



# ADDENDA

**ANSI/ASHRAE Addendum r to  
ANSI/ASHRAE Standard 135.1-2013**

# Method of Test for Conformance to BACnet<sup>®</sup>

Approved by ASHRAE on May 31, 2018, and by the American National Standards Institute on June 1, 2018.

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ISSN 1041-2336



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**Cognizant TC: 1.4, Control Theory and Application**  
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**[This foreword and the “rationales” on the following pages are not part of this standard. They are merely informative and do not contain requirements necessary for conformance to the standard.]**

## **FOREWORD**

*The purpose of this addendum is to present changes to ANSI/ASHRAE 135.1-2013 and Addenda. These modifications are the result of change proposals made pursuant to the ASHRAE continuous maintenance procedures and of deliberations within Standing Standard Project Committee 135. The changes are summarized below.*

***135.1-2013r-1. Add Property\_List property tests, p. 2***

***135.1-2013r-2. Add tests for DUPLICATE\_ENTRY error code, p. 4***

*In the following document, language to be added to existing clauses is indicated through the use of italics, while deletions are indicated by ~~striethrough~~. Where entirely new subclauses are added, plain type is used throughout. All other material in this addendum is provided for context only.*

*The use of placeholders like X, Y, Z, X1, X2, etc., should not be interpreted as literal values of the final standard. These placeholders will be assigned actual numbers/letters only after incorporation of this addendum into the standard for republication.*

### 135.1-2013r-1. Add Property\_List property tests.

#### Rationale

Addendum 135-2010ao-5 added the Property\_List property, required in every object.

Tests are needed.

[Add new **Clause 7.1.X**, p. 33]

#### 7.1.X Verifying Property\_List against the EPICS

Purpose: To verify the correct content of the Property\_List using the properties in each object as claimed in the EPICS.

Test Concept: Match the properties in each object as claimed in the EPICS, against the content of each object's Property\_List.

Test Conditionality: If Protocol\_Revision is not present, or Protocol\_Revision < 14, then this test shall be skipped.

Test Steps:

1. READ OL = Object\_List
2. REPEAT O1 = (each object in the content of OL) DO {
3.     READ PL = O1, Property\_List
4.     CHECK (that the property identifiers in the EPICS for O1 and those in PL match, except as specified in Notes to Tester)
- }

Notes to Tester: Object\_Name (77), Object\_Type (79), Object\_Identifier (75), and Property\_List (371) will appear in the EPICS, but shall not appear in the Property\_List value. Any proprietary properties that are supported for the object-type shall be in the Property\_List, but are not required to appear in the EPICS. The order in which property identifiers appear in the EPICS is not required to match the order that they appear in the Property\_List value.

[Change **Clause 9.20.1.7**, p. 334]

#### 9.20.1.7 Reading ALL Properties

Purpose: To verify the ability to correctly execute a ReadPropertyMultiple service request that uses the special property identifier ALL. One instance of each object-type supported is tested.

Test Steps:

1. REPEAT ObjectX = (one instance of each supported object type) DO {  
   TRANSMIT ReadPropertyMultiple-Request,  
      'Object Identifier' =            ObjectX,  
      'Property Identifier' =         ALL  
   RECEIVE ReadPropertyMultiple-ACK,  
      'Object Identifier' =            ObjectX,  
      REPEAT P = (each property supported by ~~ObjectX~~ ObjectX) DO {  
          'Property Identifier' =     P,  
          'Property Value' =         (*any valid value for P the value of P specified in the EPICS*)  
      }  
   }  
}

Notes to Tester: Any proprietary properties that are supported for the object-type shall also be returned (see BACnet 15.7.3.1.2). *If a property which is defined by the standard to be not readable using the ReadPropertyMultiple service is in the specified object, and Protocol\_Revision < 7, then either no entry or an error code is returned for that property. If Protocol\_Revision >= 7, then the entry shall contain 'Error Class': PROPERTY and 'Error-Code': READ\_ACCESS\_DENIED for that property. Property\_List (371) shall not appear in the List of Results.*

[Change **Clause 9.20.1.9**, p. 335]

### **9.20.1.9 Reading REQUIRED Properties**

Purpose: To verify the ability to correctly execute a ReadPropertyMultiple service request that uses the special property identifier REQUIRED. One instance of each object-type supported is tested. *The property identifier REQUIRED means that only those standard properties having a conformance code of "R" or "W" shall be returned.*

Test Steps:

1. REPEAT ObjectX = (one instance of each supported object type) DO {  
    TRANSMIT ReadPropertyMultiple-Request,  
        'Object Identifier' =                    ObjectX,  
        'Property Identifier' =                REQUIRED  
    RECEIVE ReadPropertyMultiple-ACK,  
        'Object Identifier' =                ObjectX,  
    REPEAT P = (each required property defined for ~~Object~~ ObjectX) DO {  
        'Property Identifier' =                P,  
        'Property Value' =                    (*any valid value for P the value of P specified in the EPICS*)  
    }  
}

*Notes to Tester: If a property which is defined by the standard to be not readable using the ReadPropertyMultiple service is in the specified object, and Protocol\_Revision < 7, then either no entry or an error code is returned for that property. If Protocol\_Revision >= 7, then the entry shall contain 'Error Class': PROPERTY and 'Error-Code': READ\_ACCESS\_DENIED for that property. Property\_List (371) shall not appear in the List of Results.*

### 135.1-2013r-2. Add tests for DUPLICATE\_ENTRY error code.

#### Rationale

Addendum 135-2012ax-4 added the new error code DUPLICATE\_ENTRY, with required behavior in the Schedule object.

A test is needed.

[Add new **Clause 7.3.2.23.X**, p. 130]

#### 7.3.2.23.X Forbid Duplicate Time Values

Purpose: To verify that the IUT does not accept duplicate BACnetTimeValue entries.

Test Concept: Transmit a request in which the property value contains duplicate BACnetTimeValue entries.

Configuration Requirements: Select an object, Sched1, which contains a writable Weekly\_Schedule or Exception\_Schedule property, P1. If the IUT claims a Protocol\_Revision less than 16, this test shall be skipped.

#### Test Steps:

1. READ V1 = (Sched1), P1
2. TRANSMIT WriteProperty-Request,  
    'Object Identifier' = Sched1,  
    'Property Identifier' = P1,  
    'Property Value' = (a value that contains a list of BACnetTimeValue with two entries at the same time within a BACnetDailySchedule or BACnetSpecialEvent)
3. RECEIVE BACnet-Error-PDU,  
    Error Class = PROPERTY,  
    Error Code = DUPLICATE\_ENTRY
4. VERIFY P1 = V1

[Add to **HISTORY OF REVISIONS**, p. 662]

### **HISTORY OF REVISIONS**

<b><i>Summary of Changes to the Standard</i></b>
...
<b>ANSI/ASHRAE Standard 135.1-2013</b> A consolidated version of the standard that incorporates Addenda <i>j, k, l, m and n</i> to ANSI/ASHRAE 135.1-2011 and all of the known errata.
<b>Addendum <i>r</i> to ANSI/ASHRAE 135.1-2013</b> Approved by ASHRAE on May 31, 2018, and by the American National Standards Institute on June 1, 2018.  <ol style="list-style-type: none"><li>1. Add Property_List property tests</li><li>2. Add tests for DUPLICATE_ENTRY error code</li></ol>





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