ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E

OF

Product Name:	**GST8000 GPRS / GPS TRACKING SYSTEM**
Brand Name:	**N/A**
Model Name:	**GST8000, GT8000-LS, HEU8000**
Model Difference:	**For different Externals**
FCC ID:	**TBQGST-8000**
Report No.:	**EH/2009/B0027**
Issue Date:	**Nov. 30, 2009**
FCC Rule Part:	**2 , 22H & 24E**
Prepared for:	**PORTMAN ELECTRONICS (DONGGUAN) CO., LTD.** **NO#10 , Luyi 2 Road, Keyuancheng, Tangxia Town, Dongguan City, Guangdong Province, China**
Prepared by:	**SGS Taiwan Ltd.** **Electronics & Communication Laboratory** **No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.**

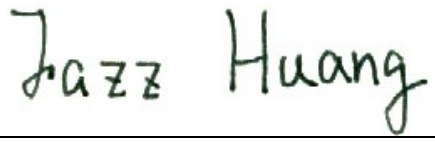
VERIFICATION OF COMPLIANCE

Applicant:	PORTMAN ELECTRONICS (DONGGUAN) CO., LTD. NO#10 , Luyi 2 Road, Keyuancheng, Tangxia Town, Dongguan City, Guangdong Province, China
Product Name:	GST8000 GPRS / GPS TRACKING SYSTEM
Brand Name:	N/A
FCC ID:	TBQGST-8000
Model No.:	GST8000, GT8000-LS, HEU8000
Model Difference:	For different Externals
File Number:	EH/2009/B0027
Date of test:	Nov. 17, 2009 ~ Nov. 27, 2009
Date of EUT Received:	Nov. 17, 2009

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory 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, PART 24 subpart E.

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

Test By:		***Date:***	Nov. 30, 2009
	Jazz Huang / Engineer		
Prepared By:		***Date:***	Nov. 30, 2009
	Eva Kao / Asst. Supervisor		
Approved By:		***Date:***	Nov. 30, 2009
	Vincent Su / Manager		

Version

Version No.	Date	Description
00	Nov. 30, 2009	Initial creation of document

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1. GENERAL PRODUCT INFORMATION

General:

Product Name	GST8000 GPRS / GPS TRACKING SYSTEM	
Brand Name	N/A	
Model Name	GST8000, GT8000-LS, HEU8000	
Model Difference	Different model for different function: detail please find the APPEN-DIX 1	
Power Supply	12Vdc by battery	
	Battery:	Model No.: S14500 1s4p, Supplier: D2-TECH Co., Ltd.

GSM:

GSM Modular Report:	Report No: 2-20722858c/07 Supplier: CETECOM Model Number: MC55i		
	Operating Frequency		Rated Power
Cellular Phone Standards Frequency Range and Power	GSM/GPRS 850, Class 10	824.2 MHz– 848.8 MHz	33 dBm
	GSM/GPRS 900, Class 10	880.2MHz – 914.8MHz	33 dBm
	GSM/GPRS 1800, Class 10	1710.2MHz – 1784.8MHz	30 dBm
	GSM/GPRS 1900, Class 10	1850.2MHz – 1909.8MHz	30 dBm
Type of Emission	22H(GMSK): 824.2 - 848.8 MHz: 300KGXW 24E(GMSK): 1850.2 – 1909.8 MHz: 300KGXW		
IMEI	352024020958322		

This test report applies for GSM/GPRS 850, 1900.

1.1. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended FCC ID: **TBQGST-8000** filing to comply with Section Part 22 subpart H, Part 24 subpart E of the FCC CFR 47 Rules.

1.2. Test Methodology

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

1.3. Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-1

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

1.4. Special Accessories

Not available for this EUT intended for grant.

1.5. Equipment Modifications

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1. 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.

2.2. EUT Exercise

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

2.3. Test Procedure

2.3.1 AC Power Line Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 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 mode.

2.3.2 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.3 Radiated Emissions (ERP/EIRP):

According to measurement procured TIA/EIA 603C, issue 2 of RSS-Gen and TIA/EIA IS-98 for Mobile stations. The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table 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 max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements.

A standard antenna was used to replace the EUT and connect to the SG. Adjust the SG output level to reach the max emission level which were measured above.

2.4. Measurement Equipment Used:

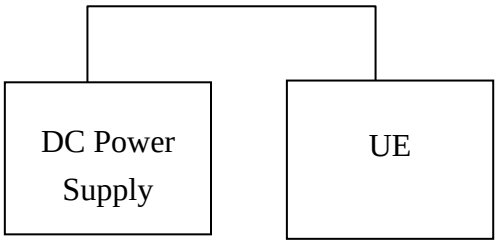
AC POWER LINE CONDUCTED EMISSION EQUIPMENT List					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCS30	828985/004	09/16/2009	09/15/2010
LISN	Rolf-Heine	NNB-2/16Z	99012	04/28/2009	04/27/2010
LISN	FCC	FCC-LISN-50 /250-25-2-01	04034	04/28/2009	04/27/2010
Coaxial Cables	N/A	WK CE Cable	N/A	10/30/2009	10/29/2010

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E4440A	US41160416	01/23/2008	01/22/2010
Radio Communication Analyzer	R&S	CMU200	102189	05/13/208	05/12/2010
800 – 1000MHz Filter	Micro-Tronics	BRM13462	001	01/05/2009	01/04/2010
1800 – 2000MHz Filter	Micro-Tronics	BRM13463	001	01/05/2009	01/04/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Temperature Chamber	GIANT FORCE	GTH-150-40-CP-AR	MAA0512-018	02/05/2008	02/04/2010
Attenuator	Mini-Circuit	BW-S20W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2009	07/04/2010
Splitter	Agilent	11636B	N/A	07/05/2009	07/04/2010
DC Power Supply	Chroma	41901	777188	04/17/2008	04/16/2010

ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2009	02/11/2010
Bilog Antenna	SCHWAZBECK	VULB9160	3158	11/29/2007	11/28/2009
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2008	07/09/2010
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2008	07/09/2010
Hor.n antenna	SCHWAZBECK	BBHA 9120D	309	01/22/2008	01/21/2010
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2008	05/08/2010
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2010
Signal Generator	Agilent	E4438C	MY45093613	06/11/2009	06/10/2010
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2008	11/29/2009
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2009	01/04/2010
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010
Radio Communication Analyzer	R&S	CMU200	102189	05/13/208	05/12/2010
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2009	01/04/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2009	01/04/2010
Filter 800-1000	Micro-Tronics	BRM13462	1	01/05/2009	01/04/2010
Filter 1800-2000	Micro-Tronics	BRM13463	1	01/05/2009	01/04/2010
3m Site	SGS	966 chamber	N/A	11/08/2009	11/09/2010

2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel)



Remote Side

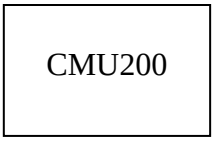


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	DC Power Supply	Chroma	41901	777188	Un-shielded	Un-shielded

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a) §22.913(a) §24.232(c)(d)	RF Peak Power Output	Compliant
§2.1046(a) §22.913(a)(2) §24.232(c)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% Occupied Bandwidth	N/A, see note
§2.1051 §22.917(a) §24.238(a)	Out of Band Emissions at Antenna Terminals and Band Edge	N/A, see note
§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	Compliant
§2.1055(a)(1) §22.355 §24.235	Frequency Stability vs. Temperature	N/A, see note
§2.1055(d)(2) §22.355 §24.235	Frequency Stability vs. Voltage	N/A, see note
§1.1310	MPE	Compliant

NOTE: Refer to modular test Report: 2-20722858c/07 for detail result.

Max ERP/EIRP measurement result:

	dBm		W
GPRS 850	25.48	ERP	0.353
GPRS 1900	23.52	EIRP	0.225

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 ERP/EIRP power and spurious radiation emission were measured as EUT stand up position for both GPRS 850 and 1900 bands were reported which has worst data.

5. RF POWER OUTPUT MEASUREMENT

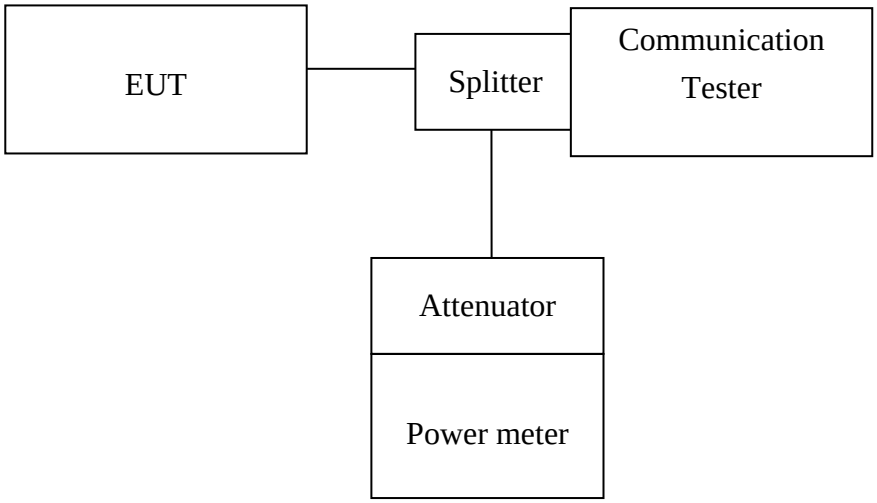
5.1. Standard Applicable:

According to FCC §2.1046.

FCC 22.913(a) Mobile station are limited to 7W.

FCC 24.232(d) Peak Power Measurement, FCC 24.232(c) Maximum Power Reduction.

5.2. Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

5.3. Measurement 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 attenu- ator to the power meter reading. was used for EUT and Base station setting.

5.4. Measurement Equipment Used:

Refer to section 2.4 in this report

5.5. Measurement Result:

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)
GPRS 850 (Class 10	824.2	128	31.90	31.80
	836.6	190	32.40	32.20
	848.8	251	32.80	32.70

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)
GPRS 1900 (Class 10)	1850.2	512	29.50	29.40
	1880.0	661	29.30	29.20
	1909.8	810	29.80	29.70

offset : 1 dBm

6. ERP, EIRP MEASUREMENT

6.1. Standard Applicable:

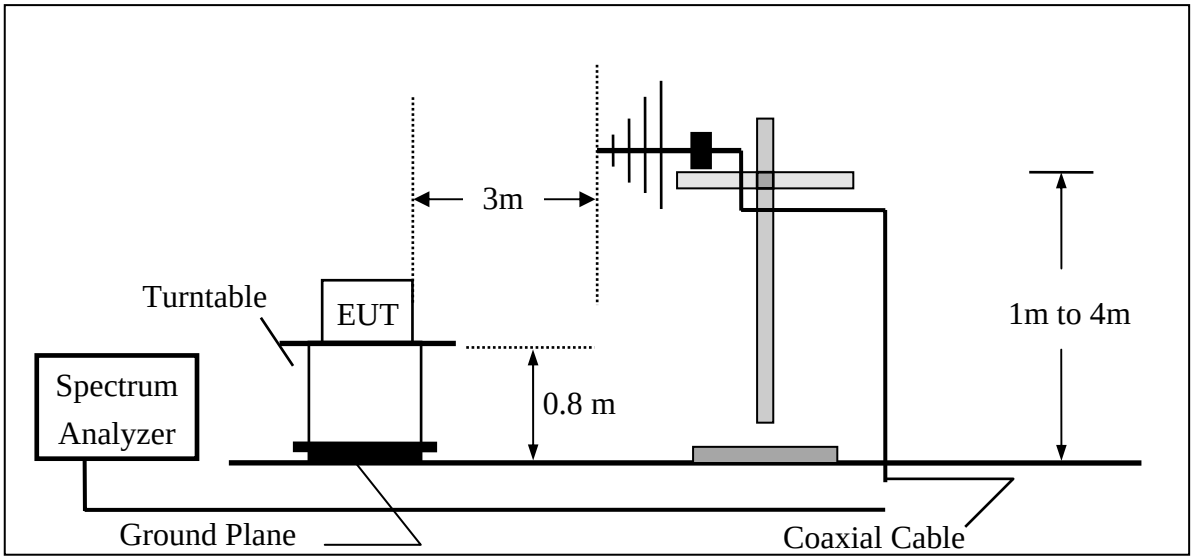
According to FCC §2.1046

FCC 22.913(a) Mobile station are limited to 7W ERP.

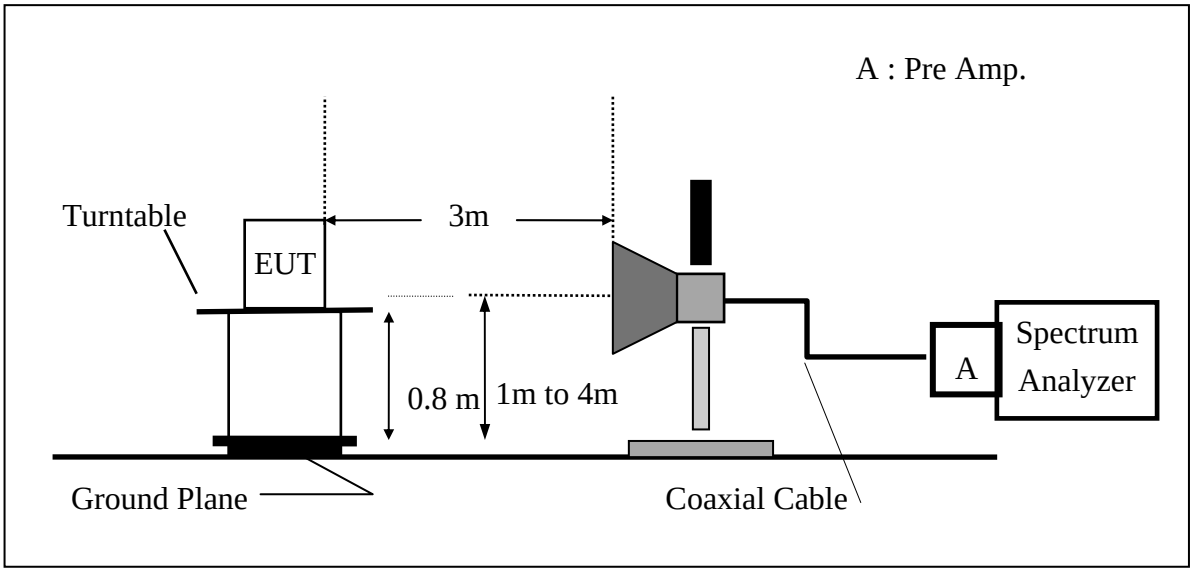
FCC 24.232(b) Mobile station are limited to 2W EIRP.

6.2. Test SET-UP (Block Diagram of Configuration):

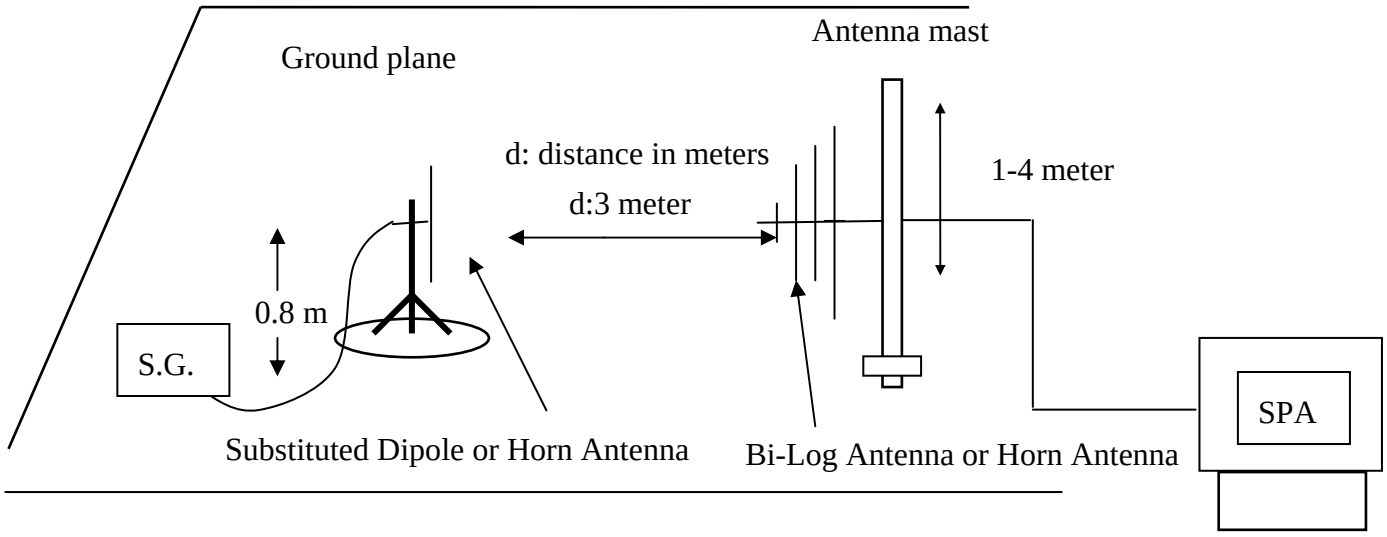
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



6.3. Measurement Procedure:

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

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

EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

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

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

6.4. Measurement Equipment Used:

Refer to section 2.4 in this report

6.5. Measurement Result:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GPRS 850	824.20	1013	H	V	119.46	33.08	-10.01	3.62	19.44	38.45
				H	125.38	39.11	-10.01	3.62	**25.48**	38.45
	836.60	384	H	V	118.25	31.99	-10.01	3.65	18.33	38.45
				H	124.75	38.52	-10.01	3.65	24.86	38.45
	848.80	777	H	V	119.37	33.24	-10.01	3.68	19.56	38.45
				H	124.98	38.78	-10.01	3.68	25.10	38.45

Remark:

(1) The RBW,VBW of SPA for frequency

RBW=300 KHz, VBW=1MHz

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
GPRS 1900	1850.20	512	H	V	118.96	14.57	9.90	5.56	18.91	33.00
				H	122.93	18.75	9.90	5.56	23.09	33.00
	1880.00	661	H	V	119.24	14.88	9.99	5.61	19.26	33.00
				H	123.29	19.15	9.99	5.61	**23.52**	33.00
	1909.80	810	H	V	116.41	12.08	10.07	5.66	16.50	33.00
				H	121.87	17.76	10.07	5.66	22.17	33.00

Remark:

(1) The RBW,VBW of SPA for frequency

RBW=300 KHz, VBW=1MHz

7. 99% OCCUPIED BANDWIDTH MEASUREMENT

7.1. Standard Applicable:

According to §FCC 2.1049.

7.2. Test Set-up:

Refer to section 5.2 in this report

7.3. Measurement Procedure:

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW 15KHz was set to about 1% of emission BW, VBW= 3 times RBW 43KHz, -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.

7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

7.5. Measurement Result:

Refer to module test Report: 2-20722858c/07

8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1. Standard Applicable:

According to FCC §2.1051.

FCC §22.917(a),§24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

8.2. Test SET-UP:

Refer to section 5.2 in this report

8.3. Measurement 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 measurement: a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission use the spectrum analyzer Band power function with Integrated 5KHz and 15kHz of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

8.5. Measurement Result:

Refer to module test Report: 2-20722858c/07

9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

9.1. Standard Applicable:

According to FCC §2.1053,

FCC §22.917(a),§24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

9.2. EUT Setup (Block Diagram of Configuration):

Refer to section 6.2 in this report

9.3. Measurement 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.

Band Edge measurement: a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission use the spectrum analyzer Band power function with

Integrated 5KHz and 15kHz of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

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

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

9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

9.5. Measurement Result:

Refer to attach tabular data sheets.

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode : TX CH Low
Fundamental Frequency : 824.2MHz
Temperature : 25℃
Humidity : 65%

Test Date: Nov. 24, 2009
Test By: Jazz
Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
77.53	55.98	V	-55.44	-2.12	1.21	-58.77	-13.00	-45.77
119.24	46.23	V	-53.91	-7.78	1.45	-63.13	-13.00	-50.13
824.00	76.31	V	-10.08	-7.87	3.62	-21.58	-13.00	-8.58
1648.40	58.72	V	-45.86	9.29	5.23	-41.80	-13.00	-28.80
2472.60	49.09	V	-51.92	10.08	6.53	-48.37	-13.00	-35.37
3296.80	---	V		12.17	7.71		-13.00	
4121.00	---	V		12.61	8.86		-13.00	
4945.20	---	V		12.65	9.74		-13.00	
5769.40	---	V		13.55	10.54		-13.00	
6593.60	---	V		12.05	11.30		-13.00	
7417.80	---	V		11.49	12.10		-13.00	
8242.00	---	V		11.48	12.71		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Low	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 824.2MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
90.14	54.54	H	-49.19	-7.75	1.27	-58.21	-13.00	-45.21
119.24	55.97	H	-45.02	-7.78	1.45	-54.24	-13.00	-41.24
824.00	79.21	H	-7.06	-7.87	3.62	-18.56	-13.00	-5.56
1648.40	61.32	H	-43.08	9.29	5.23	-39.02	-13.00	-26.02
2472.60	---	H		10.08	6.53		-13.00	
3296.80	---	H		12.17	7.71		-13.00	
4121.00	---	H		12.61	8.86		-13.00	
4945.20	---	H		12.65	9.74		-13.00	
5769.40	---	H		13.55	10.54		-13.00	
6593.60	---	H		12.05	11.30		-13.00	
7417.80	---	H		11.49	12.10		-13.00	
8242.00	---	H		11.48	12.71		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Mid	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 836.6MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
70.74	54.16	V	-57.60	-1.18	1.16	-59.95	-13.00	-46.95
101.78	46.37	V	-55.39	-7.76	1.37	-64.51	-13.00	-51.51
1673.20	58.01	V	-46.55	9.36	5.27	-42.45	-13.00	-29.45
2509.80	43.21	V	-57.57	10.09	6.58	-54.07	-13.00	-41.07
3346.40	---	V		12.28	7.79		-13.00	
4183.00	---	V		12.62	8.93		-13.00	
5019.60	---	V		12.67	9.81		-13.00	
5856.20	---	V		13.68	10.62		-13.00	
6692.80	---	V		11.95	11.39		-13.00	
7529.40	---	V		11.45	12.20		-13.00	
8366.00	---	V		11.59	12.81		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Mid	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 836.6MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
77.53	46.09	H	-66.29	-2.12	1.21	-69.61	-13.00	-56.61
114.39	52.02	H	-49.47	-7.77	1.43	-58.67	-13.00	-45.67
221.09	40.23	H	-60.40	-7.86	1.83	-70.08	-13.00	-57.08
1673.20	59.73	H	-44.65	9.36	5.27	-40.55	-13.00	-27.55
2509.80	---	H		10.09	6.58		-13.00	
3346.40	---	H		12.28	7.79		-13.00	
4183.00	---	H		12.62	8.93		-13.00	
5019.60	---	H		12.67	9.81		-13.00	
5856.20	---	H		13.68	10.62		-13.00	
6692.80	---	H		11.95	11.39		-13.00	
7529.40	---	H		11.45	12.20		-13.00	
8366.00	---	H		11.59	12.81		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH High	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 848.8MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
75.59	48.94	V	-62.58	-1.85	1.19	-65.63	-13.00	-52.63
106.63	45.56	V	-55.75	-7.77	1.39	-64.90	-13.00	-51.90
177.44	39.46	V	-60.29	-7.82	1.66	-69.77	-13.00	-56.77
850.00	72.52	V	-13.59	-7.88	3.68	-25.15	-13.00	-12.15
1697.60	52.27	V	-52.27	9.44	5.31	-48.14	-13.00	-35.14
2546.40	41.19	V	-59.45	10.20	6.63	-55.89	-13.00	-42.89
3395.20	---	V		12.38	7.87		-13.00	
4244.00	---	V		12.63	9.00		-13.00	
5092.80	---	V		12.74	9.88		-13.00	
5941.60	---	V		13.81	10.70		-13.00	
6790.40	---	V		11.86	11.48		-13.00	
7639.20	---	V		11.40	12.27		-13.00	
8488.00	---	V		11.70	12.91		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH High	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 848.8MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
77.53	44.47	H	-67.91	-2.12	1.21	-71.23	-13.00	-58.23
119.24	42.46	H	-58.53	-7.78	1.45	-67.75	-13.00	-54.75
159.98	40.07	H	-58.47	-7.81	1.61	-67.90	-13.00	-54.90
850.00	78.05	H	-8.14	-7.88	3.68	-19.70	-13.00	-6.70
1697.60	56.55	H	-47.80	9.44	5.31	-43.67	-13.00	-30.67
2546.40	39.88	H	-60.72	10.20	6.63	-57.16	-13.00	-44.16
3395.20	---	H		12.38	7.87		-13.00	
4244.00	---	H		12.63	9.00		-13.00	
5092.80	---	H		12.74	9.88		-13.00	
5941.60	---	H		13.81	10.70		-13.00	
6790.40	---	H		11.86	11.48		-13.00	
7639.20	---	H		11.40	12.27		-13.00	
8488.00	---	H		11.70	12.91		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH Low
Fundamental Frequency : 1850.2MHz
Temperature : 25℃
Humidity : 65%

Test Date: Nov. 24, 2009
Test By: Jazz
Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
77.53	44.22	V	-67.20	-2.12	1.21	-70.53	-13.00	-57.53
523.73	33.61	V	-59.75	-7.74	2.88	-70.36	-13.00	-57.36
1850.00	78.21	V	-26.18	9.90	5.56	-21.84	-13.00	-8.84
3700.40	44.03	V	-53.90	12.61	8.31	-49.60	-13.00	-36.60
5550.60	49.81	V	-41.03	13.23	10.33	-38.13	-13.00	-25.13
7400.80	---	V		11.50	12.08		-13.00	
9251.00	---	V		11.92	13.50		-13.00	
11101.20	---	V		11.66	15.11		-13.00	
12951.40	---	V		13.63	16.60		-13.00	
14801.60	---	V		12.76	17.95		-13.00	
16651.80	---	V		15.92	19.14		-13.00	
18502.00	---	V		18.75	10.40		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH Low	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 1850.2MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
37.76	44.08	H	-59.41	-3.70	0.90	-64.02	-13.00	-51.02
70.74	43.48	H	-68.83	-1.18	1.16	-71.17	-13.00	-58.17
90.14	42.02	H	-61.71	-7.75	1.27	-70.73	-13.00	-57.73
1850.00	77.40	H	-26.78	9.90	5.56	-22.44	-13.00	-9.44
3700.40	39.35	H	-58.69	12.61	8.31	-54.39	-13.00	-41.39
5550.60	49.68	H	-41.37	13.23	10.33	-38.47	-13.00	-25.47
7400.80	---	H		11.50	12.08		-13.00	
9251.00	---	H		11.92	13.50		-13.00	
11101.20	---	H		11.66	15.11		-13.00	
12951.40	---	H		13.63	16.60		-13.00	
14801.60	---	H		12.76	17.95		-13.00	
16651.80	---	H		15.92	19.14		-13.00	
18502.00	---	H		18.75	10.40		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH Mid	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 1880MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
77.53	44.48	V	-66.94	-2.12	1.21	-70.27	-13.00	-57.27
3760.00	39.35	V	-58.31	12.60	8.39	-54.09	-13.00	-41.09
5640.00	44.90	V	-45.68	13.36	10.41	-42.73	-13.00	-29.73
7520.00	---	V		11.45	12.19		-13.00	
9400.00	---	V		11.93	13.61		-13.00	
11280.00	---	V		11.92	15.27		-13.00	
13160.00	---	V		13.33	16.71		-13.00	
15040.00	---	V		13.76	18.15		-13.00	
16920.00	---	V		15.27	19.32		-13.00	
18800.00	---	V		18.68	16.58		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH Mid	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 1880MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
77.53	43.08	H	-69.30	-2.12	1.21	-72.62	-13.00	-59.62
90.14	42.30	H	-61.43	-7.75	1.27	-70.45	-13.00	-57.45
3760.00	42.03	H	-55.74	12.60	8.39	-51.53	-13.00	-38.53
5640.00	47.62	H	-43.13	13.36	10.41	-40.18	-13.00	-27.18
7520.00	---	H		11.45	12.19		-13.00	
9400.00	---	H		11.93	13.61		-13.00	
11280.00	---	H		11.92	15.27		-13.00	
13160.00	---	H		13.33	16.71		-13.00	
15040.00	---	H		13.76	18.15		-13.00	
16920.00	---	H		15.27	19.32		-13.00	
18800.00	---	H		18.68	16.58		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH High	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 1909.8MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
36.79	45.88	V	-56.85	-4.16	0.91	-61.92	-13.00	-48.92
77.53	44.43	V	-66.99	-2.12	1.21	-70.32	-13.00	-57.32
1910.00	70.86	V	-33.47	10.08	5.66	-29.05	-13.00	-16.05
3819.60	39.45	V	-57.94	12.60	8.47	-53.81	-13.00	-40.81
5494.00	49.17	V	-41.83	13.14	10.27	-38.96	-13.00	-25.96
5729.40	---	V		13.49	10.50		-13.00	
7639.20	---	V		11.40	12.27		-13.00	
9549.00	---	V		11.95	13.74		-13.00	
11458.80	---	V		12.17	15.43		-13.00	
13368.60	---	V		12.97	16.82		-13.00	
15278.40	---	V		15.00	18.29		-13.00	
17188.20	---	V		14.47	19.52		-13.00	
19098.00	---	V		18.66	20.78		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode	: TX CH High	Test Date:	Nov. 24, 2009
Fundamental Frequency	: 1909.8MHz	Test By:	Jazz
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
36.79	45.10	H	-58.70	-4.16	0.91	-63.76	-13.00	-50.76
119.24	48.79	H	-52.20	-7.78	1.45	-61.42	-13.00	-48.42
1910.00	74.06	H	-30.05	10.08	5.66	-25.63	-13.00	-12.63
3819.60	45.43	H	-52.08	12.60	8.47	-47.94	-13.00	-34.94
5729.40	50.37	H	-40.08	13.49	10.50	-37.09	-13.00	-24.09
7639.20	---	H		11.40	12.27		-13.00	
9549.00	---	H		11.95	13.74		-13.00	
11458.80	---	H		12.17	15.43		-13.00	
13368.60	---	H		12.97	16.82		-13.00	
15278.40	---	H		15.00	18.29		-13.00	
17188.20	---	H		14.47	19.52		-13.00	
19098.00	---	H		18.66	20.78		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark:

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

10. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

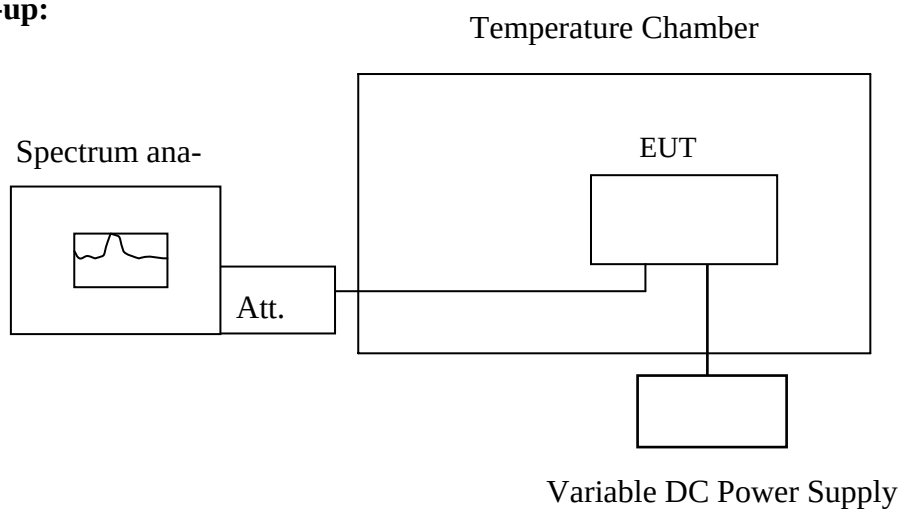
10.1. Standard Applicable:

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band
+/-2.5ppm for 1900MHz band

§27.54: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

10.2. Test Set-up:



Note : Measurement setup for testing on Antenna connector

10.3. Measurement 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 25oC operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30oC. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10oC increased per stage until the highest temperature of +50oC reached.

10.4. Measurement Equipment Used:

Refer to section 2.4 in this report

10.5. Measurement Result:

Refer to module test Report: 2-20722858c/07

11. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

11.1. Standard Applicable:

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band
+/-2.5ppm for 1900MHz band

§27.54: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

11.2. Test Set-up:

Refer to section 10.2 in this report

11.3. Measurement Procedure:

Set chamber temperature to 25℃. 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 specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

11.5. Measurement Result:

Refer to module test Report: 2-20722858c/07

12. Maximum Permissible Exposure (MPE)

12.1. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Section Part 22, subpart H and Part 24, subpart E of the FCC CFR 47 Rules. For 47 CFR 1.1310 Radio frequency Radiation Exposure requirement.

12.2. Special Accessories

Not available for this EUT intended for grant.

12.3. Equipment Modifications

Not available for this EUT intended for grant.

12.4. Limitation

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-15000	/	/	1.0	30

F = frequency in MHz

* = Plane-wave equipment power density

12.5. Maximum Permissible Exposure (MPE) Evaluation

In this application we seek approval to the GST8000. Based on the FCC OET Bulletin 65 Supplement C and 47 CFR §2.1091, we have concluded that the SIM340 module will comply with the FCC rules on RF exposure for mobile devices in cellular band and PCS band. The following analysis will demonstrate such compliance. The analysis will be done in two US bands.

Operation in cellular band (824 – 849 MHz)

The GSM 850 band is 27.61dBm max at GSM/GPRS mode. The resulted power density at a distance of 20 cm can be deducted as follows:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GPRS 850	824.20	1013	H	V	119.46	33.08	-10.01	3.62	19.44	38.45
				H	125.38	39.11	-10.01	3.62	**25.48**	38.45
	836.60	384	H	V	118.25	31.99	-10.01	3.65	18.33	38.45
				H	124.75	38.52	-10.01	3.65	24.86	38.45
	848.80	777	H	V	119.37	33.24	-10.01	3.68	19.56	38.45
				H	124.98	38.78	-10.01	3.68	25.10	38.45

ERP = 25.48 dBm

ERP = 25.48 dBm +2.14 = 578.10 mW

Power Density = ERP*Duty Cycle/($4\pi R^2$)

=578.1*0.25/($4*\pi*20^2$) = 0.0288 mW/cm^2

where Duty Cycle is 0.25 for GPRS operation (class 10) and R is 20 cm.

The MPE limit for General Population/Uncontrolled Exposure is shown in the FCC OET Bulletin 65 Supplement C and can be calculated as follows:

MPE limit = 824/1500 = 0.55 mW/cm^2

As we can see the resulted power density is below the MPE limit, therefore GST8000 in cellular band is compliant with the FCC rules on RF exposure.

Operation in PCS band (1850 – 1910 MHz)

The EIRP of GST8000 in PCS band is 23.52 dBm max. The resulted EIRP can be expressed as follows:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
GPRS 1900	1850.20	512	H	V	118.96	14.57	9.90	5.56	18.91	33.00
				H	122.93	18.75	9.90	5.56	23.09	33.00
	1880.00	661	H	V	119.24	14.88	9.99	5.61	19.26	33.00
				H	123.29	19.15	9.99	5.61	**23.52**	33.00
	1909.80	810	H	V	116.41	12.08	10.07	5.66	16.50	33.00
				H	121.87	17.76	10.07	5.66	22.17	33.00

EIRP = 23.52 dBm = 224.91 mW

Power Density = EIRP*Duty Cycle/($4\pi R^2$)

=224.91*0.25/($4*\pi*20^2$) = 0.0112 mW/cm^2

where Duty Cycle is 0.25 for GPRS operation (class 10) and R is 20 cm.

The MPE limit for General Population/Uncontrolled Exposure is shown in the FCC OET Bulletin 65 Supplement C and can be calculated as follows:

MPE limit = 1.0 mW/cm^2

As we can see the resulted power density is below the MPE limit, therefore GST8000 in PCS band is compliant with the FCC rules on RF exposure.