




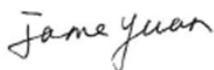
MEASUREMENT REPORT

FCC PART 15C / RSS-247 WLAN 802.11b

FCC ID: N6C-SDMAC
IC: 4908A-SDMAC
APPLICANT: Silex Technology, Inc.

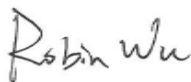
FCC Application Type: Class II Permissive Change
ISED Application Type: Class IV Permissive Change
Product: SDIO Wireless Module
Model No.: SX-SDMAC
Brand Name: 
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
IC Rule(s): RSS-247 Issue 2, RSS-GEN Issue 5
Test Procedure(s): ANSI C63.10-2013, KDB 558074 D01v05
Test Date: August 18 ~ 30, 2018

Reviewed By:



(Jame Yuan)

Approved By:



(Robin Wu)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1805RSU033-U3	Rev. 01	Initial Report	09-10-2018	Valid

Note: This report was based on original FCC grant (N6C-SDMAC) issued on 2018-04-27, only reduce 802.11b conducted power, detail see cover sheet of this project.

CONTENTS

Description	Page
§2.1033 General Information.....	4
1. INTRODUCTION	5
1.1. Scope.....	5
1.2. MRT Test Location	5
2. PRODUCT INFORMATION	6
2.1. Equipment Description	6
2.2. Product Specification Subjective to this Report	6
2.3. Working Frequencies for this report.....	6
2.4. Test Mode	6
2.5. Description of Available Antennas.....	7
2.6. Description of Test Software.....	7
2.7. Labeling Requirements.....	7
3. TEST EQUIPMENT CALIBRATION DATE.....	8
4. MEASUREMENT UNCERTAINTY	9
5. TEST RESULT	10
5.1. Summary.....	10
5.2. Output Power Measurement.....	11
5.2.1. Test Limit	11
5.2.2. Test Procedure Used	11
5.2.3. Test Setting.....	11
5.2.4. Test Setup	11
5.2.5. Test Result of Output Power	12

§2.1033 General Information

Applicant:	Silex Technology, Inc.
Applicant Address:	2-3-1 Hikaridai, Seika-cho Sourakugun, Kyoto 619-0237, Japan
Manufacturer:	Silex Technology, Inc.
Manufacturer Address:	2-3-1 Hikaridai, Seika-cho Sourakugun, Kyoto 619-0237, Japan
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	893164
MRT IC Registration No.:	11384A-1
Test Device Serial No.:	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.


1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	SDIO Wireless Module
Model No.:	SX-SDMAC
Brand Name:	
Wi-Fi Specification:	802.11a/b/g/n/ac
Bluetooth Version:	V4.1 dual mode
Operating Condition:	Bluetooth v4.1, BR/EDR/LE (1Tx, 1Rx; antenna 1) 802.11b/g/n for 2.4GHz Wi-Fi (1Tx, 1Rx; diversity) 802.11a/n/ac for 5GHz Wi-Fi (1Tx, 1Rx; diversity)

2.2. Product Specification Subjective to this Report

Frequency Range:	802.11b: 2412 ~ 2462MHz
Channel Number:	802.11b: 11
Type of Modulation:	802.11b: DSSS
Data Rate:	802.11b: 1/2/5.5/11Mbps

Note: For other features of this EUT, test report will be issued separately.

2.3. Working Frequencies for this report

802.11b

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	--	--

2.4. Test Mode

Test Mode	Mode 1: Transmit by 802.11b (5.5Mbps)
-----------	---------------------------------------

2.5. Description of Available Antennas

Frequency Band (MHz)	Brand Name	Manufacturer	Model	Max Antenna Gain (dBi)
2400 ~ 2500	ETHERTRONICS	ETHERTRONICS INNOVATE	1004075	3.3
5150 ~ 5850				5.1
2400 ~ 2500	ETHERTRONICS	ETHERTRONICS INNOVATE	1004078	3.4
5150 ~ 5850				4.2

2.6. Description of Test Software

The test utility software used during testing was “QRCT”, and the version was 3.0.268.0.

Power Parameter Value

Test Mode	Test Channel No.	Test Frequency (MHz)	Power Parameter Value	
			Ant 1	Ant 2
802.11b	01	2412	15.5	15.5
	06	2437	15.5	15.5
	10	2457	15.5	15.5
	11	2462	15.0	15.0

2.7. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

RSP-100 Issue 11 Section 3

The manufacturer, importer or distributor shall meet the labelling requirements set out in this section for every unit:

- (i) prior to marketing in Canada, for products manufactured in Canada
- (ii) prior to importation into Canada, for imported products

For information regarding the e-labelling option, see Notice 2014-DRS1003. The label for the certified product represents the manufacturer’s or importer’s compliance with Innovation, Science and Economic Development Canada’s (ISED) regulatory requirements.

Please see attachment for IC label and label location.

3. TEST EQUIPMENT CALIBRATION DATE

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2018/12/06
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	MRTSUE06051	1 year	2018/12/06
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2019/04/20
Thermohygrometer	Testo	608-H1	MRTSUE06401	1 year	2019/08/14

4. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Output Power - TR3
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB

5. TEST RESULT

5.1. Summary

Product Name: SDIO Wireless Module
FCC ID: N6C-SDMAC
IC: 4908A-SDMAC

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(b)(3)	Output Power	Conducted $\leq 1\text{Watt}$	Conducted	Pass	Section 5.2
RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
RSS-247 [5.4(d)]	Output Power	Conducted $\leq 1\text{Watt}$ EIRP $\leq 4\text{Watt}$	Conducted	Pass	Section 5.2

Note: The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

5.2. Output Power Measurement

5.2.1. Test Limit

The maximum conducted output power shall be exceed 1 Watt (30dBm) and the E.I.R.P shall not exceed 4 Watt (36dBm).

5.2.2. Test Procedure Used

ANSI C63.10 Section 11.9.1.3

ANSI C63.10 Section 11.9.2.3.2

5.2.3. Test Setting

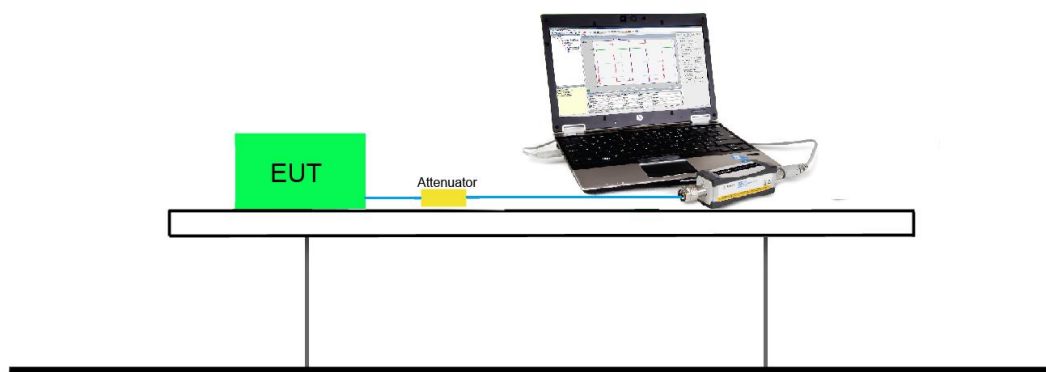
Method PKPM1 (Peak Power Measurement)

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

Method AVGPM-G (Measurement using a gated RF average-reading power meter)

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.

5.2.4. Test Setup



5.2.5. Test Result of Output Power

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (gray marker) for final test of each channel.

Ant1 Port

Test Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	Data Rate / MCS	Average Power (dBm)
802.11b	20	6	2437	1Mbps	16.97
				5.5Mbps	17.10
				11Mbps	17.01

Product	SDIO Wireless Module	Temperature	25°C
Test Engineer	Dandy Li	Relative Humidity	52%
Test Site	TR3	Test Date	2018/08/25

Test Result of Peak Output Power

Test Mode	Data Rate	Channel No.	Freq. (MHz)	Peak Power (dBm)	Limit (dBm)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
Ant 1								
11b	5.5Mbps	01	2412	19.66	≤ 30.00	23.06	≤ 36.00	Pass
11b	5.5Mbps	06	2437	19.60	≤ 30.00	23.00	≤ 36.00	Pass
11b	5.5Mbps	11	2462	19.07	≤ 30.00	22.47	≤ 36.00	Pass
Ant 2								
11b	5.5Mbps	01	2412	20.34	≤ 30.00	23.64	≤ 36.00	Pass
11b	5.5Mbps	06	2437	20.16	≤ 30.00	23.46	≤ 36.00	Pass
11b	5.5Mbps	11	2462	19.39	≤ 30.00	22.69	≤ 36.00	Pass

Note: E.I.R.P (dBm) = Peak Power (dBm) + Antenna Gain (dBi).

Antenna 1# Gain = 3.4dBi, Antenna 2# Gain = 3.3dBi.

Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate	Channel No.	Freq. (MHz)	Average Power (dBm)	Limit (dBm)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
Ant 1								
11b	5.5Mbps	01	2412	17.06	≤ 30.00	20.46	≤ 36.00	Pass
11b	5.5Mbps	06	2437	17.10	≤ 30.00	20.50	≤ 36.00	Pass
11b	5.5Mbps	11	2462	16.55	≤ 30.00	19.95	≤ 36.00	Pass
Ant 2								
11b	5.5Mbps	01	2412	17.35	≤ 30.00	20.65	≤ 36.00	Pass
11b	5.5Mbps	06	2437	17.25	≤ 30.00	20.55	≤ 36.00	Pass
11b	5.5Mbps	11	2462	16.70	≤ 30.00	20.00	≤ 36.00	Pass

Note: E.I.R.P (dBm) = Average Power (dBm) + Antenna Gain (dBi).

Antenna 1# Gain = 3.4dBi, Antenna 2# Gain = 3.3dBi.

The End