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EE Qualifying Exam
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From Wikipedia:

> Pink noise or 1/f noise (sometimes also called flicker noise) is a signal or process with a frequency spectrum such that the power spectral density is inversely proportional to the frequency. In pink noise, each octave carries an equal amount of noise power. (The name arises from the pink appearance of visible light with this power spectrum.)

- Please explain the terms in the description above. How would you go about measuring a signal to see if it's pink noise? How would you generate a signal that has pink noise? How does pink noise differ from white noise?

1/f noise occurs in many physical, biological and economic systems. Some researchers describe it as being ubiquitous. In physical systems, it is present in some meteorological data series, the electromagnetic radiation output of some astronomical bodies, and in almost all electronic devices (referred to as flicker noise). In biological systems, it is present in, for example, heart beat rhythms, neural activity, and the statistics of DNA sequences. ... Also, it describes the statistical structure of many natural images (images from the natural environment).

Richard F. Voss and J. Clarke claim that almost all musical melodies, when each successive note is plotted on a scale of pitches, will tend towards a pink noise spectrum. There are many theories of the origin of 1/f noise. Some theories attempt to be universal, while others are applicable to only a certain type of material, such as semiconductors. Universal theories of 1/f noise remain a matter of current research interest.