Choosing a TDP limit for an MMF PHY with FEC
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Problem statement

- 100GBASE-SR4 baseline proposal proposes a TDP of 5 dB (to be confirmed)
- This seems high
- It puts a lot of strain on the receiver in the as yet undefined stressed sensitivity spec
- It may also imply a VECP that exceeds the 3.6 dB needed to avoid "on the cliff edge" extreme sensitivity to small changes in fiber bandwidth
- Would expect that transmitters could do a little better
- But the devil is in the detail
  - Depends how chromatic dispersion penalties (part more ISI, part MPN) are accounted for
  - Depends on timing offsets and choice of reference receiver bandwidth in the TDP test

Method

1. Set up simulation as spreadsheet link model
   - Gaussian filters, "worst bit" analysis
   - "Product" Tx, channel, Rx, and
   - Reference Tx, Rx, and
   - "Product" Tx, reference Rx
   - Check that results including TDP agree with recent presentations to Task Force and MMF ad hoc
2. Calculate the statistics exactly
   - Compare with above
3. Replace Gaussian filters with more representative responses with same ISI
   - Compare again