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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i>							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	-	-	22.870	-	22.870	0.130	0.133	7.977	8.010	Continuing	Continuing
EH2: <i>EMARSS ADV DEV (MIP)</i>	-	-	-	1.740	-	1.740	-	-	3.205	3.218	-	8.163
EH3: <i>EMARSS Payloads ADV DEV (MIP)</i>	-	-	-	3.532	-	3.532	0.130	0.133	4.772	4.792	Continuing	Continuing
EH4: <i>ARL ADV DEV (MIP)</i>	-	-	-	5.100	-	5.100	-	-	-	-	-	5.100
EH5: <i>ARL Payloads ADV DEV (MIP)</i>	-	-	-	12.498	-	12.498	-	-	-	-	-	12.498

A. Mission Description and Budget Item Justification

This project continues development of advanced tactical reconnaissance and surveillance sensor technologies and develops technology for the on-board fusion of multi-discipline intelligence sensors, i.e. Signals Intelligence (SIGINT), Imagery Intelligence (IMINT), and Measurement and Signature Intelligence (MASINT). Hyperspectral, multi-spectral, interferometric synthetic aperture radar sensors, advanced target and image exploitation software will be developed. Additionally, efforts will be directed toward the development of advanced multi-mode Electrooptic/Infrared (EO/IR), multi-mode MTI/SAR radar, foliage penetration radar, multi-spectral/hyperspectral imageries (MSI/HSI), MASINT on-board fusion and registration, and cueing of the EO/IR/SAR/HSI imaging sensor.

The Hyperspectral Longwave Imager for the Tactical Environment (HyLITE) is the next generation airborne day/night hyperspectral reconnaissance sensor for the detection and identification of camouflaged and concealed targets in all terrain environments. Design improvements will be implemented and flight testing conducted to assess system performance.

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	22.870	-	22.870
Total Adjustments	-	-	22.870	-	22.870
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	22.870	-	22.870

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH2 / EMARSS ADV DEV (MIP)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH2: EMARSS ADV DEV (MIP)	-	-	-	1.740	-	1.740	-	-	3.205	3.218	-	8.163
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program is not a New Start. Funding was transferred from PE 0605626. For FY16 and beyond, the EMARSS RDTE funding will be reflected between Project Manager Sensors - Aerial Intelligence (PM SAI) and Project Manager Fixed Wing (PM FW).

Army Aquisition Objective(AAO): Thirty-six (36)
Army Procurement Objective (APO):Twenty-four(24)

All funding is in support of the ACTIVE COMPONENT

A. Mission Description and Budget Item Justification

The budget line provides for all associated non-recurring engineering (NRE),development of supplemental type certificates (STC), testing, integration and Pre-Planned Product Improvement (P3I) of Army Aerial, Intelligence, Surveillance and reconnaissance (AISR)systems. Funding provides for DoD mandated safety equipment to meet current and evolving International Standards. It also enhances aircraft communications, navigations and surveillance (CNS); aircraft survivability equipment (ASE) and the integration of the AISR mission equipment package (MEP) as well as obsolescence issues involved with the conversion of Liberty Project Aircraft (LPA)to the EMARSS POR, in regards to the Navy AAR-47 converting to Army AAR-57, Blue Force Tracker (BFT) to Blue Force Tracker-2 (BFT-2)and Common Missile Warning Systems (CMWS)upgrades.

FY16 RDT&E dollars in the amount of \$1.740 million provides for all associated non-recurring engineering for conversion of initial Quick Reaction capability (QRC)systems into the EMARSS program of record (POR). Upgraded communications and MEP will ensure continued worldwide deployability and over match dominance for AISR.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Non-Recurring Engineering	-	-	1.740	-	1.740
Description: The budget line provides for all associated non-recurring engineering (NRE),development of supplemental type certificates (STC), testing and integration of Army Aerial, Intelligence, Surveillance and reconnaissance (AISR)systems. Funding provides for DoD mandated safety equipment to meet current and evolving International Standards. It also enhances aircraft communications, navigations and surveillance (CNS);					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH2 / EMARSS ADV DEV (MIP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
aircraft survivability equipment (ASE) and the integration of the AISR mission equipment package (MEP) as well as obsolescence issues involved with the Liberty Project Aircraft (LPA) in regards to the Navy AAR-47 changing to Army AAR-57, Blue Force Tracker (BFT) to Blue Force Tracker-2 (BFT-2).					
<i>FY 2016 Base Plans:</i> FY16 RDT&E dollars in the amount of \$1.740 million provides for all associated non-recurring engineering for conversion of initial Quick Reaction capability (QRC) systems into the EMARSS program of record (POR). Upgraded communications and MEP will ensure continued worldwide deployability and over match dominance for AISR.					
Accomplishments/Planned Programs Subtotals	-	-	1.740	-	1.740

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• EMARSS SEMA Mods (MIP): EMARSS SEMA Mods (MIP)-A02112	-	-	13.669	-	13.669	13.366	3.305	21.294	4.451	-	56.085
• EMARSS Payloads (MIP): EMARSS Payloads (MIP)-AZ2054000	-	-	13.669	-	13.669	13.366	3.305	21.294	4.451	-	56.085
• EMARSS Payloads Adv Dev (MIP): EMARSS Payloads Adv Dev (MIP)-375206EH3	-	-	3.532	-	3.532	0.130	0.133	4.722	4.792	-	13.309

Remarks

D. Acquisition Strategy
The US Army Aerial Intelligence, Surveillance and Reconnaissance(AISR) acquisition and modernization strategy leverages previous investments in quick reaction capability (QRC) AISR systems returning from overseas theaters and converts them to systems capable of meeting the EMARSS Capability Production Document (CPD) threshold requirements.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH2 / EMARSS ADV DEV (MIP)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Non-Recurring Engineering																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) EH2 / <i>EMARSS ADV DEV (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Non-Recurring Engineering	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH3: EMARSS Payloads ADV DEV (MIP)	-	-	-	3.532	-	3.532	0.130	0.133	4.772	4.792	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program is not a New Start and funding transferred from PE 0605626. For FY16 and beyond, funding to support the overall EMARSS effort is found in the following two lines; EH3 EMARSS Payloads (Project Manager Sensors - Aerial Intelligence (PM SAI)) and EH2 EMARSS ADV DEV (Project Manager Fixed Wing (PM FW)). PM SAI funding continues on this line from 0605626A - Aerial Common Sensor.

A. Mission Description and Budget Item Justification

The Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) is the Army's next generation C-12 based, direct support, manned airborne intelligence collection, processing, and targeting support system. EMARSS provides a persistent capability to detect, locate, classify/identify, and track surface targets with a high degree of timeliness and accuracy. EMARSS aircraft will be assigned to the U.S. Army Intelligence and Security Command's (INSCOM) Aerial Exploitation Battalions (AEB). EMARSS is an improvement over the existing Medium Altitude Reconnaissance and Surveillance System Quick Reaction Capability (MARSS QRC).

The Army Acquisition Objective (AAO) for EMARSS is 36 systems, the Army Procurement Objective (APO) is 24 systems and includes the following variants: EMARSS-G (Constant Hawk & TACOP LiDAR); EMARSS-V (VaDER); EMARSS-M (Liberty Project Aircraft (LPA)); and EMARSS-S (Engineering and Manufacturing Development (EMD) systems.

The modification and conversion leverages the following QRC systems: Constant Hawk (5); LPA (8); TACOP LiDAR (3); and VaDER (4) redeploying out of Afghanistan to meet the EMARSS Capabilities Production Document (CPD).

EMARSS Payloads will consist of Mission Equipment Packages (MEP) and Processing Exploitation & Dissemination commercial derivative equipment such as, an Electro-optical/Infrared (EO/IR) sensor with Full Motion Video (FMV), a Communications Intelligence (COMINT) collection system, an Aerial Precision Geolocation (APG) system, tactical line-of-site (LOS) and beyond line-of-site (BLOS) communications suite, two Distributed Common Ground System - Army (DCGS-A) enabled operator workstations and a self-protection suite. Payloads integrated on platforms will include: niche capabilities such as Wide Area Aerial Surveillance (WAAS), Light Imaging Detection and Ranging (LiDAR) and improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) radar capability.

EMARSS will operate in direct support of tactical missions. EMARSS, integrating elements of the DCGS-A, will provide a near real-time response to Combat Forces with Intelligence, Surveillance and Reconnaissance (ISR) tasking.

FY 2016 RDTE funding in the amount of \$3.532 million funds the product enhancement, sensor engineering support, and test and evaluation.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: EMARSS - Product Enhancement Description: RDTE funds Sensor Engineering Change Proposals (ECPs) and contractor system support. FY 2016 Base Plans: RDTE funds Sensor Engineering Change Proposals (ECPs) and contractor system support.	-	-	2.579	-	2.579
Title: EMARSS - Sensor Engineering Support Description: Matrix Government and Matrix Contractor engineering support for sensor enhancements. FY 2016 Base Plans: Funds Matrix Government and Matrix Contractor engineering support for sensor enhancements.	-	-	0.200	-	0.200
Title: Program Management Support Description: Program Management Office (PMO) support and travel, as well as Systems Engineering and Technical Assistance (SETA) support. FY 2016 Base Plans: Program Management Office (PMO) support and travel, as well as Systems Engineering and Technical Assistance (SETA) support.	-	-	0.195	-	0.195
Title: EMARSS - Test and Evaluation Description: Delta testing and corrective actions resulting from Operational Tests. FY 2016 Base Plans: Delta testing and corrective actions resulting from Operational Tests.	-	-	0.558	-	0.558
Accomplishments/Planned Programs Subtotals	-	-	3.532	-	3.532

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• EMARSS - AZ2054: EMARSS MEP/PED Procurement (AZ2054)	-	-	13.670	-	13.670	13.366	3.305	21.294	4.452	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• ACS: Aerial Common Sensor A02005	-	-	99.500	-	99.500	-	-	-	-	-	99.500
• EMARSS SEMA: EMARSS SEMA A02112	-	-	13.669	-	13.669	13.366	3.305	21.294	4.451	-	56.085
• EMAARSS SEMA: EMARSS 375206 EH2	-	-	-	1.740	1.740	-	-	3.205	3.218	-	8.163
• EMARSS - TNG: TENCAP - TNG (0605766A, Project DX9)	4.172	2.660	0.588	-	0.588	0.769	0.543	-	-	-	8.732

Remarks
EMARSS Theater Net-centric Geolocation (TNG) - TNG funding included in TENCAP TNG funding line.

D. Acquisition Strategy
The EMARSS MEP/PED acquisition strategy capitalizes on significant existing investments in AISR systems by leveraging proven, mature (i.e. Technology Readiness Level (TRL) 8 or greater) sensors, communications subsystems and DCGS-A compliant workstations. All MEP/PED systems leverage sensor integrations previously conducted on other Army and Joint programs. The acquisition strategy supported by the EMARSS CPD includes design and testing of 24 MEP/PED systems and leverages proven Quick Reaction Capabilities for SAR/MTI, LIDAR, WAAS, FMV and COMINT.

The EMARSS acquisition strategy capitalizes on significant existing investments in AISR systems by hosting proven, mature (i.e. Technology Readiness Level (TRL) 8 or greater) sensors, communications subsystems and DCGS-A compliant workstations into a commercial derivative aircraft. All systems are based on the B350ER platform and leverage aircraft modifications and sensor integration previously conducted on other Army and Joint programs. The acquisition strategy supported by the EMARSS CPD includes design and testing of 24 systems. As a result of Congressional language contained in the 2014 National Defense Authorization Act (NDAA), the Army will forgo additional production of Boeing built EMD aircraft and will fulfill the end-state requirements of 24 systems by leveraging QRC platforms and modifying them into CPD compliant systems. The EMARSS Program of Record (POR) will ultimately be comprised of four variants: (4) Boeing EMDs / EMARSS-S, (8) CH and TACOP/LiDAR / EMARSS-G, (4) VaDER / EMARSS-V and (8) Air Force Liberty Project Aircraft (LPA) / EMARSS-M AISR systems. The Air Force LPA aircraft transitioned to the Army 4Q FY14. The four EMARSS-S (EMD) systems will be brought to a production level configuration and available for fielding. Milestone C (4QTR2014) permits the induction of the 20 QRC systems into the EMARSS POR.

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army												Date: February 2015				
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)								
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
PMO	Allot	PM SAI : APG, MD	0.000	-		-		0.095	Oct 2015	-		0.095	-	0.095	-	
SETA	C/CPFF	TBD : APG, MD	0.000	-		-		0.100	Feb 2016	-		0.100	-	0.100	-	
Subtotal			0.000	-		-		0.195		-		0.195	-	0.195	-	
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
LiDAR sensor enhancement	SS/TBD	JHU/APL : Laurel, MD	0.000	-		-		1.205	Jan 2016	-		1.205	-	1.205	-	
Sensor enhancement	C/CPIF	TBD : TBD	0.000	-		-		1.374	Jan 2016	-		1.374	-	1.374	-	
Subtotal			0.000	-		-		2.579		-		2.579	-	2.579	-	
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Matrix Government Engineering Support	MIPR	Various : Various	0.000	-		-		0.100	Nov 2015	-		0.100	-	0.100	-	
Matrix Contractor Engineering Support	MIPR	Various : Various	0.000	-		-		0.100	Nov 2015	-		0.100	-	0.100	-	
Subtotal			0.000	-		-		0.200		-		0.200	-	0.200	-	
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 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	
Delta Testing	MIPR	TBD : TBD	0.000	-		-		0.558	Nov 2015	-		0.558	-	0.558	-	
Subtotal			0.000	-		-		0.558		-		0.558	-	0.558	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army								Date: February 2015					
Appropriation/Budget Activity 2040 / 7				R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)					
	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		3.532		-		3.532	-	3.532	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020							
	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				
EMARSS - Operational Test																																
LiDAR - Sensor Enhancement																																
Sensor Enhancement																																
QRC to POR - Modification and Conversion																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH3 / EMARSS Payloads ADV DEV (MIP)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EMARSS - Operational Test	1	2016	3	2016
LiDAR - Sensor Enhancement	2	2016	4	2016
Sensor Enhancement	2	2016	4	2016
QRC to POR - Modification and Conversion	1	2016	2	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH4: ARL ADV DEV (MIP)	-	-	-	5.100	-	5.100	-	-	-	-	-	5.100
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program is not a New Start and funding transferred from PE 0605626. For FY16 and beyond, the ARL RDTE funding will be reflected between Project Manager Sensors - Aerial Intelligence (PM SAI) and Project Manager Fixed Wing (PM FW).

Army Aquisition Objective(AAO): nine (9) aircraft

All funding is in support of the ACTIVE COMPONENT

FY16 base funding in the amount of \$5.100 million dollars is linked to A02110, APA, ARL SEMA MODS (MIP) and AZ2050, APA, ARL Payloads (MIP) dollars.

A. Mission Description and Budget Item Justification

This budget line provides for Non-Recurring Engineering (NRE) and the technical drawing package associated with the Department of Army mandated installation of Aviation Survival Equipment (ASE) on a DeHavilland dash 8 and the associated validation testing required for the installed ASE. This funding will also be utilized for the associated system level testing after the final sensor installation on the Aerial Reconnaissance Low Enhanced (ARL-E) DeHavilland dash 8 replacement platforms.

FY 16 RDT&E funding of \$5.100 million dollars provides Department of Army mandated ASE compliance and total system level testing for the ARL-E DeHavilland dash 8 replacement Program of Record aircraft. These aircraft will provide the Department of Army with a state of the art Aerial Intelligence Surveillance and Reconnaissance (AISR) platform ready for worldwide deployment in support of national interest.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Non-Recurring Engineering	-	-	5.100	-	5.100
Description: Funding will provide for Non-Recurring Engineering (NRE) and the technical drawing package associated with the Department of Army mandated installation of Aviation Survival Equipment (ASE) on a DeHavilland dash 8 and the associated validation testing required for the installed ASE. This funding will also be utilized for the associated system level testing after the final sensor installation on the Aerial Reconnaissance Low Enhanced (ARL-E) DeHavilland dash 8 replacement platforms.					
FY 2016 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
FY 16 RDT&E funding of \$5.100 million dollars provides Department of Army mandated ASE compliance and total system level testing for the ARL-E DeHavilland dash 8 replacement Program of Record aircraft. These aircraft will provide the Department of Army with a state of the art Aerial Intelligence Surveillance and Reconnaissance (AISR) platform ready for worldwide deployment in support of national interest.					
Accomplishments/Planned Programs Subtotals	-	-	5.100	-	5.100

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• ARL SEMA (MIP): ARL SEMA (MIP)-A02109000	-	-	-	-	-	11.800	-	12.300	12.500	-	36.600
• ARL SEMA Mods (MIP): ARL SEMA Mods (MIP)-A02110000	-	-	16.302	32.000	48.302	33.933	21.364	21.780	22.194	-	147.573
• ARL Payloads (MIP): ARL Payloads (MIP)-AZ2050000	-	-	65.138	-	65.138	48.500	53.778	7.668	2.679	-	177.763
• ARL Payloads ADV DEV (MIP): ARL Payloads ADV DEV (MIP)-375206EH5	-	-	12.498	-	12.498	-	-	-	-	-	12.498

Remarks

D. Acquisition Strategy

The U.S. Army AISR acquisitions and modernization strategy leverages previous investments in QRC AISR systems return from overseas operations and converts them to systems capable of meeting the ARL-E Capability Production document (CPD) threshold requirements.

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH4 / ARL ADV DEV (MIP)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
Test and Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) EH4 / <i>ARL ADV DEV (MIP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army										Date: February 2015		
Appropriation/Budget Activity 2040 / 7					R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems				Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
EH5: ARL Payloads ADV DEV (MIP)	-	-	-	12.498	-	12.498	-	-	-	-	-	12.498
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY16 ARL-E RDT-E funding line (ARL Payloads ADV DEV(MIP) 375206EH5 will be identified between Project Manager Sensors Aerial Intelligence (SAI) and Project Manager Fixed Wing (FW)(ARL ADV DEV (MIP) funding line 375206EH4).

This program is not a New Start and funding transferred from PE 0605626-AC5.

A. Mission Description and Budget Item Justification

The Airborne Reconnaissance Low - Enhanced (ARL-E) program supports the Aerial Layer 2020 Strategy which recommended replacement of the current Airborne Reconnaissance Low Multifunction (ARL-M) and migrates the current ARL sensors plus new niche sensors to the meet the ARL-E Capabilities Production Document (CPD) requirements. ARL-E payload procures the hardware, software, and infrastructure to rapidly install sensors which support a rapid plug and play, quick connect/disconnect, mounting system to allow the installation of various combinations of sensor-types in support of a wide-range of theater operations. The sensor suite will consist of a Communications Intelligence (COMINT) subsystem capable of supporting theater net centric geo-location efforts, High Definition Full Motion Video (FMV); Improved Synthetic Aperture Radar / Moving Target Indicator (SAR/MTI) radar capability and updated mission workstations, as well as radio and data/communications architecture. ARL-E will leverage existing sensors as well as integrating and installing niche sensors to augment current capabilities. Niche capabilities include Wide-Area Augmentation System (WAAS), Light Detection and Ranging (LiDAR) and Hyper Spectral Imaging (HSI) sensors. The ARL Modernization Program standardizes the payload systems, upgrades the COMINT subsystem for improved Irregular Warfare tactical collection and geo-location, enhances the Full Motion Video (FMV) system with a High Definition capability, and improves the Synthetic Aperture Radar / Moving Target (SAR//MTI) capability. The modernization program ensures continued ARL relevancy against current and emerging threat emitters and tactics across the full spectrum of operations.

ARL-E Payload is funding the development and testing of the Long Range Radar (LRR) to replace the current ARL Phoenix Eye Radar to meet the increased performance requirements of the Appendix J Payload for ARL-E approved CPD.LRR effort will add required SAR modes, address obsolescence, IA issues, and improved probability at greater required ranges. Effort will produce a prototype and flight testing to characterize the prototype performance. Funding is also planned for test and evaluation of LRR capability integrated in ARL-E system.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Airborne Reconnaissance Low - Enhanced (ARL-E) Research and Development (R&D) support.	-	-	12.498	-	12.498
Description: .					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
<i>FY 2016 Base Plans:</i> Completes development and testing of Long Range Radar prototype and supports ARL-E MEP system Developmental Testing (DT).					
Accomplishments/Planned Programs Subtotals	-	-	12.498	-	12.498

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• AZ2050: ARL MODS (MIP) AZ2050	-	-	69.068	-	69.068	48.929	54.266	7.737	2.703	-	182.703
• 0605766ADX9: Theater Net-Centric Geolocation (TNG)	-	-	-	-	-	1.360	1.898	0.257	0.257	-	3.772

Remarks
 ARL Procurement funding line split with ARL SEMA Mods (MIP) A02110000. FY16 base funding to support the overall ARL-E effort is found in the following two lines: AZ2050 ARL Payloads (per this form) and A02110 ARL SEMA Mods (separate form). Separate funding lines support the Army Acquisition Executive's directive, codified in the October 28, 2011 memorandum, to assign overall acquisition lead for manned airborne intelligence systems to Program Executive Officer for Aviation (PEO-AVN); and overall sensor, processing, exploitation, and dissemination responsibilities to Program Executive Officer for Intelligence, Electronic Warfare, and Sensors (PEO-IEWS).

The purpose of AZ2050 is to procure, upgrade, test and integrate sensors; communications architecture for sensor information exploitation and dissemination; test, nonrecurring engineering, and integration in support of the ARL-E Payload program ensuring ARL-E is rapidly deployable world-wide against current, new, and emerging threats.

FY16 Base funding within AZ2050 - \$69,068 supports the procurement of the Mission Equipment Payload (MEP) for integration on Aircraft #3 and 4. The MEP for these systems will consist of 1 set of Distributed Common Ground Station-Army (DCGS-A) workstations, 1 set of communication equipment (mission radios, Beyond line of Site (BLOS) and Line of Site (LOS) Data links), 1 COMINT subsystem, 1 Hyper spectral subsystem, 1 Vehicle and Dismount.

D. Acquisition Strategy
 FY15 funding in the amount of \$10.174M from EMARSS PE 0605626A initiated development of Long Range Radar (LRR). The amount of \$12.498 completes the development and testing of the Long Range Radar to replace the current ARL Phoenix Eye Radar to increase performance meet the improved requirement documents of the Appendix J Payload for ARL-E approved CPD. Of the \$12.498, \$1M will fund ARL-E MEP system developmental test efforts.

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / <i>Airborne Reconnaissance Systems</i>	Project (Number/Name) EH5 / <i>ARL Payloads ADV DEV (MIP)</i>

<u>E. Performance Metrics</u> N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Long Range Radar Development	C/TBD	TBD : Aberdeen Proving Ground, MD	0.000	-		-		11.498	Jun 2015	-		11.498	-	11.498	-
Subtotal			0.000	-		-		11.498		-		11.498	-	11.498	-

Remarks
This is an existing contract mod.

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ARL-E MEP Contract Award	C/TBD	TBD : Aberdeen Proving Ground, MD	0.000	-		-		1.000	Sep 2015	-		1.000	-	1.000	-
Subtotal			0.000	-		-		1.000		-		1.000	-	1.000	-

Remarks
This is an existing contract mod.

Project Cost Totals	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	-	-	12.498	-	12.498	-	12.498	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army **Date:** February 2015

Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)
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Event Name	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
(1) ARL-E - Radar Development Contract Award	ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C				ARL-E Radar Development C			
ARL-E Radar Development																												
(2) ARL-E MEP Contract Award	ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con				ARL-E MEP Con							
ARL-E MEP Integration																									Test & Evaluation			
ARL-E LRR Test & Evaluation																									Test & Evaluation			

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0305206A / Airborne Reconnaissance Systems	Project (Number/Name) EH5 / ARL Payloads ADV DEV (MIP)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ARL-E - Radar Development Contract Award	3	2015	3	2015
ARL-E Radar Development	2	2015	2	2017
ARL-E MEP Contract Award	4	2015	4	2015
ARL-E MEP Integration	4	2015	4	2017
ARL-E LRR Test & Evaluation	2	2016	4	2017