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# FCC Test Report

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Report No.: AGC13525220401FE05

**FCC ID** : 2AATLF89ESSM23  
**APPLICATION PURPOSE** : Original Equipment  
**PRODUCT DESIGNATION** : wifi module  
**BRAND NAME** : FN-LINK  
**MODEL NAME** : F89ESSM23  
**APPLICANT** : FN-LINK TECHNOLOGY LIMITED  
**DATE OF ISSUE** : Apr. 24, 2022  
**STANDARD(S)** : FCC Part 15.247  
**TEST PROCEDURE(S)**  
**REPORT VERSION** : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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**REPORT REVISE RECORD**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 24, 2022	Valid	Initial Release

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## 1. VERIFICATION OF CONFORMITY

<b>Applicant</b>	FN-LINK TECHNOLOGY LIMITED
<b>Address</b>	No.8, Litong Road, Liuyang Economic & Technical Development Zone, Changsha, Hunan, CHINA
<b>manufacturer</b>	FN-LINK TECHNOLOGY LIMITED
<b>Address</b>	No.8, Litong Road, Liuyang Economic & Technical Development Zone, Changsha, Hunan, CHINA
<b>Factory</b>	FN-LINK TECHNOLOGY LIMITED
<b>Address</b>	No.8, Litong Road, Liuyang Economic & Technical Development Zone, Changsha, Hunan, CHINA
<b>Product Designation</b>	wifi module
<b>Brand Name</b>	FN-LINK
<b>Test Model</b>	F89ESSM23
<b>Date of test</b>	Mar. 30, 2022 to Apr. 24, 2022
<b>Deviation</b>	No any deviation from the test method
<b>Condition of Test Sample</b>	Normal
<b>Test Result</b>	Pass
<b>Report Template</b>	AGCRT-US-BGN/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Prepared By		
	_____	
	Eder Zhan (Project Engineer)	Apr. 24, 2022
Reviewed By		
	_____	
	Calvin Liu (Reviewer)	Apr. 24, 2022
Approved By		
	_____	
	Max Zhang (Authorized Officer)	Apr. 24, 2022

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## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as “wifi module”. It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

<b>Equipment Type</b>	WLAN 2.4G
<b>Frequency Band</b>	2400MHz ~ 2483.5MHz
<b>Operation Frequency</b>	2412MHz ~ 2462MHz
<b>Output Power (Average)</b>	IEEE 802.11b:15.37dBm; IEEE 802.11g:14.64dBm; IEEE 802.11n(HT20):14.24dBm; IEEE 802.11n(HT40):14.87dBm
<b>Output Power (Peak)</b>	IEEE 802.11b:21.34dBm; IEEE 802.11g:20.64dBm; IEEE 802.11n(HT20):19.70dBm; IEEE 802.11n(HT40):19.52dBm
<b>Modulation</b>	802.11b:DQPSK, DBPSK, CCK 802.11g/n: 64-QAM, 16-QAM, QPSK, BPSK
<b>Data Rate</b>	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps
<b>Number of channels</b>	11
<b>Hardware Version</b>	1.0
<b>Software Version</b>	1.0
<b>Antenna Designation</b>	Chip antenna (Comply with requirements of the FCC part 15.203)
<b>Antenna Gain</b>	1.99dBi
<b>Power Supply</b>	DC 5V by PC

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**2.2. TABLE OF CARRIER FREQUENCIES**

Frequency Band	Channel Number	Frequency
2400~2483.5MHZ	1	2412 MHZ
	2	2417 MHZ
	3	2422 MHZ
	4	2427 MHZ
	5	2432 MHZ
	6	2437 MHZ
	7	2442 MHZ
	8	2447 MHZ
	9	2452 MHZ
	10	2457 MHZ
	11	2462 MHZ

Note: For 20MHZ bandwidth system use Channel 1 to Channel 11. For 40MHZ bandwidth system use Channel 3 to Channel 9

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### 2.3. IEEE 802.11N MODULATION SCHEME

MCS Index	Nss	Modulation	R	NBPS	NCBPS		NDBPS		Data rate(Mbps)	
									800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	489	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPS	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	Guard interval

### 2.4. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AATLF89ESSM23** filing to comply with the FCC Part 15 requirements.

### 2.5. TEST METHODOLOGY

KDB 558074 D01 15.247 Meas Guidance v05: Guidance for compliance measurements on Digital transmission system, frequency hopping spread spectrum system, and hybrid system devices operating under section 15.247 of the FCC rules  
ANSI C63.10:2013: American National Standard for Testing Unlicensed Wireless Devices

### 2.6. SPECIAL ACCESSORIES

Refer to section 5.2.

### 2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

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## 2.8. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

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### 3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1$ dB
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0$ dB
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8$ dB
Uncertainty of total RF power, conducted	$U_c = \pm 0.8$ dB
Uncertainty of RF power density, conducted	$U_c = \pm 2.6$ dB
Uncertainty of spurious emissions, conducted	$U_c = \pm 2$ %
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2$ %

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