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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0702207F I Depot Maintenance (Non-IF)							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	1.507	1.528	1.897	0.000	1.897	1.936	1.974	2.017	2.087	Continuing	Continuing
673326: Precision Measurement & Calibration	-	1.507	1.528	1.897	0.000	1.897	1.936	1.974	2.017	2.087	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.

This program element may include necessary civilian pay expenses required to manage, execute and deliver 0702207F. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F, and 0605833F.

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 BA includes developmental efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current of subsequent FY.

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B. Program Change Summary (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total		
Previous President's Budget		1.518	1.528	1.499	0.000	1.499		
Current President's Budget		1.507	1.528	1.897	0.000	1.897		
Total Adjustments		-0.011	0.000	0.398	0.000	0.398		
• Congressional General Reductions		-0.011	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	0.398	0.000	0.398		
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Weapons Systems Measurement Standards				0.558	0.568	0.568	0.000	0.568
Description: Continue development of national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.								
FY 2018 Plans: Project development continues on infrared/laser/electro-optical weapons system support.								
N/A								
FY 2019 Base Plans: Project development continues.								
FY 2019 OCO Plans: N/A								
Title: Electrical Measurements				0.000	0.000	0.000	0.000	0.000
Description: Continue development of standards for electrical measurements to support high accuracy electronic test equipment.								
FY 2018 Plans:								

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A						
FY 2019 Base Plans: Continue development of standards for electrical measurements to support high accuracy electronic test equipment.						
FY 2019 OCO Plans: N/A						
Title: Radar Support/Communications Description: Continue development of standards for radar support, RF communication systems, and radar cross section range measurements.		0.300	0.300	0.712	-	0.712
FY 2018 Plans: Development of radar support standards, RF communication systems and radar cross section range will continue through development process.						
FY 2019 Base Plans: Continue development.						
FY 2018 to FY 2019 Increase/Decrease Statement: Increased development.						
Title: Calibration Description: Continue the development of improved calibration standards to support physical, mechanical, and electro-mechanical support equipment.		0.560	0.560	0.560	-	0.560
FY 2018 Plans: Calibration standards which support physical, mechanical and electro-mechanical support equipment will continue to be developed to meet ever changing technology.						
FY 2019 Base Plans: Continue development						
Title: Analytical Metrology		0.089	0.100	0.057	-	0.057

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C. Accomplishments/Planned Programs (\$ in Millions)							
			FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: Continue development of standards, models, and procedures to support analytical metrology applications.							
FY 2018 Plans: Continue development of standards, models, and procedures to support analytical metrology applications.							
FY 2019 Base Plans: Continue development							
FY 2018 to FY 2019 Increase/Decrease Statement: Funding decrease.							
Accomplishments/Planned Programs Subtotals			1.507	1.528	1.897	0.000	1.897
Other Service Funding Adjustment			0.000	0.000	0.000	0.000	0.000
Air Force Subtotals			1.507	1.528	1.897	0.000	1.897
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 2019 Air Force												Date: February 2018			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0702207F / Depot Maintenance (Non-IF)				Project (Number/Name) 673326 / Precision Measurement & Calibration					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	-	1.107	Aug 2017	1.218	Aug 2018	1.486	Aug 2019	-		1.486	Continuing	Continuing	1.200
Department of Defense	MIPR	AFMETCAL : Heath, OH	-	0.200	Aug 2017	0.200	Aug 2018	0.200	Aug 2019	-		0.200	Continuing	Continuing	0.200
Industry	SS/T&M	AFMETCAL : Heath, OH	-	0.200	Aug 2017	0.110	Aug 2018	0.211	Aug 2019	-		0.211	Continuing	Continuing	0.099
Subtotal			-	1.507		1.528		1.897		-		1.897	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals			-	1.507		1.528		1.897		-		1.897	Continuing	Continuing	N/A
Other Service Funding Adjustment			-	0.000		0.000		0.000		0.000		0.000			-
Project Cost Totals			-	1.507		1.528		1.897		-		1.897	0.000	0.000	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force			Date: February 2018		
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			Project (Number/Name) 673326 / Precision Measurement & Calibration		

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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																												
Standards Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Standards Development				
Standards Development	1	2017	4	2023