FCC RF Test Report

APPLICANT	:	D-Link Corporation
EQUIPMENT	:	HSPA+ Mobile Router
BRAND NAME	:	D-Link
MODEL NAME	:	DWR-730
FCC ID	:	KA2WR730A1
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)
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 IV : 1712.4 MHz ~ 1752.6 MHz 2112.4 MHz ~ 2152.6 MHz WCDMA Band II : 1852.4 ~ 1907.6 MHz / 1932.4 ~ 1987.6 MHz
MAX. ERP/EIRP POWER	:	GSM850 (GPRS 8) : 0.255 W GSM850 (EDGE 8) : 0.082 W GSM1900 (GPRS 8) : 0.607 W GSM1900 (EDGE 8) : 0.273 W WCDMA Band V (RMC 12.2Kbps) : 0.049 W WCDMA Band IV (RMC 12.2Kbps) : 0.249 W WCDMA Band II (RMC 12.2Kbps) : 0.131 W

The product was received on Nov. 03, 2011 and completely tested on Dec. 12, 2011. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG1N2312-01	Rev. 01	Initial issue of report	Jan. 12, 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	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
3.2	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.2	§27.50(d)(2)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
3.3	§2.1049 §22.917(a) §24.238(a) §27.53(g)	N/A	Occupied Bandwidth	N/A	PASS	-
3.4	§2.1051 §22.917(a) §24.238(a) §27.53(g)	RSS-132 (4.5.1) RSS-133 (6.5.1) RSS-139 (6.5)	Band Edge Measurement	< $43+10\log_{10}$(P[Watts])	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a) §27.53(g)	RSS-132 (4.5.1) RSS-133 (6.5.1) RSS-139 (6.5)	Conducted Emission	< $43+10\log_{10}$(P[Watts])	PASS	-
3.6	§2.1053 §22.917(a) §24.238(a) §27.53(g)	RSS-132 (4.5.1) RSS-133 (6.5.1) RSS-139 (6.5)	Field Strength of Spurious Radiation	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 22.95 dB at 3465.000 MHz
3.7	§2.1055 §22.355 §24.235 §27.54	RSS-132 (4.3) RSS-133 (6.3) RSS-139 (6.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

1 General Description

1.1 Applicant

D-Link Corporation
No. 289, Sinhu 3rd. Rd., Neihu District Taipei City 114 Taiwan

1.2 Manufacturer

AzureWave Technologies, Inc.
8F., No. 94, Baozhong Rd., Xindian,Taipei Taiwan 231

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	HSPA+ Mobile Router
Brand Name	D-Link
Model Name	DWR-730
FCC ID	KA2WR730A1
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band IV : 2110 MHz ~ 2155 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz
Maximum Output Power to Antenna	GSM850 : 32.47 dBm GSM1900 : 30.40 dBm WCDMA Band V : 21.92 dBm WCDMA Band IV : 22.94 dBm WCDMA Band II : 22.83 dBm
Antenna Type	Fixed Internal Antenna
HW Version	A1
SW Version	1.00
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: 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 GPRS 8	GMSK	244KGXW	0.255 W
Part 22	GSM850 EDGE 8	GMSK / 8PSK	244KG7W	0.082 W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK (Uplink)	4M20F9W	0.049 W
Part 24	GSM1900 GPRS 8	GMSK	246KGXW	0.607 W
Part 24	GSM1900 EDGE 8	GMSK / 8PSK	246KG7W	0.273 W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK (Uplink)	4M18F9W	0.131 W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK (Uplink)	4M22F9W	0.249 W

1.5 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	TH02-HY	03CH06-HY	722060/4086B-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.
- 47 CFR Part 2, 22(H), 24(E), 27(L)
- ANSI / TIA / EIA-603-C-2004
- IC RSS-132 Issue 2
- IC RSS-133 Issue 5
- IC RSS-139 Issue 2

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 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.

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 18000 MHz for WCDMA Band IV.
3. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	■ GPRS 8 Link ■ EDGE 8 Link	■ GPRS 8 Link ■ EDGE 8 Link
GSM 1900	■ GPRS 8 Link ■ EDGE 8 Link	■ GPRS 8 Link ■ EDGE 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Note:

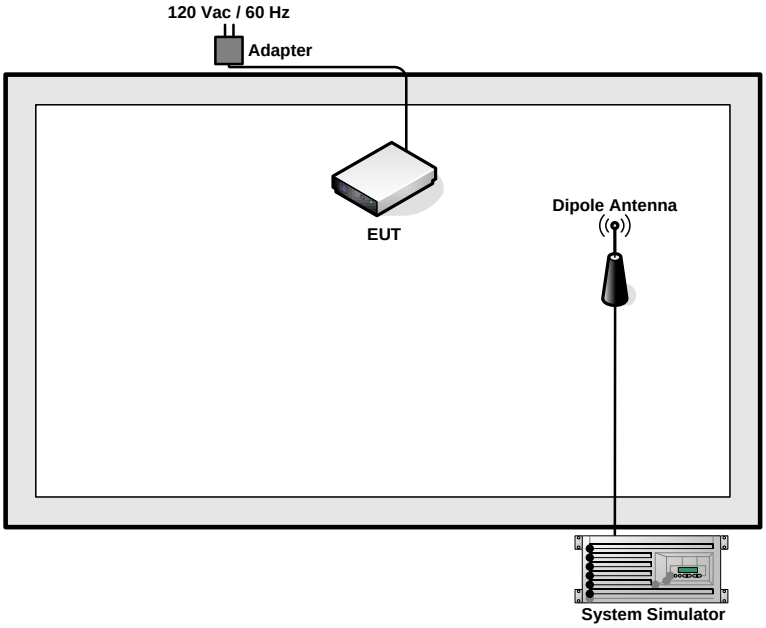
1. The maximum power levels are GPRS multi-slot class 8 mode for GMSK link, EDGE multi-slot class 8 mode for 8PSK link, RMC 12.2Kbps mode for WCDMA band V, RMC 12.2Kbps mode for WCDMA band IV, and RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.
2. Because there are individual antennas for each WWAN, and WLAN, the co-location test modes are not required.

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**	**1909.8**
GPRS 8	**32.47**	32.30	31.58	**30.40**	29.99	29.79
GPRS 10	29.81	29.28	28.98	27.38	26.95	26.77
GPRS 12	26.91	26.35	26.01	24.53	24.12	23.95
EGPRS 8	**26.88**	26.38	25.98	**26.46**	26.03	25.85
EGPRS 10	26.85	26.39	26.02	26.46	26.03	25.85
EGPRS 12	24.96	24.52	24.14	24.47	24.00	23.90

Conducted Power (*Unit: dBm)									
Band	**WCDMA Band V**			**WCDMA Band II**			**WCDMA Band IV**		
Tx Channel	**4132**	**4182**	**4233**	**9262**	**9400**	**9538**	**1312**	**1413**	**1513**
Rx Channel	**4357**	**4408**	**4458**	**9662**	**9800**	**9938**	**1537**	**1638**	**1738**
Frequency	**826.4**	**836.4**	**846.6**	**1852.4**	**1880**	**1907.6**	**1712.4**	**1732.6**	**1752.6**
RMC 12.2K	21.91	**21.92**	21.61	**22.83**	22.38	22.35	22.87	**22.94**	22.63
HSDPA Subtest-1	21.21	21.17	20.84	22.17	21.69	21.66	22.07	22.14	21.85
HSDPA Subtest-2	21.18	21.16	20.80	22.17	21.71	21.64	22.07	22.13	21.85
HSDPA Subtest-3	20.61	20.58	20.25	21.64	21.23	21.16	21.61	21.68	21.35
HSDPA Subtest-4	20.67	20.63	20.30	21.69	21.24	21.18	21.64	21.68	21.38
HSUPA Subtest-1	20.75	20.76	20.42	21.73	21.41	21.38	21.75	21.85	21.56
HSUPA Subtest-2	18.73	18.72	18.40	19.80	19.43	19.41	19.71	19.83	19.62
HSUPA Subtest-3	19.78	19.79	19.45	20.74	20.42	20.41	20.72	20.88	20.62
HSUPA Subtest-4	18.65	18.69	18.37	19.86	19.50	19.48	19.81	19.91	19.69
HSUPA Subtest-5	20.93	20.89	20.56	21.96	21.42	21.44	21.88	21.87	21.57

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.

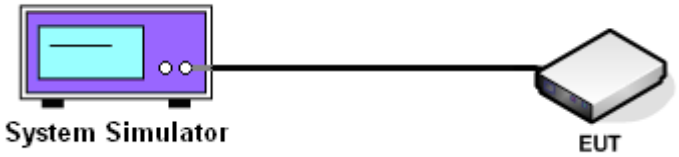
3.1.2 Measuring Instruments

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

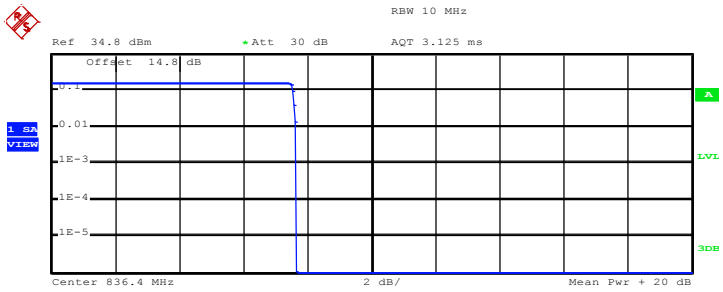
Cellular Band									
Modes	GSM850 (GPRS 8)			GSM850 (EDGE 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6
Conducted Power (dBm)	32.47	32.30	31.58	26.88	26.38	25.98	21.91	21.92	21.61
Conducted Power (Watts)	1.77	1.70	1.44	0.49	0.43	0.40	0.16	0.16	0.14

PCS Band									
Modes	GSM1900 (GPRS 8)			GSM1900 (EDGE 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)	30.40	29.99	29.79	26.46	26.03	25.85	22.83	22.38	22.35
Conducted Power (Watts)	1.10	1.00	0.95	0.44	0.40	0.38	0.19	0.17	0.17

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)	22.87	22.94	22.63
Conducted Power (Watts)	0.19	0.20	0.18

3.1.6 Peak to Average Power Ratio

GSM850 (GPRS 8) C.C.D.F.

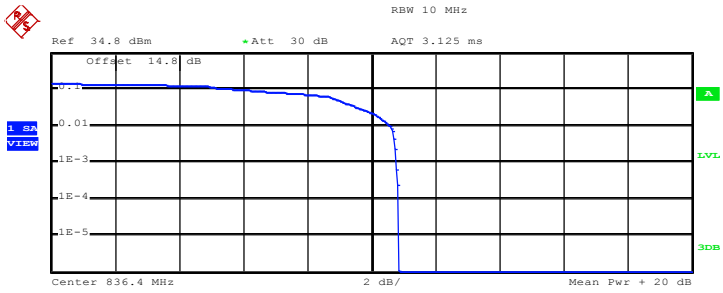


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.03 dBm
Peak	30.68 dBm
Crest	7.65 dB
10 %	7.56 dB
1 %	7.64 dB
.1 %	7.68 dB
.01 %	7.68 dB

Date: 5.DEC.2011 16:37:12

GSM850 (EDGE 8) C.C.D.F.

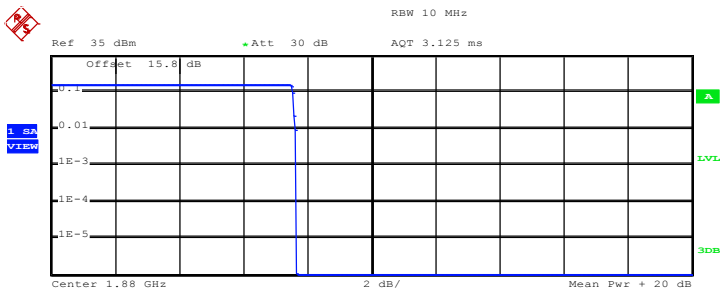


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	17.15 dBm
Peak	28.00 dBm
Crest	10.85 dB
10 %	6.40 dB
1 %	10.60 dB
.1 %	10.80 dB
.01 %	10.88 dB

Date: 5.DEC.2011 17:36:28

GSM1900 (GPRS 8) C.C.D.F.

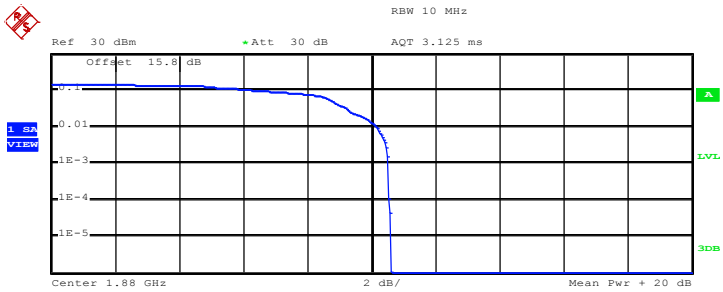


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	19.98 dBm
Peak	27.63 dBm
Crest	7.65 dB
10 %	7.56 dB
1 %	7.64 dB
.1 %	7.68 dB
.01 %	7.68 dB

Date: 7.DEC.2011 22:16:50

GSM1900 (EDGE 8) C.C.D.F.

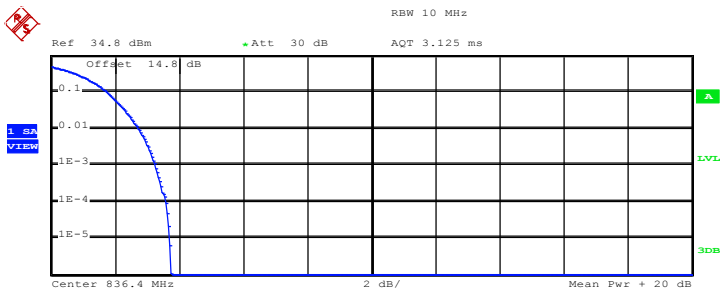


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	14.07 dBm
Peak	24.68 dBm
Crest	10.61 dB
10 %	7.08 dB
1 %	10.16 dB
.1 %	10.52 dB
.01 %	10.56 dB

Date: 7.DEC.2011 23:28:27

WCDMA Band V (RMC 12.2Mbps) C.C.D.F.

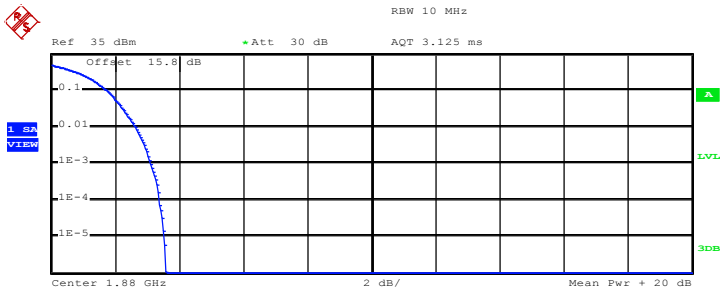


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	18.52 dBm
Peak	22.28 dBm
Crest	3.76 dB
10 %	1.76 dB
1 %	2.72 dB
.1 %	3.28 dB
.01 %	3.60 dB

Date: 7.DEC.2011 23:52:09

WCDMA Band II (RMC 12.2Mbps) C.C.D.F.

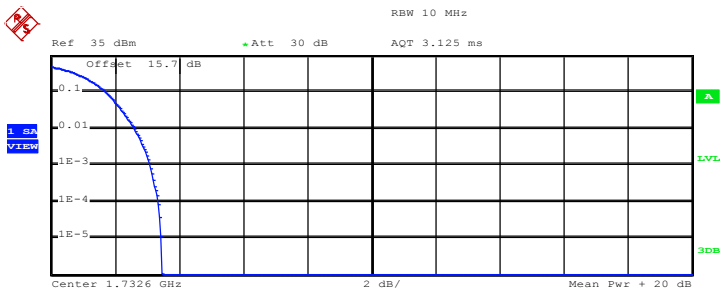


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	18.81 dBm
Peak	22.41 dBm
Crest	3.60 dB
10 %	1.76 dB
1 %	2.64 dB
.1 %	3.12 dB
.01 %	3.40 dB

Date: 7.DEC.2011 23:33:38

WCDMA Band IV (RMC 12.2Mbps) C.C.D.F.



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	18.61 dBm
Peak	22.06 dBm
Crest	3.45 dB
10 %	1.72 dB
1 %	2.60 dB
.1 %	3.12 dB
.01 %	3.36 dB

Date: 7.DEC.2011 23:42:51

3.2 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.2.1 Description of the ERP/EIRP Measurement

ERP/EIRP is measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The ERP of mobile transmitters must not exceed 7 Watts. The EIRP of mobile transmitters are limited to 2 Watts for 1850~1910 MHz and 1 watt for 1710~1755 MHz.

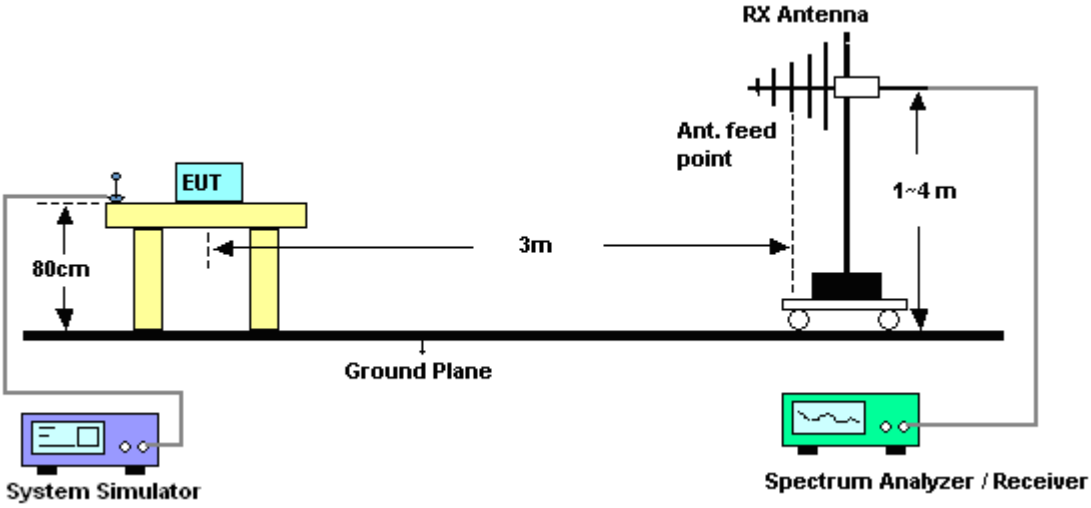
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 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= 3MHz,VBW= 3MHz, and peak detector settings.
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.

3.2.4 Test Setup



3.2.5 Test Result of ERP

GSM850 (GPRS 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-4.33	29.38	22.90	0.195
836.4	-3.64	29.44	23.65	0.232
848.8	-3.21	29.42	24.06	0.255
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-13.43	31.45	15.87	0.039
836.4	-11.98	31.14	17.01	0.050
848.8	-11.69	31.16	17.32	0.054

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

GSM850 (EDGE 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-9.48	29.38	17.75	0.060
836.4	-8.67	29.44	18.62	0.073
848.8	-8.14	29.42	19.13	0.082
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-18.59	31.45	10.71	0.012
836.4	-17.70	31.14	11.29	0.013
848.8	-17.33	31.16	11.68	0.015

* 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)**
826.4	-10.35	29.38	16.88	0.049
836.4	-10.65	29.44	16.64	0.046
846.6	-10.54	29.42	16.73	0.047
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.4	-19.53	31.45	9.77	0.009
836.4	-19.66	31.14	9.33	0.009
846.6	-19.05	31.16	9.96	0.010

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

3.2.6 Test Result of EIRP

GSM1900 (GPRS 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-14.10	41.93	27.83	0.607
1880.0	-15.37	42.33	26.96	0.497
1909.8	-15.93	42.04	26.11	0.408
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-20.78	41.18	20.40	0.110
1880.0	-22.42	42.59	20.17	0.104
1909.8	-21.83	41.92	20.09	0.102

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

GSM1900 (EDGE 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-17.57	41.93	24.36	0.273
1880.0	-18.52	42.33	23.81	0.240
1909.8	-18.58	42.04	23.46	0.222
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-23.72	41.18	17.46	0.056
1880.0	-25.13	42.59	17.46	0.056
1909.8	-24.47	41.92	17.45	0.056

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

WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1712.4	-18.39	41.42	23.03	0.201
1732.6	-17.84	41.80	23.96	0.249
1756.6	-18.47	41.52	23.05	0.202
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1712.4	-25.57	40.67	15.10	0.032
1732.6	-25.02	42.06	17.04	0.051
1756.6	-26.01	41.40	15.39	0.035

* 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)**
1852.4	-20.77	41.93	21.16	0.131
1880.0	-21.33	42.33	21.00	0.126
1907.6	-21.39	42.04	20.65	0.116
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.4	-26.59	41.18	14.59	0.029
1880.0	-27.91	42.59	14.68	0.029
1907.6	-28.86	41.92	13.06	0.020

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

3.3 Occupied Bandwidth Measurement

3.3.1 Description of Occupied Bandwidth Measurement

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.

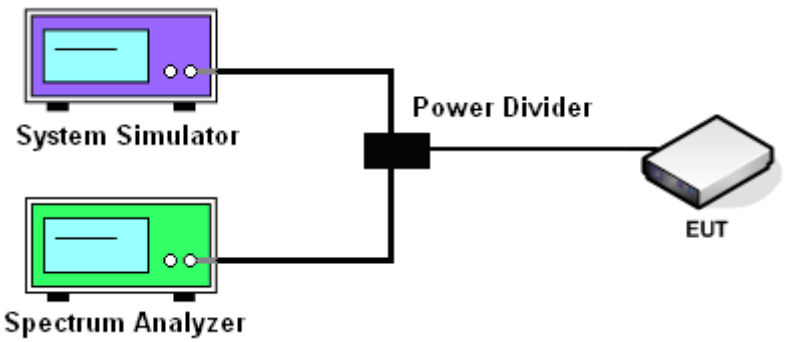
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 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.

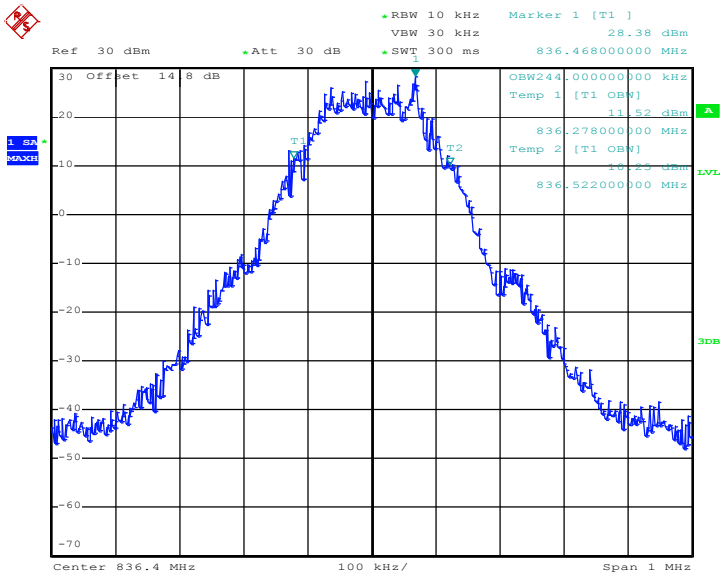
3.3.4 Test Setup



3.3.5 Test Result (Plots) of Occupied Bandwidth

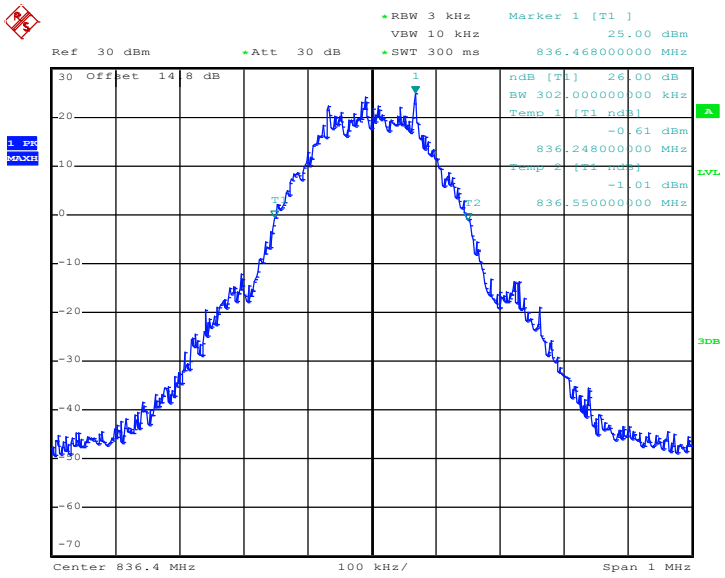
Band :	GSM 850	Power Stage :	High
Test Mode :	GPRS 8 Link		

99% Occupied Bandwidth Plot on Channel 189



Date: 7.DEC.2011 21:33:39

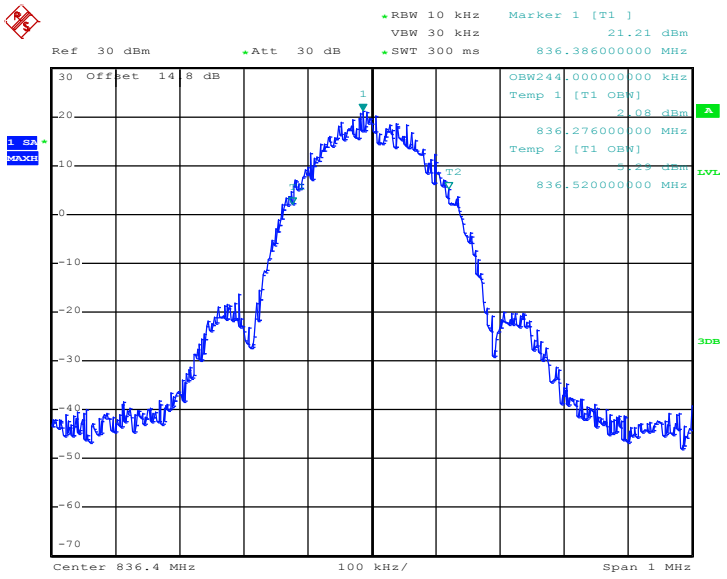
26dB Bandwidth Plot on Channel 189



Date: 7.DEC.2011 21:32:39

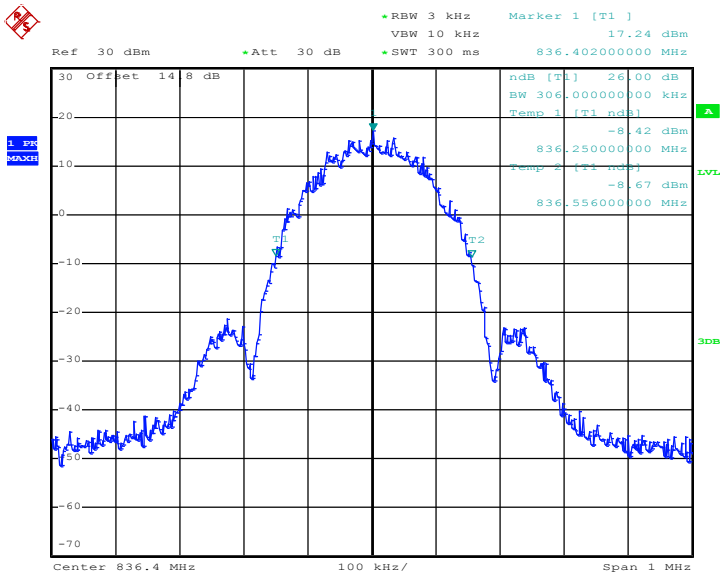
Band :	GSM 850	Power Stage :	High
Test Mode :	EDGE 8 Link		

99% Occupied Bandwidth Plot on Channel 189



Date: 7.DEC.2011 21:58:07

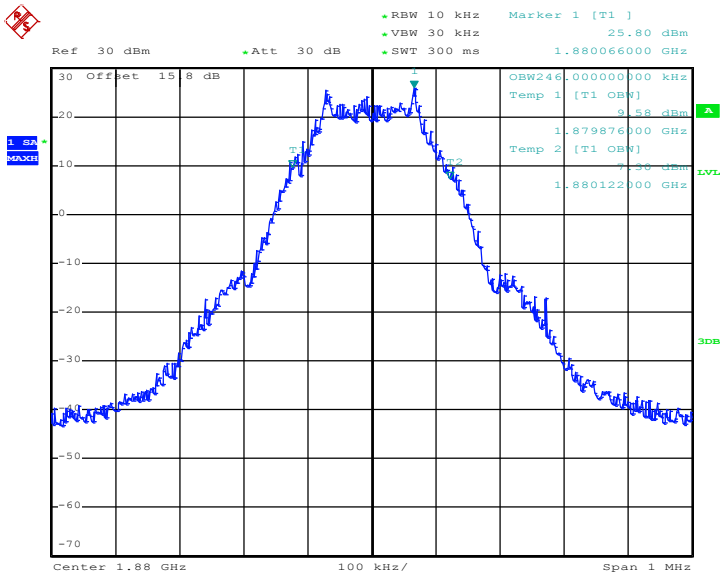
26dB Bandwidth Plot on Channel 189



Date: 7.DEC.2011 21:57:14

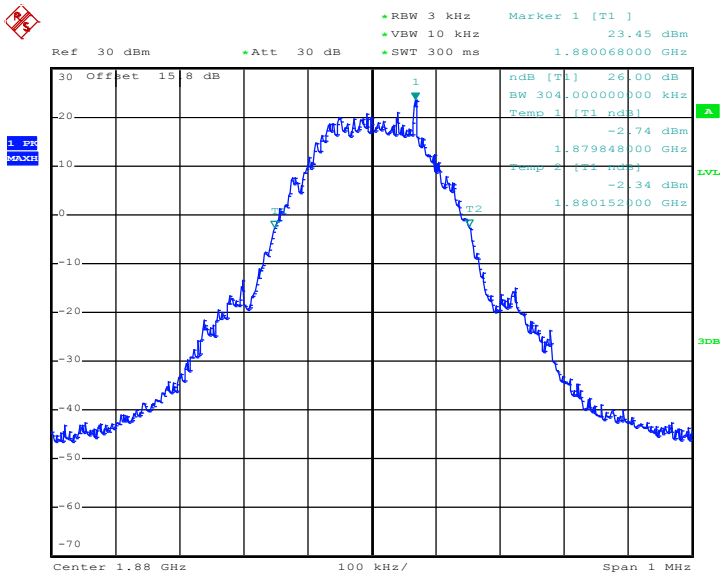
Band :	GSM 1900	Power Stage :	High
Test Mode :	GPRS 8 Link		

99% Occupied Bandwidth Plot on Channel 661



Date: 7.DEC.2011 22:23:19

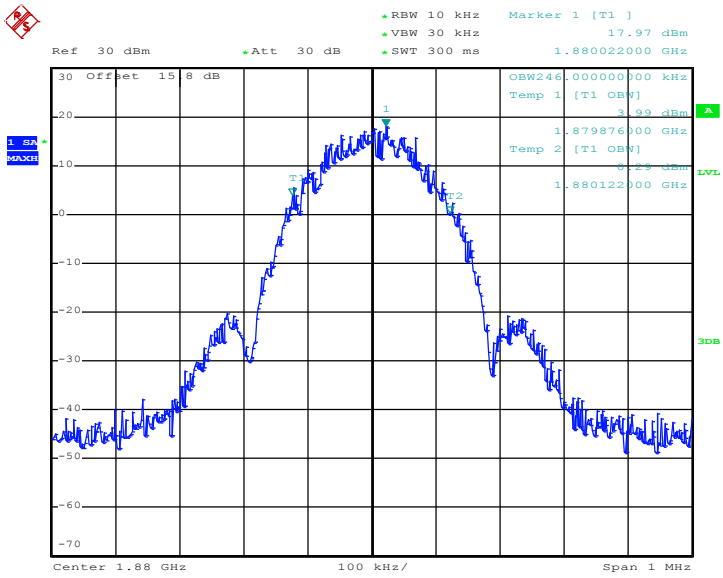
26dB Bandwidth Plot on Channel 661



Date: 7.DEC.2011 22:19:49

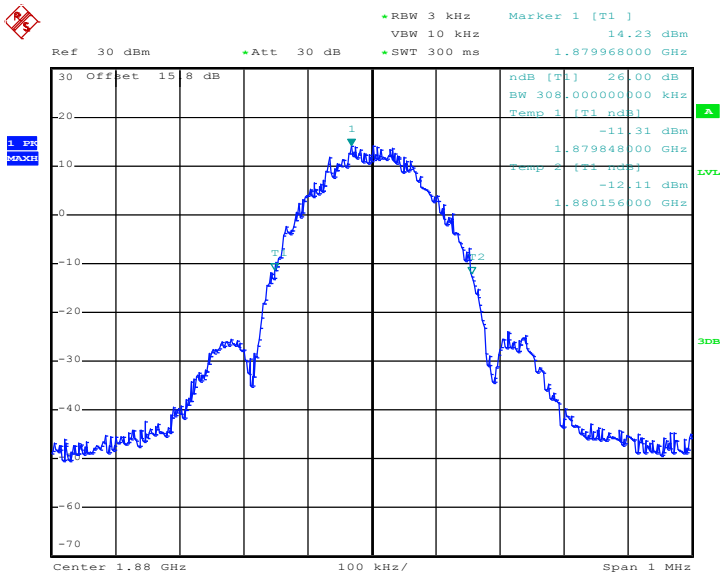
Band :	GSM 1900	Power Stage :	High
Test Mode :	EDGE 8 Link		

99% Occupied Bandwidth Plot on Channel 661



Date: 7.DEC.2011 22:46:42

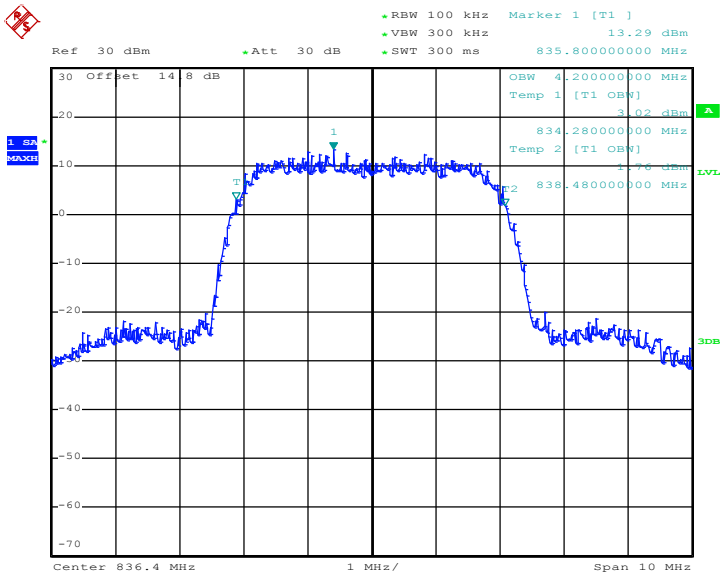
26dB Bandwidth Plot on Channel 661



Date: 7.DEC.2011 22:45:52

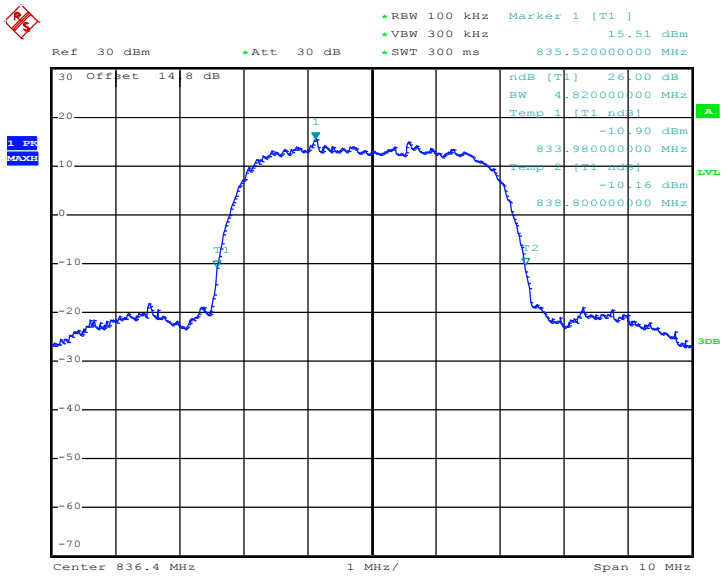
Band :	WCDMA Band V	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

99% Occupied Bandwidth Plot on Channel 4182



Date: 7.DEC.2011 23:55:50

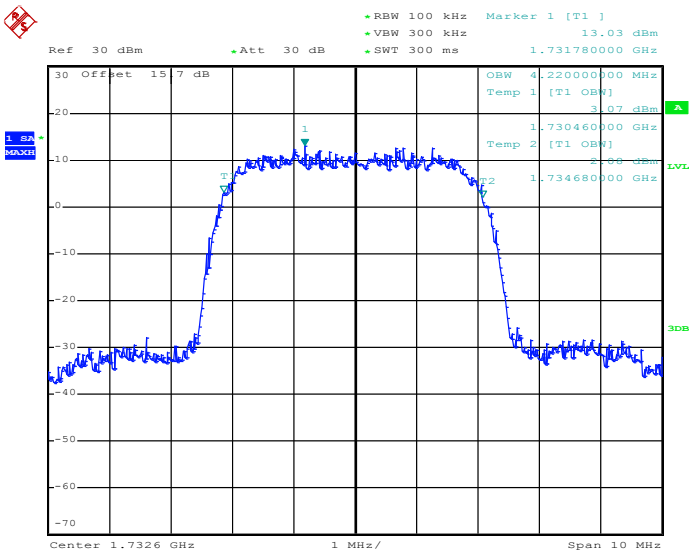
26dB Bandwidth Plot on Channel 4182



Date: 7.DEC.2011 23:54:29

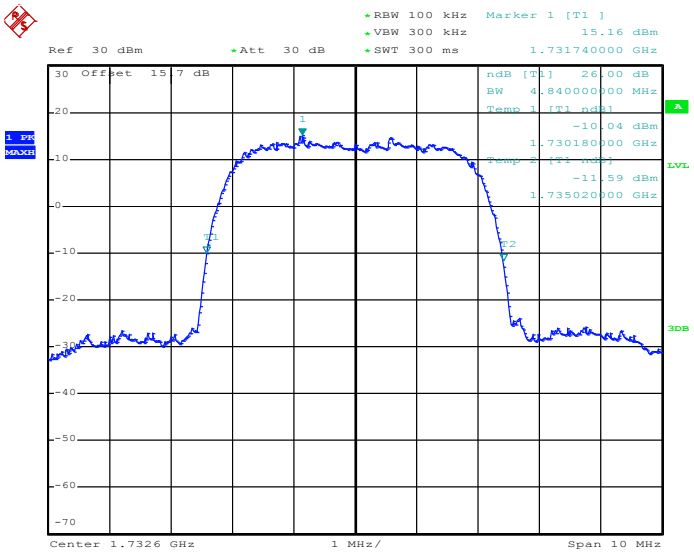
Band :	WCDMA Band IV	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

99% Occupied Bandwidth Plot on Channel 1413



Date: 7.DEC.2011 23:46:48

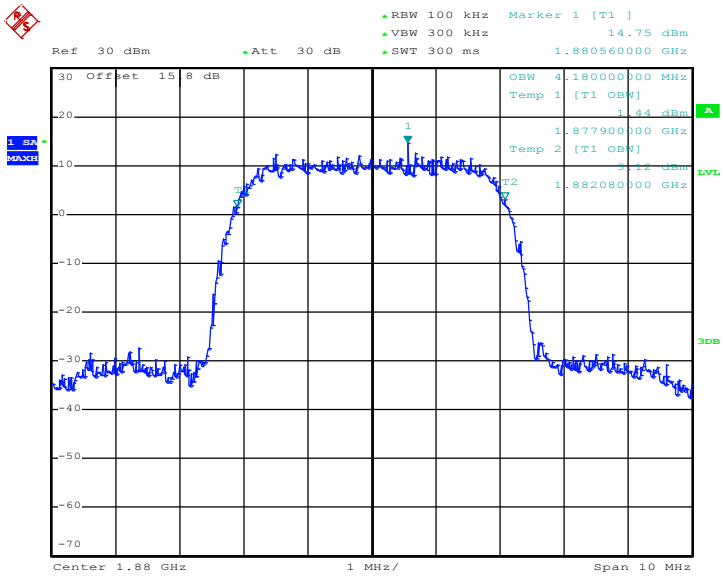
26dB Bandwidth Plot on Channel 1413



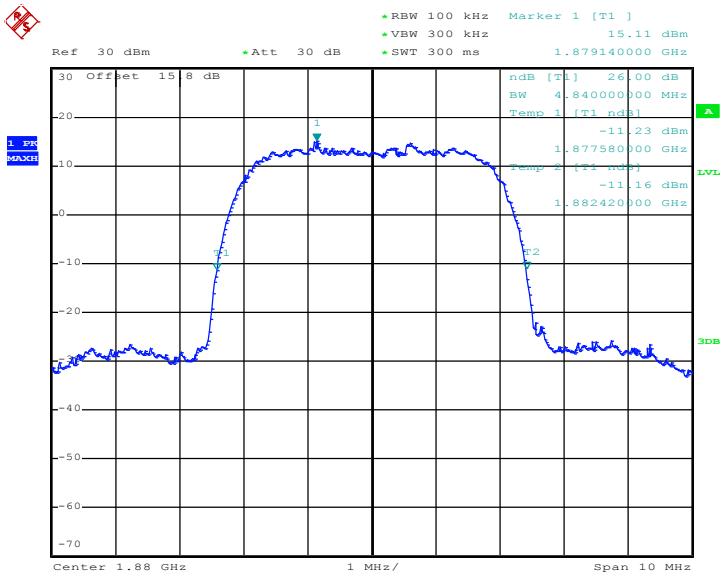
Date: 7.DEC.2011 23:45:27

Band :	WCDMA Band II	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

99% Occupied Bandwidth Plot on Channel 9400



26dB Bandwidth Plot on Channel 9400



3.4 Band Edge Measurement

3.4.1 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.

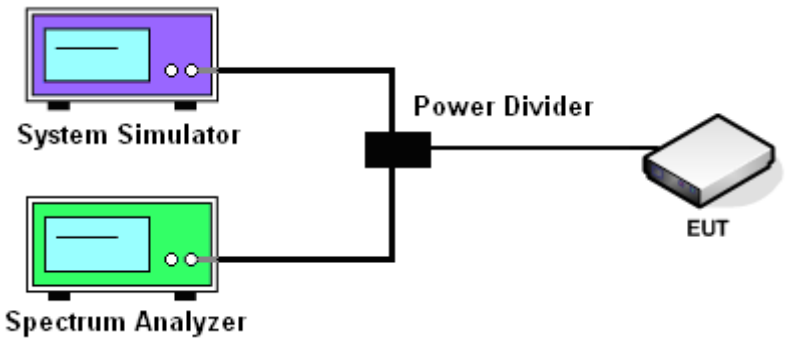
3.4.2 Measuring Instruments

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 band edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.

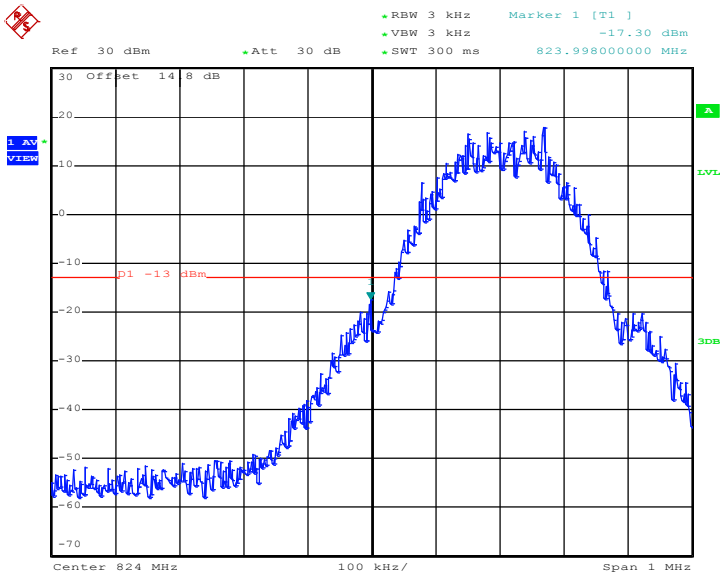
3.4.4 Test Setup



3.4.5 Test Result (Plots) of Conducted Band Edge

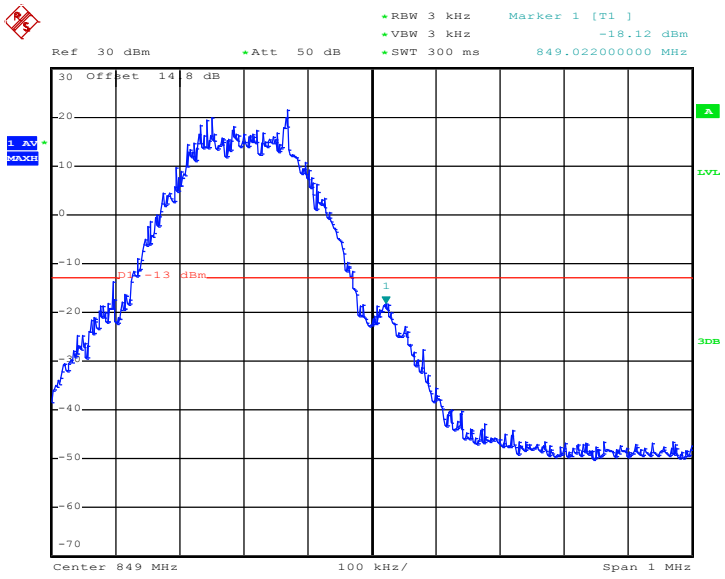
Band :	GSM850	Power Stage :	High
Test Mode :	GPRS 8 Link		

Lower Band Edge Plot on Channel 128



Date: 7.DEC.2011 21:30:00

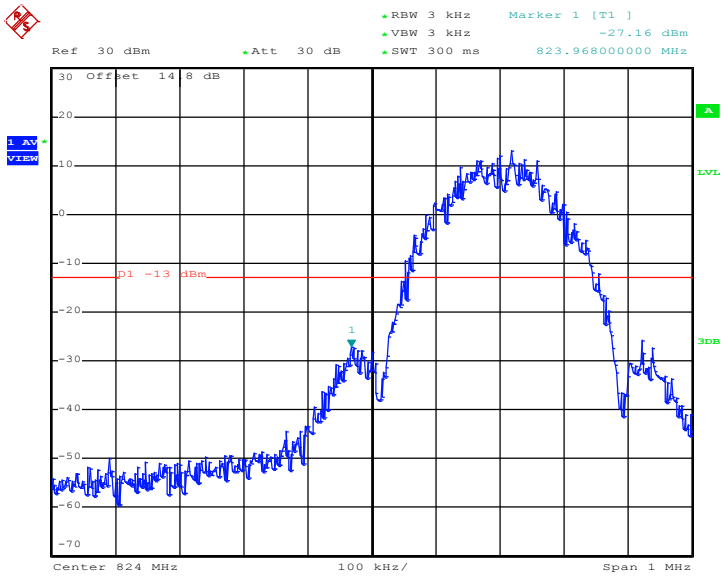
Higher Band Edge Plot on Channel 251



Date: 7.DEC.2011 21:42:30

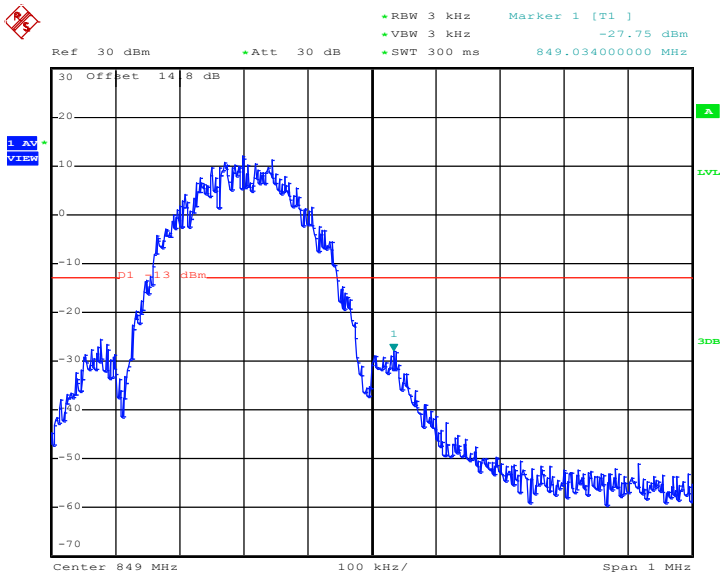
Band :	GSM850	Power Stage :	High
Test Mode :	EDGE 8 Link		

Lower Band Edge Plot on Channel 128



Date: 7.DEC.2011 22:11:59

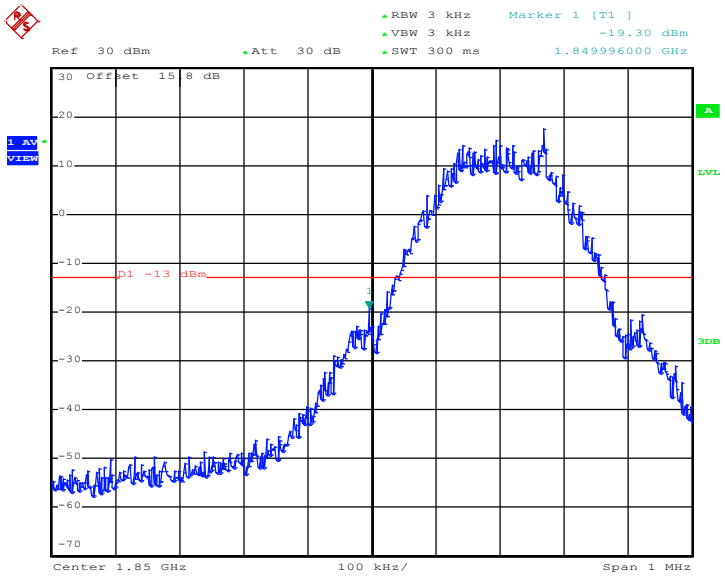
Higher Band Edge Plot on Channel 251



Date: 12.DEC.2011 20:08:12

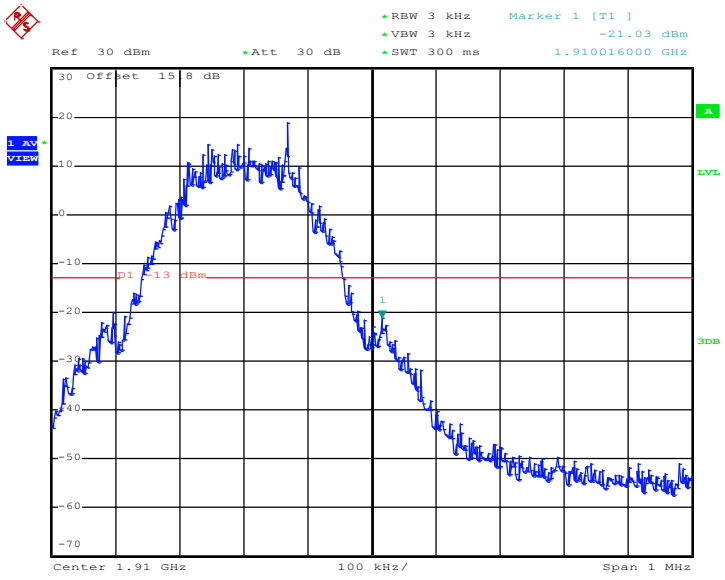
Band :	GSM1900	Power Stage :	High
Test Mode :	GPRS 8 Link		

Lower Band Edge Plot on Channel 512



Date: 7.DEC.2011 22:27:50

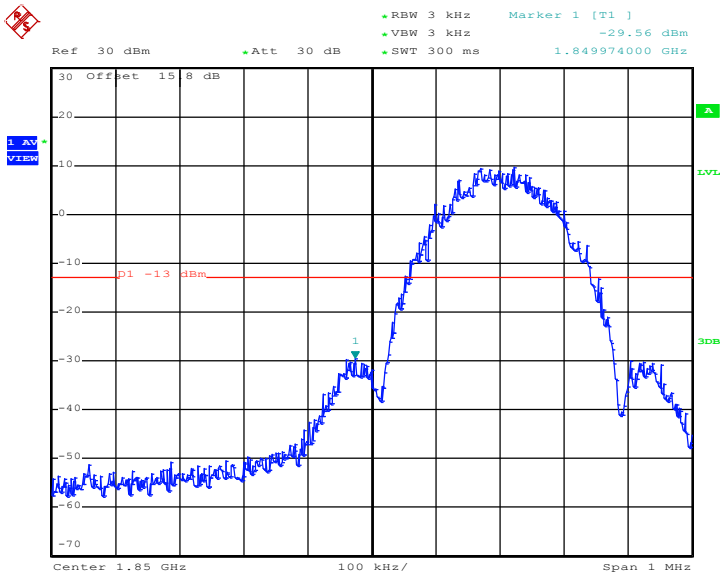
Higher Band Edge Plot on Channel 810



Date: 12.DEC.2011 20:14:27

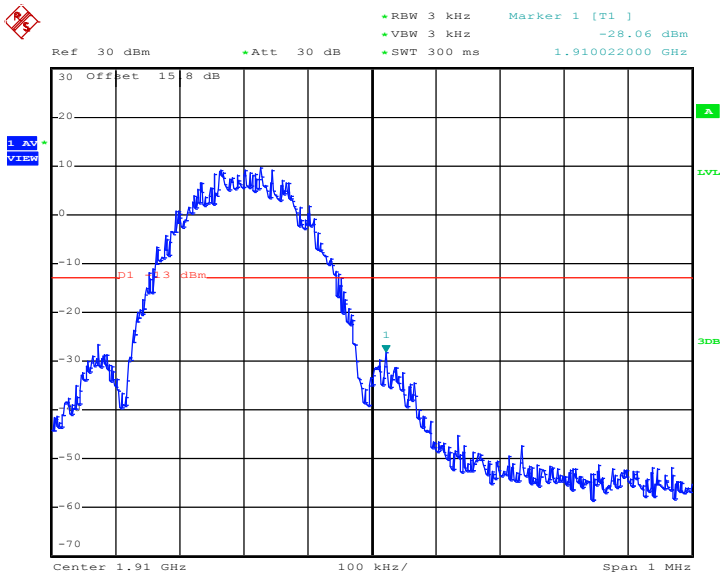
Band :	GSM1900	Power Stage :	High
Test Mode :	EDGE 8 Link		

Lower Band Edge Plot on Channel 512



Date: 7.DEC.2011 23:21:30

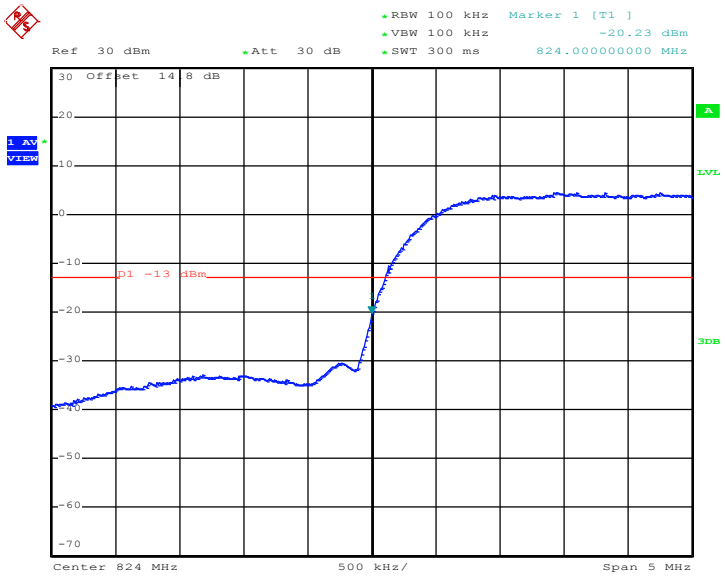
Higher Band Edge Plot on Channel 810



Date: 12.DEC.2011 20:17:06

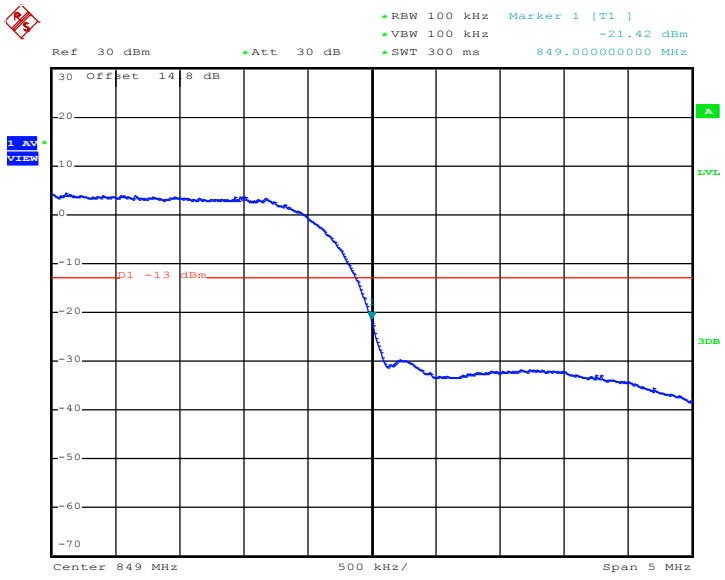
Band :	WCDMA Band V	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

Lower Band Edge Plot on Channel 4132



Date: 7.DEC.2011 23:57:48

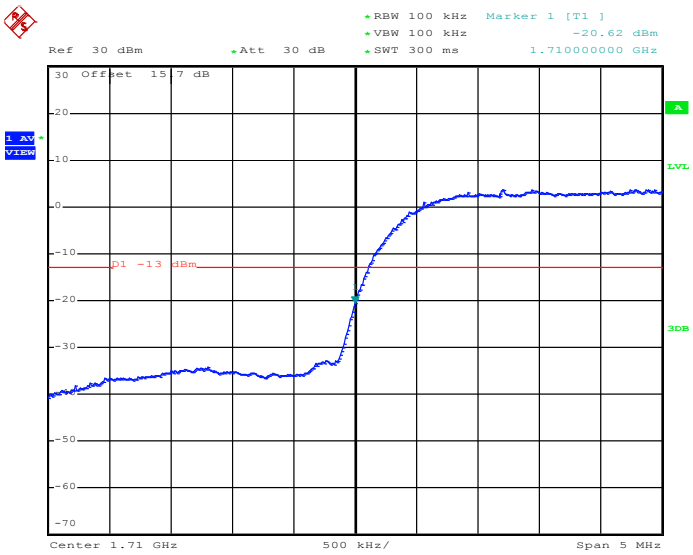
Higher Band Edge Plot on Channel 4233



Date: 7.DEC.2011 23:58:15

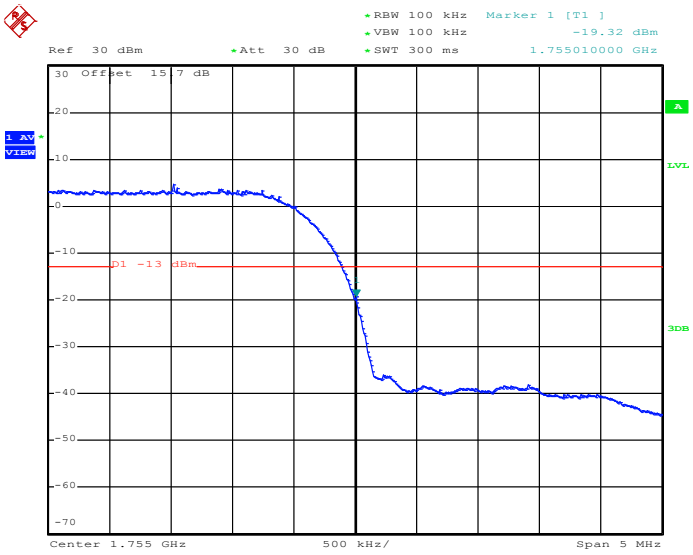
Band :	WCDMA Band IV	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

Lower Band Edge Plot on Channel 1312



Date: 7.DEC.2011 23:48:45

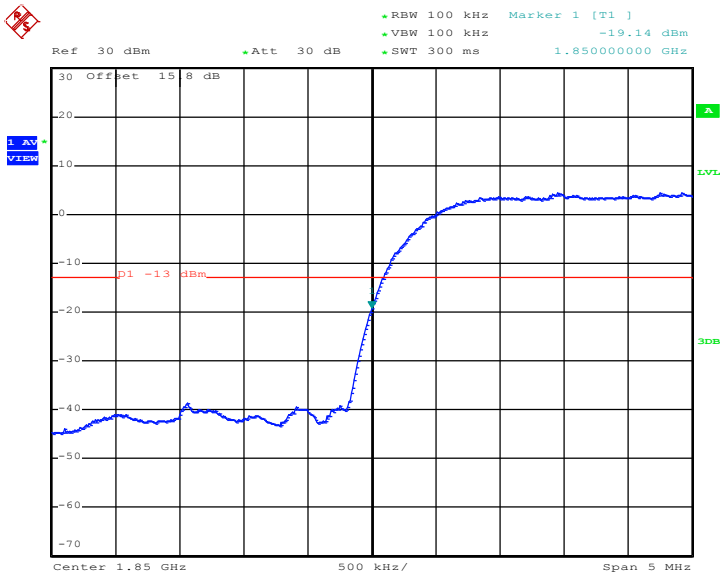
Higher Band Edge Plot on Channel 1513



Date: 7.DEC.2011 23:49:12

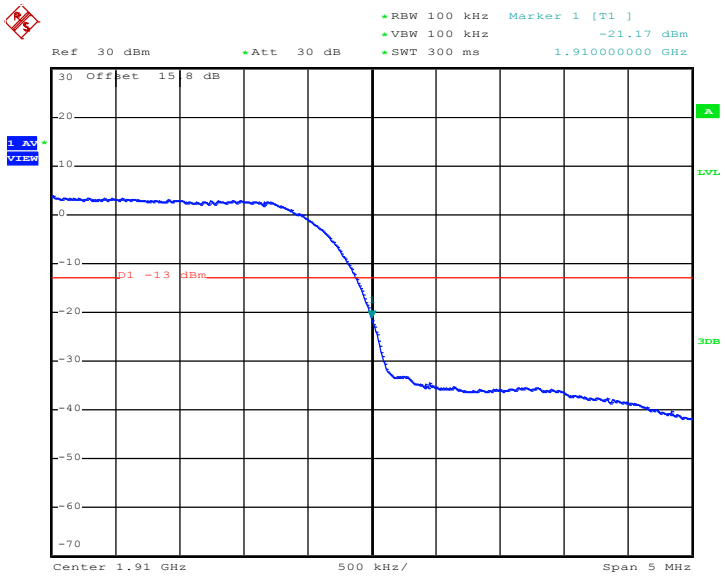
Band :	WCDMA Band II	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

Lower Band Edge Plot on Channel 9262



Date: 7.DEC.2011 23:39:22

Higher Band Edge Plot on Channel 9538



Date: 7.DEC.2011 23:39:49

3.5 Conducted Emission Measurement

3.5.1 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.

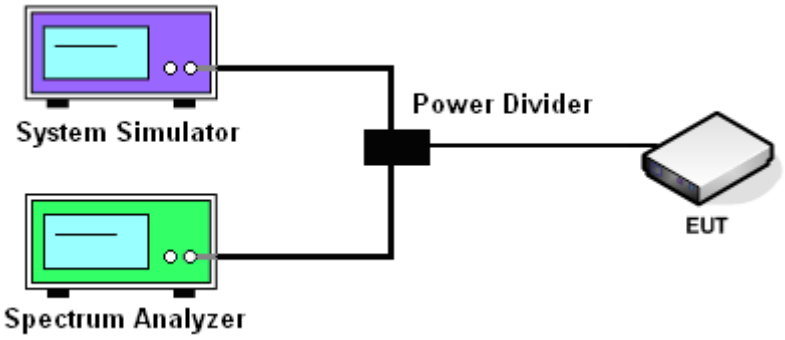
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

3. The EUT was connected to spectrum analyzer and base station via power divider.
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.

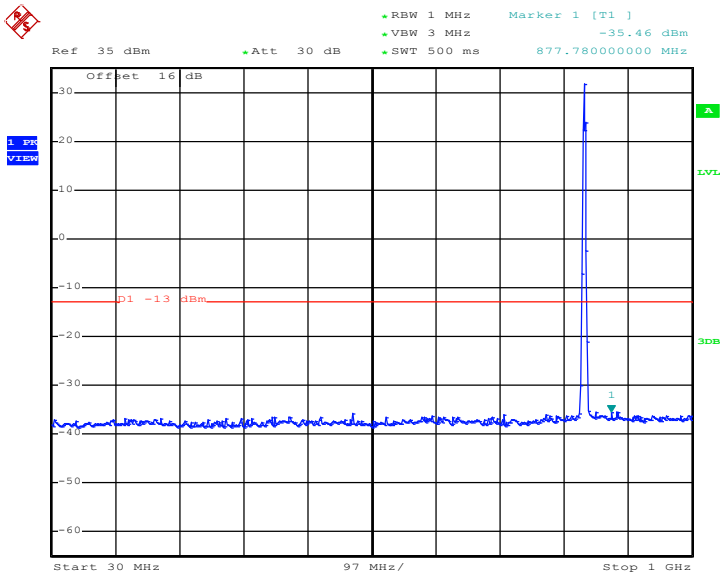
3.5.4 Test Setup



3.5.5 Test Result (Plots) of Conducted Emission

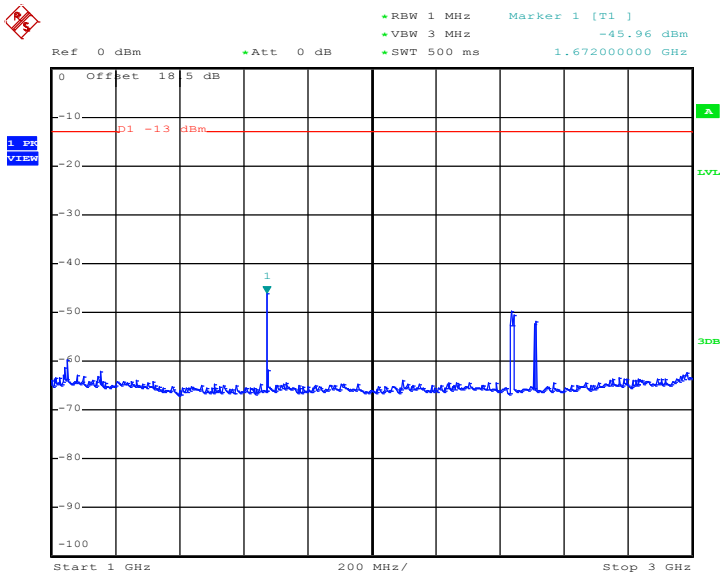
Band :	GSM850	Channel :	CH189
Test Mode :	GPRS 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



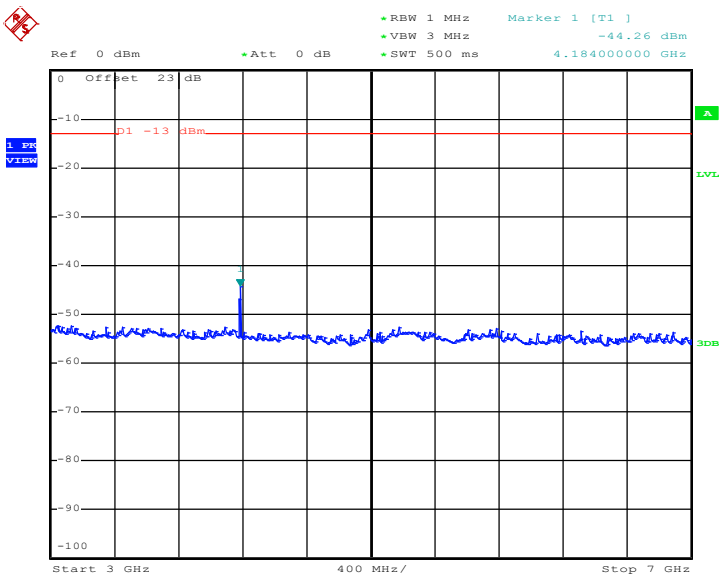
Date: 7.DEC.2011 21:13:14

Conducted Emission Plot between 1GHz ~ 3GHz



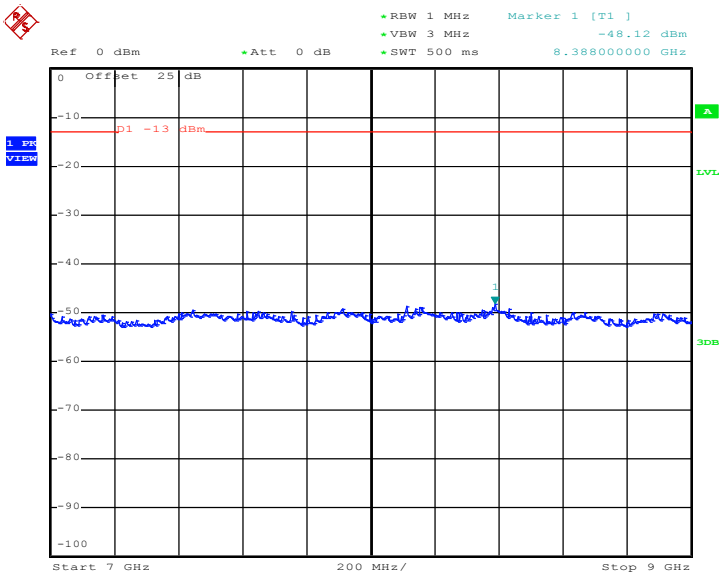
Date: 7.DEC.2011 21:13:30

Conducted Emission Plot between 3GHz ~ 7GHz



Date: 7.DEC.2011 21:13:42

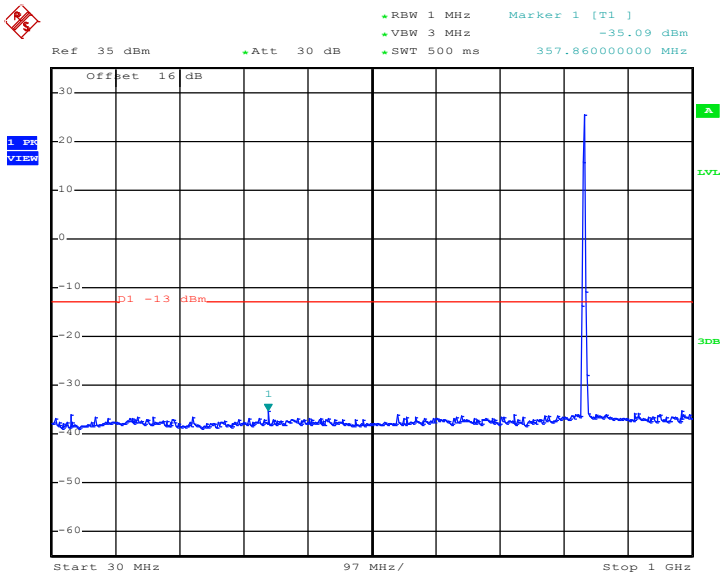
Conducted Emission Plot between 7GHz ~ 9GHz



Date: 7.DEC.2011 21:13:56

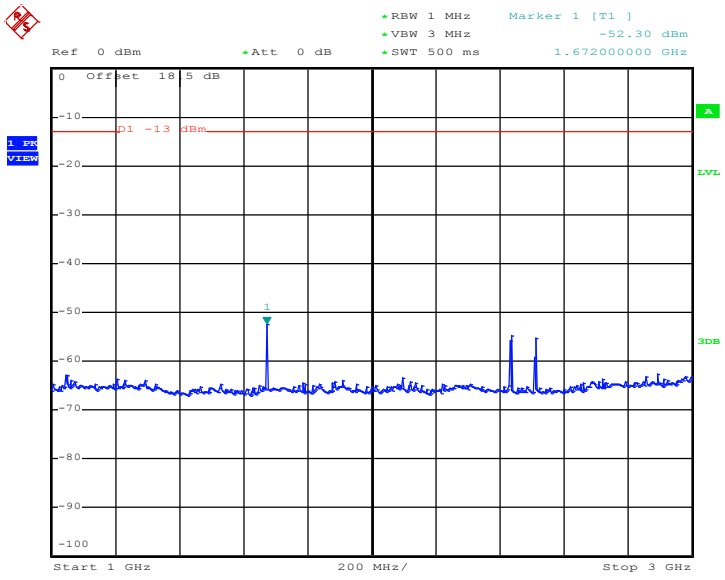
Band :	GSM850	Channel :	CH189
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



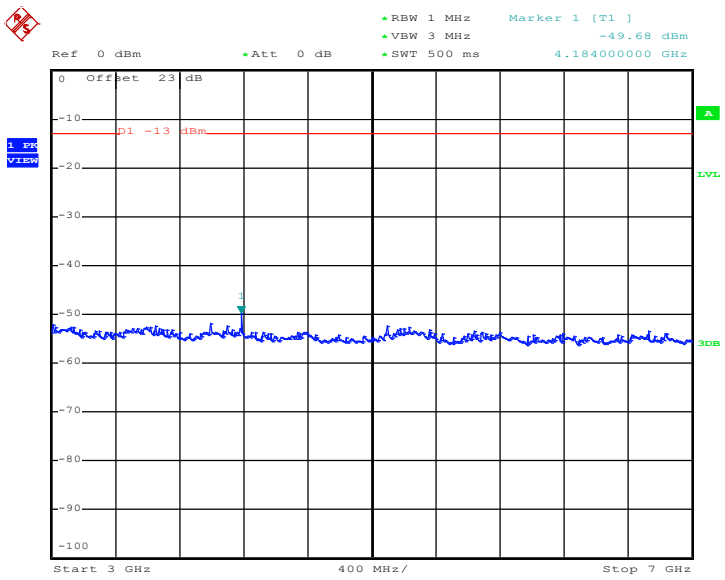
Date: 7.DEC.2011 21:53:41

Conducted Emission Plot between 1GHz ~ 3GHz



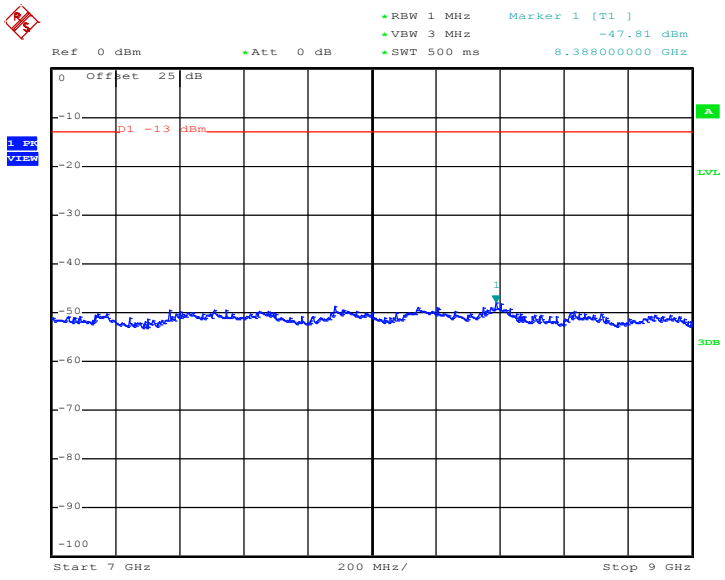
Date: 7.DEC.2011 21:55:34

Conducted Emission Plot between 3GHz ~ 7GHz



Date: 7.DEC.2011 21:54:09

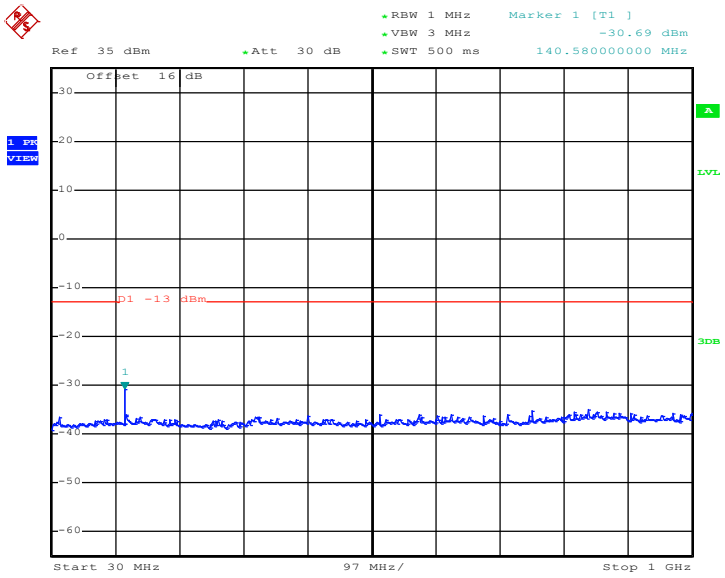
Conducted Emission Plot between 7GHz ~ 9GHz



Date: 7.DEC.2011 21:54:22

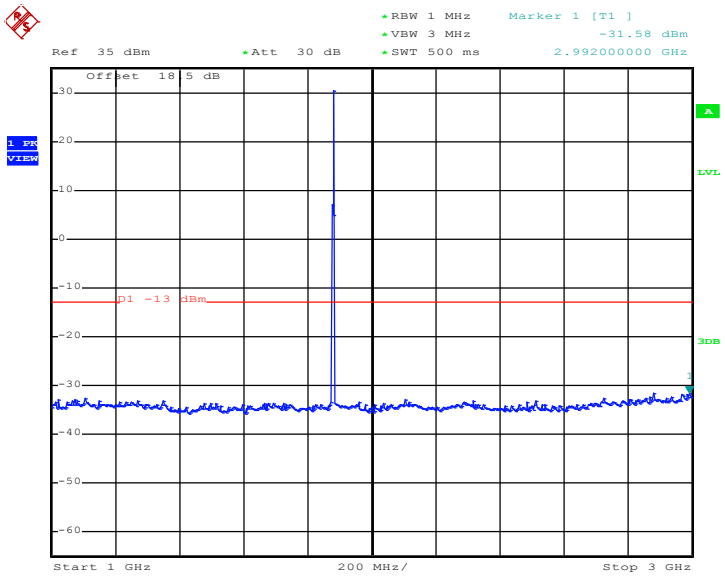
Band :	GSM1900	Channel :	CH661
Test Mode :	GPRS 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



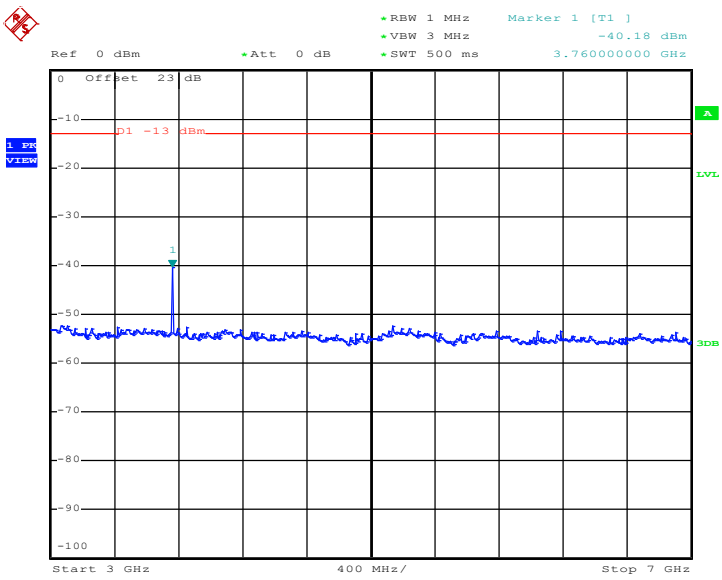
Date: 7.DEC.2011 22:15:14

Conducted Emission Plot between 1GHz ~ 3GHz



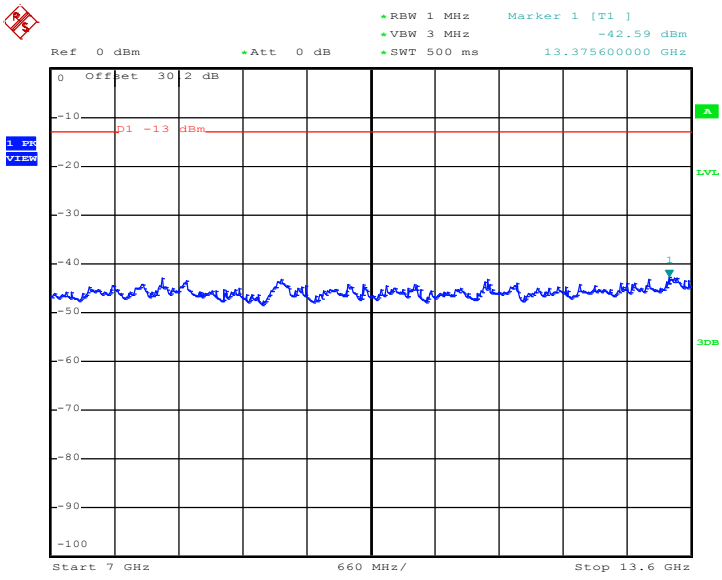
Date: 7.DEC.2011 22:15:27

Conducted Emission Plot between 3GHz ~ 7GHz



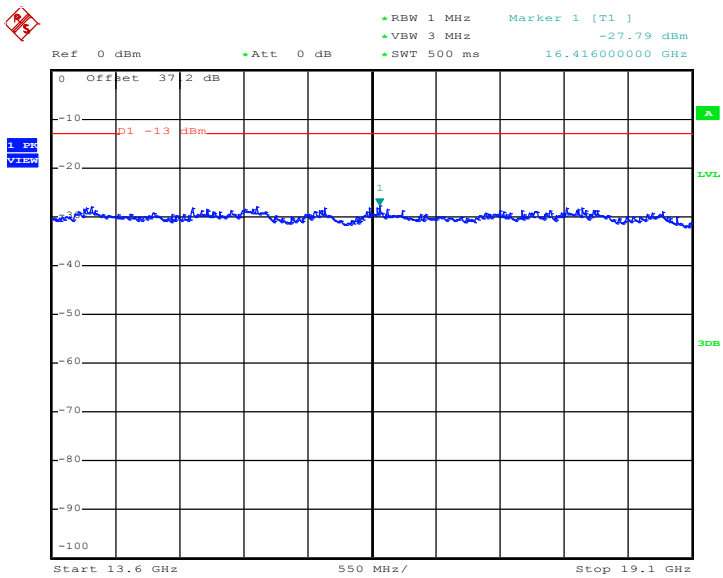
Date: 7.DEC.2011 22:15:43

Conducted Emission Plot between 7GHz ~ 13.6G



Date: 7.DEC.2011 22:15:56

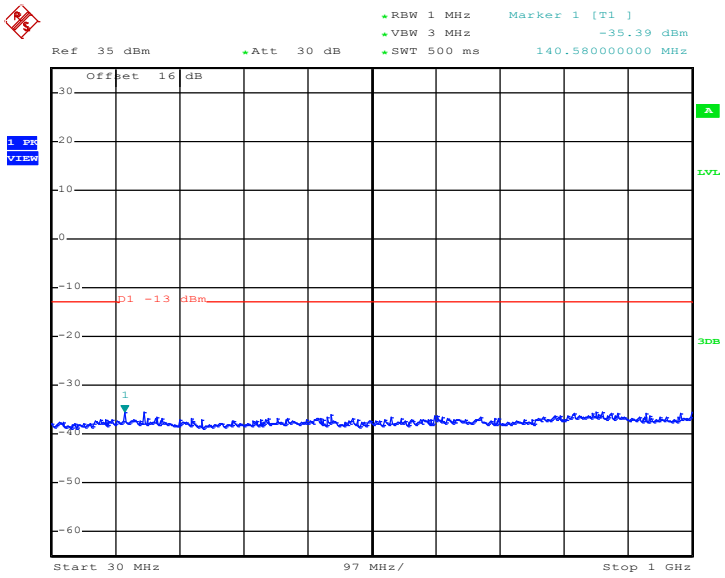
Conducted Emission Plot between 13.6GHz ~ 19.1GHz



Date: 7.DEC.2011 22:16:10

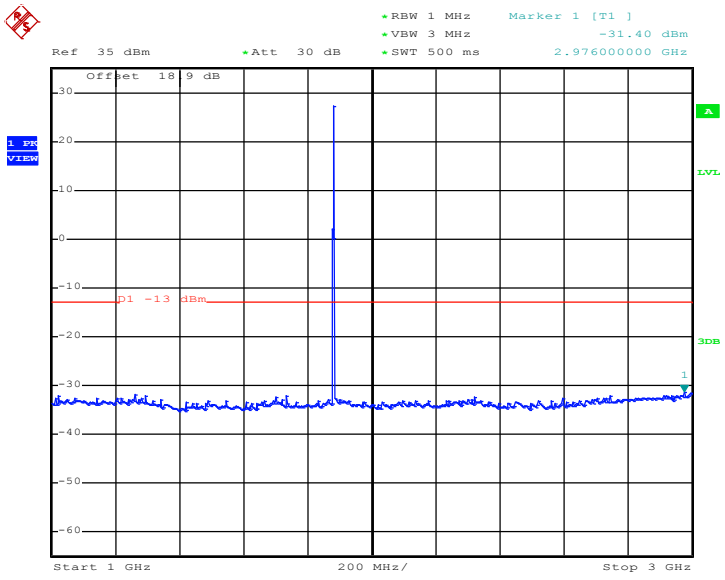
Band :	GSM1900	Channel :	CH661
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



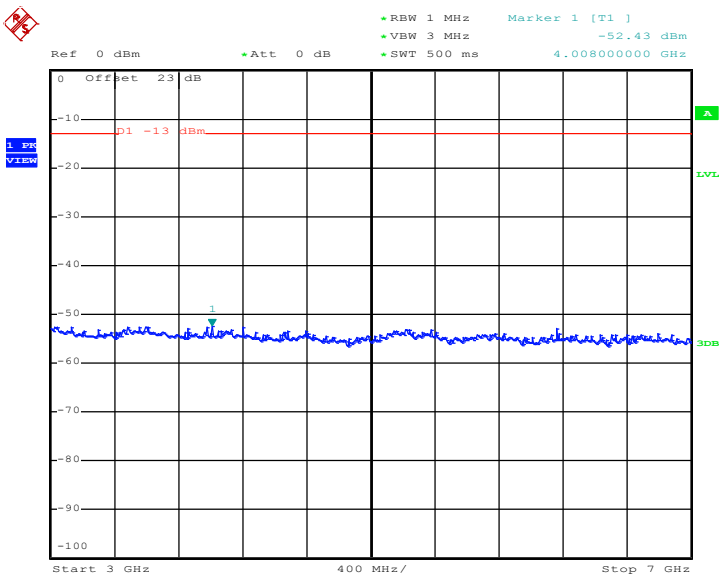
Date: 7.DEC.2011 22:39:17

Conducted Emission Plot between 1GHz ~ 3GHz



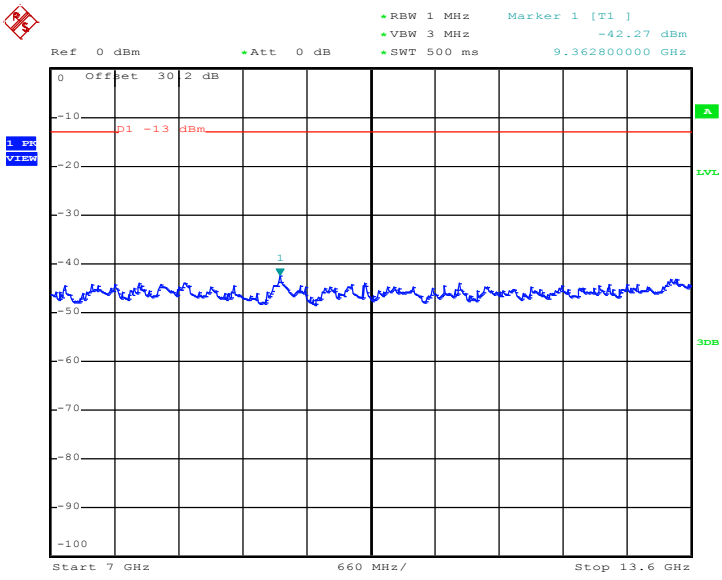
Date: 13.DEC.2011 21:08:15

Conducted Emission Plot between 3GHz ~ 7GHz



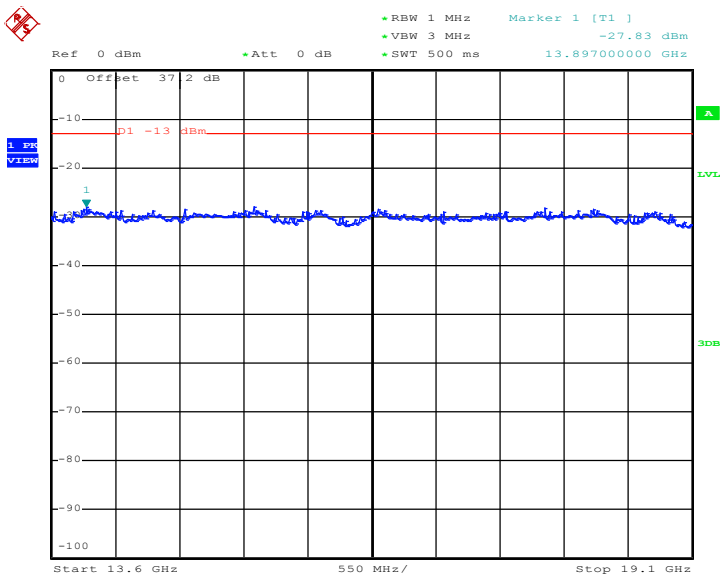
Date: 7.DEC.2011 22:40:24

Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 7.DEC.2011 22:40:38

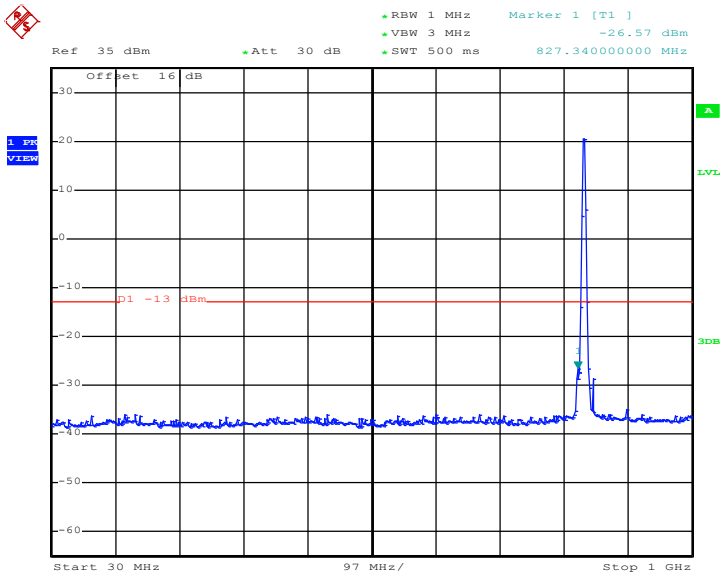
Conducted Emission Plot between 13.6GHz ~ 19.1GHz



Date: 7.DEC.2011 22:40:50

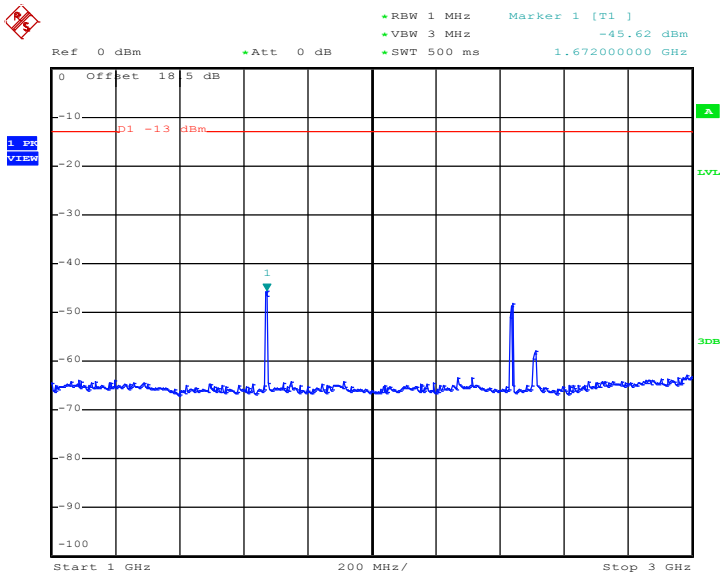
Band :	WCDMA Band V	Channel :	CH4182
Test Mode :	RMC 12.2Kbps Link		

Conducted Emission Plot between 30MHz ~ 1GHz



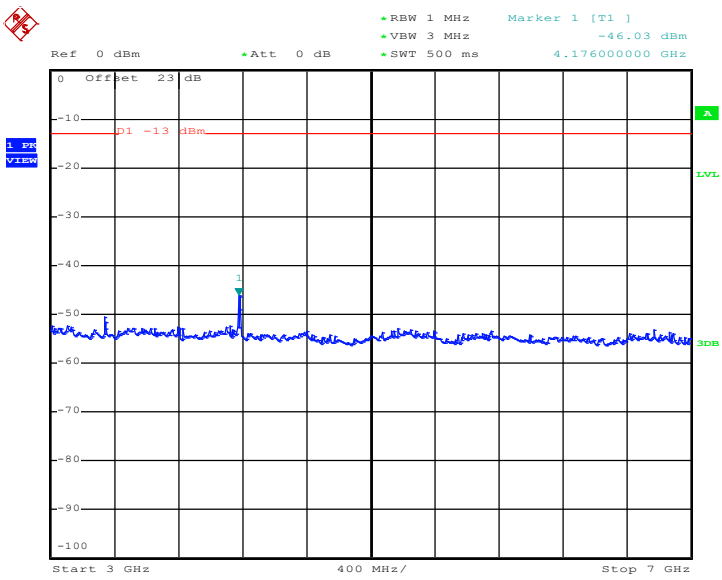
Date: 7.DEC.2011 23:52:34

Conducted Emission Plot between 1GHz ~ 3GHz



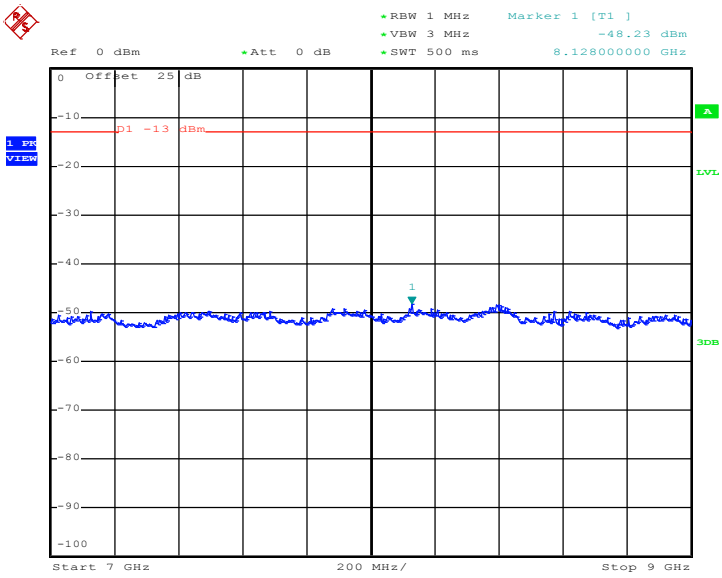
Date: 7.DEC.2011 23:52:52

Conducted Emission Plot between 3GHz ~ 7GHz



Date: 7.DEC.2011 23:53:05

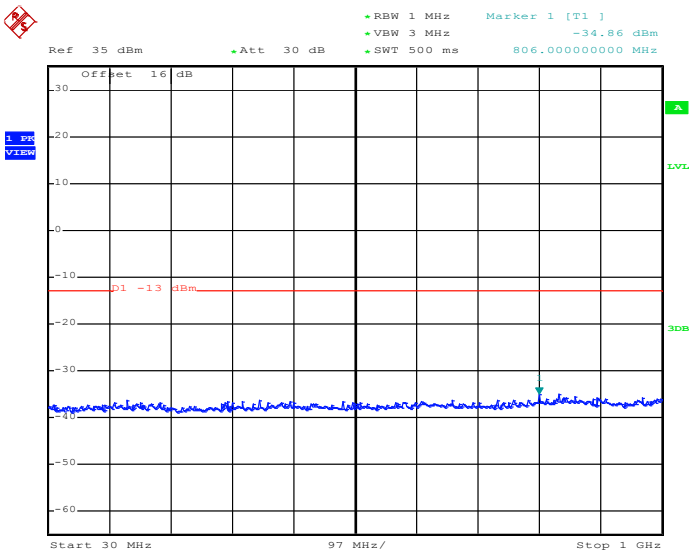
Conducted Emission Plot between 7GHz ~ 9GHz



Date: 7.DEC.2011 23:53:19

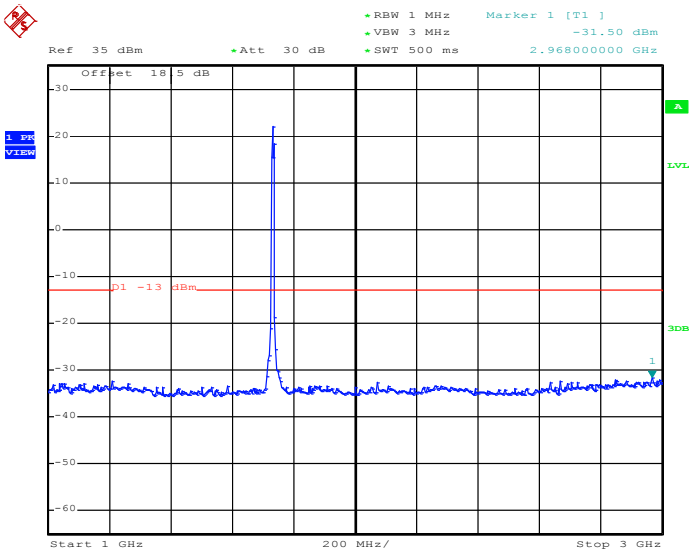
Band :	WCDMA Band IV	Channel :	CH1413
Test Mode :	RMC 12.2Kbps Link		

Conducted Emission Plot between 30MHz ~ 1GHz



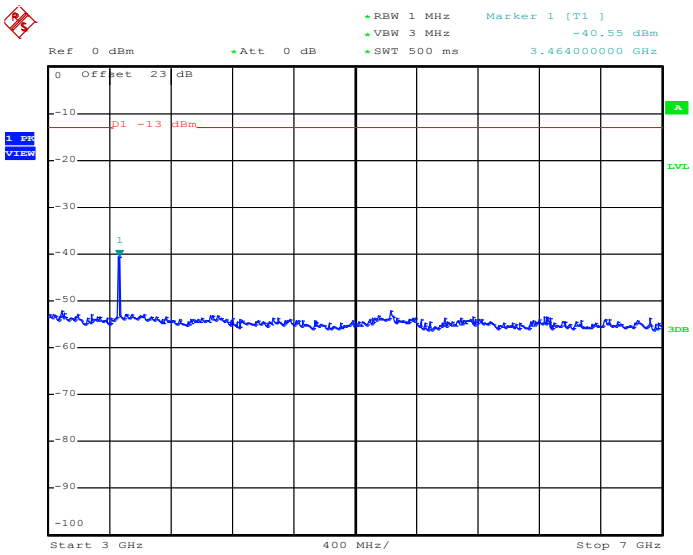
Date: 7.DEC.2011 23:43:17

Conducted Emission Plot between 1GHz ~ 3GHz



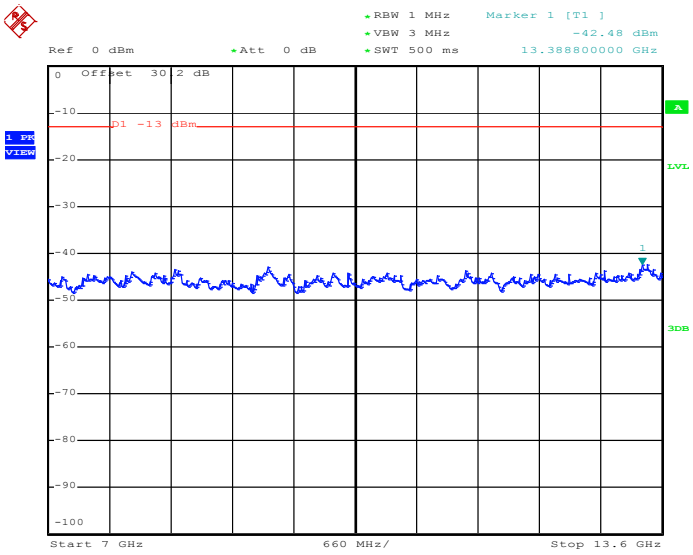
Date: 7.DEC.2011 23:43:30

Conducted Emission Plot between 3GHz ~ 7GHz



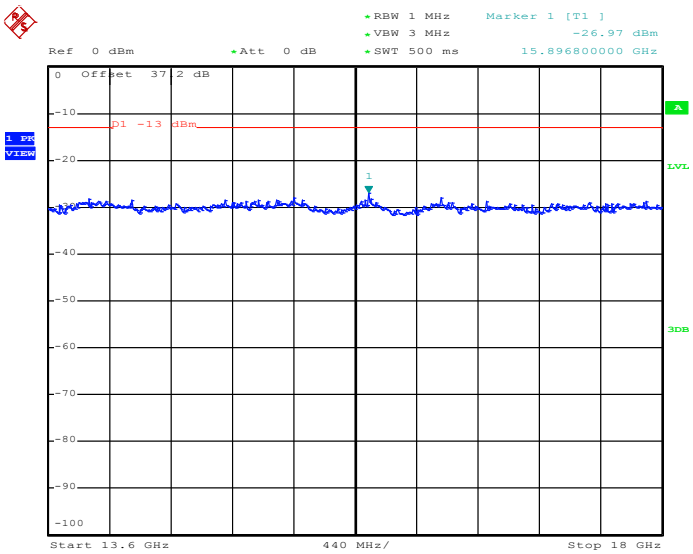
Date: 7.DEC.2011 23:43:48

Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 7.DEC.2011 23:44:01

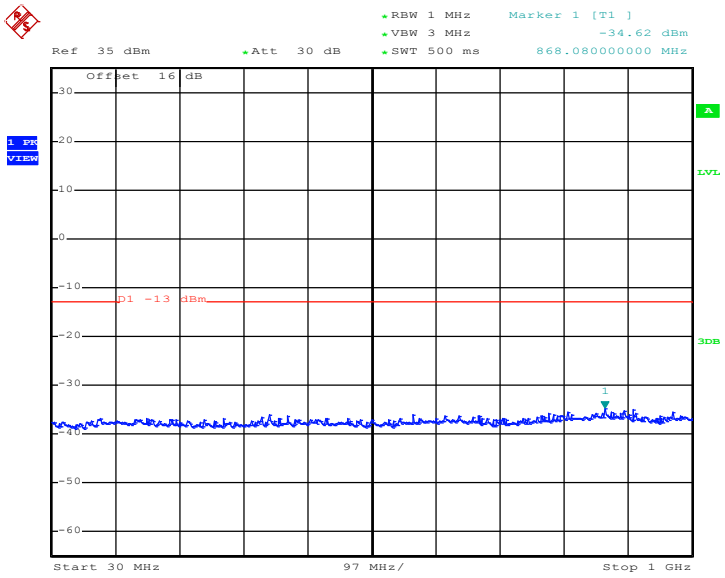
Conducted Emission Plot between 13.6GHz ~ 18GHz



Date: 7.DEC.2011 23:44:14

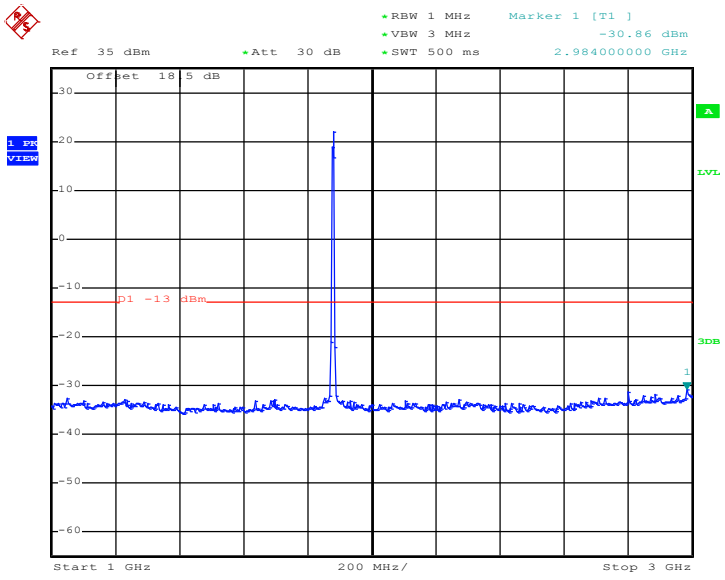
Band :	WCDMA Band II	Channel :	CH9400
Test Mode :	RMC 12.2Kbps Link		

Conducted Emission Plot between 30MHz ~ 1GHz



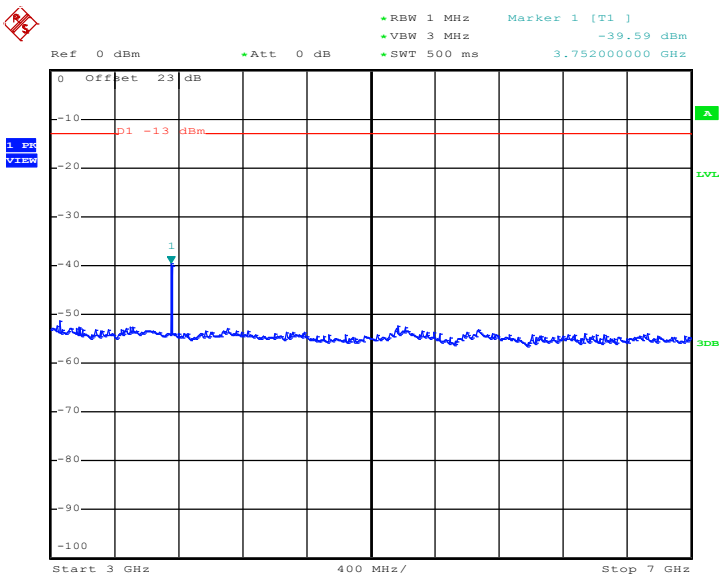
Date: 7.DEC.2011 23:34:03

Conducted Emission Plot between 1GHz ~ 3GHz



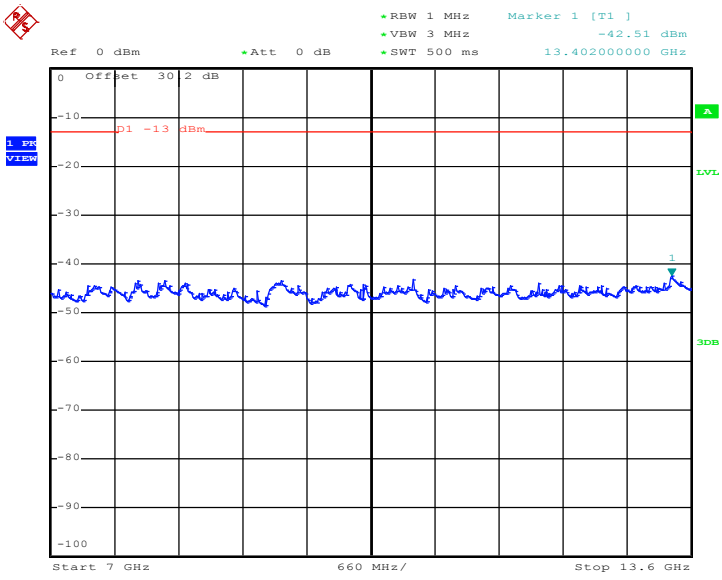
Date: 7.DEC.2011 23:34:16

Conducted Emission Plot between 3GHz ~ 7GHz



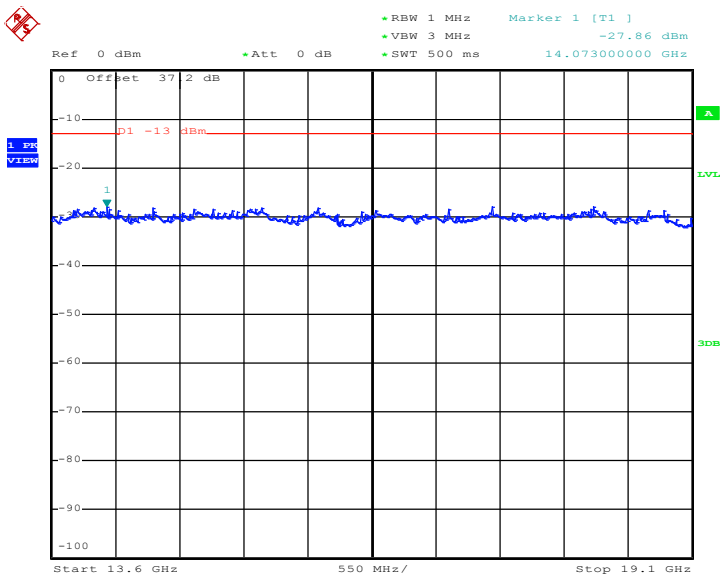
Date: 7.DEC.2011 23:34:31

Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 7.DEC.2011 23:34:44

Conducted Emission Plot between 13.6GHz ~ 19.1GHz



Date: 7.DEC.2011 23:34:58

3.6 Field Strength of Spurious Radiation Measurement

3.6.1 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.

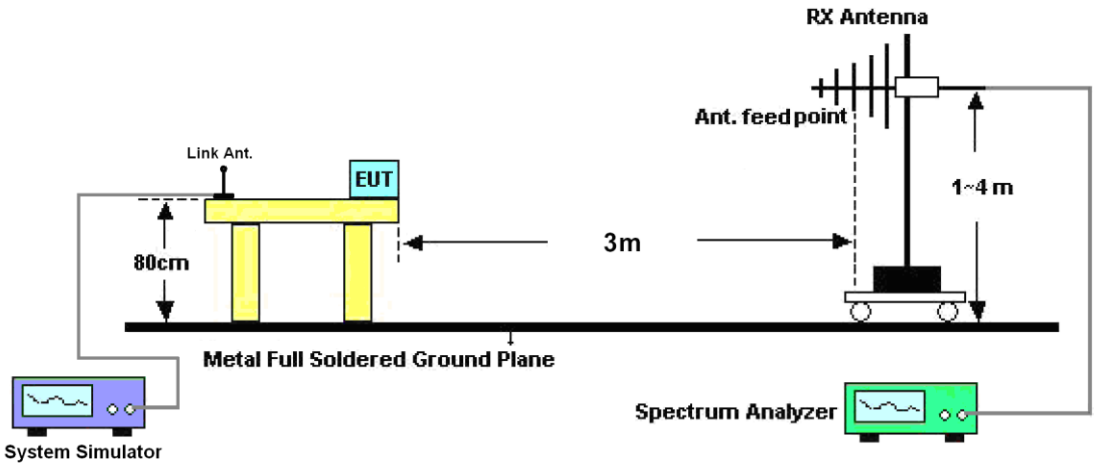
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

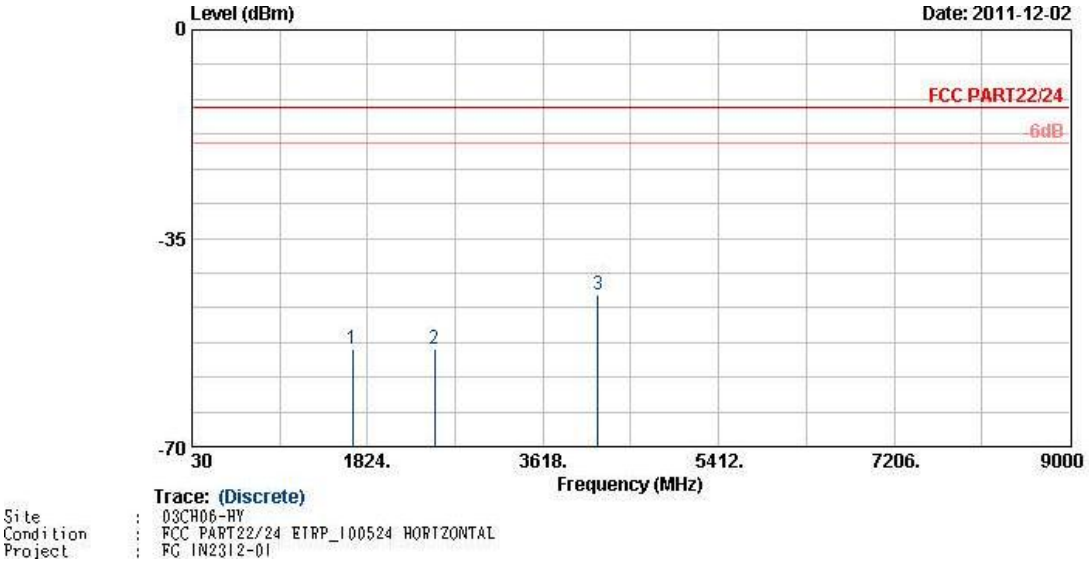
1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. 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

3.6.4 Test Setup



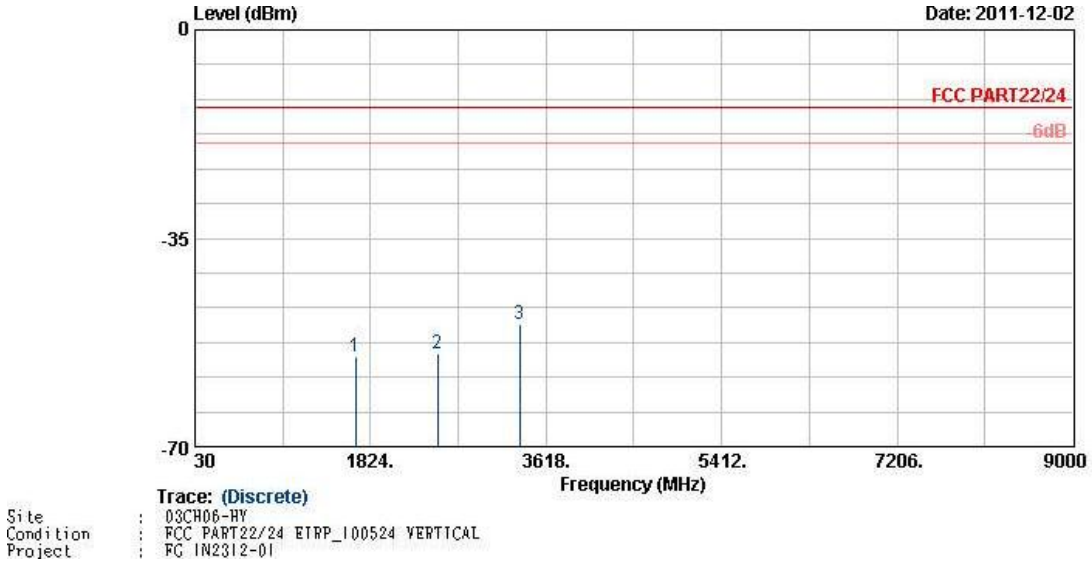
3.6.5 Test Result of Field Strength of Spurious Radiated

Band :	GSM850	**Temperature :**	21~28°C
Test Mode :	GPRS 8 Link	**Relative Humidity :**	50~59%
Test Engineer :	Wii Chang	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



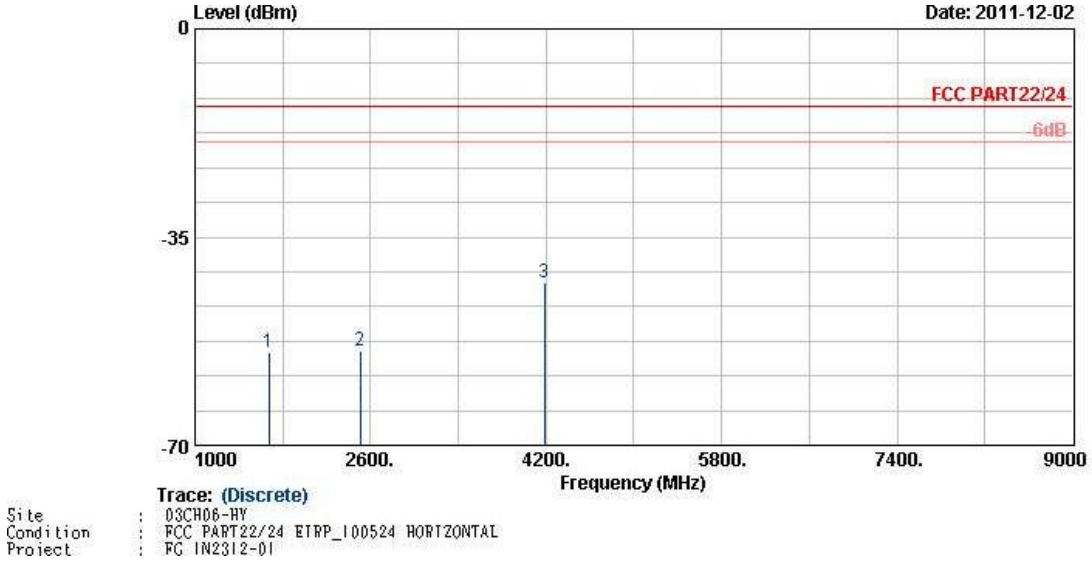
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-53.58	-13	-40.58	-63.27	-55.04	1.88	5.49	H	Pass
2509	-53.62	-13	-40.62	-65.26	-55.25	2.44	6.22	H	Pass
4182	-44.52	-13	-31.52	-62.86	-49.23	2.35	9.21	H	Pass

Band :	GSM850	**Temperature :**	21~28°C
Test Mode :	GPRS 8 Link	**Relative Humidity :**	50~59%
Test Engineer :	Wii Chang	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



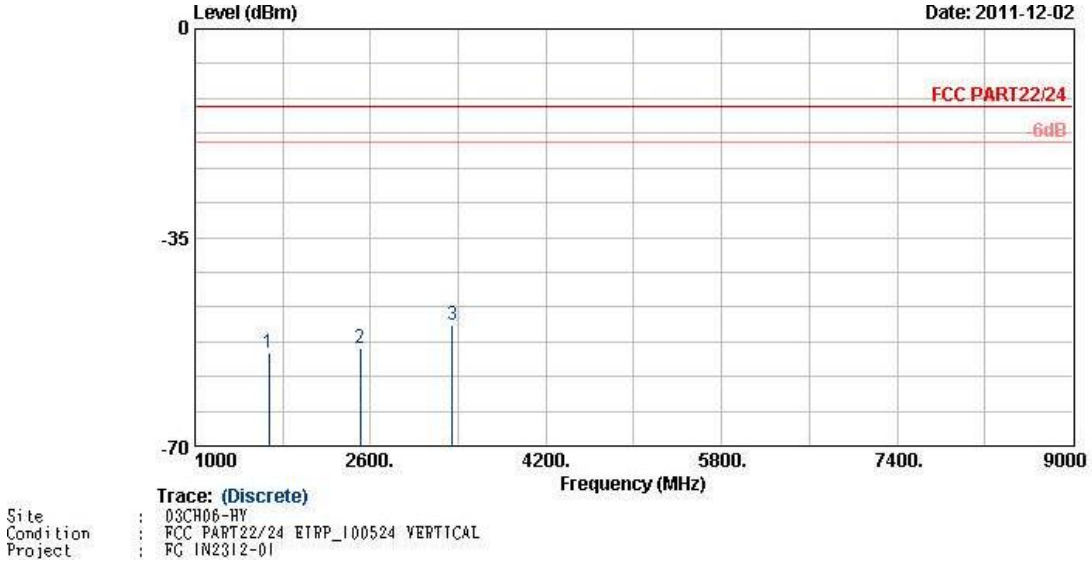
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-54.84	-13	-41.84	-64.54	-56.30	1.88	5.49	V	Pass
2509	-54.48	-13	-41.48	-66.12	-56.11	2.44	6.22	V	Pass
3345	-49.40	-13	-36.40	-64.59	-52.85	2.47	8.07	V	Pass

Band :	GSM850	Temperature :	21~28°C
Test Mode :	EDGE 8 Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



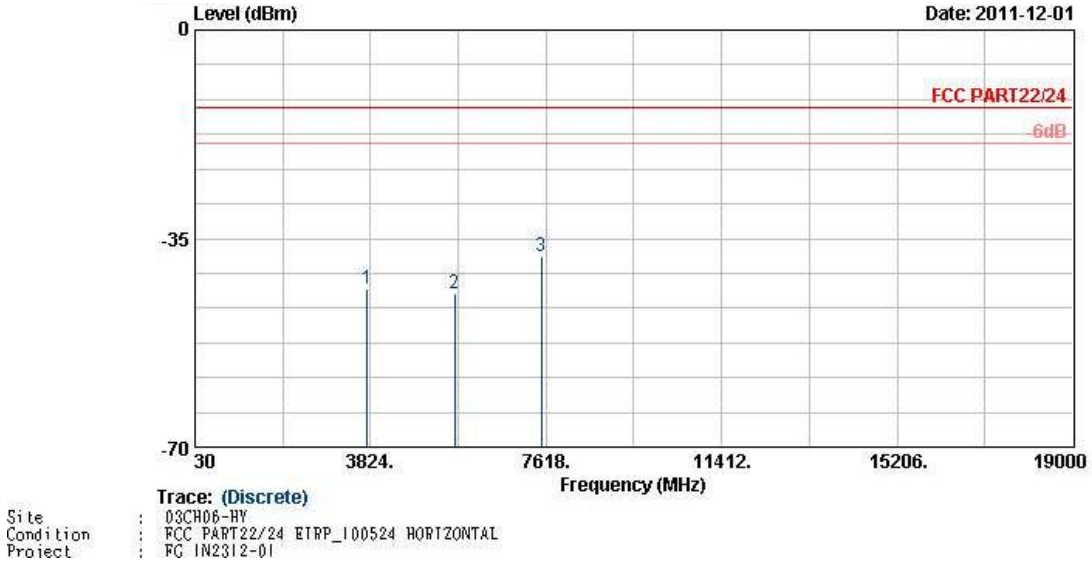
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-54.39	-13	-41.39	-64.08	-55.85	1.88	5.49	H	Pass
2509	-54.03	-13	-41.03	-65.67	-55.66	2.44	6.22	H	Pass
4182	-42.78	-13	-29.78	-61.12	-47.49	2.35	9.21	H	Pass

Band :	GSM850	Temperature :	21~28°C
Test Mode :	EDGE 8 Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



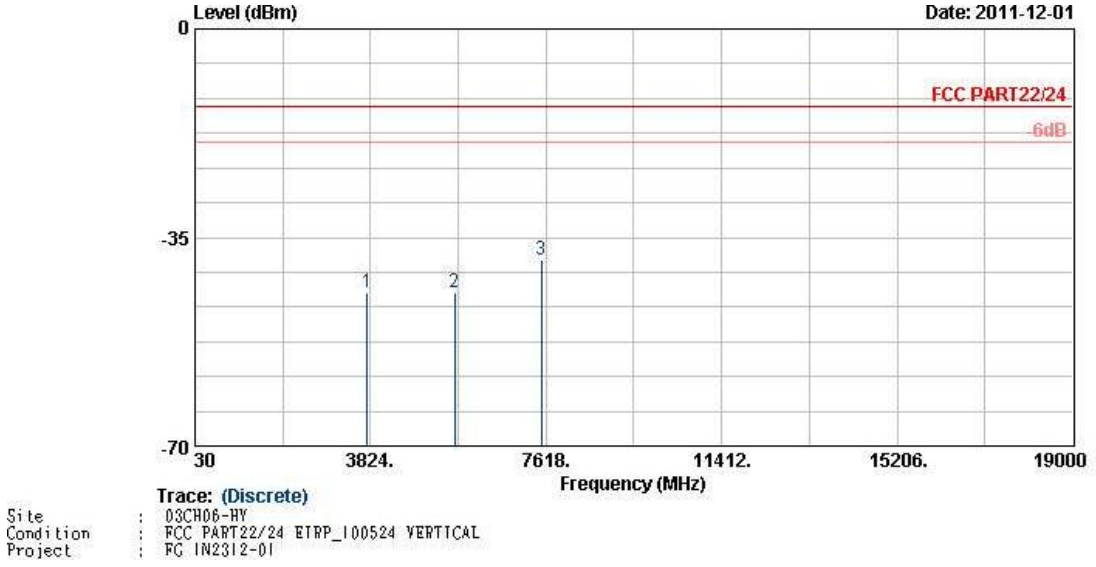
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-54.26	-13	-41.26	-63.95	-55.72	1.88	5.49	V	Pass
2509	-53.60	-13	-40.60	-65.24	-55.23	2.44	6.22	V	Pass
3345	-49.73	-13	-36.73	-64.92	-53.18	2.47	8.07	V	Pass

Band :	GSM1900	Temperature :	21~28°C
Test Mode :	GPRS 8 Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



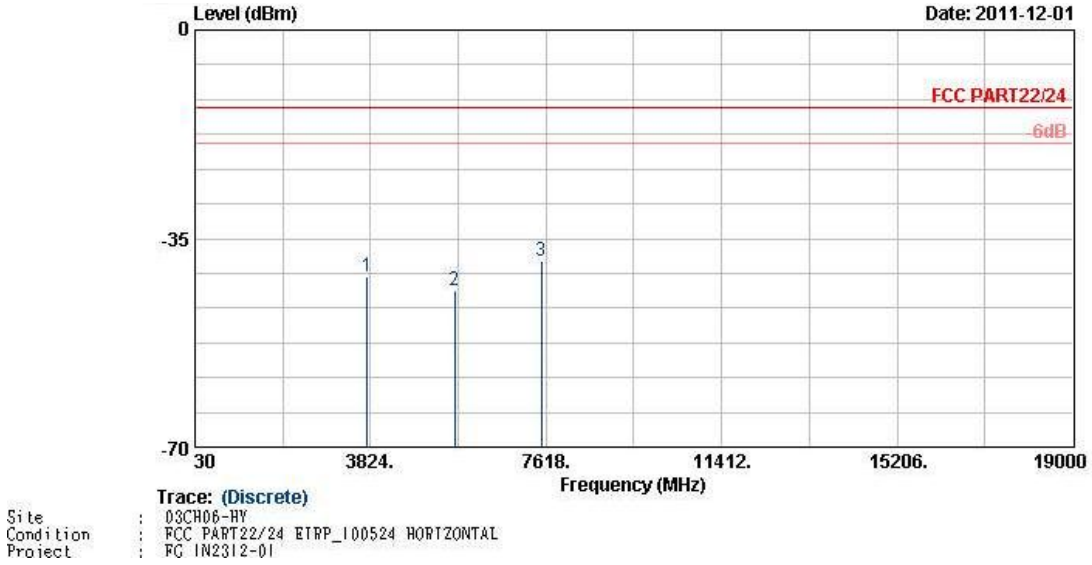
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-43.47	-13	-30.47	-62.38	-49.72	2.56	8.81	H	Pass
5636	-44.17	-13	-31.17	-68.36	-51.91	2.96	10.70	H	Pass
7520	-37.91	-13	-24.91	-66.23	-46.81	3.22	12.12	H	Pass

Band :	GSM1900	Temperature :	21~28°C
Test Mode :	GPRS 8 Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



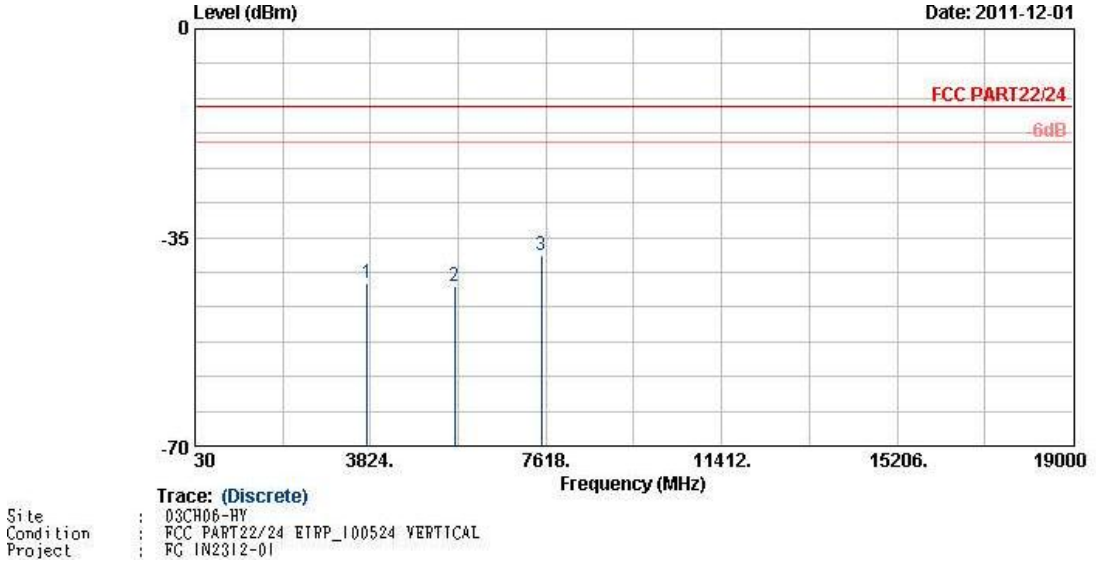
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-44.17	-13	-31.17	-63.08	-50.42	2.56	8.81	V	Pass
5636	-44.27	-13	-31.27	-68.46	-52.01	2.96	10.70	V	Pass
7520	-38.80	-13	-25.80	-67.13	-47.70	3.22	12.12	V	Pass

Band :	GSM1900	Temperature :	21~28°C
Test Mode :	EDGE 8 Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



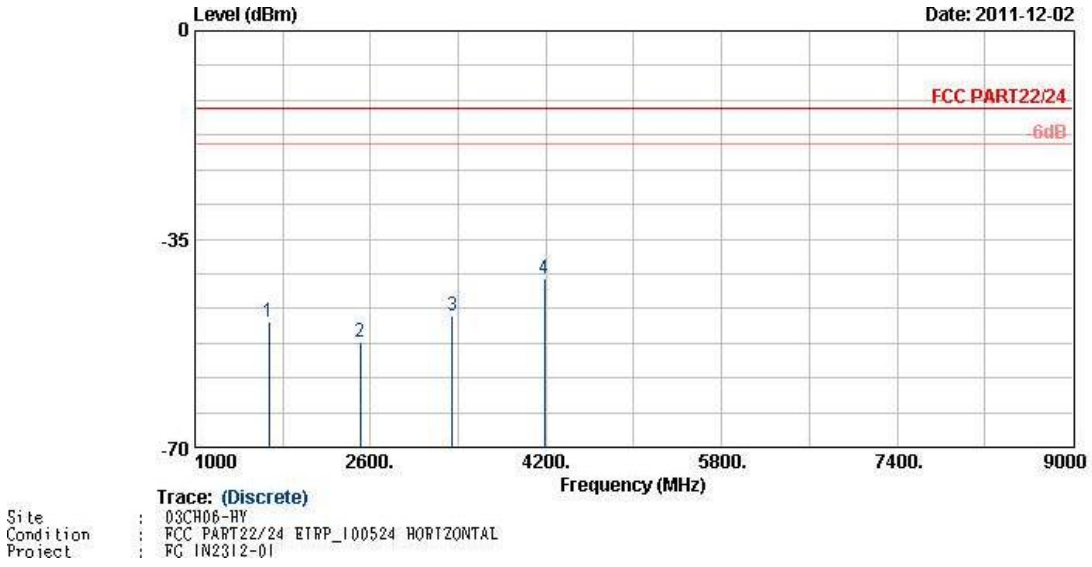
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-41.37	-13	-28.37	-60.28	-47.62	2.56	8.81	H	Pass
5636	-43.63	-13	-30.63	-67.82	-51.37	2.96	10.70	H	Pass
7520	-38.78	-13	-25.78	-67.11	-47.68	3.22	12.12	H	Pass

Band :	GSM1900	Temperature :	21~28°C
Test Mode :	EDGE 8 Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



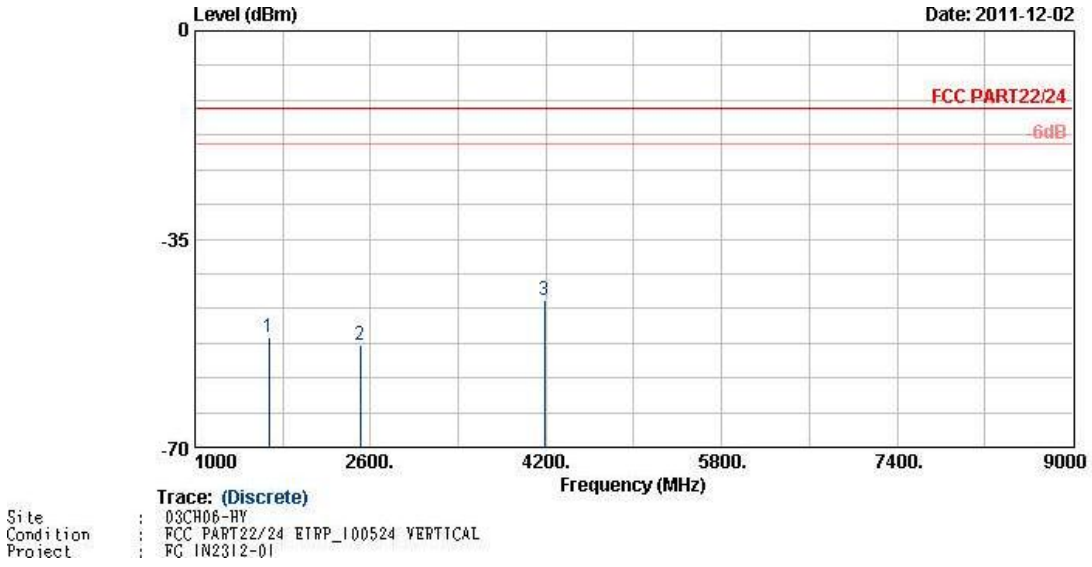
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-42.61	-13	-29.61	-61.52	-48.86	2.56	8.81	V	Pass
5636	-43.23	-13	-30.23	-67.42	-50.97	2.96	10.70	V	Pass
7520	-38.08	-13	-25.08	-66.40	-46.98	3.22	12.12	V	Pass

Band :	WCDMA Band V	Temperature :	21~28°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



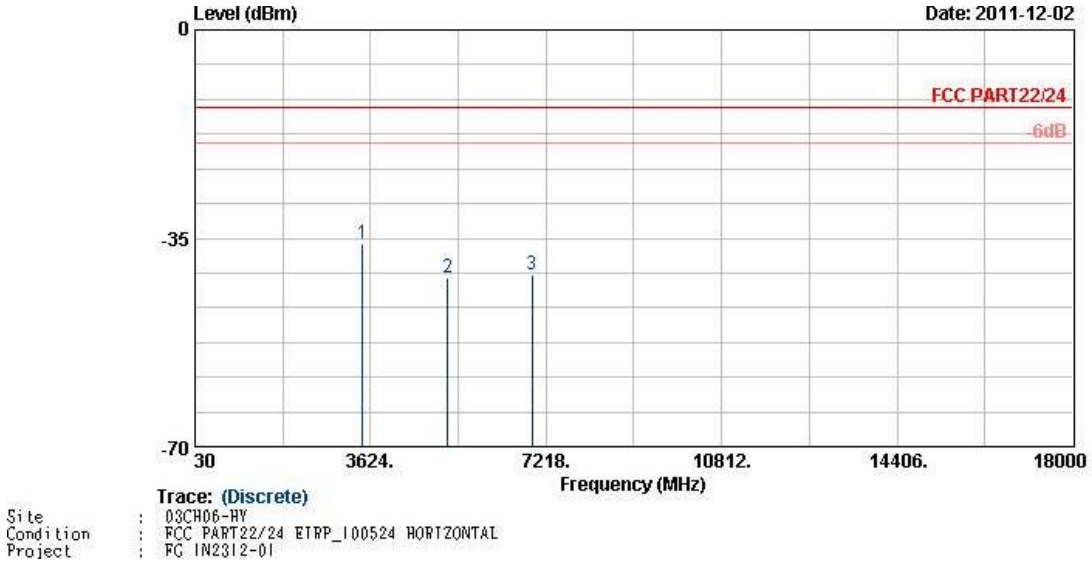
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-48.97	-13	-35.97	-58.55	-50.43	1.88	5.49	H	Pass
2509	-52.25	-13	-39.25	-63.89	-53.88	2.44	6.22	H	Pass
3345	-47.92	-13	-34.92	-63.10	-51.37	2.47	8.07	H	Pass
4182	-41.63	-13	-28.63	-59.91	-46.34	2.35	9.21	H	Pass

Band :	WCDMA Band V	Temperature :	21~28°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



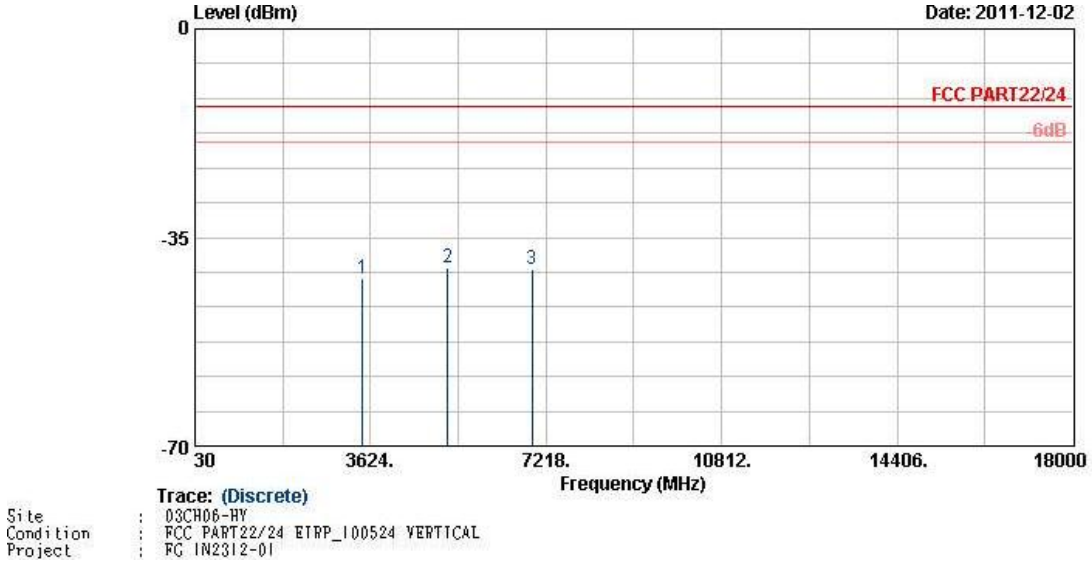
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-51.61	-13	-38.61	-60.18	-53.07	1.88	5.49	V	Pass
2509	-52.81	-13	-39.81	-64.45	-54.44	2.44	6.22	V	Pass
4182	-45.33	-13	-32.33	-63.67	-50.04	2.35	9.21	V	Pass

Band :	WCDMA Band IV	Temperature :	23~24°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	45~46%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



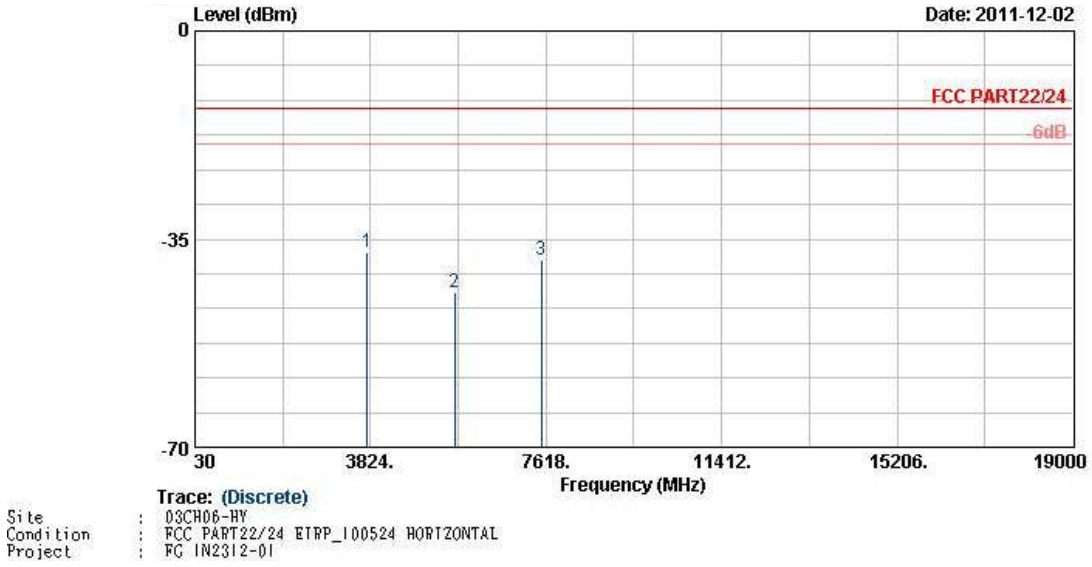
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3465	-35.95	-13	-22.95	-53.74	-39.78	4.48	8.31	H	Pass
5197	-41.72	-13	-28.72	-64.56	-46.36	5.33	9.98	H	Pass
6930	-41.16	-13	-28.16	-67.67	-46.40	6.10	11.34	H	Pass

Band :	WCDMA Band IV	Temperature :	23~24°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	45~46%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



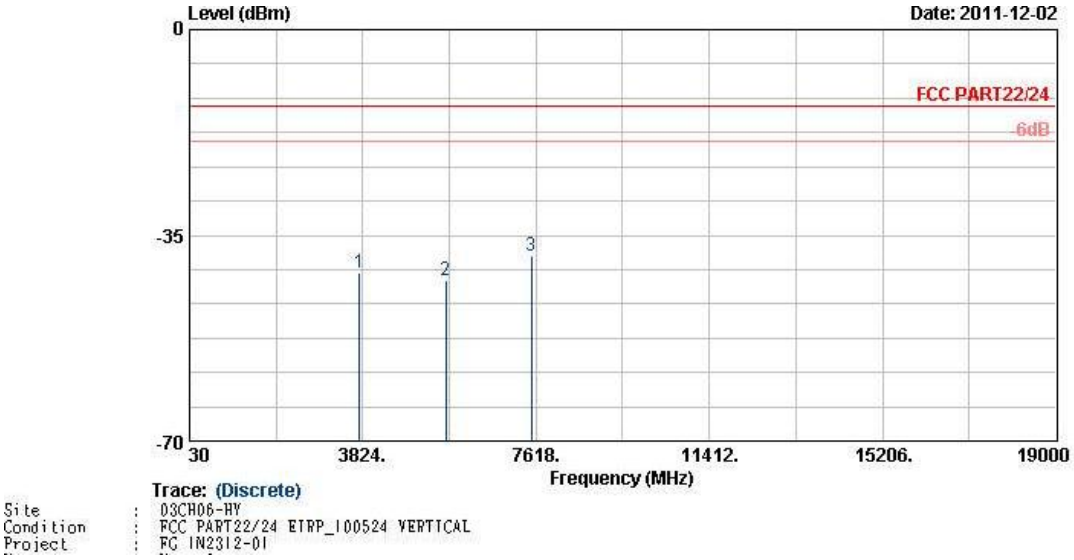
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3465	-41.94	-13	-28.94	-59.73	-45.77	4.48	8.31	V	Pass
5197	-40.02	-13	-27.02	-62.86	-44.66	5.33	9.98	V	Pass
6930	-40.31	-13	-27.31	-66.82	-45.55	6.10	11.34	V	Pass

Band :	WCDMA Band II	Temperature :	21~28°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-37.30	-13	-24.30	-56.21	-43.55	2.56	8.81	H	Pass
5636	-44.06	-13	-31.06	-68.25	-51.80	2.96	10.70	H	Pass
7520	-38.56	-13	-25.56	-66.89	-47.46	3.22	12.12	H	Pass

Band :	WCDMA Band II	Temperature :	21~28°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	50~59%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-41.36	-13	-28.36	-60.26	-47.61	2.56	8.81	V	Pass
5636	-42.73	-13	-29.73	-66.92	-50.47	2.96	10.70	V	Pass
7520	-38.60	-13	-25.60	-66.92	-47.50	3.22	12.12	V	Pass

3.7 Frequency Stability Measurement

3.7.1 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.

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

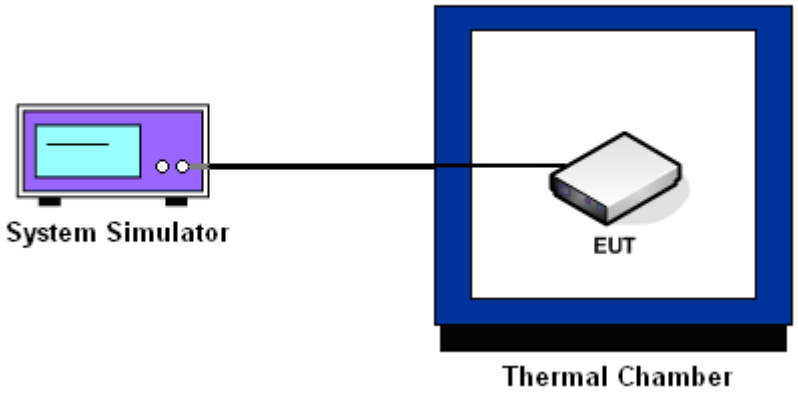
3.7.3 Test Procedures for Temperature Variation

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 can not be turned on at -30°C, the testing lowest temperature will be raised in 10°C step until the EUT can be turned on.

3.7.4 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.

3.7.5 Test Setup



3.7.6 Test Result of Temperature Variation

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

Temperature (°C)	GPRS 8		EDGE 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	N/A	N/A	N/A	N/A	PASS
-20	N/A	N/A	N/A	N/A	
-10	-51	-0.06	-61	-0.07	
0	-44	-0.05	-53	-0.06	
10	-41	-0.05	-48	-0.06	
20	-39	-0.05	-42	-0.05	
30	-32	-0.04	-45	-0.05	
40	-36	-0.04	-40	-0.05	
50	-31	-0.04	-39	-0.05	
55	-33	-0.04	-41	-0.05	

Note:

1. The EUT stops transmitting at temperatures -20°C and -30°C.
2. The manufacturer declared that the EUT could work properly between temperatures -10°C~55°C.

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

Temperature (°C)	GPRS 8		EDGE 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	N/A	N/A	N/A	N/A	PASS
-20	N/A	N/A	N/A	N/A	
-10	-59	-0.03	100	0.05	
0	-62	-0.03	103	0.05	
10	-57	-0.03	91	0.05	
20	-48	-0.03	82	0.04	
30	-49	-0.03	83	0.04	
40	-53	-0.03	77	0.04	
50	-44	-0.02	81	0.04	
55	-46	-0.02	84	0.04	

Note:

1. The EUT stops transmitting at temperatures -20°C and -30°C.
2. The manufacturer declared that the EUT could work properly between temperatures -10°C~55°C.

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

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	N/A	N/A	PASS
-20	N/A	N/A	
-10	-15	-0.02	
0	-14	-0.02	
10	-12	-0.01	
20	-10	-0.01	
30	-8	-0.01	
40	-9	-0.01	
50	-11	-0.01	
55	-10	-0.01	

Note:

1. The EUT stops transmitting at temperatures -20°C, and -30°C.
2. The manufacturer declared that the EUT could work properly between temperatures -10°C~55°C.

Band :	WCDMA Band IV	Channel :	1413
Limit (ppm) :	2.5		

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	N/A	N/A	PASS
-20	N/A	N/A	
-10	16	0.01	
0	-15	-0.01	
10	13	0.01	
20	9	0.01	
30	10	0.01	
40	7	0.00	
50	-6	0.00	
55	-8	0.00	

Note:

1. The EUT stops transmitting at temperatures -20°C, and -30°C
2. The manufacturer declared that the EUT could work properly between temperatures -10°C~55°C.

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

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	N/A	N/A	PASS
-20	N/A	N/A	
-10	20	0.01	
0	17	0.01	
10	13	0.01	
20	12	0.01	
30	14	0.01	
40	9	0.00	
50	8	0.00	
55	5	0.00	

Note:

1. The EUT stops transmitting at temperatures -20°C and -30°C
2. The manufacturer declared that the EUT could work properly between temperatures -10°C~55°C.

3.7.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GPRS 8	3.7	35	0.04	2.5	PASS
		BEP	36	0.04		
		4.2	-33	-0.04		
	EDGE 8	3.7	-41	-0.05		
		BEP	-38	-0.04		
		4.2	-48	-0.06		
GSM 1900 CH661	GPRS 8	3.7	-43	-0.02		
		BEP	-45	-0.02		
		4.2	-48	-0.03		
	EDGE 8	3.7	85	0.04		
		BEP	93	0.05		
		4.2	90	0.05		
WCDMA Band V CH4182	RMC 12.2Kbps	3.7	-10	-0.01		
		BEP	-8	-0.01		
		4.2	-12	-0.01		
WCDMA Band IV CH1413	RMC 12.2Kbps	3.7	-6	0.00		
		BEP	-7	0.00		
		4.2	11	0.01		
WCDMA Band II CH9400	RMC 12.2Kbps	3.7	8	0.00		
		BEP	10	0.01		
		4.2	14	0.01		

Note:

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.5 V.

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Dec. 05, 2011 ~ Dec. 13, 2011	Jul. 27, 2012	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Dec. 05, 2011 ~ Dec. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 27, 2011	Dec. 05, 2011 ~ Dec. 13, 2011	Jul. 26, 2012	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz~40GHz	Oct. 27, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	Oct. 26, 2012	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz~1000MHz	May 10, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	May 09, 2012	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz~2GHz	Oct. 22, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	Oct. 21, 2012	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 01, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	Jul. 31, 2012	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz~40GHz	Oct. 21, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	Oct. 20, 2012	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz~26.5GHz	Apr. 14, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 14, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
System Simulator	R&S	CMU200	114256	N/A	Feb. 15, 2011	Nov. 03, 2011 ~ Dec. 10, 2011	Feb. 14, 2012	Radiation (03CH06-HY)

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 EP1N2312-01 as below.