STANDARD

ANSI/ASHRAE Standard 135.1-2011
(Supersedes ANSI/ASHRAE Standard 135.1-2009)
Includes ANSI/ASHRAE Addenda listed in the History of Revisions

Method of Test for Conformance to BACnet®

See the History of Revisions at the back of this standard for approval dates of addenda.

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 ISSN 1041-2336

Approved American National Standard
ANSI
www.ansi.org

ASHRAE STANDARDS COMMITTEE 2011–2012

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CONTENTS

1. PURPOSE

To define a standard method for verifying that an implementation of the BACnet protocol provides each capability claimed in its Protocol Implementation Conformance Statement (PICS) in conformance with the BACnet standard.

2. SCOPE

This standard provides a comprehensive set of procedures for verifying the correct implementation of each capability claimed on a BACnet PICS including:

(a) support of each claimed BACnet service, either as an initiator, executor, or both,
(b) support of each claimed BACnet object-type, including both required properties and each claimed optional property,
(c) support of the BACnet network layer protocol,
(d) support of each claimed data link option, and
(e) support of all claimed special functionality.

3. DEFINITIONS

All definitions from ANSI/ASHRAE Standard 135-2008 also apply to this addendum.

3.1 local network: the network to which a BACnet device is directly connected.

3.2 remote network: a network that is accessible from a BACnet device only by passing through one or more routers.

3.3 test database: a database of BACnet functionality and objects created by reading the contents of an EPICS.

3.4 Abbreviations and Acronyms Used in the Standard

BNF Backus-Naur Form syntax
EPICS electronic protocol implementation conformance statement
IUT implementation under test
TCSL testing and conformance scripting language
TD testing device
TPI text protocol information

4. ELECTRONIC PICS FILE FORMAT

An electronic protocol implementation conformance statement (EPICS) file contains a BACnet protocol implementation conformance statement expressed in a standardized text form. EPICS files are machine and human readable representations of the implementation of BACnet objects and services within a given device. EPICS files shall use the extension ".TPI" (text protocol information) and contain normal editable text lines consisting of text character codes ending in carriage return/linefeed pairs (X'0D', X'0A').

EPICS files are used by software testing tools to conduct and interpret the results of tests defined in this standard. An EPICS file shall accompany any device tested according to the procedures of this standard.

4.1 Character Encoding

BACnet provides for a variety of possible character encodings. The character encodings in BACnet fall into three groups: octet streams, double octet streams and quad octet streams. Octet streams represent characters as single octet values. In some cases, such as Microsoft DBCS and JIS C 6226, certain octet values signal that the second octet which follows should be viewed along with the leading octet as a single value, thus extending the range to greater than 256 possible characters. In contrast, double octet streams view pairs of octets as representing single characters. The ISO 10646 UCS-2 encoding is an example. The first or leading octet of the pair is the most significant part of the value. Quad octet streams, such as ISO 10646 UCS-4, treat tuples of four octets at a time as single characters with the first or leading octet being the most significant.