SBIR 06.2 PHASE I - AWARD DETAILS	
ORGANIZATION	SMDC
TOPIC NUMBER	A06-205
CONTRACT NUMBER	
YEAR OF AWARD	
AWARD START DATE	
AWARD COMPLETION DATE	
PROPOSAL NUMBER	A062-205-3175
TITLE	Third Generation Fast Steering Mirror
PROJECT MANAGER	Martin Smith (505) 767-1223 msmith@aptec.com
COMPANY	Applied Technology Associates 1300 Britt SE Albuquerque NM 87123 Minority Owned: Yes Veteran Owned: No Number of Employees: 75
KEYWORDS	Fast Steering Mirror, Line of sight stabilization, Joint High-Energy Solid State Laser(JHPSSL), Laser communications, Jitter rejection, Beam steering mirror, Beam quality, High bandwidth actuators
ABSTRACT	The Third Generation Fast Steering Mirror (3GFSM) is based on a scalable design and uses high performance, high bandwidth electromagnetic (HBE) actuators. Mirror apertures are scalable from one inch to five inches and can be round or elliptical. The HBE actuators are more efficient than voice coil actuators and can be configured to support large displacement angles. Much lower mirror profiles can be achieved with these actuators due to their inherent flexibility in configuration. This results in small, lighter beam stabilization system. Mirror performance characteristics, (bandwidth, maximum acceleration, pointing accuracy, and residual jitter) make this mirror design ideal for line of sight stabilization in tactical ground and air platform applications of high energy lasers, such as the Joint High-Energy Solid State Laser (JHPSSL) and for lower power lasers used in laser communications and target designation.
BENEFITS	The most significant factor in the potential development and growth of the market for the 3GFSM is achieving, with a US-based manufacturer, total performance equal-to and beyond what is available world wide in small FSMs. The 3GFSM is anticipated to be small, light, and low in power and cost when manufactured in quantity. Applications of this form factor and performance level would be expected to include Tactical Laser Comm, moving vehicle Laser Comm, and Unmanned Aerial Vehicle (UAV) secure Laser Comm, among others. The 3GFSM innovation proposed in this Army SBIR Phase I and II will produce a scalable high performance fast steering mirror design verified performance and ready for integration into JHPSSL mobile weapons system platform.