



MK UWB 3D



Antenna board

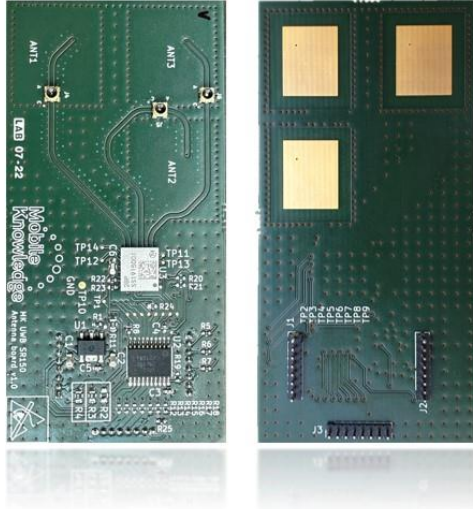
Featuring **NXP Trimention™ SR150**

Obtain 3D positioning of
your UWB enabled devices

MK UWB 3D Antenna board



The **MK UWB 3D Antenna board** includes a reference **3 patch antenna design** allowing the user to obtain the **3D position** of UWB-enabled devices, in combination with **Murata's Type 2BP**, the world's smallest UWB module featuring **Trimension™ SR150**.



- **Now integrating Murata Type 2BP UWB Module**
- Fully integrated solution based on **Trimension SR150™** supporting **3D position information**
- Pin-to-pin **compatible with the existing MK UWB Antenna board SMD** (plug and play replacement)
- **Reference hardware design files** available for the acceleration of your design and development activities
- Released and validated with production-ready NXP UWB IoT Software together with MK UWB Shield 2
- Optimized for UWB Channel 5 and 9** operation and **calibrated Angle of Arrival data available** off the shelf for you to focus on your own use cases and applications

* FCC, CE and UKCA certifications in place

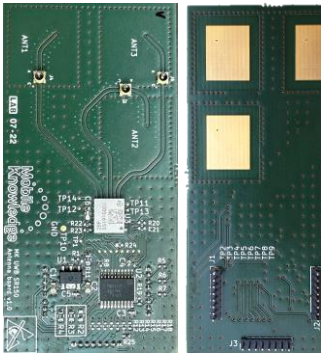
** According to FiRa UWB channels 5 (6489.6 MHz) and 9 (7987.2 MHz) are recommended to achieve global acceptance

MK UWB 3D Antenna board

In detail

MK UWB 3D Antenna board

UWB Module-compatible PCB that can be easily connected to the MK UWB Shield 2 supporting **3D Angle of Arrival** measurements.



MK UWB 3D Antenna board + UWB SR150 Module: Ready-to-use solution that features three PCB antennas, enabling ranging, 2D, and 3D Angle of Arrival measurements as well as TDoA.

It can be easily connected to MK UWB Shield 2 using the board pin headers. Specific software and documentation is provided.

Now integrating Murata Type 2BP UWB Module!



MK UWB SR150 Anchor 3D

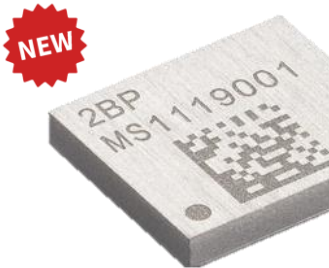
- 70x34,5mm dimensions
- Supporting 3.3 and 1.8v power supply and signal interface
- Accessible RF connectors for calibration/testing purposes

Type 2BP UWB Module

In detail

UWB Module: Murata Type 2BP

Murata Type2BP is the world's smallest UWB module and includes **NXP's SR150 UWB chipset**. It is **FiRa certified** and is ideally suited for deployment in both larger infrastructures (indoor positioning anchors) and in consumer products and general IoT devices with battery operation.

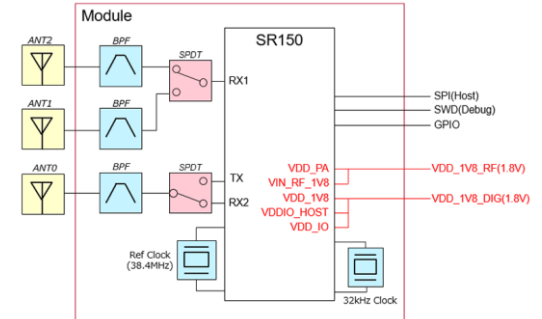


Murata Type 2BP UWB SR150 Module:

This UWB Module regroups the core functionality of the UWB solution (clocks, filters, switches and passive components).

Compatible with secure UWB ranging, 2D & 3D Angle of Arrival, and TDoA. Suitable for Anchor devices.

Powered by **murata**

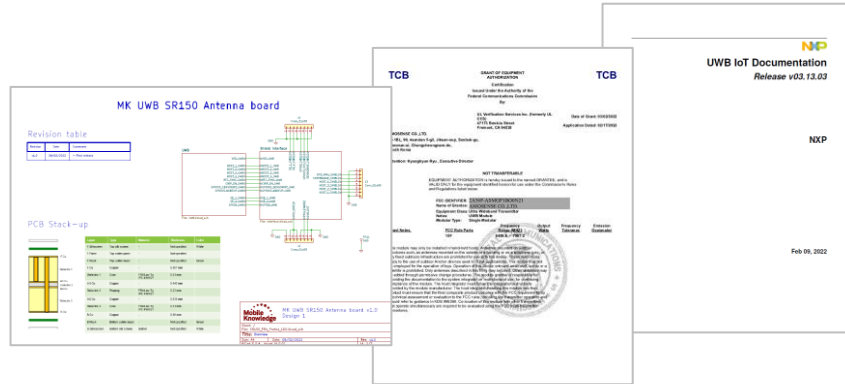


UWB SR150 Module architecture

- **P/N: LBUA0VG2BP-006**
- UWB functionality in a small form factor (6.6mm x 5.8mm x 1.2mm)
- Worldwide RF bands capability with support of CH5 and CH9
- Interface: SPI
- 3 Antenna support (3D AoA or 2D AoA support)
- Tx Power & XTAL calibration support
- Embedded PHY & MAC FW compatible with FiRa
- **FCC/IC/MIC Certified**

MK UWB 3D Antenna board

Support Material



Production ready software, reference hardware design files, and up-to-date documentation to enable you to focus on your own application and use case leveraging on UWB technology.

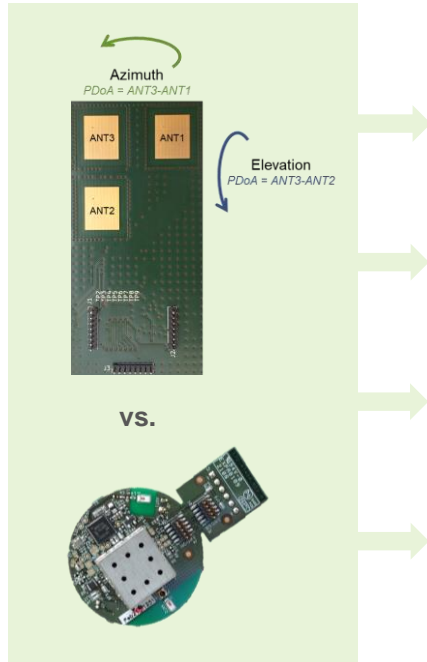
Includes detailed guidelines on how to calibrate 3D AoA measurements using the new antenna board and provided software as well as reference results obtained against peer UWB devices.

Material included:

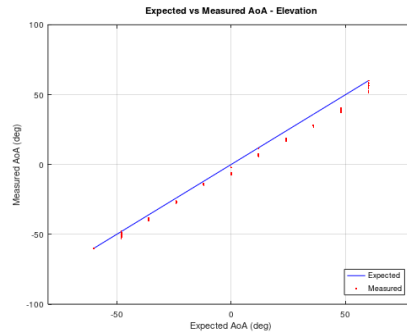
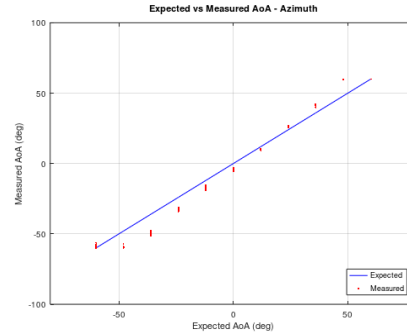
- MK UWB 3D Antenna board schematic, Gerber, and eBOM files
- AoA evaluation with MK UWB 3D antenna board
- NXP UWB SR150 production-ready SW
- SR150 Module migration guidelines
- SR150 Module datasheet
- SR150 Module FCC, CE, UKCA certificates

MK UWB 3D Antenna board

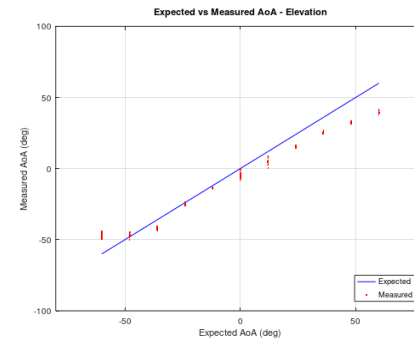
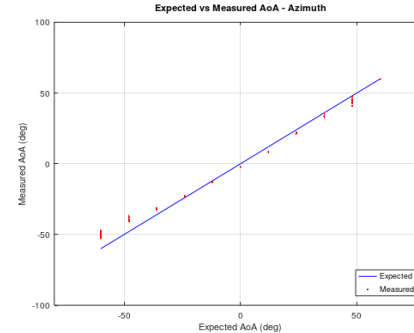
Reference AoA data



CHANNEL 5 - RESULTS



CHANNEL 9 - RESULTS

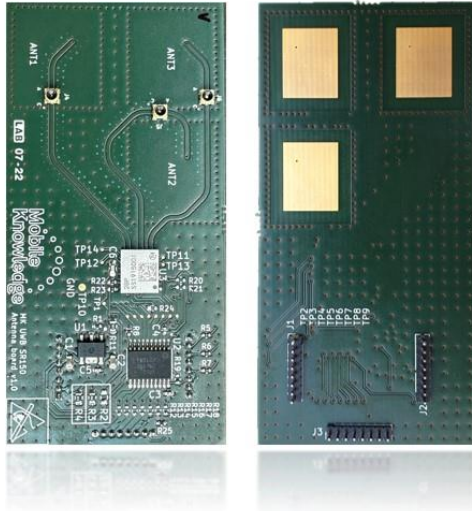


Short summary of results available:

- Improved measurement accuracy and stability
- Angle of Arrival calibration applied
- Effective both in Channel 5 and 9

MK UWB 3D Antenna board

Ordering details



Visit

<https://www.themobileknowledge.com/product/mk-uwb-3d-antenna-board/>

MK UWB 3D Antenna board

Upgrade your MK UWB Kit to support
3D Angle of Arrival measurements

185 €

Shipping costs not included

Additional Components

Additional MK UWB SR150 Anchor 3D
Additional UWB Module Type 2BP
Additional MK UWB 3D Antenna board

MK Services

Contact us for further information
contact@themobileknowledge.com

MK UWB 3D Antenna board

FAQ

1

Does the new MK UWB 3D Antenna board work with the existing MK UWB Kit SR150/SR040 and the MK UWB Kit Mobile Edition?

- Yes, just replace the existing antenna board with the new MK UWB 3D Antenna board and the same use cases and software code will work out of the box. It is also fully backwards compatible with MK UWB Shield 1v3 for those customers who purchased the old generation MK UWB Kit SR1X0 kits.

2

What are the MK UWB 3D Antenna board dimensions compared to the previous antenna board?

- MK UWB Antenna board SMD dimensions are 41.7 x 25.2mm
- MK UWB 3D Antenna board dimensions are 70 x 34.5mm

3

Is there any reference Angle of Arrival data available?

- Yes, please see Slide 6 of this product brief as a reference. Furthermore, when purchasing the product, you will receive the new application note describing the detailed results obtained from the AoA evaluation from MobileKnowledge.

4

What does production-ready NXP UWB IoT software mean?

- The software package released with this product (UWB_IOT_SR150_v03.14.04_MCUx) has been qualified by NXP as production ready, supporting various devices and platforms. Full details can be found in the supporting documentation.

5

Does it use a different UWB module? What are the dimensions compared to the previous one?

- Yes, the new antenna board is based on the SR150 module from Murata (Type 2BP) with dimensions of 6.6mm x 5.8mm x 1.2mm, world's smallest UWB module.

MK UWB 3D Antenna board

FAQ

6

Is there any difference in the power consumption?

- No difference is expected as the system architecture remains equal.

7

Is the MK UWB 3D Antenna board certified?

- Only the integrated SR150 module (Type 2BP) is certified under FCC/IC/MIC, CA conductive tests have been also executed.
- MobileKnowledge may consider the certification of the MK UWB 3D Antenna board depending on the market interest.

8

Which UWB channels are supported?

- NXP Trimension™ SR150 supports UWB CH5, CH6, CH8 and CH9. The MK UWB 3D Antenna board is optimized for CH9 and CH5 operation.

9

How is the antenna oriented to obtain the reference Angle of Arrival data?

- The Angel of Arrival document included in the package details AoA data from scenarios with multiple relative orientations between the MK UWB 3D Antenna board and the UWB Tag SR040.
- Reference data available in Slide 6 includes a description of the antenna orientation and rotation to obtain the Angle of Arrival data.

10

Do I need to update the software to obtain the 3D Angle of Arrival data?

- Yes, the reference sample software needs to be updated to obtain azimuth and elevation Angel of Arrival data.
- Details and instructions on how to obtain azimuth and elevation Angle of Arrival data are included as part of the documentation and software provided.

MK UWB 3D Antenna board

FAQ

11

How can I purchase the MK UWB 3D Antenna board?

- The MK UWB 3D Antenna board can be purchased through the product [website](#) or through the order form. Please contact us at contact@themobileknowledge.com and we will share the contact form with you.

12

Can I purchase the MK UWB 3D Antenna board and an MK UWB Shield?

- Yes, to do so please contact us at contact@themobileknowledge.com and we will share the order form with you.

13

Can we use the MK UWB 3D Antenna board with SR040?

- No, please note that Trimension™ SR040 does not support Angle of Arrival measurements.

14

Do I need to apply any calibration to the MK UWB 3D Antenna board?

- The MK UWB 3D Antenna board is calibrated at MK premises before its distribution. Additionally, we have applied a common Angle of Arrival calibration for all MK UWB 3D Antenna boards to provide the best possible AoA experience.
- For optimum performance and Angle of Arrival measurements, it is recommended to drive individual AoA calibration on each device. Please follow the guidelines available in the documentation or reach out to MobileKnowledge to do so.

15

Will the MK UWB Kit SR150/SR040 and the MK UWB Kit Mobile Edition include this new antenna board?

- Yes, the MK UWB 3D Antenna board will be included as part of the MK UWB Kits in the coming weeks.



Mobile Knowledge

www.themobileknowledge.com

contact@themobileknowledge.com



Accredited Training Partner



red.es



Avant Studio Proyectos S.L.
Rambla de Catalunya 57-59, 2º2ª
08007 Barcelona (Spain)
VAT Nr. ESB64624067