Super-PON Reflectance

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Liang Du (Amazon)

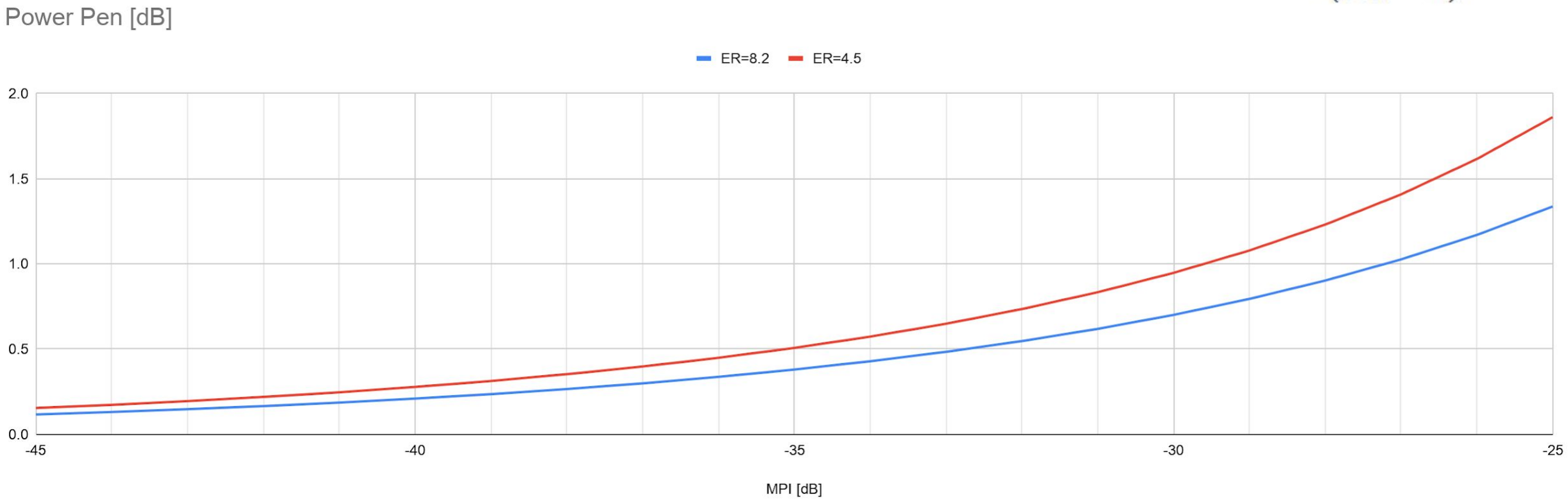
Overview

- Present penalty vs MPI
- ITU-T assumptions for XGS-PON and NG-PON2
- IEEE assumptions in 10G EPON (IEEE802.3av)
- Discuss what are some sensible values to use for Super-PON (IEEE802.3cs)

Power penalty for MPI

$$P_{MPI}\,(dB) = 10\log_{10}\left[1/\left(1-\gamma\right)\right]$$

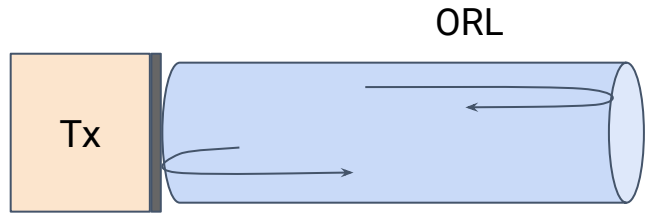
$$\gamma \cong 4\left(m-1\right)\sqrt{MPI}\left(\frac{ER}{ER-1}\right)$$



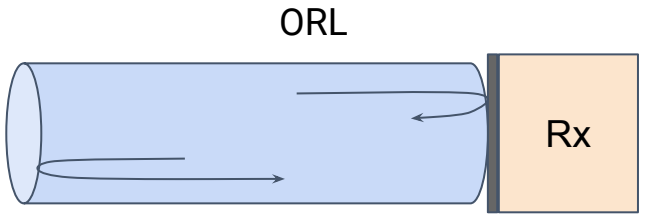
Comparing other standards

		XGS-PON	NG-PON2 (10G)
Downstream	Minimum extinction ratio	8.2	8.2
	Maximum reflectance of equipment at S/R, measured at transmitter wavelength	N/A	N/A
	Maximum reflectance of equipment at R/S, measured at receiver wavelength	-20	-20
	Transmitter tolerance to reflected optical power	-15	-15
	Minimum ORL of ODN at Olu and Old	32	32
Upstream	Minimum extinction ratio	6	6
	Maximum reflectance of equipment at R/S, measured at transmitter wavelength	-10	-6
	Maximum reflectance of equipment at S/R, measured at receiver wavelength	-12	-20
	Tolerance to reflected optical power	-15	-15
	Minimum ORL of ODN at Oru and Ord	32	32

Max NPI from Tx reflectance

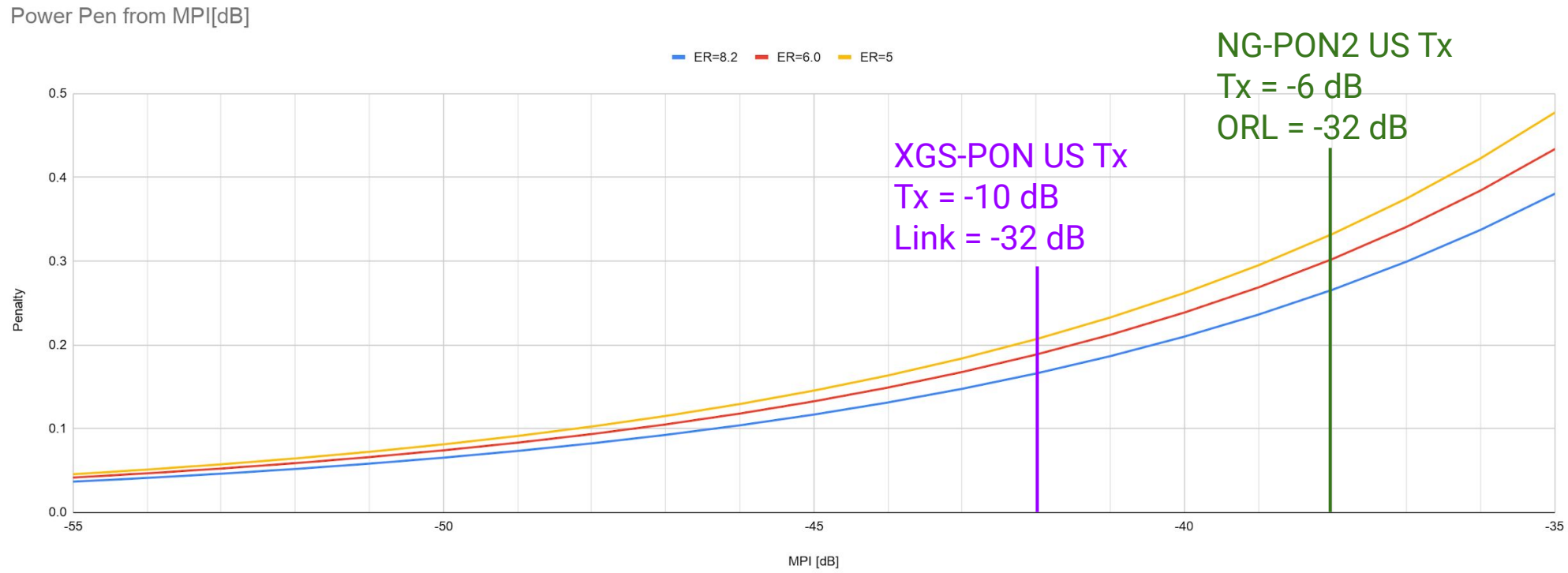


Max NPI from Rx reflectance



NPI from Tx/Rx and ORL

	XGS-PON	NG-PON2 (10G)	IEEE802.3ca
NPI for DS from Tx	N/A	N/A	-25
NPI for DS from Rx	-52	-52	-27
NPI for US from Tx	-42	-38	-25
NPI for US from Rx	-44	-52	-27



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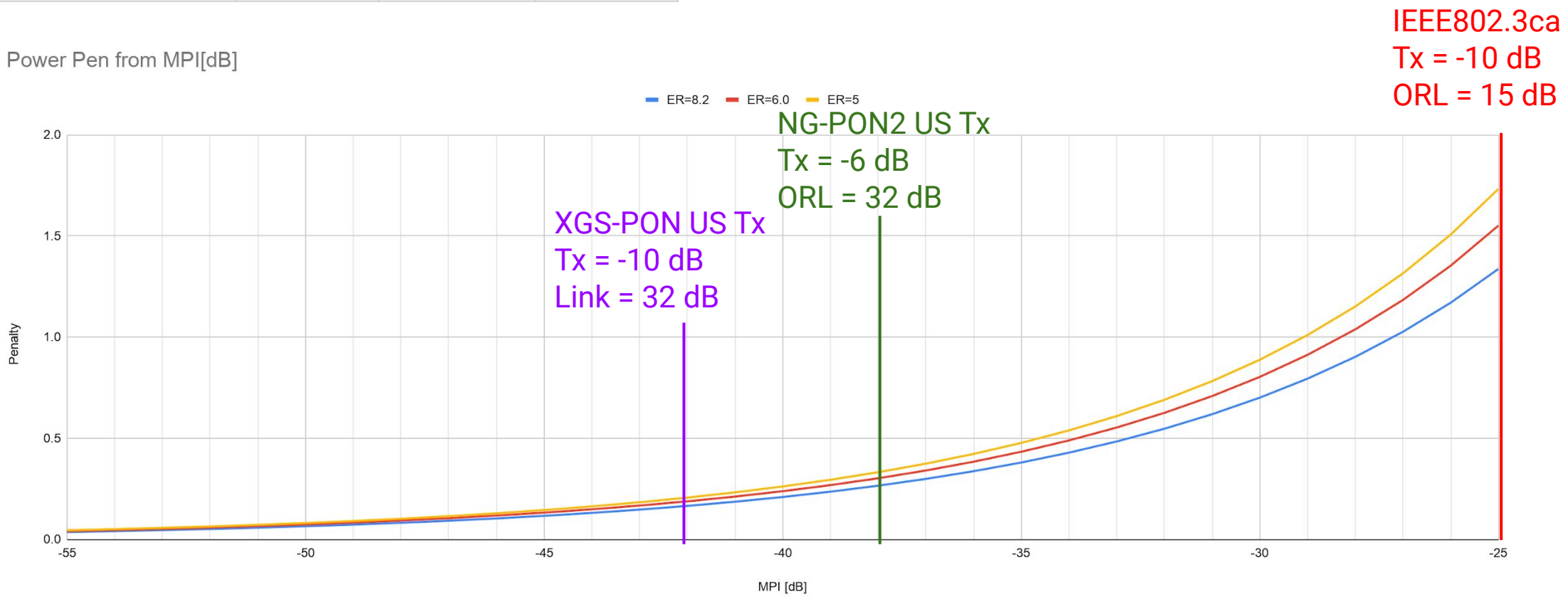

Thank you