

So they're saying transmit power doesn't matter?

we say **THEY'RE WRONG.**

Receiver sensitivity alone is NOT a substitute for power.

When data radio manufacturers try to tell you otherwise, it means their product can't compete on transmit power. **Sensitivity does not guarantee range.** Know the facts before you buy.

Good receiver sensitivity is unquestionably important to a radio's transmission range. But it's not the only critical element unless your product functions in the ideal world of no interference. In that happy place, receiver sensitivity alone could always be expected to compensate for the weaker signals that occur over increasing distances. In the **real world** that most of us design for (except for those manufacturers mentioned above), interference is everywhere and can be anywhere you'd least expect it. When that happens, you need **output power** along with a good receiver to get the best results. Read on to see why.

The license-free Industrial Scientific Medical (ISM) band is, by mandate of the FCC, a shared band for license-free devices. By their nature spread spectrum radios are designed to de-correlate the type of interfering signals found on such bands, so that these signals present less interference than conventional radios. This does not mean that spread spectrum radios do not interfere with each other - they do. This interference in effect raises the RF noise floor. If these interfering signals raise the noise floor to -103dBm, which is not uncommon, then a receiver will not be able to receive a signal that's below around -100dBm.

Which leads to the critical issue: at an average noise floor of -103dBm, a receiver with sensitivity greater than -100dBm will not achieve greater transmission range than a receiver with sensitivity equal to -100dBm. Increased receiver sensitivity simply isn't enough. At this point, the only way to increase radio range is to increase the signal the receiver can see, which can be done in two ways:

- 1) use gain antennas on the transmit side, which effectively increases transmit power but can make multi-point systems difficult to install, or
- 2) increase the transmitter's output power. This is why BlueRadios offers radio solutions with transmit output power from 1mW to 1W.

If you live in the same real world as most RF designers go with the power you need to get the range you want. **Trust us - POWER MATTERS.**