Scope of Testing
The following differential measurements were made:
- Eye diagram at 2.5 Gb/s (also includes simulations at 5Gb/s)
- Frequency Domain Attenuation from 1MHz to 10GHz
- Crosstalk with 3 aggressor lines, 84 and 150pS risetime

Test Equipment
Tektronix CSA-803/SD-24 TDR Signal Analyzer
Anritsu MP1701B 10Gb/s Pattern Generator
Avtech AVP-AV, 6 channel, bipolar Pulse Generator
TDA Systems' IConnectTM interconnect and lossy cable characterization software
atSpeed’s Oculus eXtractorM S-parameter extraction software

Tested Assembly
The tests were performed on a 1.5-meter assembly with CP-50 connectors terminating each end. These CP-50 connectors were plugged into right angle CP-50 connectors mounted to pc boards with vias to receive the connector pins. There are no traces or ground planes in the pc boards. Semi-rigid coax was soldered to the connector pins on the backside of the pc board. The cable is a 28awg parallel pair (part number 700219-01).
Measured Eye Patterns

**Fixture**
Eye pattern through fixture (includes semi-rigid coax)
Stimulus is 2.5Gb/s, 400mv peak to peak, 2^7-1 PRBS

Eye opening = 380mv

Risetim < 40 psec

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**Cable Output**
Eye pattern through fixture, connectors and cable
Stimulus is 2.5Gb/s, 400mv peak to peak, 2^7-1 PRBS

Eye height is 250mv out = 63%

Jitter < 50ps = 12.5% or .125UI
Simulated Eye Patterns

Eye diagram at 2.5Gb/s, 40psec risetime, 400mv input
Shows eye height to be >250mv and jitter to <.12UI
This eye is generated using IConnect software and is based on TDT measurements
This can be compared to the preceding measured eye to note the excellent correlation
between the software-extracted eye and the measured eye.
Eye diagram at 2.5Gb/s, 120psec risetime, 800mv input
Shows eye height to be >500mv and jitter to <.12UI
This eye is generated using IConnect software and is based on TDT measurements.
Eye diagram at 5.0Gb/s, 50psec risetime, 800mv input
Shows eye height to be >300mv and jitter to <.25UI
Attenuation

S21 extracted from TDT measurements using atSpeed’s Oculus software
Includes effects of semirigid coax attachment to pc boards
Crosstalk

Longest pins

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<th>S3b</th>
<th>G</th>
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Front view of pc board right angle connector

Longest pins

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Bottom view of pc board

S5 quiet
Aggressor is a 1000mv pulse

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