com_ieee8023_93a_161 revision document

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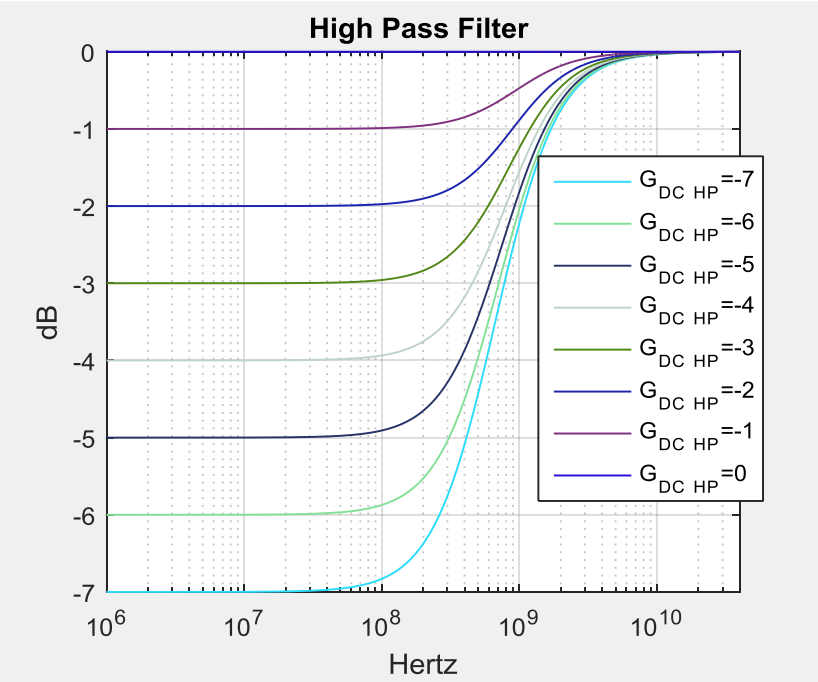
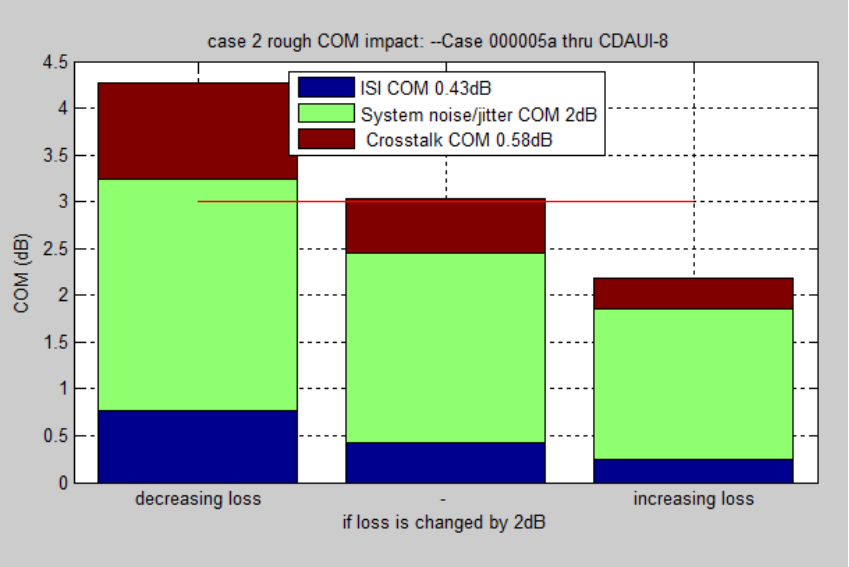
Lower frequency pole-zero filter:

- Added: Lower frequency pole-zero filter: 2 keywords in config file
  - $\frac{(10^{\frac{g_{DC\_HP}}{20}} + j\frac{f}{f_{HP\_PZ}})}{(1 + j\frac{f}{f_{HP\_PZ}})}$
  - g_DC_HP
    - Sweepable AC-DC gain
  - f_HP_PZ
    - pole-zero location



Added parameters and outputs

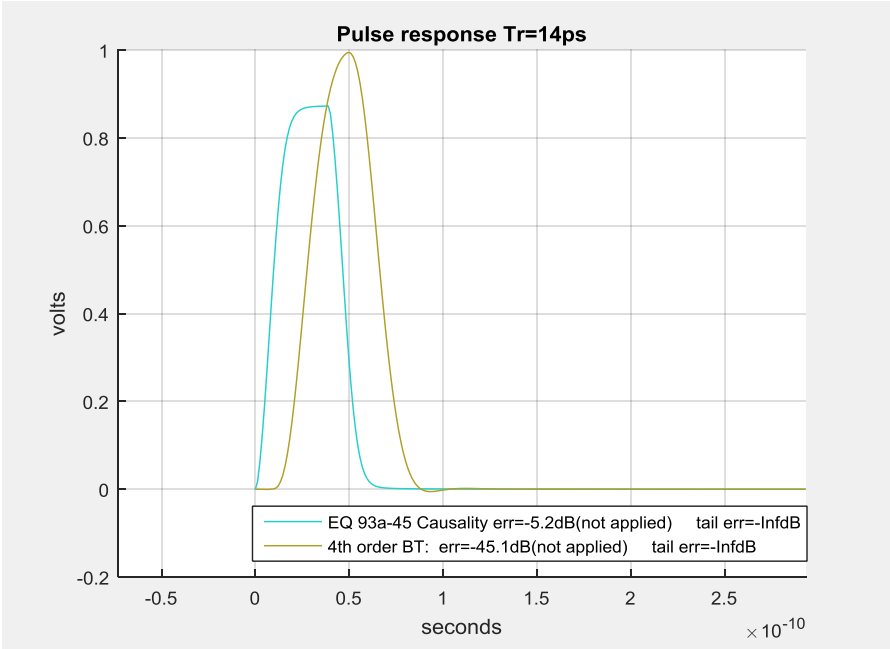
- Support for later Matlab 2015
- added output parameters
  - peak_uneq_pulse_mV – peak value of the unequalized SBR
  - cable_loss when "Include PCB" is not 0 in the config file
- added: tap c(-2) c(2) and c(3)
  - new value for "Include PCB" = 2 for cable Rx compliance test, Only the Rx host boards is added.
- Added
  - New keyword BREAD_CRUMBS if 1 then a mat file with the structures "params" and "OP" is created in the results directory
  - New keyword COM_CONTRIUBTION
    - When set to 1 a rough approximation of COM contributions chart replaces the bathtub curves
    - When set to 0 the bathtub curves are displayed



For RITT testing (potentially for IEEE802.3by)

- added:
  - Keyword T_r_filter_type
  - for RITT testing when IDEAL_TX_TERM is 1
  - For use with test equipment pattern generator
  - Keyword T_r_meas_point
    - 0 is @ tp0a
    - 1 is @ PGC or tp0

- 0 is for is for Gaussian filter (eq 93a-46)
- 1 is for a 4th order Bessel-Thompson filter
  - Fix for causality
  - $H_t(f) = \frac{105}{(f^4(k*T_r)^4 - 10j*f^3(k*T_r)^3 - 45*f^2(k*T_r)^2 + 105j*(k*T_r) + 105}$
  - where k=8.87
  - If measurement is at tp0a
    - k=(5.475e-6/(T_r)^(1.282) + 1.024)*k
    - To account for test fixture loss



8 bit one zero pattern, 1000 samples per UI

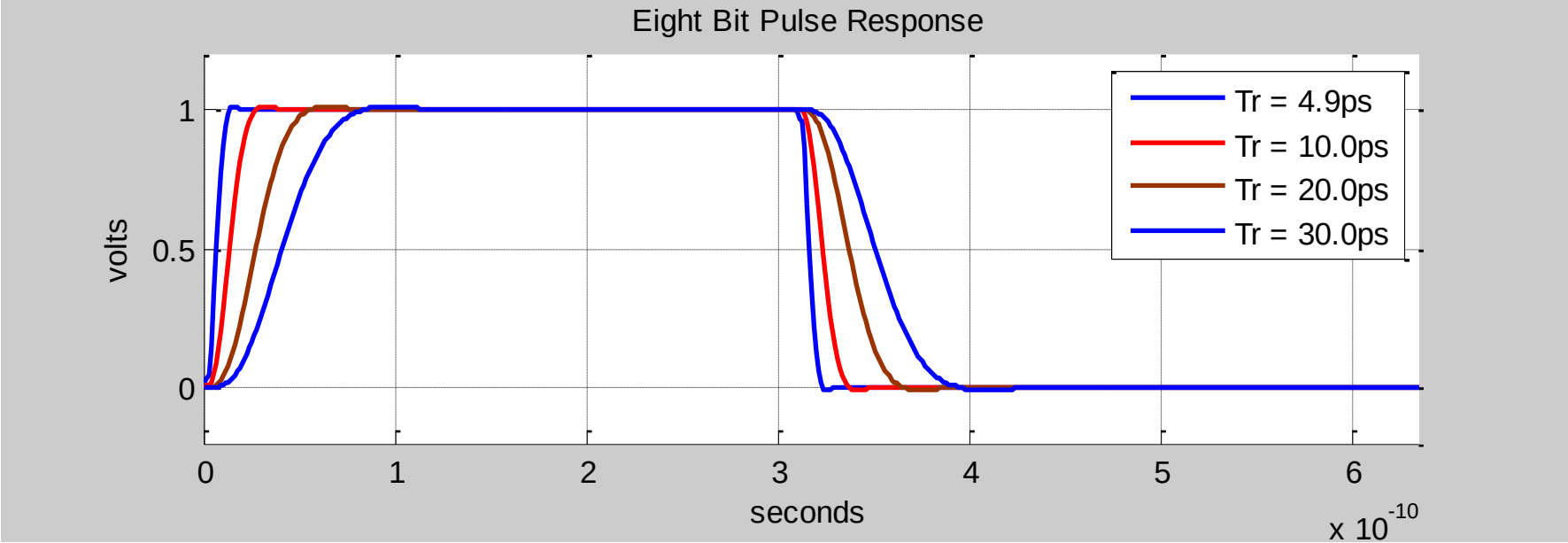


Table 93A-1 parameters			
Parameter	**Setting**	**Units**	**Information**
f_b	26.5625	GBd	
f_min	0.05	GHz	
Delta_f	0.01	GHz	
C_d	[2.0e-4 2.0e-4]	nF	[TX RX]
z_p select	[1 2]		[test cases to run]
z_p (TX)	[7 18]	mm	[test cases]
z_p (NEXT)	[7 7]	mm	[test cases]
z_p (FEXT)	[7 18]	mm	[test cases]
z_p (RX)	[7 18]	mm	[test cases]
C_p	[0.1e-4 0.1e-4]	nF	[TX RX]
R_0	50	Ohm	
R_d	[47 47]	Ohm	[TX RX]
f_r	0.75	*fb	
c(0)	0.6		min
c(-2)	[0:0.025:0.15]		[min:step:max]
c(-1)	[-0.15:0.05:0]		[min:step:max]
c(1)	[-0.35:0.05:0]		[min:step:max]
g_DC	[-10:1:0]	dB	[min:step:max]
f_z	6.640625	GHz	
f_p1	6.640625	GHz	
f_p2	26.5625	GHz	
A_v	0.4	V	
A_fe	0.4	V	
A_ne	0.6	V	
L	4		
M	32		
N_b	10	UI	
b_max(1)	1		
b_max(2..N_b)	0.2		
sigma_RJ	0.01	UI	
A_DD	0.02	UI	
eta_0	5.20E-08	V^2/GHz	
SNR_TX	31	dB	
R_LM	0.92		
DER_0	1.00E-06		
Operational control			
COM Pass threshold	3	dB	
Include PCB	0	Value	0, 1, 2

g_DC_HP	[-7:1:0]		[min:step:max]
f_HP_PZ	0.33203125	GHz	

I/O control		
DIAGNOSTICS	1	logical
DISPLAY_WINDOW	1	logical
Display frequency domain	1	logical
CSV_REPORT	1	logical
RESULT_DIR	.\results\COM_{date}\	
SAVE_FIGURES	0	logical
SAVE_RESP	0	logical
Port Order	[1 3 2 4]	
RUNTAG	_CDAUI-8	
Receiver testing		
RX_CALIBRATION	0	logical
Sigma BBN step	5.00E-03	V
IDEAL_TX_TERM	0	logical
T_r	8.00E-03	ns
T_r_filter_type	0	logical
T_r_meas_point	0	logical

Non standard control options		
INC_PACKAGE	1	logical
IDEAL_RX_TERM	0	logical
INCLUDE_CTLE	1	logical
INCLUDE_TX_RX_FILTER	1	logical
COM_CONTRIBUTION	1	logical

Table 93A–3 parameters		
Parameter	**Setting**	**Units**
package_tl_gamma0_a1_a2	[0 1.734e-3 4*1.455e-4]	
package_tl_tau	6.141E-03	ns/mm
package_Z_c	78.2	Ohm

Table 92–12 parameters		
Parameter	**Setting**	
board_tl_gamma0_a1_a2	[0 4.114e-4 2.547e-4]	
board_tl_tau	6.191E-03	ns/mm
board_Z_c	109.8	Ohm
z_bp (TX)	151	mm
z_bp (NEXT)	72	mm
z_bp (FEXT)	72	mm
z_bp (RX)	151	mm

Exploratory Example