Device Type Library Specification

23-02016 Revision 2

Document	23-02016
Date of release	November 10, 2025
Sponsored by	Connectivity Standards Alliance
Accepted by	This document has been accepted for release by the Connectivity Standards Alliance Board of Directors.
Abstract	This document defines the CSA Device Type Library.
Keywords	CSA, Application, Framework, Device, Library, DTL, Dotdot, Dictionary

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Document Control

Documents listed below were used to produce this specification:

Document Name	Document Number
Zigbee Home Automation 1.2 Profile	05-3520-29
Zigbee Lighting and Occupancy	15-0014-05
Approved Errata for this DTL revision	21-75923
Zigbee Cluster Library rev 08 specification	07-5123-08
Pro Base Device Behavior Specification 3.0.1	16-02828-012

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Revision History

Doc	Date	Editor	Comments
19-02016-02	Apr-2019	Cam Williams	Initial derived from ZLO 15-0014-05 and ZHA 05-3520-29
19-02016-03	May-2019	Cam Williams	After one round of comment resolution
19-02016-04	Nov-2019	Cam Williams	More resolved comments from Aug-2019
19-02016-05	Sep-2020	Dalila Pinedo	Changes for comments from 19-02024-005 ZDL1 LB1 Combined comments.xlsx: • Added reference documents to Document Control table. • Added ZCL reference to Glossary. • Fixed Binding description in Glossary. • Added 1.9 and 1.10 sections from referenced documents. • Removed Zigbee PRO references (Simple Descriptor). • Added Identify cluster as mandatory for all server devices. • Added Recommended Z3 optional to include Touchlink and OTA Upgrade in all Cluster Requirements table.
19-02016-06	Apr-2021	Valentina Rosa	• Included requirements tables for each device type. • Included the Air Purifier device type. • Reviewed all the device types against source documents.
19-02016-07	Oct-2021	Valentina Rosa	• Resolved ballot comments. • Moved uncertifiable device types to annexes.
19-02016-08	Jul-2022	Valentina Rosa	• Resolved 07 ballot comments and CCBs. • Moved the device type template from section 3 to Annex A. • Added the Device Requirements section for a device as appropriate. • Deleted or updated the Cluster Restrictions section for a device as appropriate. • Removed section 45.2 Device Requirements. • Replaced section 1.10 and with a reference to 13-0589 that was updated with the changes made previously in this document.
23-02016-01	Sep-2023	Cam Williams	• Final comments resolved for Ballot 30-day NCR and Confirmation Ballot for 2023 Revision 1
23-02016-002	Nov-10, 2025	Phil Jamieson	• Boilerplate update following the approval by the CSA Board of Directors.

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1 Introduction

This document is a set of device specifications. Each device specification has been developed to interoperate with corresponding devices in a market.

1.1 Purpose and Scope

This specification supports interoperability between devices allowing corresponding devices to go to market with interoperable capabilities and functions.

1.2 Overview

This document is a library or dictionary of device specifications. For a detailed definition of Cluster, Device, Revision, Endpoint, Class, and other terms used in this specification, see the Application Architecture [Z5].

This specification is a Dotdot document and defines requirements for modeling devices in Dotdot. Dotdot is the group of specifications which define the common device model developed by the CSA. For complete encoding and specific protocol requirements over a concrete Application Layer, see the respective Base Device Behavior specification and other documents related to the Application Layer being implemented.

A device specification defines the cluster requirements for an addressable device endpoint instance. Each device specification defines mandatory, and sometimes optional, cluster requirements.

For details on cluster requirements, see the Cluster Library Specification [Z0].

The device types in the initial release are based upon the device types from the ZHA 1.2 and ZLO specifications. They are materially the same, though the documentation has expanded as CSA has combined the requirements of those documents with the requirements of the ZCL to indicate what is mandatory.

1.3 Errata

This document with errata against this specification is specified in Document Control.

1.4 Conformance

Successful conformance to a device specification does not guarantee interoperability but is an indicator that interoperability may be achieved.

Each device specification is uniquely identified by a Device ID. Each device specification is also named, but the name is only a convenient textual means to locate the specification.

Device conformance is determined by successful testing of the function of the clusters and cluster features that are specified for the device.

1.5 Acronyms and Abbreviations

Table 1. Acronyms and Abbreviations

Acronym or Abbreviation	Definition
A	Attribute (in the context of a PICS table)
ACE	Ancillary Control Equipment
APLNC	Appliance Control (in the context of a PICS table)
APLNCID	Appliance ID (in the context of a PICS table)
APPLEV	Appliance Events & Alerts (in the context of a PICS table)
APPLST	Appliance Statistics (in the context of a PICS table)
B	Basic (in the context of a PICS table)
B	Broadcast (used in the context of permitted transactions; see section 1.9.2 Permitted Transmissions)

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Acronym or Abbreviation	Definition
BC	Ballast Configuration (in the context of a PICS table)
C	Client (in the context of a PICS table)
CC	Color Control (in the context of a PICS table)
CIE	Control and Indication Equipment
CSA	Connectivity Standards Alliance
DTC	Device Temperature Configuration (in the context of a PICS table)
DTL	Device Type Library
DRLC	Device Response and Load Control
DRLK	Door Lock (in the context of a PICS table)
DTC	Device Temperature Configuration (in the context of a PICS table)
FAN	Fan Control (in the context of a PICS table)
FLW	Flow Measurement (in the context of a PICS table)
FQDN	Fully Qualified Domain Name
G	Groupcast (used in the context of permitted transactions; see section 1.9.2 Permitted Transmissions)
G	Groups (in the context of a PICS table)
GP	Green Power (in the context of a PICS table)
I	Identify (in the context of a PICS table)
IAS	Intruder Alarm System
IASACE	Intruder Alarm System Ancillary Control Equipment (in the context of a PICS table)
IASCIE	Intruder Alarm System Control and Indication Equipment (in the context of a PICS table)
IASWD	Intruder Alarm System Warning Device (in the context of a PICS table)
IASZ	Intruder Alarm System Zone (in the context of a PICS table)
ID	Identifier
IEEE	Institute of Electrical and Electronic Engineers
ILLVL	Illuminance Level Sensing (in the context of a PICS table)
IM	Illuminance Measurement (in the context of a PICS table)
LAN	Local Area Network
LC	Level Control (in the context of a PICS table)
LVL	Level (in the context of a PICS table)
MTRID	Meter Identification (in the context of a PICS table)
OO	On/Off (in the context of a PICS table)
OS	Occupancy Sensing (in the context of a PICS table)
OTA	Over the Air
PC	Power Configuration (in the context of a PICS table)
PCC	Pump Configuration and Control (in the context of a PICS table)

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Acronym or Abbreviation	Definition
PICS	Protocol Implementation Conformance Statement
PRS	Pressure Measurement (in the context of a PICS table)
PWR	Power Profile (in the context of a PICS table)
Rev	Revision
Rsp	Response (in the context of a PICS table)
S	Server or Scenes (in the context of a PICS table)
SEMT	Smart Energy Metering (in the context of a PICS table)
T	Time (in the context of a PICS table)
T-3	Temporal 3 Audible Pattern (ISO 8201 and ANSI/ASA S3.41 Temporal Pattern)
TMP	Temperature Measurement (in the context of a PICS table)
TOU	Time-of-use
TSTAT	Thermostat (in the context of a PICS table)
Tx	Transmit (in the context of a PICS table)
U	Unicast (used in the context of permitted transactions; see section 1.9.2 Permitted Transmissions)
UID	Unique ID
WAN	Wide Area Network
WD	Warning Device
WNCV	Window Covering (in the context of a PICS table)
Z3	Zigbee 3.0
ZCL	Zigbee Cluster Library
ZDO	Zigbee Device Object
ZHA	Zigbee Home Automation
ZLO	Zigbee Lighting and Occupancy

1.6 Glossary of Terms

The same terms are in effect for this specification as in the Cluster Library Specification [Z0]. Many of these terms are described in more detail in the Application Architecture specification [Z5].

Application Cluster: An application cluster generates persistent functional application transactions between client and server.

Attribute: A data entity that represents a physical quantity or state. This data is communicated to other devices using commands.

Binding: A persistent mapping of a local cluster instance to one or more corresponding remote cluster instances. A binding can be broadcast, groupcast, or unicast. A unicast binding includes a network-specific unique identifier (IEEE Address, Network Address, Unique ID (UID), IPv6 Address, or Fully Qualified Domain Name (FQDN)) and endpoint.

Cluster: A cluster is a specification defining one or more attributes, commands, behaviors, and dependencies that supports an independent utility or application function. The term may also be used for an implementation or instance of such a specification on an endpoint.

Cluster identifier: The cluster identifier is an unsigned number that maps to (identifies) a single cluster specification. More than one cluster identifier may map to a cluster specification, each defining a different scope and purpose. A cluster instance is either a server (ZDO input) or client (ZDO output).

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Client: Typically, this interface sends commands that manipulate the attributes on the corresponding server cluster. A client cluster communicates with a corresponding remote server cluster with the same cluster identifier. For the Zigbee 3.0 transport, a client cluster is synonymous with a ZDO application output cluster defined in the simple descriptor of an endpoint.

Corresponding cluster: The opposite side of a cluster (client to a server, or server to a client).

Device: A specification that defines a device ID and a set of mandatory and optional clusters to be implemented on a single endpoint. This term may also be used for an implementation or instance of the device specification on an endpoint.

End Device: A node that does not support a routing role in a mesh network.

Endpoint: Defined as a device instance on a node.

Initiator: See Transaction initiator.

Node: Defined as a single certifiable implementation of a Dotdot application with a single network address. A node may be composed of multiple endpoints.

Product: A product is a node that is intended to be marketed.

Server: Typically, this interface supports all or most of the attributes of the cluster. A server cluster communicates with a corresponding remote client cluster with the same cluster identifier. For the Zigbee 3.0 (Z3) transport, a server is synonymous with a Zigbee Device Object (ZDO) application input cluster defined in the simple descriptor of an endpoint.

Service discovery: The ability of a device to locate services of interest.

Sleepy End Device: A Zigbee End Device that spends most of the time in a state where it cannot communicate with the network.

Target: See Transaction target.

Transaction initiator: The source or sender of the first unsolicited message in a transaction.

Transaction target: The receiver or destination of the first unsolicited message in a transaction

Utility Cluster: A utility cluster is not part of the application function of the product. It may be used for commissioning, configuration, discovery, addressing, diagnostics, etc.

Type 1 Cluster: A Type 1 cluster’s primary function is to initiate transactions from the client to the server.

Type 2 Cluster: A Type 2 cluster’s primary function is to initiate transactions from the server to the client.

1.7 Conformance Levels

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119.

Note: This specification also conforms to the updates to RFC 2119 which are presented in RFC 8174.

1.8 Normative References

The following standards and specifications contain provisions, which through reference in this document, constitute provisions of this specification. All the standards and specifications listed are normative references. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this specification are encouraged to investigate the possibility of applying the most recent editions of the standards and specifications in Table 2.

Table 2. Normative References

Reference	Document Number	Title
[Z0]	07-5123	Cluster Library Specification
[Z5]	13-0589	Application Architecture

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1.9 Document Conventions

The same conventions are in effect for this document as in the Cluster Library Specification [Z0]. The conventions in the following subsections extend those from [Z0].

1.9.1 Attribute Lists

Each device description includes a list of required attributes that MUST be supported. The “Scene table” and “Reportable” columns give extra information as follows:

- The “Scene table” column indicates whether the attribute MUST be included in the scene table if the *scenes* cluster will be supported on the device. A “✓” symbol indicates that the attribute SHALL be included in the scene table. An “✗” symbol indicates that the attribute SHALL NOT be included in the scene table.
- The “Reportable” column indicates whether the attribute MUST be reportable. A “✓” symbol indicates that the attribute SHALL be reportable, and a “-” symbol indicates that it is not mandatory for the attribute to be reportable, that is, an implementation can optionally make the attribute reportable.

Note: Some transports may impose additional requirements (for example, default reporting in Zigbee) on attributes which are required to support reporting.

1.9.2 Permitted Transmissions

Where a device is indicated as generating a command, the permitted transmission modes are indicated as a three-character coding representing from left to right whether unicast (“U”), groupcast (“G”) or broadcast (“B”) transmissions are permitted. Where a transmission mode is not permitted, it is replaced with a hyphen “- “. For example, “UGB” indicates that unicast, groupcast, and broadcast transmissions are permitted whereas “U--” indicates that only unicast transmissions are permitted.

1.10 Device Class

Each device specification SHALL follow section 5.2 of the latest revision of the Application Architecture specification13-0589

1.11 Groups and Scene Cluster Clarification

1.11.1 Groups Clarification

On transports where sleepy class devices do not receive broadcast or groupcast messages, those devices will not be able to benefit from the features of the Groups and Scenes server Cluster. For example, a Zigbee door lock would typically be a sleepy end device which cannot receive the datagrams required to commission a scene or change for example, to a night scene. Therefore, a sleepy class device on a transport without reliable delivery of broadcast and groupcast messages MAY elect to not implement the otherwise Mandatory Groups and Scenes Server Clusters (even when listed as Mandatory).

1.11.2 Scenes Clarification

Certain devices have several extension field sets. For example, the Dimmable Light device has an On/Off cluster and a Level Control cluster. It is required that a scene commissioner SHALL transmit either all extension field sets in the implemented revision of this specification, or no extension field sets. For example, an Add Scene command sent to a Dimmable Light SHALL contain an *On/Off* and *CurrentLevel*. A View Scene response would also contain all extension field sets.

1.12 Cluster Usage Restrictions

An implementer MAY add any cluster defined in the Cluster Library Specification as an optional cluster for any device in this specification set.

Any additional clusters added SHALL be declared on the device PICS and SHALL be tested in accordance with the base network and security configurations of the implemented transport and the messaging and behavior from that specific cluster test plan.

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1.13 Transmission Handling

All response transmissions SHALL be handled as specified in [Z0], section 2.3.2.

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2 Device List

Table 3 lists the devices defined in this specification.

Table 3. Device List

Device ID	Description
0x0000	On/Off Switch
0x0001	Level Control Switch
0x0002	On/Off Output
0x0003	Level Controllable Output
0x0004	Scene Selector
0x0005	Configuration Tool
0x0006	Remote Control
0x0007	Combined Interface
0x0008	Range Extender
0x0009	Mains Power Outlet
0x000a	Door Lock
0x000b	Door Lock Controller
0x000c	Simple Sensor (NOT CERTIFIABLE; see Annex C)
0x000d	Consumption Awareness
0x0050	Home Gateway
0x0051	Smart Plug
0x0052	White Goods
0x0053	Meter Interface
0x0100	On/Off Light
0x0101	Dimmable Light
0x0102	Color Dimmable Light
0x0103	On/Off Light Switch
0x0104	Dimmer Switch
0x0105	Color Dimmer Switch
0x0106	Light Sensor
0x0107	Occupancy Sensor
0x0108	On/Off Ballast
0x0109	Dimmable Ballast
0x010a	On/Off Plug-in Unit
0x010b	Dimmable Plug-In Unit
0x010c	Color Temperature Light
0x010d	Extended Color Light

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Device ID	Description
0x010e	Light Level Sensor (NOT CERTIFIABLE; see Annex D)
0x0200	Shade (DEPRECATED)
0x0201	Shade Controller (DEPRECATED)
0x0202	Window Covering
0x0203	Window Covering Controller
0x0300	Heating/Cooling Unit
0x0301	Thermostat
0x0302	Temperature Sensor
0x0303	Pump (NOT CERTIFIABLE; see Annex E)
0x0304	Pump Controller (NOT CERTIFIABLE; see Annex F)
0x0305	Pressure Sensor (NOT CERTIFIABLE; see Annex G)
0x0306	Flow Sensor (NOT CERTIFIABLE; see Annex H)
0x0308	Air Purifier
0x0400	IAS Control and Indication Equipment
0x0401	IAS Ancillary Control Equipment
0x0402	IAS Zone
0x0403	IAS Warning Device
0x0800	Color Controller
0x0810	Color Scene Controller
0x0820	Non-Color Controller
0x0830	Non-Color Scene Controller
0x0840	Control Bridge
0x0850	On/Off Sensor

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3 Defining Device Types

Annex A provides a template that MUST be used to develop a device definition for inclusion in this specification.

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4 On/Off Switch

An On/Off Switch device is a device that, when bound to another device, is capable of being used to switch the other device on or off.

4.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

4.2 Classification

Device Name	ID	Class
On/Off Switch	0x0000	Simple

4.3 Cluster Requirements

An On/Off Switch device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 4.

Table 4. On/Off Switch Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off
Recommended optional	0x0007: On Off Switch Configuration	0x0004: Groups 0x0005: Scenes 0x0019: OTA Upgrade

4.3.1 Required Attributes

An On/Off Switch device SHALL support the attributes listed in Table 5.

Table 5. On/Off Switch Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

4.3.2 Required Commands Received

An On/Off Switch device SHALL receive and process the commands listed in Table 6.

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696 **Table 6. On/Off Switch Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

697 ### 4.3.3 Required Commands Generated

698 An On/Off Switch device SHALL generate the commands listed in Table 7. The device MAY also generate any
699 other client-side commands from the Identify and On/Off clusters.

700 **Table 7. On/Off Switch Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

701 ## 4.4 PICS

702 An On/Off Switch device SHALL support the PICS items listed in Table 8.

703 Note: An On/Off Switch device MAY support other optional PICS items.

704 **Table 8. On/Off Switch PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd

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5 Level Control Switch

A Level Control Switch is a device that, when bound to another device, is capable of being used to switch the other device on or off and adjust its level.

5.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

5.2 Classification

Device Name	ID	Class
Level Control Switch	0x0001	Simple

5.3 Cluster Requirements

A Level Control Switch device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 9.

Table 9. Level Control Switch Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off 0x0008: Level
Recommended optional	0x0007: On/Off Switch Configuration	0x0004: Groups 0x0005: Scenes 0x0019: OTA Upgrade

5.3.1 Required Attributes

A Level Control Switch device SHALL support the attributes listed in Table 10.

Table 10. Level Control Switch Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

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5.3.2 Required Commands Received

A Level Control Switch device SHALL receive and process the commands listed in Table 11.

Table 11. Level Control Switch Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

5.3.3 Required Commands Generated

A Level Control Switch device SHALL generate the commands listed in Table 12. The device MAY also generate any other client-side commands from the Identify, On/Off and Level clusters.

Table 12. Level Control Switch Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

5.4 PICS

A Level Control Switch device SHALL support the PICS items listed in Table 13.

Note: A Level Control Switch device MAY support other optional PICS items. The device MAY also generate any other client-side commands from the Identify, On/Off, and Level clusters.

Table 13. Level Control Switch PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd

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6 On/Off Output

An On/Off Output device is capable of being switched on and off.

6.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

6.2 Classification

Device Name	ID	Class
On/Off Output	0x0002	Simple

6.3 Device Requirements

This device SHOULD only be used when a more specific device specification (for example, an on/off light) is not available.

6.4 Cluster Requirements

An On/Off Output device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 14.

Table 14. On/Off Output Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off	
Recommended optional		0x0019: OTA Upgrade

6.4.1 Required Attributes

An On/Off Output device SHALL support the attributes listed in Table 15.

Table 15. On/Off Output Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Groups (S)	0x0000	*NameSupport*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

6.4.2 Required Commands Received

An On/Off Output device SHALL receive and process the commands listed in Table 16.

Table 16. On/Off Output Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Groups (S)	0x00	Add Group
Groups (S)	0x01	View Group
Groups (S)	0x02	Get Group Membership
Groups (S)	0x03	Remove Group
Groups (S)	0x04	Remove All Groups
Groups (S)	0x05	Add Group If Identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle

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6.4.3 Required Commands Generated

An On/Off Output device SHALL generate the commands listed in Table 17.

Table 17. On/Off Output Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add Group Response	Add Group	U--
Groups (S)	0x01	View Group Response	View Group	U--
Groups (S)	0x02	Get Group Membership Response	Get Group Membership	U--
Groups (S)	0x03	Remove Group Response	Remove Group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--

6.5 PICS

An On/Off Output device SHALL support the PICS items listed in Table 18.

Note: An On/Off Output device MAY support other optional PICS items.

Table 18. On/Off Output PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, .S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx

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Cluster	PICS Item
On/Off	OO.S OO.S.A0000, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp

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7 Level Controllable Output

A Level Controllable Output device is capable of being switched on and off, and its output level adjusted.

7.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

7.2 Classification

Device Name	ID	Class
Level Controllable Output	0x0003	Simple

7.3 Device Requirements

This device SHOULD only be used when a more specific device specification (for example, a Dimmable Light device) is not available.

7.4 Cluster Requirements

A Level Controllable Output device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 19.

Table 19. Level Controllable Output Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level	
Recommended optional		0x0019: OTA Upgrade

7.4.1 Required Attributes

A Level Controllable Output device SHALL support the attributes listed in Table 20.

Table 20. Level Controllable Output Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
Groups (S)	0x0000	*NameSupport*	×	-

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Cluster	ID	Name	Scene Table	Reportable
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
Level (S)	0x0000	*CurrentLevel*	✓	✓
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

7.4.2 Required Commands Received

A Level Controllable Output device SHALL receive and process the commands listed in Table 21.

Table 21. Level Controllable Output Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Groups (S)	0x00	Add Group
Groups (S)	0x01	View Group
Groups (S)	0x02	Get Group Membership
Groups (S)	0x03	Remove Group
Groups (S)	0x04	Remove All Groups
Groups (S)	0x05	Add Group If Identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
Level (S)	0x00	Move to Level
Level (S)	0x01	Move
Level (S)	0x02	Step
Level (S)	0x03	Stop
Level (S)	0x04	Move to Level (with On/Off)
Level (S)	0x05	Move (with On/Off)

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Cluster	ID	Name
Level (S)	0x06	Step (with On/Off)
Level (S)	0x07	Stop (with On/Off)

7.4.3 Required Commands Generated

A Level Controllable Output device SHALL generate the commands listed in Table 22.

Table 22. Level Controllable Output Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add Group Response	Add Group	U--
Groups (S)	0x01	View Group Response	View Group	U--
Groups (S)	0x02	Get Group Membership Response	Get Group Membership	U--
Groups (S)	0x03	Remove Group Response	Remove Group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--

7.5 PICS

A Level Controllable Output device SHALL support the PICS items listed in Table 23.

Note: A Level Controllable Output device MAY support other optional PICS items.

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776 **Table 23. Level Controllable Output PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx
On/Off	OO.S OO.S.A0000, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp
Level	LVL.S LVL.S.A0000, LVL.S.Afffd LVL.S.C00.Rsp, LVL.S.C01.Rsp, LVL.S.C02.Rsp, LVL.S.C03.Rsp, LVL.S.C04.Rsp, LVL.S.C05.Rsp, LVL.S.C06.Rsp, LVL.S.C07.Rsp

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8 Scene Selector

A Scene Selector is a device capable of setting up and selecting scenes on other devices (including groups of devices).

8.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

8.2 Classification

Device Name	ID	Class
Scene Selector	0x0004	Simple

8.3 Device Requirements

It is OPTIONAL for a Scene Selector device to support finding and binding.

8.4 Cluster Requirements

A Scene Selector device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 24.

Table 24. Scene Selector Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0004: Groups 0x0005: Scenes
Recommended optional		0x0003: Identify 0x0019: OTA Upgrade

8.4.1 Required Attributes

A Scene Selector device SHALL support the attributes listed in Table 25.

Table 25. Scene Selector Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

8.4.2 Required Commands Received

A Scene Selector device SHALL receive and process the commands listed in Table 26.

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793 **Table 26. Scene Selector Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

794 ### 8.4.3 Required Commands Generated

795 A Scene Selector device SHALL generate the commands listed in Table 27.

796 **Table 27. Scene Selector Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

797 ## 8.5 PICS

798 A Scene Selector device SHALL support the PICS items listed in Table 28.

799 Note: A Scene Selector device MAY support other optional PICS items.

800 **Table 28. Scene Selector PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Groups	G.C G.C.Afffd
Scenes	S.C S.C.Afffd

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9 Configuration Tool

A Configuration Tool is a device capable of configuring other devices. This device is intended for configuring newly installed devices and is capable of being used for performance optimization thereafter.

The intention of this specification is to define a generic configuration device type. In future revisions of the profile, new configuration devices are capable of being specified by explicitly specifying the supported clusters.

9.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

9.2 Classification

Device Name	ID	Class
Configuration Tool	0x0005	Dynamic

9.3 Cluster Requirements

A Configuration Tool device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 29.

Table 29. Configuration Tool Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	Minimum one optional application role cluster
Recommended optional		0x0000: Basic 0x0003: Identify 0x0004: Groups Any Application role cluster client 0x0019: OTA Upgrade

9.3.1 Required Attributes

A Configuration Tool device SHALL support the attributes listed in Table 30.

Table 30. Configuration Tool Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

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9.3.2 Required Commands Received

A Configuration Tool device SHALL receive and process the commands listed in Table 31.

Table 31. Configuration Tool Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

9.3.3 Required Commands Generated

A Configuration Tool device SHALL generate the commands listed in Table 32.

Table 32. Configuration Tool Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

9.4 PICS

A Configuration Tool device SHALL support the PICS items listed in Table 33.

Note: A Configuration Tool device MAY support other optional PICS items.

Table 33. Configuration Tool PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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10 Remote Control

A Remote Control device is capable of controlling and monitoring other devices. Typically, a Remote Control device is a handheld, battery-powered device, that are capable of controlling devices (for example, turning a light on/off), monitoring devices (for example, reading the status of a temperature sensor), or performing a user configuration (for example, changing the setpoint of a thermostat or a light sensor).

10.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

10.2 Classification

Device Name	ID	Class
Remote Control	0x0006	Simple

10.3 Device Requirements

It is OPTIONAL for a Remote Control device to support finding and binding.

10.4 Cluster Requirements

A Remote Control device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 34.

Table 34. Remote Control Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	Minimum one optional application role cluster
Recommended optional		0x0000: Basic 0x0003: Identify 0x0004: Groups Any Application role cluster client 0x0019: OTA Upgrade

10.4.1 Required Attributes

A Remote Control device SHALL support the attributes listed in Table 35.

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840 **Table 35. Remote Control Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

841 ### 10.4.2 Required Commands Received

842 A Remote Control device SHALL receive and process the commands listed in Table 36.

843 **Table 36. Remote Control Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

844 ### 10.4.3 Required Commands Generated

845 A Remote Control device SHALL generate the commands listed in Table 37.

846 **Table 37. Remote Control Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

847 ## 10.5 PICS

848 A Remote Control device SHALL support the PICS items listed in Table 38.

849 Note: A Remote Control device MAY support other optional PICS items.

850 **Table 38. Remote Control PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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11 Combined Interface

A Combined Interface is a device capable of controlling and monitoring other devices. It is typically a mains-powered device like a personal computer.

11.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

11.2 Classification

Device Name	ID	Class
Combined Interface	0x0007	Dynamic

11.3 Device Requirements

To ensure interoperability, a Combined Interface device SHALL allow the presence of other control devices in the network. This device SHOULD take measures to avoid seizing control from other devices in the network.

11.4 Cluster Requirements

A Combined Interface device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 39.

Table 39. Combined Interface Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	Minimum one optional Cluster
Recommended optional	0x0019 OTA Upgrade	0x0000: Basic 0x0003: Identify 0x0004: Groups Any Application role cluster client 0x0019: OTA Upgrade

11.4.1 Required Attributes

A Combined Interface device SHALL support the attributes listed in Table 40.

Table 40. Combined Interface Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-

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All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

866 ### 11.4.2 Required Commands Received

867 A Combined Interface device SHALL receive and process the commands listed in Table 41.

868 **Table 41. Combined Interface Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

869 ### 11.4.3 Required Commands Generated

870 A Combined Interface device SHALL generate the commands listed in Table 42.

871 **Table 42. Combined Interface Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

872 ## 11.5 PICS

873 A Combined Interface device SHALL support the PICS items listed in Table 43.

874 Note: A Combined Interface device MAY support other optional PICS items.

875 **Table 43. Combined Interface PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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12 Range Extender

A Range Extender is a simple device that acts as a router for other devices.

12.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Device Type Library release

12.2 Classification

Device Name	ID	Class
Range Extender	0x0008	Node

12.3 Device Requirements

A Range Extender device SHALL be capable of extending the reach of the network (that is, it must support forwarding or routing of data). A product that implements a Range Extender device SHALL NOT implement any other devices defined by the CSA. This device SHALL only be used if the product is not intended to have any other application, or if a private application is implemented that has not been addressed by the CSA.

12.4 Cluster Requirements

A Range Extender device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 44.

Table 44. Range Extender Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	
Recommended optional		0x0019: OTA Upgrade

12.4.1 Cluster Restrictions

This device SHALL NOT implement any application clusters defined by the cluster library.

12.4.2 Required Attributes

A Range Extender device SHALL support the attributes listed in Table 45.

Table 45. Range Extender Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-

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All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

12.4.3 Required Commands Received

A Range Extender device SHALL receive and process the commands listed in Table 46.

Table 46. Range Extender Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

12.4.4 Required Commands Generated

A Range Extender device SHALL generate the commands listed in Table 47.

Table 47. Range Extender Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

12.5 PICS

A Range Extender device SHALL support the PICS items listed in Table 48.

Note: A Range Extender device MAY support other optional PICS items.

Table 48. Range Extender PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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13 Mains Power Outlet

A Mains Power Outlet is a device capable of being switched on and off.

13.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

13.2 Classification

Device Name	ID	Class
Mains Power Outlet	0x0009	Simple

13.3 Device Requirements

This device SHALL control a mains power outlet.

13.4 Cluster Requirements

A Mains Power Outlet device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 49.

Table 49. Mains Power Outlet Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off	
Recommended optional		0x0019: OTAUpgrade

13.4.1 Required Attributes

A Mains Power Outlet device SHALL support the attributes listed in Table 50.

Table 50. Mains Power Outlet Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Groups (S)	0x0000	*NameSupport*	✖	-
Scenes (S)	0x0000	*SceneCount*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

13.4.2 Required Commands Received

A Mains Power Outlet device SHALL receive and process the commands listed in Table 51.

Table 51. Mains Power Outlet Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Groups (S)	0x00	Add Group
Groups (S)	0x01	View Group
Groups (S)	0x02	Get Group Membership
Groups (S)	0x03	Remove Group
Groups (S)	0x04	Remove All Groups
Groups (S)	0x05	Add Group If Identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle

13.4.3 Required Commands Generated

A Mains Power Outlet device SHALL generate the commands listed in Table 52.

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922 **Table 52. Mains Power Outlet Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add Group Response	Add Group	U--
Groups (S)	0x01	View Group Response	View Group	U--
Groups (S)	0x02	Get Group Membership Response	Get Group Membership	U--
Groups (S)	0x03	Remove Group Response	Remove Group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--

923 ## 13.5 PICS

924 A Mains Power Outlet device SHALL support the PICS items listed in Table 53.

925 Note: A Mains Power Outlet device MAY support other optional PICS items.

926 **Table 53. Mains Power Outlet PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp, G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx

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Cluster	PICS Item
On/Off	OO.S OO.S.A0000, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp

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14 Door Lock

A Door Lock is a device used to secure a door. It is possible to actuate a door lock either by means of a manual or a remote method.

14.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

14.2 Classification

Device Name	ID	Class
Door Lock	0x000a	Simple

14.3 Device Requirements

It is OPTIONAL for a Door Lock device to support finding and binding.

14.4 Cluster Requirements

A Door Lock device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 54.

Table 54. Door Lock Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0101: Door Lock	
Recommended optional	0x0001: Power Configuration 0x0009: Alarms 0x0020: Poll Control	0x000a: Time 0x0019: OTA Upgrade

14.4.1 Cluster Restrictions

The door lock SHOULD NOT support the Groups or Scenes server clusters because they would bypass the security functionality of the device.

14.4.2 Required Attributes

A Door Lock device SHALL support the attributes listed in Table 55.

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943 **Table 55. Door Lock Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
Door Lock (S)	0x0000	*LockState*	✓*	✓
Door Lock (S)	0x0001	*LockType*	✗	-
Door Lock (S)	0x0002	*ActuatorEnabled*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

944 * This is not required for sleepy class door locks that do not implement scenes.

945 ### 14.4.3 Required Commands Received

946 A Door Lock device SHALL receive and process the commands listed in Table 56.

947 **Table 56. Door Lock Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Door Lock (S)	0x00	Lock Door
Door Lock (S)	0x01	Unlock Door

948 ### 14.4.4 Required Commands Generated

949 A Door Lock device SHALL generate the commands listed in Table 57.

950 **Table 57. Door Lock Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Door Lock (S)	0x00	Lock Door Response	Lock Door	U--
Door Lock (S)	0x01	Unlock Door Response	Unlock Door	U--

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14.5 PICS

A Door Lock device SHALL support the PICS items listed in Table 58.

Note: A Door Lock device MAY support other optional PICS items.

Table 58. Door Lock PICS Items

Cluster	PICS item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Door Lock	DRLK.S DRLK.S.A0000, DRLK.S.A0001, DRLK.S.A0002, DRLK.S.Afffd DRLK.S.C00.Rsp, DRLK.S.C01.Rsp DRLK.S.C00.Tx, DRLK.S.C01.Tx

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15 Door Lock Controller

A Door Lock Controller is a device capable of controlling a door lock.

15.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

15.2 Classification

Device Name	ID	Class
Door Lock Controller	0x000b	Simple

15.3 Device Requirements

It is OPTIONAL for a Door Lock Controller device to support finding and binding.

15.4 Cluster Requirements

A Door Lock Controller device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 59.

Table 59. Door Lock Controller Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0101: Door Lock
Recommended optional		0x0019: OTA Upgrade

15.4.1 Cluster Restrictions

The door lock SHOULD NOT support the Groups or Scenes client clusters because they would bypass the security functionality of the remote devices.

15.4.2 Required Attributes

A Door Lock Controller device SHALL support the attributes listed in Table 60.

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970 **Table 60. Door Lock Controller Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

971 ### 15.4.3 Required Commands Received

972 A Door Lock Controller device SHALL receive and process the commands listed in Table 61.

973 **Table 61. Door Lock Controller Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

974 ### 15.4.4 Required Commands Generated

975 A Door Lock Controller device SHALL generate the commands listed in Table 62.

976 **Table 62. Door Lock Controller Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

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15.5 PICS

A Door Lock Controller device SHALL support the PICS items listed in Table 63.

Note: A Door Lock Controller device MAY support other optional PICS items.

Table 63. Door Lock Controller PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx
Door Lock	DRLK.C DRLK.C.Afffd

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16 Consumption Awareness

The Consumption Awareness is a device that is aware of its energy consumption and is capable of reporting it.

16.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

16.2 Classification

Device Name	ID	Class
Consumption Awareness	0x000d	Simple

16.3 Cluster Requirements

A Consumption Awareness device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 64.

Table 64. Consumption Awareness Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0702: Metering	0x0003: Identify
Recommended optional		0x0019: OTA Upgrade

16.3.1 Cluster Restrictions

Because metering is a Type 1 cluster, finding and binding will create a binding on the client rather than the server. If a client desires any attributes to be reported, it MUST manually configure a binding and adjust the report configuration to receive data as needed.

16.3.2 Required Attributes

A Consumption Awareness device SHALL support the attributes listed in Table 65.

Table 65. Consumption Awareness Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Metering (S)	0x0000	*CurrentSummationDelivered*	✖	-
Metering (S)	0x0200	*Status*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Metering (S)	0x0300	*UnitofMeasure*	✖	-
Metering (S)	0x0303	*SummationFormatting*	✖	-
Metering (S)	0x0306	*MeteringDeviceType*	✖	-
Metering (S)	0x0400	*InstantaneousDemand*	✖	✓
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

16.3.3 Required Commands Received

A Consumption Awareness device SHALL receive and process the commands listed in Table 66.

Table 66. Consumption Awareness Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

16.3.4 Required Commands Generated

A Consumption Awareness device SHALL generate the commands listed in Table 67.

Table 67. Consumption Awareness Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x00	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

16.4 PICS

A Consumption Awareness device SHALL support the PICS items listed in Table 68.

Note: A Consumption Awareness device MAY support other optional PICS items.

Table 68. Consumption Awareness PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C00.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp

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Cluster	PICS Item
	I.S.C00.Tx
Metering	SEMT.S SEMT.S.A0000, SEMT.S.A0200, SEMT.S.A0300, SEMT.S.A0303, SEMT.S.A0306, SMET.S.A0400

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17 Home Gateway

The Home Gateway/Energy Management System is a device that performs home control and monitoring activities. It is executed on a home gateway that is capable of collecting energy data from the Meter Interface and from the user's appliances, and publishing the data in the home network through broadband Local Area Network (LAN) technologies (for example, WiFi and/or Ethernet) and the Wide Area Network (WAN).

17.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

17.2 Classification

Device Name	ID	Class
Home Gateway	0x0050	Dynamic

17.3 Cluster Requirements

A Home Gateway device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 69.

Table 69. Home Gateway Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x000a: Time	0x001a: Power Profile 0x0702: Metering 0x0b01: Meter Identification 0x0b03: Appliance Statistics
Recommended optional	0x0702: Metering 0x0019: OTA Upgrade	0x0000: Basic, 0x0003: Identify 0x001b: EN50523 Appliance Control 0x0700: Price 0x0b00: EN50523 Appliance Identification 0x0b02: EN50523 Appliance Events & Alerts

17.3.1 Required Attributes

A Home Gateway device SHALL support the attributes listed in Table 70.

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1019 **Table 70. Home Gateway Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Time (S)	0x0000	*Time*	✖	-
Time (S)	0x0001	*TimeStatus*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1020 ### 17.3.2 Required Commands Received

1021 A Home Gateway device SHALL receive and process the commands listed in Table 71.

1022 **Table 71. Home Gateway Required Commands Received**

Cluster	ID	Name
Appliance Statistics (C)	0x00	Log Notification
Appliance Statistics (C)	0x01	Log Response
Appliance Statistics (C)	0x02	Log Queue Response
Appliance Statistics (C)	0x03	Statistics Available
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

1023 ### 17.3.3 Required Commands Generated

1024 A Home Gateway device SHALL generate the commands listed in Table 72.

1025 **Table 72. Home Gateway Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Appliance Statistics (C)	0x00	Log Request	-	U--
Appliance Statistics (C)	0x01	Log Queue Request	-	U--
Identify (S)	0x00	Identify Query Response	Identify Query	U--

1026 ## 17.4 PICS

1027 A Home Gateway device SHALL support the PICS items listed in Table 73.

1028 Note: A Home Gateway device MAY support other optional PICS items.

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1029 **Table 73. Home Gateway PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Time	T.S T.S.A0000, T.S.A0001, T.S.Afffd
Power Profile	PWR.C PWR.C.Afffd
Metering	SEMT.C SEMT.C.Afffd
Meter Identification	MTRID.C MTRID.C.Afffd
Appliance Statistics	APPLST.C APPLST.C00.Rsp, APPLST.C01.Rsp, APPLST.C02.Rsp, APPLST.C03.Rsp APPLST.C00.Tx, APPLST.C01.Tx APPLST.C.Afffd

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18 Smart Plug

A Smart Plug is a device that is capable of home monitoring and control activities. A Smart Plug device may provide information about instantaneous power using the Metering cluster for the power and energy information and may optionally support the Electrical Measurement Cluster. A Smart Plug device may also be controlled by using the On/Off cluster.

18.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

18.2 Classification

Device Name	ID	Class
Smart Plug	0x0051	Simple

18.3 Cluster Requirements

A Smart Plug device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 74.

Table 74. Smart Plug Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0005: Scenes 0x0004: Groups 0x0006: On/Off 0x0702: Metering	0x0003: Identify
Recommended optional	0x0b04: Electrical Measurement	0x000a: Time 0x0700: Price 0x0701: Demand Response and Load Control 0x0019: OTA Upgrade

18.3.1 Cluster Restrictions

Because metering is a Type 1 cluster, finding and binding will create a binding on the client rather than the server. If a client desires any attributes to be reported, it MUST manually configure a binding and adjust the report configuration to receive data as needed.

18.3.2 Required Attributes

A Smart Plug device SHALL support the attributes listed in Table 75.

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1047 **Table 75. Smart Plug Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
On/Off (S)	0x0000	*OnOff*	✓	✓
Metering (S)	0x0000	*CurrentSummationDelivered*	×	-
Metering (S)	0x0200	*Status*	×	-
Metering (S)	0x0300	*UnitofMeasure*	×	-
Metering (S)	0x0303	*SummationFormatting*	×	-
Metering (S)	0x0306	*MeteringDeviceType*	×	-
Metering (S)	0x0400	*InstantaneousDemand*	×	✓
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

1048 ### 18.3.3 Required Commands Received

1049 A Smart Plug device SHALL receive and process the commands listed in Table 76.

1050 **Table 76. Smart Plug Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle

1051 ### 18.3.4 Required Commands Generated

1052 A Smart Plug device SHALL generate the commands listed in Table 77.

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1053 **Table 77. Smart Plug Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

1054 ## 18.4 PICS

1055 A Smart Plug device SHALL support the PICS items listed in Table 78.

1056 Note: A Smart Plug device MAY support other optional PICS items.

1057 **Table 78. Smart Plug PICS Items**

Cluster	PICS item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
On/Off	OO.S OO.S.A0000, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp
Metering	SEMT.S SEMT.S.A0000, SEMT.S.A0200, SEMT.S.A0300, SEMT.S.A0303, SEMT.S.A0306, SEMT.S.A0400, SEMT.S.Afffd

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19 White Goods

A White Goods device is capable of actively participating in home control and monitoring activities. In addition, a White Goods device is capable of providing data related to device usage (statistics) and participate in in-home energy management activities.

19.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

19.2 Classification

Device Name	ID	Class
White Goods	0x0052	Simple

19.3 Cluster Requirements

A White Goods device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 79.

Table 79. White Goods Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x001a: Power Profile 0x001b: EN50523 Appliance Control 0x0b00: EN50523 Appliance Identification 0x0b02: EN50523 Appliance Events & Alerts	0x0003: Identify
Recommended optional	0x0b03: EN50523 Appliance Statistics 0x0702: Metering	0x000a: Time 0x0b01: Meter Identification 0x0700: Price 0x0019: OTA Upgrade

19.3.1 Required Attributes

A White Goods device SHALL support the attributes listed in Table 80.

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1070 **Table 80. White Goods Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Power Profile (S)	0x0000	*TotalProfileNum*	✖	-
Power Profile (S)	0x0001	*MultipleScheduling*	✖	-
Power Profile (S)	0x0002	*EnergyFormatting*	✖	-
Power Profile (S)	0x0003	*EnergyRemote*	✖	-
Power Profile (S)	0x0004	*ScheduleMode*	✖	-
EN50523 Appliance Control (S)	0x0000	*StartTime*	✖	-
EN50523 Appliance Control (S)	0x0001	*FinishTime*	✖	-
EN50523 Appliance Identification (S)	0x0000	*BasicIdentification*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1071 ### 19.3.2 Required Commands Received

1072 A White Goods device SHALL receive and process the commands listed in Table 81.

1073 **Table 81. White Goods Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Power Profile (S)	0x00	PowerProfileRequest
Power Profile (S)	0x01	PowerProfileStateRequest
Power Profile (S)	0x02	GetPowerProfilePriceResponse
Power Profile (S)	0x03	GetOverallSchedulePriceResponse
Power Profile (S)	0x04	EnergyPhasesScheduleNotification
Power Profile (S)	0x05	EnergyPhasesScheduleResponse
Power Profile (S)	0x06	PowerProfileScheduleConstraintsRequest
Power Profile (S)	0x07	EnergyPhasesScheduleStateRequest
Power Profile (S)	0x08	GetPowerProfilePriceExtendedResponse

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Cluster	ID	Name
EN50523 Appliance Control (S)	0x01	Signal State
EN50523 Appliance Events & Alerts (S)	0x00	Get Alerts

19.3.3 Required Commands Generated

A White Goods device SHALL generate the commands listed in Table 82.

Table 82. White Goods Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Power Profile (S)	0x00	PowerProfileNotification	-	U--
Power Profile (S)	0x01	PowerProfileResponse	PowerProfileRequest	U--
Power Profile (S)	0x02	PowerProfileStateResponse	PowerProfileStateRequest	U--
Power Profile (S)	0x04	PowerProfilesStateNotification	-	U--
Power Profile (S)	0x06	EnergyPhasesScheduleRequest	-	U--
Power Profile (S)	0x07	EnergyPhasesScheduleStateResponse	EnergyPhasesScheduleStateRequest	U--
Power Profile (S)	0x08	EnergyPhasesScheduleStateNotification	-	U--
Power Profile (S)	0x09	PowerProfileScheduleConstraintsNotification	-	U--
Power Profile (S)	0x0a	PowerProfileScheduleConstraintsResponse	PowerProfileScheduleConstraintsRequest	U--
EN50523 Appliance Control (S)	0x00	Signal State Response	Signal State	U--
EN50523 Appliance Control (S)	0x01	Signal State Notification	-	U--
EN50523 Appliance Events & Alerts (S)	0x00	Get Alerts Response	Get Alerts	U--
EN50523 Appliance Events & Alerts (S)	0x01	Alerts Notification	-	U--

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Cluster	ID	Name	On Receipt Of	Permitted Transmissions
EN50523 Appliance Events & Alerts (S)	0x02	Event Notification	-	U--

19.4 PICS

A White Goods device SHALL support the PICS items listed in Table 83.

Note: A White Goods device MAY support other optional PICS items.

Table 83. White Goods PICS Items

Cluster	PICS item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Power Profile	PWR.S PWR.S.A0000, PWR.S.A0001, PWR.S.A0002, PWR.S.A0003, PWR.S.A0004, PWR.S.Afffd PWR.S.C00.Rsp, PWR.S.C01.Rsp, PWR.S.C02.Rsp, PWR.S.C03.Rsp, PWR.S.C04.Rsp, PWR.S.C05.Rsp, PWR.S.C06.Rsp, PWR.S.C07.Rsp, PWR.S.C08.Rsp PWR.C00.Tx, PWR.C01.Tx, PWR.C02.Tx, PWR.C04.Tx, PWR.C06.Tx, PWR.C07.Tx, PWR.C08.Tx, PWR.C09.Tx, PWR.C0a.Tx
EN50523 Appliance Control	APLNC.S APLNC.S.A0000, APLNC.S.A0001, APLNC.S.Afffd APLNC.S.C01.Rsp APLNC.S.C00.Tx, APLNC.S.C01.Tx
EN50523 Appliance Identification	APLNCID.S APLNCID.S.A0000, APLNCID.S.Afffd
EN50523 Appliance Events & Alerts	APPLEV.S APPLEV.S.Afffd APPLEV.S.C00.Rsp APPLEV.S.C00.Tx, APPLEV.S.C01.Tx, APPLEV.S.C02.Tx

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20 Meter Interface

A Meter Interface device represents an interface to a metering device (for example, electricity, gas, water, heat, etc.) that is able to send meter information to the network. A Meter Interface device is capable of communicating certain status indicators (for example, battery low, tamper detected).

20.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

20.2 Classification

Device Name	ID	Class
Meter Interface	0x0053	Simple

20.3 Cluster Requirements

A Meter Interface device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 84.

Table 84. Meter Interface Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0702: Metering 0x0b01: Meter Identification	0x0003: Identify
Recommended optional	0x0700: Price	0x000a: Time 0x0700: Price 0x0703: Messaging 0x0705: Prepayment \0x0019: OTA Upgrade

20.3.1 Cluster Restrictions

If a Meter Interface cannot provide price information, the use of the Price Cluster as defined in the Smart Energy specification can be limited to the provision of Time-of-use (TOU) intervals by using the Get Scheduled Prices without specifying the actual price. In the case of the Publish Price Command Payload, the Price field SHALL be always 0xff..ff, and the Price Tier field SHALL specify the current tier name.

20.3.2 Required Attributes

A Meter Interface device SHALL support the attributes listed in Table 85.

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1098 **Table 85. Meter Interface Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Metering (S)	0x0000	*CurrentSummationDelivered*	✖	-
Metering (S)	0x0200	*Status*	✖	-
Metering (S)	0x0300	*UnitofMeasure*	✖	-
Metering (S)	0x0303	*SummationFormatting*	✖	-
Metering (S)	0x0306	*MeteringDeviceType*	✖	-
Meter Identification (S)	0x0000	*CompanyName*	✖	-
Meter Identification (S)	0x0001	*MeterTypeID*	✖	-
Meter Identification (S)	0x0004	*DataQualityID*	✖	-
Meter Identification (S)	0x000C	*POD*	✖	-
Meter Identification (S)	0x000D	*AvailablePower*	✖	-
Meter Identification (S)	0x000E	*PowerThreshold*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1099 ### 20.3.3 Required Commands Received

1100 A Meter Interface device SHALL receive and process the commands listed in Table 86.

1101 **Table 86. Meter Interface Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

1102 ### 20.3.4 Required Commands Generated

1103 A Meter Interface device SHALL generate the commands listed in Table 87.

1104 **Table 87. Meter Interface Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

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20.4 PICS

A Meter Interface device SHALL support the PICS items listed in Table 88.

Note: A Meter Interface device MAY support other optional PICS items.

Table 88. Meter Interface PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Metering	SEMT.S SEMT.S.A0000, SEMT.S.A0200, SEMT.S.A0300, SEMT.S.A0303, SEMT.S.A0306, SEMT.S.Afffd
Meter Identification	MTRID.S MTRID.S.A0000, MTRID.S.A0001, MTRID.S.A0004, MTRID.S.A000c, MTRID.S.A000d, MTRID.S.A000e, MTRID.S.Afffd

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21 On/Off Light

The On/Off Light is a lighting device that is capable of being switched on or off by means of a bound controller device such as an on/off light switch or a non-color controller. In addition, an on/off light is also capable of being switched by means of a bound occupancy sensor.

21.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

21.2 Classification

Device Name	ID	Class
On/Off Light	0x0100	Simple

21.3 Cluster Requirements

An On/Off Light device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 89.

Table 89. On/Off Light Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off	
Recommended optional	0x0008: Level Control for Lighting 0x1000: Touchlink Commissioning	0x0406: Occupancy Sensing 0x0019: OTA Upgrade

21.3.1 Cluster Restrictions

The inclusion of the *level* cluster on this device is recommended to provide a consistent user experience when the device is grouped with additional dimmable lights and the “with on/off” commands are used. For this device, since its only states are on or off, if the *level* cluster is implemented, it SHALL not have any effect on the actual light level except for those commands that cause an on/off state change, that is, the “with on/off” commands. In addition, if the *level* cluster is implemented, the device SHALL accept and process *level* cluster commands, adjusting the value of the *CurrentLevel* attribute accordingly and, where necessary, adjusting the *on/off* cluster *OnOff* attribute.

21.3.2 Required Attributes

An On/Off Light device SHALL support the attributes listed in Table 90.

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1129 **Table 90. On/Off Light Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0001	*ApplicationVersion*	✗	-
Basic (S)	0x0002	*StackVersion*	✗	-
Basic (S)	0x0003	*HWVersion*	✗	-
Basic (S)	0x0004	*ManufacturerName*	✗	-
Basic (S)	0x0005	*ModelIdentifier*	✗	-
Basic (S)	0x0006	*DateCode*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Basic (S)	0x0008	*GenericDevice-Class*	✗	-
Basic (S)	0x0009	*GenericDevice-Type*	✗	-
Basic (S)	0x000a	*ProductCode*	✗	-
Basic (S)	0x000b	*ProductURL*	✗	-
Basic (S)	0x4000	*SWBuildID*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	✗	-
On/Off (S)	0x4001	*OnTime*	✗	-
On/Off (S)	0x4002	*OffWaitTime*	✗	-
On/Off (S)	0x4003	*StartUpOnOff*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

1130 ### 21.3.3 Required Commands Received

1131 An On/Off Light device SHALL receive and process the commands listed in Table 91.

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1132 **Table 91. On/Off Light Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off With Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off

1133 ### 21.3.4 Required Commands Generated

1134 An On/Off Light device SHALL generate the commands listed in Table 92.

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1135 **Table 92. On/Off Light Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify query response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

1136 ## 21.4 PICS

1137 An On/Off Light SHALL device support the PICS items listed in Table 93.

1138 Note: An On/Off Light device MAY support other optional PICS items.

1139 **Table 93. On/Off Light PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx

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Cluster	PICS Item
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp

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22 Dimmable Light

A Dimmable Light is a lighting device that is capable of being switched on or off and the intensity of its light adjusted by means of a bound controller device such as a dimmer switch or a non-color controller. In addition, a Dimmable Light device is also capable of being switched by means of a bound occupancy sensor.

22.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

22.2 Classification

Device Name	ID	Class
Dimmable Light	0x0101	Simple

22.3 Cluster Requirements

A Dimmable Light device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 94.

Table 94. Dimmable Light Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level Control for Lighting	
Recommended optional	0x1000: Touchlink Commissioning	0x0406: Occupancy/Sensing 0x0019: OTAUpgrade

22.3.1 Cluster Restrictions

When this device type is implemented on an endpoint, the following configuration applies:

- The minimum light level SHALL be 0x01 and the maximum light level SHALL be 0xfe.

22.3.2 Required Attributes

A Dimmable Light device SHALL support the attributes listed in Table 95.

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1155 **Table 95. Dimmable Light Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0001	*ApplicationVersion*	×	-
Basic (S)	0x0002	*StackVersion*	×	-
Basic (S)	0x0003	*HWVersion*	×	-
Basic (S)	0x0004	*ManufacturerName*	×	-
Basic (S)	0x0005	*ModelIdentifier*	×	-
Basic (S)	0x0006	*DateCode*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Basic (S)	0x0008	*GenericDevice-Class*	×	-
Basic (S)	0x0009	*GenericDevice-Type*	×	-
Basic (S)	0x000a	*ProductCode*	×	-
Basic (S)	0x000b	*ProductURL*	×	-
Basic (S)	0x4000	*SWBuildID*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
Groups (S)	0x0000	*NameSupport*	×	-
Scenes (S)	0x0000	*SceneCount*	×	-
Scenes (S)	0x0001	*CurrentScene*	×	-
Scenes (S)	0x0002	*CurrentGroup*	×	-
Scenes (S)	0x0003	*SceneValid*	×	-
Scenes (S)	0x0004	*NameSupport*	×	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	×	-
On/Off (S)	0x4001	*OnTime*	×	-
On/Off (S)	0x4002	*OffWaitTime*	×	-
On/Off (S)	0x4003	*StartUpOnOff*	×	-
Level (S)	0x0000	*CurrentLevel*	✓	✓
Level (S)	0x0001	*RemainingTime*	×	-
Level (S)	0x000F	*Options*	×	-
Level (S)	0x4000	*StartUpCurrentLevel*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

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22.3.3 Required Commands Received

A Dimmable Light device SHALL receive and process the commands listed in Table 96.

Table 96. Dimmable Light Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger Effect
Groups (S)	0x00	Add Group
Groups (S)	0x01	View Group
Groups (S)	0x02	Get Group Membership
Groups (S)	0x03	Remove Group
Groups (S)	0x04	Remove All Groups
Groups (S)	0x05	Add Group If Identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off With Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off
Level (S)	0x00	Move to Level
Level (S)	0x01	Move
Level (S)	0x02	Step
Level (S)	0x03	Stop

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Cluster	ID	Name
Level (S)	0x04	Move to Level (with On/Off)
Level (S)	0x05	Move (with On/Off)
Level (S)	0x06	Step (with On/Off)
Level (S)	0x07	Stop (with On/Off)

22.3.4 Required Commands Generated

A Dimmable Light device SHALL generate the commands listed in Table 97.

Table 97. Dimmable Light Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy scene response	Copy Scene	U--

22.4 PICS

A Dimmable Light device SHALL support the PICS items listed in Table 98.

Note: A Dimmable Light device MAY support other optional PICS items.

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1165 **Table 98. Dimmable Light PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp
Level	LVL.S, LVL.S.LC4L LVL.S.A0000, LVL.S.A0001, LVL.S.A000f, LVL.S.A4000, LVL.S.Afffd LVL.S.C00.Rsp, LVL.S.C01.Rsp, LVL.S.C02.Rsp, LVL.S.C03.Rsp, LVL.S.C04.Rsp, LVL.S.C05.Rsp, LVL.S.C06.Rsp, LVL.S.C07.Rsp

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23 Color Dimmable Light

A Color Dimmable Light is a lighting device that is capable of being switched on or off, the intensity of its light adjusted, and its color adjusted by means of a bound controller device such as a color controller. The device supports adjustment of color by means of hue/saturation, enhanced hue, color looping, and XY coordinates. In addition, a Color Dimmable Light device is also capable of being switched by means of a bound occupancy sensor.

23.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release
2	Resolution of CCB 3501

23.2 Classification

Device Name	ID	Class
Color Dimmable Light	0x0102	Simple

23.3 Cluster Requirements

A Color Dimmable Light device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 99.

Table 99. Color Dimmable Light Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level Control for Lighting 0x0300: Color Control	
Recommended optional	0x1000: Touchlink Commissioning	0x0406: Occupancy Sensing 0x0019: OTAUpgrade

23.3.1 Cluster Restrictions

When this device type is implemented on an endpoint, the following configurations apply:

- The minimum light level SHALL be 0x01 and the maximum light level SHALL be 0xfe.
- In the color *control cluster*, the *ColorCapabilities* attribute SHALL indicate support for, at least, XY (0x0008).

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23.3.2 Required Attributes

A Color Dimmable Light device SHALL support the attributes listed in Table 100, except where indicated in the "Cluster" column. In addition, this device SHALL support the attributes *PrimaryiX*, *PrimaryiY*, and *PrimaryiIntensity*, where *i* is in the range from 1 to the value of the *NumberOfPrimaries* attribute.

Table 100. Color Dimmable Light Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0001	*ApplicationVersion*	✗	-
Basic (S)	0x0002	*StackVersion*	✗	-
Basic (S)	0x0003	*HWVersion*	✗	-
Basic (S)	0x0004	*ManufacturerName*	✗	-
Basic (S)	0x0005	*ModelIdentifier*	✗	-
Basic (S)	0x0006	*DateCode*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Basic (S)	0x0008	*GenericDeviceClass*	✗	-
Basic (S)	0x0009	*GenericDeviceType*	✗	-
Basic (S)	0x000a	*ProductCode*	✗	-
Basic (S)	0x000b	*ProductURL*	✗	-
Basic (S)	0x4000	*SWBuildID*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	✗	-
On/Off (S)	0x4001	*OnTime*	✗	-
On/Off (S)	0x4002	*OffWaitTime*	✗	-
On/Off (S)	0x4003	*StartUpOnOff*	✗	-
Level (S)	0x0000	*CurrentLevel*	✓	✓
Level (S)	0x0001	*RemainingTime*	✗	-
Level (S)	0x000f	*Options*	✗	-

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Cluster	ID	Name	Scene Table	Reportable
Level (S)	0x4000	*StartUpCurrentLevel*	✖	-
Color Control (S)[0]	0x0000	*CurrentHue*	✖	✓
Color Control (S)[0]	0x0001	*CurrentSaturation*	✓	✓
Color Control (S)	0x0002	*RemainingTime*	✖	-
Color Control (S)	0x0003	*CurrentX*	✓	✓
Color Control (S)	0x0004	*CurrentY*	✓	✓
Color Control (S)	0x0008	*ColorMode*	✖	-
Color Control (S)	0x000f	*Options*	✖	-
Color Control (S)	0x0010	*NumberOfPrimaries*	✖	-
Color Control (S)[1]	0x4000	*EnhancedCurrentHue*	✓	-
Color Control (S)	0x4001	*EnhancedColorMode*	✖	-
Color Control (S)[2]	0x4002	*ColorLoopActive*	✓	-
Color Control (S)[2]	0x4003	*ColorLoopDirection*	✓	-
Color Control (S)[2]	0x4004	*ColorLoopTime*	✓	-
Color Control (S)[2]	0x4005	*ColorLoopStartEnhancedHue*	✖	-
Color Control (S)[2]	0x4006	*ColorLoopStoredEnhancedHue*	✖	-
Color Control (S)	0x400a	*ColorCapabilities*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

Color Control (S)[i] = Mandatory if bit *i* of the *ColorCapabilities* attribute is equal to 1; otherwise, optional.

23.3.3 Required Commands Received

A Color Dimmable Light device SHALL receive and process the commands listed in Table 101, except where indicated in the “Cluster” column.

Table 101. Color Dimmable Light Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group

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Cluster	ID	Name
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off With Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off
Level (S)	0x00	Move to Level
Level (S)	0x01	Move
Level (S)	0x02	Step
Level (S)	0x03	Stop
Level (S)	0x04	Move to Level (with On/Off)
Level (S)	0x05	Move (with On/Off)
Level (S)	0x06	Step (with On/Off)
Level (S)	0x07	Stop (with On/Off)
Color Control (S)[0]	0x00	Move to Hue
Color Control (S)[0]	0x01	Move Hue
Color Control (S)[0]	0x02	Step Hue
Color Control (S)[0]	0x03	Move to Saturation
Color Control (S)[0]	0x04	Move Saturation

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Cluster	ID	Name
Color Control (S)[0]	0x05	Step Saturation
Color Control (S)[0]	0x06	Move to Hue and Saturation
Color Control (S)	0x07	Move to Color
Color Control (S)	0x08	Move Color
Color Control (S)	0x09	Step Color
Color Control (S)[1]	0x40	Enhanced Move to Hue
Color Control (S)[1]	0x41	Enhanced Move Hue
Color Control (S)[1]	0x42	Enhanced Step Hue
Color Control (S)[1]	0x43	Enhanced Move to Hue and Saturation
Color Control (S)[2]	0x44	Color Loop Set
Color Control (S)	0x47	Stop Move Step

Color Control (S)[i] = Mandatory if bit *i* of the *ColorCapabilities* attribute is equal to 1; otherwise, optional.

23.3.4 Required Commands Generated

A Color Dimmable Light device SHALL generate the commands listed in Table 102.

Table 102. Color Dimmable Light Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

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23.4 PICS

A Color Dimmable Light device SHALL support the PICS items listed in Table 103, except where indicated in the “PICS Item” column.

Note: A Color Dimmable Light device MAY support other optional PICS items.

Table 103. Color Dimmable Light PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp
Level	LVL.S, LVL.S.LC4L LVL.S.A0000, LVL.S.A0001, LVL.S.A000f, LVL.S.A4000, LVL.S.Afffd LVL.S.C00.Rsp, LVL.S.C01.Rsp, LVL.S.C02.Rsp, LVL.S.C03.Rsp, LVL.S.C04.Rsp, LVL.S.C05.Rsp, LVL.S.C06.Rsp, LVL.S.C07.Rsp
Color Control	CC.S CC.S.A0000[0], CC.S.A0001[0], CC.S.A0002, CC.S.A0003, CC.S.A0004, CC.S.A0008, CC.S.A000f, CC.S.A0010, CC.S.A4000[1], CC.S.A4001, CC.S.A4002[2], CC.S.A4003[2], CC.S.A4004[2], CC.S.A4005[2], CC.S.A4006[2], CC.S.A400a, CC.S.Afffd CC.S.C00.Rsp[0], CC.S.C01.Rsp[0], CC.S.C02.Rsp[0], CC.S.C03.Rsp[0], CC.S.C04.Rsp[0], CC.S.C05.Rsp[0], CC.S.C06.Rsp[0], CC.S.C07.Rsp, CC.S.C08.Rsp, CC.S.C09.Rsp, CC.S.C0a.Rsp, CC.S.C40.Rsp[1], CC.S.C41.Rsp[1], CC.S.C42.Rsp[1], CC.S.C43.Rsp[1], CC.S.C44.Rsp[2], CC.S.C47.Rsp, CC.S.C4b.Rsp, CC.S.C4c.Rsp In addition, the following PICS items SHALL be supported according to the value of the *NumberOfPrimaries* attribute (see also section 23.3.2 Required Attributes): CC.S.A0011, CC.S.A0012, CC.S.A0013, CC.S.A0015, CC.S.A0016, CC.S.A0017, CC.S.A0019, CC.S.A001a, CC.S.A001b, CC.S.A0020, CC.S.A0021, CC.S.A0022, CC.S.A0024, CC.S.A0025, CC.S.A0026, CC.S.A0028, CC.S.A0029, CC.S.A002a

PICS Item[i] = Mandatory if bit *i* of the *ColorCapabilities* attribute is equal to 1; otherwise, optional.

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24 On/Off Light Switch

An On/Off Light Switch is a controller device that, when bound to a lighting device such as an on/off light, is capable of being used to switch the device on or off. The on/off light switch is also capable of being configured when bound to a suitable configuration device.

24.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

24.2 Classification

Device Name	ID	Class
On/Off Light Switch	0x0103	Simple

24.3 Cluster Requirements

An On/Off Light Switch device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 104.

Table 104. On/Off Light Switch Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off
Recommended optional	0x0007: On Off Switch Configuration	0x0004: Groups 0x0005: Scenes 0x0019: OTAUpgrade

24.3.1 Required Attributes

An On/Off Light Switch device SHALL support the attributes listed in Table 105.

Table 105. On/Off Light Switch Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-
Basic (S)	0x0006	*DateCode*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

24.3.2 Required Commands Received

An On/Off Light Switch device SHALL receive and process the commands listed in Table 106.

Table 106. On/Off Light Switch Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

24.3.3 Required Commands Generated

An On/Off Light Switch device SHALL generate the commands listed in Table 107. The device MAY also generate any other client-side commands from the Identify and On/Off clusters.

Table 107. On/Off Light Switch Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

24.4 PICS

An On/Off Light Switch device SHALL support the PICS items listed in Table 108.

Note: An On/Off Light Switch device MAY support other optional PICS items.

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1226 **Table 108. On/Off Light Switch PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd

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25 Dimmer Switch

A Dimmer Switch is a controller device that, when bound to a lighting device such as a dimmable light, is capable of being used to switch the device on or off and adjust the intensity of the light being emitted. A Dimmer Switch device is also capable of being configured when bound to a suitable configuration device.

25.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

25.2 Classification

Device Name	ID	Class
Dimmer Switch	0x0104	Simple

25.3 Cluster Requirements

A Dimmer Switch device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 109.

Table 109. Dimmer Switch Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off 0x0008: Level Control for Lighting
Recommended optional	0x0007: On Off Switch Configuration	0x0004: Groups 0x0005: Scenes 0x0019: OTAUpgrade

25.3.1 Required Attributes

A Dimmer Switch device SHALL support the attributes listed in Table 110.

Table 110. Dimmer Switch Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-
Basic (S)	0x0006	*DateCode*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

25.3.2 Required Commands Received

A Dimmer Switch device SHALL receive and process the commands listed in Table 111. The device MAY also generate any other client-side commands from the Identify, On/Off, and Level clusters.

Table 111. Dimmer Switch Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

25.3.3 Required Commands Generated

A Dimmer Switch device SHALL generate the commands listed in Table 112. The device MAY also generate any other client-side commands from the Identify, On/Off, and Level clusters.

Table 112. Dimmer Switch Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

25.4 PICS

A Dimmer Switch device SHALL support the PICS items listed in Table 113.

Note: A Dimmer Switch device MAY support other optional PICS items. A Dimmer Switch device is intended to operate against servers that implement either the LVL.S.LC4L PICS (in a ZCL8) or the Lighting feature set (in ZCL9).

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1253 **Table 113. Dimmer Switch PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd

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26 Color Dimmer Switch

A Color Dimmer Switch is a controller device that, when bound to a lighting device such as a color light, is capable of being used to adjust the color of the light being emitted. A Color Dimmer Switch device is also capable of being configured when bound to a suitable configuration device.

26.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

26.2 Classification

Device Name	ID	Class
Color Dimmer Switch	0x0105	Simple

26.3 Cluster Requirements

A Color Dimmer Switch device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 114.

Table 114. Color Dimmer Switch Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off 0x0008: Level Control for Lighting 0x0300 Color control
Recommended optional	0x0007: On Off Switch Configuration	0x0004: Groups 0x0005: Scenes 0x0019: OTAUpgrade

26.3.1 Required Attributes

A Color Dimmer Switch device SHALL support the attributes listed in Table 115.

Table 115. Color Dimmer Switch Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0006	*DateCode*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

26.3.2 Required Commands Received

A Color Dimmer Switch device SHALL receive and process the commands listed in Table 116.

Table 116. Color Dimmer Switch Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

26.3.3 Required Commands Generated

A Color Dimmer Switch device SHALL generate the commands listed in Table 117. The device MAY also generate any other client-side commands from the Identify, On/Off, Level, and Color Control clusters.

Table 117. Color Dimmer Switch Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

26.4 PICS

A Color Dimmer Switch device SHALL support the PICS items listed in Table 118.

Note: A Color Dimmer Switch device MAY support other optional PICS items. A Color Dimmer Switch device is intended to operate against servers that implement either the LVL.S.LC4L PICS (in a ZCL8) or the Lighting feature set (in ZCL9).

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1279 **Table 118. Color Dimmer Switch PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd
Color Control	CC.C CC.C.Afffd

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27 Light Sensor

A Light Sensor device is a measurement and sensing device that is capable of measuring and reporting the intensity of light being emitted by a light source.

27.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

27.2 Classification

Device Name	ID	Class
Light Sensor	0x0106	Simple

27.3 Cluster Requirements

A Light Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 119.

Table 119. Light Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0400: Illuminance Measurement	0x0003: Identify
Recommended optional		0x0004: Groups 0x0019: OTAUpgrade

27.3.1 Required Attributes

A Light Sensor device SHALL support the attributes listed in Table 120.

Table 120. Light Sensor Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-
Basic (S)	0x0006	*DateCode*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Illuminance Measurement (S)	0x0000	*MeasuredValue*	✖	✓
Illuminance Measurement (S)	0x0001	*MinMeasuredValue*	✖	-
Illuminance Measurement (S)	0x0002	*MaxMeasuredValue*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

27.3.2 Required Commands Received

A Light Sensor device SHALL receive and process the commands listed in Table 121.

Table 121. Light Sensor Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

27.3.3 Required Commands Generated

A Light Sensor device SHALL generate the commands listed in Table 122. The device MAY also generate any other client-side commands from the Identify cluster.

Table 122. Light Sensor Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

27.4 PICS

A Light Sensor device SHALL support the PICS items listed in Table 123.

Note: A Light Sensor device MAY support other optional PICS items.

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1302 **Table 123. Light Sensor PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Illuminance Measurement	IM.S IM.S.A0000, IM.S.A0001, IM.S.A0002, IM.S.Afffd

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28 Occupancy Sensor

An Occupancy Sensor is a measurement and sensing device that is capable of measuring and reporting the occupancy state in a designated area.

28.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

28.2 Classification

Device Name	ID	Class
Occupancy Sensor	0x0107	Simple

28.3 Cluster Requirements

An Occupancy Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 124.

Table 124. Occupancy Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0406: Occupancy Sensing	0x0003: Identify
Recommended optional		0x0004: Groups 0x0019: OTAUpgrade

28.3.1 Required Attributes

An Occupancy Sensor device SHALL support the attributes listed in Table 125.

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1314 **Table 125. Occupancy Sensor Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0001	*ApplicationVersion*	×	-
Basic (S)	0x0002	*StackVersion*	×	-
Basic (S)	0x0003	*HWVersion*	×	-
Basic (S)	0x0004	*ManufacturerName*	×	-
Basic (S)	0x0005	*ModelIdentifier*	×	-
Basic (S)	0x0006	*DateCode*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Basic (S)	0x0008	*GenericDeviceClass*	×	-
Basic (S)	0x0009	*GenericDeviceType*	×	-
Basic (S)	0x000a	*ProductCode*	×	-
Basic (S)	0x000b	*ProductURL*	×	-
Basic (S)	0x4000	*SWBuildID*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
Occupancy Sensing (S)	0x0000	*Occupancy*	×	✓
Occupancy Sensing (S)	0x0001	*OccupancySensorType*	×	-
Occupancy Sensing (S)	0x0002	*OccupancySensorTypeBitmap*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

1315 ### 28.3.2 Required Commands Received

1316 An Occupancy Sensor device SHALL receive and process the commands listed in Table 126.

1317 **Table 126. Occupancy Sensor Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

1318 ### 28.3.3 Required Commands Generated

1319 An Occupancy Sensor device SHALL generate the commands listed in Table 127. The device MAY also
1320 generate any other client-side commands from the Identify cluster.

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1321 **Table 127. Occupancy Sensor Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

1322 28.4 PICS

1323 An Occupancy Sensor device SHALL support the PICS items listed in Table 128.

1324 Note: An Occupancy Sensor device MAY support other optional PICS items.

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1325 **Table 128. Occupancy Sensor PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Occupancy Sensing	OS.S OS.S.A0000, OS.S.A0001, OS.S.A0002, OS.S.Afffd

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29 On/Off Ballast

An On/Off Ballast is a lighting device that is capable of being switched on or off by means of a bound controller device such as an on/off light switch. The device is capable of being fully configured when bound to a suitable configuration device. In addition, an On/Off Ballast device is also capable of being switched by means of a bound occupancy sensor.

29.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

29.2 Classification

Device Name	ID	Class
On/Off Ballast	0x0108	Simple

29.3 Cluster Requirements

An On/Off Ballast device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 129.

Table 129. On/Off Ballast Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0001: Power Configuration 0x0002: Device Temperature Configuration 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0301: Ballast Configuration	
Recommended optional	0x0008: Level Control for Lighting 0x0401: Illuminance Level Sensing 0x1000: Touchlink Commissioning	0x0400: Illuminance Measurement 0x0401: Illuminance Level Sensing 0x0406: Occupancy Sensing 0x0019: OTAUpgrade

29.3.1 Cluster Restrictions

For this device, because its only states are on or off, if the *level* cluster is implemented, it SHALL NOT have any effect on the actual light level except for those commands that cause an on/off state change, that is, the "with on/off" commands. The device SHALL accept and process *level* cluster commands, adjusting the value of the *CurrentLevel* attribute accordingly and, where necessary, adjusting the on/off cluster *OnOff* attribute. The inclusion of the *level* cluster on this device is required to provide a consistent user experience when the device is grouped with additional dimmable lights and the "with on/off" commands are used.

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29.3.2 Required Attributes

An On/Off Ballast device SHALL support the attributes listed in Table 130. In addition, an On/Off Ballast device SHALL support either or both the mains information **or** battery information attribute sets of the Power Configuration cluster.

Table 130. On/Off Ballast Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0001	*ApplicationVersion*	✗	-
Basic (S)	0x0002	*StackVersion*	✗	-
Basic (S)	0x0003	*HWVersion*	✗	-
Basic (S)	0x0004	*ManufacturerName*	✗	-
Basic (S)	0x0005	*ModelIdentifier*	✗	-
Basic (S)	0x0006	*DateCode*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Basic (S)	0x0008	*GenericDeviceClass*	✗	-
Basic (S)	0x0009	*GenericDeviceType*	✗	-
Basic (S)	0x000a	*ProductCode*	✗	-
Basic (S)	0x000b	*ProductURL*	✗	-
Basic (S)	0x4000	*SWBuildID*	✗	-
Device Temperature Configuration (S)	0x0000	*CurrentTemperature*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	✗	-
On/Off (S)	0x4001	*OnTime*	✗	-
On/Off (S)	0x4002	*OffWaitTime*	✗	-
On/Off (S)	0x4003	*StartUpOnOff*	✗	-
Ballast Configuration (S)	0x0000	*PhysicalMinLevel*	✗	-

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Cluster	ID	Name	Scene Table	Reportable
Ballast Configuration (S)	0x0001	*PhysicalMaxLevel*	✖	-
Ballast Configuration (S)	0x0002	*BallastStatus*	✖	-
Ballast Configuration (S)	0x0010	*MinLevel*	✖	-
Ballast Configuration (S)	0x0011	*MaxLevel*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

29.3.3 Required Commands Received

An On/Off Ballast device SHALL receive and process the commands listed in Table 131.

Table 131. On/Off Ballast Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle

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Cluster	ID	Name
On/Off (S)	0x40	Off with effect
On/Off (S)	0x41	On with recall global scene
On/Off (S)	0x42	On with timed off

29.3.4 Required Commands Generated

An On/Off Ballast SHALL device generate the commands listed in Table 132.

Table 132. On/Off Ballast Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

29.4 PICS

An On/Off Ballast device SHALL support the PICS items listed in Table 133.

Note: An On/Off Ballast device MAY support other optional PICS items.

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1358 **Table 133. On/Off Ballast PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Power Configuration	PC.S PC.S.Afffd
Device Temperature Configuration	DTC.S DTC.S.A0000, DTC.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp
Ballast Configuration	BC.S BC.S.A0000, BC.S.A0001, BC.S.A0002, BC.S.A0010, BC.S.A0011, BC.S.Afffd

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30 Dimmable Ballast

A Dimmable Ballast is a lighting device that is capable of being switched on or off and the intensity of its light adjusted by means of a bound controller device such as a dimmer switch. The device is capable of being fully configured when bound to a suitable configuration device. In addition, the dimmable ballast is also capable of being switched by means of a bound occupancy sensor.

30.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

30.2 Classification

Device Name	ID	Class
Dimmable Ballast	0x0109	Simple

30.3 Cluster Requirements

A Dimmable Ballast device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 134.

Table 134. Dimmable Ballast Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0001: Power Configuration 0x0002: Device Temperature Configuration 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level Control for Lighting 0x0301: Ballast Configuration	
Recommended optional	0x0401: Illuminance Level Sensing 0x1000: Touchlink Commissioning	0x0400: Illuminance Measurement 0x0401: Illuminance Level Sensing 0x0406: Occupancy Sensing 0x0019: OTAUpgrade

30.3.1 Cluster Restrictions

When this device type is implemented on an endpoint, the following configuration applies:

- The minimum light level SHALL be 0x01 and the maximum light level SHALL be 0xfe.

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30.3.2 Required Attributes

A Dimmable Ballast device SHALL support the attributes listed in Table 135. In addition, a Dimmable Ballast device SHALL support either or both the mains information **or** battery information attribute sets of the Power Configuration cluster.

Table 135. Dimmable Ballast Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0001	*ApplicationVersion*	✗	-
Basic (S)	0x0002	*StackVersion*	✗	-
Basic (S)	0x0003	*HWVersion*	✗	-
Basic (S)	0x0004	*ManufacturerName*	✗	-
Basic (S)	0x0005	*ModelIdentifier*	✗	-
Basic (S)	0x0006	*DateCode*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Basic (S)	0x0008	*GenericDeviceClass*	✗	-
Basic (S)	0x0009	*GenericDeviceType*	✗	-
Basic (S)	0x000a	*ProductCode*	✗	-
Basic (S)	0x000b	*ProductURL*	✗	-
Basic (S)	0x4000	*SWBuildID*	✗	-
Device Temperature Configuration (S)	0x0000	*CurrentTemperature*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	✗	-
On/Off (S)	0x4001	*OnTime*	✗	-
On/Off (S)	0x4002	*OffWaitTime*	✗	-
On/Off (S)	0x4003	*StartUpOnOff*	✗	-
Level (S)	0x0000	*CurrentLevel*	✓	✓

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Cluster	ID	Name	Scene Table	Reportable
Level (S)	0x0001	*RemainingTime*	✖	-
Level (S)	0x000f	*Options*	✖	-
Level (S)	0x4000	*StartUpCurrentLevel*	✖	-
Ballast Configuration (S)	0x0000	*PhysicalMinLevel*	✖	-
Ballast Configuration (S)	0x0001	*PhysicalMaxLevel*	✖	-
Ballast Configuration (S)	0x0002	*BallastStatus*	✖	-
Ballast Configuration (S)	0x0010	*MinLevel*	✖	-
Ballast Configuration (S)	0x0011	*MaxLevel*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

30.3.3 Required Commands Received

A Dimmable Ballast device SHALL receive and process the commands listed in Table 136.

Table 136. Dimmable Ballast Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene

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Cluster	ID	Name
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off with Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off
Level (S)	0x00	Move To Level
Level (S)	0x01	Move
Level (S)	0x02	Step
Level (S)	0x03	Stop
Level (S)	0x04	Move To Level (with On/Off)
Level (S)	0x05	Move (with On/Off)
Level (S)	0x06	Step (with On/Off)
Level (S)	0x07	Stop (with On/Off)

30.3.4 Required Commands Generated

A Dimmable Ballast device SHALL generate the commands listed in Table 137.

Table 137. Dimmable Ballast Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--

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Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

30.4 PICS

A Dimmable Ballast device SHALL support the PICS items listed in Table 138.

Note: A Dimmable Ballast device MAY support other optional PICS items.

Table 138. Dimmable Ballast PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Power Configuration	PC.S PC.S.Afffd
Device Temperature Configuration	DTC.S DTC.S.A0000, DTC.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp

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Cluster	PICS Item
Level	LVL.S, LVL.S.LC4L LVL.S.A0000, LVL.S.A0001, LVL.S.A000f, LVL.S.A4000, LVL.S.Afffd LVL.S.C00.Rsp, LVL.S.C01.Rsp, LVL.S.C02.Rsp, LVL.S.C03.Rsp, LVL.S.C04.Rsp, LVL.S.C05.Rsp, LVL.S.C06.Rsp, LVL.S.C07.Rsp
Ballast Configuration	BC.S BC.S.A0000, BC.S.A0001, BC.S.A0002, BC.S.A0010, BC.S.A0011, BC.S.Afffd

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31 On/Off Plug-in Unit

An On/Off Plug-in Unit is a device that is capable of being switched on or off by means of a bound controller device such as an on/off light switch or a non-color controller. The On/Off Plug-in Unit is then capable of having a non-communicating light attached to it.

31.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

31.2 Classification

Device Name	ID	Class
On/Off Plug-in Unit	0x010a	Simple

31.3 Cluster Requirements

An On/Off Plug-in Unit device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 139.

Table 139. On/Off Plug-in Unit Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off	
Recommended optional	0x0008: Level Control for Lighting	0x0019: OTAUpgrade

31.3.1 Cluster Restrictions

For this device, because its only states are on or off, if the *level* cluster is implemented, it SHALL NOT have any effect on the actual light level except for those commands that cause an on/off state change, that is. the "with on/off" commands. The device SHALL accept and process *level* cluster commands, adjusting the value of the *CurrentLevel* attribute accordingly and, where necessary, adjusting the *on/off* cluster *OnOff* attribute. The inclusion of the *level* cluster on this device is required to provide a consistent user experience when the device is grouped with additional dimmable lights and the "with on/off" commands are used.

31.3.2 Required Attributes

An On/Off Plug-in Unit device SHALL support the attributes listed in Table 140.

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1407 **Table 140. On/Off Plug-in Unit Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0001	*ApplicationVersion*	✗	-
Basic (S)	0x0002	*StackVersion*	✗	-
Basic (S)	0x0003	*HWVersion*	✗	-
Basic (S)	0x0004	*ManufacturerName*	✗	-
Basic (S)	0x0005	*ModelIdentifier*	✗	-
Basic (S)	0x0006	*DateCode*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Basic (S)	0x0008	*GenericDeviceClass*	✗	-
Basic (S)	0x0009	*GenericDeviceType*	✗	-
Basic (S)	0x000a	*ProductCode*	✗	-
Basic (S)	0x000b	*ProductURL*	✗	-
Basic (S)	0x4000	*SWBuildID*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	✗	-
On/Off (S)	0x4001	*OnTime*	✗	-
On/Off (S)	0x4002	*OffWaitTime*	✗	-
On/Off (S)	0x4003	*StartUpOnOff*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

1408 ### 31.3.3 Required Commands Received

1409 An On/Off Plug-in Unit device SHALL receive and process the commands listed in Table 141.

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1410 **Table 141. On/Off Plug-in Unit Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off With Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off

1411 ### 31.3.4 Required Commands Generated

1412 An On/Off Plug-in Unit device SHALL generate the commands listed in Table 142.

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1413 **Table 142. On/Off Plug-in Unit Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify query response	Identify query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

1414 ## 31.4 PICS

1415 An On/Off Plug-in Unit device SHALL support the PICS items listed in Table 143.

1416 Note: An On/Off Plug-in Unit device MAY support other optional PICS items.

1417 **Table 143. On/Off Plug-in Unit PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx

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Cluster	PICS Item
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp

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32 Dimmable Plug-In Unit

A Dimmable Plug-In Unit is a device that is capable of being switched on or off and have its level adjusted by means of a bound controller device such as a dimmer switch or a non-color controller. The device is then capable of having a non-communicating light attached to it.

32.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

32.2 Classification

Device Name	ID	Class
Dimmable Plug-In Unit	0x010b	Simple

32.3 Cluster Requirements

A Dimmable Plug-In Unit device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 144.

Table 144. Dimmable Plug-In Unit Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level Control for Lighting	
Recommended optional		0x0019: OTAUpgrade

32.3.1 Cluster Restrictions

When this device type is implemented on an endpoint, the following configuration applies:

- The minimum light level SHALL be 0x01 and the maximum light level SHALL be 0xfe.

32.3.2 Required Attributes

A Dimmable Plug-In Unit device SHALL support the attributes listed in Table 145.

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1433 **Table 145. Dimmable Plug-In Unit Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0001	*ApplicationVersion*	✗	-
Basic (S)	0x0002	*StackVersion*	✗	-
Basic (S)	0x0003	*HWVersion*	✗	-
Basic (S)	0x0004	*ManufacturerName*	✗	-
Basic (S)	0x0005	*ModelIdentifier*	✗	-
Basic (S)	0x0006	*DateCode*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Basic (S)	0x0008	*GenericDeviceClass*	✗	-
Basic (S)	0x0009	*GenericDeviceType*	✗	-
Basic (S)	0x000a	*ProductCode*	✗	-
Basic (S)	0x000b	*ProductURL*	✗	-
Basic (S)	0x4000	*SWBuildID*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	✗	-
On/Off (S)	0x4001	*OnTime*	✗	-
On/Off (S)	0x4002	*OffWaitTime*	✗	-
On/Off (S)	0x4003	*StartUpOnOff*	✗	-
Level (S)	0x0000	*CurrentLevel*	✓	✓
Level (S)	0x0001	*RemainingTime*	✗	-
Level (S)	0x000f	*Options*	✗	-
Level (S)	0x4000	*StartUpCurrentLevel*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

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32.3.3 Required Commands Received

A Dimmable Plug-In Unit device SHALL receive and process the commands listed in Table 146.

Table 146. Dimmable Plug-In Unit Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify query
Identify (S)	0x40	Trigger effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off With Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off
Level (S)	0x00	Move to Level
Level (S)	0x01	Move
Level (S)	0x02	Step
Level (S)	0x03	Stop

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Cluster	ID	Name
Level (S)	0x04	Move to Level (with On/Off)
Level (S)	0x05	Move (with On/Off)
Level (S)	0x06	Step (with On/Off)
Level (S)	0x07	Stop (with On/Off)

32.3.4 Required Commands Generated

A Dimmable Plug-In Unit device SHALL generate the commands listed in Table 147.

Table 147. Dimmable Plug-In Unit Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

32.4 PICS

A Dimmable Plug-In Unit device SHALL support the PICS items listed in Table 148.

Note: A Dimmable Plug-In Unit device MAY support other optional PICS items.

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1443 **Table 148. Dimmable Plug-In Unit PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp
Level	LVL.S LVL.S.A0000, LVL.S.A0001, LVL.S.A000f, LVL.S.A4000, LVL.S.Afffd LVL.S.C00.Rsp, LVL.S.C01.Rsp, LVL.S.C02.Rsp, LVL.S.C03.Rsp, LVL.S.C04.Rsp, LVL.S.C05.Rsp, LVL.S.C06.Rsp, LVL.S.C07.Rsp

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33 Color Temperature Light

A Color Temperature Light is a lighting device that is capable of being switched on or off, the intensity of its light adjusted, and its color adjusted by means of a bound controller device such as a color controller. The color temperature light supports adjustment of color by means of color temperature.

33.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

33.2 Classification

Device Name	ID	Class
Color Temperature Light	0x010c	Simple

33.3 Cluster Requirements

A Color Temperature Light device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 149.

Table 149. Color Temperature Light Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level Control for Lighting 0x0300: Color Control	
Recommended optional	0x1000: Touchlink Commissioning	0x0019: OTAUpgrade

33.3.1 Cluster Restrictions

When this device type is implemented on an endpoint, the following configurations apply:

- The minimum light level SHALL be 0x01 and the maximum light level SHALL be 0xfe.
- In the *color control* cluster, the *ColorCapabilities* attribute SHALL be set to 0x0010, indicating support for color temperature.

33.3.2 Required Attributes

A Color Temperature Light device SHALL support the attributes listed in Table 150. In addition, the device SHALL support the attributes *PrimaryiX*, *PrimaryiY*, and *PrimaryiIntensity*, where *i* is in the range from 1 to the value of the *NumberOfPrimaries* attribute.

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1463 **Table 150. Color Temperature Light Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0001	*ApplicationVersion*	✗	-
Basic (S)	0x0002	*StackVersion*	✗	-
Basic (S)	0x0003	*HWVersion*	✗	-
Basic (S)	0x0004	*ManufacturerName*	✗	-
Basic (S)	0x0005	*ModelIdentifier*	✗	-
Basic (S)	0x0006	*DateCode*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Basic (S)	0x0008	*GenericDeviceClass*	✗	-
Basic (S)	0x0009	*GenericDeviceType*	✗	-
Basic (S)	0x000a	*ProductCode*	✗	-
Basic (S)	0x000b	*ProductURL*	✗	-
Basic (S)	0x4000	*SWBuildID*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	✗	-
On/Off (S)	0x4001	*OnTime*	✗	-
On/Off (S)	0x4002	*OffWaitTime*	✗	-
On/Off (S)	0x4003	*StartUpOnOff*	✗	-
Level (S)	0x0000	*CurrentLevel*	✓	✓
Level (S)	0x0001	*RemainingTime*	✗	-
Level (S)	0x000f	*Options*	✗	-
Level (S)	0x4000	*StartUpCurrentLevel*	✗	-
Color Control (S)	0x0002	*RemainingTime*	✗	-
Color Control (S)	0x0007	*ColorTemperatureMireds*	✓	✓

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Cluster	ID	Name	Scene Table	Reportable
Color Control (S)	0x0008	*ColorMode*	✖	-
Color Control (S)	0x000f	*Options*	✖	-
Color Control (S)	0x0010	*NumberOfPrimaries*	✖	-
Color Control (S)	0x4001	*EnhancedColorMode*	✖	-
Color Control (S)	0x400a	*ColorCapabilities*	✖	-
Color Control (S)	0x400b	*ColorTempPhysicalMinMireds*	✖	-
Color Control (S)	0x400c	*ColorTempPhysicalMaxMireds*	✖	-
Color Control (S)	0x400d	*CoupleColorTempToLevelMinMireds*	✖	-
Color Control (S)	0x4010	*StartUpColorTemperatureMireds*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

33.3.3 Required Commands Received

A Color Temperature Light device SHALL receive and process the commands listed in Table 151.

Table 151. Color Temperature Light Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene

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Cluster	ID	Name
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off With Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off
Level (S)	0x00	Move to Level
Level (S)	0x01	Move
Level (S)	0x02	Step
Level (S)	0x03	Stop
Level (S)	0x04	Move to Level (with On/Off)
Level (S)	0x05	Move (with On/Off)
Level (S)	0x06	Step (with On/Off)
Level (S)	0x07	Stop (with On/Off)
Color Control (S)	0x0a	Move to Color Temperature
Color Control (S)	0x47	Stop Move Step
Color Control (S)	0x4b	Move Color Temperature
Color Control (S)	0x4c	Step Color Temperature

33.3.4 Required Commands Generated

A Color Temperature Light device SHALL generate the commands listed in Table 152.

Table 152. Color Temperature Light Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add Group Response	Add Group	U--
Groups (S)	0x01	View Group Response	Add Group	U--
Groups (S)	0x02	Get Group Membership Response	Get Group Membership	U--
Groups (S)	0x03	Remove Group Response	Remove Group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--

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Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

33.4 PICS

A Color Temperature Light device SHALL support the PICS items listed in Table 153.

Note: A Color Temperature Light device MAY support other optional PICS items.

Table 153. Color Temperature Light PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.S, LVL.S.LC4L I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp

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Cluster	PICS Item
Level	LVL.S LVL.S.A0000, LVL.S.A0001, LVL.S.A000f, LVL.S.A4000, LVL.S.Afffd LVL.S.C00.Rsp, LVL.S.C01.Rsp, LVL.S.C02.Rsp, LVL.S.C03.Rsp, LVL.S.C04.Rsp, LVL.S.C05.Rsp, LVL.S.C06.Rsp, LVL.S.C07.Rsp
Color Control	CC.S CC.S.A0002, CC.S.A0007, CC.S.A0008, CC.S.A000f, CC.S.A0010, CC.S.A400a, CC.S.A400b, CC.S.A400c, CC.S.A400d, CC.S.Afffd CC.S.C0a.Rsp, CC.S.C47.Rsp, CC.S.C4b.Rsp, CC.S.C4c.Rsp In addition, the following PICS items SHALL be supported according to the value of the *NumberOfPrimaries* attribute (see also section 33.3.2 Required Attributes): CC.S.A0011, CC.S.A0012, CC.S.A0013, CC.S.A0015, CC.S.A0016, CC.S.A0017, CC.S.A0019, CC.S.A001a, CC.S.A001b, CC.S.A0020, CC.S.A0021, CC.S.A0022, CC.S.A0024, CC.S.A0025, CC.S.A0026, CC.S.A0028, CC.S.A0029, CC.S.A002a

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34 Extended Color Light

An Extended Color Light is a lighting device that is capable of being switched on or off, the intensity of its light adjusted, and its color adjusted by means of a bound controller device such as a color controller. The device supports adjustment of color by means of hue/saturation, enhanced hue, color looping, XY coordinates, and color temperature. In addition, the extended color light is also capable of being switched by means of a bound occupancy sensor.

34.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release
2	Resolution of CCB 3501

34.2 Classification

Device Name	ID	Class
Extended Color Light	0x010d	Simple

34.3 Cluster Requirements

An Extended Color Light device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 154.

Table 154. Extended Color Light Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level Control for Lighting 0x0300: Color Control	
Recommended optional	0x1000: Touchlink Commissioning	0x0019: OTAUpgrade

34.3.1 Cluster Restrictions

When this device type is implemented on an endpoint, the following configurations apply:

- The minimum light level SHALL be 0x01 and the maximum light level SHALL be 0xfe.
- In the *color control* cluster, the *ColorCapabilities* attribute SHALL indicate support for XY and color temperature (0x0018).

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34.3.2 Required Attributes

An Extended Color Light device SHALL support the attributes listed in Table 155, except where indicated in the “Cluster” column. In addition, a device SHALL support the attributes *PrimaryiX*, *PrimaryiY*, and *PrimaryiIntensity*, where *i* is in the range from 1 to the value of the *NumberOfPrimaries* attribute.

Table 155. Extended Color Light Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0001	*ApplicationVersion*	×	-
Basic (S)	0x0002	*StackVersion*	×	-
Basic (S)	0x0003	*HWVersion*	×	-
Basic (S)	0x0004	*ManufacturerName*	×	-
Basic (S)	0x0005	*ModelIdentifier*	×	-
Basic (S)	0x0006	*DateCode*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Basic (S)	0x0008	*GenericDeviceClass*	×	-
Basic (S)	0x0009	*GenericDeviceType*	×	-
Basic (S)	0x000a	*ProductCode*	×	-
Basic (S)	0x000b	*ProductURL*	×	-
Basic (S)	0x4000	*SWBuildID*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
Groups (S)	0x0000	*NameSupport*	×	-
Scenes (S)	0x0000	*SceneCount*	×	-
Scenes (S)	0x0001	*CurrentScene*	×	-
Scenes (S)	0x0002	*CurrentGroup*	×	-
Scenes (S)	0x0003	*SceneValid*	×	-
Scenes (S)	0x0004	*NameSupport*	×	-
On/Off (S)	0x0000	*OnOff*	✓	✓
On/Off (S)	0x4000	*GlobalSceneControl*	×	-
On/Off (S)	0x4001	*OnTime*	×	-
On/Off (S)	0x4002	*OffWaitTime*	×	-
On/Off (S)	0x4003	*StartUpOnOff*	×	-
Level (S)	0x0000	*CurrentLevel*	✓	✓
Level (S)	0x0001	*RemainingTime*	×	-

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Cluster	ID	Name	Scene Table	Reportable
Level (S)	0x000f	*Options*	✗	-
Level (S)	0x4000	*StartUpCurrentLevel*	✗	-
Color Control (S)[0]	0x0000	*CurrentHue*	✗	✓
Color Control (S)[0]	0x0001	*CurrentSaturation*	✓	✓
Color Control (S)	0x0002	*RemainingTime*	✗	-
Color Control (S)	0x0003	*CurrentX*	✓	✓
Color Control (S)	0x0004	*CurrentY*	✓	✓
Color Control (S)	0x0007	*ColorTemperatureMireds*	✓	✓
Color Control (S)	0x0008	*ColorMode*	✗	-
Color Control (S)	0x000f	*Options*	✗	-
Color Control (S)	0x0010	*NumberOfPrimaries*	✗	-
Color Control (S)[1]	0x4000	*EnhancedCurrentHue*	✓	-
Color Control (S)	0x4001	*EnhancedColorMode*	✗	-
Color Control (S)[2]	0x4002	*ColorLoopActive*	✓	-
Color Control (S)[2]	0x4003	*ColorLoopDirection*	✓	-
Color Control (S)[2]	0x4004	*ColorLoopTime*	✓	-
Color Control (S)[2]	0x4005	*ColorLoopStartEnhancedHue*	✗	-
Color Control (S)[2]	0x4006	*ColorLoopStoredEnhancedHue*	✗	-
Color Control (S)	0x400a	*ColorCapabilities*	✗	-
Color Control (S)	0x400b	*ColorTempPhysicalMinMireds*	✗	-
Color Control (S)	0x400c	*ColorTempPhysicalMaxMireds*	✗	-
Color Control (S)	0x400d	*CoupleColorTempToLevelMinMireds*	✗	-
Color Control (S)	0x4010	*StartUpColorTemperatureMireds*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

Color Control (S)[i] = Mandatory if bit *i* of the *ColorCapabilities* attribute is equal to 1, otherwise optional.

34.3.3 Required Commands Received

An Extended Color Light device SHALL receive and process the commands listed in Table 156, except where indicated in the “Cluster” column.

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1500 **Table 156. Extended Color Light Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger Effect
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
Scenes (S)	0x40	Enhanced Add Scene
Scenes (S)	0x41	Enhanced View Scene
Scenes (S)	0x42	Copy Scene
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle
On/Off (S)	0x40	Off With Effect
On/Off (S)	0x41	On With Recall Global Scene
On/Off (S)	0x42	On With Timed Off
Level (S)	0x00	Move to Level
Level (S)	0x01	Move
Level (S)	0x02	Step
Level (S)	0x03	Stop
Level (S)	0x04	Move to Level (with On/Off)
Level (S)	0x05	Move (with On/Off)

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Cluster	ID	Name
Level (S)	0x06	Step (with On/Off)
Level (S)	0x07	Stop (with On/Off)
Color Control (S)[0]	0x00	Move to Hue
Color Control (S)[0]	0x01	Move Hue
Color Control (S)[0]	0x02	Step Hue
Color Control (S)[0]	0x03	Move to Saturation
Color Control (S)[0]	0x04	Move Saturation
Color Control (S)[0]	0x05	Step Saturation
Color Control (S)[0]	0x06	Move to Hue and Saturation
Color Control (S)	0x07	Move to Color
Color Control (S)	0x08	Move Color
Color Control (S)	0x09	Step Color
Color Control (S)	0x0a	Move to Color Temperature
Color Control (S)[1]	0x40	Enhanced Move to Hue
Color Control (S)[1]	0x41	Enhanced Move Hue
Color Control (S)[1]	0x42	Enhanced Step Hue
Color Control (S)[1]	0x43	Enhanced Move to Hue and Saturation
Color Control (S)[2]	0x44	Color Loop Set
Color Control (S)	0x47	Stop Move Step
Color Control (S)	0x4b	Move Color Temperature
Color Control (S)	0x4c	Step Color Temperature

1501 Color Control (S)[i] = Mandatory if bit *i* of the *ColorCapabilities* attribute is equal to 1, otherwise optional.

1502 ### 34.3.4 Required Commands Generated

1503 Extended Color Light SHALL generate the commands listed in Table 157.

1504 **Table 157. Extended Color Light Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add Group Response	Add Group	U--
Groups (S)	0x01	View Group Response	View Group	U--
Groups (S)	0x02	Get Group Membership Response	Get Group Membership	U--

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Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Groups (S)	0x03	Remove Group Response	Remove Group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--
Scenes (S)	0x40	Enhanced Add Scene Response	Enhanced Add Scene	U--
Scenes (S)	0x41	Enhanced View Scene Response	Enhanced View Scene	U--
Scenes (S)	0x42	Copy Scene Response	Copy Scene	U--

34.4 PICS

An Extended Color Light device SHALL support the PICS items listed in Table 158, except where indicated in the “PICS Item” column.

Note: An Extended Color Light device MAY support other optional PICS items.

Table 158. Extended Color Light PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp, S.S.C40.Rsp, S.S.C41.Rsp, S.S.C42.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx, , S.S.C40.Tx, S.S.C41.Tx, S.S.C42.Tx

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Cluster	PICS Item
On/Off	OO.S OO.S.A0000, OO.S.A4000, OO.S.A4001, OO.S.A4002, OO.S.A4003, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp, OO.S.C40.Rsp, OO.S.C41.Rsp, OO.S.C42.Rsp
Level	LVL.S, LVL.S.LC4L LVL.S.A0000, LVL.S.A0001, LVL.S.A000f, LVL.S.A4000, LVL.S.Afffd LVL.S.C00.Rsp, LVL.S.C01.Rsp, LVL.S.C02.Rsp, LVL.S.C03.Rsp, LVL.S.C04.Rsp, LVL.S.C05.Rsp, LVL.S.C06.Rsp, LVL.S.C07.Rsp
Color Control	CC.S CC.S.A0000[0], CC.S.A0001[0], CC.S.A0002, CC.S.A0003, CC.S.A0004, CC.S.A0007, CC.S.A0008, CC.S.A000f, CC.S.A0010, CC.S.A4000, CC.S.A4001[1], CC.S.A4002[2], CC.S.A4003[2], CC.S.A4004[2], CC.S.A4005[2], CC.S.A4006[2], CC.S.A400a, CC.S.A400b, CC.S.A400c, CC.S.A400d, CC.S.A4010, CC.S.Afffd CC.S.C00.Rsp[0], CC.S.C01.Rsp[0], CC.S.C02.Rsp[0], CC.S.C03.Rsp[0], CC.S.C04.Rsp[0], CC.S.C05.Rsp[0], CC.S.C06.Rsp[0], CC.S.C07.Rsp, CC.S.C08.Rsp, CC.S.C09.Rsp, CC.S.C0a.Rsp, CC.S.C40.Rsp[1], CC.S.C41.Rsp[1], CC.S.C42.Rsp[1], CC.S.C43.Rsp[1], CC.S.C44.Rsp[2], CC.S.C47.Rsp, CC.S.C4b.Rsp, CC.S.C4c.Rsp In addition, the following PICS items SHALL be supported according to the value of the *NumberOfPrimaries* attribute (see also section 34.3.2 Required Attributes). CC.S.A0011, CC.S.A0012, CC.S.A0013, CC.S.A0015, CC.S.A0016, CC.S.A0017, CC.S.A0019, CC.S.A001a, CC.S.A001b, CC.S.A0020, CC.S.A0021, CC.S.A0022, CC.S.A0024, CC.S.A0025, CC.S.A0026, CC.S.A0028, CC.S.A0029, CC.S.A002a

1510 *PICS Item*[i] = Mandatory if bit *i* of the *ColorCapabilities* attribute is equal to 1, otherwise optional.

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35 Shade (DEPRECATED)

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36 Shade Controller (DEPRECATED)

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37 Window Covering

A Window Covering device represents an automatic window covering.

37.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

37.2 Classification

Device Name	ID	Class
Window Covering	0x0202	Simple

37.3 Cluster Requirements

A Window Covering device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 159.

Table 159. Window Covering Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0102: Window Covering	
Recommended optional		0x0019: OTA Upgrade

37.3.1 Cluster Restrictions

When a device indicates support for closed loop lift or tilt control with the *Config/Status* attribute in the Window Covering cluster, additional attributes are added to the mandatory set of attributes which are required for that cluster. Some of these additional attributes also impose reporting and scene table support requirements. For more information on the cluster definition, see the Cluster Library Specification [Z0].

37.3.2 Required Attributes

A Window Covering device SHALL support the attributes listed in Table 160.

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1528 **Table 160. Window Covering Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Groups (S)	0x0000	*NameSupport*	✖	-
Scenes (S)	0x0000	*SceneCount*	✖	-
Scenes (S)	0x0001	*CurrentScene*	✖	-
Scenes (S)	0x0002	*CurrentGroup*	✖	-
Scenes (S)	0x0003	*SceneValid*	✖	-
Scenes (S)	0x0004	*NameSupport*	✖	-
Window Covering (S)	0x0000	*WindowCoveringType*	✖	-
Window Covering (S)	0x0007	*Config/Status*	✖	-
Window Covering (S)	0x0017	*Mode*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1529 ### 37.3.3 Required Commands Received

1530 A Window Covering device SHALL receive and process the commands listed in Table 161.

1531 **Table 161. Window Covering Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	*Identify*
Identify (S)	0x01	*Identify Query*
Groups (S)	0x00	*Add group*
Groups (S)	0x01	*View group*
Groups (S)	0x02	*Get group membership*
Groups (S)	0x03	*Remove group*
Groups (S)	0x04	*Remove all groups*
Groups (S)	0x05	*Add group if identifying*
Scenes (S)	0x00	*Add Scene*
Scenes (S)	0x01	*View Scene*
Scenes (S)	0x02	*Remove Scene*
Scenes (S)	0x03	*Remove All Scenes*
Scenes (S)	0x04	*Store Scene*

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Cluster	ID	Name
Scenes (S)	0x05	*Recall Scene*
Scenes (S)	0x06	*Get Scene Membership*
Window Covering (S)	0x00	*Up / Open*
Window Covering (S)	0x01	*Down / Close*
Window Covering (S)	0x02	*Stop*

37.3.4 Required Commands Generated

A Window Covering device SHALL generate the commands listed in Table 162.

Table 162. Window Covering Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--

37.4 PICS

A Window Covering device SHALL support the PICS items listed in Table 163.

Note: A Window Covering device MAY support other optional PICS items.

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1538 **Table 163. Window Covering PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx
Window Covering	WNCV.S WNCV.S.A0000, WNCV.S.A0007, WNCV.S.A0017, WNCV.S.Afffd WNCV.S.C00.Rsp, WNCV.S.C01.Rsp, WNCV.S.C02.Rsp

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38 Window Covering Controller

A Window Covering Controller is a device that controls an automatic window covering.

38.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

38.2 Classification

Device Name	ID	Class
Window Covering Controller	0x0203	Simple

38.3 Cluster Requirements

A Window Covering Controller device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 164.

Table 164. Window Covering Controller Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0102: Window Covering
Recommended optional		0x0019: OTA Upgrade

38.3.1 Required Attributes

A Window Covering Controller device SHALL support the attributes listed in Table 165.

Table 165. Window Covering Controller Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

38.3.2 Required Commands Received

A Window Covering Controller device SHALL receive and process the commands listed in Table 166.

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1552 **Table 166. Window Covering Controller Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

1553 ### 38.3.3 Required Commands Generated

1554 A Window Covering Controller device SHALL generate the commands listed in Table 167.

1555 **Table 167. Window Covering Controller Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

1556 ## 38.4 PICS

1557 A Window Covering Controller device SHALL support the PICS items listed in Table 168.

1558 Note: A Window Covering Controller device MAY support other optional PICS items.

1559 **Table 168. Window Covering Controller PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C00.Rsp I.S.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Groups	G.C G.C.Afffd
Scenes	S.C S.C.Afffd
Window Covering	WNCV.C WNCV.C.Afffd

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39 Heating/Cooling Unit

A Heating/Cooling Unit device is capable of heating or cooling a space in a house. It is not mandatory to provide both functionalities (for example, the device may just heat but not cool). It may be an indoor air handler.

39.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

39.2 Classification

Device Name	ID	Class
Heating/Cooling Unit	0x0300	Simple

39.3 Cluster Requirements

A Heating/Cooling Unit device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 169.

Table 169. Heating/Cooling Unit Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0006: On/Off	0x0201: Thermostat
Recommended optional	0x0005: Scenes 0x0008: Level 0x0202: Fan Control	0x0019: OTA Upgrade

39.3.1 Required Attributes

A Heating/Cooling Unit device SHALL support the attributes listed in Table 170.

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1571 **Table 170. Heating/Cooling Unit Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Groups (S)	0x0000	*NameSupport*	✖	-
On/Off (S)	0x0000	*OnOff*	✓	✓
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1572 ### 39.3.2 Required Commands Received

1573 A Heating/Cooling Unit device SHALL receive and process the commands listed in Table 171.

1574 **Table 171. Heating/Cooling Unit Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Groups (S)	0x00	Add Group
Groups (S)	0x01	View Group
Groups (S)	0x02	Get Group Membership
Groups (S)	0x03	Remove Group
Groups (S)	0x04	Remove All Groups
Groups (S)	0x05	Add Group If Identifying
On/Off (S)	0x00	Off
On/Off (S)	0x01	On
On/Off (S)	0x02	Toggle

1575 ### 39.3.3 Required Commands Generated

1576 A Heating/Cooling Unit device SHALL generate the commands listed in Table 172.

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1577 **Table 172. Heating/Cooling Unit Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add Group Response	Add Group	U--
Groups (S)	0x01	View Group Response	View Group	U--
Groups (S)	0x02	Get Group Membership Response	Get Group Membership	U--
Groups (S)	0x03	Remove Group Response	Remove Group	U--

1578 ## 39.4 PICS

1579 A Heating/Cooling Unit device SHALL support the PICS items listed in Table 173.

1580 Note: A Heating/Cooling Unit device MAY support other optional PICS items.

1581 **Table 173. Heating/Cooling Unit PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, .S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
On/Off	OO.S OO.S.A0000, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp
Thermostat	TSTAT.C TSTAT.C.Afffd

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40 Thermostat

A Thermostat device is capable of having either built-in or separate sensors for temperature, humidity or occupancy. It allows the desired temperature to be set either remotely or locally. The thermostat is capable of sending heating and/or cooling requirement notifications to a heating/cooling unit (for example, an indoor air handler) or is capable of including a mechanism to control a heating or cooling unit directly.

40.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

40.2 Classification

Device Name	ID	Class
Thermostat	0x0301	Simple

40.3 Cluster Requirements

A Thermostat device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 174.

Table 174. Thermostat Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0201: Thermostat	0x0003: Identify
Recommended optional	0x0001: Power Configuration 0x0004: Groups 0x0005: Scenes 0x0009: Alarms 0x0020: Poll Control 0x0202: Fan Control 0x0204: Thermostat User Interface Configuration 0x0402: Temperature Measurement 0x0405: Relative Humidity Measurement 0x0406: Occupancy Sensing	0x000a: Time 0x0019: OTA Upgrade 0x0201: Thermostat 0x0202: Fan Control 0x0402: Temperature Measurement 0x0405: Relative Humidity Measurement 0x0406: Occupancy Sensing 0x0701: DRLC

40.3.1 Cluster Restrictions

A Thermostat device SHALL support at least one of the *OccupiedCoolingSetpoint* or *OccupiedHeatingSetpoint* attributes. The *ControlSequenceOfOperation* attribute SHALL reflect this selection in the possible modes which it allows.

The Device Response and Load Control (DRLC) client MAY be implemented on devices which wish to support load control functionality once the cluster is certifiable for a given transport.

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40.3.2 Required Attributes

A Thermostat device SHALL support the attributes listed in Table 175.

Table 175. Thermostat Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Thermostat (S)	0x0000	*LocalTemperature*	✗	✓
Thermostat (S)	0x001b	*ControlSequenceOfOperation*	✗	-
Thermostat (S)	0x001c	*SystemMode*	✓	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

40.3.3 Required Commands Received

A Thermostat device SHALL receive and process the commands listed in Table 176.

Table 176. Thermostat Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Thermostat (S)	0x00	Setpoint Raise/Lower

40.3.4 Required Commands Generated

A Thermostat device SHALL generate the commands listed in Table 177.

Table 177. Thermostat Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

40.4 PICS

A Thermostat device SHALL support the PICS items listed in Table 178.

Note: A Thermostat device MAY support other optional PICS items.

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1611 **Table 178. Thermostat PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C01.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Thermostat	TSTAT.S TSTAT.S.A0000, TSTAT.S.A001b, TSTAT.S.A001c, TSTAT.S.Afffd TSTAT.S.C00.Rsp

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41 Temperature Sensor

A Temperature Sensor device reports measurements of temperature.

41.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

41.2 Classification

Device Name	ID	Class
Temperature Sensor	0x0302	Simple

41.3 Cluster Requirements

A Temperature Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 179.

Table 179. Temperature Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0402: Temperature Measurement	0x0003: Identify
Recommended optional		0x0004: Groups 0x0019: OTA Upgrade

41.3.1 Required Attributes

A Temperature Sensor device SHALL support the attributes listed in Table 180.

Table 180. Temperature Sensor Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
Temperature Measurement (S)	0x0000	*MeasuredValue*	×	✓
Temperature Measurement (S)	0x0001	*MinMeasuredValue*	×	-
Temperature Measurement (S)	0x0002	*MaxMeasuredValue*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

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41.3.2 Required Commands Received

A Temperature Sensor device SHALL receive and process the commands listed in Table 181.

Table 181. Temperature Sensor Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

41.3.3 Required Commands Generated

A Temperature Sensor device SHALL generate the commands listed in Table 182.

Table 182. Temperature Sensor Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

41.4 PICS

A Temperature Sensor device SHALL support the PICS items listed in Table 183.

Note: A Temperature Sensor device MAY support other optional PICS items.

Table 183. Temperature Sensor PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Temperature Measurement	TMP.S TMP.S.A0000, TMP.S.A0001, TMP.S.A0002, TMP.S.Afffd

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42 Air Purifier

An Air Purifier is a device that has a fan to control the air speed while it is operating. Optionally, an Air Purifier device is also capable of reporting PM2.5 values.

42.1 Revision History

Rev	Description
1	Initial Release of Air Purifier

42.2 Classification

Device Name	ID	Class
Air Purifier	0x0308	Simple

42.3 Cluster Requirements

An Air Purifier device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 184.

Table 184. Air Purifier Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0202: Fan Control	
Recommended optional		0x0019: OTA Upgrade 0x042A: Concentration Measurement (PM2.5)

42.3.1 Required Attributes

An Air Purifier device SHALL support the attributes listed in Table 185.

Table 185. Air Purifier Required Attributes

Cluster	Identifier	Name	Scene table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Fan Control (S)	0x0000	*FanMode*	✗	-
Fan Control (S)	0x0001	*FanModeSequence*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

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42.3.2 Required Commands Received

An Air Purifier device SHALL receive and process the commands listed in Table 186.

Table 186. Air Purifier Required Commands Received

Cluster	Identifier	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Groups (S)	0x00	Add Group
Groups (S)	0x01	View Group
Groups (S)	0x02	Get Group Membership
Groups (S)	0x03	Remove Group
Groups (S)	0x04	Remove All Groups
Groups (S)	0x05	Add Group If Identifying

42.3.3 Required Commands Generated

An Air Purifier device SHALL generate the commands listed in Table 187.

Table 187. Air Purifier Required Commands Generated

Cluster	Identifier	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add Group Response	Add Group	U--
Groups (S)	0x01	View Group Response	View Group	U--
Groups (S)	0x02	Get Group Membership Response	Get Group Membership	U--
Groups (S)	0x03	Remove Group Response	Remove Group	U--

42.4 PICS

An Air Purifier device SHALL support the PICS items listed in Table 188.

Note: An Air Purifier device MAY support other optional PICS items.

Table 188. Air Purifier PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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Cluster	PICS Item
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Fan Control	FAN.S FAN.S.A0000, FAN.S.A0001, FAN.S.Afffd

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43 IAS Control and Indication Equipment

An Intruder Alarm System (IAS) Control and Indication Equipment (CIE) device is the central CIE for an Intruder Alarm System. It receives inputs from sensors (Zones) and Ancillary Control Equipment (ACE) and sends output to a warning device (WD).

43.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

43.2 Classification

Device Name	ID	Class
IAS Control and Indication Equipment (CIE)	0x0400	Simple

43.3 Cluster Requirements

An IAS CIE device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 189.

Table 189. IAS CIE Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0501: IAS ACE	0x0003: Identify 0x0500: IAS Zone 0x0502: IAS WD
Recommended optional		0x0004: Groups 0x0005: Scenes

43.3.1 Cluster Restrictions

The IAS CIE device SHALL NOT support finding and binding for the IAS ACE, IAS WD, and IAS Zone clusters.

The ability to disable the device SHALL NOT be provided. That is, if the *DeviceEnabled* attribute of the Basic cluster server is implemented, it SHALL reject attempts to write and maintain a value of 1.

43.3.2 Required Attributes

An IAS CIE device SHALL support the attributes listed in Table 190.

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1672 **Table 190. IAS CIE Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1673 ### 43.3.3 Required Commands Received

1674 An IAS CIE device SHALL receive and process the commands listed in Table 191.

1675 **Table 191. IAS CIE Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
IAS Zone (C)	0x00	Zone Status Change Notification
IAS Zone (C)	0x01	Zone Enroll Request
IAS ACE (S)	0x00	Arm
IAS ACE (S)	0x01	Bypass
IAS ACE (S)	0x02	Emergency
IAS ACE (S)	0x03	Fire
IAS ACE (S)	0x04	Panic
IAS ACE (S)	0x05	Get Zone ID Map
IAS ACE (S)	0x06	Get Zone Information
IAS ACE (S)	0x07	Get Panel Status
IAS ACE (S)	0x08	Get Bypassed Zone List
IAS ACE (S)	0x09	Get Zone Status

1676 ### 43.3.4 Required Commands Generated

1677 An IAS CIE device SHALL generate the commands listed in Table 192.

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1678 **Table 192. IAS CIE Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
IAS Zone (C)	0x00	Zone Enroll Response	Zone Enroll Request	U--
IAS ACE (S)	0x00	Arm Response	Arm	U--
IAS ACE (S)	0x01	Get Zone ID Map Response	Get Zone ID Map	U--
IAS ACE (S)	0x02	Get Zone Information Response	Get Zone Information	U--
IAS ACE (S)	0x03	Zone Status Changed	IAS Zone Cluster: Zone Status Changed	UG-
IAS ACE (S)	0x04	Panel Status Changed	-	UG-
IAS ACE (S)	0x05	Get Panel Status Response	Get Panel Status	U--
IAS ACE (S)	0x06	Set Bypassed Zone List	Get Bypassed Zone List	UG-
IAS ACE (S)	0x07	Bypass Response	Bypass	U--
IAS ACE (S)	0x08	Get Zone Status Response	Get Zone Status	U--

1679 ## 43.4 PICS

1680 An IAS CIE device SHALL support the PICS items listed in Table 193.

1681 Note: An IAS CIE device MAY support other optional PICS items.

1682 **Table 193. IAS CIE PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
IAS Zone	IASZ.C IASZ.C.Afffd IASZ.C.C00.Rsp, IASZ.C.C01.Rsp IASZ.C.C00.Tx

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Cluster	PICS Item
IAS ACE	IASACE.S IASACE.S.Afffd IASACE.S.C00.Rsp, IASACE.S.C01.Rsp, IASACE.S.C02.Rsp, IASACE.S.C03.Rsp, IASACE.S.C04.Rsp, IASACE.S.C05.Rsp, IASACE.S.C06.Rsp, IASACE.S.C07.Rsp, IASACE.S.C08.Rsp, IASACE.S.C09.Rsp IASACE.S.C00.Tx, IASACE.S.C01.Tx, IASACE.S.C02.Tx, IASACE.S.C03.Tx, IASACE.S.C04.Tx, IASACE.S.C05.Tx, IASACE.S.C06.Tx, IASACE.S.C07.Tx, IASACE.S.C08.Tx
IAS WD	IASWD.C IASWD.C.Afffd

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44 IAS Ancillary Control Equipment

An IAS Ancillary Control Equipment (ACE) device is a remote control for an Intruder Alarm System. An ACE device can access an IAS CIE device and manipulate the IAS system on behalf of a level-2 user (see EN 50131 European Standards Series for Intruder Alarm Systems). This device can also act as a Zone sensor.

44.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

44.2 Classification

Device Name	ID	Class
IAS Ancillary Control Equipment (ACE)	0x0401	Simple

44.3 Cluster Requirements

An IAS ACE device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 194.

Table 194. IAS ACE Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0500: IAS Zone	0x0003: Identify 0x0501: IAS ACE
Recommended optional		0x0019: OTAUpgrade

44.3.1 Cluster Restrictions

The IAS ACE device SHALL NOT support finding and binding for the IAS ACE, IAS WD, and IAS Zone clusters.

44.3.2 Required Attributes

An IAS ACE device SHALL support the attributes listed in Table 195.

Table 195. IAS ACE Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
IAS Zone (S)	0x0000	*ZoneState*	✖	-
IAS Zone (S)	0x0001	*ZoneType*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
IAS Zone (S)	0x0002	*ZoneStatus*	✖	-
IAS Zone (S)	0x0010	*IAS_CIE_Address*	✖	-
IAS Zone (S)	0x0011	*ZoneID*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

44.3.3 Required Commands Received

An IAS ACE SHALL device receive and process the commands listed in Table 196.

Table 196. IAS ACE Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
IAS Zone (S)	0x00	Zone Enroll Response

44.3.4 Required Commands Generated

An IAS ACE SHALL device generate the commands listed in Table 197.

Table 197. IAS ACE Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
IAS Zone (S)	0x00	Zone Status Change Notification	-	U--
IAS Zone (S)	0x01	Zone Enroll Request	-	U--

44.4 PICS

An IAS ACE SHALL device support the PICS items listed in Table 198.

Note: An IAS ACE MAY device support other optional PICS items.

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1708 **Table 198. IAS ACE PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
IAS Zone	IASZ.S IASZ.S.A0000, IASZ.S.A0001, IASZ.S.A0002, IASZ.S.A0010, IASZ.S.A0011, IASZ.S.Afffd IASZ.S.C00.Rsp IASZ.S.C00.Tx, IASZ.S.C01.Tx
IAS ACE	IASACE.C IASACE.C.Afffd

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45 IAS Zone

An IAS Zone device detects alarm conditions (for example, intrusion, fire) and signals them to the Control and Indicating Equipment (CIE) of an IAS system. An IAS Zone device supports up to two alarm types: low battery reports and supervision of the IAS network.

45.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

45.2 Classification

Device Name	ID	Class
IAS Zone	0x0402	Simple

45.3 Cluster Requirements

An IAS Zone device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 199.

Table 199. IAS Zone Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0500: IAS Zone	
Recommended optional		0x0019: OTAUpgrade

45.3.1 Cluster Restrictions

The IAS Zone device SHALL NOT support finding and binding for the IAS ACE, IAS WD, and IAS Zone clusters.

45.3.2 Required Attributes

An IAS Zone device SHALL support the attributes listed in Table 200.

Table 200. IAS Zone Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
IAS Zone (S)	0x0000	*ZoneState*	✖	-
IAS Zone (S)	0x0001	*ZoneType*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
IAS Zone (S)	0x0002	*ZoneStatus*	✖	-
IAS Zone (S)	0x0010	*IAS_CIE_Address*	✖	-
IAS Zone (S)	0x0011	*ZoneID*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

45.3.3 Required Commands Received

An IAS Zone device SHALL receive and process the commands listed in Table 201.

Table 201. IAS Zone Required Commands Received

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
IAS Zone (S)	0x00	Zone Enroll Response

45.3.4 Required Commands Generated

An IAS Zone device SHALL generate the commands listed in Table 202.

Table 202. IAS Zone Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
IAS Zone (S)	0x00	Zone Status Change Notification	-	U--
IAS Zone (S)	0x01	Zone Enroll Request	-	U--

45.4 PICS

An IAS Zone device SHALL support the PICS items listed in Table 203.

Note: An IAS Zone device MAY support other optional PICS items.

Table 203. IAS Zone PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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Cluster	PICS Item
IAS Zone	IASZ.S IASZ.S.A0000, IASZ.S.A0001, IASZ.S.A0002, IASZ.S.A0010, IASZ.S.A0011, IASZ.S.Afffd IASZ.S.C00.Rsp IASZ.S.C00.Tx, IASZ.S.C01.Tx

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46 IAS Warning Device

An IAS Warning Device (WD) can produce audible and visible warning indications (for example, siren, strobe lighting, etc.) when instructed to by an IAS Central Indicating Equipment (CIE) on detection of a system alarm condition. The IAS WD can also act as a sensor (Zone).

46.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

46.2 Classification

Name	ID	Class
IAS Warning Device (WD)	0x0403	Simple

46.3 Cluster Requirements

An IAS WD SHALL device support the mandatory clusters and MAY support the recommended optional clusters listed in Table 204.

Table 204. IAS WD Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0500: IAS Zone 0x0502: IAS WD	
Recommended optional	0x0004: Groups 0x0005: Scenes	0x0019: OTAUpgrade

46.3.1 Cluster Restrictions

The IAS WD device SHALL NOT support finding and binding for the IAS ACE, IAS WD, and IAS Zone clusters.

An IAS WD device MAY poll at a maximum rate of once per second when it is implemented as a battery-powered ZigBee end device that sleeps. It is recommended that this exception be used cautiously, and that the number of devices installed in a network that make use of this be kept to a minimum.

46.3.2 Required Attributes

An IAS WD device SHALL support the attributes listed in Table 205.

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1753 **Table 205. IAS WD Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
IAS Zone (S)	0x0000	*ZoneState*	×	-
IAS Zone (S)	0x0001	*ZoneType*	×	-
IAS Zone (S)	0x0002	*ZoneStatus*	×	-
IAS Zone (S)	0x0010	*IAS_CIE_Address*	×	-
IAS Zone (S)	0x0011	*ZoneID*	×	-
IAS WD (S)	0x0000	*MaxDuration*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

1754 ### 46.3.3 Required Commands Received

1755 An IAS WD device SHALL receive and process the commands listed in Table 206.

1756 **Table 206. IAS WD Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
IAS Zone (S)	0x00	Zone Enroll Response
IASWD (S)	0x00	Start Warning
IASWD (S)	0x01	Squawk

1757 ### 46.3.4 Required Commands Generated

1758 An IAS WD device SHALL generate the commands listed in Table 207.

1759 **Table 207. IAS WD Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
IAS Zone (S)	0x00	Zone Status Change Notification	-	U--
IAS Zone (S)	0x01	Zone Enroll Request	-	U--

1760 ## 46.4 PICS

1761 An IAS WD device SHALL support the PICS items listed in Table 208.

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1762 Note: An IAS WD device MAY support other optional PICS items.

1763 **Table 208. IAS WD PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
IAS Zone	IASZ.S IASZ.S.A0000, IASZ.S.A0001, IASZ.S.A0002, IASZ.S.A0010, IASZ.S.A0011, IASZ.S.Afffd IASZ.S.C00.Rsp IASZ.S.C00.Tx, IASZ.S.C01.Tx
IAS WD	IASWD.S IASWD.S.A0000, IASWD.S.Afffd IASWD.S.C00.Rsp, IASWD.S.C01.Rsp

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47 Color Controller

A Color Controller is a controller device that, when bound to a lighting device such as a color light, is capable of being used to switch the device on or off, adjust the intensity of the light being emitted and adjust the color of the light being emitted.

47.1 Revision History

Rev	Description
0	Revision is zero before revision numbers are defined and is required.
1	Initial Zigbee 3.0 release

47.2 Classification

Device Name	ID	Class
Color Controller	0x0800	Simple

47.3 Cluster Requirements

A Color Controller device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 209.

Table 209. Color Controller Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off 0x0008: Level 0x0300: Color Control
Recommended optional	0x1000: Touchlink Commissioning	0x0004: Groups 0x0019: OTAUpgrade 0x1000: Touchlink Commissioning

47.3.1 Cluster Restrictions

If the Touchlink Commissioning cluster is supported on a device, then the server side of the utility part of this cluster SHALL be mandatory.

47.3.2 Required Attributes

A Color Controller device SHALL support the attributes listed in Table 210.

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1779 **Table 210. Color Controller Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-
Basic (S)	0x0006	*DateCode*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1780 ### 47.3.3 Required Commands Received

1781 A Color Controller device SHALL receive and process the commands listed in Table 211. The device MAY
1782 also generate any other client-side commands from the Identify, On/Off, Level, and Color Control clusters

1783 **Table 211. Color Controller Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

1784 ### 47.3.4 Required Commands Generated

1785 A Color Controller device SHALL generate the commands listed in Table 212.

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1786 **Table 212. Color Controller Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Identify (C)	0x01	Identify Query	-	UGB

1787 ## 47.4 PICS

1788 A Color Controller device SHALL support the PICS items listed in Table 213.

1789 Note: A Color Controller device MAY support other optional PICS items.

1790 **Table 213. Color Controller PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd
Color Control	CC.C CC.C.Afffd

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48 Color Scene Controller

A Color Scene Controller is a controller device that, when bound to a lighting device such as a color light, is capable of being used to switch the device on or off, adjust the intensity of the light being emitted and adjust the color of the light being emitted. In addition, the device is also capable of being used for setting scenes.

48.1 Revision History

Rev	Description
0	Revision is zero before revision numbers are defined and is required.
1	Initial Zigbee 3.0 release

48.2 Classification

Device Name	ID	Class
Color Scene Controller	0x0810	Simple

48.3 Cluster Requirements

A Color Scene Controller device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 214.

Table 214. Color Scene Controller Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0005: Scenes 0x0006: On/Off 0x0008: Level 0x0300: Color Control
Recommended optional	0x1000: Touchlink Commissioning	0x0004: Groups 0x0019: OTAUpgrade 0x1000: Touchlink Commissioning

48.3.1 Cluster Restrictions

If the Touchlink Commissioning cluster is supported on this device, then the server side of the utility part of this cluster SHALL be mandatory.

48.3.2 Required Attributes

A Color Scene Controller device SHALL support the attributes listed in Table 215.

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1806 **Table 215. Color Scene Controller Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-
Basic (S)	0x0006	*DateCode*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1807 ### 48.3.3 Required Commands Received

1808 A Color Scene Controller device SHALL receive and process the commands listed in Table 216.

1809 **Table 216. Color Scene Controller Required Commands Received**

Cluster	ID	Name	Mandatory on transmission of
Identify (C)	0x00	Identify Query Response	Identify Query
Scenes (C)	0x00	Add Scene Response	Add Scene
Scenes (C)	0x01	View Scene Response	View Scene
Scenes (C)	0x02	Remove Scene Response	Remove Scene
Scenes (C)	0x03	Remove All Scenes Response	Remove All Scenes
Scenes (C)	0x04	Store Scene Response	Store Scene
Scenes (C)	0x06	Get Scene Membership Response	Get Scene Membership
Scenes (C)	0x40	Enhanced Add Scene Response	Enhanced Add Scene
Scenes (C)	0x41	Enhance View Scene Response	Enhanced View Scene
Scenes (C)	0x42	Copy Scene Response	Copy Scene
Identify (S)	0x00	Identify	-

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Cluster	ID	Name	Mandatory on transmission of
Identify (S)	0x01	Identify Query	-
Identify (S)	0x40	Trigger effect	-

48.3.4 Required Commands Generated

A Color Scene Controller device SHALL generate the commands listed in Table 217. The device MAY also generate any other client-side commands from the Identify, Scenes, On/Off, Level, and Color Control clusters.

Table 217. Color Scene Controller Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

48.4 PICS

A Color Scene Controller device SHALL support the PICS items listed in Table 218.

Note: A Color Scene Controller device MAY support other optional PICS items.

Table 218. Color Scene Controller PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Scenes	S.C S.C.Afffd In addition, the following PICS items SHALL be supported according to whether the device transmits the associated request commands: S.C.C00.Rsp, S.C.C01.Rsp, S.C.C02.Rsp, S.C.C03.Rsp, S.C.C04.Rsp, S.C.C06.Rsp
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd
Color Control	CC.C CC.C.Afffd

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49 Non-Color Controller

A Non-Color Controller is a controller device that, when bound to a lighting device such as a dimmable light, is capable of being used to switch the device on or off and adjust the intensity of the light being emitted.

49.1 Revision History

Rev	Description
0	Revision is zero before revision numbers are defined and is required.
1	Initial Zigbee 3.0 release

49.2 Classification

Device Name	ID	Class
Non-Color Controller	0x0820	Simple

49.3 Cluster Requirements

A Non-Color Controller device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 219.

Table 219. Non-Color Controller Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off 0x0008: Level
Recommended optional	0x1000: Touchlink Commissioning	0x0004: Groups 0x0019: OTAUpgrade 0x1000: Touchlink Commissioning

49.3.1 Cluster Restrictions

If the Touchlink Commissioning cluster is supported on this device, then the server side of the utility part of this cluster SHALL be mandatory.

49.3.2 Required Attributes

A Non-Color Controller device SHALL support the attributes listed in Table 220.

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1832 **Table 220. Non-Color Controller Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-
Basic (S)	0x0006	*DateCode*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

1833 ### 49.3.3 Required Commands Received

1834 A Non-Color Controller device SHALL receive and process the commands listed in Table 221.

1835 **Table 221. Non-Color Controller Required Commands Received**

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

1836 ### 49.3.4 Required Commands Generated

1837 A Non-Color Controller device SHALL generate the commands listed in Table 222. The device MAY also
1838 generate any other client-side commands from the Identify, On/Off, and Level clusters.

1839 **Table 222. Non-Color Controller Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

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49.4 PICS

A Non-Color Controller device SHALL support the PICS items listed in Table 223.

Note: A Non-Color Controller device MAY support other optional PICS items.

Table 223. Non-Color Controller PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd

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50 Non-Color Scene Controller

A Non-Color Scene Controller is a controller device that, when bound to a lighting device such as a dimmable light, is capable of being used to switch the device on or off and adjust the intensity of the light being emitted. In addition, the Non-Color Scene Controller is also capable of being used for setting scenes.

50.1 Revision History

Rev	Description
0	Revision is zero before revision numbers are defined and is required.
1	Initial Zigbee 3.0 release

50.2 Classification

Device Name	ID	Class
Non-Color Scene Controller	0x0830	Simple

50.3 Cluster Requirements

A Non-Color Scene Controller device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 224.

Table 224. Non-Color Scene Controller Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0005: Scenes 0x0006: On/Off 0x0008: Level
Recommended optional	0x1000: Touchlink Commissioning	0x0004: Groups 0x0019: OTAUpgrade 0x1000: Touchlink Commissioning

50.3.1 Required Attributes

A Non-Color Scene Controller device SHALL support the attributes listed in Table 225.

Table 225. Non-Color Scene Controller Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0006	*DateCode*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

50.3.2 Required Commands Received

A Non-Color Scene Controller device SHALL receive and process the commands listed in Table 226.

Table 226. Non-Color Scene Controller Required Commands Received

Cluster	ID	Name	Mandatory on transmission of
Identify (C)	0x00	Identify Query Response	Identify Query
Scenes (C)	0x00	Add Scene Response	Add Scene
Scenes (C)	0x01	View Scene Response	View Scene
Scenes (C)	0x02	Remove Scene Response	Remove Scene
Scenes (C)	0x03	Remove All Scenes Response	Remove All Scenes
Scenes (C)	0x04	Store Scene Response	Store Scene
Scenes (C)	0x06	Get Scene Membership Response	Get Scene Membership
Scenes (C)	0x40	Enhanced Add Scene Response	Enhanced Add Scene
Scenes (C)	0x41	Enhance View Scene Response	Enhanced View Scene
Scenes (C)	0x42	Copy Scene Response	Copy Scene
Identify (S)	0x00	Identify	-
Identify (S)	0x01	Identify Query	-
Identify (S)	0x40	Trigger effect	-

50.3.3 Required Commands Generated

A Non-Color Scene Controller device SHALL generate the commands listed in Table 227. The device MAY also generate any other client-side commands from the Identify, Scenes, On/Off, and Level clusters.

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1863 **Table 227. Non-Color Scene Controller Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

1864 ## 50.4 PICS

1865 A Non-Color Scene Controller device SHALL support the PICS items listed in Table 228.

1866 Note: A Non-Color Scene Controller device MAY support other optional PICS items.

1867 **Table 228. Non-Color Scene Controller PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Scenes	S.C S.C.Afffd In addition, the following PICS items SHALL be supported according to whether the device transmits the associated request commands: S.C.C00.Rsp, S.C.C01.Rsp, S.C.C02.Rsp, S.C.C03.Rsp, S.C.C04.Rsp, S.C.C06.Rsp
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd

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51 Control Bridge

A Control Bridge is a controller device that, when bound to a lighting device such as a color light, is capable of being used to switch the device on or off, adjust the intensity of the light being emitted and adjust the color of the light being emitted. In addition, a Control Bridge device is capable of being used for setting scenes.

51.1 Revision History

Rev	Description
0	Revision is zero before revision numbers are defined and is required.
1	Initial Zigbee 3.0 release

51.2 Classification

Device Name	ID	Class
Control Bridge	0x0840	Dynamic

51.3 Cluster Requirements

A Control Bridge device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 229.

Table 229. Control Bridge Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0008: Level 0x0300: Color Control
Recommended optional	0x0019: OTAUpgrade 0x1000: Touchlink Commissioning	0x0400: Illuminance Measurement 0x0401: Illuminance Level Sensing 0x0406: Occupancy Sensing 0x0019: OTAUpgrade 0x1000: Touchlink Commissioning

51.3.1 Cluster Restrictions

If the Touchlink Commissioning cluster is supported on this device, then the server side of the utility part of this cluster SHALL be mandatory.

51.3.2 Required Attributes

A Control Bridge device SHALL support the attributes listed in Table 230.

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1883 **Table 230. Control Bridge Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0001	*ApplicationVersion*	×	-
Basic (S)	0x0002	*StackVersion*	×	-
Basic (S)	0x0003	*HWVersion*	×	-
Basic (S)	0x0004	*ManufacturerName*	×	-
Basic (S)	0x0005	*ModelIdentifier*	×	-
Basic (S)	0x0006	*DateCode*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Basic (S)	0x0008	*GenericDeviceClass*	×	-
Basic (S)	0x0009	*GenericDeviceType*	×	-
Basic (S)	0x000a	*ProductCode*	×	-
Basic (S)	0x000b	*ProductURL*	×	-
Basic (S)	0x4000	*SWBuildID*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

1884 ### 51.3.3 Required Commands Received

1885 A Control Bridge device SHALL receive and process the commands listed in Table 231.

1886 **Table 231. Control Bridge Required Commands Received**

Cluster	ID	Name	Mandatory on transmission of
Identify (C)	0x00	Identify Query Response	Identify Query
Groups (C)	0x00	Add group response	Add Group
Groups (C)	0x01	View group response	View Group
Groups (C)	0x02	Get group membership response	Get Group Membership
Groups (C)	0x03	Remove group response	Remove Group
Scenes (C)	0x00	Add Scene Response	Add Scene
Scenes (C)	0x01	View Scene Response	View Scene
Scenes (C)	0x02	Remove Scene Response	Remove Scene
Scenes (C)	0x03	Remove All Scenes Response	Remove All Scenes
Scenes (C)	0x04	Store Scene Response	Store Scene
Scenes (C)	0x06	Get Scene Membership Response	Get Scene Membership

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Cluster	ID	Name	Mandatory on transmission of
Scenes (C)	0x40	Enhanced Add Scene Response	Enhanced Add Scene
Scenes (C)	0x41	Enhance View Scene Response	Enhanced View Scene
Scenes (C)	0x42	Copy Scene Response	Copy Scene
Identify (S)	0x00	Identify	-
Identify (S)	0x01	Identify Query	-
Identify (S)	0x40	Trigger effect	-

51.3.4 Required Commands Generated

A Control Bridge device SHALL generate the commands listed in Table 232. The device MAY also generate any other client-side commands from the Identify, Groups, Scenes, On/Off, Level, and Color Control clusters.

Table 232. Control Bridge Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

51.4 PICS

A Control Bridge device SHALL support the PICS items listed in Table 233.

Note: A Control Bridge device MAY support other optional PICS items.

Table 233. Control Bridge PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Groups	G.C G.C.Afffd G.C.C00.Rsp, G.C.C01.Rsp, G.C.C02.Rsp, G.C.C03.Rsp
Scenes	S.C S.C.Afffd In addition, the following PICS items SHALL be supported according to whether the device transmits the associated request commands: S.C.C00.Rsp, S.C.C01.Rsp, S.C.C02.Rsp, S.C.C03.Rsp, S.C.C04.Rsp, S.C.C06.Rsp, S.C.C40.Rsp, S.C.C41.Rsp, S.C.C42.Rsp

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Cluster	PICS Item
On/Off	OO.C OO.C.Afffd
Level	LVL.C LVL.C.Afffd
Color Control	CC.C CC.C.Afffd

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52 On/Off Sensor

An On/Off Sensor is a measurement and sensing device that, when bound to a lighting device such as a color light, is capable of being used to switch the device on or off.

52.1 Revision History

Rev	Description
0	Revision is zero before revision numbers are defined and is required.
1	Initial Zigbee 3.0 release

52.2 Classification

Device Name	ID	Class
On/Off Sensor	0x0850	Simple

52.3 Cluster Requirements

An On/Off Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 234.

Table 234. On/Off Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off
Recommended optional	0x1000: Touchlink Commissioning	0x0004: Groups 0x0005: Scenes 0x0008: Level 0x0300: Color Control 0x0019: OTAUpgrade 0x1000: Touchlink Commissioning

52.3.1 Required Attributes

An On/Off Sensor device SHALL support the attributes listed in Table 235.

Table 235. On/Off Sensor Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0006	*DateCode*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

52.3.2 Required Commands Received

An On/Off Sensor device SHALL receive and process the commands listed in Table 236.

Table 236. On/Off Sensor Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

52.3.3 Required Commands Generated

An On/Off Sensor device SHALL generate the commands listed in Table 237. The device MAY also generate any other client-side commands from the Identify and On/Off clusters.

Table 237. On/Off Sensor Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

52.4 PICS

An On/Off Sensor device SHALL support the PICS items listed in Table 238.

Note: An On/Off Sensor device MAY support other optional PICS items.

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1917 **Table 238. On/Off Sensor PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd

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Annex A. Device Specification Template

This annex provides a template that can be used to develop a device definition for inclusion in this document. The text of this chapter will be replaced with a brief, non-normative introduction of the device definition which explains the usual features and functions of the end device which is being defined.

In this template, values such as <Device Name> indicate a value to be replaced. Normative keywords in this section apply to the authoring of a device type specification. Guidance text, which SHALL be removed is formatted in *italics*.

A.1 Revision History

Each device specification in the library defines the latest required revision of the device. The revision of a device is identified by a Revision (Rev) number. For device types which existed in specifications prior to Zigbee 3.0 the revision number 0 SHALL be reserved for those previous implementations. New device types SHALL begin numbering at 1. In both cases, subsequent revisions SHALL increment the revision number when changes to the device type are made.

This section shows the history of released device specifications with a short informative description. For any implementation, the device revision number SHALL be discoverable. Implementations conforming to this specification SHALL use the highest value in the Rev column for each Revision History table for the device(s) they implement. For example: On the Zigbee transport, for each endpoint instance the Application Device Version field in the Simple Descriptor SHALL be the highest Rev value for that device.

If a revision of 15 or higher is encountered, the group MUST work to ensure it will be supported on all transports (for example, Zigbee Simple Descriptor Version limitations).

Rev	Description
1	Initial release of <Device Name>

A.2 Classification

For each device specification in this library, this section describes the classification and identification for the device. Only the table SHALL be included in a completed device type specification. All subsections SHALL be removed.

Device Name	ID	Class
<Device Name>	<16-bit unsigned integer>	<Node, Simple *or* Dynamic>

A.2.1 Name

This field specifies the name of the device type and SHOULD be identical to the device type chapter title. The name SHOULD avoid characters which are not alphanumeric, for example, slashes and dashes.

A.2.2 ID

This field specifies the 16-bit unsigned identifier that is used on the network to identify the device type. This value is managed and assigned by the CSA. Requests for an ID SHALL be made to the chair of the Data Model TSG.

A.2.3 Class

This field specifies the class of the device as defined in section 1.10, Device Class*. It is expected that most devices will be classified as Simple.*

A.3 Device Requirements

When present, this section includes any restrictions that are placed upon the device type. Examples include:

- *Specifying that finding and binding is optional for a Simple type device*
- *Specifying required behavior at the network level*
- *Disallowing certain device level behaviors*

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If there are no restrictions, the section SHALL be omitted.

A.4 Cluster Requirements

Clusters are the objects that are the building blocks for devices in the data model. Each device type specification lists required clusters in a table depending on class. A cluster specification defines requirements for a cluster as a client or as a server which is shown in each table. Each table entry contains the Cluster ID and Cluster Name.

A device type definition specifies a minimal configuration necessary for conformance. Clusters defined as recommended in the cluster requirements table section are recommended to enhance the primary function of the device type. Unless otherwise restricted in the text of a device type definition an implementer MAY add extra standard and/or manufacturer specific clusters and cluster elements to an implementation. Extra clusters, features or cluster items, SHALL only enhance, not change, the function of the device type. Any extra standard clusters SHALL be subject to cluster conformance testing. The interactions of any extra clusters with the required and recommended clusters are manufacturer specific.

All device types SHALL include the following clusters:

- *0x0000 Basic Server*
- *0x0003 Identify Server*

For Simple class device types, the list of mandatory clusters SHALL include any clusters which are required by the finding and binding roles that the mandatory clusters require. If a device type supports both Initiator and Target clusters, it SHALL support both roles simultaneously.

A Simple class device type with the Initiator role SHALL require:

- *0x0003 Identify Client*

A Simple class device type with the Initiator role SHOULD recommend or require:

- *0x0004 Groups Client for devices that have use cases which require communication with multiple devices*
- *0x0005 Scenes Client for devices that have use cases which require the configuration or activation of scenes.*

A Simple class device type with the Target role SHOULD recommend or require:

- *0x0004 Groups Server for device types that have use cases where control of multiple devices is desired.*
- *0x0005 Scenes Server SHOULD be implemented on endpoints with application clusters that specify scene table extensions. If an endpoint does not implement application clusters which support scene extensions, the Scenes server SHOULD NOT be implemented.*

In all cases, the author SHALL consider the security impacts of mandating the recommended clusters. (for example, the security requirements of a door lock would be significantly impacted by the implementation of the groups and scenes clusters).

A <Device Name> device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in **Error! Reference source not found.**.

Table 239. <Device Name> Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	
Recommended optional		

A.4.1 Cluster Restrictions

When present, this section includes any restrictions that are placed upon the device type clusters. Examples include:

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- *Restricting the implementation of specific clusters (for example, disallowing groups and scenes clusters on a door lock for security purposes)*
- *Adding commentary on suggested optional features*
- *Specifying required behavior when implementing a feature*

If there are no restrictions, the section SHALL be omitted.

A.4.2 Required Attributes

The following table SHALL include all mandatory attributes from the clusters listed in **Error! Reference s ource not found.**. *A device type MAY impose the need to implement attributes marked as optional in the cluster definition.*

The scene table column SHALL match the scene extensions specified by the cluster with no modifications permitted.

The Reportable column SHALL indicate reporting is required for any listed attributes mandated as reportable by the cluster. A device type may also place additional requirements for reporting on attributes by marking them as reportable.

When developing a device type, the author SHOULD require the following optional attributes on the Basic server:

- *0x0001 ApplicationVersion*
- *0x0002 StackVersion*
- *0x0003 HWVersion*
- *0x0004 ManufacturerName*
- *0x0005 ModelIdentifier*
- *0x0006 DateCode*
- *0x0008 GenericDeviceClass*
- *0x0009 GenericDeviceType*
- *0x000a ProductCode*
- *0x000b ProductURL*
- *0x4000 SWBuildID*

The All supported clusters (S & C) row SHALL be the last row in the table.

A <Device Name> device SHALL support the attributes listed in **Error! Reference source not found.**.

- **Table 240. <Device Name> Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S & C)	0xfffd	*ClusterRevision*	✖	-

A.4.3 Required Commands Received

The following table SHALL include all commands that are mandatory for the device type to implement. This includes all mandatory received commands for the required clusters plus any optional commands the device needs to process to meet the device type requirements.

A <Device Name> device SHALL receive and process the commands listed in **Error! Reference source not f ound.**.

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2032 **Table 241. <Device Name> Required Commands Received**

Cluster	ID	Name
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

2033 ## A.4.4 Required Commands Generated

2034 *The following table SHALL include all commands that are mandatory for the device type to implement. This*
2035 *includes all responses to required commands received and MAY include any optional commands the device*
2036 *needs to process to meet the device type requirements*

2037 *The On Receipt Of column indicates which command triggers the generated command. If the command is not*
2038 *generated in response to a received command, the column shall contain a '-'.*

2039 *The Permitted Transmissions indicates which of the following transmission options are permitted:*

2040 • *'U' – Unicast (messages that are sent to an address for a specific node)*
2041 • *'G' – Groupcast (messages that are sent to an address for a group of nodes, also called multicast)*
2042 • *'B' – Broadcast (messages that are sent to all nodes on the network)*

2043 *Unless specified by a cluster, all messages returned in response to another SHALL be sent by unicast only (that*
2044 *is, U--).*

2045 *Messages that are generated by the device without a received message MAY be sent via the appropriate*
2046 *transmission types depending on the use case. These transmission types SHALL follow cluster restrictions.*

2047 A <Device Name> device SHALL generate the commands listed in **Error! Reference source not found.**.

2048 **Table 242. <Device Name> Required Commands Generated**

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (S)	0x00	Identify Query Response	Identify Query	U--

2049 ## A.4.5 PICS

2050 *The table below SHALL include the PICS items that are required to implement the device. This includes PICS*
2051 *for all attributes, commands received, and command generated listed in the tables above. Additional PICS items*
2052 *for a given cluster such as feature support are also to be specified if required to produce a compliant device.*

2053 *Attribute PICS take the form <Cluster PICS Code>.<Cluster Side>.A<Attribute Id lowercase>. For example,*
2054 *the basic cluster (B) server (S) attribute ProductCode (0x000a) has a PICS code of B.S.A000a.*

2055 *Commands Received PICS take the form <Cluster PICS Code>.<Cluster Side>.C<Command Id*
2056 *lowercase>.Rsp. For example, the identify cluster (I) server (S) command IdentifyQuery (0x01) has a PICS code*
2057 *of I.S.C01.Rsp.*

2058 *Commands Generated PICS take the form <Cluster PICS Code>.<Cluster Side>.C<Command Id*
2059 *lowercase>.Tx. For example, the identify cluster (I) server (S) command IdentifyQueryResponse (0x00) has a*
2060 *PICS code of I.S.C00.Tx.*

2061 *The following ordering rules SHALL be observed:*

2062 *1. Clusters are sorted by Cluster ID.*
2063 *2. All Client PICS items are listed before Server PICS item for a given cluster.*
2064 *3. The indicator of support for Client or Server is the first (for example, B.S or B.C).*
2065 *4. The attribute PICS immediately follow the Client or Server support indicator.*
2066 *5. The commands received immediately follow the attribute PICS.*
2067 *6. The commands generated immediately follow the commands received PICS.*
2068 *7. Any feature PICS immediately follow the commands generated PICS.*

2069 A <Device Name> device SHALL support the PICS items listed in Table 243.

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2070 Note: A <Device Name> device MAY support other optional PICS items.

2071 **Table 243. <Device Name> PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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Annex B. Battery Reporting Behavior for Consumer Devices

This annex describes the recommended behavior of consumer devices that have batteries. Managed devices such as meters may use other strategies.

Every device with a battery should implement the Power Configuration cluster. Devices implementing the IAS Zone cluster will also implement the mandatory ZoneStatus attribute which contains a mechanism for reporting low battery.

B.1 Battery Measurement Guidelines

The following guidelines also apply to measurement of percent remaining.

Accurate battery measurement is a key feature of any ecosystem. Customers require the ability to be notified when a device's battery level is low well in advance of depletion. To ensure consistent and meaningful battery level information being reported, devices should implement the following battery measurement guidelines:

1. Battery voltage measurement should be performed at the moment of peak current draw.
    a. This may vary depending on the device but typically occurs at transmit or when performing mechanical behavior (for example, operating relays on a thermostat, actuating the deadbolt on a door lock).
    b. Manufacturers should determine the moment of peak current draw at which to measure battery voltage.
2. The battery voltage measurement reported should be the result of applying a low pass filter on actual battery measurements (for example, the average of the last 16 measurements).
    a. This smooths the natural variation of measurements due to temperature or another operational variance.
3. Only when the battery voltage measurement average reaches the battery voltage threshold levels defined in the appropriate threshold attributes should the appropriate alarm or attribute report be updated and reported. The threshold attribute values are defined by the manufacturer.
4. Devices should “latch” battery status: they should not clear battery alarms or update threshold status attributes unless the battery has been replaced. Due to the impact of temperature on voltage for some battery types, manufacturers should carefully choose battery type for devices intended for outdoor use.
    a. Upon device reboot after battery change, a device should measure battery voltage during network rejoin transmission to determine that the battery voltage level is above any battery voltage reporting threshold
    b. A hysteresis mechanism should be employed that requires the voltage level to increase by a sufficient amount to prevent temperature-related fluctuations in the voltage measurement from causing the alarm or attribute report to repeatedly toggle at the margin of the voltage threshold.

B.2 Battery Status and Alarms

The battery level of a device that is primarily powered by batteries (that is, not just battery-backed up) is a critical part of the manageability of the device for service providers.

For devices implementing the IAS Zone cluster, upon reaching the factory-programmed battery voltage threshold or percent remaining threshold corresponding with 60-days of remaining battery life, the device should report this threshold being reached using the Zone Status Change Notification command and setting the Low Battery bit = TRUE. At the point that the Low Battery bit = TRUE the sensor should latch to that state until the voltage measured or percent remaining returns to a value high enough to indicate that fresh batteries have been installed. The sensor should not enter and exit the low battery state because the measured value has increased to just above the threshold. Only installation of fresh batteries should cause the device clear these threshold alarms or clear battery alarm state.

For devices implementing the IAS Zone cluster that support both AC and battery power sources, they should not report low battery alarms or battery alarm state if the user has not installed batteries. Instead, they should send a Zone Status Change Notification command and set the Bad Battery bit to TRUE.

B.3 Device Shutdown Behavior

Device shutdown is defined as a quiescent device state with no RX or TX activity, and no UI, LED, or response to user interaction. Device behavior in shutdown should be the same as when the device has no power. The intent of device shutdown is to keep a device from having reduced functionality or abnormal behavior caused by low voltage (that is, low battery). The device should implement a shutdown voltage threshold below which it enters the shutdown state and ceases to operate. The shutdown voltage threshold must be set such that the device does not incur any abnormal or reduced behavior caused by low voltage. Reduced behavior can be mechanical

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in nature (for example, door lock deadbolt no longer functions) or can be reduced RF transmit power or RX sensitivity. Abnormal behavior can be reboots due to voltage fluctuations below the minimum voltage requirements for the hardware or failure of hardware to function. Recovery from shutdown should only be initiated by a device reboot or by connecting to an AC power source.

B.4 Additional Guidelines for Battery Devices

In addition to meeting the requirements listed above, these implementation suggestions will improve the overall experience with battery-powered devices in the network:

- Limit the time that the processor is awake during events by disabling any debug printing. Doing so will have a positive impact on battery life.
- Do not perform unnecessary transmits.
    - For example, limit the number of data polls that the device does once it is enrolled in the security system. After a transaction has completed, a single data poll with "no frame pending" is all that is needed to ensure that the sensor has received all messages.
    - Consolidate reports for all reportable attributes in a cluster into a single message.
- Send OTA upgrade cluster query next image requests only once every 24 hours. Most of the time there is not an upgrade image waiting for a device, so a delay of up to 24 hours when an image is available is acceptable.

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Annex C. Simple Sensor

This device type cannot currently be certified as the Binary Input (Basic) cluster is not certifiable.

A Simple Sensor is a device that only supports a binary input. Usage examples are window magnet contacts and other simple on/off devices that have no “active” function and are only capable of reporting their status.

Note: For contact sensors, most implementations prefer Intruder Alarm System (IAS) devices because this allows them to integrate with security systems.

C.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

C.2 Classification

Device Name	ID	Class
Simple Sensor	0x000c	Simple

C.3 Cluster Requirements

A Simple Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 244.

Table 244. Simple Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x000f: Binary Input (Basic)	0x0003: Identify
Recommended optional		0x0019: OTA Upgrade

C.4 Required Attributes

A Simple Sensor device SHALL support the attributes listed in Table 245.

Table 245. Simple Sensor Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

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C.5 Required Commands Received

A Simple Sensor device SHALL receive and process the commands listed in Table 246.

Table 246. Simple Sensor Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

C.6 Required Commands Generated

A Simple Sensor device SHALL generate the commands listed in Table 247.

Table 247. Simple Sensor Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

C.7 PICS

A Simple Sensor device SHALL support the PICS items listed in Table 248.

Note: A Simple Sensor device MAY support other optional PICS items.

Table 248. Simple Sensor PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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Annex D. Light Level Sensor

This device type cannot currently be certified because the Illuminance Level Sensing cluster is not certifiable.

A Light Level Sensor is a measurement and sensing device that, when bound to a lighting device such as an on/off ballast, is capable of being used to switch the device on or off.

D.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0.
1	Initial Zigbee 3.0 release

D.2 Classification

Device Name	ID	Class
Light Level Sensor	0x010e	Simple

D.3 Cluster Requirements

A Light Level Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 249.

Table 249. Light Level Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0401: Illuminance Level Sensing	0x0003: Identify
Recommended optional		0x0004: Groups 0x0019: OTAUpgrade

D.4 Required Attributes

A Light Level Sensor device SHALL support the attributes listed in Table 250.

Table 250. Light Level Sensor Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0001	*ApplicationVersion*	✖	-
Basic (S)	0x0002	*StackVersion*	✖	-
Basic (S)	0x0003	*HWVersion*	✖	-
Basic (S)	0x0004	*ManufacturerName*	✖	-
Basic (S)	0x0005	*ModelIdentifier*	✖	-
Basic (S)	0x0006	*DateCode*	✖	-

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Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0007	*PowerSource*	✖	-
Basic (S)	0x0008	*GenericDeviceClass*	✖	-
Basic (S)	0x0009	*GenericDeviceType*	✖	-
Basic (S)	0x000a	*ProductCode*	✖	-
Basic (S)	0x000b	*ProductURL*	✖	-
Basic (S)	0x4000	*SWBuildID*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
Illuminance Level Sensing (S)	0x0000	*LevelStatus*	✖	✓
Illuminance Level Sensing (S)	0x0010	*IlluminanceTargetLevel*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

D.5 Required Commands Received

A Light Level Sensor device SHALL receive and process the commands listed in Table 251.

Table 251. Light Level Sensor Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Identify (S)	0x40	Trigger effect

D.6 Required Commands Generated

A Light Level Sensor device SHALL generate the commands listed in Table 252. The device MAY also generate any other client-side commands from the Identify cluster.

Table 252. Light Level Sensor Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

D.7 PICS

A Light Level Sensor device SHALL support the PICS items listed in Table 253.

Note: A Light Level Sensor device MAY support other optional PICS items.

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2189 **Table 253. Light Level Sensor PICS Items**

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0001, B.S.A0002, B.S.A0003, B.S.A0004, B.S.A0005, B.S.A0006, B.S.A0007, B.S.A0008, B.S.A0009, B.S.A000a, B.S.A000b, B.S.A4000, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp, I.S.C40.Rsp I.S.C00.Tx
Illuminance Level Sensing	ILLVL.S ILLVL.S.A0000, ILLVL.S.A0010, ILLVL.S.Afffd

2190
2191

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Annex E. Pump

This device type cannot currently be certified as the Pump Configuration and Control cluster is not certifiable.

A Pump device is a pump that may have variable speed. It may have optional built-in sensors and a regulation mechanism. It is typically used for pumping water.

E.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

E.2 Classification

Device Name	ID	Class
Pump	0x0303	Simple

E.3 Cluster Requirements

A Pump device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 254.

Table 254. Pump Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0004: Groups 0x0005: Scenes 0x0006: On/Off 0x0200: Pump Configuration and Control	0x0003: Identify
Recommended optional	0x0008: Level 0x0009: Alarms 0x0402: Temperature Measurement 0x0403: Pressure Measurement 0x0404: Flow Measurement	0x0402: Temperature Measurement 0x0403: Pressure Measurement 0x0404: Flow Measurement 0x0019: OTA Upgrade

E.3.1 Cluster Restrictions—On/Off Cluster (Server) Clarifications

The actions carried out by a Pump device on receipt of commands are shown in Table 255.

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2203 **Table 255. Pump Actions on Receipt for On/Off Commands**

Command	Action on Receipt
Off	If the pump is powered on, store the current level then immediately power it off.
On	If the pump is powered off, power it on and move immediately to the level stored by a previous Off command. If no such level has been stored, move immediately to the maximum level allowed for the pump.
Toggle	If the pump is powered on, proceed as for the Off command. If the device is powered off, proceed as for the On command.

2204 ### E.3.2 Cluster Restrictions—On/Off Cluster (Server) Clarifications

2205 The Level Control cluster SHALL allow controlling the pump setpoints as specified in [Z0]. However, the
2206 transition time is always ignored.

2207 The setpoint of the pump is a percentage related to the level according to Table 256.

2208 **Table 256. Relationship between Level and Setpoint**

Level	Setpoint	Meaning
0	N/A	Pump is stopped.
1 – 200	Level / 2 (0.5 – 100.0%)	Pump setpoint in percent.
201 – 255	100.0%	Pump setpoint is 100.0%

2209 ## E.4 Required Attributes

2210 A Pump device SHALL support the attributes listed in Table 257.

2211 **Table 257. Pump Required Attributes**

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Groups (S)	0x0000	*NameSupport*	✗	-
Scenes (S)	0x0000	*SceneCount*	✗	-
Scenes (S)	0x0001	*CurrentScene*	✗	-
Scenes (S)	0x0002	*CurrentGroup*	✗	-
Scenes (S)	0x0003	*SceneValid*	✗	-
Scenes (S)	0x0004	*NameSupport*	✗	-
On/Off (S)	0x0000	*OnOff*	✓	✓
Pump Configuration and Control (S)	0x0000	*MaxPressure*	✗	-

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Cluster	ID	Name	Scene Table	Reportable
Pump Configuration and Control (S)	0x0001	*MaxSpeed*	✗	-
Pump Configuration and Control (S)	0x0002	*MaxFlow*	✗	-
Pump Configuration and Control (S)	0x0011	*EffectiveOperationMode*	✗	-
Pump Configuration and Control (S)	0x0012	*EffectiveControlMode*	✗	-
Pump Configuration and Control (S)	0x0013	*Capacity*	✗	✓
Pump Configuration and Control (S)	0x0020	*OperationMode*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

E.5 Required Commands Received

A Pump device SHALL receive and process the commands listed in Table 258.

Table 258. Pump Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query
Groups (S)	0x00	Add group
Groups (S)	0x01	View group
Groups (S)	0x02	Get group membership
Groups (S)	0x03	Remove group
Groups (S)	0x04	Remove all groups
Groups (S)	0x05	Add group if identifying
Scenes (S)	0x00	Add Scene
Scenes (S)	0x01	View Scene
Scenes (S)	0x02	Remove Scene
Scenes (S)	0x03	Remove All Scenes
Scenes (S)	0x04	Store Scene
Scenes (S)	0x05	Recall Scene
Scenes (S)	0x06	Get Scene Membership
On/Off (S)	0x00	Off
On/Off (S)	0x01	On

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Cluster	ID	Name
On/Off (S)	0x02	Toggle

E.6 Required Commands Generated

A Pump device SHALL generate the commands listed in Table 259.

Table 259. Pump Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--
Groups (S)	0x00	Add group response	Add group	U--
Groups (S)	0x01	View group response	View group	U--
Groups (S)	0x02	Get group membership response	Get group membership	U--
Groups (S)	0x03	Remove group response	Remove group	U--
Scenes (S)	0x00	Add Scene Response	Add Scene	U--
Scenes (S)	0x01	View Scene Response	View Scene	U--
Scenes (S)	0x02	Remove Scene Response	Remove Scene	U--
Scenes (S)	0x03	Remove All Scenes Response	Remove All Scenes	U--
Scenes (S)	0x04	Store Scene Response	Store Scene	U--
Scenes (S)	0x06	Get Scene Membership Response	Get Scene Membership	U--

E.7 PICS

A Pump device SHALL support the PICS items listed in Table 260.

Note: A Pump device MAY support other optional PICS items.

Table 260. Pump PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx

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Cluster	PICS Item
Groups	G.S G.S.A0000, G.S.Afffd G.S.C00.Rsp, G.S.C01.Rsp, G.S.C02.Rsp, G.S.C03.Rsp, G.S.C04.Rsp, G.S.C05.Rsp G.S.C00.Tx, G.S.C01.Tx, G.S.C02.Tx, G.S.C03.Tx
Scenes	S.S S.S.A0000, S.S.A0001, S.S.A0002, S.S.A0003, S.S.A0004, S.S.Afffd S.S.C00.Rsp, S.S.C01.Rsp, S.S.C02.Rsp, S.S.C03.Rsp, S.S.C04.Rsp, S.S.C05.Rsp, S.S.C06.Rsp S.S.C00.Tx, S.S.C01.Tx, S.S.C02.Tx, S.S.C03.Tx, S.S.C04.Tx, S.S.C06.Tx
On/Off	OO.S OO.S.A0000, OO.S.Afffd OO.S.C00.Rsp, OO.S.C01.Rsp, OO.S.C02.Rsp
Pump Configuration and Control	PCC.S PCC.S.A0000, PCC.S.A0001, PCC.S.A0002, PCC.S.A0011, PCC.S.A0012, PCC.S.A0013, PCC.S.A0020, PCC.S.Afffd

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Annex F. Pump Controller

This device type cannot currently be certified because the Pump Configuration and Control cluster is not certifiable.

A Pump Controller device is capable of configuring and controlling a Pump device.

F.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

F.2 Classification

Device Name	ID	Class
Pump Controller	0x0304	Simple

F.3 Cluster Requirements

A Pump Controller device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 261.

Table 261. Pump Controller Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify	0x0003: Identify 0x0006: On/Off 0x0200: Pump Configuration and Control
Recommended optional		0x0004: Groups 0x0005: Scenes 0x0008: Level 0x0402: Temperature Measurement x0403: Pressure Measurement 0x0404: Flow Measurement 0x0019: OTAUpgrade

F.4 Required Attributes

A Pump Controller device SHALL support the attributes listed in Table 262.

Table 262. Pump Controller Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✖	-
Basic (S)	0x0007	*PowerSource*	✖	-
Identify (S)	0x0000	*IdentifyTime*	✖	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✖	-

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F.5 Required Commands Received

A Pump Controller device SHALL receive and process the commands listed in Table 263.

Table 263. Pump Controller Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

F.6 Required Commands Generated

A Pump Controller device SHALL generate the commands listed in Table 264.

Table 264. Pump Controller Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

F.7 PICS

A Pump Controller device SHALL support the PICS items listed in Table 265.

Note: A Pump Controller Sensor device MAY support other optional PICS items.

Table 265. Pump Controller PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
On/Off	OO.C OO.C.Afffd
Pump Configuration and Control	PCC.C PCC.C.Afffd

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Annex G. Pressure Sensor

This device type cannot currently be certified because the Pressure Measurement cluster is not certifiable.

A Pressure Sensor device measures and periodically reports the pressure of a liquid (typically water).

G.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

G.2 Classification

Device Name	ID	Class
Pressure Sensor	0x0305	Simple

G.3 Cluster Requirements

A Pressure Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 266.

Table 266. Pressure Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0403: Pressure Measurement	0x0003: Identify
Recommended optional		0x0004: Groups 0x0019: OTAUpgrade

G.4 Required Attributes

A Pressure Sensor device SHALL support the attributes listed in Table 267.

Table 267. Pressure Sensor Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	×	-
Basic (S)	0x0007	*PowerSource*	×	-
Identify (S)	0x0000	*IdentifyTime*	×	-
Pressure Measurement (S)	0x0000	*MeasuredValue*	×	✓
Pressure Measurement (S)	0x0001	*MinMeasuredValue*	×	-
Pressure Measurement (S)	0x0002	*MaxMeasuredValue*	×	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	×	-

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G.5 Required Commands Received

A Pressure Sensor device SHALL receive and process the commands listed in Table 268.

Table 268. Pressure Sensor Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

G.6 Required Commands Generated

A Pressure Sensor device SHALL generate the commands listed in Table 269.

Table 269. Pressure Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

G.7 PICS

A Pressure Sensor device SHALL support the PICS items listed in Table 270.

Note: A Pressure Sensor device MAY support other optional PICS items.

Table 270. Pressure Sensor PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Pressure Measurement	PRS.S PRS.S.A0000, PRS.S.A0001, PRS.S.A0002, PRS.S.Afffd

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Annex H. Flow Sensor

This device type cannot currently be certified because the Flow Measurement cluster is not certifiable.

A Flow Sensor device measures and periodically reports the flow rate of a liquid (typically water).

H.1 Revision History

Rev	Description
0	Represents device definitions prior to Zigbee 3.0 .
1	Initial Zigbee 3.0 release

H.2 Classification

Device Name	ID	Class
Flow Sensor	0x0306	Simple

H.3 Cluster Requirements

A Flow Sensor device SHALL support the mandatory clusters and MAY support the recommended optional clusters listed in Table 271.

Table 271. Flow Sensor Cluster Requirements

	Server Clusters	Client Clusters
Mandatory	0x0000: Basic 0x0003: Identify 0x0404: Flow Measurement	0x0003: Identify
Recommended optional		0x0004: Groups 0x0019: OTAUpgrade

H.4 Required Attributes

A Flow Sensor device SHALL support the attributes listed in Table 272.

Table 272. Flow Sensor Required Attributes

Cluster	ID	Name	Scene Table	Reportable
Basic (S)	0x0000	*ZCLVersion*	✗	-
Basic (S)	0x0007	*PowerSource*	✗	-
Identify (S)	0x0000	*IdentifyTime*	✗	-
Flow Measurement (S)	0x0000	*MeasuredValue*	✗	✓
Flow Measurement (S)	0x0001	*MinMeasuredValue*	✗	-
Flow Measurement (S)	0x0002	*MaxMeasuredValue*	✗	-
All supported clusters (S&C)	0xfffd	*ClusterRevision*	✗	-

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H.5 Required Commands Received

A Flow Sensor device SHALL receive and process the commands listed in Table 273.

Table 273. Flow Sensor Required Commands Received

Cluster	ID	Name
Identify (C)	0x00	Identify Query Response
Identify (S)	0x00	Identify
Identify (S)	0x01	Identify Query

H.6 Required Commands Generated

A Flow Sensor device SHALL generate the commands listed in Table 274.

Table 274. Flow Required Commands Generated

Cluster	ID	Name	On Receipt Of	Permitted Transmissions
Identify (C)	0x01	Identify Query	-	UGB
Identify (S)	0x00	Identify Query Response	Identify Query	U--

H.7 PICS

A Flow Sensor device SHALL support the PICS items listed in Table 275.

Note: A Flow Sensor device MAY support other optional PICS items.

Table 275. Flow Sensor PICS Items

Cluster	PICS Item
Basic	B.S B.S.A0000, B.S.A0007, B.S.Afffd
Identify	I.C I.C.Afffd I.C.C00.Rsp I.C.C01.Tx I.S I.S.A0000, I.S.Afffd I.S.C00.Rsp, I.S.C01.Rsp I.S.C00.Tx
Flow Measurement	FLW.C FLW.C.A0000, FLW.C.A0001, FLW.C.A0002, FLW.C.Afffd

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