

Cat6 Shielded Channel Performance

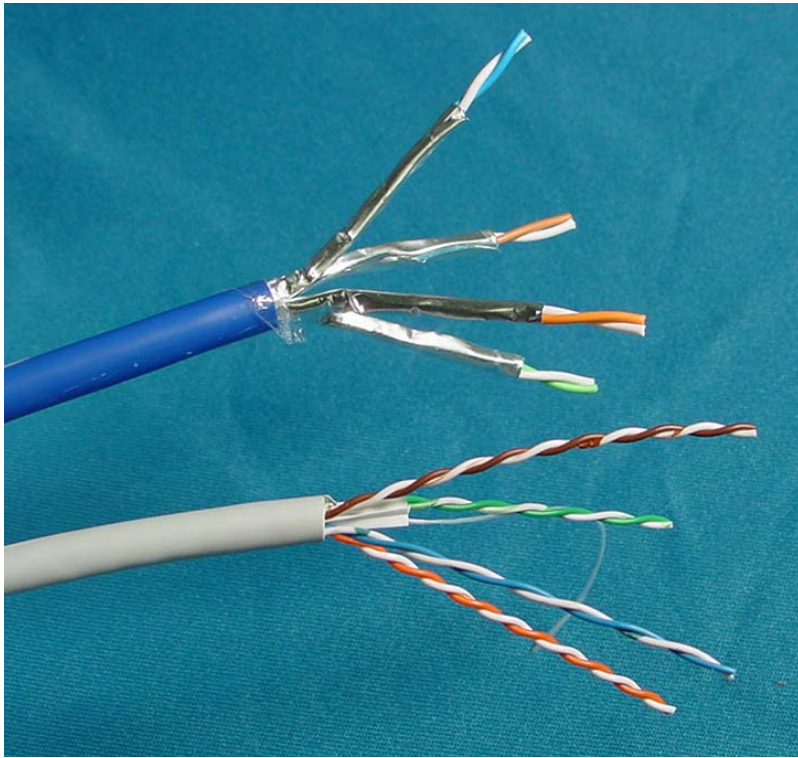
Sterling Vaden

Superior Modular Products

Cat6 Shielded Description

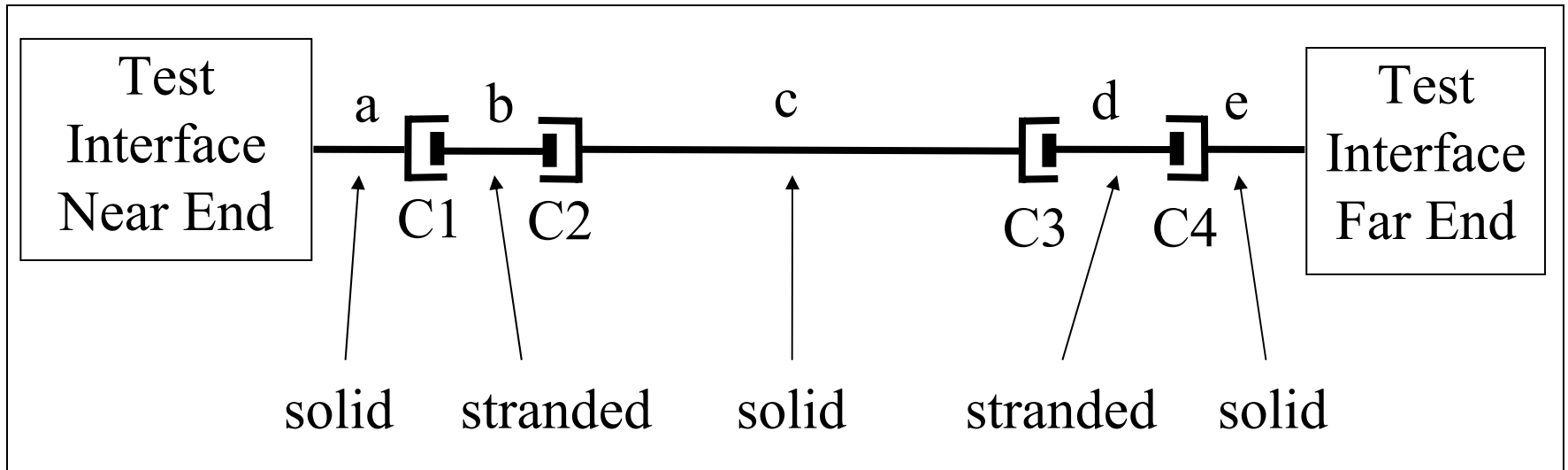
- Four connector, 100 meter channel
- Shielded Cat6 compliant connectors.
- Cat6 rated SSTP horizontal cable
(individually shielded pairs)
- SSTP patch cords

Cat6 SSTP cable



- Foil shield over each pair
- No overall braid
- Similar in size to Cat6 UTP cable

Channel Topology



Length a = 7 m

Length c = 76 m

Length e = 7 m

Length b = 5 m

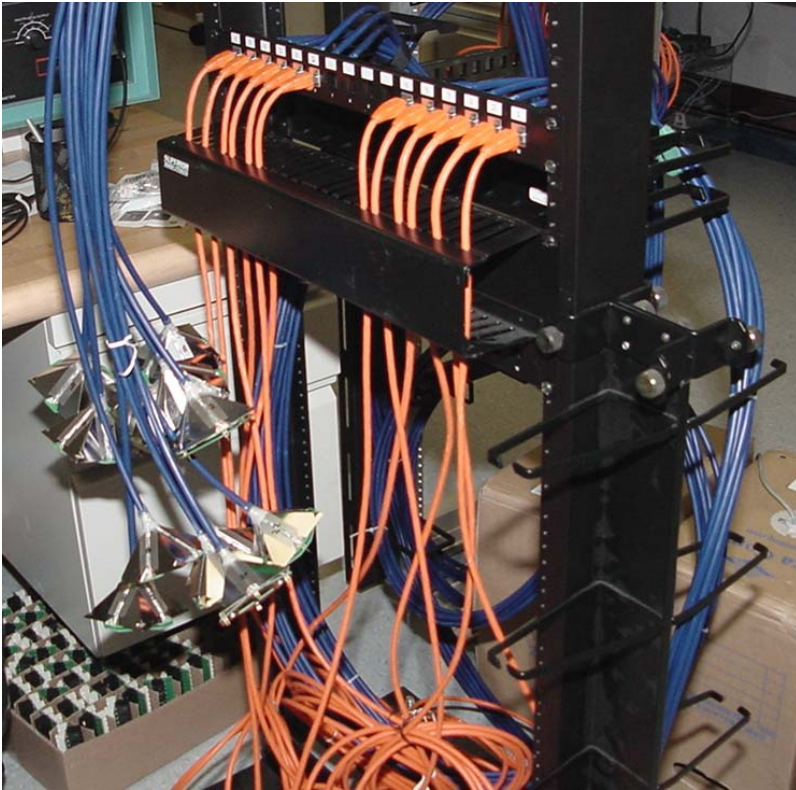
Length d = 5 m

Cable arrangement for testing



- Six cables bundled together using tape every meter
- 90 meters of cable
- No separation between bundles on floor

Cables on rack for test

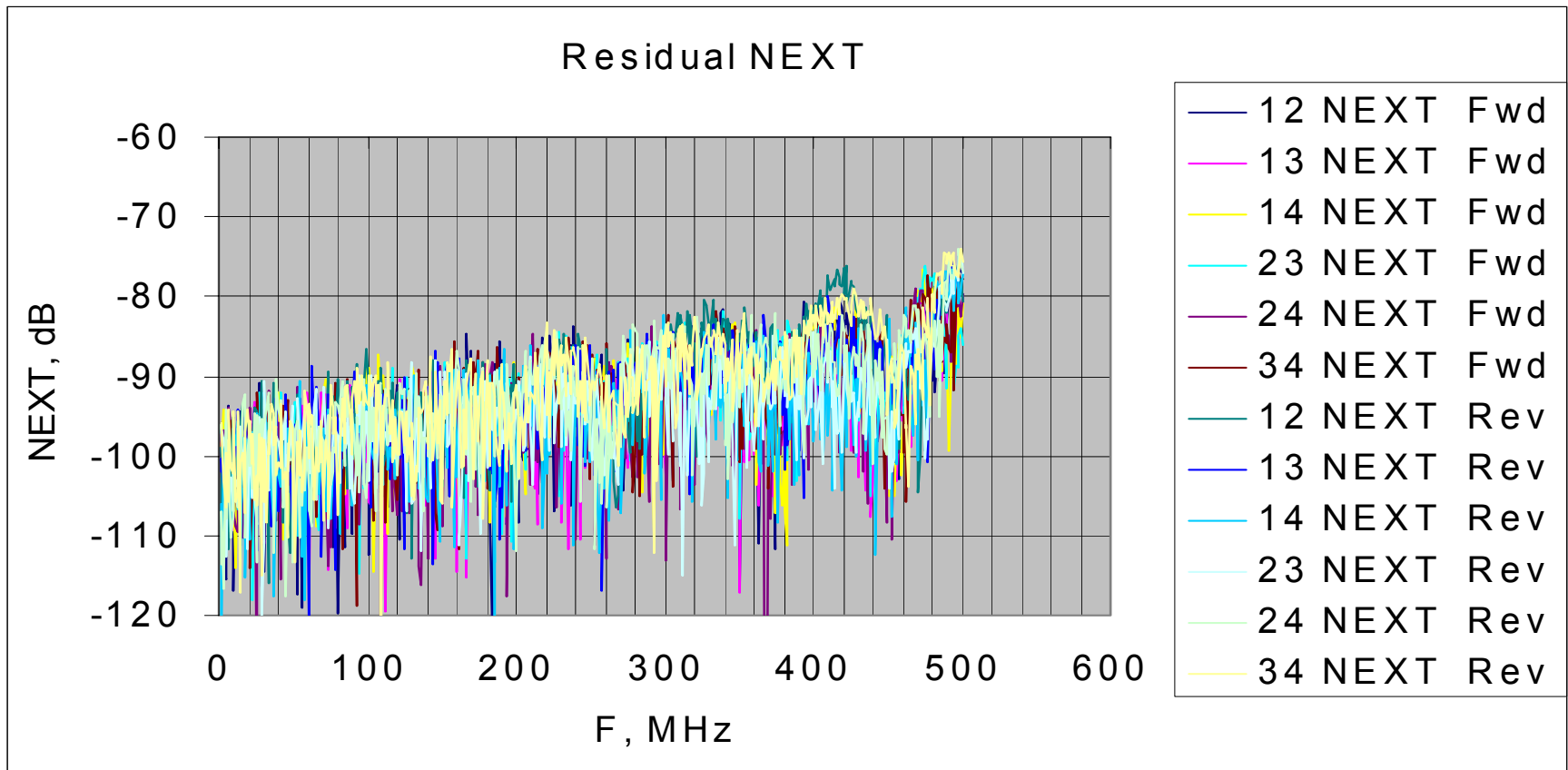


- Two racks like this were used, one at the near end and one at the far end.
- Patch cords left looped
- Pyramid adapters used with Cat6 test fixtures.
- All unused pairs common mode terminated.

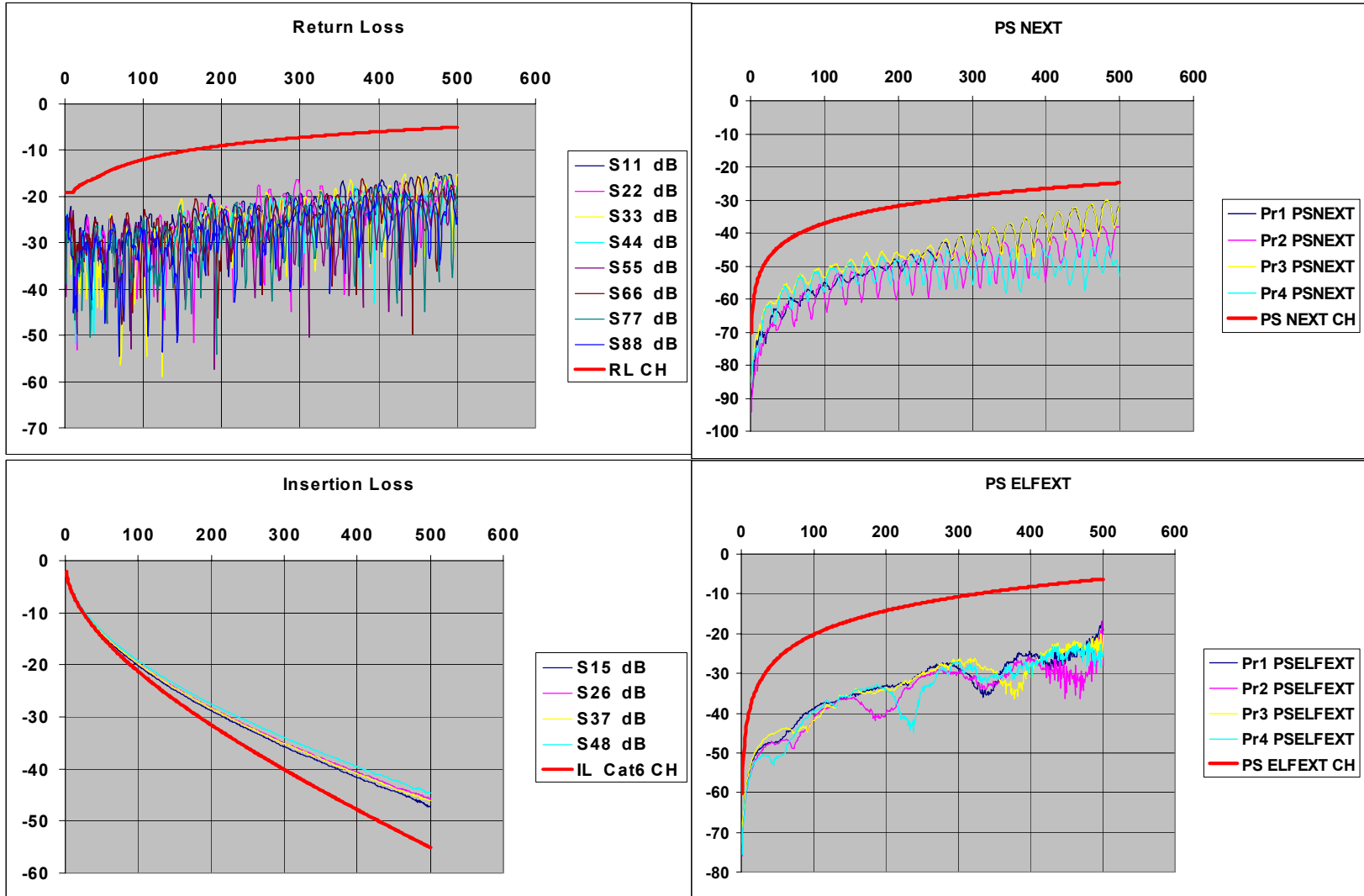
Testing

- All pair combinations were measured for NEXT, FEXT, Insertion Loss, and Return Loss, Including all ANEXT and AFEXT combinations.
- Frequency range from 1 to 500 MHz
- Only a sample of data will be shown
- Full data sets available for analysis on CD.

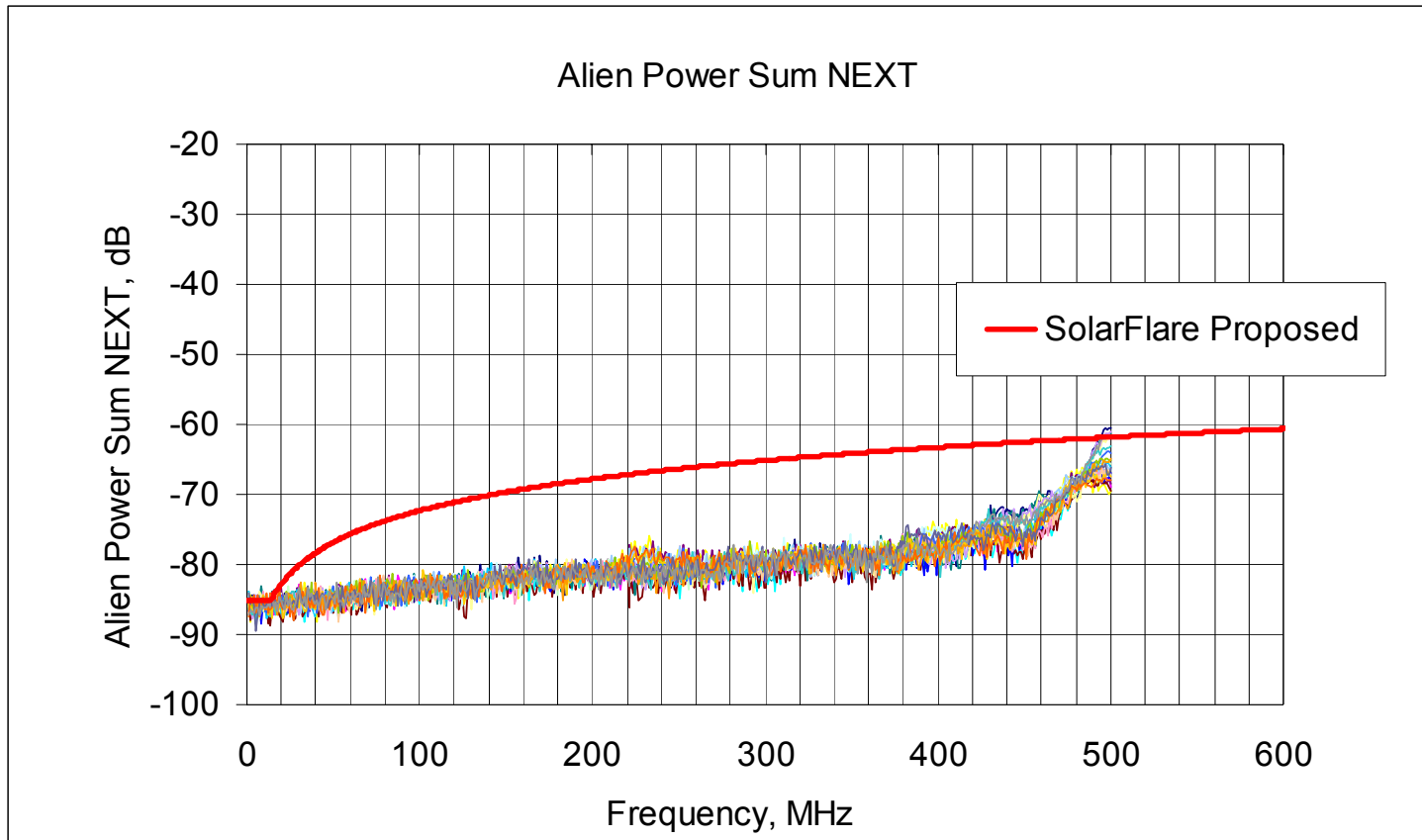
Network analyzer NEXT noise floor



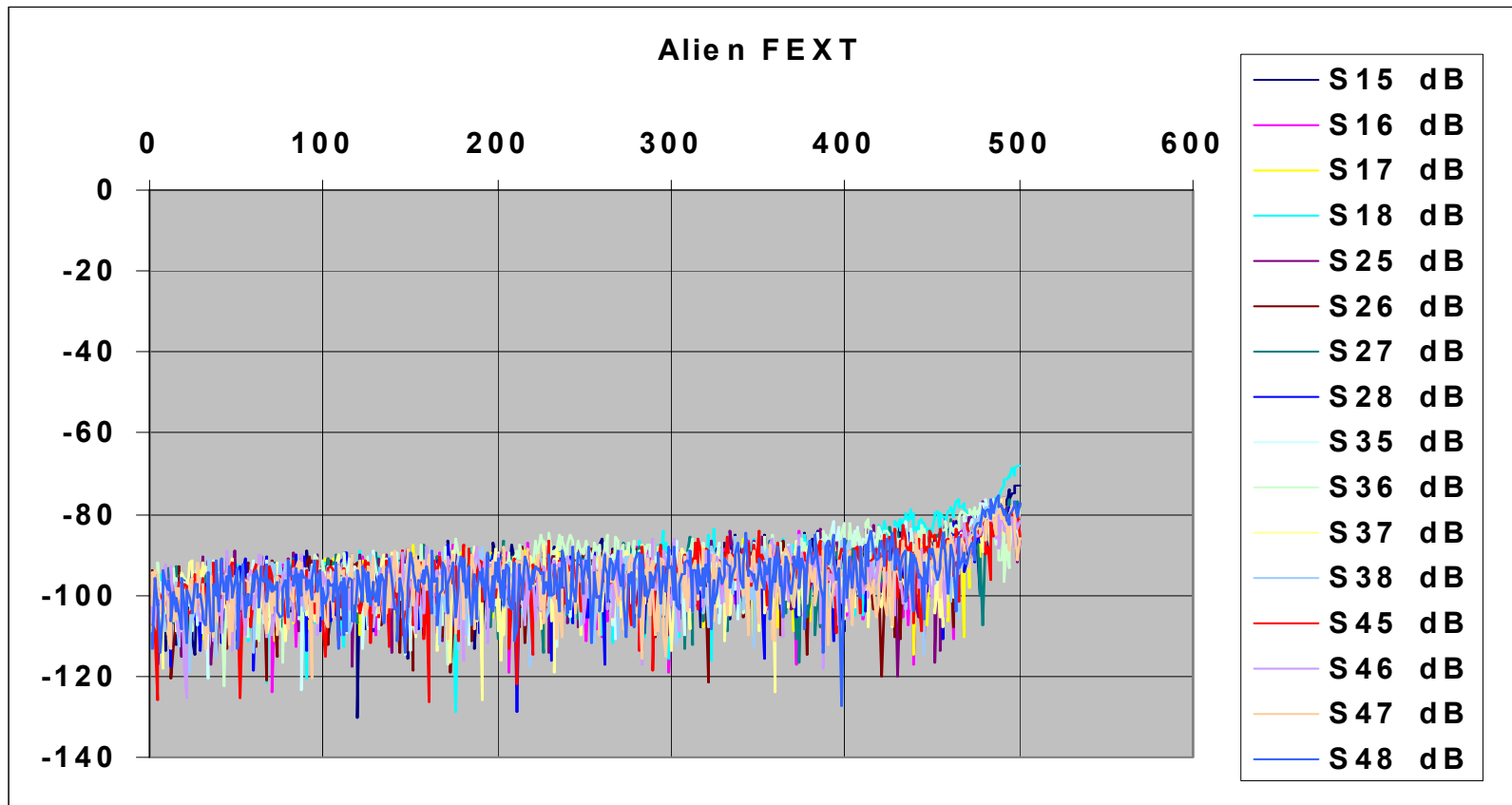
Typical NEXT, IL, RL, ELFEXT



Power Sum ANEXT



Alien FEXT (ELFEXT)



Conclusions

- The Cat6 shielded (SSTP) channel supports 20 Gbit (or better) Shannon capacity over 100 meter channel
- Alien NEXT and Alien FEXT (ELFEXT) are at or below measurable levels for much of the frequency range.
- Port-to-port isolation will be an important design parameter for 10G BASE-T transceivers