

SFF-8470

802.3ba Cu Specification

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SFF-8470 – 802.3ba Cu Specification

Supporter:

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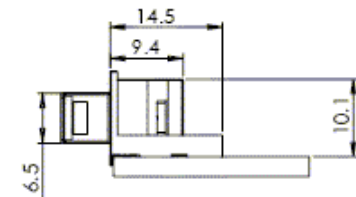
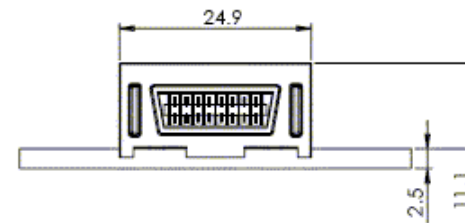
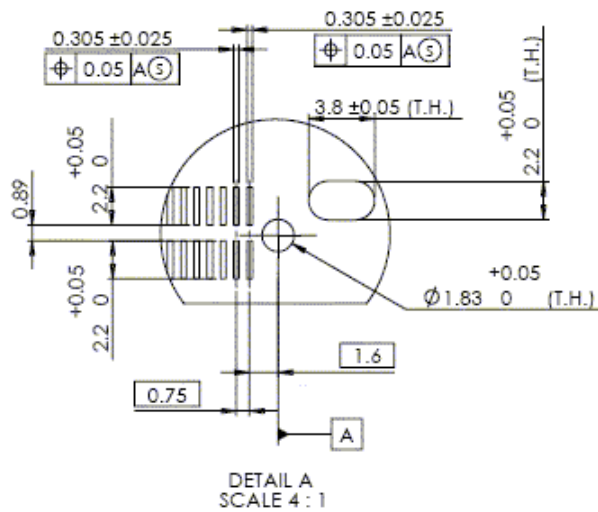
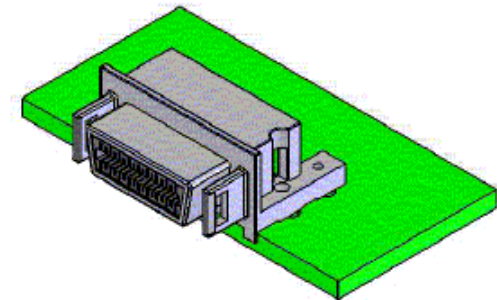
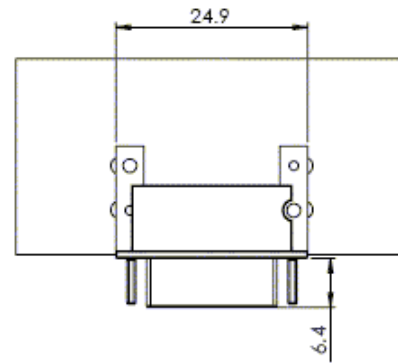
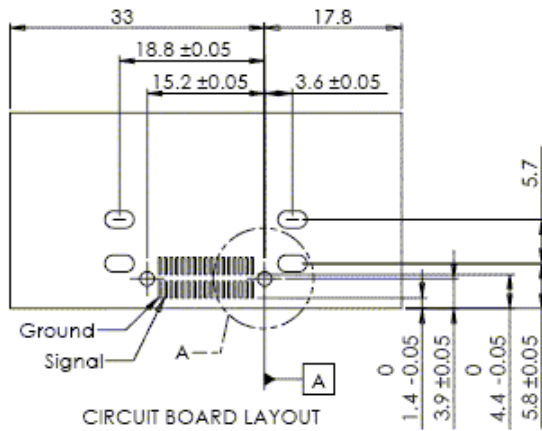
- Considerations for 802.3ba Cu specifications for SFF-8470 with enhanced performance receptacle .
- Measurement models and simulation models in development to evaluate usage of SFF-8470 for 10Gb/s lane.
- SFF-8470 cable connector and 10 meters of twinaxial cable considered for 40GBASE-CR4 & 100GBASE-CR10 cable assemblies

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Electrical Performance

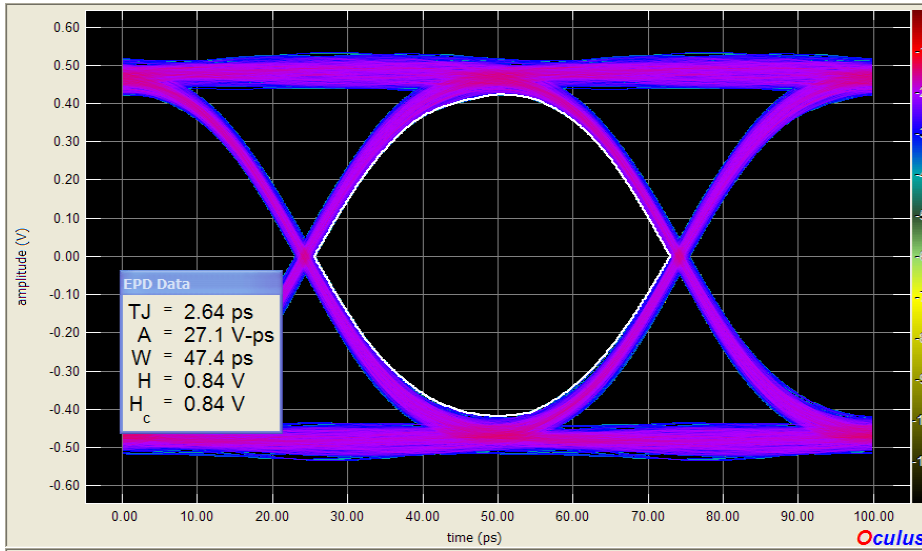
- Built a “channel model” in Oculus with passive equalization (which is a good model for transmitter de-emphasis), connector and cable assembly. XT is included because it is a large contributor to closing the eye.
- This channel model is based on S-parameter extractions from real measurements on our devices. We will use Oculus to show Eye Pattern Diagrams (EPD) before any type of receiver signal conditioning.
- To do an actual lab measurement is very difficult because one must have multiple pattern generators, take into account multiple voltage levels and cannot de-embed the fixture losses.
- Chose a severe XT model wherein the aggressor voltages are at 1200mv and the quiet line is driven by 650mv. That is a ratio of 1.85. The XT model includes 3 FEXT aggressors (1st, 2nd and 3rd neighbors) and 4 NEXT aggressors (1st, 2nd, 3rd and 4th neighbors).
- BER of 10^{-12} used for the inner eyes.

Enhanced SFF-8470 Receptacle Footprint

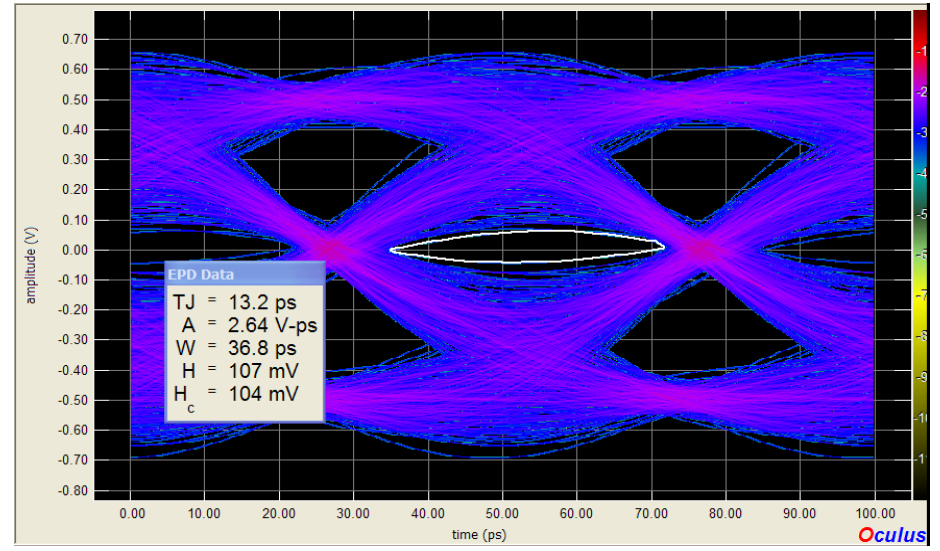


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Enhanced SFF-8470 Eye Pattern Comparison



Enhanced Receptacle – 20Gb/s

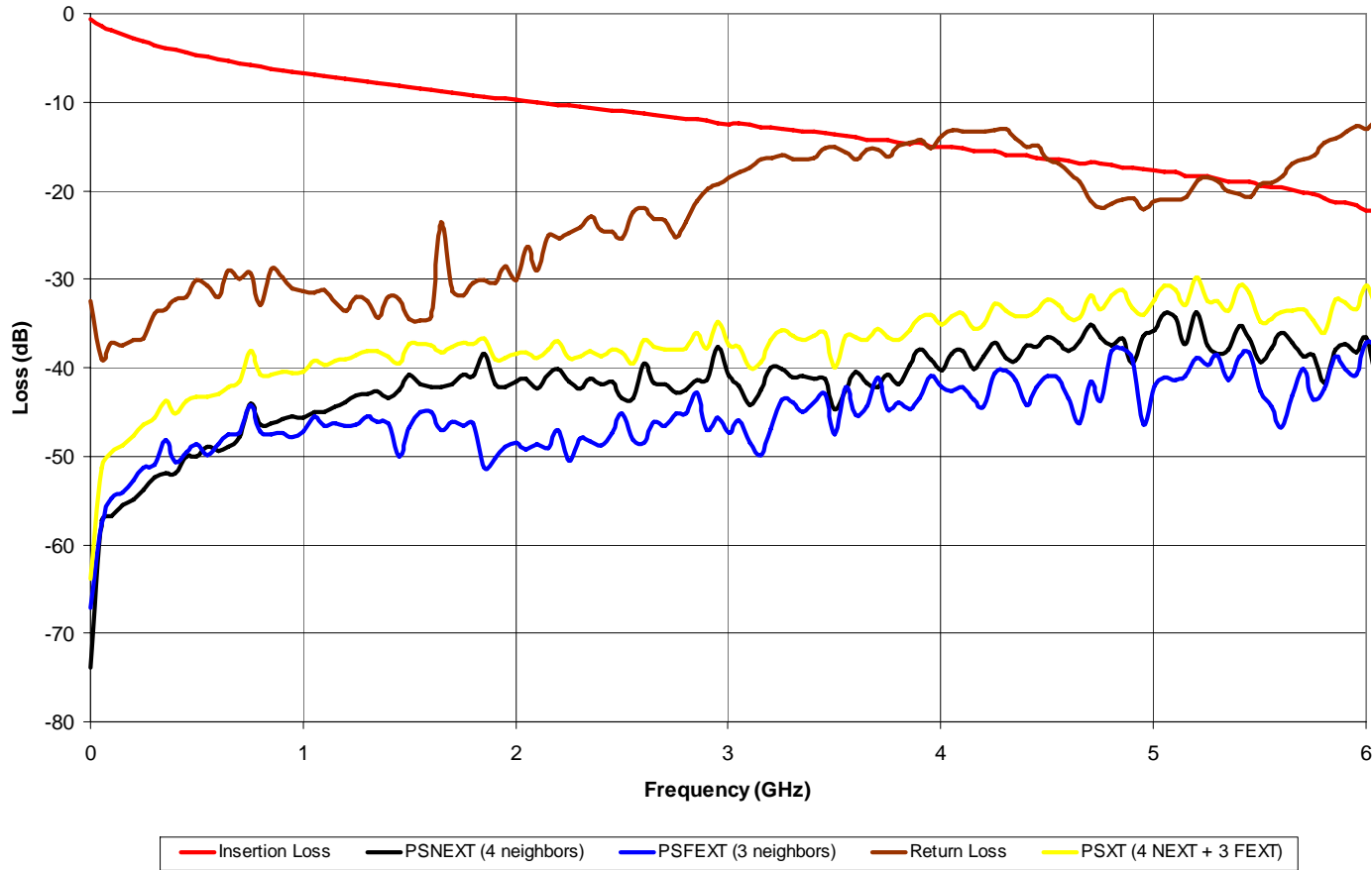


Industry Leader Receptacle – 20Gb/s

Measured Receptacle to Receptacle, No Cable Assembly

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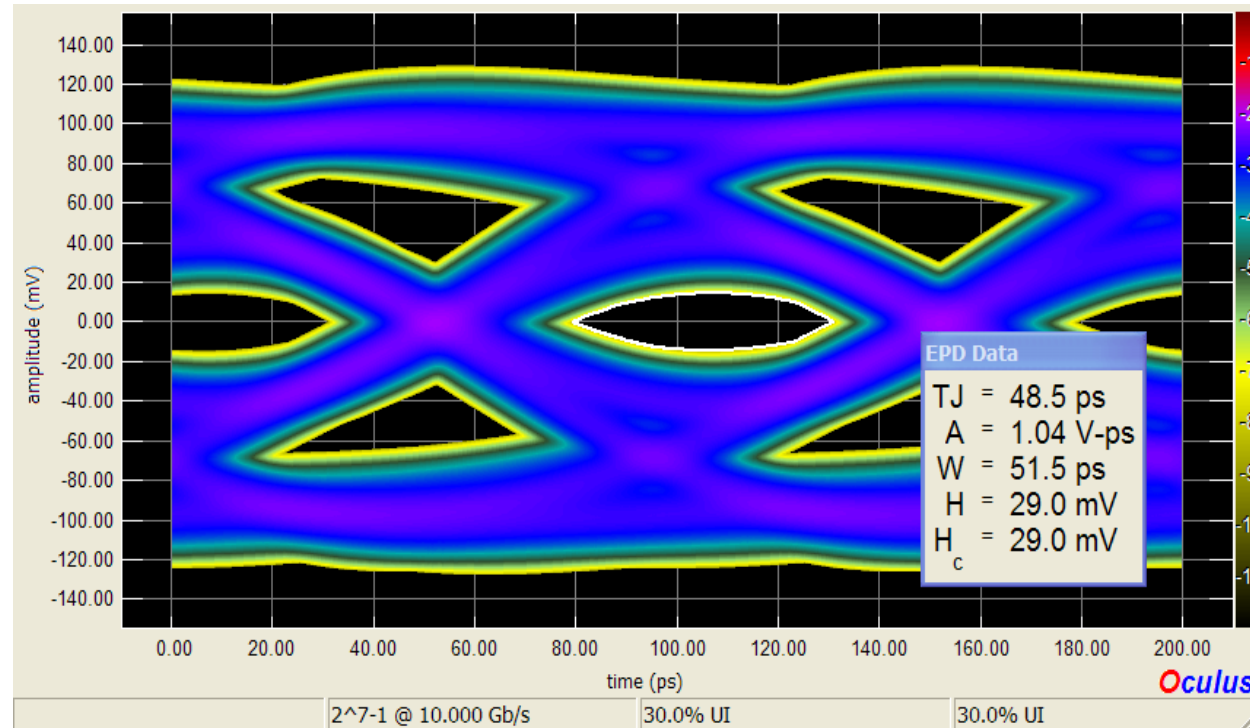
S-Parameters



10 Meter, 24awg Attenuation, Return Loss and Crosstalk

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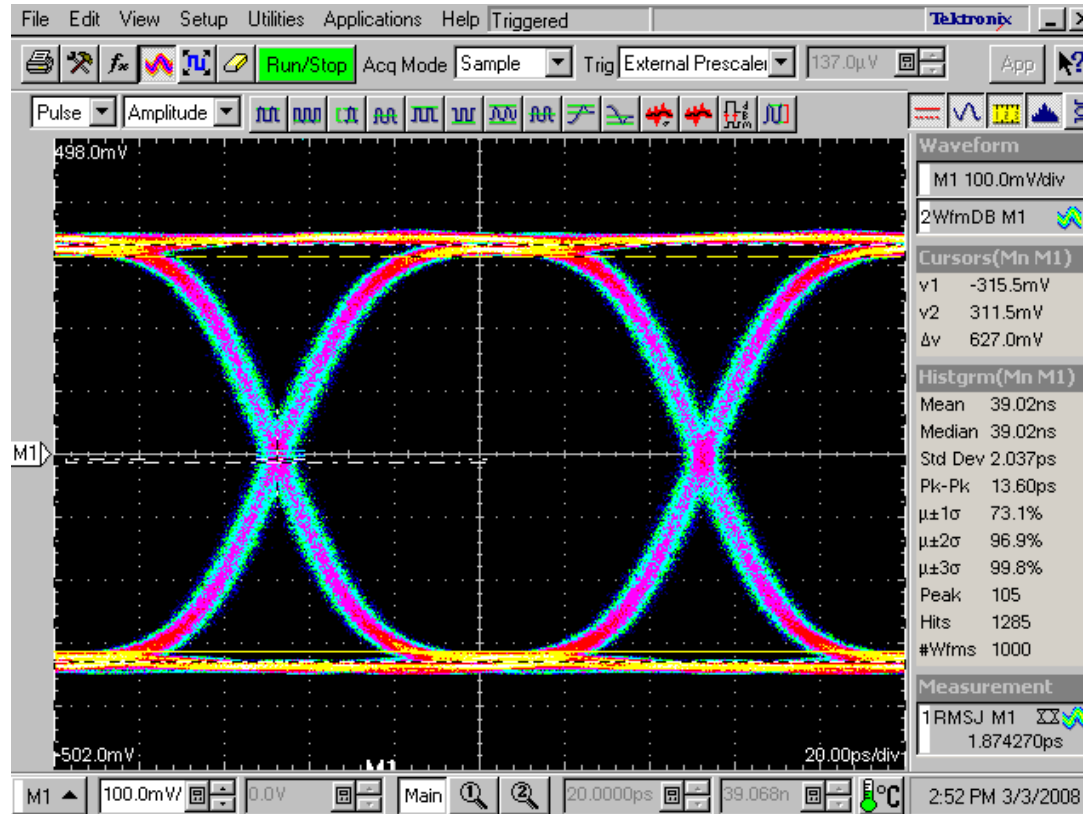
Eye Pattern Diagrams



10 meter, 24awg, 10Gbps eye with 3 FEXT and 4 NEXT aggressors without receiver signal conditioning

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Eye Pattern Diagrams



10Gbps eye that is output from a receiver signal conditioner after the 10 meter, 24awg, SFF-8470 cable assembly

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The measurements, modeling and analysis of the SFF-8470 connectors and attached 24 gauge, 10 meter cable assembly show the following compliance:

- The Return Loss meets the 802.3ap Return Loss limits
- The measured Insertion Loss satisfies the maximum attenuation limit
- Crosstalk in the channel model results in an acceptable eye pattern

The enhanced receptacle's mechanical design will:

- Preserve the current interface, allowing existing cable designs to mate with the receptacle
- Make use of same retention features, i.e., latch and thumbscrew
- Retain all of the functionality of the many cable break-out options