SINR

In information theory and telecommunication engineering, the **Signal-to-Interference-plus-Noise Ratio (SINR)** is a quantity used to give theoretical upper bounds on channel capacity (or the rate of information transfer) in wireless communication systems such as networks. Analogous to the SNR used often in wired communications systems, the SINR is defined as the power of a certain signal of interest divided by the sum of the interference power (from all the other interfering signals) and the power of some background noise. If the power of noise term is zero, then the SINR reduces to the signal-to-interference ratio (SIR). Conversely, zero interference reduces the SINR to the signal-to-noise ratio (SNR), which is used less often when developing mathematical models of wireless networks such as cellular networks.

SINR is commonly used in wireless communication as a way to measure the quality of wireless connections. Typically, the energy of a signal fades with distance, which is referred to as a path loss in wireless networks. Conversely, in wired networks the existence of a wired path between the sender or transmitter and the receiver determines the correct reception of data. In a wireless network one has to take other factors into account (e.g. the background noise, interfering strength of other simultaneous transmission). The concept of SINR attempts to create a representation of this aspect.

For information on recommended **SINR** values in an LTE network, check out the 4G (LTE) section of the Mobile Signal Strength Recommendations page.

SINR

SINR	Signal strength	Description
>= 20 dB	**Excellent**	Strong signal with maximum data speeds
13 dB to 20 dB	**Good**	Strong signal with good data speeds
0 dB to 13 dB	**Fair to poor**	Reliable data speeds may be attained, but marginal data with drop-outs is possible. When this value gets close to 0, performance will drop drastically
<= 0 dB	**No signal**	Disconnection