

## Technical Description

The Equipment Under Test (EUT), is a portable Composite Device (Havoc Unit) which contains a 2.4GHz Transceiver and a BLE Transceiver. For the 2.4GHz portion, the sample supplied operated on 29 channels, normally at 2440 - 2468MHz. The channels are separated with 1MHz spacing. For the BLE portion, the sample supplied operated on 40 channels, normally at 2402 - 2480MHz. The channels are separated with 2MHz spacing.

The EUT is powered by 1 x 7.4V Lithium-ion battery. After switching on the EUT, the EUT, the havoc can be paired up with a smartphone together with the training drone. The havoc will be further paired up with the beacon using the 2.4GHz module. The training drone and beacon will be used as shooting target to play different shooting game based on the signals received by the paired smartphone from the beacon and the training drone.

Antenna Type: Internal, Integral antenna

Antenna Gain: 0dBi

Maximum allowed production tolerance: +/- 3dB

### **2.4GHz Portion**

Nominal rated field strength is 91.8dB $\mu$ V/m at 3m (Peak), 62.1dB $\mu$ V/m at 3m (Average)

### **Bluetooth BLE Portion**

Nominal rated field strength is 90.8dB $\mu$ V/m at 3m (Peak), 63.2dB $\mu$ V/m at 3m (Average)

The brief circuit description is listed as follows:

1. U1 (AC6321A) and IC1 (PAN186) act as MCU
2. Y1 acts as 16MHz Oscillator
3. Y2 acts as 24MHz Oscillator
4. L1, C1 and C4 act as antenna matching circuit of ANT1
5. C8, C9 and R44 act as antenna matching circuit of ANT2
6. IC2 provides boost charge function
7. U2 and U3 provide constant current charge function
8. U5 and U7 provide LDO function
9. Q5 and Q9 act as large motor driver
10. Q21 acts as feed motor driver.