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## RF Exposure Report

**Report No.:** SA150506E05E R1

**FCC ID:** QISCG1241D

**Test Model:** CG1241D

**Series Model:** CG5245

**Received Date:** May 06, 2015

**Test Date:** June 03 to 04, 2015

**Issued Date:** Aug. 31, 2015

**Applicant:** Huawei Technologies Co., Ltd.

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Bantian, Longgang District, Shenzhen, China

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

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**Test Location (1):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin  
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**Test Location (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin  
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**Release Control Record**

| Issue No.       | Description                                                                                                      | Date Issued   |
|-----------------|------------------------------------------------------------------------------------------------------------------|---------------|
| SA150506E05E    | Original release.                                                                                                | Aug. 06, 2015 |
| SA150506E05E R1 | 1. Modified the brand name of EUT.<br>2. Modified the Model name of EUT.<br>3. Revised the applicant and FCC ID. | Aug. 31, 2015 |



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## 1 Certificate of Conformity

**Product:** WiFi EMTA

**Brand:** Huawei

**Test Model:** CG1241D

**Series Model:** CG5245

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Huawei Technologies Co., Ltd.

**Test Date:** June 03 to 04, 2015

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D03

IEEE C95.1

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 :**

Lori Chung / Specialist

**Date:**

Aug. 31, 2015

**Approved by :**

May Chen / Manager

**Date:**

Aug. 31, 2015

## 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz)                                 | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Average Time (minutes) |
|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| Limits For General Population / Uncontrolled Exposure |                               |                               |                                     |                        |
| 300-1500                                              | ...                           | ...                           | F/1500                              | 30                     |
| 1500-100,000                                          | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

### 2.2 MPE Calculation Formula

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.

## 3 Antenna Gain

The antennas provided to the EUT, please refer to the following table:

| 2.4GHz Band |               |          |                                          |                              |              |                    |
|-------------|---------------|----------|------------------------------------------|------------------------------|--------------|--------------------|
| Antenna No. | PCB Chain No. | Brand    | Ant. Gain(dBi)<br><Including cable loss> | Frequency range (GHz to GHz) | Antenna Type | Connector Type     |
| A           | Chain (1)     | NA       | 3.76                                     | 2.4~2.4835                   | PCB          | None (like solder) |
| B           | Chain (2)     | NA       | 3.87                                     | 2.4~2.4835                   | PCB          | None (like solder) |
| 5GHz Band   |               |          |                                          |                              |              |                    |
| Antenna No. | PCB Chain No. | Brand    | Ant. Gain(dBi)<br><Including cable loss> | Frequency range (GHz to GHz) | Antenna Type | Connector Type     |
| C           | Chain (1)     | Hong-Lin | 5.78                                     | 5.15~5.85                    | PCB          | i-pex(MHF)         |
| D           | Chain (2)     | Hong-Lin | 4.36                                     | 5.15~5.85                    | PCB          | i-pex(MHF)         |

#### 4 Calculation Result of Maximum Conducted Power

| Frequency Band (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462            | 682.092        | 6.83               | 20            | 0.65399                             | 1                           |
| 5180-5240            | 115.994        | 8.11               | 20            | 0.14934                             | 1                           |
| 5745-5825            | 266.606        | 8.11               | 20            | 0.34324                             | 1                           |

NOTE:

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.83\text{dBi}$

5GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 8.11\text{dBi}$

#### Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + .....etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.65399 + 0.34324 = 0.997

Therefore the maximum calculations of above situations are less than the "1" limit.

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