

# RF Exposure Report

**Project Number:** 3878032

**Report Number:** 3878032EMC04

**Revision Level:** 0

**Client:** ADTRAN, Inc.

**Equipment Under Test:** Wireless Modem Module

**Model Name:** Outdoor Wireless Access Point

**FCC ID:** HDCBSAP2135

**IC ID:** 2250A-BSAP2135

**Applicable Standards:** FCC Part 2

FCC Part 15 Subpart C, § 15.247

FCC Part 15 Subpart C, § 15.407

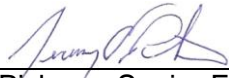
RSS-102, Issue 5

RSS-247, Issue 1, May 2015

**Report issued on:** 06 November 2015

**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.

## TABLE OF CONTENTS

<b>1</b>	<b>SUMMARY OF TEST RESULTS</b> .....	<b>3</b>
1.1	MODIFICATIONS REQUIRED TO COMPLIANCE .....	3
<b>2</b>	<b>GENERAL INFORMATION</b> .....	<b>3</b>
2.1	CLIENT INFORMATION .....	3
2.2	TEST LABORATORY .....	3
2.3	GENERAL INFORMATION OF EUT .....	3
2.4	OPERATING MODES AND CONDITIONS .....	3
<b>3</b>	<b>RF EXPOSURE</b> .....	<b>4</b>
3.1	TEST RESULT .....	4
3.2	TEST METHOD .....	4
3.3	TEST SITE .....	4
3.4	TEST EQUIPMENT .....	4
3.5	TEST DATA – ANTENNA P/N: M6060070MP13620 .....	4
3.6	TEST DATA – ANTENNA P/N: M6013070P30006I.....	5
3.7	TEST DATA – ANTENNA P/N: M5016019D30006I.....	5
<b>4</b>	<b>REVISION HISTORY</b> .....	<b>6</b>

## 1 Summary of Test Results

Basic Standards	Test Result
<b>Emissions Testing</b>	
Radiated Power: ERP	Reported

### 1.1 *Modifications Required to Compliance*

None

## 2 General Information

### 2.1 *Client Information*

Name: ADTRAN, Inc.  
 Address: 901 Explorer Blvd.  
 City, State, Zip, Country: Huntsville, AL 35806

### 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: Outdoor Wireless Access Point  
 Model: BSAP-2135  
 Serial Number: 21352615050002

Frequency Range: 5725 to 5825MHz  
 Data Modes: 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80)

Antenna: TerraWave, 2.4/5 GHz, 6/7 dBi Dual Band MIMO Patch Antenna (P/N: M6060070MP13620)  
 TerraWave, 2.4/5 GHz, 13/7 dBi High Density MIMO Patch Array (P/N: M6013070P30006I)  
 TerraWave, 5 GHz, 19 dBi Triple Polarization Directional Antenna (P/N: M5016019D30006I)

Rated Voltage: 48Vdc (PoE)

Sample Received Date: 16 September 2015  
 Dates of testing: 05 – 27 October 2015

### 2.4 *Operating Modes and Conditions*

For this assessment, the EUT's maximum measured conducted power for each band was considered. The information was pulled from the original filing.

### 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 in the original filing, the power density was calculated for each antenna. If necessary, the minimum separation distance was adjusted to achieve compliance.

#### 3.3 Test Site

SGS EMC Laboratory, Suwanee, GA

#### 3.4 Test Equipment

None

#### 3.5 Test Data – Antenna P/N: M6060070MP13620

Band of Operation			Maximum Conducted Power, dBm		Antenna Gain	Cable Loss
Type	Band	Range, MHz	dBm	mW		
802.11b/g/n	2.4GHz	2412-2462	23.9	247	6.0	0.0
802.11a/n	5GHz	5180-5240	23.4	217	7.0	0.0
802.11a/n	5GHz	5745-5825	27.7	590	7.0	0.0

Band of Operation			Radiated Power, dBm		Average EIRP	Distance (R)	Power Density	FCC Limit	IC Limit
Type	Band	Range, MHz	dBm	mW	mW	cm	$EIRP_{avg}/(4\pi R^2)$ mW/cm <sup>2</sup>	mW/cm <sup>2</sup>	mW/cm <sup>2</sup>
802.11b/g/n	2.4GHz	2412-2462	29.9	984	984	25	0.125	1.00	0.53
802.11a/n	5GHz	5180-5240	30.4	1089	1089	25	0.139	1.00	0.90
802.11a/n	5GHz	5745-5825	34.7	2958	2958	25	0.377	1.00	0.97

Simultaneous Operation			Radiated Power, dBm		Average EIRP	Distance (R)	Normalized Power Density	FCC Limit	Normalized IC Limit
Type	Band	Freq MHz	dBm	mW	mW	cm	% of Limit	mW/cm <sup>2</sup>	%
2412+5180	2.4G + 5G	2412	33.2	2073	2073	25	0.390	1.00	1.00
2412+5825	2.4G + 5G	2412	36.0	3942	3942	25	0.625	1.00	1.00

### 3.6 Test Data – Antenna P/N: M6013070P30006I

Band of Operation			Maximum Conducted Power, dBm	
Type	Band	Range, MHz	dBm	mW
802.11b/g/n	2.4GHz	2412-2462	23.9	247
802.11a/n	5GHz	5180-5240	23.4	217
802.11a/n	5GHz	5745-5825	27.7	590

Antenna Gain	Cable Loss
13.0	0.0
7.0	0.0
7.0	0.0

Band of Operation			Radiated Power, dBm		Average EIRP mW	Distance (R) cm	Power Density $EIRP_{Avg}/(4\pi R^2)$ mW/cm <sup>2</sup>	FCC Limit mW/cm <sup>2</sup>	IC Limit mW/cm <sup>2</sup>
Type	Band	Range, MHz	dBm	mW					
802.11b/g/n	2.4GHz	2412-2462	36.9	4932	4932	35	0.320	1.00	0.53
802.11a/n	5GHz	5180-5240	30.4	1089	1089	35	0.071	1.00	0.90
802.11a/n	5GHz	5745-5825	34.7	2958	2958	35	0.192	1.00	0.97

Simultaneous Operation			Radiated Power, dBm		Average EIRP mW	Distance (R) cm	Normalized Power Density % of Limit	FCC Limit mW/cm <sup>2</sup>	Normalized IC Limit %
Type	Band	Freq MHz	dBm	mW					
2412+5180	2.4G + 5G	2412	37.8	6021	6021	35	0.683	1.00	1.00
2412+5825	2.4G + 5G	2412	39.0	7890	7890	35	0.803	1.00	1.00

### 3.7 Test Data – Antenna P/N: M5016019D30006I

Band of Operation			Maximum Conducted Power, dBm	
Type	Band	Range, MHz	dBm	mW
802.11b/g/n	2.4GHz	2412-2462	23.9	247
802.11a/n	5GHz	5180-5240	23.4	217
802.11a/n	5GHz	5745-5825	27.7	590

Antenna Gain	Cable Loss
9.7	0.0
19.0	0.0
19.0	0.0

Band of Operation			Radiated Power, dBm		Average EIRP mW	Distance (R) cm	Power Density $EIRP_{Avg}/(4\pi R^2)$ mW/cm <sup>2</sup>	FCC Limit mW/cm <sup>2</sup>	IC Limit mW/cm <sup>2</sup>
Type	Band	Range, MHz	dBm	mW					
802.11b/g/n	2.4GHz	2412-2462	33.6	2286	2286	65	0.043	1.00	0.53
802.11a/n	5GHz	5180-5240	42.4	17258	17258	65	0.325	1.00	0.90
802.11a/n	5GHz	5745-5825	46.7	46881	46881	65	0.883	1.00	0.97

Simultaneous Operation			Radiated Power, dBm		Average EIRP mW	Distance (R) cm	Normalized Power Density % of Limit	FCC Limit mW/cm <sup>2</sup>	Normalized IC Limit %
Type	Band	Freq MHz	dBm	mW					
2412+5180	2.4G + 5G	2412	42.9	19544	19544	65	0.442	1.00	1.00
2412+5825	2.4G + 5G	2412	46.9	49167	49167	65	0.992	1.00	1.00

Note: The 9.66dBi gain used for the 2.4GHz band was recorded from the MPE calculations in the original filing.

## 4 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	06 November 2015