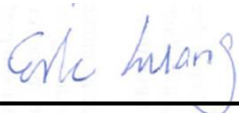


RF Exposure Evaluation Report

APPLICANT : Option nv
EQUIPMENT : WLAN expansion card
BRAND NAME : Option
MODEL NAME : CG2101
FCC ID : NCMOCG2101
STANDARD : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.



Reviewed by: Eric Huang / Deputy Manager



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



Table of Contents

1. ADMINISTRATION DATA	4
1.1. Testing Laboratory	4
2. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	5
3. MAXIMUM OUTPUT POWER	5
4. RF EXPOSURE LIMIT INTRODUCTION	6
5. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	7
5.1. Power Density Calculation.....	7
5.2. Collocated Power Density Calculations.....	7

**Revision History**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA450221-01	Rev. 01	Initial issue of report	Jun. 24, 2014

**1. Administration Data****1.1. Testing Laboratory**

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Option nv
Address	Gaston Geenslaan 14, B-3001 Leuven, BELGIUM

Manufacturer	
Company Name	Option nv
Address	Gaston Geenslaan 14, B-3001 Leuven, BELGIUM

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	WLAN expansion card
Brand Name	Option
Model Name	CG2101
FCC ID	NCMOCG2101
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz
Mode	• 802.11a/b/g/n HT20/HT40
Antenna Type	Dipole Antenna
HW Version	1.0
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Host Feature & Specification	
Host	CloudGate LTE WW
Brand Name	Option
Model Name	CG0114

3. Maximum output power

Mode	Maximum Power (dBm)
2.4GHz WLAN	22.45
5GHz WLAN	18.25



4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



5. Radio Frequency Radiation Exposure Evaluation

5.1. Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
2.4GHz WLAN	2412.0	3.0	22.45	25.450	0.351	350.752	0.070	1.000	0.070
5GHz WLAN	5180.0	3.0	18.25	21.250	0.133	133.352	0.027	1.000	0.027

Note: For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band

5.2. Collocated Power Density Calculations

WLAN Power Density / Limit	WWAN Power Density / Limit	Σ (Power Density / Limit) of WWAN+WLAN
0.070	0.288	0.358

Note:

1. WWAN module CloudGate LTE WW is also integrated into this device, Brand Name: Option, Model Name CG0114, FCC ID: RI7LN930, Report No: FA450221.
2. The WWAN maximum power density is 0.158 mW/cm², and the calculation Power Density / Limit is 0.288 was used performed simultaneous transmission analysis.
3. For colocation analysis, 2.4GHz WLAN is chosen for summation due to the highest (power density/limit) among all WLAN modes.
4. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + WLAN
5. Considering the WWAN module collocation with the WLAN transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.