



Securing the ramparts of the night

Lieutenant Colonel Matthew England, Chief of Electronics and Special Developments, Soldier Requirements Division, US Army Infantry Center discusses the challenges of retaining ownership of the night

A question regularly and continually asked by the US Army is whether they continue to dominate the night; able to decisively defeat the enemy in that environment. Maintaining that lead in Seeing, Acquiring and Targeting within the enemy's decision cycle is a multiple challenge in identifying the obstacles to that, determining the requirements to overcome any threat and maintain or increase the US' lead by improving both development and procurement processes.

Lt. Col. Matthew England, Chief Electronics and Special Developments, Soldier Requirements Division, US Army Infantry Center explained, "The reality is that we do own the night. The fight at night is mature. The whole idea came about in the mid 1980s and from then on, we quickly owned the night and we became very, very effective. Where we are today is that night vision capabilities are proliferating and even some less capable systems are giving [significant] capability to the enemy. At the Infantry Center, we are looking at how to attack this problem in regards to dismounted warfare."

Lt. Col. England believes that it is inevitable that access to night vision equipment will make its way into insurgent and terrorist hands through secondary and tertiary markets. Potential state adversaries are also actively procuring equipment on the open market. He notes that night vision equipment manufactured in the US is already being found in the hands of insurgents in Iraq. He commented, "We can't rest on our laurels."

Maintaining the lead requires listening closely to the user. Lt. Col. England said, "Every single time a Brigade Combat Team comes back from theatre, we ask the soldiers and marines what problems they had, how the equipment worked and their ideas. These combat results are then used to generate new requirements and new capabilities."

Current capabilities include a range of dismounted, enhanced night vision devices, the most recent being the AN/PSQ-20 ENVG which Lt. Col. England explained was in the early stages in terms of production and added that it, "gives you an enormously greater capability." Beyond this optically fused I2/IR (Image Intensification/Infra-Red) image is the Enhanced Night Vision Goggle (Digital) which moves to digital fusion and integration with the Ground Soldier Ensemble (GSE). Target Acquisition solutions include the clip on AN/PVS-26 night sight for the M24 and M110 and the Thermal Weapon Sight which equips small arms and support weapons such as the M2 and MK19. In the future, rather than two target acquisition families, a single Future Weapon Sight will provide a fused day night and capabilities for rifles, machine guns and snipers and will have digital interoperability with the GSE.

"We are fairly comfortable with the current systems," Lt. Col. England explained. "The common findings of users across the board, is that in general they are hard pressed to find anything to complain about with our night vision equipment. That is not to say that there aren't any complaints at all."

"The PVS-14 which was really the home run of night vision, is truly remarkable to people who use it," continued Lt. Col. England. Coupled with the AN/PEQ-2 laser pointer, they have changed the paradigm of night fighting, enabling them to target nearly as rapidly and effectively as they can during the day with their individual weapon."

Issues that remain are certainly not unique to the night vision domain; lighter devices, smaller, more compact devices; reduced battery consumption; better resolution and depth perception, fusion and improved survivability.

"What soldiers love is the technology. What they absolutely don't love is their size weight. They want as

small a form factor as they can get. Across the board in my division we are looking closely at reducing size, weight and power." Lt. Col. England adds that depth perception and resolution are paramount to the avoidance of blue on blue engagements and in Fusing I2 with IR enables the soldier to see the pointer, but also have the benefits of being able to see in all light conditions and obscurants with IR increasing engagement capabilities.

Future Night Vision requirements focus on fusing image intensification with IR. Each ground soldier requires the capability to see under all light and weather conditions and through all obscurants with a single device and have the capability to quickly acquire, identify, and engage threat targets from 300 to 600m in varying degrees of light or darkness and different temperatures.

Current lasers available to small tactical units only operate with image intensification systems not a thermal capability. Fusing I2 with IR enables the soldier to see the pointer, but also have the benefits of being able to see in all light conditions and obscurants with IR. However, units today can't point out targets to key support systems such as the Bradley, Apache or soldiers whose weapons are equipped with a Thermal Weapon Sight. Digital Fusion in the future offers the possibility of digitally passing the target to the recipient instead of physically pointing the target out. Moreover, as opponents' I2 night vision capability expands in the future, our pointers will be readily visible to them. Digital Fusion will enable the weapon sights' image to be passed to the goggle thus maintaining the advantage of the current matching of pointers with I2 goggles, only without a laser being visible to the opponent with I2 night vision capability. Small units also require the ability to designate targets with a lightweight system, particularly in the decentralised fight today. ■