Reconnection Configuration Service (RCS)

Bluetooth® Test Specification

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- **Group Prepared By**: Medical Devices Working Group
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**Abstract:**
This document defines test structures and procedures for conformance test of products implementing the Reconnect Configuration Service Specification.
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Reconnection Configuration Service (RCS) / Test Specification
1 Scope

This Bluetooth document contains the Test Suite Structure (TSS) and Test Cases (TC) to test the Bluetooth Reconnection Configuration Service.

The objective of this test specification is to provide a basis for interoperability tests for Bluetooth devices giving a high probability of air interface interoperability between different manufacturers’ Bluetooth devices.
2 References, Definitions, and Abbreviations

2.1 References

This Bluetooth document incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For the purpose of this Bluetooth document, the definitions, and abbreviations in [1], [2], and [3] apply.

[1] Bluetooth Core Specification, Version 4.0 or later
[8] Reconnection Configuration Service Implementation eXtra Information for Test, IXIT
3 Test Suite Structure (TSS)

3.1 Test Strategy
The test objectives of this service will be to verify functionality of the Reconnection Configuration Service and ensure interoperability between Bluetooth devices.

The testing approach will be to cover mandatory and optional requirements in the service specification.

As the Reconnection Configuration Service is a GATT based service, most of the tests are described in terms of GATT sub-procedures to be executed.

In cases where a GATT sub-procedure simply maps to a very few ATT requests and responds, the test procedure and the expected results are described directly in terms of ATT PDUs.

The test equipment shall provide an implementation of the Radio Controller and the parts of the Host needed to perform the test cases specified.

The test suite will contain Valid Behavior (BV) tests complemented with Invalid Behavior (BI) tests where required.

3.2 Test Groups
The following test groups have been defined to group the required tests:

- **Service Definition**
  Verify that the IUT implements the required GATT sub-procedures to discover the implemented Reconnect Configuration service and that the execution of the GATT sub-procedures yields the specified results.

- **Characteristic Declaration**
  Verify that the IUT implements the required GATT sub-procedures to discover the implemented characteristics and that the execution of the GATT sub-procedures yields the specified results.

- **Characteristic Descriptors**
  Verify that the IUT implements the required GATT sub-procedures to discover the required characteristic descriptors and that the execution of the GATT sub-procedures yields the specified results.

- **Configure Notification and Indication**
  Verify that the IUT allows for configuration of the required Client Characteristic Configurations.

- **Reconnection Configuration Features**
  Verify that the IUT provides the correct value in the RC Feature characteristic.

- **Reconnection Configuration Control Point**
  Verify that the IUT implements the required RC Control Point procedures and that executing the procedures yields the specified results.

- **Reconnection Settings**
  Verify that the IUT reflects the current setting of the service in the RC Settings characteristic.
• **Limited Access Behavior**
  Verify that the IUT behaves correctly when the access to the IUT’s RC Service is limited.

• **End to End - Cyclic redundancy check**
  Verify that the IUT correctly implements the requirements regarding the E2E CRC calculation.
4 Test Cases (TC)

4.1 Introduction

4.1.1 Test Case Identification Conventions

Test cases shall be 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>`. Bolded ID parts shall appear in the order prescribed. Non-bolded ID parts (if applicable) shall appear between the bolded parts. The order of the non-bolded parts may vary from test specification to test specification, but shall be consistent within each individual test specification.

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<tr>
<td>Identifier Abbreviation</td>
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<td>SR</td>
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<tr>
<td>Identifier Abbreviation</td>
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*Table 4.1: Reconnection Configuration Service TC Feature Naming Convention*

4.1.2 Conformance

When conformance is claimed, all capabilities indicated as mandatory for this Specification shall be supported in the specified manner (process-mandatory). This also applies for all optional and conditional capabilities for which support is indicated. All mandatory capabilities, and optional, and conditional capabilities for which support is indicated, are subject to verification as part of the Bluetooth Qualification Program.
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 that is not excluded by the Specification, OR
- That capabilities enabled by the implementations are sustained over durations expected by the use case, OR
- That the implementation gracefully handles any quantity of data expected by the use case, OR
- 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 OR
- That the implementation is immune to attempted security exploits.

A single execution of each of the required tests is required in order to constitute a pass verdict. However, it is noted that in order 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 Generator, the Test Case as described in the Test Specification, or with the Test System utilized, the Member is required to notify the responsible party via an errata request such that the issue may be addressed.

4.1.3 Pass/Fail Verdict Conventions

Each test case has an Expected Outcome section, which outlines all the detailed pass criteria conditions that shall be met by the IUT to merit a Pass Verdict.

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

4.2 Setup Preambles

The procedures defined in this section are provided for information, as they are used by test equipment in achieving the initial conditions in certain tests.

4.2.1 Setup LE Connection

Follow the preamble procedure described in [7], section 4.2.1.2 with the IUT operating in the Peripheral role.

4.2.2 Configure Server for Notifications and Indications

- Initial Condition:
  
  A RC Server IUT is connected to the Lower Tester over LE.

  The Lower Tester knows the handle of the RC Settings Client Characteristic Configuration descriptor by executing RCS/SR/DES/BV-01-C [RC Settings Client Characteristic Configuration] or by other means.
The Lower Tester knows the handle of the RC Control Point Client Characteristic Configuration descriptor by executing RCS/SR/DES/BV-02-C [RC Control Point Client Characteristic Configuration] or by other means.

- Preamble Procedure:
  1. The Lower Tester executes the GATT Write Characteristic Value sub-procedure with the handle of the RC Settings Client Characteristic Configuration descriptor and the 16-bit attribute value of 0x0001.
  2. The Lower Tester executes the GATT Write Characteristic Value sub-procedure with the handle of the RC Control Point Client Characteristic Configuration descriptor and the 16-bit attribute value of 0x0002.

4.3 Service Definition

4.3.1 RCS/SR/SD/BV-01-C [Discover All Primary Services]
- Test Purpose
  Verify that the RC Service is discoverable with the GATT Discover All Primary Service sub-procedure.

- Reference
  [3] 2.1
  [4] 4.4.1

- Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.

- Test Procedure
  The Lower Tester executes the GATT Discover All Primary Services sub-procedure as defined in [4] 4.4.1.

- Expected Outcome
  Pass verdict

  The Discover All Primary Services sub-procedure returns exactly one service definition with the attribute value set to the «Reconnection Configuration Service» UUID.

4.3.2 RCS/SR/SD/BV-02-C [Discover Primary Service by Service UUID]
- Test Purpose
  Verify that the RC Service is discoverable with the GATT Discover Primary Service by Service UUID sub-procedure.

- Reference
  [3] 2.1
  [4] 4.4.2
• **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.

• **Test Procedure**
  The Lower Tester executes the GATT Discover Primary Services by Service UUID sub-procedure as defined in [4] 4.4.2 with the service UUID set to «Reconnection Configuration Service».

• **Expected Outcome**
  Pass verdict

  The Discover All Primary Services sub-procedure returns exactly one service definition with the attribute value set to the «Reconnection Configuration Service» UUID.

### 4.4 Characteristic Declaration

• **Test Purpose**
  This test group is for generic use and contains one or more test cases to verify that the characteristic declaration meets the requirements of the service. The verification is performed one characteristic at a time, as enumerated in the Table 4.2 below, using this generic test procedure.

• **Reference**
  [3] 3, 3.1, 3.2, 3.3
  [4] 4.6.1

• **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - The Lower Tester knows the handle range of the IUT RC Service, either by executing RCS/SR/SD/BV-01-C [Discover All Primary Services] or by executing RCS/SR/SD/BV-02-C [Discover Primary Service by Service UUID]

• **Test Procedure**
  1. The Lower Tester discovers all characteristics of the IUT by executing the test procedure of GATT test case GATT/SR/GAD/BV-04-C in [7]. For a discovered characteristic that is listed in the table below, verify that the characteristic properties field contains the required properties and the characteristic UUID of the characteristic declaration meets the requirements of the service.

• **Expected Outcome**
  Pass verdict

  Each characteristic declaration is discovered by executing the GATT Discover All Characteristics of a Service sub-procedure.

  The corresponding characteristic properties field and the corresponding characteristic UUID of the characteristic declaration meet the requirements of the service.

• **Notes**
From a GATT server point of view, the GATT sub-procedures Discover All Characteristics of a Service and Discover Characteristics by UUID are the same and thus, it is sufficient to test just one of them.

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Required Characteristic Properties</th>
<th>Required Characteristic UUID</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4.1 RCS/SR/DEC/BV-01-C [RC Feature Characteristic]</td>
<td>Read (0x02)</td>
<td>«Reconnection Configuration Features»</td>
</tr>
<tr>
<td>4.4.2 RCS/SR/DEC/BV-02-C [RC Settings Characteristic]</td>
<td>Read (0x02)</td>
<td>«Reconnection Configuration Settings»</td>
</tr>
<tr>
<td>4.4.3 RCS/SR/DEC/BV-03-C [RC Settings Characteristic]</td>
<td>Read (0x02), Notify (0x10)</td>
<td>«Reconnection Configuration Settings»</td>
</tr>
<tr>
<td>4.4.4 RCS/SR/DEC/BV-04-C [RC Control Point Characteristic]</td>
<td>Write (0x08), Indicate (0x20)</td>
<td>«Reconnection Configuration Control Point»</td>
</tr>
</tbody>
</table>

Table 4.2: Characteristic Declaration Test Cases

4.5 Characteristic Descriptors

- Test Purpose
  This test group is for generic use and contains one or more test cases to verify that the characteristic descriptors meet the requirements of the service. The verification is done one descriptor at a time, as enumerated in the Table 4.3 using this generic test procedure.

- Reference
  [3] 3, 3.2, 3.3
  [4] 4.6.1, 4.7.1

- Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - The Lower Tester knows the handle ranges of the RC Service, either by executing RCS/SR/SD/BV-01-C [Discover All Primary Services], or by executing RCS/SR/SD/BV-02-C [Discover Primary Service by Service UUID]

- Test Procedure
  1. The Lower Tester executes the GATT Discover All Characteristics of a Service sub-procedure with the given RC Service handle range.
  2. For every discovered characteristic where a test case exists in the table below, the Lower Tester executes the GATT Discover All Characteristic Descriptors sub-procedure.
  3. For a discovered descriptor that is listed in the table below, verify that the descriptor of the required type is contained in the characteristic with the given characteristic UUID.

- Expected Outcome
Pass verdict

Each characteristic descriptor is discovered within the tested characteristic and has the required attribute type.

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Tested Characteristic UUID</th>
<th>Required Attribute Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5.1 RCS/SR/DES/BV-01-C [RC Settings Client Characteristic Configuration]</td>
<td>«Reconnection Configuration Settings»</td>
<td>«Client Characteristic Configuration»</td>
</tr>
<tr>
<td>4.5.2 RCS/SR/DES/BV-02-C [RC Control Point Client Characteristic Configuration]</td>
<td>«Reconnection Configuration Control Point»</td>
<td>«Client Characteristic Configuration»</td>
</tr>
</tbody>
</table>

Table 4.3: Characteristic Descriptor Test Cases

4.6 Configure Notification and Indication

4.6.1 RCS/SR/CON/BV-01-C [Configure RC Settings for Notifications]

• Test Purpose
  Verify that the RC server IUT accepts the request of a client to configure notifications.

• Reference
  [3] 3

• Initial Condition
  - Establish a connection between the Lower Tester and IUT the Preamble in using 4.2.1.
  - The Lower Tester knows the handle of the RC Settings Client Characteristic Configuration descriptor by executing RCS/SR/DES/BV-01-C [RC Settings Client Characteristic Configuration].

• Test Procedure
  1. The Lower Tester sends an ATT Write Request to the IUT, with the attribute handle set to the handle of the RC Settings Client Characteristic Configuration descriptor and the value set to the 16-bit value 0x0000.
  2. The IUT replies with an ATT Write Response.
  3. The Lower Tester sends an ATT Read Request to the IUT, with the attribute handle set to the handle of the RC Settings Client Characteristic Configuration descriptor.
  4. The IUT replies with an ATT Read Response, containing the 16-bit value 0x0000.
  5. The Lower Tester sends an ATT Write Request to the IUT, with the attribute handle set to the handle of the RC Settings Client Characteristic Configuration descriptor and the value set to the 16-bit value 0x0001.
  6. The IUT replies with an ATT Write Response.
7. The Lower Tester sends an ATT Read Request to the IUT, with the attribute handle set to the handle of the RC Settings Client Characteristic Configuration descriptor.

8. The IUT replies with an ATT Read Response, containing the 16-bit value 0x0001.

• Expected Outcome
  
  Pass verdict

  The IUT replies as outlined in the test procedure without any error.

### 4.6.2 RCS/SR/CON/BV-02-C [Configure RC Control Point for Indications]

• Test Purpose
  
  Verify that the IUT accepts the request of a client to configure indications.

• Reference
  
  [3]

• Initial Condition
  
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  
  - The Lower Tester knows the handle of the RC Control Point Client Characteristic Configuration descriptor by executing RCS/SR/DES/BV-02-C [RC Control Point Client Characteristic Configuration].

• Test Procedure
  
  1. The Lower Tester sends an ATT Write Request to the IUT, with the attribute handle set to the handle of the RC Control Point Client Characteristic Configuration descriptor and the value set to the 16-bit value 0x0000.
  
  2. The IUT replies with an ATT Write Response.
  
  3. The Lower Tester sends an ATT Read Request to the IUT, with the attribute handle set to the handle of the RC Control Point Client Characteristic Configuration descriptor.
  
  4. The IUT replies with an ATT Read Response, containing the 16-bit value 0x0000.
  
  5. The Lower Tester sends an ATT Write Request to the IUT, with the attribute handle set to the handle of the RC Control Point Client Characteristic Configuration descriptor and the value set to the 16-bit value 0x0002.
  
  6. The IUT replies with an ATT Write Response.
  
  7. The Lower Tester sends an ATT Read Request to the IUT, with the attribute handle set to the handle of the RC Control Point Client Characteristic Configuration descriptor.
  
  8. The IUT replies with an ATT Read Response, containing the 16-bit value 0x0002.

• Expected Outcome
  
  Pass verdict

  The IUT replies as outlined in the test procedure without any error.
4.7 Reconnection Configuration Features

- Test Purpose
  This test group is for generic use and contains one or more test cases to read and verify that the indicated features are reflected in the value of the RC Feature characteristic. The verification is done one feature at a time, as enumerated in Table 4.4 below, using this generic test procedure.

- Reference
  [3] 3.1.1

- Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - The Lower Tester knows the handle of the RC Features characteristic value declaration by executing RCS/SR/DEC/BV-01-C [RC Feature Characteristic].

- Test Procedure
  1. The Lower Tester executes the GATT Read Characteristic Value sub-procedure to read the RC Feature characteristic value from the IUT, using the given handle.
  2. For every test case to be executed, the required bit value is checked against the requirements.

- Expected Outcome
  Pass verdict
  The required bit value must be equal to the bit value at the given bit position in the RC Feature characteristic value.
<table>
<thead>
<tr>
<th>Test Case</th>
<th>Required Bit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7.1 RCS/SR/RCFEA/BV-01-C [E2E-CRC Supported]</td>
<td>0 1</td>
</tr>
<tr>
<td>4.7.2 RCS/SR/RCFEA/BV-02-C [E2E-CRC not Supported]</td>
<td>0 0</td>
</tr>
<tr>
<td>4.7.3 RCS/SR/RCFEA/BV-03-C [Enable Disconnect Supported]</td>
<td>1 1</td>
</tr>
<tr>
<td>4.7.4 RCS/SR/RCFEA/BV-04-C [Enable Disconnect not Supported]</td>
<td>1 0</td>
</tr>
<tr>
<td>4.7.5 RCS/SR/RCFEA/BV-05-C [Ready for Disconnect Supported]</td>
<td>2 1</td>
</tr>
<tr>
<td>4.7.6 RCS/SR/RCFEA/BV-06-C [Ready for Disconnect not Supported]</td>
<td>2 0</td>
</tr>
<tr>
<td>4.7.7 RCS/SR/RCFEA/BV-07-C [Propose Reconnection Timeout Supported]</td>
<td>3 1</td>
</tr>
<tr>
<td>4.7.8 RCS/SR/RCFEA/BV-08-C [Propose Reconnection Timeout not Supported]</td>
<td>3 0</td>
</tr>
<tr>
<td>4.7.9 RCS/SR/RCFEA/BV-09-C [Propose Connection Interval Supported]</td>
<td>4 1</td>
</tr>
<tr>
<td>4.7.10 RCS/SR/RCFEA/BV-10-C [Propose Connection Interval not Supported]</td>
<td>4 0</td>
</tr>
<tr>
<td>4.7.11 RCS/SR/RCFEA/BV-11-C [Propose Slave Latency Supported]</td>
<td>5 1</td>
</tr>
<tr>
<td>4.7.12 RCS/SR/RCFEA/BV-12-C [Propose Slave Latency not Supported]</td>
<td>5 0</td>
</tr>
<tr>
<td>4.7.13 RCS/SR/RCFEA/BV-13-C [Propose Supervision Timeout Supported]</td>
<td>6 1</td>
</tr>
<tr>
<td>4.7.14 RCS/SR/RCFEA/BV-14-C [Propose Supervision Timeout not Supported]</td>
<td>6 0</td>
</tr>
<tr>
<td>4.7.15 RCS/SR/RCFEA/BV-15-C [Propose Advertisement Interval Supported]</td>
<td>7 1</td>
</tr>
<tr>
<td>4.7.16 RCS/SR/RCFEA/BV-16-C [Propose Advertisement Interval not Supported]</td>
<td>7 0</td>
</tr>
<tr>
<td>4.7.17 RCS/SR/RCFEA/BV-17-C [Propose Advertisement Count Supported]</td>
<td>8 1</td>
</tr>
<tr>
<td>4.7.18 RCS/SR/RCFEA/BV-18-C [Propose Advertisement Count not Supported]</td>
<td>8 0</td>
</tr>
<tr>
<td>4.7.19 RCS/SR/RCFEA/BV-19-C [Propose Advertisement Repetition Supported]</td>
<td>9 1</td>
</tr>
</tbody>
</table>
## Table 4.4: RC Features Test Cases

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Required Bit Value</th>
<th>Bit Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7.20 RCS/SR/RCFEA/BV-20-C [Propose Advertisement Repetition not Supported]</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>4.7.21 RCS/SR/RCFEA/BV-21-C [Advertisement Configuration 1 Supported]</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>4.7.22 RCS/SR/RCFEA/BV-22-C [Advertisement Configuration 1 not Supported]</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>4.7.23 RCS/SR/RCFEA/BV-23-C [Advertisement Configuration 2 Supported]</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>4.7.24 RCS/SR/RCFEA/BV-24-C [Advertisement Configuration 2 not Supported]</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>4.7.25 RCS/SR/RCFEA/BV-25-C [Advertisement Configuration 3 Supported]</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>4.7.26 RCS/SR/RCFEA/BV-26-C [Advertisement Configuration 3 not Supported]</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>4.7.27 RCS/SR/RCFEA/BV-27-C [Advertisement Configuration 4 Supported]</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>4.7.28 RCS/SR/RCFEA/BV-28-C [Advertisement Configuration 4 not Supported]</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>4.7.29 RCS/SR/RCFEA/BV-29-C [Upgrade to LESC Only Supported]</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>4.7.30 RCS/SR/RCFEA/BV-30-C [Upgrade to LESC Only not Supported]</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>4.7.31 RCS/SR/RCFEA/BV-31-C [Next Pairing OOB Supported]</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>4.7.32 RCS/SR/RCFEA/BV-32-C [Next Pairing OOB not Supported]</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>4.7.33 RCS/SR/RCFEA/BV-33-C [Use of White List Supported]</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>4.7.34 RCS/SR/RCFEA/BV-34-C [Use of White List not Supported]</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>4.7.35 RCS/SR/RCFEA/BV-35-C [Disable RCS (for other Clients) Supported]</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>4.7.36 RCS/SR/RCFEA/BV-36-C [Disable RCS (for other Clients) not Supported]</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>4.7.37 RCS/SR/RCFEA/BV-37-C [RFUs]</td>
<td>0</td>
<td>18-22</td>
</tr>
<tr>
<td>4.7.38 RCS/SR/RCFEA/BV-38-C [Feature Extension]</td>
<td>0</td>
<td>23</td>
</tr>
</tbody>
</table>
4.8 Reconnection Configuration Control Point Procedures

4.8.1 RCS/SR/RCCP/BV-01-C [Enable Disconnect Procedure]

- **Test Purpose**
  Verify that the IUT can execute the Enable Disconnect procedure.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.1

- **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - If the IUT is not ready to disconnect, do whatever is necessary to make the IUT ready for disconnecting.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

- **Test Procedure**
  1. The Lower Tester 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.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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 three octets containing the «Procedure Response» opcode, followed by the «Enable Disconnect» opcode and the result code value 0x01 (Success).
  4. The Lower Tester sends an ATT Handle Value Confirmation PDU.

- **Expected Outcome**
  Pass verdict
  The test procedure executes in the given order without any errors and PDUs contain the described values.
  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

4.8.2 RCS/SR/RCCP/BI-01-C [Enable Disconnect Procedure, Type 2]

- **Test Purpose**
Verify that the IUT responds with a Device Busy error code when the Enable Disconnect procedure is executed and the IUT is unable to start the disconnect procedure.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.1

- **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - If the IUT is ready to disconnect, do whatever is necessary to make the IUT to become **not** ready for disconnecting.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

- **Test Procedure**
  1. The Lower Tester 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.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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 three octets containing the «Procedure Response» opcode, followed by the «Enable Disconnect» opcode and the result code value 0x07 (Device Busy).
  4. The Lower Tester sends an ATT Handle Value Confirmation PDU.

- **Expected Outcome**
  **Pass verdict**

  The test procedure executes in the given order without any errors and PDUs contain the described values.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

### 4.8.3 RCS/SR/RCCP/BV-02-C [Get Actual Communication Parameters]

- **Test Purpose**
  Verify that the IUT can execute the Get Actual Communication Parameters procedure.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.2
• Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.
  - The connection interval, the connection client latency, and the connection timeout of the current connection between the IUT and Lower Tester are known, either by explicitly establishing the connection with given parameters or by monitoring the connection process and connection parameter update procedures.

• Test Procedure
  1. The Lower Tester 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.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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.
  4. The Lower Tester sends an ATT Handle Value Confirmation PDU.

• Expected Outcome
  Pass verdict
  The test procedure executes in the given order without any errors and PDUs contain the described values.
  The received Response Parameters must contain the currently used communication parameters.
  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

4.8.4 RCS/SR/RCCP/BV-03-C [Propose Reconnection Timeout Settings]

• Test Purpose
  Verify that the IUT can execute the Propose Settings procedure with changed reconnection timeout settings.

• Reference
  [3] 3.3.1, 3.3.2, 3.3.2.3

• Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
Configure the IUT for notifications and indications using the Preamble in 4.2.2.

- Change the reconnection timeout parameter of the RC server to a value that is easily distinguishable from the value from the stored parameter-set 0.

- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

- The parameters of the stored parameter-set 0 are known from the IXIT [8].

**Test Procedure**

The test procedure has to be executed twice with two different values for the reconnection timeout. Choose two values that are clearly distinguishable.

1. The Lower Tester 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 «Propose Settings» and an Operand Parameter with the chosen reconnection timeout. All other fields in the Operand Parameter are filled with the value 0xFFFF.

2. The RC server IUT responds with an ATT Write Response.

3. The IUT 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 «Propose Settings» request opcode and the Result Code value of 0x01 (Success).

4. Disconnect the Lower Tester from the IUT and let the IUT start to advertise.

5. The IUT reconnection timeout timer starts.

6. Wait until the reconnection timeout time has been reached.

7. Reestablish a connection between the Lower Tester and IUT using the Preamble in 4.2.1

8. The Lower Tester 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.


10. The IUT 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.

11. The Lower Tester sends an ATT Handle Value Confirmation PDU.

**Expected Outcome**

**Pass verdict**

The reconnection timer parameter that is used after the timeout has been reached is changed to the value from the known, stored parameters-set 0.

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.
• Notes

The test objective is to verify the behavior, not the exact timing, so a tolerance of ±5s is acceptable.

4.8.5 RCS/SR/RCCP/BV-04-C [Disable Reconnection Timer]

• Test Purpose

Verify that the IUT can execute the Propose Settings procedure with a reconnection timeout of 0 to disable the Reconnection Timer.

• Reference

[3] 3.3.1, 3.3.2, 3.3.2.3

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- Change all advertising parameters that are supported by the RC server to values that are easily distinguishable from the value from the stored parameter-set 0 by observing the advertising behavior of the IUT.
- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.
- The advertising parameters of the stored parameter-set 0 are known.

• Test Procedure

1. The Lower Tester 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 «Propose Settings» and an Operand Parameter with the reconnection timeout set to 0. All other fields in the Operand Parameter are filled with the value 0xFFFF.
2. The RC server IUT responds with an ATT Write Response.
3. The IUT 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 «Propose Settings» request opcode and the Result Code value of 0x01 (Success).
4. Disconnect the Lower Tester from the IUT and let the IUT start to advertise.
5. The IUT sends advertising PDUs with the parameters from the stored parameter-set 0.

• Expected Outcome

Pass verdict

Despite the changed advertising parameters in the initial condition, the IUT advertises with the values from the known, stored parameters-set 0 for those parameters that are supported by the IUT.
If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

4.8.6 Propose Connection Parameter Settings

- **Test Purpose**
  This test group is for generic use and contains one or more test cases to verify that the IUT can change specific parameters of the current connection by executing the Propose Settings procedure. The verification is done one test at the time, as enumerated in the Table 4.5 below, using this generic test procedure.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.3

- **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.
  - The connection interval, the slave latency of the current connection between the IUT and Lower Tester is known, either by explicitly establishing the connection with given parameters or by monitoring the connection process and connection parameter update procedures.

- **Test Procedure**
  1. Choose operand parameter values as described in the table below. If the chosen parameters are out of the supported range of the IUT, choose the nearest values that are within the supported range. The core specification required that the connection supervision timeout is larger than \((1 + \text{connSlaveLatency}) \cdot \text{connInterval} \cdot 2\). If this requirement is violated by the chosen parameter, change another supported parameter so that the requirement will be fulfilled. If the change of other parameters is not supported, apply a minimum chosen parameter, so that the requirement will be fulfilled.
  2. The Lower Tester 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 «Propose Settings» and an Operand Parameter with Parameters as described by the table below, for the specific test case. All other fields in the Operand Parameter are filled with the value 0xFFFF.
  3. The IUT initiates the GAP Connection Parameter Update Procedure with the chosen parameters.
  4. The IUT 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 «Propose Settings» request opcode and the Result Code value of 0x09 (Proposal Accepted).
  5. The Lower Tester sends an ATT Handle Value Confirmation.
7. The IUT 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.

8. The Lower Tester sends an ATT Handle Value Confirmation PDU.

![Message sequence chart for Propose Connection Parameter Settings]

Figure 4.1: Message sequence chart for Propose Connection Parameter Settings

- **Expected Outcome**
  
  **Pass verdict**

  The IUT sends the requested PDUs in the given order.

  The IUT initiates the GAP Connection Parameter Update Procedure.

  The GAP Connection Parameter Update request, contains the changed parameter as described for the test case and for those parameters that are not changed, the currently used connection parameters.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDUs must be present.

- **Notes**

  Depending on the IUT’s Link Layer role, the set of implemented features in both link layers, and their respective core versions, the initiation of the connection parameter change might be done by sending
a L2CAP Connection Parameter Update Request, a LL Connection Update Request, or a LL Connection Parameter Request.

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Operand Fields to Fill</th>
<th>Value to Fill</th>
</tr>
</thead>
</table>
| **4.8.7 RCS/SR/RCCP/BV-05-C**  
[Propose Connection Interval Settings] | Minimum Connection Interval and Maximum Connection Interval (Field-Nr. 1 and 2) | If the currently used connection interval between the IUT and Lower Tester is lower than or equal to 2 seconds, use 2.5 seconds as minimum connection interval and 4 seconds as maximum connection interval. If the currently used connection interval is larger than 2 seconds, use 1.5 seconds as maximum connection interval and 7.5ms as minimum connection interval. |
| **4.8.8 RCS/SR/RCCP/BV-06-C**  
[Propose Slave Latency Settings] | Slave Latency (Field-Nr. 3) | Chose a new slave latency that is different from the slave latency of the current connection and is in the range of 0 to 499. |
| **4.8.9 RCS/SR/RCCP/BV-07-C**  
[Propose Supervision Timeout Settings] | Supervision Timeout (Field-Nr 4) | Chose a new supervision timeout that is different from the current connection and is in the range of 100ms to 32s. |
| **4.8.10 RCS/SR/RCCP/BV-08-C**  
[Propose Connection Parameter Settings] | From the test cases above, all fields for which the IUT indicates support. | From the test cases above, all values for which the IUT indicates support. |

**Table 4.5: Propose Connection Parameters Settings Test Cases**

**4.8.11 Propose Advertising Parameter Settings**

- **Test Purpose**
  
  This test group is for generic use and contains one or more test cases to verify that the IUT can change specific advertising parameters by executing the Propose Settings procedure. The verification is done one test at the time, as enumerated in the Table 4.6 below, using this generic test procedure.

- **Reference**
  
  [3] 3.3.1, 3.3.2, 3.3.2.3

- **Initial Condition**
  
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- Configure the IUT to use the stored parameter-set 0.

- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

- The advertising parameters of the stored parameter-set 0 are known from the IXIT [8].

• Test Procedure

  1. The Lower Tester 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 «Propose Settings» and an Operand Parameter with Parameters as described by the table below, for the specific test case. All other fields in the Operand Parameter are filled with the value 0xFFFF.

  2. The RC server IUT responds with an ATT Write Response.

  3. The IUT 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 «Propose Settings» request opcode and the Result Code value of 0x01 (Success).

  4. The Lower Tester sends an ATT Handle Value Confirmation.

  5. Disconnect the Lower Tester from the IUT and do whatever is necessary for the IUT to start advertising.

  6. The IUT sends advertising PDUs.

  7. The Lower Tester observes the PDUs send by the IUT.
Figure 4.2: Message sequence chart for Propose Advertising Parameter Settings

- Expected Outcome

**Pass verdict**

The IUT sends the requested PDUs in the given order.

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDUs must be present.

The observed advertising PDUs follow the changed advertising parameters for those parameters that were changed by the test.

The observed advertising PDUs follow parameters from the stored parameter-set 0 for those parameters that were not to be changed by the test.
### Test Case Operand Fields to Fill Value to Fill

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Operand Fields to Fill</th>
<th>Value to Fill</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.8.12 RCS/SR/RCCP/BV-09-C</strong> [Propose Advertisement Interval Settings]</td>
<td>Advertisement Interval (Field-Nr. 5)</td>
<td>Chose a new advertisement interval that is different from that from the stored parameter-set 0 and in the range 20ms to 10.24s.</td>
</tr>
<tr>
<td><strong>4.8.13 RCS/SR/RCCP/BV-10-C</strong> [Propose Advertisement Count Settings]</td>
<td>Advertisement Count (Field-Nr. 6)</td>
<td>Chose a new advertisement count value that is different from that from the stored parameter-set 0 and in the range 1 to 1000.</td>
</tr>
<tr>
<td><strong>4.8.14 RCS/SR/RCCP/BV-11-C</strong> [Propose Advertisement Repetition Time Settings]</td>
<td>Advertisement Repetition (Field-Nr 7)</td>
<td>Chose a new advertisement repetition value that is different from that from the stored parameter-set 0 and in the range 1 to 10000.</td>
</tr>
<tr>
<td><strong>4.8.15 RCS/SR/RCCP/BV-12-C</strong> [Propose Advertisement Parameter Settings]</td>
<td>From the test cases above, all fields for which the IUT indicates support.</td>
<td>From the test cases above, all values for which the IUT indicates support.</td>
</tr>
</tbody>
</table>

*Table 4.6: Propose Advertising Parameters Settings Test Cases*

#### 4.8.16 RCS/SR/RCCP/BI-02-C [Propose Invalid Connection Interval]

- **Test Purpose**
  Verify that the IUT tests the connection interval part of the parameters of a Propose Settings procedure request.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.3

- **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing **RCS/SR/DEC/BV-04-C** [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.
  - The connection parameters, acceptable by the IUT, are known.

- **Test Procedure**
  Choose a maximum and minimum connection interval parameter that are known to be not acceptable by the IUT.
1. The Lower Tester 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 «Propose Settings» and an Operand Parameter with the Minimum Connection Interval set to the chosen maximum connection interval and the Maximum Connection Interval set to the chosen minimum connection interval. All other fields in the Operand Parameter are filled with the value 0xFFFF.

2. The RC server IUT responds with an ATT Write Response.

3. The IUT 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, followed by the «Propose Settings» request opcode, the Result Code value of 0x05 (Communication Parameter out of range) and the Result Parameter 0x06.

4. The Lower Tester sends an ATT Handle Value Confirmation.

   - Expected Outcome
     
     Pass verdict
     
     The IUT sends the requested PDUs in the given order.

     If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDUs must be present.

4.8.17 Activate Stored Settings

   - Test Purpose
     
     This test group is for generic use and contains one or more test cases to verify that the IUT can execute the activate stored settings procedure. The verification is done one test at the time, as enumerated in the Table 4.7 below, using this generic test procedure.

   - Reference
     
     [3] 3.3.1, 3.3.2, 3.3.2.4

   - Initial Condition

     - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.

     - Configure the IUT for notifications and indications using the Preamble in 4.2.2.

     - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

     - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

     - The values of the stored parameter-sets are known from the IXIT [8].

   - Test Procedure

     For every test case, there is exactly one parameter-set to use. The parameter to the activate stored settings procedure is the number of the parameter-set.
1. The Lower Tester 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 with the parameter-set number.

2. The RC server IUT responds with an ATT Write Response.

Depending on the differences between the actual communication parameters and the values of the stored parameters-set 0, the test has two different outcomes:

3. The IUT 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

4. The IUT starts a GAP Connection Parameter Update Procedure, with the connection parameters set to the values of the used parameter-set.

5. The Lower Tester successfully executes the GAP Connection Parameter Update Procedure with the IUT, resulting in the changed connection parameters applied to the current link layer connection.

6. The IUT 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).

In both cases, these are the next steps:

7. The Lower Tester sends an ATT Handle Value Confirmation.

8. Disconnect the Lower Tester from the IUT and do whatever is necessary for the IUT to start advertising.

9. The IUT sends advertising PDUs.

10. The Lower Tester observes the PDUs send by the IUT.
Figure 4.3: Message sequence chart for Activate Stored Settings

- Expected Outcome

  **Pass verdict**

  The IUT sends the requested PDUs in the given order.

  Either the steps 1 to 3 or 1 to 2 and 4 to 6 are executed.

  In both cases the steps 7 to 10 are executed.

  If step 4 is executed, the L2CAP Connection Parameter Update Request PDU contains the connection parameters of the used stored parameter-set.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

  The observed advertising PDUs follow parameters from the stored parameter-set used.
### Table 4.7: Activate Stored Settings Test Cases

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Parameter-Set to be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.8.18 RCS/SR/RCCP/BV-13-C [Activate Stored Parameter-Set 0 Settings]</td>
<td>Use parameter-set 0.</td>
</tr>
</tbody>
</table>

#### 4.8.20 RCS/SR/RCCP/BI-03-C [Activate Stored Settings - Invalid Operand]

- **Test Purpose**
  
  Verify that the IUT responds with an error code when the activate stored settings procedure is started with a not supported stored parameter-set.

- **Reference**
  
  [3] 3.3.1, 3.3.2, 3.3.2.4, 3.3.3

- **Initial Condition**
  
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.
  
  - The number of supported stored parameter-sets by the IUT are known from the IXIT [8].

- **Test Procedure**
  
  1. The Lower Tester 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 with the number of the first not supported stored parameter-set.
  
  2. The RC server IUT responds with an ATT Write Response.
  
  3. The IUT 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 0x03 (Invalid Operand).
  
  4. The Lower Tester sends an ATT Handle Value Confirmation.

- **Expected Outcome**
  
  Pass verdict
The IUT 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 0x03 (Invalid Operand).

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDUs must be present.

4.8.21 RCS/SR/RCCP/BV-15-C [Get Max Values]

- **Test Purpose**
  Verify that the IUT can execute the Get Max Values procedure.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.5

- **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

- **Test Procedure**
  1. The Lower Tester 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 RC server IUT responds with an ATT Write Response.
  3. The IUT 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 Max Values» request opcode and a Response Parameter, containing the IUT’s maximum values.
  4. The Lower Tester sends an ATT Handle Value Confirmation.

- **Expected Outcome**
  **Pass verdict**
  The IUT sends the requested PDUs in the given order.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

  All reported maximum values are within their specified ranges.
4.8.22 RCS/SR/RCCP/BV-16-C [Get Min Values]

- **Test Purpose**
  Verify that the IUT can execute the Get Min Values procedure.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.6

- **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

- **Test Procedure**
  1. The Lower Tester 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 RC server IUT responds with an ATT Write Response.
  3. The IUT 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 IUT’s minimum values.
  4. The Lower Tester sends an ATT Handle Value Confirmation.

- **Expected Outcome**
  **Pass verdict**
  The IUT sends the requested PDUs in the given order.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

  All reported minimum values are within their specified ranges.

4.8.23 Get Stored Values

- **Test Purpose**
  This test group is for generic use and contains one or more test cases to verify that the IUT can execute the get stored values procedure. The verification is done one test at the time, as enumerated in the Table 4.8 below, using this generic test procedure.

- **Reference**
[3] 3.3.1, 3.3.2, 3.3.2.7

• Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

• Test Procedure
  For every test case, there is exactly one parameter-set to use. The parameter to the get stored values procedure is the number of the parameter-set.

  1. The Lower Tester 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 the parameter-set number.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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.
  4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome
  Pass verdict

  The IUT sends the requested PDUs in the given order.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

  All fields of the returned Response Parameter contain either 0xFFFF or a value that is within the allowed range of the field.

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Parameter-Set to be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.8.24 RCS/SR/RCCP/BV-17-C [Get Stored Parameter-Set 0 Values]</td>
<td>Use parameter-set 0.</td>
</tr>
</tbody>
</table>

Table 4.8: Get Stored Values Test Cases


• Test Purpose
Verify that the IUT responds with an error code when the get stored values procedure is started with a stored parameter-set that is not supported by the IUT.

- Reference
  [3] 3.3.1, 3.3.2, 3.3.2.7, 3.3.3

- Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.
  - The number of supported stored parameter-sets by the IUT are known.

- Test Procedure
  1. The Lower Tester 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 the number of the first not supported stored parameter-set.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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).
  4. The Lower Tester sends an ATT Handle Value Confirmation.

- Expected Outcome
  Pass verdict

  The IUT sends the requested PDUs in the given order.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDUs must be present.

4.8.27 RCS/SR/RCCP/BV-19-C [Set White List Timer]

- Test Purpose
  Verify that the IUT can execute the Set White List Timer procedure.

- Reference
  [3] 3.3.1, 3.3.2, 3.3.2.8

- Initial Condition
- Establish a connection between the Lower Tester 1 and IUT using the Preamble in 4.2.1.

- Configure the IUT for notifications and indications using the Preamble in 4.2.2.

- Create an entry in the IUT’s white list that contains the Lower Tester 1’s device address and device address type.

- For Lower Tester 2, change the Lower Tester 1’s device address to an address not within the IUT’s white list, or use a different Lower Tester with an address not within the IUT’s white list.

- The Lower Tester 2 knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

- The Lower Tester 1 has discovered the IUT’s supported features using the test cases in Section 4.7.

- The white list timer values accepted by the IUT are known by executing RCS/SR/RCCP/BV-21-C [Get White List Timer] or by any other means.

**Test Procedure**

1. The Lower Tester 1 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 White List Timer» and a 32-bit unsigned operand set to the chosen white list timer value of 120 seconds.

2. The RC server IUT responds with an ATT Write Response.

3. The IUT 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 White List Timer» request opcode and the Result Code value of 0x01 (Success).

4. The Lower Tester 1 sends an ATT Handle Value Confirmation.

5. Disconnect the Lower Tester 1 from the IUT.

6. Start a timer.

7. Try to connect the Lower Tester 2 to the IUT while the white list timer is still running.

8. Connect the Lower Tester 2 to the IUT after the white list timer value has been reached by the started timer.

**Expected Outcome**

**Pass verdict**

The IUT sends the requested PDUs in the given order.

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

Until the white list timer value has been reached the RC server IUT will not reply to any data channel PDUs and let the Lower Tester’s connection attempts time out.

After the white list timer value has been reached, the RC server IUT will respond to connection attempts by replying on data channel PDUs after the connection request was received.
4.8.28 RCS/SR/RCCP/BV-20-C [Disable White List]

- **Test Purpose**
  Verify that the IUT can execute the Set White List Timer procedure to disable the White List.

- **Reference**
  [3] 3.3.1, 3.3.2, 3.3.2.8

- **Initial Condition**
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - Create an entry in the IUT's white list that contains the Lower Tester's device address and device address type.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.
  - The white list timer values accepted by the IUT are known by executing RCS/SR/RCCP/BV-21-C [Get White List Timer] or by any other means.

- **Test Procedure**
  1. The Lower Tester 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 White List Timer» and a 32-bit unsigned operand set to 0.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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 White List Timer» request opcode and the Result Code value of 0x01 (Success).
  4. The Lower Tester sends an ATT Handle Value Confirmation.
  5. Disconnect the Lower Tester from the IUT.
  6. Change the Lower Tester’s device address to an address not within the IUT’s white list, or use a different Lower Tester with an address not within the IUT’s white list.
  7. Try to connect the Lower Tester to the IUT.

- **Expected Outcome**
  **Pass verdict**
  The IUT sends the requested PDUs in the given order.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.
The RC server IUT will confirm the connection attempts by replying on data channel PDUs after the connection request was received.

4.8.29 RCS/SR/RCCP/BV-21-C [Get White List Timer]

• Test Purpose
Verify that the IUT can execute the Get White List Timer procedure.

• Reference
[3] 3.3.1, 3.3.2, 3.3.2.9

• Initial Condition
- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure
1. The Lower Tester 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 White List Timer» without any operands.
2. The RC server IUT responds with an ATT Write Response.
3. The IUT 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 «White List Timer Response» opcode and followed by 3 32-bit unsigned integers.
4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome
Pass verdict
The IUT sends the requested PDUs in the given order.

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

4.8.30 Set Advertisement Configuration

• Test Purpose
This test group is for generic use and contains one or more test cases to verify that the IUT can execute the Set Advertisement Configuration procedure. The verification is done one test at the time, as enumerated in the Table 4.9 below, using this generic test procedure.

• Reference
• Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure
  1. The Lower Tester 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 Advertisement Configuration» and an 8-bit unsigned operand set to the procedure operand from the table below.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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 Advertisement Configuration» request opcode and the Result Code value of 0x01 (Success).
  4. The Lower Tester sends an ATT Handle Value Confirmation.
  5. Disconnect the Lower Tester from the IUT.
  6. Do whatever is necessary to let the IUT start advertising.
  7. The Lower Tester observes the IUT’s advertising PDUs.

• Expected Outcome

Pass verdict

The IUT sends the requested PDUs in the given order.

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

The Lower Tester observes the expected advertising PDU type.
### Table 4.9: Set Advertisement Configuration Test Cases

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Advertisement Configuration</th>
<th>Procedure Operand</th>
<th>Expected Advertising PDU Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.8.31 RCS/SR/RCCP/BV-22-C [Set Connectable Undirected Advertisement Configuration]</td>
<td>1</td>
<td>0</td>
<td>ADV_IND</td>
</tr>
<tr>
<td>4.8.32 RCS/SR/RCCP/BV-23-C [Set Scannable Undirected Advertisement Configuration]</td>
<td>2</td>
<td>1</td>
<td>ADV_SCAN_IND</td>
</tr>
<tr>
<td>4.8.33 RCS/SR/RCCP/BV-24-C [Set Non-Connectable Undirected Advertisement Configuration]</td>
<td>3</td>
<td>2</td>
<td>ADV_NONCONN_IND</td>
</tr>
<tr>
<td>4.8.34 RCS/SR/RCCP/BV-25-C [Set Connectable Directed Advertisement Configuration]</td>
<td>4</td>
<td>3</td>
<td>ADV_DIRECT_IND</td>
</tr>
</tbody>
</table>

### 4.8.35 RCS/SR/RCCP/BV-26-C [Upgrade to LESC Only Pairing]

- **Test Purpose**
  
  Verify that the IUT can upgrade to LESC Only pairing by executing the Upgrade to LESC Only procedure.

- **Reference**
  
  [3] 3.3.1, 3.3.2, 3.3.2.11

  [5] Vol 3, Part H, 3.5.1

- **Initial Condition**
  
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing `RCS/SR/DEC/BV-04-C [RC Control Point Characteristic]`.
  - The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.
  - The Lower Tester is not bonded to the IUT.

- **Test Procedure**
  
  1. The Lower Tester 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.
  2. The RC server IUT responds with an ATT Write Response.
3. The IUT 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).

4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome

Pass verdict

The IUT sends the requested PDUs in the given order.

If E2E-CRC is supported, the checksum is present in the ATT Handle Value Indication PDU.

4.8.36 RCS/SR/RCCP/BV-27-C [Downgrade from LESC Only Pairing]

• Test Purpose

Verify that the IUT can downgrade from LESC Only pairing by executing the Downgrade from LESC Only procedure.

• Reference

[3] 3.3.1, 3.3.2, 3.3.2.11

[5] Vol 3, Part H, 3.5.1

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.

- Configure the IUT for notifications and indications using the Preamble in 4.2.2.

- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure

1. The Lower Tester 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 0.

2. The RC server IUT responds with an ATT Write Response.

3. The IUT 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).

4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome
Pass verdict

The IUT sends the requested PDUs in the given order.

If E2E-CRC is supported, the checksum is present in the ATT Handle Value Indication PDU.

4.8.37 RCS/SR/RCCP/BV-28-C [Switch OOB Pairing On]

• Test Purpose
  Verify that the IUT can enable the out of band pairing mechanism by executing the Switch OOB Pairing procedure.

• Reference
  [3] 3.3.1, 3.3.2, 3.3.2.12

• Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
  - The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure
  1. The Lower Tester 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.
  2. The RC server IUT responds with an ATT Write Response.
  3. The IUT 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).
  4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome
  Pass verdict

The IUT sends the requested PDUs in the given order.

If E2E-CRC is supported, the checksum is present in the ATT Handle Value Indication PDU.

4.8.38 RCS/SR/RCCP/BV-29-C [Switch OOB Pairing Off]

• Test Purpose
  Verify that the IUT can disable the out of band pairing mechanism by executing the Switch OOB Pairing procedure.
• Reference

[3] 3.3.1, 3.3.2, 3.3.2.12

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure

1. The Lower Tester 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 0.
2. The RC server IUT responds with an ATT Write Response.
3. The IUT 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).
4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome

Pass verdict

The IUT sends the requested PDUs in the given order.

If E2E-CRC is supported, the checksum is present in the ATT Handle Value Indication PDU.

4.8.39 RCS/SR/RCCP/BV-30-C [Set Limited Access]

• Test Purpose

Verify that the IUT can limit the access to the IUT by executing the Limited Access procedure.

• Reference

[3] 3.3.1, 3.3.2, 3.3.2.13

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
- The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

• Test Procedure

  1. The Lower Tester 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.

  2. The RC server IUT responds with an ATT Write Response.

  3. The IUT 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).

  4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome

  Pass verdict

  The IUT sends the requested PDUs in the given order.

  If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

• Notes

  The side effect from limiting the access is tested elsewhere.

4.8.40 RCS/SR/RCCP/BV-31-C [Reset Limited Access]

• Test Purpose

  Verify that the IUT can reset full access to the IUT by executing the Limited Access procedure.

• Reference

  [3] 3.3.1, 3.3.2, 3.3.2.13

• Initial Condition

  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.

  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.

  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

• Test Procedure

  1. The Lower Tester 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 0.
2. The RC server IUT responds with an ATT Write Response.

3. The IUT 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).

4. The Lower Tester sends an ATT Handle Value Confirmation.

   • Expected Outcome
      Pass verdict
      The IUT sends the requested PDUs in the given order.
      If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

   • Notes
      The side effect from resetting to full access is tested elsewhere.

4.8.41 RCS/SR/RCCP/BI-05-C [Op Code not supported]

   • Test Purpose
      Verify that the IUT behaves correctly when a Control Point procedure is invoked with an opcode that is not supported by the IUT.

   • Reference
      [3] 3.3, 3.3.3

   • Initial Condition
      - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
      - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
      - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
      - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

   • Test Procedure
      1. The Lower Tester 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 8-bit opcode, which is not supported by the IUT, and no additional parameters.
      2. The RC server IUT responds with an ATT Write Response.
      3. The IUT 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, followed by the invalid request opcode, and the Result Code value of 0x02 (Op Code not supported).
      4. The Lower Tester sends an ATT Handle Value Confirmation.
• Expected Outcome

Pass verdict

The IUT sends the requested PDUs in the given order.

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.

4.8.42 RCS/SR/RCCP/BI-06-C [Invalid Operand]

• Test Purpose

Verify that the IUT behaves correctly when a Control Point procedure is invoked with an invalid operand.

• Reference

[3] 3.3, 3.3.3

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure

1. The Lower Tester 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 8-bit opcode of 0x0A (Upgrade to LESC Only) or 0x0B (Switch OOB Pairing) and an operand of 0xAA.
2. The RC server IUT responds with an ATT Write Response.
3. The IUT 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, followed by the request opcode, and the Result Code value of 0x03 (Invalid Operand).
4. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome

Pass verdict

The IUT sends the requested PDUs in the given order.

If the IUT supports E2E-CRC, the checksum sent in the ATT Handle Value Indication PDU must be present.
4.8.43 RCS/SR/RCCP/BI-07-C [Client Characteristic Configuration Descriptor Improperly Configured]

• Test Purpose
Verify that the IUT responds appropriately when a Client attempts to perform an RCCP procedure with a Client Characteristic Configuration descriptor that is improperly configured.

• Reference
[3] 3.3, 3.3.3

• Initial Condition
- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
- The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

• Test Procedure
1. The Lower Tester sends an ATT Write Request with the attribute handle set to the handle of the RC Control Point Characteristic Value declaration. The value contains a valid Control Point procedure request for a procedure that is supported by the IUT and with parameters that are known to be accepted by the IUT.
2. The RC server IUT responds with an ATT Error Response with the request opcode set to «Write Request», the attribute handle set to the handle of the RC Control Point Characteristic Value declaration, and the error code set to «Client Characteristic Configuration Descriptor Improperly Configured».

• Expected Outcome
Pass verdict
The IUT sends the requested PDU.

4.9 Reconnection Settings

4.9.1 Reconnection Settings

• Test Purpose
This test group is for generic use and contains one or more test cases to verify that the IUT’s internal state that is changed by executing RC Control Point procedures, is reflected in the RC Settings characteristic. The verification is done one test at the time, as enumerated in the Table 4.10 below, using this generic test procedure.

Verify that the internal state of the LESC flag is reflected in the RC settings characteristic.

• Reference
3.2.1

• Initial Condition
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  - The Lower Tester knows the handle of the RC Settings characteristic value declaration by either executing RCS/SR/DEC/BV-02-C [RC Settings Characteristic] or by executing RCS/SR/DEC/BV-03-C [RC Settings Characteristic].

• Test Procedure
  1. Execute the additional initialization step from the table below, for the current test.
  2. The Lower Tester sends an ATT Read Request with the attribute handle set to the handle of the RC Settings characteristic value declaration.
  3. The IUT replies with an ATT Read Response.

• Expected Outcome

  Pass verdict

  If the IUT supports E2E-CRC, the E2E-CRC field must be present.

  The received value contains a valid length field and a settings field.

  From the table below, the expected values show up at the value position.
<table>
<thead>
<tr>
<th>Test Case</th>
<th>Additional Initialization Step</th>
<th>Value Position</th>
<th>Expected Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.9.2 RCS/SR/RCSET/BV-01-C [Switch to LESC On]</td>
<td>Switch on LESC pairing by executing RCS/SR/RCCP/BV-26-C [Upgrade to LESC Only Pairing].</td>
<td>Octet 0; Bit 1</td>
<td>1</td>
</tr>
<tr>
<td>4.9.3 RCS/SR/RCSET/BV-02-C [Switch to LESC Off]</td>
<td>Switch off LESC pairing by executing RCS/SR/RCCP/BV-27-C [Downgrade from LESC Only Pairing].</td>
<td>Octet 0; Bit 1</td>
<td>0</td>
</tr>
<tr>
<td>4.9.4 RCS/SR/RCSET/BV-03-C [Use OOB Pairing On]</td>
<td>Switch on OOB pairing by executing RCS/SR/RCCP/BV-28-C [Switch OOB Pairing On].</td>
<td>Octet 0; Bit 2</td>
<td>1</td>
</tr>
<tr>
<td>4.9.5 RCS/SR/RCSET/BV-04-C [Use OOB Pairing Off]</td>
<td>Switch off OOB pairing by executing RCS/SR/RCCP/BV-29-C [Switch OOB Pairing Off].</td>
<td>Octet 0; Bit 2</td>
<td>0</td>
</tr>
<tr>
<td>4.9.6 RCS/SR/RCSET/BV-05-C [Limited Access On]</td>
<td>Limit the access to the IUT by executing RCS/SR/RCCP/BV-30-C [Set Limited Access].</td>
<td>Octet 0; Bits 5 and 6</td>
<td>1 and 1</td>
</tr>
<tr>
<td>4.9.7 RCS/SR/RCSET/BV-06-C [Limited Access Off]</td>
<td>Reset the access limitation to the IUT by executing RCS/SR/RCCP/BV-31-C [Reset Limited Access].</td>
<td>Octet 0; Bits 5 and 6</td>
<td>0 and 0</td>
</tr>
<tr>
<td>4.9.8 RCS/SR/RCSET/BV-07-C [Advertisement Configuration 1]</td>
<td>Set advertisement configuration by executing RCS/SR/RCCP/BV-22-C [Set Connectable Undirected Advertisement Configuration].</td>
<td>Octet 1; Bit 2 and 3</td>
<td>0 and 0</td>
</tr>
<tr>
<td>4.9.9 RCS/SR/RCSET/BV-08-C [Advertisement Configuration 2]</td>
<td>Set advertisement configuration by executing RCS/SR/RCCP/BV-23-C [Set Scannable Undirected Advertisement Configuration].</td>
<td>Octet 1; Bit 2 and 3</td>
<td>1 and 0</td>
</tr>
<tr>
<td>4.9.10 RCS/SR/RCSET/BV-09-C [Advertisement Configuration 3]</td>
<td>Set advertisement configuration by executing RCS/SR/RCCP/BV-24-C [Set Non-Connectable Undirected Advertisement Configuration].</td>
<td>Octet 1; Bit 2 and 3</td>
<td>0 and 1</td>
</tr>
<tr>
<td>4.9.11 RCS/SR/RCSET/BV-10-C [Advertisement Configuration 4]</td>
<td>Set advertisement configuration by executing RCS/SR/RCCP/BV-25-C [Set Connectable Directed Advertisement Configuration].</td>
<td>Octet 1; Bit 2 and 3</td>
<td>1 and 1</td>
</tr>
<tr>
<td>4.9.12 RCS/SR/RCSET/BV-11-C [Ready for Disconnect]</td>
<td>Do whatever is necessary for the IUT to be ready to be disconnected</td>
<td>Octet 0; Bit 4</td>
<td>1</td>
</tr>
<tr>
<td>4.9.13 RCS/SR/RCSET/BV-12-C [Not Ready for Disconnect]</td>
<td>Do whatever is necessary for the IUT to be not ready to be disconnected</td>
<td>Octet 0; Bit 4</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 4.10: Reconnection Settings Test Cases

4.9.14 RCS/SR/RCSET/BV-13-C [Ready for Disconnect Notification]

- Test Purpose
  
  Verify that the Ready for Disconnect bit will be notified by the IUT.
• Reference

[3] 3.2.1, 3.2.2

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- Do whatever is necessary for the IUT to be not ready to be disconnected.
- The Lower Tester knows the handle of the RC Settings characteristic value declaration by either executing RCS/SR/DEC/BV-02-C [RC Settings Characteristic] or by executing RCS/SR/DEC/BV-03-C [RC Settings Characteristic].
- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure

1. Do whatever is necessary for IUT to become ready to be disconnected.
2. The IUT sends an ATT Handle Value Notification to the Lower Tester.

• Expected Outcome

Pass verdict

If the IUT supports E2E-CRC, the E2E-CRC field must be present.
The received value contains a valid length field and a settings field.
Bit 4 of the first octet in the settings field of the notified characteristic value is set to 1.

4.9.15 RCS/SR/RCSET/BV-14-C [Downgrade from LESC by Timer]

• Test Purpose

Verify that the IUT implements a timer that resets the LESC Only-bit in the RC Settings characteristic.

• Reference

[3] 3.2.1, 3.3.2.11

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- Set the LESC Only-bit in the IUT’s RC Settings by executing RCS/SR/RCCP/BV-26-C [Upgrade to LESC Only Pairing].
- The IUT’s timeout (fallback timer) and accuracy for the tested timer is known to the Lower Tester from IXIT [8].

• Test Procedure
1. Disconnect the Lower Tester from the IUT.
2. Wait until the fallback-timer safely expired.
3. Reestablish a connection between the Lower Tester and IUT using the Preamble in 4.2.1
4. Read RCSET characteristic and verify that the LESC Only-bit was reset by the IUT, Expected Outcome
   Pass verdict

Reconnection is possible with security settings of the initial connection.

The LESC Only-bit was reset.

4.9.16 RCS/SR/RCSET/BV-15-C [Switch OOB Pairing Off by Timer]
   • Test Purpose
     Verify that the IUT implements a timer that resets the Use OOB Pairing-bit in the RC Settings characteristic.
   • Reference
     [3] 3.2.1, 3.3.2.12
   • Initial Condition
     - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
     - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
     - Set the Use OOB Pairing –bit in the IUT’s RC Settings by executing RCS/SR/RCCP/BV-28-C [Switch OOB Pairing On].
     - The IUT’s timeout and accuracy for the tested timer is known to the Lower Tester from IXIT [8].
   • Test Procedure
     1. Disconnect the Lower Tester from the IUT.
     2. Wait until the timer safely expired.
     3. Verify that the Use OOB Pairing-bit was reset by the IUT, by executing RCS/SR/RCSET/BV-04-C [Use OOB Pairing Off] without the additional initialization step.
   • Expected Outcome
     Pass verdict

The test procedure in step 3 is executed successfully.

Bit 2 of the first octet in the Settings field, of the RC Settings characteristic, is set to 0.

4.10 Limited Access Behavior

4.10.1 RCS/SR/RCLAB/BV-01-C [Access Disabled RC Service – Settings Value]
   • Test Purpose
Verify that an IUT that is disabled, signals the limited access to connected clients.

• **Reference**
  
  [3] 3.2.1

• **Initial Condition**
  
  - Establish a connection between the Lower Tester 2 and the IUT using the Preamble in 4.2.1.
  
  - The Lower Tester 2 limits the access to the IUT by executing RCS/SR/RCCP/BV-30-C [Set Limited Access] or by any other means and disconnect.

• **Test Procedure**
  
  1. Establish a connection between the Lower Tester 1 and the IUT using the Preamble in 4.2.1. The Lower Tester 1 is not the client who executed the Limited Access procedure on the IUT.
  
  2. The Lower Tester 1 acquires the handle of the RC Settings characteristic value declaration by either executing RCS/SR/DEC/BV-02-C [RC Settings Characteristic] or by executing RCS/SR/DEC/BV-03-C [RC Settings Characteristic].
  
  3. The Lower Tester 1 sends an ATT Read Request with the attribute handle set to the handle of the RC Settings characteristic value declaration.
  
  4. The IUT replies with an ATT Read Response.

• **Expected Outcome**
  
  **Pass verdict**

  If the IUT supports E2E-CRC, the E2E-CRC field must be present.

  The received value contains a valid length field and a settings field.

  Bit 5 of the first octet in the settings field of the read characteristic value is set to 1.

  Bit 6 of the first octet in the settings field of the read characteristic value is set to 0.

**4.10.2 RCS/SR/RCLAB/BV-02-C [Access Disable RC Service – Executing RCCP Procedure]**

• **Test Purpose**

  Verify that an IUT with disabled RC service will reply with an error message, when a RCCP procedure is invoked.

• **Reference**

  [3] 3.2.2, 3.3.2.13

• **Initial Condition**

  - Establish a connection between the Lower Tester 2 and the IUT using the Preamble in 4.2.1.
  
  - The Lower Tester 2 limits the access to the IUT by executing RCS/SR/RCCP/BV-30-C [Set Limited Access] or by any other means and disconnect.
• Test Procedure

1. Establish a connection between the Lower Tester 1 and the IUT using the Preamble in 4.2.1. The Lower Tester 1 is not the client who executed the Limited Access procedure on the IUT.

2. The Lower Tester 1 acquires the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

3. The Lower Tester 1 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 «Limited Access» opcode, followed by an octet with a value of 0x00.

4. The IUT replies with an ATT Error Response.

• Expected Outcome

Pass verdict

The ATT Error Response contains a request attribute opcode set to 0x12, a request handle set to the handle of the RC Control Point Characteristic Value declaration, and an error code set to 0x08 (Insufficient Authorization).

4.11 End to End – Cyclic redundancy check

4.11.1 RCS/SR/E2ECRC/BV-01-C [Correct CRC Algorithm]

• Test Purpose

Verify that the IUT uses the correct CRC.

• Reference

[3] 3.4

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.

- Configure the IUT for notifications and indications using the Preamble in 4.2.2.

- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

- The Lower Tester has discovered the IUT’s supported features using the test cases in Section 4.7.

• Test Procedure

1. The Lower Tester 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 set to 0. The 16-bit checksum is appended to the value.

2. The RC server IUT responds with an ATT Write Response.

Depending on the differences between the actual communication parameters and the values of the stored parameters-set 0, the test has two different outcomes:

3. The IUT 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). The 16-bit checksum is appended to the characteristic value.

Or

4. The IUT 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). The 16-bit checksum is appended to the characteristic value.

In both cases, the last step is:

5. The Lower Tester sends an ATT Handle Value Confirmation.

• Expected Outcome

Pass verdict

The IUT responds with a one ATT Handle Value Indication PDU with the handle of the RC Control Point Characteristic Value declaration.

The indication contains either the following octets as value:

0x0E 0x03 0x01 0xC9 0x12

or the value:

0x0E 0x03 0x09 0x81 0x9E

4.11.2 RCS/SR/E2ECRC/BI-01-C [Verify E2E-CRC]

• Test Purpose

Verify that the IUT verifies the E2E-CRC send by a Lower Tester and rejects requests with invalid calculated E2E-CRC.

• Reference

[3] 1.6

• Initial Condition

- Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
- Configure the IUT for notifications and indications using the Preamble in 4.2.2.
- The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].
- The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

• Test Procedure

1. The Lower Tester 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 set to 0. A wrong 16-bit checksum is appended to the value.
2. The RC server IUT responds with an ATT Error Response PDU containing the handle of the RC Control Point Characteristic and the «Invalid CRC» error code.

- Expected Outcome
  
  **Pass verdict**

  The IUT sends the requested PDU.

### 4.11.3 RCS/SR/E2ECRC/BI-02-C [Verify E2E-CRC existence]

- **Test Purpose**
  
  Verify that the IUT verifies the existence of a required checksum.

- **Reference**
  
  [3] 1.6

- **Initial Condition**
  
  - Establish a connection between the Lower Tester and IUT using the Preamble in 4.2.1.
  
  - Configure the IUT for notifications and indications using the Preamble in 4.2.2.
  
  - The Lower Tester knows the handle of the RC Control Point Characteristic Value declaration by executing RCS/SR/DEC/BV-04-C [RC Control Point Characteristic].

  - The Lower Tester has discovered the IUT's supported features using the test cases in Section 4.7.

- **Test Procedure**
  
  1. The Lower Tester 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 set to 0. No checksum is appended to the value.

  2. The RC server IUT responds with an ATT Error Response PDU containing the handle of the RC Control Point Characteristic and the «Missing CRC» error code.

- **Expected Outcome**
  
  **Pass verdict**

  The IUT sends the requested PDU.
## 5 Test Case Mapping

The Test Case Mapping Table (TCMT) maps test cases to specific capabilities in the ICS. Profiles, protocols, and services may define multiple roles, and it is possible that a product may implement more than one role. The product shall be tested in all roles for which support is declared in the ICS document. The columns for the TCMT are defined as follows:

**Item:** contains an $y/x$ reference, where $y$ corresponds to the table number and $x$ corresponds to the feature number as defined in the ICS Proforma for RCS [6]. If the item is defined with Protocol, Profile or Service abbreviation before $y/x$, the table and feature number referenced are defined in the abbreviated ICS proforma document.

**Feature:** recommended to be the primary feature defined in the ICS being tested or may be the test case name.

**Test Case(s):** the applicable test case identifiers required for Bluetooth Qualification if the corresponding $y/x$ references defined in the Item column are supported.

For purpose and structure of the ICS/IXIT proforma and instructions for completing the ICS/IXIT proforma refer to the Bluetooth ICS and IXIT proforma document.

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Test Case(s)</th>
</tr>
</thead>
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<td>Discoverable as Primary Service</td>
<td>RCS/SR/SD/BV-01-C, RCS/SR/SD/BV-02-C</td>
</tr>
<tr>
<td>RCS 1/1</td>
<td>RC Feature Characteristic</td>
<td>RCS/SR/DEC/BV-01-C</td>
</tr>
<tr>
<td>(RCS 6/10 OR RCS 4/14 OR RCS 4/15 OR RCS 4/18) AND NOT RCS 4/3</td>
<td>RC Settings Characteristic</td>
<td>RCS/SR/DEC/BV-02-C</td>
</tr>
<tr>
<td>RCS 6/11 OR RCS 6/12</td>
<td>RC Control Point Characteristic, Invalid Operand</td>
<td>RCS/SR/RCCP/BI-06-C</td>
</tr>
<tr>
<td>RCS 4/1</td>
<td>E2E-CRC supported</td>
<td>RCS/SR/RCFEA/BV-01-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/1</td>
<td>E2E-CRC not supported</td>
<td>RCS/SR/RCFEA/BV-02-C</td>
</tr>
<tr>
<td>Item</td>
<td>Feature</td>
<td>Test Case(s)</td>
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<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RCS 4/2</td>
<td>Enable Disconnect Supported</td>
<td>RCS/SR/RCFEA/BV-03-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/2</td>
<td>Enable Disconnect not Supported</td>
<td>RCS/SR/RCFEA/BV-04-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/3</td>
<td>Ready for Disconnect not Supported</td>
<td>RCS/SR/RCFEA/BV-06-C</td>
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<tr>
<td>RCS 4/16</td>
<td>Propose Reconnection Timeout Supported</td>
<td>RCS/SR/RCFEA/BV-07-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/16</td>
<td>Propose Reconnection Timeout not Supported</td>
<td>RCS/SR/RCFEA/BV-08-C</td>
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<tr>
<td>RCS 4/7</td>
<td>Propose Connection Interval Supported</td>
<td>RCS/SR/RCFEA/BV-09-C</td>
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<tr>
<td>RCS 1/1 AND NOT RCS 4/7</td>
<td>Propose Connection Interval not Supported</td>
<td>RCS/SR/RCFEA/BV-10-C</td>
</tr>
<tr>
<td>RCS 4/8</td>
<td>Propose Slave Latency Supported</td>
<td>RCS/SR/RCFEA/BV-11-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/8</td>
<td>Propose Slave Latency not Supported</td>
<td>RCS/SR/RCFEA/BV-12-C</td>
</tr>
<tr>
<td>RCS 4/9</td>
<td>Propose Supervision Timeout Supported</td>
<td>RCS/SR/RCFEA/BV-13-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/9</td>
<td>Propose Supervision Timeout not Supported</td>
<td>RCS/SR/RCFEA/BV-14-C</td>
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<tr>
<td>RCS 1/1 AND NOT RCS 4/4</td>
<td>Propose Advertisement Interval not Supported</td>
<td>RCS/SR/RCFEA/BV-16-C</td>
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<tr>
<td>RCS 4/5</td>
<td>Propose Advertisement Count Supported</td>
<td>RCS/SR/RCFEA/BV-17-C, RCS/SR/RCCP/BV-10-C</td>
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<tr>
<td>RCS 1/1 AND NOT RCS 4/5</td>
<td>Propose Advertisement Count not Supported</td>
<td>RCS/SR/RCFEA/BV-18-C</td>
</tr>
<tr>
<td>RCS 4/6</td>
<td>Propose Advertisement Repetition Supported</td>
<td>RCS/SR/RCFEA/BV-19-C, RCS/SR/RCCP/BV-11-C</td>
</tr>
<tr>
<td>Item</td>
<td>Feature</td>
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<td>---------------------------------------------------</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/6</td>
<td>Propose Advertisement Repetition not Supported</td>
<td>RCS/SR/RCFEA/BV-20-C</td>
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<tr>
<td>RCS 4/10</td>
<td>Advertisement Configuration 1 Supported</td>
<td>RCS/SR/RCFEA/BV-21-C RCS/SR/RCCP/BV-22-C RCS/SR/RCSET/BV-07-C</td>
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<tr>
<td>RCS 1/1 AND NOT RCS 4/10</td>
<td>Advertisement Configuration 1 not Supported</td>
<td>RCS/SR/RCFEA/BV-22-C</td>
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<tr>
<td>RCS 4/11</td>
<td>Advertisement Configuration 2 Supported</td>
<td>RCS/SR/RCFEA/BV-23-C RCS/SR/RCCP/BV-23-C RCS/SR/RCSET/BV-08-C</td>
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<td>RCS 1/1 AND NOT RCS 4/11</td>
<td>Advertisement Configuration 2 not Supported</td>
<td>RCS/SR/RCFEA/BV-24-C</td>
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<tr>
<td>RCS 4/12</td>
<td>Advertisement Configuration 3 Supported</td>
<td>RCS/SR/RCFEA/BV-25-C RCS/SR/RCCP/BV-24-C RCS/SR/RCSET/BV-09-C</td>
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<td>RCS 1/1 AND NOT RCS 4/12</td>
<td>Advertisement Configuration 3 not Supported</td>
<td>RCS/SR/RCFEA/BV-26-C</td>
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<tr>
<td>RCS 1/1 AND NOT RCS 4/13</td>
<td>Advertisement Configuration 4 not Supported</td>
<td>RCS/SR/RCFEA/BV-28-C</td>
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<tr>
<td>RCS 4/14</td>
<td>Upgrade to LESC Pairing Supported</td>
<td>RCS/SR/RCFEA/BV-29-C</td>
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<tr>
<td>RCS 1/1 AND NOT RCS 4/14</td>
<td>Upgrade to LESC Pairing not Supported</td>
<td>RCS/SR/RCFEA/BV-30-C</td>
</tr>
<tr>
<td>RCS 4/15</td>
<td>Switch to OOB Pairing Supported</td>
<td>RCS/SR/RCFEA/BV-31-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/15</td>
<td>Switch to OOB Pairing not Supported</td>
<td>RCS/SR/RCFEA/BV-32-C</td>
</tr>
<tr>
<td>RCS 4/17</td>
<td>Use of White List Supported</td>
<td>RCS/SR/RCFEA/BV-33-C</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/17</td>
<td>Use of White List not Supported</td>
<td>RCS/SR/RCFEA/BV-34-C</td>
</tr>
<tr>
<td>RCS 4/18</td>
<td>Limited Access Supported</td>
<td>RCS/SR/RCFEA/BV-35-C</td>
</tr>
<tr>
<td>Item</td>
<td>Feature</td>
<td>Test Case(s)</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>RCS 1/1 AND NOT RCS 4/18</td>
<td>Limited Access not Supported</td>
<td>RCS/SR/RCFEA/BV-36-C</td>
</tr>
<tr>
<td>RCS 1/1</td>
<td>Other Feature Flags</td>
<td>RCS/SR/RCFEA/BV-37-C, RCS/SR/RCFEA/BV-38-C</td>
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<tr>
<td>RCS 6/1</td>
<td>Enable Disconnect Procedure</td>
<td>RCS/SR/RCCP/BV-01-C, RCS/SR/RCCP/BI-01-C</td>
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<tr>
<td>RCS 6/2</td>
<td>Get Actual Communication Parameters</td>
<td>RCS/SR/RCCP/BV-02-C</td>
</tr>
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<td>RCS 4/16</td>
<td>Propose Reconnection Timeout Settings</td>
<td>RCS/SR/RCCP/BV-03-C, RCS/SR/RCCP/BV-04-C</td>
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<tr>
<td>RCS 4/7</td>
<td>Propose Connection Interval Settings</td>
<td>RCS/SR/RCCP/BV-05-C, RCS/SR/RCCP/BI-02-C</td>
</tr>
<tr>
<td>RCS 4/8</td>
<td>Propose Slave Latency Settings</td>
<td>RCS/SR/RCCP/BV-06-C</td>
</tr>
<tr>
<td>RCS 4/9</td>
<td>Propose Supervision Timeout Settings</td>
<td>RCS/SR/RCCP/BV-07-C</td>
</tr>
<tr>
<td>RCS 4/7 OR RCS 4/8 OR RCS 4/9</td>
<td>Propose Connection Parameter Settings</td>
<td>RCS/SR/RCCP/BV-08-C</td>
</tr>
<tr>
<td>RCS 4/4 OR RCS 4/5 OR RCS 4/6</td>
<td>Propose Advertisement Parameter Settings</td>
<td>RCS/SR/RCCP/BV-12-C</td>
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<tr>
<td>RCS 6/5</td>
<td>Get Max Values</td>
<td>RCS/SR/RCCP/BV-15-C</td>
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<tr>
<td>RCS 6/6</td>
<td>Get Min Values</td>
<td>RCS/SR/RCCP/BV-16-C</td>
</tr>
<tr>
<td>RCS 6/7</td>
<td>Get Stored Values</td>
<td>RCS/SR/RCCP/BV-17-C, RCS/SR/RCCP/BV-18-C, RCS/SR/RCCP/BI-04-C</td>
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<tr>
<td>RCS 6/8</td>
<td>Set White List Timer</td>
<td>RCS/SR/RCCP/BV-19-C, RCS/SR/RCCP/BV-20-C</td>
</tr>
<tr>
<td>RCS 6/9</td>
<td>Get White List Timer</td>
<td>RCS/SR/RCCP/BV-21-C</td>
</tr>
<tr>
<td>Item</td>
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<td>Test Case(s)</td>
</tr>
<tr>
<td>--------</td>
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</tr>
</tbody>
</table>
| RCS 6/12 | Switch OOB Pairing             | RCS/SR/RCCP/BV-28-C  
RCS/SR/RCCP/BV-29-C  
RCS/SR/RCSET/BV-03-C  
RCS/SR/RCSET/BV-04-C |
| RCS 6/13 | Limited Access                 | RCS/SR/RCCP/BV-30-C  
RCS/SR/RCCP/BV-31-C  
RCS/SR/RCSET/BV-05-C  
RCS/SR/RCSET/BV-06-C  
RCS/SR/RCLAB/BV-01-C  
RCS/SR/RCLAB/BV-02-C |
| RCS 9/2  | Upgrade to LESC Fallback Timer | RCS/SR/RCSET/BV-14-C                                                       |
| RCS 9/1  | Switch OOB Pairing Fallback Timer | RCS/SR/RCSET/BV-15-C                                                       |

**Table 5.1: Test Case Mapping**