Reconnection Configuration Profile (RCP)

***Bluetooth*® Test Suite**

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Contents

1 Scope

This Bluetooth document contains the Test Suite Structure (TSS) and test cases to test the implementation of the Bluetooth Reconnection Configuration Profile with the objective to provide a high probability of air interface interoperability between the tested implementation and other manufacturers' Bluetooth devices.

2 References, definitions, and abbreviations

2.1 References

This document incorporates provisions from other publications by dated or undated reference. These references are cited at the appropriate places in the text, and the publications are listed hereinafter. Additional definitions and abbreviations can be found in [1] and [2].

[1] Bluetooth Core Specification, Version 4.2 or later

[2] Test Strategy and Terminology Overview

[3] Reconnection Configuration Profile Specification, Version 1.0 or later

[4] Reconnection Configuration Service Specification, Version 1.0 or later

[5] ICS Proforma for Reconnection Configuration Profile, RCP.ICS

[6] Reconnection Configuration Profile Implementation eXtra Information for Test, IXIT

[7] GATT Test Suite, GATT.TS

[8] Reconnection Configuration Profile Specification, Version 1.0.1

[9] Appropriate Language Mapping Tables document

2.2 Definitions

In this Bluetooth document, the definitions from [1] and [2] apply.

2.3 Acronyms and abbreviations

In this Bluetooth document, the definitions, acronyms, and abbreviations from [1] and [2] apply.

Certain terms that were identified as inappropriate have been replaced. For a list of the original terms and their replacement terms, see the Appropriate Language Mapping Tables document [9].

3 Test Suite Structure (TSS)

3.1 Test Strategy

The test objectives are to verify functionality of the Reconnection Configuration Profile within a Bluetooth Host and enable interoperability between Bluetooth Hosts on different devices. The testing approach covers mandatory and optional requirements in the specification and matches these to the support of the IUT as described in the ICS. Any defined test herein is applicable to the IUT if the ICS logical expression defined in the Test Case Mapping Table (TCMT) evaluates to true.

The test equipment provides an implementation of the Radio Controller and the parts of the Host needed to perform the test cases defined in this Test Suite. A Lower Tester acts as the IUT's peer device and interacts with the IUT over-the-air interface. The configuration including the IUT needs to implement similar capabilities to communicate with the test equipment. For some test cases, it is necessary to stimulate the IUT from an Upper Tester. In practice, this could be implemented as a special test interface, a Man Machine Interface (MMI), or another interface supported by the IUT.

This Test Suite contains Valid Behavior (BV) tests complemented with Invalid Behavior (BI) tests where required. The test coverage mirrored in the Test Suite Structure is the result of a process that started with catalogued specification requirements that were logically grouped and assessed for testability enabling coverage in defined test purposes.

3.2 Test groups

The following test groups have been defined:

- Generic GATT Integrated Tests
- Configure indication and notification
- Reconnection Configuration Features
- Reconnection Configuration Settings
- Reconnection Configuration Procedures
- Common Behavior for RC Feature and Bond Management Feature characteristics

3.3 Test Database

3.3.1 Database with E2E Checksums

Sequence of Octets	Resulting E2E Checksum
0x0F 0x04 0x20 0x4E 0x7F 0x0C 0x7F 0x0C 0xF3 0x01 0x7F 0x0C 0x00 0x40 0xE8 0x03	0x2710
0xFF 0xFF 0x03	0x329B
0x3E 0x01 0x02 0x03 0x04 0x05 0x06 0x07 0x08 0x09	0x2F01

Table 3.1: Sequences of Octets with Resulting E2E Checksums

4 Test cases (TC)

4.1 Introduction

4.1.1 Test case identification conventions

Test cases are assigned unique identifiers per the conventions in [2]. The convention used here is:
<spec abbreviation>/<IUT role>/<class>/**<feat>**/<func>/<subfunc>**/**<cap>**/<xx>-<nn>-<y>**.

Additionally, testing of this specification includes tests from the GATT Test Suite [7] referred to as Generic GATT Integrated Tests (GGIT); when used, the test cases in GGIT are referred to through a TCID string using the following convention:
<spec abbreviation>/<IUT role>/<GGIT test group>/< GGIT class >/<xx>-<nn>-<y>.

Identifier Abbreviation	**Spec Identifier <spec abbreviation>**
RCP	Reconnection Configuration Profile
Identifier Abbreviation	**Role Identifier <IUT role>**
CL	Reconnection Configuration Client Role
SR	Reconnection Configuration Server Role
Identifier Abbreviation	**Reference Identifier <GGIT test group>**
CGGIT	Client Generic GATT Integrated Tests
Identifier Abbreviation	**Reference Identifier <GGIT class>**
CHA	Characteristic
ISFC	Indication Supported Features Characteristic
SER	Service
Identifier Abbreviation	**Feature and Behaviors Identifier <feat>**
BMF	Bond Management Feature
CON	Configure Notification and Indication
RCF	Reconnection Configuration Features
RCPROC	Reconnection Configuration Procedures
RCSET	Reconnection Configuration Settings

Table 4.1: RCP TC feature naming conventions

4.1.2 Conformance

When conformance is claimed for a particular specification, all capabilities are to be supported in the specified manner. The mandated tests from this Test Suite depend on the capabilities to which conformance is claimed.

The Bluetooth Qualification Program may employ tests to verify implementation robustness. The level of implementation robustness that is verified varies from one specification to another and may be revised for cause based on interoperability issues found in the market.

Such tests may verify:

- That claimed capabilities may be used in any order and any number of repetitions not excluded by the specification
- That capabilities enabled by the implementations are sustained over durations expected by the use case

- That the implementation gracefully handles any quantity of data expected by the use case
- That in cases where more than one valid interpretation of the specification exists, the implementation complies with at least one interpretation and gracefully handles other interpretations
- That the implementation is immune to attempted security exploits

A single execution of each of the required tests is required to constitute a Pass verdict. However, it is noted that to provide a foundation for interoperability, it is necessary that a qualified implementation consistently and repeatedly pass any of the applicable tests.

In any case, where a member finds an issue with the test plan generated by the Bluetooth SIG qualification tool, with the test case as described in the Test Suite, or with the test system utilized, the member is required to notify the responsible party via an erratum request such that the issue may be addressed.

4.1.3 Pass/Fail verdict conventions

Each test case has an Expected Outcome section. The IUT is granted the Pass verdict when all the detailed pass criteria conditions within the Expected Outcome section are met.

The convention in this Test Suite is that, unless there is a specific set of fail conditions outlined in the test case, the IUT fails the test case as soon as one of the pass criteria conditions cannot be met. If this occurs, then the outcome of the test is a Fail verdict.

4.2 Setup preambles

The procedures defined in this section are used to achieve specific conditions on the IUT and the test equipment within the tests defined in this document. The preambles here are commonly used to establish initial conditions.

4.2.1 ATT Bearer on LE transport

- Preamble Procedure

1. Establish an LE transport connection between the IUT and the Lower Tester.
2. Establish an L2CAP channel 0x0004 between the IUT and the Lower Tester over that LE transport.

4.3 Generic GATT Integrated Tests

Execute the Generic GATT Integrated Tests defined in Section 6.4, Client test procedures (CGGIT), in [7] using Table 4.2 below as input:

TCID	Service / Characteristic	Reference	Properties	Value Length (Octets)	Type
RCP/CL/CGGIT/SER/BV-01-C [Service GGIT – Reconnection Configuration]	Reconnection Configuration Service	[3] 4.2.1	-	-	Not defined
RCP/CL/CGGIT/SER/BV-02-C [Service GGIT – Bond Management]	Bond Management Service	[3] 4.2.2	-	-	Not defined
RCP/CL/CGGIT/CHA/BV-01-C [Characteristic GGIT – RC Feature]	RC Feature characteristic	[8] 4.3.1.1	0x22 (Read, Indicate)	Skip	-
RCP/CL/CGGIT/CHA/BV-02-C [Characteristic GGIT – RC Settings]	RC Settings characteristic	[3] 4.3.1.2	0x12 (Read, Notify)	Skip	-
RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point]	Reconnection Configuration Control Point characteristic	[3] 4.3.1.3	0x28 (Write, Indicate)	Skip	-
RCP/CL/CGGIT/CHA/BV-04-C [Characteristic GGIT – Bond Management Control Point]	Bond Management Control Point characteristic	[3] 4.3.2.1	0x88 (Write, Reliable Write)	Skip	-
RCP/CL/CGGIT/CHA/BV-05-C [Characteristic GGIT – Bond Management Feature]	Bond Management Feature characteristic	[8] 4.3.2.2	0x22 (Read, Indicate)	1-3	-

Table 4.2: Input for the GGIT Client test procedure

4.3.1 Generic GATT Indication Supported Features characteristic

Execute the Generic GATT Indication Supported Features Characteristic tests defined in Section 6.4, Client test procedures (CGGIT), in [7] using Table 4.3 below as input:

TCID	Characteristic	Reference	TC Configuration
RCP/CL/CGGIT/ISFC/BV-06-C [Characteristic GGIT – RC Feature indication]	RC Feature	[8] 4.4	N/A
RCP/CL/CGGIT/ISFC/BV-07-C [Characteristic GGIT – Bond Management Feature indication]	Bond Management Feature	[8] 4.7.5	N/A

Table 4.3: GGIT Indication Supported Features Characteristic tests

4.4 Configure indication and notification

- Test Purpose

  This test group verifies compliant operation in response to enable characteristic indication or notification.

- Reference

  [3] 4

- Initial Condition

  - The handle of each characteristic value referenced in the Test Cases below has been previously discovered by the IUT during the test procedure in Section 4.3 or is known to the IUT by other means.
  - The handle of the Client Characteristic Configuration Descriptors (CCCD) of each characteristic referenced in the Test Cases below has been previously discovered by the IUT during the test procedure in Section 4.3 or is known to the IUT by other means.
  - Establish an ATT Bearer connection between the Lower Tester and IUT as described in Section 4.2.1.

- Test Case Configuration

TCID	Reference	Characteristic	Value
RCP/CL/CON/BV-01-C [Configure RC Settings characteristic for notification]	[3] 4.5	RC Settings	0x0001
RCP/CL/CON/BV-02-C [Configure Reconnection Configuration Control Point for indication]	[3] 4.6	Reconnection Configuration Control Point	0x0002

Table 4.4: Configure indication and notification test cases

- Test Procedure

  1. The Upper Tester sends a command to the IUT to send a correctly formatted *ATT_Write_Request* (0x12) with the handle of the CCCD and the value from Table 4.4 to the Lower Tester.

- Expected Outcome

  Pass verdict

  The characteristic descriptor is successfully written.

4.5 Reconnection Configuration Features

RCP/CL/RCF/BV-01-C [Client Reads the RC Feature Characteristic with E2E CRC]

- Test Purpose

  Verify that a client IUT can read the RC Feature characteristic from a Reconnection Configuration Server and calculates the E2E CRC correctly.

- Reference

  [3] 4.4

- Initial Condition
  - The IUT knows the handle of the RC Feature characteristic contained in the Lower Tester by executing RCP/CL/CGGIT/CHA/BV-01-C [Characteristic GGIT – RC Feature] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The Upper Tester has access to the content of the Lower Tester´s database.
- Test Procedure
  1. Change the database from the Lower Tester to contain a specific, valid value for the RC Feature Characteristic value, where not all feature bits are 0 and where neither any RFU bit, nor the Feature Extension bit is set. The value for E2E-CRC Supported bit is 1. The E2E-CRC is calculated.
  2. Establish a connection between the IUT and Lower Tester.
  3. Send a command from the Upper Tester to request the IUT to read the RC Feature Characteristic value from the Lower Tester.
  4. After receipt of the expected request by the Lower Tester, send an *ATT_Read_Response* (0x0B) from the Lower Tester to the IUT.
  5. Repeat the test procedure at least 3 times with different values for the RC Feature Characteristic value.
- Expected Outcome

  Pass verdict

  The IUT sends a correctly formatted *ATT_Read_Request* (0x0A) to the Lower Tester, containing the handle specified by the Upper Tester.

  The IUT receives the response from the Lower Tester and reports the set of received features to the Upper Tester.

  The set of features reported by the IUT is equal to the set of features in the Lower Tester´s database.

RCP/CL/RCF/BV-02-C [Client Reads the RC Feature Characteristic without E2E CRC]

- Test Purpose

  Verify that a client IUT can read the RC Feature characteristic from a Reconnection Configuration Server, ignore RFU bits and expect the E2E CRC to be 0xFFFF.
- Reference

  [3] 4.4
- Initial Condition
  - The IUT knows the handle of the RC Feature characteristic contained in the Lower Tester by executing RCP/CL/CGGIT/CHA/BV-01-C [Characteristic GGIT – RC Feature] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The Upper Tester has access to the content of the Lower Tester´s database.

- Test Procedure

  1. Change the database from the Lower Tester to contain a specific, valid value for the RC Feature Characteristic value, where not all feature bits are 0 and where one of the RFU bit is set and the Feature Extension bit is not set. The value for E2E-CRC Supported bit is 0. The E2E-CRC is set to 0xFFFF.
  2. Establish a connection between the IUT and Lower Tester.
  3. Send a command from Upper Tester to request the IUT to read the RC Feature Characteristic value from the Lower Tester.
  4. After receipt of the expected request by the Lower Tester, send an *ATT_Read_Response* (0x0B) from the Lower Tester to the IUT.
  5. Repeat the test procedure at least 3 times with different values for the RC Feature Characteristic value.

- Expected Outcome

  Pass verdict

  The IUT sends a correctly formatted *ATT_Read_Request* (0x0A) to the Lower Tester, containing the handle specified by the Upper Tester.

  The IUT receives the response from the Lower Tester and reports the set of received features to the Upper Tester.

  The set of features reported by the IUT is equal to the set of features in the Lower Tester´s database.

  The IUT ignores the reserved bits and continues to operate as if the reserved bits were not set.

RCP/CL/RCF/BI-01-C [Client Reads the RC Feature or RC Settings Characteristic with invalid E2E CRC]

- Test Purpose

  Verify that a client IUT reads the RC Feature or RC Settings characteristic and detects errors in the calculated checksum.

- Reference

  [3] 4.4, 4.5

- Initial Condition

  - The IUT knows the handle of the RC Feature characteristic or RC Settings characteristic contained in the Lower Tester by executing either RCP/CL/CGGIT/CHA/BV-01-C [Characteristic GGIT – RC Feature] or RCP/CL/CGGIT/CHA/BV-02-C [Characteristic GGIT – RC Settings] or by other means.

  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.

  - The Upper Tester has access to the content of the Lower Tester’s database.

  - Choose the characteristic to be used for the test, either the RC Feature characteristic or the RC Settings characteristic.

- Test Procedure

  1. Change the database from the Lower Tester to contain a specific, valid value for the RC Feature Characteristic value or the RC Settings Characteristic value, where not all feature bits are 0 and where neither any RFU bit, nor the Feature Extension bit is set. The value for E2E-CRC Supported bit is 1. The E2E-CRC is calculated.
  2. Change one or more bits of the E2E-CRC in the Lower Tester´s database for the RC Feature Characteristic value or the RC Settings Characteristic value without recalculating the E2E-CRC.
  3. Establish a connection between the IUT and Lower Tester.
  4. Send a command from Upper Tester to request the IUT to read the RC Feature Characteristic value or the RC Settings characteristic value from the Lower Tester.
  5. After receipt of the expected request by the Lower Tester, send an *ATT_Read_Response* (0x0B) from the Lower Tester to the IUT.
  6. Repeat the test procedure at least 3 times with different values for the RC Feature Characteristic value or RC Settings Characteristic value.

- Expected Outcome

  Pass verdict

  The IUT sends a correctly formatted *ATT_Read_Request* (0x0A) to the Lower Tester, containing the handle specified by the Upper Tester.

  The IUT reports a CRC error to the Upper Tester for each iteration of the test.

RCP/CL/RCF/BI-02-C [Client Reads the RC Feature Characteristic with invalid CRC value]

- Test Purpose

  Verify that a client IUT reads the RC Feature characteristic and expects the checksum to be 0xFFFF.

- Reference

  [3] 4.4

- Initial Condition

  - The IUT knows the handle of the RC Feature characteristic contained in the Lower Tester by executing RCP/CL/CGGIT/CHA/BV-01-C [Characteristic GGIT – RC Feature] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The Upper Tester has access to the content of the Lower Tester´s database.

- Test Procedure

  1. Change the database from the Lower Tester to contain a specific, valid value for the RC Feature Characteristic value, where not all feature bits are 0 and where neither any RFU bit, nor the Feature Extension bit is set. The value for E2E-CRC Supported bit is 0. The E2E-CRC is set to one of 0xFFFE, 0xFF00 or 0x00FF.
  2. Establish a connection between the IUT and Lower Tester.
  3. Send a command from Upper Tester to request the IUT to read the RC Feature Characteristic value from the Lower Tester.

4. After receipt of the expected request by the Lower Tester, send an ATT_Read_Response (0x0B) from the Lower Tester to the IUT.
5. Repeat the test procedure at least 3 times with different values for the RC Feature Characteristic value and different values for the E2E-CRC field.

- Expected Outcome

  Pass verdict

  The IUT sends a correctly formatted ATT_Read_Request (0x0A) to the Lower Tester, containing the handle specified by the Upper Tester.

  The IUT reports a CRC error to the Upper Tester.

4.6 Reconnection Configuration Settings

RCP/CL/RCSET/BV-02-C [Client is able to Receive Multiple Notifications]

- Test Purpose

  Verify that a client IUT is able to receive multiple notifications of the RC Settings characteristic.

- Reference

  [3] 4.5

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The client IUT is configured to receive notifications of the RC Settings characteristic.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.

- Test Procedure

  1. The Lower Tester sends an *ATT_Handle_Value_Notification* containing a RC Settings characteristic value A (defined in IXIT [6]) to the IUT.
  2. The client IUT reports the received characteristic value to the Upper Tester.
  3. The Lower Tester sends an *ATT_Handle_Value_Notification* containing a RC Settings characteristic value B (defined in IXIT [6]) to the IUT.
  4. The client IUT reports the received characteristic value to the Upper Tester.
  5. The Lower Tester sends an *ATT_Handle_Value_Notification* containing a RC Settings characteristic value A (defined in IXIT [6]) to the IUT.
  6. The client IUT reports the received characteristic value to the Upper Tester.

- Expected Outcome

  Pass verdict

  The client IUT reports 3 notifications of the RC Settings characteristic to the Upper Tester with the values A, B and A (defined in IXIT [6]) in this order.

RCP/CL/RCSET/BV-03-C [Upgrade to LESC Only]

- Test Purpose

  Verify that the IUT can execute the Upgrade to LESC Only procedure.

- Reference

  [3] 4.5.1, 4.6.11

- Initial Condition

  - The Lower Tester supports Secure Connections, including Security Mode 1, level 4.
  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - Pair the IUT with the Lower Tester.
  - The IUT has discovered all Reconnection Configuration Service and Bond Management Service characteristics.
  - The IUT has read the Bond Management Feature characteristic of the Lower Tester.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  1. The Upper Tester requests the IUT to upgrade to LESC Only.
  2. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Upgrade to LESC Only» and an 8-bit unsigned operand set to 0xFF.
  3. The Lower Tester responds with an *ATT_Write_Response*.
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Upgrade to LESC Only» request opcode and the Result Code value of 0x01 (Success).

- Expected Outcome

  Pass verdict

  The IUT sends the required PDUs in the requested order.

  The IUT reports the successful command execution to the Upper Tester.

RCP/CL/RCSET/BV-04-C [Switch to OOB Pairing Only mode]

- Test Purpose

  Verify that a client IUT, that is ordered to initiate an OOB pairing, executes the procedure to force an out of band pairing.

- Reference

  [3] 4.5.2, 4.6.12

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - Pair the IUT with the Lower Tester.
  - The IUT has discovered all Reconnection Configuration Service and Bond Management Service characteristics.
  - The IUT reads the Bond Management Feature characteristic of the Lower Tester.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  1. The Upper Tester requests the IUT to Switch to OOB Pairing Only mode.
  2. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Switch OOB Pairing» and an 8-bit unsigned operand set to 0xFF.
  3. The Lower Tester responds with an *ATT_Write_Response*.
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Switch OOB Pairing» request opcode and the Result Code value of 0x01 (Success).

- Expected Outcome

  Pass verdict

  The IUT sends the requested PDUs in the requested order.

  The IUT reports the successful command execution to the Upper Tester.

RCP/CL/RCSET/BV-05-C [Client Disables Reconnection Configuration Service]

- Test Purpose

  Verify that a client IUT, that is ordered to disable the Reconnection Configuration Service, executes the Limited Access procedure.

- Reference

  [3] 4.5.4, 4.6.13

  [4] 3.2.1, 3.3.2.13

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT discovered all Reconnection Configuration Service and Bond Management Service characteristics.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  1. The Upper Tester requests the IUT to execute the Limited Access Behavior procedure to disable the Reconnection Configuration Service.
  2. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Limited Access» and an 8-bit unsigned operand set to 0xFF.
  3. The Lower Tester responds with an *ATT_Write_Response*.
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Limited Access» request opcode and the Result Code value of 0x01 (Success).

- Expected Outcome

  Pass verdict

  The IUT sends the required PDUs.

  The IUT reports the successful command execution to the Upper Tester.

RCP/CL/RCSET/BV-06-C [Client Enables Reconnection Configuration Service]

- Test Purpose

  Verify that a client IUT, that is ordered to enable the Reconnection Configuration Service, executes the Limited Access procedure.

- Reference

  [3] 4.5.4, 4.6.13

  [4] 3.2.1, 3.3.2.13

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration Descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The Lower Tester´s Reconnection Configuration Service was disabled e.g. by the IUT, by executing RCP/CL/RCSET/BV-05-C [Client Disables Reconnection Configuration Service] or as initial condition.
  - The IUT discovered all Reconnection Configuration Service and Bond Management Service characteristics.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  1. The Upper Tester requests the IUT to execute the Limited Access Behavior procedure to enable access to the Reconnection Configuration Service.
  2. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Limited Access» and an 8-bit unsigned operand set to 0x00.
  3. The Lower Tester responds with an *ATT_Write_Response*.
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Limited Access» request opcode and the Result Code value of 0x01 (Success).

- Expected Outcome

  Pass verdict

  The IUT sends the required PDUs.

  The IUT reports the successful command execution to the Upper Tester.

4.7 Reconnection Configuration Procedures

RCP/CL/RCPROC/BV-02-C [Client can Execute Enable Disconnect Procedure]

- Test Purpose

  Verify that a client IUT can execute the Enable Disconnect procedure.

- Reference

  [3] 4.6.1

  [4] 3.3.1

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration Descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point Characteristic Value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  1. The Upper Tester requests the IUT to execute the Enable Disconnect procedure.
  2. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to one octet containing the «Enable Disconnect» opcode.
  3. The Lower Tester replies with an *ATT_Write_Response* (0x13).
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* (0x1D), with the attribute handle set to the handle of the RC Control Point characteristic value declaration and an attribute value containing three bytes: the opcode for «Procedure Response» Code, the request opcode for the «Enable Disconnect» Procedure and the Result Code value for Success (0x01).
  5. The client IUT replies to the Lower Tester with an *ATT_Handle_Value_Confirmation* (0x1E) and reports the successful execution of the Enable Disconnect procedure to the Upper Tester.

- Expected Outcome

  Pass verdict

  The IUT sends the required PDUs.

  The IUT reports the successful execution of the procedure to the Upper Tester.

RCP/CL/RCPROC/BV-03-C [Client reads Actual Communication Parameters]

- Test Purpose

  Verify that a client IUT can execute the Get Actual Communication Parameter procedure.

- Reference

  [3] 4.6.2

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Upper Tester knows the current connection parameters.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  1. The Upper Tester requests the IUT to execute the Get Actual Communication Parameter procedure.
  2. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to one octet containing the «Get Actual Communication Parameters» opcode.
  3. The Lower Tester replies with an *ATT_Write_Response* (0x13).
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Client Parameter Indication» opcode, followed by the actual used Communication Parameters.
  5. The IUT sends an *ATT_Handle_Value_Confirmation* PDU and reports the successful execution of the Get Actual Communication Parameters procedure to the Upper Tester, including the received operand.

- Expected Outcome

  Pass verdict

  The IUT reports the received parameters to the Upper Tester.

  The IUT received operand is equal to the operand sent by the Lower Tester.

RCP/CL/RCPROC/BV-04-C [Client Proposes Settings in Group A]

- Test Purpose

  Verify that a client IUT can execute the Propose Settings Procedure with parameters that do not modify the current LE connection parameters.

- Reference

  [3] 4.6.3, 4.6.3.1

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The RC Feature characteristic stored in the Lower Tester´s database enables at least all features where the name of the feature starts with “Propose”.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  1. The Upper Tester sends a command to the client IUT to execute the Propose Settings procedure, choosing parameters for the group A parameters that are different from the parameters that are used by the Lower Tester and choosing parameters for the group B parameters that are all the same as the parameters used by the Lower Tester.
  2. The client IUT sends an *ATT_Write_Request* (0x12) to the Lower Tester with the opcode for the Propose Settings procedure and an operand filled with the given parameters by the Upper Tester.
  3. The Lower Tester replies with an *ATT_Write_Response* (0x13).
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* (0x1D), with the attribute handle set to the handle of the RC Control Point characteristic value declaration and an attribute value containing an opcode and an operand. The opcode is set to Procedure Response and the operand is set to the Propose Settings request opcode, followed by the Success (0x01) Result Code value.
  5. The client IUT replies to the Lower Tester with an *ATT_Handle_Value_Confirmation* (0x1E) and reports the successful execution of the Propose Settings procedure to the Upper Tester.

- Expected Outcome

  Pass verdict

  The parameter size, parameter order, and byte order sent by the IUT in step #2 are exactly as specified in [4].

RCP/CL/RCPROC/BV-05-C [Client Proposes Settings in Group B]

- Test Purpose

  Verify that a client IUT can change the current LE connection parameters.

- Reference

  [3] 4.6.3, 4.6.3.2

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The RC Feature characteristic stored in the Lower Testers database enables at least one feature where the name of the feature starts with “Propose”.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.
  - The link layer role of the Lower Tester is the Peripheral, the link layer role of the client IUT is the Central.

- Test Procedure

  1. The Upper Tester sends a command to the client IUT to execute the Propose Settings procedure, choosing parameters for the group B parameters that are different from the parameters that are used by the Lower Tester and choosing parameters for the group A parameters that are all the same as the parameters used by the Lower Tester.
  2. The client IUT sends an *ATT_Write_Request* (0x12) to the Lower Tester with the opcode for the Propose Settings procedure and an operand filled with the given parameters by the Upper Tester.
  3. The Lower Tester replies with an *ATT_Write_Response* (0x13).
  4. The Lower Tester sends an *ATT_Handle_Value_Indication* (0x1D), with the attribute handle set to the handle of the RC Control Point characteristic value declaration and an attribute value containing an opcode and an operand. The opcode is set to Procedure Response and the operand is set to the Propose Settings opcode, followed by the Proposal Accepted (0x09) Result Code value.
  5. The client IUT replies to the Lower Tester with an *ATT_Handle_Value_Confirmation* (0x1E) and reports the successful execution of the Propose Settings procedure to the Upper Tester.

- Expected Outcome

  Pass verdict

  The parameter size, parameter order, and byte order are exactly as specified in [4].

RCP/CL/RCPROC/BV-06-C [Client Activates Stored Settings]

- Test Purpose

  Verify that a client IUT can execute the Activate Stored Settings procedure.

- Reference

  [3] 4.6.4, 4.6.4.1, 4.6.4.2

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The Upper Tester knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The RC Feature characteristic stored in the Lower Tester´s database enables at least all features where the name of the feature starts with “Propose”.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.
  - The link layer role of the Lower Tester is the Peripheral, the link layer role of the client IUT is the Central.
  - The values of the Lower Tester´s stored settings set number 0 are known.

- Test Procedure

  1. The Upper Tester induces the IUT to execute the Activate Stored Settings procedure.
  2. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Activate Stored Settings» and an operand octet of 0.
  3. The RC server IUT responds with an *ATT_Write_Response*.

  Depending on the content of the selected parameter set, the current connection parameters, the current advertising parameter, and the range of parameters acceptable to the IUTs Link Layer, the Lower Tester might respond in three different ways:

  4. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Activate Stored Settings» request opcode and the Result Code value of 0x09 (Proposal Accepted).

  OR

  5. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the

«Procedure Response» opcode and followed by the «Activate Stored Settings» request opcode and the Result Code value of 0x01 (Success).

OR

6. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Activate Stored Settings» request opcode and the Result Code value of 0x08 (Communication Parameters rejected).

In all cases, next follows:

7. The IUT sends an *ATT_Handle_Value_Confirmation*.

Additionally, in case that the underlying Link Layer communication parameters have been changed:

8. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Client Parameter Indication» opcode followed by the actual communication parameters.
9. The IUT sends an *ATT_Handle_Value_Confirmation*.

- Expected Outcome

  Pass verdict

  In all defined outcomes of the test case, the IUT sends the specified PDUs.

  The IUT reports the outcome of the Activate Stored Settings procedure to the Upper Tester.

RCP/CL/RCPROC/BV-07-C [Client Requests the Max Values]

- Test Purpose

  Verify that a client IUT is able to execute the Get Max Values procedure.

- Reference

  [3] 4.6.5

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  The Upper Tester requests the IUT to execute the Get Max Values procedure.

  1. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Get Max Values».
  2. The Lower Tester responds with an *ATT_Write_Response*.
  3. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Communication Parameter Response» op code, followed by the «Get Max Values» request op code and a Response Parameter, containing the Lower Tester´s maximum values.
  4. The IUT sends an *ATT_Handle_Value_Confirmation* and reports the received maximum values to the Upper Tester.

- Expected Outcome

  Pass verdict

  The IUT sends the requested PDUs in the given order.

  The IUT reports the Lower Tester´s maximum values to the Upper Tester.

RCP/CL/RCPROC/BV-08-C [Client Requests the Min Values]

- Test Purpose

  Verify that a client IUT is able to execute the Get Min Values Procedure.

- Reference

  [3] 4.6.6

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  The Upper Tester requests the IUT to execute the Get Min Values procedure.

  1. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Get Min Values».
  2. The Lower Tester responds with an *ATT_Write_Response*.

3. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Communication Parameter Response» opcode, followed by the «Get Min Values» request opcode and a Response Parameter, containing the Lower Tester´s minimum values.
4. The IUT sends an *ATT_Handle_Value_Confirmation* and reports the received minimum values to the Upper Tester.

- Expected Outcome

  Pass verdict

  The IUT sends the requested PDUs in the given order.

  The IUT reports the Lower Tester´s minimum values to the Upper Tester.

RCP/CL/RCPROC/BV-09-C [Client Requests Stored Values]

- Test Purpose

  Verify that a client IUT is able to execute the Get Stored Values Procedure.

- Reference

  [3] 4.6.7

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.
  - The Upper Tester knows the stored parameter sets implemented in the Lower Tester.

- Test Procedure

  The Upper Tester requests the IUT to execute the Get Stored Values procedure.

  1. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Get Stored Values» and an operand octet with a Parameter Set chosen by the IUT.
  2. The Lower Tester responds with an *ATT_Write_Response*.

  Depending on the parameter sets supported by the Lower Tester, the test procedure has two possible outcomes:

  3. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the

«Communication Parameter Response» opcode, followed by the «Get Stored Values» request opcode and a Response Parameter, containing the addressed parameter-set values.

OR

4. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Get Stored Values» request opcode and the Result Code value of 0x03 (Invalid Operand).

In both cases:

5. The IUT sends an *ATT_Handle_Value_Confirmation* and reports the outcome of the procedure to the Upper Tester.

- Expected Outcome

  Pass verdict

  The IUT sends the requested PDUs in the given order.

  The IUT reports the outcome of the procedure to the Upper Tester.

RCP/CL/RCPROC/BV-10-C [Client Sets Filter Accept List Timer]

- Test Purpose

  Verify that a client IUT can execute the Set Filter Accept List Timer procedure.

- Reference

  [3] 4.6.8

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.
  - The IUT subscribed to RC Control Point Indications.

- Test Procedure

  The Upper Tester induces the IUT to execute the Set Filter Accept List Timer procedure.

  1. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Set Filter Accept List Timer» and a 32-bit unsigned operand set to the chosen filter accept list timer value.

2. The Lower Tester responds with an *ATT_Write_Response*.
3. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Procedure Response» opcode and followed by the «Set Filter Accept List Timer» request opcode and the Result Code value of 0x01 (Success).
4. The Lower Tester sends an *ATT_Handle_Value_Confirmation* and reports the successful execution of the procedure to the Upper Tester.

- Expected Outcome

  Pass verdict

  The IUT sends the requested PDUs in the given order.

  The IUT reports the successful execution of the procedure to the Upper Tester.

RCP/CL/RCPROC/BV-11-C [Client Reads Filter Accept List Timer]

- Test Purpose

  Verify that a client IUT can read the RC Server's filter accept list timer.

- Reference

  [3] 4.6.9

- Initial Condition

  - Establish a connection between the IUT and Lower Tester.
  - The Lower Tester or the IUT sets the value of the Client Characteristic Configuration descriptor of the Reconnection Configuration Control Point characteristic to 0x0002 for the established connection.
  - The IUT knows the handle of the RC Control Point characteristic value declaration either by executing RCP/CL/CGGIT/CHA/BV-03-C [Characteristic GGIT – Reconnection Configuration Control Point] or by other means.
  - The Upper Tester knows the current Lower Tester's Filter Accept List Timer value, the Lower Tester´s maximum and minimum Filter Accept List Timer value.
  - The Lower Tester contains one instantiation of the Reconnection Configuration Service as a primary service including all defined characteristics.
  - The IUT reads the RC Feature characteristic to discover the supported features of the Lower Tester.

- Test Procedure

  The Upper Tester requests the IUT to execute the Read Filter Accept List Timer procedure.

  1. The IUT sends an *ATT_Write_Request* with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains an opcode set to «Get Filter Accept List Timer» without any operands.
  2. The Lower Tester responds with an *ATT_Write_Response*.
  3. The Lower Tester sends an *ATT_Handle_Value_Indication* PDU with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration and the value set to the «Filter Accept List Timer Response» opcode and followed by 3 32-bit unsigned integers,

containing the Lower Tester´s current setting of the Filter Accept List Timer, the minimum and maximum of the Filter Accept List Timer.

4. The IUT sends an *ATT_Handle_Value_Confirmation* and reports the received Lower Tester´s Filter Accept List Timer values to the Upper Tester.

- Expected Outcome

  Pass verdict

  The IUT sends the requested PDUs in the given order.

  The IUT reports the received Filter Accept List Timer values to the Upper Tester.

  The reported Filter Accept List Timer values are equal to the Filter Accept List Timer values of the Lower Tester.

4.8 Common Behavior for RC Feature and Bond Management Feature characteristics

4.8.1 Read feature characteristic with bonding enabled

- Test Purpose

  Verify that, after the initial connection and bonding, the IUT can read the feature characteristics listed in Table 4.5.

- Reference

  [3] 4

- Initial Condition

  - For each test case in Table 4.5, the Upper Tester knows the handle of the feature characteristic contained in the Lower Tester.
  - Establish an ATT Bearer connection between the Lower Tester and the IUT as described in Section 4.2.1.
  - The IUT is bonded with the Lower Tester.

- Test Case Configuration

Test Case	Reference	Feature Characteristic
RCP/CL/RCF/BV-03-C [Read RC Feature characteristic - Bonding enabled]	[8] 4.4	RC Feature characteristic
RCP/CL/BMF/BV-01-C [Read Bond Management Feature characteristic]	[8] 4.7.5	Bond Management Feature characteristic

Table 4.5: Read Feature characteristics with bonding enabled

- Test Procedure

1. The Upper Tester commands the IUT to read the feature characteristic, listed in Table 4.5, from the Lower Tester.
2. The IUT sends an *ATT_Read_Request* to the Lower Tester containing the handle specified by the Upper Tester.
3. The Lower Tester receives the *ATT_Read_Request* and then sends an *ATT_Read_Response* to the IUT containing the value of the characteristic.
4. The IUT receives the *ATT_Read_Response* and reports the value to the Upper Tester.

- Expected Outcome

  Pass verdict

  The IUT reads the feature characteristic, listed in Table 4.5, and reports its value to the Upper Tester.

  Reserved for future use bit values are ignored.

4.8.2 Enable feature characteristic for indication or Read Feature characteristic upon reconnection

- Test Purpose

  Verify that, for each test case in Table 4.6, the IUT can either enable for indication the Feature characteristic or read the characteristic upon reconnection.

- Reference

  [3] 4

- Initial Condition

  - For each test case in Table 4.6, the handles of the Feature characteristic and Client Characteristic Configuration descriptors have been previously discovered by the Upper Tester during the test procedure in Section 4.3 or are known to the Upper Tester by other means.
  - Establish an ATT Bearer connection between the Lower Tester and the IUT as described in Section 4.2.1.
  - The IUT is not paired and bonded with the Lower Tester.

- Test Case Configuration

Test Case	Reference	Feature Characteristic
RCP/CL/RCF/BV-04-C [Enable RC Feature characteristic for indication or read characteristic upon reconnection]	[8] 4.4	RC Feature characteristic
RCP/CL/BMF/BV-02-C [Enable Bond Management Feature characteristic for indication or read characteristic upon reconnection]	[8] 4.7.5	Bond Management Feature characteristic

Table 4.6: Enable Feature characteristic for indication or read characteristic upon reconnection

- Test Procedure

  1. The Upper Tester orders the IUT to initiate pairing and bonding.
  2. The Upper Tester commands the IUT to perform, either alternative 2A or 2B:

     Alternative 2A (Configure the Feature characteristic, listed in Table 4.6, for indication):

     2A.1. The IUT configures the Feature characteristic for indication.

     Or,

     Alternative 2B (Read the Feature characteristic, listed in Table 4.6, upon reconnection):

     2B.1. The Upper Tester commands the IUT to disconnect, and the IUT terminates the connection with the Lower Tester.

     2B.2. The Upper Tester commands the IUT to reconnect to the Lower Tester.

     2B.3 The IUT reads the Feature characteristic from the Lower Tester and reports the value to the Upper Tester.

- Expected Outcome

  Pass verdict

  In step 1, The IUT successfully completes pairing and bonding.

  In step 2A.1, the IUT enables the Feature characteristic for indication.

  In step 2B.3, the IUT reads the Feature characteristic and reports its value to the Upper Tester.

  Reserved for future use bit values are ignored.

5 Test case mapping

The Test Case Mapping Table (TCMT) maps test cases to specific requirements in the ICS. The IUT is tested in all roles for which support is declared in the ICS document.

The columns for the TCMT are defined as follows:

Item: Contains a logical expression based on specific entries from the associated ICS document. Contains a logical expression (using the operators AND, OR, NOT as needed) based on specific entries from the applicable ICS document(s). The entries are in the form of y/x references, where y corresponds to the table number and x corresponds to the feature number as defined in the ICS document for the Reconnection Configuration Profile [5].

Feature: A brief, informal description of the feature being tested.

Test Case(s): The applicable test case identifiers are required for Bluetooth Qualification, if the corresponding y/x references defined in the Item column are supported. Further details about the function of the TCMT are elaborated in [2].

For the purpose and structure of the ICS/IXIT, refer to [2].

Item	Feature	Test Case(s)
RCP 4/1	RC Service Discovery	RCP/CL/CGGIT/SER/BV-01-C
RCP 4/2	Bond Management Service Discovery	RCP/CL/CGGIT/SER/BV-02-C
RCP 5/1 OR RCP 5/1a	RC Feature Characteristic Discovery	RCP/CL/CGGIT/CHA/BV-01-C
RCP 6a/1	RC Feature indication	RCP/CL/CGGIT/ISFC/BV-06-C
RCP 6a/2	Read RC Feature characteristic - Bonding enabled	RCP/CL/RCF/BV-03-C
RCP 6a/1 OR RCP 6a/2	Enable RC Feature characteristic for indication or read characteristic upon reconnection	RCP/CL/RCF/BV-04-C
RCP 5/2 AND RCP 5/3	RC Settings Characteristic Discovery	RCP/CL/CGGIT/CHA/BV-02-C
RCP 5/4 AND RCP 5/5	RC Control Point Characteristic Discovery	RCP/CL/CGGIT/CHA/BV-03-C
RCP 5/6	Bond Management Control Point Characteristic Discovery	RCP/CL/CGGIT/CHA/BV-04-C
RCP 5/7 OR RCP 5/7a	Bond Management Features Characteristic Discovery	RCP/CL/CGGIT/CHA/BV-05-C
RCP 6a/3	Bond Management Feature indication	RCP/CL/CGGIT/ISFC/BV-07-C
RCP 6a/4	Read Bond Management Feature characteristic	RCP/CL/BMF/BV-01-C
RCP 6a/3 OR RCP 6a/4	Enable Bond Management Feature characteristic for indication or read characteristic upon reconnection	RCP/CL/BMF/BV-02-C
RCP 6/1 AND RCP 6/2	Client Reads the RC Feature Characteristic with E2E-CRC Supported set to 1	RCP/CL/RCF/BV-01-C
(RCP 6/1 OR RCP 7/2) AND RCP 6/2	Client Reads the RC Feature or RC Settings Characteristic with E2E-CRC Supported set to 1	RCP/CL/RCF/BI-01-C
RCP 6/1	Client Reads the RC Feature Characteristic with E2E-CRC Supported set to 0	RCP/CL/RCF/BV-02-C RCP/CL/RCF/BI-02-C

Item	Feature	Test Case(s)
RCP 7/1	Client Configures and Receives RC Settings Characteristic Notification	RCP/CL/CON/BV-01-C RCP/CL/RCSET/BV-02-C
RCP 6/16	Upgrade to LESC Only	RCP/CL/RCSET/BV-03-C
RCP 6/17	Switch to OOB Pairing Only mode	RCP/CL/RCSET/BV-04-C
RCP 6/19	Client Enables or Disables Reconnection Configuration Service	RCP/CL/RCSET/BV-05-C RCP/CL/RCSET/BV-06-C
RCP 8/1	Client Configures RC Control Point for Indications	RCP/CL/CON/BV-02-C
RCP 6/3	Client can Execute Enable Disconnect Procedure	RCP/CL/RCPROC/BV-02-C
RCP 8/3	Client reads Actual Communication Parameters	RCP/CL/RCPROC/BV-03-C
RCP 8/4	Client Proposes Settings in Group A	RCP/CL/RCPROC/BV-04-C
RCP 8/5	Client Proposes Settings in Group B	RCP/CL/RCPROC/BV-05-C
RCP 8/6	Client Activates Stored Settings	RCP/CL/RCPROC/BV-06-C
RCP 8/7	Client Requests the Max Values	RCP/CL/RCPROC/BV-07-C
RCP 8/8	Client Requests the Min Values	RCP/CL/RCPROC/BV-08-C
RCP 8/9	Client Requests Stored Values	RCP/CL/RCPROC/BV-09-C
RCP 8/10	Client Sets Filter Accept List Timer	RCP/CL/RCPROC/BV-10-C
RCP 8/11	Client Reads Filter Accept List Timer	RCP/CL/RCPROC/BV-11-C

Table 5.1: Test case mapping

6 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
0	1.0.0	2017-12-05	Adopted by the Bluetooth SIG Board of Directors.
	p1r00–r10	2021-02-21 – 2021-12-23	TSE 16860 (rating 4): Added new test group ISFC. New test cases added: RCP/CL/CGGIT/ISFC/BV-06-C and -07-C, RCP/CL/RCF/BV-03-I and -04-I, and RCP/CL/BMF/BV-01-I and -02-I (E16487). Added TCMT for the new test cases. Added Section 4.4, which adds: RCP/CL/CON/BV-01-I to replace RCP/CL/RCSET/BV-01-I. RCP/CL/CON/BV-02-I to replace RCP/CL/RCPROC/BV-01-I. TSE 18076 (rating 2): Converted the following test cases into GGIT tests: RCP/CL/DOSC/BV-01-I – -09-I. The new GGIT converted TCIDs are: RCP/CL/CGGIT/SER/BV-01-C and -02-C, RCP/CL/CGGIT/CHA/BV-01-C – -05-C. Updated TCMT for the new GGIT tests and tests impacted by the GGIT conversion. TSE 18077 (rating 1): Updated inappropriate terms “master” with “Central”, “slave” with "Peripheral" and “White List” with “Filter Accept List” in test cases: RCP/CL/RCPROC/BV-05-I, -06-I, -10-I, and -11-I and updated the TCMT (E15809). Performed editorial work, including updating to the latest TS template and aligning the copyright page with v2 of the DNMD.
1	p1	2022-01-25	Approved by BTI on 2022-01-06. Prepared for TCRL 2021-2 publication.
	p2r00	2023-11-02	TSE 23283 (rating 1): Converted -I tests to -C tests as appropriate; updated the TCMT and TCRL accordingly. Performed other editorials to align the document with the latest TS template, including updates to the references, Test Strategy, conformance, Pass/Fail verdict conventions, and TCMT introductory text.
2	p2	2024-07-01	Approved by BTI on 2024-04-21. Prepared for TCRL 2024-1 publication.

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