

# Frontline Test Services

## Bluetooth® Pre-Compliance Testing



### Key Features and Benefits

- **Minimize Testing and Certification Costs**

Identify problems in the development stage so that you can avoid using compliance testing as a way to shake out the bugs

- **Shorten Development Time**

Pre-compliance testing allows you to remain in the right stage of development, avoiding costly and time-consuming backtracking

- **Reduce Risks to Your Business**

Early identification of “show-stopper” failures means that you can set realistic launch goals for production and marketing

- **Eliminate Eleventh Hour Surprises**

By performing the exact tests that are performed in qualification testing, Frontline Test Services pre-compliance testing gives you high confidence in your product’s ability to pass on the first submission

- **Gain Meaningful and Accurate Results**

Performing pre-compliance testing with Bluetooth SIG-validated test equipment ensures that pre-compliance results are accurate and relevant

Frontline Test Services Bluetooth pre-compliance and pre-qualification testing highlights problem areas that could prevent your product from passing compliance or qualification testing. This “preview” of qualification test results can provide valuable insight into the design of your product, resulting in a more cost-effective and time-efficient release.

### Why Perform Pre-Compliance Testing?

Compliance testing is a risky, time-consuming and costly way to find out that your finished product doesn’t meet the required standards of a validating body like the Bluetooth Special Interest Group.

Failing compliance tests at the end of your product development cycle means that an investigation of the failures must take place; corrections must be designed and implemented; and a new compliance test at a qualified lab must be scheduled.

Pre-compliance testing is a low-risk and cost-effective method to ensure that when you send your product off for compliance and qualification testing at the end of the development cycle, it will pass the first time.

Frontline Test Services offer pre-compliance, debugging, regression and robustness testing during development and post release. If you want to subject your product to more rigorous testing, you can also change specific test case parameters to test above and beyond the Bluetooth SIG specifications.

Frontline Test Services uses test equipment that is validated by the Bluetooth SIG, which ensures that the information gathered during pre-compliance testing is meaningful and will correspond to the information obtained during full compliance testing, including:

- **PHY**
  - Bluetooth BR/EDR (RF)
  - Bluetooth Low Energy (RFPHY)
  - Transmitter/Receiver tests
  - AoA/AoD
- **Link Layer and Host Controller Interface (HCI)**
  - All Bluetooth LE specifications, from 4.0 through 5.3
  - Iterative testing of individual test cases and full automated test runs
  - HCI and over-the-air capture files via X240 Protocol analyzer
  - Complete log of test case validations and verdicts
- **Protocol and Profile**
  - Functional requirements and specifications that reside above the HCI

## Advantages of Pre-Compliance Testing

### Lower test and design costs

Product issues left undiscovered until late in the development cycle can cost significantly more than the costs of pre-testing. Multiple test phases can ultimately result in a functional product, but for every non-compliant verdict, the process must be repeated. This adds delays to product development and increasing costs, including the costs of lost marketing efforts around a launch date that has to be postponed until the product makes its way successfully through the testing phases.

### Faster product life cycle with early problem detection

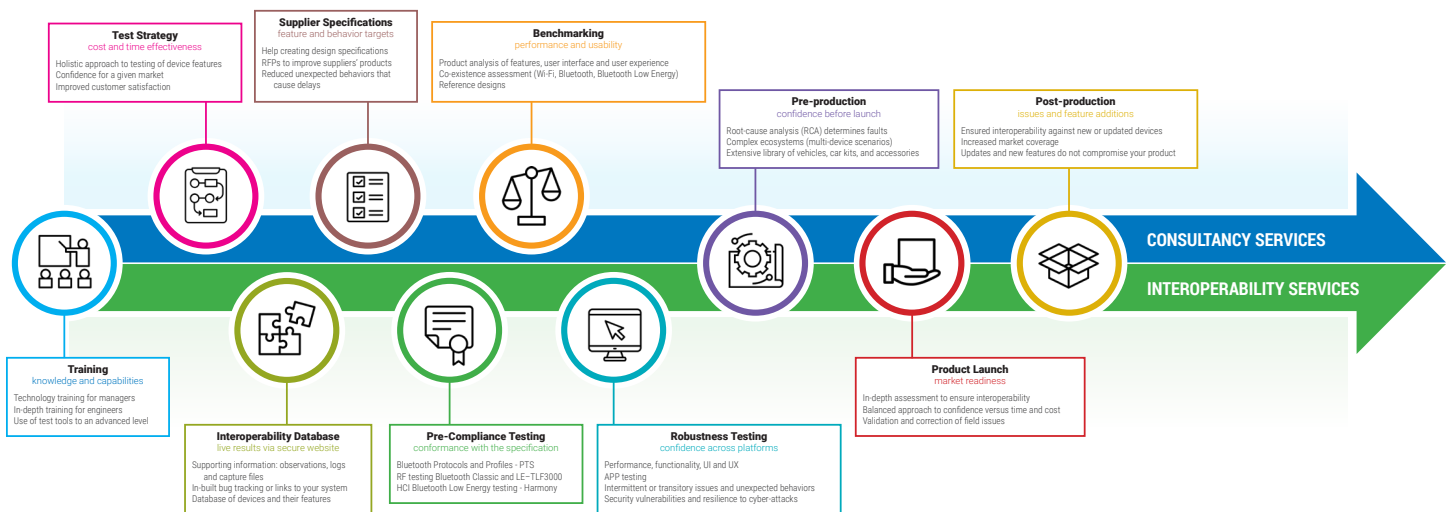
Early testing allows you to detect problems before sending a prototype out to accredited labs. By pre-testing devices, you are able to pinpoint and address potential problems before product submission. The earlier those product deficiencies are identified in the development process, the easier they are to rectify. Fixing problems after compliance testing is much more time consuming than fixing them during the design stage. Pre-compliance testing allows you to remedy and fix an issue right away, rather than compiling multiple costly test and redesign cycles. It is far better for a product to remain in the design and development stage until it meets the compliance requirements.

### Reduced risk of failing certification by testing with validated test equipment

The "Pre-Compliance Testing" phase of development is the stage at which you subject your product to the testing that it will undergo in the actual compliance test. This phase can help you determine if a product is ready for submission to an accredited lab or not, but to emerge from these pre-tests with the highest confidence in advance of final testing, it is crucial to use test equipment that has been validated by the Bluetooth Special Interest Group. Frontline Test Services uses Teledyne LeCroy's Frontline family of Bluetooth test tools that are recognized by the Bluetooth SIG as validated test systems.

### Improved end products

Pre-compliance testing can improve performance as well as reliability by detecting any potential problems before they happen on an industrial scale. Product performance is improved by eliminating malfunctions before production begins as well as by improving reliability during use. Pre-compliance testing ensures optimal product performance is achieved before a product is released into production, which gives you confidence that your customers will have the best possible user experience.



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