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# 40GBASE-CR4 and 100GBASE-CR10 cable assembly measurement models

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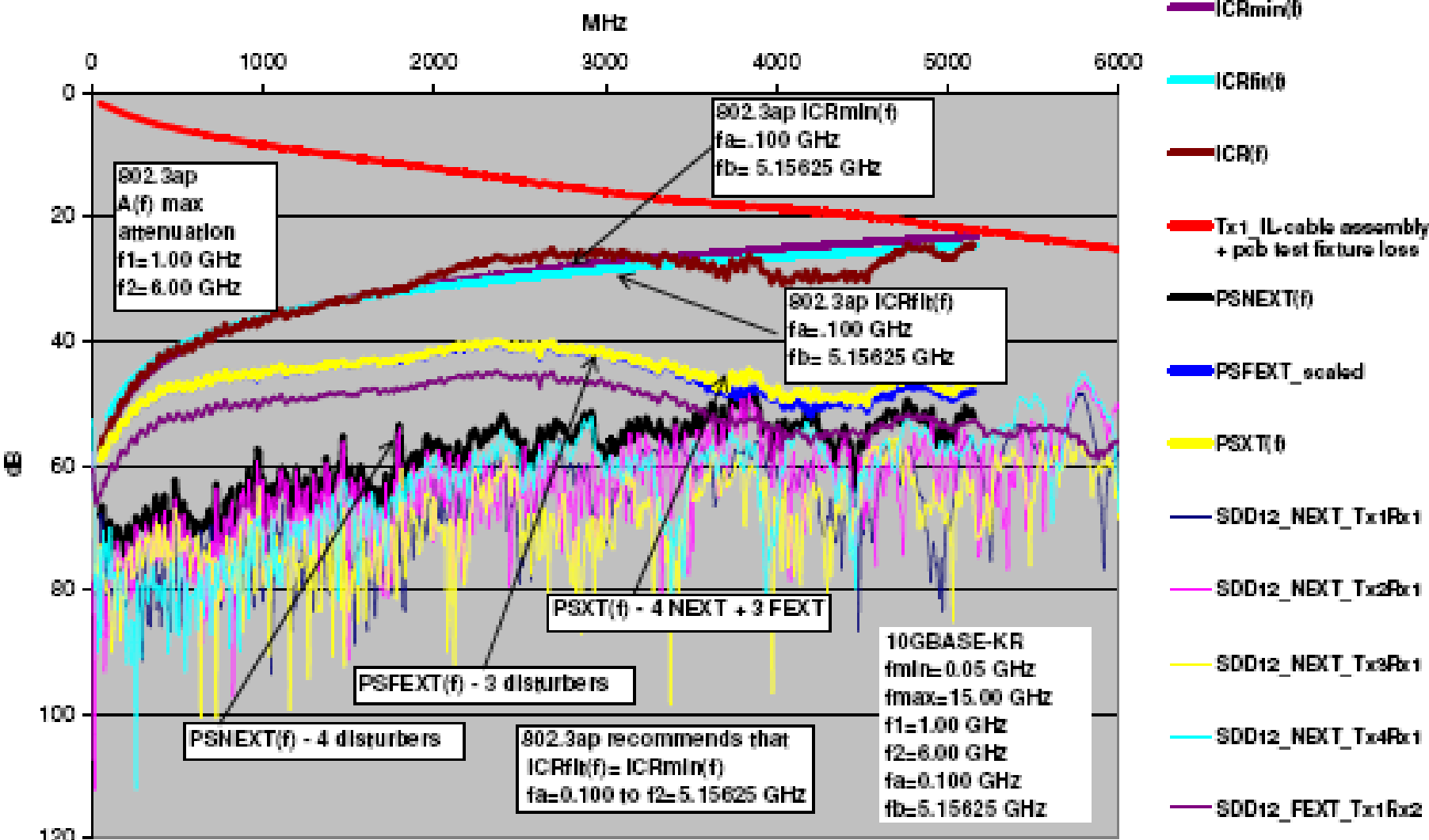
# Objective

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- **Respond to questions regarding measurement models in `diminico_02_0708.pdf`.**

# Measurement models - 10m - 24 AWG – 8 pairs

802.3ap ICR limits vs 10 m QSFP cable assembly 24 AWG including test fixture

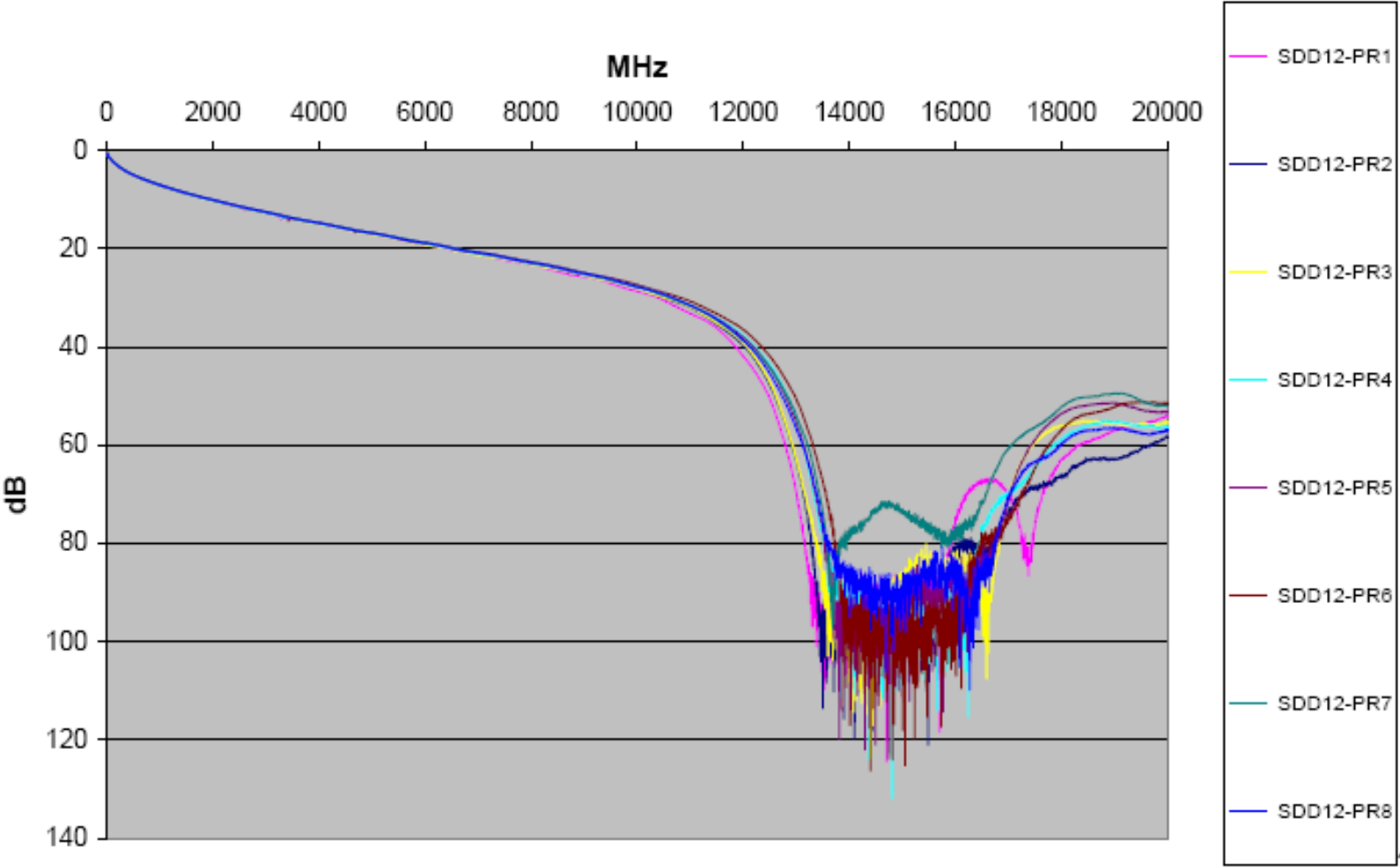


Source: Chris DiMinico , MC Communication  
 Reference document: diminico\_02\_0708.pdf "802.3ba Cu specifications "

# Insertion loss - 10m - 24 AWG – 8 pairs

## Cable – 24 AWG twinaxial

Insertion Loss-10 m-24 AWG

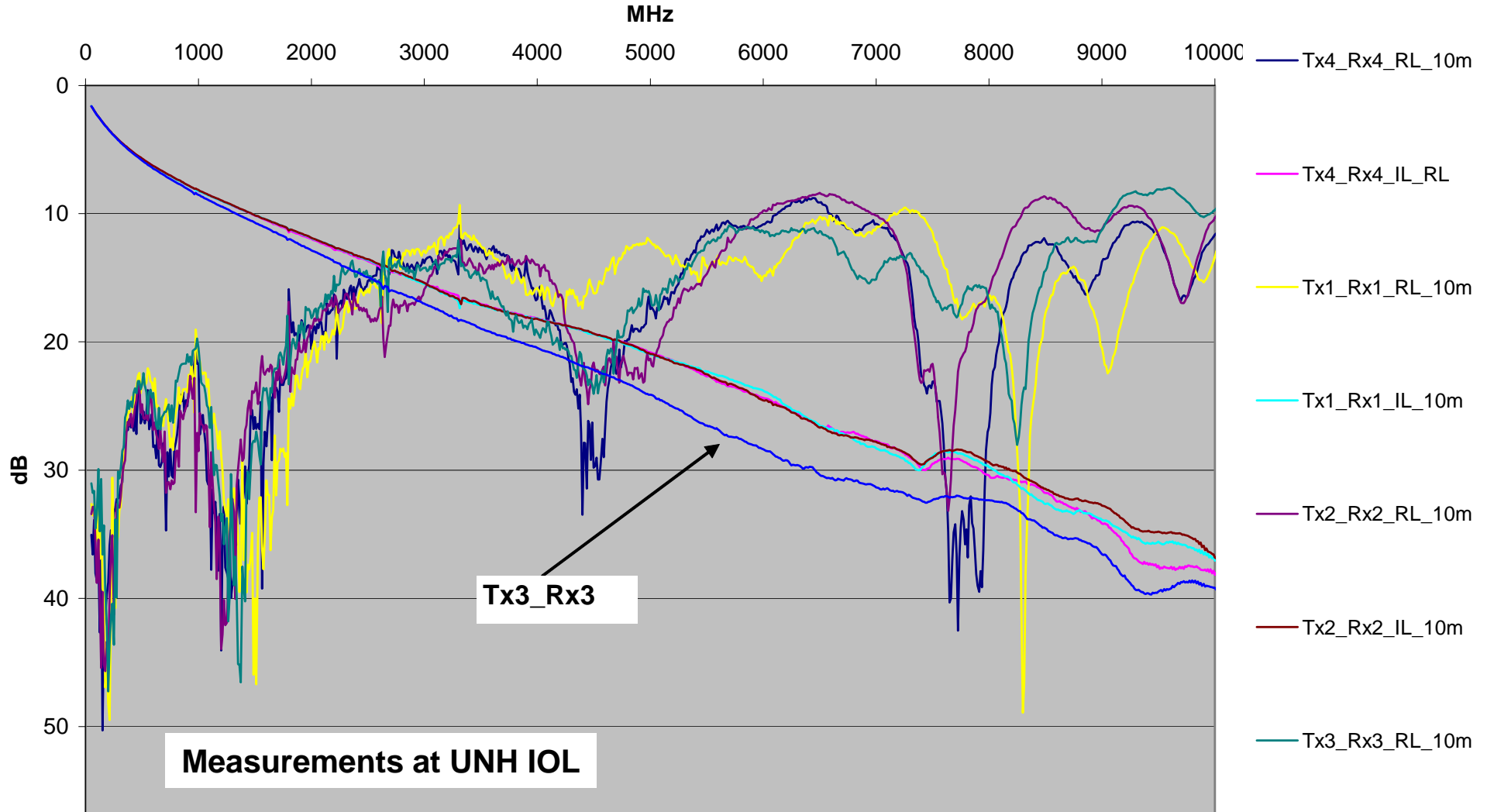


IEEE 802.3ba – Jan 2008

Source: Chris DiMinico , MC Communication  
Reference document: diminico\_01\_0108.pdf “802.3ba Cu specifications ”

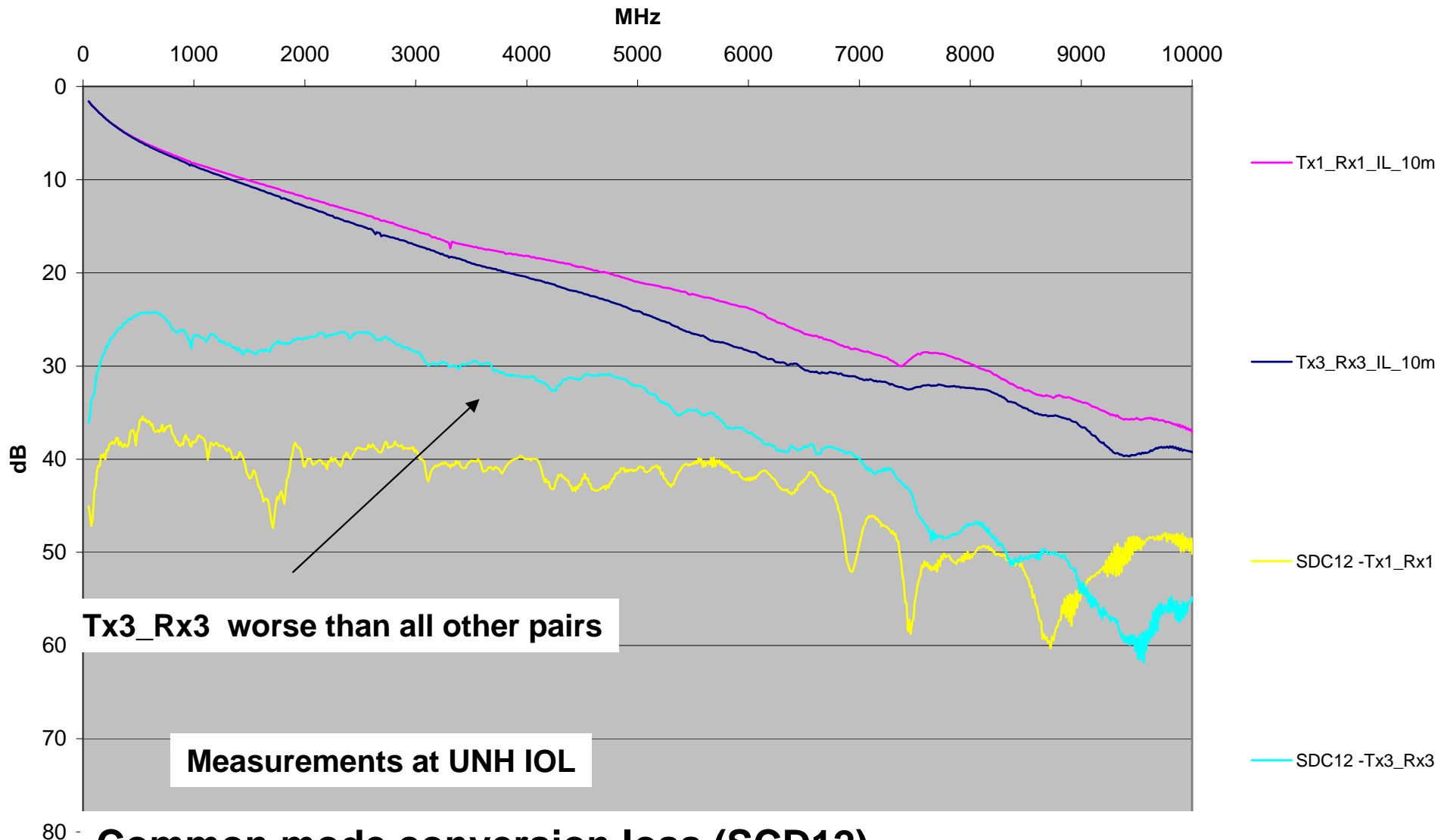
802.3ba – July 2009

# 10 meter Cable assembly IL and RL



- Cable assembly development sample used for measurements – Tx3\_Rx3 IL inconsistent with cable insertion loss and connector IL. Tx3\_Rx3 IL would not comply to cable assembly insertion loss therefore not used in the analysis models.

# 10 m cable assembly IL and SDC12



**Common mode conversion loss (SCD12)–  
impacted by pair balance – affected by termination, shield, drain wire,  
conductor to contact symmetry and uniformity of cable shield.**

# Conclusions

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- **Tx3\_Rx3 IL not used in analysis as the pair inconsistent with cable IL and connector IL of all other pairs and the IL of an 8-pair construction in general.**
- **Common mode conversion loss (SDC12) measurements indicate poor pair balance. Considering initial superior cable balance (exhibited in uniformity of cable insertion loss) the termination uniformity and cable shield placement suspected.**