47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091
Maximum Permissible Exposure Calculations

For FCC ID: SZV-TCM515B

EUT Device Category = General Population/Uncontrolled Exposure

EUT consists of ISM band radio transmitting over a range of: **2402 MHz to 2480 MHz,** operating using Zigbee or Bluetooth LE protocols.

MPE Summary:

According subpart 1.1307 (b)(1) and 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm2)**	**Averaging Time (Minutes)**
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	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

Calculated Formulary:

Predication of MPE limit at a given distance

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

S = power density (in appropriate units, e.g. mW/cm^2)
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)
PG = EIRP

MPE and Limit are calculated for this device as follows:

2.402 GHz to 2.48 GHz Frequency Band							
BLE Transceiver (2 Mbps)							
Freq	Output Power (dBm)	Max Antenna Gain (dBi)	Max EIRP (dBm)	Max EIRP (mW)	Power Density at 20 cm (mW/cm2)	Limit (mW/cm2)	Margin (mW/cm2)
2402	2.5	-3.2	-0.7	0.851	0.0001	1.000	0.9999
2426	3.9	-3.2	0.7	1.175	0.0002	1.000	0.9998
2480	4.1	-3.2	0.9	1.230	0.0002	1.000	0.9998

Result: The device meets FCC MPE limit at 20 cm for General Population/Uncontrolled Exposure as specified in 47 CRF §1.1310 and §2.1091.