

## RF Exposure Report

**Report No.:** FCC\_MPE\_SL20061501-JAD-006

**FCC ID:** QV5MERCURY6E-MH

**Test Model:** M6e-Micro

**Variant Model:** M6e-M

**Issued Date:** 09/14/2020

**Applicant:** JADAK, a business unit of Novanta Corporation

**Address:** 125 Middlesex Turnpike, Bedford, MA 01730

**Manufacturer:** JADAK, a business unit of Novanta Corporation

**Address:** 125 Middlesex Turnpike, Bedford, MA 01730

**Issued By:** Bureau Veritas Consumer Products Services, Inc.

**Lab Address:** 775 Montague Expressway, Milpitas, CA 95035

**Test Location (1):** 775 Montague Expressway, Milpitas, CA 95035

**FCC Registration /**  
540430

**Designation Number:**

**ISED# / CAB identifier:** 4842D



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## Table of Contents

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



### Release Control Record

Issue No.	Description	Date Issued
FCC_MPE_SL20061501-JAD-006	Original Release	09/14/2020



## 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				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Formula

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

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 23cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 2.4 Antenna Gain

ANT 1:

Antenna Type: RHCP Patch Antenna

Gain: 9.5 dBiC (6.5 dbi) Typical

Brand: MTI Wireless Edge Ltd.

Model No: MT-242043/TRH/A/K

ANT2:

Antenna Type: Dipole

Gain: 4 dBd (6.15 dBi)

Brand: Laird Technologies

Model No: S8964B

## 2.5 Calculation Result of Maximum Conducted Power

### Patch Antenna

Type	CH Freq (MHz)	Conducted Power include cabeloss (dBm)	Antenna Gain (dBi)	Tune-Up Tolerance	Tolerance Max Power (dBm)	Measurement Distance (cm)	Calculated MPE (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )	Pass/Fail
RFID	902.75	28.86	6.5	±0.5dB	29.36	23	0.58	0.601	Pass

Note: Cable Loss 1.14dB applied to Output power 30dBm.

#### 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

**The Above Result had shown that the Device complied with MPE requirement at 23cm distance.**

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