FCC RF Test Report

APPLICANT	:	Doro AB
EQUIPMENT	:	Mobile Telephone
BRAND NAME	:	Doro
MODEL NAME	:	Doro PhoneEasy 618
FCC ID	:	WS5DORO618
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)
Tx/Rx FREQUENCY RANGE	:	GSM850 : 824.2 ~ 848.8 MHz / 869.2 ~ 893.8 MHz GSM1900 : 1850.2 ~ 1909.8 MHz / 1930.2 ~ 1989.8 MHz WCDMA Band V : 826.4 ~ 846.6 MHz / 871.4 ~ 891.6 MHz WCDMA Band II : 1852.4 ~ 1907.6 MHz / 1932.4 ~ 1987.6 MHz
MAX. ERP/EIRP POWER	:	GSM850 (GSM) : 0.7925 W GSM1900 (GSM) : 0.7834 W WCDMA Band V (RMC 12.2Kbps) : 0.0887 W WCDMA Band II (RMC 12.2Kbps) : 0.1803 W

The product was received on Apr. 06, 2012 and completely tested on May 31, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG240603	Rev. 01	Initial issue of report	Jun. 27, 2012
FG240603	Rev. 02	Update report for revising the FCC ID	Jun. 29, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	N/A	Conducted Output Power	N/A	PASS	-
3.2	§24.232(d)	RSS-133(6.4)	Peak-to-Average Ratio	< 13 dB	PASS	-
3.3	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
3.3	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.4	§2.1049 §22.917(a) §24.238(a)	N/A	Occupied Bandwidth	N/A	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Band Edge Measurement	< $43+10\log_{10}$(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Conducted Emission	< $43+10\log_{10}$(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Field Strength of Spurious Radiation	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 25.73 dB at 3345.000 MHz
3.8	§2.1055 §22.355 §24.235	RSS-132(4.3) RSS-133(6.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

1 General Description

1.1 Applicant

Doro AB
Magistratsvägen 10 SE-226 43 Lund Sweden

1.2 Manufacturer

CK TELECOM LTD.
Technology Road, High-Tech Development Zone, Heyuan, Guangdong, P.R.China.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile Telephone
Brand Name	Doro
Model Name	Doro PhoneEasy 618
FCC ID	WS5DORO618
Tx Frequency	GSM850 : 824.2 ~ 848.8 MHz GSM1900 : 1850.2 ~ 1909.8 MHz WCDMA Band V : 826.4 MHz ~ 846.6 MHz WCDMA Band II : 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850 : 869.2 ~ 893.8 MHz GSM1900 : 1930.2 ~ 1989.8 MHz WCDMA Band V : 871.4 MHz ~ 891.6 MHz WCDMA Band II : 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 32.58 dBm GSM1900 : 30.58 dBm WCDMA Band V : 23.44 dBm WCDMA Band II : 23.47 dBm
Antenna Type	Fixed Internal Antenna
HW Version	APPLE-V2.0
SW Version	APPLE-S01A_DORO618_L3EN_110_120330
Type of Modulation	GSM / GPRS: GMSK WCDMA: QPSK (Uplink)
EUT Stage	Identical Prototype

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

1.4 Emission Designator and Maximum ERP/EIRP Power

FCC Rule	System	Type of Modulation	Emission Designator	Maximum ERP/EIRP
Part 22	GSM850 GSM	GMSK	248KGXW	0.7925 W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	4M20F9W	0.0887 W
Part 24	GSM1900 GSM	GMSK	250KGXW	0.7834 W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	4M20F9W	0.1803 W

1.5 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	**Sporton Site No.**		**FCC/IC Registration No.**
	TH01-KS	03CH01-KS	149928/4086E-1

1.6 Applied Standards

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

- Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.
- FCC 47 CFR Part 2, 22(H), 24(E)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v01
- IC RSS-132 Issue 2
- IC RSS-133 Issue 5

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.

1.7 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission is as follows:

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

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	■ GSM Link	■ GSM Link
GSM 1900	■ GSM Link	■ GSM Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Note:

1. The maximum power levels are GSM mode for GSM850 GMSK link, GSM mode for GSM1900 GMSK link, RMC 12.2Kbps mode for WCDMA band V, and RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.

2. Because there are individual antennas for each WWAN and Bluetooth, the co-location test modes are not required.

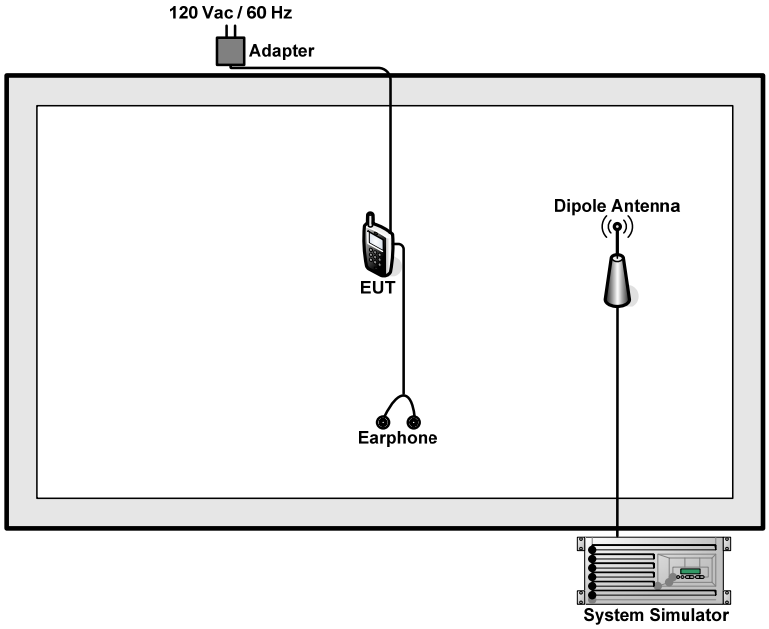
3. All the Radiation tests were performance with adapter and earphone.

The conducted power tables are as follows:

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 (1 Uplink)	32.47	32.56	**32.58**	30.38	30.54	**30.58**
GPRS 8 (1 Uplink) – CS1	32.44	32.54	32.56	30.37	30.52	30.57
GPRS 10 (2 Uplink) – CS1	31.63	31.73	31.78	29.44	29.60	29.74
GPRS 12 (4 Uplink) – CS1	29.14	29.29	29.35	26.35	26.53	26.67

Conducted Power (*Unit: dBm)						
Band	**WCDMA Band V**			**WCDMA Band II**		
Channel	**4132**	**4182**	**4233**	**9262**	**9400**	**9538**
Frequency	**826.4**	**836.4**	**846.6**	**1852.4**	**1880.0**	**1907.6**
RMC 12.2K	23.28	**23.44**	23.26	23.29	**23.47**	23.23

2.2 Connection Diagram of Test System



3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

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

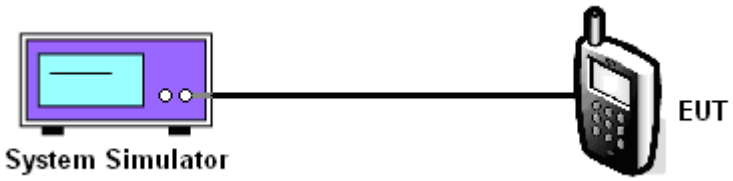
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The transmitter output port was connected to base station.
2. Set EUT at maximum power through base station.
3. Select lowest, middle, and highest channels for each band and different modulation.

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

Cellular Band						
Modes	**GSM850 (GSM)**			**WCDMA Band V (RMC 12.2Kbps)**		
Channel	**128 (Low)**	**189 (Mid)**	**251 (High)**	**4132 (Low)**	**4182 (Mid)**	**4233 (High)**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**826.4**	**836.4**	**846.6**
Conducted Power (dBm)	32.47	32.56	32.58	23.28	23.44	23.26
Conducted Power (Watts)	1.77	1.80	1.81	0.21	0.22	0.21

PCS Band						
Modes	**GSM1900 (GSM)**			**WCDMA Band II (RMC 12.2Kbps)**		
Channel	**512 (Low)**	**661 (Mid)**	**810 (High)**	**9262 (Low)**	**9400 (Mid)**	**9538 (High)**
Frequency (MHz)	**1850.2**	**1880**	**1909.8**	**1852.4**	**1880**	**1907.6**
Conducted Power (dBm)	30.38	30.54	30.58	23.29	23.47	23.23
Conducted Power (Watts)	1.09	1.13	1.14	0.21	0.22	0.21

3.2 Peak-to-Average Ratio

3.2.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. The following guidelines are offered for performing a CCDF measurement.

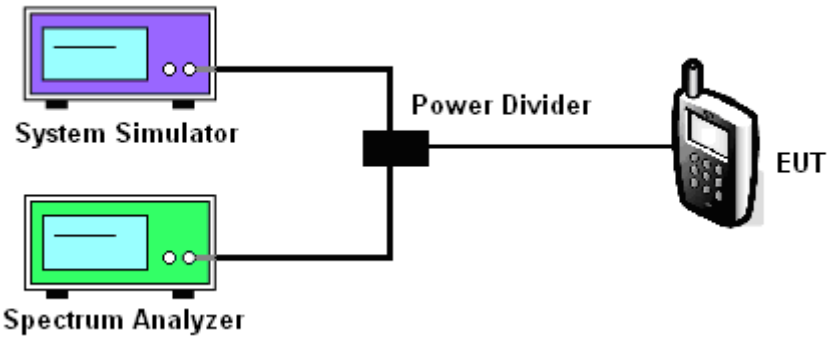
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The CCDF (Complementary Cumulative Distribution Function) of the middle channel for the highest RF powers were measured.

3.2.4 Test Setup



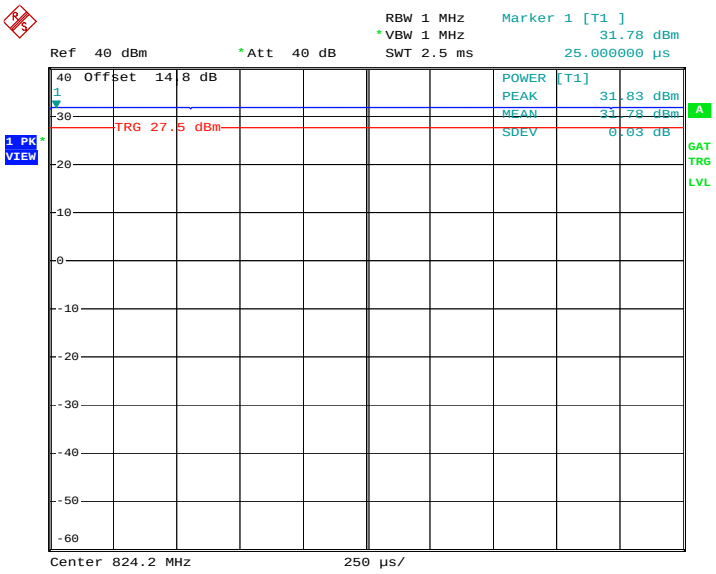
3.2.5 Test Result of Peak-to-Average Ratio

Cellular Band						
Modes	**GSM850 (GSM)**			**WCDMA Band V (RMC 12.2Kbps)**		
Channel	**128 (Low)**	**189 (Mid)**	**251 (High)**	**4132 (Low)**	**4182 (Mid)**	**4233 (High)**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**826.4**	**836.4**	**846.6**
Peak-to-Average Ratio (dB)	0.05	0.07	0.07	3.32	3.50	3.44

PCS Band						
Modes	**GSM1900 (GSM)**			**WCDMA Band II (RMC 12.2Kbps)**		
Channel	**512 (Low)**	**661 (Mid)**	**810 (High)**	**9262 (Low)**	**9400 (Mid)**	**9538 (High)**
Frequency (MHz)	**1850.2**	**1880**	**1909.8**	**1852.4**	**1880**	**1907.6**
Peak-to-Average Ratio (dB)	0.08	0.09	0.10	2.60	3.31	2.95

Band :	GSM 850	Test Mode :	GSM Link

Peak-to-Average Ratio on Channel 128



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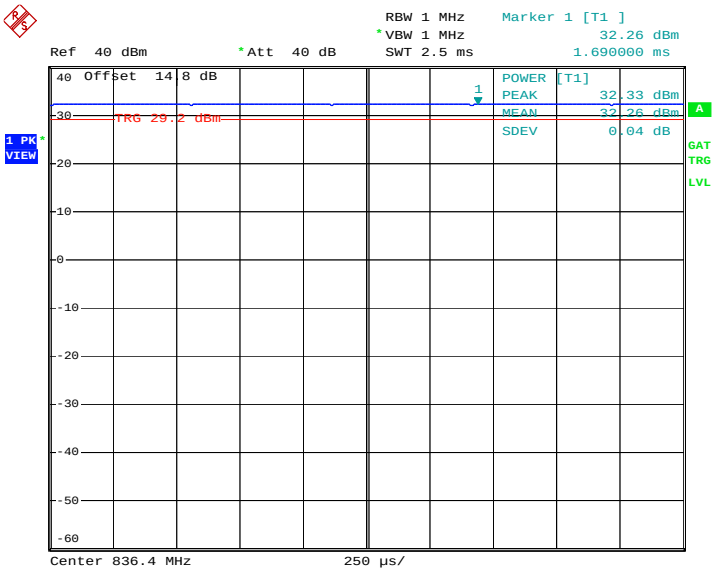
Peak-to-Average Ratio on Channel 189



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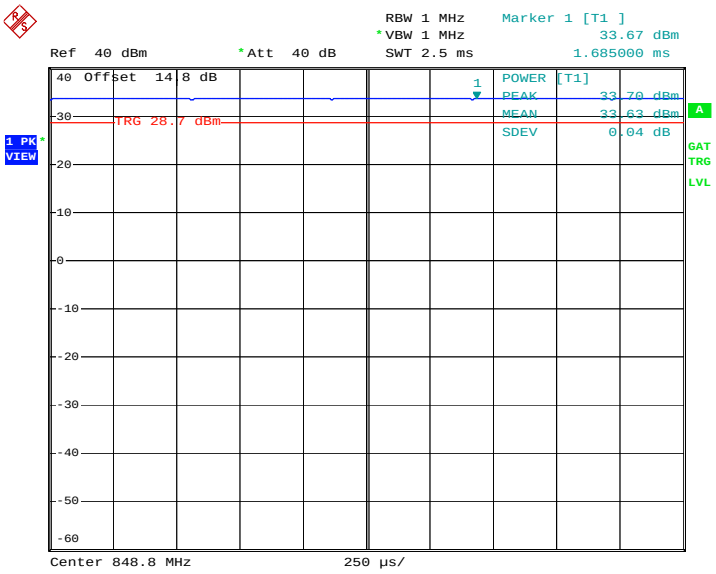
Peak-to-Average Ratio on Channel 251



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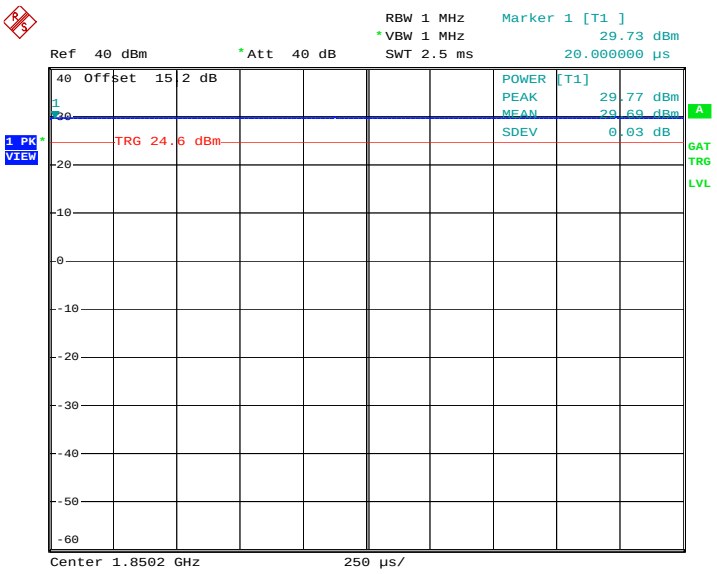
Band :	GSM 1900	Test Mode :	GSM Link

Peak-to-Average Ratio on Channel 512



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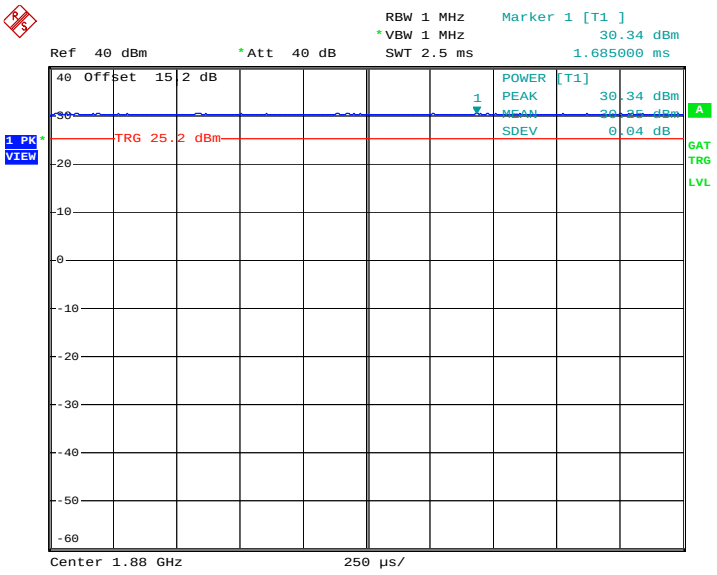
Peak-to-Average Ratio on Channel 661



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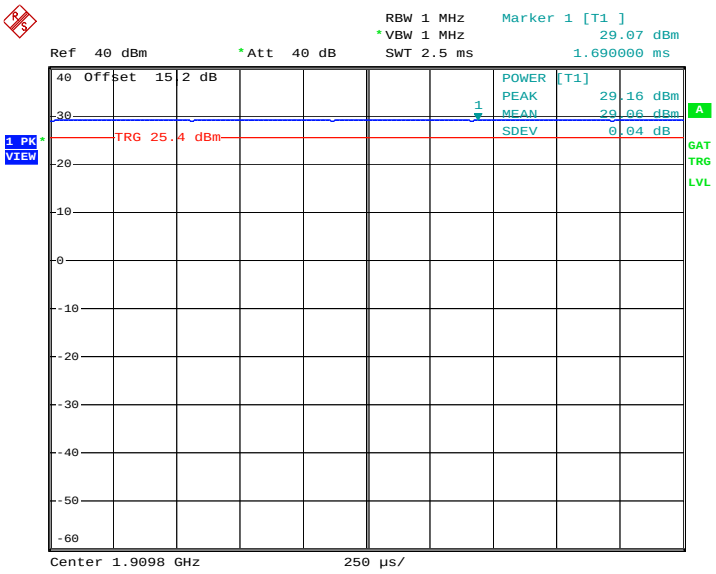
Peak-to-Average Ratio on Channel 810



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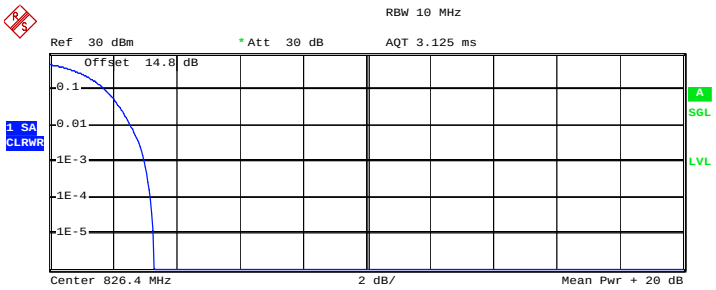
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link

Peak-to-Average Ratio on Channel 4132

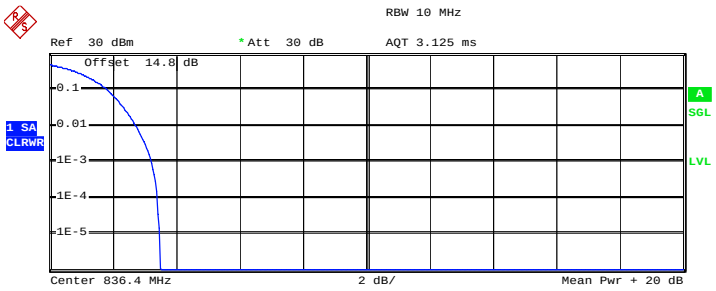


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.44 dBm
Peak	26.76 dBm
Crest	3.32 dB
10 %	1.76 dB
1 %	2.56 dB
.1 %	3.00 dB
.01 %	3.20 dB

Date: 19.MAY.2012 23:08:02

Peak-to-Average Ratio on Channel 4182

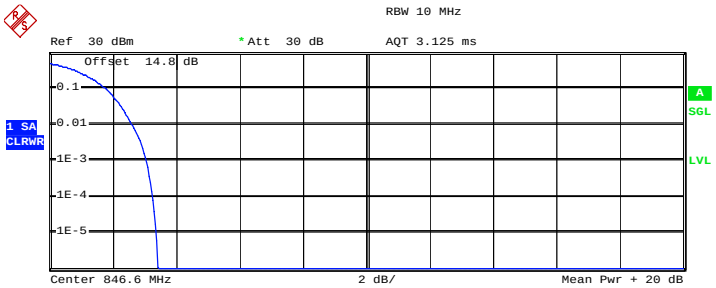


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.40 dBm
Peak	26.90 dBm
Crest	3.50 dB
10 %	1.84 dB
1 %	2.72 dB
.1 %	3.24 dB
.01 %	3.40 dB

Date: 19.MAY.2012 23:08:38

Peak-to-Average Ratio on Channel 4233



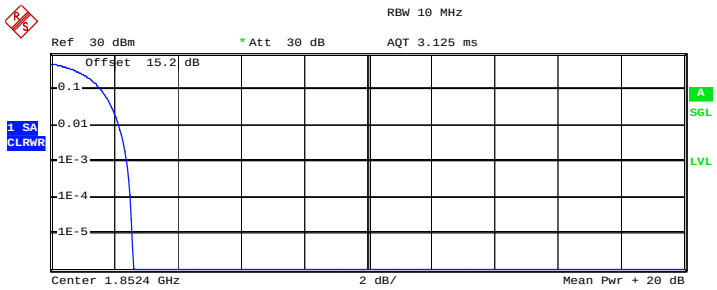
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.46 dBm
Peak	26.90 dBm
Crest	3.44 dB
10 %	1.80 dB
1 %	2.64 dB
.1 %	3.08 dB
.01 %	3.28 dB

Date: 19.MAY.2012 23:09:46

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link

Peak-to-Average Ratio on Channel 9262



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.24 dBm
Peak	25.84 dBm
Crest	2.60 dB
10 %	1.60 dB
1 %	2.16 dB
.1 %	2.40 dB
.01 %	2.52 dB

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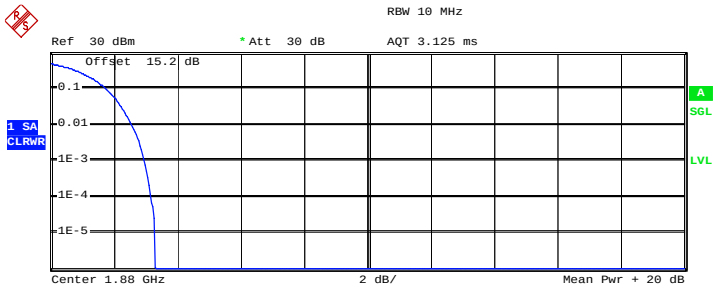
Peak-to-Average Ratio on Channel 9400



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.31 dBm
Peak	26.62 dBm
Crest	3.31 dB
10 %	1.76 dB
1 %	2.56 dB
.1 %	2.96 dB
.01 %	3.16 dB

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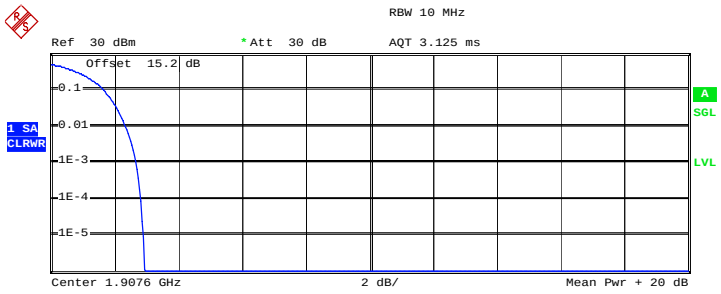
Peak-to-Average Ratio on Channel 9538



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.11 dBm
Peak	26.05 dBm
Crest	2.95 dB
10 %	1.68 dB
1 %	2.36 dB
.1 %	2.68 dB
.01 %	2.84 dB

Date: 19.MAY.2012 23:28:37

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 v01. The ERP of mobile transmitters must not exceed 7 Watts and the EIRP of mobile transmitters are limited to 2 Watts.

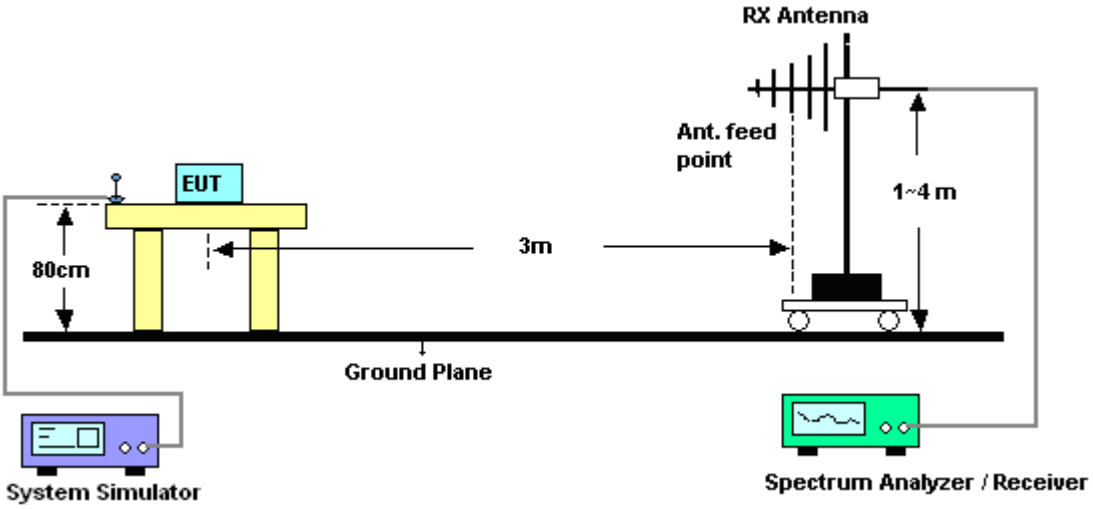
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The EUT was placed on an non-conductive rotating platform with 0.8 meter height in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RBW= 1MHz, VBW= 3MHz for GSM, RBW= 300KHz, VBW= 1MHz for WCDMA, RBW= 30kHz, VBW= 100kHz for CDMA2000, and RMS detector settings per section 4.0 of KDB 971168 D01.
2. During the measurement, the EUT was enforced in maximum power and linked with a base station. The highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, EIRP= LVL + Correction factor and ERP = EIRP – 2.15 .

3.3.4 Test Setup



3.3.5 Test Result of ERP

GSM850 (GSM) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	0.32	30.56	28.73	0.7464
836.4	1.26	29.88	28.99	0.7925
848.8	0.22	30.6	28.67	0.7362
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-4.77	33.86	26.94	0.4943
836.4	-3.48	32.98	27.35	0.5433
848.8	-4.07	33.07	26.85	0.4842

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

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.40	-10.69	30.56	17.72	0.0592
836.40	-10.40	29.88	17.33	0.0541
846.60	-10.42	30.6	18.03	0.0635
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.40	-12.23	33.86	19.48	0.0887
836.40	-12.15	32.98	18.68	0.0738
846.60	-12.64	33.07	18.28	0.0673

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

3.3.6 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-6.73	35.45	28.72	0.7447
1880.0	-6.86	35.33	28.47	0.7031
1909.8	-6.92	34.42	27.50	0.5623
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-11.28	39.83	28.55	0.7161
1880.0	-12.97	41.47	28.50	0.7079
1909.8	-11.99	40.93	28.94	0.7834

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

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-14.60	37.16	22.56	0.1803
1880.00	-14.42	35.61	21.19	0.1315
1907.60	-14.64	36.04	21.40	0.1380
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-16.42	36.1	19.68	0.0929
1880.00	-16.75	37.44	20.69	0.1172
1907.60	-16.69	39.12	22.43	0.1750

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

3.4 Occupied Bandwidth and 26dB Bandwidth Measurement

3.4.1 Description of Occupied Bandwidth and 26dB Bandwidth Measurement

The 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.

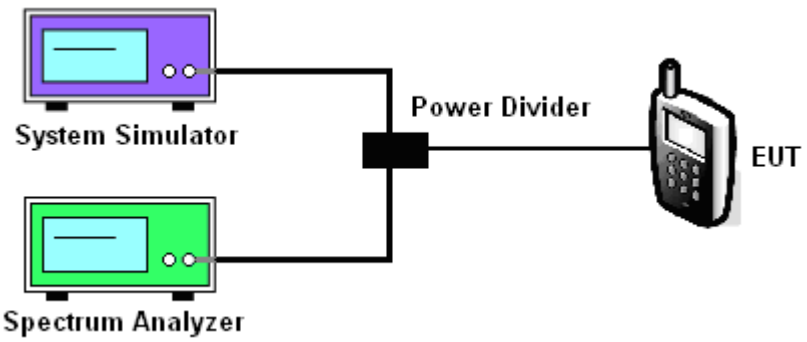
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers were measured.

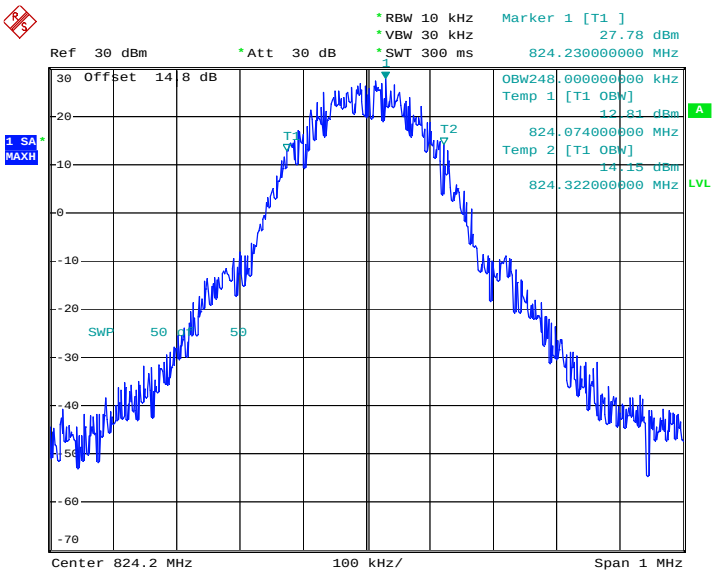
3.4.4 Test Setup



3.4.5 Test Result (Plots) of Occupied Bandwidth

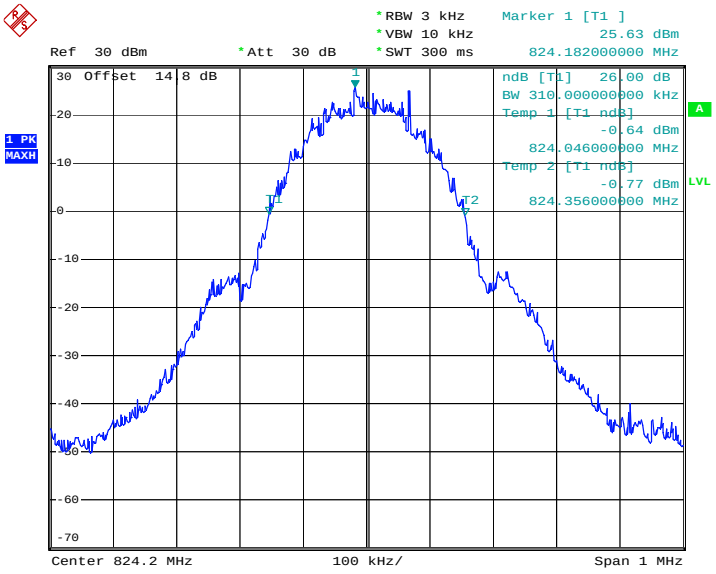
Band :	GSM 850	Test Mode :	GSM Link

99% Occupied Bandwidth Plot on Channel 128



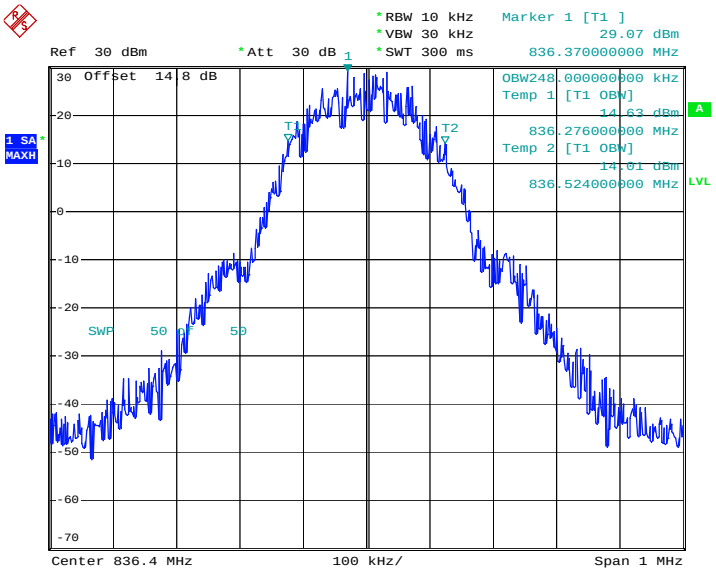
Date: 19.MAY.2012 22:24:20

26dB Bandwidth Plot on Channel 128



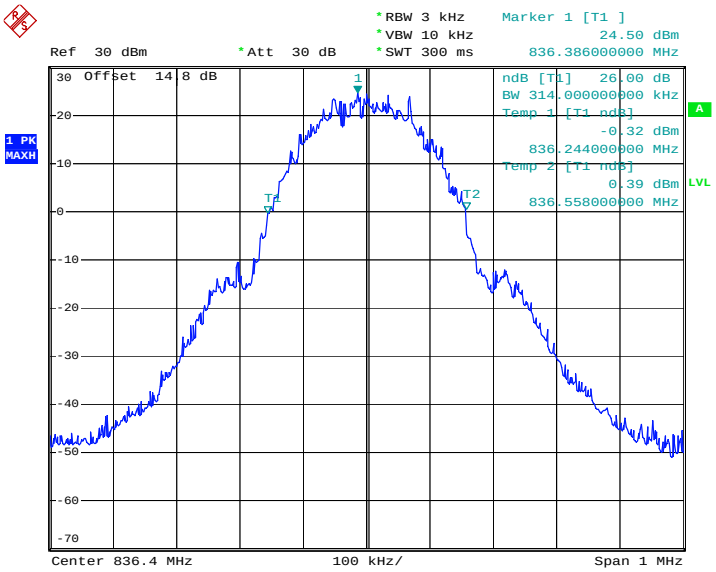
Date: 19.MAY.2012 22:21:50

99% Occupied Bandwidth Plot on Channel 189



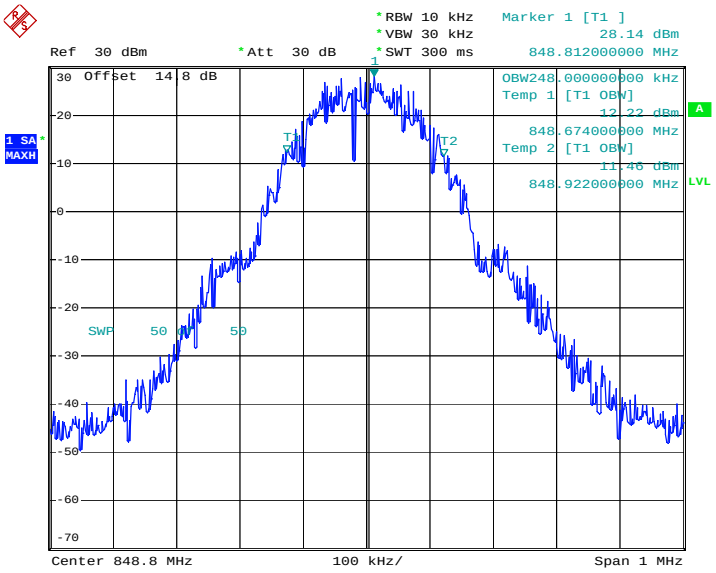
Date: 19.MAY.2012 22:24:39

26dB Bandwidth Plot on Channel 189



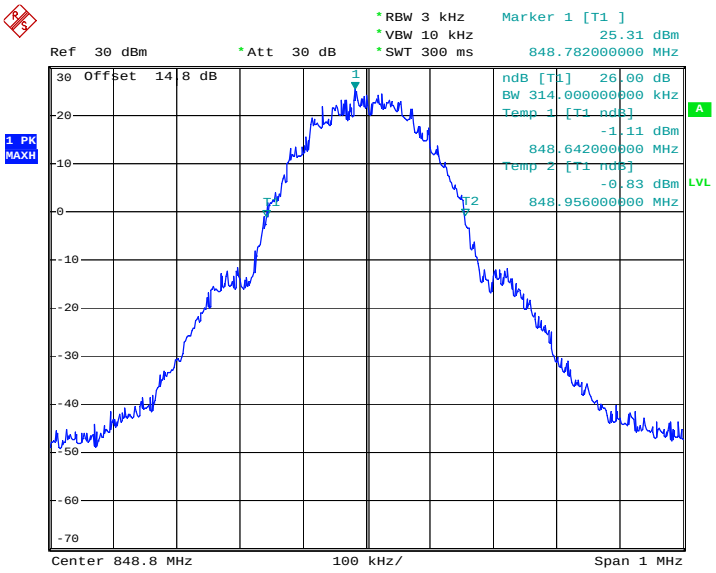
Date: 19.MAY.2012 22:22:16

99% Occupied Bandwidth Plot on Channel 251



Date: 19.MAY.2012 22:24:58

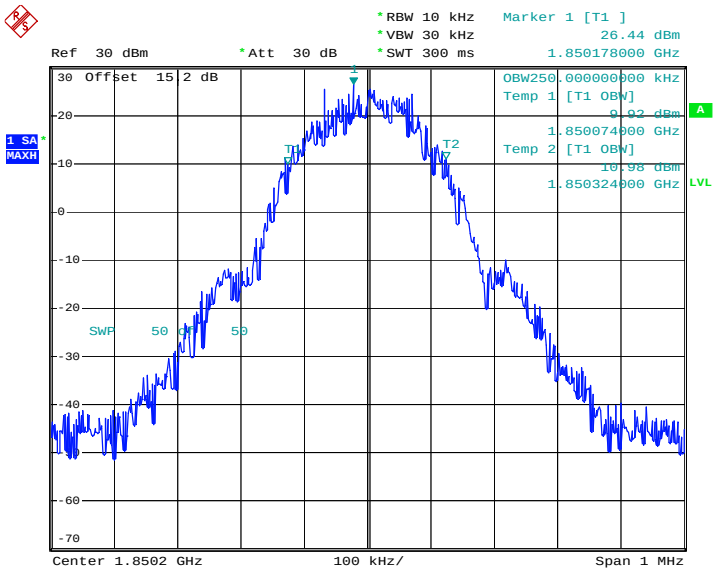
26dB Bandwidth Plot on Channel 251



Date: 19.MAY.2012 22:22:42

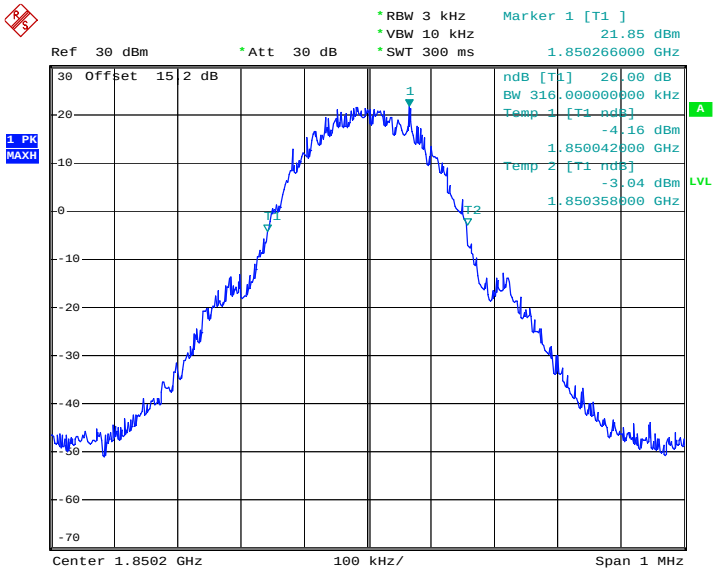
Band :	GSM 1900	Test Mode :	GSM Link

99% Occupied Bandwidth Plot on Channel 512



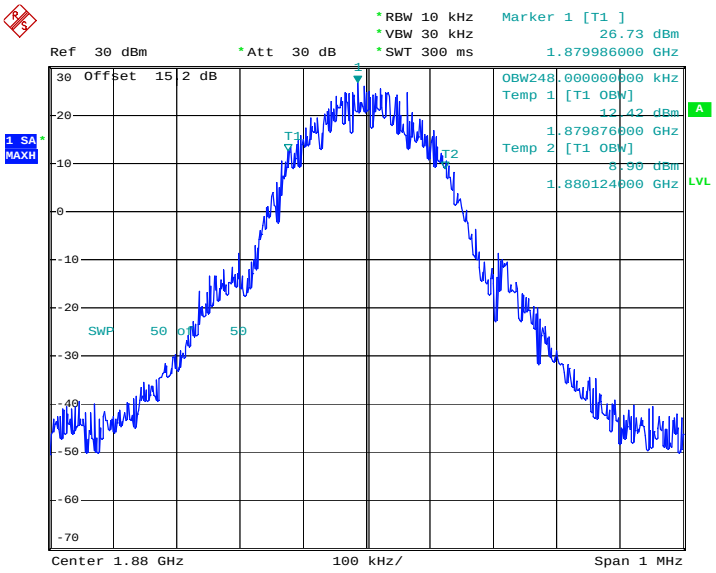
Date: 19.MAY.2012 22:45:58

26dB Bandwidth Plot on Channel 512



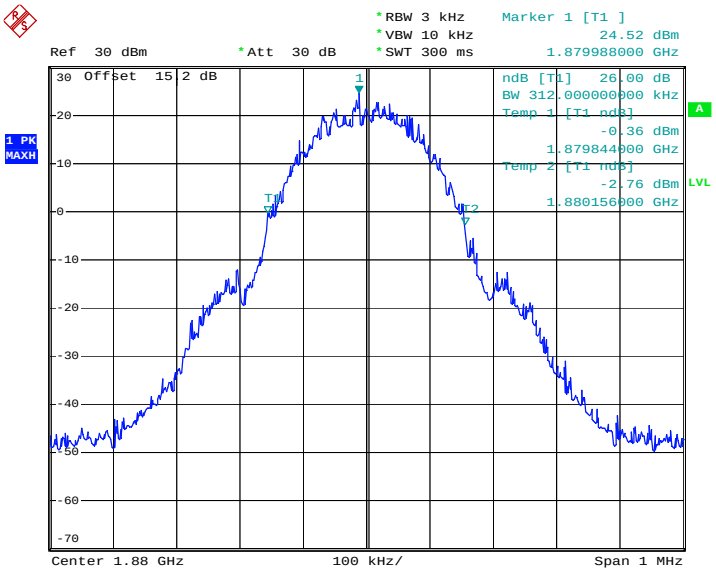
Date: 19.MAY.2012 22:43:28

99% Occupied Bandwidth Plot on Channel 661



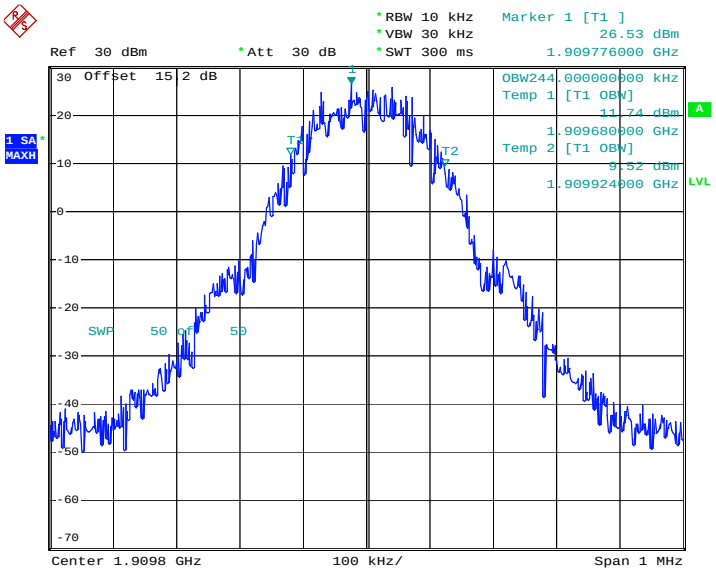
Date: 19.MAY.2012 22:46:17

26dB Bandwidth Plot on Channel 661



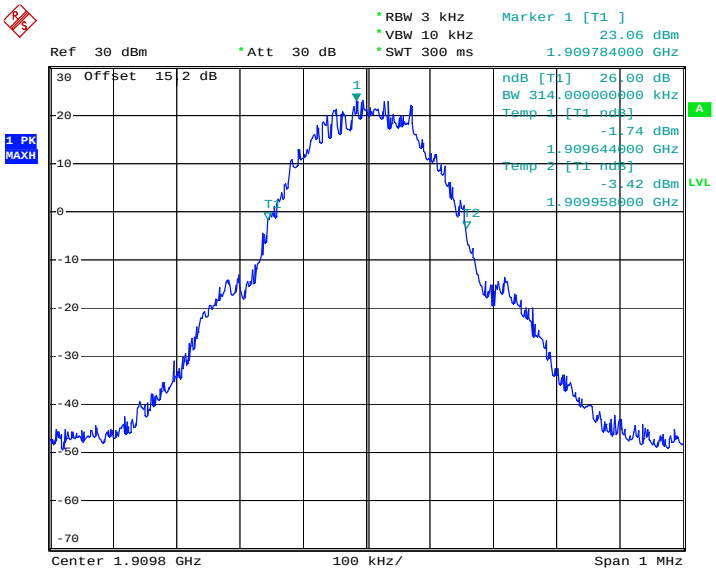
Date: 19.MAY.2012 22:51:44

99% Occupied Bandwidth Plot on Channel 810



Date: 19.MAY.2012 22:46:36

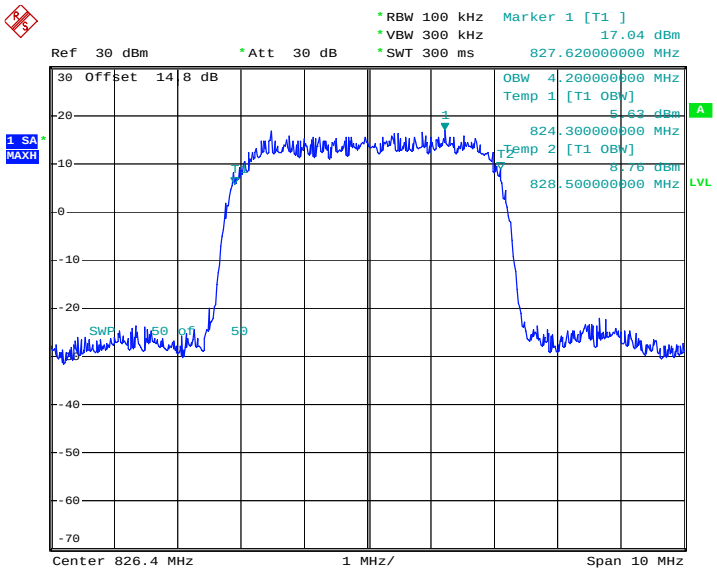
26dB Bandwidth Plot on Channel 810



Date: 19.MAY.2012 22:44:20

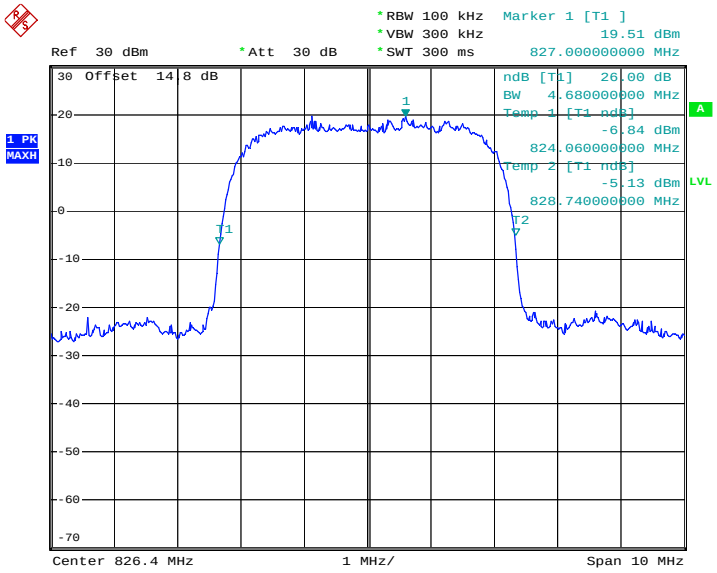
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link

99% Occupied Bandwidth Plot on Channel 4132



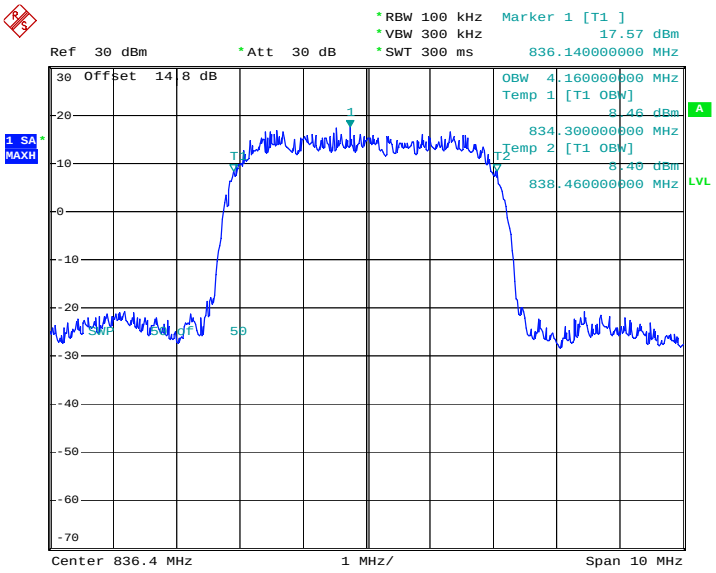
Date: 19.MAY.2012 23:03:03

26dB Bandwidth Plot on Channel 4132

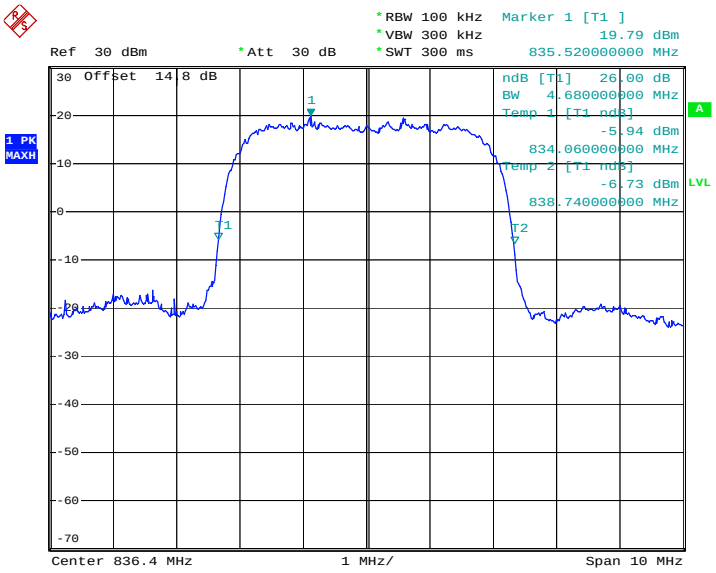


Date: 19.MAY.2012 23:16:57

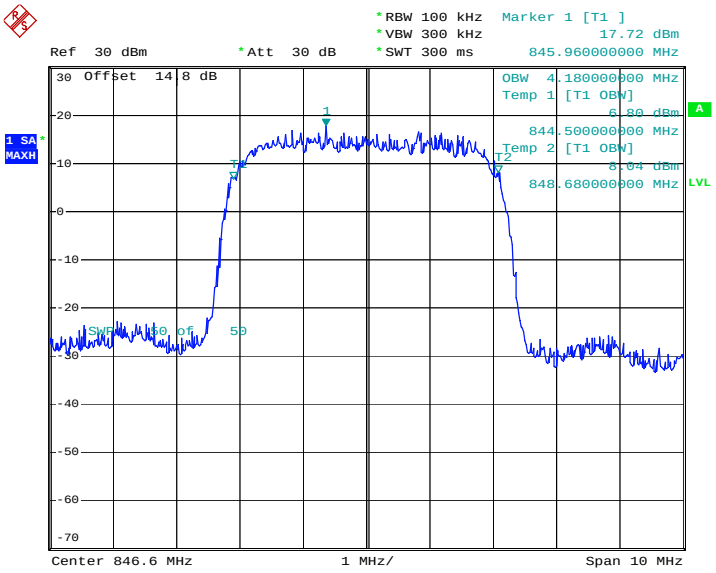
99% Occupied Bandwidth Plot on Channel 4182



26dB Bandwidth Plot on Channel 4182

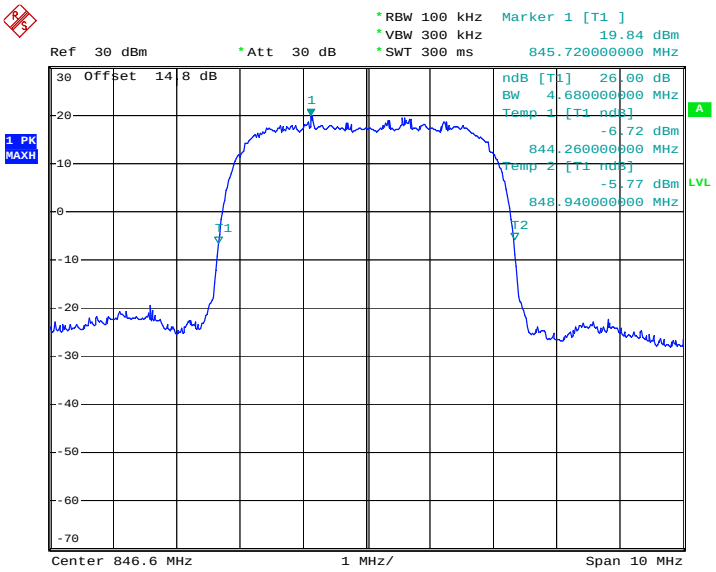


99% Occupied Bandwidth Plot on Channel 4233



Date: 19.MAY.2012 23:03:43

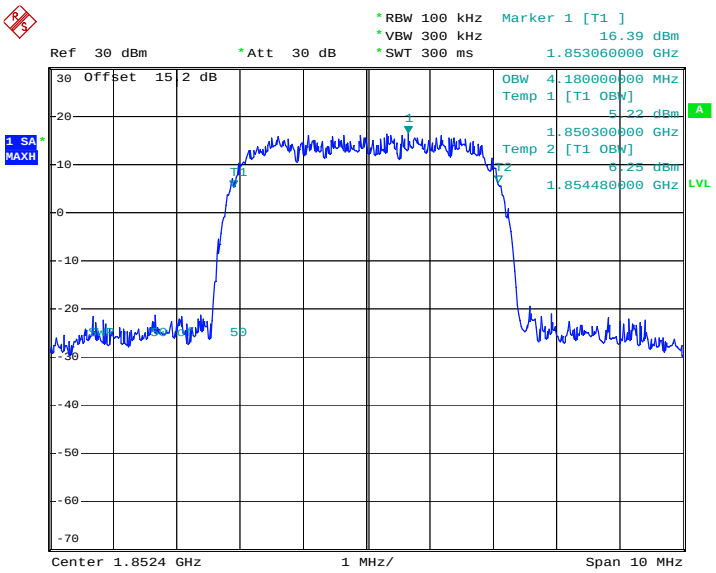
26dB Bandwidth Plot on Channel 4233



Date: 19.MAY.2012 23:01:25

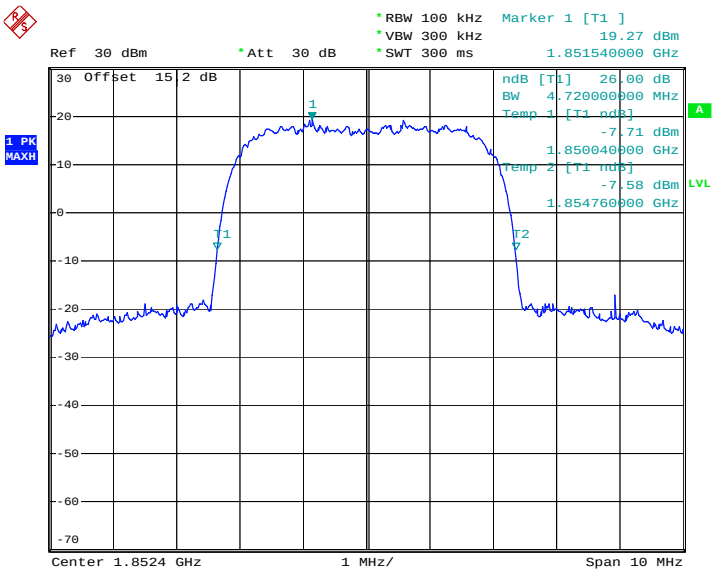
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link

99% Occupied Bandwidth Plot on Channel 9262



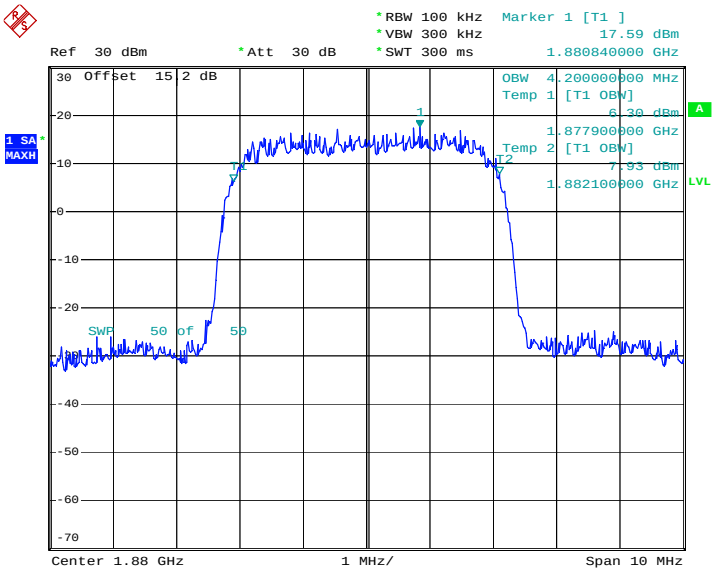
Date: 19.MAY.2012 23:23:17

26dB Bandwidth Plot on Channel 9262



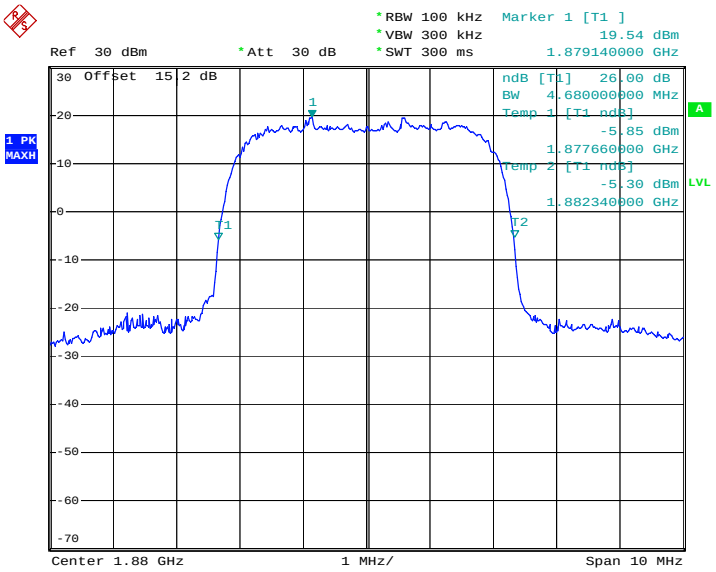
Date: 19.MAY.2012 23:20:47

99% Occupied Bandwidth Plot on Channel 9400



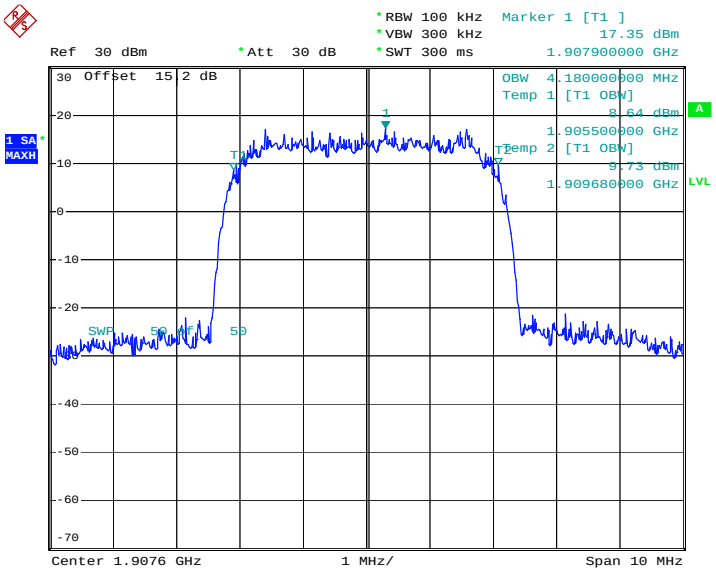
Date: 19.MAY.2012 23:23:38

26dB Bandwidth Plot on Channel 9400



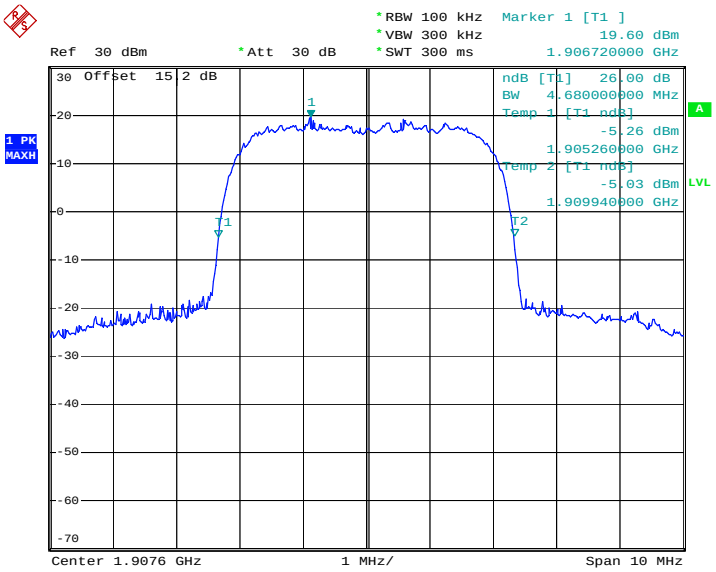
Date: 19.MAY.2012 23:21:14

99% Occupied Bandwidth Plot on Channel 9538



Date: 19.MAY.2012 23:23:58

26dB Bandwidth Plot on Channel 9538



Date: 19.MAY.2012 23:21:39

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

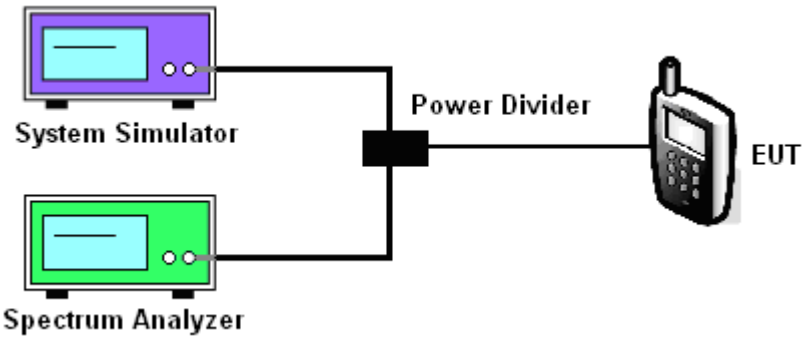
See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.

3.5.4 Test Setup

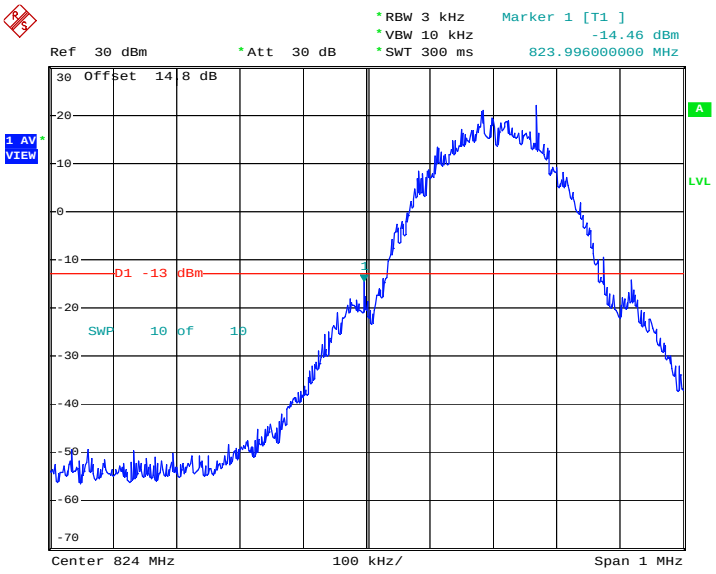
<Conducted Band Edge >



3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	**Power Stage :**	High
Test Mode :	GSM Link	**Maximum 26dB Bandwidth:**	0.314MHz
Correction Factor:	0.20dB	**Measurement Value:**	-14.46dBm
Band Edge:	-14.26dBm		

Lower Band Edge Plot on Channel 128



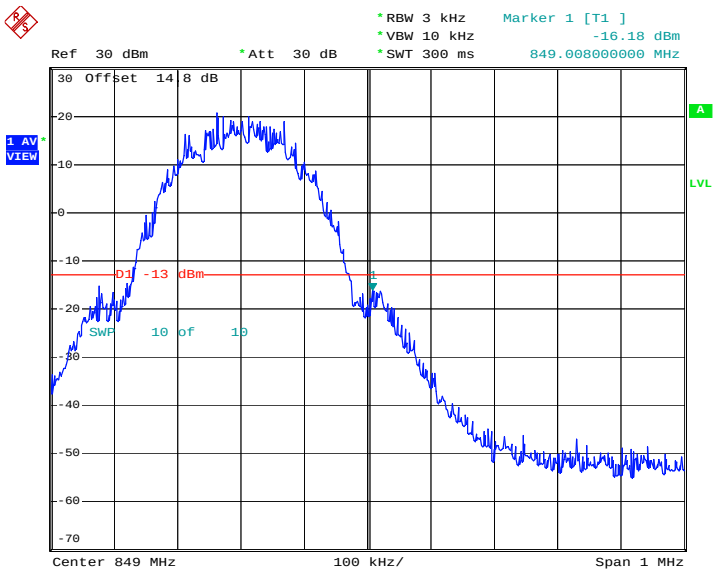
Date: 19.MAY.2012 22:26:20

1. Correction Factor(dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

Band :	GSM850	Power Stage :	High
Test Mode :	GSM Link	Maximum 26dB Bandwidth:	0.314MHz
Correction Factor:	0.20dB	Measurement Value:	-16.18dBm
Band Edge:	-15.98dBm		

Higher Band Edge Plot on Channel 251

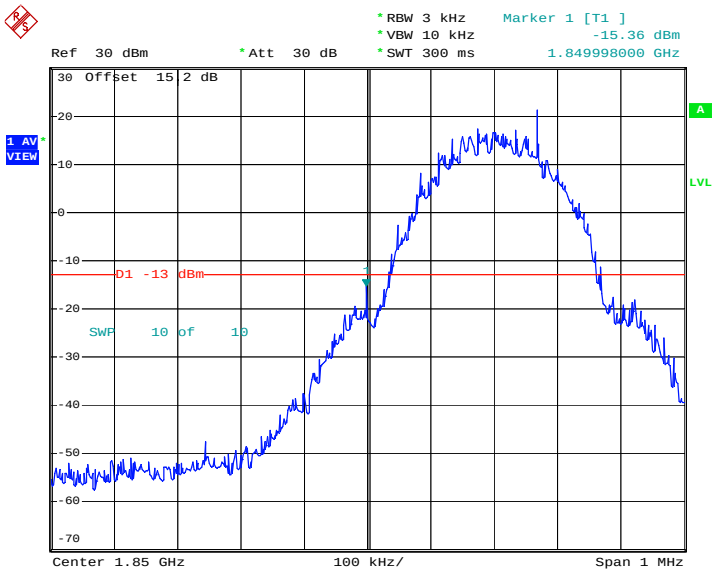


1.Correction Factor(dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

Band :	GSM1900	Power Stage :	High
Test Mode :	GSM Link	Maximum 26dB Bandwidth:	0.316MHz
Correction Factor:	0.23dB	Measurement Value:	-15.36dBm
Band Edge:	-15.13dBm		

Lower Band Edge Plot on Channel 512



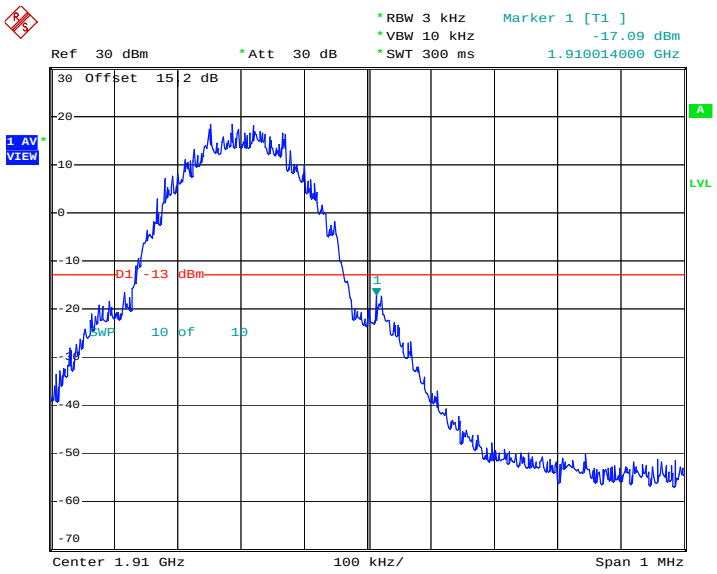
Date: 19.MAY.2012 22:47:57

1.Correction Factor(dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

Band :	GSM1900	Power Stage :	High
Test Mode :	GSM Link	Maximum 26dB Bandwidth:	0.316MHz
Correction Factor:	0.23dB	Measurement Value:	-17.09dBm
Band Edge:	-16.86dBm		

Higher Band Edge Plot on Channel 810

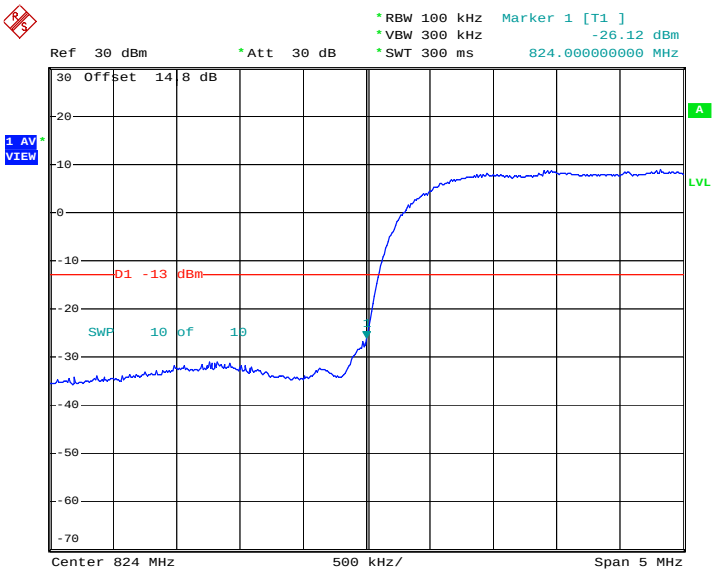


1.Correction Factor(dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band V	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link	Maximum 26dB Bandwidth:	4.68MHz
Correction Factor:	-3.30dB	Measurement Value:	-26.12dBm
Band Edge:	-29.42dBm		

Lower Band Edge Plot on Channel 4132

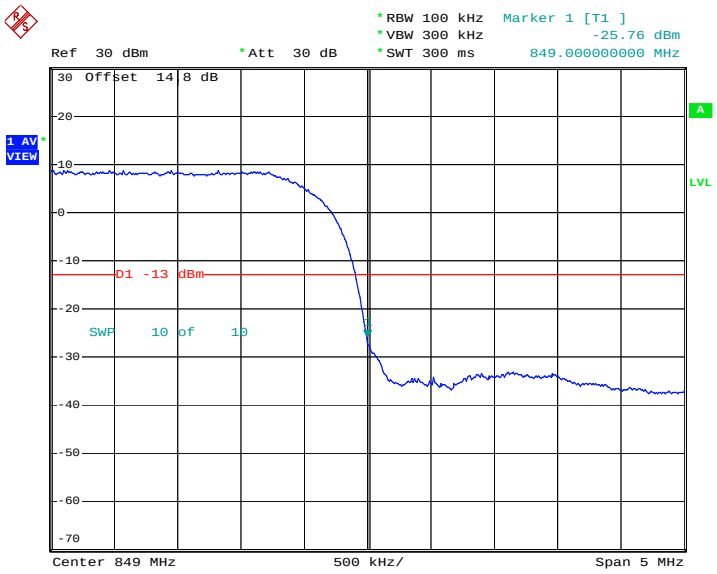


1.Correction Factor (dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band V	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link	Maximum 26dB Bandwidth:	4.68MHz
Correction Factor:	-3.30dB	Measurement Value:	-25.76dBm
Band Edge:	-29.06dBm		

Higher Band Edge Plot on Channel 4233

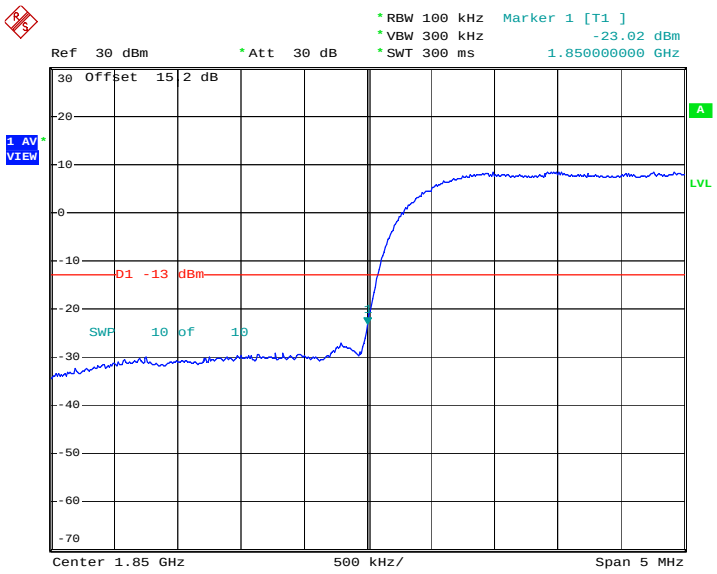


1.Correction Factor(dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band II	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link	Maximum 26dB Bandwidth:	4.72MHz
Correction Factor:	-3.26dB	Measurement Value:	-23.02dBm
Band Edge:	-26.28dBm		

Lower Band Edge Plot on Channel 9262



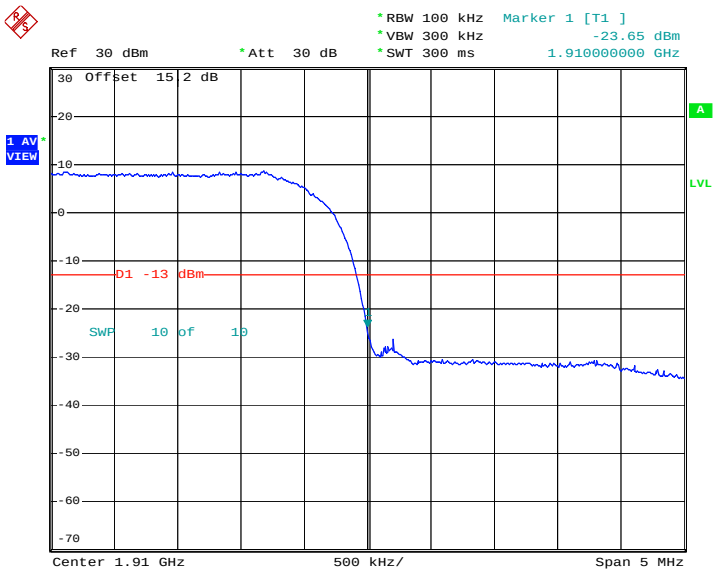
Date: 19.MAY.2012 23:25:20

1.Correction Factor(dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

Band :	WCDMA Band II	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link	Maximum 26dB Bandwidth:	4.72MHz
Correction Factor:	-3.26dB	Measurement Value:	-23.65dBm
Band Edge:	-26.91dBm		

Higher Band Edge Plot on Channel 9538



1.Correction Factor(dB)= 10log(1% Emission BW/RBW)

2.Band Edge= Measurement Value + Correction Factor(dB)

3.6 Conducted Emission Measurement

3.6.1 Description of Conducted 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.

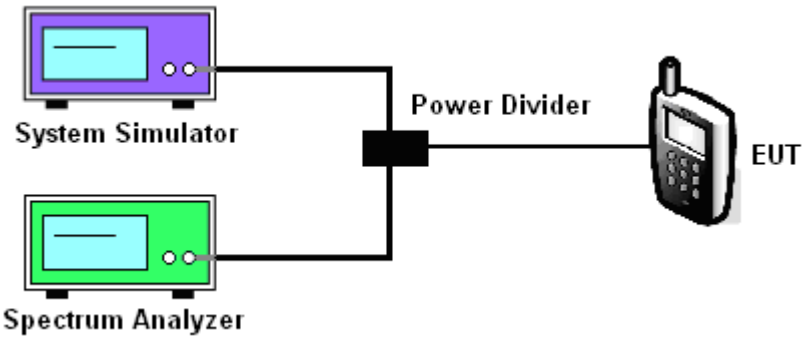
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

1. The EUT was connected to spectrum analyzer and base station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

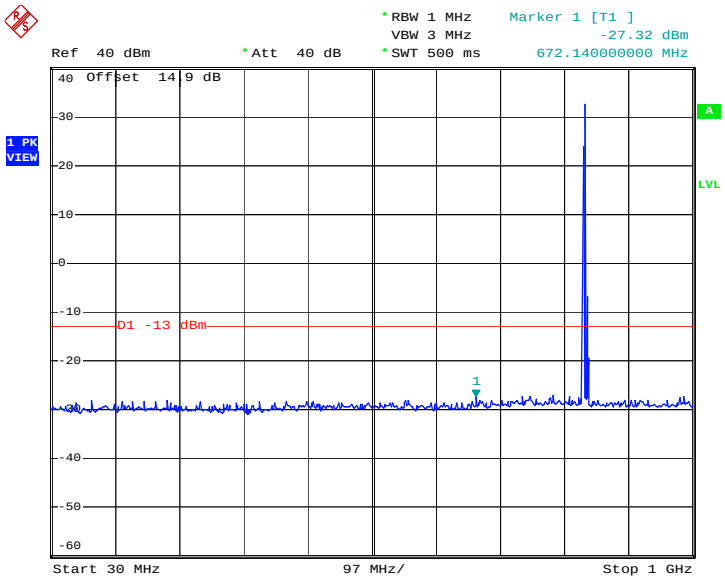
3.6.4 Test Setup



3.6.5 Test Result (Plots) of Conducted Emission

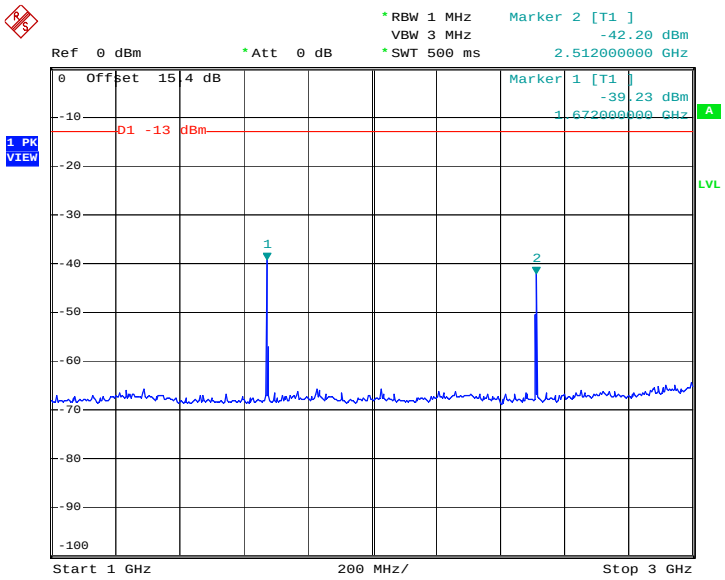
Band :	GSM850	Channel :	CH189
Test Mode :	GSM Link		

Conducted Emission Plot between 30MHz ~ 1GHz



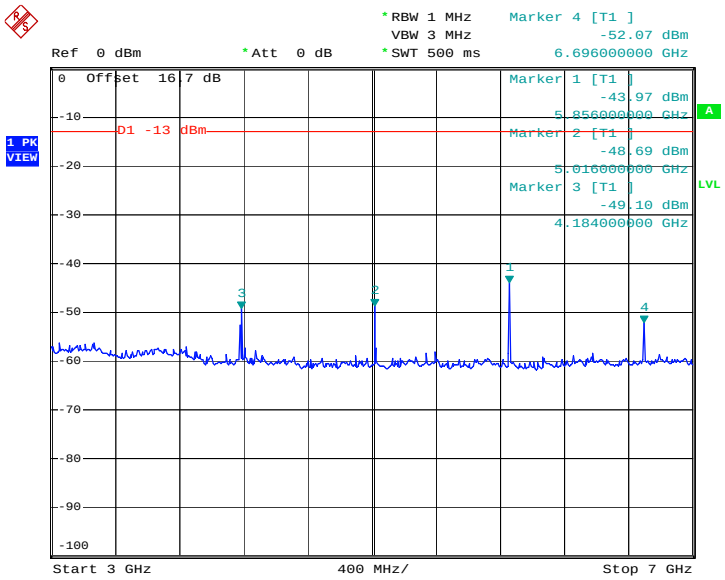
Date: 19.MAY.2012 22:17:35

Conducted Emission Plot between 1GHz ~ 3GHz



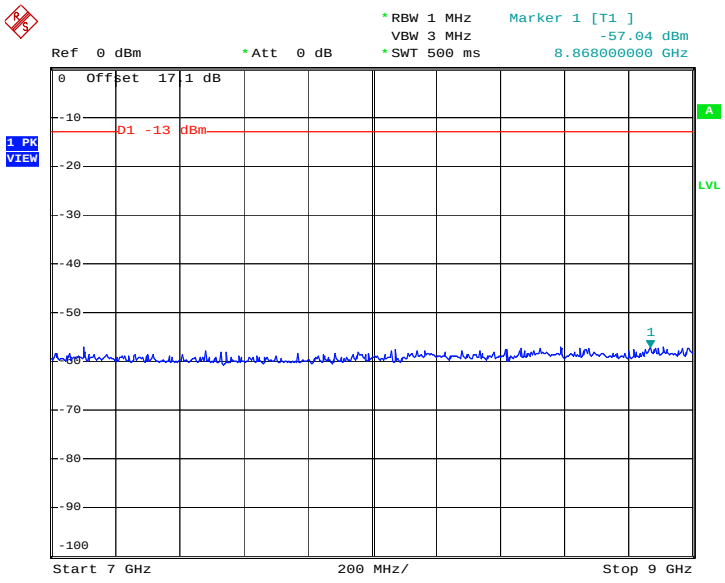
Date: 19.MAY.2012 22:18:53

Conducted Emission Plot between 3GHz ~ 7GHz



Date: 19.MAY.2012 22:20:01

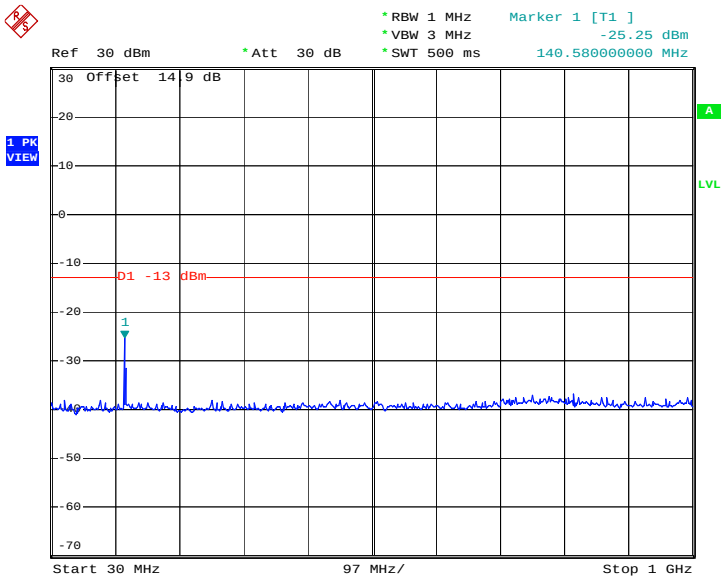
Conducted Emission Plot between 7GHz ~ 9GHz



Date: 19.MAY.2012 22:20:54

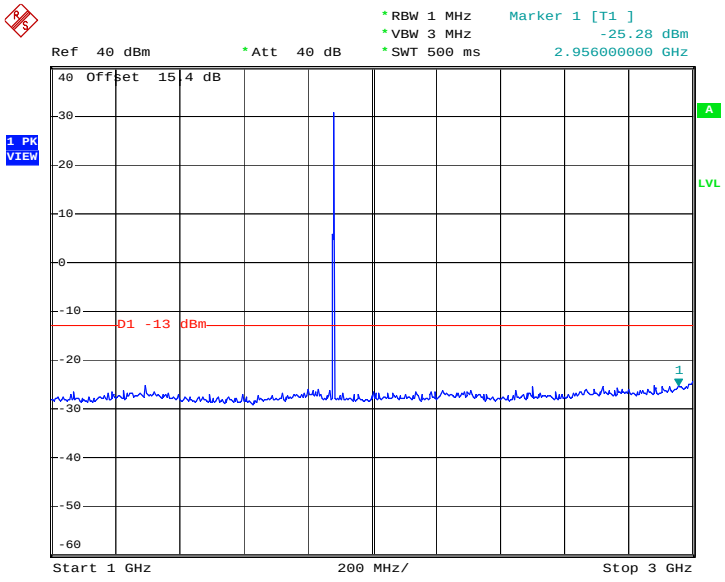
Band :	GSM1900	Channel :	CH661
Test Mode :	GSM Link		

Conducted Emission Plot between 30MHz ~ 1GHz



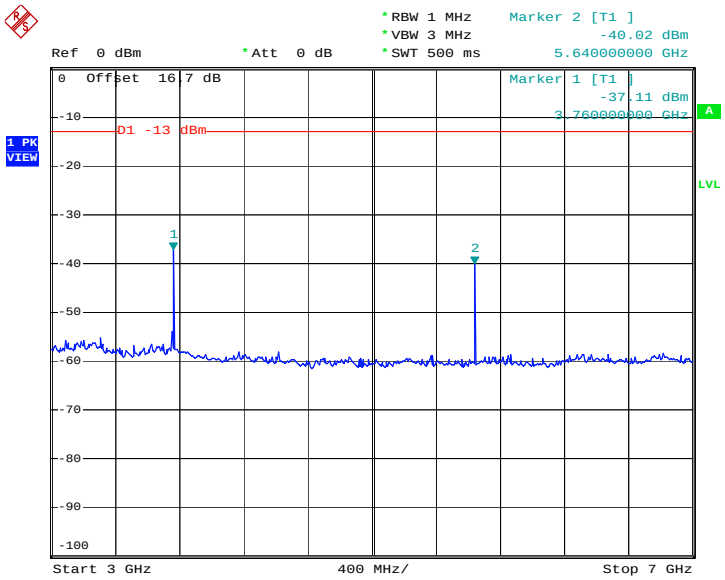
Date: 19.MAY.2012 22:37:59

Conducted Emission Plot between 1GHz ~ 3GHz



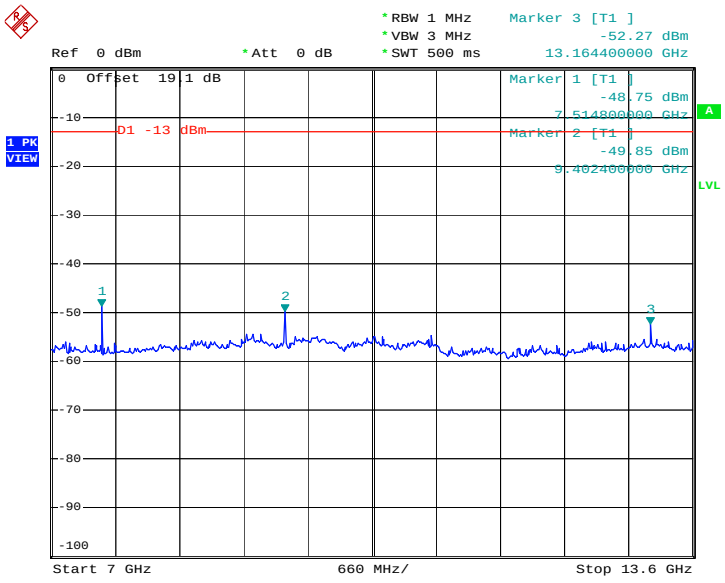
Date: 19.MAY.2012 22:39:04

Conducted Emission Plot between 3GHz ~ 7GHz



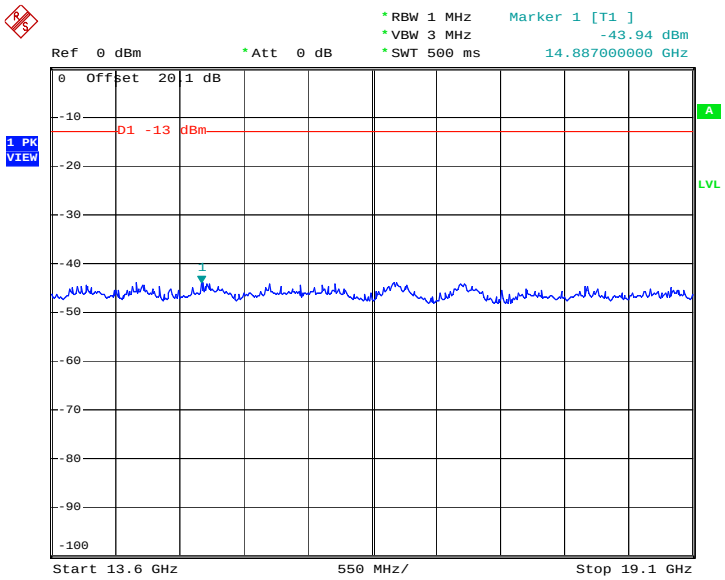
Date: 19.MAY.2012 22:40:43

Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 19.MAY.2012 22:41:43

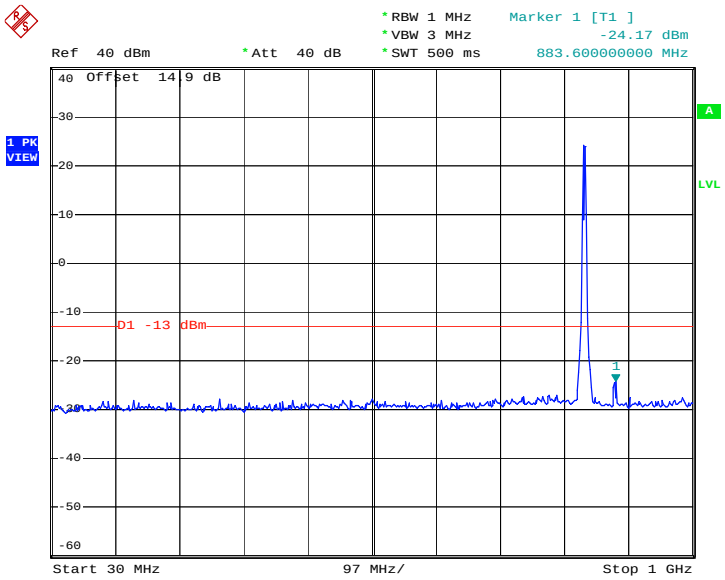
Conducted Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.MAY.2012 22:42:27

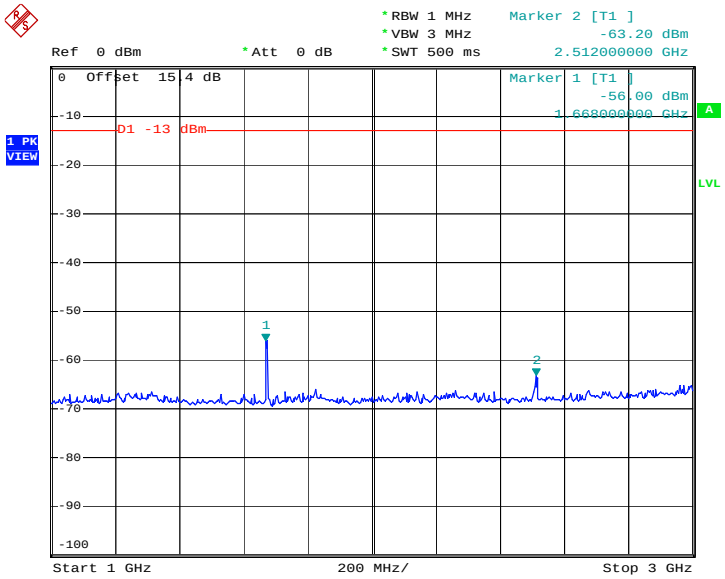
Band :	WCDMA Band V	Channel :	CH4182
Test Mode :	RMC 12.2Kbps Link		

Conducted Emission Plot between 30MHz ~ 1GHz



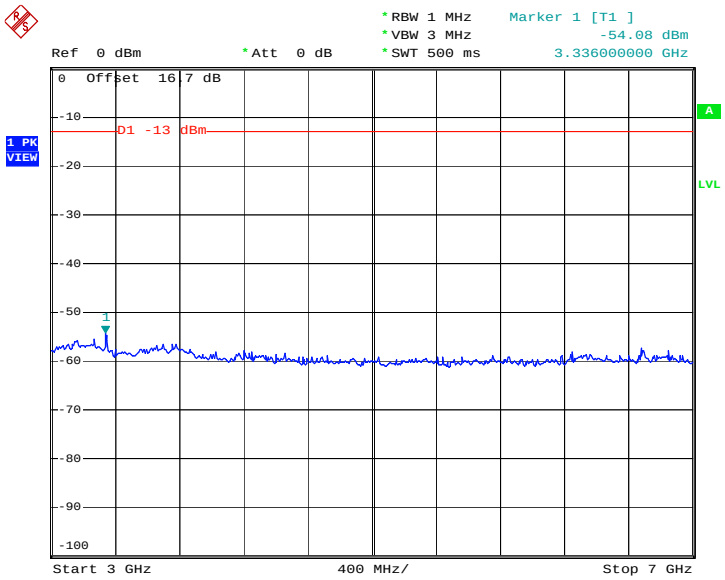
Date: 19.MAY.2012 23:11:21

Conducted Emission Plot between 1GHz ~ 3GHz



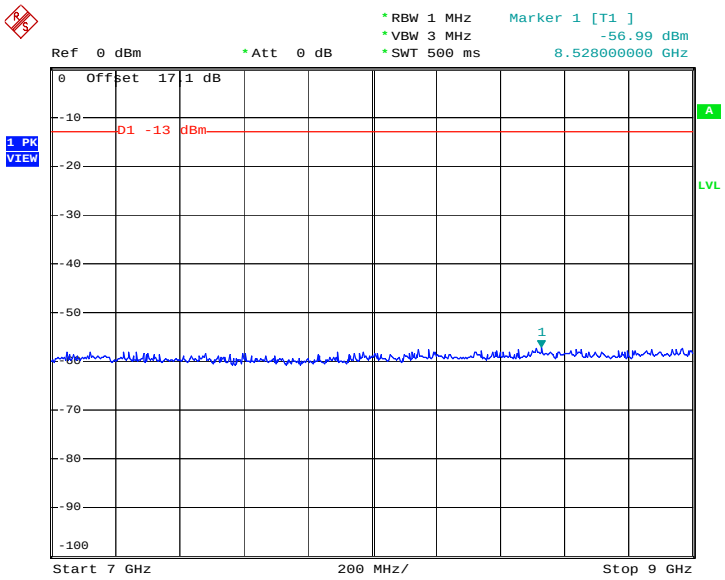
Date: 19.MAY.2012 23:12:40

Conducted Emission Plot between 3GHz ~ 7GHz



Date: 19.MAY.2012 23:39:20

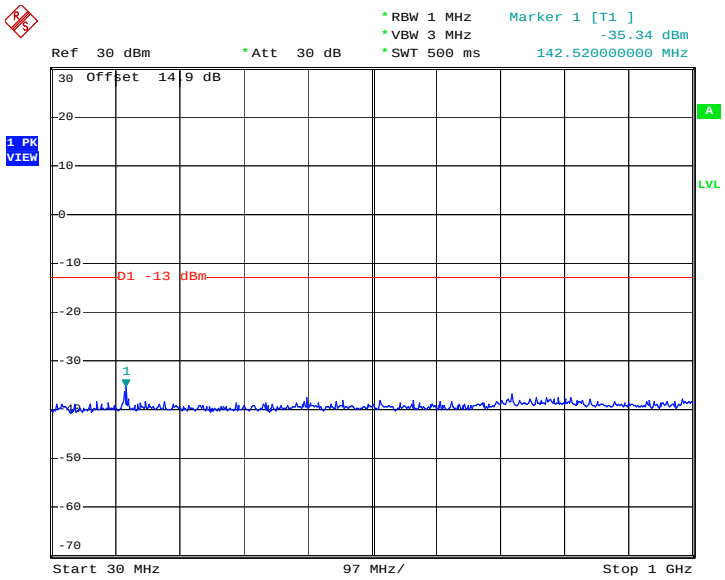
Conducted Emission Plot between 7GHz ~ 9GHz



Date: 19.MAY.2012 23:14:13

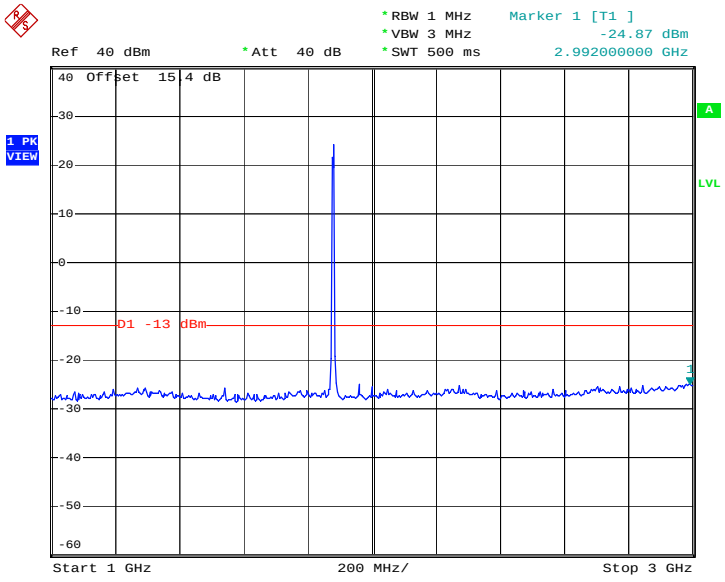
Band :	WCDMA Band II	Channel :	CH9400
Test Mode :	RMC 12.2Kbps Link		

Conducted Emission Plot between 30MHz ~ 1GHz



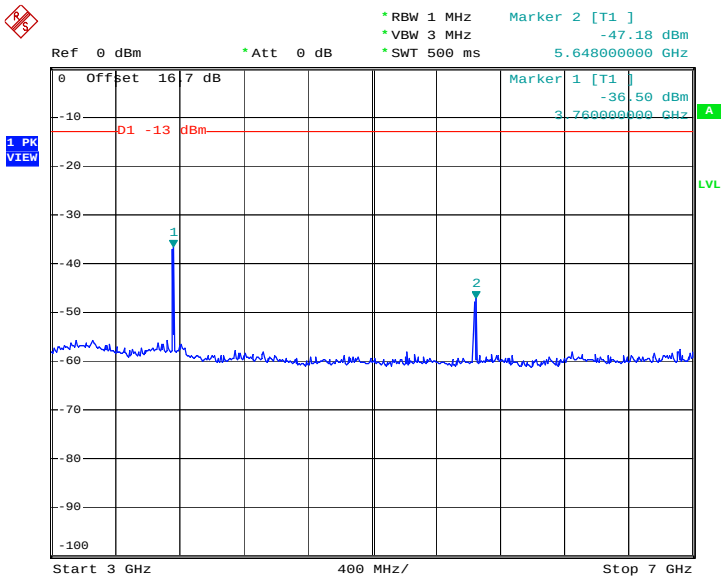
Date: 19.MAY.2012 23:29:44

Conducted Emission Plot between 1GHz ~ 3GHz



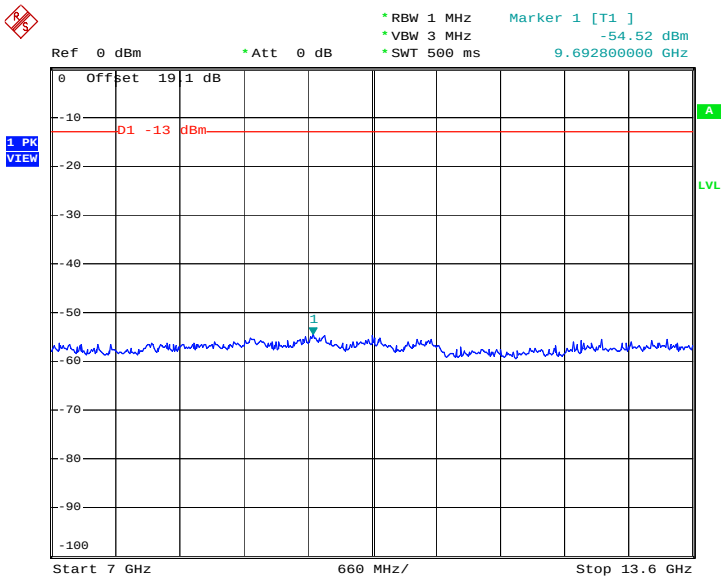
Date: 19.MAY.2012 23:30:52

Conducted Emission Plot between 3GHz ~ 7GHz



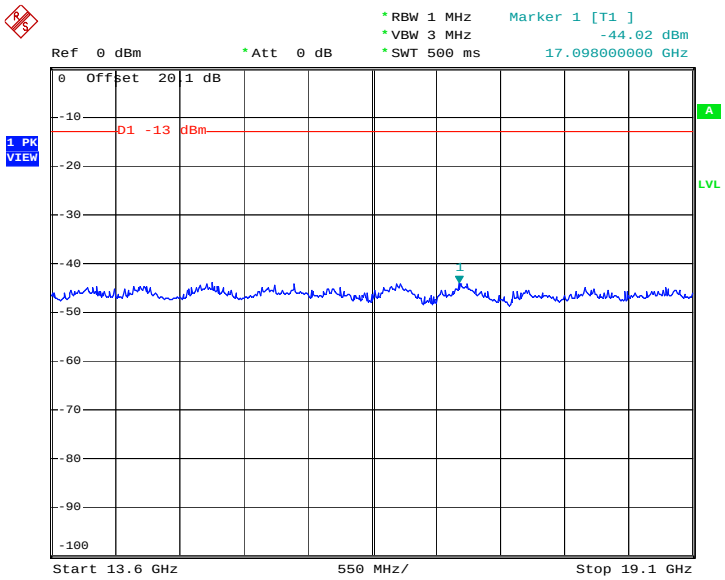
Date: 19.MAY.2012 23:33:14

Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 19.MAY.2012 23:33:57

Conducted Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.MAY.2012 23:34:28

3.7 Field Strength of Spurious Radiation Measurement

3.7.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. 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

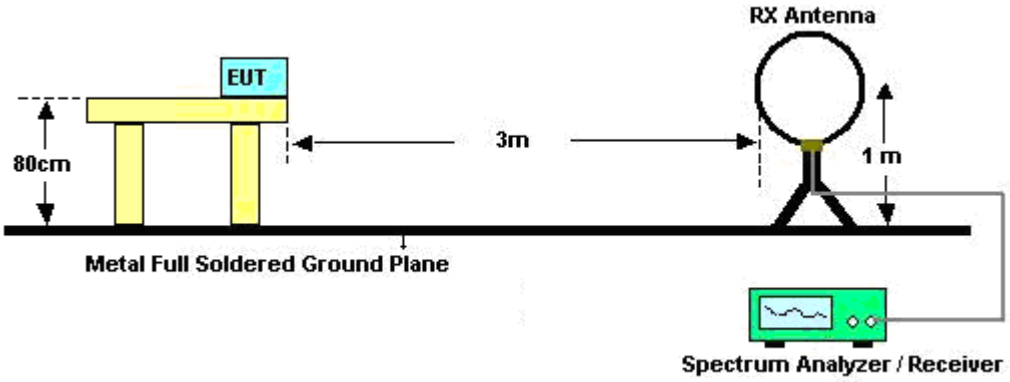
See list of measuring instruments of this test report.

3.7.3 Test Procedures

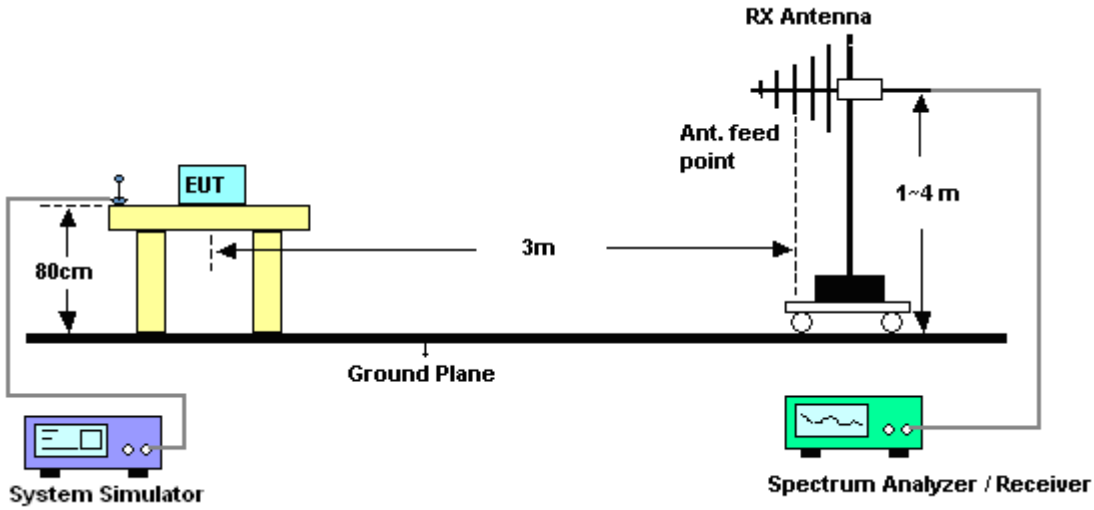
1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15

3.7.4 Test Setup

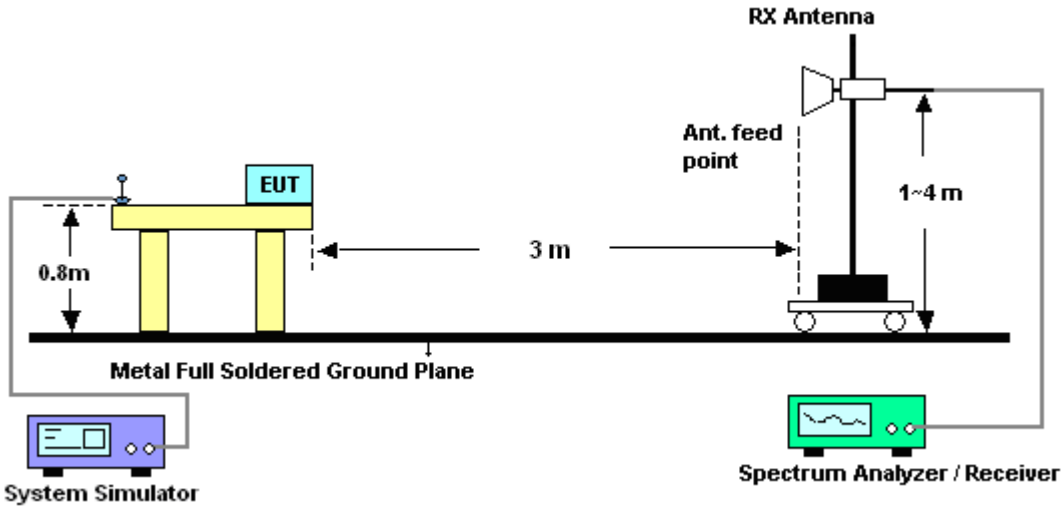
For radiated emissions below 30MHz



For radiated emissions from 30MHz ~ 1000 MHz



For radiated emissions above 1000 MHz

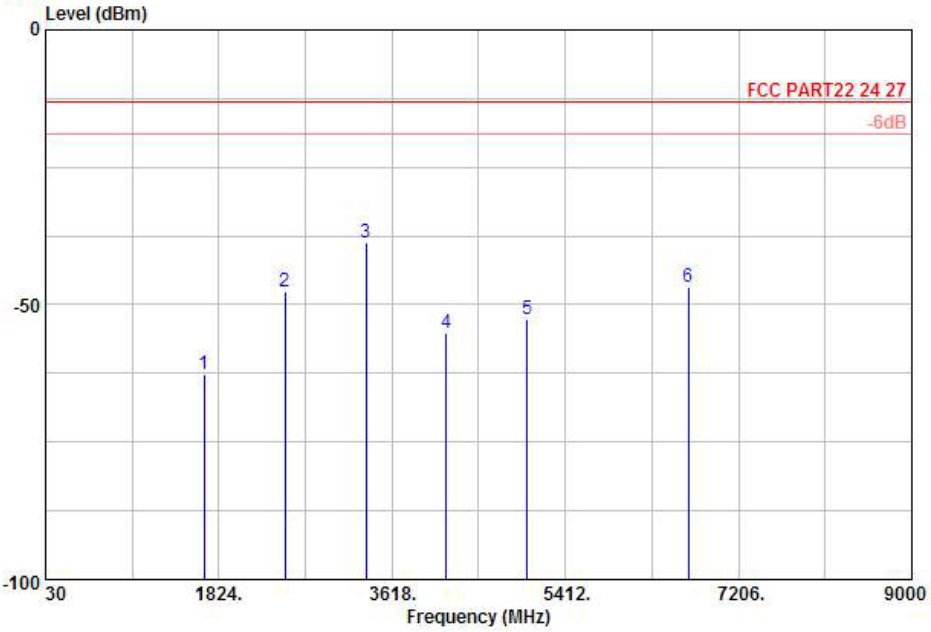


3.7.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.7.6 Test Result of Field Strength of Spurious Radiated

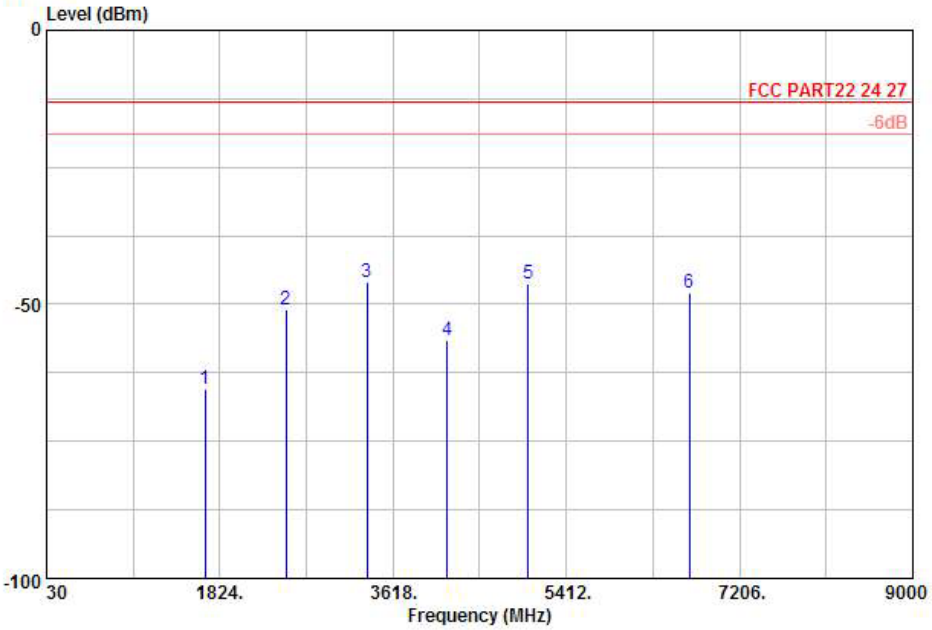
Band :	GSM850	**Temperature :**	19~20°C
Test Mode :	GSM Link	**Relative Humidity :**	42~43%
Test Engineer :	Jack Li	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL
EUT : (FG) 240603

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-62.72	-13	-49.72	-59.99	-63.45	1.2	4.08	H	Pass
2509	-47.72	-13	-34.72	-53.23	-48.10	1.55	4.08	H	Pass
3345	-38.73	-13	-25.73	-46.27	-41.91	2.1	7.43	H	Pass
4182	-55.16	-13	-42.16	-63.45	-58.59	2.89	8.47	H	Pass
5018	-52.75	-13	-39.75	-65.11	-57.23	3.17	9.80	H	Pass
6690	-46.88	-13	-33.88	-64.38	-52.46	3	10.73	H	Pass

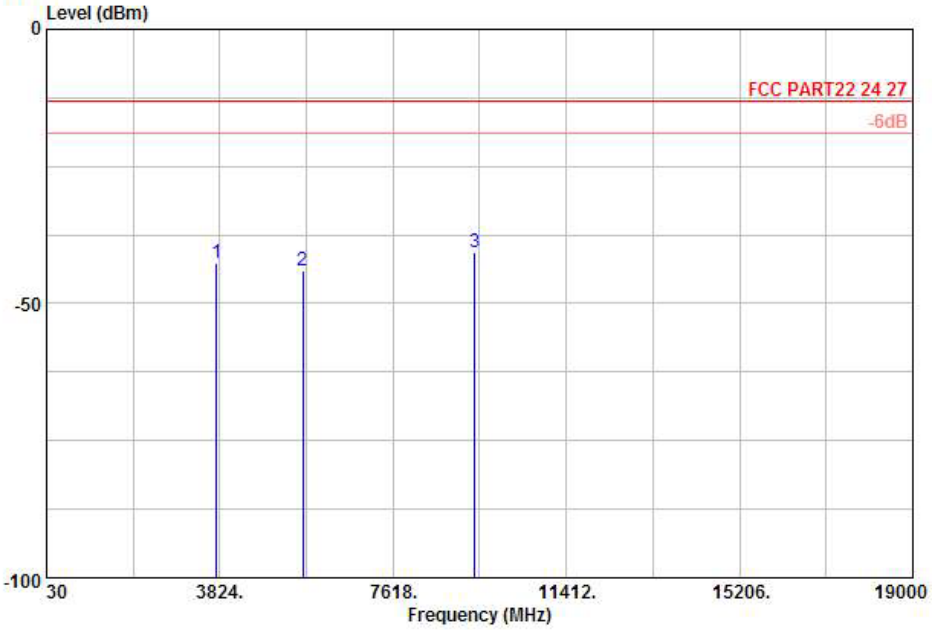
Band :	GSM850	Temperature :	19~20°C
Test Mode :	GSM Link	Relative Humidity :	42~43%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL
EUT : (FG) 240603

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-65.55	-13	-52.55	-63.23	-66.28	1.20	4.08	V	Pass
2509	-50.95	-13	-37.95	-55.54	-53.48	1.55	6.23	V	Pass
3345	-46.01	-13	-33.01	-52.27	-49.19	2.10	7.43	V	Pass
4182	-56.46	-13	-43.46	-63.74	-59.89	2.89	8.47	V	Pass
5018	-46.28	-13	-33.28	-55.99	-50.76	3.17	9.80	V	Pass
6690	-47.91	-13	-34.91	-64.25	-53.49	3.00	10.73	V	Pass

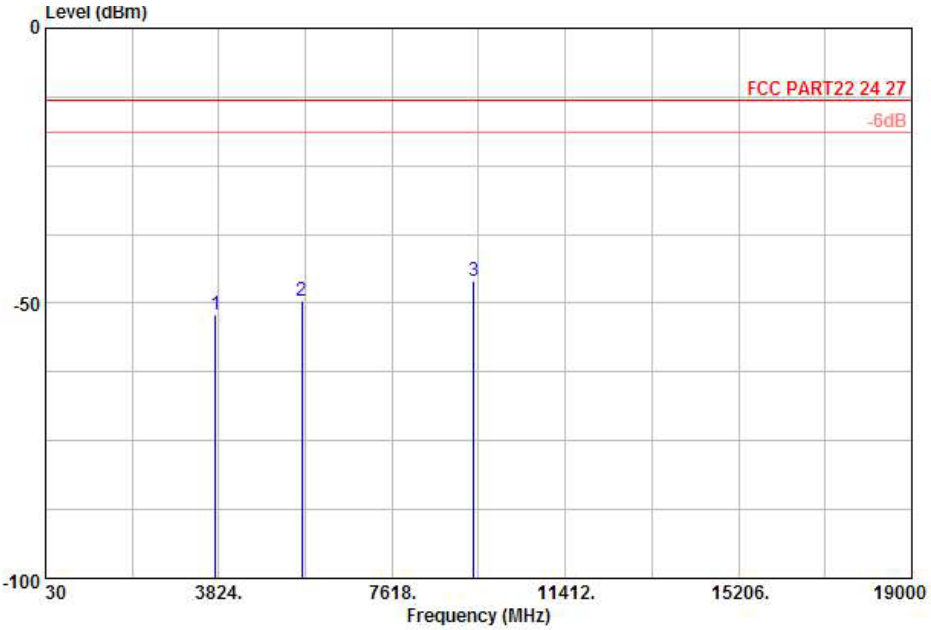
Band :	GSM1900	Temperature :	19~20°C
Test Mode :	GSM Link	Relative Humidity :	42~43%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL
EUT : (FG) 240603

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-42.70	-13	-29.70	-50.99	-48.10	2.51	7.91	H	Pass
5640	-44.11	-13	-31.11	-55.06	-51.15	3.09	10.13	H	Pass
9400	-40.72	-13	-27.72	-56.83	-50.18	3.07	12.53	H	Pass

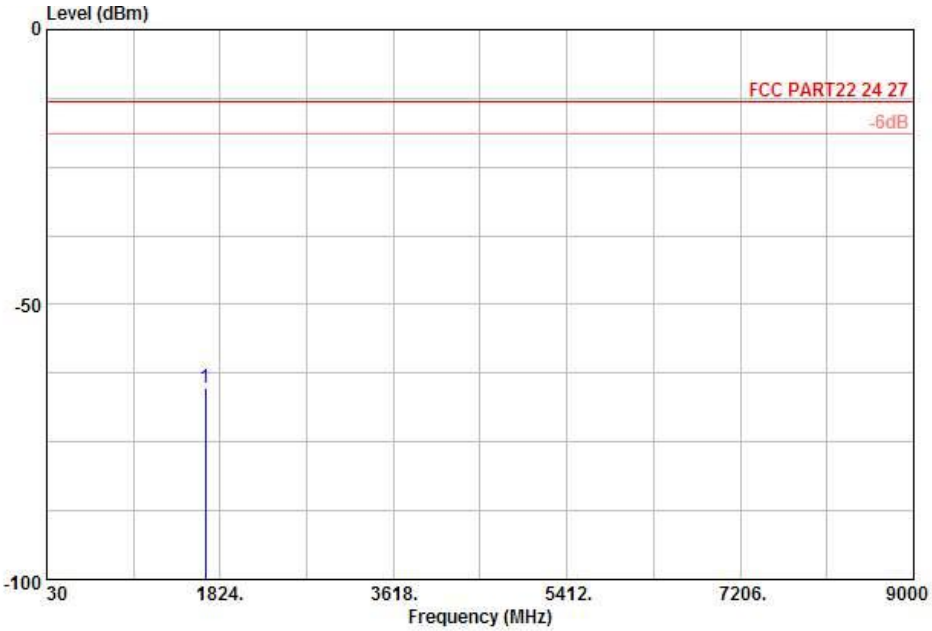
Band :	GSM1900	Temperature :	19~20°C
Test Mode :	GSM Link	Relative Humidity :	42~43%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL
EUT : (FG) 240603

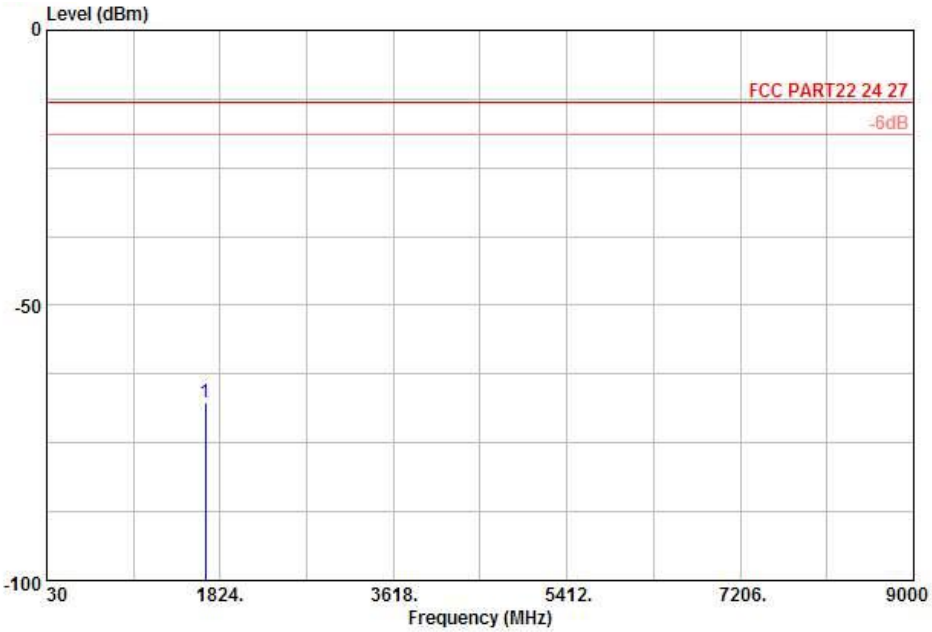
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-52.10	-13	-39.10	-55.45	-57.50	2.51	7.91	V	Pass
5640	-49.45	-13	-36.45	-57.59	-56.49	3.09	10.13	V	Pass
9400	-45.96	-13	-32.96	-58.8	-55.42	3.07	12.53	V	Pass

Band :	WCDMA Band V	Temperature :	19~20°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	42~43%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



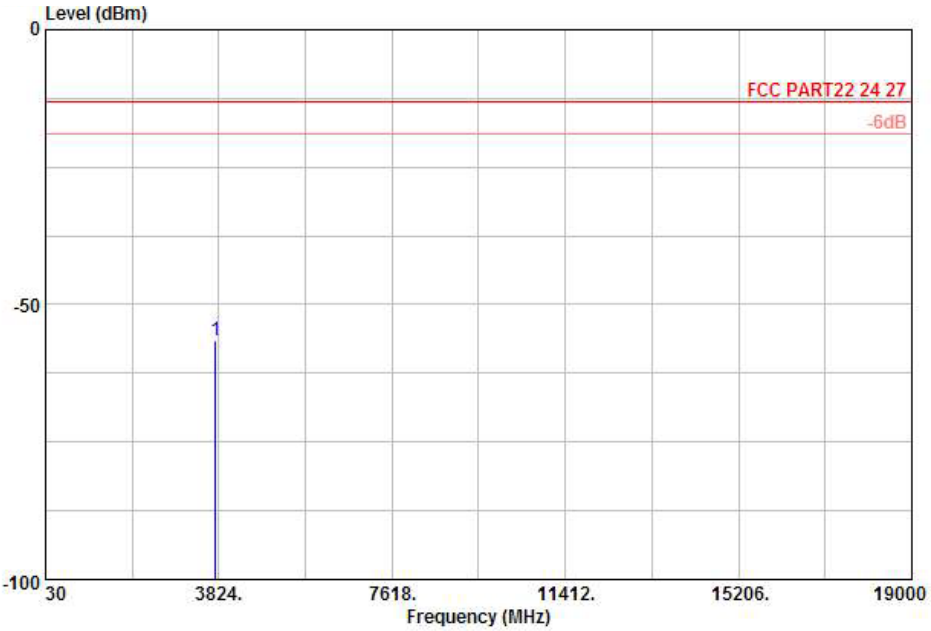
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-65.31	-13	-52.31	-62.58	-66.04	1.2	4.08	H	Pass

Band :	WCDMA Band V	Temperature :	19~20°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	42~43%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-67.56	-13	-54.56	-65.24	-68.29	1.20	4.08	V	Pass

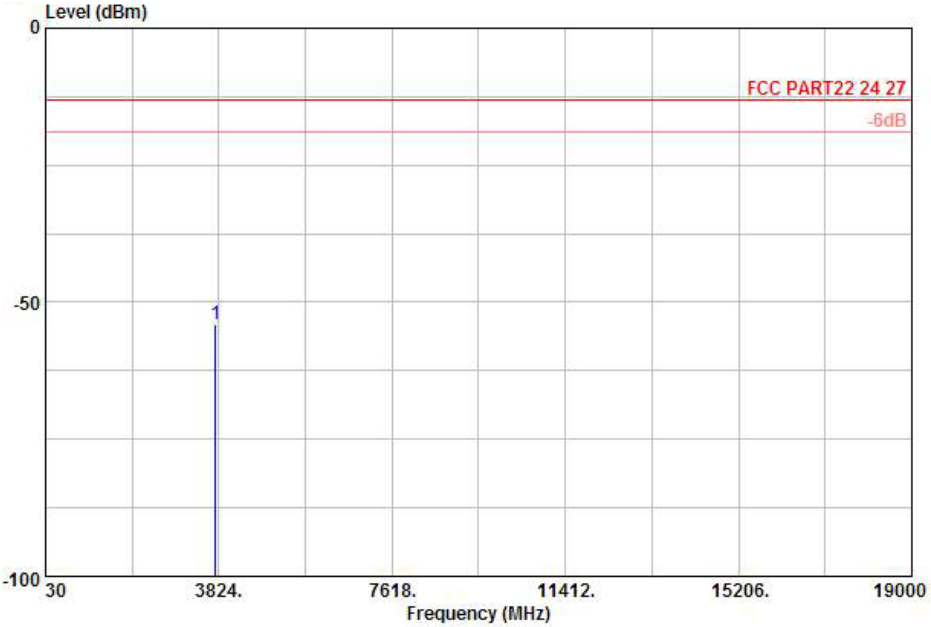
Band :	WCDMA Band II	Temperature :	19~20°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	42~43%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL
EUT : (FG) 240603

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-56.65	-13	-43.65	-63.76	-62.05	2.51	7.91	H	Pass

Band :	WCDMA Band II	Temperature :	19~20°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	42~43%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL
EUT : (FG) 240603

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-54.02	-13	-41.02	-59.65	-59.42	2.51	7.91	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

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

3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

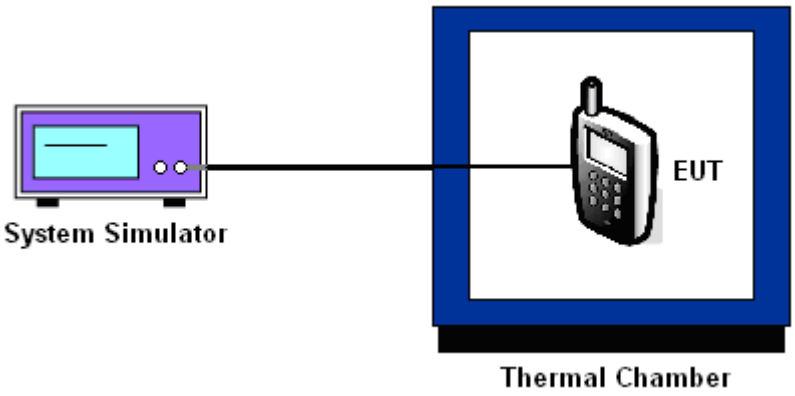
3.8.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step 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.
4. If the EUT cannot be turned on at -30°C, the testing lowest temperature will be raised in 10°C step until the EUT can be turned on.

3.8.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at 25±5° C and connected with the base station.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

Band :	GSM 850	Channel :	189
Limit (ppm) :	2.5		

Temperature (°C)	GSM		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-21	-0.02	PASS
-20	-18	-0.02	
-10	-15	-0.02	
0	-10	-0.01	
10	-8	-0.01	
20	-12	-0.01	
30	-15	-0.02	
40	-16	-0.02	
50	-19	-0.02	
55	-21	-0.02	

Band :	GSM 1900	Channel :	661
Limit (ppm) :	2.5		

Temperature (°C)	GSM		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-29	-0.02	PASS
-20	-34	-0.02	
-10	-21	-0.01	
0	-12	-0.01	
10	-10	-0.01	
20	-13	-0.01	
30	-16	-0.01	
40	-17	-0.01	
50	-21	-0.01	
55	-25	-0.01	

Band :	WCDMA Band V	Channel :	4182
Limit (ppm) :	2.5		

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-6	-0.01	PASS
-20	-5	-0.01	
-10	2	0.00	
0	7	0.01	
10	6	0.01	
20	5	0.01	
30	6	0.01	
40	8	0.01	
50	11	0.01	
55	9	0.01	

Band :	WCDMA Band II	Channel :	9400
Limit (ppm) :	2.5		

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-12	-0.01	PASS
-20	15	0.01	
-10	-13	-0.01	
0	11	0.01	
10	23	0.01	
20	13	0.01	
30	10	0.01	
40	14	0.01	
50	18	0.01	
55	21	0.01	

3.8.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GSM	3.7	-14	-0.02	2.5	PASS
		BEP	-13	-0.02		
		4.2	-33	-0.04		
GSM 1900 CH661	GSM	3.7	-12	-0.01		
		BEP	-24	-0.01		
		4.2	-11	-0.01		
WCDMA Band V CH4182	RMC 12.2Kbps	3.7	5	0.01		
		BEP	4	0.00		
		4.2	6	0.01		
WCDMA Band II CH9400	RMC 12.2Kbps	3.7	7	0.00		
		BEP	12	0.01		
		4.2	11	0.01		

Note:

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.6 V.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	May 19, 2012~ May 31, 2012	Dec. 29, 2012	Conducted (TH01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	May 19, 2012~ May 31, 2012	Dec. 29, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 23, 2011	May 19, 2012~ May 31, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	May 19, 2012~ May 31, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	May 25, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	May 25, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	May 25, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	May 25, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060007	30MHz~2GHz	Dec. 30, 2011	May 25, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	May 25, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
SHE-EHF Horn	Schwarzbeck	BBHA9170	BBHA170249	15GHz-40GHz	Oct. 11, 2011	May 25, 2012	Oct. 10, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9kHz~30 MHz	Jul. 28, 2011	May 25, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	116456	Full-Band	Sep. 20, 2011	May 25, 2012	Sep. 19, 2012	Radiation (03CH01-KS)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP240603 as below.