



STIC Note

K9 Equipment Limited User Evaluation



BACKGROUND

The US Coast Guard anti-terrorism mission protects people from maritime-based explosive threats. This mission is supported by the use of 18 explosives-detecting K9s uniquely trained to deploy to a seafaring vessel via a small boat or helicopter. K9 handlers are equipped with ample protective gear; the K9s – exposed to the same environment and same dangers – have very little. Each K9 costs over \$100K to train and their value increases indefinitely as they gain experience. Injury leading to early retirement decreases the return on investment. These dogs are important members of the Coast Guard and their preservation is just as important to mission readiness.

Because of the unique role the USCG K9s fill including operating on small boats, hoisting in and out of helicopters, and searching hot and cramped vessels, they cannot make effective use of much of the K9 protective gear used by other military branches and law enforcement agencies.

METHODS

Members of the STIC worked with the USCG K9 handlers to identify six areas of K9 need: head, ear, and eye protection; quickly removable ballistic protection; a fast escape method; enhanced training methods; a lightweight, comfortable harness for non-hoisting operations; and more comfortable hoist harnesses. The table summarizes the gear evaluated to address each need.







EVALUATION

The STIC purchased a variety of K9 protective equipment and met with three K9s and handlers in San Diego for evaluation. The preferred hoist harness was the only one that had all the necessary safety straps and attachment points which fit their rig. They evaluated both the hoist harness and the helmet during a hand-over-hand hoist drill and agreed that the new harness is more supportive. During the operation, one of the K9s hit his head on a metal beam – something not uncommon during missions – but was protected by the helmet. The preferred non-hoist harness was light in weight and high in number of Velcro strips (for “DO NOT PET” patches for security detail). The equipment was tested at an air station but due to a last-minute change with the helicopter schedule, just the helmets and cameras were evaluated. Finally, the team moved into a hanger where the K9s and handlers conducted search and find drills using the cameras and tablets and quick egress drills using the harness backpack straps.

CONCLUSIONS

The handlers involved were outfitted with gear that met each of their six needs. Because the Coast Guard K9 community is small, STIC is currently outfitting each handler with the apparatus as it arrives.

STIC Note: Enhanced Firearms Training Systems

<p>Helmets</p>	<p><u>Need:</u> K9s are able to remove current ear and eye protection, no bump protection <u>Tech Solution:</u></p> <ul style="list-style-type: none"> • New helmets with integrated ear and eye protection cannot be removed by K9s • Helmets are 3D printed from durable materials and provide bump protection • Picatinny rail provides attachment point for cameras, flashlights, and other gear 	
<p>Hoist Harnesses</p>	<p><u>Need:</u> Current harnesses do not provide spinal support [K9s experience undue wear on their spines during hoisting operations] <u>Tech Solution:</u></p> <ul style="list-style-type: none"> • New harnesses with more rigid construction offer superior spinal support possibly extending K9s' career and improving quality of life 	
<p>Non-Hoist Harnesses</p>	<p><u>Need:</u> K9s require comfortable harness for non-hoist operations <u>Tech Solution:</u></p> <ul style="list-style-type: none"> • New harnesses are lightweight, breathable, and provide ample attachment points for gear and tethers/leashes 	
<p>Ballistic Overlay</p>	<p><u>Need:</u> K9s do not have protection from attacks. <u>Tech Solution:</u></p> <ul style="list-style-type: none"> • The overlay provides ballistic and stab protection • Overlay interfaces with both hoist and non-hoist harness and does not interfere with harness functionality 	
<p>Backpack Straps</p>	<p><u>Need:</u> Handlers have limited extraction methods for their K9s. <u>Tech Solution:</u></p> <ul style="list-style-type: none"> • Backpack straps interface with K9 harnesses • Small, lightweight, removable, easy to carry • Give handler a fast extraction method during dangerous missions 	
<p>360° Attachable Cameras</p>	<p><u>Need:</u> Handlers require enhanced training methods, ability to remotely view K9 movements <u>Tech Solution:</u></p> <ul style="list-style-type: none"> • Cameras attach to K9 helmets • Give handler "dog's eye" perspective • Can cast live to tablet or phone for remote review of K9 movements during training exercises. 	

The Science and Technology Innovation Center (STIC) is a DHS S&T and USCG collaboration.