RF Exposure Evaluation Report

Equipment	: 802.11ac Tri Band PoE Access Point
Brand Name	: LITE-ON, MOJO
Model No.	: WP8333V1, C-110
FCC ID	: PPQ-WP8333V1
Standard	: 47 CFR Part 2.1091
Applicant	: LITE-ON Technology Corp. Bldg. C, 90, Chien 1 Rd., Chung-Ho, New Taipei City, 23585 Taiwan
Manufacturer	: Lite-On Network Communication (Dongguan) Limited 30#Keji Rd.,Yin Hu Industrial Area,Qingxi Town,DongGuan City,Guangdong,China

The product sample received on Apr. 17, 2017 and completely tested on Jun. 15, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with 47 CFR Part 2.1091 and pass the limit.

Cliff Chang
SPORTON INTERNATIONAL INC.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA741722	Rev. 01	Initial issue of report	Jun. 23, 2017

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) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
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)
Bluetooth	2400-2483.5	2402-2480	BR / EDR: FHSS (GFSK / π/4-DQPSK / 8DPSK) LE: DSSS (GFSK)

Note: The EUT contain Radio 3 (2.4G)/(5G) RF module (Model Name: WM862FEMD FCC ID: PPQ-WM862FEMD)

1.2 Table for Multiple Listing

The brand/model names in the following table are all refer to the identical product.

Brand Name	Model Name	Description
LITE-ON	WP8333V1	All the models are identical, the difference model name for difference brand served as marketing strategy.
MOJO	C-110	

From the above models, model: WP8333V1 was selected as representative model for the test and its data was recorded in this report.

1.3 Table for Operating Mode

Operating Mode	
1	EUT 2 - R1 (2.4G) + R2 (5G) + R3 (2.4G) + R4 (BT)
2	EUT 2 - R1 (2.4G) + R2 (5G) + R3 (5G) + R4 (BT)
3	EUT 2 - R1 (5G) + R2 (5G) + R3 (2.4G) + R4 (BT)
4	EUT 2 - R1 (5G) + R2 (5G) + R3 (5G) + R4 (BT)

1.4 Table for Explanation of Flash

EUT No.	Brand name	Model name	Flash
1	winbond	25Q256JVFQ	32M+32M
2	MXIC	MX25L51245GMI-08G	64M

1.5 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 28 cm 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 = 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

Simultaneous Transmission Analysis Mode 1: EUT 2 - R1 (2.4G) + R2 (5G) + R3 (2.4G) + R4 (BT)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;G1D	6.5	27.17	33.67	2.32809	28	0.23642	1	0.23642
5.8G;D1D	5.9	27.52	33.42	2.19786	28	0.22320	1	0.22320
2.4G;G1D	6.5	24.89	31.39	1.37721	28	0.13986	1	0.13986
2.4G;BT-BR	2.1	9.96	12.06	0.01607	28	0.00163	1	0.00163
							Sum Ratio	0.60111
							Ratio Limit	1

Simultaneous Transmission Analysis Mode 2: EUT 2 - R1 (2.4G) + R2 (5G) + R3 (5G) + R4 (BT)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;G1D	6.5	27.17	33.67	2.32809	28	0.23642	1	0.23642
5.8G;D1D	5.9	27.52	33.42	2.19786	28	0.22320	1	0.22320
5.3G;D1D	5.4	22.87	28.27	0.67143	28	0.06818	1	0.06818
2.4G;BT-BR	2.1	9.96	12.06	0.01607	28	0.00163	1	0.00163
							Sum Ratio	0.52943
							Ratio Limit	1

Simultaneous Transmission Analysis Mode 3: EUT 2 - R1 (5G) + R2 (5G) + R3 (2.4G) + R4 (BT)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
5.8G;D1D	6.1	29.65	35.75	3.75837	28	0.38167	1	0.38167
5.8G;D1D	5.9	27.52	33.42	2.19786	28	0.22320	1	0.22320
2.4G;G1D	6.5	24.89	31.39	1.37721	28	0.13986	1	0.13986
2.4G;BT-BR	2.1	9.96	12.06	0.01607	28	0.00163	1	0.00163
							Sum Ratio	0.74636
							Ratio Limit	1

Simultaneous Transmission Analysis Mode 4: EUT 2 - R1 (5G) + R2 (5G) + R3 (5G) + R4 (BT)

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
5.8G;D1D	6.1	29.65	35.75	3.75837	28	0.38167	1	0.38167
5.8G;D1D	5.9	27.52	33.42	2.19786	28	0.22320	1	0.22320
5.3G;D1D	5.4	22.87	28.27	0.67143	28	0.06818	1	0.06818
2.4G;BT-BR	2.1	9.96	12.06	0.01607	28	0.00163	1	0.00163
							Sum Ratio	0.67468
							Ratio Limit	1