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## 1.0 Maximum Permissible Exposure Evaluation (Supplements the test report.)

The measured power is considered for the intended use of the device and resulting RF exposure to the user.

### 1.2 Criteria

Section Reference	Date
KDB 447498 D01 Mobile Portable RF Exposure v05r01 // RSS-102 Issue 5 March 2015, Notice 2013 DRS0911	12 Jul 2017

### 1.3 Procedure

Using measurement of peak power and considering the intended application, determine the permissible exposure level, applicability of exclusion, or whether additional exposure tests (SAR) are indicated. When applicable justify conclusion for selected exposure level and separation distance.

### 1.4 Power to Exposure Calculation

For 2.4 GHz radio power is determined by radiated field measurement. This device is installed inside vending machines. The SAR exemption method was applied for 5 mm spacing as highly conservative evaluation. There is a 2<sup>nd</sup> transmitter (cellular) that uses an external antenna placed external to the vending machine. The antennas are more than 20 cm apart so the cellular radio field is not defined as co-located for exposure.

**Table 1.4.1 Power Calculation for Exposure, 2.4 GHz Radio (Highest frequency 2.481 GHz)**

Measured Radiated Power mW	Calculated Peak EIRP dBm	Source Duty Cycle Factor dB	Antenna Gain dBi	Calculated EIRP dBm	EIRP In Linear Terms mW
0.0118	-19.3	-0.0	0*	-19.3	0.0118

\*Effect of antenna gain included in the field strength measurement.

### 1.5 SAR Exemption Calculation – FCC

*Applicable requirement: KDB 447498 Clause 4.3.1 Section 1*

Calculation (max power including tune up tolerance = 0.0118 mW):

$$[(0.0118 \text{ mW})/(5 \text{ mm})] \cdot [\sqrt{2.481 \text{ (GHz)}}] = 0.05$$

$$0.004 \leq 3.0$$

Therefore, the device meets the applicable FCC SAR exemption requirements.

## 1.6 SAR Exemption Calculation – IC

This device meets the clause **2.5 Exemption Limits for Routine Evaluation – SAR Evaluation** criteria in RSS-102 Clause 2.5.1, Table 1, frequency row 2450 MHz. This is based on the output power of 0.0118 mW being less than 4 mW at the smallest exposure distance given of  $\leq 5$  mm in Table 1.

Signed:



Eric Lifsey

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