

RF Exposure Evaluation Declaration

Product Name : Wi-Fi Module
Model No. : LW100
FCC ID : Y2SLW100
IC ID : 9452A-LW100

Applicant : LIBRATONE A/S

Address : Marielundvej 43A, DK-2730 Herlev, Denmark

Date of Receipt : Jun. 23, 2015

Test Date : Jun. 23, 2015~ Aug. 11, 2015

Issued Date : Aug. 11, 2015

Report No. : 1560632R-RF-US-P20V01

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

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Test Report Certification

Issued Date : Aug. 11, 2015

Report No. : 1560632R-RF-US-P20V01



Product Name : Wi-Fi Module
Applicant : LIBRATONE A/S
Address : Marielundvej 43A, DK-2730 Herlev, Denmark
Manufacturer : Goertek Inc
Address : No 268 Dongfang Rd., New&high-tech Industry
Development Zone Weifang Shandong Province 261031,
PRC.
Model No. : LW100
FCC ID : Y2SLW100
IC ID : 9452A-LW100
EUT Voltage : 3.8V DC
Brand Name : LIBRATONE
Applicable Standard : KDB 447498D01V05V02
FCC Part1.1310(b)
Test Result : Complied
Performed Location : Suzhou EMC Laboratory
No.99 Hongye Rd., Suzhou Industrial Park Loufeng
Hi-Tech Development Zone., Suzhou, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
FCC Registration Number: 800392

Documented By : Elaine Wang Senior Engineer
Reviewed By : Harry Zhao RF Engineering Manager
Approved By : Dream Cao Director

Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	:	BSMI, NCC, TAF
USA	:	FCC
Japan	:	VCCI
China	:	CNAS

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site :<http://www.quietek.com/tw/ctg/cts/accreditations.htm>
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1560632R-RF-US-P20V01	V1.0	Initial Issued Report	Aug. 11, 2015

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	:	Wi-Fi Module
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

- Antenna Gain:

Antenna	Manufacturer	Model No.	Peak Gain
PIFA Antenna	Suzhou Walsin Technology Electronics Co.,Ltd	Z_2.4/5G_R_R4; Z_2.4/5G_L_R4	2.4GHz band: 3.5dBi 5GHz Band: 2dBi

● Output Power into Antenna & RF Exposure Evaluation Distance:

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
802.11b/g/n(20MHz)	2412~2462MHz	311.1716	0.1386
802.11n(40MHz)	2422~2452MHz	140.6048	0.0626
802.11a/n(20MHz)	5180~5240MHz	156.6751	0.0494
802.11a/n(20MHz)	5745~5825MHz	532.1083	0.1678
802.11n(40MHz)	5190~5230MHz	140.2814	0.0442
802.11n(40MHz)	5755~5795MHz	370.6807	0.1169

Note:

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is below the limit of 1 mW/cm².

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