



# RF Exposure Report



Report No.: FCC\_MPE\_SL18040301-SPC-002\_Rev1.0

Supersede Report No.: None

Applicant	:	SpiderCloud Wireless, Inc.
Product Name	:	SpiderCloud RadioNode
Model No.	:	SCRN-320-0246
RF Exposure Requirements	:	47 CFR §1.1307(b)
RF Exposure Limits	:	47 CFR §1.1310
RF Radiation Exposure Guidelines	:	FCC OST/OET Bulletin Number 65
Issue Date	:	04/27/2018
Test Result	:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Equipment complied with the specification		[ X ]
Equipment did not comply with the specification		[ ]

This Test Report is Issued Under the Authority of:	
	
<b>Rachana Khanduri</b>	<b>Chen Ge</b>
<b>Test Engineer</b>	<b>Engineering Reviewer</b>

Issued By:  
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## Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC, NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC, RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

### Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC, RF, Telecom
Canada	IC FCB, NIST	EMC, RF, Telecom
Singapore	iDA, NIST	EMC, RF, Telecom
EU	NB	EMC & Radio Equipment Directive (RED)
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

**CONTENTS**

**1 REPORT REVISION HISTORY .....4**

**2 EXECUTIVE SUMMARY .....5**

**3 CUSTOMER INFORMATION .....5**

**4 TEST SITE INFORMATION .....5**

**5 MODIFICATION .....5**

**6 EUT INFORMATION .....6**

6.1 EUT Description .....6

6.2 Radio Description .....6

**7 FCC RF EXPOSURE EVALUATION .....7**

7.1 Limits .....7

7.2 MPE Calculation Formula .....7

7.3 MPE Calculations .....7

7.4 MPE Calculation Results .....7

**ANNEX A. SIEMIC ACCREDITATION .....8**

## 1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_MPE_SL18040301-SPC-002	None	Original	04/20/2018
FCC_MPE_SL18040301-SPC-002_Rev1.0	Rev1.0	Updated test data	04/27/2018

## 2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: SpiderCloud Wireless, Inc.  
Product: SpiderCloud RadioNode  
Model: SCRN-320-0246

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1<sup>st</sup> page.

## 3 Customer information

Applicant Name	:	SpiderCloud Wireless
Applicant Address	:	475 Sycamore Dr, Milpitas, CA, 95035, USA
Manufacturer Name	:	Sanmina-SCI Systems de Mexico SA de CV
Manufacturer Address	:	Carretera Chapala-Guadalajara 45640 Tlajomulco de Zuniga, Jalisco, Mexico

## 4 Test site information

Lab performing tests	:	SIEMIC Laboratories
Lab Address	:	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	:	881796
IC Test Site No.	:	4842D-2
VCCI Test Site No.	:	A0133

## 5 Modification

Index	Item	Description	Note

## 6 EUT Information

### 6.1 EUT Description

Product Name	SpiderCloud Radio Node
Model No.	SCRN-320-0246
Trade Name	SpiderCloud
Serial No.	18066E00066 (Conducted), 18066E00069 (Radiated)
Input Power	56VDC (PoE)
Power Adapter Manu/Model	POE36U-1AT-R (PoE)
Power Adapter SN	N/A
Date of EUT received	04/14/2018
Equipment Class/ Category	UNII, PCB, TNB
Port/Connectors	PoE, Ethernet

### 6.2 Radio Description

Radio Type	LAA/LTE-U
Operating Frequency	5160-5240MHz 5735-5825MHz
Modulation	QPSK, 16QAM, 64QAM
Channel Spacing	20MHz
Number of Channels	10
Antenna Type	Internal Omni PCB Antenna
Antenna Gain (Peak)	2dBi
Antenna Connector Type	U. FL
Note	N/A

Item	LTE	LTE
Operating Band /Radio Type	LTE Band 2	LTE Band 25
Bandwidth	5MHz, 10MHz, 15MHz, 20MHz	5MHz, 10MHz, 15MHz, 20MHz
Modulation	QPSK/16QAM/64QAM	QPSK/16QAM/64QAM
Antenna Type	Internal Omni-directional antenna	Internal Omni-directional antenna
Antenna Gain	4 dBi	4 dBi
Frequency TX(MHz)	TX: 1930 MHz to 1990 MHz RX: 1850 MHz to 1910 MHz	TX: 1930 MHz to 1995 MHz RX: 1850 MHz to 1915 MHz

## 7 FCC RF Exposure Evaluation

### 7.1 Limits

RF Exposure Requirements:	47 CFR §1.1307(b)
RF Radiation Exposure Limits:	47 CFR §1.1310
RF Radiation Exposure Guidelines:	FCC OST/OET Bulletin Number 65
EUT Frequency Band:	1500 ~ 100,000 MHz
Power Density Limit:	1 mW/ cm <sup>2</sup>

### 7.2 MPE Calculation Formula

Equation:  $S = PG / 4\pi R^2$  or  $R = \sqrt{PG / 4\pi S}$

Where, S = Power Density

P = Power Input to Antenna

G = Antenna Gain

R = distance to the center of radiated antenna

### 7.3 MPE Calculations

















Distance = 25 cm

Type	CH Freq (MHz)	Conducted Power	Antenna Gain (dBi)	Apparent Gain (dBi)	Tune-Up Tolerance	Tolerance Max Power (dBm)	Measurement distance (cm)	Calculated MPE (W/m <sup>2</sup> )	MPE Limit (W/m <sup>2</sup> )
LTE-Band 2	1960	26.58	4	7	±1dB	27.58	25	3.66	10
LTE-Band 25	1985	27.01	4	7	±1dB	28.01	25	4.04	10
LAA	5735	28.78	2	5	±1dB	29.78	25	3.83	10








### 7.4 MPE Calculation Results

The Above Result(s) show that the Device complies with the MPE requirement(s).

## Annex A. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		<b>Radio &amp; Telecommunications Terminal Equipment:</b> EN45001 – EN ISO/IEC 17025
		<b>Electromagnetic Compatibility:</b> EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)	 	Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
Hong Kong OFCA		<b>(Phase II)</b> OFCA Foreign Certification Body for Radio and Telecom
		<b>(Phase I)</b> Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		<b>Radio:</b> Scope A – All Radio Standard Specification in Category I
		<b>Telecom:</b> CS-03 Part I, II, V, VI, VII, VIII



Japan Recognized Certification Body Designation		<p><b>Radio:</b> A1. Terminal equipment for purpose of calling</p> <p><b>Telecom:</b> B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law</p>
Korea CAB Accreditation		<p><b>EMI:</b> KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI</p> <p><b>EMS:</b> KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS</p>
		<p><b>Radio:</b> RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68</p> <p><b>Telecom:</b> President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4</p>
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		<p>R-3083: Radiation 3 meter site</p> <p>C-3421: Main Ports Conducted Interference Measurement</p> <p>T-1597: Telecommunication Ports Conducted Interference Measurements</p>
Australia CAB Recognition		<p><b>EMC:</b> AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4</p>
		<p><b>Radio communications:</b> AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771</p>
		<p><b>Telecommunications:</b> AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1</p>
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016, AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2