

# Concerns Regarding Stability and Consistency of Channel Analysis Methods

(Comment on mellitz\_01\_0505.pdf)

Gourgen Oganessyan

MOLEX



- **In mellitz\_01\_0505.pdf, results of channel analysis appear to be unstable: virtually identical data sets give widely differing results, - even without XTALK**

- **Using selected, virtually identical Molex channel data sets as control, output consistency reviewed**

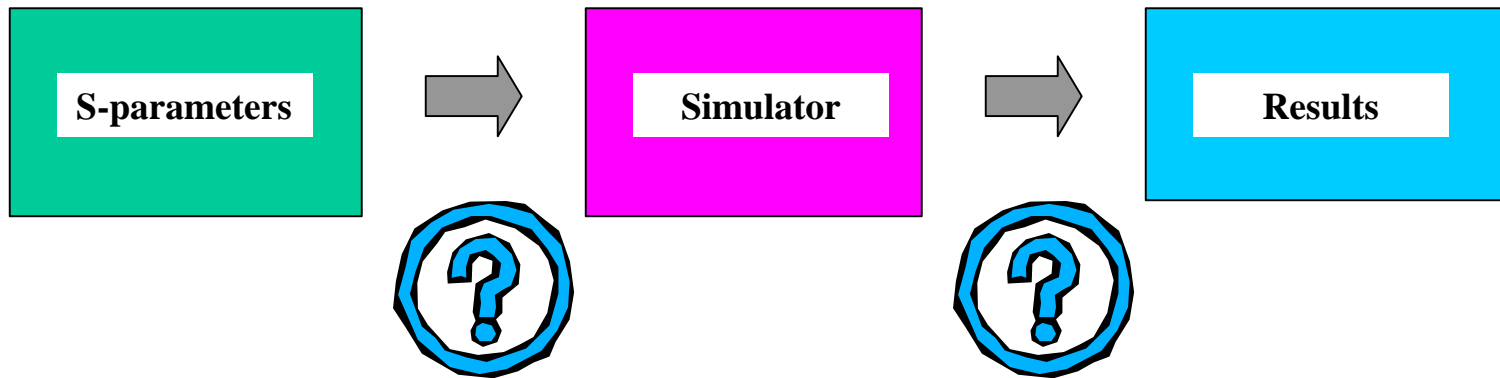
- **Substantial output variation noted**

- **Notable in “Abler” and “Gao” charts**

- **S-parameter data (Molex FR408 Channels) does not reflect such variation**

- **The A and Q charts most stable**





- The intent is to invite discussion of possible issues.
- I may well be missing something.
- I will work with Joe Abler and Gao to understand what is happening.

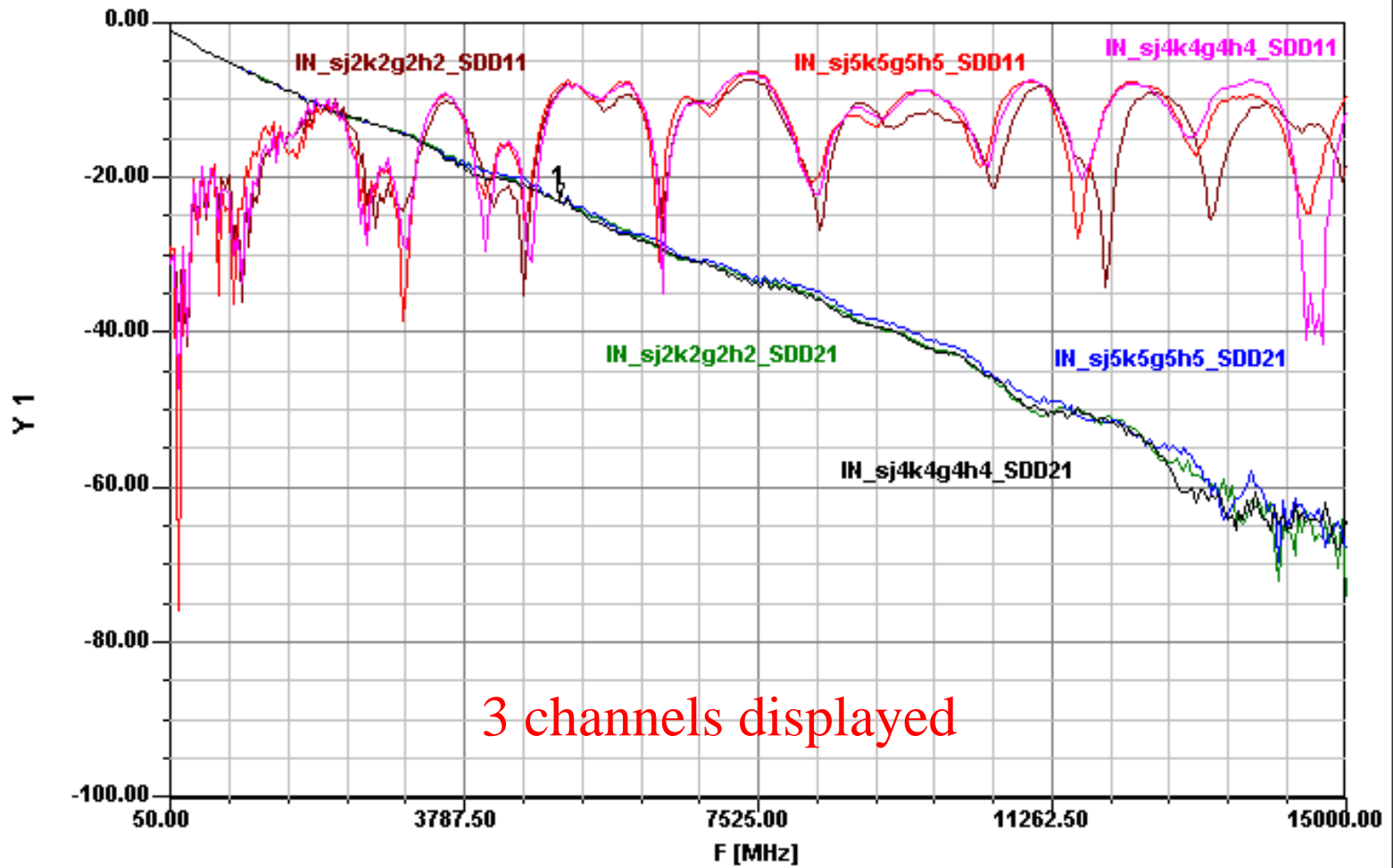
# Inbound Channel Data, w/o Xtalk

16 Jun 2005

SDD21 and SDD11 Data

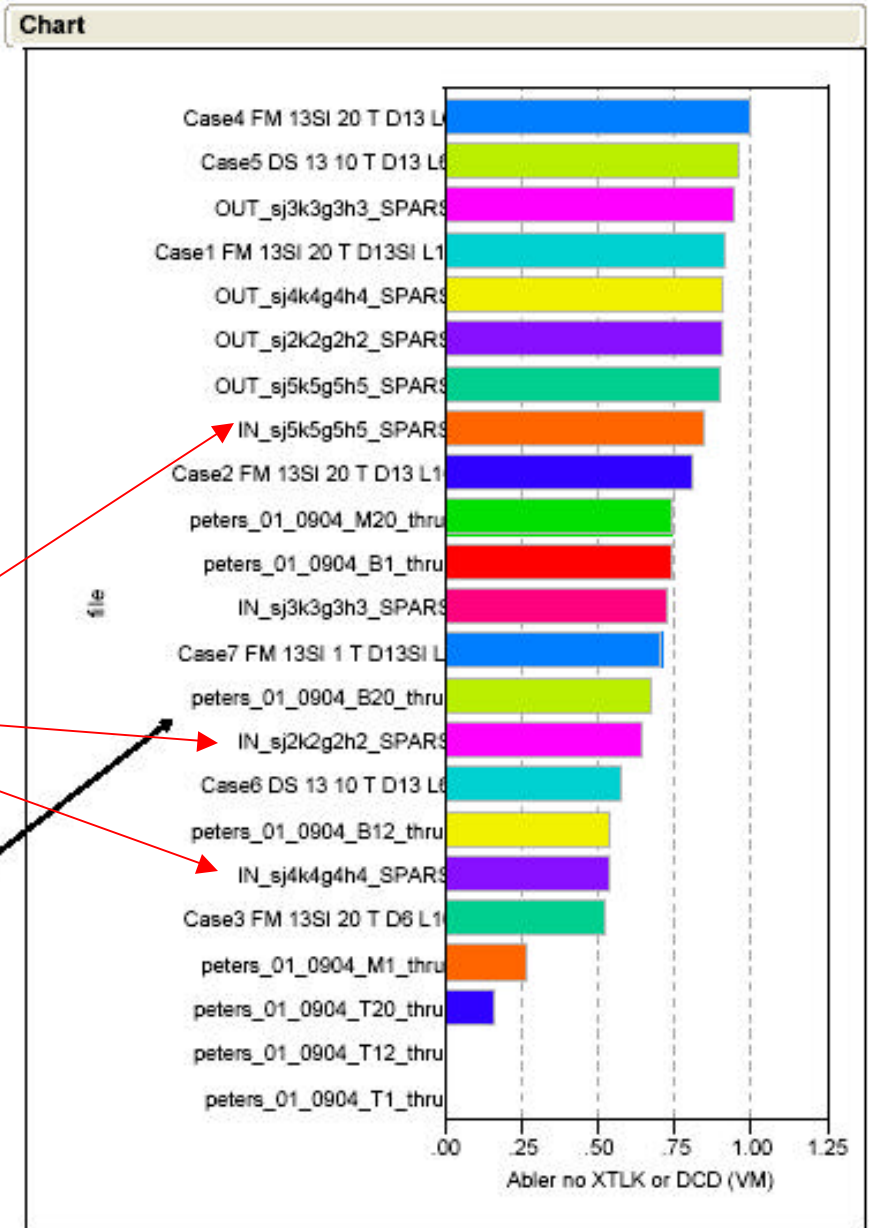
13:24:44

for Molex Inbound Channels



3 channels displayed

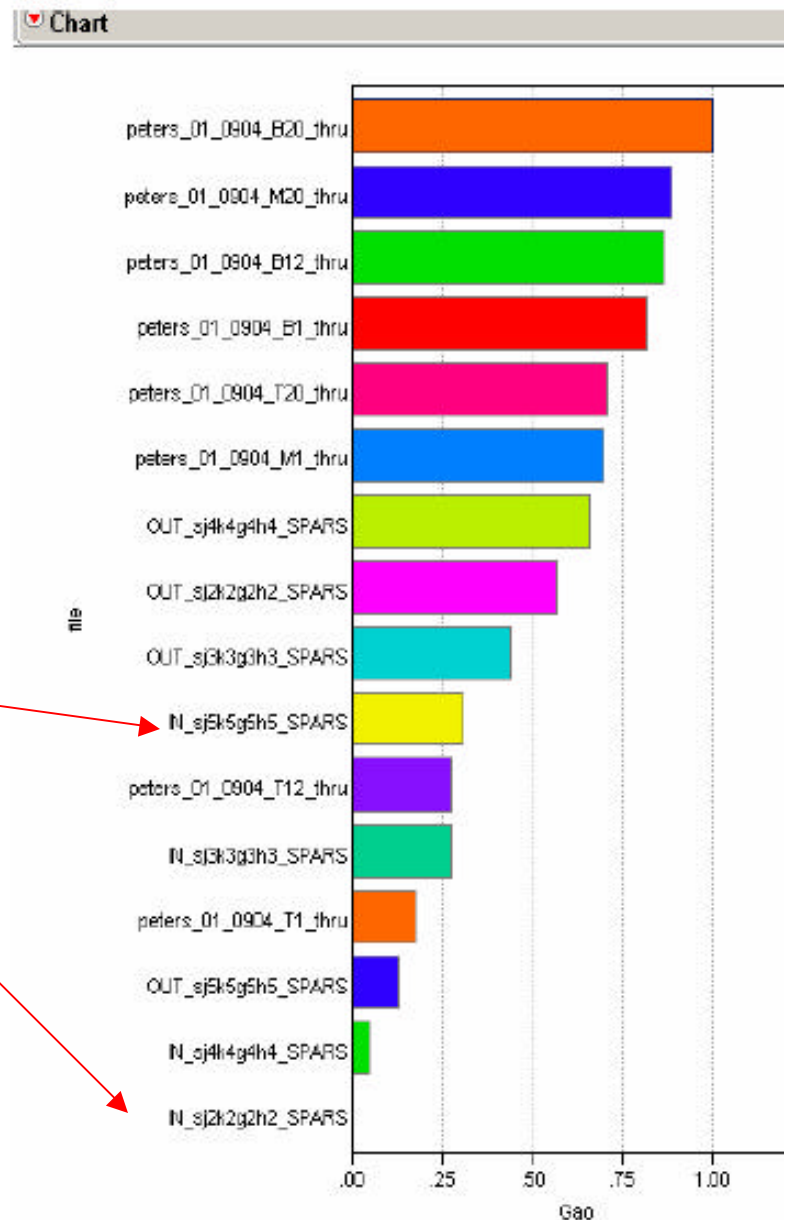
# Abler Voltage Margin ( no xtk no DCD)



>50% variation from identical channels!

# Gao w/o XTL

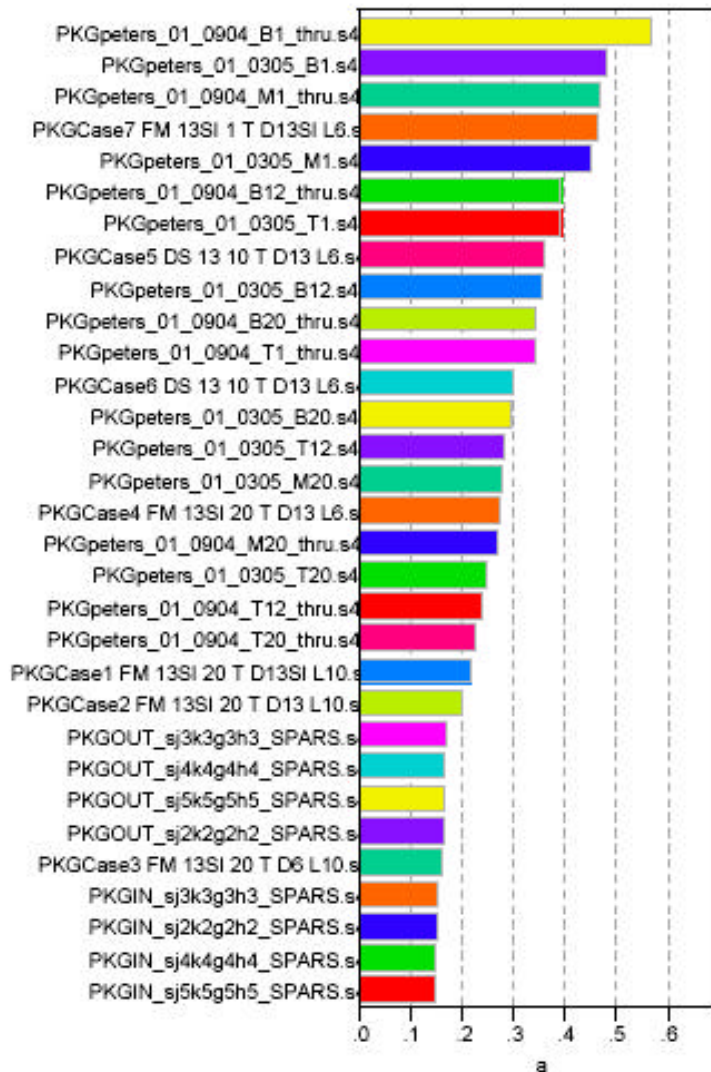
variation from identical  
channels!



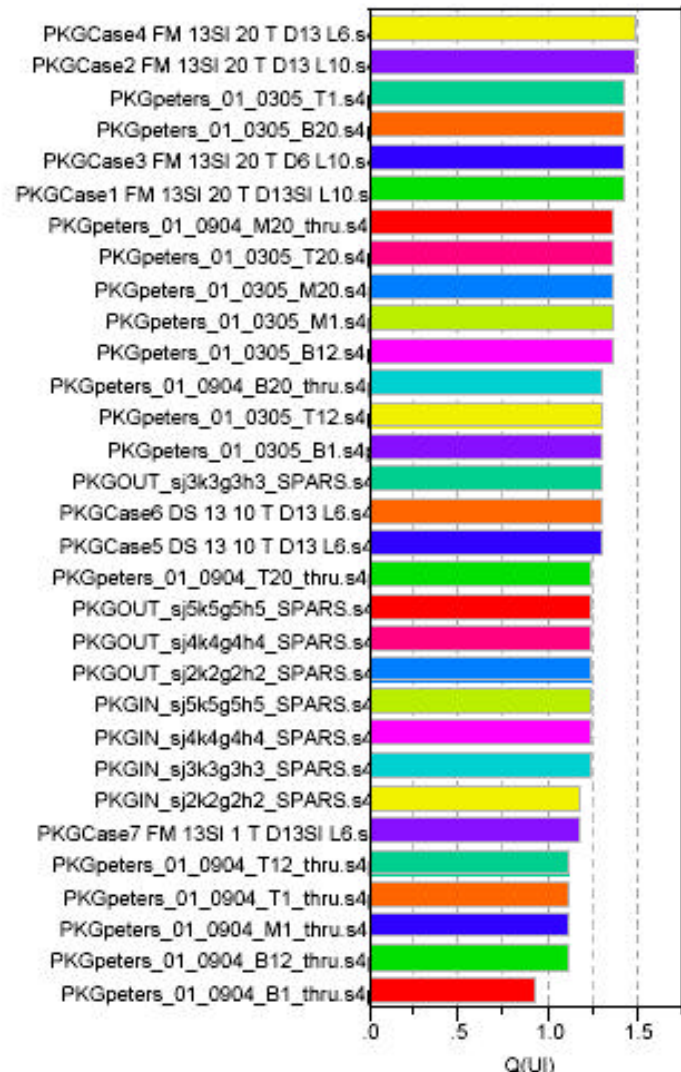
# A and Q

Chart

scat\_31\_lvi04r1\_pr1\_po8\_th3per\_Ui97\_f1\_5Ghz



scat\_31\_lvi04r1\_pr1\_po8\_th3per\_Ui97\_f1\_5Ghz



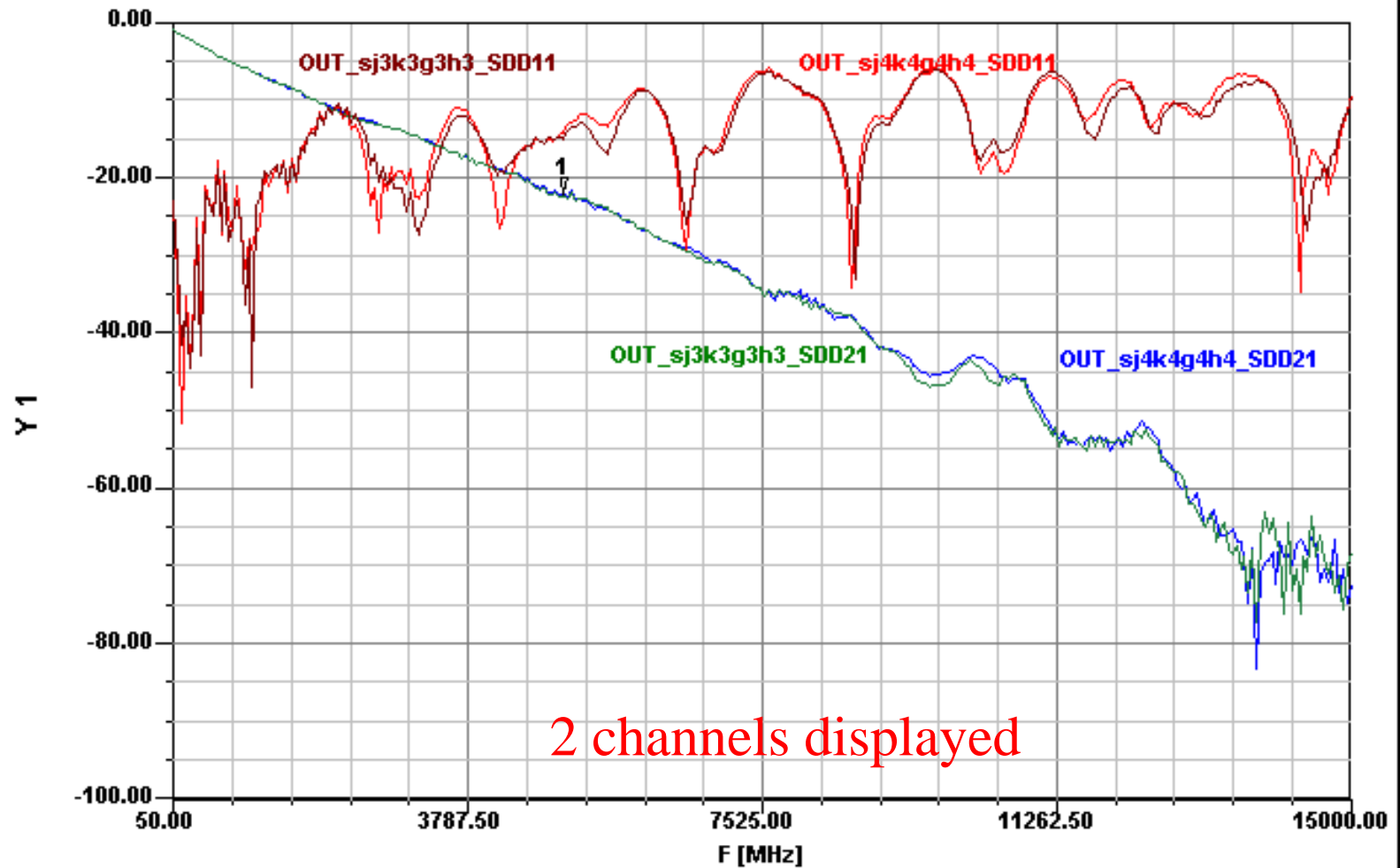
# Inbound Channel Data, with Xtalk

16 Jun 2005

SDD21 and SDD11 Data

15:12:22

for Molex Outbound Channels



2 channels displayed



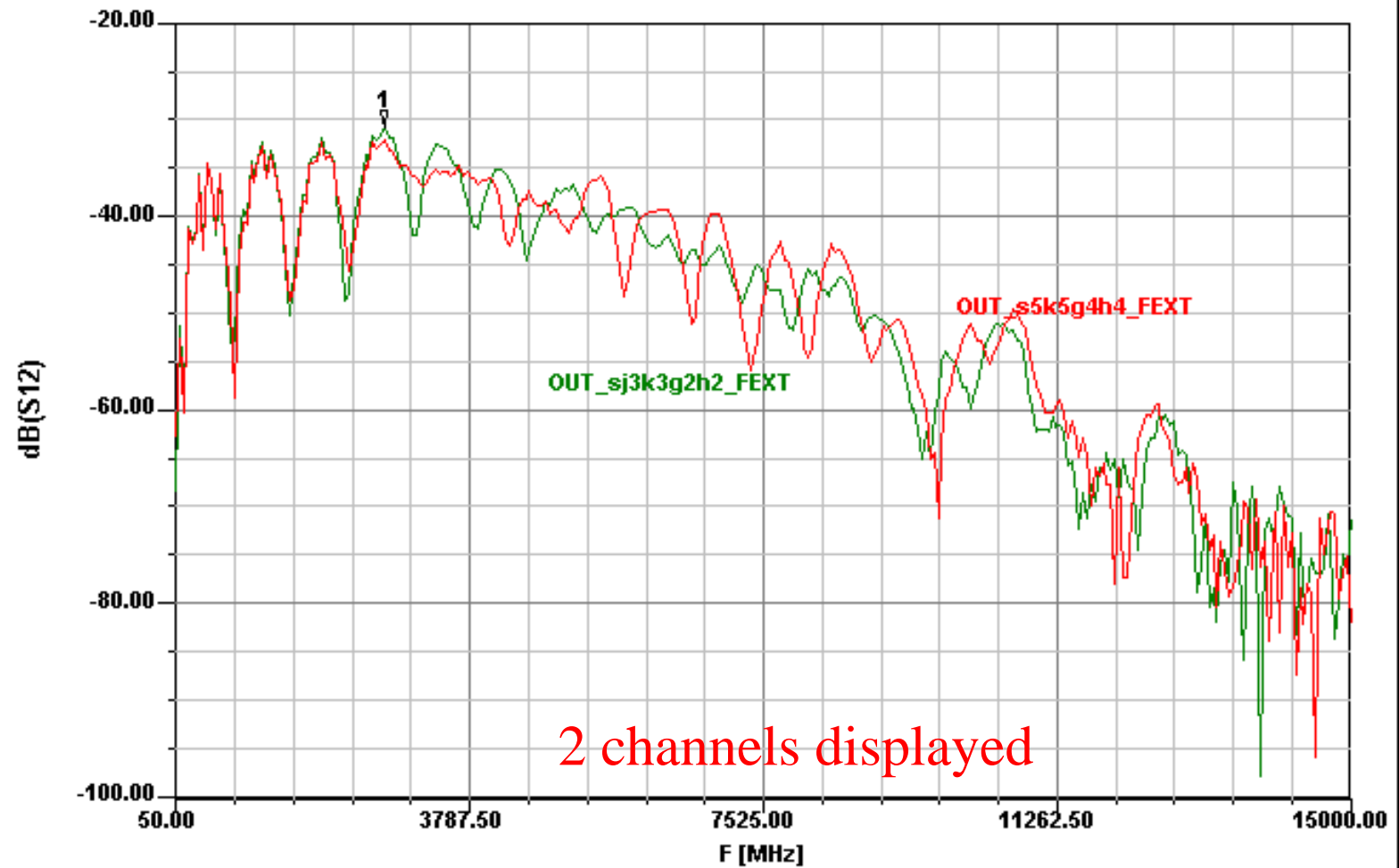


16 Jun 2005

Worst Case Xtalk (FEXT) Data

15:23:41

for Molex Outbound Channels

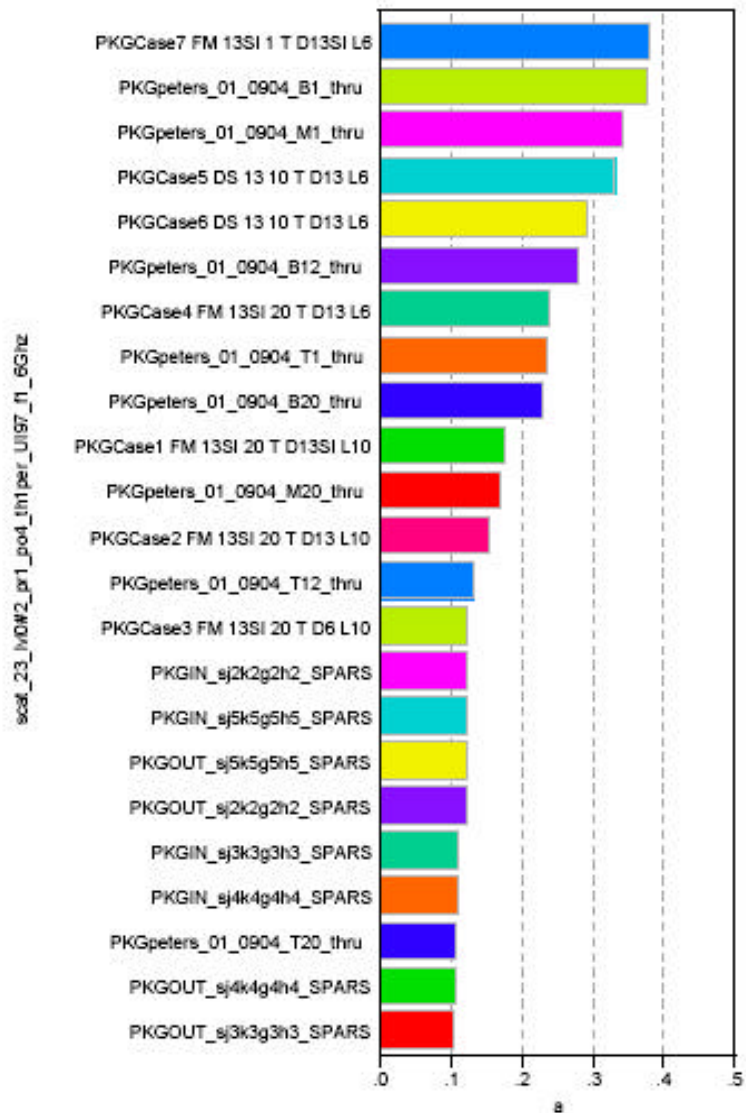


2 channels displayed

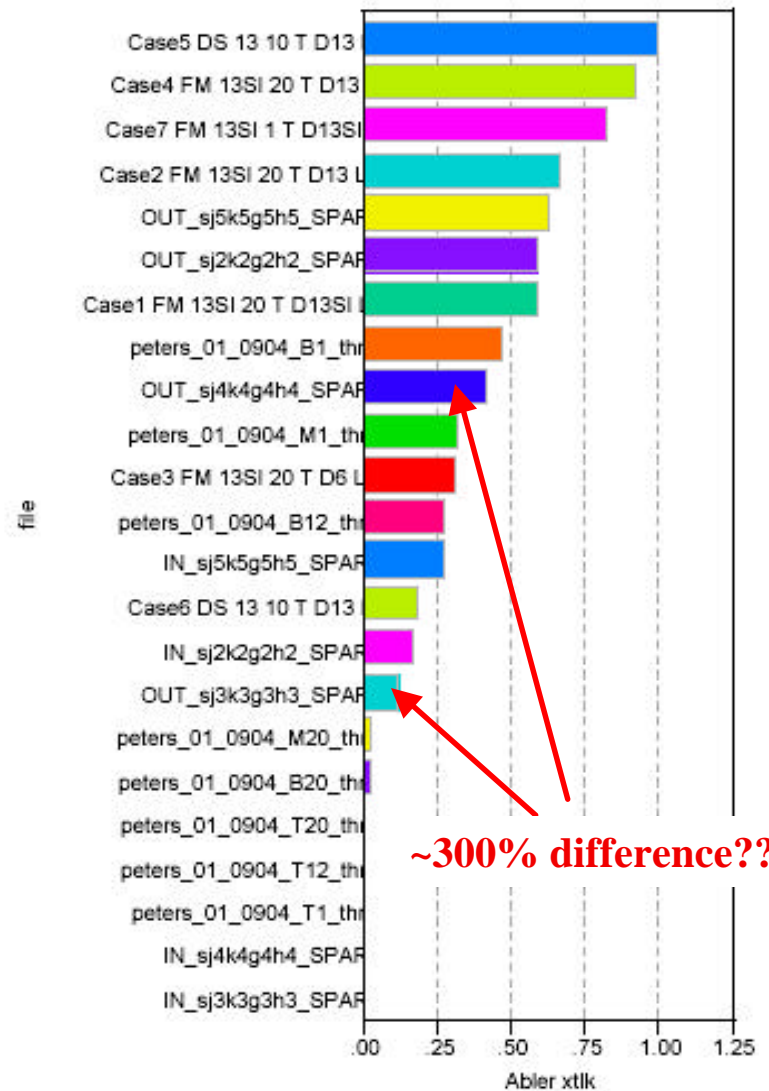


# Abler w/xtlk and A w/xtlk

Chart



Chart



## Conclusion

- S-Parameter Data for IN\_sj2k2g2h2, IN\_sj4k4g4h4, IN\_sj5k5g5h5 are virtually identical, yet small variations of data seem to produce large variations in “Abler” and “Gao” w/o crosstalk
- S-Parameter Data for OUT\_sj3k3g3h3 and OUT\_sj4k4g4h4, are virtually identical, yet “Abler w Xtalk” chart shows ~300% difference
- Physical reason for this difference not evident
- Suggest looking into methodology, check algorithms for stability. Also make sure Molex data are handled correctly, offer assistance in making data easier to handle.
- Suggest caution in using the simulation results and attempting channel comparison until we resolve these issues.

