

Topic: N123-154

Hearing Armor, LLC

Hearing Armor - Next Generation Passive Hearing Protection

Current standard issue hearing protection does not enable warfighters to readily hear commands or warning signals. This technology solves that problem. It consists of a small film based filter, set inside an earplug. The filter allows sounds at normal decibel levels to pass through with minimal attenuation while very loud and concussive sounds are attenuated by more than 30dB. This “fit and forget” solution will allow warfighters to be protected against hearing loss without having to manually adjust the device to achieve situational awareness. This capability has been proven in Marine field testing. Hearing Armor specializes in high fidelity hearing protection for military and industrial applications. Our goal is to manufacture and distribute earplugs for military and industry, and explore integration with communications systems.

Technology Category Alignment:

Agile Operations

Personalized Assessment, Education, and Training

Protection, Sustainment, and Warfighter Performance

Contact:

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SYSCOM: MARCOR

Contract: M67854-14-C-6515

 Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=M67854-14-C-6515

WHO

SYSCOM: MARCOR

Sponsoring Program:

Transition Target: US General Services Administration (GSA) schedule; Defense Logistics Agency (DLA) [obtaining a National Stock Number (NSN)]

TPOC:

sbir.admin@usmc.mil

Other transition opportunities:

Slated for procurement by individual units



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WHAT

Operational Need and Improvement: Marine Corps warfighters need to be able to hear commands on the battlefield while having their hearing protected from the loud impact noises heard there. Current standard issue hearing protection has to be manually adjusted for different settings. In combat mode, it guards against loud noises, but leaves low situational awareness due to the blocking of all sound. In non-combat mode, it only blocks a small amount of noise, leaving the warfighter able to hear commands, but less protected against loud noises. Hearing Armor products automatically adjust to the level of sound, providing maximum protection while simultaneously allowing for maximum situational awareness.

Specifications Required: The Hearing Armor technology will exceed the steady-state and impact noise attenuation specifications of 30 dB, while achieving a noise reduction rating (NRR) as close to 12 as possible. Hearing Armor must produce a silicone version of the product in small, medium and large to permit proper fit for the majority of Marines as defined in topic N123-154, and a universal-fit foam version for Marines who have a preference for that form factor.

Technology Developed: The Hearing Armor design permits sound to enter the earplug. A proprietary diaphragm imbedded inside significantly reduces dangerous sounds and blocks their damaging shock waves, while quiet sounds are minimally affected. Hearing Armor achieves these results without any moving parts or electronics. Independent testing indicates that Hearing Armor reduces impact noise of 140 decibels by over 40 decibels.

Warfighter Value: Wearing Hearing Armor earplugs will allow warfighters to be combat ready at all times while still maintaining their situational awareness and ability to carry on daily tasks and communication, as it eliminates the need to remove or adjust their hearing protection in order to hear critical commands, instructions, or warning signals.

WHEN

Contract Number: M67854-14-C-6515 **Ending on:** December 31, 2015

Milestone	Risk Level	Measure of Success	Ending TRL	Date
MARCOR field test of Hearing Armor plugs completed	Low	Demonstrated efficacy with adequate comfort, fit, and retention	6	October 2015
Manufacture 150 silicone plugs (50 each size) and 50 foam plugs using semi-automated production process	Low	Process produces high quality plugs and is repeatable	6	December 2015
Acoustic test results	Low	Meet attenuation and NRR specifications	7	December 2015
Manufacturing scale up completed	Low	Ability to produce >100000 pairs of plugs per month	8	June 2016

HOW

Projected Business Model: Hearing Armor will manufacture and market its products to users in the Military, other high risk commercial industries and eventually directly to consumers. Hearing Armor is presently seeking additional investment to finance the ramp up of manufacturing operations in the US and overseas. Within 5 months of additional investment being received, Hearing Armor will be able to supply its customers with product at reasonable order volume with annual capacity for over 1 million pair of plugs.

Company Objectives: All branches of the military stand to be primary purchasers of Hearing Armor products for their warfighters and support personnel. The technology could later be incorporated into military communication systems that utilize an earpiece, but in its present form it works very well as a stand-alone hearing protection device. Objectives for the transition event are to gain exposure to important buying decision makers that purchase current hearing protection products for their units as well as to learn more about how our technology could be incorporated into other communication systems where added hearing protection is desired.

Potential Commercial Applications: All branches of the military have a significant need for our products, but so do workers in industries such as mining, transportation, heavy manufacturing, lumber, construction and many more. Workers everywhere need to be able to hear warning signals and commands while still remaining protected from loud and damaging sounds. Many of these high risk industries are offering simple hearing protection to their employees which does not allow the wearer to remain situationally aware of their surroundings.

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