Interactive Multi Target Training System (i-M.T.T.S.)

Product/Technical Description

Brief Description of the device purpose:

The i-MTTS is an electronic targeting system for firearms training using the Laser Ammo SureStrike™ cartridge. i-MTTS may be used as a stand-alone target or up to five i-MTTS targets may be used in tandem to create a multi-target training system. i-MTTS is useful in tactical / combat training for home defense and law enforcement, as well as developing target recognition speed, firing accuracy, and "shoot/no-shoot" skills, and transitional drills among others.

Circuit Function and Device Operation:

The circuit is based on a MCU (Microcontroller Unit) that activates the different sub-circuits, such as: Power Supply, Indications, Photo-Sensor and User-Buttons. The MCU also operates one RF circuit, using internal IC communication, in order to broadcast to other nearby devices and in order to receive data from nearby devices. The power supply is based on three AAA batteries.

Operating frequency: a single frequency within the range: 2.410GHz-2.473GHz. This frequency is used for both TX and RX (as a single-channel simplex communication).
Modulation: GFSK.

To initiate operation, the user should press the ON button. This operation will turn the device MCU and then hold the power supply in enabled state. Another ON press will turn the device off, reversing this logic. The user will select mode of operation and required indications (as elaborated in the user manual) and the MCU will initiate software functions according to the selection. These software functions include instructions such as: LED indication method, Buzzer indication method, which data to broadcast on RF channel and how to react when Photo-Sensor input is received. The device will then keep operating according to the user-selected mode, until another user button-press is detected (that will change the selected preferences).

Antenna Description:

The antenna is a "PCB Trace Antenna", which is embedded whiting the printed circuit. This antenna is a "Single Ended" type and is designed to transmit RF signals at 2.4GHz ISM Band.
Here are the mechanical dimensions for this antenna: