sentrax

BLE (AoA)-based locator and gateway that provides highly precise submeter location accuracy.

VERSION 1.0

ZENIX LON-2 Deployment Guide

Contents

1. Pre-Guideline

- The AoA Scanner read angles instead of RSSI, their deployment needs to be taken care as these locators will be more sensitive to how wireless signals propagate in enclosed spaces.

- The AoA Scanners offer a larger range and provide more precise information compared to simple RSSI-based positioning systems. However, these benefits can only be fully realized if the scanners are used while considering their limitations.

- The AoA Scanner range goes out on all 4 sides (makes a circle of radius 15m, 30m diameter overall coverage) it is better to deploy the locator away from the walls or along the walls so that the coverage can be effectively utilized.

- A minimum size of room required for the deployment of AoA Scanner is 6m x 6m.

- For positioning minimum 2 scanners should be covering any given area. For better positioning 3 scanners should cover any given area, the higher the number of scanners the higher the accuracy will be.

2. Single AoA-Scanner Deployment

- When testing the single AoA-Scanner, it is recommended that one should place the scanner at the center of the room to have a maximum coverage.
- Avoid to place the scanner near the walls and at the corners, as this will cause high inaccuracy in the result.[1]
- In cases where there is another room on the other side of the wall then scanner can be deployed against the wall at least 2-3 meters away from any corners but not in the corner of the room.[1]

Note:

1. In wireless applications a corner makes a reflector which reflects back the signal coming at it.

2. A single scanner would not be efficient for getting tags position.

Example Deployment

An example case scenario is displayed to give an idea of deployment for single AoA scanner,

- A simple room of 10m x 10m
- Scanner with optimal range 15m (radius) range.

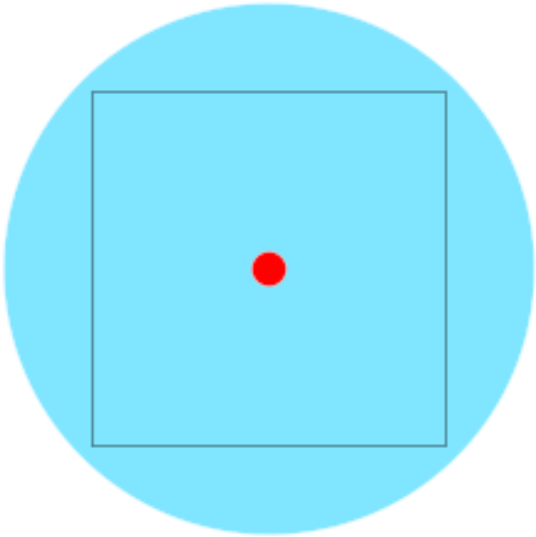

Figure 1 Single AoA-Scanner Deployment

Note:

The single scanner only gives the direction of tag that lies anywhere between the scanning radius, in order to find the exact location to the tag, angle of elevation from the scanner is required that is based on the height of the gateway.

3. Multiple AoA-Scanners Deployment

- When working with the multiple AoA-Scanner, one should place the scanners at maximum 25 meters away from each other to have a maximum coverage.

- Avoid placing scanners near walls and at corners, as this will cause high inaccuracy in the results.1
- In cases where there is another room on the other side of the wall then scanners can be deployed against the wall at least 2-3 meters away from any corners but not in the corner of the room.[1]

Note:

In wireless applications a corner makes a reflector which reflects back the signal coming at it

Example Deployment

An example case scenario is displayed to give an idea of deployment for multiple AoA scanners,

- A simple room of 50m x 50m
- Scanners with optimal range 15m (radius) range.

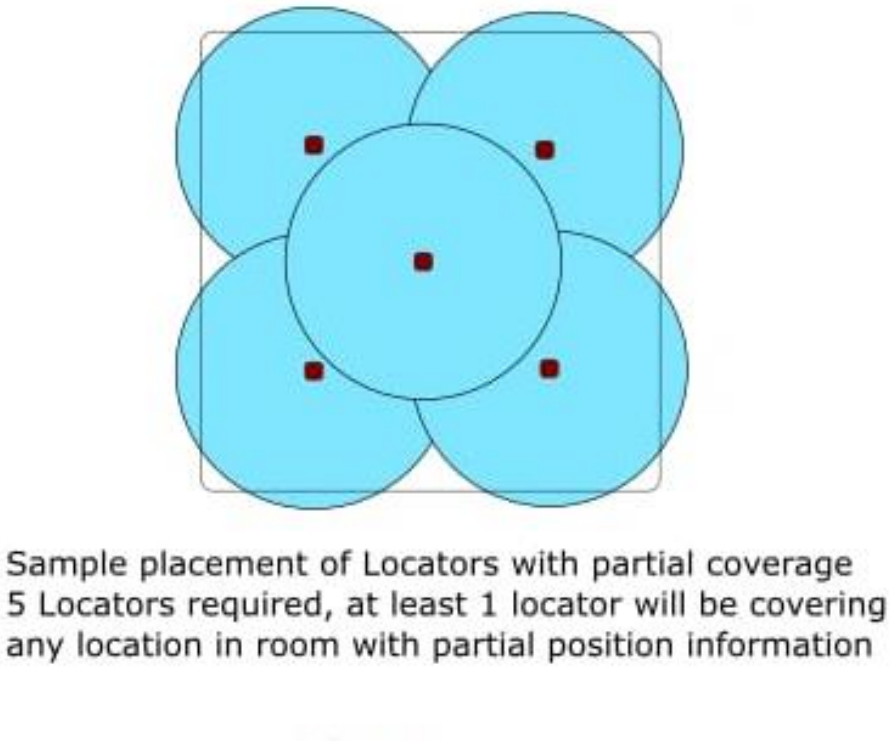

Figure 2 Multiple AoA-Scanners Deployment Case 1

Note:

The placement is assuming ideal signal propagation, in some cases less gateways will be required and, in some cases, more gateways will be required depending on site conditions

Disclaimer:

This guide is intended for informational purposes only. If in doubt at any stage of the installation or operation of the locator/gateway always consult Sentrax's authorized dealer, distributor, or get in touch directly with Sentrax GmbH.

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