



# RF EXPOSURE REPORT

**REPORT NO.:** SA130709C02C

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

**FCC ID:** RYK-WPEA252NI

**RECEIVED:** Jun. 24, 2014

**ISSUED:** Aug. 14, 2014

**APPLICANT:** SparkLAN Communications, Inc.

**ADDRESS:** 8F., No.257, Sec. 2, Tiding Blvd., Neihu District,  
Taipei City 11493, Taiwan (R.O.C.)

**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 Tsuen, Kwei  
Shan Hsiang, Taoyuan Hsien 333, Taiwan,  
R.O.C.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.



## TABLE OF CONTENTS

RELEASE CONTROL RECORD .....	3
1. CERTIFICATION .....	4
2. RF EXPOSURE.....	5
2.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE).....	5
2.2 MPE CALCULATION FORMULA .....	5
2.3 CLASSIFICATION .....	5
2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER.....	6



## 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)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
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