

## RF Exposure Report

**Report No.:** SA160104E05

**FCC ID:** 2AG56001

**Test Model:** M3-EXT-PM1

**Received Date:** Jan. 04, 2016

**Test Date:** Jan. 07, 2016

**Issued Date:** Mar. 18, 2016

**Applicant:** DTECH Labs Inc.

**Address:** 21580 Beaumeade Circle, Suite 230, Ashburn, VA 20147-6007 United States

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

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**Test Location (1):** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

**Test Location (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin  
Chu Hsien 307, Taiwan R.O.C.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by any government agencies.



A D T

## Table of Contents

<b>Release Control Record</b> .....	3
<b>1 Certificate of Conformity</b> .....	4
<b>2 RF Exposure</b> .....	5
2.1 Limits For Maximum Permissible Exposure (MPE).....	5
2.2 MPE Calculation Formula .....	5
2.3 Classification .....	5
2.4 Antenna Gain .....	5
<b>3 Calculation Result Of Maximum Conducted Power</b> .....	6



A D T

### Release Control Record

Issue No.	Description	Date Issued
SA160104E05	Original release.	Mar. 18, 2016



A D T

## 1 Certificate of Conformity

**Product:** M3-EXT-PM1 Module

**Brand:** M3-EXT Peplink Computer Module

**Test Model:** M3-EXT-PM1

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** DTECH Labs Inc.

**Test Date:** Jan. 08, 2016

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-2005

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 :** Wendy Wu, **Date:** Mar. 18, 2016  
Wendy Wu / Specialist

**Approved by :** May Chen, **Date:** Mar. 18, 2016  
May Chen / 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.

This product could be applied with a Cellular USB Dongle device, and the safe distance is 40cm for collocated radio.

This product could be applied with two Cellular USB Dongles devices, and the safe distance is 50cm for collocated radio.

This product could be applied with three Cellular USB Dongle devices, and the safe distance is 60cm for collocated radio.

### 2.4 Antenna Gain

Antenna No	Brand	Model	Antenna Type	Antenna Connector	Gain (dBi)	Frequency (GHz to GHz)
1	Laird	RD2458-5-RSMA	Dipole	RP-SMA	3	2.4~2.4835
2	Laird	RD2458-5-RSMA	Dipole	RP-SMA	3	2.4~2.4835

### 3 Calculation Result Of Maximum Conducted Power

#### For WLAN:

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	794.554	6.01	20	0.63074	1

NOTE:

2.4GHz: Directional gain = 3dBi + 10log(2) = 6.01dBi

#### For WLAN + Cellular USB Dongle

Condition	Combination	Technology			
1	WLAN only	WLAN (2.4GHz)	-	-	-
2	WLAN + one Cellular USB Dongle	WLAN (2.4GHz)	WWAN(2G/3G) or LTE(4G)	-	-
3	WLAN + two Cellular USB Dongles	WLAN (2.4GHz)	WWAN(2G/3G) or LTE(4G)	WWAN(2G/3G) or LTE(4G)	-
4	WLAN + three Cellular USB Dongles	WLAN (2.4GHz)	WWAN(2G/3G) or LTE(4G)	WWAN(2G/3G) or LTE(4G)	WWAN(2G/3G) or LTE(4G)

#### Condition 1

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	794.554	6.01	20	0.63074	1

#### Condition 2

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	794.554	6.01	40	0.15769	1
Frequency Band (MHz)	Max Power (mW)		Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
824-849	7000		40	0.34815	0.5495 (Note 1)

**Condition 3**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	794.554	6.01	50	0.10092	1
Frequency Band (MHz)	Max Power (mW)		Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
824-849	7000		50	0.22282	0.5495 (Note 1)
824-849	7000		50	0.22282	0.5495 (Note 1)

**Condition 4**

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	794.554	6.01	60	0.07008	1
Frequency Band (MHz)	Max Power (mW)		Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
824-849	7000		60	0.15473	0.5495 (Note 1)
824-849	7000		60	0.15473	0.5495 (Note 1)
824-849	7000		60	0.15473	0.5495 (Note 1)

**NOTE:**

1. Limit of Electric field=F/1500
2. This product can operate with plug-in Cellular USB Dongle device which has maximum of 7W output power.

**Conclusion:**

All of the WLAN and Cellular USB Dongles can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

**Condition 1:**

Therefore, the worst-case situation is  $0.63074 / 1 = 0.63074$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**Condition 2:**

Therefore, the worst-case situation is  $0.15769 / 1 + 0.34815 / 0.5495 = 0.79131$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**Condition 3:**

Therefore, the worst-case situation is  $0.10092 / 1 + 0.22282 / 0.5495 + 0.22282 / 0.5495 = 0.91197$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

**Condition 4:**

Therefore, the worst-case situation is  $0.07008 / 1 + 0.15473 / 0.5495 + 0.15473 / 0.5495 + 0.15473 / 0.5495 = 0.91489$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

--- END ---