

1.2.2 Noise figure and Noise factor

Noise figure (NF) and noise factor (F) are measures of degradation of the signal-to-noise ratio (SNR), caused by components in a radio frequency (RF) signal chain. It is a number by which the performance of an amplifier or a radio receiver can be specified, with lower values indicating better performance.

The noise factor is defined as the ratio of the output noise power of a device to the portion thereof attributable to thermal noise. The noise factor is thus the ratio of actual output noise to that which would remain if the device itself did not introduce noise, or the ratio of input SNR to output SNR.

The noise figure is simply the noise factor expressed in decibels (dB).

$$NF = 10 \cdot \log_{10}(F)$$

(Eq. 3)

Revision #1

Created 2026-02-26 14:22:00 UTC by ECO TECH

Updated 2026-04-14 06:43:06 UTC by ECO TECH