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

588 West Jindu Road, Songjiang District, Shanghai, China

Telephone: +86 (0) 21 6191 5666
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Tino.Pan@sgs.com

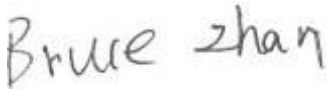
TEST REPORT

Application No. :	SHEMO10050067102
Applicant:	Shanghai Simcom Ltd.
	Building A, SIM Technology Building，No.633，Jinzhong Road，Changning Disdrict，Shanghai P.R. China 200335
FCC ID:	UDV-1005242010007
IC ID:	8460A-20100524007
Equipment Under Test (EUT):	
Product Name:	Module
Model Name:	SIM900B
Brand Name:	SIMCOM
Standards:	IC RSS 132 Issue 2,RSS 133 Issue 5/FCC part 2, 22H & 24E
Date of Receipt:	May 31,2010
Date of Test:	Jun 1,2010 to Jun 17,2010
Date of Issue:	Jun 17,2010

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.



Bruce Zhan
Project Engineer
SGS-CSTC(Shanghai) Co., Ltd.

2 Test Summary

Description of Test	FCC Rules	Result
RF Power Output	FCC 2.1046(a) FCC 22.913(a) FCC 24.232(c) RSS-132,4.4 RSS-133,6.4	Compliant
99% Occupied Bandwidth	FCC 2.1049(h) RSS-Gen,4.6	Compliant
Effective Isotropic Radiated Power	FCC 2.1046(a) FCC 22.913(a) FCC 22.232(c) RSS-132,4.4 RSS-133,6.4	Compliant
Out of Band Emissions at antenna Terminals and Band Edge	2.1051 22.917(a) 24.238(a) RSS-132,4.5 RSS-133,6.5	Compliant
Field Strength of Spurious Emissions	2.1053 22.917(a) 24.238(a) RSS-132,4.5 RSS-133,6.5	Compliant
Frequency Stability vs. Temperature and Voltage	2.1055(a)&(d) RSS-132,4.3 RSS-133,6.3	Compliant

3 Contents

4 General Information

4.1 Client Information

Applicant:	Shanghai Simcom Ltd.
Address of Applicant:	Building A, SIM Technology Building，No.633，Jinzhong Road，Changning Disdrict，Shanghai P.R. China 200335
Manufacturer:	Shanghai Simcom Ltd.
Address of Manufacturer:	Building A, SIM Technology Building，No.633，Jinzhong Road，Changning Disdrict，Shanghai P.R. China 200335

4.2 General Description of E.U.T.

Product Name:	Module
Model Name:	SIM900B
Brand Name:	SIMCOM
Support Frequency Band:	GSM850/900/1800/1900
Test Frequency Band:	GSM850/1900
Power Supply:	Minimum: DC 3.6V Normal: DC 4.0V Maximum: DC 4.4V

GSM and WCDMA:

	Operating frequency		Rated Power
Cellular phone standards Frequency Range and Power:	GSM 850	824.2MHz-848.8MHz	33dBm
	PCS 1900	1850.2MHz-1909.8MHz	30dBm
IMEI:	353451040003459		

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:

CNAL – LAB Code: L0262
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.

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	Spectrum Analyzer	Rohde & Schwarz	FSP-30	100324	2010-4-21	2011-4-20
2	EMI test receiver	Rohde & Schwarz	ESU40	100109	2010-6-4	2011-6-3
3	Broadband Horn ANTENNA	SCHWARZBECK	BBHA9170	9170-373	2010-6-4	2011-6-3
4	Double ridged broadband horn ANTENNA	SCHWARZBECK	BBHA9120D	9120D-679	2010-6-4	2011-6-3
5	ANTENNA	Rohde & Schwarz	HF906	100285	2009-10-9	2010-10-8
6	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2009-10-9	2010-10-8
7	Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	9168-313	2010-6-4	2011-6-3
8	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co., Ltd	BY－2003P	--	2009-10-15	2010-10-14
9	METER	FLUKE	17B	10560713	2009-9-16	2010-9-15
10	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2009-10-19	2010-10-18
11	Digital illuminance meter	TES electrical electronic Corp.	TES-1330A	050602219	2009-10-14	2010-10-13
12	High-low temperature cabinet	Shanghai YuanZhen	GW2050	--	2010-6-17	2011-6-16
13	DC power	KIKUSUI	PMC35－3	NF100260	2010-1-27	2011-1-26
14	Power meter	Rohde & Schwarz	NRP	101641	2010-5-4	2011-5-3
15	UNIVERSAL RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMU 200	103633	2010-4-13	2011-4-12

16	Tunable Notch Filter	WRCT800.0/880.0-0.2/40-5SSK	Wainwright instruments Gmbh	9	2010-1-27	2011-1-26
17	Tunable Notch Filter	WRCT1800.0/2000.0-0.2/40-5SSK	Wainwright instruments Gmbh	11	2010-1-27	2011-1-26
18	Band Reject Filter	WRCG 824/849-814/859-40/8SS	Amiden,Ireland	29	2010-1-27	2011-1-26

6 Test Results

6.1 E.U.T. test conditions

Power supply: DC 4.0V

Operating Environment:
Temperature: 20.0 -25.0 °C
Humidity: 38-48 % RH
Atmospheric Pressure: 992 -1006 mbar

6.2 RF Power Output

Test Requirement: RSS 132, 4.4 The maximum EIRP shall be 11.5 watts for mobile stations..
RSS 133, 6.4 Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p.
Part 2.1046
Part 22.913(a) Mobile station are limited to 7W.
Part 24.232(c) Peak Power measurement limited to 2W.

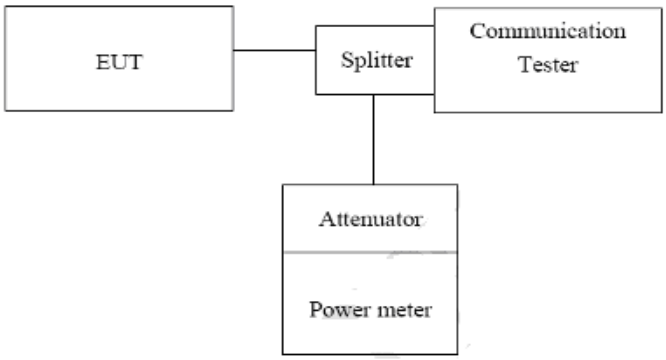
Maximum Output Powers With GSM 850 for test:

Normal Peak output power:	Limit:
30dBm	7W(38.45dBm)

Maximum Output Powers With PCS 1900 for test:

Normal Peak output power:	Limit:
30dBm	2W(33.0dBm)

Test Setup



Measurement Setup for testing on Antenna connector.

Test Date: Jun 17,2010

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.

Measurement Result:

RF Conducted output power

GSM 850 Result:

Frequency(MHz)	Channel:	Peak power (dBm)	AV power (dBm)
824.2	128	32.8	32.6
836.6	189	33.0	32.8
848.8	251	33.0	32.8

PCS 1900 Result:

Frequency(MHz)	Channel:	Peak power (dBm)	AV power (dBm)
1850.2	512	29.9	29.7
1880.0	661	29.8	29.6
1909.8	810	29.6	29.4

6.3 Occupied Bandwidth

Test Requirement: Part 2.1049
RSS Gen 4.6

Test Date: Jun 10,2010

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.

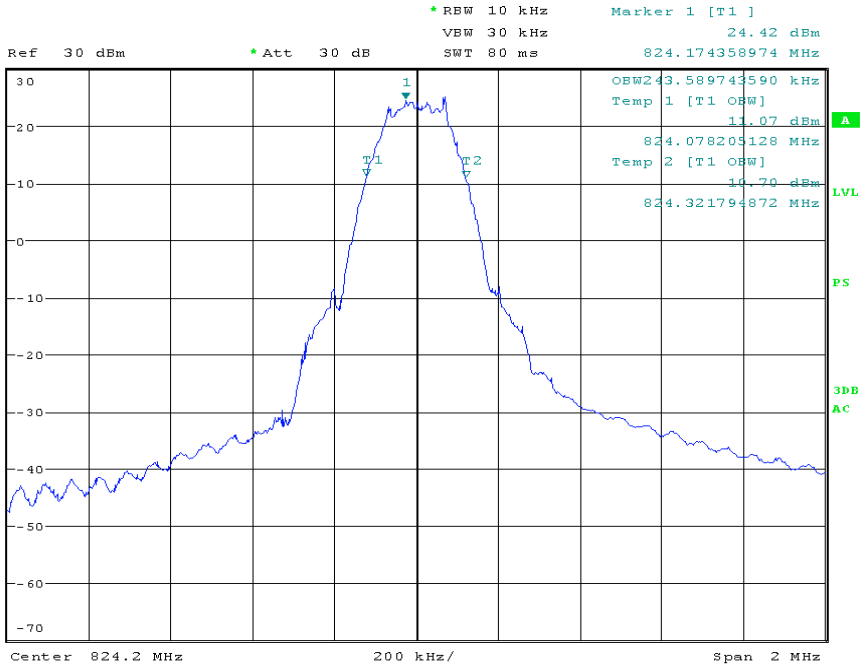
Test result:

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
GSM 850	824.2	128	243.589
	836.6	189	243.589
	848.8	251	243.589

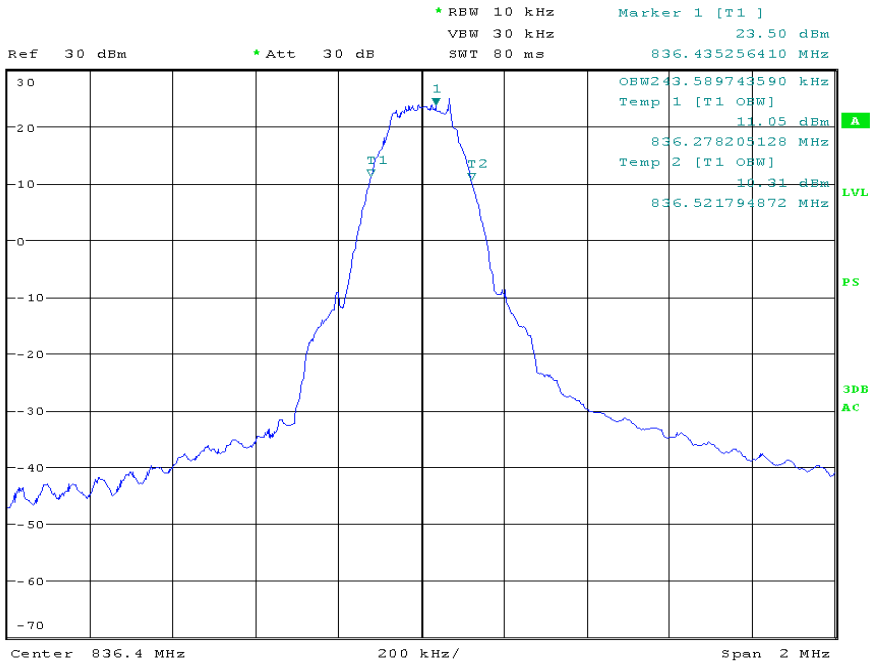
EUT Mode	Frequency (MHz)	CH	99% Bandwidth (kHz)
PCS 1900	1850.2	512	243.589
	1880.0	661	246.794
	1909.8	810	246.794

99% Bandwidth

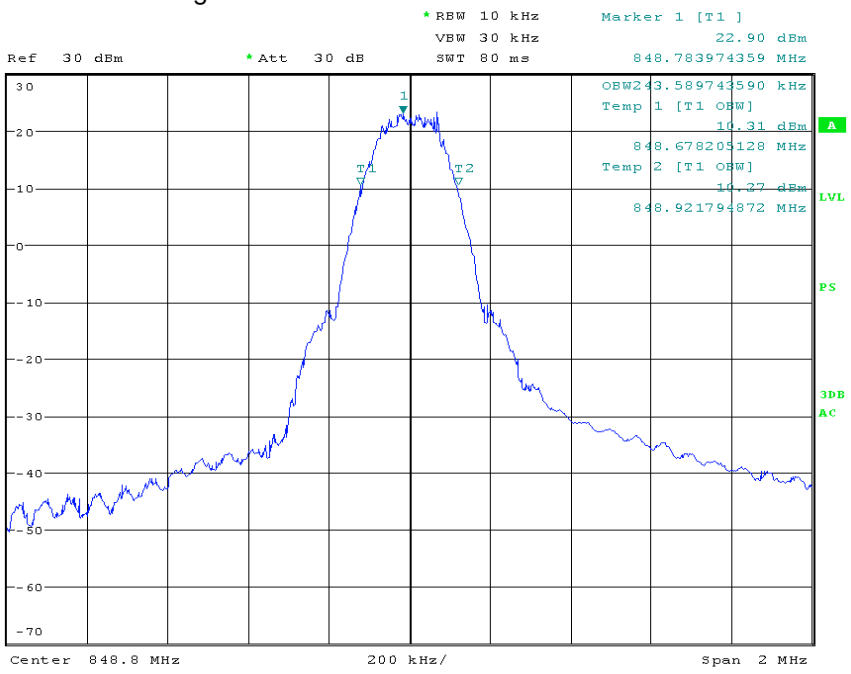
Graph: GSM Channel Low



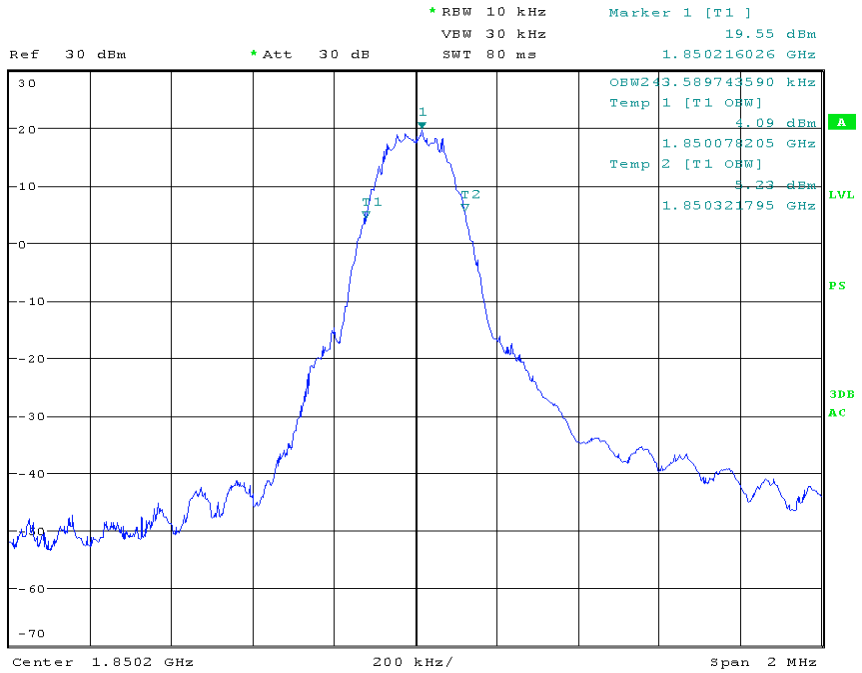
GSM Channel Mid



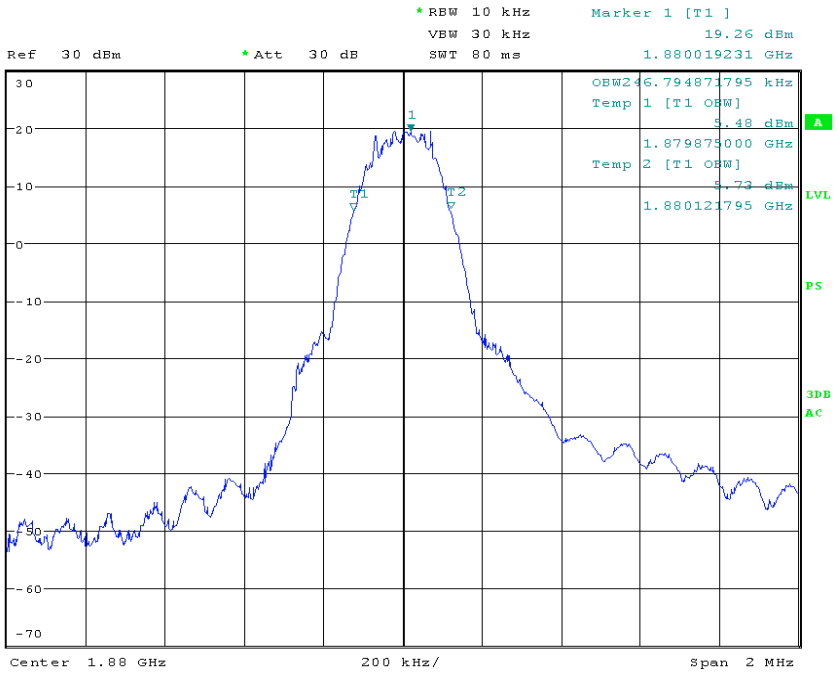
GSM Channel High



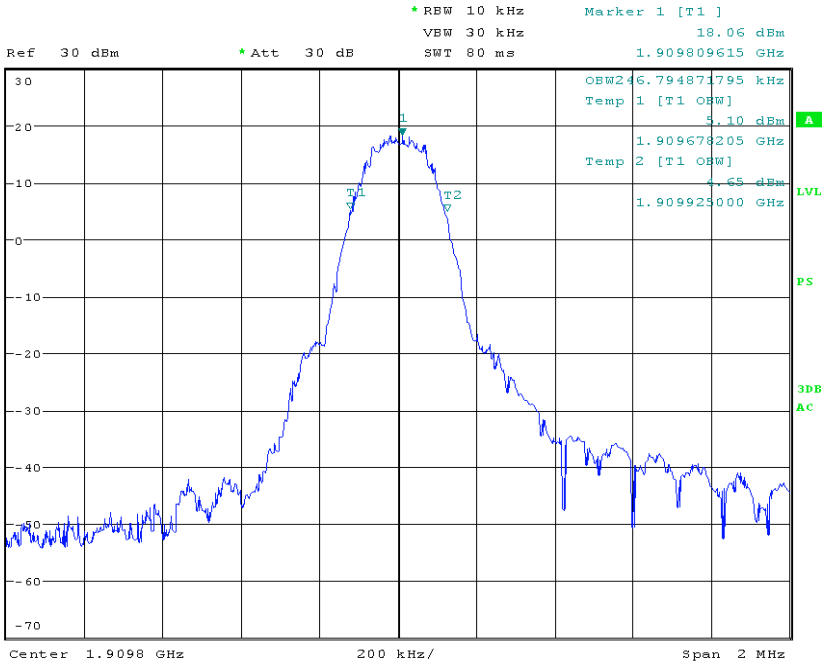
PCS Channel Low



PCS Channel Mid



PCS Channel High



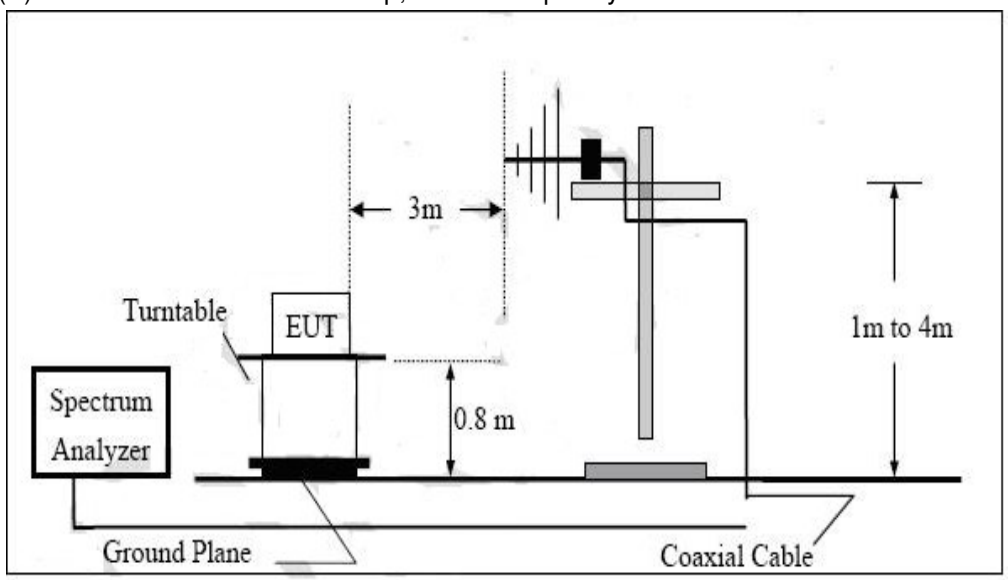
6.4 Effective Isotropic Radiated Power

Test Requirement: RSS 132, 4.4 The maximum EIRP shall be 11.5 watts for mobile stations..
RSS 133, 6.4 Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p.
Part 2.1046
Part 24.232 Mobile station are Limited to 2W ERP.
Part 22.913 Mobile station are limited to 7W EIRP.

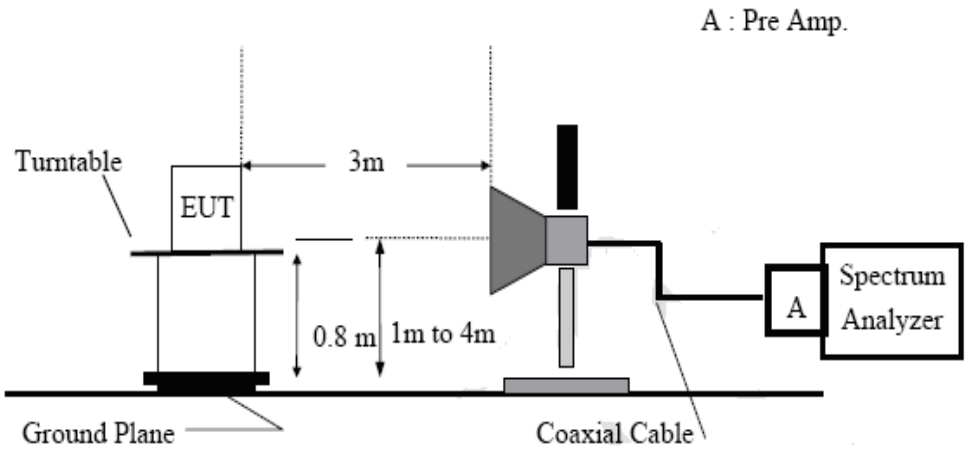
Test Date: Jun 10,2010 to Jun 17,2010

Test Setup:

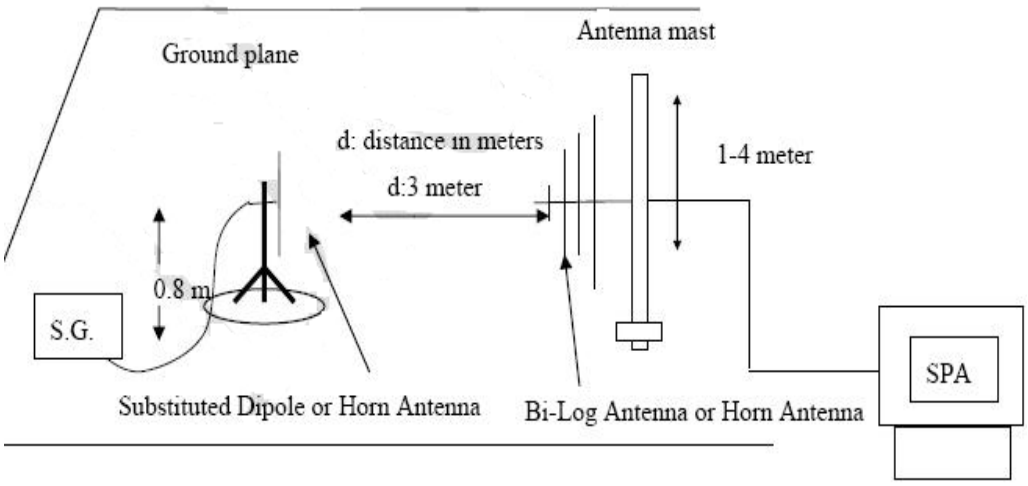
(A) Radiated emission Test setup, Below Frequency 1000MHz:



(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 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)

Measurement result:

(1) 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	824.2	128	H	V	105.22	19.05	8.4	3.32	24.13	38.45
				H	104.77	18.77	8.4	3.32	23.85	38.45
	836.4	189	H	V	103.88	21.33	8.42	3.40	26.35	38.45
				H	102.11	16.99	8.42	3.40	22.01	38.45
	848.8	251	H	V	104.80	17.14	8.47	3.43	22.18	38.45
				H	103.22	18.27	8.47	3.43	23.31	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	1850.2	512	H	V	103.66	16.13	9.15	4.15	21.13	33.00
				H	100.21	16.85	9.15	4.15	21.85	33.00
	1880.0	661	H	V	99.82	14.22	9.22	4.28	19.16	33.00
				H	104.25	15.96	9.22	4.28	20.90	33.00
	1809.8	810	H	V	102.21	13.87	9.25	4.41	18.71	33.00
				H	100.87	15.39	9.25	4.41	20.23	33.00

6.5 Out of band emissions at antenna Terminals

6.5.1 Band edges emissions

Test Requirement: Part 2.1051

RSS 132, 4.5.1;RSS 133, 6.5.1

FCC part 22.917(a), 24.238(a) 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: Jun 17,2010

Test Procedure:

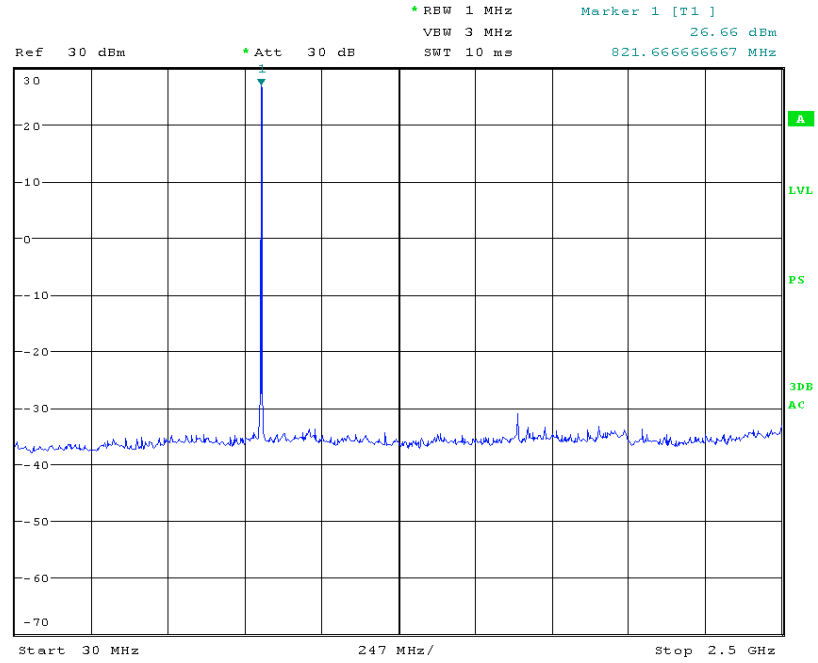
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10^{th} harmonic.

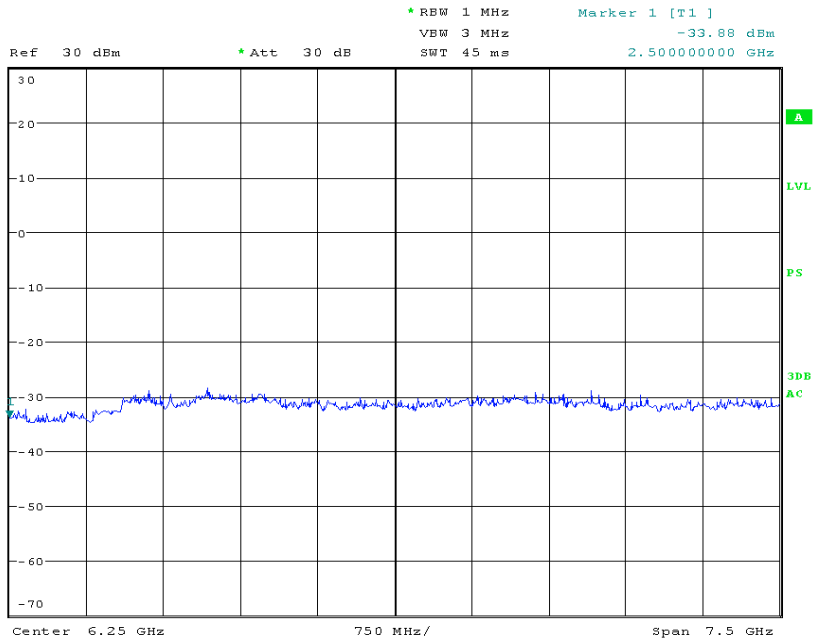
For the out of band: set RBW, VBW=1MHz, stat=30MHz, stop= 10 th harmonic. Limit= --13dBm

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.

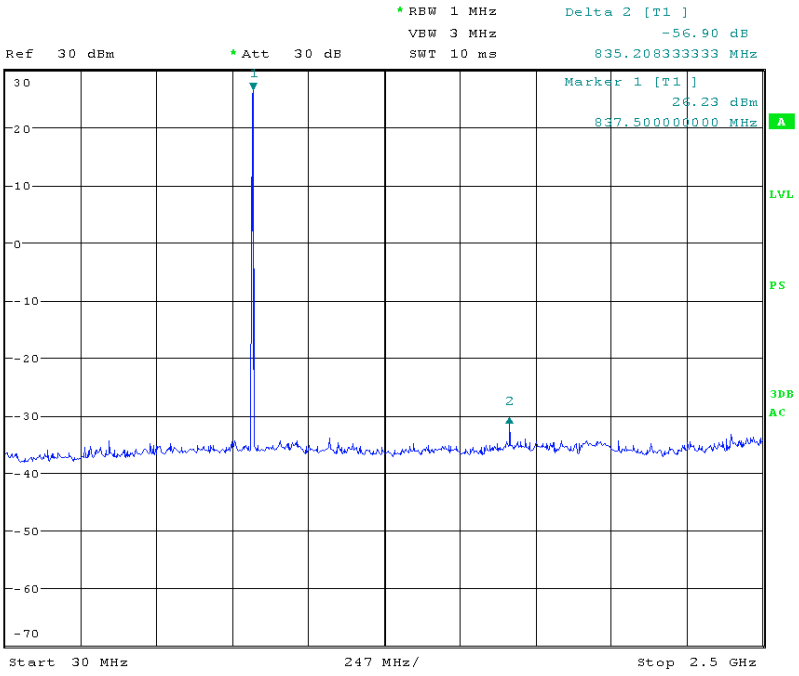
Measurement result:

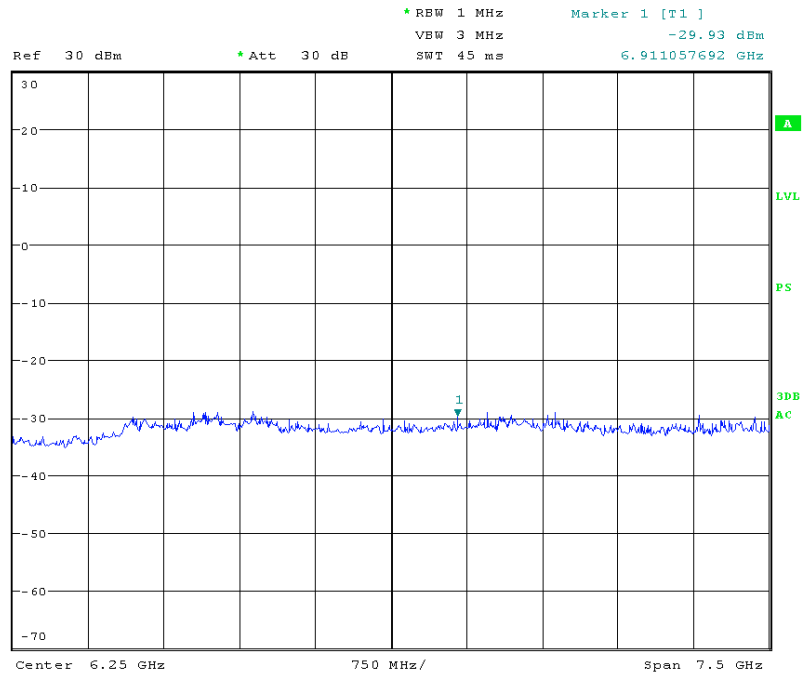
GSM850 Channel Low:



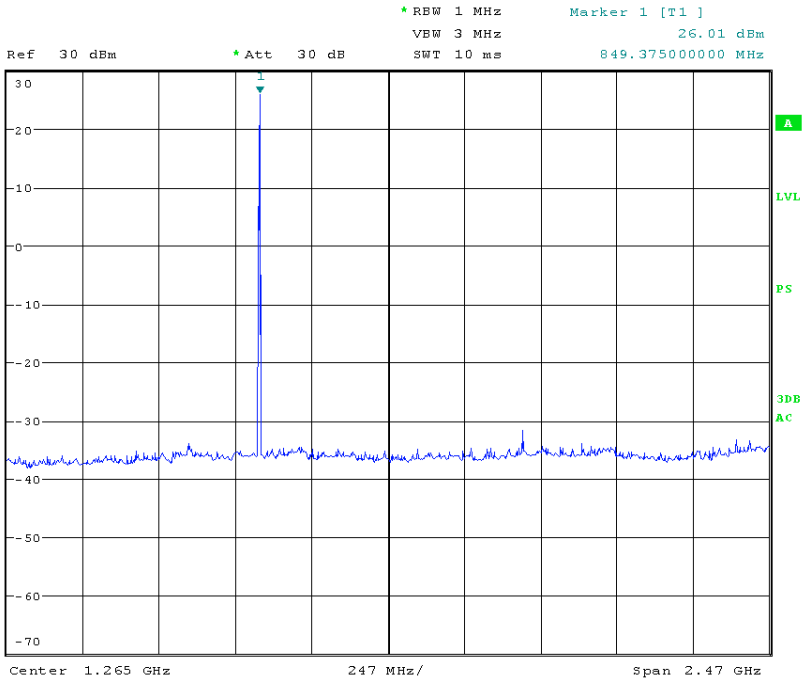


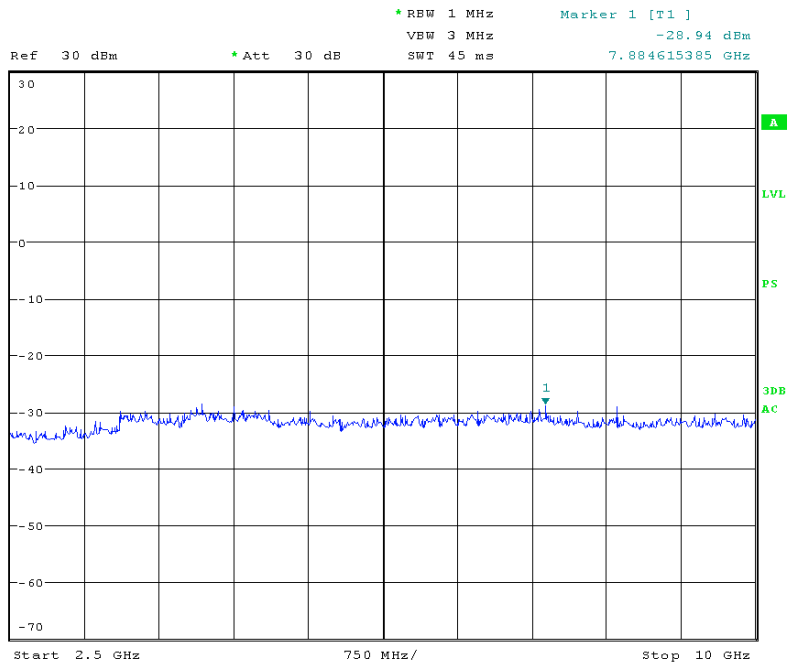
GSM850 Channel Mid:



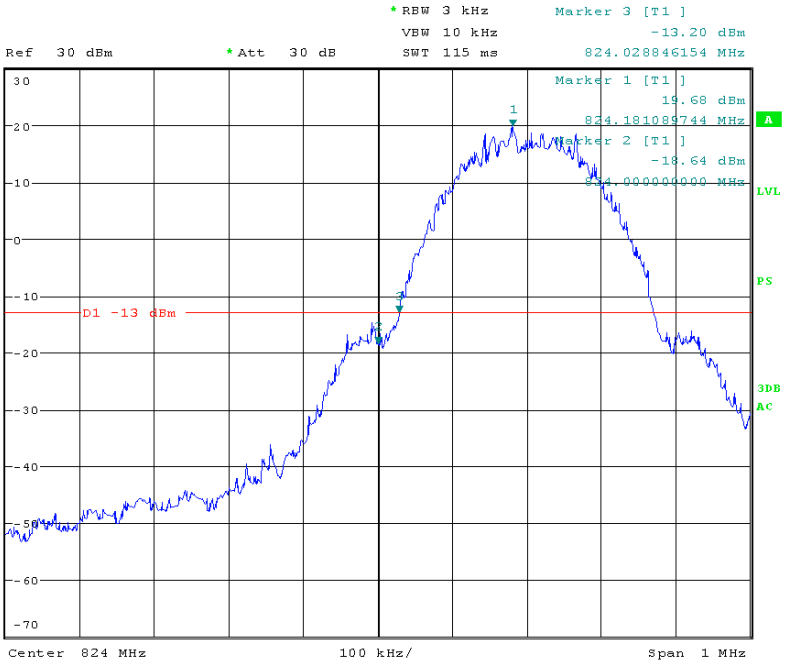


GSM850 Channel High:

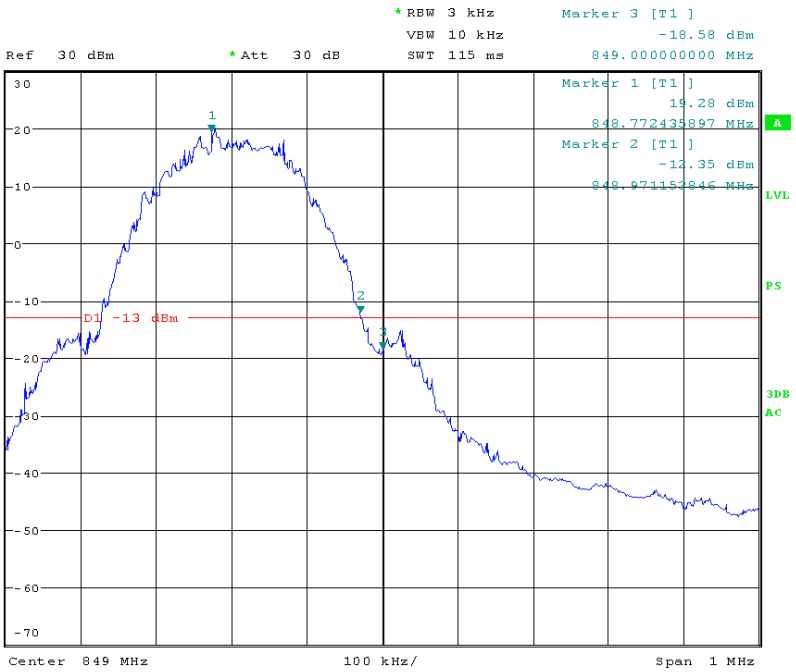




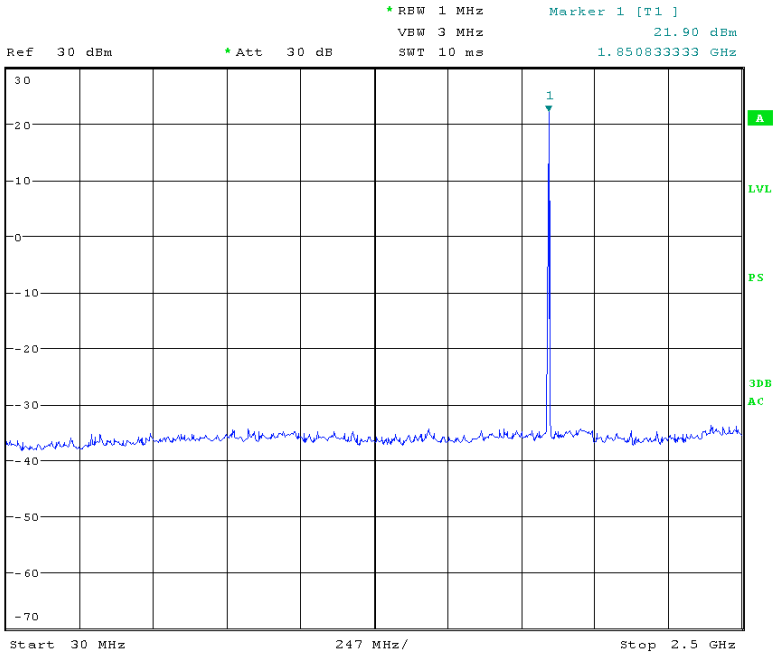
Band Edge emission GSM Channel Low:

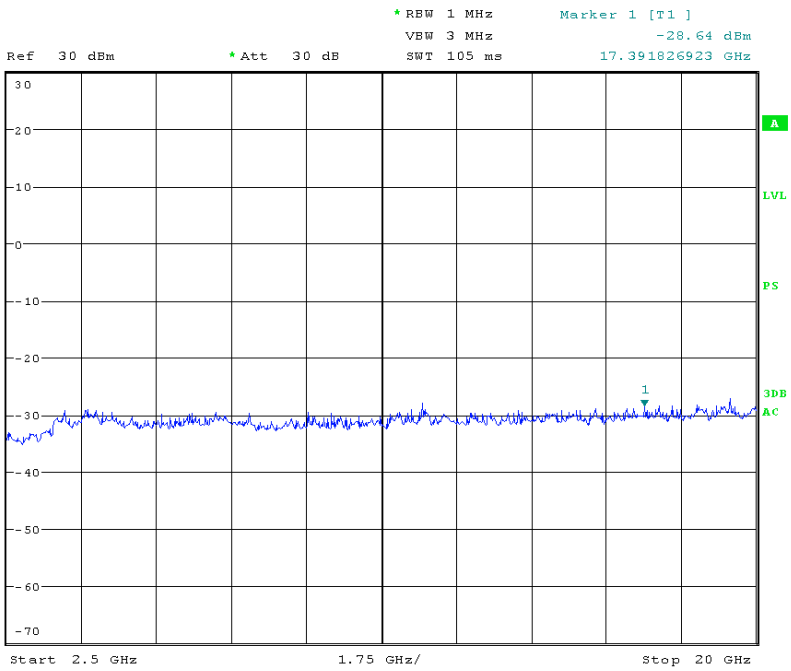


Band Edge emission GSM Channel high:

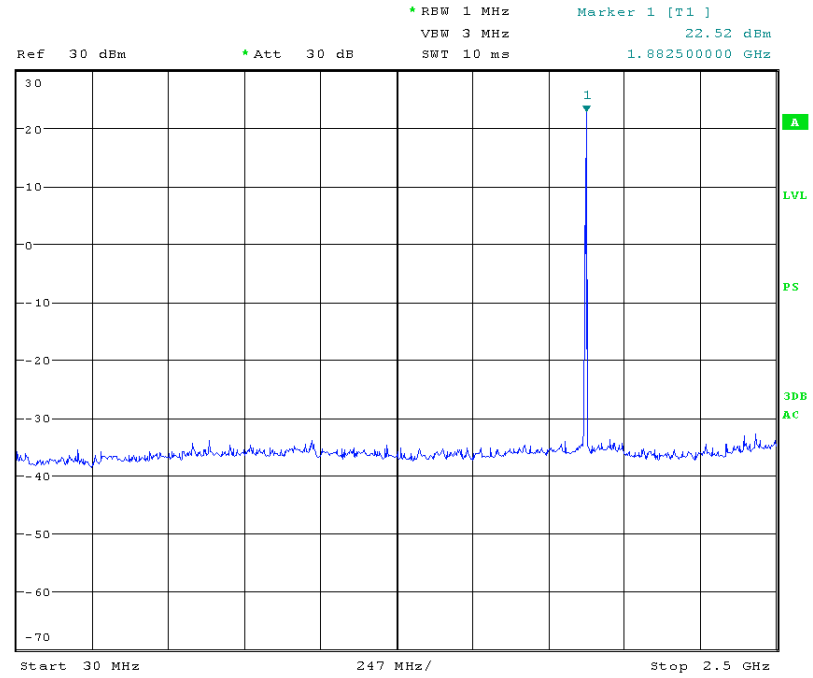


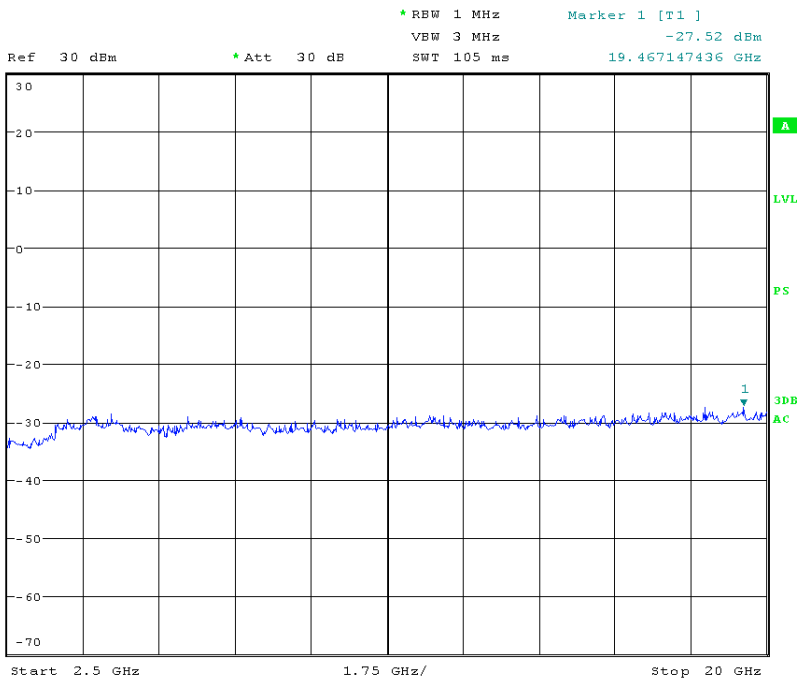
PCS1900 Channel Low:



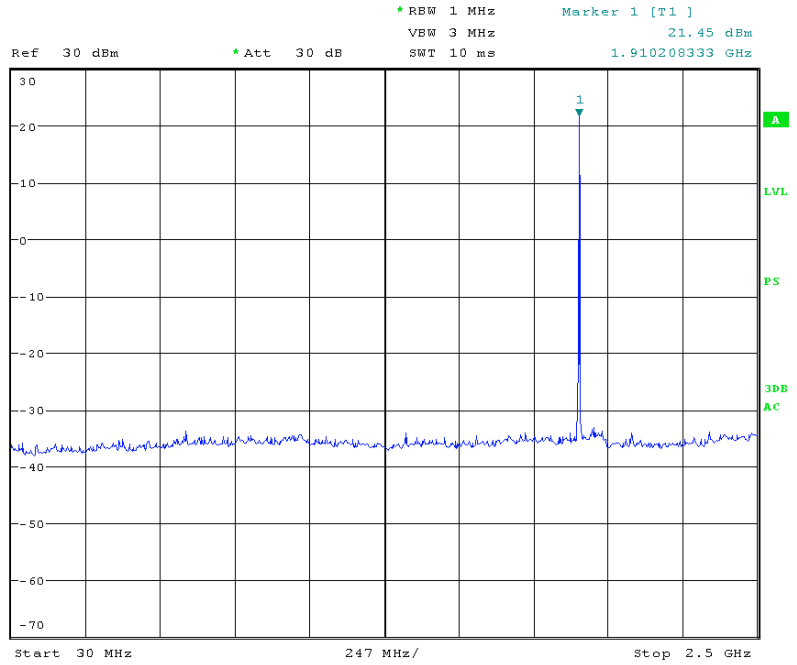


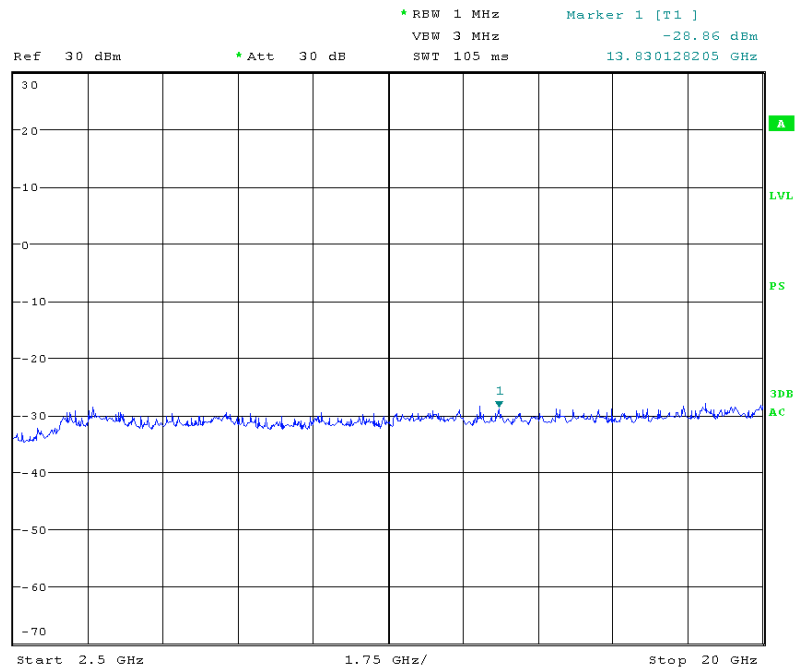
PCS1900 Channel Mid:



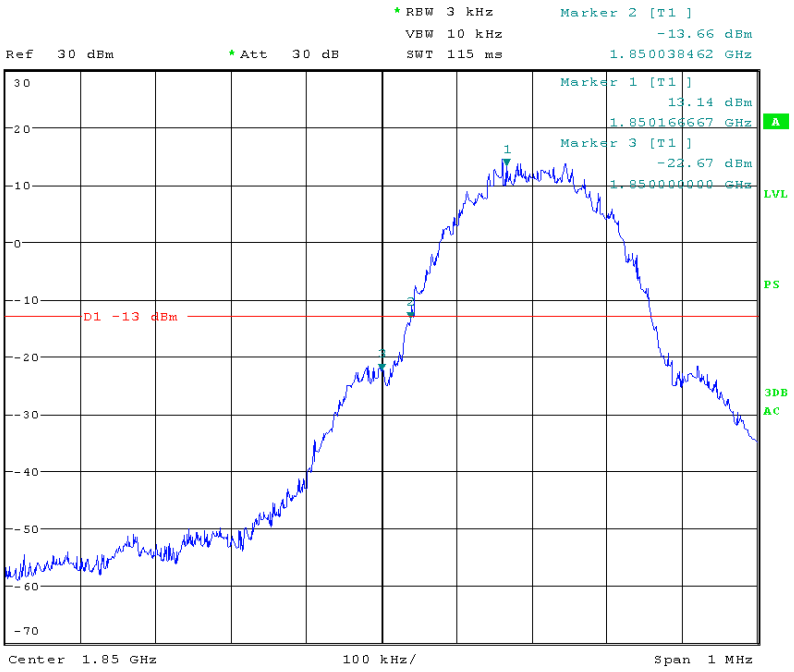


PCS1900 Channel High:

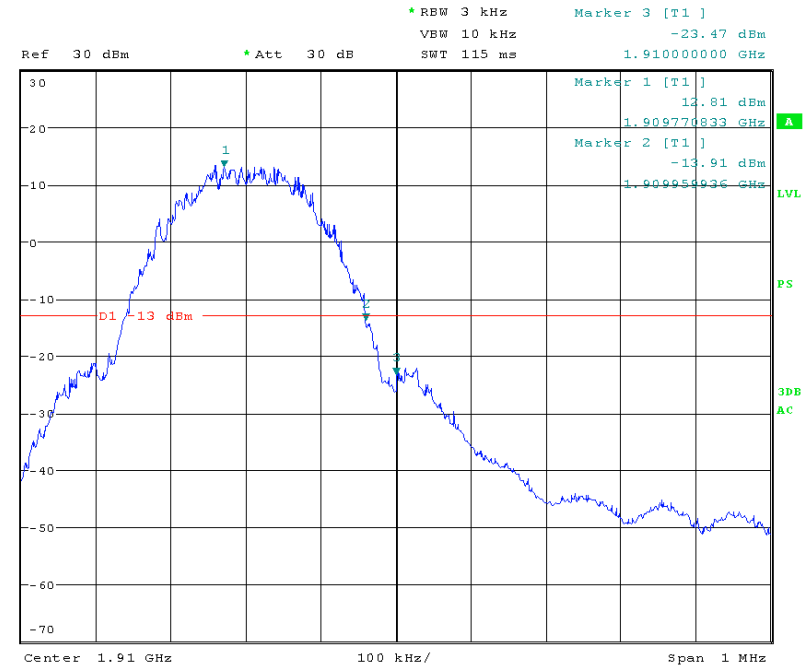




Band Edge emission PCS Channel Low:



Band Edge emission PCS Channel high:



6.6 Field Strength of Radiated Spurious Emissions

Test Requirement: Part 2.1053

RSS 132, 4.5.1;RSS 133, 6.5.1

FCC part 22.917(a), 24.238(a) 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: Jun 11.2010 to Jun 16,2010

Test Procedure:

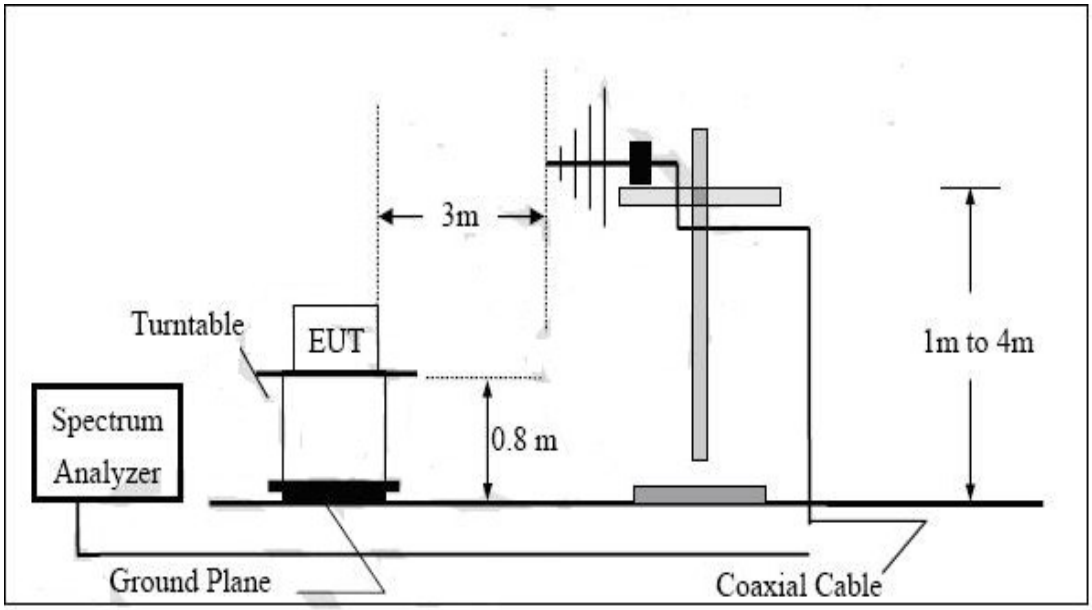
The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emission is any up to 10th harmonic.

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

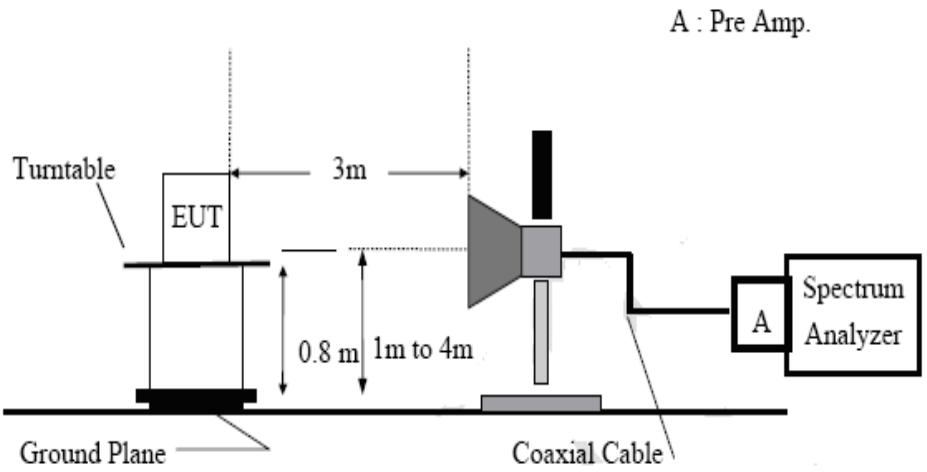
Band Edge requirements: In 1Mhz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 % of bandwidth of fundamental emission of the transmitter any be employed to measure the out of band emission. Limit=--13dBm.

Test Setup:

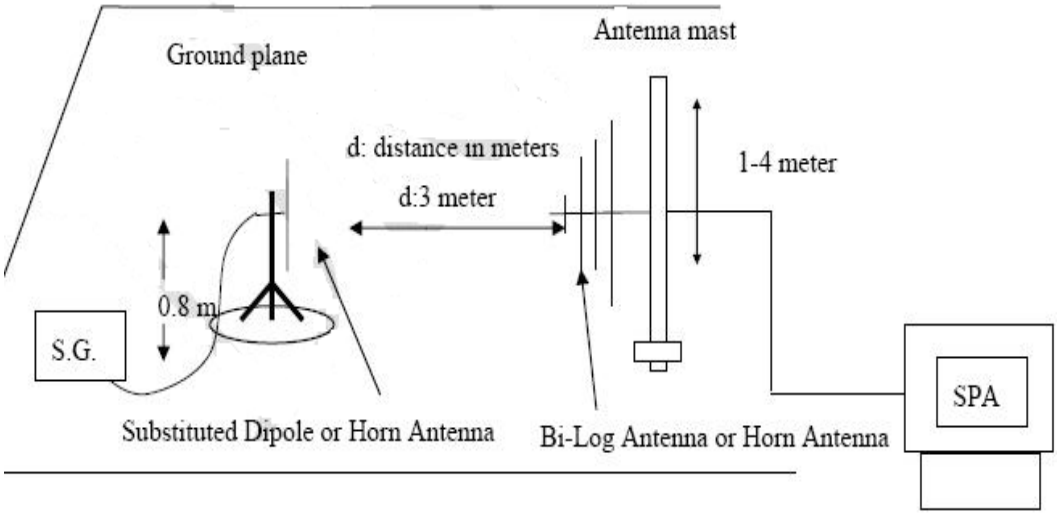
(A) Radiated emission Test setup, Below Frequency 1000MHz:



(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)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100	43.22	H	-52.70	2.60	1.02	-51.12	-13	38.12
200	44.56	H	-52.43	9.10	1.66	-44.99	-13	31.99
800	43.12	H	-55.10	8.70	2.10	-48.5	-13	35.5
1648.4	44.72	H	-52.16	6.95	3.93	-49.14	-13	36.14
2472.6	43.58	H	-52.82	8.35	5.02	-49.49	-13	36.49
3296.8	44.83	H	-51.77	8.15	5.62	-49.24	-13	36.24
4121	42.19	H	-50.27	8.45	6.13	-47.95	-13	34.95
100	42.5	V	-54.30	2.6	1.02	-52.72	-13	39.72
200	45.31	V	-55.00	9.1	1.66	-47.56	-13	34.56
800	43.8	V	-55.80	8.7	2.1	-49.2	-13	36.2
1648.4	46.79	V	-51.86	6.95	3.93	-48.84	-13	35.84
2472.6	44.88	V	-53.42	8.35	5.02	-50.09	-13	37.09
3296.8	42.81	V	-52.71	8.15	5.62	-50.18	-13	37.18
4121	46.20	V	-50.73	8.45	6.13	-48.41	-13	35.41

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: 836.4MHz

Frequency (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100	44.55	H	-53.50	2.6	1.02	-51.94	-13	38.94
200	44.98	H	-53.25	9.1	1.66	-45.81	-13	32.81
800	44.04	H	-55.92	8.7	2.1	-49.32	-13	36.32
1648.4	46.2	H	-52.98	6.95	3.93	-49.96	-13	36.96
2472.6	44.61	H	-53.63	8.35	5.02	-50.31	-13	37.31
3296.8	45.4	H	-52.59	8.15	5.62	-50.06	-13	37.06
4121	45.74	H	-51.09	8.45	6.13	-48.77	-13	35.77
100	44.61	V	-55.12	2.6	1.02	-53.54	-13	40.54
200	44.56	V	-55.82	9.1	1.66	-48.38	-13	35.38
800	43.4	V	-56.62	8.7	2.1	-50.02	-13	37.02
1648.4	45.78	V	-52.68	6.95	3.93	-49.66	-13	36.66
2472.6	45.37	V	-54.24	8.35	5.02	-50.91	-13	37.91
3296.8	46.29	V	-53.53	8.15	5.62	-51	-13	38.00
4121	46.13	V	-51.55	8.45	6.13	-49.23	-13	36.23

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)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100	44.55	H	-54.10	2.6	1.02	-52.53	-13	39.53
200	44.98	H	-52.83	9.1	1.66	-45.39	-13	32.39
800	44.04	H	-55.07	8.7	2.1	-48.47	-13	35.47
1648.4	46.2	H	-53.23	6.95	3.93	-50.21	-13	37.21
2472.6	44.61	H	-53.01	8.35	5.02	-49.68	-13	36.68
3296.8	45.4	H	-52.00	8.15	5.62	-49.47	-13	36.47
4121	45.74	H	-51.78	8.45	6.13	-49.46	-13	36.46
100	44.61	V	-54.63	2.6	1.02	-53.05	-13	40.05
200	44.56	V	-54.15	9.1	1.66	-46.71	-13	33.71
800	43.4	V	-56.62	8.7	2.1	-50.02	-13	37.02
1648.4	45.78	V	-53.12	6.95	3.93	-50.1	-13	37.1
2472.6	45.37	V	-53.42	8.35	5.02	-50.09	-13	37.09
3296.8	46.29	V	-53.35	8.15	5.62	-50.82	-13	37.82
4121	46.13	V	-52.31	8.45	6.13	-49.99	-13	36.99

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)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100	43.55	H	-53.44	2.6	1.02	-51.86	-13	38.86
200	44.68	H	-53.27	9.1	1.66	-45.83	-13	32.83
800	45.49	H	-52.94	8.7	2.1	-46.34	-13	33.34
1800	46.41	H	-52.01	7.0	4.28	-49.29	-13	36.29
3700.4	44.6	H	-53.2	8.35	4.57	-49.42	-13	36.42
5550.6	44.49	H	-52.06	9.55	5.57	-48.08	-13	35.08
7400.8	45.05	H	-51.94	9.75	7.62	-49.81	-13	36.81
9251	45.64	H	-54.1	10.55	10.9	-54.45	-13	41.45
100	44.33	V	-52.94	2.6	1.02	-51.36	-13	38.36
200	44.4	V	-54.32	9.1	1.66	-46.88	-13	33.88
800	43.62	V	-54.46	8.7	2.1	-47.86	-13	34.86
1800	46.46	V	-50.17	7.0	4.28	-47.45	-13	34.45
3700.4	45.63	V	-52.50	8.35	4.57	-48.72	-13	35.72
5550.6	45.49	V	-52.68	9.55	5.57	-48.7	-13	35.7
7400.8	45.4	V	-52.02	9.75	7.62	-49.89	-13	36.89
9251	45.08	V	-52.16	10.55	10.9	-52.51	-13	39.51

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)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100	44.12	H	-53.20	2.6	1.02	-51.62	-13	38.62
200	44.33	H	-55.03	9.1	1.66	-47.59	-13	34.59
800	44.84	H	-54.70	8.7	2.1	-48.1	-13	35.10
1800	44.72	H	-51.70	7.0	4.28	-48.98	-13	35.98
3760	45.1	H	-51.70	8.42	4.59	-47.87	-13	34.87
5640	45.26	H	-51.80	9.5	5.59	-47.89	-13	34.89
7520	45.77	H	-51.75	9.78	7.72	-49.69	-13	36.69
9400	46.04	H	-53.86	10.61	10.98	-54.23	-13	41.23
100	44.15	V	-54.70	2.6	1.02	-53.12	-13	40.12
200	43.54	V	-54.70	9.1	1.66	-47.26	-13	34.26
800	43.49	V	-53.70	8.7	2.1	-47.1	-13	34.1
1800	45.58	V	-52.90	7.0	4.28	-50.18	-13	37.18
3760	45.12	V	-54.26	8.42	4.59	-50.43	-13	37.43
5640	46.23	V	-54.40	9.5	5.59	-50.49	-13	37.49
7520	46.06	V	-53.78	9.78	7.72	-51.72	-13	38.72
9400	44.77	V	-53.90	10.61	10.98	-54.27	-13	41.27

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)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBi/dBd)	Cable Loss (dBm)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dB)
100	46.69	H	-51.90	2.6	1.02	-50.32	-13	37.32
200	46.7	H	-51.79	9.1	1.66	-44.35	-13	31.35
800	48.011	H	-51.58	8.7	2.1	-44.98	-13	31.98
1800	47.32	H	-52.04	7.0	4.28	-49.32	-13	36.32
3981.6	48.26	H	-52.01	8.42	4.59	-48.18	-13	35.18
5972.4	47.98	H	-51.8	9.5	5.59	-47.89	-13	34.89
7963.2	47.96	H	-52.83	9.78	7.72	-50.77	-13	37.77
9954	47.76	H	-52.55	10.61	10.98	-52.92	-13	39.92
100	46.3	V	-53.07	2.6	1.02	-51.49	-13	38.49
200	46.67	V	-53.45	9.1	1.66	-46.01	-13	33.01
800	44.45	V	-52.75	8.7	2.1	-46.15	-13	33.15
1800	46.68	V	-51.90	7.0	4.28	-49.18	-13	36.18
3981.6	47.1	V	-53.70	8.42	4.59	-49.87	-13	36.87
5972.4	47.99	V	-53.43	9.5	5.59	-49.52	-13	36.52
7963.2	48.23	V	-52.81	9.78	7.72	-50.75	-13	37.75
9954	46.38	V	-53.21	10.61	10.98	-53.58	-13	40.58

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

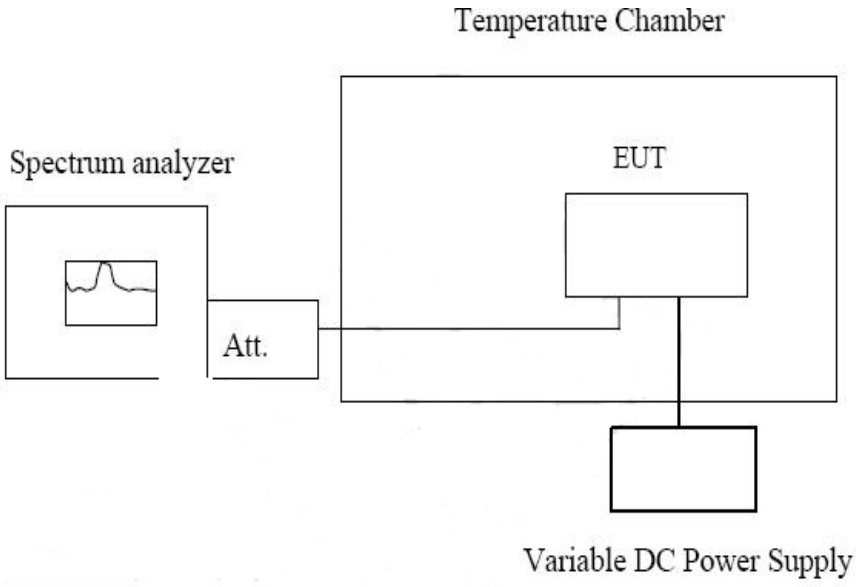
Test Requirement: FCC 2.1055(a)&(d)

RSS-132,4.3; RSS-133,6.3

Test Date: Jun 17,2010

Test Status: Test lowest channel, middle, highest 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 for 850MHz band
+/-2.5ppm for 1900MHz band

Reference Frequency: GSM Low channel 824.2MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4	-20	824.199969	31	2091
4	-10	824.199960	40	2091
4	10	824.199955	45	2091
4	20	824.199969	31	2091
4	30	824.199973	27	2091
4	40	824.199988	12	2091
4	50	824.199982	18	2091

Reference Frequency: GSM Mid channel 836.4MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4	-20	836.399918	82	2091
4	-10	836.399924	76	2091
4	10	836.399928	72	2091
4	20	836.399937	63	2091
4	30	836.399944	56	2091
4	40	836.399958	42	2091
4	50	836.399973	27	2091

Reference Frequency: GSM High channel 848.8MHz@ 25 degree				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4	-20	848.799961	39	2091
4	-10	848.799959	41	2091
4	10	848.799925	75	2091
4	20	848.799929	71	2091
4	30	848.799923	77	2091
4	40	848.799934	66	2091
4	50	848.799943	57	2091

Reference Frequency: PCS Low channel 1850.2MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4	-20	1850.199988	12	4700
4	-10	1850.199953	47	4700
4	10	1850.199962	38	4700
4	20	1850.199890	10	4700
4	30	1850.199944	56	4700
4	40	1850.199925	75	4700
4	50	1850.199927	73	4700

Reference Frequency: PCS Mid channel 1880MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4	-20	1879.999987	13	4700
4	-10	1879.999953	47	4700
4	10	1879.999947	53	4700
4	20	1879.999972	28	4700
4	30	1879.999973	27	4700
4	40	1879.999982	18	4700
4	50	1879.999927	73	4700

Reference Frequency: PCS High channel 1909.8MHz@ 25 degree				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4	-20	1909.799941	59	4700
4	-10	1909.799953	47	4700
4	10	1909.799974	26	4700
4	20	1909.799980	20	4700
4	30	1909.799973	27	4700
4	40	1909.799977	23	4700
4	50	1909.799966	34	4700

6.8 Frequency Stability V.S. VOLTAGE MEASUREMENT

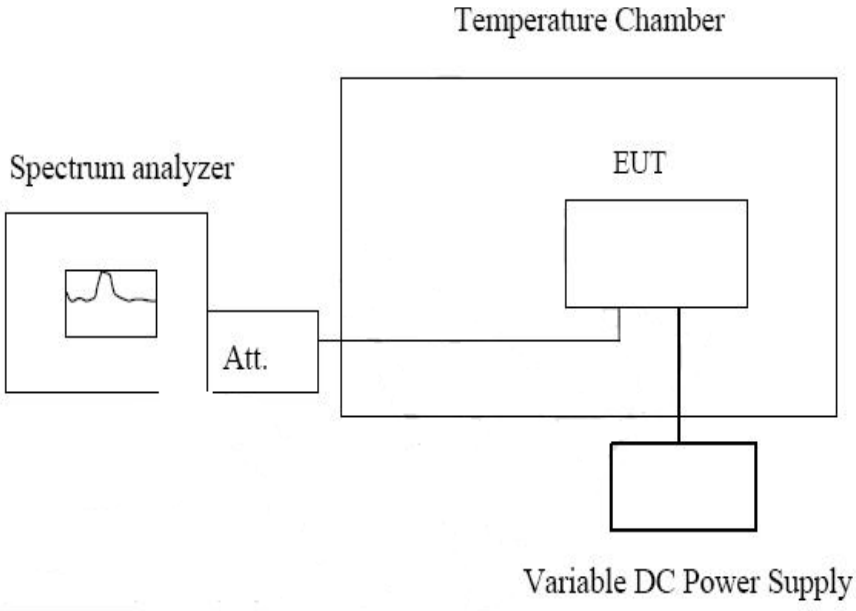
Test Requirement: FCC 2.1055(a)&(d)

RSS-132,4.3; RSS-133,6.3;

Test Date: Jun 17,2010

Test Status: Test lowest channel, middle, highest 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 chang.

Frequency Tolerance: +/-2.5ppm for 850MHz band

+/-2.5ppm for 1900MHz band

Reference Frequency: GSM Low channel 824.2MHz				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.4	25	824.200043	43	2091
4.3	25	824.200037	37	2091
4.2	25	824.200022	22	2091
4.1	25	824.200035	35	2091
4.0	25	824.200041	41	2091
3.9	25	824.200032	32	2091
3.8	25	824.200019	19	2091
3.7	25	824.200028	28	2091
3.6 (Endpoint)	25	824.200014	14	2091

Reference Frequency: GSM Mid channel 836.4MHz				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.4	25	836.400026	26	2091
4.3	25	836.400033	33	2091
4.2	25	836.400025	25	2091
4.1	25	836.400043	43	2091
4.0	25	836.400023	23	2091
3.9	25	836.400023	23	2091
3.8	25	836.400026	26	2091
3.7	25	836.400031	31	2091
3.6 (Endpoint)	25	836.400014	14	2091

Reference Frequency: GSM High channel 848.8MHz				
Limit: +/- 2.5ppm = 2091Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.4	25	848.800052	52	2091
4.3	25	848.800033	33	2091
4.2	25	848.800024	24	2091
4.1	25	848.800040	40	2091
4.0	25	848.800019	19	2091
3.9	25	848.800022	22	2091
3.8	25	848.800031	31	2091
3.7	25	848.800017	17	2091
3.6 (Endpoint)	25	848.800026	26	2091

Reference Frequency: PCS Low channel 1850.2MHz				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.4	25	1850.200036	36	4700
4.3	25	1850.200033	33	4700
4.2	25	1850.200028	28	4700
4.1	25	1850.200020	20	4700
4.0	25	1850.200019	19	4700
3.9	25	1850.200031	31	4700
3.8	25	1850.200041	41	4700
3.7	25	1850.200028	28	4700
3.6 (Endpoint)	25	1850.200035	35	4700

Reference Frequency: PCS Mid channel 1880MHz				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.4	25	1880.000022	22	4700
4.3	25	1880.000024	24	4700
4.2	25	1880.000022	22	4700
4.1	25	1880.000030	30	4700
4.0	25	1880.000044	44	4700
3.9	25	1880.000038	38	4700
3.8	25	1880.000029	29	4700
3.7	25	1880.000016	16	4700
3.6 (Endpoint)	25	1880.000027	27	4700

Reference Frequency: PCS High channel 1909.8MHz				
Limit: +/- 2.5ppm = 4700Hz				
Power Supply	Environment	Frequency	Delta	Limit
Vdc	Temperature(degree)	(MHz)	(Hz)	(Hz)
4.4	25	1909.800034	34	4700
4.3	25	1909.800042	42	4700
4.2	25	1909.800030	30	4700
4.1	25	1909.800025	25	4700
4.0	25	1909.800027	27	4700
3.9	25	1909.800033	33	4700
3.8	25	1909.800029	29	4700
3.7	25	1909.800037	37	4700
3.6 (Endpoint)	25	1909.800026	26	4700