FLIGHT TEST AND TARGET ACQUISITION MODELING

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ABSTRACT

United States Air Force rules of engagement dictate that weapons officers must have high confidence they have positively identified (PID) a target before firing upon it in order to lower the threat of collateral damage. For fighter and bomber aircraft, the ability to recognize and identify targets at long ranges is critical to support "one pass, one kill" approaches. The probability of recognition and identification at different ranges is also one of the benchmark tests for quantifying electro-optical/infrared (EO/IR) sensor performance.

This paper presents a method of developing and confirming the model of a system's (a system includes the sensor, operator, and environment) probability of recognizing and identifying ground targets through the use of the targeting task performance metric (TTPM), and how to confirm the model with statistical confidence through flight test.

This paper shows how the model-then-test approach will: provide more thorough evaluations; determine how future sensor design considerations can affect given performance specifications; provide provisioning tools for future testing; assist sensor comparisons; and provide feedback to improve the model.