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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / <i>Next Generation Load Device - Medium</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	15.616	-	15.616	-	-	-	-	-	-
BY6: <i>Key Management Infrastructure Development</i>	-	-	-	15.616	-	15.616	-	-	-	-	-	-

**A. Mission Description and Budget Item Justification**

The Next Generation Load Device - Medium funding line supports the Army Network Modernization Strategy LOE 1, Unified Network. Efforts are aligned to support the Network-Cross Functional Team capability set approach to achieve the network modernization strategy.

Project BY6: This funding line supports COMSEC technologies within the Army to perform the systems integration and User Application Software (UAS) development for the Next Generation Load Device - Medium (NGLD-M) to conduct the Army's key fill mission by issuing, filling, and managing Cryptographic keys to both legacy and future Key Management Infrastructure (KMI) aware End-Cryptographic (ECUs). This technology requires RDT&E investment to meet the requirements outlined in the NGLD Capability Production Document (CPD). This effort is an Acquisition Category III (ACAT III) Program of Record (POR). COMSEC is governed by the Chairman of the Joint Chiefs of Staff Instruction (CJCSA) 6510. In order to ensure Warfighters continue to have secured communications (i.e., encrypted data and voice), Army communications systems are required to support modern cryptographic capabilities by implementing modern algorithms. These efforts are consistent with Strategic Planning Guidance (SPG).

Project BY6 FY 2022 Justification: FY2022 funding supports the initial award of the NGLD-M developmental effort to up to two vendors to begin development and testing of their hardware and software solutions.

Prior to FY2022, the NGLD-M development effort was funded under PE 0303140A, Project DV4. In FY2022 and out, PE 0303140A no longer includes funding associated with the NGLD-M Program. New PE 0303140A Project Code BY6 was established to clearly identify requirements for NGLD-M development and is not considered a new start effort.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2022 Army	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / <i>Next Generation Load Device - Medium</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	15.616	-	15.616
Total Adjustments	0.000	0.000	15.616	-	15.616
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	15.616	-	15.616

**Change Summary Explanation**

New funding line established. FY21 funding for this effort was supported by the PE 0303140A, Project: DV4 RDTE line.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 2040 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605144A / Next Generation Load Device - Medium				<b>Project (Number/Name)</b> BY6 / Key Management Infrastructure Development			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
BY6: Key Management Infrastructure Development	-	-	-	15.616	-	15.616	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

As part of the Army's Key Management Infrastructure (KMI) implementation, the Next Generation Load Device - Medium (NGLD-M) is an Acquisition Category III (ACAT III) Program of Record (POR) and modernized load device that will replace legacy AN/PYQ-10A and AN/PYQ-10A(C) (Army), which is commonly referred to as the Simple Key Loader (SKL). The NGLD-M will receive, store, manage, and transfer electronic key through the network to be loaded into communication devices such as radios and satellites to secure the network. The NGLD-M requires RDT&E investment to develop and test the hardware and software solutions. Without this technology Warfighters are required to manually receive their cryptographic products by traveling to COMSEC account locations (which may not be co-located) and manually filling their devices.

FY2022 funding supports the initial award of the NGLD-M developmental effort to up to two vendors to begin development and testing of their hardware and software solutions.

Prior to FY2022, the NGLD-M development effort was funded under PE 0303140A, Project DV4. In FY2022 and out, PE 0303140A no longer includes funding associated with the NGLD-M Program. New PE 0303140A Project Code BY6 was established to clearly identify requirements for NGLD-M development and is not considered a new start effort.

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

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> NGLD-M Development and NSA Certification	-	-	13.680
<b>Description:</b> The Next Generation Load Device - Medium (NGLD-M) will conduct the Army's key fill mission by issuing, filling, and managing Cryptographic keys to both legacy and future KMI aware End-Cryptographic Units (ECUs). This technology requires RDT&E investment to meet the requirements outlined in the NGLD Capability Production Document (CPD).			
<b>FY 2022 Plans:</b> Conduct the NGLD-M development and the User Application Software (UAS) integration of up to two solutions to meet the CPD. The NGLD-M development will establish configuration items and allocate system functions and performance requirements to the configurations items through a Preliminary Design Review. Further NGLD-M development will finalize the physical and functional characteristics of the NGLD-M configuration items and establish Government configuration control of the design at the Critical Design Review (CDR). At CDR, The Government will receive pre-production development models to support Highly Accelerated			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / Next Generation Load Device - Medium	<b>Project (Number/Name)</b> BY6 / Key Management Infrastructure Development		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Life Testing for system reliability testing, End Cryptographic Unit interoperability testing, and the Risk Management Framework Security Control Assessment.  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY21 funding for this effort was supported by the PE 0303140A, Project: DV4 RDTE line.				
<b>Title:</b> Program Management Support  <b>Description:</b> PMO costs will be covered by OMA funding. This funds matrixed support from Combat Capabilities Development Command (CCDC) Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center to assist with the NGLD-M development effort.  <b>FY 2022 Plans:</b> FY 2022 funds matrixed support to include Acquisition Program Manager (APM), and Software Engineer Program Management support from Combat Capabilities Development Command (CCDC) Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center to assist with the NGLD-M development effort.  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY21 funding for this effort was supported by the PE 0303140A, Project: DV4 RDTE line.		-	-	1.717
<b>Title:</b> Developmental Test & Evaluation Support  <b>Description:</b> NGLD-M developmental test and evaluation support efforts.  <b>FY 2022 Plans:</b> FY 2022 funds developmental test and evaluation support efforts to include End Cryptographic Unit (ECU) interoperability testing, environmental testing, Telecommunications Electronics Materials Protected from Emanating Spurious Transmissions (TEMPEST), and NSA Testing.  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> This is a new budget item in FY22, but other FY21 funding for NGLD-M effort was supported by the PE 0303140A, Project: DV4 RDTE line.		-	-	0.219
<b>Accomplishments/Planned Programs Subtotals</b>		-	-	15.616

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / Next Generation Load Device - Medium	<b>Project (Number/Name)</b> BY6 / Key Management Infrastructure Development

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>		<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u>		
			<u>Base</u>	<u>OCO</u>					<u>Total</u>	<u>Complete</u>	<u>Total Cost</u>
• 0303140A: Information Systems Security Program	25.710	28.270	15.720	-	15.720	-	-	-	-	-	-
• B96000: Communications Security (COMSEC)	147.097	159.400	126.273	-	126.273	-	-	-	-	-	-

**Remarks**

**D. Acquisition Strategy**

Aspects of the Next Generation Load Device - Medium (NGLD-M) may include commercially availability solutions and/or interfaces, but development is required to integrate these solutions into a device that meets the rigors of NSA certification and the Capability Production Document (CPD) requirements. There is no commercially driven market for NSA certified load devices that meet the requirements identified in the NGLD Family CPD. The NGLD-M Acquisition Strategy supports a multiple award contract strategy for development, production, and sustainment. These requirements ensure secure communications by requiring the NGLD-M to provide specific tamper protections, limit electromagnetic radiation to prevent adversarial detection of the system, among others outlined within the Information Assurance Security Requirements Document. The Milestone Decision Authority issued a Materiel Development Decision (MDD) Acquisition Decision Memorandum (ADM) on 14 March 2019 that designated the NGLD-M as an ACAT III Program of Record (PoR).

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / Next Generation Load Device - Medium	<b>Project (Number/Name)</b> BY6 / Key Management Infrastructure Development
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<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Program Management Support	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	-		-		1.717	Nov 2021	-		1.717	0.000	1.717	-
<b>Subtotal</b>			-	-		-		1.717		-		1.717	0.000	1.717	N/A

<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
NGLD-M Development	C/CPFF	CCDC C5ISR S&TCD, NIWC-Pacific : APG, MD; San Diego, CA	-	-		-		13.680	Nov 2021	-		13.680	0.000	13.680	-
<b>Subtotal</b>			-	-		-		13.680		-		13.680	0.000	13.680	N/A

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Test and Evaluation	C/CPFF	CCDC C5ISR S&TCD : APG, MD	-	-		-		0.219	Nov 2021	-		0.219	0.000	0.219	-
<b>Subtotal</b>			-	-		-		0.219		-		0.219	0.000	0.219	N/A

<b>Project Cost Totals</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	-	0.000	15.616	-	15.616	0.000	15.616	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2022 Army</b>			<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / Next Generation Load Device - Medium	<b>Project (Number/Name)</b> BY6 / Key Management Infrastructure Development	

Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
NGLD-M Development																												
NGLD-M Testing																												
NGLD-M Development, Production, Sustainment Contract																												
NGLD-M Milestone C																									▲ 1			

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Army		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605144A / <i>Next Generation Load Device - Medium</i>	<b>Project (Number/Name)</b> BY6 / <i>Key Management Infrastructure Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NGLD-M Development	1	2022	4	2024
NGLD-M Testing	4	2023	4	2024
NGLD-M Development, Production, Sustainment Contract	1	2022	4	2031
NGLD-M Milestone C	3	2024	3	2024