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.
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Testing Laboratory
1309

Revision History

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

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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: 2555 MHz ~ 2655 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 : 7.1 dBi (Numeric gain 5.18)
2. P/N: AN2600-5002BSM
Antenna Gain : 4.1 dBi (Numeric gain 2.59)
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