

## RF Exposure Report

**Report No.:** SA151229C25

**FCC ID:** M82-TREK733L

**Test Model:** TREK-733L

**Received Date:** Apr. 14, 2016

**Test Date:** Jun. 09 ~ Nov. 24, 2016

**Issued Date:** Nov. 25, 2016

**Applicant:** ADVANTECH CO., LTD

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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
SA151229C25	Original release.	Nov. 25, 2016

## 1 Certificate of Conformity

**Product:** Computer

**Brand:** Advantech

**Test Model:** TREK-733L

**Sample Status:** Engineering sample

**Applicant:** ADVANTECH CO., LTD

**Test Date:** Jun. 09 ~ Nov. 24, 2016

**Standards:** FCC Part 2 (Section 2.1091)  
KDB 447498 D01 (October 23, 2015)  
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 :**                     *Sunt Lee*                     , **Date:**                     Nov. 25, 2016                      
Sunt Lee / Specialist

**Approved by :**                     *Ken Liu*                     , **Date:**                     Nov. 25, 2016                      
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

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN: 2412~2462	21.77	2.87	20	0.058	1
BT EDR: 2402~2480	0.18	2.87	20	0.0004	1
BT LE: 2402~2480	7.01	2.87	20	0.002	1

Note: WLAN 2.4GHz, BT EDR and BT LE technologies can not transmit at same time.

Frequency Band (MHz)	ERP (dBm)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
GPRS: 824.2 ~ 848.8	30.3	32.45	20	0.350	0.549
EDGE: 824.2 ~ 848.8	27.3	29.45	20	0.175	0.549
WCDMA Band 5: 826.4 ~ 846.6	20.7	22.85	20	0.038	0.551
CDMA BC0: 824.7 ~ 848.31	22.7	24.85	20	0.061	0.550
CDMA BC10: 824.7 ~ 848.31	19.0	21.15	20	0.026	0.550
EVDO BC10: 824.7 ~ 848.31	18.7	20.85	20	0.024	0.550
LTE Band 5	23.1	25.25	20	0.067	0.550
LTE Band 13	21.9	24.05	20	0.031	0.520
LTE Band 17	21.8	23.95	20	0.030	0.471

Note: ERP=EIRP-2.15

Frequency Band (MHz)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
GPRS: 1850.2 ~ 1909.8	27.5	20	0.112	1
EDGE: 1850.2 ~ 1909.8	24.5	20	0.056	1
WCDMA Band 2: 1852.4 ~ 1907.6	20.2	20	0.021	1
WCDMA Band 4: 1712.4 ~ 1752.6	21.1	20	0.026	1
CDMA BC1: 1851.25 ~ 1908.75	21.9	20	0.031	1
LTE Band 2	24.5	20	0.056	1
LTE Band 4	22.6	20	0.036	1
LTE Band 25	24.6	20	0.057	1

#### Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4GHz + WWAN\ 2/3G + LTE\ 4G = 0.058/1 + 0.350/0.549 + 0.067/0.550 = 0.058 + 0.638 + 0.122 = 0.818 < 1$

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