NOKIA

Wavelength plan decision: next steps

Updated version of harstead_3ca_5_0916

Ed Harstead, member Fixed Networks CTO, Nokia

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Plan “champions”

A: John, Frank

B: Ed

C: Ed

D: John

Power budgets and distances under consideration

Power budgets:

- 10-24 dB (~PR20)
- 15-29 dB (~PR30)

Distances:

- 10 km
- 20 km

Required information: General

1. TDP values for DML and EML and for 10 km and 20 km at each plan's wavelengths
   - Some contributions on dispersion tolerance and TDP values for 20 km have been submitted, e.g. tanaka_3ca_1_0716 and houtsma_3ca_1_0716, but not for 10 km.
2. TDM vs. WDM co-existence with 10G EPON. What are all the trade-offs?
3. Receiver sensitivity with DML source
4. Dispersion tolerance improvement that may be obtained with EDC
   a. Downstream
   b. Upstream: must support burst mode and ONUs at maximum differential distances

Required information: affecting 25G

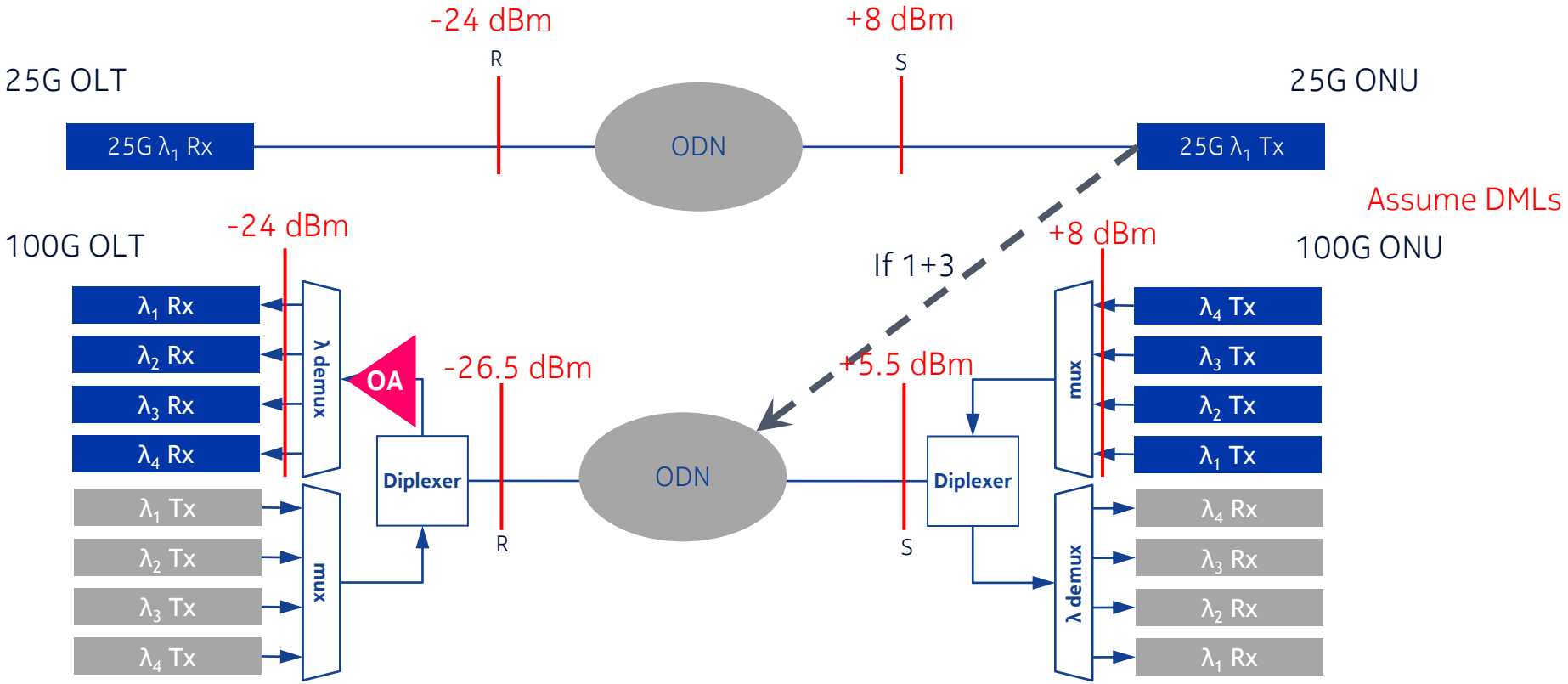
1. How important to use O-band lasers (cost, time-to-market) for the OLT? (All plans already use O-band for the ONU laser).
2. For 1+3, feasibility and cost impact of increased dynamic range of 25G ONU (2.5 dB more). Refer to slide 8. On the floor, John Johnson indicated this would be very minor, but to be confirmed.
3. Consensus is required on the cost of the ONU BOSA diplexer vs. US/DS gap .
    a. funada_3ca_1_0316 : no collimation for >35 nm
    b. liu_3ca_2_0516: no collimation >40 nm. Collimation adds 30% cost (to 10/10 EPON BOSA).
    c. johnson_3ca_2a_0916: to avoid collimation must have one wavelength in O-band and the other in S/C/L band
3. Consensus is required on required DS0/DS1 gap for low cost WBF in ONU BOSA for all plans:
    a. funada_3ca_1_0316: >10 nm
    b. liu_3ca_3_0716: ≥10 nm
    c. johnson_3ca_1a_0916: 8 nm is OK

Required information: affecting 100G

1. How important to use O-band lasers (cost, time-to-market) for the ONU and OLT?
2. For 1+3, feasibility and cost impact of increased dynamic range of 100G OLT receivers (2.5 dB more + demux insertion loss variation). Refer to slide 7.
3. 100G OLT optical pre-amplification. Do SOAs provide adequate performance, or will EDFAs be required? Refer to slide 7. Specifically, can an SOA pre-amp architecture overcome the 2.5 dB demux loss, for these channel widths:
   a. 2 nm
   b. 5 nm
   c. 20 nm
4. 100G OLT optical post-amplification. Which architecture, per-channel or shared post-amp? Do SOAs provide sufficient power or will EDFAs be required? Refer to slide 8. Also ref: johnson_3ca_3_0916

For reference, per harstead_3ca_1a_0916

Provisional values for 100G OLT optical pre-amp performance (29 dB loss budget)



Provisional values for 100G OLT optical post-amp performance (29 dB loss budget)