

First developed for the military, rugged gadgets find a use in civilian settings

by Jonathan Sidener

To illustrate an article on a group of rugged consumer electronics coming to market, a pair of intrepid photographers took the Verizon G'zOne phone to the beach to document its water resistance.

The words "battle test" never entered the conversation, but, well, things happen. And that's really the point of rugged gadgets. When things happen, the rugged have a better chance of survival.

"Ruggedized" technology traces its roots to the military, which needs devices that will truly be tested in battle. They need to work in swamps and dust storms and survive heat and impact. In a spillover of that technology, companies have offered some rugged products to civilians for a few years, mostly for government workers such as police officers, firefighters and paramedics. But that's changing.

TOUGH GUYS - Several tough devices, in addition to the Verizon G'zOne phone (shown at the mercy of ocean waves), are being marketed to outdoors-loving consumers. CNS Photo by Sean M. Haffey. Several tough devices in addition to the G'zOne phone are being marketed to outdoors-loving consumers who are likely to thump or dunk their gadgets. At least one company - Freestyle Audio - makes a waterproof MP3 player, marketed to surfers and others who play in and around the water. More than a dozen companies make rugged USB flash drives encased in waterproof plastic or shock-resistant titanium for people who carry data but don't own kid gloves. Computer makers market rugged-case laptops - primarily to public safety workers - but the tough notebooks have a certain amount of chic among white-collar road warriors.

The rugged computers are a growing niche in the laptop market. Dell introduced its first "semi-rugged" laptop in January. The Verizon phone (\$200 with a two-year contract) is the strongest example of a rugged gadget targeted at consumers. The phone is built to military specifications for resistance to heat, water, dust and impact. It's the first device widely circulated to the nation's tech writers for review. As such, it is generating a lot of buzz. Tech reviewers embraced the opportunity to test the tough-guy phone, sometimes excessively. The G'zOne (pronounced gee-zee-one) has been oven-baked at more than 140 degrees for hours; dropped two stories into a parking lot; submerged in bathtubs, goldfish bowls and toilets; and run through the washer and dryer. It has been handed to percussion-loving toddlers. A reporter in Detroit buried it in a slushy pile of snow and then ran over it with her car.

When San Diego Union-Tribune photographers took the G'zOne to the beach, the phone demonstrated more resilience than intended. On the rocks near a pier, it had no problem with several waves that washed over it. But more than once, bigger waves sneaked up and tumbled the phone across the rocks, pulling it into the drink. The phone could have ended up like a bodysurfer with a load of sand in his trunks, but the plugs over its input connections held and the photographers plucked the unscathed G'zOne from the surf. With the exception of being run over by a car, the phone survived the above litany of abuse.

At Verizon, the phone was seen as something for people who work outside or in jobs where a mobile device might endure a lot of physical contact. The company also targets outdoors enthusiasts and the extreme-sports set, spokesman Ken Muche said.

"We've had more consumer response than we thought we would," Muche said. "It's a natural fit."

Manufacturers toss around the terms "ruggedized" and "semi-ruggedized" without any standard definition.

Gadgets that meet or exceed military specifications are the toughest and typically the most expensive. In August, General Dynamics introduced the GoBook XR-1, which fully meets military specifications and can be dropped on concrete, submerged in bleach and water, and operated in the rain or subfreezing temperatures. The laptop sells for more than \$4,000. Devices that meet or approximate military standards sometimes are called rugged and sometimes semi-rugged. The closer they come to military standards, the more they are likely to cost. Dell's rugged laptop meets some, but not all, military specifications. It sells for about \$2,500.

"There's been an increase in the semi-rugged laptops," said computer industry analyst Roger Kay, founder of Endpoint Technology Associates. "They're not made to military specifications. You can't hose them down with a fire hose or drop them on concrete like you can with a military-spec computer."

"It's a little like a Hummer made by GM. It may be a tougher vehicle, but it's not a military vehicle."

The majority of rugged gadgets sold to civilians end up in patrol cars, ambulances and firetrucks, a demographic Kay calls "guns and hoses."

The semi-rugged laptops are popular with some traveling executives, Kay said.

"It's generally more of a style thing than a need for a rugged laptop," he said. "They like the look of a tough computer. It's like someone who buys a Hummer to drive in the suburbs."

In addition to computers labeled as semi-ruggedized, manufacturers are including individual technologies such as impact-resistant hard drives in many laptops.

"Manufacturers such as Lenovo and Apple include accelerometers, which can sense that the laptop is falling and tell the hard drive to park the head so it won't gouge the disks," Kay said.

Costa Mesa, Calif.-based StacoSwitch makes computer keyboards to meet military requirements for water, dust and shock resistance. "Basically, you could type from the bottom of a swimming pool," said Tim Reilly, the company's senior product manager.

The company generally sells its keyboards in batches, often to go with another company's mobile emergency communication system. Few people are shopping for hardware to type from the bottom of their pools, but occasionally StacoSwitch sells a keyboard to an individual consumer.

"We had a professor from the University of Nevada Reno who was studying the optical orientation of leatherback turtles," Reilly said. "When they went on the beach to lay their eggs, they were being drawn by hotel lights instead of the moon.

"He was out on the beach doing research for days at a time. The salt air was eating his computer. He was happy to hear about our keyboards."

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