

# RF EXPOSURE REPORT

**REPORT NO.:** SA130709C02C

**MODEL NO.:** WPEA-252NI

**FCC ID:** RYK-WPEA252NI

**RECEIVED:** Jun. 24, 2014

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**APPLICANT:** SparkLAN Communications, Inc.

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**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
SA130709C02C	Original release	Aug. 14, 2014

## 1. CERTIFICATION

**PRODUCT:** 802.11abgn Mini PCIe module  
**MODEL NO.:** WPEA-252NI  
**BRAND:** SparkLAN  
**APPLICANT:** SparkLAN Communications, Inc.  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**STANDARDS:** **FCC Part 2 (Section 2.1091)**  
**KDB 447498 D03**  
**IEEE C95.1**

The above equipment (Model: WPEA-252NI) 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 :** Maggie Wu, **DATE:** Aug. 14, 2014  
Maggie Wu / Specialist

**APPROVED BY :** Ken Liu, **DATE:** Aug. 14, 2014  
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

$P_d$  = 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**.

## 2.4 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	802.11b	21.30	1.5	20	0.038	1
	802.11g	24.34	1.5	20	0.076	1
	802.11n (20MHz)	26.36	4.51	20	0.243	1
	802.11n (40MHz)	25.92	4.51	20	0.220	1
5180 ~ 5240	802.11a	13.98	1.5	20	0.007	1
	802.11n (20MHz)	14.87	4.51	20	0.017	1
	802.11n (40MHz)	13.74	4.51	20	0.013	1
5745 ~ 5825	802.11a	21.57	1.5	20	0.040	1
	802.11n (20MHz)	23.58	4.51	20	0.128	1
	802.11n (40MHz)	22.84	4.51	20	0.108	1

### 2.4GHz Band:

802.11n (20MHz), 802.11n (40MHz): Directional gain = 1.5dBi + 10log(2) = 4.51dBi

### 5GHz Band:

802.11n (20MHz), 802.11n (40MHz): Directional gain = 1.5dBi + 10log(2) = 4.51dBi