Co-ex Modification Proposal in Clause 75, D2.0

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Current Subclause 75.7 in D2.0

SC75.7 'Dual-rate operation (informative)'

- Co-ex is not clearly described

   Co-ex function should be defined first

- No compliant Tables or values are referred to

   Co-ex should be specified something compliant

- Only dual-rate receiver implementations (in OLT) are discussed

   Current Subclause should be moved to Annex

- If being moved to Annex, it will be independent and separate from the specification main body

   Co-ex should be specified in the main body

Co-ex Options for 10G OLT

- Clause 76 (RS/PCS/PMA) clearly specifies Co-ex support
  Subclause 76.1.2.3 'Dual rate mode'
  Why not in Clause 75??

- PMD variety increase should be avoided
  Additional Co-ex PMDs will be confusing

> **Proposal : 1G transmit/receive options to 10G OLTs**
> **(PR-D or PRX-D PMD with Co-ex options)**

With downstream Co-ex option, OLT should support :
- Table 75-5 (10G)
- Table 60-3 (PX10) or 60-6 (PX20)

With upstream Co-ex option, OLT should support :
- Table 75-6 (10G)
- Table 60-5 (PX10), 60-8 (PX20), or 75-7 (PRX)

PMD Co-ex Mapping

Table 75-xx – PMD coexistence mapping for dual-rate mode option

	10GBASE-PR-D-type PMDs	10/1GBASE-PRX-D-type PMDs
D/S dual-rate mode option only	(10GBASE-PR-U-type PMDs)	10/1GBASE-PRX-U-type PMDs 1000BASE-PX-U-type PMDs
U/S dual-rate mode option only	10GBASE-PR-U-type PMDs 10/1GBASE-PRX-U-type PMDs	NA
Both D/S and U/S dual-rate mode options	10GBASE-PR-U-type PMDs 10/1GBASE-PRX-U-type PMDs 1000BASE-PX-U-type PMDs	NA

Note : PMDs with compatible power budget can be mapped to each other.

New Subclause 75.7 in D2.0

75.7 Dual-rate mode option

To support coexistence of symmetric 10Gb/s, asymmetric 10/1 Gb/s, and legacy 1 Gb/s ONUs on the same outside plant, the OLT may be configured to use a dual-rate mode. Dual-rate mode supports transmission and reception of both 10 Gb/s and 1 Gb/s signal streams, and can be introduced as options for 10GBASE-PR-D PMDs or 10/1GBASE-PRX-D PMDs.

Table 75-xx depicts PMD coexistence mapping for dual-rate mode options.

75.7.1 Downstream dual-rate mode option

When the downstream dual-rate mode option is installed, the OLT transmits both 10G and 1G downstream signals in WDM manner. Further implementation details are described in Annex 75A. The OLT shall meet both 10G and 1G specifications defined in Table 75-5 (PR and PRX type OLT PMD transmit specification) and in Table 60-3 or Table 60-6 (1000BASE-PX-D transmit characteristics).

75.7.2 Upstream dual-rate mode option

When the upstream dual-rate mode option is installed, the OLT receives both 10G and 1G upstream signals in TDMA manner. Further implementation details are described in Annex 75B. The OLT shall meet both 10G and 1G specifications defined in Table 75-6 (PR type OLT PMD receive characteristics) and in Table 60-5, Table 60-8 (1000BASE-PX-D receive characteristics), or Table 75-7 (PRX type OLT PMD receive characteristics).

Damage threshold (max) for OLT with upstream dual-rate mode option, only complies with the value in Table 75-6, not in Table 75-7, and higher optical input power may damage the OLT receiver.

Annex 75A : WDM dual-rate transmit implementation, if necessary.
Annex 75B : Current Subclause 75.7 (Dual-rate circuit implementation).

Damage Threshold & Signal Detect

- 'Damage threshold (max)' for PRX-D3, -8.38 dBm now, should be aligned with PR-D3, -5 dBm for compatibility

- Additional Co-ex option texts to Signal_Detect description necessary

- Footnotes should be added to related Tables

- Table 75-4 --- SIGNAL_DETECT value definitions for Clause 75 PMDs

a   When dual-rate mode options is applied to 10GBASE PR-D PMD receiver, 'Signal_detect value = FAIL' shall be generated according to the condition of 'average input optical power <= Signal Detect Threshold (min) in Table 75-6 or 75-7 at the specified receiver wavelength. Further details about dual-rate mode options are given in 75.7

b   When dual-rate mode options is applied to 10GBASE PR-D PMD receiver, 'Signal_detect value = OK' shall be generated according to the condition of 'average input optical power >= Receive sensitivity (max) in Table 75-6 or 75-7 at the specified receiver wavelength.

- Table 75-7 --- PRX type OLT PMD receive characteristics

d   When upstream dual-rate mode option is applied to OLT, damage threshold (max) only complies with the value in Table 75-6, 0 dBm for 10/1GBASE-PRX-D1, -5dBm for PRX-D2, and -5dBm for PRX-D3, and higher optical input power may damage the OLT receiver. Further details about dual-rate mode options are given in 75.7.

Thank you!!