

UNCLASSIFIED

PE NUMBER: 0604735F

PE TITLE: Combat Training Ranges

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2008
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604735F Combat Training Ranges
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	16.325	17.546	28.047	17.652	17.627	17.923	18.268	Continuing	TBD
2286 Combat Training Range Equipment	16.325	17.546	28.047	17.652	17.627	17.923	18.268	Continuing	TBD

FY2008 funding totals do not include \$10.000M FY2008 GWOT requirements still pending Congressional consideration.

(U) A. Mission Description and Budget Item Justification

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. The P5 Combat Training System (P5CTS) is a collaborative development between USAF and USN to provide air combat training systems for both services. The P5CTS will take an incremental acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations worldwide. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Increments include a new Real-Time Operating System and Advanced Data-Link to facilitate interoperability in a multi-level security environment and training with F-22A and F-35. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ancillary ground system integration, location specific architecture, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to meet changing data link standards. Other P5CTS efforts included in this PE are the integration of GREEN FLAG capabilities (previously known as Air Warrior) and the integration of advanced range instrumentation standards and data link encryption. GREEN FLAG provides close air support training for ground forces (US Army, USMC). This PE also includes the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F/A-22 and F-35, and interoperability for joint test/training exercises. FY09 PB has added additional funding to the PE allowing synchronization of encrypted datalink component development with integration efforts.

This PE includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other Service requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04, the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability, availability, and functional capabilities, including Reactive Threats, Deceptive Analysis, and site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) and other Threat Emitter Systems to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals. FY09 PB has added additional funding to the PE allowing double digit threat upgrades.

This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability

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of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	16.700	17.657	17.583
(U) Current PBR/President's Budget	16.325	17.546	28.047
(U) Total Adjustments	-0.375	-0.111	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.112	
Congressional Increases			
Reprogrammings		0.001	
SBIR/STTR Transfer	-0.375		
(U) <u>Significant Program Changes:</u>			
FY09 - \$10.795M - Restore CAF Readiness			

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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total	
2286 Combat Training Range Equipment	16.325	17.546	28.047	17.652	17.627	17.923	18.268	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) **A. Mission Description and Budget Item Justification**

The Combat Training Range (CTR) Program Element (PE) provides equipment and support to Air Force units and combat training ranges for mission testing, training, and evaluation of aircrews, as well as the operational testing of weapon systems and tactics under simulated combat conditions. This PE provides funding for the development of electronic warfare training capabilities, telecommunications, instrumentation equipment/systems, and standards for the training ranges. The P5 Combat Training System (P5CTS) is a collaborative development between USAF and USN to provide air combat training systems for both services. The P5CTS will take an incremental acquisition approach to the development of improved Air Combat Training System (ACTS) capabilities for fielding at operational locations worldwide. It will provide capabilities to train aircrews "like we fight" in air-to-air, air-to-surface, and surface-to-air combat as well as electronic warfare. Increments include a new Real-Time Operating System and Advanced Data-Link to facilitate interoperability in a multi-level security environment and training with F-22A and F-35. Additionally, P5CTS provides real-time monitoring and control of aircraft during large and joint force exercises, and small unit training, while recording events for post-mission debrief and analysis. Other P5CTS capabilities include: real-time kill notification/verification, system security initiatives to protect classified aircraft and armament systems information, integration of electronics, air-to-ground weapon simulations, and threat simulations. The P5CTS also includes ancillary ground system integration, location specific architecture, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to meet changing data link standards. Other P5CTS efforts included in this PE are the integration of GREEN FLAG capabilities (previously known as Air Warrior) and the integration of advanced range instrumentation standards and data link encryption. GREEN FLAG provides close air support training for ground forces (US Army, USMC). This PE also includes the capabilities to facilitate live/virtual/constructive connectivity and standardization across all platforms to include the F/A-22 and F-35, and interoperability for joint test/training exercises. FY09 PB has added additional funding to the PE allowing synchronization of encrypted datalink component development with integration efforts.

This PE includes the development of advanced threat emitters. In FY02, the Advanced Threat Emitter System (ATES) incorporated other Service requirements and evolved into the Joint Threat Emitter (JTE) system. The JTE continues the development of a comprehensive suite of threat signals for aircrew tactics and electronic combat training for simulated penetrations of hostile airspace. This program complements existing range threat simulators by emulating signals that simulate current and future air defense and threat radars. In FY04, the Threat Reaction Analysis Indicator System (TRAINS) underwent improvements to increase reliability, maintainability, availability, and functional capabilities, including Reactive Threats, Deceptive Analysis, and site electronic countermeasure information database capabilities. The TRAINS is an electronic combat analysis system that is paired with the Multiple Threat Emitter System (MUTES) and other Threat Emitter Systems to provide analysis of aircraft Electronic Countermeasure (ECM) responses to threat signals. FY09 PB has added additional funding to the PE allowing double digit threat upgrades.

This program is in Budget Activity 5 - Systems Development and Demonstration because the CTR Program directly contributes to the effectiveness and survivability of US combat forces by providing training capabilities to simulate real combat conditions to prepare the warfighter for actual combat.

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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems to include the development, integration and testing of: P5 Combat Training Systems (P5CTS) including software/hardware upgrades, and Joint Tactical Radio System (JTRS) compliant data link; aircraft/pod integration and upgrades for range applications; interoperability improvements with existing Air Force and Navy ranges including software, upgrades, weapons simulations, and security improvements; Combat Training Range (CTR) programs basic operating support, system acquisition and engineering support; integration of GREEN FLAG capabilities (previously known as Air Warrior); and advanced range instrumentation standards and capabilities. FY09 APOM \$5.652M addition allows synchronization of encrypted datalink component development with integration efforts.	13.513	12.085	17.426
(U) Continue ACTS funding support for Range Threat Systems which includes the development, integration and testing of the Joint Threat Emitter (JTE) System, the Threat Reaction Analysis Indicator System (TRAINS), and program operating, acquisition, and engineering support.	2.812	5.461	10.621
(U) Total Cost	16.325	17.546	28.047

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, Combat Training Ranges, 3080 BP83	36.639	77.726	22.364	20.518	20.805	21.212	21.629	Continuing	TBD
(U) Initial Spares, 3080 BP86	0.928	0.867	0.890	0.911	0.925	0.943	0.962	Continuing	TBD
(U) Total OPAF, PEC 0207429F	37.567	78.593	23.254	21.429	21.730	22.155	22.591	Continuing	TBD
(U) Aircraft Procurement, AF, Combat Training Ranges, 3010 BP19	7.570	15.424	15.626	15.893	15.996	16.333	16.655	Continuing	TBD
(U) Initial Spares, 3010 BP16	1.168	1.472	1.280	1.663	1.684	1.717	1.752	Continuing	TBD
(U) Total APAF, PEC 0207429F	8.738	16.896	16.906	17.556	17.680	18.050	18.407	Continuing	TBD

(U) **D. Acquisition Strategy**

The acquisition strategy is competitive, with cost plus and fixed price contracts.

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Exhibit R-3, RDT&E Project Cost Analysis

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(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u>												
Sverdrup (P5CTS)	CPAF			1.361	Nov-06	1.600	Nov-07	1.817	Nov-09	Continuing	TBD	
Colsa/BTAS Corp (P5CTS)	CPAF			0.506	Oct-06	0.900	Nov-07	1.028	Nov-09	Continuing	TBD	
Cubic Defense Applications (P5CTS)	CPIF/FFP			3.463	Feb-07	3.878	Feb-08	7.612	Feb-09	Continuing	TBD	
Standard Research International (P5CTS)	FFP			0.100	Aug-07	0.160	Feb-08	0.170	Apr-09	Continuing	TBD	
Modern Technologies Corp (JTE)	CPAF			2.079	Apr-07	4.643	Mar-08	9.854	Mar-09	Continuing	TBD	
E W Systems (TRAINS)	FFP			0.352	Jun-07	0.360	Mar-08	0.362	Mar-09	Continuing	TBD	
Rockwell-Collins (P5CTS)	FFP			2.000	Feb-07	1.300	Feb-08	1.500	Feb-09	Continuing	TBD	
Army JTRS-HMS (P5CTS)	FFP			0.700	Feb-07	1.500	Feb-08	1.500	Feb-09	Continuing	TBD	
Navy (P5CTS)	FFP			0.000						Continuing	TBD	
National Security Agency (NSA)	FFP			0.245	Feb-07	0.250	Feb-08	0.250	Feb-09	Continuing	TBD	
Quint Networking Tech	FFP			0.100	Mar-07						0.100	
GREEN FLAG (Formerly Air Warrior)	T&M			2.337	Apr-07						2.337	
Boeing - F15 SPO OFP (P5CTS)	FFP			0.407	Apr-07	0.450	Apr-08	0.270	Apr-09	Continuing	TBD	
Lockheed - F16 SPO OFP (P5CTS)	FFP			0.100	Apr-07	0.120	Apr-08	0.360	Apr-09	Continuing	TBD	
Subtotal Product Development			0.000	13.750		15.161		24.723		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u>												
SAF/AQX	Various			0.800		0.800		0.800		Continuing	TBD	
OO/ALC/LH, Hill AFB, UT	Various			0.381		0.458		0.405		Continuing	TBD	
AAC/689 ARSS, Eglin AFB, FL	Various			1.294		1.027		1.119		Continuing	TBD	
Subtotal Support			0.000	2.475		2.285		2.324		Continuing	TBD	0.000
Remarks:												
(U) <u>Test & Evaluation</u>												
46 Test Wing, Eglin AFB FL	Various			0.100		0.100		1.000		Continuing	TBD	
Subtotal Test & Evaluation			0.000	0.100		0.100		1.000		Continuing	TBD	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	16.325		17.546		28.047		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile

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PROJECT NUMBER AND TITLE
2286 Combat Training Range Equipment



U.S. AIR FORCE

CTR Schedule

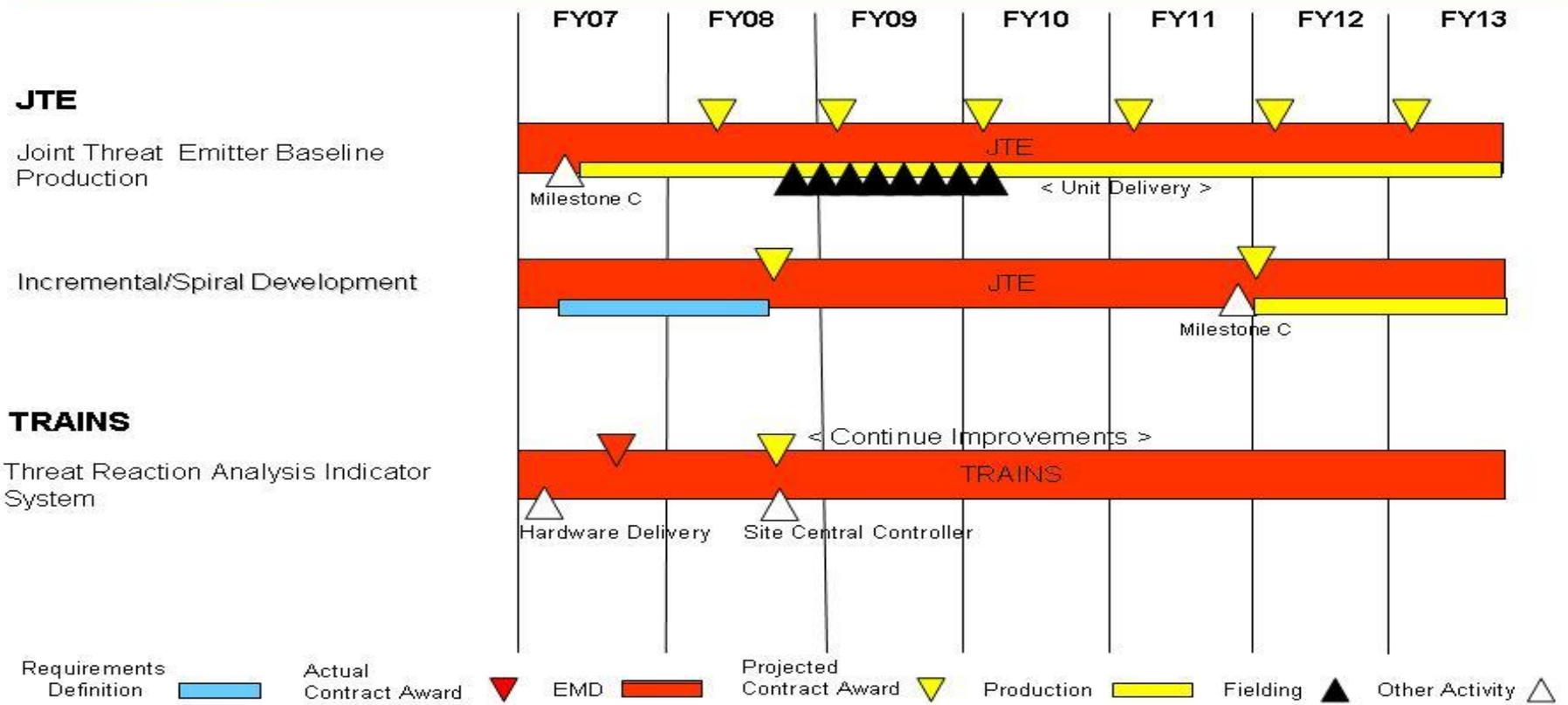


Exhibit R-4, RDT&E Schedule Profile

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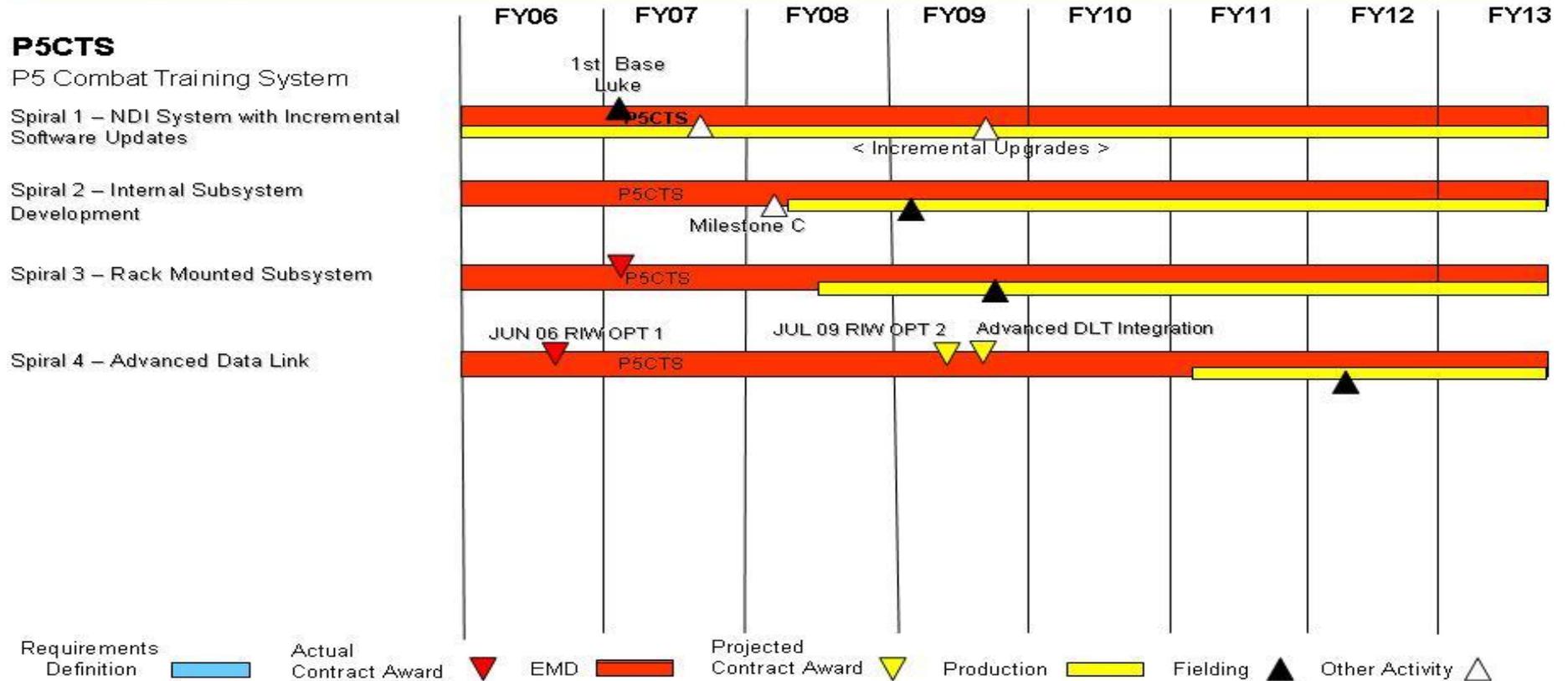
PE NUMBER AND TITLE
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U.S. AIR FORCE

CTR Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2008
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>			
(U) P5CTS Development			
(U) - Spiral I (Non-Developmental Item System w/Software Incremental Updates)	1-4Q	1-4Q	1-4Q
(U) - Spiral II (Internal Subsystem Development)	1-4Q	1-4Q	1-4Q
(U) - Spiral III (Rack Mounted Subsystem)	1-4Q	1-4Q	1-4Q
(U) - Spiral IV (Advanced Data Link)	1-4Q	1-4Q	1-4Q
(U) JTE Development			
(U) -- Spiral Development and Continue Improvements	3-4Q	1-4Q	1-4Q
(U) Threat Reaction Analysis Indicator System (TRAINS)			
(U) -- Contract Award	3Q	3Q	
(U) Software Delivery			
(U) -- Continue Improvements	1-4Q	1-4Q	1-4Q