

## RF Exposure Report

**Report No.:** SA150802C01

**FCC ID:** MSQ-CMBT00

**Test Model:** CM-32\_AC2600

**Received Date:** Aug. 02, 2015

**Test Date:** Nov. 19 ~ Nov. 30, 2015

**Issued Date:** Nov. 30, 2015

**Applicant:** ASUSTek COMPUTER INC.

**Address:** 4F, NO. 150, LI-TE RD. PEITOU, TAIPEI 112, TAIWAN

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

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City  
33383, TAIWAN (R.O.C.)



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### Release Control Record

| Issue No.   | Description       | Date Issued   |
|-------------|-------------------|---------------|
| SA150802C01 | Original release. | Nov. 30, 2015 |

## 1 Certificate of Conformity

**Product:** Wireless-AC3100 Dual Band Gigabit Router

**Brand:** ASUS

**Test Model:** CM-32\_AC2600

**Sample Status:** Engineering sample

**Applicant:** ASUSTek COMPUTER INC.

**Test Date:** Nov. 19 ~ Nov. 28, 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 :** Celine Chou , **Date:** Nov. 30, 2015  
Celine Chou / Specialist

**Approved by :** Ken Liu , **Date:** Nov. 30, 2015  
Ken Liu / Senior Manager

## 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<sub>d</sub> = power density in mW/cm<sup>2</sup>

P<sub>out</sub> = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 32cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 3 Calculation Result of Maximum Conducted Power

| Frequency Band (MHz) | Mode                 | Max Power (dBm) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------|----------------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462            | Beamforming off Mode |                 |                    |               |                                     |                             |
|                      | 802.11b              | 28.65           | 8.72               | 32            | 0.424                               | 1                           |
|                      | 802.11g              | 28.77           | 8.72               | 32            | 0.436                               | 1                           |
|                      | 802.11n (HT20)       | 29.35           | 8.72               | 32            | 0.498                               | 1                           |
|                      | 802.11n (HT40)       | 24.64           | 8.72               | 32            | 0.168                               | 1                           |
|                      | Beamforming on Mode  |                 |                    |               |                                     |                             |
|                      | 802.11n (HT20)       | 26.56           | 8.72               | 32            | 0.262                               | 1                           |
|                      | 802.11n (HT40)       | 22.31           | 8.72               | 32            | 0.099                               | 1                           |
| 5180-5240            | Beamforming off Mode |                 |                    |               |                                     |                             |
|                      | 802.11a              | 22.38           | 9.41               | 32            | 0.117                               | 1                           |
|                      | 802.11n (HT20)       | 22.28           | 9.41               | 32            | 0.115                               | 1                           |
|                      | 802.11n (HT40)       | 22.23           | 9.41               | 32            | 0.113                               | 1                           |
|                      | 802.11ac (VHT80)     | 19.85           | 9.41               | 32            | 0.066                               | 1                           |
|                      | Beamforming on Mode  |                 |                    |               |                                     |                             |
|                      | 802.11ac (VHT20)     | 21.90           | 9.41               | 32            | 0.105                               | 1                           |
|                      | 802.11ac (VHT40)     | 20.62           | 9.41               | 32            | 0.078                               | 1                           |
|                      | 802.11ac (VHT80)     | 19.12           | 9.41               | 32            | 0.055                               | 1                           |
| 5745-5825            | Beamforming off Mode |                 |                    |               |                                     |                             |
|                      | 802.11a              | 27.46           | 10.37              | 32            | 0.472                               | 1                           |
|                      | 802.11n (HT20)       | 27.42           | 10.37              | 32            | 0.467                               | 1                           |
|                      | 802.11n (HT40)       | 26.34           | 10.37              | 32            | 0.364                               | 1                           |
|                      | 802.11ac (VHT80)     | 25.20           | 10.37              | 32            | 0.280                               | 1                           |
|                      | Beamforming on Mode  |                 |                    |               |                                     |                             |
|                      | 802.11ac (VHT20)     | 25.55           | 10.37              | 32            | 0.304                               | 1                           |
|                      | 802.11ac (VHT40)     | 25.53           | 10.37              | 32            | 0.302                               | 1                           |
|                      | 802.11ac (VHT80)     | 23.94           | 10.37              | 32            | 0.210                               | 1                           |

Note:

2.4GHz: Directional gain = 2.70dBi + 10log(4) = 8.72dBi

5180-5240MHz: Directional gain = 3.39dBi + 10log(4) = 9.41dBi

5745-5825MHz: Directional gain = 4.35dBi + 10log(4) = 10.37dBi

**Conclusion:**

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.498 + 0.472 = 0.970$$

Therefore all the maximum calculations of above situations are less than the “1” limit.

**---END---**