

AEDC Signature Measurement Team

Collecting signatures around the world

The AEDC Advanced Missile Signature Center (AMSC) Signature Measure Team (SMT) has more than 30 years of experience deploying to diverse locations around the world to collect radiometric signature measurement data.

The SMT deploys and operates electro-optical infrared imagers, spectrometers and radiometers. This instrumentation suite allows SMT to collect data in the ultra-violet through long-wave infrared spectrum.

The AMSC mission is to support the warfighter through signature data collection, processing and analysis, threat statistical and phenomenology characterization, modeling and simulation, and data archival. The AMSC also specifically supports hardware/software-in-the-loop testing for threat detection sensor development.

The SMT enables the AMSC mission through collection of radiometric signature data for boost phase missile plumes, hostile fire rocket-propelled grenades and large caliber ammo and muzzle flash, missile defense target intercepts and tactical missiles.

SMT measurement expertise includes a variety of testing scenarios: chamber, static, sled, launch and free-flight. The SMT operates portable trackers and can support tests worldwide.

Quality data products are key to seizing the high value data collection opportunities of live fire tests and employing successful program

management techniques. The SMT has mature processing and analysis tools to produce complete data packages. On-site quick-look products and in-depth post-test analysis reports are also available.

SMT radiometric data directly feeds the AMSC signature modeling capability. For example, development and test of infrared countermeasure systems rely on accurate threat representative signatures.

The AMSC currently models surface-to-air missiles, man portable air defense systems, rocket propelled grenades and other hostile fire threats. Each model is a combination of first principles flowfield and radiation models, and signature data acquired by the SMT and/or others. The data are used to anchor the models and the anchored models are used to interpolate between measured data points. The models are thus able to provide representative signatures throughout the flight envelope. Feedback to live-fire test campaigns on signature gaps is also possible.

In summary, AEDC has a unique capability to deploy a signature collection team, assess collected data validity and statistical relevance, and exploit the data within integrated models to support countermeasure systems for the warfighter.



SMT Highlights:

- ✓ State of the art instrumentation
- ✓ Spatial, spectral, and temporal measurements
- ✓ Instruments cover ultraviolet-visible-infrared
- ✓ Portable optical tracking mount capabilities
- ✓ Rigorous calibration standards for instruments
- ✓ Deployable worldwide

