

PHY Parameters Model Analysis

Mar 2017

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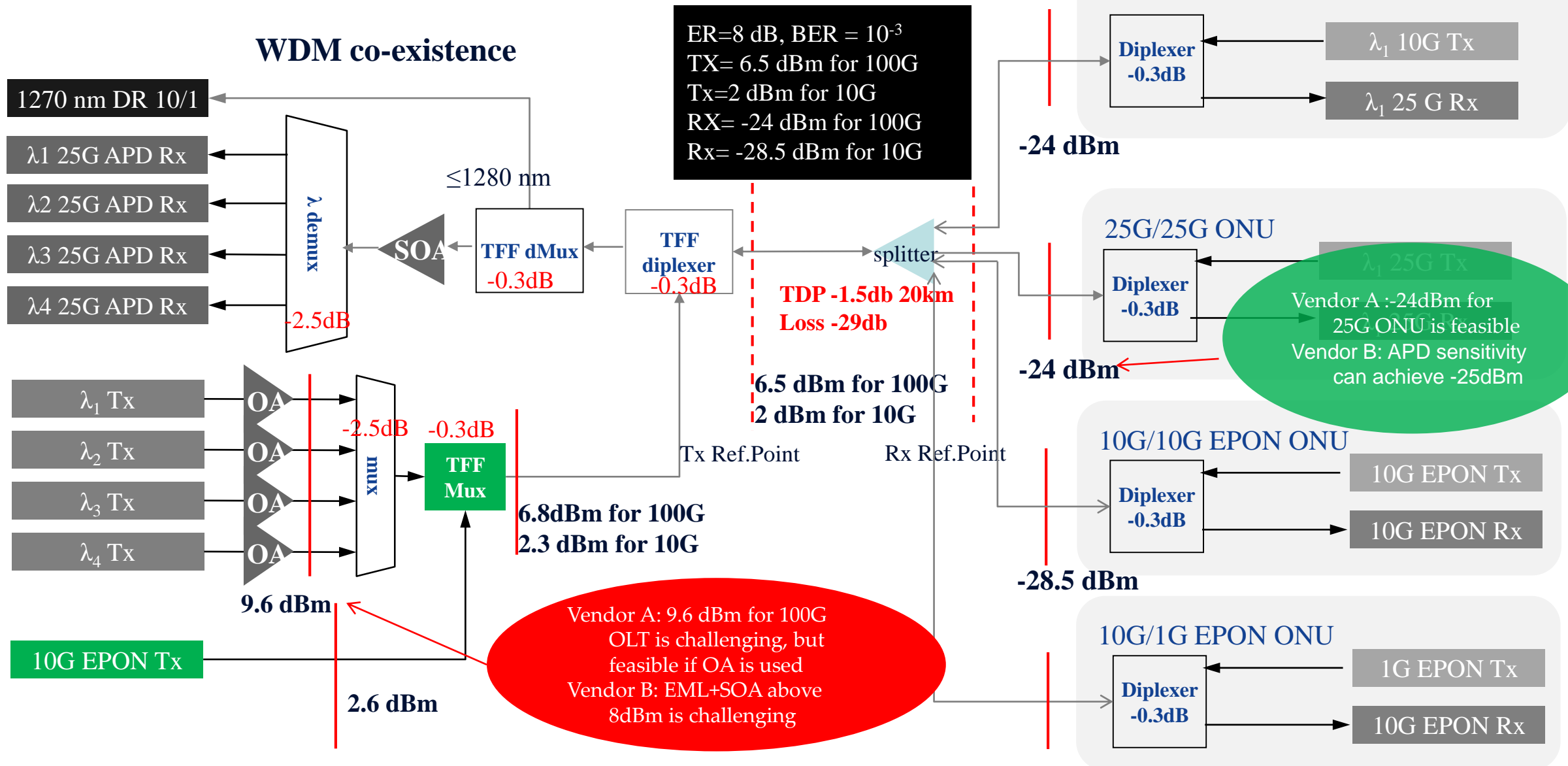
Motivation of this contribution

- **To serve the wavelength discussion and final decision making process**
- **From Jan meeting, two wavelength plans (PLAN A and PLAN B) are on the table for evaluation**
 - Many analysis have been given on several key PHY component
 - Plans are still under improvement given those analysis
- **To make final decision on the wavelength plan, a full view on decomposed system architecture with key PHY parameters value which meeting PR30 class requirements should be very useful**
 - **Prove the feasibility to support PR30 for 100G OLT operating with 10/10, 25/10, 25/25, 100/100 ONU**
 - **Prove the feasibility to support PR30 for 100G OLT operating with 10/1 ONU (CTC scenario)**

Note: in above two points, PHY parameters of 10/10 and 10/1 ONU should be kept the same as specification in 802.3, which means those deployed 10G ONU will not be forced to upgrade.
- **Two examples have been given in following slides, for PLAN A ([guo_3ca_1_0117.pdf](#)) and PLAN B ([harstead_3ca_1_0117.pdf](#)) respectively**

Example of PHY Parameter model for PLAN A – (1)

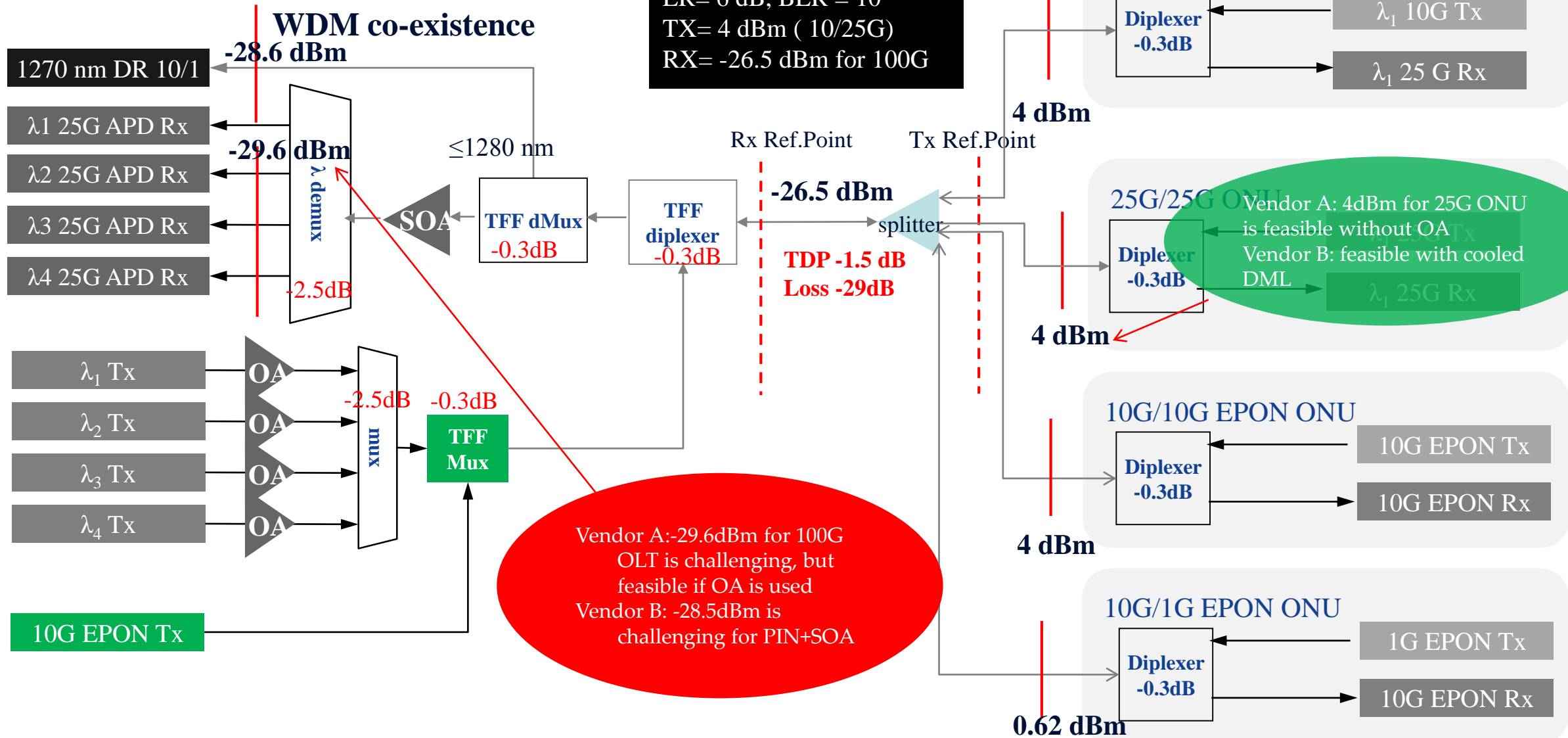
DS: 100G OLT Tx and 25G ONU Rx Analysis



Example of PHY Parameter model for PLAN A – (2)

US: 100G OLT Rx and 25G ONU Tx Analysis

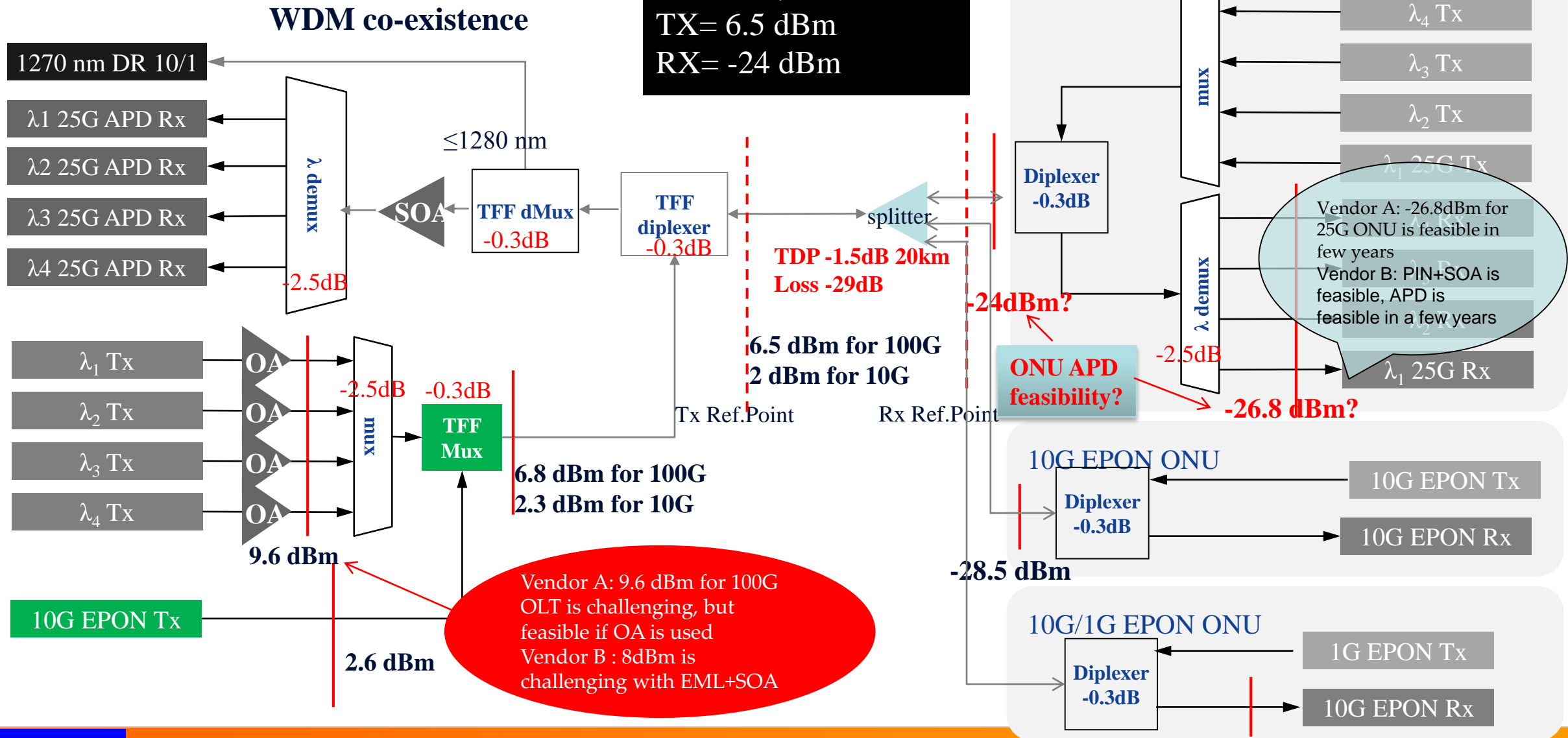
ER= 6 dB, BER = 10^{-3}
 TX= 4 dBm (10/25G)
 RX= -26.5 dBm for 100G



Example of PHY Parameter model for PLAN A – (3)

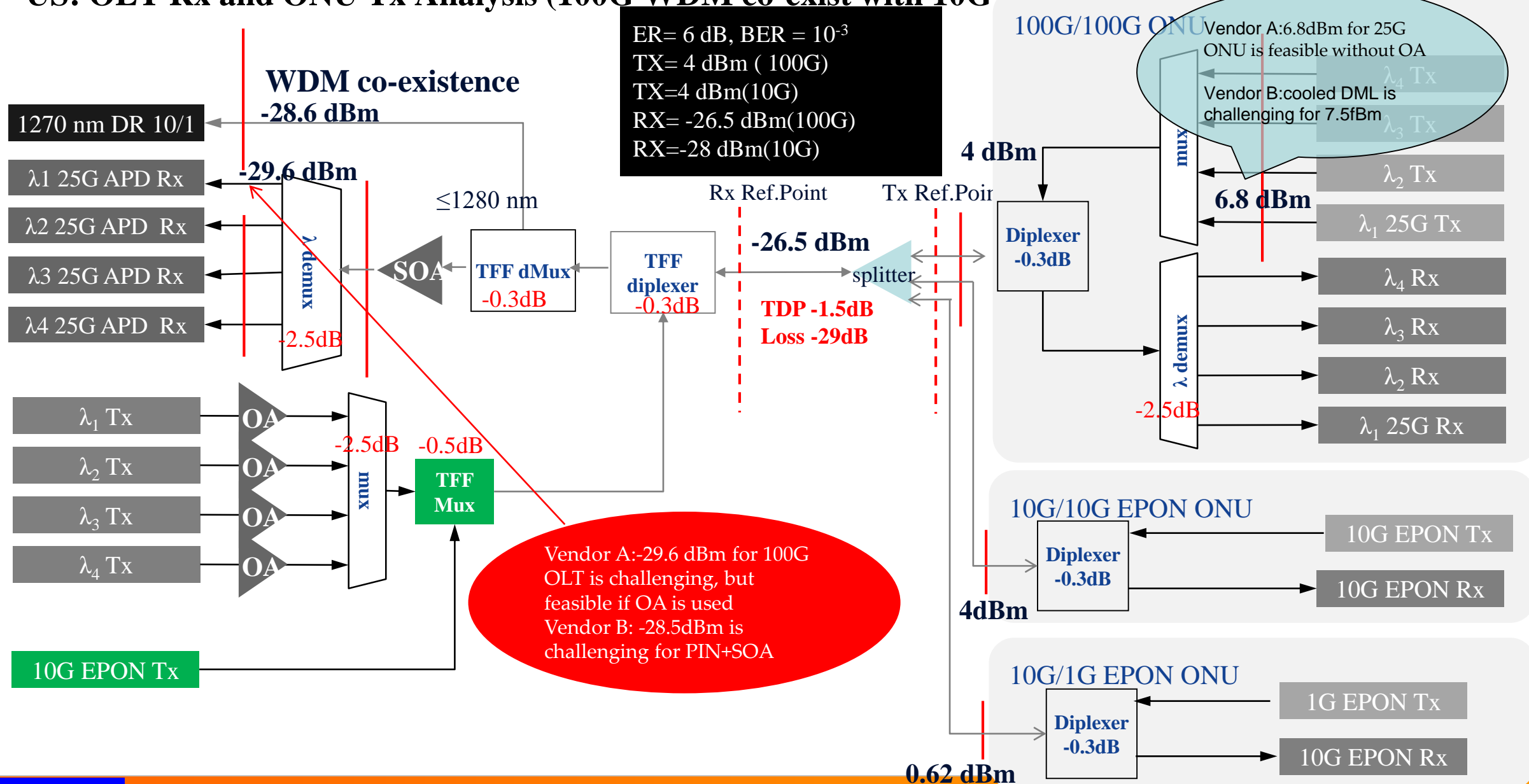
DS: OLT Tx and ONU Rx Analysis (100G WDM co-exist with 10G)

ER=8 dB, BER = 10^{-3}
 TX= 6.5 dBm
 RX= -24 dBm



Example of PHY Parameter model for PLAN A – (4)

US: OLT Rx and ONU Tx Analysis (100G WDM co-exist with 10G)

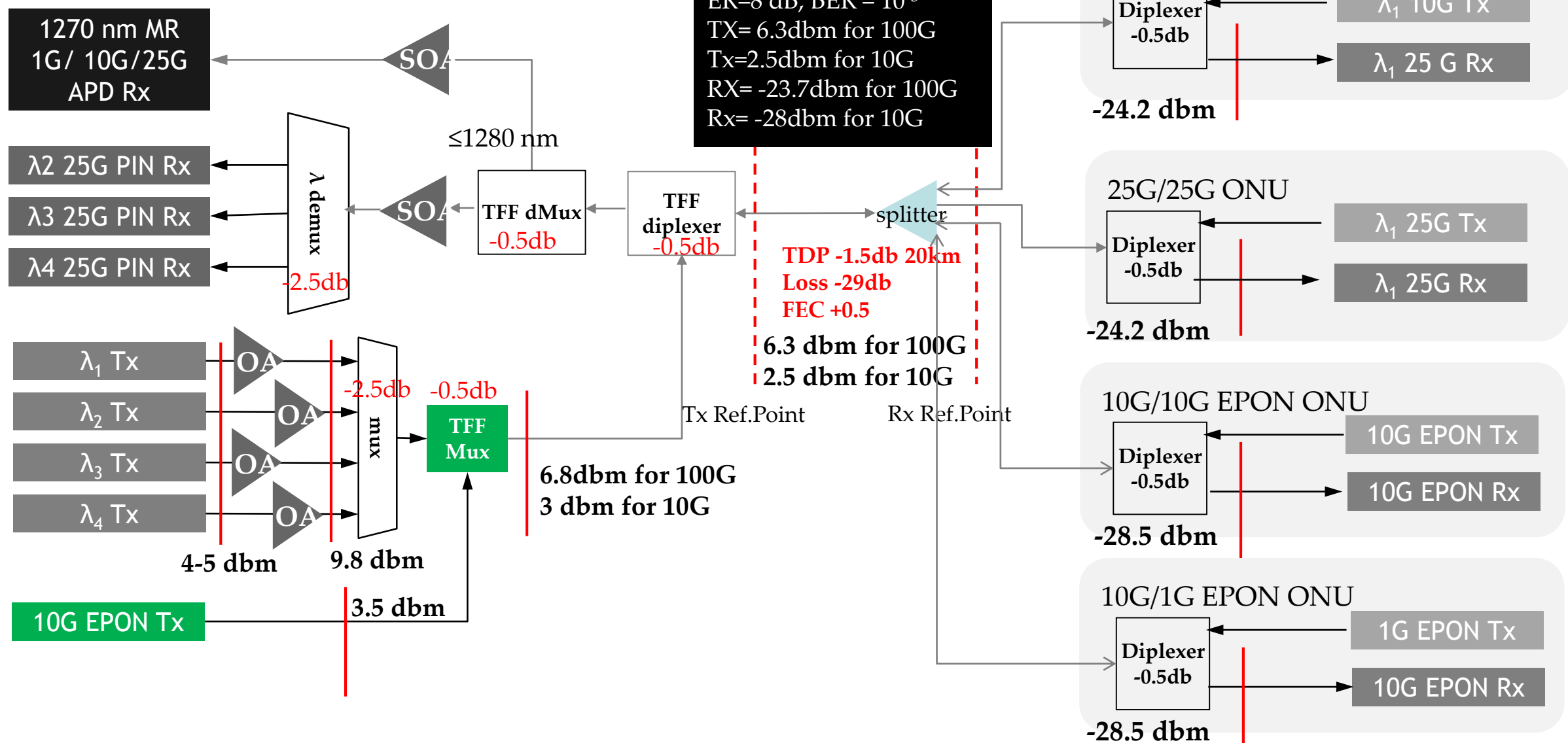


Example of PHY Parameter model for PLAN B – (1)



Downstream 100G OLT Tx and 25G ONU Rx Analysis

TDM co-existence

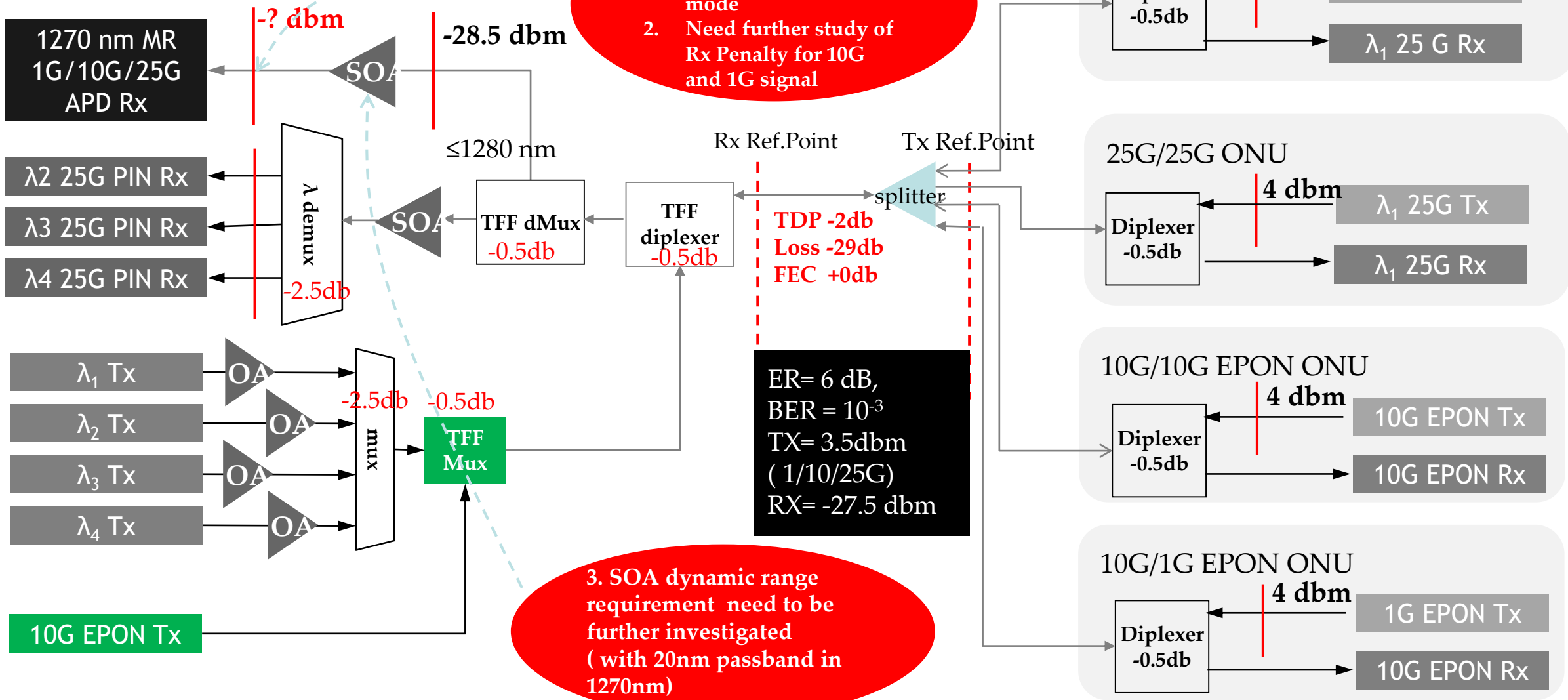


Example of PHY Parameter model for PLAN B – (2)



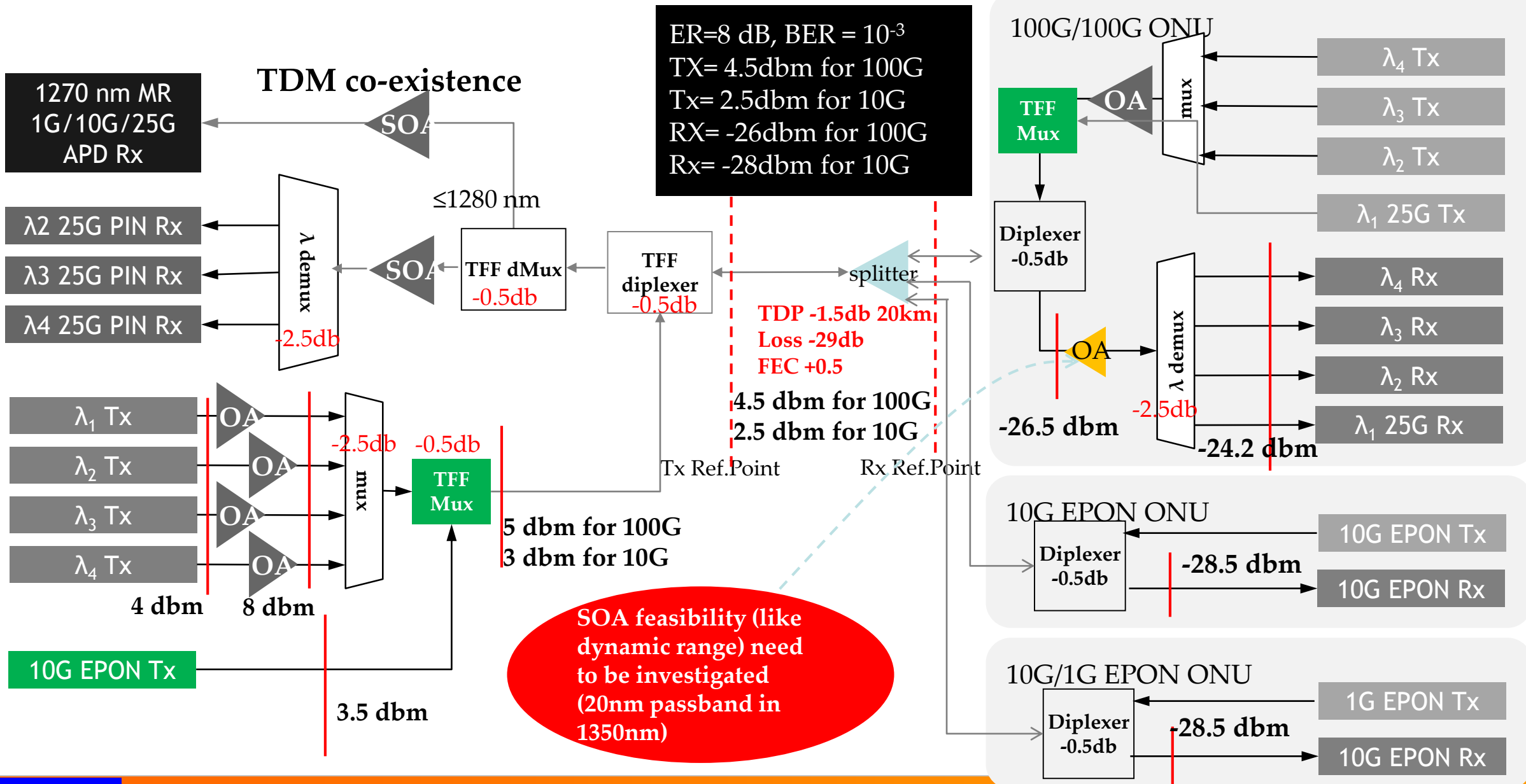
Upstream 100G OLT Rx and 25G ONU Tx Analysis

TDM co-existence



Example of PHY Parameter model for PLAN B – (3)

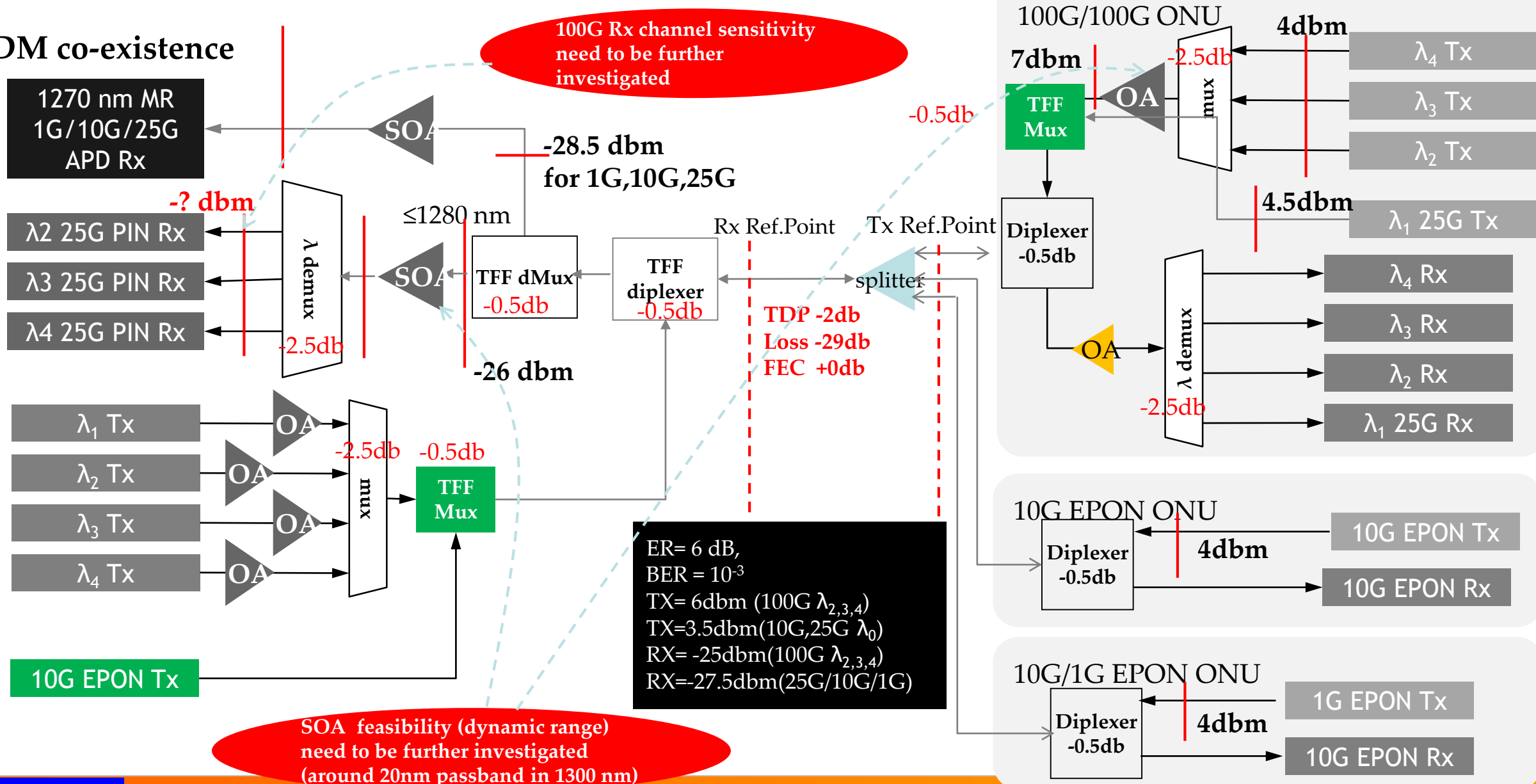
Downstream OLT Tx and ONU Rx Analysis (100G TDM co-exist with 10G)



Example of PHY Parameter model for PLAN B – (4)

Upstream OLT Rx and ONU Tx Analysis (100G TDM co-exist with 10G)

TDM co-existence



Summary and Proposal

- **Two Examples of full view on decomposed system architecture with key PHY parameters value are given for both wavelength plans**

- **Straw Poll:**

“Detailed and accurate feasibility study on system architectures, wavelength plans, and relevant PHY parameters is needed before the wavelength selection , in order to ensure the support of PR30 for both legacy 10G-EPON ONU and any new 100G-EPON ONU.”

Thanks !