



Proposal of a set of specifications for GEPOF Physical Medium Dependent (PMD) sublayer

Thomas Lichtenegger, Avago Technologies

Volker Goetzfried, Avago Technologies

Dylan Loughnan, Firecomms

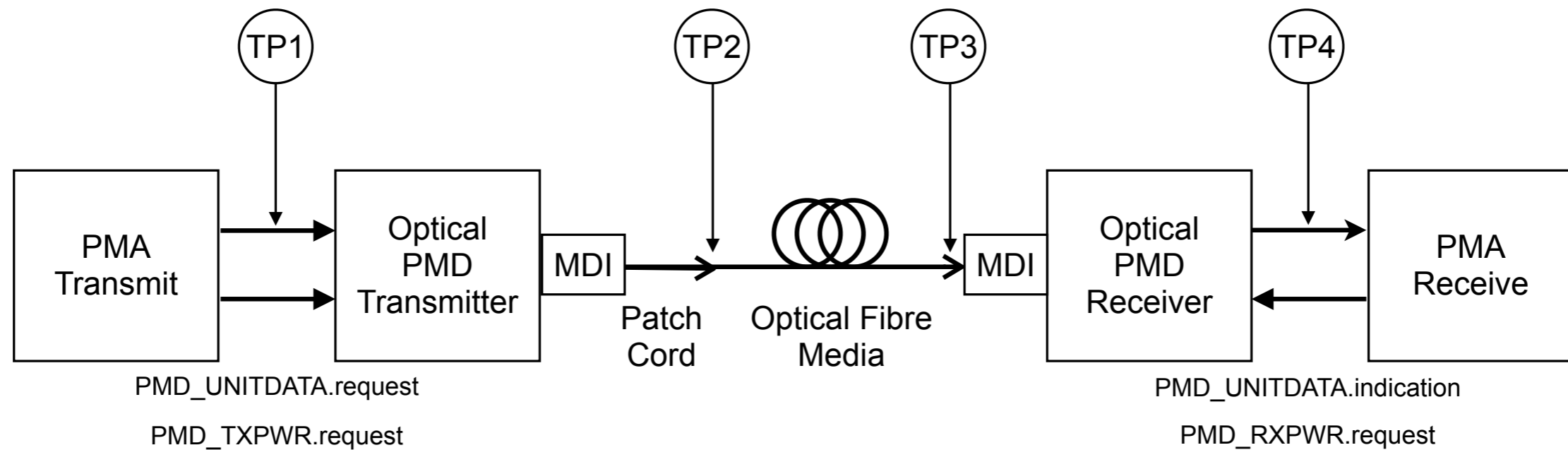
John Lambkin, Firecomms

Rubén Pérez-Aranda, KDPOF

Overview

- This presentation provides a joint proposal for values of the set of TP2 and TP3 parameters to be included in the PMD section
- This proposal has been elaborated in collaboration between two FOT manufacturers, Avago and Firecomms, and a PHY manufacturer, KDPOF, considering:
 - Deep knowledge of the gigabit products already developed and available in the market, i.e. characterization measurements over many samples
 - Technical feasibility studies for improvement of the current products (FOT and PHY)
 - Simulation models that match very well with the real achieved performance of real implementation
- The proposal presented here is preliminary and subject to change

Reference scheme of PMD spec points



TP2, TP3 set of specifications

TP2 Parameter	Units	Min	Max
LOP Type C, up to 85°C	dBm	-7,5	1
LOP Type C, up to 105°C	dBm	-9	1
LOP Type B	dBm	-7	1
LOP Type A	dBm	-6	1
LOPoff Type C	dBm		-35
Extinction ratio (ER)	dBm	11	
Launching condition EAF NA	Template	TBD	TBD
Center wavelength	nm	635	670
Spectral width	nm		20
Rise time	ns		3,0
Fall time	ns		3,0
Transmitter random jitter	ps RMS		20
2 nd order Harmonic Distortion (HD2)	dBc		-21
3 rd order Harmonic Distortion (HD3)	dBc		-29
Relative Intensity Noise (RIN)	dB/Hz		-137

TP3 Parameter	Units	Min	Max
Average optical power, type C up to 85°C (15m POF)	dBm	-18,5	1
Average optical power, type C up to 105°C (15m POF)	dBm	-18,5	1
Average optical power, type C up to 85°C (40m POF)	dBm	-17	1
Average optical power, type C up to 105°C (40m POF)	dBm	-17	1
Average optical power, type B, up to 85°C (50m POF)	dBm	-17	1
Average optical power, type A, up to 70°C (50m POF)	dBm	-17	1
PinOff	dBm		-35
PinWakeup (dBm)	dBm	-29	

Link power budget (informative)

Parameter	Type C up to 85°C / 15m	Type C up to 105°C / 15m	Type C up to 85°C / 40m	Type C up to 105°C / 40m	Type B up to 85°C / 50m	Type A up to 70°C / 50m
Link length (m)	15	15	40	40	50	50
# inline connectors	4	4	0	0	0	1
TP2 (dBm)	-7,5	-9,0	-7,5	-9,0	-7,0	-6,0
Routing att _{max} (dB)	0,0	0,0	0,0	0,0	0,0	0,0
POF att _{max} (dB)	3,0	3,0	8,0	8,0	10,0	9,5
IL _{max} inline connectors (dB)	6,0	6,0	0,0	0,0	0,0	1,5
TP3 (dBm)	-18,5	-18,5	-17,0	-17,0	-17,0	-17,0
Link margin (dB)	2,0	0,5	1,5	0,0	0,0	0,0
Link budget (dB)	11,0	9,5	9,5	8,0	10,0	11,0
Notes:	POF att = 0,2 dB / m IL _{conn} = 1,5 dB	POF att = 0,2 dB / m IL _{conn} = 1,5 dB	POF att = 0,2 dB / m IL _{conn} = 1,5 dB	POF att = 0,2 dB / m IL _{conn} = 1,5 dB	POF att = 0,2 dB / m IL _{conn} = 1,5 dB	POF att = 0,19 dB / m IL _{conn} = 1,5 dB