OMA Benefits For WWDM

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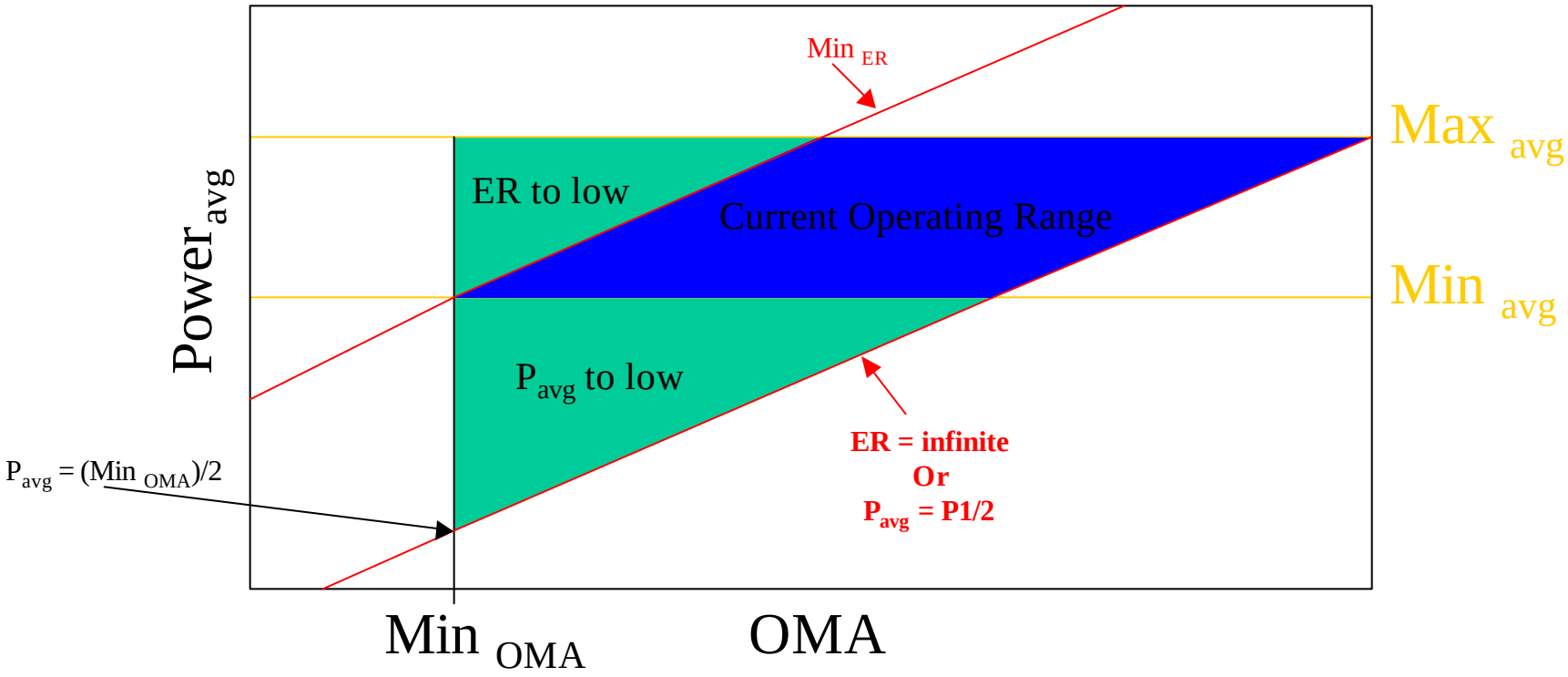
OMA Review

- Current Method
  - Average Power $P_{avg} = ((P_1 + P_0) / 2)$
  - Extinction Ratio $ER = (P_1 / P_0)$
- Why do we need to know ER?
  - Since Receiver is AC coupled, the OMA at the receiver not Pavg is what really matters.
  - Effectively we use the Average Power combined with Extinction ratio to ensure that we achieve a minimum OMA.
  - $OMA = 2 * P_{avg} * ((ER – 1)/(ER + 1))$
- Why not specify OMA directly?

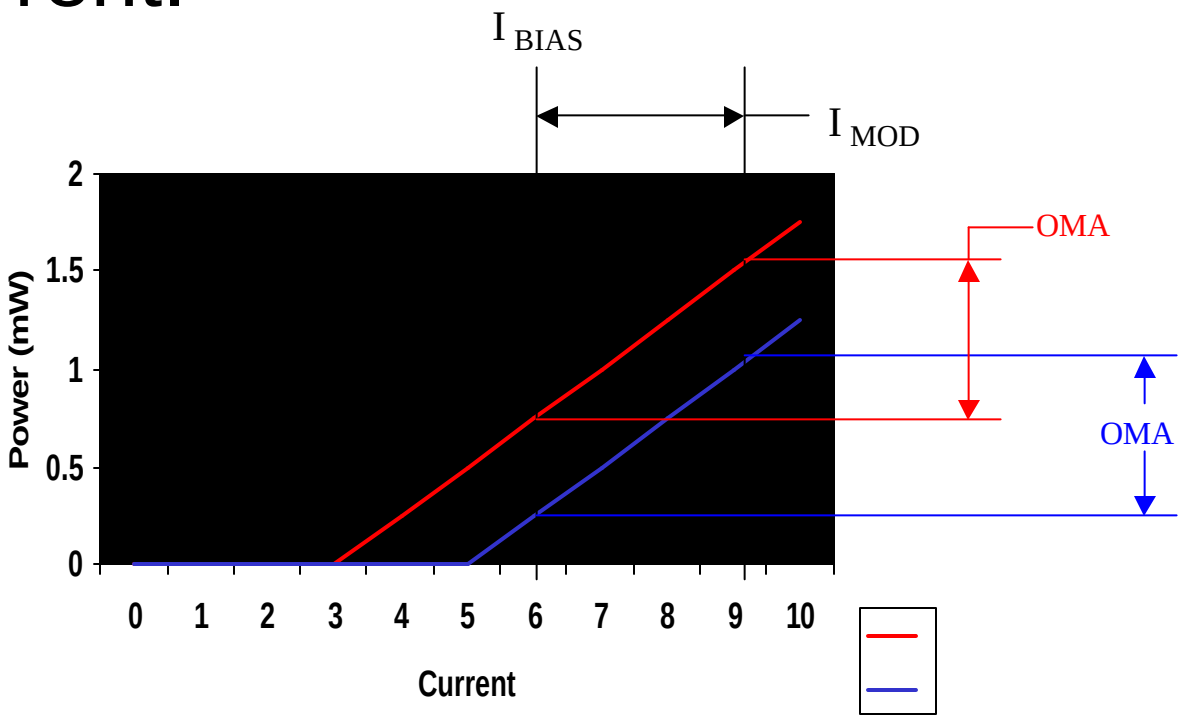
General Benefits of OMA

- More freedom to set bias and modulation currents.



General Benefits of OMA

- Less sensitive to changes in Threshold Current.



General Benefits of OMA

- Since there is no need to set bias near threshold to maintain ER
  - Lasers will operate faster (Laser is slowest near threshold)
  - Drive electronics may be simplified
    - Thermal compensation of bias current may not be necessary.
    - Active monitoring may not be necessary.

Benefits For WWDM

- 4 Different Wavelengths probably implies:
  - 4 different threshold currents
  - 4 different slope efficiencies
- Individual driver programming may not be required as long as:
  - Above variations can be reasonably bounded.
  - Extinction Ratio is not critical.

Benefits For WWDM

- If active monitoring is not required, optics and electronics for WWDM systems can be greatly simplified.