

Binary Sensor Service (BSS)

Bluetooth® Test Suite

- **Revision:** BSS.TS.p2
- **Revision Date:** 2025-02-18
- **Prepared By:** Personal User Interface Device User Group
- **Published during TCRL:** TCRL.2025-1



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1 Scope

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

2 References, definitions, and abbreviations

2.1 References

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

- [1] Bluetooth Core Specification, Version 5.0 or later
- [2] Test Strategy and Terminology Overview
- [3] Binary Sensor Service (BSS) Specification
- [4] Generic Attribute Profile (GATT) Test Suite, GATT.TS
- [5] Characteristic and Descriptor descriptions are accessible via the [Bluetooth SIG Assigned Numbers](#)
- [6] IXIT Proforma for Binary Sensor Service
- [7] ICS Proforma for Binary Sensor Service

2.2 Definitions

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

2.3 Acronyms and abbreviations

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

3 Test Suite Structure (TSS)

3.1 Test Strategy

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

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

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

3.2 Test groups

The following test groups have been defined:

- Service definition
- Characteristic declaration
- Characteristic descriptors
- Configure indication
- Binary Sensor Service Control Point procedures

4 Test cases (TC)

4.1 Introduction

4.1.1 Test case identification conventions

Test cases are assigned unique identifiers per the conventions in [2]. The convention used here is:

<spec abbreviation>/<IUT role>/<class>/<feat>/<func>/<subfunc>/<cap>/<xx>-<nn>-<y>.

Additionally, testing of this specification includes tests from the GATT Test Suite [4] referred to as Generic GATT Integrated Tests (GGIT); when used, the test cases in GGIT are referred to through a TCID string using the following convention:

<spec abbreviation>/<IUT role>/<GGIT test group>/< GGIT class >/<xx>-<nn>-<y>.

Identifier Abbreviation	Spec Identifier <spec abbreviation>
BSS	Binary Sensor Service
Identifier Abbreviation	Role Identifier <IUT role>
SEN	Sensor
Identifier Abbreviation	Feature Identifier <GGIT test group>
SGGIT	Server Generic GATT Integrated Tests
Identifier Abbreviation	Feature Identifier <GGIT class>
CHA	Characteristic
DES	Descriptor
SER	Service
Identifier Abbreviation	Feature Identifier <feat>
CON	Characteristic Indication and Notification
CPP	Control Point Procedures

Table 4.1: BSS TC feature naming conventions

4.1.2 Conformance

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

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

Such tests may verify:

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

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

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

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

4.1.3 Pass/Fail verdict conventions

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

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

4.2 Setup preambles

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

4.2.1 ATT Bearer on LE transport

Preamble procedure:

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

4.2.2 Control Point and Response Configuration Preamble

Follow this preamble procedure to enable the IUT for use with the desired BSS Control Point and Response Characteristic.

1. The Report Status of the IUT is set to Off.
Note: This can be accomplished by disconnection or by the Upper Tester instructing the IUT to set Report Status Off.
2. Establish an ATT Bearer connection between the Lower Tester and IUT as described in Section 4.2.1.
3. If the Lower Tester and IUT require bonding, perform a bonding procedure. If previously bonded, reenable encryption.
4. The handles of the BSS Control Point and Response Characteristic have been previously discovered by the Lower Tester.
Note: This can be accomplished by using the test procedures in [BSS/SEN/SGGIT/CHA/BV-01-C \[Characteristic GGIT – BSS Control Point\]](#) and [BSS/SEN/SGGIT/CHA/BV-02-C \[Characteristic GGIT – BSS Response\]](#).
5. The handle of the Client Characteristic Configuration descriptor of the BSS Response Control Point Characteristic have been previously discovered by the Lower Tester.

Note: This can be accomplished by using the test procedure in [BSS/SEN/SGGIT/DES/BV-01-C \[Descriptor CGGIT – BSS Response Client Characteristic Configuration\]](#).

6. The BSS Response characteristic is configured for indication.

Note: This can be accomplished by using the test procedure in Section 4.4.

4.3 Generic GATT Integrated Tests

Execute the Generic GATT Integrated Tests defined in Section 6.3, Server test procedures (SGGIT), in [4] using Table 4.2 below as input:

TCID	Service/ Characteristic/ Descriptor	Reference	Properties	Value Length (Octets)
BSS/SEN/SGGIT/SER/BV-01-C [Service GGIT – Binary Sensor]	Binary Sensor Service	[3] 2.1	-	-
BSS/SEN/SGGIT/CHA/BV-01-C [Characteristic GGIT – BSS Control Point]	BSS Control Point Characteristic	[3] 3.1	0x08 (Write)	Skip
BSS/SEN/SGGIT/CHA/BV-02-C [Characteristic GGIT – BSS Response]	BSS Response Characteristic	[3] 3.1	0x10 (Indication)	1-20
BSS/SEN/SGGIT/DES/BV-01-C [Descriptor CGGIT – BSS Response Client Characteristic Configuration]	BSS Response CCCD	[3] 3.2	-	2

Table 4.2: Input for the GGIT Server test procedure

4.4 Configure Indication

- Test Purpose

This generic use test group contains one or more test cases to verify compliant operation in response to enable and disable characteristic indication. The verification is done one value at a time, as enumerated in the test cases in Table 4.3 below, using this generic test procedure.

- Reference

[\[3\] 3](#)

- Initial Condition

- The handle of the Client Characteristic Configuration descriptor of each characteristic referenced in the test cases below has been previously discovered by the Lower Tester during the test procedure in Section 4.5 or is known to the Lower Tester by other means.
- Establish an ATT Bearer connection between the Lower Tester and IUT as described in Section 4.2.1.

- Test Procedure

For each selected test case in Table 4.3:

1. The Lower Tester performs an *ATT_Write_Request* to disable indication by writing value 0x0000 to the client characteristic configuration descriptor of the characteristic.
2. The Lower Tester reads the Client Characteristic Configuration descriptor of the characteristic.
3. The Lower Tester performs an *ATT_Write_Request* with the value noted in Table 4.3 to the client characteristic configuration descriptor of the characteristic.
4. The Lower Tester reads the value of the client characteristic configuration descriptor.



- Expected Outcome

Pass verdict

For each write, the characteristic descriptor is successfully written, and the value returned when read is consistent with the value written.

Test Case	Reference	Value
BSS/SEN/CON/BV-01-C [BSS Response – Client Characteristic Configuration Descriptor]	[3] 3.2	0x0002

Table 4.3: Configure Indication test cases

4.5 Control Point Procedures

This test group contains test cases to verify the IUT's ability to perform compliant operations and interpret values of the BSS Control Point characteristic or the handling of errors specific to the procedure or control point.

4.5.1 Get Sensor Status Command Procedure Single Sensor

- Test Purpose

This generic use test group contains several test cases to verify that the IUT accepts the execution of the *Get Sensor Status Command* procedure and correctly encodes the Sensor Status. The verification is performed for several values of the Sensor Status Parameter, as enumerated in the test cases in Table 4.4 below.

- Reference

[3] 4.1.1, 4.2, and 4.3

- Initial Condition

- The preamble described in Section 4.2.2 has been executed.

- Test Procedure

- The Upper Tester instructs the IUT to set the sensor value and count as defined by the test case.
- The Lower Tester sends a Get Sensor Status Command Message, using one of the Single Sensor types specified by the IXIT [6], to the IUT and verifies that the IUT responds with the Set Sensor Status Response Message, with correct parameter values.

- Expected Outcome

Pass verdict

The Result Code Parameter is set to Success (1), and the Sensor Status parameter (state, count) meets the requirement in Table 4.4.

Test Case	Reference	Values (State, Count)
BSS/SEN/CP/BV-01-C [GSSCP Single Sensor – Closed/Not Detected, count 0]	[3] 4.3.3.5	0, 0
BSS/SEN/CP/BV-02-C [GSSCP Single Sensor – Open/Detected, count 1000]	[3] 4.3.3.5	1, 1000

Table 4.4: Get Sensor Status Command Procedure Single Sensor test cases

4.5.2 Get Sensor Status Command Procedure Multiple Sensor

- Test Purpose

This generic use test group contains several test cases to verify that the IUT can allow a Lower Tester to execute the *Get Sensor Status Command* procedure and correctly encode Multiple Sensor Status. The verification is performed for several values of the Sensor Status Parameter, as enumerated in the test cases in [Table 4.5](#) below, using this generic test procedure.

- Reference

[\[3\]](#) 4.1.1, 4.2, and 4.3

- Initial Condition

- The preamble described in [Section 4.2.2](#) has been executed.

- Test Procedure

1. The Upper Tester instructs the IUT to set the sensor value and count for all sensor elements in the Multiple Sensor as defined by the test case.
2. The Lower Tester sends a Get Sensor Status Command Message, using one of the Multiple Sensor types specified by the IXIT [\[6\]](#), to the IUT and verifies that the IUT responds with the Set Sensor Status Response Message, with correct parameter values.

- Expected Outcome

Pass verdict

The Result Code Parameter is set to Success (1), and values in the Multiple Sensor Status parameter meet the requirements in [Table 4.5](#) (state, count) for all sensor elements in the Multiple Sensor (the number of sensor elements in the Multiple Sensor is specified in the IXIT [\[6\]](#)).

Test Case	Reference	Values (state, count)
BSS/SEN/CP/BV-03-C [GSSCP Multiple Sensor – Closed/Not Detected, count 0]	[3] 4.3.3.6	0, 0
BSS/SEN/CP/BV-04-C [GSSCP Multiple Sensor – Open/Detected, count 1000]	[3] 4.3.3.6	1, 1000

Table 4.5: Get Sensor Status Command Procedure Single Sensor test cases

BSS/SEN/CP/BV-05-C [Get Sensor Status Command Procedure All Sensor Types]

- Test Purpose

Verify that the IUT responds correctly for all sensor types. The supported sensor types are declared in the IXIT.

- Reference

[\[3\]](#) 4.1.1, 4.2, and 4.3

- Initial Condition

- The preamble described in [Section 4.2.2](#) has been executed.

- Test Procedure
 1. The Lower Tester sends one Get Sensor Status Command Message for each Sensor Type defined by the specification to the IUT.
 2. The IUT responds to each Get Sensor Status Command Message with a Get Sensor Response Message with correct content.

- Expected Outcome

Pass verdict

For Sensor Types declared in the IXIT [6], the IUT response has the Result Code Parameter set to Success and at least one additional parameter set. For Multiple Sensor types, the correct number of Sensor Value fields are present in the Multiple Sensor Status Parameter.

For Sensor Types not declared, the Result Code Parameter is set to Failure and there are no more parameters in the message.

BSS/SEN/PPP/BV-06-C [Setting Sensor Command Procedure Single Sensor]

- Test Purpose

Verify the behavior of the Setting Sensor Command Procedure for Single Sensor for both Report Status On and Report Status Off.
- Reference

[3] 4.1.2, 4.2, and 4.3
- Initial Condition
 - The preamble described in Section 4.2.2 has been executed.
- Test Procedure
 1. The Lower Tester sends one Setting Sensor Status Command Message for one supported Single Sensor Type (IXIT [6]) with the Report Status Parameter set to On and no Name Parameters to the IUT.
 2. The Lower Tester verifies that the IUT responds with a Setting Sensor Command Response Message with Result Code set to Success and optionally a Name Parameter.
 3. The IUT reports to the Upper Tester that Reporting is enabled.
 4. The Lower Tester sends one Setting Sensor Status Command Message for the same sensor with the Report Status Parameter set to Off and no Name Parameters to the IUT.
 5. The IUT reports to the Upper Tester that Reporting is disabled.

- Expected Outcome

Pass verdict

The IUT successfully responds to the Lower Tester's Setting Sensor Status Commands and correctly reports the reporting state to the Upper Tester for both cases of Report Status Parameter set to On and Report Status Parameter set to Off.

BSS/SEN/PPP/BV-07-C [Sensor Status Event Procedure Single Sensor]

- Test Purpose

Verify the behavior of the Sensor Status Event Procedure for Single Sensor for Report Status On.

- Reference
[\[3\]](#) 4.1.3, 4.2, and 4.3
- Initial Condition
 - The preamble described in Section [4.2.2](#) has been executed.
- Test Procedure
 1. The Lower Tester sends one Setting Sensor Status Command Message for one supported Single Sensor Type (IXIT [\[6\]](#)) with the Report Status Parameter set to On and no Name Parameters to the IUT.
 2. The Lower Tester verifies that the IUT responds with a Setting Sensor Command Response Message with Result Code set to Success.
 3. The Lower Tester verifies that the IUT sends a Sensor Status Event Message.
 4. The IUT is instructed by the Upper Tester to change the Sensor Value of the Sensor Status Parameter.
 5. The Lower Tester verifies that the IUT sends a Sensor Status Event Message.
- Expected Outcome
Pass verdict
The IUT sends a Sensor Status Event Message in Steps 3 and 5.

BSS/SEN/PPP/BV-08-C [Setting Sensor Command Procedure Multiple Sensor]

- Test Purpose
Verify the behavior of the Setting Sensor Command Procedure with Multiple Sensor for both Report Status On and Report Status Off.
- Reference
[\[3\]](#) 4.1.2, 4.2, and 4.3
- Initial Condition
 - The preamble described in Section [4.2.2](#) has been executed.
- Test Procedure
 1. The Lower Tester sends one Setting Sensor Status Command Message for one supported Multiple Sensor Type (IXIT [\[6\]](#)) with the Report Status Parameter set to On and no Name Parameters to the IUT.
 2. The Lower Tester verifies that the IUT responds with a Setting Sensor Command Response Message with Result Code set to Success and optionally a Name Parameter for each sensor element.
 3. The IUT reports to the Upper Tester that the Reporting is enabled.
 4. The Lower Tester sends one Setting Sensor Status Command Message for the same sensor with the Report Status Parameter set to Off and no Name Parameters to the IUT.
 5. The IUT reports to the Upper Tester that the Reporting is disabled.

- Expected Outcome

Pass verdict

The IUT successfully responds to the Lower Tester's Setting Sensor Status Commands and correctly reports the reporting state to the Upper Tester for both cases of Report Status Parameter set to On and Report Status Parameter set to Off.

BSS/SEN/PPP/BV-09-C [Sensor Status Event Procedure Multiple Sensor]

- Test Purpose

Verify the behavior of the Sensor Status Event Procedure for Multiple Sensor for Report Status On.

- Reference

[3] 4.1.3, 4.2, and 4.3

- Initial Condition

- The preamble described in Section 4.2.2 has been executed.

- Test Procedure

1. The Lower Tester sends one Setting Sensor Status Command Message for one supported Multiple Sensor Type (IXIT [6]) with the Report Status Parameter set to On and no Name Parameters to the IUT.
2. The Lower Tester verifies that the IUT responds with a Setting Sensor Command Response Message with Result Code set to Success.
3. The Lower Tester verifies that the IUT sends a Sensor Status Event Message.
4. The Lower Tester verifies that the IUT sends a Sensor Status Event Message when the IUT is instructed by the Upper Tester to change the Sensor Value of the Sensor Status Parameter.

- Expected Outcome

Pass verdict

The IUT sends a Sensor Status Event Message in Steps 3 and 4. The Sensor Status Event messages have the correct Sensor Type Parameter (the type used to enable the reporting) and one Multiple Sensor Status Parameter with the correct number of sensor elements and no other Parameters.

BSS/SEN/PPP/BV-10-C [Sensor Status Event Procedure Cancel]

- Test Purpose

Verify that the IUT can send an event procedure with the Cancel Parameter.

- Reference

[3] 4.1.3, 4.2, and 4.3

- Initial Condition

- The preamble described in Section 4.2.2 has been executed.

- Test Procedure
 1. The Lower Tester sends one Setting Sensor Status Command Message for one supported Sensor Type or Multiple Sensor Type (IXIT [6]) with the Report Status Parameter set to On and no Name Parameters to the IUT.
 2. The Lower Tester verifies that the IUT responds with a Setting Sensor Command Response Message with Result Code set to Success.
 3. The Upper Tester instructs the IUT to stop reporting.
 4. The Lower Tester verifies that the IUT sends a Sensor Status Event Message with one Cancel Parameter with value 0.

- Expected Outcome

Pass verdict

The IUT sends a Sensor Status Event Message with one Cancel Parameter with value 0 and no other Parameters.

BSS/SEN/PPP/BV-11-C [Setting Sensor Command Procedure with Name Parameter Single Sensor]

- Test Purpose

Verify the behavior of the Setting Sensor Command Procedure with Name Parameter Option in case of Single Sensor. Verify that the IUT sets the Name Parameter correctly received from the Lower Tester.

- Reference

[3] 4.1.2, 4.2, and 4.3

- Initial Condition

- The preamble described in Section 4.2.2 has been executed.

- Test Procedure

1. The Lower Tester sends one Setting Sensor Command Message with the Name Parameter set to "A very long sensor name", for a Single Sensor Type that is supported by the IUT and has Named Sensors, to the IUT.
2. The IUT responds with a Setting Sensor Response Message with Result Code set to Success and one Name Parameter with value set to "A very long sensor name".

- Expected Outcome

Pass verdict

The IUT sends a Setting Sensor Response Message with one Result Code Parameter with value Success and one Name Parameter with value "A very long sensor name".

BSS/SEN/PPP/BI-01-C [Setting Sensor Command Procedure – Single Sensor Illegal Packet Sequence]

- Test Purpose

Verify that the IUT can reassemble packets correctly and ignore illegal packet sequences and that the sequence number does not continue counting from one message to the next.

- Reference
 - [\[3\]](#) 5.1.2
- Initial Condition
 - The preamble described in Section [4.2.2](#) has been executed.
- Test Procedure
 1. The Lower Tester sends two Setting Sensor Command Messages, for a Single Sensor Type that is supported by the IUT and has Named Sensors, to the IUT.
 - In the first message, the sequence numbers are set to 0 and 2 (instead of 0 and 1) and the Name Parameter is set to 'XXXXXXXXXXXXXXXXXXXXXXX'.
 - In the second message, the sequence numbers are correct, and the Name Parameter is set to "A very long sensor name".
 2. The IUT responds with one Setting Sensor Response Message with Result Code set to Success and one Name Parameter with value set to "A very long sensor name".
 3. The Lower Tester repeats the second message from item 1.
 4. The IUT responds with the same message as in item 2.
- Expected Outcome

Pass verdict

The IUT sends one Setting Sensor Response Message with one Result Code Parameter with value Success and one Name Parameter with value "A very long sensor name". The IUT has correctly reset the sequence number to 0 for the last message.

BSS/SEN/_CPP/BV-12-C [Setting Sensor Command Procedure with Name Parameter Multiple Sensor]

- Test Purpose

Verify the behavior of the Setting Sensor Command Procedure with Name Parameter Option in case of Multiple Sensor. Verify that the IUT sets the Name Parameter correctly, as received from the Lower Tester.
- Reference
 - [\[3\]](#) 4.1.2, 4.2, and 4.3
- Initial Condition
 - The preamble described in Section [4.2.2](#) has been executed.
- Test Procedure
 1. The Lower Tester sends one Setting Sensor Command Message with three Name Parameters with values set to "Sensor no 1", "Sensor no 2", and "Sensor no 3", for a Multiple Sensor Type that is supported by the IUT and has Named Sensors, to the IUT.
 2. The IUT responds with a Setting Sensor Response Message with Result Code set to Success and one Name Parameter for each sensor in the Multiple Sensor.

- Expected Outcome

Pass verdict

The IUT sends a Setting Sensor Response Message with the Result Code Parameter set to Success and one Name Parameter for each sensor element in the Multiple Sensor. The values of the Name Parameters are set to values “Sensor no 1”, “Sensor no 2”, and “Sensor no 3”.

BSS/SEN/PPP/BI-02-C [Setting Sensor Command Procedure – Multiple Sensor Illegal Packet Sequence]

- Test Purpose

Verify that the IUT can reassemble packets correctly and ignore illegal packet sequences and that the sequence number does not continue counting from one message to the next.

- Reference

[3] 5.1.2

- Initial Condition

- The preamble described in Section 4.2.2 has been executed.

- Test Procedure

1. The Lower Tester sends two Setting Sensor Command Messages, for a Multiple Sensor Type that is supported by the IUT and has Named Sensors, to the IUT.
In the first message, the sequence numbers are set to 0, 2, and 3 (instead of 0, 1, and 2) and Name Parameters are set to “XXXXXXXXXXXX”, “YYYYYYYYYYYY” and “ZZZZZZZZZZZZ”.
In the second message, the sequence numbers are correct, and Name Parameters are set to “Sensor no 1”, “Sensor no 2”, and “Sensor no 3”.
2. The IUT responds with one Setting Sensor Response Message with Result Code set to Success and one Name Parameter for each sensor element in the Multiple Sensor.
3. The Lower Tester repeats the second message from item 1.
4. The IUT responds with the same message as in item 2.

- Expected Outcome

Pass verdict

The IUT sends one Setting Sensor Response Message with the Result Code Parameter set to Success and one Name Parameter for each sensor element in the Multiple Sensor. The values of the Name Parameters are set to “Sensor no 1”, “Sensor no 2”, and “Sensor no 3”. The IUT has correctly reset the sequence number to 0 for the last message.

BSS/SEN/PPP/BV-13-C [Setting Sensor Command Procedure Error]

- Test Purpose

Verify that the IUT responds with Result Code Failure if the IUT does not receive the required data with Setting Sensor Command.

- Reference

[3] 4.1.2, 4.2, and 4.3

- Initial Condition

- The preamble described in Section 4.2.2 has been executed.



- Test Procedure
 1. The Lower Tester sends Setting Sensor Command Message, for a Sensor Type not supported by the IUT, to the IUT.
 2. The IUT responds with Setting Sensor Response Message where the Result Code is set to “Failure” and no other Parameters.

- Expected Outcome

Pass verdict

The IUT sends a Setting Sensor Response Message where the Result Code Parameter only has the value of “Failure” and no other Parameters.

5 Test case mapping

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

The columns for the TCMT are defined as follows:

Item: Contains a logical expression based on specific entries from the associated ICS document. Contains a logical expression (using the operators AND, OR, NOT as needed) based on specific entries from the applicable ICS document(s). The entries are in the form of y/x references, where y corresponds to the table number and x corresponds to the feature number as defined in the ICS document for Binary Sensor Service [7].

If a test case is mandatory within the respective layer, then the y/x reference is omitted.

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

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

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

Item	Feature	Test Case(s)
BSS 3/1	BSS Service definition	BSS/SEN/SGGIT/SER/BV-01-C
BSS 3/2	BSS Control Point characteristic	BSS/SEN/SGGIT/CHA/BV-01-C
BSS 3/3	BSS Response characteristic	BSS/SEN/SGGIT/CHA/BV-02-C BSS/SEN/SGGIT/DES/BV-01-C BSS/SEN/CON/BV-01-C
BSS 4/1 AND BSS 4/5	Get Sensor Status Command Procedure Single	BSS/SEN/PPP/BV-01-C BSS/SEN/PPP/BV-02-C
BSS 4/1 AND BSS 4/6	Get Sensor Status Command Procedure Multiple	BSS/SEN/PPP/BV-03-C BSS/SEN/PPP/BV-04-C
BSS 4/1	Get Sensor Status Command Procedure All	BSS/SEN/PPP/BV-05-C
BSS 4/2 AND BSS 4/5	Setting Sensor Command Procedure Single	BSS/SEN/PPP/BV-06-C
BSS 4/2 AND BSS 4/6	Setting Sensor Command Procedure Multiple	BSS/SEN/PPP/BV-08-C
BSS 4/2	Setting Sensor Command Procedure Error	BSS/SEN/PPP/BV-13-C
BSS 4/3 AND BSS 4/5	Sensor Status Event Procedure Single	BSS/SEN/PPP/BV-07-C
BSS 4/3 AND BSS 4/6	Sensor Status Event Procedure Multiple	BSS/SEN/PPP/BV-09-C
BSS 4/3	Sensor Status Event Cancel	BSS/SEN/PPP/BV-10-C
BSS 4/4 AND BSS 4/5	Name Parameters Single	BSS/SEN/PPP/BV-11-C BSS/SEN/PPP/BI-01-C
BSS 4/4 AND BSS 4/6	Name Parameters Multiple	BSS/SEN/PPP/BV-12-C BSS/SEN/PPP/BI-02-C

Table 5.1: Test case mapping

6 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
0	1.0.0	2019-07-02	Binary Sensor Service adopted by the Board of Directors. Prepared for publication.
	p1r00	2024-01-08	TSE 24738 (rating 1): Performed editorial work to align with the current TS template, including updates to the title page, scope, references, Test Suite Structure, TCID conventions, conformance, Pass/Fail verdict conventions, TCMT introduction, and acknowledgments. Converted single-TC section headings from Heading 3 to Heading 8 and TCIDs in tables to Heading 9 style. Added a Publication Number column to the revision history and revised the document numbering convention, setting the last released publication of 1.0.0 as p0. Deleted draft revision history comments prior to p0. Replaced Bluetooth logo in footer and updated the copyright page to align with the latest version of the DNMD.
1	p1	2024-07-01	Approved by BTI on 2024-04-21. Prepared for TCRL 2024-1 publication.
	p2r00	2024-10-04	TSE 25931 (rating 2): Updated Value Length column for BSS/SEN/SGGIT/CHA/BV-01-C to Skip.
2	p2	2025-02-18	Approved by BTI on 2024-12-23. Prepared for TCRL 2025-1 publication.

Acknowledgments

Name	Company
David Chapman	Bluetooth SIG, Inc.
Frank Berntsen	Nordic Semiconductor
Hironari Ushikubo	NTT DOCOMO