SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

Project No: CB10505176

Maximum Permissible Exposure Report

Applicant's company	LITE-ON Technology Corp.
Applicant Address	Bldg. C, 90, Chien 1 Rd., Chung-Ho, New Taipei City, 23585 Taiwan
FCC ID	PPQ-O90N
Manufacturer's company	Lite-On Network Communication (Dongguan) Limited
Manufacturer Address	30#Keji Rd.,Yin Hu Industrial Area,Qingxi Town,DongGuan City,Guangdong,China

Product Name	Access Point
Brand Name	MOJO
Model No.	O-90-N, O-90-N30, O-90-N120
Ref. Standard(s)	47 CFR FCC Part 2 Subpart J, section 2.1091
Received Date	Mar. 25, 2016
Final Test Date	May 05, 2016
Submission Type	Class II Change

Testing Laboratory
1190

Sam Chen
SPORTON INTERNATIONAL INC.

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA631907-01	Rev. 01	Initial issue of report	May 18, 2016

1. GENERAL DESCRIPTION

1.1. EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)

1.2. Table for Multiple Listing

The EUT has three model names which are identical to each other in all aspects except for the following table:

Model Name	EUT	Description	Remark
O-90-N	-	The difference between these models is the antennas equipped.	Original
O-90-N30	EUT 1		New
O-90-N120	EUT 2		New

Note: Only the new models were tested and recorded in this test report.

1.3. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA631907

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding two model names: O-90-N30, O-90-N120	Maximum Permissible Exposure Report
2. Adding two sets of new antennas with higher gains. (1) Model name: O-90-N30 (New) / Brand: LITE-ON / Model: WP939i (30x30 deg.) / Type: PIFA Antenna (2) Model name: O-90-N120 (New) / Brand: LITE-ON / Model: WP939i (30x120 deg.) / Type: PIFA Antenna	

1.4. Testing Location

Testing Location			
☐	HWA YA	ADD :	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
		TEL :	886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD :	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
		TEL :	886-3-656-9065 FAX : 886-3-656-9085

2. MAXIMUM PERMISSIBLE EXPOSURE

2.1. Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	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

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. MPE Calculation Method

The MPE was calculated at 21 cm for EUT 1 and 22 cm for EUT 2 to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$

2.3. Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

<For EUT 1>

For 5GHz Band :

Antenna Type : PIFA Antenna

Conducted Power for IEEE 802.11a: 24.21 dBm

Distance (cm)	Test Freq. (MHz)	Uncorrelated Composite Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
21	5825	11.76	14.9968	24.2074	263.4743	0.713362	1	Complies

For 2.4GHz Band:

Antenna Type : PIFA Antenna

Conducted Power for IEEE 802.11g: 26.01 dBm

Distance (cm)	Test Freq. (MHz)	Uncorrelated Composite Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
21	2437	5.46	3.5156	26.0110	399.1126	0.253319	1	Complies

Conclusion:

Both of the WLAN 2.4GHz Band and WLAN 5GHz Band can transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ...etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is 0.253319 / 1 + 0.713362 / 1 = 0.966681, which is less than "1". This confirmed that the device complies.

<For EUT 2>

For 5GHz Band :

Antenna Type : PIFA Antenna

Conducted Power for IEEE 802.11a: 27.15dBm

Distance (cm)	Test Freq. (MHz)	Uncorrelated Composite Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
22	5785	8.79	7.5683	27.1456	518.2702	0.645240	1	Complies

For 2.4GHz Band:

Antenna Type : PIFA Antenna

Conducted Power for IEEE 802.11b: 26.30 dBm

Distance (cm)	Test Freq. (MHz)	Uncorrelated Composite Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
				(dBm)	(mW)			
22	2437	6.60	4.5709	26.3020	426.7730	0.320894	1	Complies

Conclusion:

Both of the WLAN 2.4GHz Band and WLAN 5GHz Band can transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ...etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is 0.320894 / 1+0.645240 / 1= 0.966134, which is less than “1”. This confirmed that the device complies.