

# C2M Channels for 200Gbps Update to contributed channels

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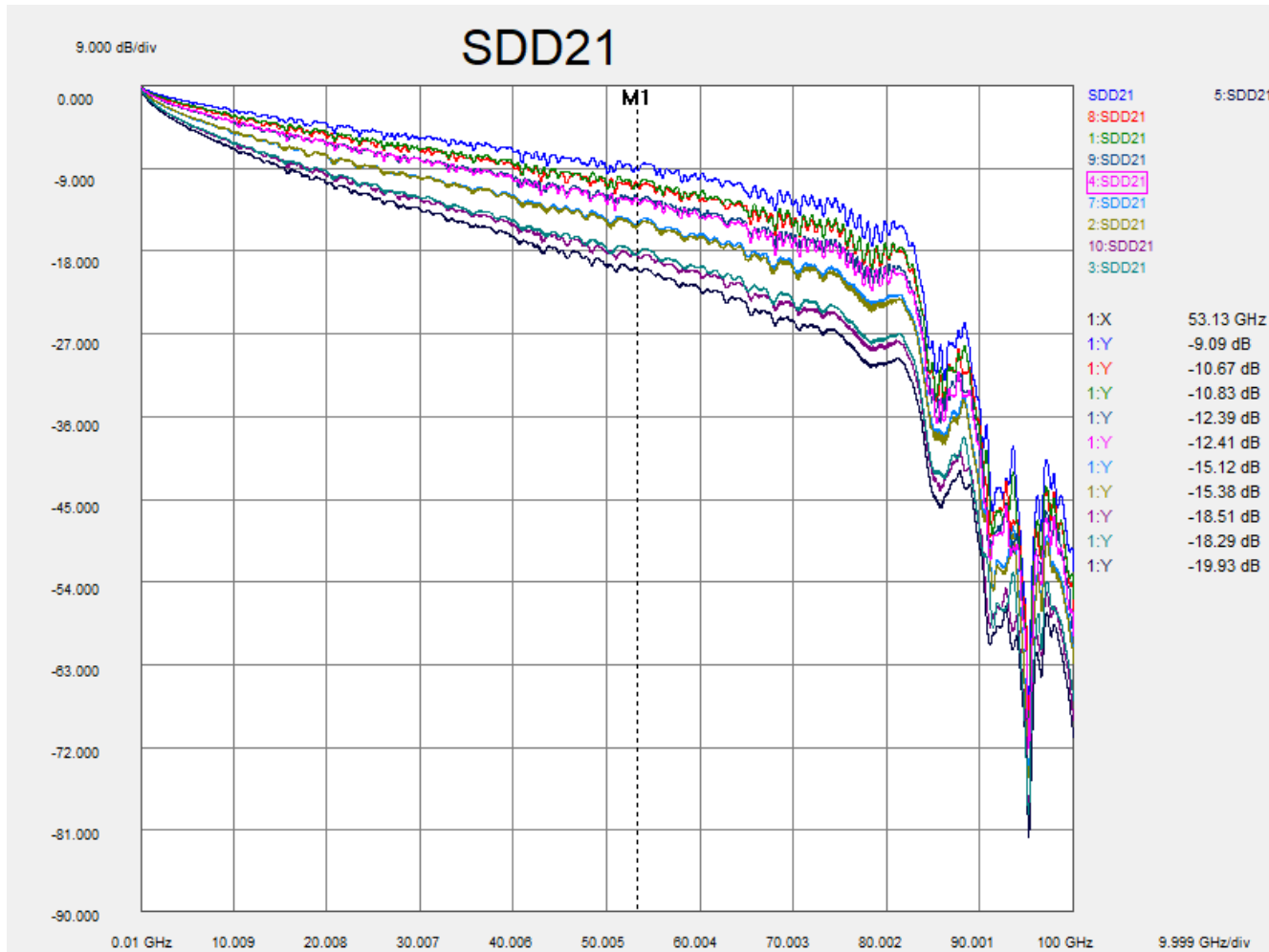
# C2M Channel updates – 200Gps /lane

- Channels shared consistent with a 2 RU, 64 port, 512 Radix , 1.6T/port system design using 200 Gbps/lane Serdes etc.
- Shared Channels are consistent with what we believe is feasible for a 2RU, 64 port designs
  - “Max Tolerable” intrapair skew version(s)
- Extra channels included are: “No skew” and “Excessive” Skew versions to allow task force members conduct comparative studies and are not intended to be considered as a part of the current 64 port system design feasibility or 200Gbps/lane C2M deliberations.

# C2M Channel updates – System Channel coverage, Improvements and Fixes

- New approaches for 200G designs, technology improvements and Manufacturability with design rule changes and reliability approvals allowed:
  - ✓ Improved ILD even for thicker PCB designs
  - ✓ Improved ICN – reduced Xtalk in Z-direction in PCB
- Includes Module PCB Channel length/loss variations
- Improved NEXT from Connector
  - Narrowed to one NEXT file representing connector improvements – removed two versions as in previous distribution
- Reduced System channels Loss span
  - Ball\_Ball Loss Limited to ~20 dB for no Intrapair Skew case(s)
  - Added shortest channels for cabled host and PCB host types
- Added No Skew , max tolerable skew cases channels for both Cabled Host and PCB host types
  - and excessive skew case for further study
- Corrected system PCB and module PCB channel component(s) that were improperly represented in previous version(s) of the channels.

# Cabled host Channels – No skew– Loss profile

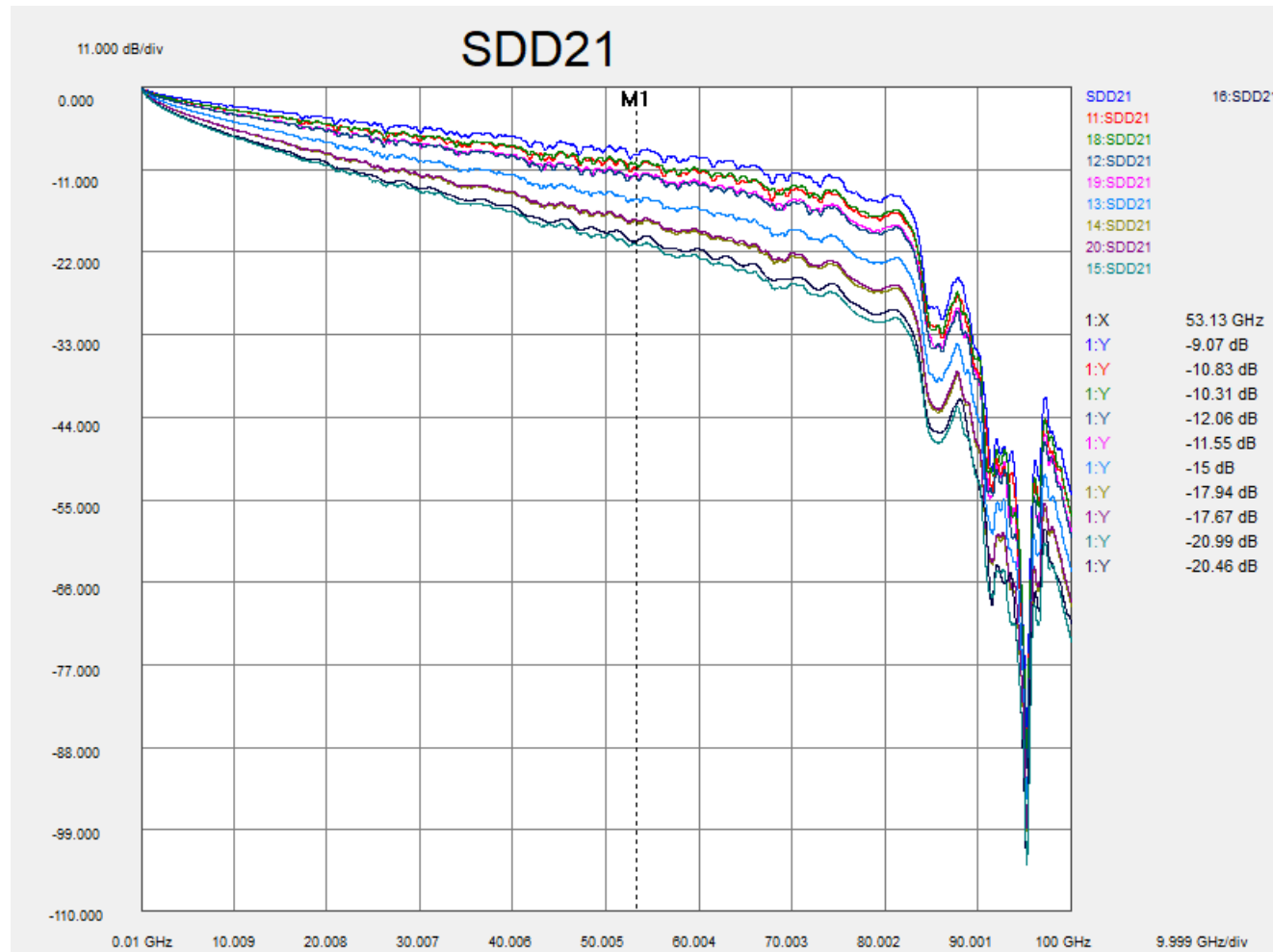


# Cabled host Channels – Some Characteristics

SL.NO	Intrapair Skew	0.0 UI			0.32UI	0.43 UI*
	Channel File Name	ICN, mv	FOM_ILD	Ball_Ball Insertion Loss, dB		
1	cbl_hst_S4_B2B_s0nl0_Ms1_9_t	4.32	0.20	9.09	10.17	11.11
2	cbl_hst_S4_B2B_s0nl0_Ms11_11_t	3.64	0.19	10.67	11.75	12.69
3	cbl_hst_S4_B2B_s0nl0_Ml2_11_t	3.59	0.19	10.83	11.91	12.85
4	cbl_hst_S4_B2B_s0nl0_Ms13_13_t	3.24	0.17	12.39	13.48	14.41
5	cbl_hst_S4_B2B_s0nl0_Ml12_13_t	3.01	0.19	12.41	13.50	14.43
6	cbl_hst_S4_B2B_s0nl0_Ms7_15_t	2.63	0.17	15.12	16.20	17.14
7	cbl_hst_S4_B2B_s0nl0_Ml6_15_t	2.41	0.17	15.38	16.46	17.39
8	cbl_hst_S4_B2B_s0nl0_Ml10_18_t	1.90	0.16	18.29	19.37	20.31
9	cbl_hst_S4_B2B_s0nl0_Ms18_18_t	2.10	0.16	18.51	19.59	20.53
10	cbl_hst_S4_B2B_s0nl0_Ml20_20_t	1.67	0.16	19.93	21.01	21.94

\*The last column shows channel losses for excessive Skew

# PCB host Channels – No Skew – Loss profile



# PCB host Channels – Some Characteristics

SL.NO	Intrapair Skew	0.0 UI			0.21UI	0.43 UI*
	Channel File Name	ICN, mv	FOM_ILD	Ball_Ball Insertion Loss, dB		
1	pcb_hst_S4_B2B_s0nl0_Ms21_9_t	4.45	0.20	9.07	9.53	11.09
2	pcb_hst_S4_B2B_s0nl0_Ms23_10_t	3.91	0.18	10.31	10.77	12.33
3	pcb_hst_S4_B2B_s0nl0_Ml22_10_t	3.70	0.20	10.83	11.29	12.85
4	pcb_hst_S4_B2B_s0nl0_Ms25_12_t	3.45	0.17	11.55	12.01	13.57
5	pcb_hst_S4_B2B_s0nl0_Ml24_12_t	3.24	0.18	12.06	12.52	14.09
6	pcb_hst_S4_B2B_s0nl0_Ml28_16_t	2.52	0.16	15.00	15.46	17.03
7	pcb_hst_S4_B2B_s0nl0_Ms33_18_t	2.28	0.16	17.67	18.13	19.70
8	pcb_hst_S4_B2B_s0nl0_Ml32_18_t	2.01	0.16	17.94	18.40	19.97
9	pcb_hst_S4_B2B_s0nl0_Ms19_20_t	2.01	0.17	20.46	20.92	22.48
10	pcb_hst_S4_B2B_s0nl0_Ml36_20_t	1.66	0.16	20.99	21.45	23.01

\*The last column shows channel losses for excessive Skew

# Channel file naming

The channels folder includes sub-folders for two different types of host contributions to Ball\_Ball channels.

Cabled\_host

PCB\_host

In each of these folders

Subfolders indicating levels of intrapair skew

Max\_tolerable ( 0.32UI for Cabled\_host case, 0.21UI for PCB\_host case)

Excessive ( 0.43 UI)

In each subfolder

There are 10 channels with channel loss varying from ~9 dB to ~20 dB @ 53.125 GHz( loss indicated here at no skew)

<base\_name>\_t.s4p – Through channel s param files

<base\_name>\_f1.s4p – corresponding power sum FEXT file

<base\_name>\_n1.s4p – corresponding power sum NEXT file.

Example.: pcb\_hst\_S4\_B2B\_s0n10\_MI22\_10\_t

Approx. BGA ball to BGA ball loss at Nyquist for No skew is 10 dB

Channel port\_order is [1 3 2 4] - the default in COM