

**INTERPRETATION IC 135-2004-25 OF
ANSI/ASHRAE STANDARD 135-2004 BACnet -
A Data Communication Protocol for Building
Automation and Control Networks**

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Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE Standard 135-2004, Sections 13.2 and 13.3 relating to fault event reporting.

Background: The general rule in the current standard and subsequent addenda is that TO-FAULT transitions are triggered by changes in the value of the Reliability property, independent of object type. This is analogous to the relationship between TO-OFFNORMAL transitions and changes in the value of the Present_Value property.

Unfortunately, the notification parameters listed in table 13-4 are not adequate to properly express TO-FAULT transitions, since the value which caused the transition (the Reliability property) is not included in the notification.

Section 13.8.1.14, Event Values, starts with:

This parameter, of type BACnetNotificationParameters, shall convey a set of values relevant to the particular event...

This appears to indicate that the original intent was that notifications should include the current values of the properties which caused the event state transition. Looking at the event parameters in table 13.3 enforces this indication.

Including the relevant property values corresponding to the time of the event state transition enables a client to receive a consistent set of the actual values describing the event (time stamp of transition, from state, to state, actual property values which caused the transition). Otherwise, eventing clients may be required to read dynamic property values describing the event after receiving an event notification in order to display and / or archive the corresponding event. Such a reading of properties should be prevented because the value of a dynamic property may have changed in the meantime and could lead to an inconsistent set of data on the eventing client.

In the case of Multistate-Input objects, a client is forced to read the Reliability property after any TO-FAULT event notification, since the event notification conveys the same values for the MULTI_STATE_FAULT case as well as for those cases where the Present_Value is still reliable, but took on a value that is listed in Fault_Values.

In the recent past, a significant amount of work has been done to clarify the conditions resulting in TO-FAULT transitions; however, the issue of notifications has yet to be addressed.

To summarize, it is clear that TO-FAULT transitions are based on changes to the value of the Reliability property. Given this, it is unreasonable to assume that the framers had the explicit intention to exclude Reliability from TO_FAULT event notifications when it provides an indication that Present_Value is unreliable. It seems much more likely that this is an oversight associated with the current inconsistencies with the eventing model in general and TO-FAULT notifications in particular.

A good guiding principle is that event notifications should contain a consistent set of the dynamic information describing the time and the cause of the event.

Interpretation: The event values provided in Table 13-4, Notification Parameters for Standard Event Types, do not provide appropriate information for TO-FAULT events. It is unreasonable to assume that there is an explicit intention to exclude Reliability from TO-FAULT event notifications. Resolving both this specific issue and general inconsistencies in the fault event model are currently working group discussion topics. Therefore, until this issue is resolved, implementations are free to use proprietary event types for TO-FAULT events for the case the Present_Value is unreliable, in order to comply with the statement in 13.8.1.14, and to provide appropriate property values that are in-sync with the event.

Question: Is this interpretation correct?

Answer: No.

Comments: While the committee agrees that the standard language should be changed, as currently written the standard seems to strongly indicate that standard object types may only use standard Event_Types as indicated in Table 13-2. As such, fault events from standard objects may not use the complex Event_Type to report fault event information. Fault events therefore must use standard Event_Types, even though the notification parameters do not currently include appropriate information for fault events.