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
Address:	No.1, Alley 20, Lane 26, Rueiguang Rd, Neihu District, Taipei, Taiwan 114
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, R.O.C.
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 : _____ , **Date:** Nov. 25, 2016

Suntee Liu / Specialist

Approved by : _____ , **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^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

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

where

Pd = power density in mW/cm^2

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^2)	Limit (mW/cm^2)
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^2)	Limit (mW/cm^2)
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^2)	Limit (mW/cm^2)
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 + ……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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