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**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.

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Issued Date: September 20, 2018

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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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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



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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)	<input checked="" type="checkbox"/> 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 <input type="checkbox"/> Others					
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others					
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)					
Antenna Specification	Bluetooth and WIFI 2.4G:					
		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
	WIFI 5G:					
		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
	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)						



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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	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> 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

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

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:

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

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



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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--