

# FCC REPORT (Mobile Phone)

**Applicant:** MAXCOM MOBILE

**Address of Applicant:** Room 2202 International Science and Technology Building, Futian District, 3007 Shennan Road, Shenzhen, China

## Equipment Under Test (EUT)

**Product Name:** GSM Mobile Phone

**Model No.:** GOODS-5130S, GOOD-5130, 5130, 5130S, COOL-5130, G5130, XTV-5130, LIKE-5130, SKIES-5130S

**Trade mark:** F.CELL, XTREME, MAXCOM, P.MOVIL, SKYNEW, PLAY, NEW, LIKE, HISKY

**FCC ID:** FWO5130S

**Applicable standards:** FCC CFR Title 47 Part 2: 2010

FCC CFR Title 47 Part22 Subpart H: 2010

FCC CFR Title 47 Part24 Subpart E: 2010

**Date of sample receipt:** Mar. 31, 2012

**Date of Test:** Apr. 05-25, 2012

**Date of report issued:** Apr. 25, 2012

**Test Result :** PASS \*

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

Authorized Signature:



Stephen Guo

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. Any mention of CCIS International Electrical Approvals or testing done by CCIS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by CCIS International Electrical Approvals in writing.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."

## 2 Version

Version No.	Date	Description
00	Apr. 25, 2012	Original

**Prepared By:**

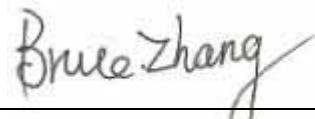


**Date:**

Apr. 25, 2012

**Project Engineer**

**Check By:**



**Date:**

Apr. 25, 2012

**Reviewer**

### 3 Contents

	Page
1 COVER PAGE.....	1
2 VERSION.....	2
3 CONTENTS.....	3
4 TEST SUMMARY.....	4
5 GENERAL INFORMATION.....	5
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF E.U.T.....	5
5.3 TEST MODE: .....	7
5.4 RELATED SUBMITTAL(S) / GRANT (S).....	7
5.5 TEST METHODOLOGY.....	7
5.6 TEST FACILITY.....	7
5.7 TEST LOCATION.....	7
5.8 TEST INSTRUMENTS LIST.....	8
6 SYSTEM TEST CONFIGURATION .....	9
6.1 EUT CONFIGURATION .....	9
6.2 EUT EXERCISE.....	9
6.3 CONFIGURATION OF TESTED SYSTEM .....	9
6.4 DESCRIPTION OF TEST MODES .....	9
6.5 CONDUCTED PEAK OUTPUT POWER .....	10
6.6 OCCUPY BANDWIDTH .....	12
6.7 MODULATION CHARACTERISTIC .....	15
6.8 OUT OF BAND EMISSION AT ANTENNA TERMINALS .....	15
6.9 ERP, EIRP MEASUREMENT .....	21
6.10 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT.....	24
6.11 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT.....	27
6.12 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT.....	29
7 TEST SETUP PHOTO.....	30
8 EUT CONSTRUCTIONAL DETAILS.....	31

## 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:	MAXCOM MOBILE
Address of Applicant:	Room 2202 International Science and Technology Building, Futian District, 3007 Shennan Road, Shenzhen, China
Manufacturer:	MAXCOM MOBILE
Address of Manufacturer	Room 2202 International Science and Technology Building, Futian District, 3007 Shennan Road, Shenzhen, China

### 5.2 General Description of E.U.T.

Product Name:	GSM Mobile Phone
Model No.:	GOODS-5130S, GOOD-5130, 5130, 5130S, COOL-5130, G5130, XTV-5130, LIKE-5130, SKIES-5130S
Trade mark:	F.CELL, XTREME, MAXCOM, P.MOVIL, SKYNEW, PLAY, NEW, LIKE, HISKY
Operation Frequency range:	GSM/GPRS 850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz
Type of Emission:	248KGXW
IMEI:	IMEI 1:355130120421355 IMEI 2:355130120421363
Software Version:	T27_DSF_EFSP_V1.0.7
Hardware Version:	A081-MB-V0.2
Antenna type:	Internal
Antenna gain:	GSM850: -3.71dBi PCS1900: -11.07dBi
Data cable(USB):	Length 1.0 m
Earphone line:	Length 1.2 m
AC adapter:	Trade Mark: <b>jmc</b> Input:100-240V AC,50/60Hz 80mA Output:4.5V-9.5V DC MAX 500mA
Power supply:	Rechargeable Li-ion Battery DC3.7V
Remark:	Just test the mode No. GOODS-5130S GOODS-5130S, GOOD-5130, 5130, 5130S, COOL-5130, G5130, XTV-5130, LIKE-5130 and SKIES-5130S are identical in the same PCB layout, interior structure and electrical circuits. The only differences are the model name, Trade mark and the color of the appearance.

**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.

**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 Test Facility**

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

● **FCC —Registration No.:** 817957

China Certification & Inspection Services Co., Ltd., Shenzhen 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

● **Industry Canada (IC)**

The 3m Semi-anechoic chamber of China Certification & Inspection Services Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

**5.7 Test Location**

All tests were performed at:

China Certification & Inspection Services Co., Ltd.

Address: 1st Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, 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	Aug. 09 2011	Aug. 09 2012
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	June 16 2011	June 16 2012
3	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	June 09 2011	June 09 2012
4	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	June 09 2011	June 09 2012
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Coaxial Cable	CCIS	N/A	CCIS0016	Mar. 01 2012	Mar. 01 2013
7	Coaxial Cable	CCIS	N/A	CCIS0017	Mar. 01 2012	Mar. 01 2013
8	Coaxial cable	CCIS	N/A	CCIS0018	Mar. 01 2012	Mar. 01 2013
9	Coaxial Cable	CCIS	N/A	CCIS0019	Mar. 01 2012	Mar. 01 2013
10	Coaxial Cable	CCIS	N/A	CCIS0087	Mar. 01 2012	Mar. 01 2013
11	Amplifier(10KHz-1.3GHz)	HP	8447D	CCIS0003	Aug. 03 2011	Aug. 03 2012
12	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	Aug. 05 2011	Aug. 05 2012
13	Spectrum analyzer	Rohde & Schwarz	FSP	CCIS0023	June 22 2011	June 22 2012
14	Printer	Hp	HP LaserJet P1007	N/A	N/A	N/A
15	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A
16	Universal radio communication tester	Rohde & Schwarz	CMU200	CCIS0069	May 11 2011	May 10 2012

## 6 System test configuration

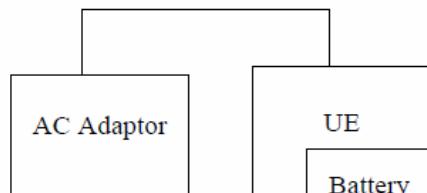
### 6.1 EUT Configuration

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

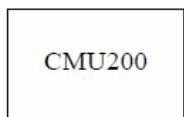
### 6.2 EUT Exercise

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



Remote Side



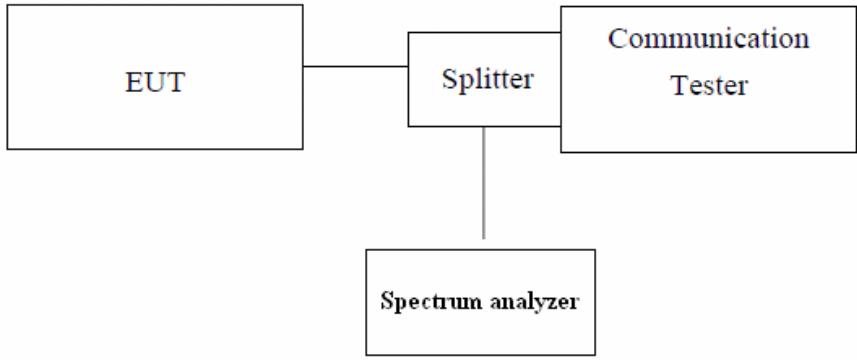
### 6.4 DESCRIPTION OF TEST MODES

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 adaptors, 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:	 <pre> graph LR     EUT[EUT] --- Splitter[Splitter]     Splitter --- CommTester[Communication Tester]     Splitter --- SpectrumAnalyzer[Spectrum analyzer]   </pre> <p><i>Note: Measurement setup for testing on Antenna connector</i></p>
Test Procedure:	
The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the power meter. Transmitter output was read off the power meter 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)	PK power (dBm)	Limit(dBm)	Result
GSM 850	128	824.20	33.28	38.45	Pass
	190	836.60	33.32		
	251	848.80	33.20		
PCS 1900	512	1850.20	31.11	33.00	Pass
	661	1880.00	30.80		
	810	1909.80	30.53		
GPRS 850 (1 Uplink slot)	128	824.20	33.18	38.45	Pass
	190	836.60	33.22		
	251	848.80	33.11		
GPRS 1900 (1 Uplink slot)	512	1850.20	31.11	33.00	Pass
	661	1880.00	30.68		
	810	1909.80	30.53		
GPRS 850 (2 Uplink slot)	128	824.20	32.30	38.45	Pass
	190	836.60	32.19		
	251	848.80	32.07		
GPRS 1900 (2 Uplink slot)	512	1850.20	30.41	33.00	Pass
	661	1880.00	30.22		
	810	1909.80	29.98		
GPRS 850 (3 Uplink slot)	128	824.20	30.45	38.45	Pass
	190	836.60	30.28		
	251	848.80	30.15		
GPRS 1900 (3 Uplink slot)	512	1850.20	29.22	33.00	Pass
	661	1880.00	29.15		
	810	1909.80	29.04		
GPRS 850 (4 Uplink slot)	128	824.20	29.35	38.45	Pass
	190	836.60	29.12		
	251	848.80	28.87		
GPRS 1900 (4 Uplink slot)	512	1850.20	28.52	33.00	Pass
	661	1880.00	28.55		
	810	1909.80	28.51		

## 6.6 Occupy Bandwidth

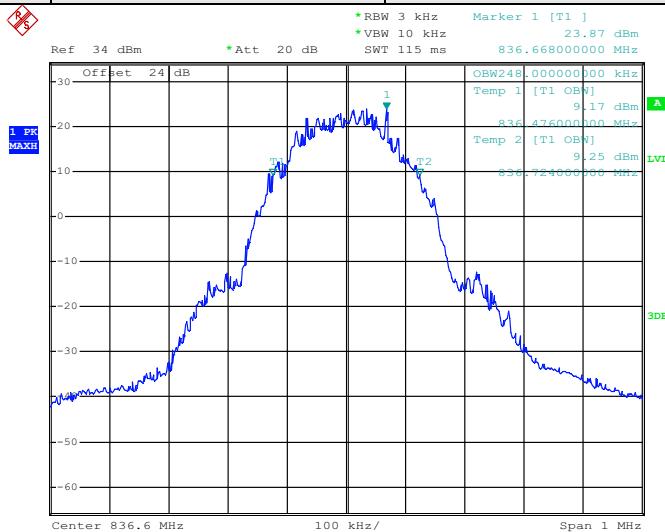
Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1049
Test setup:	<p><i>Note: Measurement setup for testing on Antenna connector</i></p>
<p><b>Test Procedure:</b></p> <ol style="list-style-type: none"> <li>1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer</li> <li>2. RBW was set to about 1% of emission BW, VBW= 3 times RBW.</li> <li>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.</li> </ol>	
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	190	836.60	248	304
PCS 1900	661	1880.00	244	314

Test plot as follows:

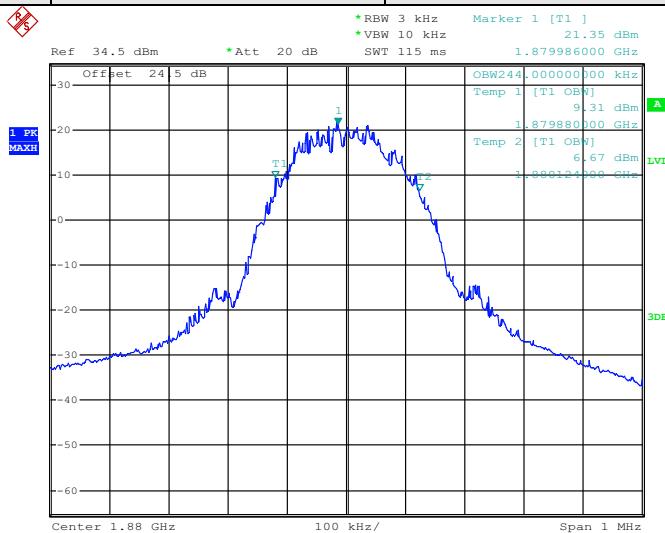
Test Item:	99% Occupy bandwidth	Test Mode:	GSM850
------------	----------------------	------------	--------



Date: 10.APR.2012 08:52:39

Middle channel

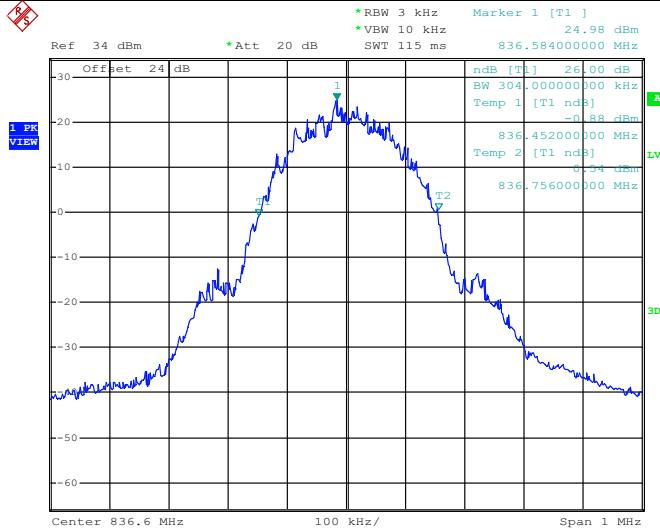
Test Item:	99% Occupy bandwidth	Test Mode:	PCS1900
------------	----------------------	------------	---------



Date: 10.APR.2012 08:12:58

Middle channel

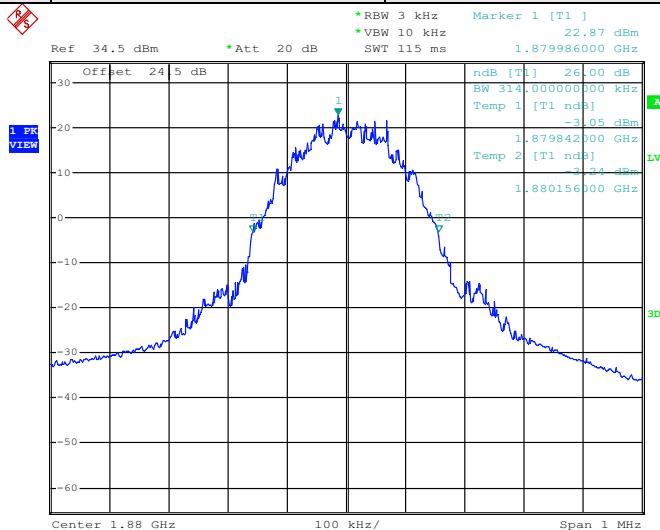
Test Item:	-26dB bandwidth	Test Mode:	GSM850
------------	-----------------	------------	--------



Date: 10.APR.2012 08:53:08

### Middle channel

Test Item:	-26dB bandwidth	Test Mode:	PCS1900
------------	-----------------	------------	---------



Date: 10.APR.2012 08:14:02

### Middle 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.

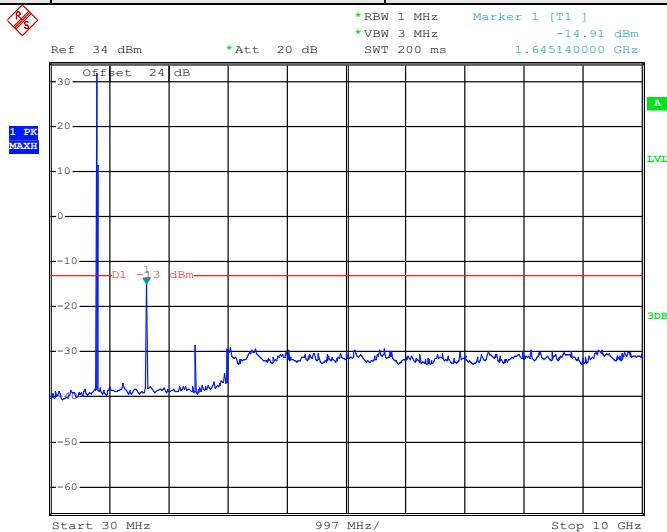
## 6.8 Out of band emission at antenna terminals

Test Requirement:	FCC part22.917(a) and FCC part24.238(a)
Test Method:	FCC part2.1051
Limit:	-13dBm
Test setup:	<pre> graph LR     EUT[EUT] --- Splitter[Splitter]     Splitter --- CommTester[Communication Tester]     Splitter --- Filter[Filter]     Filter --- SPA[SPA]   </pre>
<i>Note: Measurement setup for testing on Antenna connector</i>	
Test Procedure:	<ol style="list-style-type: none"> <li>1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.</li> <li>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.</li> <li>3 For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10th harmonic.</li> <li>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.</li> </ol>
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**

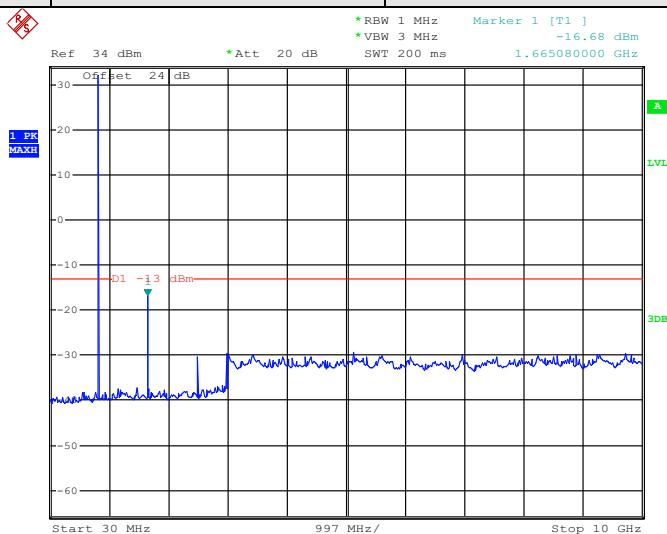
Test Mode:	GSM850	Test Channel:	Lowest channel
------------	--------	---------------	----------------



Date: 10.APR.2012 08:49:24

30MHz~10GHz

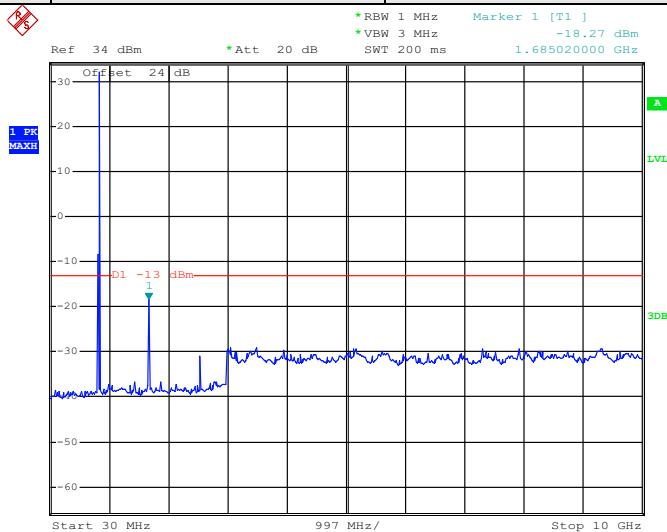
Test Mode:	GSM850	Test Channel:	Middle channel
------------	--------	---------------	----------------



Date: 10.APR.2012 08:49:40

30MHz~10GHz

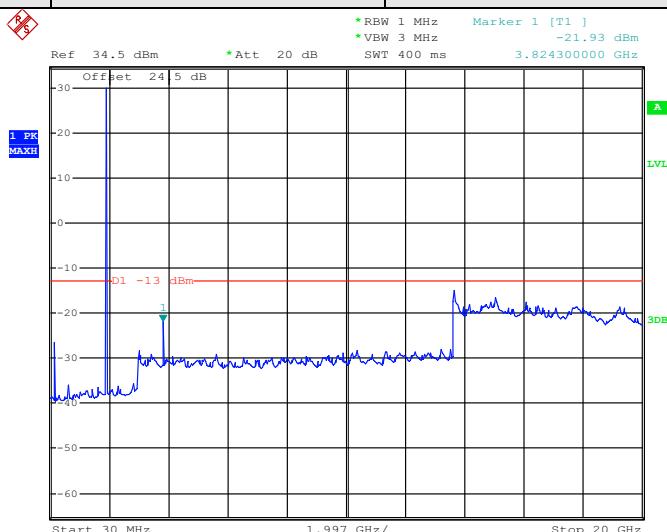
Test Mode:	GSM850	Test Channel:	Highest channel
------------	--------	---------------	-----------------



Date: 10.APR.2012 08:50:12

30MHz~10GHz

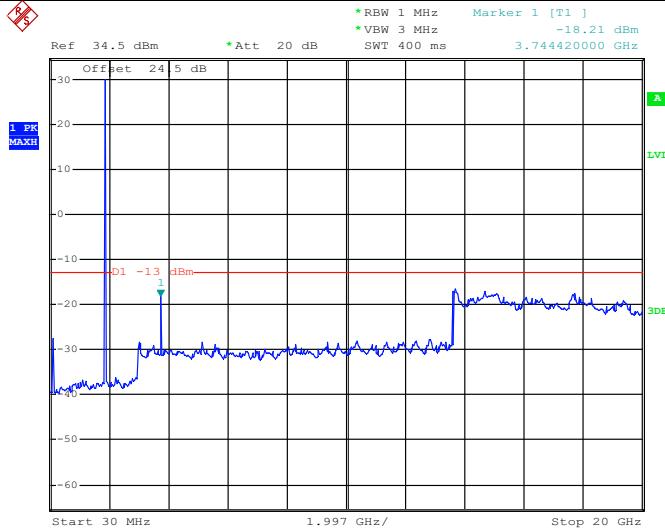
Test Mode:	PCS1900	Test Channel:	Lowest channel
------------	---------	---------------	----------------



Date: 10.APR.2012 08:40:59

30MHz~20GHz

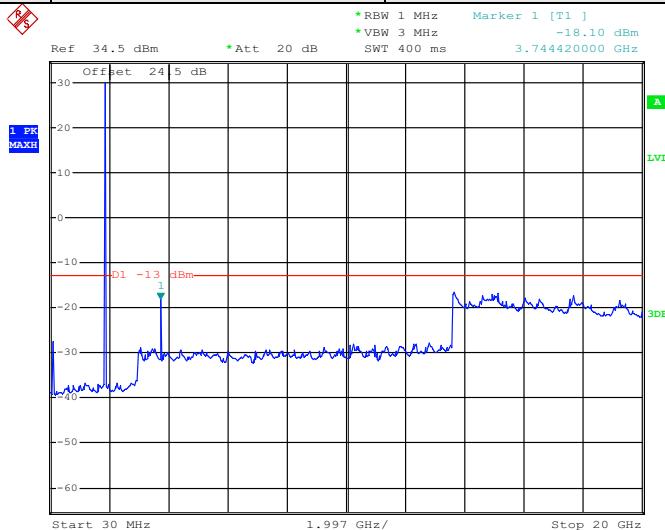
Test Mode:	PCS1900	Test Channel:	Middle channel
------------	---------	---------------	----------------



Date: 10.APR.2012 08:41:33

30MHz~20GHz

Test Mode:	PCS1900	Test Channel:	Highest channel
------------	---------	---------------	-----------------



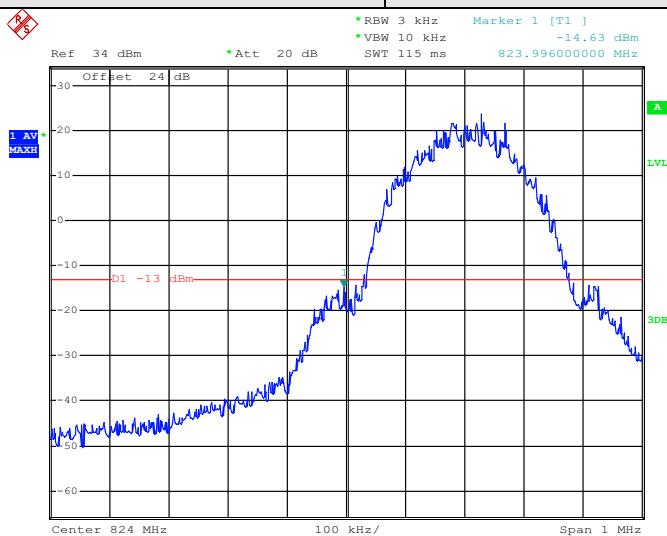
Date: 10.APR.2012 08:42:14

30MHz~20GHz

**Band edge emission:**

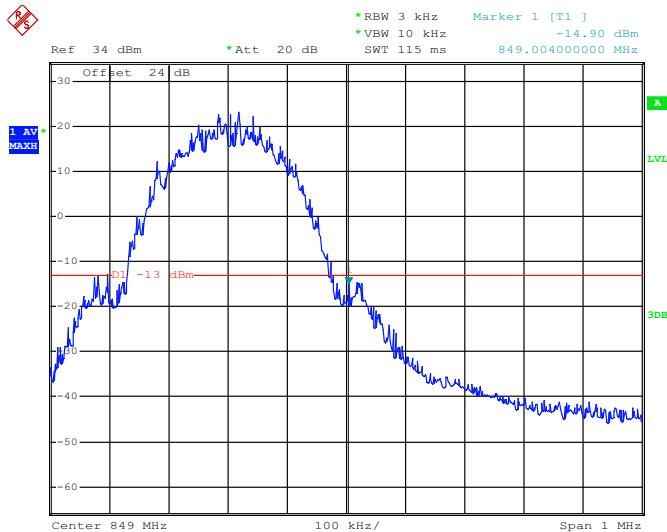
Test Mode:

GSM850



Date: 10.APR.2012 08:53:55

**Lowest channel**

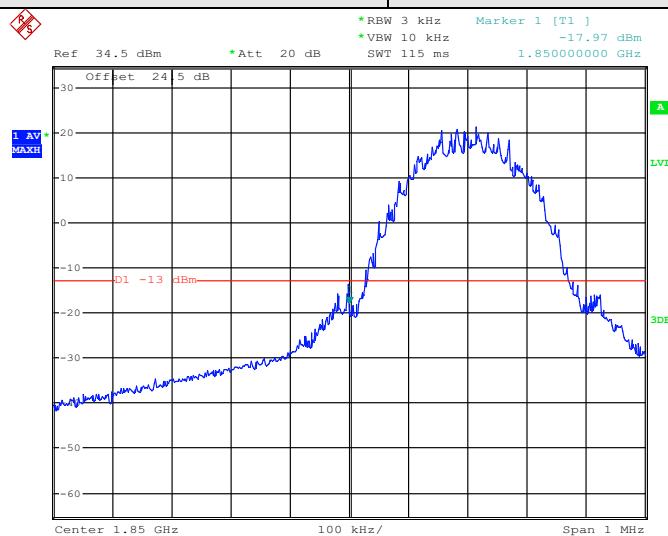


Date: 10.APR.2012 08:54:26

**Highest channel**

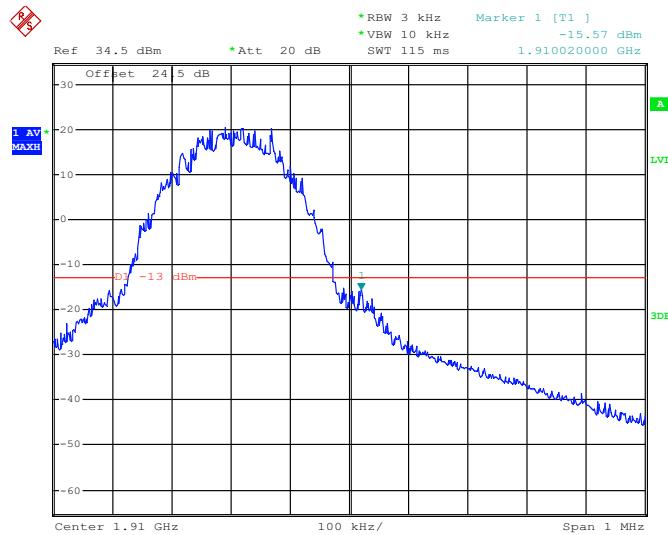
Test Mode:

PCS1900



Date: 10.APR.2012 08:23:39

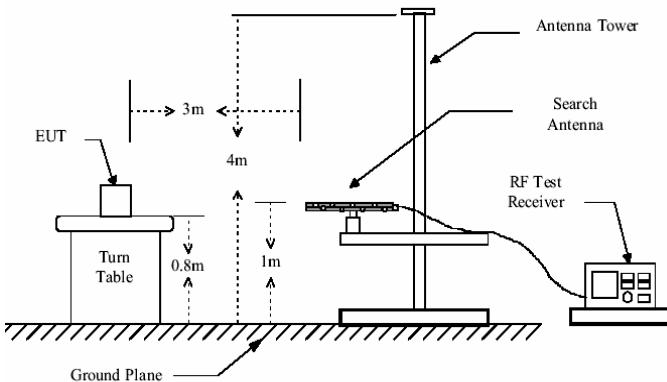
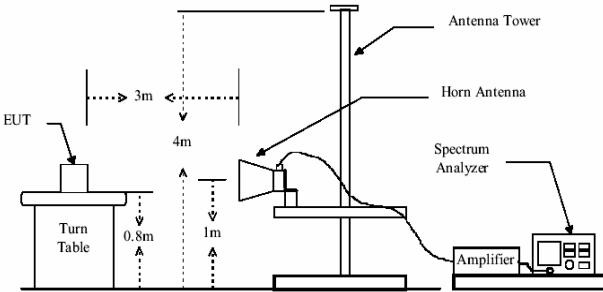
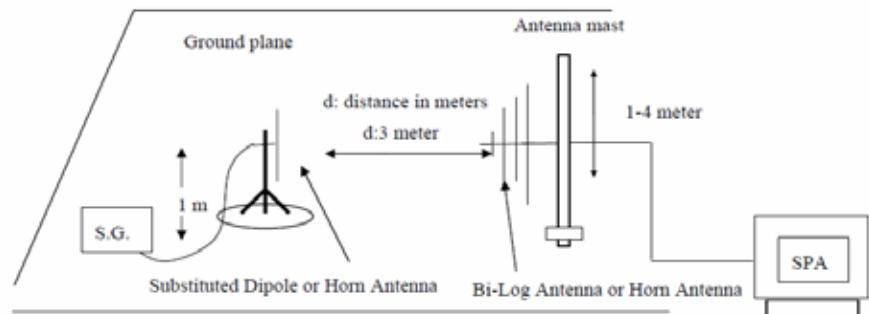
### Lowest channel



Date: 10.APR.2012 08:24:53

### Highest channel

## 6.9 ERP, EIRP Measurement

Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1046
Limit:	GSM850 7W ERP PCS1900 2W EIRP
Test setup:	<p>Below 1GHz</p>  <p>Above 1GHz</p>  <p>Substituted method:</p> 

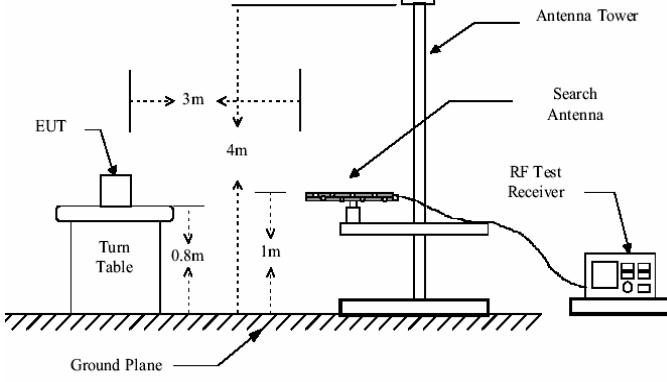
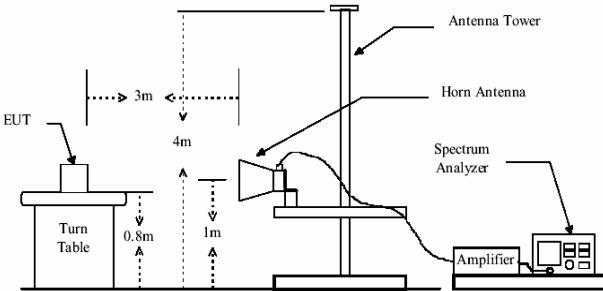
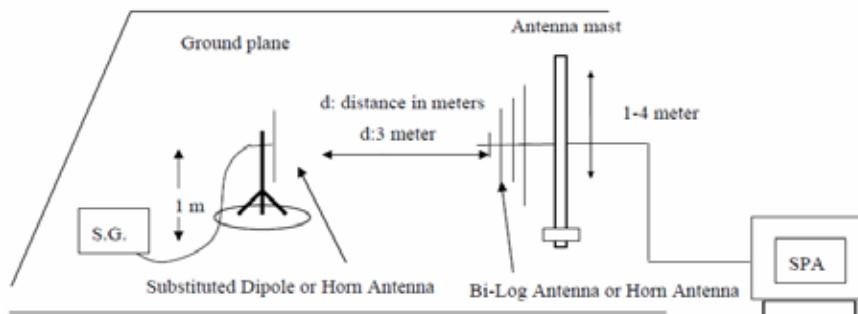
Test Procedure:	<ol style="list-style-type: none"><li>1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.</li><li>2. During the measurement, the EUT was 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.</li><li>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 as follows: <math display="block">\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable Loss (dB)}</math></li><li>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: <math display="block">\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}</math></li><li>5. The worse case was relating to the conducted output power.</li></ol>
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Measurement Data (worse case)**

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850	190	H	V	27.46	38.45	Pass
			H	21.16		
		E1	V	27.32		
			H	21.02		
		E2	V	27.38		
			H	20.68		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
PCS1900	512	H	V	20.04	33.00	Pass
			H	11.72		
		E1	V	19.89		
			H	11.45		
		E2	V	19.48		
			H	10.85		

## 6.10 Field strength of spurious radiation measurement

Test Requirement:	FCC part22.917(a) and FCC part24.238(a)
Test Method:	FCC part2.1053
Limit:	-13dBm
Test setup:	<p>Below 1GHz</p>  <p>Above 1GHz</p>  <p>Substituted method:</p> 

Test Procedure:	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.</li><li>4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. <math display="block">\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}</math></li></ol>
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

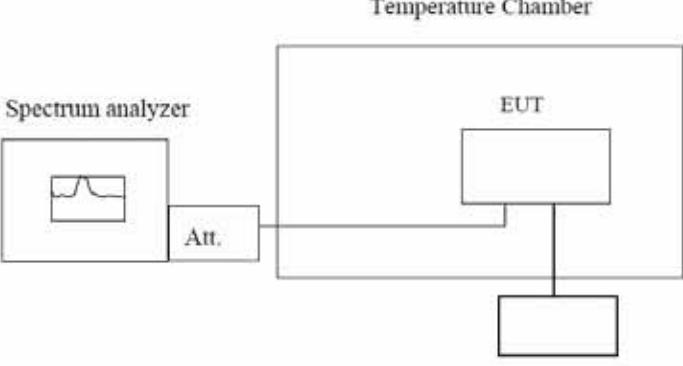
Measurement Data

Test mode:	GSM850		Test channel:	Middle
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.2	Vertical	-19.10	-13.00	Pass
2509.8	Vertical	-27.14		
3346.4	Vertical	-29.91		
1673.2	Horizontal	-26.16	-13.00	Pass
2509.8	Horizontal	-18.69		
3346.4	Horizontal	-21.58		
Test mode:	PCS1900		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1960.0	Vertical	-35.51	-13.00	Pass
3700.4	Vertical	-13.40		
5550.6	Vertical	-17.00		
1960.0	Horizontal	-31.73	-13.00	Pass
3700.4	Horizontal	-17.29		
5550.6	Horizontal	-20.10		

Remark :

1. The emission behavior belongs to narrowband spurious emission.
2. 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:	 <p>Temperature Chamber</p> <p>Spectrum analyzer</p> <p>Att.</p> <p>EUT</p> <p>Variable Power Supply</p> <p><b>Note :</b> Measurement setup for testing on Antenna connector</p>
Test procedure:	<ol style="list-style-type: none"> <li>1. The equipment under test was connected to an external DC power supply and input rated voltage.</li> <li>2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.</li> <li>3. The EUT was placed inside the temperature chamber.</li> <li>4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.</li> <li>5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.</li> <li>6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached</li> </ol>
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

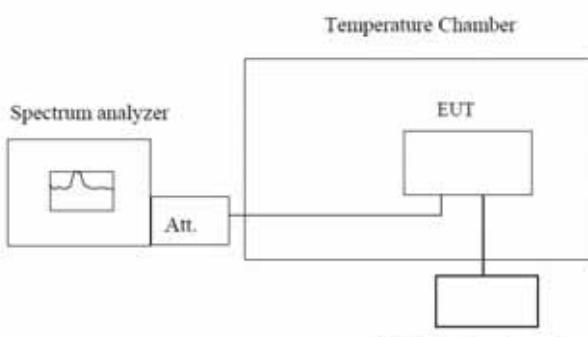
Measurement Data

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	40	0.04781	2.5	Pass
	-20	37	0.04423		
	-10	35	0.04184		
	0	46	0.05498		
	10	44	0.05259		
	20	39	0.04662		
	30	38	0.04542		
	40	32	0.03825		
	50	41	0.04901		

Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Result	
		Hz	ppm		
3.70	-30	29	0.01543	2.5	Pass
	-20	35	0.01862		
	-10	36	0.01915		
	0	21	0.01117		
	10	29	0.01543		
	20	46	0.02447		
	30	41	0.02181		
	40	23	0.01223		
	50	27	0.01436		

## 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:	 <p>Note : Measurement setup for testing on Antenna connector</p>
Test procedure:	<ol style="list-style-type: none"> <li>1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.</li> <li>2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.</li> <li>3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.</li> </ol>
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 Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	30	0.03586	2.5	Pass
	3.70	25	0.02988		
	3.40	28	0.03347		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	37	0.01968	2.5	Pass
	3.70	39	0.02074		
	3.40	33	0.01755		