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# RF EXPOSURE REPORT

**REPORT NO.:** SA130104C26-1

**MODEL NO.:** XR500

**FCC ID:** SK6-XR520

**RECEIVED:** Jan. 04, 2013

**TESTED:** Jan. 10 ~ Jan. 26, 2013

**ISSUED:** Jan. 30, 2013

**APPLICANT:** Xirrus, INC

**ADDRESS:** 2101 Corporate Center Drive Thousand Oaks,  
California 91320

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

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## RELEASE CONTROL RECORD

| ISSUE NO.     | REASON FOR CHANGE | DATE ISSUED   |
|---------------|-------------------|---------------|
| SA130104C26-1 | Original release  | Jan. 30, 2013 |

## 1. CERTIFICATION

**PRODUCT:** Xirrus Wireless Array  
**MODEL NO.:** XR500  
**BRAND:** Xirrus  
**APPLICANT:** Xirrus, INC  
**TESTED:** Jan. 10 ~ Jan. 26, 2013  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**STANDARDS:** FCC Part 2 (Section 2.1091)  
FCC OET Bulletin 65, Supplement C (01-01)  
IEEE C95.1

The above equipment (model: XR500) 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 :** Jemma Yang , **DATE :** Jan. 30, 2013  
Jemma Yang / Specialist

**APPROVED BY :** Ken Liu , **DATE :** Jan. 30, 2013  
Ken Liu / 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

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

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 25cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Calculation result of maximum conducted power

### 2.4G + 5G combo Module

| FREQUENCY BAND (MHz) | MODULATION MODE | MAX POWER (dBm) | ANTENNA GAIN (dBi) | DISTANCE (cm) | POWER DENSITY (mW/cm <sup>2</sup> ) | LIMIT (mW/cm <sup>2</sup> ) |
|----------------------|-----------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 2412-2462            | 802.11b         | 23.05           | 7.01               | 25            | 0.1291                              | 1                           |
|                      | 802.11g         | 28.63           | 7.01               | 25            | 0.4666                              | 1                           |
|                      | 802.11n (20MHz) | 27.88           | 7.01               | 25            | 0.3926                              | 1                           |
|                      | 802.11n (40MHz) | 26.24           | 7.01               | 25            | 0.2691                              | 1                           |
| 5180-5240            | 802.11a         | 15.66           | 7.01               | 25            | 0.0235                              | 1                           |
|                      | 802.11n (20MHz) | 15.31           | 7.01               | 25            | 0.0217                              | 1                           |
|                      | 802.11n (40MHz) | 16.41           | 7.01               | 25            | 0.0280                              | 1                           |
| 5745-5825            | 802.11a         | 26.51           | 7.01               | 25            | 0.2864                              | 1                           |
|                      | 802.11n (20MHz) | 26.66           | 7.01               | 25            | 0.2964                              | 1                           |
|                      | 802.11n (40MHz) | 26.66           | 7.01               | 25            | 0.2964                              | 1                           |

### 5G only Module

| FREQUENCY BAND (MHz) | MODULATION MODE | MAX POWER (dBm) | ANTENNA GAIN (dBi) | DISTANCE (cm) | POWER DENSITY (mW/cm <sup>2</sup> ) | LIMIT (mW/cm <sup>2</sup> ) |
|----------------------|-----------------|-----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| 5180-5240            | 802.11a         | 15.54           | 7.01               | 25            | 0.0229                              | 1                           |
|                      | 802.11n (20MHz) | 15.58           | 7.01               | 25            | 0.0231                              | 1                           |
|                      | 802.11n (40MHz) | 16.43           | 7.01               | 25            | 0.0281                              | 1                           |
| 5745-5825            | 802.11a         | 27.01           | 7.01               | 25            | 0.3213                              | 1                           |
|                      | 802.11n (20MHz) | 26.54           | 7.01               | 25            | 0.2884                              | 1                           |
|                      | 802.11n (40MHz) | 25.97           | 7.01               | 25            | 0.2529                              | 1                           |



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**NOTE:**

Directional gain = 4dBi + 10log(2) = 7.01dBi

**CONCLUSION:**

Both of the WLAN 2.4G & 5.0G can transmit simultaneously, the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

2.4G + 5G combo Module: WLAN 2.4G + WLAN 5.0G = 0.4666 + 0.3213 = 0.7879

Therefore, the maximum calculation of this situation is 0.7879, which is less than the "1" limit.