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**ZigBee Cluster Library
Temperature Measurement Cluster
(0x0402)
Test Specification
Version 0.9**

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

Keywords ZCL, Temperature Measurement, cluster

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Revision history

Revision	Date	Details	Editor
000	July 11 th , 2016	First draft.	Phil Jamieson
001	July 11 th , 2016	Updated with the number.	Phil Jamieson
002	October 7 th , 2016	Added a default reporting test in TM-TC-03S.	Phil Jamieson
003	October 11 th , 2016	Clarified the reporting test case TM-TC-03S to remove the <= tests as this would allow a report at less than the minimal interval and to add further default reporting configuration tests.	Phil Jamieson

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78 **1 Introduction**

79 This document contains the PICS, test specification and PICS/test case cross reference for the
80 *ZCL temperature measurement* 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 [R4].

84

85 **2 References**

86 **2.1 Zig Bee Alliance documents**

87 [R1] ZigBee Cluster Library Specification, ZigBee Alliance document 07-5123.

88 [R2] ZCL General Test Specification, ZigBee Alliance document 16-0xxx.

89 [R3] ZCL Temperature Measurement Cluster XML PICS, ZigBee Alliance document 16-
90 0xxx.

91 **2.2 IETF documents**

92 [R4] S. Bradner, Key words for use in RFCs to Indicate Requirement Levels, IETF RFC 2119,
93 March 1997.

94

95

3 PIXIT items

Item number	Feature	Support
TM.PIXIT01	What is the reportable change to be used for generating a report for the <i>MeasuredValue</i> attribute?	<i>“Reportable change”</i>

96

97

98 4 PICS

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

101 4.1 Usage

Item number	Feature	Reference	Status	Support
TM.S	Does the device implement the <i>temperature measurement</i> cluster as a server?	3.3.2	O	No
TM.C	Does the device implement the <i>temperature measurement</i> cluster as a client?	3.3.3	O	Yes

102

103 4.2 Server

104 4.2.1 Attributes

Item number	Feature	Reference	Status	Support
TM.S.A0000	Does the device implement the <i>MeasuredValue</i> attribute?	Table 4.13, 4.4.2.2.1.1	TM.S: M	No
TM.S.A0000.Report.Tx	Does the device implement receiving and responding to the global report attribute commands for the <i>MeasuredValue</i> attribute and sending reports?	4.4.2.5	TM.S: M	No
TM.S.A0001	Does the device implement the <i>MinMeasuredValue</i> attribute?	Table 4.13, 4.4.2.2.1.2	TM.S: M	No
TM.S.A0002	Does the device implement the <i>MaxMeasuredValue</i> attribute?	Table 4.13, 4.4.2.2.1.3	TM.S: M	No
TM.S.A0003	Does the device implement the <i>Tolerance</i> attribute?	Table 4.13, 4.4.2.2.1.4	TM.S: O	No
TM.S.Afffd	Does the device implement the <i>ClusterRevision</i> global attribute?	Table 2-1, 2.3.5.1.1	TM.S: M	No
TM.S.Afffe	Does the device implement the <i>AttributeReportingStatus</i> global attribute?	Table 2-1, 2.3.5.1.2	TM.S: O	No

105

106 **4.3 Client**107 **4.3.1 Attributes**

Item number	Feature	Reference	Status	Support
TM.C.A0000.Report.Rsp	Does the device implement sending global report attribute command requests and receiving reports for the <i>MeasuredValue</i> attribute?	4.4.2.5	TM.C: O	No
TM.C.Afffd	Does the device implement the <i>ClusterRevision</i> global attribute?	Table 2-1, 2.3.5.1.1	TM.C: M	Yes
TM.C.Afffe	Does the device implement the <i>AttributeReportingStatus</i> global attribute?	Table 2-1, 2.3.5.1.2	TM.C: O	Yes

108

109 5 Test specification

110 5.1 Introduction

111 5.1.1 Test case overview

112 The following test cases are available for the *temperature measurement* cluster:

Test ID	Description	Reference
Global tests		
TM-TC-01G	Global attributes	5.2.1
Server side tests		
TM-TC-01S	Attributes with server as DUT	5.3.1
TM-TC-02S	Primary functionality with server as DUT	5.3.2
TM-TC-03S	Reporting functionality with server as DUT	5.3.3
Client side tests		
TM-TC-01C	Functionality with client as DUT	5.4.1

113

114 5.1.2 Testing tolerances

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

120 5.1.3 Client DUTs

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

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

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

128 5.1.4 Test steps manipulating attributes

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

134

135 5.2 Generic test case s

136 5.2.1 TM-TC-01G: Global attributes

137 This test case verifies the behavior of the global attributes of the *temperature measurement*
138 cluster client and server.

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

143 5.2.1.1 Scope

144 General:

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

149 *Temperature measurement* cluster (0x0402):

- 150 • All global attributes

151 PICS:

- 152 • *TM.S*, *TM.C*
- 153 • *TM.S.Agm*, *TM.C.Agm*, *TM.S.Ago*, *TM.C.Ago*

154 5.2.1.2 Required devices

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

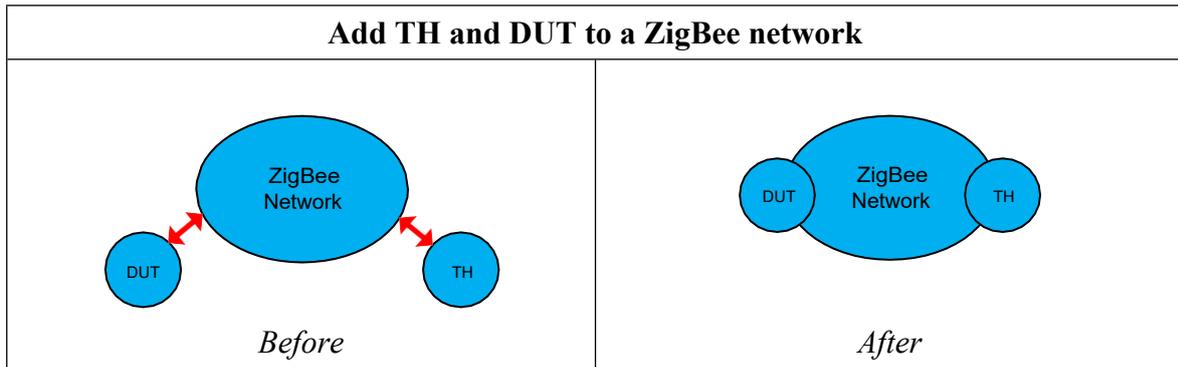
155

156 **5.2.1.3 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.

157

158 **5.2.1.4 Test preparation**



159

TM-TC-01G: Global attributes		
Item	Preparation Step	Observation
P1	Form a ZigBee network.	Observe appropriate command frame to form the network.
P2	Power on TH and DUT.	TH and DUT are powered on.
P3	Join TH and DUT to a ZigBee network.	Observe appropriate communication between TH, DUT and any other relevant node on the ZigBee network.

--- End of test case TM-TC-01G preparation ---

160

161 **5.2.1.5 Test procedure**

TM-TC-01G: Global attributes			
Item	PICS	Test Harness Step	DUT pass Verification
1	TM.S.Agm, TM.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	TM.S.Agm, TM.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	TM.S.Agm, TM.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...

TM-TC-01G: Global attributes			
Item	PICS	Test Harness Step	DUT pass Verification
3	TM.S.Ago, TM.C.Ago	TH unicasts a <i>ZCL read attributes</i> command frame to DUT to read each optional global attribute of this cluster one at a time.	DUT unicasts a <i>ZCL 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	TM.S.Ago, TM.C.Ago	TH unicasts a <i>ZCL 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 <i>ZCL 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	TM.S.Ago, TM.C.Ago	TH unicasts a <i>ZCL read attributes</i> command frame to DUT to read back each attribute written in step 4a.	DUT unicasts a <i>ZCL 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 TM-TC-01G ---

163 5.3 Server test cases

164 5.3.1 TM - TC-01 S: Attributes with server as DUT

165 This test case verifies the behavior of the attributes of the *temperature measurement* cluster
166 server.

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

170

171 5.3.1.1 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 *Temperature measurement* cluster (0x0402):

- 178 • All non-global attributes

179 PICS:

- 180 • TM.S,
- 181 • TM.S.Am, TM.S.Ao

182 5.3.1.2 Required devices

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

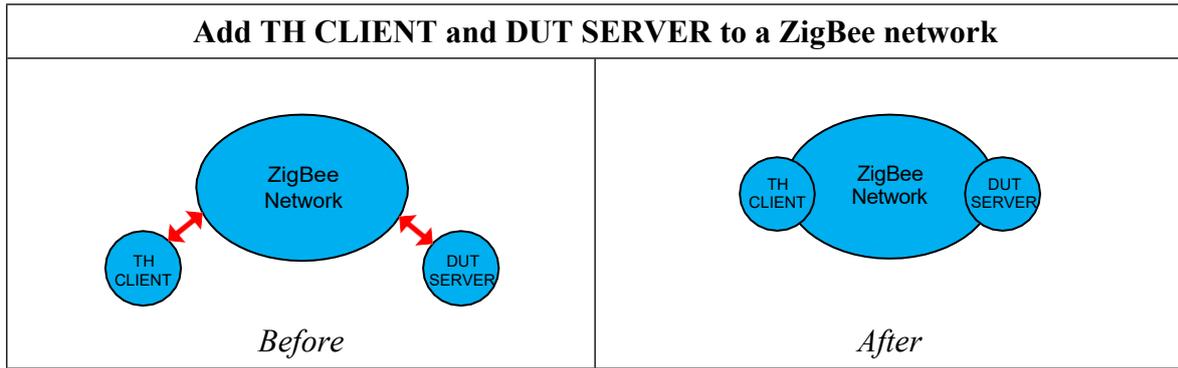
183

184 5.3.1.3 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 **5.3.1.4 Test preparation**



187

TM-TC-01S: Attributes with server as DUT		
Item	Preparation Step	Observation
P1	Form a ZigBee network.	Observe appropriate command frame to form the network.
P2	Power on TH CLIENT and DUT SERVER.	TH CLIENT and DUT SERVER are powered on.
P3	Join TH CLIENT and DUT SERVER to a ZigBee network.	Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network.

--- End of test case TM-TC-01S preparation ---

188

189 **5.3.1.5 Test procedure**

TM-TC-01S: Attributes with server as DUT			
Item	PICS	Test Harness Step	DUT pass Verification
1	TM.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	TM.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	TM.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...

TM-TC-01S: Attributes with server as DUT			
Item	PICS	Test Harness Step	DUT pass Verification
3	TM.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	TM.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...

TM-TC-01S: Attributes with server as DUT			
Item	PICS	Test Harness Step	DUT pass Verification
4b	TM.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 TM-TC-01S ---

190

191

192 5.3.2 TM - TC-02 S: Primary functionality with server as DUT

193 This test case verifies the primary functionality of the *temperature measurement* cluster server
 194 in respect to measuring temperature changes.

195 5.3.2.1 Scope

196 General:

- 197 • *Read attributes* command (0x00)
- 198 • *Read attributes response* command (0x01)

199 *Temperature measurement* cluster (0x0402):

- 200 • *MeasuredValue* attribute (0x0000)

201 PICS:

- 202 • TM.S
- 203 • TM.S.A0000

204 5.3.2.2 Required devices

Designation	Symbol	Description
TH CLIENT		Test harness client implementing: <ul style="list-style-type: none"> • The <i>temperature measurement</i> cluster client.
DUT SERVER		Device under test server: <ul style="list-style-type: none"> • The <i>temperature measurement</i> cluster server.
-	-	An adjustable heat source to adjust the temperature.

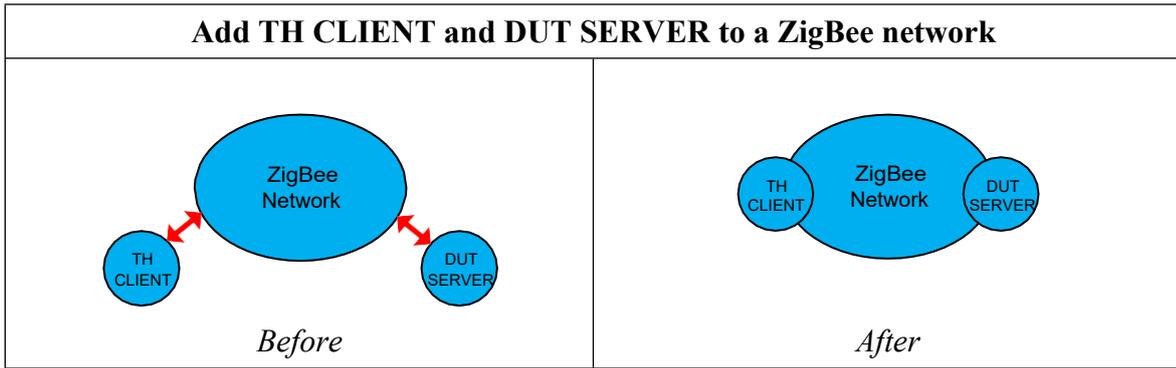
205

206 5.3.2.3 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.

207

208 **5.3.2.4 Test preparation**



209

TM-TC-02S: Primary functionality with server as DUT		
Item	Preparation Step	Observation
P1	Form a ZigBee network.	Observe appropriate command frame to form the network.
P2	Power on TH CLIENT and DUT SERVER.	TH CLIENT and DUT SERVER are powered on.
P3	Join TH CLIENT and DUT SERVER to a ZigBee network.	Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network.

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

210

211 **5.3.2.5 Test procedure**

TM-TC-02S: Primary functionality with server as DUT			
Item	PICS	Test Harness Step	DUT pass Verification
1	TM.S.A0000	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read the <i>MeasuredValue</i> attribute.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>MeasuredValue</i> attribute has a value in the range 0x954d – 0x7fff.
2	-	Adjust the temperature of the heat source such that it is different to its starting temperature.	None.
3	TM.S.A0000	TH CLIENT unicasts a ZCL <i>read attributes</i> command frame to DUT SERVER to read the <i>MeasuredValue</i> attribute.	DUT SERVER unicasts a ZCL <i>read attributes response</i> command frame to TH CLIENT. <i>MeasuredValue</i> attribute has a value in the range 0x954d – 0x7fff but different to the value returned in step 1.

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

212

213

214 **5.3.3 TM - TC-03 S: Reporting functionality with server as DUT**

215 This case test verifies the attribute reporting behavior of the *temperature measurement* cluster
216 server.

217 **5.3.3.1 Scope**

218 General:

- 219 • *Configure reporting* command (0x06)
- 220 • *Configure reporting response* command (0x07)
- 221 • *Report attributes* command (0x0a)
- 222 • *Default response* command (0x0b)

223 *Temperature measurement* cluster (0x0402):

- 224 • *MeasuredValue* attribute (0x0000)

225 PICS:

- 226 • TM.S
- 227 • TM.S.A0000
- 228 • TM.S.A0000.Report.Tx

229 **5.3.3.2 Required devices**

Designation	Symbol	Description
TH CLIENT		Test harness client implementing: <ul style="list-style-type: none"> • The <i>temperature measurement</i> cluster client.
DUT SERVER		Device under test server implementing: <ul style="list-style-type: none"> • The <i>temperature measurement</i> cluster server.
-	-	An adjustable heat source to adjust the temperature.

230

231 **5.3.3.3 Initial conditions**

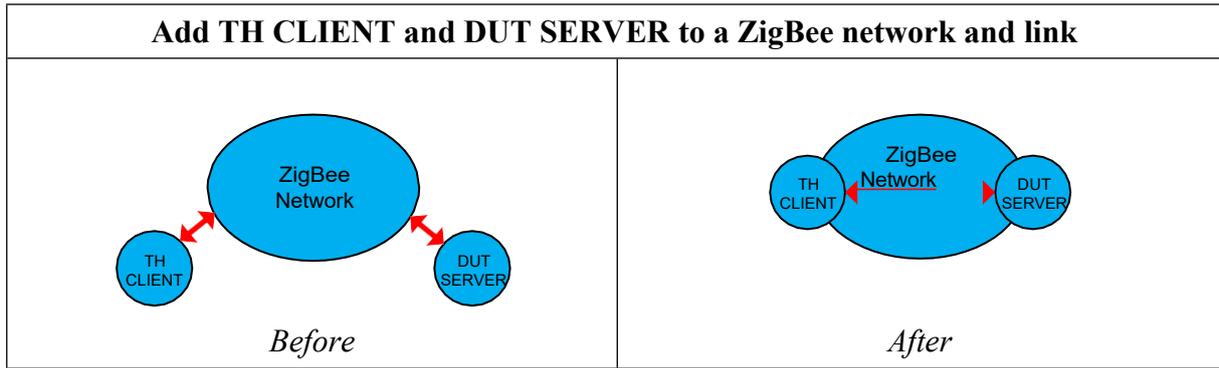
Item	Initial Conditions
1	A packet sniffer shall be observing the communication over the air interface.
2	All devices are factory new and powered off until used.

232

233

234

235 **5.3.3.4 Test preparation**



236

TM-TC-03S: Reporting functionality with server as DUT		
Item	Preparation Step	Observation
P1	Form a ZigBee network.	Observe appropriate command frame to form the network.
P2	Power on TH CLIENT and DUT SERVER.	TH CLIENT and DUT SERVER are powered on.
P3	Join TH CLIENT and DUT SERVER to a ZigBee network.	Observe appropriate communication between TH CLIENT, DUT SERVER and any other relevant node on the ZigBee network.
P5	Establish a binding link in the reverse direction from an endpoint on DUT SERVER to a corresponding endpoint on TH CLIENT that both support the <i>temperature measurement</i> cluster.	Observe appropriate communication between DUT SERVER, TH CLIENT and any other relevant node on the ZigBee network.

--- End of test case TM-TC-03S preparation ---

237

238

239 **5.3.3.5 Test procedure**

TM-TC-03S: Reporting functionality with server as DUT			
Item	PICS	Test Harness Step	DUT Pass Verification
1a	TM.S.A0000	TH CLIENT unicasts a ZCL <i>read reporting configuration</i> command frame to DUT SERVER to read the default reporting configuration of the <i>MeasuredValue</i> attribute.	DUT SERVER unicasts a ZCL <i>read reporting configuration response</i> command frame to TH CLIENT with a single attribute reporting configuration record for the <i>MeasuredValue</i> attribute and the <i>status</i> field set to SUCCESS. Set $\square\square\square\square$ to the value of the <i>maximum reporting interval</i> field. Store the default report parameters contained in the <i>read reporting configuration response</i> command frame.
1b	TM.S.A0000, TM.S.A0000. Report.Tx	Wait for the attribute report according to the default configuration.	At a time $\leq(RI_{max} + 2)$ seconds, DUT SERVER unicasts a ZCL <i>report attributes</i> command frame to TH CLIENT with the <i>MeasuredValue</i> attribute.
2a	TM.S.A0000, TM.S.A0000. Report.Tx	TH CLIENT unicasts a ZCL <i>configure reporting</i> command to DUT SERVER for the <i>MeasuredValue</i> attribute with a <i>direction</i> field set to 0x00, the <i>minimum reporting interval</i> field set to 0x001e (30 seconds), the <i>maximum reporting interval</i> field set to 0x003c (60 seconds) and the <i>reportable change</i> field set equal to TM.PIXIT01.	DUT SERVER unicasts a ZCL <i>configure reporting response</i> command to TH CLIENT, confirming the configured attribute and with the <i>status</i> field set to SUCCESS.
2b	TM.S.A0000, TM.S.A0000. Report.Tx	None	At a time approximately 60s after receiving the <i>configure reporting response</i> command frame in step 2a, DUT SERVER unicasts a ZCL <i>report attributes</i> command to TH CLIENT with the <i>MeasuredValue</i> attribute.

Continued...

TM-TC-03S: Reporting functionality with server as DUT			
Item	PICS	Test Harness Step	DUT Pass Verification
3a	-	Adjust the temperature being measured such that it has changed by more than TM.PIXIT01 from its last value.	DUT SERVER does nothing.
3b	TM.S.A0000, TM.S.A0000. Report.Tx	None.	At a time approximately 30s after sending the report in step 2b, DUT SERVER unicasts a <i>ZCL report attributes</i> command to TH CLIENT with the <i>MeasuredValue</i> attribute.
3c	TM.S.A0000, TM.S.A0000. Report.Tx	None	At a time approximately 60s after sending the report in step 3b, DUT SERVER unicasts a <i>ZCL report attributes</i> command to TH CLIENT with the <i>MeasuredValue</i> attribute.
4a	TM.S.A0000, TM.S.A0000. Report.Tx	TH CLIENT unicasts a <i>ZCL configure reporting</i> command to DUT SERVER for the <i>MeasuredValue</i> attribute the <i>maximum reporting interval</i> field set to 0xffff (do not send reports).	DUT SERVER unicasts a <i>ZCL configure reporting response</i> command to TH CLIENT, confirming the configured attribute and with the <i>status</i> field set to SUCCESS.
4b	TM.S.A0000. Report.Tx	Wait for 62s after the report sent in step 2b.	DUT SERVER does not send any further reports.
5	TM.S.A0000	TH CLIENT unicasts a <i>ZCL read reporting configuration</i> command frame to DUT SERVER to read the default reporting configuration of the <i>MeasuredValue</i> attribute.	DUT SERVER unicasts a <i>ZCL read reporting configuration response</i> command frame to TH CLIENT with a single attribute reporting configuration record for the <i>MeasuredValue</i> attribute and the <i>status</i> field set to 0x8b (NOT_FOUND).

Continued...

TM-TC-03S: Reporting functionality with server as DUT			
Item	PICS	Test Harness Step	DUT Pass Verification
6a	TM.S.A0000	TH CLIENT unicasts a ZCL <i>configure reporting</i> command frame to DUT SERVER for the <i>MeasuredValue</i> attribute with a <i>direction</i> field set to 0x00, the <i>minimum reporting interval</i> field set to 0xffff and the <i>maximum reporting interval</i> field set to 0x0000 (restore default report configuration).	DUT SERVER unicasts a ZCL <i>configure reporting response</i> command frame to TH CLIENT, confirming the configured attributes and with the <i>status</i> field set to SUCCESS.
6b	TM.S.A0000	TH CLIENT unicasts a ZCL <i>read reporting configuration</i> command frame to DUT SERVER to read the default reporting configuration of the <i>MeasuredValue</i> attribute.	DUT SERVER unicasts a ZCL <i>read reporting configuration response</i> command frame to TH CLIENT with a single attribute reporting configuration record for the <i>MeasuredValue</i> attribute and the <i>status</i> field set to SUCCESS. Verify that the default reporting configuration is commensurate with the parameters stored in step 1a.
6c	TM.S.A0000, TM.S.A0000. Report.Tx	Wait for the attribute report according to the default configuration.	At a time $\leq (RI_{max} + 2)$ seconds, DUT SERVER unicasts a ZCL <i>report attributes</i> command frame to TH CLIENT with the <i>MeasuredValue</i> attribute.

--- End of test case TM-TC-03S ---

241 5.4 Client test cases

242 5.4.1 TM-TC-01C: Functionality with client as DUT

243 This case test verifies the functionality of the *temperature measurement* cluster client.

244 The DUT client SHALL be on the same network as a suitable server, provided by the user, and
 245 this device SHALL be used by the client to exercise its functionality. The test case uses the
 246 test harness to prompt the user, based on the declared PICS, to exercise the functionality of the
 247 *temperature measurement* cluster client and to verify the results. A sniffer tool SHALL be
 248 used to log the exercised functionality and to determine its validity.

249 In this test case, the PICS notation TM.C.CdTx represents the list of commands that are
 250 declared as being transmitted by the DUT.

251 5.4.1.1 Scope

252 PICS:

- 253 • TM.C
- 254 • TM.C.A0000.Report.Rsp

255 5.4.1.2 Required devices

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

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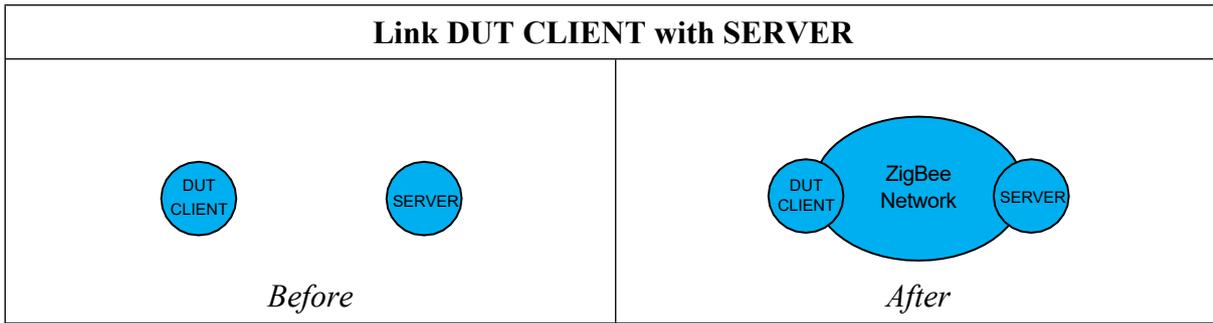
257 5.4.1.3 Initial conditions

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.

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260 **5.4.1.4 Test preparation**



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TM-TC-01C: Functionality with client as DUT		
Item	Preparation Step	Observation
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 TM-TC-01C preparation ---

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264 **5.4.1.5 Test procedure**

TM-TC-01C: Functionality with client as DUT			
Item	PICS	Test Harness Step	DUT Pass Verification
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	TM.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 TM-TC-01C ---

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267 6 Annex A: PICS to test case cross reference

268 6.1 Server

PICS	Test case			
	TM-TC-01G	TM-TC-01S	TM-TC-02S	TM-TC-03S
TM.S	X	X	X	X
TM.S.A0000		X	X	X
TM.S.A0000.Report.Tx				X
TM.S.A0001		X		
TM.S.A0002		X		
TM.S.A0003		X		
TM.S.Afffd	X			
TM.S.Afffe	X			

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270 6.2 Client

PICS	Test case	
	TM-TC-01G	TM-TC-01C
TM.C	X	X
TM.S.A0000.Report.Rsp		X
TM.C.Afffd	X	
TM.C.Afffe	X	

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