

Partial FCC Test Report

(PART 90S)

Report No.: RF161003C38-8

FCC ID: QYLEM7355Z

Test Model: EM7355Z

Received Date: Oct. 03, 2016

Test Date: Oct. 27, 2016

Issued Date: Nov. 14, 2016

Applicant: Getac Technology Corporation.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Release Control Record

Issue No.	Description	Date Issued
RF161003C38-8	Original Release	Nov. 14, 2016

1 Certificate of Conformity

Product: Radio Module
Brand: Getac
Test Model: EM7355Z
Sample Status: Identical Prototype
Applicant: Getac Technology Corporation.
Test Date: Oct. 27, 2016
Standards: FCC Part 90, Subpart S

The above equipment 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 : Gina Liu , **Date:** Nov. 14, 2016
Gina Liu / Specialist

Approved by : Stanley Wu , **Date:** Nov. 14, 2016
Stanley Wu / Assistant Manager

2 Summary of Test Results

Applied Standard: FCC Part 90 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 90.635 (b)	Effective Radiated Power	Pass	Meet the requirement of limit.
2.1055 90.213	Frequency Stability	N/A	Refer to Note
2.1049 90.209	Occupied Bandwidth (*)	N/A	Refer to Note
2.1051 90.209	Emission Masks	N/A	Refer to Note
2.1051 90.691	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 90.691	Radiated Spurious Emissions	N/A	Refer to Note

Note: Only test item of EIRP was performed for this report. Other testing data please refer to Sierra Wireless, Inc. EM7355 CDMA Report for module (FCC ID: E7NEM7355)

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	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Jan. 21, 2016	Jan. 20, 2017
Signal Generator Agilent	N5182B	MY53050430	Oct. 19, 2016	Oct. 18, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2015	Dec. 16, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Jan. 04, 2016	Jan. 03, 2017
Double Ridge Guide Horn Antenna EMCO	3115	5619	Jan. 04, 2016	Jan. 03, 2017
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Jan. 07, 2016	Jan. 06, 2017
Agilent Communications Tester-Wireless	8960 Series 10	MY53201073	Jul. 03, 2015	Jul. 02, 2017
Preamplifier EMCI	EMC 012645	980115	Dec. 21, 2015	Dec. 20, 2016
Preamplifier EMCI	EMC 184045	980116	Dec. 21, 2015	Dec. 20, 2016
Preamplifier EMCI	EMC 330H	980112	Dec. 28, 2015	Dec. 27, 2016
Power Meter Anritsu	ML2495A	1232002	Sep. 08, 2016	Sep. 07, 2017
Power Sensor Anritsu	MA2411B	1207325	Sep. 08, 2016	Sep. 07, 2017
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 21, 2016	Oct. 20, 2017
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 21, 2016	Oct. 20, 2017
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 21, 2016	Oct. 20, 2017
Software BV ADT	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
Radio Communication Analyzer	MT8820C	6201300640	Aug. 10, 2015	Aug. 09, 2017
Temperature & Humidity Chamber	GTH-120-40-CP-A R	MAA1306-019	Sep. 02, 2016	Sep. 01, 2017
DC Power Supply Topward	33010D	807748	Oct. 27, 2015	Oct. 26, 2016
			Oct. 25, 2016	Oct. 24, 2017
Digital Multimeter Fluke	87-III	70360742	Jul. 01, 2016	Jun. 30, 2017

- Note:
1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 10.
 3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
 4. The FCC Site Registration No. is 690701.
 5. The IC Site Registration No. is IC7450F-10.

3 General Information

3.1 General Description of EUT

Product	Radio Module	
Brand	Getac	
Test Model	EM7355Z	
Status of EUT	Identical Prototype	
Power Supply Rating	12.0 Vdc (adapter) 3.8 Vdc (Li-ion battery)	
Modulation Type	CDMA	QPSK, OQPSK, HPSK
Frequency Range	CDMA BC10	817.9 ~ 823.1 MHz
Max. ERP Power	CDMA BC10	127.64 mW
Antenna Type	PIFA Antenna	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

- The EUT is authorized for use in specific End-product. Please refer to below table for more details.

Item	Brand	Model
Tablet	Getac	ZX70

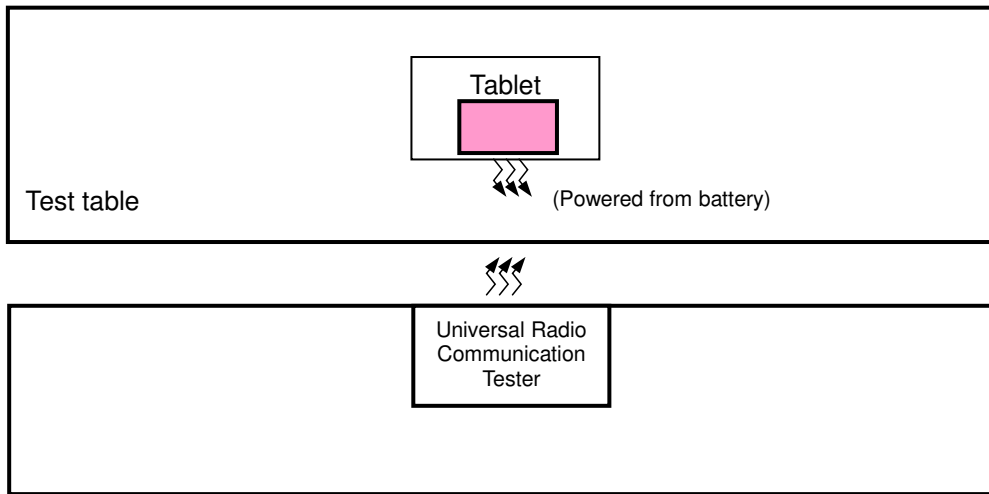
- The End-product contains following accessory devices.

Product	Brand	Model	Description
Adapter	APD	WA24Q12R	I/P: 100-240 Vac, 50/60 Hz, 0.7 A O/P: 12 Vdc, 2 A 1.75m shielded cable with 1 core
Battery	Getac	BP1S2P4240L	3.8 Vdc, 8480 mAh
LCD Panel	Truly	TDO-HD0698K61701	7"
Photo Camera	Chicony	CWFFF2520005340LH	2MPs HD Fix focus camera
Video Camera	Chicony	CYAF82520005340LH	8MPs auto focus camera
CPU	intel	Atom Z8350	592 PIN
Memory	Samsung	K4E6E304EE-EGCE	DDR3 4G (2G*2)
Storage	Samsung	KLMBG4GEND-B031	32G
GPS	U-blox	MAX-M8N	
BT/WLAN Module	AMPAK	AP6234	
RFID	Jogtek	TRF7970A	
WWAN Module	Sierra	EM7355Z	
Fingerprint	IMD	SF1115	

- The above EUT information is 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

<E.R.P. Test>



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Tablet	Getac	ZX70	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	ERP
CDMA	Y-plane

CDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	476 to 684	476, 580, 684	1xRTT

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25 deg. C, 65 % RH	3.8 Vdc	Getaz Yang

3.4 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

3.5 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 90

ANSI/TIA/EIA-603-D 2010

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 / Portable station are limited to 100 watts e.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

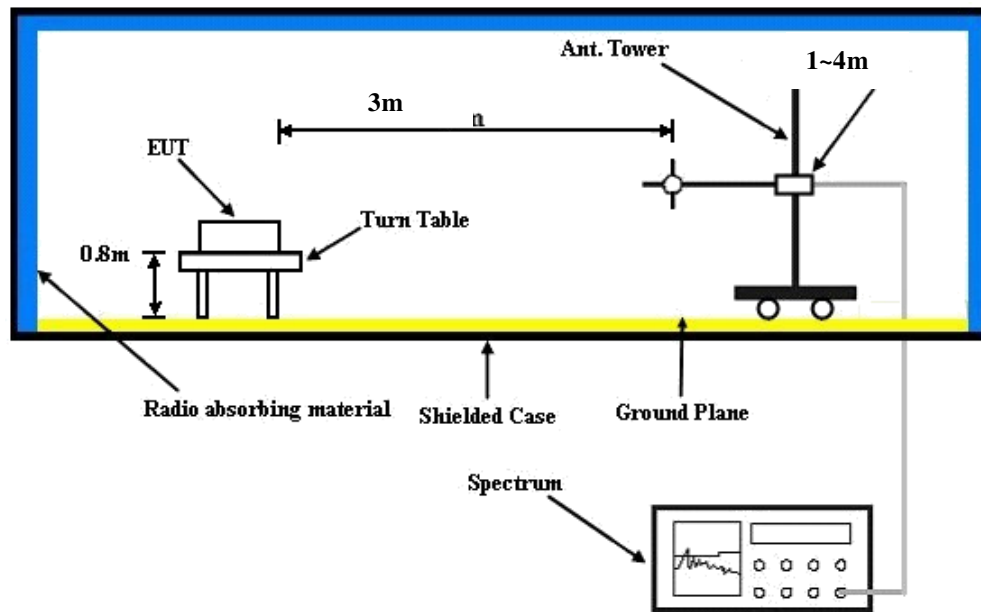
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 5 MHz for CDMA and 10 MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G.
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15 \text{ dBi}$.

Conducted Power Measurement:

- a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- b. 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:



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

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

Band	CDMA		
	476	580	684
Channel	476	580	684
Frequency (MHz)	817.9	820.5	823.1
RC1+SO55	23.84	23.89	23.85
RC3+SO55	23.85	23.90	23.86
RC3+SO32(+ F-SCH)	23.83	23.88	23.84
RC3+SO32(+SCH)	23.82	23.87	23.83
RTAP 153.6	23.80	23.85	23.81
RETAP 4096	23.79	23.84	23.80

ERP Power (dBm)

CDMA							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Y	476	817.9	-8.01	31.208	21.05	127.29	H
	580	820.5	-8.09	31.3	21.06	127.64	
	684	823.1	-8.07	31.222	21.00	125.95	
	476	817.9	-15.20	31.504	14.15	26.03	V
	580	820.5	-14.96	31.117	14.01	25.16	
	684	823.1	-15.69	31.922	14.08	25.60	

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – 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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