Xtalk Normalization

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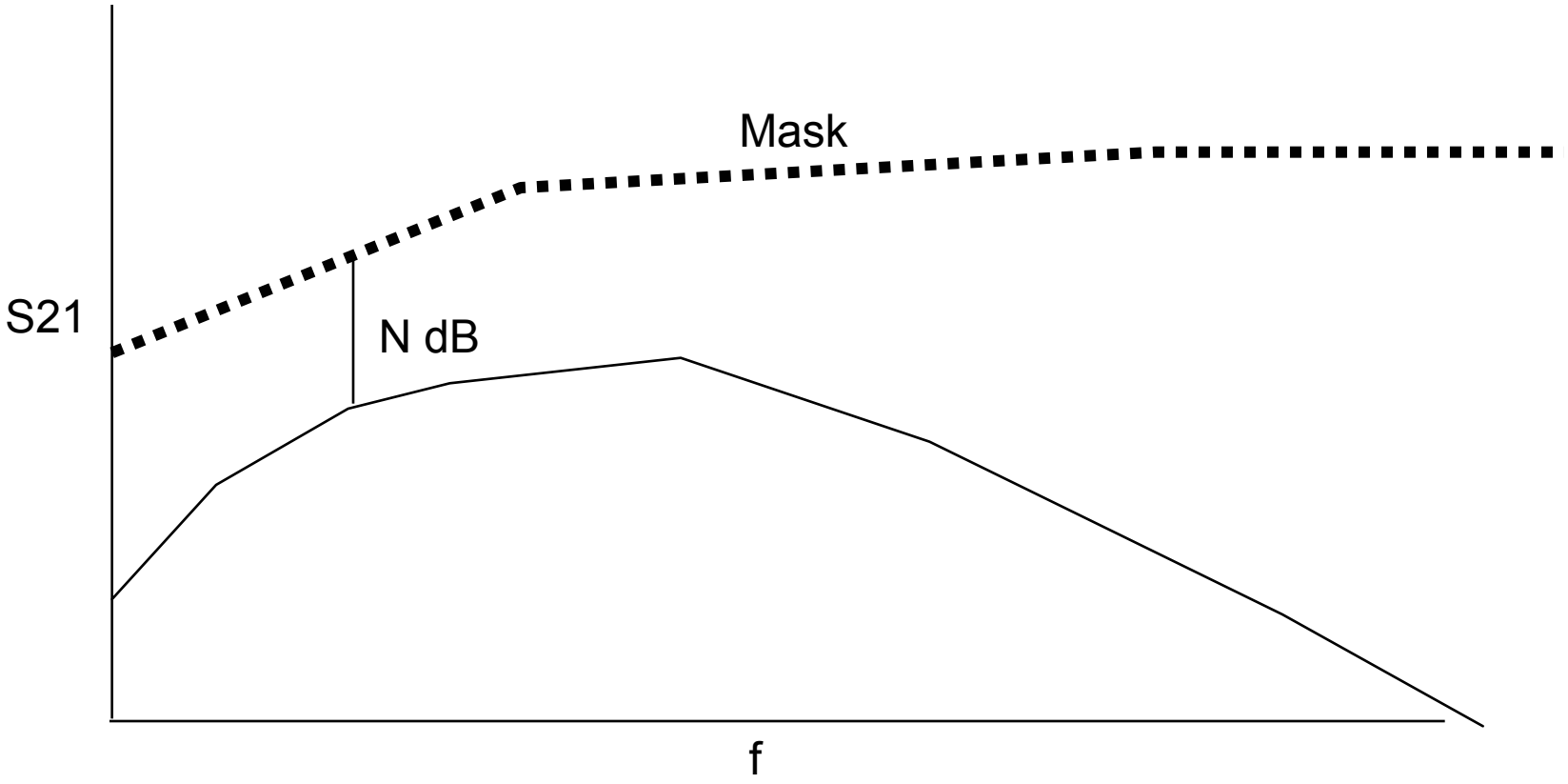
Synopsys

Overview

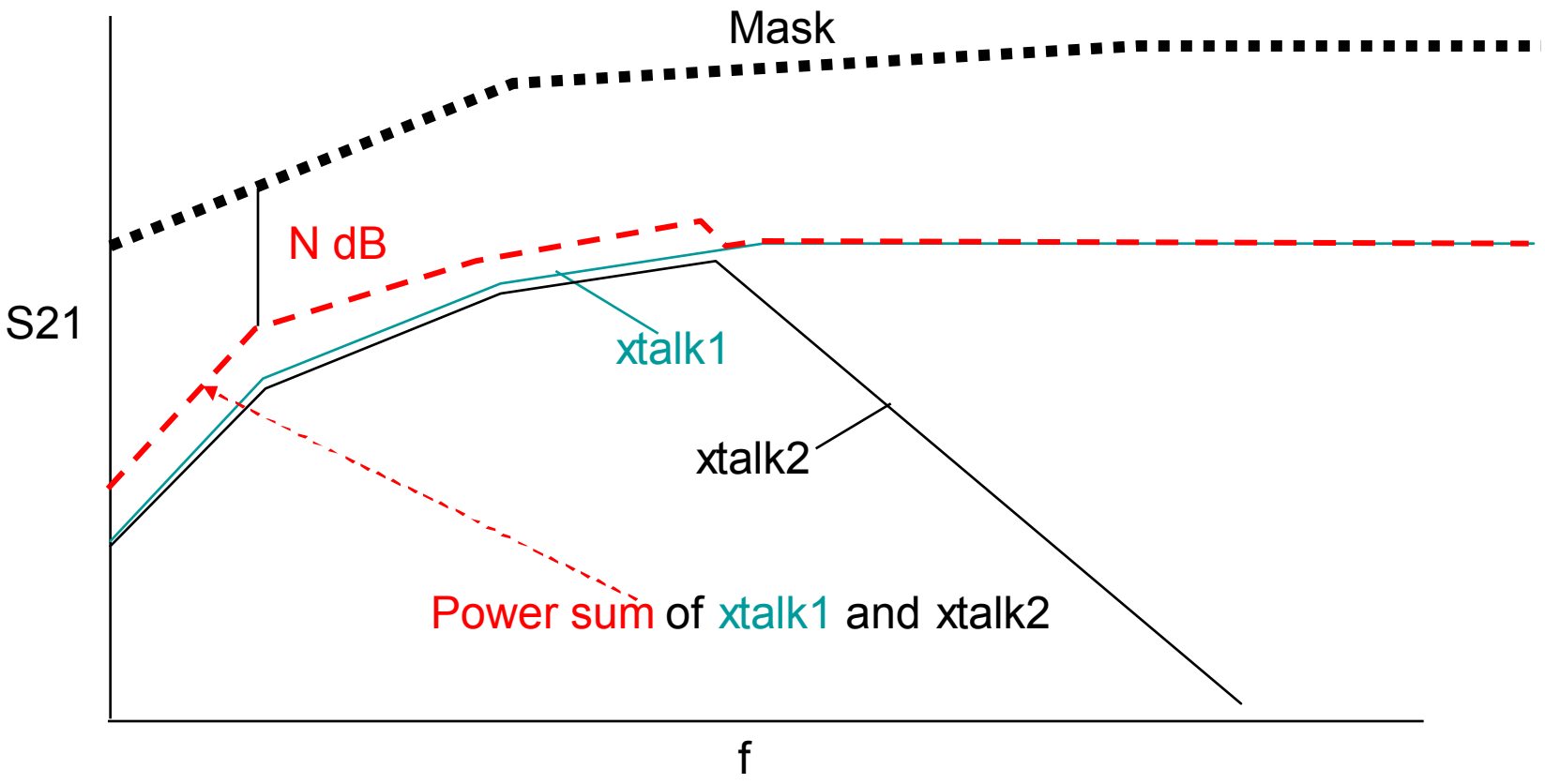
- Desirable to use measured xtalk
- Desirable to make sure that xtalk mask (limit) is properly set
- Possible solution: Use measured xtalk S21, but scale in simulation so that it is moved up to hit mask
  - Can scale S21 (multiply impulse response by gain)
  - Can scale source to xtalk in simulation
  - These are the same, pick one to avoid confusion

Example: 1



Xtalk S21 is NdB “low”, therefore multiply resulting xtalk impulse response or xtalk source by a factor of $10^{(N/20)}$

Example: 2



Power sum of xtalk S21's is N dB below mask, scale all resulting xtalk impulse responses or xtalk sources by a factor of $10^{(N/20)}$

Example 2 Details

- Power sum (dB) = $10*\log10[10^{(|S21\_x1|)/10} + 10^{(|S21\_x2|)/10}]$
- Increase by N dB in log domain requires multiplying by $10^{(N/10)}$ in power domain
- Power sum + N = $10*\log10\{10^{(N/10)}[10^{(S21\_x1)/10} + 10^{(S21\_x2)/10}]\}$
- Thus, multiply each xtalk impulse response or input signal by a factor of $10^{(N/20)}$