Collimated beam structure cost evaluation

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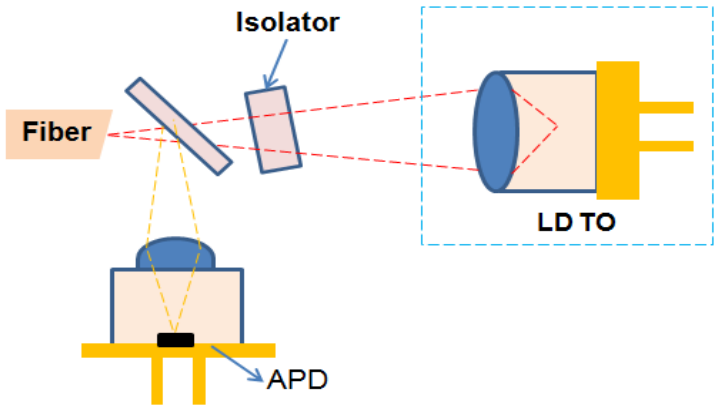
Introduction

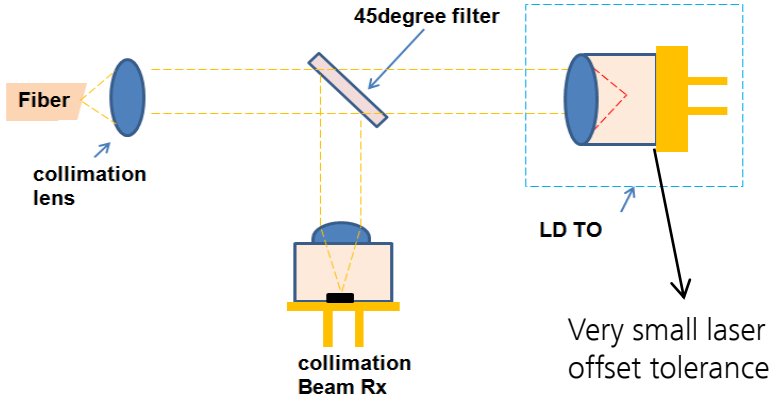
- Collimated beam structure enables narrow downstream/upstream separation gap and receiver guard band, which enables more efficient wavelength allocation. But collimated beam structure also brings more complexity on optical component assembling , consequently increase the cost of the module.

- This contribution evaluates the delta cost of collimated beam structure.

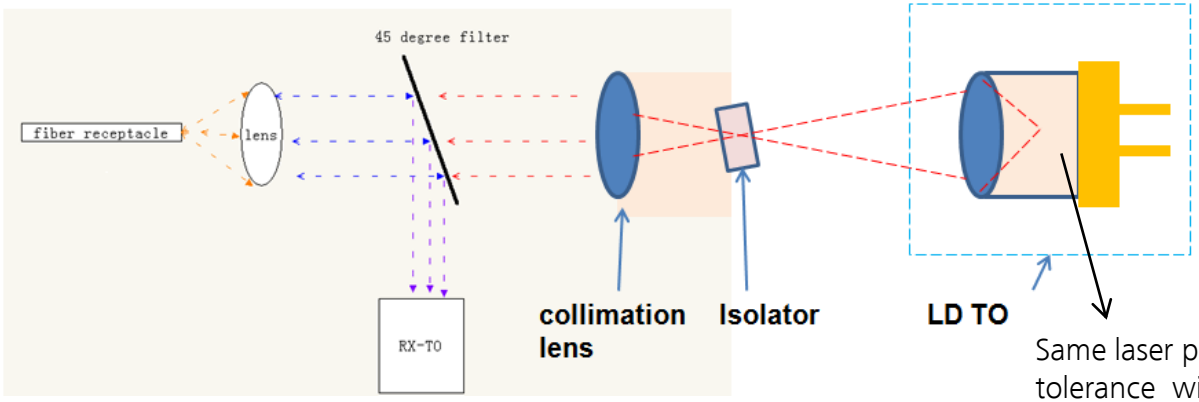
Collimated and focus beam structure



Traditional focus beam structure



Two lens collimated beam structure



Three lens collimated beam structure

Wavelength utilization efficiency

	DS/US	PD guard band
Focus beam	40nm	10nm
Collimated beam	20nm	5nm

Cost comparison

		Delta Size	Cost
10/10G EPON ONU module (note 1)	Focus beam	-	X
	Collimated beam	Length : ~6mm more Width: ~ 1mm more	1.3X(note 1)

Note: The delta cost (absolute value)of collimated beam structure is roundly same for 10G and 25G (bit rate independent). The cost difference ratio in 25G depends on the cost of 25G optics.

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Thank you