Technical documentation

MONIMOTO 7 (model MM7E1)

Product package consists of DUT and keyfob KEY3, that has its own (finished) FCC and CE.

List of contents:

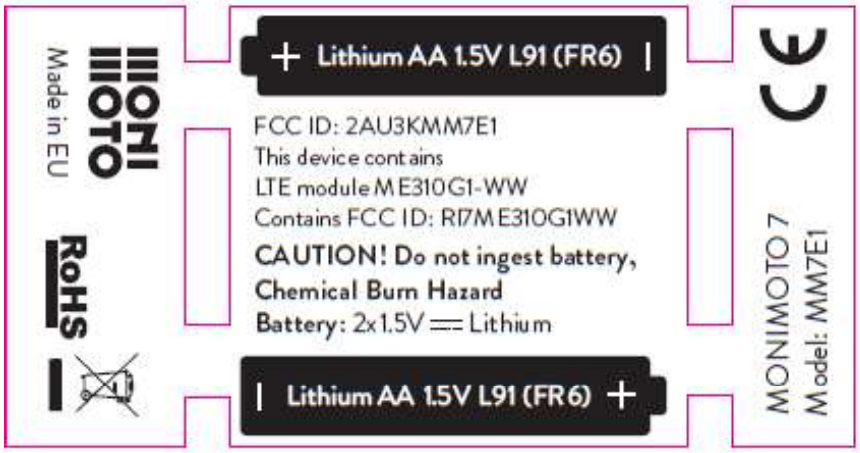
1. **Name of the Radio Equipment:** Monimoto 7
2. **General description of the radio equipment including:**

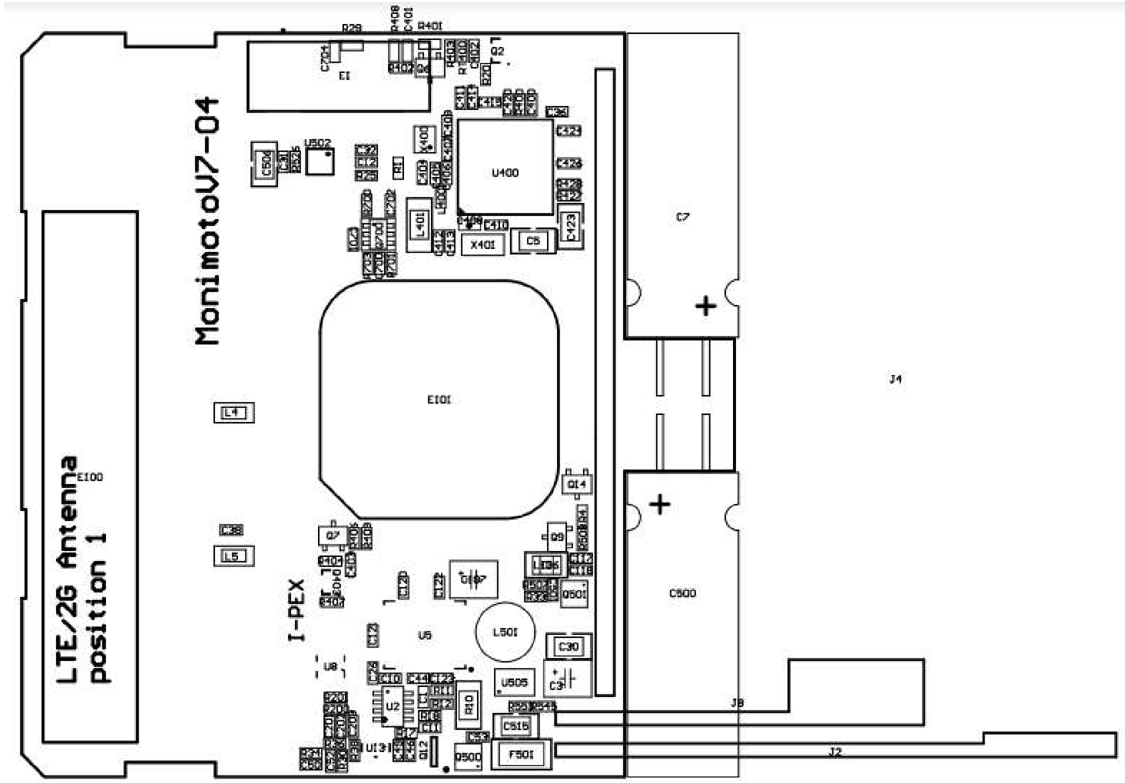
2.1 Photographs or illustrations showing external features, marking and internal layout:

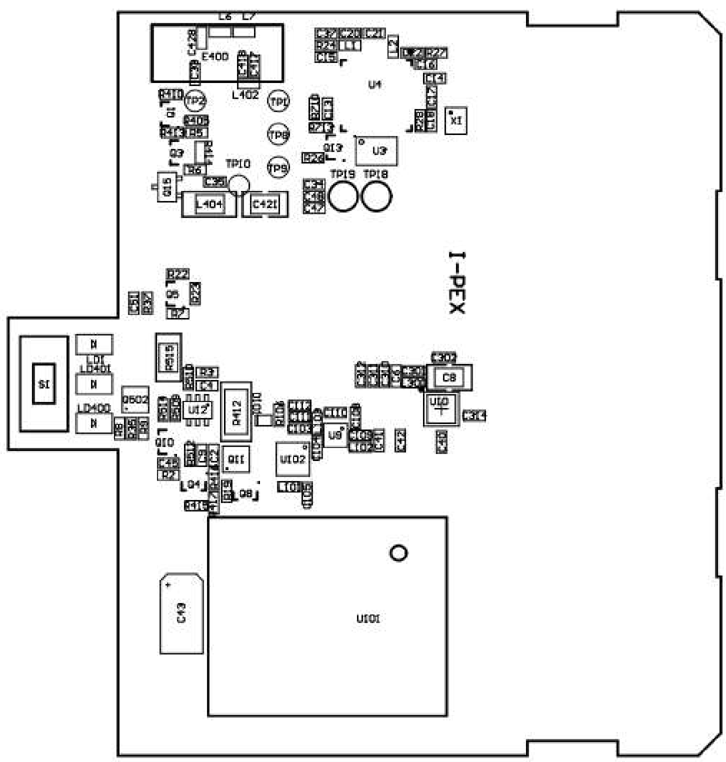
Alarm Panel

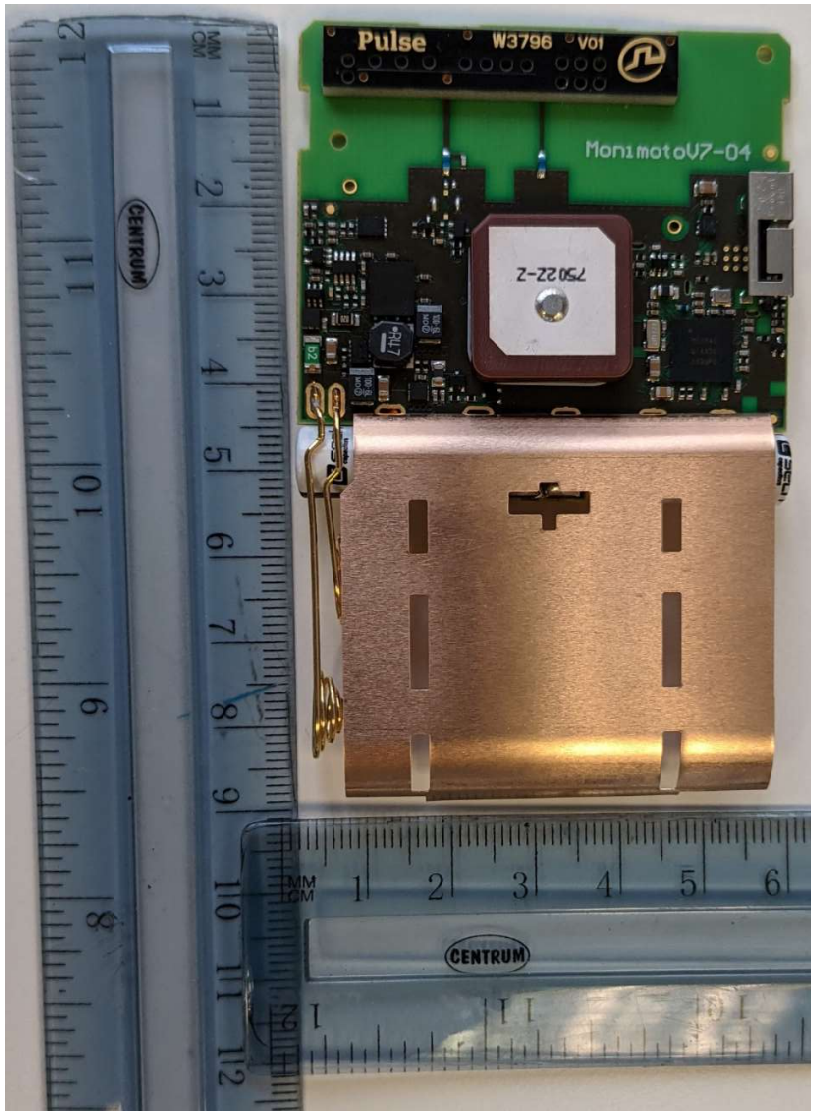

BACK SIDE
Lithium AA 1.5V L91 (FR6)
FCC ID: 2AU3KMM7E1
This device contains
LTE module ME310G1-WW
Contains FCC ID: RI7ME310G1WW
CAUTION! Do not ingest battery,
Chemical Burn Hazard
Battery: 2x1.5V Lithium
Lithium AA 1.5V L91 (FR6)
MONIMOTO
Made in EU
RoHS
MONIMOTO 7
Model: MM7E1

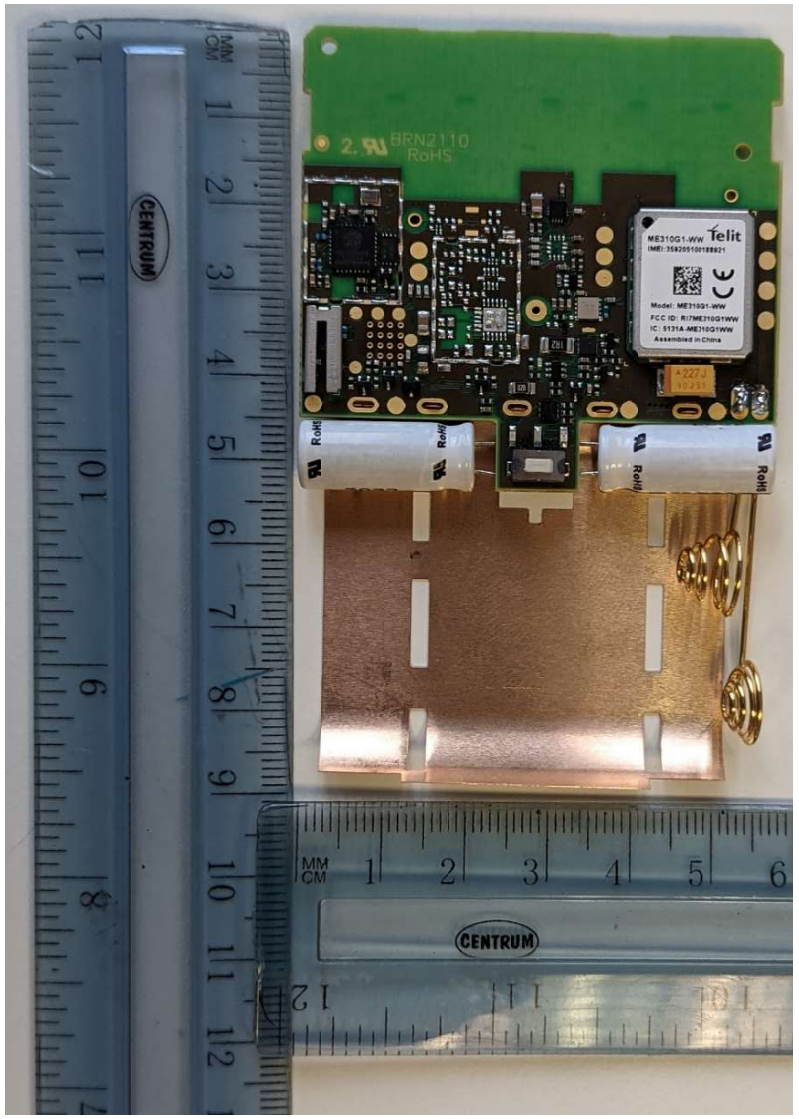
Sticker template.




MonimotoV7-04
LTE/2G Antenna
position 1
I-PEX


I-PEX


Pulse
W3796
V01
MonimotoV7-04
75022-Z


BRN2110
RoHS
ME310G1-WW
Telit
Model: ME310G1-WW
Assembled in China

Proximity keyfob KEY3 FCC ID is: 2AU3KKEY3

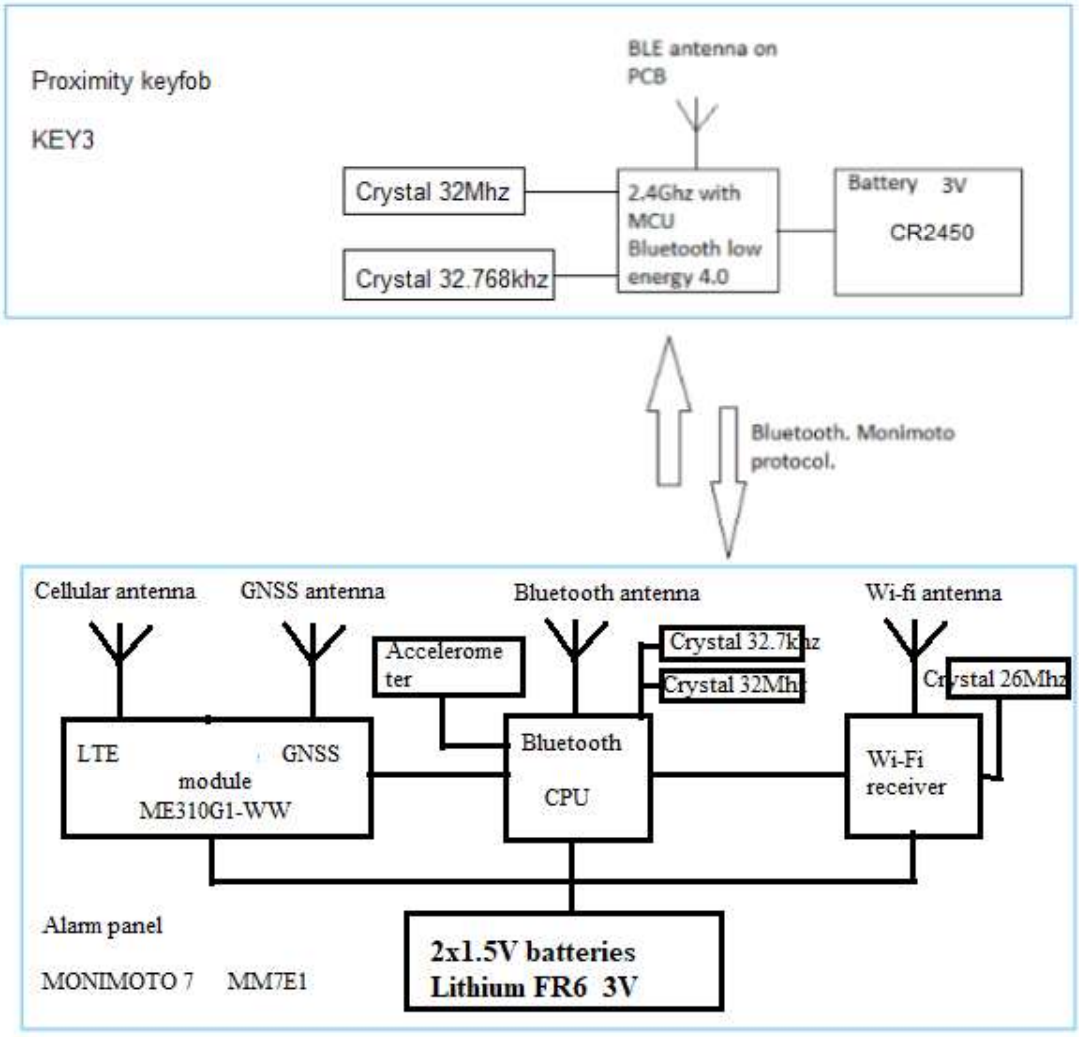
2.2 Versions of software or firmware affecting compliance with essential requirements

Firmware of Alarm Panel : v2.0.0.0
Firmware of Key: v1.0

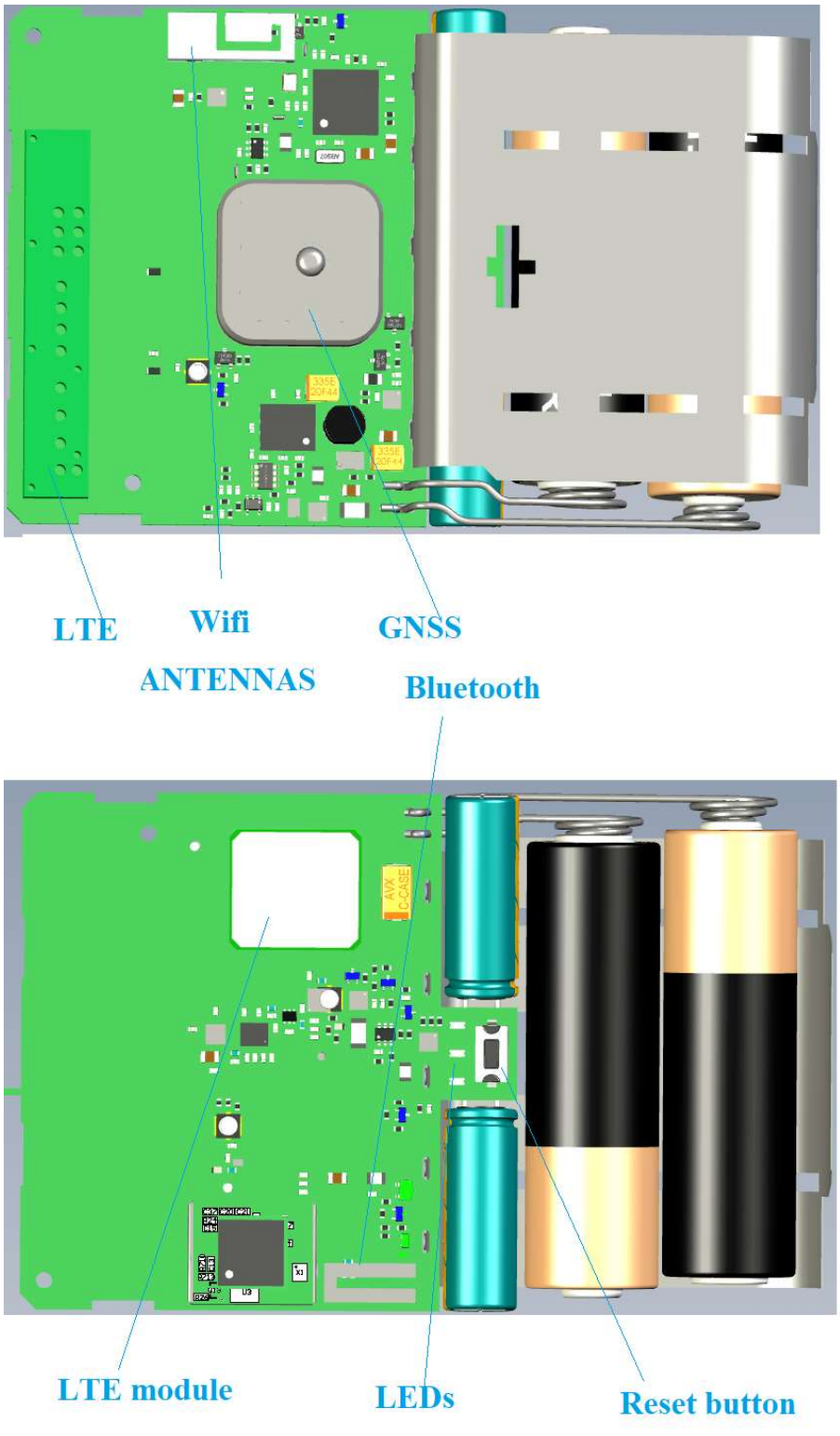
2.3 User information and installation instructions

Manual is attached

3. BLOCK DIAGRAM



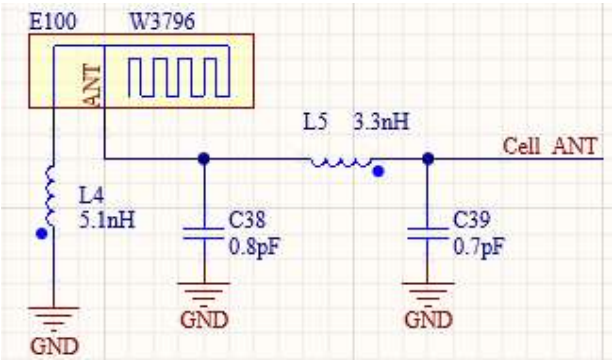
3.1 Operating Description



The MM7E1 alarm panel is in standby mode all the time, except for regular daily pings or alarm mode. Standby means that the GSM / GPS modules are not turned on. MM7E1 has an accelerometer that can detect motion. Once the motion is detected, MM7E1 wakes up the processor CPU and looks for the key (KEY3) already associated. If KEY3 is in the Bluetooth range, MM7E1 and KEY3 connects, MM7E1 remains in standby mode and GSM / GPS are not powered.
If KEY3 is not detected, the MM7E1 alarm system turns on the GSM / GPS module, connects to the cellular network, then connects to the network and sends a notification with location. If no other motion is detected, MM7E1 disables the GSM / GPS modules.

The MM7E1 device is powered by 2xAA 1.5V lithium batteries connected in series so the input voltage for this device is roughly 3V. LED blinking sequences are dependent on MM7E1 operation status. GSM antenna type is Inverted-F antenna. The ground plane for GSM antenna consists of PCB ground and metal ground plane extension located under inserted batteries.

The GSM radio circuitry consists of ME310G1-WW LTE Cat-M1/NB2 radio module, antenna signal filtering circuit and GSM antenna. In the picture below the snapshot of schematic of filter circuit and antenna is shown:



4. **How to test all functions for EMC**

1. You need a SIM card with enabled data and calls. You need to know APN for that SIM. Ask the operator.
2. Recommended to look at How Monimoto works https://support.monimoto.com/support/home
3. Pair device. Best with iPhone. Watch here https://support.monimoto.com/support/solutions/articles/27000024009-how-to-setup-monimoto-for-first-use
4. **Bluetooth link between Alarm system and Key test.**
   When EMC is radiated and device moves it should be no alarms. It simulates daily use of Alarm system when monimoto equipped vehicle moves. You test such way Alarm system and Key simultaneously resistance as they are connected together by 2.4Ghz Bluetooth. If you break connection alarm is triggered from motion.
   Movement should be at least 5 seconds duration.

b) GSM test

To trigger the alarm on Monimoto you need to make sure the following conditions are fulfilled:

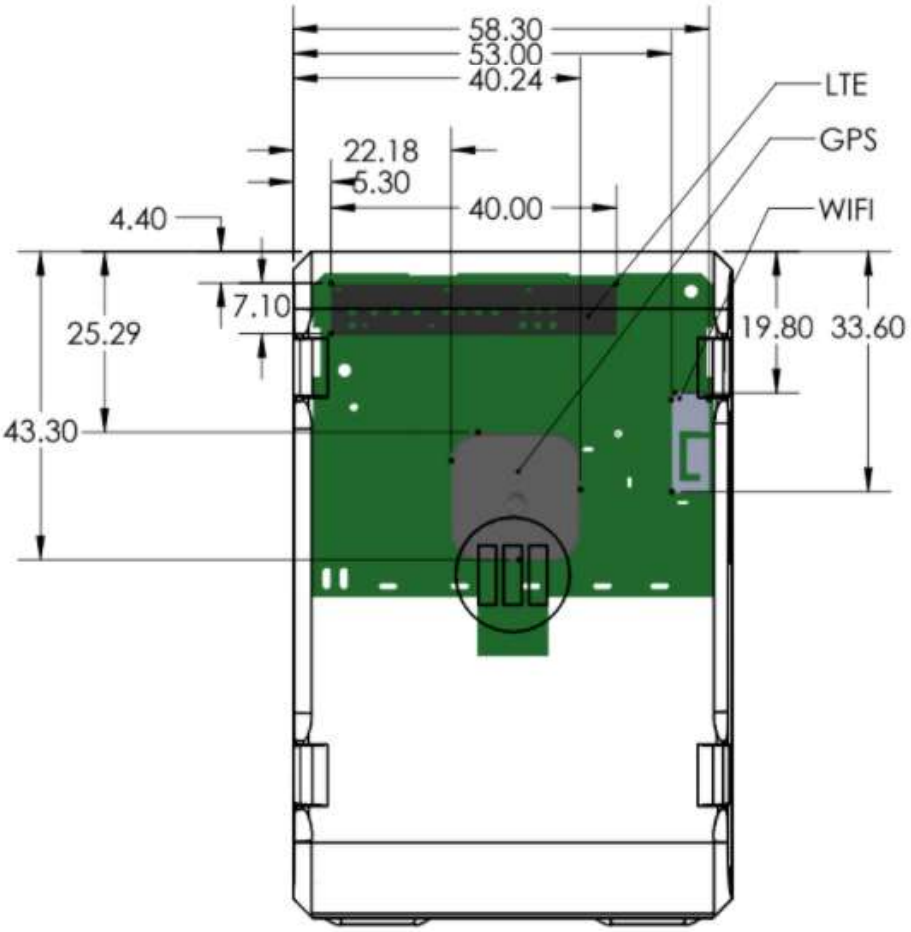
1. Bluetooth is OFF on your phone; (If you leave BLE app can connect on several occasions. While app is connected -device is disarmed and no alarm occurs)
2. Monimoto Key is not active. This can be achieved in two ways - remove the battery form the key or make sure it is far enough from Monimoto. Min 30-50 meters in open area.

Trigger alarm simply shaking Alarm system for minimum 5 seconds. Wait for call and location. If you receive a call in ~1 minute and push notification or location in max 5mins, that means EMC test does not affect device.

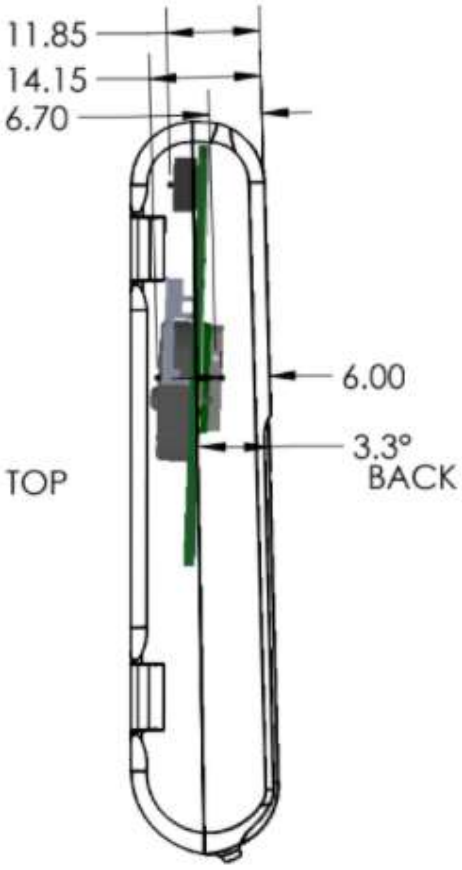
5. **Antennas spec**

All antennas are connected via 50 Ohm line. Bluetooth 2.4Ghz, Wifi 2.4GHz and LTE antenna measurements are in separate documents. LTE antenna meets LTE module FCC requirements and do not exceed allowed Gain limits.

TOP


58.30
53.00
40.24
LTE
GPS
WIFI
22.18
5.30
40.00
4.40
7.10
25.29
43.30
19.80
33.60

SIDE



BACK