IEEE C95.1
KDB 447498 D03
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

4G/LTE PCIE module

Model: SIM7100C

Trade Name: Billion、BEC

Issued to

Billion Electric Co., Ltd.
8F., No.192, Sec. 2, Zhongxing Rd., Xindian Dist.,
New Taipei City 231, Taiwan (R.O.C.)

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
http://www.ccsrf.com
service@ccsrf.com
Issued Date: November 9, 2015

Testing Laboratory
1309

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	2015/11/9	Initial Issue	ALL	Kelly Cheng

TABLE OF CONTENTS

1. LIMIT

According to §15.247(i), 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 levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

2. EUT SPECIFICATION

<table>
<tr><td>EUT</td><td>4G/LTE PCIE module</td></tr>
<tr><td>Model</td><td>SIM7100C</td></tr>
<tr><td>Frequency band (Operating)</td><td>☒ LTE Band XLI: 2496 MHz ~ 2690 MHz
☐ Others</td></tr>
<tr><td>Device category</td><td>☐ Portable (<20cm separation)
☒ Mobile (>20cm separation)
☐ Others</td></tr>
<tr><td>Exposure classification</td><td>☐ Occupational/Controlled exposure (S = 5mW/cm^2)
☒ General Population/Uncontrolled exposure (S=1mW/cm^2)</td></tr>
<tr><td>Antenna Specification</td><td>1. P/N: AN2600-6007WSM
Antenna Gain : 7.14 dBi (Numeric gain 5.18)
2. P/N: AN2600-5002BSM
Antenna Gain : 4.15 dBi (Numeric gain 2.60)
3. P/N: AN0727-64DP5BSM
Antenna Gain : 3.70dBi (Numeric gain 2.34)
4. P/N: DA-B41-16-03-BL(Worst)
Antenna Gain : 11.00 dBi (Numeric gain 12.59)</td></tr>
<tr><td>Measurement Average output power</td><td><table><tr><th>System</th><th>Power</th><th></th></tr><tr><td>LTE Band XLI</td><td>21.93 dBm</td><td>(155.96 mW)</td></tr></table></td></tr>
<tr><td>Power Target / Tolerance</td><td><table><tr><th>System</th><th>Target Power</th><th>Tolerance</th></tr><tr><td>LTE Band XLI</td><td>23.0 dBm</td><td>± 2.7 dB</td></tr></table></td></tr>
<tr><td>Max tune up Power / Max time Average Power</td><td><table><tr><th>System</th><th>Max Tune up Power</th><th>Time Average Power</th></tr><tr><td>LTE Band XLI</td><td>25.7dBm (371.535mW)</td><td>25.7dBm (371.535mW)</td></tr></table></td></tr>
<tr><td>Evaluation applied</td><td>☒ MPE Evaluation*
☐ SAR Evaluation
☐ N/A</td></tr>
</table>

3. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

4. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

LTE Band XLI mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm²	Limit (mW/cm²)
41215	2652.5	371.535	12.59	20	0.9308	1.000