



FCC ID: 2AKZA-QCA9377
Report No.: T180627D11-MF

Page: 1 / 9
Rev.: 01

**IEEE C95.1 2005
KDB 447498 D01 V06
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

WiFi+Bluetooth 4.1(HS) System on Module

Model: PIXI-9377

Trade Name: TechNexion

Issued to

TechNexion Ltd.

16f-5, No.736, Zhongzheng Road, Zhonghe Dist., New Taipei City, 23511 Taiwan ROC

Issued by

Compliance Certification Services Inc.

**No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
<http://www.ccsrf.com>**

Issued Date: September 20, 2018

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, A2LA, 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，不可部分複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms_and_conditions.htm and for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm. 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 instructions, 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.



Report No.: T180627D11-MF

Page: 2 / 9
Rev.: 01

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 28, 2018	Initial Issue	ALL	May Lin
01	September 20, 2018	1. Modify antenna specification.	P.5	May Lin



Report No.: T180627D11-MF

Page: 3 / 9
Rev.: 01

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION	4
2. LIMIT	5
3. EUT SPECIFICATION.....	5
4. TEST RESULTS.....	7
5. MAXIMUM PERMISSIBLE EXPOSURE.....	8



Report No.: T180627D11-MF

Page: 4 / 9
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
IEEE C95.1 2005 KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted

Approved by:

Sam Chuang
Manager
Compliance Certification Services Inc.

Reporter:

May Lin
Report coordinator
Compliance Certification Services Inc.

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.

3. EUT SPECIFICATION

EUT	WiFi+Bluetooth 4.1(HS) System on Module																																									
Model	PIXI-9377																																									
Trade Name	TechNexion																																									
Model Discrepancy	N/A																																									
Frequency band (Operating)	☒ Bluetooth 2.1 + EDR / 4.1: 2402 ~ 2480 MHz IEEE 802.11b/g/n HT20: 2.412GHz ~ 2.462GHz IEEE 802.11n HT40: 2.422GHz ~ 2.452GHz IEEE 802.11a/n HT20: 5180MHz ~ 5240MHz / 5745MHz ~ 5825MHz IEEE 802.11n HT40: 5190MHz ~ 5230MHz / 5755MHz ~ 5795MHz IEEE 802.11ac VHT80: 5210MHz / 5775MHz ☐ Others																																									
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others																																									
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)																																									
Antenna Specification	Bluetooth and WIFI 2.4G: <table border="1"> <thead> <tr> <th></th><th>Brand</th><th>P/N</th><th>Type</th><th>Peak Gain</th><th>Worst Mode</th></tr> </thead> <tbody> <tr> <td>Antenna 1</td><td>TechNexion</td><td>VM2450-25523-OOX-180</td><td>PIFA</td><td>2.5dBi</td><td>X</td></tr> <tr> <td>Antenna 2</td><td>TechNexion</td><td>VM2450-ASSY1005</td><td>Dipole</td><td>4dBi</td><td>O</td></tr> </tbody> </table> WIFI 5G: <table border="1"> <thead> <tr> <th></th><th>Brand</th><th>P/N</th><th>Type</th><th>Peak Gain</th><th>Worst Mode</th></tr> </thead> <tbody> <tr> <td>Antenna 1</td><td>TechNexion</td><td>VM2450-25523-OOX-180</td><td>PIFA</td><td>3dBi</td><td>X</td></tr> <tr> <td>Antenna 2</td><td>TechNexion</td><td>VM2450-ASSY1005</td><td>Dipole</td><td>6dBi</td><td>O</td></tr> </tbody> </table> Bluetooth : Antenna Gain : 4.00 dBi (Numeric gain 2.51) 2.4GHz: Antenna Gain : 4.00 dBi (Numeric gain 2.51) 5GHz: Antenna Gain : 6.00 dBi (Numeric gain 3.98)							Brand	P/N	Type	Peak Gain	Worst Mode	Antenna 1	TechNexion	VM2450-25523-OOX-180	PIFA	2.5dBi	X	Antenna 2	TechNexion	VM2450-ASSY1005	Dipole	4dBi	O		Brand	P/N	Type	Peak Gain	Worst Mode	Antenna 1	TechNexion	VM2450-25523-OOX-180	PIFA	3dBi	X	Antenna 2	TechNexion	VM2450-ASSY1005	Dipole	6dBi	O
	Brand	P/N	Type	Peak Gain	Worst Mode																																					
Antenna 1	TechNexion	VM2450-25523-OOX-180	PIFA	2.5dBi	X																																					
Antenna 2	TechNexion	VM2450-ASSY1005	Dipole	4dBi	O																																					
	Brand	P/N	Type	Peak Gain	Worst Mode																																					
Antenna 1	TechNexion	VM2450-25523-OOX-180	PIFA	3dBi	X																																					
Antenna 2	TechNexion	VM2450-ASSY1005	Dipole	6dBi	O																																					



Report No.: T180627D11-MF

Page: 6 / 9
Rev.: 01

Max tune up Power	Bluetooth:	11.00 dBm	(12.589 mW)
	IEEE 802.11b Mode:	17.50 dBm	(56.234 mW)
	IEEE 802.11g Mode:	18.50 dBm	(70.795 mW)
	IEEE 802.11n HT 20 Mode:	18.50 dBm	(70.795 mW)
	IEEE 802.11n HT 40 Mode:	18.00 dBm	(63.096 mW)
	IEEE 802.11a Mode:	14.50 dBm	(28.184 mW)
	IEEE 802.11n HT 20 Mode:	14.50 dBm	(28.184 mW)
	IEEE 802.11n HT 40 Mode:	17.50 dBm	(56.234 mW)
	IEEE 802.11ac VHT 80 Mode:	13.50 dBm	(22.387 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A		

Notes: For Bluetooth and WIFI could not be use as transmit/receive at the same time.

4. TEST RESULTS

No non-compliance noted.

Calculation

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

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:

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

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

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

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

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 / cm²

Bluetooth mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
79	2480	12.589	2.51	20	0.0063	1.653

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
6	2437	56.234	2.51	20	0.0281	1.625

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
11	2462	70.795	2.51	20	0.0354	1.641

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
6	2437	70.795	2.51	20	0.0354	1.625

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
6	2437	63.960	2.51	20	0.0319	1.625



Report No.: T180627D11-MF

Page: 9 / 9
Rev.: 01

IEEE 802.11 a mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
48	5240	28.184	3.98	20	0.0223	1

IEEE 802.11 n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
48	5240	28.184	3.98	20	0.0223	1

IEEE 802.11 n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
46	5230	56.234	3.98	20	0.0445	1

IEEE 802.11 ac VHT80:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
155	5775	22.387	3.98	20	0.0177	1

--End of Report--