

RF Exposure Report

Report No.: SA150507C23A

FCC ID: HDCBSAP2135

Test Model: BSAP 2135

Received Date: Apr. 17, 2015

Test Date: Apr. 17 ~ Jun 05, 2015

Issued Date: Jun 16, 2015

Applicant: Adtran

Address: 901 Explorer Boulevard, Huntsville Alabama, United States, 35806-2807

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, TAIWAN (R.O.C.)



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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 RF Exposure	5
2.1 Limits for Maximum Permissible Exposure (MPE).....	5
2.2 MPE Calculation Formula	5
2.3 Classification	5
3 Calculation Result of Maximum Conducted Power	6



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Release Control Record

Issue No.	Description	Date Issued
SA150507C23A	Original release.	Jun 16, 2015



1 Certificate of Conformity

Product: Outdoor Wireless Access Point
Brand: Adtran
Test Model: BSAP 2135
Sample Status: Engineering sample
Applicant: Adtran
Test Date: Apr. 17 ~ Jun 05, 2015
Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D03
IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Polly Chien , **Date:** Jun 16, 2015
Polly Chien / Specialist

Approved by : Ken Liu , **Date:** Jun 16, 2015
Ken Liu / Senior Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 25cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	23.93	9.66	25	0.291	1
5180-5240	23.37	9.54	25	0.249	1
5260-5320	23.61	9.54	25	0.263	1
5500-5700	23.95	9.54	25	0.284	1
5745-5825	27.71	9.54	25	0.676	1

Note:

2.4GHz: Directional gain = $4.89\text{dBi} + 10\log(3) = 9.66\text{dBi}$

5GHz: Directional gain = $4.77\text{dBi} + 10\log(3) = 9.54\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots\text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$\text{WLAN } 2.4\text{GHz} + \text{WLAN } 5\text{GHz} = 0.291 + 0.676 = 0.967$

Therefore all the maximum calculations of above situations are less than the "1" limit.

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