
10GBASE-CX4

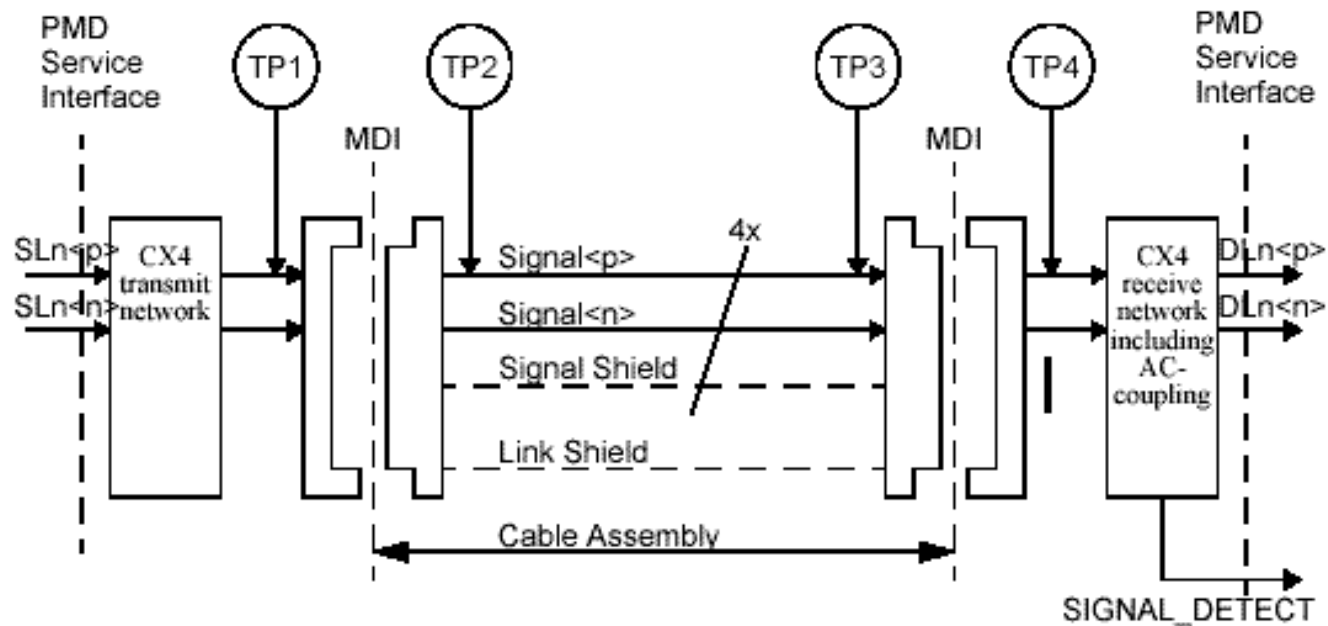
Draft 4.2+ Physical Layer Specifications

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Cable assembly characteristics



All cable assembly measurements are to be made between TP1 and TP4 as shown in the Figure illustrated above.

Summary 4.1 <-----> 4.2

- Insertion loss .5 dB better
- MDNEXT 1 dB better
- ELFEXT 1 dB better
- MDELNEXT 1 dB better

- 2.5 dB margin

10GBASE-CX4 Compliance Channel - 4.2+

Component	Insertion Loss (dB)
Cable	15 dB @ 1.56 GHz
(2) Connectors	$2 \cdot (.012659 \cdot \sqrt{f})$ @ 1.56 GHz = 1.0

10GBASE-CX4- Compliance Channel Insertion loss:

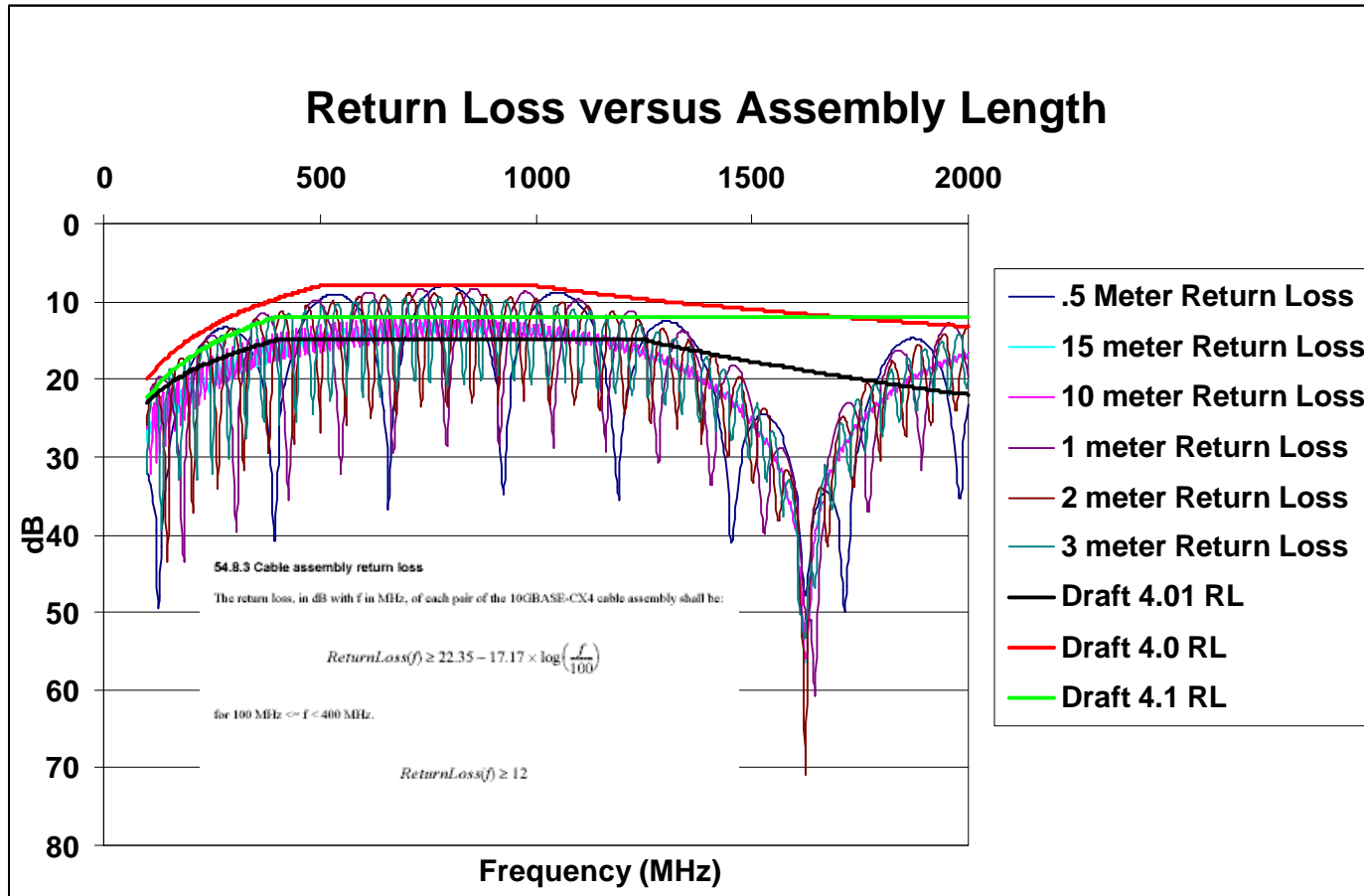
The insertion loss of each pair of the CX4 cable assembly shall be:

$$\text{Insertion loss} \leq \left(.2629 \cdot \sqrt{f_k} + .0034 \cdot f_k + \frac{12.7632}{\sqrt{f_k}} \right) \text{ Frequency (MHz)}$$

~16 @ 1.56 GHz

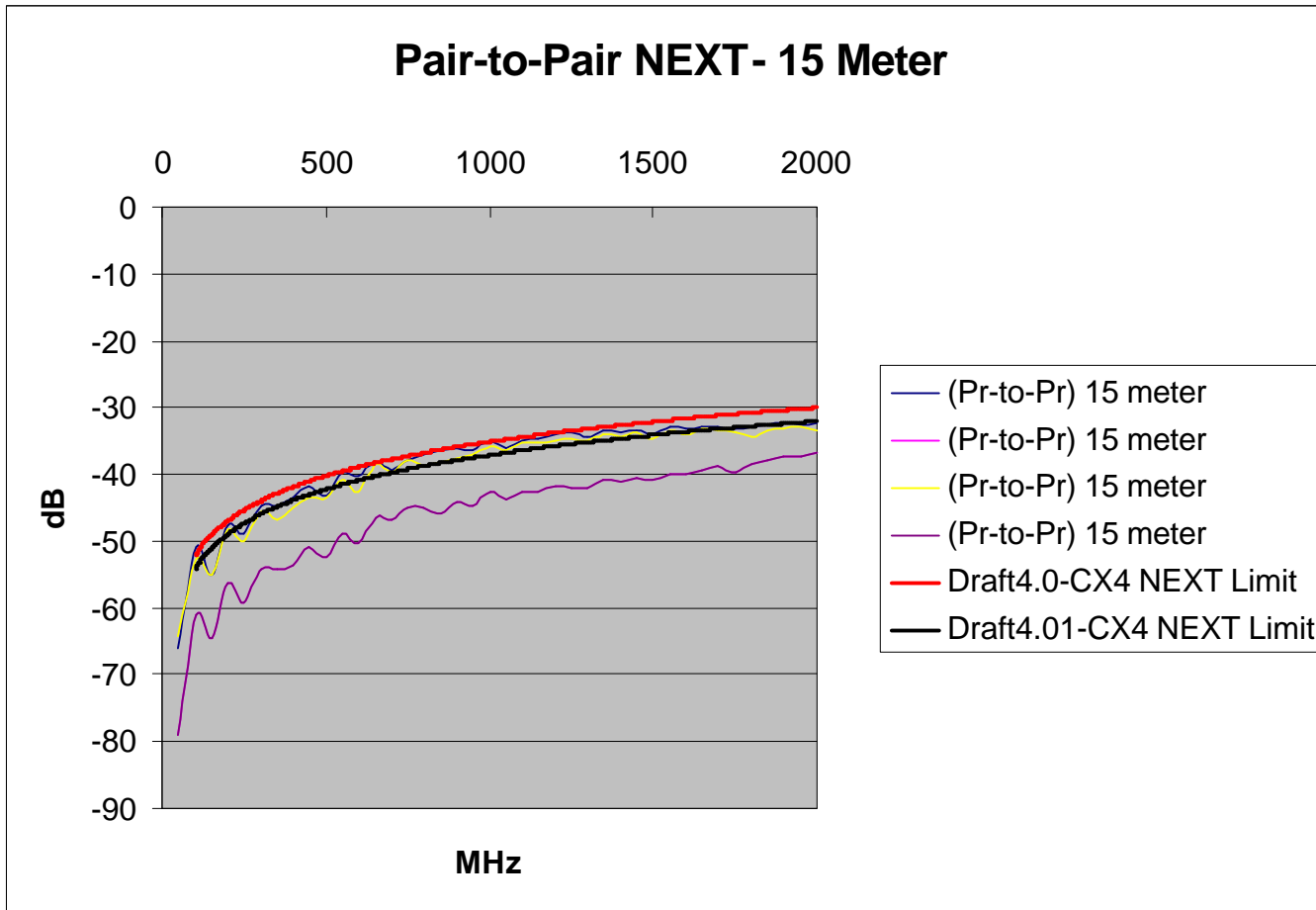
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CX4 Assembly Return Loss Limit (Draft 4.1)



Frequency (MHz)	Minimum Return Loss (dB)
$100 \leq f < 400$	$22.35 - 17.7 * \log(f/100)$
$400 \leq f < 2000$	12

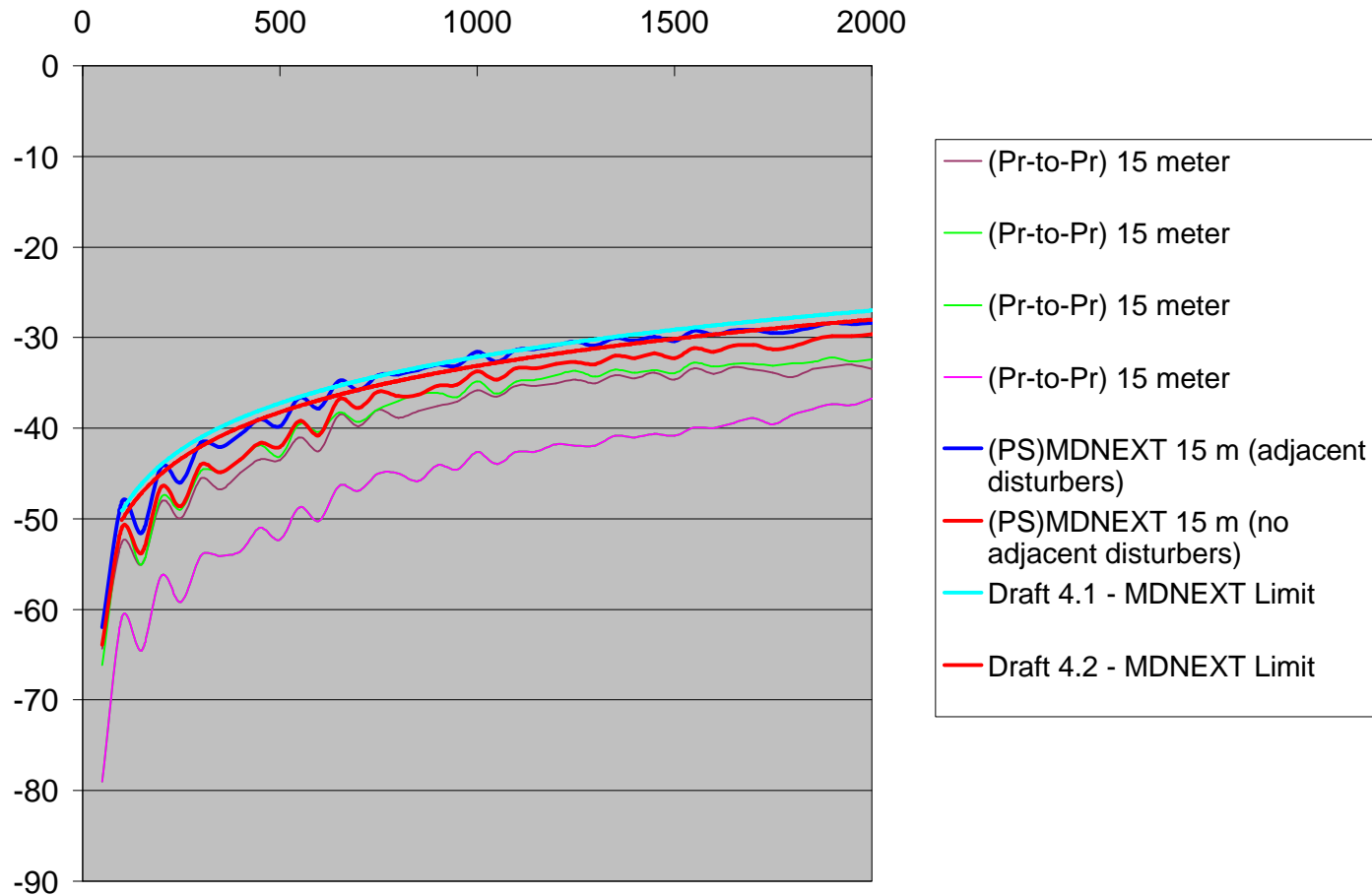
CX4 Assembly NEXT Limit (Draft 4.0 = Draft 4.1= Draft 4.2)



The NEXT loss between any two channels of a CX4 link segment shall be at least: $30 - 17 * \log_{10}(f/2000)$

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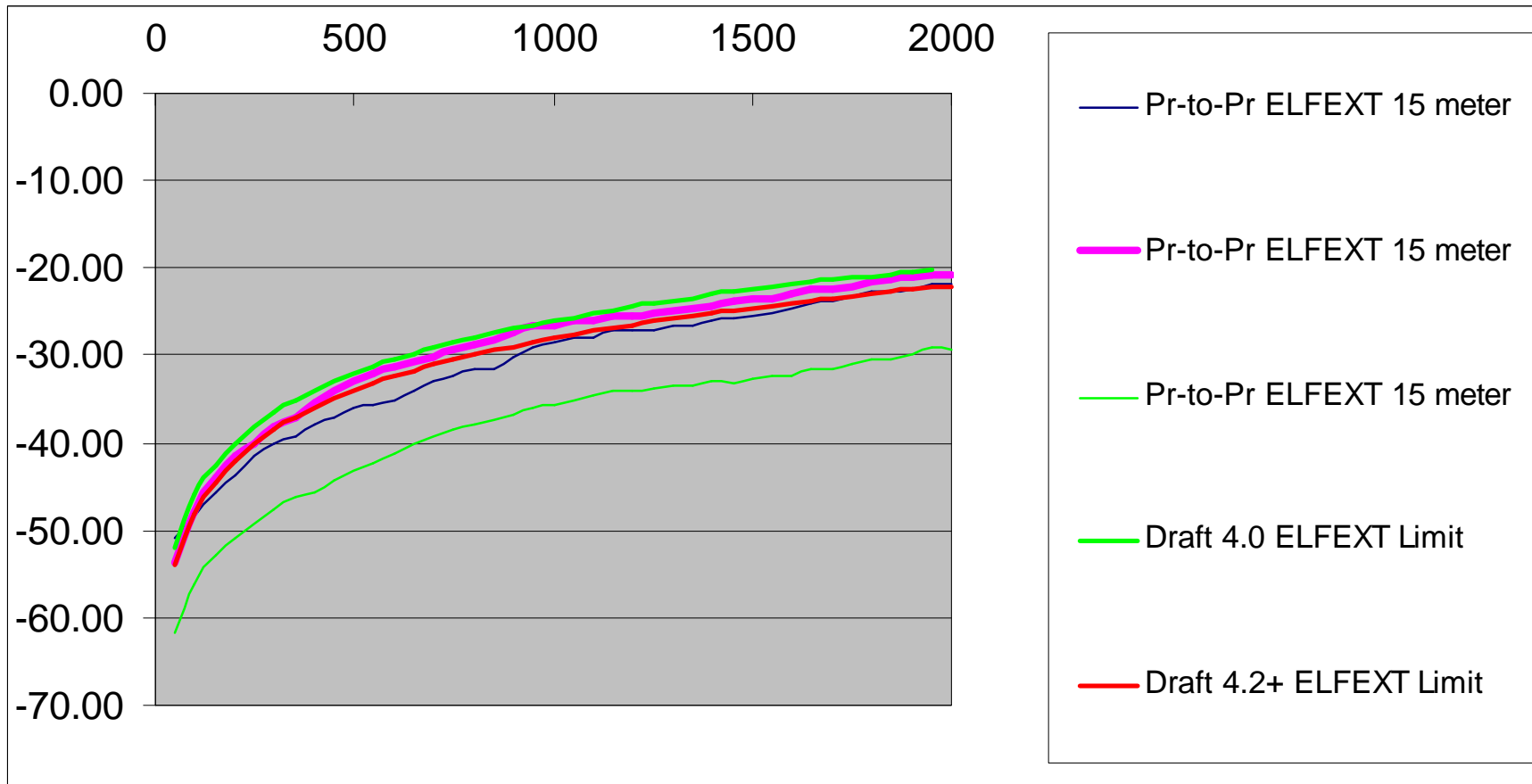
CX4 Assembly MDNEXT Limit (Draft 4.1 <----> 4.2)



The MDNEXT loss between any two channels of a CX4 link segment shall be at least: $27 - 17 \cdot \log_{10}(f/2000)$ <-----> $28 - 17 \cdot \log_{10}(f/2000)$

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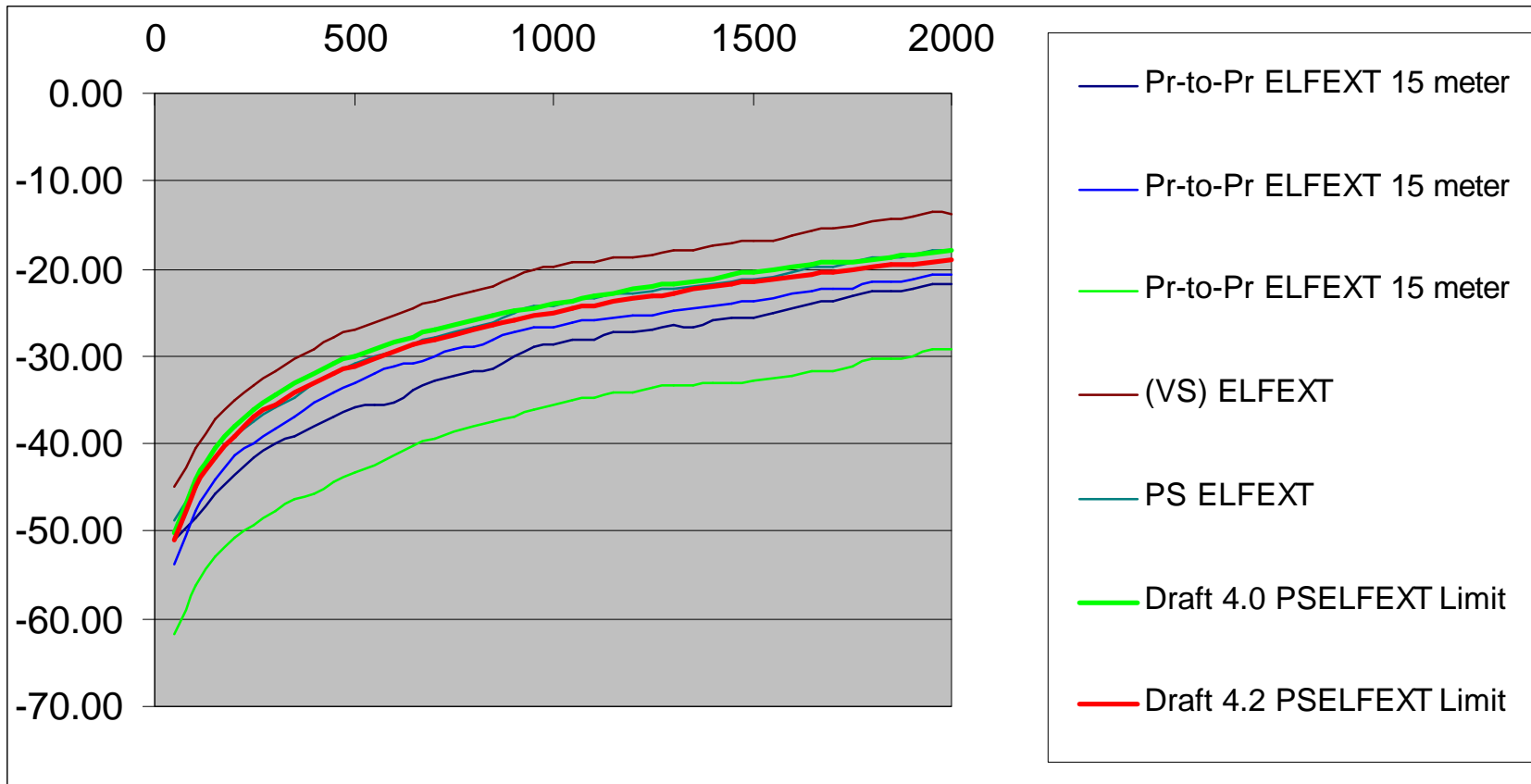
CX4 Assembly ELFEXT Limit (Draft 4.1 <---> Draft 4.2)



The worst pair ELFEXT loss between any two channels of a CX4 link segment shall be at least: $20 - 20 \cdot \log_{10}(f/2000)$ <-----> $21 - 20 \cdot \log_{10}(f/2000)$

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CX4 Assembly MDELXFEXT Limit (Draft 4.1<----> Draft 4.2)



The PSELFEXT loss between any two channels of a CX4 link segment shall be at least: $18-20 \cdot \log_{10}(f/2000)$ <----> $19-20 \cdot \log_{10}(f/2000)$