

# New variable and MDIO mappings for Clause 73 AN – reasoning and suggested remedy

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(In support of comment i-67 against D3.0 of P802.3bx)

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# Supporters

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# Reasoning

- AN is specified to control the choice of PHY (using the transmit and receive switch functions) and the FEC.
- When the AN is co-located with the upper sublayers (PCS, FEC), this is part of the PHY implementation and does not require more detailed specification.
- Since the time AN was defined in 802.3ap, the option to break the PHY into multiple physical devices was added. AN may be separated from the PCS and FEC sublayers by AUI chip-to-chip.
  - This extension becomes very useful with the limited host loss budget defined in clause 92.
- This brings about some concerns...

# Reasoning

- If AN is on a separate device, the choice of technology-dependent PHY and FEC mode should be conveyed to the PCS/FEC device, and the physical AUI may have to be configured accordingly.
  - Example: a PMD+AN device that can support both 40GBASE-CR4 and 100GBASE-CR4, connected to the PCS/FEC device by a physical connection that can be configured as either XLAUI or CAUI-4...
- Clause 73 does not specify how that should be done.
- The required information is available in MDIO registers, but they are only listed in clause 45. Clause 73 lists MDIO register to variable mappings, but this information is not included.
- The negotiated port type can be mapped to existing variables (`link_control_[x]`) but FEC choice does not have a variable associated with it.
  - This becomes even more relevant in P802.3by...

# Detailed suggested remedy

- **Append rows to table 73-6:**

link_control_[x]	{7.48.11:8, 7.48.6:5, 7.48.3:1} Negotiated Port Type
mr_baser_fec_control	7.48.4 BASE-R FEC negotiated

- **Insert new variable definition in 73.10.1, after "mr\_adv\_ability[48:1]":**

mr\_baser\_fec\_control

Indicates that BASE-R FEC (Clause 74) has been negotiated for the link by the FEC capability resolution (see 73.6.5). The value of this variable does not change when an link\_good is true.

Values:

false; BASE-R FEC has not been negotiated (default).

true: BASE-R FEC has been negotiated.

NOTE--This variable is set by this variable definition; it is not set explicitly in the state diagrams.

- **Insert new paragraph at the end of 73.6.5:**

The FEC resolution is indicated by the variable mr\_baser\_fec\_control.