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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	1.407	1.525	1.518	0.000	1.518	1.523	1.498	1.526	1.553	Continuing	Continuing
673326: <i>Precision Measurement & Calibration</i>	-	1.407	1.525	1.518	0.000	1.518	1.523	1.498	1.526	1.553	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program develops, tests, and evaluates national and Air Force measurement standards (hardware) and calibration equipment in support of all Air Force programs and activities, including Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements. Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation.

Program is managed by Air Force Materiel Command, Agile Combat Support Directorate, Air Force Metrology Division (WNM).

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	
Previous President's Budget	1.407	1.525	1.533	0.000	1.533	
Current President's Budget	1.407	1.525	1.518	0.000	1.518	
Total Adjustments	0.000	0.000	-0.015	0.000	-0.015	
• Congressional General Reductions	0.000	0.000				
• Congressional Directed Reductions	0.000	0.000				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	0.000	0.000				
• Congressional Directed Transfers	0.000	0.000				
• Reprogrammings	0.000	0.000				
• SBIR/STTR Transfer	0.000	0.000				
• Other Adjustments	0.000	0.000	-0.015	0.000	-0.015	
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2015	FY 2016	FY 2017
Title: Weapons Systems Measurement Standards				0.440	0.565	0.558
Description: Continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.						
FY 2015 Accomplishments: Continued project development in support of infrared/laser/electro-optical weapon systems.						
FY 2016 Plans: Project development continues on infrared/laser/electro-optical weapon system support.						
FY 2017 Plans: Will continue project development on infrared/laser/electro-optical weapon system support.						
Title: Electrical Measurements				0.396	0.000	0.000
Description: Continue development of standards for electrical measurements to support high accuracy electronic test equipment.						
FY 2015 Accomplishments: Continued developing radar support standards, RF communication systems and radar cross section range through development process.						
FY 2016 Plans:						

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Continuing to develop radar support standards, RF communication systems and radar cross section range through development process. FY 2017 Plans: N/A				
Title: Radar Support/Communications Description: Continue development of standards for radar support, RF communication systems, and radar cross section range measurements. FY 2015 Accomplishments: Development of radar support standards, RF communication systems and radar cross section range continued through development process. FY 2016 Plans: Development of radar support standards, RF communication systems and radar cross section range will continue through development process. FY 2017 Plans: Development of radar support standards, RF communication systems and radar cross section range will continue through development process.		0.085	0.300	0.300
Title: Calibration Description: Continue the development of improved calibration standards to support physical, mechanical, and electro-mechanical support equipment. FY 2015 Accomplishments: Calibration standards which support physical, mechanical and electro-mechanical support equipment were developed to meet ever changing technology. FY 2016 Plans: Calibration standards which support physical, mechanical and electro-mechanical support equipment will continue to be developed to meet ever changing technology. FY 2017 Plans:		0.426	0.560	0.560

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Calibration standards which support physical, mechanical and electro-mechanical support equipment will continue to be developed to meet ever changing technology.				
<p>Title: Analytical Metrology</p> <p>Description: Continue development of standards, models, and procedures to support analytical metrology applications.</p> <p>FY 2015 Accomplishments: Continued development projects to meet changing technology.</p> <p>FY 2016 Plans: Projects will continue in development phase to meet changing technology.</p> <p>FY 2017 Plans: Projects will continue in development phase to meet changing technology.</p>		0.060	0.100	0.100
Accomplishments/Planned Programs Subtotals		1.407	1.525	1.518
D. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
E. Acquisition Strategy				
Primarily accomplished through intergovernmental transfer between the Department of Defense and other Federal Departments.				
F. 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 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0702207F / Depot Maintenance (Non-IF)				673326 / Precision Measurement & Calibration								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
National Institute of Standards & Technology	MIPR	AFMETCAL : Heath, OH	-	0.974	Aug 2015	1.100	Aug 2016	1.118	Aug 2017	0.000		1.118	Continuing	Continuing	-	
Department of Defense	MIPR	AFMETCAL : Heath, OH	-	0.260	Aug 2015	0.200	Aug 2016	0.200	Aug 2017	0.000		0.200	Continuing	Continuing	-	
Industry	SS/T&M	AFMETCAL : Heath, OH	-	0.173	Aug 2015	0.225	Aug 2016	0.200	Aug 2017	0.000		0.200	Continuing	Continuing	-	
Subtotal			-	1.407		1.525		1.518		0.000		1.518	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	1.407		1.525		1.518		0.000		1.518	-	-	-	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Standards Development	[REDACTED]																											
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0702207F / <i>Depot Maintenance (Non-IF)</i>	Project (Number/Name) 673326 / <i>Precision Measurement & Calibration</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Standards Development	1	2015	4	2018