Alien Crosstalk Mitigation Technique Update

Ron Nordin
Panduit

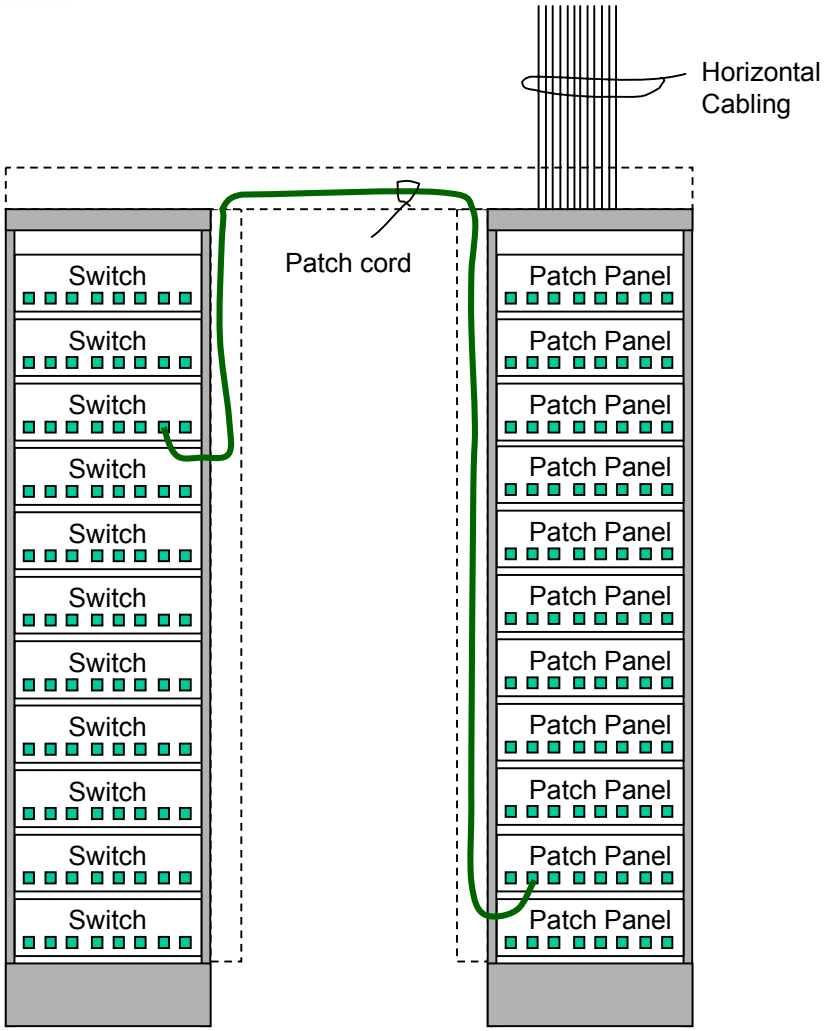
Paul Vanderlaan
Belden

Objective:

To improve the span length of Class E cabling using a simple “mitigation patch cord”

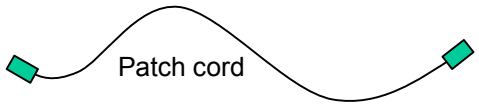
to enhance the viability of the installed Class E base

An Example of a Mitigation Technique
"Enhanced Performance Patch Cords"

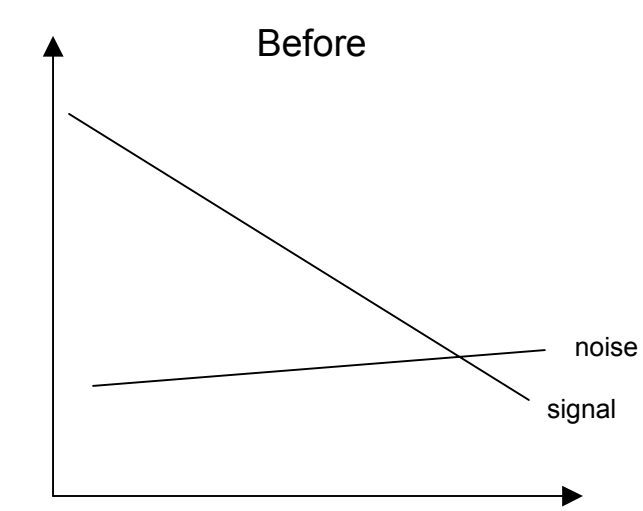


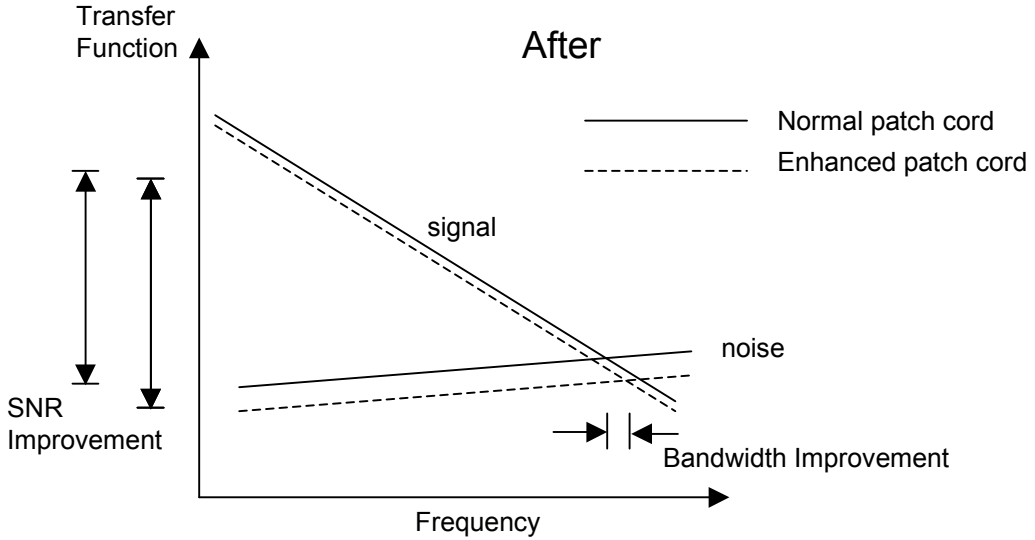
Concepts

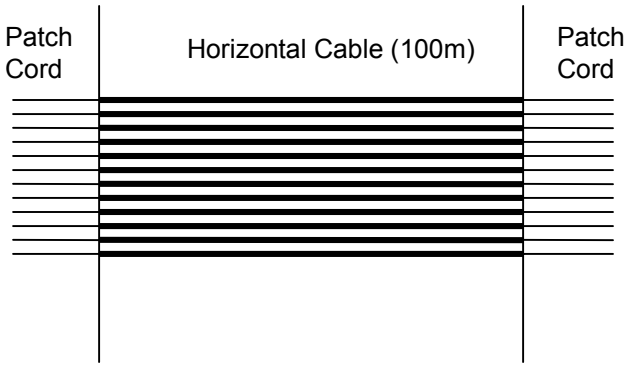
- ANEXT Enhanced Performance Patch Cord
- Could be shielded or non-shielded
- Enhanced Performance arises from
  - Patch Cord Length
  - Patch Cord Separation
  - Patch Cord Loss

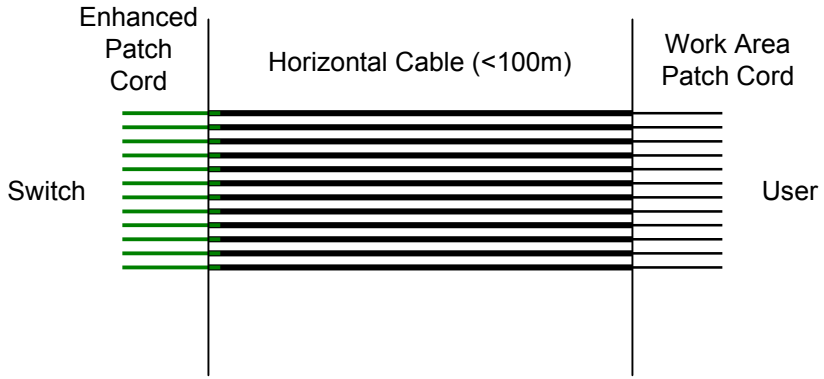


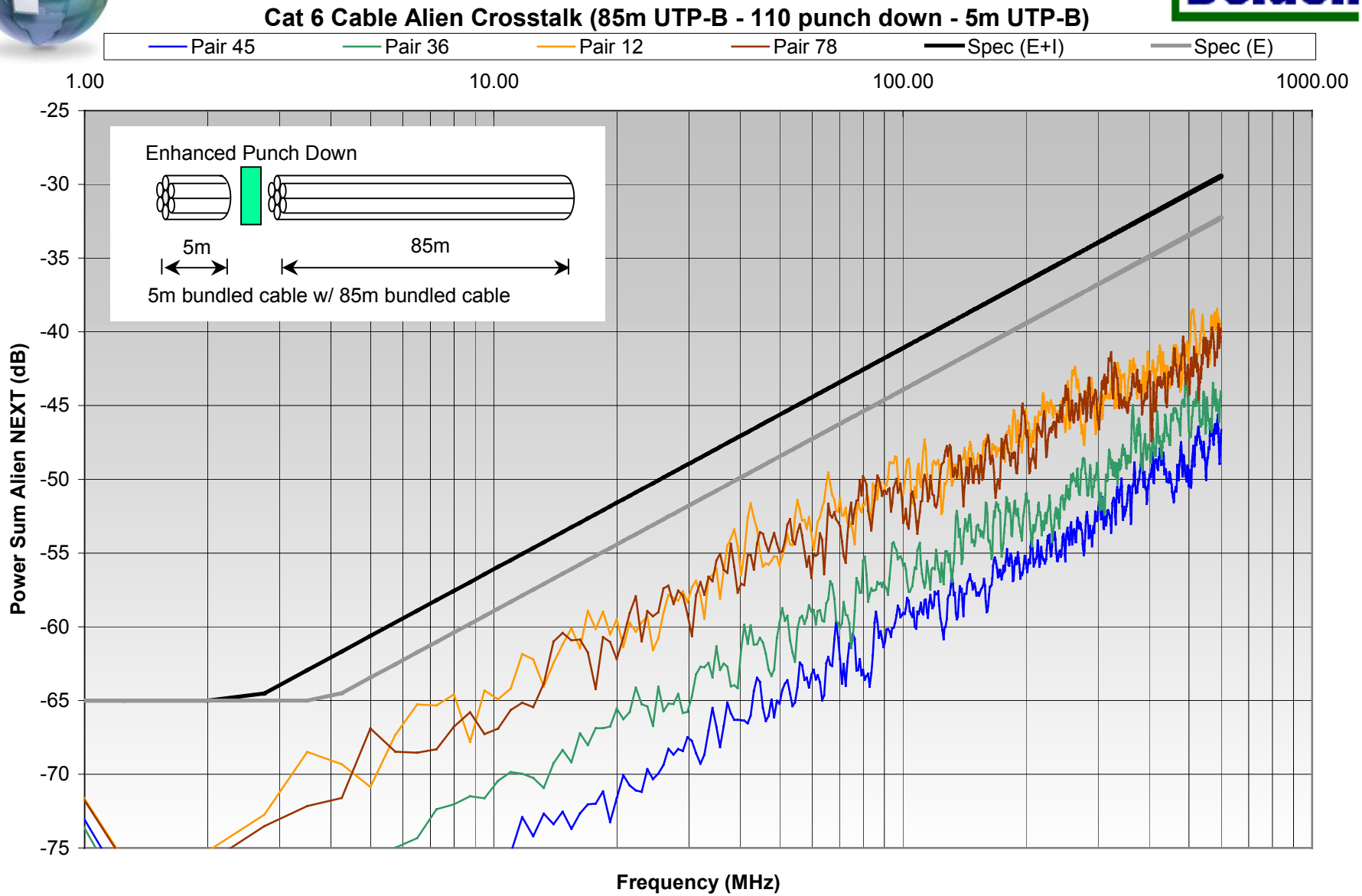
A Mitigation Strategy
("Enhanced Performance Patch Cords")

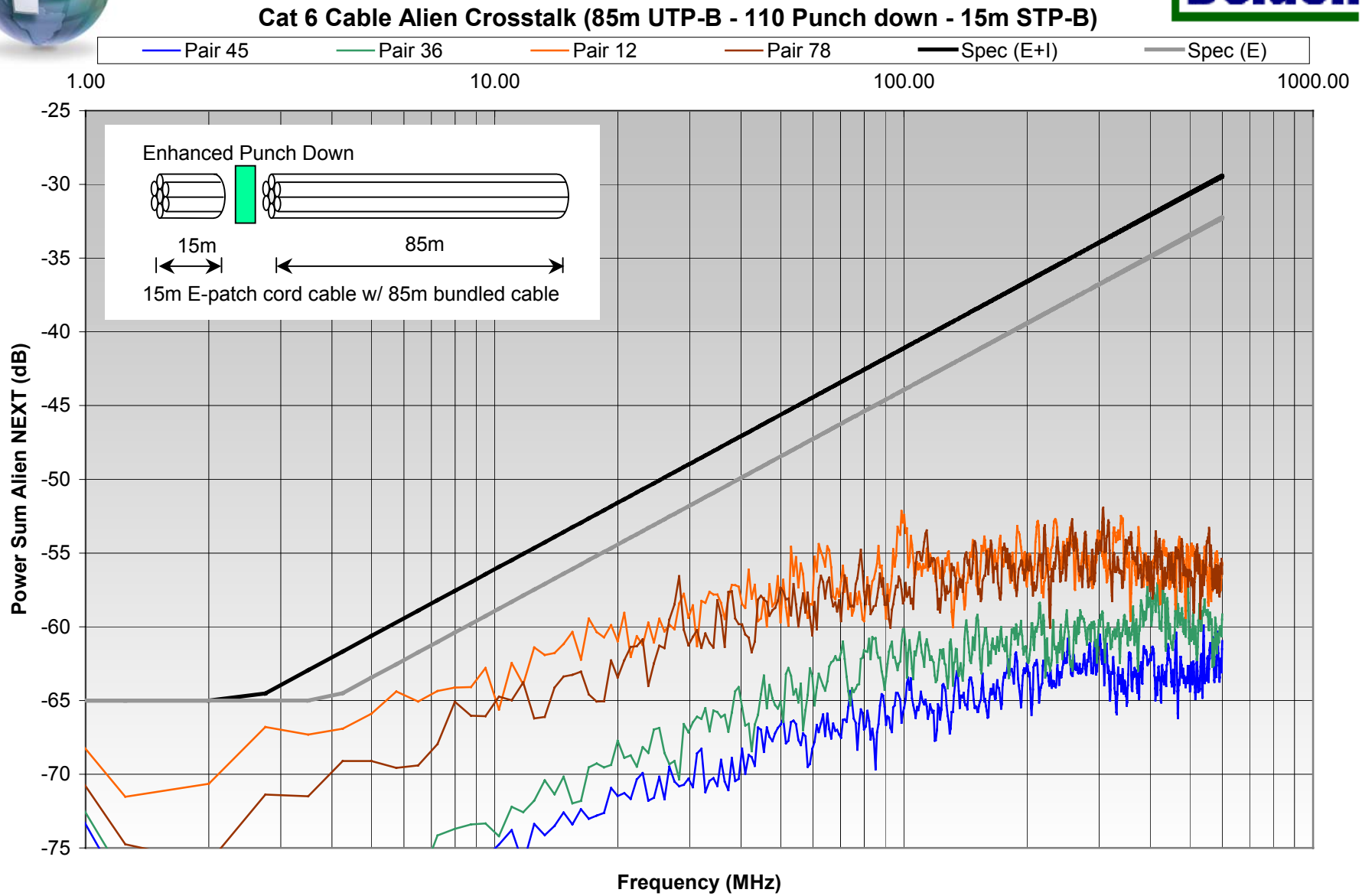




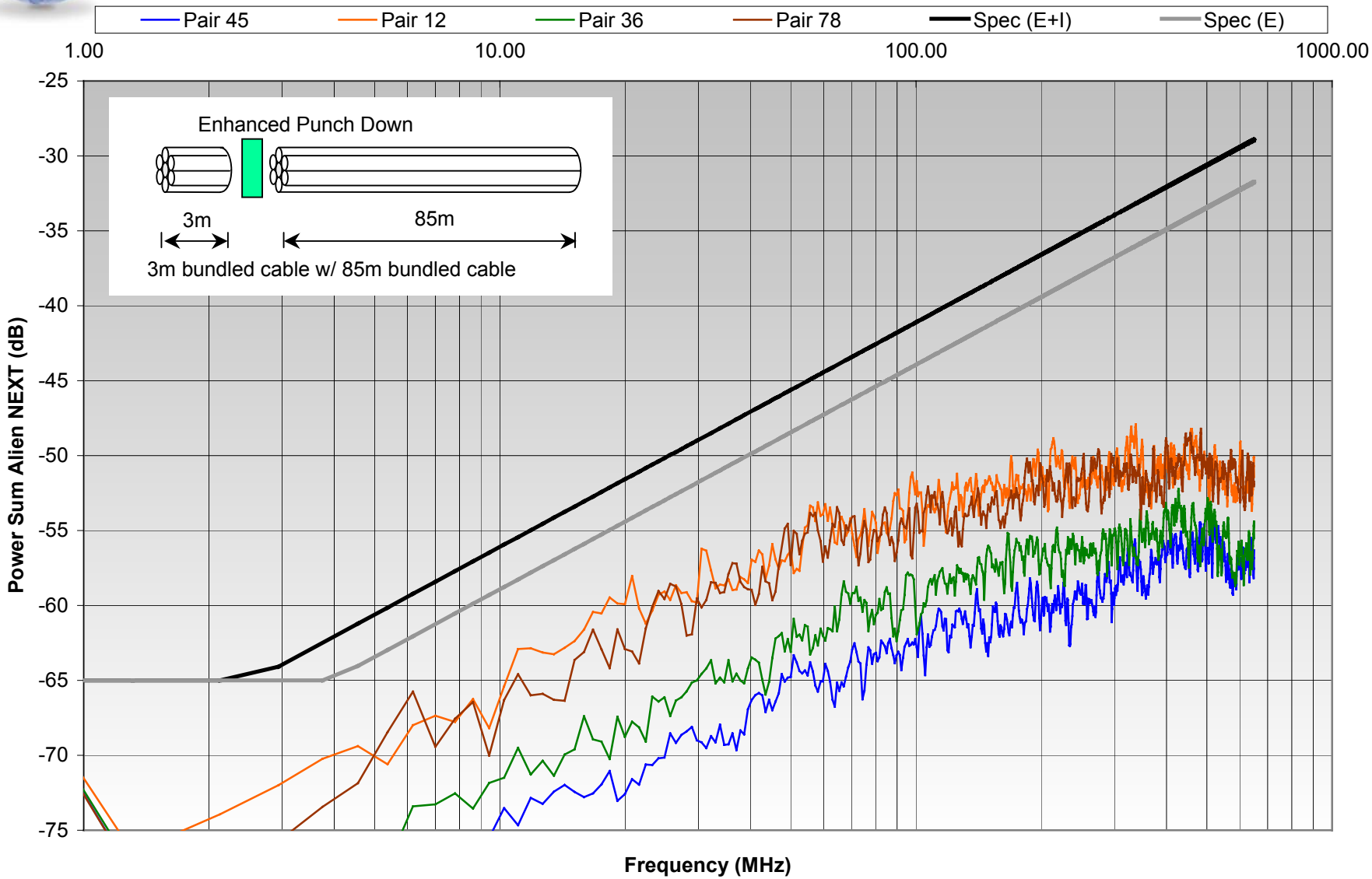





Cat 6 Cable Alien Crosstalk (85m UTP-B - 110 punch down - 5m UTP-B)
Pair 45
Pair 36
Pair 12
Pair 78
Spec (E+I)
Spec (E)
1.00
10.00
100.00
1000.00
-25
-30
-35
-40
-45
-50
-55
-60
-65
-70
-75
Power Sum Alien NEXT (dB)
Frequency (MHz)
Enhanced Punch Down
5m
85m
5m bundled cable w/ 85m bundled cable


Cat 6 Cable Alien Crosstalk (85m UTP-B - 110 Punch down - 15m STP-B)
Pair 45
Pair 36
Pair 12
Pair 78
Spec (E+I)
Spec (E)
1.00
10.00
100.00
1000.00
-25
-30
-35
-40
-45
-50
-55
-60
-65
-70
-75
Power Sum Alien NEXT (dB)
Frequency (MHz)
Enhanced Punch Down
15m
85m
15m E-patch cord cable w/ 85m bundled cable

New 3m Mitigation Cord - cords bundled



Summary:

- A simple patch cord was described to support the installed base that is transparent to the PHY chip

- Rule of thumb “for every pseudo meter of mitigation cord introduced, lengthens the 10GbE cabling span”

- ANEXT can be reduced by:
  - cable separation of length “l”
  - Mitigation patch cable of length “l”
  - or
  - Lossy mitigation patch cable

- With this ANEXT reduction, the span length can be increased

Next Step …

agreement with PHY group that these techniques are valid and useful
then discuss with TIA/ISO