

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E AND INDUSTRY CANADA RSS-132 and RSS-133 CLASS II PC REPORT

For

Product Description: Luke

Trade Name: N/A

Model Name: HSTNN-I77C

Model Difference: N/A

FCC ID: J9CGOBI2000-H

IC: 2723A-GOBI2000

Report No.: EH/2009/90052

Issue Date: Oct. 07, 2009

FCC Rule Part: 2, 22H & 24E

IC Rule Part: RSS 132 Issue 2 and RSS 133 Issue 5

Prepared for: Qualcomm Incorporated
5775 Morehouse Dr, San Diego, CA 92121, U.S.A

Prepared by: SGS Taiwan Ltd.
Electronics & Communication Laboratory
No. 134, Wu Kung Rd., Wuku Industrial Zone,
Taipei County, Taiwan.

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CERTIFICATION OF COMPLIANCE

Applicant: Qualcomm Incorporated
5775 Morehouse Dr, San Diego, CA 92121, U.S.A

Product Description: Luke

Trade Name: N/A

FCC ID: J9CGOBI2000-H

IC: 2723A-GOBI2000

Model No.: HSTNN-I77C

Model Difference: N/A

File Number: EH/2009/90052

Date of test: Sep. 25, 2009 ~ Oct. 07, 2009

Date of EUT Received: Sep. 25, 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, Issue 2 of RSS-Gen 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 PART 22 subpart H, PART 24 subpart E and IC standards RSS-132 Issue 2, Issue 5 of RSS-133.

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

Test By:

Jazz Huang

Date:

Oct. 07, 2009

Jazz Huang / Engineer

Prepared By:

Tiffany Kao

Date:

Oct. 07, 2009

Tiffany Kao / Clerk

Approved By:

Vincent Su

Date:

Oct. 07, 2009

Vincent Su / Manager

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Version

Version No.	Date	Description
00	Oct. 07, 2009	Initial creation of document

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1. GENERAL INFORMATION

1.1 Product Description

General:

Type Name:	Luke
Brand Name:	N/A
Model Name:	HSTNN-I77C
Model Difference:	N/A
Power Supply:	11.1 Vdc re-chargeable battery or 18.5Vdc by AC/DC power adapter, model: Series N193

GSM / WCDMA / CDMA:

Cellular Phone Standards Frequency Range	GPRS 850	824.2 - 848.8 MHz
	EDGE 850	824.2 - 848.8 MHz
	GPRS 1900	1850.2 – 1909.8 MHz
	EDGE 1900	1850.2 – 1909.8 MHz
	WCDMA/HSUPA/HSDPA Band II	1852.4 – 1907.6 MHz
	WCDMA/HSUPA/HSDPA Band V	826.4 - 846.6 MHz
	CDMA2000 Cellular	824.7 MHz – 848.31MHz
	CDMA2000 PCS	1851.25 MHz – 1908.75MHz
IMEI	359881020083341	
Hardware Version	P3 Rev D	
Software Version	3574	

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Type of Emission	22H(GMSK): 824.2 - 848.8 MHz: 248KGXW 24E(GMSK): 1850.2 – 1909.8 MHz: 250KGXW 22H(8PSK): 824.2 - 848.8 MHz: 248KG7W 24E(8PSK): 1850.2 – 1909.8 MHz: 250KG7W 22H(WCDMA): 826.4 - 846.6 MHz: 4M18F9W 24E(WCDMA): 1852.4 – 1907.5 MHz: 4M19F9W 22H(CDMA) 824.7 - 848.31 MHz: 1M28F9W 24E(CDMA): 1851.25 – 1908.75 MHz: 1M28F9W
Transmit power (Conducted Power) Listed in Test Report/Original Grant	22H(GMSK): 824.2 - 848.8 MHz: 1.919W /32.831dBm 24E(GMSK): 1850.2 – 1909.8 MHz: 0.874W /29.415dBm 22H(8PSK): 824.2 - 848.8 MHz: 0.555W /27.443dBm 24E(8PSK): 1850.2 – 1909.8 MHz: 0.396W /25.977dBm 22H(WCDMA): 826.4 - 846.6 MHz: 0.262W /24.183dBm 24E(WCDMA): 1852.4 – 1907.5 MHz: 0.256W /24.082dBm 22H(CDMA) 824.7 - 848.31 MHz: 0.29W /24.6dBm 24E(CDMA): 1851.25 – 1908.75 MHz: 0.291W /24.639dBm

This test report applies for GPRS/EDGE 850, GPRS/EDGE 1900, WCDMA/HSUPA/HSDPA Band II, Band V bands, CDMA2000 Cellular and PCS bands.

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: J9CGOBI2000-H** filing to comply with Section Part 22 subpart H, Part 24 subpart E of the FCC CFR 47 Rules. And **IC: 2723A-GOBI2000** filing to comply with RSS-132 and Issue 5 of RSS-133

1.3 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, 2.1053, RSS-132, Issue 5 of RSS-133 and Issue 2 of RSS-Gen.

1.4 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.

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 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 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.

2.3.2 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 Configuration of Tested System

Fig. 1-1 Configuration for Radiated Emission

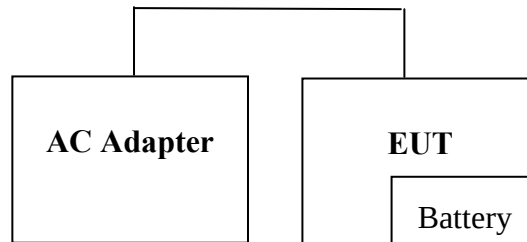


Fig. 1-2 Configuration (Remote Side, on the corner)

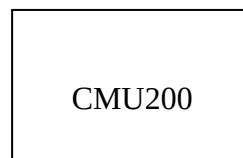


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Universal Radio Communication Tester	R&S	CMU200	102189	Shielded	Un-shielded

3. SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a) §22.913(a)(2) §24.232(c) §27.50(d)(2)	§4.8 (RSS-Gen) §4.4 (RSS-132) §6.4 (RSS-133)	ERP/ EIRP measurement	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(g)	§4.9 (RSS-Gen) §4.5 (RSS-132) §6.5 (RSS-133)	Field Strength of Spurious Radiation (TX)	Compliant

4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Set EUT power control “all up bits” for all test mode through base station.

The Channel Low, Mid and High for each type of bands with rated data rate were chosen for above 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. ERP/EIRP MEASUREMENT

5.1 Standard Applicable

According to FCC §2.1046

FCC 22.913(a)(2) Mobile station are limited to 7W ERP.

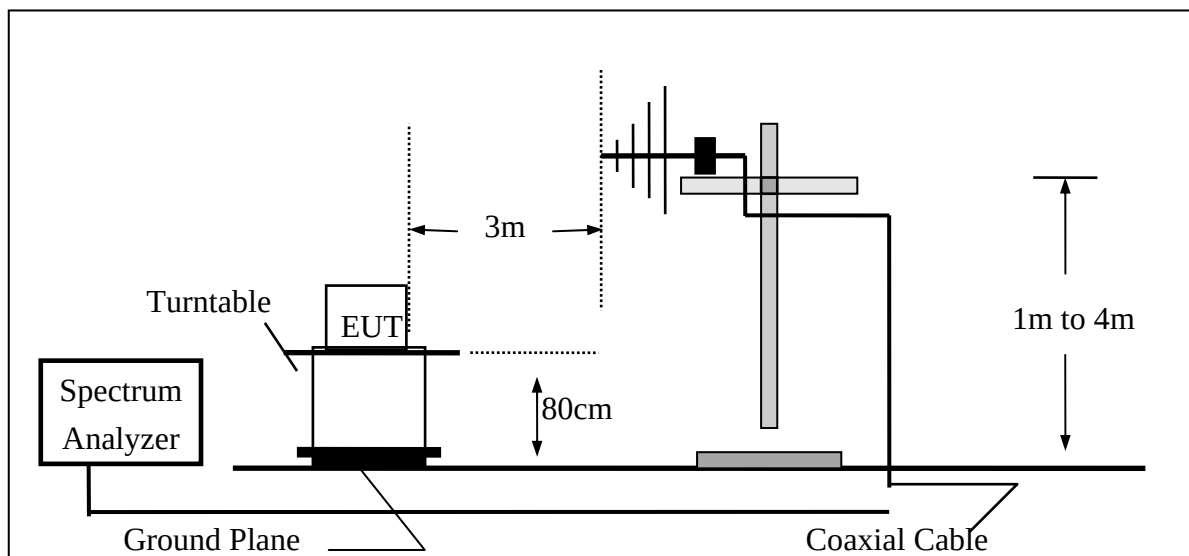
FCC 24.232(c) Mobile station are limited to 2W EIRP.

According to issue 5 of RSS-133 §6.4. The peak e.i.r.p. for transmitters operating in the band 1850-1910 MHz shall not exceed the limits given in SRSP-510.

According to issue 2 of RSS 132, section 4.4. The transmitter output power shall not exceed the limits given in SRSP-503.

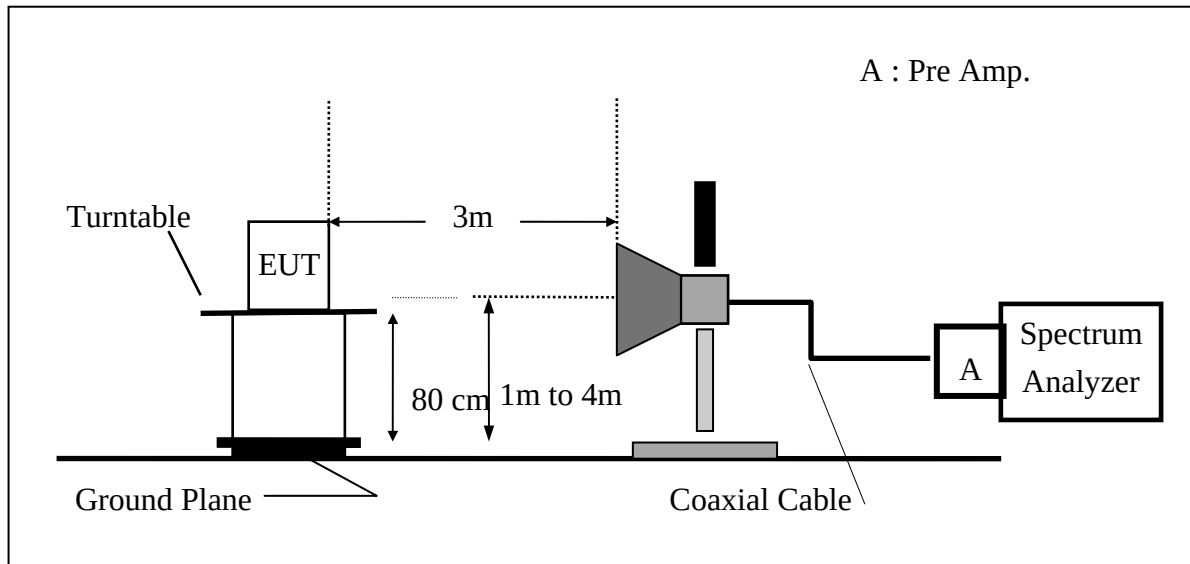
5.2 Test SET-UP (Block Diagram of Configuration)

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

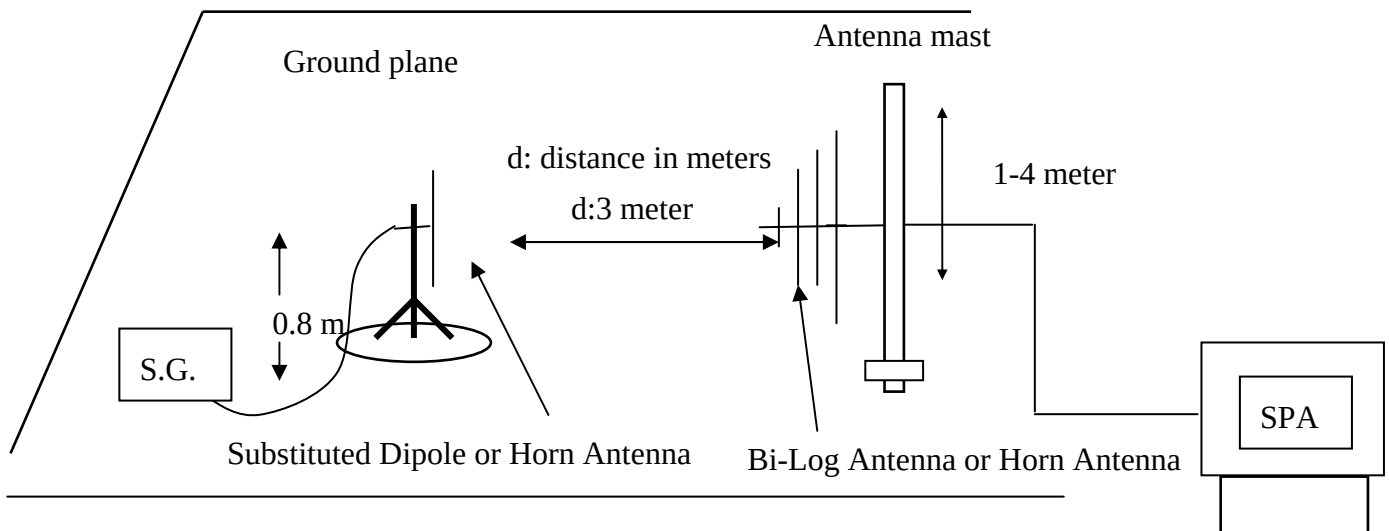


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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



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5.3 Measurement Procedure

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

During the measurement, the EUT was in 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 –848.80.8MHz were measured using a substitution method. The EUT was replaced by a 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:

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

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

5.4 Measurement Equipment Used:

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	9160-3136	11/15/2008	11/14/2009
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	05/13/2008	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	11/08/2008	11/09/2009

5.5 Measurement Result

Refer to following pages for detail.

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Measurement Result:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GPRS 850	824.20	128	H	V	128.08	41.69	-7.87	3.62	30.19	38.45
				H	128.65	42.38	-7.87	3.62	30.88	38.45
	836.60	190	H	V	127.61	41.36	-7.88	3.65	29.83	38.45
				H	128.42	42.19	-7.88	3.65	30.66	38.45
	848.80	251	H	V	127.72	41.60	-7.88	3.68	30.04	38.45
				H	128.70	42.51	-7.88	3.68	30.95	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	126.88	22.49	9.90	5.56	26.83	33.00
				H	125.23	21.05	9.90	5.56	25.39	33.00
	1880.00	661	H	V	124.60	20.24	9.99	5.61	24.62	33.00
				H	122.80	18.66	9.99	5.61	23.03	33.00
	1909.80	810	H	V	124.96	20.63	10.08	5.66	25.05	33.00
				H	124.64	20.53	10.08	5.66	24.95	33.00

Remark :

- (1) The RBW,VBW of SPA for frequency

RBW=1MHz, VBW=1MHz

6. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT(TX)

6.1 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)

According to RSS-132 §4.5 and RSS-133 §6.5

Out-of-Block Emissions

a. Mobile stations must comply with subsection i. below.

In the first 1.0MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least $43 + 10 \log (P)$, dB.

b. After the first 1.0 MHz (for equipment that complies with a.i. of this subsection) or 1.5 MHz (for equipment that complies with a.ii. of this subsection), the power of emissions shall be attenuated below the transmitter output power by at least $43 + 10 \log (P)$, dB, per any MHz of bandwidth.

(Note: If the test result using 1% of the emission bandwidth is used, then power integration over 1.0 MHz is required; alternatively, the spectrum analyser resolution and video bandwidths can be increased to 1.0 MHz for this measurement).

Out-of-Sub-band Emissions

Outside the sub-bands 1850-1910 MHz and 1930-1990 MHz, the attenuation shall be equal to or greater than the out-of-block emission limits in Section 6.5.1.

6.2 EUT Setup (Block Diagram of Configuration)

Refer to section 5.2 for details

6.3 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.

ERP in frequency band 824.2 –848.80MHz 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:

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

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

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

6.4 Measurement Equipment Used:

Refer to section 5.4 for details

6.5 Measurement Result

Refer to attach tabular data sheets.

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Low Mode	Test Date:	Oct. 07, 2009
Fundamental Frequency	: 824.20 MHz	Test By:	Jazz
Temperature	: 25°C	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	45.50	V	-57.23	-4.16	0.91	-62.30	-13.00	-49.30
90.14	46.62	V	-56.56	-7.75	1.27	-65.58	-13.00	-52.58
198.78	48.75	V	-52.92	-7.84	1.71	-62.47	-13.00	-49.47
279.29	49.62	V	-49.31	-7.91	2.10	-59.31	-13.00	-46.31
460.68	44.01	V	-49.96	-7.70	2.69	-60.36	-13.00	-47.36
623.64	48.85	V	-40.41	-7.80	3.09	-51.30	-13.00	-38.30
823.98	80.70	V	-5.69	-7.87	3.62	-17.19	-13.00	-4.19
1644.00	53.79	V	-50.80	9.27	5.22	-46.74	-13.00	-33.74
2463.00	63.72	V	-37.35	10.08	6.51	-33.79	-13.00	-20.79
3288.00	---	V		12.15	7.70		-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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode	: TX CH Low Mode	Test Date:	Oct. 07, 2009
Fundamental Frequency	: 824.20 MHz	Test By:	Jazz
Temperature	: 25°C	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)
38.73	44.55	H	-58.64	-3.25	0.90	-62.79	-13.00	-49.79
198.78	45.15	H	-56.41	-7.84	1.71	-65.95	-13.00	-52.95
313.24	43.61	H	-53.93	-7.85	2.22	-63.99	-13.00	-50.99
415.09	43.62	H	-52.04	-7.67	2.56	-62.27	-13.00	-49.27
458.74	43.89	H	-49.92	-7.70	2.68	-60.31	-13.00	-47.31
623.64	44.75	H	-45.49	-7.80	3.09	-56.38	-13.00	-43.38
824.00	80.10	H	-6.17	-7.87	3.62	-17.67	-13.00	-4.67
1644.00	46.29	H	-58.12	9.27	5.22	-54.06	-13.00	-41.06
2463.00	54.26	H	-46.71	10.08	6.51	-43.15	-13.00	-30.15
2963.00	---	H		11.41	7.20		-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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode : TX CH Mid Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 836.60 MHz

Test By: Jazz

Temperature : 25°C

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)
90.14	49.73	V	-53.45	-7.75	1.27	-62.47	-13.00	-49.47
198.78	49.91	V	-51.76	-7.84	1.71	-61.31	-13.00	-48.31
264.74	49.36	V	-50.05	-7.90	2.04	-59.99	-13.00	-46.99
295.78	50.70	V	-47.69	-7.92	2.15	-57.76	-13.00	-44.76
460.68	43.87	V	-50.10	-7.70	2.69	-60.50	-13.00	-47.50
623.64	49.31	V	-39.95	-7.80	3.09	-50.84	-13.00	-37.84
1679.00	42.04	V	-62.51	9.38	5.28	-58.41	-13.00	-45.41
2498.00	55.34	V	-45.49	10.06	6.57	-42.00	-13.00	-29.00
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode : TX CH Mid Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 836.60 MHz

Test By: Jazz

Temperature : 25°C

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)
198.78	45.39	H	-56.17	-7.84	1.71	-65.71	-13.00	-52.71
264.74	44.17	H	-54.59	-7.90	2.04	-64.53	-13.00	-51.53
313.24	44.55	H	-52.99	-7.85	2.22	-63.05	-13.00	-50.05
415.09	43.42	H	-52.24	-7.67	2.56	-62.47	-13.00	-49.47
455.83	43.89	H	-49.95	-7.70	2.68	-60.33	-13.00	-47.33
623.64	44.47	H	-45.77	-7.80	3.09	-56.66	-13.00	-43.66
1679.00	43.24	H	-61.13	9.38	5.28	-57.03	-13.00	-44.03
2498.00	62.20	H	-38.54	10.06	6.57	-35.05	-13.00	-22.05
4178.00	40.75	H	-55.30	12.62	8.93	-51.60	-13.00	-38.60
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode : TX CH High Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 848.80 MHz

Test By: Jazz

Temperature : 25°C

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	46.12	V	-56.61	-4.16	0.91	-61.68	-13.00	-48.68
198.78	49.92	V	-51.75	-7.84	1.71	-61.30	-13.00	-48.30
264.74	48.54	V	-50.87	-7.90	2.04	-60.81	-13.00	-47.81
295.78	50.88	V	-47.51	-7.92	2.15	-57.58	-13.00	-44.58
455.83	43.64	V	-50.31	-7.70	2.68	-60.69	-13.00	-47.69
623.64	48.88	V	-40.38	-7.80	3.09	-51.27	-13.00	-38.27
849.01	79.41	V	-6.71	-7.88	3.68	-18.27	-13.00	-5.27
1693.00	39.61	V	-64.93	9.42	5.30	-60.81	-13.00	-47.81
2533.00	43.31	V	-57.39	10.16	6.61	-53.84	-13.00	-40.84
2540.50	---	V		10.18	6.63		-13.00	
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Member of SGS Group

Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Mode : TX CH High Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 848.80 MHz

Test By: Jazz

Temperature : 25°C

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)
38.73	44.56	H	-58.63	-3.25	0.90	-62.78	-13.00	-49.78
90.14	41.41	H	-62.32	-7.75	1.27	-71.34	-13.00	-58.34
198.78	44.71	H	-56.85	-7.84	1.71	-66.39	-13.00	-53.39
295.78	42.88	H	-54.91	-7.92	2.15	-64.98	-13.00	-51.98
455.83	44.10	H	-49.74	-7.70	2.68	-60.12	-13.00	-47.12
623.64	44.96	H	-45.28	-7.80	3.09	-56.17	-13.00	-43.17
849.03	78.89	H	-7.30	-7.88	3.68	-18.86	-13.00	-5.86
1693.00	39.11	H	-65.24	9.42	5.30	-61.12	-13.00	-48.12
2533.00	52.64	H	-48.00	10.16	6.61	-44.45	-13.00	-31.45
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH Low Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 1850.20MHz

Test By: Jazz

Temperature : 25°C

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	48.01	V	-54.72	-4.16	0.91	-59.79	-13.00	-46.79
90.14	47.41	V	-55.77	-7.75	1.27	-64.79	-13.00	-51.79
198.78	47.76	V	-53.91	-7.84	1.71	-63.46	-13.00	-50.46
310.33	42.14	V	-55.98	-7.86	2.21	-66.05	-13.00	-53.05
460.68	44.16	V	-49.81	-7.70	2.69	-60.21	-13.00	-47.21
623.64	49.93	V	-39.33	-7.80	3.09	-50.22	-13.00	-37.22
1849.99	80.53	V	-23.86	9.90	5.56	-19.52	-13.00	-6.52
3688.00	49.36	V	-48.62	12.61	8.29	-44.31	-13.00	-31.31
5543.00	40.81	V	-50.05	13.21	10.32	-47.16	-13.00	-34.16
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH Low Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 1850.20MHz

Test By: Jazz

Temperature : 25°C

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)
38.73	44.78	H	-58.41	-3.25	0.90	-62.56	-13.00	-49.56
96.93	45.43	H	-57.80	-7.76	1.33	-66.89	-13.00	-53.89
206.54	45.01	H	-56.32	-7.85	1.75	-65.92	-13.00	-52.92
458.74	44.08	H	-49.73	-7.70	2.68	-60.12	-13.00	-47.12
623.64	45.34	H	-44.90	-7.80	3.09	-55.79	-13.00	-42.79
807.94	38.77	H	-47.55	-7.87	3.59	-59.01	-13.00	-46.01
1849.99	76.62	H	-27.56	9.90	5.56	-23.22	-13.00	-10.22
3688.00	52.65	H	-45.45	12.61	8.29	-41.13	-13.00	-28.13
5443.00	40.35	H	-51.00	13.09	10.22	-48.13	-13.00	-35.13
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH Mid Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 1880MHz

Test By: Jazz

Temperature : 25°C

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	49.07	V	-53.66	-4.16	0.91	-58.73	-13.00	-45.73
90.14	47.42	V	-55.76	-7.75	1.27	-64.78	-13.00	-51.78
198.78	47.42	V	-54.25	-7.84	1.71	-63.80	-13.00	-50.80
455.83	44.16	V	-49.79	-7.70	2.68	-60.17	-13.00	-47.17
623.64	50.08	V	-39.18	-7.80	3.09	-50.07	-13.00	-37.07
870.99	37.93	V	-47.61	-7.91	3.73	-59.24	-13.00	-46.24
3758.00	49.68	V	-47.99	12.60	8.39	-43.77	-13.00	-30.77
5634.00	42.42	V	-48.18	13.35	10.41	-45.23	-13.00	-32.23
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH Mid Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 1880MHz

Test By: Jazz

Temperature : 25°C

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)
41.64	43.48	H	-60.03	-2.31	0.93	-63.27	-13.00	-50.27
96.93	44.59	H	-58.64	-7.76	1.33	-67.73	-13.00	-54.73
198.78	13.69	H	-87.87	-7.84	1.71	-97.41	-13.00	-84.41
468.44	44.19	H	-49.54	-7.71	2.71	-59.96	-13.00	-46.96
623.64	45.79	H	-44.45	-7.80	3.09	-55.34	-13.00	-42.34
870.99	36.38	H	-49.25	-7.91	3.73	-60.88	-13.00	-47.88
3758.00	55.62	H	-42.16	12.60	8.39	-37.95	-13.00	-24.95
5634.00	43.40	H	-47.37	13.35	10.41	-44.43	-13.00	-31.43
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 - 40GHz: 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 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH High Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 1909.8 MHz

Test By: Jazz

Temperature : 25°C

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	48.31	V	-54.42	-4.16	0.91	-59.49	-13.00	-46.49
198.78	46.75	V	-54.92	-7.84	1.71	-64.47	-13.00	-51.47
415.09	44.24	V	-50.79	-7.67	2.56	-61.01	-13.00	-48.01
460.68	44.30	V	-49.67	-7.70	2.69	-60.07	-13.00	-47.07
623.64	49.54	V	-39.72	-7.80	3.09	-50.61	-13.00	-37.61
872.93	37.33	V	-48.16	-7.91	3.73	-59.80	-13.00	-46.80
1910.02	79.86	V	-24.47	10.08	5.66	-20.05	-13.00	-7.05
3814.00	54.74	V	-42.68	12.60	8.46	-38.54	-13.00	-25.54
5718.00	40.94	V	-49.41	13.48	10.49	-46.42	-13.00	-33.42
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 - 40GHz: 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
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- 4 $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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Radiated Spurious Emission Measurement Result: GPRS 1900 Mode

Operation Mode : TX CH High Mode

Test Date: Oct. 07, 2009

Fundamental Frequency : 1909.8 MHz

Test By: Jazz

Temperature : 25°C

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)
38.73	44.69	H	-58.50	-3.25	0.90	-62.65	-13.00	-49.65
58.13	42.11	H	-68.32	-0.49	1.08	-69.89	-13.00	-56.89
198.78	43.62	H	-57.94	-7.84	1.71	-67.48	-13.00	-54.48
266.68	41.27	H	-57.43	-7.90	2.05	-67.38	-13.00	-54.38
463.59	44.14	H	-49.63	-7.71	2.70	-60.03	-13.00	-47.03
623.64	45.62	H	-44.62	-7.80	3.09	-55.51	-13.00	-42.51
1910.02	75.65	H	-28.46	10.08	5.66	-24.04	-13.00	-11.04
3814.00	54.31	H	-43.22	12.60	8.46	-39.08	-13.00	-26.08
5718.00	42.75	H	-47.74	13.48	10.49	-44.75	-13.00	-31.75
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	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 40GHz: 4.45dB

Remark :

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