Falling-edge and rising-edge overshoot specification refinement

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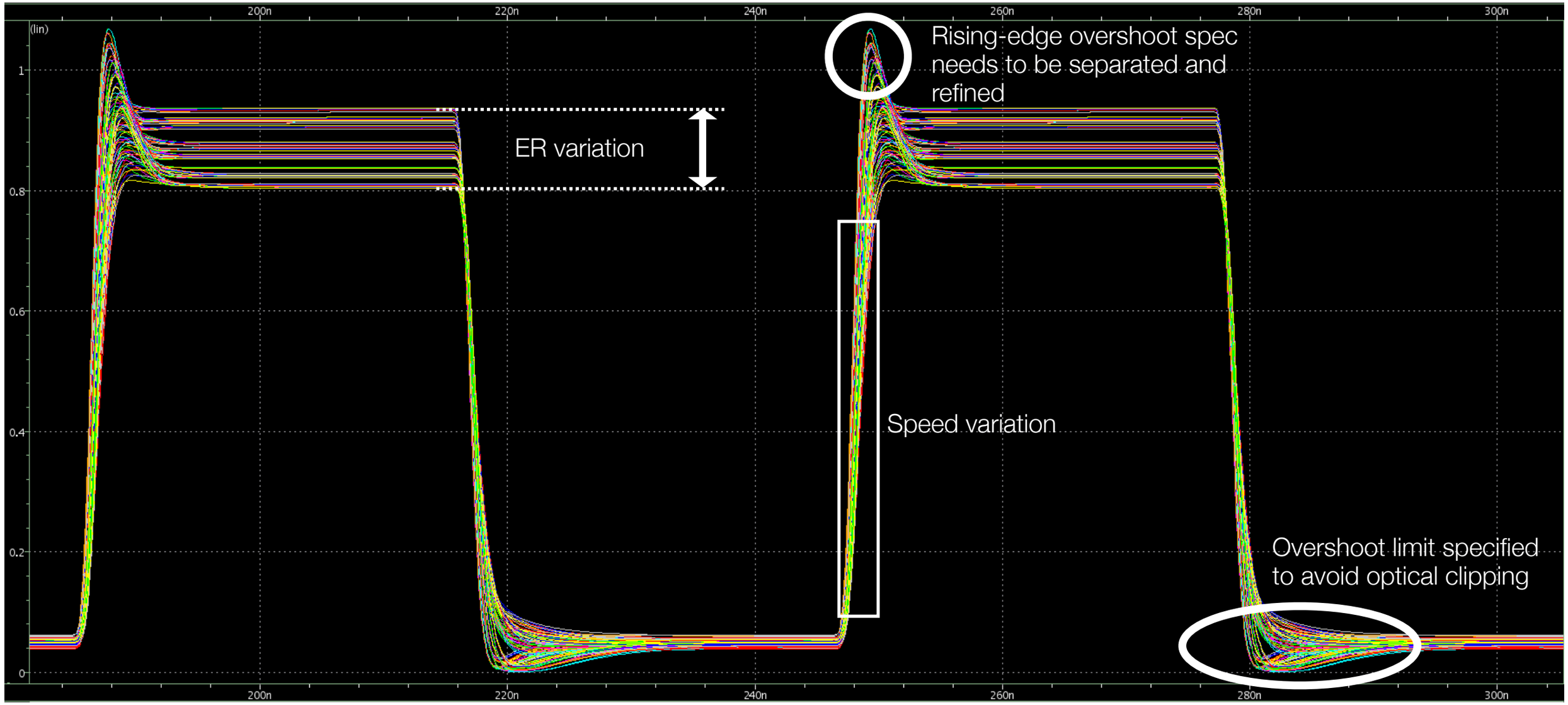
Problem statement

- Asymmetry between rise/fall times and rising/falling edge overshoot
- PMD TX signal at TP2 under test mode 3 generation in PVT variation for a specific design:



Experimental results

- 3 PMD implementations evaluated in PVT variation:
  - Implementation #1: max. rising-edge overshoot is 14.2 %
  - Implementation #2: max. rising-edge overshoot is 15.4 %
  - Implementation #3: max. rising-edge overshoot is 18.5 %

- Proposed specification refinement:

Rise time (10% – 90%)	t_r	ns	—	3
Fall time (90% – 10%)	t_f	ns	—	3
Rising-edge overshoot	OS_{rise}	%	0	20
Falling-edge overshoot	OS_{fall}	%	0	$\frac{100}{10^{ER/10}-1}$ [a]