COM 2.26 with ERL usage update for Draft 3.1

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March 2018 IEEE802.3cd Plenary Meeting

ERL Configuration commands

Non standard control options		
COM_CONTRIBUTION	0	logical
TDR	1	logical
ERL	2	logical
Z_t	50	ohms
ERL_ONLY	1	logical
TR_TDR	0.0189	ns
TDR_duration	10	
N	100	UI
TDR_f_BT_3db	19.921875	GHz
TDR_Butterworth	1	logical
beta_x	1.07E+10	
rho_x	**0.44**	
fixture delay time	4.00E-10	s (tfx)

Operational control			
COM Pass threshold	3	dB	
ERL Pass threshold	14	dB	

- ❑ Difference from earlier v2.24
  - ERL pass limit and pass fail report added
  - N added
    - Number of UI included in TDR
    - Only used for s2p file
    - TDR duration is used for s4p files because delay is known
      - Set N=0 or unspecified
  - S2p file read under sampling fixed
  - Fix v2.24 Rx calibration issue
  - New output “uneq_FIR_peak_time” which may be use for finding T_{fx}
- ❑ Difference from earlier v1.65
  - Fixed DC interpolation issue

ERL control parameters in spreadsheet more details

Non standard control options			
COM_CONTRIBUTION	0	logical	1=bar chart of ISI. Xtalk, System noise contribution. 0=bath tub curves
TDR	1	logical	1 enables TDR. Required for ERL
ERL	1	logical	1 enables ERL 2 enables ERL and uses s2p file
Z_t	50	ohms	Single ended TDR reference impedance
ERL_ONLY	1	logical	1 disables COM computation
TR_TDR	0.0189	ns	TDR transition time (T_r)
TDR_duration	10		Time range on number times channel delay obtained from s4p file. T_s is approximately the channel delay
N	300	UI	Number of UI times used for TDR.
TDR_f_BT_3db	19.921875	GHz	Bandwidth for Bessel Thompson filter (not used)
TDR_Butterworth	1	logical	Enable Butterworth filter
beta_x	1.07e10	Hz	Package performance loss
rho_x	0.44		See mellitz_022118_3cd_adhoc
fixture delay time	0.00E+00	S	set to zero for no fixture. For a CR cable this is determined outside of this program (T_{fx})

*N not implemented yet

Caveats

- S parameter high frequency limit must be at least f_b (26.5625Ghz)
  - Maximum frequency step is 10Mhz.
  - Both specified in COM tables
- T_{fx} may be found using the time at which the peak of a impulse response occurs for a replica channel.
  - If COM is run separately on the s4p of replica channel T_{fx} is approximately 2*uneq_FIR_peak_time (reported in V2.26)
- T_{fx} is per port
  - Later COM versions will bifurcate for ERL11 and ERL22