FCC/IC RF Test Report

APPLICANT	:	Sony Mobile Communications Inc.
EQUIPMENT	:	Smart phone
BRAND NAME	:	SONY
TYPE NAME	:	PM-0862-BV
FCC ID	:	PY7-PM0862
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E) IC RSS-132 issue 3 and RSS-133 issue 6
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Dec. 31, 2014 and testing was completed on Jan. 28, 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

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG4D3143A	Rev. 01	Initial issue of report	Mar. 24, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	RSS-132 (5.4) RSS-133 (6.4)	Conducted Output Power	Reporting Only	PASS	-
3.2	§24.232(d)	RSS-132 (5.4) RSS-133(6.4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.4	§2.1049 §22.917(b) §24.238(b)	RSS-GEN(6.6) RSS-133(2.3)	Occupied Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Band Edge Measurement	< $43+10\log_{10}$(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Conducted Spurious Emission	< $43+10\log_{10}$(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Field Strength of Spurious Radiation	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 13.52 dB at 3819.000 MHz
3.8	§2.1055 §22.355	RSS-GEN(6.11) RSS-132 (5.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22 Within Authorized Band	PASS	-
	§2.1055 §24.235	RSS-GEN(6.11) RSS-133 (6.3)				

1 General Description

1.1 Applicant

Sony Mobile Communications Inc.
Nya Vattentornet, 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.

Product Feature	
Equipment	Smart phone
Brand Name	SONY
Type Name	PM-0862-BV
FCC ID	PY7-PM0862
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	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 32.55 dBm GSM1900 : 29.48 dBm WCDMA Band V : 23.99 dBm WCDMA Band II : 22.48 dBm
Antenna Type / Gain	GSM850: Coupling type (LDS) Antenna / -7.70 dBi GSM1900: Coupling type (LDS) Antenna / -4.70 dBi WCDMA Band V: Coupling type (LDS) Antenna / -7.70 dBi WCDMA Band II: Coupling type (LDS) Antenna / -4.70 dBi
Type of Modulation	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: 004402453877429 IMEI 2:004402453877437	A	27.1.B.0.38	RS4C19D16933	Conducted Measurement Radiated Spurious Emission ERP / EIRP Test

Accessory List	
AC Adapter	Model No. : EP800
	Type No. : AC-0030-US
	S/N : 3113W46622783
Battery	Model No. : Ram
Earphone	Model No. : MH410c
	Type No. : AG-1103
	S/N : 1411204C00BC7D0
USB Cable	Model No. : EC450
	Type No. : AI-0700
	S/N : 143912D8330504A

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 GSM	GMSK	0.5728	0.0084 ppm	246KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.1633	0.0347 ppm	252KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.0849	0.0143 ppm	4M23F9W
Part 24	GSM1900 GSM	GMSK	0.5610	0.0149 ppm	246KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.2723	0.0149 ppm	256KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.1596	0.0117 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.

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st 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		
Test Site No.	**Sporton Site No.**		**IC Registration No.**
	TH02-HY	03CH07-HY	4086B-1

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
- IC RSS-132 Issue 3
- IC RSS-133 Issue 6
- IC RSS-Gen Issue 4
- NOTICE 2012-DRS0126

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.
3. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.

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	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
GSM 1900	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

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

GSM mode for GMSK modulation,

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

RMC 12.2Kbps mode for WCDMA band V and WCDMA band II,

only these modes were used for all tests.

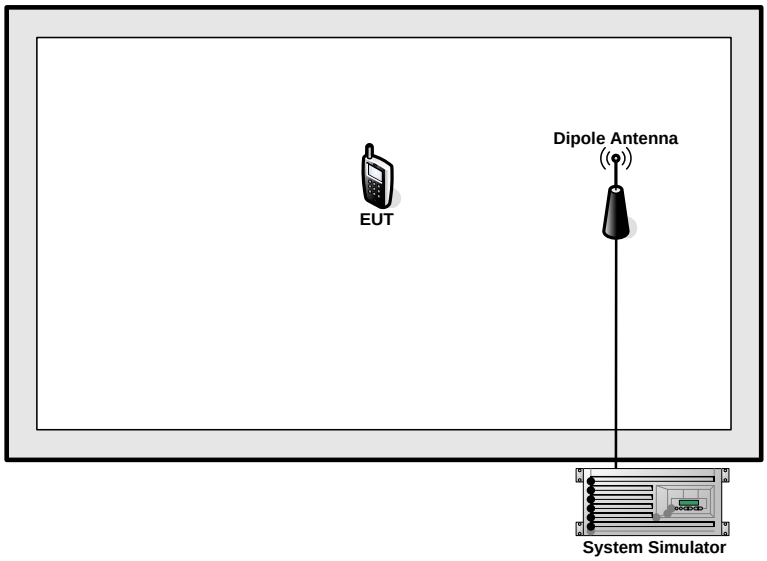
Conducted Power Measurement Results:

Conducted Power (*Unit: dBm)						
Band	**GSM850**			**GSM1900**		
Channel	**128**	**189**	**251**	**512**	**661**	**810**
Frequency	**824.2**	**836.4**	**848.8**	**1850.2**	**1880.0**	**1909.8**
GSM	32.45	32.49	**32.55**	**29.48**	29.36	29.38
GPRS class 8	32.44	32.28	32.54	29.45	29.33	29.37
GPRS class 10	30.42	30.42	30.52	26.63	26.51	26.50
GPRS class 11	29.40	29.43	29.48	25.56	25.43	25.42
GPRS class 12	28.50	28.51	28.56	24.62	24.49	24.50
EGPRS class 8	29.32	29.17	29.00	26.13	26.06	26.18
EGPRS class 10	28.44	28.29	28.12	25.21	25.15	25.26
EGPRS class 11	27.41	27.28	27.11	23.70	23.95	24.32
EGPRS class 12	26.37	26.20	26.02	22.63	22.87	23.16

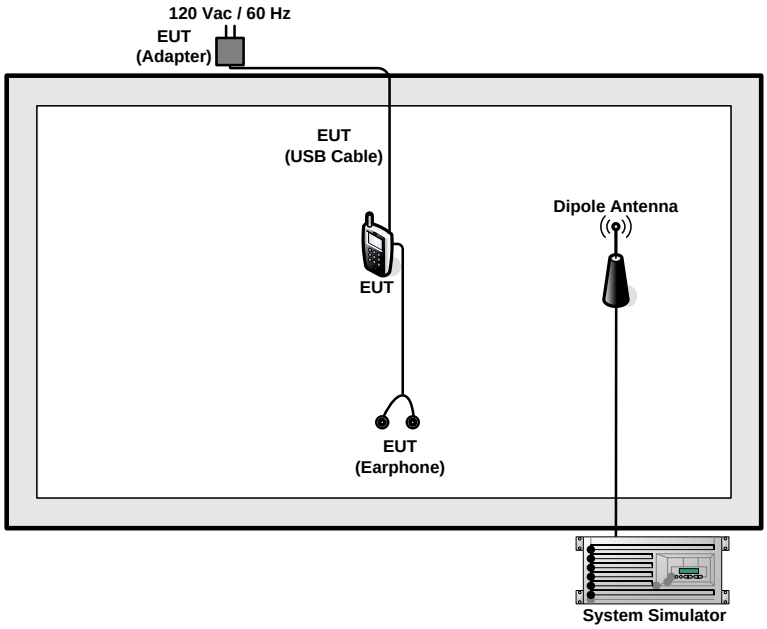
Conducted Power (*Unit: dBm)						
Band	**WCDMA Band V**			**WCDMA Band II**		
Channel	**4132**	**4182**	**4233**	**9262**	**9400**	**9538**
Frequency	**826.4**	**836.4**	**846.6**	**1852.4**	**1880.0**	**1907.6**
RMC 12.2K	23.98	23.97	**23.99**	22.46	22.46	**22.48**
HSDPA Subtest-1	22.95	22.93	22.94	21.45	21.48	21.46
HSDPA Subtest-2	22.94	22.93	22.93	21.44	21.47	21.49
HSDPA Subtest-3	22.44	22.50	22.43	20.92	20.98	20.91
HSDPA Subtest-4	22.41	22.47	22.41	20.91	20.92	20.95
HSUPA Subtest-1	21.03	21.04	21.05	19.55	19.51	19.53
HSUPA Subtest-2	20.98	20.93	20.98	19.42	19.48	19.49
HSUPA Subtest-3	21.95	21.93	21.93	20.44	20.50	20.48
HSUPA Subtest-4	20.45	20.48	20.52	19.00	18.97	19.01
HSUPA Subtest-5	22.95	22.94	22.96	21.43	21.49	21.45

2.2 Connection Diagram of Test System

<EUT without Accessory for Cellular Band>



<EUT with Accessory for PCS Band>



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 (dB)

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

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

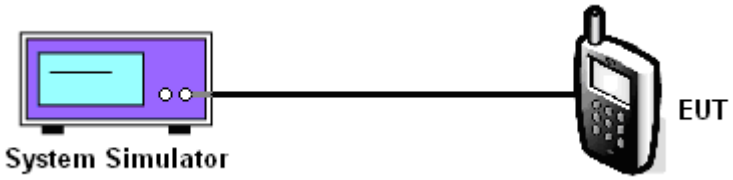
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

Cellular Band									
Modes	GSM850 (GSM)			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)	32.45	32.49	32.55	29.32	29.17	29.00	23.98	23.97	23.99

PCS Band									
Modes	GSM1900 (GSM)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Conducted Power (dBm)	29.48	29.36	29.38	26.13	26.06	26.18	22.46	22.46	22.48

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.

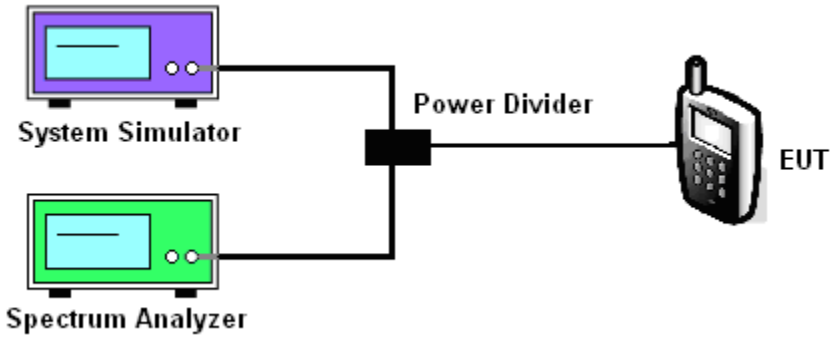
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. Set EUT to transmit at maximum output power.
4. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer.
6. 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

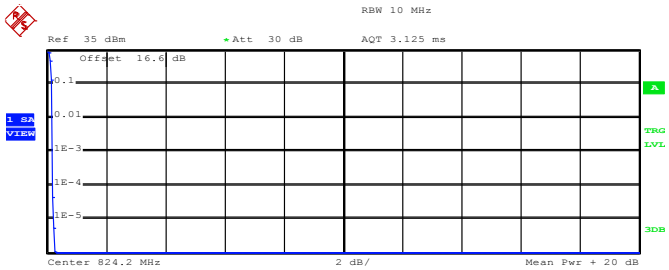
Cellular Band									
Modes	GSM850 (GSM)			GSM850 (EDGE class 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6
Peak-to-Average Ratio (dB)	0.20	0.20	0.20	3.32	3.24	3.16	2.40	2.96	2.96

PCS Band									
Modes	GSM1900 (GSM)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	0.24	0.28	0.24	3.28	3.20	3.24	3.00	2.72	2.32

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

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

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



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	29.64 dBm
Peak	29.89 dBm
Crest	0.25 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.20 dB

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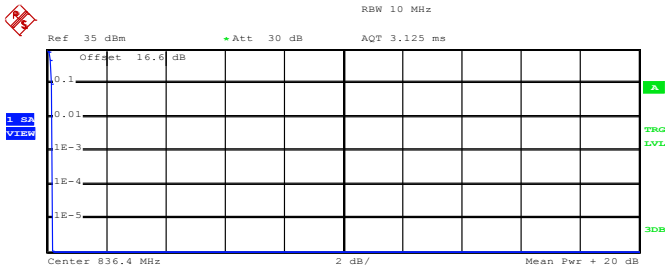
Peak-to-Average Ratio on Channel 189 (836.4 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	30.21 dBm
Peak	30.38 dBm
Crest	0.17 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.20 dB

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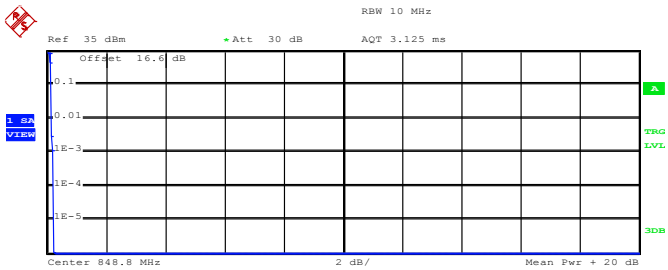
Peak-to-Average Ratio on Channel 251 (848.8 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	30.37 dBm
Peak	30.59 dBm
Crest	0.22 dB
10 %	0.16 dB
1 %	0.16 dB
.1 %	0.20 dB
.01 %	0.24 dB

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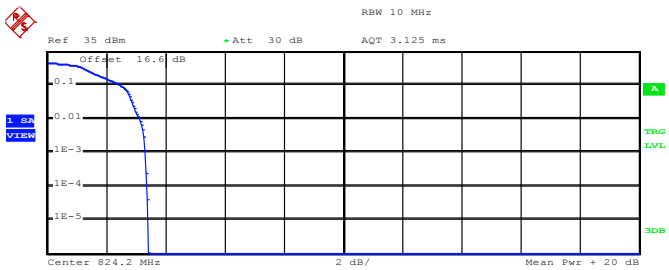
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)

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



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	26.49 dBm
Peak	29.89 dBm
Crest	3.40 dB
10 %	2.48 dB
1 %	3.16 dB
.1 %	3.32 dB
.01 %	3.40 dB

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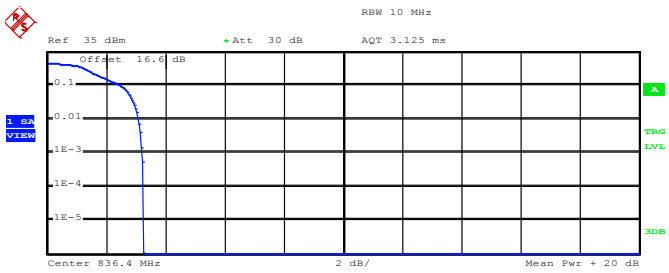
Peak-to-Average Ratio on Channel 189 (836.4 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	27.18 dBm
Peak	30.45 dBm
Crest	3.27 dB
10 %	2.48 dB
1 %	3.08 dB
.1 %	3.24 dB
.01 %	3.28 dB

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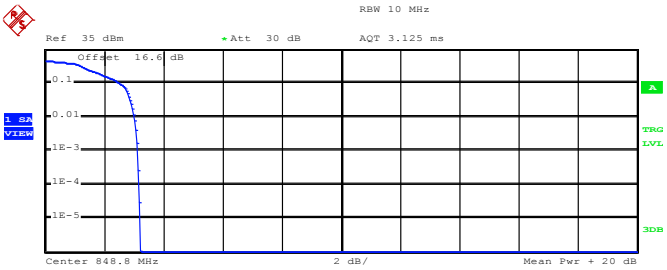
Peak-to-Average Ratio on Channel 251 (848.8 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	27.50 dBm
Peak	30.73 dBm
Crest	3.23 dB
10 %	2.52 dB
1 %	3.04 dB
.1 %	3.16 dB
.01 %	3.20 dB

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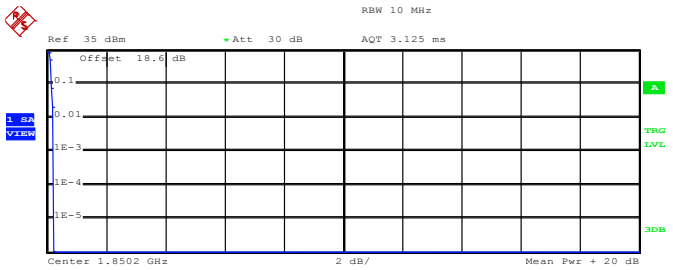
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)

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

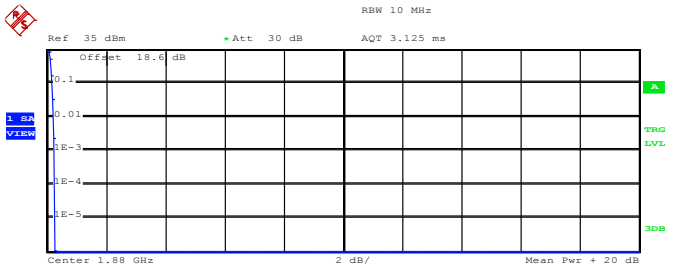


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	25.84 dBm
Peak	26.08 dBm
Crest	0.23 dB
10 %	0.16 dB
1 %	0.24 dB
.1 %	0.24 dB
.01 %	0.24 dB

Date: 28.JAN.2015 17:15:33

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

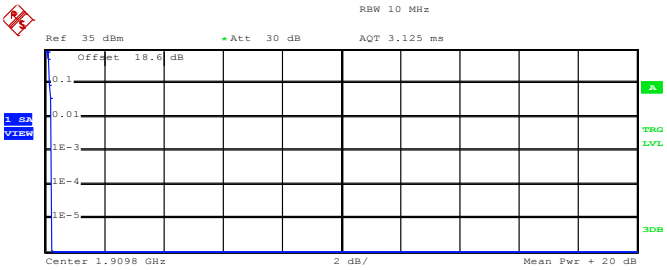


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	26.82 dBm
Peak	27.07 dBm
Crest	0.24 dB
10 %	0.20 dB
1 %	0.24 dB
.1 %	0.28 dB
.01 %	0.28 dB

Date: 28.JAN.2015 17:15:50

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



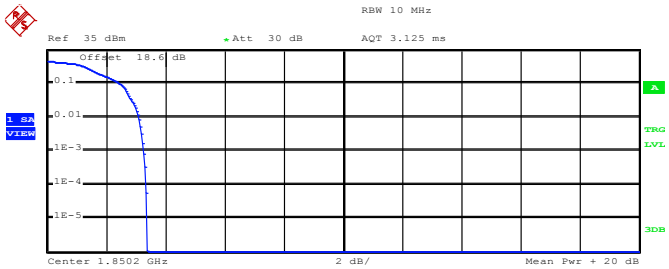
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	25.64 dBm
Peak	25.87 dBm
Crest	0.23 dB
10 %	0.16 dB
1 %	0.24 dB
.1 %	0.24 dB
.01 %	0.24 dB

Date: 28.JAN.2015 17:16:03

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

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

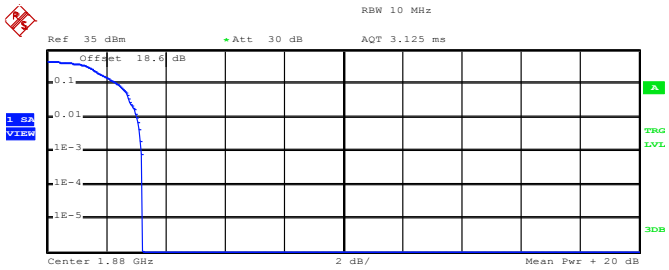


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	25.54 dBm
Peak	28.90 dBm
Crest	3.36 dB
10 %	2.48 dB
1 %	3.12 dB
.1 %	3.28 dB
.01 %	3.36 dB

Date: 28.JAN.2015 17:28:05

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

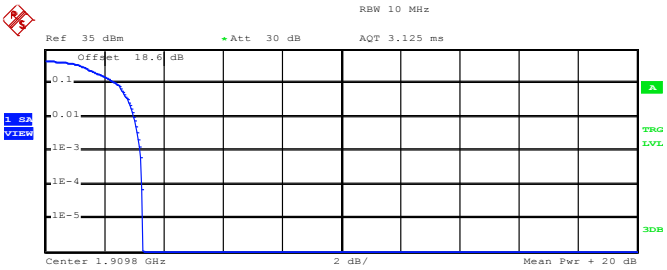


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	26.87 dBm
Peak	30.10 dBm
Crest	3.23 dB
10 %	2.40 dB
1 %	3.04 dB
.1 %	3.20 dB
.01 %	3.24 dB

Date: 28.JAN.2015 17:28:16

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



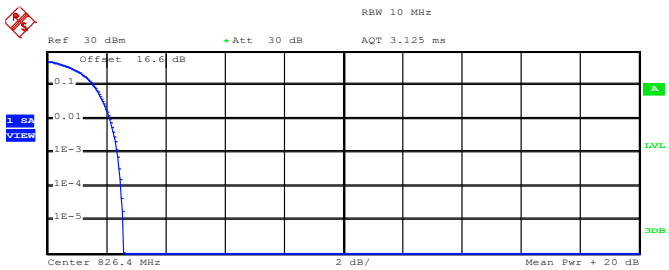
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	25.55 dBm
Peak	28.83 dBm
Crest	3.28 dB
10 %	2.44 dB
1 %	3.00 dB
.1 %	3.24 dB
.01 %	3.28 dB

Date: 28.JAN.2015 17:28:28

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

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

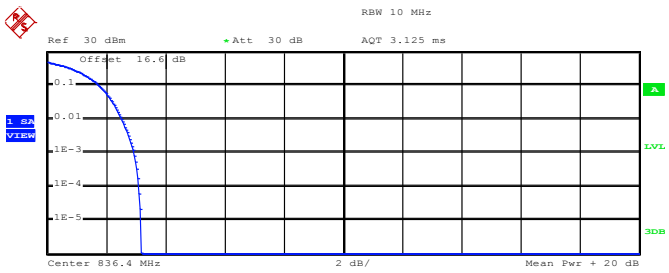


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.65 dBm
Peak	26.23 dBm
Crest	2.58 dB
10 %	1.56 dB
1 %	2.12 dB
.1 %	2.40 dB
.01 %	2.52 dB

Date: 28.JAN.2015 17:49:03

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

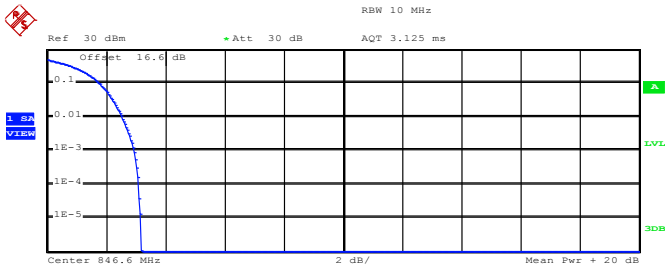


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.39 dBm
Peak	26.58 dBm
Crest	3.19 dB
10 %	1.76 dB
1 %	2.52 dB
.1 %	2.96 dB
.01 %	3.12 dB

Date: 28.JAN.2015 17:49:13

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



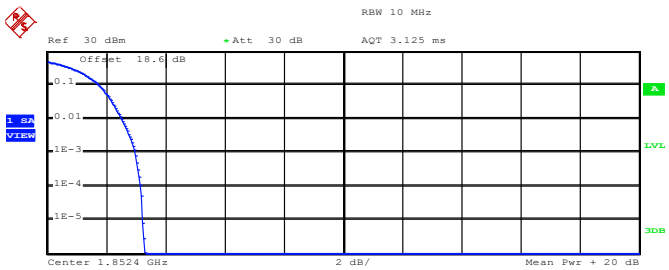
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.39 dBm
Peak	26.58 dBm
Crest	3.19 dB
10 %	1.80 dB
1 %	2.52 dB
.1 %	2.96 dB
.01 %	3.12 dB

Date: 28.JAN.2015 17:49:28

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

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

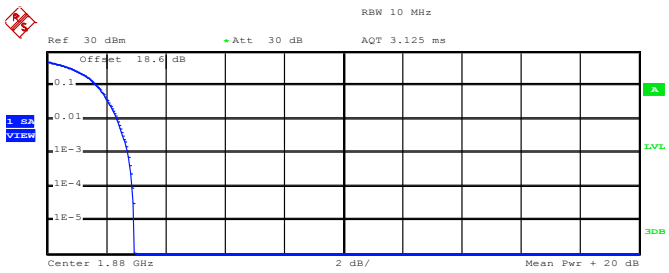


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	21.95 dBm
Peak	25.24 dBm
Crest	3.29 dB
10 %	1.76 dB
1 %	2.52 dB
.1 %	3.00 dB
.01 %	3.16 dB

Date: 28.JAN.2015 17:40:07

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

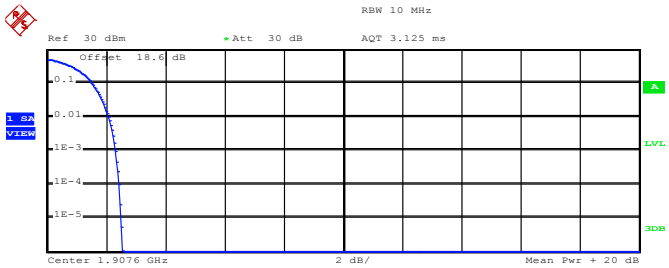


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.80 dBm
Peak	25.73 dBm
Crest	2.94 dB
10 %	1.68 dB
1 %	2.36 dB
.1 %	2.72 dB
.01 %	2.88 dB

Date: 28.JAN.2015 17:40:16

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



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.47 dBm
Peak	25.03 dBm
Crest	2.56 dB
10 %	1.52 dB
1 %	2.08 dB
.1 %	2.32 dB
.01 %	2.44 dB

Date: 28.JAN.2015 17:40:25

3.3 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band).

3.3.2 Measuring Instruments

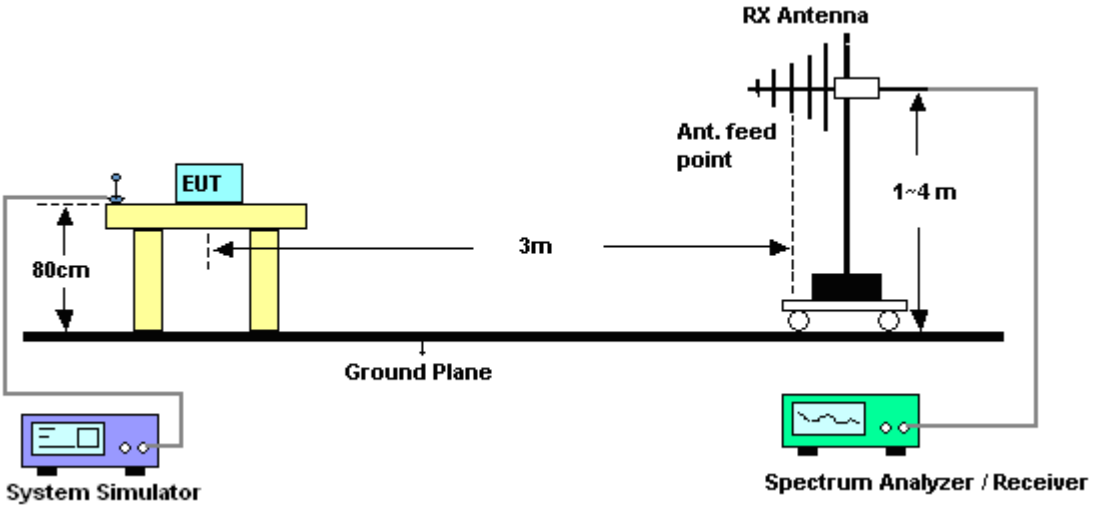
The measuring equipment is listed in the section 4 of this test report.

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 dipole antenna (substitution antenna) at the 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 + Correction factor and ERP = EIRP – 2.15 .

	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 (GSM) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.20	-3.89	31.54	25.50	0.3548
836.40	-3.52	32.04	26.37	0.4335
848.80	-2.86	32.59	27.58	0.5728
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.20	-16.64	32.93	14.14	0.0259
836.40	-15.52	32.82	15.15	0.0327
848.80	-14.85	33.62	16.62	0.0459

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

GSM850 (EDGE class 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.20	-8.71	31.54	20.68	0.1169
836.40	-8.68	32.04	21.21	0.1321
848.80	-8.31	32.59	22.13	0.1633
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.20	-21.45	32.93	9.33	0.0086
836.40	-21.63	32.82	9.04	0.0080
848.80	-20.19	33.62	11.28	0.0134

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.40	-10.29	31.44	19.00	0.0794
836.40	-10.68	32.04	19.21	0.0834
846.60	-11.19	32.63	19.29	0.0849
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.40	-23.73	32.78	6.90	0.0049
836.40	-23.35	32.82	7.32	0.0054
846.60	-23.47	33.4	7.78	0.0060

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

3.3.6 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-17.85	45.34	27.49	0.5610
1880.0	-19.62	46.01	26.39	0.4355
1909.8	-19.76	45.81	26.05	0.4027
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-23.20	49.22	26.02	0.3999
1880.0	-24.92	50.42	25.50	0.3548
1909.8	-24.26	49.00	24.74	0.2979

* EIRP = LVL (dBm) + Correction Factor (dB)

GSM1900 (EDGE class 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-21.68	45.34	23.66	0.2323
1880.0	-23.50	46.01	22.51	0.1782
1909.8	-23.81	45.81	22.00	0.1585
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-24.87	49.22	24.35	0.2723
1880.0	-27.27	50.42	23.15	0.2065
1909.8	-27.73	49.00	21.27	0.1340

* EIRP = LVL (dBm) + Correction Factor (dB)

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-23.34	45.37	22.03	0.1596
1880.00	-24.75	46.01	21.26	0.1337
1907.60	-25.09	45.87	20.78	0.1197
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-28.58	49.23	20.65	0.1161
1880.00	-30.60	50.42	19.82	0.0959
1907.60	-29.45	49.04	19.59	0.0910

* EIRP = LVL (dBm) + Correction Factor (dB)

3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

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

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

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

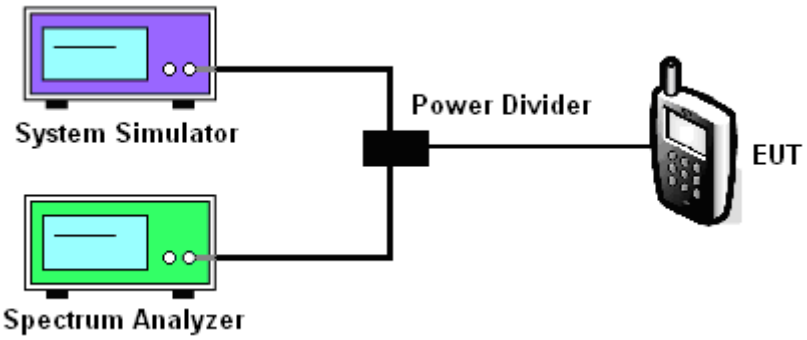
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

Cellular Band						
Modes	**GSM850 (GSM)**			**GSM850 (EDGE class 8)**		
Channel	**128 (Low)**	**189 (Mid)**	**251 (High)**	**128 (Low)**	**189 (Mid)**	**251 (High)**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**824.2**	**836.4**	**848.8**
99% OBW (kHz)	246.00	244.00	245.00	250.00	252.00	249.00
26dB BW (kHz)	318.00	311.00	315.00	313.00	312.00	303.00

PCS Band						
Modes	**GSM1900 (GSM)**			**GSM1900 (EDGE class 8)**		
Channel	**512 (Low)**	**661 (Mid)**	**810 (High)**	**512 (Low)**	**661 (Mid)**	**810 (High)**
Frequency (MHz)	**1850.2**	**1880**	**1909.8**	**1850.2**	**1880**	**1909.8**
99% OBW (kHz)	244.00	246.00	246.00	251.00	255.00	256.00
26dB BW (kHz)	314.00	304.00	311.00	309.00	305.00	313.00

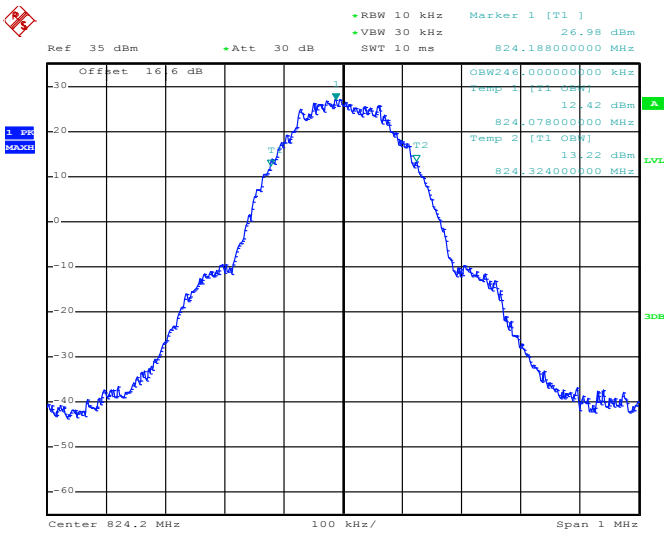
Cellular Band			
Modes	**WCDMA Band V (RMC 12.2Kbps)**		
Channel	**4132 (Low)**	**4182 (Mid)**	**4233 (High)**
Frequency (MHz)	**826.4**	**836.4**	**846.6**
99% OBW (MHz)	4.23	4.20	4.21
26dB BW (MHz)	4.87	4.85	4.87

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)	4.21	4.22	4.21
26dB BW (MHz)	4.84	4.88	4.88

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

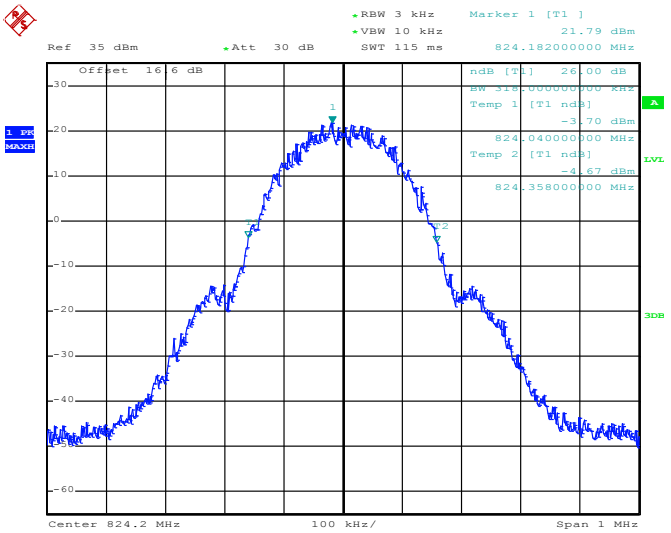
Band :	GSM 850	Test Mode :	GSM Link (GMSK)

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



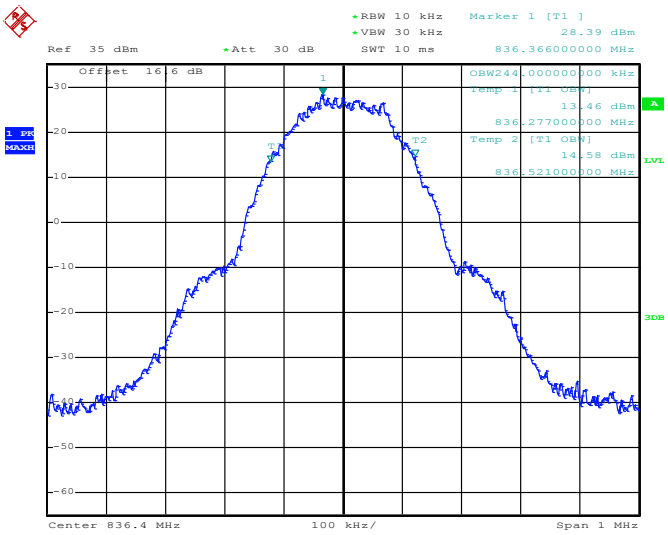
Date: 28.JAN.2015 16:47:22

26dB Bandwidth Plot on Channel 128 (824.2 MHz)



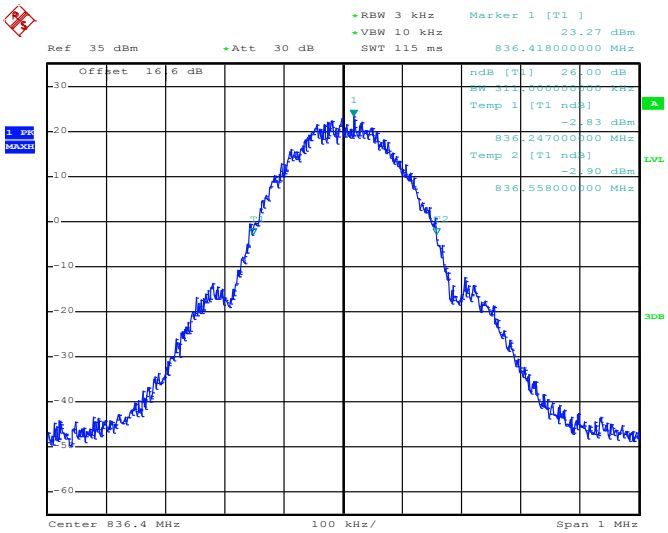
Date: 28.JAN.2015 16:44:32

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



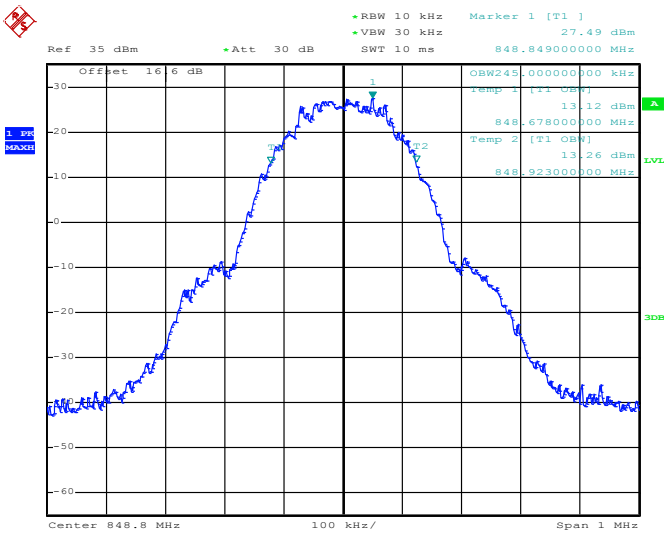
Date: 28.JAN.2015 16:47:50

26dB Bandwidth Plot on Channel 189 (836.4 MHz)



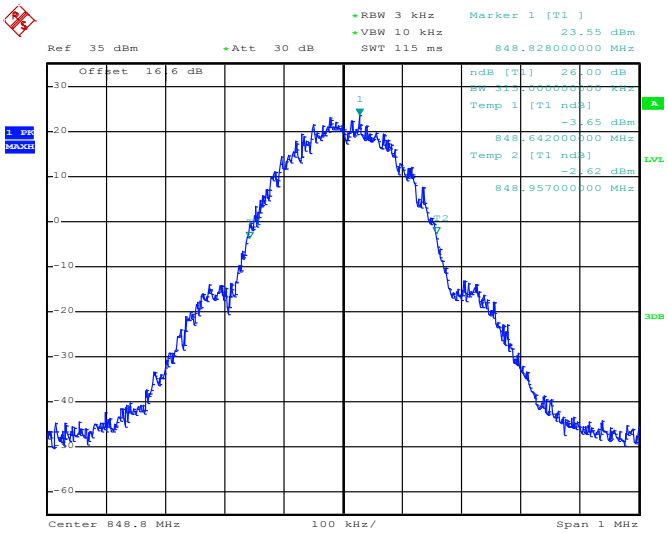
Date: 28.JAN.2015 16:45:00

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



Date: 28.JAN.2015 16:48:19

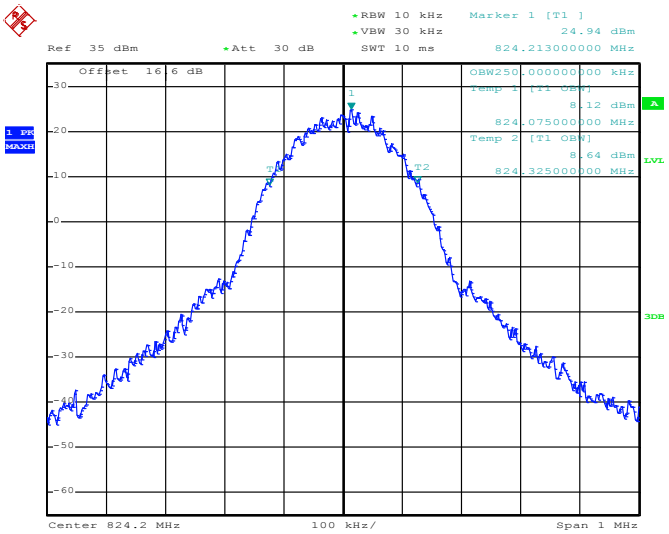
26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 28.JAN.2015 16:45:29

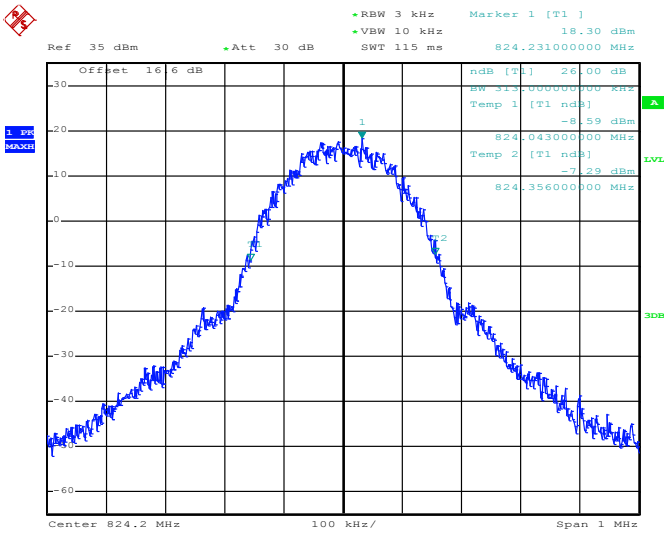
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)

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



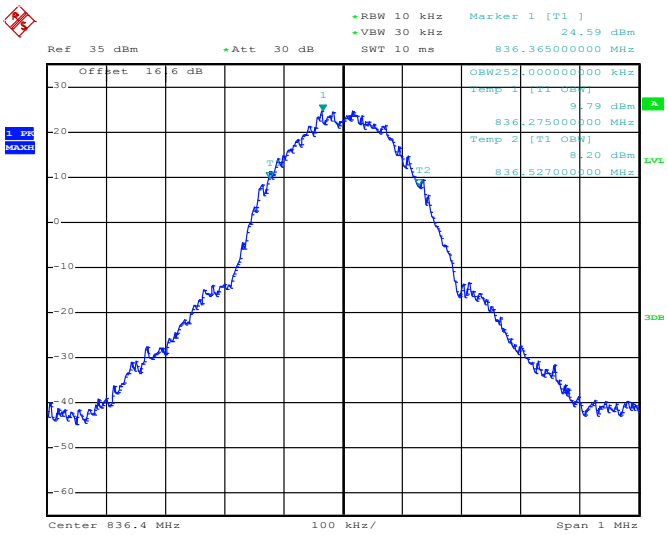
Date: 28.JAN.2015 17:01:11

26dB Bandwidth Plot on Channel 128 (824.2 MHz)



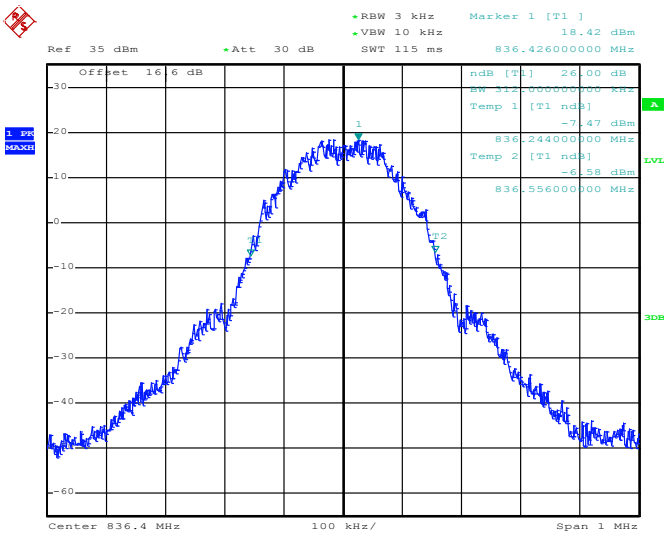
Date: 28.JAN.2015 16:59:38

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



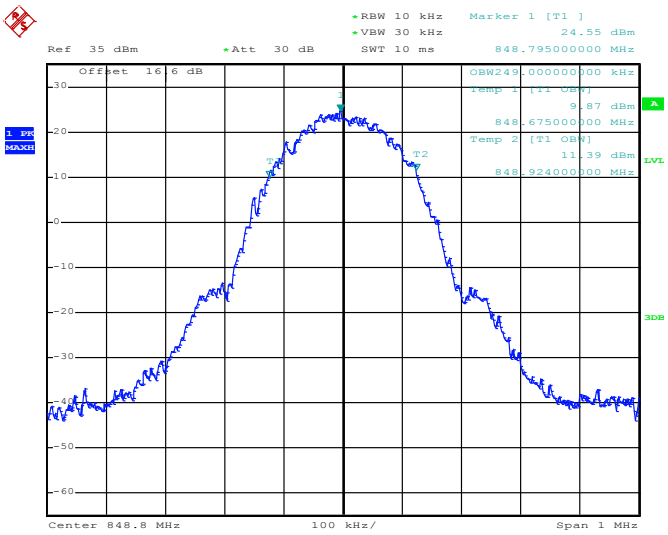
Date: 28.JAN.2015 17:01:40

26dB Bandwidth Plot on Channel 189 (836.4 MHz)



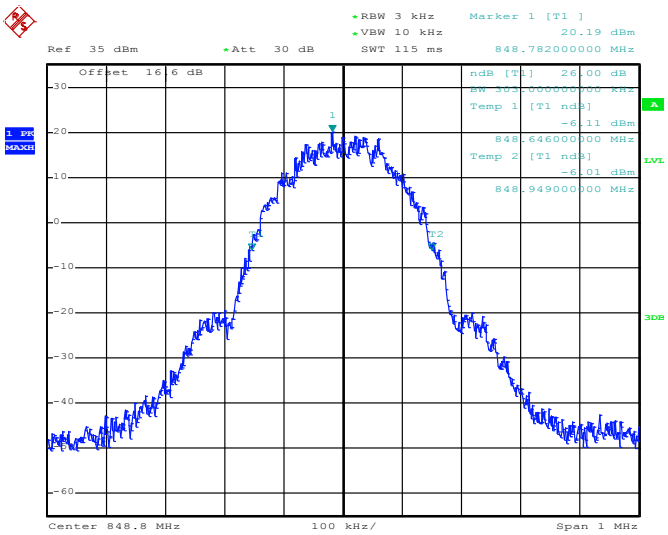
Date: 28.JAN.2015 17:00:08

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



Date: 28.JAN.2015 17:02:09

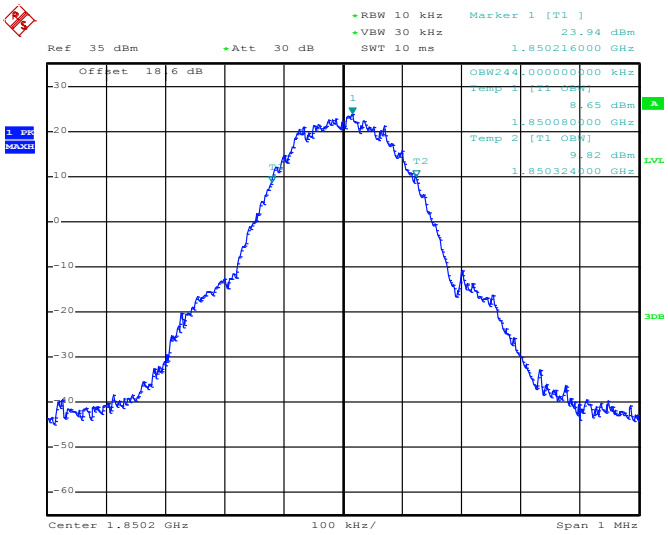
26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 28.JAN.2015 17:00:36

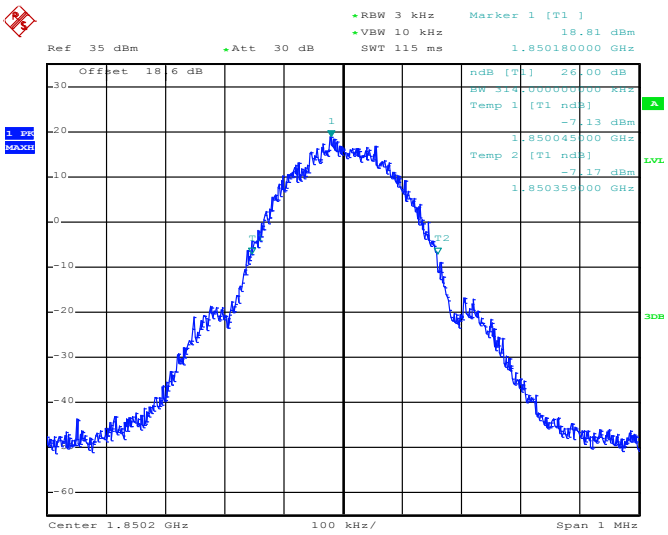
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)

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



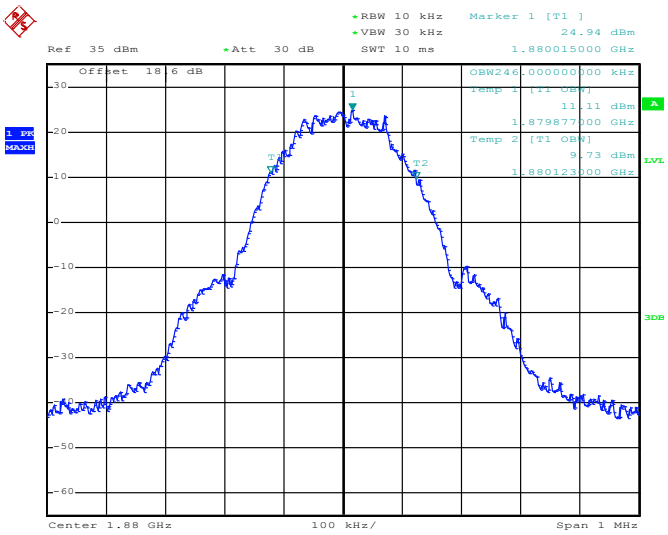
Date: 28.JAN.2015 17:09:54

26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



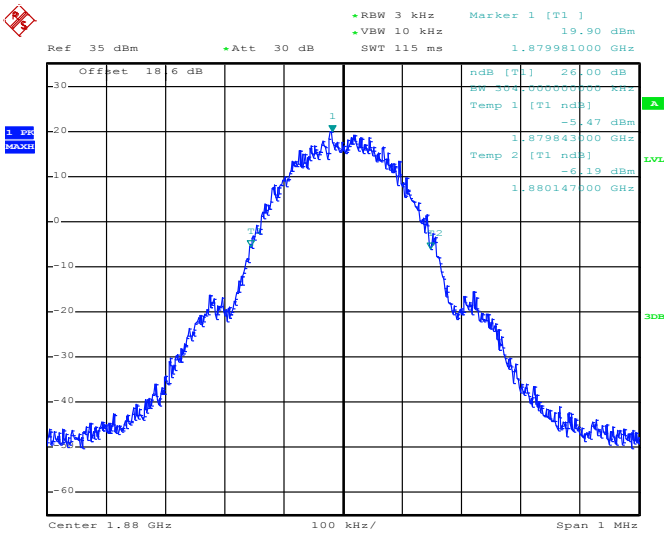
Date: 28.JAN.2015 17:08:22

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



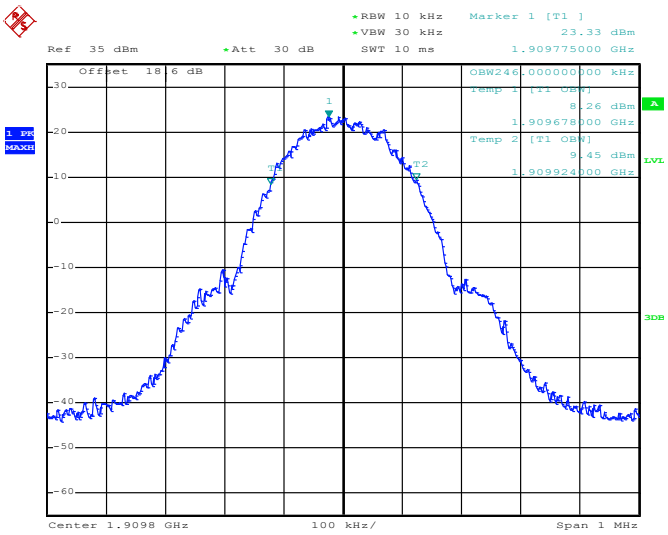
Date: 28.JAN.2015 17:10:22

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



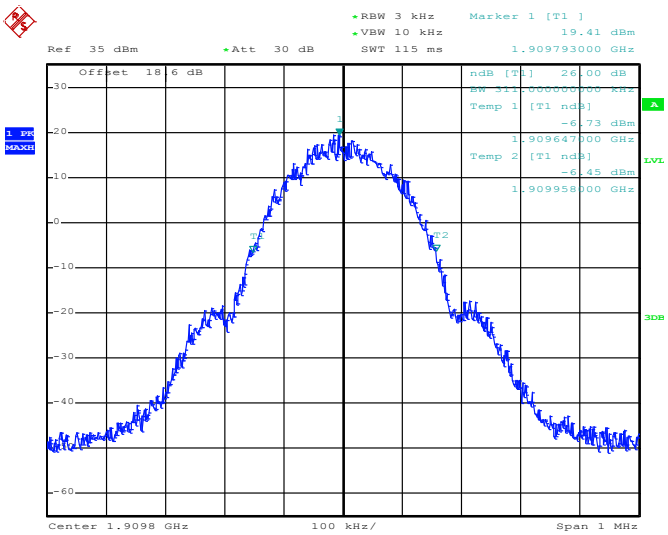
Date: 28.JAN.2015 17:08:51

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



Date: 28.JAN.2015 17:10:51

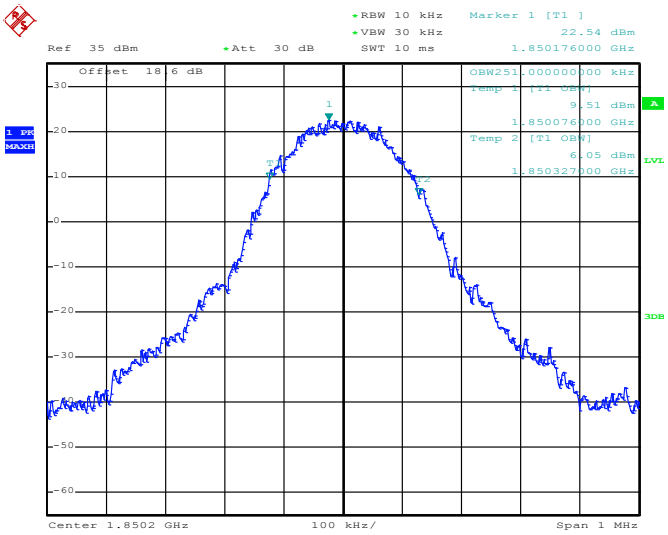
26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 28.JAN.2015 17:09:19

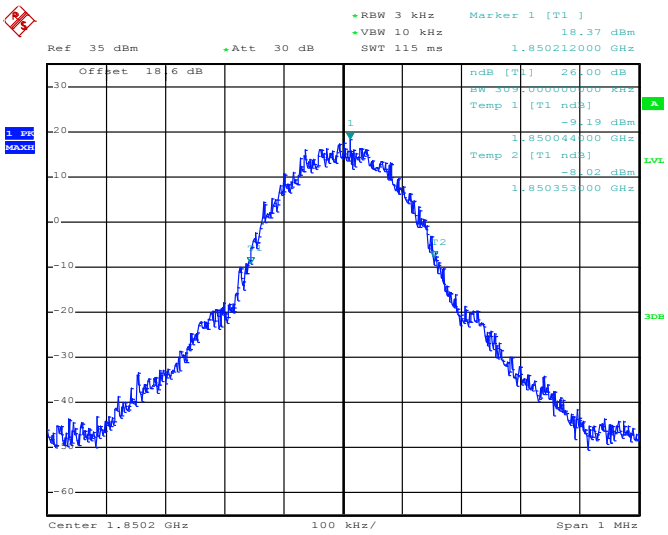
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)

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



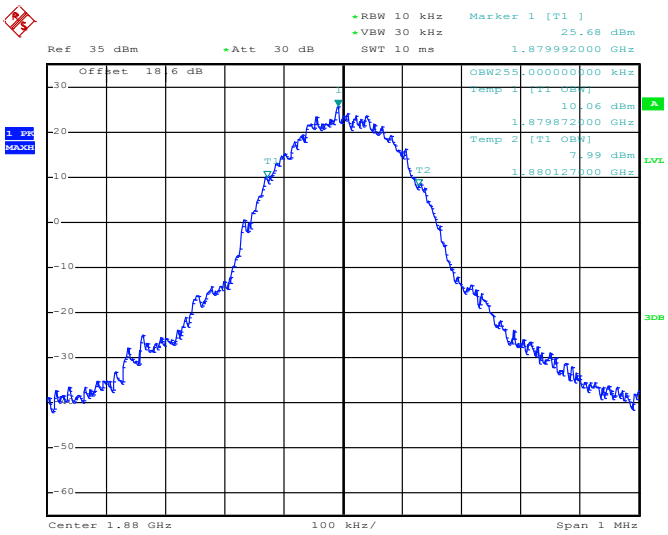
Date: 28.JAN.2015 17:22:58

26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



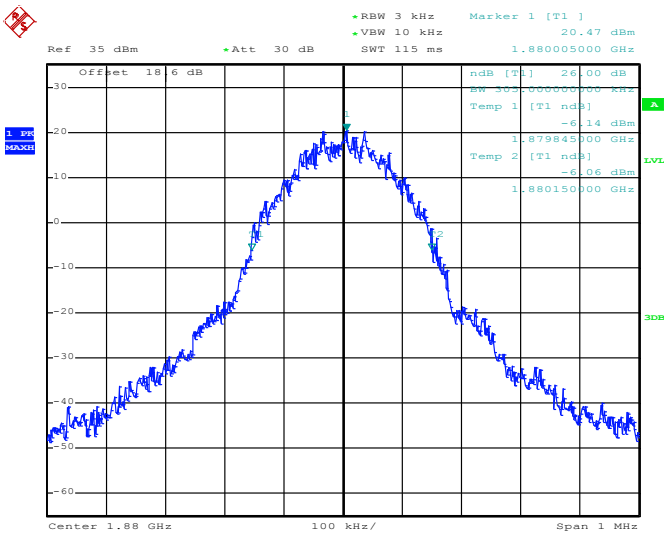
Date: 28.JAN.2015 17:21:22

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



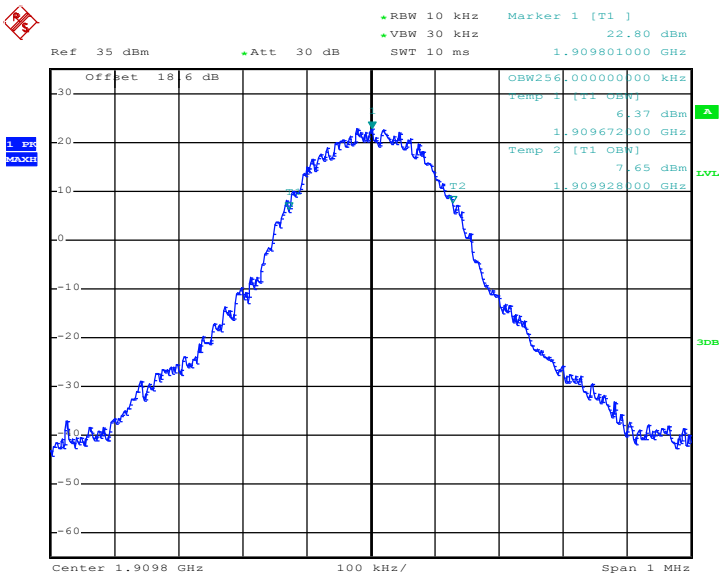
Date: 28.JAN.2015 17:23:27

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



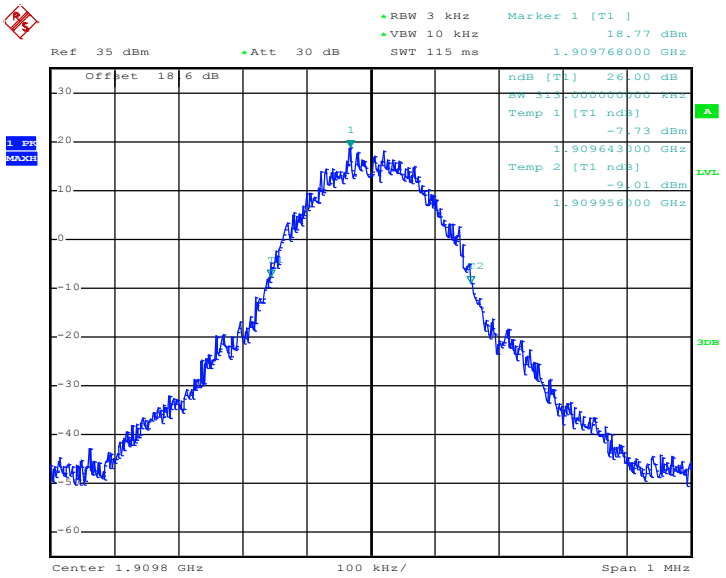
Date: 28.JAN.2015 17:21:51

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



Date: 28.JAN.2015 17:23:55

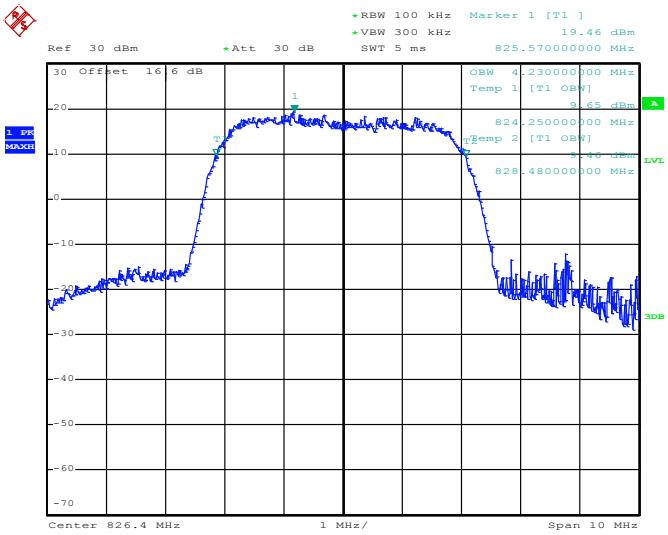
26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 28.JAN.2015 17:22:19

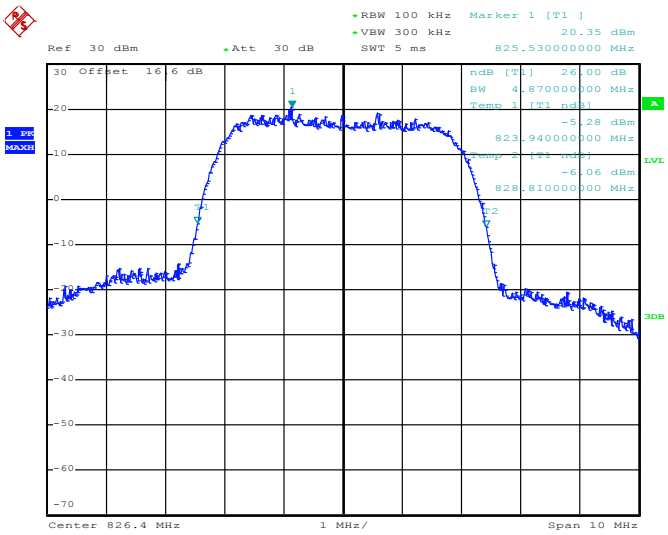
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

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



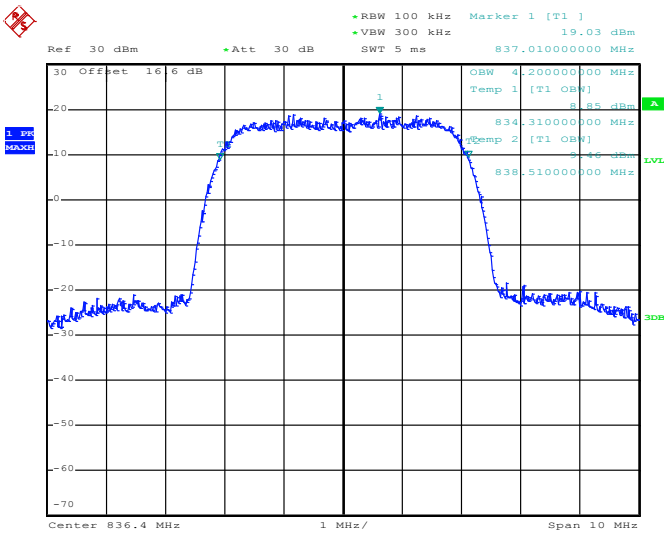
Date: 28.JAN.2015 17:43:46

26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



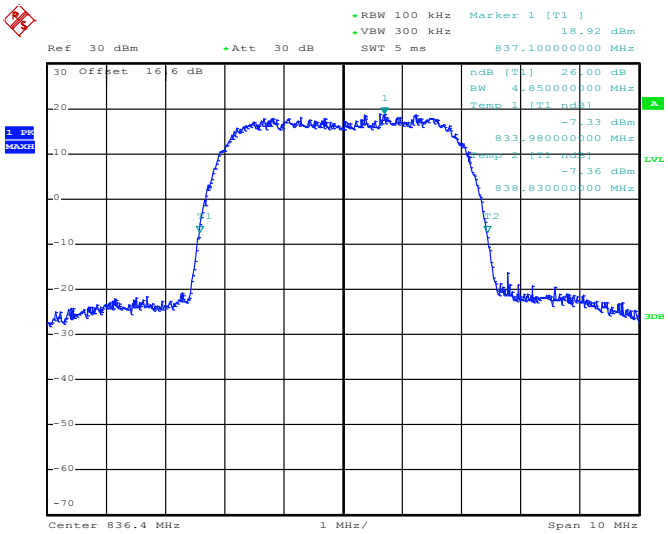
Date: 28.JAN.2015 17:42:16

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



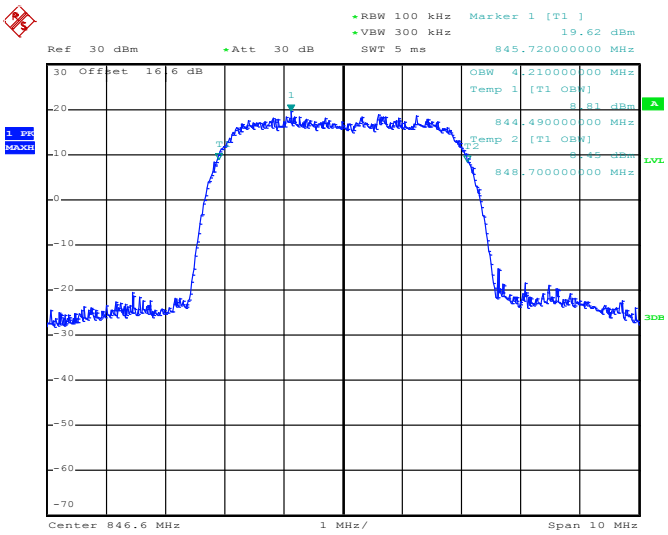
Date: 28.JAN.2015 17:44:14

26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



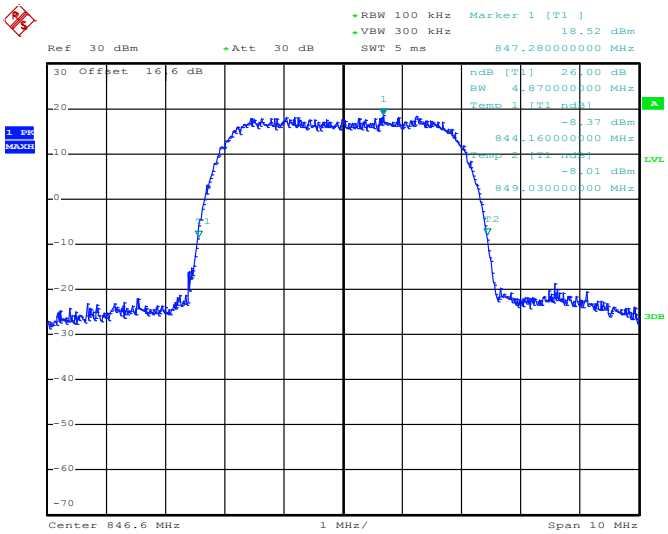
Date: 28.JAN.2015 17:42:44

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



Date: 28.JAN.2015 17:44:42

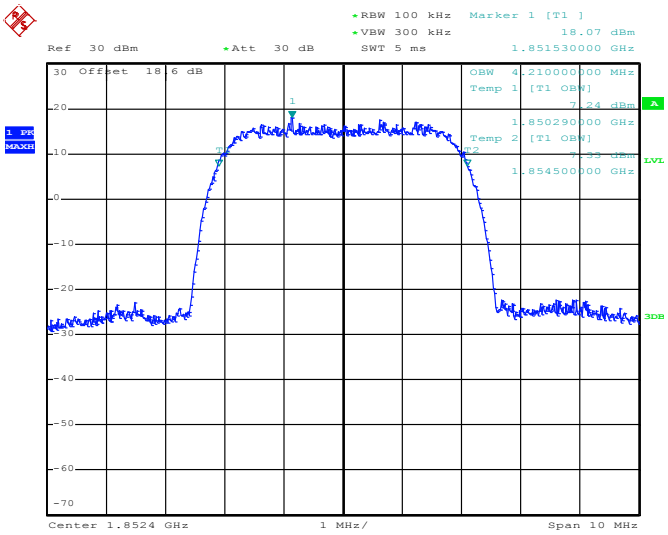
26dB Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 28.JAN.2015 17:43:12

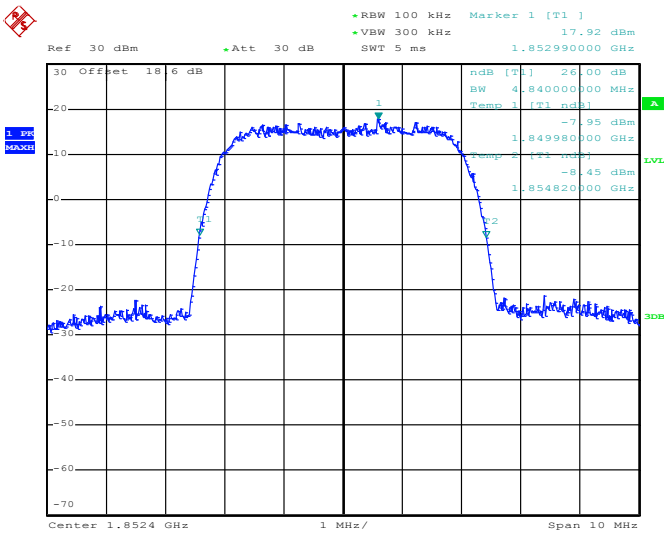
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

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



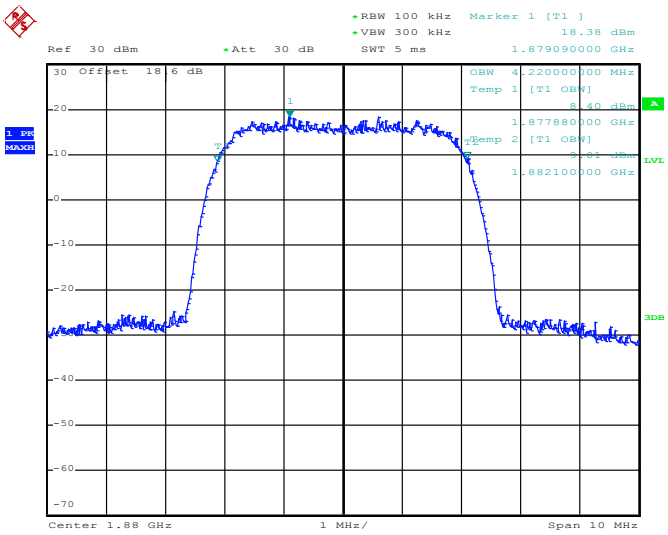
Date: 28.JAN.2015 17:32:22

26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)



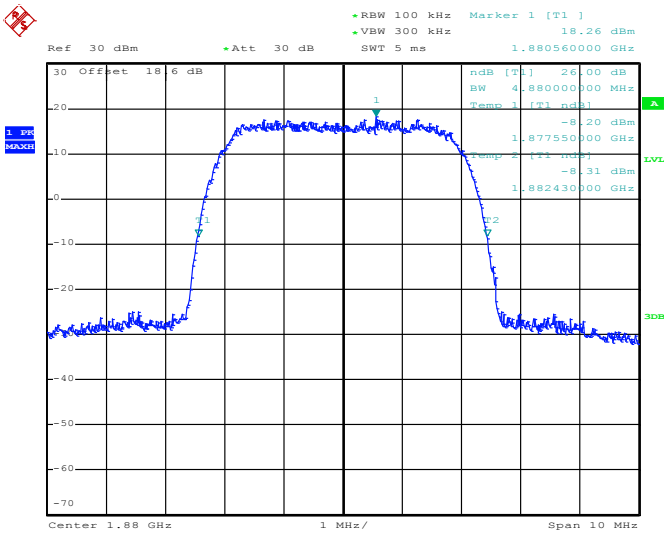
Date: 28.JAN.2015 17:30:51

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



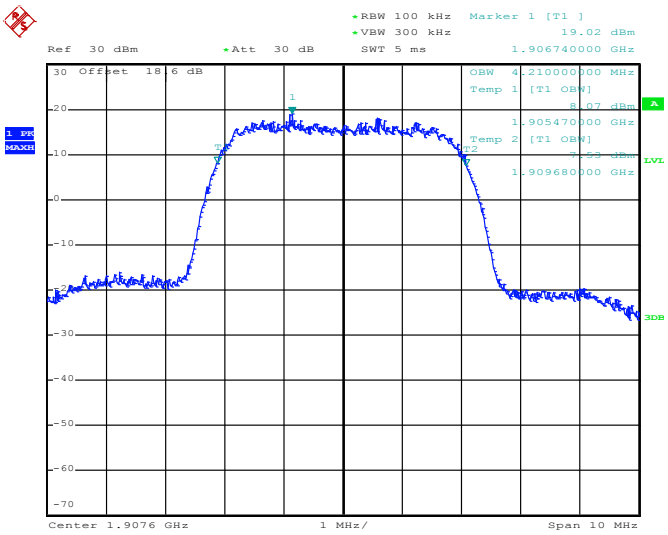
Date: 28.JAN.2015 17:32:50

26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



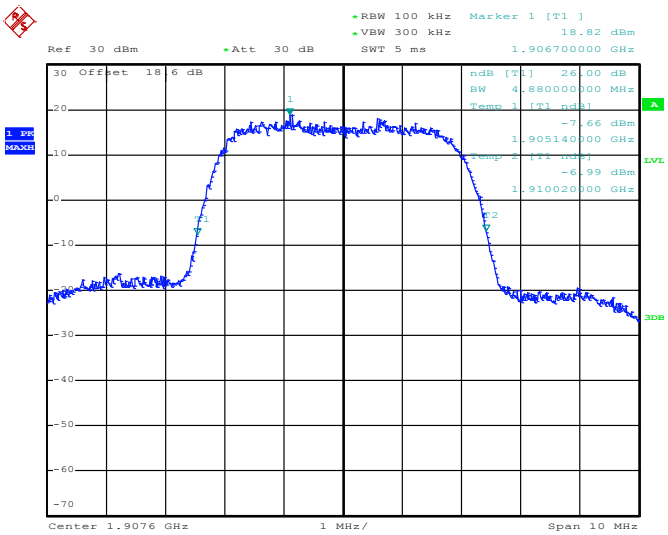
Date: 28.JAN.2015 17:31:19

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



Date: 28.JAN.2015 17:33:18

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 28.JAN.2015 17:31:47

3.5 Band Edge Measurement

3.5.1 Description of Band Edge Measurement

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

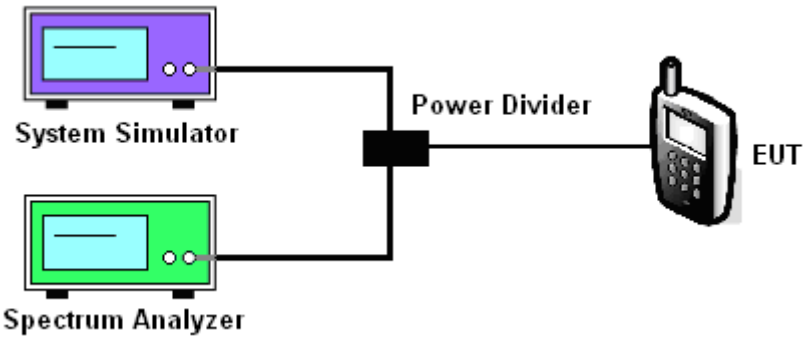
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

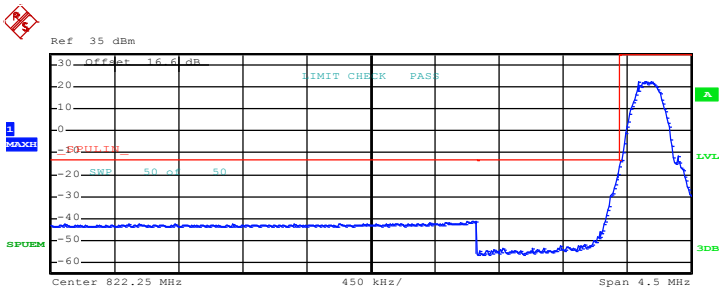
3.5.4 Test Setup



3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Test Mode :	GSM Link (GMSK)

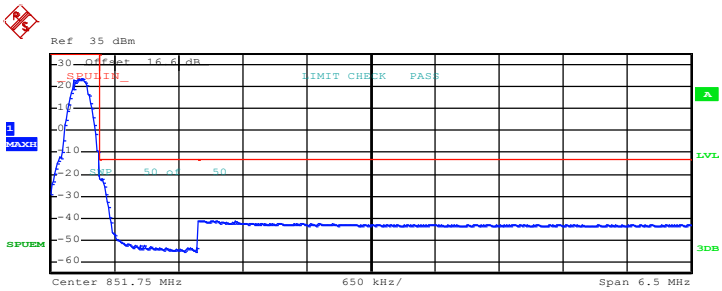
Lower Band Edge Plot on Channel 128 (824.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.967000 M	-41.24	-28.24
823.000 M	824.000 M	3.00 k	823.984000 M	-21.55	-8.55
824.000 M	824.500 M	10.00 k	824.217000 M	22.61	-12.39

Date: 28.JAN.2015 16:49:38

Higher Band Edge Plot on Channel 251 (848.8 MHz)

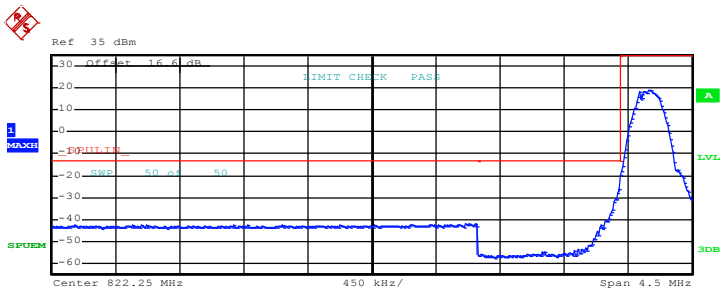


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.500 M	849.000 M	10.00 k	848.820000 M	23.76	-11.24
849.000 M	850.000 M	3.00 k	849.020000 M	-21.77	-8.77
850.000 M	855.000 M	100.00 k	850.005000 M	-41.03	-28.03

Date: 28.JAN.2015 16:50:50

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

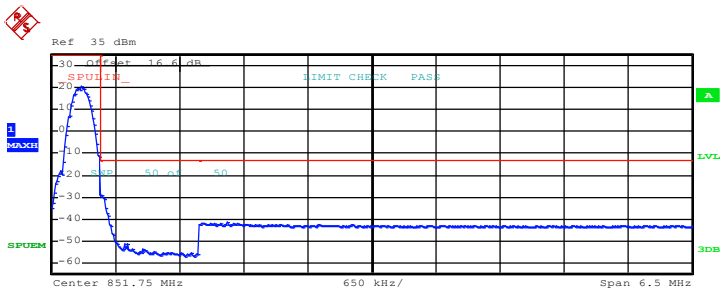
Lower Band Edge Plot on Channel 128 (824.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.973000 M	-42.11	-29.11
823.000 M	824.000 M	3.00 k	823.996000 M	-26.39	-13.39
824.000 M	824.500 M	10.00 k	824.196000 M	19.14	-15.86

Date: 28.JAN.2015 17:03:26

Higher Band Edge Plot on Channel 251 (848.8 MHz)

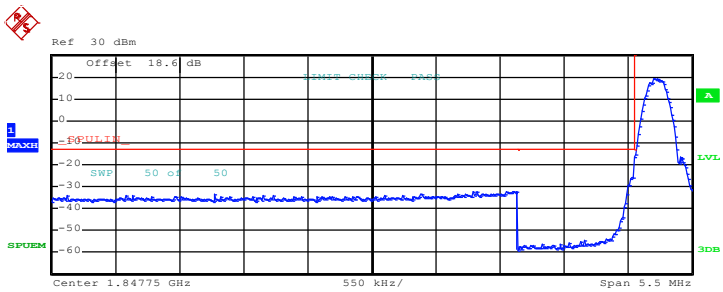


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.500 M	849.000 M	10.00 k	848.798000 M	20.40	-14.60
849.000 M	850.000 M	3.00 k	849.016000 M	-28.26	-15.26
850.000 M	855.000 M	100.00 k	850.270000 M	-41.33	-28.33

Date: 28.JAN.2015 17:04:39

Band :	GSM1900	Test Mode :	GSM Link (GMSK)

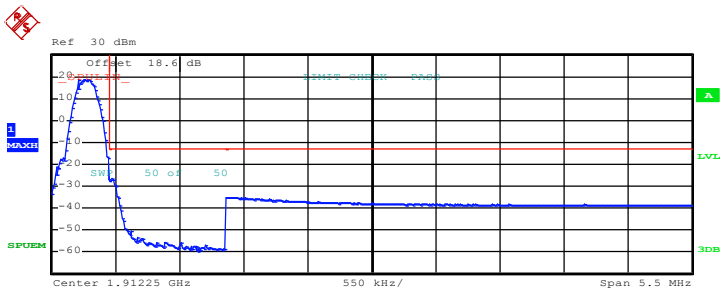
Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848900 G	-32.03	-19.03
1.849 G	1.850 G	3.00 k	1.849980 G	-25.76	-12.76
1.850 G	1.851 G	10.00 k	1.850183 G	18.96	-16.04

Date: 28.JAN.2015 17:12:29

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

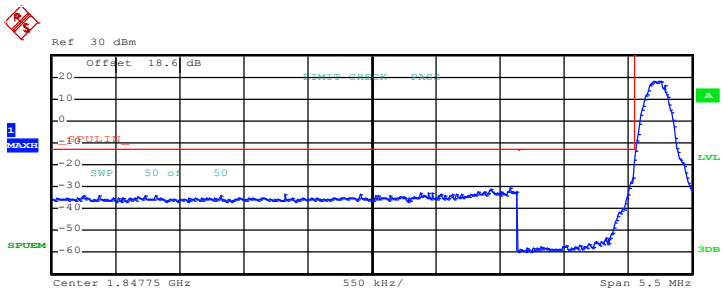


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909812 G	18.81	-16.19
1.910 G	1.911 G	3.00 k	1.910020 G	-25.63	-12.63
1.911 G	1.915 G	1.00 M	1.911012 G	-34.93	-21.93

Date: 28.JAN.2015 17:13:41

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

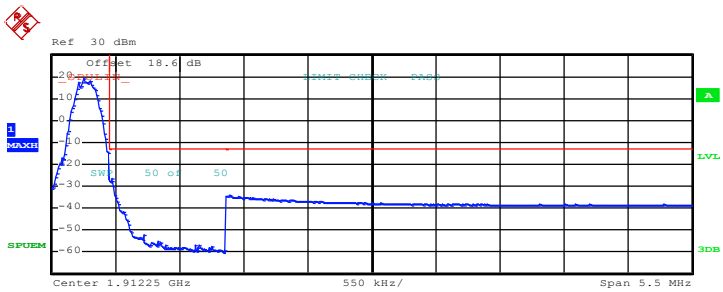
Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848932 G	-30.61	-17.61
1.849 G	1.850 G	3.00 k	1.849992 G	-26.02	-13.02
1.850 G	1.851 G	10.00 k	1.850219 G	17.93	-17.07

Date: 28.JAN.2015 17:25:09

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

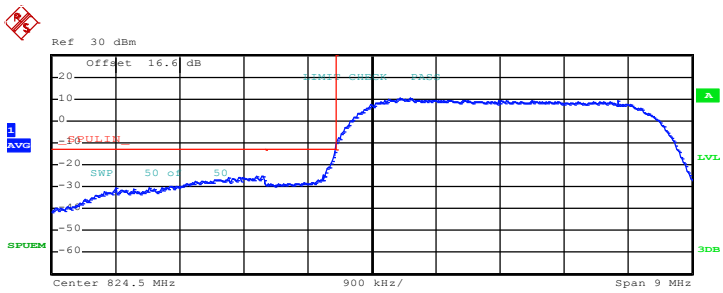


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909777 G	19.21	-15.79
1.910 G	1.911 G	3.00 k	1.910012 G	-26.47	-13.47
1.911 G	1.915 G	1.00 M	1.911028 G	-34.07	-21.07

Date: 28.JAN.2015 17:26:23

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

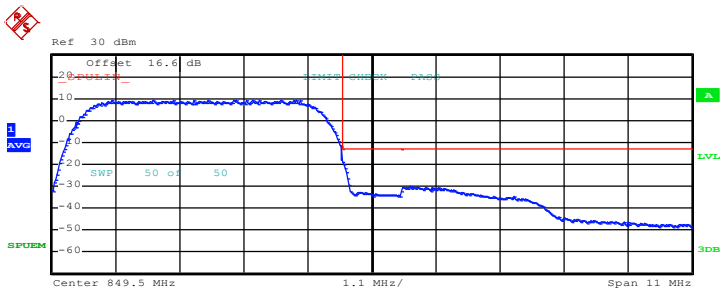
Lower Band Edge Plot on Channel 4132 (826.4 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.958000 M	-25.23	-12.23
823.000 M	824.000 M	50.00 k	823.996000 M	-14.58	-1.58
824.000 M	829.000 M	100.00 k	825.040000 M	10.49	-24.51

Date: 28.JAN.2015 17:46:06

Higher Band Edge Plot on Channel 4233 (846.6 MHz)

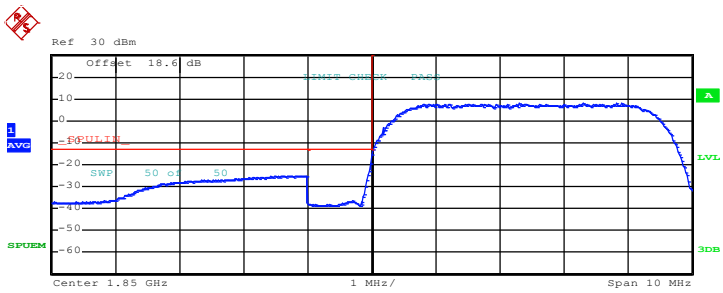


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
844.000 M	849.000 M	100.00 k	847.565000 M	9.45	-25.55
849.000 M	850.000 M	50.00 k	849.004000 M	-18.32	-5.32
850.000 M	855.000 M	100.00 k	850.155000 M	-29.82	-16.82

Date: 28.JAN.2015 17:47:19

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

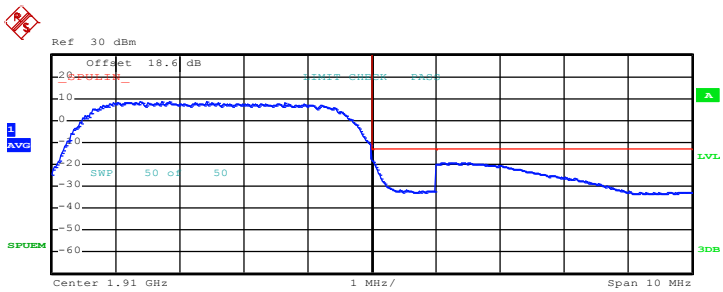
Lower Band Edge Plot on Channel 9262 (1852.4 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848588 G	-25.02	-12.02
1.849 G	1.850 G	50.00 k	1.849996 G	-19.62	-6.62
1.850 G	1.855 G	100.00 k	1.853290 G	8.17	-26.83

Date: 28.JAN.2015 17:35:28

Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.905 G	1.910 G	100.00 k	1.906385 G	8.42	-26.58
1.910 G	1.911 G	50.00 k	1.910008 G	-17.69	-4.69
1.911 G	1.915 G	1.00 M	1.911240 G	-19.39	-6.39

Date: 28.JAN.2015 17:36:41

3.6 Conducted Spurious Emission Measurement

3.6.1 Description of Conducted Spurious Emission Measurement

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

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

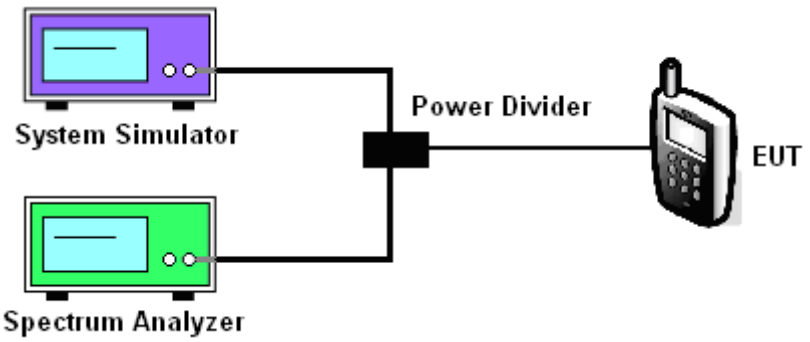
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

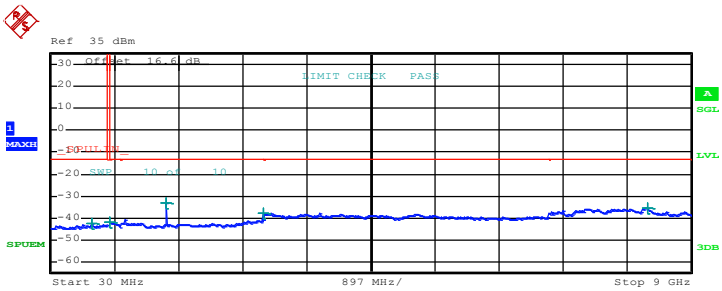
3.6.4 Test Setup



3.6.5 Test Result (Plots) of Conducted Spurious Emission

Band :	GSM850	Channel :	CH128
Test Mode :	GSM Link (GMSK)	Frequency :	824.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

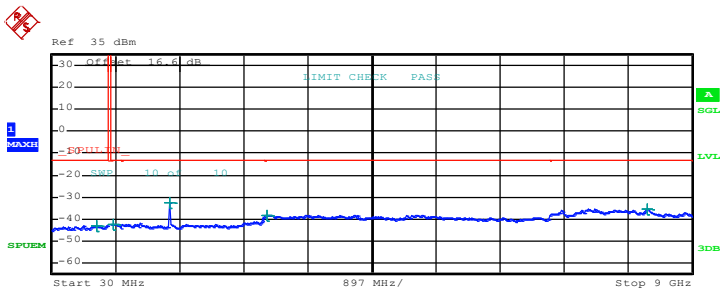


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	605.317500 M	-42.78	-29.78
855.000 M	1.000 G	1.00 M	861.706250 M	-41.75	-28.75
1.000 G	3.000 G	1.00 M	1.648500 G	-33.09	-20.09
3.000 G	7.000 G	1.00 M	3.001000 G	-37.84	-24.84
7.000 G	9.000 G	1.00 M	8.394500 G	-35.19	-22.19

Date: 28.JAN.2015 16:51:41

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

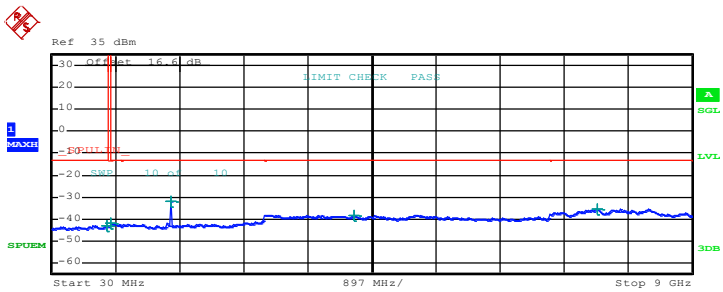


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	657.852500 M	-42.80	-29.80
855.000 M	1.000 G	1.00 M	884.326252 M	-42.36	-29.36
1.000 G	3.000 G	1.00 M	1.673000 G	-32.39	-19.39
3.000 G	7.000 G	1.00 M	3.041000 G	-38.11	-25.11
7.000 G	9.000 G	1.00 M	8.380000 G	-35.55	-22.55

Date: 28.JAN.2015 16:52:06

Band :	GSM850	Channel :	CH251
Test Mode :	GSM Link (GMSK)	Frequency :	848.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

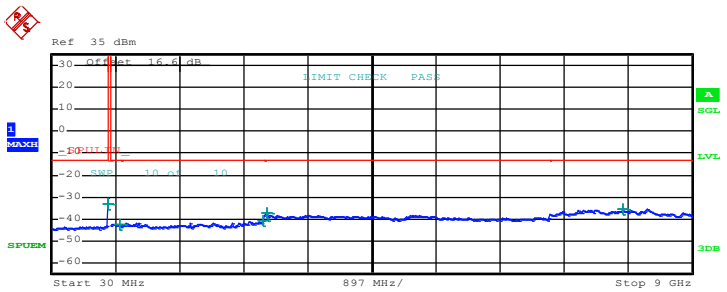


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	795.312500 M	-43.09	-30.09
855.000 M	1.000 G	1.00 M	858.915000 M	-41.89	-28.89
1.000 G	3.000 G	1.00 M	1.697500 G	-31.72	-18.72
3.000 G	7.000 G	1.00 M	4.262000 G	-38.15	-25.15
7.000 G	9.000 G	1.00 M	7.677000 G	-35.54	-22.54

Date: 28.JAN.2015 16:52:32

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

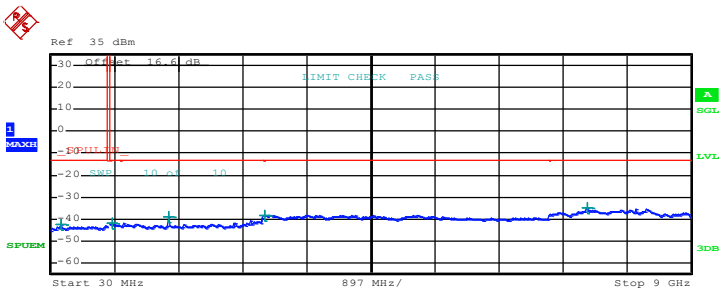


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	819.802500 M	-33.33	-20.33
855.000 M	1.000 G	1.00 M	981.113759 M	-42.22	-29.22
1.000 G	3.000 G	1.00 M	2.998500 G	-40.86	-27.86
3.000 G	7.000 G	1.00 M	3.038000 G	-37.47	-24.47
7.000 G	9.000 G	1.00 M	8.027500 G	-35.39	-22.39

Date: 28.JAN.2015 17:05:09

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

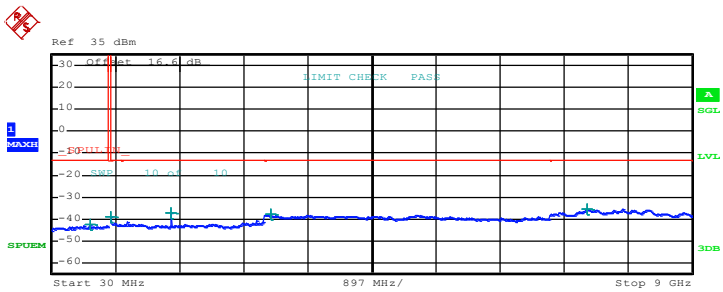


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	164.695000 M	-42.63	-29.63
855.000 M	1.000 G	1.00 M	886.863752 M	-42.12	-29.12
1.000 G	3.000 G	1.00 M	1.673000 G	-38.80	-25.80
3.000 G	7.000 G	1.00 M	3.018000 G	-38.14	-25.14
7.000 G	9.000 G	1.00 M	7.542500 G	-35.15	-22.15

Date: 28.JAN.2015 17:05:35

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

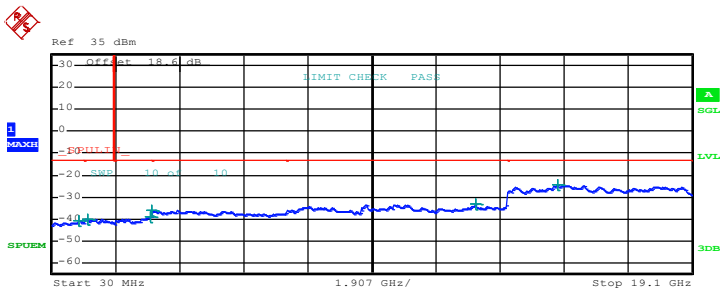


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	570.557500 M	-42.78	-29.78
855.000 M	1.000 G	1.00 M	855.072500 M	-39.24	-26.24
1.000 G	3.000 G	1.00 M	1.698000 G	-37.36	-24.36
3.000 G	7.000 G	1.00 M	3.096000 G	-37.84	-24.84
7.000 G	9.000 G	1.00 M	7.529500 G	-35.26	-22.26

Date: 28.JAN.2015 17:06:00

Band :	GSM1900	Channel :	CH512
Test Mode :	GSM Link (GMSK)	Frequency :	1850.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

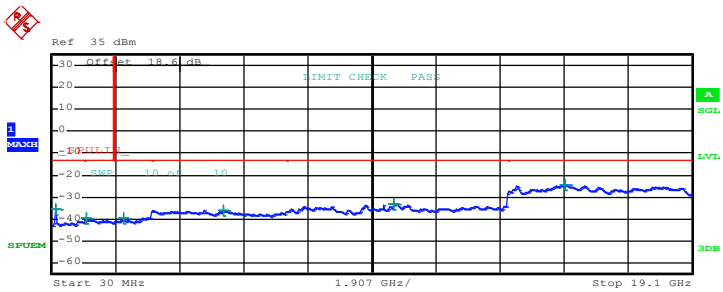


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	817.397500 M	-40.82	-27.82
1.000 G	1.845 G	1.00 M	1.091894 G	-39.87	-26.87
1.915 G	3.000 G	1.00 M	2.971248 G	-38.99	-25.99
3.000 G	7.000 G	1.00 M	3.018000 G	-36.14	-23.14
7.000 G	13.600 G	1.00 M	12.641350 G	-33.39	-20.39
13.600 G	19.100 G	1.00 M	15.096688 G	-24.39	-11.39

Date: 28.JAN.2015 17:14:11

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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

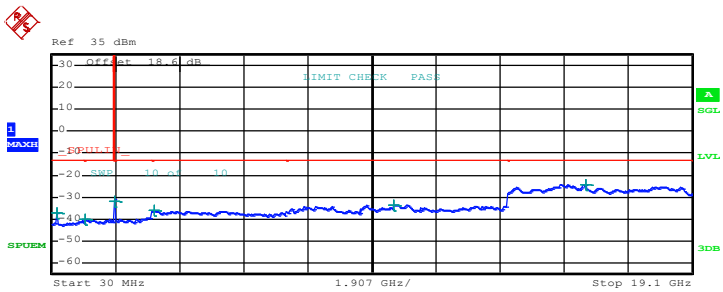


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	141.792500 M	-35.22	-22.22
1.000 G	1.845 G	1.00 M	1.056615 G	-39.80	-26.80
1.915 G	3.000 G	1.00 M	2.157769 G	-39.37	-26.37
3.000 G	7.000 G	1.00 M	5.142000 G	-36.17	-23.17
7.000 G	13.600 G	1.00 M	10.211725 G	-33.15	-20.15
13.600 G	19.100 G	1.00 M	15.328375 G	-24.17	-11.17

Date: 28.JAN.2015 17:14:37

Band :	GSM1900	Channel :	CH810
Test Mode :	GSM Link (GMSK)	Frequency :	1909.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

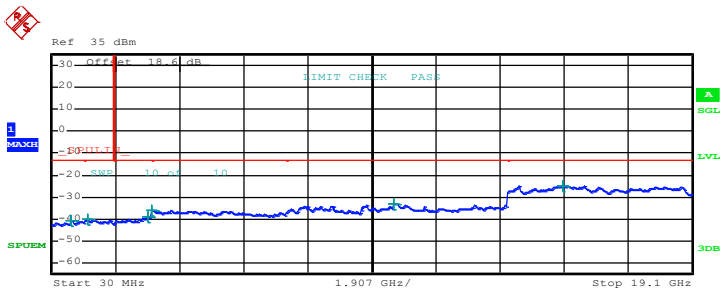


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	171.620000 M	-36.99	-23.99
1.000 G	1.845 G	1.00 M	1.033378 G	-40.03	-27.03
1.915 G	3.000 G	1.00 M	1.915271 G	-31.95	-18.95
3.000 G	7.000 G	1.00 M	3.075000 G	-36.15	-23.15
7.000 G	13.600 G	1.00 M	10.210075 G	-33.44	-20.44
13.600 G	19.100 G	1.00 M	15.925125 G	-24.24	-11.24

Date: 28.JAN.2015 17:15:02

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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

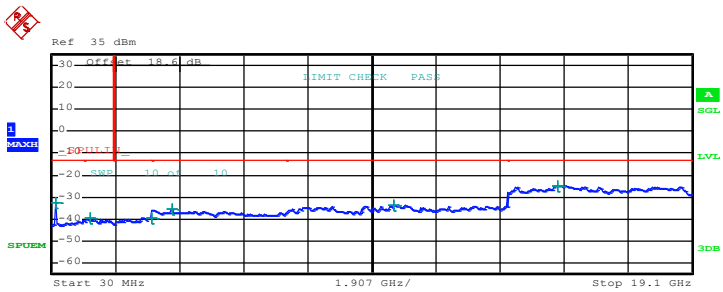


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	603.270000 M	-40.85	-27.85
1.000 G	1.845 G	1.00 M	1.086613 G	-40.37	-27.37
1.915 G	3.000 G	1.00 M	2.886617 G	-39.00	-26.00
3.000 G	7.000 G	1.00 M	3.001000 G	-35.88	-22.88
7.000 G	13.600 G	1.00 M	10.216675 G	-33.29	-20.29
13.600 G	19.100 G	1.00 M	15.238312 G	-24.76	-11.76

Date: 28.JAN.2015 17:26:56

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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

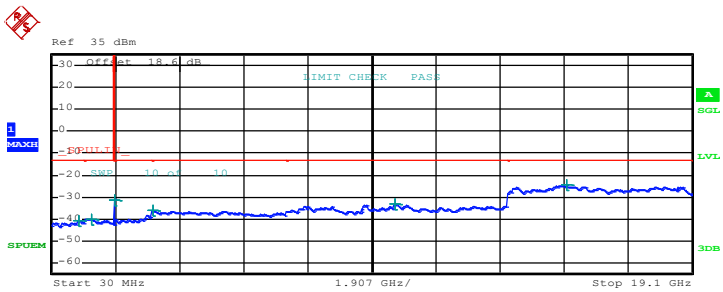


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	141.792500 M	-32.40	-19.40
1.000 G	1.845 G	1.00 M	1.161817 G	-39.69	-26.69
1.915 G	3.000 G	1.00 M	2.991862 G	-39.42	-26.42
3.000 G	7.000 G	1.00 M	3.620000 G	-35.62	-22.62
7.000 G	13.600 G	1.00 M	10.221625 G	-33.49	-20.49
13.600 G	19.100 G	1.00 M	15.098750 G	-24.79	-11.79

Date: 28.JAN.2015 17:27:24

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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

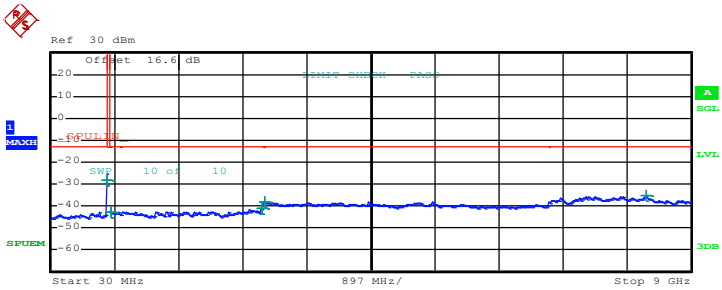


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	823.217500 M	-40.60	-27.60
1.000 G	1.845 G	1.00 M	1.230474 G	-40.16	-27.16
1.915 G	3.000 G	1.00 M	1.915271 G	-31.60	-18.60
3.000 G	7.000 G	1.00 M	3.029000 G	-36.34	-23.34
7.000 G	13.600 G	1.00 M	10.236475 G	-32.92	-19.92
13.600 G	19.100 G	1.00 M	15.345563 G	-24.55	-11.55

Date: 28.JAN.2015 17:27:50

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

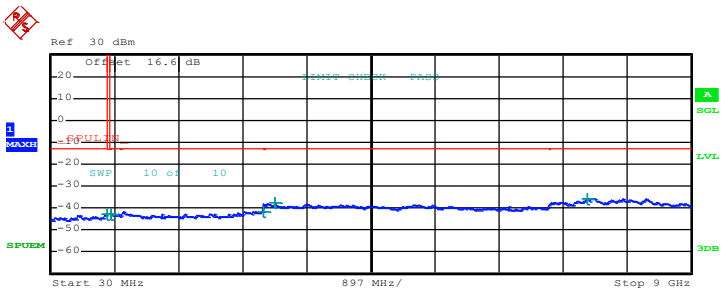


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	818.815000 M	-28.19	-15.19
855.000 M	1.000 G	1.00 M	872.400001 M	-42.92	-29.92
1.000 G	3.000 G	1.00 M	2.994500 G	-41.24	-28.24
3.000 G	7.000 G	1.00 M	3.021000 G	-38.30	-25.30
7.000 G	9.000 G	1.00 M	8.369000 G	-34.94	-21.94

Date: 28.JAN.2015 17:48:01

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

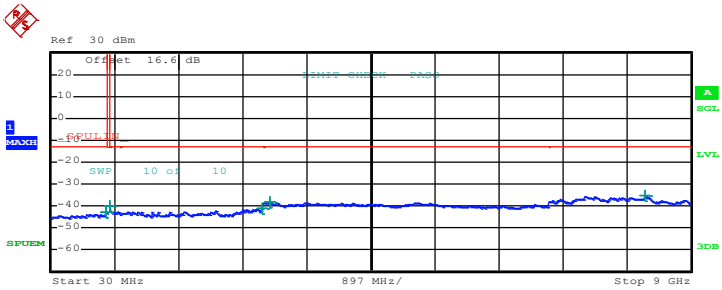


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	820.000 M	1.00 M	818.617500 M	-42.67	-29.67
855.000 M	1.000 G	1.00 M	872.653751 M	-42.76	-29.76
1.000 G	3.000 G	1.00 M	2.999500 G	-41.37	-28.37
3.000 G	7.000 G	1.00 M	3.165000 G	-37.75	-24.75
7.000 G	9.000 G	1.00 M	7.544000 G	-35.61	-22.61

Date: 28.JAN.2015 17:48:26

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

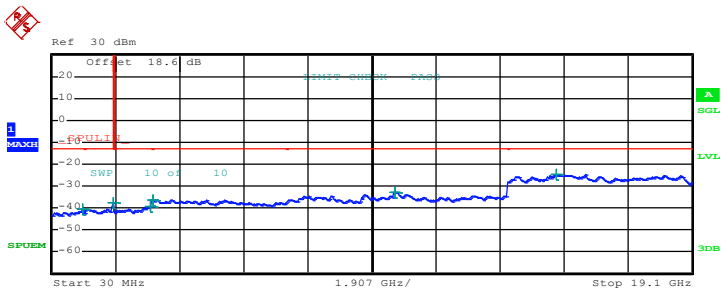


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	820.000 M	1.00 M	801.040000 M	-43.09	-30.09
855.000 M	1.000 G	1.00 M	855.978750 M	-40.02	-27.02
1.000 G	3.000 G	1.00 M	2.988500 G	-40.79	-27.79
3.000 G	7.000 G	1.00 M	3.102000 G	-38.06	-25.06
7.000 G	9.000 G	1.00 M	8.362500 G	-35.28	-22.28

Date: 28.JAN.2015 17:48:51

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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

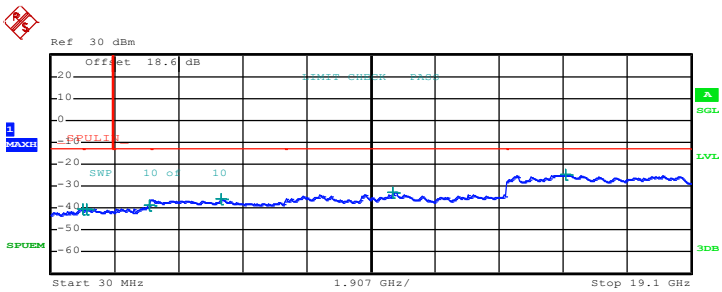


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	946.650000 M	-40.73	-27.73
1.000 G	1.845 G	1.00 M	1.842676 G	-37.31	-24.31
1.915 G	3.000 G	1.00 M	2.985624 G	-39.44	-26.44
3.000 G	7.000 G	1.00 M	3.060000 G	-36.11	-23.11
7.000 G	13.600 G	1.00 M	10.236475 G	-32.92	-19.92
13.600 G	19.100 G	1.00 M	15.072625 G	-24.71	-11.71

Date: 28.JAN.2015 17:38:40

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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

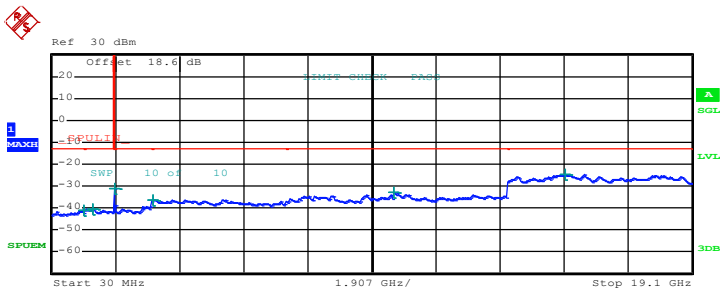


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	987.875000 M	-40.30	-27.30
1.000 G	1.845 G	1.00 M	1.099076 G	-40.23	-27.23
1.915 G	3.000 G	1.00 M	2.951989 G	-38.65	-25.65
3.000 G	7.000 G	1.00 M	5.117000 G	-35.90	-22.90
7.000 G	13.600 G	1.00 M	10.212550 G	-32.81	-19.81
13.600 G	19.100 G	1.00 M	15.353813 G	-24.78	-11.78

Date: 28.JAN.2015 17:39:06

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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
30.000 M	1.000 G	1.00 M	988.360000 M	-41.32	-28.32
1.000 G	1.845 G	1.00 M	1.231530 G	-40.72	-27.72
1.915 G	3.000 G	1.00 M	1.915271 G	-31.36	-18.36
3.000 G	7.000 G	1.00 M	3.032000 G	-36.21	-23.21
7.000 G	13.600 G	1.00 M	10.227400 G	-33.15	-20.15
13.600 G	19.100 G	1.00 M	15.306375 G	-24.47	-11.47

Date: 28.JAN.2015 17:39:31

3.7 Field Strength of Spurious Radiation Measurement

3.7.1 Description of Field Strength of Spurious Radiated Measurement

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

3.7.2 Measuring Instruments

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

3.7.3 Test Procedures

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

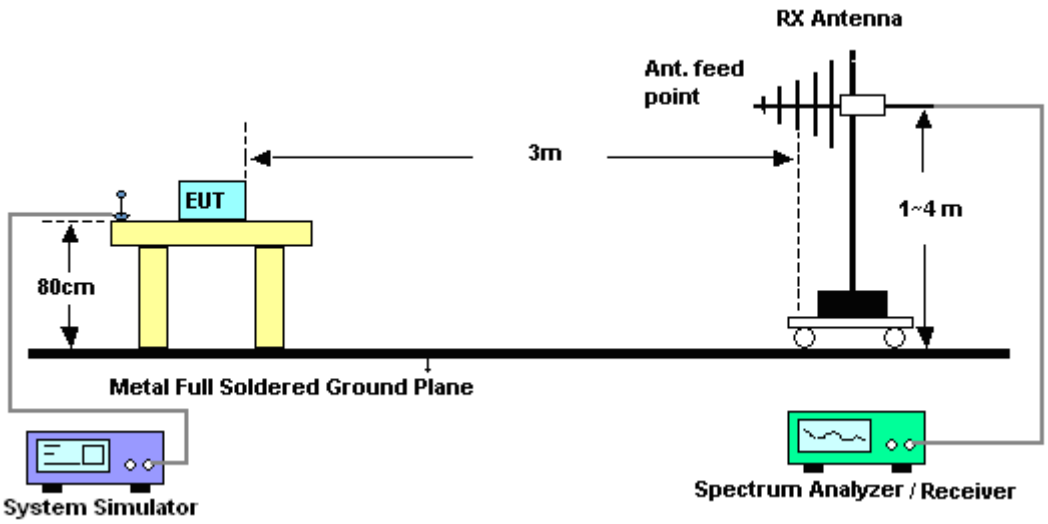
    = P(W) - [43 + 10log(P)] (dB)

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

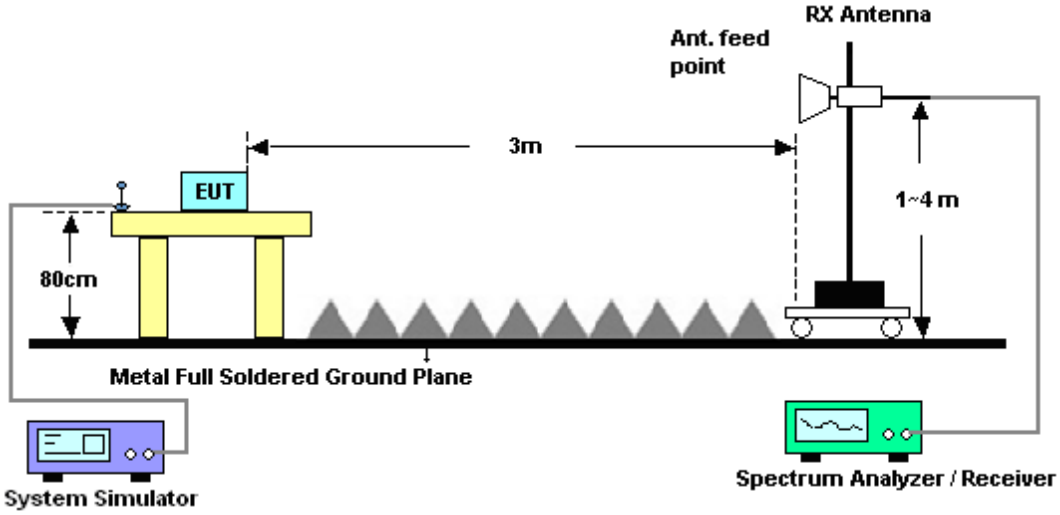
    = -13dBm.

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-52.13	-13	-39.13	-62.93	-53.89	0.98	4.89	H	Pass
2472	-46.10	-13	-33.10	-62.33	-47.98	1.28	5.32	H	Pass
3296	-58.78	-13	-45.78	-75.74	-62.19	1.54	7.10	H	Pass
4120	-54.11	-13	-41.11	-75.08	-58.75	1.83	8.62	H	Pass
4944	-53.54	-13	-40.54	-76.33	-58.67	2.30	9.59	H	Pass
5768	-53.51	-13	-40.51	-78.36	-58.39	2.78	9.81	H	Pass
6592	-47.40	-13	-34.40	-72.98	-52.84	2.72	10.31	H	Pass
7416	-45.75	-13	-32.75	-71.73	-52.78	2.46	11.63	H	Pass
8240	-49.07	-13	-36.07	-75.29	-56.89	2.32	12.29	H	Pass

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-49.43	-13	-36.43	-61.1	-51.19	0.98	4.89	V	Pass
2472	-43.87	-13	-30.87	-61.11	-45.75	1.28	5.32	V	Pass
3296	-46.56	-13	-33.56	-65.08	-49.97	1.54	7.10	V	Pass
4120	-46.85	-13	-33.85	-68.84	-51.49	1.83	8.62	V	Pass
4944	-48.78	-13	-35.78	-72.57	-53.91	2.30	9.59	V	Pass
5768	-48.87	-13	-35.87	-74.28	-53.75	2.78	9.81	V	Pass
6592	-31.52	-13	-18.52	-57.94	-36.96	2.72	10.31	V	Pass
7416	-48.31	-13	-35.31	-75.74	-55.34	2.46	11.63	V	Pass
8240	-47.84	-13	-34.84	-76.51	-55.66	2.32	12.29	V	Pass

<Middle Channel>

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-54.10	-13	-41.10	-65.08	-55.78	0.99	4.82	H	Pass
2512	-45.01	-13	-32.01	-61.02	-46.98	1.29	5.41	H	Pass
3344	-58.30	-13	-45.30	-75.51	-61.91	1.56	7.31	H	Pass
4184	-53.36	-13	-40.36	-74.7	-57.98	1.87	8.64	H	Pass
5016	-51.73	-13	-38.73	-74.51	-56.93	2.35	9.70	H	Pass
5856	-54.50	-13	-41.50	-79.15	-59.36	2.83	9.84	H	Pass
6688	-44.74	-13	-31.74	-70.58	-50.32	2.69	10.43	H	Pass
7528	-47.52	-13	-34.52	-73.9	-54.77	2.42	11.82	H	Pass
8360	-49.97	-13	-36.97	-75.88	-57.86	2.35	12.39	H	Pass

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-52.15	-13	-39.15	-63.87	-53.83	0.99	4.82	V	Pass
2512	-43.79	-13	-30.79	-60.54	-45.76	1.29	5.41	V	Pass
3344	-47.23	-13	-34.23	-65.94	-50.84	1.56	7.31	V	Pass
4184	-44.61	-13	-31.61	-66.59	-49.23	1.87	8.64	V	Pass
5016	-46.94	-13	-33.94	-73.08	-52.14	2.35	9.70	V	Pass
5856	-46.82	-13	-33.82	-71.92	-51.68	2.83	9.84	V	Pass
6688	-36.99	-13	-23.99	-63.82	-42.57	2.69	10.43	V	Pass
7528	-50.16	-13	-37.16	-78.25	-57.41	2.42	11.82	V	Pass
8360	-47.39	-13	-34.39	-75.88	-55.28	2.35	12.39	V	Pass

<High Channel>

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1697	-50.93	-13	-37.93	-62.32	-52.53	1.00	4.75	H	Pass
2544	-45.93	-13	-32.93	-62.31	-47.91	1.30	5.44	H	Pass
3392	-59.84	-13	-46.84	-77.38	-63.64	1.57	7.52	H	Pass
4240	-53.12	-13	-40.12	-74.52	-57.72	1.90	8.65	H	Pass
5096	-52.39	-13	-39.39	-75.13	-57.55	2.39	9.70	H	Pass
5944	-53.33	-13	-40.33	-78.19	-58.18	2.88	9.88	H	Pass
6792	-42.15	-13	-29.15	-68.17	-47.89	2.66	10.55	H	Pass
7640	-51.76	-13	-38.76	-78.64	-59.11	2.38	11.88	H	Pass
8488	-51.35	-13	-38.35	-77.62	-59.32	2.37	12.49	H	Pass

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-49.27	-13	-36.27	-61.38	-50.87	1.00	4.75	V	Pass
2544	-43.00	-13	-30.00	-61.06	-44.98	1.30	5.44	V	Pass
3392	-50.01	-13	-37.01	-68.83	-53.81	1.57	7.52	V	Pass
4240	-43.82	-13	-30.82	-65.9	-48.42	1.90	8.65	V	Pass
5096	-51.10	-13	-38.10	-74.87	-56.26	2.39	9.70	V	Pass
5944	-43.07	-13	-30.07	-68.92	-47.92	2.88	9.88	V	Pass
6792	-38.53	-13	-25.53	-65.87	-44.27	2.66	10.55	V	Pass
7640	-50.56	-13	-37.56	-79.21	-57.91	2.38	11.88	V	Pass
8488	-46.61	-13	-33.61	-75.34	-54.58	2.37	12.49	V	Pass

<Low Channel>

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-60.41	-13	-47.41	-71.22	-62.17	0.98	4.89	H	Pass
2472	-58.97	-13	-45.97	-74.88	-60.85	1.28	5.32	H	Pass
3296	-60.75	-13	-47.75	-77.71	-64.16	1.54	7.10	H	Pass

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-55.90	-13	-42.90	-67.57	-57.66	0.98	4.89	V	Pass
2472	-53.97	-13	-40.97	-71.27	-55.85	1.28	5.32	V	Pass
3296	-56.87	-13	-43.87	-75.37	-60.28	1.54	7.10	V	Pass
6592	-45.21	-13	-32.21	-71.63	-50.65	2.72	10.31	V	Pass

<Middle Channel>

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-62.19	-13	-49.19	-73.17	-63.87	0.99	4.82	H	Pass
2512	-56.55	-13	-43.55	-72.73	-58.52	1.29	5.41	H	Pass
3344	-60.75	-13	-47.75	-77.67	-64.36	1.56	7.31	H	Pass

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-59.70	-13	-46.70	-71.34	-61.38	0.99	4.82	V	Pass
2512	-53.76	-13	-40.76	-71.46	-55.73	1.29	5.41	V	Pass
3344	-56.81	-13	-43.81	-75.15	-60.42	1.56	7.31	V	Pass
6688	-46.54	-13	-33.54	-73.72	-52.12	2.69	10.43	V	Pass

<High Channel>

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1996	-59.74	-13	-46.74	-71.16	-60.37	1.13	3.91	H	Pass
2544	-57.23	-13	-44.23	-73.55	-59.21	1.30	5.44	H	Pass
3392	-60.38	-13	-47.38	-77.79	-64.18	1.57	7.52	H	Pass
6792	-51.94	-13	-38.94	-78.03	-57.68	2.66	10.55	H	Pass

Band :	GSM850	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1996	-56.86	-13	-43.86	-69	-57.49	1.13	3.91	V	Pass
2544	-55.72	-13	-42.72	-73.14	-59.85	1.30	5.44	V	Pass
3392	-57.59	-13	-44.59	-76.19	-63.54	1.57	7.52	V	Pass
6792	-49.52	-13	-36.52	-77.01	-57.41	2.66	10.55	V	Pass

<Low Channel>

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-43.03	-13	-30.03	-62.32	-49.6	1.67	8.24	H	Pass
5548	-37.03	-13	-24.03	-61.88	-44.1	2.65	9.72	H	Pass
7403	-39.75	-13	-26.75	-66.47	-48.9	2.46	11.61	H	Pass
9251	-43.24	-13	-30.24	-70.35	-53.3	2.54	12.60	H	Pass
11102	-42.33	-13	-29.33	-73.93	-52.1	2.69	12.46	H	Pass
12954	-40.47	-13	-27.47	-74.49	-50.5	2.92	12.94	H	Pass

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-37.63	-13	-24.63	-57.66	-44.2	1.67	8.24	V	Pass
5548	-32.63	-13	-19.63	-58.53	-39.7	2.65	9.72	V	Pass
7403	-37.65	-13	-24.65	-65.91	-46.8	2.46	11.61	V	Pass
9251	-39.14	-13	-26.14	-68.93	-49.2	2.54	12.60	V	Pass
11102	-42.13	-13	-29.13	-75.83	-51.9	2.69	12.46	V	Pass

<Middle Channel>

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-39.18	-13	-26.18	-59.14	-45.8	1.68	8.31	H	Pass
5639	-35.15	-13	-22.15	-60.31	-42.2	2.71	9.76	H	Pass
7522	-39.41	-13	-26.41	-66.61	-48.8	2.42	11.81	H	Pass
9398	-40.43	-13	-27.43	-68.1	-50.4	2.57	12.54	H	Pass
11282	-38.40	-13	-25.40	-70.36	-48.1	2.68	12.39	H	Pass
13163	-38.64	-13	-25.64	-72.3	-48.9	2.97	13.23	H	Pass

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-30.68	-13	-17.68	-50.95	-37.3	1.68	8.31	V	Pass
5639	-34.65	-13	-21.65	-60.69	-41.7	2.71	9.76	V	Pass
7522	-36.71	-13	-23.71	-65.75	-46.1	2.42	11.81	V	Pass
9398	-40.23	-13	-27.23	-70.38	-50.2	2.57	12.54	V	Pass
11282	-43.40	-13	-30.40	-77.88	-53.1	2.68	12.39	V	Pass
13163	-42.34	-13	-29.34	-77.99	-52.6	2.97	13.23	V	Pass

<High Channel>

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-35.82	-13	-22.82	-56.78	-42.5	1.70	8.38	H	Pass
5730	-35.17	-13	-22.17	-60.15	-42.2	2.76	9.79	H	Pass
7641	-39.30	-13	-26.30	-67.21	-48.8	2.38	11.88	H	Pass
9552	-38.53	-13	-25.53	-66.34	-48.4	2.60	12.47	H	Pass
11453	-38.56	-13	-25.56	-70.87	-48.2	2.68	12.32	H	Pass
13372	-39.20	-13	-26.20	-72.57	-49.7	3.02	13.52	H	Pass

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-26.52	-13	-13.52	-48.18	-33.2	1.70	8.38	V	Pass
5730	-39.17	-13	-26.17	-64.91	-46.2	2.76	9.79	V	Pass
7641	-38.20	-13	-25.20	-67.41	-47.7	2.38	11.88	V	Pass
9552	-41.93	-13	-28.93	-72.28	-51.8	2.60	12.47	V	Pass
11453	-44.86	-13	-31.86	-79.52	-54.5	2.68	12.32	V	Pass
13363	-42.71	-13	-29.71	-78.3	-53.2	3.02	13.51	V	Pass

<Low Channel>

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-54.33	-13	-41.33	-74.02	-60.9	1.67	8.24	H	Pass
5548	-46.73	-13	-33.73	-71.66	-53.8	2.65	9.72	H	Pass
7403	-52.35	-13	-39.35	-79.39	-61.5	2.46	11.61	H	Pass
9251	-51.44	-13	-38.44	-78.52	-61.5	2.54	12.60	H	Pass

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-47.23	-13	-34.23	-67.57	-53.8	1.67	8.24	V	Pass
5548	-42.63	-13	-29.63	-68.76	-49.7	2.65	9.72	V	Pass
7403	-50.55	-13	-37.55	-79.11	-59.7	2.46	11.61	V	Pass
9251	-47.14	-13	-34.14	-76.84	-57.2	2.54	12.60	V	Pass

<Middle Channel>

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-49.78	-13	-36.78	-69.3	-56.4	1.68	8.31	H	Pass
5639	-48.55	-13	-35.55	-73.25	-55.6	2.71	9.76	H	Pass
7522	-50.51	-13	-37.51	-77.98	-59.9	2.42	11.81	H	Pass
9398	-50.53	-13	-37.53	-77.77	-60.5	2.57	12.54	H	Pass

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-39.48	-13	-26.48	-59.69	-46.1	1.68	8.31	V	Pass
5639	-44.65	-13	-31.65	-70.78	-51.7	2.71	9.76	V	Pass
7522	-47.31	-13	-34.31	-76.17	-56.7	2.42	11.81	V	Pass
9398	-48.23	-13	-35.23	-78.46	-58.2	2.57	12.54	V	Pass

<High Channel>

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-45.52	-13	-32.52	-66.79	-52.2	1.70	8.38	H	Pass
5730	-46.47	-13	-33.47	-71.32	-53.5	2.76	9.79	H	Pass
7641	-47.10	-13	-34.10	-75.14	-56.6	2.38	11.88	H	Pass
9552	-46.23	-13	-33.23	-73.87	-56.1	2.60	12.47	H	Pass

Band :	GSM1900	**Temperature :**	23~24°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-36.52	-13	-23.52	-57.72	-43.2	1.70	8.38	V	Pass
5730	-40.97	-13	-27.97	-66.73	-48	2.76	9.79	V	Pass
7641	-48.20	-13	-35.20	-77.31	-57.7	2.38	11.88	V	Pass
9552	-49.43	-13	-36.43	-79.36	-59.3	2.60	12.47	V	Pass

<Low Channel>

Band :	WCDMA Band V	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1656	-64.80	-13	-51.80	-75.68	-66.53	0.98	4.86	H	Pass
2480	-60.45	-13	-47.45	-76.63	-62.36	1.28	5.34	H	Pass
3304	-60.74	-13	-47.74	-77.63	-64.18	1.54	7.14	H	Pass

Band :	WCDMA Band V	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1656	-63.48	-13	-50.48	-74.83	-65.21	0.98	4.86	V	Pass
2480	-59.65	-13	-46.65	-76.98	-61.56	1.28	5.34	V	Pass
3304	-59.09	-13	-46.09	-77.64	-62.53	1.54	7.14	V	Pass

<Middle Channel>

Band :	WCDMA Band V	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-64.29	-13	-51.29	-75.27	-65.97	0.99	4.82	H	Pass
2512	-59.35	-13	-46.35	-75.55	-61.32	1.29	5.41	H	Pass
3344	-60.30	-13	-47.30	-77.52	-63.91	1.56	7.31	H	Pass

Band :	WCDMA Band V	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-59.49	-13	-46.49	-71.14	-61.17	0.99	4.82	V	Pass
2512	-58.42	-13	-45.42	-76.06	-60.39	1.29	5.41	V	Pass
3344	-58.73	-13	-45.73	-77.44	-62.34	1.56	7.31	V	Pass

<High Channel>

Band :	WCDMA Band V	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-64.78	-13	-51.78	-76.17	-66.38	1.00	4.75	H	Pass
2536	-60.91	-13	-47.91	-76.7	-62.89	1.30	5.43	H	Pass
3384	-60.15	-13	-47.15	-77.66	-63.92	1.57	7.49	H	Pass

Band :	WCDMA Band V	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-64.02	-13	-51.02	-76.13	-65.62	1.00	4.75	V	Pass
2536	-60.91	-13	-47.91	-76.45	-62.89	1.30	5.43	V	Pass
3384	-59.20	-13	-46.20	-77.72	-62.97	1.57	7.49	V	Pass

<Low Channel>

Band :	WCDMA Band II	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-55.43	-13	-42.43	-74.74	-62	1.67	8.24	H	Pass
5555	-46.73	-13	-33.73	-71.73	-53.8	2.66	9.72	H	Pass
7410	-49.44	-13	-36.44	-75.92	-58.6	2.46	11.62	H	Pass
9258	-51.64	-13	-38.64	-78.59	-61.7	2.54	12.60	H	Pass

Band :	WCDMA Band II	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3707	-48.92	-13	-35.92	-69.2	-55.5	1.67	8.25	V	Pass
5555	-42.73	-13	-29.73	-68.67	-49.8	2.66	9.72	V	Pass
7417	-49.52	-13	-36.52	-77.85	-58.7	2.46	11.63	V	Pass
9258	-46.74	-13	-33.74	-76.69	-56.8	2.54	12.60	V	Pass

<Middle Channel>

Band :	WCDMA Band II	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-57.87	-13	-44.87	-77.76	-64.5	1.69	8.31	H	Pass
5639	-47.15	-13	-34.15	-72.27	-54.2	2.71	9.76	H	Pass
7520	-52.41	-13	-39.41	-79.49	-61.8	2.42	11.81	H	Pass

Band :	WCDMA Band II	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-55.47	-13	-42.47	-75.97	-62.1	1.69	8.31	V	Pass
5640	-45.65	-13	-32.65	-71.73	-52.7	2.71	9.76	V	Pass
7520	-51.11	-13	-38.11	-79.91	-60.5	2.42	11.81	V	Pass

<High Channel>

Band :	WCDMA Band II	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3812	-54.13	-13	-41.13	-75	-60.8	1.70	8.37	H	Pass
5720	-47.16	-13	-34.16	-72.28	-54.2	2.75	9.79	H	Pass
7627	-50.01	-13	-37.01	-77.75	-59.5	2.39	11.88	H	Pass

Band :	WCDMA Band II	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Nick Yu, Derreck Chen, and Ken Wu	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3812	-50.13	-13	-37.13	-71.67	-56.8	1.70	8.37	V	Pass
5720	-45.46	-13	-32.46	-71.29	-52.5	2.75	9.79	V	Pass
7630	-50.11	-13	-37.11	-79.39	-59.6	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 ±0.00025% (±2.5ppm) of the center frequency.

3.8.2 Measuring Instruments

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

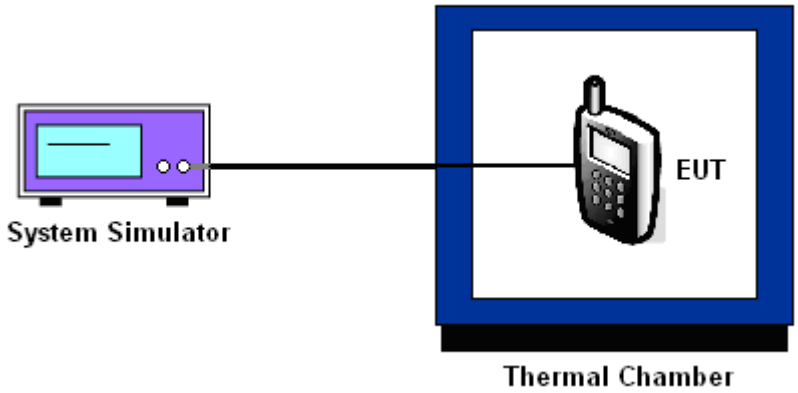
3.8.3 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.8.4 Test Procedures for Voltage Variation

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

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

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

Temperature (°C)	GSM	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0060	0.0000	PASS
40	0.0036	0.0012	
30	0.0072	0.0024	
20	0.0000	0.0000	
10	0.0036	0.0347	
0	0.0012	0.0335	
-10	0.0000	0.0299	
-20	0.0048	0.0311	
-30	0.0084	0.0335	

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

Temperature (°C)	GSM	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0149	0.0043	PASS
40	0.0128	0.0048	
30	0.0138	0.0037	
20	0.0000	0.0000	
10	0.0000	0.0016	
0	0.0011	0.0005	
-10	0.0005	0.0149	
-20	0.0027	0.0133	
-30	0.0000	0.0149	

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

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

Temperature (°C)	RMC 12.2Kbps	Result
	Deviation (ppm)	
50	0.0000	PASS
40	0.0132	
30	0.0012	
20	0.0000	
10	0.0012	
0	0.0012	
-10	0.0132	
-20	0.0000	
-30	0.0143	

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

Temperature (°C)	RMC 12.2Kbps	Result
	Deviation (ppm)	
50	0.0005	PASS
40	0.0101	
30	0.0112	
20	0.0000	
10	0.0106	
0	0.0101	
-10	0.0117	
-20	0.0016	
-30	0.0000	

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

3.8.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GSM	4.1	-12	0.0036	2.5	PASS
		3.7	-13	0.0024		
		BEP	-12	0.0036		
	EDGE class 8	4.1	13	0.0024		
		3.7	15	0.0000		
		BEP	14	0.0012		
GSM 1900 CH661	GSM	4.1	13	0.0138	(Note 3.)	
		3.7	11	0.0128		
		BEP	14	0.0144		
	EDGE class 8	4.1	18	0.0032		
		3.7	14	0.0011		
		BEP	16	0.0021		
WCDMA Band V CH4182	RMC 12.2Kbps	4.1	-6	0.0143	2.5	
		3.7	5	0.0012		
		BEP	-5	0.0132		
WCDMA Band II CH9400	RMC 12.2Kbps	4.1	11	0.0112	(Note 3.)	
		3.7	-9	0.0005		
		BEP	10	0.0106		

Note:

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.5 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
System Simulator	Rohde & Schwarz	CMU200	117995	N/A	Jul. 29, 2014	Jan. 28, 2015	Jul. 28, 2015	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Jan. 28, 2015	Jun. 08, 2015	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 17, 2014	Jan. 28, 2015	Jul. 16, 2015	Conducted (TH02-HY)
Hygrometer	Testo	608-H1	34897199	N/A	May. 06, 2014	Jan. 28, 2015	May. 05, 2015	Conducted (TH02-HY)
RF cable	WOKEN	S05	S05-130708-22	N/A	Jan. 21, 2015	Jan. 28, 2015	Jan. 20, 2016	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Jan. 24, 2015~ Jan. 26, 2015	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Sep. 27, 2014	Jan. 24, 2015~ Jan. 26, 2015	Sep. 26, 2015	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 19, 2014	Jan. 24, 2015~ Jan. 26, 2015	Aug. 18, 2015	Radiation (03CH07-HY)
Horn Antenna	SCHWARZBEC	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 03, 2014	Jan. 24, 2015~ Jan. 26, 2015	Nov. 02, 2015	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz	Mar. 17, 2014	Jan. 24, 2015~ Jan. 26, 2015	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Oct. 21, 2014	Jan. 24, 2015~ Jan. 26, 2015	Oct. 20, 2015	Radiation (03CH07-HY)
Preamplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz ~ 40GHz	Jun. 09, 2014	Jan. 24, 2015~ Jan. 26, 2015	Jun. 08, 2015	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jan. 24, 2015~ Jan. 26, 2015	N/A	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Jan. 24, 2015~ Jan. 26, 2015	N/A	Radiation (03CH07-HY)
Controller	ChainTek	Chaintek 3000	N/A	Control Turn table	N/A	Jan. 24, 2015~ Jan. 26, 2015	N/A	Radiation (03CH07-HY)
Controller	Max-Full	MF7802	MF780208368	Control Ant Mast	N/A	Jan. 24, 2015~ Jan. 26, 2015	N/A	Radiation (03CH07-HY)
Hygrometer	Testo	608-H1	34897197	N/A	May 06, 2014	Jan. 24, 2015~ Jan. 26, 2015	May 05, 2015	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY842095	1GHz~40GHz	Dec. 04, 2014	Jan. 24, 2015~ Jan. 26, 2015	Dec. 03, 2015	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY842095	9KHz~1GHz	Dec. 04, 2014	Jan. 24, 2015~ Jan. 26, 2015	Dec. 03, 2015	Radiation (03CH07-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Notch Filter	Wainwright	WRCG 824/849/814 /859-40 8SS	SN35	GSM850 / WCDMA 850	Oct. 01, 2014	Jan. 24, 2015~ Jan. 26, 2015	Sep. 30, 2015	Radiation (03CH07-HY)
Notch Filter	Wainwright	WRCT1850/ 1910-40/8S S	SN21	1900	Oct. 01, 2014	Jan. 24, 2015~ Jan. 26, 2015	Sep. 30, 2015	Radiation (03CH07-HY)
Filter	Microwave Circuits	H1G013G1	SN477215	1GHz HPF	Oct. 01, 2014	Jan. 24, 2015~ Jan. 26, 2015	Sep. 30, 2015	Radiation (03CH07-HY)
Filter	Wainwright Instruments Gmbh	WLKS1200-8SS	SN3	1.2GHz LPF	Oct. 01, 2014	Jan. 24, 2015~ Jan. 26, 2015	Sep. 30, 2015	Radiation (03CH07-HY)
Filter	Microwave Circuits	H3G018G1	SN477220	3GHz HPF	Oct. 01, 2014	Jan. 24, 2015~ Jan. 26, 2015	Sep. 30, 2015	Radiation (03CH07-HY)
Test Software	Audix	E3	Version 6.2009-08-24	N/A	N/A	Jan. 24, 2015~ Jan. 26, 2015	N/A	Radiation (03CH07-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))	**4.50**