



FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E

TEST REPORT

For

GPRS Cradle

Model: 8000 GPRS Cradle

Trade Name: CIPHERLAB

Issued to

**Cipherlab Co., Ltd.
12F, 333 Dunhua S. Rd., Sec.2,
Taipei, Taiwan R.O.C.**

Issued by



**Compliance Certification Services Inc.
No. 11, Wu-Gong 6th Rd., Wugu Industrial Park,
Taipei Hsien 248, Taiwan (R.O.C.)
<http://www.ccsemc.com.tw>
service@ccsrf.com**



Note: This report shall not be reproduced except in full, without the written approval of Compliance Certification Services Inc. This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document.



TABLE OF CONTENTS

- 1. TEST RESULT CERTIFICATION..... 3**
- 2. EUT DESCRIPTION 4**
- 3. TEST METHODOLOGY 5**
 - 3.1 EUT CONFIGURATION 5
 - 3.2 EUT EXERCISE 5
 - 3.3 GENERAL TEST PROCEDURES 5
 - 3.4 DESCRIPTION OF TEST MODES 6
- 4. INSTRUMENT CALIBRATION..... 7**
 - 4.1 MEASURING INSTRUMENT CALIBRATION 7
 - 4.2 MEASUREMENT EQUIPMENT USED 8
 - 4.3 MEASUREMENT UNCERTAINTY 9
- 5. FACILITIES AND ACCREDITATIONS 10**
 - 5.1 FACILITIES 10
 - 5.2 EQUIPMENT 10
 - 5.3 TABLE OF ACCREDITATIONS AND LISTINGS 11
- 6. SETUP OF EQUIPMENT UNDER TEST 12**
 - 6.1 SETUP CONFIGURATION OF EUT 12
 - 6.2 SUPPORT EQUIPMENT 12
- 7. FCC PART 22 & 24 REQUIREMENTS 13**
 - 7.1 PEAK POWER..... 13
 - 7.2 AVERAGE POWER..... 14
 - 7.1 ERP & EIRP MEASUREMENT 15
 - 7.2 OCCUPIED BANDWIDTH MEASUREMENT 18
 - 7.3 OUT OF BAND EMISSION AT ANTENNA TERMINALS 22
 - 7.4 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT 30
 - 7.5 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT 44
 - 7.6 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT 46
 - 7.7 POWERLINE CONDUCTED EMISSIONS 48
- APPENDIX I RADIO FREQUENCY EXPOSURE 51**
- APPENDIX II PHOTOGRAPHS OF TEST SETUP 55**



1. TEST RESULT CERTIFICATION

Applicant: Cipherlab Co., Ltd.
 12F, 333 Dunhua S. Rd., Sec.2, Taipei,
 Taiwan R.O.C.

Equipment Under Test: GPRS Cradle

Trade Name: CIPHERLAB

Model Number: 8000 GPRS Cradle

Date of Test: August 22 ~ 26, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 22 Subpart H & Part 24 Subpart E	No non-compliance noted

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C: 2004 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

Reviewed by:

Rex Lai
 Section Manager
 Compliance Certification Services Inc.

Gina Lo
 Section Manager
 Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	GPRS Cradle
Trade Name	CIPHERLAB
Model Number	8000 GPRS Cradle
Model Discrepancy	N/A
Power Supply	Model: GPSS-0500200 I/P: 100-240V, 50-60Hz, 0.5A O/P: 5V, 2A
Frequency Range	TX: 824 ~ 849 MHz / 1850 ~ 1910 MHz RX: 869 ~ 894 MHz / 1930 ~ 1990 MHz
Transmit Power (ERP & EIRP Power)	850 MHz: 19.07 dBm 1900 MHz: 26.04 dBm
Modulation Technique	GMSK
Type of Emission	GPRS 850MHz: 247KG7W--- GPRS 1900MHz: 247KG7W---
Antenna Gain	850 MHz: 2.5 dBi 1900 MHz: 2.5 dBi
Antenna Type	Dipole Antenna

Remark:

- 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
- 2. This submittal(s) (test report) is intended for FCC ID: Q3N-8000GC filing to comply with Part 22 and Part 24 of the FCC 47 CFR Rules.*



3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4: 2003, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2, PART 22 SUBPART H AND PART 24 SUBPART E

3.1 EUT CONFIGURATION

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

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003.



3.4 DESCRIPTION OF TEST MODES

The EUT (model: 8000 GPRS Cradle) had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed.

GPRS 850:

Channel Low (CH128), Channel Mid (CH190) and Channel High (CH251) were chosen for full testing.

GPRS 1900:

Channel Low (CH512), Channel Mid (CH661) and Channel High (CH810) were chosen for full testing.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.



4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.



4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: Each piece of equipment is scheduled for calibration once a year.

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	02/23/2010
Power Meter	Agilent	E4416A	GB41291611	04/05/2010
Power Sensor	Agilent	E9327A	US40441097	06/18/2010
Temp. / Humidity Chamber	Terchy	MHG-150LF	930619	08/05/2010
DC Power Source	Agilent	E3640A	MY40001774	01/09/2010

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	09/10/2009
Test Receiver	Rohde & Schwarz	ESCI	100064	11/30/2009
Switch Controller	TRC	Switch Controller	SC94050010	05/02/2010
4 Port Switch	TRC	4 Port Switch	SC94050020	05/02/2010
Horn-Antenna	TRC	HA-0502	06	06/03/2010
Horn-Antenna	TRC	HA-0801	04	06/18/2010
Bilog- Antenna	Sunol Sciences	JB3	A030205	03/27/2010
Loop Antenna	EMCO	6502	8905/2356	05/28/2010
Turn Table	Max-Full	MFT-120S	T120S940302	N.C.R.
Antenna Tower	Max-Full	MFA-430	A440940302	N.C.R.
Controller	Max-Full	MF-CM886	CC-C-1F-13	N.C.R.
Site NSA	CCS	N/A	FCC MRA: TW1039 IC: IC 2324G-1/-2	10/17/2010 11/04/2010
Reject Filter	Micro-Tronics	HPM13194	003	04/23/2010
S.G.	HP	83630B	3844A01022	04/16/2010
Substituted Dipole	Schwazbeck	VHAP/UHAP	998 +999/ 981+982	06/08/2010
Substituted Horn	EMCO	3115	00022257	12/16/2009
Test S/W	LABVIEW (V 6.1)			

Powerline Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver 9kHz-30MHz	Rohde & Schwarz	ESHS30	828144/003	11/18/2009
Two-Line V-Network 9kHz-30MHz	Schaffner	NNB41	03/10013	06/10/2010
LISN 10kHz-100MHz	EMCO	3825/2	9106-1809	04/08/2010
Test S/W	LABVIEW (V 6.1)			



4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 2.81
3M Semi Anechoic Chamber / 30MHz ~ 1GHz	+/-3.7046
3M Semi Anechoic Chamber / Above 1GHz	+/-3.0958

Remark: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.



5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.




Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."



5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	 Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	FCC ID	Series No.	Data Cable	Power Cord
1.	Scanner	CIPHERLAB	8001	N/A	N/A	N/A	N/A
2.	SIM Card (Insert into EUT)	R&S	N/A	N/A	N/A	N/A	N/A
3.	Universal Radio Communication tester (Remote)	R&S	CMU 200	1100.000.8.02	N/A	N/A	Unshielded, 1.8m

Remark:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*



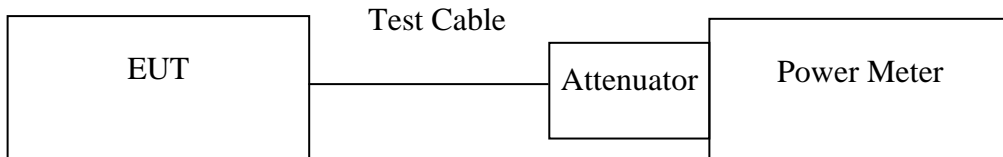
7. FCC PART 22 & 24 REQUIREMENTS

7.1 PEAK POWER

LIMIT

According to FCC §2.1046.

Test Configuration



Remark: 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 a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
GPRS 850	128	824.20	32.50	1.77828
	190	836.60	32.80	1.90546
	251	848.80	32.80	1.90546

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
GPRS 1900	512	1850.20	27.90	0.61660
	661	1880.00	27.90	0.61660
	810	1910.00	28.40	0.69183

Remark: The value of factor includes both the loss of cable and external attenuator

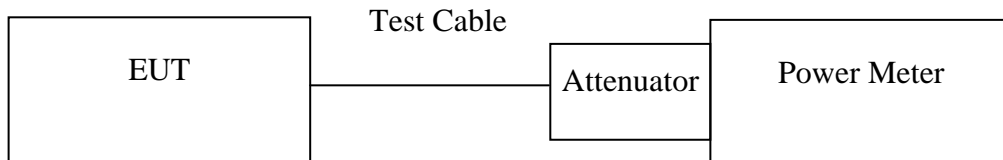


7.2 AVERAGE POWER

LIMIT

For reporting purposes only.

Test Configuration



Remark: 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 a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
GPRS 850	128	824.20	32.40	1.73780
	190	836.60	32.60	1.81970
	251	848.80	32.50	1.77828

Remark: The value of factor includes both the loss of cable and external attenuator

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
GPRS 1900	512	1850.20	27.80	0.60256
	661	1880.00	27.80	0.60256
	810	1910.00	28.20	0.66069

Remark: The value of factor includes both the loss of cable and external attenuator

7.3 ERP & EIRP MEASUREMENT

LIMIT

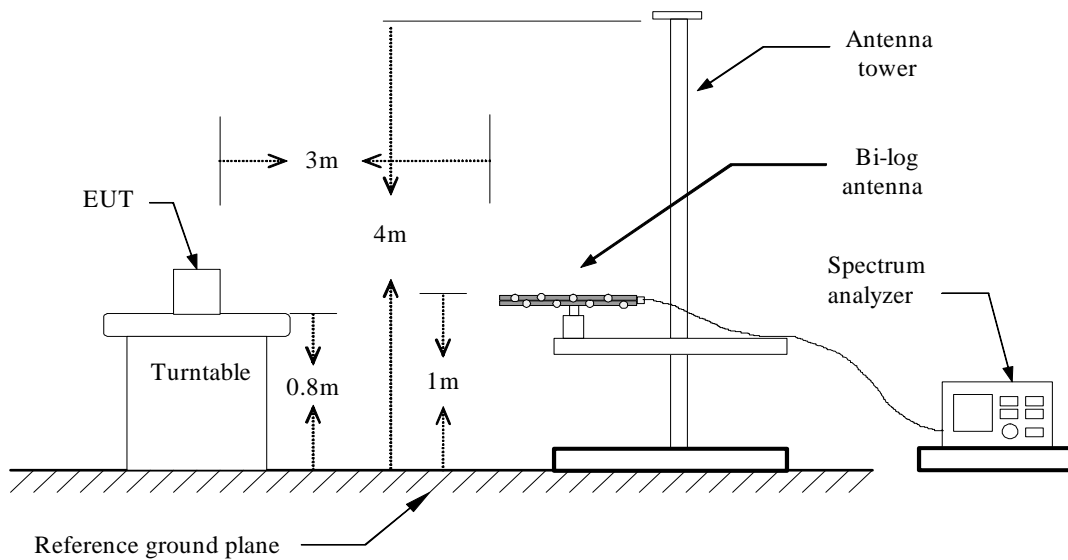
According to FCC §2.1046

FCC 22.913(a): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

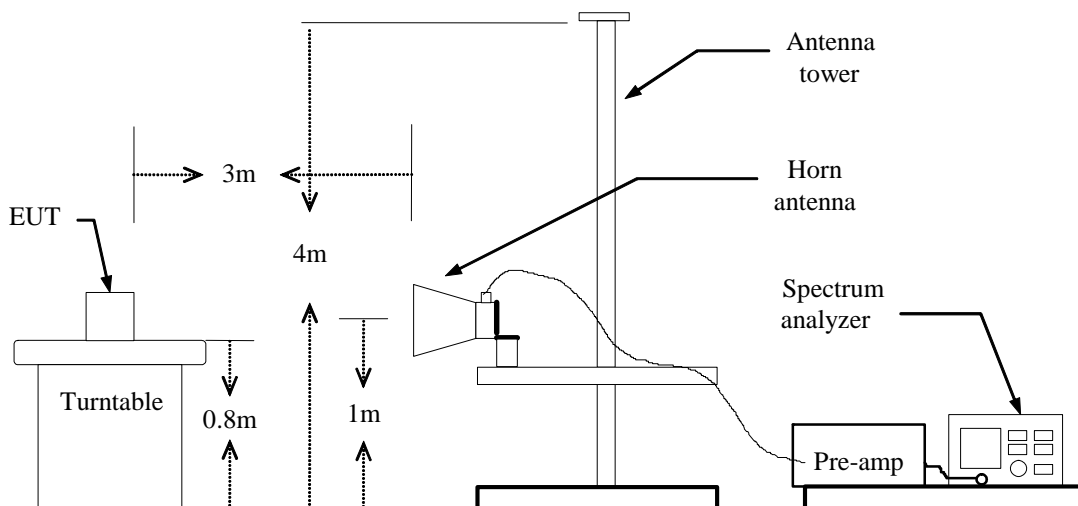
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

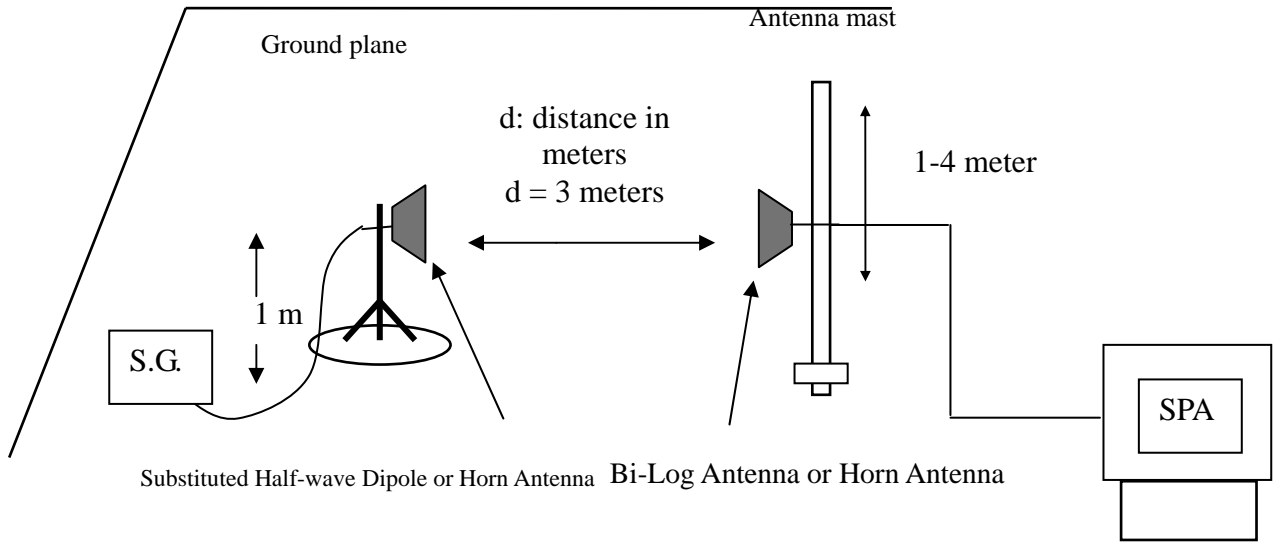
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



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 of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$ERP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

TEST RESULTS

No non-compliance noted.



GPRS 850 TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
128	824.20	V	-15.54	34.62	*19.07	38.50	-19.43
	824.20	H	-20.14	34.65	14.51	38.50	-23.99
190	836.60	V	-16.28	34.53	18.25	38.50	-20.25
	836.60	H	-21.16	34.63	13.47	38.50	-25.03
251	848.80	V	-15.71	34.64	18.92	38.50	-19.58
	848.80	H	-20.65	34.75	14.10	38.50	-24.40

GPRS 1900 TEST DATA

Channel	Frequency (MHz)	Antenna Pol.	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
512	1850.20	V	-16.30	41.17	24.87	33.00	-8.13
	1850.20	H	-14.75	40.79	*26.04	33.00	-6.96
661	1880.00	V	-16.63	41.23	24.60	33.00	-8.40
	1880.00	H	-15.47	41.14	25.67	33.00	-7.33
810	1909.80	V	-16.99	41.30	24.31	33.00	-8.69
	1909.80	H	-15.95	41.38	25.43	33.00	-7.57

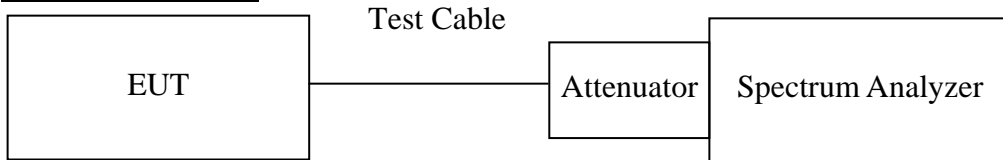


7.4 OCCUPIED BANDWIDTH MEASUREMENT

LIMIT

According to §FCC 2.1049.

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -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 RESULTS

No non-compliance noted

Test Data

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GPRS 850	128	824.20	247.7476
	190	836.60	236.9723
	251	848.80	240.5517

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GPRS 1900	512	1850.20	247.5693
	661	1880.00	245.8415
	810	1909.80	242.2911

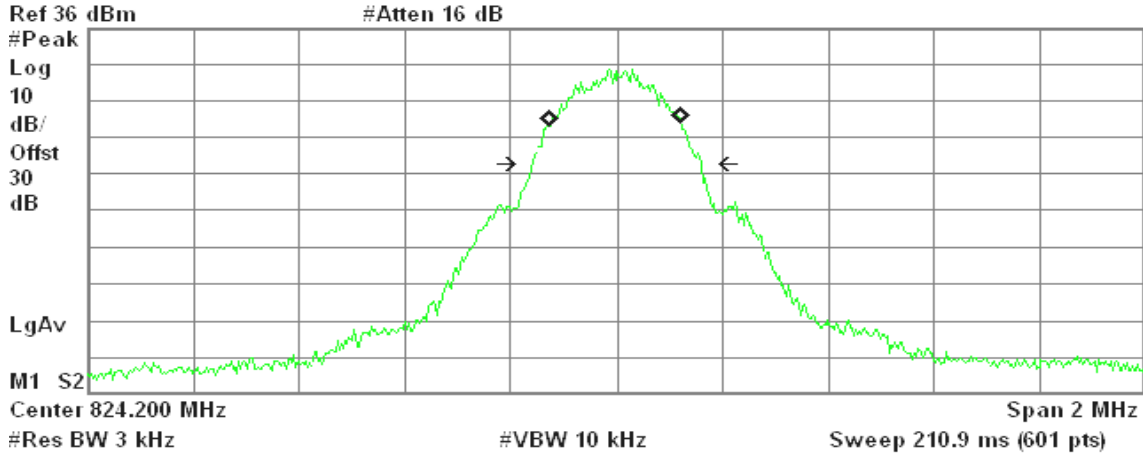


Test Plot

GPRS 850 (CH Low)

Agilent 09:51:03 Aug 26, 2009

R T



Occupied Bandwidth 247.7476 kHz

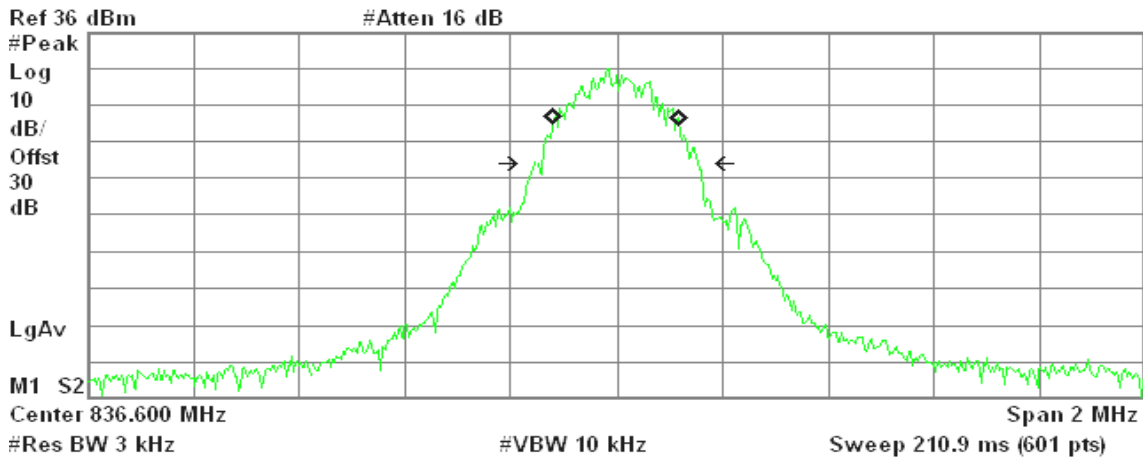
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -2.606 kHz
x dB Bandwidth 317.786 kHz

GPRS 850 (CH Mid)

Agilent 09:52:00 Aug 26, 2009

R T



Occupied Bandwidth 236.9723 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

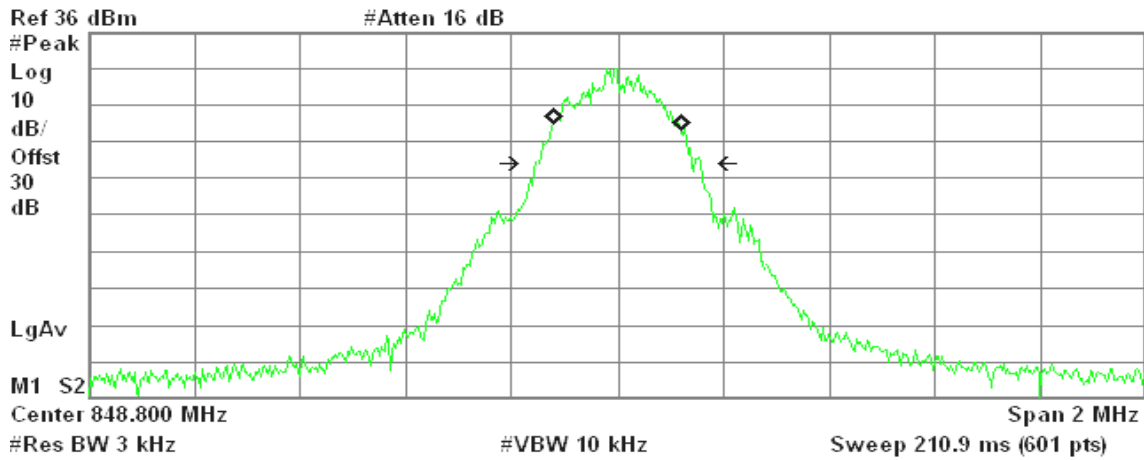
Transmit Freq Error -361.912 Hz
x dB Bandwidth 307.624 kHz



GPRS 850(CH High)

Agilent 09:52:40 Aug 26, 2009

R T



Occupied Bandwidth
240.5517 kHz

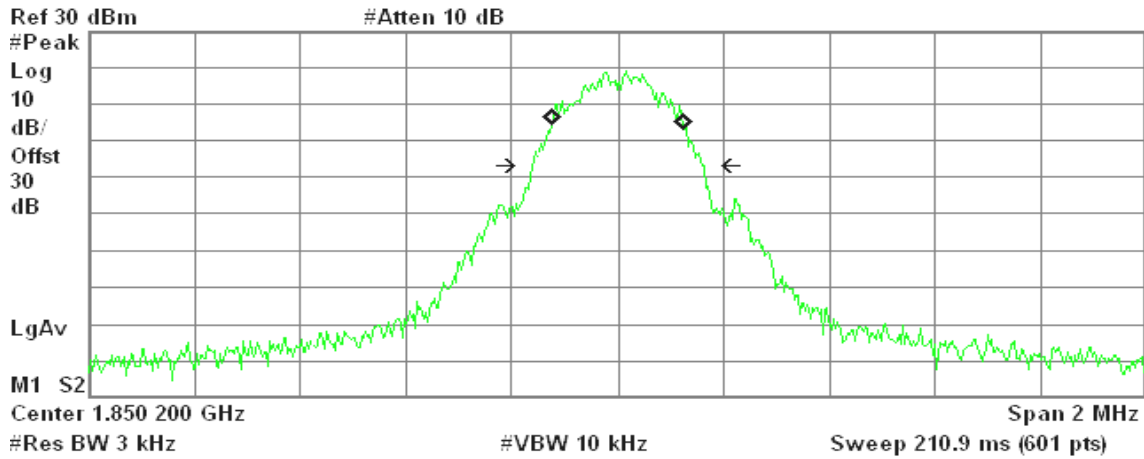
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -1.144 kHz
x dB Bandwidth 311.051 kHz

GPRS 1900 (CH Low)

Agilent 10:37:06 Aug 26, 2009

R T



Occupied Bandwidth
247.5693 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

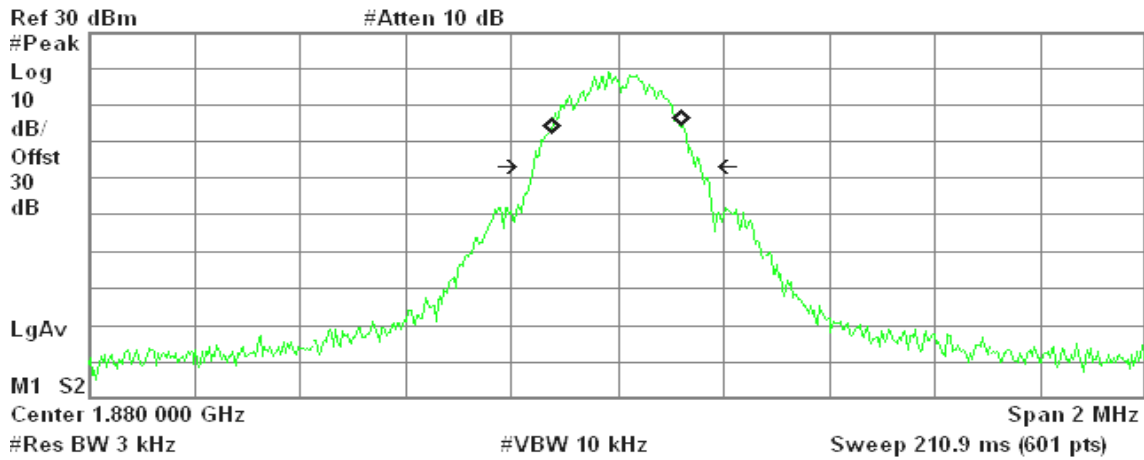
Transmit Freq Error 533.292 Hz
x dB Bandwidth 323.110 kHz



GPRS 1900 (CH Mid)

Agilent 10:36:47 Aug 26, 2009

R T



Occupied Bandwidth
245.8415 kHz

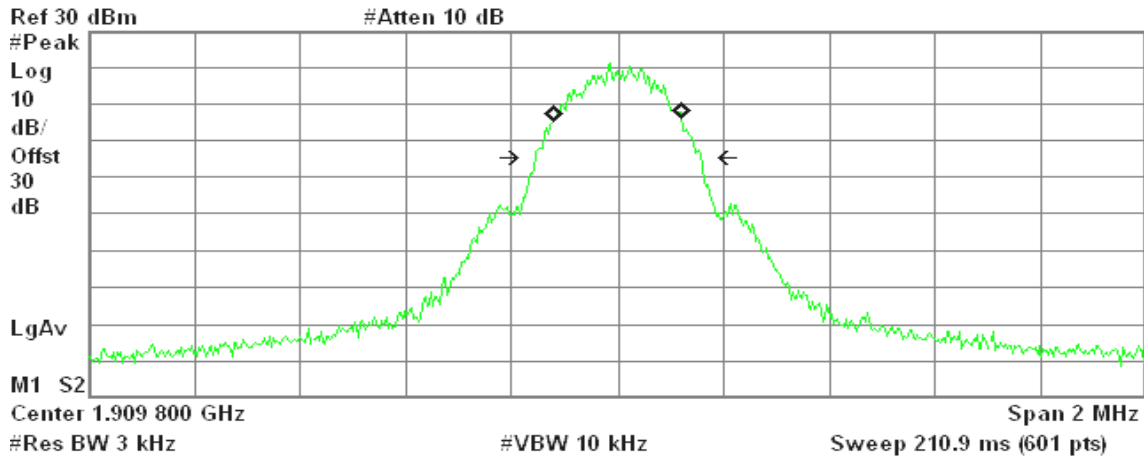
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -1.597 kHz
x dB Bandwidth 314.039 kHz

GPRS 1900 (CH High)

Agilent 10:36:21 Aug 26, 2009

R T



Occupied Bandwidth
242.2911 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -118.019 Hz
x dB Bandwidth 312.466 kHz



7.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS

LIMIT

According to FCC §2.1051, FCC §22.917, FCC §24.238(a).

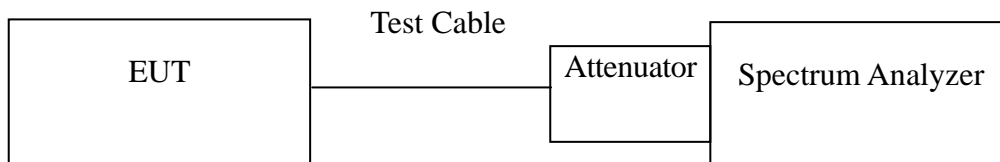
Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least $43 + 10 \log P$ dB.

Mobile Emissions in Base Frequency Range: The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed -80 dBm at the transmit antenna connector.

Band Edge Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

Test Configuration

Out of band emission at antenna terminals:



TEST PROCEDURE

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 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.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): 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. Limit, -13dBm.

TEST RESULTS

No non-compliance noted.



Test Data

Mode	CH	Location	Description
GPRS 850	128	Figure 7-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 7-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 7-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
GPRS 1900	512	Figure 8-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 8-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 8-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
GPRS 850	128	Figure 9-1	Band Edge emissions
	251	Figure 9-2	Band Edge emissions

Mode	CH	Location	Description
GPRS 1900	512	Figure 10-1	Band Edge emissions
	810	Figure 10-2	Band Edge emissions



Test Plot

GPRS 850

Figure 7-1: Out of Band emission at antenna terminals – GPRS CH Low

Agilent 09:57:31 Aug 26, 2009

R T

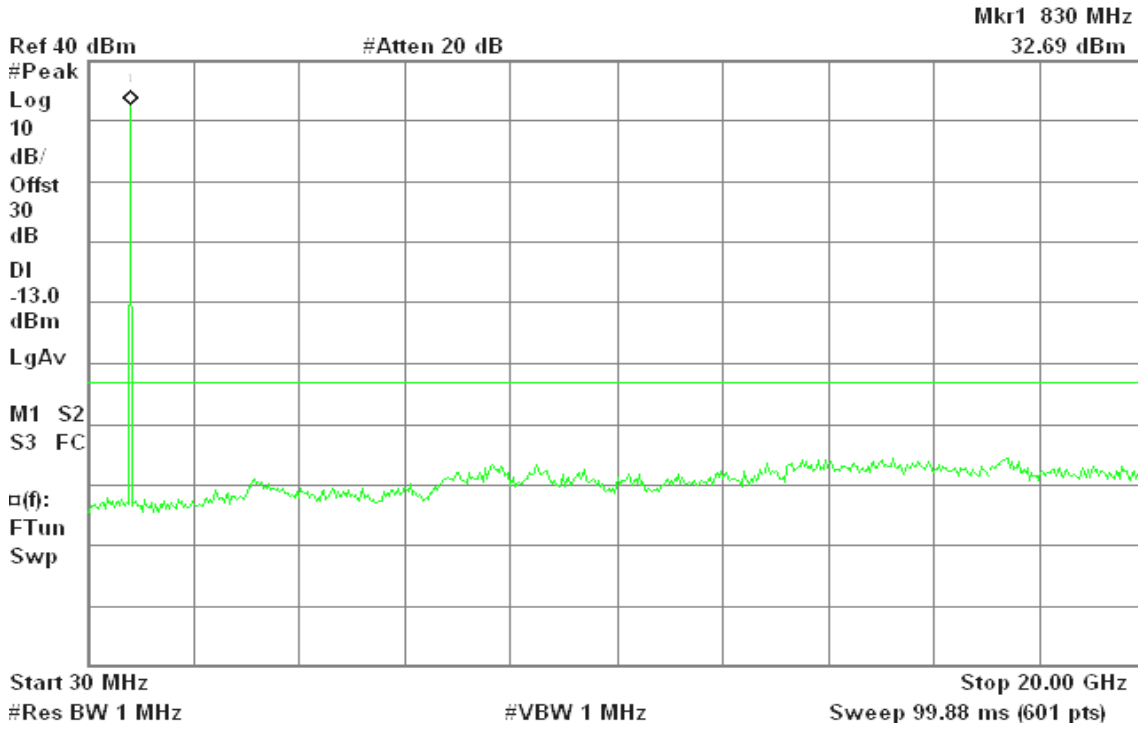


Figure 7-2: Out of Band emission at antenna terminals – GPRS CH Mid

Agilent 10:08:24 Aug 26, 2009

R T

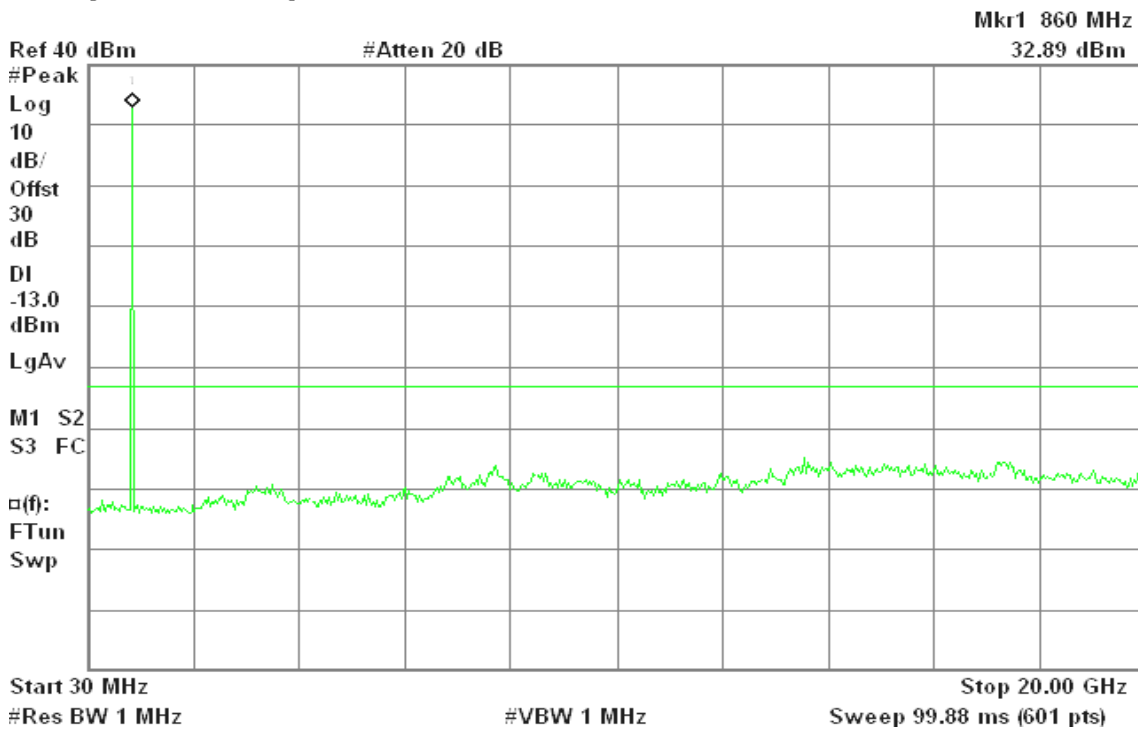
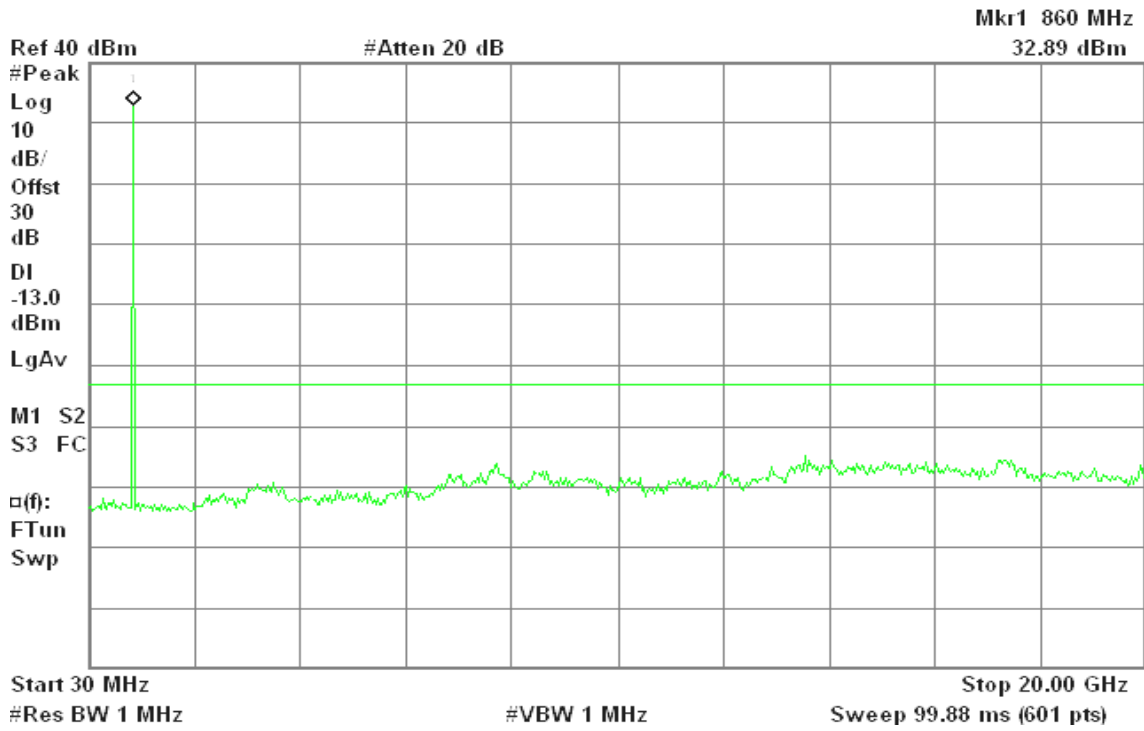




Figure 7-3: Out of Band emission at antenna terminals – GPRS CH High

Agilent 10:08:24 Aug 26, 2009

R T





GPRS 1900

Figure 8-1: Out of Band emission at antenna terminals – GPRS CH Low

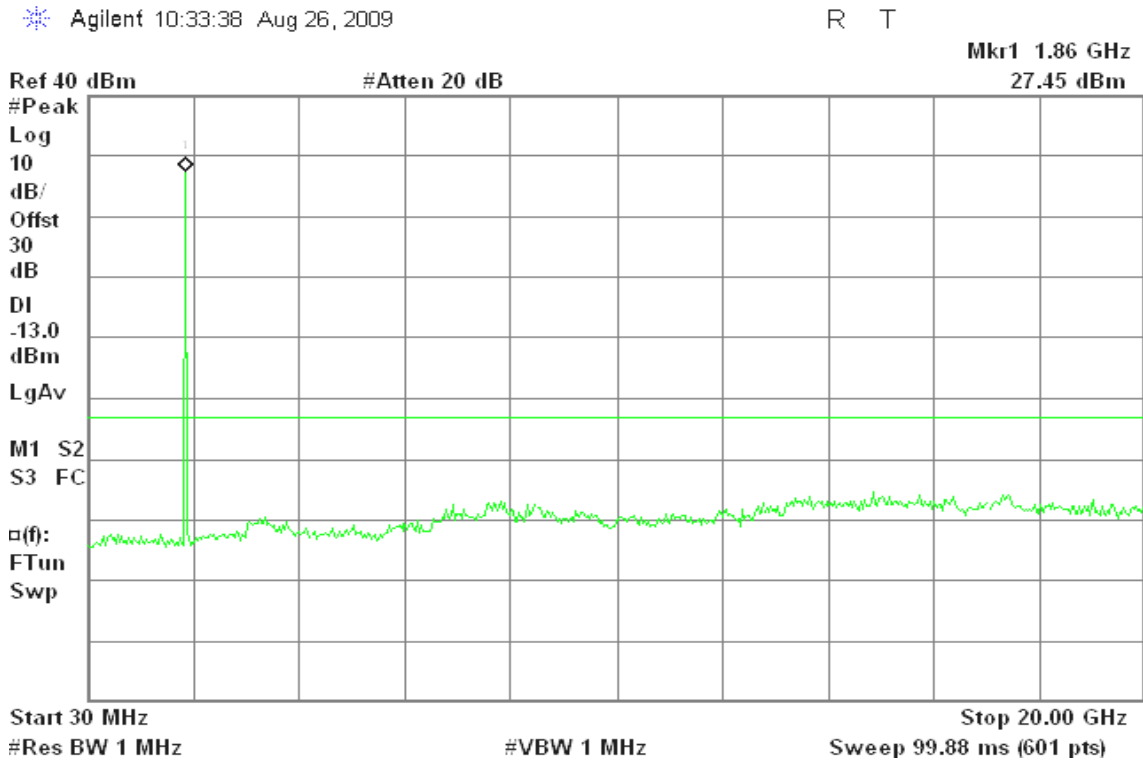


Figure 8-2: Out of Band emission at antenna terminals – GPRS CH Mid

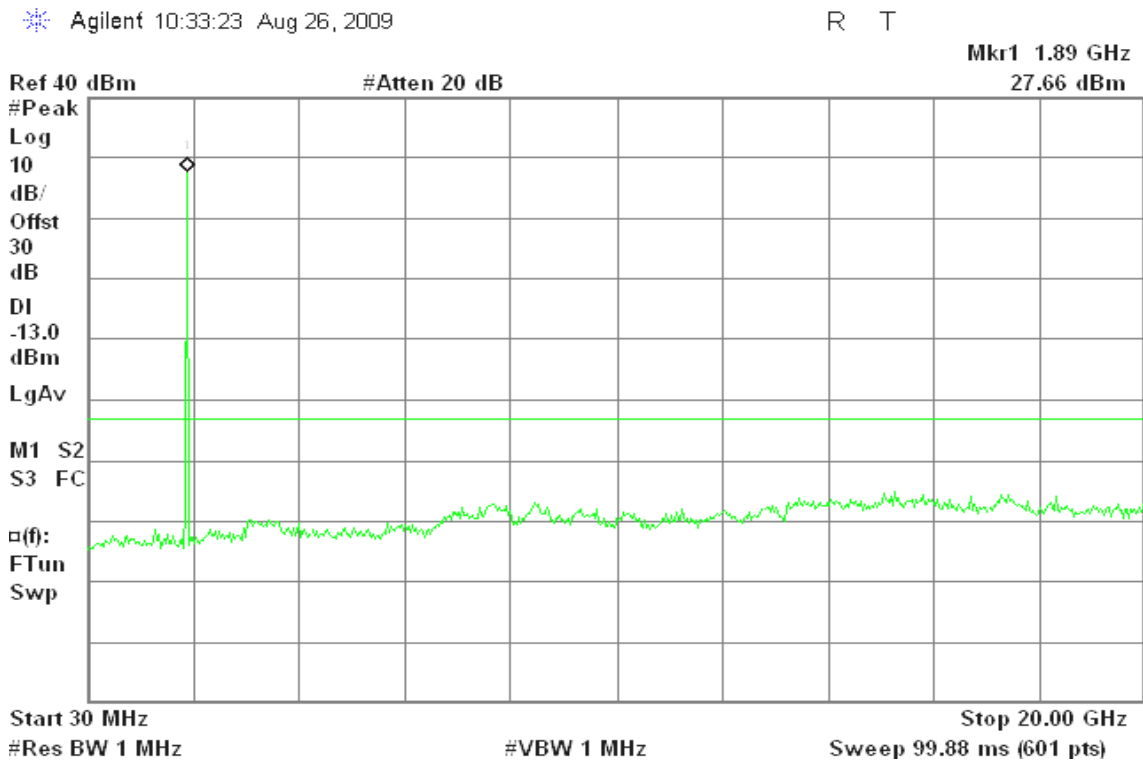
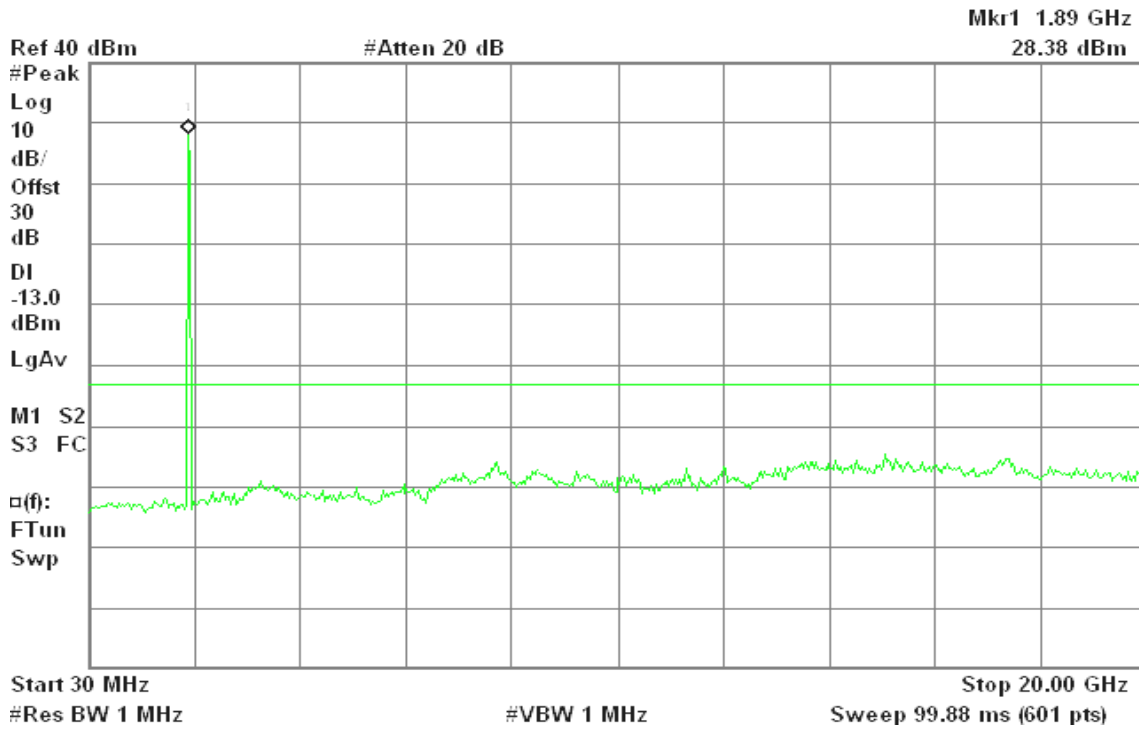




Figure 8-3: Out of Band emission at antenna terminals – GPRS CH High

Agilent 10:33:03 Aug 26, 2009

R T





GPRS 850

Figure 9-1: Band Edge emissions – GPRS CH Low

Agilent 09:55:39 Aug 26, 2009

R T

Mkr1 823.993 MHz
-14.47 dBm

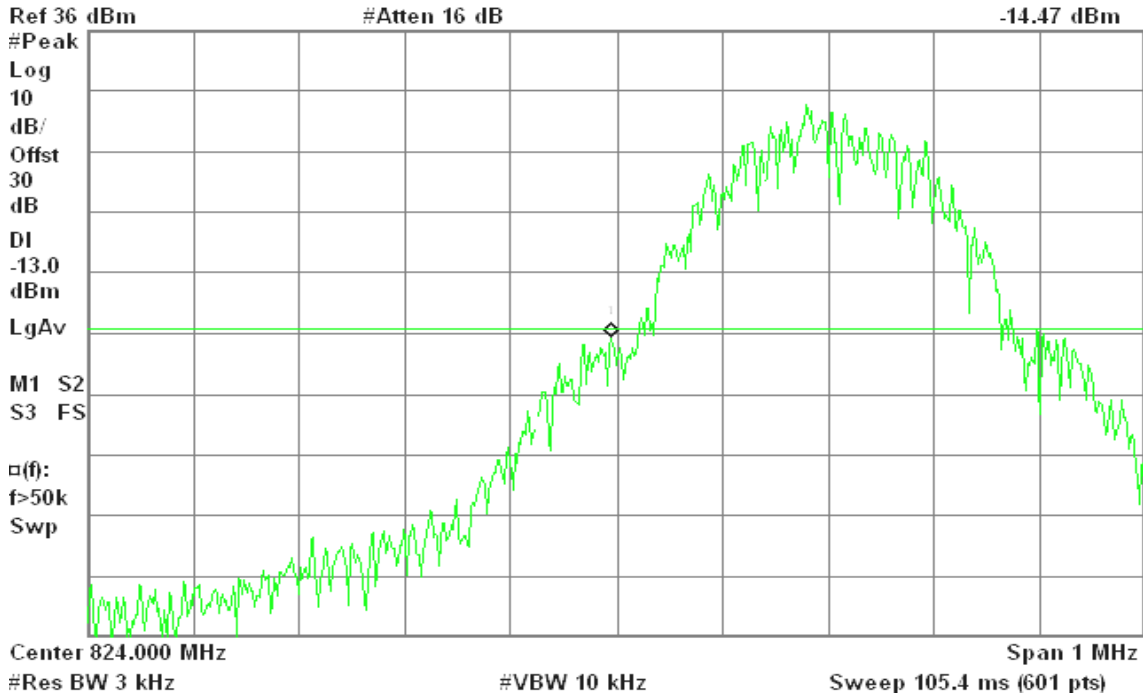
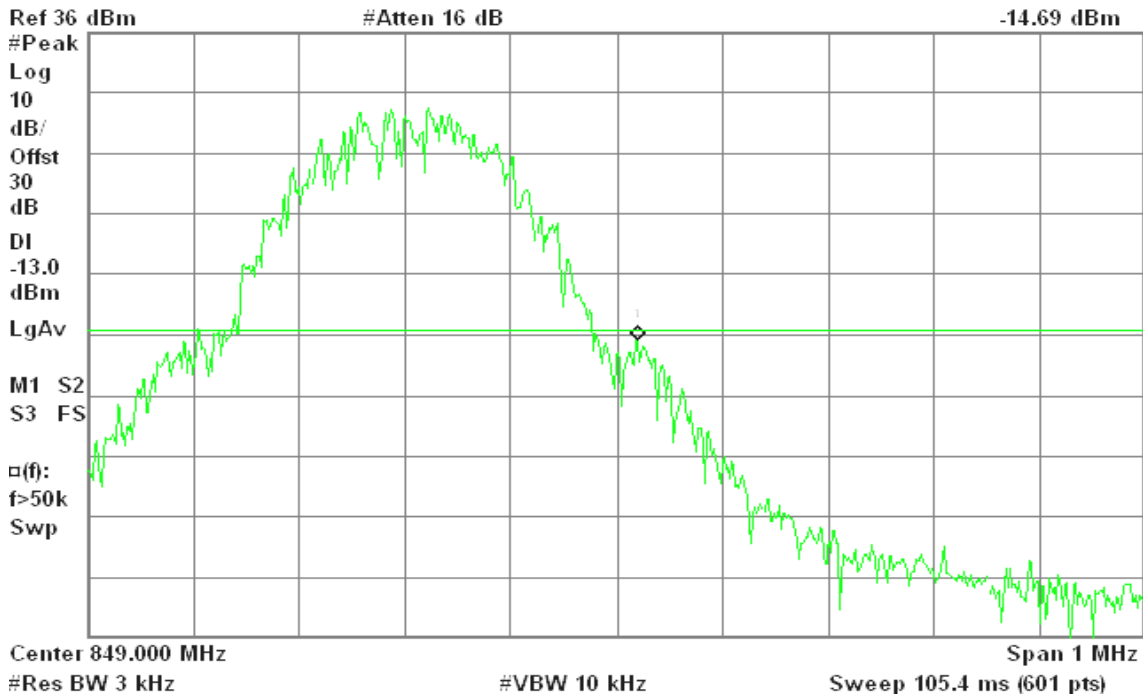


Figure 9-2: Band Edge emissions – GPRS CH High

Agilent 09:54:52 Aug 26, 2009

R T

Mkr1 849.020 MHz
-14.69 dBm





GRPS 1900

Figure 10-1: Band Edge emissions – GPRS CH Low

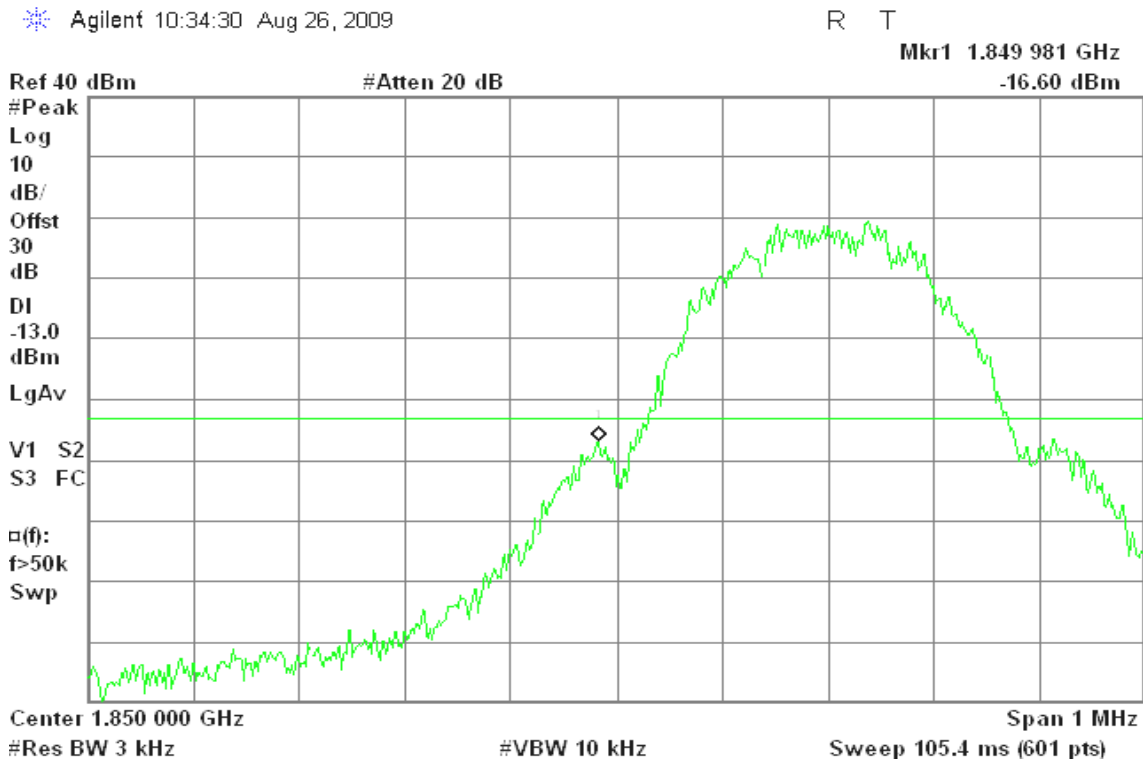
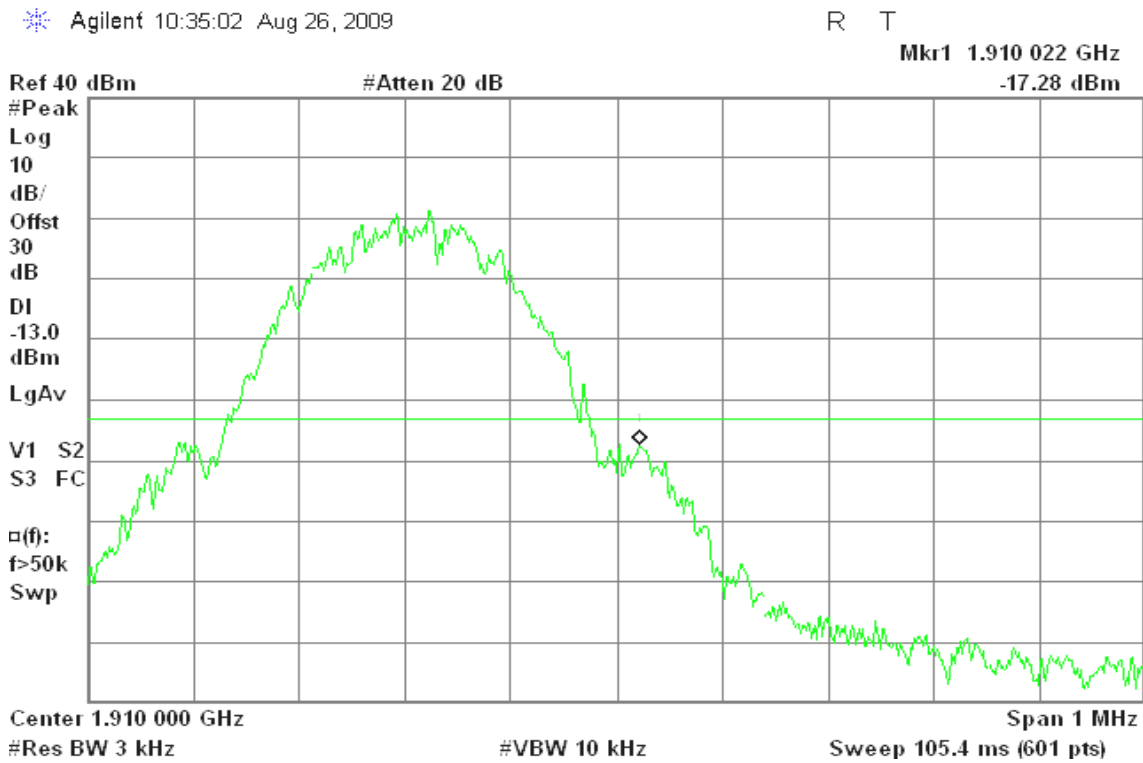


Figure 10-2: Band Edge emissions – GPRS CH High



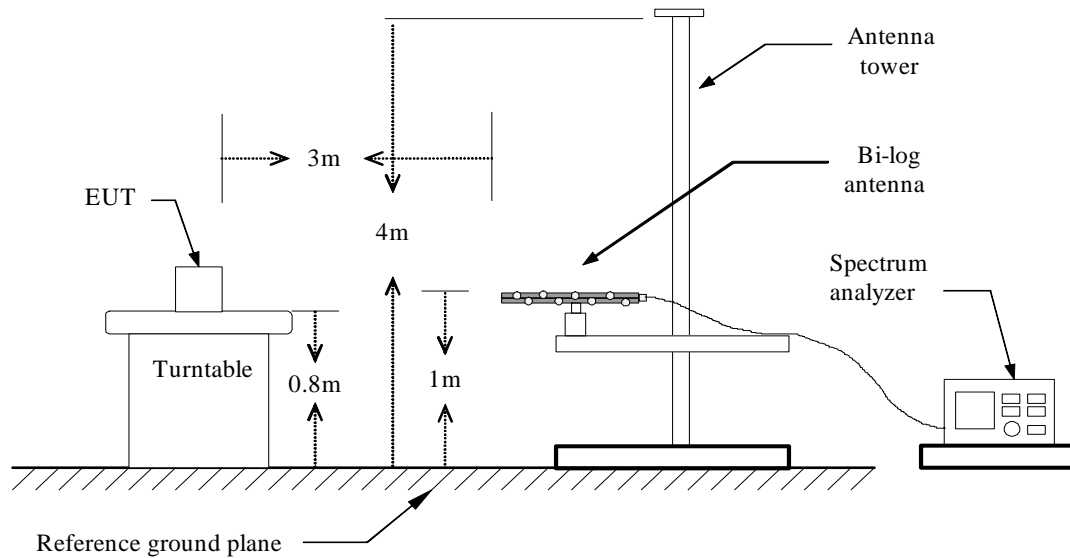
7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

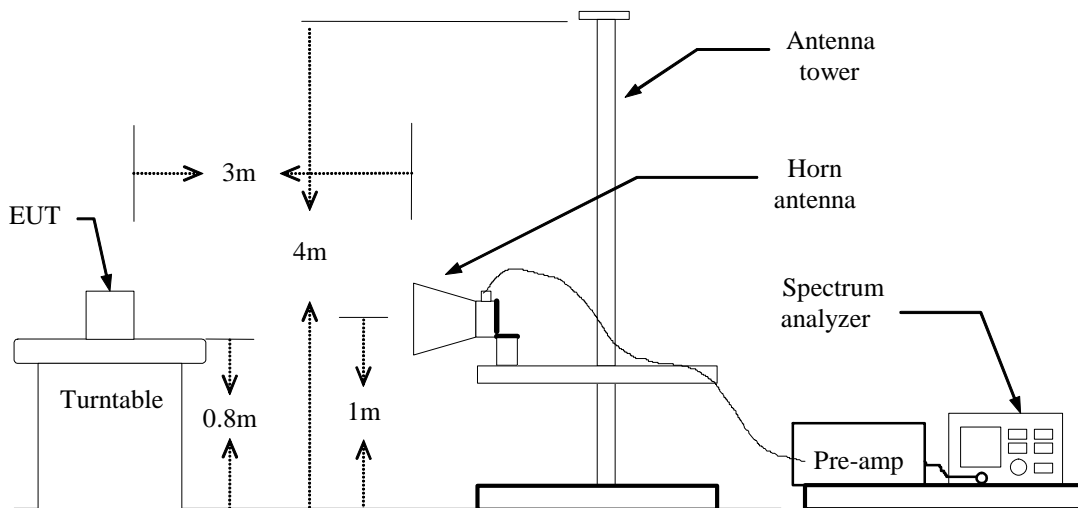
According to FCC §2.1053

Test Configuration

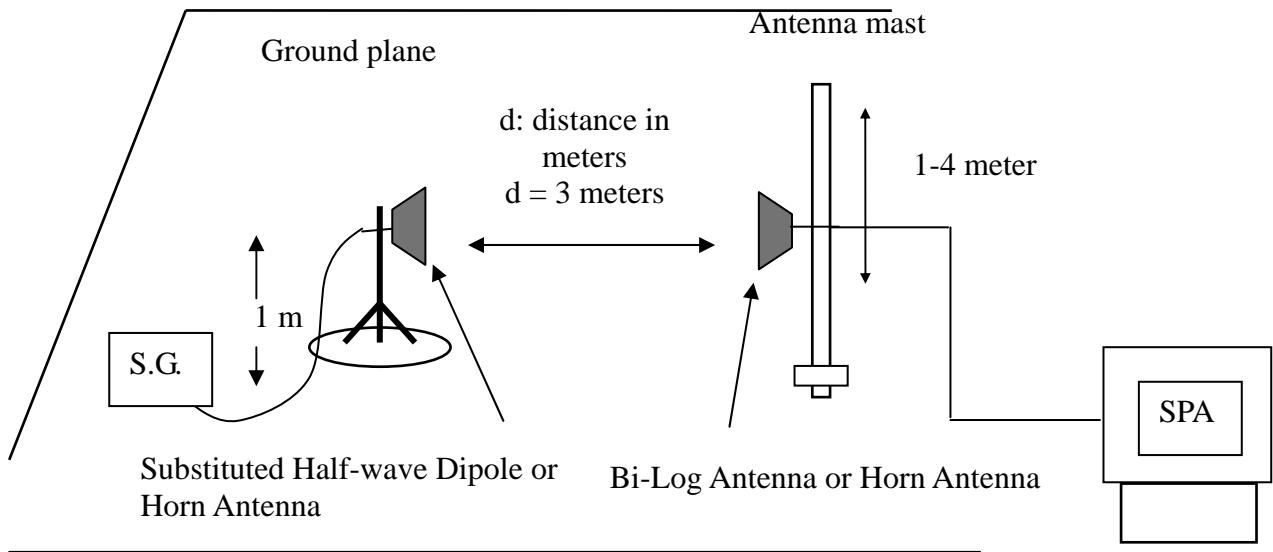
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURE

The EUT was placed on a non-conductive, the measurement antenna was placed at a distance of 3 meters from the EUT. 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.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

$$ERP = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$EIRP = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

TEST RESULTS

Refer to the attached tabular data sheets.

**Radiated Spurious Emission Measurement Result****Below 1GHz****Operation Mode:** GPRS 850 / TX / CH 128**Test Date:** August 22, 2009**Temperature:** 25°C**Tested by:** Ming Chen**Humidity:** 55 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Antenna Polarization (V/H)	Reading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
35.82	V	-49.25	-14.35	-63.60	-13.00	-50.60
57.16	V	-53.56	-15.54	-69.10	-13.00	-56.10
119.24	V	-56.52	-13.20	-69.72	-13.00	-56.72
132.82	V	-58.20	-12.50	-70.71	-13.00	-57.71
164.83	V	-58.99	-13.92	-72.91	-13.00	-59.91
869.05	V	-63.63	-4.12	-67.75	-13.00	-54.75
49.40	H	-57.50	-13.55	-71.06	-13.00	-58.06
100.81	H	-57.89	-17.28	-75.17	-13.00	-62.17
132.82	H	-60.35	-13.74	-74.09	-13.00	-61.09
164.83	H	-62.42	-13.99	-76.41	-13.00	-63.41
204.60	H	-62.02	-13.14	-75.16	-13.00	-62.16
410.24	H	-67.73	-10.51	-78.24	-13.00	-65.24

Remark:

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: GPRS 850 / TX / CH 190

Test Date: August 22, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization (V/H)	Reading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
35.82	V	-49.60	-14.35	-63.96	-13.00	-50.96
121.18	V	-57.10	-12.93	-70.03	-13.00	-57.03
163.86	V	-59.17	-13.90	-73.07	-13.00	-60.07
206.54	V	-58.58	-14.98	-73.56	-13.00	-60.56
288.02	V	-66.31	-11.80	-78.10	-13.00	-65.10
869.05	V	-65.05	-4.12	-69.17	-13.00	-56.17
50.37	H	-57.11	-13.99	-71.10	-13.00	-58.10
100.81	H	-58.06	-17.28	-75.34	-13.00	-62.34
132.82	H	-60.91	-13.74	-74.65	-13.00	-61.65
150.28	H	-62.38	-13.11	-75.50	-13.00	-62.50
165.80	H	-62.63	-13.95	-76.58	-13.00	-63.58
207.51	H	-62.78	-13.55	-76.33	-13.00	-63.33

Remark:

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: GPRS 850 / TX / CH 251

Test Date: August 22, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization (V/H)	Reading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
49.40	V	-56.84	-13.55	-70.39	-13.00	-57.39
100.81	V	-56.76	-17.28	-74.05	-13.00	-61.05
132.82	V	-60.25	-13.74	-73.99	-13.00	-60.99
166.77	V	-62.91	-13.91	-76.83	-13.00	-63.83
204.60	V	-62.48	-13.14	-75.62	-13.00	-62.62
797.27	V	-67.67	-4.88	-72.55	-13.00	-59.55
35.82	H	-49.59	-14.35	-63.94	-13.00	-50.94
47.46	H	-53.06	-14.20	-67.25	-13.00	-54.25
120.21	H	-56.73	-13.00	-69.73	-13.00	-56.73
163.86	H	-59.77	-13.90	-73.67	-13.00	-60.67
187.14	H	-58.57	-14.41	-72.98	-13.00	-59.98
869.05	H	-64.64	-4.12	-68.76	-13.00	-55.76

Remark:

1. The emission behaviour belongs to narrowband spurious emission.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 1900 / TX / CH 512

Test Date: August 22, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization (V/H)	Reading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
34.85	V	-34.36	-14.84	-49.19	-13.00	-36.19
47.46	V	-38.74	-14.20	-52.93	-13.00	-39.93
63.95	V	-42.46	-15.21	-57.66	-13.00	-44.66
120.21	V	-41.30	-13.00	-54.31	-13.00	-41.31
164.83	V	-45.16	-13.92	-59.07	-13.00	-46.07
210.42	V	-45.08	-15.76	-60.84	-13.00	-47.84
49.40	H	-43.16	-13.55	-56.71	-13.00	-43.71
119.24	H	-47.53	-13.72	-61.24	-13.00	-48.24
131.85	H	-47.17	-13.70	-60.88	-13.00	-47.88
148.34	H	-49.29	-13.24	-62.53	-13.00	-49.53
198.78	H	-48.40	-12.66	-61.06	-13.00	-48.06
247.28	H	-50.14	-14.51	-64.65	-13.00	-51.65

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: GPRS 1900 / TX / CH 661

Test Date: August 22, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization (V/H)	Reading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
35.82	V	-34.66	-14.35	-49.02	-13.00	-36.02
48.43	V	-38.34	-14.92	-53.26	-13.00	-40.26
120.21	V	-41.33	-13.00	-54.33	-13.00	-41.33
166.77	V	-45.13	-13.96	-59.09	-13.00	-46.09
208.48	V	-44.94	-15.43	-60.37	-13.00	-47.37
241.46	V	-47.55	-14.09	-61.64	-13.00	-48.64
50.37	H	-41.70	-13.99	-55.68	-13.00	-42.68
99.84	H	-43.81	-17.49	-61.30	-13.00	-48.30
121.18	H	-47.53	-13.58	-61.11	-13.00	-48.11
136.70	H	-47.96	-13.89	-61.85	-13.00	-48.85
165.80	H	-49.06	-13.95	-63.02	-13.00	-50.02
207.51	H	-48.76	-13.55	-62.31	-13.00	-49.31

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: GPRS 1900 / TX / CH 810

Test Date: August 22, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization (V/H)	Reading (dBm)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
34.85	V	-34.23	-14.84	-49.07	-13.00	-36.07
47.46	V	-38.56	-14.20	-52.75	-13.00	-39.75
119.24	V	-41.18	-13.20	-54.38	-13.00	-41.38
150.28	V	-46.54	-12.28	-58.83	-13.00	-45.83
165.80	V	-44.99	-13.94	-58.92	-13.00	-45.92
236.61	V	-46.63	-14.15	-60.78	-13.00	-47.78
48.43	H	-43.18	-12.97	-56.15	-13.00	-43.15
103.72	H	-44.03	-16.71	-60.75	-13.00	-47.75
120.21	H	-47.24	-13.57	-60.81	-13.00	-47.81
149.31	H	-49.10	-13.14	-62.24	-13.00	-49.24
195.87	H	-47.70	-13.07	-60.77	-13.00	-47.77
240.49	H	-50.06	-14.23	-64.30	-13.00	-51.30

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Above 1GHz

Operation Mode: GPRS 850 / TX / CH 128

Test Date: August 26, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1651.00	V	-44.70	0.69	-44.01	-13.00	-31.01
2470.00	V	-55.98	3.49	-52.49	-13.00	-39.49
N/A						
1651.00	H	-47.66	0.80	-46.86	-13.00	-33.86
2470.00	H	-58.93	3.78	-55.15	-13.00	-42.15
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 850 / TX / CH 190

Test Date: August 26, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1672.00	V	-43.15	0.73	-42.42	-13.00	-29.42
2512.00	V	-54.78	3.66	-51.12	-13.00	-38.12
N/A						
1672.00	H	-46.95	0.84	-46.10	-13.00	-33.10
2512.00	H	-58.29	3.96	-54.33	-13.00	-41.33
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 850 / TX / CH 251

Test Date: August 26, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
1700.00	V	-43.33	0.79	-42.54	-13.00	-29.54
2547.00	V	-51.37	3.77	-47.60	-13.00	-34.60
N/A						
1700.00	H	-46.92	0.90	-46.02	-13.00	-33.02
2547.00	H	-55.76	4.06	-51.69	-13.00	-38.69
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 1900 / TX / CH 512

Test Date: August 26, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
3702.00	V	-53.05	6.46	-46.58	-13.00	-33.58
N/A						
3702.00	H	-52.78	7.85	-44.93	-13.00	-31.93
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 1900 / TX / CH 661

Test Date: August 26, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
3758.00	V	-55.96	6.63	-49.33	-13.00	-36.33
5641.00	V	-55.61	9.94	-45.67	-13.00	-32.67
N/A						
3758.00	H	-60.01	8.12	-51.88	-13.00	-38.88
5641.00	H	-58.24	10.28	-47.96	-13.00	-34.96
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 1900 / TX / CH 810

Test Date: August 26, 2009

Temperature: 25°C

Tested by: Ming Chen

Humidity: 55 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	Antenna Polarization	Reading level (dBuV)	Correction Factor (dB)	Emission level (dBm)	Limit (dBm)	Margin (dB)
3821.00	V	-55.77	6.83	-48.94	-13.00	-35.94
5732.00	V	-50.59	9.96	-40.63	-13.00	-27.63
N/A						
3821.00	H	-58.82	8.44	-50.38	-13.00	-37.38
5732.00	H	-58.96	10.31	-48.65	-13.00	-35.65
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

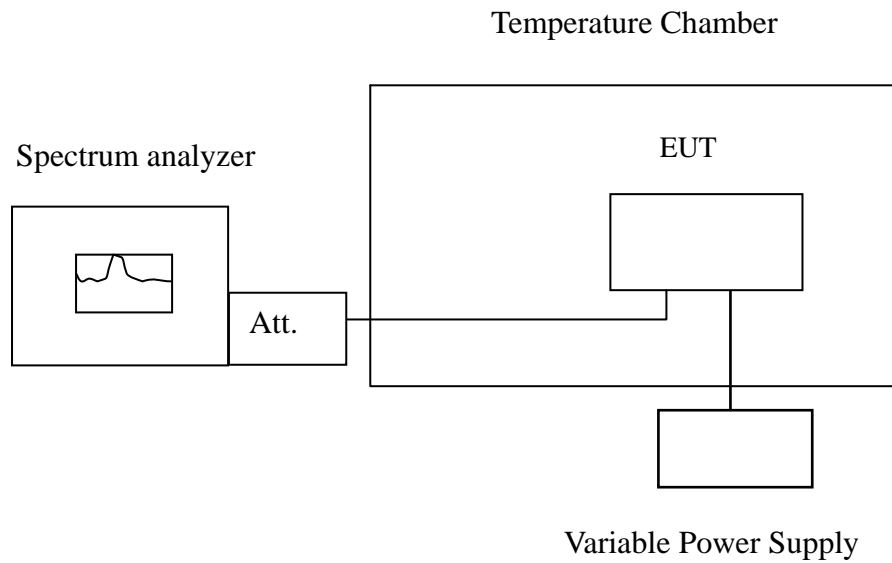
7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

Test Configuration



Remark: 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 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

TEST RESULTS

No non-compliance noted.

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
110	50	836600034	58	2090
	40	836600023	47	
	30	836600029	53	
	20	836599976	0	
	10	836600039	63	
	0	836600036	60	
	-10	836600025	49	
	-20	836600027	51	
	-30	836600022	46	

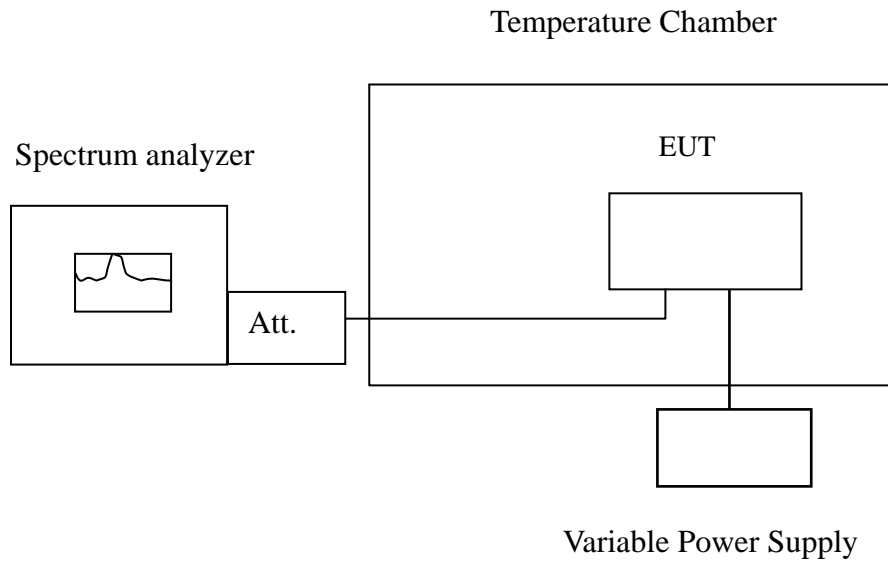
Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
110	50	1880000020	6	4700
	40	1880000029	15	
	30	1880000033	19	
	20	1880000014	0	
	10	1879999999	-15	
	0	1879999993	-21	
	-10	1880000008	-6	
	-20	1880000005	-9	
	-30	1880000011	-3	

7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235,

Test Configuration



Remark: Measurement setup for testing on Antenna connector.



TEST PROCEDURE

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (± 15%) and endpoint, record the maximum frequency change.

TEST RESULTS

No non-compliance noted.

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
126.5	20	836599973	-3	2090
110		836599976	0	
93.5		836599968	-8	
25 END		836599918	-58	

Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
126.5	20	1879999984	-30	4700
110		1880000014	0	
93.5		1879999985	-29	
25 END		1879999944	-70	



7.9 POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.



TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Operation Mode: Normal Link **Test Date:** August 22, 2009
Temperature: 22°C **Tested by:** Ming Chen
Humidity: 45% RH

Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.1700	20.87	-0.03	0.13	21.00	0.10	64.96	54.96	-43.96	-54.86	L1
1.1150	38.82	32.52	0.08	38.90	32.60	56.00	46.00	-17.10	-13.40	L1
1.3150	38.62	31.62	0.08	38.70	31.70	56.00	46.00	-17.30	-14.30	L1
1.4450	38.52	30.42	0.08	38.60	30.50	56.00	46.00	-17.40	-15.50	L1
1.5100	40.12	31.12	0.08	40.20	31.20	56.00	46.00	-15.80	-14.80	L1
1.6400	39.52	31.92	0.08	39.60	32.00	56.00	46.00	-16.40	-14.00	L1
0.1650	28.37	7.27	0.13	28.50	7.40	65.21	55.21	-36.71	-47.81	L2
0.1850	24.69	1.49	0.11	24.80	1.60	64.26	54.26	-39.46	-52.66	L2
1.5800	36.32	25.32	0.08	36.40	25.40	56.00	46.00	-19.60	-20.60	L2
1.6400	37.42	27.32	0.08	37.50	27.40	56.00	46.00	-18.50	-18.60	L2
1.7050	36.82	24.22	0.08	36.90	24.30	56.00	46.00	-19.10	-21.70	L2
1.7750	34.42	25.02	0.08	34.50	25.10	56.00	46.00	-21.50	-20.90	L2

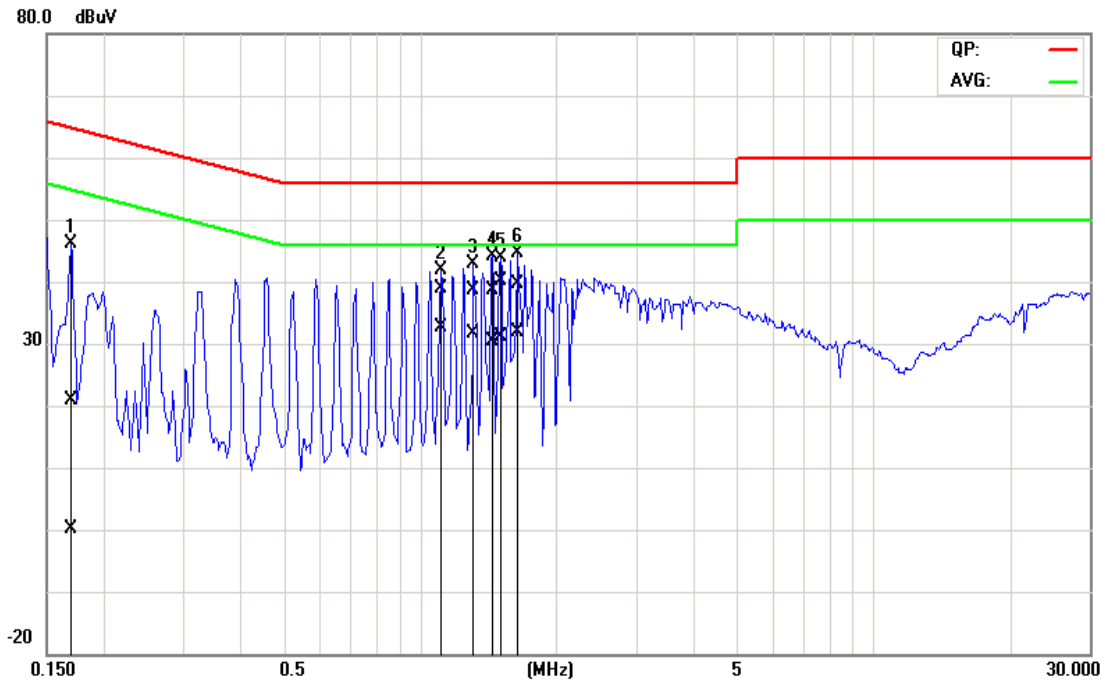
Remark:

1. Measuring frequencies from 0.15 MHz to 30MHz.
2. The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.
3. The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;
4. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)
5. "-" means Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.



Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)

