





Project No: Report No.:

TM-2203000166P TMWK2203000915KR FCC ID: SW8TM51010

Page 1 / 10 Rev.: 01

KDB 447498 D01 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

Wi-Fi & BLE M.2 Wireless Module

Model: TM51010

Trade Name: GOOD WAY

Issued to

GOOD WAY TECHNOLOGY CO., LTD. 3F, No. 135, Ln. 235, Baociao Rd., Sindian Dist., New Taipei City 231, Taiwan

Issued by

Compliance Certification Services Inc. Wugu Laboratory No.11, Wugong 6th Rd., Wugu Dist.,

New Taipei City, Taiwan. (R.O.C.)
Issue Date: May 19, 2022

Note: This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by TAF, NIST or any government agencies. The test results in the report only apply to the tested sample.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



Page 2 / 10
Report No.: TMWK2203000915KR Rev.: 01

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	May 16, 2022	Initial Issue	ALL	Doris Chu
01	May 19, 2022	See the following Note Rev. (01)	P.1, .P.4	Doris Chu

Rev. (01)

^{1.} KDB 447498 D03 revised to KDB 447498 D01.



Page 3 / 10 Rev.: 01

TABLE OF CONTENTS

1.	TEST RESULT CERTIFICATION	4
2.	LIMIT	5
3.	EUT SPECIFICATION	6
4.	TEST RESULTS	8
5.	MAXIMUM PERMISSIBLE EXPOSURE	9
6.	SIMULTANEOUS TRANSMISSION SAR ANALYSIS	10



Page 4 / 10 Report No.: TMWK2203000915KR Rev.: 01

1. TEST RESULT CERTIFICATION

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. 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 the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS							
STANDARD	TEST RESULT						
KDB 447498 D01							
47 C.F.R. Part 1, Subpart I, Section 1.1310	Compliance						
47 C.F.R. Part 2, Subpart J, Section 2.1091							
Statements of Conformity							
Determination of compliance is based on the results of the compliance measurement,							
not taking into account measurement i	nstrumentation uncertainty.						

Approved by:

Kevin Tsai

Deputy Manager

Compliance Certification Services Inc.

Konil Tyni



Page 5 / 10

Report No.: TMWK2203000915KR Rev.: 01

2. LIMIT

According to §15.247(i), 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 of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

§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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of the chapter.

TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

		AMINON I EIMIN	70.DEE 27(1 000)	<u> </u>					
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 Exposure									
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					
300-1,500			f/300	6					
1,500-100,000			5	6					
(E	3) Limits for Gene	ral Population/Und	controlled Exposu	re					
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					
300-1,500			f/1500	30					
1,500-100,000			1.0	30					

f = frequency in MHz

Note 1 to Table 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 to Table 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

^{* =} Plane-wave equivalent power density



Page 6 / 10 Report No.: TMWK2203000915KR Rev.: 01

3. EUT SPECIFICATION

EUT	Wi-Fi & BLE M.2 Wireless Module						
Model	TM51010						
Trade Name	GOOD WAY						
Model Discrepancy	N/A						
Received Date	March 10, 2022						
Frequency band (Operating)	 ☑ Bluetooth: 2402MHz-2480MHz ☑ 802.11b/g/n HT20: 2412MHz ~ 2462 MHz ☑ 802.11a/n HT20: 5180MHz ~ 5240MHz / 5745 ~ 5825MHz ☑ 802.11n HT40: 5190MHz ~ 5230MHz / 5755~ 5795MHz ☐ Others 						
Device category	 □ Portable (<20cm separation) ☑ Mobile (>20cm separation) □ Others 						
Exposure classification	 ☐ Occupational/Controlled exposure (S = 5mW/cm²) ☐ General Population/Uncontrolled exposure (S=1mW/cm²) 						
Antenna Specification	BT: Gain: 1.52 dBi WIFI 2.4GHz: Gain: 3.02 dBi WIFI 5GHz: 5150~5250: Gain: 2.98 dBi 5725~5850: Gain: 4.38 dBi 1.52 dBi (Numeric gain: 1.42) Worst 2.4GHz: Gain: 3.02 dBi (Numeric gain: 2.00) Worst 5GHz: 5150~5250: Gain: 2.98 dBi (Numeric gain: 1.99) Worst 5725~5850: Gain: 4.38 dBi (Numeric gain: 2.74) Worst						



Page 7 / 10 Report No.: TMWK2203000915KR Rev.: 01

	BT	4.07 dBm	(2.553 mW)
	2.4GHz	7.07 dDill	(2.000 11100)
	IEEE 802.11b Mode:	17.49 dBm	(56.105 mW)
	IEEE 802.11g Mode:	15.47 dBm	(35.237 mW)
Maximum	IEEE 802.11n HT 20 Mode:	13.49 dBm	(22.336 mW)
Measurement	IEEE 802.11n HT 40 Mode:	13.48 dBm	(22.284 mW)
Average Power			
	5GHz		
	IEEE 802.11a Mode:	19.59 dBm	(90.991 mW)
	IEEE 802.11n HT 20 Mode:	19.40 dBm	(87.096 mW)
	IEEE 802.11n HT 40 Mode:	19.63 dBm	(91.833 mW)
		•	· ·
	BT	8.00 dBm	(6.310 mW)
	2.4GHz	0.00 02	(cic i c iiivi)
	IEEE 802.11b Mode:	19.50 dBm	(89.125 mW)
	IEEE 802.11g Mode:	17.50 dBm	(56.234 mW)
N4!	IEEE 802.11n HT 20 Mode:	15.50 dBm	(35.481 mW)
Maximum	IEEE 802.11n HT 40 Mode:	15.50 dBm	(35.481 mW)
tune up power			
	5GHz		
	IEEE 802.11a Mode:	22.00 dBm	(158.489 mW)
	IEEE 802.11n HT 20 Mode:	22.00 dBm	(158.489 mW)
	IEEE 802.11n HT 40 Mode:	22.00 dBm	(158.489 mW)
		-	
	│		
Evaluation	SAR Evaluation		
applied	N/A		

Remark:

- 1. For more details, please refer to the User's manual of the EUT.
- 2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
- 3. The tune up power referred the AVG power of the test report TMWK2203000912KR, TMWK2203000913KR and TMWK2203000914KR for RF Exposure assessment purpose.



Page 8 / 10 Rev.: 01

4. TEST RESULTS

No non-compliance noted.

Calculation

Given

$$E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{377}$$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P(mW) = P(W) / 1000$$
 and

$$d(cm) = d(m) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$
 Equation 1

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²



Page 9 / 10 Rev.: 01

5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using d = 20 cm into Equation 1:

 $S = 0.000199 \times P \times G$

Where P = Power in mW

G = Numeric antenna gain

 $S = Power density in mW / cm^2$

BT:

ĺ	Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
	1	2402	6.31	1.42	20	0.0018	1

2.4GHz:

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
11	2462	89.125	2	20	0.0355	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	56.234	2	20	0.0224	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	35.481	2	20	0.0141	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	35.481	2	20	0.0141	1

5GHz:

IEEE 802.11a mode:

	Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
_	149	5745	158.489	2.74	20	0.0864	1

IEEE 802.11n HT20 mode:

ĺ	Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
ĺ	149	5745	158.489	2.74	20	0.0864	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)			
151	5755	158.489	2.74	20	0.0864	1			



Page 10 / 10 Rev.: 01

6. SIMULTANEOUS TRANSMISSION SAR ANALYSIS

Both of the WiFi and Bluetooth can transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 +etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WiFi + Bluetooth

Therefore, the worst-case situation is 0.0018 / 1 + 0.0864 / 1 = 0.0882, which is less than "1".

-- End of Report--