



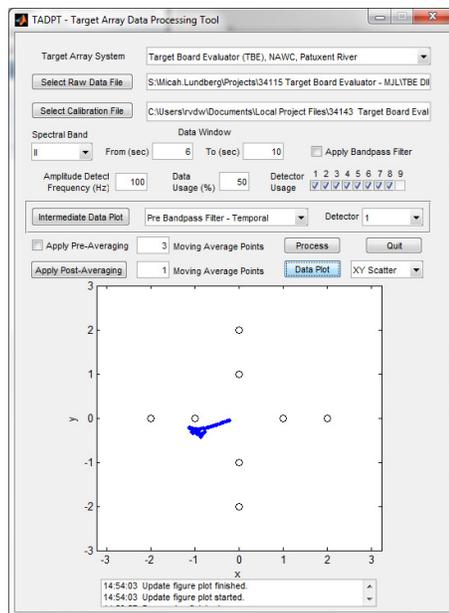
Portable Target Array (PTA) System

Open-air test and evaluation (T&E) of Aircraft Survivability Equipment (ASE) missile warning and countermeasure systems is essential for verifying and optimizing ASE system performance. Specialized open-air range (OAR) test equipment is required to evaluate the performance of directional infrared countermeasures (DIRCM) systems. DIRCM pointing accuracy and jitter, energy on target (EOT), and slew time to the target must be assessed. The DIRCM waveform must also be verified.

Technology Service Corporation (TSC) has developed a low-cost Portable Target Array (PTA) system that can be readily fielded and operated to assess DIRCM performance in three mid-wave IR bands (typically bands I, II, and IV). The system consists of five (5) multi-channel detector boxes, a power supply/cable interface unit, and the PTA System Controller, which features a LabVIEW GUI. A Target Array Data Processing Tool (TADPT), hosted on the system controller, is available for post-run analysis of the target array data and display of the DIRCM performance.



PTA Detector Box



Target Array Data Processing Tool

The detector boxes (6.5 lbs each) are configured in a cruciform geometry with a nominal 8 ft span, and can be mounted on tripod-based support arms or a seeker van. Detector box cables can be up to 200 ft in length thanks to low-voltage differential signaling (LVDS). AC-coupled PbSe detectors are used, with the spectral bandpass set with externally-mounted filters (standard 1 inch). Neutral density filters (standard 1 inch) can also be externally mounted. The detector box A/D sampling rate is 100 kHz, allowing faithful recording of DIRCM waveforms. Data acquisition times of up to 10 sec are supported. The detectors have a dynamic range of 30 dB and a field of view (FOV) of 60 deg. The power supply/cable interface unit (28 lbs) is co-located with the PTA System Controller and provides needed voltages to the detector boxes. With an 8 ft span the target array is designed for close-in testing, e.g., 500 – 2,000 meters, but the span can be increased to support longer test ranges. The PTA system, which operates with 115 VAC, can be externally triggered.

The TADPT measures, e.g., at a 100 Hz rate, the DIRCM (x, y) impact point on the array and the DIRCM central-beam irradiance. Impact-point data can be displayed in an X-Y Scatter format or X vs. Time and Y vs. Time formats. Raw and intermediate data plots can also be displayed.

ABOUT TSC

TSC has over 20 years of hands-on experience in developing IR/UV simulator and detector array systems for HWIL, ISTF and OAR applications. Our IR/UV simulator and detector array technology and expertise can be applied to any number of operational test requirements involving IR and UV sensor systems.

CONTACT INFORMATION

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