Comparison of Reference Receivers for C2M

Piers Dawe
Mellanox Technologies

	CTLE + DFE		CTLE + FFE		*Default C2M following 120E in green*	
Power	**-**	High	**+**	Low		
Bad hosts	**-**	Might pass	**+**	Fail		
Choosing sampling time	COM and M-M method		Half way across eye opening as in 50G C2M		Best phase, as in TDECQ	
	-	Unproven for low loss reflective channels	**+**	Established for PAM4, works	**++**	Established, least measurement error, avoids the standard freezing an implementation algorithm
Choosing tap weights	**MMSE from pulse response**		**Best from measured waveform**			
	0	Simple, may not be quite optimal	**+**	Optimal, iterative, established in TDECQ		
Measuring eye height and VEC	**COM**		**Single histogram window**		**Left/right histogams**	
	-	Measurement method not established (only simulation method)	**+**	Established in C2M	**+**	Established in TDECQ
Measuring eye width and ESMW	**COM**		**Scope histogram**		**Broad vertical histograms, no horizontal histograms**	
	-	Measurement method not established, simulation method not road tested?	**+**	Established in C2M, but needs many samples	**+**	Established in TDECQ, simpler
Setting the three thresholds	**COM**		**Histogram based, as in C2M**		**Optimised, as in TDECQ**	
	-	No proposal yet for a measurement (not an issue in a simulation)	**+**	Established in C2M	**+**	Established in TDECQ
Return loss	**802.3cd style ERL**		**f domain RL mask**		**Modified ERL**	
	0	Attractive concept, still poorly understood, but can start with this	**-**	Poor correlation to signal integrity		For future study