



# FCC RF Test Report

APPLICANT : Sony Mobile Communications Inc.  
EQUIPMENT : Smart phone  
BRAND NAME : SONY  
TYPE NAME : PM-0893-BV  
FCC ID : PY7-PM0893  
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)  
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Apr. 30, 2015 and testing was completed on May 20, 2015. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



## SPORTON INTERNATIONAL INC.

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FCC ID : PY7-PM0893

Page Number : 1 of 104

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## SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	N/A	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	-
0	§2.1049	Occupied Bandwidth	N/A	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a)	Band Edge Measurement	< 43+10log <sub>10</sub> (P[Watts])	PASS	-
	§2.1051 §22.917(a) §24.238(a)	Conducted Spurious Emission	< 43+10log <sub>10</sub> (P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	< 43+10log <sub>10</sub> (P[Watts])	PASS	Under limit 18.15 dB at 5730.000 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				



# 1 General Description

## 1.1 Applicant

Sony Mobile Communications Inc.  
Nya Vattentorget, 22188 Lund, Sweden

## 1.2 Manufacturer

Arima Communications Corp.  
6F, No. 866, Jhongjheng Rd., Jhonghe Dist., New Taipei City 23586, Taiwan

## 1.3 Product Feature of Equipment Under Test

The Equipment Under Test (hereafter called: EUT) is Smart phone supporting, GSM/WCDMA/LTE, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n, Bluetooth with FM Receiver, GPS, and NFC features, and below is details of information.

General Information of Equipment Under Test	
Equipment	Smart phone
Brand Name	SONY
Type Name	PM-0893-BV
FCC ID	PY7-PM0893
GSM Operating Band(s)	GSM 850/900/1800/1900MHz
GPRS / EGPRS Multi Slot Class	GPRS Class 12, EGPRS Class 12
WCDMA Operating Band(s)	FDD Band I / II / V / VIII
WCDMA Rel. Version	Rel. 8
LTE Operating Band(s)	FDD Band I / III / V / VII / VIII / XX
LTE Rel. Version	Rel. 8
Wi-Fi Specification	802.11a/b/g/n (HT20/HT40)
Bluetooth Version	v3.0+EDR / v4.0-LE
NFC Specification	ISO14443A / ISO14443B / Felica
Power Supply	Battery / AC Adapter / Car Charger

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 II: 1852.4 MHz ~ 1907.6 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 II: 1932.4 MHz ~ 1987.6 MHz
<b>Maximum Output Power to Antenna</b>	GSM850 : 32.07 dBm GSM1900 : 28.94 dBm WCDMA Band V : 24.00 dBm WCDMA Band II : 23.97 dBm
<b>Antenna Type</b>	Coupling type (LDS)
<b>Type of Modulation</b>	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (Uplink)

EUT Information List				
IMEI	HW Version	SW Version	S/N	Performed Test Item
IMEI 1: 004402454656541 IMEI 2: 004402454656558	A	29.0.B.0.76	WUJ01HXKHN	Conducted Measurement Radiated Spurious Emission ERP/EIRP Test

Accessory List	
<b>AC Adapter</b>	Model No. : EP800
	Type No. : CAA-0002016-US B
	S/N : 3113W 45 108550
<b>Battery</b>	Model No. : LIS1579ERPC
<b>Earphone 1</b>	Model No. : MH410c
	Type No. : AG-1100
	S/N : 14341EB00068DB2
<b>USB Cable</b>	Model No. : EC450
	Type No. : AI-0700
	S/N : 134912D70008842

**Note:**

1. Above EUT list and accessory list used are electrically identical per declared by manufacturer.
2. Above the accessories list are used to exercise the EUT during test.
3. For other wireless features of this EUT, test report will be issued separately.



### 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	0.6998	0.0108 ppm	245KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.2754	0.0311 ppm	251KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.0804	0.0155 ppm	4M29F9W
Part 24	GSM1900 GPRS class 8	GMSK	0.5768	0.0149 ppm	247KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.2685	0.0170 ppm	252KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.1828	0.0074 ppm	4M22F9W

### 1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

<b>Test Site</b>	SPORTON INTERNATIONAL INC.
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
<b>Test Site No.</b>	<b>Sporton Site No.</b> TH03-HY

<b>Test Site</b>	SPORTON INTERNATIONAL INC.
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Kwei-Shan District, Tao Yuan City, Taiwan (R.O.C.) TEL: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> 03CH10-HY



## **1.8 Applicable Standards**

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

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

### **Remark:**

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



## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

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

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

Radiated emissions were investigated as following frequency range:

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

All modes and data rates and positions were investigated.

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

Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	<ul style="list-style-type: none"> <li>■ GPRS class 8 Link</li> <li>■ EDGE class 8 Link</li> </ul>	<ul style="list-style-type: none"> <li>■ GPRS class 8 Link</li> <li>■ EDGE class 8 Link</li> </ul>
GSM 1900	<ul style="list-style-type: none"> <li>■ GPRS class 8 Link</li> <li>■ EDGE class 8 Link</li> </ul>	<ul style="list-style-type: none"> <li>■ GPRS class 8 Link</li> <li>■ EDGE class 8 Link</li> </ul>
WCDMA Band V	<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>
WCDMA Band II	<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>

**Note:** For radiated TCs, the tests were performed with Adapter, Battery, Earphone 1, USB Cable, and SIM 1.

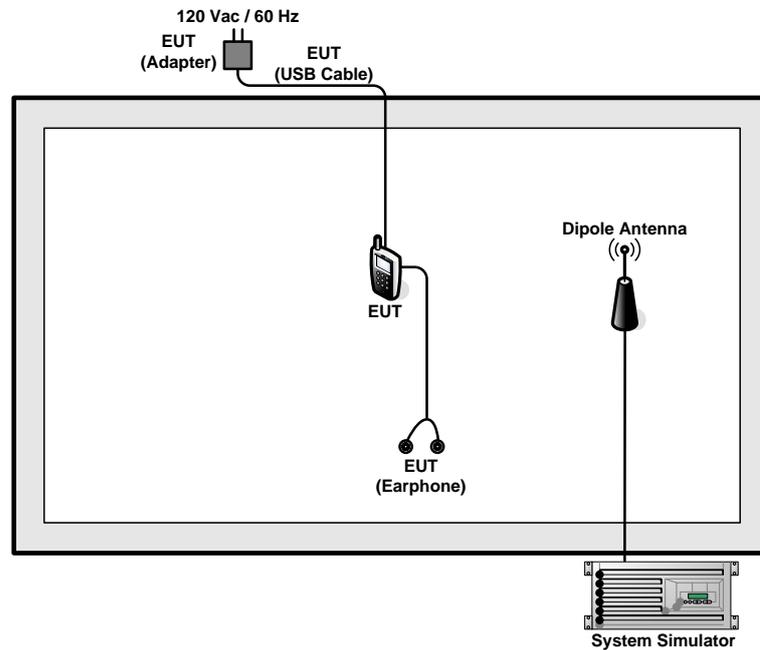


Conducted Power Measurement Results:

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	32.00	32.05	32.04	28.91	28.90	28.92
GPRS class 8	32.02	32.07	32.06	28.93	28.92	28.94
GPRS class 10	29.57	29.44	29.33	26.55	26.66	26.82
GPRS class 11	27.76	27.66	27.49	25.46	25.59	25.72
GPRS class 12	27.44	27.26	27.07	23.94	24.00	23.95
EGPRS class 8	26.97	27.28	26.97	26.85	26.82	26.74
EGPRS class 10	25.08	25.37	25.12	24.27	24.29	24.23
EGPRS class 11	23.20	23.50	23.21	22.35	22.38	22.36
EGPRS class 12	24.24	24.50	24.24	22.77	22.77	22.74

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V		WCDMA Band II			
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6
RMC 12.2K	23.98	23.99	24.00	23.94	23.97	23.90
HSDPA Subtest-1	23.96	23.97	23.98	23.87	23.88	23.87
HSDPA Subtest-2	23.97	23.99	23.97	23.88	23.89	23.90
HSDPA Subtest-3	23.47	23.50	23.49	23.41	23.40	23.39
HSDPA Subtest-4	23.48	23.50	23.49	23.38	23.40	23.39
HSUPA Subtest-1	22.01	22.02	22.09	22.10	22.04	22.00
HSUPA Subtest-2	21.92	22.00	22.00	21.80	21.80	21.81
HSUPA Subtest-3	22.97	23.00	22.99	22.83	22.84	22.85
HSUPA Subtest-4	21.57	21.54	21.56	21.38	21.37	21.28
HSUPA Subtest-5	23.90	23.99	23.91	23.79	23.80	23.76

## 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

## 2.4 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 4.2 dB and a 10dB attenuator.

Example :

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

$$= 4.2 + 10 = 14.2 \text{ (dB)}$$

### **3 Test Result**

#### **3.1 Conducted Output Power Measurement**

##### **3.1.1 Description of the Conducted Output Power Measurement**

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

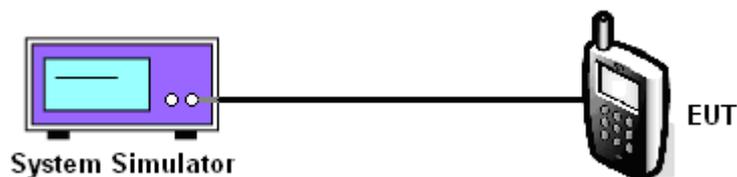
##### **3.1.2 Measuring Instruments**

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

##### **3.1.3 Test Procedures**

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

##### **3.1.4 Test Setup**





3.1.5 Test Result of Conducted Output Power

Cellular Band									
Modes	GSM850 (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)	32.02	32.07	32.06	26.97	27.28	26.97	23.98	23.99	24.00

PCS Band									
Modes	GSM1900 (GPRS class 8)			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)	28.93	28.92	28.94	26.85	26.82	26.74	23.94	23.97	23.90

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.

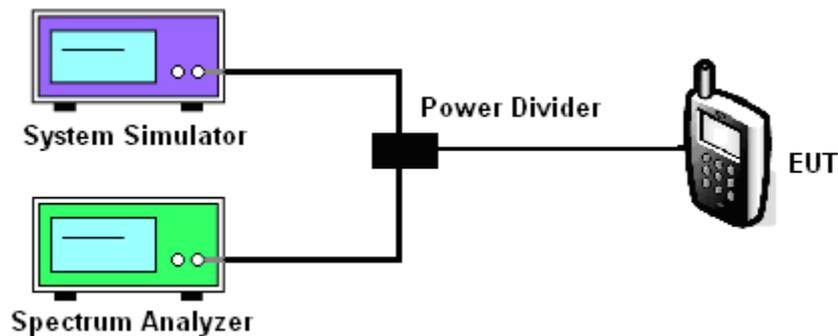
### 3.2.2 Measuring Instruments

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

### 3.2.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. Set EUT to transmit at maximum output power.
3. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
4. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer.
5. Record the maximum PAPR level associated with a probability of 0.1%.

### 3.2.4 Test Setup





3.2.5 Test Result of Peak-to-Average Ratio

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
Peak-to-Average Ratio (dB)	0.20	0.20	0.20	3.32	3.28	3.16	2.00	2.60	2.64

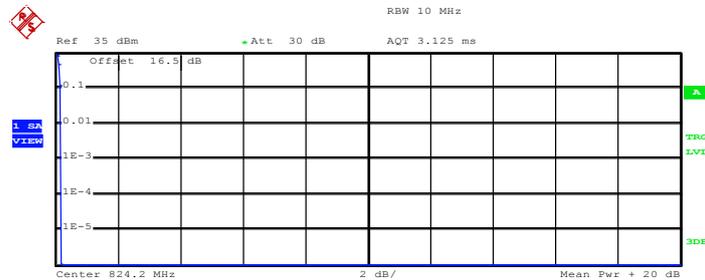
PCS Band									
Modes	GSM1900 (GPRS class 8)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	0.24	0.24	0.24	2.88	3.08	2.72	2.72	2.68	2.28



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

<b>Band :</b>	GSM 850	<b>Test Mode :</b>	GPRS class 8 Link (GMSK)
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#### Peak-to-Average Ratio on Channel 128 (824.2 MHz)



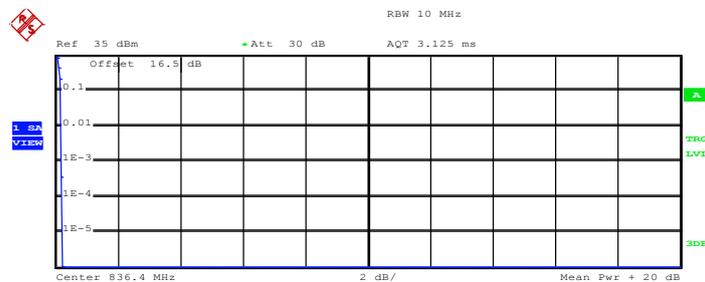
Complementary Cumulative Distribution Function (100000 samples)

Trace 1  
 Mean 31.13 dBm  
 Peak 31.30 dBm  
 Crest 0.17 dB

10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.20 dB

Date: 19.MAY.2015 09:54:07

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



Complementary Cumulative Distribution Function (100000 samples)

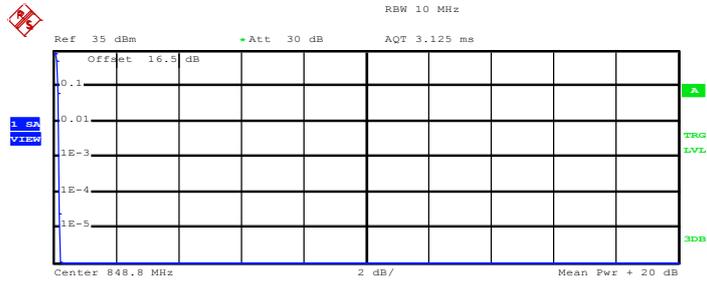
Trace 1  
 Mean 31.74 dBm  
 Peak 31.94 dBm  
 Crest 0.20 dB

10 %	0.20 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.24 dB

Date: 19.MAY.2015 09:54:24



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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

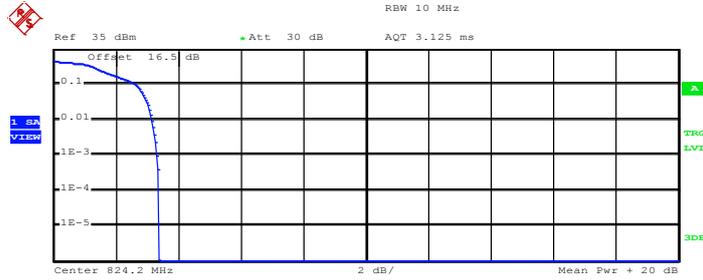
Mean	32.26 dBm
Peak	32.50 dBm
Crest	0.24 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.20 dB

Date: 19.MAY.2015 09:54:39



<b>Band :</b>	GSM 850	<b>Test Mode :</b>	EDGE class 8 Link (8PSK)
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**Peak-to-Average Ratio on Channel 128 (824.2 MHz)**



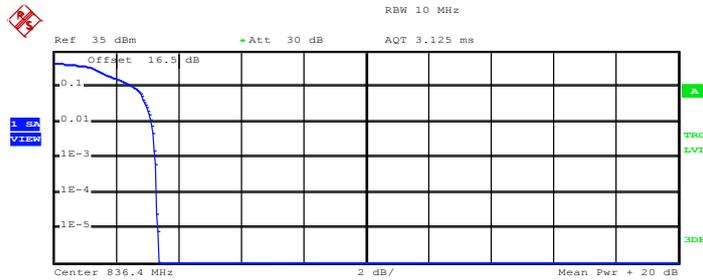
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	25.58 dBm
Peak	28.97 dBm
Crest	3.39 dB
10 %	2.64 dB
1 %	3.16 dB
.1 %	3.32 dB
.01 %	3.40 dB

Date: 19.MAY.2015 16:29:36

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



Complementary Cumulative Distribution Function (100000 samples)

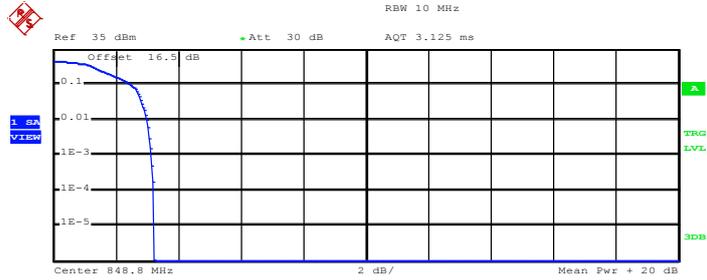
Trace 1

Mean	26.66 dBm
Peak	30.03 dBm
Crest	3.37 dB
10 %	2.60 dB
1 %	3.16 dB
.1 %	3.28 dB
.01 %	3.32 dB

Date: 19.MAY.2015 16:29:48



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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

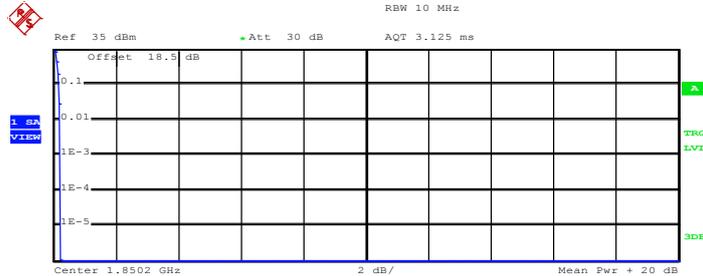
Mean	27.52 dBm
Peak	30.74 dBm
Crest	3.21 dB
10 %	2.48 dB
1 %	3.00 dB
.1 %	3.16 dB
.01 %	3.20 dB

Date: 19.MAY.2015 16:29:59



<b>Band :</b>	GSM 1900	<b>Test Mode :</b>	GPRS class 8 Link (GMSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 28.77 dBm

Peak 28.97 dBm

Crest 0.21 dB

10 % 0.20 dB

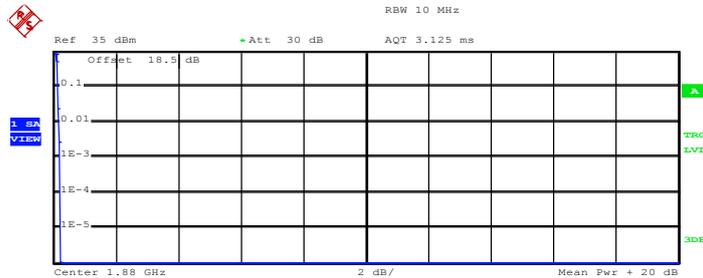
1 % 0.24 dB

.1 % 0.24 dB

.01 % 0.24 dB

Date: 19.MAY.2015 16:45:34

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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 28.95 dBm

Peak 29.18 dBm

Crest 0.23 dB

10 % 0.16 dB

1 % 0.20 dB

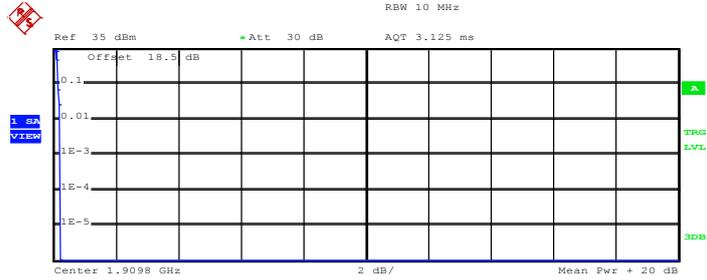
.1 % 0.24 dB

.01 % 0.24 dB

Date: 19.MAY.2015 16:45:45



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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

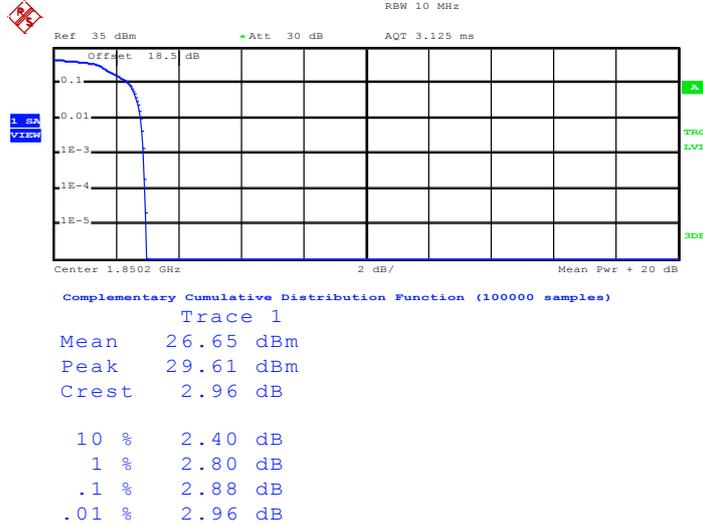
Mean	28.82 dBm
Peak	29.04 dBm
Crest	0.22 dB
10 %	0.16 dB
1 %	0.24 dB
.1 %	0.24 dB
.01 %	0.24 dB

Date: 19.MAY.2015 16:45:56



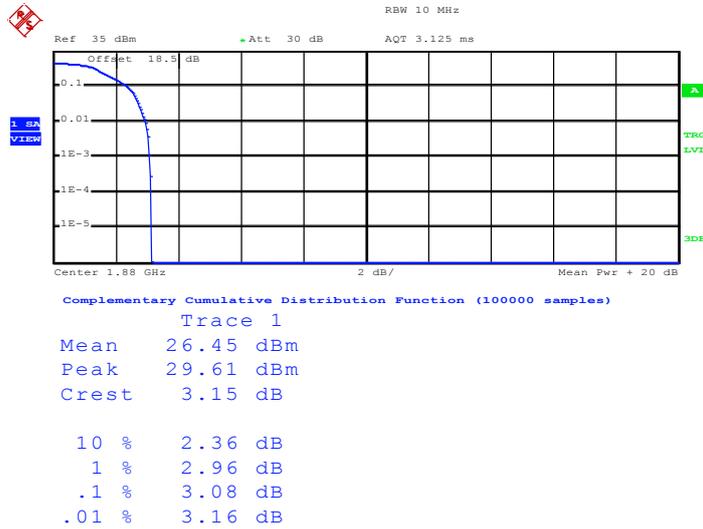
<b>Band :</b>	GSM 1900	<b>Test Mode :</b>	EDGE class 8 Link (8PSK)
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**Peak-to-Average Ratio on Channel 512 (1850.2 MHz)**



Date: 19.MAY.2015 16:57:05

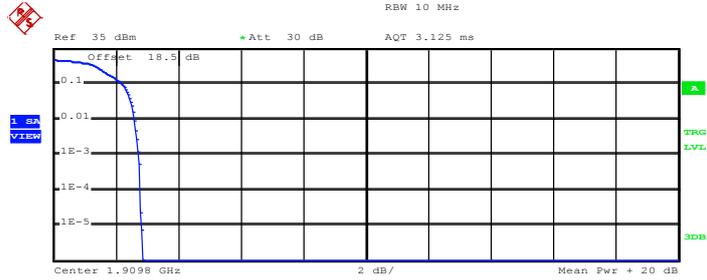
**Peak-to-Average Ratio on Channel 661 (1880.0 MHz)**



Date: 19.MAY.2015 16:57:23



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



Complementary Cumulative Distribution Function (100000 samples)

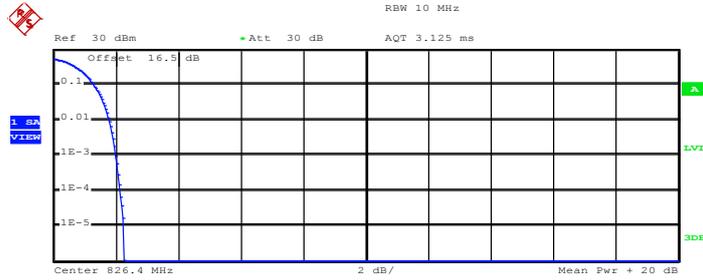
Trace 1	
Mean	26.75 dBm
Peak	29.61 dBm
Crest	2.85 dB
10 %	2.20 dB
1 %	2.60 dB
.1 %	2.72 dB
.01 %	2.80 dB

Date: 19.MAY.2015 16:57:39



<b>Band :</b>	WCDMA Band V	<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)
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**Peak-to-Average Ratio on Channel 4132 (826.4 MHz)**



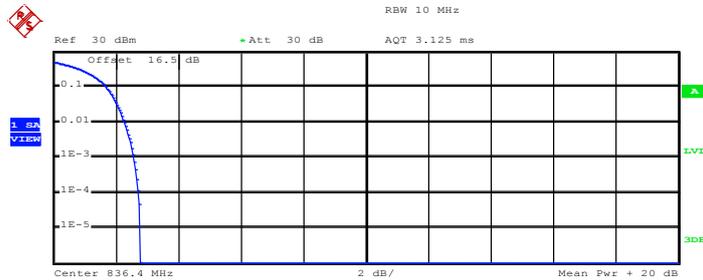
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	23.60 dBm
Peak	25.88 dBm
Crest	2.28 dB
10 %	1.32 dB
1 %	1.80 dB
.1 %	2.00 dB
.01 %	2.16 dB

Date: 19.MAY.2015 09:33:28

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



Complementary Cumulative Distribution Function (100000 samples)

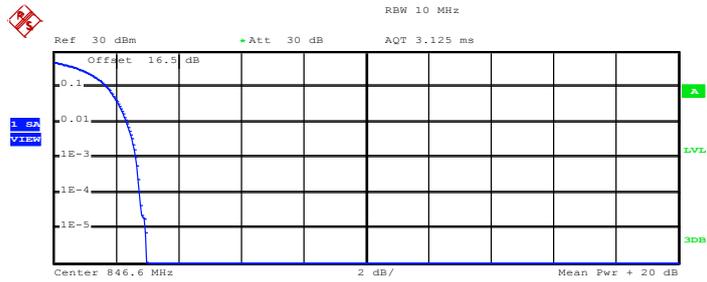
Trace 1

Mean	23.43 dBm
Peak	26.23 dBm
Crest	2.80 dB
10 %	1.72 dB
1 %	2.28 dB
.1 %	2.60 dB
.01 %	2.72 dB

Date: 19.MAY.2015 09:33:42



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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

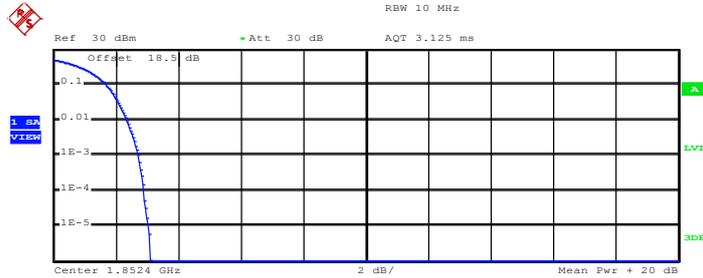
Mean	23.39 dBm
Peak	26.37 dBm
Crest	2.98 dB
10 %	1.72 dB
1 %	2.36 dB
.1 %	2.64 dB
.01 %	2.76 dB

Date: 19.MAY.2015 09:33:54



<b>Band :</b>	WCDMA Band II	<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)
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**Peak-to-Average Ratio on Channel 9262 (1852.4 MHz)**



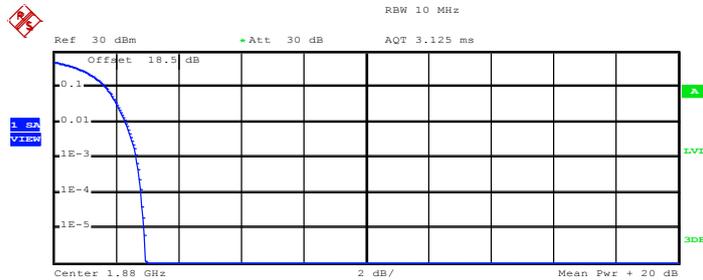
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	23.39 dBm
Peak	26.51 dBm
Crest	3.12 dB
10 %	1.68 dB
1 %	2.36 dB
.1 %	2.72 dB
.01 %	2.92 dB

Date: 19.MAY.2015 17:12:32

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



Complementary Cumulative Distribution Function (100000 samples)

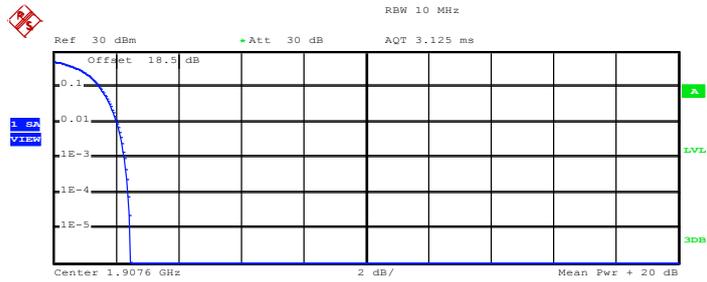
Trace 1

Mean	24.33 dBm
Peak	27.29 dBm
Crest	2.96 dB
10 %	1.68 dB
1 %	2.32 dB
.1 %	2.68 dB
.01 %	2.80 dB

Date: 19.MAY.2015 17:13:15



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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	23.85 dBm
Peak	26.30 dBm
Crest	2.45 dB
10 %	1.48 dB
1 %	2.04 dB
.1 %	2.28 dB
.01 %	2.40 dB

Date: 19.MAY.2015 17:13:28



### 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 and the EIRP of mobile transmitters are limited to 2 Watts.

#### 3.3.2 Measuring Instruments

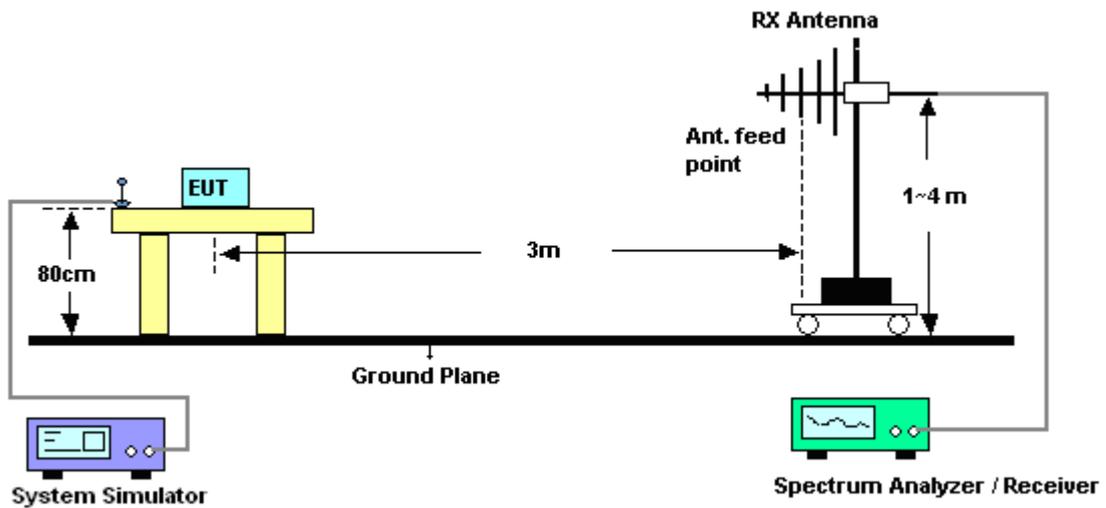
The measuring equipment is listed in the section 4 of this test report.

#### 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	WCDMA/HSPA
SPAN	500kHz	10MHz
RBW	10kHz	100kHz
VBW	30kHz	300kHz
Detector	RMS	RMS
Trace	Average	Average
Average Type	Power	Power
Sweep Count	100	100

**3.3.4 Test Setup**





3.3.5 Test Result of ERP

GSM850 (GPRS class 8) Radiated Power ERP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	824.2	28.21	0.6622	19.96	0.0991
Middle	836.4	28.45	0.6998	20.66	0.1164
Highest	848.8	27.94	0.6223	20.61	0.1151
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	22.49	0.1774	13.79	0.0239
Middle	836.4	24.40	0.2754	16.39	0.0436
Highest	848.8	23.83	0.2415	16.15	0.0412
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	19.05	0.0804	10.72	0.0118
Middle	836.4	18.58	0.0721	10.55	0.0114
Highest	846.6	18.28	0.0673	10.76	0.0119
Limit	ERP < 7W	Result		PASS	



3.3.6 Test Result of EIRP

GSM1900 (GPRS class 8) Radiated Power EIRP					
Channel	Frequency (MHz)	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	1850.2	26.76	0.4742	26.24	0.4207
Middle	1880.0	27.23	0.5284	26.83	0.4819
Highest	1909.8	27.61	0.5768	26.98	0.4989
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	23.32	0.2148	22.96	0.1977
Middle	1880.0	23.72	0.2355	23.22	0.2099
Highest	1909.8	24.29	0.2685	23.10	0.2042
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	22.16	0.1644	21.66	0.1466
Middle	1880.0	22.56	0.1803	22.21	0.1663
Highest	1907.6	22.62	0.1828	21.89	0.1545
Limit	EIRP < 2W	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.

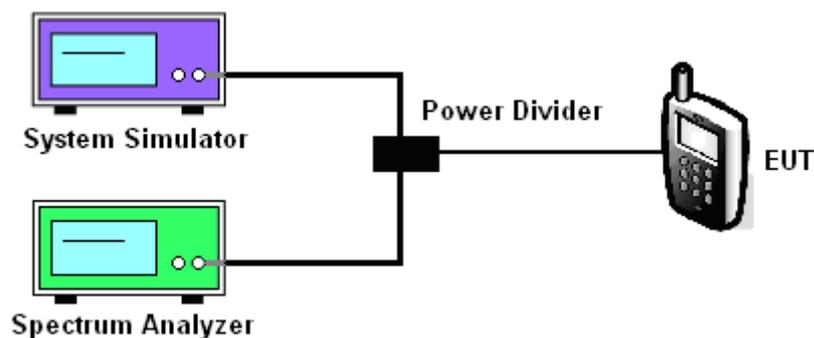
### 3.4.2 Measuring Instruments

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

### 3.4.3 Test Procedures

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

### 3.4.4 Test Setup





3.4.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

Cellular Band						
Modes	GSM850 (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)	245.00	244.00	243.00	250.00	251.00	250.00
26dB BW (kHz)	312.00	312.00	305.00	298.00	310.00	309.00

PCS Band						
Modes	GSM1900 (GPRS class 8)			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)	246.00	247.00	246.00	252.00	252.00	249.00
26dB BW (kHz)	296.00	310.00	314.00	309.00	303.00	309.00

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)	4.29	4.21	4.21
26dB BW (MHz)	5.00	4.86	4.86

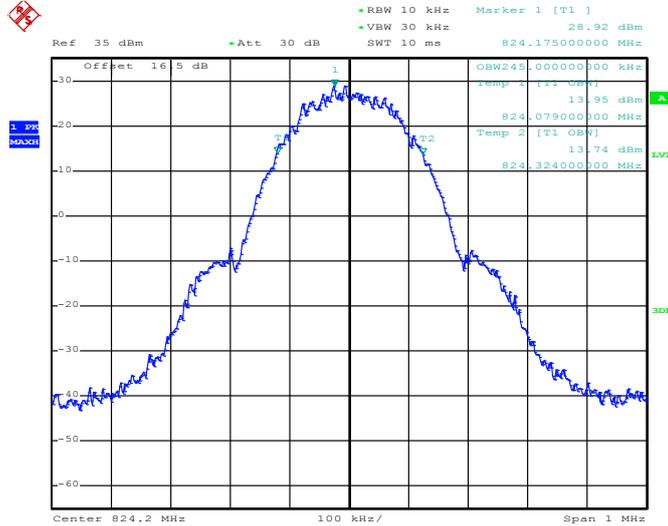
PCS Band			
Modes	WCDMA Band II (RMC 12.2Kbps)		
Channel	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1852.4	1880	1907.6
99% OBW (MHz)	4.20	4.21	4.22
26dB BW (MHz)	4.85	4.84	4.88



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

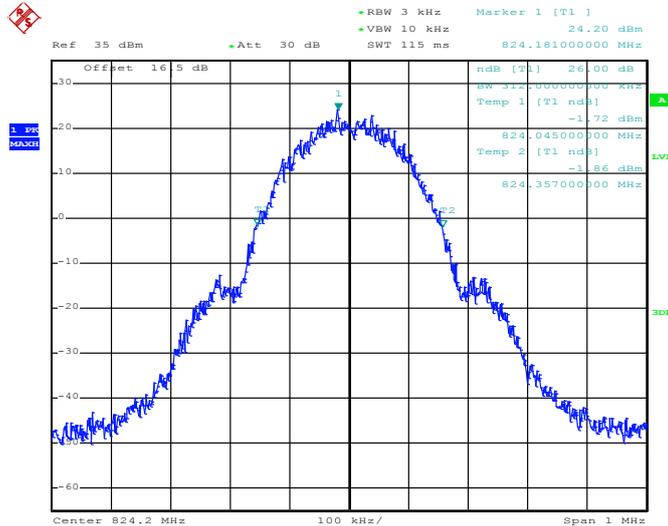
Band :	GSM 850	Test Mode :	GPRS class 8 Link (GMSK)
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#### 99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 19.MAY.2015 09:40:26

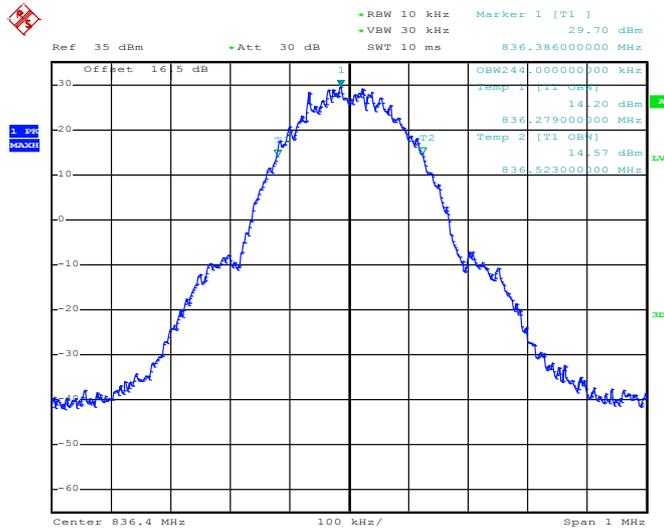
#### 26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 19.MAY.2015 09:37:58

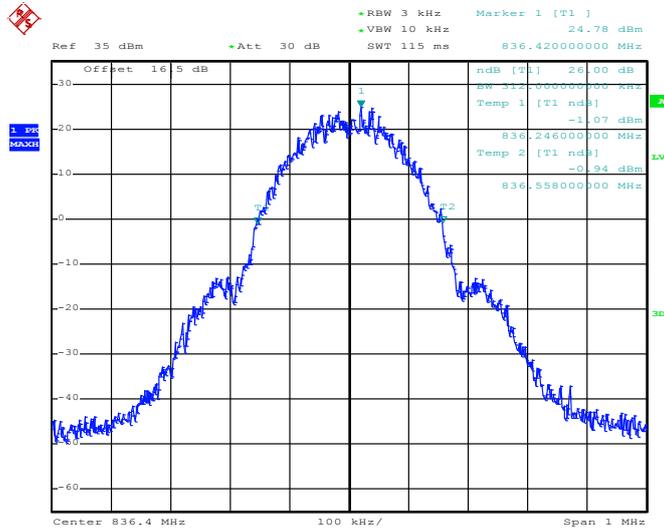


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 19.MAY.2015 09:40:55

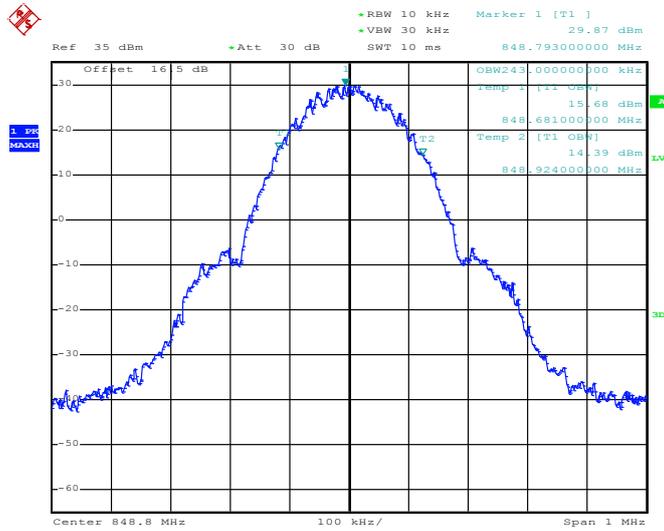
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 19.MAY.2015 09:38:28

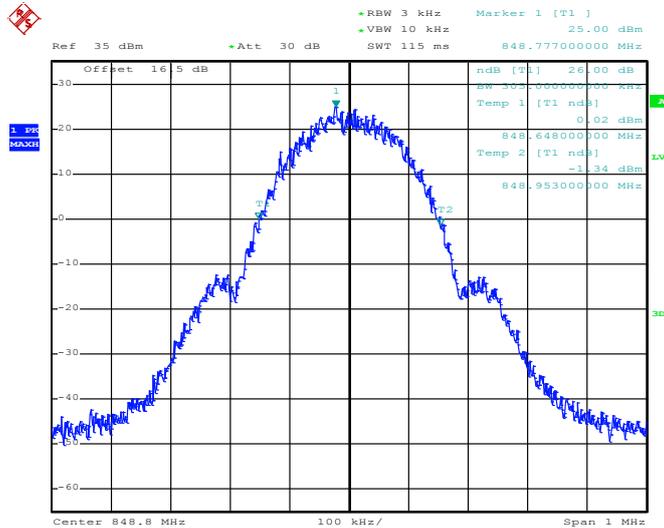


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 19.MAY.2015 09:41:30

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

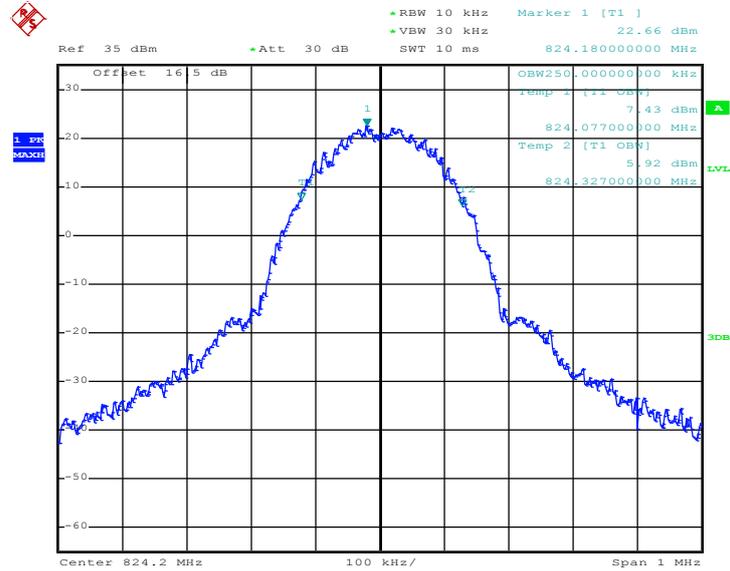


Date: 19.MAY.2015 09:38:57



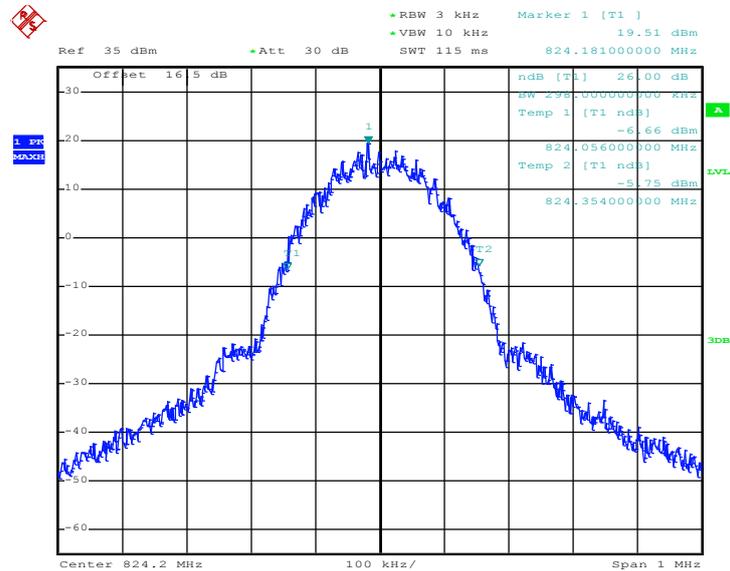
<b>Band :</b>	GSM 850	<b>Test Mode :</b>	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 19.MAY.2015 16:22:57

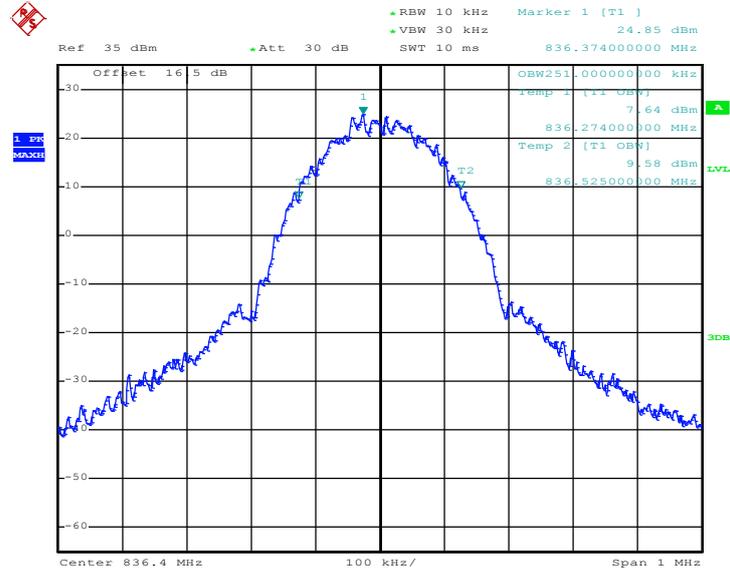
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 19.MAY.2015 16:21:07

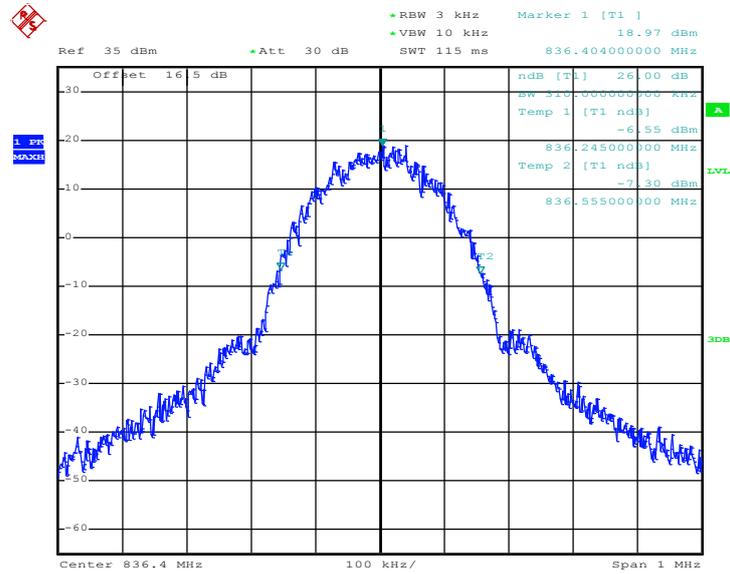


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 19.MAY.2015 16:23:27

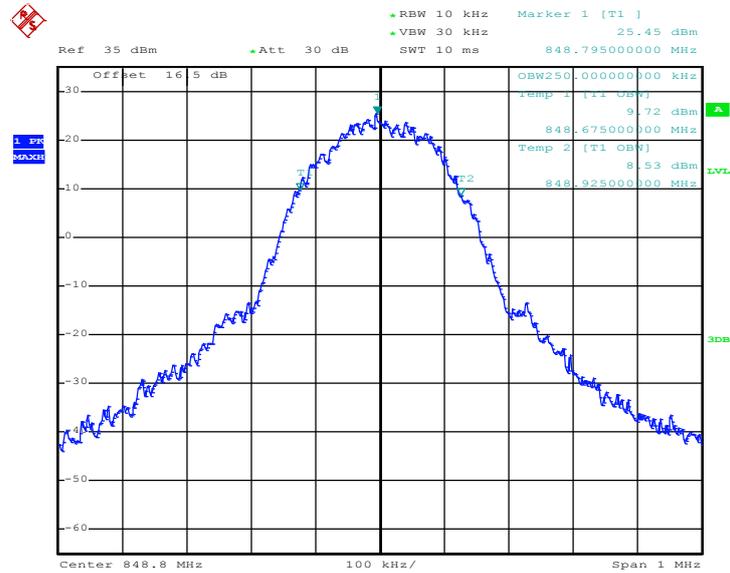
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 19.MAY.2015 16:21:41

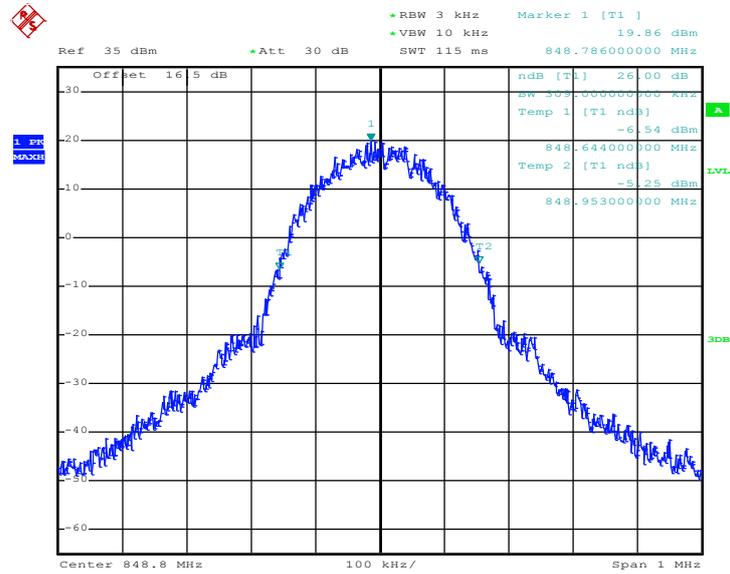


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 19.MAY.2015 16:23:58

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

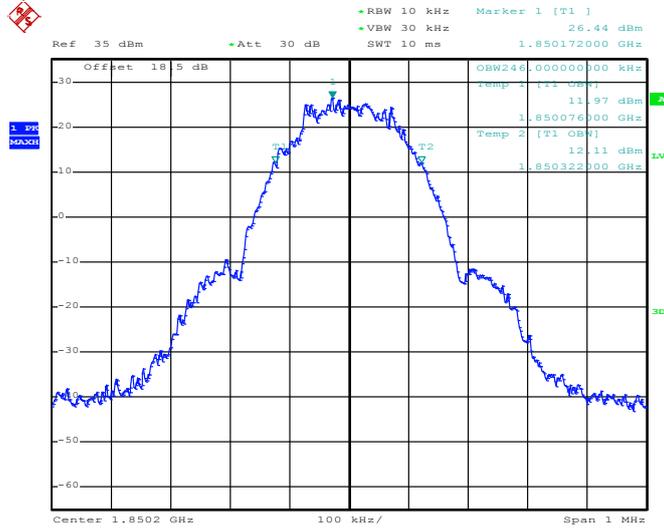


Date: 19.MAY.2015 16:22:10



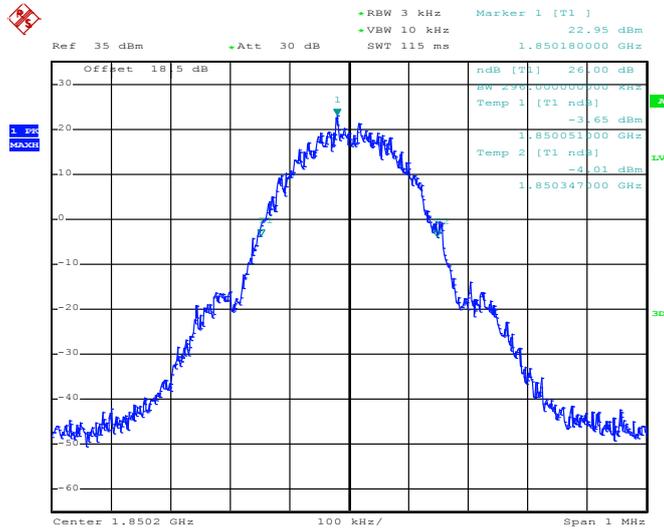
Band :	GSM 1900	Test Mode :	GPRS class 8 Link (GMSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 19.MAY.2015 16:38:01

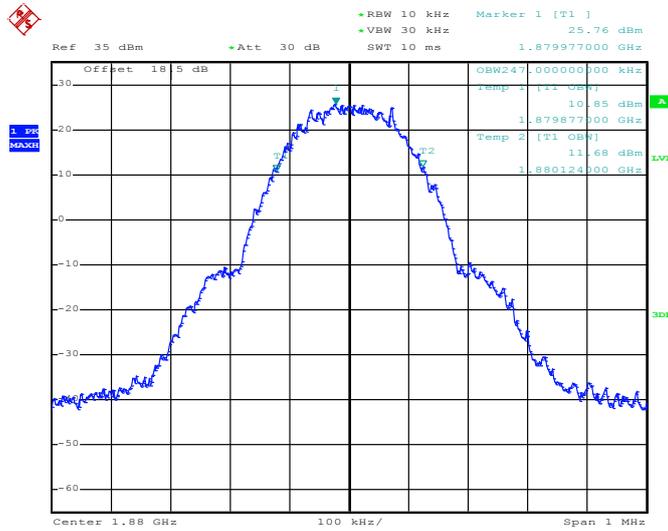
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 19.MAY.2015 16:36:13

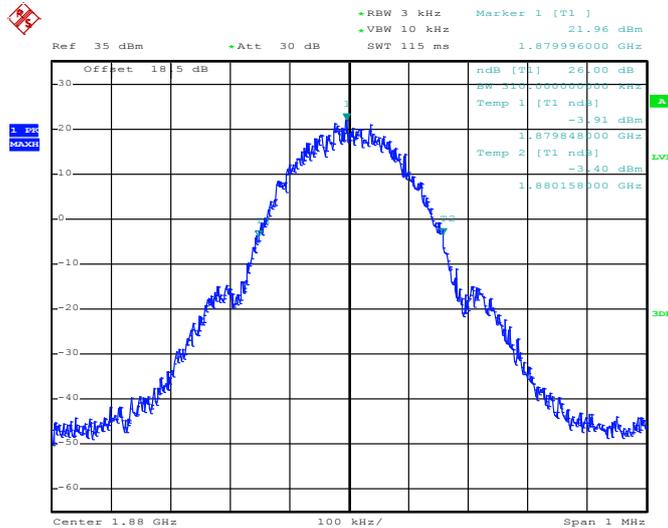


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 19.MAY.2015 16:38:30

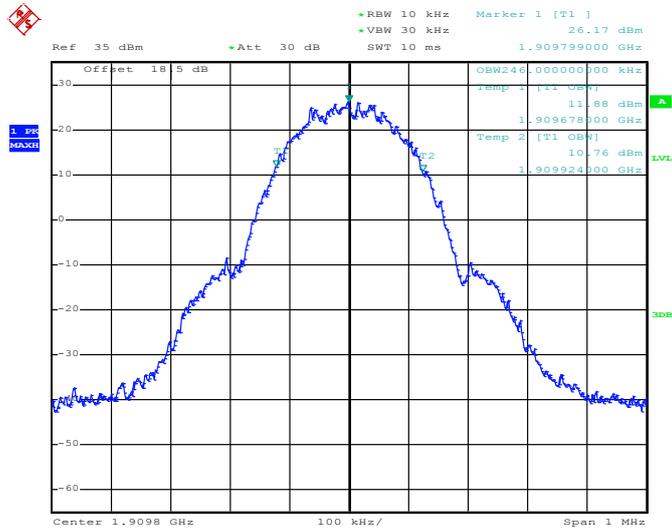
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 19.MAY.2015 16:36:48

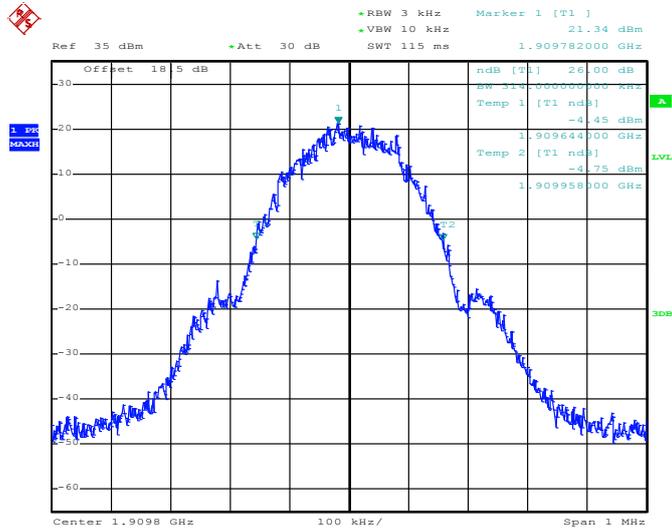


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 19.MAY.2015 16:39:04

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

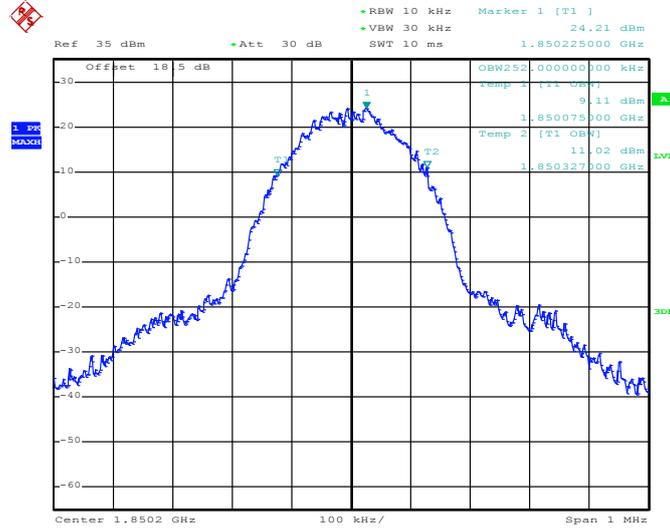


Date: 19.MAY.2015 16:37:23



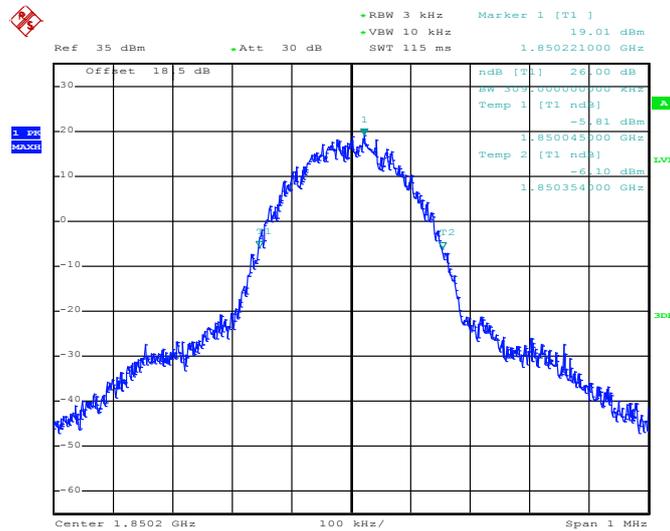
<b>Band :</b>	GSM 1900	<b>Test Mode :</b>	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 19.MAY.2015 16:50:21

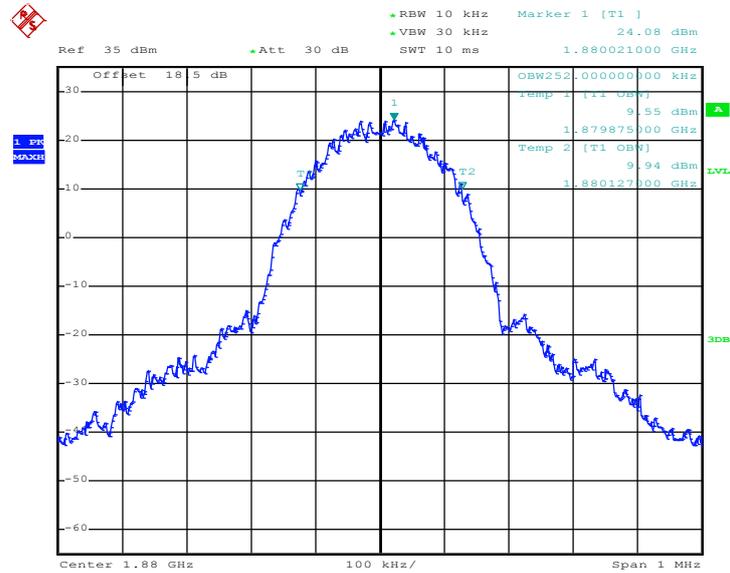
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 19.MAY.2015 16:47:36

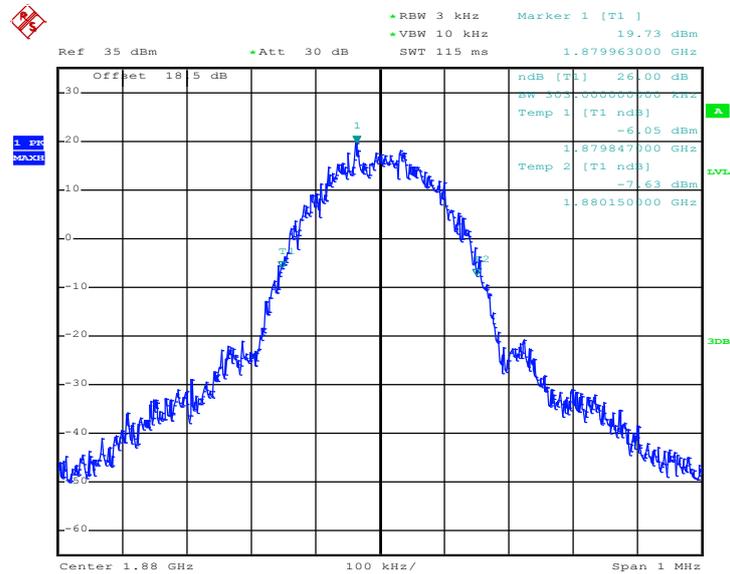


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 19.MAY.2015 16:50:50

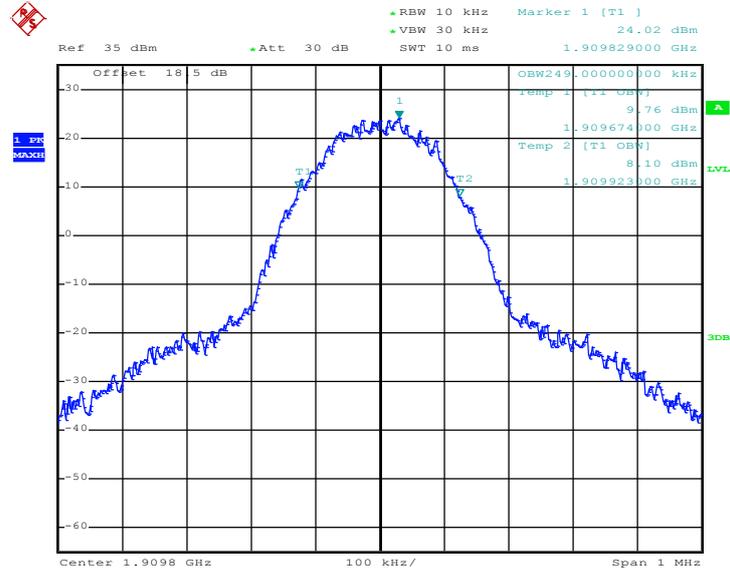
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 19.MAY.2015 16:48:09

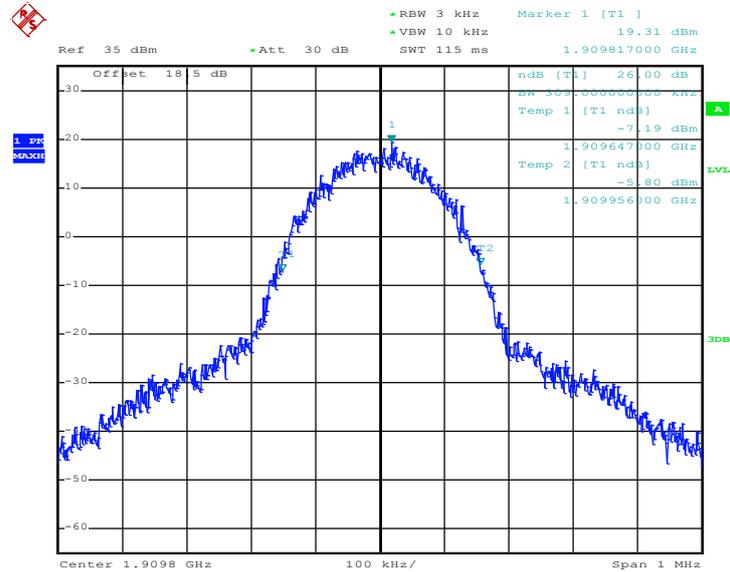


### 99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 19.MAY.2015 16:51:23

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

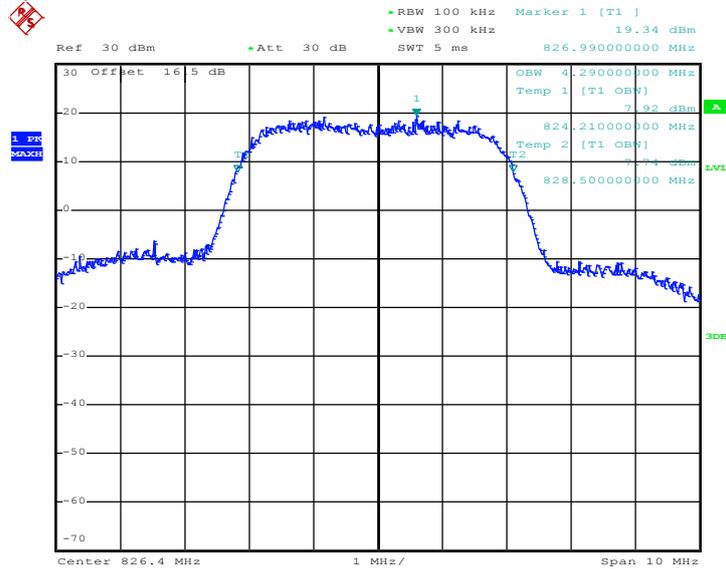


Date: 19.MAY.2015 16:48:46



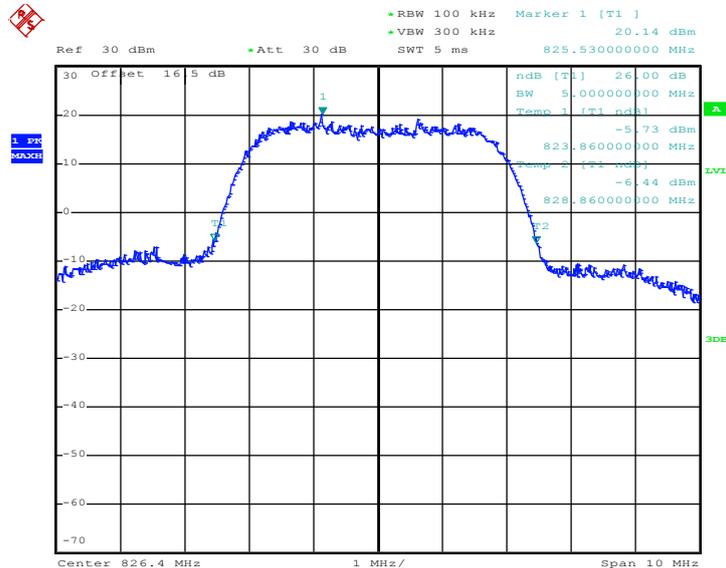
<b>Band :</b>	WCDMA Band V	<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 19.MAY.2015 09:25:38

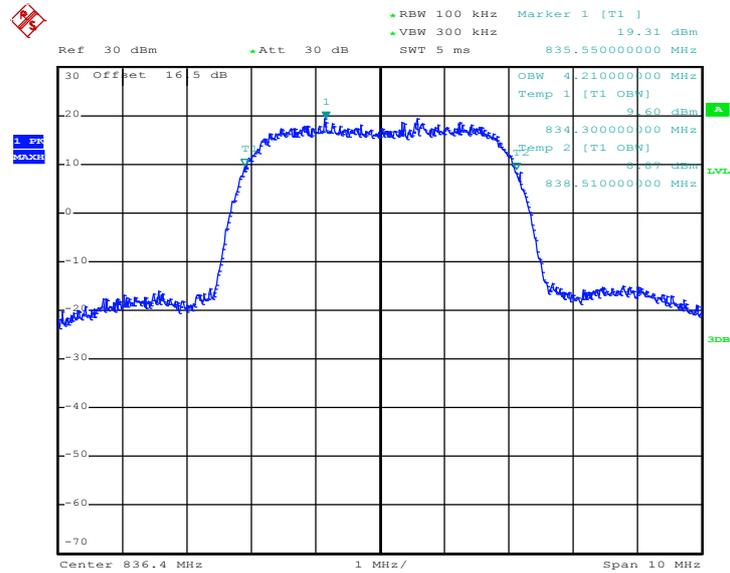
26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 19.MAY.2015 09:23:33

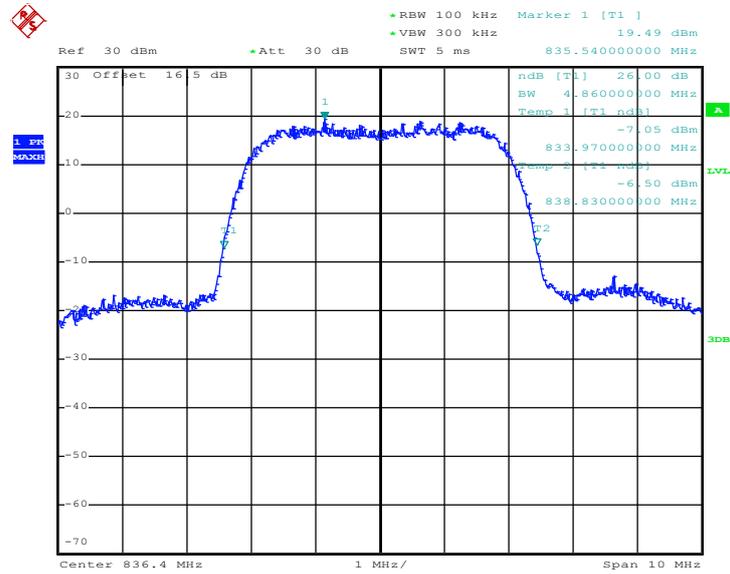


### 99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 19.MAY.2015 09:26:14

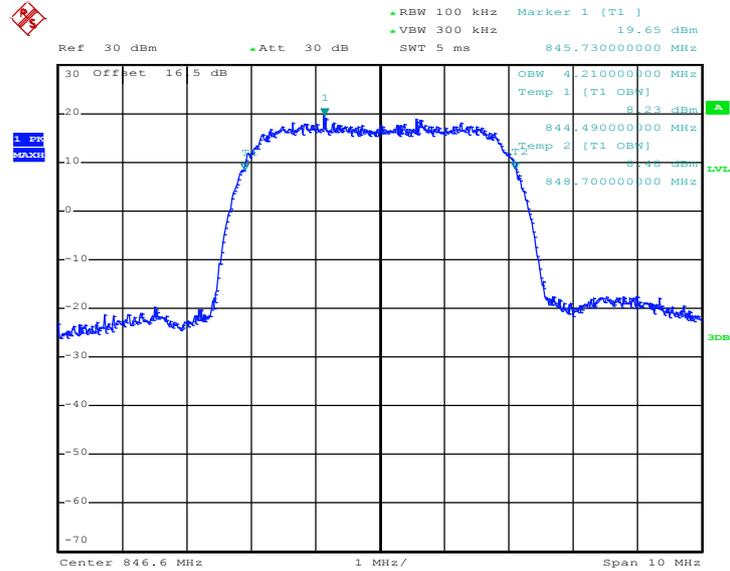
### 26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 19.MAY.2015 09:24:19

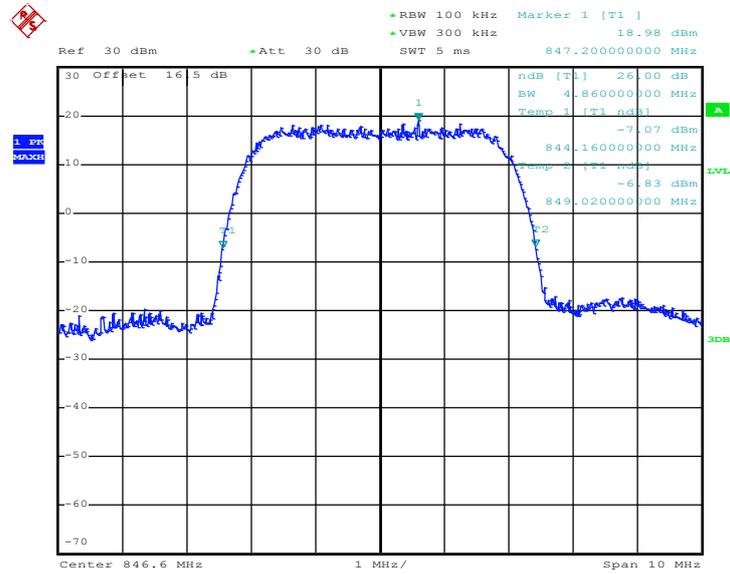


### 99% Occupied Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 19.MAY.2015 09:27:00

### 26dB Bandwidth Plot on Channel 4233 (846.6 MHz)

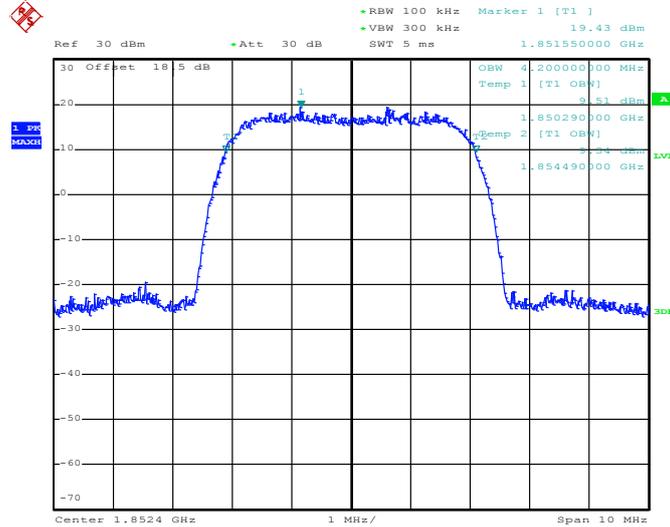


Date: 19.MAY.2015 09:24:48



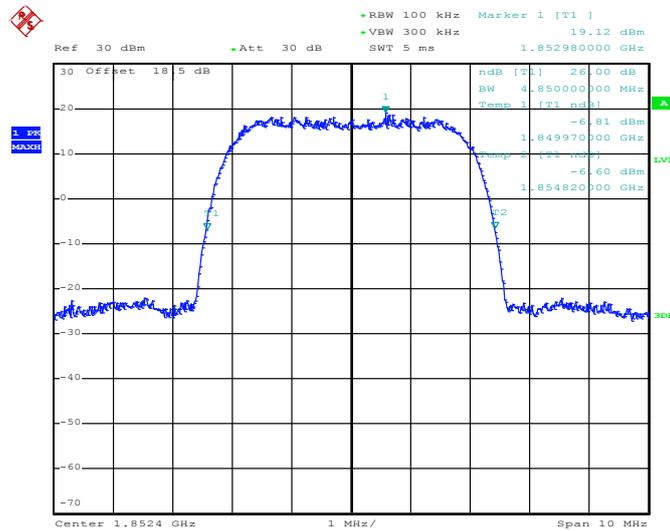
<b>Band :</b>	WCDMA Band II	<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 19.MAY.2015 17:05:56

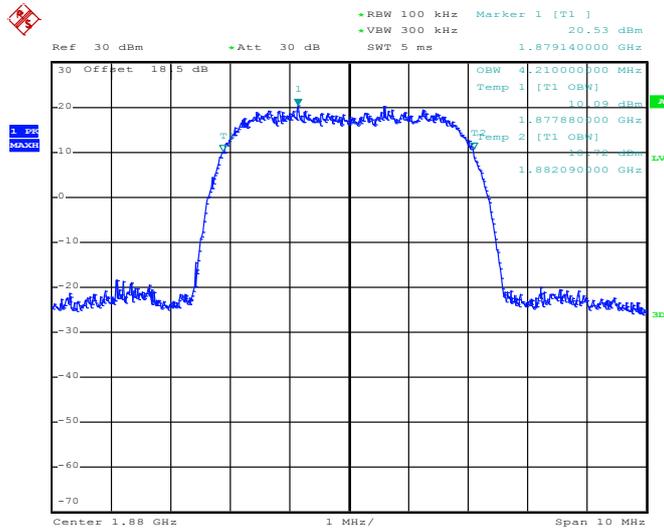
26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 19.MAY.2015 17:04:13

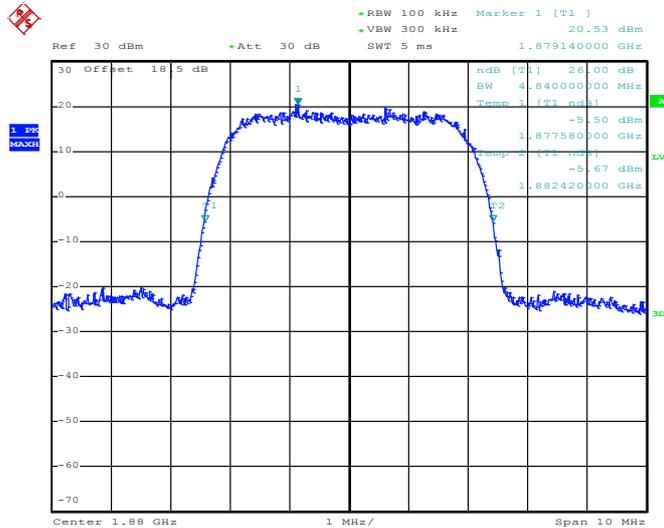


99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 19.MAY.2015 17:06:27

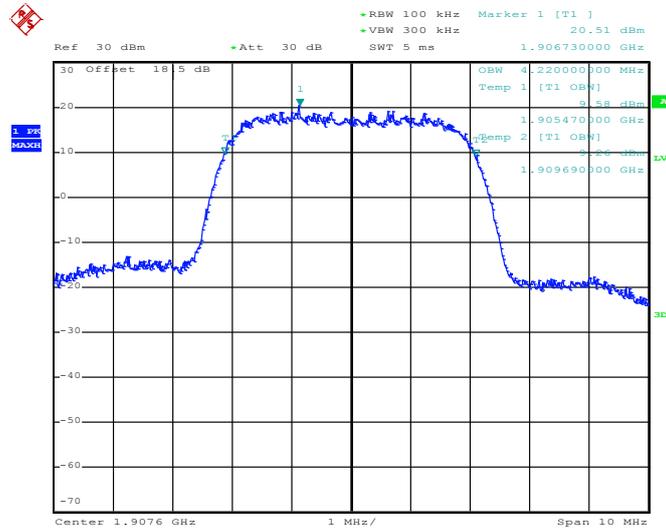
26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 19.MAY.2015 17:04:44

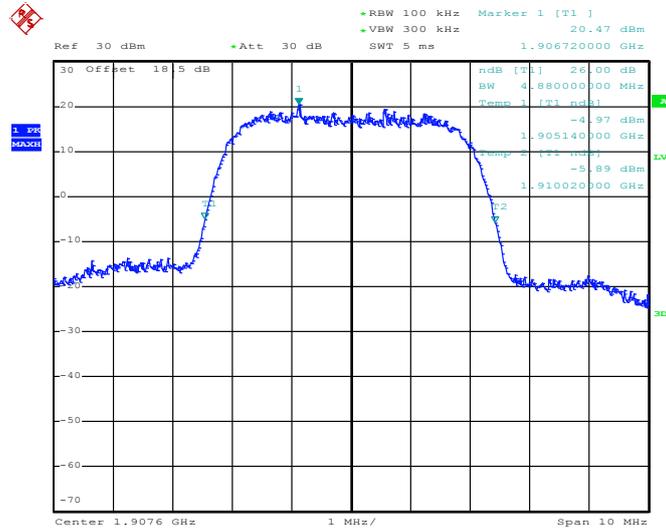


99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 19.MAY.2015 17:06:56

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 19.MAY.2015 17:05:18

## 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.

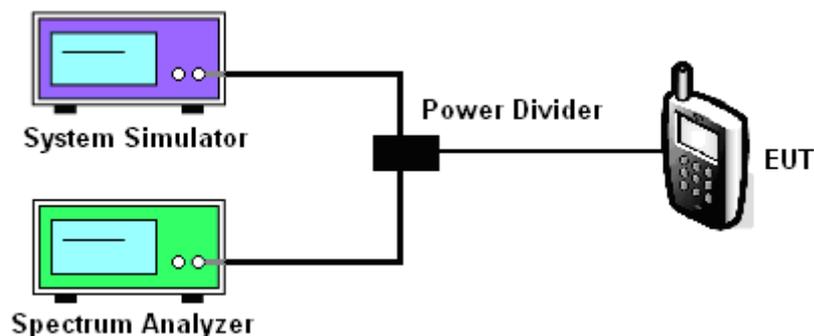
### 3.5.2 Measuring Instruments

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)  
 $= P(W) - [43 + 10\log(P)]$  (dB)  
 $= [30 + 10\log(P)]$  (dBm) -  $[43 + 10\log(P)]$  (dB)  
 $= -13\text{dBm}$ .

### 3.5.4 Test Setup

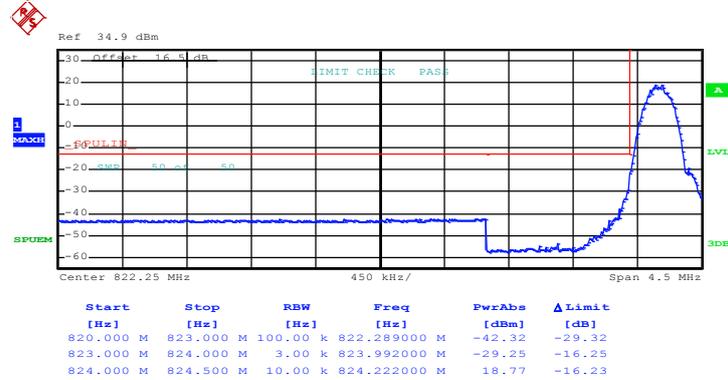






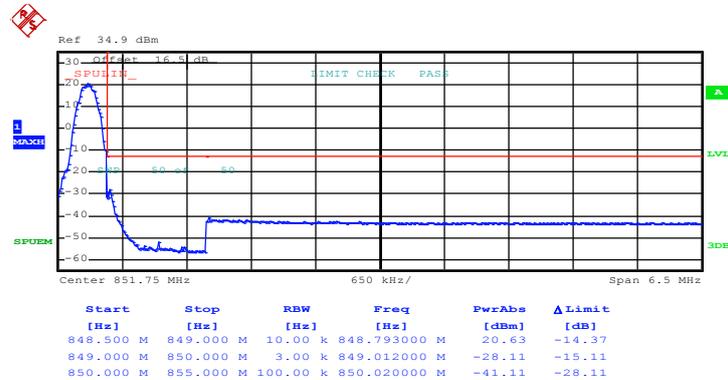
Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 128 (824.2 MHz)



Date: 19.MAY.2015 16:25:52

Higher Band Edge Plot on Channel 251 (848.8 MHz)

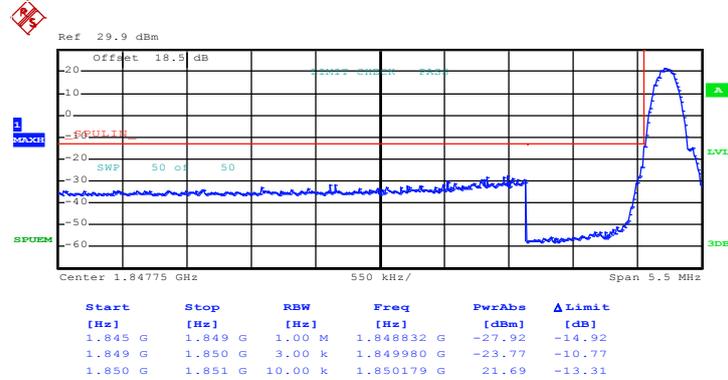


Date: 19.MAY.2015 16:27:17



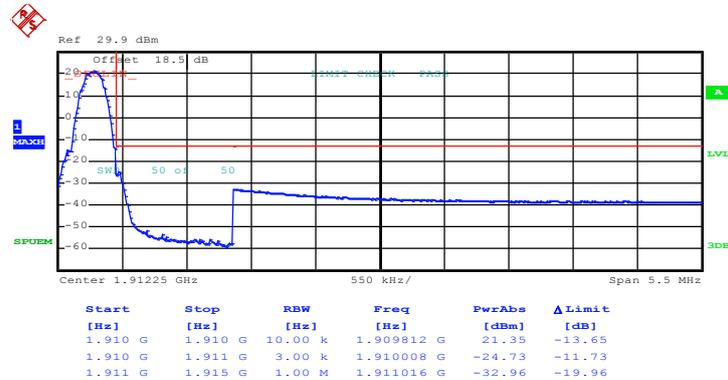
Band : GSM1900	Test Mode : GPRS class 8 Link (GMSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 19.MAY.2015 16:41:38

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

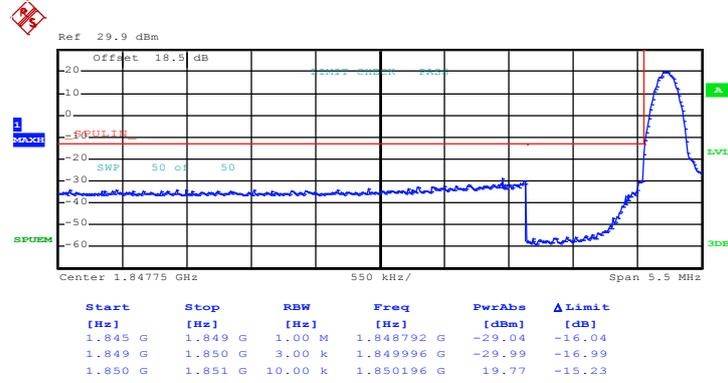


Date: 19.MAY.2015 16:43:08



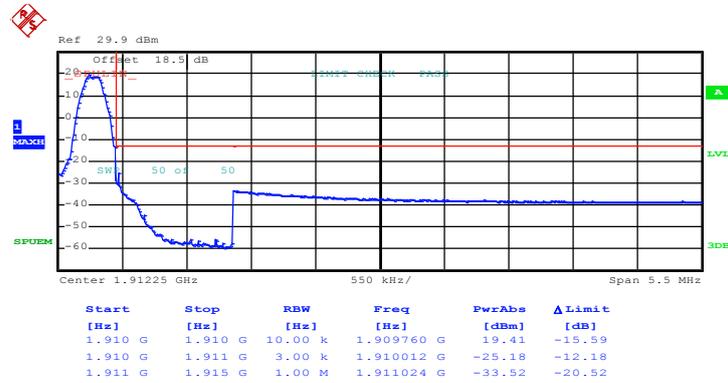
Band : GSM1900	Test Mode : EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 19.MAY.2015 16:53:15

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

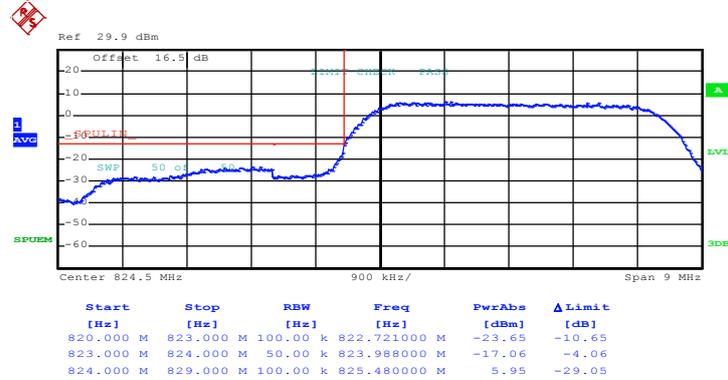


Date: 19.MAY.2015 16:54:42



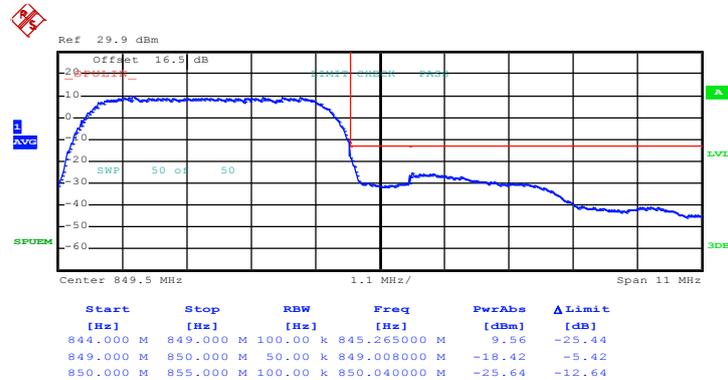
Band : WCDMA Band V	Test Mode : RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 4132 (826.4 MHz)



Date: 19.MAY.2015 16:10:54

Higher Band Edge Plot on Channel 4233 (846.6 MHz)

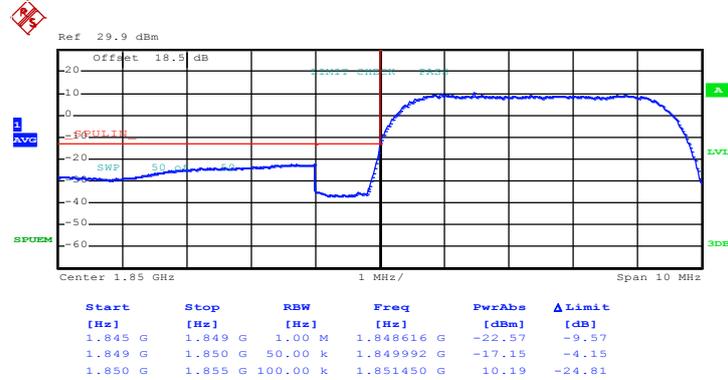


Date: 19.MAY.2015 16:15:02



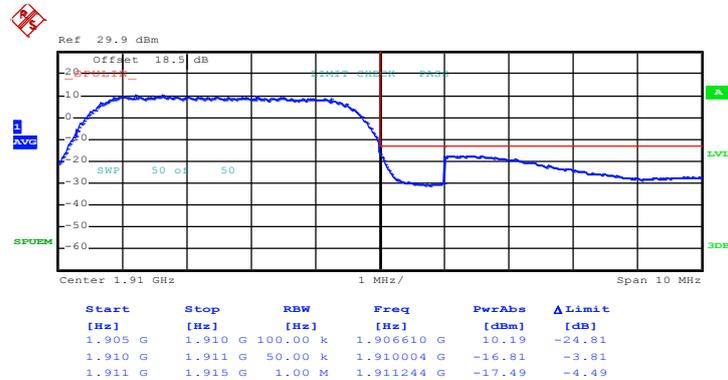
Band : WCDMA Band II	Test Mode : RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 9262 (1852.4 MHz)



Date: 19.MAY.2015 17:08:30

Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



Date: 19.MAY.2015 17:09:54

## 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.

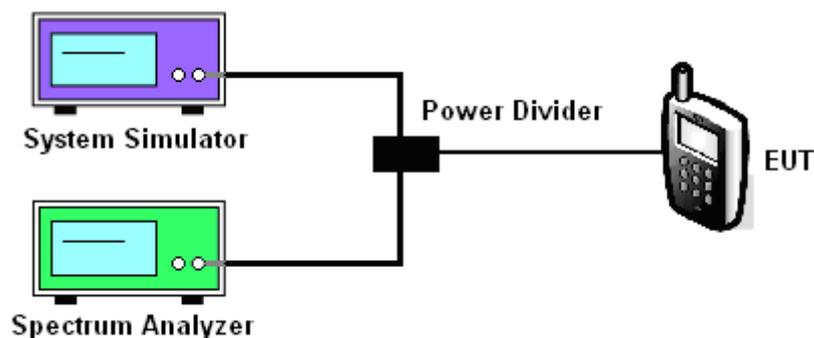
### 3.6.2 Measuring Instruments

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)  
 $= P(W) - [43 + 10\log(P)]$  (dB)  
 $= [30 + 10\log(P)]$  (dBm) -  $[43 + 10\log(P)]$  (dB)  
 $= -13\text{dBm}$ .

### 3.6.4 Test Setup

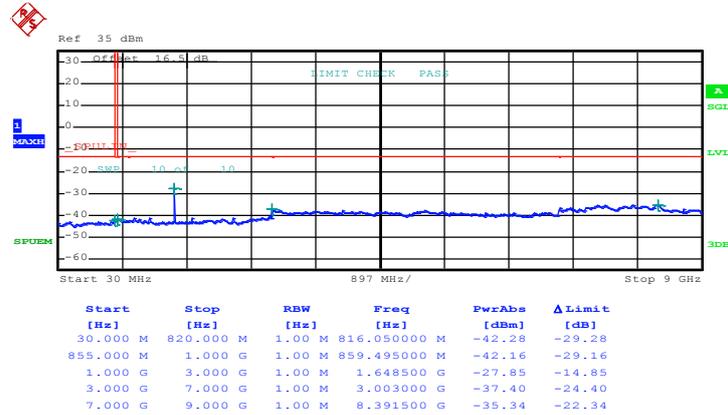




### 3.6.5 Test Result (Plots) of Conducted Spurious Emission

Band :	GSM850	Channel :	CH128
Test Mode :	GPRS class 8 Link (GMSK)	Frequency :	824.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

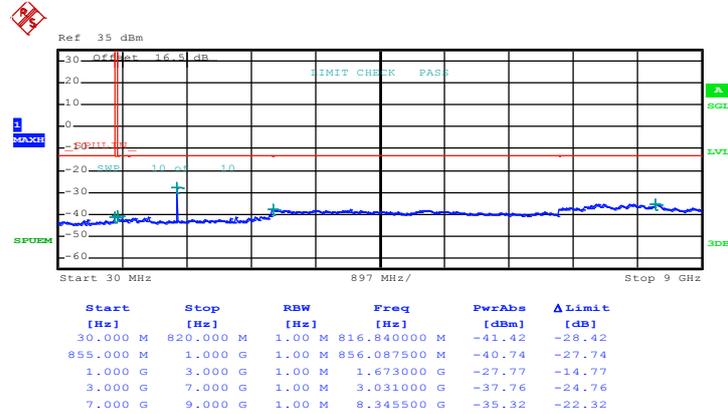


Date: 19.MAY.2015 09:45:49



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

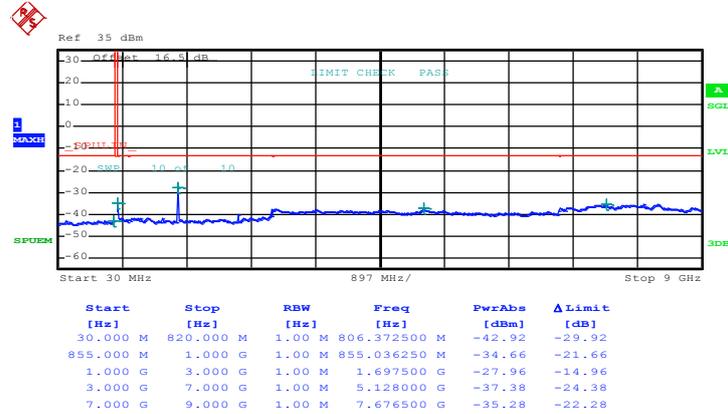


Date: 19.MAY.2015 09:46:16



<b>Band :</b>	GSM850	<b>Channel :</b>	CH251
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)	<b>Frequency :</b>	848.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

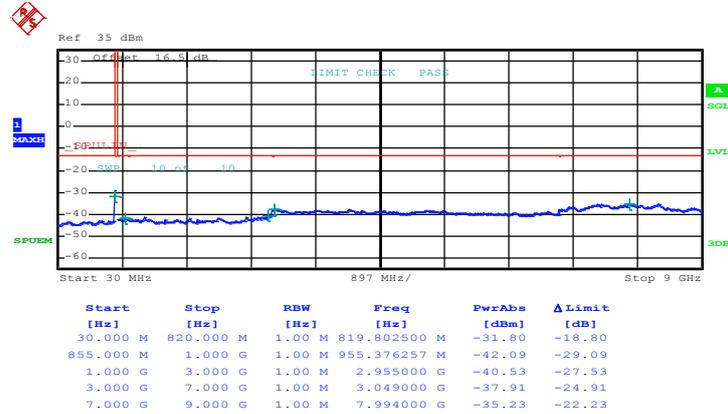


Date: 19.MAY.2015 09:46:43



<b>Band :</b>	GSM850	<b>Channel :</b>	CH128
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)	<b>Frequency :</b>	824.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

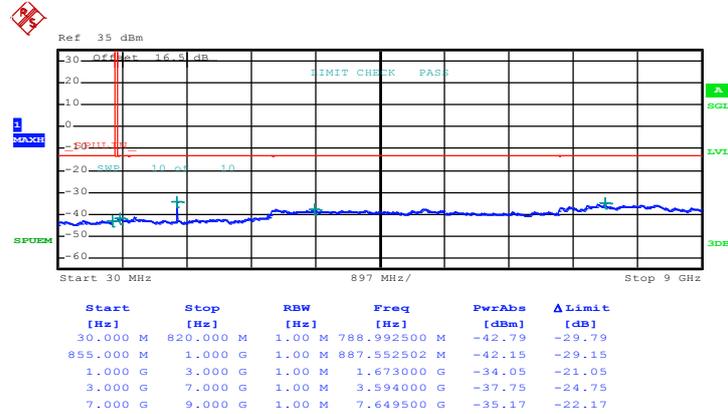


Date: 19.MAY.2015 16:28:05



<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

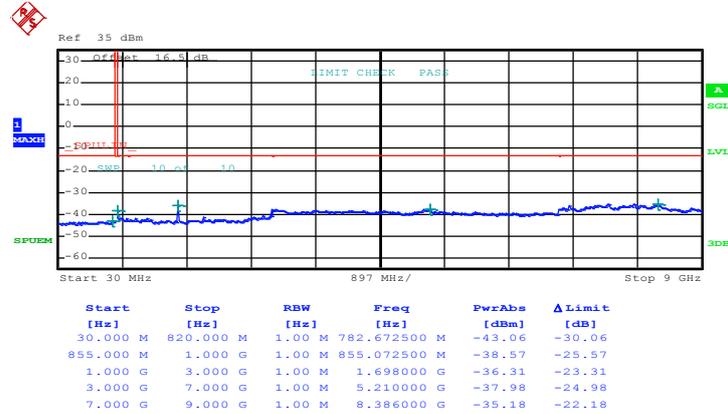


Date: 19.MAY.2015 16:28:32



<b>Band :</b>	GSM850	<b>Channel :</b>	CH251
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)	<b>Frequency :</b>	848.8 MHz

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

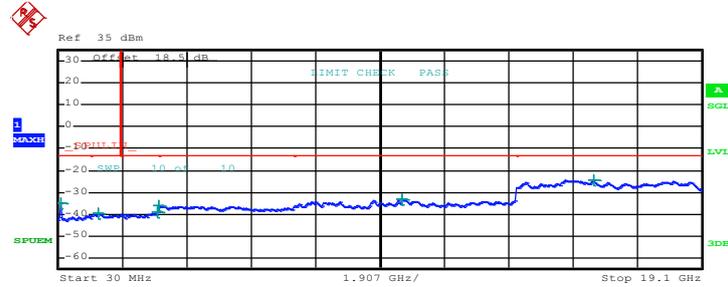


Date: 19.MAY.2015 16:29:06



<b>Band :</b>	GSM1900	<b>Channel :</b>	CH512
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)	<b>Frequency :</b>	1850.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



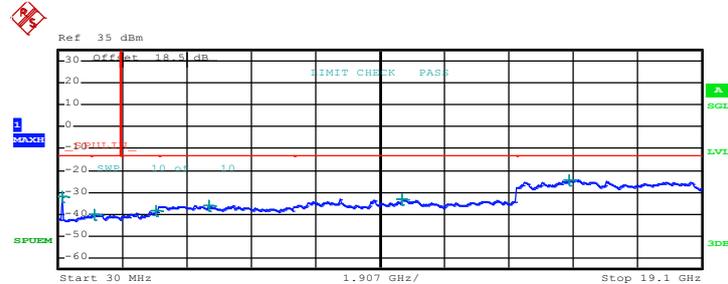
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	1.00 M	111.965000 M	-35.14	-22.14
1.000 G	1.845 G	1.00 M	1.212306 G	-39.68	-26.68
1.915 G	3.000 G	1.00 M	2.971519 G	-39.26	-26.26
3.000 G	7.000 G	1.00 M	3.012000 G	-35.93	-22.93
7.000 G	13.600 G	1.00 M	10.219150 G	-33.40	-20.40
13.600 G	19.100 G	1.00 M	15.914125 G	-24.61	-11.61

Date: 19.MAY.2015 16:44:03



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



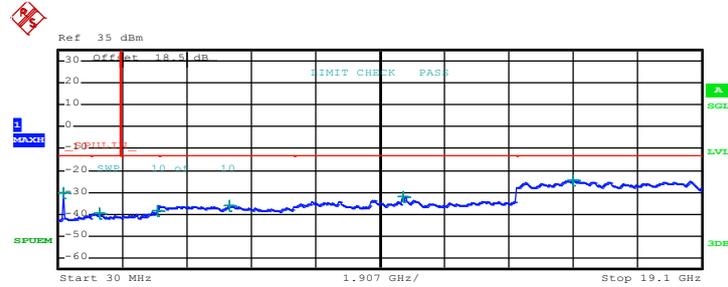
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	1.00 M	141.792500 M	-32.05	-19.05
1.000 G	1.845 G	1.00 M	1.099288 G	-40.17	-27.17
1.915 G	3.000 G	1.00 M	2.915641 G	-38.47	-25.47
3.000 G	7.000 G	1.00 M	4.487000 G	-36.04	-23.04
7.000 G	13.600 G	1.00 M	10.215850 G	-33.14	-20.14
13.600 G	19.100 G	1.00 M	15.162688 G	-24.17	-11.17

Date: 19.MAY.2015 16:44:31



<b>Band :</b>	GSM1900	<b>Channel :</b>	CH810
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)	<b>Frequency :</b>	1909.8 MHz

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



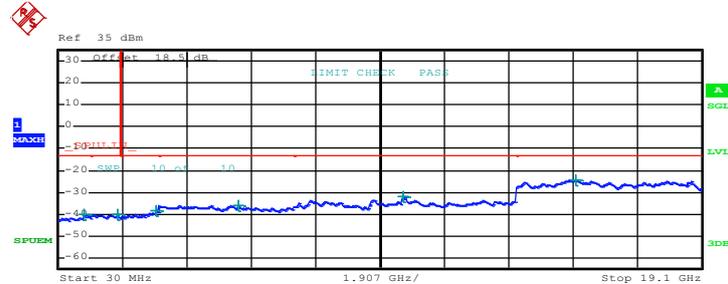
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	1.00 M	171.620000 M	-20.34	-17.34
1.000 G	1.845 G	1.00 M	1.267865 G	-39.65	-26.65
1.915 G	3.000 G	1.00 M	2.974502 G	-38.58	-25.58
3.000 G	7.000 G	1.00 M	5.121000 G	-35.96	-22.96
7.000 G	13.600 G	1.00 M	10.233175 G	-32.23	-19.23
13.600 G	19.100 G	1.00 M	15.300188 G	-24.64	-11.64

Date: 19.MAY.2015 16:45:01



<b>Band :</b>	GSM1900	<b>Channel :</b>	CH512
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)	<b>Frequency :</b>	1850.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



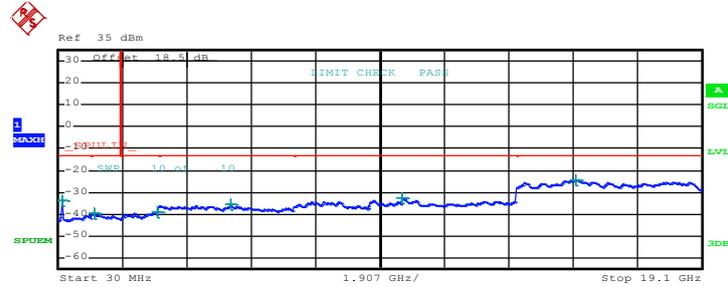
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	1.00 M	806.000000 M	-40.23	-27.23
1.000 G	1.845 G	1.00 M	1.793666 G	-39.89	-26.89
1.915 G	3.000 G	1.00 M	2.940868 G	-38.49	-25.49
3.000 G	7.000 G	1.00 M	5.370000 G	-36.20	-23.20
7.000 G	13.600 G	1.00 M	10.239775 G	-31.69	-18.69
13.600 G	19.100 G	1.00 M	15.372375 G	-24.23	-11.23

Date: 19.MAY.2015 16:55:35



<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



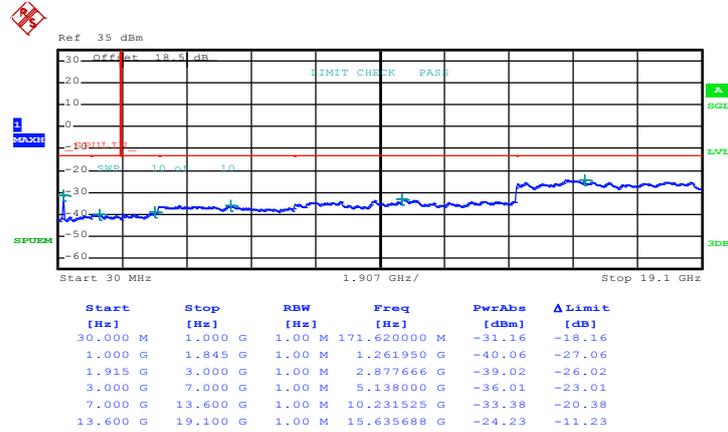
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	1.00 M	141.792500 M	-33.60	-20.60
1.000 G	1.845 G	1.00 M	1.080275 G	-39.65	-26.65
1.915 G	3.000 G	1.00 M	2.954701 G	-38.84	-25.84
3.000 G	7.000 G	1.00 M	5.134000 G	-35.50	-22.50
7.000 G	13.600 G	1.00 M	10.217500 G	-32.78	-19.78
13.600 G	19.100 G	1.00 M	15.366188 G	-24.49	-11.49

Date: 19.MAY.2015 16:56:21



<b>Band :</b>	GSM1900	<b>Channel :</b>	CH810
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)	<b>Frequency :</b>	1909.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

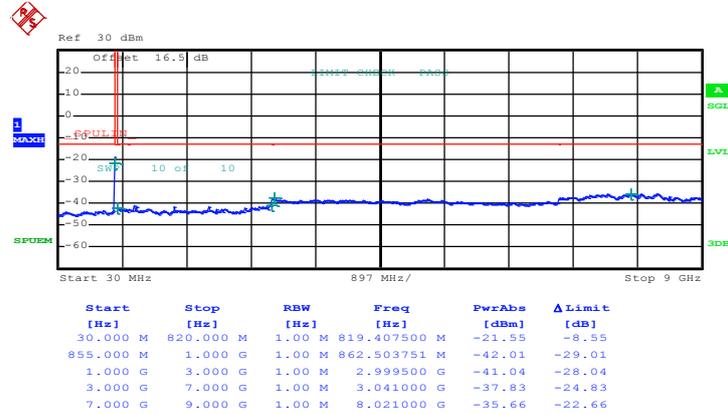


Date: 19.MAY.2015 16:56:48



<b>Band :</b>	WCDMA Band V	<b>Channel :</b>	CH4132
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Frequency :</b>	826.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

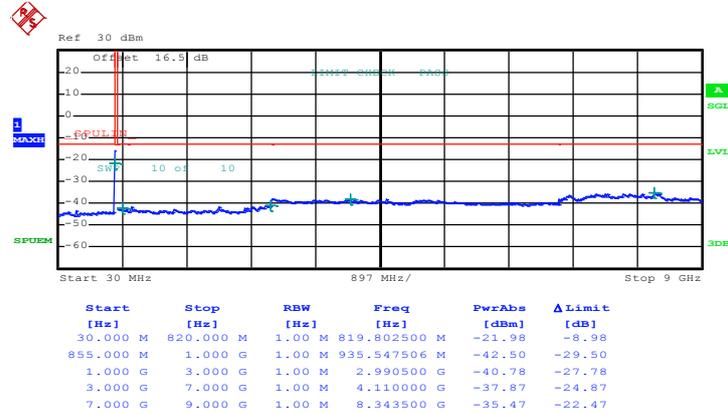


Date: 19.MAY.2015 09:31:03



<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**

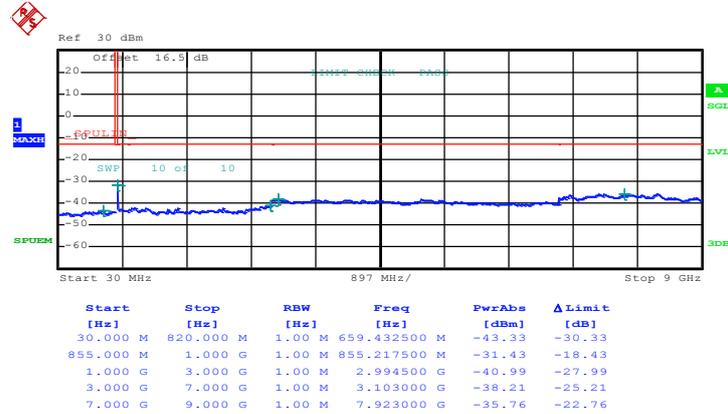


Date: 19.MAY.2015 09:31:30



<b>Band :</b>	WCDMA Band V	<b>Channel :</b>	CH4233
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Frequency :</b>	846.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

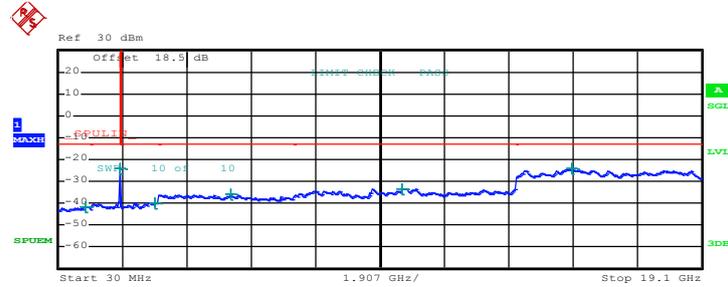


Date: 19.MAY.2015 09:31:57



<b>Band :</b>	WCDMA Band II	<b>Channel :</b>	CH9262
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Frequency :</b>	1852.4 MHz

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



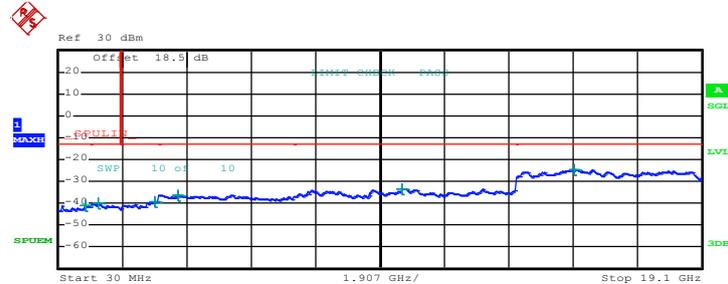
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	1.00 M	836.070000 M	-41.40	-28.40
1.000 G	1.845 G	1.00 M	1.844789 G	-23.82	-10.82
1.915 G	3.000 G	1.00 M	2.883905 G	-39.59	-26.59
3.000 G	7.000 G	1.00 M	5.139000 G	-35.92	-22.92
7.000 G	13.600 G	1.00 M	10.219975 G	-33.26	-20.26
13.600 G	19.100 G	1.00 M	15.230063 G	-23.97	-10.97

Date: 19.MAY.2015 17:10:30



<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**



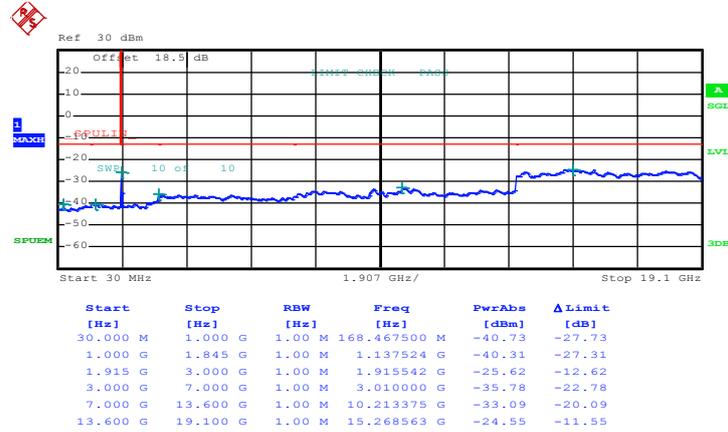
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	1.00 M	835.827500 M	-41.13	-28.13
1.000 G	1.845 G	1.00 M	1.222869 G	-40.03	-27.03
1.915 G	3.000 G	1.00 M	2.880650 G	-39.15	-26.15
3.000 G	7.000 G	1.00 M	3.585000 G	-36.17	-23.17
7.000 G	13.600 G	1.00 M	10.208425 G	-33.25	-20.25
13.600 G	19.100 G	1.00 M	15.314625 G	-24.42	-11.42

Date: 19.MAY.2015 17:10:58



<b>Band :</b>	WCDMA Band II	<b>Channel :</b>	CH9538
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Frequency :</b>	1907.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



Date: 19.MAY.2015 17:11:27



### 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

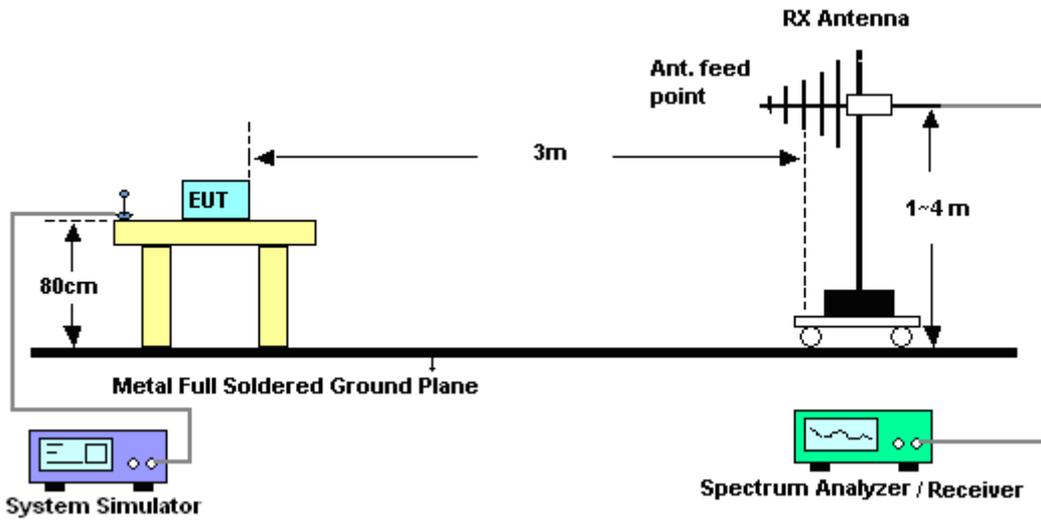
The measuring equipment is listed in the section 4 of this test report.

#### 3.7.3 Test Procedures

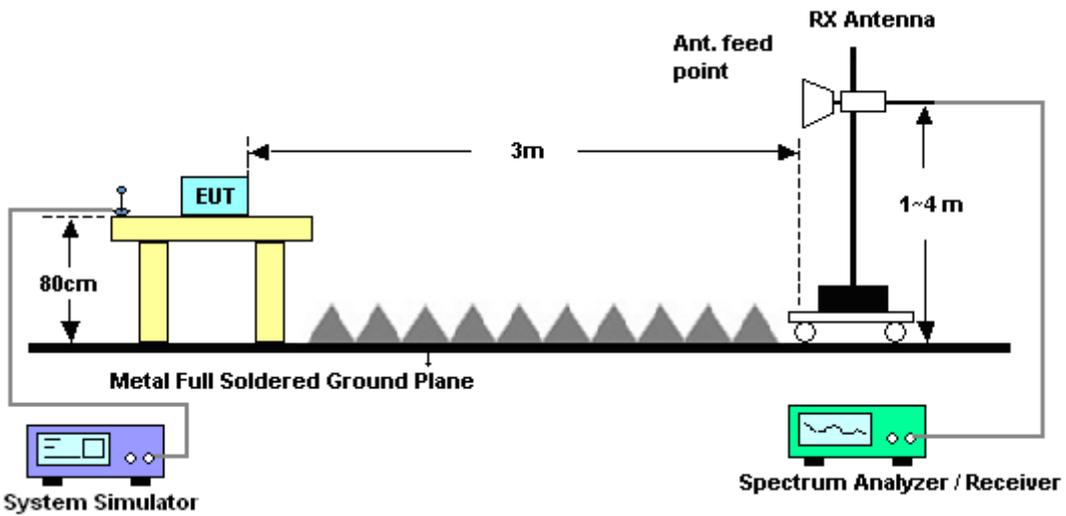
1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 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)  
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$   
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$   
 $= -13dBm.$

### 3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz





### 3.7.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

<b>Band :</b>	GSM850				<b>Temperature :</b>	23~24°C			
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)				<b>Relative Humidity :</b>	51~52%			
<b>Test Engineer :</b>	Lewis He and Stan Hsieh				<b>Polarization :</b>	Horizontal			
<b>Remark :</b>	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
1651	-35.46	-13	-22.46	-45.06	-37.21	0.98	4.88	H	Pass
2476	-43.22	-13	-30.22	-56.32	-45.11	1.28	5.33	H	Pass
3301	-55.50	-13	-42.50	-72.28	-58.93	1.54	7.12	H	Pass
4950	-51.14	-13	-38.14	-73.81	-56.28	2.31	9.60	H	Pass
5775	-46.44	-13	-33.44	-70.81	-51.32	2.78	9.81	H	Pass
6600	-49.96	-13	-36.96	-76.16	-55.41	2.72	10.32	H	Pass

<b>Band :</b>	GSM850				<b>Temperature :</b>	23~24°C			
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)				<b>Relative Humidity :</b>	51~52%			
<b>Test Engineer :</b>	Lewis He and Stan Hsieh				<b>Polarization :</b>	Vertical			
<b>Remark :</b>	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
1651	-39.26	-13	-26.26	-46.83	-41.01	0.98	4.88	V	Pass
2476	-41.63	-13	-28.63	-56.84	-43.52	1.28	5.33	V	Pass
3301	-55.44	-13	-42.44	-70.87	-58.87	1.54	7.12	V	Pass
4950	-52.35	-13	-39.35	-73.79	-57.49	2.31	9.60	V	Pass
5775	-46.60	-13	-33.60	-70.27	-51.48	2.78	9.81	V	Pass
6600	-48.28	-13	-35.28	-74.26	-53.73	2.72	10.32	V	Pass



<Middle Channel>

<b>Band :</b>	GSM850				<b>Temperature :</b>	23~24°C			
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)				<b>Relative Humidity :</b>	51~52%			
<b>Test Engineer :</b>	Lewis He and Stan Hsieh				<b>Polarization :</b>	Horizontal			
<b>Remark :</b>	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
1675	-35.93	-13	-22.93	-45.27	-37.6	0.99	4.81	H	Pass
2512	-41.53	-13	-28.53	-54.84	-43.5	1.29	5.41	H	Pass
3349	-55.67	-13	-42.67	-71.9	-59.3	1.56	7.34	H	Pass
5025	-49.70	-13	-36.70	-72.69	-54.9	2.35	9.70	H	Pass
5860	-42.94	-13	-29.94	-67.65	-47.8	2.83	9.84	H	Pass

<b>Band :</b>	GSM850				<b>Temperature :</b>	23~24°C			
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)				<b>Relative Humidity :</b>	51~52%			
<b>Test Engineer :</b>	Lewis He and Stan Hsieh				<b>Polarization :</b>	Vertical			
<b>Remark :</b>	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
1675	-38.47	-13	-25.47	-45.58	-40.14	0.99	4.81	V	Pass
2512	-40.74	-13	-27.74	-56.31	-42.71	1.29	5.41	V	Pass
3349	-55.00	-13	-42.00	-70.18	-58.63	1.56	7.34	V	Pass
4185	-55.34	-13	-42.34	-74.84	-59.96	1.87	8.64	V	Pass
5025	-51.28	-13	-38.28	-73.01	-56.48	2.35	9.70	V	Pass
5860	-43.89	-13	-30.89	-67.9	-48.75	2.83	9.84	V	Pass



<High Channel>

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	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
1702	-39.85	-13	-26.85	-49.28	-41.43	1.00	4.73	H	Pass
2548	-43.14	-13	-30.14	-56.87	-45.12	1.31	5.44	H	Pass
3397	-57.38	-13	-44.38	-73.81	-61.2	1.57	7.55	H	Pass
5100	-53.44	-13	-40.44	-76.1	-58.6	2.39	9.70	H	Pass
5945	-46.35	-13	-33.35	-71.41	-51.2	2.88	9.88	H	Pass

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	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
1702	-39.62	-13	-26.62	-47.46	-41.2	1.00	4.73	V	Pass
2548	-44.12	-13	-31.12	-59.46	-46.1	1.31	5.44	V	Pass
3397	-55.70	-13	-42.70	-71.72	-59.52	1.57	7.55	V	Pass
4250	-55.11	-13	-42.11	-75.22	-59.7	1.91	8.65	V	Pass
5945	-49.55	-13	-36.55	-73.93	-54.4	2.88	9.88	V	Pass



<Low Channel>

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	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
1651	-45.38	-13	-32.38	-54.99	-47.13	0.98	4.88	H	Pass
2476	-52.15	-13	-39.15	-65.21	-54.04	1.28	5.33	H	Pass
3301	-60.63	-13	-47.63	-77.22	-64.06	1.54	7.12	H	Pass

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	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
1651	-46.92	-13	-33.92	-54.59	-48.67	0.98	4.88	V	Pass
2476	-54.26	-13	-41.26	-69.51	-56.15	1.28	5.33	V	Pass
3301	-61.39	-13	-48.39	-76.82	-64.82	1.54	7.12	V	Pass



<Middle Channel>

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	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
1675	-44.34	-13	-31.34	-53.69	-46.01	0.99	4.81	H	Pass
2512	-53.79	-13	-40.79	-67.06	-55.76	1.29	5.41	H	Pass
3349	-60.49	-13	-47.49	-76.73	-64.12	1.56	7.34	H	Pass

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	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
1675	-45.18	-13	-32.18	-52.42	-46.85	0.99	4.81	V	Pass
2512	-54.73	-13	-41.73	-70.07	-56.7	1.29	5.41	V	Pass
3349	-60.69	-13	-47.69	-75.86	-64.32	1.56	7.34	V	Pass



<High Channel>

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	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
1702	-47.84	-13	-34.84	-57.46	-49.42	1.00	4.73	H	Pass
2548	-51.55	-13	-38.55	-65.26	-53.53	1.31	5.44	H	Pass
3403	-60.43	-13	-47.43	-76.98	-64.28	1.57	7.57	H	Pass

<b>Band :</b>	GSM850		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	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
1702	-46.50	-13	-33.50	-54.27	-48.08	1.00	4.73	V	Pass
2548	-56.26	-13	-43.26	-71.52	-60.39	1.31	5.44	V	Pass
3403	-61.31	-13	-48.31	-77.1	-67.31	1.57	7.57	V	Pass



<Low Channel>

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3700	-50.15	-13	-37.15	-69.17	-56.72	1.67	8.24	H	Pass
5548	-39.18	-13	-26.18	-63.23	-46.25	2.65	9.72	H	Pass
7403	-42.34	-13	-29.34	-71.44	-51.49	2.46	11.61	H	Pass
9251	-43.23	-13	-30.23	-74.07	-53.29	2.54	12.60	H	Pass

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3700	-51.29	-13	-38.29	-69.84	-57.86	1.67	8.24	V	Pass
5548	-42.59	-13	-29.59	-64.5	-49.66	2.65	9.72	V	Pass
7403	-48.31	-13	-35.31	-76.53	-57.46	2.46	11.61	V	Pass
9251	-46.76	-13	-33.76	-77.19	-56.82	2.54	12.60	V	Pass



<Middle Channel>

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	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
3763	-37.62	-13	-24.62	-56.95	-44.25	1.69	8.32	H	Pass
5639	-32.61	-13	-19.61	-56.35	-39.66	2.71	9.76	H	Pass
7522	-40.43	-13	-27.43	-69	-49.82	2.42	11.81	H	Pass
9398	-42.67	-13	-29.67	-74.34	-52.64	2.57	12.54	H	Pass
11282	-38.90	-13	-25.90	-71.6	-48.6	2.68	12.39	H	Pass

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	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
3763	-45.06	-13	-32.06	-63.79	-51.69	1.69	8.32	V	Pass
5639	-34.47	-13	-21.47	-57.2	-41.52	2.71	9.76	V	Pass
7522	-45.43	-13	-32.43	-73.7	-54.82	2.42	11.81	V	Pass
9398	-47.17	-13	-34.17	-76.78	-57.14	2.57	12.54	V	Pass
11282	-43.77	-13	-30.77	-75.72	-53.47	2.68	12.39	V	Pass



<High Channel>

<b>Band :</b>	GSM1900	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3819	-43.60	-13	-30.60	-63.25	-50.28	1.70	8.38	H	Pass
5730	-31.44	-13	-18.44	-56.02	-38.47	2.76	9.79	H	Pass
7641	-39.64	-13	-26.64	-67.56	-49.14	2.38	11.88	H	Pass

<b>Band :</b>	GSM1900	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	GPRS class 8 Link (GMSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3819	-45.33	-13	-32.33	-63.69	-52.01	1.70	8.38	V	Pass
5730	-31.15	-13	-18.15	-54.64	-38.18	2.76	9.79	V	Pass
7641	-44.55	-13	-31.55	-72.59	-54.05	2.38	11.88	V	Pass



<Low Channel>

<b>Band :</b>	GSM1900	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3700	-51.15	-13	-38.15	-69.89	-57.72	1.67	8.24	H	Pass
5548	-39.46	-13	-26.46	-63.48	-46.53	2.65	9.72	H	Pass
7403	-42.99	-13	-29.99	-71.55	-52.14	2.46	11.61	H	Pass
9251	-42.56	-13	-29.56	-73.47	-52.62	2.54	12.60	H	Pass

<b>Band :</b>	GSM1900	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3700	-48.75	-13	-35.75	-67.01	-55.32	1.67	8.24	V	Pass
5548	-40.22	-13	-27.22	-62.26	-47.29	2.65	9.72	V	Pass
7403	-48.33	-13	-35.33	-76.62	-57.48	2.46	11.61	V	Pass
9251	-46.76	-13	-33.76	-77.29	-56.82	2.54	12.60	V	Pass



<Middle Channel>

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	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
3763	-45.12	-13	-32.12	-64.17	-51.75	1.69	8.32	H	Pass
5639	-37.08	-13	-24.08	-61.35	-44.13	2.71	9.76	H	Pass
7522	-39.50	-13	-26.50	-68.2	-48.89	2.42	11.81	H	Pass
9398	-43.52	-13	-30.52	-75.11	-53.49	2.57	12.54	H	Pass
11282	-39.42	-13	-26.42	-72.08	-49.12	2.68	12.39	H	Pass

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	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
3763	-44.63	-13	-31.63	-63.18	-51.26	1.69	8.32	V	Pass
5639	-38.23	-13	-25.23	-60.49	-45.28	2.71	9.76	V	Pass
7522	-47.52	-13	-34.52	-75.98	-56.91	2.42	11.81	V	Pass
9398	-47.22	-13	-34.22	-77.13	-57.19	2.57	12.54	V	Pass
11282	-44.58	-13	-31.58	-76.76	-54.28	2.68	12.39	V	Pass



<High Channel>

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Horizontal					
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3819	-39.00	-13	-26.00	-58.94	-45.68	1.70	8.38	H	Pass
5730	-33.49	-13	-20.49	-57.88	-40.52	2.76	9.79	H	Pass
7641	-41.26	-13	-28.26	-69.48	-50.76	2.38	11.88	H	Pass
9552	-44.61	-13	-31.61	-76.05	-54.48	2.60	12.47	H	Pass
11463	-38.89	-13	-25.89	-71.79	-48.52	2.68	12.31	H	Pass

<b>Band :</b>	GSM1900		<b>Temperature :</b>	23~24°C					
<b>Test Mode :</b>	EDGE class 8 Link (8PSK)		<b>Relative Humidity :</b>	51~52%					
<b>Test Engineer :</b>	Lewis He and Stan Hsieh		<b>Polarization :</b>	Vertical					
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3819	-44.60	-13	-31.60	-63.06	-51.28	1.70	8.38	V	Pass
5730	-33.18	-13	-20.18	-56.46	-40.21	2.76	9.79	V	Pass
7641	-46.23	-13	-33.23	-74.03	-55.73	2.38	11.88	V	Pass
9552	-47.44	-13	-34.44	-77.06	-57.31	2.60	12.47	V	Pass
11463	-43.79	-13	-30.79	-76.38	-53.42	2.68	12.31	V	Pass



<Low Channel>

<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	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
1654	-58.15	-13	-45.15	-67.74	-59.89	0.98	4.87	H	Pass
2485	-56.75	-13	-43.75	-69.73	-58.67	1.29	5.36	H	Pass
3307	-60.98	-13	-47.98	-77.4	-64.44	1.54	7.15	H	Pass

<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	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
1657	-56.59	-13	-43.59	-63.98	-58.32	0.98	4.86	V	Pass
2485	-58.08	-13	-45.08	-73.25	-60	1.29	5.36	V	Pass
3307	-61.94	-13	-48.94	-77.34	-65.4	1.54	7.15	V	Pass



<Middle Channel>

<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	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
1675	-58.42	-13	-45.42	-67.74	-60.09	0.99	4.81	H	Pass
2509	-57.80	-13	-44.80	-71.06	-59.76	1.29	5.41	H	Pass
3349	-60.47	-13	-47.47	-76.71	-64.1	1.56	7.34	H	Pass

<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	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
1675	-58.85	-13	-45.85	-65.95	-60.52	0.99	4.81	V	Pass
2509	-58.44	-13	-45.44	-73.77	-60.4	1.29	5.41	V	Pass
3350	-61.42	-13	-48.42	-76.68	-65.05	1.56	7.34	V	Pass



<High Channel>

<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	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
1696	-59.87	-13	-46.87	-69.35	-61.47	1.00	4.75	H	Pass
2545	-55.61	-13	-42.61	-69.32	-57.59	1.30	5.44	H	Pass
3391	-60.43	-13	-47.43	-76.85	-64.23	1.57	7.52	H	Pass

<b>Band :</b>	WCDMA Band V	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	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
1696	-57.45	-13	-44.45	-65.21	-59.05	1.00	4.75	V	Pass
2545	-58.59	-13	-45.59	-73.96	-60.57	1.30	5.44	V	Pass
3391	-61.02	-13	-48.02	-76.96	-64.82	1.57	7.52	V	Pass



<Low Channel>

<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	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
3707	-48.52	-13	-35.52	-67.02	-55.1	1.67	8.25	H	Pass
5562	-44.25	-13	-31.25	-68.4	-51.31	2.66	9.72	H	Pass
7410	-45.60	-13	-32.60	-74.83	-54.76	2.46	11.62	H	Pass

<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	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
3707	-50.68	-13	-37.68	-69.38	-57.26	1.67	8.25	V	Pass
5562	-44.54	-13	-31.54	-66.87	-51.6	2.66	9.72	V	Pass
7410	-47.32	-13	-34.32	-75.77	-56.48	2.46	11.62	V	Pass



<Middle Channel>

<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	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
3763	-53.09	-13	-40.09	-72.15	-59.72	1.69	8.32	H	Pass
5639	-42.21	-13	-29.21	-66.28	-49.26	2.71	9.76	H	Pass
7522	-45.08	-13	-32.08	-73.9	-54.47	2.42	11.81	H	Pass
9398	-44.18	-13	-31.18	-75.91	-54.15	2.57	12.54	H	Pass

<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	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
3763	-54.45	-13	-41.45	-73.32	-61.08	1.69	8.32	V	Pass
5639	-44.21	-13	-31.21	-66.33	-51.26	2.71	9.76	V	Pass
7522	-47.85	-13	-34.85	-76.07	-57.24	2.42	11.81	V	Pass
9398	-47.65	-13	-34.65	-76.94	-57.62	2.57	12.54	V	Pass



<High Channel>

<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Horizontal						
<b>Remark :</b>	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
3812	-53.61	-13	-40.61	-73.12	-60.28	1.70	8.37	H	Pass
5723	-39.29	-13	-26.29	-63.43	-46.33	2.75	9.79	H	Pass
7634	-45.18	-13	-32.18	-73.85	-54.67	2.39	11.88	H	Pass

<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C						
<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)	<b>Relative Humidity :</b>	51~52%						
<b>Test Engineer :</b>	Lewis He and Stan Hsieh	<b>Polarization :</b>	Vertical						
<b>Remark :</b>	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
3812	-55.18	-13	-42.18	-73.66	-61.85	1.70	8.37	V	Pass
5723	-40.21	-13	-27.21	-63.27	-47.25	2.75	9.79	V	Pass
7634	-46.89	-13	-33.89	-74.85	-56.38	2.39	11.88	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.

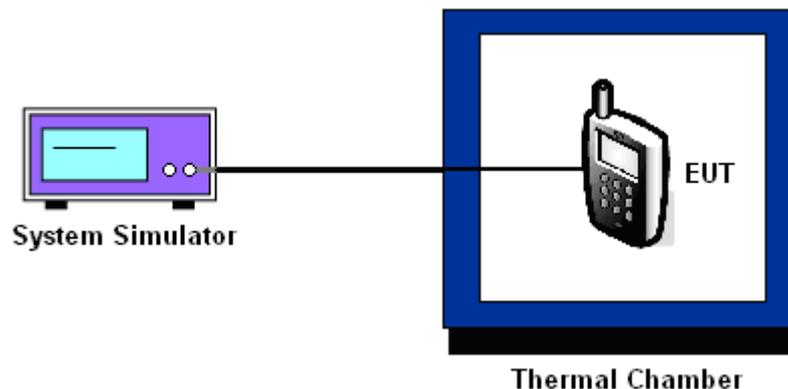
### 3.8.3 Test Procedures for Temperature Variation

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

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

Temperature (°C)	GPRS class 8	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0108	0.0203	PASS
40	0.0072	0.0227	
30	0.0024	0.0084	
20(Ref.)	0.0000	0.0000	
10	0.0048	0.0024	
0	0.0000	0.0060	
-10	0.0024	0.0084	
-20	0.0048	0.0311	
-30	0.0012	0.0072	

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

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

Temperature (°C)	GPRS class 8	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0149	0.0000	PASS
40	0.0016	0.0005	
30	0.0122	0.0016	
20(Ref.)	0.0000	0.0000	
10	0.0112	0.0011	
0	0.0011	0.0138	
-10	0.0016	0.0144	
-20	0.0016	0.0170	
-30	0.0016	0.0149	

**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	0.0155	PASS
40	0.0132	
30	0.0143	
20(Ref.)	0.0000	
10	0.0012	
0	0.0012	
-10	0.0024	
-20	0.0143	
-30	0.0000	

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

<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	0.0000	PASS
40	0.0021	
30	0.0005	
20(Ref.)	0.0000	
10	0.0011	
0	0.0069	
-10	0.0005	
-20	0.0011	
-30	0.0005	

**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	GPRS class 8	4.10	0.0036	2.5	PASS
		3.70	0.0000		
		BEP	0.0012		
	EDGE class 8	4.10	0.0084		
		3.70	0.0096		
		BEP	0.0048		
GSM 1900 CH661	GPRS class 8	4.10	0.0027	(Note 3.)	
		3.70	0.0005		
		BEP	0.0000		
	EDGE class 8	4.10	0.0160		
		3.70	0.0027		
		BEP	0.0027		
WCDMA Band V CH4182	RMC 12.2Kbps	4.10	0.0024	2.5	
		3.70	0.0155		
		BEP	0.0024		
WCDMA Band II CH9400	RMC 12.2Kbps	4.10	0.0069	(Note 3.)	
		3.70	0.0074		
		BEP	0.0011		

Note:

1. Normal Voltage = 3.70V.
2. Battery End Point (BEP) = 3.50 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	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Jun. 14, 2014	May 19, 2015 ~ May 20, 2015	Jun. 13, 2015	Conducted (TH03-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Jul. 29, 2014	May 19, 2015 ~ May 20, 2015	Jul. 28, 2015	Conducted (TH03-HY)
Hygrometer	Testo	608-H1	34893241	N/A	May. 04, 2015	May 19, 2015 ~ May 20, 2015	May. 03, 2016	Conduction (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30~70°	Dec. 01, 2014	May 19, 2015 ~ May 20, 2015	Nov. 30, 2015	Conducted (TH03-HY)
RF cable	WOKEN	S05	S05-130708-22	N/A	Jan. 21, 2015	May 19, 2015 ~ May 20, 2015	Jan. 20, 2016	Conducted (TH03-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Nov. 20, 2014	May 19, 2015 ~ May 20, 2015	Nov. 19, 2015	Radiation (03CH10-HY)
Amplifier	SONOMA	310N	187311	0.1MHz~1000MHz	Nov. 24, 2014	May 08, 2015 ~ May 09, 2015	Nov. 23, 2015	Radiation (03CH10-HY)
Preamplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	Jun. 09, 2014	May 08, 2015 ~ May 09, 2015	Jun. 08, 2015	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D	35413	30MHz~1GHz	Oct. 24, 2014	May 08, 2015 ~ May 09, 2015	Oct. 23, 2015	Radiation (03CH10-HY)
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Oct. 03, 2014	May 08, 2015 ~ May 09, 2015	Oct. 02, 2015	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 03, 2014	May 08, 2015 ~ May 09, 2015	Nov. 02, 2015	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHZ	Oct. 14, 2014	May 08, 2015 ~ May 09, 2015	Oct. 13, 2015	Radiation (03CH10-HY)
EMI Test Receiver	Keysight	N9038A	MY54130085	20Hz ~ 26.5GHz	Nov. 05, 2014	May 08, 2015 ~ May 09, 2015	Nov. 04, 2015	Radiation (03CH10-HY)
Controller	E MEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	May 08, 2015 ~ May 09, 2015	N/A	Radiation (03CH10-HY)
Turn Table	E MEC	TT 2200	N/A	0-360 degree	N/A	May 08, 2015 ~ May 09, 2015	N/A	Radiation (03CH10-HY)
Antenna Mast	E MEC	AM-BS-4500-B	N/A	1~4m	N/A	May 08, 2015 ~ May 09, 2015	N/A	Radiation (03CH10-HY)
Hygrometer	TECPEL	DTM-303B	TP140320	N/A	Nov. 17, 2014	May 08, 2015 ~ May 09, 2015	Nov. 16, 2015	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24956/4 MY24952/4M Y28386/4	25GHz~40GHz	Nov. 06, 2014	May 08, 2015 ~ May 09, 2015	Nov. 05, 2015	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24956/4 MY24952/4M Y28386/4	30MHz~1GHz	Nov. 06, 2014	May 08, 2015 ~ May 09, 2015	Nov. 05, 2015	Radiation (03CH10-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY249564 MY249524M Y283864	1GHz~25GHz	Nov. 06, 2014	May 08, 2015 ~ May 09, 2015	Nov. 05, 2015	Radiation (03CH10-HY)
Test Software	Audix	E3	6.2009-8-24	N/A	N/A	May 08, 2015~ May 09, 2015	N/A	Radiation (03CH10-HY)

**Note:** Test equipment calibration is traceable to the procedure of ISO17025.



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Filter	Wainwright	WLKS1200-8 SS	SN3	1.2G Low Pass	Oct. 01, 2014	May 08, 2015~ May 09, 2015	Sep. 30, 2015	Radiation (03CH10-HY)
Filter	Wainwright	WHK1.5/15G- 10SS	SN32	1.5G High Pass	Oct. 01, 2014	May 08, 2015~ May 09, 2015	Sep. 30, 2015	Radiation (03CH10-HY)
Filter	Microwave	H3G018G1	SN477220	3.0G High Pass	Oct. 01, 2014	May 08, 2015~ May 09, 2015	Sep. 30, 2015	Radiation (03CH10-HY)
Notch Filter	Wainwright	WRCG824/84 9-40/8SS	SN35	CDMA 850	Oct. 01, 2014	May 08, 2015~ May 09, 2015	Sep. 30, 2015	Radiation (03CH10-HY)
Notch Filter	Wainwright	WRCT1850/1 910-40/8SS	SN21	1900	Oct. 01, 2014	May 08, 2015~ May 09, 2015	Sep. 30, 2015	Radiation (03CH10-HY)

**Note:** Test equipment calibration is traceable to the procedure of ISO17025.



## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.9
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