



**VI-BioTelemetry**  
**FCC ID: 2AU4RBIOTELEMETRY**  
**Operation Description Document**

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## Overview

This document is a supplement to the VI-BioTelemetry User Manual. The User Manual describes the theory of operation at a high level and is focused on enabling the end user to understand how the device is used. This document describes details of the theory of operation that are of specific interest to regulatory bodies. This document is not intended for general release.

This document is divided into the following four subsections

Section 1: Summary and Theory of Operation

Section 2: Block Diagram

Section 3: Transmission Specifics Relevant to FCC Certification

## 1. Summary and Theory of Operation

VI-BioTelemetry is a hardware and software turn-key solution provided by *VI-Grade* to acquire, elaborate and display some physiological signals generated by human body. The VI-BioTelemetry package includes the following components:

1. BioBox
2. Hardware material (wet electrodes, connecting wires, SD card, power supply)
3. Access Point
4. Chest vest, gloves, conductive gel

BioBox device acquires @1 kHz the Skin Potential Response signal from electrodes located on the hands (V6-V7 and V8-V9) and the ECG signal from three pairs of electrodes sit in the chest vest (V1-V5, V2-Vref and V3-V4). Then sends signals to a WiFi Access Point, that forwards them to a specific PC. Figure 1 shows the location of the electrodes on the human body

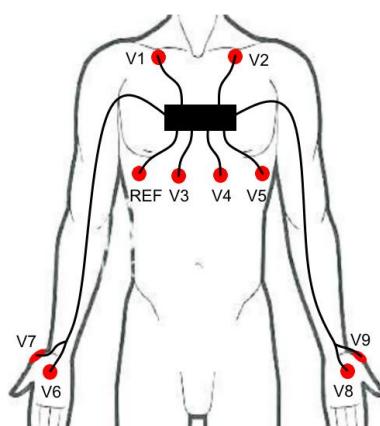


Figure 1: BioBox device (black box) and position of the electrodes

## 2. Block Diagram

Figure 2 shows main components of BioBox device

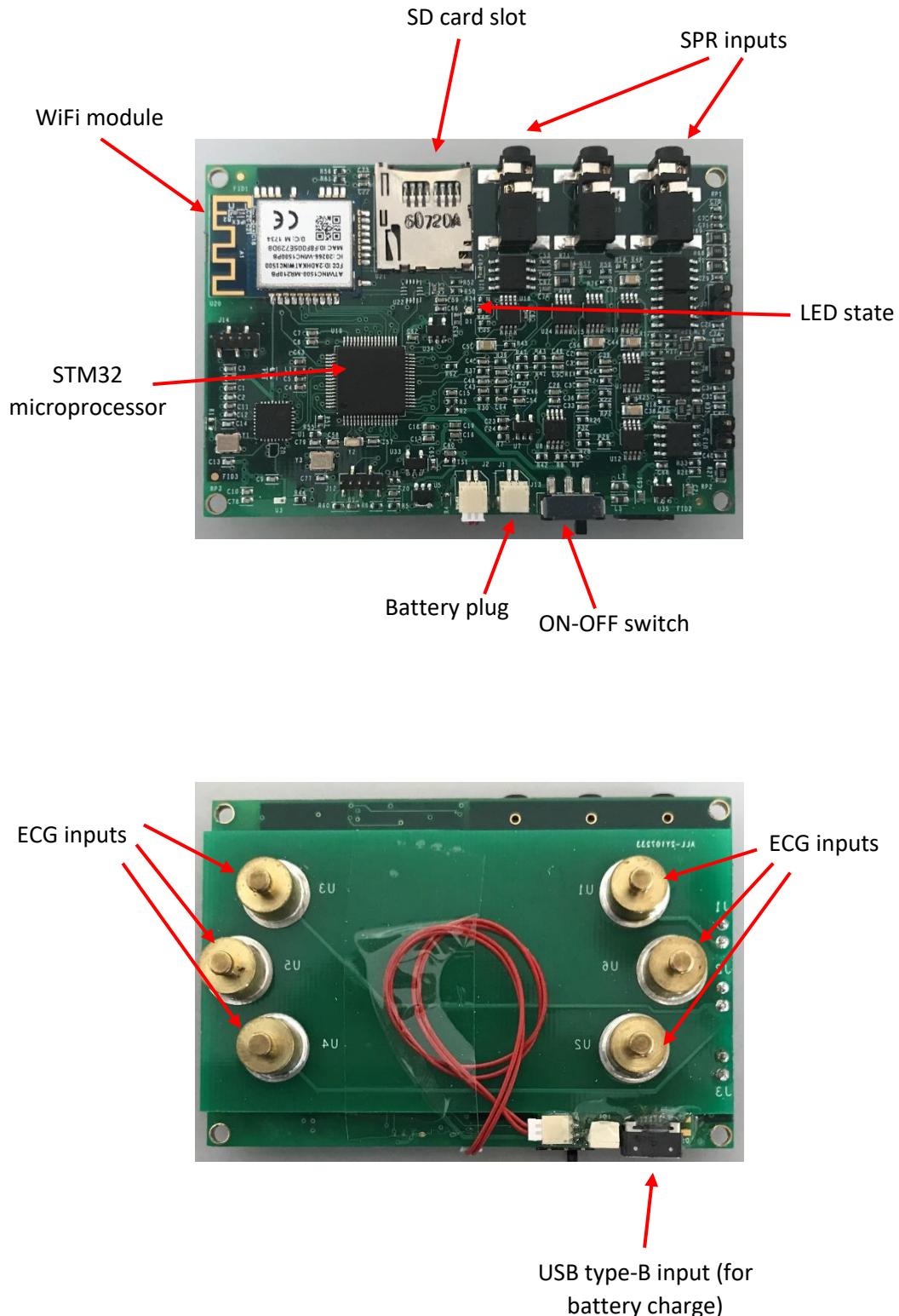


Figure 2: BioBox device, main components are highlighted

Figure 3 shows the block diagram of the device. Please note that BLE module is not used and it is not active.

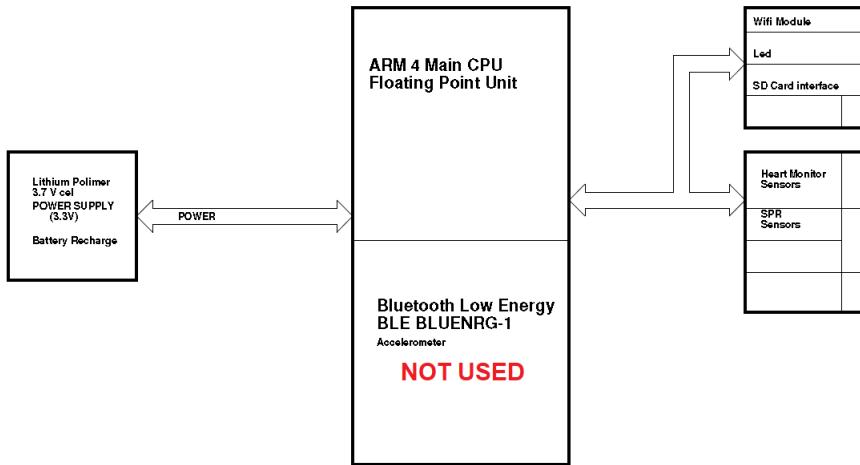


Figure 3: BioBox block diagram

### 3. Transmission Specifics Relevant to FCC Certification

#### Transmit Frequency Range - Modulation:

BioBox device transmits on a WiFi network created by the Access Point, in the range of 2412 – 2462 MHz, using a DSSS modulation

#### Output power:

Maximum output power: 20 dBm (100 mW)

#### Oscillators:

The device is equipped with two 16 MHz and one 32.768 kHz oscillators

#### Power supply:

The device is powered by a 3.7 V lithium rechargeable battery

#### Hardware and Software version:

HW version: v1.0

SW version: v1.0