Dial-up Networking Profile (DUN)

Bluetooth® Test Specification

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- **Group Prepared By**: BTI
- **Feedback Email**: bti-main@bluetooth.org

**Abstract:**
This document defines the TSS and test cases for the Bluetooth Dial-up Networking Profile.
### Revision History

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### Contributors

<table>
<thead>
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<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alicia Courtney</td>
<td>Broadcom Ltd.</td>
</tr>
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1 Scope

This Bluetooth document contains the Test Suite Structure (TSS) and Test Cases (TC) to test the Bluetooth Dial-up Networking Profile (DUN).

The objective of this test specification is to provide a basis for interoperability tests for Bluetooth devices giving a high probability of air interface inter-operability between different manufacturer’s 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.

[4] Bluetooth Specification v2.0 or later
[5] Test Strategy and Terminology Overview
[6] ICS Proforma for DUN Profile

2.2 Definitions

For the purpose of this Bluetooth document, the definitions from [4] and [5] apply.

2.3 Acronyms and Abbreviations

For the purpose of this Bluetooth document, the abbreviations from [4] and [5] apply.
3 Test Suite Structure (TSS)

3.1 Overview

The Dial-up Networking Profile is an application profile that defines the requirements for Bluetooth devices necessary for the support of the Dial-up Networking use case. The Dial-up Networking Profiles is dependent on [1] and [2].

The Dial-up Networking Profile specifies two typical configurations of devices, roles, for this profile:

**Gateway (GW)** – This is the device that provides access to the public network.

**Data Terminal (DT)** – This is the device that uses that dial-up services of the gateway.

The Dial-up Networking Profile specifies (2) application services:

- Data call without audio feedback.
- Data call with audio feedback (optional).

In addition to these services, the Dial-up Networking Profile specifies:

- Discovery and connection set up procedure.
- Termination.

3.2 Test Suite Structure

The test suite structure is structured as a tree with a first level defined as DUN representing the service groups: Discovery & Connection Set-up, Application Services and Termination & standby.

Figure 3.1 shows the Test Suite Structure (TSS) including its subgroups defined for the interoperability testing.
DUN

- **Discovery & Connection Set up**
  - General Inquiry
  - Limited Inquiry
  - Non discoverable mode
  - Name Discovery
  - Device Discovery
  - Bonding

- **Application Services**
  - Data call without audio Feedback
  - Data call with audio Feedback

- **Termination & Standby**
  - Disconnection

*Figure 3.1: Test Suite Structure for the DUN Profile*

### 3.3 Test Groups

The test groups are organized in 3 levels. The first level defines the profile groups representing the profile services. The second level separates the profile services in functional modules. The last level in each branch contains the standard ISO subgroups BV and BI.

#### 3.3.1 Profile Group

The profile group identifies the Bluetooth DUN features: Discovery & Connection set-up, Application Services and Termination & standby as defined in [3].

##### 3.3.1.1 Discovery & Connection Set Up

This group handles testing of the discovery and connection set-up procedures of the Dial-up Networking Profile. The test cases found in this group are based on [1].

##### 3.3.1.2 Application Services

This group handles testing of the application services of the Dial-up Networking Profile. The test cases found in this group are based on the services defined in [3].

##### 3.3.1.3 Termination and Standby

This group handles testing of the termination and standby of the Dial-up Networking Profile. The test cases found in this group are based on the services defined in [3].

#### 3.3.2 Main Test Group

The main test groups are the valid behavior group and the invalid behavior group.
3.3.2.1 Valid Behavior (BV) Tests
This sub group provides testing to verify that the IUT reacts in conformity with the Bluetooth Profile specification.

3.3.2.2 Invalid Behavior (BI) Tests
This sub group provides testing to verify that the IUT reacts in conformity with the Bluetooth Profile specification, after receipt of a syntactically or semantically invalid event.
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 [5]. The convention used here is `<spec abbreviation>/<IUT role>/<class>/<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.

<table>
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<th>Identifier Abbreviation</th>
<th>Feature Identifier &lt;feat&gt;</th>
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<td>Dial-up Networking Profile</td>
</tr>
<tr>
<td>DT</td>
<td>Data Terminal Role</td>
</tr>
<tr>
<td>GW</td>
<td>Gateway Role</td>
</tr>
<tr>
<td>DCS</td>
<td>Discovery &amp; Connection Setup</td>
</tr>
<tr>
<td>APS</td>
<td>Application Services</td>
</tr>
<tr>
<td>TER</td>
<td>Termination &amp; Standby</td>
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Table 4.1: DUN TC Feature Naming Conventions

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 exist, 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 are 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 shall be the Fail Verdict.

4.2  Discovery & Connection Setup
Test group objectives:

- To verify that a DT and a GW can discover each other and connect prior to usage as DT and GW in the Bluetooth DUN Profile.

4.2.1  General Inquiry
Test subgroup objectives:

- To verify that the DT can discover the GW and receive information like Bluetooth address etc.

4.2.1.1  General Inquiry
• Test Case ID(s)

DUN/DT/DCS/BV-01-I
DUN/GW/DCS/BV-01-I
• Test Purpose
To verify that the DT correctly makes use of the General Inquiry procedure when trying to discover the GW that is in General Discoverable Mode.

• Reference
[3] 2.3, 2.4

• Initial Condition
Both the DT and the GW should be turned-on and in idle mode.

The DT is using the General inquiry procedure.

The GW is using the General discoverable mode.
• Test Procedure
The GW shall be made discoverable.

Issue the “Bluetooth Device Inquiry” function on the DT.

• Expected Outcome
Pass verdict

DT:

It is possible on the Upper Tester on the DT to activate the “Bluetooth Device Inquiry” function.

A list of discovered devices is presented to the Upper Tester of the DT and the GW is included in the list.

GW:

It is possible on the Upper Tester of the GW to turn the GW into discoverable mode.

The GW is discovered by the Lower Tester.

4.2.2 Limited Inquiry
Test subgroup objectives:
- To verify that the DT can discover the GW and receive information like Bluetooth address etc.
- Only applicable if the GW and the DT are supporting Limited Inquiry.

4.2.2.1 Limited Inquiry
• Test Case ID(s)
  DUN/DT/DCS/BV-02-I
  DUN/GW/DCS/BV-02-I

• Test Purpose
To verify that the DT correctly makes use of the Limited Inquiry procedure when trying to discover the GW that is in the Limited discoverable mode.

Only applicable if the GW and the DT support Limited Inquiry.

• Reference
  [3] 2.3, 2.4

• Initial Condition
  Both the DT and the GW should be turned-on and in idle mode.

  The DT is using the Limited inquiry mode procedure.

  The GW is using the Limited discoverable mode.
• Test Procedure
   The GW shall be made "limited" discoverable.
   Issue the “Bluetooth Device Inquiry” function on the DT.

• Expected Outcome
   Pass verdict
   DT:
   It is possible on the Upper Tester on the DT to activate the “Bluetooth Device Inquiry” function.
   A list of discovered devices is presented to the Upper Tester of the DT and the GW is included in the list.
   GW:
   It is possible on the Upper Tester of the GW to turn the GW into limited discoverable mode.
   The GW is discovered by the Lower Tester.

4.2.3 Non-Discoverable mode
Test subgroup objectives:
   - To verify that the GW in non-discoverable mode cannot be discovered by the DT.

4.2.3.1 DUN/GW/DCS/BV-03-I [Non-Discoverable mode]
• Test Purpose
   To verify that the GW acting as IUT, correctly make use of the Non-Discoverable mode and cannot be discovered by the DT using the general inquiry mode.

• Reference
   [3] 2.3, 2.4

• Initial Condition
   Both the DT and the GW should be turned-on and in idle mode.

• Test Procedure
   The GW shall be made non-discoverable by issuing the “Non-Discoverable” function on the Upper Tester.
   Issue the “Bluetooth Device Inquiry” function on the DT acting as Lower Tester.

• Expected Outcome
   Pass verdict
   It is possible to place the GW in non-discoverable mode via the Upper Tester.
The GW is not present in the list of discovered devices.

### 4.2.4 Name Discovery

Test subgroup objectives:

- To verify that the DT can discover the GW and receive information like Bluetooth device name etc.
- Only applicable if the GW and the DT are supporting Name Discovery.

#### 4.2.4.1 Name Discovery

- **Test Case ID(s)**
  
  DUN/DJT/DCS/BV-04-I
  
  DUN/GW/DCS/BV-04-I

- **Test Purpose**
  
  To verify that the DT correctly make use of the Name Discovery procedure when trying to discover the GW using the discoverable and connectable modes.

  Only applicable if the GW and the DT support Name Discovery.

- **Reference**
  
  [3] 2.3, 2.4

- **Initial Condition**
  
  The GW has been discovered by the DT either by the procedure in DUN/DJT/DCS/BV-01-I, DUN/GW/DCS/BV-01-I or by other means.

- **Test Procedure**
  
  The GW shall be made discoverable and connectable by issuing the “Discoverable” and "Connectable" functions via the Upper Tester.

  Issue the “Bluetooth Name Discovery” function on the DT.

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

  **DT:**

  It is possible on the Upper Tester on the DT to activate the name discovery procedure.

  A list of discovered devices is presented to the Upper Tester of the DT and the name of the GW is included in the list.

  **GW:**

  It is possible on the Upper Tester on the GW to activate the discoverable and connectable modes.

  The name of the GW is discovered by the DT.
4.2.5  Device Discovery

Test subgroup objectives:
- To verify that the DT can discover the GW and receive information like device name etc.
- Only applicable if the GW and the DT are supporting Device Discovery.

4.2.5.1  Device Discovery

- Test Case ID(s)
  
  DUN/DT/DCS/BV-05-I  
  DUN/GW/DCS/BV-05-I

- Test Purpose
  
  To verify that the DT correctly make use of the Device Discovery procedure when trying to discover the GW using the discoverable and connectable modes.

  Only applicable if the GW and the DT are support Device Discovery.

- Reference
  
  [3] 2.3, 2.4

- Initial Condition
  
  Both the DT and the GW should be turned-on and in idle mode.

  The DT is using the Device discovery procedure.

  The GW is using the General discoverable mode and Connectable mode.

- Test Procedure
  
  The GW shall be made discoverable and connectable by issuing the “Discoverable” and "Connectable" functions on the Upper Tester.

  Issue the “Bluetooth Device Discovery” function on the DT.

- Expected Outcome

  Pass verdict

  DT:

  It is possible on the Upper Tester on the DT to activate the device discovery procedure.

  A list of discovered devices is presented to the Upper Tester and the name of the GW is included in the list.

  GW:

  It is possible on the Upper Tester on the GW to activate the discoverable and connectable modes.

  The name of the GW is discovered by the DT.
4.2.6 Bonding

Test subgroup objectives:

- To verify that the DT can create a relation to the GW based on a common link key.

4.2.6.1 Device Discovery

• Test Case ID(s)

  DUN/DT/DCS/BV-06-I
  DUN/GW/DCS/BV-06-I

• Test Purpose

  To verify that the DT correctly initiates bonding to the GW and that the PIN codes are exchanged correctly.

• Reference

  [3] 2.3, 2.4

• Initial Condition

  Both the DT and the GW should be turned-on and in idle mode.

  The DT is using the Device discovery procedure.

  The GW is using the General discoverable mode and Connectable mode.

• Test Procedure

  The GW shall be made pairable by issuing the "Bondable" function on the Upper Tester.

  Issue the “Bluetooth Bonding” function on the DT.

  Enter PIN codes (maximum of 16 digits) on both the GW and the DT, unless a fixed PIN code is used.

• Expected Outcome

  Pass verdict

  DT:

  It is possible on the Upper Tester on the DT to activate the Bluetooth Bonding procedure.

  It is possible to enter a PIN code on both UI's, unless a fixed PIN code is used.

  A link key is created (not possible to verify at this stage).

  GW:

  It is possible on the Upper Tester on the GW to activate the Bondable mode.

  It is possible to enter a PIN code on both UI's, unless a fixed PIN code is used.
A link key is created (not possible to verify at this stage).

### 4.3 Application Services

Test group objectives:

- To verify that the units support data calls and if supported by the units’ audio feedback as well.

#### 4.3.1 Test Setup

The test set-up that will be used to verify the application services of the Dial-up Networking is shown in Figure 4.1.

The Network terminal can be a computer of any kind connected to the existing network via a modem.

![Figure 4.1: Dial-up Networking Test setup](image)

Test subgroup objectives:

- To verify that the DT can via the GW establish a data connection and then transmit and receive a data file greater than 64 Kbytes.

#### 4.3.1.1 NT is busy

- Test Case ID(s)
  - **DUN/DT/APS/BV-02-I**
  - **DUN/GW/APS/BV-02-I**

- Test Purpose
  - To verify that the DT accepts that the NT (or a plain telephone) is busy.
Reference

[3] 3.2

Initial Condition
Bonding is finished and the DT has connected to the GW using the manufacturer specific Bluetooth connection establishment procedure.

Test Procedure
Make the NT busy, e.g. make sure that the modem of the NT (or a plain telephone) is busy (off hook).

On the DT, try to connect to the NT via the GW by dialing the number to the NT.

Expected Outcome
Pass verdict
The DT must be alerted that the NT is busy.

4.3.1.2 Transfer of data

Test Case ID(s)

DUN/DT/APS/BV-03-I
DUN/GW/APS/BV-03-I

Test Purpose
To verify that the DT can transmit data (including IP data).

Reference

[3] 3.2

Initial Condition
The DT and GW devices are paired with each other.
The GW is setup to establish a dial-up networking connection when requested by DT.
The GW and DT use a circuit switched network connection.

Test Procedure
Setup a dial-up connection establishment from DT to GW.

From the DT, start data transfer over the established connection. Any IP-based protocol may be used.

Verify that data is uncorrupted via validation of transferred file, engagement in a well-known IP protocol (PING, establishment of TCP connection) or directly by examining the IP packet at receiving end.
• Test Condition
  A well-known file must be used so that it is easy to verify that the file is not corrupted.

• Expected Outcome
  Pass verdict

  It is possible to transmit the file from the DT.

  Received file must not be corrupted.

4.3.1.3 Receive data
• Test Case ID(s)
  DUN/DT/APS/BV-04-I
  DUN/GW/APS/BV-04-I

• Test Purpose
  To verify that the DT can receive data (including IP data).

• Reference
  [3] 3.2

• Initial Condition
  The DT and GW devices are paired with each other.

  The GW is setup to establish dial-up networking connection when requested by DT.

• Test Procedure
  Setup a dial-up connection establishment from DT to GW.

  From any external network start data transfer over the established connection. Any IP-based protocol may be used.

  Verify that data is received via validation of transferred file, engagement in a well-known IP protocol (PING, establishment of TCP connection) or directly by examining the IP packet at receiving end.

• Test Condition
  A well-known file must be used so that it is easy to verify that the file is not corrupted.

• Expected Outcome
  Pass verdict

  It is possible to receive the file from the external network.

  When the file is received at the DT it is not corrupted.
4.3.1.4 Transfer of data, packet network

- Test Case ID(s)
  
  DUN/DT/APS/BV-13-I
  DUN/GW/APS/BV-13-I

- Test Purpose
  
  To verify that the DT can transmit data (including IP data).

- Test Procedure
  
  The test procedure is identical to DUN/DT/APS/BV-03-I and DUN/GW/APS/BV-03-I except the GW and DT uses a packet switched network connection.

- Expected Outcome
  
  Pass verdict
  
  The pass verdict is identical to DUN/DT/APS/BV-03-I and DUN/GW/APS/BV-03-I except the GW and DT uses a packet switched network connection.

4.3.1.5 Receive data, packet network

- Test Case ID(s)
  
  DUN/DT/APS/BV-14-I
  DUN/GW/APS/BV-14-I

- Test Purpose
  
  To verify that the DT can receive data (including IP data).

- Test Procedure
  
  The test procedure is identical to DUN/DT/APS/BV-04-I and DUN/GW/APS/BV-04-I except the GW and DT uses a packet switched network connection.

- Expected Outcome
  
  Pass verdict
  
  The pass verdict is identical to DUN/DT/APS/BV-04-I and DUN/GW/APS/BV-04-I except the GW and DT uses a packet switched network connection.

4.3.2 Data call without audio Feedback - Incoming call

Test subgroup objectives:

- To verify that a remote DT can (via the GW under test) establish a connection to the DT under test and transmit a data file greater than 64 Kbytes.
4.3.2.1 Incoming alert on DT

- Test Case ID(s)
  
  **DUN/DT/APS/BV-05-I**
  
  **DUN/GW/APS/BV-05-I**

- Test Purpose
  
  To verify that the DT gets an alert when a remote DT is connecting to it. The DT must accept the alert and a connection must be established afterwards. This test is only applicable for devices using circuit switched network connection.

- Reference
  
  [3] 3.2

- Initial Condition
  
  Bonding is finished and the DT has connected to the GW using the manufacturer specific Bluetooth connection establishment procedure.

- Test Procedure
  
  On the remote DT, establish a connection to the DT under test via the GW by dialing the number to the GW, i.e. the number the GW is associated with.

  On the DT, accept the connection. The DT may be configured to auto accept the incoming data call.

- Expected Outcome
  
  **Pass verdict**

  The DT must be alerted about the incoming data call or the DT automatically accepted the incoming data call.

4.3.2.2 DT transfers data

- Test Case ID(s)
  
  **DUN/DT/APS/BV-06-I**
  
  **DUN/GW/APS/BV-06-I**

- Test Purpose
  
  To verify that the DT can transmit data (including IP data). This test is only applicable for devices using circuit switched network connection.

- Reference
  
  [3] 3.2

- Initial Condition
  
  The procedures described by **DUN/DT/APS/BV-05-I** or **DUN/GW/APS/BV-05-I** have been performed.
• Test Procedure
Setup a dial-up connection establishment from DT to GW.

From the DT, start data transfer over the established connection. Any IP-based protocol may be used.

Verify that data is uncorrupted via validation of transferred file, engagement in a well-known IP protocol (PING, establishment of TCP connection) or directly by examining the IP packet at receiving end.

• Test Condition
A well-known file must be used so that it is easy to verify that the file is not corrupted.

• Expected Outcome
Pass verdict

It is possible to transmit the file from the DT.

When the file is received at the remote side it is not corrupted.

4.3.2.3 DT receives data

• Test Case ID(s)
  
  DUN/DT/APS/BV-07-I
  DUN/GW/APS/BV-07-I

• Test Purpose
To verify that the DT can receive data file (including IP data). This test is only applicable for devices using circuit switched network connection.

• Reference
  [3] 3.2

• Initial Condition
The procedures described by DUN/DT/APS/BV-05-I or DUN/GW/APS/BV-05-I have been performed.

• Test Procedure
Setup a dial-up connection establishment from DT to GW.

From any external network start data transfer over the established connection. Any IP-based protocol may be used.

Verify that data is received via validation of transferred file, engagement in a well-known IP protocol (PING, establishment of TCP connection) or directly by examining the IP packet at receiving end.

• Test Condition
A well-known file must be used so that it is easy to verify that the file is not corrupted.
• Expected Outcome
  Pass verdict

  It is possible to receive the file from the remote DT.

  When the file is received at the DT under test it must not be corrupted.

4.3.3  Data call with audio Feedback - Outgoing call

Test subgroup objectives:

- To verify that the GW can establish an audio connection to the DT so that audio feedback can be returned at dial-up to the external network.
- Only applicable if the GW and the DT are supporting Data call with audio feedback.

4.3.3.1  Audio feedback

• Test Case ID(s)
  DUN/DT/APS/BV-08-I
  DUN/GW/APS/BV-08-I

• Test Purpose
  Verify that the GW can establish an audio connection to the DT so that audio feedback can be returned at dial-up to the external network.

  Only applicable if the GW and the DT are supporting Data call with audio feedback.

• Reference
  [3] 4.2

• Initial Condition
  The DT and GW devices are paired with each other.

  The GW is setup to establish dial-up networking connection when requested by DT.

  The GW and DT use a circuit switched network connection.

  The GW is configured to use audible alert during Bluetooth DUN connection establishment.

  The external network is configured to accept the connection.

• Test Procedure
  On the DT, connect to the external network via the GW by dialing the number to the external network.

  The external network must accept the connection.
• Expected Outcome
   Pass verdict
   The GW must give audio feedback to the DT during connection set up.
   There must be a connection between the DT and the external network via the GW.

4.4 Termination and Standby
Test group objectives:

   - To verify that the units can terminate a data call in a correct manner and if applicable use the Bluetooth standby modes.

4.4.1 Termination - DT
Test subgroup objectives:

   - To verify that the DT can terminate a data call in a correct manner.

4.4.1.1 Termination DT
• Test Case ID(s)
   DUN/DT/TER/BV-01-I
   DUN/GW/TER/BV-01-I
• Test Purpose
   Verify that the DT can terminate a data call.
• Reference
   [3] 3.2
• Initial Condition
   The external network is reachable by the GW over a circuit switched network. Bonding is completed and the DT has connected to the GW using the manufacturer specific Bluetooth connection establishment procedure.
• Test Procedure
   On the DT, terminate the data call.
• Expected Outcome
   Pass verdict
   The DT terminates the data call.
4.4.1.2 Termination DT, packet network

- **Test Case ID(s)**
  - DUN/DT/TER/BV-11-I
  - DUN/GW/TER/BV-11-I

- **Test Purpose**
  Verify that the DT can terminate a data call.

- **Test Procedure**
  The test procedure is identical to DUN/DT/TER/BV-01-I and DUN/GW/TER/BV-01-I except the external network is reachable by the GW over a packet switched network.

- **Expected Outcome**
  Pass verdict
  The pass verdict is identical to DUN/DT/TER/BV-01-I and DUN/GW/TER/BV-01-I except the external network is reachable by the GW over a packet switched network.

4.4.1.3 Termination - GW

Test subgroup objectives:

- To verify that the GW can terminate a data call in a correct manner.

4.4.1.4 Termination GW

- **Test Case ID(s)**
  - DUN/DT/TER/BV-02-I
  - DUN/GW/TER/BV-02-I

- **Test Purpose**
  Verify that the GW can terminate a data call.

  Only applicable for units that has a User Interface where it is possible to terminate a call.

- **Reference**
  [3] 3.2

- **Initial Condition**
  The external network is reachable by the GW over a circuit switched network.

  Bonding is finished and the DT has connected to the GW using the manufacturer specific Bluetooth connection establishment procedure.

- **Test Procedure**
  On the GW, terminate the data call.
• Expected Outcome
  Pass verdict

  The GW must be able to terminate the data call.

4.4.1.5  Termination GW, packet network
• Test Case ID(s)
  DUN/DT/TER/BV-12-I
  DUN/GW/TER/BV-12-I
• Test Purpose
  Verify that the GW can terminate a data call.

• Test Procedure
  The test procedure is identical to DUN/DT/TER/BV-02-I and DUN/GW/TER/BV-02-I except the external network is reachable by the GW over a packet switched network.

• Expected Outcome
  Pass verdict

  The pass verdict is identical to DUN/DT/TER/BV-02-I and DUN/GW/TER/BV-02-I except the external network is reachable by the GW over a packet switched network.

4.4.2  Termination - NT
Test subgroup objectives:
  - To verify that the data call can be closed from the NT side.

4.4.2.1  Termination NT
• Test Case ID(s)
  DUN/DT/TER/BV-03-I
  DUN/GW/TER/BV-03-I
• Test Purpose
  Verify that the data call can be closed from the NT side.

• Reference
  [3] 3.2

• Initial Condition
  The external network is reachable by the GW over a circuit switched network.

  Bonding is finished and the DT has connected to the GW using the manufacturer specific Bluetooth connection establishment procedure.
• Test Procedure
  On the NT, terminate the data call.

• Test Condition
  There must be an indication on the NT if there is a connection to the DT.

• Expected Outcome
  Pass verdict
  The DT must be alerted that the data call is terminated.
  The connection between the NT and the DT must be removed.
## 5 Test Case Mapping

The Test Case Mapping Table (TCMT) maps test cases to specific requirements in the ICS. 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 a y/x reference, where y corresponds to the table number and x corresponds to the feature number as defined in the ICS Proforma for Dial-up Networking Profile (DUN) [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.

- **Test Case Applicable:** May be used to note if a test is required based on the supported features.

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.

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*Table 5.1: Test Case Mapping*