

# ICN ad hoc report

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# Outline

- Acknowledgements
- Summary of original comment
- Subsequent issues identified by ad hoc
- Review of measured data
- Summary of ad hoc conf calls
- Review of ICN, Qsq, BW spreadsheets
- Final Recommendations
- Editors Recommended changes to the document

# Acknowledgements

- Mike Dudek for creating the ICN vs jitter spreadsheet
- Piers Dawe for creating the ICN vs Qsq spreadsheet
- Piers Dawe for creating the ICN measurement bandwidth spreadsheet
- Upen Reddy and Sammy Hindi for their cable ICN measurements
- Patrick Casher for the compliance board ICN measurements
- John Petrilla, Brian Misek and Adam Healy for participating in the ad hoc
- Pete Anslow for making the proposed edits
- My mom

# Summary (original comment)

- Proposal is to change only the mated MCB/HCB ICN requirements to accommodate the 10 lane connector.
  - No changes proposed to channel or cable assembly requirements

# Subsequent issues identified by ICN ad hoc

- Modification of ICN values may effect jitter budget of SR10 implementations
- Modification of ICN values may affect Qsq specifications of nPPI at TP1A (Table 86A-1)
- The measurement bandwidth used to calculate ICN may need to be increased

# Summary of Ad hoc conf calls

conference calls/meetings

- Oct. 27, Nov. 1, Jan27, Feb 13, Feb 28
  - Discussion about impacts of higher crosstalk connector on host/module output/input.
  - Review of ICN calibration method
  - Review of ICN vs jitter spreadsheet created by Mike Dudek
  - Review of Qsq vs ICN spreadsheet created by Piers Dawe
  - Review of ICN measurement bandwidth spreadsheet created by Piers Dawe

# Original Action items:

- Produce measurements of mated compliance boards to validate proposed changes
  - Complete
- Produce measurements of copper cables to validate simulations
  - 2 cables measured

# Mated compliance board ICN measurements

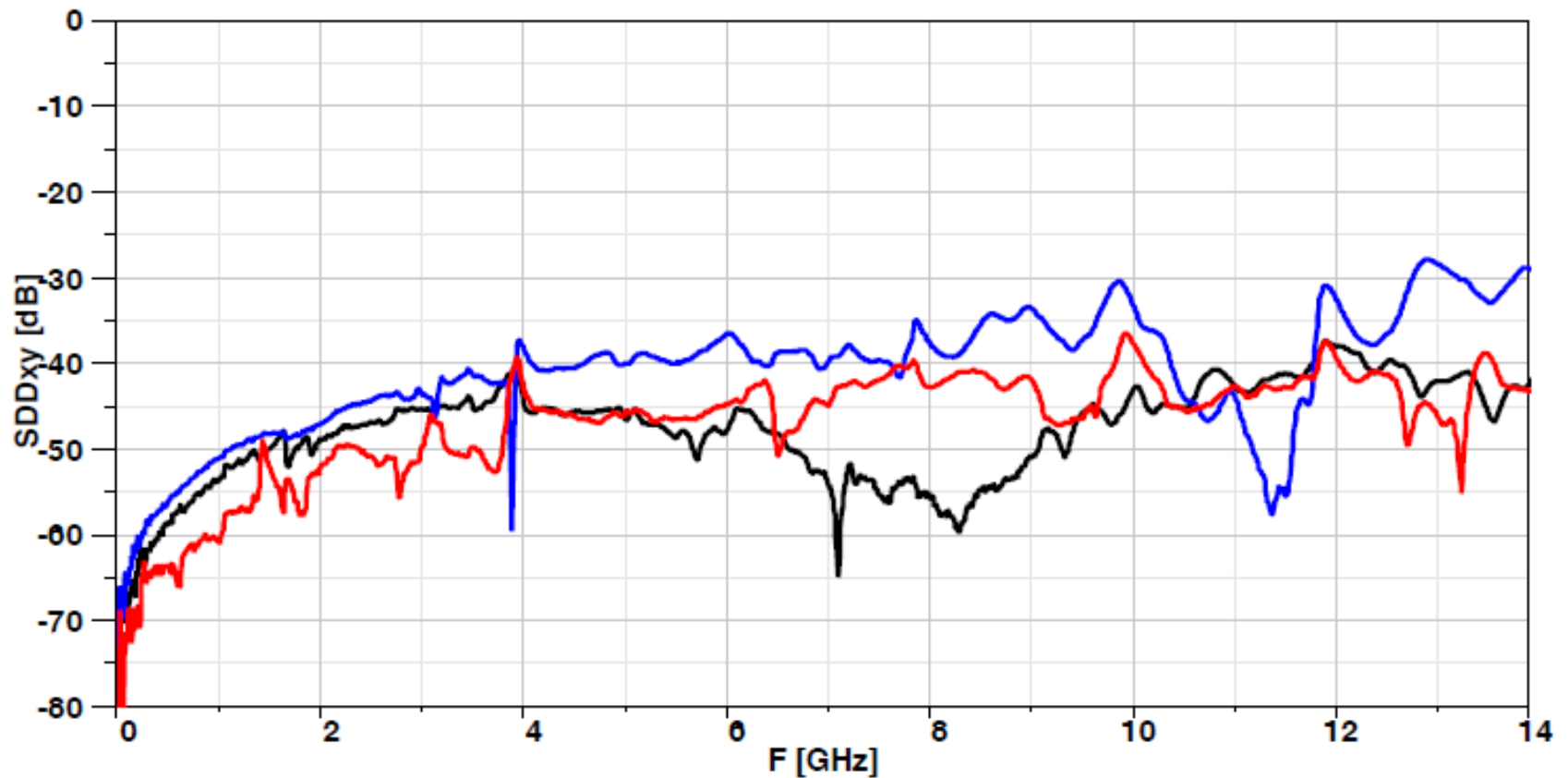
ICN settings: 10.3125Gbps 0.6V amplitude  
The ICN calculates to: 5.6mV

25ps 20-80 risetime

Blue = FEXT adjacent

Red = FEXT vertical

Black = NEXT vertical



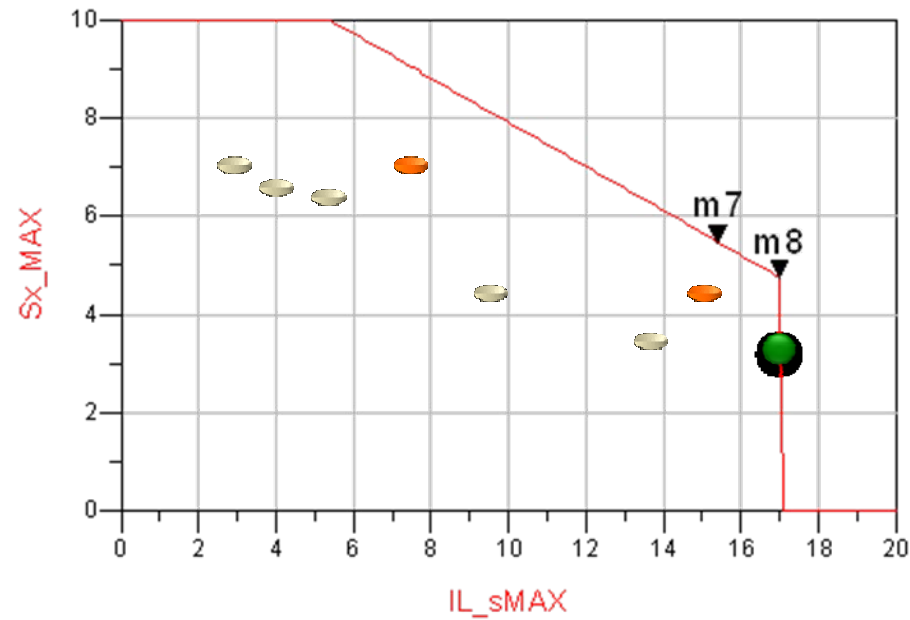


# Cable Assembly ICN (Includes cable assembly test fixtures)

m7  
 indep(m7)=15.400  
 plot\_vs(Sx\_MAX, IL\_sMAX)=5.470

85.10.7, equation 85-  
 33 – IEEE Std  
 802.3ba-2010

m8  
 indep(m8)=17.000  
 plot\_vs(Sx\_MAX, IL\_sMAX)=4.750



- Measured
- Simulated

Snx	Sfx	Sx
2.699	1.874	3.286

ICN

# ICN effects on jitter, Qsq at TP1A spreadsheets and measurement BW presentation

- ICN effects on jitter at TP1A spreadsheet
  - See ICN\_BA\_Host\_and\_Module mike modv2.xlsx spreadsheet created by Mike Dudek
- ICN effects on Qsq spreadsheet
  - See QsqCXPcrosstalkChanges2.xls file from Piers Dawe
- ICN measurement bandwidth
  - See CrosstalkBW.pdf from Piers Dawe

# Proposed solution at Nov Atlanta Plenary

- Mated compliance board ICN proposed change is reduced from 6.1mv to 5.8mv
- Modify Qsq specification at TP1a from 45 to 40.
- Change ICN test methodology to use lower voltage levels

# Final recommendations:

- Mated CR10/SR10 compliance board ICN of 5.8mv (See next page for details)
- Modify Qsq specification at TP1a from 45 to 43.

# Update proposed revisions to Table 85-12:

Parameters	Proposed ICN Limit (mV)	Current Std ICN Limit (mV)
SDNEXT ICN	3.0	0.7
SDFEXT ICN	4.0	2.5
ICN for Single Disturber	<u>5.0</u>	<u>2.596 (Calculated)</u>
MDNEXT ICN	3.0	1.0
MDFEXT ICN	5.0	3.5
ICN for Multiple Disturbers	<u>5.8</u>	<u>3.64 (calculated)</u>

# Editors recommended changes to the document

- See: Changes\_for\_ICN\_v3.pdf from Pete Anslow