RF Exposure Evaluation Report

Application No.:	DNT2412300585R6493-08906
Applicant:	Shenzhen Bilian Electronic Co.,Ltd.
Address of Applicant:	Room 501, Building 3, No.32. Dafu Road, Zhangge Community, Fucheng Street, Longhua District, Shenzhen City,China
EUT Description:	802.11b/g/n 150Mbps 1T1R WLAN SDIO Module
Model No.:	BL-M8189FS6
FCC ID:	2AL6KBLM8189FS6
Power supply	DC 3.3V
Trade Mark:	/
Standards:	47 CFR Part 2.1091 FCC KDB 447498 D01 v06
Date of Receipt:	2024/01/01
Date of Test:	2025/01/02 to 2025/02/10
Date of Issue:	2025/02/13
Test Result:	**PASS**

Prepared By: Wayne.Lin (Testing Engineer)

Reviewed By: Pencils.chen (Project Engineer)

Approved By: Jeese Zhan (Manager)

Note: If there is any objection to the results in this report, please submit a written inquiry to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp, and is issued by the company in accordance with the requirements of the "Conditions of Issuance of Test Reports" printed in the attached page. Unless otherwise stated, the results presented in this report only apply to the samples tested this time. Partial reproduction of this report is not allowed unless approved by the company in writing.

Dongguan DN Testing Co., Ltd.

Add: No. 1, West Fourth Street, Xingfa South Road, Wusha Community, Chang 'an Town, Dongguan City, Guangdong P.R.China

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Feb.13, 2025	Valid	Original Report

Contents

1 General Information

1.1 Test Location

Company:	Dongguan DN Testing Co., Ltd
Address:	No. 1, West Fourth Street, South Xinfa Road, Wusha Liwu, Chang ' an Town, Dongguan City, Guangdong P.R.China
Test engineer:	Wayne Lin

1.2 General Description of EUT

Manufacturer:	Shenzhen Bilian Electronic Co.,Ltd.
Address of Manufacturer:	Room 501, Building 3, No.32. Dafu Road, Zhangge Community, Fucheng Street, Longhua District, Shenzhen City,China
EUT Description::	802.11b/g/n 150Mbps 1T1R WLAN SDIO Module
Test Model No.:	BL-M8189FS6
Additional Model(s):	/
Chip Type:	RTL8189FTV
Serial Number	PR2412300585R6493
Power Supply	DC 3.3V
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Sample Type:	☐ Portable Device, ☒ Module, ☒ Mobile Device
Antenna Type:	☒ External, ☐ Integrated
Antenna Gain:	☒ Provided by applicant
	2.45dBi

Remark:

*All models are just name differences, motherboard, PCB circuit board, chip, electronic components, appearance is all the same.

*Since the above data and/or information is provided by the applicant relevant results or conclusions of this report are only made for these data and/or information , DNT is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2 RF Exposure Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Limits

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	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				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30
F=frequency in MHz *=Plane-wave equivalent power density RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).				

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * 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 id 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.

2.1.2 Test Procedure

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

2.1.3 EUT RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.0 / 2.0 in linear scale.
Output Power Into Antenna & RF Exposure Evaluation Distance:
This confirmed that the device comply with MPE limit.

Test Mode	Antenna	Freq(MHz)	Power [dBm]
11B	Ant1	2412	18.19
		2437	19.72
		2462	19.18
11G	Ant1	2412	16.84
		2437	16.66
		2462	16.12
11N20	Ant1	2412	16.14
		2437	16.73
		2462	16.14
11N40	Ant1	2422	15.64
		2437	16.27
		2452	16.52

The Worst Mode	Antenna	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm^2)	Limited of Power Density (S) (mW /cm^2)	Test Result	Distance (cm)
					(dBi)	(Linear)				
2.4G Band										
11B	Ant1	19.72	19±2	20	2.45	1.758	0.035	1	Complies	20

The End Report