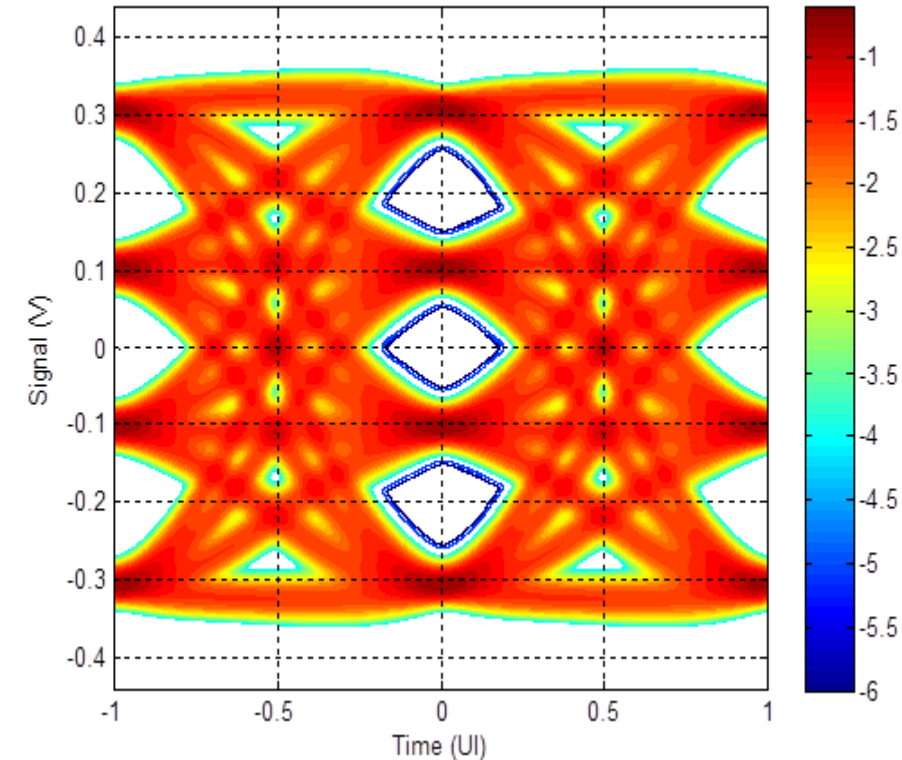


C2M MODULE-TO-HOST TRANSMITTER EYE SPECIFICATION PROPOSAL (IN SUPPORT OF COMMENT #114)



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Atlanta, January 2016

- **Currently, sub-clause 120E.3.2 specifies the module output**
 - ESMW, Eye width, Eye height, and Max vertical eye closure
- **The current eye spec at TP4 may not allow for the optimal pre-cursor component for the module TX**
 - Eye measurement is done at the module compliance board (MCB)
 - HCB-MCB loss budget is only ~2.5dB to 4.8dB
 - Pre-cursor component in the TX output is sub-optimal at TP4 :
With TXEQ of [-0.05 0.95] and CTLE = 1, Veye = 113mVpp, and Heye = 309mUIpp (COM C2C TX, 800mVpp, Ideal package, & COM jitter numbers).
- **Can a typical host receiver close the C2M budget without a pre-cursor?**



HOST RECEIVER PERFORMANCE ON C2M CHANNELS

Assume a C2C reference receiver in the host (CTLE, LF-CTLE, and 10 tap DFE):

- No precursor in the module TX:

Test Case	1	2	3	4	5	6	7	8	9
COM version D1.1	1.39	1.53	1.24	1.75	1.9	1.23	1.05	0.93	0.67
Our COM proposal (SNR_TX = 29dB, DER0 = 1e-5)	1.62	1.73	1.49	1.93	2.05	1.48	1.3	1.21	1.01

Channel indices are the same as in [smith_01_122115_elect](#)

- Module TX set to [-0.1 0.9]:

Test Case	1	2	3	4	5	6	7	8	9
COM version D1.1	3.94	4.24	2.89	3.84	4.11	3.14	3.51	3.64	3.29
Our COM proposal (SNR_TX = 29dB, DER0 = 1e-5)	3.87	4.11	2.96	3.77	4.00	3.17	3.53	3.64	3.34

Without the pre-cursor, the host C2M RX may have to be more complex than a C2C RX!

- **Include a pre-cursor ISI generating component before the host reference receiver**
 - Use a UI spaced filter with coefficients [0.1 0.9]
 - There seems to be consensus on the magnitude of the pre-cursor needed
 - Include this filter along with the CTLE for eye margin limits at TP4
- **Eye width & height, and Max vertical eye closure numbers need to be updated to reflect the ISI generating component**
 - $V_{eye} = 70\text{mVpp}$ & $H_{eye} = 290\text{mUIpp}$
(COM C2C TX, 800mVpp, Ideal package, & COM jitter numbers, with [-0.1 0.9] as TXFIR, and CTLE = 1).
- **Does not explicitly require the module TX to support an FIR**
 - Supports any mechanism in TX to compensate for precursor ISI
- **Enables a 'C2C capable' receiver to be employed in the host for C2M with current TP4 based eye margin methodology**

