



COM (Channel Operating Margin)

Channel Operating Margin (COM)

WHAT IS COM?

- COM is a figure of merit (FOM) determined from a minimum reference PHY architecture and channel's S-parameters
- COM allows designers to explore physical design budget (choices) between loss, reflection ISI, crosstalk, and device specifications
- COM is the ratio of available signal amplitude (A_s) to statistical noise amplitude (A_n) in dB

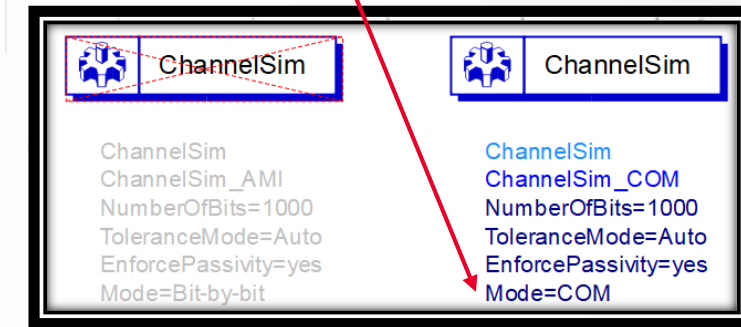
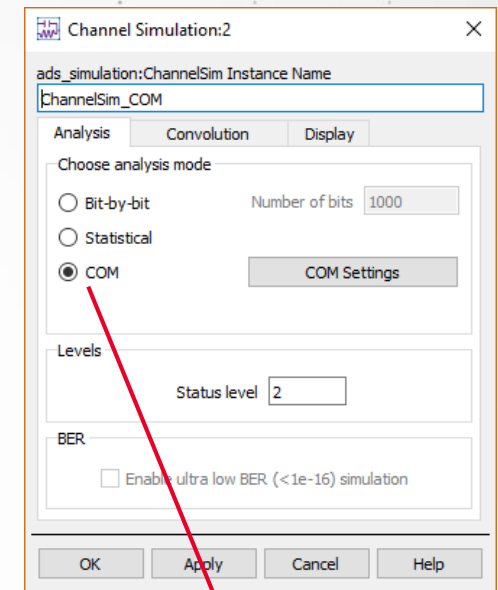
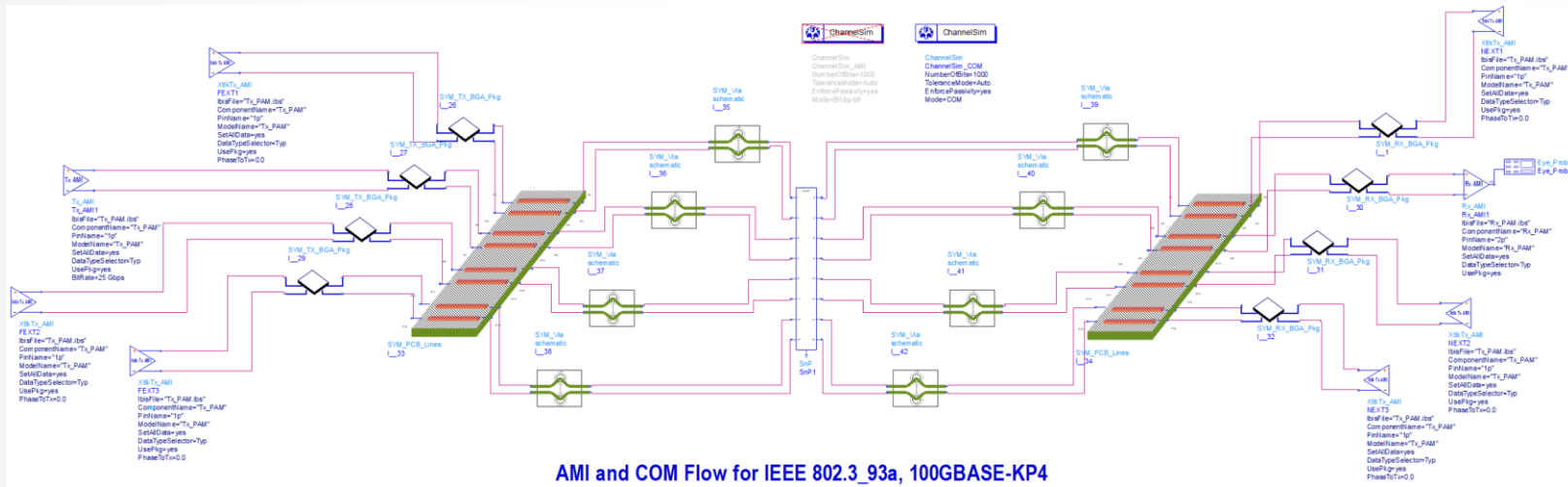
$$COM = 20 * \log_{10}(A_s/A_n)$$

Similar to signal to noise ratio (SNR)

Highlights of ADS COM Flow

BENEFITS OF ADS COM FLOW

- Support both AMI and COM flow on the same schematic

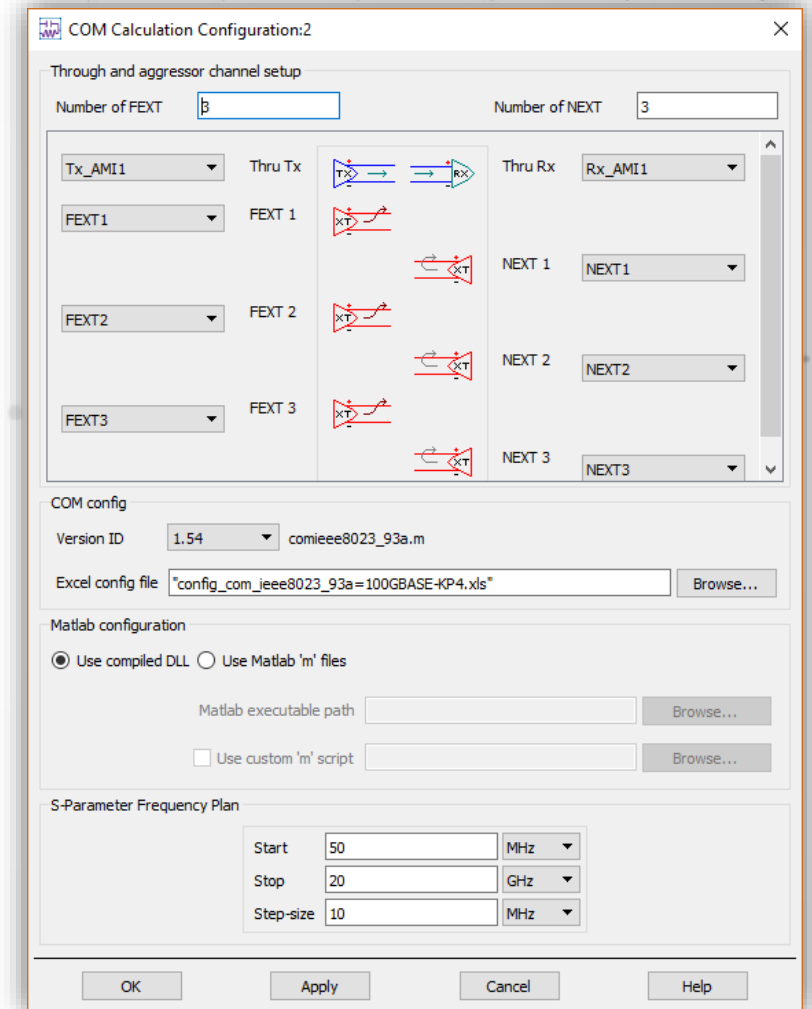


- Automatic generation of channel's s-matrix and provide it to Matlab
- First release supports COM version 1.54, 1.65 and 2.28 but easily expandable
- Now supports **COM 2.6** and **Matlab R2018B**

COM Setup in Channel Sim

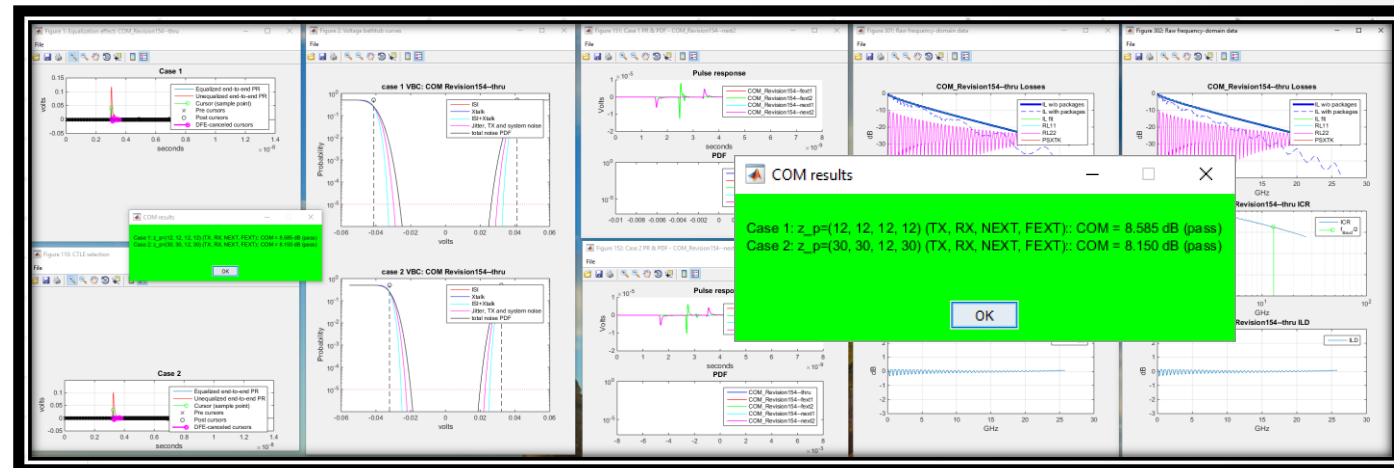
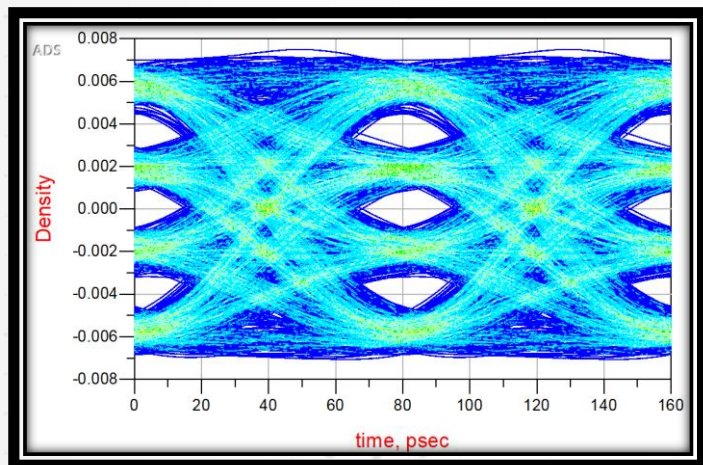
INTUITIVE SETUP AND FLOW

- Specify the number of aggressors (NEXT and FEXT) used
- Assign Thru and Aggressor channels with appropriate instance names
- Choose COM version, one of 1.54, 1.65, 2.28, 2.6 versions
- Specify COM configuration file
 - Default location is ./data
 - \$HPEESOF_DIR/lib/COM_Calc provides additional configurations
- Choose Matlab, either runtime or full Matlab (w/ .m file)
 - Runtime support R2016b and R2018B
- Specify frequency plan, typically 2x of data rate



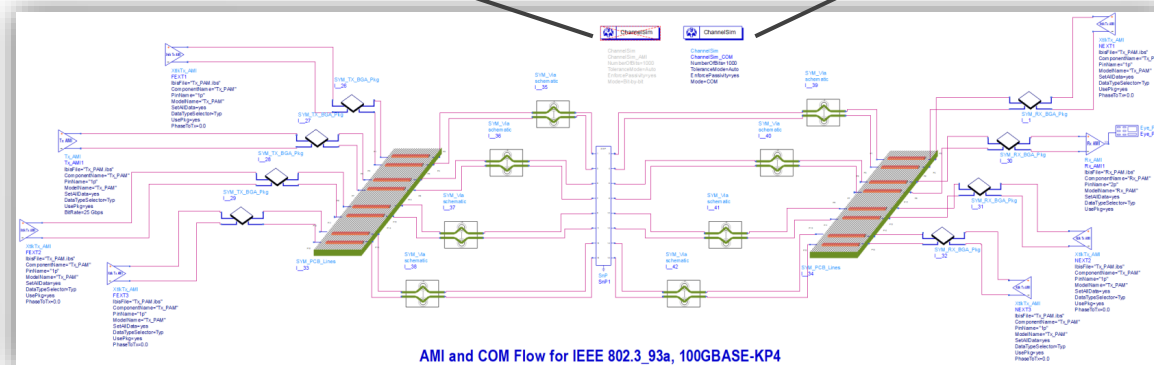
Complete Flow – AMI and COM

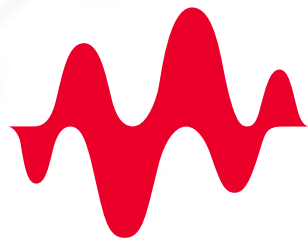
SINGLE PLATFORM SOLUTION



AMI

COM





KEYSIGHT
TECHNOLOGIES

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