

Brief on aspects of COM configuration for 200 Gb/s PAM 4

How to get what you want!

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Intent, Thumbnail, and Caveats

- ❑ This presentation is relevant for IEEE802.3dj 200Gb/s per lane
- ❑ Values in the COM configuration spreadsheet are only starting points
 - In general, values may be considered conservative estimates
 - The idea is to start relative channel design evaluation
 - Understand this is unofficial and parameters will change
- ❑ COM spreadsheet is organized as adjacent cell pairs
 - The left cell is a keyword, and the right is its value
 - The pair is position independent
- ❑ The name of the COM configuration tab name must be “COM_Settings”
- ❑ What is included
 - How parameters interact
 - Which parameters need refinement and proposals for baseline
- ❑ What is not included
 - Individual syntax and detailed descriptions
- ❑ What is needed
 - baseline proposals or straw polls for sections as listed in the following slides

KR/CR tp0d to tp5d starting point

SPLASH VIEW

Table 93A-1 parameters			
Parameter	Setting	Units	Information
f_b	106.25	GBd	
f_min	0.05	GHz	
Delta_f	0.01	GHz	
C_d	[0.4e-4 0.9e-4 1.1e-4; 0.4e-4 0.9e-4 1.1e-4]	nF	[TX RX]
L_s	[0.13 0.15 0.14; 0.13 0.15 0.14]	nH	[TX RX]
C_b	[0.3e-4 0.3e-4]	nF	[TX RX]
R_0	50	Ohm	
R_d	[45 45]	Ohm	[TX RX]
A_v	0.386	V	vp/vf=
A_fe	0.386	V	vp/vf=
A_ne	0.6	V	
L	4		
M	32		
filter and Eq			
f_r	0.58	*fb	
c(0)	0.55		min
c(-1)	[-0.3:0.05:0]		[min:step:max]
c(-2)	[0:0.05:0.1]		[min:step:max]
c(-3)	0		[min:step:max]
c(-4)	0		[min:step:max]
c(1)	0		[min:step:max]
N_b	1	UI	
b_max(1)	0.75		As/dffe1
b_max(2..N_b)	0.3		As/dfe2..N_b
b_min(1)	0		As/dffe1
b_min(2..N_b)	-0.15	S	As/dfe2..N_b
g_DC	[-15:1:-3]	dB	[min:step:max]
f_z	25.16	GHz	
f_p1	40.00	GHz	
f_p2	56.00	GHz	
g_DC_HP	[-5:1:0]		[min:step:max]
f_HP_PZ	1.328125	GHz	

I/O control		
DIAGNOSTICS	1	logical
DISPLAY_WINDOW	1	logical
CSV_REPORT	0	logical
RESULT_DIR	.\results\CACR_set1_{date}\	
SAVE_FIGURES	0	logical
Port Order	[1 3 2 4]	
RUNTAG	KR_set1_eval_	
COM_CONTRIBUTION	1	logical
TDR and ERL options		
TDR	1	logical
ERL	1	logical
ERL_ONLY	0	ns
TR_TDR	0.01	
N	4000	logical
TDR_Butterworth	1	
beta_x	0	
rho_x	0.618	
TDR_W_TXPKG	0	UI
N_bx	20	
fixture delay time	[0 0]	
Tukey_Window	1	
Noise, jitter		
sigma_RJ	0.01	UI
A_DD	0.02	V^2/GHz
eta_0	4.00E-09	dB
SNR_TX	33	
R_LM	0.95	
benartsi_3df_01a_2211		
mli_3df_02_220316		

Table 93A-3 parameters			
Parameter	Setting	Units	Information
package_tl_gamma0_a1_a2	[0 0.0008455 0.000340225]		
package_tl_tau	0.00644805	ns/mm	
package_Z_c	[92 92 ; 70 70; 80 80; 100 100]	Ohm	
z_p select	[1 2 3]		[test cases to run]
z_p (TX)	[6 31 41 ; 1 1 1; 1 1 1; 0.5 0.5 0.5]	mm	[test cases]
z_p (NEXT)	[8 29 39 ; 1 1 1; 1 1 1; 0.5 0.5 0.5]	mm	[test cases]
z_p (FEXT)	[6 31 41 ; 1 1 1; 1 1 1; 0.5 0.5 0.5]	mm	[test cases]
z_p (RX)	[8 29 39 ; 1 1 1; 1 1 1; 0.5 0.5 0.5]	mm	[test cases]
C_p	[0.5e-4 0.5e-4]	nF	[TX RX]
Filter: Rx FFE			
ffe_pre_tap_len	6	UI	
ffe_post_tap_len	25	UI	
ffe_tap_step_size	0		
ffe_main_cursor_min	0.7		
ffe_pre_tap1_max	0.7		
ffe_post_tap1_max	0.7		
ffe_tapn_max	0.7		
Operational			
ERL Pass threshold	10	dB	
COM Pass threshold	3	db	
DER_0	1.00E-04		
T_r	0.00400	ns	
FORCE_TR	1	logical	
PMD_type	C2C		
EW	1		
MLSE	0	logical	
ts_anchor	1		
sample_adjustment	[-8 8]		
Local Search	2		

SAVE_CONFIG2MAT		
0		
Receiver testing		
RX_CALIBRATION	0	logical
Sigma BBN step	5.00E-03	V
ICN parameters		
f_v	0.278	Fb
f_f	0.278	Fb
f_n	0.278	Fb
f_2	61.625	GHz
A_ft	0.450	V
A_nt	0.450	V
Parameter Setting		
board_tl_gamma0_a1_a2	6.44084e-4 3.6036e-04	1.4 db/in @ 53.125G
board_tl_tau	5.790E-03	ns/mm
board_Z_c	100	Ohm
z_bp (TX)	32	mm
z_bp (NEXT)	32	mm
z_bp (FEXT)	32	mm
z_bp (RX)	32	mm
C_0	[0.2e-4 0]	nF
C_1	[0.2e-4 0]	nF
Include PCB	0	logical
Seleitions (rectangle, gaussian, dual_rayleigh, triangle)		
Histogram_Window_Weight	gaussian	selection
Qr	0.02	UI
Floating Tap Control		
N_bg	0	0 1 2 or 3 groups
N_bf	4	taps per group
N_f	80	UI span for floating taps
bmaxg	0.2	max DFE value for floating taps
B_float_RSS_MAX	0.1	rss tail tap limit
N_tail_start	25	(UI) start of tail taps limit

C2M tp0d to TP1a at die starting point

SPLASH VIEW

Table 93A-1 parameters			
Parameter	Setting	Units	Information
f_b	106.25	GBd	
f_min	0.05	GHz	
Delta_f	0.01	GHz	
C_d	[0.4e-4 0.9e-4 1.1e-4; 0.4e-4 0.9e-4 1.1e-4]	nF	[TX RX]
L_s	[0.13 0.15 0.14; 0.13 0.15 0.14]	nH	[TX RX]
C_b	[0.3e-4 0.3e-4]	nF	[TX RX]
R_0	50	Ohm	
R_d	[45 45]	Ohm	[TX RX]
A_v	0.386	V	vp/vf=
A_fe	0.386	V	vp/vf=
A_ne	0.6	V	
L	4		
M	32		
filter and Eq			
f_r	0.58	*fb	
c(0)	0.55		min
c(-1)	[-0.3:0.05:0]		[min:step:max]
c(-2)	[0:.05:0.1]		[min:step:max]
c(-3)	0		[min:step:max]
c(-4)	0		[min:step:max]
c(1)	0		[min:step:max]
N_b	1	UI	
b_max(1)	0.75		As/dfe1
b_max(2..N_b)	0.3		As/dfe2..N_b
b_min(1)	0		As/dfe1
b_min(2..N_b)	-0.15	S	As/dfe2..N_b
g_DC	[-15:1:-3]	dB	[min:step:max]
f_z	25.16	GHz	
f_p1	40.00	GHz	
f_p2	56.00	GHz	
g_DC_HP	[-5:1:0]		[min:step:max]
f_HP_PZ	1.328125	GHz	

I/O control		
DIAGNOSTICS	1	logical
DISPLAY_WINDOW	1	logical
CSV_REPORT	1	logical
RESULT_DIR	.\results\C2M_(date)\	
SAVE_FIGURES	0	logical
Port Order	[1 3 2 4]	
RUNTAG	C2M TP1a_COM_model	
COM_CONTRIBUTION	1	logical
TDR and ERL options		
TDR	1	logical
ERL	1	logical
ERL_ONLY	0	ns
TR_TDR	0.01	
N	2000	logical
TDR_Butterworth	1	
beta_x	0	
rho_x	0.618	
TDR_W_TXPKG	0	UI
N_bx	0	
fixture delay time	[0 0]	
Tukey_Window	1	
Noise, jitter		
sigma_RJ	0.01	UI
A_DD	0.02	UI
eta_0	1.25E-08	V^2/GHz
SNR_TX	33	dB
R_LM	0.95	

Table 93A-3 parameters			
Parameter	Setting	Units	Information
package_tl_gamma0_a1_a2	[0 0.0008455 0.000340225]		
package_tl_tau	0.00644805	ns/mm	
package_Z_c	[92 92 ; 70 70; 80 80; 100 100]	Ohm	
z_p_select	[1 2 3]		[test cases to run]
z_p (TX)	[6 31 41 ; 1 1 1 ; 1 1 1 ; 0.5 0.5 0.5]	mm	[test cases]
z_p (NEXT)	[8 8 8 ; 0 0 0 ; 0 0 0]	mm	[test cases]
z_p (FEXT)	[6 31 41 ; 1 1 1 ; 1 1 1 ; 0.5 0.5 0.5]	mm	[test cases]
z_p (RX)	[8 8 8 ; 0 0 0 ; 0 0 0]	mm	[test cases]
C_p	[0.5e-4 0.5e-4]	nF	[TX RX]
Filter: Rx FFE			
ffe_pre_tap_len	6	UI	
ffe_post_tap_len	25	UI	
ffe_tap_step_size	0		
ffe_main_cursor_min	0.7		
ffe_pre_tap1_max	0.7		
ffe_post_tap1_max	0.7		
ffe_tapn_max	0.7		
Operational			
ERL Pass threshold	10	dB	
COM Pass threshold	3	dB	
VEC Pass threshold	10	dB	
DER_0	1.33E-05		
T_r	4.00E-03	ns	
FORCE_TR	1	logical	
Min_VEO_Test	0	mV	
PMD_type	C2C		
EH_min	5	Value	
EH_max	1000	Value	
T_O	50	mUI	
samples_for_C2M	100	samples/UI	
ts_anchor	1		
sample_adjustment	[- 8 8]		
EW	1		
MLSE	0		
Local Search	2		

SAVE_CONFIG2MAT		0	
RX_CALIBRATION		0	logical
Sigma BBN step		5.00E-03	V
ICN parameters			
f_v	0.588		Fb
f_f	0.278		Fb
f_n	0.278		Fb
f_2	61.625		GHz
A_ft	0.450		V
A_nt	0.450		V
Parameter		Setting	
board_tl_gamma0_a1_a2	[0 6.44084e-4 3.6036e-05]		1.4 db/in @ 53.125G
board_tl_tau	5.790E-03		ns/mm
board_Z_c	100		Ohm
z_bp (TX)	32		mm
z_bp (NEXT)	32		mm
z_bp (FEXT)	32		mm
z_bp (RX)	32		mm
C_0	[0.2e-4 0]		nF
C_1	[0.2e-4 0]		nF
Include PCB		0	logical
Seletions (rectangle, gaussian, dual_rayleigh, triangle)			
Histogram_Window_Weight	gaussian		selection
Qr	0.02		UI
Floating Tap Control			
N_bg	0		0 1 2 or 3 groups
N_bf	4		taps per group
N_f	80		UI span for floating taps
bmaxg	0.2		max DFE value for floating taps
B_float_RSS_MAX	0.1		rss tail tap limit
N_tail_start	25		(UI) start of tail taps limit
benartsi_3df_01a_2211			
mli_3df_02_220316			
ran_3dj_elec_02_230622			

Previously COM for CM2 was not specified
Only used for standards development

Operational Section: KR/CR

Operational		
ERL Pass threshold	10	dB
COM Pass threshold	3	dB
DER_0	1.00E-04	
T_r	0.00400	ns
FORCE_TR	1	
PMD_type	C2C	
EW	1	
MLSE	0	
ts_anchor	1	
sample_adjustment	[-8 8]	samples
Local Search	2	

- Needs proposal for baseline

- Historical

- C2M will have different DER_0

- Needs proposal for baseline

- Needed for backward compatibility

- Default

- Plots eye diagram at DER_0

- Do not use yet

- Pulse peak anchor

- Data suggest +/- 8 samples is enough

- Speeds up execution

Operational Section: C2M

THIS FOR EVALUATION AT THE MODULE DIE

Operational		
ERL Pass threshold	10	dB
COM Pass threshold	3	db
VEC Pass threshold	10	db
DER_0	1.33E-05	
T_r	4.00E-03	ns
FORCE_TR	1	logical
Min_VEO_Test	0	mV
PMD_type	C2C	
EH_min	5	Value
EH_max	1000	Value
T_O	50	mUI
samples_for_C2M	100	samples/UI
ts_anchor	1	
sample_adjustment	[- 8 8]	
EW	1	
MLSE	0	
Local Search	2	

• Enables VEC and EH to be reported

• ran 3dj elec 02 230622

• Eventually this will be C2M

C2C will use COM as pass/fail but because VEC threshold is specified VEC and EH will be reported

• Pulse peak anchor

• Data suggest +/- 8 samples is enough

• Plots eye diagram at DER_0

• Do not use yet

• Speeds up execution

Rx FFE Section – do not use with DFE > 1

KR/CR AND C2M

Filter: Rx FFE

ffe_pre_tap_len	6	
ffe_post_tap_len	25	Up to 60 has been suggested
ffe_tap_step_size	0	
ffe_main_cursor_min	0.7	
ffe_pre_tap1_max	0.7	
ffe_post_tap1_max	0.7	
ffe_tapn_max	0.7	

- Number or pre cursor taps

Both 0 disables Rx FFE

- Number or post cursor taps

- 0 is infinite resolution

Starting point.
Proposals needed.

Tx FFE, Fixed Tap DFE, and Rx Filter Section

KR/CR AND C2M

Table 93A-1 parameters		I/O control	
Parameter	Setting	Units	Information
filter and Eq			
f_r	0.58	*fb	
c(0)	0.55		min
c(-1)	[-0.3:0.05:0]		[min:step:max]
c(-2)	[0:.05:0.1]		[min:step:max]
c(-3)	0		[min:step:max]
c(-4)	0		[min:step:max]
c(1)	0		[min:step:max]
N_b	1	UI	
b_max(1)	0.75		As/dffe1
b_max(2..N_b)	0.3		As/dfe2..N_b
b_min(1)	0		As/dffe1
b_min(2..N_b)	-0.15	S	As/dfe2..N_b

- f_r is the Butterworth filter cutoff
- Trend values are between 0.5 and 0.6
- This is used in combination with the CTF
- Need proposals for baseline

- When Rx FFE is used the Tx FFE has less effect on COM
- The compute time is direction proportional to the total number of FFE tap setting
- Need proposals for baseline
 - Number and range for Tx FFE

- Starting point is 1 DFE tap(N_b)
- b_max may be different when MLSE is used
- Need proposals for baseline
- **Do not mix DFE with N_b >1 and Rx FFE**

Floating DFE Taps Section

DISABLE IF RX FFE IS USED

Floating Tap Control		
N_bg	0	0 1 2 or 3 groups
N_bf	4	taps per group
N_f	80	UI span for floating taps
bmaxg	0.2	max DFE value for floating taps
B_float_RSS_MAX	0.1	rss tail tap limit
N_tail_start	25	(UI) start of tail taps limit

- N_bg = 0 disables

Die Source Drive Section:

Load and drive voltage for an ideal voltage source in a series load (R_d) configuration

MLI_3DF_02_220316 (KR/CR AND C2M)

Parameter	Setting	Units	Information
f_b	106.25	GBd	
f_min	0.05	GHz	
Delta_f	0.01	GHz	
C_d	[0.4e-4 0.9e-4 1.1e-4 ; 0.4e-4 0.9e-4 1.1e-4]	nF	[TX RX]
L_s	[0.13 0.15 0.14; 0.13 0.15 0.14]	nH	[TX RX]
C_b	[0.3e-4 0.3e-4]	nF	[TX RX]
R_0	50	Ohm	
R_d	[45 45]	Ohm	[TX RX]
A_v	0.386	V	~ Vf
A_fe	0.386	V	~ Vf
A_ne	0.6	V	

Die load model
Values are trending and
from mli_3df_02_220316

Do not change R_0. COM now adjusts for s-parameter
reference

These are computed from
package, die load, and Vf
In general, if Vf is constant
lower R_d → lower A_v

Package Section: similar to mli_3df_02_220316

TASK FORCE RESOLUTION NEEDED

Table 93A-3 parameters			
Parameter	Setting	Units	Information
package_tl_gamma0_a1_a2	[0.0005 0.00089 0.0002]		
package_tl_tau	0.006141	ns/mm	
package_Z_c	[87.5 87.5 ; 92.5 92.5]	Ohm	
z_p select	[1 2]		[test cases to run]
z_p (TX)	[12 33; 1.8 1.8]	mm	[test cases]
z_p (NEXT)	[12 31; 1.8 1.8]	mm	[test cases]
z_p (FEXT)	[12 33; 1.8 1.8]	mm	[test cases]
z_p (RX)	[12 31; 1.8 1.8]	mm	[test cases]
C_p	[0.3e-4 0.3e-4]	nF	[TX RX]
R_d	[46.25 46.25]	Ohm	[TX RX]

Parameter	Setting	Units	Information
SAVE_CONFIG2MAT	0		
RX_CALIBRATION	0		Receiver testing logical
Sigma BBN step	5.00E-03		V
f_v	0.278		Fb
f_f	0.278		Fb
f_n	0.278		Fb
f_2	61.625		GHe
A_ft	0.450		V
A_nt	0.450		V
board_tl_gamma0_a1_a2	[0.644084e-4 3.6036e-05]		1.4 db/in @ 53.125G
board_tl_tau	5.790E-03		ns/mm
board_Z_c	100		Ohm
z_p select	[1 2]		2.3 dB 5.8 dB
C_0	[0.2e-4 0]		nF
C_1	[0.2e-4 0]		nF
Include PCB	0		logical
N_bg	0		0 1 2 or 3 groups
N_bgf	4		taps per group
floating taps			limit
limit for floating taps			limit
tail start of tail taps limit			limit
For C2M:	[8 8 ; 0 0]		
For C2M:	[8 8 ; 0 0]		

Continuous Time Filter (CTF) Section

STARTING POINT- SIMILAR TO TABLE 120G-11

g_DC	[-15:1:-3]	dB	[min:step:max]
f_z	25.16	GHz	Fb//4.223
f_p1	40.00	GHz	Fb/2.6562
f_p2	56.00	GHz	Fb/1.8973
g_DC_HP	[-5:1:0]		[min:step:max]
f_HP_PZ	1.328125	GHz	Fb/80

- These settings are for a unity gain (at Fb/2) CTF
- The CTF range sweep may be reduced if Rx FFE is used
- Need to determine if this is OK for baselines
- Other pole zero options are scaling of Table 162-20

Noise and Jitter Section

Noise, jitter		
sigma_RJ	0.01	UI
A_DD	0.02	V ² /GHz
eta_0	4.00E-09	dB
SNR_TX	33	
R_LM	0.95	

4e-9 in set 1 KR/CR
5e-9 in set 2 KR/CR

1.25e-8 for C2M

ERL Section

TDR and ERL options		
TDR	1	logical
ERL	1	logical
ERL_ONLY	0	ns
TR_TDR	0.01	
N	4000	logical
TDR_Butterworth	1	
beta_x	0	
rho_x	0.618	
TDR_W_TXPKG	0	UI
N_bx	20	
fixture delay time	[0 0]	
Tukey_Window	1	

Table 93A-3 parameters				SAVE_CONFIG2MAT	0
logical	Parameter	Setting	Units	Information	Receiver testing
logical	package_t1_gamma0_a1_a2	[0 0.0008455 0.000340225]			RX_CALIBRATION 0 logical
logical	package_t1_tau	0.00644805	ns/mm		Sigma BSN step 5.00E-03 V
logical	package_Z_c	[92.92; 70.70; 80.80; 100.100]	Ohm		FCN parameters
logical	z_p select	[1 2 3]		(test cases to run)	f_v 0.278 Fb
logical	z_p(TX)	[6 31.41; 1 1 1; 1 1 1; 0.5 0.5 0.5]	mm	(test cases)	f_f 0.278 Fb
logical	z_p(NEXT)	[8 29.39; 1 1 1; 1 1 1; 0.5 0.5 0.5]	mm	(test cases)	f_n 0.278 Fb
logical	ffe_tap_step_size	0			board_Z_c 100 Ohm
logical	ffe_main_cursor_min	0.7			z_bp(TX) 32 mm
logical	ffe_pre_tap1_max	0.7			z_bp(NEXT) 32 mm
logical	ffe_post_tap1_max	0.7			z_bp(FEXT) 32 mm
UI	ffe_tapn_max	0.7			z_bp(RX) 32 mm
					C_0 [0.2e-4 0] nF
	EW	1	logical		N_bf 0 0 1 2 or 3 groups
	MLSE	0			N_br 4 Taps per group
	ts_anchor	1			N_f 80 UI span for floating taps
	sample_adjustment	[-8 8]			bmsag 0.2 max OFE value for floating taps
	Local Search	2			B_float_RSS_MAX 0.1 rtail tap limit
					N_tail_start 25 (UI) start of tail taps limit

• Related TD-FD conversion stability of s-parameters

• Related to twice the max electrical length in UI of the DUT (2000 for C2M)

• Adds a package to Tx port before estimating ERL (1 for C2M)

• Related expected channel eq. and proposals are needed

CR Added Host Interconnect Section

DO NOT USE YET. I.E. NO PROPOSALS AS OF 08'23

Table 93A-1 parameters				I/O control			Table 93A-3 parameters				SAVE_CONFIGMAT	0	
Parameter	Setting	Units	Information	DIAGNOSTICS	1	logical	Parameter	Setting	Units	Information	RX_CALIBRATION	Receiver testing	
	Parameter										0	logical	
	Setting										5.00E-03	V	
	board_tl_gamma0_a1_a2										ICN parameters		
	Setting										f_v	Fb	
	[0 6.44084e-4 3.6036e-05]										f_f	Fb	
											f_n	Fb	
											f_2	GHz	
											A_ft	V	
											A_nt	V	
	board_tl_tau										Parameter Setting		
	Setting										board_tl_gamma0_a1_a2	[0 6.44084e-4 3.6036e-05]	1.4 db/in @ 53.125G
	5.790E-03										board_tl_tau	5.790E-03	ns/mm
	board_Z_c										board_Z_c	100	Ohm
	Setting										z_bp (TX)	32	mm
	100										z_bp (NEXT)	32	mm
	z_bp (TX)										z_bp (FEXT)	32	mm
	Setting										z_bp (RX)	32	mm
	32										C_0	[0.2e-4 0]	nF
	z_bp (NEXT)										C_1	[0.2e-4 0]	nF
	Setting										Include PCB	0	logical
	32										Selections (rectangle, gaussian, dual, rayleigh, triangle)		
	z_bp (FEXT)										Histogram_Window_Weight	gaussian	selection
	Setting										Or	0.02	UI
	32										Floating Tap Control		
	z_bp (RX)										N_bg	0	0 1 2 or 3 groups
	Setting										N_bf	4	taps per group
	32										N_f	80	UI span for floating taps
	C_0										lmaxg	0.2	max OFE value for floating taps
	Setting										B_float_RSS_MAX	0.1	rss tail tap limit
	[0.2e-4 0]										N_tail_start	25	(UI) start of tail taps limit
	C_1												
	Setting												
	[0.2e-4 0]												
	Include PCB												
	Setting												
	0												

- Keep as 0 for now. Proposals required

Frequency Domain Section: for ICN, FOM ILD Parameters

NORMALLY NOT NORMATIVE: I.E. NO PROPOSALS AS OF 08'23

Parameter	Setting	Units	Information	Parameter	Setting	Units	Information
f_b	106.25	GBd		package_t1_gamma0_a1_a2	[0 0.0008455 0.000340225]		
f_min	0.05	GHz		package_t1_tau	0.00644805	ns/mm	
Delta_f	0.01	GHz		package_Z_c	[92.92 ; 70.70; 80.80; 100.100]	Ohm	
C_d	[0.4e-4 0.9e-4 1.1e-4 0.4e-4 0.9e-4]						
L_s	[0.13 0.15 0.14 0.13 0.15 0.14]						
C_b	[0.3e-4 0.3e-4]						
R_0	50						
R_d	[45 45]						
A_v	0.386						
A_fe	0.386						
A_re	0.6						
L	4						
M	32						
ICN parameters							
f_v					0.278		Fb
f_f					0.278		Fb
f_n					0.278		Fb
f_2					61.625		GHz
A_ft					0.450		V
A_nt					0.450		V

Proposals needed

Summary

- ❑ Discussion of 200 Gb/s PAM 4 COM configuration spreadsheets
 - KRCCR & C2M
- ❑ Use organization of COM parameters to move forward
- ❑ Next Steps: Straw polls etc.

Thank You!

Backup and Additional Slides

OTHER COM SPREADSHEET INFORMATION

Control Section

I/O control		
DIAGNOSTICS	1	logical
DISPLAY_WINDOW	1	logical
CSV_REPORT	0	logical
RESULT_DIR	.\results\CACR_set1_{date}\	
SAVE_FIGURES	0	logical
Port Order	[1 3 2 4]	
RUNTAG	KR_set1_eval_	
COM_CONTRIBUTION	1	logical

- If 1, a mat file is created in the results directory

- If 0 graphic and figure will not be displayed

- If 0 the csv files will not be saved

- Directory pointer for reports and outputs storage

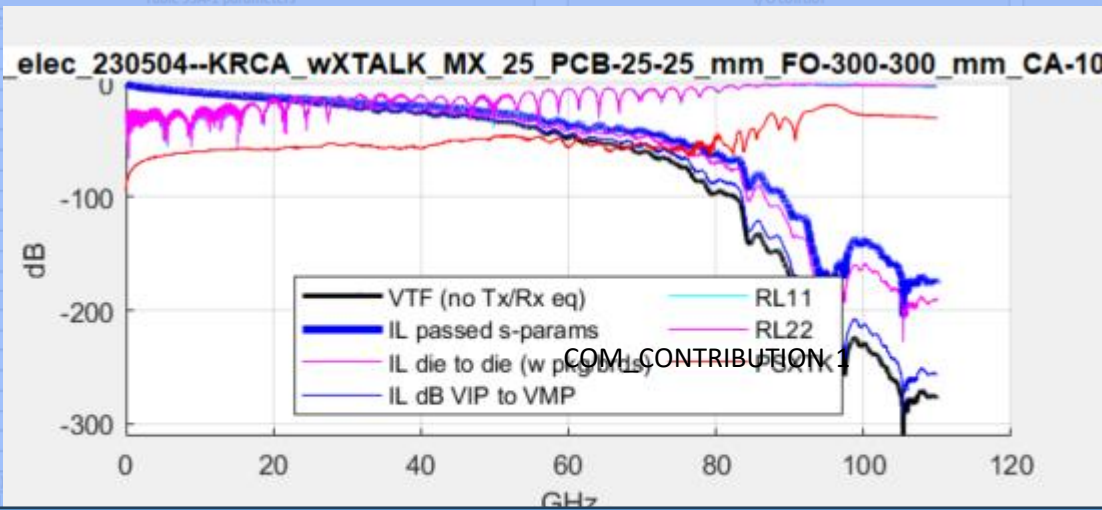
- If 1, figure files are created in the results directory

- See next slide for more on port order

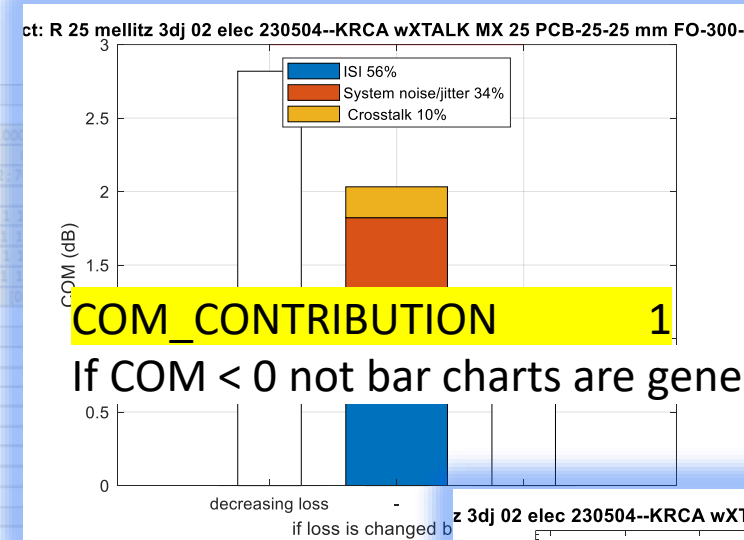
- Added text to results file names

- See next slide for more on COM_CONTRIBUTION

Port order and COM budget



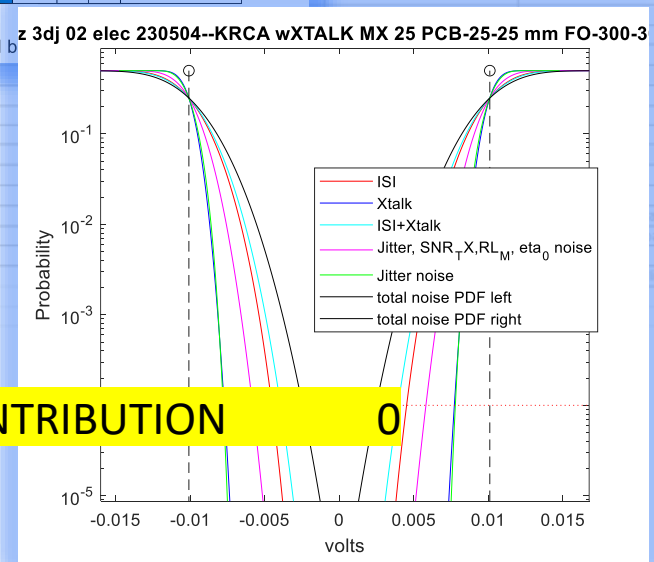
COM CONTRIBUTION 1



COM CONTRIBUTION 1

If COM < 0 not bar charts are generated

Port order
[tx+ tx- rx+ rx-]
The most common COM problem is port order.
If the IL curves don't trend downward from about 0 dB,
then the port order is most likely not as expected



COM CONTRIBUTION 0