

Bluetooth® wireless technology testing and advisory services from UL Solutions



Bluetooth® qualification is a mandatory requirement for any product using the Bluetooth® wireless technology and displaying the Bluetooth® trademark. As a fully accredited Bluetooth® qualification and regulatory wireless test facility with 20 years of experience in Bluetooth® compliance, UL Solutions provides testing to the standards of Bluetooth® Special Interest Group (SIG) for global markets.

As one of the few Bluetooth® service providers that offers a comprehensive range of Bluetooth® testing and advisory services— including pre-compliance, interoperability, regulatory and Bluetooth® qualification testing — UL Solutions can help make your route to market more convenient, more cost effective and more straightforward. We can guide you through the steps of the complex Bluetooth® compliance and qualification process, helping you to build confidence in compliance of your designs, demonstrate that your product meets applicable standards for working with other Bluetooth® devices and avoid surprises down the line.

Bluetooth® market updates

In a 2024 report, ABI Research forecasted that 7.5 billion Bluetooth®-enabled devices will ship annually by 2028, an 8% compound annual growth rate (CAGR) from 2024 to 2028*.

Bluetooth® technology supports multiple radio options, enabling developers to build products that meet their customers' specific connectivity needs.

Today, most electronic devices, including smartphones, tablets, laptops and televisions, as well as Bluetooth® Classic and Bluetooth® Low Energy (BLE) radios, are capable of using both Bluetooth Classic and BLE simultaneously, making them Bluetooth Dual-Mode devices. Most Bluetooth devices shipped over the last five years have been Bluetooth Dual-Mode devices, and this will continue to be the case for future devices shipped.

* <https://www.bluetooth.com/2024-market-update/>



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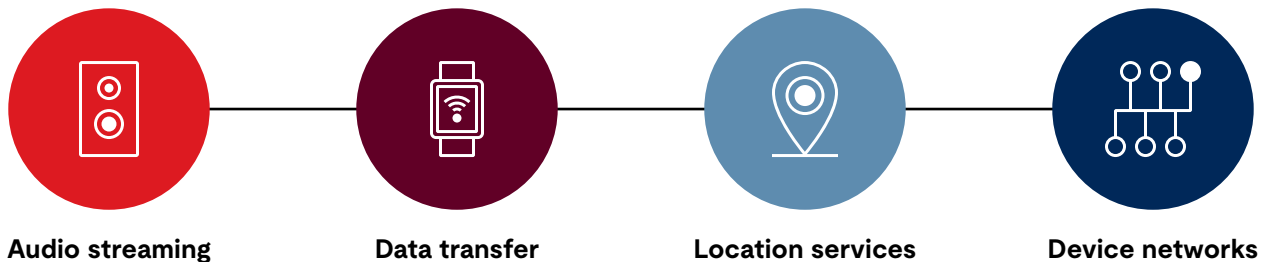
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The expansion of Bluetooth technology

With the introduction of BLE Audio, many audio devices like earbuds are also shifting to Bluetooth Dual-Mode capability.

In addition to audio streaming, Bluetooth® technology has expanded into low-power data transfer, indoor location services and large-scale device networks.

Bluetooth® Channel Sounding (BCS) is the latest evolution of BLE technology. BCS uses phase-based ranging (PBR) and round-trip time (RTT) to significantly improve accuracy in measuring the distance between two BLE devices, when compared to received signal strength indicator (RSSI) techniques. When leveraged together, PBR and RTT can measure distances of up to about 150 meters at centimeter-level accuracy before distance ambiguity arises. BCS use cases include Find My solutions, digital key products, asset tracking, human-interface devices (HID), proximity interactions and automation, and human-machine interface (HMI).



Why choose UL Solutions for Bluetooth® testing?

Efficiently test for compliance with the applicable standards

A comprehensive suite of automated test platforms allows us to operate efficiently and competitively, while helping you meet your time to market goals.

Get ready for Bluetooth® 6.0

With our latest investment in Bluetooth® Low Energy test capabilities, we can support your confidence in qualifying for Bluetooth® Classic and Bluetooth® Low Energy up to the Bluetooth 6.0 specification.

Take advantage of market-leading test capabilities

With independent, ISO 17025-accredited and FCC-listed test facilities in Fremont, California, in the U.S., as well as facilities in Europe and Asia, we test to all relevant electromagnetic compatibility (EMC), radio performance

and safety standards needed for market access. For multi-technology devices, we also leverage an extensive range of expertise in Wi-Fi, cellular compliance and radio frequency (RF) exposure (including specific absorption rate), covering applicable compliance requirements for devices.

Bluetooth® Profile Tuning Suite (PTS)

- Testing software that automates compliance testing to the specified functional requirements of Bluetooth® Core Host layers and specifications that reside above the Host Controller Interface (HCI).

Bluetooth® Core Controller Protocol

- Protocol covering all layers for 4.2, 5.0, 5.1, 5.2, 5.4 and 6.0.
- Experienced qualification experts to help guide you through all applicable testing.
- On-site testing for HCI and above layers.

Bluetooth® RF

- RF testing, covering classic and enhanced data rate and Low Energy 4.2, 5.0, 5.1, 5.2, 5.3, 5.4 and 6.0 specifications, and RF advisory services.



Stay up to date with the latest developments

Our active involvement in the Bluetooth® SIG means we are well positioned to provide insight into new Bluetooth® developments, which can help inform your own product roadmaps.

Access our global expertise locally

Because we have Bluetooth® experts and test facilities around the world, we can work closely with you on qualification requirements, formulate test plans and assist with the formal listing of your product on the [Bluetooth® website](#) wherever you are based.

Longstanding expertise in Bluetooth® testing services

As one of the first organizations to invest in Bluetooth® testing technology in 2002, we have built an unrivaled depth of expertise in Bluetooth® wireless technology testing. Since then, we have qualified designs using a large and varied number of different chipsets, protocol stacks and supported profiles. UL Solutions is one of the few facilities able to offer protocol stack debug and compliance.

For more information, visit: UL.com/Services/BluetoothSigQualificationTesting



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