

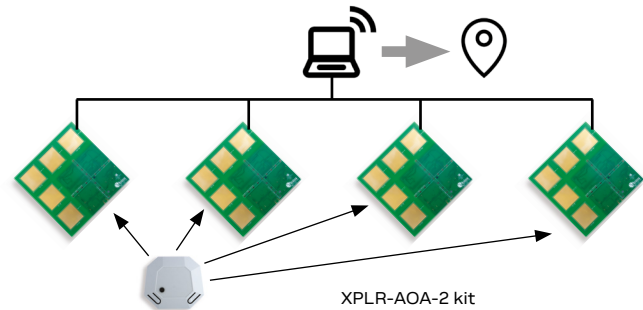
Product summary

XPLR-AOA-2

Bluetooth 5.1 indoor positioning explorer kit with NINA-B4

Indoor positioning out of the box

- Evaluation tool for Bluetooth 5.1 indoor positioning
- Includes four antenna boards and four tags
- High resolution positioning engine
- u-connectLocate software with optimized direction finding algorithm



Product description

With the XPLR-AOA-2 explorer kit you can experiment with Bluetooth 5.1 direction finding technology for indoor positioning use cases. The kit comprises 4 antenna boards (C211) and 4 tags (C209) as well as the necessary software for setting up a system to evaluate Angle-of-Arrival (AoA) technology for high accuracy positioning indoors.

With the AoA technology, an anchor point containing an antenna array connected to a Bluetooth receiver can detect the direction, or angle, to a moving tag transmitting a signal with an appended Constant Tone Extension (CTE). Triangulating the directions from three or more anchor points, the position of the tag can be calculated.

The XPLR-AOA-2 kit provides you with everything needed to get started evaluating high accuracy Bluetooth positioning. The C209 tags with NINA-B406 Bluetooth LE modules and example software will send out Bluetooth 5.1 advertisement messages. The C211 antenna boards, equipped with NINA-B411 Bluetooth LE modules, receive the messages and apply an angle calculation algorithm to extract the direction to the tag. The angle is calculated by the u-connectLocate software, running on the embedded MCU in NINA-B411. No additional processing is required, the angle is delivered directly from the USB port of the C211 board.

The positioning engine software provided with the kit runs on an external PC and is accessed through a web browser. The user can upload a room floor plan via the graphical user interface and deploy and configure the antenna boards. The positioning engine collects the angle data from all the antenna boards and uses it to calculate the position of the tags. If the antenna boards are placed in vertical positions, then the position can be calculated in 3D.

With the direction finding feature, you can take advantage of the robust communication link as well as the low current consumption offered by Bluetooth, to build highly accurate indoor positioning systems that could support various use cases such as asset tracking.

Related documentation

Visit www.u-blox.com/product/xplr-aoa-2.

Legal Notice:

u-blox reserves all rights to this document and the information contained herein. Products, names, logos and designs described herein may in whole or in part be subject to intellectual property rights. Reproduction, use, modification or disclosure to third parties of this document or any part thereof without the express permission of u-blox is strictly prohibited.

The information contained herein is provided "as is". No warranty of any kind, either express or implied, is made in relation to the accuracy, reliability, fitness for a particular purpose or content of this document. This document may be revised by u-blox at any time. For most recent documents, please visit www.u-blox.com.
Copyright © 2021, u-blox AG

Performance¹

Angle accuracy	5° mean error
Position accuracy	Around 1 meter (depending on anchor point deployment)
Update rate	40 updates per second
Number of tags	5

¹ = Valid for the initial release; future versions will have increased capacity.

Features

- Out-of-the-box indoor positioning explorer kit
- Antenna boards with array of 5 dual-polarized antennas
- Tags with Bluetooth transmitter
- u-connectLocate with embedded angle calculation
- 2-dimensional angle calculation
- 3-dimensional positioning calculation
- USB interface to connect to a PC or other host system

Kit includes

- Four C211 antenna boards with NINA-B411 module
- Four C209 tags with NINA-B406 module
- u-connectLocate direction finding software (from u-blox.com)
- C209 tag software example (from Github)
- Positioning engine software example to run on a PC

Supported evaluation software

- u-blox s-center Bluetooth and Wi-Fi evaluation software

System requirements

- PC with USB interface
- Operating system: Windows 7 onwards

Product variants

XPLR-AOA-2	u-blox Bluetooth 5.1 indoor positioning explorer kit
------------	--

Further information

For contact information, see www.u-blox.com/contact-u-blox.

For more product details and ordering information, see the product data sheet.