Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force											Date: February 2016	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*							
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	52.891	85.832	8.139	49.491	0.000	49.491	50.614	33.724	24.816	0.259	0.000	305.766
646002: *Three Dimensional Expeditionary Long-Range Radar (3DELRR)*	52.891	85.832	8.139	49.491	0.000	49.491	50.614	33.724	24.816	0.259	0.000	305.766
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 393												

A. Mission Description and Budget Item Justification

Three Dimensional Expeditionary Long-Range Radar (3DELRR) will be the principal United States Air Force (USAF) long-range, ground-based sensor for detecting, identifying, tracking, and reporting aerial tracks for the Joint Force Air Component Commander (JFACC) through the Theater Air Control System (TACS). Additionally, 3DELRR will respond to the operational need to detect and report highly maneuverable, small radar cross section targets to enable battlefield awareness while mitigating the reliability, maintainability, and sustainability issues plaguing the AN/TPS-75 radar system. Moreover, it will provide air controllers with a precise, real-time air picture of sufficient quality to conduct control of individual aircraft under a wide range of environmental and operational conditions. Finally, 3DELRR will replace an aging USAF AN/TPS-75 radar system. The AN/TPS-75 radar system is incapable of detecting some current and emerging threats as it is reaching the end of its service life making this system more difficult and costly to maintain.

3DELRR addresses system sustainability, transportability and operational availability shortfalls while providing detection and tracking of Air Breathing Threats (ABTs). Long-range surveillance is key to performing Airspace Control Authority (ACA) and Area Air Defense Commander (AADC) roles while improving USAF contributions to the Integrated Air and Missile Defense (IAMD) mission area. 3DELRR continues to be a Department of Defense pilot program for Defense Exportability Features (DEF) which incorporates export features early in the design phase to maximize export potential while reducing 3DELRR life cycle costs through increased production. In addition to the real-time picture for the USAF Control and Reporting Center (CRC), 3DELRR will provide tracks to the United States Marine Corps (USMC)/United States Navy (USN) via Composite Tracking Network (CTN) interface, and the United States Army (USA) via Integrated Fire Control Network (IFCN) interface.

This program is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	88.825	14.939	69.985	0.000	69.985
Current President's Budget	85.832	8.139	49.491	0.000	49.491
Total Adjustments	-2.993	-6.800	-20.494	0.000	-20.494
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-6.800			
• 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	-2.993	0.000			
• Other Adjustments	0.000	0.000	-20.494	0.000	-20.494

Change Summary Explanation

- FY15 $2.993M due to SBIR/STTR Transfer
- FY16 $6.8M Test & Evaluation support ahead of need
- FY17 $20.494M re-phased to FY19 due to Engineering and Manufacturing Development contract delays as a result of protests

C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Technology Development (TD)/Engineering and Manufacturing Development (EMD) Phases	80.453	2.609	39.418
Description: TD/EMD efforts associated with delivering a new long-range ground-based sensor. ***FY 2015 Accomplishments:*** - Activities included studies, analyses, and risk mitigation to support program planning and execution ***FY 2016 Plans:*** Acquisition activities for the EMD Phase include, but are not limited to: - Delta Preliminary Design Review (PDR), Engineering Design Readiness Review (EDRR), Critical Design Review (CDR) to mature the system design to posture for the successful development of 3 Production Representative Units (PRUs), and an Integrated Baseline Review (IBR) - Test planning and preparation as well as fabrication and testing of system components and subsystems ***FY 2017 Plans:*** - Will continue test planning and preparation as well as fabrication and testing of system components and subsystems as well as system integration/test activities - Will conduct initial physical configuration audit (PCA)			

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Will continue efforts to ensure the program properly matures the system design and posture for successful completion of 3 PRUs - Activities will also include studies and analyses to support both current program planning and execution as well as future program planning			
Title: Test and Evaluation (T&E) Support ***Description:*** T&E Support ***FY 2015 Accomplishments:*** T&E activities included, but were not limited to: - Developed the test strategy and test related documentation - Planned developmental test and evaluation events as well as cyber-security planning - Participated in technical and test related working groups ***FY 2016 Plans:*** Activities include, but are not limited to: - Participating in delta PDR, IBR and CDR - Participating in technical and test related working groups - Test Plan development ***FY 2017 Plans:*** Specific T&E activities will include, but are not limited to: - Continue developing the test strategy as well as test and system engineering related documentation - Conducting site surveys, and continue cyber-security planning - Supporting contractor testing, planning Government developmental test and evaluation events - Participating in design reviews as well as technical and test related working groups - Training and travel will significantly increase for T&E personnel to accommodate Contractor developmental test monitoring and execution of Government developmental testing	0.590	0.480	5.183
Title: Systems Engineering/Technical Support ***Description:*** Systems Engineering/Technical Support ***FY 2015 Accomplishments:*** - Activities included analyses and planning for future execution to include, but were not limited to, modeling and simulation, information assurance, program protection, and cyber-security ***FY 2016 Plans:***	4.789	5.050	4.890

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Continue engineering and manufacturing efforts to further mature technologies and manufacturing capabilities - Lead the Delta-PDR, EDRR, and CDR technical reviews - Participate in the IBR and monitor/document changes to the program that could affect the system baseline - Support reliability growth efforts during contractor test and continue to identify, monitor, and mitigate technical program risks ***FY 2017 Plans:*** Engineering support activities will include, but are not limited to, the following: - Preparation and planning for EMD efforts to further mature technologies and manufacturing capabilities - Document and monitor changes that could affect the system baseline - Support reliability growth efforts during contractor test, witness contractor testing at the system, subsystem, and component levels - Continue to identify, monitor and mitigate technical risks			
Accomplishments/Planned Programs Subtotals	85.832	8.139	49.491

D. Other Program Funding Summary ($ in Millions)

Line Item	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
• OPAF: BA04: Line Item # 833060: *3D Expeditionary Long Range Radar*	0.000	0.000	0.000	0.000	0.000	44.379	153.048	162.167	165.084	587.425	1,116.177

Remarks

E. Acquisition Strategy

The 3DELRR strategy is a single step acquisition approach for full capability to develop, produce, and field a highly capable and sustainable, expeditionary long-range radar. A limited competition was conducted among the three contractors that participated in the Pre-Engineering and Manufacturing Development (EMD) phase. The EMD contract will be awarded to a single developer to complete the final design, build, integration, and test of the 3DELRR system with options to produce Low Rate Initial Production (LRIP) units, and conduct Interim Contractor Support (ICS). A follow on sole source contract will be awarded to the EMD and LRIP contractor for Full Rate Production (FRP) following the FRP Decision Review.

Air Force Program Executive Officer (PEO) for Battle Management (AFPEO BM) is the PEO for 3DELRR. Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority for the 3DELRR program and provides contracts, legal, and comptroller support. The Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics [OUSD(AT&L)] is the program's Milestone Decision Authority (MDA).

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*

The primary contract type for EMD is a Fixed Price Incentive Fee (FPIF) contract which includes an FPIF option to execute LRIP as well as a Cost Plus Fixed Fee (CPFF) option for Interim Contract Support (ICS). Upon MDA approval at MS C, the Procuring Contracting Officer (PCO) will exercise the LRIP option. A CPFF option is planned for ICS due to the uncertainty of the quantity and the exact nature of the work. The primary contract type for FRP is Firm Fixed Price (FFP) due to stable requirements and low risk of changes in scope.

The contract will deliver 3 Production Representative Units (PRUs) during EMD and 3 refurbished PRUs during LRIP for a total of 6 systems at Initial Operational Capability (IOC). The follow-on FRP contract will deliver 29 total systems.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*	**Project (Number/Name)** 646002 / *Three Dimensional Expeditionary Long-Range Radar (3DELRR)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EMD Phase	C/FPIF	TBD : TBD	43.396	76.263	Mar 2016	0.001	Dec 2016	36.585	Dec 2016	0.000		36.585	94.813	251.058	265.000
		Subtotal	43.396	76.263		0.001		36.585		0.000		36.585	94.813	251.058	265.000

Remarks

- Program delayed due to protest activities; projected contract award 31 Mar 2016
- The target value of the contract is the program manager's estimate

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering - A	SS/CPFF	MIT/Lincoln Laboratory : Lexington, MA	1.770	1.610	Nov 2014	1.750	Nov 2015	1.900	Nov 2016	0.000		1.900	1.396	8.426	TBD
System Engineering - B	SS/CPFF	Carnegie Mellon University : Pittsburgh, PA	0.119	0.150	Oct 2014	0.150	Oct 2015	0.150	Oct 2016	0.000		0.150	0.000	0.569	TBD
		Subtotal	1.889	1.760		1.900		2.050		0.000		2.050	1.396	8.995	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
96th Test Wing/Other Test Agencies	Various	46 TS : Eglin AFB, FL	0.672	0.590	Oct 2014	0.000		5.183	Oct 2016	0.000		5.183	6.550	12.995	TBD
		Subtotal	0.672	0.590		0.000		5.183		0.000		5.183	6.550	12.995	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*	Project (Number/Name) 646002 / *Three Dimensional Expeditionary Long-Range Radar (3DELRR)*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	AFLCMC/HBDD : Hanscom AFB, MA	6.934	7.219	Oct 2014	6.238	Oct 2015	5.673	Oct 2016	0.000		5.673	6.654	32.718	TBD
		Subtotal	6.934	7.219		6.238		5.673		0.000		5.673	6.654	32.718	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.891	85.832		8.139		49.491		0.000		49.491	109.413	305.766	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*	**Project (Number/Name)** 646002 / *Three Dimensional Expeditionary Long-Range Radar (3DELRR)*

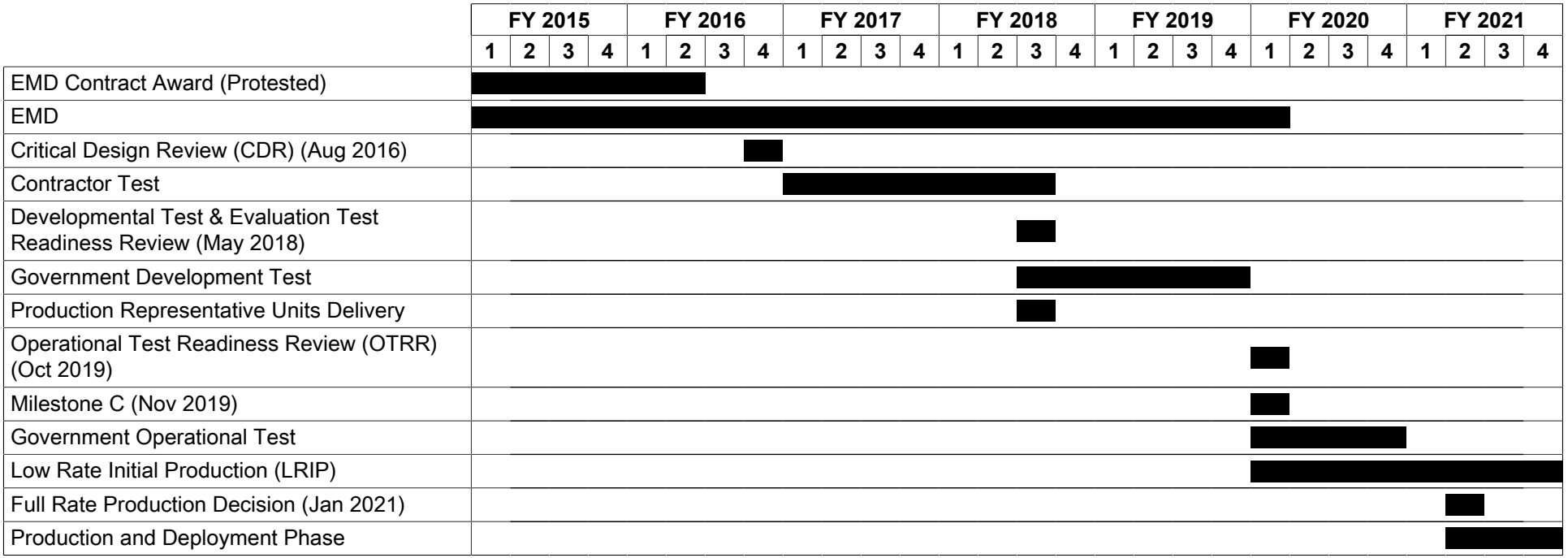

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207455F / *Three Dimensional Long-Range Radar (3DELRR)*	**Project (Number/Name)** 646002 / *Three Dimensional Expeditionary Long-Range Radar (3DELRR)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
EMD Contract Award (Protested)	1	2015	2	2016
EMD	1	2015	1	2020
Critical Design Review (CDR) (Aug 2016)	4	2016	4	2016
Contractor Test	1	2017	3	2018
Developmental Test & Evaluation Test Readiness Review (May 2018)	3	2018	3	2018
Government Development Test	3	2018	4	2019
Production Representative Units Delivery	3	2018	3	2018
Operational Test Readiness Review (OTRR) (Oct 2019)	1	2020	1	2020
Milestone C (Nov 2019)	1	2020	1	2020
Government Operational Test	1	2020	4	2020
Low Rate Initial Production (LRIP)	1	2020	4	2021
Full Rate Production Decision (Jan 2021)	2	2021	2	2021
Production and Deployment Phase	2	2021	4	2021

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