



**ZigBee<sup>®</sup>**

Control your world

# **ZigBee Cluster Library Basic Cluster (0x0000) Test Specification Version 1.0**

ZigBee Document 15-0302-05

April 15th, 2016

Sponsored by: ZigBee Alliance

Accepted by                      This document has been accepted for release by the ZigBee Alliance Board of Directors

Abstract                              This document describes the certification tests for devices which implement the ZCL Basic cluster.

Keywords                              ZCL, Basic, cluster

---

Copyright © ZigBee Alliance, Inc. (1996-2016). All rights reserved.

508 Second Street, Suite 206 Davis, CA 95616 - USA

<http://www.zigbee.org>

Permission is granted to members of the ZigBee Alliance to reproduce this document for their own use or the use of other ZigBee Alliance members only, provided this notice is included. All other rights reserved. Duplication for sale, or for commercial or for-profit use is strictly prohibited without the prior written consent of the ZigBee Alliance.

1

2

This page is intentionally blank

### 3 **Notice of use and disclosure**

4 Copyright © ZigBee Alliance, Inc. (1996-2016). All rights Reserved. This  
5 information within this document is the property of the ZigBee Alliance and its use  
6 and disclosure are restricted.

7 Elements of ZigBee Alliance specifications may be subject to third party intellectual  
8 property rights, including without limitation, patent, copyright or trademark rights  
9 (such a third party may or may not be a member of ZigBee). ZigBee is not responsible  
10 and shall not be held responsible in any manner for identifying or failing to identify  
11 any or all such third party intellectual property rights.

12 No right to use any ZigBee name, logo or trademark is conferred herein. Use of any  
13 ZigBee name, logo or trademark requires membership in the ZigBee Alliance and  
14 compliance with the ZigBee Logo and Trademark Policy and related ZigBee policies.

15 This document and the information contained herein are provided on an “AS IS” basis  
16 and ZigBee DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED,  
17 INCLUDING BUT NOT LIMITED TO (A) ANY WARRANTY THAT THE USE  
18 OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OF  
19 THIRD PARTIES (INCLUDING WITHOUT LIMITATION ANY  
20 INTELLECTUAL PROPERTY RIGHTS INCLUDING PATENT, COPYRIGHT OR  
21 TRADEMARK RIGHTS) OR (B) ANY IMPLIED WARRANTIES OF  
22 MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR  
23 NONINFRINGEMENT. IN NO EVENT WILL ZIGBEE BE LIABLE FOR ANY  
24 LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OF DATA,  
25 INTERRUPTION OF BUSINESS, OR FOR ANY OTHER DIRECT, INDIRECT,  
26 SPECIAL OR EXEMPLARY, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL  
27 DAMAGES OF ANY KIND, IN CONTRACT OR IN TORT, IN CONNECTION  
28 WITH THIS DOCUMENT OR THE INFORMATION CONTAINED HEREIN,  
29 EVEN IF ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE. All  
30 Company, brand and product names may be trademarks that are the sole property of  
31 their respective owners.

32 The above notice and this paragraph must be included on all copies of this document  
33 that are made.

34

35

36

37

This page is intentionally blank

38

**Revision history**

<b>Revision</b>	<b>Date</b>	<b>Details</b>	<b>Editor</b>
00	April, 2015	Created from ZLL & ZHA test specifications.	Phil Jamieson
01	August 12 <sup>th</sup> , 2015	Resolved comments received since the Hull test event in June 2015.	Phil Jamieson
02	September 28 <sup>th</sup> , 2015	Added new attributes from the L&O specification and the new mandatory global attribute.	Phil Jamieson
03	October 30 <sup>th</sup> , 2015	Addressed comments from GTE #3 and the v0.9 ballot.	Phil Jamieson
04	March 1 <sup>st</sup> , 2016	Addressed comments from the ZigBee 3.0 SVEs.	Phil Jamieson
05	April 15 <sup>th</sup> , 2016	Changed status to "approved" and version to 1.0.	Phil Jamieson

39

40

41

42

This page is intentionally blank

43

44	<b>Table of Contents</b>	
45	1	Introduction.....9
46	1.1	Conformance levels.....9
47	2	References.....10
48	2.1	ZigBee Alliance documents .....10
49	2.2	IETF documents .....10
50	3	PICS .....11
51	3.1	Usage.....11
52	3.2	Server.....11
53	3.2.1	Attributes.....11
54	3.2.2	Commands received.....12
55	3.3	Client.....12
56	3.3.1	Attributes.....12
57	3.3.2	Commands generated.....13
58	4	Test specification .....14
59	4.1	Introduction .....14
60	4.1.1	Test case overview .....14
61	4.1.2	Testing tolerances .....14
62	4.1.3	Client DUTs .....14
63	4.1.4	Test steps manipulating attributes.....14
64	4.2	Generic test cases .....15
65	4.2.1	B-TC-01G: Global attributes .....15
66	4.3	Server test cases.....19
67	4.3.1	B-TC-01S: Attributes with server as DUT .....19
68	4.3.2	B-TC-02S: Secondary functionality with server as DUT .....24
69	4.4	Client test cases .....29
70	4.4.1	B-TC-01C: Functionality with client as DUT .....29
71	5	Annex A: PICS to test case cross reference.....32
72	5.1	Server.....32
73	5.2	Client .....32
74		
75		

76

77

This page is intentionally blank

## 78 **1 Introduction**

79 This document contains the PICS, test specification and PICS/test case cross reference for the  
80 ZCL *basic* cluster.

### 81 **1.1 Conformance levels**

82 The key words "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT",  
83 "RECOMMENDED" and "MAY" in this document are to be interpreted as described in [R5].

84

## 85 **2 References**

### 86 **2.1 ZigBee Alliance documents**

- 87 [R1] ZigBee Cluster Library Specification, ZigBee Alliance document 07-5123.  
88 [R2] ZCL General Test Specification, ZigBee Alliance document 15-0xxx.  
89 [R3] ZCL Basic Cluster XML PICS, ZigBee Alliance document 15-0xxx.  
90 [R4] ZigBee Lighting & Occupancy Device Specification, ZigBee Alliance document 15-  
91 0014.

### 92 **2.2 IETF documents**

- 93 [R5] S. Bradner, Key words for use in RFCs to Indicate Requirement Levels, IETF RFC 2119,  
94 March 1997.  
95

96 **3 PICS**

97 All references are for the ZigBee Cluster Library specification [R1] unless otherwise indicated.  
 98 An XML version of these PICS is also available in [R3].

99 **3.1 Usage**

Item number	Feature	Reference	Status	Support
B.S	Does the device implement the <i>basic</i> cluster as a server?	3.2.2	O	Yes/No
B.C	Does the device implement the <i>basic</i> cluster as a client?	3.2.3	O	Yes/No

100

101 **3.2 Server**102 **3.2.1 Attributes**

Item number	Feature	Reference	Status	Support
B.S.A0000	Does the device implement the <i>ZCLVersion</i> attribute?	Table 3.7, 3.2.2.2.1	B.S: M	Yes/No
B.S.A0001	Does the device implement the <i>ApplicationVersion</i> attribute?	Table 3.7, 3.2.2.2.2	B.S: O	Yes/No
B.S.A0002	Does the device implement the <i>StackVersion</i> attribute?	Table 3.7, 3.2.2.2.3	B.S: O	Yes/No
B.S.A0003	Does the device implement the <i>HardwareVersion</i> attribute?	Table 3.7, 3.2.2.2.4	B.S: O	Yes/No
B.S.A0004	Does the device implement the <i>ManufacturerName</i> attribute?	Table 3.7, 3.2.2.2.5	B.S: O	Yes/No
B.S.A0005	Does the device implement the <i>ModelIdentifier</i> attribute?	Table 3.7, 3.2.2.2.6	B.S: O	Yes/No
B.S.A0006	Does the device implement the <i>DateCode</i> attribute?	Table 3.7, 3.2.2.2.7	B.S: O	Yes/No
B.S.A0007	Does the device implement the <i>PowerSource</i> attribute?	Table 3.7, 3.2.2.2.8	B.S: M	Yes/No
B.S.A0008	Does the device implement the <i>GenericDeviceClass</i> attribute?	[R4] Table 66, 27.2.1.1.1	B.S: O	Yes/No
B.S.A0009	Does the device implement the <i>GenericDeviceType</i> attribute?	[R4] Table 66, 27.2.1.1.2	B.S: O	Yes/No

Item number	Feature	Reference	Status	Support
B.S.A000a	Does the device implement the <i>ProductCode</i> attribute?	[R4] Table 66, 27.2.1.1.3	B.S: O	Yes/No
B.S.A000b	Does the device implement the <i>ProductURL</i> attribute?	[R4] Table 66, 27.2.1.1.4	B.S: O	Yes/No
B.S.A0010	Does the device implement the <i>LocationDescription</i> attribute?	Table 3.7, 3.2.2.2.9	B.S: O	Yes/No
B.S.A0011	Does the device implement the <i>PhysicalEnvironment</i> attribute?	Table 3.7, 3.2.2.2.10	B.S: O	Yes/No
B.S.A0012	Does the device implement the <i>DeviceEnabled</i> attribute?	Table 3.7, 3.2.2.2.11	B.S: O	Yes/No
B.S.A0013	Does the device implement the <i>AlarmMask</i> attribute?	Table 3.7, 3.2.2.2.12	B.S: O	Yes/No
B.S.A0014	Does the device implement the <i>DisableLocalConfig</i> attribute?	Table 3.7, 3.2.2.2.13	B.S: O	Yes/No
B.S.A4000	Does the device implement the <i>SWBuildID</i> attribute?	Table 3.7, 3.2.2.2.14	B.S: O	Yes/No
B.S.Afffd	Does the device implement the <i>ClusterRevision</i> global attribute?	Table 2-1, 2.3.5.1.1	B.S: M	Yes/No

103

### 104 3.2.2 Commands received

Item number	Feature	Reference	Status	Support
B.S.C00.Rsp	Does the device implement receiving the <i>Reset to factory defaults</i> command?	Table 3.13, 3.2.2.3.1	B.S: O	Yes/No

105

## 106 3.3 Client

### 107 3.3.1 Attributes

Item number	Feature	Reference	Status	Support
B.C.Afffd	Does the device implement the <i>ClusterRevision</i> global attribute?	Table 2-1, 2.3.5.1.1	B.C: M	Yes/No

108

109 **3.3.2 Commands generated**

Item number	Feature	Reference	Status	Support
B.C.C00.Tx	Does the device implement sending the <i>Reset to factory defaults</i> command?	Table 3.13, 3.2.2.3.1	B.C: O	Yes/No

110

## 111 4 Test specification

### 112 4.1 Introduction

#### 113 4.1.1 Test case overview

114 The following test cases are available for the *basic* cluster:

Test ID	Description	Reference
<b>Global tests</b>		
B-TC-01G	Global attributes	4.2.1
<b>Server side tests</b>		
B-TC-01S	Attributes with server as DUT	4.3.1
B-TC-02S	Secondary functionality with server as DUT	4.3.2
<b>Client side tests</b>		
B-TC-02C	Functionality with client as DUT	4.4.1

115

#### 116 4.1.2 Testing tolerances

117 In test cases where a change in an attribute value is tested over time, it is permitted for the  
 118 devices involved in the test to be within a tolerance of  $\pm 15\%$  of the expected value. As such,  
 119 these test cases indicate that the attribute value must be approximately equal to an expected  
 120 value, to which the  $\pm 15\%$  tolerance should then be applied. All other attribute values presented  
 121 are expected to be exact.

#### 122 4.1.3 Client DUTs

123 For client test cases only test steps that pertain to commands that are supported on the DUT are  
 124 required to be executed. All commands in this cluster for which support is indicated in the  
 125 PICS shall be exercised, using valid, application achievable values.

126 Note that for the client attribute test case, it is permissible for the client not to be able to  
 127 execute any of the test steps.

128 The client SHALL ensure that an application link, e.g. a binding link, exists between itself and  
 129 the test harness. This should be configured before starting the test.

#### 130 4.1.4 Test steps manipulating attributes

131 In test case steps that require more than one attribute to be manipulated (e.g. read), the tester  
 132 may decide whether it is appropriate or practical to send a single attribute manipulation  
 133 command, containing multiple attributes, or multiple attribute manipulation commands, each  
 134 containing a single attribute. The test case is designed to verify the behavior of the device  
 135 supporting the attribute rather than verifying the attribute manipulation command in question.

136

## 137 4.2 Generic test cases

### 138 4.2.1 B-TC-01G: Global attributes

139 This test case verifies the behavior of the global attributes of the *basic* cluster client and server.  
 140 In this test, the PICS notation *B.S.Agm* and *B.C.Agm* represents the list of global attributes that  
 141 are specified as being mandatory for either the server or client, respectively. Similarly, the  
 142 PICS notation *B.S.Ago* and *B.C.Ago* represents the list of global attributes that are specified as  
 143 being optional for either the server or client, respectively.

#### 144 4.2.1.1 Scope

145 General:

- 146 • *Read attributes* command (0x00)
- 147 • *Read attributes response* command (0x01)
- 148 • *Write attributes* command (0x02)
- 149 • *Write attributes response* command (0x04)

150 *Basic* cluster (0x0000):

- 151 • All global attributes

152 PICS:

- 153 • B.S, B.C
- 154 • B.S.Agm, B.C.Agm, B.S.Ago, B.C.Ago

#### 155 4.2.1.2 Required devices

Designation	Symbol	Description
DUT		Device under test implementing: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster server or client.</li> </ul>
TH		Test harness implementing: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster client or server, i.e. the opposite cluster instantiation as implemented on the DUT.</li> </ul>

156

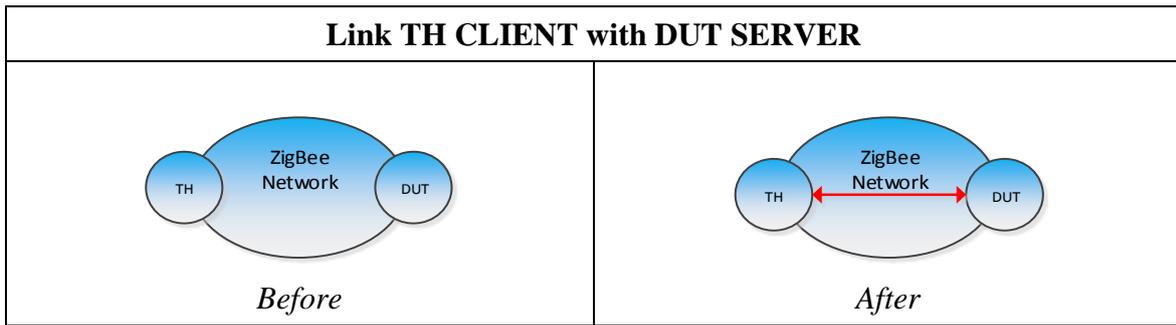
#### 157 4.2.1.3 Initial conditions

Item	Initial Conditions
1	A packet sniffer shall be observing the communication over the air interface.
2	All devices are factory new and powered off until used.

158

159

160 **4.2.1.4 Test preparation**



161

<b>B-TC-01G: Global attributes</b>		
<b>Item</b>	<b>Preparation Step</b>	<b>Observation</b>
P2	Power on TH and DUT.	TH and DUT are powered on.
P3	Ensure TH and DUT are on the same ZigBee network.	Observe appropriate communication between TH, DUT and any other relevant node on the ZigBee network.

*--- End of test case B-TC-01G preparation ---*

162

## 163 4.2.1.5 Test procedure

<b>B-TC-01G: Global attributes</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT pass Verification</b>
1	B.S.Agm, B.C.Agm	TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read each mandatory global attribute of this cluster one at a time.	DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing each requested attribute.  The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s).
2a	B.S.Agm, B.C.Agm	TH unicasts a ZCL <i>write attributes</i> command frame to DUT to write the respective default value to each mandatory global attribute of this cluster one at a time.	DUT unicasts a ZCL <i>write attributes response</i> command frame to TH for each attribute.  If the access control of DUT is set to READ, the DUT response will indicate that the attribute write command was not a SUCCESS. If the access control of DUT is set to READ/WRITE, the DUT response will indicate that the write command was a SUCCESS.
2b	B.S.Agm, B.C.Agm	TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read back each attribute written in step 2a.	DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing the requested attribute.  If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back.

Continued...

<b>B-TC-01G: Global attributes</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT pass Verification</b>
3	B.S.Ago, B.C.Ago	TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read each optional global attribute of this cluster one at a time.	DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing each attribute.  If the DUT implements the attribute, the <i>Status</i> field will be equal to SUCCESS and the command will contain the requested attribute. If the DUT does not implement the attribute, the <i>Status</i> field will not be equal to SUCCESS.  The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s).
4a	B.S.Ago, B.C.Ago	TH unicasts a ZCL <i>write attributes</i> command frame to DUT to write the respective default value to each optional global attribute of this cluster one at a time.	DUT unicasts a ZCL <i>write attributes response</i> command frame to TH for each attribute.  If the attribute is not implemented or the access control of DUT is set to READ, the DUT response will indicate that the attribute write command was not a SUCCESS. If the attribute is implemented and the access control of DUT is set to READ/WRITE, the DUT response will indicate that the write command was a SUCCESS.
4b	B.S.Ago, B.C.Ago	TH unicasts a ZCL <i>read attributes</i> command frame to DUT to read back each attribute written in step 4a.	DUT unicasts a ZCL <i>read attributes response</i> command frame to TH containing the requested attribute.  If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back.

--- End of test case B-TC-01G ---

## 165 4.3 Server test cases

### 166 4.3.1 B-TC-01S: Attributes with server as DUT

167 This test case verifies the behavior of the non-global attributes of the *basic* cluster server.

168 In this test, the PICS notation B.S.Am represents the list of non-global attributes that are  
 169 specified as being mandatory. Similarly, the PICS notation B.S.Ao represents the list of non-  
 170 global attributes that are specified as being optional.

#### 171 4.3.1.1 Scope

172 General:

- 173 • *Read attributes* command (0x00)
- 174 • *Read attributes response* command (0x01)
- 175 • *Write attributes* command (0x02)
- 176 • *Write attributes response* command (0x04)

177 *Basic* cluster (0x0000):

- 178 • All non-global attributes

179 PICS:

- 180 • B.S,
- 181 • B.S.Am, B.S.Ao

#### 182 4.3.1.2 Required devices

Designation	Symbol	Description
TH CLIENT		Test harness client implementing: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster client.</li> </ul>
DUT SERVER		Device under test server: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster server.</li> </ul>

183

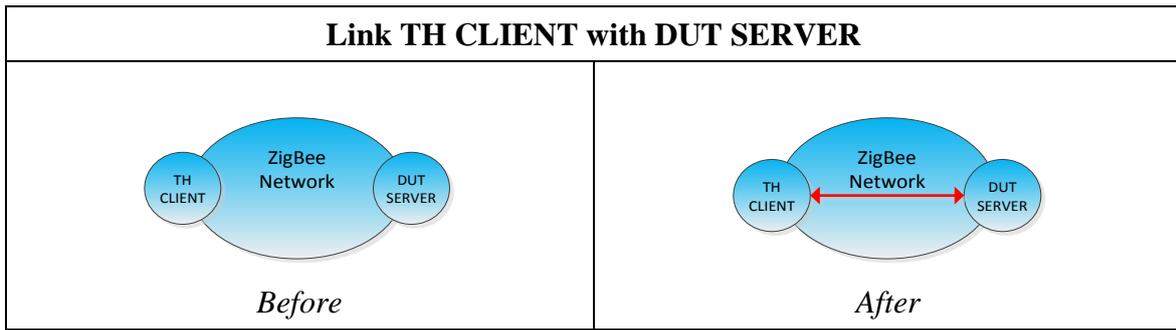
#### 184 4.3.1.3 Initial conditions

Item	Initial Conditions
1	A packet sniffer shall be observing the communication over the air interface.
2	All devices are factory new and powered off until used.

185

186

187 **4.3.1.4 Test preparation**



188

<b>B-TC-01S: Attributes with server as DUT</b>		
<b>Item</b>	<b>Preparation Step</b>	<b>Observation</b>
P2	Power on TH CLIENT and DUT SERVER.	TH CLIENT and DUT SERVER are powered on.
P3	Ensure TH CLIENT and DUT SERVER are on the same ZigBee network.	Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network.

*--- End of test case B-TC-01C preparation ---*

189

190 **4.3.1.5 Test procedure**

<b>B-TC-01S: Attributes with server as DUT</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT pass Verification</b>
1	B.S.Am	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read each mandatory attribute of this cluster one at a time.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing each requested attribute.  The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s).
2a	B.S.Am	TH CLIENT unicasts a ZCL <i>write attributes</i> command frame to DUT SERVER to write the respective default value to each mandatory attribute of this cluster one at a time.	DUT SERVER unicasts a ZCL <i>write attributes response</i> command frame to TH CLIENT for each attribute.  If the access control of DUT SERVER is set to READ, the DUT SERVER response will indicate that the attribute write command was not a SUCCESS. If the access control of DUT SERVER is set to READ/WRITE, the DUT SERVER response will indicate that the write command was a SUCCESS.
2b	B.S.Am	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read back each attribute written in step 2a.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing the requested attribute.  If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back.

Continued...

<b>B-TC-01S: Attributes with server as DUT</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT pass Verification</b>
3	B.S.Ao	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read each optional attribute of this cluster one at a time.	<p>DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing each attribute.</p> <p>If the DUT SERVER implements the attribute, the <i>Status</i> field will be equal to SUCCESS and the command will contain the requested attribute. If the DUT SERVER does not implement the attribute, the <i>Status</i> field will not be equal to SUCCESS.</p> <p>The data type in each command must match the value listed in the specification(s). The data value in each command for the attribute must fall within the valid range described in the specification(s).</p>
4a	B.S.Ao	TH CLIENT unicasts a ZCL <i>write attributes</i> command frame to DUT SERVER to write the respective default value to each optional attribute of this cluster one at a time.	<p>DUT SERVER unicasts a ZCL <i>write attributes response</i> command frame to TH CLIENT for each attribute.</p> <p>If the attribute is not implemented or the access control of DUT SERVER is set to READ, the DUT SERVER response will indicate that the attribute write command was not a SUCCESS. If the attribute is implemented and the access control of DUT SERVER is set to READ/WRITE, the DUT response will indicate that the write command was a SUCCESS.</p>

*Continued...*

<b>B-TC-01S: Attributes with server as DUT</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT pass Verification</b>
4b	B.S.Ao	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read back each attribute written in step 4a.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT containing the requested attribute. If the <i>Status</i> field of the <i>write attributes response</i> command frame was equal to SUCCESS, the updated value is read back. If the <i>Status</i> field of the <i>write attributes response</i> command frame was not equal to SUCCESS the value is not updated when read back.

--- End of test case B-TC-01S ---

191

192

### 193 **4.3.2 B-TC-02S: Secondary functionality with server as DUT**

194 This test case verifies the secondary functionality of the *basic* cluster server.

#### 195 **4.3.2.1 Scope**

196 General:

- 197 • *Read attributes* command (0x00)
- 198 • *Read attributes response* command (0x01)
- 199 • *Write attributes* command (0x02)
- 200 • *Write attributes response* command (0x04)
- 201 • *Default response* command (0x0b)

202 *Basic* cluster (0x0000):

- 203 • *DeviceEnabled* attribute (0x0012)
- 204 • *Reset to factory defaults* command (0x00)

205 *Identify* cluster (0x0003):

- 206 • *IdentifyTime* attribute (0x0000)
- 207 • *Identify* command (0x00)

208 PICS:

- 209 • B.S
- 210 • B.S.A0012
- 211 • B.S.C00.Rsp
- 212 • I.S.A0000

#### 213 **4.3.2.2 Required devices**

Designation	Symbol	Description
TH CLIENT		Test harness client implementing: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster client and</li> <li>• The <i>identify</i> cluster client.</li> </ul>
DUT SERVER		Device under test server implementing: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster server and</li> <li>• The <i>identify</i> cluster client.</li> </ul>

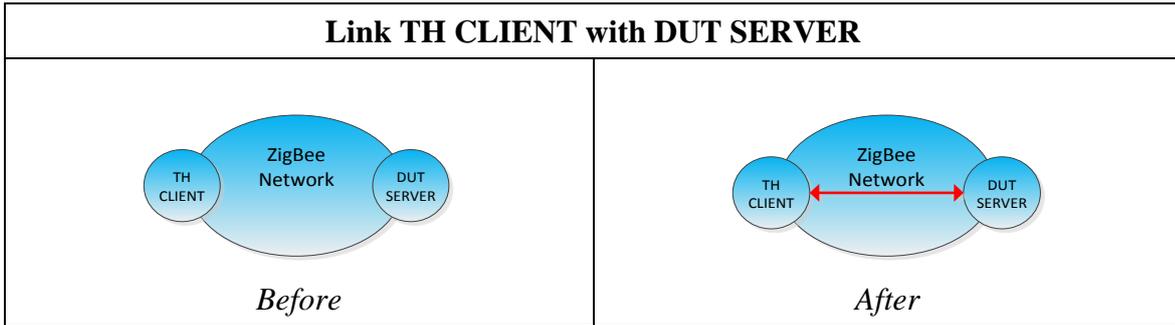
214

215 **4.3.2.3 Initial conditions**

Item	Initial Conditions
1	A packet sniffer shall be observing the communication over the air interface.
2	All devices are factory new and powered off until used.

216  
217

218 **4.3.2.4 Test preparation**



219

<b>B-TC-02S: Secondary functionality with server as DUT</b>		
Item	Preparation Step	Observation
P2	Power on TH CLIENT and DUT SERVER.	TH CLIENT and DUT SERVER are powered on.
P3	Ensure TH CLIENT and DUT SERVER are on the same ZigBee network.	Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network.

--- End of test case B-TC-02S preparation ---

220  
221

## 222 4.3.2.5 Test procedure

223

<b>B-TC-02S: Secondary functionality with server as DUT</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT Pass Verification</b>
1a	I.S.A0000	TH CLIENT unicasts a ZCL <i>write attributes</i> command frame to DUT SERVER to set the <i>IdentifyTime</i> attribute of the <i>Identify</i> cluster to 0x42.	DUT SERVER unicasts a ZCL <i>write attributes response</i> command frame to TH CLIENT.
1b	I.S.A0000	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read the <i>IdentifyTime</i> attribute.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>IdentifyTime</i> attribute has the value 0x42.
1c	B.S.C00.Rsp	TH CLIENT unicasts a ZCL <i>reset to factory defaults</i> command to DUT SERVER with the <i>disable default response</i> sub-field of the <i>frame control</i> field of the ZCL frame set to 0 (target must send a default response).	If the <i>reset to factory defaults</i> is not supported, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x81 (UNSUP_CLUSTER_COMMAND). If the <i>reset to factory defaults</i> is supported, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x00 (SUCCESS).
1d	I.S.A0000	If a <i>default response</i> command was received with the <i>status</i> field equal to 0x00 (SUCCESS), TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read the <i>IdentifyTime</i> attribute of the <i>Identify</i> cluster.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>IdentifyTime</i> attribute has the value 0x00.
<b>Testing note:</b> Steps 2-7 only apply if the <i>DeviceEnabled</i> attribute is supported on DUT SERVER.			

Continued...

<b>B-TC-02S: Secondary functionality with server as DUT</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT Pass Verification</b>
2	-	TH CLIENT unicasts a ZCL command, known to be supported on the DUT, other than a <i>read attributes</i> , <i>write attributes</i> or <i>identify</i> command frame to DUT SERVER.	DUT SERVER processes and responds to the command from TH CLIENT.
3a	B.S.A0012	TH CLIENT unicasts a ZCL <i>write attributes</i> command frame to DUT SERVER to set the <i>DeviceEnabled</i> attribute to 0x00.	DUT SERVER unicasts a ZCL <i>write attributes response</i> command frame to TH CLIENT.
3b	B.S.A0012	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read the <i>DeviceEnabled</i> attribute.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>DeviceEnabled</i> attribute has the value 0x00.
4	B.S.A0012	TH CLIENT unicasts the same ZCL command used in step 2 to DUT SERVER.	DUT SERVER does nothing.
5a	I.S.C00.Rsp	TH CLIENT unicasts a ZCL <i>identify</i> command frame to DUT SERVER, with the <i>identify time</i> field set to 0x003c (60s).	If requested, DUT SERVER unicasts a ZCL <i>default response</i> command frame to TH CLIENT with the <i>status</i> field equal to 0x00 (SUCCESS). DUT SERVER begins to identify itself.
5b	I.S.A0000	After 40s, TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read the <i>IdentifyTime</i> attribute.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>IdentifyTime</i> attribute has a value approximately equal to 0x0014.
6a	B.S.A0012	TH CLIENT unicasts a ZCL <i>write attributes</i> command frame to DUT SERVER to set the <i>DeviceEnabled</i> attribute to 0x01.	DUT SERVER unicasts a ZCL <i>write attributes response</i> command frame to TH CLIENT.

*Continued...*

<b>B-TC-02S: Secondary functionality with server as DUT</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT Pass Verification</b>
6b	B.S.A0012	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read the <i>DeviceEnabled</i> attribute.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>DeviceEnabled</i> attribute has the value 0x01.
7	-	TH CLIENT unicasts the same ZCL command used in step 2 to DUT SERVER.	DUT SERVER processes and responds to the command from TH CLIENT.

--- End of test case B-TC-02S ---

224

225

## 226 4.4 Client test cases

### 227 4.4.1 B-TC-01C: Functionality with client as DUT

228 This case test verifies the functionality of the *basic* cluster client.

229 The DUT client SHALL be on the same network as a suitable server, provided by the user, and  
 230 this device SHALL be used by the client to exercise its functionality. The test case uses the  
 231 test harness to prompt the user, based on the declared PICS, to exercise the functionality of the  
 232 *basic* cluster client and to verify the results. A sniffer tool SHALL be used to log the exercised  
 233 functionality and to determine its validity.

234 In this test case, the PICS notation B.C.CdTx represents the list of commands that are declared  
 235 as being transmitted by the DUT.

#### 236 4.4.1.1 Scope

237 *Basic* cluster (0x0000):

- 238 • *Reset to factory defaults* command (0x00)

239 PICS:

- 240 • B.C
- 241 • B.C.C00.Tx

#### 242 4.4.1.2 Required devices

Designation	Symbol	Description
DUT CLIENT		Device under test client implementing: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster client.</li> </ul>
SERVER		Suitable server device implementing: <ul style="list-style-type: none"> <li>• The <i>basic</i> cluster server.</li> </ul>

243

#### 244 4.4.1.3 Initial conditions

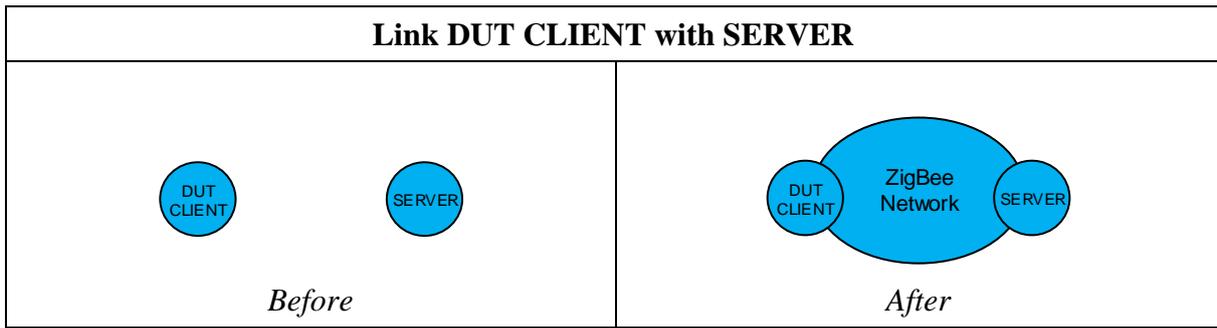
Item	Initial Conditions
1	A packet sniffer shall be observing the communication over the air interface.
2	All devices are factory new and powered off until used.

245

246

247

248 **4.4.1.4 Test preparation**



249

<b>B-TC-01C: Functionality with client as DUT</b>		
<b>Item</b>	<b>Preparation Step</b>	<b>Observation</b>
P1	Power on the DUT CLIENT device and the SERVER device.	DUT CLIENT and SERVER are powered on.
P2	Ensure the DUT CLIENT device and the SERVER device are on the same ZigBee network.	Observe appropriate communication between DUT CLIENT, SERVER and any other relevant node on the ZigBee network.

*--- End of test case B-TC-01C preparation ---*

250

251

252 **4.4.1.5 Test procedure**

<b>B-TC-01C: Functionality with client as DUT</b>			
<b>Item</b>	<b>PICS</b>	<b>Test Harness Step</b>	<b>DUT Pass Verification</b>
1	-	Test harness prompts the user with a list of commands, based on the declared PICS, which the DUT CLIENT indicates it can transmit.	None.
2	B.C.Cd.Tx	None.	DUT CLIENT transmits correctly formed commands in any order and with application achievable values. This is verified using the sniffer log.
3	-	Prompt the user to verify that the cluster commands listed in step 1 were transmitted during step 2.	During step 2, DUT CLIENT has transmitted every command listed by the test harness in step 1.
4	-	Prompt the user to verify that the cluster commands not listed in step 1 were not transmitted during step 2.	During step 2, DUT CLIENT has not transmitted any commands from this cluster that were not listed by the test harness in step 1.

--- End of test case B-TC-01C ---

253

## 254 5 Annex A: PICS to test case cross reference

### 255 5.1 Server

PICS	Test case		
	B-TC-01G	B-TC-01S	B-TC-02S
B.S	X	X	X
B.S.A0000		X	
B.S.A0001		X	
B.S.A0002		X	
B.S.A0003		X	
B.S.A0004		X	
B.S.A0005		X	
B.S.A0006		X	
B.S.A0007		X	
B.S.A0010		X	
B.S.A0011		X	
B.S.A0012		X	X
B.S.A0013		X	
B.S.A0014		X	
B.S.A4000		X	
B.S.Afffd	X		
B.S.C00.Rsp			X

256

### 257 5.2 Client

PICS	Test case	
	B-TC-01G	B-TC-01C
B.C	X	X
B.S.Afffd	X	
B.C.C00.Tx		X

258