Rough channel targets for 4 x 25 Gb/s operation on existing backplanes

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Outline

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- ICR target
- Measure ICR vs target
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Problem statement

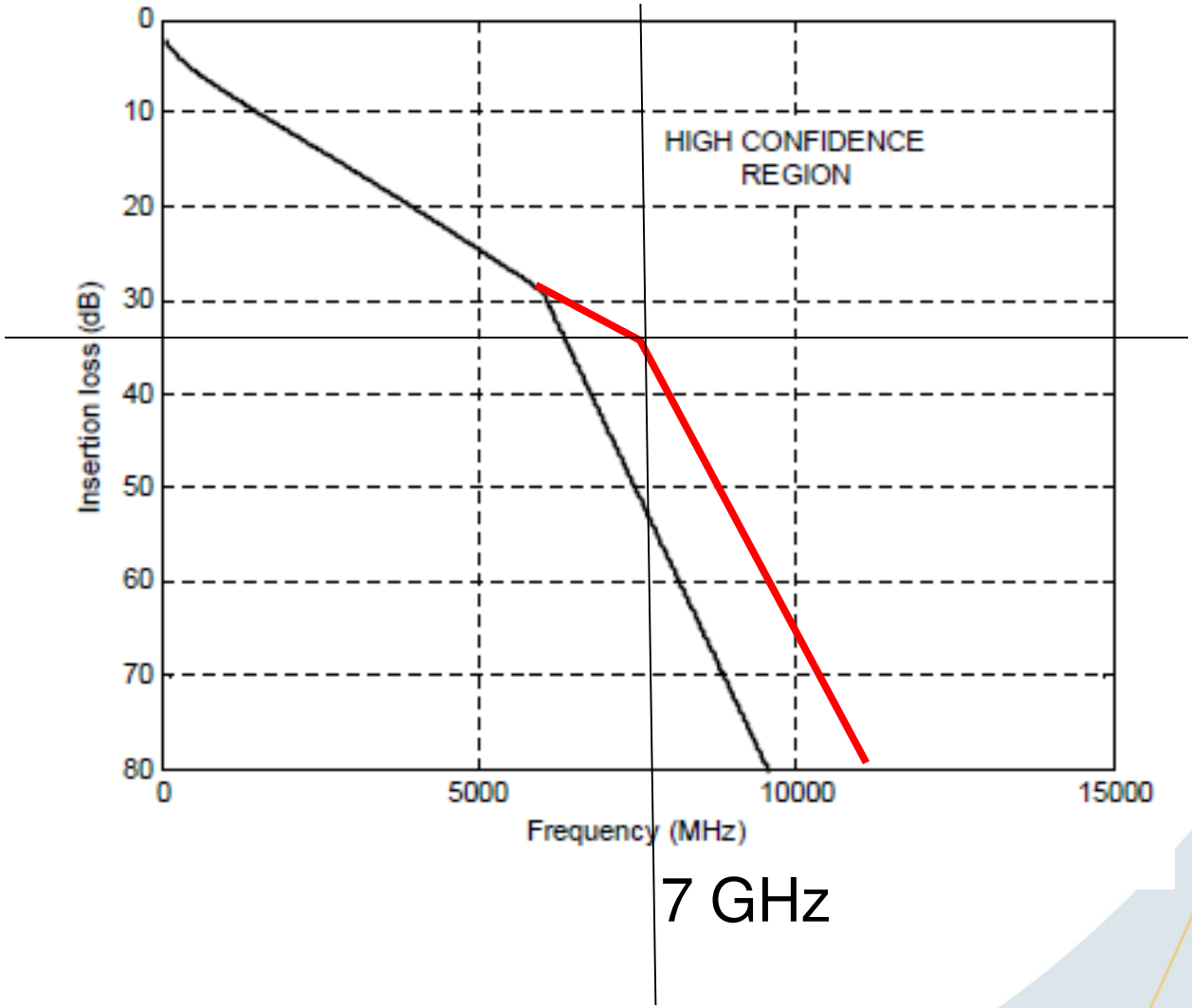
- Previous presentations have shown insertion loss characteristics of 10GBASE-KR & 40GBASE-KR4 channels at frequencies above 5.15 GHz[1,2]
- A previous presentation made a case for maintaining the 40GBASE-KR4 channel characteristics in order to achieve broad market potential[3]
- Can the 10GBASE-KR/40GBASE-KR4 channel characteristic limit lines be extended to a higher Nyquist frequency, and
- Will the installed base of channels meet these extended limits?

1. H. Frazier and V. Parthasarathy, Study of 100 Gb/s on 40GBASE-KR4 Channels, IEEE, Ft. Lauderdale, FL, Jan 2011
2. H. Frazier and V. Parthasarathy, Comparing newer versus older backplances, IEEE, Singapore, Mar 2011
3. D. Chalupsky, Broad Market Potential and Economic Feasibility of the 100Gb Backplane and Cu Cable Solutions for the Volume Blade & Rack Server Markets, IEEE Singapore, Mar 2011

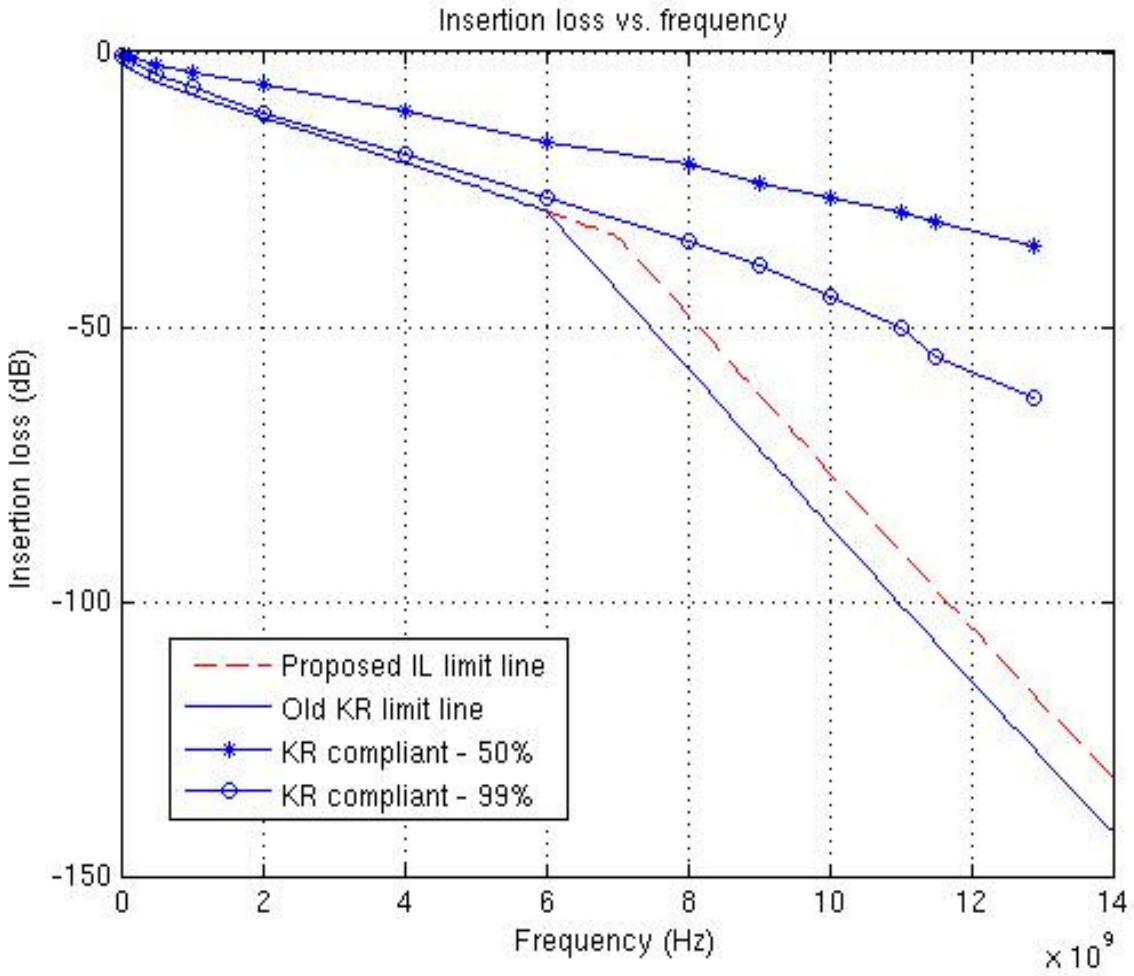
Methodology

- Extend Annex 69-B IL and ICR limit lines to 7 GHz
  - Supports multi-level modulation (e.g. PAM4) with room for FEC overhead
- Compare the IL and ICR characteristics from a database of KR compliant backplanes to these new limits

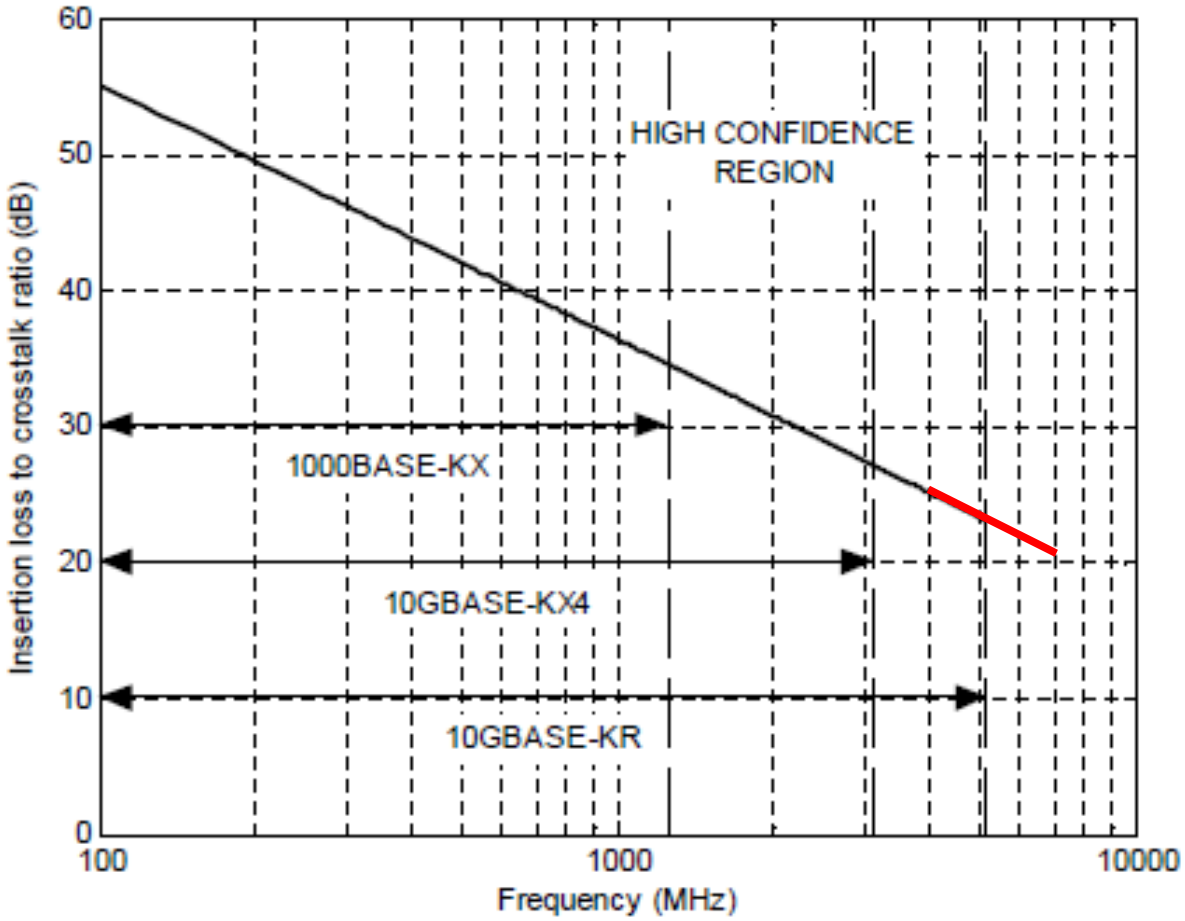
Proposed IL target



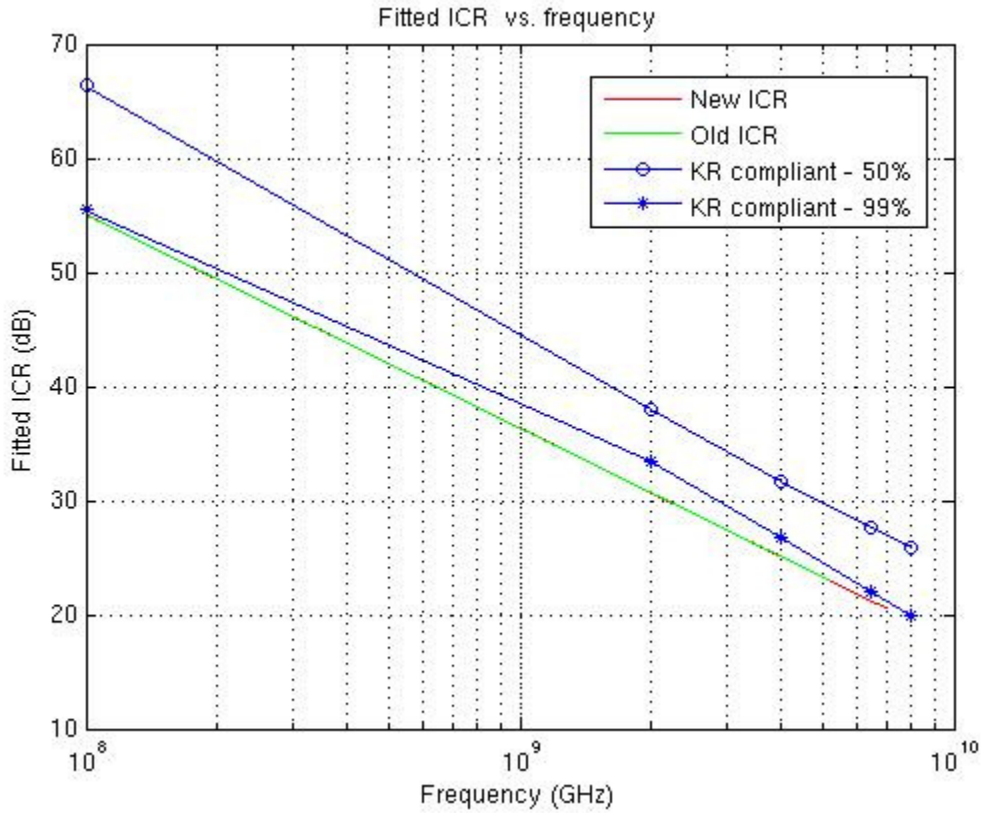
Measured IL vs target



Proposed ICR target



Measured ICR vs target



Conclusions

- 99% of channels that meet the IL limit in Annex 69-B also meet a “straight line” extension of the IL limit to 7 GHz
- 99% of channels that meet the ICR limit in Annex 69-B also meet a “straight line” extension of the ICR limit to 7GHz