What is SINAD?

SINAD provides a quantitative measurement of the quality of an audio signal from a communication device. For instance, a radio receiver. .

SINAD is the ratio of the total signal power level (wanted Signal + Noise + Distortion or SND) to unwanted signal power (Noise + Distortion or ND). The higher the figure the higher the quality of the audio signal. It is expressed as a log value (in dB) as 10Log (SND/ND). This a power ratio.

Usually SINAD is measured by setting up conditions so that *the audio output* contains a nominal *1 kHz* tone. A radio receiver could generate this using a FM signal with a specified deviation at 1 kHz rate to the antenna. The audio output will have the 1 kHz tone present plus noise and distortion products.

For the measurement of SINAD the audio output from the receiver is measured (wanted signal + noise + distortion). A notch filter removes the 1 kHz tone. The output signal is measured (noise + distortion) and compared with the first measurement. The ratio is the SINAD value.

Usually for radio systems SINAD values range between 12 dB and 20 dB (the threshold for reasonable intelligibility of voice) Under ideal reception conditions the SINAD could be greater than 40 dB.

Figure 1.0. Measuring SINAD