

RF EXPOSURE REPORT



Report No.: 15050016-FCC-H

Applicant	Micron Electronics LLC.	
Product Name	GSM Tracker	
Model No.	Prime bolt	
Serial No.	N/A	
Test Standard	FCC 2.1091	
Test Date	May 07 to June 01, 2015	
Issue Date	June 05, 2015	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification <input checked="" type="checkbox"/>		
Equipment did not comply with the specification <input type="checkbox"/>		
<i>Winnie Zhang</i>	<i>Chris You</i>	
Winnie Zhang Test Engineer	Chris You Checked By	
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
15050016-FCC-H	NONE	Original	June 05, 2015

2. Customer information

Applicant Name	Micron Electronics LLC.
Applicant Add	1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA
Manufacturer	Micron Electronics LLC.
Manufacturer Add	1001 Yamato Road, Suite 400, Boca Raton, FL 33431, USA

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Labview of SIEMIC version 2.0

4. Equipment under Test (EUT) Information

Description of EUT:	GSM Tracker
Main Model:	Prime bolt
Serial Model:	N/A
Date EUT received:	May 06, 2015
Test Date(s):	May 07 to June 01, 2015
Equipment Category :	PCB
Antenna Gain:	GSM850:-5 dBi PCS1900:-4 dBi
Type of Modulation:	GPRS: GMSK EGPRS: GMSK, 8PSK
RF Operating Frequency (ies):	GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz
Number of Channels:	GSM 850: 124CH PCS1900: 299CH
Port:	USB Port
Input Power:	Battery: Spec: 3.7V 8800mAh Charger Max Voltage:4.2V AC Adapter: Input: AC 100-240V;1000mA Output: DC 5.0V; 1A
Trade Name :	Prime
FCC ID:	ZKQ-BLT

5. FCC §2.1091 - Radiofrequency radiation exposure evaluation

6.1 Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission' s guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

6.2 Test Result

Burst Average Power (dBm);								
Band	GSM850				PCS1900			
Channel	128	190	251	Tune up Power tolerant	512	661	810	Tune up Power tolerant
Frequency (MHz)	824.2	836.6	848.8	/	1850.2	1880	1909.8	/
GPRS Multi-Slot Class 8 (1 uplink),GMSK	32.14	32.37	32.13	32±1	28.88	28.58	28.78	28±1
GPRS Multi-Slot Class 10 (2 uplink) GMSK	32.01	32.14	32.04	32±1	28.82	28.42	28.57	28±1

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator,
the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For the antenna manufacturer provide only used limited to ERP/EIRP or radiated spurious emission test. The MPE evaluation as below:

GSM850:

Maximum Tune up power at antenna input terminal: 33 dBm

Maximum output power at antenna input terminal: 1995.26 (mW)

Prediction distance: >20 (cm)

Predication frequency: 836.6(MHz) High frequency

Antenna Gain (typical): -5 (dBi)

Antenna Gain (typical): 0.32 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.126(mW/cm²)

MPE limit for general population exposure at prediction frequency: 0.558 (mW/cm²)

$0.133(\text{mW}/\text{cm}^2) < 0.558 (\text{mW}/\text{cm}^2)$

PCS1900:

Maximum Tune up power at antenna input terminal: 29 dBm

Maximum output power at antenna input terminal: 794.33 (mW)

Prediction distance: >20 (cm)

Predication frequency: 1850.2(MHz) High frequency

Antenna Gain (typical): -4 (dBi)

Antenna Gain (typical): 0.4 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.063(mW/cm²)

MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm²)

$0.063(\text{mW}/\text{cm}^2) < 1.0 (\text{mW}/\text{cm}^2)$

Result: Pass