

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2012 Army **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605605A: <i>DOD High Energy Laser Test Facility</i>
--	---

COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	7.307	4.710	0.018	-	0.018	0.019	0.019	0.118	0.121	Continuing	Continuing
E97: <i>DOD HELSTF</i>	7.307	4.710	0.018	-	0.018	0.019	0.019	0.118	0.121	Continuing	Continuing

**Note**

FY12 - Funding will be reprogrammed to Army Test Ranges and Facilities.

**A. Mission Description and Budget Item Justification**

The High Energy Laser Systems Test Facility (HELSTF) provides a one-of-a-kind, broad based high energy laser (HEL) test and evaluation capability which directly supports testing of laser variants of the Future Combat Systems (FCS). Specifically, HEL weapons will play a major role in the Counter Rockets, Artillery and Mortars (CRAM) initiative and can be a key component of the Future Force supporting Full Dimensional Protection. HELSTF is part of the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development to include damage, vulnerability, propagation, and lethality laser testing as well as HEL weapon developmental and operational test and evaluation (DTE&OTE). The HELSTF's laser development support capabilities include a fully certified open-air HEL test range, test cells for bringing breadboard to brassboard test devices, fully integrated Command, Control, Communications & Intelligence (C3I) systems and a suite of beam directors to perform both static and dynamic tracking tests. Other capabilities include an extensive array of fully instrumented test sites, full laser meteorological support, and an approved site for above-the-horizon dynamic HEL testing certified for predictive avoidance by the Laser Clearing House. HELSTF's location on White Sands Missile Range (WSMR) provides unparalleled testing flexibility because of WSMR's 3200 square miles of controlled land mass and 7000 square miles of controlled airspace. This location also enables HELSTF to leverage the existing WSMR T&E infrastructure. Current HELSTF facilities include the Sea Lite Beam Director (SLBD), the Mid-Infrared Advanced Chemical Laser (MIRACL), the Large Vacuum Chamber (LVC) with associated Vacuum Test System (VTS), the Solid State Laser testbed, the Tactical High Energy Laser (THEL) testbed, and the Low Power Chemical Laser (LPCL). This multiple use facility supports testing of laser effects for targets ranging from material coupon testing up through full-scale static and dynamic targets, explosive targets, and testing of targets in a high altitude space environment. HELSTF has embarked on its own modernization to fully upgrade its mission control systems, develop state-of-the-art HEL diagnostic capabilities, data reduction, and a mobile HEL diagnostic test suite to support DTE and OTE for potential HEL weapons in the Army Future Force in all relevant combat environments.

**UNCLASSIFIED**

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army				DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE				
2040: Research, Development, Test & Evaluation, Army		PE 0605605A: DOD High Energy Laser Test Facility				
BA 6: RDT&E Management Support						
B. Program Change Summary (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget		7.352	4.710	2.938	-	2.938
Current President's Budget		7.307	4.710	0.018	-	0.018
Total Adjustments		-0.045	-	-2.920	-	-2.920
• Congressional General Reductions			-			
• Congressional Directed Reductions			-			
• Congressional Rescissions		-	-			
• Congressional Adds			-			
• Congressional Directed Transfers			-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-0.045	-			
• Adjustments to Budget Years		-	-	-2.920	-	-2.920

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army								<b>DATE:</b> February 2011			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0605605A: <i>DOD High Energy Laser Test Facility</i>				<b>PROJECT</b> E97: <i>DOD HELSTF</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
E97: <i>DOD HELSTF</i>	7.307	4.710	0.018	-	0.018	0.019	0.019	0.118	0.121	Continuing	Continuing
Quantity of RDT&E Articles											

**A. Mission Description and Budget Item Justification**

The High Energy Laser Systems Test Facility (HELSTF) provides a one-of-a-kind, broad based high energy laser (HEL) test and evaluation capability which directly supports testing of laser variants of the Future Combat Systems (FCS). Specifically, HEL weapons will play a major role in the Counter Rockets, Artillery and Mortars (CRAM) initiative and can be a key component of the Future Force supporting Full Dimensional Protection. HELSTF is part of the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development to include damage, vulnerability, propagation, and lethality laser testing as well as HEL weapon developmental and operational test and evaluation (DTE&OTE). The HELSTF's laser development support capabilities include a fully certified open-air HEL test range, test cells for bringing breadboard to brassboard test devices, fully integrated Command, Control, Communications & Intelligence (C3I) systems and a suite of beam directors to perform both static and dynamic tracking tests. Other capabilities include an extensive array of fully instrumented test sites, full laser meteorological support, and an approved site for above-the-horizon dynamic HEL testing certified for predictive avoidance by the Laser Clearing House. HELSTF's location on White Sands Missile Range (WSMR) provides unparalleled testing flexibility because of WSMR's 3200 square miles of controlled land mass and 7000 square miles of controlled airspace. This location also enables HELSTF to leverage the existing WSMR T&E infrastructure. Current HELSTF facilities include the Sea Lite Beam Director (SLBD), an IPG Photonics 20 kilo-watt fiber laser, the Large Vacuum Chamber (LVC) with associated Vacuum Test System (VTS), the Ground Target Irradiance Measurement (GTIM) system, the Target Reflected Energy Measurement (TREM) system, the Solid State Laser testbed, the Pointer Tracker System (PTS) beam director, and a suite of low power lasers to support testing. This multiple use facility supports testing of laser effects for targets ranging from material coupon testing up through full-scale static and dynamic targets, explosive targets, and testing of targets in a high altitude space environment. HELSTF has embarked on its own modernization to fully upgrade its mission control systems, develop state-of-the-art HEL diagnostic capabilities, data reduction, and a mobile HEL diagnostic test suite to support DTE and OTE for potential HEL weapons in the Army Future Force in all relevant combat environments.

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<b>Title:</b> Laser T&E programs  <div style="text-align: right;"><b>Articles:</b></div> <b>Description:</b> Funding is provided for the following effort  <b>FY 2010 Accomplishments:</b> Provide limited support to the Laser T&E programs of all Services and DoD Agencies using the Solid State Laser (SSL) Lethality Test bed and the SSL Transition Test bed. Projected test to be supported include the Joint High Power Solid State Laser Program, a 100Kw solid state laser device to be housed at HELSTF for lethality and dynamic testing, a series of Relay Mirror	7.307 0	4.710 0	0.018

**UNCLASSIFIED**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Army		<b>DATE:</b> February 2011	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army</i> BA 6: <i>RDT&amp;E Management Support</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605605A: <i>DOD High Energy Laser Test Facility</i>	<b>PROJECT</b> E97: <i>DOD HELSTF</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>
<p>experiments for the Air Force and numerous low power Counter Rocket and Mortar (CRAM) type laser systems for close in engagements.</p> <p><b><i>FY 2011 Plans:</i></b> Continue to provide limited support to the Laser T&amp;E programs of all Services and DoD Agencies using the Solid State Laser (SSL) Lethality Test bed and the SSL Transition Test bed. Projected test to be supported include the Joint High Power Solid State Laser Program, a 100Kw solid state laser device to be housed at HELSTF for lethality and dynamic testing, a series of Relay Mirror experiments for the Air Force and numerous low power Counter Rocket and Mortar (CRAM) type laser systems for close in engagements.</p> <p><b><i>FY 2012 Plans:</i></b> Beginning FY12, the funding will be moved to Army Test Ranges and Facilities project F30.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		7.307	4.710
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>D. Acquisition Strategy</b>			
N/A			
<b>E. Performance Metrics</b>			
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.			

**UNCLASSIFIED**