100 G CFP pluggable modules reach estimation
without amplification

Informative data on power budget and reach for 100 Gb Digital Coherent transceivers

Reach estimate has been calculated on the basis of the following assumptions:

- 0,22db/km fiber attenuation
- No optical amplification
- No spare power budget
- Modules work within allowed CD and PMD and with OSNR equal or better than minimal specified in official datasheet

PN	Operation	Power budget [dB]	Reach [km]	Power Budget [dB]	Reach [km]	Delay [ms]	Dispersion Tolerance [ps, km]
		Recommended input power		Extended input power [1]			
XHDTx9-HSLY (CFP2)	Normal	18	82	22	100	0	22000, ~1200
	GFEC	24,2	110	28,2	128	4,2	
	Staircase	27,4	125	31,4	143	20,2	
	SDFEC 1	28,1	128	32,1	146	9,6	
	SDFEC 2	28,6	130	32,6	148	10,5	
	SDFEC 3	28,8	131	32,8	149	11,5	
X6DTx9-HSLY (CFP)	Normal	13	59	18	82	0	22000, ~1200
	GFEC	19,2	87	24,2	110	1,7	
	SDFEC 1	23,1	105	28,1	128	7,9	
	SDFEC 2	23,6	107	28,6	130	9,4	
	SDFEC 3	23,8	108	28,8	131	10,9	
X6DTx9-AxLY[2] (CFP)	Normal			23	105		2000, ~100
X6DTx9-HxLY (CFP)	Normal	16	73				22000, ~1200
	GFEC	24	109				
	Staircase	25	114				
X6DTx9-HxLY (CFP)	Normal	16	73				22000, ~1200
	GFEC	24	109				
	Staircase	25	114				
	SDFEC 4	26	118				

Note: Maximum reach of amplified system depends mostly on capability of fibers at transmitting end to operate in linear mode at high optical powers. With combination of Booster amplifier, transmitting at powers of up to 23dBm, and Raman preamplified EDFA amplifier at receive side power budget of single span can exceed 60dB for single channel system.

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[1] Extended input power range requires higher OSNR - see relevant datasheet
[2] This component requires OSNR higher than 30 dB to achive power budgets as listed