



## Target Specifications of Extended 10G-EPON PMDs

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# Outline

- Target power budget for extended 10G-EPON
- Target OLT specifications (TX power and sensitivity)
- Summary

# Target Power Budget

Description	Low Power Budget		Medium Power Budget		High Power Budget		E1 Power Budget		E2 Power Budget		Unit
	PRX10	PR10	PRX20	PR20	PRX30	PR30	PRX40	PR40	PRX50	PR50	
Number of fibers	1										-
Nominal downstream line rate	10.3125										GBd
Nominal upstream line rate	1.25	10.3125	1.25	10.3125	1.25	10.3125	1.25	10.3125	1.25	10.3125	GBd
Nominal downstream wavelength	1577										nm
Nominal upstream wavelength	1310	1270	1310	1270	1310	1270	1310	1270	1310	1270	nm
Maximum reach	=> 10		=> 20		=> 20		=> 20		=> 20		km
Maximum channel insertion loss	20		24		29		32		35		dB
Minimum channel insertion loss	5		10		15		18		21		dB

➤ E1 and E2 power budget are added for the extended reach.

# Target OLT Power and Sensitivity

Power Budget Class	OLT				ONU		
	1577 TX	1490 TX	1270 RX	1310 RX	1577 RX	1270 TX	1310 TX
<b>PR30/PRX30</b>	2	2	-28	-29.78	-28.5	4	0.6
<b>PR40</b>	5	5	-31	-32.78	-28.5	4	0.6
<b>PR50</b>	8	8	-34	-35.78	-28.5	4	0.6

➤ Without changing the specifications on the ONU, PR40 can be reached based on the current available components, except that the 10G BM sensitivity is marginal (-31dBm sensitivity is only proved in the lab). To reach the PR50 specifications, new components will be needed.

# Summary

- It is suggested that the loss budget of the extended 10G-EPON PMDs can be set as 32dB and 35dB, in compliance with the FSAN 987.2 NG-PON1 E1 and E2 spec.
- Based on the current component technology, the 1G-EPON and 10G-EPON PMDs can meet 32dB loss budget, with the current PR30/PRX30 ONUs.
- To reach 35dB loss budget, new components with higher power or better sensitivity will be needed.