

## RF Exposure Report

**Report No.:** SA190610E05

**FCC ID:** 2AFDI-ITCOQ835S

**Test Model:** Open-Q 835  $\mu$ SOM

**Received Date:** June 10, 2019

**Test Date:** Sep. 10, 2019

**Issued Date:** Oct. 14, 2019

**Applicant:** Intrinsyc Technologies Corporation

**Address:** 885 Dunsmuir Street #300 Vancouver BC V6C 1N5 Canada

**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

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

**FCC Registration /  
Designation Number:** 723255 / TW2022

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### Release Control Record

| Issue No.   | Description       | Date Issued   |
|-------------|-------------------|---------------|
| SA190610E05 | Original release. | Oct. 14, 2019 |

## 1 Certificate of Conformity

**Product:** Intrinsyc Open-Q 835 uSOM

**Brand:** Intrinsyc Technologies Corporation

**Test Model:** Open-Q 835  $\mu$ SOM

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Intrinsyc Technologies Corporation

**Test Date:** Sep. 10, 2019

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

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.3-2002

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:**

Oct. 14, 2019

Claire Kuan / Specialist

**Approved by :**



**Date:**

Oct. 14, 2019

Clark Lin / Technical 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 |                               |                               |                                     |                        |
| 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 20cm away from the body of the user.

So, this device is classified as **Mobile Device**.

### 2.4 Antenna Gain

| No. | Chain  | Brand   | Model           | Antenna Net Gain(dBi) | Frequency range (GHz)  | Antenna Type   | Connector Type | Cable Length (mm) |
|-----|--------|---------|-----------------|-----------------------|------------------------|----------------|----------------|-------------------|
| 1   | Chain0 | Taoglas | FXP830.07.0100C | 3.32<br>6.11          | 2.4 ~ 2.5<br>4.9 ~ 5.8 | Dipole Antenna | Ipex MHF       | 100               |
| 2   | Chain2 | Taoglas | FXP830.07.0100C | 3.32<br>6.11          | 2.4 ~ 2.5<br>4.9 ~ 5.8 | Dipole Antenna | Ipex MHF       | 100               |

## 2.5 Calculation Result of Maximum Conducted Power

| Operation Mode       | Evaluation Frequency (MHz) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------------------|----------------------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| WLAN 2.4GHz          | 2437                       | 618.782        | 6.33               | 20            | 0.52877                             | 1                           |
| WLAN 5GHz (U-NII-1)  | 5230                       | 48.648         | 9.12               | 20            | 0.07903                             | 1                           |
| WLAN 5GHz (U-NII-2A) | 5320                       | 118.757        | 9.12               | 20            | 0.19292                             | 1                           |
| WLAN 5GHz (U-NII-2C) | 5500                       | 119.509        | 9.12               | 20            | 0.19415                             | 1                           |
| WLAN 5GHz (U-NII-3)  | 5825                       | 124.319        | 9.12               | 20            | 0.20196                             | 1                           |
| Bluetooth (BT-EDR)   | 2480                       | 16.749         | 3.32               | 20            | 0.00716                             | 1                           |
| Bluetooth (BT-LE)    | 2402                       | 2.761          | 3.32               | 20            | 0.00118                             | 1                           |

### NOTE:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = 3.32dBi + 10log(2) = 6.33dBi  
5GHz: Directional gain = 6.11dBi + 10log(2) = 9.12dBi

### 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

$$\text{WLAN 2.4GHz} + \text{Bluetooth} = 0.52877 / 1 + 0.00716 / 1 = 0.53593$$

$$\text{WLAN 5GHz} + \text{Bluetooth} = 0.20196 / 1 + 0.00716 / 1 = 0.20912$$

**Therefore the maximum calculations of above situations are less than the “1” limit.**

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