

Harmony™ Test System User Manual

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What is in this manual

The Frontline Harmony Test System User Manual comprises the following chapters, which are organized in the sequence you would normally follow to perform validation testing: set up, configure, test, report. You can read them from beginning to end to gain a complete understanding of how to use the Frontline Harmony hardware and software or you can skip around if you only need a refresher on a topic. Use the Contents, Index, and Glossary to find the location of topics.

- Chapter 1. Frontline Hardware and Software. This chapter will describe the minimum computer requirements, how to install the software and license key, and how firmware updates are provided.
- Chapter 2. Getting Started. Here we describe how to set up and connect the hardware, and how to apply power. This chapter also describes how to start the Frontline Harmony software.
- Chapter 3. Configuration Settings. The software is configured to capture data. Configuration settings may vary depending on the user's pc configuration and the implementation under test (IUT).
- Chapter 4. Running Tests. This chapter describes how to run one or more validation tests.
- Chapter 5. Test Results. Here you will find how to view results, export reports, and use the files stored in the Results folder.
- Chapter 6. General Information. This chapter provides additional information about the troubleshooting failed tests with Frontline Sodera, and provides information on how to contact Frontline's Technical Support team should you need assistance.
- Chapter 7. *test*Harmony. This chapter describes the additional features that are available with a *test*Harmony license.

Important note: The Harmony Test System includes a Frontline Sodera or X240 unit. Other Sodera or X240 units can be used with the Harmony hardware, however the Sodera *must* have either a Dual Mode Advance license or a Single Mode LE Advance license and the X240 must have a LE license to work correctly with the system. For the Sodera please use the "Renew PM" application to check your license type. For the X240 run Wireless Protocol Suite, on the Main Page click the down arrow next to the X240 serial number on the Analyzer bar and click Manage License to check your license type. The Sodera or X240 unit you received with the Harmony Test System is ensured to work correctly when used in tandem with your system's Harmony hardware.

Chapter 1. Hardware and Software

The Frontline Harmony hardware interfaces with your computer that is running the Harmony software.

Frontline Harmony Test System is an easy to use and powerful tool to perform a wide variety of Bluetooth low energy HCI and link layer validation testing. The Harmony Test System is a set of integrated components, including the Frontline Harmony hardware; the Frontline Sodera Wideband Bluetooth Protocol Analyzer or X240; and the Harmony software.

This manual is a user guide that takes you from connecting and setting up the hardware through all the Frontline Harmony software functions for your Frontline hardware. Should you have any questions contact the Frontline Technical Support Team.

1.1 Computer Minimum System Requirements

- Frontline supports the following computer systems configurations:
- Operating System: Windows 10
- USB Port: USB 2.0 High-Speed or later
- The Frontline software must operate on a computer with the following minimum characteristics.
- Processor: Core i5 processor at 2.7 GHz
- RAM: 4 GB
- Free Hard Disk Space on C: drive: 20 GB

1.2 Software Installation

Download the installation software from a link that should have been provided to you. If you did not receive that link, please contact the Frontline Technical Support Team.

The license key should also have been distributed directly to you. The name of the license file will be in the following: “Harmony LE Tester_xxxxx-xxxxx_yyyymmmm.lic”, where the x’s are the serial number of the Harmony and the yyyymmmm is the year and month that the license expires. To install the license, do the following:

> Note: The same steps will be used for new installs as well as renewing licenses.

1. Save the .lic file to a known location.
2. Connect the Harmony unit to the computer.
3. Run the Renew PM program from ‘Desktop\Frontline Harmony [version number]\’
4. From the list of devices, click to select the Harmony device.
5. Use the Browse button (“…”) in the Premium Maintenance Data section to locate the .lic file you saved.
6. Click the ‘Use License’ button. This will rename the “Harmony LE Tester_xxxxx-xxxxx_yyyymmmm.lic” file as “licenseKey.py” and put it in the following location:

C:\Users\UserName\AppData\Roaming\Teledyne LeCroy Wireless\LETester\licenseKey.py

Note: In the past the licenseKey.py file was manually copied into the …\Frontline Test Equipment\LETester folder. The …\Teledyne LeCroy Wireless\LETester folder now has precedence so if

there is a licenseKey.py file in the Teledyne LeCroy Wireless\LETester folder that is the license that will be used.

Depending on the license (there will only be one license file) the Harmony software will operate in *conformance*Harmony mode (which is the standard official testing software mode), *test*Harmony mode, or both. Harmony will only operate in one of the modes at a time and which mode Harmony is in can be seen in the top left corner.

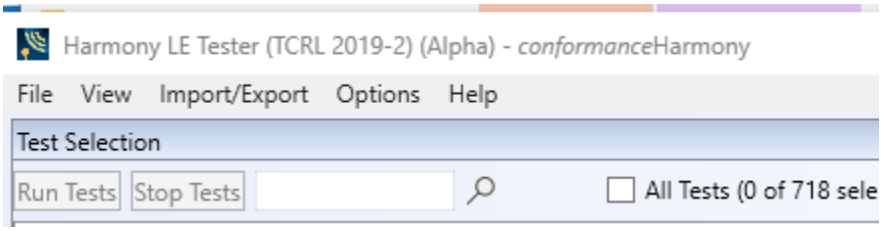


Figure 1 – conformanceHarmony Mode

The *test*Harmony mode has two new features. One feature is the ability to run tests without the Sodera or X240. If this feature is used any test that requires a Sodera or X240 and passes will have a Final Verdict of Manual. The other new feature is the ability to run a test an infinite number of times.

The *test*Harmony license will be tied to features and only tests that are tied to those features will be displayed. For example, if a testHarmony license only has HCI and 2M LE PHY then only HCI and 2M LE PHY test cases will be available in *test*Harmony mode. If the license has both *conformance*Harmony and *test*Harmony then the user will be able to switch between the modes and if the user is in *conformance*Harmony mode all of features and tests will be available.

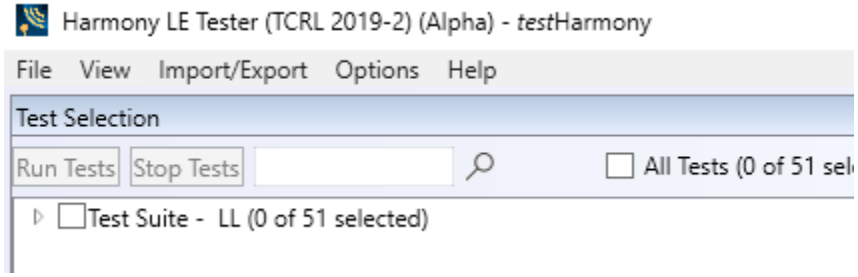


Figure 2 – testHarmony Mode

1.3 Harmony Firmware

The Harmony software will check the version of Harmony hardware firmware and determine if the firmware needs to be upgraded or downgraded. In order to perform the firmware check, the Sodera or X240 must be properly licensed. Please refer to the note above for licensing information. If the firmware needs to be changed a popup window like the one below will appear (Figure 3)

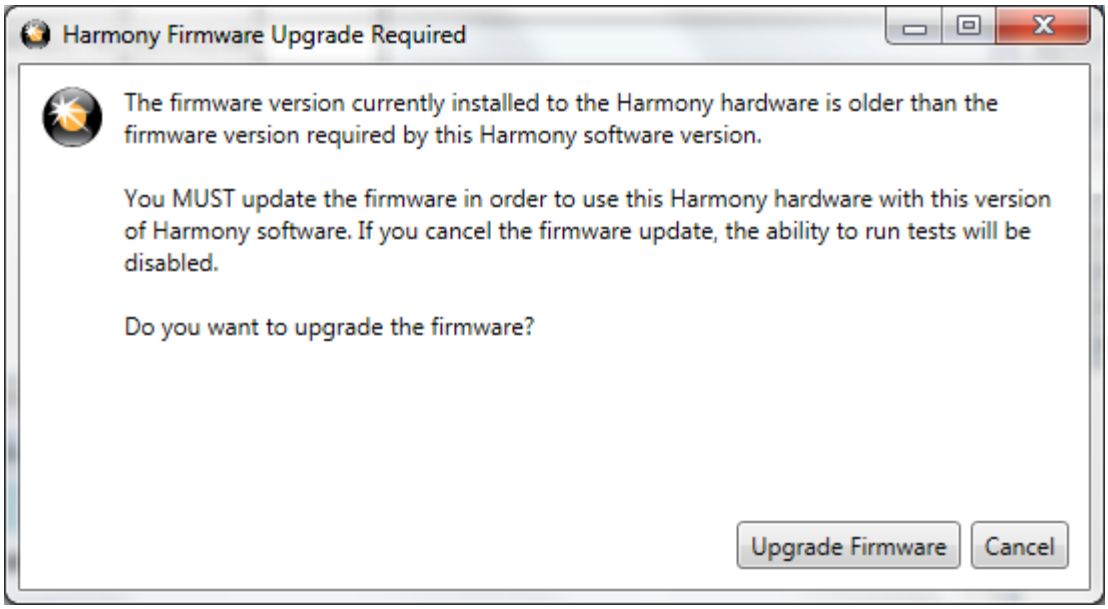


Figure 3 – Harmony Firmware Upgrade Notification

Follow the instructions in the popup window. Note: if the "Cancel" button is selected the firmware will not be changed and the tests will not be run until the firmware is correct. If the firmware was not changed when initially prompted one can change the firmware by going to Help > Update Harmony Firmware…

If the "Upgrade Firmware" button or "Downgrade Firmware" button is clicked, another popup window will open showing the progress of the firmware change (Figure 4). When the firmware change is complete click the "Close" button.

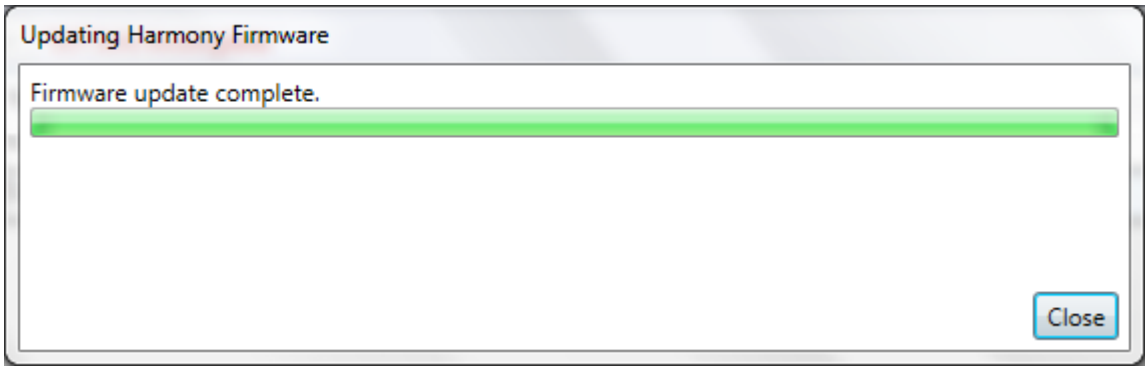


Figure 4 – Updating Harmony Firmware

1.4 Sodera or X240 Firmware

The Harmony software will check the version of Sodera or X240 hardware firmware and determine if the firmware needs to be upgraded or downgraded. If the firmware needs to be updated a popup window like the one below will appear (Figure 5).

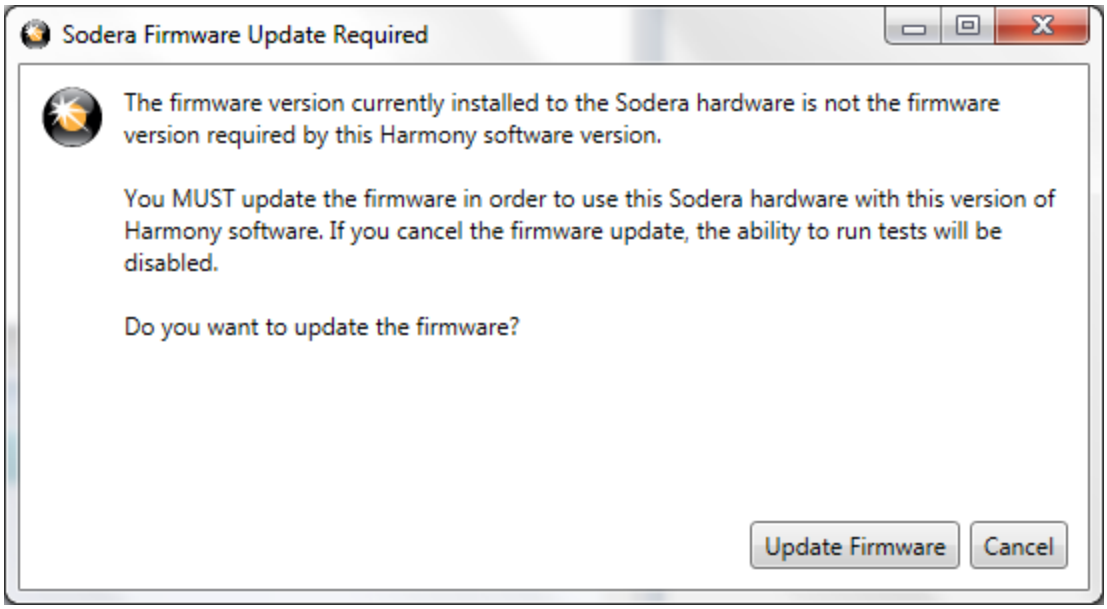


Figure 5 – Sodera Firmware Update Notification

Follow the instructions in the popup window. Note: if the "Cancel" button is selected the firmware will not be changed and the tests will not be run until the firmware is correct. If the firmware was not changed when initially prompted one can change the firmware by going to Help > Update Sodera Firmware… or Help > Update X240 Firmware…

If the "Update Firmware" button is clicked, another popup window will open showing the progress of the firmware change (Figure 6). When the firmware change is complete click the "Close" button.

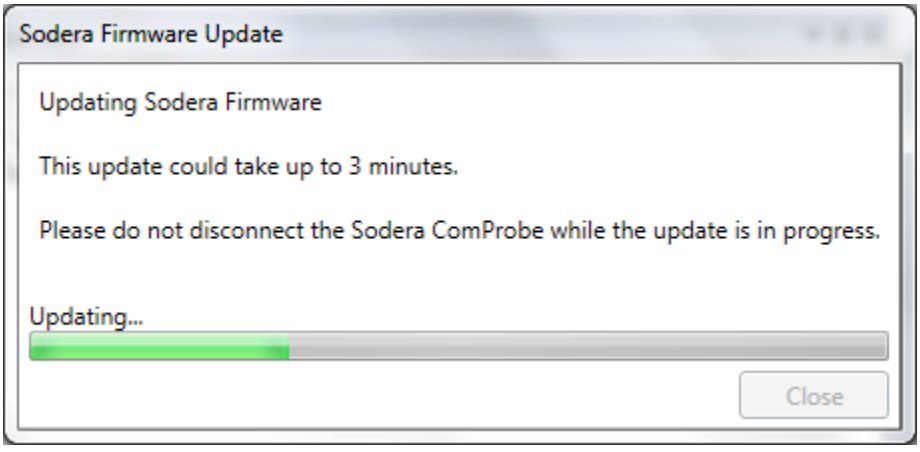


Figure 6 – Sodera Firmware Update in Progress

Chapter 2. Getting Started

In this chapter we introduce you to the Frontline Harmony hardware and show how to start the Frontline Harmony software and explain the basic software controls and features for conducting validation tests.

2.1 Harmony Hardware

2.1.1 Attaching Cables for Conductive Operation

Note: Some tests are more susceptible to over-the-air interference and for those tests it may be necessary to run them with a conductive setup **and in** a controlled RF environment (e.g. a RF shielded room).

Since over-the-air sniffing can be compromised in noisy RF environments, conductive testing is the recommended approach.

1. Attach one end of each of the three provided RF cables to the T-connector, also provided with your Harmony Test System (Figure 7).



Figure 7 – RF Cables and T-Connector

2. To the other end of each RF cable, connect one of the three provided 20dB attenuators (Figure 8).

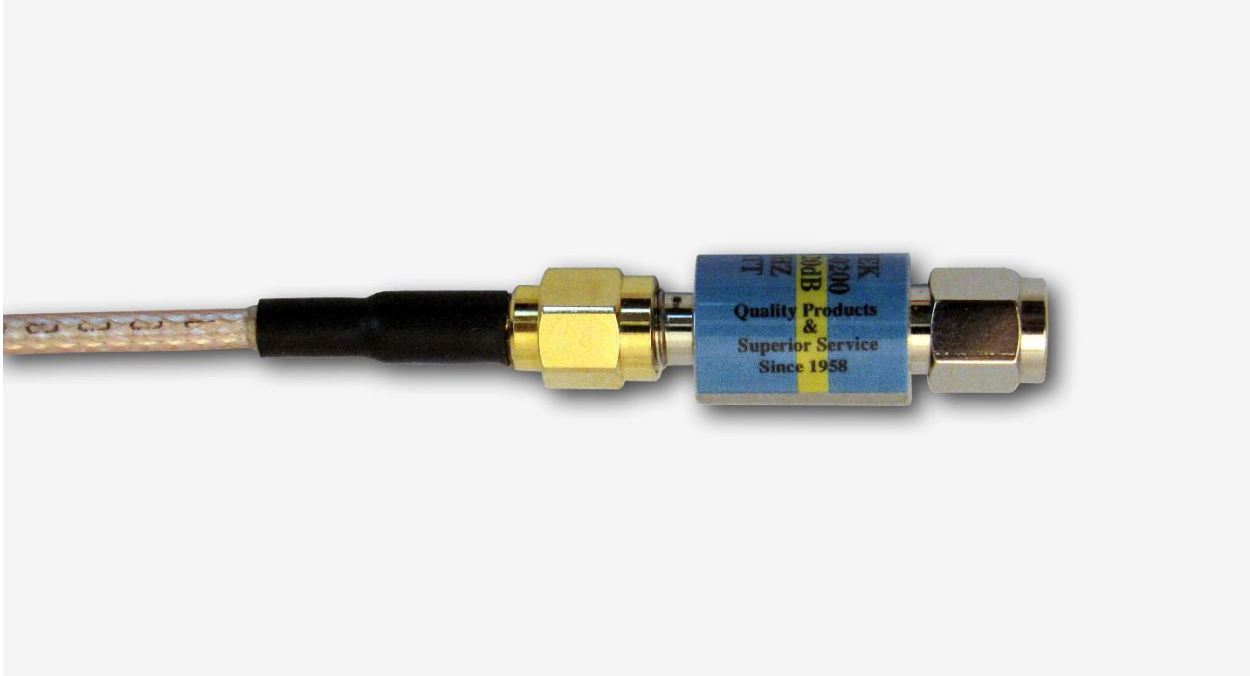


Figure 8 – RF Cable and Attenuator

3. Attach one cable-connected attenuator to the Antenna port of the Frontline Sodera hardware or the Antenna port (Rx 2) on the X240 hardware.
4. Attach one cable-connected attenuator to the Antenna port of the Frontline Harmony hardware. If the PCL test cases that need manual attenuation are going to be run refer to section 2.1.4.
5. Attach the last cable-connected attenuator to the RF output of the IUT.
   Important note: If the IUT's RF output isn't capacitively coupled, attach the provided DC blocker to the attenuator before connecting the attenuator to the RF output of the IUT (Figure 9). If you don't know whether the IUT's RF output is capacitively coupled, use of the DC blocker is recommended.



Figure 9 – DC Blocker Connection to Attenuator

2.1.2 Attaching Antenna for Over-the-Air Operation

Although conductive testing will yield the best results, over-the-air testing can provide good results when the testing is done in a controlled RF environment (e.g. an RF shielded room). If you choose to do over-the-air testing, attach the supplied antenna to the Harmony hardware.

Note: Some tests are more susceptible to over-the-air interference and for those tests it may be necessary to run them with a conductive setup **and in** a controlled RF environment (e.g. a RF shielded room).

1. Attach the antenna to the SMA connector jack under the “ANT” label. (Figure 10)



Figure 10 – Antenna Connection

2.1.3 Connecting/Powering the Frontline Harmony

Once you have readied the Harmony hardware for conductive or over-the-air testing, the next step is to power up and connect the Frontline Harmony to the computer.

1. Connect the provided 5VDC 1.2A adapter to the Power port on the Frontline Harmony back panel (Figure 11).



Figure 11 – Power Connection

2. Plug the adapter into the AC power source. The rear panel Power light will illuminate.
   Note: The Harmony hardware is designed to operate using only USB power in mobile settings, or when access to a wall outlet is unavailable. Powering your Harmony hardware using a wall outlet will provide more power to the USB ports.
3. Insert the supplied USB mini cable into the PC connection on the Frontline Harmony rear panel (Figure 12).



Figure 12 – PC Connection

4. Insert the other end of the USB cable into the PC.
5. Insert the supplied USB mini cable into the Port 1 connection on the Frontline Harmony rear panel (Figure 13). The second port is reserved for future use.



Figure 13 – IUT Port Connections

6. Plug the other end of the Port USB cable into the IUT.
7. Connect the PC Host port on the Frontline Sodera or X240 to PC via USB (Figure 14)

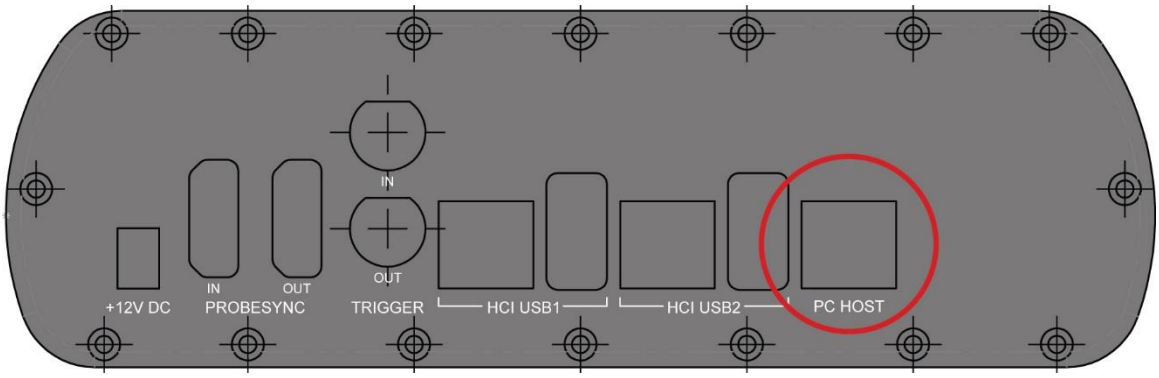




Figure 14 – Sodera and X240 PC Connections

Important note: The Harmony Test System includes a Frontline Sodera or X240 unit. Other Sodera or X240 units can be used with the Harmony hardware, however the Sodera *must* have either a Dual Mode Advance license or a Single Mode LE Advance license and the X240 must have a LE license to work correctly with the system. For the Sodera please use the "Renew PM" application to check your license type. For the X240 run Wireless Protocol Suite, on the Main Page click the down arrow next to the X240 serial number on the Analyzer bar and click Manage License to check your license type. The Sodera or X240 unit you received with the Harmony Test System is ensured to work correctly when used in tandem with your system's Harmony hardware.

8. After making these connections, your setup should resemble a typical testing configuration (Figure 15)

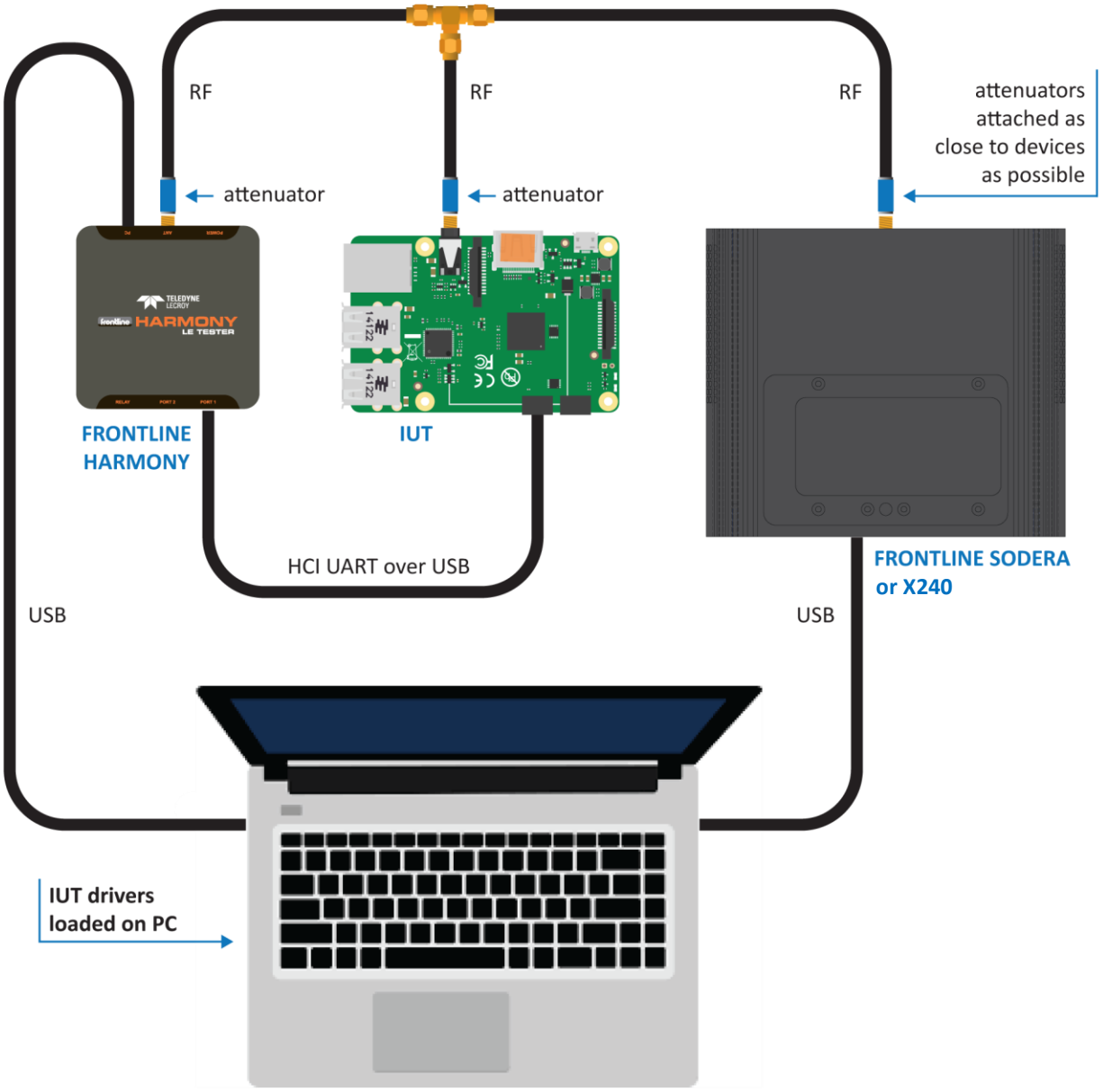


Figure 15 – Typical Testing Configuration



Figure 16 – Relay Connections

9. The relay (Figure 16) port is a solid-state device used to externally control devices, like switches, triggers, etc.
    a. The center pin of the connector is Common (COM) and the other two pins are Normally Open (NO) and Normally Closed (NC).
    b. The relay provides a means by which users can reset their IUT between tests (e.g. by removing and then reapplying power to the IUT, or by asserting & releasing a reset line).

2.1.4 PCL Tests that Require Additional Attenuation

The following 30 tests require adding attenuation:

LL/PCL/CEN/BV-01-C	LL/PCL/CEN/BV-03-C	LL/PCL/CEN/BV-04-C	LL/PCL/CEN/BV-05-C
LL/PCL/CEN/BV-12-C	LL/PCL/CEN/BV-17-C	LL/PCL/CEN/BV-20-C	LL/PCL/CEN/BV-23-C
LL/PCL/CEN/BV-45-C	LL/PCL/CEN/BV-47-C	LL/PCL/CEN/BV-48-C	LL/PCL/CEN/BV-49-C
LL/PCL/CEN/BV-50-C	LL/PCL/CEN/BV-51-C	LL/PCL/CEN/BV-52-C	LL/PCL/PER/BV-01-C
LL/PCL/PER/BV-03-C	LL/PCL/PER/BV-04-C	LL/PCL/PER/BV-05-C	LL/PCL/PER/BV-12-C
LL/PCL/PER/BV-17-C	LL/PCL/PER/BV-20-C	LL/PCL/PER/BV-22-C	LL/PCL/PER/BV-45-C
LL/PCL/PER/BV-47-C	LL/PCL/PER/BV-48-C	LL/PCL/PER/BV-49-C	LL/PCL/PER/BV-50-C
LL/PCL/PER/BV-51-C	LL/PCL/PER/BV-52-C		

These 30 test cases can be selected by clicking on “Options” > “Test Selection Manager” and scrolling down and selecting the “LE Power Control – Manual Attenuation Required” section.

2.1.4.1 IXIT Values for Power Control Tests that Require Attenuation

The following IXIT values must be set for the tests that require additional attenuation:

1. TSPX_RF_Attenuator
   The attenuation added to the Lower Tester transmit power to trigger an IUT request or response. Note that this value represents the total amount of attenuation in your setup. See the section titled “Adjusting Attenuator Size” for more information.
2. TSPX_Minimum_Transmit_Power_Level
   The minimum Lower Tester transmit power plus TSPX_RF_Attenuator IXIT value required to trigger an IUT request or response when TX power is decreasing. The test will return an Inconclusive verdict when TX power plus attenuation is less than this IXIT.
3. TSPX_Maximum_Transmit_Power_Level
   The maximum Lower Tester transmit power plus TSPX_RF_Attenuator IXIT value required to trigger an IUT request or response when TX power is increasing. The test will return an Inconclusive verdict when TX power plus attenuation is greater than this IXIT.

Harmony calculates the RF attenuator IXIT value automatically when the transmit power level IXIT values are correctly set to values required by the IUT. To see the automatic calculation, set the IUT transmit power level IXIT values in the UI and run one of the Power Control tests that require attenuation (e.g., LL/PCL/CEN/BV-03-C.) The resulting script.log from the test will include the RF attenuator IXIT value. Set the IXIT value of TSPX_RF_Attenuator in the UI to the value indicated in the script.log and add attenuation so the TSPX_RF_Attenuator value matches all attenuation in your setup.

2.1.4.2 Adjusting Attenuator Size

The TSPX_RF_Attenuator IXIT value is not equal to the attenuator size. The TSPX_RF_Attenuator IXIT value includes all attenuation from cables, connectors and added attenuators in your setup. The cables and connectors can add from 3 to 8 dB attenuation; so, this amount needs to be subtracted from the

attenuator size. To choose the size of attenuator(s), start by subtracting 5 dB from the TSPX_RF_Attenuator value. For example, if TSPX_RF_Attenuator is -45 dB, use a -40 dB attenuator in your setup to compensate for the possible -5 dB in the cables and connectors.

If an attenuation tests still return an inconclusive or failure verdict, examine the test "script.log" file or use test LL/PCL/CEN/BV-03-C test to calibrate the size of the attenuator. Adjust the attenuation by small amounts (2 or 3 dB) and it is best if this calibration is done in a quiet or shielded room as additional traffic may cause unpredictable results.

The LL/PCL/CEN/BV-03-C test runs in two parts. In the first part, the Lower Tester increases power until the IUT requests a power decrease. In the second part, the lower tester decreases power until the IUT requests an increase. On a completed test that does not pass, open the "script.log" file and follow the instructions below depending on which message is found:

1. **[Inconclusive Verdict] A power decrease LL_POWER_CONTROL_REQ PDU was not received.** The added attenuator size is too large, and attenuation needs to be removed. The value in the last "IUT RSSI:" message may help determine how much attenuation needs to be removed. For example, if the value in the last "IUT RSSI:" message is -45 dB and the IUT IXIT value for TSPX_Maximum_Transmit_Power_Level is -40, then about 5 dB of attenuation needs to be removed for a "Pass" verdict.
2. **[Inconclusive Verdict] A power increase LL_POWER_CONTROL_REQ PDU was not received.** The added attenuator size is too small, and attenuation needs to be added. The value in the last "IUT RSSI:" message may help determine how much attenuation needs to be added. For example, if the value in the last "IUT RSSI:" message is -65 dB and the IUT IXIT value for TSPX_Minimum_Transmit_Power_Level is -70, then about 5 dB of attenuation needs to be added for a "Pass" verdict.
3. **[Validate] FAIL – actual 2 (VsSetConnTxPwr.Status) is expected equal to 0 (SUCCESS).** The added attenuator size is too large, and attenuation needs to be removed to maintain a stable connection. The error code 0x02 indicates the connection handle is no longer valid, which likely happened because the signal is too weak causing the connection to fail. This may also be confirmed if an HCI_Disconnect_Complete event with reason 0x08 (Connection Timeout) is found in the "hci.log" file just before the invalid connection handle error.

2.1.4.3 Attaching Attenuators

In a typical Harmony setup, the analyzer is attached via a conductive cable to a T-connector with the IUT and Harmony attached to the other ends of the T-connector. The attenuator attached to the analyzer is not part of the attenuation calculation and should be the recommended value for the analyzer used. The attenuation value calculated for the PCL tests should be split as equally as possible so that half the attenuation is attached to the IUT, and half the attenuation is attached the "ANT" port on Harmony. This will allow the analyzer to receive maximum RF strength from both the IUT and Harmony at low power values. It is not recommended to use the DC blocker while running these PCL test cases.



Figure 17 – Attenuator Connection

2.1.5 Launching the Software

Installing the Frontline Harmony software creates folders necessary for the operation of the software. After you have installed the license using Renew PM per the instructions in section 1.2 you can launch the software using one of two methods.

1. Click the Windows Start Menu, then under All Programs find the Frontline Harmony program group and click on “Harmony Tester.”
2. Open the Frontline Harmony Folder that was added during installation to your desktop and click on “Harmony Tester.”
3. The Harmony Tester interface is comprised of eight panes (Figure 18)
    a. Test Selection – allows you to select tests to run
    b. Run Explorer – allows you to review tests that have already been completed

c. Event Viewer – the Event Viewer is a record of significant events that occurred at any time the Harmony LE Tester is running
d. Project Settings – provides test settings
e. Tester and IUT Configuration – provides for configuration of Harmony hardware and IUT hardware
f. IXIT Data – provides for Implementation eXtra Information for Test (Implementation-specific values that further describe the capabilities of the IUT, e.g. the limits of what is supported).
g. IUT Information – provides for customer, manufacturer and product information
h. Test Results – provides pass/fail feedback on tests run

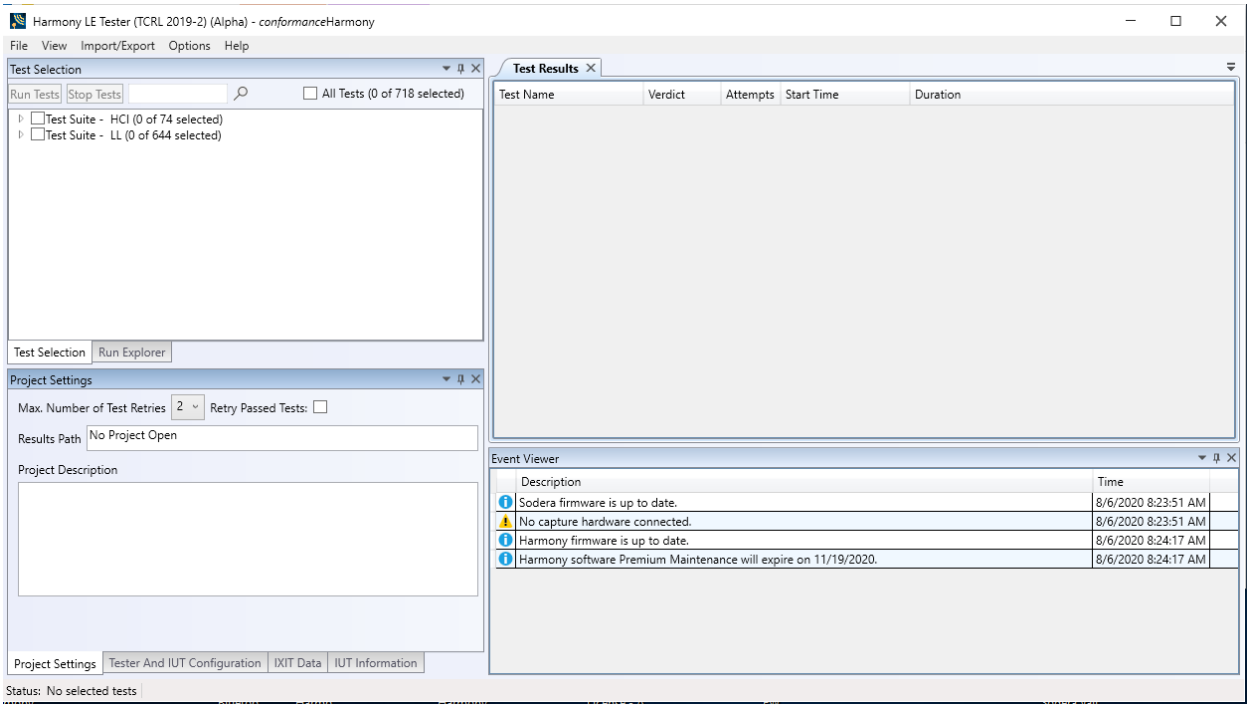


Figure 18 – Harmony Tester Interface

Chapter 3. Configuration Settings

In this chapter we describe the configurations required for the best testing results using the Frontline Harmony.

3.1 Configuring the Software

3.1.1 Project Settings

Click the “Project Settings” tab to configure basic project settings. (Figure 19)

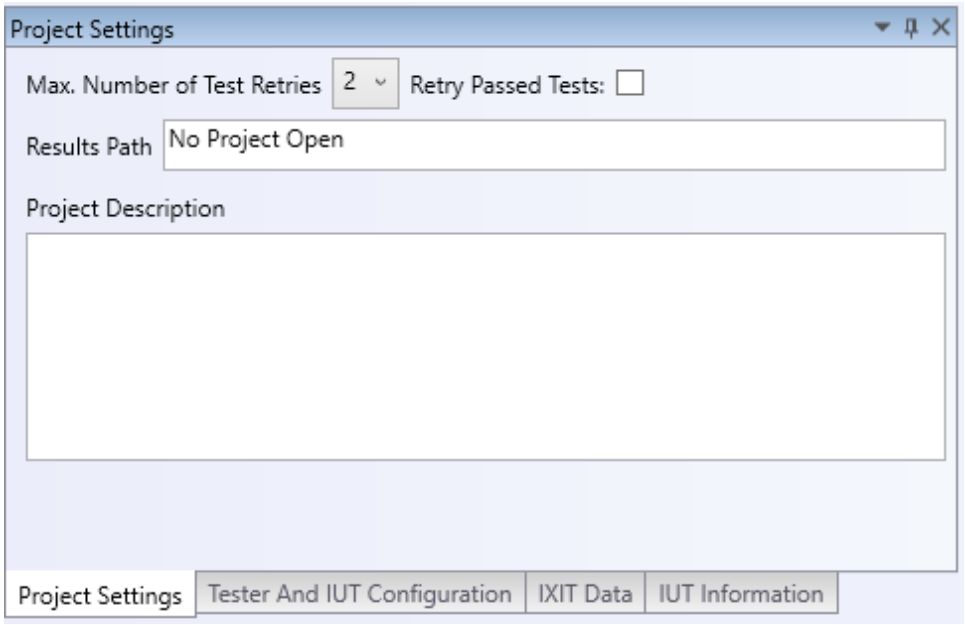


Figure 19 – Project Settings Configuration

1. Use the drop-down box next to “Max. Number of Test Retries” to the desired number. The Harmony software allows 0-9 automatic test retries to allow for noise interference or other hard to control environmental factors.
2. The Results Path will remain unspecified until you save your project, at which time you will name the location of your project files, specify a project name, and add a project description. (Figure 20)

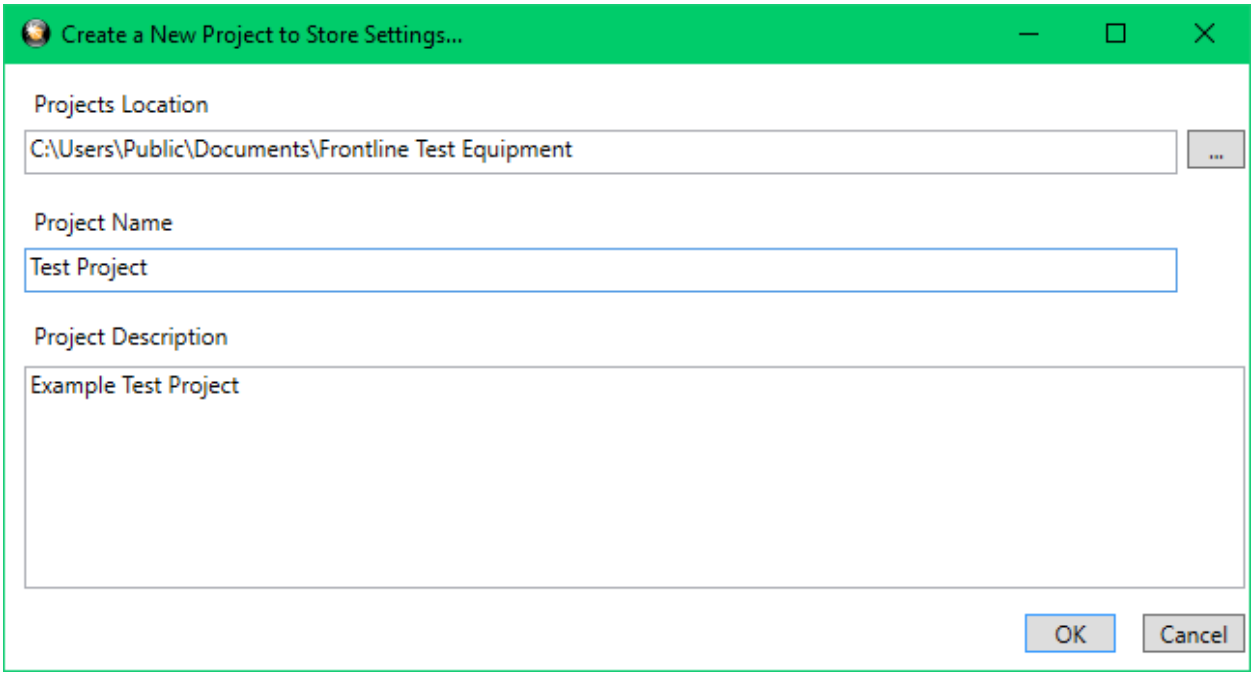


Figure 20 – Create New Project Dialog

3. Clicking “OK” saves the project files into the specified location. If the specified folder does not already exist, the Harmony software creates the folder.

3.1.2 Tester and IUT Configuration

Click the “Tester and IUT Configuration” tab to configure settings affecting the Harmony tester, PC connection, and the IUT. (Figure 21)

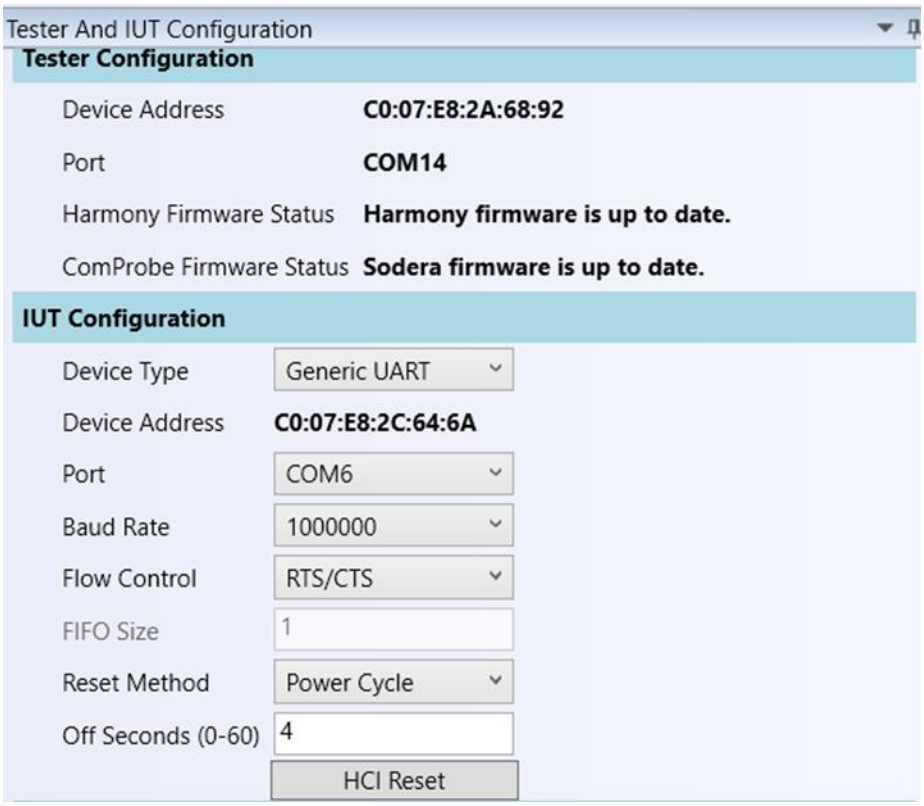


Figure 21 – Tester and IUT Configuration

1. If the Harmony hardware is connected, the BD ADDR of the Harmony and the port that the Harmony is connected to will be displayed.
2. Connect the IUT.
3. Under IUT Configuration, set Device Type to Generic UART.
4. The BD ADDR of the IUT will remain blank until testing is started. Once testing has started the BD ADDR for the IUT will be filled in automatically.
5. Select the correct PORT for the IUT to enable a connection to the IUT.
6. Select the correct Baud Rate for the IUT.
7. Select the correct Flow Control for the IUT.
    a. RTS/CTS - this setting will allow the Harmony tester to use flow control.
    b. None – if this setting is used then RTS/CTS will not be used and the IUT's FIFO buffer size will have to be entered in the "FIFO Size" field.

    Note: If RTS/CTS is used then the "FIFO Size" field will be disabled.

8. Select the preferred method for resetting the IUT between test cases:
    a. HCI Reset – this setting will allow the Harmony tester to send an HCI reset command to the IUT
    b. Power Cycle – this setting will allow the Harmony tester to shut off power to the USB port and toggle the relay for a configurable number of seconds. Note: The "Off Seconds" textbox will be enabled when "Power Cycle" is selected.

9. Click the “IUT Supported Commands” button to populate the octet fields. Note: It is important to fill in the octet fields otherwise some tests will fail.

3.1.3 IXIT Data

Click the “IXIT Data” tab to configure device and advertising information that may be required by certain Bluetooth SIG specified test cases. (Figure 22)

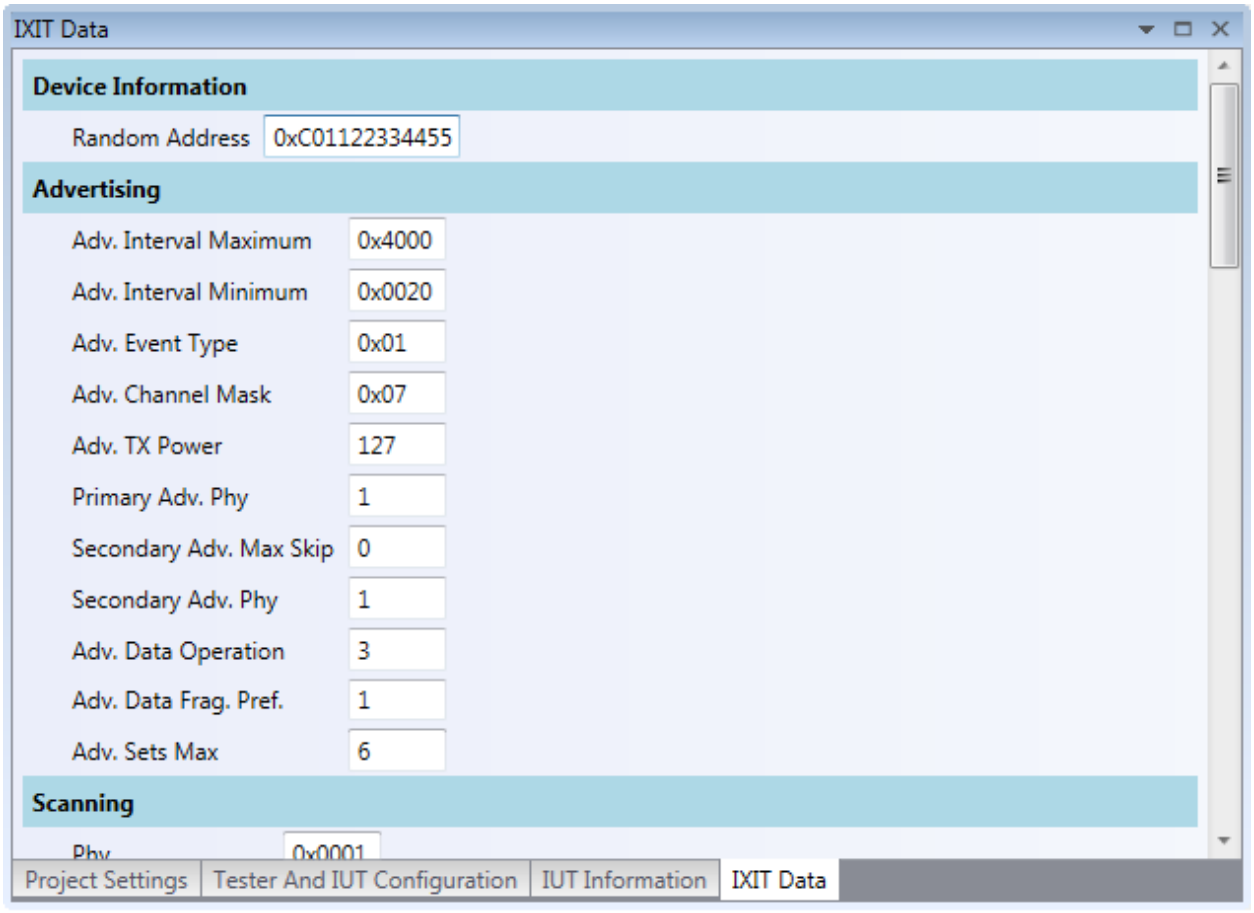


Figure 22 – IXIT Data

IXIT values are changed to match the capabilities of the device or test. For example, if a device can support a maximum number of six transmit BISes as an Isochronous Broadcaster then The “Max Tx BISes” field would be modified to a value of 6 as indicated by the dashed red rectangle in Figure 23.

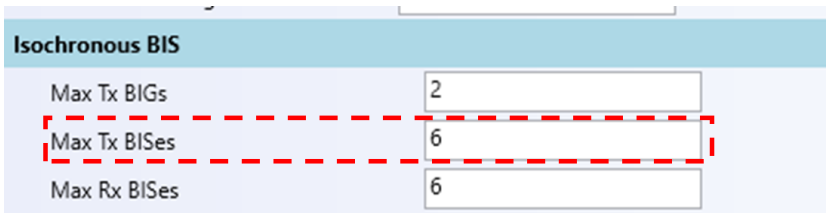


Figure 23 – IXIT Data for maximum number of transmit BISes

If on the other hand a test such as LL/DDI/ADV/BI-09-C which requires the IUT to select a periodic advertising interval large enough to support the Num_Subevents set to 10, Subevent_Interval set to 65 ms, and Response_Slot_Delay set to 1.25 ms with Response_Slot_Spacing set to 1.25 ms then the IXIT values for “Periodic Adv. Interval Min” and “Periodic Adv. Interval Max” need to provide a range that includes valid advertising intervals for the test.

The latest information about the IXIT’s value, data type, and description can be found in the Bluetooth SIG’s Core.IXIT spreadsheet which is available for download on their website. To do this (as of September 2023) navigate to the URL https://www.bluetooth.com/specifications/specs/. On the page select the appropriate Core Specification version for the IXITs of interest by first typing “Core Specification” in the search box as indicated by the dashed red oval in Figure 24. Then choose the Core Specification version of interest as indicated by the dashed red arrow in Figure 24. This will load the Core Specification page to download the IXIT file.

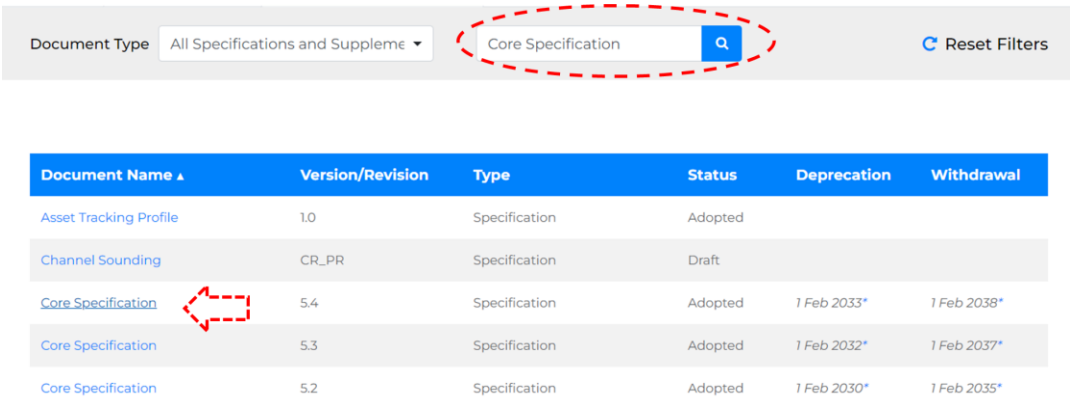


Figure 24 – Selecting the appropriate Core specification version for the IXITs of interest.

From the Core Specification page select the “Implementation Extra Information for Test (IXIT)” which is a spreadsheet in the Excel XLS format and indicated by the dashed red rectangle in Figure 25.

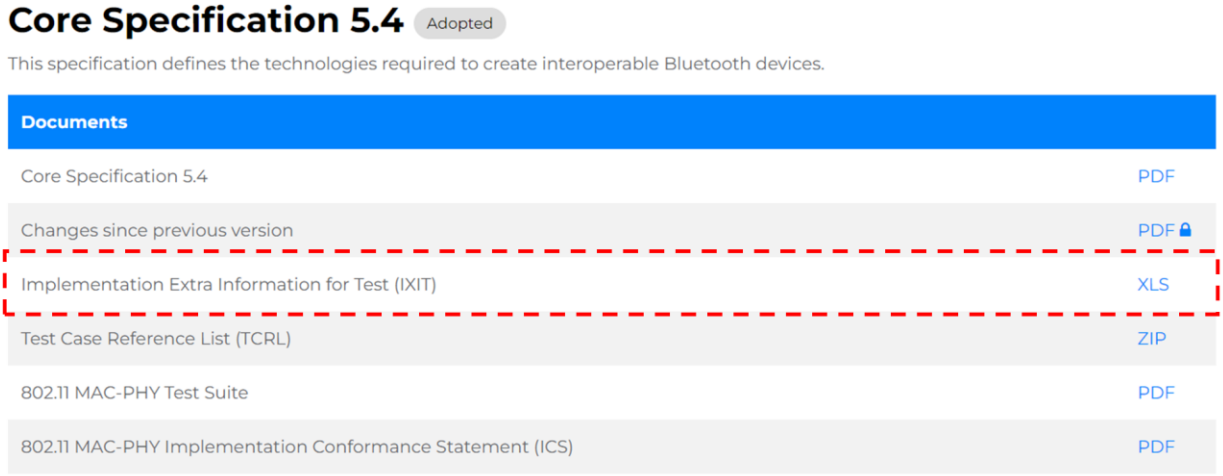
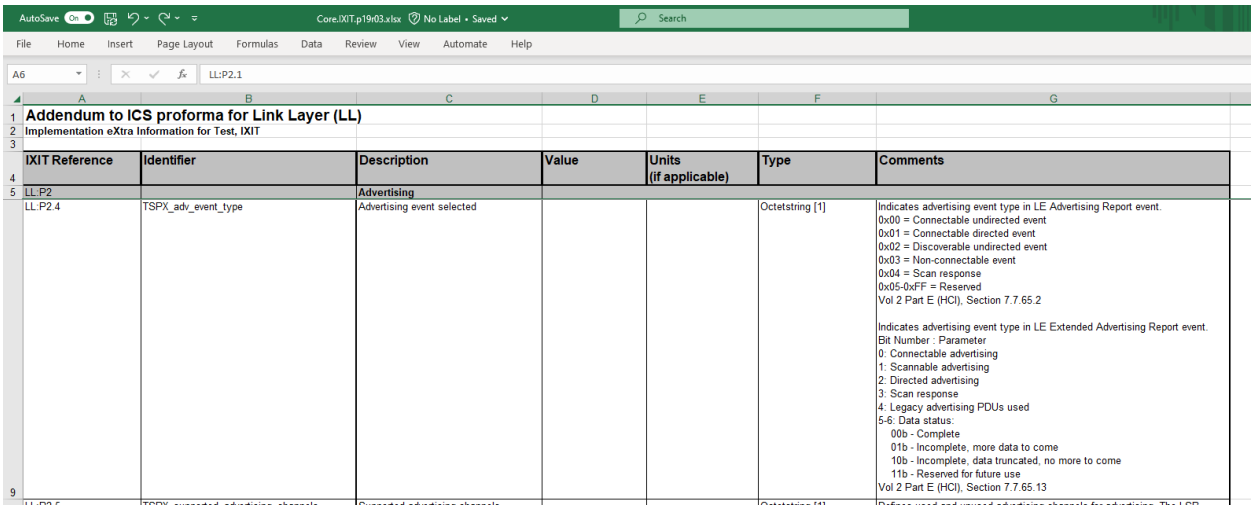


Figure 25 – Selecting the IXIT spreadsheet for download.

After downloading the spreadsheet, open it and search for the IXIT of interest. As shown in Figure 26 the latest IXIT details for the advertising event are given including a description of the IXIT, the IXIT data type and additional comments which for the advertising event show what functionality the bit values correspond to.

Note: The IXIT identifiers in the spreadsheet are shortened in the Harmony ixit_ble.conf files by dropping the prefix “TSPX_”. For example, the IXIT named “TSPX_adv_event_type” in the spreadsheet is shortened to “adv_event_type” in a Harmony ixit_ble.conf file.



Addendum to ICS proforma for Link Layer (LL)
Implementation eXtra Information for Test, IXIT

IXIT Reference	Identifier	Description	Value	Units (if applicable)	Type	Comments
LL:P2		**Advertising**				
LL:P2.4	TSPX_adv_event_type	Advertising event selected			Octetstring [1]	Indicates advertising event type in LE Advertising Report event. 0x00 = Connectable undirected event 0x01 = Connectable directed event 0x02 = Discoverable undirected event 0x03 = Non-connectable event 0x04 = Scan response 0x05-0xFF = Reserved Vol 2 Part E (HCI), Section 7.7.65.2 Indicates advertising event type in LE Extended Advertising Report event. Bit Number : Parameter 0: Connectable advertising 1: Scannable advertising 2: Directed advertising 3: Scan response 4: Legacy advertising PDUs used 5-6: Data status: 00b - Complete 01b - Incomplete, more data to come 10b - Incomplete, data truncated, no more to come 11b - Reserved for future use Vol 2 Part E (HCI), Section 7.7.65.13

Figure 26 – Example of IXIT details for the advertising event

3.1.4 IUT Information

Click the “IUT Information” tab to configure customer, manufacturer, and product meta data. Some fields are required so that any Test Reports produced include the information expected in a Bluetooth validation report. (Figure 23)

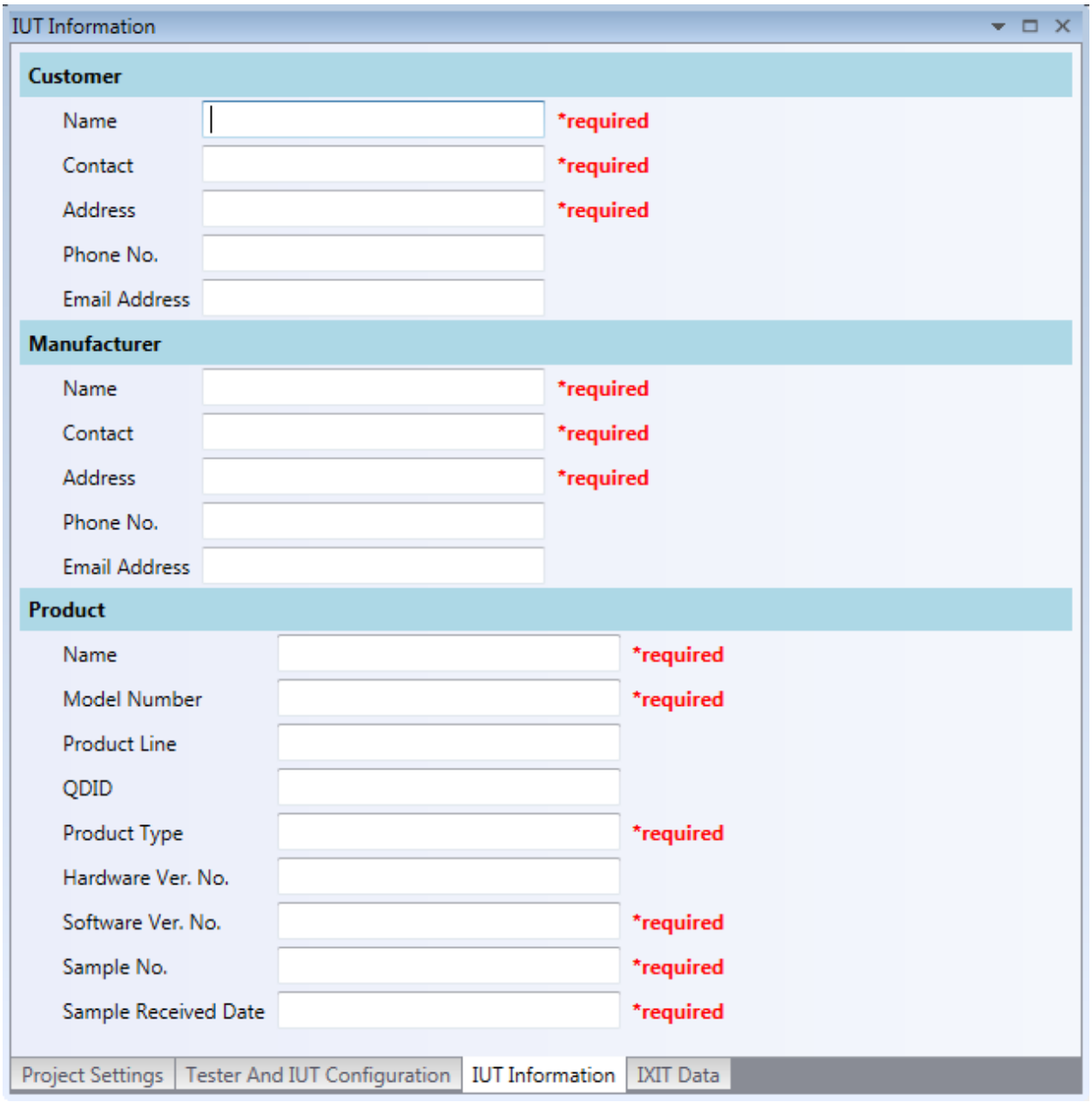


Figure 27 – IUT Information

Chapter 4. Running Tests

Harmony software allows you to run one, multiple or all Link Layer and HCI tests provided. (Figure 24)

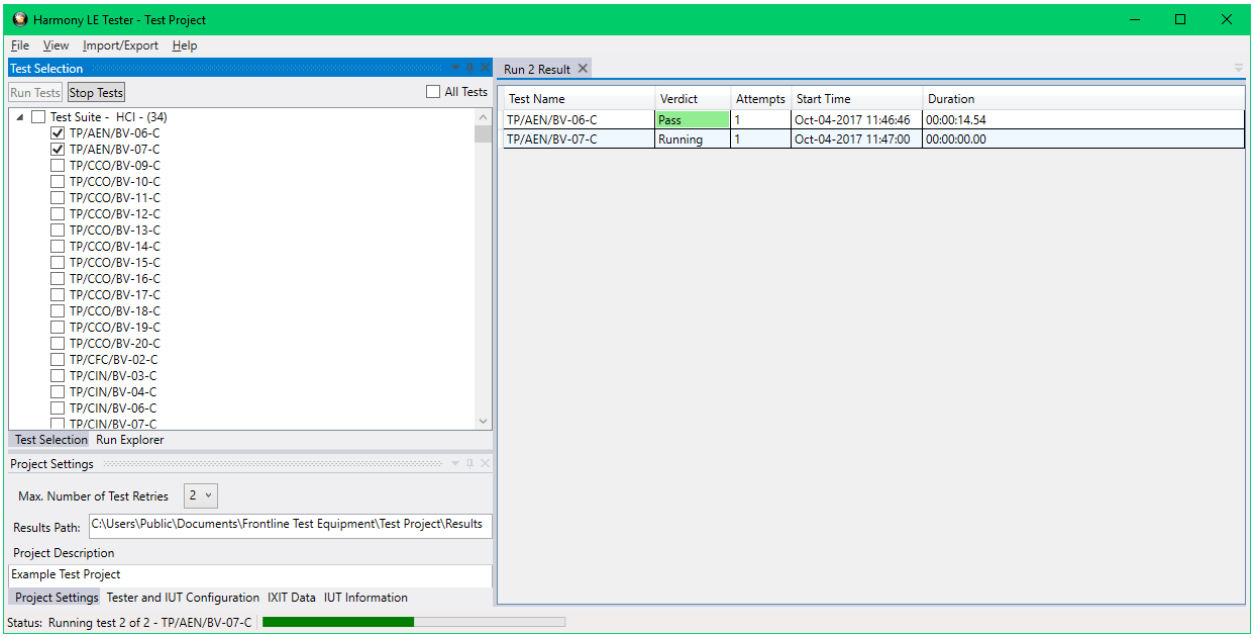


Figure 28 – Running Tests

4.1 Selecting Tests

4.1.1 HCI

The Harmony software provides 223 HCI tests (Table 4.1). To run HCI tests, expand the HCI Test Suite to select one or more specific tests, or you may select Test Suite – HCI to run all HCI tests.

Table 4.1 – HCI Tests

Test	Description Summary
HCI/AEN/BI-01-C	Verify that the IUT can return an error when invalid public keys are received.
HCI/AEN/BV-06-C	Verify that the IUT can generate a P-256 Public-Private key pair and return the P-256 Public Key
HCI/AEN/BV-07-C	Verify that the IUT can generate a new Diffie-Hellman Key
HCI/AEN/BV-08-C	Generate Debug Keys
HCI/BIS/BI-01-C	Ignoring RFU Bits in HCI ISO Data Packets, BIS
HCI/BIS/BI-02-C	Broadcast Isochronous Stream, Synchronized Receiver, Reject Invalid Commands
HCI/BIS/BI-06-C	Broadcast Isochronous Stream Using Non-Test Command, Invalid BIG Parameters
HCI/BIS/BI-07-C	Broadcast Isochronous Stream Using Non-Test Command, Invalid Transport Latency

HCI/BIS/BI-08-C	Invalid LE BIG Create Sync Parameters and LE ISO Remove Data Path behavior, BIS
HCI/BIS/BI-09-C	Invalid LE BIG Create Sync Encryption Parameter, BIS
HCI/BIS/BV-01-C	Broadcast Isochronous Stream Using Non-Test Command, all PHYs
HCI/BIS/BV-02-C	Broadcast Isochronous Stream Using Non-Test Command, not all PHYs
HCI/BIS/BV-03-C	Broadcast Isochronous Stream Using Test Command, Time_Offset
HCI/BIS/BV-04-C	Broadcast Isochronous Stream, Invalid LE Read ISO TX Sync Parameters
HCI/BIS/BV-05-C	Broadcast Isochronous Stream, Time_Stamp, Isochronous Broadcaster
HCI/BIS/BV-06-C	Broadcast Isochronous Stream, Time_Stamp Optional, Synchronized Receiver
HCI/BIS/BV-07-C	Broadcast Isochronous Stream, Time_Stamp Mandatory, Synchronized Receiver
HCI/BIS/BV-08-C	Number of Completed Packets Event after Sending data in a Broadcaster
HCI/CCO/BI-01-C	Resolving List Commands fail when list in use
HCI/CCO/BI-02-C	Resolving List Commands fail when list in use
HCI/CCO/BI-03-C	Resolving List Commands fail when list in use
HCI/CCO/BI-04-C	Resolving List Commands fail when list in use
HCI/CCO/BI-05-C	Resolving List Commands fail when list in use
HCI/CCO/BI-06-C	LE Enhanced Read Transmit Power Level – Invalid Connection Handle – Peripheral
HCI/CCO/BI-07-C	LE Enhanced Read Transmit Power Level – Invalid PHY – Peripheral
HCI/CCO/BI-08-C	LE Read Remote Transmit Power Level – Invalid Connection Handle – Peripheral
HCI/CCO/BI-09-C	LE Read Remote Transmit Power Level – Invalid PHY – Peripheral
HCI/CCO/BI-10-C	LE Set Path Loss Reporting Parameters – Invalid Connection Handle – Peripheral
HCI/CCO/BI-11-C	LE Set Path Loss Reporting Enable – Invalid Connection Handle – Peripheral
HCI/CCO/BI-12-C	LE Set Transmit Power Reporting Enable – Invalid Connection Handle – Peripheral
HCI/CCO/BI-13-C	Invalid Path Loss Monitoring Parameters
HCI/CCO/BI-33-C	Invalid LE Set Periodic Advertising Data Parameters
HCI/CCO/BI-34-C	Invalid LE Set Periodic Advertising Enable Parameters, Periodic Advertising ADI Not Supported
HCI/CCO/BI-36-C	Invalid Subrate Parameters – HCI_LE_Subrate_Request
HCI/CCO/BI-37-C	Invalid Subrate Parameters – HCI_LE_Set_Default_Subrate
HCI/CCO/BI-38-C	Invalid Connection CTE Request Enable Parameters
HCI/CCO/BI-39-C	Invalid Write Authenticated Payload Timeout Parameters
HCI/CCO/BI-40-C	Verify that the IUT correctly returns an error when calling the LE_Set_Data_Length command with invalid parameters.
HCI/CCO/BI-42-C	Configure Data Path
HCI/CCO/BI-43-C	LE Read Channel Map – Reject Invalid Handle
HCI/CCO/BI-44-C	Reject Setting Host Controlled FeatureSet Bit, Unsupported Feature on Controller, FeatureSet Bit 32 (Connected Isochronous Streams (Host Support))
HCI/CCO/BI-45-C	Reject Setting Host Controlled FeatureSet Bit, Unsupported Feature on Controller, FeatureSet Bit 37 (Connection Subrating (Host Support))

HCI/CCO/BI-46-C	LE Add Device To Resolving List – Duplicate Entry
HCI/CCO/BI-47-C	LE Add Device To Resolving List – Existing Peer IRK Entry
HCI/CCO/BI-48-C	LE Add Device To Resolving List – Existing Peer IRK Entry
HCI/CCO/BI-50-C	LE Add Device To Resolving List – No Space Available
HCI/CCO/BI-51-C	Reject Invalid Create Connection Command, 0x01, N/A
HCI/CCO/BI-52-C	Reject Invalid Create Connection Command, 0x03, 0x00
HCI/CCO/BI-53-C	Reject Invalid Create Connection Command, 0x03, 0x01
HCI/CCO/BI-54-C	Reject Invalid Extended Create Connection Command, 0x01, N/A
HCI/CCO/BI-55-C	Reject Invalid Extended Create Connection Command, 0x03, 0x00
HCI/CCO/BI-56-C	Reject Invalid Extended Create Connection Command, 0x03, 0x01
HCI/CCO/BI-57-C	LE Setup ISO Data Path, CIS
HCI/CCO/BI-58-C	LE Setup ISO Data Path, BIS, Isochronous Broadcaster
HCI/CCO/BI-59-C	Invalid LE Set Periodic Advertising Receive Enable Parameters, Periodic Advertising ADI Not Supported
HCI/CCO/BI-60-C	Invalid LE Set PAST Parameters, PA ADI Not Supported
HCI/CCO/BI-61-C	Invalid LE Set Default PAST Parameters, PA ADI Not Supported
HCI/CCO/BI-62-C	LE Setup ISO Data Path, BIS, Synchronized Receiver
HCI/CCO/BI-63-C	LE Extended Create Connection [v2], Invalid Parameters
HCI/CCO/BI-64-C	LE Set Periodic Advertising Parameters, Invalid Parameters, HCI_LE_Set_Periodic_Advertising_Parameters [v1]
HCI/CCO/BI-65-C	LE Set Periodic Advertising Parameters, Invalid Parameters, HCI_LE_Set_Periodic_Advertising_Parameters [v2]
HCI/CCO/BI-66-C	LE Set Periodic Advertising Response Data, Invalid Parameters
HCI/CCO/BI-67-C	LE Set Periodic Advertising Subevent Data, Invalid Parameters
HCI/CCO/BI-68-C	LE Set Periodic Sync Subevent, Invalid Parameters
HCI/CCO/BI-69-C	LE Add Device To Resolving List No Space Available, Advertiser, Connectable
HCI/CCO/BI-70-C	LE Add Device To Resolving List No Space Available, Advertiser, Non-Connectable
HCI/CCO/BV-07-C	Verify that an IUT which supports LE only, does not respond to BR/EDR HCI commands
HCI/CCO/BV-09-C	Verify that the IUT correctly handles the LE Set Data Length Command
HCI/CCO/BV-10-C	Verify that the IUT correctly handles the LE Read Suggested Data Length Command
HCI/CCO/BV-11-C	Verify that the IUT correctly handles the LE Write Suggested Data Length Command
HCI/CCO/BV-12-C	Verify that the IUT correctly handles the LE Remove Device From Resolving List Command
HCI/CCO/BV-13-C	Verify that the IUT correctly handles the LE Clear Resolving List Command
HCI/CCO/BV-14-C	Verify that the IUT correctly handles the LE Read Resolving List Size Command
HCI/CCO/BV-15-C	Verify that the IUT correctly handles the LE Set Default PHY Command
HCI/CCO/BV-16-C	Verify that the IUT correctly handles the LE Read Periodic Advertiser List Size Command
HCI/CCO/BV-17-C	Verify that the IUT correctly handles the LE Add Device To Periodic Advertiser List, LE Remove Device From Periodic Advertiser List, and Clear Periodic Advertiser List commands

HCI/CCO/BV-18-C	Verify that the IUT correctly handles the LE Read Transmit Power Command
HCI/CCO/BV-19-C	Verify that the IUT correctly handles the LE Write RF Path Compensation Command
HCI/CCO/BV-20-C	Verify that the IUT correctly handles the LE Read RF Path Compensation Command
HCI/CCO/BV-23-C	LE Set Extended Advertising Parameters, Advertising Coding Selection Not Supported
HCI/CFC/BV-02-C	Buffer Size
HCI/CIN/BV-01-C	Verify that the Read Local Supported Features command returns with the correct features supported
HCI/CIN/BV-03-C	Read Local Supported Commands
HCI/CIN/BV-04-C	Read Local Version Information
HCI/CIN/BV-06-C	Filter Accept List Size
HCI/CIN/BV-09-C	Verify that the LE Read Local Supported Features command returns with the Remote Public Key Validation feature bit enabled.
HCI/CIN/BV-11-C	Read Local Supported Codec Capabilities, All
HCI/CIN/BV-12-C	LE Read Local Supported Features Command
HCI/CIN/BV-14-C	Read RSSI Value, LE PHY
HCI/CIS/BI-01-C	Receiving HCI ISO Data Packets with RFU Bits Set, CIS, Central
HCI/CIS/BI-02-C	Receiving HCI ISO Data Packets with RFU Bits Set, CIS, Peripheral
HCI/CIS/BI-03-C	Connected Isochronous Stream, Central, Reject Early Read ISO TX Sync
HCI/CIS/BI-04-C	Connected Isochronous Stream, Peripheral, Reject Early Read ISO TX Sync
HCI/CIS/BI-05-C	Connected Isochronous Stream Using Non-Test Command, Central, Reject Invalid Parameters
HCI/CIS/BI-06-C	Invalid LE Accept or Reject CIS Request, Premature Setup ISO Data Path
HCI/CIS/BI-07-C	LE CIS Request Timeout
HCI/CIS/BI-08-C	Connected Isochronous Stream, Peripheral, Reject Invalid Commands
HCI/CIS/BI-09-C	Connected Isochronous Stream, Peripheral, Reject Invalid Disconnect Command
HCI/CIS/BI-10-C	Connected Isochronous Stream, Central, Reject Max_SDU in Wrong Direction
HCI/CIS/BI-11-C	Connected Isochronous Stream, Central Initiated, CIG Parameters Failure Behavior
HCI/CIS/BI-12-C	CIS Setup Procedure, Central Initiated, Invalid Transport Latency
HCI/CIS/BI-13-C	Connected Isochronous Stream, Central, Reject Parameter Change of Inactive CIG
HCI/CIS/BI-14-C	Verify CIS Features Not Supported, BN > 1
HCI/CIS/BI-15-C	Verify CIS Features Not Supported, FT > 1
HCI/CIS/BI-16-C	Disconnecting Immediately After a Failed Create CIS Attempt
HCI/CIS/BV-01-C	Connected Isochronous Stream Using Non-Test Command, Central Initiated, all PHYs, asymmetric PHYs
HCI/CIS/BV-02-C	Connected Isochronous Stream Using Non-Test Command, Central Initiated, all PHYs, symmetric PHYs only
HCI/CIS/BV-03-C	Connected Isochronous Stream Using Non-Test Command, Central Initiated, not all PHYs, asymmetric PHYs

HCI/CIS/BV-04-C	Connected Isochronous Stream Using Non-Test Command, Central Initiated, not all PHYs, symmetric PHYs only
HCI/CIS/BV-05-C	Connected Isochronous Stream, Central Initiated, Add or Modify CIS
HCI/CIS/BV-06-C	Connected Isochronous Stream Using Test Command, Central Initiated, Time_Offset
HCI/CIS/BV-07-C	Connected Isochronous Stream, Invalid LE Read ISO TX Sync Parameters, Central
HCI/CIS/BV-08-C	Connected Isochronous Stream, Invalid LE Read ISO TX Sync Parameters, Peripheral
HCI/CIS/BV-09-C	Connected Isochronous Stream, Time_Stamp Optional, Central
HCI/CIS/BV-10-C	Connected Isochronous Stream, Time_Stamp Optional, Peripheral
HCI/CIS/BV-11-C	Connected Isochronous Stream, Time_Stamp Mandatory, Central
HCI/CIS/BV-12-C	Connected Isochronous Stream, Time_Stamp Mandatory, Peripheral
HCI/CIS/BV-13-C	Connected Isochronous Stream, Central, Removal of Configurable and Inactive CIG
HCI/CIS/BV-14-C	Number of Completed Packets Event after Sending data in Unidirectional CIS
HCI/CM/BI-01-C	LE Extended Create Connection With Unsupported PHY
HCI/CM/BI-02-C	LE Create Connection Cancel, Command Disallowed
HCI/CM/BI-03-C	LE Create Connection Cancel, Command Disallowed
HCI/CM/BV-01-C	LE Read Peer Resolvable Address Command – Central
HCI/CM/BV-02-C	LE Read Local Resolvable Address Command – Central
HCI/CM/BV-03-C	Verify that the IUT correctly handles the LE Read PHY Command
HCI/CM/BV-04-C	Tests that when the IUT is initiator and an RPA Timeout occurs between the IUT issuing an AUX_CONNECT_REQ PDU and the Lower Tester responding with an AUX_CONNECT_RSP PDU, that the HCI_LE_Enhanced_Connection_Complete_Event returns the latest Peer_Address, Peer_Resolvable_Private_Address and Local_Resolvable_Private_Address sent and received over the air.
HCI/CM/BV-05-C	LE Read Peer Resolvable Address Command – Peripheral
HCI/CM/BV-06-C	LE Read Local Resolvable Address Command - Peripheral
HCI/CM/BV-07-C	Request Sleep Clock Accuracy, unsupported SCA Update Feature
HCI/CSE/BV-08-C	LE Set Host Feature Command During Connection, Initiator
HCI/CSE/BV-09-C	LE Set Host Feature Command During Connection, Advertiser
HCI/DDI/BI-01-C	Verify that the IUT properly rejects an invalid advertising interval provided to the HCI_LE_Set_Extended_Advertising_Parameters command and returns the expected error code
HCI/DDI/BI-02-C	Verify that the IUT properly rejects an invalid advertising interval provided to the HCI_LE_Set_Advertising_Parameters command and returns the expected error code
HCI/DDI/BI-03-C	Reject LE Periodic Advertising Create Sync Command With Disallowed Reporting Options
HCI/DDI/BI-04-C	Reject LE Periodic Advertising Create Sync Command to a Synchronized Advertising Set
HCI/DDI/BI-05-C	LE Set Extended Scan Parameters With Unsupported PHY
HCI/DDI/BI-06-C	Reject Invalid Enable Command
HCI/DDI/BI-07-C	Reject Invalid Enable Command
HCI/DDI/BI-08-C	Reject Invalid Enable Command

HCI/DDI/BI-09-C	Reject Invalid Enable Command
HCI/DDI/BI-11-C	Reject Invalid Enable Command
HCI/DDI/BI-12-C	Reject Invalid Extended Advertising Enable Command
HCI/DDI/BI-13-C	Reject Invalid Periodic Advertising Enable Command
HCI/DDI/BI-14-C	Reject LE Set Periodic Advertising Data setting the fragment when periodic advertising is enabled
HCI/DDI/BI-15-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-16-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-17-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-18-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-19-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-20-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-21-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-22-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-23-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-24-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-25-C	Reject Set Extended Advertising Parameters Command using a Periodic Advertising Set and Incompatible Advertising is Specified
HCI/DDI/BI-26-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-27-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-28-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-29-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-30-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-31-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-32-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-33-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-34-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising

HCI/DDI/BI-35-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-36-C	Reject Set Periodic Advertising Parameters Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-37-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-38-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-39-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-40-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-41-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-42-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-43-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-44-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-45-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-46-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-47-C	Reject Set Periodic Advertising Enable Command when the Associated Handle Specifies Incompatible Advertising
HCI/DDI/BI-48-C	LE Set Data Related Address Changes, Invalid Parameter
HCI/DDI/BI-49-C	Reject LE Periodic Advertising Create Sync Command With Disallowed Reporting Options, Periodic Advertising ADI not supported
HCI/DDI/BI-50-C	LE Set Periodic Advertising Parameters, Reject, Data Too Long, LE 1M PHY
HCI/DDI/BI-51-C	LE Set Periodic Advertising Parameters, Reject, Data Too Long, LE Coded PHY
HCI/DDI/BI-52-C	Reject Set Periodic Advertising Data Command when Advertising Data Too Long
HCI/DDI/BI-53-C	LE Set Extended Advertising Parameters Command, Reject, Anonymous, undirected
HCI/DDI/BI-54-C	LE Set Extended Advertising Parameters Command, Reject, Anonymous, directed
HCI/DDI/BI-55-C	LE Set Extended Advertising Parameters Command, Reject, Connectable and scannable undirected
HCI/DDI/BI-56-C	LE Set Extended Advertising Parameters Command, Reject, Scannable undirected
HCI/DDI/BI-57-C	LE Set Extended Advertising Parameters Command, Reject, Non-connectable and non-scannable, undirected
HCI/DDI/BI-58-C	LE Set Extended Advertising Parameters Command, Reject, Connectable undirected
HCI/DDI/BI-59-C	LE Set Extended Advertising Parameters Command, Reject, Connectable directed

HCI/DDI/BI-60-C	LE Set Extended Advertising Parameters Command, Reject, Scannable undirected
HCI/DDI/BI-61-C	LE Set Extended Advertising Parameters Command, Reject, Scannable directed
HCI/DDI/BI-62-C	Reject Set Extended Advertising Parameters Command, Packet Too Long, LE Coded
HCI/DDI/BI-63-C	Reject Set Extended Advertising Data Command, Data Too Long, LE 1M PHY
HCI/DDI/BI-64-C	Reject Set Extended Advertising Data Command, Data Too Long, LE Coded PHY
HCI/DDI/BI-65-C	Reject Set Extended Scan Response Data Command, Data Too Long, LE 1M PHY
HCI/DDI/BI-66-C	Reject Set Extended Scan Response Data Command, Data Too Long, LE Coded PHY
HCI/DDI/BI-67-C	Reject Invalid Periodic Advertising Parameters
HCI/DDI/BV-03-C	Set Advertise Enable
HCI/DDI/BV-04-C	Set Scan Enable
HCI/DDI/BV-06-C	Default Extended Scan Enable Command
HCI/DDI/BV-07-C	Set Periodic Advertising Before Periodic Advertising Parameters Command
HCI/DDI/BV-08-C	LE Periodic Advertising Create Sync Command, Reporting Disabled
HCI/DDI/BV-09-C	LE Periodic Advertising Enable Command, Disable Periodic Advertising, Periodic Advertising ADI Supported
HCI/DSU/BV-02-C	Reset in advertising state
HCI/DSU/BV-03-C	Reset to Peripheral
HCI/DSU/BV-04-C	Reset in scanning state
HCI/DSU/BV-05-C	Reset in initiating state
HCI/DSU/BV-06-C	Reset to Central
HCI/GEV/BI-01-C	HCI Command with RFU OGF
HCI/GEV/BV-01-C	Verify that for each controller supported in the IUT, every HCI command not supported yields a Command Complete event with status Unknown HCI Command in return
HCI/GEV/BV-02-C	Verify that each supported legacy and extended scanning command yields a command complete event with status 'Command Disallowed' in return when sent after a command of the other type
HCI/GEV/BV-03-C	Verify that each supported legacy and extended scanning command yields a Command Complete event with status ‘Command Disallowed’ in return when sent after a command of the other type
HCI/GEV/BV-04-C	Verify that each specified extended advertising command yields a Command Complete event with status ‘Command Disallowed’ in return when sent with no scan response data
HCI/HFC/BV-04-C	LE Set Event Mask
HCI/PCL/BI-01-C	Invalid LE Enhanced Read Transmit Power Level Parameters, PHY, 0x02, 0x11
HCI/PCL/BI-02-C	Invalid LE Enhanced Read Transmit Power Level Parameters, PHY, 0x03, 0x11
HCI/PCL/BI-03-C	Invalid LE Enhanced Read Transmit Power Level Parameters, PHY, 0x04, 0x11
HCI/PCL/BI-04-C	Invalid LE Enhanced Read Transmit Power Level Parameters, Connection_Handle, Not the current ACL, 0x02
HCI/PCL/BI-05-C	Invalid LE Read Remote Transmit Power Level Parameters, PHY, 0x02, 0x11
HCI/PCL/BI-06-C	Invalid LE Read Remote Transmit Power Level Parameters, PHY, 0x03, 0x11

HCI/PCL/BI-07-C	Invalid LE Read Remote Transmit Power Level Parameters, PHY, PHY, 0x04, 0x11
HCI/PCL/BI-08-C	Invalid LE Read Remote Transmit Power Level Parameters, Connection_Handle, Not the current ACL, 0x02
HCI/PCL/BV-01-C	LE Enhanced Read Transmit Power Level

4.1.2 IAL

The Harmony software provides 158 IAL tests (Table 4.2). To run IAL tests, expand the IAL Test Suite to select one or more specific tests, or you may select Test Suite – IAL to run all IAL tests.

Table 4.2 – IAL Tests

Test	Description Summary
IAL/BIS/FRA/BRD/BV-06-C	Broadcast Single SDU, BIS, Framed – NSE 4, BN 2
IAL/BIS/FRA/BRD/BV-08-C	Broadcast Single SDU, BIS, Framed – NSE 4, BN 2
IAL/BIS/FRA/BRD/BV-13-C	Broadcast Single SDU, BIS, Framed – NSE 2, BN 1
IAL/BIS/FRA/BRD/BV-15-C	Broadcast Large SDU, BIS, Framed – NSE 10, BN 5
IAL/BIS/FRA/BRD/BV-17-C	Broadcast Large SDU, BIS, Framed – NSE 6, BN 3
IAL/BIS/FRA/BRD/BV-18-C	Broadcast Multiple, Small SDUs, BIS, Framed – NSE 2, BN 1
IAL/BIS/FRA/BRD/BV-20-C	Broadcast Multiple, Small SDUs, BIS, Framed – NSE 2, BN 2
IAL/BIS/FRA/BRD/BV-25-C	Broadcast Multiple, Small SDUs, BIS, Framed – NSE 4, BN 2
IAL/BIS/FRA/BRD/BV-26-C	Broadcast Zero-Length SDU, BIS, Framed – NSE 6, BN 2
IAL/BIS/FRA/BRD/BV-27-C	Broadcast Zero-Length SDU, BIS, Framed – NSE 2, BN 1
IAL/BIS/FRA/BRD/BV-28-C	Broadcast Zero-Length SDU, BIS, Framed – NSE 4, BN 1
IAL/BIS/UNF/BRD/BV-01-C	Broadcast Zero-Length SDU, BIS, Framed – NSE 6, BN 3
IAL/BIS/UNF/BRD/BV-02-C	Broadcast Single SDU, BIS, Unframed – NSE 2, BN 1
IAL/BIS/UNF/BRD/BV-03-C	Broadcast Single SDU, BIS, Unframed – NSE 1, BN 2
IAL/BIS/UNF/BRD/BV-09-C	Broadcast Single SDU, BIS, Unframed – NSE 2, BN 2
IAL/BIS/UNF/BRD/BV-10-C	Broadcast Large SDU, BIS, Unframed – NSE 12, BN 6
IAL/BIS/UNF/BRD/BV-11-C	Broadcast Large SDU, BIS, Unframed – NSE 6, BN 3
IAL/BIS/UNF/BRD/BV-21-C	Broadcast Large SDU, BIS, Unframed – NSE 6, BN 3
IAL/BIS/UNF/BRD/BV-22-C	Broadcast Zero-Length SDU, BIS, Unframed – NSE 4, BN 2
IAL/BIS/UNF/BRD/BV-23-C	Broadcast Zero-Length SDU, BIS, Unframed – NSE 6, BN 3
IAL/BIS/UNF/BRD/BV-24-C	Broadcast Zero-Length SDU, BIS, Unframed – NSE 1, BN 1
IAL/BIS/UNF/BRD/BV-29-C	Broadcasting Unframed Empty PDUs with LLID=0b01, BIS
IAL/BIS/UNF/BRD/BV-30-C	Broadcasting Unframed Empty PDUs with LLID=0b01, BIS, Encryption Disabled
IAL/BIS/FRA/SNC/BI-01-C	SDU Reporting, BIS, Framed PDU
IAL/BIS/FRA/SNC/BI-02-C	SDU Reporting, BIS, BN = 1, NSE = 1, Framed PDU
IAL/BIS/FRA/SNC/BI-03-C	Reporting an Unsuccessful Large SDU, Framed BIS
IAL/BIS/FRA/SNC/BI-04-C	Reporting a missing or damaged SDU, Framed BIS
IAL/BIS/FRA/SNC/BV-06-C	Receive Single SDU, BIS, Framed – NSE 4, BN 2
IAL/BIS/FRA/SNC/BV-08-C	Receive Single SDU, BIS, Framed – NSE 2, BN 1
IAL/BIS/FRA/SNC/BV-11-C	Receive Large SDU, BIS, Framed – NSE 8, BN 4
IAL/BIS/FRA/SNC/BV-13-C	Receive Large SDU, BIS, Framed – NSE 8, BN 4
IAL/BIS/FRA/SNC/BV-15-C	Receive Large SDU, BIS, Framed – NSE 8, BN 4
IAL/BIS/FRA/SNC/BV-17-C	Receive Multiple, Small SDUs, BIS, Framed – NSE 2, BN 1

IAL/BIS/FRA/SNC/BV-18-C	Receive Multiple, Small SDUs, BIS, Framed – NSE 2, BN 2
IAL/BIS/FRA/SNC/BV-20-C	Receive Multiple, Small SDUs, BIS, Framed – NSE 4, BN 2
IAL/BIS/FRA/SNC/BV-25-C	Receive Zero-Length SDU, BIS, Framed – NSE 6, BN 2
IAL/BIS/FRA/SNC/BV-26-C	Receive Zero-Length SDU, BIS, Framed – NSE 2, BN 1
IAL/BIS/FRA/SNC/BV-27-C	Receive Zero-Length SDU, BIS, Framed – NSE 4, BN 1
IAL/BIS/FRA/SNC/BV-28-C	Receive Zero-Length SDU, BIS, Framed – NSE 6, BN 3
IAL/BIS/UNF/SNC/BI-02-C	Receive an unsuccessful Large SDU, BIS, Unframed – BN 4
IAL/BIS/UNF/SNC/BI-05-C	SDU Reporting, BIS, Unframed PDU
IAL/BIS/UNF/SNC/BI-06-C	SDU Reporting, BIS, BN = 1, NSE = 1, Unframed PDU
IAL/BIS/UNF/SNC/BV-01-C	Receive Single SDU, BIS, Unframed – NSE 2, BN 1
IAL/BIS/UNF/SNC/BV-02-C	Receive Single SDU, BIS, Unframed – NSE 1, BN 1
IAL/BIS/UNF/SNC/BV-03-C	Receive Single SDU, BIS, Unframed – NSE 2, BN 2
IAL/BIS/UNF/SNC/BV-09-C	Receive Large SDU, BIS, Unframed – NSE 8, BN 4
IAL/BIS/UNF/SNC/BV-10-C	Receive Large SDU, BIS, Unframed – NSE 8, BN 4
IAL/BIS/UNF/SNC/BV-21-C	Receive Zero-Length SDU, BIS, Unframed – NSE 4, BN 2
IAL/BIS/UNF/SNC/BV-22-C	Receive Zero-Length SDU, BIS, Unframed – NSE 6, BN 3
IAL/BIS/UNF/SNC/BV-23-C	Receive Zero-Length SDU, BIS, Unframed – NSE 1, BN 1
IAL/BIS/UNF/SNC/BV-24-C	Receive Zero-Length SDU, BIS, Unframed – NSE 2, BN 1
IAL/BIS/UNF/SNC/BV-29-C	Receiving Unframed Empty PDUs with LLID=0b01, BIS, Encryption Disabled
IAL/BIS/UNF/SNC/BV-30-C	Receiving Unframed Empty PDUs with LLID=0b01, BIS, Encryption Enabled
IAL/CIS/FRA/CEN/BI-01-C	SDU Reporting, CIS, Framed PDU, Central
IAL/CIS/FRA/CEN/BI-02-C	SDU Reporting, CIS, Framed PDU, BN = 1, NSE = 1, Central
IAL/CIS/FRA/CEN/BI-03-C	Reporting an Unsuccessful Large SDU, Framed CIS
IAL/CIS/FRA/CEN/BI-04-C	Reporting a missing or damaged SDU, Framed CIS
IAL/CIS/FRA/CEN/BV-03-C	Send Single SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-05-C	Send Large SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-07-C	Send Multiple, Small SDUs, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-10-C	Receive Single SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-13-C	Receive Large SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-15-C	Receive Multiple, Small SDUs, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-18-C	Send Zero-Length SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-20-C	Receive Zero-Length SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-22-C	Simultaneous Sending and Receiving SDUs, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-26-C	Send Single SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-29-C	Send Large SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-31-C	Send Multiple, Small SDUs, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-35-C	Receive Single SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-38-C	Receive Large SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-39-C	Receive Multiple, Small SDUs, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-42-C	Send Zero-Length SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-44-C	Receive Zero-Length SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-45-C	Send Single SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-46-C	Send Large SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-47-C	Send Multiple, Small SDUs, CIS, Framed, Central

IAL/CIS/FRA/CEN/BV-48-C	Receive Single SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-49-C	Receive Large SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-50-C	Receive Multiple, Small SDUs, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-51-C	Send Zero-Length SDU, CIS, Framed, Central
IAL/CIS/FRA/CEN/BV-52-C	Receive Zero-Length SDU, CIS, Framed, Central
IAL/CIS/FRA/PER/BI-01-C	SDU Reporting, CIS, Framed PDU, Peripheral
IAL/CIS/FRA/PER/BI-02-C	SDU Reporting, CIS, Framed PDU, BN = 1, NSE = 1, Peripheral
IAL/CIS/FRA/PER/BI-03-C	Reporting an Unsuccessful Large SDU, Framed CIS
IAL/CIS/FRA/PER/BI-04-C	Reporting a missing or damaged SDU, Framed BIS
IAL/CIS/FRA/PER/BV-03-C	Send Single SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-05-C	Send Large SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-07-C	Send Multiple, Small SDUs, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-10-C	Receive Single SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-13-C	Receive Large SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-15-C	Receive Multiple, Small SDUs, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-18-C	Send Zero-Length SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-20-C	Receive Zero-Length SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-22-C	Simultaneous Sending and Receiving SDUs, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-26-C	Verify that the IUT is able to send an SDU with length <= the Isochronous PDU length
IAL/CIS/FRA/PER/BV-29-C	Send Large SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-31-C	Send Multiple, Small SDUs, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-35-C	Receive Single SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-38-C	Receive Large SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-39-C	Receive Multiple, Small SDUs, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-42-C	Send Zero-Length SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-44-C	Receive Zero-Length SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-45-C	Send Single SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-46-C	Send Large SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-47-C	Send Multiple, Small SDUs, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-48-C	Receive Single SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-49-C	Receive Large SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-50-C	Receive Multiple, Small SDUs, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-51-C	Send Zero-Length SDU, CIS, Framed, Peripheral
IAL/CIS/FRA/PER/BV-52-C	Receive Zero-Length SDU, CIS, Framed, Peripheral
IAL/CIS/UNF/CEN/BI-02-C	Unsuccessful sending a Large SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BI-03-C	Unsuccessful sending a Large SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BI-04-C	SDU Reporting, CIS, Unframed PDU, Central
IAL/CIS/UNF/CEN/BI-05-C	SDU Reporting, CIS, Unframed PDU, BN = 1, NSE = 1, Central
IAL/CIS/UNF/CEN/BV-01-C	Send Single SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-04-C	Send Large SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-09-C	Receive Single SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-12-C	Receive Large SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-17-C	Send Zero-Length SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-19-C	Receive Zero-Length SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-21-C	Simultaneous Sending and Receiving SDUs, CIS, Unframed, Central

IAL/CIS/UNF/CEN/BV-24-C	Simultaneous Sending and Receiving SDUs, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-25-C	Verify that the IUT is able to send an SDU with length <= the Isochronous PDU length
IAL/CIS/UNF/CEN/BV-28-C	Send Large SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-33-C	Receive Single SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-36-C	Receive Large SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-41-C	Send Zero-Length SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-43-C	Receive Zero-Length SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-45-C	Sending and Receiving Unframed Empty PDUs with LLID=0b01, CIS.
IAL/CIS/UNF/CEN/BV-46-C	Send Large SDU, CIS, Framed, Peripheral
IAL/CIS/UNF/CEN/BV-47-C	Receive Single SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-48-C	Receive Zero-Length SDU, CIS, Unframed, Central
IAL/CIS/UNF/CEN/BV-49-C	Receive an SDU Larger than a PDU, CIS, Unframed, Central
IAL/CIS/UNF/PER/BI-02-C	Unsuccessful sending a Large SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BI-03-C	Unsuccessful sending a Large SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BI-04-C	SDU Reporting, CIS, Unframed PDU, Peripheral
IAL/CIS/UNF/PER/BI-05-C	SDU Reporting, CIS, Unframed PDU, BN = 1, NSE = 1, Peripheral
IAL/CIS/UNF/PER/BV-01-C	Send Single SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-04-C	Send Large SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-09-C	Receive Single SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-12-C	Receive Large SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-17-C	Send Zero-Length SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-19-C	Receive Zero-Length SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-21-C	Simultaneous Sending and Receiving SDUs, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-24-C	Simultaneous Sending and Receiving SDUs, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-25-C	Send Single SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-28-C	Send Large SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-33-C	Verify that the IUT is able to receive an SDU with length <= the Isochronous PDU length
IAL/CIS/UNF/PER/BV-36-C	Receive Large SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-41-C	Send Zero-Length SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-43-C	Receive Zero-Length SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-45-C	Sending and Receiving Unframed Empty PDUs with LLID=0b01, CIS.
IAL/CIS/UNF/PER/BV-46-C	Sending and Receiving Unframed Empty PDUs with LLID=0b01, CIS.
IAL/CIS/UNF/PER/BV-47-C	Send Multiple, Small SDUs, CIS, Framed, Peripheral
IAL/CIS/UNF/PER/BV-48-C	Receive Single SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-49-C	Send Zero-Length SDU, CIS, Unframed, Peripheral
IAL/CIS/UNF/PER/BV-50-C	Receive an SDU Larger than a PDU, CIS, Unframed, Peripheral

4.1.3 Link Layer

The Harmony software provides 963 Link Layer tests (Table 4.3). To run LL tests, expand the LL Test Suite to select one or more specific tests, or you may select Test Suite – LL to run all Link Layer tests.

Table 4.3 – Link Layer Tests

Test	Description Summary
LL/BIS/BRD/BV-01-C	Broadcast Isochronous Stream Setup – Encryption Disabled
LL/BIS/BRD/BV-02-C	Broadcast Isochronous Stream Setup – Encryption Enabled
LL/BIS/BRD/BV-04-C	Data Transmission in Multiple Broadcast Isochronous Streams, Interleaved BIG
LL/BIS/BRD/BV-05-C	Data Transmission in Multiple Broadcast Isochronous Streams, Sequential
LL/BIS/BRD/BV-07-C	Bursting of Packets in Broadcast Isochronous Stream
LL/BIS/BRD/BV-08-C	Pre-transmissions in Broadcast Isochronous Stream
LL/BIS/BRD/BV-09-C	Broadcast Isochronous Group Channel Map Update Procedure
LL/BIS/BRD/BV-10-C	Isochronous Broadcaster Terminates BIS Stream
LL/BIS/BRD/BV-13-C	Broadcast Isochronous Stream Using Non-Test Command – LE 1M PHY
LL/BIS/BRD/BV-14-C	Broadcast Isochronous Stream Using Non-Test Command – LE 2M PHY
LL/BIS/BRD/BV-15-C	Broadcast Isochronous Stream Using Non-Test Command – LE Coded PHY
LL/BIS/BRD/BV-16-C	Maximum Supported Broadcast Isochronous Groups
LL/BIS/BRD/BV-17-C	Broadcast Isochronous Group Channel Map Update Procedure, Broadcaster, Encrypted
LL/BIS/BRD/BV-18-C	Isochronous Broadcaster Terminates BIS Stream, Encrypted
LL/BIS/BRD/BV-19-C	Maximum Supported Broadcast Isochronous Groups, Encryption Enabled
LL/BIS/BRD/BV-20-C	Broadcasting Broadcast Isochronous Streams
LL/BIS/BRD/BV-21-C	Broadcasting a Broadcast Isochronous Stream, LE 2M PHY
LL/BIS/BRD/BV-22-C	Broadcasting a Broadcast Isochronous Stream, LE Coded PHY
LL/BIS/BRD/BV-23-C	Broadcast Isochronous Stream Setup – Encryption Disabled – BN=1
LL/BIS/BRD/BV-24-C	Broadcast Isochronous Stream Setup – Encryption Enabled – BN=1
LL/BIS/BRD/BV-25-C	Data Transmission in Multiple Broadcast Isochronous Streams, BN = 1
LL/BIS/BRD/BV-26-C	Pre-transmissions in Broadcast Isochronous Stream, Verify LLID
LL/BIS/BRD/BV-27-C	Immediate Repetition Count in Broadcast Isochronous Stream, Verify LLID
LL/BIS/SNC/BI-01-C	Broadcast Isochronous Stream Synchronization, Invalid or Unsupported PHY, LE 2M PHY Not Supported
LL/BIS/SNC/BI-02-C	Broadcast Isochronous Stream Synchronization, Invalid or Unsupported PHY, LE Coded PHY Not Supported
LL/BIS/SNC/BI-03-C	Broadcast Isochronous Stream Synchronization, Invalid or Unsupported PHY, RFU
LL/BIS/SNC/BI-04-C	Ignores Restricted for Future Use Opcodes, BIS
LL/BIS/SNC/BI-05-C	Broadcast Isochronous Stream Synchronization, Unsupported Features
LL/BIS/SNC/BI-06-C	Broadcast Isochronous Stream Synchronization, Unsupported Features
LL/BIS/SNC/BV-01-C	Broadcast Isochronous Stream Synchronization Setup – Encryption Disabled
LL/BIS/SNC/BV-02-C	Broadcast Isochronous Stream Synchronization Setup, Encryption fields (GSKD, GIV, bisPacketCounter)
LL/BIS/SNC/BV-04-C	Data Reception in Multiple Broadcast Isochronous Streams
LL/BIS/SNC/BV-07-C	Bursting of Packets in Broadcast Isochronous Stream
LL/BIS/SNC/BV-08-C	Pre-transmissions in Broadcast Isochronous Stream
LL/BIS/SNC/BV-09-C	Broadcast Isochronous Group Channel Map Update Procedure
LL/BIS/SNC/BV-10-C	Broadcast Isochronous Stream Termination

LL/BIS/SNC/BV-11-C	Loss of Sync with an Isochronous Broadcaster
LL/BIS/SNC/BV-12-C	Broadcast Isochronous Stream Synchronization, Number of BISes Not Supported
LL/BIS/SNC/BV-13-C	Broadcast Isochronous Group Channel Map Update Procedure - Encrypted
LL/BIS/SNC/BV-14-C	Broadcast Isochronous Stream Termination, Encrypted
LL/BIS/SNC/BV-15-C	Broadcast Isochronous Stream Synchronization Setup – Encryption Disabled, BN = 1
LL/BIS/SNC/BV-16-C	Broadcast Isochronous Stream Synchronization Setup – Encryption Enabled, BN = 1
LL/BIS/SNC/BV-17-C	Data Reception in Multiple Broadcast Isochronous Streams, BN = 1
LL/BIS/SNC/BV-18-C	BIS SNC Accepts All Supported NSE Values
LL/BIS/SNC/BV-19-C	Listening for Packet With Window Widening, BIS
LL/CIS/CEN/BI-01-C	Error Updating Peer Clock Accuracy
LL/CIS/CEN/BV-01-C	CIS Setup Procedure, Central Initiated – LE 1M PHY
LL/CIS/CEN/BV-02-C	CIS Setup Procedure, Central Initiated – LE 2M PHY
LL/CIS/CEN/BV-03-C	CIS Setup Procedure, Central Initiated, Unsupported
LL/CIS/CEN/BV-04-C	New Channel Map
LL/CIS/CEN/BV-05-C	Sending data in Unidirectional CIS
LL/CIS/CEN/BV-06-C	Receiving data in Unidirectional CIS
LL/CIS/CEN/BV-07-C	Sending and Receiving Data in Bidirectional CIS - Encryption Disabled
LL/CIS/CEN/BV-08-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Interleaved CIG, Central
LL/CIS/CEN/BV-09-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Sequential, Central
LL/CIS/CEN/BV-10-C	Sending and Receiving Data in Multiple CISes, Single CIG, Multiple Connections, Interleaved CIG
LL/CIS/CEN/BV-11-C	Sending and Receiving Data in Multiple CISes, Single CIG, Multiple Connections, Sequential
LL/CIS/CEN/BV-13-C	Acknowledgement Scheme, Central – Encryption Disabled
LL/CIS/CEN/BV-14-C	Retransmissions
LL/CIS/CEN/BV-15-C	CIS Terminate Procedure, Initiated
LL/CIS/CEN/BV-16-C	CIS Terminate Procedure, Accepting
LL/CIS/CEN/BV-17-C	Flushing of Packets in CIS, Central
LL/CIS/CEN/BV-18-C	Bursting of Payloads in CIS, Central
LL/CIS/CEN/BV-19-C	Deterministic Packet Transmission in CIS, Central
LL/CIS/CEN/BV-20-C	Set Encryption After CIS Established
LL/CIS/CEN/BV-24-C	CIS Updating Peer Clock Accuracy
LL/CIS/CEN/BV-25-C	CIS Setup Procedure, Central Initiated – LE Coded PHY
LL/CIS/CEN/BV-26-C	Connected Isochronous Stream Using Non-Test Command, Central Initiated – LE 1M PHY
LL/CIS/CEN/BV-27-C	Connected Isochronous Stream Using Non-Test Command, Central Initiated – LE 2M PHY
LL/CIS/CEN/BV-28-C	Connected Isochronous Stream Using Non-Test Command, Central Initiated – LE Coded PHY

LL/CIS/CEN/BV-29-C	Acknowledgement Scheme, Central – Enabled
LL/CIS/CEN/BV-30-C	Isochronous Channels Host Support Feature Bit
LL/CIS/CEN/BV-31-C	CIS Setup Procedure, Central Initiated – LE 2M PHY
LL/CIS/CEN/BV-32-C	CIS Setup Procedure, Central Initiated – LE 1M PHY
LL/CIS/CEN/BV-33-C	CIS Considered Lost before Establishment, Central
LL/CIS/CEN/BV-34-C	CIS Connection Loss
LL/CIS/CEN/BV-35-C	Sending and Receiving Data in Bidirectional CIS - Encryption Enabled
LL/CIS/CEN/BV-36-C	CIS Central Setup Procedure, Central Initiated – Central
LL/CIS/CEN/BV-37-C	CIS Central Setup Procedure, LE 2M PHY, Central Initiated – Central
LL/CIS/CEN/BV-38-C	CIS Central Setup Procedure, LE Coded PHY, Central Initiated – Central
LL/CIS/CEN/BV-39-C	CIS Setup Procedure, Central Initiated – LE 2M PHY
LL/CIS/CEN/BV-40-C	New Channel Map
LL/CIS/CEN/BV-41-C	Sending and Receiving Data in Multiple CISes, Single CIG, Multiple Connections, Interleaved CIG
LL/CIS/CEN/BV-42-C	Sending and Receiving Data in Multiple CISes, Single CIG, Multiple Connections, Interleaved CIG
LL/CIS/CEN/BV-43-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Interleaved CIG, Central
LL/CIS/CEN/BV-44-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Interleaved CIG, Central, BN > 1, NSE = 2
LL/CIS/CEN/BV-45-C	Sending Data in Unidirectional CIS, BN = 1, Central
LL/CIS/CEN/BV-46-C	Receiving Data in Unidirectional CIS, BN = 1, Central
LL/CIS/CEN/BV-47-C	Sending and Receiving Data in Bidirectional CIS, BN = 1, Central, Encryption Disabled
LL/CIS/CEN/BV-48-C	Sending and Receiving Data in Bidirectional CIS, BN = 1, Central, Encryption Enabled
LL/CIS/CEN/BV-49-C	Flushing of Packets in CIS, Central, BN = 1
LL/CIS/CEN/BV-50-C	Connected Isochronous Stream, Central, CIS Offset
LL/CIS/CEN/BV-51-C	CIS Setup Procedure, Central Initiated, CIG ID Reuse
LL/CIS/CEN/BV-52-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/CEN/BV-53-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/CEN/BV-54-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/CEN/BV-55-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/CEN/BV-56-C	Feature Exchange Before a CIS Connect Request
LL/CIS/CEN/BV-57-C	CIS ACK Scheme and FlushTimeout
LL/CIS/CEN/BV-58-C	CIS ACK Scheme and FlushTimeout
LL/CIS/PER/BI-01-C	Error Updating Peer Clock Accuracy
LL/CIS/PER/BI-02-C	CIS Setup Response Procedure, Peripheral, Invalid or Unsupported PHY, LE Coded PHY Not Supported
LL/CIS/PER/BI-03-C	CIS Setup Response Procedure, Peripheral, Invalid or Unsupported PHY, LE 2M PHY Not Supported
LL/CIS/PER/BI-04-C	CIS Setup Response Procedure, Peripheral, Invalid or Unsupported PHY, Multiple PHY Specified

LL/CIS/PER/BI-05-C	CIS Setup Response Procedure, Peripheral, Invalid or Unsupported PHY, RFU Bits Specified
LL/CIS/PER/BI-06-C	CIS Setup Response Procedure, Peripheral, Invalid or Unsupported PHY, No PHY Specified
LL/CIS/PER/BV-01-C	CIS Setup Response Procedure, Peripheral – LE 1M PHY
LL/CIS/PER/BV-02-C	CIS Setup Response Procedure, Peripheral, Reject Response
LL/CIS/PER/BV-03-C	CIS Map Update
LL/CIS/PER/BV-04-C	Sending data in Unidirectional CIS
LL/CIS/PER/BV-05-C	Receiving data in Unidirectional CIS
LL/CIS/PER/BV-06-C	Sending and Receiving Data in Bidirectional CIS - Encryption Disabled
LL/CIS/PER/BV-07-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Interleaved CIG, Peripheral
LL/CIS/PER/BV-08-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Sequential, Peripheral
LL/CIS/PER/BV-10-C	Acknowledgement Scheme, Peripheral – Encryption Disabled
LL/CIS/PER/BV-11-C	Retransmissions
LL/CIS/PER/BV-12-C	CIS Terminate Procedure, Initiated
LL/CIS/PER/BV-13-C	CIS Terminate Procedure, Accepting
LL/CIS/PER/BV-14-C	Flushing of Packets in CIS, Peripheral
LL/CIS/PER/BV-15-C	Bursting of Payloads in CIS, Peripheral
LL/CIS/PER/BV-16-C	Deterministic Packet Transmission in CIS, Peripheral
LL/CIS/PER/BV-18-C	CIS Updating Peer Clock Accuracy
LL/CIS/PER/BV-19-C	CIS Setup Response Procedure, Peripheral – LE 2M PHY
LL/CIS/PER/BV-20-C	CIS Setup Response Procedure, Peripheral – LE Coded PHY
LL/CIS/PER/BV-21-C	Acknowledgement Scheme, Peripheral – Encryption Enabled
LL/CIS/PER/BV-22-C	CIS Request Event Not Set
LL/CIS/PER/BV-23-C	CIS Setup Response Procedure, Peripheral – LE 2M PHY|LE 1M PHY
LL/CIS/PER/BV-24-C	CIS Setup Response Procedure, Peripheral – LE 1M PHY|LE Coded PHY
LL/CIS/PER/BV-25-C	CIS Considered Lost before Establishment, Peripheral
LL/CIS/PER/BV-26-C	CIS Connection Loss
LL/CIS/PER/BV-27-C	Sending and Receiving Data in Bidirectional CIS - Encryption Enabled
LL/CIS/PER/BV-28-C	CIS Peripheral Response, No PDU Received in Subevent
LL/CIS/PER/BV-29-C	CIS Setup Response Procedure, Peripheral – LE 2M PHY
LL/CIS/PER/BV-30-C	CIS Setup Response Procedure, Peripheral – LE Coded PHY
LL/CIS/PER/BV-31-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Interleaved CIG, Peripheral, NSE=2
LL/CIS/PER/BV-32-C	Sending and Receiving Data in Multiple CISes, Single CIG, Single Connection, Peripheral, BN=1
LL/CIS/PER/BV-33-C	Sending Data in Unidirectional CIS, BN = 1, Peripheral
LL/CIS/PER/BV-34-C	Receiving Data in Unidirectional CIS, BN = 1, Peripheral
LL/CIS/PER/BV-35-C	Sending and Receiving Data in Bidirectional CIS, BN = 1, Peripheral, Encryption Disabled

LL/CIS/PER/BV-36-C	Sending and Receiving Data in Bidirectional CIS, BN = 1, Peripheral, Encryption Enabled
LL/CIS/PER/BV-37-C	CIS Map Update, 0x02, 50 ms (0xC350)
LL/CIS/PER/BV-38-C	Connected Isochronous Stream, Peripheral, CIS Offset
LL/CIS/PER/BV-39-C	CIS Peripheral Accepts All Supported NSE Values
LL/CIS/PER/BV-40-C	CIS Setup Response Procedure, Peripheral
LL/CIS/PER/BV-41-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/PER/BV-42-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/PER/BV-43-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/PER/BV-44-C	transmitSeqNum Increments at Flushpoint in Bidirectional CIS
LL/CIS/PER/BV-45-C	Listening for Packet With Window Widening, CIS
LL/CIS/PER/BV-46-C	CIS ACK Scheme and FlushTimeout
LL/CIS/PER/BV-47-C	CIS ACK Scheme and FlushTimeout
LL/CIS/PER/BV-48-C	CIS Setup Response Procedure, Peripheral
LL/CON/ADV/BI-01-C	Connection Supervision Timeout During Fail Connection Setup
LL/CON/ADV/BI-02-C	Reject Existing Connection Request
LL/CON/ADV/BV-01-C	Accepting Connections
LL/CON/ADV/BV-02-C	Accepting Connections Timeout
LL/CON/ADV/BV-03-C	ADVERTISING/CENTRAL - Central Packets
LL/CON/ADV/BV-04-C	Tests that an advertiser IUT upon receiving a connection indication to the directed advertising indications stops advertising after the reception and starts to maintain a connection in the Peripheral role
LL/CON/ADV/BV-05-C	Extended Advertising, Accepting Connections – LE 1M PHY
LL/CON/ADV/BV-06-C	Tests that an advertiser IUT using undirected connectable advertising with legacy PDUs receives a connection indication on the primary channel stops advertising after the reception and starts to maintain a connection in the Peripheral role
LL/CON/ADV/BV-07-C	Tests that an advertiser IUT receives a connection request stops advertising after the reception and starts to maintain a connection in the Peripheral role when the connection request indicates no support for Channel Selection Algorithm #2
LL/CON/ADV/BV-08-C	Tests that an advertiser IUT receives a connection request to the directing advertising indication stops advertising after the reception and starts to maintain a connection in the Peripheral role when the connection request indicates no support for Channel Selection Algorithm #2
LL/CON/ADV/BV-09-C	Tests that an advertiser IUT receives a connection request stops advertising after the reception and starts to maintain a connection in the Peripheral role when the connection request indicates support for Channel Selection Algorithm #2
LL/CON/ADV/BV-10-C	Tests that an advertiser IUT receives a connection request to the directing advertising indication stops advertising after the reception and starts to maintain a connection in the Peripheral role when the connection request indicates support for Channel Selection Algorithm #2
LL/CON/ADV/BV-11-C	Accepting Connections, IUT Channel Selection Algorithm #1, Lower Tester Channel Selection Algorithm #2

LL/CON/ADV/BV-12-C	Extended Advertising, Accepting Connections – LE 2M PHY
LL/CON/ADV/BV-13-C	Extended Advertising, Accepting Connections – LE Coded PHY
LL/CON/ADV/BV-14-C	Extended Advertising, Accepting Connections with Random address – LE 1M PHY
LL/CON/ADV/BV-15-C	Extended Advertising, Accepting Connections with Random address – LE 2M PHY
LL/CON/ADV/BV-16-C	Extended Advertising, Accepting Connections with Random address – LE Coded PHY
LL/CON/INI/BI-01-C	Tests that an initiator IUT ignores advertising packets with an invalid checksum
LL/CON/INI/BI-02-C	Tests that an initiator IUT sends a connection indication to an advertiser and receiving reply transmissions with invalid checksums from the Peripheral up to the point of expiring the connection supervision timer considers the connection failed
LL/CON/INI/BI-03-C	Connection Initiation Missed Replies
LL/CON/INI/BV-01-C	Tests that an initiator IUT sends a connection indication to an advertiser and starts to maintain a connection in the Central role
LL/CON/INI/BV-02-C	Tests that an initiator IUT sends a connection indication to an advertiser using directed advertising events and starts to maintain a connection in the Central role
LL/CON/INI/BV-03-C	Tests that an initiator IUT sends a connection indication to an advertiser and after missing some reply transmissions from the Peripheral still manages to setup a connection in the Central role. This test purpose reflects a typical scenario which the IUT must manage
LL/CON/INI/BV-04-C	Connection Initiation Timeout
LL/CON/INI/BV-06-C	Initiation Device Filtering: Undirected
LL/CON/INI/BV-07-C	Initiation Device Filtering: Directed
LL/CON/INI/BV-08-C	LE Set Address Resolution Enable Command - Initiator
LL/CON/INI/BV-09-C	Verify that the IUT when init conn est only connect to devices that are in the RL
LL/CON/INI/BV-10-C	Verify that the IUT when init conn est with the RL conn only to peer devs that are in the RL
LL/CON/INI/BV-11-C	Verify that the IUT when initiating connection establishment with the resolving list connects only to directed advertisements that are addressed to the IUT
LL/CON/INI/BV-12-C	Verify that the IUT when init private connection establishment with the RL does not conn to direct that are addressed to the IUT using its ID addr
LL/CON/INI/BV-13-C	Extended Scanning, Connection Initiation – LE 1M PHY
LL/CON/INI/BV-14-C	Tests that an initiator IUT sends a connection request to an advertiser and starts to maintain a connection in the Central role when the advertisement indicates no support of Channel Selection Algorithm #2
LL/CON/INI/BV-15-C	Tests that an initiator IUT sends a connection request to an advertiser using directed advertising and starts to maintain a connection in the Central role when the advertisement indicates no support of Channel Selection Algorithm #2

LL/CON/INI/BV-16-C	Tests that an initiator IUT sends a connection request to an advertiser and starts to maintain a connection in the Central role when the advertisement indicates support of Channel Selection Algorithm #2
LL/CON/INI/BV-17-C	Tests that an initiator IUT sends a connection request to an advertiser using directed advertising and starts to maintain a connection in the Central role when the advertisement indicates support of Channel Selection Algorithm #2
LL/CON/INI/BV-18-C	Verify that the IUT when initiating connection establishment does not connect to a device advertising using its device identity address when the identity address and an associated IRK are in the resolving list using network privacy mode
LL/CON/INI/BV-19-C	Verify that the IUT when initiating connection establishment does not connect to a device advertising using its device identity address when the identity address and an associated IRK are in the resolving list using network privacy mode
LL/CON/INI/BV-20-C	Verify that the IUT when initiating connection establishment connects to a device advertising using its device identity address when the identity address and an associated IRK are in the resolving list using device privacy mode
LL/CON/INI/BV-21-C	Verify that the IUT when initiating connection establishment connects to a device advertising using its device identity address when the identity address and an associated IRK are in the resolving list using device privacy mode
LL/CON/INI/BV-22-C	Tests that an initiator IUT that only supports Channel Selection Algorithm #1 sends a connection request to an advertiser and starts to maintain a connection in the Central role when the advertisement indicates support of Channel Selection Algorithm #2. The Lower Tester first acts in the advertising state with ChSel set to one (1), then accepts the connection and starts to maintain it in the Peripheral role, observing the packet and timing from the IUT. The IUT confirms the Channel Selection Algorithm #1 is used for the connection.
LL/CON/INI/BV-23-C	Network Privacy - Connection Establishment using Filter Accept List and resolving list with address resolution disabled
LL/CON/INI/BV-24-C	Network Privacy - Connection Establishment using resolving list with address resolution disabled
LL/CON/INI/BV-25-C	Extended Scanning, Connection Initiation – LE 2M PHY
LL/CON/INI/BV-26-C	Extended Scanning, Connection Initiation – LE Coded PHY
LL/CON/INI/BV-27-C	Connection Initiation with Valid Access Address
LL/CON/INI/BV-28-C	Parallel connection requests, incoming connect indication first
LL/CON/INI/BV-29-C	Parallel connection requests, outgoing connection request first
LL/CON/CEN/BI-02-C	Central T_Terminate Timer
LL/CON/CEN/BI-04-C	Test that a Peripheral device can recover from a control procedure failure
LL/CON/CEN/BI-05-C	CENTRAL - Initiating Connection Parameter Request - Timeout
LL/CON/CEN/BI-06-C	Accepting Connection Parameter Request - Illegal Parameters
LL/CON/CEN/BI-07-C	Data Length Update – Handling Invalid Data Length Responses – LE 1M PHY
LL/CON/CEN/BI-08-C	Data Length Update – Handling Invalid Data Length Responses – LE 2M PHY

LL/CON/CEN/BI-09-C	Data Length Update – Handling Invalid Data Length Responses – LE Coded PHY
LL/CON/CEN/BI-10-C	Reject an Invalid Incoming Subrate Change Request
LL/CON/CEN/BI-11-C	Version Exchange, IUT Requesting
LL/CON/CEN/BI-12-C	Version Exchange, IUT Responding
LL/CON/CEN/BI-13-C	Reject Invalid Connection Parameter Request Parameters
LL/CON/CEN/BI-14-C	Invalid LLID
LL/CON/CEN/BI-15-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Central, No PHY Specified
LL/CON/CEN/BI-16-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Central, LE 2M PHY Not Supported
LL/CON/CEN/BI-17-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Central, LE Coded PHY Not Supported
LL/CON/CEN/BI-18-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Central, Multiple PHYs Specified
LL/CON/CEN/BI-19-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Central, RFU Specified
LL/CON/CEN/BV-02-C	Test that a Central IUT can maintain a connection when the Peripheral using the Peripheral latency mechanism
LL/CON/CEN/BV-03-C	Central Sending Data
LL/CON/CEN/BV-04-C	CENTRAL - Central Receiving Data
LL/CON/CEN/BV-05-C	CENTRAL - Central Sending And Receiving Data
LL/CON/CEN/BV-07-C	Requesting Parameter Update
LL/CON/CEN/BV-08-C	Central Sending Termination
LL/CON/CEN/BV-09-C	Central Accepting Termination
LL/CON/CEN/BV-10-C	Test that a Central IUT terminates a connection by the supervision timer
LL/CON/CEN/BV-13-C	CENTRAL - Feature Setup Request
LL/CON/CEN/BV-14-C	Test that a Central IUT can maintain a connection using the acknowledgement scheme and retransmit
LL/CON/CEN/BV-15-C	Test that a Central IUT can maintain a connection using the acknowledgement scheme and retransmit a data packet on a negative acknowledgement
LL/CON/CEN/BV-16-C	Test that a Central IUT can maintain a connection using the acknowledgement scheme and repeats a positive acknowledgement of a packet
LL/CON/CEN/BV-17-C	Test that a Central IUT can maintain a connection using the acknowledgement scheme and preserve the packet sequence numbering in the case of a lost negative acknowledgement
LL/CON/CEN/BV-18-C	Test that a Central IUT can maintain a connection using the acknowledgement scheme with the Peripheral using latency
LL/CON/CEN/BV-19-C	Connection Control Timeout
LL/CON/CEN/BV-20-C	Central Request Version
LL/CON/CEN/BV-21-C	Test that a connected Central IUT responds to the request from the Tester to perform the version exchange procedure
LL/CON/CEN/BV-22-C	CENTRAL - Central Acknowledgement Scheme

LL/CON/CEN/BV-23-C	CENTRAL - Responding to Feature Exchange
LL/CON/CEN/BV-24-C	CENTRAL - Initiating Connection Parameter Request - Accept
LL/CON/CEN/BV-25-C	CENTRAL - Initiating Connection Parameter Request - Reject
LL/CON/CEN/BV-26-C	Initiating Connection Parameter Request - Same Procedure Collision
LL/CON/CEN/BV-27-C	Initiating Connection Parameter Request - Different Procedure Collision - Channel Map Update
LL/CON/CEN/BV-28-C	Initiating Connection Parameter Request - Different Procedure Collision - Encryption
LL/CON/CEN/BV-29-C	CENTRAL - Initiating Connection Parameter Request - Remote Legacy Host
LL/CON/CEN/BV-30-C	Accepting Connection Parameter Request - No Preferred Periodicity
LL/CON/CEN/BV-31-C	Accepting Connection Parameter Request - Preferred Anchor Points Only
LL/CON/CEN/BV-32-C	Accepting Connection Parameter Request - Preferred Periodicity
LL/CON/CEN/BV-33-C	Accepting Connection Parameter Request - Preferred Periodicity and Preferred Anchor Points
LL/CON/CEN/BV-34-C	CENTRAL - Accepting Connection Parameter Request - Event Masked
LL/CON/CEN/BV-35-C	CENTRAL - Accepting Connection Parameter Request - Host Rejects
LL/CON/CEN/BV-41-C	Test that a Central IUT can perform the PHY update procedure
LL/CON/CEN/BV-42-C	Test that a Central IUT can perform the PHY update procedure when asymmetric links are not supported
LL/CON/CEN/BV-43-C	Test that a Central IUT can respond to a PHY update procedure from a Peripheral device
LL/CON/CEN/BV-44-C	Test that a Central IUT can respond to a PHY update procedure from a Peripheral device when asymmetric links are not supported
LL/CON/CEN/BV-45-C	Test that a Central IUT can perform the PHY update procedure when there is a procedure collision between the IUT's PHY change request and the remote device's PHY change request
LL/CON/CEN/BV-46-C	Test that a Central IUT terminates the Link Layer connection if the Central-initiated PHY update procedure is not completed before the procedure response timer expires
LL/CON/CEN/BV-47-C	Test that a Central IUT can perform the channel map update procedure when there is a procedure collision between the IUT's channel map update and the Lower Tester's PHY change request
LL/CON/CEN/BV-48-C	Test that a Central IUT can perform the connection parameters request procedure when there is a procedure collision between the IUT's connection parameters request and the Lower Tester's PHY change request
LL/CON/CEN/BV-49-C	Test that a Central IUT follows all packet time restrictions both during and after PHY change when it initiates the PHY update procedure
LL/CON/CEN/BV-50-C	Test that a Central IUT both during and after PHY change follows all packet time restrictions when it responds to a PHY update procedure from a Peripheral device
LL/CON/CEN/BV-51-C	Test that a Central IUT correctly handles the case where it initiates a PHY update procedure but no common PHYs are available
LL/CON/CEN/BV-52-C	Test that a Central IUT can receive data from a Peripheral device when the Peripheral is transitioning between 125kbit and 500kbit coded rates. Confirm that IUT responds within the allowed T_IFS times for each packet at either coded rate. Test is performed with the IUT's minimum and maximum

	supported packet length. A Data Length Update Procedure is performed if required
LL/CON/CEN/BV-53-C	Test that a Central IUT follows all packet time restrictions both during and after PHY update when it initiates the PHY Update Procedure. Test that the IUT does not queue a packet for transmission that would satisfy the requirements when queued but violate them if it is still waiting for retransmission after the PHY Update instant
LL/CON/CEN/BV-54-C	Test that a Central IUT both during and after PHY update when it responds to a PHY Update Procedure from a Peripheral device. Test that the IUT does not queue a packet for transmission that would satisfy the requirements when queued but violate them if it is still waiting for retransmission after the PHY Update instant
LL/CON/CEN/BV-55-C	Test that a Central IUT still transmits data even when the TX Time and/or RxTime values for LE Coded PHY suggest a smaller possible data length than the minimum length data PDU (27 octets)
LL/CON/CEN/BV-56-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA – LE 1M PHY
LL/CON/CEN/BV-57-C	Constant Tone Extension Request Procedure, IUT Initiated, Periodic
LL/CON/CEN/BV-58-C	Constant Tone Extension Request Procedure, IUT Initiated, Responses Disabled
LL/CON/CEN/BV-59-C	Verifies that the IUT correctly handles the case where the remote does not support the Connection CTE Response feature.
LL/CON/CEN/BV-60-C	Constant Tone Extension Request Procedure, IUT Initiated, Timeout
LL/CON/CEN/BV-61-C	Constant Tone Extension Request Procedure, IUT Responding, AoA
LL/CON/CEN/BV-62-C	Constant Tone Extension Request Procedure, IUT Responding, Responses Disabled
LL/CON/CEN/BV-63-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD – LE 1M PHY
LL/CON/CEN/BV-64-C	Constant Tone Extension Request Procedure, IUT Responding, AoD
LL/CON/CEN/BV-65-C	Unrequested Constant Tone Extension, IUT Receiving, AoA – LE 1M PHY
LL/CON/CEN/BV-66-C	Unrequested Constant Tone Extension, IUT Receiving, AoD – LE 1M PHY
LL/CON/CEN/BV-67-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Encrypted Connection – LE 1M PHY
LL/CON/CEN/BV-68-C	Constant Tone Extension Request Procedure, IUT Responding, AoA, Encrypted Connection
LL/CON/CEN/BV-69-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Encrypted Connection – LE 1M PHY
LL/CON/CEN/BV-70-C	Constant Tone Extension Request Procedure, IUT Responding, AoD, Encrypted Connection
LL/CON/CEN/BV-71-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Incorrect CRC – LE 1M PHY
LL/CON/CEN/BV-72-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Incorrect CRC – LE 1M PHY
LL/CON/CEN/BV-73-C	Verify that the IUT as Central correctly handles reception of an LL_LENGTH_REQ PDU on the LE 1M PHY

LL/CON/CEN/BV-74-C	Verify that a Central IUT can perform the Data Length Update Procedure by sending an LL_LENGTH_REQ PDU on the LE 1M PHY
LL/CON/CEN/BV-75-C	Verify that the IUT as Central correctly handles communication with a Lower Tester that does not support the Data Length Update Procedure
LL/CON/CEN/BV-76-C	Verify that the IUT as Central correctly handles reception of an LL_LENGTH_REQ PDU on the LE 2M PHY
LL/CON/CEN/BV-77-C	Verify that a Central IUT can perform the Data Length Update Procedure by sending an LL_LENGTH_REQ PDU on the LE 2M PHY
LL/CON/CEN/BV-78-C	Verify that the IUT as Central correctly handles reception of an LL_LENGTH_REQ PDU on the LE Coded PHY
LL/CON/CEN/BV-79-C	Verify that a Central IUT can perform the Data Length Update Procedure by sending an LL_LENGTH_REQ PDU on the LE Coded PHY
LL/CON/CEN/BV-80-C	Verify that the IUT as Central correctly handles communication with a Lower Tester that does not support the Data Length Update Procedure on LE Coded PHY
LL/CON/CEN/BV-81-C	Test that a Central IUT can perform the connection parameter request procedure when a feature exchange has not been performed and the remote device does not support the request
LL/CON/CEN/BV-82-C	Test that a Central IUT can perform the connection parameter request procedure after the feature exchange reveals that the remote device does not support the request
LL/CON/CEN/BV-83-C	Constant Tone Extension Request Procedure, IUT Responding, Unsupported
LL/CON/CEN/BV-84-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/CEN/BV-85-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/CEN/BV-86-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/CEN/BV-87-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/CEN/BV-88-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/CEN/BV-89-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-90-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-91-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-92-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-93-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-94-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/CEN/BV-95-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/CEN/BV-96-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/CEN/BV-97-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/CEN/BV-98-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/CEN/BV-99-C	Periodic Advertising Sync Transfer Procedure, accepting – Skipping Events
LL/CON/CEN/BV-100-C	Periodic Advertising Sync Transfer Procedure, Accepting – Already Synchronized
LL/CON/CEN/BV-101-C	Periodic Advertising Sync Transfer Procedure, Accepting – Extreme Timings
LL/CON/CEN/BV-102-C	Periodic Advertising Sync Transfer Procedure, Accepting – Synchronization Failure

LL/CON/CEN/BV-103-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different Modes and Addresses
LL/CON/CEN/BV-104-C	Periodic Advertising Sync Transfer Procedure, Accepting, Changing Transfer Mode During Synchronization
LL/CON/CEN/BV-105-C	Acknowledging Long Control PDUs
LL/CON/CEN/BV-106-C	Acknowledging Long Control PDUs
LL/CON/CEN/BV-107-C	Acknowledging Long Control PDUs
LL/CON/CEN/BV-108-C	Rejecting Request To Send Long Control PDUs before Feature Exchange – LE 1M PHY
LL/CON/CEN/BV-109-C	Rejecting Request To Send Long Control PDUs before Feature Exchange – LE 2M PHY
LL/CON/CEN/BV-110-C	Rejecting Request To Send Long Control PDUs before Feature Exchange – LE Coded PHY
LL/CON/CEN/BV-111-C	Rejecting Request To Send Long Control PDUs after Feature Exchange – LE 1M PHY
LL/CON/CEN/BV-112-C	Rejecting Request To Send Long Control PDUs after Feature Exchange – LE 2M PHY
LL/CON/CEN/BV-113-C	Rejecting Request To Send Long Control PDUs after Feature Exchange – LE Coded PHY
LL/CON/CEN/BV-114-C	Sending Long Control PDUs after Feature Exchange – LE 1M PHY
LL/CON/CEN/BV-115-C	Sending Long Control PDUs after Feature Exchange – LE 2M PHY
LL/CON/CEN/BV-116-C	Sending Long Control PDUs after Feature Exchange – LE Coded PHY
LL/CON/CEN/BV-117-C	PHY Update Procedure – Central Requests Asymmetrical, Peripheral Symmetrical
LL/CON/CEN/BV-118-C	Unrequested Constant Tone Extension, IUT Receiving, AoD – LE 2M PHY
LL/CON/CEN/BV-119-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA – LE 2M PHY
LL/CON/CEN/BV-120-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD – LE 2M PHY
LL/CON/CEN/BV-121-C	Unrequested Constant Tone Extension, IUT Receiving, AoA – LE 2M PHY
LL/CON/CEN/BV-122-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Encrypted Connection – LE 2M PHY
LL/CON/CEN/BV-123-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Encrypted Connection – LE 2M PHY
LL/CON/CEN/BV-124-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Incorrect CRC – LE 2M PHY
LL/CON/CEN/BV-125-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Incorrect CRC – LE 2M PHY
LL/CON/CEN/BV-126-C	Data Length Update – Preserve Parameters After a PHY Change – LE 2M PHY
LL/CON/CEN/BV-127-C	Data Length Update – Preserve Parameters After a PHY Change – LE Coded PHY
LL/CON/CEN/BV-128-C	Data Length Update – Retransmission During an Update
LL/CON/CEN/BV-129-C	Verify that if the IUT's peer device does not support the LE Coded PHY feature, then the MaxRxTime and MaxTxTime fields in the LL_LENGTH_REQ

	and LL_LENGTH_RSP PDUs shall be set to a value less than or equal to 2120 microseconds.
LL/CON/CEN/BV-131-C	Verify that an IUT stops sending CTE requests after changing to a PHY that doesn't allow Constant Tone Extensions
LL/CON/CEN/BV-132-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Duplicate Filter when already synchronized
LL/CON/CEN/BV-133-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Default Duplicate Filter
LL/CON/CEN/BV-134-C	Change the Subrate of an Existing Connection
LL/CON/CEN/BV-135-C	Accept an Incoming Subrate Change Request
LL/CON/CEN/BV-136-C	Feature Exchange Before a Subrate Request
LL/CON/CEN/BV-137-C	Set the Default Subrate Factor
LL/CON/CEN/BV-138-C	Central Retransmission on Old and New Subrated Connection Events when Connection Subrate Update Not Acknowledged
LL/CON/CEN/BV-139-C	Subrate Set to 1 After Requesting Connection Interval Change
LL/CON/CEN/BV-140-C	Reject Subrate Request When Feature Bit is not set
LL/CON/CEN/BV-141-C	Subrate Factor, Event Counter wrapping
LL/CON/CEN/BV-142-C	Change the Subrate of an Existing Connection, Verify Sending Data, Continuation Number events
LL/CON/CEN/BV-143-C	Reject Subrate Request when Peripheral Feature Bit is not set
LL/CON/CEN/BV-145-C	Receive Data on Continuation events – Central
LL/CON/CEN/BV-146-C	Version Exchange, IUT Requesting, Collision
LL/CON/CEN/BV-147-C	Version Exchange, IUT Requesting, Delayed Response
LL/CON/CEN/BV-148-C	Receiving LL Data PDU size with Constant Tone Extension, Central, 0x01 (AoA)
LL/CON/CEN/BV-149-C	Receiving LL Data PDU size with Constant Tone Extension, Central, 0x04 (AoD with 2µs slots)
LL/CON/CEN/BV-150-C	Reject Constant Tone Extension Request Procedure for LE Coded PHY, IUT Responding, AoA, Central
LL/CON/CEN/BV-151-C	Reject Constant Tone Extension Request Procedure for LE Coded PHY, IUT Responding, AoD, Central
LL/CON/CEN/BV-152-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated – Multiple Resolvable Private Addresses, Central
LL/CON/CEN/BV-153-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-154-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-155-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-156-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-157-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/CEN/BV-158-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Duplicate Filter when already synchronized, Central, Periodic Sync WR IND
LL/CON/CEN/BV-159-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Default Duplicate Filter, Central, Periodic Sync WR IND
LL/CON/CEN/BV-160-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated, Periodic Advertising with Responses, Central

LL/CON/CEN/BV-161-C	Rejecting Request to Send Long Control PDUs before Feature Exchange but after Data Length Update Procedure
LL/CON/CEN/BV-162-C	Rejecting Request to Send Long Control PDUs before Feature Exchange but after Data Length Update Procedure
LL/CON/CEN/BV-163-C	Rejecting Request to Send Long Control PDUs before Feature Exchange but after Data Length Update Procedure
LL/CON/PER/BI-01-C	Test that a Peripheral IUT accepts the Central transmission at the beginning of an event as the anchor point irrespective of the checksum result
LL/CON/PER/BI-02-C	Peripheral T_Terminate Timer
LL/CON/PER/BI-04-C	PERIPHERAL - Rejecting Connection Change
LL/CON/PER/BI-05-C	Test that a Peripheral device can recover from a control procedure failure
LL/CON/PER/BI-07-C	PERIPHERAL - Initiating Connection Parameter Request - Timeout
LL/CON/PER/BI-08-C	Accepting Connection Parameter Request - Illegal Parameters
LL/CON/PER/BI-09-C	Test that a Peripheral IUT terminates the Link Layer connection if Central initiated PHY update procedure specifies an instant that is in the past
LL/CON/PER/BI-10-C	Data Length Update – Handling Invalid Data Length Responses – LE 1M PHY
LL/CON/PER/BI-11-C	Data Length Update – Handling Invalid Data Length Responses – LE 2M PHY
LL/CON/PER/BI-12-C	Data Length Update – Handling Invalid Data Length Responses – LE Coded PHY
LL/CON/PER/BI-13-C	Reject Invalid Subrate Updates
LL/CON/PER/BI-14-C	Version Exchange, IUT Requesting
LL/CON/PER/BI-15-C	Version Exchange, IUT Responding
LL/CON/PER/BI-16-C	Reject Invalid Connection Parameter Request Parameters
LL/CON/PER/BI-17-C	Invalid LLID
LL/CON/PER/BI-18-C	PHY Update Procedure, Invalid or Unsupported PHY, Central Initiated, LE Coded PHY Not Supported
LL/CON/PER/BI-19-C	PHY Update Procedure, Invalid or Unsupported PHY, Central Initiated, LE 2M PHY Not Supported
LL/CON/PER/BI-20-C	PHY Update Procedure, Invalid or Unsupported PHY, Central Initiated, Multiple PHYs Specified
LL/CON/PER/BI-21-C	PHY Update Procedure, Invalid or Unsupported PHY, Central Initiated, RFU Bits Specified
LL/CON/PER/BI-22-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Peripheral, No PHY Specified
LL/CON/PER/BI-23-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Peripheral, LE 2M PHY Not Supported
LL/CON/PER/BI-24-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Peripheral, LE Coded PHY Not Supported
LL/CON/PER/BI-25-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Peripheral, Multiple PHYs Specified
LL/CON/PER/BI-26-C	Periodic Advertising Sync Transfer Procedure, Invalid or Unsupported PHY, Peripheral, RFU Specified
LL/CON/PER/BV-02-C	PERIPHERAL - Invalid CRC Anchor Point
LL/CON/PER/BV-04-C	Peripheral Sending Data
LL/CON/PER/BV-05-C	PERIPHERAL - Peripheral Receiving Data

LL/CON/PER/BV-06-C	PERIPHERAL - Peripheral Sending and Receiving Data
LL/CON/PER/BV-10-C	Accepting Parameter Update
LL/CON/PER/BV-11-C	Peripheral Sending Termination
LL/CON/PER/BV-12-C	PERIPHERAL - Peripheral Accepting Termination
LL/CON/PER/BV-13-C	PERIPHERAL - Peripheral Supervision Timer
LL/CON/PER/BV-14-C	Feature Setup Response
LL/CON/PER/BV-15-C	Tests that a Peripheral IUT can maintain a connection observing the acknowledgement scheme while receiving invalid checksums in data packets
LL/CON/PER/BV-16-C	Tests that a Peripheral IUT can maintain a connection observing the acknowledgement scheme and retransmit a data packet on a negative acknowledgement
LL/CON/PER/BV-17-C	Tests that a Peripheral IUT can maintain a connection observing the acknowledgement scheme and repeats a positive acknowledgement of a packet
LL/CON/PER/BV-18-C	Tests that a Peripheral IUT can maintain a connection observing the acknowledgement scheme and preserve the packet sequence numbering in the case of a lost negative acknowledgement
LL/CON/PER/BV-19-C	PERIPHERAL - Peripheral Request Version
LL/CON/PER/BV-20-C	PERIPHERAL - Peripheral Request Version
LL/CON/PER/BV-21-C	PERIPHERAL - Peripheral Acknowledgement Scheme
LL/CON/PER/BV-22-C	PERIPHERAL - Initiate Feature Exchange
LL/CON/PER/BV-23-C	PERIPHERAL - Initiate Feature Exchange - Central Does Not Support
LL/CON/PER/BV-24-C	Peripheral - Initiating Connection Parameter Request - Accept
LL/CON/PER/BV-25-C	PERIPHERAL - Initiating Connection Parameter Request - Reject
LL/CON/PER/BV-26-C	Initiating Connection Parameter Request - Same Procedure Collision
LL/CON/PER/BV-27-C	Initiating Connection Parameter Request - Different Procedure Collision - Channel Map Update
LL/CON/PER/BV-28-C	Initiating Connection Parameter Request - Different Procedure Collision – Encryption
LL/CON/PER/BV-29-C	Accepting Connection Parameter Request - No Preferred Periodicity
LL/CON/PER/BV-30-C	Accepting Connection Parameter Request - Preferred Anchor Points Only
LL/CON/PER/BV-31-C	Accepting Connection Parameter Request - Preferred Periodicity
LL/CON/PER/BV-32-C	Accepting Connection Parameter Request - Preferred Periodicity and Preferred Anchor Points
LL/CON/PER/BV-33-C	Accepting Connection Parameter Request - Event Masked
LL/CON/PER/BV-34-C	PERIPHERAL - Accepting Connection Parameter Request - Host Rejects
LL/CON/PER/BV-40-C	Test that a Peripheral IUT can perform the PHY update procedure
LL/CON/PER/BV-42-C	Test that a Peripheral IUT can respond to a PHY update procedure
LL/CON/PER/BV-43-C	Test that a Peripheral IUT can respond to a PHY update procedure when asymmetric links are not supported
LL/CON/PER/BV-44-C	Test that a Peripheral IUT can perform the PHY update procedure when there is a procedure collision between the IUT's PHY change request and the Lower Tester's PHY change request

LL/CON/PER/BV-45-C	Test that a Peripheral IUT terminates the Link Layer connection if the Peripheral-initiated PHY update procedure is not completed before the procedure response timer expires
LL/CON/PER/BV-46-C	Test that a Peripheral IUT can perform the PHY update procedure when there is a procedure collision between the IUT's PHY change request and the remove device's channel map update
LL/CON/PER/BV-47-C	Test that a Peripheral IUT can perform the PHY update procedure when there is a procedure collision between the IUT's PHY change request and the remote device's connection parameters request
LL/CON/PER/BV-48-C	Test that a Peripheral IUT can perform the PHY update procedure when there is a procedure collision between the IUT's PHY change request and the remote device's connection update request
LL/CON/PER/BV-49-C	Test that a Peripheral IUT follows all packet time restrictions both during and after PHY change when it initiates the PHY update procedure
LL/CON/PER/BV-50-C	Test that a Peripheral IUT follows all packet time restrictions both during and after PHY change when it responds to a PHY update procedure from a Central device
LL/CON/PER/BV-51-C	Test that a Peripheral IUT terminates the Link Layer connection if Central-initiated PHY update procedure is not completed before the procedure response timer expires
LL/CON/PER/BV-52-C	Test that a Peripheral IUT follows all packet time restrictions when a PHY update procedure is initiated but no PHY change occurs
LL/CON/PER/BV-53-C	Test that a Peripheral IUT follows all packet time restrictions both during and after PHY change when it responds to a PHY update procedure from a Central device but no PHY change occurs
LL/CON/PER/BV-54-C	Test that a Peripheral IUT can receive data from a Central device when the Central is transitioning between 125kbit and 500kbit coded rates. Confirm that IUT responds within the allowed T_IFS times for each packet at either coded rate
LL/CON/PER/BV-55-C	Test that a Peripheral IUT follows all packet time restrictions both during and after PHY change when it initiates the PHY Update Procedure
LL/CON/PER/BV-56-C	Test that a Peripheral IUT follows all packet time restrictions both during and after PHY change when it responds to a PHY Update Procedure from a Central device
LL/CON/PER/BV-57-C	Test that a Peripheral IUT still transmits data even when the TxTime and/or RxTime values for LE Coded PHY suggest a smaller possible data length than the minimum length data PDU (27 octets)
LL/CON/PER/BV-58-C	Test that a Peripheral IUT follows all packet time restrictions when a PHY Update Procedure is initiated but no PHY change occurs
LL/CON/PER/BV-59-C	Test that a Peripheral IUT follows all packet time restrictions both during and after PHY change when it responds to a PHY Update Procedure from a Central device but no PHY change occurs
LL/CON/PER/BV-60-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA – LE 1M PHY
LL/CON/PER/BV-61-C	Constant Tone Extension Request Procedure, IUT Initiated, Periodic
LL/CON/PER/BV-62-C	Constant Tone Extension Request Procedure, IUT Initiated, Responses Disabled

LL/CON/PER/BV-63-C	Verifies that the IUT correctly handles the case where the remote does not support the Connection CTE Response feature.
LL/CON/PER/BV-64-C	Constant Tone Extension Request Procedure, IUT Initiated, Timeout
LL/CON/PER/BV-65-C	Constant Tone Extension Request Procedure, IUT Responding, AoA
LL/CON/PER/BV-66-C	Constant Tone Extension Request Procedure, IUT Responding, Responses Disabled
LL/CON/PER/BV-67-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD – LE 1M PHY
LL/CON/PER/BV-68-C	Constant Tone Extension Request Procedure, IUT Responding, AoD
LL/CON/PER/BV-69-C	Unrequested Constant Tone Extension, IUT Receiving, AoA – LE 1M PHY
LL/CON/PER/BV-70-C	Unrequested Constant Tone Extension, IUT Receiving, AoD – LE 1M PHY
LL/CON/PER/BV-71-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Encrypted Connection – LE 1M PHY
LL/CON/PER/BV-72-C	Constant Tone Extension Request Procedure, IUT Responding, AoA, Encrypted Connection
LL/CON/PER/BV-73-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Encrypted Connection – LE 1M PHY
LL/CON/PER/BV-74-C	Constant Tone Extension Request Procedure, IUT Responding, AoD, Encrypted Connection
LL/CON/PER/BV-75-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Incorrect CRC – LE 1M PHY
LL/CON/PER/BV-76-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Incorrect CRC – LE 1M PHY
LL/CON/PER/BV-77-C	Verify that the IUT as Peripheral correctly handles reception of an LL_LENGTH_REQ PDU on the LE 1M PHY
LL/CON/PER/BV-78-C	Verify that a Peripheral IUT can perform the Data Length Update Procedure by sending an LL_LENGTH_REQ PDU on the LE 1M PHY
LL/CON/PER/BV-79-C	Verify that the IUT as Peripheral correctly handles communication with a Lower Tester that does not support the Data Length Update Procedure
LL/CON/PER/BV-80-C	Verify that the IUT as Peripheral correctly handles reception of an LL_LENGTH_REQ PDU on the LE 2M PHY
LL/CON/PER/BV-81-C	Verify that a Peripheral IUT can perform the Data Length Update Procedure by sending an LL_LENGTH_REQ PDU on the LE 2M PHY
LL/CON/PER/BV-82-C	Verify that the IUT as Peripheral correctly handles reception of an LL_LENGTH_REQ PDU on the LE Coded PHY
LL/CON/PER/BV-83-C	Verify that a Peripheral IUT can perform the Data Length Update Procedure by sending an LL_LENGTH_REQ PDU on the LE Coded PHY
LL/CON/PER/BV-84-C	Verify that the IUT as Peripheral correctly handles communication with a Lower Tester that does not support the Data Length Update Procedure on LE Coded PHY
LL/CON/PER/BV-85-C	Test that a Peripheral IUT can perform the connection parameter request procedure when a feature exchange has not been performed and the remote device does not support the request
LL/CON/PER/BV-86-C	Test that a Peripheral IUT can reject the connection parameter request procedure after the feature exchange reveals that the remote device does not support the request

LL/CON/PER/BV-87-C	Constant Tone Extension Request Procedure, IUT Responding, Unsupported
LL/CON/PER/BV-88-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/PER/BV-89-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/PER/BV-90-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/PER/BV-91-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/PER/BV-92-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated
LL/CON/PER/BV-93-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-94-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-95-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-96-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-97-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-98-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/PER/BV-99-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/PER/BV-100-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/PER/BV-101-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/PER/BV-102-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different PHYs
LL/CON/PER/BV-103-C	Periodic Advertising Sync Transfer Procedure, Accepting – Skipping Events
LL/CON/PER/BV-104-C	Periodic Advertising Sync Transfer Procedure, Accepting – Already Synchronized
LL/CON/PER/BV-105-C	Periodic Advertising Sync Transfer Procedure, Accepting – Extreme Timings
LL/CON/PER/BV-106-C	Periodic Advertising Sync Transfer Procedure, Accepting – Synchronization Failure
LL/CON/PER/BV-107-C	Periodic Advertising Sync Transfer Procedure, Accepting – Different Modes and Addresses
LL/CON/PER/BV-108-C	Periodic Advertising Sync Transfer Procedure, Accepting, Changing Transfer Mode During Synchronization
LL/CON/PER/BV-109-C	Acknowledging Long Control PDUs
LL/CON/PER/BV-110-C	Acknowledging Long Control PDUs
LL/CON/PER/BV-111-C	Acknowledging Long Control PDUs
LL/CON/PER/BV-112-C	Rejecting Request to Send Long Control PDUs before Feature Exchange – LE 1M PHY
LL/CON/PER/BV-113-C	Rejecting Request to Send Long Control PDUs before Feature Exchange – LE 2M PHY
LL/CON/PER/BV-114-C	Rejecting Request to Send Long Control PDUs before Feature Exchange – LE Coded PHY
LL/CON/PER/BV-115-C	Rejecting Request to Send Long Control PDUs after Feature Exchange – LE 1M PHY
LL/CON/PER/BV-116-C	Rejecting Request to Send Long Control PDUs after Feature Exchange – LE 2M PHY
LL/CON/PER/BV-117-C	Rejecting Request to Send Long Control PDUs after Feature Exchange – LE Coded PHY
LL/CON/PER/BV-118-C	Sending Long Control PDUs after Feature Exchange – LE 1M PHY
LL/CON/PER/BV-119-C	Sending Long Control PDUs after Feature Exchange – LE 2M PHY
LL/CON/PER/BV-120-C	Sending Long Control PDUs after Feature Exchange – LE Coded PHY

LL/CON/PER/BV-121-C	Unrequested Constant Tone Extension, IUT Receiving, AoD – LE 2M PHY
LL/CON/PER/BV-122-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA – LE 2M PHY
LL/CON/PER/BV-123-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD – LE 2M PHY
LL/CON/PER/BV-124-C	Unrequested Constant Tone Extension, IUT Receiving, AoA – LE 2M PHY
LL/CON/PER/BV-125-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Encrypted Connection – LE 2M PHY
LL/CON/PER/BV-126-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Encrypted Connection – LE 2M PHY
LL/CON/PER/BV-127-C	Constant Tone Extension Request Procedure, IUT Initiated, AoA, Incorrect CRC – LE 2M PHY
LL/CON/PER/BV-128-C	Constant Tone Extension Request Procedure, IUT Initiated, AoD, Incorrect CRC – LE 2M PHY
LL/CON/PER/BV-129-C	Data Length Update – Preserve Parameters After a PHY Change – LE 2M PHY
LL/CON/PER/BV-130-C	Data Length Update – Preserve Parameters After a PHY Change – LE Coded PHY
LL/CON/PER/BV-131-C	Data Length Update – Retransmission During an Update
LL/CON/PER/BV-132-C	Verify that if the IUT's peer device does not support the LE Coded PHY feature, then the MaxRxTime and MaxTxTime fields in the LL_LENGTH_REQ and LL_LENGTH_RSP PDUs shall be set to a value less than or equal to 2120 microseconds.
LL/CON/PER/BV-134-C	Verify that an IUT stops sending CTE requests after changing to a PHY that doesn't allow Constant Tone Extensions
LL/CON/PER/BV-135-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Duplicate Filter when already synchronized
LL/CON/PER/BV-136-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Default Duplicate Filter
LL/CON/PER/BV-137-C	Respond to a Subrate Change
LL/CON/PER/BV-138-C	Send a Request for a Subrate Change, Accepted
LL/CON/PER/BV-139-C	Subrate Factor set to 1 and Continuation Number set to 0 on Connection Interval change
LL/CON/PER/BV-140-C	SubrateFactor, Event Counter wrapping
LL/CON/PER/BV-141-C	Subrate Change, Verify Sending Data, Continuation Number events
LL/CON/PER/BV-142-C	Listen for Data on Subrated events – Peripheral
LL/CON/PER/BV-143-C	Receive Data on Continuation events – Peripheral
LL/CON/PER/BV-144-C	Receiving a Delayed Connection Change Update After the Event Counter Wraps
LL/CON/PER/BV-145-C	Version Exchange, IUT Requesting, Collision
LL/CON/PER/BV-146-C	Version Exchange, IUT Requesting, Collision, Peripheral
LL/CON/PER/BV-147-C	Version Exchange, IUT Requesting, Delayed Response
LL/CON/PER/BV-148-C	Receiving LL Data PDU size with Constant Tone Extension, Peripheral, 0x01 (AoA)

LL/CON/PER/BV-149-C	Receiving LL Data PDU size with Constant Tone Extension, Peripheral, 0x04 (AoD with 2µs slots)
LL/CON/PER/BV-150-C	Reject Constant Tone Extension Request Procedure for LE Coded PHY, IUT Responding, AoA, Peripheral
LL/CON/PER/BV-151-C	Reject Constant Tone Extension Request Procedure for LE Coded PHY, IUT Responding, AoD, Peripheral
LL/CON/PER/BV-152-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated – Multiple Resolvable Private Addresses, Peripheral
LL/CON/PER/BV-153-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-154-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-155-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-156-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-157-C	Periodic Advertising Sync Transfer Procedure, Synchronized IUT Initiated
LL/CON/PER/BV-159-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Duplicate Filter when already synchronized, Peripheral, Periodic Sync WR IND
LL/CON/PER/BV-160-C	Periodic Advertising Sync Transfer Procedure, Accepting, Enabling Default Duplicate Filter, Peripheral, Periodic Sync WR IND
LL/CON/PER/BV-161-C	Periodic Advertising Sync Transfer Procedure, Advertising IUT Initiated, Periodic Advertising with Responses, Peripheral
LL/CON/PER/BV-162-C	Rejecting Request to Send Long Control PDUs before Feature Exchange but after Data Length Update Procedure
LL/CON/PER/BV-163-C	Rejecting Request to Send Long Control PDUs before Feature Exchange but after Data Length Update Procedure
LL/CON/PER/BV-164-C	Rejecting Request to Send Long Control PDUs before Feature Exchange but after Data Length Update Procedure
LL/DDI/ADV/BI-01-C	Tests that an advertiser IUT ignores a scan request with an invalid checksum and continues advertising
LL/DDI/ADV/BI-02-C	Tests that an advertiser IUT ignores connection indications with an invalid CRC
LL/DDI/ADV/BI-05-C	Disallow Extended Advertising PDU sizes for Legacy Advertising when advertising enabled
LL/DDI/ADV/BI-06-C	Disallow Extended Advertising PDU sizes for Scannable Legacy Advertising when advertising enabled
LL/DDI/ADV/BI-07-C	Connection Request Invalid Hop Increment
LL/DDI/ADV/BI-08-C	Ignore Periodic Advertising Response Data, Incorrect Response Slot
LL/DDI/ADV/BI-09-C	Reject Connection Request When Connected to a Peer, Periodic Advertising with Responses
LL/DDI/ADV/BV-01-C	Non-Connectable Advertising Events
LL/DDI/ADV/BV-02-C	ADVERTISING - Undirected Advertising Events
LL/DDI/ADV/BV-03-C	ADVERTISING - Advertising Data: Non-Connectable
LL/DDI/ADV/BV-04-C	ADVERTISING - Advertising Data: Undirected
LL/DDI/ADV/BV-05-C	Scan Request: Undirected Connectable
LL/DDI/ADV/BV-06-C	Tests that an advertiser IUT receives a connection indication and stops advertising after its reception
LL/DDI/ADV/BV-07-C	ADVERTISING - Scan Request Connection Indication

LL/DDI/ADV/BV-08-C	ADVERTISING - Scan Request Device Filtering
LL/DDI/ADV/BV-09-C	ADVERTISING - Connection Indication Device Filtering
LL/DDI/ADV/BV-11-C	ADVERTISING - Directed Advertising Events
LL/DDI/ADV/BV-15-C	ADVERTISING - Discoverable Advertising Events
LL/DDI/ADV/BV-16-C	ADVERTISING - Advertising Data: Discoverable
LL/DDI/ADV/BV-17-C	ADVERTISING - Scan Request: Discoverable
LL/DDI/ADV/BV-18-C	ADVERTISING - Device Filtering: Discoverable
LL/DDI/ADV/BV-19-C	Low Duty Cycle Directed Advertising Events
LL/DDI/ADV/BV-20-C	Tests that an advertiser IUT sends advertising packets of an event with correct contents on all applicable advertising channels using the LE 1M PHY, even when the host has indicated that it prefers the LE 2M PHY.
LL/DDI/ADV/BV-21-C	Tests that an advertiser IUT sends advertising packets of a non-connectable event type with data on all advertising channels using legacy PDU types and extended advertising HCI commands
LL/DDI/ADV/BV-22-C	Extended Advertising, Legacy PDUs, Undirected, CSA #1
LL/DDI/ADV/BV-25-C	Tests that an advertiser IUT sends scannable ADV_EXT_IND PDUs with the AuxPtr field referring to a valid AUX_ADV_IND PDU on the secondary advertising channel with the correct payload fields timing and channel sequence for the maximum time allowed
LL/DDI/ADV/BV-26-C	Extended Advertising, Periodic Advertising – LE 1M PHY
LL/DDI/ADV/BV-27-C	Tests that an advertiser IUT sends non-connectable undirected advertising packets with the ADV_EXT_IND PDU on the primary advertising channel with the correct payload fields timing and channel sequence for the maximum time allowed
LL/DDI/ADV/BV-28-C	Tests that an advertiser IUT sends ADV_EXT_IND PDUs with the AuxPtr field referring to a valid AUX_ADV_IND PDU on the secondary advertising channel. Proper handling of the Secondary_Advertising_Max_Skip parameter is tested
LL/DDI/ADV/BV-29-C	Tests that an advertiser IUT can support multiple advertising sets using the LE 1M PHY with the correct payload fields timing and channel sequence for the maximum time allowed
LL/DDI/ADV/BV-30-C	Tests that an advertiser IUT can support multiple advertising sets using the LE Coded PHY with the correct payload fields timing and channel sequence for the maximum time allowed
LL/DDI/ADV/BV-31-C	Tests that an advertiser IUT can support multiple advertising sets using both the LE 1M and the LE Coded PHYs with the correct payload fields timing and channel sequence for the maximum time allowed
LL/DDI/ADV/BV-32-C	Tests that an advertiser IUT can support multiple advertising sets using both legacy and extended advertising PDUs in parallel with the correct payload fields timing and channel sequence for the maximum time allowed
LL/DDI/ADV/BV-33-C	Tests that an advertiser IUT can support multiple periodic advertising sets
LL/DDI/ADV/BV-34-C	Tests that an advertiser IUT can report the TX Power in advertisements with RF path compensation using correct payload fields timing and channel sequence for the maximum time allowed
LL/DDI/ADV/BV-35-C	Tests that an advertiser IUT can support multiple advertising sets with the correct payload fields timing and channel sequence for the maximum time

	allowed. Advertisements with the minimum data required to be supported are tested
LL/DDI/ADV/BV-36-C	AoD Connectionless CTE Advertising – LE 1M PHY, 2 µs slots
LL/DDI/ADV/BV-37-C	AoA Connectionless CTE Advertising – LE 1M PHY
LL/DDI/ADV/BV-39-C	Connectionless CTE Advertising – Maintain CTE Configuration
LL/DDI/ADV/BV-43-C	Periodic Advertising validating SyncInfo fields
LL/DDI/ADV/BV-45-C	Tests that an advertiser IUT sends scannable ADV_EXT_IND PDUs with the AuxPtr field referring to a valid AUX_ADV_IND PDU on the secondary advertising channel with the correct payload fields, timing, and channel sequence for the maximum time allowed. Tests that an advertiser IUT responds to a scan request on the secondary channel and continues advertising after the response. Scan response data chaining is tested. Undirected and Directed events are tested.
LL/DDI/ADV/BV-47-C	Tests that an advertiser IUT using LE 1M PHY sends non-connectable ADV_EXT_IND PDUs with the AuxPtr field referring to a valid AUX_ADV_IND PDU on the secondary advertising channel with the correct payload fields, timing, and channel sequence for the maximum time allowed. Advertisements with and without data, along with chaining, are tested. Undirected and Directed events are tested.
LL/DDI/ADV/BV-48-C	Tests that an advertiser IUT using LE Coded PHY sends non-connectable ADV_EXT_IND PDUs with the AuxPtr field referring to a valid AUX_ADV_IND PDU on the secondary advertising channel with the correct payload fields, timing, and channel sequence for the maximum time allowed. Advertisements with and without data, along with chaining, are tested. Undirected and Directed events are tested.
LL/DDI/ADV/BV-49-C	Tests that an advertiser IUT using LE 2M PHY sends non-connectable ADV_EXT_IND PDUs with the AuxPtr field referring to a valid AUX_ADV_IND PDU on the secondary advertising channel with the correct payload fields, timing, and channel sequence for the maximum time allowed. Advertisements with and without data, along with chaining, are tested. Undirected and Directed events are tested.
LL/DDI/ADV/BV-50-C	Extended Advertising, Legacy PDUs, Undirected, CSA #2
LL/DDI/ADV/BV-51-C	Extended Advertising, Scannable – without ADI – LE 2M PHY
LL/DDI/ADV/BV-52-C	Extended Advertising, Scannable – with ADI – LE 2M PHY
LL/DDI/ADV/BV-53-C	Extended Advertising, Scannable – without ADI – LE Coded PHY
LL/DDI/ADV/BV-54-C	Extended Advertising, Scannable – with ADI – LE Coded PHY
LL/DDI/ADV/BV-55-C	Extended Advertising, Periodic Advertising – LE 2M PHY
LL/DDI/ADV/BV-56-C	Extended Advertising, Periodic Advertising – LE Coded PHY
LL/DDI/ADV/BV-57-C	AoD Connectionless CTE Advertising – LE 2M PHY, 2 µs slots, *121)
LL/DDI/ADV/BV-58-C	AoD Connectionless CTE Advertising – LE 1M PHY, 1 µs slots, *121)
LL/DDI/ADV/BV-59-C	AoD Connectionless CTE Advertising – LE 2M PHY, 1 µs slots, *121)
LL/DDI/ADV/BV-60-C	AoA Connectionless CTE Advertising – LE 2M PHY, *122)
LL/DDI/ADV/BV-61-C	Extended Advertising, Periodic Advertising with TxPower
LL/DDI/ADV/BV-62-C	Periodic Advertising, Channel Map Update
LL/DDI/ADV/BV-63-C	ADI in Periodic Advertising when supporting Periodic Advertising Filtering

LL/DDI/ADV/BV-64-C	Extended Advertising, Non-Connectable and Non-Scannable Undirected, Multiple Sets
LL/DDI/ADV/BV-65-C	Extended Advertising, Connectable and Scannable Undirected, Multiple Sets
LL/DDI/ADV/BV-66-C	Extended Advertising, Connectable Directed, High Duty Cycle, Multiple Sets
LL/DDI/ADV/BV-67-C	Extended Advertising, Connectable Directed, Low Duty Cycle, Multiple Sets
LL/DDI/ADV/BV-68-C	Extended Advertising, Scannable Undirected, Multiple Sets
LL/DDI/ADV/BV-69-C	Advertising Data, New RPA on Change Reasons, Legacy, Non-Connectable Undirected
LL/DDI/ADV/BV-70-C	Advertising Data, New RPA on Change Reasons, Legacy, Connectable and Scannable Undirected
LL/DDI/ADV/BV-71-C	Advertising Data, New RPA on Change Reasons, Legacy, Scannable Undirected
LL/DDI/ADV/BV-72-C	Advertising Data, New RPA on Change Reasons, Extended, Non-Connectable Undirected
LL/DDI/ADV/BV-73-C	Advertising Data, New RPA on Change Reasons, Extended, Connectable and Scannable Undirected
LL/DDI/ADV/BV-74-C	Advertising Data, New RPA on Change Reasons, Extended, Scannable Undirected
LL/DDI/ADV/BV-75-C	Extended Advertising, New RPA on Change Reasons
LL/DDI/ADV/BV-76-C	Extended Scannable Advertising, New RPA on Change Reasons
LL/DDI/ADV/BV-77-C	Extended Advertising, Multiple Sets, New RPA on AdvData Change
LL/DDI/ADV/BV-78-C	Extended Advertising, Multiple Sets, New RPA on AdvData Change
LL/DDI/ADV/BV-79-C	Extended Advertising, Multiple Sets, New RPA on AdvData Change
LL/DDI/ADV/BV-80-C	High Duty Cycle Connectable Directed Advertising, No Connection
LL/DDI/ADV/BV-81-C	Extended Advertising, Non-Connectable – LE Coded PHY, No Coding Preference
LL/DDI/ADV/BV-82-C	Extended Advertising, Non-Connectable – LE Coded PHY, Recommended, Primary S=2, Secondary S=8
LL/DDI/ADV/BV-83-C	Extended Advertising, Non-Connectable – LE Coded PHY, Recommended, Primary S=8, Secondary S=2
LL/DDI/ADV/BV-84-C	Extended Advertising, Non-Connectable – LE Coded PHY, Required, Primary S=2, Secondary S=8
LL/DDI/ADV/BV-85-C	Extended Advertising, Non-Connectable – LE Coded PHY, Required, Primary S=8, Secondary S=2
LL/DDI/ADV/BV-86-C	Extended Advertising, Non-Connectable, Advertising Coding Selection
LL/DDI/ADV/BV-87-C	ADI in Periodic Advertising when supporting Periodic Advertising Filtering – AUX_SYNC_SUBEVENT_IND
LL/DDI/ADV/BV-88-C	Transmit Periodic Advertising with Responses
LL/DDI/ADV/BV-89-C	Reconnect with a Synchronized Device using Periodic Advertising with Responses
LL/DDI/ADV/BV-90-C	AUX_SYNC_SUBEVENT_IND PDU with Channel Map Update Indication
LL/DDI/SCN/BI-01-C	Active Scanning Invalid CRC
LL/DDI/SCN/BI-02-C	Passive Scanning Invalid CRC
LL/DDI/SCN/BI-03-C	Privacy – Active Scanning, Wrong AdvA in Response
LL/DDI/SCN/BI-04-C	Passive Scanning, Invalid or Unsupported PHY, LE Coded PHY Not Supported

LL/DDI/SCN/BI-05-C	Passive Scanning, Invalid or Unsupported PHY, LE 2M PHY Not Supported
LL/DDI/SCN/BI-06-C	Passive Scanning, Invalid or Unsupported PHY, RFU Bits Specified
LL/DDI/SCN/BI-07-C	Transition to Standby State, no AUX_SYNC_SUBEVENT_IND
LL/DDI/SCN/BI-08-C	Periodic Advertising with Responses, Invalid Parameters
LL/DDI/SCN/BI-09-C	Reject Connection Request When Connected to a Peer, Periodic Advertising with Responses – Central
LL/DDI/SCN/BI-10-C	Reject Connection Request When Connected to a Peer, Periodic Advertising with Responses – Peripheral
LL/DDI/SCN/BV-01-C	Passive Scanning: Non Connectable
LL/DDI/SCN/BV-02-C	Passive Scanning Device Filtering
LL/DDI/SCN/BV-03-C	Tests that a scanner IUT detects and requests additional information from advertisers and reports the results from the Controller
LL/DDI/SCN/BV-04-C	Tests that a scanner IUT detects requests and reports additional information about a single advertiser according to the filtering policy and type of advertising event used
LL/DDI/SCN/BV-05-C	Tests that a scanner IUT detects devices using different types of advertising events when scanning actively and not filtering devices
LL/DDI/SCN/BV-10-C	Tests that a scanner IUT detects and reports advertising packets correctly
LL/DDI/SCN/BV-11-C	Tests that a scanner IUT detects and reports advertising packets correctly
LL/DDI/SCN/BV-12-C	Tests that a scanner IUT detects and reports advertising packets correctly
LL/DDI/SCN/BV-13-C	Verify the IUT when doing passive scanning and using the RL reports advertising from the LT
LL/DDI/SCN/BV-14-C	Verify that a scanner IUT detects and reports directed advertising packets correctly when the UT has set the scan filter policy to 0x03 or 0x04
LL/DDI/SCN/BV-15-C	Verify that the IUT when doing active scanning reports the LT and sends SCAN_REQs to the LT with a NRPA for the ScanA field
LL/DDI/SCN/BV-16-C	Verify that the IUT when doing active scanning and using the RL reports the LT and sends SCAN_REQs to the LT with an RPA for the ScanA field
LL/DDI/SCN/BV-17-C	Verify that the IUT when doing active scanning and using the RL reports the LT and sends SCAN_REQs to the lower tester with a NRPA for the ScanA field
LL/DDI/SCN/BV-18-C	Verify that the IUT when doing active scanning and using the RL reports the LT and sends SCAN_RESs to the LT with an RPA for the ScanA field
LL/DDI/SCN/BV-19-C	Extended Scanning, Passive – LE 1M PHY
LL/DDI/SCN/BV-20-C	Extended Scanning, Active – LE 1M PHY, Core 5.0
LL/DDI/SCN/BV-21-C	Extended Scanning, Periodic Advertising Reception – LE 1M PHY
LL/DDI/SCN/BV-23-C	Tests that a scanner IUT detects and reports advertising packets received on all supported PHYs correctly
LL/DDI/SCN/BV-24-C	Extended Scanning, Multiple Sets, Active, Multiple PHYs (All Supported PHYs), Core 5.0
LL/DDI/SCN/BV-25-C	Tests that a scanner IUT can locate and receive periodic advertising events on all supported PHYs and reports the results from the Controller
LL/DDI/SCN/BV-26-C	Verify the IUT when doing passive scanning and using the Resolving List does not report advertising from the Lower Tester using its device identity

	address when the identity address and an associated IRK are in the resolving list
LL/DDI/SCN/BV-28-C	Verify the IUT when doing passive scanning and using the Resolving List reports advertising from the Lower Tester using its device identity address when the identity address and an associated IRK are in the resolving list using device privacy mode
LL/DDI/SCN/BV-29-C	AoD Connectionless CTE Scanning – LE 1M PHY, 2 µs slots
LL/DDI/SCN/BV-30-C	AoA Connectionless CTE Scanning – LE 1M PHY, 2 µs slots
LL/DDI/SCN/BV-31-C	AoD Connectionless CTE Scanning, Incorrect CRC – LE 1M PHY, 2 µs slots
LL/DDI/SCN/BV-32-C	AoA Connectionless CTE Scanning, Incorrect CRC – LE 1M PHY, 2 µs slots
LL/DDI/SCN/BV-33-C	Privacy - Extended Scanning, Active, Core 5.0
LL/DDI/SCN/BV-34-C	Tests that a scanner IUT can synchronize to periodic advertising events using both periodic sync establishment filter policy settings, and ignoring the scanner filter policy
LL/DDI/SCN/BV-35-C	Connectionless CTE Scanning, Filter Wrong CTE Types on Synchronization
LL/DDI/SCN/BV-36-C	Connectionless CTE Scanning, CTE Type Change
LL/DDI/SCN/BV-37-C	Tests that synchronization will fail on the IUT when an AUX_SYNC_IND PDU is not received within 6 periodic advertising events after the first advertising event is sent
LL/DDI/SCN/BV-38-C	Extended Scanning, Periodic Advertising Reception, Reporting Initially Disabled – LE 1M PHY
LL/DDI/SCN/BV-42-C	Extended Scanning, Passive – LE 2M PHY
LL/DDI/SCN/BV-43-C	Extended Scanning, Passive – LE Coded PHY
LL/DDI/SCN/BV-44-C	Extended Scanning, Active – LE 2M Phy, Core 5.0
LL/DDI/SCN/BV-45-C	Extended Scanning, Active – LE Coded PHY, Core 5.0
LL/DDI/SCN/BV-46-C	Extended Scanning, Periodic Advertising Reception – LE 2M PHY
LL/DDI/SCN/BV-47-C	Extended Scanning, Periodic Advertising Reception – LE Coded PHY
LL/DDI/SCN/BV-48-C	AoD Connectionless CTE Scanning – LE 2M PHY, 2 µs slots
LL/DDI/SCN/BV-49-C	AoD Connectionless CTE Scanning – LE 1M PHY, 1 µs slots
LL/DDI/SCN/BV-50-C	AoD Connectionless CTE Scanning – LE 2M PHY, 1 µs slots
LL/DDI/SCN/BV-51-C	AoA Connectionless CTE Scanning – LE 2M PHY, 2 µs slots
LL/DDI/SCN/BV-52-C	AoA Connectionless CTE Scanning – LE 1M PHY, 1 µs slots
LL/DDI/SCN/BV-53-C	AoA Connectionless CTE Scanning – LE 2M PHY, 1 µs slots
LL/DDI/SCN/BV-54-C	AoD Connectionless CTE Scanning, Incorrect CRC – LE 2M PHY, 2 µs slots
LL/DDI/SCN/BV-55-C	AoD Connectionless CTE Scanning, Incorrect CRC – LE 1M PHY, 1 µs slots
LL/DDI/SCN/BV-56-C	AoD Connectionless CTE Scanning, Incorrect CRC – LE 2M PHY, 1 µs slots
LL/DDI/SCN/BV-57-C	AoA Connectionless CTE Scanning, Incorrect CRC – LE 2M PHY, 2 µs slots
LL/DDI/SCN/BV-58-C	AoA Connectionless CTE Scanning, Incorrect CRC – LE 1M PHY, 1 µs slots
LL/DDI/SCN/BV-59-C	AoA Connectionless CTE Scanning, Incorrect CRC – LE 2M PHY, 1 µs slots
LL/DDI/SCN/BV-60-C	Extended Scanning, Periodic Advertising Reception, Reporting Initially Disabled – LE 2M PHY
LL/DDI/SCN/BV-61-C	Extended Scanning, Periodic Advertising Reception, Reporting Initially Disabled – LE Coded PHY

LL/DDI/SCN/BV-62-C	Extended Scanning, Multiple Sets, Active, Multiple PHYs (All Supported PHYs), Core 5.1
LL/DDI/SCN/BV-63-C	Privacy - Extended Scanning, Active, Core 5.1
LL/DDI/SCN/BV-64-C	Extended Scanning, Active – LE 1M PHY, Core 5.1
LL/DDI/SCN/BV-65-C	Extended Scanning, Active – LE 2M Phy, Core 5.1
LL/DDI/SCN/BV-66-C	Extended Scanning, Active – LE Coded PHY, Core 5.1
LL/DDI/SCN/BV-67-C	Periodic Advertising Reception, Channel Map Update
LL/DDI/SCN/BV-68-C	Scanner not supporting Periodic Advertising ADI accepts AUX_SYNC_IND with ADI Set
LL/DDI/SCN/BV-69-C	Scanner supporting Periodic Advertising Filtering accepts AUX_SYNC_IND with ADI
LL/DDI/SCN/BV-70-C	Scanner enables Duplicate Filtering after initially disabled
LL/DDI/SCN/BV-71-C	Extended Scanning, Passive, Scanning Filter Policy, Resolvable Private Addresses
LL/DDI/SCN/BV-72-C	Extended Scanning, Periodic Advertising Reception – Public Identity Address
LL/DDI/SCN/BV-73-C	Extended Scanning, Periodic Advertising Reception – Random Identity Address
LL/DDI/SCN/BV-74-C	Legacy Scanning Ignore Extended Advertising Packets
LL/DDI/SCN/BV-75-C	Extended Scanning, Passive, Reporting TX Power – LE 1M PHY
LL/DDI/SCN/BV-76-C	Extended Scanning, Passive, Reporting TX Power – LE Coded PHY
LL/DDI/SCN/BV-77-C	Extended Scanning, Active, Reporting TX Power – LE 1M PHY
LL/DDI/SCN/BV-78-C	Extended Scanning, Active, Reporting TX Power – LE Coded PHY
LL/DDI/SCN/BV-79-C	Extended Scanning, Passive, Periodic Advertising Report, RSSI and TX_Power – LE 1M PHY
LL/DDI/SCN/BV-80-C	Extended Scanning, Passive, Periodic Advertising Report, RSSI and TX_Power – LE Coded PHY
LL/DDI/SCN/BV-81-C	Extended Scanning, Passive, Periodic Advertising Report, Data Status – LE 1M PHY
LL/DDI/SCN/BV-82-C	Extended Scanning, Passive, Periodic Advertising Report, Data Status – LE Coded PHY
LL/DDI/SCN/BV-83-C	AoD Connectionless CTE Scanning, Connectionless IQ Report
LL/DDI/SCN/BV-84-C	AoA Connectionless CTE Scanning, Connectionless IQ Report
LL/DDI/SCN/BV-85-C	Legacy Scanning, Passive, Properly Ignore RFU Fields
LL/DDI/SCN/BV-86-C	Legacy Scanning, Active, Properly Ignore RFU Fields
LL/DDI/SCN/BV-87-C	Extended Scanning, Passive, Properly Ignore RFU Fields
LL/DDI/SCN/BV-88-C	Extended Scanning, Active, Properly Ignore RFU Fields
LL/DDI/SCN/BV-89-C	Extended Scanning, Periodic Advertising, Properly Ignore RFU Fields
LL/DDI/SCN/BV-90-C	Ignore Directed Advertising, Address Not In Filter Accept List
LL/DDI/SCN/BV-91-C	Extended Scanning, Passive – LE Coded PHY, Advertising Coding Selection (Host Support) bit set
LL/DDI/SCN/BV-92-C	Connectionless CTE Scanning, Filter Wrong CTE Types on Synchronization – AUX_SYNC_SUBEVENT_IND
LL/DDI/SCN/BV-93-C	Scanner not supporting Periodic Advertising ADI accepts Advertising PDU with ADI Set – AUX_SYNC_SUBEVENT_IND

LL/DDI/SCN/BV-94-C	Sync with a Periodic Advertiser and Listen for the Assigned Subevent
LL/DDI/SCN/BV-95-C	Synchronized Device Reconnects with an Advertiser using Periodic Advertising with Responses
LL/DDI/SCN/BV-96-C	Periodic Advertising with Responses Trains, Do Not Synchronize with Same Address, Address Type, Advertising SID – AUX_SYNC_IND
LL/DDI/SCN/BV-97-C	Periodic Advertising with Responses Trains, Do Not Synchronize with Same Address, Address Type, Advertising SID – AUX_SYNC_SUBEVENT_IND
LL/DDI/SCN/BV-98-C	Sync with a Periodic Advertiser, Send Response Data in Future Subevent
LL/DDI/SCN/BV-99-C	Ignore a Connection Request, Periodic Advertising with Responses Not Supported
LL/DDI/SCN/BV-100-C	Extended Scanning, Passive, Scanning Filter Policy, Resolvable Private Addresses, Public Address not supported
LL/DFL/CEN/BV-01	Test that a Central IUT correctly transmits packets with fragmented L2CAP headers.
LL/DFL/CEN/BV-02	Test that a Central IUT correctly receives packets with fragmented L2CAP headers.
LL/DFL/PER/BV-01	Test that a Peripheral IUT correctly transmits packets with fragmented L2CAP headers.
LL/DFL/PER/BV-02	Test that a Peripheral IUT correctly receives packets with fragmented L2CAP headers.
LL/ENC/ADV/BI-01-C	Scan Request Invalid Address
LL/ENC/ADV/BI-02-C	Central Packets Invalid Address
LL/ENC/CEN/BI-01-C	Tests that a Central IUT ignores packets not belonging to the connection transmitted using a different access address
LL/ENC/INI/BI-01-C	Peripheral Packets Invalid Address
LL/ENC/PER/BI-01-C	Tests that a Peripheral IUT ignores a packet starting an event belonging to a different connection
LL/ENC/SCN/BI-01-C	Passive Scanning Invalid Address
LL/ENC/SCN/BI-02-C	Active Scanning Invalid Address
LL/FRH/ADV/BV-01-C	ADVERTISING/PERIPHERAL - Accepting Connections With Hop Lengths
LL/FRH/CEN/BI-01-C	Channel Classification Disabled, Ignore Channel Classification PDU
LL/FRH/CEN/BI-02-C	Channel Classification Enabled, Packets Received Less than Min_Spacing
LL/FRH/CEN/BV-01-C	CENTRAL - Requesting Channel Map Update
LL/FRH/CEN/BV-02-C	Tests that a Central IUT performs the channel map update procedure while using Channel Selection Algorithm #2
LL/FRH/CEN/BV-03-C	Tests that a Central IUT performs the Minimum Number Of Used Channels Procedure
LL/FRH/PER/BI-01-C	Properly Handle Invalid Enable Channel Classification Parameters
LL/FRH/PER/BV-01-C	Test that a Peripheral IUT accepts a channel map update request from the Central and adopts the new channel map at the correct time can maintain the connection
LL/FRH/PER/BV-02-C	Tests that a Peripheral IUT accepts a channel map update request from the Central while using Channel Selection Algorithm #2 adopts the new channel map at the correct time and maintains the connection
LL/FRH/PER/BV-03-C	Send Channel Status Update

LL/IST/BRD/BV-01-C	ISO Transmit Test Mode, BIS
LL/IST/CEN/BV-01-C	ISO Transmit Test Mode, CIS – Central
LL/IST/CEN/BV-03-C	ISO Receive Test Mode, CIS – Central
LL/IST/CEN/BV-05-C	ISO Receive Test Mode missing PDU – Central
LL/IST/PER/BV-01-C	ISO Transmit Test Mode, CIS – Peripheral
LL/IST/PER/BV-03-C	ISO Receive Test Mode, CIS – Peripheral
LL/IST/PER/BV-05-C	ISO Receive Test Mode missing PDU – Peripheral
LL/IST/SNC/BV-01-C	ISO Receive Test Mode, BIS
LL/PAC/CEN/BI-01-C	Tests that a Central IUT correctly handles invalid LL Control PDUs
LL/PAC/CEN/BV-01-C	Test whether a Central IUT responds with the unknown response packet to a device transmitting a control packet not in the supported specification or not supported by the IUT
LL/PAC/PER/BI-01-C	Tests that a Peripheral IUT correctly handles invalid LL Control PDUs
LL/PAC/PER/BV-01-C	Test that a Peripheral IUT responds with the unknown response packet to a device transmitting a control packet not in the supported specification or not supported by the IUT
LL/PCL/CEN/BI-02-C	Power Control Request using an invalid or unsupported PHY, Central, No PHY Specified
LL/PCL/CEN/BI-03-C	Power Control Request using an invalid or unsupported PHY, Central, LE 2M PHY Not Supported
LL/PCL/CEN/BI-04-C	Power Control Request using an invalid or unsupported PHY, Central, LE Coded PHY S=8 Not Supported
LL/PCL/CEN/BI-05-C	Power Control Request using an invalid or unsupported PHY, Central, LE Coded PHY S=2 Not Supported
LL/PCL/CEN/BI-06-C	Power Control Request using an invalid or unsupported PHY, Central, Multiple PHYs Specified
LL/PCL/CEN/BI-07-C	Power Control Request using an invalid or unsupported PHY, Central, RFU
LL/PCL/CEN/BI-08-C	Power Change Request using an invalid or unsupported PHY, Central, No PHY Specified
LL/PCL/CEN/BI-09-C	Power Change Request using an invalid or unsupported PHY, Central, LE 2M PHY Not Supported
LL/PCL/CEN/BI-10-C	Power Change Request using an invalid or unsupported PHY, Central, LE Coded PHY S=8 Not Supported
LL/PCL/CEN/BI-11-C	Power Change Request using an invalid or unsupported PHY, Central, LE Coded PHY S=2 Not Supported
LL/PCL/CEN/BI-13-C	Power Change Request using an invalid or unsupported PHY, Central, RFU
LL/PCL/CEN/BV-01-C*	Path Loss Monitoring – Central
LL/PCL/CEN/BV-03-C*	Power Control Request – LE 1M PHY – Initiate, Central
LL/PCL/CEN/BV-04-C*	Power Control Request – LE 2M PHY – Initiate, Central
LL/PCL/CEN/BV-05-C*	Power Control Request – LE Coded PHY – Initiate, Central
LL/PCL/CEN/BV-08-C	Power Control Response – LE 1M PHY – Central
LL/PCL/CEN/BV-09-C	Power Control Response – LE 2M PHY – Central
LL/PCL/CEN/BV-10-C	Power Control Response – LE Coded PHY S=8 – Central
LL/PCL/CEN/BV-11-C	Power Control Response – LE Coded PHY S=2 – Central

LL/PCL/CEN/BV-12-C*	Power Control Response, Min and Max Power Level Reached – Central
LL/PCL/CEN/BV-16-C	Set Acceptable Power Reduction Value – Central
LL/PCL/CEN/BV-17-C*	Properly handle a Power Request PDU when waiting for a Power Response PDU – Central
LL/PCL/CEN/BV-20-C*	Power Control Request – LE 1M PHY – CIS, Initiate, Central
LL/PCL/CEN/BV-23-C*	Power Control Request – LE Coded PHY – CIS, Initiate, Central
LL/PCL/CEN/BV-25-C	Power Control Response – LE 1M PHY – CIS, Central
LL/PCL/CEN/BV-27-C	Power Control Response – LE Coded PHY S=8 – CIS, Central
LL/PCL/CEN/BV-33-C	Power Control Response with RF Path Compensation – LE 1M PHY – Central
LL/PCL/CEN/BV-34-C	Power Control Response with RF Path Compensation – LE 2M PHY – Central
LL/PCL/CEN/BV-35-C	Power Control Response with RF Path Compensation – LE Coded PHY S=8 – Central
LL/PCL/CEN/BV-36-C	Power Control Response with RF Path Compensation – LE Coded PHY S=2 – Central
LL/PCL/CEN/BV-37-C	Power Change Indication on PHY Change, LE 2M PHY, Central
LL/PCL/CEN/BV-38-C	Power Change Indication on PHY Change, LE Coded PHY, Central
LL/PCL/CEN/BV-40-C	Max and Min Power Level Response at Max and Min Power – Central
LL/PCL/CEN/BV-41-C	Power Change Indication on PHY Change, LE 2M to LE 1M PHY, Central
LL/PCL/CEN/BV-42-C	Power Change Indication on PHY Change, LE 2M to LE Coded PHY, Central
LL/PCL/CEN/BV-43-C	Power Change Indication on PHY Change, LE Coded to LE 1M PHY, Central
LL/PCL/CEN/BV-44-C	Power Change Indication on PHY Change, LE Coded to LE 2M PHY, Central
LL/PCL/CEN/BV-45-C*	Power Control Request – LE 2M PHY – CIS, Initiate, Central
LL/PCL/CEN/BV-46-C	Power Control Response – LE 2M PHY – CIS, Central
LL/PCL/CEN/BV-47-C*	Power Control Request – LE Coded PHY S=2 – Initiate, Central
LL/PCL/CEN/BV-48-C*	Power Control Request – LE Coded PHY S=2 – CIS, Initiate, Central
LL/PCL/CEN/BV-49-C	Path Loss Monitoring Unavailable – LE 1M PHY – Initiate, Central
LL/PCL/CEN/BV-50-C	Path Loss Monitoring Unavailable – LE 2M PHY – Initiate, Central
LL/PCL/CEN/BV-51-C	Path Loss Monitoring Unavailable – LE Coded PHY S=8 – Initiate, Central
LL/PCL/CEN/BV-52-C	Path Loss Monitoring Unavailable – LE Coded PHY S=2 – Initiate, Central
LL/PCL/CEN/BV-53-C	Power Control Response, Max Power – LE 1M PHY – Central
LL/PCL/CEN/BV-54-C	Power Control Response, Max Power – LE 2M PHY – Central
LL/PCL/CEN/BV-55-C	Power Control Response, Max Power – LE Coded PHY S=8 – Central
LL/PCL/CEN/BV-56-C	Power Control Response, Max Power – LE Coded PHY S=2 – Central
LL/PCL/PER/BI-02-C	Power Control Request using an invalid or unsupported PHY, Peripheral, No PHY Specified
LL/PCL/PER/BI-03-C	Power Control Request using an invalid or unsupported PHY, Peripheral, LE 2M PHY Not Supported
LL/PCL/PER/BI-04-C	Power Control Request using an invalid or unsupported PHY, Peripheral, LE Coded PHY S=8 Not Supported
LL/PCL/PER/BI-05-C	Power Control Request using an invalid or unsupported PHY, Peripheral, LE Coded PHY S=2 Not Supported
LL/PCL/PER/BI-06-C	Power Control Request using an invalid or unsupported PHY, Peripheral, Multiple PHYs Specified

LL/PCL/PER/BI-07-C	Power Control Request using an invalid or unsupported PHY, Peripheral, RFU
LL/PCL/PER/BI-08-C	Power Change Request using an invalid or unsupported PHY, Peripheral, No PHY Specified
LL/PCL/PER/BI-09-C	Power Change Request using an invalid or unsupported PHY, Peripheral, LE 2M PHY Not Supported
LL/PCL/PER/BI-10-C	Power Change Request using an invalid or unsupported PHY, Peripheral, LE Coded PHY S=8 Not Supported
LL/PCL/PER/BI-11-C	Power Change Request using an invalid or unsupported PHY, Peripheral, LE Coded PHY S=2 Not Supported
LL/PCL/PER/BI-13-C	Power Change Request using an invalid or unsupported PHY, Peripheral, RFU
LL/PCL/PER/BV-01-C*	Path Loss Monitoring – Peripheral
LL/PCL/PER/BV-03-C*	Power Control Request – LE 1M PHY – Initiate, Peripheral
LL/PCL/PER/BV-04-C*	Power Control Request – LE 2M PHY – Initiate, Peripheral
LL/PCL/PER/BV-05-C*	Power Control Request – LE Coded PHY – Initiate, Peripheral
LL/PCL/PER/BV-08-C	Power Control Response – LE 1M PHY – Peripheral
LL/PCL/PER/BV-09-C	Power Control Response – LE 2M PHY – Peripheral
LL/PCL/PER/BV-10-C	Power Control Response – LE Coded PHY S=8 – Peripheral
LL/PCL/PER/BV-11-C	Power Control Response – LE Coded PHY S=2 – Peripheral
LL/PCL/PER/BV-12-C*	Power Control Response, Min and Max Power Level Reached – Peripheral
LL/PCL/PER/BV-16-C	Set Acceptable Power Reduction Value – Peripheral
LL/PCL/PER/BV-17-C*	Properly handle a Power Request PDU when waiting for a Power Response PDU – Peripheral
LL/PCL/PER/BV-20-C*	Power Control Request – LE 1M PHY – CIS, Initiate, Peripheral
LL/PCL/PER/BV-22-C*	Power Control Request – LE Coded PHY – CIS, Initiate, Peripheral
LL/PCL/PER/BV-25-C	Power Control Response – LE 1M PHY – CIS, Peripheral
LL/PCL/PER/BV-28-C	Power Control Response – LE Coded PHY S=2 – CIS, Peripheral
LL/PCL/PER/BV-29-C	Remote Power Transmit Level Request – LE 1M PHY – Initiate, Peripheral
LL/PCL/PER/BV-33-C	Power Control Response with RF Path Compensation – LE 1M PHY – Peripheral
LL/PCL/PER/BV-34-C	Power Control Response with RF Path Compensation – LE 2M PHY – Peripheral
LL/PCL/PER/BV-35-C	Power Control Response with RF Path Compensation – LE Coded PHY S=8 – Peripheral
LL/PCL/PER/BV-36-C	Power Control Response with RF Path Compensation – LE Coded PHY S=2 – Peripheral
LL/PCL/PER/BV-37-C	Power Change Indication on PHY Change, LE 2M PHY, Peripheral
LL/PCL/PER/BV-38-C	Power Change Indication on PHY Change, LE Coded PHY, Peripheral
LL/PCL/PER/BV-40-C	Max and Min Power Level Response at Max and Min Power – Peripheral
LL/PCL/PER/BV-41-C	Power Change Indication on PHY Change, LE 2M to LE 1M PHY, Peripheral
LL/PCL/PER/BV-42-C	Power Change Indication on PHY Change, LE 2M to LE Coded PHY, Peripheral

LL/PCL/PER/BV-43-C	Power Change Indication on PHY Change, LE Coded to LE 1M PHY, Peripheral
LL/PCL/PER/BV-44-C	Power Change Indication on PHY Change, LE Coded to LE 2M PHY, Peripheral
LL/PCL/PER/BV-45-C*	Power Control Request – LE 2M PHY – CIS, Initiate, Peripheral
LL/PCL/PER/BV-46-C	Power Control Response – LE 2M PHY – CIS, Peripheral
LL/PCL/PER/BV-47-C*	Power Control Request – LE Coded PHY S=2 – Initiate, Peripheral
LL/PCL/PER/BV-48-C*	Power Control Request – LE Coded PHY S=2 – CIS, Initiate, Peripheral
LL/PCL/PER/BV-49-C	Path Loss Monitoring Unavailable – LE 1M PHY – Initiate, Peripheral
LL/PCL/PER/BV-50-C	Path Loss Monitoring Unavailable – LE 2M PHY – Initiate, Peripheral
LL/PCL/PER/BV-51-C	Path Loss Monitoring Unavailable – LE Coded PHY S=8 – Initiate, Peripheral
LL/PCL/PER/BV-52-C	Path Loss Monitoring Unavailable – LE Coded PHY S=2 – Initiate, Peripheral
LL/PCL/PER/BV-53-C	Power Control Response, Max Power – LE 1M PHY – Peripheral
LL/PCL/PER/BV-54-C	Power Control Response, Max Power – LE 2M PHY – Peripheral
LL/PCL/PER/BV-55-C	Power Control Response, Max Power – LE Coded PHY S=8 – Peripheral
LL/PCL/PER/BV-56-C	Power Control Response, Max Power – LE Coded PHY S=2 – Peripheral
LL/SEC/ADV/BV-01-C	Advertising With Encrypted Address
LL/SEC/ADV/BV-02-C	Verify that an advertiser IUT can advertise non-connectable events using a non-resolvable private address
LL/SEC/ADV/BV-03-C	Verify that an advertiser IUT can advertise non-connectable events using a resolvable private address and that the address is refreshed
LL/SEC/ADV/BV-04-C	Verify that an adv IUT can adv scan undir events using a NRPA
LL/SEC/ADV/BV-05-C	Verify that an adv IUT can adv scan undir events using an RPA
LL/SEC/ADV/BV-06-C	Test that an adv IUT can conn while using a NRPA in the AdvA field
LL/SEC/ADV/BV-07-C	Verify that an adv IUT can conn while using the RL and using an RPA in the AdvA
LL/SEC/ADV/BV-08-C	Verify the IUT when transmitting undir conn adv events using the RL and using an RPA for the AdvA field connects to the LT
LL/SEC/ADV/BV-09-C	Verify that the IUT connects to the LT when transmitting undir conn adv events and using the RL with a public or random static addr for AdvA field
LL/SEC/ADV/BV-10-C	Verify that the IUT, when transmitting undir conn adv events and using the RL connects to the devices that are only resolved and on the WL
LL/SEC/ADV/BV-11-C	Verify that the IUT when transmitting dir conn adv events is using RPA for AdvA and InitA fields when the LT has distributed its own IRK
LL/SEC/ADV/BV-12-C	Verify that the IUT when transmitting dir conn av events is using RPA for AdvA field and an ID addr for the InitA field when the LT has not distributed its own IRK
LL/SEC/ADV/BV-13-C	Verify the IUT when transmitting dir conn adv events using a public or static addr for AdvA field and an RPA for the InitA field when the LT has distributed its own IRK
LL/SEC/ADV/BV-14-C	Verify the IUT when transmitting directed connectable advertising events and using the Resolving List connects to the devices that are only in the resolving list. The IUT should only connect to a Lower Tester upon successful resolution of the peer's resolvable private address

LL/SEC/ADV/BV-15-C	Verify that an advertiser IUT does not respond to a scan request with the scanner identity address when the IUT has that address and an associated IRK in the resolving list using network privacy mode
LL/SEC/ADV/BV-16-C	Verify that the IUT when transmitting undirected connectable advertising events does not connect in response to connect requests with the initiator identity address when the IUT has that address and an associated IRK in the resolving list using network privacy mode
LL/SEC/ADV/BV-17-C	Verify that the IUT when transmitting directed connectable advertising events does not connect in response to connect requests with the initiator identity address when the IUT has that address and an associated IRK in the resolving list using network privacy mode
LL/SEC/ADV/BV-18-C	Verify that an advertiser IUT responds to a scan request with the scanner identity address when the IUT has that address and an associated IRK in the resolving list using device privacy mode
LL/SEC/ADV/BV-19-C	Verify that the IUT when transmitting undirected connectable advertising events connects in response to connect requests with the initiator identity address when the IUT has that address and an associated IRK in the resolving list using device privacy mode
LL/SEC/ADV/BV-20-C	Verify that the IUT when transmitting directed connectable advertising events connects in response to connect requests with the initiator identity address when the IUT has that address and an associated IRK in the resolving list using device privacy mode
LL/SEC/ADV/BV-21-C	Network Privacy - Scannable Advertising, resolvable private address, Ignore scanner RPA
LL/SEC/ADV/BV-22-C	Network Privacy – Directed Connectable Advertising using Target RPA as InitA
LL/SEC/ADV/BV-23-C	Network Privacy - Undirected Connectable Advertising with Local IRK, no peer IRK, AUX_CONNECT_REQ
LL/SEC/ADV/BV-24-C	Network Privacy - Undirected Connectable Advertising with Local IRK and Peer IRK, AUX_CONNECT_REQ
LL/SEC/ADV/BV-25-C	Network Privacy - Directed Connectable Advertising with local IRK but without remote IRK, AUX_CONNECT_REQ
LL/SEC/ADV/BV-26-C	Device Privacy - Undirected Connectable Advertising with Local IRK and Peer IRK, Accept Identity Address, AUX_CONNECT_REQ
LL/SEC/CEN/BI-01-C	Central Encryption Setup: Missing Response
LL/SEC/CEN/BI-03-C	Central Encryption Setup: Missing Request
LL/SEC/CEN/BI-04-C	Central Encryption Setup: Missing Acknowledgement
LL/SEC/CEN/BI-05-C	Central MIC Failure: Corrupted MIC
LL/SEC/CEN/BI-06-C	Central MIC Failure: Corrupted Header
LL/SEC/CEN/BI-07-C	Central Pause Encryption Sending Data
LL/SEC/CEN/BI-08-C	Central Encryption: Sending Data and Not Response
LL/SEC/CEN/BI-09-C	Central Encryption: Sending Data and Not Request
LL/SEC/CEN/BV-01-C	Central Encryption Mode Setup
LL/SEC/CEN/BV-02-C	Central Pause Encryption
LL/SEC/CEN/BV-03-C	Central Receiving LL_REJECT_IND

LL/SEC/CEN/BV-04-C	Central Encryption: Sending Data Before LL_ENC_RSP
LL/SEC/CEN/BV-05-C	Central Pause Encryption: Sending Data Before LL_PAUSE_ENC_RSP
LL/SEC/CEN/BV-06-C	LE Authenticated Payload Timeout Timer (2)
LL/SEC/CEN/BV-07-C	LE Ping Procedure (2)
LL/SEC/CEN/BV-08-C	LE Authenticated Payload Timeout Timer (2)
LL/SEC/CEN/BV-09-C	LE Authenticated Payload Timeout Timer (2)
LL/SEC/CEN/BV-10-C	LE Authenticated Payload Timeout Timer (2)
LL/SEC/CEN/BV-11-C	Central Sending REJECT_EXT_IND
LL/SEC/CEN/BV-12-C	Central Start Encryption: Overlapping Procedure
LL/SEC/CEN/BV-13-C	Central Start Encryption: Overlapping Procedure With LL_PERIPHERAL_FEATURES_REQ
LL/SEC/CEN/BV-14-C	Central Receiving unexpected PDU during encryption start
LL/SEC/PER/BI-01-C	Peripheral Encryption Setup: Missing Response
LL/SEC/PER/BI-03-C	Peripheral MIC Failure: Corrupted MIC
LL/SEC/PER/BI-04-C	Peripheral MIC Failure: Corrupted Header
LL/SEC/PER/BI-05-C	Peripheral Receiving Unexpected Data Channel PDU During Encryption Start
LL/SEC/PER/BI-07-C	Peripheral Receiving unexpected PDU during encryption start - Unencrypted Data PDU
LL/SEC/PER/BV-01-C	Peripheral Encryption Mode Setup
LL/SEC/PER/BV-02-C	Peripheral Pause Encryption
LL/SEC/PER/BV-03-C	Peripheral Pause Encryption Sending Data
LL/SEC/PER/BV-04-C	Peripheral Sending LL_REJECT_IND
LL/SEC/PER/BV-05-C	Peripheral Receiving Encrypted Data
LL/SEC/PER/BV-06-C	LE Authenticated Payload Timeout Timer
LL/SEC/PER/BV-07-C	LE Ping Procedure
LL/SEC/PER/BV-08-C	LE Authenticated Payload Timeout Timer
LL/SEC/PER/BV-09-C	LE Authenticated Payload Timeout Timer
LL/SEC/PER/BV-10-C	LE Authenticated Payload Timeout Timer
LL/SEC/PER/BV-11-C	Peripheral Sending REJECT_EXT_IND
LL/SEC/SCN/BV-01-C	Private Address Scanning
LL/SEC/SCN/BV-02-C	Random Address Scanning, No LE Encryption
LL/TIM/ADV/BV-01-C	Test that an advertiser IUT responds to a scan request sent using the minimum timing between packets (T_IFS-1.5 µs)
LL/TIM/ADV/BV-02-C	Test that an advertiser IUT responds to a scan request sent using the maximum timing between packets (T_IFS+1.5 µs)
LL/TIM/ADV/BV-03-C	Extended Advertising, Secondary Channel, Earliest Transmission to Advertiser – LE 1M PHY
LL/TIM/ADV/BV-04-C	Extended Advertising, Secondary Channel, Latest Transmission to Advertiser – LE 1M PHY
LL/TIM/ADV/BV-05-C	Extended Advertising, Secondary Channel, Earliest Transmission to Advertiser – LE 2M PHY
LL/TIM/ADV/BV-06-C	Extended Advertising, Secondary Channel, Earliest Transmission to Advertiser – LE Coded PHY

LL/TIM/ADV/BV-07-C	Extended Advertising, Secondary Channel, Latest Transmission to Advertiser – LE 2M PHY
LL/TIM/ADV/BV-08-C	Extended Advertising, Secondary Channel, Latest Transmission to Advertiser – LE Coded PHY
LL/TIM/CEN/BV-01-C	CENTRAL - Earliest Transmissions to Central
LL/TIM/CEN/BV-02-C	CENTRAL - Central Retransmission
LL/TIM/CEN/BV-03-C	Initiate Sleep Clock Accuracy Update
LL/TIM/CEN/BV-04-C	Response to Sleep Clock Accuracy Update
LL/TIM/CEN/BV-05-C	Response without Reducing the Sleep Clock Accuracy
LL/TIM/CEN/BV-06-C	Extended Advertising, Secondary Channel, Latest Transmission to Advertiser – LE 2M PHY
LL/TIM/CEN/BV-07-C	Extended Advertising, Secondary Channel, Latest Transmission to Advertiser – LE Coded PHY
LL/TIM/PER/BV-01-C	Test that a Peripheral IUT on accepting a parameter update from the Central adopts a new anchor point when starting to use the new parameters
LL/TIM/PER/BV-02-C	Test that the Peripheral IUT can establish and maintain a connection with a Central that uses the earliest possible timing for the first transmission
LL/TIM/PER/BV-03-C	Test that the Peripheral IUT can establish a connection with a Central that uses the latest possible timing for the first transmission
LL/TIM/PER/BV-04-C	PERIPHERAL - Packets To Another Peripheral
LL/TIM/PER/BV-05-C	PERIPHERAL - Packets To Another Peripheral
LL/TIM/PER/BV-06-C	Earliest Transmission to Peripheral
LL/TIM/PER/BV-07-C	Latest Transmission to Peripheral
LL/TIM/PER/BV-08-C	Initiate Sleep Clock Accuracy Update
LL/TIM/PER/BV-09-C	Response to Sleep Clock Accuracy Update
LL/TIM/PER/BV-10-C	Response without Reducing the Sleep Clock Accuracy
LL/TIM/SCN/BV-01-C	Extended Scanning, Secondary Channel, Earliest Transmission to Scanner – LE 1M PHY, Core 5.0
LL/TIM/SCN/BV-02-C	Extended Scanning, Secondary Channel, Earliest Transmission to Scanner, LE Coded PHY, Core 5.0
LL/TIM/SCN/BV-03-C	Extended Scanning, Secondary Channel, Latest Transmission to Scanner, LE Coded PHY, Core 5.0
LL/TIM/SCN/BV-04-C	Extended Scanning, Secondary Channel, Earliest Transmission to Scanner – LE 2M PHY, Core 5.0
LL/TIM/SCN/BV-05-C	Extended Scanning, Secondary Channel, Earliest Transmission to Scanner – LE 1M PHY, Core 5.1
LL/TIM/SCN/BV-06-C	Extended Scanning, Secondary Channel, Earliest Transmission to Scanner – LE 2M PHY, Core 5.1
LL/TIM/SCN/BV-07-C	Extended Scanning, Secondary Channel, Earliest Transmission to Scanner, LE Coded PHY, Core 5.1
LL/TIM/SCN/BV-08-C	Extended Scanning, Secondary Channel, Latest Transmission to Scanner, LE Coded PHY, Core 5.1

*See 2.1.4 Manual Attenuation of Some PCL Tests

4.1.4 Importing Tests

If the SIG's Bluetooth Launch Studio (BLS) was used to generate the BLS document with a list of tests, the BLS document can be imported into Harmony to automatically select the tests.

To import the tests:

1. Click "Import/Export"
2. Click "Import test selection from Bluetooth Launch Studio document…"
3. Point to the location of the file
4. Open the file. (Figure 25)

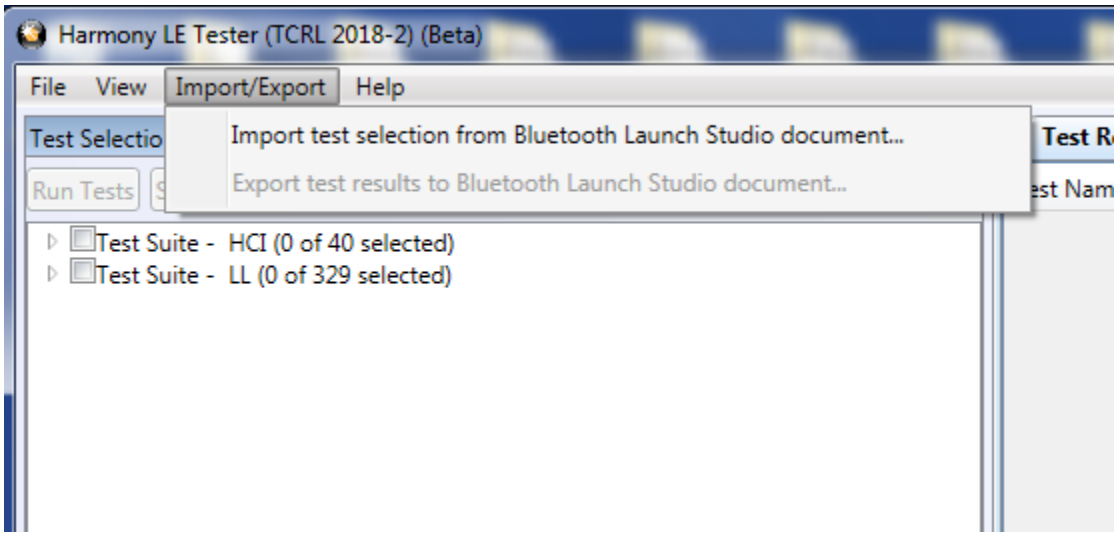


Figure 29 – Import Bluetooth Launch Studio Document

The Event Viewer will show how many tests were imported and if there were any problems with some of the tests in the list (for example having a test in the document that had been deleted in the TCRL and no longer supported). (Figure 26)

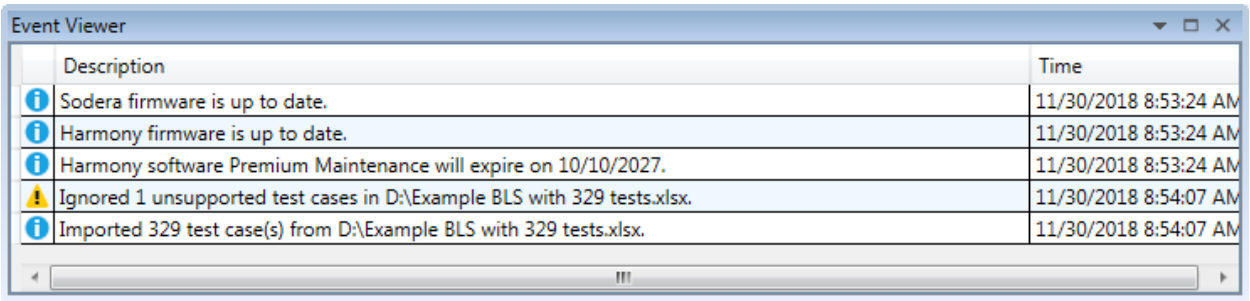


Figure 30 – Event Viewer

4.1.5 Importing ICS Data Related to Test HCI/CIN/BV-12-C

The HCI/CIN/BV-12-C test requires an ICS document be imported to get a “Pass” verdict. The required ICS document is generated through Bluetooth Launch Studio and will have a .pts extension.

To import the ICS document:

1. Run Harmony.
2. Create a new project or open an existing project.
3. Select the option “Import ICS document from Bluetooth Launch Studio…” under “Import/Export”.
4. Locate the ICS file and click the “Open” button.

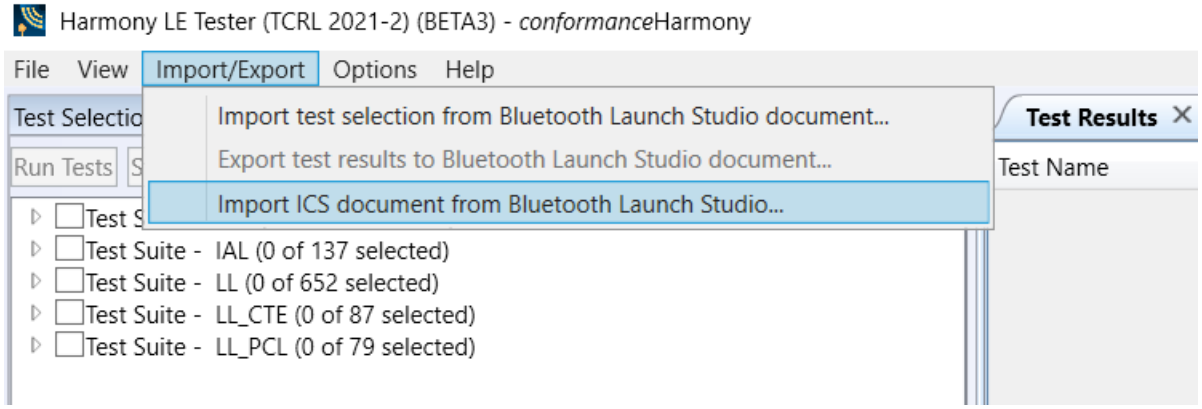


Figure 31 – Import ICS Document

An Event Viewer message will confirm when the ICS document is successfully imported. Once the ICS document has been imported, select the test (if it has not already been selected) and run the project. This step needs to be done once with each project. However, it is recommended to reload the ICS document if a project is going to be run with a new version of Harmony software. A verdict of “Manual” on test HCI/CIN/BV-12-C means that the ICS document was not imported successfully, or something has changed with respect to ICS and the ICS document needs to be imported again. If one still gets a “Manual” verdict, then verify the features with the ICS document manually.

4.1.6 Alternative Ways to Select or Deselect Test Cases

The Search feature can be used to select or deselect individual or groups of tests depending on what is entered in the Search box. For example, entering PCL into the Search box, right clicking the Search icon , and “Select Test Cases” will select the 1 PCL HCI test case and 51 Link Layer PCL test cases. If LL/PCL had been put into the Search box, then only the 51 Link Layer PCL test cases would be selected. One can select just one test case if enough information is put into the Search box to make it unique to one test. Tests can be deselected in groups as well by choosing the “Deselect Test Cases” option.

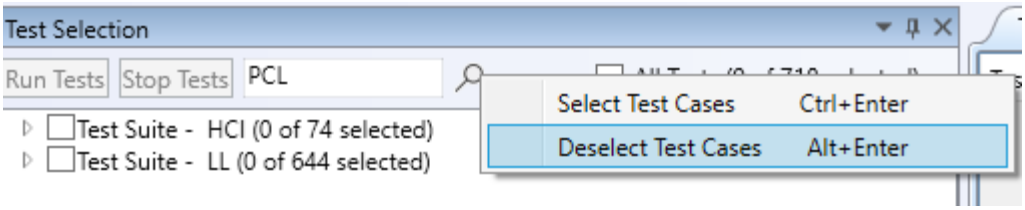


Figure 32 – Select or Deselect Tests from Search Criteria

The "Test Selection Manager" can allow tests to be selected by Feature type. The "Test Selection Manager" can be found under "Options". To select tests based on a feature select one or more features under "Feature Group" and click the --> button. The Feature name along with the number of tests cases in each feature will be displayed in the "Test Groupings" section. There will be a count of the total number of unique tests at the bottom (this may be different then the total number of tests because some tests fall under multiple features). If the selection is correct, then click the Ok button and those tests will be selected. For example, to select all the LE 2M PHY tests select "LE 2M PHY", click the --> button, then click the OK button.

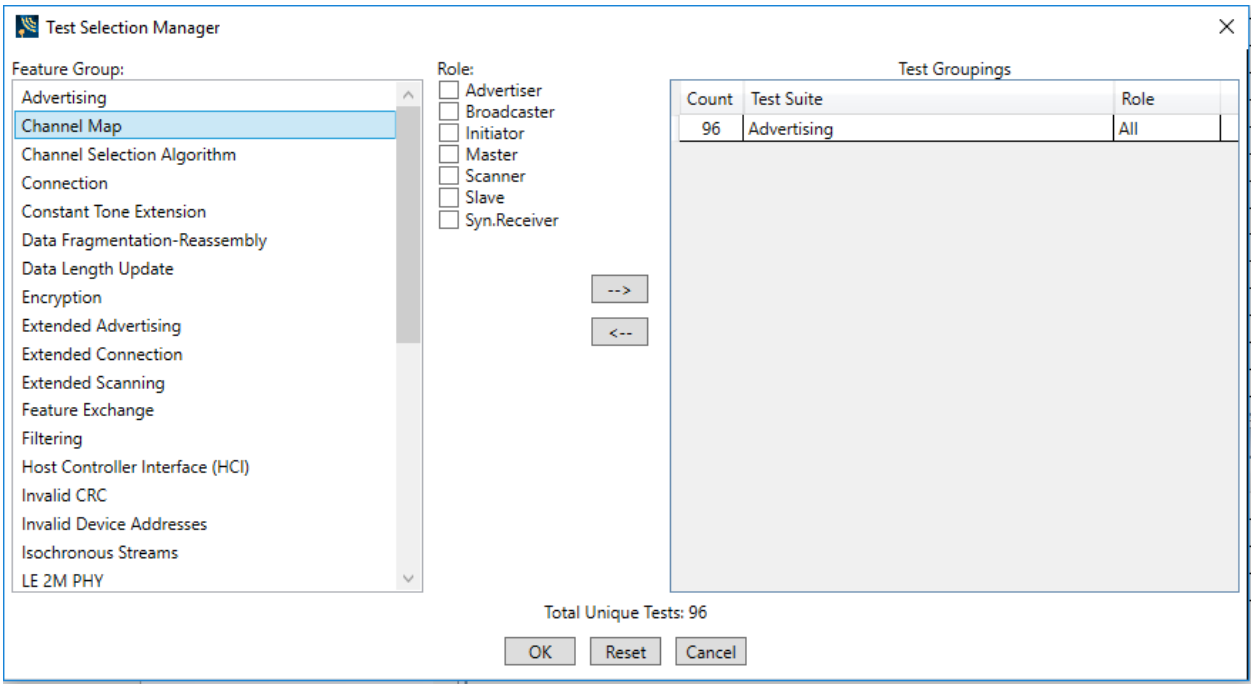


Figure 33 – Test Selection Manager

One can also select all the failed test cases from a specific test run or select all the test cases from a specific test run by doing the following:

1. Open a project and select the "Run Explorer" tab.

2. Right click the test run of interest and click either “Select all test cases from this run…” or “Select failed test cases from this run…”

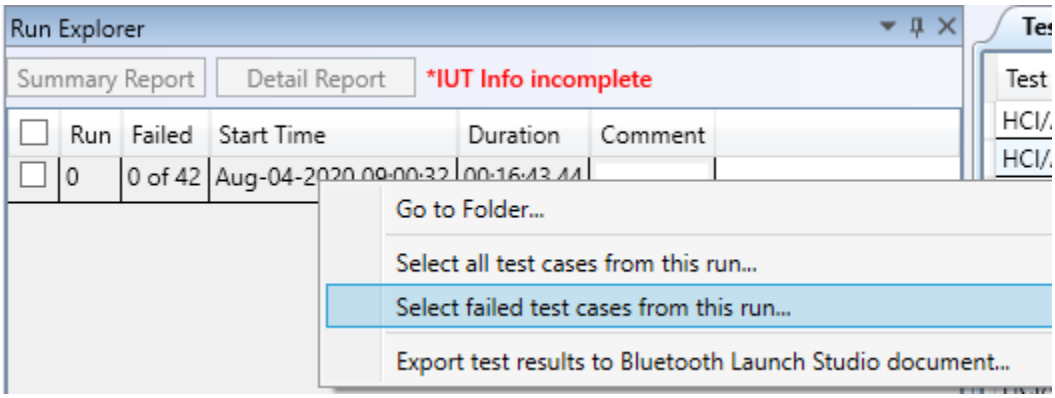


Figure 34 – Select All or Select Failed from a Test Run

4.2 Initiating Tests

4.2.1 Run Tests

1. Selecting any number of tests makes the “Run Tests” button become available to click.
2. Makes sure all connected equipment is powered and running.
3. Once the desired tests are selected, click the “Run Tests” button to initiate. (Figure 31)
4. Clicking the “Run Tests” button automatically saves the project.

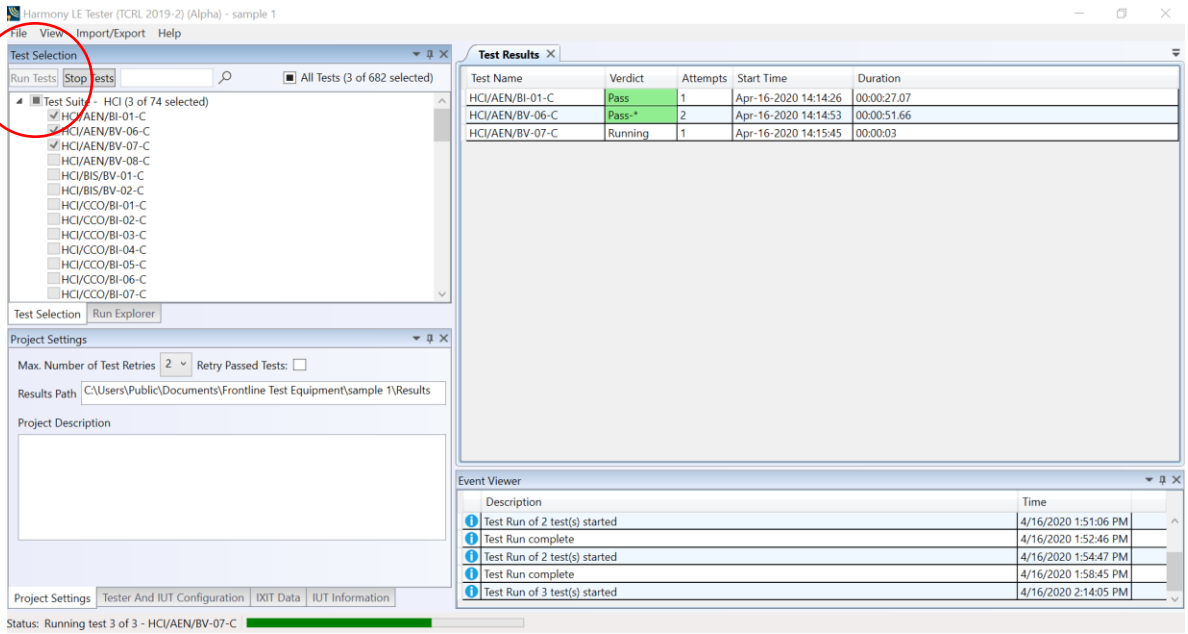


Figure 35 – Run Tests

5. The Harmony software will run each selected test to completion before moving to the next selected test. If a test is successful it will have one of these three possible verdicts: “Pass”, “Inconclusive”, or “Manual”. If a test fails that test will get the Verdict of “Fail”; the test will then be retried until the specified number of test retries has been achieved, at which time a final verdict of “Fail” will be issued. If a test passes on one of the retries the final verdict will be “Pass” followed by dashes and an asterisk. The number of dashes will represent the number of times the test failed, and the asterisk will indicate that the test passed after at least one retry. The “Inconclusive” verdict can also have dashes and asterisks if the test failed on the first attempt.
6. The Status indicator at the bottom of the screen will indicate the progress of all selected tests. If you selected two tests, the Status indicator will go halfway to indicate the completion of the first test, then fill completely, indicating that both tests have been completed.
7. Testing stops when all tests have completed, or if the user clicks “Stop Tests.”
8. If any selected test requires Sodera to complete, the Frontline software will automatically be launched.

4.2.2 Retry Passed Tests

The Harmony Tester under normal conditions will run a test for the set number of retries until a test passes. Once the test passes Harmony moves onto the next test. Sometimes a user may want to have a test or group of tests run multiple times even when the test(s) pass on each attempt. The “Retry Passed Tests” option will allow for multiple runs of the same test(s). To enable this feature, go to the “Project Settings” tab and select the “Retry Passed Tests” checkbox. Then select the number of retries in the “Max. Number of Test Retries” dropdown box. When the test(s) are run they will run one more than the Max. Number of Test Retries. When a test is finished if the test completely passed the verdict will be “Pass” followed by several asterisks representing the number of times the test passed. If a test failed during any of the attempts a dash will represent a failed attempt. For example, if a test is run four times and the test failed on the second attempt the verdict would be: Pass *-**

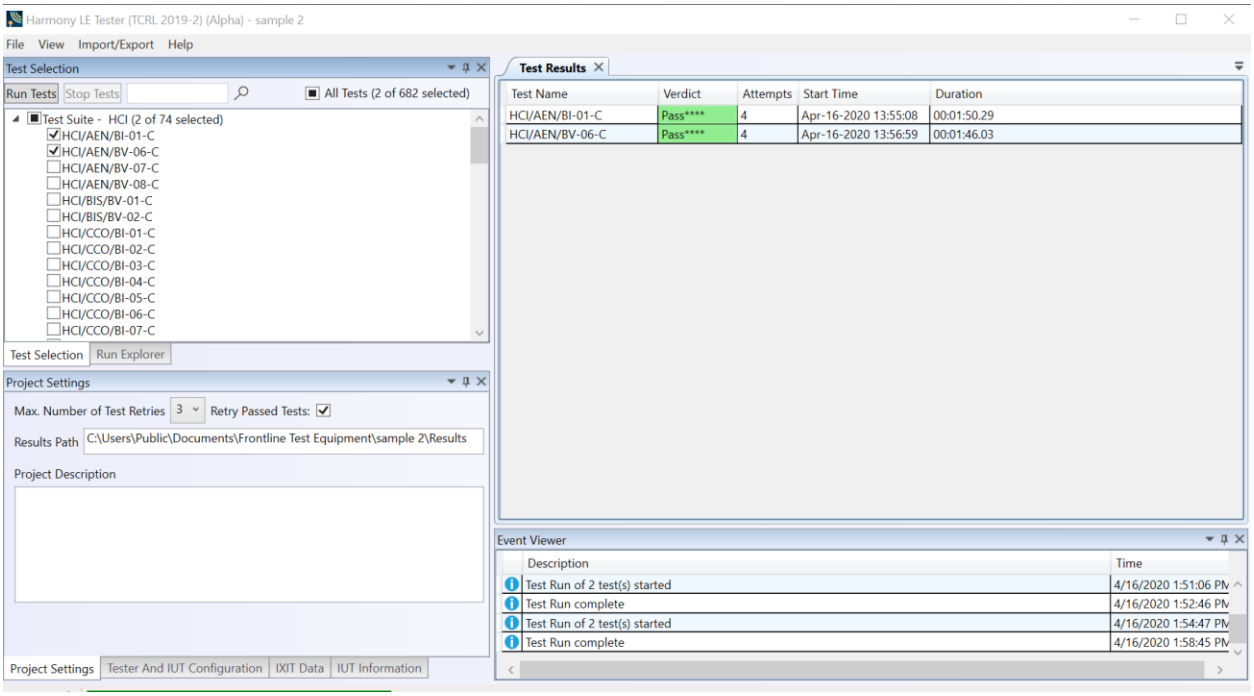


Figure 36 – Retry Passed Tests

4.2.3 Running Harmony Projects Unattended

4.2.3.1 General

The Harmony LE Tester can be run from the command line to run tests unattended. In general, the command line options are:

- No Options - Run in user interactive mode.
- -help - Display usage information; all other options ignored.
- -? - Display usage information; all other options ignored.
- -runproject="<path>" - Run in Console Mode and use the specified project. Not valid for use with Configuration Mode.
- -fixture="<path>" - Specify a fixture configuration path for Configuration Mode. This file's settings are not compatible with the file fixture.conf settings generated by Harmony. See section "4.2.3.3 Configuration Mode" for information on valid settings.
- -tests="<path>" - Specify a tests selection path for Configuration Mode.
- -createproject="<project name>" - Specify a project to create for the Configuration Mode session.
- -samplefiles="<directory>" - Write a sample fixture configuration file, "SampleFixture.txt", and a sample test selection file, "SampleTests.txt", to the specified directory and exit.

There are two modes of operation for unattended testing – Console Mode and Configuration Mode.

4.2.3.2 Console Mode

Console Mode allows Harmony Tester to be run from the command line with a command line parameter specifying a Harmony project file to be opened and run. After all the tests have run, the Harmony Tester software closes and a final result is returned to the console.

1. To use this feature, preliminary setup steps must be completed in the primary Harmony Windows application (HarmonyLeTester.exe):
    a. The project file must be completely set up (see section 3.1.1).
    b. The appropriate test cases must be selected and then saved (see sections 4.1.1 for HCI tests and 4.1.2 for Link Layer tests).
    c. The Harmony Tester and Sodera firmware must be up to date and the licenses for Harmony Tester and Sodera cannot be expired (see Chapter 1 for information about hardware and software updates)
    d. The IUT and testing hardware must be properly configured (see section 3.1.2).
2. Save the project file and close the Harmony Tester software (HarmonyLeTester.exe).
3. Open the command prompt and change the directory to where the Harmony Tester executables are installed. (Figure 33)

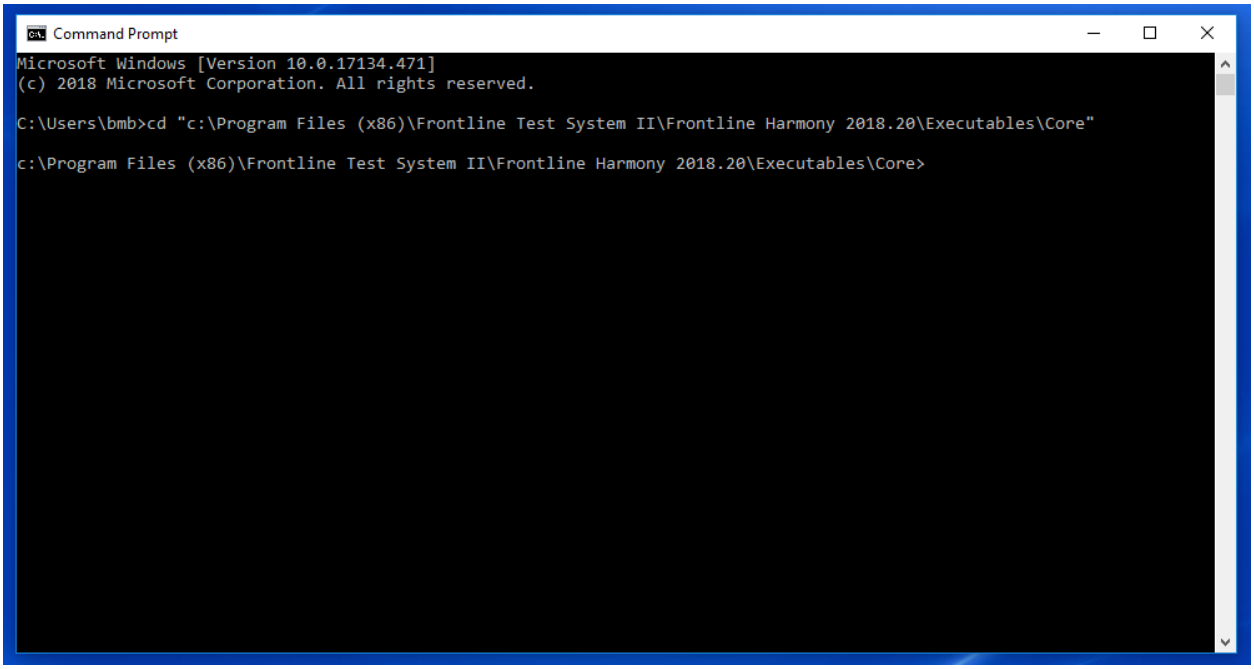


Figure 37 – Locating Executables Directory

4. Run the HarmonyAppConsole.exe with the command line parameter "–runProject=<path_and_filename.hprj>". **Note:** the executable for running from command prompt is **HarmonyAppConsole.exe**, NOT HarmonyLeTester.exe.
   Example (Figure 34): HarmonyAppConsole "-runProject=C:\Users\Public\Documents\Frontline Test Equipment\CI_Example\CI_Example.hprj"

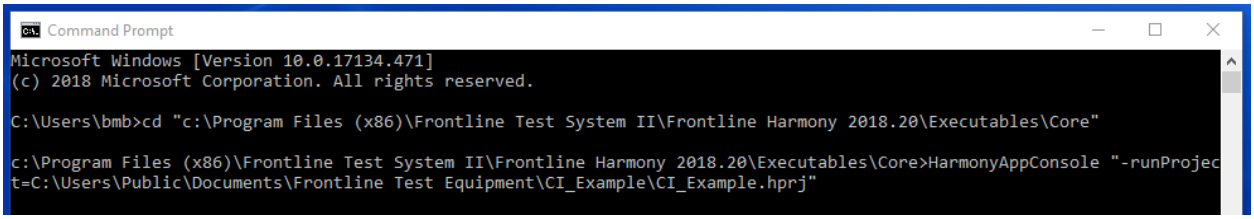


Figure 38 – Running the Executable

5. The HarmonyLeTester.exe should start, the CI_Example.hprj project opened, and the selected Test Cases run.
6. After the Test Cases are all run and the HarmonyLeTester windows application closes, a summary of the results will be written to the console output. (Figure 35)

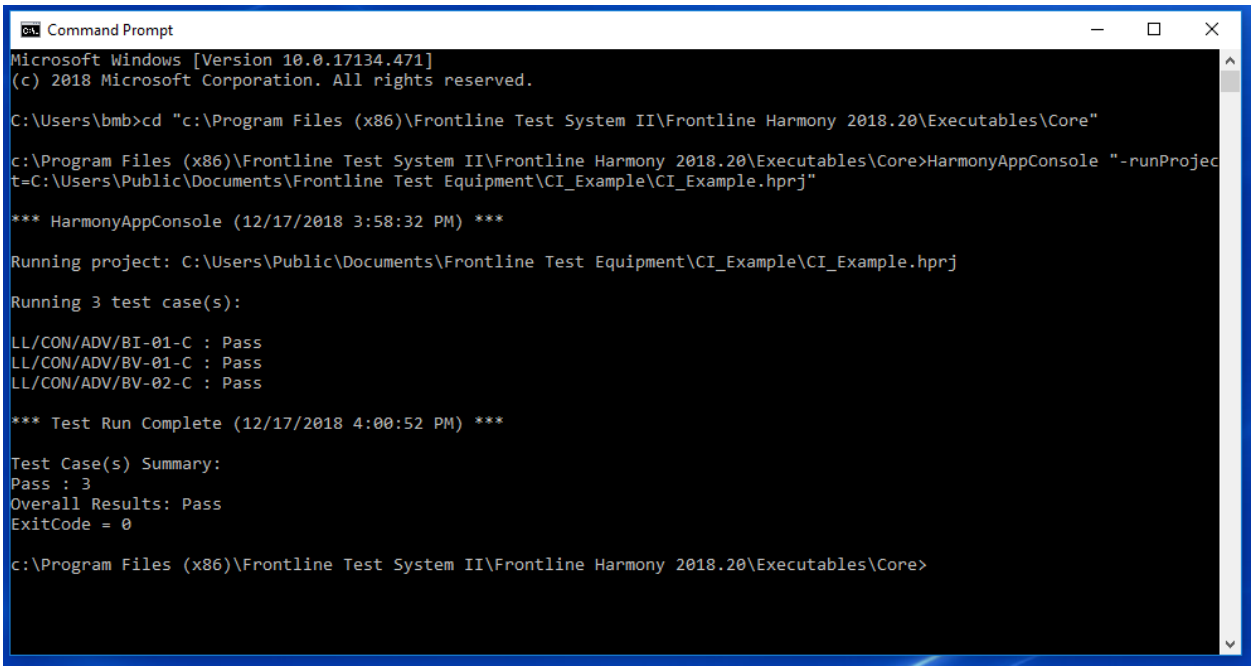


Figure 39 – Summary of Results

7. If the Harmony project file specified is an invalid file OR is not completely setup, then the ExitCode will be 1.
8. If all the Test Case verdicts are either “Pass” or “Inconclusive”, then the Overall Results will be “Pass” and the ExitCode will be 0.
9. If any Test Case verdict is either ”Fail” or “Not_Applicable”, then the Overall Results will be “Fail” and the ExitCode will be 1.

4.2.3.3 Configuration Mode

Configuration Mode is like Console Mode in that execution of the tester is initiated from a command prompt and may be combined with automation tools. However, instead of running an existing project, it allows for creation of a project with the specified, limited, fixture settings, test selections and optionally IXIT settings. The executable that is run for Configuration Mode is HarmonyLETester.exe. The required command line arguments are:

- -fixture="fixture configuration path" – File that contains the fixture configuration settings. This file's settings are not compatible with the file fixture.conf settings generated by Harmony. For example, the IUT_RESET_METHOD generated by Harmony has additional metadata that is not supported by testHarmony Configuration Mode. Please see the following discussion on "available fixture settings for configuration" for supported settings.
-
- -tests="tests selection path" – File that contains the list of tests to run.
- -createproject="project to create" – Name of the resulting project to create in the default projects directory.

The optional command line arguments if *test*Harmony mode is being used are:

- -disableanalyzer – Add this argument if a Sodera or X240 is not being used.
- -testHarmony – Add this argument to put Harmony into *test*Harmony mode if Harmony has a dual *conformance/test*Harmony license.

The optional command line argument for specification of IXIT settings is:

- -ixit="ixit path" – File that contains the set of IXIT configuration parameters.

The optional command line argument for specification of lower tester bdAddr settings is:

- -testeraddr="C0:07:E8:A4:BE:61" – The bdaddr that the lower tester will use when testing. When specified the lower tester will NOT be reset when harmony s/w is started in Configuration Mode. See discussion in the following paragraph for more information.

  The lower tester has a default bdaddr from the factory. When the lower tester is power cycled the default bdaddr is what the lower tester will use when creating a new project and running test cases. Once the project is created, that bdaddr will be set in the lower tester at the start of each test case. However, some test cases require the lower tester to use a different bdaddr and under certain circumstances may result in that bdaddr getting used during a subsequent session of Configuration Mode (i.e. when a new project is created). When running in Configuration Mode the lower tester is reset when the harmony s/w (i.e. HarmonyLETester.exe) first starts. This adds an additional 5 seconds to the startup time of harmony s/w. It is necessary to do this to assure that the harmony s/w reads the lower tester's default bdaddr and not a left over bdaddr from the last test case run on the previous session of Configuration Mode. If this additional 5 seconds of time that it takes to reset the lower tester when harmony s/w is started in Configuration Mode is undesirable, then use the -testeraddr command line parameter to specify the lower tester address and the reset of the lower tester will NOT be done. The lower tester's default bdaddr can be found by power cycling harmony h/w and running harmony s/w

in UI mode and observing the Tester Configuration Device Address. Note, most users will not need to use this optional command line parameter unless they are running harmony s/w many consecutive times such that the additive time of each 5 seconds when starting harmony s/w adds significantly to the overall testing time.

The available fixture settings for configuration are:

- Maximum number of test retries – "BLE_MAX_NUMBER_OF_TEST_RETRIES=n" where n must be in the range 0 – 9.
- IUT HCI transport configuration – "IUT_HCI_TRANSPORT_CFG = baud=n, flow_ctrl=state" where n must be a valid rate configuration and state must be either "true" or "false"
    - If flow_ctrl is false then the additional parameter fifo=n will be added to the end of the statement where n represents the IUT's FIFO buffer size. For example,

      IUT_HCI_TRANSPORT_CFG = baud = n, flow_ctrl=false, fifo=64

- IUT reset off time – "IUT_RESET_METHOD = off=n" where n must be in the range 0 – 60. If this parameter is included, the IUT reset method will be set to "Power Cycle" and the specified off-time will be used. If this parameter is omitted, the default reset "HCI Reset" will be used.
- IUT local supported commands – "IUT_LOCAL_SUPPORTED_COMMANDS = bitset" where the bitset is 64 hexadecimal characters that represent the commands.

  Note: If test HCI/CIN/BV-03 is going to be run then the "IUT_LOCAL_SUPPORTED_COMMANDS" line will need to be included.

- IUT COM port – "IUT_COM_PORT = COMn" where n is a valid port number that represents a port connected to an IUT on the host PC.
- Autogen Support Logs – "AUTO_GEN_SUPPORT_LOGS=state" where state is either "true" or "false". This will change the configuration parameter setting for menu item under Help->Support Logs->Settings-> Auto Gen Support Logs in Config Mode.

  Note: If AUTO_GEN_SUPPORT_LOGS is being set true an additional comma separated list of test cases can be included with this parameter. The test cases specified will automatically have their results included in the resulting support logs. The test case(s) included here must be ones that were also specified in the file of test cases to run (i.e. as specified by the -tests parameter) using the same syntax. Following is an example of specifying two test cases to be included in the resulting support logs:

  AUTO_GEN_SUPPORT_LOGS=true, LL/CON/ADV/BV-01-C, LL/CON/ADV/BV-02-C

The fixture configuration file shall contain one parameter per line and must contain at least the IUT_COM_PORT parameter and may contain any or all the remaining parameters.

The tests selection file shall contain one test name per line.

The IXIT file shall contain IXIT parameters already defined by the Bluetooth SIG. The file may contain from one parameter up to a full set of parameters. Supported parameters and example values are:

- random_address = 0xC01122334455

- adv_interval_max = 0x0100
- adv_interval_min = 0x0020
- adv_event_type = 0x01
- adv_channel_mask = 0x07
- adv_tx_power = 127
- primary_adv_phy = 1
- secondary_adv_max_skip = 0
- secondary_adv_phy = 1
- adv_data_operation = 3
- adv_data_frag_pref = 1
- adv_sets_max = 3
- per_interval_max = 0x0100
- per_interval_min = 0x0006
- cte_len_max = 20
- number_of_antennae = 2
- max_cte_count = 0x02
- scan_phy = 0x0001
- scan_interval = 0x0010
- scan_window = 0x0010
- scan_filter = 0x00
- scan_duration = 0x0000
- scan_period = 0x0000
- scan_max_data = 256
- scan_max_coded_range = 1
- max_conn = 4
- conn_interval_max = 0x0C80
- conn_interval_min = 0x0006
- conn_timeout = 1000
- conn_latency = 0
- ce_length_min = 0
- ce_length_max = 0
- tx_octets_default = 27
- tx_time_default = 328
- rx_octets_max = 251
- rx_time_max = 17040
- tx_octets_max = 251
- tx_time_max = 17040
- data_frag_align = 0
- hc_acl_data_packet_len = 256
- enc_ltk_msw = 0x4C68384139F574D8
- enc_ltk_lsw = 0x36BCF34E9DFB01BF
- enc_random_number = 0xABCDEF1234567890
- enc_diversifier = 0x2474

- auth_payload_timeout = 4000
- peer_irk_msw = 0x534A3934352D5242
- peer_irk_lsw = 0x217761482D656548
- local_irk_msw = 0x73394d5b54169056
- local_irk_lsw = 0x5755ad35ea02b4cf
- rpa_timeout = 15
- phy_support_asymm = 1
- aa_tolerance_mask = 0x00000000
- max_sdu_length = 512
- max_tx_bises = 6
- max_rx_bises = 6
- max_tx_bigs = 2
- oob_broadcast_code_msw = 0x000000006573756f
- oob_broadcast_code_lsw = 0x4820656e72b8c342
- iso_data_packet_length = 512
- max_tx_pto = 0
- max_rx_pto = 0
- max_tx_payload = 251
- max_tx_nse = 1
- max_tx_bn = 1
- max_tx_irc = 1
- max_cig = 2
- rf_attenuator = -35
- path_loss_lower_boundary= 25
- path_loss_upper_boundary= 50
- min_tx_power_level = -67
- max_tx_power_level = -28
- supported_power_levels_0db =-40, -20, -16, -12, -8, -4, 0, 2, 3, 4, 5, 6, 7, 8, 9
- supported_power_levels_5db =-40, -20, -16, -12, -8, -4, 0, 2, 3, 4, 5, 6, 7, 8, 9
- supported_power_levels_minus_5db =-40, -20, -16, -12, -8, -4, 0, 2, 3, 4, 5, 6, 7, 8, 9
- max_supported_power_level =9

If the input files are valid, the specified tests shall be run, and results shall be written to the specified newly created project in the same way tests are run in Console Mode. Before running any tests in Configuration Mode it is important to run the Harmony software normally and make sure that the Harmony Tester and Sodera or X240 firmware is up to date and the licenses for Harmony Tester and Sodera or X240 have not expired (see Chapter 1 for information about hardware and software updates).

An example command line for Configuration Mode would look like:

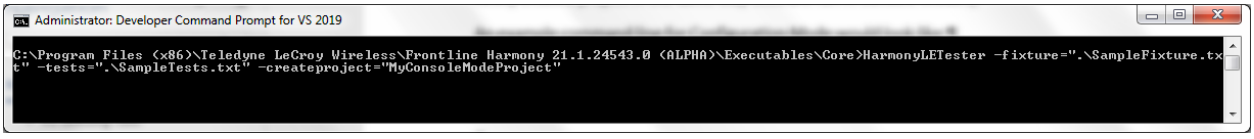


Figure 40 – Harmony LE Tester Configuration Mode Command Line Example.

Chapter 5. Test Results

In this chapter, we describe on-screen test results, review previously run tests, produce reports for submission to the Bluetooth SIG, and describe how to access results files.

5.1 On-Screen Test Results

5.1.1 Results Pane

The Results pane can give you a very quick visual sense of the status of your tests.

1. The battery of selected tests will be displayed in the Results pane, with the tab indicating the number of selected tests. (Figure 37)
2. The Test Results pane displays the test name, the verdict/status of the test, the number of attempts made, the start time of the test, and the duration of the test.

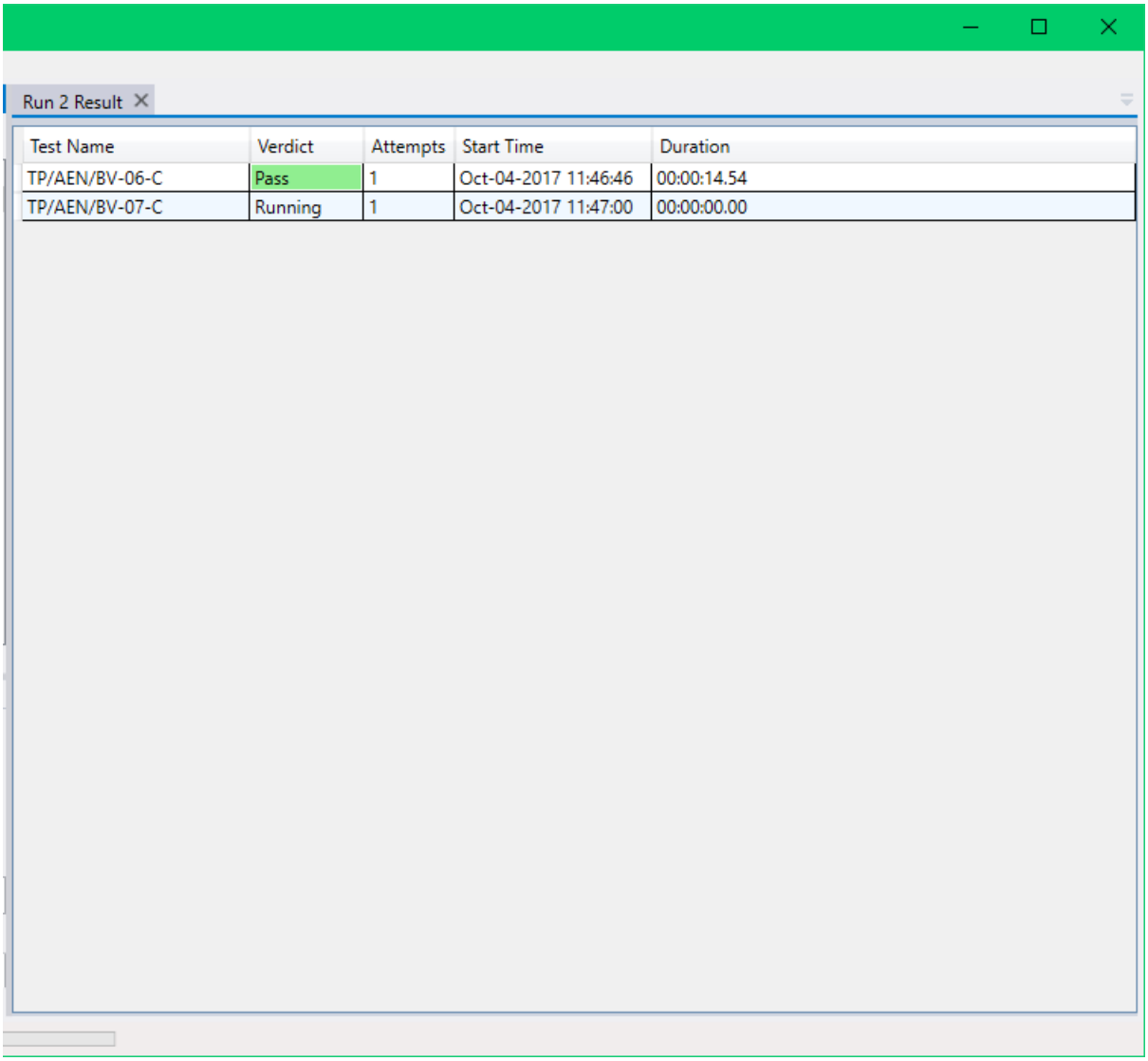


Figure 41 – Test Results Pane

3. Tests that are still running will indicate that status in the “Verdict” column. Tests that have completed will be indicated by either a “Pass”, “Fail”, “Inconclusive”, “N/A”, or “Manual” in the “Verdict” column. (Figure 38) The verdict of “Pass” or “Inconclusive” may be followed by a series of dashes and an asterisk if the test failed on the first attempt.

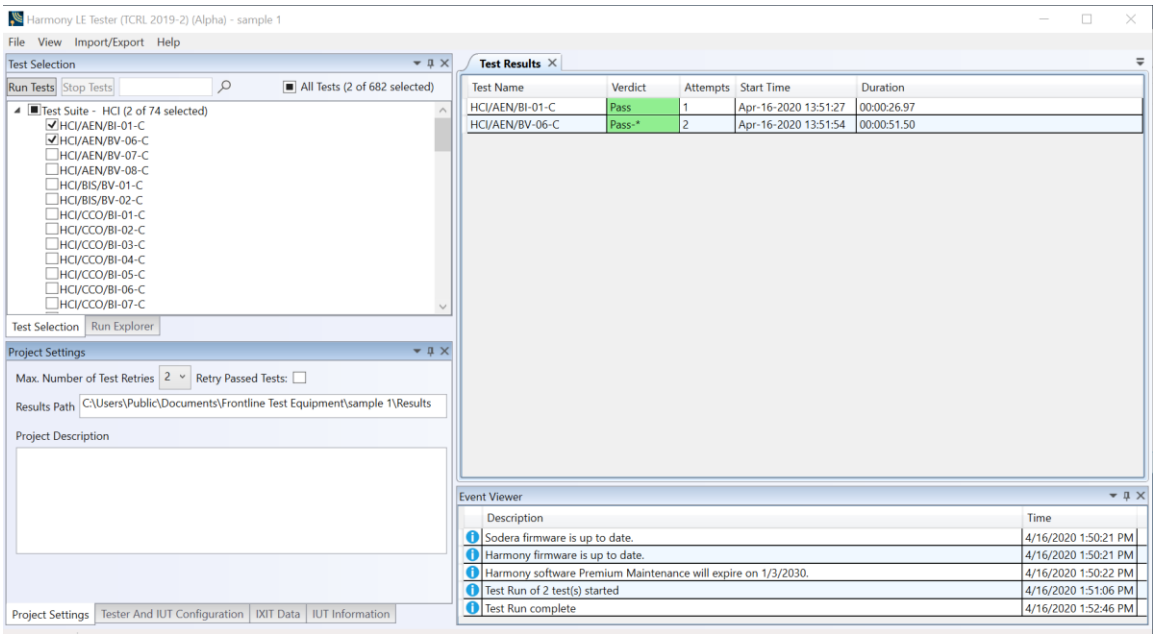


Figure 42 – Completed Tests

5.1.2 Review Previously Run Tests

Previously run tests can be called up and reviewed at any time.

1. Click the “Run Explorer” tab to access previously completed tests. (Figure 39)

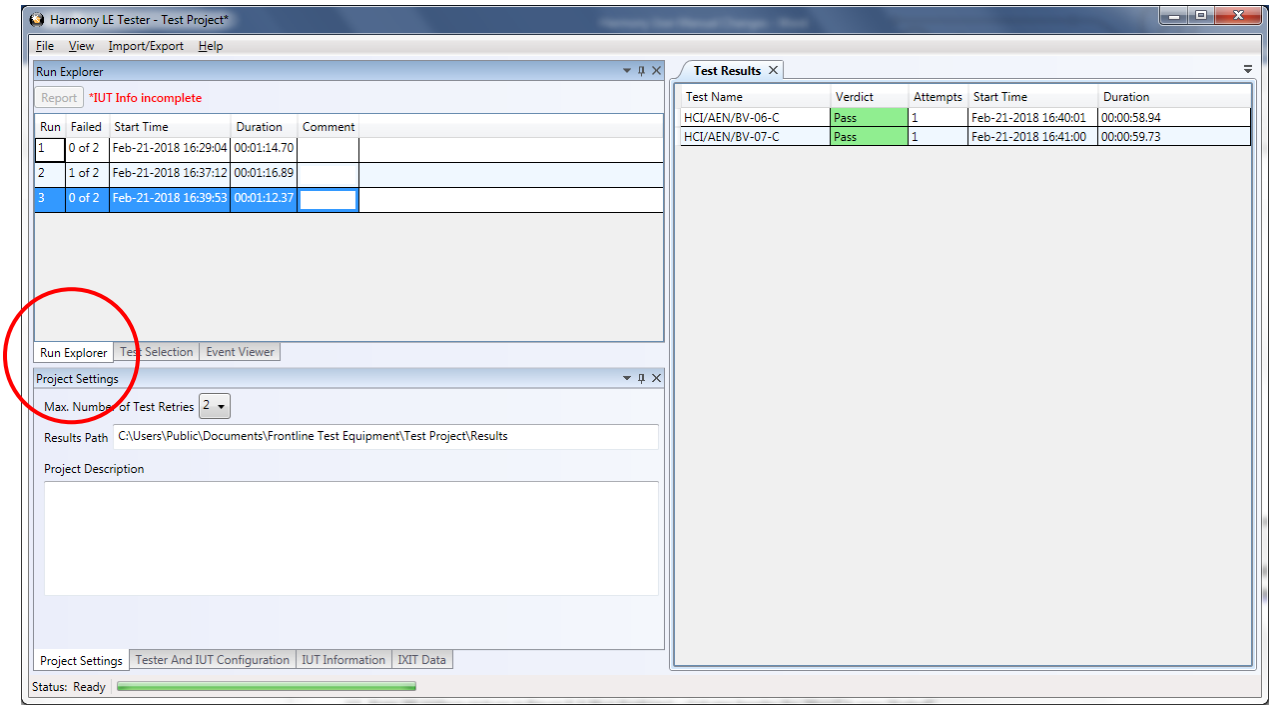


Figure 43 – Run Explorer

2. Click to select a specific test run for review. That test's results will appear in the "Test Results" pane.

5.2 Produce Test Result Reports

5.2.1 Reports

Note: The more tests that are included in a report the longer it takes to generate the report. If 829 tests are in the report it can take about 30 minutes to generate the report.

You can generate results reports right from the Run Explorer screen.

1. To generate a pdf report of the results of any completed test run, go to the Run Explorer, select the desired report for printing, and click the "Detail Report" button.
2. Upon clicking the "Detail Report" button, a test report pdf file is generated that includes all the test results, meta information and fields required by the Bluetooth SIG to for validation. This file is acceptable for submission to the Bluetooth SIG of any test case for which Harmony has been recognized as a Validated Test System.
    a. Declaration of Results – this is a statement to be signed by the tester certifying that the results are accurate and have been checked for integrity.
    b. Test Engineer Information – this section reports the test engineer and the test engineer's contact information
    c. Customer Details – this section reports the customer and the customer's contact information
    d. Manufacturer Details – this section reports the manufacturer and the manufacturer's contact information
    e. Product Details – This section provides details about the product including model and serial information, hardware and software versions, product name, and other identifiers
    f. IXIT – this section reports the information provided by the user in the "IXIT Data" table
    g. Harmony Version Information – this section reports the version details about the Harmony hardware and software
    h. Test Results Summary – this section provides a very high-level overview of the tests run, the "Pass" or "Fail" outcomes of those tests, and a brief statistical analysis of the total testing run
    i. Test Summary – a detailed testing summary will be reported for each test run and will show each step taken by the test in order to complete (Figure 40).
    j. Result Signature - a cryptographically signed value that can prove the authenticity of this test result
    k. If the test selection was done by importing a Bluetooth Launch Studio (BLS) document once the tests have been run the results can be exported back to the BLS document. To export the test results, click "Import/Export", click "Export test results to Bluetooth Launch Studio document…", select the file, and click the "Export" button (Figure 41).

TP/AEN/BV-06

Start Time	Duration	Attempts	Verdict
October 04, 2017 11:46 AM	00:00:06.1570000	1	Pass

Summary	Wait for devices to become available Configure devices Reset devices IUT does not support device address assignment Device addresses IUT = 0xcf045b747e45 TESTER[0] = 0x00005f010101 Set event masks IUT Version: Event_Code: 0xe (14) HCI_Revision: 0x2200 (8704) HCI_Version: 0x9 (9) LMP_Subversion: 0x2200 (8704) LMP_Version: 0x9 (9) Manufacturer_Name: 0xff (255) Parameter_Length: 0xc (12) IUT Features: Event_Code: 0xe (14) LE_Features: 0x179ff (96767) Parameter_Length: 0xc (12) Whitelist devices Adding bd_addr=0x00005f010101 to whitelist on device bd_addr=0xcf045b747e45 Adding bd_addr=0xcf045b747e45 to whitelist on device bd_addr=0x00005f010101 PASS -- actual 0 (LeReadBufSize.Status) is expected equal to 0 (SUCCESS) PASS -- actual 256 (IUT ACL data packet length) is expected greater than or equal to 27 PASS -- actual 8 (total num of ACL data packets) is expected not equal to 0 Include P-256 Public Key Complete Event in event mask PASS -- actual 0 (SetEventMask.Status) is expected equal to 0 (SUCCESS) PASS -- actual 0 (LeSetEventMask.Status) is expected equal to 0 (SUCCESS) Generate first P-256 public/private key pair PASS -- actual 0 (LeReadLocalP256PubKey.Status) is expected equal to 0 (SUCCESS) Wait for IUT to send a SUBEVT_LE_READ_LOCAL_P256_PUB_KEY_CMPL_EVT PASS -- actual 0 (SUBEVT_LE_READ_LOCAL_P256_PUB_KEY_CMPL_EVT.Status) is expected equal to 0 (SUCCES S) Generated key 8573a8d7a0cad60ff0188cc043699ae18d5ef3fbd2443279efb8f77369c75e0fc73f5cce442ae6aacb7ea5 6b32eaac84c4be7d560042bc4ed20b3fe9e643a817 Generate second P-256 public/private key pair PASS -- actual 0 (LeReadLocalP256PubKey.Status) is expected equal to 0 (SUCCESS) Wait for IUT to send a SUBEVT_LE_READ_LOCAL_P256_PUB_KEY_CMPL_EVT PASS -- actual 0 (SUBEVT_LE_READ_LOCAL_P256_PUB_KEY_CMPL_EVT.Status) is expected equal to 0 (SUCCES S) Generated key d535f22a6aba141b05dfc2b902b1243031368d383003a13125a5c78218480ffa9f83b7ebe8f75089f9f896 e2045be029c303c6329945b1924feaf76a307376e1 Verify that keys are not the same PASS -- actual \x85s\xA8\xD7\xA0\xCA\xD6\x0F\xF0\x18\x8C\xC0Ci\x9A\xE1\x8D^\xF3\xFB\xD2D2y\xEF\xB8\ xF7si\xC7^\x0F\xC7?\\xCED*\xE6\xAA\xCB~\xA5k2\xEA\xAC\x84\xC4\xBE}V\x00B\xBCN\xD2\x0B?\xE9\xE6C\xA8\ x17 (key 1) is expected not equal to \xD55\xF2*j\xBA\x14\x1B\x05\xDF\xC2\xB9\x02\xB1$016\x8D80\x03\x A11%\xA5\xC7\x82\x18H\x0F\xFA\x9F\x83\xB7\xEB\xE8\xF7P\x89\xF9\xF8\x96\xE2\x04[\xE0)\xC3\x03\xC62\x9 9E\xB1\x92O\xEA\xF7j0sv\xE1 (key 2)
Result Signature	b19966a4cf287dbb6b176535107ed59e5b917de7b5f4bcd838c14cc1d96f95c2

Figure 44 – Testing Summary

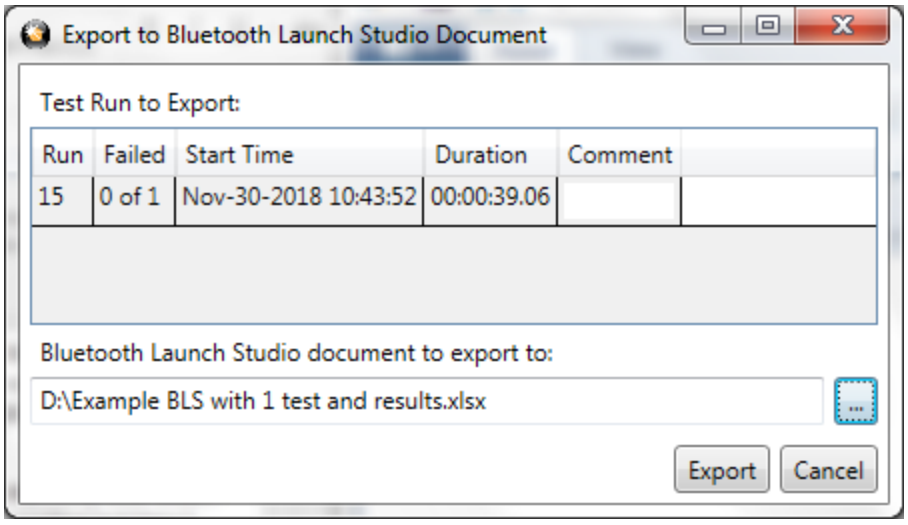


Figure 45 – Export to Bluetooth Launch Studio Document

5.2.2 Summary Report

A Summary Report can be generated using one or more test runs. The report will be in Excel format and show the total number of failures per Test Run column as well as Attempts Failure Ratio for each test case over all the test runs. To generate a Summary Report, go to the "Run Explorer" tab, select the checkbox for each of the Test Runs to include, and click the "Summary Report" button.

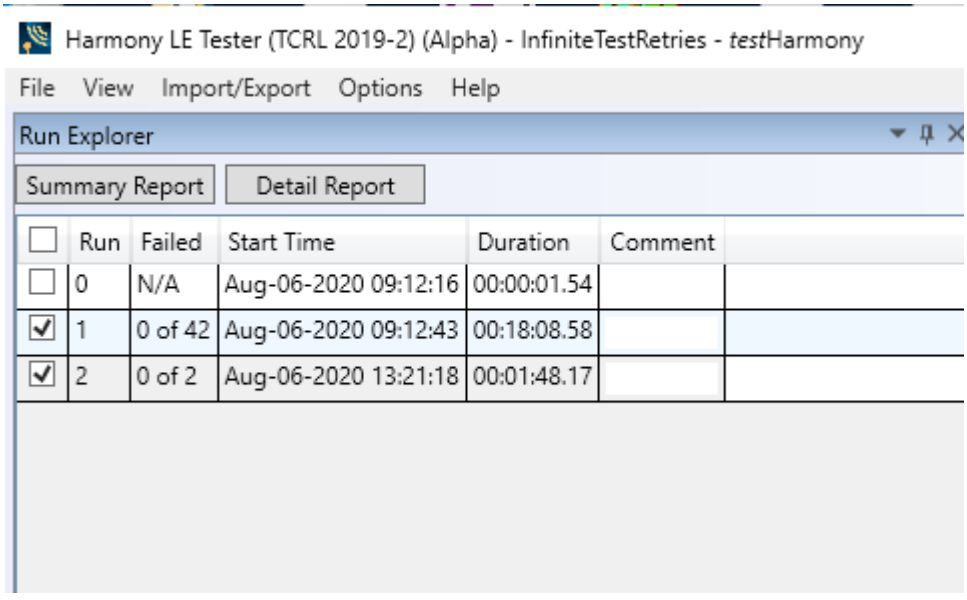


Figure 46 – Summary Report

5.3 Results Files

This is where to go to find more information on test case failures, as well as HCI and RF captures that can be used as evidence on test cases for which Harmony is not a Validated Test System.

5.3.1 Location

Your test results data files are stored in a “Results” folder in the location you specified (see Section 3.1.1) when you initially saved the project. The “Results” folder is automatically created when you save the project, and the log and capture files created by the testing process are automatically saved there. (Figure 43)

Shortcuts are also available to access Test Results and Test Runs:

Shortcut to Specific Test Results

1. Select the Test Results tab.
2. Right click the test.
3. Click the “Go to Folder…”

Or

To Open a Specific File

1. Select the Test Results tab.
2. Right click the test.
3. Click “Test Cases Files”.
4. Click “Attempt” where x is the attempt number.
5. Click the specific file to open.

Shortcut to the Folder the Test Runs

1. Select the Run Explorer tab.
2. Right click the set of test runs of interest.
3. Click the “Go to Folder…”

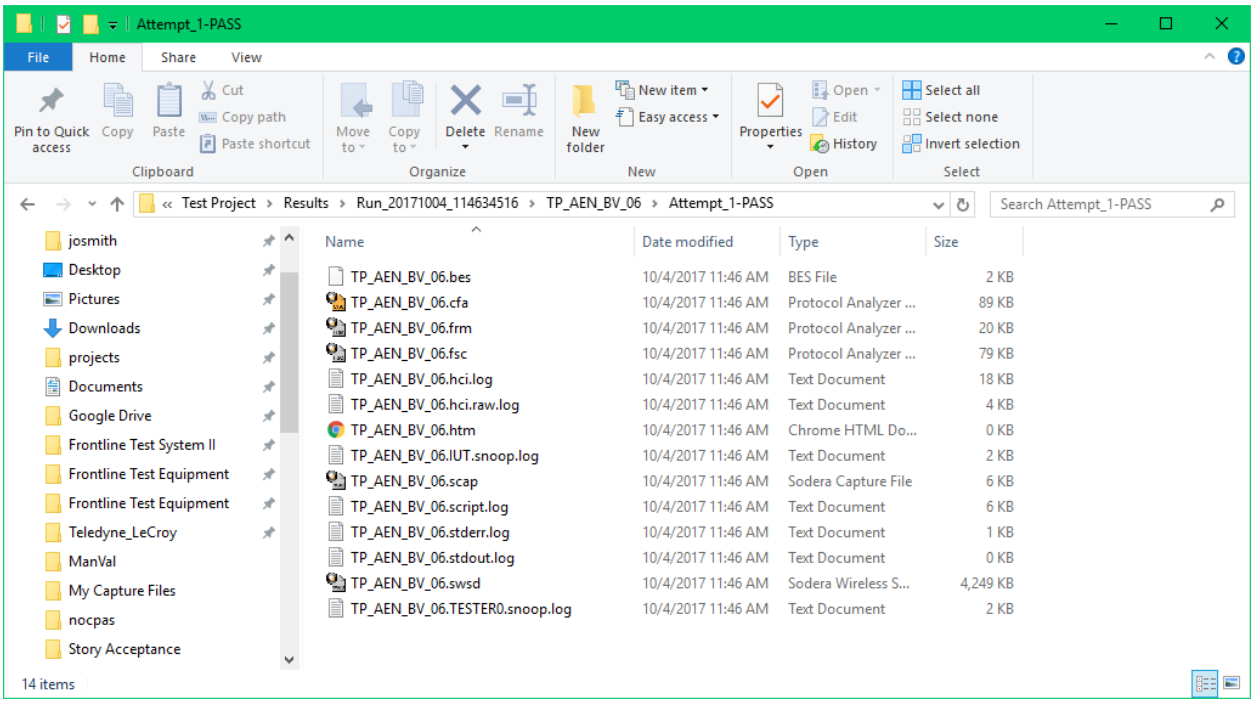


Figure 47 – Results Files

5.3.2 Log/Capture Files

1. The log files stored in the "Results" folder contain the detail of each test and are therefore critical files. They are accessed by the reporting function of the Harmony software. Important files include:
    a. *.script.log – records the detail of the test case
    b. *.IUT.snoop.log - snoop capture of the HCI traffic to & from the IUT
    c. *.cfa – Sodera capture file
    d. *.scap, *.bes, *.frm, *.fsc, *.swsd, *.htm - Sodera capture-related files

Chapter 6. General Information

In this chapter we advise how to resolve issues uncovered by the testing process.

6.1 More Help

6.1.1 Frontline Software

1. Frontline software was designed to help you find and resolve Bluetooth-related issues. The *.cfa and *.IUT.snoop.log files created by the testing process can be loaded into the Frontline Software, where you can view the Bluetooth timeline, check for 802.11 coexistence interference, and view the decode level of any error uncovered by the process.
2. To open a capture file, right click the test verdict in the “Test Results” tab for the test to open. Use “Test Case Files” to navigate to the particular “Attempt” folder (if there is more than one attempt) and left click the file with the .cfa extension.

6.1.2 User Assistance

For more information about how to best use the Frontline software or to report a problem, please contact us via the web at http://fte.com/company/contactus.aspx or email tech support at frontline_techsupport@teledyne.com.

6.1.3 Support Logs

There may be times where Technical Support may ask for files to help trouble shoot a problem. The Support Logs option will collect all the pertinent files and put them in a folder labeled SessionLogger with the time and date that the folder is created. The SessionLogger folder and a zipped copy of the folder will be created in the Results folder for the project.

6.1.3.1 Collecting Logs

To collect logs for a specific test, do the following:

1. In the Test Results tab mouse over the row with the test name and right click the mouse.
2. Select “Add to Support Logs”. (Figure 44)
3. If logs for other tests are needed, then repeat steps 1 and 2 for the other tests.

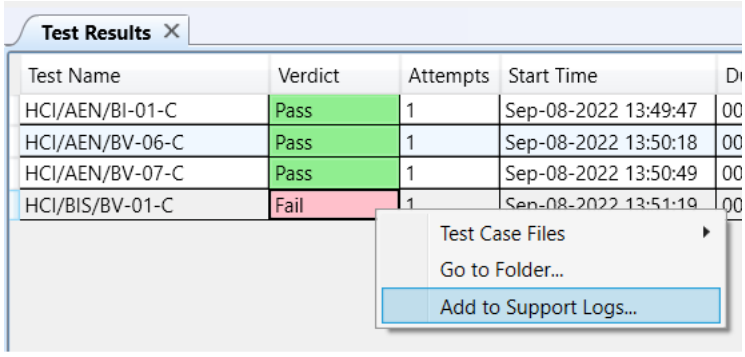


Figure 48 – Collecting Logs

To create the Session Log folder, do the following:

1. Click Help in the Tool Bar.
2. Mouse over Support Logs and then click on “Generate Support Logs…”

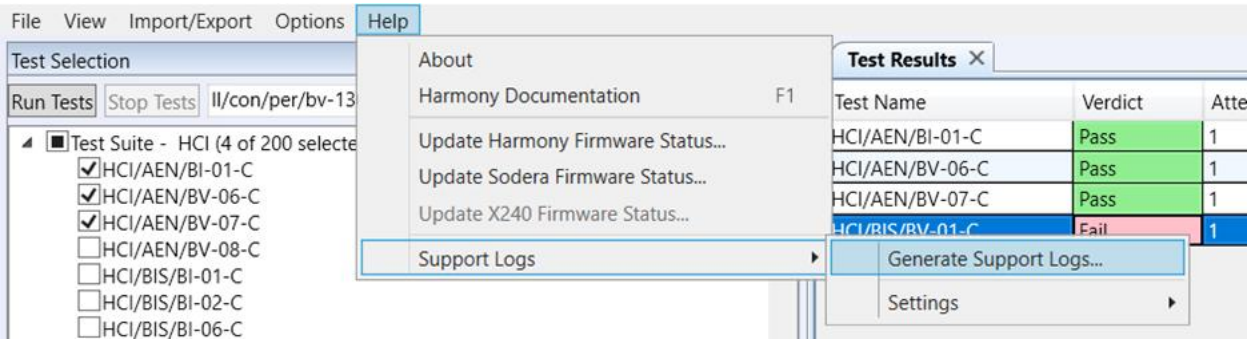


Figure 49 – Generating Support Logs

While Harmony is generating the folder a pop up will appear stating what is being created. When the process has finished go to the Results folder for the particular project and locate the zipped version of the Support Logs folder and send the zipped file to Tech Support.

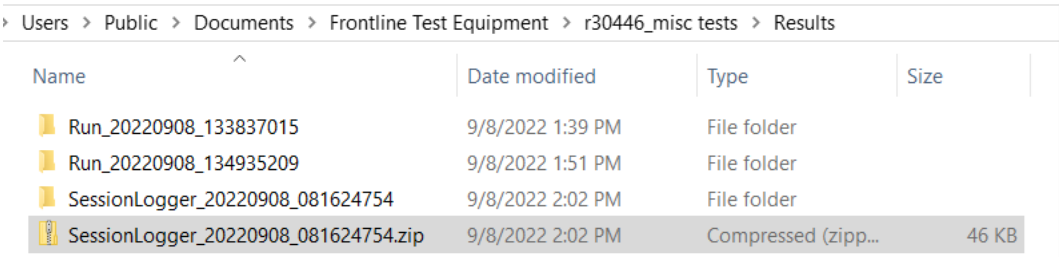


Figure 50 – Support Logs Location

6.1.3.2 Support Logs Settings

By default, Support Logs will automatically be collected when running Harmony in Configuration Mode and will not be automatically collected when Harmony is run in standard UI mode or Console Mode. To change this behavior, go to Help > Support Logs > Settings and enable or disable whichever selection is to be changed to get the expected behavior the next time Harmony is run.

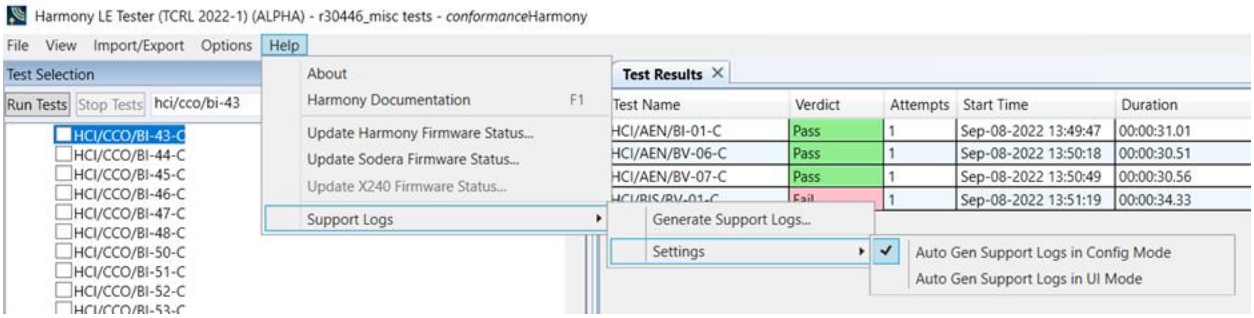


Figure 51 – Support Logs Settings

Chapter 7. *test*Harmony

7.1 Available Tests

In *test*Harmony the number and types of tests available are based on which features were bought with the *test*Harmony license. For example, if a *test*Harmony license only has HCI and 2M LE PHY then only HCI and 2M LE PHY test cases will be available in *test*Harmony mode. In addition, the "Test Selection Manager" will only show the available features. If the license has both *conformance*Harmony and *test*Harmony then the user will be able to switch between the modes and if the user is in *conformance*Harmony mode all the features and tests will be available.

The available features and the associated tests are based on which *test*Harmony license package has been purchased. The following sections will list the features associate with each *test*Harmony license package as well as the particular tests that are connected to the features.

7.1.1 Custom Tests

Feature Group	# Test Cases
Custom Tests	7
Total	**7**

These tests have been designed to aid in debugging and testing. These tests are not part of any TCRL and are not official Bluetooth SIG tests. These tests are included for free with any other *test*Harmony license package. The seven Custom Tests are:

Test	Description Summary
TST/LE/TESTMODE/BV-01-C	IUT Receive Test Packets
TST/LE/TESTMODE/BV-02-C	IUT Transmit Test Packets
TST/LE/TESTMODE/BV-03-C	LT Receive Test Packets
TST/LE/TESTMODE/BV-04-C	LT Transmit Test Packets
TST/LE/TESTMODE/BV-05-C	IUT Sends Testmode Packets to Lower Tester
TST/LE/TESTMODE/BV-06-C	Lower Tester Sends Testmode Packets to IUT
TST/LL/BIS/BV-01-C	Verify Repeated BIS Connections and Terminations

7.1.2 *test*Harmony SW License Package LE # 1 (2013-22251-001)

*test*Harmony SW License Package LE # 1 contains tests from the following feature groups:

Feature Group	# Test Cases
Advertising	97
Extended Advertising	45
Host Controller Interface (HCI)	101
Total	**243**

The 243 tests in *test*Harmony SW License Package LE # 1 are:

HCI/AEN/BI-01-C	HCI/AEN/BV-06-C	HCI/AEN/BV-07-C	HCI/AEN/BV-08-C
HCI/BIS/BI-07-C	HCI/BIS/BV-01-C	HCI/BIS/BV-02-C	HCI/BIS/BV-03-C
HCI/BIS/BV-06-C	HCI/BIS/BV-07-C	HCI/CCO/BI-01-C	HCI/CCO/BI-02-C
HCI/CCO/BI-03-C	HCI/CCO/BI-04-C	HCI/CCO/BI-05-C	HCI/CCO/BI-06-C
HCI/CCO/BI-07-C	HCI/CCO/BI-08-C	HCI/CCO/BI-09-C	HCI/CCO/BI-10-C
HCI/CCO/BI-11-C	HCI/CCO/BI-12-C	HCI/CCO/BI-13-C	HCI/CCO/BI-51-C
HCI/CCO/BI-52-C	HCI/CCO/BI-53-C	HCI/CCO/BI-54-C	HCI/CCO/BI-55-C
HCI/CCO/BI-56-C	HCI/CCO/BV-07-C	HCI/CCO/BV-09-C	HCI/CCO/BV-10-C
HCI/CCO/BV-11-C	HCI/CCO/BV-12-C	HCI/CCO/BV-13-C	HCI/CCO/BV-14-C
HCI/CCO/BV-15-C	HCI/CCO/BV-16-C	HCI/CCO/BV-17-C	HCI/CCO/BV-18-C
HCI/CCO/BV-19-C	HCI/CCO/BV-20-C	HCI/CFC/BV-02-C	HCI/CIN/BV-01-C
HCI/CIN/BV-03-C	HCI/CIN/BV-04-C	HCI/CIN/BV-06-C	HCI/CIN/BV-12-C
HCI/CIN/BV-14-C	HCI/CIS/BV-02-C	HCI/CIS/BV-03-C	HCI/CIS/BV-04-C
HCI/CIS/BV-06-C	HCI/CIS/BV-09-C	HCI/CIS/BV-10-C	HCI/CIS/BV-11-C
HCI/CIS/BV-12-C	HCI/CIS/BV-13-C	HCI/CM/BI-01-C	HCI/CM/BI-02-C
HCI/CM/BI-03-C	HCI/CM/BV-01-C	HCI/CM/BV-02-C	HCI/CM/BV-03-C
HCI/CM/BV-04-C	HCI/CM/BV-05-C	HCI/CM/BV-06-C	HCI/CM/BV-07-C
HCI/CM/BV-08-C	HCI/CM/BV-09-C	HCI/DDI/BI-01-C	HCI/DDI/BI-02-C
HCI/DDI/BI-03-C	HCI/DDI/BI-04-C	HCI/DDI/BI-05-C	HCI/DDI/BI-06-C
HCI/DDI/BI-07-C	HCI/DDI/BI-08-C	HCI/DDI/BI-09-C	HCI/DDI/BI-11-C
HCI/DDI/BI-12-C	HCI/DDI/BI-13-C	HCI/DDI/BI-14-C	HCI/DDI/BV-03-C
HCI/DDI/BV-04-C	HCI/DDI/BV-06-C	HCI/DDI/BV-07-C	HCI/DDI/BV-09-C
HCI/DSU/BV-02-C	HCI/DSU/BV-03-C	HCI/DSU/BV-04-C	HCI/DSU/BV-05-C
HCI/DSU/BV-06-C	HCI/GEV/BV-01-C	HCI/GEV/BV-02-C	HCI/GEV/BV-03-C
HCI/GEV/BV-04-C	HCI/HFC/BV-04-C	HCI/PCL/BI-04-C	HCI/PCL/BI-08-C
HCI/PCL/BV-01-C	LL/CON/ADV/BI-01-C	LL/CON/ADV/BI-02-C	LL/CON/ADV/BV-01-C
LL/CON/ADV/BV-03-C	LL/CON/ADV/BV-04-C	LL/CON/ADV/BV-05-C	LL/CON/ADV/BV-06-C
LL/CON/ADV/BV-12-C	LL/CON/ADV/BV-13-C	LL/CON/ADV/BV-14-C	LL/CON/ADV/BV-15-C
LL/CON/ADV/BV-16-C	LL/CON/CEN/BV-84-C	LL/CON/CEN/BV-85-C	LL/CON/CEN/BV-86-C
LL/CON/CEN/BV-87-C	LL/CON/CEN/BV-88-C	LL/CON/CEN/BV-89-C	LL/CON/CEN/BV-90-C
LL/CON/CEN/BV-91-C	LL/CON/CEN/BV-92-C	LL/CON/CEN/BV-93-C	LL/CON/CEN/BV-94-C
LL/CON/CEN/BV-95-C	LL/CON/CEN/BV-96-C	LL/CON/CEN/BV-97-C	LL/CON/CEN/BV-98-C
LL/CON/CEN/BV-99-C	LL/CON/CEN/BV-100-C	LL/CON/CEN/BV-101-C	LL/CON/CEN/BV-102-C
LL/CON/CEN/BV-103-C	LL/CON/CEN/BV-104-C	LL/CON/CEN/BV-132-C	LL/CON/CEN/BV-133-C
LL/CON/INI/BV-02-C	LL/CON/INI/BV-13-C	LL/CON/PER/BV-88-C	LL/CON/PER/BV-89-C
LL/CON/PER/BV-90-C	LL/CON/PER/BV-91-C	LL/CON/PER/BV-92-C	LL/CON/PER/BV-93-C
LL/CON/PER/BV-94-C	LL/CON/PER/BV-95-C	LL/CON/PER/BV-96-C	LL/CON/PER/BV-97-C
LL/CON/PER/BV-98-C	LL/CON/PER/BV-99-C	LL/CON/PER/BV-100-C	LL/CON/PER/BV-101-C

LL/CON/PER/BV-102-C	LL/CON/PER/BV-103-C	LL/CON/PER/BV-104-C	LL/CON/PER/BV-105-C
LL/CON/PER/BV-106-C	LL/CON/PER/BV-107-C	LL/CON/PER/BV-108-C	LL/CON/PER/BV-135-C
LL/CON/PER/BV-136-C	LL/DDI/ADV/BI-05-C	LL/DDI/ADV/BV-01-C	LL/DDI/ADV/BV-02-C
LL/DDI/ADV/BV-03-C	LL/DDI/ADV/BV-04-C	LL/DDI/ADV/BV-11-C	LL/DDI/ADV/BV-15-C
LL/DDI/ADV/BV-16-C	LL/DDI/ADV/BV-19-C	LL/DDI/ADV/BV-21-C	LL/DDI/ADV/BV-22-C
LL/DDI/ADV/BV-25-C	LL/DDI/ADV/BV-26-C	LL/DDI/ADV/BV-27-C	LL/DDI/ADV/BV-28-C
LL/DDI/ADV/BV-29-C	LL/DDI/ADV/BV-30-C	LL/DDI/ADV/BV-31-C	LL/DDI/ADV/BV-32-C
LL/DDI/ADV/BV-33-C	LL/DDI/ADV/BV-34-C	LL/DDI/ADV/BV-35-C	LL/DDI/ADV/BV-43-C
LL/DDI/ADV/BV-45-C	LL/DDI/ADV/BV-47-C	LL/DDI/ADV/BV-48-C	LL/DDI/ADV/BV-49-C
LL/DDI/ADV/BV-50-C	LL/DDI/ADV/BV-51-C	LL/DDI/ADV/BV-52-C	LL/DDI/ADV/BV-53-C
LL/DDI/ADV/BV-54-C	LL/DDI/ADV/BV-55-C	LL/DDI/ADV/BV-56-C	LL/DDI/ADV/BV-61-C
LL/DDI/ADV/BV-64-C	LL/DDI/ADV/BV-65-C	LL/DDI/ADV/BV-66-C	LL/DDI/ADV/BV-67-C
LL/DDI/ADV/BV-68-C	LL/DDI/SCN/BV-05-C	LL/DDI/SCN/BV-21-C	LL/DDI/SCN/BV-25-C
LL/DDI/SCN/BV-34-C	LL/DDI/SCN/BV-37-C	LL/DDI/SCN/BV-38-C	LL/DDI/SCN/BV-46-C
LL/DDI/SCN/BV-47-C	LL/DDI/SCN/BV-60-C	LL/DDI/SCN/BV-61-C	LL/DDI/SCN/BV-67-C
LL/ENC/ADV/BI-02-C	LL/SEC/ADV/BV-01-C	LL/SEC/ADV/BV-02-C	LL/SEC/ADV/BV-03-C
LL/SEC/ADV/BV-04-C	LL/SEC/ADV/BV-05-C	LL/SEC/ADV/BV-06-C	LL/SEC/ADV/BV-07-C
LL/SEC/ADV/BV-08-C	LL/SEC/ADV/BV-09-C	LL/SEC/ADV/BV-10-C	LL/SEC/ADV/BV-11-C
LL/SEC/ADV/BV-12-C	LL/SEC/ADV/BV-13-C	LL/SEC/ADV/BV-14-C	LL/SEC/ADV/BV-15-C
LL/SEC/ADV/BV-16-C	LL/SEC/ADV/BV-17-C	LL/SEC/ADV/BV-18-C	LL/SEC/ADV/BV-19-C
LL/SEC/ADV/BV-20-C	LL/SEC/ADV/BV-21-C	LL/SEC/ADV/BV-22-C	LL/TIM/ADV/BV-01-C
LL/TIM/ADV/BV-02-C	LL/TIM/ADV/BV-03-C	LL/TIM/ADV/BV-04-C	LL/TIM/ADV/BV-05-C
LL/TIM/ADV/BV-06-C	LL/TIM/ADV/BV-07-C	LL/TIM/ADV/BV-08-C	

7.1.3 *test*Harmony SW License Package LE # 2 (2013-22251-002)

*test*Harmony SW License Package LE # 2 contains tests from the following feature groups:

Feature Group	# Test Cases
Connection	117
Constant Tone Extension	85
Data Fragmentation-Reassembly	9
Encryption	18
Extended Connection	27
Total	**256**

Due to some tests appearing in more than one feature group there are a total of 256 tests; however, there are only 217 unique test cases. The 217 unique tests in *test*Harmony SW License Package LE # 2 are:

LL/CON/ADV/BV-02-C	LL/CON/ADV/BV-04-C	LL/CON/ADV/BV-07-C	LL/CON/ADV/BV-08-C
LL/CON/ADV/BV-09-C	LL/CON/ADV/BV-10-C	LL/CON/ADV/BV-11-C	LL/CON/ADV/BV-14-C
LL/CON/ADV/BV-15-C	LL/CON/ADV/BV-16-C	LL/CON/CEN/BI-02-C	LL/CON/CEN/BI-04-C
LL/CON/CEN/BI-05-C	LL/CON/CEN/BI-06-C	LL/CON/CEN/BI-11-C	LL/CON/CEN/BI-12-C
LL/CON/CEN/BI-13-C	LL/CON/CEN/BI-14-C	LL/CON/CEN/BV-02-C	LL/CON/CEN/BV-03-C
LL/CON/CEN/BV-04-C	LL/CON/CEN/BV-05-C	LL/CON/CEN/BV-24-C	LL/CON/CEN/BV-25-C
LL/CON/CEN/BV-26-C	LL/CON/CEN/BV-27-C	LL/CON/CEN/BV-28-C	LL/CON/CEN/BV-29-C
LL/CON/CEN/BV-30-C	LL/CON/CEN/BV-31-C	LL/CON/CEN/BV-32-C	LL/CON/CEN/BV-33-C
LL/CON/CEN/BV-34-C	LL/CON/CEN/BV-35-C	LL/CON/CEN/BV-56-C	LL/CON/CEN/BV-57-C
LL/CON/CEN/BV-58-C	LL/CON/CEN/BV-59-C	LL/CON/CEN/BV-60-C	LL/CON/CEN/BV-61-C

LL/CON/CEN/BV-62-C	LL/CON/CEN/BV-63-C	LL/CON/CEN/BV-64-C	LL/CON/CEN/BV-65-C
LL/CON/CEN/BV-66-C	LL/CON/CEN/BV-67-C	LL/CON/CEN/BV-68-C	LL/CON/CEN/BV-69-C
LL/CON/CEN/BV-70-C	LL/CON/CEN/BV-71-C	LL/CON/CEN/BV-72-C	LL/CON/CEN/BV-81-C
LL/CON/CEN/BV-82-C	LL/CON/CEN/BV-83-C	LL/CON/CEN/BV-105-C	LL/CON/CEN/BV-106-C
LL/CON/CEN/BV-107-C	LL/CON/CEN/BV-108-C	LL/CON/CEN/BV-109-C	LL/CON/CEN/BV-110-C
LL/CON/CEN/BV-111-C	LL/CON/CEN/BV-112-C	LL/CON/CEN/BV-113-C	LL/CON/CEN/BV-114-C
LL/CON/CEN/BV-115-C	LL/CON/CEN/BV-116-C	LL/CON/CEN/BV-118-C	LL/CON/CEN/BV-119-C
LL/CON/CEN/BV-120-C	LL/CON/CEN/BV-121-C	LL/CON/CEN/BV-122-C	LL/CON/CEN/BV-123-C
LL/CON/CEN/BV-124-C	LL/CON/CEN/BV-125-C	LL/CON/CEN/BV-131-C	LL/CON/CEN/BV-146-C
LL/CON/CEN/BV-147-C	LL/CON/CEN/BV-148-C	LL/CON/CEN/BV-149-C	LL/CON/CEN/BV-151-C
LL/CON/CEN/BV-152-C	LL/CON/CEN/BV-153-C	LL/CON/CEN/BV-154-C	LL/CON/CEN/BV-155-C
LL/CON/CEN/BV-156-C	LL/CON/CEN/BV-157-C	LL/CON/INI/BI-01-C	LL/CON/INI/BI-02-C
LL/CON/INI/BI-03-C	LL/CON/INI/BV-01-C	LL/CON/INI/BV-03-C	LL/CON/INI/BV-04-C
LL/CON/INI/BV-08-C	LL/CON/INI/BV-09-C	LL/CON/INI/BV-10-C	LL/CON/INI/BV-11-C
LL/CON/INI/BV-12-C	LL/CON/INI/BV-13-C	LL/CON/INI/BV-14-C	LL/CON/INI/BV-15-C
LL/CON/INI/BV-16-C	LL/CON/INI/BV-17-C	LL/CON/INI/BV-18-C	LL/CON/INI/BV-19-C
LL/CON/INI/BV-20-C	LL/CON/INI/BV-21-C	LL/CON/INI/BV-22-C	LL/CON/INI/BV-23-C
LL/CON/INI/BV-24-C	LL/CON/INI/BV-25-C	LL/CON/INI/BV-26-C	LL/CON/INI/BV-27-C
LL/CON/INI/BV-28-C	LL/CON/INI/BV-29-C	LL/CON/PER/BI-07-C	LL/CON/PER/BI-08-C
LL/CON/PER/BI-14-C	LL/CON/PER/BI-15-C	LL/CON/PER/BI-16-C	LL/CON/PER/BI-17-C
LL/CON/PER/BI-18-C	LL/CON/PER/BI-21-C	LL/CON/PER/BV-04-C	LL/CON/PER/BV-05-C
LL/CON/PER/BV-06-C	LL/CON/PER/BV-24-C	LL/CON/PER/BV-25-C	LL/CON/PER/BV-26-C
LL/CON/PER/BV-27-C	LL/CON/PER/BV-28-C	LL/CON/PER/BV-29-C	LL/CON/PER/BV-30-C
LL/CON/PER/BV-31-C	LL/CON/PER/BV-32-C	LL/CON/PER/BV-33-C	LL/CON/PER/BV-34-C
LL/CON/PER/BV-60-C	LL/CON/PER/BV-61-C	LL/CON/PER/BV-62-C	LL/CON/PER/BV-63-C
LL/CON/PER/BV-64-C	LL/CON/PER/BV-65-C	LL/CON/PER/BV-66-C	LL/CON/PER/BV-67-C
LL/CON/PER/BV-68-C	LL/CON/PER/BV-69-C	LL/CON/PER/BV-70-C	LL/CON/PER/BV-71-C
LL/CON/PER/BV-72-C	LL/CON/PER/BV-73-C	LL/CON/PER/BV-74-C	LL/CON/PER/BV-75-C
LL/CON/PER/BV-76-C	LL/CON/PER/BV-85-C	LL/CON/PER/BV-86-C	LL/CON/PER/BV-87-C
LL/CON/PER/BV-121-C	LL/CON/PER/BV-122-C	LL/CON/PER/BV-123-C	LL/CON/PER/BV-124-C
LL/CON/PER/BV-125-C	LL/CON/PER/BV-126-C	LL/CON/PER/BV-127-C	LL/CON/PER/BV-128-C
LL/CON/PER/BV-134-C	LL/CON/PER/BV-145-C	LL/CON/PER/BV-146-C	LL/CON/PER/BV-147-C
LL/CON/PER/BV-148-C	LL/CON/PER/BV-149-C	LL/CON/PER/BV-151-C	LL/CON/PER/BV-152-C
LL/CON/PER/BV-153-C	LL/CON/PER/BV-154-C	LL/CON/PER/BV-155-C	LL/CON/PER/BV-156-C
LL/CON/PER/BV-157-C	LL/DDI/ADV/BI-02-C	LL/DDI/ADV/BI-07-C	LL/DDI/ADV/BV-06-C
LL/DDI/ADV/BV-07-C	LL/DDI/ADV/BV-09-C	LL/DDI/ADV/BV-36-C	LL/DDI/ADV/BV-37-C
LL/DDI/ADV/BV-39-C	LL/DDI/ADV/BV-57-C	LL/DDI/ADV/BV-58-C	LL/DDI/ADV/BV-59-C
LL/DDI/ADV/BV-60-C	LL/DDI/SCN/BV-29-C	LL/DDI/SCN/BV-30-C	LL/DDI/SCN/BV-31-C
LL/DDI/SCN/BV-32-C	LL/DDI/SCN/BV-35-C	LL/DDI/SCN/BV-36-C	LL/DDI/SCN/BV-48-C
LL/DDI/SCN/BV-49-C	LL/DDI/SCN/BV-50-C	LL/DDI/SCN/BV-51-C	LL/DDI/SCN/BV-52-C
LL/DDI/SCN/BV-53-C	LL/DDI/SCN/BV-54-C	LL/DDI/SCN/BV-55-C	LL/DDI/SCN/BV-56-C
LL/DDI/SCN/BV-57-C	LL/DDI/SCN/BV-58-C	LL/DDI/SCN/BV-59-C	LL/DFL/CEN/BV-01-C
LL/DFL/CEN/BV-02-C	LL/DFL/PER/BV-01-C	LL/DFL/PER/BV-02-C	LL/ENC/INI/BI-01-C
LL/FRH/ADV/BV-01-C	LL/SEC/CEN/BV-12-C	LL/SEC/CEN/BV-13-C	LL/SEC/CEN/BV-14-C
LL/SEC/PER/BI-07-C			

7.1.4 *test*Harmony SW License Package LE # 3 (2013-22251-003)

*test*Harmony SW License Package LE # 3 contains tests from the following feature groups:

Feature Group	# Test Cases
Filtering	5
Invalid CRC	16
Invalid Device Addresses	8
LE 2M PHY	76
LE Coded PHY	52
Privacy	43
Public Device Addresses	25
Random Device Addresses	4
Total	**229**

Due to some tests appearing in more than one feature group there are a total of 229 tests; however, there are only 210 unique test cases. The 210 unique tests in *test*Harmony SW License Package LE # 3 are:

LL/CON/ADV/BV-12-C	LL/CON/ADV/BV-13-C	LL/CON/ADV/BV-14-C	LL/CON/ADV/BV-15-C
LL/CON/ADV/BV-16-C	LL/CON/CEN/BI-08-C	LL/CON/CEN/BI-08-C	LL/CON/CEN/BV-49-C
LL/CON/CEN/BV-50-C	LL/CON/CEN/BV-52-C	LL/CON/CEN/BV-53-C	LL/CON/CEN/BV-54-C
LL/CON/CEN/BV-55-C	LL/CON/CEN/BV-76-C	LL/CON/CEN/BV-77-C	LL/CON/CEN/BV-78-C
LL/CON/CEN/BV-79-C	LL/CON/CEN/BV-80-C	LL/CON/CEN/BV-86-C	LL/CON/CEN/BV-88-C
LL/CON/CEN/BV-91-C	LL/CON/CEN/BV-93-C	LL/CON/CEN/BV-96-C	LL/CON/CEN/BV-98-C
LL/CON/CEN/BV-106-C	LL/CON/CEN/BV-107-C	LL/CON/CEN/BV-109-C	LL/CON/CEN/BV-110-C
LL/CON/CEN/BV-112-C	LL/CON/CEN/BV-113-C	LL/CON/CEN/BV-115-C	LL/CON/CEN/BV-116-C
LL/CON/CEN/BV-118-C	LL/CON/CEN/BV-119-C	LL/CON/CEN/BV-120-C	LL/CON/CEN/BV-121-C
LL/CON/CEN/BV-122-C	LL/CON/CEN/BV-123-C	LL/CON/CEN/BV-124-C	LL/CON/CEN/BV-125-C
LL/CON/CEN/BV-126-C	LL/CON/CEN/BV-127-C	LL/CON/CEN/BV-129-C	LL/CON/CEN/BV-131-C
LL/CON/INI/BI-01-C	LL/CON/INI/BI-02-C	LL/CON/INI/BV-01-C	LL/CON/INI/BV-03-C
LL/CON/INI/BV-04-C	LL/CON/INI/BV-06-C	LL/CON/INI/BV-07-C	LL/CON/INI/BV-08-C
LL/CON/INI/BV-09-C	LL/CON/INI/BV-10-C	LL/CON/INI/BV-11-C	LL/CON/INI/BV-12-C
LL/CON/INI/BV-18-C	LL/CON/INI/BV-19-C	LL/CON/INI/BV-20-C	LL/CON/INI/BV-21-C
LL/CON/INI/BV-23-C	LL/CON/INI/BV-24-C	LL/CON/INI/BV-25-C	LL/CON/INI/BV-26-C
LL/CON/PER/BI-11-C	LL/CON/PER/BI-12-C	LL/CON/PER/BV-49-C	LL/CON/PER/BV-50-C
LL/CON/PER/BV-52-C	LL/CON/PER/BV-53-C	LL/CON/PER/BV-54-C	LL/CON/PER/BV-55-C
LL/CON/PER/BV-56-C	LL/CON/PER/BV-57-C	LL/CON/PER/BV-58-C	LL/CON/PER/BV-59-C
LL/CON/PER/BV-80-C	LL/CON/PER/BV-81-C	LL/CON/PER/BV-82-C	LL/CON/PER/BV-83-C
LL/CON/PER/BV-84-C	LL/CON/PER/BV-90-C	LL/CON/PER/BV-92-C	LL/CON/PER/BV-95-C
LL/CON/PER/BV-97-C	LL/CON/PER/BV-100-C	LL/CON/PER/BV-102-C	LL/CON/PER/BV-110-C
LL/CON/PER/BV-111-C	LL/CON/PER/BV-113-C	LL/CON/PER/BV-114-C	LL/CON/PER/BV-116-C
LL/CON/PER/BV-117-C	LL/CON/PER/BV-119-C	LL/CON/PER/BV-120-C	LL/CON/PER/BV-121-C
LL/CON/PER/BV-122-C	LL/CON/PER/BV-123-C	LL/CON/PER/BV-124-C	LL/CON/PER/BV-125-C
LL/CON/PER/BV-126-C	LL/CON/PER/BV-127-C	LL/CON/PER/BV-128-C	LL/CON/PER/BV-129-C
LL/CON/PER/BV-130-C	LL/CON/PER/BV-132-C	LL/CON/PER/BV-134-C	LL/DDI/ADV/BI-01-C
LL/DDI/ADV/BI-02-C	LL/DDI/ADV/BV-05-C	LL/DDI/ADV/BV-06-C	LL/DDI/ADV/BV-20-C
LL/DDI/ADV/BV-30-C	LL/DDI/ADV/BV-31-C	LL/DDI/ADV/BV-36-C	LL/DDI/ADV/BV-37-C
LL/DDI/ADV/BV-39-C	LL/DDI/ADV/BV-48-C	LL/DDI/ADV/BV-49-C	LL/DDI/ADV/BV-51-C
LL/DDI/ADV/BV-52-C	LL/DDI/ADV/BV-53-C	LL/DDI/ADV/BV-54-C	LL/DDI/ADV/BV-55-C
LL/DDI/ADV/BV-56-C	LL/DDI/ADV/BV-57-C	LL/DDI/ADV/BV-58-C	LL/DDI/ADV/BV-59-C
LL/DDI/ADV/BV-60-C	LL/DDI/SCN/BI-01-C	LL/DDI/SCN/BI-02-C	LL/DDI/SCN/BI-03-C

LL/DDI/SCN/BV-01-C	LL/DDI/SCN/BV-03-C	LL/DDI/SCN/BV-10-C	LL/DDI/SCN/BV-11-C
LL/DDI/SCN/BV-12-C	LL/DDI/SCN/BV-13-C	LL/DDI/SCN/BV-14-C	LL/DDI/SCN/BV-15-C
LL/DDI/SCN/BV-16-C	LL/DDI/SCN/BV-17-C	LL/DDI/SCN/BV-18-C	LL/DDI/SCN/BV-26-C
LL/DDI/SCN/BV-28-C	LL/DDI/SCN/BV-29-C	LL/DDI/SCN/BV-30-C	LL/DDI/SCN/BV-31-C
LL/DDI/SCN/BV-32-C	LL/DDI/SCN/BV-33-C	LL/DDI/SCN/BV-34-C	LL/DDI/SCN/BV-35-C
LL/DDI/SCN/BV-36-C	LL/DDI/SCN/BV-42-C	LL/DDI/SCN/BV-43-C	LL/DDI/SCN/BV-45-C
LL/DDI/SCN/BV-46-C	LL/DDI/SCN/BV-47-C	LL/DDI/SCN/BV-48-C	LL/DDI/SCN/BV-49-C
LL/DDI/SCN/BV-50-C	LL/DDI/SCN/BV-51-C	LL/DDI/SCN/BV-52-C	LL/DDI/SCN/BV-53-C
LL/DDI/SCN/BV-54-C	LL/DDI/SCN/BV-55-C	LL/DDI/SCN/BV-56-C	LL/DDI/SCN/BV-57-C
LL/DDI/SCN/BV-58-C	LL/DDI/SCN/BV-59-C	LL/DDI/SCN/BV-60-C	LL/DDI/SCN/BV-61-C
LL/DDI/SCN/BV-63-C	LL/DDI/SCN/BV-66-C	LL/ENC/ADV/BI-01-C	LL/ENC/INI/BI-01-C
LL/ENC/SCN/BI-01-C	LL/ENC/SCN/BI-02-C	LL/SEC/ADV/BV-02-C	LL/SEC/ADV/BV-03-C
LL/SEC/ADV/BV-04-C	LL/SEC/ADV/BV-05-C	LL/SEC/ADV/BV-06-C	LL/SEC/ADV/BV-07-C
LL/SEC/ADV/BV-08-C	LL/SEC/ADV/BV-09-C	LL/SEC/ADV/BV-10-C	LL/SEC/ADV/BV-11-C
LL/SEC/ADV/BV-12-C	LL/SEC/ADV/BV-13-C	LL/SEC/ADV/BV-14-C	LL/SEC/ADV/BV-15-C
LL/SEC/ADV/BV-16-C	LL/SEC/ADV/BV-17-C	LL/SEC/ADV/BV-18-C	LL/SEC/ADV/BV-19-C
LL/SEC/ADV/BV-20-C	LL/SEC/ADV/BV-21-C	LL/SEC/ADV/BV-22-C	LL/SEC/SCN/BV-01-C
LL/TIM/ADV/BV-05-C	LL/TIM/ADV/BV-06-C	LL/TIM/ADV/BV-07-C	LL/TIM/ADV/BV-08-C
LL/TIM/SCN/BV-02-C	LL/TIM/SCN/BV-03-C	LL/TIM/SCN/BV-04-C	LL/TIM/SCN/BV-06-C
LL/TIM/SCN/BV-07-C	LL/TIM/SCN/BV-08-C		

7.1.5 *test*Harmony SW License Package LE # 4 (2013-22251-004)

*test*Harmony SW License Package LE # 4 contains tests from the following feature groups:

Feature Group	# Test Cases
Extended Scanning	45
Isochronous Streams	106
LE Power Control*	60
Scanning	42
Security	37
Total	**290**

* Includes tests that require manual attenuation

The 290 tests in *test*Harmony SW License Package LE # 4 are:

LL/BIS/BRD/BV-01-C	LL/BIS/BRD/BV-07-C	LL/BIS/BRD/BV-10-C	LL/BIS/BRD/BV-16-C
LL/BIS/BRD/BV-23-C	LL/BIS/BRD/BV-26-C	LL/BIS/BRD/BV-27-C	LL/BIS/SNC/BV-01-C
LL/BIS/SNC/BV-07-C	LL/BIS/SNC/BV-08-C	LL/BIS/SNC/BV-09-C	LL/BIS/SNC/BV-10-C
LL/BIS/SNC/BV-11-C	LL/BIS/SNC/BV-12-C	LL/BIS/SNC/BV-13-C	LL/BIS/SNC/BV-14-C
LL/CIS/CEN/BV-01-C	LL/CIS/CEN/BV-02-C	LL/CIS/CEN/BV-03-C	LL/CIS/CEN/BV-04-C
LL/CIS/CEN/BV-05-C	LL/CIS/CEN/BV-06-C	LL/CIS/CEN/BV-07-C	LL/CIS/CEN/BV-08-C
LL/CIS/CEN/BV-09-C	LL/CIS/CEN/BV-10-C	LL/CIS/CEN/BV-11-C	LL/CIS/CEN/BV-13-C
LL/CIS/CEN/BV-14-C	LL/CIS/CEN/BV-15-C	LL/CIS/CEN/BV-16-C	LL/CIS/CEN/BV-17-C
LL/CIS/CEN/BV-18-C	LL/CIS/CEN/BV-20-C	LL/CIS/CEN/BV-25-C	LL/CIS/CEN/BV-26-C
LL/CIS/CEN/BV-27-C	LL/CIS/CEN/BV-29-C	LL/CIS/CEN/BV-30-C	LL/CIS/CEN/BV-31-C
LL/CIS/CEN/BV-32-C	LL/CIS/CEN/BV-34-C	LL/CIS/CEN/BV-35-C	LL/CIS/CEN/BV-39-C
LL/CIS/CEN/BV-40-C	LL/CIS/CEN/BV-41-C	LL/CIS/CEN/BV-42-C	LL/CIS/CEN/BV-43-C
LL/CIS/CEN/BV-44-C	LL/CIS/CEN/BV-45-C	LL/CIS/CEN/BV-46-C	LL/CIS/CEN/BV-47-C
LL/CIS/CEN/BV-48-C	LL/CIS/CEN/BV-49-C	LL/CIS/CEN/BV-51-C	LL/CIS/CEN/BV-52-C

LL/CIS/CEN/BV-53-C	LL/CIS/CEN/BV-54-C	LL/CIS/CEN/BV-55-C	LL/CIS/PER/BI-05-C
LL/CIS/PER/BV-01-C	LL/CIS/PER/BV-02-C	LL/CIS/PER/BV-03-C	LL/CIS/PER/BV-04-C
LL/CIS/PER/BV-05-C	LL/CIS/PER/BV-06-C	LL/CIS/PER/BV-07-C	LL/CIS/PER/BV-08-C
LL/CIS/PER/BV-10C	LL/CIS/PER/BV-11-C	LL/CIS/PER/BV-12-C	LL/CIS/PER/BV-13-C
LL/CIS/PER/BV-14-C	LL/CIS/PER/BV-15-C	LL/CIS/PER/BV-16-C	LL/CIS/PER/BV-19-C
LL/CIS/PER/BV-20-C	LL/CIS/PER/BV-21-C	LL/CIS/PER/BV-22-C	LL/CIS/PER/BV-23-C
LL/CIS/PER/BV-24-C	LL/CIS/PER/BV-26-C	LL/CIS/PER/BV-27-C	LL/CIS/PER/BV-28-C
LL/CIS/PER/BV-29-C	LL/CIS/PER/BV-30-C	LL/CIS/PER/BV-31-C	LL/CIS/PER/BV-32-C
LL/CIS/PER/BV-33-C	LL/CIS/PER/BV-34-C	LL/CIS/PER/BV-35-C	LL/CIS/PER/BV-36-C
LL/CIS/PER/BV-37-C	LL/CIS/PER/BV-38-C	LL/CIS/PER/BV-39-C	LL/CIS/PER/BV-40-C
LL/CIS/PER/BV-41-C	LL/CIS/PER/BV-42-C	LL/CIS/PER/BV-43-C	LL/CIS/PER/BV-44-C
LL/CON/INI/BV-25-C	LL/CON/INI/BV-26-C	LL/DDI/ADV/BI-01-C	LL/DDI/ADV/BI-06-C
LL/DDI/ADV/BV-05-C	LL/DDI/ADV/BV-07-C	LL/DDI/ADV/BV-08-C	LL/DDI/ADV/BV-15-C
LL/DDI/ADV/BV-16-C	LL/DDI/ADV/BV-17-C	LL/DDI/ADV/BV-18-C	LL/DDI/ADV/BV-25-C
LL/DDI/ADV/BV-45-C	LL/DDI/ADV/BV-51-C	LL/DDI/ADV/BV-52C	LL/DDI/ADV/BV-53-C
LL/DDI/ADV/BV-54-C	LL/DDI/SCN/BI-01-C	LL/DDI/SCN/BI-02-C	LL/DDI/SCN/BI-03-C
LL/DDI/SCN/BI-06-C	LL/DDI/SCN/BV-01-C	LL/DDI/SCN/BV-02-C	LL/DDI/SCN/BV-03-C
LL/DDI/SCN/BV-04-C	LL/DDI/SCN/BV-05-C	LL/DDI/SCN/BV-10-C	LL/DDI/SCN/BV-11-C
LL/DDI/SCN/BV-12-C	LL/DDI/SCN/BV-13-C	LL/DDI/SCN/BV-14-C	LL/DDI/SCN/BV-15-C
LL/DDI/SCN/BV-16-C	LL/DDI/SCN/BV-17-C	LL/DDI/SCN/BV-18-C	LL/DDI/SCN/BV-19-C
LL/DDI/SCN/BV-20-C	LL/DDI/SCN/BV-21-C	LL/DDI/SCN/BV-23-C	LL/DDI/SCN/BV-24-C
LL/DDI/SCN/BV-25-C	LL/DDI/SCN/BV-26-C	LL/DDI/SCN/BV-28-C	LL/DDI/SCN/BV-33-C
LL/DDI/SCN/BV-34-C	LL/DDI/SCN/BV-37-C	LL/DDI/SCN/BV-42-C	LL/DDI/SCN/BV-43-C
LL/DDI/SCN/BV-44-C	LL/DDI/SCN/BV-45-C	LL/DDI/SCN/BV-46-C	LL/DDI/SCN/BV-47-C
LL/DDI/SCN/BV-62-C	LL/DDI/SCN/BV-63-C	LL/DDI/SCN/BV-64-C	LL/DDI/SCN/BV-65-C
LL/DDI/SCN/BV-66-C	LL/DDI/SCN/BV-67-C	LL/DDI/SCN/BV-68-C	LL/DDI/SCN/BV-72-C
LL/DDI/SCN/BV-73-C	LL/DDI/SCN/BV-74-C	LL/ENC/ADV/BI-01-C	LL/ENC/SCN/BI-01-C
LL/ENC/SCN/BI-02-C	LL/IST/BRD/BV-01-C	LL/IST/CEN/BV-01-C	LL/IST/CEN/BV-03-C
LL/IST/PER/BV-01-C	LL/IST/PER/BV-03-C	LL/IST/PER/BV-05-C	LL/PCL/CEN/BI-02-C
LL/PCL/CEN/BI-06-C	LL/PCL/CEN/BI-07-C	LL/PCL/CEN/BI-08-C	LL/PCL/CEN/BI-13-C
LL/PCL/CEN/BV-01-C	LL/PCL/CEN/BV-03-C	LL/PCL/CEN/BV-04-C	LL/PCL/CEN/BV-08-C
LL/PCL/CEN/BV-09-C	LL/PCL/CEN/BV-10-C	LL/PCL/CEN/BV-11-C	LL/PCL/CEN/BV-12-C
LL/PCL/CEN/BV-16-C	LL/PCL/CEN/BV-17-C	LL/PCL/CEN/BV-20-C	LL/PCL/CEN/BV-25-C
LL/PCL/CEN/BV-27-C	LL/PCL/CEN/BV-33-C	LL/PCL/CEN/BV-34-C	LL/PCL/CEN/BV-35-C
LL/PCL/CEN/BV-36-C	LL/PCL/CEN/BV-40-C	LL/PCL/CEN/BV-45-C	L/PCL/CEN/BV-46-C
L/PCL/CEN/BV-47-C	LL/PCL/CEN/BV-53-C	LL/PCL/CEN/BV-54-C	LL/PCL/CEN/BV-55-C
LL/PCL/CEN/BV-56-C	LL/PCL/PER/BI-02-C	LL/PCL/PER/BI-06-C	LL/PCL/PER/BI-07-C
LL/PCL/PER/BI-08-C	LL/PCL/PER/BI-13-C	LL/PCL/PER/BV-01-C	LL/PCL/PER/BV-03-C
LL/PCL/PER/BV-04-C	LL/PCL/PER/BV-08-C	LL/PCL/PER/BV-09-C	LL/PCL/PER/BV-10-C
LL/PCL/PER/BV-11-C	LL/PCL/PER/BV-12-C	LL/PCL/PER/BV-16-C	LL/PCL/PER/BV-17-C
LL/PCL/PER/BV-20-C	LL/PCL/PER/BV-25-C	LL/PCL/PER/BV-29-C	LL/PCL/PER/BV-33-C
LL/PCL/PER/BV-34-C	LL/PCL/PER/BV-35-C	LL/PCL/PER/BV-36-C	LL/PCL/PER/BV-40-C
LL/PCL/PER/BV-45-C	LL/PCL/PER/BV-46-C	LL/PCL/PER/BV-47-C	LL/PCL/PER/BV-53-C
LL/PCL/PER/BV-54-C	LL/PCL/PER/BV-55-C	LL/PCL/PER/BV-56-C	LL/SEC/ADV/BV-04-C
LL/SEC/ADV/BV-05-C	LL/SEC/ADV/BV-15-C	LL/SEC/ADV/BV-18-C	LL/SEC/ADV/BV-21-C
LL/SEC/CEN/BI-01-C	LL/SEC/CEN/BI-03-C	LL/SEC/CEN/BI-04-C	LL/SEC/CEN/BI-05-C
LL/SEC/CEN/BI-06-C	LL/SEC/CEN/BI-07-C	LL/SEC/CEN/BI-08-C	LL/SEC/CEN/BI-09-C
LL/SEC/CEN/BV-01-C	LL/SEC/CEN/BV-02-C	LL/SEC/CEN/BV-03-C	LL/SEC/CEN/BV-04-C
LL/SEC/CEN/BV-05-C	LL/SEC/CEN/BV-06-C	LL/SEC/CEN/BV-07-C	LL/SEC/CEN/BV-08-C
LL/SEC/CEN/BV-09-C	LL/SEC/CEN/BV-10-C	LL/SEC/CEN/BV-11-C	LL/SEC/CEN/BV-12-C

LL/SEC/CEN/BV-13-C	LL/SEC/CEN/BV-14-C	LL/SEC/PER/BI-01-C	LL/SEC/PER/BI-03-C
LL/SEC/PER/BI-04-C	LL/SEC/PER/BI-05-C	LL/SEC/PER/BV-01-C	LL/SEC/PER/BV-02-C
LL/SEC/PER/BV-03-C	LL/SEC/PER/BV-04-C	LL/SEC/PER/BV-05-C	LL/SEC/PER/BV-06-C
LL/SEC/PER/BV-07-C	LL/SEC/PER/BV-08-C	LL/SEC/PER/BV-09-C	LL/SEC/PER/BV-10-C
LL/SEC/PER/BV-11-C	LL/SEC/SCN/BV-01-C	LL/TIM/ADV/BV-01-C	LL/TIM/ADV/BV-02-C
LL/TIM/ADV/BV-03-C	LL/TIM/ADV/BV-04-C	LL/TIM/ADV/BV-05-C	LL/TIM/ADV/BV-06-C
LL/TIM/ADV/BV-07-C	LL/TIM/ADV/BV-08-C	LL/TIM/SCN/BV-01-C	LL/TIM/SCN/BV-02-C
LL/TIM/SCN/BV-03-C	LL/TIM/SCN/BV-04-C	LL/TIM/SCN/BV-05-C	LL/TIM/SCN/BV-06-C
LL/TIM/SCN/BV-07-C	LL/TIM/SCN/BV-08-C		

7.1.6 *test*Harmony SW License Package LE # 5 (2013-22251-005)

*test*Harmony SW License Package LE # 5 contains tests from the following feature groups:

Feature Group	# Test Cases
Channel Map	10
Channel Selection Algorithm	12
Data Length Update	30
Feature Exchange	9
LE Ping Procedure	10
LL Control Procedures	67
LE_REJECT_EXT_IND	30
Long Control PDUs	24
Parameter Update	37
PHY Update Procedure	32
Sleep Clock Accuracy	8
Total	**269**

Due to some tests appearing in more than one feature group there are a total of 269 tests; however, there are only 242 unique test cases. The 242 unique tests in *test*Harmony SW License Package LE # 5 are:

LL/CON/ADV/BV-07-C	LL/CON/ADV/BV-08-C	LL/CON/ADV/BV-09-C	LL/CON/ADV/BV-10-C
LL/CON/ADV/BV-11-C	LL/CON/CEN/BI-02-C	LL/CON/CEN/BI-04-C	LL/CON/CEN/BI-05-C
LL/CON/CEN/BI-06-C	LL/CON/CEN/BI-07-C	LL/CON/CEN/BI-08-C	LL/CON/CEN/BI-09-C
LL/CON/CEN/BI-10-C	LL/CON/CEN/BV-02-C	LL/CON/CEN/BV-07-C	LL/CON/CEN/BV-08-C
LL/CON/CEN/BV-09-C	LL/CON/CEN/BV-10-C	LL/CON/CEN/BV-13-C	LL/CON/CEN/BV-14-C
LL/CON/CEN/BV-15-C	LL/CON/CEN/BV-16-C	LL/CON/CEN/BV-17-C	LL/CON/CEN/BV-18-C
LL/CON/CEN/BV-19-C	LL/CON/CEN/BV-20-C	LL/CON/CEN/BV-21-C	LL/CON/CEN/BV-22-C
LL/CON/CEN/BV-23-C	LL/CON/CEN/BV-24-C	LL/CON/CEN/BV-25-C	LL/CON/CEN/BV-26-C
LL/CON/CEN/BV-27-C	LL/CON/CEN/BV-28-C	LL/CON/CEN/BV-29-C	LL/CON/CEN/BV-30-C
LL/CON/CEN/BV-31-C	LL/CON/CEN/BV-32-C	LL/CON/CEN/BV-33-C	LL/CON/CEN/BV-34-C
LL/CON/CEN/BV-35-C	LL/CON/CEN/BV-41-C	LL/CON/CEN/BV-42-C	LL/CON/CEN/BV-43-C
LL/CON/CEN/BV-44-C	LL/CON/CEN/BV-45-C	LL/CON/CEN/BV-46-C	LL/CON/CEN/BV-47-C
LL/CON/CEN/BV-48-C	LL/CON/CEN/BV-49-C	LL/CON/CEN/BV-50-C	LL/CON/CEN/BV-51-C
LL/CON/CEN/BV-52-C	LL/CON/CEN/BV-53-C	LL/CON/CEN/BV-54-C	LL/CON/CEN/BV-55-C
LL/CON/CEN/BV-58-C	LL/CON/CEN/BV-62-C	LL/CON/CEN/BV-73-C	LL/CON/CEN/BV-74-C

LL/CON/CEN/BV-75-C	LL/CON/CEN/BV-76-C	LL/CON/CEN/BV-77-C	LL/CON/CEN/BV-78-C
LL/CON/CEN/BV-79-C	LL/CON/CEN/BV-80-C	LL/CON/CEN/BV-81-C	LL/CON/CEN/BV-82-C
LL/CON/CEN/BV-83-C	LL/CON/CEN/BV-105-C	LL/CON/CEN/BV-106-C	LL/CON/CEN/BV-107-C
LL/CON/CEN/BV-108-C	LL/CON/CEN/BV-109-C	LL/CON/CEN/BV-110-C	LL/CON/CEN/BV-111-C
LL/CON/CEN/BV-112-C	LL/CON/CEN/BV-113-C	LL/CON/CEN/BV-114-C	LL/CON/CEN/BV-115-C
LL/CON/CEN/BV-116-C	LL/CON/CEN/BV-117-C	LL/CON/CEN/BV-126-C	LL/CON/CEN/BV-127-C
LL/CON/CEN/BV-128-C	LL/CON/CEN/BV-129-C	LL/CON/CEN/BV-134-C	LL/CON/CEN/BV-135-C
LL/CON/CEN/BV-136-C	LL/CON/CEN/BV-137-C	LL/CON/CEN/BV-138-C	LL/CON/CEN/BV-139-C
LL/CON/CEN/BV-140-C	LL/CON/CEN/BV-141-C	LL/CON/CEN/BV-142-C	LL/CON/CEN/BV-143-C
LL/CON/CEN/BV-145-C	LL/CON/CEN/BV-151-C	LL/CON/INI/BV-14-C	LL/CON/INI/BV-15-C
LL/CON/INI/BV-16-C	LL/CON/INI/BV-17-C	LL/CON/INI/BV-22-C	LL/CON/PER/BI-01-C
LL/CON/PER/BI-02-C	LL/CON/PER/BI-04-C	LL/CON/PER/BI-05-C	LL/CON/PER/BI-07-C
LL/CON/PER/BI-08-C	LL/CON/PER/BI-09-C	LL/CON/PER/BI-10-C	LL/CON/PER/BI-11-C
LL/CON/PER/BI-12-C	LL/CON/PER/BI-13-C	LL/CON/PER/BI-19-C	LL/CON/PER/BV-02-C
LL/CON/PER/BV-10-C	LL/CON/PER/BV-11-C	LL/CON/PER/BV-12-C	LL/CON/PER/BV-13-C
LL/CON/PER/BV-14-C	LL/CON/PER/BV-15-C	LL/CON/PER/BV-16-C	LL/CON/PER/BV-17-C
LL/CON/PER/BV-18-C	LL/CON/PER/BV-19-C	LL/CON/PER/BV-20-C	LL/CON/PER/BV-21-C
LL/CON/PER/BV-22-C	LL/CON/PER/BV-23-C	LL/CON/PER/BV-24-C	LL/CON/PER/BV-25-C
LL/CON/PER/BV-26-C	LL/CON/PER/BV-27-C	LL/CON/PER/BV-28-C	LL/CON/PER/BV-29-C
LL/CON/PER/BV-30-C	LL/CON/PER/BV-31-C	LL/CON/PER/BV-32-C	LL/CON/PER/BV-33-C
LL/CON/PER/BV-34-C	LL/CON/PER/BV-40-C	LL/CON/PER/BV-42-C	LL/CON/PER/BV-43-C
LL/CON/PER/BV-44-C	LL/CON/PER/BV-45-C	LL/CON/PER/BV-46-C	LL/CON/PER/BV-47-C
LL/CON/PER/BV-48-C	LL/CON/PER/BV-49-C	LL/CON/PER/BV-50-C	LL/CON/PER/BV-51-C
LL/CON/PER/BV-52-C	LL/CON/PER/BV-53-C	LL/CON/PER/BV-54-C	LL/CON/PER/BV-55-C
LL/CON/PER/BV-56-C	LL/CON/PER/BV-57-C	LL/CON/PER/BV-58-C	LL/CON/PER/BV-59-C
LL/CON/PER/BV-62-C	LL/CON/PER/BV-66-C	LL/CON/PER/BV-77-C	LL/CON/PER/BV-78-C
LL/CON/PER/BV-79-C	LL/CON/PER/BV-80-C	LL/CON/PER/BV-81-C	LL/CON/PER/BV-82-C
LL/CON/PER/BV-83-C	LL/CON/PER/BV-84-C	LL/CON/PER/BV-85-C	LL/CON/PER/BV-86-C
LL/CON/PER/BV-87-C	LL/CON/PER/BV-109-C	LL/CON/PER/BV-110-C	LL/CON/PER/BV-111-C
LL/CON/PER/BV-112-C	LL/CON/PER/BV-113-C	LL/CON/PER/BV-114-C	LL/CON/PER/BV-115-C
LL/CON/PER/BV-116-C	LL/CON/PER/BV-117-C	LL/CON/PER/BV-118-C	LL/CON/PER/BV-119-C
LL/CON/PER/BV-120-C	LL/CON/PER/BV-129-C	LL/CON/PER/BV-130-C	LL/CON/PER/BV-131-C
LL/CON/PER/BV-132-C	LL/CON/PER/BV-137-C	LL/CON/PER/BV-138-C	LL/CON/PER/BV-139-C
LL/CON/PER/BV-140-C	LL/CON/PER/BV-141-C	LL/CON/PER/BV-142-C	LL/CON/PER/BV-143-C
LL/CON/PER/BV-144-C	LL/CON/PER/BV-151-C	LL/DDI/ADV/BV-62-C	LL/ENC/CEN/BI-01-C
LL/ENC/PER/BI-01-C	LL/FRH/CEN/BI-01-C	LL/FRH/CEN/BV-01-C	LL/FRH/CEN/BV-02-C
LL/FRH/CEN/BV-03-C	LL/FRH/PER/BI-01-C	LL/FRH/PER/BV-01-C	LL/FRH/PER/BV-02-C
LL/PAC/CEN/BI-01-C	LL/PAC/CEN/BV-01-C	LL/PAC/PER/BI-01-C	LL/PAC/PER/BV-01-C
LL/SEC/CEN/BV-06-C	LL/SEC/CEN/BV-07-C	LL/SEC/CEN/BV-08-C	LL/SEC/CEN/BV-09-C
LL/SEC/CEN/BV-10-C	LL/SEC/CEN/BV-11-C	LL/SEC/CEN/BV-13-C	LL/SEC/PER/BV-06-C
LL/SEC/PER/BV-07-C	LL/SEC/PER/BV-08-C	LL/SEC/PER/BV-09-C	LL/SEC/PER/BV-10-C
LL/SEC/PER/BV-11-C	LL/TIM/CEN/BV-01-C	LL/TIM/CEN/BV-02-C	LL/TIM/CEN/BV-03-C
LL/TIM/CEN/BV-04-C	LL/TIM/CEN/BV-05-C	LL/TIM/CEN/BV-06-C	LL/TIM/CEN/BV-07-C
LL/TIM/PER/BV-01-C	LL/TIM/PER/BV-02-C	LL/TIM/PER/BV-03-C	LL/TIM/PER/BV-04-C
LL/TIM/PER/BV-05-C	LL/TIM/PER/BV-06-C	LL/TIM/PER/BV-07-C	LL/TIM/PER/BV-08-C
LL/TIM/PER/BV-09-C	LL/TIM/PER/BV-10-C		

7.1.7 *test*Harmony SW License – Bundle Package LE # 1-5 (2013-22251-006)

*test*Harmony SW License – Bundle Package LE # 1 -5 contains all the tests listed previously in each of the *test*Harmony SW License – Packages # 1, # 2, # 3, # 4, and # 5.

7.1.8 *test*Harmony SW License – Package LE # 6 (2013-22251-007)

testHarmony SW License – Package LE # 6 contains tests from the following feature group:

Feature Group	# Test Cases
Isochronous Adaption Layer (IAL)	128
Total	**128**

The 128 tests in *test*Harmony SW License – Package LE # 6 are:

IAL/BIS/FRA/BRD/BV-06-C	IAL/BIS/FRA/BRD/BV-08-C	IAL/BIS/FRA/BRD/BV-13-C
IAL/BIS/FRA/BRD/BV-15-C	IAL/BIS/FRA/BRD/BV-17-C	IAL/BIS/FRA/BRD/BV-18-C
IAL/BIS/FRA/BRD/BV-20-C	IAL/BIS/FRA/BRD/BV-25-C	IAL/BIS/FRA/BRD/BV-26-C
IAL/BIS/FRA/BRD/BV-27-C	IAL/BIS/FRA/BRD/BV-28-C	IAL/BIS/FRA/SNC/BV-06-C
IAL/BIS/FRA/SNC/BV-08-C	IAL/BIS/FRA/SNC/BV-11-C	IAL/BIS/FRA/SNC/BV-13-C
IAL/BIS/FRA/SNC/BV-15-C	IAL/BIS/FRA/SNC/BV-17-C	IAL/BIS/FRA/SNC/BV-18-C
IAL/BIS/FRA/SNC/BV-20-C	IAL/BIS/FRA/SNC/BV-25-C	IAL/BIS/FRA/SNC/BV-26-C
IAL/BIS/FRA/SNC/BV-27-C	IAL/BIS/FRA/SNC/BV-28-C	IAL/BIS/UNF/BRD/BV-01-C
IAL/BIS/UNF/BRD/BV-02-C	IAL/BIS/UNF/BRD/BV-03-C	IAL/BIS/UNF/BRD/BV-09-C
IAL/BIS/UNF/BRD/BV-10-C	IAL/BIS/UNF/BRD/BV-11-C	IAL/BIS/UNF/BRD/BV-21-C
IAL/BIS/UNF/BRD/BV-22-C	IAL/BIS/UNF/BRD/BV-23-C	IAL/BIS/UNF/BRD/BV-24-C
IAL/BIS/UNF/BRD/BV-29-C	IAL/BIS/UNF/SNC/BI-02-C	IAL/BIS/UNF/SNC/BI-05-C
IAL/BIS/UNF/SNC/BV-01-C	IAL/BIS/UNF/SNC/BV-02-C	IAL/BIS/UNF/SNC/BV-03-C
IAL/BIS/UNF/SNC/BV-09-C	IAL/BIS/UNF/SNC/BV-21-C	IAL/BIS/UNF/SNC/BV-22-C
IAL/BIS/UNF/SNC/BV-23-C	IAL/BIS/UNF/SNC/BV-24-C	IAL/BIS/UNF/SNC/BV-29-C
IAL/BIS/UNF/SNC/BV-30-C	IAL/CIS/FRA/CEN/BV-03-C	IAL/CIS/FRA/CEN/BV-05-C
IAL/CIS/FRA/CEN/BV-07-C	IAL/CIS/FRA/CEN/BV-10-C	IAL/CIS/FRA/CEN/BV-15-C
IAL/CIS/FRA/CEN/BV-18-C	IAL/CIS/FRA/CEN/BV-20-C	IAL/CIS/FRA/CEN/BV-22-C
IAL/CIS/FRA/CEN/BV-26-C	IAL/CIS/FRA/CEN/BV-29-C	IAL/CIS/FRA/CEN/BV-31-C
IAL/CIS/FRA/CEN/BV-35-C	IAL/CIS/FRA/CEN/BV-39-C	IAL/CIS/FRA/CEN/BV-42-C
IAL/CIS/FRA/CEN/BV-44-C	IAL/CIS/FRA/CEN/BV-45-C	IAL/CIS/FRA/CEN/BV-46-C
IAL/CIS/FRA/CEN/BV-47-C	IAL/CIS/FRA/CEN/BV-48-C	IAL/CIS/FRA/CEN/BV-50-C
IAL/CIS/FRA/CEN/BV-51-C	IAL/CIS/FRA/CEN/BV-52-C	IAL/CIS/FRA/PER/BV-03-C
IAL/CIS/FRA/PER/BV-05-C	IAL/CIS/FRA/PER/BV-07-C	IAL/CIS/FRA/PER/BV-10-C
IAL/CIS/FRA/PER/BV-15-C	IAL/CIS/FRA/PER/BV-18-C	IAL/CIS/FRA/PER/BV-20-C
IAL/CIS/FRA/PER/BV-22-C	IAL/CIS/FRA/PER/BV-26-C	IAL/CIS/FRA/PER/BV-29-C
IAL/CIS/FRA/PER/BV-31-C	IAL/CIS/FRA/PER/BV-35-C	IAL/CIS/FRA/PER/BV-39-C
IAL/CIS/FRA/PER/BV-42-C	IAL/CIS/FRA/PER/BV-44-C	IAL/CIS/FRA/PER/BV-45-C
IAL/CIS/FRA/PER/BV-46-C	IAL/CIS/FRA/PER/BV-47-C	IAL/CIS/FRA/PER/BV-48-C
IAL/CIS/FRA/PER/BV-50-C	IAL/CIS/FRA/PER/BV-51-C	IAL/CIS/FRA/PER/BV-52-C
IAL/CIS/UNF/CEN/BV-01-C	IAL/CIS/UNF/CEN/BV-04-C	IAL/CIS/UNF/CEN/BV-09-C
IAL/CIS/UNF/CEN/BV-12-C	IAL/CIS/UNF/CEN/BV-17-C	IAL/CIS/UNF/CEN/BV-19-C
IAL/CIS/UNF/CEN/BV-21-C	IAL/CIS/UNF/CEN/BV-24-C	IAL/CIS/UNF/CEN/BV-25-C

IAL/CIS/UNF/CEN/BV-28-C	IAL/CIS/UNF/CEN/BV-33-C	IAL/CIS/UNF/CEN/BV-41-C
IAL/CIS/UNF/CEN/BV-43-C	IAL/CIS/UNF/CEN/BV-45-C	IAL/CIS/UNF/CEN/BV-46-C
IAL/CIS/UNF/CEN/BV-47-C	IAL/CIS/UNF/CEN/BV-48-C	IAL/CIS/UNF/PER/BI-02-C
IAL/CIS/UNF/PER/BI-03-C	IAL/CIS/UNF/PER/BI-04-C	IAL/CIS/UNF/PER/BV-01-C
IAL/CIS/UNF/PER/BV-04-C	IAL/CIS/UNF/PER/BV-09-C	IAL/CIS/UNF/PER/BV-17-C
IAL/CIS/UNF/PER/BV-19-C	IAL/CIS/UNF/PER/BV-21-C	IAL/CIS/UNF/PER/BV-24-C
IAL/CIS/UNF/PER/BV-25-C	IAL/CIS/UNF/PER/BV-28-C	IAL/CIS/UNF/PER/BV-33-C
IAL/CIS/UNF/PER/BV-36-C	IAL/CIS/UNF/PER/BV-41-C	IAL/CIS/UNF/PER/BV-43-C
IAL/CIS/UNF/PER/BV-45-C	IAL/CIS/UNF/PER/BV-46-C	IAL/CIS/UNF/PER/BV-47-C
IAL/CIS/UNF/PER/BV-48-C	IAL/CIS/UNF/PER/BV-49-C	

7.1.9 testHarmony SW License – Package LE TCRL 2022-1, 2022-2, 2023-1, & 2024-1 (2013-22251-008)

*test*Harmony SW License – Package LE TCRL 2022-1, 2022-2, 2023-1, & 2024-1 contains tests from the following feature groups:

Feature Group	# Test Cases
Advertising	19
Connection	1
Constant Tone Extension	5
Extended Advertising	18
Extended Connection	8
Extended Scanning	32
Host Controller Interface	120
Isochronous Adaption Layer (IAL)	30
Isochronous Streams	54
LE Coded PHY	7
LE Power Control*	39
LL Control Procedures	13
Privacy	4
Random Device Address	1
LL_REJECT_EXT_IND	2
Scanning	6
Security	5
Total	**356**

*Includes tests that require manual attenuation

Due to some tests appearing in more than one feature group there are a total of 356 tests; however, there are only 338 unique test cases. The 338 unique test cases are the following:

HCI/BIS/BI-01-C	HCI/BIS/BI-02-C	HCI/BIS/BI-06-C	HCI/BIS/BI-08-C
HCI/BIS/BI-09-C	HCI/BIS/BV-04-C	HCI/BIS/BV-05-C	HCI/BIS/BV-08-C
HCI/CCO/BI-33-C	HCI/CCO/BI-34-C	HCI/CCO/BI-36-C	HCI/CCO/BI-37-C

HCI/CCO/BI-38-C	HCI/CCO/BI-39-C	HCI/CCO/BI-40-C	HCI/CCO/BI-42C
HCI/CCO/BI-43-C	HCI/CCO/BI-44-C	HCI/CCO/BI-45-C	HCI/CCO/BI-46-C
HCI/CCO/BI-47-C	HCI/CCO/BI-48-C	HCI/CCO/BI-50-C	HCI/CCO/BI-57-C
HCI/CCO/BI-58-C	HCI/CCO/BI-59-C	HCI/CCO/BI-60-C	HCI/CCO/BI-61-C
HCI/CCO/BI-62-C	HCI/CCO/BI-63-C	HCI/CCO/BI-64-C	HCI/CCO/BI-65-C
HCI/CCO/BI-66-C	HCI/CCO/BI-67-C	HCI/CCO/BI-68-C	HCI/CCO/BI-69-C
HCI/CCO/BI-70-C	HCI/CCO/BV-23-C		
HCI/CIN/BV-09-C	HCI/CIN/BV-11-C	HCI/CIS/BI-01-C	HCI/CIS/BI-02-C
HCI/CIS/BI-03-C	HCI/CIS/BI-04-C	HCI/CIS/BI-05-C	HCI/CIS/BI-06-C
HCI/CIS/BI-07-C	HCI/CIS/BI-08-C	HCI/CIS/BI-09-C	HCI/CIS/BI-10-C
HCI/CIS/BI-11-C	HCI/CIS/BI-12-C	HCI/CIS/BI-13-C	HCI/CIS/BI-14-C
HCI/CIS/BI-15-C	HCI/CIS/BI-16-C	HCI/CIS/BV-01-C	HCI/CIS/BV-05-C
HCI/CIS/BV-07-C	HCI/CIS/BV-08-C	HCI/CIS/BV-14-C	HCI/CIS/BV-15-C
HCI/DDI/BI-16-C	HCI/DDI/BI-17-C	HCI/DDI/BI-18-C	HCI/DDI/BI-19-C
HCI/DDI/BI-20-C	HCI/DDI/BI-21-C	HCI/DDI/BI-22-C	HCI/DDI/BI-23-C
HCI/DDI/BI-24-C	HCI/DDI/BI-25-C	HCI/DDI/BI-26-C	HCI/DDI/BI-27-C
HCI/DDI/BI-28-C	HCI/DDI/BI-29-C	HCI/DDI/BI-30-C	HCI/DDI/BI-31-C
HCI/DDI/BI-32-C	HCI/DDI/BI-33-C	HCI/DDI/BI-34-C	HCI/DDI/BI-35-C
HCI/DDI/BI-36-C	HCI/DDI/BI-37-C	HCI/DDI/BI-38-C	HCI/DDI/BI-39-C
HCI/DDI/BI-40-C	HCI/DDI/BI-41-C	HCI/DDI/BI-42-C	HCI/DDI/BI-43-C
HCI/DDI/BI-44-C	HCI/DDI/BI-45-C	HCI/DDI/BI-46-C	HCI/DDI/BI-47-C
HCI/DDI/BI-48-C	HCI/DDI/BI-49-C	HCI/DDI/BI-50-C	HCI/DDI/BI-51-C
HCI/DDI/BI-52-C	HCI/DDI/BI-53-C	HCI/DDI/BI-54-C	HCI/DDI/BI-55-C
HCI/DDI/BI-56-C	HCI/DDI/BI-57-C	HCI/DDI/BI-58-C	HCI/DDI/BI-59-C
HCI/DDI/BI-60-C	HCI/DDI/BI-61-C	HCI/DDI/BI-62-C	HCI/DDI/BI-63-C
HCI/DDI/BI-64-C	HCI/DDI/BI-65-C	HCI/DDI/BI-66-C	HCI/DDI/BI-67-C
HCI/DDI/BV-08-C	HCI/GEV/BI-01-C	HCI/PCL/BI-01-C	HCI/PCL/BI-02-C
HCI/PCL/BI-03-C	HCI/PCL/BI-05-C	HCI/PCL/BI-06-C	HCI/PCL/BI-07-C
IAL/BIS/FRA/SNC/BI-01-C	IAL/BIS/FRA/SNC/BI-02-C	IAL/BIS/FRA/SNC/BI-03-C	IAL/BIS/FRA/SNC/BI-04-C
IAL/BIS/UNF/BRD/BV-30-C	IAL/BIS/UNF/SNC/BI-06-C		
IAL/BIS/UNF/SNC/BV-10-C	IAL/CIS/FRA/CEN/BI-01-C	IAL/CIS/FRA/CEN/BI-02-C	IAL/CIS/FRA/CEN/BI-03-C
IAL/CIS/FRA/CEN/BI-04-C	IAL/CIS/FRA/CEN/BV-13-C		
IAL/CIS/FRA/CEN/BV-38-C	IAL/CIS/FRA/CEN/BV-49-C	IAL/CIS/FRA/PER/BI-01-C	IAL/CIS/FRA/PER/BI-02-C
IAL/CIS/FRA/PER/BI-03-C	IAL/CIS/FRA/PER/BI-04-C		
IAL/CIS/FRA/PER/BV-13-C	IAL/CIS/FRA/PER/BV-38-C	IAL/CIS/FRA/PER/BV-49-C	IAL/CIS/UNF/CEN/BI-02-C
IAL/CIS/UNF/CEN/BI-03-C	IAL/CIS/UNF/CEN/BI-04-C	IAL/CIS/UNF/CEN/BI-05-C	IAL/CIS/UNF/CEN/BV-36-C
IAL/CIS/UNF/CEN/BV-49-C	IAL/CIS/UNF/PER/BI-05-C	IAL/CIS/UNF/PER/BV-12-C	IAL/CIS/UNF/PER/BV-50-C
LL/BIS/BRD/BV-01-C			
LL/BIS/BRD/BV-02-C	LL/BIS/BRD/BV-04-C	LL/BIS/BRD/BV-05-C	LL/BIS/BRD/BV-08-C
LL/BIS/BRD/BV-09-C	LL/BIS/BRD/BV-13-C	LL/BIS/BRD/BV-14-C	LL/BIS/BRD/BV-15-C
LL/BIS/BRD/BV-17-C	LL/BIS/BRD/BV-18-C	LL/BIS/BRD/BV-19-C	LL/BIS/BRD/BV-20-C

LL/BIS/BRD/BV-21-C	LL/BIS/BRD/BV-22-C	LL/BIS/BRD/BV-23-C	
LL/BIS/BRD/BV-24-C	LL/BIS/BRD/BV-25-C		
LL/BIS/SNC/BI-01-C	LL/BIS/SNC/BI-02-C	LL/BIS/SNC/BI-03-C	LL/BIS/SNC/BI-04-C
LL/BIS/SNC/BI-05-C	LL/BIS/SNC/BI-06-C	LL/BIS/SNC/BV-02-C	LL/BIS/SNC/BV-04-C
LL/BIS/SNC/BV-15-C	LL/BIS/SNC/BV-16-C	LL/BIS/SNC/BV-17-C	LL/BIS/SNC/BV-18-C
LL/BIS/SNC/BV-19-C	LL/CIS/CEN/BI-01-C	LL/CIS/CEN/BV-19-C	LL/CIS/CEN/BV-24-C
LL/CIS/CEN/BV-28-C	LL/CIS/CEN/BV-33-C	LL/CIS/CEN/BV-36-C	LL/CIS/CEN/BV-37-C
LL/CIS/CEN/BV-38-C			
LL/CIS/CEN/BV-48-C	LL/CIS/CEN/BV-50-C	LL/CIS/CEN/BV-56-C	LL/CIS/CEN/BV-57-C
LL/CIS/CEN/BV-58-C	LL/CIS/PER/BI-01-C	LL/CIS/PER/BI-02-C	LL/CIS/PER/BI-03-C
LL/CIS/PER/BI-04-C	LL/CIS/PER/BI-06-C	LL/CIS/PER/BV-18-C	LL/CIS/PER/BV-25-C
LL/CIS/PER/BV-35-C	LL/CIS/PER/BV-36-C		
LL/CIS/PER/BV-45-C	LL/CIS/PER/BV-46-C	LL/CIS/PER/BV-47-C	LL/CIS/PER/BV-48-C
LL/CON/CEN/BI-15-C	LL/CON/CEN/BI-16-C	LL/CON/CEN/BI-17-C	LL/CON/CEN/BI-18-C
LL/CON/CEN/BI-19-C	LL/CON/CEN/BV-150-C	LL/CON/CEN/BV-158-C	LL/CON/CEN/BV-159-C
LL/CON/CEN/BV-160-C	LL/CON/CEN/BV-161-C	LL/CON/CEN/BV-162-C	LL/CON/CEN/BV-163-C
LL/CON/PER/BI-20-C	LL/CON/PER/BI-22-C	LL/CON/PER/BI-23-C	LL/CON/PER/BI-24-C
LL/CON/PER/BI-25-C	LL/CON/PER/BI-26-C	LL/CON/PER/BV-150-C	LL/CON/PER/BV-158-C
LL/CON/PER/BV-159-C	LL/CON/PER/BV-160-C	LL/CON/PER/BV-161-C	LL/CON/PER/BV-162-C
LL/CON/PER/BV-163-C	LL/CON/PER/BV-164-C	LL/DDI/ADV/BI-08-C	LL/DDI/ADV/BI-09-C
LL/DDI/ADV/BV-63-C	LL/DDI/ADV/BV-69-C	LL/DDI/ADV/BV-70-C	LL/DDI/ADV/BV-71-C
LL/DDI/ADV/BV-72-C	LL/DDI/ADV/BV-73-C	LL/DDI/ADV/BV-74-C	LL/DDI/ADV/BV-75-C
LL/DDI/ADV/BV-76-C	LL/DDI/ADV/BV-77-C	LL/DDI/ADV/BV-78-C	LL/DDI/ADV/BV-79-C
LL/DDI/ADV/BV-80-C	LL/DDI/ADV/BV-81-C	LL/DDI/ADV/BV-82-C	LL/DDI/ADV/BV-83-C
LL/DDI/ADV/BV-84-C	LL/DDI/ADV/BV-85-C	LL/DDI/ADV/BV-86-C	LL/DDI/ADV/BV-87-C
LL/DDI/ADV/BV-88-C	LL/DDI/ADV/BV-89-C	LL/DDI/ADV/BV-90-C	LL/DDI/ADV/BV-91-C
LL/DDI/SCN/BI-04-C			
LL/DDI/SCN/BI-05-C	LL/DDI/SCN/BI-07-C	LL/DDI/SCN/BI-08-C	LL/DDI/SCN/BI-09-C
LL/DDI/SCN/BI-10-C	LL/DDI/SCN/BV-69-C	LL/DDI/SCN/BV-70-C	LL/DDI/SCN/BV-71-C
LL/DDI/SCN/BV-75-C	LL/DDI/SCN/BV-76-C	LL/DDI/SCN/BV-77-C	LL/DDI/SCN/BV-78-C
LL/DDI/SCN/BV-79-C	LL/DDI/SCN/BV-80-C	LL/DDI/SCN/BV-81-C	LL/DDI/SCN/BV-82-C
LL/DDI/SCN/BV-83-C	LL/DDI/SCN/BV-84-C	LL/DDI/SCN/BV-85-C	LL/DDI/SCN/BV-86-C
LL/DDI/SCN/BV-87-C	LL/DDI/SCN/BV-88-C	LL/DDI/SCN/BV-89-C	LL/DDI/SCN/BV-90-C
LL/DDI/SCN/BV-91-C	LL/DDI/SCN/BV-92-C	LL/DDI/SCN/BV-93-C	LL/DDI/SCN/BV-94-C
LL/DDI/SCN/BV-95-C	LL/DDI/SCN/BV-96-C	LL/DDI/SCN/BV-97-C	LL/DDI/SCN/BV-98-C
LL/DDI/SCN/BV-99-C	LL/DDI/SCN/BV-100-C	LL/FRH/CEN/BI-02-C	LL/FRH/PER/BV-03-C
LL/IST/CEN/BV-05-C	LL/IST/SNC/BV-01-C	LL/PCL/CEN/BI-03-C	LL/PCL/CEN/BI-04-C
LL/PCL/CEN/BI-05-C	LL/PCL/CEN/BI-09-C	LL/PCL/CEN/BI-10-C	LL/PCL/CEN/BI-11-C
LL/PCL/CEN/BV-05-C	LL/PCL/CEN/BV-23-C	LL/PCL/CEN/BV-37-C	LL/PCL/CEN/BV-38-C
LL/PCL/CEN/BV-41-C	LL/PCL/CEN/BV-42-C	LL/PCL/CEN/BV-43-C	LL/PCL/CEN/BV-44-C
LL/PCL/CEN/BV-48-C	LL/PCL/CEN/BV-49-C	LL/PCL/CEN/BV-50-C	LL/PCL/CEN/BV-51-C

LL/PCL/CEN/BV-52-C	LL/PCL/PER/BI-03-C	LL/PCL/PER/BI-04-C	LL/PCL/PER/BI-05-C
LL/PCL/PER/BI-09-C	LL/PCL/PER/BI-10-C	LL/PCL/PER/BI-11-C	LL/PCL/PER/BV-05-C
LL/PCL/PER/BV-22-C	LL/PCL/PER/BV-28-C	LL/PCL/PER/BV-37-C	LL/PCL/PER/BV-38-C
LL/PCL/PER/BV-41-C	LL/PCL/PER/BV-42-C	LL/PCL/PER/BV-43-C	LL/PCL/PER/BV-44-C
LL/PCL/PER/BV-48-C	LL/PCL/PER/BV-49-C	LL/PCL/PER/BV-50-C	LL/PCL/PER/BV-51-C
LL/PCL/PER/BV-52-C	LL/SEC/ADV/BV-23-C	LL/SEC/ADV/BV-24-C	LL/SEC/ADV/BV-25-C
LL/SEC/ADV/BV-26-C	LL/SEC/SCN/BV-02-C		

7.2 Running With or Without the Sodera or X240

In *test*Harmony one can run the tests normally with the Sodera or X240 connected. There is also an option to run tests without having the Sodera or X240 connected.

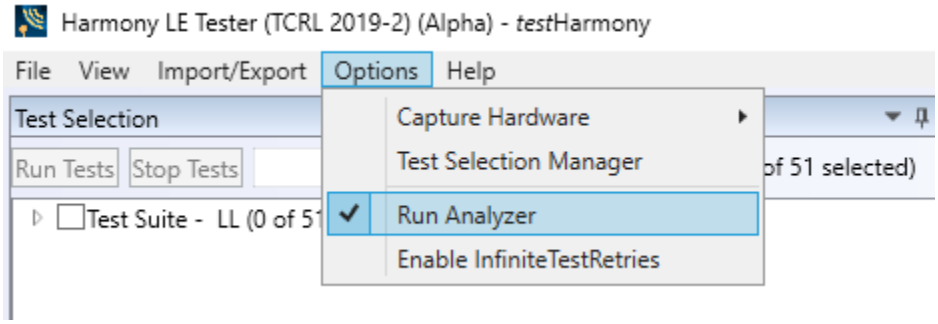


Figure 52 – Test Harmony Options

If the "Run Analyzer" option is enabled, the Sodera or X240 must be connected and the tests will run just like they do in *conformance*Harmony mode. If "Run Analyzer" is disabled, the Sodera or X240 do not have to be connected and even if they are connected, they will not be used. If "Run Analyzer" is disabled any test that requires a Sodera or X240 and passes will have a Final Verdict of Manual.

7.3 InfiniteTestRetries

InfininiteTestRetries allows one to run a test repeatedly and after the test has been stopped the Pass/Failure count (* is a pass and – is failure) will be displayed in the Verdict column for the test.

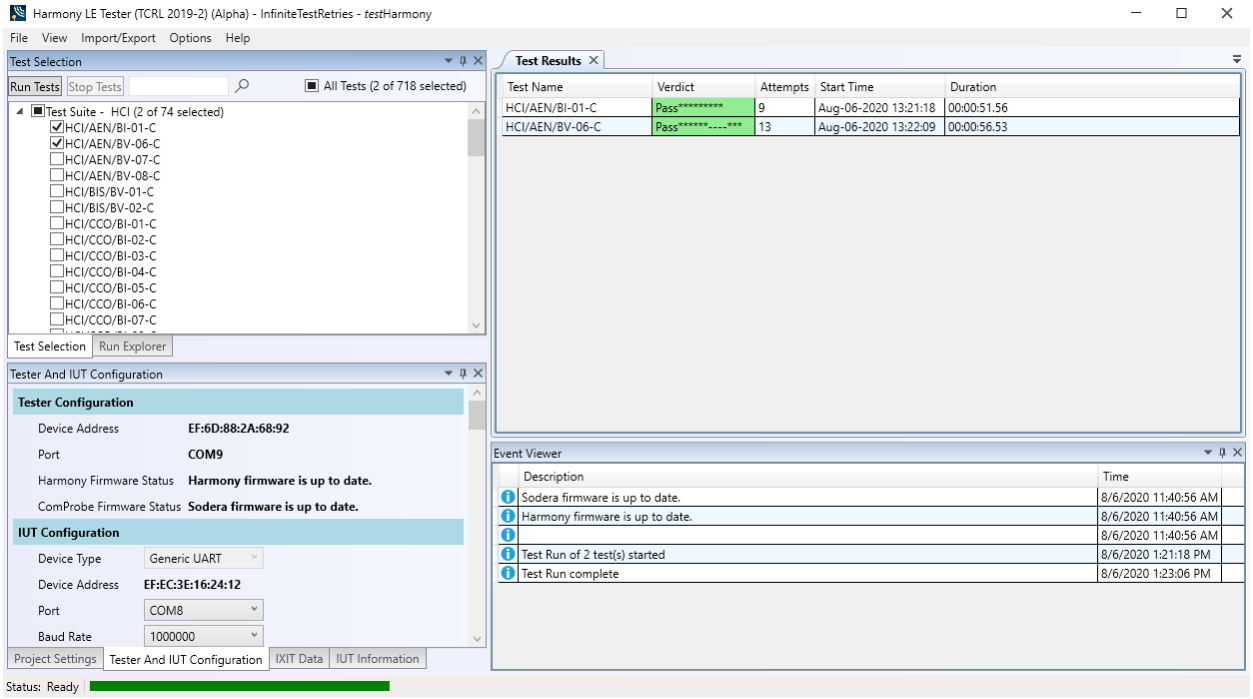


Figure 53 – InfiniteTestRetries Results

To stop an Infinite test run, disable the "Enable InfiniteTestRetries" and the test will end after the currently run test stops. If multiple tests are to be run infinitely once the first test has finished and the second test starts, go back to the "Option" menu and enable "Enable InfiniteTestRetries" so the second test will repeatedly be tested.

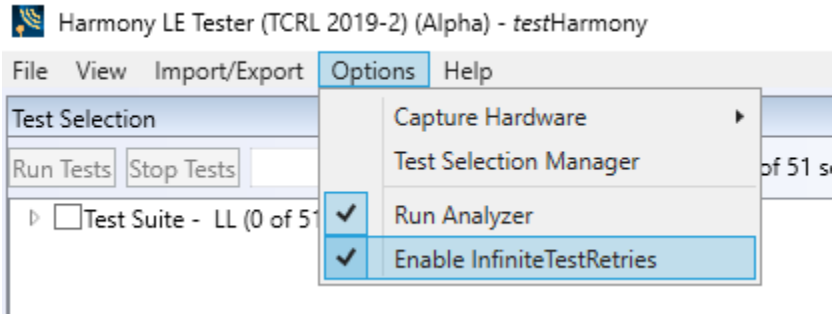


Figure 54 – Enable InfiniteTestRetries

7.4 Report Generated in *test*Harmony

A Detailed Report can be generated in *test*Harmony mode. However, the report will not be a report that can be submitted to the SIG. A report generated in *test*Harmony mode will not include the Result Declaration, the Test Engineering Info, Product Info, Test Script Logs, or the Conformance Signature. The report will have a watermark stating: "Invalid for Conformance".

7.5 Running *test*Harmony remotely via SSH

Running *test*Harmony remotely via SSH allows other host systems such as Linux to take advantage of *test*Harmony's capabilities. But specific guidelines need to be followed otherwise the runs will hang. This section describes how to run *test*Harmony successfully remotely.

This section assumes the following:

- *test*Harmony is installed on Windows 10 or Windows 11.
- Window's OpenSSH server is being used.
- The user has administrator access to make configuration changes on the system running *test*Harmony.
- The client controlling *test*Harmony remotely is using SSH. The client can be Linux, Windows, or Mac.
- The necessary keys have been added to "C:\ProgramData\ssh"
- You can successfully log in with the client host over SSH.

The solution to allow *test*Harmony to be controlled remotely is to prevent Window's OpenSSH server from running as a service and instead run it from the same local account that *test*Harmony is running from. The reason for this is that when Window's OpenSSH server is running as a service it cannot render the analyzer graphics (a detailed explanation is given at the end of this section). The solution is implemented by:

1. Start a PowerShell with Administrator privilege.
2. Stop the OpenSSH server service as shown in Figure 55 with: `Stop-Service sshd`
3. Start the OpenSSH server as a local process with: `sshd`
4. Log in from the remote host and run *test*Harmony command line. This is shown for a Linux client in Figure 56.

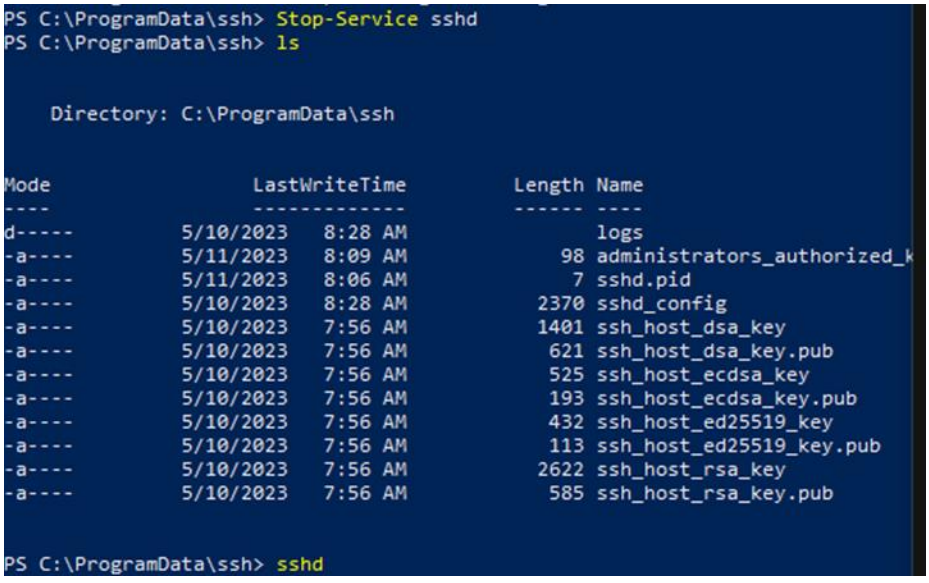


Figure 55 – Turning off the Windows sshd service

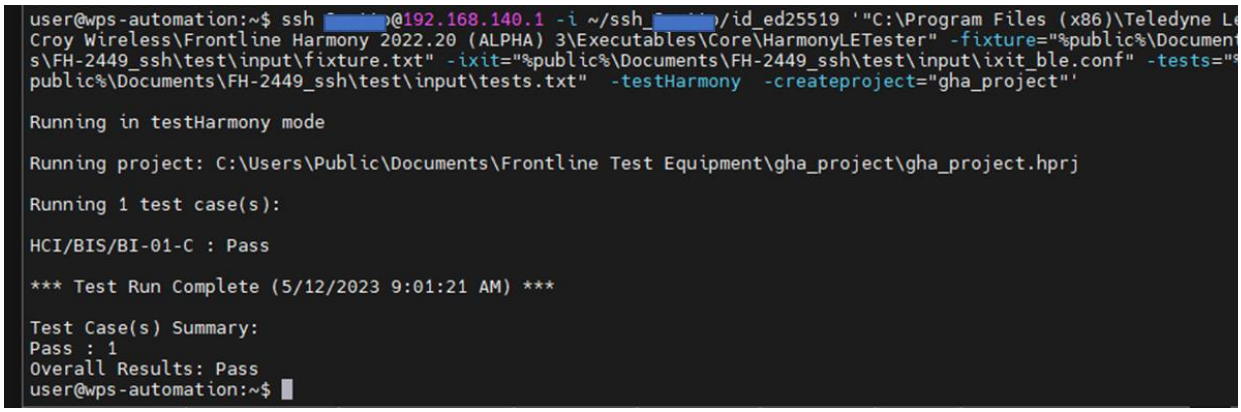


Figure 56 – Demonstrating a successful run from a Linux client

The reason the OpenSSH server cannot be run as service and instead must be run locally is to allow the analyzer graphics to render. This is because the OpenSSH server running on Windows is redirecting the program output through the SSH tunnel to the remote host. For standard output/error this works fine however the graphics causes a problem because SSH is made to redirect X11 based graphics software which Windows does not support, forcing Windows to render the graphics locally. But because by default Windows OpenSSH Server is running with service account permissions, it cannot display graphics. Therefore, the graphics causes the *test*Harmony process to hang when the OpenSSH server spawns the process. If the OpenSSH server must be run as a service then *test*Harmony can be run without the analyzer by using the "-disableanalyzer" option.

Chapter 8. *test*Harmony Parameterized Tests

Tests may be run with variable parameters using *test*Harmony in configuration mode (see section 4.2.3.3 Configuration Mode.)

8.1 Configuring Parameters

8.1.1 Tests File

The parameters for tests are configured in the file that contains the list of tests to run in configuration mode. This file is specified with the "–tests" parameter on the configuration mode command line. Each test in the file is followed by one or more sets of parameters.

8.1.2 Parameter Rules

The parameters are defined by the following rules:

1. Each test may be followed by zero or more sets of parameters.
2. Tests without parameters are run with the default test parameters.
3. A set of parameters is a text string with each parameter separated by a colon.
4. If a test has more than one set of parameters, each set is separated by white space.
5. If any parameter contains white space, the entire set must be enclosed in quotes.

6. The key word “Default” may be used in the place of a set of parameters to cause the test attempt to be run with default parameters.
7. If a test has more than one set of parameters, the test will be attempted once for each set regardless of whether the test passes or fails.
8. If BLE_MAX_NUMBER_OF_TEST_RETRIES is greater than zero, any test attempts beyond the number of parameter sets will use the first set of parameters associated with the test.
9. A double slash “//” at the beginning of a line causes the line to be ignored in the tests file.

8.1.3 Example Tests File

```
LL/CON/INI/BV-13-C default 50:50:40:40:3
LL/CON/INI/BV-25-C default 50:50:40:40:3
LL/CON/INI/BV-26-C default 50:50:40:40:3
//LL/DDI/SCN/BV-25-C default 300:400:7:1:32:16:600:600:0
LL/BIS/BRD/BV-01-C default "The quick brown fox jumps over the lazy dog:32:1:20000:20:4:43:43:1:0:0:2:2:0"
LL/BIS/BRD/BV-02-C default "The five boxing wizards jump quickly:32:2:20000:20:4:36:36:1:0:0:2:2:0"
```

The above example tests file contains six tests. The tests will run with at least two attempts, though the fourth test will be ignored since it is prefixed with a double slash. The first set of parameters for each test is set to the “default” key word and will cause the first attempt to use the default parameters. The second attempt will use the second set of parameters associated with each test.

Note: If n in the “BLE_MAX_NUMBER_OF_TEST_RETRIES=n” setting in the fixture file is set to 1 or less, then execution of each of the above tests will stop after the second set of parameters is attempted. If n is set to 2 or greater, then attempts three to n+1 will use the default parameters associated with each test.

8.2 Parameter Definitions

1	Connection Interval Min	milliseconds
2	Connection Interval Max	milliseconds
3	Advertising Interval Min	milliseconds
4	Advertising Interval Max	milliseconds
5	Supervision Timeout	milliseconds
6	Payload Size	1 to 251
7	SDU Size	1 to 4095
8	SDU Fill Character	octet
9	SDU Data	octets
10	Advertising Channel Map	3 bit mask: 1 to 7
11	Advertising Duration	milliseconds
12	TX PHYs	1 or 2 or 4 or 8
13	RX PHYs	1 or 2 or 4 or 8
14	Number Of Rounds	integer
15	BIG Handle	0 to 239
16	Advertising Handle	0 to 239
17	Number Of BIS	1 to 31
18	BIS SDU Interval	microseconds
19	BIS ISO Interval	milliseconds
20	BIS NSE	1 to 31
21	Max SDU	1 to 4095
22	Max PDU	1 to 251
23	BIS PHY	1 or 2 or 4
24	BIS Packing	0 or 1
25	BIS Framing	0 or 1
26	BN	1 to 7
27	IRC	1 to 15
28	PTO	1 to 15
29	CIG ID	0 to 239
30	SDU Interval C To P	microseconds
31	SDU Interval P To C	microseconds
32	FT C To P	1 to 255
33	FT P To C	1 to 255
34	CIS ISO Interval	milliseconds
35	Worst Case SCA	0 to 7
36	CIS Packing	0 or 1
37	CIS Framing	0 or 1
38	Max Transport Latency C To P	milliseconds
39	Max Transport Latency P To C	milliseconds
40	CIS ID	0 to 239
41	CIS NSE	1 to 31
42	Max SDU C To P	0 to 4095
43	Max SDU P To C	0 to 4095

44	Max PDU C To P	0 to 251
45	Max PDU P To C	0 to 251
46	PHY C To P	1 or 2 or 4
47	PHY P To C	1 or 2 or 4
48	BN C To P	0 or 1 to 15
49	BN P To C	0 or 1 to 15
50	RTN C To P	0 to 15
51	RTN P To C	0 to 15
52	Scanning PHYs	2 bit mask: 1 to 3
53	Scan Interval	milliseconds
54	Scan Window	milliseconds
55	Periodic Advertising Interval Min	milliseconds
56	Periodic Advertising Interval Max	milliseconds
57	Periodic Data Length	0 to 252
58	Test Version	1 or 2 or 3 or 4
59	Test Duration	seconds
60	TX Channel	0 to 39
61	Test Data Length	0 to 255
62	Packet Payload	0 to 7
63	PHY	1 or 2 or 3 or 4
64	Modulation Index	0 or 1
65	CTE Length	0 or 2 to 20
66	CTE Type	0 or 1 or 2
67	Slot Durations	1 or 2
68	Switching Pattern Length	2 to 75
69	Antenna IDs[i]	csv
70	Transmit Power Level	-127 to +20 or 126 or 127

8.3 Test Definitions

This section describes the tests with associated parameters. Each parameter is described with its default value in the order it must be specified for each test.

8.3.1. LL/CON/ADV/BV-01-C – Accepting Connections

8.3.1.1. Connection Interval Min
10 milliseconds

8.3.1.2. Connection Interval Max
10 milliseconds

8.3.1.3. Advertising Interval Min
IXIT

8.3.1.4. Advertising Interval Max
IXIT

8.3.2. LL/CON/ADV/BV-05-C – Extended Advertising, Accepting Connections – LE 1M PHY

8.3.2.1. Connection Interval Min
40 milliseconds

8.3.2.2. Connection Interval Max
40 milliseconds

8.3.2.3. Advertising Interval Min
Variable based on IXIT and PHY

8.3.2.4. Advertising Interval Max
Variable based on IXIT and PHY

8.3.2.5. Advertising Channel Map
7

8.3.3. LL/CON/ADV/BV-12-C – Extended Advertising, Accepting Connections – LE 2M PHY

8.3.3.1. Connection Interval Min
40 milliseconds

8.3.3.2. Connection Interval Max
40 milliseconds

8.3.3.3. Advertising Interval Min
Variable based on IXIT and PHY

8.3.3.4. Advertising Interval Max
Variable based on IXIT and PHY

8.3.3.5. Advertising Channel Map
7

8.3.4. LL/CON/ADV/BV-13-C – Extended Advertising, Accepting Connections – LE Coded PHY

8.3.4.1. Connection Interval Min
40 milliseconds

8.3.4.2. Connection Interval Max
40 milliseconds

8.3.4.3. Advertising Interval Min
Variable based on IXIT and PHY

8.3.4.4. Advertising Interval Max

Variable based on IXIT and PHY

8.3.4.5. Advertising Channel Map

7

8.3.5. HCI/CM/BV-01-C – LE Read Peer Resolvable Address Command – Central

8.3.5.1. Connection Interval Min

60 milliseconds

8.3.5.2. Connection Interval Max

60 milliseconds

8.3.5.3. Advertising Interval Min

IXIT

8.3.5.4. Advertising Interval Max

IXIT

8.3.6. LL/CON/CEN/BI-02-C – T_Terminate Timer – Central

8.3.6.1. Connection Interval Min

25 milliseconds

8.3.6.2. Connection Interval Max

25 milliseconds

8.3.6.3. Supervision Timeout

10000 milliseconds

8.3.7. LL/DFL/CEN/BV-01-C – Transmit Fragmented L2CAP Header – Central

8.3.7.1. SDU Data

\x1B\xFF\x01\x02\x03\x04\x05\x06\x07\x08\x09\x0A\x0B\x0C
\x0D\x0E\x0F\x10\x11\x12\x13\x14\x15\x16\x17\x18\x19\x1A

8.3.7.2. Number Of Rounds

5

8.3.8. LL/DFL/CEN/BV-02-C – Receive Fragmented L2CAP Header – Central

8.3.8.1. SDU Data

\x1B\xFF\x01\x02\x03\x04\x05\x06\x07\x08\x09\x0A\x0B\x0C
\x0D\x0E\x0F\x10\x11\x12\x13\x14\x15\x16\x17\x18\x19\x1A

8.3.8.2. Number Of Rounds

5

8.3.9. LL/DFL/PER/BV-01-C – Transmit Fragmented L2CAP Header – Peripheral

8.3.9.1. SDU Data

\x1B\xFF\x01\x02\x03\x04\x05\x06\x07\x08\x09\x0A\x0B\x0C
\x0D\x0E\x0F\x10\x11\x12\x13\x14\x15\x16\x17\x18\x19\x1A

8.3.9.2. Number Of Rounds

5

8.3.10. LL/DFL/PER/BV-02-C – Receive Fragmented L2CAP Header – Peripheral

8.3.10.1. SDU Data

\x1B\xFF\x01\x02\x03\x04\x05\x06\x07\x08\x09\x0A\x0B\x0C
\x0D\x0E\x0F\x10\x11\x12\x13\x14\x15\x16\x17\x18\x19\x1A

8.3.10.2. Number Of Rounds

5

8.3.11. LL/CON/INI/BV-13-C – Extended Scanning, Connection Initiation – LE 1M PHY

8.3.11.1. Connection Interval Min

40 milliseconds

8.3.11.2. Connection Interval Max

40 milliseconds

8.3.11.3. Advertising Interval Min

20 milliseconds

8.3.11.4. Advertising Interval Max

20 milliseconds

8.3.11.5. Advertising Channel Map

7

8.3.12. LL/CON/INI/BV-25-C – Extended Scanning, Connection Initiation – LE 2M PHY

8.3.12.1. Connection Interval Min

40 milliseconds

8.3.12.2. Connection Interval Max

40 milliseconds

8.3.12.3. Advertising Interval Min

20 milliseconds

8.3.12.4. Advertising Interval Max

20 milliseconds

8.3.12.5. Advertising Channel Map

7

8.3.13. LL/CON/INI/BV-26-C – Extended Scanning, Connection Initiation – LE Coded PHY

8.3.13.1. Connection Interval Min

40 milliseconds

8.3.13.2. Connection Interval Max

40 milliseconds

8.3.13.3. Advertising Interval Min

20 milliseconds

8.3.13.4. Advertising Interval Max

20 milliseconds

8.3.13.5. Advertising Channel Map

7

8.3.14. LL/DDI/SCN/BV-25-C – Extended Scanning, Multiple Sets, Periodic Adv, Multiple PHYs

8.3.14.1. Advertising Interval Min

250 milliseconds

8.3.14.2. Advertising Interval Max

375 milliseconds

8.3.14.3. Advertising Channel Map

7

8.3.14.4. Scanning PHYs

3 if LE Coded PHY is supported, otherwise 1.

8.3.14.5. Scan Interval

20 milliseconds if LE Coded PHY is supported, otherwise 10 milliseconds.

8.3.14.6. Scan Window

10 milliseconds

8.3.14.7. Periodic Advertising Interval Min

1000 milliseconds

8.3.14.8. Periodic Advertising Interval Max

1000 milliseconds

8.3.14.9. Periodic Data Length

One round each of 0, 31, 191, 382 and IXIT[scan_max_data]

8.3.15. LL/BIS/BRD/BV-01-C – Broadcast Isochronous Stream Setup – Unencrypted

8.3.15.1. SDU Data

“It” * IXIT[iso_data_packet_length]

8.3.15.2. BIG Handle

16

8.3.15.3. Number Of BIS

1

8.3.15.4. BIS SDU Interval

20000 microseconds

8.3.15.5. BIS ISO Interval

20 milliseconds

8.3.15.6. BIS NSE

4

8.3.15.7. Max SDU

32

8.3.15.8. Max PDU

32

8.3.15.9. BIS PHY

1

8.3.15.10. BIS Packing

0

8.3.15.11. BIS Framing

0

8.3.15.12. BN

2

8.3.15.13. IRC

2

8.3.15.14. PTO

0

8.3.16. LL/BIS/BRD/BV-02-C – Broadcast Isochronous Stream Setup – Encrypted

8.3.16.1. SDU Data

“It” * IXIT[iso_data_packet_length]

8.3.16.2. BIG Handle
16
8.3.16.3. Number Of BIS
1
8.3.16.4. BIS SDU Interval
20000 microseconds
8.3.16.5. BIS ISO Interval
20 milliseconds
8.3.16.6. BIS NSE
4
8.3.16.7. Max SDU
32
8.3.16.8. Max PDU
32
8.3.16.9. BIS PHY
1
8.3.16.10. BIS Packing
0
8.3.16.11. BIS Framing
0
8.3.16.12. BN
2
8.3.16.13. IRC
2
8.3.16.14. PTO
0

8.3.17. LL/BIS/SNC/BV-07-C – Bursting of Packets in Broadcast Isochronous Stream

8.3.17.1. SDU Data
“TÑ” * IXIT[iso_data_packet_length]
8.3.17.2. BIG Handle
16
8.3.17.3. Number Of BIS
1
8.3.17.4. BIS SDU Interval
20000 microseconds
8.3.17.5. BIS ISO Interval
20 milliseconds
8.3.17.6. BIS NSE
4
8.3.17.7. Max SDU
32
8.3.17.8. Max PDU
32
8.3.17.9. BIS PHY

1

8.3.17.10. BIS Packing

0

8.3.17.11. BIS Framing

0

8.3.17.12. BN

2

8.3.17.13. IRC

2

8.3.17.14. PTO

0

8.3.18. LL/BIS/SNC/BV-08-C – Pre-transmissions in Broadcast Isochronous Stream

8.3.18.1. SDU Data

Data PDU count encoded in a single character

8.3.18.2. BIG Handle

16

8.3.18.3. Number Of BIS

1

8.3.18.4. BIS SDU Interval

20000 microseconds

8.3.18.5. BIS ISO Interval

20 milliseconds

8.3.18.6. BIS NSE

4

8.3.18.7. Max SDU

32

8.3.18.8. Max PDU

32

8.3.18.9. BIS PHY

1

8.3.18.10. BIS Packing

0

8.3.18.11. BIS Framing

0

8.3.18.12. BN

2

8.3.18.13. IRC

2

8.3.18.14. PTO

0

8.3.19. LL/CIS/CEN/BV-01-C – CIS Setup Procedure, Central Initiated – LE 1M PHY – LE 1M PHY

8.3.19.1. SDU Data

0xFF * 130

8.3.19.2. CIG ID

0

8.3.19.3. SDU Interval C To P

10000 microseconds

8.3.19.4. SDU Interval P To C

10000 microseconds

8.3.19.5. FT C To P

1

8.3.19.6. FT P To C

1

8.3.19.7. CIS ISO Interval

20 milliseconds

8.3.19.8. Worst Case SCA

1

8.3.19.9. CIS Packing

0

8.3.19.10. CIS Framing

0

8.3.19.11. CIS ID

0

8.3.19.12. CIS NSE

4

8.3.19.13. Max SDU C To P

130

8.3.19.14. Max SDU P To C

130

8.3.19.15. Max PDU C To P

130

8.3.19.16. Max PDU P To C

130

8.3.19.17. PHY C To P

1

8.3.19.18. PHY P To C

1

8.3.19.19. BN C To P

2

8.3.19.20. BN P To C

2

8.3.20. LL/CIS/CEN/BV-02-C – CIS Setup Procedure, Central Initiated – LE 2M PHY – LE 2M PHY

8.3.20.1. SDU Data

0xFF * 251

8.3.20.2. CIG ID

0

8.3.20.3. SDU Interval C To P

10000 microseconds

8.3.20.4. SDU Interval P To C

10000 microseconds

8.3.20.5. FT C To P

2

8.3.20.6. FT P To C

1

8.3.20.7. CIS ISO Interval

20 milliseconds

8.3.20.8. Worst Case SCA

1

8.3.20.9. CIS Packing

0

8.3.20.10. CIS Framing

0

8.3.20.11. CIS ID

0

8.3.20.12. CIS NSE

4

8.3.20.13. Max SDU C To P

251

8.3.20.14. Max SDU P To C

251

8.3.20.15. Max PDU C To P

251

8.3.20.16. Max PDU P To C

251

8.3.20.17. PHY C To P

2

8.3.20.18. PHY P To C

2

8.3.20.19. BN C To P

2

8.3.20.20. BN P To C

2

8.3.21. LL/CIS/CEN/BV-25-C – CIS Setup Procedure, Central Init – LE Coded PHY – LE Coded PHY

8.3.21.1. SDU Data

0xFF * 50

8.3.21.2. CIG ID

0

8.3.21.3. SDU Interval C To P

40000 microseconds

8.3.21.4. SDU Interval P To C

40000 microseconds

8.3.21.5. FT C To P
1
8.3.21.6. FT P To C
1
8.3.21.7. CIS ISO Interval
40 milliseconds
8.3.21.8. Worst Case SCA
1
8.3.21.9. CIS Packing
0
8.3.21.10. CIS Framing
0
8.3.21.11. CIS ID
0
8.3.21.12. CIS NSE
2
8.3.21.13. Max SDU C To P
50
8.3.21.14. Max SDU P To C
50
8.3.21.15. Max PDU C To P
50
8.3.21.16. Max PDU P To C
50
8.3.21.17. PHY C To P
4
8.3.21.18. PHY P To C
4
8.3.21.19. BN C To P
1
8.3.21.20. BN P To C
1

8.3.22. LL/CIS/CEN/BV-31-C – CIS Setup Procedure, Central Initiated – LE 2M PHY – LE 1M PHY

8.3.22.1. SDU Data
0xFF * 130
8.3.22.2. CIG ID
0
8.3.22.3. SDU Interval C To P
10000 microseconds
8.3.22.4. SDU Interval P To C
10000 microseconds
8.3.22.5. FT C To P
1
8.3.22.6. FT P To C

1

8.3.22.7. CIS ISO Interval

20 milliseconds

8.3.22.8. Worst Case SCA

1

8.3.22.9. CIS Packing

0

8.3.22.10. CIS Framing

0

8.3.22.11. CIS ID

0

8.3.22.12. CIS NSE

4

8.3.22.13. Max SDU C To P

130

8.3.22.14. Max SDU P To C

130

8.3.22.15. Max PDU C To P

130

8.3.22.16. Max PDU P To C

130

8.3.22.17. PHY C To P

2

8.3.22.18. PHY P To C

1

8.3.22.19. BN C To P

2

8.3.22.20. BN P To C

2

8.3.23. LL/CIS/CEN/BV-32-C – CIS Setup Procedure, Central Init – LE 1M PHY – LE Coded PHY

8.3.23.1. SDU Data

0xFF * 50

8.3.23.2. CIG ID

0

8.3.23.3. SDU Interval C To P

40000 microseconds

8.3.23.4. SDU Interval P To C

40000 microseconds

8.3.23.5. FT C To P

1

8.3.23.6. FT P To C

1

8.3.23.7. CIS ISO Interval

40 milliseconds

8.3.23.8. Worst Case SCA
1
8.3.23.9. CIS Packing
0
8.3.23.10. CIS Framing
0
8.3.23.11. CIS ID
0
8.3.23.12. CIS NSE
2
8.3.23.13. Max SDU C To P
50
8.3.23.14. Max SDU P To C
0
8.3.23.15. Max PDU C To P
50
8.3.23.16. Max PDU P To C
0
8.3.23.17. PHY C To P
1
8.3.23.18. PHY P To C
4
8.3.23.19. BN C To P
1
8.3.23.20. BN P To C
0

8.3.24. LL/PCL/CEN/BV-25-C – Power Control Response – LE 1M PHY – CIS, Central

8.3.24.1. TX PHYs
0
8.3.24.2. RX PHYs
1
8.3.24.3. CIG ID
0
8.3.24.4. SDU Interval C To P
20000 microseconds
8.3.24.5. SDU Interval P To C
20000 microseconds
8.3.24.6. Worst Case SCA
1
8.3.24.7. CIS Packing
0
8.3.24.8. CIS Framing
0
8.3.24.9. Max Transport Latency C To P

40

8.3.24.10. Max Transport Latency P To C

40

8.3.24.11. CIS ID

0

8.3.24.12. Max SDU C To P

10

8.3.24.13. Max SDU P To C

10

8.3.24.14. PHY C To P

1

8.3.24.15. PHY P To C

1

8.3.24.16. RTN C To P

3

8.3.24.17. RTN P To C

3

8.3.25. LL/PCL/CEN/BV-46-C – Power Control Response – LE 2M PHY – CIS, Central

8.3.25.1. TX PHYs

0

8.3.25.2. RX PHYs

2

8.3.25.3. CIG ID

0

8.3.25.4. SDU Interval C To P

20000 microseconds

8.3.25.5. SDU Interval P To C

20000 microseconds

8.3.25.6. Worst Case SCA

1

8.3.25.7. CIS Packing

0

8.3.25.8. CIS Framing

0

8.3.25.9. Max Transport Latency C To P

40

8.3.25.10. Max Transport Latency P To C

40

8.3.25.11. CIS ID

0

8.3.25.12. Max SDU C To P

10

8.3.25.13. Max SDU P To C

10

8.3.25.14. PHY C To P
1
8.3.25.15. PHY P To C
1
8.3.25.16. RTN C To P
3
8.3.25.17. RTN P To C
3
8.3.26. LL/PCL/CEN/BV-27-C – Power Control Response – LE Coded PHY – CIS, Central
8.3.26.1. TX PHYs
0
8.3.26.2. RX PHYs
1
8.3.26.3. CIG ID
0
8.3.26.4. SDU Interval C To P
20000 microseconds
8.3.26.5. SDU Interval P To C
20000 microseconds
8.3.26.6. Worst Case SCA
1
8.3.26.7. CIS Packing
0
8.3.26.8. CIS Framing
0
8.3.26.9. Max Transport Latency C To P
40
8.3.26.10. Max Transport Latency P To C
40
8.3.26.11. CIS ID
0
8.3.26.12. Max SDU C To P
10
8.3.26.13. Max SDU P To C
10
8.3.26.14. PHY C To P
4
8.3.26.15. PHY P To C
4
8.3.26.16. RTN C To P
3
8.3.26.17. RTN P To C
3
8.3.27. LL/PCL/PER/BV-25-C – Power Control Response – LE 1M PHY – CIS, Peripheral

8.3.27.1. TX PHYs
0
8.3.27.2. RX PHYs
1
8.3.27.3. CIG ID
0
8.3.27.4. SDU Interval C To P
20000 microseconds
8.3.27.5. SDU Interval P To C
20000 microseconds
8.3.27.6. Worst Case SCA
1
8.3.27.7. CIS Packing
0
8.3.27.8. CIS Framing
0
8.3.27.9. Max Transport Latency C To P
40
8.3.27.10. Max Transport Latency P To C
40
8.3.27.11. CIS ID
0
8.3.27.12. Max SDU C To P
10
8.3.27.13. Max SDU P To C
10
8.3.27.14. PHY C To P
1
8.3.27.15. PHY P To C
1
8.3.27.16. RTN C To P
3
8.3.27.17. RTN P To C
3

8.3.28. LL/PCL/PER/BV-46-C – Power Control Response – LE 2M PHY – CIS, Peripheral

8.3.28.1. TX PHYs
0
8.3.28.2. RX PHYs
2
8.3.28.3. CIG ID
0
8.3.28.4. SDU Interval C To P
20000 microseconds
8.3.28.5. SDU Interval P To C

20000 microseconds

8.3.28.6. Worst Case SCA

1

8.3.28.7. CIS Packing

0

8.3.28.8. CIS Framing

0

8.3.28.9. Max Transport Latency C To P

40

8.3.28.10. Max Transport Latency P To C

40

8.3.28.11. CIS ID

0

8.3.28.12. Max SDU C To P

10

8.3.28.13. Max SDU P To C

10

8.3.28.14. PHY C To P

1

8.3.28.15. PHY P To C

1

8.3.28.16. RTN C To P

3

8.3.28.17. RTN P To C

3

8.3.29. LL/PCL/PER/BV-28-C – Power Control Response – LE Coded PHY – CIS, Peripheral

8.3.29.1. TX PHYs

0

8.3.29.2. RX PHYs

1

8.3.29.3. CIG ID

0

8.3.29.4. SDU Interval C To P

20000 microseconds

8.3.29.5. SDU Interval P To C

20000 microseconds

8.3.29.6. Worst Case SCA

1

8.3.29.7. CIS Packing

0

8.3.29.8. CIS Framing

0

8.3.29.9. Max Transport Latency C To P

40

8.3.29.10. Max Transport Latency P To C
40
8.3.29.11. CIS ID
0
8.3.29.12. Max SDU C To P
10
8.3.29.13. Max SDU P To C
10
8.3.29.14. PHY C To P
4
8.3.29.15. PHY P To C
4
8.3.29.16. RTN C To P
3
8.3.29.17. RTN P To C
3
8.3.30. LL/TIM/CEN/BV-03-C – Initiate Sleep Clock Accuracy Update
8.3.30.1. Connection Interval Min
25
8.3.30.2. Connection Interval Max
25
8.3.30.3. Advertising Interval Min
IXIT
8.3.30.4. Advertising Interval Max
IXIT
8.3.31. LL/TIM/CEN/BV-04-C – Response to Sleep Clock Accuracy Update
8.3.31.1. Connection Interval Min
25
8.3.31.2. Connection Interval Max
25
8.3.31.3. Advertising Interval Min
IXIT
8.3.31.4. Advertising Interval Max
IXIT
8.3.32. LL/TIM/CEN/BV-05-C – Response without Reducing the Sleep Clock Accuracy
8.3.32.1. Connection Interval Min
25
8.3.32.2. Connection Interval Max
25
8.3.32.3. Advertising Interval Min
IXIT
8.3.32.4. Advertising Interval Max
IXIT

8.3.33. LL/TIM/CEN/BV-06-C – Change Accuracy after Update

8.3.33.1. Connection Interval Min

125

8.3.33.2. Connection Interval Max

125

8.3.33.3. Advertising Interval Min

IXIT

8.3.33.4. Advertising Interval Max

IXIT

8.3.34. LL/TIM/CEN/BV-07-C – Change Accuracy before Update

8.3.34.1. Connection Interval Min

125

8.3.34.2. Connection Interval Max

125

8.3.34.3. Advertising Interval Min

IXIT

8.3.34.4. Advertising Interval Max

IXIT

8.3.35. IAL/CIS/UNF/CEN/BV-01-C – Send Single SDU, CIS NSE 2 Unframed – Central

8.3.35.1. SDU Size

min(251, IXIT[max_sdu_length])

8.3.35.2. SDU Fill Character

\x01

8.3.35.3. Number Of Rounds

1

8.3.35.4. PHY C To P

1

8.3.35.5. PHY P To C

1

8.3.36. IAL/CIS/UNF/CEN/BV-25-C – Send Single SDU, CIS NSE 4 Unframed – Central

8.3.36.1. SDU Size

min(83, IXIT[max_sdu_length])

8.3.36.2. SDU Fill Character

\x01

8.3.36.3. Number Of Rounds

1

8.3.36.4. PHY C To P

1

8.3.36.5. PHY P To C

1

8.3.37. IAL/CIS/FRA/CEN/BV-03-C – Send Single SDU, CIS NSE 7 Framed – Central

8.3.37.1. SDU Size

min(180, IXIT[max_sdu_length])

8.3.37.2. SDU Fill Character

\x01

8.3.37.3. Number Of Rounds

1

8.3.37.4. PHY C To P

1

8.3.37.5. PHY P To C

1

8.3.38. IAL/CIS/FRA/CEN/BV-26-C – Send Single SDU, CIS NSE 3 Framed – Central

8.3.38.1. SDU Size

min(78, IXIT[max_sdu_length])

8.3.38.2. SDU Fill Character

\x01

8.3.38.3. Number Of Rounds

1

8.3.38.4. PHY C To P

1

8.3.38.5. PHY P To C

1

8.3.39. IAL/CIS/UNF/PER/BV-01-C – Send Single SDU, CIS NSE 3 Unframed – Peripheral

8.3.39.1. SDU Size

min(100, IXIT[max_sdu_length])

8.3.39.2. SDU Fill Character

\x01

8.3.39.3. Number Of Rounds

1

8.3.39.4. PHY C To P

1

8.3.39.5. PHY P To C

1

8.3.40. IAL/CIS/UNF/PER/BV-25-C – Send Single SDU, CIS NSE 5 Unframed – Peripheral

8.3.40.1. SDU Size

min(125, IXIT[max_sdu_length])

8.3.40.2. SDU Fill Character

\x01

8.3.40.3. Number Of Rounds

1

8.3.40.4. PHY C To P

1

8.3.40.5. PHY P To C

1

8.3.41. IAL/CIS/FRA/PER/BV-03-C – Send Single SDU, CIS NSE 4 Framed – Peripheral

8.3.41.1. SDU Size

min(192, IXIT[max_sdu_length])

8.3.41.2. SDU Fill Character

\x01

8.3.41.3. Number Of Rounds

1

8.3.41.4. PHY C To P

1

8.3.41.5. PHY P To C

1

8.3.42. IAL/CIS/FRA/PER/BV-26-C – Send Single SDU, CIS NSE 2 Framed – Peripheral

8.3.42.1. SDU Size

min(127, IXIT[max_sdu_length])

8.3.42.2. SDU Fill Character

\x01

8.3.42.3. Number Of Rounds

1

8.3.42.4. PHY C To P

1

8.3.42.5. PHY P To C

1

8.3.43. IAL/CIS/UNF/CEN/BV-09-C – Receive Single SDU, CIS NSE 4 Unframed – Central

8.3.43.1. SDU Size

min(251, IXIT[max_sdu_length])

8.3.43.2. SDU Fill Character

\x01

8.3.43.3. Number Of Rounds

1

8.3.43.4. PHY C To P

1

8.3.43.5. PHY P To C

1

8.3.44. IAL/CIS/UNF/CEN/BV-33-C – Receive Single SDU, CIS NSE 5 Unframed – Central

8.3.44.1. SDU Size

min(251, IXIT[max_sdu_length])

8.3.44.2. SDU Fill Character

\x01

8.3.44.3. Number Of Rounds

1

8.3.44.4. PHY C To P

1

8.3.44.5. PHY P To C

1

8.3.45. IAL/CIS/FRA/CEN/BV-10-C – Receive Single SDU, CIS NSE 4 Framed – Central

8.3.45.1. SDU Size
min(251, IXIT[max_sdu_length])
8.3.45.2. SDU Fill Character
\x01
8.3.45.3. Number Of Rounds
1
8.3.45.4. PHY C To P
1
8.3.45.5. PHY P To C
1

8.3.46. IAL/CIS/FRA/CEN/BV-35-C – Receive Single SDU, CIS NSE 3 Framed – Central

8.3.46.1. SDU Size
min(251, IXIT[max_sdu_length])
8.3.46.2. SDU Fill Character
\x01
8.3.46.3. Number Of Rounds
1
8.3.46.4. PHY C To P
1
8.3.46.5. PHY P To C
1

8.3.47. IAL/CIS/UNF/PER/BV-09-C – Receive Single SDU, CIS NSE 2 Unframed – Peripheral

8.3.47.1. SDU Size
min(251, IXIT[max_sdu_length])
8.3.47.2. SDU Fill Character
\x01
8.3.47.3. Number Of Rounds
1
8.3.47.4. PHY C To P
1
8.3.47.5. PHY P To C
1

8.3.48. IAL/CIS/UNF/PER/BV-33-C – Receive Single SDU, CIS NSE 4 Unframed – Peripheral

8.3.48.1. SDU Size
min(251, IXIT[max_sdu_length])
8.3.48.2. SDU Fill Character
\x01
8.3.48.3. Number Of Rounds
1
8.3.48.4. PHY C To P
1
8.3.48.5. PHY P To C

1

8.3.49. IAL/CIS/FRA/PER/BV-10-C – Receive Single SDU, CIS NSE 7 Framed – Peripheral

8.3.49.1. SDU Size

min(251, IXIT[max_sdu_length])

8.3.49.2. SDU Fill Character

\x01

8.3.49.3. Number Of Rounds

1

8.3.49.4. PHY C To P

1

8.3.49.5. PHY P To C

1

8.3.50. IAL/CIS/FRA/PER/BV-35-C – Receive Single SDU, CIS NSE 4 Framed – Peripheral

8.3.50.1. SDU Size

min(251, IXIT[max_sdu_length])

8.3.50.2. SDU Fill Character

\x01

8.3.50.3. Number Of Rounds

1

8.3.50.4. PHY C To P

1

8.3.50.5. PHY P To C

1

8.3.51. TST/LE/TESTMODE/BV-01-C – Verify IUT properly receives LE test packets

8.3.51.1. Test Version

Default: Highest version supported by IUT

Note:

1 == V1: Requires first 3 parameters

2 == V2: Requires first 5 parameters

3 == V3: Requires all 10 parameters

8.3.51.2. Test Duration

20 seconds

8.3.51.3. TX Channel

6

8.3.51.4. PHY

1

8.3.51.5. Modulation Index

0

8.3.51.6. CTE Length

2

8.3.51.7. CTE Type

0

8.3.51.8. Slot Durations

1

8.3.51.9. Switching Pattern Length

IXIT[number_of_antennae]

8.3.51.10. Antenna IDs[i]

Comma separated list: 0,1,… (IXIT[number_of_antennae] – 1)

8.3.52. TST/LE/TESTMODE/BV-02-C – Verify IUT properly transmits LE test packets

8.3.52.1. Test Version

Default: Highest version supported by IUT

Note:

1 == V1: Requires first 5 parameters

2 == V2: Requires first 6 parameters

3 == V3: Requires first 10 parameters

4 == V4: Requires all 11 parameters

8.3.52.2. Test Duration

20 seconds

8.3.52.3. TX Channel

6

8.3.52.4. Test Data Length

21

8.3.52.5. Packet Payload

1

8.3.52.6. PHY

1

8.3.52.7. CTE Length

2

8.3.52.8. CTE Type

0

8.3.52.9. Switching Pattern Length

IXIT[number_of_antennae]

8.3.52.10. Antenna IDs[i]

Comma separated list: 0,1,… (IXIT[number_of_antennae] – 1)

8.3.52.11. Transmit Power Level

127

8.3.53. TST/LE/TESTMODE/BV-03-C – Verify LT properly receives LE test packets

8.3.53.1. Test Version

Default: Highest version supported by IUT

Note:

1 == V1: Requires first 3 parameters

2 == V2: Requires first 5 parameters

3 == V3: Requires all 10 parameters

8.3.53.2. Test Duration

20 seconds

8.3.53.3. TX Channel

6

8.3.53.4. PHY

1

8.3.53.5. Modulation Index

0

8.3.53.6. CTE Length

2

8.3.53.7. CTE Type

0

8.3.53.8. Slot Durations

1

8.3.53.9. Switching Pattern Length

2

8.3.53.10. Antenna IDs[i]

0,1

8.3.54. TST/LE/TESTMODE/BV-04-C – Verify LT properly transmits LE test packets

8.3.54.1. Test Version

Default: Highest version supported by IUT

Note:

1 == V1: Requires first 5 parameters

2 == V2: Requires first 6 parameters

3 == V3: Requires first 10 parameters

4 == V4: Requires all 11 parameters

8.3.54.2. Test Duration

20 seconds

8.3.54.3. TX Channel

6

8.3.54.4. Test Data Length

21

8.3.54.5. Packet Payload

1

8.3.54.6. PHY

1

8.3.54.7. CTE Length

2

8.3.54.8. CTE Type

0

8.3.54.9. Switching Pattern Length

2

8.3.54.10. Antenna IDs[i]

0,1

8.3.54.11. Transmit Power Level

127

8.3.55. TST/LE/TESTMODE/BV-05-C – Verify IUT properly Sends LE test packets to LT

8.3.55.1. Test Version

Default: Highest version supported by IUT

Note:

1 == V1: Requires first 5 parameters

2 == V2: Requires first 7 parameters

3 == V3: Requires first 12 parameters

4 == V4: Requires all 13 parameters

8.3.55.2. Test Duration

20 seconds

8.3.55.3. TX Channel

6

8.3.55.4. Test Data Length

21

8.3.55.5. Packet Payload

1

8.3.55.6. PHY

1

8.3.55.7. Modulation Index

0

8.3.55.8. CTE Length

2

8.3.55.9. CTE Type

0

8.3.55.10. Slot Durations

1

8.3.55.11. Switching Pattern Length

2

8.3.55.12. Antenna IDs[i]

0,1

8.3.55.13. Transmit Power Level

127

8.3.56. TST/LE/TESTMODE/BV-06-C – Verify IUT properly receives LE test packets from LT

8.3.56.1. Test Version

Default: Highest version supported by IUT

Note:

1 == V1: Requires first 5 parameters

2 == V2: Requires first 7 parameters

3 == V3: Requires first 12 parameters

4 == V4: Requires all 13 parameters

8.3.56.2. Test Duration

20 seconds

8.3.56.3. TX Channel

6

8.3.56.4. Test Data Length

21

8.3.56.5. Packet Payload

1

8.3.56.6. PHY

1

8.3.56.7. Modulation Index

0

8.3.56.8. CTE Length

2

8.3.56.9. CTE Type

0

8.3.56.10. Slot Durations

1

8.3.56.11. Switching Pattern Length

2

8.3.56.12. Antenna IDs[i]

0,1

8.3.56.13. Transmit Power Level

127

8.3.57. TST/LL/BIS/BV-01-C – Verify repeated BIS connections and terminations

8.3.57.1. SDU Size

8

8.3.57.2. Advertising Duration

10 seconds

8.3.57.3. Number Of Rounds

10

8.3.57.4. BIG Handle

16

8.3.57.5. BIS SDU Interval

250000 microseconds

8.3.57.6. BIS ISO Interval

250 milliseconds

Chapter 9. Regulatory

9.1 Certifications

All relevant certificates of conformance can be found online at http://www.fte.com/conformance.

9.1.1 FCC - Federal Communications Commission

1. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio

frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2. Changes or modifications not approved by the responsible party could void the user's authority to operate the equipment.

8.1.2 RED - Radio Emissions Directive

1. This equipment operates in the frequencies 2400 MHz – 2483.5 MHz
2. The maximum radio-frequency power transmitted by this equipment in the above frequency bands is +4 dBm.

9.1.3 ISED - Innovation, Science and Economic Development (RSS Radio Standards Specification)

This device complies with Industry Canada's license-exempt RSSs.

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux RSS exempts de licence d'Industrie Canada.

1. Cet appareil ne doit pas causer d'interférences ; et
2. Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Chapter 10. Harmony Technical Specification/Service Information

10.1 Harmony Technical Specifications

All relevant certificates of conformance can be found online at http://www.fte.com/conformance.

- Dimensions: 4.1 x 4.1 x 1.0 inches (104 x 104 x 25 mm)
- Weight: 0.6 pounds (0.3 kg)
- Humidity: Operating: 10% to 90% RH (noncondensing)
- Temperature: Operating: 32° F to 113° F (0° C to 45° C)
- Receiver Sensitivity: -96 dBm

10.2 Service Notes

The Harmony hardware does not contain any user serviceable items. Any repairs and maintenance must be performed by a service technician that has been trained and approved by Teledyne LeCroy.