COM Quick Guide For April 2014

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New look for "config" spreadsheet

Table 93A-1 parameters			
Parameter	Setting	Units	Information
f_b	25.78125	GBd	
f_min	0.05	GHz	
Delta_f	0.01	GHz	
C_d	[2.5e-4 2.5e-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	[1.8e-4 1.8e-4]	nF	[TX RX]
R_0	50	Ohm	
R_d	[55 55]	Ohm	[TX RX]
f_r	0.75	*fb	
c(0)	0.62		min
c(-1)	[-0.18:0.02:0]		[min:step:max]
c(1)	[-0.38:0.02:0]		[min:step:max]
g_DC	[-12:1:0]	dB	[min:step:max]
f_z	6.4453125	GHz	
f_p1	6.4453125	GHz	
f_p2	25.78125	GHz	
A_v	0.4	V	
A_fe	0.4	V	
A_ne	0.6	V	
L	2		
M	32		
N_b	14	UI	
b_max(1)	1		
b_max(2..N_b)	1		
sigma_RJ	0.01	UI	
A_DD	0.05	UI	
eta_0	5.20E-08	V^2/GHz	
SNR_TX	27	dB	
R_LM	1		
DER_0	1.00E-05		
Operational control			
COM Pass threshold	3	dB	

I/O control		
DIAGNOSTICS	1	logical
DISPLAY_WINDOW	1	logical
Display frequency domain	1	logical
CSV_REPORT	1	logical
SAVE_FIGURE_to_CSV	0	logical
RESULT_DIR	.\test_results_C93\	
SAVE_FIGURES	0	logical
SAVE_RESP	0	logical
Port Order	[1 3 2 4]	
Receiver testing		
RX_CALIBRATION	0	logical
Sigma BBN step	5.00E-03	V
IDEAL_TX_TERM	0	logical
T_r	8.00E-03	ns

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

Table 93A–2 parameters		
Parameter	Setting	Units
package_tl_tau	6.141E-03	ns
package_tl_gamma0_a1_a2	[0 1.734e-3 1.455e-4]	
package_Z_c	78.2	Ohm

Table 92–12 parameters		
Parameter	Setting	
board_tl_tau	6.191E-03	ns
board_tl_gamma0_a1_a2	[0 4.114e-4 2.547e-4]	
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

I/O Control

Mostly the cascaded transmission line Parameters

COM Table Parameters

Running COM without the display windows yields faster execution

I/O control		
DIAGNOSTICS	0	logical
DISPLAY_WINDOW	0	logical
Display frequency domain	0	logical

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Find more information in spreadsheet tabs config_com_ieee8023_93a_doc.xls

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NEW: Diagnosis key tab may aid channel design

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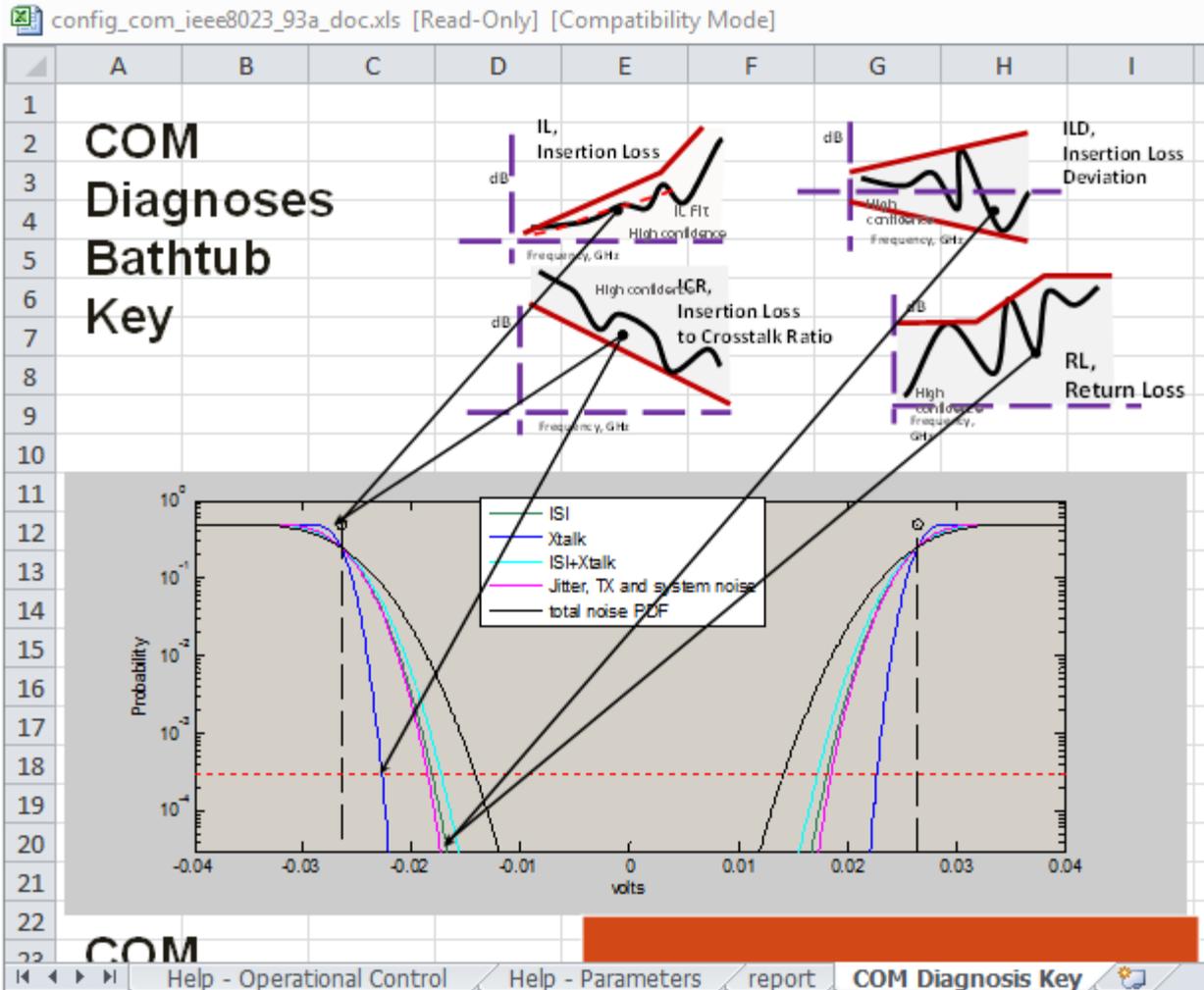
Simple Organization Hint

- You can use the results directory to organize data

I/O control		
DIAGNOSTICS	0	logical
DISPLAY_WINDOW	0	logical
Display frequency domain	0	logical
CSV_REPORT	1	logical
SAVE_FIGURE_to_CSV	0	logical
RESULT_DIR	.\C93_test_results\	
SAVE_FIGURES	0	logical
SAVE_RESP	0	logical
Port Order	[1 3 2 4]	

- Copy "config" spread sheet and rename according to data or DUT organization
- Script in done with Matlab®

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Scripting example

```
com_ieee8023_93a('config_com_ieee8023_93a=100GBASE-KR4.xls',...
    8,  0,'..\30db_Loss_channel\THRU.s4p', 'FEXT1.s4p', ...
    'FEXT2.s4p',    'FEXT3.s4p',    'FEXT4.s4p','FEXT5.s4p',...
    'FEXT6.s4p',    'FEXT7.s4p',    'FEXT8.s4p')
com_ieee8023_93a('config_com_ieee8023_93a=100GBASE-KR4.xls',8,  0,...
    '..\35db_Loss_channel\THRU.s4p',    'FEXT1.s4p',    'FEXT2.s4p',...
    'FEXT3.s4p',    'FEXT4.s4p',    'FEXT5.s4p',    ...
    'FEXT6.s4p',    'FEXT7.s4p',    'FEXT8.s4p')
com_ieee8023_93a('config_com_ieee8023_93a=100GBASE-CR4.xls',    3,  4,...
    '..\P1 RX1\IL\TX1.s4p',...
    '..\P1 RX1\FEXT\TX2.s4p','TX3.s4p','TX4.s4p',...
    '..\P1 RX1\NEXT\TX1.s4p','TX2.s4p','TX3.s4p','TX4.s4p')
```

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Rx Testing with COM Hints

- ● Syntax
  - • `com_ieee8023_93a…`
    `('config_com_ieee8023_93a=100GBASEKR4_CAL.xls',…`
    `1,  0,'TEC_Whisper42p8in_Meg6_THRU_C8C9.s4p','TPn to TP5 replica.s4p')`

- ● Modify configuration Spreadsheet

  - • Measured data

sigma_RJ	0.01	UI
A_DD	0.05	UI
eta_0	5.20E-08	V^2/GHz
SNR_TX	27	dB

  - • Rx noise source capability

Receiver testing		
RX_CALIBRATION	1	logical
Sigma BBN step	5.00E-03	V
IDEAL_TX_TERM	0	logical
T_r	8.00E-03	ns

  - • Set Tx termination to Idea if Instrument is used

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