SGS-CSTC Standards Technical Services (Shanghai)Co., Ltd.

588 West Jindu Road, Songjiang District, Shanghai, China

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Fax: +86 (0) 21 6191 5655
Tino.Pan@sgs.com

TEST REPORT

Application No. :	SHEMO10070096602
Applicant:	Sagem Wireless
Address:	2, rue du Petit Albi BP 28250 95801 CERGY PONTOISE Cedex
FCC ID:	M9HMOV001
Equipment Under Test (EUT):	
Product Name:	MOV001
Brand Name:	Movilway
Model Name:	MOV001
Type Name:	Alexandra
Standards:	FCC Part 2, 22H & 24E
Date of Receipt:	Jul 28, 2010
Date of Test:	Jul 28, 2010 to Aug 13,2010
Date of Issue:	Aug 13,2010
Test Result :	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 2 of this report for further details.

Tino Pan
E&E Section Manager
SGS-CSTC(Shanghai) Co., Ltd.

Jack Wu
Project Engineer
SGS-CSTC(Shanghai) Co., Ltd.

2 Test Summary

Description of Test	FCC Rules	Result
RF Power Output	2.1046(a) 22.913(a) 24.232(c)	Compliant
99% Occupied Bandwidth	2.1049(h)	Compliant
Effective Isotropic Radiated Power	2.1046(a) 22.913(a) 24.232(c)	Compliant
Out of Band Emissions at antenna Terminals and Band Edge	2.1051 22.917(a) 24.238(a)	Compliant
Field Strength of Spurious Emissions	2.1053 22.917(a) 24.238(a)	Compliant
Frequency Stability vs. Temperature and Voltage	2.1055(a)&(d)	Compliant

3 Contents

4 General Information

4.1 Client Information

Applicant:	Sagem Wireless
Address of Applicant:	2, rue du Petit Albi BP 28250 95801 CERGY PONTOISE Cedex
Manufacturer:	Sagem Wireless
Address of Manufacturer:	2, rue du Petit Albi BP 28250 95801 CERGY PONTOISE Cedex

4.2 General Description of E.U.T.

Product Name:	MOV001
Model Name:	MOV001
Brand Name:	Movilway
Type Name:	Alexandra
Support Frequency Band:	GSM 850/1800/1900
Testing Frequency Band:	GSM 850/1900
Power Supply:	Model: FPS3PU, Reference: 179138558 (Input :100-240V~ 50/60 Hz, 0.2A, Output : 5.0 VDC, 550mA)
Battery:	ABD463450LA(BD-L4C) 900mAh Reference: 287303374

GSM 850/1900

	Operating frequency		Rated Power
Cellular phone standards Frequency Range and Power:	GSM/GPRS/E-GPRS 1900	1850MHz-1910MHz	30dBm
	GSM/GPRS/E-GPRS 850	824MHz-849MHz	33dBm
IMEI:	352808040003196, 352808040002958		
Hardware Version:	V0x		
Software Version:	EM, 010		

4.3 Test Location

Tests were performed at:

SGS-CSTC Standards Technical Services(Shanghai) Co., Ltd.
588 West Jindu Road, Songjiang District, Shanghai, China
Tel: +86 21 61915666 Fax: +86 21 61915655

4.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2011-07-29.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2012-03-17.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2011-09-29.

4.5 Test Methodogy

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA-603-C-2004 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

5 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2010-6-4	2011-6-3
2	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2010-6-4	2011-6-3
3	Horn Antenna	Rohde & Schwarz	HF906	100284	2010-4-11	2011-4-10
4	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2010-6-4	2011-6-3
5	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2009-10-9	2010-10-8
6	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY－2003P	--	2009-10-15	2010-10-14
7	CLAMP METER	FLUKE	316	86080010	2010-04-27	2011-04-26
8	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2009-10-15	2010-10-14
9	High-low temperature cabinet	Shanghai YuanZhen	GW2050	--	2010-6-18	2011-6-17
10	DC power	KIKUSUI	PMC35－3	NF100260	2010-1-16	2011-1-15
11	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2010-5-8	2011-5-7
12	Power meter	Rohde & Schwarz	NRP	101641	2010-5-5	2011-5-4
13	UNIVERSAL RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMU 200	112012	2009-08-25	2010-08-24
14	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT1800.0/2000.0-0.2/40-5SSK	11	2010-1-27	2011-1-26
15	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT800.0/880.0-0.2/40-5SSK	9	2010-1-27	2011-1-26
16	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2010-6-4	2011-6-3

6 Test Results

6.1 E.U.T. test conditions

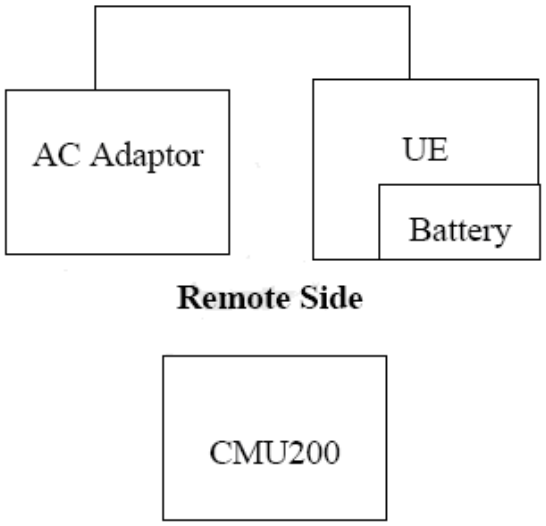
Operating Environment:

Temperature: 20.0 -25.0 °C

Humidity: 38-52% RH

Atmospheric Pressure: 992 -1010 mbar

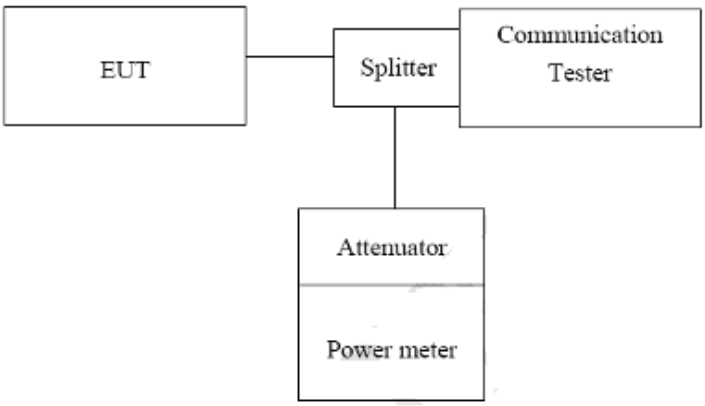
Configuration of Tested System:



6.2 RF Power Output

Test Requirement: 2.1046(a)
22.913(a) Mobile station are limited to 7 watts
24.232(c) Mobile and portable stations are limited to 2 watts

Test Setup



Measurement Setup for testing on Antenna connector.

Test Date: Aug 13, 2010

Test Status: Test lowest, middle, highest channel.

Test Procedure:

The transmitter output was connected to calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power in dBm. The power output at the transmitter antenna port was determined by adding the value of attenuator to the power meter reading.

RF Conducted output power:

GSM 850(GMSK) Result:

Frequency(MHz)	Channel:	Peak power (dBm)	AV power (dBm)
824.2	128	32.1	32.0
836.4	189	32.1	31.9
848.8	251	32.1	32.0

PCS 1900(GMSK) Result:

Frequency(MHz)	Channel:	Peak power (dBm)	AV power (dBm)
1850.2	512	28.4	28.3
1880.0	661	28.4	28.3
1909.8	810	28.6	28.5

6.3 Occupied Bandwidth

Test Requirement: 2.1049(h)

Test Date: Aug 03, 2010

Test Status: Test lowest, middle, highest channel.

Test Procedure:

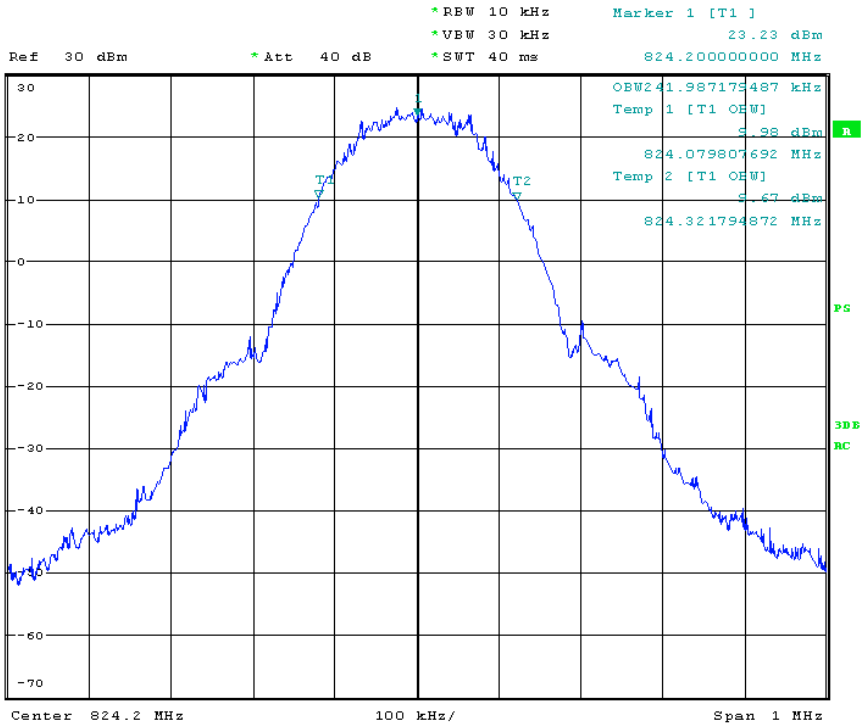
The EUT output RF connector was connected with a short a cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW>=3 times RBW, 99% bandwidth were measured, the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

Test result:

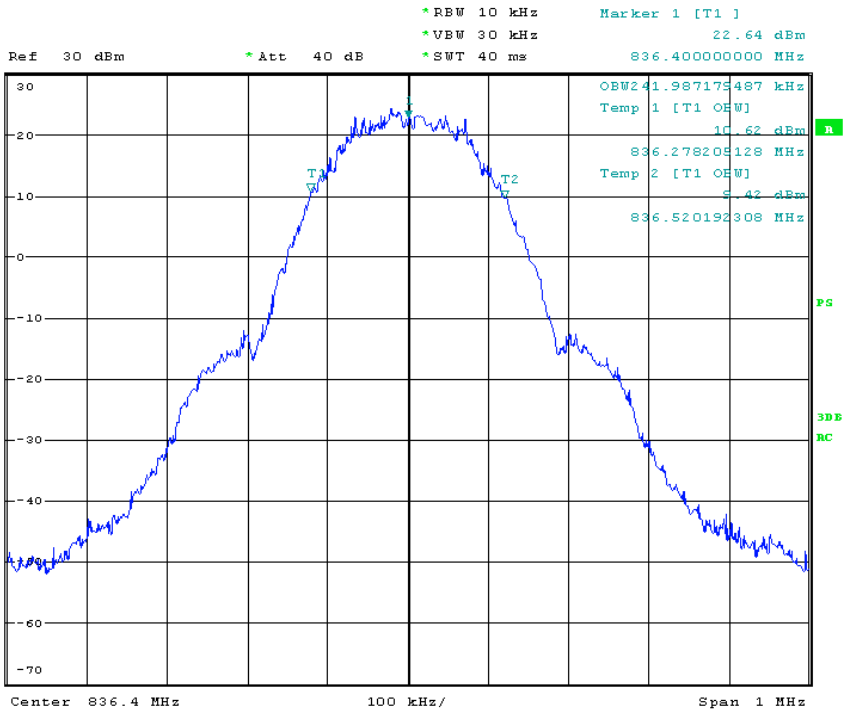
EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
GSM 850 GMSK	824.2	128	241.987
	836.4	189	241.987
	848.8	251	245.193
EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
PCS 1900 GMSK	1850.2	512	240.385
	1880.0	661	241.987
	1909.8	810	240.385

GSM 850 GMSK

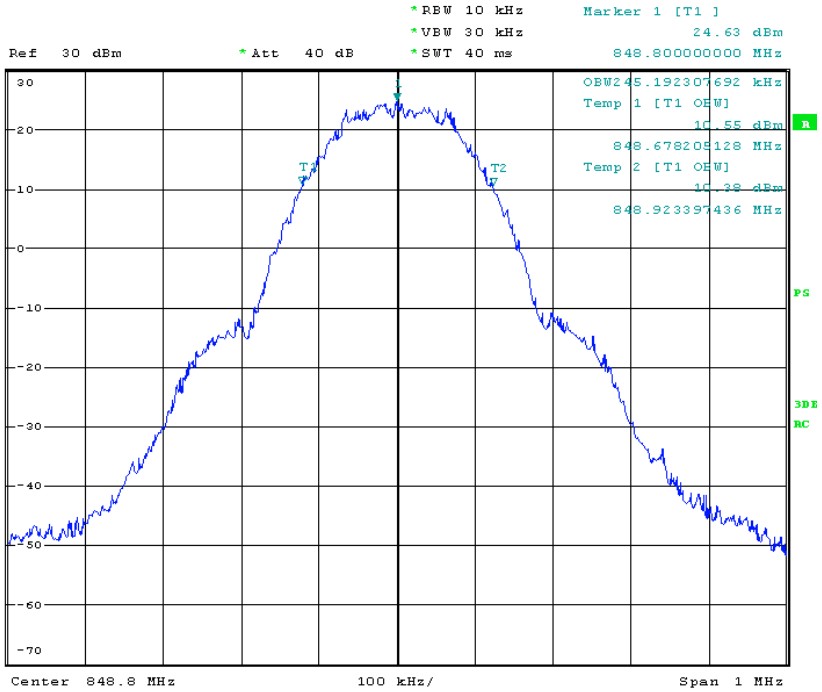
Graph: Channel Low



Channel Middle

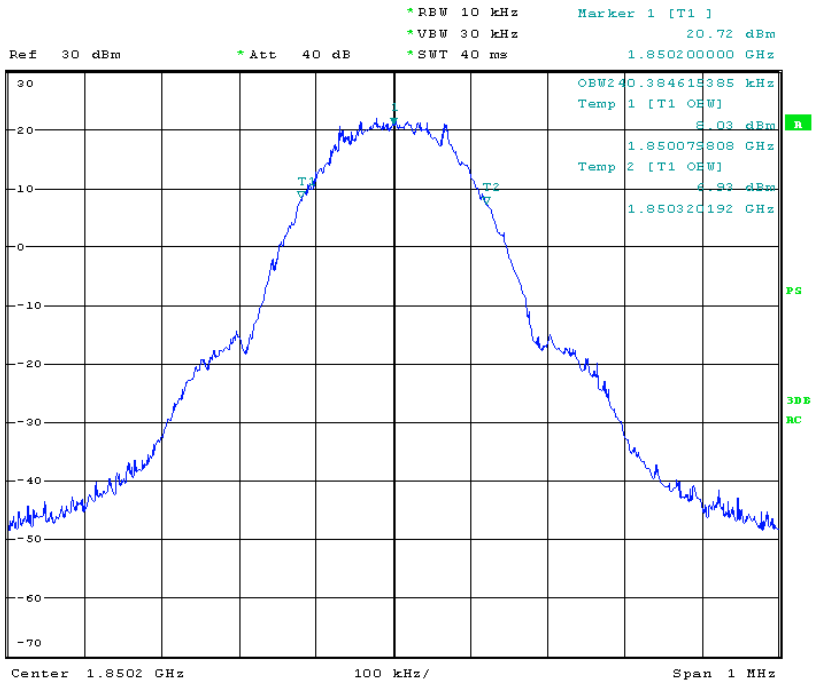


Channel High

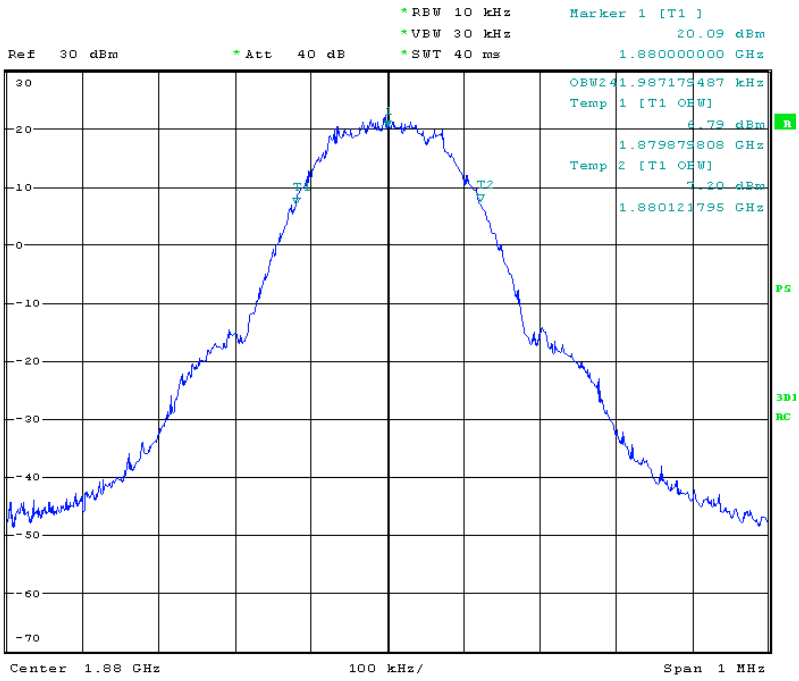


GSM 1900 GMSK

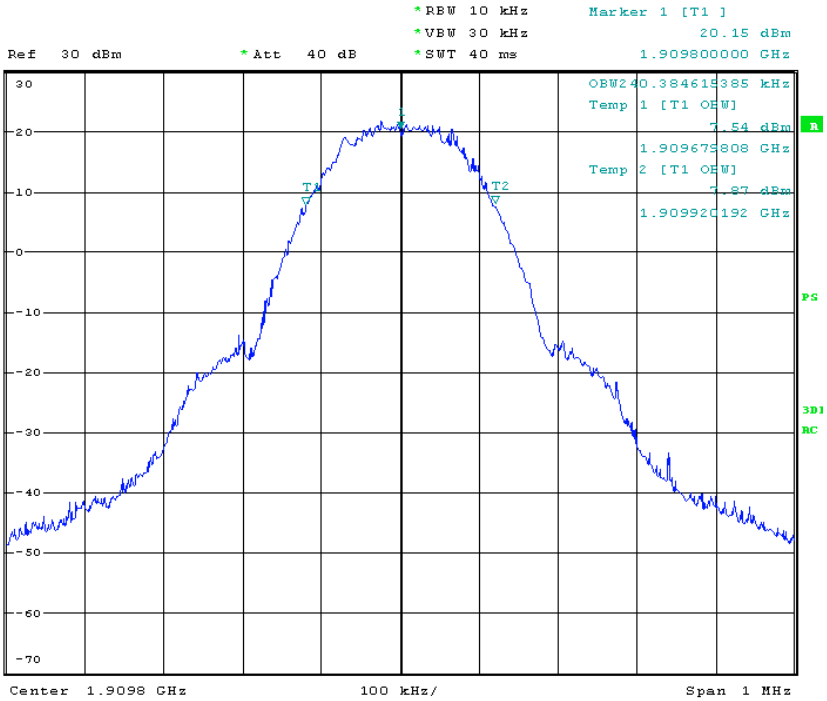
Graph: Channel Low



Channel Middle



Channel High



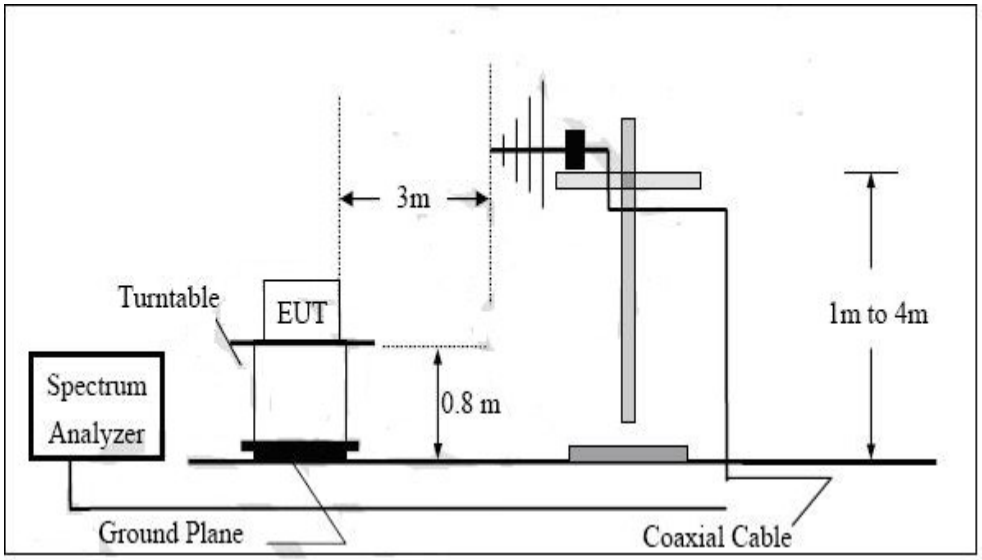
6.4 Effective Isotropic Radiated Power

Test Requirement: 2.1046(a)
22.913(a) Mobile station are limited to 7 watts
24.232(c) Mobile and portable stations are limited to 2 watts

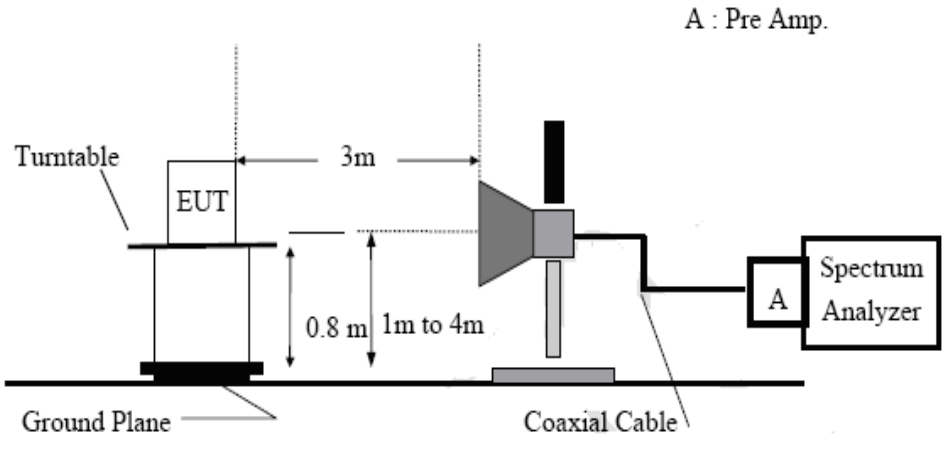
Test Date: Aug 05, 2010

Test Setup:

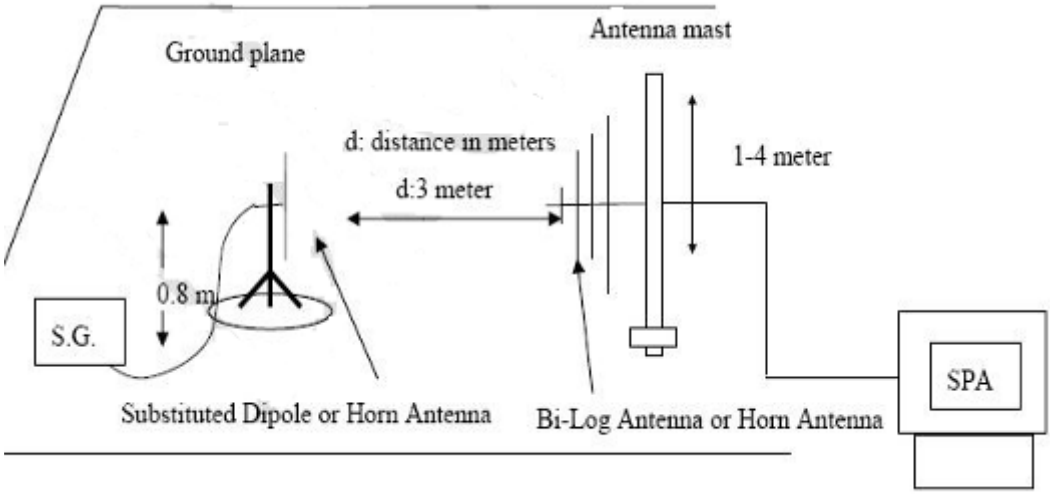
(A) Radiated emission Test setup, Below Frequency 1000MHz:



(B) Radiated emission Test setup frequency over 1GHz:



(C) Substituted Method Test setup:



Test Procedure:

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824.2-848.8MHz were measured using substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follow:

EIRP in frequency band 1850.5-1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP=S.G. output (dBm) + Antenna Gain (dBd) - Cable Loss(dB)

EIRP= S.G. output (dBm) + Antenna Gain (dBi) - Cable Loss(dB)

ERP/EIRP:GSM/PCS: Below 1GHz was RBW=300KHz, VBW=1MHz; Above 1GHz was RBW=1MHz, VBW=3MHz

Measurement result:
The RBW, VBW of SPA for frequency

Below 1GHz was RBW=300KHz, VBW=1MHz;

Above 1GHz was RBW=1MHz, VBW=3MHz.

EUT mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. output (dBm)	Antenna Gain (dBd)	Cable loss (dB)	ERP (dBm)	Limit (dBm)
GSM 850 GMSK	824.2	128	H	V	101.87	16.66	8.4	2.89	22.17	38.45
				H	103.46	19.35	8.4	2.89	24.86	38.45
	836.4	189	H	V	102.04	17.35	8.45	2.93	22.87	38.45
				H	105.34	21.11	8.45	2.93	26.63	38.45
	848.8	251	H	V	101.03	16.2	8.76	2.97	21.99	38.45
				H	105.11	20.72	8.76	2.97	26.51	38.45
EUT mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. output (dBm)	Antenna Gain (dBi)	Cable loss (dB)	EIRP (dBm)	Limit (dBm)
PCS 1900 GMSK	1850.2	512	H	V	102.65	18.85	9.15	4.45	23.55	33.00
				H	105.15	21.53	9.15	4.45	26.23	33.00
	1880.0	661	H	V	104.38	20.73	9.22	4.57	25.38	33.00
				H	105.63	22.29	9.22	4.57	26.94	33.00
	1909.8	810	H	V	102.59	18.69	9.25	4.48	23.46	33.00
				H	105.37	21.79	9.25	4.48	26.56	33.00

6.5 Out of band emissions at antenna Terminals

6.5.1 Band edges emissions

Test Requirement: Part 2.1051

The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

Test Date: Aug 03, 2010

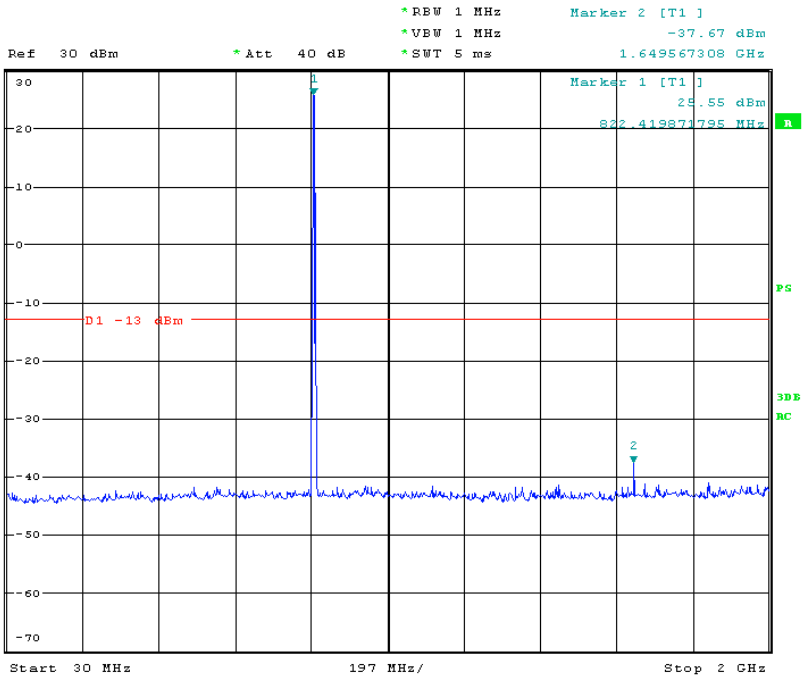
Test Procedure:

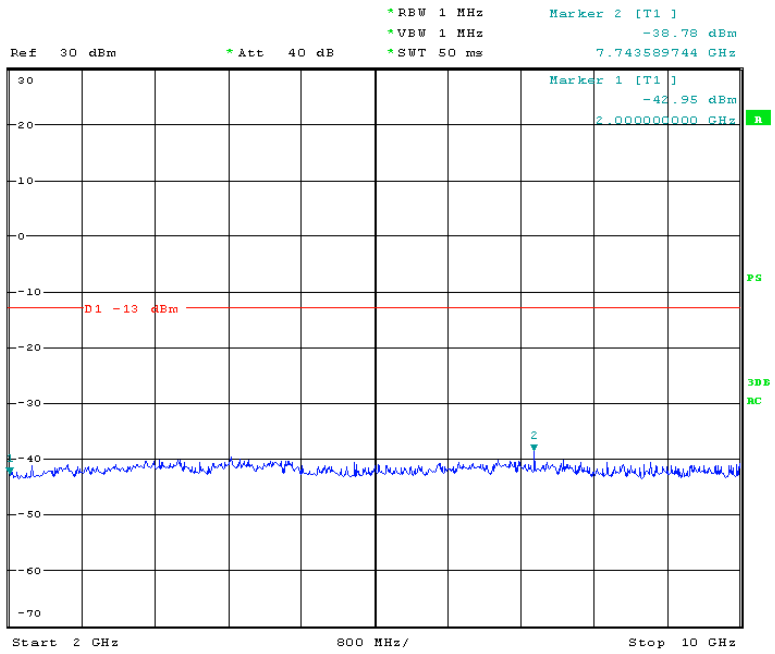
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic.

For the out of band: set RBW=1MHz, VBW=3MHz, stat=30MHz, stop= 10 th harmonic. Limit= --13dBm Band Edge requirements: In 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit=--13dBm.

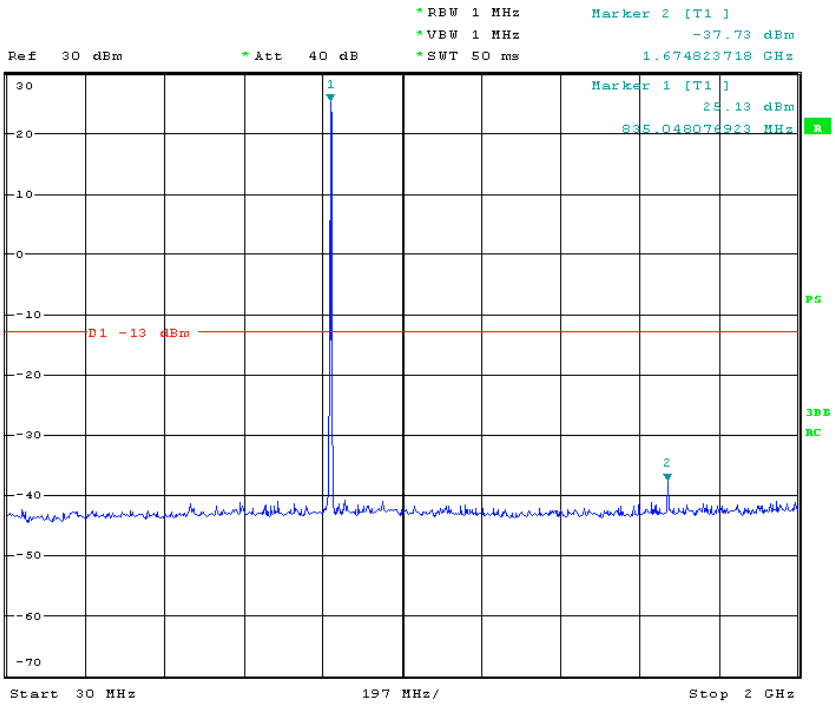
Measurement result: GSM 850 GMSK:

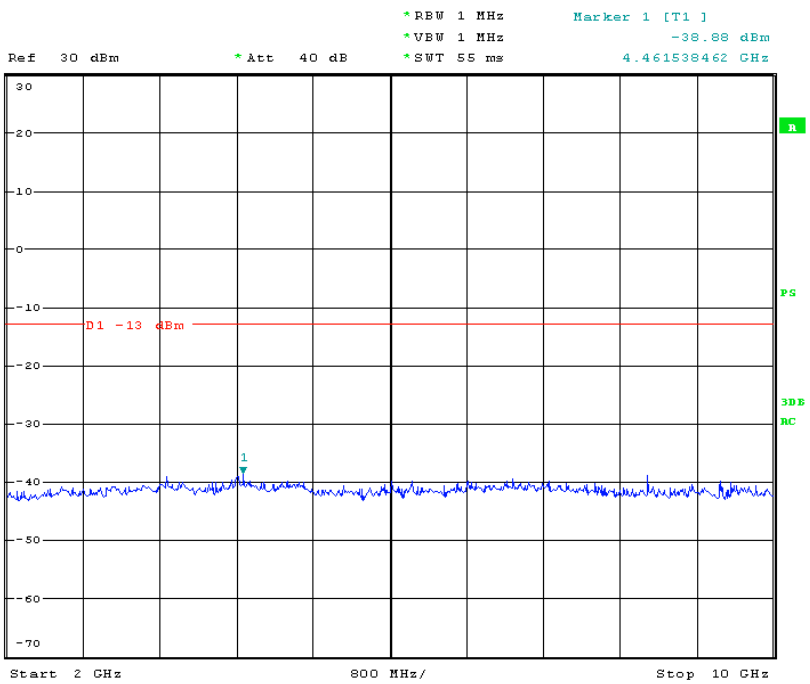
Channel Low



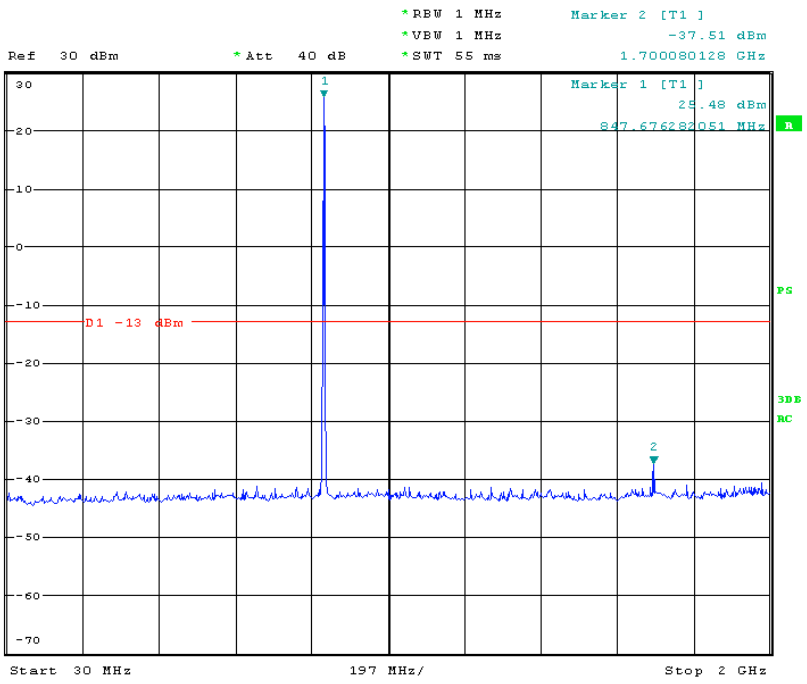


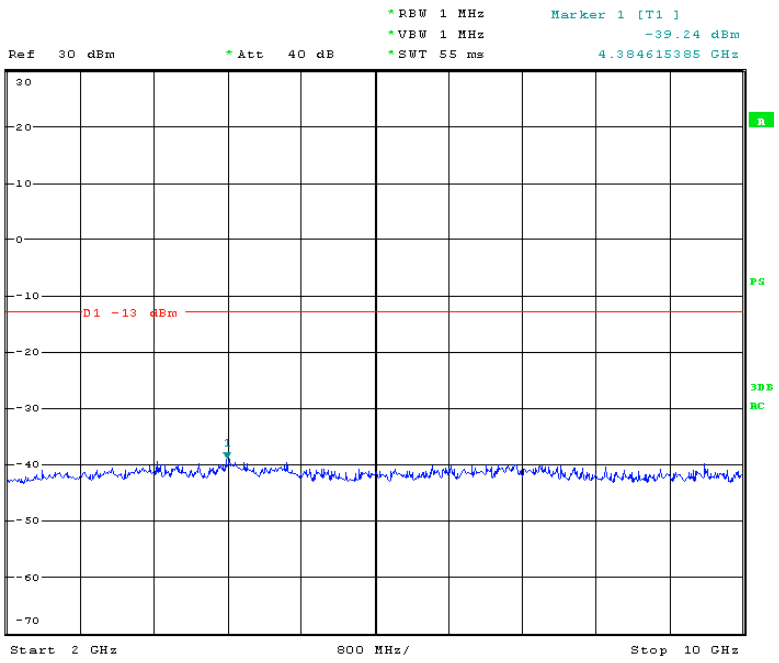
Channel Mid



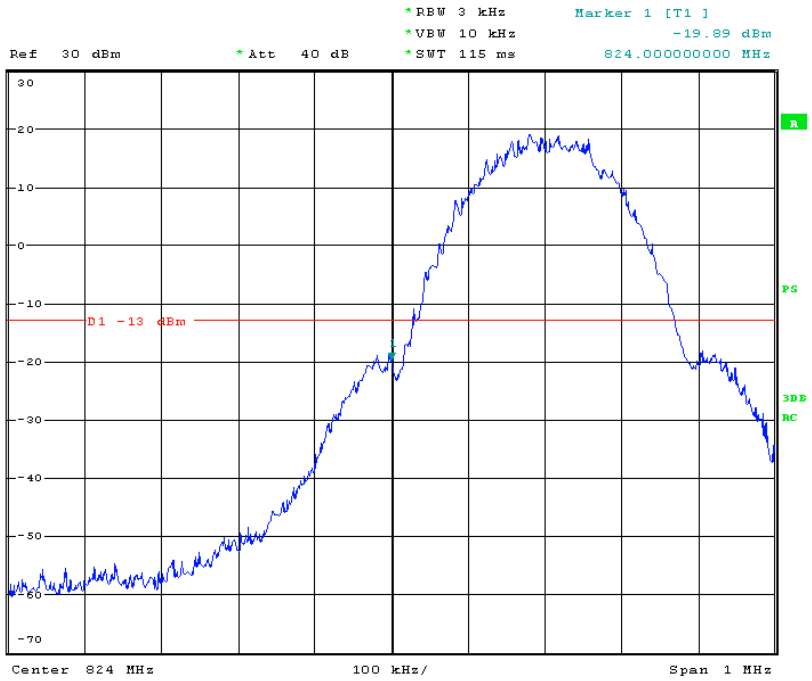


Channel High

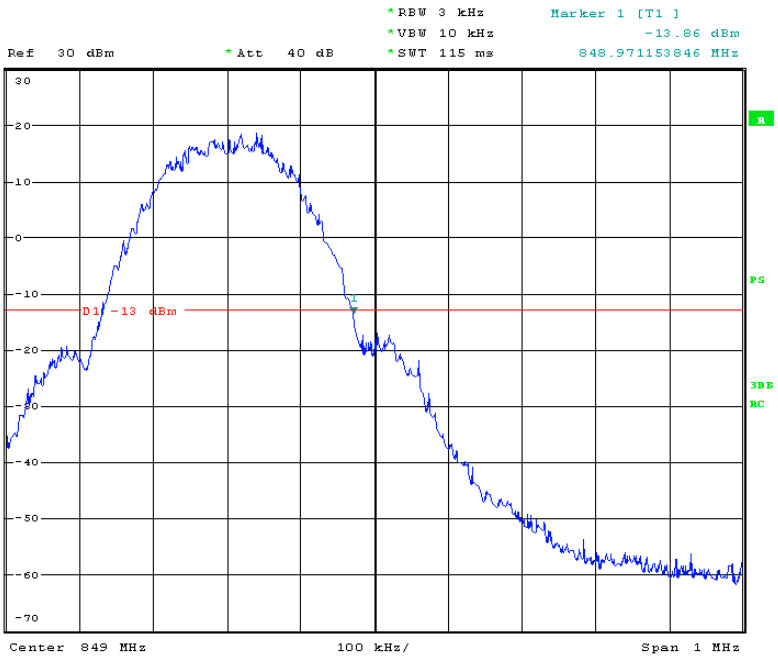




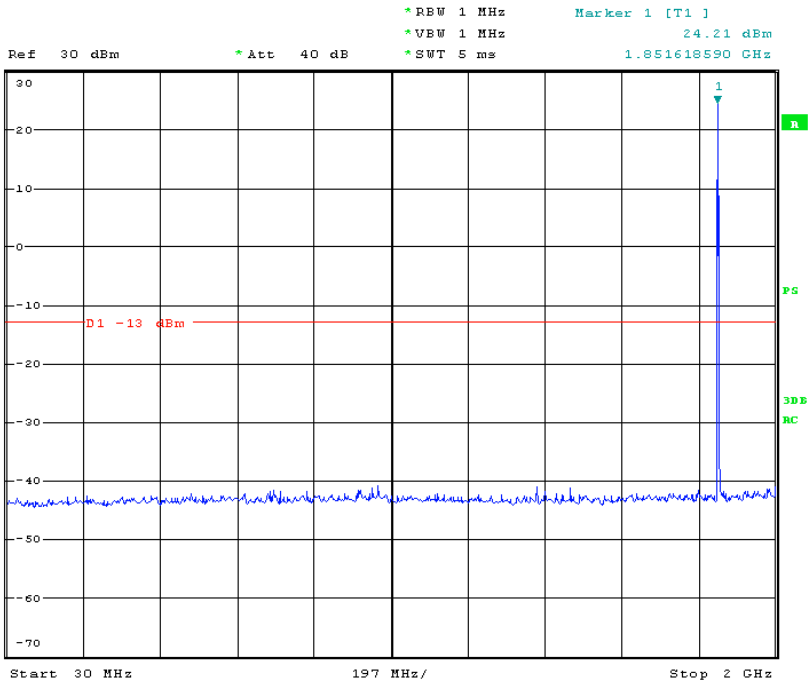
Band Edge emission Channel Low

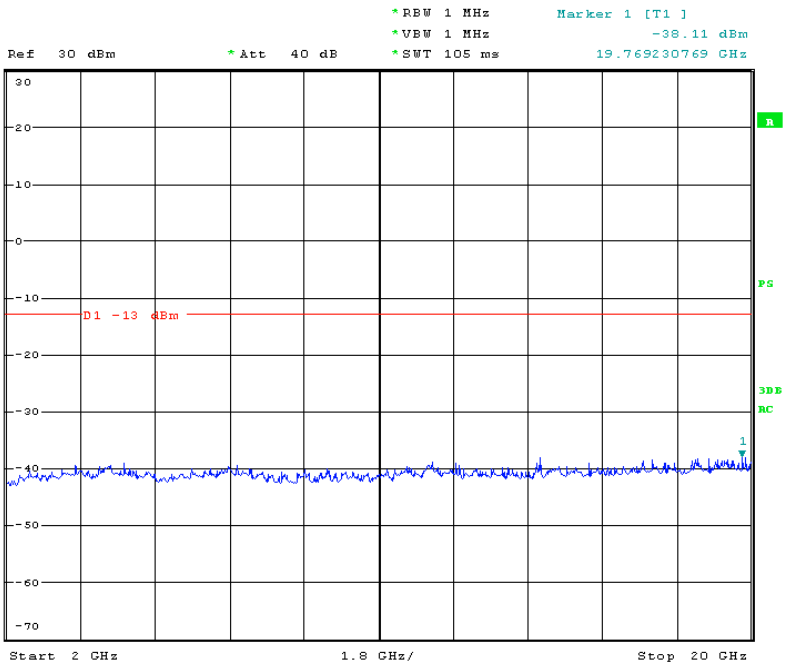


Band Edge emission Channel high

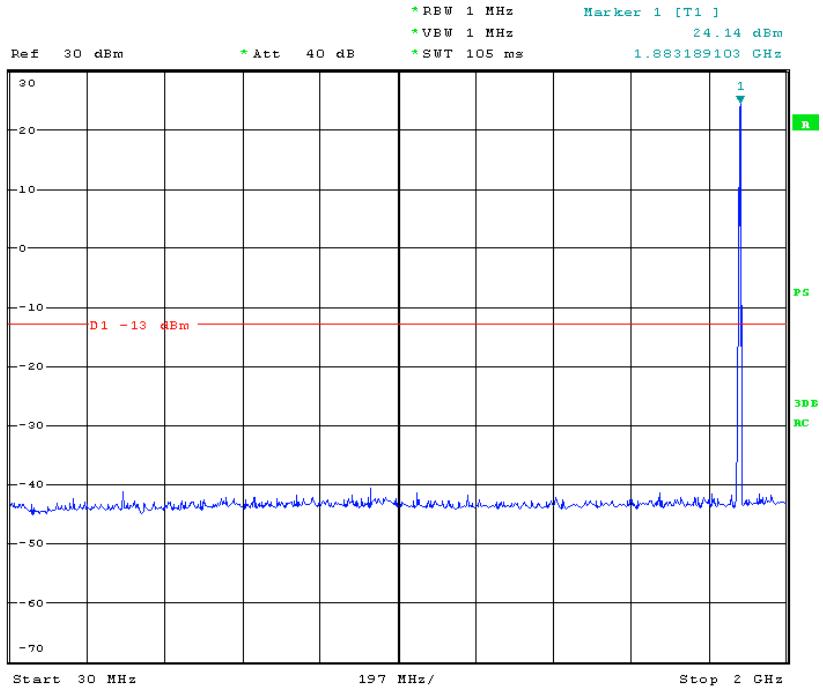


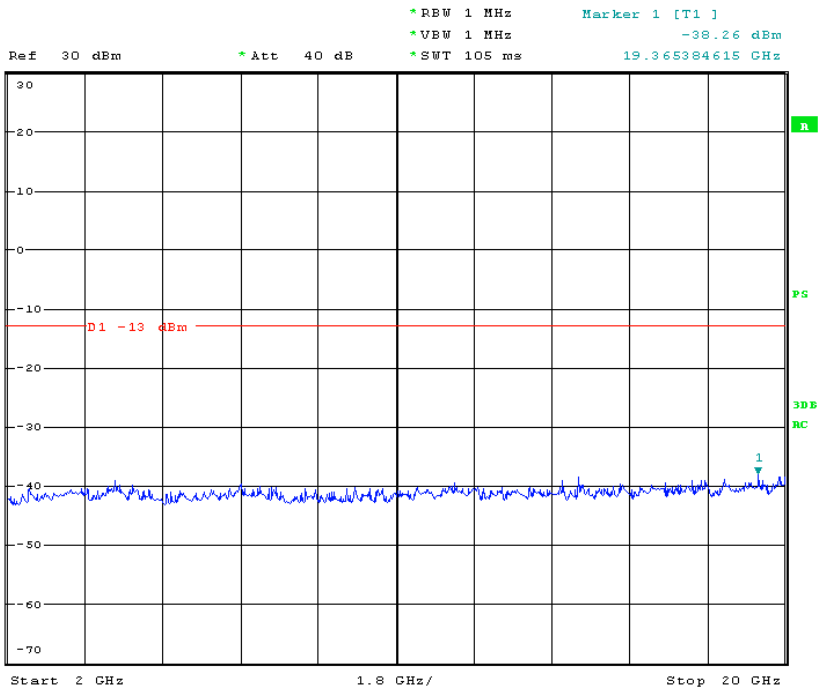
GSM 1900 GMSK：Channel Low



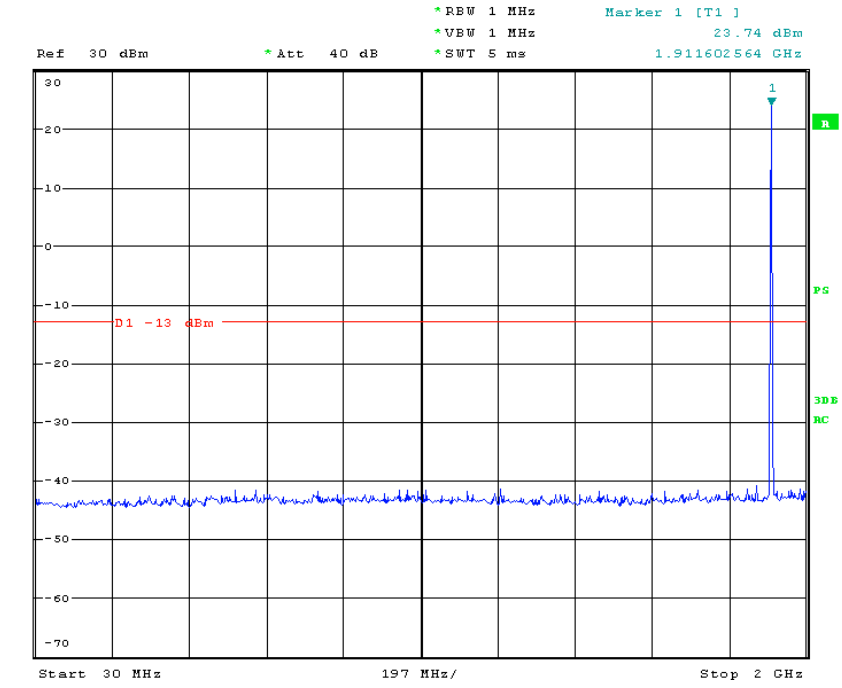


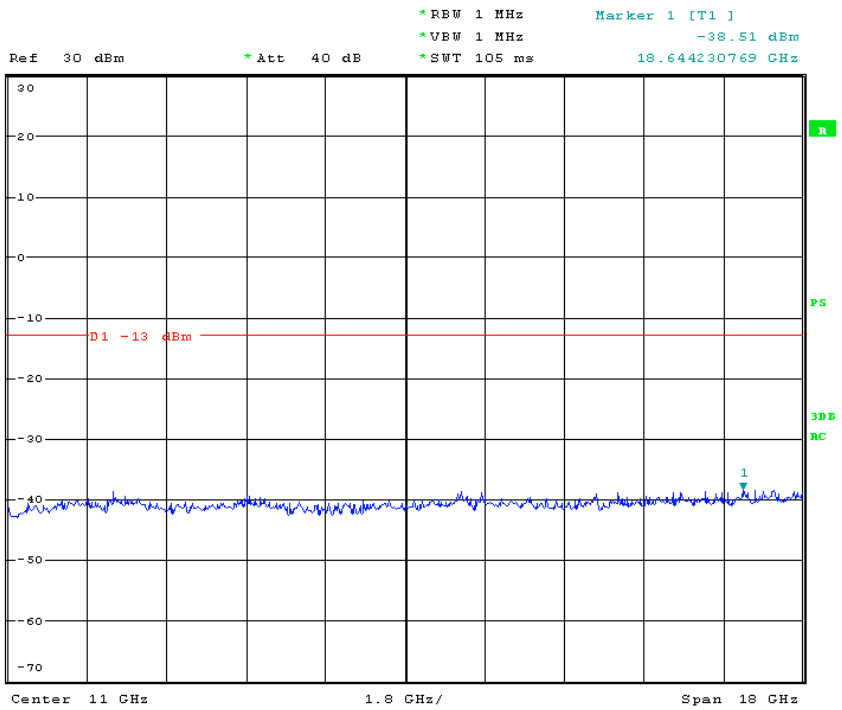
Channel Mid



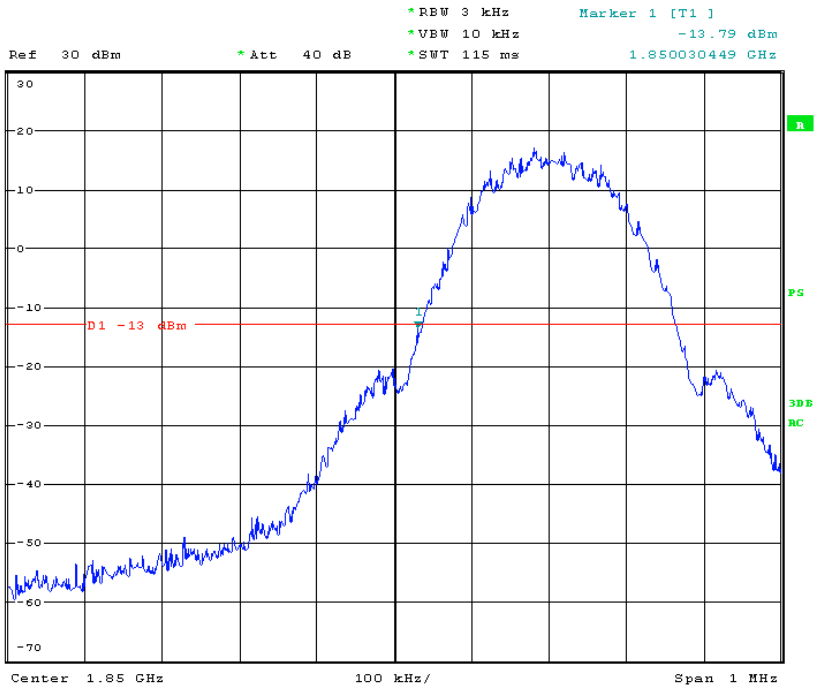


Channel High

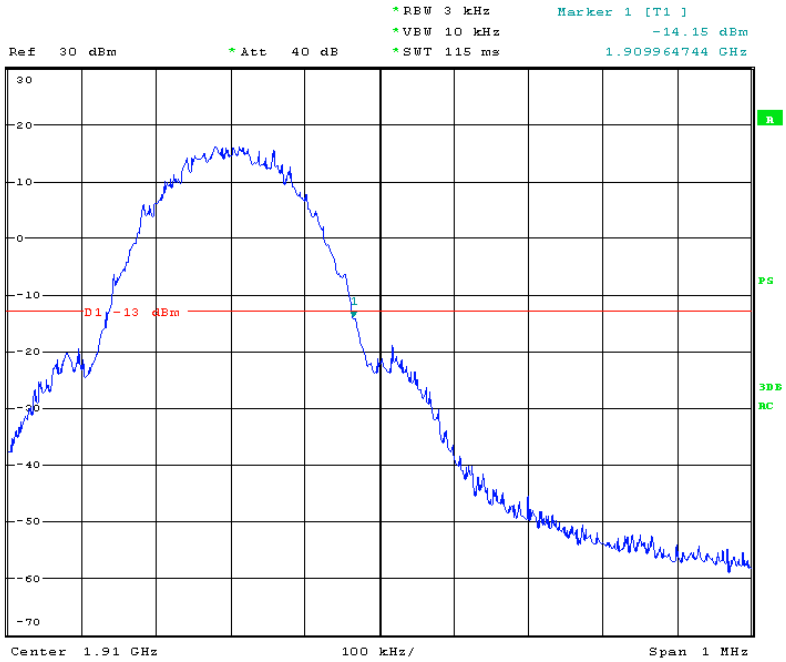




Band Edge emission Channel Low



Band Edge emission Channel high



6.6 Field Strength of Radiated Spurious Emissions

Test Requirement: Part 2.1051

The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specification in the instruction manual and/or alignment procedure, shall not be less than 43+10log(Mean power in watts) dBc below the mean power output outside a license's frequency block(-13dBm).

Test Date: Aug 05, 2010

Test Procedure:

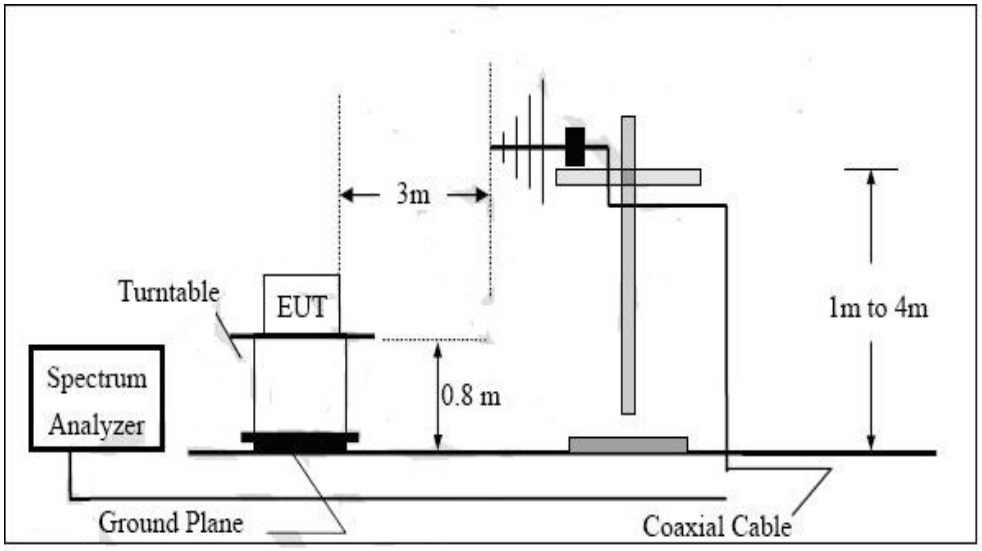
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic.

For the out of band: set RBW, VBW=1MHz, stat=30MHz, stop= 10 th harmonic. Limit= --13dBm.

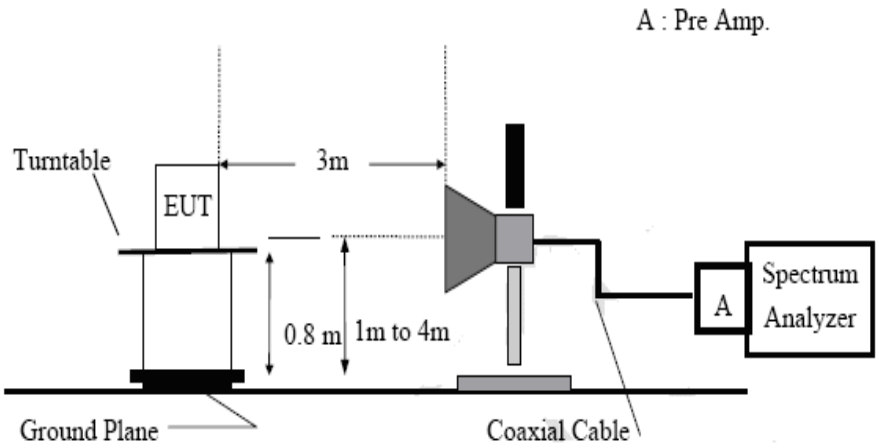
Band Edge requirements: In 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit=--13dBm.

Test Setup:

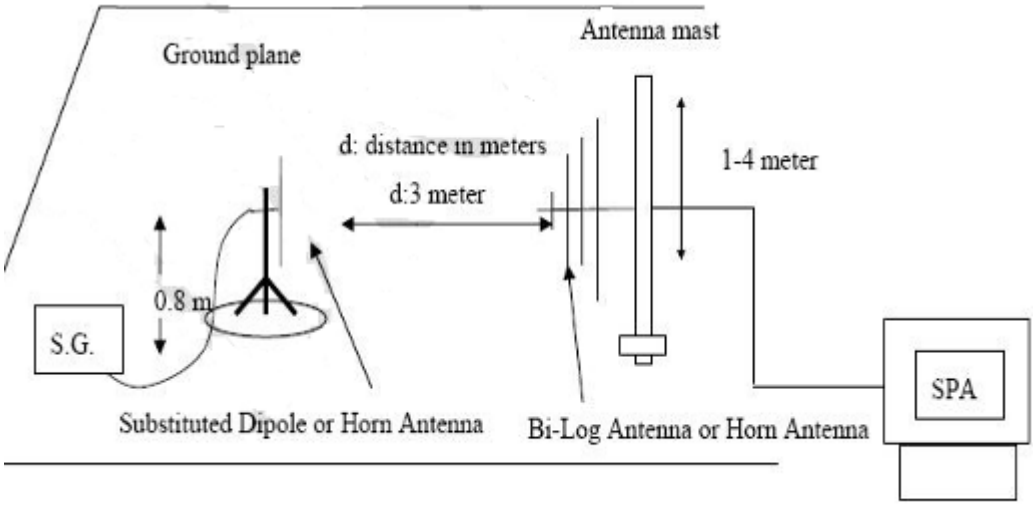
(A) Radiated emission Test setup, Below Frequency 1000MHz:



(B) Radiated emission Test setup frequency over 1GHz:



(C) Substituted Method Test setup:



Test Procedure:

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824.2-848.8MHz were measured using substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follow:

ERP in frequency band 1710-1755MHz and 1850.5-1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP=S.G. output (dBm) + Antenna Gain (dBd)-Cable Loss (dB)
EIRP=S.G. output (dBm) + Antenna Gain (dBi)-Cable Loss (dB)

Radiated spurious Emission Measurement Result: GSM 850 mode

Operation mode: TX CH Low mode

Fundamental Frequency: 824.2MHz

Frequency (MHz)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100.0	H	-54.14	2.6	1	-52.54	-13.0	39.54
200.0	H	-56.66	9.1	1.42	-48.98	-13.0	35.98
800.0	H	-55.15	8.7	2.86	-49.31	-13.0	36.31
1648.4	H	-47.55	6.95	4.17	-44.77	-13.0	31.77
2472.6	H	-40.46	8.35	5.24	-37.35	-13.0	24.35
3296.8	H	-49.7	8.15	6.11	-47.66	-13.0	34.66
4121.0	H	-49.75	8.45	6.94	-48.24	-13.0	35.24
100.0	V	-52.06	2.6	1	-50.46	-13.0	37.46
200.0	V	-55.01	9.1	1.42	-47.33	-13.0	34.33
800.0	V	-54.23	8.7	2.86	-48.39	-13.0	35.39
1648.4	V	-46.11	6.95	4.17	-43.33	-13.0	30.33
2472.6	V	-48.2	8.35	5.24	-45.09	-13.0	32.09
3296.8	V	-50.02	8.15	6.11	-47.98	-13.0	34.98
4121.0	V	-49.16	8.45	6.94	-47.65	-13.0	34.65

Remark:

1 emission behaviors belong to narrowband spurious emission.

2 The result basic equation calculation is as follow:

ERP/EIRP(dBm)=S.G. Output(dBm) + Antenna Gain(dBd/dBi)-Cable Loss

Radiated spurious Emission Measurement Result: GSM 850 mode

Operation mode: TX CH Mid mode

Fundamental Frequency: 836.40MHz

Frequency (MHz)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100.0	H	-53.47	2.6	1	-51.87	-13.0	38.87
200.0	H	-55.76	9.1	1.42	-48.08	-13.0	35.08
800.0	H	-55.39	8.7	2.86	-49.55	-13.0	36.55
1672.8	H	-43.97	6.95	4.2	-41.22	-13.0	28.22
2509.2	H	-37.37	8.35	5.36	-34.38	-13.0	21.38
3345.6	H	-49.4	8.15	6.25	-47.5	-13.0	34.5
4182.0	H	-49.24	8.45	6.98	-47.77	-13.0	34.77
100.0	V	-52.64	2.6	1	-51.04	-13.0	38.04
200.0	V	-55.89	9.1	1.42	-48.21	-13.0	35.21
800.0	V	-54.61	8.7	2.86	-48.77	-13.0	35.77
1672.8	V	-44.86	6.95	4.2	-42.11	-13.0	29.11
2509.2	V	-35.09	8.35	5.36	-32.1	-13.0	19.1
3345.6	V	-49.46	8.15	6.25	-47.56	-13.0	34.56
4182.0	V	-48.58	8.45	6.98	-47.11	-13.0	34.11

Remark:

1 emission behaviors belong to narrowband spurious emission.

2 The result basic equation calculation is as follow:

ERP/EIRP(dBm)=S.G. Output(dBm) + Antenna Gain(dBd/dBi)-Cable Loss

Radiated spurious Emission Measurement Result: GSM 850 mode

Operation mode: TX CH High mode

Fundamental Frequency: 848.8MHz

Frequency (MHz)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100.0	H	-53.61	2.6	1	-52.01	-13.0	39.01
200.0	H	-56.81	9.1	1.42	-49.13	-13.0	36.13
800.0	H	-54.75	8.7	2.86	-48.91	-13.0	35.91
1697.6	H	-42.78	6.95	4.22	-40.05	-13.0	27.05
2546.4	H	-40.4	8.35	5.39	-37.44	-13.0	24.44
3395.2	H	-50.06	8.15	6.35	-48.26	-13.0	35.26
4244.0	H	-49.44	8.45	7.04	-48.03	-13.0	35.03
100.0	V	-52.28	2.6	1	-50.68	-13.0	37.68
200.0	V	-55.89	9.1	1.42	-48.21	-13.0	35.21
800.0	V	-53.76	8.7	2.86	-47.92	-13.0	34.92
1697.6	V	-43.27	6.95	4.22	-40.54	-13.0	27.54
2546.4	V	-44.29	8.35	5.39	-41.33	-13.0	28.33
3395.2	V	-49.52	8.15	6.35	-47.72	-13.0	34.72
4244.0	V	-49.43	8.45	7.04	-48.02	-13.0	35.02

Remark:

1 emission behaviors belong to narrowband spurious emission.

2 The result basic equation calculation is as follow:

ERP/EIRP(dBm)=S.G. Output(dBm) + Antenna Gain(dBd/dBi)-Cable Loss

Radiated spurious Emission Measurement Result: PCS 1900 mode

Operation mode: TX CH Low mode

Fundamental Frequency: 1850.2MHz

Frequency (MHz)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100.0	H	-53.22	2.6	1	-51.62	-13.0	38.62
200.0	H	-56.6	9.1	1.42	-48.92	-13.0	35.92
800.0	H	-53.06	8.7	2.86	-47.22	-13.0	34.22
1800.0	H	-48.94	7	4.38	-46.32	-13.0	33.32
3700.4	H	-44.78	8.35	6.77	-43.2	-13.0	30.2
5550.6	H	-47.72	9.55	8.1	-46.27	-13.0	33.27
7400.8	H	-47.76	9.75	9.51	-47.52	-13.0	34.52
9251.0	H	-47.58	10.55	11.08	-48.11	-13.0	35.11
100.0	V	-52.04	2.6	1	-50.44	-13.0	37.44
200.0	V	-55.6	9.1	1.42	-47.92	-13.0	34.92
800.0	V	-53.99	8.7	2.86	-48.15	-13.0	35.15
1800.0	V	-50.54	7	4.38	-47.92	-13.0	34.92
3700.4	V	-47.47	8.35	6.77	-45.89	-13.0	32.89
5550.6	V	-40.29	9.55	8.1	-38.84	-13.0	25.84
7400.8	V	-46.58	9.75	9.51	-46.34	-13.0	33.34
9251.0	V	-47.13	10.55	11.08	-47.66	-13.0	34.66

Remark:

1 emission behaviors belong to narrowband spurious emission.

2 The result basic equation calculation is as follow:

ERP/EIRP(dBm)=S.G. Output(dBm) + Antenna Gain(dBd/dBi)-Cable Loss

Radiated spurious Emission Measurement Result: PCS 1900 mode

Operation mode: TX CH mid mode

Fundamental Frequency: 1880.0MHz

Frequency (MHz)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100	H	-53.61	2.6	1	-52.01	-13.0	39.01
200	H	-56.4	9.1	1.42	-48.72	-13.0	35.72
800	H	-53.65	8.7	2.86	-47.81	-13.0	34.81
1800	H	-49.95	7	4.38	-47.33	-13.0	34.33
3760.0	H	-47.84	8.42	6.84	-46.26	-13.0	33.26
5640.0	H	-46.74	9.5	8.31	-45.55	-13.0	32.55
7520.0	H	-46.95	9.78	9.6	-46.77	-13.0	33.77
9400.0	H	-47.94	10.61	11.32	-48.65	-13.0	35.65
100.0	V	-52.71	2.6	1	-51.11	-13.0	38.11
200.0	V	-55.6	9.1	1.42	-47.92	-13.0	34.92
800.0	V	-53.13	8.7	2.86	-47.29	-13.0	34.29
1800.0	V	-48.95	7	4.38	-46.33	-13.0	33.33
3760.0	V	-48.6	8.42	6.84	-47.02	-13.0	34.02
5640.0	V	-47.95	9.5	8.31	-46.76	-13.0	33.76
7520.0	V	-45.57	9.78	9.6	-45.39	-13.0	32.39
9400.0	V	-47.34	10.61	11.32	-48.05	-13.0	35.05

Remark:

1 emission behaviors belong to narrowband spurious emission.

2 The result basic equation calculation is as follow:

ERP/EIRP(dBm)=S.G. Output(dBm) + Antenna Gain(dBd/dBi)-Cable Loss

Radiated spurious Emission Measurement Result: PCS 1900 mode

Operation mode: TX CH High mode

Fundamental Frequency: 1909.8MHz

Frequency (MHz)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100.0	H	-53.04	2.6	1	-51.44	-13	38.44
200.0	H	-55.93	9.1	1.42	-48.25	-13	35.25
800.0	H	-53.75	8.7	2.86	-47.91	-13	34.91
1800.0	H	-48.84	7	4.38	-46.22	-13	33.22
3981.6	H	-48.9	8.42	6.88	-47.36	-13	34.36
5972.4	H	-47.63	9.5	8.48	-46.61	-13	33.61
7963.2	H	-49.82	9.78	9.7	-49.74	-13	36.74
9954	H	-46.59	10.61	11.64	-47.62	-13	34.62
100.0	V	-52.52	2.6	1	-50.92	-13	37.92
200.0	V	-55.6	9.1	1.42	-47.92	-13	34.92
800.0	V	-52.64	8.7	2.86	-46.8	-13	33.8
1800.0	V	-49.14	7	4.38	-46.52	-13	33.52
3981.6	V	-46.59	8.42	6.88	-45.05	-13	32.05
5972.4	V	-48.55	9.5	8.48	-47.53	-13	34.53
7963.2	V	-45.8	9.78	9.7	-45.72	-13	32.72
9954.0	V	-46.76	10.61	11.64	-47.79	-13	34.79

Remark:

1 emission behaviors belong to narrowband spurious emission.

2 The result basic equation calculation is as follow:

ERP/EIRP(dBm)=S.G. Output(dBm) + Antenna Gain(dBd/dBi)-Cable Loss

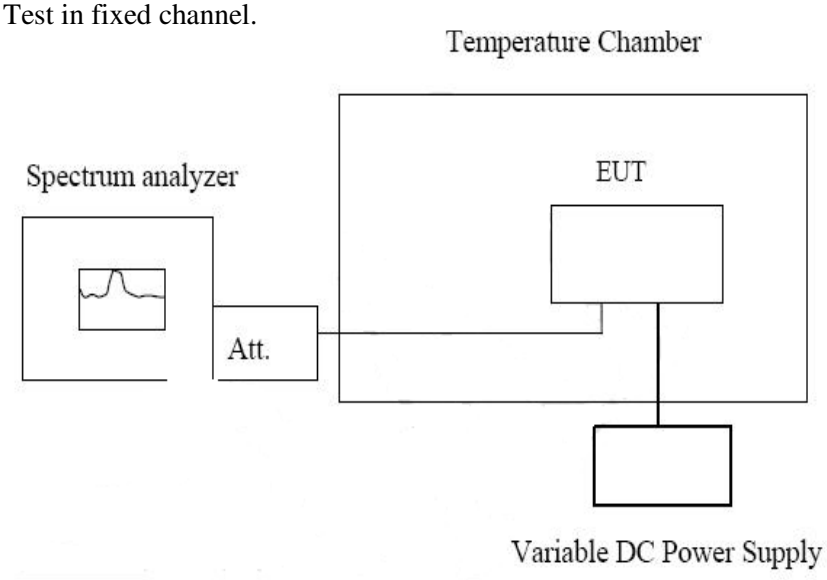
6.7 Frequency Stability V.S. TEMPERATURE MEASUREMENT

Test Requirement: Part 2.1055(a)(1)

Test Date: Aug 06, 2010

Test Status: Test in fixed channel.

Test Setup:



Note: Measurement setup for testing On antenna connector.

Test procedure:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the Spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25 degree operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30 degree. After the temperature stabilized for approximately 30 minutes record the frequency. Repeat step measure with 10 degree per stage until the highest temperature of 50 degree reached.

Frequency Tolerance: +/-2.5ppm

GSM850:

Reference Frequency: GSM channel 824.2MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	-30	824.200069	69	2091
3.9	-20	824.200044	44	2091
3.9	-10	824.200029	29	2091
3.9	10	824.200009	9	2091
3.9	20	824.200008	8	2091
3.9	30	824.200034	34	2091
3.9	40	824.200029	29	2091
3.9	50	824.200040	40	2091

Reference Frequency: GSM channel 836.4MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	-30	836.400055	55	2091
3.9	-20	836.400036	36	2091
3.9	-10	836.400020	20	2091
3.9	10	836. 400012	12	2091
3.9	20	836.400006	6	2091
3.9	30	836.400011	11	2091
3.9	40	836.400027	27	2091
3.9	50	836.400024	24	2091

Reference Frequency: GSM channel 848.8MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	-30	848.800047	47	2091
3.9	-20	848.800036	36	2091
3.9	-10	848.800033	33	2091
3.9	10	848.800019	19	2091
3.9	20	848.800006	6	2091
3.9	30	848.800017	17	2091
3.9	40	848.800039	39	2091
3.9	50	848.800030	30	2091

PCS1900:

Reference Frequency: PCS channel 1850.2MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	-30	1850.200034	34	4700
3.9	-20	1850.200022	22	4700
3.9	-10	1850.200017	17	4700
3.9	10	1850.200015	15	4700
3.9	20	1850.200005	5	4700
3.9	30	1850.200007	7	4700
3.9	40	1850.200016	16	4700
3.9	50	1850.200025	25	4700

Reference Frequency: PCS channel 1880MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	-30	1879.999976	24	4700
3.9	-20	1879.999984	16	4700
3.9	-10	1879.999989	11	4700
3.9	10	1879.999974	26	4700
3.9	20	1879.999995	5	4700
3.9	30	1879.999982	18	4700
3.9	40	1879.999979	21	4700
3.9	50	1879.999970	30	4700

Reference Frequency: PCS channel 1909.8MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	-30	1909.799956	44	4700
3.9	-20	1909.799969	31	4700
3.9	-10	1909.799975	25	4700
3.9	10	1909.799988	12	4700
3.9	20	1909.799991	9	4700
3.9	30	1909.799990	10	4700
3.9	40	1909.799983	17	4700
3.9	50	1909.799966	34	4700

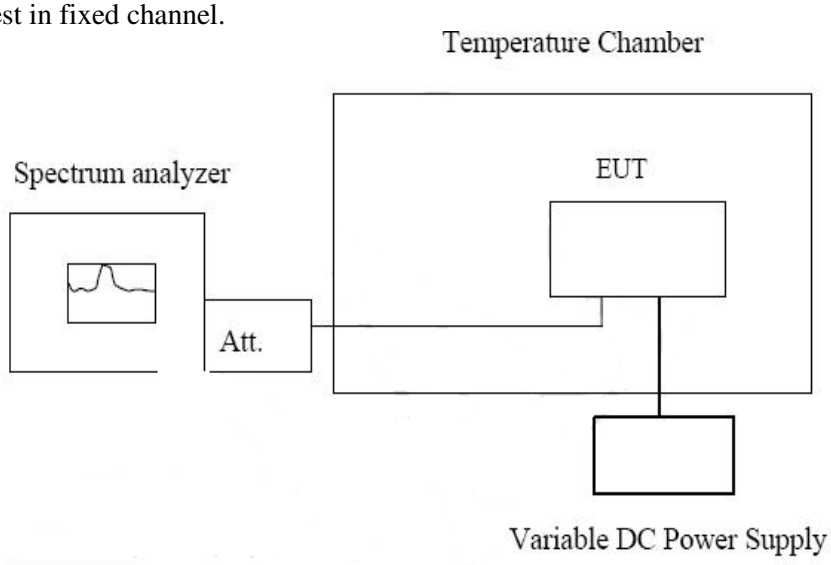
6.8 Frequency Stability V.S. VOLTAGE MEASUREMENT

Test Requirement: Part 2.1055(a)(1)

Test Date: Aug 07, 2010

Test Status: Test in fixed channel.

Test Setup:



Note: Measurement setup for testing On antenna connector.

Test procedure:

Set chamber temperature to 25 degree. Use a variable AC power/ DC power supply to power the EUT and set the Voltage to rated voltage. Set the spectrum analyzer RBW enough to obtain the desired frequency resolution and recorded the frequency.Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

GSM850:

Reference Frequency: GSM channel 824.2MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	25	824.200002	2	2091
3.8	25	824.200009	9	2091
3.7	25	824.200016	16	2091
3.6	25	824.200020	20	2091
3.55 (Endpoint)	25	824.200022	22	2091

Reference Frequency: GSM channel 836.4MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	25	836.400003	3	2091
3.8	25	836.400011	11	2091
3.7	25	836.400016	16	2091
3.6	25	836.400019	19	2091
3.55 (Endpoint)	25	836.400021	21	2091

Reference Frequency: GSM channel 848.8MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	25	848.800003	3	2091
3.8	25	848.800010	10	2091
3.7	25	848.800009	9	2091
3.6	25	848.800020	20	2091
3.55 (Endpoint)	25	848.800025	25	2091

PCS1900:

Reference Frequency: PCS channel 1850.2MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	25	1850.199979	21	4700
3.8	25	1850.199989	11	4700
3.7	25	1850.199990	10	4700
3.6	25	1850.199976	24	4700
3.55 (Endpoint)	25	1850.199972	28	4700

Reference Frequency: PCS channel 1880MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	25	1879.999999	1	4700
3.8	25	1879.999995	5	4700
3.7	25	1879.999989	11	4700
3.6	25	1879.999983	17	4700
3.55 (Endpoint)	25	1879.999982	18	4700

Reference Frequency: PCS channel 1909.8MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
3.9	25	1909.799999	1	4700
3.8	25	1909.799987	13	4700
3.7	25	1909.799984	16	4700
3.6	25	1909.799978	22	4700
3.55 (Endpoint)	25	1909.799977	23	4700

Note: The High and normal voltage is DC 3.9V, and low voltage is DC 3.55V.

6.9 Conducted Emissions Mains Terminals, 150 kHz to 30MHz

Test Requirement: Part 15.207

Test Method: ANSI C63.4:2003

Test Date: Aug 05, 2010

Frequency Range: 150KHz to 30MHz

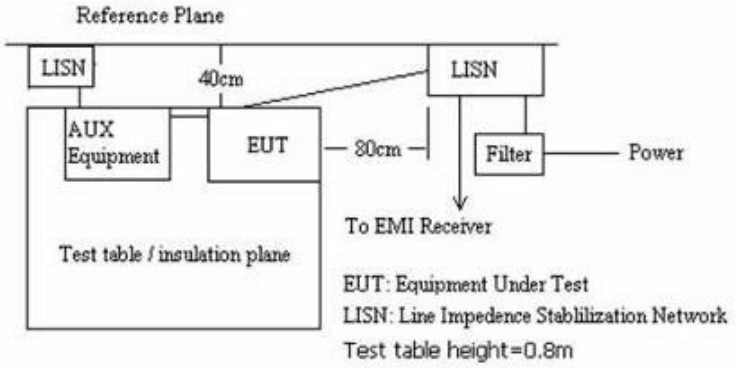
Detector: Peak for pre-scan (9kHz Resolution Bandwidth)
Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

EUT Operation:

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Plan View of Test Setup

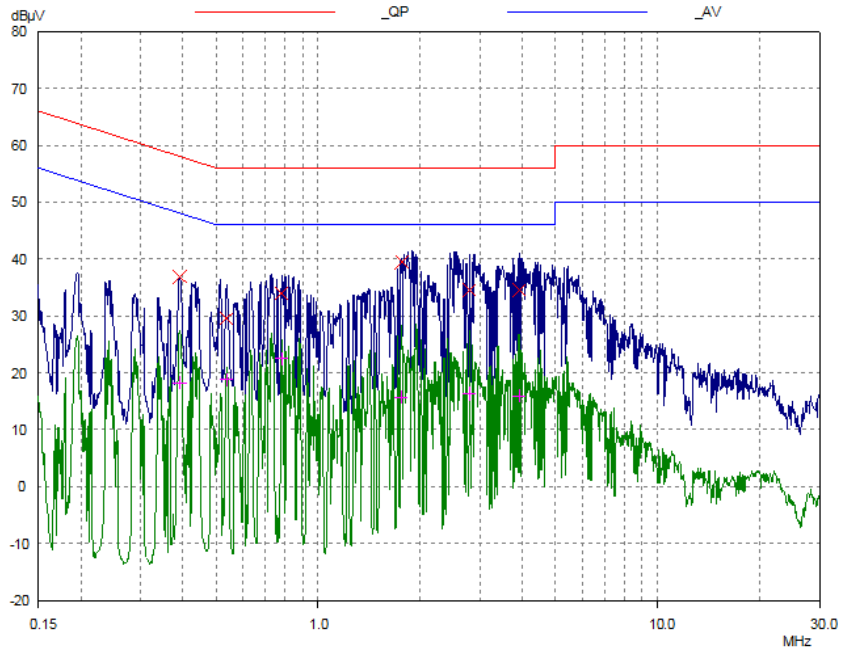


Limit:

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

Note :we have performed all modes,the worst case is GSM 1900 connected mode as below.

Live Line:

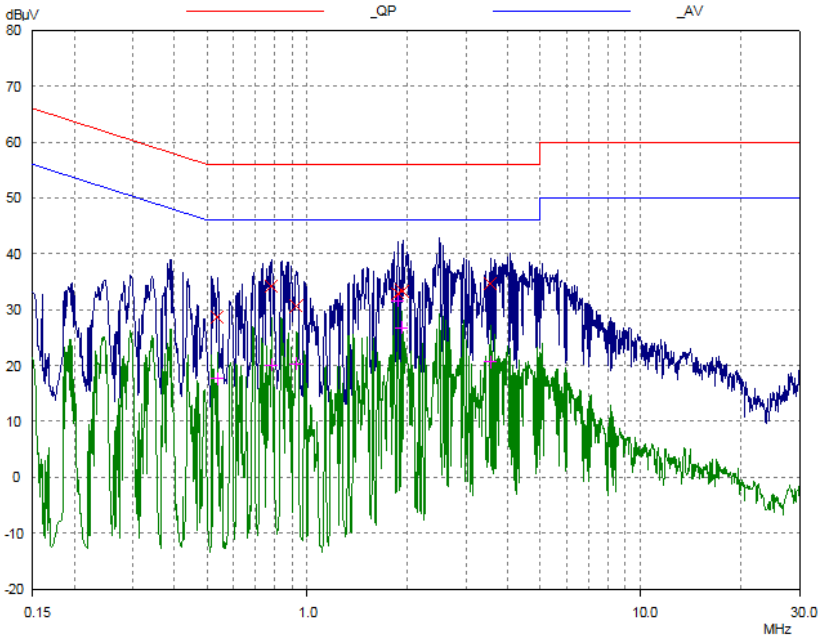


Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.391	36.93	58.04	21.11
0.53597	29.54	56.00	26.46
0.78003	33.96	56.00	22.04
1.76113	39.46	56.00	16.54
2.7872	34.59	56.00	21.41
3.91322	34.58	56.00	21.42

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.391	18.26	48.04	29.78
0.53597	18.81	46.00	27.19
0.78003	22.51	46.00	23.49
1.76113	15.65	46.00	30.35
2.7872	16.30	46.00	29.70
3.91322	15.90	46.00	30.10

N Line:



Final Measurement Results

Frequency MHz	QP Level dBµV	QP Limit dBµV	QP Delta dB
0.53597	28.68	56.00	27.32
0.78003	34.16	56.00	21.84
0.92611	30.58	56.00	25.42
1.86981	32.86	56.00	23.14
1.92279	33.30	56.00	22.70
3.54153	34.61	56.00	21.39

Frequency MHz	AV Level dBµV	AV Limit dBµV	AV Delta dB
0.53597	17.61	46.00	28.39
0.78003	20.09	46.00	25.91
0.92611	20.37	46.00	25.63
1.86981	31.51	46.00	14.49
1.92279	26.68	46.00	19.32
3.54153	20.62	46.00	25.38

~End of Report~