Tilted power budgets

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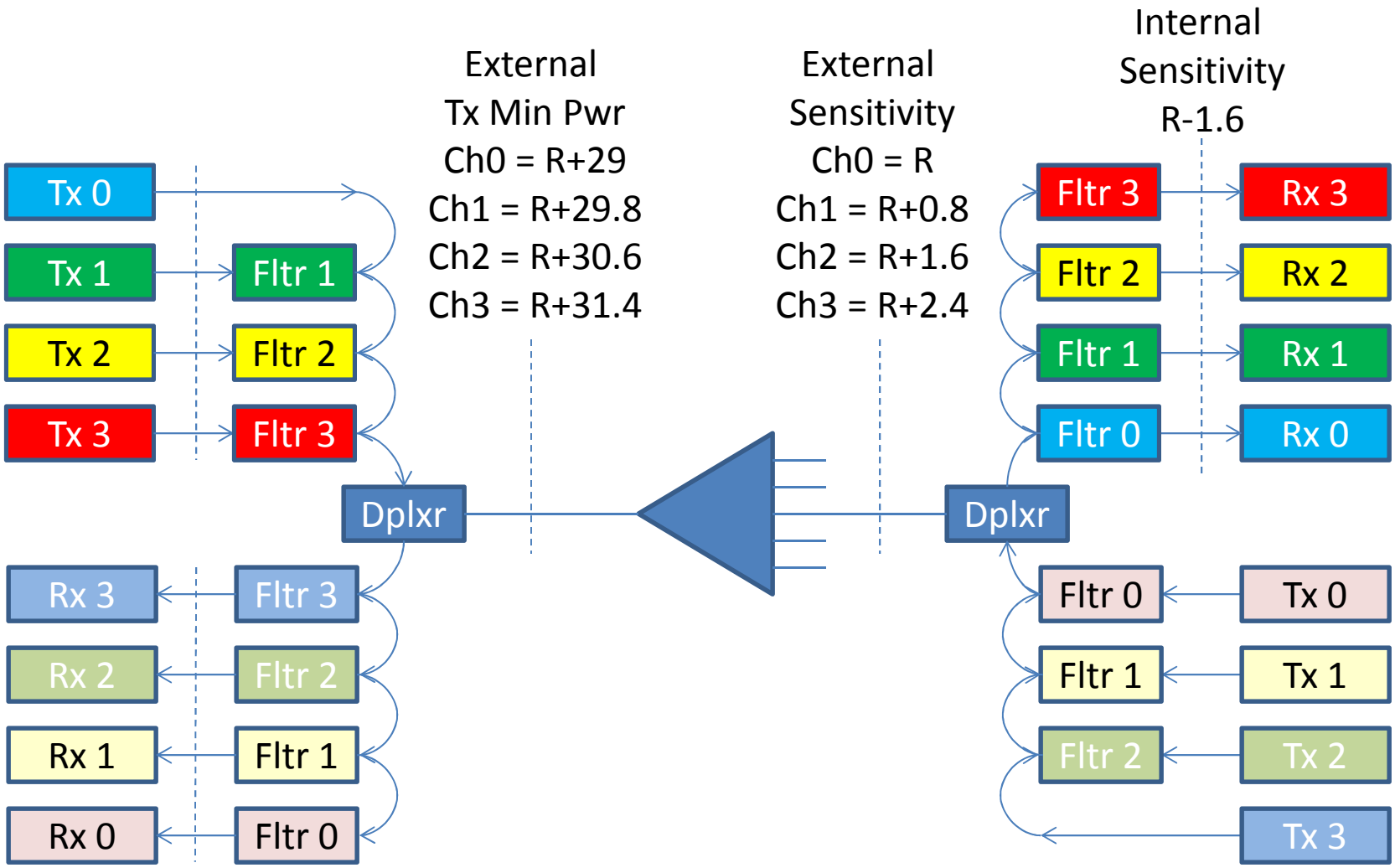
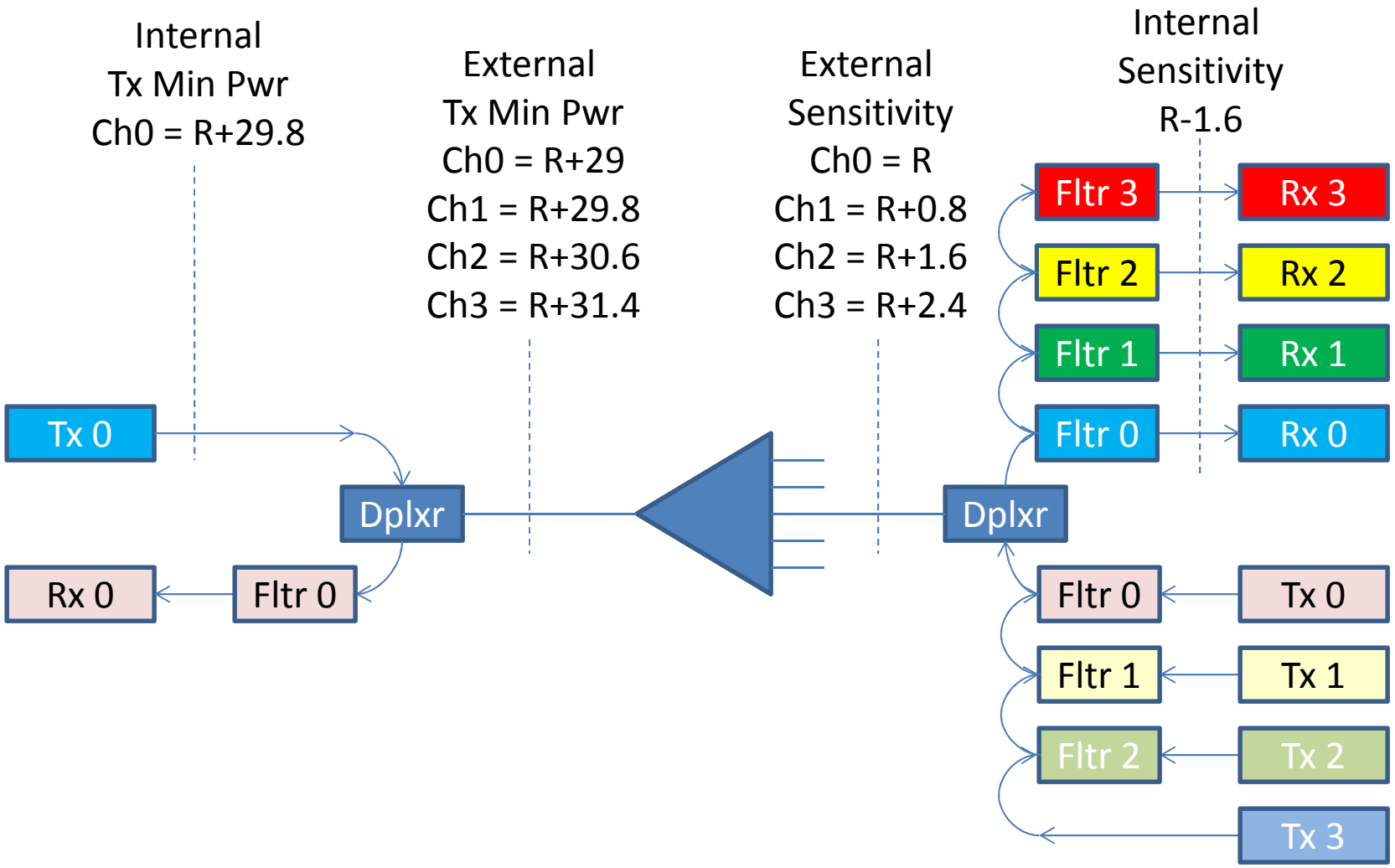
Motivations

- A long-standing issue with the multi-channel power budget is: The 100G devices have a higher insertion loss (filters) than the 25G
- This has been put forward as either:
  - Make the 25G system ‘pay’ for a loss it doesn’t have (this wastes valuable dBs)
  - Make the 25G channel power different than the 100G power (this results in non-uniform budgets)
- We wish to find a more natural scheme to reflect the capabilities of real modules
  - We assume that thin film filters will be the major solution for the wavelength plans we are considering

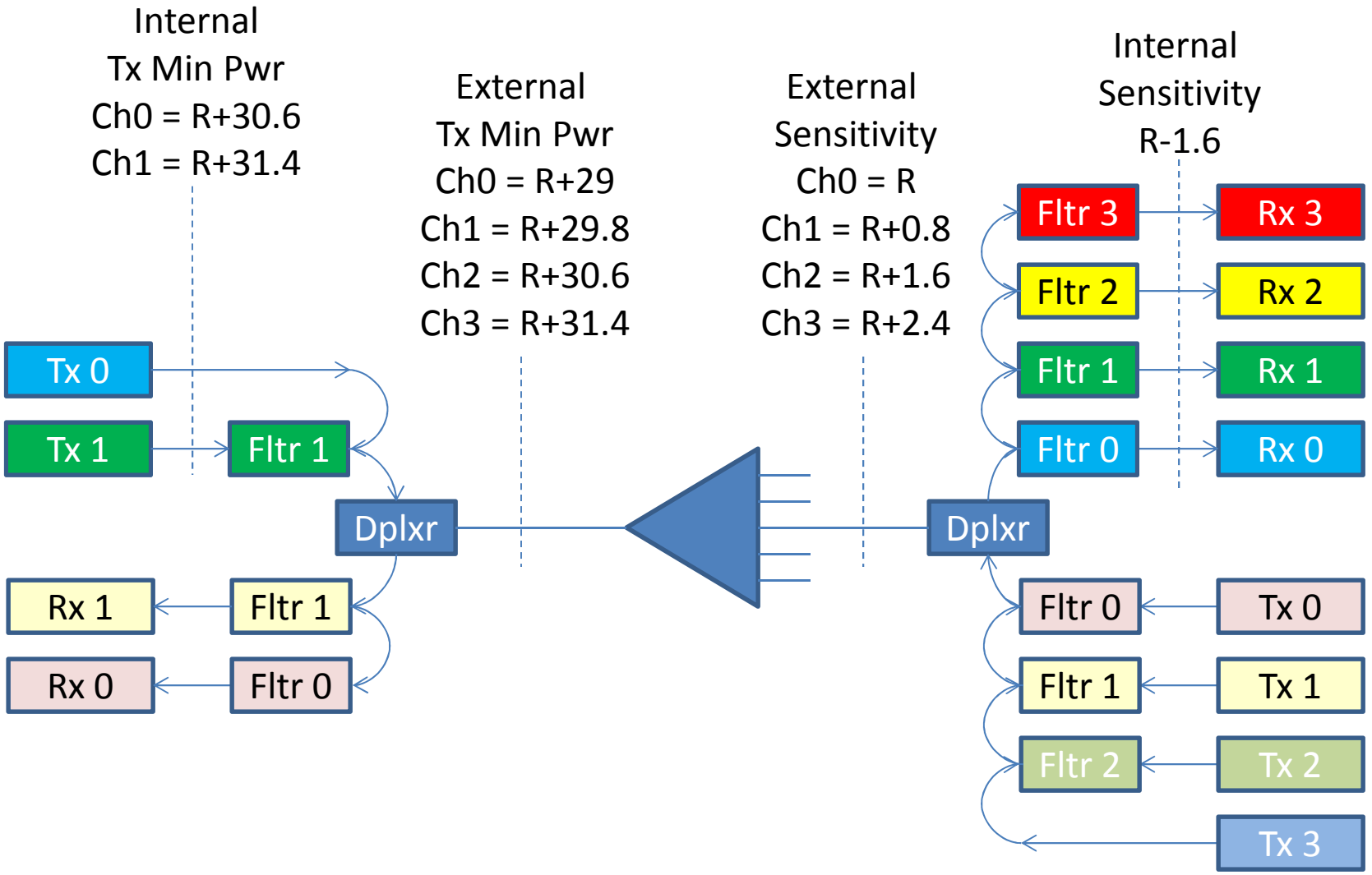
Downstream budget



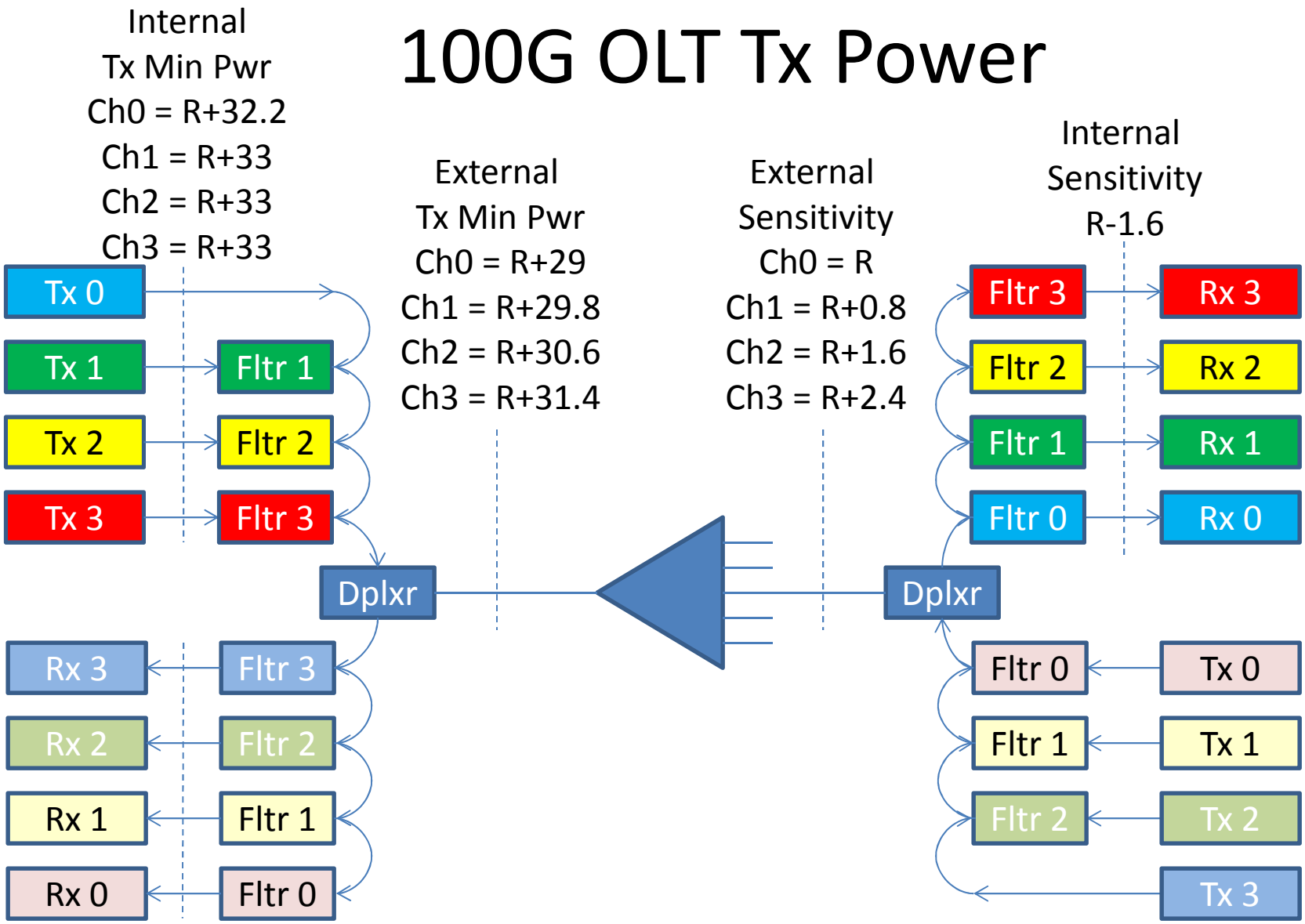
25G OLT Tx Power



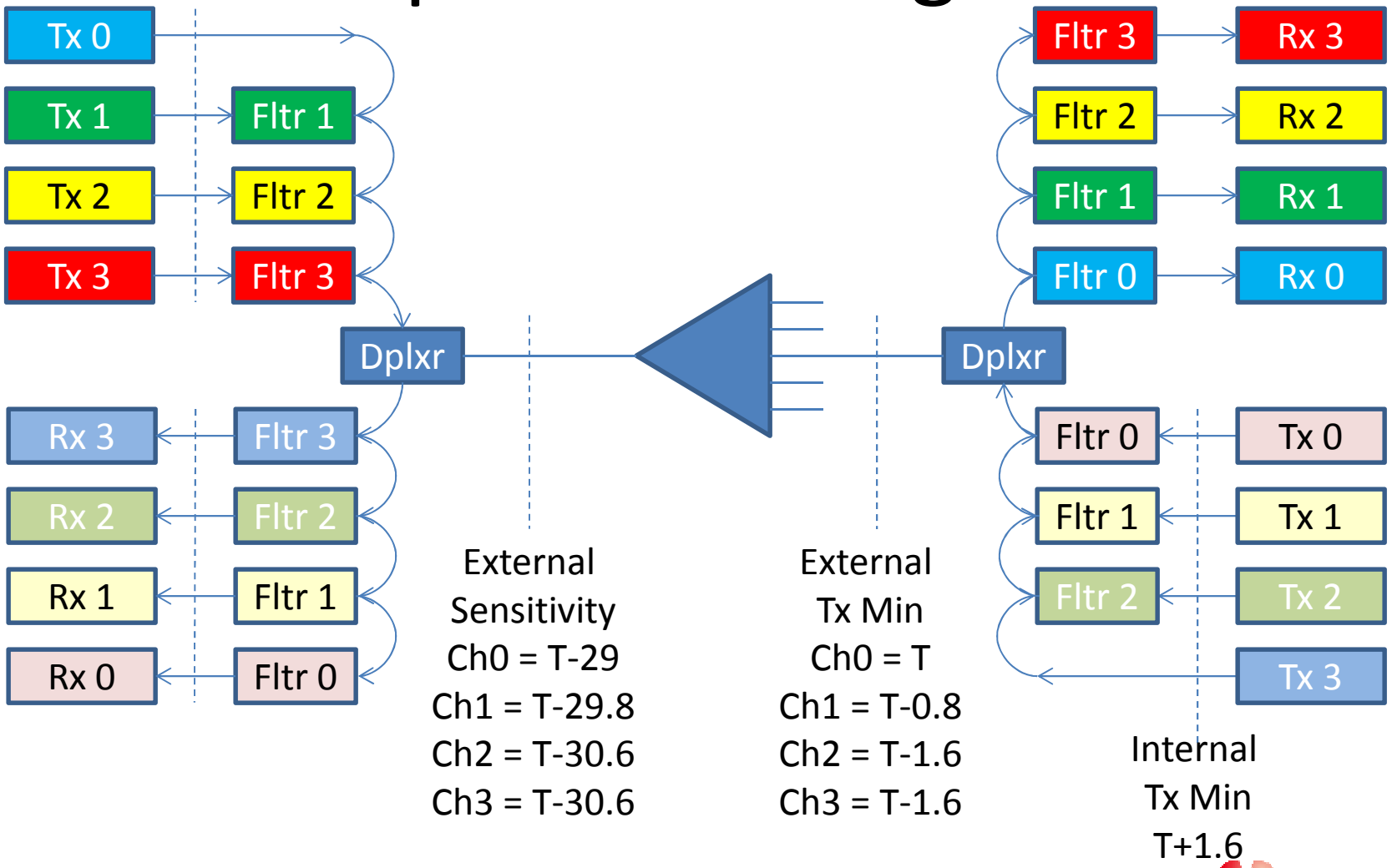
50G OLT Tx Power



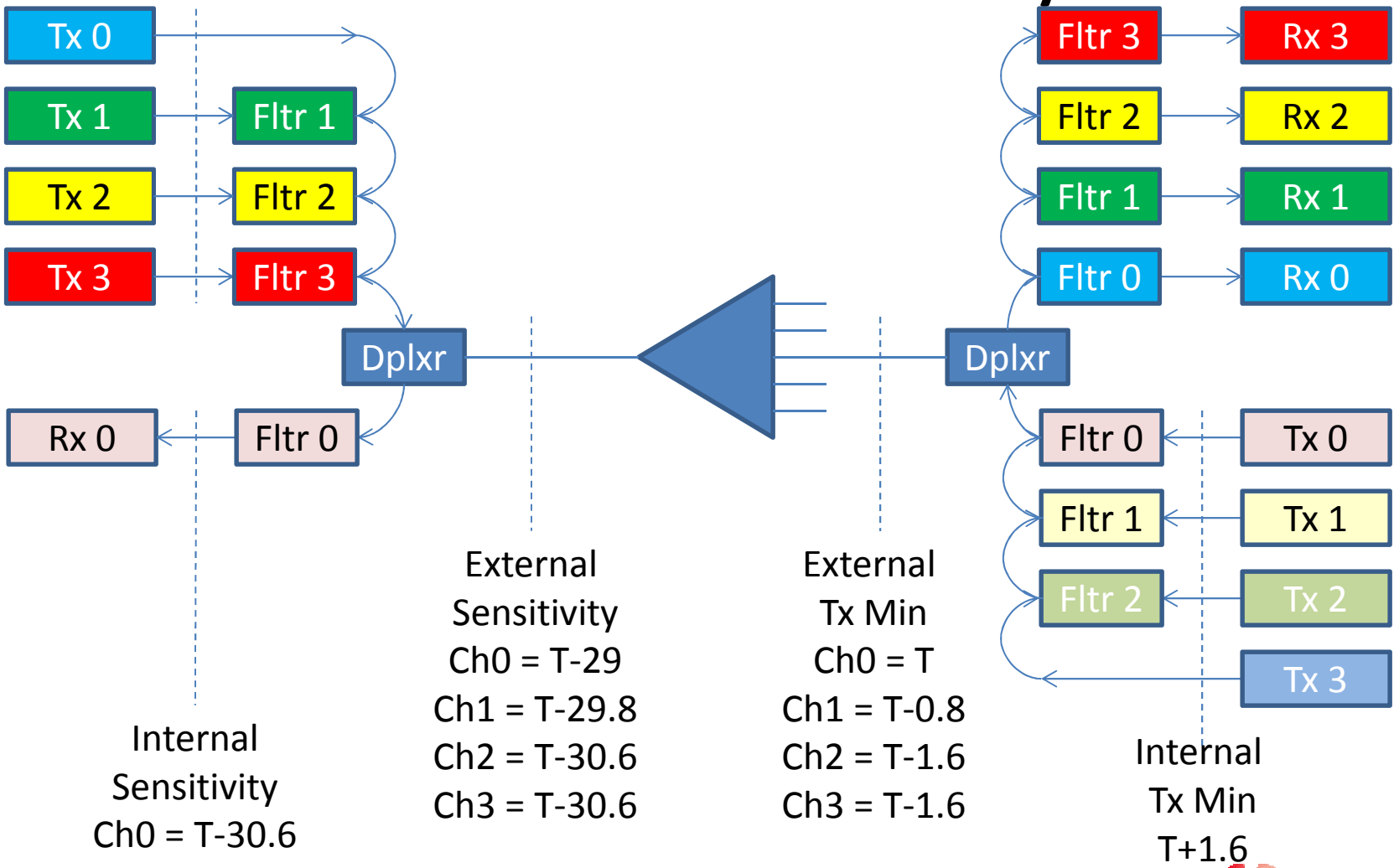
100G OLT Tx Power



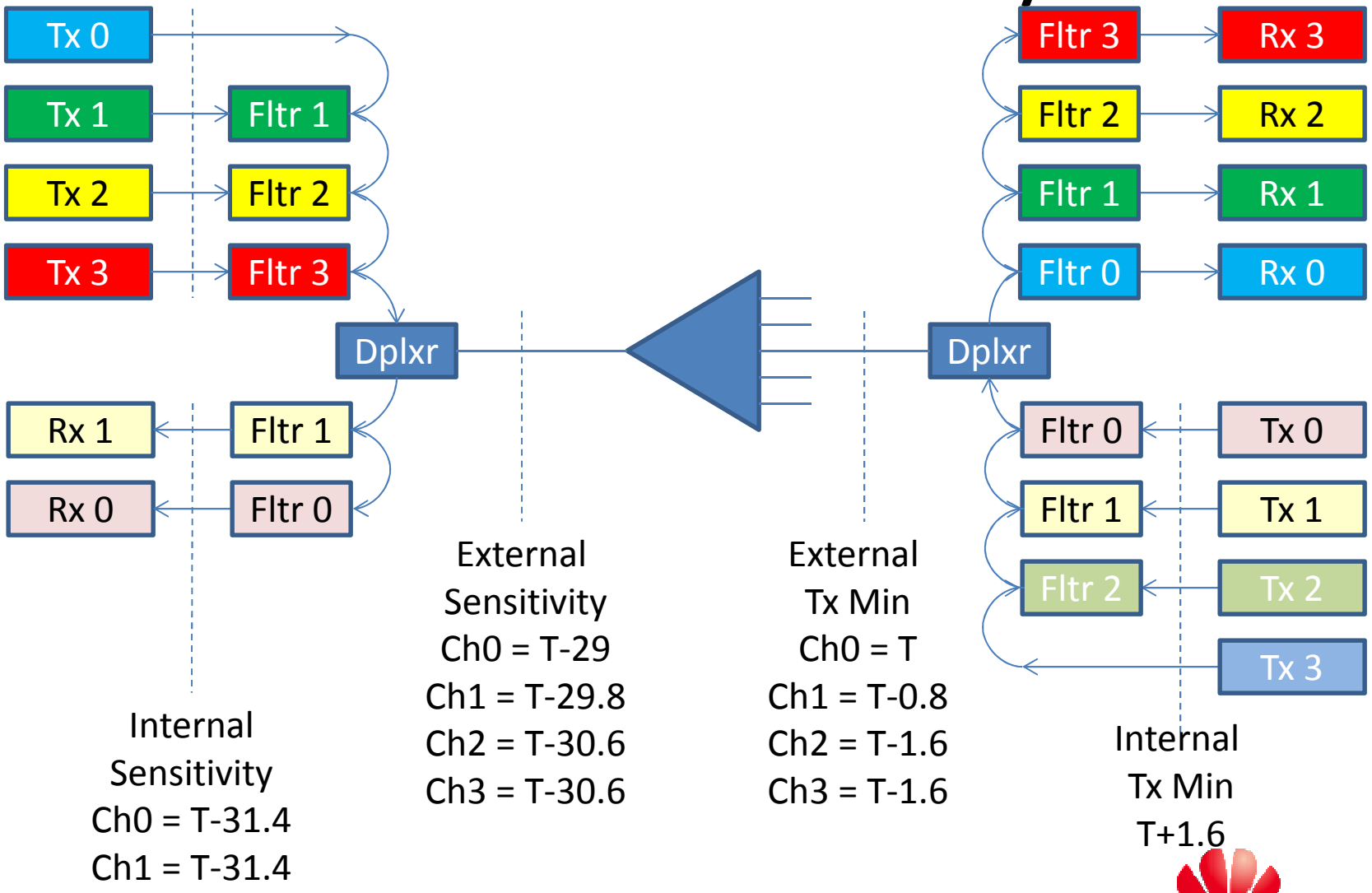
Upstream Budget



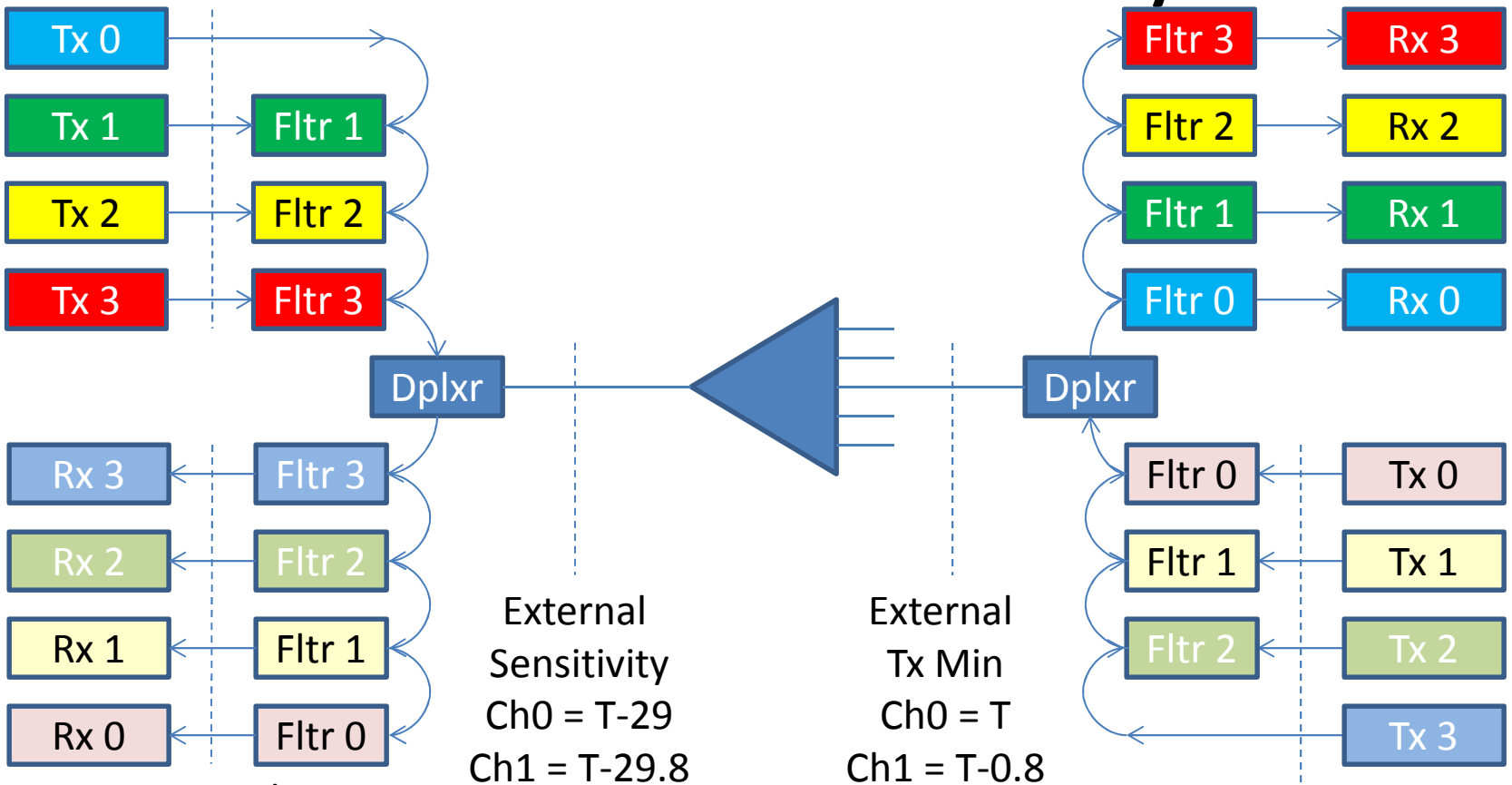
25G OLT Sensitivity



50G OLT Sensitivity



100G OLT Sensitivity



Discussion

- The tilted power budget allows us to
  - Keep the 25G budget unaffected by the excess loss of the 100G system
  - Have uniform R/S and S/R interface levels for each channel over all ONU types
- Having uniform levels is advantageous for mixed operation (multiple ONU types on the same PON)
  - Avoids increasing the dynamic range