



# Partial FCC RF Test Report

APPLICANT : Getac Technology Corporation.  
EQUIPMENT : Wireless module  
BRAND NAME : Sierra  
MODEL NAME : EM7355  
FCC ID : QYLEM7355F  
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)  
CLASSIFICATION : PCS Licensed Transmitter (PCB)

This is a partial report which is included the Conducted Output Power and ERP/EIRP. The product was received on Sep. 06, 2013 and completely tested on Oct. 22, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



## SPORTON INTERNATIONAL INC.

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FCC ID : QYLEM7355F

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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.4)	Conducted Output Power	Reporting Only	PASS	-
3.1	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
3.1	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.1	§27.50(d)(4)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-

**Remark:** Due to the antenna-gains of the module in host evaluated in all dedicated bands are less than those in the module report in accordance with MPE value so that we do not perform the procedure for RSE measurement.



# 1 General Description

## 1.1 Applicant

Getac Technology Corporation.

5F., Building A, No. 209, Sec.1, Nangang Rd.,Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

## 1.2 Manufacturer

Getac Technology(Kunshan)Co., LTD.

No. 269, No. 2 Avenue, Kunshan Comprehensive Free Trade Zone, Jiangsu Province, P.R.C

## 1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Wireless module
Brand Name	Sierra
Model Name	EM7355
FCC ID	QYLEM7355F
Installed into Tablet	Brand Name: Getac Model Name: F110 Marketing Name: F110
Sample 1	EUT installed into SKU B-1
Sample 2	EUT installed into SKU B-2
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE
EUT Stage	Production Unit

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



Information of Host		
	SKU B-1	SKU B-2
<b>OS</b>	Win8 64 bit	Win8 64 bit
<b>CPU</b>	Haswell sharkbay i5 15W(vPro) 4300U	Haswell sharkbay i5 15W(vPro) 4300U
<b>DDR</b>	8G	8G
<b>SDD</b>	256G	256G
<b>Battery</b>	BP3S1P2160-S	BP3S1P2160-S
<b>GPS</b>	EB-5631RC	EB-5631RC
<b>Panel</b>	AUO HD: B116XW05V006 sunlight readable, 800 Nits maximum brightness	AUO HD: B116XW05V006 sunlight readable, 800 Nits maximum brightness
<b>Default IO</b>	USB3.0 port	USB3.0 port
	HDMI	HDMI
<b>Optional I/O</b>	Smart Card	Smart Card
<b>Customization port</b>	LAN	RS232
<b>WLAN</b>	Wilkins peak 2	Wilkins peak 2
<b>BT</b>	Wilkins peak 2,BTv3.0 +EDR/v4.0-LE	Wilkins peak 2,BTv3.0 +EDR/v4.0-LE
<b>3G/LTE</b>	Gobi5000 EM7355	Gobi5000 EM7355
<b>RF pass thru</b>	YES (3G + WiFi)	YES (3G + WiFi)
<b>Camera</b>	Yes	Yes
<b>Webcam</b>	Yes	Yes

### 1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
<b>Tx Frequency</b>	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz
<b>Rx Frequency</b>	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II : 1932.4 MHz ~ 1987.6 MHz CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz
<b>Maximum Output Power to Antenna</b>	GSM850 : 31.88 dBm GSM1900 : 29.01 dBm WCDMA Band V : 22.81 dBm WCDMA Band IV : 22.81 dBm WCDMA Band II : 23.00 dBm CDMA2000 BC0 : 23.60 dBm CDMA2000 BC1 : 24.10 dBm
<b>Antenna Type</b>	PIFA Antenna
<b>Antenna Gain</b>	GSM850 : 1.01dBi GSM1900 :2.32dBi WCDMA Band V : 1.01dBi WCDMA Band IV : 3.22dBi WCDMA Band II : 2.32dBi CDMA2000 BC0 : 1.01dBi CDMA2000 BC1 : 2.32dBi
<b>Type of Modulation</b>	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) CDMA2000 : QPSK CDMA2000 1xEV-DO : QPSK/8PSK

### 1.5 Modification of EUT

No modifications are made to the EUT during all test items.



### 1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)
Part 22	GSM850 GPRS class 8	GMSK	1.19
Part 22	GSM850 EDGE class 8	8PSK	0.32
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.15
Part 22	CDMA2000 BC0 1xEV-DO Rev. 0	QPSK	0.18
Part 24	GSM1900 GPRS class 8	GMSK	1.36
Part 24	GSM1900 EDGE class 10	8PSK	0.53
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.34
Part 24	CDMA2000 BC1 1xEV-DO Rev. 0	QPSK	0.44
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.40





### 1.7 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
<b>Test Site No.</b>	<b>Sporton Site No.</b> TH02-HY

### 1.8 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 2, 22(H), 24(E), 27(L)
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01
- ♦ FCC KDB 412172 D01 Determining ERP and ERIP v01

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

Test Modes	
Band	Conducted TCs
GSM 850	<ul style="list-style-type: none"> <li>■ GPRS class 8 Link</li> <li>■ EDGE class 8 Link</li> </ul>
GSM 1900	<ul style="list-style-type: none"> <li>■ GPRS class 8 Link</li> <li>■ EDGE class 10 Link</li> </ul>
WCDMA Band V	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
WCDMA Band IV	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
WCDMA Band II	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link</li> </ul>
CDMA2000 BC0	<ul style="list-style-type: none"> <li>■ 1xEV-DO Rev. 0 Link Mode</li> </ul>
CDMA2000 BC1	<ul style="list-style-type: none"> <li>■ 1xEV-DO Rev. 0 Link Mode</li> </ul>

The conducted power tables are as follows:

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880	1909.8
GPRS class 8	31.85	31.83	31.78	29.01	28.90	28.51
GPRS class 10	31.88	31.86	31.81	28.98	28.87	28.50
EGPRS class 8	26.07	26.02	26.19	24.82	24.87	24.80
EGPRS class 10	26.04	26.01	26.08	24.92	24.79	24.64
EGPRS class 11	25.10	25.05	25.02	24.52	24.44	24.41
EGPRS class 12	24.04	23.95	23.82	23.37	23.31	23.23



Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
RMC 12.2K	22.81	22.78	22.75	22.96	22.94	23.00	22.67	22.81	22.54
HSDPA Subtest-1	22.28	22.25	22.18	22.53	22.50	22.53	22.11	22.26	22.21
HSDPA Subtest-2	22.26	22.23	22.21	22.39	22.36	22.36	22.19	22.25	21.95
HSDPA Subtest-3	21.84	21.80	21.76	22.01	22.04	22.11	21.64	21.79	21.62
HSDPA Subtest-4	21.81	21.73	21.75	21.98	21.90	22.04	21.63	21.74	21.32
HSUPA Subtest-1	22.36	22.19	22.09	22.25	22.54	22.06	21.63	21.74	21.32
HSUPA Subtest-2	20.68	20.64	20.59	21.15	21.01	21.00	20.61	20.89	20.79
HSUPA Subtest-3	21.05	21.12	21.18	21.45	21.50	21.42	21.03	21.13	21.08
HSUPA Subtest-4	20.64	20.83	20.70	21.16	21.16	21.04	20.84	21.01	20.79
HSUPA Subtest-5	22.09	22.15	22.22	22.55	22.61	22.37	22.27	22.39	22.18

Conducted Power (*Unit: dBm)						
Band	CDMA2000 BC0			CDMA2000 BC1		
Channel	1013	384	777	25	600	1175
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75
1xRTT RC1 SO55	23.55	23.59	23.45	24.09	23.90	23.92
1xRTT RC3 SO55	23.51	23.56	23.40	24.08	23.89	23.91
1xRTT RC3 SO32(+ F-SCH)	23.46	23.45	23.30	24.06	23.88	23.95
1xRTT RC3 SO32(+SCH)	23.57	23.49	23.40	24.08	23.92	23.93
1xEV-DO RTAP 153.6Kbps	23.44	23.60	23.40	23.82	24.10	23.96
1xEV-DO RETAP 4096Bits	23.39	23.44	23.36	23.76	23.96	23.81

### 3 Test Result

#### 3.1 Conducted Output Power Measurement and ERP/EIRP Measurement

##### 3.1.1 Description of the Conducted Output Power and ERP/EIRP Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and 1 Watts (AWS Band). According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$ ,  $ERP = EIRP - 2.15$ , where

$P_T$  = transmitter output power in dBm

$G_T$  = gain of the transmitting antenna in dBi

$L_C$  = signal attenuation in the connecting cable between the transmitter and antenna in dB

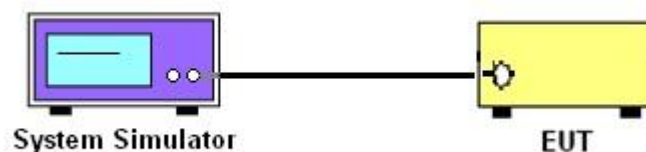
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedures

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.
6. The procedure section 2.0 of FCC KDB 412172 is used to determine the Radiated Power Measurement.

##### 3.1.4 Test Setup



**3.1.5 Test Result of Conducted Output Power**

Cellular Band ( $G_T - L_C = 1.01$ dB)									
Modes	GSM850 (GPRS class 8)			GSM850 (EDGE class 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6
Conducted Power (dBm)	31.88	31.86	31.81	26.07	26.02	26.19	22.81	22.78	22.75
Conducted Power (Watts)	1.54	1.53	1.52	0.40	0.40	0.42	0.19	0.19	0.19
ERP(dBm)	30.74	30.72	30.67	24.93	24.88	25.05	21.67	21.64	21.61
ERP(Watts)	1.19	1.18	1.17	0.31	0.31	0.32	0.15	0.15	0.14

PCS Band ( $G_T - L_C = 2.32$ dB)									
Modes	GSM1900 (GPRS class 8)			GSM1900 (EDGE class 10)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Conducted Power (dBm)	29.01	28.90	28.51	24.92	24.79	24.64	22.96	22.94	23.00
Conducted Power (Watts)	0.80	0.78	0.71	0.31	0.30	0.29	0.20	0.20	0.20
EIRP(dBm)	31.33	31.22	30.83	27.24	27.11	26.96	25.28	25.26	25.32
EIRP(Watts)	1.36	1.32	1.21	0.53	0.51	0.50	0.34	0.34	0.34



AWS Band ( $G_T - L_C = 3.22$ dB)			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312(Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
Conducted Power (dBm)	22.67	22.81	22.54
Conducted Power (Watts)	0.18	0.19	0.18
EIRP(dBm)	25.89	26.03	25.76
EIRP(Watts)	0.39	0.40	0.38

**Note:** maximum burst average power for GSM, and maximum average power for WCDMA.



Cellular Band ( $G_T - L_C = 1.01\text{dB}$ )			
Modes	CDMA 2000 BC0 1xEV-DO Rev. 0		
Test Status	RTAP 153.6Kbps		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
Conducted Power (dBm)	23.44	23.60	23.40
Conducted Power (Watts)	0.22	0.23	0.22
ERP(dBm)	22.30	22.46	22.26
ERP(Watts)	0.17	0.18	0.17

PCS Band ( $G_T - L_C = 2.32\text{dB}$ )			
Modes	CDMA 2000 BC 1 1xEV-DO Rev. 0		
Test Status	RTAP 153.6Kbps		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880.00	1908.75
Conducted Power (dBm)	23.82	24.10	23.96
Conducted Power (Watts)	0.24	0.26	0.25
EIRP(dBm)	26.14	26.42	26.28
EIRP(Watts)	0.41	0.44	0.42

**Note:** maximum burst average power for CDMA.

$EIRP = P_T + G_T - L_C$ ,  $ERP = EIRP - 2.15$ , where

$P_T$  = transmitter output power in dBm

$G_T$  = gain of the transmitting antenna in dBi

$L_C$  = signal attenuation in the connecting cable between the transmitter and antenna in dB



#### 4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Aug. 01, 2013	Oct. 22, 2013	Jul. 31, 2014	Conducted (TH02-HY)