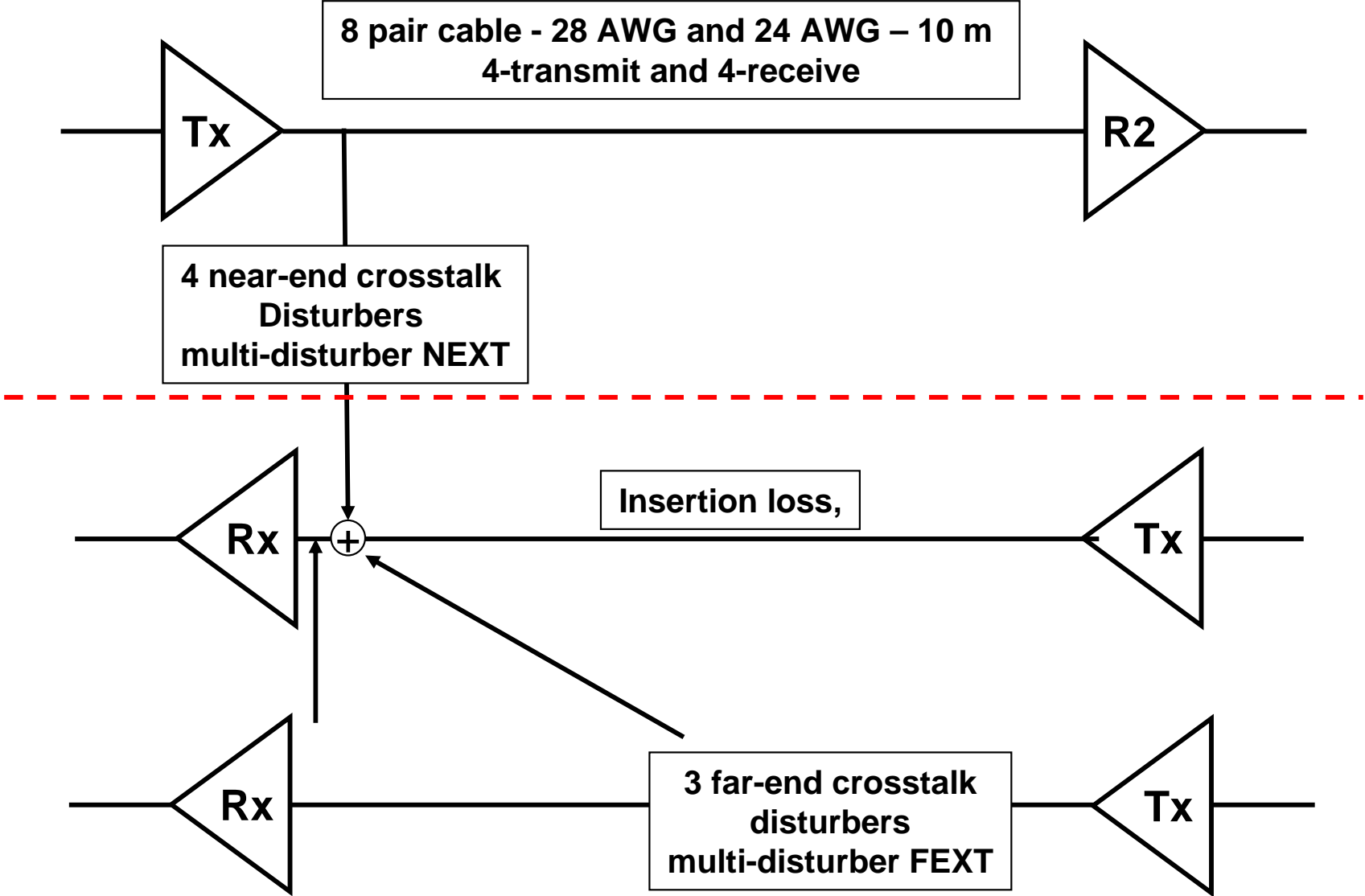

Twinaxial cable assemblies transmission characteristics

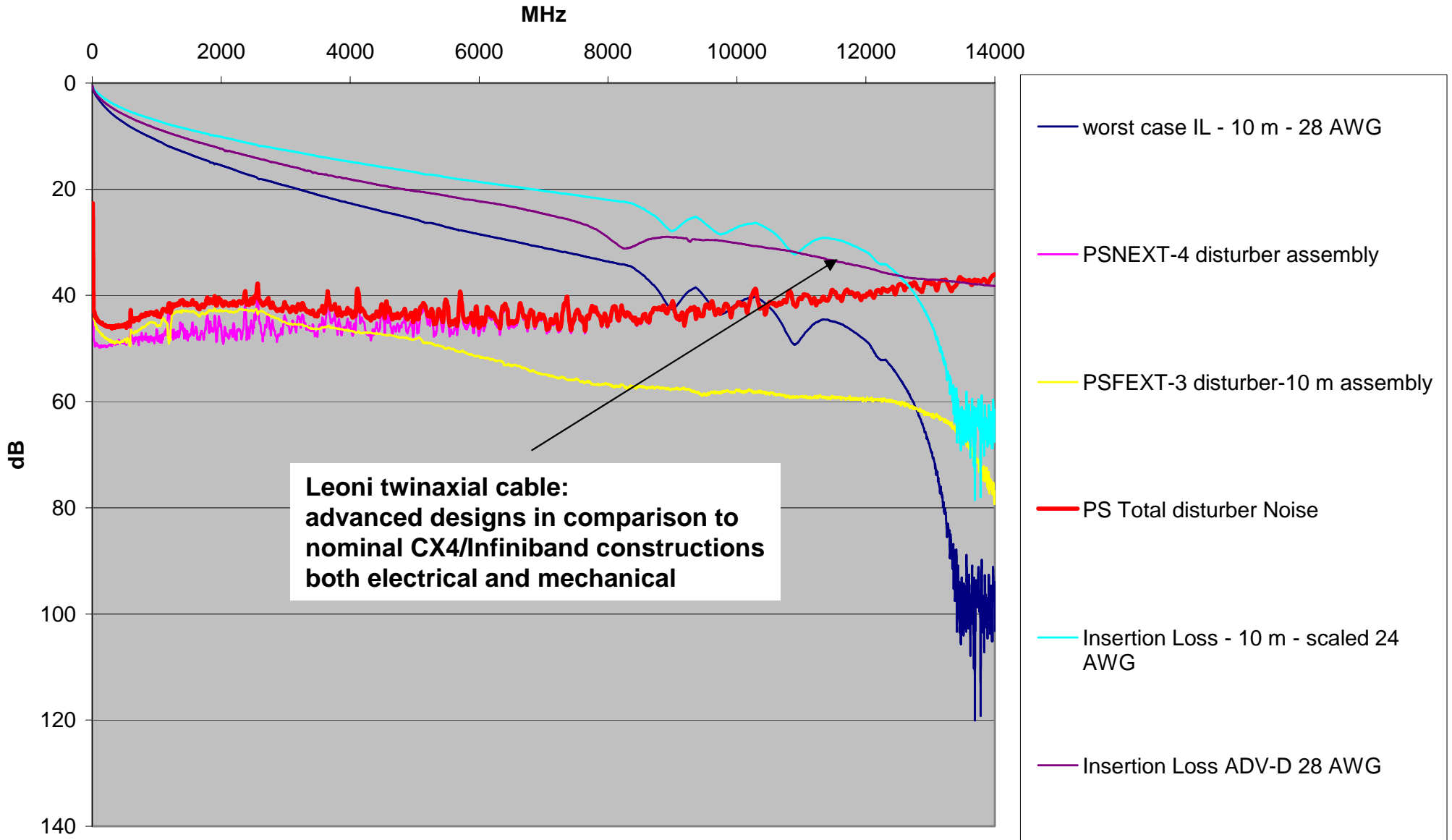
**Chris DiMinico
MC Communications**

**George Zimmerman
Solarflare Communications**

Analysis: Copper Interconnect S-parameters



Cable assemblies - 28 AWG/24 AWG/28 AWG ADV-D 10 meter



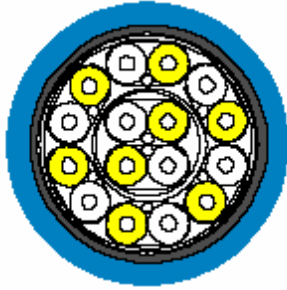
Lane Rate, Signaling rate, channel bandwidth

10 m cable + connectors @ 6 dB Margin

Maximum Lane rate	Maximum signaling rate	Info bits/ baud/dim	Channel bandwidth	Copper Gauge	Code gain	Length
Mb/s	Mbaud		MHz	AWG	dB	meters
10889.28	8180.00	1.33	4090.00	28	0	10
13984.52	10140.00	1.38	5070.00	28	2	10
17555.24	11360.00	1.55	5680.00	28	4	10
>24950.75	>17290.00	1.44	8645.00	24	0	10
>30727.91	>17400.00	1.77	8700.00	24	2	10
>36785.11	>19000.00	1.94	9500.00	24	4	10
>17212.31	>13210.00	1.30	6605.00	28 ADV D	0	10
>22044.24	>14580.00	1.51	7290.00	28 ADV D	2	10
>27147.01	>15460.00	1.76	7730.00	28 ADV D	4	10

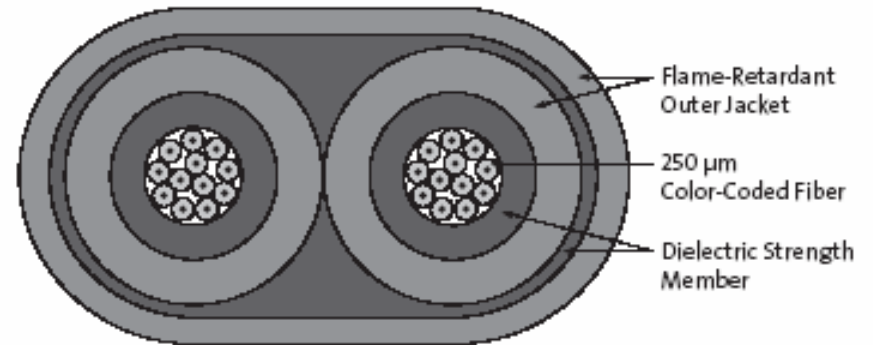
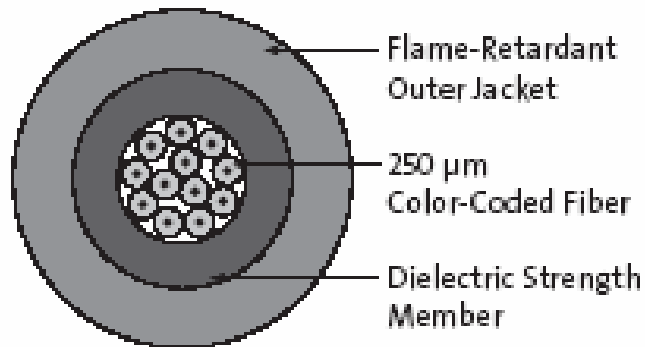
Mechanical: Outer Diameter

- 100 ohm 8 pairs – 16 conductors



- 28 AWG - 5.6 mm-7.2 mm (0.220 in – 0.281 in) – Leoni twinaxial designs

- 250 μm - 12-fibers groups for use with multifiber connectors



- 12-Fiber OFNP Fiber Optic Cable 4.4 mm (0.17 in)
- 24-Fiber OFNP Fiber Optic Cable 8.3 mm (0.33 in)

Conclusions

- **Technical feasibility, economic feasibility, and market potential for a 100 Gb/s copper interconnect will be demonstrated.**
- **Up to 10 (TBD) meter reach consistent with intra/inter rack application and HPC cluster distances.**
- **High speed study group should add high speed copper interconnect objective to address intra/inter rack applications and high performance computing (HPC) interconnects.**