Response to comment #246

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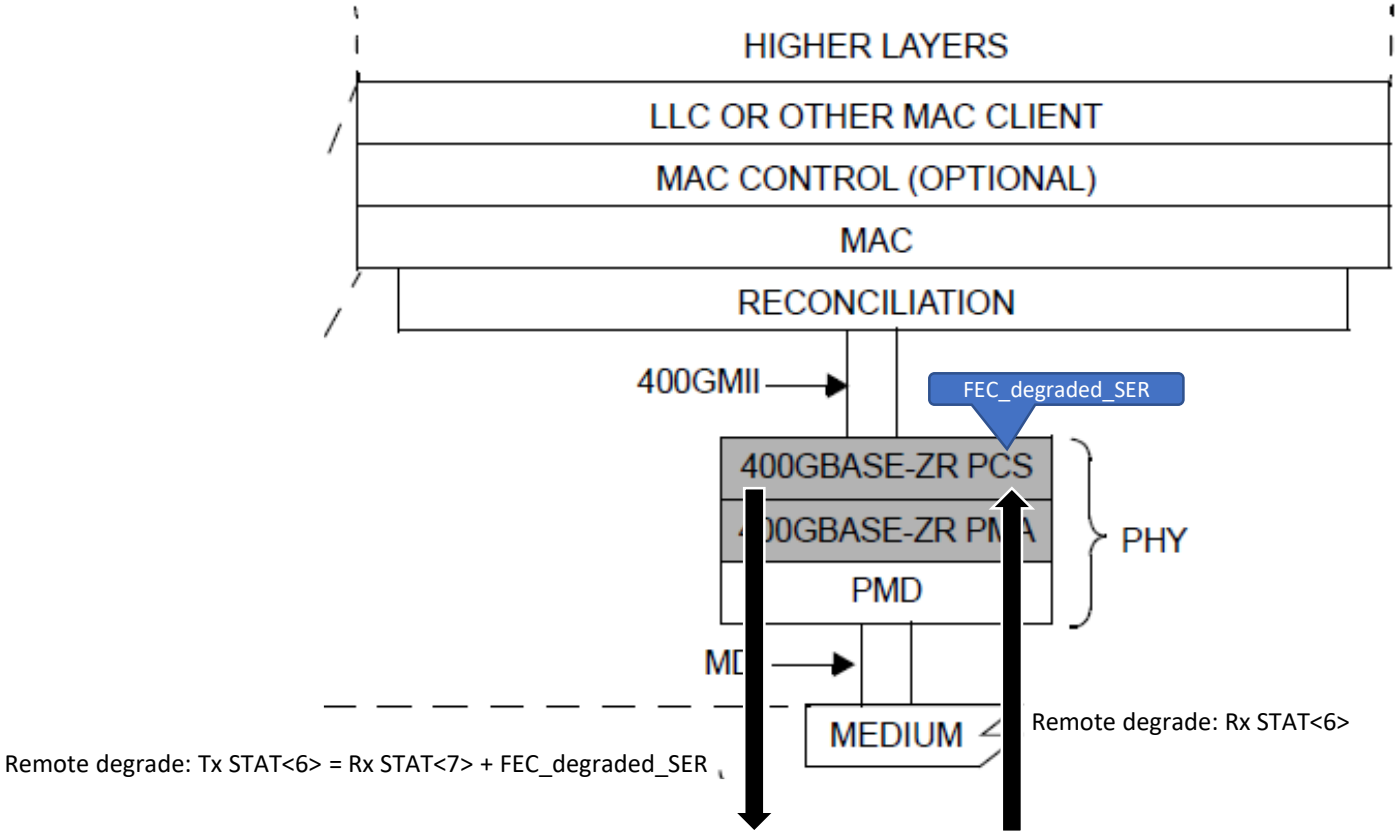
Comment #246 from Eric Maniloff

- Comment:
  - In addition to passing STAT<7> to tx_am_sf_1, degrade of the received CFEC is included

- Suggested remedy:
  - Update "and local degrade in STAT<7> is passed to tx_am_sf<1> in the transmit direction of the 400GXS sublayer" to indicate STAT<7> is OR'd with the degrade detected by CFEC.

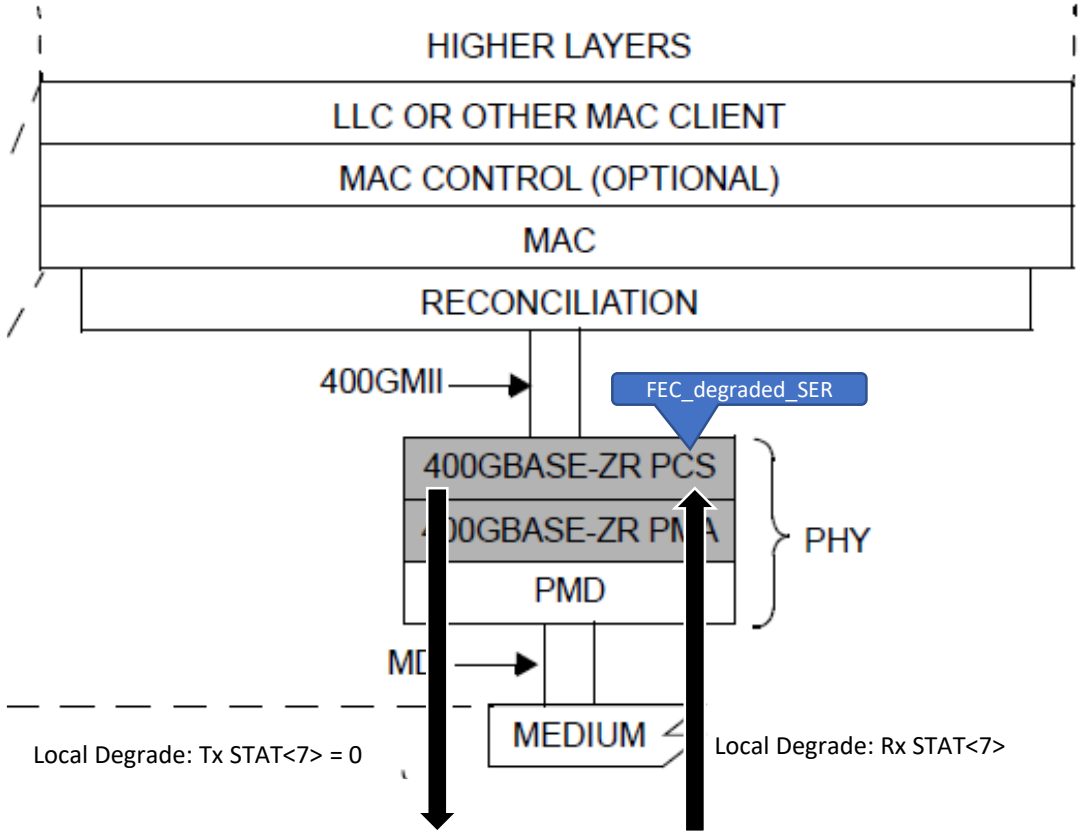
No extender STAT – Remote Degrade signaling



Note: Stat<6> = remote degrade

Ref: Figure 116-6

No extender STAT – Local Degrade signaling



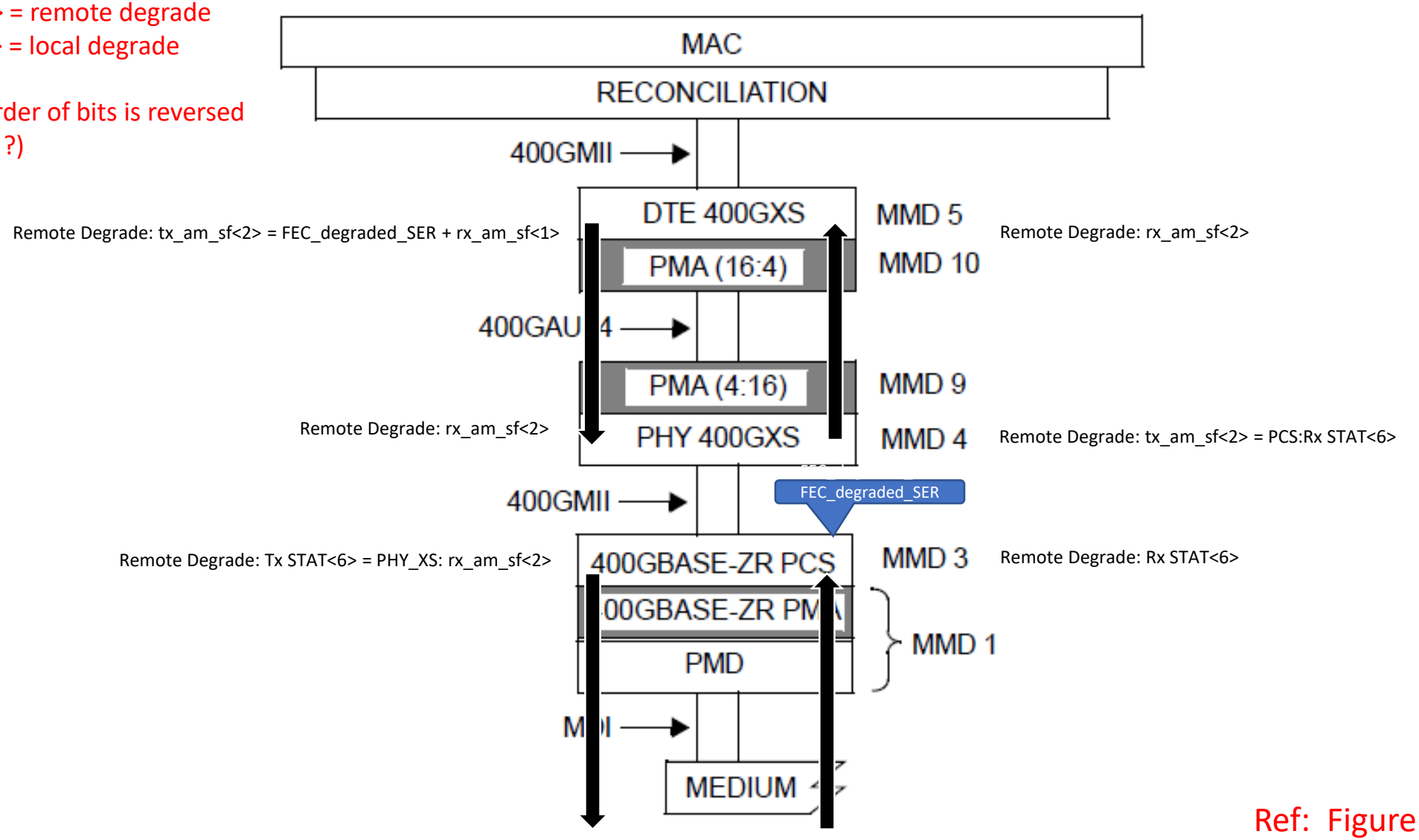
Stat<7> = local degrade

Ref: Figure 116-6

Extender STAT - Remote Degrade signaling

Note: Stat<6>, am_sf<2> = remote degrade
Stat<7>, am_sf<1> = local degrade

(note, interesting that order of bits is reversed
Between stat and am_sf ?)

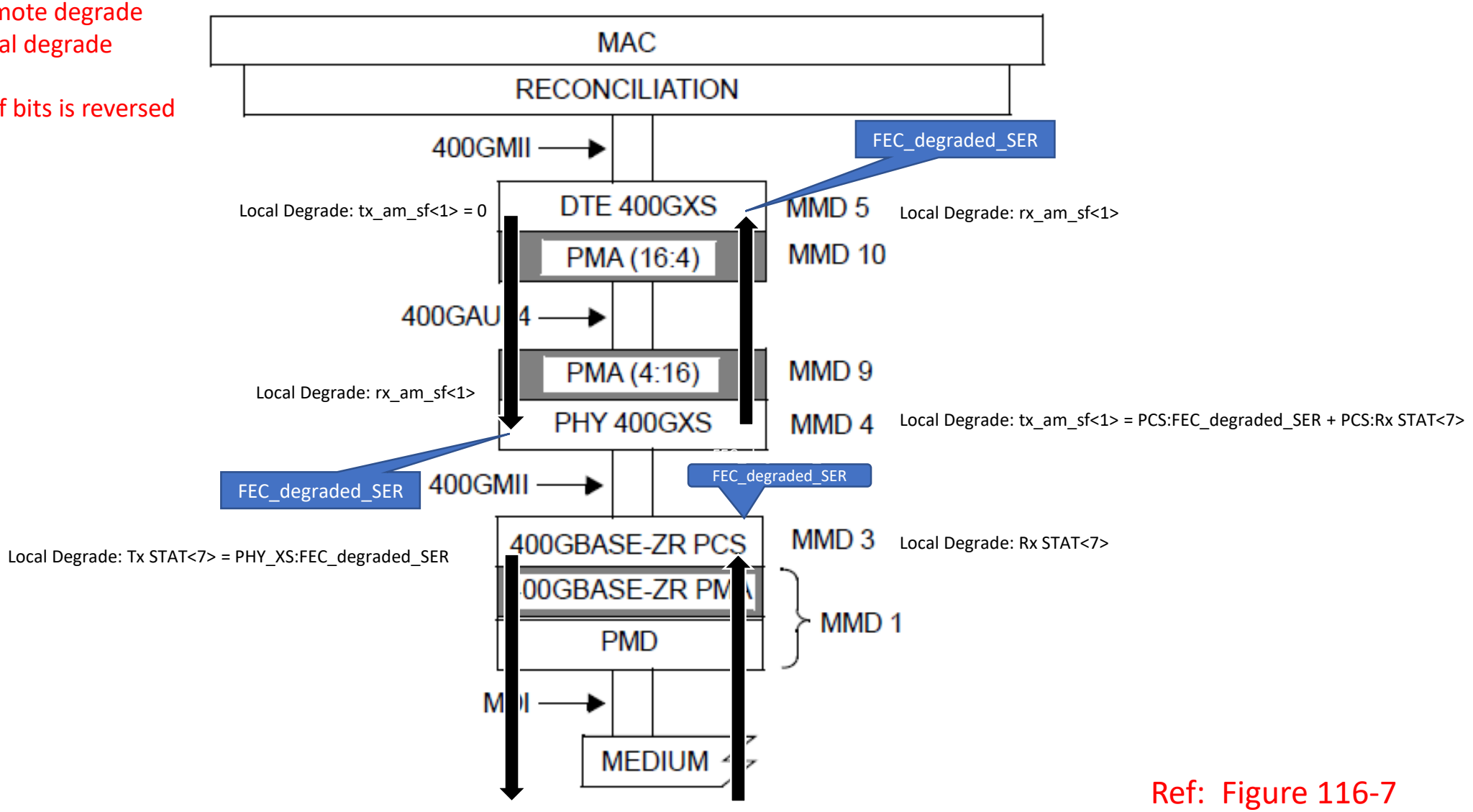


Ref: Figure 116-8

Extender STAT - Local Degrade signaling

Note: Stat<6>, am_sf<2> = remote degrade
Stat<7>, am_sf<1> = local degrade

(note, interesting that order of bits is reversed
Between stat and am_sf ?)



Ref: Figure 116-7

Proposed Response – Transmit

- **Actual text in 155.2.5.5.2:**

If there is an adjacent PHY 400GXS sublayer then the value of remote degrade in STAT<6> is equal to the value of rx_am_sf<2> from the 400GXS sublayer, and local degrade in STAT<7> is equal to the value of rx_am_sf<1> from the 400GXS sublayer.

If there is no adjacent PHY 400GXS sublayer, meaning that the 400GBASE-ZR PCS is directly connected to a MAC-RS, then the value of remote degrade in STAT<6> is set to the value of local degrade in STAT<6> of the received status octet in the receive direction of the 400GBASE-ZR PCS, and the value of local degrade in STAT<7> in the transmit direction is set to 0.

- **Change to:**

The link degrade indication bits provide signalling of non-service affecting link degradations conditions (see 116.6). If there is no extender sublayer between the PCS and the MAC, the status information is set as follows:

STAT<6> = FEC_degraded_SER + rx_local_degraded

STAT<7> = 0

If there is a extender sublayer between the PCS and the MAC, they are set as follows:

STAT<6> = PHY_XS:rx_rm_degraded

STAT<7> = PHY_XS:FEC_degraded_SER

Where the PHY_XS:rx_rm_degraded and PHY_XS:FEC_degraded_SER are the rx_rm_degraded and FEC_degraded_SER variables from the adjacent PHY_XS sublayer.

See 155.2.6.5 for more information on the optional FEC degrade feature.

Proposed Response – Receiver Option 1

- **Actual text in 155.2.6.7.2:**

If there is an adjacent PHY 400GXS sublayer, then the value of remote degrade in the received STAT<6> is passed to tx_am_sf<2> in the transmit direction of the 400GXS sublayer, and local degrade in STAT<7> is passed to tx_am_sf<1> in the transmit direction of the 400GXS sublayer.

If there is no adjacent PHY 400GXS sublayer, meaning that the 400GBASE-ZR PCS is connected to a MAC-RS, then the value of remote degrade in STAT<6> is passed to the DTE management entity to indicate a remote degrade event, and local degrade in the received STAT<7> is passed to the remote degrade bit in STAT<7> in the transmit direction of the 400GBASE-ZR PCS.

- **Change to:**

Delete both paragraphs. Variables monitoring the incoming STAT bits are already presented in 155.4.2:

rx_local_degraded -

A Boolean variable that is asserted true when the receiver detects the value 1 in the local degrade bit of the STAT octet of two consecutive 400GBASE-ZR frames. It is deasserted when local degrade is deasserted for two consecutive frame periods. If a Clause 45 MDIO is implemented, the status of this variable is reflected in bit 3.801.6.

rx_rm_degraded -

A Boolean variable that is asserted true when the receiver detects the value 1 in the remote degrade bit of the STAT octet of two consecutive 400GBASE-ZR frames. It is deasserted when the value 0 is detected in the remote degrade bit for two consecutive frames. If a Clause 45 MDIO is implemented, the status of this variable is reflected in bit 3.801.5.

Proposed Response – Receiver Option 2

- **Actual text in 155.2.6.7.2:**

If there is an adjacent PHY 400GXS sublayer, then the value of remote degrade in the received STAT<6> is passed to tx_am_sf<2> in the transmit direction of the 400GXS sublayer, and local degrade in STAT<7> is passed to tx_am_sf<1> in the transmit direction of the 400GXS sublayer.

If there is no adjacent PHY 400GXS sublayer, meaning that the 400GBASE-ZR PCS is connected to a MAC-RS, then the value of remote degrade in STAT<6> is passed to the DTE management entity to indicate a remote degrade event, and local degrade in the received STAT<7> is passed to the remote degrade bit in STAT<7> in the transmit direction of the 400GBASE-ZR PCS.

- **Change to:**

Delete last paragraph only.

- 155.4.2 refers to MDIO only
- Although 118.2.2 says:

"The variable tx_am_sf is set as follows:

tx_am_sf<2:0> = {PCS:rx_rm_degraded, PCS:FEC_degraded_SER + PCS:rx_local_degraded, 0}

Where PCS:rx_rm_degraded, PCS:FEC_degraded_SER, and PCS:rx_local_degraded are the rx_rm_degraded, FEC_degraded_SER, and rx_local_degraded variables from the adjacent PCS."

- And since we have those variables, and the PHY_XS is reaching over the PCS variables to gather the values to be sent we are done
- There is value in having some text in 155 that clarifies this, without the need to dig into clause 118.