**CTA-2045**



Protocol Implementation

Conformance Statement (PICS)

Version 1.0

Valid for Certification as of September 1, 2021

|  |  |
| --- | --- |
| Manufacturer: |  |
| Product Type: |  |
| Product Name: |  |
| Firmware Revision: |  |
| *Tested CTA-2045-B Spec version:* |  |

Disclaimer:

The information provided in this document can be made available to the general public in order to identify the tested versions, features and options.

By signing this document, the manufacturer confirms that all information provided in this document is correct and the applicable features have been tested.

Manufacturer Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Representative Name and Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Revisions

|  |  |  |
| --- | --- | --- |
| **Version** | **Changes** | **Date/Editor** |
| 0.0.7 | First Draft | 12/15/2020 |
| 0.0.8 | Second Draft for release | 12/20/2021 |
| 1.0 | Release | 9/1/2021 |

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# Introduction

The purpose of this PICS document is to provide a mechanism whereby a supplier of an implementation based on the following requirements may provide information about the implementation in a standardized manner.

Information provided by the supplier will be used to assess the implementation's compliance to the requirements, as well as to configure the certification tests performed on the implementation.

# References

* CTA-2045-B specification
* CTA-2045.1, .2, .3 are outside of the scope of this document.
* CTA-2045-B Passthroughs are outside of the scope of this document.

# Abbreviations and Conventions

The PICS information comprises information in a tabular format as follows:

* **Item Column** – A number which identifies the item in the table
* **Capability Column** – A brief description of the requirement
* **Reference Column or Section Header** – A reference to a specific requirement in the specification
* **Status Column** – Contains notations regarding the requirements
  + **M-i** – Mandatory for Level i (ex: M-1, M-2)
  + **O** – Optional
  + **N/A** – Not applicable
  + **X** – Prohibited
  + **O-i** – Qualified Optional (mutually exclusive or selectable options from a set identified with the same “I” value)
  + **C-i** –Conditional (status dependent on support of other optional requirements , identified in footnotes at bottom of table with “i” being a reference integer for the footnote(s))
* **Support Column** – Yes or No answer is required. If feature is not applicable, answer No.
* **Values Allowed Column** – Optional column representing set of values allowed.
* **Values Supported Column** – Optional column where supplier can indicate a set of values supported by the implementation.

Note that all requirement references in the tables on the following pages are with respect to the CTA-2045 specification.

# Instructions for Completing the PICS

The first part of the PICS document, System Identification, is to be completed as indicated with the information necessary to fully identify both the supplier and the implementation.

The main part of the PICS document is a fixed format questionnaire. Answers to questionnaire items are to be provided in the rightmost column by simply marking an answer to indicate a choice, typically Yes or No.

If an implementation fails to support a mandatory item, or supports a prohibited item, the supplier should provide supplementary information with the PICS document explaining the rationale for the exception.

Documents required for final certification

* This PICS document
* Manufacturers Declaration of Conformity
* Completed Test Report from appointed test house
* Product marketing description (50 words)
* Product picture or logo if applicable
* Web link to product

# Implementation and Supplier Information

|  |  |
| --- | --- |
| Date of Statement |  |
| Product Name |  |
| Product Model Number |  |
| Version Number(s) |  |
| Non-Default Hardware Configuration |  |
| Non-Default Software Configuration |  |
| Supplier Name, Address, Phone, Email |  |
| Contact name, email, phone for questions |  |

# Global Statement of Conformance

|  |  |
| --- | --- |
| **Requirement** | **Support** |
| Are all mandatory capabilities supported for the indicated roles supported by this implementation? | [ ]Yes [ ]No |

# 

# Roles

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Role** | **Status** | **Support** |
| 1 | UCM | O-1 | [ ]Yes [ ]No |
| 2 | SGD | O-1 | [ ]Yes [ ]No |

0-1) Must answer Yes to one Role. Note that if an implementation supports both UCM and SGD functionality, two separate PICS documents should be submitted, one for each role.

# Payload Conformance

For each payload generated by a UCM or SGD, indicate if it conforms to the CTA-2045 specification. Note that the Status is relative to the Role listed.

Optionals (O) will not be tested and are not part of the Water Heater Level 1 and Level 2 certification profiles.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **Role** | **Payload** | **Status for Role** | **Validates Against B Schema** |
| 1 | UCM/SGD | Link Layer ACK/NAK | M-1 | [ ]Yes [ ]No |
| 2 | UCM/SGD | Message Type Supported Query | M-1 | [ ]Yes [ ]No |
| 3 | UCM/SGD | Request Different Power Mode | O | [ ]Yes [ ]No |
| 4 | UCM/SGD | Request Different Bit Rate | O | [ ]Yes [ ]No |
| 5 | UCM/SGD | Query Maximum Payload Length (2 bytes/256 bytes) | M-1/2 | [ ]Yes [ ]No |
| 6 | UCM/SGD | Return Maximum Payload Length  (2 bytes/256 bytes) | M-1/2 | [ ]Yes [ ]No |
| 7 | UCM/SGD | Query SGD Slot Number | O | [ ]Yes [ ]No |
| 8 | UCM/SGD | Return SGD Slot Number | O | [ ]Yes [ ]No |
| 9 | UCM/SGD | Query Available Slot Numbers | O | [ ]Yes [ ]No |
| 10 | UCM/SGD | Return Available Slot Numbers | O | [ ]Yes [ ]No |
| 11 | UCM/SGD | Send Next Command to Slot | O | [ ]Yes [ ]No |
| 12 | UCM/SGD | Shed | M-1 | [ ]Yes [ ]No |
| 13 | UCM/SGD | End Shed | M-1 | [ ]Yes [ ]No |
| 14 | UCM/SGD | Level 1 Application ACK | M-1 | [ ]Yes [ ]No |
| 15 | UCM/SGD | Level 1 Application NAK | M-1 | [ ]Yes [ ]No |
| 16 | UCM/SGD | Request for Power Level | O | [ ]Yes [ ]No |
| 17 | UCM/SGD | Present Relative Price | O | [ ]Yes [ ]No |
| 18 | UCM/SGD | Next Period Relative Price | O | [ ]Yes [ ]No |
| 19 | UCM/SGD | Time Remaining in Present Price Period | O | [ ]Yes [ ]No |
| 20 | UCM/SGD | Critical Peak Event | M-2 | [ ]Yes [ ]No |
| 21 | UCM/SGD | Grid Emergency | M-2 | [ ]Yes [ ]No |
| 22 | UCM/SGD | Grid Guidance | O | [ ]Yes [ ]No |
| 23 | UCM/SGD | Outside Comm Connection Status | M-1 | [ ]Yes [ ]No |
| 24 | UCM/SGD | Customer Override | M-2 | [ ]Yes [ ]No |
| 25 | UCM/SGD | Query Operational State | M-2 | [ ]Yes [ ]No |
| 26 | UCM/SGD | Return Operational State | M-2 | [ ]Yes [ ]No |
| 27 | UCM/SGD | Sleep | O | [ ]Yes [ ]No |
| 28 | UCM/SGD | Wake/Refresh | O | [ ]Yes [ ]No |
| 29 | UCM/SGD | Simple Time Sync | O | [ ]Yes [ ]No |
| 30 | UCM/SGD | Load Up | M-2 | [ ]Yes [ ]No |
| 31 | UCM/SGD | Pending Event Time | O | [ ]Yes [ ]No |
| 32 | UCM/SGD | Pending Event Type | O | [ ]Yes [ ]No |
| 33 | UCM/SGD | Reboot | O | [ ]Yes [ ]No |
| 34 | UCM/SGD | Device Information Request | M-2 | [ ]Yes [ ]No |
| 35 | UCM/SGD | Get/Set SGD Efficiency Level | M-2/O | [ ]Yes [ ]No |
| 36 | UCM/SGD | Set Capability Bitmap | O | [ ]Yes [ ]No |
| 37 | UCM/SGD | Get/Set UTC Time | M-2 | [ ]Yes [ ]No |
| 38 | UCM/SGD | Get/Set Energy Price | O | [ ]Yes [ ]No |
| 39 | UCM/SGD | Get/Set Tier | O | [ ]Yes [ ]No |
| 40 | UCM/SGD | Get/Set Temperature Offset | O | [ ]Yes [ ]No |
| 41 | UCM/SGD | Get/Set SetPoint | O | [ ]Yes [ ]No |
| 42 | UCM/SGD | Get Present Temperature | O | [ ]Yes [ ]No |
| 43 | UCM/SGD | Start Autonomous Cycling | O | [ ]Yes [ ]No |
| 44 | UCM/SGD | Terminate Autonomous Cycling | O | [ ]Yes [ ]No |
| 45 | UCM/SGD | Demand Response Event Schedules | O | [ ]Yes [ ]No |
| 46 | UCM/SGD | Get/Set Commodity Read | M-2/O | [ ]Yes [ ]No |
| 47 | UCM/SGD | Get/Set Commodity Subscription | O | [ ]Yes [ ]No |
| 48 | UCM/SGD | Get/Set Activation Status | O | [ ]Yes [ ]No |
| 49 | UCM/SGD | Get/Set User Preference Level | M-2/O | [ ]Yes [ ]No |
| 50 | UCM/SGD | Advanced Load Up | M-2 | [ ]Yes [ ]No |
| 51 | UCM/SGD | Get/Set Capability Bit “6” | M-2/O | [ ]Yes [ ]No |
| 52 | UCM/SGD | Set Price Stream (64 pairs min.) | M-2 | [ ]Yes [ ]No |

**Appendix A - Pre-Test Survey**

**Work in progress – some ideas are below**

Describe details that would need to be accommodated.

Describe any differences when the UCM is plugged into the SGD while SGD is under power (hot swap) vs cold boot up.

Does the SGD only allows x number of relay on/off per day? Are there any other limitations?

Does not report operational state change until x seconds after receiving command.

Anything that relates to the human machine interface.

How does the operator do an ‘opt-out/override’ on the human machine interface?