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# PARTIAL FCC TEST REPORT (PART 24)

**REPORT NO.:** RF130426C21-1

**MODEL NO.:** MC8355

**FCC ID:** QYL300GOBI3

**RECEIVED:** Apr. 26, 2013

**TESTED:** May 28, 2013

**ISSUED:** Jun. 03 , 2013

**APPLICANT:** Getac Technology Corporation

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**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch

**LAB ADDRESS:** No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New  
Taipei City, Taiwan ( R.O.C. )

**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei  
Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130426C21-1	Original release	Jun. 03 , 2013



# 1 CERTIFICATION

**PRODUCT:** 3G Radio Module  
**MODEL:** MC8355  
**BRAND:** Sierra Wireless  
**APPLICANT:** Getac Technology Corporation  
**TESTED:** May 28, 2013  
**TEST SAMPLE:** Identical Prototype  
**STANDARDS:** **FCC Part 24, Subpart E**

The above equipment (model: MC8355) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** : Vera Huang , **DATE** : Jun. 03 , 2013  
Vera Huang / Specialist

**APPROVED BY** : Sam chen , **DATE** : Jun. 03 , 2013  
Sam Chen / Assistant Manager



## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
2.1046 24.232	Equivalent isotropically radiated power	PASS	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	N/A	Refer to NOTE below.
2.1049 24.238(b)	Occupied Bandwidth	N/A	Refer to NOTE below.
24.232(d)	Peak to average ratio	N/A	Refer to NOTE below.
24.238(b)	Band Edge Measurements	N/A	Refer to NOTE below.
2.1051 24.238	Conducted Spurious Emissions	N/A	Refer to NOTE below.
2.1053 24.238	Radiated Spurious Emissions	N/A	Refer to NOTE below.

**NOTE:** Test item for equivalent isotropically radiated power was performed for this report. Other testing data please refer to module (Brand: QUALCOMM, Model: Gobi3000, FCC ID: J9CGOBI3000) Report No.: 80-N2162-203 Rev B

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



## 2.2 TEST SITE AND INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Aug. 21, 2012	Aug. 20, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2012	Dec. 16, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Mar. 25, 2013	Mar. 24, 2014
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Jan. 07, 2013	Jan. 06, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 25, 2012	Dec. 24, 2013
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 184045	980116	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 330H	980112	Dec. 28, 2012	Dec. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable Worken	RG-213	NA	Dec. 29, 2012	Dec. 28, 2013
Software	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 460141.
5. The IC Site Registration No. is IC 7450F-4.



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### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	3G Radio Module	
<b>MODEL NO.</b>	MC8355	
<b>POWER SUPPLY</b>	For host: 19Vdc from adapter 10.8Vdc from battery	
<b>MODULATION TYPE</b>	<b>GSM/GPRS</b>	GMSK
	<b>EDGE</b>	8PSK
	<b>WCDMA</b>	BPSK
	<b>CDMA</b>	QPSK, OQPSK, HPSK
<b>FREQUENCY RANGE</b>	<b>GSM/GPRS/EDGE</b>	1850.2MHz ~ 1909.8MHz
	<b>WCDMA</b>	1852.4MHz ~ 1907.6MHz
	<b>CDMA</b>	1851.3MHz ~ 1908.8MHz
<b>MAX. EIRP POWER</b>	<b>GSM</b>	1020.94mW
	<b>EDGE</b>	441.57mW
	<b>WCDMA</b>	330.37mW
	<b>CDMA</b>	526.02mW
<b>MULTI-SLOTS CLASS</b>	10	
<b>WCDMA RELEASE VERSION</b>	6	
<b>ANTENNA TYPE</b>	Fixed Internal Antenna	
<b>I/O PORTS</b>	Refer to users' manual	
<b>DATA CABLE</b>	Refer to NOTE as below	
<b>ACCESSORY DEVICES</b>	Refer to NOTE as below	

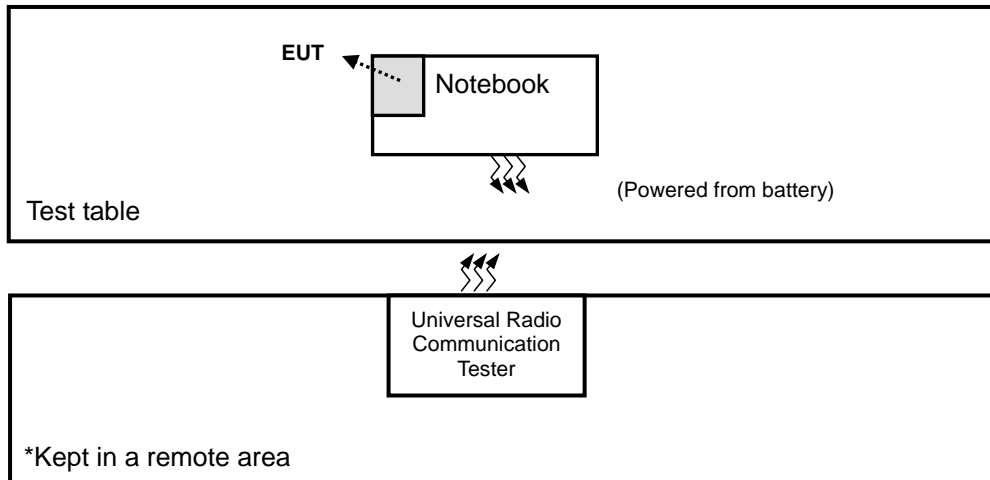
**NOTE:**

1. The EUT is collocated in Notebook (Brand Name: Getac, Model Name: B300).
2. The Notebook consumes power from following accessories.

No.	Product	Brand	MODEL	Description
1	AC Adapter	Delta	ADP-90CD DB	I/P: 100-240Vac, 1.5A O/P: 19Vdc, 4.74A
2	Li-ion Battery	Getac	BP3S3P2900	Rating: 10.8Vdc, 8700mAh
3	LCD Panel	Sanyo	L5S30348P01	--

3. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

### 3.2 CONFIGURATION OF SYSTEM UNDER TEST



### 3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.



### 3.4 TEST ITEM AND TEST CONFIGURATION

Following channel(s) was (were) selected for the final test as listed below:

#### GSM MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	512 to 810	512, 661, 810	GSM, EDGE

#### WCDMA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	9262 to 9538	9262, 9400, 9538	WCDMA

#### CDMA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	25 to 1175	25, 600, 1175	1xRTT

#### TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 59%RH	10.8Vdc	Howard Kao

### **3.5 EUT OPERATING CONDITIONS**

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

### **3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 24**

**ANSI/TIA/EIA-603-C 2004**

**NOTE:** All test items have been performed and recorded as per the above standards.

## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP

#### 4.1.2 TEST PROCEDURES

##### **EIRP / ERP MEASUREMENT:**

The EUT was placed on a turntable with 1.727 meter height in a fully anechoic chamber.

- b. The EUT was set at 4.858 meters from the receiving antenna, which was mounted on the antenna tower.
- c. The EUT was rotated along 2 axis: Theta-axis: 180 degree and Phi-axis: 360 degree, Step Size: 15 degree.
- d. The height of the receiving antenna is fixed.
- e. Taking the record of received power.
- f. A dipole antenna was used in place of the EUT for pathloss calibration with a network analyzer.
- g. The gain of the dipole antenna and the insertion loss of the connected RF cable were applied into the pathloss calibration.
- h. The maximum ERP/EIRP was calculated with received power and pathloss.
- i.  $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

$P_s$  (dBm) : Input power to substitution antenna.

$G_s$  (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

$E_s = R_s + AF$

AF (dB/m) : Receiver antenna factor

$R_t$ : The highest received signal in spectrum analyzer for EUT.

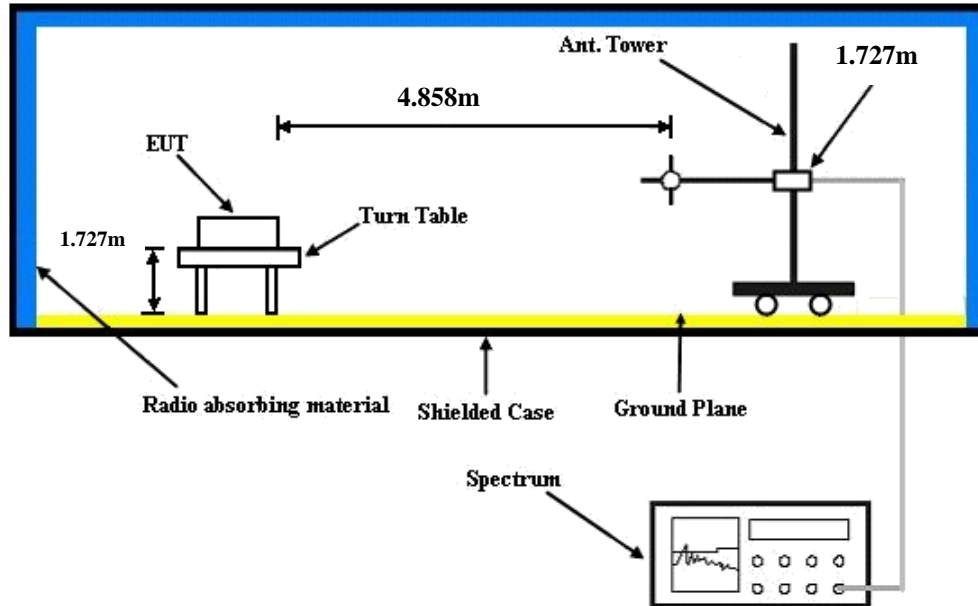
$R_s$ : The highest received signal in spectrum analyzer for substitution antenna.

##### **CONDUCTED POWER MEASUREMENT:**

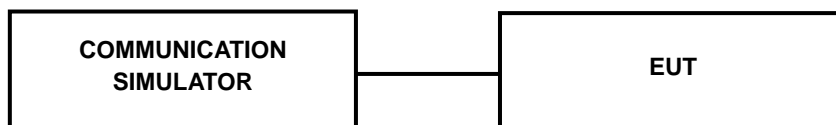
The EUT was set up for the maximum power with GSM, GPRS, EDGE & WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

### 4.1.3 TEST SETUP

#### EIRP / ERP MEASUREMENT:



#### CONDUCTED POWER MEASUREMENT:





#### 4.1.4 TEST RESULTS

##### CONDUCTED OUTPUT POWER (dBm)

Band	GSM1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
GPRS 8 (GMSK, 1 slot)	29.57	29.18	29.13
GPRS 10 (GMSK, 2 slot)	29.75	29.36	29.31
EDGE 8 (GMSK, 1 Uplink)	29.47	29.08	29.03
EDGE 10 (GMSK, 2 Uplink)	29.74	29.35	29.30
EDGE 8 (8PSK, 1 Uplink)	26.26	25.87	25.82
EDGE 10 (8PSK, 2 Uplink)	26.10	25.71	25.66

Band	WCDMA II		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2K	24.49	24.42	24.34
HSDPA Subtest-1	23.99	23.92	23.84
HSDPA Subtest-2	22.35	22.28	22.20
HSDPA Subtest-3	21.19	21.12	21.04
HSDPA Subtest-4	21.03	20.96	20.88
HSUPA Subtest-1	23.50	23.43	23.35
HSUPA Subtest-2	22.59	22.52	22.44
HSUPA Subtest-3	22.74	22.67	22.59
HSUPA Subtest-4	23.36	23.29	23.21
HSUPA Subtest-5	24.04	23.97	23.89

Band	CDMA		
Channel	25	600	1175
Frequency (MHz)	1851.25	1880	1908.75
RC1+SO55	24.27	24.32	23.93
RC3+SO55	24.36	24.41	24.02
RC3+SO32(+ F-SCH)	24.35	24.40	24.01
RC3+SO32(+SCH)	24.16	24.21	23.82
RTAP 153.6	24.18	24.23	23.84
RETAP 4096	24.07	24.12	23.73



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## EIRP POWER (dBm)

GSM Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1850.20	-24.39	-51.88	0.00	1.96	29.45	881.05
1880.00	-25.16	-52.99	0.00	2.00	29.83	961.61
1909.80	-26.17	-54.28	0.00	1.98	30.09	1020.94
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1850.20	-24.49	-52.13	0.00	1.96	29.60	912.01
1880.00	-25.68	-53.17	0.00	2.00	29.49	889.20
1909.80	-26.61	-54.13	0.00	1.98	29.50	891.25

EDGE Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1850.20	-28.32	-51.88	0.00	1.96	25.52	356.45
1880.00	-28.91	-52.99	0.00	2.00	26.08	405.51
1909.80	-29.81	-54.28	0.00	1.98	26.45	441.57
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1850.20	-28.43	-52.13	0.00	1.96	25.66	368.13
1880.00	-29.45	-53.17	0.00	2.00	25.72	373.25
1909.80	-30.55	-54.13	0.00	1.98	25.56	359.75



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<b>WCDMA Radiated Power EIRP</b>						
<b>Horizontal Polarization</b>						
<b>Frequency (MHz)</b>	<b>Rt (dBm)</b>	<b>Rs (dBm)</b>	<b>Ps (dBm)</b>	<b>Gs (dBd)</b>	<b>EIRP (dBm)</b>	<b>EIRP (mW)</b>
1852.40	-30.36	-51.88	0.00	1.96	23.48	222.84
1880.00	-30.68	-52.99	0.00	2.00	24.31	269.77
1907.60	-31.07	-54.28	0.00	1.98	25.19	330.37
<b>Vertical Polarization</b>						
<b>Frequency (MHz)</b>	<b>Rt (dBm)</b>	<b>Rs (dBm)</b>	<b>Ps (dBm)</b>	<b>Gs (dBd)</b>	<b>EIRP (dBm)</b>	<b>EIRP (mW)</b>
1852.40	-30.43	-52.13	0.00	1.96	23.66	232.27
1880.00	-31.26	-53.17	0.00	2.00	23.91	246.04
1907.60	-32.14	-54.13	0.00	1.98	23.97	249.46

<b>CDMA Radiated Power EIRP</b>						
<b>Horizontal Polarization</b>						
<b>Frequency (MHz)</b>	<b>Rt (dBm)</b>	<b>Rs (dBm)</b>	<b>Ps (dBm)</b>	<b>Gs (dBd)</b>	<b>EIRP (dBm)</b>	<b>EIRP (mW)</b>
1851.25	-26.63	-51.88	0.00	1.96	27.21	526.02
1880.00	-28.13	-52.99	0.00	2.00	26.86	485.29
1908.75	-30.07	-54.28	0.00	1.98	26.19	415.91
<b>Vertical Polarization</b>						
<b>Frequency (MHz)</b>	<b>Rt (dBm)</b>	<b>Rs (dBm)</b>	<b>Ps (dBm)</b>	<b>Gs (dBd)</b>	<b>EIRP (dBm)</b>	<b>EIRP (mW)</b>
1851.25	-27.71	-52.13	0.00	1.96	26.38	434.51
1880.00	-29.22	-53.17	0.00	2.00	25.95	393.55
1908.75	-31.55	-54.13	0.00	1.98	24.56	285.76



## 5 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.





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## **6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications were made to the EUT by the lab during the test.

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