

## RF Exposure Report

**Report No.:** SA160418C29

**FCC ID:** GZ5NVG4XXQ

**Test Model:** NVG468MQ

**Series Model:** NVG448BQ

**Received Date:** Apr. 18, 2016

**Test Date:** Apr. 22 ~ May 05, 2016

**Issued Date:** May 12, 2016

**Applicant:** ARRIS Group, Inc.

**Address:** 2500 Walsh Ave. Santa Clara, CA 95051, United State

**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, R.O.C.

**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
SA160418C29	Original release	May 12, 2016

## 1 Certificate of Conformity

**Product:** Ethernet and FTTH Gateway

**Brand:** ARRIS

**Test Model:** NVG468MQ

**Series Model:** NVG448BQ

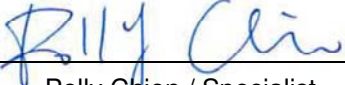
**Sample Status:** Engineering sample

**Applicant:** ARRIS Group, Inc.

**Test Date:** Apr. 22 ~ May 05, 2016

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D01 (October 23, 2015)  
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 :**  , **Date:** May 12, 2016  
Polly Chien / Specialist

**Approved by :**  , **Date:** May 12, 2016  
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

$$Pd = (Pout * G) / (4 * pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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 27cm 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)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
(CDD Mode)					
2412-2462	28.88	8.48	27	0.594	1
5180-5240	24.51	10.07	27	0.313	1
5745-5825	24.76	10.07	27	0.332	1
(Beamforming Mode)					
5180-5240	24.88	10.07	27	0.341	1
5745-5825	24.76	10.07	27	0.332	1

Note:

**2.4GHz:**

Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 8.48 \text{ dBi}$

**5.0GHz:**

Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 10.07 \text{ dBi}$

**CONCLUSION:**

Both of the WLAN 2.4G & WLAN 5G 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

$WLAN 2.4G + WLAN 5.0G = 0.594 + 0.341 = 0.935$

Therefore, the maximum calculation of this situation is 0.935, which is less than the "1" limit.

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