# Improved return loss limit for C2C

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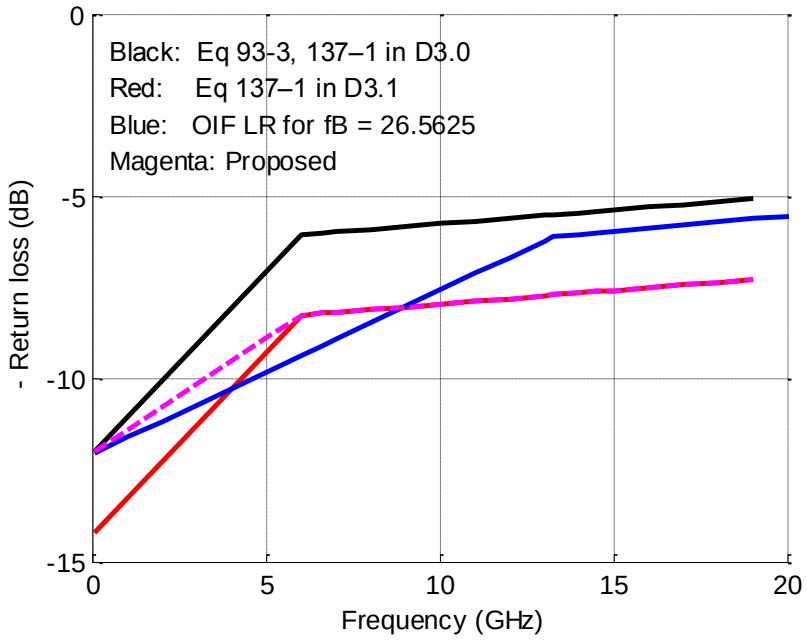
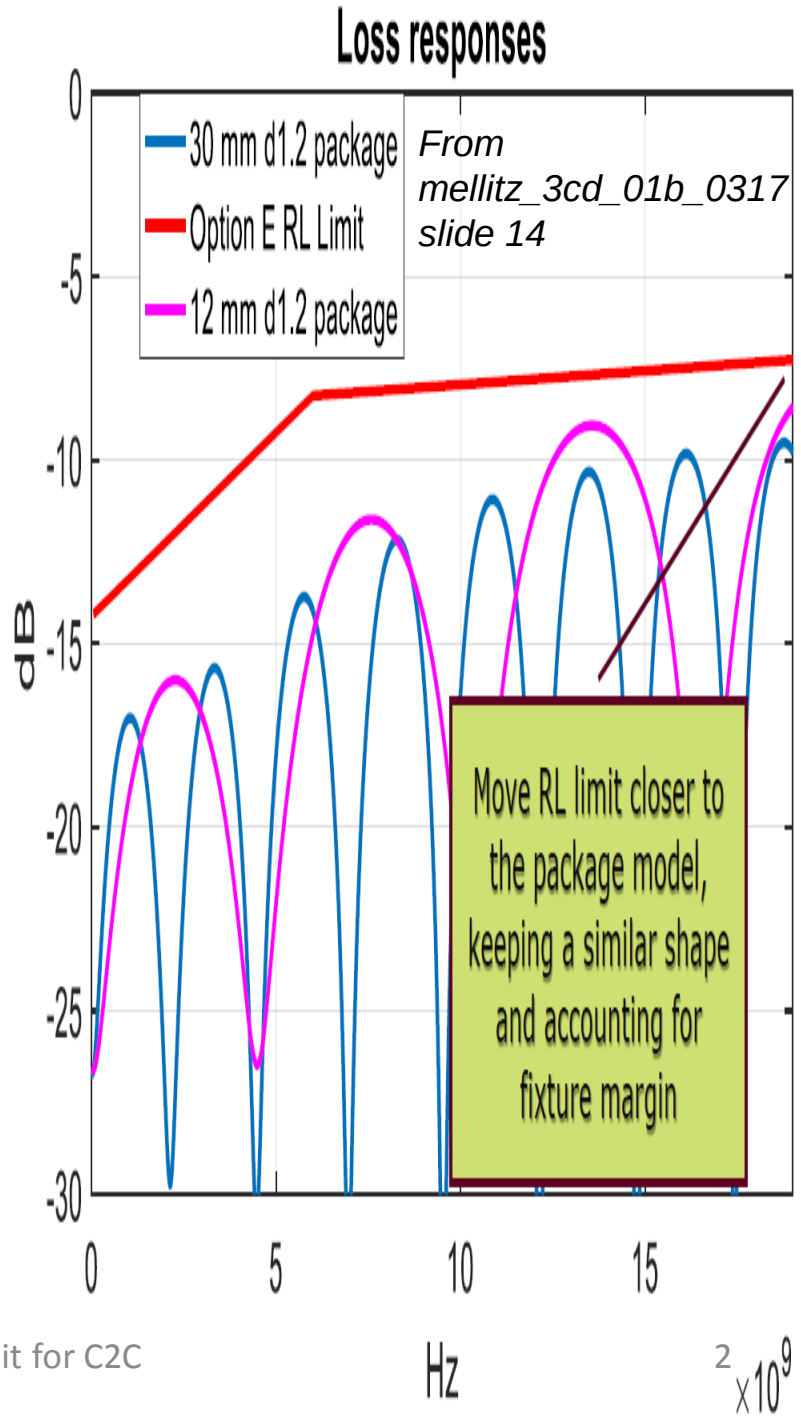
Mellanox



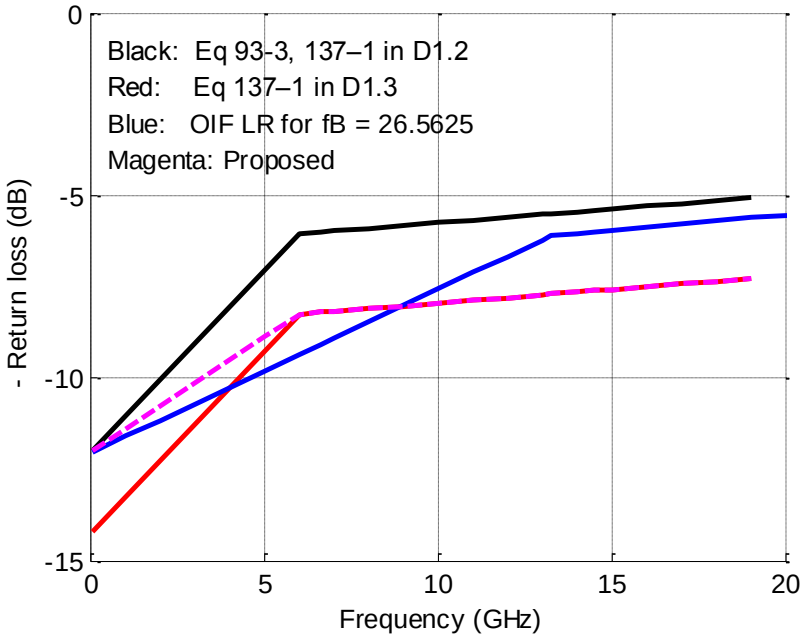

*OIF spec is at bump not TP0a*
*See later slides*

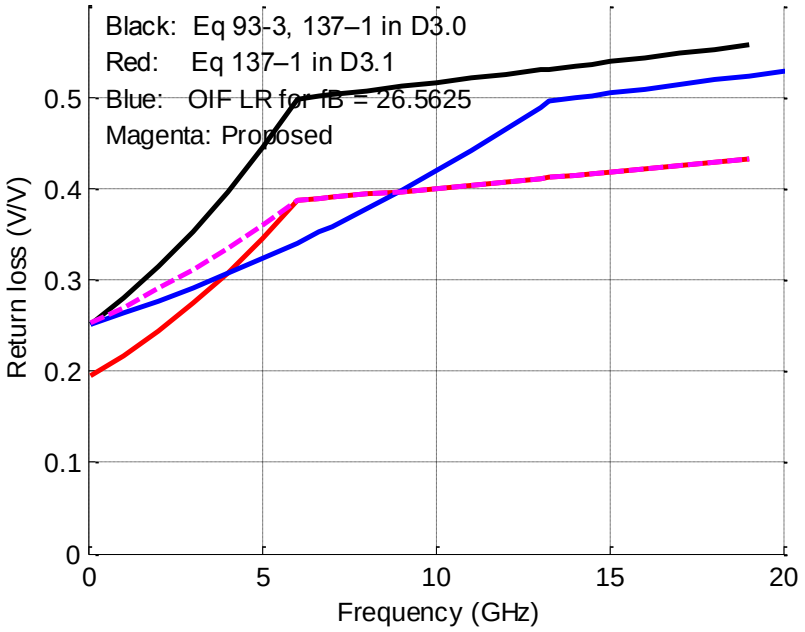
$$RL_d(f) \geq \begin{cases} 14.25 \text{ (was } 12.05) - f & 0.05 \leq f \leq 6 \\ 8.7 \text{ (was } 6.5) - 0.075f & 6 < f \leq 19 \end{cases} \quad \text{dB}$$

802.3bs D3.1 min(-14.25+f, -8.7+0.075*f)
802.3bs D1.2 min(-12.05+f, -6.5+0.075*f) Equation 93-3
OIF LR min(-12.05+0.4112*f*29/fB, -7.175+0.075*f*29/fB)
Proposed min(-12+0.625*f, -8.7+0.075*f)
Channel max(-12, -12+15*log10(4*f/fB))



# Return loss candidates

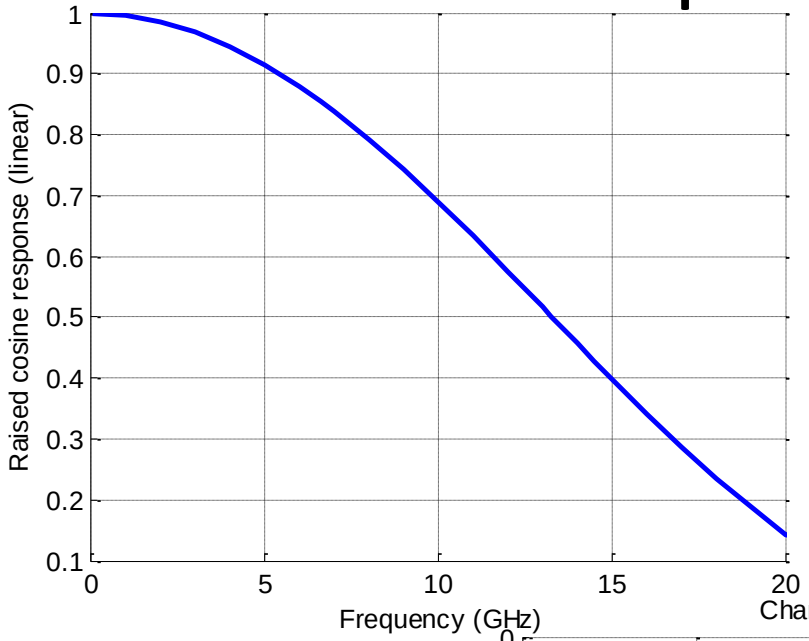


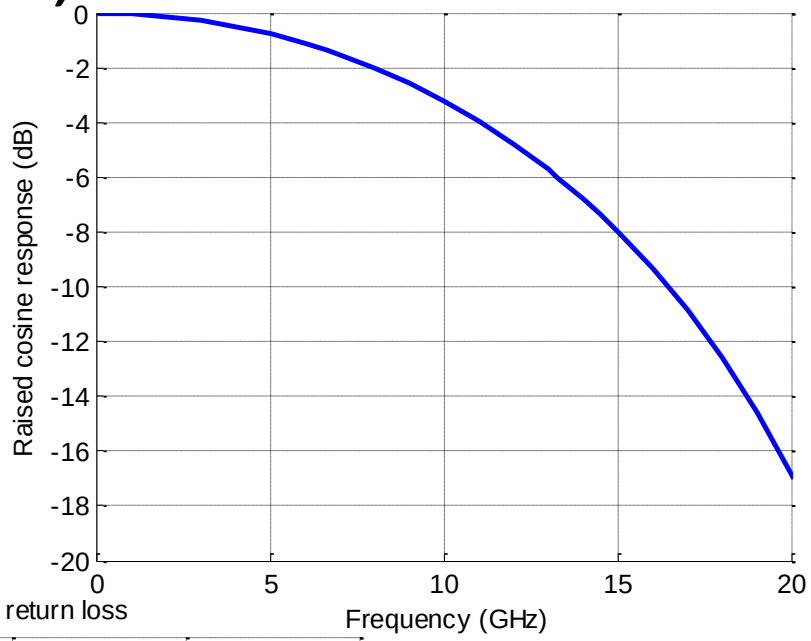




- Left: log

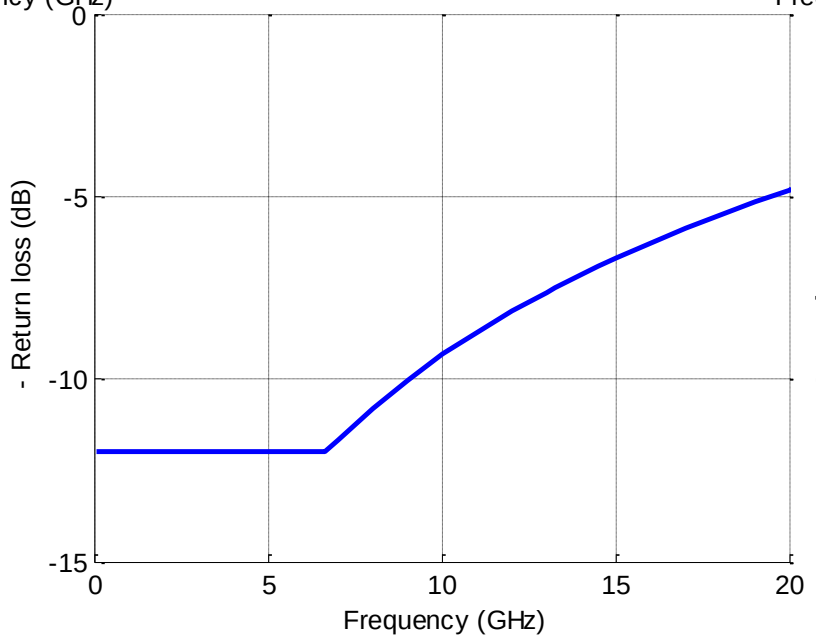
Right: linear

# Raised cosine response, channel return loss



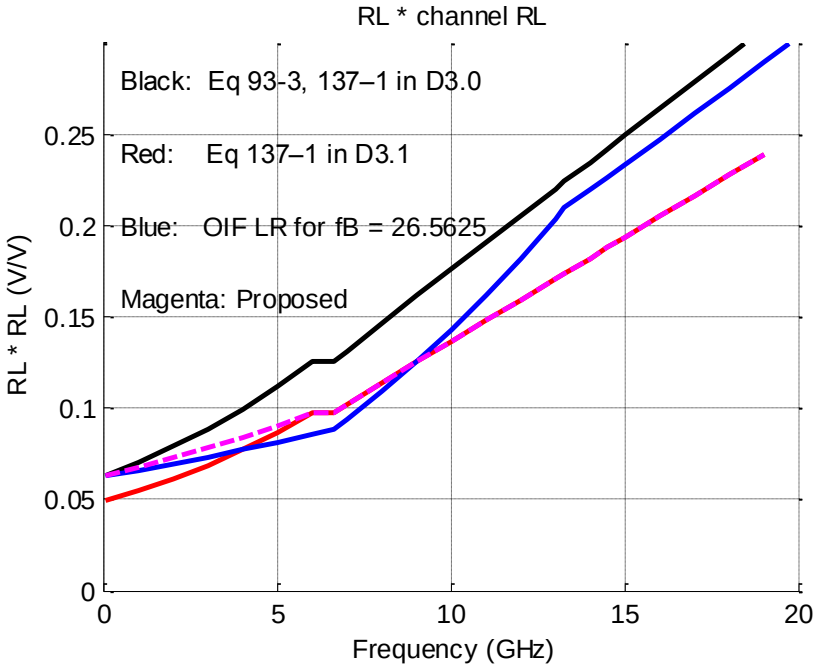

Channel return loss

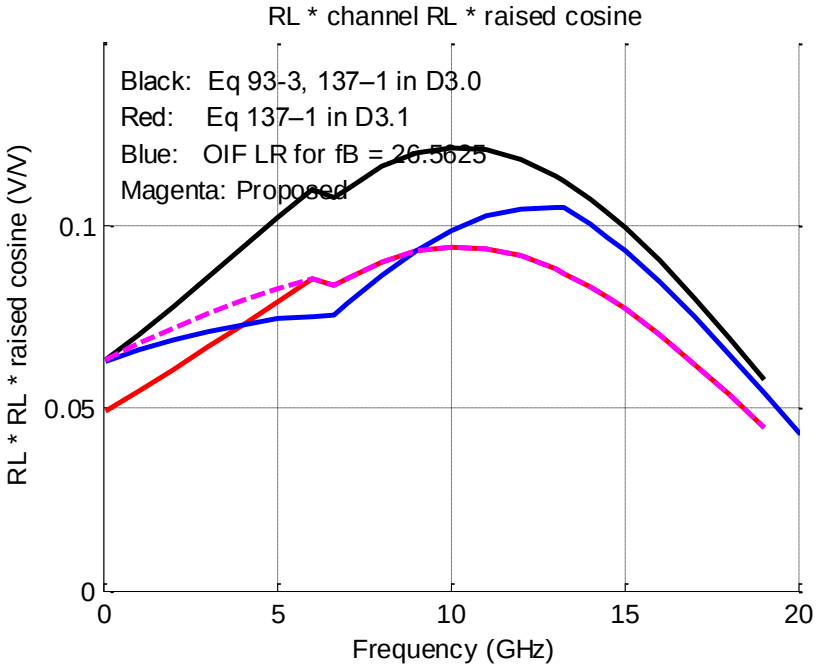



*Should channel be tighter at very low f?*

Channel return loss (at TP0 or TP5) from 802.3cd and OIF LR

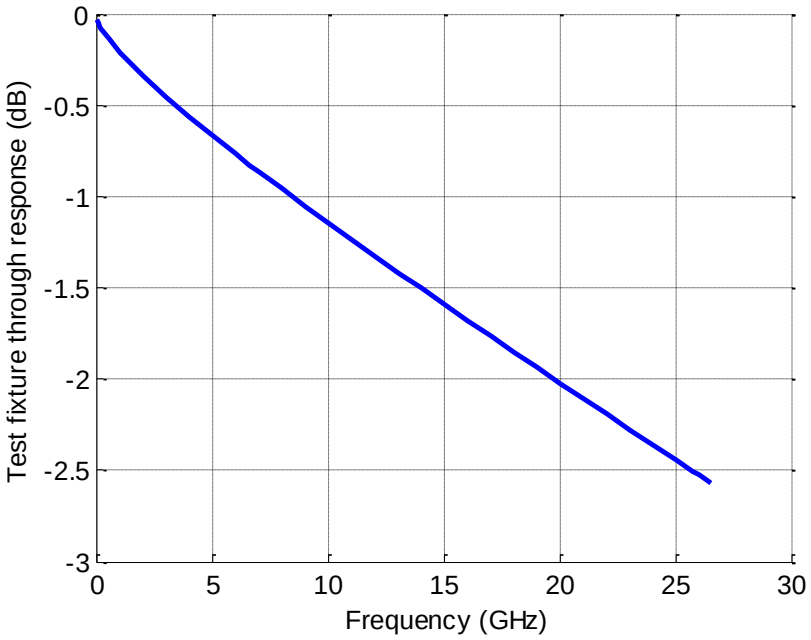
# Possible contribution to unwanted echoes ~ RL * RL

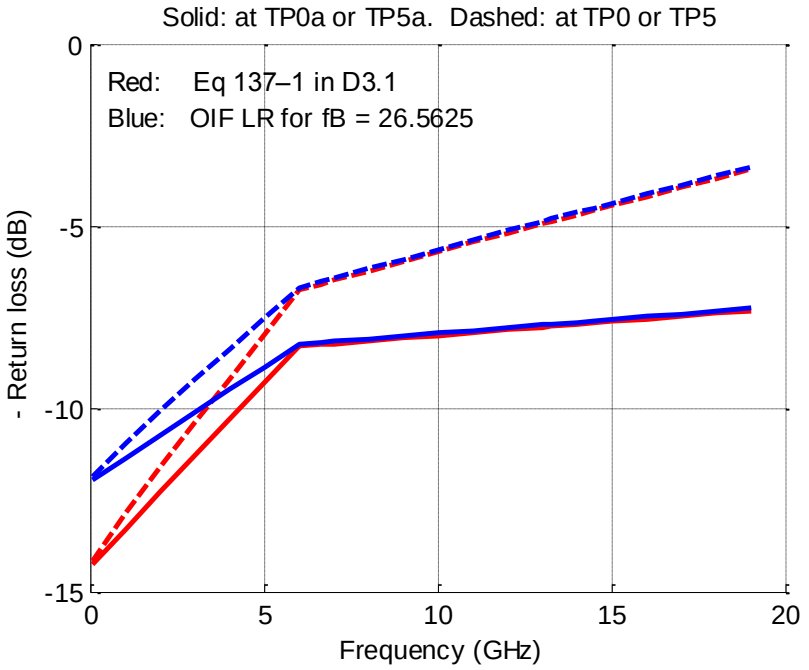



- Echoes caused by reflection between endpoint and channel
- Left: endpoint RL * channel RL
- Right: endpoint RL * channel RL * raised cosine response for signalling rate

# Next: adjustment for TP0-TP0a loss



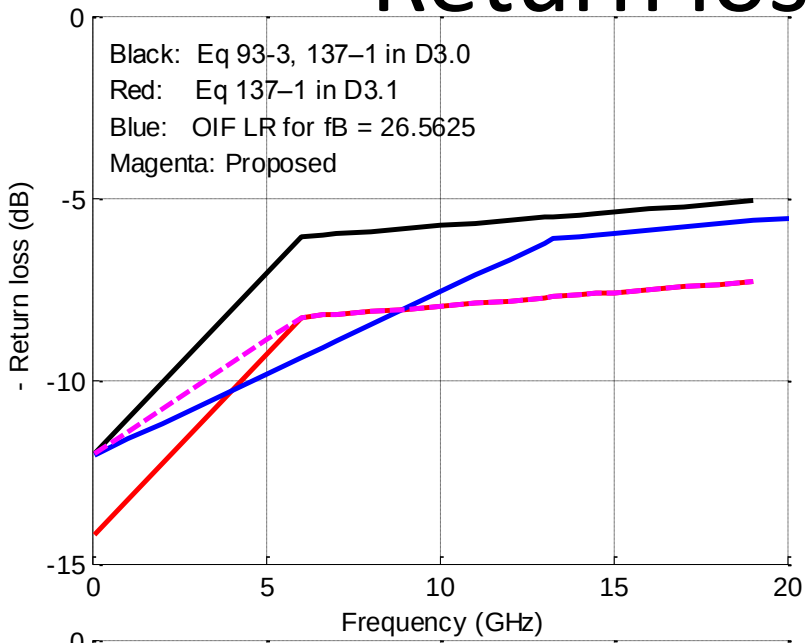



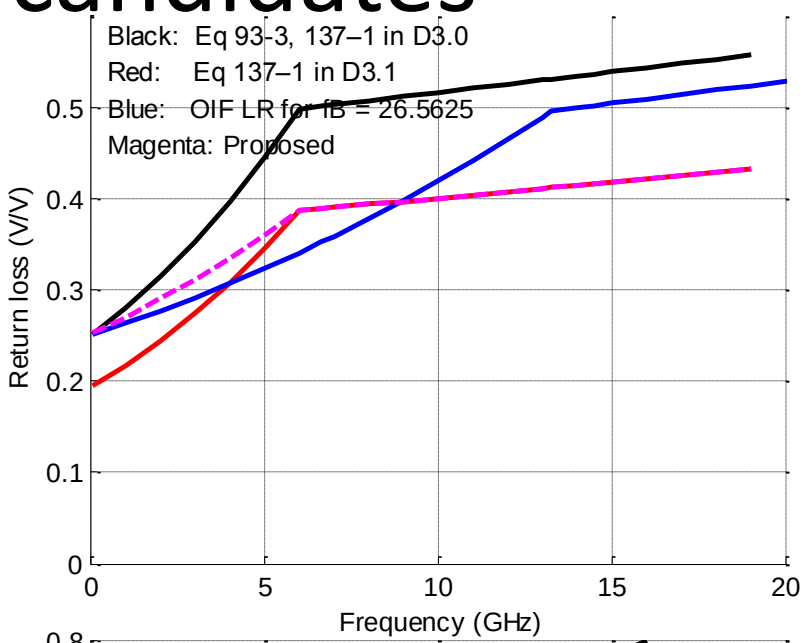

Solid: at TP0

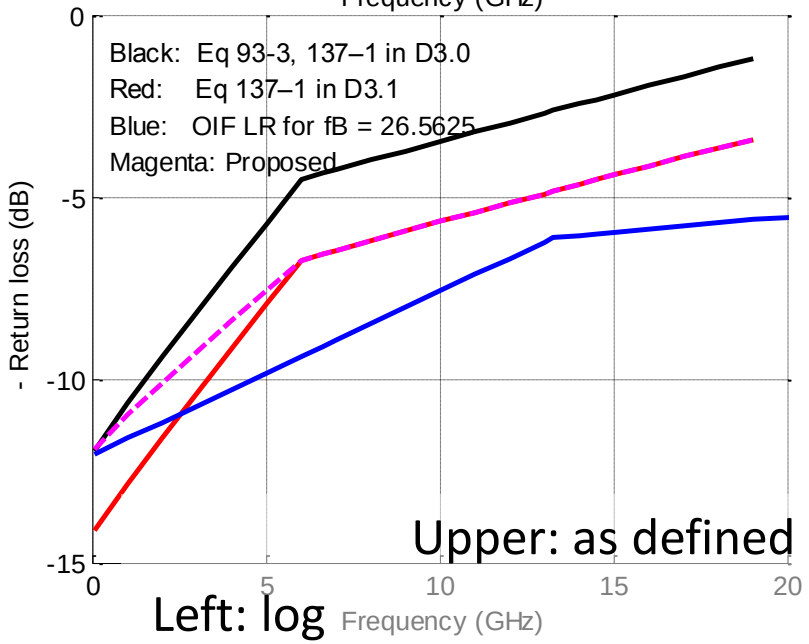
Dashed: at TP0a

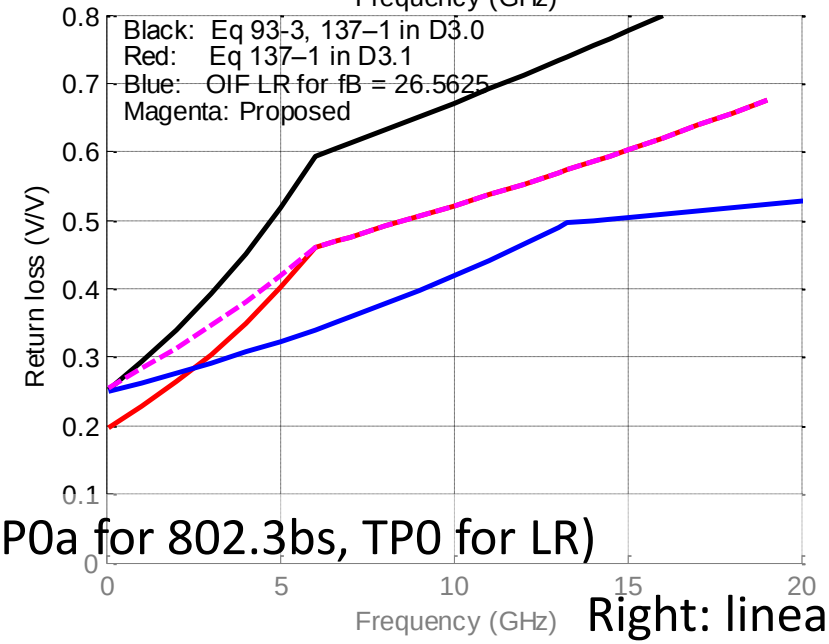
- Return loss of test fixture not accounted for

# Return loss candidates



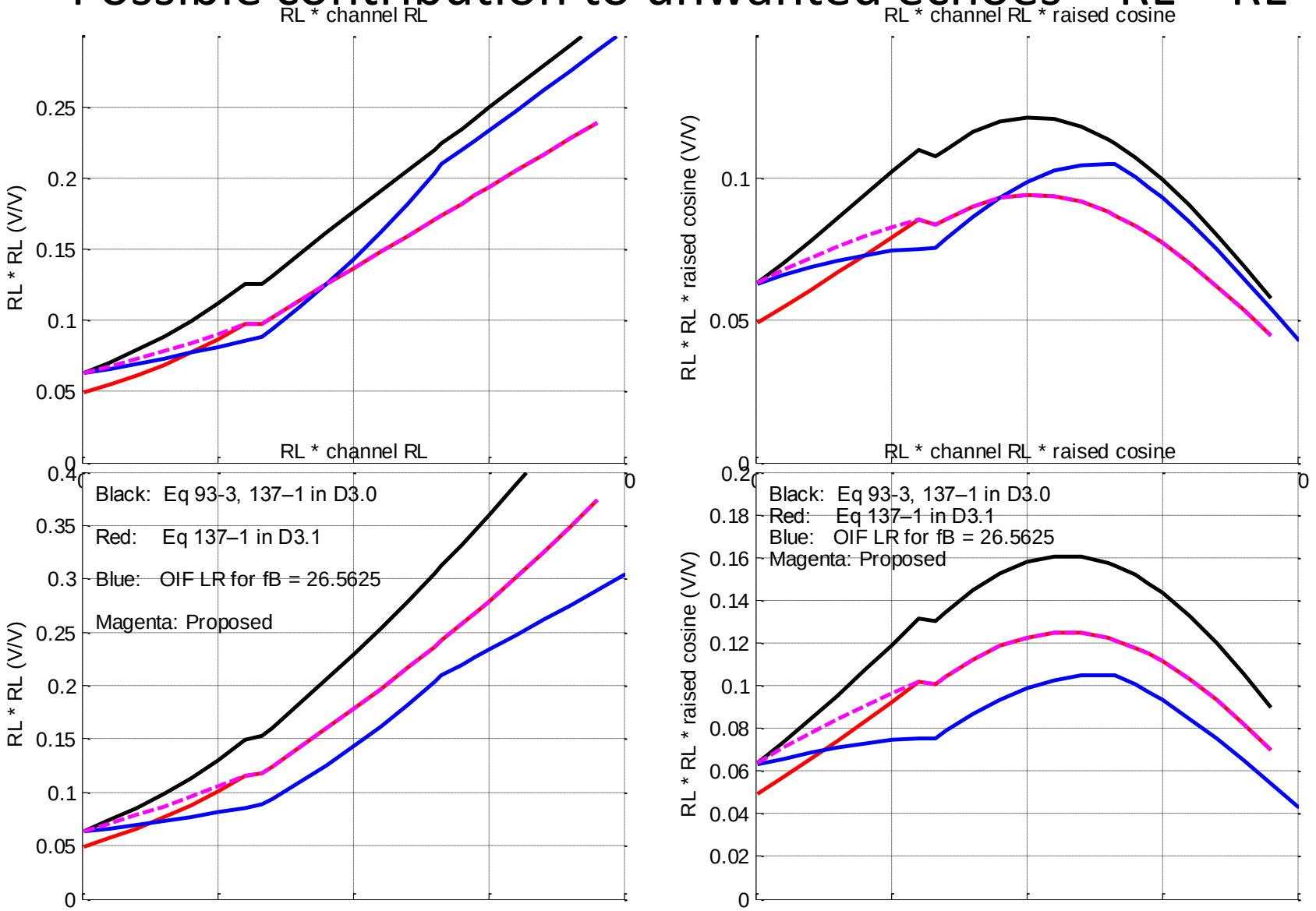

Upper: as defined (TP0a for 802.3bs, TP0 for LR)

Left: log

Right: linear

Lower: at TP0

# Possible contribution to unwanted echoes ~ RL * RL

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