THREAT AGENT DEFEAT MODELING AND TESTING

Improved Chemical And Biological Defense Testing Using The Test Grid Operated With The Open Architecture Data Management System

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The Dugway Proving Ground (DPG) Test Grid provides an unmatched capability for conducting indoor/outdoor testing involving chemical and biological simulants. Testing activities span a wide range of scenarios, including evaluation of chemical or biological sensors, evaluation and modeling of environmental behavior of simulants, evaluation of protective equipment, and training events. The Test Grid is comprised of a set of equipment employed to create a biological and/or simulant challenge and to referee chemical and biological simulant tests using a combination of point sensors, standoff sensors, and meteorological sensors. Test Grid also provides the infrastructure required to deploy the system in remote, resource-constrained environments, including in locations external to DPG. The Test Grid is operated by a custom data management system, and recently was upgraded to a new system known as the Open Architecture Data Management System (OADMS).

OADMS is a suite of hardware and software designed for interfacing with the various devices deployed as part of the Test Grid. It allows for monitoring and controlling of the components of Test Grid, including automatically time stamping and recording all generated data. OADMS also enables new referee devices to be easily integrated into Test Grid, as well as devices being tested (system[s] under test [SUT]). OADMS allows different types of devices and communications protocols to be unified within a single system by employing a custom data translator/recorder that is fielded with test devices. Radios that are also deployed with the devices transfer data back to a command post where the OADMS server resides. Authorized users then connect to the OADMS web application to execute a test where they are provided full situational awareness in real-time (including a mapped view of a simulant cloud moving through the test location).

OADMS recently went through Verification and Validation and is now being employed for testing activities using the Test Grid. OADMS offers numerous benefits for executing tests, including enabling easy setup of the Test Grid, providing an intuitive user interface for understanding test data in real-time, allowing flexible deployment options for utilization in virtually any environment, ensuring all data is time synchronized and recorded into multiple storage locations to prevent data loss, providing simple integration of new devices into the Test Grid (both for referee purposes as well as new SUTs), automatic reconnection of all connected devices to ensure accurate understanding of what devices are present and where for each conducted trial, and provides the ability to playback any previous trial as if it were happening in real-time. Here we will present the Test Grid and its capabilities with OADMS, results of its recent verification and validation, and insight into how Test Grid with OADMS is currently being used to provide improved test environments to the CBD community.

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