

# Range Testing

Written by Lance Riek

## Range Testing

We ran 200 range tests to determine real-world receive and transmit ranges, and the benefit of the Ortovox Smart Antenna. Other factors aside, longer range is better—it helps you find a signal faster during a search. Best-case receive range results when transmitter and receiver antennae are aligned. A vertical transmitter is worst, as its antenna doesn't align with either the primary or secondary receiver antennae. Ranges are shown in the table below.

These are not maximum ranges, but an average of 12 different transmitter orientations per beacon: 0, 45, 90 and 135 degrees on the horizontal, then repeated with the transmitter inclined 45 and 90 (vertical) degrees. The receiving beacon was passed very slowly along a measured line until it "locked" onto the transmitting signal—meaning it consistently reported over half of transmitter pulses (5 or 6 pulses in a row). The BCM range test was designed to demonstrate overall average receive range, since in an avalanche, it's impossible to predict burial orientation.

Average receive range does not relate to search strip width (SSW) directly. SSW is the distance between passes during an initial signal search—about twice the worst-case receive range, or 40 to 50 meters (depending on manufacturer recommendations).

Due to our stringent definition of signal "lock," a few worst-case range samples during testing were near, or slightly below, half the manufacturer-recommended SSW. These beacons did, however, recognize scattered pulses at long range, so buried beacons were not missed during initial signal searches. And while Arva beacons did have the lowest average range, their shortest numbers—worst-case orientation—were not lower than other beacons in the test.

We also tested transmit ranges—how far away a transmitting beacon is detected. We tested the horizontal position with 0, 45, 90 and 135-degree orientations, and the average value for every beacon fell between 43 to 46 meters.

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