• XMIT board sends Pseudo Random Pattern (run length of 7).
• Capacitive boards with different values on data lines.
• Capacitance values of 12 pf, 15 pf, 18 pf used.
• Also did mismatched values of 18/15 pf, 15/12 pf
• Cable used is Hitachi Twisted Flat Series 23915
**HITACHI CABLE #23915**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>30 AVG 7/38 Tinned</td>
</tr>
<tr>
<td>Insulation</td>
<td>PVC</td>
</tr>
<tr>
<td>Conductor Resistance</td>
<td>0.344 ohms/meter</td>
</tr>
<tr>
<td>Capacitance</td>
<td>48.3 pf/meter</td>
</tr>
<tr>
<td>Impedance</td>
<td>102 ohms</td>
</tr>
<tr>
<td>Propagation Delay</td>
<td>5.07 ns/meter</td>
</tr>
<tr>
<td>Skew (max)</td>
<td>0.146 ns/meter</td>
</tr>
</tbody>
</table>
Tests run with drive level of 1volt pkpk

Measured eye pattern at various load points on different data leads different capacitance.

Trigger point varied plus/minus 60 mv.

Also measured loss on different data leads that had different capacitance values.
9.25 meter twist/flat (30AWG) cable

DRIVE LEVEL TESTING

6/18/98 Tariq/Vince - T10 Meeting
Amplitude of different data bit signals with different capacitance and at different locations

Amplitude (V)

Location on cable

DB (2)  DB (3)  DB (1)  DB (4)

12 pf  15 pf  18 pf  22 pf
“Eye pattern for 12 meter twist/flat cable and 15 loads”
(trigger at center of clock)
9.25 meter twist/flat (30AWG) cable

"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger +/- 60 mV from center of clock)
"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger +/- 60 mV from center of clock)
9.25 meter twist/flat (30AWG) cable

"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger +/- 60 mV from center of clock)
"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger +/- 60 mV from center of clock)
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(trigger +/- 60 mV from center of clock)
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(trigger +/- 60 mV from center of clock)
9.25 meter twist/flat (30AWG) cable

"Eye pattern for 12 meter twist/flat cable and 15 loads"
(trigger +/- 60 mV from center of clock)
9.25 meter twist/flat (30AWG) cable

"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger +/- 60 mV from center of clock)
9.25 meter twist/flat (30AWG) cable

"Eye pattern for 12 meter twist/flat cable and 15 loads"
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(trigger +/- 60 mV from center of clock)
"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger +/- 60 mV from center of clock)
"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger at center of clock)
"Eye pattern for 12 meter twist/flat cable and 15 loads"

(trigger +/- 60 mV from center of clock)
9.25 meter twist/flat (30AWG) cable

“Eye pattern for 12 meter twist/flat cable and 15 loads”

(trigger +/- 60 mV from center of clock)
9.25 meter twist/flat (30AWG) cable

"Eye pattern for 12 meter twist/flat cable and 15 loads"
(trigger +/- 60 mV from center of clock)
9.25 meter twist/flat (30AWG) cable

"Eye pattern for 12 meter twist/flat cable and 15 loads"
(trigger +/- 60 mV from center of clock)
Eye openning of different data bit signals with different capacitance and at different locations

Eye openning (nsec)

location on cable

DB(2)
DB(3)
DB(1)

12 pf
15 pf
18 pf
SUMMARY

- Lower Capacitance improves eye opening by 20% (18 pf to 15 pf).
- Lower Capacitance improves loss characteristics by 30% (22 pf to 15pf).
- Different loads on clock and data causes large skew end of fully loaded bus.