Draft Material for RS

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Global changes (1 of 2)

- **Start with text from Clause 76.2**
- **Globally make the following replacements (in order)**
  - 10G-EPON -> 25G-EPON
  - 10/10G -> 25/25G
  - 10 Gb/s -> 25 Gb/s
  - XGMII -> 25GMII
  - 1G-EPON -> 10G-EPON
  - 10/1G -> 25G/10G
  - 1 Gb/s -> 10 Gb/s

Global changes (1 of 2)

- **Change references:**
  - From Clause 46 (XGMII) to Clause 106 (25GMII)
    - **Note there are a few ref to figures in Cl 46 which do not have complementary figures in 106 and the Cl 46 ref should remain as is.**
  - From Cl 35 (GMII) to Clause 46 (XGMII)
  - From Cl 77 to 202
- **Update clause numbering**

Figure changes

- **Figure 76-1 (10G layering)** – see global changes
  - Expand to show multi-lane PHY (example given)
  - Change title from 10/10G to 25/25G
  - Add note: NOTE – There may be 1, 2 or 4 instances of the PHY (PCS, FEC, PMA & PMD) at either the OLT or the ONU.
- **Figure 76-2 (10/1G layering)** – see global changes
  - Expand to show multi-lane
  - Change title 10/1G to 25/10G
- **Figure 76-3 (operation of OLT and ONU)** – see global changes
- **Figure 76-4 (PCS & RS for dual rate mode at OLT)**– see global changes
  - Strike @ xxxx nm
- **Recommendation for Fig 76-1 & 2**
  - We should probably consider modifying the figures to show multiple instances of the MAC/RS/PHY interfacing to a single fiber.
  - Additional text describing this should be added to 201.2.1

Table updates

- **Table 76-1 (PLS_DATA.request mapping)** – see global changes
  - **Replace TXD<7:0>, TX_EN, TX_ER, GTX_CLK with TXD<31:0>, TXC<3:0>, TX_CLK**
- **Table 76-2 (PLS_DATA.indication mapping)** – see global changes
  - **2) Replace RXD<7:0>, RX_ER, RX_DV, RX_CLK with RXD<31:0>, RXC<3:0>, RX_CLK**

Specific changes (1 of 2)

- **76.2 (RS)** – add phrases regarding 50G-EPON and 100G-EPON
  - with a single or multiple Physical Layers,
  - 25G-EPON OLTs and ONUs would only need to support a single lane Physical Layer while 50G-EPON and 100G-EPON OLTs and ONUs would need to support two and four lane Physical Layers, respectively.
- **76.2.2.3 (Dual-rate mode)** - phrase regarding 1G-EPON ONUs should be removed.
- **76.2.3 (major concepts)** - reword 2nd & 3rd paras to consolidate signal names.
  - GMII used TXD<7:0>, …
- **76.2.3.1 (Application)** - strike the 2nd sentence in 1st para as 25GMII is not physically defined. Slight rewording of 3rd sentence to accommodate change.

Specific changes (2 of 2)

- **76.2.5 (XGMII structure)** – reword as follows:
  - The 25GMII structure is identical to the XGMII structure specified in 46.1.6. and Figure 46–2 depicts a schematic view of the RS inputs and outputs.
- **76.2.6.1 (Functional specifications for multiple MACs)** – strike 76.2.6.1.1 (Variables) to 76.2.6.1.3 (RS Receive function) and add the following
  - The functional specification for multiple MACs is as described in 76.2.6.1except the logical_link_id variable shall be set to the broadcast value of 0x7FFD for the unregistered ONU MAC. See table 76.2.6.1.1 and Table 76-4 for additional information on permissible values for this variable. Enabled OLT .
- **General scrubbing**
  - Check for instances of “an 25GMII” and change to “a 25GMII” and change “a XGMII” to “an XGMII”. Also there may be a few (

Updates to Clause 76

- **Change Table 76-4 (Reserved LLID values) to add reserved value 0x7FFD for 25/10GBASE-PRX and 25GBASE-PR as shown below**

LLID value	Used in RS	Purpose
0x7FFF	1000BASE-PX	Downstream: 1 Gb/s SCB
		Upstream: ONU registration at 1 Gb/
0x7FFE	10/1GBASE-PRX	Downstream: 10 Gb/s SCB
		Upstream: ONU registration at 1 Gb/
	10GBASE-PR	Downstream: 10 Gb/s SCB
		Upstream: ONU registration at 10 Gb/
0x7FFD	25/10GBASE-PRX	Downstream: 25 Gb/s SCB
		Upstream: ONU registration at 10 Gb/
	10GBASE-PR	Downstream: 25 Gb/s SCB
		Upstream: ONU registration at 25 Gb/
0x7FFC~~D~~–0x7F00	—	Reserved for future use

- **In 76.2.6.1.3.2 (LLID)**
  - **Change "0x7FFF or 0x7FFE" to "0x7FFF, 0x7FFE, or 0x7FFD" in b) and c)**

Observations from Clause 106

- **Clause 106 does not define a physical implementation of 25GMII**
  - Clock rate is 390.625 MHz ±100 ppm (106.3)
  - We could avoid having to do Idle insertion & deletion (something which is never implemented and only complicates the standard) by:
    - **Taking exception to the Cl 106 clock rate <OR>**
    - **Adjusting the PMD rate to allow the 390.625 cock to fit well without doing Idle manipulation.**
- **Cl 106.1.7.3 Mapping of PLS_CARRIER.indication includes the following statement:**
  - The RS never generates the PLS_CARRIER.indication primitive for PHYs that do not support EEE or Link Interruption.
  - PON supports “Link Interruption”. Perhaps we can use this for ONU laser control instead of the Data Detector (another “standard only” feature).

Thank you

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Change to 76.2.6.1.3.2

If the device is an OLT, then the following comparison is made:

a) The received mode bit is ignored.

b) If the received logical_link_id value matches 0x7FFF, 0x7FFE, or 0x7FFD and an enabled MAC exists with a logical_link_id variable with the same value, then the comparison is considered a match to that MAC.

c) If the received logical_link_id has a value other than 0x7FFF, 0x7FFE, or 0x7FFD and an enabled MAC exists with a mode variable with a value of 0 and a logical_link_id variable matching the received logical_link_id value, then the comparison is considered a match to that MAC. If the device is an ONU then the following comparison is made:

d) If the received mode bit is equal to 0 and the received logical_link_id value matches the logical_link_id variable, then the comparison is considered a match.

e) If the received mode bit is equal to 1 and the received logical_link_id value does not match the logical_link_id variable, or the received logical_link_id matches 0x7FFE, then the comparison is considered a match.

f) If the received logical_link_id value matches one of the assigned multicast LLIDs, then the comparison is considered a match.

If no match is found,