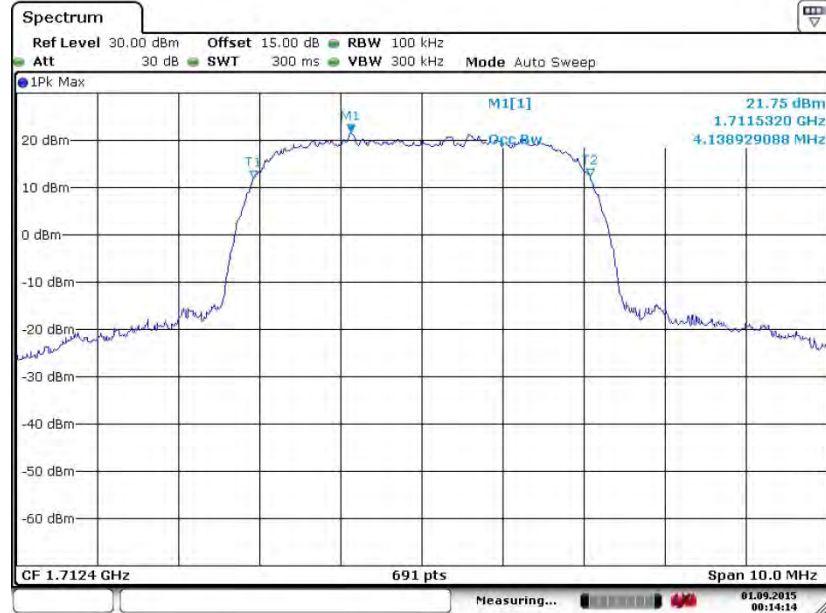


Date: 7.SEP.2015 12:19:52



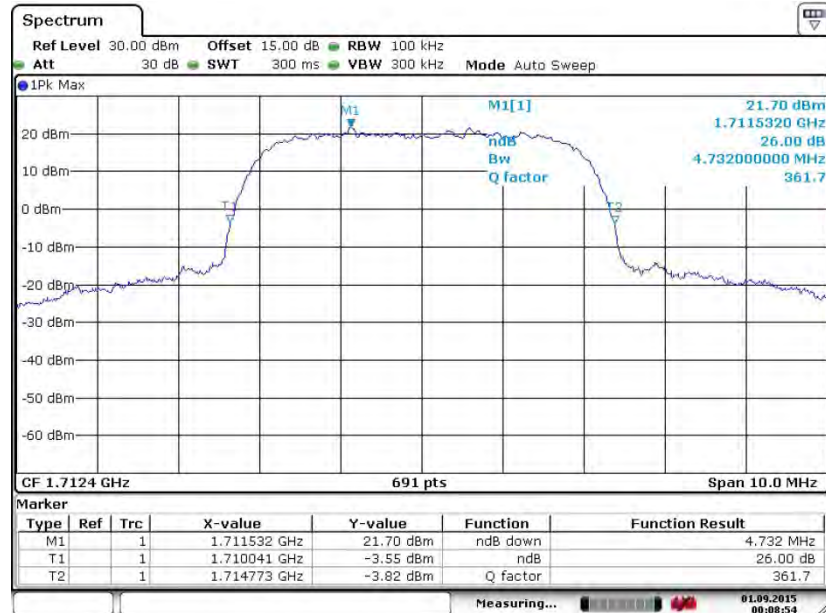
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

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



Date: 1.SEP.2015 00:14:15

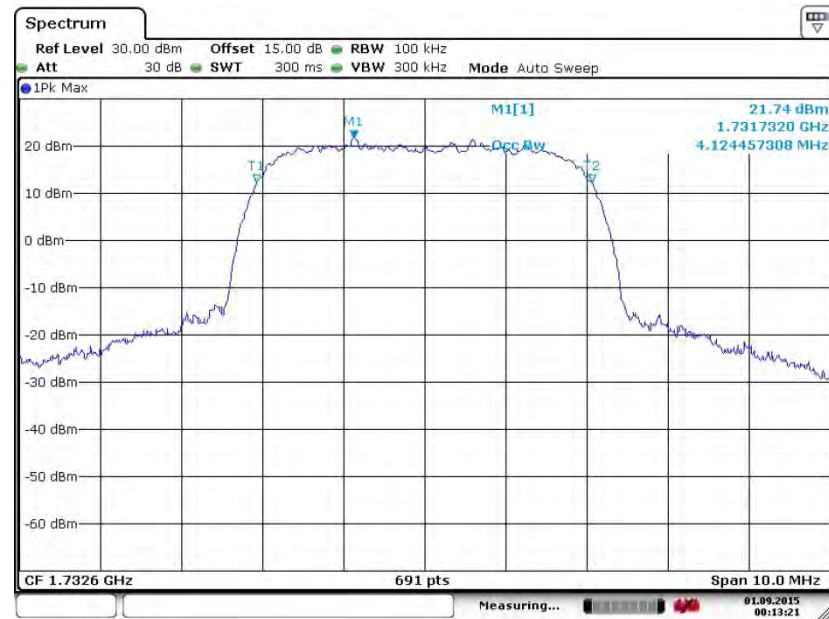
26dB Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 1.SEP.2015 00:08:54

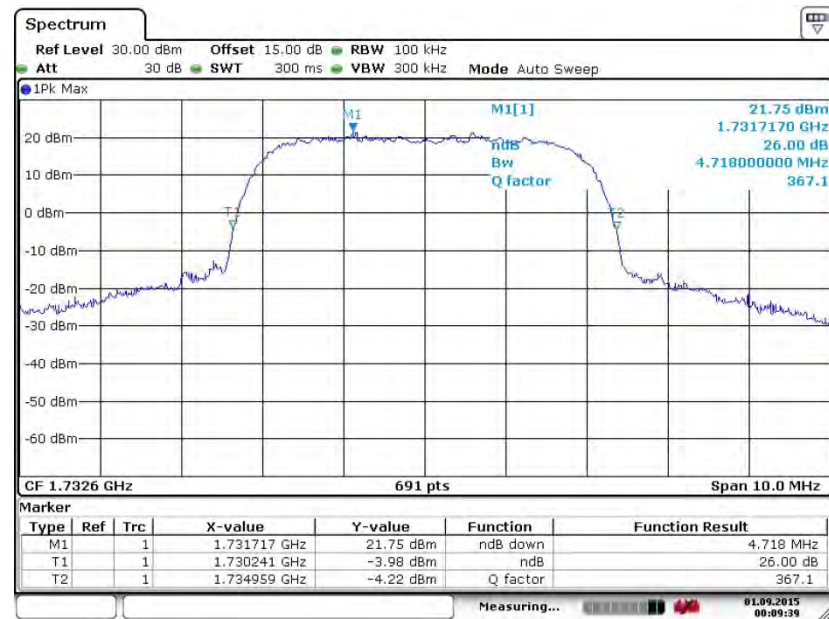


## 99% Occupied Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 1.SEP.2015 00:13:22

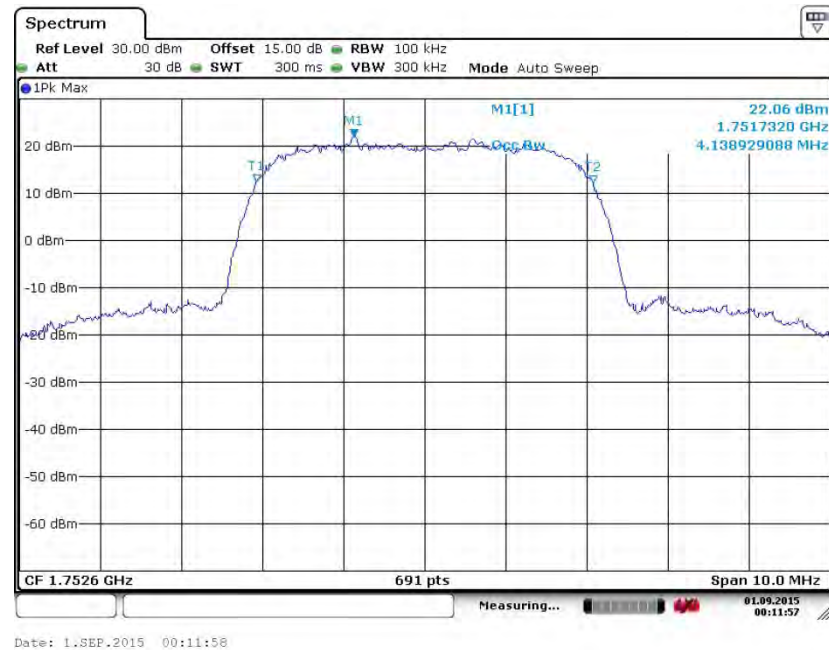
## 26dB Bandwidth Plot on Channel 1413 (1732.6 MHz)



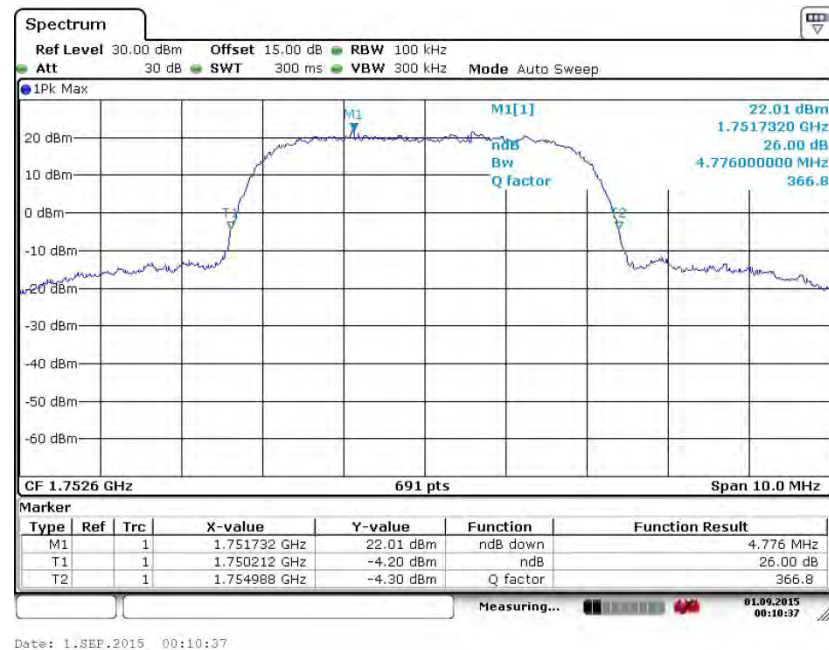
Date: 1.SEP.2015 00:09:39



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



## 26dB Bandwidth Plot on Channel 1513 (1752.6 MHz)





### 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.

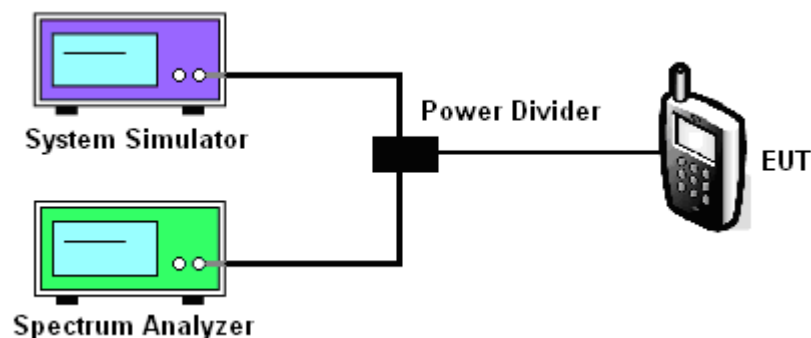
#### 3.5.2 Measuring Instruments

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  $43 + 10\log(P)$  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

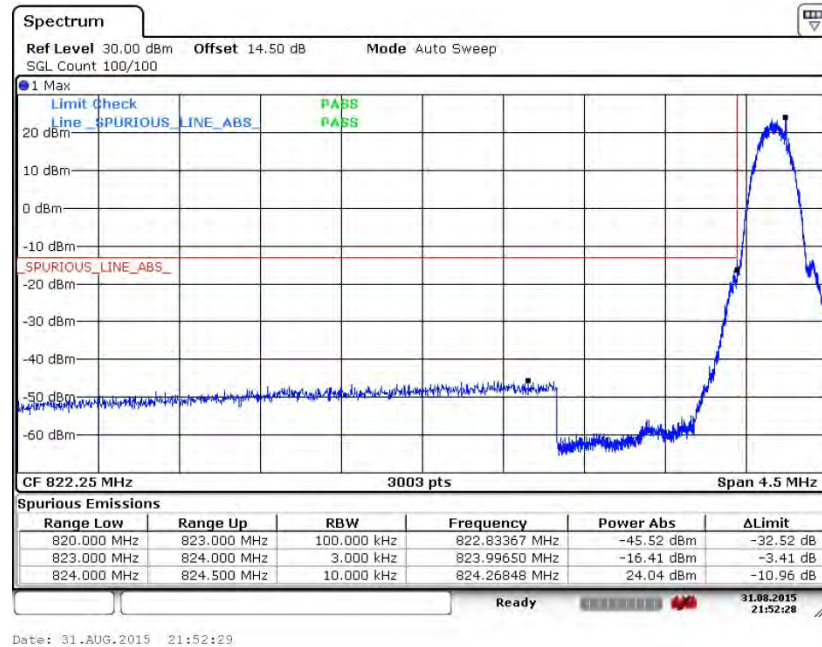




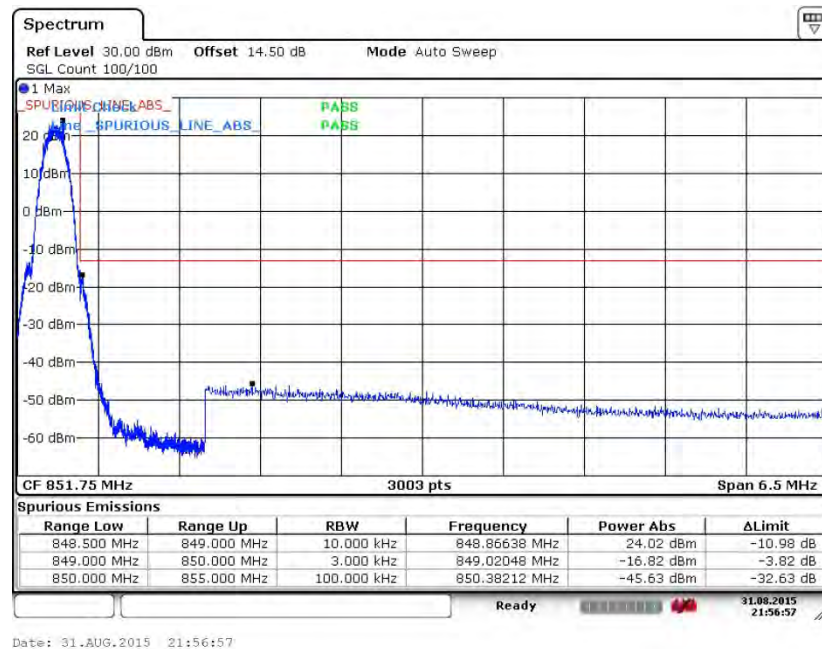
## 3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Test Mode :	GSM Link (GMSK)
--------	--------	-------------	-----------------

Lower Band Edge Plot on Channel 128 (824.2 MHz)



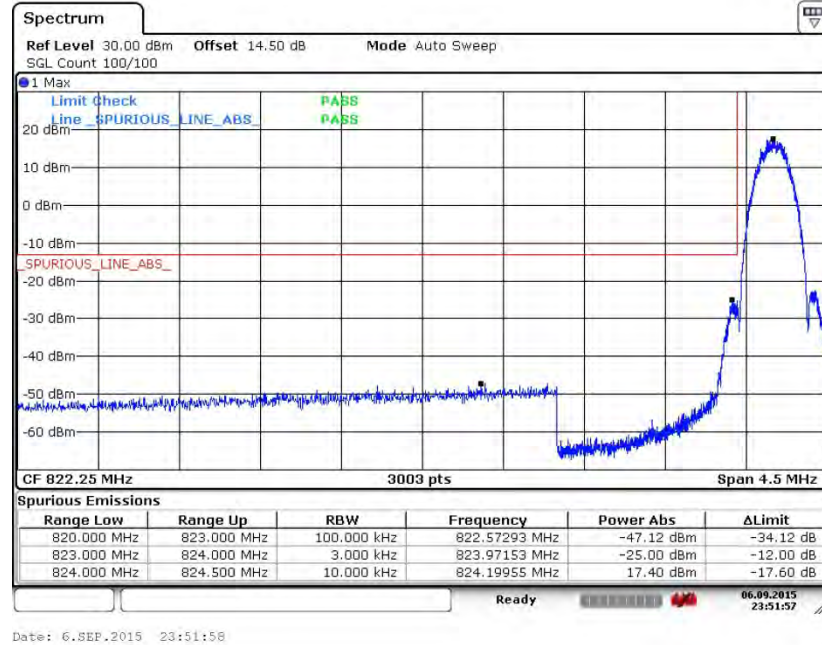
Higher Band Edge Plot on Channel 251 (848.8 MHz)



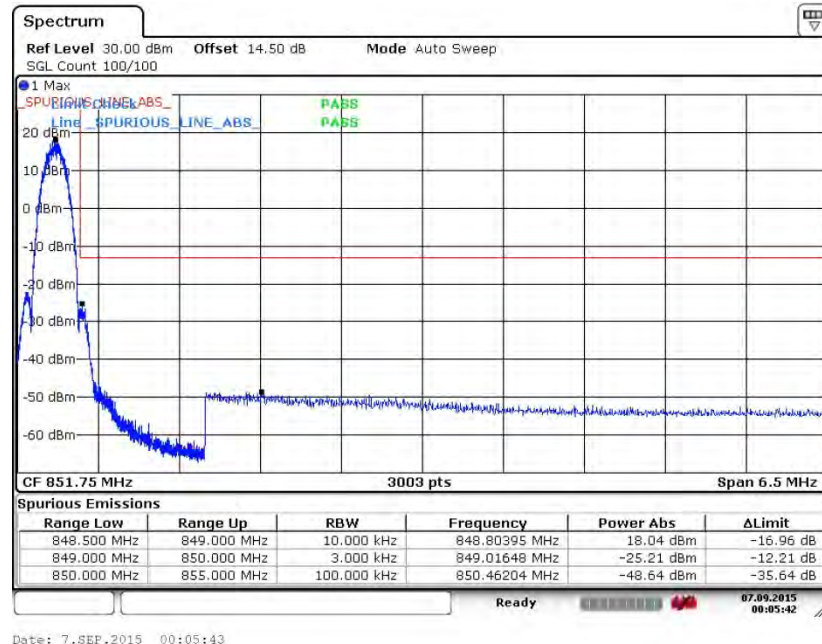


Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
--------	--------	-------------	--------------------------

## Lower Band Edge Plot on Channel 128 (824.2 MHz)



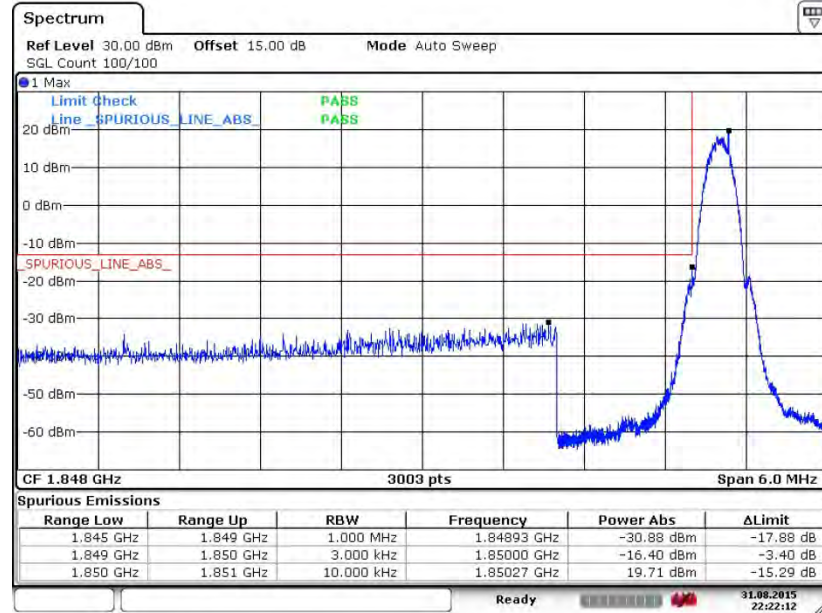
## Higher Band Edge Plot on Channel 251 (848.8 MHz)





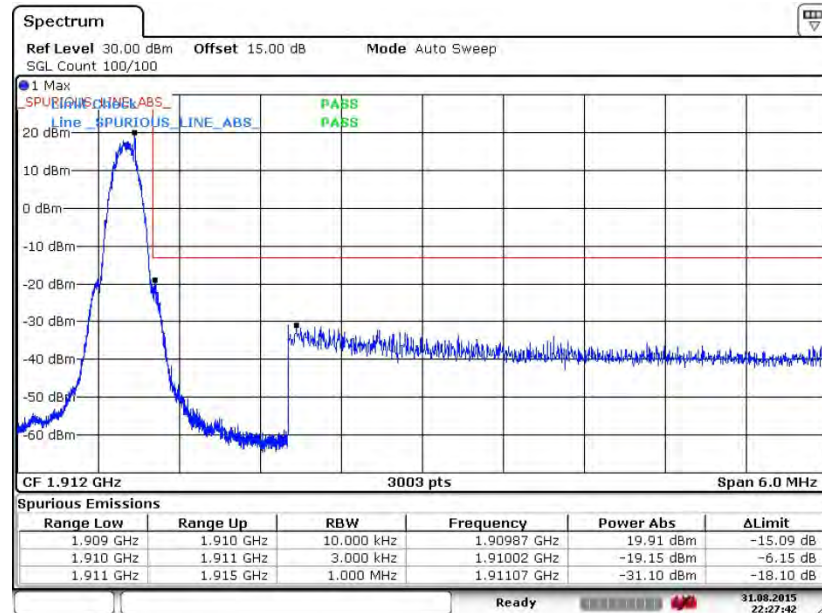
Band :	GSM1900	Test Mode :	GSM Link (GMSK)
--------	---------	-------------	-----------------

## Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 31.AUG.2015 22:22:12

## Higher Band Edge Plot on Channel 810 (1909.8 MHz)



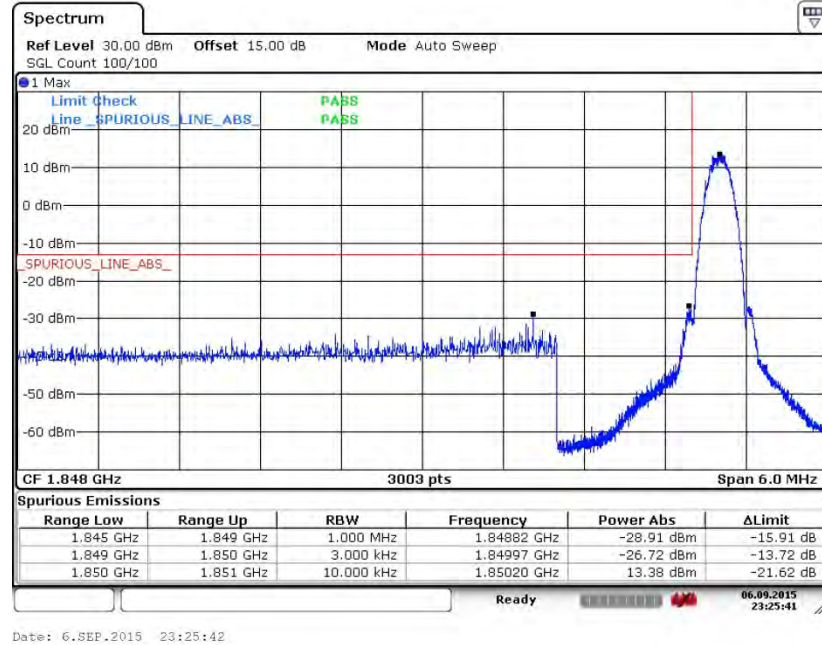
Date: 31.AUG.2015 22:27:42



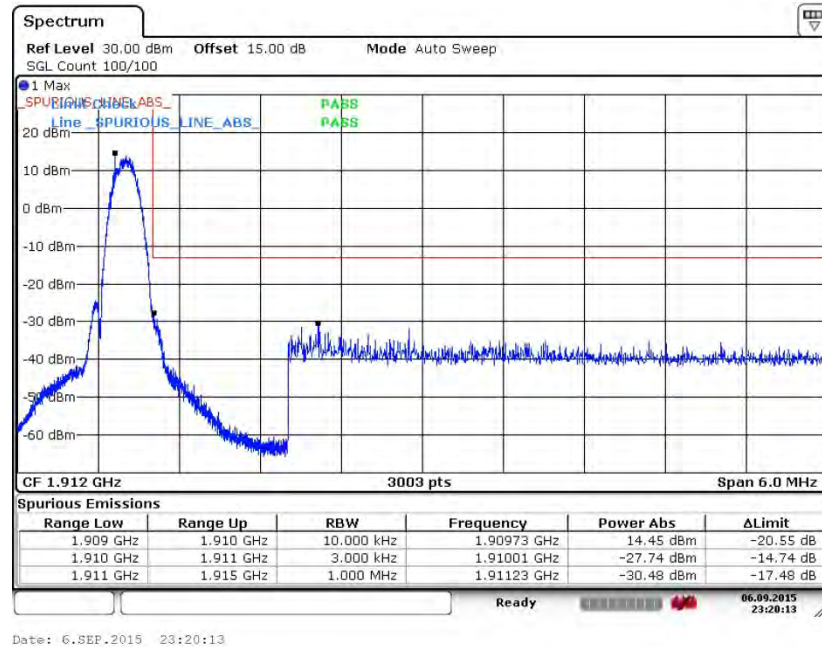


Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)
--------	---------	-------------	--------------------------

## Lower Band Edge Plot on Channel 512 (1850.2 MHz)



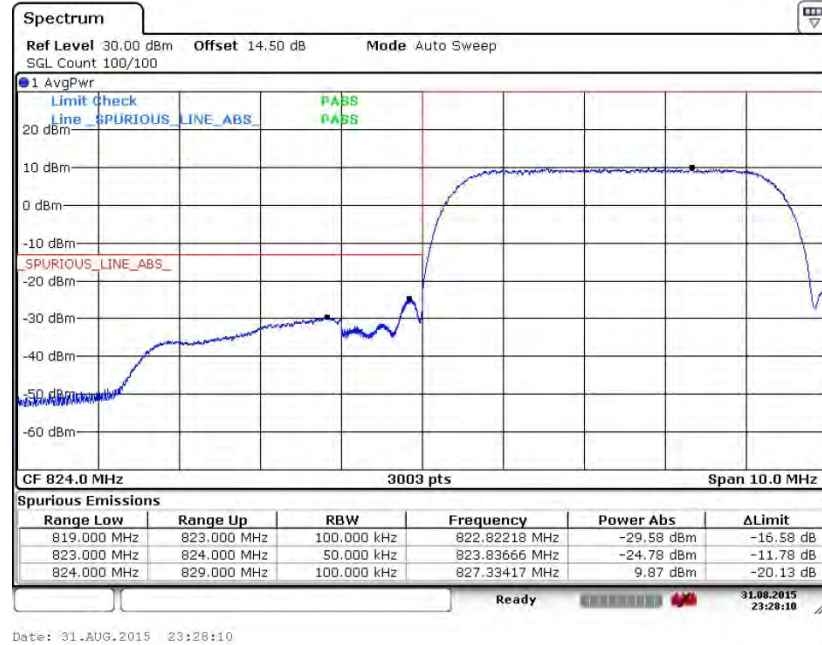
## Higher Band Edge Plot on Channel 810 (1909.8 MHz)





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

## Lower Band Edge Plot on Channel 4132 (826.4 MHz)



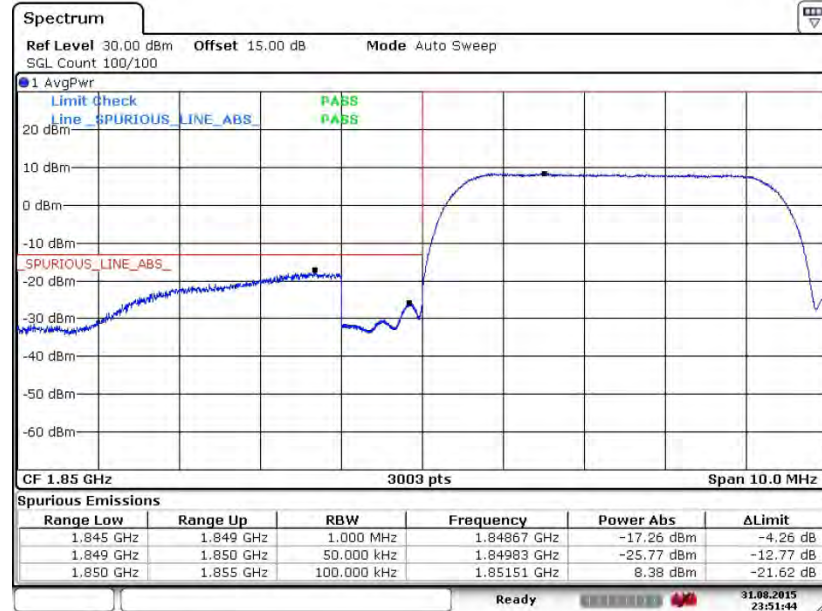
## Higher Band Edge Plot on Channel 4233 (846.6 MHz)





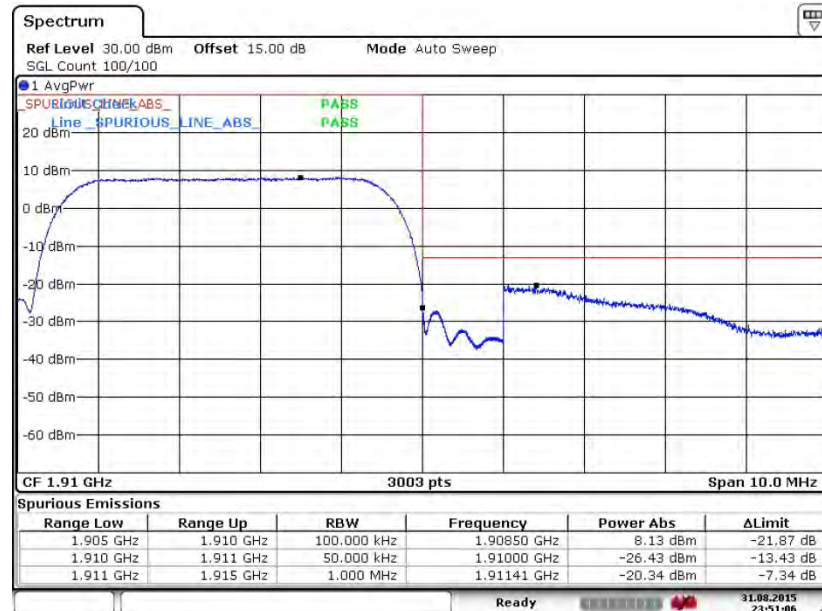
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
--------	---------------	-------------	--------------------------

## Lower Band Edge Plot on Channel 9262 (1852.4 MHz)



Date: 31.AUG.2015 23:51:45

## Higher Band Edge Plot on Channel 9538 (1907.6 MHz)

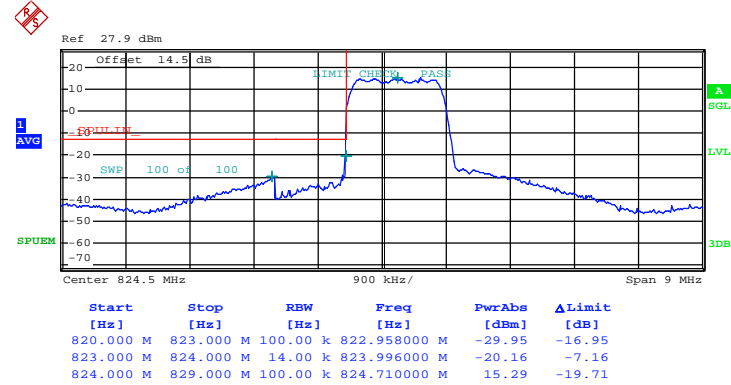


Date: 31.AUG.2015 23:51:06



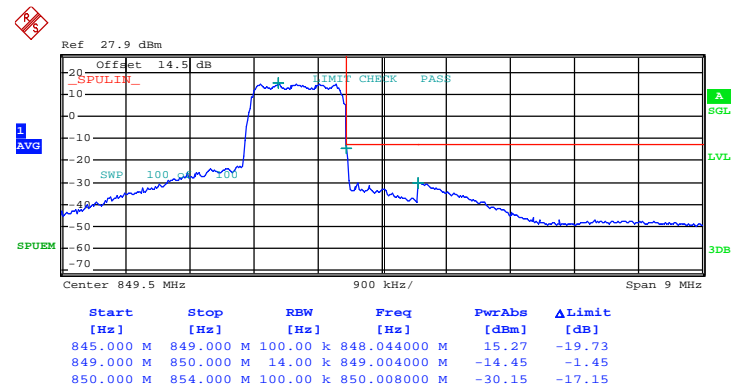
Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC3+SO55 (QPSK)
--------	--------------	-------------	-----------------------

Lower Band Edge Plot on Channel 1013 (824.7 MHz)



Date: 11.SEP.2015 11:47:48

Higher Band Edge Plot on Channel 777 (848.31 MHz)



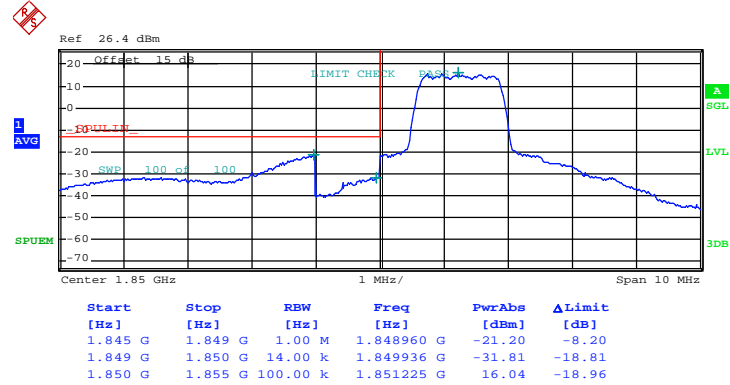
Date: 11.SEP.2015 11:52:48





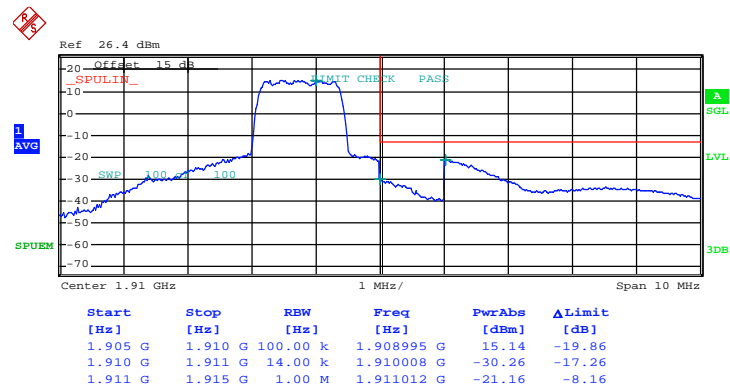
Band :	CDMA2000 BC1	Test Mode :	1xRTT_RC3+SO55 (QPSK)
--------	--------------	-------------	-----------------------

Lower Band Edge Plot on Channel 25 (1851.25 MHz)



Date: 11.SEP.2015 11:57:19

Higher Band Edge Plot on Channel 1175 (1908.75 MHz)

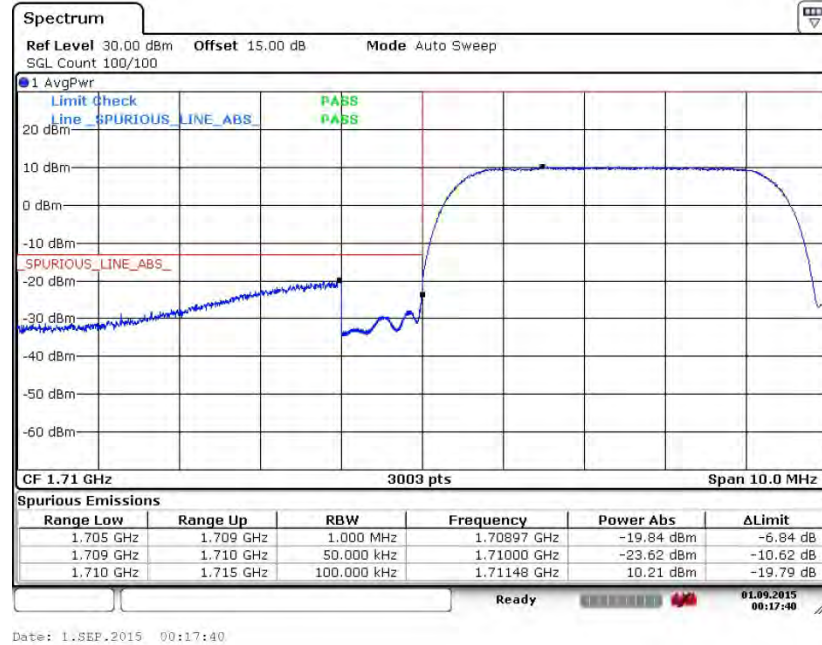


Date: 11.SEP.2015 12:01:09

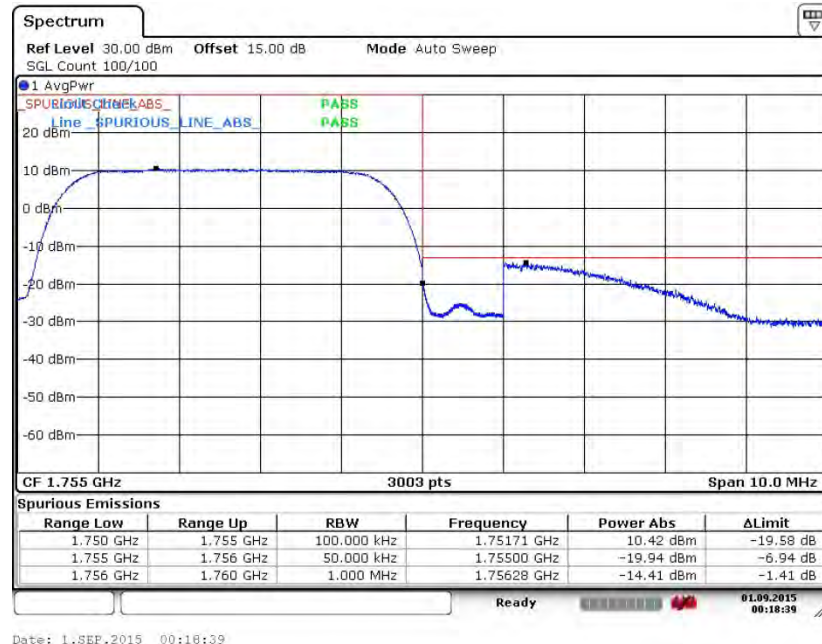


Band : WCDMA Band IV Test Mode : RMC 12.2Kbps Link (QPSK)

Lower Band Edge Plot on Channel 1312 (1712.4 MHz)



Higher Band Edge Plot on Channel 1513 (1752.6 MHz)



## 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 10<sup>th</sup> harmonic.

### 3.6.2 Measuring Instruments

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

### 3.6.3 Test Procedures

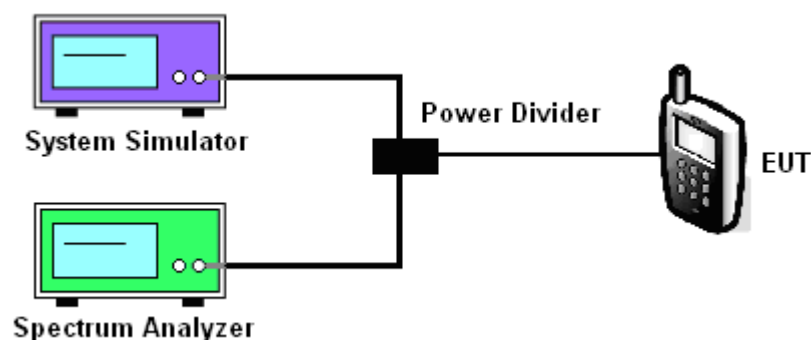
1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator.  
The path loss was compensated to the results for each measurement.
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  $43 + 10\log(P)$  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

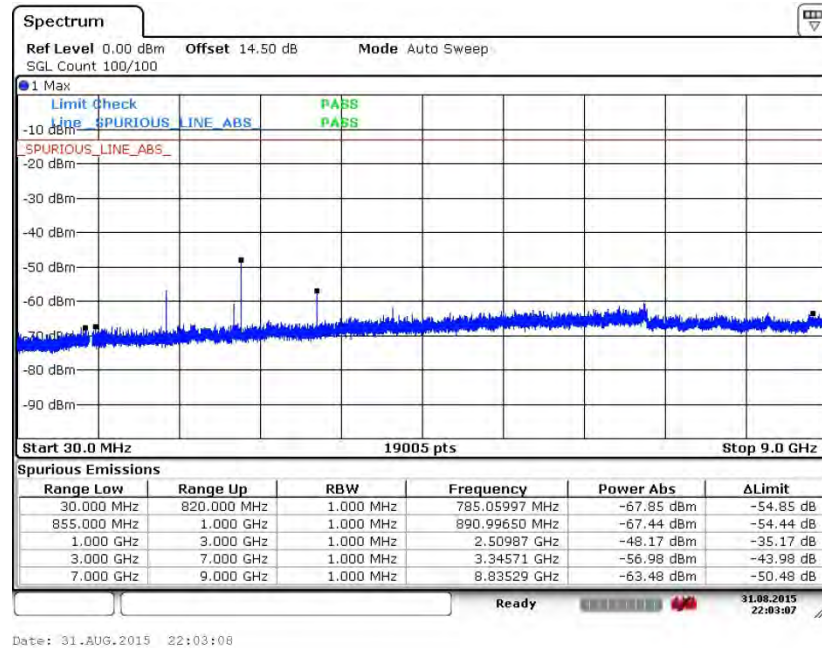




## 3.6.5 Test Result (Plots) of Conducted Spurious Emission

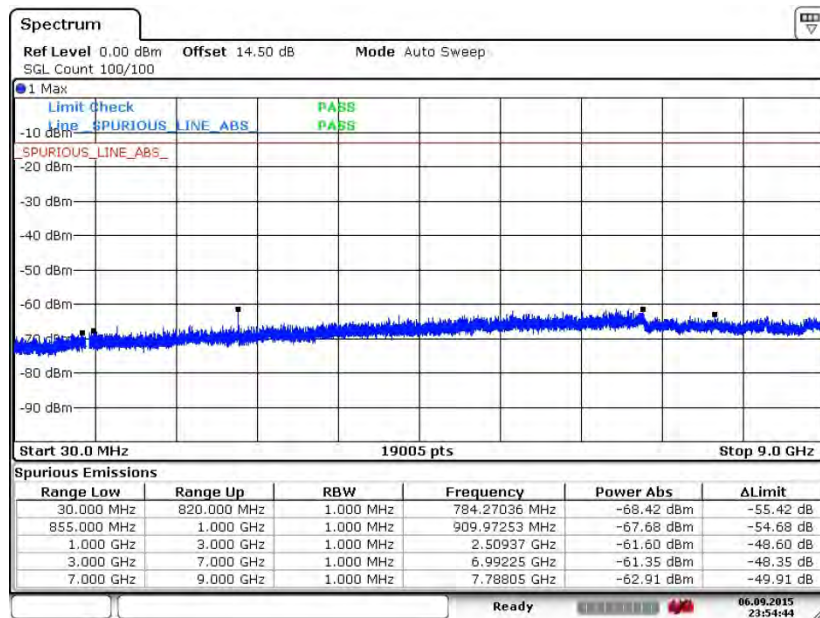
Band :	GSM850	Channel :	CH189
Test Mode :	GSM Link (GMSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz





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

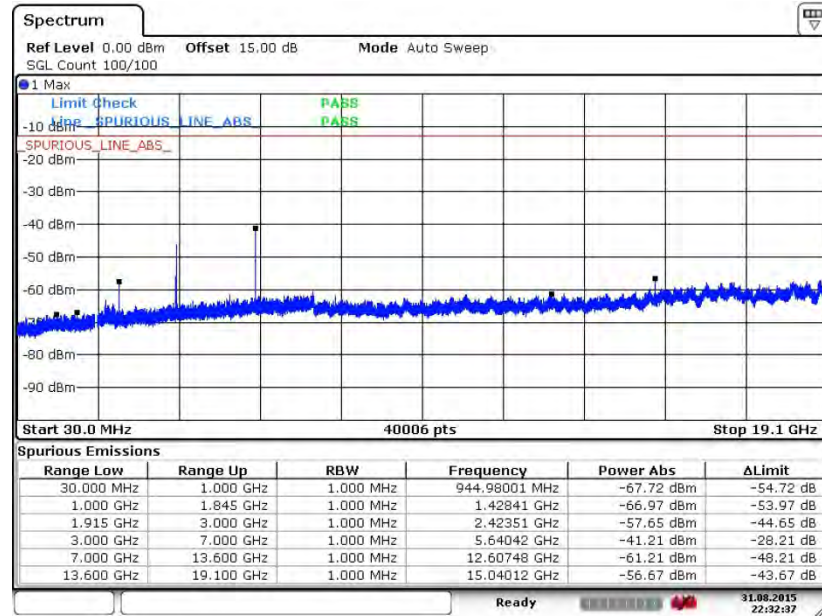
**Conducted Spurious Emission Plot between 30MHz ~ 9GHz**

Date: 6.SEP.2015 23:54:44



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

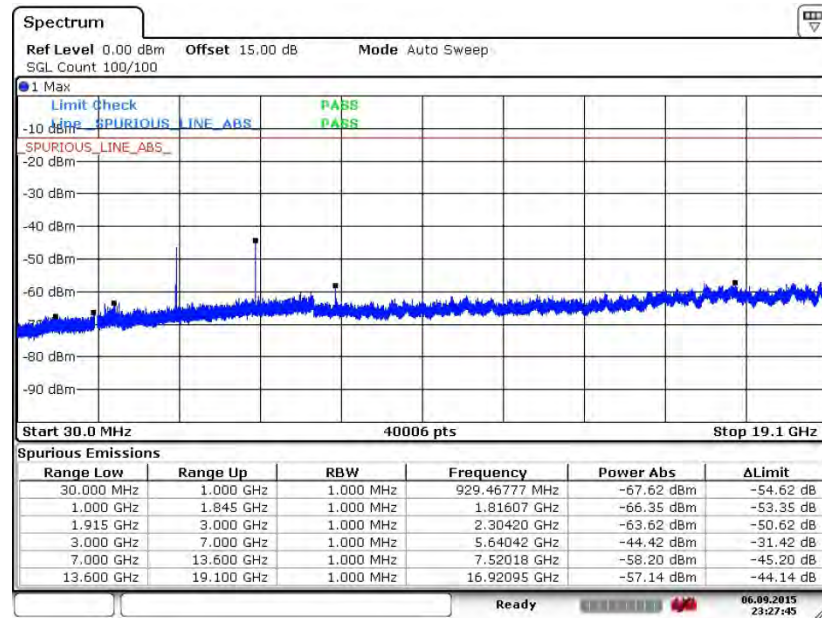
Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



Date: 31.AUG.2015 22:32:38



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

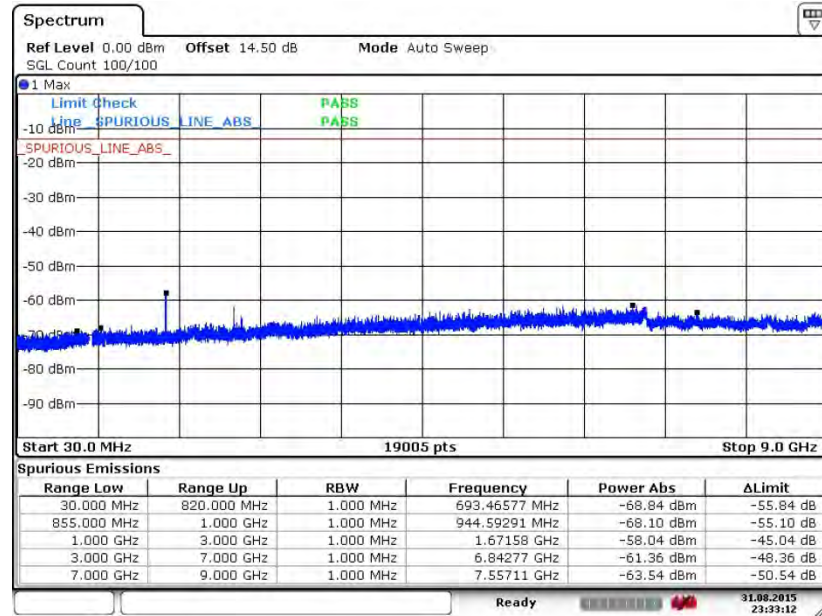
**Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz**

Date: 6.SEP.2015 23:27:46





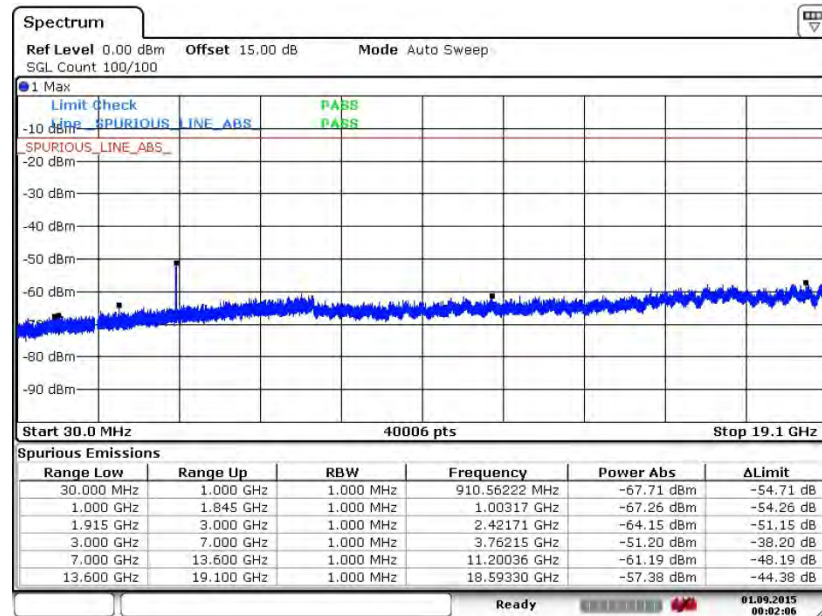
<b>Band :</b>	WCDMA Band V	<b>Channel :</b>	CH4182
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Frequency :</b>	836.4 MHz

**Conducted Spurious Emission Plot between 30MHz ~ 9GHz**

Date: 31.AUG.2015 23:33:13



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

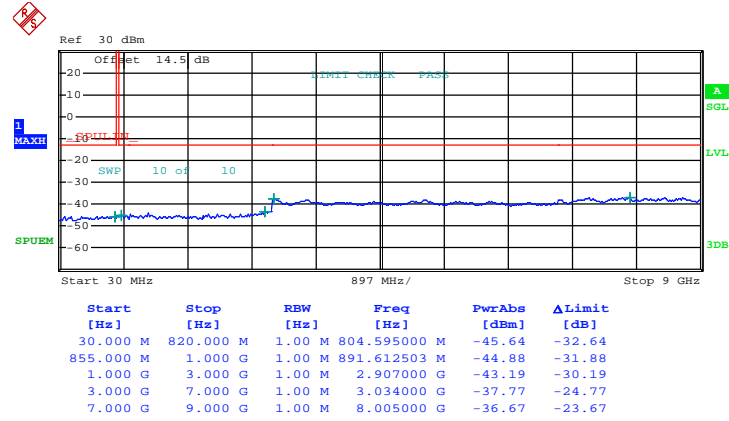
**Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz**

Date: 1.SEP.2015 00:02:06



Band :	CDMA2000 BC0	Channel :	CH384
Test Mode :	1xRTT_RC3+SO55 (QPSK)	Frequency :	836.52 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

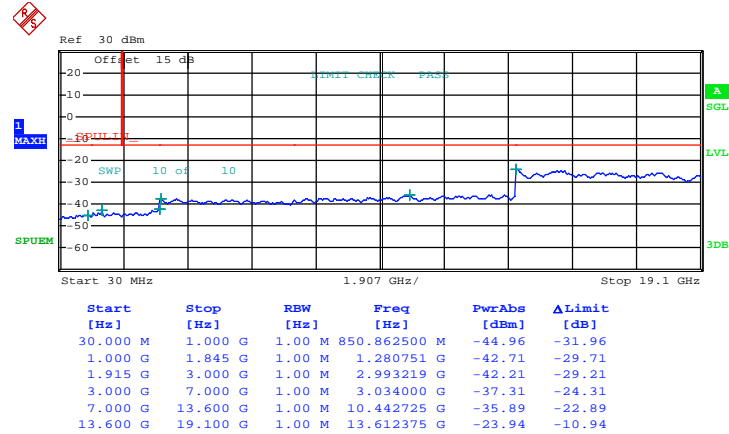


Date: 7.SEP.2015 12:08:24



Band :	CDMA2000 BC1	Channel :	CH600
Test Mode :	1xRTT_RC3+SO55 (QPSK)	Frequency :	1880.0 MHz

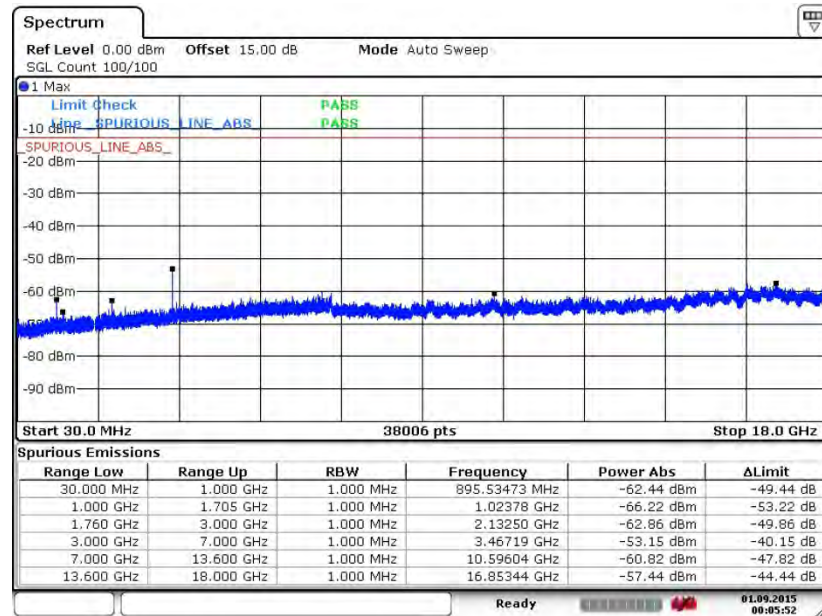
Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



Date: 7.SEP.2015 12:31:28



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

**Conducted Spurious Emission Plot between 30MHz ~ 18GHz**

Date: 1.SEP.2015 00:05:52

## **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**

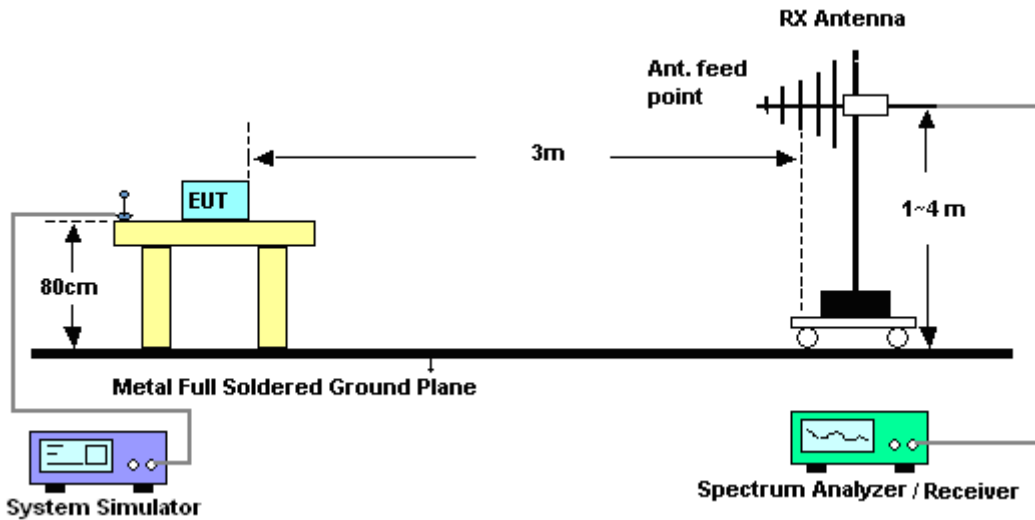
The measuring equipment is listed in the section 4 of this test report.

### **3.7.3 Test Procedures**

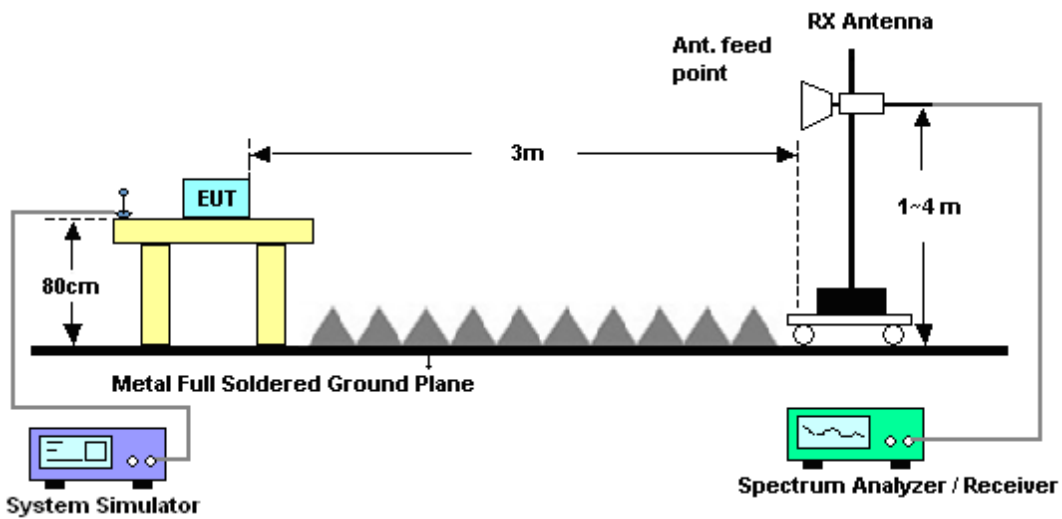
1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 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.  $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12.  $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from  $43 + 10\log(P)$  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 :	22~24℃		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-54.02	-13	-41.02	-55.63	-60.71	0.56	9.40	H	Pass
2510	-42.00	-13	-29.00	-48.88	-49.70	0.75	10.60	H	Pass
3346	-58.10	-13	-45.10	-67.40	-67.70	0.85	12.60	H	Pass

Band :	GSM850					Temperature :	22~24℃		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-52.17	-13	-39.17	-55.39	-58.86	0.56	9.40	V	Pass
2510	-44.18	-13	-31.18	-51.31	-51.88	0.75	10.60	V	Pass
3346	-60.75	-13	-47.75	-67.61	-70.35	0.85	12.60	V	Pass



Band :	GSM850					Temperature :	22~24°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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)	
1672	-55.94	-13	-42.94	-57.55	-62.63	0.56	9.40	H	Pass
2510	-49.86	-13	-36.86	-54.62	-57.56	0.75	10.60	H	Pass
3346	-57.83	-13	-44.83	-67.13	-67.43	0.85	12.60	H	Pass

Band :	GSM850					Temperature :	22~24°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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 ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
1672	-56.85	-13	-43.85	-59.30	-63.54	0.56	9.40	V	Pass
2510	-52.53	-13	-39.53	-57.14	-60.23	0.75	10.60	V	Pass
3346	-61.19	-13	-48.19	-68.05	-70.79	0.85	12.60	V	Pass



Band :	GSM1900					Temperature :	22~24℃		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-50.45	-13	-37.45	-61.70	-62.18	0.87	12.60	H	Pass
5640	-32.08	-13	-19.08	-49.56	-44.11	1.07	13.10	H	Pass
7520	-48.32	-13	-35.32	-66.64	-57.93	1.69	11.30	H	Pass

Band :	GSM1900					Temperature :	22~24℃		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-53.24	-13	-40.24	-65.71	-64.97	0.87	12.6	V	Pass
5640	-37.11	-13	-24.11	-54.02	-49.14	1.07	13.1	V	Pass
7520	-48.32	-13	-35.32	-66.54	-57.93	1.69	11.3	V	Pass



Band :	GSM1900					Temperature :	22~24°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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)	
3760	-55.29	-13	-42.29	-66.54	-67.02	0.87	12.60	H	Pass
5640	-35.84	-13	-22.84	-52.67	-47.87	1.07	13.10	H	Pass
7520	-50.51	-13	-37.51	-68.83	-60.12	1.69	11.30	H	Pass

Band :	GSM1900	Temperature :	22~24°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	48~50%						
Test Engineer :	Jack Tian	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)	
3760	-53.64	-13	-40.64	-66.11	-65.37	0.87	12.6	V	Pass
5640	-41.06	-13	-28.06	-57.38	-53.09	1.07	13.1	V	Pass
7520	-49.57	-13	-36.57	-67.79	-59.18	1.69	11.3	V	Pass



Band :	WCDMA Band V					Temperature :	22~24℃		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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)	
1672	-55.95	-13	-42.95	-57.56	-62.64	0.56	9.40	H	Pass
2510	-61.07	-13	-48.07	-64.97	-68.77	0.75	10.60	H	Pass
3346	-58.28	-13	-45.28	-67.58	-67.88	0.85	12.60	H	Pass

Band :	WCDMA Band V					Temperature :	22~24℃		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-57.39	-13	-44.39	-59.84	-64.08	0.56	9.40	V	Pass
2510	-60.91	-13	-47.91	-65.29	-68.61	0.75	10.60	V	Pass
3346	-60.76	-13	-47.76	-67.62	-70.36	0.85	12.60	V	Pass



Band :	WCDMA Band II					Temperature :	22~24℃		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-57.04	-13	-44.04	-68.29	-68.77	0.87	12.60	H	Pass
5640	-49.83	-13	-36.83	-65.71	-61.86	1.07	13.10	H	Pass
7520	-51.15	-13	-38.15	-69.47	-60.76	1.69	11.30	H	Pass

Band :	WCDMA Band II					Temperature :	22~24℃		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-55.30	-13	-42.30	-67.77	-67.03	0.87	12.6	V	Pass
5640	-52.05	-13	-39.05	-68.37	-64.08	1.07	13.1	V	Pass
7520	-51.41	-13	-38.41	-69.63	-61.02	1.69	11.3	V	Pass



Band :	CDMA2000 BC0						Temperature :	22~24℃	
Test Mode :	1xRTT_RC3+SO55 (QPSK)						Relative Humidity :	48~50%	
Test Engineer :	Jack Tian						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	(H/V)	
( dB )			( dB )	( dBm )	( dBm )	( dB )	( dBi )		
1670.04	-62.71	-13	-49.71	-64.32	-69.40	0.56	9.40	H	Pass
2505.06	-62.57	-13	-49.57	-66.47	-70.27	0.75	10.60	H	Pass
3340.08	-58.67	-13	-45.67	-67.97	-68.27	0.85	12.60	H	Pass

Band :	CDMA2000 BC0						Temperature :	22~24℃	
Test Mode :	1xRTT_RC3+SO55 (QPSK)						Relative Humidity :	48~50%	
Test Engineer :	Jack Tian						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 ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
1670.04	-63.13	-13	-50.13	-65.58	-69.82	0.56	9.40	V	Pass
2505.06	-62.75	-13	-49.75	-67.13	-70.45	0.75	10.60	V	Pass
3340.08	-61.22	-13	-48.22	-68.08	-70.82	0.85	12.60	V	Pass





Band :	CDMA2000 BC1						Temperature :	22~24℃	
Test Mode :	1xRTT_RC3+SO55 (QPSK)						Relative Humidity :	48~50%	
Test Engineer :	Jack Tian						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)	
3760	-56.27	-13	-43.27	-67.52	-68.00	0.87	12.60	H	Pass
5640	-54.07	-13	-41.07	-69.95	-66.10	1.07	13.10	H	Pass
7520	-51.09	-13	-38.09	-69.41	-60.70	1.69	11.30	H	Pass

Band :	CDMA2000 BC1						Temperature :	22~24°C	
Test Mode :	1xRTT_RC3+SO55 (QPSK)						Relative Humidity :	48~50%	
Test Engineer :	Jack Tian						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)	
3760	-55.74	-13	-42.74	-68.21	-67.47	0.87	12.6	V	Pass
5640	-53.23	-13	-40.23	-69.55	-65.26	1.07	13.1	V	Pass
7520	-51.42	-13	-38.42	-69.64	-61.03	1.69	11.3	V	Pass



Band :	WCDMA Band IV					Temperature :	22~24℃		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-54.01	-13	-41.01	-65.81	-65.76	0.85	12.60	H	Pass
5197.5	-49.78	-13	-36.78	-65.65	-61.53	0.95	12.70	H	Pass
6930	-54.29	-13	-41.29	-70.92	-64.81	1.18	11.70	H	Pass

Band :	WCDMA Band IV					Temperature :	22~24℃		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~50%		
Test Engineer :	Jack Tian					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	-57.75	-13	-44.75	-67.98	-69.54	0.81	12.6	V	Pass
5197.5	-57.21	-13	-44.21	-69.81	-68.96	0.95	12.7	V	Pass
6930	-53.02	-13	-40.02	-70.2	-63.59	1.13	11.7	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.

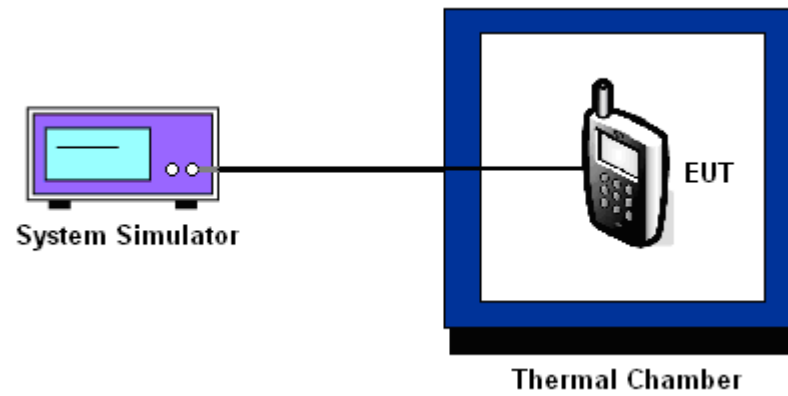
#### 3.8.3 Test Procedures for Temperature Variation

1. The 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  $-30^{\circ}\text{C}$  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  $10^{\circ}\text{C}$  steps up to  $50^{\circ}\text{C}$ . 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  $25\pm 5^{\circ}\text{C}$  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

<b>Band :</b>	GSM 850	<b>Channel :</b>	189
<b>Limit (ppm) :</b>	2.5	<b>Frequency :</b>	836.4 MHz

Temperature (°C)	GSM	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0347	0.0108	PASS
40	0.0323	0.0072	
30	0.0287	0.0048	
20(Ref.)	0.0000	0.0000	
10	0.0012	0.0012	
0	0.0048	0.0036	
-10	0.0036	0.0849	
-20	0.0048	0.0861	
-30	0.0072	0.0885	

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

Temperature (°C)	GSM	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0059	0.0064	PASS
40	0.0037	0.0048	
30	0.0021	0.0027	
20(Ref.)	0.0000	0.0000	
10	0.0005	0.0011	
0	0.0282	0.0005	
-10	0.0287	0.0346	
-20	0.0298	0.0356	
-30	0.0309	0.0362	

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

<b>Band :</b>	WCDMA Band V	<b>Channel :</b>	4182
<b>Limit (ppm) :</b>	2.5	<b>Frequency :</b>	836.4 MHz

Temperature (°C)	RMC 12.2Kbps	Result
	Deviation (ppm)	
50	0.0167	PASS
40	0.0143	
30	0.0132	
20(Ref.)	0.0000	
10	0.0012	
0	0.0036	
-10	0.0024	
-20	0.0048	
-30	0.0036	

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

Temperature (°C)	RMC 12.2Kbps	Result
	Deviation (ppm)	
50	0.0021	PASS
40	0.0016	
30	0.0011	
20(Ref.)	0.0000	
10	0.0005	
0	0.0016	
-10	0.0011	
-20	0.0005	
-30	0.0016	

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

<b>Band :</b>	CDMA2000 BC0 1xRTT_RC3+SO55	<b>Channel :</b>	384
<b>Limit (ppm) :</b>	2.5	<b>Frequency :</b>	836.52 MHz

Temperature (°C)	1xRTT	Result
	Deviation (ppm)	
50	0.0084	PASS
40	0.0048	
30	0.0036	
20(Ref.)	0.0000	
10	0.0024	
0	0.0012	
-10	0.0036	
-20	0.0060	
-30	0.0072	

<b>Band :</b>	CDMA2000 BC1 1xRTT_RC3+SO55	<b>Channel :</b>	600
<b>Limit (ppm) :</b>	within authorized band	<b>Frequency :</b>	1880.0 MHz

Temperature (°C)	1xRTT	Result
	Deviation (ppm)	
50	0.0021	PASS
40	0.0005	
30	0.0011	
20(Ref.)	0.0000	
10	0.0011	
0	0.0090	
-10	0.0101	
-20	0.0117	
-30	0.0112	

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



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

Temperature (°C)	RMC 12.2Kbps	Result
	Deviation (ppm)	
50	0.0075	PASS
40	0.0069	
30	0.0069	
20(Ref.)	0.0000	
10	0.0006	
0	0.0000	
-10	0.0012	
-20	0.0017	
-30	0.0017	

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)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GSM	4.20	0.0024	2.5	PASS
		3.90	0.0000		
		BEP	0.0036		
	EDGE class 8	4.20	0.0024		
		3.90	0.0000		
		BEP	0.0012		
GSM 1900 CH661	GSM	4.20	0.0005	(Note 3.)	
		3.90	0.0000		
		BEP	0.0016		
	EDGE class 8	4.20	0.0011		
		3.90	0.0000		
		BEP	0.0005		
WCDMA Band V CH4182	RMC 12.2Kbps	4.20	0.0024	2.5	PASS
		3.90	0.0000		
		BEP	0.0000		
WCDMA Band II CH9400	RMC 12.2Kbps	4.20	0.0005	(Note 3.)	
		3.80	0.0000		
		BEP	0.0016		
CDMA2000 BC0 CH384	1xRTT RC3+SO55	4.20	0.0024	2.5	PASS
		3.90	0.0000		
		BEP	0.0012		
CDMA2000 BC1 CH600	1xRTT RC3+SO55	4.20	0.0005	(Note 3.)	
		3.90	0.0000		
		BEP	0.0005		
WCDMA Band IV CH1413	RMC 12.2Kbps	4.20	0.0006	(Note 3.)	
		3.90	0.0000		
		BEP	0.0017		

**Note:**

1. Normal Voltage = 3.90V.
2. Battery End Point (BEP) = 3.60 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	FSV40	101078	9kHz~40GHz	May 05, 2015	Aug. 31, 2015~ Sep. 11, 2015	May 04, 2016	Conducted (TH01-SZ)
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Jan. 28, 2015	Aug. 31, 2015~ Sep. 11, 2015	Jan. 27, 2016	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhonggroup	LP-150U	H2014081803	-40~+150°C	Aug. 07, 2015	Aug. 31, 2015~ Sep. 11, 2015	Aug. 06, 2016	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2015	Sep. 04, 2015~ Sep. 24, 2015	May 25, 2016	Radiation (03CH01-SZ)
Spectrum Analyzer	R&S	FSV40	101041	10kHz~40GHz;Ma x 30dBm	Oct. 15, 2014	Sep. 04, 2015~ Sep. 24, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	23188	30MHz~2GHz	Nov. 07, 2014	Sep. 04, 2015~ Sep. 24, 2015	Nov. 06, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Sep. 04, 2015~ Sep. 24, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Aug.19, 2015	Sep. 04, 2015~ Sep. 24, 2015	Aug. 18, 2016	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz / 30 dB	Jan. 28, 2015	Sep. 04, 2015~ Sep. 24, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 05, 2015	Sep. 04, 2015~ Sep. 24, 2015	May 04, 2016	Radiation (03CH01-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 28, 2015	Sep. 04, 2015~ Sep. 24, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	61601000198 5	N/A	NCR	Sep. 04, 2015~ Sep. 24, 2015	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Sep. 04, 2015~ Sep. 24, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Sep. 04, 2015~ Sep. 24, 2015	NCR	Radiation (03CH01-SZ)



## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.9dB
---	-------