Staying alive in avalanche country requires more than owning an avalanche transceiver and knowing how to use it. It also involves awareness (avalanche education and forecasting), avoidance (safe travel techniques), surviving the physical trauma (treatment and resuscitation techniques), and planning for medical care and transportation.

Avalanche transceivers are a hot survival tool, and the technology in these tools has advanced markedly in the last ten years. The revolution began with the fully-digital Tracker in 1997, with a digital display of the distance and intensity of a buried victim. If you are buried, the Tracker informs you, with a significantly lower noise range, of a third antenna to more accurately locate victims in deep burials, and with the ability to trigger a signal when multiple victims are buried. The Pulse Barryvox continued the ongoing evolution in location with its ability to quickly toggle between analog and digital modes, and to map multiple patients from the surface based on signs of life. And the Ortovox S1, released in 2007, introduced a unique display and user interface.

### Functional Features

For the last five years, I’ve been following this technological advance, testing the latest gear, and publishing the results on BeaconReviews.com. My tests have ranged from measuring the distance that transceivers can accurately receive a signal, including S1 transmission to 35, and using an oscilloscope to determine how the ambient temperatures affects the transmission frequency, to subjectively comparing the user interfaces and the comfort of the harnesses. Based on my testing, here are four of the strongest contenders.

#### BCA Tracker

The Tracker was the first all-digital transceiver. It broke new ground with its arc of LEDs that quickly point you toward the buried victim. The Tracker joyfully earned reprieve for its ease of use—easy for those who have used the new contenders. The reception range of the Tracker is shorter than the other digital devices, with a suggested search strip width of 20 meters versus 50 meters. But although range is important, you can easily adjust for the narrower search strip width of 20 meters versus 50 meters. Based on my testing, here are four of the strongest contenders.

#### Pieps DSP

The Pieps DSP was the next all-digital beacon. With an easy Off/Send/Search switch, it is simple to use and easy to find. Although the DSP’s direction arrow unit is as easy to use as the Tracker’s LEDs, it has a noticeably longer range and the ability to show a transceiver when multiple victims are buried. The ease of electronics to test our multiple victims is a handy feature that is found in the newer digital, although knowing how to search for multiple victims using manual search techniques, like expanding circle, is a worthy drill. The DSP was the first transceiver to allow automatic updates, and Pieps have been diligent in releasing upgrades—and doing the obedience of your electronics.

#### Ortovox S1

The Ortovox S1 takes a much different approach than its rivals, by displaying the victim’s location on a topographic-like map rather than pointing toward the nearest victim with an arrow or an arc of lights. Even the physical configuration is unique, with a dashboard design similar to a cell phone. The S1’s user interface is more analogous to a Palm-computer than to existing avalanche transceivers, and its icon-only interface provides access to a host of options and features including an inclinometer, an altimeter, and a compass. Whether you’ll find the interface helpful or a hindrance during an emergency is a matter of personal preference. The S1 is the most expensive of the digital.

#### Pulse Barryvox

As with the S1, the Pulse Barryvox has a built-in computer that senses your movement and quickly points the Pulse’s LED arrow toward the victim. If you are walking away from the victim, both the Pulse and the S1 can point in the wrong direction, whereas the increasing distance numbers will be your clue to turn around when using the Tracker and Pieps DSP. The Pulse has several configuration options, but they are fairly well hidden to keep them from getting in your way.

The Pulse contains an extremely sensitive motion sensor, which will electronically transmit the existence of any movement, even arterial pulses sensed while the transceiver is in your thigh pocket, to your rescuers. Thus, if you want to use an old-school search technique to determine which direction to head.

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### Personal Preferences

Selecting the right beacon ultimately comes down to personal preference. If you want a capable digital transceiver at a low price, and will remember to make narrower search strips, the Tracker is an excellent choice. If you want an extremely easy to use beacon with a long search range, the Pieps DSP is superb. If you like the Ortovox S1 icon-based user interface, it contains almost every feature and option. And if you want a powerful digital transceiver with the option of quickly toggling to an analog mode, a responsive directional indicator, and a good user interface, the Pulse Barryvox is fabulous.

### One Arrow in your Quiver

These impressive products can certainly help you or your partner survive an avalanche burial, but remember that your transceiver is a tool that is used after avalanche has struck; the best way is to avoid being buried in the first place.