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| REVISION REQUEST |
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DATE: 29 April 2023
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REQUESTED REVISION:
  STANDARD: IEEE Std 802.3-2022
  CLAUSE NUMBER: 99.4.7.1
  CLAUSE TITLE: State diagram conventions

PROPOSED REVISION TEXT:

Change the first sentence of the second paragraph of subclause
99.4.7.1 'State diagram conventions' that reads:

'The notation used in the state diagrams follows the conventions of
21.5.'

to read:

'The notation used in the state diagrams follows the conventions of 21.5
with the one exception that functions called within a state have to
complete before the exit conditions from the state are evaluated.'.

RATIONALE FOR REVISION:

IEEE 802.3-2022 subclause 99.4.7.1 'State diagram conventions' says that
'The notation used in the state diagrams follows the conventions of
21.5.'. Subclause 21.5.1 'Actions inside state blocks' says that
'The actions inside a state block execute instantaneously. Actions inside
state blocks are atomic (i.e., uninterruptible).' and 'After performing
all the actions listed in a state block one time, the state block then
continuously evaluates its exit conditions until one is satisfied, at
which point control passes through a transition arrow to the next
block.'.

There is, however, a disconnect between this state diagram notation, and
the time taken to complete the functions called inside some of the states
in Clause 99. Take the example of the START_PREAMBLE state in Figure 99-5
'Transmit Processing state diagram'. On entry to the state, the rTX_DATA
function will be called with the parameter pTX_DATA. This will generate
eight rPLS_DATA.request primitives based on eight pPLS_DATA.request
primitives, in summary, each bit will be sourced from the pMAC and passed
to the RS.

While the rTX_DATA function call itself could conceptually be
instantaneous, as required for an action in a state by the state diagram
convention, the function itself will take a finite time to complete as
the rate at which rPLS_DATA.request will be serviced by the RS will be
determined by the bit transmit time.

The state diagram convention however states that after executing the
action inside a state, the exit conditions are evaluated until one is

satisfied, at which point control passes to that state. In this case the exit conditions !SFD_DET and SFD_DET are evaluated, and since only the first byte of preamble has been sourced from the pMAC, the exit conditions !SFD_DET will be true. As a result, the START_PREAMBLE state will be re-entered instantaneously and the rTX_DATA function will be called again. This will be before the RS has had a chance to service the rPLS_DATA.requests from the previous call.

IMPACT ON EXISTING NETWORKS:

None. This is just a clarification of the operation of the state diagram operation. Existing implementations must wait until functions have been completed, if they did not they would not operate correctly.

Please attach supporting material, if any	
Submit to:-	David Law, Chair IEEE 802.3
and copy:-	Adam Healey, Vice-Chair IEEE 802.3
At:-	E-Mail: stds-802-3-maint-req@ieee.org
For official use	
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COMMENTS:	
For information about this Revision Request see -	
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