RF Exposure Evaluation Report

APPLICANT	:	**Maestro Wireless Solutions Limited**
EQUIPMENT	:	**E210 Series Cellular Router**
BRAND NAME	:	**Maestro**
MODEL NAME	:	**E214G#01**
FCC ID	:	**2AJF3-E214G-2**
Standard	:	**47 CFR Part 2.1091** **FCC KDB 447498 D01 v06**

We, Sporton International (Shenzhen) Inc., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International (Shenzhen) Inc., the test report shall not be reproduced except in full.

Mark Qu

Approved by: Mark Qu / Manager

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Sporton International (Shenzhen) Inc.
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City
Guangdong Province 518055 China

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History of this test report

Report No.	Version	Description	Issued Date
FA860105	Rev. 01	Initial issue of report	Aug. 28, 2018

1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	Sporton International (Shenzhen) Inc.
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	Maestro Wireless Solutions Limited
Address	Units A & B, 9th Floor, Wing Cheong Factory Building 121 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

Manufacturer	
Company Name	Maestro Wireless Solutions Limited
Address	Units A & B, 9th Floor, Wing Cheong Factory Building 121 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	E210 Series Cellular Router
Brand Name	Maestro
Model Name	E214G#01
FCC ID	2AJF3-E214G-2
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
Mode	WLAN 2.4GHz 802.11b/g/n HT20/HT40
HW Version	V05
SW Version	maestro-e210-v230
Antenna Type	Dipole antenna
Antenna Gain	3.8dBi
EUT Stage	Production Unit
Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	

3. Maximum RF average output power among production units

<WLAN 2.4GHz>

Mode		Maximum Average power(dBm)
2.4GHz WLAN	802.11b	17.00
	802.11g	13.50
	802.11n-HT20	13.50
	802.11n-HT40	13.50

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/f2)	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/f2)	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. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
802.11b	2412.0	3.80	17.00	20.800	0.120	0.024	1.000	**0.024**
802.11g	2412.0	3.80	13.50	17.300	0.054	0.011	1.000	0.011
802.11n-HT20MHz	2412.0	3.80	13.50	17.300	0.054	0.011	1.000	0.011
802.11n-HT40MHz	2412.0	3.80	13.50	17.300	0.054	0.011	1.000	0.011

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

5.2. Collocated Power Density Calculation

Note:

This device contains WWAN module which FCC ID: N7NWP76A , so for evaluated the Co-located with WLAN, list the followings WWAN power density.

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
LTE Band 4	1710.7	1.50	24.00	25.500	0.355	0.071	1.000	0.071
LTE Band 13	779.5	1.50	24.00	25.500	0.355	0.071	0.520	**0.136**

WWAN Power Density / Limit	WLAN Power Density / Limit	Σ(Power Density / Limit) of WWAN+WLAN
0.136	0.024	0.160

Note: 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.

Conclusion:

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