

com_ieee8023_93a_162a revision document

Richard Mellitz

Intel Corporation



Added or Augmented Configuration File Commands

keyword	example		information	new actions
c(-2)	[0:0.01:0.1]		[min:step:max]	no action if not present
c(2)	[0:0.01:0.1]		[min:step:max]	no action if not present
c(3)	[-0.15:0.05:0]		[min:step:max]	no action if not present
g_DC_HP	[-7:1:0]	dB	[min:step:max]	no action if not present
f_HP_PZ	1	GHz		no action if not present
COM_CONTRIBUTION	1	logical	COM bar graph contribution estimates	revert to bathtub curves as in ran_com_3bj_3bm_01_1114 if 0 or not present
T_r_filter_type	0	logical	0 = 83a-36 Gaussian 1 = fixed Gaussian	no action if not present
T_r_meas_point	0	logical	0 = meas. at tp0 or PGC 1 = meas. at tp0a	Not implemented
IDEAL_TX_TERM	0	logical	0 = do not use H_t filter 1 = use B-T filter for H_t filter	same as ran_com_3bj_3bm_01_1114 if 0 or not present
IDEAL_TX_TERM = 0 and T_r_filter_type = 1		logical	use B-T filter for H_t filter in addition to adding package	NA
RESULT_DIR	.\results\COM_{date}\		directory where results are written {date} is replace with current date	NA
BREAD_CRUMBS	0		0 or not present 1 = write mat file for internal param and OP controls	no action if 0 or not present

Lower frequency pole-zero filter:

- Added: Lower frequency pole-zero filter: 2 keywords in config file

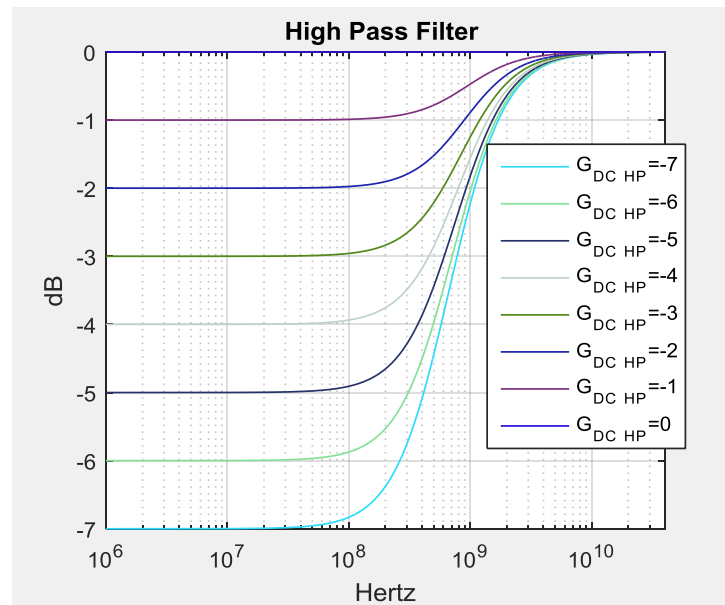
- $$H_{ctf}(f) = \frac{(10^{\frac{g_{DC_HP}}{20}} + j\frac{f}{f_{HP_PZ}})}{(1 + j\frac{f}{f_{HP_PZ}})} \cdot \frac{(10^{\frac{g_{DC}}{20}} + j\frac{f}{f_{z1}})}{(1 + j\frac{f}{f_{p1}})(1 + j\frac{f}{f_{p2}})}$$

- g_{DC_HP}

- Sweepable AC-DC gain

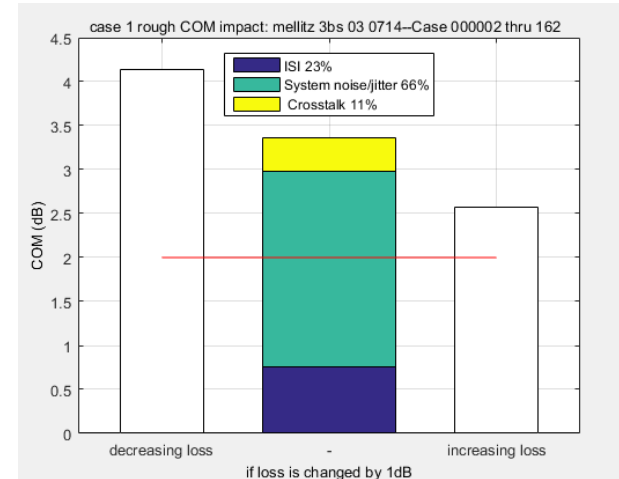
- f_{HP_PZ}

- 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. Assumes test channels has proper loss. Can be achieve same by making `z_bp (TX)` and `z_bp (FEXT)` zero and "Include PCB" = 1.
- 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
- 0 is for is for Gaussian filter (eq 93a-46)
 - $H_t(f) = \exp(-(\pi f T_r / 1.6832)^2)$
- 1 is for fixed Gaussian filter
 - $H_t(f) = \exp(-2(\pi f T_r / 1.6832)^2)$

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	[2.8e-4 2.8e-4]	nF	[TX RX]
z_p select	[1 2]		[test cases to run]
z_p (TX)	[12 30]	mm	[test cases]
z_p (NEXT)	[12 12]	mm	[test cases]
z_p (FEXT)	[12 30]	mm	[test cases]
z_p (RX)	[12 30]	mm	[test cases]
C_p	[1.1e-4 1.1e-4]	nF	[TX RX]
R_0	50	Ohm	
R_d	[55 55]	Ohm	[TX RX]
f_r	0.75	*fb	
c(0)	0.6		min
c(-1)	[-0.15:0.05:0]		[min:step:max]
c(1)	[-0.35:0.05:0]		[min:step:max]
g_DC	[-15:1:0]	dB	[min:step:max]
f_z	10.625	GHz	
f_p1	10.625	GHz	
f_p2	1.00E+99	GHz	
A_v	0.45	V	
A_fe	0.45	V	
A_ne	0.65	V	
L	4		
M	32		
N_b	10	UI	
b_max(1)	0.5		
b_max(2..N_b)	0.2		
sigma_RJ	0.01	UI	
A_DD	0.02	UI	
eta_0	2.60E-08	V ² /GHz	
SNR_TX	31.1	dB	
R_LM	0.95		
DER_0	1.00E-05		
Operational control			
COM Pass threshold	3	dB	
Include PCB	0	Value	0, 1, 2
g_DC_HP	[-4:1:0]		[min:step:max]
f_HP_PZ	0.6640625	GHz	

I/O control		
DIAGNOSTICS	0	logical
DISPLAY_WINDOW	0	logical
Display frequency domain	1	logical
CSV_REPORT	1	logical
RESULT_DIR	.\results\COM50_{date}\	
SAVE_FIGURES	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_CTLT	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 1.455e-4]	
package_tl_tau	6.141E-03	ns/mm
package_Z_c	85	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	110	Ohm
z_bp (TX)	151	mm
z_bp (NEXT)	72	mm
z_bp (FEXT)	72	mm
z_bp (RX)	151	mm

mellitz_bs_01_0116_elect Proposal example