



RF Exposure Evaluation Report

Application No.: DNT2412160549R5812-08682
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 WLAN + Bluetooth BLE v4.1 SDIO Module
Model No.: BL-M8723CS2
FCC ID: 2AL6KBL-M8723CS2
Power supply DC 3.3V
Trade Mark: /
47 CFR Part 2.1091
Standards: FCC KDB 447498 D01 v06
Date of Receipt: 2024/12/18
Date of Test: 2024/12/21 to 2025/01/05
Date of Issue: 2025/02/27
Test Result: **PASS**

Prepared By: Wayne Lin (Testing Engineer)

Reviewed By: Pengfei Chen (Project Engineer)

Approved By: Yousef Chen (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

Web: www.dn-testing.com

Tel: +86-769-88087383

E-mail: service@dn-testing.com



Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Feb.27, 2025	Valid	Original Report



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1 General Information

1.1 Test Location

Company:	Dongguan DN Testing Co., Ltd
Address:	No. 1, West Fourth Street, South Xinfu 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 WLAN + Bluetooth BLE v4.1 SDIO Module
Test Model No.:	BL-M8723CS2
Additional Model(s):	/
Chip Type:	RTL8723CS
Serial Number	PR2412160549R5812
Power Supply	DC 3.3V
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Sample Type:	<input type="checkbox"/> Portable Device, <input checked="" type="checkbox"/> Module, <input checked="" type="checkbox"/> Mobile Device
Antenna Type:	External antenna
Antenna Gain:	<input checked="" type="checkbox"/> Provided by applicant
	2.52dBi

Remark:

*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/cm ²)	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/f ²)	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/f ²)	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: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d 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.



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]
BLE	Ant1	2402	4.11
		2440	5.66
		2480	3.99
11B	Ant1	2412	18.14
		2437	18.12
		2462	18.13
11G	Ant1	2412	17.45
		2437	18.25
		2462	18.18
11N20	Ant1	2412	18.27
		2437	17.94
		2462	18.44
11N40	Ant1	2412	16.38
		2437	17.53
		2462	17.75

The Worst Mode	Antenna	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm²)	Limited of Power Density (S) (mW /cm²)	Test Result	Distance (cm)
					(dBi)	(Linear)				
2.4G Band										
BLE	Ant1	5	5±1.5	6.5	2.52	1.7865	0.0016	1	Complies	20
802.11 n20	Ant1	18.44	17±1.5	18.5	2.52	1.7865	0.0252	1	Complies	20

The End Report