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# PARTIAL FCC TEST REPORT

## (PART 22)

**REPORT NO.:** RF130426C21

**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	Original release	Jun. 03 , 2013



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## 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 22, Subpart H

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



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## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
2.1046 22.913 (a)	Effective radiated power	PASS	Meet the requirement of limit.
2.1055 22.355	Frequency Stability	N/A	Refer to NOTE below.
2.1049	Occupied Bandwidth	N/A	Refer to NOTE below.
22.917	Band Edge Measurements	N/A	Refer to NOTE below.
2.1051 22.917	Conducted Spurious Emissions	N/A	Refer to NOTE below.
2.1053 22.917	Radiated Spurious Emissions	N/A	Refer to NOTE below.

**NOTE:** Test item for effective 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.



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## 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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 10.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 690701.
6. The IC Site Registration No. is IC 7450F-10.



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### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

EUT	3G Radio Module	
MODEL NO.	MC8355	
POWER SUPPLY	For host: 19Vdc from adapter 10.8Vdc from battery	
MODULATION TYPE	GSM/GPRS	GMSK
	EDGE	8PSK
	WCDMA	BPSK
	CDMA	QPSK, OQPSK, HPSK
FREQUENCY RANGE	GSM/GPRS/EDGE	824.2MHz ~ 848.8MHz
	WCDMA	826.4MHz ~ 846.6MHz
	CDMA	824.7MHz ~ 848.31MHz
MAX. ERP POWER	GSM	1009.25mW
	EDGE	319.89mW
	WCDMA	215.77mW
	CDMA	218.27mW
MULTI-SLOTS CLASS	10	
WCDMA RELEASE VERSION	6	
ANTENNA TYPE	Fixed Internal antenna	
I/O PORTS	Refer to users' manual	
DATA CABLE	Refer to NOTE as below	
ACCESSORY DEVICES	Refer to NOTE as below	

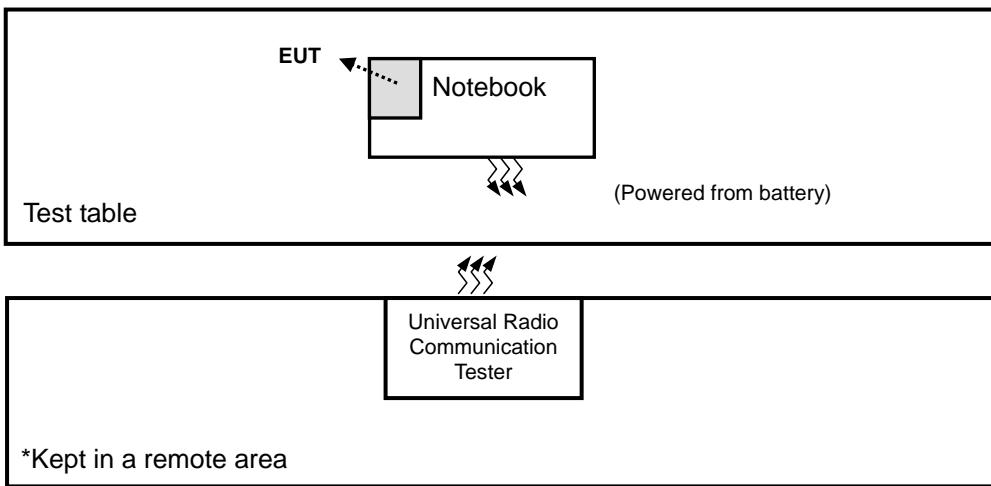
#### NOTE:

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
ERP	128 to 251	128, 189, 251	GSM, EDGE

#### WCDMA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP	4132 to 4233	4132, 4182, 4233	WCDMA

#### CDMA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
ERP	1013 to 777	1013, 384, 777	1xRTT

#### TEST CONDITION:

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



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### **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 22**

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

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



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## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile / Portable station are limited to 7 watts e.r.p.

#### 4.1.2 TEST PROCEDURES

##### EIRP / ERP MEASUREMENT:

The EUT was place 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.  $ERP/EIRP = Ps + Et - Es + Gs = Ps + Rt - Rs + Gs$

Ps (dBm) : Input power to substitution antenna.

Gs (dBi or dBd) : Substitution antenna Gain.

Et = Rt + AF

Es = Rs + AF

AF (dB/m) : Receiver antenna factor

Rt: The highest received signal in spectrum analyzer for EUT.

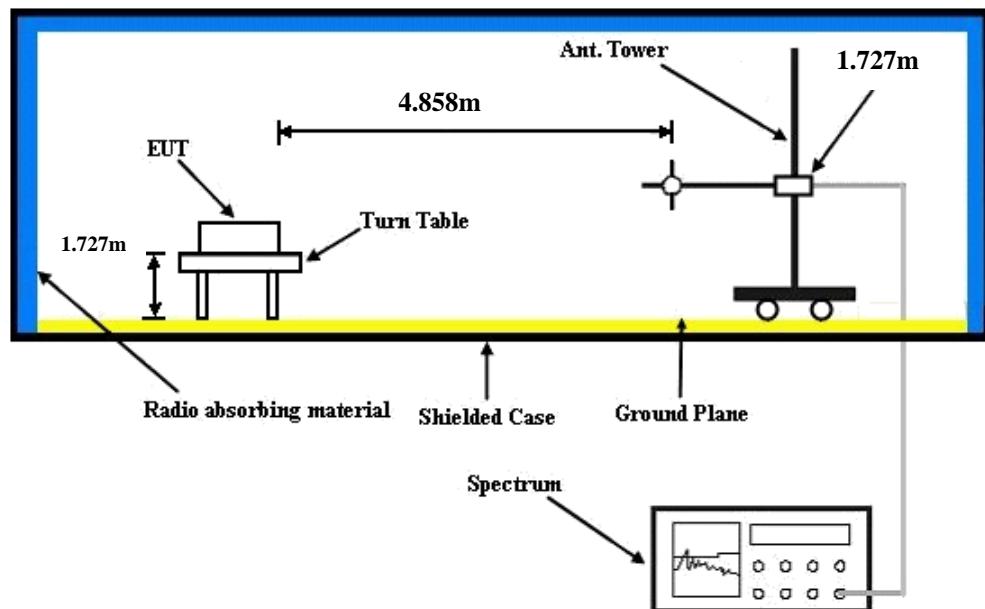
Rs: The highest received signal in spectrum analyzer for substitution antenna.

##### CONDUCTED POWER MEASUREMENT:

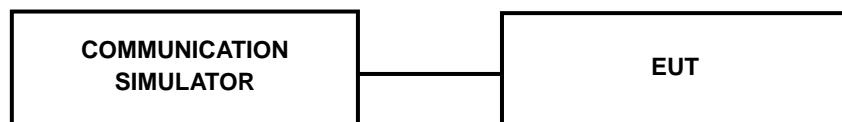
The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA & CDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

#### 4.1.3 TEST SETUP

##### EIRP / ERP MEASUREMENT:



##### CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.4 TEST RESULTS

##### CONDUCTED OUTPUT POWER (dBm)

Band	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GRPS 8 (GMSK, 1 slot)	32.51	32.41	32.43
GRPS 10 (GMSK, 2 slot)	32.28	32.18	32.20
EDGE 8 (GMSK, 1 Uplink)	32.34	32.24	32.26
EDGE 10 (GMSK, 2 Uplink)	32.22	32.12	32.14
EDGE 8 (8PSK, 1 Uplink)	26.64	26.54	26.56
EDGE 10 (8PSK, 2 Uplink)	26.61	26.51	26.53

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	24.07	24.01	24.24
HSDPA Subtest-1	23.71	23.65	23.88
HSDPA Subtest-2	21.82	21.76	21.99
HSDPA Subtest-3	20.68	20.62	20.85
HSDPA Subtest-4	20.49	20.43	20.66
HSUPA Subtest-1	23.33	23.27	23.50
HSUPA Subtest-2	22.16	22.10	22.33
HSUPA Subtest-3	22.09	22.03	22.26
HSUPA Subtest-4	22.61	22.55	22.78
HSUPA Subtest-5	23.71	23.65	23.88

Band	CDMA		
Channel	1013	384	777
Frequency (MHz)	824.70	836.52	848.31
RC1+SO55	24.27	24.01	24.13
RC3+SO55	24.50	24.28	24.40
RC3+SO32(+ F-SCH)	24.45	24.19	24.31
RC3+SO32(+SCH)	24.37	24.11	24.23
RTAP 153.6	24.43	24.17	24.29
RETAP 4096	24.38	24.12	24.24



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### ERP POWER (dBm)

GSM Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
824.20	-17.21	-48.12	0.00	-1.08	29.83	961.61
836.40	-17.31	-48.28	0.00	-0.93	30.04	1009.25
848.80	-17.72	-48.35	0.00	-0.76	29.87	970.51
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
824.20	-18.57	-47.97	0.00	-1.08	28.32	679.20
836.40	-18.64	-48.01	0.00	-0.93	28.44	698.23
848.80	-19.04	-48.05	0.00	-0.76	28.25	668.34

### EDGE Radiated Power ERP

EDGE Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
824.20	-22.65	-48.12	0.00	-1.08	24.39	274.79
836.40	-22.59	-48.28	0.00	-0.93	24.76	299.23
848.80	-22.54	-48.35	0.00	-0.76	25.05	319.89
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
824.20	-24.13	-47.97	0.00	-1.08	22.76	188.80
836.40	-23.99	-48.01	0.00	-0.93	23.09	203.70
848.80	-23.68	-48.05	0.00	-0.76	23.61	229.61



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**WCDMA Radiated Power ERP****Horizontal Polarization**

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
826.40	-24.21	-48.12	0.00	-1.08	22.83	191.87
836.40	-25.35	-48.28	0.00	-0.93	22.00	158.49
846.60	-24.25	-48.35	0.00	-0.76	23.34	215.77

**Vertical Polarization**

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
826.40	-25.81	-47.97	0.00	-1.08	21.08	128.23
836.40	-26.75	-48.01	0.00	-0.93	20.33	107.89
846.60	-25.48	-48.05	0.00	-0.76	21.81	151.71

**CDMA Radiated Power ERP****Horizontal Polarization**

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
824.7	-23.99	-48.12	0.00	-1.08	23.05	201.84
836.52	-24.68	-48.28	0.00	-0.93	22.67	184.93
848.31	-24.20	-48.35	0.00	-0.76	23.39	218.27

**Vertical Polarization**

Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
824.7	-25.84	-47.97	0.00	-1.08	21.05	127.35
836.52	-26.41	-48.01	0.00	-0.93	20.67	116.68
848.31	-25.80	-48.05	0.00	-0.76	21.49	140.93



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## 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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