

# TEST REPORT

of

**FCC PART 22 SUBPART H, PART 24 SUBPART E and PART 27**

New Application;  Class I PC;  Class II PC

Limited Modular Approval for Notebook Model V100-G4/V200-G2

**Product :** WWAN Module  
**Brand:** Getac  
**Model:** MC-8355  
**Model Difference:** N/A  
**FCC ID:** MAU047  
**FCC Rule Part:** 2 , 22H & 24E & 27  
**Applicant:** Getac Technology Corp.  
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**Test Performed by:**

**International Standards Laboratory**

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Report No.: **ISL-12LR097FC**

Issue Date : **2012/07/30**

Test results given in this report apply only to the specific sample(s) tested and are traceable to national or international standard through calibration of the equipment and evaluating measurement uncertainty herein.

This report MUST not be used to claim product endorsement by TAF, NVLAP or any agency of the Government.

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## VERIFICATION OF COMPLIANCE

**Applicant:** Getac Technology Corp.  
**Product Description:** WWAN Module  
**Brand Name:** Getac  
**Model No.:** MC-8355  
**Model Difference:** N/A  
**FCC ID:** MAU047  
**FCC Rule Part:** 2 , 22H & 24E & 27  
**Date of test:** 2012/05/16 ~ 2012/06/28  
**Date of EUT Received:** 2012/05/16

### We hereby certify that:

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

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*Dion Chang / Engineer*

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*Eva Kao / Technical Supervisor*

**Approved By:** Vincent Su **Date:** 2012/07/30  
*Vincent Su / Technical Manager*

## Version

Version No.	Date	Description
00	2012/07/30	Initial creation of document

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## 1. GENERAL PRODUCT INFORMATION

### General:

Product Name	WWAN Module
Brand Name	Getac
Model Name	MC-8355
Model Difference	N/A

### Notebook Platform Information:

Model Name	V100-G4/ V200-G2	
Model Difference	V100-G4: panel size 10", V200-G2: panel size 12"	
Power Supply	10.8Vdc from Li-ion Battery or 19Vdc AC/DC Adapter or Car Charge	
	Adapter:	Model: ADM-6019M, Supplier: Getac

GSM, WCDMA and CDMA2000:

	Operating Frequency	Rated Power	
Cellular Phone Standards Frequency Range and Power:	GSM/GPRS/EDGE, 850, Class 10	824.2 MHz– 848.8 MHz	33 dBm
	GSM/GPRS/EDGE, 900, Class 10	890.4MHz – 914.8MHz	33 dBm
	GSM/GPRS/EDGE, 1800, Class 10	1710.2MHz-1784.8MHz	30 dBm
	GSM/GPRS/EDGE, 1900, Class 10	1850.2MHz – 1909.8MHz	30 dBm
	WCDMA/HSUPA/HSDPA Band I	1922.4MHz – 1977.6MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band II	1852.4MHz – 1907.5MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band IV	1712.4MHz – 1752.6MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band V	826.4MHz – 846.6MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band VIII	882.4MHz – 912.6MHz	24dBm
	CDMA2000 Cellular	824.7MHz – 848.31MHz	24 dBm
	CDMA2000 PCS	1851.25MHz – 1908.75MHz	24 dBm
	Data rate: Upto HSPA release 6		
Type of Emission:	GSM/GPRS 850: 248KGXW GSM/GPRS 1900: 250KGXW EDGE 850: 248KGXW EDGE 1900: 245KGXW WCDMA Band II: 4M19F9W WCDMA Band IV: 4M15F9W WCDMA Band V: 4M19F9W CDMA2000 Cellular: 1M28F9W CDMA2000 PCS: 1M28F9W		
Hardware Version:	N/A		
Software Version:	N/A		
IMEI:	357485		
Antenna:	PIFA Antenna, 3dBi		

This test report applies for GSM/GPRS/EDGE 850/1900 MHz; WCDMA/HSDPA/HSUPA Bands II, IV and V; CDMA2000 Cellular and CDMA2000 PCS.

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

This submittal(s) (test report) is intended for FCC ID: **MAU047** filing to comply with Section Part 22 subpart H, Part 24 subpart E and Part 27 of the FCC CFR 47 Rules.

### 1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures documented 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.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA / HSDPA/HSUPA) was used for EUT and Base station setting.

### 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.

All equipment is calibrated externally and traceable to SI (International System of Unit).

### 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 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, The EUT is a placed on as turn table which is 1 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 and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13 of ANSI C63.4:2003.



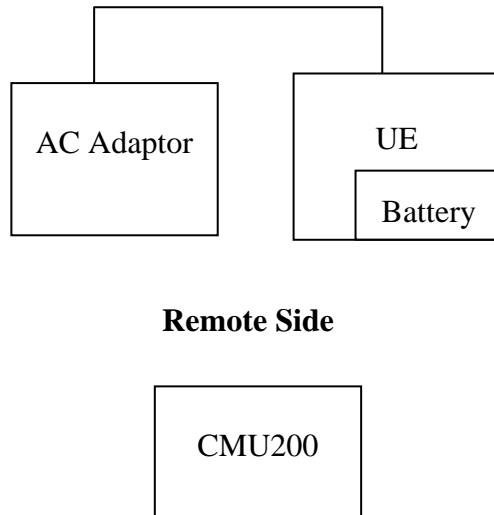
**2.4. Measurement Equipment Used:**

<b>Conducted Emission Test Site</b>					
<b>EQUIPMENT TYPE</b>	<b>MFR</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>LAST CAL.</b>	<b>CAL DUE.</b>
Power Meter 05	Anritsu	ML2495A	1116010	04/17/2012	04/16/2013
Power Sensor 05	Anritsu	MA2411B	34NKF50	04/16/2012	04/15/2013
Temperature Chamber	KSON	THS-B4H100	2287	03/03/2012	03/02/2013
DC Power supply	ABM	51850	N/A	06/17/2012	06/16/2013
AC Power supply	EXTECH	CFC105W	NA	12/19/2011	12/18/2012
Splitter	MCLI	PS4-199	12465	07/18/2011	07/17/2012
Spectrum analyzer	Agilent	N9030A	MY51360021	03/11/2012	03/10/2013

Chamber 14(966)					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer 21(26.5GHz)	Agilent	N9010A	MY49060537	07/18/2011	07/17/2012
Spectrum Analyzer 20(6.5GHz)	Agilent	E4443A	MY48250315	05/24/2012	05/23/2013
Spectrum Analyzer 22(43GHz)	R&S	FSU43	100143	04/25/2012	04/24/2013
Dipole antenna	SCHWARZBECK	VHAP,30-300	919	11/16/2011	11/15/2013
Dipole antenna	SCHWARZBECK	UHAP,300-1000	1195	10/25/2011	10/24/2013
Bilog Antenna30-1G	Schaffner	CBL 6111B	2756	12/27/2011	12/26/2012
Horn antenna1-18G	COM-POWER	AH118	2011071401	03/01/2012	02/29/2013
Horn antenna1-18G(06)	EMCO	3117	0006665	09/21/2011	09/20/2012
Horn antenna26-40G(05)	Com-power	AH-640	100A	01/11/2011	01/10/2013
Horn antenna18-26G(04)	Com-power	AH-826	081001	05/04/2011	05/03/2013
Preamplifier9-1000M	HP	8447D	NA	02/10/2012	02/09/2013
Preamplifier1-18G	MITEQ	AFS44-00101800-25-10P-44	1329256	07/19/2011	07/18/2012
Preamplifier1-26G	EM	EM01M26G	NA	02/21/2012	02/20/2013
Preamplifier26-40G	MITEQ	JS-26004000-27-5A	818471	05/21/2011	05/20/2013
Cable1-18G	HUBER SUHNER	Sucoflex 106	NA	02/10/2012	02/09/2013
Cable UP to 1G	HUBER SUHNER	RG 214/U	NA	12/14/2011	12/13/2012
SUCOFLEX 1GHz~40GHz cable	HUBER SUHNER	Sucoflex 102	27963/2&37421/2	09/21/2011	09/20/2012
Signal Generator	R&S	SMU200A	102330	02/07/2012	02/06/2013
Signal Generator	Anritsu	MG3692A	20311	05/07/2011	05/06/2012
2.4G Filter	Micro-Tronics	Brm50702	76	10/22/2011	10/21/2012
5G Filter	Micro-Tronics	Brm50716	005	10/22/2011	10/21/2012
Tunable Notch Filter (800 to 1000)	K&L	3TNF-00082	478	10/22/2011	10/21/2012
Tunable Notch Filter (1700 to 2000)	K&L	5TNF-00082	335	10/22/2011	10/21/2012
Band reject filter850	WI	Wrc814-859	3	10/22/2011	10/21/2012
Band reject filter900	WI	Wrc860-935	3	10/22/2011	10/21/2012
Band reject filter1800	WI	Wrc1690-1805	3	10/22/2011	10/21/2012
Band reject filter1900	WI	Wrc1830-1930	3	10/22/2011	10/21/2012

**2.5. Configuration of Tested System**

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



**Table 2-1 Equipment Used in Tested System**

<b>Item</b>	<b>Equipment</b>	<b>Mfr/Brand</b>	<b>Model/ Type No.</b>	<b>Series No.</b>	<b>Data Cable</b>	<b>Power Cord</b>
1.	Universal Radio Communication Tester	R&S	CMU200	102189	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 Output Power	Compliant
§2.1046(a) §22.913(a)(2) §24.232(c) §27.50(d)(2)	ERP/ EIRP measurement	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(g)	Field Strength of Spurious Radiation	Compliant

Max power measurement result:

	dBm	dB	W
GPRS 850 Band	33.10	ERP	2.042
EDGE 850 Band	27.20	ERP	0.525
WCDMA Band V	24.14	ERP	0.259
CDMA2000	24.05	ERP	0.254
GPRS 1900 Band	29.10	EIRP	0.813
EDGE 1900 Band	25.30	EIRP	0.339
WCDMA Band II	23.93	EIRP	0.247
CDMA2000 PCS	23.84	EIRP	0.242
WCDMA Band IV	24.07	EIRP	0.255

### 4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

EUT was staying in continuous transmitting mode. Channel Low, Mid and High for each band with rated data rate were chosen for Conducted power, ERP/EIRP and spurious radiation emission testing.

The ERP/EIRP and spurious radiation emission were measured for both host model V100-G4/V200-G2 as EUT notebook position (H) and tablet position (E1) for testing with power adaptors.

The worst-case H position of GPRS 850 and GPRS1900 band of host V100-G4 were reported.

## 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(c) Peak Power Measurement limited to 2W

3GPP Power limitation for HSDPA and HSUPA

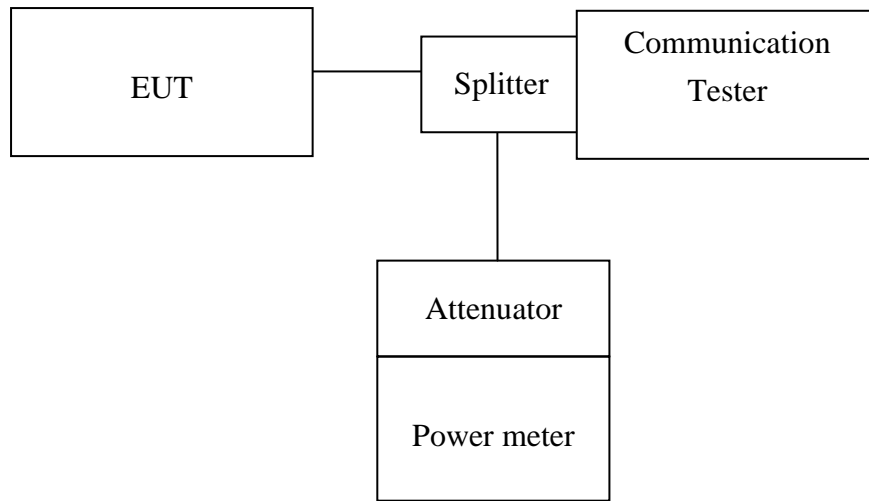
#### Maximum Output Powers for HSDPA

Sub-test in table C.10.1.4	Power Class 3		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
1	+24	+1.7/-3.7	+21	+2.7/-2.7
2	+24	+1.7/-3.7	+21	+2.7/-2.7
3	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7
4	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7

#### Maximum Output Powers for HSUPA

Sub-test in table C.11.1.3	Power Class 3		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
1	+24	+1.7/-6.7	+21	+2.7/-5.7
2	+22	+3.7/-5.2	+19	+4.7/-4.2
3	+23	+2.7/-5.2	+20	+3.7/-4.2
4	+22	+3.7/-5.2	+19	+4.7/-4.2
5	+24	+1.7/-6.7	+21	+2.7/-5.7

**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 attenuator to the power meter reading. The Procedure of KDB941225 KDB941125(SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing

**5.4. Measurement Equipment Used:**

Refer to section 2.4 in this report

**5.5. Measurement Result:**

**5.5.1. RF Conducted Output Power**

**5.5.1.1.: GPRS/EDGE (GMSK; 8-PSK)**

**Burst AVG**

Frequency (MHz)	CH	1 Time Slot			
		GMSK Mode		8-PSK Mode	
		Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)
824.2	128	33.30	33.10	30.50	27.20
836.6	190	33.20	33.00	30.30	27.00
848.8	251	33.10	32.90	30.50	27.20
1850.2	512	29.30	29.10	28.60	25.30
1880	661	29.10	29.00	28.30	24.90
1909.8	810	29.10	28.90	28.30	24.90
Frequency (MHz)	CH	2 Time Slot			
		GMSK Mode		8-PSK Mode	
		Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)
824.2	128	33.20	32.90	30.20	26.90
836.6	190	33.00	32.80	30.20	26.80
848.8	251	32.90	32.70	30.10	26.70
1850.2	512	29.10	29.00	28.40	25.10
1880	661	29.00	28.90	28.20	24.60
1909.8	810	28.80	28.70	28.30	24.70

**Frame AVG**

Frequency (MHz)	CH	1 Time Slot		2 Time Slot	
		GMSK Mode	8-PSK Mode	GMSK Mode	8-PSK Mode
		AV Power (dBm)	AV Power (dBm)	AV Power (dBm)	AV Power (dBm)
824.2	128	24.07	18.17	<b>26.88</b>	<b>20.88</b>
836.6	190	23.97	17.97	26.78	20.78
848.8	251	23.87	18.17	26.68	20.68
1850.2	512	20.07	16.27	<b>22.98</b>	<b>19.08</b>
1880	661	19.97	15.87	22.88	18.58
1909.8	810	19.87	15.87	22.68	18.68

**Note:**

**Time slot average factor is as follows:**

**1 Tx slot = 9.03 dB, Frame-Average output power = Burst-Average output power – 9.03 dB**

**2 Tx slot = 6.02 dB, Frame-Average output power = Burst-Average output power – 6.02 dB**

**3 Tx slot = 4.26 dB, Frame-Average output power = Burst-Average output power – 4.26 dB**

**4 Tx slot = 3.01 dB, Frame-Average output power = Burst-Average output power – 3.01 dB**



**5.5.1.2.: WCDMA mode**

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7). RMC 12.2kps is used for this testing.

**Results:**

**WCDMA Mode:**

**R99**

<b>EUT Mode</b>	<b>Frequency (MHz)</b>	<b>CH</b>	<b>Avg Power (dBm)</b>
WCDMA Band II	1852.4	9262	<b>23.93</b>
	1880	9400	23.85
	1907.6	9538	23.79
WCDMA Band IV	1712.4	1312	<b>24.07</b>
	1732.6	1413	24.03
	1752.6	1513	23.88
WCDMA Band V	826.4	4132	<b>24.14</b>
	836.6	4183	24.01
	846.6	4233	23.98

Note: The results above reflect max power with all up bits.

### 5.5.1.3.:HSDPA Release 5 mode

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

### HSDPA SUB-TEST Setting

Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

### Results:

#### HSDPA MPR

Mode	Sub-test	Avg Power (dBm) Channel		
		9262	9400	9538
HSDPA Band II	1	23.76	23.74	23.65
	2	23.81	23.71	23.64
	3	23.45	23.48	23.46
	4	23.52	23.41	23.38
Mode	Sub-test	Avg Power (dBm) Channel		
		1312	1413	1513
HSDPA Band IV	1	23.99	24.00	23.66
	2	23.95	23.94	23.77
	3	23.77	23.69	23.61
	4	23.68	23.66	23.58
Mode	Sub-test	Avg Power (dBm) Channel		
		4132	4183	4233
HSDPA Band V	1	24.02	23.96	23.96
	2	24.07	23.90	23.85
	3	23.78	23.63	23.71
	4	23.81	23.62	23.59

**5.5.1.3.: HSPA(HSDPA & HSUPA) Release 6 mode**

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX RMS power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

**HSPA SUB-TEST Setting**

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)**

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$	$\beta_{ec}$	$\beta_{ed}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225 5	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

**Note: The recommended HSUPA MPRs are implemented as per following sub-tests.**

**Result:**

**HSUPA MPR**

Mode	Sub-test	Avg Power (dBm)		
		Channel		
		<b>9262</b>	<b>9400</b>	<b>9538</b>
<b>HSUPA Band II</b>	<b>1</b>	23.85	23.83	23.73
	<b>2</b>	22.09	22.05	22.02
	<b>3</b>	23.14	23.02	22.91
	<b>4</b>	22.17	22.01	22
	<b>5</b>	23.81	23.71	23.7

Mode	Sub-test	Avg Power (dBm)		
		Channel		
		<b>1312</b>	<b>1413</b>	<b>1513</b>
<b>HSUPA Band IV</b>	<b>1</b>	23.96	23.95	23.82
	<b>2</b>	22.30	22.24	22.10
	<b>3</b>	23.19	23.24	23.08
	<b>4</b>	22.28	22.21	22.07
	<b>5</b>	23.95	23.88	23.85

Mode	Sub-test	Avg Power (dBm)		
		Channel		
		<b>4132</b>	<b>4183</b>	<b>4233</b>
<b>HSUPA Band V</b>	<b>1</b>	24.10	23.94	23.90
	<b>2</b>	22.35	22.17	22.10
	<b>3</b>	23.34	23.18	23.10
	<b>4</b>	22.37	22.15	22.14
	<b>5</b>	23.99	23.84	23.93

**5.5.1.4.: CDMA2000 modes:**

**1x RC3(SO55)**

<b>EUT Mode</b>	<b>Frequency (MHz)</b>	<b>CH</b>	<b>Avg Power (dBm)</b>
CDMA2000 BC0	824.7	1013	24.02
	836.52	384	23.96
	848.31	777	<b>24.05</b>
CDMA2000 BC1	1851.25	25	23.81
	1880	600	<b>23.84</b>
	1908.75	1175	23.78

**1x RC1(SO55)**

<b>EUT Mode</b>	<b>Frequency (MHz)</b>	<b>CH</b>	<b>Avg Power (dBm)</b>
CDMA2000 BC0	824.7	1013	23.98
	836.52	384	23.77
	848.31	777	23.96
CDMA2000 BC1	1851.25	25	23.72
	1880	600	23.74
	1908.75	1175	23.55

**SO32 FCH**

<b>EUT Mode</b>	<b>Frequency (MHz)</b>	<b>CH</b>	<b>Avg Power (dBm)</b>
CDMA2000 BC0	824.7	1013	23.85
	836.52	384	23.74
	848.31	777	23.84
CDMA2000 BC1	1851.25	25	23.73
	1880	600	23.54
	1908.75	1175	23.65

**SO32 FCH+SCH**

<b>EUT Mode</b>	<b>Frequency (MHz)</b>	<b>CH</b>	<b>Avg Power (dBm)</b>
CDMA2000 BC0	824.7	1013	23.62
	836.52	384	23.66
	848.31	777	23.62
CDMA2000 BC1	1851.25	25	23.68
	1880	600	23.51
	1908.75	1175	23.58

**EVDO REV.0**

<b>EUT Mode</b>	<b>Frequency (MHz)</b>	<b>CH</b>	<b>Avg Power (dBm)</b>
CDMA2000 BC0	824.7	1013	23.84
	836.52	384	23.72
	848.31	777	23.88
CDMA2000 BC1	1851.25	25	23.75
	1880	600	23.72
	1908.75	1175	23.77

## 6. ERP, EIRP MEASUREMENT

### 6.1. Standard Applicable:

According to FCC §2.1046

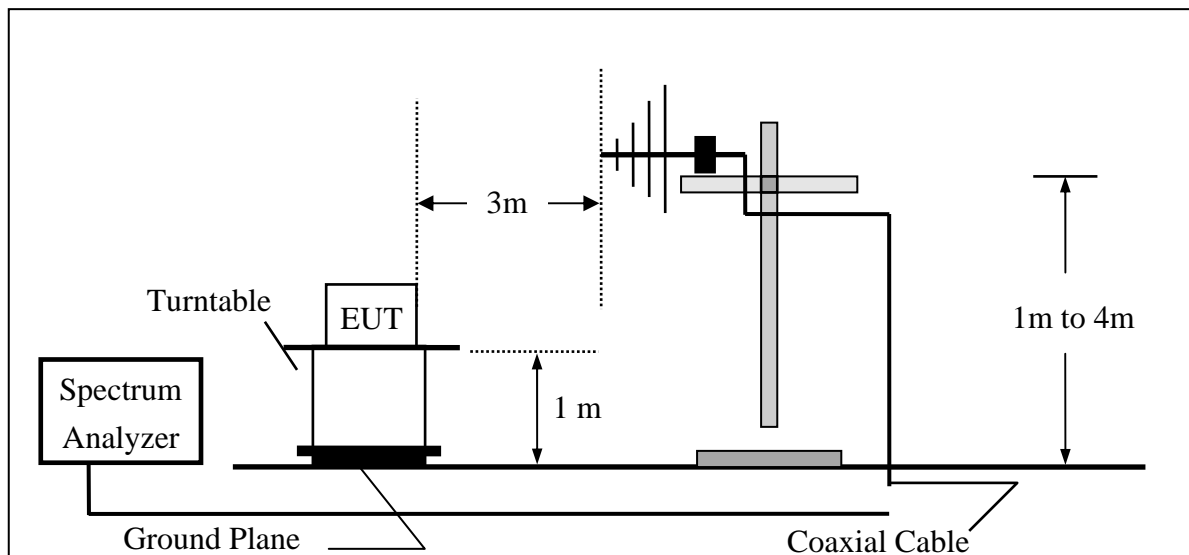
FCC 22.913(a) Mobile station are limited to 7W ERP.

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

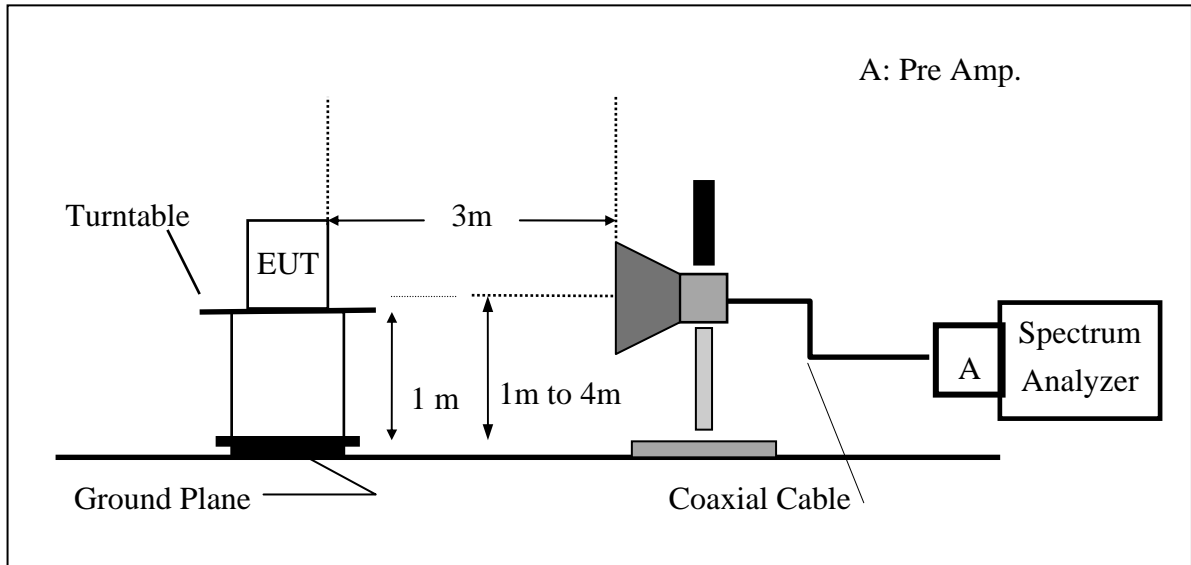
FCC 27.50(d)(2) Fixed, mobile, and portable (hand-held) stations are limited to 1W EIRP.

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

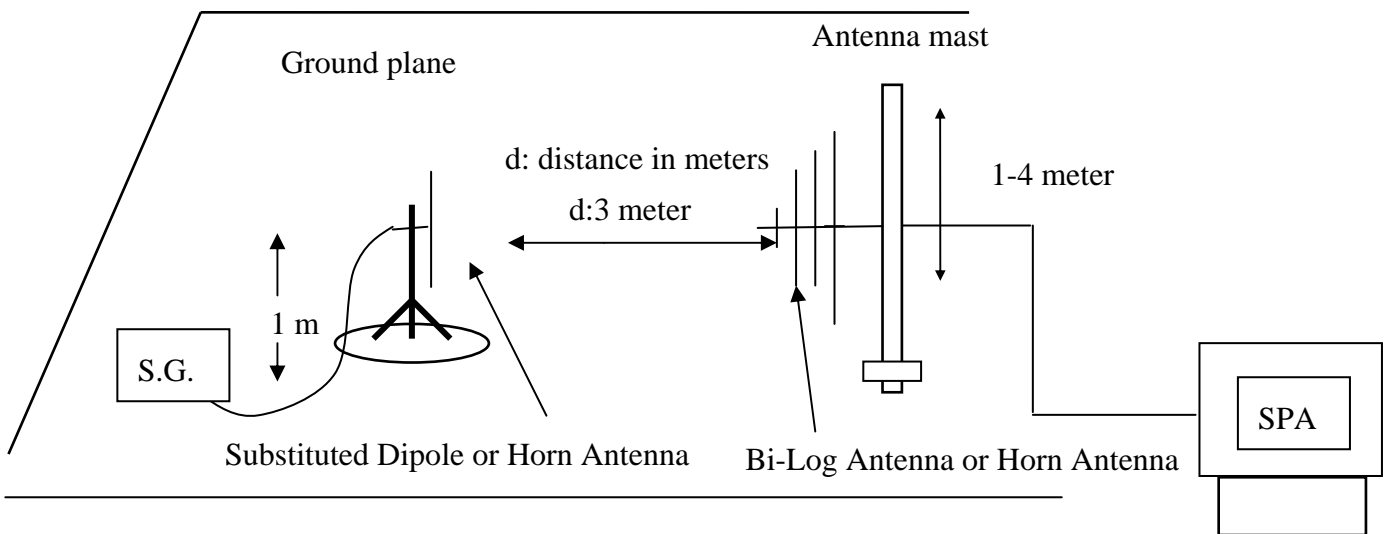
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(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 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 –848.80MHz 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 1710-1755MHz and 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:

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

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

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting.

### 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	128	H	V	99.29	8.78	-7.89	2.73	28.16	38.45
				H	97.29	7.64	-7.89	2.73	27.01	38.45
	836.60	190	H	V	98.26	7.70	-7.91	2.75	27.05	38.45
				H	98.25	8.72	-7.91	2.75	28.07	38.45
	848.80	251	H	V	98.18	7.57	-7.92	2.77	26.89	38.45
				H	98.18	8.78	-7.92	2.77	28.09	38.45

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
PCS 1900	1850.2	512	H	V	102.61	12.10	-7.89	2.73	31.48	33.0
				H	102.29	12.64	-7.89	2.73	32.01	33.0
	1880	661	H	V	102.78	12.22	-7.91	2.75	31.57	33.0
				H	102.46	12.93	-7.91	2.75	32.28	33.0
	1909.8	810	H	V	102.72	12.11	-7.92	2.77	31.43	33.0
				H	102.39	12.99	-7.92	2.77	32.30	33.0

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
Below 1GHz was RBW=300 KHz, VBW=1MHz,  
Above 1GHz was RBW= 1MHz , VBW= 3MHz

**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)
EDGE 850	824.20	128	H	V	98.23	7.72	-7.89	2.73	27.10	38.45
				H	98.16	8.51	-7.89	2.73	27.88	38.45
	836.60	190	H	V	98.18	7.62	-7.91	2.75	26.97	38.45
				H	98.16	8.63	-7.91	2.75	27.98	38.45
	848.80	251	H	V	98.11	7.50	-7.92	2.77	26.82	38.45
				H	97.96	8.56	-7.92	2.77	27.87	38.45

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
EDGE 1900	1850.2	512	H	V	102.61	12.10	-7.89	2.73	31.48	33.0
				H	102.12	12.47	-7.89	2.73	31.84	33.0
	1880	661	H	V	102.78	12.22	-7.91	2.75	31.57	33.0
				H	102.36	12.83	-7.91	2.75	32.18	33.0
	1909.8	810	H	V	102.68	12.07	-7.92	2.77	31.39	33.0
				H	102.29	12.89	-7.92	2.77	32.20	33.0

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
Below 1GHz was RBW=300 KHz, VBW=1MHz,  
Above 1GHz was RBW= 1MHz , VBW= 3MHz

**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
WCDMA Band II	1852.40	9262	H	V	94.40	3.89	-7.89	2.73	23.27	33.0
				H	93.55	3.90	-7.89	2.73	23.27	33.0
	1880.00	9400	H	V	94.63	4.07	-7.91	2.75	23.42	33.0
				H	93.62	4.09	-7.91	2.75	23.44	33.0
	1907.60	9538	H	V	94.44	3.83	-7.92	2.77	23.15	33.0
				H	103.55	14.15	-7.92	2.77	23.46	33.0

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
WCDMA Band IV	1712.40	132	H	V	94.41	3.90	-7.89	2.73	23.28	30.0
				H	93.02	3.37	-7.89	2.73	22.74	30.0
	1732.60	1413	H	V	94.49	3.93	-7.91	2.75	23.28	30.0
				H	93.25	3.72	-7.91	2.75	23.07	30.0
	1752.60	1513	H	V	94.42	3.81	-7.92	2.77	23.13	30.0
				H	92.94	3.54	-7.92	2.77	22.85	30.0

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)
WCDMA Band V	826.40	4132	H	V	92.01	1.50	-7.89	2.73	20.88	38.45
				H	90.06	0.41	-7.89	2.73	19.78	38.45
	836.60	4183	H	V	91.86	1.30	-7.91	2.75	20.65	38.45
				H	91.79	2.26	-7.91	2.75	21.61	38.45
	846.60	4233	H	V	91.74	1.13	-7.92	2.77	20.45	38.45
				H	90.56	1.16	-7.92	2.77	20.47	38.45

**Remark:**

- (1) The RBW,VBW of SPA for frequency  
Below 1GHz was RBW=5MHz, VBW=15MHz,  
Above 1GHz was RBW= 5MHz , VBW= 15MHz

**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)
CDMA200 BC0	824.70	1013	H	V	91.56	1.05	-7.89	2.73	20.43	38.45
				H	91.49	1.84	-7.89	2.73	21.21	38.45
	836.52	384	H	V	91.52	0.96	-7.91	2.75	20.31	38.45
				H	91.36	1.83	-7.91	2.75	21.18	38.45
	848.31	777	H	V	91.43	0.82	-7.92	2.77	20.14	38.45
				H	91.64	2.24	-7.92	2.77	21.55	38.45

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
CDMA200 BC1	1851.25	25	H	V	93.44	2.93	-7.89	2.73	22.31	33.0
				H	93.06	3.41	-7.89	2.73	22.78	33.0
	1800.00	600	H	V	93.56	3.00	-7.91	2.75	22.35	33.0
				H	93.35	3.82	-7.91	2.75	23.17	33.0
	1908.75	1175	H	V	93.60	2.99	-7.92	2.77	22.31	33.0
				H	93.44	4.04	-7.92	2.77	23.35	33.0

**Remark:**

- (1) The RBW,VBW of SPA for frequency  
Below 1GHz was RBW=1.5MKHz, VBW=5MHz,  
Above 1GHz was RBW= 1.5MKHz, VBW=5MHz,

## 7. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### 7.1. Standard Applicable:

According to FCC §2.1053,

FCC §22.917(a), §24.238(a), §27.53(g) 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)

### 7.2. EUT Setup (Block Diagram of Configuration):

Refer to section 6.2 in this report

### 7.3. 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.

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

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

### 7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 7.5. Measurement Result:

Refer to attach tabular data sheets.

**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Mode:	TX CH Low H Mode	Test Date:	2012/06/20
Fundamental Frequency:	824.20 MHz	Test By:	Dino
Temperature:	25°C	Humidity:	60%

Freq. (MHz)	SPA. Reading (dBm)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	51.86	V	-45.36	-7.76	1.05	52.83	-13.00	-41.17
258.92	43.69	V	-56.79	-7.84	1.62	-66.26	-13.00	-53.26
387.93	42.36	V	-54.09	-7.66	1.91	-63.66	-13.00	-50.66
456.80	38.40	V	-54.68	-7.70	2.06	-64.43	-13.00	-51.43
584.84	39.03	V	-53.46	-7.78	2.27	-63.51	-13.00	-50.51
666.32	41.87	V	-50.62	-7.83	2.45	-60.90	-13.00	-47.90
824.00	73.67	V	-16.84	-7.89	2.73	-27.46	-13.00	-14.46
1648.40	62.72	V	-49.35	7.65	3.91	-45.60	-13.00	-32.60
2472.60	61.60	V	-46.46	9.10	4.91	-42.28	-13.00	-29.28
3296.80	---	V		9.70	6.02		-13.00	
4121.00	---	V		10.13	7.10		-13.00	
4945.20	---	V		9.37	8.30		-13.00	
5769.40	---	V		10.16	8.35		-13.00	
6593.60	---	V		9.56	9.20		-13.00	
7417.80	---	V		8.42	9.21		-13.00	
8242.00	---	V		7.97	9.88		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Mode:	TX CH Low H Mode	Test Date:	2012/06/20
Fundamental Frequency:	824.20 MHz	Test By:	Dino
Temperature:	25°C	Humidity:	60%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	52.15	H	-48.43	-7.76	1.05	-57.24	-13.00	-44.24
312.27	42.42	H	-52.30	-7.62	1.75	-61.66	-13.00	-48.66
360.77	40.05	H	-54.14	-7.65	1.83	-63.62	-13.00	-50.62
505.30	37.24	H	-57.69	-7.73	2.12	-67.54	-13.00	-54.54
663.41	36.34	H	-55.02	-7.83	2.44	-65.30	-13.00	-52.30
743.92	32.98	H	-58.51	-7.90	2.57	-68.98	-13.00	-55.98
824.00	76.65	H	-13.01	-7.89	2.73	-23.63	-13.00	-10.63
1648.40	61.37	H	-50.94	7.65	3.91	-47.20	-13.00	-34.20
2470.00	59.19	H	-48.81	9.09	4.91	-44.64	-13.00	-31.64
3296.80	---	H		9.70	6.02		-13.00	
4121.00	---	H		10.13	7.10		-13.00	
4945.20	---	H		9.37	8.30		-13.00	
5769.40	---	H		10.16	8.35		-13.00	
6593.60	---	H		9.56	9.20		-13.00	
7417.80	---	H		8.42	9.21		-13.00	
8242.00	---	H		7.97	9.88		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$



**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Mode	: TX CH Mid H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 836.60 MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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)
106.63	46.64	V	-51.23	-7.77	1.06	-60.05	-13.00	-47.05
191.99	43.75	V	-54.12	-7.83	1.39	-63.34	-13.00	-50.34
312.27	41.74	V	-55.23	-7.62	1.75	-64.60	-13.00	-51.60
360.77	38.27	V	-56.18	-7.65	1.83	-65.66	-13.00	-52.66
456.80	35.04	V	-58.04	-7.70	2.06	-67.79	-13.00	-54.79
577.08	33.13	V	-59.51	-7.78	2.25	-69.53	-13.00	-56.53
1673.20	64.32	V	-47.51	7.63	3.95	-43.83	-13.00	-30.83
2509.80	60.78	V	-47.20	9.20	4.95	-42.95	-13.00	-29.95
3346.40	---	V		9.75	6.12		-13.00	
4183.00	---	V		10.09	7.28		-13.00	
5019.60	---	V		9.33	8.32		-13.00	
5856.20	---	V		10.21	8.40		-13.00	
6692.80	---	V		9.30	9.30		-13.00	
7529.40	---	V		8.41	9.17		-13.00	
8366.00	---	V		7.69	9.91		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Mode	: TX CH Mid H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 836.60 MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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)
106.63	45.90	H	-55.14	-7.77	1.06	-63.96	-13.00	-50.96
153.19	44.17	H	-59.72	-7.80	1.25	-68.77	-13.00	-55.77
194.90	43.54	H	-59.18	-7.84	1.40	-68.42	-13.00	-55.42
312.27	41.09	H	-53.63	-7.62	1.75	-62.99	-13.00	-49.99
360.77	38.27	H	-55.92	-7.65	1.83	-65.40	-13.00	-52.40
577.08	33.82	H	-59.05	-7.78	2.25	-69.08	-13.00	-56.08
1673.20	65.88	H	-46.19	7.63	3.95	-42.51	-13.00	-29.51
2509.80	59.27	H	-48.65	9.20	4.95	-44.39	-13.00	-31.39
3346.40	---	H		9.75	6.12		-13.00	
4183.00	---	H		10.09	7.28		-13.00	
5019.60	---	H		9.33	8.32		-13.00	
5856.20	---	H		10.21	8.40		-13.00	
6692.80	---	H		9.30	9.30		-13.00	
7529.40	---	H		8.41	9.17		-13.00	
8366.00	---	H		7.69	9.91		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode	: TX CH High H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 848.80 MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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)
96.93	47.95	V	-49.27	-7.76	1.05	-58.08	-13.00	-45.08
191.99	43.27	V	-54.60	-7.83	1.39	-63.82	-13.00	-50.82
312.27	42.83	V	-54.14	-7.62	1.75	-63.51	-13.00	-50.51
360.77	39.52	V	-54.93	-7.65	1.83	-64.41	-13.00	-51.41
456.80	35.98	V	-57.10	-7.70	2.06	-66.85	-13.00	-53.85
849.00	77.62	V	-12.99	-7.92	2.77	-23.67	-13.00	-10.67
881.66	29.14	V	-60.67	-7.95	2.86	-71.48	-13.00	-58.48
1697.60	69.84	V	-41.76	7.60	3.98	-38.14	-13.00	-25.14
2546.40	63.13	V	-44.70	9.22	4.99	-40.47	-13.00	-27.47
3395.20	---	V		9.80	6.21		-13.00	
4244.00	---	V		10.05	7.45		-13.00	
5092.80	---	V		9.43	8.30		-13.00	
5941.60	---	V		10.26	8.45		-13.00	
6790.40	---	V		9.04	9.40		-13.00	
7639.20	---	V		8.43	9.33		-13.00	
8488.00	---	V		7.43	9.93		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode	: TX CH High H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 848.80 MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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	48.45	H	-52.10	-7.75	1.10	-60.95	-13.00	-47.95
312.27	41.53	H	-53.19	-7.62	1.75	-62.55	-13.00	-49.55
360.77	40.10	H	-54.09	-7.65	1.83	-63.57	-13.00	-50.57
552.83	33.11	H	-59.31	-7.76	2.18	-69.25	-13.00	-56.25
664.38	40.02	H	-51.33	-7.83	2.45	-61.61	-13.00	-48.61
728.40	34.69	H	-56.57	-7.88	2.55	-67.01	-13.00	-54.01
849.00	75.92	H	-13.48	-7.92	2.77	-24.17	-13.00	-11.17
1697.60	64.24	H	-47.59	7.60	3.98	-43.97	-13.00	-30.97
1697.60	57.96	H	-53.87	7.60	3.98	-50.25	-13.00	-37.25
2546.40	---	H		9.22	4.99		-13.00	
3395.20	---	H		9.80	6.21		-13.00	
4244.00	---	H		10.05	7.45		-13.00	
5092.80	---	H		9.43	8.30		-13.00	
5941.60	---	H		10.26	8.45		-13.00	
6790.40	---	H		9.04	9.40		-13.00	
7639.20	---	H		8.43	9.33		-13.00	
8488.00	---	H		7.43	9.93		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode : TX CH Low H Mode Test Date: 2012/06/20  
 Fundamental Frequency : 1850.20MHz Test By: Dino  
 Temperature : 25°C Humidity: 60%

Freq. (MHz)	SPA. Reading (dBm)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	46.83	V	-50.39	-7.76	1.05	47.80	-13.00	-46.20
191.99	45.23	V	-52.64	-7.83	1.39	-61.86	-13.00	-48.86
312.27	41.87	V	-55.10	-7.62	1.75	-64.47	-13.00	-51.47
360.77	39.87	V	-54.58	-7.65	1.83	-64.06	-13.00	-51.06
387.93	40.47	V	-55.98	-7.66	1.91	-65.55	-13.00	-52.55
505.30	35.70	V	-58.39	-7.73	2.12	-68.24	-13.00	-55.24
1850.00	93.12	V	-17.05	7.45	4.21	-13.81	-13.00	-0.81
3700.40	55.81	V	-47.88	10.02	6.55	-44.41	-13.00	-31.41
5550.60	49.22	V	-46.13	10.03	8.23	-44.33	-13.00	-31.33
7400.80	---	V		8.42	9.23		-13.00	
9251.00	---	V		8.90	10.31		-13.00	
11101.20	---	V		10.90	11.34		-13.00	
12951.40	---	V		10.39	10.68		-13.00	
14801.60	---	V		11.69	11.84		-13.00	
16651.80	---	V		12.72	13.31		-13.00	
18502.00	---	V		10.90	13.98		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH Low H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 1850.20MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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)
96.93	47.51	H	-53.07	-7.76	1.05	-61.88	-13.00	-48.88
312.27	41.37	H	-53.35	-7.62	1.75	-62.71	-13.00	-49.71
360.77	40.03	H	-54.16	-7.65	1.83	-63.64	-13.00	-50.64
387.93	40.64	H	-54.96	-7.66	1.91	-64.53	-13.00	-51.53
505.30	36.16	H	-58.77	-7.73	2.12	-68.62	-13.00	-55.62
725.49	34.51	H	-56.71	-7.88	2.55	-67.14	-13.00	-54.14
1850.00	87.55	H	-22.77	7.45	4.21	-19.53	-13.00	-6.53
3700.40	48.29	H	-55.48	10.02	6.55	-52.01	-13.00	-39.01
6215.00	48.74	H	-43.83	10.09	8.75	-42.50	-13.00	-29.50
7400.80	---	H		8.42	9.23		-13.00	
9251.00	---	H		8.90	10.31		-13.00	
11101.20	---	H		10.90	11.34		-13.00	
12951.40	---	H		10.39	10.68		-13.00	
14801.60	---	H		11.69	11.84		-13.00	
16651.80	---	H		12.72	13.31		-13.00	
18502.00	---	H		10.90	13.98		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH Mid H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 1880MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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)
96.93	47.41	V	-49.81	-7.76	1.05	-58.62	-13.00	-45.62
194.90	43.01	V	-54.58	-7.84	1.40	-63.81	-13.00	-50.81
312.27	42.11	V	-54.86	-7.62	1.75	-64.23	-13.00	-51.23
360.77	39.42	V	-55.03	-7.65	1.83	-64.51	-13.00	-51.51
505.30	35.23	V	-58.86	-7.73	2.12	-68.71	-13.00	-55.71
634.31	31.53	V	-61.16	-7.81	2.39	-71.36	-13.00	-58.36
3760.00	60.33	V	-43.09	10.06	6.59	-39.62	-13.00	-26.62
5640.00	---	V		10.08	8.28		-13.00	
7520.00	---	V		8.40	9.16		-13.00	
9400.00	---	V		9.20	10.28		-13.00	
11280.00	---	V		10.72	11.27		-13.00	
13160.00	---	V		10.43	10.75		-13.00	
15040.00	---	V		12.96	11.97		-13.00	
16920.00	---	V		11.70	13.78		-13.00	
18800.00	---	V		15.52	13.87		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode : TX CH Mid H Mode Test Date: 2012/06/20  
 Fundamental Frequency : 1880MHz Test By: Dino  
 Temperature : 25°C Humidity: 60%

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)
96.93	48.24	H	-52.34	-7.76	1.05	-61.15	-13.00	-48.15
312.27	41.38	H	-53.34	-7.62	1.75	-62.70	-13.00	-49.70
360.77	40.05	H	-54.14	-7.65	1.83	-63.62	-13.00	-50.62
387.93	40.82	H	-54.78	-7.66	1.91	-64.35	-13.00	-51.35
505.30	36.54	H	-58.39	-7.73	2.12	-68.24	-13.00	-55.24
665.35	35.63	H	-55.71	-7.83	2.45	-65.99	-13.00	-52.99
3760.00	50.69	H	-52.86	10.06	6.59	-49.39	-13.00	-36.39
5640.00	---	H		10.08	8.28		-13.00	
7520.00	---	H		8.40	9.16		-13.00	
9400.00	---	H		9.20	10.28		-13.00	
11280.00	---	H		10.72	11.27		-13.00	
13160.00	---	H		10.43	10.75		-13.00	
15040.00	---	H		12.96	11.97		-13.00	
16920.00	---	H		11.70	13.78		-13.00	
18800.00	---	H		15.52	13.87		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$



**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH High H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 1909.8 MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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)
96.93	47.46	V	-49.76	-7.76	1.05	-58.57	-13.00	-45.57
191.99	43.16	V	-54.71	-7.83	1.39	-63.93	-13.00	-50.93
312.27	42.19	V	-54.78	-7.62	1.75	-64.15	-13.00	-51.15
360.77	40.30	V	-54.15	-7.65	1.83	-63.63	-13.00	-50.63
456.80	34.88	V	-58.20	-7.70	2.06	-67.95	-13.00	-54.95
722.58	32.55	V	-58.97	-7.88	2.54	-69.39	-13.00	-56.39
1910.00	91.93	V	-17.68	7.39	4.30	-14.58	-13.00	-1.58
3817.60	63.42	V	-39.73	10.09	6.63	-36.27	-13.00	-23.27
5726.40	49.40	V	-45.52	10.14	8.33	-43.71	-13.00	-30.71
7635.20	---	V		8.43	9.32		-13.00	
9544.00	---	V		9.44	10.22		-13.00	
11452.80	---	V		10.55	11.21		-13.00	
13361.60	---	V		10.47	10.89		-13.00	
15270.40	---	V		13.88	12.26		-13.00	
17179.20	---	V		10.61	13.96		-13.00	
19088.00	---	V		18.65	14.00		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH High H Mode	Test Date:	2012/06/20
Fundamental Frequency	: 1909.8 MHz	Test By:	Dino
Temperature	: 25°C	Humidity:	60%

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)
96.93	49.22	H	-51.36	-7.76	1.05	-60.17	-13.00	-47.17
194.90	42.22	H	-60.50	-7.84	1.40	-69.74	-13.00	-56.74
305.48	36.27	H	-58.64	-7.61	1.74	-67.99	-13.00	-54.99
312.27	42.71	H	-52.01	-7.62	1.75	-61.37	-13.00	-48.37
360.77	39.67	H	-54.52	-7.65	1.83	-64.00	-13.00	-51.00
387.93	40.63	H	-54.97	-7.66	1.91	-64.54	-13.00	-51.54
1910.00	75.29	H	-34.44	7.39	4.30	-31.35	-13.00	-18.35
3819.60	56.61	H	-46.72	10.09	6.63	-43.26	-13.00	-30.26
3821.00	56.11	H	-47.21	10.09	6.63	-43.75	-13.00	-30.75
5726.40	---	H		10.14	8.33		-13.00	
7635.20	---	H		8.43	9.32		-13.00	
9544.00	---	H		9.44	10.22		-13.00	
11452.80	---	H		10.55	11.21		-13.00	
13361.60	---	H		10.47	10.89		-13.00	
15270.40	---	H		13.88	12.26		-13.00	
17179.20	---	H		10.61	13.96		-13.00	
19088.00	---	H		18.65	14.00		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$