[Ham Basics](#) [About The Test](#) [References](#) **Study Sections**

Under Construction: VA7FI is editing this section, please do not edit it until this notice is taken down.

Recall

- [Bandwidth](#)
- [Modulation](#)

Receivers

There are three main characteristics of a receiver.

Sensitivity

A signal is always accompanied by some sort of noise, and very roughly speaking, if the signal is stronger than the noise, then it can be heard. To quantify this, we use a term called [Signal-to-Noise Ratio](#) (SNR or S/N):

$$\text{SNR} = \frac{\text{Signal}}{\text{Noise}}$$

Since SNR is a ratio:

- If SNR > 1, then the signal is stronger
- If SNR = 1, then the signal and the noise have the same strength
- If SNR < 1, then the noise is stronger.

Like other ratios, we often express SNR in [decibel](#) so that:

- If SNR > 0 dB, then the signal is stronger
- If SNR = 0 dB, then the signal and the noise have the same strength
- If SNR < 0 dB, then the noise is stronger.

Now back to the receiver. The sensitivity of a receiver is its ability to pick out weak signals from the noise. That is, it indicates how faint an input signal can be and still be successfully received by the receiver.

For example, here's the specs sheet from the IC-7300:

For example, a receiver with a sensitivity of -123 dBm can pick out a signal of 0.0000000000005 mW.[1]

Transmitters

Questions

- B-003-009-001 → B-003-008-006

[1]
-123 dBm = $10^{-12.3}$ mW ≈ 5 × 10^{-13} mW