


RF Exposure Evaluation Report

FCC ID : 2AVSJ-SWTPWMIT022
Equipment : Soiltech Wireless Sensor
Brand Name : Soiltech Wireless Inc.
Model Name : Soiltech Beacon v2
Soiltech Beacon v2 Ext Ant
Soiltech Beacon v2 CO2
Applicant : Soiltech Wireless Inc
98a S 200 W, Rupert, ID 83350 USA
Manufacturer : Soiltech Wireless Inc
98a S 200 W, Rupert, ID 83350 USA
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full



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Table of Contents

1.	EUT General Information.....	3
2.	Maximum RF output power among production units.....	3
3.	RF Exposure Limit Introduction	4
4.	Radio Frequency Radiation Exposure Evaluation.....	5
5.	Collocated Power Density Calculation.....	5

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA361402	Rev. 01	Initial issue of report	May 10, 2024
FA361402	Rev. 02	Re-evaluation RF Exposure	Jun. 18, 2024

1. EUT General Information

Product Feature & Specification	
DUT Type	Soiltech Wireless Sensor
Brand Name	Soiltech Wireless Inc.
Model Name	Soiltech Beacon v2 Soiltech Beacon v2 Ext Ant Soiltech Beacon v2 CO2
FCC ID	2AVSJ-SWTPWMIT022
Wireless Technology and Frequency Range	Bluetooth: 2402 MHz ~ 2480 MHz
Mode	• Bluetooth LE
DUT Stage	Identical Prototype

2. Maximum RF output power among production units

Mode	Average Power (dBm)
	LE
Bluetooth	4.0

3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) 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 ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna

4. Radio Frequency Radiation Exposure Evaluation

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit Ratio
Bluetooth	0.01	4.0	4.0	0.003	2.52	0.001	1.000	0.001

5. Collocated Power Density Calculation

WWAN Ratio	Bluetooth Ratio	Σ (Power Density / Limit) of WWAN + Bluetooth
0.740	0.01	0.741

Note:

1. The WWAN module FCC ID: XMR201701BG96, Report No.: R2003A0151-M1 is also integrated into host, the measure power / allow power of power density limit is 0.740 and using perform Sim-Tx analysis.
2. Considering the WWAN collocation with the Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.