

FCC RF Exposure Exemption report

for

MN54LM series

Model No.: MN54LM series

FCC ID: 2BLIDMN54LM

of

Applicant: Arad Connectivity Co., Ltd.
Address: 5F.-1, No. 63, Sec. 1, Hangzhou S. Rd., Zhongzheng Dist.
Taipei City 100022 Taiwan

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

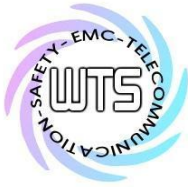
FCC Registration No.: TW1072, TW1140, TW1146, TW1477, TW0037

Industry Canada filed test laboratory Reg. No.: 20037, 31634



Report No.: W6M22607-25274-EE

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Registration number: W6M22607-25274-EE
FCC ID: 2BLIDMN54LM

TABLE OF CONTENTS

1 GENERAL INFORMATION.....2

1.1 NOTES.....2

1.2 TESTING LABORATORY2

1.3 APPLICATION DETAILS3

1.4 GENERAL INFORMATION OF TEST ITEM.....4

1.5 TEST STANDARDS.....4

2 TEST CONFIGURATION5

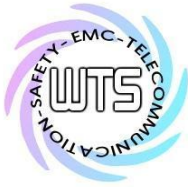
2.1 TEST ENVIRONMENT5

2.2 MEASUREMENT UNCERTAINTY5

2.3 TEST EQUIPMENT LIST.....5

3 EQUIVALENT ISOTROPIC RADIATED POWER (EIRP).....6

3.1 EXEMPTION LIMITS FOR ROUTINE EVALUATION.....6



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M22607-25274-EE

FCC ID: 2BLIDMN54LM

1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

Laboratory disclaimer-

1. The test results of this test report relate exclusively to the item tested as specified in 1.5.
2. The test report may only be reproduced or published in full.
3. Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.
4. Antenna gain is provided by applicant and laboratory issue relevant data and results.

Tester:

August 18, 2026

Sky Liu

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

August 18, 2026

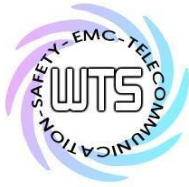
Kevin Wang

Date

WTS

Name

Signature



Worldwide Testing Services(Taiwan) Co., Ltd.

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FCC ID: 2BLIDMN54LM

1.2 Testing laboratory

1.2.1 Location

10m OATS

No.5-1, Lishui, Shuang Sing Village, Wanli Dist.,
New Taipei City 207, Taiwan (R.O.C.)

3 meter semi-anechoic chamber

No. 99, Sec. 1, Balian Rd., Xizhi Dist.,
New Taipei City 221032, Taiwan (R.O.C.)

Worldwide Testing Services (Taiwan) Co., Ltd.

6F., No. 58, Ln. 188, Ruiguang Rd., Neihu Dist.,
Taipei City 114, Taiwan (R.O.C.)

Tel: 886-2-6606-8877

1.2.2 Details of accreditation status

Accredited testing laboratory

FCC filed test laboratory Reg. No.: TW1072, TW1140, TW1146, TW1477, TW0037

Industry Canada filed test laboratory Reg. No.: 20037, 31634

Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :

Name: ./.

Accredited no.: ./.

Street: ./.

Town: ./.

Country: ./.

1.3 Application details

Approval holder

Name: Arad Connectivity Co., Ltd.

Street: 5F.-1, No. 63, Sec. 1, Hangzhou S. Rd., Zhongzheng Dist.

Town: Taipei City 100022

Country: Taiwan

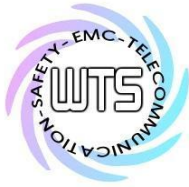
Manufacturer: (if applicable)

Name: ./.

Street: ./.

Town: ./.

Country: ./.



Worldwide Testing Services(Taiwan) Co., Ltd.

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Date of receipt of test item: July 30, 2026

Date of test: from July 31, 2026 to August 14, 2026

1.4 General information of Test item

Description of test item: MN54LM series

Type identification: MN54LM series

Brand name: Aradconn

Multi-listing model number: MN54LM-C, MN54LM-P, MN54LM-U, MN54LM-S

Transmitting frequency: 2480 MHz

Operation mode: Duplex

Voltage supply: 3.3 Vd.c.

Technical data:

Mode	Channel	Power (dBm)
BLE 1M	Ch 0 : 2402 MHz	8.09
	Ch 19 : 2440 MHz	7.94
	Ch 39 : 2480 MHz	8.17
BLE 2M	Ch 0 : 2402 MHz	8.15
	Ch 19 : 2440 MHz	8.09
	Ch 39 : 2480 MHz	8.20

Antenna information:

Item	Antenna type	Antenna gain
MN54LM-U	PCB Antenna	2.2 dBi
	PCB Antenna	3.3 dBi
	Dipole Antenna	2.14 dBi
MN54LM-C	Chip Antenna	1.05 dBi
MN54LM-P	PCB Antenna	0.8 dBi
MN54LM-S	Chip Antenna	-1.1 dBi

Sample no.: #01

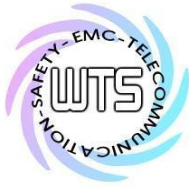
Classification:

Fixed Device	☐
Mobile Device (Human Body distance > 20cm)	☐
Portable Device (Human Body distance < 20cm)	☐
Modular Radio Device	☒

1.5 Test standards

FCC KDB Publication

447498 D01 General RF Exposure Guidance v06



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2 Test configuration

2.1 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Extreme conditions parameters: ./.

2.2 Measurement uncertainty

Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Output Power Measurement (Peak Output Power (transmitter))	Expanded Uncertainty : 1.63 dB

The decision rule is: Measurement uncertainty is not included in the calculation of test results.

2.3 Test Equipment List

Max Output Power

Code No.	Test equipment	Mode No.	Serial No.	Brand	Cal. Date	Next Cal. Date
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2026/2/13	2027/2/12
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2026/3/12	2027/3/11
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2026/2/13	2027/2/12
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S_Cable 9)	279067	HUBER+SUHNER	2026/2/13	2027/2/12



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3 Equivalent Isotropic Radiated Power (EIRP)

3.1 Exemption Limits for Routine Evaluation

according to FCC KDB Publication 447498 D01 General RF Exposure Guidance v06

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.

The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure.

MPE Calculation Method

(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 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

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 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

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{3770 \times d^2} \text{ mW/cm}^2.$$



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Band	Frequency (MHz)	Max output power (dBm)	Antenna Gain (dBi)	Power density (mW/cm ²)	Limit (mW/cm ²)
BLE 1M	Ch 39 : 2480	8.17	3.3	0.00279	1
BLE 2M	Ch 39 : 2480	8.20	3.3	0.00281	1

From the peak EUT RF output power, the minimum mobile separation distance, $d = 20$ cm, as well as the gain of the used antenna, the RF power density can be obtained.