*test*Harmony
Bluetooth® LE Exerciser

Key Features and Benefits

- Provides regression testing of Bluetooth low energy HCI and Link Layer implementations

- Supports test case packages based on Bluetooth feature groups

- Parameterized test cases - enables the user to change the parameters of subset of test cases to test beyond Bluetooth SIG specification

- Export test results for individual runs or across multiple runs within the same test project for detailed comparison

- Flexible test configuration supports multiple IUTs

- Summarizes and pinpoints root cause of a fail or inconclusive result

- Allows for integration into "no operator required" automated test regression systems

- User can customize test runs based on individual features or full test runs

- Test Manager, Upper Tester and Lower Tester in one small, portable platform

- Automated error recovery of IUT from failures during testing prevents cascade of failures and "false-negatives"

Based on Teledyne LeCroy's Harmony LE Tester, the *test*Harmony LE Exerciser is a highly flexible test solution designed to provide pre-compliance, debugging, regression and robustness testing for chipset vendors and product manufacturers during the development cycle and post release. The exerciser supports test case package licenses based on Bluetooth feature group functionality, and are available either individually or as a complete package. *test*Harmony supports a number of test cases that enable the user to change specific test case parameters to test above and beyond the Bluetooth SIG LE specification. With the purchase of *test*Harmony and at least one test case package the user will also get access to a set of custom test cases that are not part of the specification.

*test*Harmony is an integrated software/hardware test platform for Bluetooth protocol testing that provides three components: the Test Manager, the Upper Tester, and the Lower tester.

The Test Manager is responsible for test execution and results logging, and running test scripts. Test execution is automated, which allows the system to be integrated into automated regression test systems where no operator intervention is required in order to execute a test suite and parse the pass/fail results. Automated error recovery of the IUT from failures during testing prevents a cascade of failures due to a previous test, limiting failures to just the test that caused the IUT to fail.

The Upper Tester interfaces to the IUT (Implementation Under Test) via HCI UART.

The Lower Tester interfaces to the IUT via RF over the air and RF conducted.

- HCI and over-the-air capture files via X240 Protocol analyzer
- Complete log of test case validations and verdicts

The *test*Harmony LE Exerciser is a sophisticated protocol analysis and tester platform, providing test case logging and debugging, with the detailed information necessary to help understand and debug each failure.

Optional to the *test*Harmony LE Exerciser is the addition of the powerful Frontline X240 Bluetooth LE Protocol analyzer to capture and debug OTA and HCI traffic.

Specifications

- **Bluetooth LE controller testing for Link Layer and HCI**
  Bluetooth LE 4.0, 4.1, 4.2, 5, 5.1, 5.2
  Note: Test results from *test*Harmony cannot be used for Bluetooth SIG certification evidence

- **Timestamp Resolution**
  125 nsec

- **Lower Tester interfaces to IUT**
  RF over-the-air
  RF conducted

- **Upper Tester interfaces to IUT**
  HCI UART

- **Power**
  AC Adapter supplied
  Output of the adapter is 5Vdc, 1.2A

- **Dimensions**
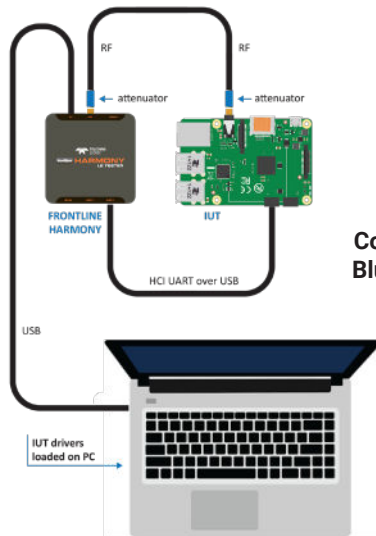 4.1 x 4.1 x 1.0 inches
  (104 x 104 x 25 mm)

- **Temperature**
  0 to 40 degrees C
  32 to 104 degrees F

- **Humidity**
  Operating: 10% to 90% RH
  (noncondensing)

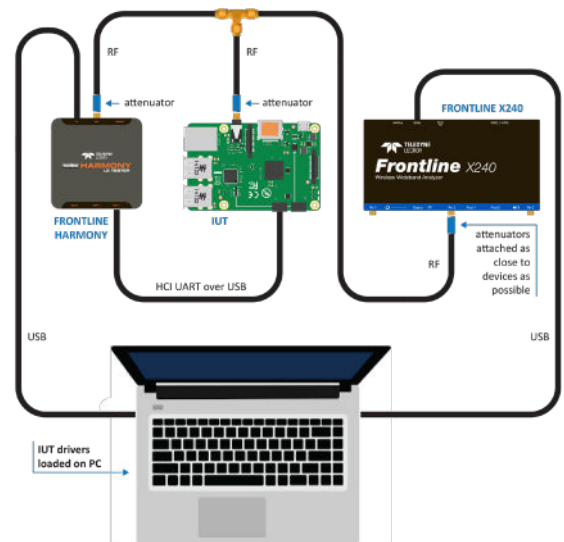- **Receiver Sensitivity**
  -96 dBm

- **Supported Configurations**
  OS Supported: Windows 10
  USB Port: USB 2.0 or USB 3.0 High Speed

- **Minimum System Requirements**
  Processor: Core i5 processor at 2.7 GHz
  RAM: 4 GB
  Free Hard Disk Space: 20 GB

Configuration without Bluetooth LE Analyzer

Configuration using optional Frontline X240 Protocol Analyzer for over-the-air captures

Ordering Information

Product Description	Product Code
Frontline Harmony LE Tester	2014-25100-000
Frontline Harmony LE System Bundle (Harmony Tester and X240 Protocol Analyzer)	2014-25400-000
Test Case Packages	
*test*Harmony SW License - Package LE #1	2013-22251-001
*test*Harmony SW License - Package LE #2	2013-22251-002
*test*Harmony SW License - Package LE #3	2013-22251-003
*test*Harmony SW License - Package LE #4	2013-22251-004
*test*Harmony SW License - Package LE #5	2013-22251-005
*test*Harmony SW License - Package LE #6 (Isoc - Audio over LE)	2013-22251-007
*test*Harmony SW License - Package LE #1-5	2013-22251-006

For Bluetooth LE Qualification functionality please see - conformanceHarmony license 2016-25100-001.

To order or for more information:

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