

RF Exposure Evaluation Report

Equipment : Dual-Band 802.11ac 4x4 MIMO PCI Express Mini Card Wireless Network Adapter

Brand Name : LITE-ON

Model No. : WM6687

FCC ID : PPQ-WM6687

Standard : 47 CFR Part 2.1091

Applicant : Lite-On Technology Corp.
Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C

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 May 02, 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.

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Sam Chen
SPORTON INTERNATIONAL INC.





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PHOTOGRAPHS OF EUT V01

REVISION HISTORY

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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, 1024QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5720 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

1.2 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/ cm ²)	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/ cm ²)	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 25 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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

For Mode 1 (Antenna Set 1):

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	3.53	27.25	30.78	1.19674	25	0.15237	1.00000
2.4G;D1D	9.55	26.43	35.98	3.96278	25	0.50456	1.00000
5.2G;D1D	10.92	18.91	29.83	0.96161	25	0.12244	1.00000
5.3G;D1D	10.92	19.02	29.94	0.98628	25	0.12558	1.00000
5.6G;D1D	10.92	18.95	29.87	0.97051	25	0.12357	1.00000
5.8G;D1D	10.92	25.06	35.98	3.96278	25	0.50456	1.00000

For Mode 2 (Antenna Set 2 with Gray Cable):

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	0.60	27.80	28.40	0.69183	25	0.08809	1.00000
2.4G;D1D	6.62	26.43	33.05	2.01837	25	0.25699	1.00000
5.2G;D1D	8.32	21.64	29.97	0.99312	25	0.12645	1.00000
5.3G;D1D	8.32	21.63	29.95	0.98855	25	0.12587	1.00000
5.6G;D1D	8.32	21.64	29.96	0.99083	25	0.12616	1.00000
5.8G;D1D	8.32	27.55	35.87	3.86367	25	0.49194	1.00000