

Interpretation Number: 1-07/04
Topic: Auto-Negotiation state diagram
Relevant Clause: Figure 37-6
Classification: Unambiguous

Interpretation Request

My question is regarding the IEEE802.3z referring to figure 37-6.

I was wondering if anyone can help me with a problem I face. In the IEEE 802.3z figure 37.6 auto negotiation block diagram, in the IDLE_DETECT state, we are expecting IDLE symbol and also link time done to move to LINK_OK state. Let's say one of the link partner link timer is 10.5ms and the other is 11.5ms. So what will happen is the link partner with timer of 10.5ms will go to the LINK_OK state first while the link partner with timer of 11.5ms will still be in the IDLE_DETECT state.

My question is when the first link partner goes into the LINK_OK and sends data to the link partner that's still in the IDLE_DETECT. What should happen? Should the MAC device in IDLE_DETECT resets or proceed on?

Interpretation for IEEE Std 802.3-2002

The state IDLE_DETECT does not relate to the MAC but instead the PHY.

As defined in Fig 37-6 the transition from IDLE_DETECT to LINK_OK requires `idle_match=TRUE * link_timer_done`. The condition `idle_match=TRUE` is defined in 37.3.1.2 as "Three consecutive /I/ ordered_set have been received. The match count is reset upon receipt of /C/.". If the link partner's timer is 10.5 msec, that link partner has sent plenty of /I/ ordered_set to make this condition valid. Packets transmitted from the link partner, which do not include /C/, will not reset `idle_match`. Therefore received frames will be ignored while this PHY's link timer is timing out for another 1 msec, but then the state diagram does indeed proceed on to the LINK_OK state.