



FCC RF Test Report

APPLICANT : ASUSTeK COMPUTER INC.
EQUIPMENT : ASUS Phone
BRAND NAME : ASUS
MODEL NAME : ASUS_Z00AD
FCC ID : MSQZ00AD
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Feb. 02, 2015 and testing was completed on Feb. 19, 2015. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and has been in compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG520232A	Rev. 01	Initial issue of report	Mar. 10, 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) RSS-139 (6.4)	Conducted Output Power	Reporting Only	PASS	-
3.2	§24.232(d)	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (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	-
	§27.50(d)(4)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
3.4	§2.1049 §22.917(b) §24.238(b) §27.53(g)	RSS-GEN(4.6.1) RSS-133(6.5) RSS-139 (6.5)	Occupied Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a) §27.53(h)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a) §27.53(h)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a) §27.53(h)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 4.15 dB at 5639.000 MHz
3.8	§2.1055 §22.355	RSS-GEN(4.7) RSS-132 (5.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22 Within Authorized Band	PASS	-
	§2.1055 §24.235 §27.54	RSS-GEN(4.7) RSS-133 (6.3) RSS-139 (6.3)				



1 General Description

1.1 Applicant

ASUSTeK COMPUTER INC.

4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN

1.2 Manufacturer

QM (Shanghai) Technology Co., Ltd.

Building 7, No. 1-8, Alley 18, Sanzhuang Road, Songjiang Export Zone, Shanghai 201613, P.R. China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	ASUS Phone
Brand Name	ASUS
Model Name	ASUS_Z00AD
FCC ID	MSQZ00AD
Sample 1	EUT with SKU 1
Sample 2	EUT with SKU 2
Sample 3	EUT with SKU 3
Sample 4	EUT with SKU 4
Sample 5	EUT with SKU 5
Sample 6	EUT with SKU 6
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v4.0 EDR/LE
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. All tests were performed with sample 1.

SKU	SKU 1	SKU 2	SKU 3	SKU 4	SKU 5	SKU 6
CPU	2.3GHz					
Memory	Samsung 2G	Hynix 4G				
EMMC	Hynix 16G	Sandisk 32G	Hynix 64G	Hynix 32G	Samsung 64G	Sandisk 64G
NFC	GEMALTO					
Front Camera	Liteon		Chicony			Chicony
Rear Camera	CHICONY			LITEON		
Battery	NVT	CPT	SMP			

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	<SIM 1> GSM850 : 32.75 dBm GSM1900 : 30.28 dBm WCDMA Band V : 23.40 dBm WCDMA Band IV : 24.39 dBm WCDMA Band II : 23.89 dBm <SIM 1> GSM850 : 32.94 dBm GSM1900 : 27.92 dBm
Antenna Type	PIFA Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (Uplink)

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

<SIM 1>

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GSM	GMSK	0.6823	0.0072 ppm	248KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.2000	0.0347 ppm	246KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.0966	0.0179 ppm	4M11F9W
Part 24	GSM1900 GSM	GMSK	0.7816	0.0053 ppm	246KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.3524	0.0059 ppm	252KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.2168	0.0197 ppm	4M10F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.2333	0.0121 ppm	4M15F9W

<SIM 2>

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GSM	GMSK	0.1432	0.0191 ppm	246KGXW
Part 24	GSM1900 GSM	GMSK	0.5023	0.0090 ppm	248KGXW

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 1 st 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.	
	TH02-HY	03CH07-HY

1.8 Applicable Standards

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

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

Remark:

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

2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

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

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 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 for SIM 1 ■ EDGE class 8 Link for SIM 1 ■ GSM Link for SIM 2	■ GSM Link for SIM 1 ■ EDGE class 8 Link for SIM 1 ■ GSM Link for SIM 2
GSM 1900	■ GSM Link for SIM 1 ■ EDGE class 8 Link for SIM 1 ■ GSM Link for SIM 2	■ GSM Link for SIM 1 ■ EDGE class 8 Link for SIM 1 ■ GSM Link for SIM 2
WCDMA Band V	■ RMC 12.2Kbps Link for SIM 1	■ RMC 12.2Kbps Link for SIM 1
WCDMA Band II	■ RMC 12.2Kbps Link for SIM 1	■ RMC 12.2Kbps Link for SIM 1
WCDMA Band IV	■ RMC 12.2Kbps Link for SIM 1	■ RMC 12.2Kbps Link for SIM 1

Note:

1. For Radiated TCs, all tests were performed with adapter, USB cable, and earphone 1.
2. 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, WCDMA band IV, and WCDMA band II,
 only these modes were used for all tests.



Conducted Power Measurement Results:

<SIM 1>

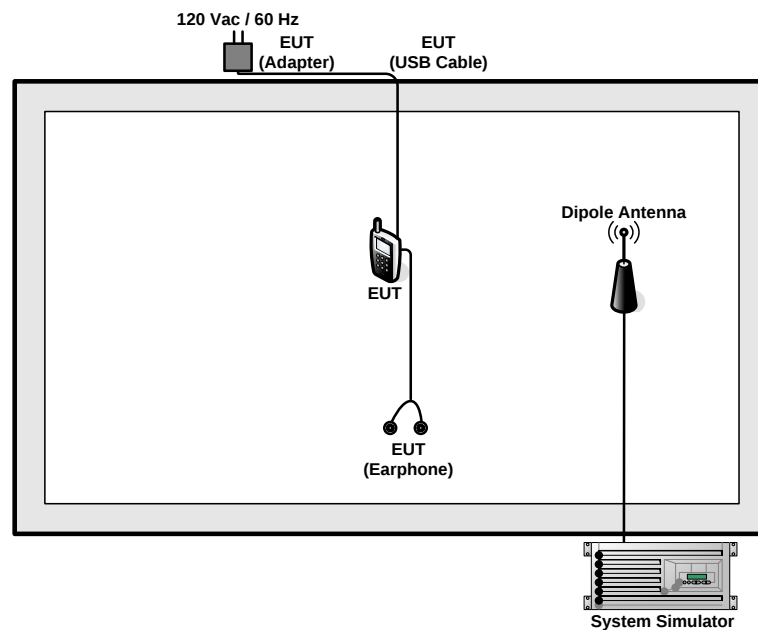
Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	32.74	32.75	32.74	30.28	30.26	30.18
GPRS class 8	32.72	32.73	32.73	30.27	30.25	30.17
GPRS class 10	29.71	29.73	29.77	27.30	27.23	27.17
EGPRS class 8	27.64	27.49	27.37	26.85	26.95	27.00
EGPRS class 10	24.54	24.41	24.29	23.85	23.92	23.96

Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
RMC 12.2K	23.29	23.24	23.40	23.86	23.89	23.76	24.20	24.19	24.39
HSDPA Subtest-1	23.24	23.29	23.36	23.84	23.86	23.75	24.23	24.20	24.36
HSDPA Subtest-2	23.29	23.23	23.33	23.82	23.84	23.74	24.25	24.24	24.32
HSDPA Subtest-3	22.81	22.76	22.93	23.40	23.38	23.37	23.19	23.27	23.41
HSDPA Subtest-4	22.60	22.51	22.72	23.16	23.18	23.13	23.08	23.01	23.19
HSUPA Subtest-1	22.84	22.80	22.91	23.45	23.43	23.32	23.21	23.26	23.34
HSUPA Subtest-2	21.05	21.01	21.15	21.63	21.66	21.58	21.58	21.55	21.63
HSUPA Subtest-3	22.11	22.02	22.16	22.63	22.65	22.54	22.56	22.49	22.59
HSUPA Subtest-4	21.29	21.26	21.40	21.75	21.82	21.81	21.65	21.69	21.78
HSUPA Subtest-5	23.26	23.21	23.29	23.79	23.85	23.71	23.05	23.01	23.08

<SIM 2>

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	32.94	32.93	32.91	27.86	27.90	27.92

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Anritsu	MT8820C	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.

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

The following shows an offset computation example with RF cable loss 4.2 dB and a 10dB attenuator.

Example :

$$\text{Offset(dB)} = \text{RF cable loss(dB)} + \text{attenuator factor(dB)}.$$
$$= 4.2 + 10 = 14.2 \text{ (dB)}$$

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

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

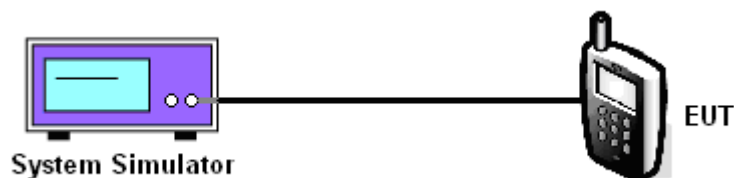
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

<SIM 1>

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)	32.74	32.75	32.74	27.64	27.49	27.37	23.29	23.24	23.40

PCS Band									
Modes	GSM1900 (GSM)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Conducted Power (dBm)	30.28	30.26	30.18	26.85	26.95	27.00	23.86	23.89	23.76

AWS Band			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312(Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
Conducted Power (dBm)	24.20	24.19	24.39

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

<SIM 1>

Cellular Band			
Modes	GSM850 (GSM)		
Channel	128 (Low)	189 (Mid)	251 (High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	32.94	32.93	32.91

PCS Band			
Modes	GSM1900 (GSM)		
Channel	512 (Low)	661 (Mid)	810 (High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	27.86	27.90	27.92

Note: maximum burst average power for GSM.

3.2 Peak-to-Average Ratio

3.2.1 Description of the PAR Measurement

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

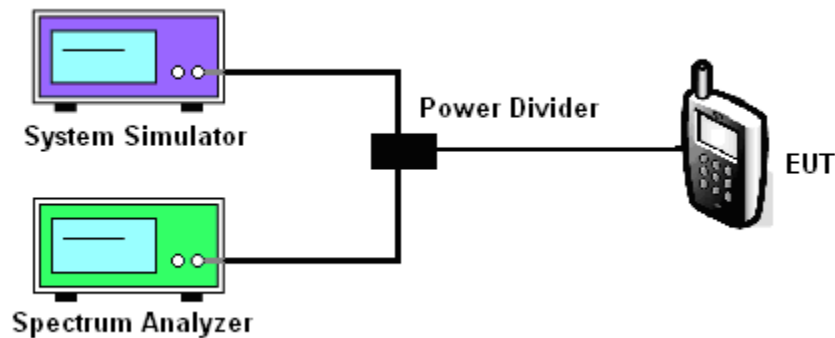
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Peak-to-Average Ratio

<SIM 1>

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)	0.32	0.24	0.24	3.60	3.36	3.24	2.60	3.28	2.84

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)	0.32	0.32	0.40	3.36	3.28	3.28	3.12	3.12	2.60

AWS Band			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312 (Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
Peak-to-Average Ratio (dB)	1.84	2.32	1.96

<SIM 2>

Cellular Band			
Modes	GSM850 (GSM)		
Channel	128 (Low)	189 (Mid)	251 (High)
Frequency (MHz)	824.2	836.4	848.8
Peak-to-Average Ratio (dB)	0.32	0.28	0.28

PCS Band			
Modes	GSM1900 (GSM)		
Channel	512 (Low)	661 (Mid)	810 (High)
Frequency (MHz)	1850.2	1880	1909.8
Peak-to-Average Ratio (dB)	0.28	0.28	0.36

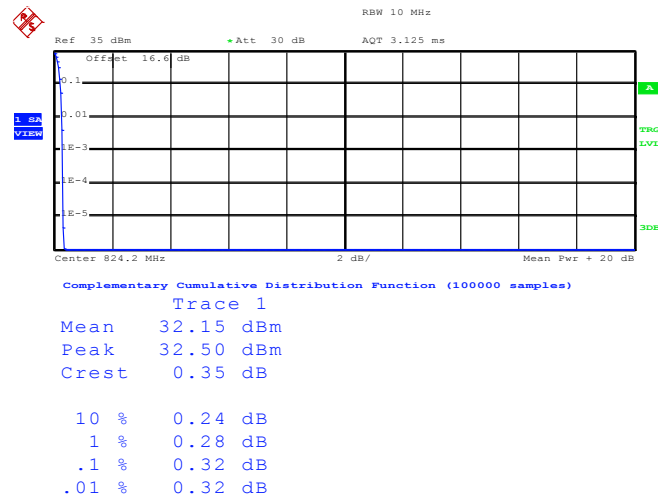


3.2.6 Test Result (Plots) of Peak-to-Average Ratio

<SIM 1>

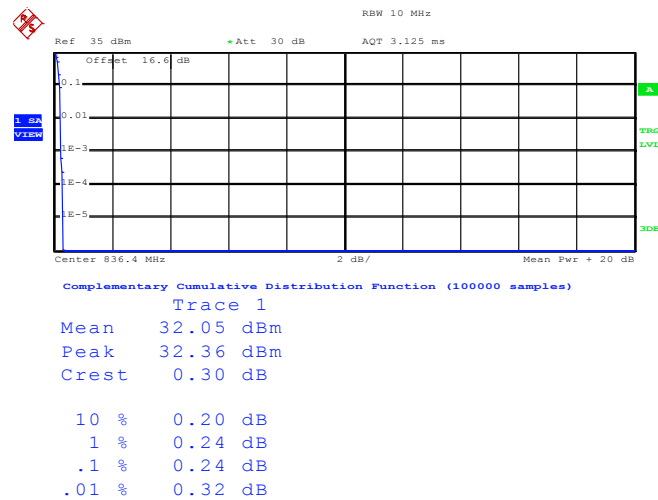
Band :	GSM 850	Test Mode :	GSM Link (GMSK)
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Peak-to-Average Ratio on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:33:05

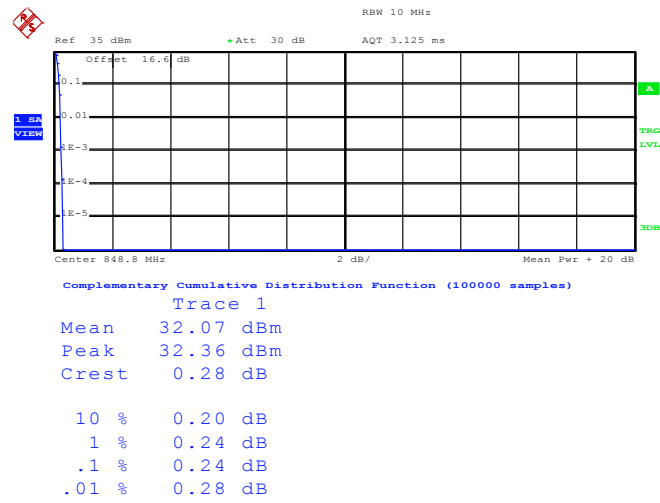
Peak-to-Average Ratio on Channel 189 (836.4 MHz)



Date: 11.FEB.2015 17:33:28



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

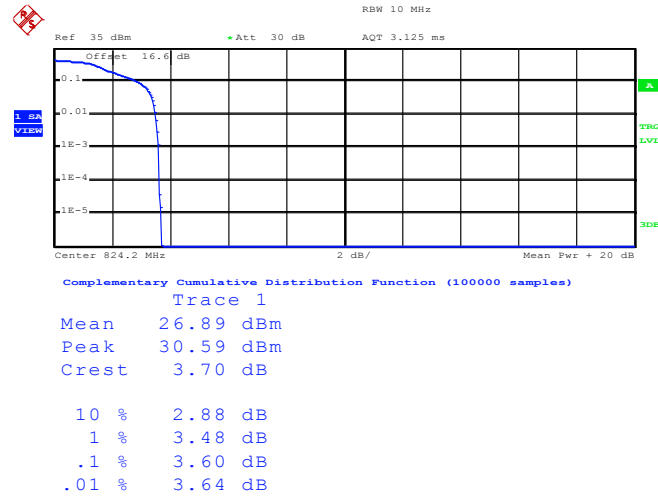


Date: 11.FEB.2015 17:33:47



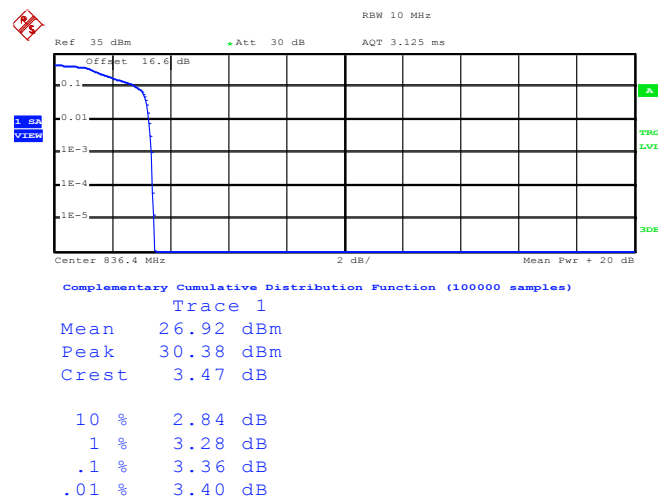
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
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Peak-to-Average Ratio on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:54:27

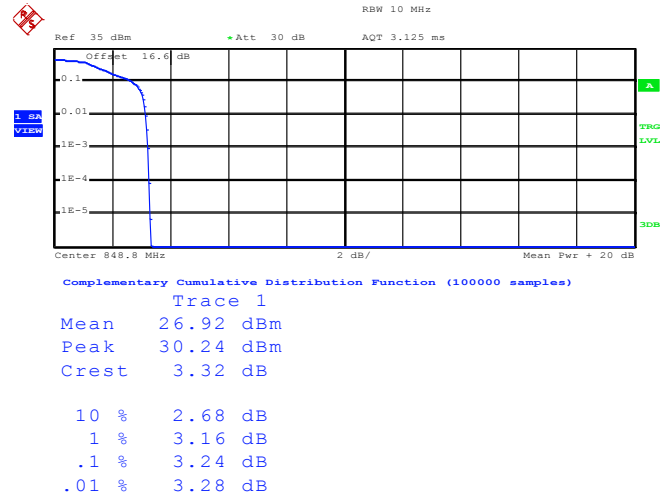
Peak-to-Average Ratio on Channel 189 (836.4 MHz)



Date: 11.FEB.2015 17:54:48



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

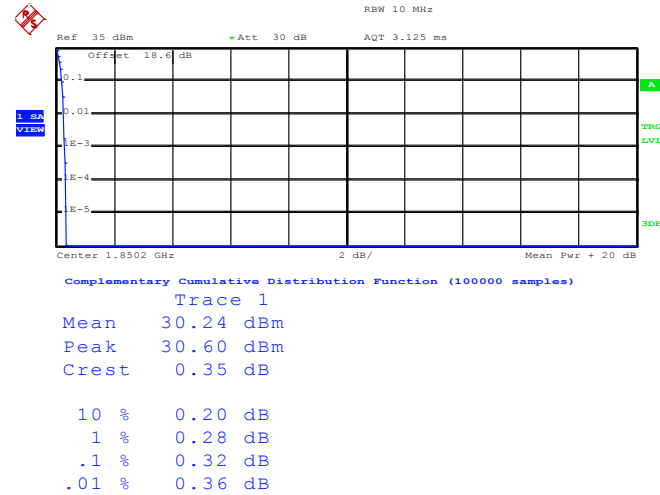


Date: 11.FEB.2015 17:55:12



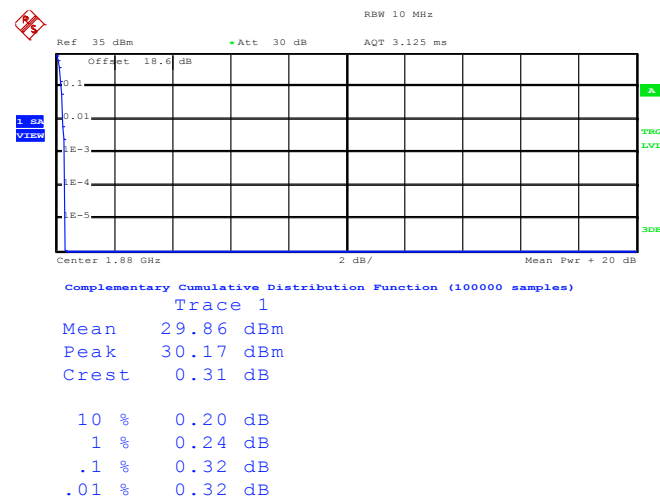
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 15:05:19

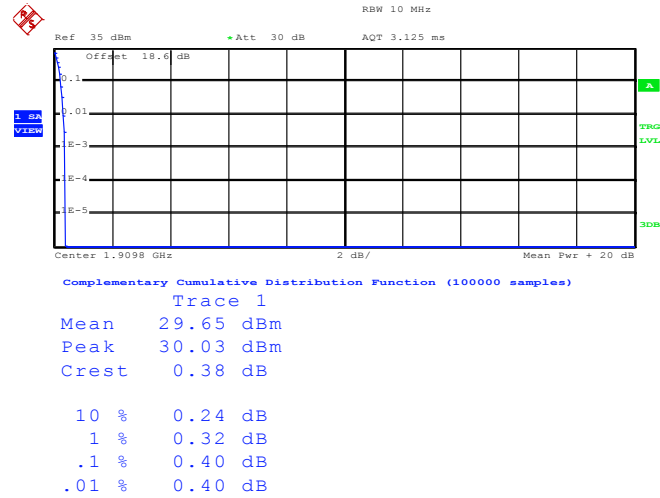
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 12.FEB.2015 15:05:38



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

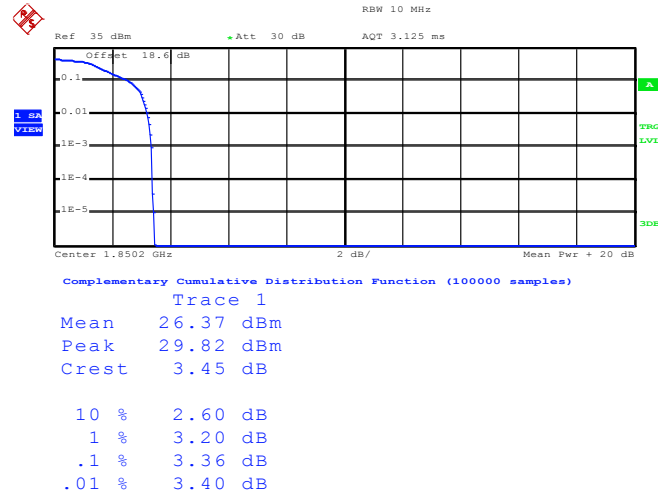


Date: 12.FEB.2015 15:06:04



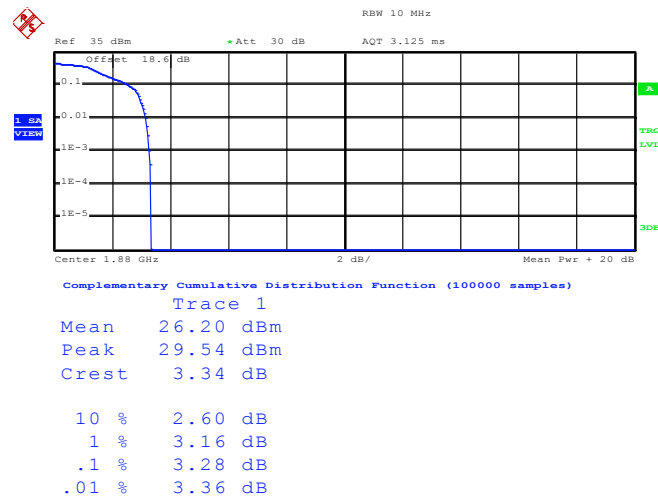
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 15:52:15

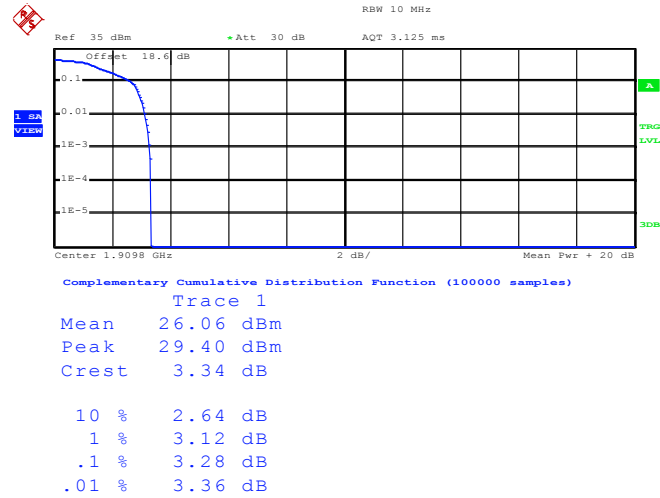
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 12.FEB.2015 15:52:34



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

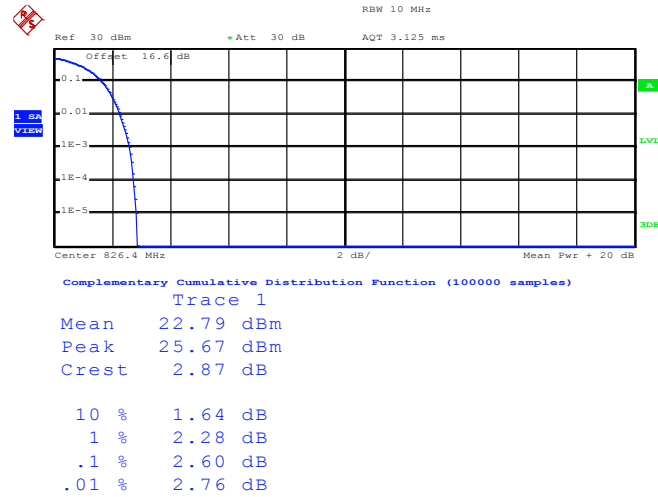


Date: 12.FEB.2015 15:52:51



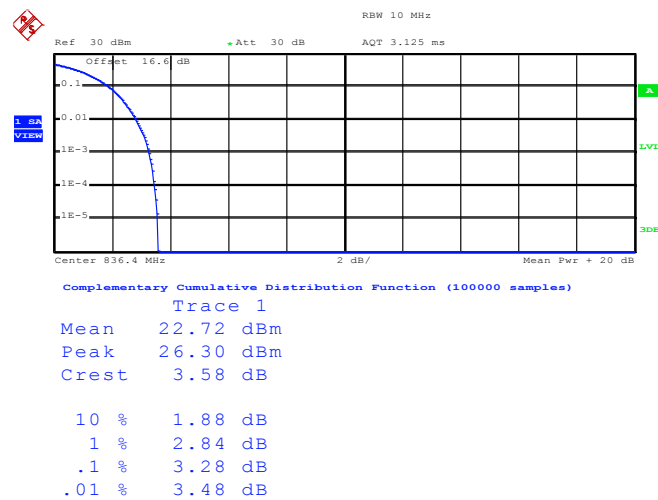
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Peak-to-Average Ratio on Channel 4132 (826.4 MHz)



Date: 12.FEB.2015 17:58:35

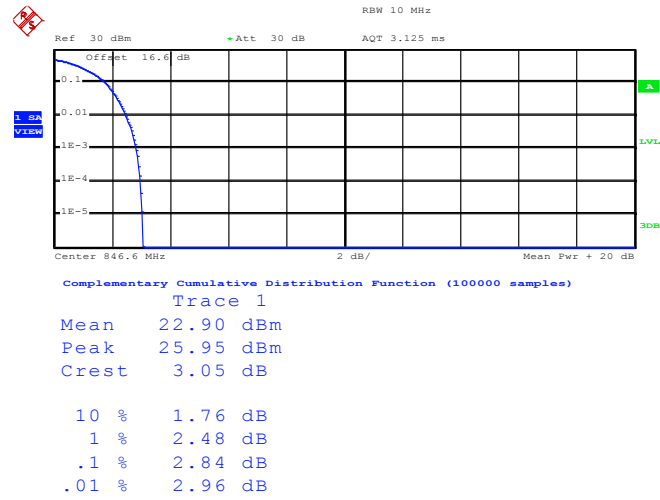
Peak-to-Average Ratio on Channel 4182 (836.4 MHz)



Date: 12.FEB.2015 17:58:58



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

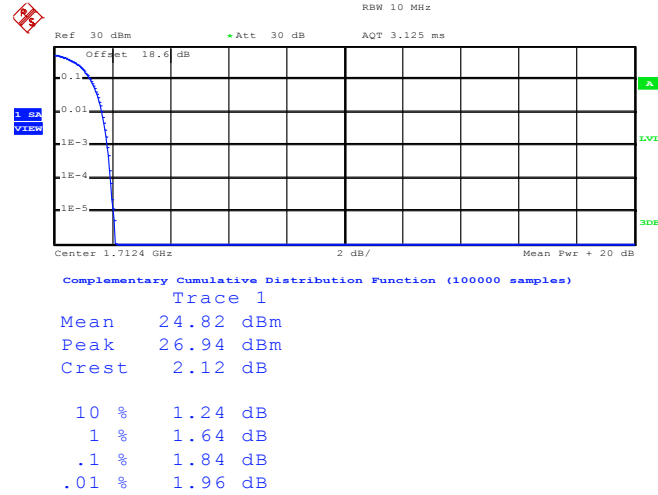


Date: 12.FEB.2015 17:59:20



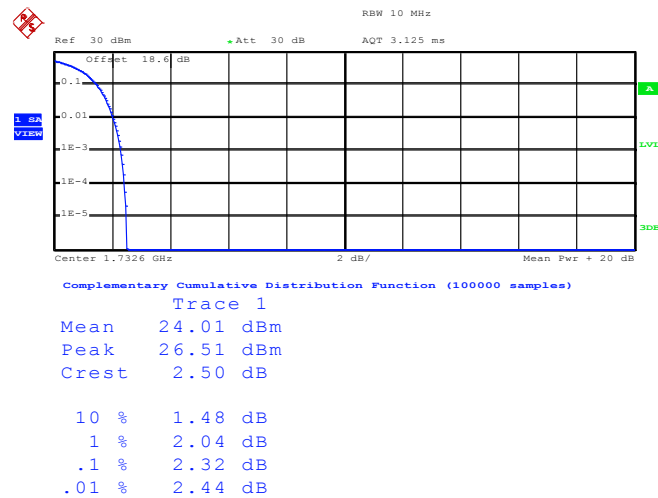
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Peak-to-Average Ratio on Channel 1312 (1712.4 MHz)



Date: 12.FEB.2015 17:46:07

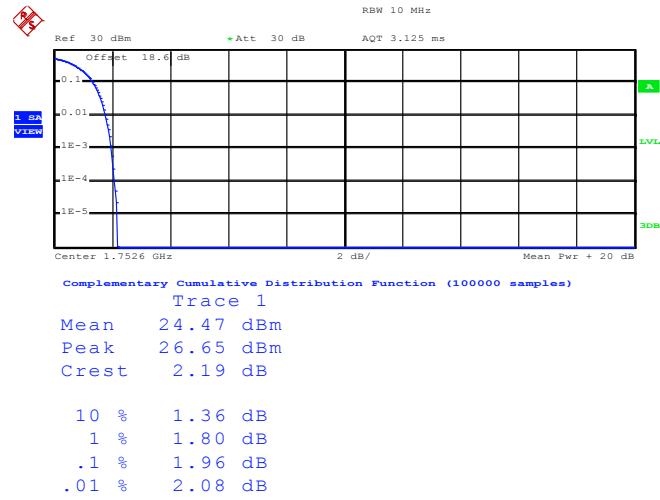
Peak-to-Average Ratio on Channel 1413 (1732.6 MHz)



Date: 12.FEB.2015 17:46:24



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

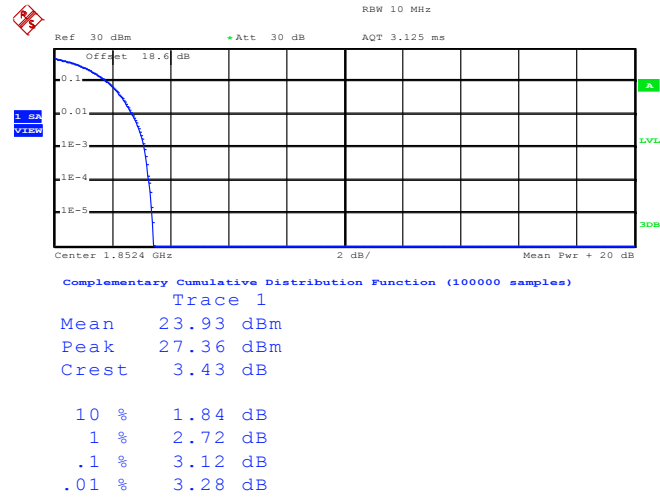


Date: 12.FEB.2015 17:46:41



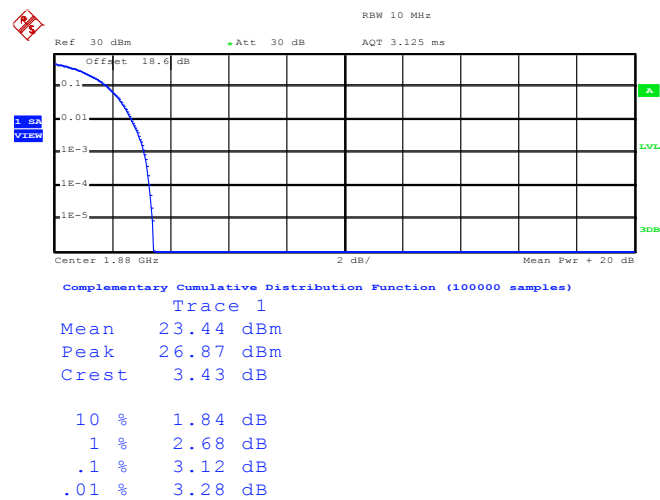
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Peak-to-Average Ratio on Channel 9262 (1852.4 MHz)



Date: 12.FEB.2015 17:25:45

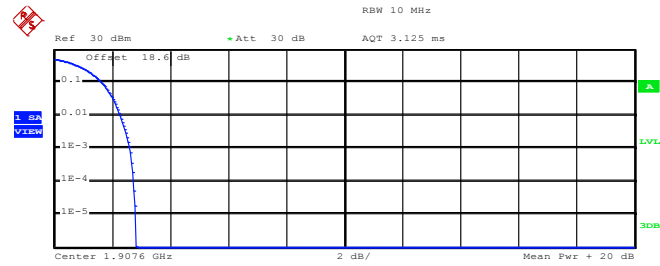
Peak-to-Average Ratio on Channel 9400 (1880.0 MHz)



Date: 12.FEB.2015 17:26:01



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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 23.20 dBm

Peak 26.02 dBm

Crest 2.82 dB

10 % 1.64 dB

1 % 2.28 dB

.1 % 2.60 dB

.01 % 2.76 dB

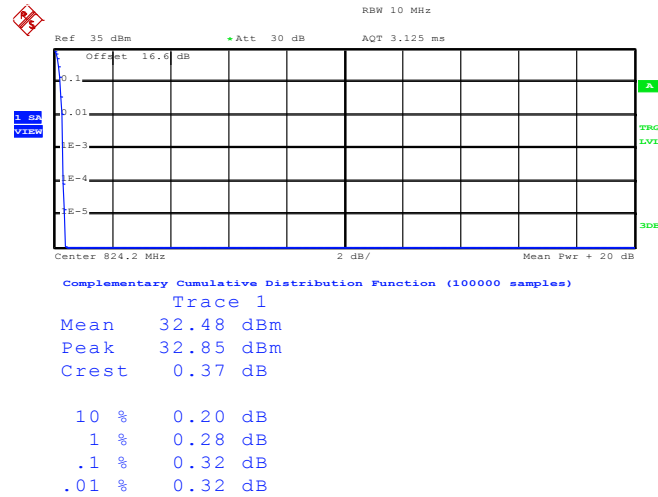
Date: 12.FEB.2015 17:26:18



<SIM 2>

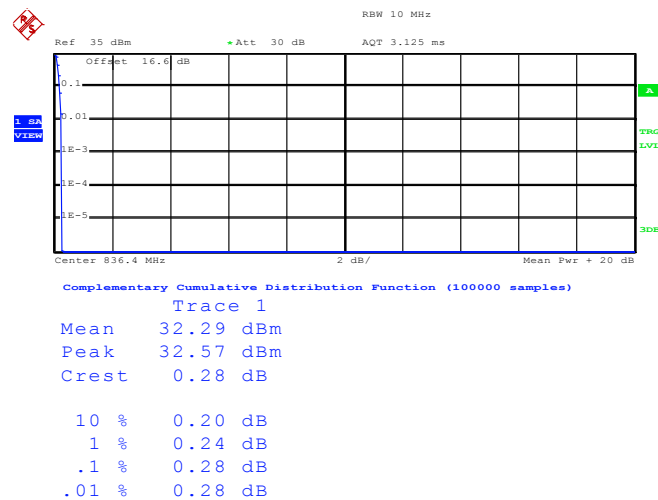
Band :	GSM 850	Test Mode :	GSM Link (GMSK)
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Peak-to-Average Ratio on Channel 128 (824.2 MHz)



Date: 14.FEB.2015 00:27:40

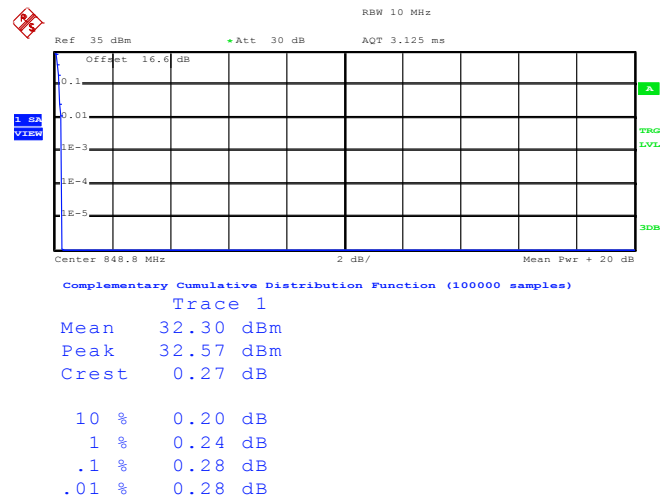
Peak-to-Average Ratio on Channel 189 (836.4 MHz)



Date: 14.FEB.2015 00:27:56



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

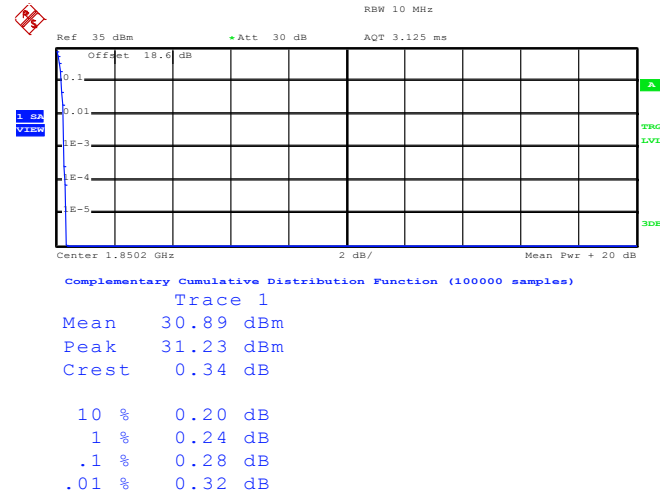


Date: 14.FEB.2015 00:28:12



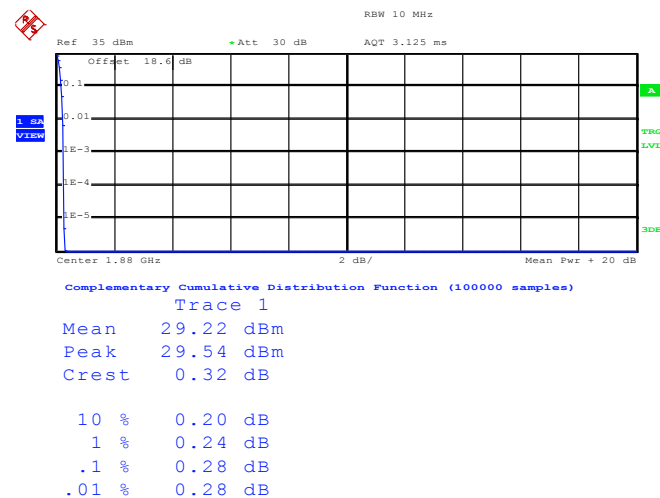
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Date: 13.FEB.2015 16:28:38

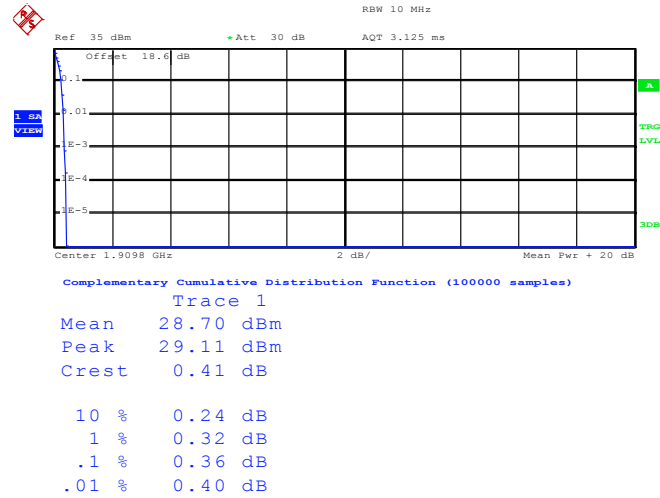
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 13.FEB.2015 16:29:02



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



Date: 13.FEB.2015 16:29:23



3.3 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

P_s (dBm) : Input power to substitution antenna.

G_s (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

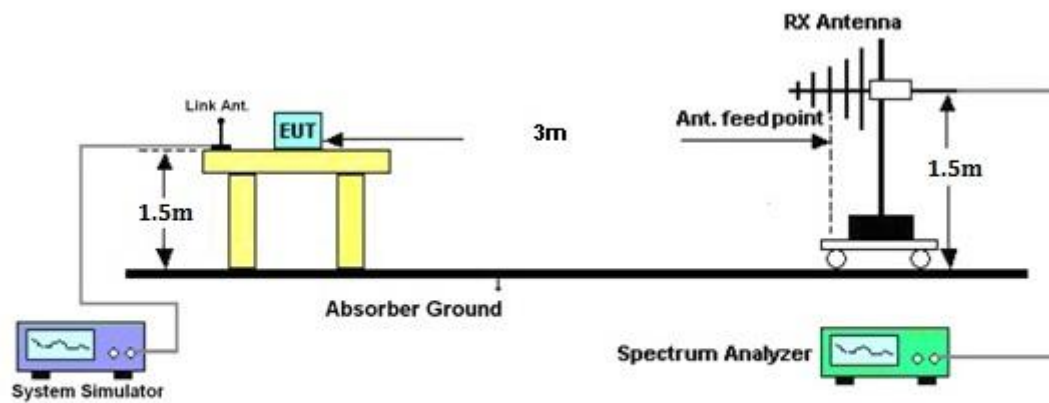
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

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

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

3.3.4 Test Setup



3.3.5 Test Result of ERP

<SIM 1>

GSM850 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-30.60	-48.12	0.00	-1.08	16.44	0.0441
836.40	-31.04	-48.28	0.00	-0.93	16.31	0.0428
848.80	-30.73	-48.35	0.00	-0.76	16.86	0.0485
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-18.55	-47.97	0.00	-1.08	28.34	0.6823
836.40	-19.16	-48.01	0.00	-0.93	27.92	0.6194
848.80	-19.38	-48.05	0.00	-0.76	27.91	0.6180

GSM850 (EDGE class 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-36.27	-48.12	0.00	-1.08	10.77	0.0119
836.40	-36.02	-48.28	0.00	-0.93	11.33	0.0136
848.80	-35.69	-48.35	0.00	-0.76	11.90	0.0155
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-23.88	-47.97	0.00	-1.08	23.01	0.2000
836.40	-24.74	-48.01	0.00	-0.93	22.34	0.1714
848.80	-25.23	-48.05	0.00	-0.76	22.06	0.1607



WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-39.34	-48.12	0.00	-1.08	7.70	0.0059
836.40	-39.57	-48.28	0.00	-0.93	7.78	0.0060
846.60	-39.02	-48.35	0.00	-0.76	8.57	0.0072
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-27.04	-47.97	0.00	-1.08	19.85	0.0966
836.40	-27.47	-48.01	0.00	-0.93	19.61	0.0914
846.60	-27.82	-48.05	0.00	-0.76	19.47	0.0885

<SIM 2>

GSM850 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-32.44	-48.12	0.00	-1.08	14.60	0.0288
836.40	-32.51	-48.28	0.00	-0.93	14.84	0.0305
848.80	-32.30	-48.35	0.00	-0.76	15.29	0.0338
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-26.31	-47.97	0.00	-1.08	20.58	0.1143
836.40	-25.97	-48.01	0.00	-0.93	21.11	0.1291
848.80	-25.73	-48.05	0.00	-0.76	21.56	0.1432

3.3.6 Test Result of EIRP

<SIM 1>

GSM1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-26.87	-51.88	0.00	1.96	26.97	0.4977
1880.00	-28.01	-52.99	0.00	2.00	26.98	0.4989
1909.80	-29.68	-54.28	0.00	1.98	26.58	0.4550
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-25.59	-52.13	0.00	1.96	28.50	0.7079
1880.00	-26.24	-53.17	0.00	2.00	28.93	0.7816
1909.80	-27.20	-54.13	0.00	1.98	28.91	0.7780

GSM1900 (EDGE class 8) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-30.60	-51.88	0.00	1.96	23.24	0.2109
1880.00	-31.34	-52.99	0.00	2.00	23.65	0.2317
1909.80	-32.92	-54.28	0.00	1.98	23.34	0.2158
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-29.14	-52.13	0.00	1.96	24.95	0.3126
1880.00	-29.80	-53.17	0.00	2.00	25.37	0.3443
1909.80	-30.64	-54.13	0.00	1.98	25.47	0.3524



WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1712.4	-33.95	-51.88	0.00	1.96	19.89	0.0975
1732.6	-35.05	-52.99	0.00	2.00	19.94	0.0986
1752.6	-35.79	-54.28	0.00	1.98	20.47	0.1114
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1712.4	-31.28	-52.13	0.00	1.96	22.81	0.1910
1732.6	-32.28	-53.17	0.00	2.00	22.89	0.1945
1752.6	-32.43	-54.13	0.00	1.98	23.68	0.2333

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-32.63	-51.88	0.00	1.96	21.21	0.1321
1880.00	-33.78	-52.99	0.00	2.00	21.21	0.1321
1907.60	-35.23	-54.28	0.00	1.98	21.03	0.1268
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-31.03	-52.13	0.00	1.96	23.06	0.2023
1880.00	-31.90	-53.17	0.00	2.00	23.27	0.2123
1907.60	-32.75	-54.13	0.00	1.98	23.36	0.2168



<SIM 2>

GSM1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-27.40	-51.88	0.00	1.96	26.44	0.4406
1880.00	-28.43	-52.99	0.00	2.00	26.56	0.4529
1909.80	-30.16	-54.28	0.00	1.98	26.10	0.4074
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-27.39	-52.13	0.00	1.96	26.70	0.4677
1880.00	-28.16	-53.17	0.00	2.00	27.01	0.5023
1909.80	-29.18	-54.13	0.00	1.98	26.93	0.4932

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.

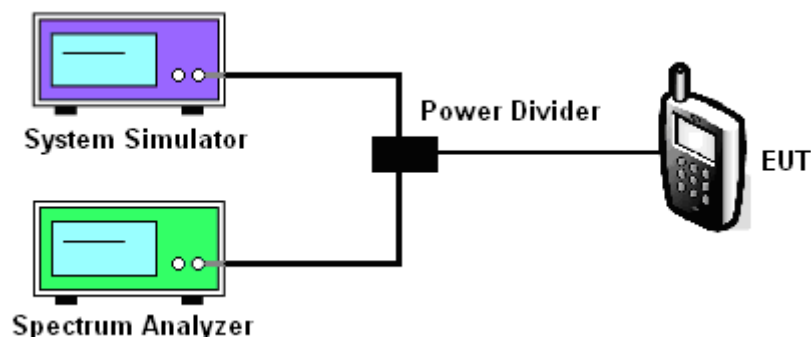
3.4.2 Measuring Instruments

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

<SIM 1>

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)	243.00	248.00	245.00	244.00	246.00	242.00
26dB BW (kHz)	306.00	312.00	309.00	297.00	300.00	297.00

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)	241.00	246.00	243.00	252.00	250.00	249.00
26dB BW (kHz)	313.00	311.00	310.00	303.00	300.00	311.00

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)	4.11	4.07	4.08
26dB BW (MHz)	4.66	4.61	4.64

AWS Band			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312(Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
99% OBW (MHz)	4.15	4.11	4.13
26dB BW (MHz)	4.83	4.69	4.83

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)	4.08	4.09	4.10
26dB BW (MHz)	4.62	4.65	4.66

<SIM 2>

Cellular Band			
Modes	GSM850 (GSM)		
Channel	128 (Low)	189 (Mid)	251 (High)
Frequency (MHz)	824.2	836.4	848.8
99% OBW (kHz)	246.00	245.00	245.00
26dB BW (kHz)	309.00	299.00	314.00

PCS Band			
Modes	GSM1900 (GSM)		
Channel	512 (Low)	661 (Mid)	810 (High)
Frequency (MHz)	1850.2	1880	1909.8
99% OBW (kHz)	248.00	247.00	248.00
26dB BW (kHz)	314.00	311.00	290.00

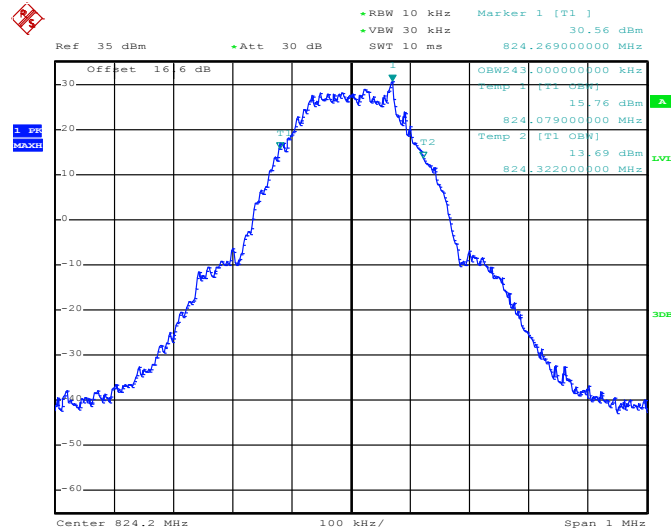


3.4.6 Test Result (Plots) of Occupied Bandwidth and 26dB Bandwidth

<SIM 1>

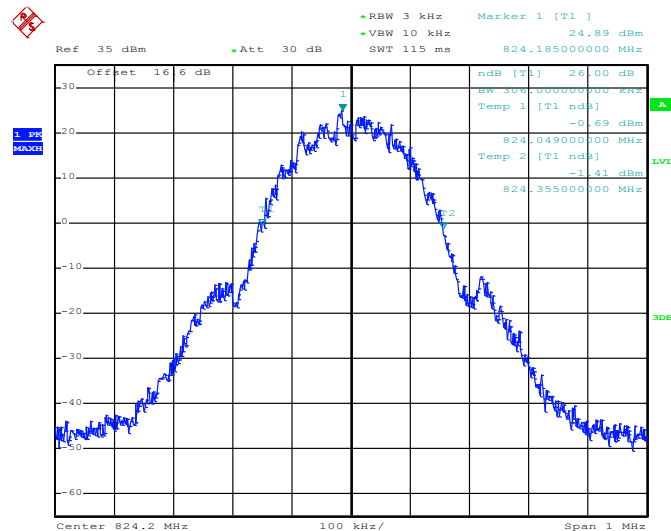
Band :	GSM 850	Test Mode :	GSM Link (GMSK)
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99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:20:42

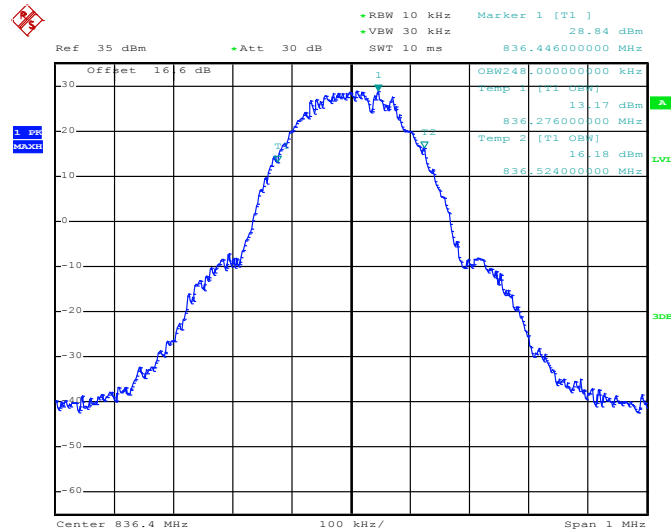
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:17:30

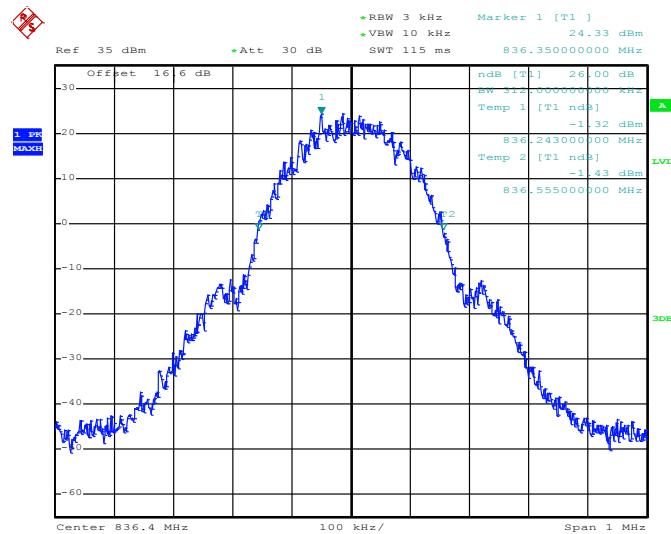


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 11.FEB.2015 17:21:18

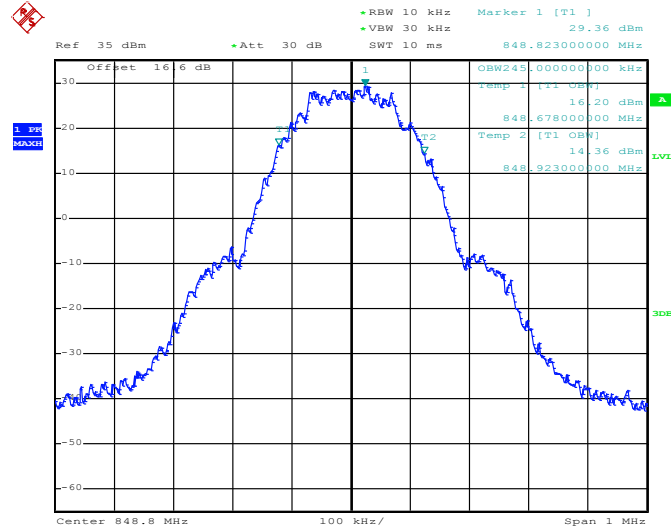
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 11.FEB.2015 17:18:08

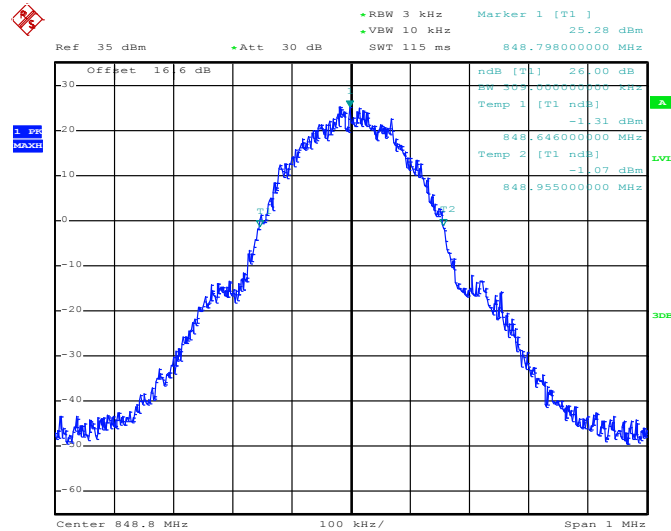


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 11.FEB.2015 17:21:52

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

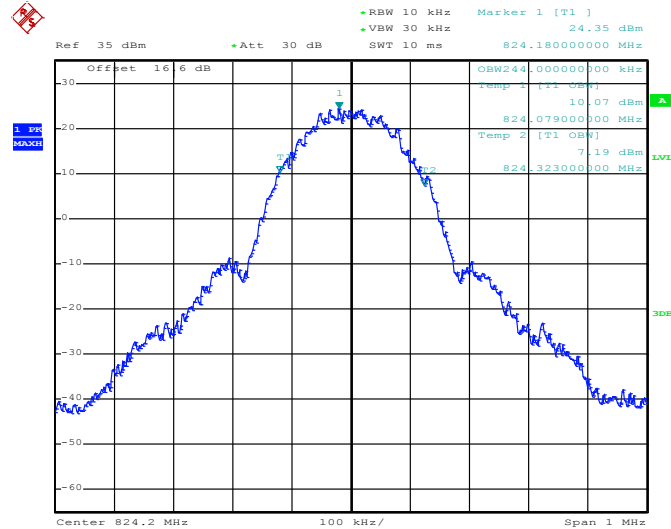


Date: 11.FEB.2015 17:18:48



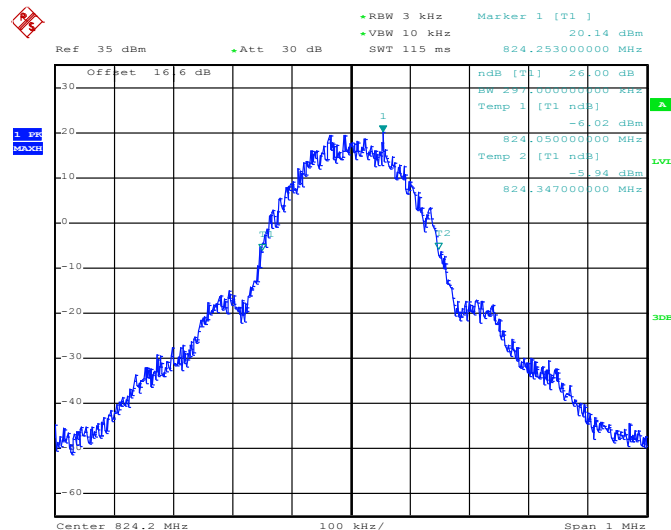
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:43:31

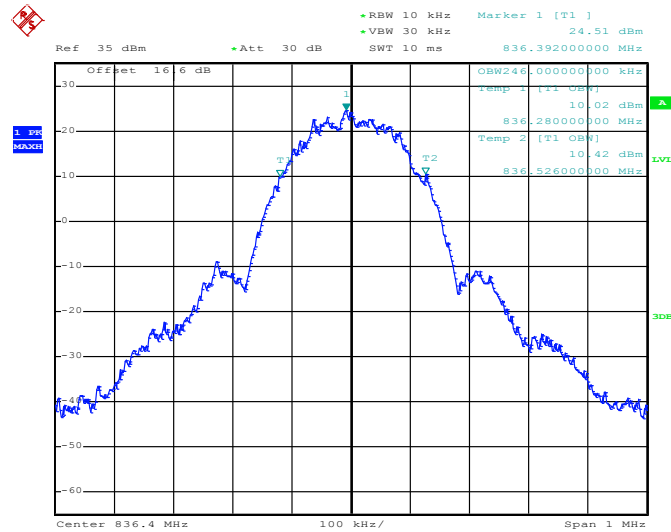
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:41:23

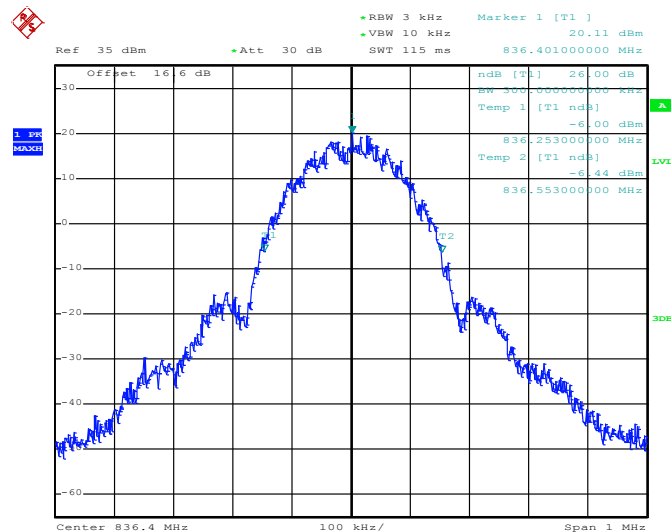


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 11.FEB.2015 17:44:04

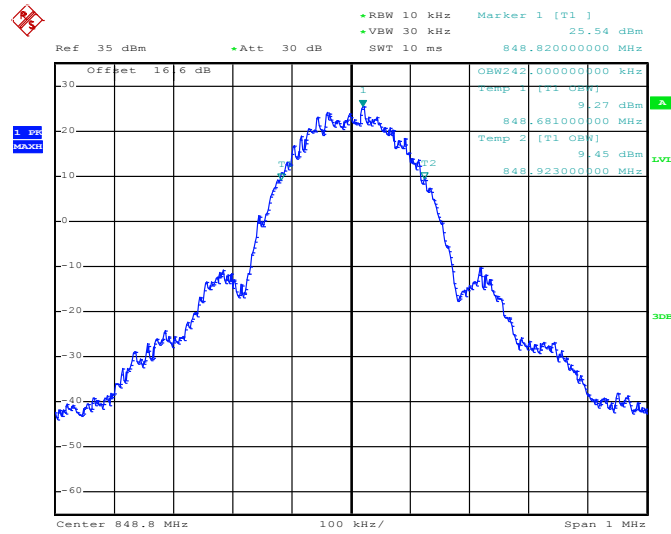
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 11.FEB.2015 17:42:01

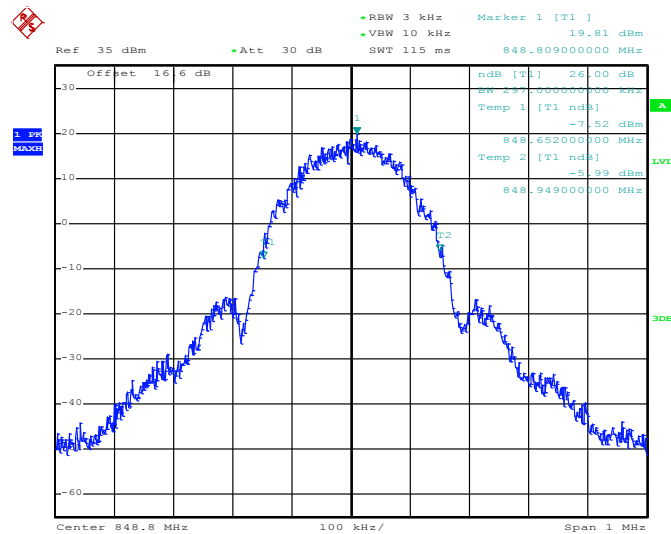


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 11.FEB.2015 17:44:38

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

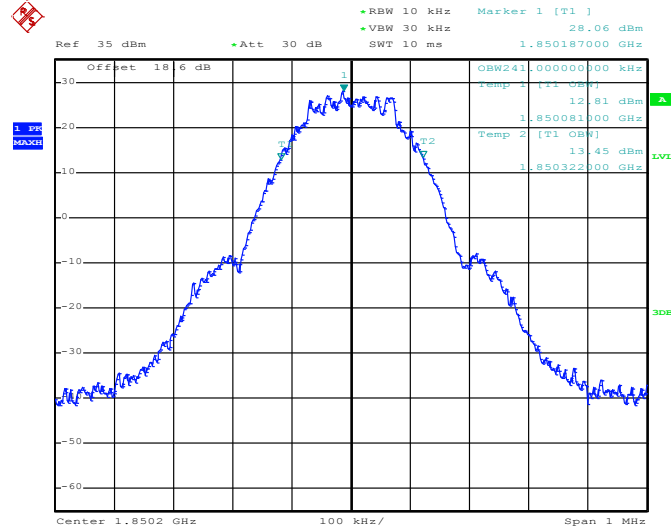


Date: 11.FEB.2015 17:42:35



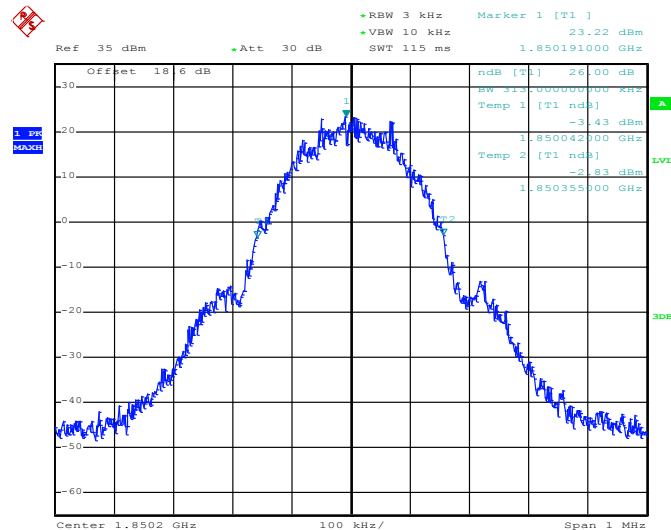
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 14:56:28

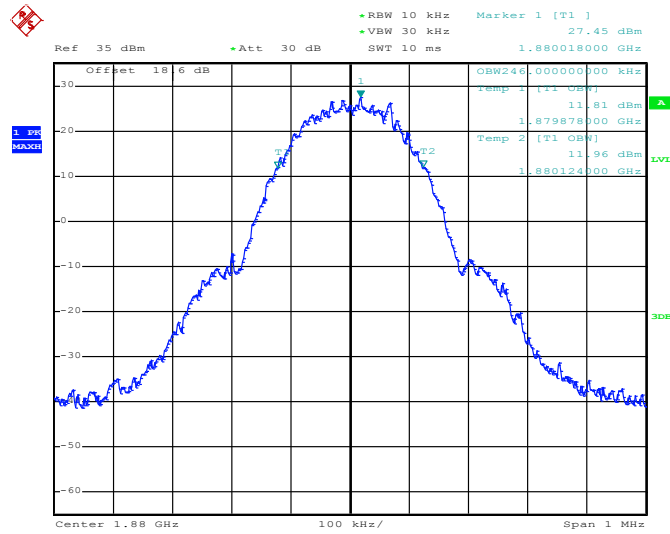
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 14:58:34

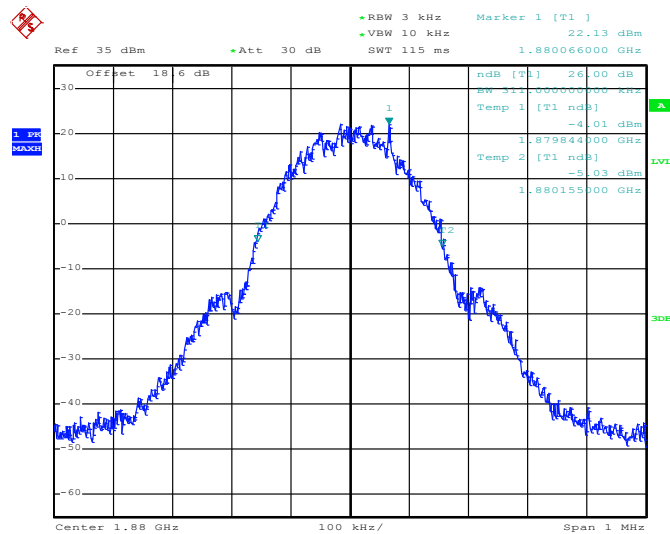


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 12.FEB.2015 14:57:04

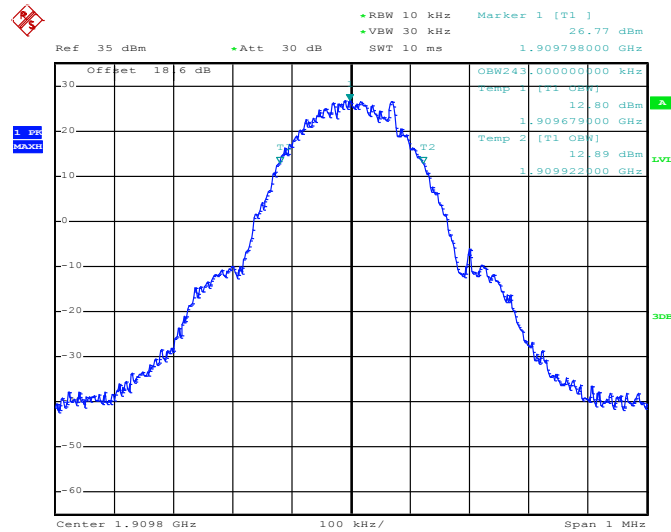
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 12.FEB.2015 14:59:09

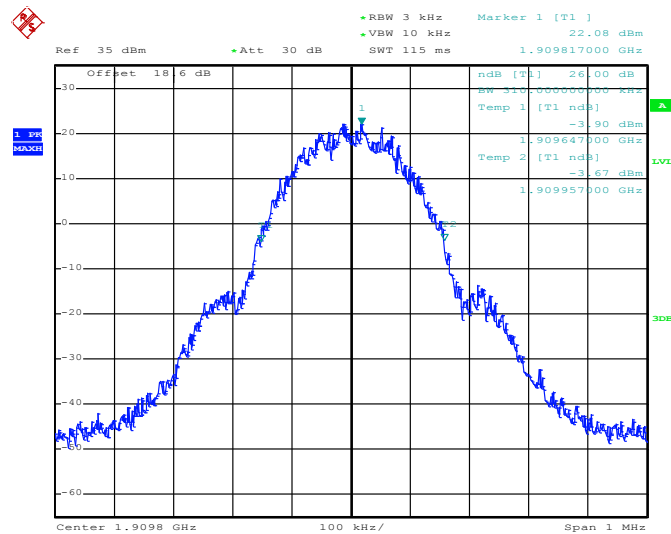


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 12.FEB.2015 14:57:46

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

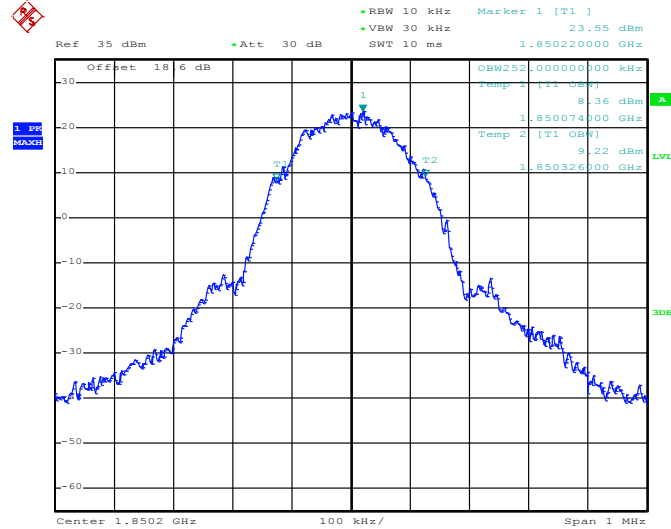


Date: 12.FEB.2015 14:59:42



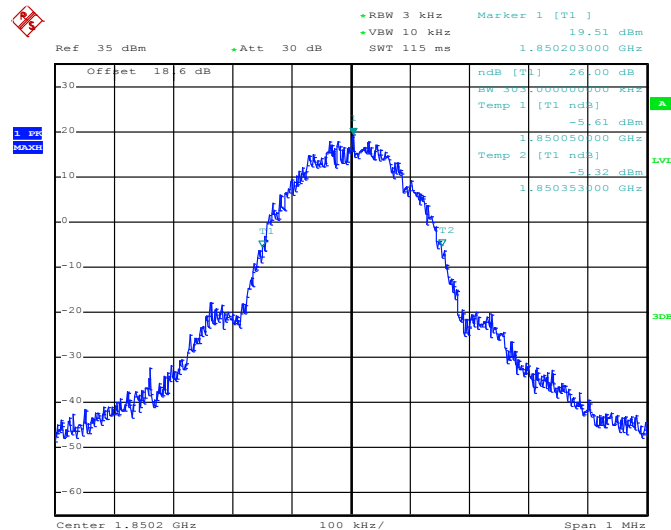
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 15:38:57

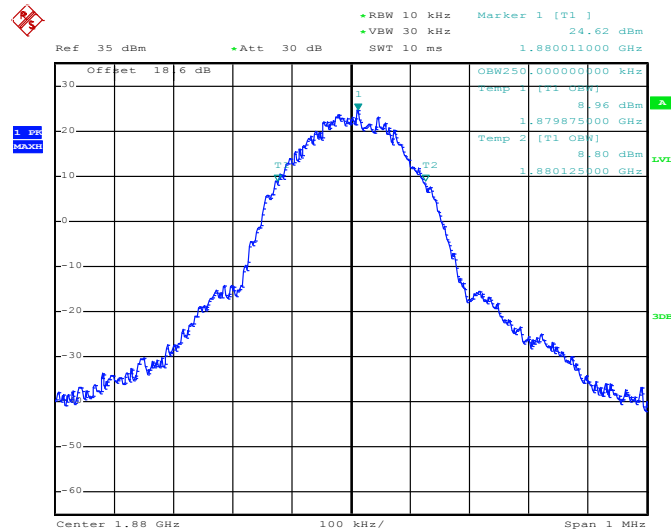
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 15:33:15

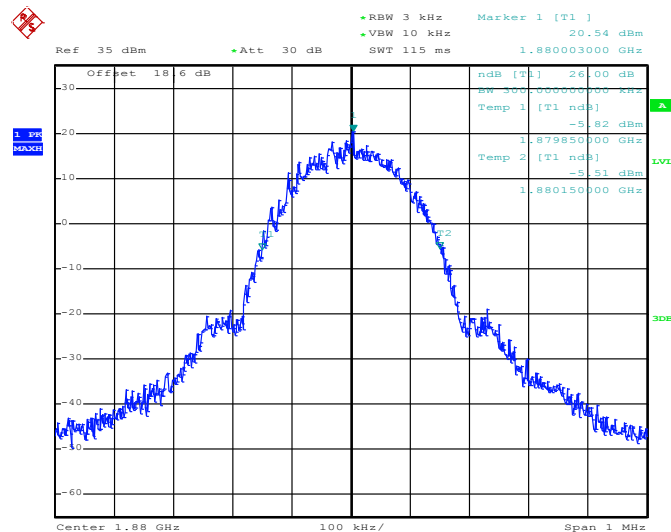


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



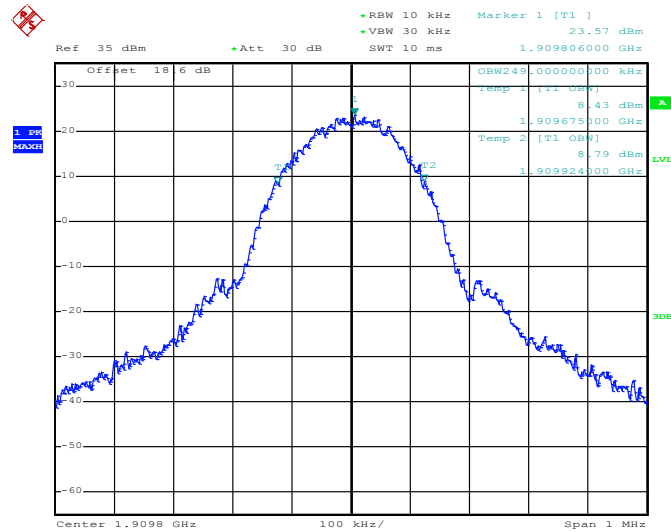
Date: 12.FEB.2015 15:39:31

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



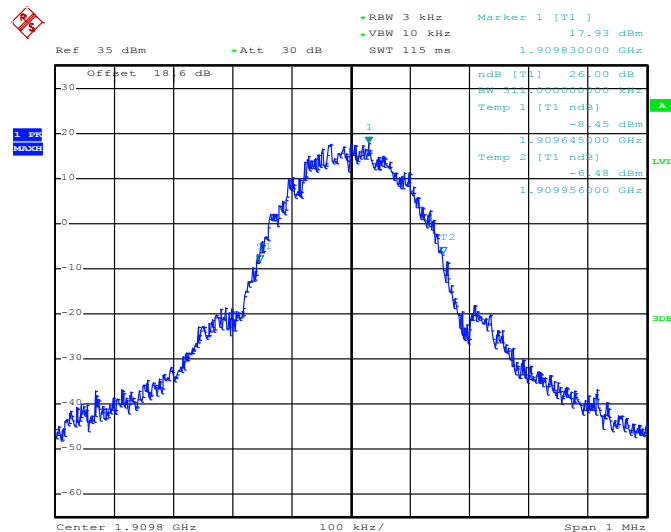
Date: 12.FEB.2015 15:34:44

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



Date: 12.FEB.2015 15:40:05

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

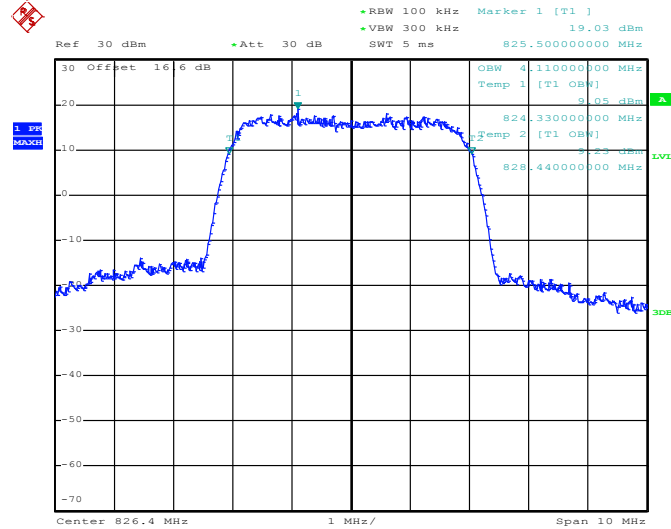


Date: 12.FEB.2015 15:35:26



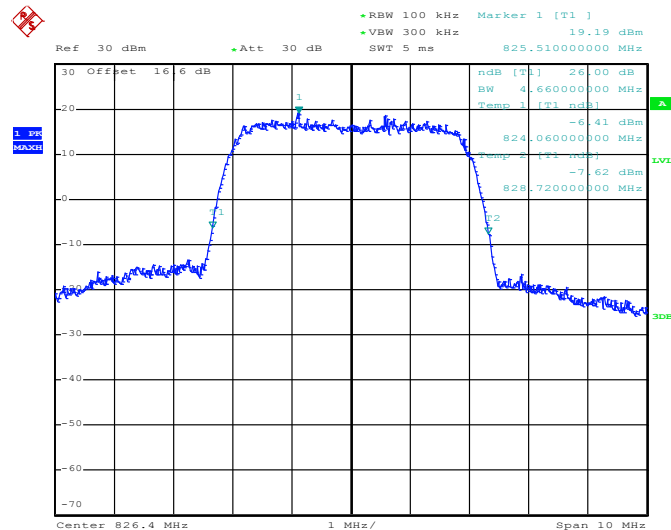
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 12.FEB.2015 17:51:40

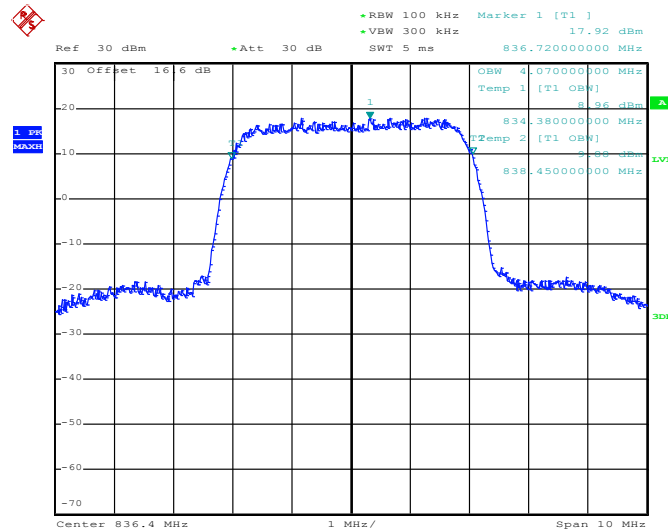
26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 12.FEB.2015 17:49:24

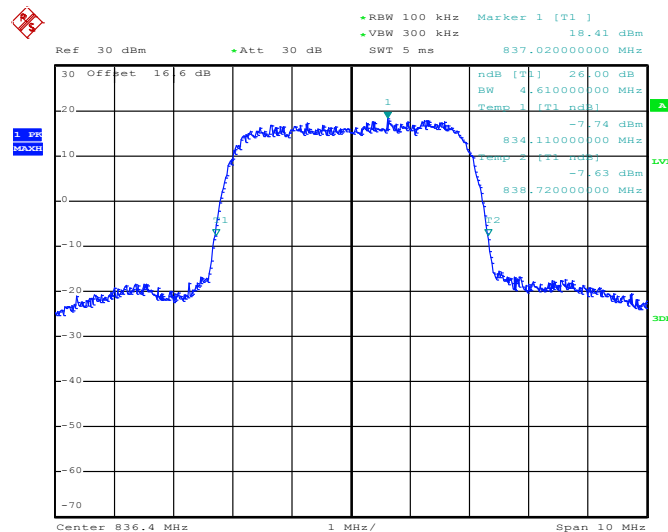


99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 12.FEB.2015 17:52:17

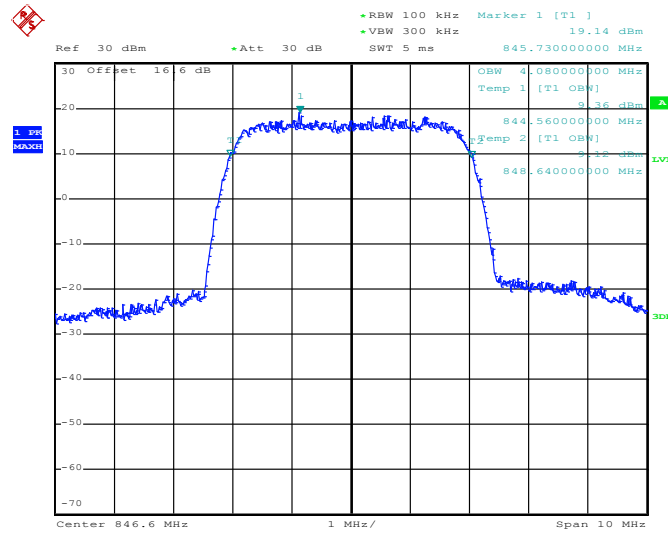
26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 12.FEB.2015 17:50:02

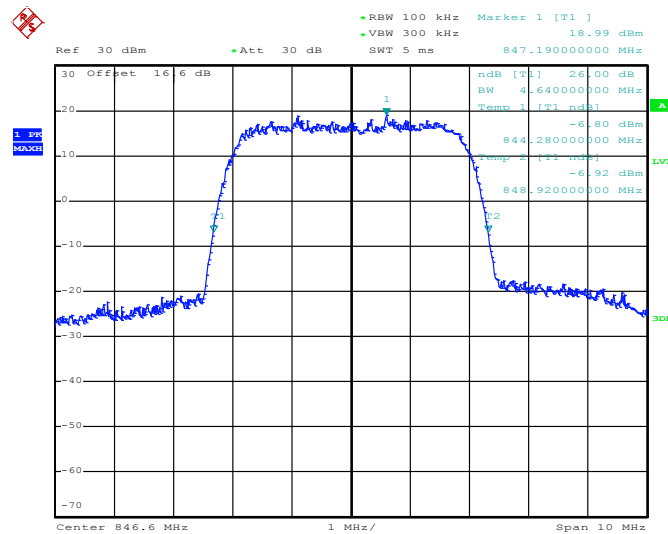


99% Occupied Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 12.FEB.2015 17:52:51

26dB Bandwidth Plot on Channel 4233 (846.6 MHz)

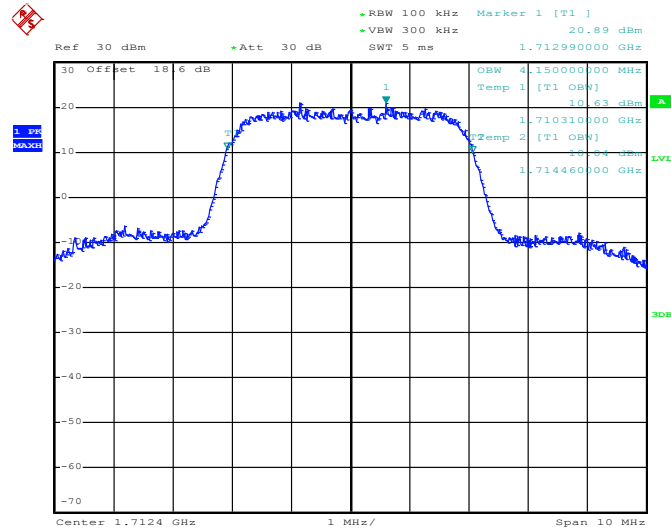


Date: 12.FEB.2015 17:50:37



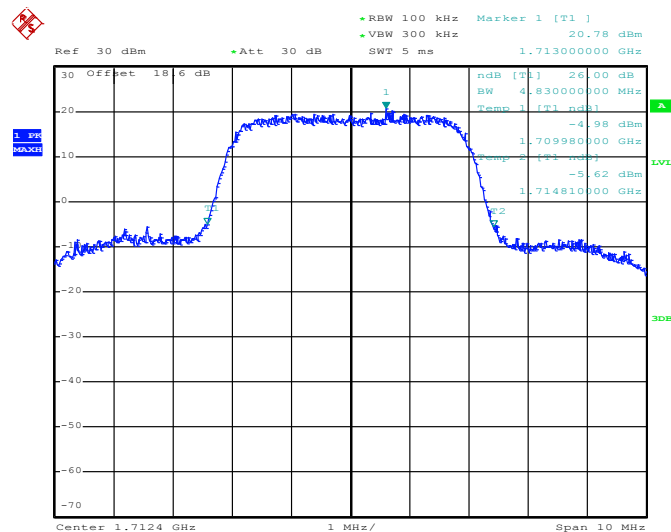
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 12.FEB.2015 17:36:04

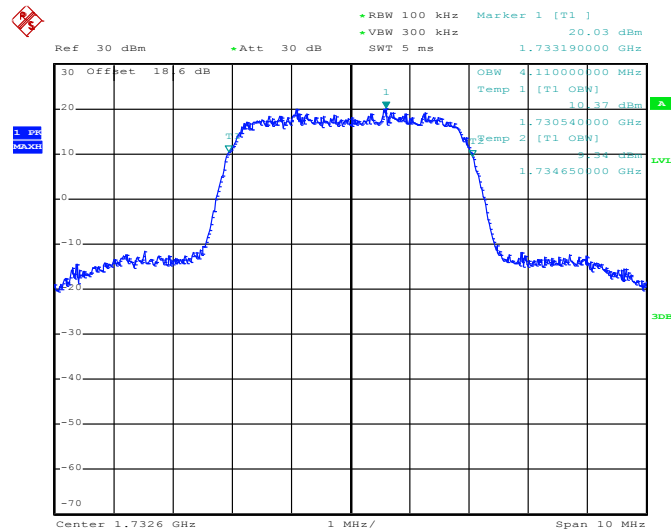
26dB Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 12.FEB.2015 17:32:56

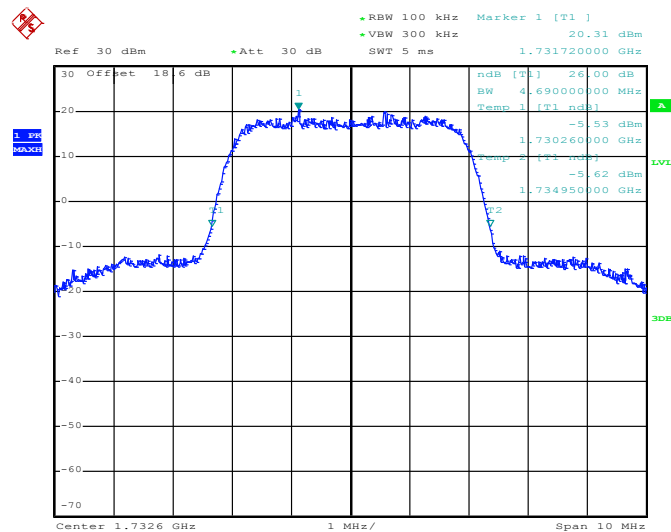


99% Occupied Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 12.FEB.2015 17:36:40

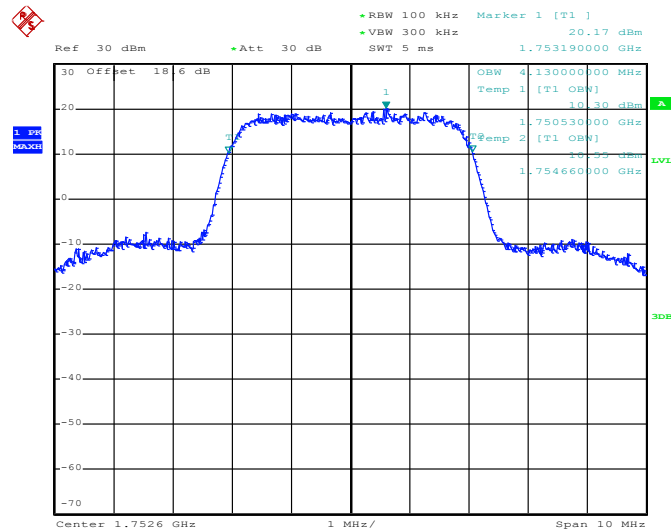
26dB Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 12.FEB.2015 17:33:32

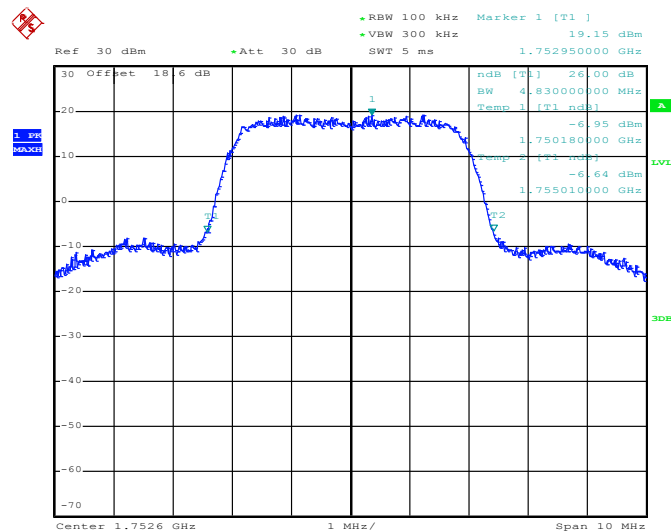


99% Occupied Bandwidth Plot on Channel 1513 (1752.6 MHz)



Date: 12.FEB.2015 17:37:28

26dB Bandwidth Plot on Channel 1513 (1752.6 MHz)

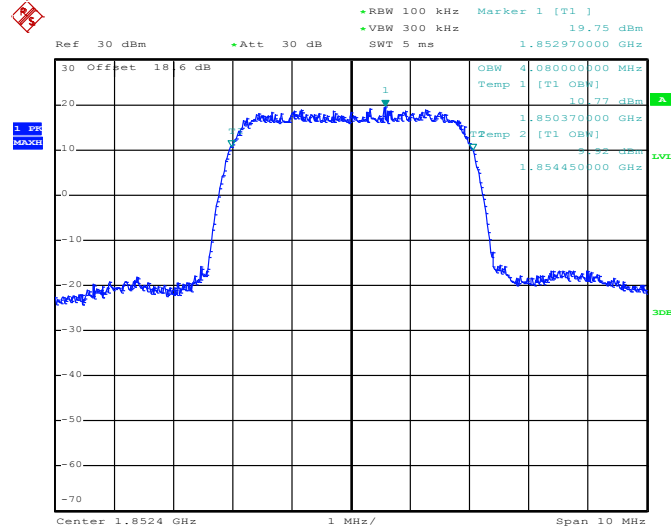


Date: 12.FEB.2015 17:34:06



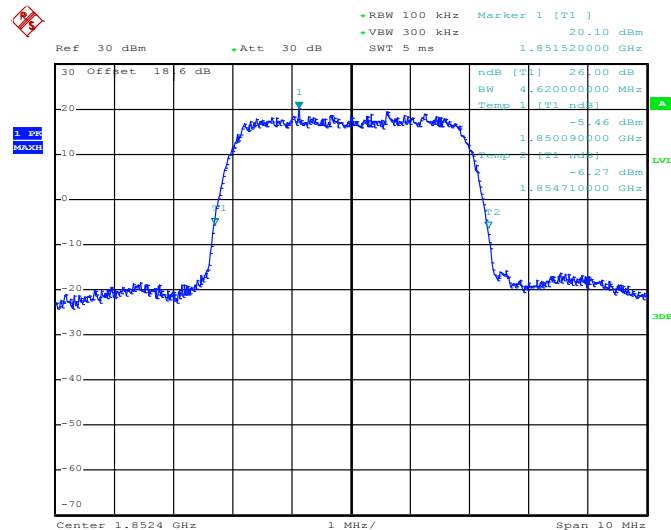
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 12.FEB.2015 16:14:05

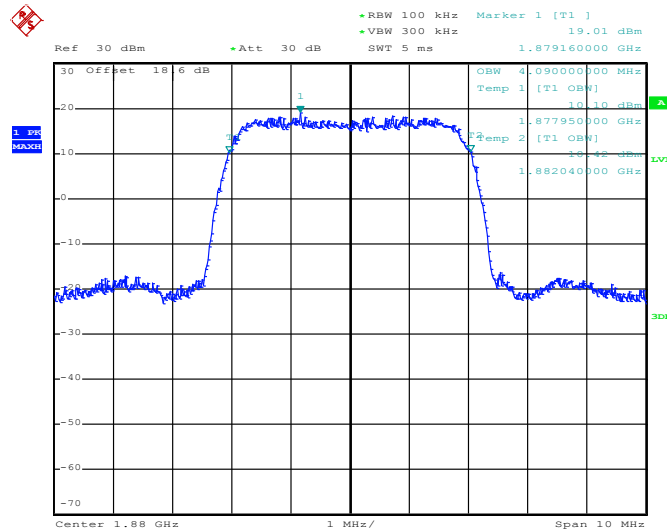
26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 12.FEB.2015 16:11:33

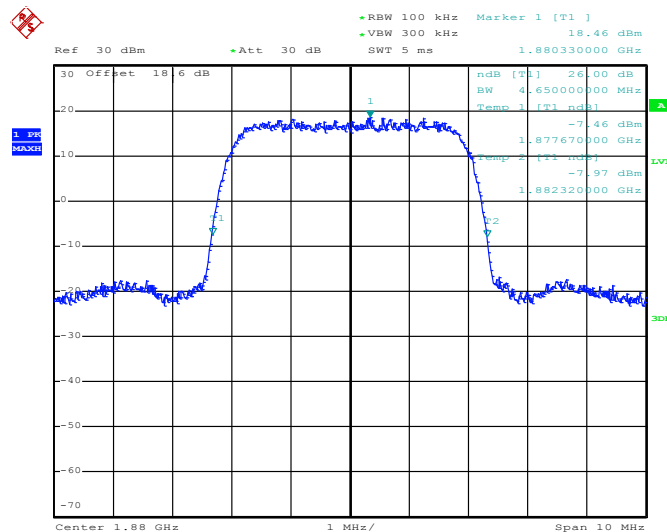


99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 12.FEB.2015 16:15:11

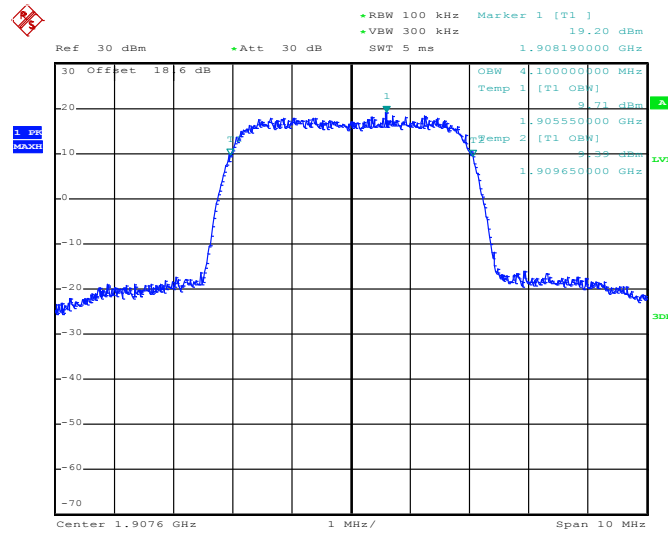
26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 12.FEB.2015 16:12:08

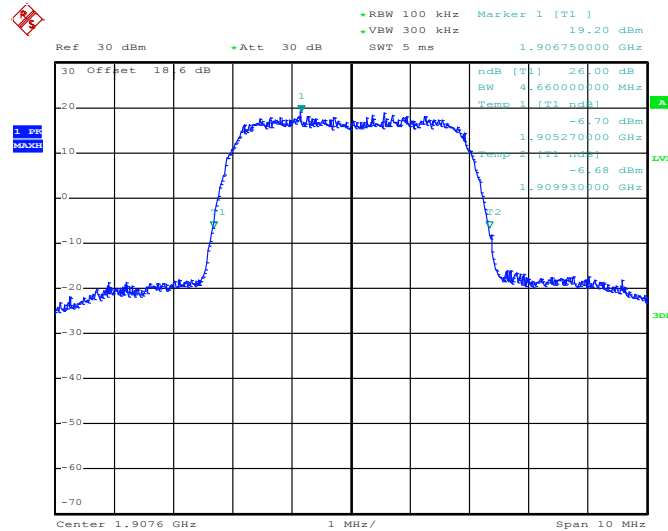


99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 12.FEB.2015 16:15:46

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



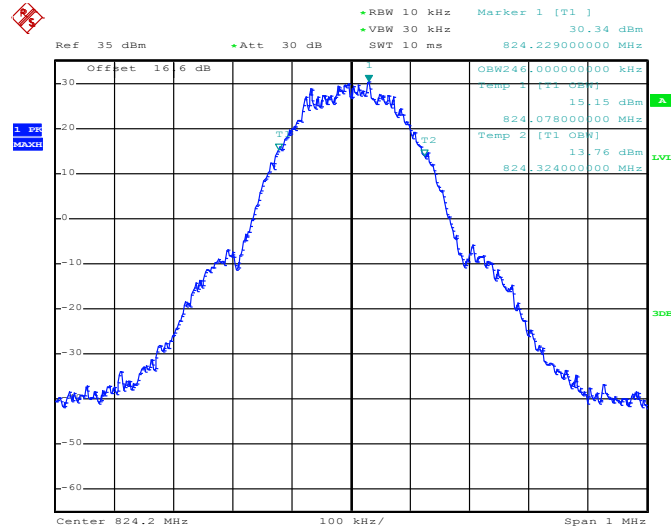
Date: 12.FEB.2015 16:12:57



<SIM 2>

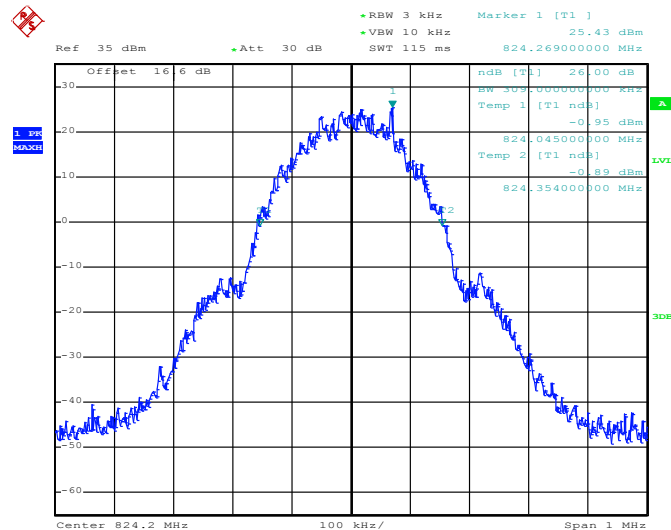
Band :	GSM 850	Test Mode :	GSM Link (GMSK)
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99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 14.FEB.2015 00:20:33

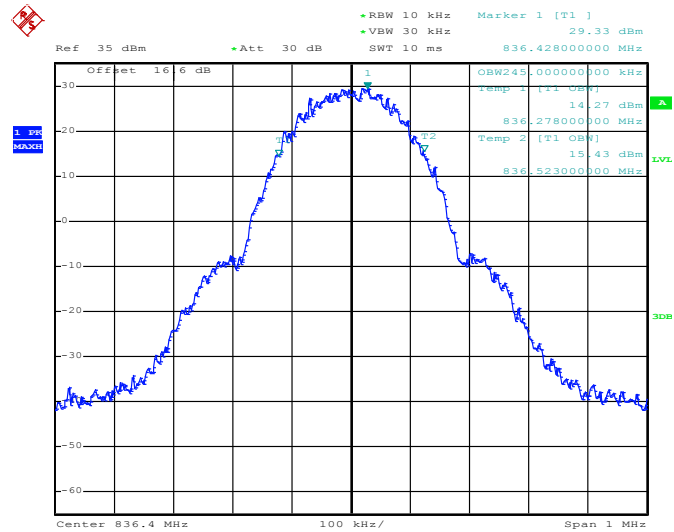
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 14.FEB.2015 00:18:30

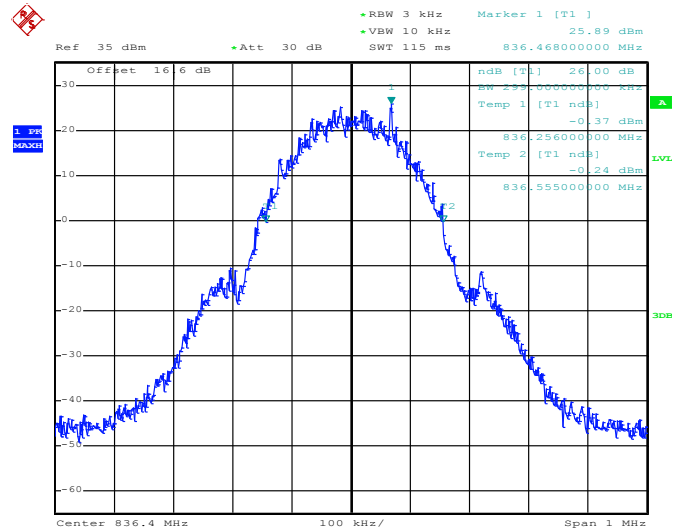


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 14.FEB.2015 00:21:07

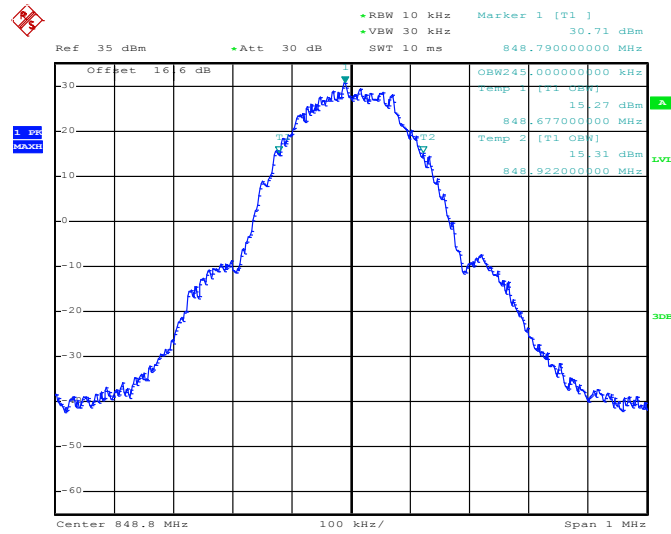
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 14.FEB.2015 00:19:07

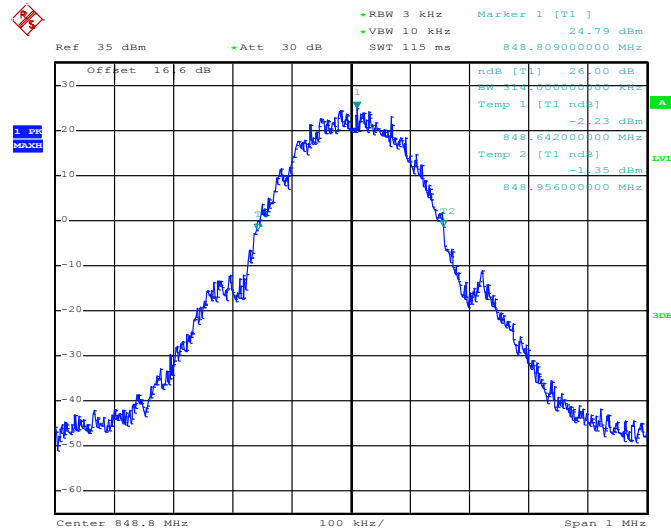


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 14.FEB.2015 00:21:40

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

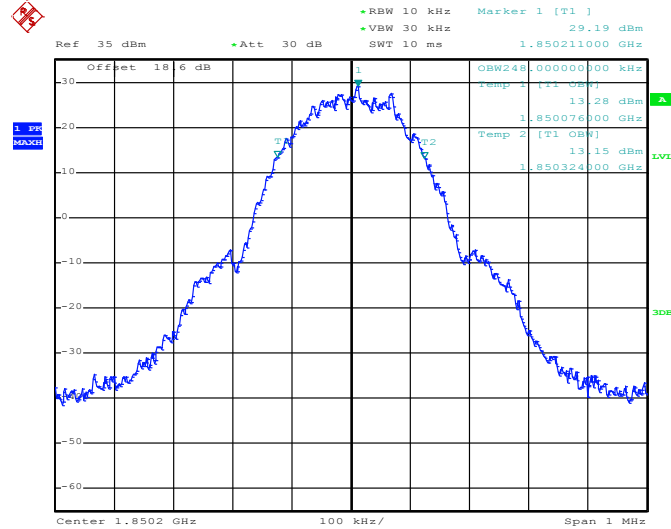


Date: 14.FEB.2015 00:19:40



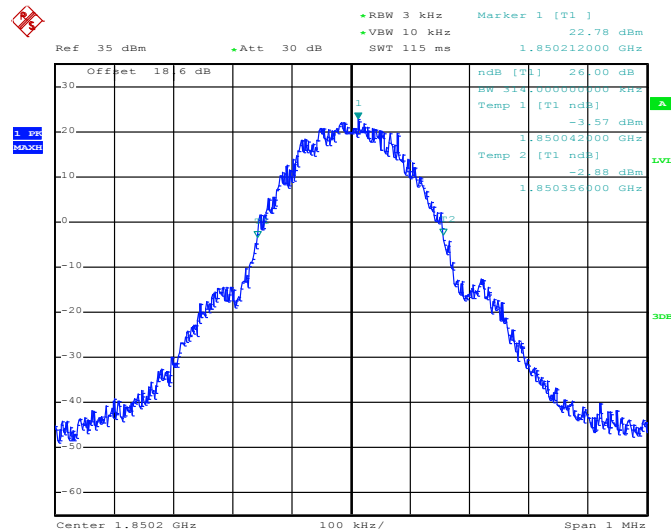
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 13.FEB.2015 16:21:16

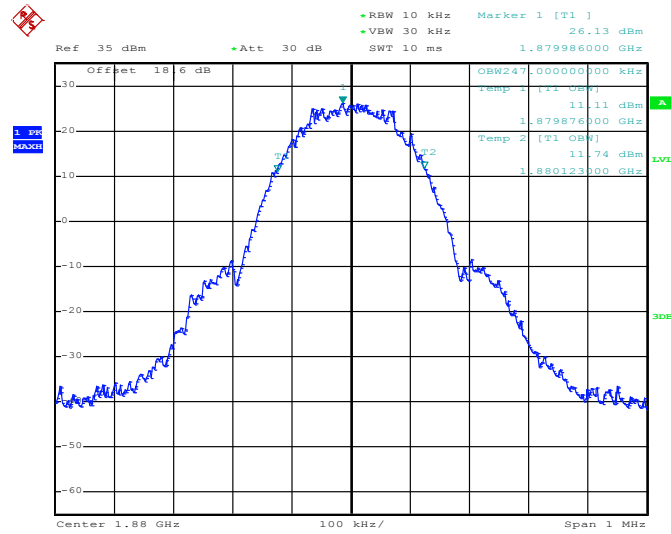
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 13.FEB.2015 16:19:01

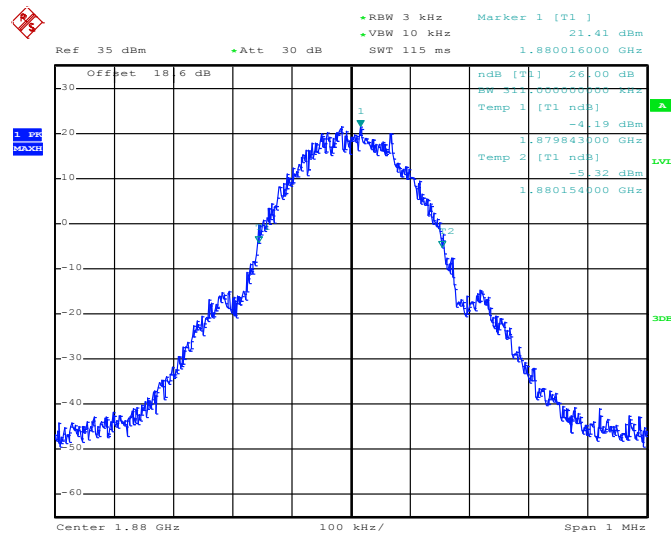


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 13.FEB.2015 16:21:48

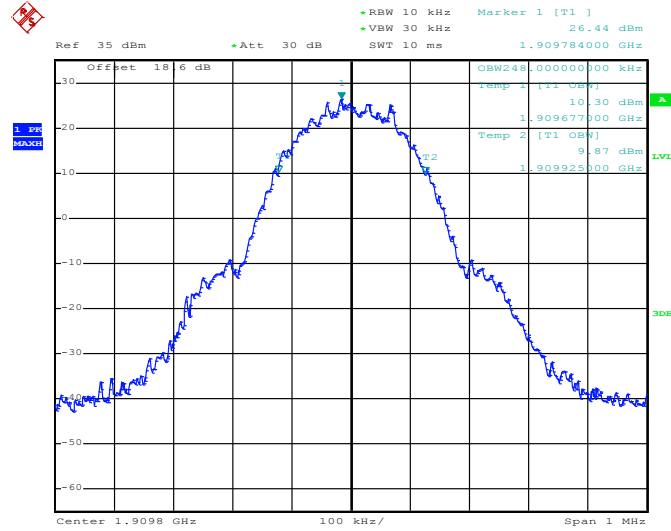
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 13.FEB.2015 16:19:34

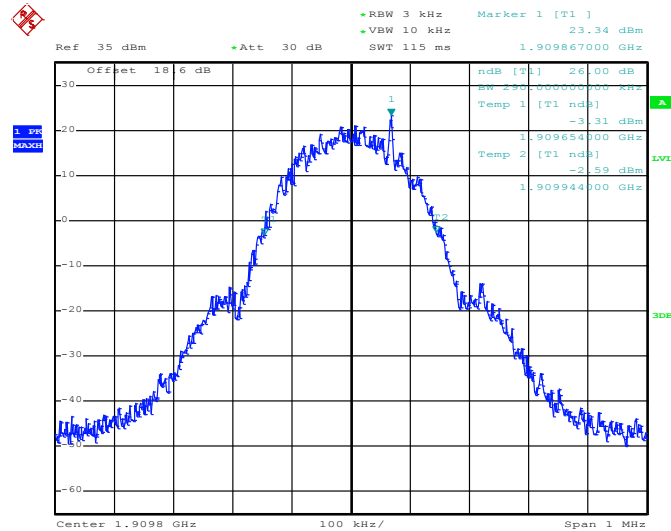


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 13.FEB.2015 16:22:21

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 13.FEB.2015 16:20:12

3.5 Band Edge Measurement

3.5.1 Description of Band Edge Measurement

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

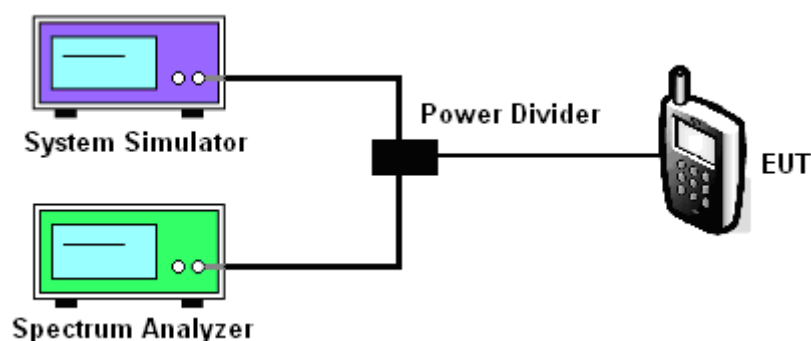
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



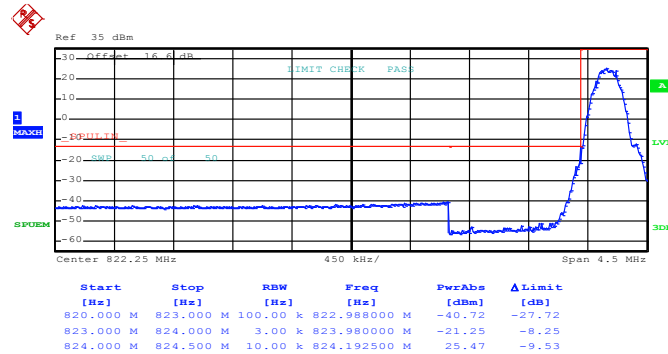


3.5.5 Test Result (Plots) of Conducted Band Edge

<SIM 1>

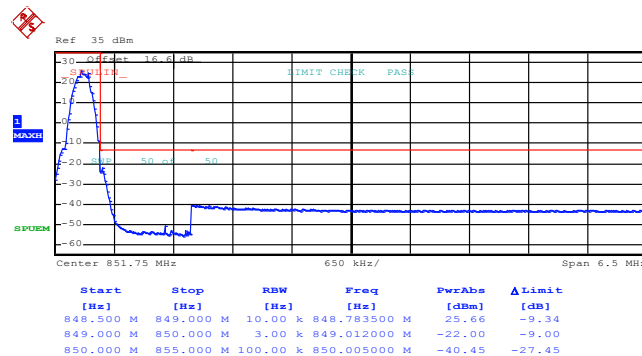
Band :	GSM850	Test Mode :	GSM Link (GMSK)
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Lower Band Edge Plot on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:23:38

Higher Band Edge Plot on Channel 251 (848.8 MHz)

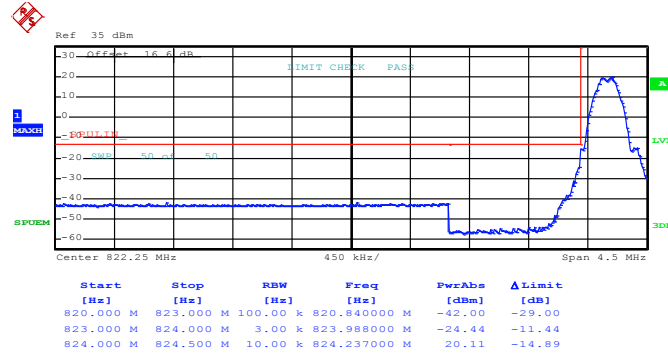


Date: 11.FEB.2015 17:25:01



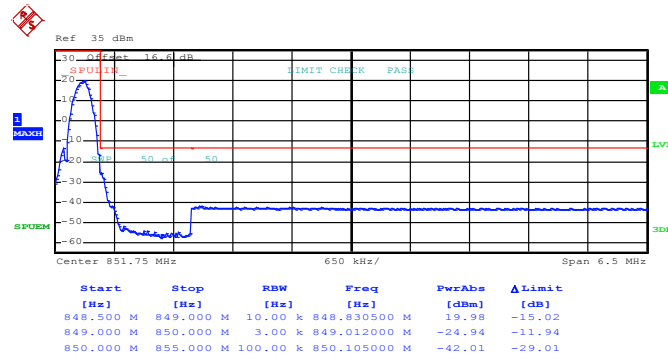
Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 128 (824.2 MHz)



Date: 11.FEB.2015 17:49:18

Higher Band Edge Plot on Channel 251 (848.8 MHz)

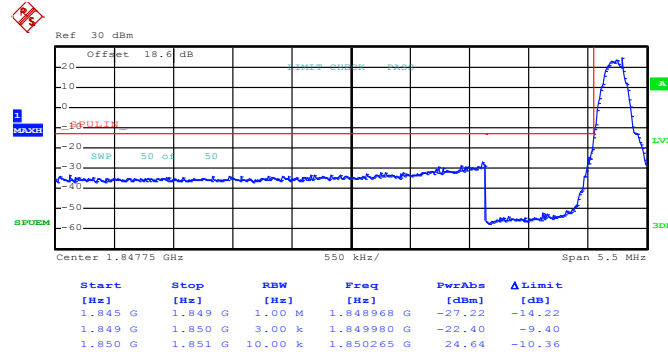


Date: 11.FEB.2015 17:51:23



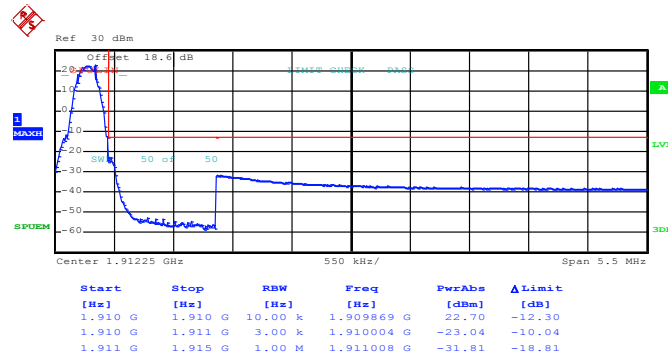
Band :	GSM1900	Test Mode :	GSM Link (GMSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 15:01:16

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

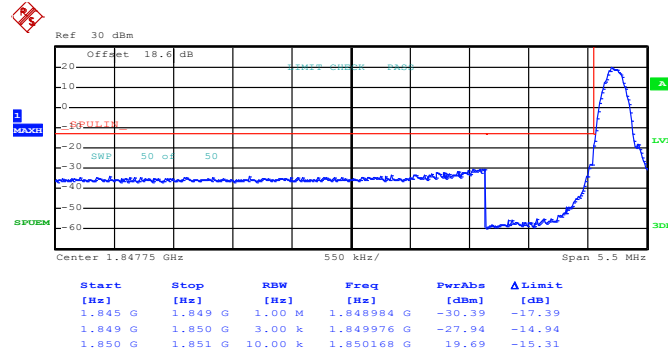


Date: 12.FEB.2015 15:02:40



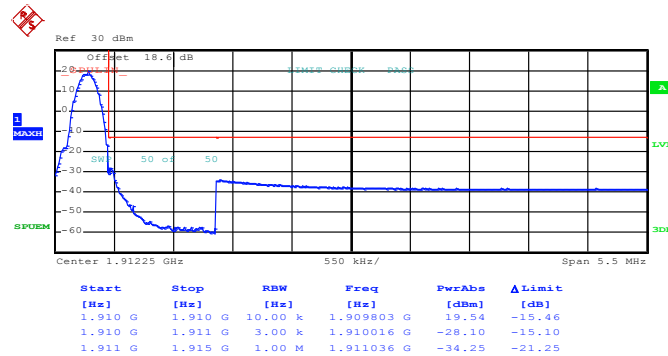
Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 12.FEB.2015 15:43:56

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

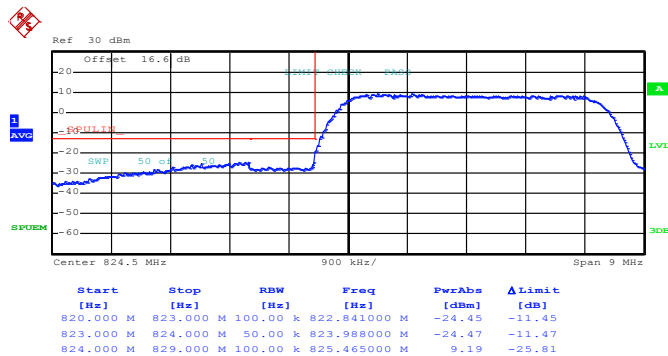


Date: 12.FEB.2015 15:46:00



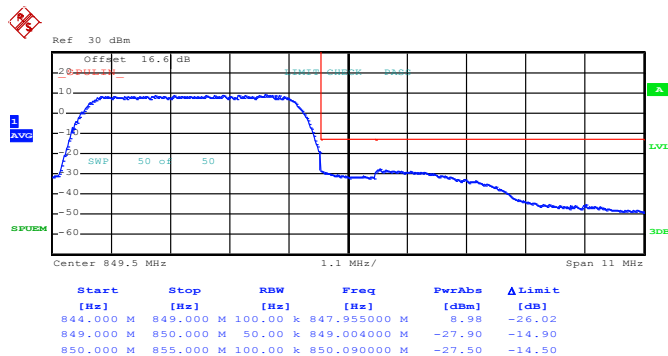
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 4132 (826.4 MHz)



Date: 12.FEB.2015 17:54:28

Higher Band Edge Plot on Channel 4233 (846.6 MHz)

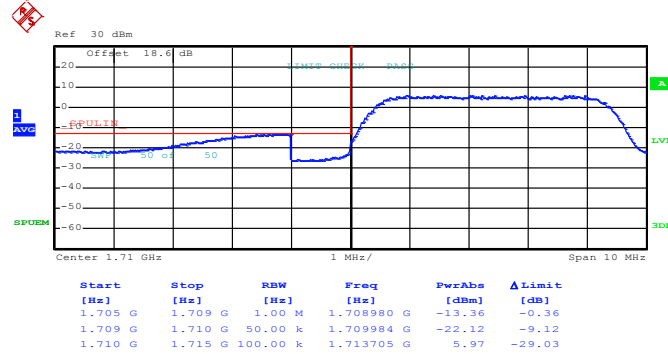


Date: 12.FEB.2015 17:55:47



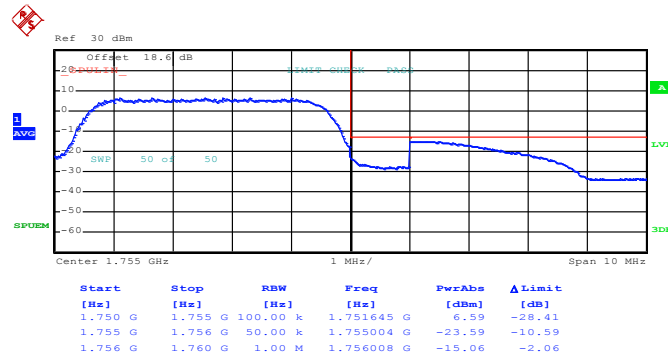
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 1312 (1712.4 MHz)



Date: 13.FEB.2015 10:12:38

Higher Band Edge Plot on Channel 1513 (1752.6 MHz)

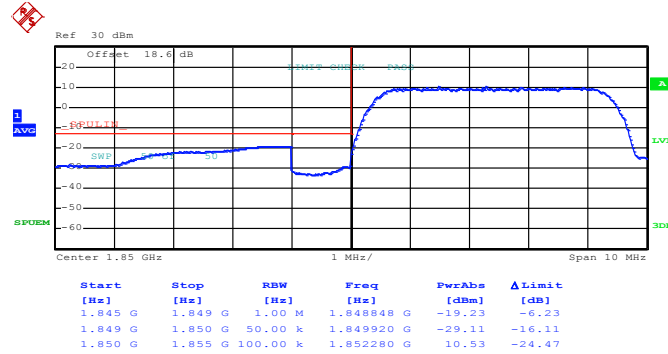


Date: 13.FEB.2015 10:15:52



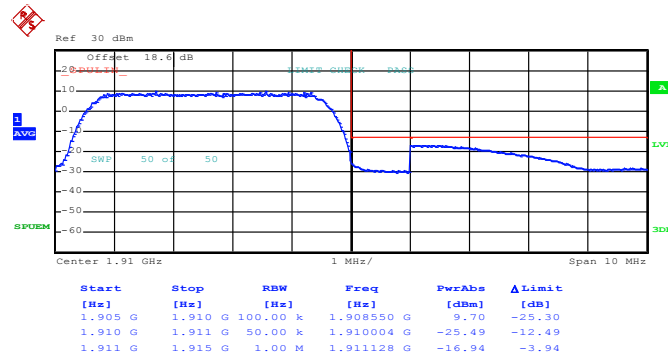
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 9262 (1852.4 MHz)



Date: 12.FEB.2015 16:19:55

Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



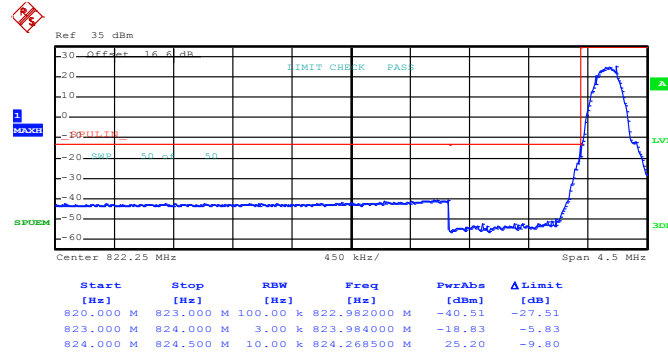
Date: 12.FEB.2015 16:21:29



<SIM 2>

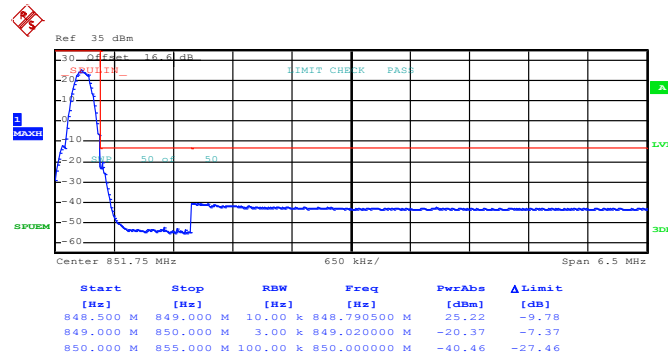
Band :	GSM850	Test Mode :	GSM Link (GMSK)
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Lower Band Edge Plot on Channel 128 (824.2 MHz)



Date: 14.FEB.2015 00:23:11

Higher Band Edge Plot on Channel 251 (848.8 MHz)

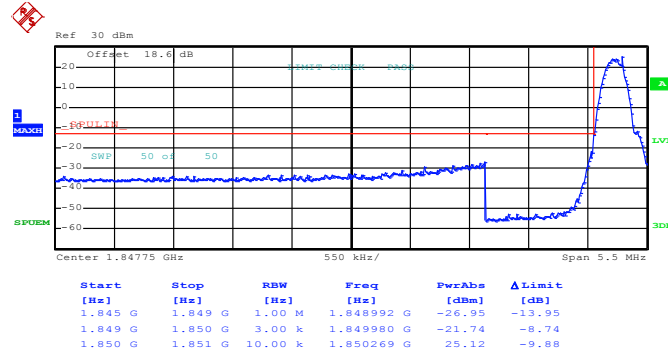


Date: 14.FEB.2015 00:24:27



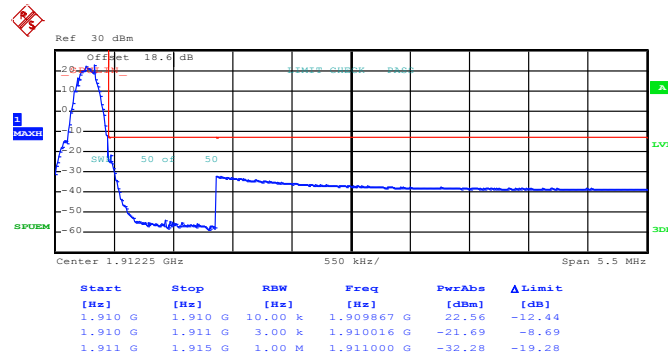
Band :	GSM1900	Test Mode :	GSM Link (GMSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 13.FEB.2015 16:23:42

Higher Band Edge Plot on Channel 810 (1909.8 MHz)



Date: 13.FEB.2015 16:25:04

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.

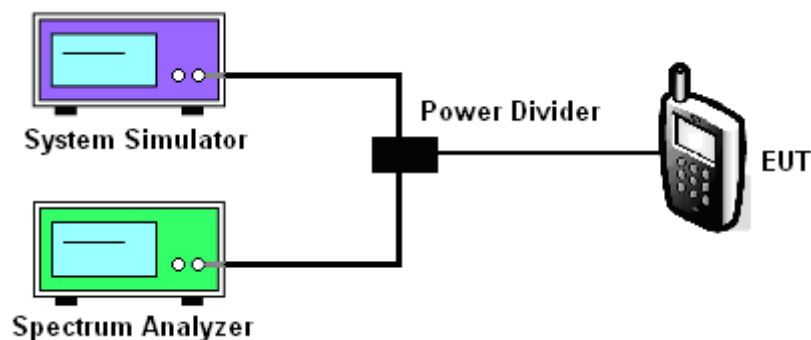
3.6.2 Measuring Instruments

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

3.6.4 Test Setup

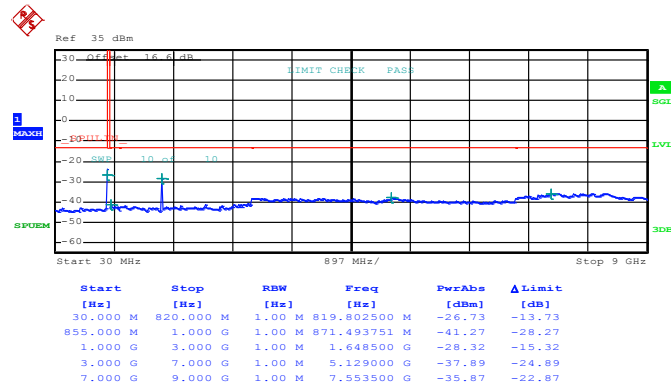


3.6.5 Test Result (Plots) of Conducted Spurious Emission

<SIM 1>

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

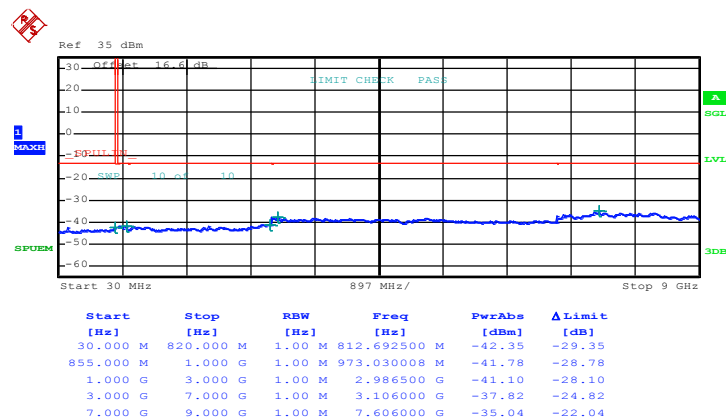


Date: 11.FEB.2015 17:26:06



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

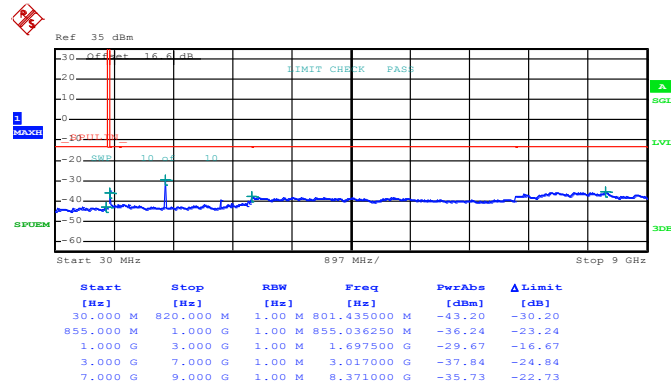


Date: 11.FEB.2015 17:26:36



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

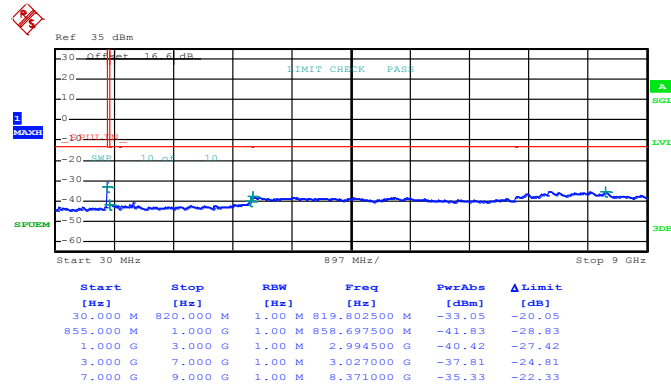


Date: 11.FEB.2015 17:28:16



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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz

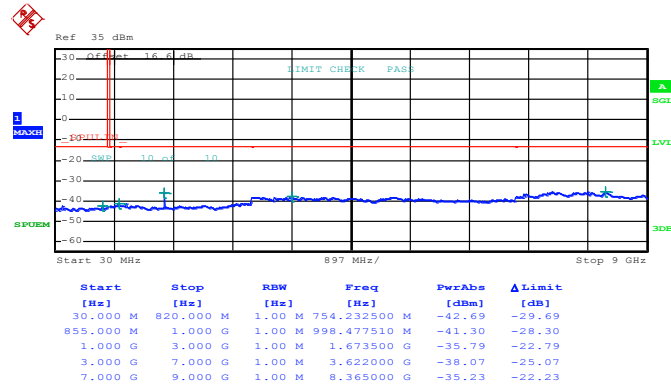


Date: 11.FEB.2015 17:52:16



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

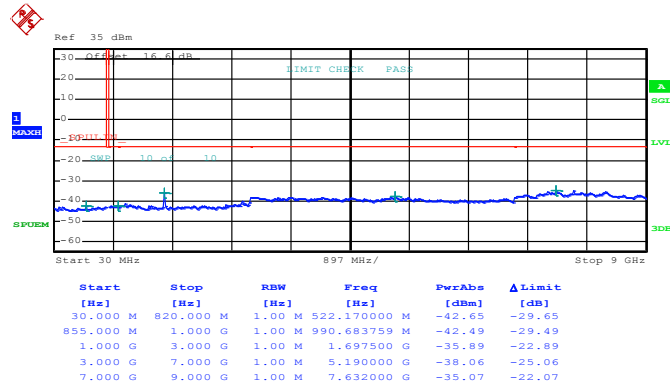


Date: 11.FEB.2015 17:53:04



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

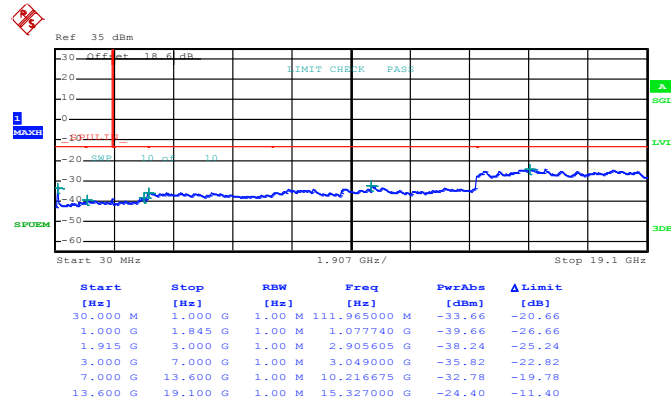


Date: 11.FEB.2015 17:53:39



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

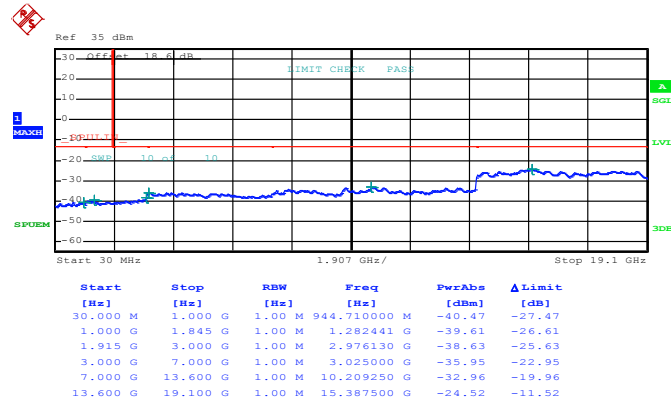


Date: 12.FEB.2015 15:03:30



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

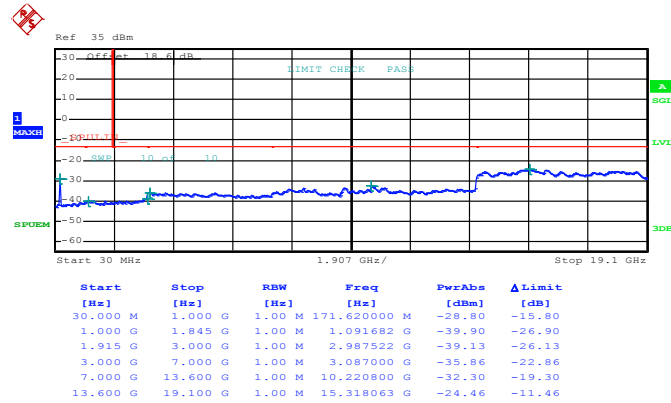


Date: 12.FEB.2015 15:04:02



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

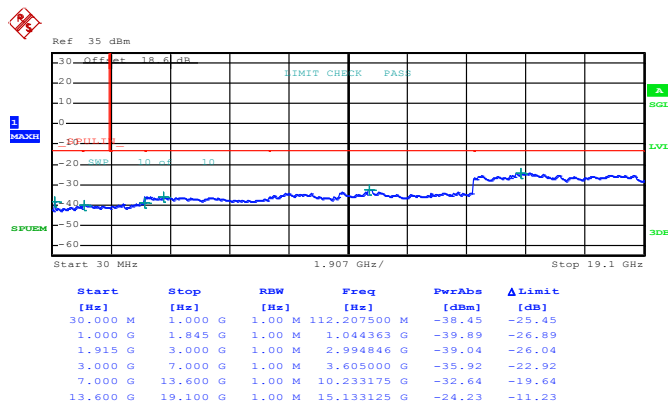


Date: 12.FEB.2015 15:04:32



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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz

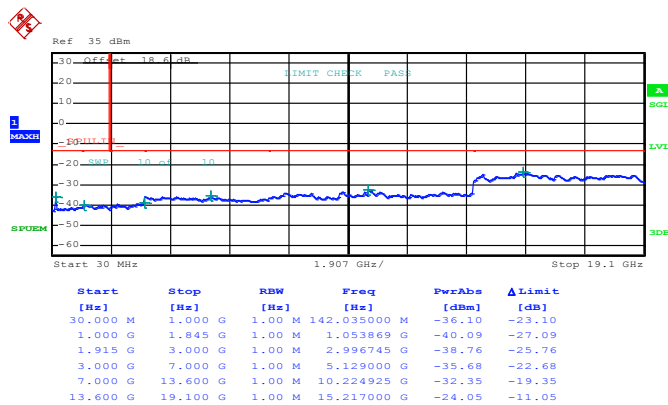


Date: 12.FEB.2015 15:48:06



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

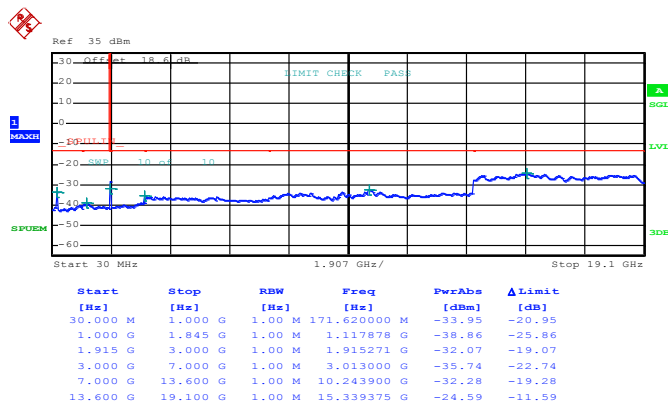


Date: 12.FEB.2015 15:48:44



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

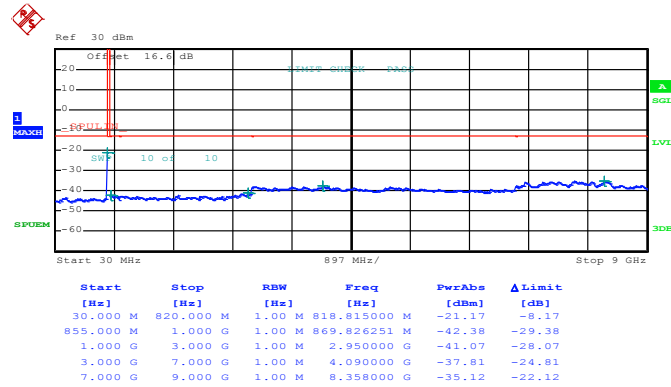


Date: 12.FEB.2015 15:49:18



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

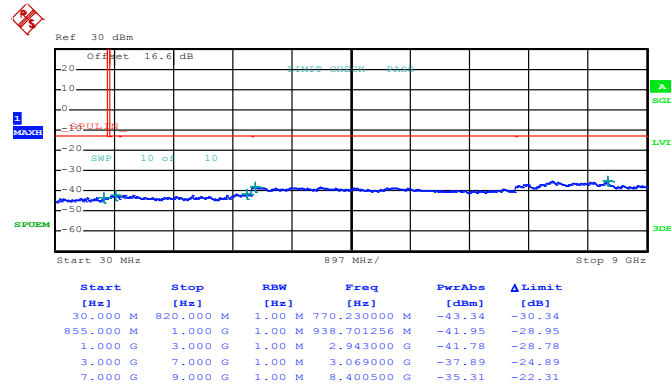


Date: 12.FEB.2015 17:56:35



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

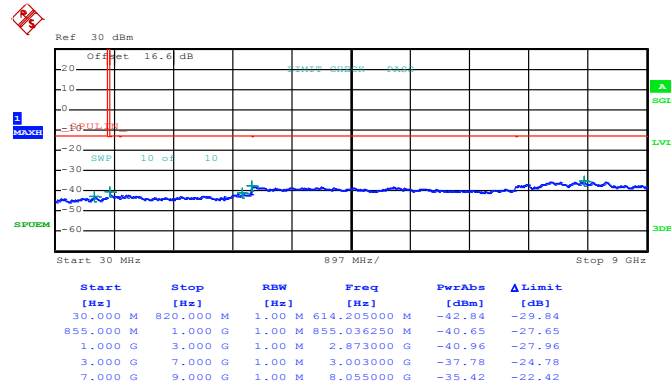


Date: 12.FEB.2015 17:57:06



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

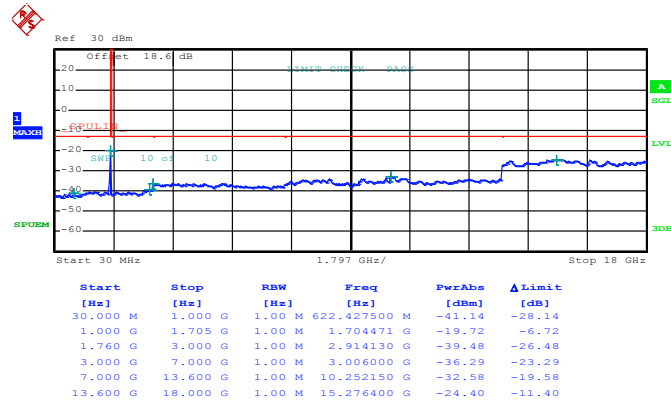


Date: 12.FEB.2015 17:57:59



Band :	WCDMA Band IV	Channel :	CH1312
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1712.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 18GHz

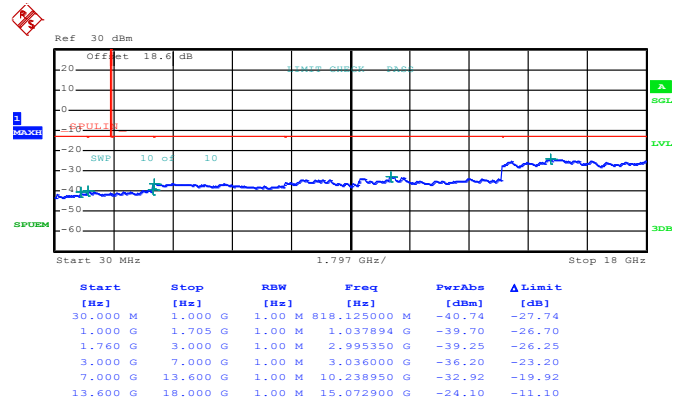


Date: 12.FEB.2015 17:44:31



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

Conducted Spurious Emission Plot between 30MHz ~ 18GHz

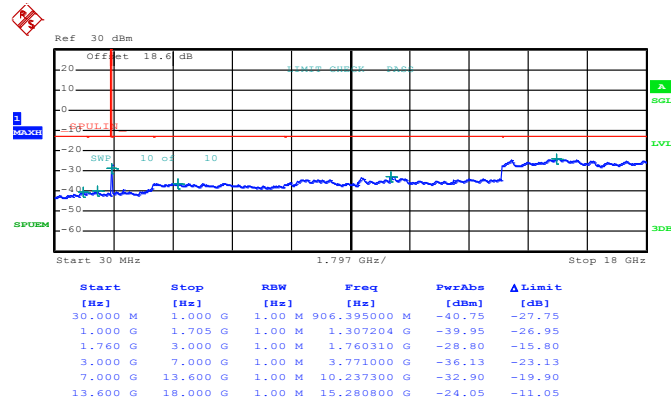


Date: 12.FEB.2015 17:45:11



Band :	WCDMA Band IV	Channel :	CH1513
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1752.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 18GHz

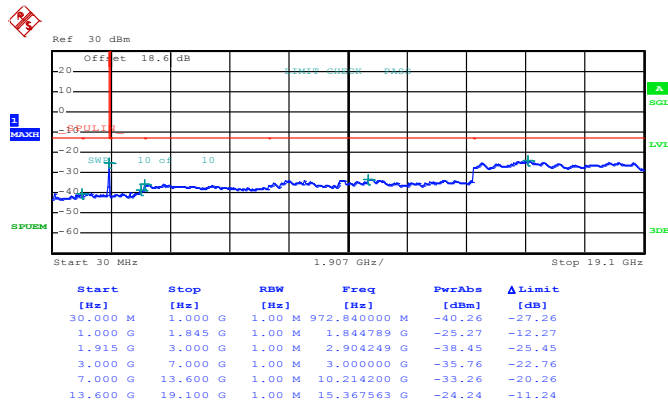


Date: 12.FEB.2015 17:45:42



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

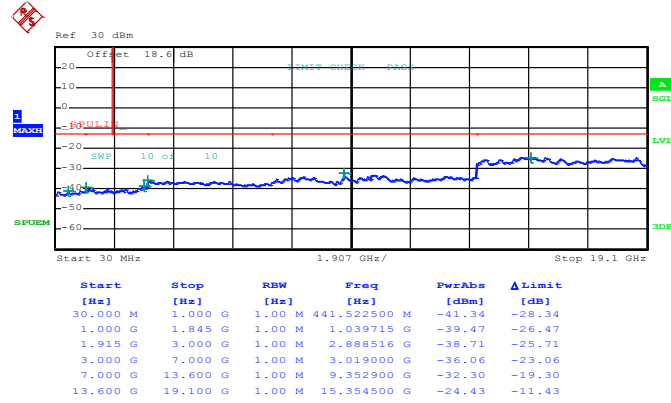


Date: 12.FEB.2015 16:43:17



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

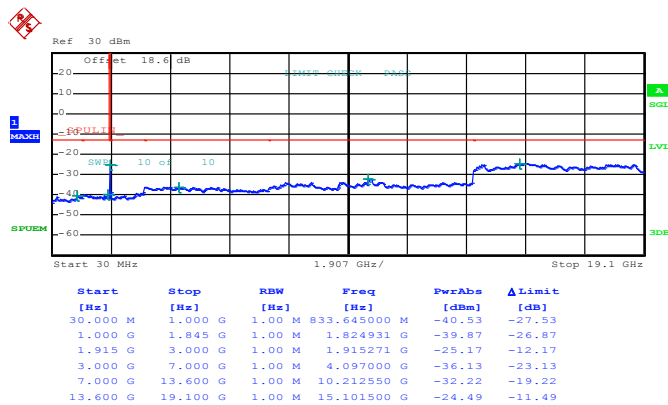


Date: 12.FEB.2015 16:43:49



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



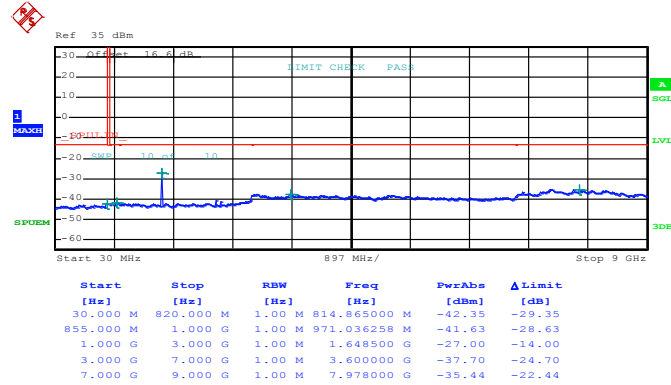
Date: 12.FEB.2015 16:44:21



<SIM 2>

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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

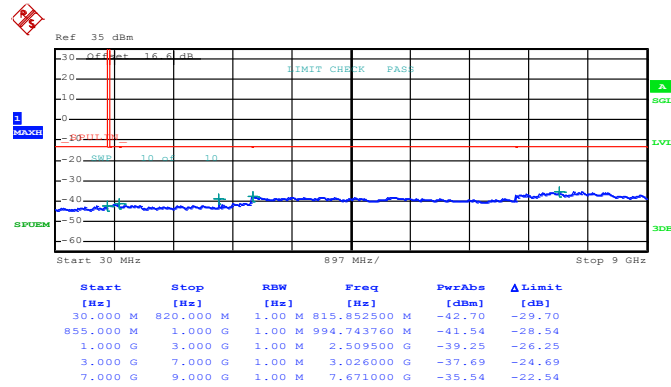


Date: 14.FEB.2015 00:26:11



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

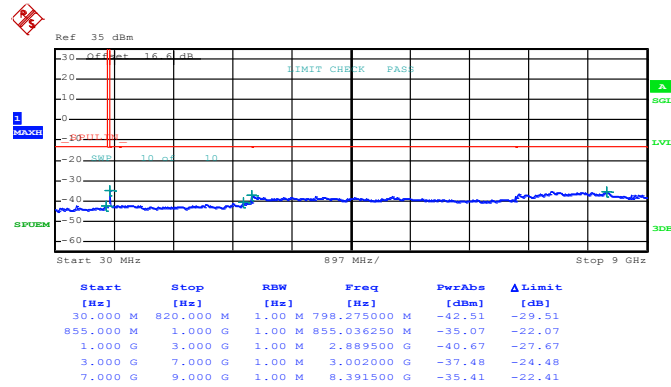


Date: 14.FEB.2015 00:26:45



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

Conducted Spurious Emission Plot between 30MHz ~ 9GHz

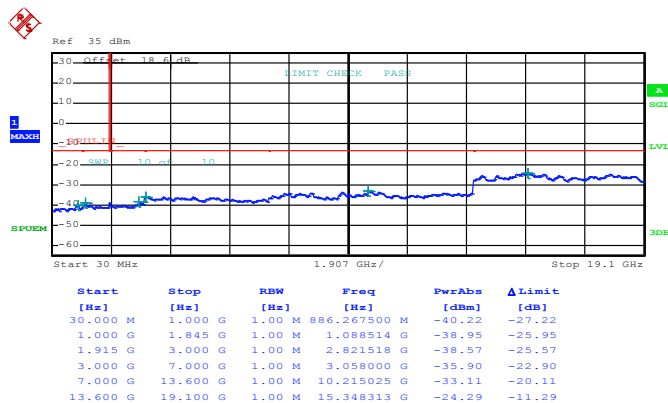


Date: 14.FEB.2015 00:27:14



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

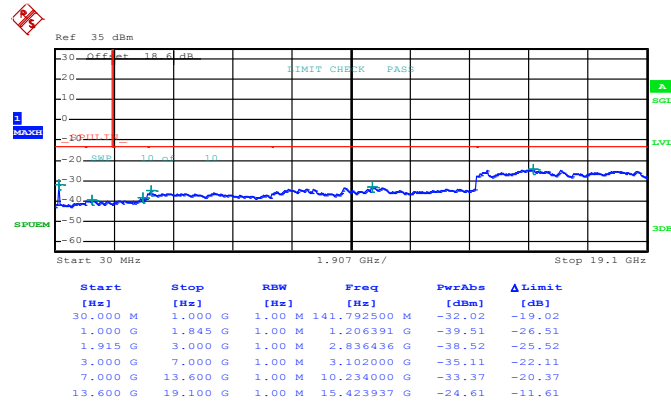


Date: 13.FEB.2015 16:26:50



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz

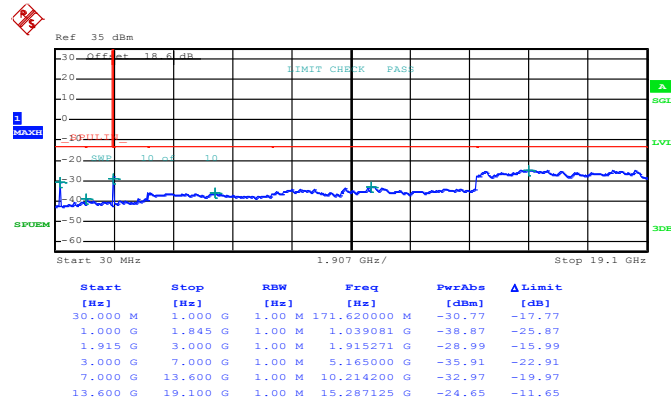


Date: 13.FEB.2015 16:27:39



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

Conducted Spurious Emission Plot between 30MHz ~ 19.1GHz



Date: 13.FEB.2015 16:28:09



3.7 Field Strength of Spurious Radiation Measurement

3.7.1 Description of Field Strength of Spurious Radiated Measurement

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

3.7.2 Measuring Instruments

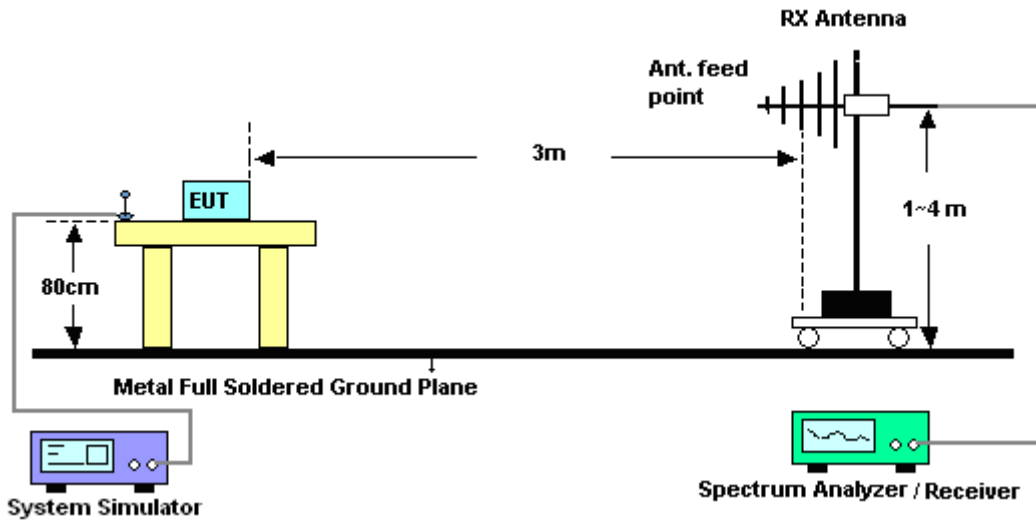
The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

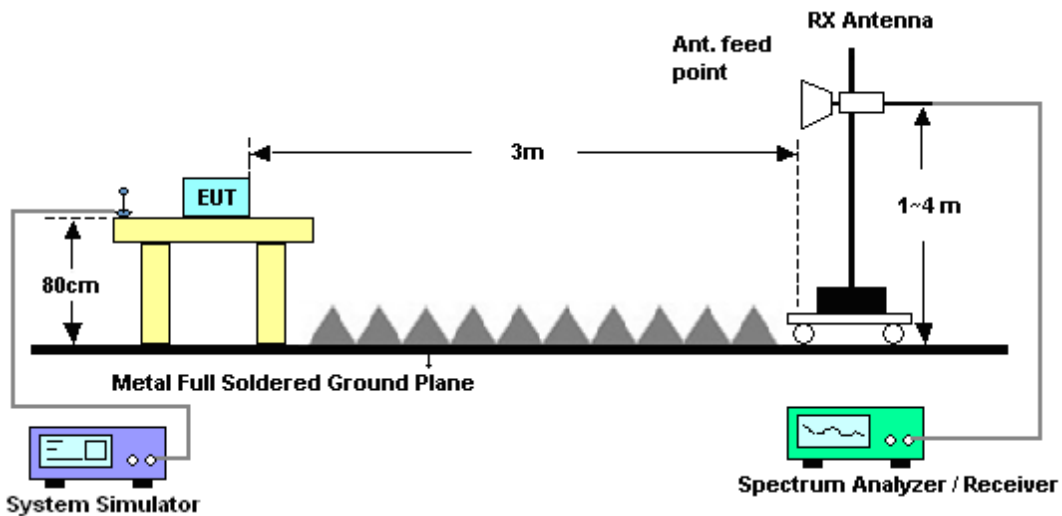
1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12. $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

<SIM 1>

<Low Channel>

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-45.93	-13	-32.93	-56.2	-47.69	0.98	4.89	H	Pass
2472	-39.93	-13	-26.93	-56.24	-41.81	1.28	5.32	H	Pass
3296	-59.84	-13	-46.84	-76.8	-63.25	1.54	7.10	H	Pass
5768	-47.86	-13	-34.86	-72.31	-52.74	2.78	9.81	H	Pass

Band :	GSM850				Temperature :	23~24°C			
Test Mode :	GSM Link (GMSK)				Relative Humidity :	46~48%			
Test Engineer :	Nick Yu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-45.52	-13	-32.52	-57.19	-47.28	0.98	4.89	V	Pass
2472	-42.31	-13	-29.31	-59.83	-44.19	1.28	5.32	V	Pass
3296	-58.28	-13	-45.28	-76.8	-61.69	1.54	7.10	V	Pass
5768	-51.40	-13	-38.40	-77.03	-56.28	2.78	9.81	V	Pass

**<Middle Channel>**

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1672	-44.57	-13	-31.57	-55.54	-46.25	0.99	4.82	H	Pass
2512	-38.92	-13	-25.92	-55.27	-40.89	1.29	5.41	H	Pass
3344	-59.68	-13	-46.68	-76.9	-63.29	1.56	7.31	H	Pass
5856	-50.82	-13	-37.82	-75.41	-55.68	2.83	9.84	H	Pass

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-43.45	-13	-30.45	-55.17	-45.13	0.99	4.82	V	Pass
2512	-40.24	-13	-27.24	-58.19	-42.21	1.29	5.41	V	Pass
3344	-58.15	-13	-45.15	-76.86	-61.76	1.56	7.31	V	Pass
5856	-51.77	-13	-38.77	-77.13	-56.63	2.83	9.84	V	Pass



<High Channel>

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-43.57	-13	-30.57	-54.96	-45.17	1.00	4.75	H	Pass
2544	-42.81	-13	-29.81	-59.19	-44.79	1.30	5.44	H	Pass
3392	-59.58	-13	-46.58	-77.12	-63.38	1.57	7.52	H	Pass
5944	-49.63	-13	-36.63	-74.23	-54.48	2.88	9.88	H	Pass
8488	-47.77	-13	-34.77	-73.79	-55.74	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					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-43.54	-13	-30.54	-55.55	-45.14	1.00	4.75	V	Pass
2544	-41.34	-13	-28.34	-59.29	-43.32	1.30	5.44	V	Pass
3392	-58.41	-13	-45.41	-77.22	-62.21	1.57	7.52	V	Pass
5944	-52.60	-13	-39.60	-78.32	-57.45	2.88	9.88	V	Pass
8488	-44.39	-13	-31.39	-72.85	-52.36	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1648	-54.55	-13	-41.55	-65.45	-56.31	0.98	4.89	H	Pass
2472	-53.64	-13	-40.64	-69.69	-55.52	1.28	5.32	H	Pass
3296	-59.76	-13	-46.76	-76.62	-63.17	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	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1648	-55.43	-13	-42.43	-67	-57.19	0.98	4.89	V	Pass
2472	-53.01	-13	-40.01	-70.76	-54.89	1.28	5.32	V	Pass
3296	-58.50	-13	-45.50	-77.01	-61.91	1.54	7.10	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1672	-56.04	-13	-43.04	-67.02	-57.72	0.99	4.82	H	Pass
2512	-55.66	-13	-42.66	-72.02	-57.63	1.29	5.41	H	Pass
3344	-59.65	-13	-46.65	-76.87	-63.26	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	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-54.98	-13	-41.98	-66.7	-56.66	0.99	4.82	V	Pass
2512	-54.51	-13	-41.51	-72.29	-56.48	1.29	5.41	V	Pass
3344	-58.31	-13	-45.31	-77.02	-61.92	1.56	7.31	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1696	-56.25	-13	-43.25	-67.64	-57.85	1.00	4.75	H	Pass
2544	-56.23	-13	-43.23	-72.18	-58.21	1.30	5.44	H	Pass
3392	-59.57	-13	-46.57	-77.11	-63.37	1.57	7.52	H	Pass

Band :	GSM850	Temperature :	23~24°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1696	-54.15	-13	-41.15	-66.26	-55.75	1.00	4.75	V	Pass
2544	-54.65	-13	-41.65	-72.07	-58.78	1.30	5.44	V	Pass
3392	-58.68	-13	-45.68	-77.04	-64.63	1.57	7.52	V	Pass



<Low Channel>

Band :	GSM1900					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3700	-54.83	-13	-41.83	-74.31	-61.4	1.67	8.24	H	Pass
5552	-27.23	-13	-14.23	-52.38	-34.3	2.65	9.72	H	Pass
7400	-47.46	-13	-34.46	-74.15	-56.6	2.46	11.60	H	Pass
9252	-41.64	-13	-28.64	-69	-51.7	2.54	12.60	H	Pass
11100	-45.73	-13	-32.73	-77.31	-55.5	2.69	12.46	H	Pass

Band :	GSM1900	Temperature :	23~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3700	-52.43	-13	-39.43	-72.78	-59	1.67	8.24	V	Pass
5552	-23.03	-13	-10.03	-48.7	-30.1	2.65	9.72	V	Pass
7400	-45.96	-13	-32.96	-74.3	-55.1	2.46	11.60	V	Pass
9252	-40.64	-13	-27.64	-70.57	-50.7	2.54	12.60	V	Pass
11100	-42.43	-13	-29.43	-76.37	-52.2	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					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
3760	-55.87	-13	-42.87	-75.93	-62.5	1.69	8.31	H	Pass
5640	-29.15	-13	-16.15	-54.25	-36.2	2.71	9.76	H	Pass
7520	-47.41	-13	-34.41	-74.68	-56.8	2.42	11.81	H	Pass
9400	-46.13	-13	-33.13	-73.53	-56.1	2.57	12.54	H	Pass
11280	-45.00	-13	-32.00	-76.9	-54.7	2.68	12.39	H	Pass

Band :	GSM1900	Temperature :	23~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3760	-56.27	-13	-43.27	-77.15	-62.9	1.69	8.31	V	Pass
5640	-25.25	-13	-12.25	-51.13	-32.3	2.71	9.76	V	Pass
7520	-45.81	-13	-32.81	-74.73	-55.2	2.42	11.81	V	Pass
9400	-42.03	-13	-29.03	-73.06	-52	2.57	12.54	V	Pass
11280	-40.70	-13	-27.70	-74.98	-50.4	2.68	12.39	V	Pass



<High Channel>

Band :	GSM1900					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3820	-54.42	-13	-41.42	-75.5	-61.1	1.70	8.38	H	Pass
5732	-31.27	-13	-18.27	-56.5	-38.3	2.76	9.79	H	Pass
7636	-48.70	-13	-35.70	-76.35	-58.2	2.39	11.88	H	Pass
9548	-45.13	-13	-32.13	-72.74	-55	2.60	12.47	H	Pass
11456	-42.67	-13	-29.67	-75.02	-52.3	2.68	12.32	H	Pass

Band :	GSM1900	Temperature :	23~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3820	-54.72	-13	-41.72	-75.27	-61.4	1.70	8.38	V	Pass
5732	-26.27	-13	-13.27	-52.34	-33.3	2.76	9.79	V	Pass
7636	-44.00	-13	-31.00	-73.55	-53.5	2.39	11.88	V	Pass
9548	-41.33	-13	-28.33	-71.69	-51.2	2.60	12.47	V	Pass
11456	-39.77	-13	-26.77	-74.69	-49.4	2.68	12.32	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					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3700	-56.63	-13	-43.63	-75.94	-63.2	1.67	8.24	H	Pass
5548	-30.33	-13	-17.33	-55.53	-37.4	2.65	9.72	H	Pass
7400	-51.16	-13	-38.16	-77.85	-60.3	2.46	11.60	H	Pass
9251	-46.24	-13	-33.24	-73.51	-56.3	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					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3700	-55.83	-13	-42.83	-76.34	-62.4	1.67	8.24	V	Pass
5548	-25.23	-13	-12.23	-51.35	-32.3	2.65	9.72	V	Pass
7400	-49.56	-13	-36.56	-77.96	-58.7	2.46	11.60	V	Pass
9251	-44.34	-13	-31.34	-74.35	-54.4	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					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3756	-55.68	-13	-42.68	-75.24	-62.3	1.68	8.31	H	Pass
5639	-32.95	-13	-19.95	-57.77	-40	2.71	9.76	H	Pass
7522	-49.71	-13	-36.71	-76.88	-59.1	2.42	11.81	H	Pass
9398	-46.23	-13	-33.23	-73.66	-56.2	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	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3756	-55.48	-13	-42.48	-75.8	-62.1	1.68	8.31	V	Pass
5639	-23.05	-13	-10.05	-48.66	-30.1	2.71	9.76	V	Pass
7522	-47.41	-13	-34.41	-76.55	-56.8	2.42	11.81	V	Pass
9398	-46.93	-13	-33.93	-76.68	-56.9	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3819	-52.92	-13	-39.92	-73.87	-59.6	1.70	8.38	H	Pass
5730	-31.57	-13	-18.57	-56.21	-38.6	2.76	9.79	H	Pass
7641	-47.00	-13	-34.00	-75.02	-56.5	2.38	11.88	H	Pass
9552	-47.33	-13	-34.33	-75.25	-57.2	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	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3819	-49.72	-13	-36.72	-71.23	-56.4	1.70	8.38	V	Pass
5730	-29.57	-13	-16.57	-55.48	-36.6	2.76	9.79	V	Pass
7641	-43.00	-13	-30.00	-72.24	-52.5	2.38	11.88	V	Pass
9552	-47.53	-13	-34.53	-77.77	-57.4	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					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1656	-63.95	-13	-50.95	-74.83	-65.68	0.98	4.86	H	Pass
2480	-60.22	-13	-47.22	-76.06	-62.13	1.28	5.34	H	Pass
3304	-59.81	-13	-46.81	-76.8	-63.25	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				Polarization :	Vertical			
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1656	-63.12	-13	-50.12	-74.76	-64.85	0.98	4.86	V	Pass
2480	-58.72	-13	-45.72	-76.09	-60.63	1.28	5.34	V	Pass
3304	-58.48	-13	-45.48	-77.03	-61.92	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1672	-63.81	-13	-50.81	-74.79	-65.49	0.99	4.82	H	Pass
2512	-60.24	-13	-47.24	-76.37	-62.21	1.29	5.41	H	Pass
3344	-60.18	-13	-47.18	-76.94	-63.79	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				Polarization :	Vertical			
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1672	-63.44	-13	-50.44	-75.04	-65.12	0.99	4.82	V	Pass
2512	-58.88	-13	-45.88	-76.21	-60.85	1.29	5.41	V	Pass
3344	-58.60	-13	-45.60	-76.92	-62.21	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1696	-63.67	-13	-50.67	-74.96	-65.27	1.00	4.75	H	Pass
2536	-59.83	-13	-46.83	-76.51	-61.81	1.30	5.43	H	Pass
3384	-59.70	-13	-46.70	-77.06	-63.47	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				Polarization :	Vertical			
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1696	-63.15	-13	-50.15	-75.26	-64.75	1.00	4.75	V	Pass
2536	-58.65	-13	-45.65	-76.44	-60.63	1.30	5.43	V	Pass
3384	-58.14	-13	-45.14	-76.92	-61.91	1.57	7.49	V	Pass

**<Low Channel>**

Band :	WCDMA Band IV					Temperature :	23~24°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3427	-56.30	-13	-43.30	-74.36	-62.4	1.58	7.68	H	Pass
5135	-46.21	-13	-33.21	-69.78	-53.5	2.41	9.70	H	Pass
6850	-46.42	-13	-33.42	-72.85	-54.4	2.64	10.62	H	Pass
8565	-45.66	-13	-32.66	-72.61	-55.8	2.39	12.53	H	Pass

Band :	WCDMA Band IV	Temperature :	23~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3427	-55.00	-13	-42.00	-74.21	-61.1	1.58	7.68	V	Pass
5137	-44.42	-13	-31.42	-69.22	-51.7	2.42	9.70	V	Pass
6852	-43.22	-13	-30.22	-70.99	-51.2	2.64	10.62	V	Pass
8565	-43.16	-13	-30.16	-71.95	-53.3	2.39	12.53	V	Pass

**<Middle Channel>**

Band :	WCDMA Band IV					Temperature :	23~24°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3467	-55.24	-13	-42.24	-73.27	-61.5	1.59	7.85	H	Pass
5198	-51.85	-13	-38.85	-75.07	-59.1	2.45	9.70	H	Pass
6927	-51.10	-13	-38.10	-77.45	-59.2	2.61	10.71	H	Pass
8660	-50.15	-13	-37.15	-76.99	-60.3	2.41	12.56	H	Pass

Band :	WCDMA Band IV	Temperature :	23~24°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3463	-55.56	-13	-42.56	-74.69	-61.8	1.59	7.84	V	Pass
5195	-47.25	-13	-34.25	-72.03	-54.5	2.45	9.70	V	Pass
6934	-49.19	-13	-36.19	-76.73	-57.3	2.61	10.72	V	Pass
8660	-45.55	-13	-32.55	-74.56	-55.7	2.41	12.56	V	Pass

**<High Channel>**

Band :	WCDMA Band IV					Temperature :	23~24°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3504	-58.20	-13	-45.20	-75.97	-64.6	1.61	8.00	H	Pass
5254	-47.08	-13	-34.08	-71.66	-54.3	2.48	9.70	H	Pass
7011	-48.56	-13	-35.56	-74.95	-56.8	2.59	10.82	H	Pass
8768	-49.03	-13	-36.03	-75.77	-59.2	2.43	12.61	H	Pass

Band :	WCDMA Band IV				Temperature :	23~24°C			
Test Mode :	RMC 12.2Kbps Link (QPSK)				Relative Humidity :	46~48%			
Test Engineer :	Nick Yu				Polarization :	Vertical			
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3504	-56.70	-13	-43.70	-75.84	-63.1	1.61	8.00	V	Pass
5254	-42.78	-13	-29.78	-68.05	-50	2.48	9.70	V	Pass
7011	-45.96	-13	-32.96	-73.46	-54.2	2.59	10.82	V	Pass
8761	-48.13	-13	-35.13	-77.17	-58.3	2.43	12.60	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3707	-49.22	-13	-36.22	-68.65	-55.8	1.67	8.25	H	Pass
5555	-43.63	-13	-30.63	-68.43	-50.7	2.66	9.72	H	Pass
7403	-48.65	-13	-35.65	-75.2	-57.8	2.46	11.61	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	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3707	-44.62	-13	-31.62	-64.9	-51.2	1.67	8.25	V	Pass
5555	-38.03	-13	-25.03	-64.08	-45.1	2.66	9.72	V	Pass
7403	-46.65	-13	-33.65	-74.78	-55.8	2.46	11.61	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3763	-53.47	-13	-40.47	-73.53	-60.1	1.69	8.32	H	Pass
5644	-39.55	-13	-26.55	-64.24	-46.6	2.71	9.76	H	Pass
7520	-50.21	-13	-37.21	-77.45	-59.6	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	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3763	-50.47	-13	-37.47	-71.17	-57.1	1.69	8.32	V	Pass
5639	-35.05	-13	-22.05	-60.82	-42.1	2.71	9.76	V	Pass
7522	-48.61	-13	-35.61	-77.44	-58	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	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3819	-42.72	-13	-29.72	-63.79	-49.4	1.70	8.38	H	Pass
5723	-35.86	-13	-22.86	-60.87	-42.9	2.75	9.79	H	Pass
7630	-50.61	-13	-37.61	-78.19	-60.1	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	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3819	-40.82	-13	-27.82	-62.16	-47.5	1.70	8.38	V	Pass
5723	-33.46	-13	-20.46	-59.4	-40.5	2.75	9.79	V	Pass
7630	-48.31	-13	-35.31	-77.98	-57.8	2.39	11.88	V	Pass



<SIM 2>

<Low Channel>

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-46.64	-13	-33.64	-57.55	-48.4	0.98	4.89	H	Pass
2472	-50.04	-13	-37.04	-66.36	-51.92	1.28	5.32	H	Pass
3296	-48.94	-13	-35.94	-65.9	-52.35	1.54	7.10	H	Pass
4120	-52.20	-13	-39.20	-73.49	-56.84	1.83	8.62	H	Pass
4944	-51.55	-13	-38.55	-74.34	-56.68	2.30	9.59	H	Pass
5768	-49.07	-13	-36.07	-73.92	-53.95	2.78	9.81	H	Pass

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-44.61	-13	-31.61	-56.28	-46.37	0.98	4.89	V	Pass
2472	-43.48	-13	-30.48	-61.21	-45.36	1.28	5.32	V	Pass
3296	-52.50	-13	-39.50	-71.02	-55.91	1.54	7.10	V	Pass
4120	-54.53	-13	-41.53	-76.42	-59.17	1.83	8.62	V	Pass
4944	-52.66	-13	-39.66	-76.46	-57.79	2.30	9.59	V	Pass
5768	-51.04	-13	-38.04	-76.67	-55.92	2.78	9.81	V	Pass

**<Middle Channel>**

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-49.14	-13	-36.14	-60.12	-50.82	0.99	4.82	H	Pass
2512	-46.90	-13	-33.90	-62.95	-48.87	1.29	5.41	H	Pass
3344	-50.88	-13	-37.88	-68.1	-54.49	1.56	7.31	H	Pass
4184	-52.00	-13	-39.00	-73.34	-56.62	1.87	8.64	H	Pass
5016	-51.38	-13	-38.38	-74.16	-56.58	2.35	9.70	H	Pass
5856	-50.71	-13	-37.71	-75.57	-55.57	2.83	9.84	H	Pass
7528	-49.70	-13	-36.70	-76.08	-56.95	2.42	11.82	H	Pass

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-47.81	-13	-34.81	-59.53	-49.49	0.99	4.82	V	Pass
2512	-43.80	-13	-30.80	-61.4	-45.77	1.29	5.41	V	Pass
3344	-54.10	-13	-41.10	-72.8	-57.71	1.56	7.31	V	Pass
4184	-53.54	-13	-40.54	-75.42	-58.16	1.87	8.64	V	Pass
5016	-52.98	-13	-39.98	-76.73	-58.18	2.35	9.70	V	Pass
5856	-52.72	-13	-39.72	-78.36	-57.58	2.83	9.84	V	Pass
7528	-49.29	-13	-36.29	-77.38	-56.54	2.42	11.82	V	Pass



<High Channel>

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-50.69	-13	-37.69	-62.08	-52.29	1.00	4.75	H	Pass
2544	-47.23	-13	-34.23	-63.73	-49.21	1.30	5.44	H	Pass
3392	-52.45	-13	-39.45	-69.99	-56.25	1.57	7.52	H	Pass
4240	-53.52	-13	-40.52	-74.92	-58.12	1.90	8.65	H	Pass
5096	-51.55	-13	-38.55	-74.29	-56.71	2.39	9.70	H	Pass

Band :	GSM850					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-46.18	-13	-33.18	-58.29	-47.78	1.00	4.75	V	Pass
2544	-41.23	-13	-28.23	-59.21	-43.21	1.30	5.44	V	Pass
3392	-55.05	-13	-42.05	-73.87	-58.85	1.57	7.52	V	Pass
4240	-54.09	-13	-41.09	-76.17	-58.69	1.90	8.65	V	Pass
5096	-54.62	-13	-41.62	-78.39	-59.78	2.39	9.70	V	Pass

**<Low Channel>**

Band :	GSM1900	Temperature :	23~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
3700	-38.43	-13	-25.43	-57.7	-45	1.67	8.24	H	Pass
5548	-20.63	-13	-7.63	-45.43	-27.7	2.65	9.72	H	Pass
7401	-51.66	-13	-38.66	-78.56	-60.8	2.46	11.60	H	Pass
9251	-47.74	-13	-34.74	-75.07	-57.8	2.54	12.60	H	Pass
11102	-43.73	-13	-30.73	-75.19	-53.5	2.69	12.46	H	Pass

Band :	GSM1900					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3700	-38.53	-13	-25.53	-58.82	-45.1	1.67	8.24	V	Pass
5548	-22.63	-13	-9.63	-48.47	-29.7	2.65	9.72	V	Pass
7401	-49.76	-13	-36.76	-78.21	-58.9	2.46	11.60	V	Pass
9251	-40.44	-13	-27.44	-70.09	-50.5	2.54	12.60	V	Pass
11102	-41.33	-13	-28.33	-75.06	-51.1	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					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3756	-38.48	-13	-25.48	-57.94	-45.1	1.68	8.31	H	Pass
5639	-17.15	-13	-4.15	-41.93	-24.2	2.71	9.76	H	Pass
7520	-51.51	-13	-38.51	-78.8	-60.9	2.42	11.81	H	Pass
9398	-46.93	-13	-33.93	-74.49	-56.9	2.57	12.54	H	Pass
11282.5	-44.50	-13	-31.50	-76.37	-54.2	2.68	12.39	H	Pass

Band :	GSM1900	Temperature :	23~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3756	-41.48	-13	-28.48	-62.22	-48.1	1.68	8.31	V	Pass
5639	-21.65	-13	-8.65	-47.51	-28.7	2.71	9.76	V	Pass
7520	-50.21	-13	-37.21	-78.8	-59.6	2.42	11.81	V	Pass
9398	-42.13	-13	-29.13	-72.21	-52.1	2.57	12.54	V	Pass

**<High Channel>**

Band :	GSM1900	Temperature :	23~24°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	46~48%						
Test Engineer :	Nick Yu	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3819	-33.52	-13	-20.52	-54.81	-40.2	1.70	8.38	H	Pass
5730	-17.37	-13	-4.37	-42.64	-24.4	2.76	9.79	H	Pass
7641	-50.50	-13	-37.50	-78.07	-60	2.38	11.88	H	Pass
9552	-46.23	-13	-33.23	-73.96	-56.1	2.60	12.47	H	Pass
11453.5	-44.66	-13	-31.66	-77.16	-54.3	2.68	12.32	H	Pass

Band :	GSM1900					Temperature :	23~24°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	46~48%		
Test Engineer :	Nick Yu					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3819	-34.42	-13	-21.42	-55.96	-41.1	1.70	8.38	V	Pass
5730	-22.27	-13	-9.27	-47.93	-29.3	2.76	9.79	V	Pass
7641	-48.30	-13	-35.30	-77.64	-57.8	2.38	11.88	V	Pass
9552	-45.63	-13	-32.63	-75.77	-55.5	2.60	12.47	V	Pass
11453.5	-42.16	-13	-29.16	-77.18	-51.8	2.68	12.32	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

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

3.8.2 Measuring Instruments

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

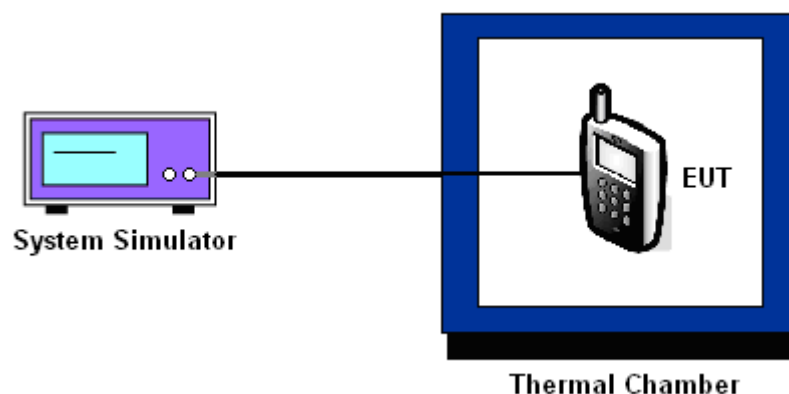
3.8.3 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°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 $25\pm 5^{\circ}\text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

<SIM 1>

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	0.0347	PASS
40	0.0072	0.0048	
30	0.0048	0.0024	
20(Ref.)	0.0000	0.0000	
10	0.0024	0.0299	
0	0.0012	0.0012	
-10	0.0036	0.0036	
-20	0.0060	0.0024	
-30	0.0048	0.0060	

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	0.0048	0.0059	PASS
40	0.0021	0.0027	
30	0.0032	0.0016	
20(Ref.)	0.0000	0.0000	
10	0.0011	0.0005	
0	0.0021	0.0005	
-10	0.0011	0.0037	
-20	0.0027	0.0027	
-30	0.0037	0.0048	

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	0.0179	PASS
40	0.0155	
30	0.0024	
20(Ref.)	0.0000	
10	0.0012	
0	0.0036	
-10	0.0143	
-20	0.0024	
-30	0.0048	



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

Temperature (°C)	RMC 12.2Kbps	Result
	Deviation (ppm)	
50	0.0046	PASS
40	0.0035	
30	0.0012	
20(Ref.)	0.0000	
10	0.0006	
0	0.0121	
-10	0.0017	
-20	0.0012	
-30	0.0023	

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

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

Temperature (°C)	RMC 12.2Kbps	Result
	Deviation (ppm)	
50	0.0197	PASS
40	0.0165	
30	0.0138	
20(Ref.)	0.0000	
10	0.0133	
0	0.0128	
-10	0.0138	
-20	0.0144	
-30	0.0160	

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

**<SIM 2>**

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

Temperature (°C)	GSM	Result
	Deviation (ppm)	
50	0.0191	PASS
40	0.0143	
30	0.0072	
20(Ref.)	0.0000	
10	0.0060	
0	0.0084	
-10	0.0108	
-20	0.0167	
-30	0.0143	

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

Temperature (°C)	GSM	Result
	Deviation (ppm)	
50	0.0059	PASS
40	0.0090	
30	0.0011	
20(Ref.)	0.0000	
10	0.0027	
0	0.0043	
-10	0.0074	
-20	0.0053	
-30	0.0080	

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

<SIM 1>

Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GSM	4.35	0.0024	2.5	PASS
		3.80	0.0036		
		BEP	0.0012		
	EDGE class 8	4.35	0.0036		
		3.80	0.0024		
		BEP	0.0012		
GSM 1900 CH661	GSM	4.35	0.0027	(Note 3.)	
		3.80	0.0053		
		BEP	0.0064		
	EDGE class 8	4.35	0.0021		
		3.80	0.0037		
		BEP	0.0027		
WCDMA Band V CH4182	RMC 12.2Kbps	4.35	0.0024	2.5	
		3.80	0.0012		
		BEP	0.0132		
WCDMA Band IV CH1413	RMC 12.2Kbps	4.35	0.0012	(Note 3.)	
		3.80	0.0006		
		BEP	0.0017		
WCDMA Band II CH9400	RMC 12.2Kbps	4.35	0.0138	(Note 3.)	
		3.80	0.0122		
		BEP	0.0128		

<SIM 2>

Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GSM	4.35	0.0000	2.5	PASS
		3.80	0.0036		
		BEP	0.0060		
GSM 1900 CH661	GSM	4.35	0.0048	(Note 3.)	
		3.80	0.0021		
		BEP	0.0074		

Note:

1. Normal Voltage = 3.80V.
2. Battery End Point (BEP) = 3.60 V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	Rohde & Schwarz	CMU200	117995	N/A	Jul. 29, 2014	Feb. 11, 2015~ Feb. 14, 2015	Jul. 28, 2015	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Feb. 11, 2015~ Feb. 14, 2015	Jun. 08, 2015	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 17, 2014	Feb. 11, 2015~ Feb. 14, 2015	Jul. 16, 2015	Conducted (TH02-HY)
Signal Analyzer	Rohde & Schwarz	FSV 30	100895	9kHz~30GHz	Apr. 11, 2014	Feb. 18, 2015~ Feb. 19, 2015	Apr. 10, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Sep. 27, 2014	Feb. 18, 2015~ Feb. 19, 2015	Sep. 26, 2015	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 19, 2014	Feb. 18, 2015~ Feb. 19, 2015	Aug. 18, 2015	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz	Mar. 17, 2014	Feb. 18, 2015~ Feb. 19, 2015	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Oct. 21, 2014	Feb. 18, 2015~ Feb. 19, 2015	Oct. 20, 2015	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Feb. 18, 2015~ Feb. 19, 2015	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/8000604/L	N/A	N/A	Feb. 18, 2015~ Feb. 19, 2015	N/A	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBEC K	BBHA 9170	BBHA9170251	18GHz~40GHz	Oct. 02, 2014	Feb. 18, 2015~ Feb. 19, 2015	Oct. 01, 2015	Radiation (03CH07-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.50
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