

Superheterodyne Receiver

What is a Superheterodyne Receiver?

Definition

A superheterodyne receiver (or superhet) is a radio receiver that combines a locally generated frequency with the carrier frequency to produce a lower-frequency signal that is easier to demodulate than the original modulated carrier.

The term "heterodyne" refers to combining two different signals, as opposed to a direct conversion or homodyne receiver that uses a local oscillator frequency that is equal to the received signal's frequency.

How does a superheterodyne receiver work?

A superheterodyne receiver works by mixing the radio frequency (RF) signal with a local oscillator (LO) signal to generate an intermediate frequency (IF) which is then demodulated.

The LO frequency is offset from the RF carrier frequency, which creates images of the signal. Using a bandpass filter, the IF signal is passed, and all other images are rejected. In modern receivers, the IF signal is converted to digital and then is demodulated in the digital domain.