



FCC RADIO EXPOSURE TEST REPORT

FCC ID : 2AQLFLAP

Equipment : 802.11ac Outdoor PoE Access Point

Brand Name : FRONTiIR

Model Name : LAP, LAQ

Applicant : Frontiir Pte (with Frontiir Co LTD, Myanmar)
809 Yakima Drive, Fremont, CA, US Zip
Code: 94539

Manufacturer (1) : LITE-ON Technology Corp. Networking Plant
No. 101, Neihuan N. Rd., Nanzi Processing Export, Nanzi
Dist., Kaohsiung City 811, Taiwan (R.O.C.)

Manufacturer (2) : Lite-On Network Communication (Dongguan) Limited
30#Keji Rd., Yin Hu Industrial Area, Qingxi
Town, DongGuan City, Guangdong, China

Standard : 47 CFR Part 2.1091

The product was received on Feb. 06, 2020, and testing was started from Feb. 06, 2020 and completed on Apr. 13, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Cindy Peng



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) VHT: 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)

1.2 Table for Multiple Listing

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

EUT	Model Name	Match Antenna	
		Brand Name	Model Name
1	LAP	Walsin	RFPCA601031IMAB402
2	LAQ	Walsin	RFPCA501726IM5B402

1.3 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

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.



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 24 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 EUT 1:

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	6.20	27.55	33.75	0.50	34.25	2.66073	24	0.36758	1.00000
5.2G;D1D	6.35	17.38	23.73	0.08	20.99	0.12560	24	0.01735	1.00000
5.8G;D1D	6.35	27.04	33.39	0.50	33.89	2.44906	24	0.33834	1.00000

For EUT 2:

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	8.10	25.93	34.03	0.50	34.53	2.83792	24	0.39207	1.00000
5.2G;D1D	8.42	18.54	26.96	0.05	20.99	0.12560	24	0.01735	1.00000
5.8G;D1D	8.42	27.05	35.47	0.50	35.97	3.95367	24	0.54622	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz + WLAN 5GHz

For EUT 1:

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	6.20	27.55	33.75	0.50	34.25	2.66073	24	0.36758	1.00000	0.36758
5.8G;D1D	6.35	27.04	33.39	0.50	33.89	2.44906	24	0.33834	1.00000	0.33834
									Sum Ratio	0.70592
									Ratio Limit	1

For EUT 2:

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	8.10	25.93	34.03	0.50	34.53	2.83792	24	0.39207	1.00000	0.39207
5.8G;D1D	8.42	27.05	35.47	0.50	35.97	3.95367	24	0.54622	1.00000	0.54622
									Sum Ratio	0.93829
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————