T-11 Suspicious Package Training Aid –Test Plan

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# Introduction

The SPTA (Suspicious Package Training Aid) is intended to be used by security personnel for training simulations in the event of locating an abandoned or otherwise suspicious package in the workplace. This device will give an audio indication to indicate if the simulation has failed. It will also give a visual indication of the point of failure in the simulation.

## This Document

The purpose of this document is to detail the test plan for the SPTA circuit board. The tests on this device will be broken up into sections and will test the input and output, the individual components (RF, power, MCU, and audio visual indicators), and the usability of the device.

## Conduct of System Tests

Testing of this device will be divided up between the contributors to this project after the first initial test. Initial testing will be done as a group and focus on key modules such as the power systems of the device. Later tests will be run concurrently by individual contributors. All tests will be reviewed by individual contributors and retested as needed. Integration and usability testing will be done as a group. Lastly, usability testing will be done with individuals unfamiliar with the device.

## Recording of Results, Witnessing and Authorities

Results of the testing will be recorded by the contributing members of the project. All tests conducted will be reviewed by contributing members as a group. Results of the testing will be recorded and uploaded to the project GitHub website.

# Reference Document

## Design Documentation

*This will include block box design and possibly schematics*

## Other

*This section may not be needed*

# SPTA Overview

## Operational Description

The SPTA is intended to be used in training simulations for security personnel in the event of an unattended or suspicious package. Once the device has been turned on the simulation will be begin after an arbitrary time delay. Simulation mode will be indicated visually by a labeled LED. The simulation ends if the device has been physically agitated or if a radio device with a frequency range of 410 MHz – 470MHz has been used within a 20 foot radius. Any event that ends the simulation will result in an audio indication from the buzzer and a visual indication specific to the event that was triggered.

## Definition of Terminology

*Not sure if we need any specific definition of terminology*

## Computational Methods

*Same with computational methods with the exception of voltage outputs from the RF detector*

# Pretest Preparation

Testing of the SPTA will be confined to the DC voltage, the spectrum of the incoming RF signal, and the

usability of the device.

## Test Equipment

The equipment needed for testing the SPTA is as follows:

* Spectrum Analyzer
* Volt/Ohm meter
* XPR-6550 – RF radio
* A willing individual or contributor

## Test Setup and Calibration

Equipment used in the testing of the SPTA device will need to be calibrated to their default setup. For all testing purposes the RF radio will need to be set to channel 13 to avoid interference with currently active channels.

# System Tests

## Functional Checks

### Power Switch and Voltage Regulator

### Power Supply and Current levels

## Vibration Sensor

## Vibration Sensor Test

## RF Power Measurement

## RF Module Test

## Microcontroller

## Microcontroller Pinout Test

## Audio and Visual

### RF Failure LED

### Vibration Failure LED

### Buzzer

## Usability Testing

### SPTA User Test

# Appendix: Test Record Sheets