

**IEEE Standards Interpretations for IEEE Std 802.11i™-2004 IEEE Standard for Information technology— Telecommunications and information exchange between systems— Local and metropolitan area networks— Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications Amendment 6: Medium Access Control (MAC) Security Enhancements**

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**Interpretation Request #1**

(2-05/06 - use of 802.1X™ uncontrolled port by 802.11i) **Topic:** Conflicting statements in 802.11i on the use of the 802.1X uncontrolled port **Relevant Clauses:** 5.4.2.2, 6.1.4, 8.5.4 **Classification:** Unambiguous

In 5.4.2.2: "However, a given protocol may need to bypass the authorization function and make use of the IEEE 802.1X Uncontrolled Port."

In 6.1.4: "The IEEE 802.1X Controlled/Uncontrolled Ports discard the MSDU if the Controlled Port is not enabled or if the MSDU does not represent an IEEE 802.1X frame."

The applicable conditions for the case in question is a non-IEEE 802.1X frame such an IP datagram allowed to make use of IEEE 802.1X Uncontrolled Port before Controlled Port is enabled in a certain case? The question comes up because IETF PANA WG is defining a mode in which PANA protocol messages, carried in IP datagrams, make use of IEEE 802.1X Uncontrolled Port over IEEE 802.11i.

It appears that there is a strict architectural boundary between IEEE 802.11i and IEEE 802.1X in that the IEEE 802.11i state machines order and filter events that are related to IEEE 802.1X so that IEEE 802.1X™ state machines can process them. If so, how IEEE 802.1X state machines process those events should be governed by IEEE 802.1X, not by

IEEE 802.11i. In that sense, shouldn't the above quoted text in both 5.4.2.2 and 6.1.4 be interpreted as informative, not normative?

### Interpretation Response #1

The standard is unambiguous on this issue. While 5.4.2.2 states a general capability of IEEE 802.1X, 6.1.4 places a limitation on this usage in IEEE 802.11. Subclause 8.5.4 further specifies this limitation in an ESS:

In an ESS, the AP indicates that the IEEE 802.11™ link is available by invoking the MLME-ASSOCIATE.indication or MLME-REASSOCIATE.indication primitive. At this point the Authenticator's Controlled Port corresponding to the STA's association is blocked, and communication of all non-IEEE 802.1X MSDUs sent or received via the Controlled Port is not authorized.

### Interpretation Request #2

2-05/06 (use of 802.1X uncontrolled port by 802.11i) **Topic:** conflicting statements in 802.11i on the use of the 802.1X uncontrolled port **Relevant Clause:** 5.4.2.2, 6.1.4, 8.5.4 **Classification:** Unambiguous

The following interpretation is requested:

1. The specific designation of the standard, including the year of publication: IEEE Std 802.11i 2004
2. The specific subsection being questioned

In Clause 5.4.2.2:

"However, a given protocol may need to bypass the authorization function and make use of the IEEE 802.1X Uncontrolled Port."

In Clause 6.1.4:

"The IEEE 802.1X Controlled/Uncontrolled Ports discard the MSDU if the Controlled Port is not enabled or if the MSDU does not represent an IEEE 802.1X frame."

3. The applicable conditions for the case in question

Is a non-802.1X frame such as an IP datagram allowed to make use of 802.1X Uncontrolled Port before Controlled Port is enabled in a certain case? The question comes up because IETF PANA WG is defining a mode in which PANA protocol messages, carried in IP datagrams, make use of 802.1X Uncontrolled Port over 802.11i.

It appears that there is a strict architectural boundary between 802.11i and 802.1X in that the 802.11i state machines order and filter events that are related to 802.1X so

that 802.1X state machines can process them. If so, how 802.1X state machines process those events should be governed by 802.1X, not by 802.11i. In that sense, shouldn't the above quoted text in both Clause 5.4.2.2 and Clause 6.1.4 be interpreted as informative, not normative?

### **Interpretation Response #2**

The standard is unambiguous on this issue. While 5.4.2.2 states a general capability of 802.1X, clause 6.1.4 places a limitation on this usage in 802.11. Clause 8.5.4 further specifies this limitation in an ESS:

In an ESS, the AP indicates that the IEEE 802.11 link is available by invoking the MLME-ASSOCIATE.indication or MLME-REASSOCIATE.indication primitive. At this point the Authenticator's Controlled Port corresponding to the STA's association is blocked, and communication of all non-IEEE 802.1X MSDUs sent or received via the Controlled Port is not authorized.