

Common Audio Service (CAS)

Bluetooth® Test Suite

- **Revision:** CAS.TS.p0 edition 2
- **Revision Date:** 2022-08-22
- **Prepared By:** Generic Audio Working Group



This document, regardless of its title or content, is not a Bluetooth Specification as defined in the Bluetooth Patent/Copyright License Agreement (“PCLA”) and Bluetooth Trademark License Agreement. Use of this document by members of Bluetooth SIG is governed by the membership and other related agreements between Bluetooth SIG Inc. (“Bluetooth SIG”) and its members, including the PCLA and other agreements posted on Bluetooth SIG’s website located at www.bluetooth.com.

THIS DOCUMENT IS PROVIDED “AS IS” AND BLUETOOTH SIG, ITS MEMBERS, AND THEIR AFFILIATES MAKE NO REPRESENTATIONS OR WARRANTIES AND DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, TITLE, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, THAT THE CONTENT OF THIS DOCUMENT IS FREE OF ERRORS.

TO THE EXTENT NOT PROHIBITED BY LAW, BLUETOOTH SIG, ITS MEMBERS, AND THEIR AFFILIATES DISCLAIM ALL LIABILITY ARISING OUT OF OR RELATING TO USE OF THIS DOCUMENT AND ANY INFORMATION CONTAINED IN THIS DOCUMENT, INCLUDING LOST REVENUE, PROFITS, DATA OR PROGRAMS, OR BUSINESS INTERRUPTION, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, AND EVEN IF BLUETOOTH SIG, ITS MEMBERS, OR THEIR AFFILIATES HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This document is proprietary to Bluetooth SIG. This document may contain or cover subject matter that is intellectual property of Bluetooth SIG and its members. The furnishing of this document does not grant any license to any intellectual property of Bluetooth SIG or its members.

This document is subject to change without notice.

Copyright © 2020–2022 by Bluetooth SIG, Inc. The Bluetooth word mark and logos are owned by Bluetooth SIG, Inc. Other third-party brands and names are the property of their respective owners.



Contents

1	Scope	4
2	References, definitions, and abbreviations	5
2.1	References	5
2.2	Definitions	5
2.3	Acronyms and abbreviations	5
3	Test Suite Structure (TSS)	6
3.1	Test strategy	6
3.2	Test groups	6
4	Test cases (TC)	7
4.1	Introduction	7
4.1.1	Test case identification conventions	7
4.1.2	Conformance	7
4.1.3	Pass/Fail verdict conventions	8
4.2	Generic GATT Integrated Tests.....	9
	CAS/SR/SGGIT/SER/BV-01-C [Service GGIT – Common Audio]	9
	CAS/SR/SGGIT/SER/BV-02-C [Service GGIT – Coordinated Set Identification]	9
	CAS/SR/SGGIT/SDP/BV-01-C [SDP Record].....	9
5	Test case mapping	10
6	Revision history and acknowledgments	11

1 Scope

This Bluetooth document contains the Test Suite Structure (TSS) and test cases to test the implementation of the Bluetooth Common Audio Service 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, by dated or undated reference, provisions from other publications. 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 5.2 or later
- [2] Test Strategy and Terminology Overview
- [3] Common Audio Profile (CAP), Version 1.0
- [4] Common Audio Service ICS, CAS.ICS
- [5] Characteristic and Descriptor descriptions are accessible via the [Bluetooth SIG Assigned Numbers](#)
- [6] GATT Test Suite, GATT.TS

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 Common Audio Service has no characteristics and is only included in other services.

The Common Audio Service requires the presence of GAP, SM (when used over LE transport), SDP (when used over BR/EDR transport), L2CAP, and GATT. EATT can optionally be used. This is illustrated in [Figure 3.1](#).

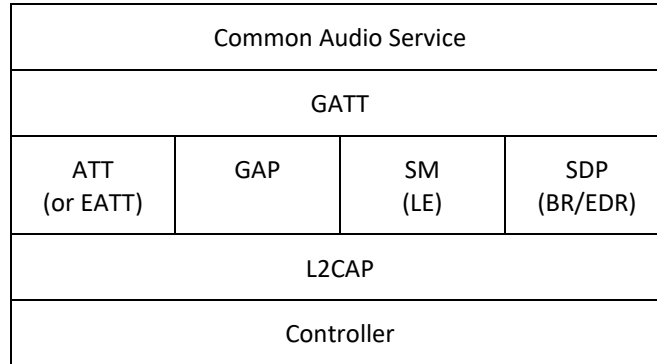


Figure 3.1: Common Audio Service test model

3.2 Test groups

The following test groups have been defined:

- Generic GATT Integrated Tests
Verify the generic GATT behavior for discovery of services.

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 [6] referred to as Generic GATT Integrated Tests (GGIT); when used, the GGIT tests 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>
CAS	Common Audio Service
Identifier Abbreviation	Role Identifier <IUT role>
SR	Server Role
Identifier Abbreviation	Feature Identifier <feat>
SGGIT	Server Generic GATT Integrated Tests
Identifier Abbreviation	Reference Identifier <GGIT class>
SDP	SDP GGIT
SER	Service GGIT

Table 4.1: CAS TC feature naming convention

4.1.2 Conformance

When conformance is claimed for a particular specification, all capabilities are to be supported in the specified manner (process-mandatory). 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 Launch Studio, 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 Generic GATT Integrated Tests

Execute the Generic GATT Integrated Tests defined in [6], Section 6.3, Server test procedures, using Table 4.2 below as input:

TCID	Service / Characteristic / Descriptor	Reference	Properties	Value Length (Octets)	Type
CAS/SR/SGGIT/SER/BV-01-C [Service GGIT – Common Audio]	Common Audio Service	[3] 2.6	-	-	Primary, Unique
CAS/SR/SGGIT/SER/BV-02-C [Service GGIT – Coordinated Set Identification]	Coordinated Set Identification Service	[3] 2.6	-	-	Unique
CAS/SR/SGGIT/SDP/BV-01-C [SDP Record]	Common Audio Service	[3] 4	-	-	-

Table 4.2: Input for the GGIT Server test procedures



5 Test case mapping

The Test Case Mapping Table (TCMT) maps test cases to specific requirements in the ICS. The IUT will 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 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 Common Audio Service [4].

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

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. Further details about the function of the TCMT are elaborated in [2].

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

Item	Feature	Test Case(s)
CAS 2/1	Service supported over BR/EDR	CAS/SR/SGGIT/SDP/BV-01-C
CAS 2/1 OR CAS 2/2	Common Audio Service	CAS/SR/SGGIT/SER/BV-01-C
CAS 3/1	CSIS Set Member	CAS/SR/SGGIT/SER/BV-02-C

Table 5.1: Test case mapping

6 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
	d09r00–r03	2021-07-11 – 2021-08-16	Track CAP_d09r06. Addressed BTI comments.
	p0r00–r01	2021-12-07 – 2022-01-30	E18021. Draft 1.0. Addressed BTI comments.
0	p0	2022-03-29	Approved by BTI on 2022-02-17. CAS v1.0 adopted by the BoD on 2022-03-22. Prepared for publication.
	p0ed2r00	2022-07-19	TSE 18880 (rating 1): Updated the version of the Core reference in the Reference section.
	p0 edition 2	2022-08-22	Approved by BTI on 2022-08-22. Prepared for edition 2 publication.

Acknowledgments

Name	Company
Charlie Lenahan	Bluetooth SIG, Inc.