

Topic: N131-077

AnthroTronix, Inc.

Motion-induced User Symptomatology Toolkit for Evaluating Readiness (MUSTER) Phase II

PASS MUSTER is a Smart Phone-based modular system (i.e. applications) for assessing cognitive and physical health indicators in operational environments. PASS MUSTER utilizes DANA™, a Neurocognitive Assessment Tool (NCAT), which employs both cognitive and psychological test batteries. PASS MUSTER serves as a "Brain Thermometer" that can be used to assist in making "Fit-for-Duty" and "Return-to-Duty" decisions for Warfighters experiencing operational performance issues. PASS MUSTER is compatible with COTS sensors and subjective measures to assess operational readiness symptomatology. DANA is sensitive to changes in cognitive efficiency from any cause, and has been successfully used in six extreme environments, including Afghanistan. AnthroTronix's goal is for DANA, as the first component of PASS MUSTER, to be forward deployed to provide cognitive and psychological assessment capabilities where they currently do not exist. AnthroTronix develops innovative technologies in neuroscience, applied physiological monitoring, human-machine interaction, simulation, and training.

Technology Category Alignment:

None

None

None

**Contact:**

Jonathan Brown

[jbrown@atinc.com](mailto:jbrown@atinc.com)

(440) 463-5269

<http://www.anthrotronix.com>

**SYSCOM:** ONR

**Contract:** N00014-14-C-0308

 Corporate Brochure: [https://navystp.com/vtm/open\\_file?type=brochure&id=N00014-14-C-0308](https://navystp.com/vtm/open_file?type=brochure&id=N00014-14-C-0308)

## WHO

**SYSCOM:** ONR

**Sponsoring Program:** Performance Shaping Functions for Environmental Stressors

**Transition Target:** Combat Casualty Care/Military Operational Medicine

**TPOC:**

Dr. Amy Bolton  
[amy.bolton@navy.mil](mailto:amy.bolton@navy.mil)

**Other transition opportunities:**

Navy Corpsmen, Medical Officers and other Clinicians  
US Army Medical Materiel Agency  
Commercial transition opportunities in:

- Pharmaceutical Research - To Indicate change in cognitive performance during drug trials
- Health and Wellness - Tool for self-tracking and annual health visits to track changes in cognitive performance over time
- Industrial/Commercial: Tool to determine if employees are qualified for duty



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## WHAT

**Operational Need and Improvement:** Sailors and Marines may experience performance degradation, including motion sickness, fatigue and stress, due to shipboard environmental conditions.

PASS MUSTER is a Smart Phone-based modular system (i.e. applications) for assessing a variety of cognitive and physical health indicators in operational environments.

**Specifications Required:** Portable/deployable

Assess cognitive performance over time

Detect changes in cognitive performance due to any cause

**Technology Developed:** PASS MUSTER utilizes DANA™, a Neurocognitive Assessment Tool (NCAT), running as an application on Android and iOS mobile devices. Employs both cognitive and psychological test batteries.

Serves as a "Brain Thermometer" that can be used to assist in making critical "Fit-for-Duty" and "Return-to-Duty" decisions for Warfighters experiencing operational performance issues.

PASS MUSTER is compatible with COTS sensors and subjective measures to assess operational readiness symptomatology.

**Warfighter Value:** Assists in early detection of cognitive processing issues due to any cause, including motion sickness, Sopsite syndrome, stress, deployment-related exhaustion, and concussion. Easily deployed in operational settings, since it runs as a mobile application on a smart phone. Supports personalized assessment. Results based on an individual's cognitive performance and can be compared to baseline results.

## WHEN

**Contract Number:** N00014-14-C-0308 **Ending on:** March 31, 2016

Milestone	Risk Level	Measure of Success	Ending TRL	Date
System component (DANA) used in fatigue study with NSW-PC aboard USS Independence	N/A	Performance on Simple Reaction Time test better on mission days than non-mission days	Component: TRL-7 System: TRL-5	May 2015
Additional system components (EEG/ECG) used in medical motion study at NSW-PC	N/A	Higher EEG-based workload for surgeons versus techs in simulated motion conditions	Component: TRL-6 System: TRL-5	November 2015
Full system testing and validation in relevant environment	Low	Reliable data collected across all system component measures	System: TRL-6	August 2016
Full system testing and validation in operational	Med	Reliable data collected across all	System: TRL-7	May 2017

## HOW

**Projected Business Model:** The DANA component of PASS MUSTER is TRL-7, and can be transitioned near-term, providing a transition path for additional components of PASS MUSTER. AnthroTronix can provide DANA to the Department of Navy pre-loaded on a dedicated Android or iOS Mobile device, or as a mobile application only, to be downloaded onto mobile devices already deployed in the fleet. AnthroTronix would also provide on-going technical support and software updates for DANA, as well as other components of PASS MUSTER.

**Company Objectives:** AnthroTronix focuses on working with the Department of Defense to research and develop innovative technologies in the areas of: neuroscience and applied physiological monitoring, advanced human machine interfaces, simulation, and training.

**Potential Commercial Applications:** AnthroTronix is actively pursuing commercial applications in:

- Pharmaceutical Research - To Indicate change in cognitive performance during drug trials
- Health and Wellness - Tool for self-tracking and annual health visits to track changes in cognitive performance over time
- Industrial/Commercial: Tool to determine if employees are qualified for duty

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[jbrown@atinc.com](mailto:jbrown@atinc.com) 440-463-5269