

AS/NZS 2772.1: 1999

TEST REPORT

For

WiFi+Bluetooth 5.2 System on Module

Model:
PIXI-IW416

Trade Name: TechNexion

Issued to

TechNexion Ltd.

**16F-5, No. 736, Zhongzheng Road, ZhongHe District, 23511, New Taipei City,
Taiwan**

Issued by

Compliance Certification Services Inc.

Wugu Laboratory

**No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan**

Issued Date: July 31, 2023

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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.

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Report No.: TMWK2307002173KS

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Rev. 00

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	July 31, 2023	Initial Issue	ALL	Allison Chen

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1 Test Result Certification

Applicant: TechNexion Ltd.
16F-5, No. 736, Zhongzheng Road, ZhongHe District,
23511, New Taipei City, Taiwan

Equipment Under Test: WiFi+Bluetooth 5.2 System on Module

Trade Name: TechNexion

Model: PIXI-IW416

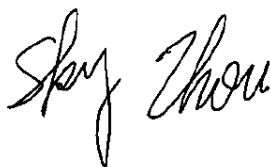
Model Discrepancy N/A

Received date: May 16, 2023

Applicable Standards
AS/NZS 2772.1: 1999
Result
PASS
Statements of Conformity
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in AS/NZS 2772.1. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:



Sky Zhou
Asst. Section Manager

2 EUT Description

Frequency Range	Bluetooth: 2402 ~ 2480 (MHz) WiFi 2.4GHz: 2412 ~ 2472 (MHz) WiFi 5GHz (Band 1) 5180 ~ 5240 (MHz)																																	
Max Tune-up Power in Watt (TP)	<table><tr><td>BT:</td><td>6.00 dBm</td><td>(0.004 W)</td></tr><tr><td>BLE</td><td>6.00 dBm</td><td>(0.004 W)</td></tr><tr><td>2.4GHz</td><td></td><td></td></tr><tr><td>IEEE 802.11b</td><td>15.00 dBm</td><td>(0.032 W)</td></tr><tr><td>IEEE 802.11g</td><td>16.00 dBm</td><td>(0.040 W)</td></tr><tr><td>IEEE 802.11n HT 20</td><td>14.00 dBm</td><td>(0.025 W)</td></tr><tr><td>IEEE 802.11n HT 40</td><td>15.00 dBm</td><td>(0.032 W)</td></tr><tr><td>5GHz Band 1</td><td></td><td></td></tr><tr><td>IEEE 802.11a</td><td>15.00 dBm</td><td>(0.032 W)</td></tr><tr><td>IEEE 802.11n HT 20</td><td>15.00 dBm</td><td>(0.032 W)</td></tr><tr><td>IEEE 802.11n HT 40</td><td>15.00 dBm</td><td>(0.032 W)</td></tr></table>	BT:	6.00 dBm	(0.004 W)	BLE	6.00 dBm	(0.004 W)	2.4GHz			IEEE 802.11b	15.00 dBm	(0.032 W)	IEEE 802.11g	16.00 dBm	(0.040 W)	IEEE 802.11n HT 20	14.00 dBm	(0.025 W)	IEEE 802.11n HT 40	15.00 dBm	(0.032 W)	5GHz Band 1			IEEE 802.11a	15.00 dBm	(0.032 W)	IEEE 802.11n HT 20	15.00 dBm	(0.032 W)	IEEE 802.11n HT 40	15.00 dBm	(0.032 W)
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Antenna gain (G)	<div>1. Type: PIFA Antenna Brand / Model: TechNexion / VM2450-25523-OOX-180 BT& WIFI 2.4GHz: Gain: 2.5 dBi WIFI 5GHz (Band 1): Gain: 3 dBi</div> <div>2. Type: Dipole Antenna Brand / Model: TechNexion / VM2450-ASSY1005 BT& WIFI 2.4GHz: Gain: 4 dBi (*worst) WIFI 5GHz (Band 1): Gain: 6 dBi (*worst)</div> <table><tr><td>Bluetooth</td><td>4.00 dBi</td><td>(Numeric gain: 2.51)</td><td>worst</td></tr><tr><td>WiFi 2.4GHz</td><td>4.00 dBi</td><td>(Numeric gain: 2.51)</td><td>worst</td></tr><tr><td>WiFi 5GHz (Band 1)</td><td>6.00 dBi</td><td>(Numeric gain: 3.98)</td><td>worst</td></tr></table>	Bluetooth	4.00 dBi	(Numeric gain: 2.51)	worst	WiFi 2.4GHz	4.00 dBi	(Numeric gain: 2.51)	worst	WiFi 5GHz (Band 1)	6.00 dBi	(Numeric gain: 3.98)	worst																					
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Remark:

- For more details, please refer to the User's manual of the EUT.
- Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
- The WIFI Max tune up power referred the test report TMWK2305001493KR and TMWK2305001494KR for RF Exposure assessment purpose.

3 Facilities and Accreditations

3.1. Facilities

All measurement facilities used to collect the measurement data are located at

☒ No.11, Wugong 6th Rd., Wugu Dist, New Taipei City, Taiwan

Tel: 886-2-2299-9720 / Fax: 886-2-2299-9721

4 AS/NZS 2772.1 Requirement

4.1. Limit

Reference levels for time averaged exposure to RMS electric and magnetic fields
(unperturbed fields)

Frequency range	E-field strength (V/m rms)	H-field strength (A/m rms)	Equivalent plane wave power flux density S_{eq} (W/m ²)
100 kHz – 150 kHz	87	5	–
150 kHz – 1 MHz	87	$0.73/f$	–
1 MHz – 10 MHz	$87/f^{0.5}$	$0.73/f$	–
10 MHz – 400 MHz	28	0.073	2
400 MHz – 2 GHz	$1.375f^{0.5}$	$0.0037f^{0.5}$	$f/200$
2 GHz – 300 GHz	61	0.16	10

4.2. Human Exposure Assessment

Exposure evaluation

Given

$$E = \frac{\sqrt{30 \times G \times TP}}{D}$$

$$D = \frac{\sqrt{30 \times G \times TP}}{E}$$

Where:

- E: E field Strength
- G: numerical gain of transmitting antenna
- TP: Transmitted power in watt
- D: distance from the transmitting antenna in meter

Bluetooth:

Mode	Max Tune-up power(dBm)	TP (W)	G(dBi)	G(num.)	D(m)	Electric Field(V/m)	Limit of Electric Field (V/m)	Result
BT	6.00	0.004	4.00	2.51	0.2	2.744	61	Pass
BLE	6.00	0.004	4.00	2.51	0.2	2.744	61	Pass

WiFi 2.4GHz:

Mode	Max Tune-up power(dBm)	P (W)	G(dBi)	G(num.)	D(m)	Electric Field(V/m)	Limit of Electric Field (V/m)	Result
IEEE 802.11b	15.00	0.032	4.00	2.51	0.2	7.761	61	Pass
IEEE 802.11g	16.00	0.040	4.00	2.51	0.2	8.678	61	Pass
IEEE 802.11n HT 20	14.00	0.025	4.00	2.51	0.2	6.860	61	Pass
IEEE 802.11n HT 40	15.00	0.032	4.00	2.51	0.2	7.761	61	Pass

WIFI 5GHz (B1):

Mode	Max Tune-up power(dBm)	P (W)	G(dBi)	G(num.)	D(m)	Electric Field(V/m)	Limit of Electric Field (V/m)	Result
IEEE 802.11a	15.00	0.032	6.00	3.98	0.2	9.773	61	Pass
IEEE 802.11n HT 20	15.00	0.032	6.00	3.98	0.2	9.773	61	Pass
IEEE 802.11n HT 40	15.00	0.032	6.00	3.98	0.2	9.773	61	Pass

Conclusion:

→E= 9.773 V/m (max) is the E-Field strength when safety distance between the EUT and human body is 0.2m, which is below 61V/m as required in Annex II table 2 of EC Council Recommendation (99/519/EC).

5 Simultaneous Transmission SAR Analysis

5.1. WiFi 2.4GHz + Bluetooth

Therefore, the worst-case situation is $8.678 / 61 + 2.744 / 61 = 0.187$, which is less than "1".

5.2. WiFi 5GHz + Bluetooth

Therefore, the worst-case situation is $9.773 / 61 + 2.744 / 61 = 0.205$, which is less than "1".

- End of Test Report -