

# Scope of Channel Work

## July04 to Sept04

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- Refine the ad-hoc Six Mask Channel Model to be presented in September as Informative.
- Verify the ad-hoc VNA setup for S Parameter measurement as agreed upon and referenced as an informative annex or published white paper.
- Continue Channel Model Verification.

# Six Mask Channel Model: work outline

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- Start with the six mask set channel model defined by the channel ad-hoc group in goergen\_03\_0704, pages 8 thru 16. The following describes the scope of work the channel group will pursue:
  - ◆ SDD21 changes bounded to 50Mhz-6000Mhz max arc depth adjustment of 6db, the equation in goergen\_03-0704 staying intact with changes only to constants, the 6000Mhz-15000Mhz magnitude staying intact within 1dB.
  - ◆ SDD11/SDD22 changes bounded to adjusting only the -12dB limit line portion to the better of 1) Data defined by the average limit of goergen\_02\_0704, mccallum\_01\_0704, peters\_01\_0704, seeman\_01\_0704, brink\_02\_0704; or 2) Correction to SMA launch pads, VIA stubs, and layer registration on goergen\_02\_0704 and mccallum\_01\_0704.
  - ◆ NEXT/FEXT changes bounded to a max 6dB adjustment starting at the 50Mhz point, the equations in goergen\_03-0704 staying intact, based on correction to SMA launch pads, VIA stubs, and layer registration on goergen\_02\_0704 and mccallum\_01\_0704.
  - ◆ Group Delay Variation changes bounded to a max change required to pass seeman\_01\_0504, +250ps/-450ps@10000Mhz, equations in goergen\_03-0704 to stay intact, and verified by correction to SMA launch pads, VIA stubs, and layer registration on goergen\_02\_0704 and mccallum\_01\_0704.

# Ad-hoc VNA Setup

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- IF BW = 300Hz
- Leveled Output Power = -5dBm
- Averaging = 16
- Step Size = 10Mhz
  - ◆  $F=15000\text{Mhz}$ , Step = 10Mhz, # points =  $(F_{\text{end}}-F_{\text{start}})/\text{step}+1 < 1600$
  - ◆ Value chosen as  $N_{\text{whole}} = F_{\text{start}}/\text{step}$  to ease invFFT conversion
- Frequency Range = 50Mhz to 15000Mhz

# Further Work

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- Continue to verify known channels meeting 'Improved FR-4' material guidelines to the six mask channel model.
- Verify null points in the SDDxx and examine the effects to the Group Delay Variation mask. Null of -25dBm followed by +25dBm within 300Mhz is suspect data.
  - ◆ Group delay and phase effected only ... VNA phase detector loses lock.
  - ◆ SDD11, SDD22, SDD21, FEXT and NEXT magnitude are okay.
- Devote at least one call to the effects temperature and humidity have on 'Improved FR-4' and the proposed six masks.
- Devote at least one call to the effects packaging will have on the proposed six masks.
- Devote time to DC-Blocking, and location in model.