IEEE 802.3ap Channel Adhoc- Informative Model Update

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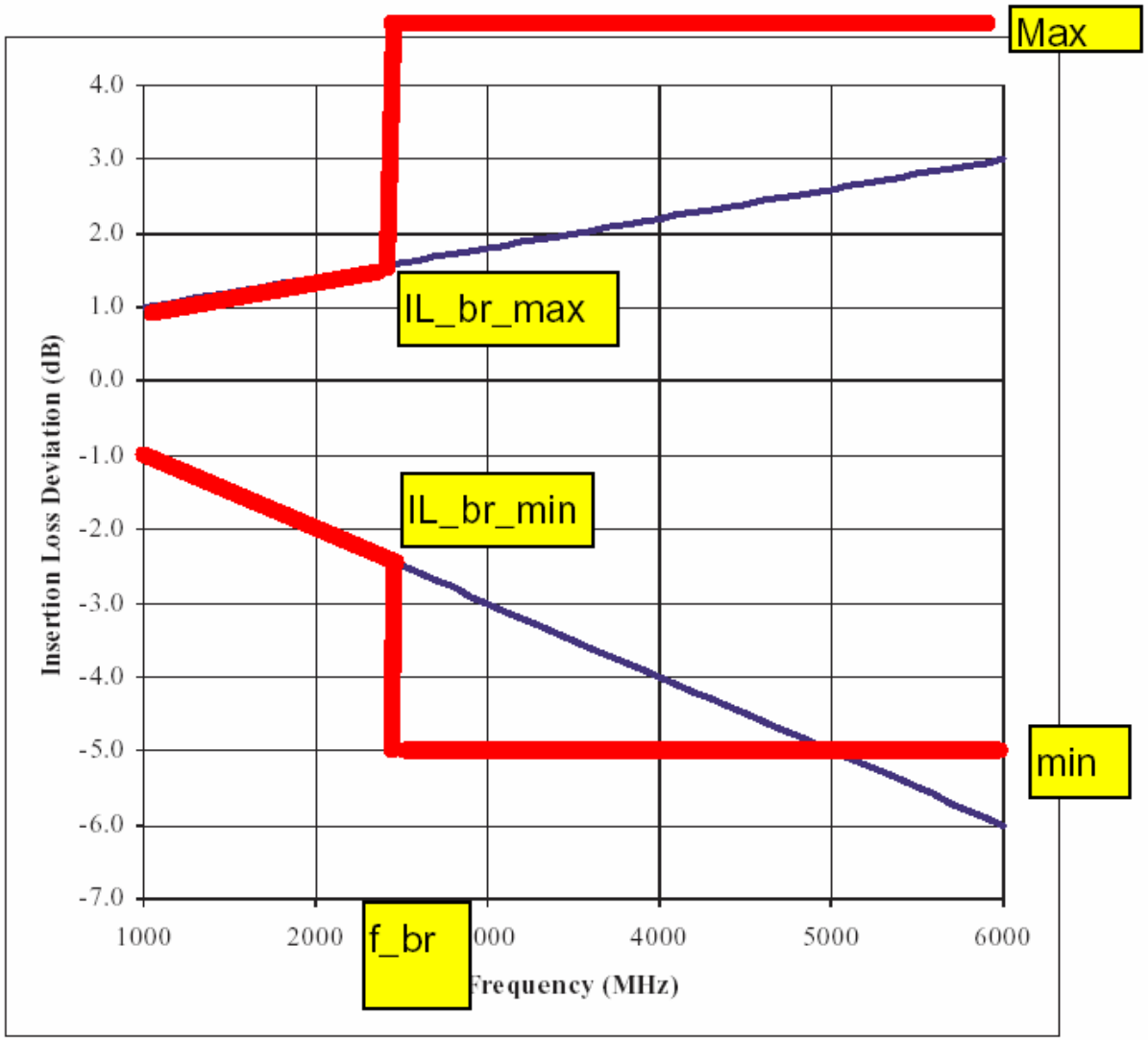
Richard Mellitz, John DAmbrosia,
Matt Hendrick, Steve Krooswyk

Overview

- Informative Spec TBD parameter update
- Data from channels
- Next steps

Suggestion for delta limits



Informative spec TBD (so far)

Table 69–2—Insertion loss parameters

Parameter	Value	Units
f_{min}	TBD	Hz
f_{max}	TBD	Hz
b_1	2.25E-0.5	
b_2	1.20E-10	
b_3	3.50E-20	
b_4	–1.25E-30	
f_1	TBD	MHz
f_2	TBD	MHz
IL_1	$A(f_1)+\Delta_1(min)$	dB
IL_2	TBD	dB
m_{HF}	TBD	dB/MHz
$\Delta_1(min)$	TBD	dB
$\Delta_1(max)$	TBD	dB
$\Delta_2(min)$	TBD	dB
$\Delta_2(max)$	TBD	dB

rimellit
50 MHz
15 GHz

rimellit
f_fr 2.5GHz
IL_br_max
2.5dB

rimellit
1 GHz
6GHz

rimellit
40 db/decade

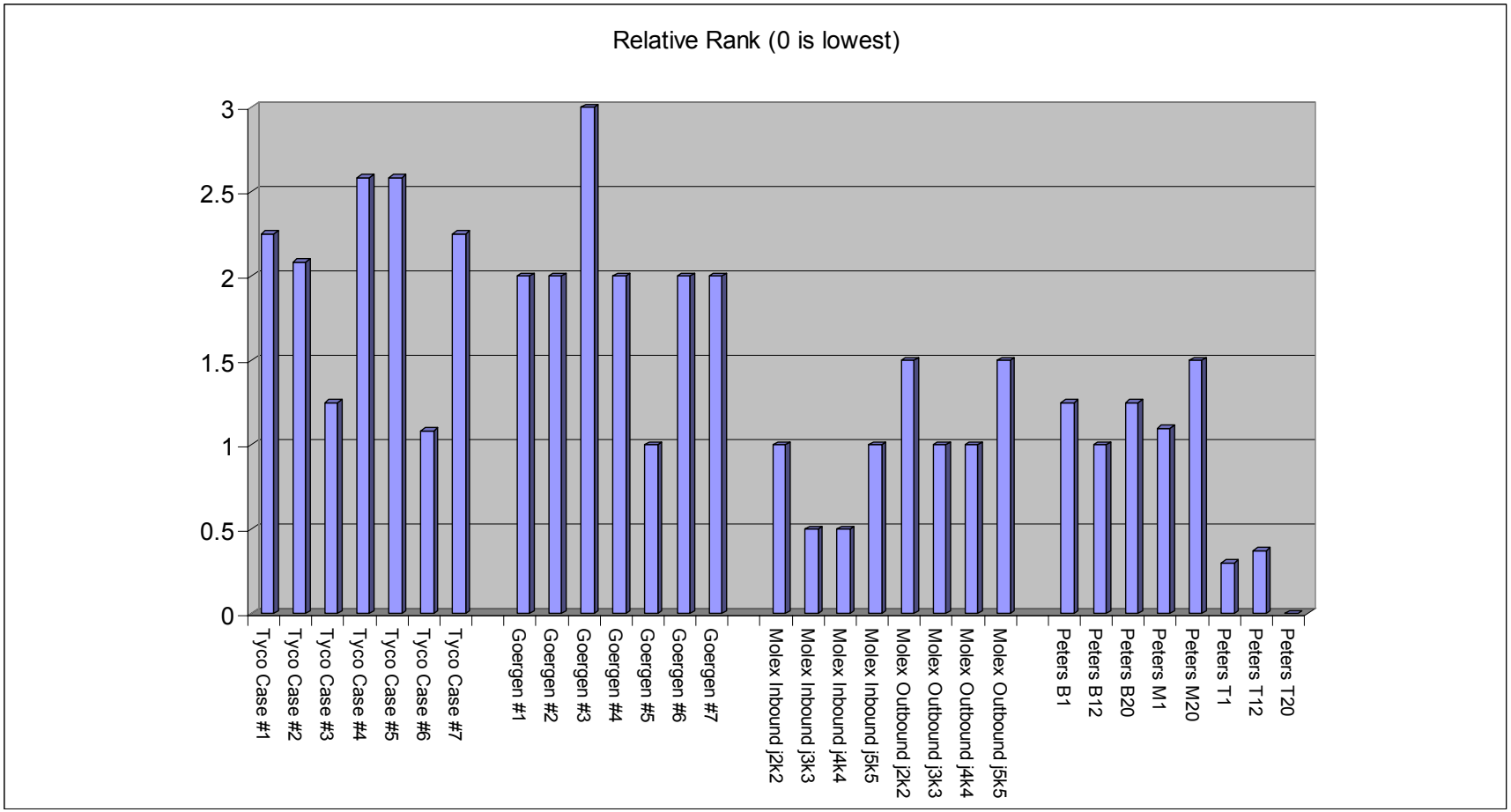
rimellit 4/4/2005
A(F1)+Delta(Max1)

rimellit
-1 GHz
1 GHz
-5 GHz
5 GHz

Reviewing the Simulation Results

- All NRZ simulations considered, regardless of how simulations performed
- Simulation efforts from each company were reviewed individually, and scale of 0 to 3 was assigned to horizontal margin results in a similar fashion to all channels analyzed
  - 0 – did not meet 10^-12 BER
  - 1 – bottom third
  - 2 – middle third
  - 3 – top third
- Average of each test channel calculated

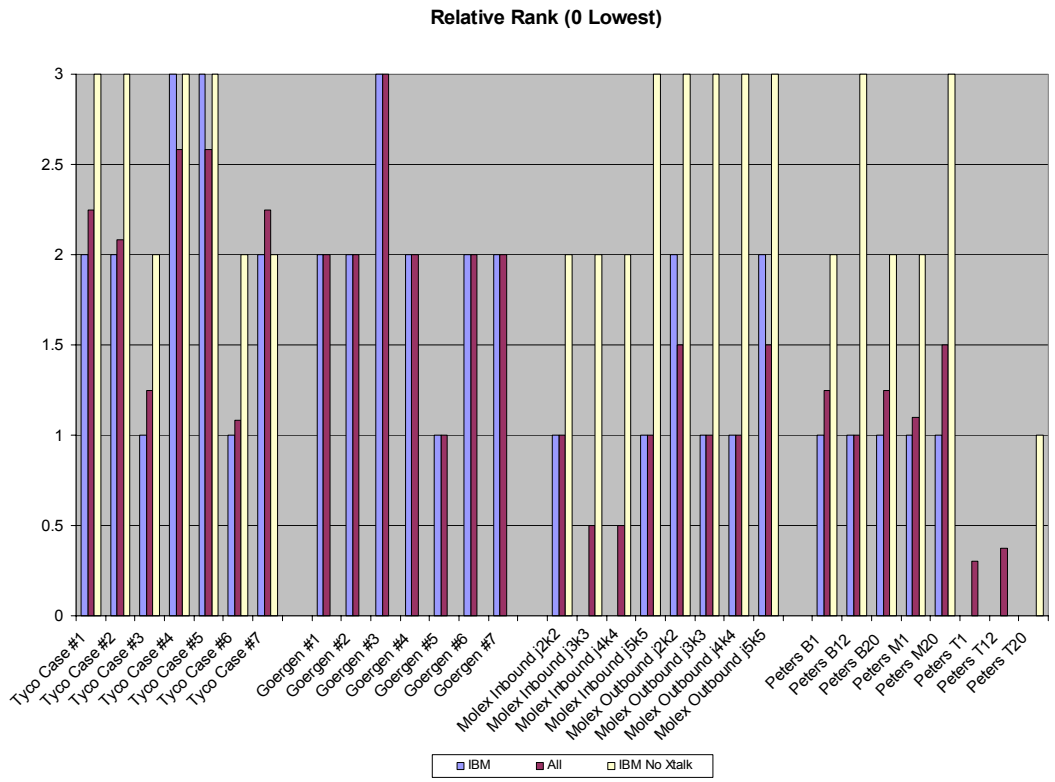
Relative Channel Performance



SDD21 Informative Channel Model

- Currently no tie to crosstalk
- How do channels perform without crosstalk?
  - Use IBM results as point of comparison

Comparison of IBM Simulations



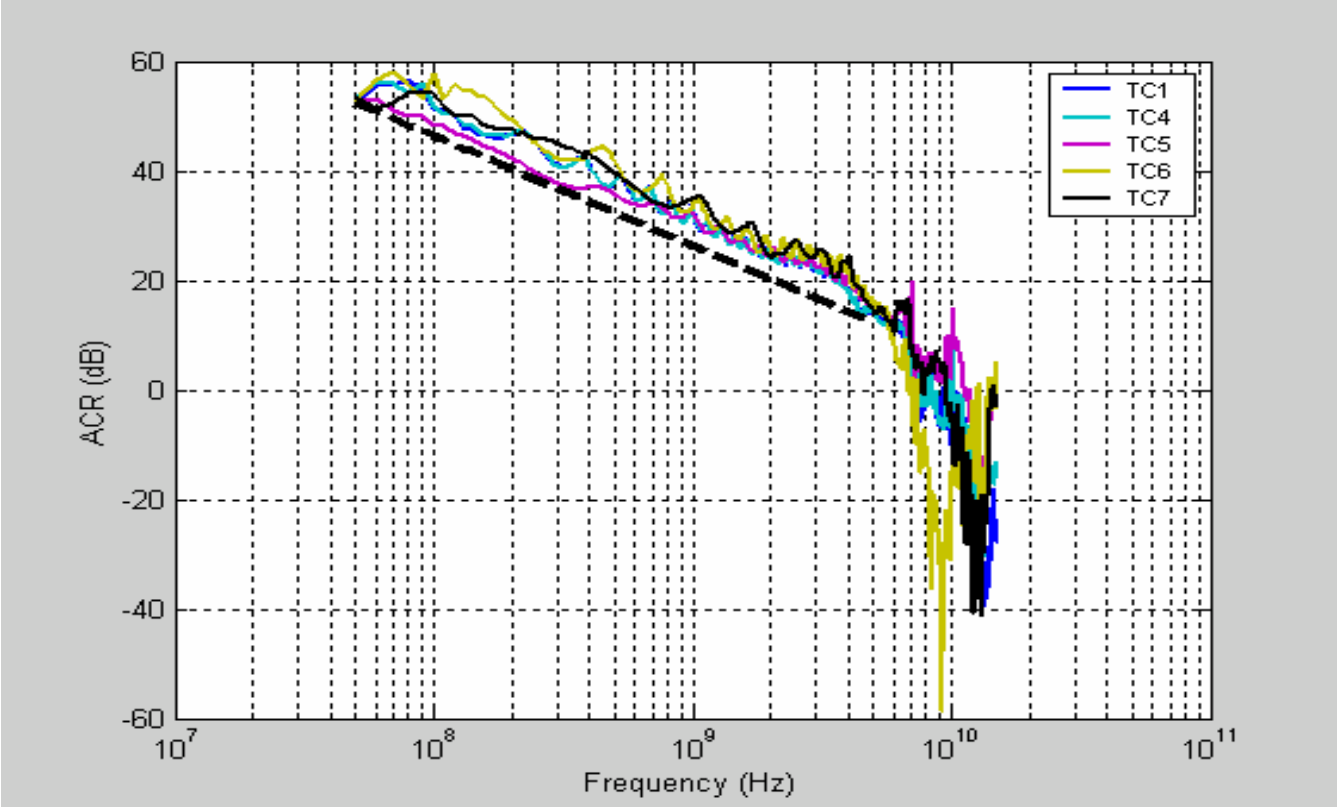
	IBM	IBM No Xtalk
Tyco Case #1	15.1	23.5
Tyco Case #2	14	22.7
Tyco Case #3	9.4	12.8
Tyco Case #4	21.1	28
Tyco Case #5	21.7	28.7
Tyco Case #6	4.1	13.1
Tyco Case #7	16.3	12
Goergen #1	10.3	
Goergen #2	15.3	
Goergen #3	21.5	
Goergen #4	12.7	
Goergen #5	2.3	
Goergen #6	16.1	
Goergen #7	16.7	
Molex Inbound j2k2	3.6	13.6
Molex Inbound j3k3	0	18.6
Molex Inbound j4k4	0	12.4
Molex Inbound j5k5	7	24.7
Molex Outbound j2k2	13.9	25.7
Molex Outbound j3k3	4.6	23.9
Molex Outbound j4k4	8.2	24.7
Molex Outbound j5k5	15.8	29.8
Peters B1	9.3	16
Peters B12	5.8	20.9
Peters B20	0.9	15.8
Peters M1	7.3	11.6
Peters M20	0.2	20.8
Peters T1	0	0
Peters T12	0	0
Peters T20	0	3.2

Crosstalk influence varied with channels

ACR Proposal Revisited

$$Total\_Crosstalk(dB) = 10\log_{10}\left(10^{(MDNEXT(dB)/10)} + 10^{(MDFEXT(dB)/10)}\right)$$

$$ACR(dB) = SDD21(dB) - Total\_Crosstalk(dB)$$



$$ACR(dB) \geq 12.5 - 20\log_{10}\left(\frac{f}{5GHz}\right), f = 0.1...5GHz$$

Next

- Process data for more sets
- Compare to order data sets
- Figure out what to do with crosstalk
  - Revisit ACR Proposal
- Process s-parameters with different f1 and f1 parameters to see if we get better correlation