IL Model for RTPGE

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Motivation and Direction

- Based on information presented thus far and a starting point based on Cat6A and EA standards

- Submitted from prior presentations and discussed in the Channel Ad Hoc with the area term placed at 0.23mm^2 with consideration for the full 15m channel and 4 connectors.

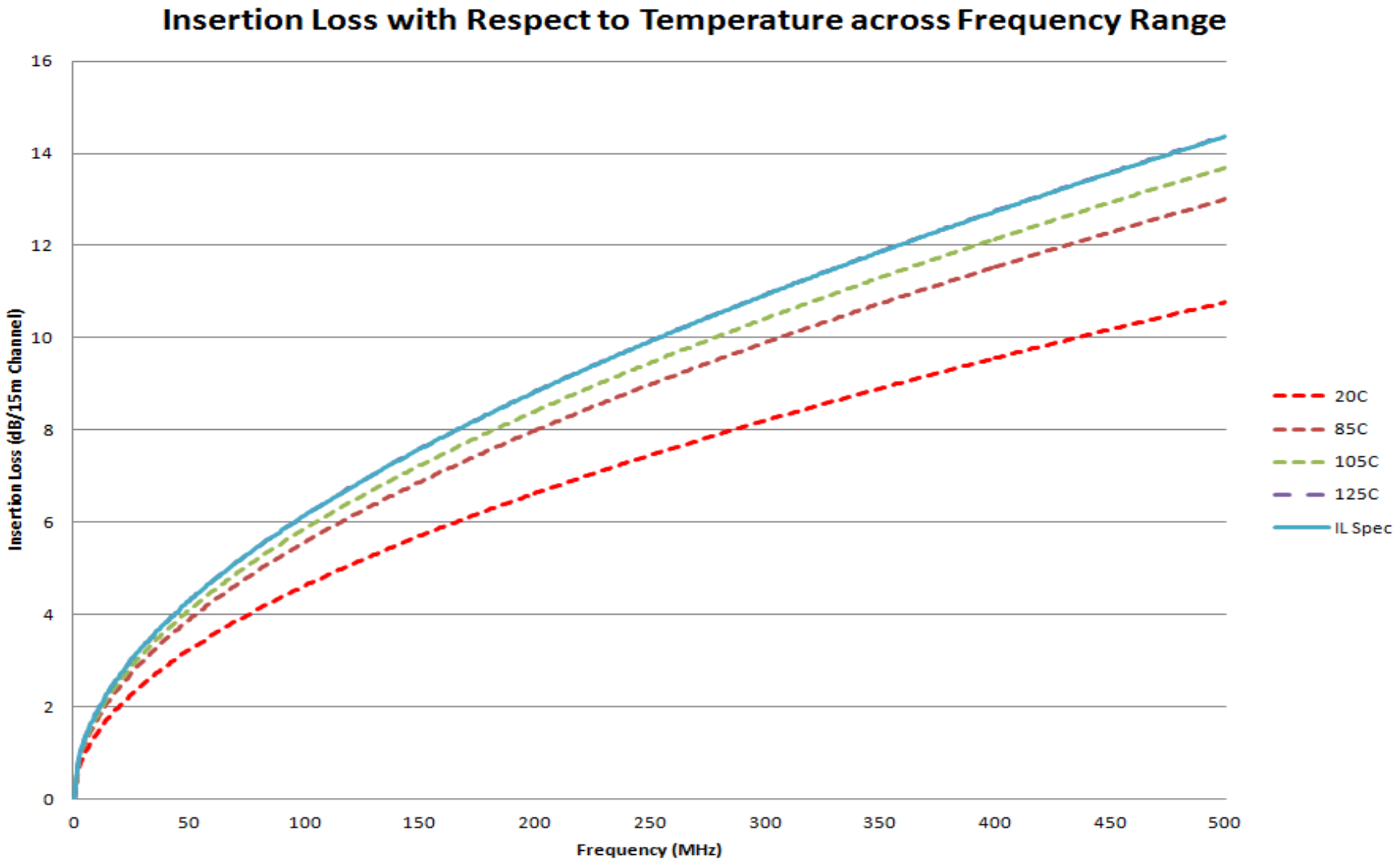
$$IL := [1 + .004\cdot(T - 20)]\cdot\left(1.2\cdot\frac{15}{100}\right)\cdot\left[1.82\cdot\left(\frac{.508}{\sqrt{A}}\right)\cdot\sqrt{f} + .0091\cdot f + \frac{.25}{\sqrt{f}}\right] + 4\cdot.02\cdot\sqrt{f} + .018\cdot\sqrt{f}$$

- Additionally, to reach a single specification for Insertion Loss, Temperature is being proposed to be set the maximum of 125˚C. This reduce the specification to only a function of Frequency.

- Creates the initial specification for PHY development.

- Multiple Vendors have produced products that comply with these performance levels.

Example Temperature Based Plots



Equation Simplification

$$IL := [1 + .004\cdot(T - 20)]\cdot\left(1.2\cdot\frac{15}{100}\right)\cdot\left[1.82\cdot\left(\frac{.508}{\sqrt{A}}\right)\cdot\sqrt{f} + .0091\cdot f + \frac{.25}{\sqrt{f}}\right] + 4\cdot.02\cdot\sqrt{f} + .018\cdot\sqrt{f}$$

$$IL = \{[1+0.004(125-20)]\cdot 0.18\}\cdot[(1.82\cdot(.508/\sqrt{.23})\cdot\sqrt{f}+0.0091f+(0.25/\sqrt{f})]+4(0.02\sqrt{f})+0.018\sqrt{f}$$

$$IL = \{[1+0.004(105)]\cdot 0.18\}\cdot[(1.9278\sqrt{f}+0.0091f+(0.25/\sqrt{f})]+(0.08\sqrt{f})+0.018\sqrt{f}$$

$$IL = (0.18+0.0756)\cdot[(1.9278\sqrt{f}+0.0091f+(0.25/\sqrt{f})]+0.08\sqrt{f}+0.018\sqrt{f}$$

$$IL = (0.2556)\cdot[1.9278\sqrt{f}+0.0091f+(0.25/\sqrt{f})]+0.08\sqrt{f}+0.018\sqrt{f}$$

$$IL = .4927\sqrt{f}+0.0023f+(0.0639/\sqrt{f})+0.08\sqrt{f}+0.018\sqrt{f}$$

Motion

Move that:

The IEEE P802.3bp Task Force affirms the proposed Baseline IL Channel Performance for link segment insertion to establish the absolute value across the frequency range through 500MHz.

$$IL = .4927\sqrt{f} + 0.0023f + (0.0639 / \sqrt{f}) + 0.08\sqrt{f} + 0.018\sqrt{f}$$

- M:
- *S:*

- Y: N: A: