Report No: CCIS13030006301

FCC REPORT (Mobile Phone)

Applicant:	Zechin Technology Co., Ltd
Address of Applicant:	Unit804,8th Floor Desay Tech Building Gaoxin Road South, Nanshan District Shenzhen, China

Equipment Under Test (EUT)

Product Name:	GSM mobile phone
Model No.:	GT401
FCC ID:	HA4-GT401
Applicable standards:	FCC CFR Title 47 Part 2: 2011 FCC CFR Title 47 Part22 Subpart H: 2011 FCC CFR Title 47 Part24 Subpart E: 2011
Date of sample receipt:	13 Mar., 2013
Date of Test:	14 Mar., to 11 Apr.,2013
Date of report issued:	12 Apr.,2013
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2. Version

Version No.	Date	Description
00	12 Apr.,2013	*Original*

Prepared by: Lisa chen ***Date:*** 12 Apr.,2013

Report Clerk

Reviewed by: Vincent chen ***Date:*** 12 Apr.,2013

Project Engineer

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4. Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Passed* (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2)	Pass

Pass: The EUT complies with the essential requirements in the standard.

5. General Information

5.1 Client Information

Applicant:	Zechin Technology Co., Ltd
Address of Applicant:	Unit804,8th Floor Desay Tech Building Gaoxin Road South, Nanshan District Shenzhen, China
Manufacturer:	Zechin Technology Co., Ltd
Address of Manufacturer:	Unit804,8th Floor Desay Tech Building Gaoxin Road South, Nanshan District Shenzhen, China

5.2 General Description of E.U.T.

Product Name:	GSM mobile phone
Model No.:	GT401
Operation Frequency range:	GSM 850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz
GPRS	Not Support
Type of Emission:	244KGXW
Hardware Version:	X235-MB-V8.0
Antenna type:	PIFA Antenna
Antenna gain:	GSM850: 1.0 dBi PCS1900: 3.2 dBi
AC adapter:	Input:100-240V AC,50/60Hz 0.2A Output:5V DC MAX 500mA
Power supply:	Rechargeable Li-ion Battery DC3.7V/820mAh

Operation Frequency List:

GSM 850		PCS1900	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
128	824.20	512	1850.20
129	824.40	513	1850.40
….	….	….	….
189	836.40	660	1879.80
190	836.60	661	1880.00
191	836.80	662	1880.20
…	…	…	…
250	848.60	809	1909.60
251	848.80	810	1909.80

Regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

GSM850			PCS1900		
	Channel	Frequency(MHz)		Channel	Frequency(MHz)
Lowest channel	128	824.20	Lowest channel	512	1850.20
Middle channel	190	836.60	Middle channel	661	1880.00
Highest channel	251	848.80	Highest channel	810	1909.80

5.3 Test mode

Communicate mode (GSM850)	Keep the EUT in communicating mode on GSM850 band.
Communicate mode (PCS1900)	Keep the EUT in communicating mode on PCS1900 band.
Data mode	Keep the EUT in data mode on GPRS 850 band.
Data mode	Keep the EUT in data mode on GPRS 1900 band.

5.4 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22 subpart H and Part 24 subpart E of the FCC CFR 47 Rules.

5.5 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA 603 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

5.6 Laboratory Facility

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

- **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.7 Laboratory Location

All tests were performed at:
Shenzhen Zhongjian Nanfang Testing Co., Ltd. Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Tel: 0755-23118282 Fax: 0755-23116366

5.8 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	June 09 2012	June 08 2013
2	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2013	Mar. 31 2014
3	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	June 04 2012	June 03 2013
4	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 30 2012	May 29 2013
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2013	Mar. 31 2014
7	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2013	Mar. 31 2014
8	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2013	Mar. 31 2014
9	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2013	Mar. 31 2014
10	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2013	Mar. 31 2014
11	Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2013	Mar. 31 2014
12	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2012	June 08 2013
13	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2013	Mar. 31 2014
14	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2013	Mar. 29 2014
15	Universal Radio communication Tester	Rohde & Schwarz	CMU200	CCIS0069	May. 29 2012	May. 29 2013

6. System test configuration

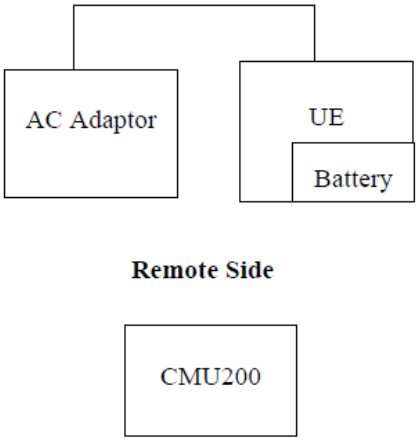
6.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

6.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

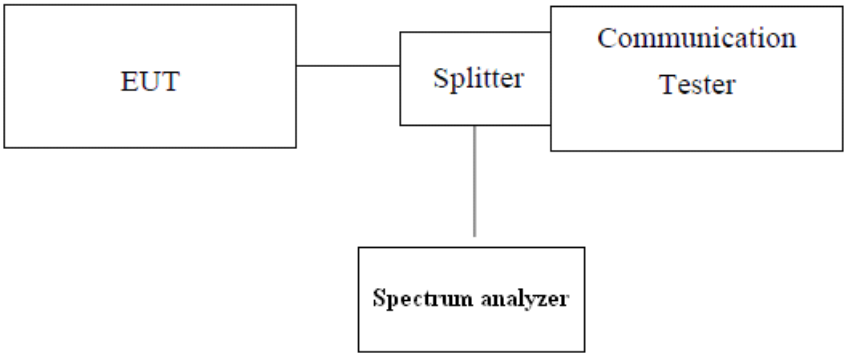
6.3 Configuration of Tested System



6.4 Description of Test Modes

The EUT has been tested under operating condition.
EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.
The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for both GSM/PCS with power adaptor, earphone and Data cable. The worst-case H mode for GSM 850 band, PCS1900 band.

6.5 Conducted Peak Output Power

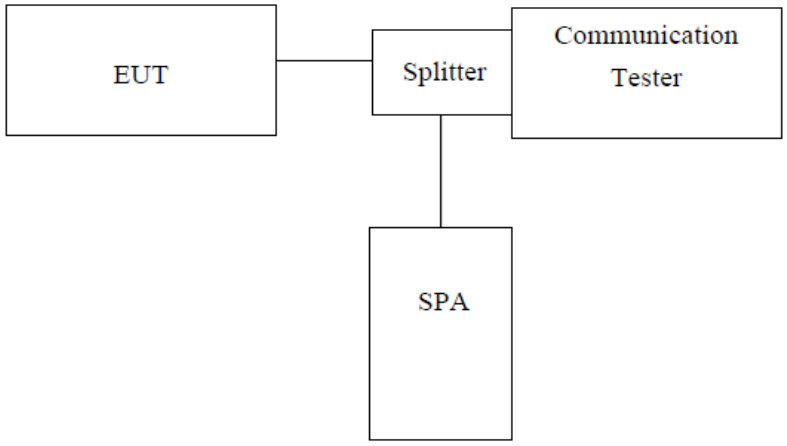
Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1046
Limit:	**GSM850 7W** **PCS1900 2W**
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the spectrum analyzer. Transmitter output was read off in dBm.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	**Passed**

Measurement Data

EUT Mode	Channel	Frequency (MHz)	Burst Average power (dBm)	Limit(dBm)	Result
GSM 850	128	824.20	31.70	38.45	Pass
	190	836.60	31.80		
	251	848.80	31.80		
GPRS 850 (1 Uplink slot)	128	824.20	31.69		
	190	836.60	31.76		
	251	848.80	31.83		
GPRS 850 (2 Uplink slots)	128	824.20	31.02		
	190	836.60	31.08		
	251	848.80	31.16		
GPRS 850 (3 Uplink slots)	128	824.20	29.46		
	190	836.60	29.51		
	251	848.80	29.59		
GPRS 850 (4 Uplink slots)	128	824.20	28.48		
	190	836.60	28.54		
	251	848.80	28.62		
PCS 1900	512	1850.20	29.60	33.00	Pass
	661	1880.00	29.30		
	810	1909.80	28.90		
GPRS 1900 (1 Uplink slot)	512	1850.20	29.54		
	661	1880.00	29.24		
	810	1909.80	28.83		
GPRS 1900 (2 Uplink slots)	512	1850.20	28.83		
	661	1880.00	28.58		
	810	1909.80	28.18		
GPRS 1900 (3 Uplink slots)	512	1850.20	27.20		
	661	1880.00	26.98		
	810	1909.80	26.55		
GPRS 1900 (4 Uplink slots)	512	1850.20	26.18		
	661	1880.00	25.95		
	810	1909.80	25.46		

-

6.6 Occupy Bandwidth

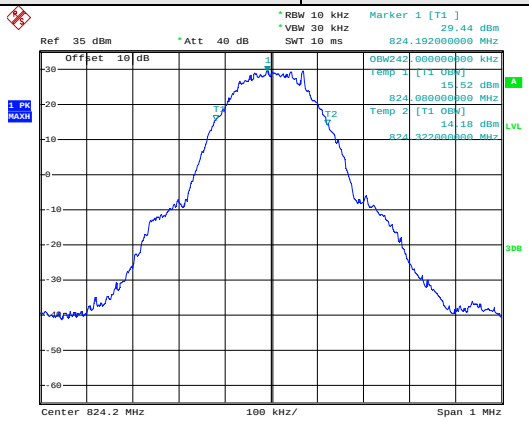
Test Requirement:	**FCC part 22.913(a) and FCC part 24.232(b)**
Test Method:	**FCC part 2.1049**
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% of emission BW, VBW= 3 times RBW. 3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	**Passed**

Measurement Data

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
GSM 850	128	824.20	242	320
	190	836.60	244	316
	251	848.80	246	314
PCS 1900	512	1850.20	246	318
	661	1880.00	244	316
	810	1909.80	244	316

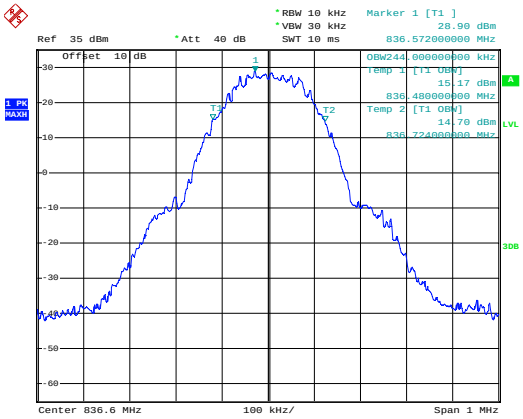
Test plot as follows:

Test Item:	99% Occupy bandwidth	Test Mode:	GSM850



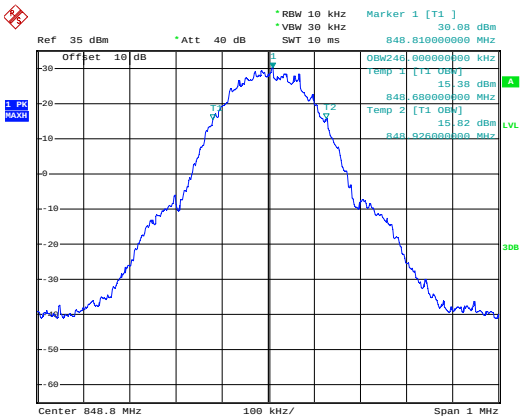
Date: 31.MAR.2013 10:51:08

Lowest channel



Date: 31.MAR.2013 11:10:03

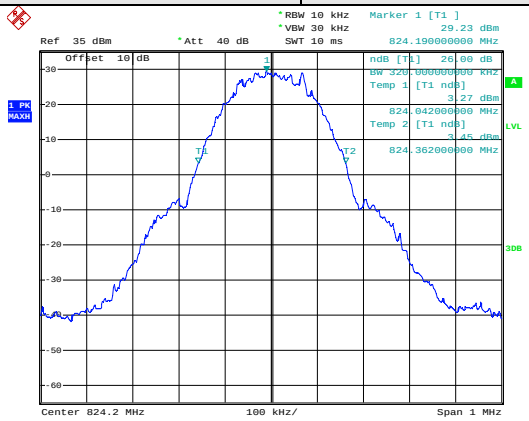
Middle channel



Date: 31.MAR.2013 11:11:01

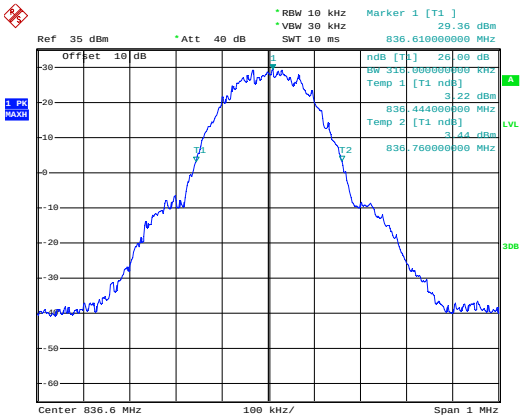
Highest channel

Test Item:	-26dB bandwidth	Test Mode:	GSM850



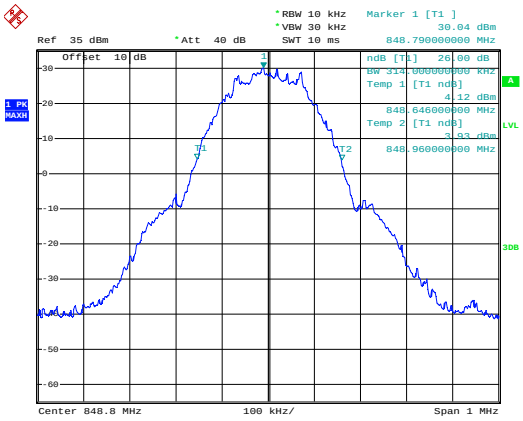
Date: 31.MAR.2013 10:48:26

Lowest channel



Date: 31.MAR.2013 11:09:30

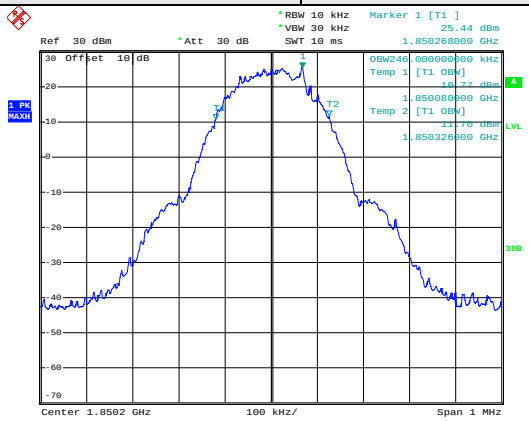
Middle channel



Date: 31.MAR.2013 11:11:52

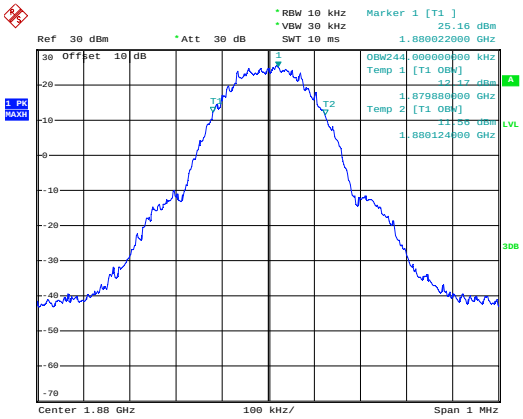
Highest channel

Test Item:	99% Occupy bandwidth	Test Mode:	PCS 1900



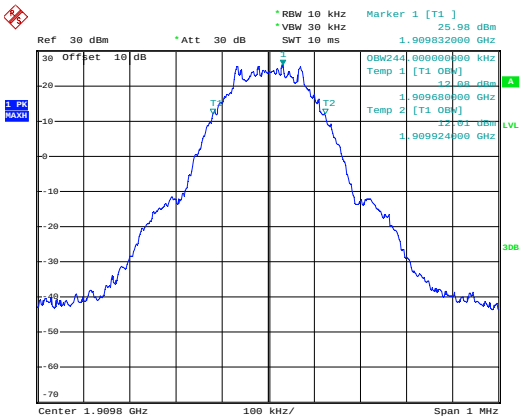
Date: 31.MAR.2013 11:23:57

Lowest channel



Date: 31.MAR.2013 11:26:54

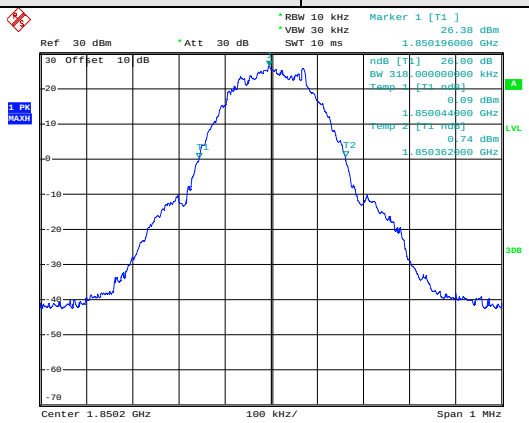
Middle channel



Date: 31.MAR.2013 11:27:50

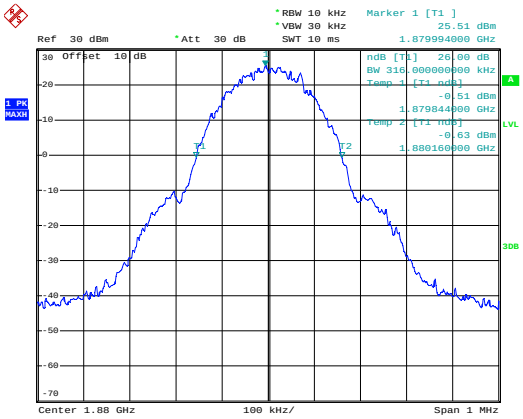
Highest channel

Test Item:	-26dB bandwidth	Test Mode:	PCS 1900



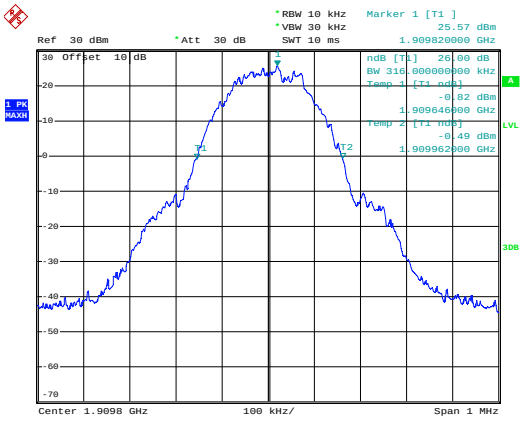
Date: 31.MAR.2013 11:24:57

Lowest channel



Date: 31.MAR.2013 11:25:59

Middle channel



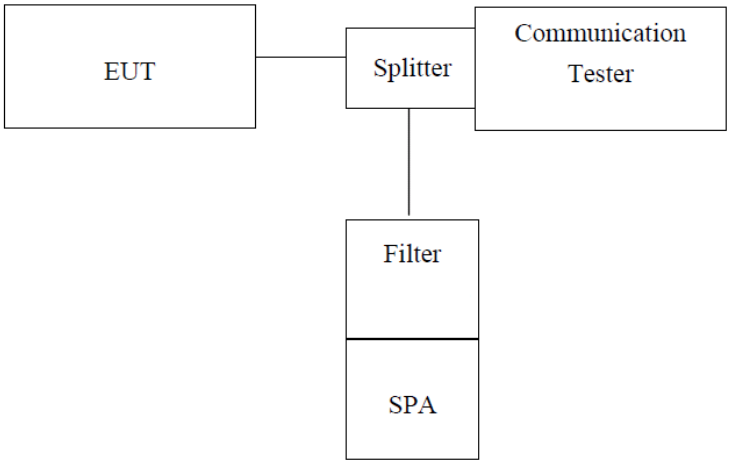
Date: 31.MAR.2013 11:28:24

Highest channel

6.7 Modulation Characteristic

According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

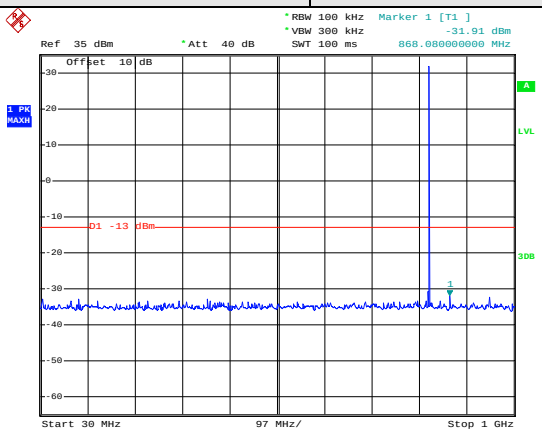
6.8 Out of band emission at antenna terminals

Test Requirement:	**FCC part 22.917(a) and FCC part 24.238(a)**
Test Method:	**FCC part 2.1051**
Limit:	**-13dBm**
Test setup:	 ***Note:*** *Measurement setup for testing on Antenna connector*
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 1MHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	**Passed**

Test plot as follows:

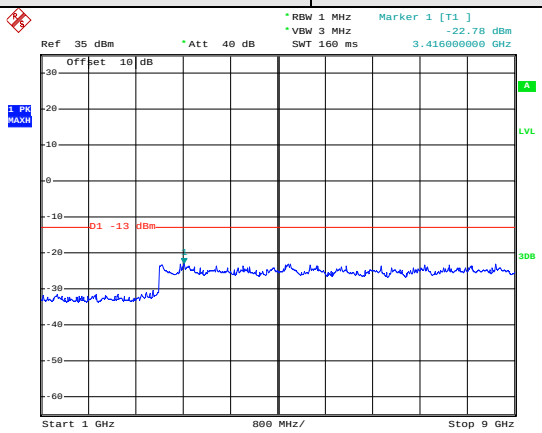
Spurious emission

Test Mode:	GSM850	Test Channel:	Lowest channel



Date: 31.MAR.2013 10:59:13

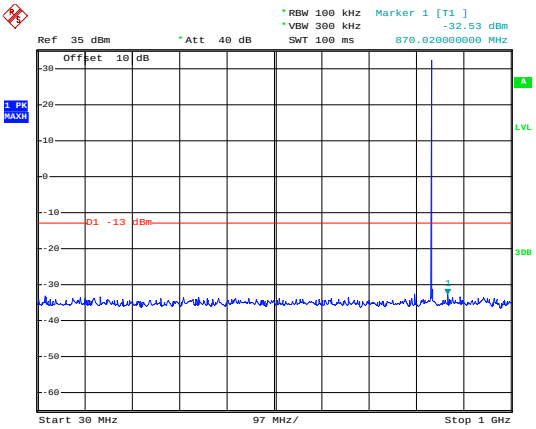
30MHz~1GHz



Date: 31.MAR.2013 10:59:59

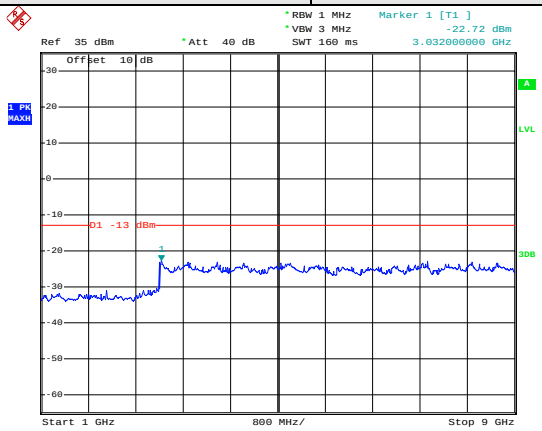
1GHz~9GHz

Test Mode:	GSM850	Test Channel:	Middle channel



Date: 31.MAR.2013 11:01:28

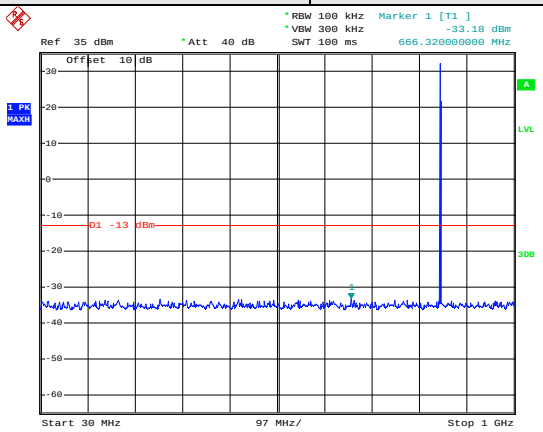
30MHz~1GHz



Date: 31.MAR.2013 11:00:48

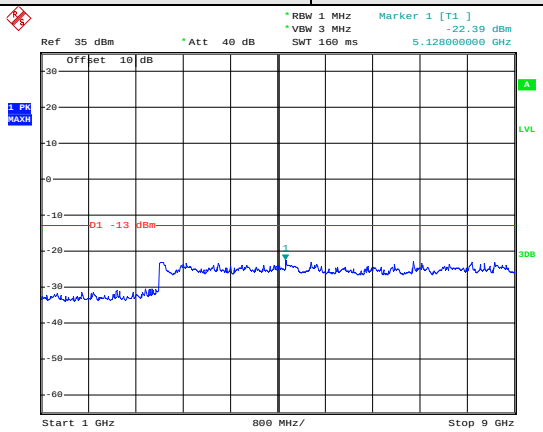
1GHz~9GHz

Test Mode:	GSM850	Test Channel:	Highest channel



Date: 31.MAR.2013 11:02:08

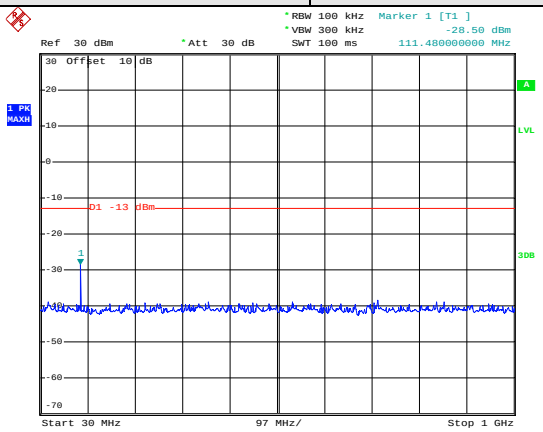
30MHz~1GHz



Date: 31.MAR.2013 11:02:43

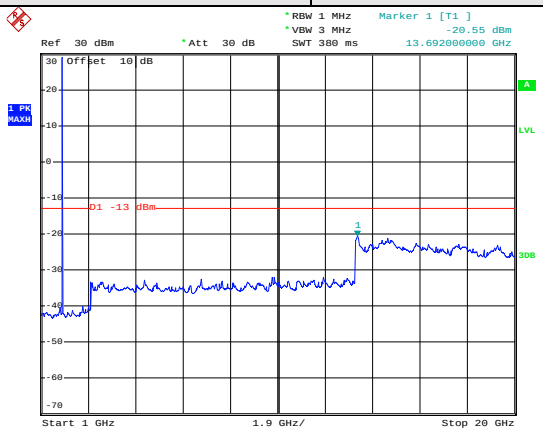
1GHz~9GHz

Test Mode:	PCS1900	Test Channel:	Lowest channel



Date: 31.MAR.2013 11:34:32

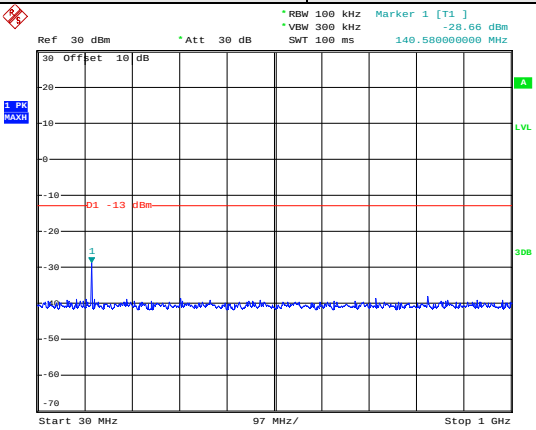
30MHz~1GHz



Date: 31.MAR.2013 11:35:16

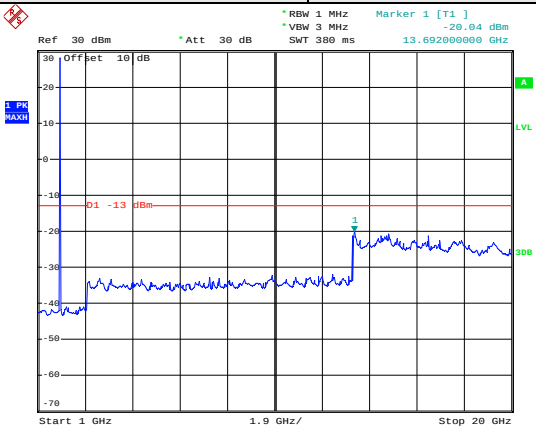
1GHz~20GHz

Test Mode:	PCS1900	Test Channel:	Middle channel



Date: 31.MAR.2013 11:36:20

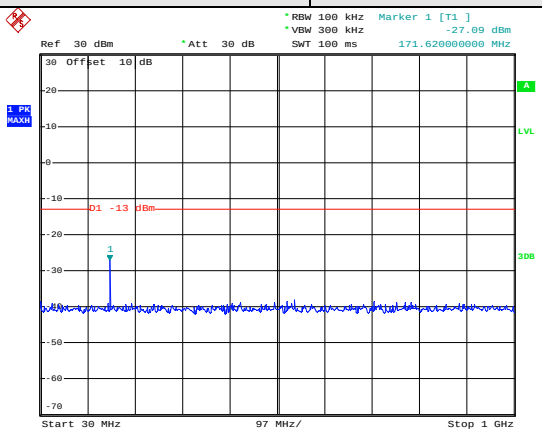
30MHz~1GHz



Date: 31.MAR.2013 11:35:45

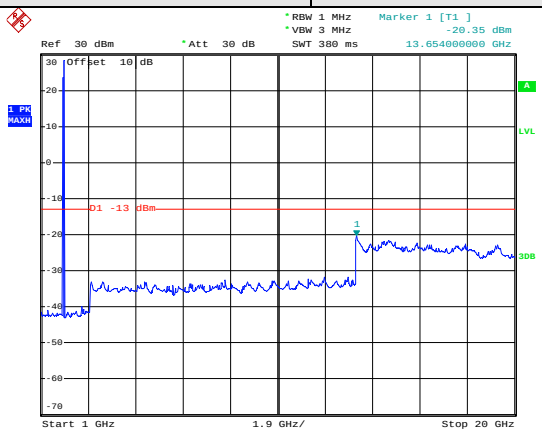
1GHz~20GHz

Test Mode:	PCS1900	Test Channel:	Highest channel



Date: 31.MAR.2013 11:36:43

30MHz~1GHz

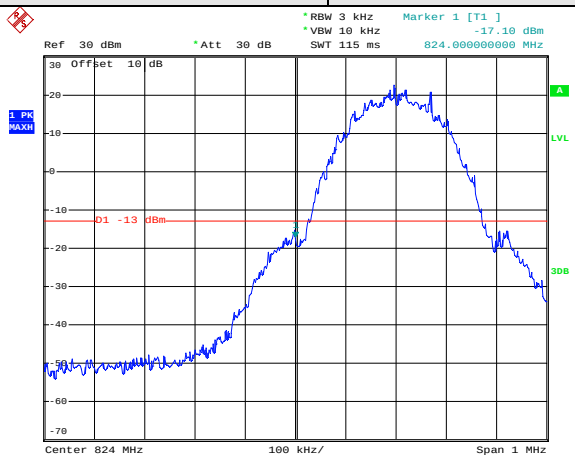


Date: 31.MAR.2013 11:37:20

1GHz~20GHz

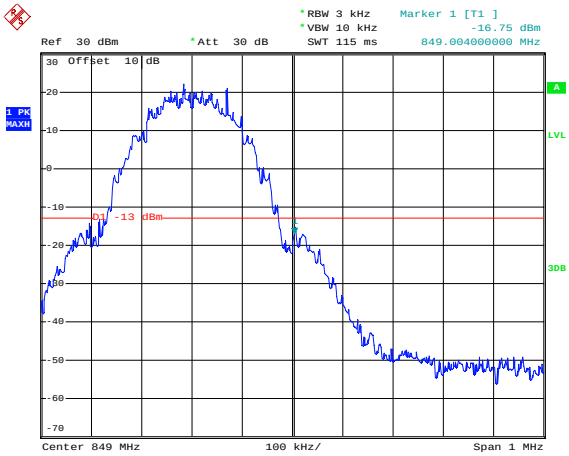
Band edge emission:

Test Mode:	GSM850



Date: 31.MAR.2013 10:57:07

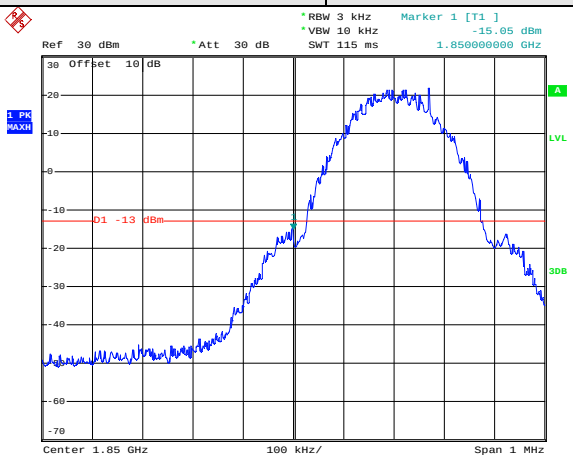
Lowest channel



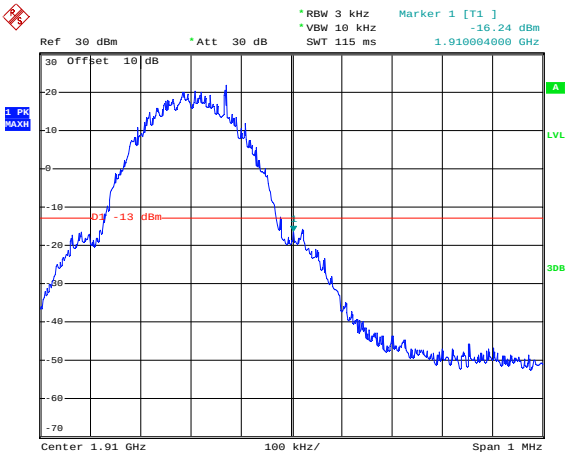
Date: 31.MAR.2013 11:07:42

Highest channel

Test Mode:	PCS1900

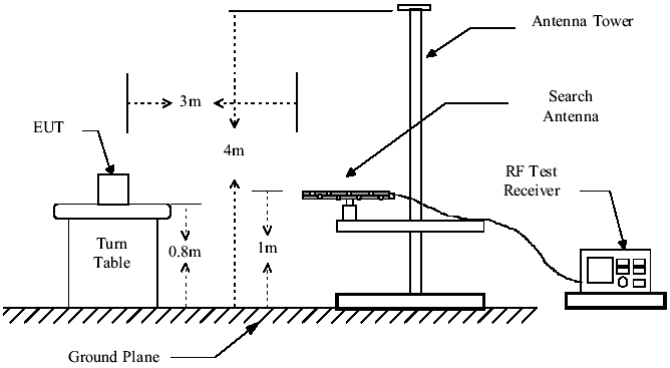
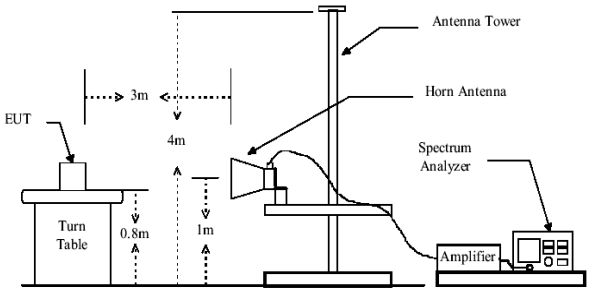
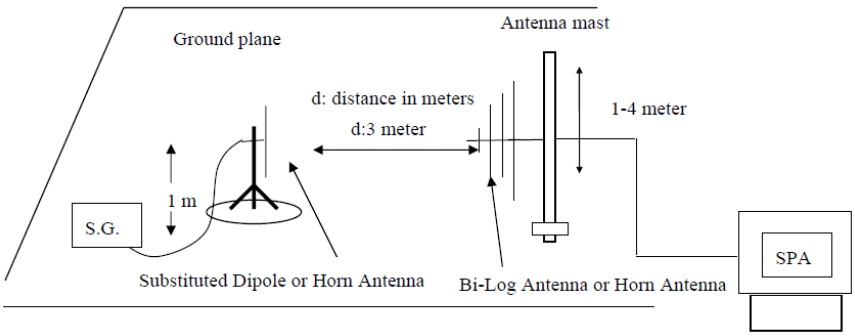


Lowest channel



Highest channel

6.9 ERP, EIRP Measurement

Test Requirement:	**FCC part 22.913(a) and FCC part 24.232(b)**
Test Method:	**FCC part 2.1046**
Limit:	**GSM850 7W ERP** **PCS1900 2W EIRP**
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

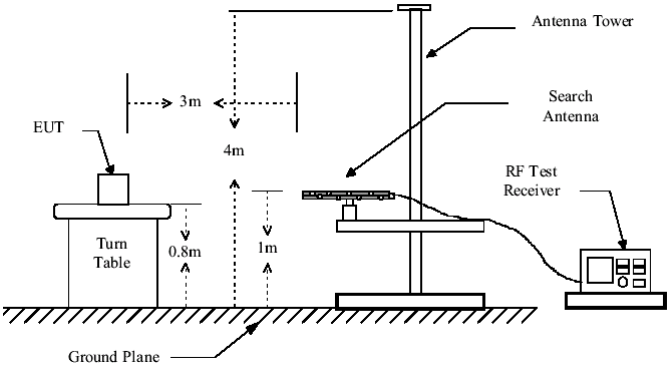
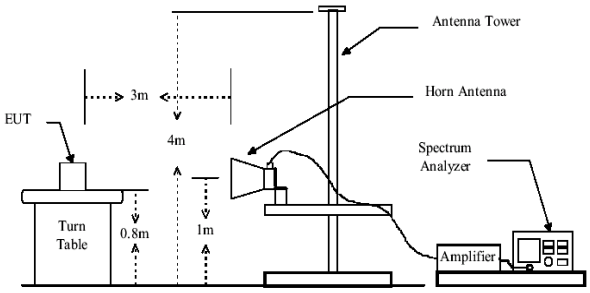
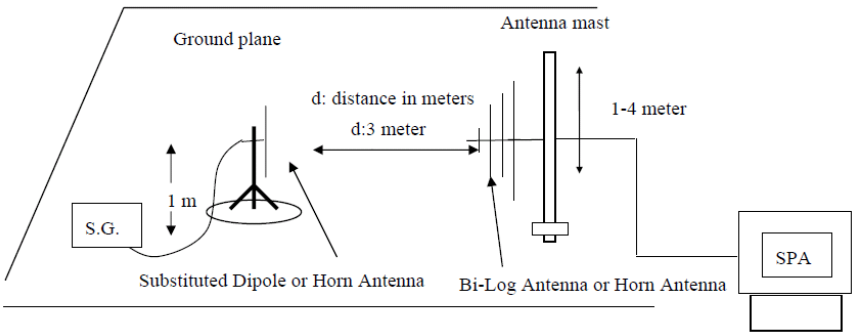
Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated. 3. ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated asfollows: ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB) 4. EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows: EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB) 5. The worse case was relating to the conducted output power.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	All three channels of GSM850 and PCS1900 are tested, but the test data of this report only shows the worst channel.

Measurement Data (worst case)

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850	251	H	V	29.26	38.50	Pass
			H	27.25		
		E1	V	28.95		
			H	26.87		
		E2	V	29.01		
			H	27.12		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
PCS1900	512	H	V	25.91	33.00	Pass
			H	22.67		
		E1	V	25.41		
			H	22.32		
		E2	V	25.34		
			H	22.15		

6.10 Field strength of spurious radiation measurement

Test Requirement:	**FCC part 22.917(a) and FCC part 24.238(a)**
Test Method:	**FCC part 2.1053**
Limit:	**-13dBm**
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 
Test Procedure:	1. The EUT was placed on a 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. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT

	positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dBd/dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Test mode:	GSM850		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1648.40	Vertical	-34.63	-13.00	Pass
2472.60	V	-44.52		
3296.80	V	-50.26		
4121.00	V	-52.17		
4945.20	V	-53.86		
5769.40	V	-50.36		
1648.40	Horizontal	-40.76	-13.00	Pass
2472.60	H	-38.95		
3296.80	H	-42.75		
4121.00	H	-52.74		
4945.20	H	-53.63		
5769.40	H	-50.69		
Test mode:	**GSM850**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-37.96	-13.00	Pass
2509.80	V	-50.71		
3346.40	V	-51.84		
4183.00	V	-57.08		
5019.60	V	-54.04		
5856.20	V	-50.40		
1673.20	Horizontal	-41.30	-13.00	Pass
2509.80	H	-37.07		
3346.40	H	-43.91		
4183.00	H	-55.19		
5019.60	H	-50.96		
5856.20	H	-51.69		

Remark：

1. The emission behavior belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	GSM850		Test channel:	Highest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1697.60	Vertical	-31.20	-13.00	Pass
2546.40	V	-42.93		
3395.20	V	-45.59		
4244.00	V	-57.93		
5092.80	V	-53.68		
5941.60	V	-55.47		
1697.60	Horizontal	-32.46	-13.00	Pass
2546.40	H	-37.64		
3395.20	H	-42.69		
4244.00	H	-52.11		
5092.80	H	-48.76		
5941.60	H	-48.88		
Test mode:	**PCS1900**		**Test channel:**	**Lowest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3700.40	Vertical	-42.58	-13.00	Pass
5550.60	V	-46.25		
7400.80	V	-44.82		
9251.00	V	-50.23		
11101.20	V	-51.47		
12951.40	V	-50.63		
3700.40	Horizontal	-43.19	-13.00	Pass
5550.60	H	-41.58		
7400.80	H	-46.57		
9251.00	H	-48.35		
11101.20	H	-49.89		
12951.40	H	-50.36		

Remark：

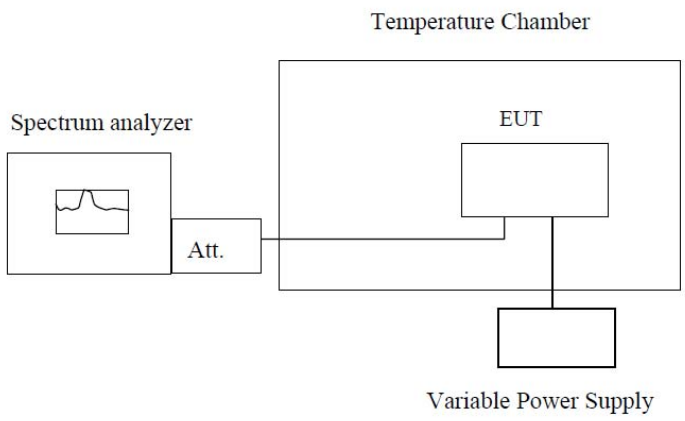
1. The emission behavior belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

Test mode:	PCS1900		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-55.13	-13.00	Pass
5640.00	V	-49.09		
7520.00	V	-48.96		
9400.00	V	-50.24		
11280.00	V	-51.06		
13160.00	V	-40.22		
3760.00	Horizontal	-49.16	-13.00	Pass
5640.00	H	-42.86		
7520.00	H	-48.95		
9400.00	H	-49.65		
11280.00	H	-50.47		
13160.00	H	-51.96		
Test mode:	**PCS1900**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3819.60	Vertical	-39.65	-13.00	Pass
5729.40	V	-42.53		
7639.20	V	-45.86		
9549.00	V	-49.58		
11458.80	V	-50.24		
13368.60	V	-51.75		
3819.60	Horizontal	-40.36	-13.00	Pass
5729.40	H	-42.37		
7639.20	H	-43.85		
9549.00	H	-46.78		
11458.80	H	-50.38		
13368.60	H	-51.89		

Remark：

1. The emission behavior belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

6.11 Frequency stability V.S. Temperature measurement

Test Requirement:	**FCC Part2.1055(a)(1)(b)**
Test Method:	**FCC Part2.1055(a)(1)(b)**
Limit:	**2.5ppm**
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	**Passed**

Measurement Data

Reference Frequency: GSM850 Lowest channel=128 channel=824.2MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	35	0.042465	2.5	Pass
	-20	59	0.071585		
	-10	38	0.046105		
	0	34	0.041252		
	10	35	0.042465		
	20	37	0.044892		
	30	43	0.052172		
	40	42	0.050959		
	50	33	0.040039		

Reference Frequency: PCS1900 Lowest channel=512 channel=1850.2MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error			Result
		Hz	ppm		
3.70	-30	42	0.022700	2.5	Pass
	-20	57	0.030807		
	-10	41	0.022160		
	0	35	0.018917		
	10	45	0.024322		
	20	42	0.022700		
	30	35	0.018917		
	40	38	0.020538		
	50	45	0.024322		

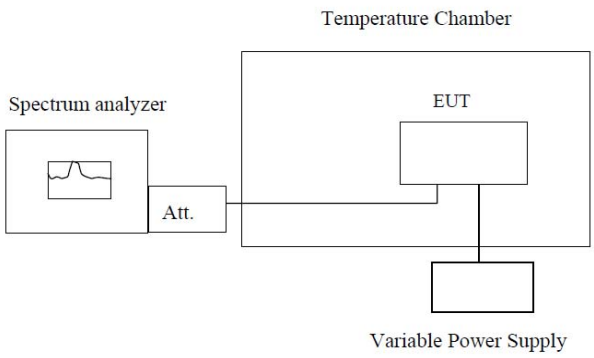
Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature（℃）	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	43	0.051399	2.5	Pass
	-20	50	0.059766		
	-10	37	0.044227		
	0	46	0.054984		
	10	42	0.050203		
	20	50	0.059766		
	30	48	0.057375		
	40	39	0.046617		
	50	40	0.047813		

Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature（℃）	Frequency error			Result
		Hz	ppm		
3.70	-30	43	0.022872	2.5	Pass
	-20	40	0.021277		
	-10	42	0.022340		
	0	41	0.021809		
	10	43	0.022872		
	20	35	0.018617		
	30	40	0.021277		
	40	45	0.023936		
	50	44	0.023404		

Reference Frequency: GSM850 Highest channel=251 channel=848.8 MHz					
Power supplied (Vdc)	Temperature（℃）	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	44	0.051838	2.5	Pass
	-20	43	0.050660		
	-10	49	0.057729		
	0	37	0.043591		
	10	46	0.054194		
	20	45	0.053016		
	30	35	0.041235		
	40	31	0.036522		
	50	48	0.056550		

Reference Frequency: PCS1900 Highest channel=810 channel=1909.8MHz					
Power supplied (Vdc)	Temperature（℃）	Frequency error			Result
		Hz	ppm		
3.70	-30	41	0.021468	2.5	Pass
	-20	45	0.023563		
	-10	40	0.020945		
	0	35	0.018327		
	10	42	0.021992		
	20	35	0.018327		
	30	43	0.022515		
	40	40	0.020945		
	50	42	0.021992		

6.12 Frequency stability V.S. Voltage measurement

Test Requirement:	**FCC Part2.1055(d)(1)(2)**
Test Method:	**FCC Part2.1055(d)(1)(2)**
Limit:	**2.5ppm**
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 25℃. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/-15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	**Passed**

Measurement Data

Reference Frequency: GSM850 Lowest channel=128 channel=824.2MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	37	0.044892	2.5	Pass
	3.70	34	0.041252		
	3.40	49	0.059452		
Reference Frequency: PCS1900 Lowest channel=512 channel=1850.2MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	42	0.022700	2.5	Pass
	3.70	45	0.024322		
	3.40	40	0.021619		

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Temperature（℃）	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	51	0.060961	2.5	Pass
	3.70	38	0.045422		
	3.40	45	0.053789		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Temperature（℃）	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	41	0.021809	2.5	Pass
	3.70	43	0.022872		
	3.40	46	0.024468		

Reference Frequency: GSM850 Highest channel=251 channel=848.8MHz					
Temperature（℃）	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	38	0.044769	2.5	Pass
	3.70	46	0.054194		
	3.40	44	0.051838		
Reference Frequency: PCS1900 Highest channel=810 channel=1909.8MHz					
Temperature（℃）	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	40	0.020945	2.5	Pass
	3.70	42	0.021992		
	3.40	43	0.022515		