



ZigBee[®] Alliance

ZIGBEE SMART ENERGY STANDARD

Protocol Implementation Conformance Statement (PICS)

Revision 7

Version 1.1b

Sponsored by: ZigBee Alliance

Accepted by: ZigBee Alliance Board of Directors

Abstract: This document lists the PICS for the Smart Energy Standard.

Purpose: Provides a pro-forma on which the capabilities and options of a particular implementation of the Smart Energy Standard can be stated.

Keywords: ZigBee, Qualification, Certification, Standard, Smart Energy, Metering, Energy Management

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26 leadership was composed of the following members:

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31

| | | | |
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| 80 | 8.8.16 | OTA Upgrade Cluster attributes and functions | 60 |
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82

83 **References**

84 The following standards contain provisions, which, through reference in this document, constitute provisions of this
85 standard. All the standards listed are normative references. At the time of publication, the editions indicated were
86 valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to
87 investigate the possibility of applying the most recent editions of the standards indicated below.

88 **1.1 ZigBee Alliance documents**

- 89 [R1] ZigBee document 053474r18: ZigBee Specification 2007
90 [R2] ZigBee document 07-5356: ZigBee Smart Energy Standard Revision 18
91 [R3] ZigBee document 07-5123-04, ZigBee Cluster Library Specification
92 [R4] ZigBee document 04300r08: ZigBee Network Layer PICS
93 [R5] ZigBee document 064147r07: ZigBee Application Layer PICS
94 [R6] ZigBee document 043171r04: ZigBee Security Layer PICS
95 [R7] ZigBee document 064113r07: ZigBee Cluster Library PICS
96 [R8] ZigBee document 08006r03: ZigBee 2007 Layer PICS and Stack Profiles
97 [R9] ZigBee document number 09-5264-19: ZigBee OTA Upgrade Cluster Specification
98 [R10] ZigBee document number 09-5284-09: ZigBee OTA Upgrade Cluster PICS
99 [R11] ZigBee document number 09-5473-06: ZigBee OTA Upgrade Cluster Test Specification

100 **1.2 IEEE documents**

- 101 [R12] IEEE Standard for Part 15.4: Wireless Medium Access Control (MAC) and Physical Layer (PHY)
102 specifications for Low Rate Wireless Personal Area Networks (LR-WPANs), 2003.

103 **1.3 ISO documents**

- 104 [R13] ISO/IEC 9646-1:1991, Information technology - Open Systems Interconnection - Conformance testing
105 methodology and framework - Part 1: General concepts.
106 [R14] ISO/IEC 9646-7:1995, Information technology - Open Systems Interconnection - Conformance testing
107 methodology and framework - Part 7. Implementation conformance statements.

108

109

110

111 **Change history**

112 The following table shows the change history for this specification.

113

114

Table 1 – Revision change history

| Revision | Version | Description |
|----------|---------|---|
| R00 | - | Initial draft (November, 2007) |
| R01 | - | Updated to Revision 12 of the SE specification and Errata. |
| R02 | - | Updated to Revision 14 of the SE specification |
| R03 | 1.0 | Fix typo. Update SE specification reference to r14. |
| R04 | 1.0 | Update SE specification reference to r15. Update section references. |
| R05 | 1.1 | Update for SE 1.1 release |
| R06 | 1.1.1 | Update for SE 1.1.1 release Processed CCBs: 1264 - Add support for CV and PTZ (gas conversion factors) to price cluster 1273 - Additional of 'Get Support Tunnel Protocols' Command and Response 1289 - PhysicalEnvironment bit for Mirroring 1301 - Simplified Multi-ESI Time Sync 1430 - PICS requirement (Table 38 - item MCC1) wrong 1431 - PICS requirement (Table 5 - item SEG25) wrong 1432 - PICS requirement (KES1 and KECS1) Mismatch 1437 - DeviceClass is marked read-writeable but write may not be allowed 1486 - End point requirement |
| R07 | 1.1b | Update for SE 1.1b release Processed CCBs: 1494 - Add Billing Period Attribute Set to the Price Cluster 1496 - Duplicate Item Number in PICS Document Table [MCS2] 1500 - New metering attribute for block pricing 1570 - Rename Display Device to "In-Home Display" (IHD) Modifications to link the elements of the Block Tariff feature together |

115

116 **2 Introduction**

117
118 To evaluate conformance of a particular implementation, it is necessary to have a statement of
119 which capabilities and options have been implemented for a given standard. Such a statement is
120 called a protocol implementation conformance statement (PICS).

121 **2.1 Scope**

122 This document provides the protocol implementation conformance statement (PICS) pro forma
123 for the ZigBee specifications cited in Reference [R2] in compliance with the relevant
124 requirements, and in accordance with the relevant guidance, given in ISO/IEC 9646-7.

125
126 This document addresses the ZigBee SE Application Profile.

127 **2.2 Purpose**

128 The supplier of a protocol implementation claiming to conform to the ZigBee SE Application
129 Profile shall complete the following PICS pro forma and accompany it with the information
130 necessary to identify fully both the supplier and the implementation.

131
132 The PICS is in the form of answers to a set of questions in the PICS pro forma. The questions in
133 a pro forma consist of a systematic list of protocol capabilities and options as well as their
134 implementation requirements. The implementation requirement indicates whether
135 implementation of a capability is mandatory, optional, or conditional depending on options
136 selected. When a protocol implementer answers questions in a PICS pro forma, they would
137 indicate whether an item is implemented or not, and provide explanations if an item is not
138 implemented.

3 Abbreviations and special symbols

139
140
141
142

Notations for requirement status:

| | |
|---------------------------------------|--|
| M | Mandatory |
| O | Optional |
| O.n | Optional, but support of at least one of the group of options labeled O.n is required. |
| N/A | Not applicable |
| X | Prohibited |
| <i>Item Number:</i> <i>:Status</i> | Status is conditional on support of item number |

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Item Number: Conditional, status dependent upon the support marked for the *Item Number*.

For example, FD1: O.1 indicates that the status is optional but at least one of the features described in FD1 is required to be implemented, if this implementation is to follow the standard of which this PICS Pro forma is a part.

4 Instructions for completing the PICS pro forma

150
151
152 If a given implementation is claimed to conform to this standard, the actual PICS pro forma to be
153 filled in by a supplier shall be technically equivalent to the text of the PICS pro forma in this
154 annex, and shall preserve the numbering and naming and the ordering of the PICS pro forma.

155
156 A PICS which conforms to this document shall be a conforming PICS pro forma completed in
157 accordance with the instructions for completion given in this annex.

158
159 The main part of the PICS is a fixed-format questionnaire, divided into five tables. Answers to
160 the questionnaire are to be provided in the rightmost column, either by simply marking an
161 answer to indicate a restricted choice (such as Yes or No), or by entering a value, set, or range of
162 values.

5 Identification of the implementation

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Implementation under test (IUT) identification

IUT name:

IUT version:

System under test (SUT) identification

SUT name: Duet II SMETS 1 Smart Energy Display

Software Version: 1.1.1.9.0

Hardware Version: 1.0

Operating system (optional):

Specification Versions Implemented

Smart Energy Specification Document Number (include revision): 07-5356 rev 18_____

Smart Energy Test Specification Document (include revision): 07-5384 rev 20_____

Product supplier

Name: Green Energy Options Ltd

Address: 3 St. Maryø Court, Main Street, Hardwick, Cambridge, CB23 7QS, UK _____

205 _____
206 _____
207 Telephone number:+44 (0) 1223 850 210 _____
208 _____
209 Facsimile number: +44 (0) 1223 850 211 _____
210 _____
211 Email address: adrian@greenenergyoptions.co.uk _____
212 _____
213 Additional information: _____
214 _____
215 _____

216 **Client**

217 _____
218 Name:Adrian van den Heever _____
219 _____
220 Address: 3 St. Maryø Court, Main Street, Hardwick, Cambridge, CB23 7QS, UK _____
221 _____
222 _____
223 _____
224 Telephone number: +44 (0) 1223 850 210 _____
225 _____
226 Facsimile number: +44 (0) 1223 850 210 _____
227 _____
228 Email address: adrian@greenenergyoptions.co.uk _____
229 _____
230 Additional information: _____
231 _____
232 _____

233 **PICS contact person**

234 _____
235 Name:Ferenc Vanhoutte _____
236 _____
237 Address: 3 St. Maryø Court, Main Street, Hardwick, Cambridge, CB23 7QS, UK _____
238 _____
239 _____
240 _____
241 Telephone number: +44 (0) 1223 850 210 _____
242 _____
243 Facsimile number: +44 (0) 1223 850 211 _____
244 _____
245 Email address: Ferenc@greenenergyoptions.co.uk _____
246 _____

247 Additional information:

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251 **PICS/System conformance statement**

252

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6 Identification of the protocol

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This PICS pro forma applies to ZigBee SE Application Profile, cited in Reference [R2].

7 Global statement of conformance

256
257
258 The implementation described in this PICS pro forma meets all of the mandatory requirements of
259 the referenced standards:

260
261 Application Profile: ZigBee SE 6 07-5356-18
262

263 Yes

264 No
265

266 Note -- Answering ~~No~~ indicates non-conformance to the specified protocol standard. Non-
267 supported mandatory capabilities are to be identified in the following tables, with an explanation
268 by the implementer explaining why the implementation is non-conforming.
269

270 The supplier will have fully complied with the requirements for a statement of conformance by
271 completing the statement contained in this sub-clause. That means, by clicking the above, the
272 statement of conformance is complete.
273

274 8 PICS pro forma tables

275
276 The following tables are composed of the detailed questions to be answered, which make up the
277 PICS pro forma.
278

279 8.1 ZigBee Device Types

280 Table 2 - Functional device types

| Item number | Item description | Reference | Status | Support |
|-------------|---|----------------|------------------|---------|
| FDT1 | Is this device capable of acting as a ZigBee coordinator? | [R1]/2.5.5.5.1 | ¹ O.1 | N |
| FDT2 | Is this device capable of acting as a ZigBee router? | [R1]/2.5.5.5.2 | O.1 | N |
| FDT3 | Is this a ZigBee end device? | [R1]/2.5.5.5.3 | O.1 | Y |

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282

283 8.2 Stack Profile

284 Table 3 –Stack Profile

| Item number | Item description | Reference | Status | Support |
|-------------|---|------------------|------------------|---------|
| ZSP1 | Is the device built on a ZigBee Compliant Platform certified for the ZigBee stack profile [R8]? | [R4] [R2]/5.2 | O.2 ² | N |
| ZSP2 | Is the device built on a ZigBee PRO Compliant Platform certified for the ZigBee PRO stack profile [R8]? | [R8] [R2]/5.2 | O.2 | Y |

285

¹ O.1 ó Device under test must select only one of these options. Devices under test supporting multiple ZigBee device types must serially re-test using each supported ZigBee device type.

² O.2 ó Device under test must be deployed on either of the ZigBee or ZigBee PRO stack profiles.

286 **8.3 Stack Profile extensions for SE**287 **Table 4 – Stack profile extensions for SE**

| Item number | Item description | Reference | Status | Support |
|-------------|--|--------------------------------|------------------|---------|
| SPE1 | Does the device support Application Link Keys? | [R2]/5.2 [R6]/ASLS6 | M | Y |
| SPE2 | Does this device use a stack that supports fragmentation? | [R2]/5.2 [R5]/ADF5, ADF6 | M | Y |
| SPE3 | Does this device use any SE Profile Commands that require the use of Fragmentation? | [R2]/5.2 [R5]/ADF5, ADF6 | MC1: M MS1: M | Y |
| SPE4 | Does the device adhere to the polling rate specifications given in [R2]/5.2 (i.e. Does your application poll equal to or less often as called out in the specification)? | [R2]/5.2 | FDT3:M | Y |
| SPE5 | Does this devices support reception of fragmented messages? | | M | Y |
| SPE6 | Does this device support generation of fragmented messages? | | O | Y |

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289 **8.4 SE general requirements support**

290 In the below tables please answer Yes / No for supported , number of instances supported, and
 291 end point for each instance. In support one instance can just provide end point number without
 292 instance number.

293 **Table 5 – SE general requirements support**

| Item number | Item description | Reference | Status | Support |
|-------------|--|-------------------------|--------|---------|
| SEG1 | Does the device support the ZigBee Cluster Library? | [R2]/5.10, 5.11 [R3] | M | Y |
| SEG2 | Does the device support the ZigBee Cluster Library List specified for SE including the mandatory/optional clusters detailed in the ZCL | [R2]/5.10, 5.11 [R7] | M | Y |

| Item number | Item description | Reference | Status | Support |
|-------------|---|---|---|---------|
| | PICs? | | | |
| SEG3 | <p>Does the device support the ZigBee Cluster Library with the parameters for attribute reporting, reporting configuration and read reporting configuration as detailed in the SE Profile clusters?</p> <p>Editor's Note: Reporting interval constraints and other parameters are mandatory where attribute reporting is used. Support of attribute reporting may be optional or mandatory based on clusters implemented.</p> | [R2]/5.11 [R3] | M | Y |
| SEG4 | Is the device capable of joining a ZigBee SE network and does it interact with a consumer ZigBee Home Area Network only through a bridge device? | [R2]/5.1 | FDT2: M FDT3: M | Y |
| SEG5 | <p>Does the device support 'E-Mode' commissioning?</p> <p>SE Profile requirement: Those devices that will join an existing network must support button pushes or simple documented user interfaces to initiate the joining process.</p> | [R2]/5.1 | FDT2: M FDT3: M For joining devices | Y |
| SEG6 | Deleted | [R2]/5.1 | | N/A |
| SEG7 | Does the device support the compatible Startup Attribute Set, Join Parameters, Security Parameters, End Device Parameters, Link Status Parameters, Concentrator Parameters, APS Transport Parameters and Binding Parameters? | [R2]/5.3, 5.3.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.3.6, 5.3.7, 5.3.8, 5.3.9 | M | Y |
| SEG8 | <p>Does the device support joining with pre-installed link keys?</p> <p>Note: SE specifies use of Install Codes to derive the link key.</p> | [R2]/5.4.1 | FDT2: M FDT3: M | Y |
| SEG9 | Does the device support joining using the key establishment cluster? | [R2]/5.4.7 | FDT2: M FDT3: M | Y |

| Item number | Item description | Reference | Status | Support |
|-------------|---|--------------------------|--------|---------|
| SEG10 | Deleted | [R2]/5.5 | | NA |
| SEG11 | Does the device support the list of SE preferred channels? | [R2]/5.8.1 | O | Y |
| SEG12 | Does the device support the SE broadcast policy? | [R2]/5.8.2 | O | Y |
| SEG13 | Does the device support the SE frequency agility policy? | [R2]/5.8.3 | O | N |
| SEG14 | Does the device support the security key update policies for SE networks? | [R2]/5.8.4 | M | Y |
| SEG15 | Does the device support the ZCL Time Cluster and SE time synchronization? Editor's Note: Support of the ZCL Time Cluster is not mandatory for all SE devices. The SE device descriptions define the required Time cluster support. | [R2]/5.12.1.1 | O | Y |
| SEG16 | Does the device support discovery of optional attributes? | [R2]/5.12 | M | Y |
| SEG17 | Does the device application discover and handle unsupported attributes in other devices? | [R2]/5.12 | M | Y |
| SEG18 | Does the device support an indication to the user that the network has formed properly? | [R2]/5.5.1 | O | Y |
| SEG19 | Does the device support an indication to the user that a device has joined a network successfully? | [R2]/5.5.1 | O | Y |
| SEG20 | Does the device support the commissioning modes and provide supporting commissioning documentation according to network type? | [R2]/5.5.2, 5.5.3, 5.5.4 | M | Y |
| SEG21 | Does the device use the appropriate security key per cluster? | [R2]/5.4.6 | M | Y |
| SEG22 | Does the device support the SE Mirrored Device Capacity & Service Discovery? | [R4]/D.3.3.4.1 | O | N |

| Item number | Item description | Reference | Status | Support |
|-------------|--|----------------|-------------------------------|---------|
| SEG23 | Does one of the device support the SE Install Code Formats: 48, 64, 96, or 128 bit number and 16 bit CRC? | [R4]/5.4.8.1.1 | O | Y |
| SEG24 | Does the device expect to receive unsolicited messages from the DRLC, Messaging, Metering or Pricing clusters? | [R4]/5.4.5.1 | O | Y |
| SEG25 | Does the device support rejoining a secured network? | [R4]/5.4.2 | FDT2:M FDT3:M ³ | Y |
| SEG26 | Does the device support devices leaving its network? | [R4]/5.4.3 | FDT1:M | Y |
| SEG27 | Does the device support updating the Network Key? | [R4]/5.4.4 | M | Y |
| SEG28 | Does the device support updating the Link Key? | [R4]/5.4.5 | M | Y |

294 8.5 ZigBee SE device description support

295 **Table 6 – SE device description support**

| Item number | Item description | Reference | Status | Support |
|-------------|---|------------|------------------|----------------|
| SED1 | Is the product programmed as an Energy Service Interface? | [R2]/6.3.1 | O.3 ⁴ | N |
| SED2 | Is the product programmed as a Metering Device? | [R2]/6.3.2 | O.3 | N |
| SED3 | Is the product programmed as an In-Home ⁵ Display? | [R2]/6.3.3 | O.3 | Y [Int: EP# 1] |
| SED4 | Is the product programmed as a Programmable Communicating Thermostat (PCT)? | [R2]/6.3.4 | O.3 | N |
| SED5 | Is the product programmed as a Load Control? | [R2]/6.3.5 | O.3 | N |

³ CCB 1431

⁴ O.3 6 Device under test must select at least one and may select more than one of the SE device descriptions. If multiple SE device descriptions are supported in the same device then each of the supported device descriptions must be deployed on individual endpoints within the device under test.

⁵ CCB 1570

| Item number | Item description | Reference | Status | Support |
|-------------------|--|------------|--------|---------|
| SED6 | Is the product programmed as a Range Extender? | [R2]/6.3.6 | O.3 | N |
| SED7 | Is the product programmed as a Smart Appliance? | [R2]/6.3.7 | O.3 | N |
| SED8 | Is the product programmed as a Prepayment Terminal? | [R2]/6.3.8 | O.3 | N |
| SED9 ⁶ | Does the product utilize an endpoint using the Physical Device identifier? | [R2]/6.3.9 | O | N |

296
297

298 8.6 SE common clusters

299

300 The common cluster ZCL PICs restrictions/requirements are obtained from [R2]/5.11, 5.12.

301

Table 7 – Common cluster ZCL PICs restrictions/requirements

| ZCL PICs Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|---|----------------|
| FC100 | M | ZCL Cluster ID enumeration is mandatory | Y |
| FC1 | M | General ZCL Frame Format is mandatory | Y |
| BCC1 | O | Does the device support the Basic Cluster as a client? | Y [Int: EP# 1] |
| BCS1 | M | Does the device support the Basic Cluster as a server? | Y [Int: EP# 1] |
| GCC1 | O | Deleted | NA |
| GCS1 | O | Deleted | NA |
| ACC1 | O | Does the device support the Alarms Cluster as a client? | N |

⁶ CCB 1486

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|---|---------|
| ACS1 | O | Does the device support the Alarms Cluster as a server? | N |
| TCS1 | | Deleted | NA |
| TCC1 | | Deleted | NA |

302

303

Table 8 – Common cluster support

| Item number | Item description | Reference | Status | Support |
|-------------|---|------------------|----------------|----------------|
| ASDC1 | Deleted | [R2]/5.10 | | NA |
| ASDC2 | Deleted | [R2]/5.10 | | NA |
| ASDC3 | Deleted | [R2]/5.10 | | NA |
| ASDS1 | Deleted | | O | NA |
| ASDS2 | Does the device support the server Price Cluster sent via the Anonymous Inter-PAN transmission mechanism? | [R2]/Annex D.4 | O | N |
| ASDS3 | Does the device support the server Messaging Cluster sent via the Anonymous Inter-PAN transmission mechanism? | [R2]/Annex D.5 | O | N |
| KEC1 | Does the device support the Key Establishment cluster as a client? | [R2]/Annex C.3.1 | M | Y [Int: EP# 1] |
| KES1 | Does the device support the Key Establishment cluster as a server? | [R2]/Annex C.3.1 | M ⁷ | Y [Int: EP# 1] |
| PC1 | Does the device support the Price cluster as a client? | [R2]/6.1 | O | Y [Int: EP# 1] |
| PS1 | Does the device support the Price cluster as a server? | [R2]/ 6.1 | O | N |

⁷ CCB 1432

| Item number | Item description | Reference | Status | Support |
|-------------|--|------------|--------|----------------|
| DRLC1 | Does the device support the Demand Response and Load Control cluster as a client? | [R2]/ 6.1 | O | N |
| DRLS1 | Does the device support the Demand Response and Load Control cluster as a server? | [R2]/ 6.1 | O | N |
| SMC1 | Does the device support the Metering cluster as a client? | [R2]/ 6.1 | O | Y [Int: EP# 1] |
| SMS1 | Does the device support the Metering cluster as a server? | [R2]/ 6.1 | O | N |
| MC1 | Does the device support the Messaging cluster as a client? | [R2]/ 6.1 | O | Y [Int: EP# 1] |
| MS1 | Does the device support the Messaging cluster as a server? | [R2]/ 6.1 | O | N |
| PPC1 | Does the device support the Prepayment cluster as a client? | [R2]/ 6.1 | O | N |
| PPS1 | Does the device support the Prepayment cluster as a server? | [R2]/ 6.1 | O | N |
| SECC1 | Does the device support clusters with Reporting Capability? | [R2]/6.1.1 | O | Y [Int: EP# 1] |
| SECC2 | Are any manufacturer-specific cluster(s) supported? | [R2]/6.1.2 | O | Y [Int: EP# 1] |
| SECC3 | Are any non-SE ZCL or other application cluster(s) supported? | [R2]/6.1.3 | O | N |
| ICS1 | Does the device support the Identify cluster? | [R2]/ 6.1 | O | Y [Int: EP# 1] |
| PCCS1 | Does the device support the Power Configuration cluster? | [R2]/ 6.1 | O | N |
| SMC2 | Does the device support the Block Tariffs Metering cluster attributes as a client? | [R2]/ 6.1 | O | N |
| SMS2 | Does the device support the Block Tariffs Metering cluster attributes as a server? | [R2]/ 6.1 | O | N |

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|--------|----------------|
| TUC1 | Does the device support the Tunneling cluster as a client? | [R2]/ 6.1 | O | N |
| TUS1 | Does the device support the Tunneling cluster as a server? | [R2]/ 6.1 | O | N |
| TCSW1 | Does the device support Trust Center Swap-out ? | [R2]/ 6.1 | O | N |
| OTAC1 | Does the device support the OTA Upgrade cluster as a client? | [R2]/ 6.1 | O | Y [Int: EP# 1] |
| OTAS1 | Does the device support the OTA Upgrade cluster as a server? | [R2]/ 6.1 | O | N |
| ALM1 | Does the device support the Alarms as a server? | [R2]/ 6.1 | O | N |

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306 **8.7 ZigBee SE Device Description Capabilities**

307 Tables in the following sub-clauses detail the capabilities specific to a device description.

308 **8.7.1 Energy Service Interface device functions**

309

310

Table 9 – Energy Service Interface ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|----------------------------------|-----------------------|
| TCS1 | M | Time Cluster server is mandatory | [Y/N] [Int: EP# x] |

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312

313 Table 10 provides the SE PICs restrictions based on requirements in [R2]/6.3.1.1.

314

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Table 10 – Energy Service Interface SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| SMC1 | O | Metering Cluster client is optional | [Y/N] [Int: EP# x] |
| SMS1 | O | Metering Cluster server is optional | [Y/N] [Int: EP# x] |
| MS1 | M | Messaging Cluster server is mandatory | [Y/N] [Int: EP# x] |
| PS1 | M | Price Cluster server is mandatory | [Y/N] [Int: EP# x] |
| DRLS1 | M | Demand Response and Load Cluster server is mandatory | [Y/N] [Int: EP# x] |
| PC1 | O | Price Cluster client is optional | [Y/N] [Int: EP# x] |
| MS1 | O | Messaging Cluster client is optional | [Y/N] [Int: EP# x] |

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| PPC1 | O | Prepayment Cluster client is optional | [Y/N] [Int: EP# x] |
| PPS1 | O | Prepayment Cluster server is optional | [Y/N] [Int: EP# x] |
| TUS1 | O | Tunneling Cluster server is optional | [Y/N] [Int: EP# x] |
| TCSW1 | O | Trust Center Swap-out is optional | [Y/N] [Int: EP# x] |
| OTAS1 | O | OTA Upgrade Cluster server is optional | [Y/N] [Int: EP# x] |
| TUC1 | O | Tunneling Cluster client is optional | [Y/N] [Int: EP# x] |
| OTAC1 | O | OTA Upgrade Cluster client is optional | [Y/N] [Int: EP# x] |

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319 8.7.2 **Metering device functions**

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Table 11 – Metering device ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|---------------------------------|-----------------------|
| TCC1 | O | Time Cluster client is optional | [Y/N] [Int: EP# x] |

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323

Table 12 provides the SE PICS restrictions based on requirements in [R2]/6.3.2.1.

Table 12 – Metering device SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|---|-----------------------|
| SMS1 | M | Metering Cluster server is mandatory | [Y/N] [Int: EP# x] |
| PPS1 | O | Prepayment Cluster server is optional | [Y/N] [Int: EP# x] |
| PC1 | O | Price Cluster client is optional | [Y/N] [Int: EP# x] |
| MC1 | O | Messaging Cluster client is optional | [Y/N] [Int: EP# x] |
| SMS3 | SMS2:O | Block Tariffs Metering cluster server attributes are optional | [Y/N] [Int: EP# x] |
| TUC1 | O | Tunneling Cluster client is optional | [Y/N] [Int: EP# x] |
| TUS1 | O | Tunneling Cluster server is optional | [Y/N] [Int: EP# x] |
| TCSW1 | O | Trust Center Swap-out is optional | [Y/N] [Int: EP# x] |
| OTAC1 | O | OTA Upgrade Cluster client is optional | [Y/N] [Int: EP# x] |
| OTAS1 | O | OTA Upgrade Cluster server is optional | [Y/N] [Int: EP# x] |

325

326 8.7.3 In-Home⁸ display device functions

327

Table 13 – In-Home⁹ display device ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|---------------------------------|----------------|
| TCC1 | O | Time Cluster client is optional | Y [Int: EP# 1] |

328

329 Table 14 provides the SE PICs restrictions based on requirements in [R2]/6.3.3.1.

330

331

Table 14 – In-Home¹⁰ display device SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|---|----------------|
| DRLC1 | O | Demand Response and Load Cluster client is optional | N |
| PC1 | O | Price Cluster client is optional | Y [Int: EP# 1] |
| SMC1 | O | Metering Cluster client is optional | Y [Int: EP# 1] |
| PPC1 | O | Pre-payment Cluster client is optional | N |
| MC1 | O | Messaging Cluster client is optional | Y [Int: EP# 1] |
| TUC1 | O | Tunneling Cluster client is optional | N |
| TCSW1 | O | Trust Center Swap-out is optional | N |
| OTAC1 | O | OTA Upgrade Cluster client is optional | Y [Int: EP# 1] |

⁸ CCB 1570⁹ CCB 1570¹⁰ CCB 1570

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|---------|
| OTAS1 | O | OTA Upgrade Cluster server is optional | N |

332

333

334

335 8.7.4 **Programmable Communicating Thermostat (PCT) device functions**

336

Table 15 Programmable Communicating Thermostat (PCT) ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|----------------------------------|-----------------------|
| TCC1 | M | Time Cluster client is mandatory | [Y/N] [Int: EP# x] |

337

338 Table 16 provides the SE PICS restrictions based on requirements in [R2]/6.3.4.1.

339

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Table 16 Programmable Communicating Thermostat (PCT) SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| DRLC1 | M | Demand Response and Load Cluster client is mandatory | [Y/N] [Int: EP# x] |
| PPC1 | O | Prepayment Cluster client is optional | [Y/N] [Int: EP# x] |
| PPC1 | O | Pre-payment Cluster client is optional | [Y/N] [Int: EP# x] |
| PC1 | O | Price Cluster client is optional | [Y/N] [Int: EP# x] |
| SMC1 | O | Metering Cluster client is optional | [Y/N] [Int: EP# x] |

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| MC1 | O | Messaging Cluster client is optional | [Y/N] [Int: EP# x] |
| TUC1 | O | Tunneling Cluster client is optional | [Y/N] [Int: EP# x] |
| TCSW1 | O | Trust Center Swap-out is optional | [Y/N] [Int: EP# x] |
| OTAC1 | O | OTA Upgrade Cluster client is optional | [Y/N] [Int: EP# x] |
| OTAS1 | O | OTA Upgrade Cluster server is optional | [Y/N] [Int: EP# x] |

341

342 8.7.5 Load Control device functions

343

Table 17 – Load Control ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|----------------------------------|-----------------------|
| TCC1 | M | Time Cluster client is mandatory | [Y/N] [Int: EP# x] |

344

345 Table 18 provides the SE PICS restrictions based on requirements in [R2]/6.3.5.1.

346

347

Table 18 – Load Control SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| DRLC1 | M | Demand Response and Load Cluster client is mandatory | [Y/N] [Int: EP# x] |
| PC1 | O | Price Cluster client is optional | [Y/N] [Int: EP# x] |

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| TUC1 | O | Tunneling Cluster client is optional | [Y/N] [Int: EP# x] |
| TCSW1 | O | Trust Center Swap-out is optional | [Y/N] [Int: EP# x] |
| OTAC1 | O | OTA Upgrade Cluster client is optional | [Y/N] [Int: EP# x] |
| OTAS1 | O | OTA Upgrade Cluster server is optional | [Y/N] [Int: EP# x] |

348

349 8.7.6 Range Extender device functions

350

Table 19 – Range Extender ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|----------------------------------|-----------------------|
| TCC1 | O | Time Cluster client is optional. | [Y/N] [Int: EP# x] |

351

352 Table 20 provides the SE PICS restrictions based on requirements in [R2]/6.3.6.1.

353

354

Table 20 –Range Extender SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| TCSW1 | O | Trust Center Swap-out is optional | [Y/N] [Int: EP# x] |
| OTAC1 | O | OTA Upgrade Cluster client is optional | [Y/N] [Int: EP# x] |
| OTAS1 | O | OTA Upgrade Cluster server is optional | [Y/N] [Int: EP# x] |

355

356 8.7.7 Smart Appliance device functions

357

Table 21 – Smart Appliance ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|----------------------------------|-----------------------|
| TCC1 | M | Time Cluster client is mandatory | [Y/N] [Int: EP# x] |

358

359 Table 22 provides the SE PICS restrictions based on requirements in [R2]/6.3.7.1.

360

361

Table 22 –Smart Appliance SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|---|-----------------------|
| PPC1 | O | Prepayment Cluster client is optional | [Y/N] [Int: EP# x] |
| DRLC1 | O | Demand Response and Load Cluster client is optional | [Y/N] [Int: EP# x] |
| PC1 | M | Price Cluster client is mandatory | [Y/N] [Int: EP# x] |
| SMC1 | O | Metering Cluster client is optional ED NOTE: This is not listed in the specification ó should it be? | [Y/N] [Int: EP# x] |
| MC1 | O | Messaging Cluster client is optional | [Y/N] [Int: EP# x] |
| TUC1 | O | Tunneling Cluster client is optional | [Y/N] [Int: EP# x] |
| TCSW1 | O | Trust Center Swap-out is optional | [Y/N] [Int: EP# x] |
| OTAC1 | O | OTA Upgrade Cluster client is optional | [Y/N] [Int: EP# x] |

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| OTAS1 | O | OTA Upgrade Cluster server is optional | [Y/N] [Int: EP# x] |

362

363

364 8.7.8 **Prepayment Terminal device functions**

365

Table 23 – Prepayment Terminal ZCL PICS restrictions/requirements

| ZCL PICS Item number [R7] | Status | Additional Constraints | Support |
|---------------------------|--------|----------------------------------|-----------------------|
| TCC1 | M | Time Cluster client is mandatory | [Y/N] [Int: EP# x] |

366

367 Table 24 provides the SE PICS restrictions based on requirements in [R2]/6.3.8.1.

368

369

Table 24 – Per-payment Terminal SE PICS restrictions/requirements

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|---|-----------------------|
| DRLC1 | O | Demand Response and Load Cluster client is optional | [Y/N] [Int: EP# x] |
| PC1 | M | Price Cluster client is mandatory | [Y/N] [Int: EP# x] |
| SMC1 | O | Metering Cluster client is optional | [Y/N] [Int: EP# x] |
| MC1 | O | Messaging Cluster client is optional | [Y/N] [Int: EP# x] |
| TUC1 | O | Tunneling Cluster client is optional | [Y/N] [Int: EP# x] |
| TCSW1 | O | Trust Center Swap-out is optional | [Y/N] [Int: EP# x] |

| SE PICS Item number | Status | Additional Constraints | Support |
|---------------------|--------|--|-----------------------|
| OTAC1 | O | OTA Upgrade Cluster client is optional | [Y/N] [Int: EP# x] |
| OTAS1 | O | OTA Upgrade Cluster server is optional | [Y/N] [Int: EP# x] |

370

371 **8.8 Smart Energy Application Specific Cluster function capabilities**372 **8.8.1 Basic Cluster**

373

Table 25 – Basic cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|---------------------------------|----------------|
| BCS1 | Is the Basic Cluster supported as a server? | [R3] | M | Y [Int: EP# 1] |
| BCS2 | Is the <i>ZCLversion</i> attribute supported? | | BCS1:M | Y [Int: EP# 1] |
| BCS3 | Is the <i>Powersource</i> attribute supported? | | BCS1:M | Y [Int: EP# 1] |
| BCS4 | Is the <i>PhysicalEnvironment</i> attribute supported? | | SEG22:M BCS1:O ¹¹ | N |

374

375

Table 26 – Basic cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|--------|----------------|
| BCC1 | Is the Basic Cluster supported as a client? | [R3] | O | Y [Int: EP# 1] |

376

377

¹¹ CCB 1289

378 8.8.2 **Identify**

379

380

381 8.8.3 **Alarms**

382

383

384 8.8.4 **Commissioning**

385

386

387 8.8.5 **Power Configuration**

388

389

390 8.8.6 **Time Cluster attributes and functions**

391

Table 27 – Time cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|---------|---------|
| TICS1 | Is the Time Cluster supported as a server? | [R3] | O | N |
| TICS2 | Is the Time attribute supported? | | TICS1:M | NA |
| TICS3 | Is the TimeStatus attribute supported? | | TICS1:M | NA |
| TICS4 | Is the TimeZone attribute supported? | | TICS1:O | NA |
| TICS5 | Is the DstStart attribute supported? | | TICS1:O | NA |
| TICS6 | Is the DstEnd attribute supported? | | TICS1:O | NA |
| TICS7 | Is the DstShift attribute supported? | | TICS1:O | NA |
| TICS8 | Is the StandardTime attribute supported? | | TICS1:O | NA |
| TICS9 | Is the LocalTime attribute supported? | | TICS1:O | NA |

392

Table 28 – Time cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|--------|----------------|
| TICC1 | Is the Time Cluster supported as a client? | [R3] | O | Y [Int: EP# 1] |

393

394

395 8.8.7 Key Establishment Cluster attributes and functions

396

Table 29 – Key Establishment cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|------------|---------|----------------|
| KECS1 | Is the Key Establishment Cluster supported as a server? | [R2]/C.3.1 | M | Y [Int: EP# 1] |
| KECS2 | Is the KeyEstablishmentSuite attribute supported? | | KECS1:M | Y [Int: EP# 1] |
| KECS3 | Is the reception of Initiate Key Establishment Request command supported? | | KECS1:M | Y [Int: EP# 1] |
| KECS4 | Is the reception of Ephemeral Data Request command supported? | | KECS1:M | Y [Int: EP# 1] |
| KECS5 | Is the reception of Confirm Key Data Request command supported? | | KECS1:M | Y [Int: EP# 1] |
| KECS6 | Is the reception of Terminate Key Establishment command supported? | | KECS1:M | Y [Int: EP# 1] |
| KECS7 | Is the generation of Initiate Key Establishment Response command supported? | | KECS1:M | Y [Int: EP# 1] |
| KECS8 | Is the generation of Ephemeral Data Response command supported? | | KECS1:M | Y [Int: EP# 1] |
| KECS9 | Is the generation of Confirm Key Data Response command supported? | | KECS1:M | Y [Int: EP# 1] |

397

Table 30 – Key Establishment cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|------------|---------|----------------|
| KECC1 | Is the Key Establishment Cluster supported as a client? | [R2]/C.3.1 | M | Y [Int: EP# 1] |
| KECC2 | Is the KeyEstablishmentSuite attribute supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC3 | Is the reception of Initiate Key Establishment Response command supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC4 | Is the reception of Ephemeral Data Response command supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC5 | Is the reception of Confirm Key Data Response command supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC6 | Is the reception of Terminate Key Establishment command supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC7 | Is the generation of Initiate Key Establishment Request command supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC8 | Is the generation of Ephemeral Data Request command supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC9 | Is the generation of Confirm Key Data Request command supported? | | KECC1:M | Y [Int: EP# 1] |
| KECC10 | Is the generation of Terminate Key Establishment command supported? | | KECC1:M | Y [Int: EP# 1] |

398

399 8.8.8 Demand Response and Load Control Cluster attributes and functions

400

Table 31 – Demand Response and Load Control cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|-----------|---------|
| DRLCCS1 | Is the Demand Response and Load Control Cluster supported as a server? | [R2]/D.2 | O | N |
| DRLCCS2 | Is the reception of Report Event Status command supported? | | DRLCCS1:M | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|-----------|---------|
| DRLCCS3 | Is the reception of Get Scheduled Events command supported? | | DRLCCS1:M | NA |
| DRLCCS4 | Is the generation of Load Control Event command supported? | | DRLCCS1:M | NA |
| DRLCCS5 | Is the generation of Cancel Load Control Event command supported? | | DRLCCS1:M | NA |
| DRLCCS6 | Is the generation of Cancel All Load Control Events command supported? | | DRLCCS1:M | NA |

401

Table 32 – Demand Response and Load Control cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|-----------|---------|
| DRLCCC1 | Is the Demand Response and Load Control Cluster supported as a client? | [R2]/D.2 | O | N |
| DRLCCC2 | Is the UtilityEnrolmentGroup attribute supported? | | DRLCCC1:M | NA |
| DRLCCC3 | Is the StartRandomizeMinutes attribute supported? | | DRLCCC1:M | NA |
| DRLCCC4 | Is the StopRandomizeMinutes attribute supported? | | DRLCCC1:M | NA |
| DRLCCC5 | Is the DeviceClassValue attribute supported? | | DRLCCC1:M | NA |
| DRLCCC5.1 | Is it permitted to externally write the DeviceClassValue attribute? ¹² | | DRLCCC1:O | NA |
| DRLCCC6 | Is the reception of Load Control Event command supported? | | DRLCCC1:M | NA |
| DRLCCC7 | Is the reception of Cancel Load Control Event command supported? | | DRLCCC1:M | NA |
| DRLCCC8 | Is the reception of Cancel All Load Control Events command supported? | | DRLCCC1:M | NA |
| DRLCCC9 | Is the generation of Report Event Status command supported? | | DRLCCC1:M | NA |

¹² CCB 1437

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|-----------|---------|
| DRLCCC10 | Is the generation of Get Scheduled Events command supported? | | DRLCCC1:M | NA |

402

403

404 8.8.9 **Metering Cluster attributes and functions**

405

Table 33 – Metering cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|-----------|---------|
| MECS1 | Is the Metering Cluster supported as a server? | [R2]/D.3 | O | N |
| MECS2 | Is the CurrentSummationDelivered attribute supported? | | MECS1:M | NA |
| MECS3 | Is the CurrentSummationReceived attribute supported? | | MECS1:O | NA |
| MECS4 | Is the CurrentMaxDemandDelivered attribute supported? | | MECS1:O | NA |
| MECS5 | Is the CurrentMaxDemandReceived attribute supported? | | MECS1:O | NA |
| MECS6 | Is the DFTSummation attribute supported? | | MECS1:O | NA |
| MECS7 | Is the DailyFreezeTime attribute supported? | | MECS1:O | NA |
| MECS8 | Is the PowerFactor attribute supported? | | MECS1:O | NA |
| MECS9 | Is the ReadingSnapShotTime attribute supported? | | MECS1:O | NA |
| MECS10 | Is the CurrentMaxDemandDeliveredTime attribute supported? | | MECS1:O | NA |
| MECS11 | Is the CurrentMaxDemandReceivedTime attribute supported? | | MECS1:O | NA |
| MECS12 | Is the DefaultUpdatePeriod attribute supported? | | MECS1:O | NA |
| MECS13 | Is the FastPollUpdatePeriod attribute supported? | | MECS1:O | NA |
| MECS14 | Is the CurrentBlockPeriodConsumptionDelivered | | MECS132:M | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|------------------------|---------|
| | attribute supported? | | MECS133:M | |
| MECS15 | Is the DailyConsumptionTarget attribute supported? | | MECS1:O | NA |
| MECS16 | Is the CurrentBlock attribute supported? | | MECS132:O MECS133:O | NA |
| MECS17 | Is the CurrentTier1SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS18 | Is the CurrentTier1SummationReceived attribute supported? | | MECS1:O | NA |
| MECS19 | Is the CurrentTier2SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS20 | Is the CurrentTier2SummationReceived attribute supported? | | MECS1:O | NA |
| MECS21 | Is the CurrentTier3SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS22 | Is the CurrentTier3SummationReceived attribute supported? | | MECS1:O | NA |
| MECS23 | Is the CurrentTier4SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS24 | Is the CurrentTier4SummationReceived attribute supported? | | MECS1:O | NA |
| MECS25 | Is the CurrentTier5SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS26 | Is the CurrentTier5SummationReceived attribute supported? | | MECS1:O | NA |
| MECS27 | Is the CurrentTier6SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS28 | Is the CurrentTier6SummationReceived attribute supported? | | MECS1:O | NA |
| MECS29 | Is the CurrentTier7SummationDelivered attribute supported? | | MECS1:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|---------|---------|
| MECS30 | Is the CurrentTier7SummationReceived attribute supported? | | MECS1:O | NA |
| MECS31 | Is the CurrentTier8SummatioDelivered attribute supported? | | MECS1:O | NA |
| MECS32 | Is the CurrentTier8SummationReceived attribute supported? | | MECS1:O | NA |
| MECS33 | Is the CurrentTier9SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS34 | Is the CurrentTier9SummationReceived attribute supported? | | MECS1:O | NA |
| MECS35 | Is the CurrentTier10SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS36 | Is the CurrentTier10SummationReceived attribute supported? | | MECS1:O | NA |
| MECS37 | Is the CurrentTier11SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS38 | Is the CurrentTier11SummationReceived attribute supported? | | MECS1:O | NA |
| MECS39 | Is the CurrentTier12SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS40 | Is the CurrentTier12SummationReceived attribute supported? | | MECS1:O | NA |
| MECS41 | Is the CurrentTier13SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS42 | Is the CurrentTier13SummationReceived attribute supported? | | MECS1:O | NA |
| MECS43 | Is the CurrentTier14SummationDelivered attribute supported? | | MECS1:O | NA |
| MECS44 | Is the CurrentTier14SummationReceived attribute supported? | | MECS1:O | NA |
| MECS45 | Is the CurrentTier15SummationDelivered | | MECS1:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|------------|---------|
| | attribute supported? | | | |
| MECS46 | Is the CurrentTier15SummationReceived attribute supported? | | MECS1:O | NA |
| MECS47 | Is the Meter Status attribute supported? | | MECS1:M | NA |
| MECS48 | Is the UnitofMeasure attribute supported? | | MECS1:M | NA |
| MECS49 | Is the Multiplier attribute supported? | | MECS1:O | NA |
| MECS50 | Is the Divisor attribute supported? | | MECS1:O | NA |
| MECS51 | Is the SummationFormatting attribute supported? | | MECS1:M | NA |
| MECS52 | Is the DemandFormatting attribute supported? | | MECS1:O | NA |
| MECS53 | Is the HistoricalConsumptionFormatting attribute supported? | | MECS1:O | NA |
| MECS54 | Is the MeteringDeviceType attribute supported? | | MECS1:M | NA |
| MECS54a | Is the MeteringDeviceType: Electric Metering? | | MECS54:O.1 | NA |
| MECS54b | Is the MeteringDeviceType: Gas Metering? | | MECS54:O.1 | NA |
| MECS54c | Is the MeteringDeviceType: Water Metering? | | MECS54:O.1 | NA |
| MECS54d | Is the MeteringDeviceType: Pressure Metering? | | MECS54:O.1 | NA |
| MECS54e | Is the MeteringDeviceType: Heat Metering? | | MECS54:O.1 | NA |
| MECS54f | Is the MeteringDeviceType: Cooling Metering? | | MECS54:O.1 | NA |
| MECS55 | Is the SiteID attribute supported? | | MECS1:O | NA |
| MECS56 | Is the MeterSerialNumber attribute supported? | | MECS1:O | NA |
| MECS57 | Is the InstantaneousDemand attribute supported? | | MECS1:O | NA |
| MECS58 | Is the CurrentDayConsumptionDelivered attribute supported? | | MECS1:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|---------|---------|
| MECS59 | Is the CurrentDayConsumptionReceived attribute supported? | | MECS1:O | NA |
| MECS60 | Is the PreviousDayConsumptionDelivered attribute supported? | | MECS1:O | NA |
| MECS61 | Is the PreviousDayConsumptionReceived attribute supported? | | MECS1:O | NA |
| MECS62 | Is the CurrentPartialProfileIntervalStartTimeDelivered attribute supported? | | MECS1:O | NA |
| MECS63 | Is the CurrentPartialProfileIntervalStartTimeReceived attribute supported? | | MECS1:O | NA |
| MECS64 | Is the CurrentPartialProfileIntervalValueDelivered attribute supported? | | MECS1:O | NA |
| MECS65 | Is the CurrentPartialProfileIntervalValueReceived attribute supported? | | MECS1:O | NA |
| MECS66 | Is the MaxNumberOfPeriodsDelivered attribute supported? | | MECS1:O | NA |
| MECS67 | Is the CurrentDemandDelivered attribute supported? | | MECS1:O | NA |
| MECS68 | Is the DemandLimit attribute supported? | | MECS1:O | NA |
| MECS69 | Is the DemandIntegrationPeriod attribute supported? | | MECS1:O | NA |
| MECS70 | Is the NumberOfDemandSubintervals attribute supported? | | MECS1:O | NA |
| MECS71 | Is the reception of Get Profile command supported? | | MECS1:O | NA |
| MECS72 | Is the reception of Request Mirror Response command supported? | | MECS1:O | NA |
| MECS73 | Is the reception of Mirror Removed command | | MECS1:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|---------|---------|
| | supported? | | | |
| MECS74 | Is the generation of Get Profile Response command supported? | | MECS1:O | NA |
| MECS75 | Is the generation of Request Mirror command supported? | | MECS1:O | NA |
| MECS76 | Is the generation of Remove Mirror command supported? | | MECS1:O | NA |
| MECS77 | Is the ProfileIntervalPeriod attribute supported? | | MECS1:O | NA |
| MECS78 | Is the IntervalReadReportingPeriod attribute supported? | | MECS1:O | NA |
| MECS79 | Is the PresetReadingTime attribute supported? | | MECS1:O | NA |
| MECS80 | Is the VolumePerReport attribute supported? | | MECS1:O | NA |
| MECS81 | Is the FlowRestriction attribute supported? | | MECS1:O | NA |
| MECS82 | Is the Supply Status attribute supported? | | MECS1:O | NA |
| MECS83 | Is the CurrentDayMaxPressure attribute supported? | | MECS1:O | NA |
| MECS84 | Is the CurrentDayMinPressure attribute supported? | | MECS1:O | NA |
| MECS85 | Is the PreviousDayMaxPressure attribute supported? | | MECS1:O | NA |
| MECS86 | Is the PreviousDayMinPressure attribute supported? | | MECS1:O | NA |
| MECS87 | Is the CurrentDayMaxDemand attribute supported? | | MECS1:O | NA |
| MECS88 | Is the PreviousDayMaxDemand attribute supported? | | MECS1:O | NA |
| MECS89 | Is the Meter Status (Gas) attribute supported? | | MECS1:O | NA |
| MECS90 | Is the Meter Status (Water) attribute supported? | | MECS1:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|--|---------|
| MECS91 | Is the RemainingBatteryLife attribute supported? | | MECS1:O | NA |
| MECS93 | Is the CurrentInletEnergyCarrierSummation attribute supported? | | MECS54e:M MECS54f:M MECS1:O | NA |
| MECS94 | Is the CurrentOutletEnergyCarrierSummation attribute supported? | | MECS1:O | NA |
| MECS95 | Is the InletTemperature attribute supported? | | MECS54e:M MECS54f:M MECS1:O | NA |
| MECS96 | Is the OutletTemperature attribute supported? | | MECS54e:M MECS54f:M MECS1:O | NA |
| MECS97 | Is the ControlTemperature attribute supported? | | MECS1:O | NA |
| MECS98 | Is the CurrentInletEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS99 | Is the CurrentOutletEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS100 | Is the EnergyCarrierUnitOfMeasure attribute supported? | | MECS54e:M MECS54f:M MECS1:O | NA |
| MECS101 | Is the EnergyCarrierSummationFormatting attribute supported? | | MECS93:M MECS94:M | NA |
| MECS102 | Is the EnergyCarrierDemandFormatting attribute supported? | | MECS98:M MECS99:M MECS107:M MECS108:M MECS109:M MECS110:M MECS111:M MECS112:M | NA |
| MECS103 | Is the TemperatureUnitOfMeasure attribute supported? | | MECS54e:M MECS54f:M | NA |
| MECS104 | Is the TemperatureFormatting attribute | | MECS54e:M | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|------------------------|---------|
| | supported? | | MECS54f:M | |
| MECS105 | Is the CurrentMonthMaxDemand attribute supported? | | MECS1:O | NA |
| MECS106 | Is the CurrentYearMaxDemand attribute supported? | | MECS1:O | NA |
| MECS107 | Is the CurrentDayMaxEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS108 | Is the PreviousDayMaxEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS109 | Is the CurrentMonthMaxEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS110 | Is the CurrentMonthMinEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS111 | Is the CurrentYearMaxEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS112 | Is the CurrentYearMinEnergyCarrierDemand attribute supported? | | MECS1:O | NA |
| MECS113 | Is the HoursInOperation attribute supported? | | MECS54e:M MECS54f:M | NA |
| MECS114 | Is the HoursInFault attribute supported? | | MECS1:O | NA |
| MECS115 | Is the Generic AlarmMask attribute supported? | | MECS1:O | NA |
| MECS116 | Is the Electricity AlarmMask attribute supported? | | MECS1:O | NA |
| MECS117 | Is the GenericFlow/Pressure AlarmMask attribute supported? | | MECS1:O | NA |
| MECS118 | Is the Water Specific AlarmMask attribute supported? | | MECS1:O | NA |
| MECS119 | Is the Heating Specific AlarmMask attribute supported? | | MECS1:O | NA |
| MECS120 | Is the Cooling Specific AlarmMask attribute | | MECS1:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|---|--------------------------------|--------------------------------------|---------|
| | supported? | | | |
| MECS121 | Is the Gas Specific AlarmMask attribute supported? | | MECS1:O | NA |
| MECS122 | Is the reception of Request Fast Poll Mode command supported? | | MECS1:O | NA |
| MECS123 | Is the generation of Request Fast Poll Mode Response supported? | | MECS1:O | NA |
| MECS124 | Is the Mapping of the Status Attribute (Electricity) supported? | [R2]/D.3.2.2.3.1 Table D.16 | MECS54a:M | NA |
| MECS125 | Is the Meter Status Attribute (Gas) mapping supported? | [R2]/D.3.2.2.3.1 Table D.17 | MECS54b:M | NA |
| MECS126 | Is the Meter Status Attribute (Water) mapping supported? | [R2]/D.3.2.2.3.1 Table D.18 | MECS54c:M | NA |
| MECS127 | RESERVED | | | NA |
| MECS128 | Is the Meter Status Attribute (Heat and Cooling) mapping? | [R2]/D.3.2.2.3.1 Table D.19 | MECS54e:M MECS54f:M | NA |
| MECS129 | RESERVED | | | NA |
| MECS130 | Does the device generate fragmented Get Profile Response commands? | | MECS74:O | NA |
| MECS131 | Is the <i>PreviousBlockPeriodConsumptionDelivered</i> attribute supported? | [R2]/D.3.2.2.1 Table D.11 | MECS132:O ¹³ MECS133:O | NA |
| MECS132 | Does the device support Block Charging only? | [R2]/D.4.4.3.2 | MECS1:O | NA |
| MECS133 | Does the device support Block/TOU Combination Charging? | [R2]/D.4.4.3.3 | MECS1:O | NA |
| MECS134 | Are any Block Information -No Tierø attributes (0x00 to 0x0F) supported? | [R2]/D.3.2.2.8 | MECS132:M | NA |
| MECS135 | Are any Block Information -TierxBlockyø attributes (0x10 to 0xFF) supported | [R2]/D.3.2.2.8 | MECS133:O | NA |

¹³ CCB 1500

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Table 34 – Metering cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|---------|---------------|
| MECC1 | Is the Metering Cluster supported as a client? | [R2]/D.3 | O | Y [Int: EP#1] |
| MECC2 | Is the reception of Get Profile Response command supported? | | MECC1:O | N |
| MECC3 | Is the reception of Request Mirror command supported? | | MECC1:O | N |
| MECC4 | Is the reception of Remove Mirror command supported? | | MECC1:O | N |
| MECC5 | Is the generation of Get Profile command supported? | | MECC1:O | N |
| MECC6 | Is the generation of Request Mirror Response command supported? | | MECC1:O | N |
| MECC7 | Is the generation of Mirror Removed command supported? | | MECC1:O | N |
| MECC8 | Is the reception of Request Fast Poll Mode Response command supported? | | MECC1:O | N |
| MECC9 | Is the generation of Request Fast Poll Mode command supported? | | MECC1:O | N |
| MECC10 | Does the device support reception of fragmented Get Profile Response commands? | | MECC5:M | N |

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409 8.8.10 Price Cluster attributes and functions

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Table 35 – Price cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|--------|---------|
| PCS1 | Is the Price Cluster supported as a server? | [R2]/D.4 | O | N |
| PCS2 | Is the Tier1PriceLabel attribute supported? | | PCS1:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|--------------------|---------|
| PCS3 | Is the Tier2PriceLabel attribute supported? | | PCS1:O | NA |
| PCS4 | Is the Tier3PriceLabel attribute supported? | | PCS1:O | NA |
| PCS5 | Is the Tier4PriceLabel attribute supported? | | PCS1:O | NA |
| PCS6 | Is the Tier5PriceLabel attribute supported? | | PCS1:O | NA |
| PCS7 | Is the Tier6PriceLabel attribute supported? | | PCS1:O | NA |
| PCS8 | Is the reception of Get Current Price command supported? | | PCS1:M | NA |
| PCS9 | Is the reception of Get Scheduled Prices command supported? | | PCS1:O | NA |
| PCS10 | Is the generation of Publish Price command supported? | | PCS1:M | NA |
| PCS11 | Is the Tier7PriceLabel attribute supported? | | PCS1:O | NA |
| PCS12 | Is the Tier8PriceLabel attribute supported? | | PCS1:O | NA |
| PCS13 | Is the Tier9PriceLabel attribute supported? | | PCS1:O | NA |
| PCS14 | Is the Tier10PriceLabel attribute supported? | | PCS1:O | NA |
| PCS15 | Is the Tier11PriceLabel attribute supported? | | PCS1:O | NA |
| PCS16 | Is the Tier12PriceLabel attribute supported? | | PCS1:O | NA |
| PCS17 | Is the Tier13PriceLabel attribute supported? | | PCS1:O | NA |
| PCS18 | Is the Tier14PriceLabel attribute supported? | | PCS1:O | NA |
| PCS19 | Is the Tier15PriceLabel attribute supported? | | PCS1:O | NA |
| PCS20 | Is the Block Threshold attribute set supported? | | PCS42:M PCS43:M | NA |
| PCS25 | Is the reception of Price Acknowledgement command supported? | | PCS1:O | NA |
| PCS26 | Is the generation of Publish Block Period | | PCS42:O | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|--|----------------|----------------------|---------|
| | command supported? | | PCS43:O | |
| PCS27 | Is the reception of Get Block Period(s) command support? | | PCS42:O PCS43:O | NA |
| PCS28 | Is the Commodity Type (server) attribute supported? | | PCS1:O | NA |
| PCS29 | Is the Standing Charge attribute supported? | | PCS1:O | NA |
| PCS30 | Is the <i>ConversionFactor</i> attribute supported? | | PCS1:O ¹⁴ | NA |
| PCS31 | Is the <i>ConversionFactorTrailingDigit</i> supported? | | PCS1:O ¹⁵ | NA |
| PCS32 | Is the <i>CalorificValue</i> attribute supported? | | PCS1:O ¹⁶ | NA |
| PCS33 | Is the <i>CalorificValueUnit</i> attribute supported? | | PCS1:O ¹⁷ | NA |
| PCS34 | Is the <i>CalorificValueTrailingDigit</i> attribute supported? | | PCS1:O ¹⁸ | NA |
| PCS36 | Is the reception of the <i>GetConversionFactor</i> command supported? | | PCS1:O ¹⁹ | NA |
| PCS37 | Is the reception of the <i>GetCalorificValue</i> command supported? | | PCS1:O ²⁰ | NA |
| PCS38 | Is the generation of the <i>Publish Conversion Factor</i> command supported? | | PCS1:O ²¹ | NA |
| PCS39 | Is the generation of the <i>Publish Calorific Value</i> command supported? | | PCS1:O ²² | NA |
| PCS40 | Is the <i>CurrentBillingPeriodStart</i> attribute | [R2]/D.4.2.2.6 | PCS1:O ²³ | NA |

¹⁴ CCB 1264¹⁵ CCB 1264¹⁶ CCB 1264¹⁷ CCB 1264¹⁸ CCB 1264¹⁹ CCB 1264²⁰ CCB 1264²¹ CCB 1264²² CCB 1264

| Item number | Item description | Reference | Status | Support |
|-------------|--|------------------------------|----------------------|---------|
| | supported? | Table D.49 | | |
| PCS41 | Is the <i>CurrentBillingPeriodDuration</i> attribute supported? | [R2]/D.4.2.2.6 Table D.49 | PCS1:O ²⁴ | NA |
| PCS42 | Does the device support Block Charging only? | [R2]/D.4.4.3.2 | PCS1:O | NA |
| PCS43 | Does the device support Block/TOU Combination Charging ? | [R2]/D.4.4.3.3 | PCS1:O | NA |
| PCS44 | Is the Block Period attribute set supported? | [R2]/D.4.2.2.3 | PCS42:O PCS43:O | NA |
| PCS45 | Are any Block Price Information -No Tierø attributes (0x00 to 0x0F) supported? | [R2]/D.4.2.2.5 | PCS42:M | NA |
| PCS46 | Are any Block Price Information -TierxBlockyø attributes (0x10 to 0xFF) supported? | [R2]/D.4.2.2.5 | PCS43:O | NA |

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Table 36 – Price cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|--------|-------------------|
| PCC1 | Is the Price Cluster supported as a client? | [R2]/D.4 | O | Y |
| PCC2 | Is the reception of Publish Price command supported? | | PCC1:M | Y [Int: EP# 1] |
| PCC3 | Is the generation of Get Current Price command supported? | | PCC1:M | Y [Int: EP# 1] |
| PCC4 | Is the generation of Get Scheduled Prices command supported? | | PCC1:O | Y [Int: EP# 1] |
| PCC5 | Is the PriceIncreaseRandomizeMinutes attribute supported? | | PCC1:O | N |
| PCC6 | Is the PriceDecreaseRandomizeMinutes attribute supported? | | PCC1:O | N |

²³ CCB 1494²⁴ CCB 1494

| Item number | Item description | Reference | Status | Support |
|-------------|--|----------------|----------------------|----------------|
| PCC7 | Is the Commodity Type (client) attribute supported? | | PCC1:O | N |
| PCC8 | Is the generation of Price Acknowledgement command supported? | | PCC1:O | Y [Int: EP# 1] |
| PCC9 | Is the reception of Publish Block Period command supported? | | PCC12:O PCC13:O | N |
| PCC10 | Is the generation of Get Block Period(s) command supported? | | PCC12:O PCC13:O | N |
| PCC11 | Is the TOU charging behavior supported? | [R2]/D.4.4.3.1 | PCC1:O | Y [Int: EP# 1] |
| PCC12 | Is the Block Tariffs Block Charging ONLY behavior supported? | [R2]/D.4.4.3.2 | PCC1:O | Y [Int: EP# 1] |
| PCC13 | Is the Block Tariffs Block/TOU Combination Charging supported? | [R2]/D.4.4.3.3 | PCC1:O | Y [Int: EP# 1] |
| PCC14 | Is the Block Tariffs guideline for extended non-communication supported? | [R2]/D.4.4.3.4 | PCC12:O PCC13:O | N |
| PCC15 | Is the Block Tariffs guideline for meter installation or swap-out supported? | [R2]/D.4.4.3.4 | PCC12:O PCC13:O | N |
| PCC16 | Is the generation of the <i>GetConversionFactor</i> command supported? | | PCC1:O ²⁵ | Y [Int: EP# 1] |
| PCC17 | Is the generation of the <i>GetCalorificValue</i> command supported? | | PCC1:O ²⁶ | Y [Int: EP# 1] |
| PCC18 | Is the reception of the <i>Publish Conversion Factor</i> command supported? | | PCC1:O ²⁷ | Y [Int: EP# 1] |
| PCC19 | Is the reception of the <i>Publish Calorific Value</i> command supported? | | PCC1:O ²⁸ | Y [Int: EP# 1] |

²⁵ CCB 1264

²⁶ CCB 1264

²⁷ CCB 1264

²⁸ CCB 1264

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415 8.8.11 **Messaging Cluster attributes and functions**

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Table 37 – Messaging cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|--------------------|---|-----------|--------|---------|
| MCS1 | Is the Messaging Cluster supported as a server? | [R2]/D.5 | O | N |
| MCS2 | Is the reception of Get Last Message command supported? | | MCS1:M | NA |
| MCS5 ²⁹ | Is the reception of Message Confirmation command supported? | | MCS1:M | NA |
| MCS3 | Is the generation of Display Message command supported? | | MCS1:M | NA |
| MCS4 | Is the generation of Cancel Message command supported? | | MCS1:M | NA |

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Table 38 – Messaging cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|-----------------|----------------|
| MCC1 | Is the Messaging Cluster supported as a client? | [R2]/D.5 | O ³⁰ | Y |
| MCC2 | Is the reception of Display Message command supported? | | MCC1:M | Y [Int: EP# 1] |
| MCC3 | Is the reception of Cancel Message command supported? | | MCC1:M | Y [Int: EP# 1] |
| MCC4 | Is the generation of Get Last Message command supported? | | MCC1:M | Y [Int: EP# 1] |
| MCC5 | Is the generation of Message Confirmation command supported? | | MCC1:M | Y [Int: EP# 1] |

²⁹ CCB 1496³⁰ CCB 1430

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419 8.8.12 Tunneling Cluster attributes and functions

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Table 39 – Tunneling cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|--------------|----------------------|---------|
| TUS1 | Is the Tunneling Cluster supported as a server? | [R2]/D.6 | O | N |
| TUS2 | Is the reception of RequestTunnel command supported? | [R2]/D.6.2.4 | TUS1:M | NA |
| TUS3 | Is the reception of CloseTunnel command supported? | [R2]/D.6.2.4 | TUS1:M | NA |
| TUS4 | Is the reception of TransferData command supported? | [R2]/D.6.2.4 | TUS1:M | NA |
| TUS5 | Is the reception of TransferDataError command supported? | [R2]/D.6.2.4 | TUS1:M | NA |
| TUS6 | Is the reception of AckTransferData command supported? | [R2]/D.6.2.4 | TUS1:O | NA |
| TUS7 | Is the reception of ReadyData command supported? | [R2]/D.6.2.4 | TUS1:O | NA |
| TUS8 | Is the generation of RequestTunnelResponse command supported? | [R2]/D.6.2.5 | TUS1:M | NA |
| TUS9 | Is the generation of TransferData command supported? | [R2]/D.6.2.5 | TUS1:M | NA |
| TUS10 | Is the generation of TransferDataError command supported? | [R2]/D.6.2.5 | TUS1:M | NA |
| TUS11 | Is the generation of AckTransferData command supported? | [R2]/D.6.2.5 | TUS1:O | NA |
| TUS12 | Is the generation of ReadyData command supported? | [R2]/D.6.2.5 | TUS1:O | NA |
| TUS13 | Is the reception of the <i>GetSupportedTunnelProtocols</i> supported? | [R2]/D.6.2.4 | TUS1:O ³¹ | NA |

³¹ CCB 1273

| Item number | Item description | Reference | Status | Support |
|-------------|--|--------------|----------------------|---------|
| TUS14 | Is the generation of the <i>Supported Tunnel Protocols Response</i> command supported? | [R2]/D.6.2.5 | TUS1:O ³² | NA |
| TUS15 | Is the generation of the <i>TunnelClosureNotification</i> command supported? | [R2]/D.6.2.5 | TUS1:O ³³ | NA |

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Table 40 – Tunneling cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|--------------|--------|---------|
| TUC1 | Is the Tunneling Cluster supported as a client? | [R2]/D.6 | O | N |
| TUC2 | Is the reception of RequestTunnelResponse command supported? | [R2]/D.6.3.3 | TUC1:M | NA |
| TUC3 | Is the reception of TransferData command supported? | [R2]/D.6.3.3 | TUC1:M | NA |
| TUC4 | Is the reception of TransferDataError command supported? | [R2]/D.6.3.3 | TUC1:M | NA |
| TUC5 | Is the reception of AckTransferData command supported? | [R2]/D.6.3.3 | TUC1:O | NA |
| TUC6 | Is the generation of ReadyData command supported? | [R2]/D.6.3.3 | TUC1:O | NA |
| TUC7 | Is the generation of RequestTunnel command supported? | [R2]/D.6.3.4 | TUC1:M | NA |
| TUC8 | Is the generation of CloseTunnel command supported? | [R2]/D.6.3.4 | TUC1:M | NA |
| TUC9 | Is the generation of TransferData command supported? | [R2]/D.6.3.4 | TUC1:M | NA |
| TUC10 | Is the generation of TransferDataError command supported? | [R2]/D.6.3.4 | TUC1:M | NA |
| TUC11 | Is the generation of AckTransferData command | [R2]/D.6.3.4 | TUC1:O | NA |

³² CCB 1273³³ CCB 1273

| Item number | Item description | Reference | Status | Support |
|-------------|---|--------------|----------------------|---------|
| | supported? | | | |
| TUC12 | Is the generation of ReadyData command supported? | [R2]/D.6.3.4 | TUC1:O | NA |
| TUC13 | Is the generation of the <i>GetSupportedTunnelProtocols</i> supported? | [R2]/D.6.2.4 | TUC1:O ³⁴ | NA |
| TUC14 | Is the reception of the <i>Supported Tunnel Protocols Response</i> command supported? | [R2]/D.6.2.5 | TUC1:O ³⁵ | NA |
| TUC15 | Is the reception of the <i>TunnelClosureNotification</i> command supported? | [R2]/D.6.2.5 | TUC1:O ³⁶ | NA |

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424 8.8.13 **Prepayment Cluster attributes and functions**

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Table 41 – Prepayment cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|----------------|---------|---------|
| PPCS1 | Is the Prepayment Cluster supported as a server? | [R2]/D.7 | O | N |
| PPCS2 | Is the reception of Select Available Emergency Credit command supported? | [R2]/D.7.2.3 | PPCS1:O | NA |
| PPCS3 | Is the reception of Change Supply command supported? | [R2]/D.7.2.3 | PPCS1:O | NA |
| PPCS4 | Is the generation of Supply Status Response command supported? | [R2]/D.7.2.4 | PPCS1:O | NA |
| PPCS7 | Is the Payment Control attribute supported? | [R2]/D.7.2.2.1 | PPCS1:M | NA |
| PPCS8 | Is the Credit Remaining attribute supported? | [R2]/D.7.2.2.1 | PPCS1:O | NA |
| PPCS9 | Is the Emergency Credit Remaining attribute supported? | [R2]/D.7.2.2.1 | PPCS1:O | NA |

³⁴ CCB 1273³⁵ CCB 1273³⁶ CCB 1273

| Item number | Item description | Reference | Status | Support |
|-------------|--|----------------|---------|---------|
| PPCS10 | Is the Credit Status attribute supported? | [R2]/D.7.2.2.1 | PPCS1:O | NA |
| PPCS11 | Are the Top up Date/Time attributes supported? If so, list supported attributes #1-5. | [R2]/D.7.2.2.2 | PPCS1:O | NA |
| PPCS12 | Are the Top up Amount attributes supported? If so, list supported attributes #1-5. | [R2]/D.7.2.2.2 | PPCS1:O | NA |
| PPCS13 | Are the Originating Device attributes supported? If so, list supported attributes #1-5. | [R2]/D.7.2.2.2 | PPCS1:O | NA |
| PPCS14 | Is the Fuel Debt Remaining attribute supported? | [R2]/D.7.2.2.3 | PPCS1:O | NA |
| PPCS15 | Is the Fuel Debt Recovery Rate attribute supported? | [R2]/D.7.2.2.3 | PPCS1:O | NA |
| PPCS16 | Is the Fuel Debt Recovery Period attribute supported? | [R2]/D.7.2.2.3 | PPCS1:O | NA |
| PPCS17 | Is the Non Fuel Debt Remaining attribute supported? | [R2]/D.7.2.2.3 | PPCS1:O | NA |
| PPCS18 | Is the Non Fuel Debt Recovery Rate attribute supported? | [R2]/D.7.2.2.3 | PPCS1:O | NA |
| PPCS19 | Is the Non Fuel Debt Recovery Period attribute supported? | [R2]/D.7.2.2.3 | PPCS1:O | NA |
| PPCS20 | Is the Proposed Change Provider ID attribute supported? | [R2]/D.7.2.2.4 | PPCS1:O | NA |
| PPCS21 | Is the Proposed Change Implementation Time attribute supported? | [R2]/D.7.2.2.4 | PPCS1:O | NA |
| PPCS22 | Is the Proposed Change Supply Status attribute supported? | [R2]/D.7.2.2.4 | PPCS1:O | NA |
| PPCS23 | Is the Delayed Supply Interrupt 6 Value Remaining attribute supported? | [R2]/D.7.2.2.4 | PPCS1:O | NA |
| PPCS24 | Is the Delayed Supply Interrupt 6 Value Type attribute supported? | [R2]/D.7.2.2.4 | PPCS1:O | NA |

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Table 42 – Prepayment cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|--------------|---------|---------|
| PPCC1 | Is the Prepayment Cluster supported as a client? | [R2]/D.7 | O | N |
| PPCC2 | Is the generation of Select Available Emergency Credit command supported? | [R2]/D.7.3.4 | PPCC1:O | NA |
| PPCC3 | Is the generation of Change Supply command supported? | [R2]/D.7.3.4 | PPCC1:O | NA |
| PPCC4 | Is the reception of Supply Status Response command supported? | [R2]/D.7.3.3 | PPCC1:O | NA |

428

429 8.8.14 Trust Center Swap-out

430

Table 43 – Trust Center Swap-out capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|--|----------------|-----------------------------|---------|
| TCSW1 | Is the device a Trust Center supporting Trust Center Swap-out? | [R2]/5.4.2.2.3 | O | N |
| TCSW2 | Is the generation of Trust Center keep-alive command supported? | | TCSW1:M FDT1:M FDT2:M | N |
| TCSW3 | Is the backup of the Extended PAN ID to an off-chip device supported? | | TCSW1:M FDT1:M | NA |
| TCSW4 | Is the backup of the registered device EUI-64 to an off-chip device supported? | | TCSW1:M FDT1:M | NA |
| TCSW5 | Is the backup of the registered device Install Code to an off-chip device supported? | | TCSW1:M FDT1:M | NA |
| TCSW6 | Is the backup of the registered device hashed CBKE derived link key to an off-chip device supported? | | TCSW1:M FDT1:M | NA |
| TCSW7 | Is the restore of the Extended PAN ID from an off-chip device supported? | | TCSW1:M FDT1:M | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|---|------------------|----------------------------|-------------------|
| TCSW8 | Is the restore of the registered device EUI-64 from an off-chip device supported? | | TCSW1:M FDT1:M | NA |
| TCSW9 | Is the restore of the registered device Install Code from an off-chip device supported? | | TCSW1:M FDT1:M | NA |
| TCSW10 | Is the restore of the registered device hashed CBKE derived link key from an off-chip device supported? | | TCSW1:M FDT1:M | NA |
| TCSW11 | Is the discovery of the new Trust Center based on the Extended PAN ID supported? | | TCSW1:M FDT2:M | Y [Int: EP# 1] |
| TCSW12 | Is the rejoin using the CBKE derived link key supported? | | TCSW1:M FDT2:M | Y [Int: EP# 1] |
| TCSW13 | Is the Recommission of device supported? | | FDT1:M FDT2:M FDT3:M | Y [Int: EP# 1] |
| TCSW14 | Does the device support the Trust Center Swap-Out parameters? | [R2] 5.4.2.2.3.7 | TCSW1:M FDT1:M | NA |

431

432 8.8.15 **Multiple ESI**

433

Table 44 – Multiple ESI Client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|---------|---------|
| MESC1 | Is Multiple ESI supported? | [R2]/5.7 | O | N |
| MESC2 | Is the discovery of all ESIs in a HAN supported? | | MESC1:M | NA |
| MESC3 | Is the generation of bindings on discovered ESIs supported? | | MESC1:M | NA |
| MESC4 | Is determination of the authoritative ESI supported? | | MESC1:M | NA |

| Item number | Item description | Reference | Status | Support |
|-------------|--|-----------|---------|---------|
| MESC5 | Is processing of events from multiple ESIs supported? | | MESC1:M | NA |
| MESC6 | Is resolution of conflicting events received from multiple ESIs supported? | | MESC1:M | NA |
| MESC7 | Is the notification message for an event sent to at least one ESI that sent the event? | | MESC1:M | NA |
| MESC8 | Is the event processing based on the authoritative time? | | MESC1:M | NA |

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Table 45 – Multiple ESI Server capabilities

| Item number | Item description | Reference | Status | Support |
|--------------------------------|---|-----------|---------|-----------------------------|
| MESS1 | Is Multiple ESI supported? | [R2]/5.7 | O | N |
| MESS2 | Is the <i>TimeStatus</i> attribute supported? | | MESS1:M | NA |
| DELETED ³⁷ MESS3 | Is the <i>LastSynchronizedTime</i> attribute supported? | | MESS1:M | [NA or Y/N] [Int: EP# x] |
| MESS4 | Is the <i>ValidUntilTime</i> attribute supported? | | MESS1:M | NA |

436

437 8.8.16 OTA Upgrade Cluster attributes and functions

438

Table 46 – OTA Upgrade cluster server capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|--------|---------|
| OTAS1 | Is the OTA Upgrade Cluster supported as a server? | [R9] | O | N |

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³⁷ CCB 1301

440

Table 47 – OTA Upgrade cluster client capabilities

| Item number | Item description | Reference | Status | Support |
|-------------|---|-----------|--------|----------------|
| OTAC1 | Is the OTA Upgrade Cluster supported as a client? | [R9] | O | Y [Int: EP# 1] |

441

442 If supporting OTA upgrade cluster client or server, need to complete OTA Upgrade Cluster PICS
 443 document in addition to this document for certification.

444

445 8.8.17 Support on Non SE clusters

446

447 List in the below section all non SE clusters supported on the submitted product:

448

