RF Exposure Report

Project Number: 3899336

Report Number: 3899336EMC02 **Revision Level:** 2

Client: Persistent Systems, LLC

Equipment Under Test: 3x3 MIMO 2.4GHz WLAN Module

Model Name: RF-2100

FCC ID: 2AG3J-RF2100

IC ID: 20698-RF2100

Applicable Standards: FCC Part 2

FCC Part 15 Subpart C, § 15.247

RSS-102, Issue 5

RSS-247, Issue 1, May 2015

Report issued on: 15 January 2016

Test Result: Compliant

Tested by: Jeremy O. Pickens, Senior EMC Engineer

Reviewed by: David Schramm, EMC/RF/SAR/HAC Manager

Remarks:
This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or Testing done by SGS International Electrical Approvals in connection with distribution or use of the product described in this report must be approved by SGS international Electrical Approvals in writing.

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1 Summary of Test Results

Basic Standards	Test Result
Radiated Power: ERP	Reported

1.1 *Modifications Required to Compliance*

None

2 General Information

2.1 *Client Information*

Name: Persistent Systems, LLC
Address: 303 Fifth Avenue
Suite 306
City, State, Zip, Country: New York, NY 10016

2.2 *Test Laboratory*

Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

2.3 *General Information of EUT*

Type of Product: 3x3 MIMO 2.4GHz WLAN Module
Model: RF-2100
Serial Number: 504

Frequency Range: 2400-2483.5MHz
Data Modes: 802.11b, 802.11g, 802.11n (HT20)
Antenna: Persistent P/N: ANT-2001, 2.3-2.5GHz, 2.1dBi
Persistent P/N: 1085-118, 1.9-2.5GHz, 4dBi
Persistent P/N: WR-ANT-015, 2.4-2.5GHz, 7.4dBi

Rated Voltage: 10.8Vdc (Battery)

Sample Received Date: 30 November 2015
Dates of testing: 30 November – 15 December 2015

2.4 *Operating Modes and Conditions*

For this assessment, the EUT's maximum measured conducted power for each band was considered.

3 RF Exposure

3.1 *Test Result*

Test Description	Product Specific Standard	Test Result
RF Exposure	FCC Part 1.1310 RSS-102	Compliant

3.2 *Test Method*

Using the maximum power recorded during testing, the power density was calculated for each antenna. If necessary, the minimum separation distance was adjusted to achieve compliance. The following KDB publications were used for guidance:

1) 447498 D01 General RF Exposure Guidance v06
2) 865664 D02 RF Exposure Reporting v01r02

3.3 *Test Site*

SGS EMC Laboratory, Suwanee, GA

3.4 *Test Equipment*

None

3.5 *Test Data – 2.1dBi Antenna (General Public / Uncontrolled Environment)*

Band of Operation			Maximum Conducted Power, dBm	
Type	Band	Range, MHz	dBm	mW
802.11b/g/n	2.4GHz	2412-2462	30.0	1000

Antenna Gain	Cable Loss
2.1	0.0

Band of Operation			Radiated Power, dBm		Average EIRP mW	Distance (R) cm	Power Density $EIRP_{Avg}/(4\pi R^2)$ mW	FCC Limit mW/cm^2	IC Limit mW/cm^2
Type	Band	Range, MHz	dBm	mW					
802.11b/g/n	2.4GHz	2412-2462	32.1	1622	1622	20	0.323	1.00	0.53

3.6 *Test Data – 4dBi Antenna (General Public / Uncontrolled Environment)*

Band of Operation			Maximum Conducted Power, dBm	
Type	Band	Range, MHz	dBm	mW
802.11b/g/n	2.4GHz	2412-2462	30.0	1000

Antenna Gain	Cable Loss
4.0	0.0

Band of Operation			Radiated Power, dBm		Average EIRP mW	Distance (R) cm	Power Density $EIRP_{Avg}/(4\pi R^2)$ mW	FCC Limit mW/cm^2	IC Limit mW/cm^2
Type	Band	Range, MHz	dBm	mW					
802.11b/g/n	2.4GHz	2412-2462	34.0	2512	2512	20	0.500	1.00	0.53

3.7 *Test Data – 7.4dBi Antenna (General Public / Uncontrolled Environment)*

Band of Operation			Maximum Conducted Power, dBm	
Type	Band	Range, MHz	dBm	mW
802.11b/g/n	2.4GHz	2412-2462	29.1	813

Antenna Gain	Cable Loss
7.4	0.5

Band of Operation			Radiated Power, dBm		Average EIRP mW	Distance (R) cm	Power Density $EIRP_{Avg}/(4\pi R^2)$ mW	FCC Limit mW/cm^2	IC Limit mW/cm^2
Type	Band	Range, MHz	dBm	mW					
802.11b/g/n	2.4GHz	2412-2462	36.0	3981	3981	25	0.507	1.00	0.53

*Cable loss is the minimum cable loss that may exist between the antenna port and the 7.4dBi antenna.

4 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	29 December 2015
1	- Added KDB references to test method on page 4 - Corrected 7.4dBi antenna P/N on page 3 - Added occupational environment calculations	11 January 2016
2	- Removed occupational environment calculations	15 January 2016