

## RF Exposure Report

**Report No.:** SA121012C11B

**FCC ID:** HDCWLAN193XF1

**Test Model:** BSAP-1930, BSAP-1935

**Received Date:** Aug. 14, 2015

**Test Date:** Aug. 21 ~ Sep. 23, 2015

**Issued Date:** Sep. 23, 2015

**Applicant:** Adtran

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

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**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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### Release Control Record

Issue No.	Description	Date Issued
SA121012C11B	Original release	Sep. 23, 2015

## 1 Certificate of Conformity

**Product:** Wireless 802.11 abgn AP

**Brand:** Adtran

**Test Model:** BSAP-1930, BSAP-1935

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Adtran

**Test Date:** Aug. 21 ~ Sep. 23, 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 :** Ivy Lin , **Date:** Sep. 23, 2015  
Ivy Lin / Specialist

**Approved by :** Ken Liu , **Date:** Sep. 23, 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 <sup>2</sup> )	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

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

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 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 20cm 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)	Modulation mode	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	802.11b	23.83	9.77	20	0.456	1
	802.11g	21.27	9.77	20	0.253	1
	802.11n (20MHz)	21.15	9.77	20	0.246	1
	802.11n (40MHz)	16.49	9.77	20	0.084	1
5180-5240	802.11a (3TX)	23.48	10.77	20	0.529	1
	802.11a (1TX)	17.32	6	20	0.043	1
	802.11n (20MHz)	23.15	10.77	20	0.491	1
	802.11n (40MHz)	20.45	10.77	20	0.263	1
5260-5240	802.11a (3TX)	20.46	10.77	20	0.264	1
	802.11a (1TX)	18.85	6	20	0.061	1
	802.11n (20MHz)	20.71	10.77	20	0.280	1
	802.11n (40MHz)	22.53	10.77	20	0.425	1
5500-5700	802.11a (3TX)	19.39	10.77	20	0.206	1
	802.11a (1TX)	17.52	6	20	0.045	1
	802.11n (20MHz)	19.38	10.77	20	0.206	1
	802.11n (40MHz)	19.34	10.77	20	0.204	1
5745-5825	802.11a (3TX)	21.34	10.77	20	0.323	1
	802.11a (1TX)	18.64	6	20	0.058	1
	802.11n (20MHz)	20.58	10.77	20	0.271	1
	802.11n (40MHz)	20.13	10.77	20	0.245	1

NOTE:

For 2.4GHz Band: Directional gain = 5dBi + 10log(3) = 9.77dBi

For 5.0GHz Band: Directional gain = 6dBi + 10log(3) = 10.77dBi

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + .....etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.456 + 0.529 = 0.985

Therefore the maximum calculations of above situation is less than the "1" limit.

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