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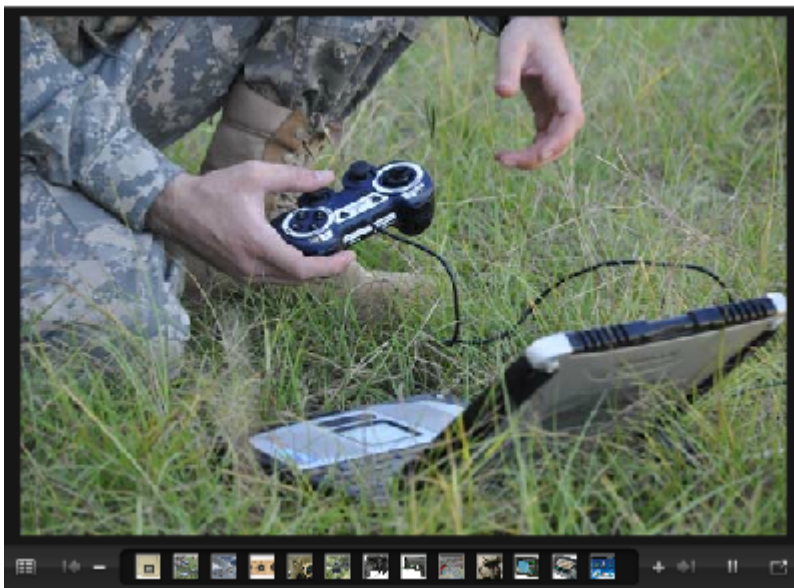
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Soldiers rate the best new combat gear

By [Lance M. Bacon](#) - Staff writer

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Army Times asked soldiers from Alpha Company, 1st Battalion, 29th Infantry Regiment, to evaluate the gear tested during the Army Expeditionary Warrior Experiment in Fort Benning, Ga.

Soldiers rated the gear on a five-star scale, with five stars as the top rating. None of the items got a one-star rating.

Here's the gear, and what soldiers said about it:

ACH Beanie (Potomac Field Gear)

One of the most popular items was also one of the smallest and cheapest.

The advanced combat helmet beanie is made with a soft microfiber that keeps sweat out of your eyes without causing your head to overheat. And it stops that uncomfortable “ring around the head” caused by most ACH liners. A cold-weather version also proved promising, though temps never quite dropped to a level that warranted its wear.

Teaming with the beanie is the ACH Impact liner (Revision). Soldiers liked the dual-foam padding, and found it much easier to catch a catnap when leaned against a Humvee door. Better still, the sweat-

wicking material is designed to better absorb impact when hit.

Rover 5 (L-3 Communications)

Rover 5, mounted in mine-resistant all-terrain vehicles and the battalion TAC, allowed platoon leaders to easily switch between ISR intelligence-surveillance-reconnaissance feeds with no jump time and sharp clarity. It also has a “John Madden feature” that lets soldiers identify targets with a stylus.

Soldiers liked the size — Rover 5 is 5.5 inches wide and 3.5 pounds. They also liked its ability to transmit and receive on Ku-band, C-band, S-band, L-band and UHF (400-470MHz). Video feed is analog, H.261, MPEG and MJPEG.

Nett Warrior

Some soldiers were hesitant, having used the failed Land Warrior system. But their concerns were soon set aside.

Nett Warrior brought situational awareness into the 21st century. It featured the Motorola Atrix smartphone and Samsung Galaxy Tablet. Platoon leaders used it for mission planning and text communication with dismounted troops. Squads monitored Nett Warrior to track blue forces, obtain the latest intel and plot battlefield data.

Young soldiers had no problem learning the system, though some older warriors had to refer to the manual on more than one occasion.

Desert Hawk III (Lockheed Martin)

The 6-pound, hand-launched, unmanned aerial system was the piece of gear the opposing force hated the most.

At one point, the “bad guys” used thermal blankets to hide their position from the 360-degree infrared turret, to no avail. The UAS essentially is inaudible, but its presence was known when soldiers effectively surrounded and pounced.

The ground station and remote video terminal proved easy to master. And the color and IR video feeds are strong. One operator, battling high winds, spotted something amiss in a tree line. With a 10-second turn and a 10-power zoom, he was able to identify an enemy truck in hiding. The UAS sent an eight-digit grid, and an artillery battery sent a virtual barrage.

K-MAX (Lockheed Martin)

The first thing soldiers want to do is fly it via remote control, but the autonomous capability really makes the difference. Just plot the flight plan and the unmanned helicopter is ready to go — and the flight plan can be changed en route.

This lets the bird get into hard-to-reach places, and hotly contested locations, without risk to flight crews. Its visual and aural signatures are far smaller than standard helicopters, but don't let its size fool you. K-MAX can deliver a full 6,000 pounds of cargo at sea level or more than 4,000 pounds at 15,000 feet. And its four-hook carousel allows it to take supplies to more than one location at a time.

BATLSKIN (Revision)

The helmet is 20 percent lighter and promises increased ballistic performance. Lighter and stronger is always better. But BATLSKIN boasts two features that caught much attention.

The mandible guard provides blunt force and fragmentation protection for the lower jaw. One platoon sergeant said it should be required for every vehicle gunner. Although the guard makes it tough to position a carbine in your shoulder and take aim, it can be quickly removed.

Soldiers also said the three-point front mount tightly secures NODs, or night observation devices, ridding the war fighter of that pesky, noisy rattle.

Uni-max Green Laser Sight (Lasermax)

It weighs only one ounce with two lithium batteries, and the fiber-reinforced nylon with which it is constructed proved durable time and again. The ambidextrous sight easily attaches to any Picatinny or Weaver Rail.

The green beam is powerful enough to be used in the day. Soldiers estimated its range at 400 meters. And it gets better still. The Uni-IR (Lasermax) was described as “simply awesome.”

The only drawback was the switch that changes the shooter from visible to IR. It’s so small that soldiers needed a knife to make the change — which could be an issue when using NODs. Soldiers suggested a larger switch with protective cover be added.

Driver’s Enhanced Situational Awareness (DRS)

This upgrade lets drivers keep both hands on the wheel and will reduce rollovers. That’s why drivers gave it an enthusiastic two thumbs up.

ESA eliminates joystick controls and widens the fields of view for the M-ATV, Bradley and Abrams tanks. A pan-and-tilt module uses three cameras to bump the field of view from 40 to 107 degrees, allowing drivers to see roadside edges — a problem that had caused rollovers. They also can use a rear-facing camera to see everything that is behind them.

The drop-in replacement also enhances the existing forward-facing cameras.

Stealth Power (Energy Extreme)

It takes up little space in the back of a Humvee, yet provides four kilowatt-hours of integrated energy storage with no thermal or acoustical signature (hence the name).

The soldiers were able to run just about everything off this small wonder, and never saw it run out of juice before they ran out of need. One platoon sergeant said that “a unit should never deploy without Stealth Power again.”

Spiral Enhanced Night Vision Goggles (ITT Exelis)

This was arguably the grand slam of AEWE. In the words of Sgt. First Class Jon Duncan, “Get it to every single infantryman yesterday.”

SENVG combines image intensification and thermal detection, enabling soldiers to see a clear picture at night, in all weather and in degraded battlefield conditions — and in true color.

All the soldiers were sold the moment they saw that clarity with their own eyes. Yet SENVG has another capability that was not put to the test at AEWE: It can connect to the network and display UAV and UGV feeds, or send the image the soldier is seeing back to command elements.

Virtual Interactive Presence and Augmented Reality (VIPAAR)

VIP is a video-conferencing system that lets soldiers “reach” into the screen and to point out things such as the latest intel, or direct a change to mission.

The system already is a big hit in battlefield medical care. The battalion tactical assault command liked the company coordination that VIP provided. It also got thumbs up by being the only system that identified the five different UAV video feeds commanders were watching. This helped them better understand what they were looking at and how it played out in the big picture.

Long-sleeve T-shirt (Potomac Field Gear)

This moisture-wicking, fire-retardant shirt was a big hit for soldiers who wanted something between a T-shirt and snuffle gear. The shirt is not bulky and it’s breathable enough to prevent overheating, yet warm enough to keep the chill away.

Lightweight Data Tablet (L-Tab) (L-3 Communications)

Soldiers, especially the precision targeting team, liked the larger screen on this rugged data tablet. Video was clear and sunlight-readable. Similarly, soldiers found the Lightweight Data Terminal 2 (LDT2) to be durable and dependable.

UGV fuel cell & SC3500 radio for TALON

These upgrades give the multifaceted TALON robot a lot more range.

The fuel cell is so quiet, you can’t hear it run. And it goes for eight hours on two small propane tanks — the kind that can be bought anywhere in the world. This huge improvement is diminished only by the lack of a “low fuel” indicator.

The radio acts as a relay, which enables this once line-of-sight robot to traverse natural and man-made obstacles at distances beyond 500 meters.

Soldier ISR Receiver (L-3 Communications)

The receiver is able to display secure digital and analog ISR feeds into a small monacle or the Lightweight Data Tablet, enabling soldiers to see just about any intel picture or video out there.

The receiver saw heavy use in defensive positions, where unmanned aerial vehicles were able to provide soldiers a “bird’s eye view” of the perimeter. Soldiers also liked the fact that it is durable and light, coming in at under one pound.

Silver Fox (BAE Systems)

The OpFor could hear the gas/electric engine when this UAS circled overhead, but that was its only drawback. Its gimbal-operated, electro-optical and infrared sensors provided autonomous aerial surveillance and full-motion imagery in day and night operations.

At 30 pounds, this was the biggest fixed-wing UAS out there. But it proved dependable and durable. It boasted upwards of 10 hours of flight and is capable of autonomous takeoffs and landings.

One commander said the video was the best feed in the battalion TAC, and was thrilled that the picture was just as clear on tablets used with Nett Warrior and One Force Tracker.

Phoenix 50H (TiaLinx)

This quad-propeller UAS takes the ability to sense through walls and puts it on the roof. Soldiers found this a very handy recon tool while hiding in the shadows during military operations in urbanized terrain.

The UAS is easily controlled by a remote device and is capable of high-altitude hovering or landings on sloped or flat surfaces. The camera system detects live and displays location in real time.

6-pack Auxiliary Power Unit (CERDEC)

Soldiers found this man-portable battery recharger especially beneficial for defensive positions and use at the forward operating base. With an adapter, soldiers were able to charge everything from their cellphones to MBITRs, or Multiband Inter/Intra Team Radios.

Water From Air (TARDEC)

The system can produce up to 500 gallons of water a day. That is a refreshing thought for any soldier who has endured water rationing.

It works on a 5-to-1 ratio: Five gallons of water produced for every gallon of gas it burns. In places such as Iraq, where water bought by the Army cost more than fuel, that is a bargain.

The only drawback is the noise. Soldiers better have some of the sensor systems listed in this chart to keep the enemy at bay, because a high-school band can sneak up on you with this thing running.

Advanced Tactical Load-carriage Armor System (Plasan Personal Armor)

This modular system allows full motion with full protection. We're talking jumping jacks with no resistance. ATLAS has a comfortable, tight fit against the body and provides good load distribution. It was worn on recon, MOUT and ambush missions with no complaints.

Soldiers also liked the fact it covered their lower spines when seated. Though not part of this experiment, the system also offers groin, shoulder, throat and neck protection.

XX55 Fuel Cell (Genport)

This 5.5-pound battery puts out 55 watts — enough to run a portion of the COB or cut battery weight up to 70 percent on a 72-hour mission. One sergeant first class used an early version on a recon mission in 2008 and said it worked five days straight with no problems. This model can run for weeks on a single fuel cartridge.

Nighthawk (Applied Research Associates Inc.)

One soldier called it “UAS in a box.”

Nighthawk is light and easily transportable. It is made of flexible material and comes ready to launch in a 6-inch tube. Launch and recovery is easy, allowing the ground controller to loiter over a target or provide recon of a specified location.

Operators, who had been trained earlier in the day, had trouble maintaining and landing the UAS in 20-mph winds. Most rough landings did not keep Nighthawk grounded too long, thanks to its flexible construction.

Combat Shirt (Potomac Field Gear)

Most soldiers were taken in by the “cool factor” of the shirt’s design. But it has a practical purpose, as well.

The shirt, which was worn in place of the Army Combat Uniform blouse, eases the burden that combat gear puts on your back and shoulders. It also uses a mesh weaving to distance the gear enough to allow your body to breathe.

Soldiers said they would give it four stars in cold weather, but said the shirt was too warm for hot weather.

Adder UGS (Sage Technologies)

These thermal-imaging cameras project heat differences as gray-scale images, letting soldiers see any infiltration in a given field of view. The Adder was a workhorse, and was mission-ready every time it was called upon.

Soldiers said they would like a wider field of view and a zoom feature. They also weren’t fond of going to the camera’s location each time they had to switch day and night cameras or replace batteries.

Eagle 45W (TiaLinx)

This lightweight wrist-mounted sensor detects motion behind walls. That worked well, and the soldiers liked it. But the sensor is attached to an extended battery, which adds to the soldier’s load. It also uses a monacle as a display unit, which seems to be the flavor of the month. In the words of one soldier, “I have more eyepieces than fingers. They either need to get everything into one eyepiece or ban them entirely.”

Soldiers said they would like to see current handheld sensors adopt the Eagle 45W’s wrist configuration.

Rifle Integrated Power Rail (Reset)

Soldiers were happy with the capability the RIPR provided. It worked as advertised in every mission, and would have had four stars were it not for questions the experiment left unanswered.

Soldiers wanted to know if the batteries really do last longer than independent batteries, and how well the system would hold up over a year-long deployment. Of specific concern is whether they can trust the system’s built-in redundancies designed to ensure power is not lost. If you lose power here, you lose power to all accessories.

The grunts said that once those questions are answered, they would have no problem taking RIPR on missions.

Carbine Grip Laser (LaserMax)

This pistol grip mounts quickly to your weapon to provide a powerful 5-megawatt red laser aiming device and LED tactical navigation light. Soldiers liked the concept and capability. They said it was comfortable and easy to use, but durability was an issue. In fact, the mounting hardware for two units broke in the van ride to the FOB.

Integrated Support Exospine (Emerald Touch)

The system connects to your Improved Outer Tactical Vest and is designed to take the weight of a combat load off your chest, back and shoulders. It does this so well that Platoon leader First Lt. Dan Sekula was concerned his troops would decide to carry more weight. The ISE also saves your back by mirroring the correct movement of the pelvis and spine.

Soldiers wearing ISE showed greater endurance and recovery. The only problem was an inability to raise their heads to aim when in the prone position. Soldiers said they would give ISE five stars if this was fixed. That was good news for designer Dr. Michael Glenn, who said he already has the solution.

Instant Eye (PSI)

This quad-propeller camera worked as promised, and provided good imagery back to the squad. But soldiers wondered when and where they would use it.

UAVs are prevalent, and platoon platforms such as Nighthawk provide better coverage at greater range, operators said. While this might be a good recon tool in a pinch, soldiers were also concerned that the low range at which it flies would tip the enemy to their presence.

Half-size BA-5590 battery (CERDEC)

Everyone knows batteries are a burden, so cutting this 2.25-pound behemoth seems like a good idea. And it did provide enough power to do the job on every mission. But one platoon sergeant didn't like the smaller battery rattling around in a compartment designed for the larger 5590.

And one operator was concerned about long-term service. The ASIP, which is the Advanced Special Improvement Program SINCGARS model, puts out a big burst of juice when powered up, and he wanted to know if this would not deteriorate the battery's capacity before giving it his full trust.

Eagle 50 (TiaLinx)

This unmanned ground system is a small robotic vehicle that uses radar to detect movement within buildings. It worked fine, but soldiers said the robot is an unnecessary time and weight burden for infantry squads, since handheld technology exists that can see through walls from 60 feet.

SMSS (Lockheed Martin)

The Squad Mission Support System can carry up to 1,200 pounds at 17 mph. But it sounded like an angry elephant bent on destruction as it followed soldiers through the woods. Aside from the sound of snapping branches, the opposing force could hear the motor at 300 meters. At one point, a squad sent SMSS down a trail to keep it quiet, but had to assign four men to guard it.

“It would have been easier and safer to carry the gear,” one soldier said.

However, soldiers were inclined to rate SMSS at four stars when used in less-tactical missions such as FOB resupply, and were thankful for the load it lifted.

Carry-all Mechanical Equipment Landrover (Northrop Grumman)

Like SMSS, the CaMEL didn't meet tactical standards. Its smaller size helped it fare a little better, but carrying 1,000 pounds at 7 mph through a wood line is a recipe for disaster. In one mission, a soldier tried to navigate a sizable hole, only to watch CaMEL roll over and play dead. This delayed the mission by 45 minutes; it took nine soldiers to get CaMEL out.

Like SMSS, soldiers were inclined to give CaMEL four stars when used in less-tactical missions, such as FOB resupply.

Micro-Climate Cooling System (RDEC)

The vest, worn as an undergarment, has an autonomous vapor compressor system that chills water and pumps it through small tubes embedded in the vest. Though popular with aircrews, the grunts weren't as impressed.

The system has to be plugged into a power source. Once dismantled, it stops working — and the vest meant to keep them cool causes soldiers to overheat. Use in vehicles is not necessary, as most have air conditioning.

Some soldiers said it might help overheated soldiers recover, but they saw no tactical use.

On-board Vehicle Power and Essential Services Unit (TARDEC/DRS)

The system turns vehicle power into external power that can provide juice to just about anything. But soldiers said the bulky and loud unit was unnecessary with the wide variety of power providers available today.

In addition, many complained that gear plugged into the unit didn't hold a charge as well.

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