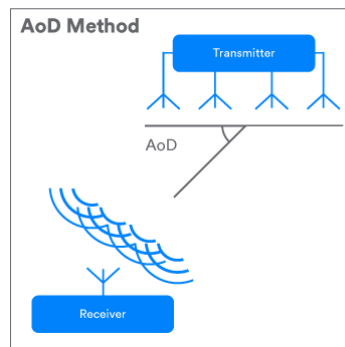
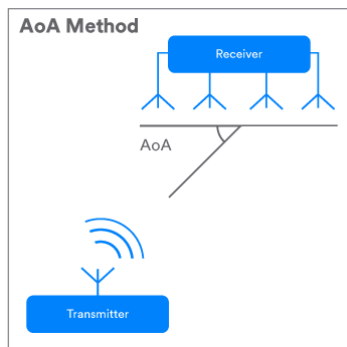


Bluetooth® v5.1 Test Solutions

Bluetooth Test Set MT8852B

Following the worldwide popularity of smartphones, *Bluetooth*® technology has entered widespread use not only in smartphones but also in audio products, such as headphones and headsets, as well as in wearables and it has become one of the most successful radio technologies for general consumers. Today, Bluetooth® technology is built into nearly every smartphone, tablet PC, and laptop.

The Bluetooth core specification v5.1 released in January 2019 adds new functions increasing the convenience for IoT applications. Even prior to Bluetooth core specification v5.1, Bluetooth Low Energy features of Bluetooth devices has been leveraged by location services using Bluetooth beacons . However, the accuracy has been relatively low and could not be estimated accurately at larger distances from the beacon. Bluetooth core specification v5.1 solves this problem to achieve a high position location accuracy of just a few centimeters using a new Angle of Arrival (AoA)/Angle of Departure (AoD) directional search function.



Source: Bluetooth SIG, Inc. "Bluetooth Direction Finding, A Technical Overview"

Potential Bluetooth core specification v5.1 (AoA/AoD) Application Fields

A growth of location services is expected in many fields and the higher positional accuracy offered by Bluetooth core specification v5.1 AoA/AoD will support this expansion . Some potential applications for Bluetooth core specification v5.1 (AoA/AoD) technology are introduced below.

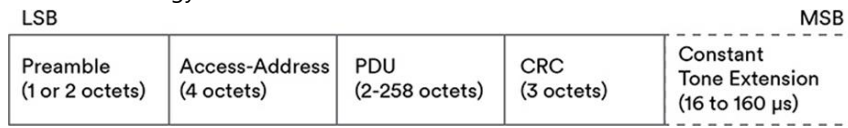
Warehousing	Parking	Shopping	Viewing
Bluetooth core specification v5.1 location accuracy makes product warehousing easier because items can be found using a smartphone for more efficient working.	Vehicles with built-in Bluetooth core specification v5.1 can be linked to a smartphone, making it easy to find a parked vehicle without remembering exactly where it was parked.	Smartphone maps can display both the store location and the position of the item in the store, making it easier for shoppers to plan an efficient shopping route.	Every time an art gallery visitor moves between pictures, the smartphone can display the route to next potential pictures for a better art appreciation experience.

New physical layer specifications

A variable-length field called Constant Tone Extension was added to the Bluetooth Low Energy packet structure to implement this Angle of Arrival (AoA)/Angle of Departure (AoD) function.

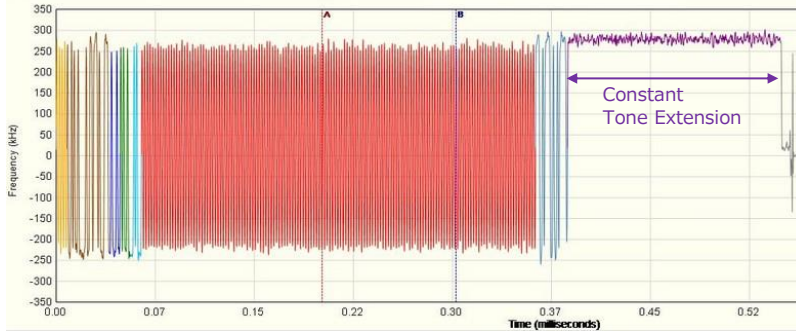
RF characteristic measurements for this new packet structure are defined by Bluetooth SIG and are supported by Anritsu's MT8852B.

- Bluetooth low energy frame format



Source: Bluetooth SIG, Inc.
"Bluetooth core specification v5.1"

- Angle of Arrival signal analysis example – Angle of Arrival, 1 Ms/s, CTE Time=160 μ s



Bluetooth Test Set MT8852B for Bluetooth Core Specification v5.1

Since Bluetooth core specification v5.1 AoA/AoD functions are achieved using the Bluetooth signal PHY layer, to confirm that product performance meets the level specified by the Bluetooth core specification v5.1 standard, a dedicated tester meeting the Bluetooth core specification v5.1 test specifications is required.



Bluetooth Test Set MT8852B

Anritsu's Bluetooth Test Set MT8852B is a dedicated Bluetooth measuring instrument meeting the requirements of the Bluetooth core specification v5.1 PHY test specifications.

With support for many test items, including Bluetooth chip/module/device RF tests and connectivity tests, the MT8852B has a wide application range in R&D and manufacturing processes.

The MT8852B Bluetooth core specification v5.1 option supports the following Bluetooth core specification v5.1 PHY test cases

- Output Power
- Carrier frequency offset and drift
- Tx Power Stability, AoD Transmitter
- AoA and AoD packet generation with slot duration and variable CTE lengths

The MT8852B is designed to help customers with early release of products for the fast-growing IoT market-with the following features

Key Features of Bluetooth Test Set MT8852B

Higher Test Reliability	<ul style="list-style-type: none"> Bluetooth SIG-approved industry-wide standard measuring instrument Supports the latest Bluetooth RF PHY test specification Ideal for Bluetooth Qualification pre-evaluation tests
Easier Operability	<ul style="list-style-type: none"> Automatic control using HCI (Host Control Interface) or 2-wire interface Supports one-button measurement of test items using built-in scripts Easy evaluation of characteristics, such as Bathing Curve, using automation software
Easy Technical Support and Data Correlation with SoC (System on Chip) Vendors	<ul style="list-style-type: none"> Adopted as key measuring instrument of major SoC vendors