EE368 Method for Determining the Corner Frequency of an Unknown System
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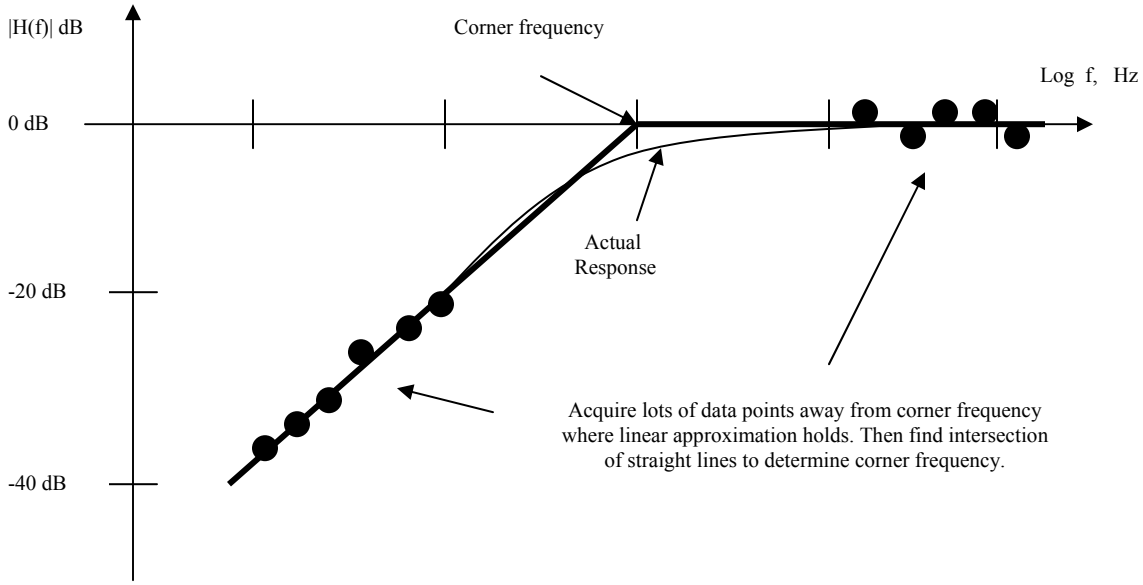
The following is a suggested procedure for determining the corner frequency of an unknown system using measurements of the magnitude of the frequency response. In the example below, a high pass system is used. The basic concept behind this approach is to **avoid** taking measurements near the corner frequency. (Recall this is where the actual frequency response curve deviates the most from the linear Bode approximation.) Rather, acquire data at frequencies away from the corner frequency, and develop a linear Bode approximation from these data.



Suggested Procedure

1. Obtain a rough estimate of the corner frequency by observing the frequency response over a wide range of frequencies.
2. Acquire many data points well above and below the approximate corner frequency (5x to 10x away).
3. Find the straight-line approximation to the frequency response (Bode linear approximation).
4. Find intersection of straight lines, revealing corner frequency.
5. A check of the response at the corner frequency should be consistent with a 3dB attenuation from the maximum.