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

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				PE 0604735F: <i>Combat Training Ranges</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	21.559	36.905	28.106	-	28.106	18.357	18.570	18.714	18.960	Continuing	Continuing
652286: <i>Combat Training Range Equipment</i>	21.559	36.905	28.106	-	28.106	18.357	18.570	18.714	18.960	Continuing	Continuing

A. Mission Description and Budget Item Justification

The program funding includes reductions for overhead reduction efficiencies that are not intended to impact program content. The efficiencies reductions total \$0.134M in FY12.

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 evolutionary upgrades to facilitate live/virtual/constructive connectivity and standardization across all platforms to include coalition, F-22A and F-35 aircraft, and interoperability for joint test/training exercises in varied environments. The P5 Combat Training System (P5CTS), a collaborative development between USAF and USN, provides air combat training systems for both services at operational locations worldwide. Increments include hardware and software upgrades, an encrypted software communications architecture compliant Advanced Data Link to facilitate interoperability in a multiple independent level security environment and training with F-22A and F-35, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to enable live/ virtual/ constructive capabilities. This PE also includes the development of advanced threat emitters. The Joint Threat Emitter (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. JTE Increment 1 is currently in production. Consistent with the evolutionary acquisition strategy and documented ACC training requirements, development will continue with next generation threat systems. Increases beginning in FY10 and extending across the FYDP enables the inclusion of a multi-target tracking capability to meet critical warfighter needs, while ensuring the development schedule meets warfighter development timeline. Future increments will continue to add additional capability to the warfighter's training ranges. This PE includes Legacy Range Threat Systems including Miniature Multiple Threat Emitter Systems-M3P (Mini-MUTES), Multiple Threat Emitter System (MUTES), Modular Threat Emitter (MTE) and Tactical Radar Threat Generator (TRTG), Band Simulator and Unmanned Modular Threat Emitter (UMTE) Systems, which are being considered for modernization that will extend the system's service life and allow for upgrades to antiquated components for increased reliability and capabilities. The FYDP funding allows for evolution of these potential 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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BA 5: Development & Demonstration (SDD)						
B. Program Change Summary (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget		22.718	36.905	29.934	-	29.934
Current President's Budget		21.559	36.905	28.106	-	28.106
Total Adjustments		-1.159	-	-1.828	-	-1.828
• Congressional General Reductions			-			
• Congressional Directed Reductions			-			
• Congressional Rescissions		-	-			
• Congressional Adds			-			
• Congressional Directed Transfers			-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-	-			
• Other Adjustments		-1.159	-	-1.828	-	-1.828
Change Summary Explanation						
No Significant Changes						

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Air Force								DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604735F: Combat Training Ranges				PROJECT 652286: Combat Training Range Equipment			
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
652286: Combat Training Range Equipment	21.559	36.905	28.106	-	28.106	18.357	18.570	18.714	18.960	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
Note The program funding includes reductions for overhead reduction efficiencies that are not intended to impact program content. The efficiencies reductions total \$.134 in FY12.											
A. Mission Description and Budget Item Justification The program funding includes reductions for overhead reduction efficiencies that are not intended to impact program content. The efficiencies reductions total \$0.134M in FY12.											
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 evolutionary upgrades to facilitate live/virtual/constructive connectivity and standardization across all platforms to include coalition, F-22A and F-35 aircraft, and interoperability for joint test/training exercises in varied environments. The P5 Combat Training System (P5CTS), a collaborative development between USAF and USN, provides air combat training systems for both services at operational locations worldwide. Increments include hardware and software upgrades, an encrypted software communications architecture compliant Advanced Data Link to facilitate interoperability in a multiple independent level security environment and training with F-22A and F-35, internal pod replacement subsystems, integration of new aircraft Operational Flight Programs, and the development of solutions to enable live/ virtual/ constructive capabilities. This PE also includes the development of advanced threat emitters. The Joint Threat Emitter (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. JTE Increment 1 is currently in production. Consistent with the evolutionary acquisition strategy and documented ACC training requirements, development will continue with next generation threat systems. Increases beginning in FY10 and extending across the FYDP enables the inclusion of a multi-target tracking capability to meet critical warfighter needs, while ensuring the development schedule meets warfighter development timeline. Future increments will continue to add additional capability to the warfighter's training ranges. This PE includes Legacy Range Threat Systems including Miniature Multiple Threat Emitter Systems-M3P (Mini-MUTES), Multiple Threat Emitter System (MUTES), Modular Threat Emitter (MTE) and Tactical Radar Threat Generator (TRTG), Band Simulator and Unmanned Modular Threat Emitter (UMTE) Systems, which are being considered for modernization that will extend the system's service life and allow for upgrades to antiquated components for increased reliability and capabilities. The FYDP funding allows for evolution of these potential 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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B. Accomplishments/Planned Programs (\$ in Millions)						
		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems		2.680	12.004	12.753	-	12.753
Description: Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems to include the development, integration and testing of P5 Combat Training Systems (P5CTS) evolutionary upgrades to provide software/hardware upgrades, aircraft/pod integration, upgrades for range applications, interoperability improvements, encrypted communication. In addition, funding for Advance Data Link is to facilitate interoperability in a multi-level security environment and training with F-22A and F-35, internal pod replacement subsystems, integration of new aircraft operational Flight Programs and the development of solutions to enable live virtual constructive capabilities.						
FY 2010 Accomplishments: 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) evolutionary upgrades to provide software/hardware upgrades, aircraft/pod integration, upgrades for range applications, interoperability improvements, encrypted communication.						
FY 2011 Plans: 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) evolutionary upgrades to provide software/hardware upgrades, aircraft/pod integration, upgrades for range applications, interoperability improvements, encrypted communication.						
FY 2012 Base Plans: Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems to include the development, integration and testing of P5 Combat Training Systems (P5CTS) evolutionary upgrades to provide software/hardware upgrades, aircraft/pod integration, upgrades for range applications, interoperability improvements, encrypted communication						
FY 2012 OCO Plans:						
Title: Range instrumentation Waveform		5.623	5.400	1.000	-	1.000
Description: Continue Range instrumentation Waveform (RIW) evaluation, demonstration and test effort.						
FY 2010 Accomplishments:						

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Continue RIW system integration on developmental hardware. Begin RIW formal evaluation, demonstration, and test effort- FY 2011 Plans: Continue RIW system integration on developmental hardware. Continue RIW evaluation, demonstration, and test effort. FY 2012 Base Plans: Complete Range instrumentation Waveform (RIW) evaluation, demonstration and test effort FY 2012 OCO Plans:						
Title: Software Communications Architecture Description: Continued development of the encrypted software communications architecture. FY 2010 Accomplishments: Continued development of the encrypted software communication's architecture. Begin prelimrnary evaluation, demonstration, and test effort. FY 2011 Plans: Continued development of the encrypted software communication's architecture. Continue evaluation, demonstration, and test FY 2012 Base Plans: Complete development of encrypted software communication's architecturedevelopment. Complete evaluation, demonstration, and test effort. FY 2012 OCO Plans:		3.953	1.800	1.000	-	1.000
Title: Threats Description: Congressional Add for Mountain Home Air to Air Range Improvements to upgrade Threat Systems for aircrew awareness FY 2010 Accomplishments: Perform AFRL phased-array antenna development and critical technologies risk assessment for proposed threat systems in the Analysis of Alternative report. Assess AFRL's risk reduction recommendations to alternative Inc		6.316	17.701	13.353	-	13.353

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B. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
II threats. Produce an Analysis of Alternative (AoA) document to help select the most cost and operationally effective system that satisfies documented capability gaps. Provide engineering, mission and A&AS support of Range Threat Systems (RTS). FY 2011 Plans: Develop a capability to train aircrews against Next Generation threats (double digit surface to air missile threat). The system will be deployed as part of an Integrated Air Defense System (IADS) and will contain a robust debriefing capability to support war-fighter training. Provide engineering, mission and A&AS support of Range Threat Systems. FY 2012 Base Plans: Continue to develop a capability to train aircrews against Next Generation threats (double digit surface to air missile threat). The system will be deployed as part of an Integrated Air Defense System (IADS) and will contain a robust debriefing capability to support war-fighter training. Provide engineering, mission and A&AS support of Range Threat Systems FY 2012 OCO Plans:					
Title: Congressional Add - Air Combat Training Systems (ACTS) funding support for Range Instrumentation Systems Description: P5CTS add for Mountain Home Air to Air Range Improvements FY 2010 Accomplishments: P5CTS add for Mountain Home Air to Air Range Improvements FY 2011 Plans: FY 2012 Base Plans: FY 2012 OCO Plans:					
Accomplishments/Planned Programs Subtotals					
	21.559	36.905	28.106	-	28.106

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

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0207429F: <i>Other Procurement, AF, Combat Training Ranges, OPAF BP83</i>	61.170	22.622	24.401	0.000	24.401	29.423	28.326	19.734	20.178	Continuing	Continuing
• 0207429F (1): <i>Initial Spares, OPAF BP86</i>	0.895	0.904	0.920	0.000	0.920	0.936	0.659	0.643	0.655	Continuing	Continuing
• 0207429F (2): <i>Aircraft Procurement, AF, Combat Training Ranges, APAF BP19</i>	15.470	15.376	14.867	0.000	14.867	11.830	18.357	21.306	21.567	Continuing	Continuing
• 0207429F (3): <i>Initial Spares, APAF BP16</i>	1.628	1.638	1.484	0.000	1.484	1.691	1.722	1.754	1.784	Continuing	Continuing

D. Acquisition Strategy

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

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force											DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604735F: Combat Training Ranges				PROJECT 652286: Combat Training Range Equipment					
Product Development (\$ in Millions)					FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Cubic Defense Applications (P5CTS)	C/FFP	Cubic Defense:San Diego, CA	1.115	-	Mar 2011	11.052	Mar 2012	-		11.052	Continuing	Continuing	0.000	
JTE Increment II - AoA, AFRL	C/CPFF	TBD:TBD,	1.000	-		-		-		-	0.000	1.000	0.000	
JTE Increment II Development	C/CPFF	TBD:TBD,	-	16.818	Oct 2013	12.504	Oct 2013	-		12.504	Continuing	Continuing	0.000	
JTE Second Source Transitter	C/TBD	TBD:TBD,	1.250	-		-		-		-	0.000	1.250	0.000	
Legacy System Improvements	Various	TBD:TBD,	3.446	-		-		-		-	0.000	3.446	0.000	
Rockwell-Collins, Inc (P5CTS)	SS/CPFF	Rockwell-Collins, Inc:Cedar Rapids, IA	5.146	14.712	Feb 2011	0.500	Feb 2012	-		0.500	Continuing	Continuing	0.000	
Army Joint Tactical Radio System (JTRS-HMS) (P5CTS)	SS/CPAF	General Dynamics:Scottsdale AZ,	4.028	1.800	Feb 2011	1.000		-		1.000	Continuing	Continuing	0.000	
National Security Agency (NSA)	SS/FFP	NSA:Ft George Meade, MD,	0.105	0.250	Feb 2011	0.200	Feb 2012	-		0.200	Continuing	Continuing	0.000	
Lockheed - F16 SPO OFP (P5CTS)	SS/FFP	0:Ft Worth, TX	0.020	0.050	Apr 2011	0.050	Apr 2012	-		0.050	Continuing	Continuing	0.000	
Boeing - F15 (P5CTS)	C/CPFF	Boeing:0, MO	0.028	0.040	Jun 2011	-		-		-	0.000	0.068	0.000	
Booz Allen Hamilton (P5CTS)	SS/FFP	Booz Allen Hamilton:0, VA	0.122	-		-		-		-	0.000	0.122	0.000	
Weapons Sim Interface Upg	SS/FFP	Milted Corp:Huntsville AL,	-	-		-		-		-	0.000	0.000	0.000	
Confressional Earmark - Range Improvements for MT (P5CTS)	TBD	TBD:Montana ANG, MT	2.987	-		-		-		-	0.000	2.987	0.000	
Subtotal			19.247	33.670		25.306		-		25.306			0.000	
Support (\$ in Millions)					FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
OO/ALC/LH, Hill AFB, UT	Various	TBD:TBD,	0.920	0.044	Mar 2011	0.950	Mar 2012	-		0.950	Continuing	Continuing	0.000	
	Various	TBD:TBD,	1.024	0.839	Mar 2011	0.900	Mar 2012	-		0.900	0.000	2.763	0.000	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Air Force										DATE: February 2011			
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Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AAC/689 ARSS, Eglin AFB - Direct Msn Spt													
Subtotal			1.944	0.883		1.850		-		1.850			0.000
Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Block I/II Flight Test, 46 Test Wing	Various	Eglin AFB:FL,	0.194	-	Mar 2011	0.250	Mar 2012	-		0.250	Continuing	Continuing	0.000
Subtotal			0.194	-		0.250		-		0.250			0.000
Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Support - Engineering and Admn Sppt. (TEAS/TAMS)	Various	Not specified.:	1.418	2.352	Mar 2011	0.700	Mar 2012	-		0.700	0.000	4.470	0.000
Subtotal			1.418	2.352		0.700		-		0.700	0.000	4.470	0.000
			Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			22.803	36.905		28.106		-		28.106			0.000
Remarks													

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>	PROJECT 652286: <i>Combat Training Range Equipment</i>

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Air Force		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>	PROJECT 652286: <i>Combat Training Range Equipment</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Air Force			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604735F: <i>Combat Training Ranges</i>	PROJECT 652286: <i>Combat Training Range Equipment</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
P5CTS Development	1	2012	4	2012
-- Small Form Factor K Radio (SFFK) Contract annual Award	2	2010	1	2011
-- Range Instrumentation Waveform (RIW) Task 3	2	2010	1	2011
-- Advanced Data Link (ADL) Development	2	2010	4	2011
JTE Development	1	2012	4	2012
--Air Force Research Laboratory (AFRL) Antenna Risk Reduction (2)	3	2010	3	2011
--Analysis of Alternative (AoA)	3	2010	1	2011
--Increment II Development	1	2013	1	2014
--Second Source Transmitter	2	2011	2	2012
Legacy System Improvements	4	2010	4	2011