



Excellence in Compliance Testing

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## **Certification Exhibit**

**FCC ID: 2AA9WV360  
IC: 11665A-V360**

**FCC Rule Part: 15.247, 15.407  
IC Radio Standards Specification: RSS-210**

**ACS Project Number: 14-2101**

**Manufacturer: VSN Technologies, Inc.  
Model: V360**

## **RF Exposure**

**General Information:**

Applicant: VSN Technologies, Inc.  
 ACS Project: 14-2101  
 Device Category: Mobile  
 Environment: General Population/Uncontrolled Exposure

**Technical Information:**

**Main Board**

Antenna Type: Monopole Parasitic Antenna  
 Antenna Gain: 0.71 dBi (2.4 GHz), 2.93 dBi (5 GHz)  
 Maximum Transmitter Conducted Power: 18.09 dBm, 64.4169 mW  
 Maximum System EIRP: 18.8 dBm, 75.8578 mW  
 Exposure Conditions: Greater than 20 centimeters

**Daughter Board**

Antenna Type: Meander Antenna  
 Antenna Gain: -0.78 dBi  
 Maximum Transmitter Conducted Power: 3.34 dBm, 2.1577 mW  
 Maximum System EIRP: 2.56 dBm, 1.803 mW  
 Exposure Conditions: Greater than 20 centimeters

**MPE Calculation**

The Power Density (mW/cm<sup>2</sup>) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

Where:

- S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)
- P = power input to the antenna (in appropriate units, e.g., mW)
- G = power gain of the antenna in the direction of interest relative to an isotropic radiator
- R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

**Table 1: Maximum MPE on Main Board**

MPE Calculator for Mobile Equipment Limits for General Population/Uncontrolled Exposure*								
Mode	Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/Cm2)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm^2)
BLE	2400	-0.35	1.00	0.92	0.71	1.178	20	0.000
BT3.0	2400	11.03	1.00	12.68	0.71	1.178	20	0.003
2.4G WLAN	2400	18.09	1.00	64.42	0.71	1.178	20	0.015
5G WLAN	5100	15.84	1.00	38.37	2.93	1.963	20	0.015

**Table 2: Maximum MPE on Daughter Board**

MPE Calculator for Mobile Equipment Limits for General Population/Uncontrolled Exposure*								
Mode	Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/Cm2)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm^2)
BLE	2400	3.34	1.00	2.16	-0.78	0.836	20	0.000

**Installation Guidelines**

The installation manual should contain text similar to the following advising how to install the equipment to maintain compliance with the FCC RF exposure requirements:

**Summation of Power Densities**

The radio on the daughter board can transmit simultaneously with any of the configuration of the radio located the main board. Therefore, the maximum RF exposure condition is determined by the summation of the MPE ratios. The limit is such that the total MPE ratio is less or equal to 1.0.

**Daughter Board BLE and 2.4 GHz WLAN Operating Simultaneously**

BLE MPE ratio + 2.4 GHz WLAN MPE Ratio

$$(0.000/1) + (0.015/1) =$$

$$0.015 < 1$$

**Daughter Board BLE and 5 GHz WLAN Operating Simultaneously**

BLE MPE ratio + 5 GHz WLAN MPE Ratio

$$(0.000/1) + (0.015/1) =$$

$$0.015 < 1$$

**RF Exposure**

In accordance with FCC requirements of human exposure to radio frequency fields, the radiating element shall be installed such that a minimum separation distance of 20 centimeters will be maintained.

**Conclusion**

This device complies with the MPE requirements by providing adequate separation between the device, any radiating structure and the general population.